| STATE | PROJECT NO. | PCN | SECTION NO. | SHEET NO. |
|---|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20395 | 1 | 1 |

# JOB # 39
# NORTH DAKOTA
# DEPARTMENT OF TRANSPORTATION

SOIA-7-085(094)183
FHWA Non Involvement
Williams County
US 85 Permanent Truck Reliever Route - Phase 1A
from Near US 2 and US 85 JCT north to Williams County Highway 4
Grading, Paving, Aggregate Base,
Drainage, Signals, Lighting, 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-7-085(094)183 | 2.056 | 2.056 |

LEGAL DESCRIPTION

SEC 12 T154N R102W
SEC 07 T154N R101W
SEC 13 T154N R102W
SEC 18 T154N R101W
SEC 19 T154N R101W
SEC 24 T154N R102W

## DESIGN DATA

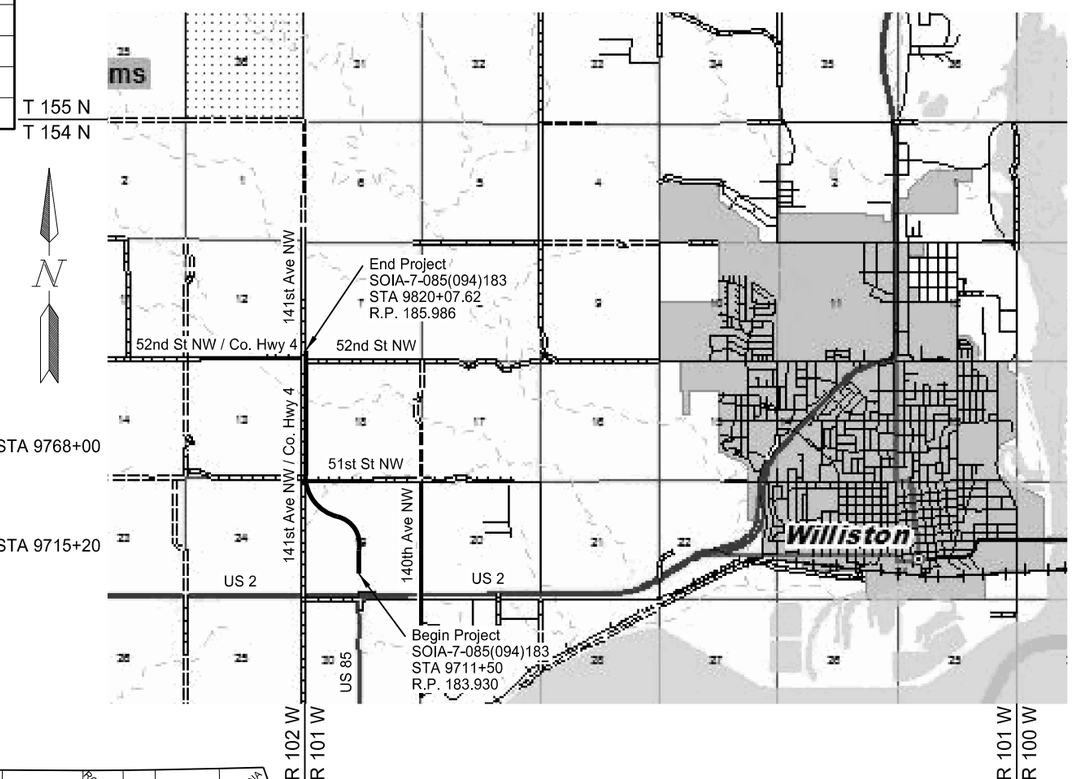
| Traffic | Average Daily | | | |
|---|---|---|---|---|
| Current 2012 | Pass: N/A | Trucks: N/A | Total: N/A | |
| Forecast 2022 | Pass: 26650 | Trucks: 14350 | Total: 41000 | |

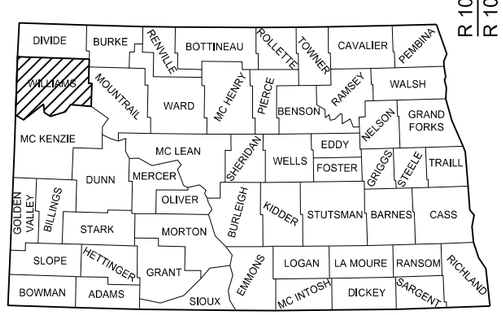
| | |
|---|---|
| Clear Zone Distance: 22 | Design Speed: 45 |
| Minimum Sight Dist. for Stopping: 360 | |
| Limited Access Control | |
| Pavement Design Life 30 (years) | |
| Design Accumulated One-way Rigid ESALs: 51,096,591 | |

## DESIGN DATA

| Traffic | Average Daily | | | |
|---|---|---|---|---|
| Current 2012 | Pass: N/A | Trucks: N/A | Total: N/A | |
| Forecast 2022 | Pass: 26650 | Trucks: 14350 | Total: 41000 | |

| | |
|---|---|
| Clear Zone Distance: 24 | Design Speed: 55 |
| Minimum Sight Dist. for Stopping: 495 | |
| Limited Access Control | |
| Pavement Design Life 30 (years) | |
| Design Accumulated One-way Rigid ESALs: 51,096,591 | |




STATE COUNTY MAP

DESIGNERS

DISTRICT REVIEW

Joel M. Wilt /s/
WILLISTON DISTRICT

APPROVED DATE 30 Sept 13

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 9/12/13

Eric Bach /s/
SRF CONSULTING GROUP, INC

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SRF Consulting Group, Inc.

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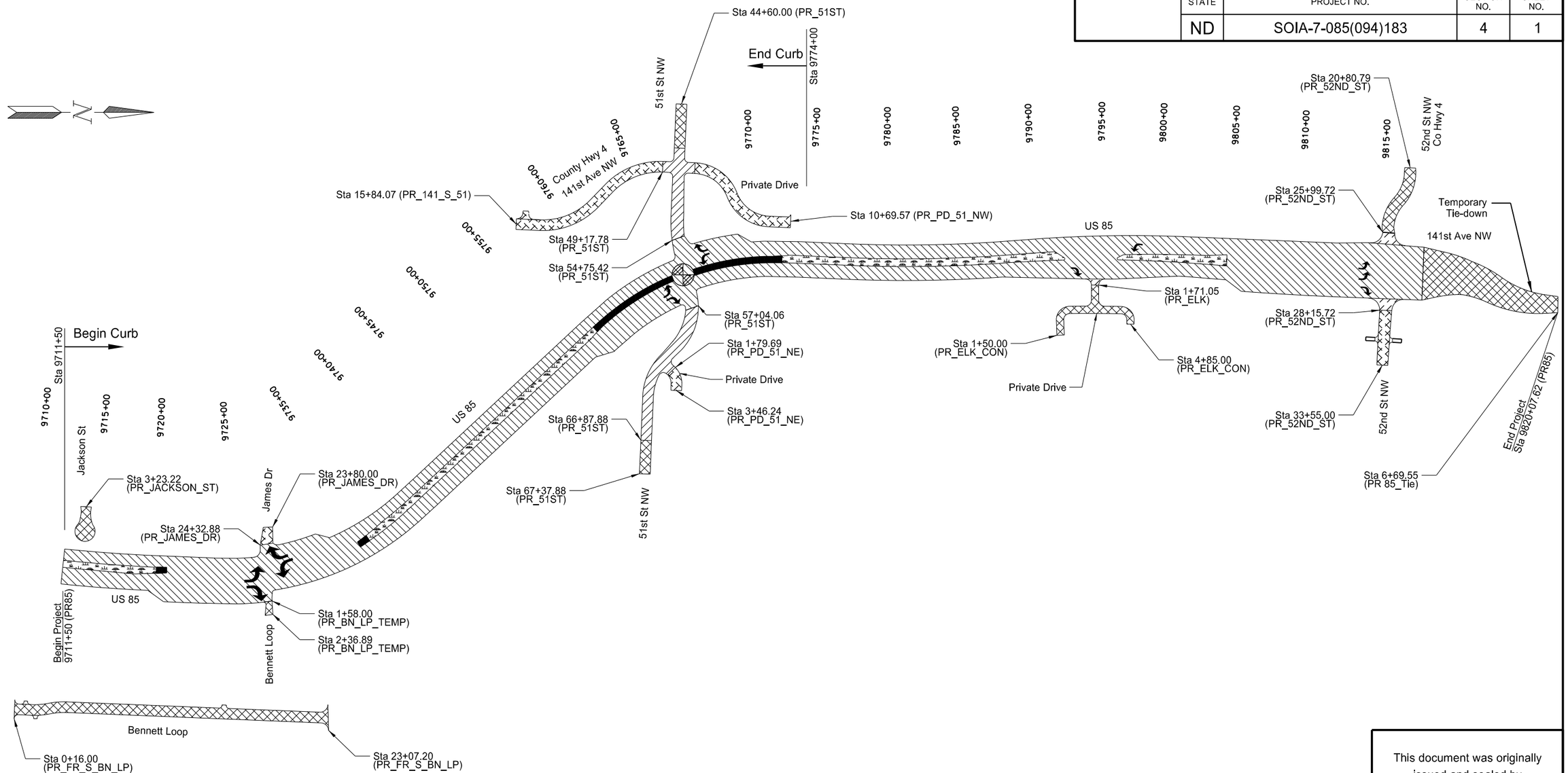
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 4 | 1 |




Legend

- Concrete Pavement
- HBP
- Concrete Median
- Gravel
- Raised Grass Median
- Depressed Grass Median
- Signal

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Scope of Work

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9711+50.00 to 9816+31.17

# NOTES

100-021 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. FHWA

100-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.

100-P02 PUBLIC RELATIONS COORDINATOR: The Contractor shall provide a public relations and information coordinator. The coordinator shall not be the project superintendent or construction foreman. The coordinator should be knowledgeable in construction operations, possess written and verbal communication skills, be able to organize productive meetings, and be able to provide information necessary for media releases. The public relations coordinator will be responsible for providing the following;

- Organize, schedule, and conduct the weekly planning and reporting meetings (plan note 100-021).
- Provide routine face to face communications, with the public, property owners, and businesses affected by construction activities, including calling on businesses or residents along the corridor. The coordinator must have sufficient knowledge and authority to resolve property owner and business concerns regarding scheduling, maintaining access and construction operations.
- Provide information for news releases on construction activities to the Project Engineer at the North Dakota Department of Transportation, Williston District, prior to and during construction, to inform the public on construction activities, schedules, street closures, width or height restrictions to traffic, and traffic detour routes. The news release information on construction activities shall be updated on a timely basis (minimum two-week update).
- Advise Williston's City Engineer, (701)577-6368, of forthcoming construction activities in regard to street closures and traffic detour routes so that city agencies, city police, emergency service, schools, and other pertinent city agencies may be notified.
- Provide news media interviews as required.
- The public relations coordinator's name, work address, and work telephone number shall be made available so that the coordinator may address public questions.
- Property owner meetings will be organized and ran by the engineer and shall be attended by contractor.

The cost of the Public Relations Coordinator shall be included in other items.

105-P01 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 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. The Contractor shall have the Engineer review and comment on the meeting minutes before being distributed to all attendees.

106-P01 CONTRACTOR FURNISHED PROCTORS: The Contractor shall be responsible for the following minimum testing prior to placement of all materials requiring compaction control. A minimum of one 5 point proctor for each type of material encountered, with material samples splits submitted to the Engineer for Engineer's reference and identification. This requirement will apply to "Common Excavation-Type A", "Borrow-Excavation" and pipe backfill material. The cost of testing will not be paid for separately but shall be included in the bid price for "Common Excavation – Type A" and "Borrow – Excavation".

107-P01 HAUL ROAD RESTRICTIONS: The Contractor shall contact the appropriate State, County, Township, or City officials to determine if there are any "No Haul Routes" prior to preparing a bid for this project. No paved County or Township roads shall be used as haul roads.

107-P02 CULTURAL RESOURCE CONSTRUCTION MONITORING: Construction implementation plans should consider how best to approach the project with construction monitoring crews, including monitor safety and project construction needs. Coordination with monitoring crews and setting process for education of all project crews to each other's duties will be the responsibility of the Contractor. Training, coordination, and pairing of monitoring and construction activities will take place in a manner to allow for effective and safe monitoring for discovery of human remains and archaeological features and completion of project construction needs and is the responsibility of the Contractor. For a

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# NOTES

comprehensive understanding of the commitment, process, and responsibilities refer to Commitment No. 2 Section 06 of the Plans, and SP 1207(08).

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

200-381 WASTE HAUL: The average haul shown on the plans does not include the dead haul from the project areas to the waste disposal area.

203-P01 EXCAVATION AND FILL ELEVATIONS: All ditch grades and contours are given at the top of the topsoil.

203-P02 DISCRETIONARY SUBCUT: If the Engineer determines that an area of the subgrade is unsuitable, the area shall be subcut 18" according to the discretionary subcut detail. The material that is subcut may be wasted or used in the ditch bottoms or on the back slope.

1500 Linear Feet of discretionary subcut has been added to the quantities of "Common Excavation-Subcut", "Salvaged Base Course", and "Geotextile Fabric-Type R1", to be used at the discretion of the Engineer.

203-P03 POST REMOVAL: Some existing posts may need to be removed to accomplish the work on this project. The cost to remove the posts and dispose of them outside the highway right of way shall be included in the price bid for "Common Excavation-Type A."

203-P04 REMOVAL OF GRAVEL ROADWAYS: The existing pavement depth on gravel roadways and gravel driveways is unknown. The existing gravel pavement designated for removal has been included in the quantity for "Common Excavation-Type A".

203-P05 EXCAVATION AND DISPOSAL OF CONTAMINATED SOIL: If contaminated material is encountered, the Contractor shall notify the Engineer and the North Dakota Department of Health, Division of Waste Management (701-328-5166) as least 5 days in advance of the removal of the contaminated soil. The Engineer shall determine the excavation limits of the contaminated soil to be removed. The Contractor shall clear with the NDDH before any excavation of the contaminated soil. All costs for labor, material, and equipment to excavate, haul and treat the material shall be paid for as specified in Section 104.03 of the NDDOT Standard Specifications.

230-P01 SUBGRADE PREPARATION – TYPE A: Subgrade preparation shall be performed at a depth of 12 inches in all areas of this project, excluding the discretionary subcut areas and fills over 18 inches. Subgrade Preparation shall comply with Section 230.02 B.2 Type A of the Standard Specifications.

302-P01 TRIMMING SALVAGED BASE COURSE: Use surface tolerance Type B for the salvaged base course. Excess material removed from high points of the salvaged base course by the trimming operation shall be reincorporated into the salvaged base course.

The cost for providing the required grade and cross section shall be included in the unit price bid for "Salvaged Base Course."

302-P02 TRAFFIC SURFACE GRAVEL: An additional 500 Ton of Salvaged Base Course has been provided for maintaining traffic. The aggregate shall be used as directed by the Engineer in the field. This material will be used for repairs required for Road Maintenance as requested by the Engineer.

410-P01 SUPERPAVE FAA 45: The hot bituminous pavement shall be paver laid in approximately 3 equal depth lifts.

410-P02 MIX DESIGN PROPERTIES: The aggregate and mix design 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 | 85% min | NDDOT Field Sampling/Testing Manual |
| Fine Aggregate Angularity | 45% min | AASHTO T 304 |
| Gyratory Effort, # Gyrations | $N_{ini}$=7, $N_{des}$=75, $N_{max}$=115 | AASHTO R 35 |
| Voids Filled with Asphalt | 65-75% | AASHTO M 323, T 166 |
| $\%G_{mm}$ @ $N_{ini}$ | 89% max | AASHTO M 323, T 166 |

411-P01 TEMPORARY ASPHALT WEDGES: The Contractor shall place temporary asphalt wedges at all crossings to allow smooth passage of vehicles if needed. All costs associated with labor, materials and equipment for the installation and removal of the asphalt wedges shall be included in the price bid for "Superpave FAA 45". The locations of the asphalt wedges will be at 51st Street NW and 52nd Street NW.

550-P01 LEAVE OUTS: A leave out will consist of only paving half of a crossroad intersection and allowing through traffic on the portion left out. The portion will not be paved until the concrete has attained a flexural strength of 450 psi or a compressive strength of 3,000 psi. The leave out locations are required at locations where traffic crosses mainline in order to provide access at all times. The contractor shall submit a layout of proposed leave out locations to be reviewed by the Engineer. Additional leave outs may be added at the discretion of the Engineer. All costs for this work will be included in the pay item "14IN Non-Reinf Concrete Pvmt CL AE-Dowled".

550-P02 AUTO INSERTER: The use of an auto inserter on a slip form paver will be prohibited.

704-252 TRAFFIC CONTROL FOR UNEVEN PAVEMENT: The Contractor has the option of making the paving lanes even at the end of each day's paving operation or signing for the uneven pavement and providing the following devices: Install "Uneven Lanes" signs (Sign No. W8-11-48) and a supplemental plate (Sign No. W20-52-54), identifying the distance, on the right shoulder (both directions) in advance of the beginning of the uneven pavement and at major intersections. A major intersection shall be defined as a CMC, state, U.S. highway, or Interstate ramp. Install "Do Not Pass" signs (Sign No. R4-1-48) on the right shoulder (both directions) between the uneven lanes sign and the beginning of the uneven pavement and at major intersections. Install tubular markers spaced at two times the posted speed limit on the centerline where uneven pavement exists.

These traffic control devices shall be left in place until the lanes are even. These signs and tubular markers are included in the "Traffic Control Devices List" and will be measured and paid for at the contract unit price for each device. No extra compensation will be allowed for relocation due to work progression.

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# NOTES

704-P01 TRAFFIC CONTROL: Traffic control shall consist of a temporary lane closures, flagging, and a pilot car. The traffic control devices list has been developed using the following layouts on the Standard Drawings for traffic control:

D-704-2 for coring hot bituminous pavement.
D-704-15, Type A for temporary one lane closures during paving operations.
D-704-15, Type B for installation of centerline pipe conduit
D-704-20, Type G for project terminal signing during paving operations. Sign G20-1b-60 will not be required.
D-704-22, Type N
D-704-22, Type K and L for trucks hauling material.
D-704-24, Type S for work off the mainline highway.
D-704-24, Type T for placing topsoil, embankment, and seeding.
D-704-27 for striping operation.
D-704-34 for sign layout during lane closure

Standard Drawings D-704-5, 7, 8, 9, 10, 11, 13, 14, and 50 are applicable.

The traffic control requires flagging during working hours. The “NO CENTER STRIPE” sign (W8-12-48) shall be used during the daytime prior to the centerline pavement markings being placed before sunset.

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.

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

1. Minimum total area of 450 square feet
2. Minimum cabinet space of 32 cubic feet
3. Minimum counter space of 40 square feet
4. Air conditioner with a minimum of 20,000 BTU's
5. Lighting with a minimum of 110 foot-candles
6. Minimum of 3 phone jacks
7. Fax Machine
8. Photocopy machine/scanner/printer capable of 11x17 photocopies, scanning, and printing with toner to last the duration of the project. The Engineer will be responsible to furnish the paper.
9. Hookups for heat, electricity, sewer, and water. The Contractor shall be responsible to pay the utility bill for these services.
10. Indoor bathroom facilities

The Contractor shall place the field office on the project, or as close to the project as possible. The Engineer must approve the location and condition of the field office. If there are any rental fees, the Contractor shall be responsible to pay any rental fees.

The field office shall be available for occupancy at the start of the project and remain available to project completion. The Engineer will be responsible to furnish the office equipment.

The Engineer will be responsible to furnish and pay the utility bill for the following services:

1. Telephone
2. FAX
3. 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".

708-P01 SEEDING-TYPE B-CL II: The Contractor shall use the following seed mix for seeding-type B-CL II:

| Grass Species | Variety | Pounds Per Live Seed/Acre |
|---|---|---|
| Western Wheatgrass | Rodan, Rosana, Walsh, Flintlock, W.R. Poole, Recovery | 4.8 |
| Switchgrass | Dacotah, Forestburg, or Sunburst, Summer | 1.6 |
| Green Needlegrass | Lodorm, AC Mallard, Fowler | 1.2 |
| Sideoats Grama* | Killdeer, Pierre, Butte | 1.8 |
| Slender Wheatgrass | Revenue, Primar, Adanac, Pryor, Firstrike | 2.5 |
| | TOTAL | 11.9 |

* Substitute Thickspike or Stream bank Wheatgrass of the Critana, Banstock, Sodar, AC Polar or Elbee variety if Sideoats Grama is unavailable

All costs for labor, materials, and equipment necessary to complete this work shall be included in the unit price bid for “Seeding-Type B-CL II.”

708-P02 EROSION CONTROL BLANKET TYPE 2: All ECB Type 2 shall be made of a wood fiber material.

714-P01 HEADWALL VEGETATION BARRIER: Concrete Vegetation Barriers shall be placed around the headwalls of the edge drains as shown on the plan and profile sheets. The concrete shall be cast in place around the splashblock, the concrete and rebar shall not be measured for payment. The unit price bid for “Headwall Vegetation Barrier” shall include all costs to supply, prepare, form, and place the rebar and concrete for each Concrete Headwall.

714-P02 PIPE CONDUIT – STORM DRAIN: Pipe conduit shall be used for storm drain type. See Alternative Pipe List for location of following materials that may be used for Pipe Conduit:

1. Reinforced Concrete Pipe (RCP) Class III
2. Aluminum Coated Spiral Rib Corrugated Steel Pipe (SRP) – ¾” x ¾” x 7-1/2”
3. Polymeric Coated Spiral Rib Corrugated Steel Pipe (SRP) – ¾” x ¾” x 7-1/2”

All reinforced concrete pipe joints shall be watertight and sealed with rubber gaskets which meet ASTM C443.

Polymeric coated pipe shall be handled at all times with equipment such as wide canvas slings and wide padded skids designed to

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prevent damage to the pipe coating. In truck shipments, the pipe shall be supported on wide cradles of suitable padded timbers. All chains, cables, or other equipment used for fastening the load must be padded. Any damage to the pipe coating from any cause prior to or during the installation of the pipe and before final acceptance of the project shall be replaced or repaired according to AASHTO M 243 & M 245 at the Contractor's expense.

714-P03 PIPE CONDUIT CONNECTIONS: No field cutting of SRP pipe shall be allowed. Attach metal end sections to the ends of SRP pipe by mean of standard metal bands or as approved by the Engineer. Furnish and install toe plates on the metal end sections as indicated on the Plans.

714-P04 CONCRETE PIPE TIES: Any concrete pipe terminating with at least one end section is required to have concrete pipe ties placed on the last three sections of pipe in addition to the end section in accordance with Standard Drawing D-714-22, unless otherwise noted. Concrete pipe that is placed from drainage structure to drainage structure (ex. Inlet, manhole, etc.) will not require concrete pipe ties.

714-P05 STORM DRAIN: All "PIPE CONDUIT (IN) – STORM DRAIN" or "PIPE CONC REINF (IN) CL III – STORM DRAIN" furnished shall have joints sealed with gaskets (including storm drain pipe ending with inlets or manholes). The gasket sealed joints shall be capable of remaining watertight when subject to a hydrostatic head of 15 feet as measured to the invert of the pipe.

714-P06 STORM SEWER: Pipe inverts are located at the center of structure. Pipe inverts for culverts are located at the opening of the end section.

722-P01 CHIMNEY SEALS: External chimney seals shall be installed on all storm sewer manholes and Inlet-Type 1, Inlet-Type 2, and Inlet-Type 2 Double structures located within paved areas. The sleeve and extension shall be extruded from a high-grade rubber compound conforming to the applicable requirements of ASTM C923. The bands used for compressing the sleeve and extension against the inlet shall be fabricated from 16-gauge stainless steel conforming to ASTM A240, Type 304. Screws, bolts and nuts used on this band shall be stainless steel conforming to ASTM F593 and 594, Type 304. The chimney seals shall not be paid for separately but shall be included in the price bid for the structures.

748-P01 CURB AND GUTTER: All curb and gutter to be used on the project shall have a 4IN curb height as shown on Section 20 Sheet 8. All costs for labor, materials, and equipment to do this work shall be included in the unit price bid for "Curb and Gutter-Type 1."

752-P01 RESET FENCE AND GATES: The Contractor shall coordinate with the property owner and shall field investigate prior to bid. If the fence or gates are unable to be reset, then the Contractor shall supply equipment to provide similar fence and gates approved by the Engineer. All costs for labor, materials, and equipment, including any electrical or power supply needed for resetting gates to do this work shall be included in the unit price bid for "Fence Reset Existing" and "Gate-Vehicle Remove & Reset."

752-P02 FENCE: The fence located at 141st Ave NW, south of 52nd St NW, station 6+58 RT to 7+44 RT shall be installed before the installation of the pipe and the construction of the 141st Ave NW roadway. After completion of the pipe and the 141st Ave NW roadway, this fence shall be removed and reset at the location shown in Section 80 of the plans. All costs for labor, materials, and equipment to do this work shall be included in the unit bid price for "Remove Existing Fence" and "Fence Reset Existing."

752-P03 FENCE CHAIN LINK WITH BARBED WIRE: The Contractor shall install new chain link with barbed wire fence as shown in Section 80 of the plan sheets. The Contractor shall match the type of existing fence in the surrounding area for the new chain link with barbed wire. All costs for labor, materials, and equipment to do this work shall be included in the unit bid price for "Fence Chain Link with Barbed Wire."

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.

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770-P01 BREAKAWAY LIGHT STANDARD: The breakaway light standards shall be of the davit type and designed for 8', 10' and 12' mast arms and shall be galvanized. The bases shall be of the breakaway type. The shaft length shall be 40' from the top of the foundation to the bottom of the luminaire as shown in the plans. Duct seal all conduit stubs in concrete foundations. The light standard shall be round with the multi-directional slip base to match existing light standards.

770-P02 LUMINAIRES: The high-pressure sodium vapor luminaires shall be internal ballast-constant wattage, 120x240 voltage, operated on 240 volts.

770-P03 CONCRETE FOUNDATION HIGHWAY LIGHTING: The foundation for the Light Standard 40' tall with a single mast arm shall be 24" in diameter and 6' deep or 36" in diameter and 5' deep, and according to D-770-1.

770-P04 MULTIPLE UNDERGROUND CABLE: The plans call for using a mixture of Multiple Underground Cable and rigid conduit with single RHW/THW conductors. In lieu of the single conductors in conduit, the Contractor may furnish and install Multiple Underground Cable of the same size as shown in the plans. All Multiple Underground Cable passing under a roadway shall utilize a rigid conduit sleeve placed perpendicular to the roadway.

The conduit size shall be as specified in the National Electrical Code. If the contractor chooses to use the conduit and single conductors, the cost to furnish, install, and trench the conduit and pull the conductors shall be paid for at the contract price bid for Multiple Underground Cable. All labor, materials, and equipment necessary to perform this described work shall be included in the price bid for "Multiple Underground Cable".

The conduit required under the roadway for installing Multiple Underground Cable will continue to be paid for as conduit

770-P05 FEED POINT – TYPE IV PAD MOUNTED: The feed points shall be pad mounted according to the plans and per standard NDDOT detail. Contractor shall coordinate installation with Mountrail-Williams Electrical Cooperative for new service according to the plans. Mountrail-Williams shall be responsible for incoming service conductors, conduit, transformer, meter and meter socket with main breaker. Contractor shall be responsible for all material and labor for the installation from the meter socket to the feed point.

Each feed point shall be placed as directed by the field engineer prior to installation. The Contractor shall provide a permanent label for the exterior fee point cabinet and for the contactors inside the cabinet. Provide a contractor for each 240V circuit.


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772-P01 PAINT: The traffic signal system components shall be painted in accordance with the following:

Transformer base- yellow
Mast arm –yellow
Shaft – yellow
Signal housing - yellow
Signal head mounting hardware -yellow
The color yellow shall be 13538 of Federal Standard No. 595.

772-P02 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 one (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 price bid for “Traffic Signal System – Site 1”.

772-P03 UTILITY COORDINATION: The Contractor shall be responsible for coordination with Mountrail-Williams Electric Coop for the incoming electrical service to the Signal Control Cabinets. The signal control cabinet shall be metered separately from the lighting feed point. Mountrail-Williams Electric shall supply all conductors, conduit, and connections from the transformer to the meter. The Contractor shall be responsible for all cable, conduit, meter socket, and service disconnect from the meter to the signal control cabinet. Any cost by Mountrail-Williams Electric for the new installation shall be paid for by the NDDOT.

772-P04 CONTROLLER TYPE 1: The controller shall be a NEMA Standard TS-2 type 1 controller and produced by Peek Traffic. The traffic counting capability of the controller shall be fully operational.

The price bid for "Traffic Signal System – Site 1" shall include all labor, materials and equipment required to install a new controller. This shall include but is not limited to the cabinet, new detector amplifiers (furnished and installed), and other ancillary signal components (such as load switches, conflict monitors, etc.) connection of all controller cabinet components as required to make the new controller equipment operational. The cabinet door shall face north and have the hinges on the right.

772-P05 VIDEO DETECTION SYSTEM AND SPARE EQUIPMENT: The video detection system at the 51st Street NW intersection shall be “Video Trak IQ” manufactured by Peek Traffic. A video monitor shall be included in the controller cabinet for viewing the video detection. The contractor shall provide a spare video detection camera, video detection processor and interface panel for the video detection system. The cost of the video detection system at 51st Street NW, including all equipment and spare parts, shall be included in the price bid for “Traffic Signal System – Site 1.”

772-P06 COMBINATION LIGHT AND SIGNAL STANDARD: The luminaires' extensions shall be of the Davit type with an 8' mast arm.

772-P07 CONDUIT: Conduit shall be installed at the location shown on the plans. Conduit shall be pushed under existing pavement. Pushing conduit shall be included in the bid price for “Traffic Signal System – Site 1”.

All conduits shall be sealed with duct seal at the controller cabinet and at the traffic signal standard foundations.

772-P08 LABEL ALL FIELD CABLES: All labeling materials shall be approved by the City. Labels shall be readable without moving the cables. All field cables installed by the Contractor shall be labeled with the cable designations:

| TYPE | LABEL | LABEL LOCATION |
|---|---|---|
| Communication cable | Comm./address of other end | Within 12" of conduit |
| Camera Coaxial cable | Detection zone (i.e. D2-1, D2-2, etc.) | Within 6" of terminals |
| Control cable | Cable number & location (i.e. NW, SW, etc.) | Within 12" of conduit |
| Opticom Cable | Preempt Number/Location (i.e. NW, SW, etc.) | Within 6" of terminals |

Not a separate pay item, cost to be included in the price bid for “Traffic Signal System – Site 1”.

772-P09 CONTROLLER CABINET WIRING DIAGRAM: The following items shall be labeled on the cabinet wiring diagram, in addition to information required by NDDOT Standard Specification.

A. The camera number (i.e., D2-1) from the plan shall be labeled on the detector panel drawing adjacent to the point for termination.
B. The field wire terminals for the vehicle head control cables shall be labeled with the phase number and direction (i.e., 02, SB).
C. Provide a CAD drawing file of the as-built cabinet wiring diagram.

Not a separate pay item, cost to be included in the price bid for “Traffic Signal System – Site 1”.

772-P10 BATTERY BACK-UP: The traffic controller at the 51st Street NW intersection shall be equipped with an "on-line" type Uninterruptible Power Supply (UPS) that provides power conditioning in both normal and backup mode. It shall be sized to provide backup power to the system for a minimum of 2 hours in full signalized operation and a minimum of 8 hours in flash operation. The UPS shall have aux contacts to put the system into flash operation. The UPS shall incorporate full power management and diagnostic function. The UPS shall be installed in a temperature and humidity controlled environment. The UPS shall be installed in a separate enclosure on a separate pad from the signal controller cabinet at a location approved by the Engineer. All materials, labor and equipment necessary

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# NOTES

to furnish and install the battery back-up system shall be included in the price bid for "Traffic Signal System – Site 1".

772-P11 CONFLICT MONITOR TESTING: A complete controller conflict monitor test shall be performed by the Contractor prior to unveiling the traffic heads. The NDDOT will supply the conflict monitor maintenance record test form along with instructions that must be followed completely before the signals are put into operation. All materials, labor and equipment necessary to conduct the conflict monitor testing shall be included in the price bid for "Traffic Signal System – Site 1".

772-P12 PADLOCKS: The contractor shall obtain all padlocks from the NDDOT Williston District Office. Padlocks shall not be bid separately, but shall be included in the price bid for "Traffic Signal System – Site 1".

772-P13 ADDITIONAL CONDUIT: The Contractor shall install two additional 3-inch diameter conduits in the new controller foundation at the 51st Street intersection. The direction of the conduit will be determined by the Engineer in the field and labeled in the cabinet by the Contractor. Each foundation for a traffic signal standard and each feed point foundation shall have one spare 2-inch conduit. The direction of the conduit will be determined by the Engineer in the field and labeled in the cabinet by the Contractor. The spare conduits shall be plugged with a 2" or 3" expandable pipe plug. Not a separate pay item, cost to be included in the price bid for "Traffic Signal System – Site 1".

772-P14 EMERGENCY VEHICLE PREEMPTION: The Contractor shall notify Monte Meiers, the City Engineer for the City of Williston, (phone number 701-577-6368) when the proposed signalized intersection EVP systems are tested and operable. The EVP equipment shall be of the same technology and fully compatible with the other EVP equipment used within the City of Williston. The confirmation light shall be at the same location on the mast arm as the EVP detectors.

772-P15 MAST ARM MOUNTED SIGNAL HEAD CLEARANCES: The Contractor shall furnish and install all mast arm mounted signal heads so that the clearance from the centerline of the roadway to the bottom of all mast arm mounted signal heads shall be a minimum 19 feet and a maximum of 21 feet. Not a separate pay item, cost to be included in the price bid for "Traffic Signal System – Site 1".

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# ENVIRONMENTAL COMMITMENTS

**ENVIRONMENTAL COMMITMENTS:** The North Dakota Department of Transportation and the Federal Highway Administration have made several environmental commitments to various agencies and the public to secure approval of this project. The environmental commitments are as follows:

**COMMITMENT NO. 1:** Unavoidable impacts to wetlands will be mitigated onsite, adjacent to the project, or at a NDDOT approved mitigation site or bank. Approximately 0.01 natural/jurisdictional, 0.00 *natural/non-jurisdictional*, 0.00 *artificial/jurisdictional*, and 0.00 *artificial/non-jurisdictional* acres of wetlands will be impacted permanently, and 0.00 acres will be impacted temporarily. 0.13 acres of *Potential Other Waters* will also be permanently impacted.

ACTION TAKEN/REQUIRED: 0.01 acres of permanent impacts to wetlands will require mitigation. The NDDOT proposes to mitigate these impacts on future project SOIA-7-085(093)185 / PCN 20209 located in the same Regional Service Area.

| Wetland Number | Location | Cowardin Class. | Wetland Type | Wetland Size Ac. | Wetland Feature | USACE Jurisdictional Wetlands* | Wetland Impacts (acres) | | USFWS Easement Impacts | | WETLAND MITIGATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Mitigation Required | | | |
| | | | | | | | Temp. Ac. | Perm. Ac. | Temp. | Perm. | 11990 | USACE | Location | Onsite Mitigation Acres |
| 23 | Sec.12, T154N, R102W | PEMC | Drainageway | 0.24 | Natural | Yes | 0.00 | 0.01 | 0.00 | 0.00 | Y | N | none | 0.00 |
| | | | **Totals** | **0.24** | | | **0.00** | **0.01** | **0.00** | **0.00** | Y | | | **0.00** |

| Total Permanent Impact Summary | | Additional Impact Info for 404 Permit | |
|---|---|---|---|
| Wetland Type | Total (Acres) | Wetland Type | Total (Acres/Lf) |
| Natural/Non-JD | 0.00 | Permanent JD ≥ 0.10 | **0.00** |
| Artificial /Non-JD | 0.00 | Temporary JD | **0.00** |
| Natural /JD | 0.01 | POW | **0.13 ac/529 ft.** |
| Artificial /JD | 0.00 | | |
| **Totals** | **0.01** | | |

| POTENTIAL OTHER WATERS | | | | | | | | | | POW MITIGATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Size | | | | Impacts to Potential Other Waters | | | Mitigation Required | | | |
| | | | | | | | Acres | | | | | | |
| Number | Location | Type | Acres | Linear Feet | Feature | USACE Jurisdictional* | Temp | Perm | Linear Feet | 11990 | USACE | Location | Method |
| POW 2 | Sec.13, T154N, R102W | Scoured Channel | 0.28 | 1,118 | Natural | Yes | 0.00 | 0.13 | 529 | N | N | N/A | N/A |
| | | **Totals** | **0.28** | **1,118** | | | **0.00** | **0.13** | **529** | | | | |

* Wetland Jurisdictional requests previously submitted for this project; a wetland Jurisdictional Determination is pending. A preliminary wetland Jurisdictional Determination was issued by the USACE on 3/7/2012 for PCN 19376 / CP-SOI-7-085(075)900; NWO-2011-02647-BIS.

**COMMITMENT NO. 2:** Cultural Resource construction monitoring will occur on the project to ensure that any inadvertent discoveries will be immediately identified and handled appropriately. Construction monitoring is described in SP 1207(08).

ACTION TAKEN/REQUIRED: ACTION TAKEN/REQUIRED: The Contractor shall work with the Engineer to ensure that archaeological and tribal monitors working on the Project are provided safe and effective working environment to accomplish the goals set forth in Plan Note 107-P02 Cultural Resource Construction Monitoring, and SP 1207(08).

# ENVIRONMENTAL COMMITMENTS

**COMMITMENT NO. 3:** Whooping crane surveillance monitoring will be conducted during the migration periods of April 1st to May 15th and September 1st to October 31st.

ACTION TAKEN/REQUIRED: If roosting, foraging or in-flight whooping cranes are observed within one mile of the project site during these migration periods, construction work will cease until the USFWS is contacted in order to evaluate the level of disturbance risk to the individuals present within the vicinity of the project area. Following coordination with the USFWS, construction activities would resume if it is unlikely that the bird(s) would be disturbed by the continuation of construction activities or after the bird(s) relocate to a new site beyond the disturbance area of the project corridor. In addition, if power lines are moved as a result of this project, the FHWA would determine if is necessary to equip the power lines with flight diverters to encourage whooping cranes to avoid the relocated power lines.

**PERMITS REQUIRED:**

- Section 404 Permit (US Army Corps of Engineers)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 8 | 1 |

| Spec | Code | Item Description | Unit | Quantity |
|---|---|---|---|---|
| 103 | 0100 | Contract Bond | L SUM | 0.71 |
| 103 | 0200 | Escrow of Bid Documentation | L SUM | 0.71 |
| 108 | 0001 | Critical Path Method Schedule | L SUM | 0.71 |
| 201 | 0330 | Clearing & Grubbing | L SUM | 0.50 |
| 202 | 0136 | Removal of Pavement | TON | 515 |
| 202 | 0153 | Saw Bituminous Surfacing-Full Depth | LF | 205 |
| 202 | 0169 | Removal of End Section-All Types & Sizes | EA | 4 |
| 202 | 0174 | Removal of Pipe All Types and Sizes | LF | 2144 |
| 202 | 0312 | Remove Existing Fence | LF | 5874 |
| 203 | 0101 | Common Excavation-Type A | CY | 294666 |
| 203 | 0109 | Topsoil | CY | 41051 |
| 203 | 0119 | Topsoil-Imported | CY | 12406 |
| 203 | 0138 | Common Excavation-Subcut | CY | 8070 |
| 216 | 0100 | Water | M GAL | 4341 |
| 230 | 0300 | Subgrade Preparation-Type A | STA | 43.3 |
| 302 | 0100 | Salvaged Base Course | TON | 93522 |
| 302 | 0356 | Aggregate Surface Course CL 13 | TON | 6315 |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | GAL | 2665 |
| 401 | 0150 | SS1H or CSS1H or MS1 Emulsified Asphalt | GAL | 1074 |
| 410 | 0215 | Superpave FAA 45 | TON | 3441 |
| 410 | 0460 | PG 64-28 Asphalt Cement | TON | 207 |
| 410 | 0910 | Cored Sample | EA | 37 |
| 550 | 0328 | 14IN Non-Reinf Concrete Pvmt CL AE-Doweled | SY | 100108 |
| 702 | 0100 | Mobilization | L SUM | 0.71 |
| 704 | 0100 | Flagging | MHR | 1000 |
| 704 | 1000 | Traffic Control Signs | UNIT | 5614 |
| 704 | 1052 | Type III Barricade | EA | 20 |
| 706 | 0200 | Field Laboratory-Type B | EA | 0.71 |
| 706 | 0400 | Field Office | EA | 0.71 |
| 708 | 1020 | Riprap-Loose Rock | CY | 165 |
| 708 | 1430 | Fiber Rolls 12IN | LF | 29723 |
| 708 | 1431 | Removal Fiber Rolls 12IN | LF | 19551 |
| 708 | 1460 | Fiber Rolls 20IN | LF | 356 |
| 708 | 1461 | Removal Fiber Rolls 20IN | LF | 178 |
| 708 | 1540 | Inlet Protection-Special | EA | 66 |
| 708 | 1541 | Remove Inlet Protection-Special | EA | 66 |
| 708 | 2240 | Seeding-Type B-CL II | ACRE | 82.2 |
| 708 | 2260 | Seeding-Type B-CL IV | ACRE | 82.2 |
| 708 | 5500 | Mulching | ACRE | 164.4 |
| 708 | 5651 | ECB Type 2 | SY | 39762 |
| 709 | 0600 | Geotextile Fabric-Type RR | SY | 310 |
| 709 | 0701 | Geotextile Fabric-Type R1 | SY | 22246 |
| 714 | 3150 | Headwall-Precast Concrete 4in | EA | 5 |
| 714 | 3159 | Headwall Vegetation Barrier | EA | 5 |
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | LF | 2181 |
| 714 | 4099 | Pipe Conduit 18IN-Approach | LF | 315 |
| 714 | 4100 | Pipe Conduit 18IN | LF | 186 |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | LF | 1463 |
| 714 | 4105 | Pipe Conduit 24IN | LF | 66 |
| 714 | 4107 | Pipe Conduit 24IN-Storm Drain | LF | 586 |
| 714 | 4110 | Pipe Conduit 30IN | LF | 130 |
| 714 | 4112 | Pipe Conduit 30IN-Storm Drain | LF | 201 |
| 714 | 4120 | Pipe Conduit 42IN | LF | 219 |
| 714 | 4125 | Pipe Conduit 48IN | LF | 819 |
| 714 | 4135 | Pipe Conduit 60IN | LF | 428 |
| 714 | 4216 | Pipe Conduit Arch 22IN X 13IN | LF | 111 |
| 714 | 4218 | Pipe Conduit Arch 29IN X 18IN | LF | 296 |
| 714 | 9660 | Remove and Relay End Section - All Types and Sizes | EA | 2 |
| 714 | 9696 | Edgedrain Non Permeable Base | LF | 11735 |
| 720 | 0100 | Monuments | EA | 30 |
| 720 | 0110 | Right of Way Markers | EA | 177 |
| 722 | 0100 | Manhole 48IN | EA | 5 |
| 722 | 0107 | Manhole 54IN | EA | 2 |
| 722 | 1100 | Manhole Riser 48IN | LF | 46.62 |
| 722 | 1106 | Manhole Riser 54IN | LF | 12.29 |
| 722 | 1110 | Manhole Riser 60IN | LF | 4.81 |
| 722 | 2490 | Manhole Storm Connection | EA | 1 |
| 722 | 3500 | Inlet-Type 1 | EA | 4 |
| 722 | 3510 | Inlet-Type 2 | EA | 28 |
| 722 | 3520 | Inlet-Type 2 Double | EA | 14 |

| Spec | Code | Item Description | Unit | Quantity |
|---|---|---|---|---|
| 722 | 3570 | Inlet Shallow Catch Basin 9IN Beehive | EA | 2 |
| 722 | 3701 | Inlet Special-Type 2 48IN | EA | 3 |
| 722 | 3760 | Inlet Special-Type 2 60IN | EA | 1 |
| 722 | 4420 | Inlet Tee Section - Type 1 | EA | 2 |
| 748 | 0140 | Curb & Gutter-Type I | LF | 27096 |
| 750 | 0200 | Concrete Median Paving | SY | 1006 |
| 750 | 0210 | Concrete Median Nose Paving | SY | 19 |
| 752 | 0200 | Fence Barbed Wire 4 Strand | LF | 745 |
| 752 | 0650 | Fence Chain Link With Barbed Wire | LF | 300 |
| 752 | 0930 | Fence Reset Existing | LF | 5043 |
| 752 | 2110 | Reset Vehicle Gate | EA | 2 |
| 752 | 2120 | Remove Vehicle Gate | EA | 4 |
| 752 | 3100 | Corner Assembly Chain Link | EA | 17 |
| 752 | 3120 | Corner Assembly Woven Wire | EA | 2 |
| 752 | 3140 | Corner Assembly Barbed Wire | EA | 4 |
| 754 | 0110 | Flat Sheet For Signs-Type XI Refl Sheeting | SF | 294.9 |
| 754 | 0112 | Flat Sheet For Signs-Type IV Refl Sheeting | SF | 242.9 |
| 754 | 0195 | Diamond Grade Delineators-Type A | EA | 80 |
| 754 | 0198 | Diamond Grade Delineators-Type D | EA | 12 |
| 754 | 0206 | Steel Galv Posts-Telescoping Perforated Tube | LF | 740.0 |
| 754 | 0563 | Reference Marker-Type C | EA | 4 |
| 754 | 0805 | Object Markers - Culverts | EA | 79 |
| 762 | 0103 | PVMT MK Painted-Message | SF | 48 |
| 762 | 0112 | Epoxy PVMT MK Message | SF | 284 |
| 762 | 0113 | Epoxy PVMT MK 4IN Line | LF | 6584 |
| 762 | 0115 | Epoxy PVMT MK 8IN Line | LF | 747 |
| 762 | 0118 | Epoxy PVMT MK Curb Top & Face | LF | 180 |
| 762 | 0122 | Preformed Patterned PVMT MK-Message(Grooved) | SF | 496 |
| 762 | 0420 | Short Term 4IN Line - Type R | LF | 600 |
| 762 | 1104 | PVMT MK Painted 4IN Line | LF | 3607 |
| 762 | 1108 | PVMT MK Painted 8IN Line | LF | 1074 |
| 762 | 1124 | PVMT MK Painted 24IN Line | LF | 44 |
| 762 | 1212 | Plastic PVMT MK Film 12IN Line | LF | 1983 |
| 762 | 1305 | Preformed Patterned PVMT MK 4IN Line-Grooved | LF | 33407 |
| 762 | 1309 | Preformed Patterned PVMT MK 8IN Line-Grooved | LF | 7974 |
| 762 | 1325 | Preformed Patterned PVMT MK 24IN Line-Grooved | LF | 221 |
| 766 | 0120 | Reset Mailbox | EA | 4 |
| 770 | 0020 | Concrete Foundation Highway Lighting | EA | 86 |
| 770 | 0060 | Concrete Foundation-Feed Point-Type B | EA | 4 |
| 770 | 0220 | Cable Trench-Type II | LF | 19388 |
| 770 | 0330 | 2IN Diameter Rigid Conduit | LF | 1795 |
| 770 | 0331 | 2IN Diameter Rigid Steel Conduit | LF | 25 |
| 770 | 0350 | 3IN Diameter Rigid Conduit | LF | 675 |
| 770 | 0370 | 4IN Diameter Rigid Conduit | LF | 90 |
| 770 | 0444 | Multiple Underground Cable 3NO4 Style USE | LF | 20120 |
| 770 | 0503 | Underground Conductor NO2-Type RHW | LF | 1304 |
| 770 | 0504 | Underground Conductor NO4-Type RHW | LF | 3462 |
| 770 | 0602 | Underground Conductor NO2-Type THW | LF | 652 |
| 770 | 0604 | Underground Conductor NO4-Type THW | LF | 1731 |
| 770 | 0735 | Feed Point-Type II-Pad Mounted | EA | 1 |
| 770 | 0745 | Feed Point-Type IV-Pad Mounted | EA | 3 |
| 770 | 1726 | LT STD 8FT MA 40FT MT HT Breakaway | EA | 72 |
| 770 | 1776 | LT STD 10FT MA 40FT MT HT Breakaway | EA | 5 |
| 770 | 1826 | LT STD 12FT MA 40FT MT HT Breakaway | EA | 9 |
| 770 | 4140 | HP Sodium Vapor Luminaire-250 Watt | EA | 78 |
| 770 | 4170 | HP Sodium Vapor Luminaire-400 Watt | EA | 8 |
| 772 | 9811 | Traffic Signal System - Site 1 | EA | 1 |
| 910 | 0480 | Trash Rack | EA | 5 |

Quantities

Williston NW Permanent Truck Reliever Route
Phase 1A

# BASIS OF ESTIMATE

## Conversions/Rates

Salvaged Base Course @ 1.875 Ton/CY
Aggregate Surface Course CL 13 @ 1.875 Ton/CY
Aggregate CL 13M @ 1.875 Ton/CY
MC70 or 250 Liquid Asphalt @ 0.25 Gal/SY
Blotter Material Cl 44 @ 15 lbs/SY
SS-1h or CSS-1h or MS1 Emuls Asphalt @ 0.05 Gal/SY
PG 64-28 Asphalt Cement @ 6.0%
Superpave FAA 45 @ 2 Ton/CY

## Topsoil

6" removal and replacement depth

## Water

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

## Mailboxes

| Station | Type | Work |
|---|---|---|
| 9779+38 – LT | Single | Reset |
| 9792+34 – RT | Single | Reset |
| 9792+36 – RT | Single | Reset |
| 9792+38 – RT | Single | Reset |

## Coring

Density Cores

LOT 1: 51st St NW West of US 85
Sublot 1: 47+72.99 to 54+75.42 = 702.43 ft
Sublot 2: 47+72.99 to 54+75.42 = 702.43 ft
Sublot 3: 53+30.54 to 54+75.42 = 144.88 ft
(1 Lot, 3 Sublots, 2 Cores/Sublot, 3 Lifts) = **18 Cores**

LOT 2: 51st St NW East of US 85
Sublot 1: 57+04.06 to 58+54.44 = 150.38 ft
Sublot 2: 57+04.06 to 66+87.88 = 983.82 ft
Sublot 3: 57+04.06 to 66+87.88 = 983.82 ft
(1 Lot, 3 Sublot, 2 Cores/Sublot, 3 Lift) = **18 Cores**

District Materials Coordinator Cores
One full depth core per mile
0.56 Miles * 1 Core/Mile ≈ **1 Core**

## Salvaged Base Course Summary

| Removal of Pavement | Salvaged Base Course Required | Material Needed |
|---|---|---|
| (Ton) | (Ton) | (Ton) |
| A | B | C = B - A |
| 515 (Asphalt) | | |
| | | |
| **TOTAL:** 515 | 93,522 | 93,007 |

## Permanent Pavement Marking

| White Edge Line - Preformed Patterned Pavement MK 4in Line | | | | |
|---|---|---|---|---|
| Alignment | Location | Basis | Quantity | Unit |
| Highway 85 | 9711+50 to 9814+41 | 10,560 LF/mile | 20,582 | LF |
| | | **Total** | **20,582** | **LF** |

| White Lane Line Skips - Preformed Patterned Pavement MK 4in Line | | | | |
|---|---|---|---|---|
| Alignment | Location | Basis | Quantity | Unit |
| Highway 85 SB | 9711+50 to 9814+19 | 1,320 LF/mile | 2,567 | LF |
| Highway 85 NB | 9711+50 to 9807+32 | 1,320 LF/mile | 2,396 | LF |
| | | **Total** | **4,963** | **LF** |

| White Edge Line - Epoxy Pavement MK 4in Line | | | | |
|---|---|---|---|---|
| **Alignment** | **Location** | **Basis** | **Quantity** | **Unit** |
| 51st St NW | 47+73 to 54+75 | 10,560 LF/mile | 1,404 | LF |
| 51st St NW | 57+04 to 66+88 | 10,560 LF/mile | 1,968 | LF |
| | | **Total** | **3,372** | **LF** |

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# BASIS OF ESTIMATE

## Subgrade Prep Lengths

| US 85 | | Sta. |
|---|---|---|
| 9726+34.0 - | 9737+63.4 | 11.3 |
| 9768+20.9 - | 9768+43.4 | 0.2 |
| 9772+05.8 - | 9772+19.8 | 0.1 |
| 9785+03.7 - | 9789+36.8 | 4.3 |
| | **Total =** | **15.9** |

| 141st S. of 51st | | |
|---|---|---|
| 15+84.1 - | 18+50.8 | 2.7 |
| | **Total =** | **2.7** |

| US 85 South Bound Merge | | |
|---|---|---|
| 4+40.1 - | 4+93.1 | 0.5 |
| | **Total =** | **0.5** |

| 51st St. NW | | - |
|---|---|---|
| 44+60.0 - | 50+57.0 | 6.0 |
| 64+61.6 - | 66+87.9 | 2.3 |
| | **Total =** | **8.3** |

| Jackson St | | |
|---|---|---|
| 3+83.0 - | 5+28.0 | 1.5 |
| | **Total =** | **1.5** |

| 52nd St. W. of US 85 | | Sta |
|---|---|---|
| 20+80.8 - | 22+39.7 | 1.6 |
| | **Total =** | **1.6** |

| 52nd St. E. of US 85 | | |
|---|---|---|
| 32+50.0 - | 33+50.0 | 1.0 |
| | **Total =** | **1.0** |

| James Dr. | | |
|---|---|---|
| 24+32.9 - | 24+67.2 | 0.3 |
| | **Total =** | **0.3** |

| 141st N. of 51st | | |
|---|---|---|
| 10+41.3 - | 10+69.6 | 0.3 |
| | **Total =** | **0.3** |

| Bennett Loop S | | |
|---|---|---|
| 0+68.8 - | 2+58.7 | 1.9 |
| 13+31.5 - | 16+92.1 | 3.6 |
| 18+17.9 - | 21+39.1 | 3.2 |
| 22+69.5 - | 23+07.4 | 0.4 |
| | **Total =** | **9.1** |

| Private Dr (PR_PD_141_S) | | |
|---|---|---|
| 1+00.0 - | 3+13.6 | 2.1 |
| | **Total =** | **2.1** |

| | |
|---|---|
| **Total Stations =** | **43.3** |

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| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 10 | 3 |

US 85

| Material | Unit | 4 Lane Section w/ Raised Median<br>Sta 9711+50 to Sta 9718+41.05<br>Sta 9734+90.75 to Sta 9757+05.90<br>Sta 9771+26.10 to Sta 9774+00<br>Total Stations = 31.70 | | | 4 Lane Section w/ Raised Median & Right and Left Turn<br>Sta 9718+41.05 to Sta 9719+08.98<br>Sta 9734+12.54 to Sta 9734+90.75<br>Sta 9757+05.90 to Sta 9771+26.10<br>Total Stations = 15.76 | | | 4 Lane Section w/o Raised Median & Right and Left Turn<br>Sta 9719+08.98 to Sta 9734+12.54<br>Total Stations = 15.04 | | | 4 Lane Section w/ Raised Median<br>Sta 9774+00.00 to Sta 9788+37.76<br>Sta 9795+39.22 to Sta 9802+00.00<br>Total Stations = 20.99 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station |
| Salvaged Base Course @ 1.875 Ton/CY | Ton | 76.00 | 8.00 | 365.00 | 94.00 | 8.00 | 441.62 | 114.00 | 8.00 | 534.21 | 83.52 | 8.00 | 415.69 |
| Salvaged Base Course @ 1.875 Ton/CY (Raised Median) | Ton | | | | 6.00 | 22.00 | 76.39 | | | | | | |
| Aggregate Surface Course CL 13 @ 1.875 Ton/CY | Ton | | | | | | | | | | | | |
| 14 IN Non-Reinf Concrete Pavement CL AE-Doweled | SY | 64.00 | 14.00 | 711.11 | 84.00 | 14.00 | 933.33 | 108.00 | 14.00 | 1200.00 | 64.00 | 14.00 | 711.11 |
| Concrete Median Pavement - 4" Depth | SY | | | | 6.00 | 4.00 | 66.67 | | | | | | |
| MC70 or 250 Liquid Asphalt @ 0.25 Gal/SY (one application on base course) | Gal | | | | | | | | | | | | |
| SS-1h or CSS-1h or MS1 Emuls Asphalt @ 0.05 Gal/SY | Gal | | | | | | | | | | | | |
| Superpave FAA 45 @ 2 Ton/CY | Ton | | | | | | | | | | | | |
| PG 64-28 Asphalt Cement @ 6.0% | Ton | | | | | | | | | | | | |

US 85

| Material | Unit | 4 Lane Section w/ Raised Median & Right Turn<br>Sta 9788+37.76 to Sta 9791+66.00<br>Total Stations = 3.28 | | | 4 Lane Section w/ Raised Median & Left Turn<br>Sta 9791+66 to Sta 9795+39.22<br>Total Stations = 3.73 | | | 4 Lane Divided w/ Paved Median<br>Sta 9802+00 to Sta 9803+37.14<br>Total Stations = 1.37 | | | 4 Lane Divided w/ Paved Median & Double Left and Right Turn<br>Sta 9803+37.14 to Sta 9816+31.17<br>Total Stations = 12.94 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station |
| Salvaged Base Course @ 1.875 Ton/CY | Ton | 91.52 | 8.00 | 452.73 | 95.52 | 8.00 | 471.25 | 127.52 | 8.00 | 612.96 | 147.52 | 8.00 | 705.56 |
| Salvaged Base Course @ 1.875 Ton/CY (Raised Median) | Ton | | | | | | | | | | | | |
| Aggregate Surface Course CL 13 @ 1.875 Ton/CY | Ton | | | | | | | | | | | | |
| 14 IN Non-Reinf Concrete Pavement CL AE-Doweled | SY | 72.00 | 14.00 | 800.00 | 76.00 | 14.00 | 844.44 | 114.00 | 14.00 | 1416.89 | 134.00 | 14.00 | 1488.89 |
| Concrete Median Pavement - 4" Depth | SY | | | | | | | | | | | | |
| MC70 or 250 Liquid Asphalt @ 0.25 Gal/SY (one application on base course) | Gal | | | | | | | | | | | | |
| SS-1h or CSS-1h or MS1 Emuls Asphalt @ 0.05 Gal/SY | Gal | | | | | | | | | | | | |
| Superpave FAA 45 @ 2 Ton/CY | Ton | | | | | | | | | | | | |
| PG 64-28 Asphalt Cement @ 6.0% | Ton | | | | | | | | | | | | |

51st St. NW

| Material | Unit | 2 Lane Section w/ Center Left Turn Lane<br>Sta 47+72.99 to Sta 54+75.43<br>Total Stations = 7.02 | | | 2 Lane Section w/ Center Left Turn Lane<br>Sta 57+04.06 to Sta 64+54.20<br>Total Stations = 7.50 | | | 2 Lane Section<br>Sta 64+54.20 to Sta 66+87.88<br>Total Stations = 2.34 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station | Width (ft) | Depth (in) | Quantity per Station |
| Salvaged Base Course @ 1.875 Ton/CY | Ton | 52.00 | 8.00 | 246.39 | 50.36 | 8.00 | 246.62 | 36.36 | 8.00 | 181.81 |
| Salvaged Base Course @ 1.875 Ton/CY (Raised Median) | Ton | | | | | | | | | |
| Aggregate Surface Course CL 13 @ 1.875 Ton/CY | Ton | | | | | | | | | |
| 14 IN Non-Reinf Concrete Pavement CL AE-Doweled | SY | | | | | | | | | |
| Concrete Median Pavement - 4" Depth | SY | | | | | | | | | |
| MC70 or 250 Liquid Asphalt @ 0.25 Gal/SY (one application on base course) | Gal | 52.00 | | 144.44 | 50.36 | | 139.89 | 36.36 | | 101.00 |
| SS-1h or CSS-1h or MS1 Emuls Asphalt @ 0.05 Gal/SY | Gal | 46.00 | | 51.11 | 46.00 | | 51.11 | 32.00 | | 35.56 |
| Superpave FAA 45 @ 2 Ton/CY | Ton | 46.00 | 6.00 | 170.37 | 46.00 | 6.00 | 178.44 | 32.00 | 6.00 | 126.59 |
| PG 64-28 Asphalt Cement @ 6.0% | Ton | 46.00 | 6.00 | 10.22 | 46.00 | 6.00 | 10.22 | 32.00 | 6.00 | 7.11 |

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| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 1 |

| Location | Common Excavation Type - A | Embankment | | Balance | |
|---|---|---|---|---|---|
| | | Roadway | Adjusted | Waste | Borrow |
| | CY | CY | CY | CY | CY |
| | A | B | C = B * CF | D = A - C | D = C - A |
| US 85 | 235253 | 111705 | 139631 | 95622 | |
| US 85 Tie | 5888 | 5260 | 6575 | | 687 |
| Bennett Loop N-S | 4165 | 5215 | 6519 | | 2354 |
| Jackson Street | 470 | 76 | 95 | 375 | |
| James Drive | 501 | 918 | 1147 | | 646 |
| Bennett Loop E-W | 48 | 279 | 349 | | 301 |
| 141st Ave. NW South of 51st St. NW | 4985 | 13026 | 16282 | | 11297 |
| 51st St. NW West | 4653 | 10904 | 13630 | | 8977 |
| 51st St. NW East | 8625 | 4530 | 5663 | 2962 | |
| Private Drive NE of 51st. St NW | 92 | 706 | 883 | | 791 |
| 141st Ave. NW North of 51st St. NW | 2165 | 1727 | 2159 | 6 | |
| Private Drive at 9791+66.00 | 47 | 322 | 403 | | 356 |
| Connection at 9791+66.00 | 153 | 43 | 54 | 99 | |
| 52nd St. NW West | 9182 | 1611 | 2014 | 7168 | |
| 52nd St. NW East | 1151 | 8612 | 10765 | | 9614 |
| US Hwy 85 & 51st Street NW Intersection SE Quad | 10419 | 3376 | 4220 | 6199 | |
| US Hwy 85 & 51st Street NW Intersection SW Quad | 6869 | 6174 | 7718 | | 849 |
| Totals | 294666 | 174486 | 218107 | 112431 | 35872 |

CF= 1.25

| Location | Topsoil Excavation | Topsoil Embankment | Balance |
|---|---|---|---|
| | CY | CY | CY |
| | E | F | G = E - F |
| US 85 | 28959 | 42128 | -13169 |
| US 85 Tie | 2364 | 2081 | 283 |
| Bennett Loop N-S | 3075 | 1621 | 1454 |
| Jackson Street | 0 | 82 | -82 |
| James Drive | 0 | 183 | -183 |
| Bennett Loop E-W | 0 | 47 | -47 |
| 141st Ave. NW South of 51st St. NW | 2459 | 2368 | 91 |
| 51st St. NW West | 1964 | 2039 | -75 |
| 51st St. NW East | 2142 | 2814 | -672 |
| Private Drive NE of 51st. St NW | 88 | 94 | -6 |
| 141st Ave. NW North of 51st St. NW | 921 | 719 | 202 |
| Private Drive at 9791+66.00 | 0 | 77 | -77 |
| Connection at 9791+66.00 | 51 | 56 | -5 |
| 52nd St. NW West | 1971 | 2106 | -135 |
| 52nd St. NW East | 758 | 952 | -194 |
| US Hwy 85 & 51st Street NW Intersection SE Quad | 4462 | 4924 | -462 |
| US Hwy 85 & 51st Street NW Intersection SW Quad | 2630 | 2828 | -198 |
| Totals | 41051 | 53457 | -12406 |

Pay Items

| | |
|---|---|
| Common Excavation Type-A | 294666 |

Earthwork Balance

| | |
|---|---|
| Common Excavation | 35872 |
| -Embankment Adjusted | 112431 |
| Waste | 76559 |

| | |
|---|---|
| Topsoil | 41051 |
| Topsoil-Imported | 12406 |

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Earthwork & Topsoil Summary

Williston NW Permanent Truck Reliever Route Phase 1A

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 2 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9711+50.00 | 0.0 | 55.8 | 55.3 | 349.2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9711+75.00 | 0.0 | 53.9 | 61.1 | 318.4 | 0 | 51 | 54 | 387 | -51 | -333 |
| 9712+00.00 | 0.0 | 59.9 | 97.9 | 277.7 | 0 | 53 | 74 | 345 | -104 | -604 |
| 9712+25.00 | 0.0 | 62.8 | 140.8 | 234.8 | 0 | 57 | 111 | 298 | -161 | -791 |
| 9712+50.00 | 0.0 | 67.1 | 191.4 | 199.9 | 0 | 60 | 154 | 252 | -221 | -889 |
| 9712+75.00 | 0.0 | 71.1 | 253.6 | 180.0 | 0 | 64 | 206 | 219 | -285 | -902 |
| 9712+82.00 | 0.0 | 71.7 | 237.8 | 263.4 | 0 | 19 | 64 | 72 | -304 | -910 |
| 9713+00.00 | 0.0 | 68.6 | 267.3 | 171.4 | 0 | 47 | 168 | 182 | -351 | -924 |
| 9713+08.29 | 0.0 | 66.9 | 274.0 | 170.1 | 0 | 21 | 83 | 65 | -372 | -906 |
| 9713+25.00 | 0.0 | 63.3 | 263.8 | 165.7 | 0 | 40 | 166 | 130 | -412 | -870 |
| 9713+50.00 | 0.0 | 60.6 | 200.7 | 182.7 | 0 | 57 | 215 | 203 | -469 | -858 |
| 9713+75.00 | 0.0 | 55.8 | 170.4 | 210.2 | 0 | 54 | 172 | 228 | -523 | -914 |
| 9714+00.00 | 0.0 | 57.2 | 162.8 | 211.0 | 0 | 52 | 154 | 244 | -575 | -1004 |
| 9714+00.08 | 0.0 | 57.2 | 162.7 | 211.0 | 0 | 0 | 0 | 0 | -575 | -1004 |
| 9714+25.00 | 0.0 | 57.6 | 148.3 | 210.4 | 0 | 53 | 143 | 243 | -628 | -1104 |
| 9714+50.00 | 0.0 | 58.2 | 144.4 | 229.6 | 0 | 54 | 136 | 254 | -682 | -1222 |
| 9714+75.00 | 0.0 | 59.0 | 142.4 | 252.9 | 0 | 54 | 133 | 279 | -736 | -1368 |
| 9715+00.00 | 0.0 | 60.1 | 138.5 | 271.4 | 0 | 55 | 130 | 304 | -791 | -1542 |
| 9715+25.00 | 0.0 | 60.3 | 138.0 | 281.2 | 0 | 56 | 128 | 320 | -847 | -1734 |
| 9715+50.00 | 0.0 | 60.2 | 135.7 | 294.4 | 0 | 56 | 127 | 333 | -903 | -1940 |
| 9715+75.00 | 0.0 | 58.6 | 135.8 | 300.4 | 0 | 55 | 126 | 344 | -958 | -2158 |
| 9716+00.00 | 0.0 | 59.0 | 137.3 | 310.7 | 0 | 54 | 126 | 354 | -1012 | -2386 |
| 9716+23.29 | 0.0 | 59.2 | 138.3 | 314.1 | 0 | 51 | 119 | 338 | -1063 | -2605 |
| 9716+25.00 | 0.0 | 59.2 | 138.2 | 313.8 | 0 | 4 | 8 | 25 | -1067 | -2622 |
| 9716+50.00 | 0.0 | 58.2 | 137.6 | 312.0 | 0 | 54 | 127 | 362 | -1121 | -2857 |
| 9716+75.00 | 0.0 | 57.1 | 137.0 | 308.8 | 0 | 53 | 128 | 360 | -1174 | -3089 |
| 9716+92.29 | 0.0 | 56.4 | 136.9 | 309.2 | 0 | 36 | 88 | 247 | -1210 | -3248 |
| 9717+00.00 | 0.0 | 56.0 | 136.5 | 309.7 | 0 | 16 | 39 | 112 | -1226 | -3321 |
| 9717+25.00 | 0.0 | 55.2 | 135.5 | 310.6 | 0 | 51 | 126 | 359 | -1277 | -3554 |
| 9717+39.29 | 0.0 | 54.8 | 90.7 | 270.0 | 0 | 29 | 60 | 192 | -1306 | -3686 |
| 9717+50.00 | 0.0 | 54.6 | 87.3 | 271.3 | 0 | 22 | 35 | 134 | -1328 | -3785 |
| 9717+63.29 | 0.0 | 54.4 | 85.1 | 273.3 | 0 | 27 | 42 | 168 | -1355 | -3911 |
| 9717+75.00 | 0.0 | 54.0 | 83.0 | 272.6 | 0 | 24 | 36 | 149 | -1379 | -4024 |
| 9718+00.00 | 0.0 | 52.5 | 81.2 | 267.0 | 0 | 49 | 76 | 313 | -1428 | -4261 |
| 9718+11.29 | 0.0 | 51.6 | 82.1 | 262.5 | 0 | 22 | 34 | 139 | -1450 | -4366 |
| 9718+25.00 | 0.0 | 44.8 | 128.1 | 301.4 | 0 | 24 | 53 | 179 | -1474 | -4492 |
| 9718+50.00 | 0.0 | 43.7 | 131.0 | 281.1 | 0 | 41 | 120 | 337 | -1515 | -4709 |
| 9718+75.00 | 0.0 | 42.0 | 128.5 | 269.6 | 0 | 40 | 120 | 319 | -1555 | -4908 |
| 9719+00.00 | 0.0 | 41.0 | 131.4 | 256.9 | 0 | 38 | 120 | 304 | -1593 | -5092 |
| 9719+07.29 | 0.0 | 40.8 | 131.5 | 253.4 | 0 | 11 | 35 | 87 | -1604 | -5144 |
| 9719+22.21 | 0.0 | 40.4 | 129.7 | 250.8 | 0 | 22 | 72 | 174 | -1626 | -5246 |
| 9719+25.00 | 0.0 | 40.4 | 130.7 | 256.2 | 0 | 4 | 13 | 33 | -1630 | -5266 |
| 9719+50.00 | 0.0 | 39.6 | 162.8 | 301.4 | 0 | 37 | 136 | 323 | -1667 | -5453 |
| 9719+75.00 | 0.0 | 38.3 | 130.5 | 278.8 | 0 | 36 | 135 | 335 | -1703 | -5653 |
| 9720+00.00 | 0.0 | 37.6 | 113.3 | 268.5 | 0 | 35 | 113 | 317 | -1738 | -5857 |
| 9720+07.29 | 0.0 | 37.3 | 112.0 | 267.1 | 0 | 10 | 30 | 90 | -1748 | -5917 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 3 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9720+25.00 | 0.0 | 36.9 | 112.7 | 259.7 | 0 | 24 | 74 | 215 | -1772 | -6058 |
| 9720+50.00 | 0.0 | 37.5 | 112.9 | 251.0 | 0 | 34 | 105 | 295 | -1806 | -6248 |
| 9720+54.38 | 0.0 | 37.6 | 112.4 | 250.4 | 0 | 6 | 19 | 52 | -1812 | -6281 |
| 9720+75.00 | 0.0 | 37.4 | 110.3 | 251.4 | 0 | 29 | 85 | 240 | -1841 | -6436 |
| 9721+00.00 | 0.0 | 36.9 | 110.9 | 258.2 | 0 | 34 | 103 | 295 | -1875 | -6628 |
| 9721+23.13 | 0.0 | 36.7 | 118.8 | 228.3 | 0 | 31 | 98 | 262 | -1906 | -6792 |
| 9721+25.00 | 0.0 | 36.7 | 119.4 | 225.0 | 0 | 3 | 8 | 20 | -1909 | -6804 |
| 9721+50.00 | 0.0 | 36.5 | 123.4 | 221.5 | 0 | 34 | 113 | 259 | -1943 | -6950 |
| 9721+75.00 | 0.0 | 44.0 | 131.9 | 219.9 | 0 | 37 | 118 | 255 | -1980 | -7087 |
| 9721+85.63 | 0.0 | 44.0 | 135.3 | 220.3 | 0 | 17 | 53 | 109 | -1997 | -7143 |
| 9722+00.00 | 0.0 | 44.0 | 142.7 | 216.7 | 0 | 23 | 74 | 147 | -2020 | -7216 |
| 9722+25.00 | 0.0 | 44.0 | 148.8 | 224.5 | 0 | 41 | 135 | 257 | -2061 | -7338 |
| 9722+50.00 | 0.0 | 44.0 | 149.4 | 228.4 | 0 | 41 | 138 | 263 | -2102 | -7463 |
| 9722+65.65 | 0.0 | 44.0 | 151.5 | 232.3 | 0 | 26 | 88 | 168 | -2128 | -7543 |
| 9722+75.00 | 0.0 | 44.0 | 154.7 | 237.3 | 0 | 15 | 53 | 102 | -2143 | -7592 |
| 9723+00.00 | 0.0 | 44.0 | 158.3 | 245.3 | 0 | 41 | 145 | 279 | -2184 | -7726 |
| 9723+16.88 | 0.0 | 44.0 | 162.9 | 250.1 | 0 | 28 | 101 | 194 | -2212 | -7819 |
| 9723+24.99 | 0.0 | 44.0 | 166.5 | 253.3 | 0 | 13 | 50 | 94 | -2225 | -7863 |
| 9723+50.00 | 0.0 | 44.0 | 174.2 | 286.2 | 0 | 41 | 158 | 313 | -2266 | -8018 |
| 9723+73.13 | 0.0 | 44.0 | 184.2 | 268.5 | 0 | 38 | 154 | 298 | -2304 | -8162 |
| 9723+75.00 | 0.0 | 44.0 | 184.8 | 270.6 | 0 | 3 | 13 | 24 | -2307 | -8173 |
| 9724+00.00 | 0.0 | 44.0 | 198.8 | 268.6 | 0 | 41 | 178 | 313 | -2348 | -8308 |
| 9724+04.99 | 0.0 | 44.0 | 202.2 | 268.6 | 0 | 8 | 37 | 62 | -2356 | -8333 |
| 9724+25.00 | 0.0 | 43.5 | 209.0 | 269.5 | 0 | 32 | 153 | 250 | -2388 | -8430 |
| 9724+35.63 | 0.0 | 43.2 | 208.6 | 271.3 | 0 | 17 | 82 | 133 | -2405 | -8481 |
| 9724+50.00 | 0.0 | 42.9 | 193.8 | 276.9 | 0 | 23 | 107 | 183 | -2428 | -8557 |
| 9724+75.00 | 0.0 | 42.3 | 191.6 | 271.3 | 0 | 39 | 179 | 318 | -2467 | -8696 |
| 9725+00.00 | 0.0 | 42.8 | 204.0 | 234.5 | 0 | 39 | 184 | 293 | -2506 | -8805 |
| 9725+25.00 | 0.0 | 48.1 | 267.8 | 191.0 | 0 | 42 | 218 | 247 | -2548 | -8834 |
| 9725+32.29 | 0.0 | 49.6 | 282.6 | 182.3 | 0 | 13 | 74 | 63 | -2561 | -8823 |
| 9725+50.00 | 0.0 | 53.2 | 334.7 | 163.6 | 0 | 34 | 202 | 142 | -2595 | -8763 |
| 9725+60.71 | 0.0 | 55.3 | 365.5 | 150.0 | 0 | 22 | 138 | 78 | -2617 | -8703 |
| 9725+64.99 | 0.0 | 56.1 | 377.6 | 145.6 | 0 | 9 | 59 | 30 | -2626 | -8674 |
| 9725+75.00 | 0.0 | 58.3 | 392.5 | 134.7 | 0 | 21 | 143 | 65 | -2647 | -8596 |
| 9726+00.00 | 0.0 | 68.2 | 531.2 | 115.7 | 0 | 59 | 428 | 145 | -2706 | -8313 |
| 9726+25.00 | 0.0 | 76.1 | 572.9 | 108.0 | 0 | 67 | 511 | 130 | -2773 | -7932 |
| 9726+50.00 | 0.0 | 83.0 | 585.2 | 78.6 | 0 | 74 | 536 | 108 | -2847 | -7504 |
| 9726+75.00 | 0.0 | 89.9 | 795.6 | 121.7 | 0 | 80 | 639 | 117 | -2927 | -6982 |
| 9727+00.00 | 0.0 | 97.0 | 712.1 | 119.2 | 0 | 87 | 698 | 140 | -3014 | -6424 |
| 9727+25.00 | 0.0 | 99.7 | 808.7 | 95.5 | 0 | 91 | 704 | 124 | -3105 | -5844 |
| 9727+50.00 | 0.0 | 100.6 | 838.1 | 84.7 | 0 | 93 | 762 | 104 | -3198 | -5186 |
| 9727+75.00 | 0.0 | 101.2 | 851.0 | 70.7 | 0 | 93 | 782 | 90 | -3291 | -4494 |
| 9728+00.00 | 0.0 | 101.8 | 884.3 | 64.1 | 0 | 94 | 803 | 78 | -3385 | -3769 |
| 9728+25.00 | 0.0 | 102.5 | 908.4 | 61.1 | 0 | 95 | 830 | 73 | -3480 | -3012 |
| 9728+50.00 | 0.0 | 103.1 | 939.8 | 52.9 | 0 | 95 | 856 | 67 | -3575 | -2223 |
| 9728+75.00 | 0.0 | 103.7 | 986.7 | 46.6 | 0 | 96 | 891 | 58 | -3671 | -1390 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 4 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9728+86.34 | 0.0 | 104.0 | 987.1 | 45.8 | 0 | 44 | 415 | 24 | -3715 | -999 |
| 9729+00.00 | 0.0 | 104.0 | 988.4 | 45.2 | 0 | 53 | 500 | 29 | -3768 | -528 |
| 9729+04.57 | 0.0 | 104.0 | 989.1 | 44.8 | 0 | 18 | 168 | 10 | -3786 | -370 |
| 9729+25.00 | 0.0 | 104.0 | 983.8 | 48.5 | 0 | 79 | 746 | 45 | -3865 | 331 |
| 9729+50.00 | 0.0 | 104.0 | 962.4 | 51.2 | 0 | 96 | 901 | 58 | -3961 | 1174 |
| 9729+66.34 | 0.0 | 104.0 | 949.2 | 56.4 | 0 | 63 | 578 | 40 | -4024 | 1712 |
| 9729+75.00 | 0.0 | 104.0 | 938.7 | 57.7 | 0 | 33 | 303 | 23 | -4057 | 1992 |
| 9730+00.00 | 0.0 | 104.0 | 912.8 | 61.0 | 0 | 96 | 857 | 69 | -4153 | 2780 |
| 9730+25.00 | 0.0 | 104.0 | 884.7 | 67.4 | 0 | 96 | 832 | 74 | -4249 | 3538 |
| 9730+46.27 | 0.0 | 104.0 | 862.5 | 67.5 | 0 | 82 | 688 | 68 | -4331 | 4158 |
| 9730+50.00 | 0.0 | 104.0 | 864.4 | 69.7 | 0 | 14 | 119 | 13 | -4345 | 4264 |
| 9730+75.00 | 0.0 | 104.0 | 834.9 | 71.1 | 0 | 96 | 787 | 82 | -4441 | 4969 |
| 9730+89.23 | 0.0 | 104.0 | 833.0 | 71.7 | 0 | 55 | 439 | 48 | -4496 | 5360 |
| 9731+00.00 | 0.0 | 104.5 | 834.9 | 70.0 | 0 | 42 | 333 | 35 | -4538 | 5658 |
| 9731+25.00 | 0.0 | 105.5 | 871.8 | 67.5 | 0 | 97 | 790 | 79 | -4635 | 6369 |
| 9731+50.00 | 0.0 | 106.5 | 922.0 | 63.6 | 0 | 98 | 830 | 75 | -4733 | 7124 |
| 9731+75.00 | 0.0 | 107.6 | 948.2 | 66.5 | 0 | 99 | 866 | 75 | -4832 | 7915 |
| 9731+85.23 | 0.0 | 108.0 | 959.0 | 65.9 | 0 | 41 | 361 | 32 | -4873 | 8244 |
| 9732+00.00 | 0.0 | 108.0 | 968.5 | 63.3 | 0 | 59 | 527 | 44 | -4932 | 8727 |
| 9732+10.38 | 0.0 | 108.0 | 972.2 | 62.3 | 0 | 42 | 373 | 30 | -4974 | 9070 |
| 9732+25.00 | 0.0 | 108.0 | 987.0 | 62.1 | 0 | 58 | 530 | 42 | -5032 | 9558 |
| 9732+33.23 | 0.0 | 108.0 | 999.1 | 61.4 | 0 | 33 | 303 | 24 | -5065 | 9837 |
| 9732+50.00 | 0.0 | 108.0 | 1030.5 | 57.4 | 0 | 67 | 630 | 47 | -5132 | 10420 |
| 9732+75.00 | 0.0 | 108.0 | 1057.8 | 51.7 | 0 | 100 | 967 | 63 | -5232 | 11324 |
| 9733+00.00 | 0.0 | 108.0 | 1074.1 | 48.9 | 0 | 100 | 987 | 58 | -5332 | 12253 |
| 9733+14.23 | 0.0 | 108.0 | 1078.1 | 46.5 | 0 | 57 | 567 | 32 | -5389 | 12788 |
| 9733+25.00 | 0.0 | 108.1 | 1081.6 | 43.4 | 0 | 43 | 431 | 22 | -5432 | 13197 |
| 9733+50.00 | 0.0 | 108.4 | 1108.2 | 40.8 | 0 | 100 | 1014 | 49 | -5532 | 14162 |
| 9733+51.85 | 0.0 | 108.4 | 1110.1 | 40.6 | 0 | 7 | 76 | 3 | -5539 | 14235 |
| 9733+75.00 | 0.0 | 108.7 | 1117.5 | 42.2 | 0 | 93 | 955 | 45 | -5632 | 15145 |
| 9734+00.00 | 0.0 | 109.0 | 1129.4 | 44.8 | 0 | 101 | 1040 | 50 | -5733 | 16135 |
| 9734+25.00 | 0.0 | 109.2 | 1112.7 | 46.5 | 0 | 101 | 1038 | 53 | -5834 | 17120 |
| 9734+50.00 | 0.0 | 109.5 | 1082.3 | 48.2 | 0 | 101 | 1016 | 55 | -5935 | 18081 |
| 9734+75.00 | 0.0 | 109.8 | 1083.2 | 50.1 | 0 | 102 | 1003 | 57 | -6037 | 19027 |
| 9735+00.00 | 0.0 | 110.1 | 1071.7 | 69.5 | 0 | 102 | 998 | 69 | -6139 | 19956 |
| 9735+25.00 | 0.0 | 110.3 | 1068.1 | 76.3 | 0 | 102 | 991 | 85 | -6241 | 20862 |
| 9735+50.00 | 0.0 | 110.6 | 1046.7 | 83.6 | 0 | 102 | 979 | 93 | -6343 | 21748 |
| 9735+74.61 | 0.0 | 110.9 | 1052.1 | 90.3 | 0 | 101 | 957 | 99 | -6444 | 22606 |
| 9735+75.00 | 0.0 | 110.9 | 1052.6 | 90.4 | 0 | 2 | 15 | 2 | -6446 | 22619 |
| 9736+00.00 | 0.0 | 111.2 | 1052.0 | 102.8 | 0 | 103 | 974 | 112 | -6549 | 23481 |
| 9736+25.00 | 0.0 | 111.5 | 1047.0 | 113.5 | 0 | 103 | 972 | 125 | -6652 | 24328 |
| 9736+29.23 | 0.0 | 111.5 | 1045.4 | 115.4 | 0 | 17 | 164 | 23 | -6669 | 24469 |
| 9736+50.00 | 0.0 | 111.5 | 1039.7 | 122.7 | 0 | 86 | 802 | 115 | -6755 | 25156 |
| 9736+75.00 | 0.0 | 111.5 | 1054.2 | 132.5 | 0 | 103 | 969 | 148 | -6858 | 25977 |
| 9736+98.23 | 0.0 | 111.5 | 1074.0 | 137.3 | 0 | 96 | 916 | 145 | -6954 | 26748 |
| 9736+99.11 | 0.0 | 111.5 | 1074.8 | 137.5 | 0 | 4 | 35 | 5 | -6958 | 26778 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 5 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9736+99.18 | 0.0 | 111.5 | 1074.8 | 137.5 | 0 | 0 | 3 | 0 | -6958 | 26781 |
| 9737+00.00 | 0.0 | 111.5 | 1075.2 | 137.5 | 0 | 3 | 33 | 5 | -6961 | 26809 |
| 9737+25.00 | 0.0 | 111.8 | 1073.7 | 132.8 | 0 | 103 | 995 | 157 | -7064 | 27647 |
| 9737+50.00 | 0.0 | 112.1 | 1053.9 | 125.4 | 0 | 104 | 985 | 150 | -7168 | 28482 |
| 9737+61.68 | 0.0 | 112.2 | 1044.9 | 123.3 | 0 | 49 | 454 | 68 | -7217 | 28868 |
| 9737+75.00 | 0.0 | 112.4 | 1023.1 | 121.6 | 0 | 55 | 510 | 75 | -7272 | 29303 |
| 9738+00.00 | 0.0 | 112.8 | 984.4 | 118.1 | 0 | 104 | 929 | 139 | -7376 | 30093 |
| 9738+17.93 | 0.0 | 124.3 | 956.2 | 115.8 | 0 | 79 | 644 | 98 | -7455 | 30639 |
| 9738+25.00 | 0.0 | 124.3 | 953.7 | 115.9 | 0 | 33 | 250 | 38 | -7488 | 30851 |
| 9738+50.00 | 0.0 | 124.4 | 940.9 | 111.3 | 0 | 115 | 877 | 132 | -7603 | 31596 |
| 9738+75.00 | 0.0 | 124.4 | 904.8 | 112.3 | 0 | 115 | 854 | 130 | -7718 | 32320 |
| 9738+86.68 | 0.0 | 124.3 | 888.3 | 114.1 | 0 | 54 | 388 | 62 | -7772 | 32646 |
| 9739+00.00 | 0.0 | 124.3 | 872.5 | 116.9 | 0 | 61 | 434 | 72 | -7833 | 33008 |
| 9739+25.00 | 0.0 | 124.2 | 843.8 | 118.8 | 0 | 115 | 795 | 137 | -7948 | 33666 |
| 9739+49.18 | 0.0 | 124.1 | 817.1 | 113.5 | 0 | 111 | 744 | 130 | -8059 | 34280 |
| 9739+50.00 | 0.0 | 124.1 | 816.4 | 113.6 | 0 | 4 | 25 | 4 | -8063 | 34301 |
| 9739+75.00 | 0.0 | 124.0 | 786.3 | 117.7 | 0 | 115 | 742 | 134 | -8178 | 34909 |
| 9740+00.00 | 0.0 | 124.0 | 741.4 | 116.4 | 0 | 115 | 707 | 137 | -8293 | 35479 |
| 9740+13.23 | 0.0 | 124.0 | 731.0 | 128.9 | 0 | 61 | 361 | 75 | -8354 | 35765 |
| 9740+25.00 | 0.0 | 124.0 | 718.9 | 143.4 | 0 | 54 | 316 | 74 | -8408 | 36007 |
| 9740+50.00 | 0.0 | 124.0 | 678.2 | 159.7 | 0 | 115 | 647 | 177 | -8523 | 36477 |
| 9740+75.00 | 0.0 | 124.0 | 729.0 | 136.6 | 0 | 115 | 651 | 172 | -8638 | 36956 |
| 9740+80.43 | 0.0 | 124.0 | 733.1 | 132.0 | 0 | 25 | 147 | 34 | -8663 | 37069 |
| 9741+00.00 | 0.0 | 124.0 | 747.8 | 129.1 | 0 | 90 | 537 | 119 | -8753 | 37487 |
| 9741+22.50 | 0.0 | 124.0 | 649.0 | 133.9 | 0 | 103 | 582 | 137 | -8856 | 37932 |
| 9741+25.00 | 0.0 | 124.0 | 636.2 | 134.5 | 0 | 11 | 59 | 15 | -8867 | 37976 |
| 9741+36.68 | 0.0 | 124.0 | 638.3 | 139.0 | 0 | 54 | 276 | 75 | -8921 | 38177 |
| 9741+50.00 | 0.0 | 124.0 | 633.8 | 137.3 | 0 | 61 | 314 | 85 | -8982 | 38406 |
| 9741+75.00 | 0.0 | 124.0 | 610.2 | 145.6 | 0 | 115 | 576 | 164 | -9097 | 38818 |
| 9742+00.00 | 0.0 | 124.0 | 585.3 | 150.5 | 0 | 115 | 553 | 172 | -9212 | 39199 |
| 9742+25.00 | 0.0 | 124.0 | 567.3 | 157.6 | 0 | 115 | 534 | 178 | -9327 | 39555 |
| 9742+50.00 | 0.0 | 124.0 | 554.0 | 156.0 | 0 | 115 | 519 | 182 | -9442 | 39892 |
| 9742+75.00 | 0.0 | 124.0 | 554.9 | 164.0 | 0 | 115 | 513 | 185 | -9557 | 40220 |
| 9743+00.00 | 0.0 | 124.0 | 555.1 | 165.8 | 0 | 115 | 514 | 190 | -9672 | 40544 |
| 9743+25.00 | 0.0 | 124.0 | 553.4 | 167.6 | 0 | 115 | 513 | 193 | -9787 | 40864 |
| 9743+50.00 | 0.0 | 124.0 | 552.0 | 176.5 | 0 | 115 | 512 | 199 | -9902 | 41177 |
| 9743+75.00 | 0.0 | 124.0 | 551.9 | 166.1 | 0 | 115 | 511 | 198 | -10017 | 41490 |
| 9744+00.00 | 0.0 | 124.0 | 541.0 | 161.3 | 0 | 115 | 506 | 189 | -10132 | 41807 |
| 9744+25.00 | 0.0 | 124.0 | 551.9 | 133.7 | 0 | 115 | 506 | 170 | -10247 | 42143 |
| 9744+50.00 | 0.0 | 124.0 | 567.6 | 112.6 | 0 | 115 | 518 | 143 | -10362 | 42518 |
| 9744+75.00 | 0.0 | 124.0 | 577.6 | 97.9 | 0 | 115 | 530 | 122 | -10477 | 42926 |
| 9745+00.00 | 0.0 | 124.0 | 592.9 | 85.0 | 0 | 115 | 542 | 105 | -10592 | 43363 |
| 9745+25.00 | 0.0 | 124.0 | 612.0 | 81.7 | 0 | 115 | 558 | 97 | -10707 | 43824 |
| 9745+50.00 | 0.0 | 124.0 | 639.6 | 82.3 | 0 | 115 | 579 | 95 | -10822 | 44308 |
| 9745+75.00 | 0.0 | 124.0 | 658.0 | 84.2 | 0 | 115 | 601 | 97 | -10937 | 44812 |
| 9746+00.00 | 0.0 | 124.0 | 672.4 | 81.8 | 0 | 115 | 616 | 95 | -11052 | 45333 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 6 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9746+25.00 | 0.0 | 124.0 | 679.2 | 76.8 | 0 | 115 | 626 | 92 | -11167 | 45867 |
| 9746+50.00 | 0.0 | 124.0 | 668.9 | 78.1 | 0 | 115 | 624 | 89 | -11282 | 46402 |
| 9746+62.18 | 0.0 | 124.0 | 652.1 | 77.1 | 0 | 56 | 298 | 44 | -11338 | 46656 |
| 9746+75.00 | 0.0 | 124.0 | 657.3 | 75.5 | 0 | 59 | 311 | 47 | -11397 | 46920 |
| 9747+00.00 | 0.0 | 124.0 | 637.2 | 77.4 | 0 | 115 | 599 | 88 | -11512 | 47431 |
| 9747+25.00 | 0.0 | 124.0 | 617.7 | 77.8 | 0 | 115 | 581 | 89 | -11627 | 47923 |
| 9747+50.00 | 0.0 | 124.0 | 614.3 | 73.9 | 0 | 115 | 570 | 88 | -11742 | 48405 |
| 9747+75.00 | 0.0 | 124.0 | 598.0 | 77.3 | 0 | 115 | 561 | 88 | -11857 | 48878 |
| 9748+00.00 | 0.0 | 124.0 | 583.3 | 79.8 | 0 | 115 | 547 | 90 | -11972 | 49335 |
| 9748+25.00 | 0.0 | 124.0 | 557.7 | 77.0 | 0 | 115 | 528 | 90 | -12087 | 49773 |
| 9748+50.00 | 0.0 | 124.0 | 548.2 | 82.2 | 0 | 115 | 512 | 92 | -12202 | 50193 |
| 9748+75.00 | 0.0 | 124.0 | 522.3 | 73.7 | 0 | 115 | 496 | 90 | -12317 | 50599 |
| 9749+00.00 | 0.0 | 124.0 | 464.2 | 75.4 | 0 | 115 | 457 | 87 | -12432 | 50969 |
| 9749+25.00 | 0.0 | 124.0 | 446.1 | 77.8 | 0 | 115 | 421 | 89 | -12547 | 51301 |
| 9749+50.00 | 0.0 | 124.0 | 449.5 | 88.9 | 0 | 115 | 415 | 97 | -12662 | 51619 |
| 9749+75.00 | 0.0 | 124.0 | 463.2 | 103.7 | 0 | 115 | 423 | 112 | -12777 | 51930 |
| 9750+00.00 | 0.0 | 124.0 | 493.0 | 123.5 | 0 | 115 | 443 | 132 | -12892 | 52241 |
| 9750+25.00 | 0.0 | 124.0 | 484.9 | 124.0 | 0 | 115 | 453 | 143 | -13007 | 52551 |
| 9750+50.00 | 0.0 | 124.0 | 423.4 | 128.4 | 0 | 115 | 421 | 145 | -13122 | 52827 |
| 9750+75.00 | 0.0 | 124.0 | 471.8 | 135.6 | 0 | 115 | 414 | 153 | -13237 | 53088 |
| 9751+00.00 | 0.0 | 124.0 | 499.2 | 121.1 | 0 | 115 | 449 | 148 | -13352 | 53389 |
| 9751+25.00 | 0.0 | 124.0 | 462.7 | 111.1 | 0 | 115 | 445 | 134 | -13467 | 53700 |
| 9751+50.00 | 0.0 | 124.0 | 504.3 | 114.2 | 0 | 115 | 448 | 130 | -13582 | 54018 |
| 9751+75.00 | 0.0 | 124.0 | 555.3 | 91.2 | 0 | 115 | 491 | 119 | -13697 | 54390 |
| 9752+00.00 | 0.0 | 124.0 | 567.2 | 87.7 | 0 | 115 | 520 | 103 | -13812 | 54807 |
| 9752+24.88 | 0.0 | 124.0 | 591.0 | 106.7 | 0 | 114 | 534 | 112 | -13926 | 55229 |
| 9752+25.00 | 0.0 | 124.0 | 591.1 | 106.7 | 0 | 1 | 3 | 0 | -13927 | 55232 |
| 9752+50.00 | 0.0 | 124.0 | 604.1 | 77.3 | 0 | 115 | 553 | 107 | -14042 | 55678 |
| 9752+75.00 | 0.0 | 124.0 | 639.9 | 69.1 | 0 | 115 | 576 | 84 | -14157 | 56170 |
| 9753+00.00 | 0.0 | 124.0 | 679.0 | 71.3 | 0 | 115 | 611 | 82 | -14272 | 56699 |
| 9753+09.00 | 0.0 | 124.0 | 671.3 | 71.1 | 0 | 41 | 225 | 30 | -14313 | 56894 |
| 9753+19.00 | 0.0 | 124.0 | 653.6 | 69.9 | 0 | 46 | 245 | 33 | -14359 | 57106 |
| 9753+25.00 | 0.0 | 124.0 | 645.3 | 69.6 | 0 | 28 | 144 | 19 | -14387 | 57231 |
| 9753+28.00 | 0.0 | 124.0 | 642.5 | 69.4 | 0 | 14 | 72 | 10 | -14401 | 57293 |
| 9753+50.00 | 0.0 | 124.0 | 646.0 | 68.6 | 0 | 101 | 525 | 70 | -14502 | 57748 |
| 9753+75.00 | 0.0 | 124.0 | 619.5 | 68.5 | 0 | 115 | 586 | 79 | -14617 | 58255 |
| 9753+94.48 | 0.0 | 124.8 | 598.0 | 68.5 | 0 | 90 | 439 | 62 | -14707 | 58632 |
| 9754+00.00 | 0.0 | 125.0 | 596.0 | 68.5 | 0 | 26 | 122 | 18 | -14733 | 58736 |
| 9754+25.00 | 0.0 | 125.9 | 619.6 | 74.1 | 0 | 116 | 563 | 83 | -14849 | 59216 |
| 9754+32.05 | 0.0 | 126.2 | 624.6 | 75.1 | 0 | 33 | 162 | 25 | -14882 | 59353 |
| 9754+50.00 | 0.0 | 126.9 | 613.1 | 76.6 | 0 | 84 | 411 | 63 | -14966 | 59701 |
| 9754+75.00 | 0.0 | 127.8 | 609.4 | 78.6 | 0 | 118 | 566 | 89 | -15084 | 60178 |
| 9754+85.62 | 0.0 | 128.2 | 624.0 | 82.1 | 0 | 50 | 243 | 39 | -15134 | 60382 |
| 9754+93.70 | 0.0 | 128.5 | 618.0 | 85.3 | 0 | 38 | 186 | 32 | -15172 | 60536 |
| 9755+00.00 | 0.0 | 128.8 | 611.2 | 87.7 | 0 | 30 | 143 | 27 | -15202 | 60652 |
| 9755+17.70 | 0.0 | 129.4 | 583.6 | 98.0 | 0 | 85 | 392 | 75 | -15287 | 60969 |

*Fill includes an additional 25% for shrinkage

This document was originally issued and sealed by Eric Bach, Registration Number PE- 5506, on 9/26/13 and the original document is stored at the North Dakota Department of Transportation

Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 7 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9755+25.00 | 0.0 | 129.7 | 569.5 | 110.3 | 0 | 35 | 156 | 35 | -15322 | 61090 |
| 9755+50.00 | 0.0 | 130.7 | 539.0 | 166.1 | 0 | 121 | 513 | 160 | -15443 | 61443 |
| 9755+65.70 | 0.0 | 131.3 | 540.7 | 180.5 | 0 | 76 | 314 | 127 | -15519 | 61630 |
| 9755+75.00 | 0.0 | 131.1 | 543.1 | 193.1 | 0 | 45 | 187 | 82 | -15564 | 61735 |
| 9756+00.00 | 0.0 | 130.5 | 529.6 | 232.2 | 0 | 121 | 497 | 247 | -15685 | 61985 |
| 9756+10.62 | 0.0 | 130.7 | 521.8 | 258.5 | 0 | 51 | 207 | 122 | -15736 | 62070 |
| 9756+17.70 | 0.0 | 130.9 | 517.1 | 276.4 | 0 | 34 | 136 | 88 | -15770 | 62118 |
| 9756+25.00 | 0.0 | 131.0 | 512.9 | 290.6 | 0 | 35 | 139 | 95 | -15805 | 62162 |
| 9756+50.00 | 0.0 | 132.4 | 516.3 | 296.6 | 0 | 122 | 476 | 340 | -15927 | 62298 |
| 9756+61.70 | 0.0 | 133.6 | 514.4 | 306.5 | 0 | 58 | 223 | 164 | -15985 | 62357 |
| 9756+75.00 | 0.0 | 136.0 | 522.9 | 313.1 | 0 | 66 | 255 | 190 | -16051 | 62422 |
| 9756+82.22 | 0.0 | 137.5 | 533.0 | 320.5 | 0 | 37 | 141 | 105 | -16088 | 62458 |
| 9757+00.00 | 0.0 | 85.1 | 142.5 | 341.5 | 0 | 73 | 222 | 273 | -16161 | 62407 |
| 9757+25.00 | 0.0 | 80.6 | 136.5 | 352.6 | 0 | 77 | 129 | 402 | -16238 | 62134 |
| 9757+35.62 | 0.0 | 80.7 | 136.6 | 365.6 | 0 | 32 | 54 | 178 | -16270 | 62010 |
| 9757+50.00 | 0.0 | 80.2 | 137.2 | 364.7 | 0 | 43 | 73 | 243 | -16313 | 61840 |
| 9757+61.70 | 0.0 | 79.9 | 135.4 | 368.4 | 0 | 35 | 59 | 199 | -16348 | 61700 |
| 9757+75.00 | 0.0 | 79.6 | 135.6 | 371.4 | 0 | 39 | 67 | 228 | -16387 | 61539 |
| 9758+00.00 | 0.0 | 79.5 | 123.4 | 378.0 | 0 | 74 | 120 | 434 | -16461 | 61225 |
| 9758+25.00 | 0.0 | 79.5 | 112.6 | 389.2 | 0 | 74 | 109 | 445 | -16535 | 60889 |
| 9758+50.00 | 0.0 | 79.7 | 118.4 | 407.2 | 0 | 74 | 107 | 462 | -16609 | 60534 |
| 9758+60.62 | 0.0 | 80.0 | 124.6 | 421.3 | 0 | 31 | 48 | 204 | -16640 | 60378 |
| 9758+60.64 | 0.0 | 80.0 | 124.7 | 421.3 | 0 | 0 | 0 | 0 | -16640 | 60378 |
| 9758+75.00 | 0.0 | 80.8 | 140.8 | 434.5 | 0 | 43 | 71 | 284 | -16683 | 60165 |
| 9759+00.00 | 0.0 | 82.4 | 166.9 | 448.6 | 0 | 76 | 142 | 512 | -16759 | 59795 |
| 9759+25.00 | 0.0 | 84.8 | 164.7 | 477.8 | 0 | 77 | 154 | 537 | -16836 | 59412 |
| 9759+50.00 | 0.0 | 87.3 | 197.4 | 504.1 | 0 | 80 | 168 | 569 | -16916 | 59011 |
| 9759+56.54 | 0.0 | 87.8 | 198.9 | 511.7 | 0 | 21 | 48 | 154 | -16937 | 58905 |
| 9759+75.00 | 0.0 | 44.1 | 1.8 | 530.3 | 0 | 45 | 69 | 445 | -16982 | 58529 |
| 9760+00.00 | 0.0 | 44.9 | 1.8 | 556.8 | 0 | 41 | 2 | 630 | -17023 | 57901 |
| 9760+25.00 | 0.0 | 45.6 | 1.6 | 596.8 | 0 | 42 | 2 | 669 | -17065 | 57234 |
| 9760+50.00 | 0.0 | 44.4 | 1.6 | 627.4 | 0 | 42 | 1 | 709 | -17107 | 56526 |
| 9760+75.00 | 0.0 | 43.8 | 1.6 | 645.4 | 0 | 41 | 1 | 738 | -17148 | 55789 |
| 9761+00.00 | 0.0 | 43.4 | 11.7 | 677.6 | 0 | 40 | 6 | 767 | -17188 | 55028 |
| 9761+07.89 | 0.0 | 43.7 | 20.7 | 684.8 | 0 | 13 | 4 | 249 | -17201 | 54783 |
| 9761+25.00 | 8.0 | 47.7 | 34.0 | 705.7 | 3 | 29 | 18 | 552 | -17227 | 54249 |
| 9761+50.00 | 23.6 | 43.9 | 34.3 | 759.2 | 15 | 42 | 32 | 849 | -17254 | 53432 |
| 9761+75.00 | 45.3 | 44.6 | 33.9 | 814.0 | 32 | 41 | 32 | 912 | -17263 | 52552 |
| 9761+87.89 | 56.9 | 44.8 | 34.4 | 833.6 | 24 | 21 | 16 | 492 | -17260 | 52076 |
| 9762+00.00 | 67.7 | 44.8 | 34.8 | 853.9 | 28 | 20 | 15 | 473 | -17252 | 51618 |
| 9762+25.00 | 89.5 | 44.2 | 6.9 | 867.4 | 73 | 41 | 19 | 997 | -17220 | 50640 |
| 9762+50.00 | 100.1 | 49.5 | 0.0 | 880.1 | 88 | 43 | 3 | 1012 | -17175 | 49631 |
| 9762+75.00 | 86.9 | 49.3 | 20.4 | 937.3 | 87 | 46 | 9 | 1053 | -17134 | 48587 |
| 9762+86.70 | 54.6 | 50.1 | 70.5 | 980.1 | 31 | 22 | 20 | 520 | -17125 | 48087 |
| 9763+00.00 | 23.0 | 51.4 | 120.3 | 1000.6 | 19 | 25 | 47 | 610 | -17131 | 47524 |
| 9763+25.00 | 94.8 | 54.5 | 18.2 | 1017.0 | 55 | 49 | 64 | 1168 | -17125 | 46420 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 8 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9763+47.90 | 93.8 | 53.8 | 19.5 | 1029.2 | 80 | 46 | 16 | 1085 | -17091 | 45351 |
| 9763+50.00 | 94.1 | 54.0 | 19.4 | 1030.5 | 7 | 4 | 2 | 100 | -17088 | 45253 |
| 9763+75.00 | 94.1 | 54.4 | 20.1 | 1037.6 | 87 | 50 | 18 | 1197 | -17051 | 44074 |
| 9764+00.00 | 93.6 | 54.8 | 21.3 | 1030.4 | 87 | 51 | 19 | 1197 | -17015 | 42896 |
| 9764+25.00 | 120.2 | 81.8 | 96.2 | 981.7 | 99 | 63 | 54 | 1165 | -16979 | 41785 |
| 9764+50.00 | 119.6 | 80.9 | 108.3 | 928.6 | 111 | 75 | 95 | 1105 | -16943 | 40775 |
| 9764+75.00 | 119.8 | 80.3 | 121.7 | 874.1 | 111 | 75 | 106 | 1043 | -16907 | 39838 |
| 9765+00.00 | 172.2 | 155.2 | 302.6 | 930.2 | 135 | 109 | 196 | 1044 | -16881 | 38990 |
| 9765+13.25 | 170.7 | 152.3 | 309.1 | 886.1 | 84 | 75 | 150 | 557 | -16872 | 38583 |
| 9765+15.60 | 170.3 | 151.9 | 310.3 | 877.6 | 15 | 13 | 27 | 97 | -16870 | 38513 |
| 9765+25.00 | 168.7 | 150.2 | 314.5 | 835.9 | 59 | 53 | 109 | 373 | -16864 | 38249 |
| 9765+43.51 | 165.7 | 146.9 | 337.9 | 760.8 | 115 | 102 | 224 | 684 | -16851 | 37789 |
| 9765+50.00 | 164.6 | 145.8 | 345.4 | 738.6 | 40 | 35 | 82 | 225 | -16846 | 37646 |
| 9765+75.00 | 160.9 | 141.6 | 380.4 | 647.4 | 151 | 133 | 336 | 802 | -16828 | 37180 |
| 9766+00.00 | 157.5 | 137.7 | 412.4 | 568.1 | 147 | 129 | 367 | 704 | -16810 | 36843 |
| 9766+25.00 | 154.3 | 134.1 | 462.6 | 521.3 | 144 | 126 | 405 | 632 | -16792 | 36616 |
| 9766+50.00 | 149.9 | 130.6 | 502.9 | 481.9 | 141 | 123 | 447 | 582 | -16774 | 36481 |
| 9766+73.23 | 146.3 | 127.7 | 526.3 | 445.8 | 127 | 111 | 443 | 499 | -16758 | 36425 |
| 9766+75.00 | 146.0 | 127.4 | 528.3 | 443.0 | 10 | 8 | 35 | 37 | -16756 | 36423 |
| 9767+00.00 | 144.4 | 126.0 | 547.8 | 408.5 | 134 | 117 | 498 | 494 | -16739 | 36427 |
| 9767+25.00 | 144.3 | 126.0 | 577.5 | 375.5 | 134 | 117 | 521 | 454 | -16722 | 36494 |
| 9767+49.97 | 143.9 | 126.0 | 611.7 | 345.9 | 133 | 117 | 550 | 417 | -16706 | 36627 |
| 9767+50.00 | 143.9 | 126.0 | 611.7 | 345.8 | 0 | 0 | 1 | 0 | -16706 | 36628 |
| 9767+53.24 | 143.8 | 126.0 | 616.3 | 341.9 | 17 | 15 | 74 | 52 | -16704 | 36650 |
| 9767+75.00 | 142.5 | 126.0 | 651.9 | 315.3 | 115 | 102 | 511 | 330 | -16691 | 36831 |
| 9768+00.00 | 136.3 | 126.0 | 692.8 | 280.0 | 129 | 117 | 622 | 345 | -16679 | 37108 |
| 9768+25.00 | 122.3 | 126.0 | 789.9 | 225.8 | 120 | 117 | 686 | 294 | -16676 | 37500 |
| 9768+43.50 | 112.8 | 126.0 | 856.0 | 215.0 | 81 | 86 | 564 | 189 | -16681 | 37875 |
| 9768+50.00 | 112.7 | 126.3 | 874.8 | 211.4 | 27 | 30 | 208 | 64 | -16684 | 38019 |
| 9768+75.00 | 135.0 | 127.3 | 891.6 | 195.3 | 115 | 117 | 818 | 237 | -16686 | 38600 |
| 9769+00.00 | 141.8 | 128.1 | 870.7 | 192.0 | 128 | 118 | 816 | 225 | -16676 | 39191 |
| 9769+25.00 | 154.9 | 119.9 | 791.5 | 238.9 | 137 | 115 | 770 | 250 | -16654 | 39711 |
| 9769+39.50 | 149.5 | 116.1 | 757.7 | 259.0 | 82 | 63 | 416 | 167 | -16635 | 39960 |
| 9769+50.00 | 172.2 | 139.3 | 868.5 | 262.6 | 63 | 50 | 316 | 127 | -16622 | 40149 |
| 9769+75.00 | 164.2 | 131.5 | 808.2 | 260.2 | 156 | 125 | 777 | 304 | -16591 | 40622 |
| 9769+87.50 | 161.4 | 128.7 | 775.9 | 261.1 | 75 | 60 | 367 | 152 | -16576 | 40837 |
| 9770+00.00 | 159.1 | 228.1 | 758.9 | 259.9 | 74 | 83 | 356 | 152 | -16585 | 41041 |
| 9770+09.09 | 157.8 | 125.3 | 749.4 | 254.9 | 53 | 59 | 253 | 108 | -16591 | 41186 |
| 9770+25.00 | 156.5 | 123.8 | 734.1 | 245.4 | 93 | 73 | 438 | 185 | -16571 | 41439 |
| 9770+50.00 | 156.5 | 123.1 | 707.1 | 217.1 | 145 | 114 | 668 | 268 | -16540 | 41839 |
| 9770+68.50 | 157.0 | 122.3 | 685.2 | 207.4 | 107 | 84 | 477 | 183 | -16517 | 42133 |
| 9770+75.00 | 157.1 | 122.2 | 680.3 | 200.5 | 38 | 29 | 165 | 62 | -16508 | 42236 |
| 9770+80.52 | 157.1 | 120.2 | 676.8 | 194.3 | 32 | 25 | 139 | 52 | -16501 | 42323 |
| 9771+00.00 | 156.3 | 120.8 | 680.3 | 187.0 | 113 | 87 | 489 | 173 | -16475 | 42639 |
| 9771+25.00 | 155.3 | 120.6 | 662.0 | 196.4 | 144 | 112 | 621 | 223 | -16443 | 43037 |
| 9771+34.09 | 154.8 | 126.0 | 625.2 | 219.2 | 52 | 42 | 217 | 88 | -16433 | 43166 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 9 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9771+50.00 | 154.5 | 126.1 | 547.6 | 231.4 | 91 | 74 | 346 | 167 | -16416 | 43345 |
| 9771+75.00 | 106.9 | 105.1 | 444.0 | 206.6 | 121 | 107 | 460 | 254 | -16402 | 43551 |
| 9772+00.00 | 73.1 | 106.0 | 559.0 | 129.3 | 83 | 98 | 464 | 195 | -16417 | 43820 |
| 9772+12.50 | 36.4 | 106.5 | 615.1 | 94.8 | 25 | 49 | 272 | 65 | -16441 | 44027 |
| 9772+25.00 | 35.3 | 106.5 | 539.3 | 132.3 | 17 | 49 | 267 | 67 | -16473 | 44227 |
| 9772+50.00 | 28.6 | 106.5 | 494.5 | 175.3 | 30 | 99 | 479 | 178 | -16542 | 44528 |
| 9772+59.09 | 73.9 | 106.5 | 445.4 | 181.8 | 17 | 36 | 158 | 75 | -16561 | 44611 |
| 9772+75.00 | 115.8 | 106.5 | 361.4 | 249.0 | 56 | 63 | 238 | 159 | -16568 | 44690 |
| 9772+79.92 | 122.6 | 106.5 | 345.2 | 315.6 | 22 | 19 | 64 | 65 | -16565 | 44689 |
| 9773+00.00 | 122.9 | 106.5 | 325.5 | 390.8 | 91 | 79 | 249 | 329 | -16553 | 44609 |
| 9773+25.00 | 122.9 | 106.5 | 308.0 | 347.7 | 114 | 99 | 293 | 428 | -16538 | 44474 |
| 9773+50.00 | 122.8 | 106.5 | 278.5 | 383.5 | 114 | 99 | 271 | 424 | -16523 | 44321 |
| 9773+75.00 | 123.1 | 106.5 | 243.0 | 417.2 | 114 | 99 | 241 | 463 | -16508 | 44099 |
| 9773+84.09 | 123.1 | 106.5 | 241.5 | 430.3 | 41 | 36 | 82 | 178 | -16503 | 44003 |
| 9774+00.00 | 123.1 | 104.5 | 217.0 | 463.7 | 73 | 62 | 135 | 329 | -16492 | 43809 |
| 9774+25.00 | 123.2 | 107.8 | 264.1 | 435.7 | 114 | 98 | 223 | 520 | -16476 | 43512 |
| 9774+37.66 | 123.2 | 108.4 | 266.0 | 449.0 | 58 | 51 | 125 | 260 | -16469 | 43377 |
| 9774+40.00 | 123.2 | 108.5 | 266.1 | 451.2 | 11 | 9 | 24 | 49 | -16467 | 43352 |
| 9774+50.00 | 123.1 | 108.5 | 257.1 | 462.9 | 46 | 40 | 97 | 212 | -16461 | 43237 |
| 9774+75.00 | 122.8 | 108.5 | 238.9 | 565.2 | 114 | 100 | 229 | 595 | -16447 | 42871 |
| 9775+00.00 | 122.6 | 108.5 | 234.4 | 584.6 | 114 | 100 | 219 | 667 | -16433 | 42423 |
| 9775+25.00 | 122.6 | 108.5 | 250.3 | 569.3 | 114 | 100 | 225 | 668 | -16419 | 41980 |
| 9775+50.00 | 123.2 | 108.5 | 235.5 | 585.1 | 114 | 100 | 225 | 669 | -16405 | 41536 |
| 9775+75.00 | 123.7 | 108.5 | 231.6 | 598.7 | 114 | 100 | 217 | 685 | -16391 | 41068 |
| 9776+00.00 | 123.8 | 108.5 | 236.8 | 599.9 | 115 | 100 | 217 | 694 | -16376 | 40591 |
| 9776+25.00 | 124.1 | 108.5 | 236.4 | 595.9 | 115 | 100 | 219 | 693 | -16361 | 40117 |
| 9776+50.00 | 124.1 | 108.5 | 242.9 | 581.1 | 115 | 100 | 222 | 682 | -16346 | 39657 |
| 9776+75.00 | 123.7 | 108.4 | 303.1 | 559.7 | 115 | 100 | 253 | 660 | -16331 | 39250 |
| 9777+00.00 | 100.7 | 108.4 | 384.5 | 548.4 | 104 | 100 | 318 | 642 | -16327 | 38926 |
| 9777+25.00 | 123.7 | 108.2 | 228.5 | 570.0 | 104 | 100 | 284 | 648 | -16323 | 38562 |
| 9777+50.00 | 123.7 | 108.1 | 195.4 | 583.0 | 114 | 100 | 197 | 668 | -16309 | 38091 |
| 9777+75.00 | 123.5 | 107.9 | 180.0 | 576.7 | 114 | 100 | 174 | 672 | -16295 | 37593 |
| 9778+00.00 | 123.5 | 107.7 | 190.7 | 549.0 | 114 | 100 | 171 | 652 | -16281 | 37112 |
| 9778+25.00 | 123.3 | 107.4 | 195.6 | 529.4 | 114 | 100 | 179 | 624 | -16267 | 36667 |
| 9778+50.00 | 122.7 | 107.2 | 210.2 | 491.0 | 114 | 99 | 187 | 592 | -16252 | 36262 |
| 9778+75.00 | 117.7 | 106.9 | 281.6 | 462.8 | 111 | 99 | 228 | 553 | -16240 | 35937 |
| 9779+00.00 | 92.5 | 106.5 | 401.1 | 425.0 | 97 | 99 | 316 | 514 | -16242 | 35739 |
| 9779+25.00 | 111.5 | 106.1 | 367.7 | 399.1 | 94 | 98 | 356 | 478 | -16246 | 35617 |
| 9779+50.00 | 128.0 | 113.0 | 338.0 | 370.3 | 111 | 101 | 327 | 445 | -16236 | 35499 |
| 9779+75.00 | 127.8 | 113.0 | 343.3 | 344.9 | 118 | 105 | 316 | 414 | -16223 | 35401 |
| 9780+00.00 | 112.1 | 113.0 | 344.3 | 342.0 | 111 | 105 | 319 | 398 | -16217 | 35322 |
| 9780+25.00 | 111.6 | 113.0 | 338.1 | 337.8 | 104 | 105 | 316 | 394 | -16218 | 35244 |
| 9780+50.00 | 130.2 | 113.0 | 312.3 | 335.3 | 112 | 105 | 301 | 390 | -16211 | 35155 |
| 9780+75.00 | 110.8 | 113.0 | 323.6 | 340.8 | 112 | 105 | 294 | 392 | -16204 | 35057 |
| 9781+00.00 | 110.2 | 113.0 | 313.8 | 351.8 | 102 | 105 | 295 | 402 | -16207 | 34950 |
| 9781+25.00 | 109.4 | 113.0 | 292.1 | 369.2 | 102 | 105 | 281 | 418 | -16210 | 34813 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 10 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9781+50.00 | 108.8 | 113.0 | 289.1 | 375.9 | 101 | 105 | 269 | 432 | -16214 | 34650 |
| 9781+75.00 | 108.2 | 113.0 | 292.5 | 375.4 | 100 | 105 | 270 | 435 | -16219 | 34485 |
| 9782+00.00 | 110.2 | 113.0 | 305.9 | 362.3 | 101 | 105 | 278 | 428 | -16223 | 34335 |
| 9782+25.00 | 126.6 | 113.0 | 313.9 | 352.2 | 110 | 105 | 287 | 414 | -16218 | 34208 |
| 9782+50.00 | 127.7 | 113.0 | 375.9 | 348.0 | 118 | 105 | 320 | 405 | -16205 | 34123 |
| 9782+75.00 | 127.6 | 113.0 | 408.3 | 350.0 | 118 | 105 | 363 | 404 | -16192 | 34082 |
| 9783+00.00 | 126.7 | 113.0 | 285.6 | 348.3 | 118 | 105 | 322 | 405 | -16179 | 33999 |
| 9783+25.00 | 125.6 | 113.0 | 242.4 | 336.9 | 117 | 105 | 244 | 397 | -16167 | 33846 |
| 9783+50.00 | 124.7 | 113.0 | 245.2 | 319.3 | 116 | 105 | 225 | 380 | -16156 | 33691 |
| 9783+75.00 | 123.7 | 113.0 | 278.1 | 290.5 | 115 | 105 | 243 | 354 | -16146 | 33580 |
| 9784+00.00 | 122.7 | 113.0 | 326.0 | 251.9 | 114 | 105 | 280 | 314 | -16137 | 33546 |
| 9784+25.00 | 121.7 | 113.0 | 367.1 | 221.1 | 113 | 105 | 321 | 274 | -16129 | 33593 |
| 9784+50.00 | 120.4 | 113.0 | 431.6 | 198.3 | 112 | 105 | 370 | 243 | -16122 | 33720 |
| 9784+75.00 | 76.0 | 113.0 | 513.3 | 195.7 | 91 | 105 | 438 | 229 | -16136 | 33929 |
| 9785+00.00 | 118.2 | 113.0 | 502.3 | 175.4 | 90 | 105 | 470 | 215 | -16151 | 34184 |
| 9785+25.00 | 131.6 | 117.0 | 571.1 | 160.0 | 116 | 106 | 497 | 195 | -16141 | 34486 |
| 9785+50.00 | 135.5 | 120.8 | 610.1 | 156.8 | 124 | 110 | 547 | 184 | -16127 | 34849 |
| 9785+75.00 | 139.1 | 124.7 | 635.6 | 160.0 | 127 | 114 | 577 | 184 | -16114 | 35242 |
| 9786+00.00 | 143.1 | 128.5 | 649.9 | 164.8 | 131 | 117 | 595 | 189 | -16100 | 35648 |
| 9786+25.00 | 143.5 | 128.5 | 648.7 | 171.7 | 133 | 119 | 602 | 195 | -16086 | 36055 |
| 9786+50.00 | 143.9 | 128.5 | 657.3 | 174.7 | 133 | 119 | 604 | 202 | -16072 | 36457 |
| 9786+75.00 | 144.0 | 128.5 | 651.0 | 171.5 | 133 | 119 | 606 | 202 | -16058 | 36861 |
| 9787+00.00 | 144.0 | 128.5 | 673.5 | 161.5 | 133 | 119 | 613 | 193 | -16044 | 37281 |
| 9787+25.00 | 143.9 | 128.5 | 704.7 | 151.4 | 133 | 119 | 638 | 182 | -16030 | 37737 |
| 9787+50.00 | 143.9 | 128.5 | 753.0 | 136.5 | 133 | 119 | 675 | 167 | -16016 | 38245 |
| 9787+75.00 | 143.8 | 128.5 | 819.1 | 124.5 | 133 | 119 | 728 | 152 | -16002 | 38821 |
| 9787+89.76 | 142.9 | 132.6 | 853.9 | 116.1 | 78 | 71 | 457 | 83 | -15995 | 39195 |
| 9788+00.00 | 143.8 | 128.5 | 876.9 | 117.0 | 54 | 50 | 329 | 57 | -15991 | 39467 |
| 9788+25.00 | 140.6 | 125.3 | 910.8 | 110.5 | 132 | 117 | 828 | 133 | -15976 | 40162 |
| 9788+37.76 | 139.0 | 123.6 | 915.4 | 108.1 | 66 | 59 | 431 | 64 | -15969 | 40529 |
| 9788+50.00 | 138.9 | 123.0 | 926.1 | 105.9 | 63 | 56 | 418 | 62 | -15962 | 40885 |
| 9788+75.00 | 139.2 | 122.0 | 938.6 | 104.4 | 129 | 113 | 864 | 122 | -15946 | 41627 |
| 9789+00.00 | 139.1 | 120.9 | 931.6 | 119.4 | 129 | 112 | 866 | 129 | -15929 | 42364 |
| 9789+25.00 | 139.2 | 119.9 | 915.4 | 129.9 | 129 | 111 | 856 | 145 | -15911 | 43075 |
| 9789+33.76 | 139.1 | 119.5 | 931.7 | 129.9 | 45 | 39 | 300 | 53 | -15905 | 43322 |
| 9789+50.00 | 138.9 | 119.5 | 939.0 | 129.4 | 84 | 72 | 563 | 98 | -15893 | 43787 |
| 9789+75.00 | 138.9 | 119.5 | 965.8 | 126.1 | 129 | 111 | 882 | 148 | -15875 | 44521 |
| 9790+00.00 | 139.0 | 119.5 | 973.5 | 123.2 | 129 | 111 | 898 | 144 | -15857 | 45275 |
| 9790+25.00 | 138.4 | 119.5 | 1007.2 | 113.9 | 128 | 111 | 917 | 138 | -15840 | 46054 |
| 9790+50.00 | 138.4 | 119.7 | 1061.2 | 116.9 | 128 | 111 | 958 | 134 | -15823 | 46878 |
| 9790+75.00 | 138.6 | 120.0 | 994.8 | 119.3 | 128 | 111 | 952 | 137 | -15806 | 47693 |
| 9791+00.00 | 152.4 | 118.5 | 993.8 | 127.3 | 135 | 110 | 921 | 143 | -15781 | 48471 |
| 9791+25.00 | 154.0 | 118.5 | 969.6 | 125.9 | 142 | 110 | 909 | 147 | -15749 | 49233 |
| 9791+50.00 | 154.1 | 118.6 | 970.1 | 129.6 | 143 | 110 | 898 | 149 | -15716 | 49982 |
| 9791+75.00 | 154.4 | 118.3 | 974.6 | 132.8 | 143 | 110 | 900 | 152 | -15683 | 50730 |
| 9792+00.00 | 154.3 | 112.6 | 941.3 | 112.0 | 143 | 107 | 887 | 142 | -15647 | 51475 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 11 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9792+25.00 | 153.8 | 112.8 | 924.3 | 119.1 | 143 | 104 | 864 | 134 | -15608 | 52205 |
| 9792+50.00 | 154.0 | 113.1 | 892.5 | 126.4 | 142 | 105 | 841 | 143 | -15571 | 52903 |
| 9792+75.00 | 133.6 | 109.8 | 939.5 | 131.1 | 133 | 103 | 848 | 149 | -15541 | 53602 |
| 9793+00.00 | 134.0 | 110.2 | 915.4 | 131.3 | 124 | 102 | 859 | 153 | -15519 | 54308 |
| 9793+25.00 | 134.5 | 110.7 | 828.9 | 141.8 | 124 | 102 | 807 | 158 | -15497 | 54957 |
| 9793+50.00 | 134.6 | 111.3 | 807.4 | 145.3 | 125 | 103 | 758 | 167 | -15475 | 55548 |
| 9793+75.00 | 135.6 | 112.9 | 790.9 | 145.6 | 125 | 104 | 740 | 169 | -15454 | 56119 |
| 9793+95.71 | 139.1 | 117.1 | 804.5 | 149.5 | 105 | 88 | 612 | 142 | -15437 | 56589 |
| 9794+00.00 | 139.8 | 118.1 | 806.5 | 150.9 | 22 | 19 | 128 | 30 | -15434 | 56687 |
| 9794+02.46 | 140.2 | 118.7 | 805.7 | 151.7 | 13 | 11 | 73 | 18 | -15432 | 56742 |
| 9794+25.00 | 143.5 | 123.5 | 815.1 | 158.2 | 118 | 101 | 676 | 162 | -15415 | 57256 |
| 9794+50.00 | 146.8 | 128.8 | 840.3 | 172.8 | 134 | 117 | 767 | 192 | -15398 | 57831 |
| 9794+75.00 | 150.9 | 134.1 | 866.9 | 193.7 | 138 | 122 | 791 | 212 | -15382 | 58410 |
| 9794+76.88 | 151.2 | 134.5 | 868.3 | 194.7 | 11 | 9 | 60 | 17 | -15380 | 58453 |
| 9795+00.00 | 155.1 | 139.3 | 886.3 | 198.3 | 131 | 117 | 752 | 210 | -15366 | 58995 |
| 9795+25.00 | 155.0 | 140.4 | 906.8 | 194.6 | 144 | 130 | 830 | 228 | -15352 | 59597 |
| 9795+39.27 | 155.0 | 141.0 | 911.3 | 196.3 | 82 | 74 | 481 | 130 | -15344 | 59948 |
| 9795+50.00 | 155.0 | 141.0 | 910.6 | 180.5 | 62 | 56 | 362 | 93 | -15338 | 60217 |
| 9795+75.00 | 143.2 | 141.0 | 937.0 | 108.7 | 138 | 131 | 855 | 167 | -15331 | 60905 |
| 9796+00.00 | 154.2 | 141.0 | 904.5 | 160.7 | 138 | 131 | 853 | 157 | -15324 | 61601 |
| 9796+25.00 | 156.1 | 141.8 | 913.8 | 236.1 | 144 | 131 | 842 | 230 | -15311 | 62213 |
| 9796+50.00 | 159.5 | 145.6 | 939.2 | 268.7 | 146 | 133 | 858 | 293 | -15298 | 62778 |
| 9796+75.00 | 163.6 | 149.6 | 986.4 | 306.6 | 150 | 137 | 892 | 333 | -15285 | 63337 |
| 9797+00.00 | 167.8 | 153.5 | 993.2 | 354.3 | 153 | 140 | 917 | 383 | -15272 | 63871 |
| 9797+25.00 | 168.1 | 153.5 | 896.9 | 419.6 | 156 | 142 | 875 | 448 | -15258 | 64298 |
| 9797+50.00 | 168.2 | 153.5 | 779.5 | 500.3 | 156 | 142 | 776 | 533 | -15244 | 64541 |
| 9797+75.00 | 168.2 | 153.5 | 765.9 | 564.7 | 156 | 142 | 716 | 617 | -15230 | 64640 |
| 9798+00.00 | 167.2 | 153.5 | 757.2 | 619.8 | 155 | 142 | 705 | 685 | -15217 | 64660 |
| 9798+25.00 | 167.1 | 153.5 | 769.3 | 706.9 | 155 | 142 | 706 | 769 | -15204 | 64597 |
| 9798+50.00 | 167.1 | 153.5 | 752.3 | 788.9 | 155 | 142 | 704 | 865 | -15191 | 64436 |
| 9798+75.00 | 167.2 | 153.5 | 699.1 | 952.5 | 155 | 142 | 672 | 1008 | -15178 | 64100 |
| 9799+00.00 | 167.1 | 153.5 | 598.5 | 1068.1 | 155 | 142 | 601 | 1170 | -15165 | 63531 |
| 9799+25.00 | 167.4 | 153.5 | 504.5 | 1113.8 | 155 | 142 | 511 | 1263 | -15152 | 62779 |
| 9799+50.00 | 167.8 | 153.5 | 457.2 | 1111.1 | 155 | 142 | 446 | 1288 | -15139 | 61937 |
| 9799+75.00 | 168.0 | 153.5 | 403.4 | 1030.3 | 155 | 142 | 398 | 1240 | -15126 | 61095 |
| 9800+00.00 | 167.9 | 153.5 | 349.7 | 956.6 | 156 | 142 | 348 | 1149 | -15112 | 60294 |
| 9800+25.00 | 167.4 | 153.5 | 330.1 | 938.1 | 155 | 142 | 315 | 1098 | -15099 | 59511 |
| 9800+50.00 | 167.0 | 153.5 | 316.9 | 949.7 | 155 | 142 | 299 | 1093 | -15086 | 58717 |
| 9800+75.00 | 167.1 | 153.5 | 318.0 | 956.7 | 155 | 142 | 293 | 1104 | -15073 | 57906 |
| 9801+00.00 | 167.5 | 153.5 | 318.0 | 967.2 | 155 | 142 | 294 | 1113 | -15060 | 57087 |
| 9801+25.00 | 167.5 | 153.5 | 340.7 | 950.1 | 155 | 142 | 305 | 1110 | -15047 | 56282 |
| 9801+50.00 | 167.7 | 153.5 | 399.7 | 941.0 | 155 | 142 | 343 | 1095 | -15034 | 55530 |
| 9801+75.00 | 167.8 | 153.5 | 549.0 | 859.7 | 155 | 142 | 439 | 1042 | -15021 | 54927 |
| 9802+00.00 | 169.6 | 155.4 | 662.9 | 803.7 | 156 | 143 | 561 | 963 | -15008 | 54525 |
| 9802+01.62 | 169.7 | 133.3 | 668.7 | 726.5 | 10 | 9 | 40 | 58 | -15007 | 54507 |
| 9802+03.38 | 169.8 | 133.4 | 673.8 | 722.0 | 11 | 9 | 44 | 60 | -15005 | 54491 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 12 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 9802+25.00 | 171.6 | 134.9 | 736.3 | 662.3 | 137 | 107 | 565 | 694 | -14975 | 54362 |
| 9802+50.00 | 173.6 | 136.7 | 819.5 | 590.6 | 160 | 126 | 721 | 727 | -14941 | 54356 |
| 9802+75.00 | 175.8 | 138.4 | 941.4 | 510.9 | 162 | 127 | 816 | 638 | -14906 | 54534 |
| 9802+77.17 | 176.0 | 138.6 | 951.0 | 502.9 | 14 | 11 | 76 | 52 | -14903 | 54558 |
| 9803+00.00 | 110.3 | 140.2 | 1075.2 | 337.3 | 121 | 118 | 856 | 444 | -14900 | 54970 |
| 9803+25.00 | 115.0 | 141.9 | 1194.5 | 228.3 | 104 | 131 | 1050 | 327 | -14927 | 55693 |
| 9803+36.62 | 115.9 | 141.9 | 1226.7 | 184.3 | 50 | 61 | 521 | 110 | -14938 | 56104 |
| 9803+37.14 | 116.0 | 141.9 | 1227.8 | 182.3 | 2 | 3 | 24 | 4 | -14939 | 56124 |
| 9803+41.03 | 116.2 | 141.8 | 1234.0 | 168.3 | 17 | 20 | 177 | 32 | -14942 | 56269 |
| 9803+50.00 | 118.2 | 141.4 | 1256.5 | 139.7 | 39 | 47 | 414 | 65 | -14950 | 56618 |
| 9803+69.85 | 132.0 | 140.5 | 1305.0 | 93.7 | 92 | 104 | 942 | 108 | -14962 | 57452 |
| 9803+72.17 | 133.5 | 140.4 | 1315.8 | 88.5 | 11 | 12 | 113 | 10 | -14963 | 57555 |
| 9803+75.00 | 135.2 | 140.2 | 1329.5 | 82.2 | 14 | 15 | 139 | 12 | -14964 | 57682 |
| 9804+00.00 | 145.1 | 139.1 | 1432.1 | 46.0 | 130 | 129 | 1278 | 74 | -14963 | 58886 |
| 9804+57.17 | 169.2 | 136.6 | 1575.8 | 18.2 | 333 | 292 | 3185 | 85 | -14922 | 61986 |
| 9805+00.00 | 180.6 | 136.2 | 1706.4 | 32.1 | 277 | 216 | 2603 | 50 | -14861 | 64539 |
| 9806+00.00 | 180.8 | 135.4 | 1672.4 | 35.2 | 669 | 503 | 6257 | 155 | -14695 | 70641 |
| 9807+00.00 | 180.2 | 134.8 | 1566.8 | 52.8 | 668 | 500 | 5998 | 204 | -14527 | 76435 |
| 9807+32.17 | 180.9 | 134.6 | 1485.2 | 62.0 | 215 | 161 | 1818 | 85 | -14473 | 78168 |
| 9808+00.00 | 181.0 | 134.3 | 1317.7 | 91.0 | 454 | 338 | 3521 | 240 | -14357 | 81449 |
| 9809+00.00 | 181.1 | 134.1 | 1131.7 | 148.1 | 671 | 497 | 4536 | 554 | -14183 | 85431 |
| 9810+00.00 | 180.7 | 134.0 | 1090.0 | 196.1 | 670 | 496 | 4114 | 797 | -14009 | 88748 |
| 9810+08.47 | 180.6 | 134.0 | 1086.8 | 200.4 | 57 | 42 | 341 | 78 | -13994 | 89011 |
| 9811+00.00 | 180.5 | 134.0 | 1050.4 | 239.9 | 612 | 454 | 3623 | 933 | -13836 | 91701 |
| 9811+27.08 | 180.5 | 134.0 | 1061.0 | 250.4 | 181 | 134 | 1058 | 308 | -13789 | 92451 |
| 9811+29.13 | 180.5 | 134.0 | 1063.5 | 251.2 | 14 | 10 | 80 | 24 | -13785 | 92507 |
| 9812+00.00 | 180.0 | 134.0 | 1063.0 | 296.4 | 473 | 352 | 2791 | 898 | -13664 | 94400 |
| 9812+07.08 | 180.0 | 134.0 | 1054.5 | 301.5 | 47 | 35 | 278 | 99 | -13652 | 94579 |
| 9812+17.66 | 180.0 | 133.7 | 1041.7 | 309.8 | 71 | 52 | 411 | 150 | -13633 | 94840 |
| 9812+48.93 | 180.1 | 133.0 | 998.7 | 331.7 | 209 | 154 | 1182 | 464 | -13578 | 95558 |
| 9812+75.18 | 180.3 | 132.3 | 966.9 | 349.1 | 175 | 129 | 956 | 414 | -13532 | 96100 |
| 9813+00.00 | 180.5 | 131.7 | 921.4 | 389.2 | 166 | 121 | 868 | 424 | -13487 | 96544 |
| 9813+07.31 | 180.5 | 131.5 | 899.2 | 407.2 | 49 | 36 | 247 | 135 | -13474 | 96656 |
| 9813+33.45 | 180.9 | 130.9 | 833.5 | 451.4 | 175 | 127 | 839 | 520 | -13426 | 96975 |
| 9813+37.08 | 181.0 | 130.8 | 823.9 | 459.1 | 24 | 18 | 112 | 77 | -13420 | 97010 |
| 9813+67.17 | 181.3 | 130.0 | 747.6 | 538.3 | 202 | 145 | 876 | 695 | -13363 | 97191 |
| 9813+70.79 | 181.4 | 130.0 | 738.8 | 545.3 | 24 | 17 | 100 | 92 | -13356 | 97199 |
| 9814+00.00 | 181.6 | 130.0 | 688.0 | 526.9 | 196 | 141 | 772 | 725 | -13301 | 97246 |
| 9815+00.00 | 110.1 | 117.5 | 670.7 | 495.9 | 540 | 458 | 2516 | 2368 | -13219 | 97394 |
| 9816+00.00 | 152.2 | 117.5 | 376.1 | 884.6 | 486 | 435 | 1939 | 3197 | -13168 | 96136 |
| 9816+10.00 | 145.3 | 117.5 | 413.3 | 827.2 | 55 | 44 | 147 | 397 | -13157 | 95886 |
| 9816+31.17 | 59.3 | 117.5 | 691.1 | 593.8 | 80 | 92 | 433 | 697 | -13169 | 95622 |
| Totals | | | | | 28959 | 42128 | 235253 | 139631 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 13 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 2+32.05 | 46.8 | 103.5 | 609.5 | 666.8 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2+50.00 | 46.8 | 107.0 | 654.5 | 626.7 | 31 | 70 | 420 | 538 | -39 | -118 |
| 3+00.00 | 160.7 | 117.0 | 378.2 | 845.5 | 192 | 207 | 956 | 1704 | -54 | -866 |
| 3+16.94 | 161.7 | 121.2 | 470.0 | 642.3 | 101 | 75 | 266 | 584 | -28 | -1184 |
| 3+50.00 | 165.4 | 131.2 | 505.2 | 546.9 | 200 | 155 | 597 | 910 | 17 | -1497 |
| 3+52.05 | 165.7 | 131.9 | 507.7 | 540.3 | 13 | 10 | 39 | 52 | 20 | -1510 |
| 4+00.00 | 178.0 | 146.7 | 558.0 | 413.5 | 305 | 247 | 946 | 1059 | 78 | -1623 |
| 4+50.00 | 181.9 | 153.7 | 526.3 | 276.4 | 333 | 278 | 1004 | 799 | 133 | -1418 |
| 4+86.72 | 173.6 | 148.6 | 380.5 | 189.0 | 242 | 206 | 616 | 395 | 169 | -1197 |
| 5+00.00 | 171.2 | 147.6 | 324.0 | 161.2 | 85 | 73 | 174 | 108 | 181 | -1131 |
| 5+50.00 | 166.0 | 146.8 | 149.8 | 69.3 | 312 | 273 | 439 | 267 | 220 | -959 |
| 6+00.00 | 164.9 | 150.7 | 111.3 | 26.3 | 306 | 275 | 241 | 112 | 251 | -830 |
| 6+50.00 | 53.3 | 43.6 | 55.0 | 7.9 | 202 | 180 | 154 | 40 | 273 | -716 |
| 6+69.55 | 61.7 | 43.9 | 46.1 | 6.9 | 42 | 32 | 36 | 7 | 283 | -687 |
| Totals | | | | | 2364 | 2081 | 5888 | 6575 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

US 85 Gravel Tie-Down N. of 52nd St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 14 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 0+16.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0+50.00 | 40.0 | 19.7 | 34.0 | 15.9 | 25 | 12 | 21 | 13 | 13 | 8 |
| 0+80.00 | 40.0 | 22.9 | 46.6 | 17.0 | 44 | 24 | 45 | 23 | 33 | 30 |
| 1+00.00 | 32.1 | 11.5 | 12.9 | 30.1 | 27 | 13 | 22 | 22 | 47 | 30 |
| 1+17.73 | 40.0 | 11.4 | 21.4 | 17.1 | 24 | 8 | 11 | 19 | 63 | 22 |
| 1+60.00 | 40.0 | 22.9 | 69.2 | 2.6 | 63 | 27 | 71 | 19 | 99 | 74 |
| 1+90.00 | 39.3 | 11.4 | 72.2 | 1.3 | 44 | 19 | 79 | 3 | 124 | 150 |
| 2+00.00 | 39.1 | 11.4 | 80.4 | 0.9 | 15 | 4 | 28 | 0 | 135 | 178 |
| 2+20.00 | 40.0 | 22.9 | 93.6 | 0.0 | 29 | 13 | 64 | 0 | 151 | 242 |
| 3+00.00 | 40.0 | 22.9 | 29.9 | 50.2 | 119 | 68 | 183 | 93 | 202 | 332 |
| 4+00.00 | 37.1 | 20.0 | 16.1 | 107.4 | 143 | 79 | 85 | 365 | 266 | 52 |
| 5+00.00 | 38.3 | 21.1 | 12.6 | 133.7 | 140 | 76 | 53 | 558 | 330 | -453 |
| 6+00.00 | 36.3 | 19.1 | 19.2 | 96.3 | 138 | 75 | 59 | 533 | 393 | -927 |
| 7+00.00 | 39.1 | 22.0 | 11.9 | 172.5 | 140 | 76 | 57 | 623 | 457 | -1493 |
| 7+20.29 | 39.0 | 21.8 | 9.9 | 179.8 | 29 | 16 | 8 | 165 | 470 | -1650 |
| 7+23.71 | 38.8 | 21.7 | 9.2 | 181.4 | 5 | 3 | 1 | 29 | 472 | -1678 |
| 8+00.00 | 34.1 | 17.0 | 0.0 | 198.9 | 103 | 55 | 13 | 672 | 520 | -2337 |
| 9+00.00 | 30.0 | 12.8 | 0.0 | 123.3 | 119 | 55 | 0 | 747 | 584 | -3084 |
| 10+00.00 | 25.6 | 8.4 | 0.0 | 55.5 | 103 | 39 | 0 | 414 | 648 | -3498 |
| 11+00.00 | 40.0 | 22.9 | 16.7 | 49.7 | 121 | 58 | 31 | 244 | 711 | -3711 |
| 12+00.00 | 40.0 | 22.9 | 3.0 | 125.7 | 148 | 85 | 36 | 407 | 774 | -4082 |
| 13+00.00 | 40.0 | 22.9 | 17.2 | 64.0 | 148 | 85 | 37 | 439 | 837 | -4484 |
| 14+00.00 | 40.0 | 22.9 | 127.1 | 0.0 | 148 | 85 | 267 | 148 | 900 | -4365 |
| 15+00.00 | 40.0 | 22.9 | 151.1 | 0.0 | 148 | 85 | 515 | 0 | 963 | -3850 |
| 15+15.00 | 40.0 | 22.9 | 149.1 | 0.0 | 22 | 13 | 83 | 0 | 972 | -3767 |
| 15+51.58 | 40.1 | 11.4 | 73.2 | 0.1 | 54 | 23 | 151 | 0 | 1003 | -3616 |
| 15+90.00 | 34.3 | 17.2 | 32.0 | 32.5 | 53 | 20 | 75 | 29 | 1036 | -3570 |
| 16+00.00 | 35.6 | 18.5 | 33.1 | 41.7 | 13 | 7 | 12 | 18 | 1042 | -3576 |
| 17+00.00 | 39.4 | 22.2 | 46.8 | 63.4 | 139 | 75 | 148 | 244 | 1106 | -3672 |
| 18+00.00 | 33.7 | 16.6 | 16.7 | 53.2 | 135 | 72 | 118 | 270 | 1169 | -3824 |
| 19+00.00 | 40.0 | 22.9 | 199.7 | 0.0 | 137 | 73 | 401 | 123 | 1233 | -3546 |
| 20+00.00 | 40.0 | 22.9 | 136.9 | 0.0 | 148 | 85 | 623 | 0 | 1296 | -2923 |
| 21+00.00 | 40.0 | 22.9 | 146.4 | 0.0 | 148 | 85 | 525 | 0 | 1359 | -2398 |
| 22+00.00 | 34.6 | 17.4 | 16.7 | 75.3 | 138 | 75 | 302 | 174 | 1422 | -2270 |
| 22+34.55 | 34.5 | 17.3 | 25.3 | 45.2 | 44 | 22 | 27 | 97 | 1444 | -2340 |
| 22+39.00 | 34.3 | 17.2 | 24.7 | 41.2 | 6 | 3 | 4 | 9 | 1447 | -2345 |
| 22+50.00 | 40.0 | 22.6 | 26.2 | 32.4 | 15 | 8 | 10 | 19 | 1454 | -2354 |
| Totals | | | | | 3075 | 1621 | 4165 | 6519 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Bennett Loop

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 15 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 3+23.22 | 0.0 | 13.1 | 69.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3+25.00 | 0.0 | 13.1 | 68.9 | 0.0 | 0 | 1 | 5 | 0 | -1 | 5 |
| 3+50.00 | 0.0 | 13.0 | 66.9 | 0.0 | 0 | 12 | 63 | 0 | -13 | 68 |
| 3+75.00 | 0.0 | 12.9 | 64.9 | 0.0 | 0 | 12 | 62 | 0 | -25 | 130 |
| 3+83.90 | 0.0 | 22.9 | 89.2 | 0.0 | 0 | 6 | 26 | 0 | -31 | 156 |
| 4+00.00 | 0.0 | 21.6 | 83.5 | 0.0 | 0 | 13 | 51 | 0 | -44 | 207 |
| 4+09.66 | 0.0 | 19.5 | 76.8 | 0.9 | 0 | 7 | 29 | 0 | -51 | 236 |
| 4+25.00 | 0.0 | 14.8 | 59.6 | 7.9 | 0 | 10 | 39 | 3 | -61 | 272 |
| 4+28.18 | 0.0 | 9.6 | 50.9 | 11.3 | 0 | 1 | 6 | 2 | -62 | 276 |
| 4+50.00 | 0.0 | 4.5 | 51.2 | 23.3 | 0 | 6 | 42 | 18 | -68 | 300 |
| 4+75.00 | 0.0 | 4.1 | 56.6 | 24.9 | 0 | 4 | 50 | 28 | -72 | 322 |
| 5+00.00 | 0.0 | 4.6 | 53.0 | 25.4 | 0 | 4 | 51 | 29 | -76 | 344 |
| 5+24.17 | 0.0 | 7.7 | 48.1 | 1.0 | 0 | 6 | 46 | 15 | -82 | 375 |
| Totals | | | | | 0 | 82 | 470 | 95 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Jackson Street

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 16 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 23+80.00 | 0.0 | 26.0 | 85.9 | 11.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24+00.00 | 0.0 | 25.9 | 139.4 | 14.5 | 0 | 19 | 84 | 13 | -19 | 71 |
| 24+25.00 | 0.0 | 37.3 | 280.6 | 7.1 | 0 | 29 | 195 | 13 | -48 | 253 |
| 24+32.89 | 0.0 | 47.1 | 307.8 | 44.2 | 0 | 12 | 85 | 9 | -60 | 329 |
| 24+50.00 | 0.0 | 47.2 | 29.3 | 214.5 | 0 | 30 | 107 | 103 | -90 | 333 |
| 24+50.59 | 0.0 | 47.7 | 27.8 | 229.0 | 0 | 1 | 1 | 7 | -91 | 327 |
| 24+73.19 | 0.0 | 45.2 | 1.4 | 472.0 | 0 | 39 | 12 | 367 | -130 | -28 |
| 24+75.00 | 0.0 | 44.5 | 1.7 | 469.8 | 0 | 3 | 0 | 39 | -133 | -67 |
| 24+83.45 | 0.0 | 39.3 | 1.8 | 432.5 | 0 | 13 | 1 | 177 | -146 | -243 |
| 25+00.00 | 0.0 | 37.5 | 1.9 | 348.4 | 0 | 24 | 1 | 299 | -170 | -541 |
| 25+12.00 | 0.0 | 20.6 | 66.8 | 81.9 | 0 | 13 | 15 | 120 | -183 | -646 |
| Totals | | | | | 0 | 183 | 501 | 1147 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

James Drive

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 17 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 1+58.00 | 0.0 | 24.9 | 48.2 | 198.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1+75.00 | 0.0 | 14.2 | 12.2 | 27.2 | 0 | 12 | 19 | 89 | -12 | -70 |
| 2+00.00 | 0.0 | 24.9 | 1.5 | 186.1 | 0 | 18 | 6 | 124 | -30 | -188 |
| 2+09.45 | 0.0 | 20.6 | 1.3 | 151.4 | 0 | 8 | 0 | 74 | -38 | -262 |
| 2+25.00 | 0.0 | 6.3 | 11.1 | 14.1 | 0 | 8 | 4 | 60 | -46 | -318 |
| 2+30.03 | 0.0 | 0.0 | 44.3 | 0.0 | 0 | 1 | 5 | 2 | -47 | -315 |
| 2+36.89 | 0.0 | 0.0 | 69.6 | 0.0 | 0 | 0 | 14 | 0 | -47 | -301 |
| Totals | | | | | 0 | 47 | 48 | 349 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Bennett Loop

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 18 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 15+84.07 | 29.5 | 57.9 | 149.9 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16+00.00 | 29.2 | 57.9 | 177.4 | 0.1 | 17 | 34 | 96 | 0 | -17 | 96 |
| 16+41.18 | 28.9 | 28.9 | 158.7 | 1.1 | 44 | 66 | 256 | 2 | -39 | 350 |
| 16+50.07 | 28.9 | 28.9 | 153.2 | 1.6 | 10 | 10 | 51 | 0 | -39 | 401 |
| 16+59.70 | 28.9 | 29.0 | 146.7 | 1.7 | 10 | 10 | 54 | 2 | -39 | 453 |
| 17+00.00 | 29.1 | 57.9 | 179.5 | 0.0 | 43 | 65 | 243 | 2 | -61 | 694 |
| 17+02.92 | 29.2 | 57.9 | 178.8 | 0.1 | 3 | 6 | 20 | 0 | -64 | 714 |
| 17+46.14 | 29.5 | 58.0 | 183.3 | 9.0 | 47 | 93 | 289 | 9 | -110 | 994 |
| 17+64.66 | 29.3 | 58.0 | 176.1 | 19.1 | 20 | 40 | 123 | 13 | -130 | 1104 |
| 17+85.24 | 29.5 | 58.4 | 178.9 | 34.7 | 22 | 44 | 135 | 27 | -152 | 1212 |
| 17+85.37 | 29.5 | 58.4 | 178.9 | 34.7 | 0 | 0 | 1 | 0 | -152 | 1213 |
| 18+00.00 | 29.7 | 59.0 | 180.3 | 39.9 | 16 | 32 | 98 | 25 | -168 | 1286 |
| 19+00.00 | 37.7 | 69.7 | 228.1 | 124.5 | 125 | 238 | 757 | 380 | -281 | 1663 |
| 20+00.00 | 58.3 | 70.5 | 355.5 | 327.5 | 178 | 260 | 1081 | 1047 | -363 | 1697 |
| 20+78.17 | 84.7 | 70.5 | 144.5 | 374.1 | 207 | 204 | 724 | 1270 | -360 | 1151 |
| 20+86.86 | 87.5 | 70.5 | 135.3 | 386.7 | 28 | 23 | 45 | 153 | -355 | 1043 |
| 20+95.55 | 87.5 | 70.5 | 156.7 | 411.7 | 28 | 23 | 47 | 160 | -350 | 930 |
| 21+00.00 | 62.5 | 45.4 | 72.0 | 415.1 | 12 | 10 | 19 | 85 | -348 | 864 |
| 21+63.75 | 64.2 | 47.2 | 22.0 | 502.0 | 150 | 109 | 111 | 1354 | -307 | -379 |
| 22+00.00 | 64.0 | 47.0 | 14.8 | 489.1 | 86 | 63 | 25 | 832 | -284 | -1186 |
| 22+02.85 | 63.9 | 46.9 | 15.6 | 482.9 | 7 | 5 | 2 | 64 | -282 | -1248 |
| 22+43.09 | 62.5 | 45.5 | 36.8 | 438.7 | 94 | 69 | 39 | 859 | -257 | -2068 |
| 22+46.07 | 62.5 | 45.5 | 36.5 | 439.0 | 7 | 5 | 4 | 60 | -255 | -2124 |
| 22+86.31 | 63.1 | 46.1 | 44.6 | 463.6 | 94 | 68 | 60 | 842 | -229 | -2906 |
| 22+89.29 | 63.2 | 46.2 | 44.7 | 467.1 | 7 | 5 | 5 | 64 | -227 | -2965 |
| 23+00.00 | 63.3 | 46.3 | 48.4 | 477.4 | 25 | 18 | 18 | 234 | -220 | -3181 |
| 23+29.53 | 63.4 | 46.4 | 43.3 | 502.3 | 69 | 51 | 50 | 670 | -202 | -3801 |
| 23+68.63 | 62.9 | 45.9 | 27.1 | 536.8 | 91 | 67 | 51 | 940 | -178 | -4690 |
| 24+00.00 | 62.4 | 45.3 | 13.1 | 530.1 | 73 | 53 | 23 | 775 | -158 | -5442 |
| 25+00.00 | 60.7 | 43.6 | 6.4 | 415.3 | 228 | 165 | 36 | 2189 | -95 | -7595 |
| 26+00.00 | 60.1 | 43.0 | 13.7 | 355.3 | 224 | 160 | 37 | 1784 | -31 | -9342 |
| 27+00.00 | 56.1 | 39.1 | 67.3 | 186.2 | 215 | 152 | 150 | 1254 | 32 | -10446 |
| 27+47.22 | 55.7 | 38.7 | 73.1 | 159.1 | 98 | 68 | 123 | 378 | 62 | -10701 |
| 27+86.32 | 56.1 | 39.1 | 68.9 | 164.8 | 81 | 56 | 103 | 293 | 87 | -10891 |
| 28+00.00 | 23.0 | 38.7 | 67.3 | 130.7 | 20 | 20 | 35 | 94 | 87 | -10950 |
| 28+29.54 | 54.5 | 43.6 | 30.3 | 211.3 | 42 | 45 | 53 | 234 | 84 | -11131 |
| 28+67.66 | 0.0 | 0.0 | 0.0 | 0.0 | 38 | 31 | 21 | 187 | 91 | -11297 |
| Totals | | | | | 2459 | 2368 | 4985 | 16282 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

141st Ave. NW South of 51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 19 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 44+60.00 | 22.2 | 32.9 | 114.7 | 11.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44+75.00 | 31.7 | 32.9 | 97.9 | 13.3 | 15 | 18 | 59 | 9 | -3 | 50 |
| 45+00.00 | 33.8 | 32.9 | 76.7 | 25.1 | 30 | 30 | 81 | 23 | -3 | 108 |
| 45+25.00 | 34.1 | 32.9 | 71.1 | 32.3 | 31 | 30 | 68 | 34 | -2 | 142 |
| 45+50.00 | 34.4 | 32.9 | 68.4 | 35.6 | 32 | 30 | 65 | 39 | 0 | 168 |
| 45+75.00 | 34.3 | 32.9 | 64.7 | 35.2 | 32 | 30 | 62 | 42 | 2 | 188 |
| 46+00.00 | 34.2 | 32.9 | 60.5 | 43.4 | 32 | 30 | 58 | 45 | 4 | 201 |
| 46+25.00 | 33.8 | 32.9 | 61.2 | 49.0 | 31 | 30 | 56 | 54 | 5 | 203 |
| 46+50.00 | 33.8 | 32.9 | 55.1 | 53.4 | 31 | 30 | 53 | 59 | 6 | 197 |
| 46+75.00 | 33.4 | 32.9 | 61.7 | 38.3 | 31 | 30 | 54 | 53 | 7 | 198 |
| 47+00.00 | 33.4 | 32.9 | 77.2 | 25.4 | 31 | 30 | 64 | 38 | 8 | 224 |
| 47+25.00 | 37.5 | 37.1 | 79.8 | 40.8 | 33 | 32 | 73 | 39 | 9 | 258 |
| 47+50.00 | 41.6 | 41.3 | 106.6 | 44.1 | 37 | 36 | 86 | 49 | 10 | 295 |
| 47+52.99 | 42.1 | 41.8 | 109.2 | 44.0 | 5 | 5 | 12 | 7 | 10 | 300 |
| 47+72.99 | 45.5 | 45.3 | 126.3 | 60.2 | 32 | 32 | 88 | 49 | 10 | 339 |
| 47+75.00 | 45.8 | 45.4 | 127.9 | 61.8 | 3 | 3 | 10 | 7 | 10 | 342 |
| 48+00.00 | 50.1 | 47.2 | 142.9 | 76.9 | 44 | 43 | 125 | 80 | 11 | 387 |
| 48+15.33 | 53.0 | 48.4 | 152.7 | 87.8 | 29 | 27 | 84 | 59 | 13 | 412 |
| 48+25.00 | 54.9 | 49.1 | 152.9 | 100.8 | 19 | 17 | 55 | 43 | 15 | 424 |
| 48+45.99 | 58.2 | 50.4 | 154.1 | 124.9 | 44 | 39 | 119 | 110 | 20 | 433 |
| 48+50.00 | 58.6 | 50.7 | 157.6 | 126.4 | 9 | 8 | 24 | 24 | 21 | 433 |
| 48+75.00 | 42.4 | 34.2 | 102.2 | 130.0 | 47 | 39 | 120 | 149 | 29 | 404 |
| 49+00.00 | 42.3 | 33.6 | 97.7 | 124.5 | 39 | 31 | 93 | 148 | 37 | 349 |
| 49+25.00 | 67.3 | 58.7 | 270.7 | 124.5 | 51 | 43 | 170 | 144 | 45 | 375 |
| 49+33.43 | 67.4 | 58.8 | 263.6 | 124.1 | 21 | 18 | 83 | 49 | 48 | 409 |
| 49+50.00 | 67.0 | 58.3 | 254.6 | 121.8 | 41 | 36 | 159 | 94 | 53 | 474 |
| 49+75.00 | 67.7 | 58.7 | 247.0 | 124.0 | 62 | 54 | 232 | 143 | 61 | 563 |
| 49+89.88 | 67.7 | 58.5 | 248.6 | 123.4 | 37 | 32 | 136 | 87 | 66 | 612 |
| 50+00.00 | 69.1 | 58.7 | 238.0 | 133.3 | 26 | 22 | 91 | 63 | 70 | 640 |
| 50+20.54 | 69.3 | 59.7 | 226.1 | 150.1 | 53 | 45 | 176 | 139 | 78 | 677 |
| 50+25.00 | 69.5 | 59.9 | 223.6 | 150.4 | 11 | 10 | 37 | 33 | 79 | 681 |
| 50+38.43 | 70.4 | 60.8 | 218.2 | 168.8 | 35 | 30 | 109 | 104 | 84 | 686 |
| 50+50.00 | 71.2 | 61.6 | 219.7 | 182.2 | 30 | 26 | 94 | 99 | 88 | 681 |
| 50+53.88 | 71.2 | 61.6 | 220.8 | 181.1 | 10 | 9 | 31 | 35 | 89 | 677 |
| 50+75.00 | 72.8 | 62.8 | 218.0 | 220.1 | 56 | 49 | 172 | 203 | 96 | 646 |
| 51+00.00 | 74.7 | 64.0 | 210.2 | 255.2 | 68 | 59 | 198 | 278 | 105 | 566 |
| 51+03.61 | 75.1 | 64.4 | 210.3 | 250.3 | 10 | 9 | 28 | 44 | 106 | 550 |
| 51+04.33 | 75.2 | 64.4 | 210.4 | 249.3 | 2 | 2 | 6 | 9 | 106 | 547 |
| 51+25.00 | 76.8 | 66.0 | 199.3 | 303.5 | 58 | 50 | 156 | 272 | 114 | 431 |
| 51+50.00 | 78.0 | 67.3 | 192.4 | 365.1 | 72 | 62 | 182 | 389 | 124 | 224 |
| 51+50.43 | 78.1 | 67.3 | 192.5 | 354.9 | 1 | 1 | 3 | 8 | 124 | 219 |
| 51+70.20 | 78.7 | 68.2 | 193.8 | 409.0 | 57 | 50 | 142 | 357 | 131 | 4 |
| 51+75.00 | 78.9 | 68.5 | 192.7 | 414.7 | 14 | 12 | 34 | 93 | 133 | -55 |
| 51+96.01 | 80.2 | 69.9 | 169.1 | 479.9 | 62 | 54 | 141 | 442 | 141 | -356 |
| 52+00.00 | 80.4 | 70.1 | 163.6 | 482.4 | 12 | 10 | 24 | 90 | 143 | -422 |
| 52+25.00 | 80.9 | 71.2 | 133.9 | 526.5 | 75 | 65 | 138 | 590 | 153 | -874 |
| 52+25.43 | 80.9 | 71.2 | 133.6 | 515.6 | 1 | 1 | 2 | 10 | 153 | -882 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 20 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 52+50.00 | 81.4 | 72.4 | 110.6 | 529.8 | 74 | 65 | 111 | 602 | 162 | -1373 |
| 52+75.00 | 81.7 | 72.2 | 92.4 | 577.0 | 76 | 67 | 94 | 643 | 171 | -1922 |
| 53+00.00 | 82.8 | 73.9 | 91.0 | 641.5 | 76 | 68 | 85 | 707 | 179 | -2544 |
| 53+25.00 | 83.8 | 77.6 | 69.3 | 803.8 | 77 | 70 | 74 | 838 | 186 | -3308 |
| 53+30.54 | 21.1 | 75.8 | 74.4 | 693.3 | 11 | 16 | 15 | 193 | 181 | -3486 |
| 53+50.00 | 0.0 | 35.7 | 54.9 | 607.1 | 8 | 40 | 47 | 592 | 149 | -4031 |
| 53+75.00 | 0.0 | 65.2 | 72.2 | 560.8 | 0 | 47 | 58 | 679 | 102 | -4652 |
| 53+95.25 | 24.4 | 69.2 | 50.2 | 602.7 | 9 | 50 | 46 | 548 | 61 | -5154 |
| 54+00.00 | 33.5 | 70.1 | 39.7 | 651.4 | 5 | 12 | 8 | 139 | 54 | -5285 |
| 54+25.00 | 44.0 | 67.5 | 28.0 | 805.3 | 36 | 64 | 32 | 849 | 26 | -6102 |
| 54+45.59 | 47.2 | 69.0 | 30.5 | 840.7 | 35 | 52 | 22 | 788 | 9 | -6868 |
| 54+50.00 | 48.5 | 70.0 | 31.0 | 852.4 | 8 | 11 | 5 | 174 | 6 | -7037 |
| 54+50.54 | 48.7 | 51.6 | 0.9 | 851.9 | 1 | 1 | 0 | 22 | 6 | -7059 |
| 54+75.00 | 27.1 | 58.8 | 0.9 | 875.0 | 34 | 50 | 1 | 990 | -10 | -8048 |
| 54+75.43 | 26.2 | 64.5 | 0.9 | 797.7 | 0 | 1 | 0 | 17 | -11 | -8065 |
| 55+00.00 | 0.0 | 41.6 | 2.2 | 314.6 | 12 | 48 | 1 | 650 | -47 | -8714 |
| 55+36.37 | 0.0 | 0.0 | 0.0 | 17.0 | 0 | 28 | 1 | 264 | -75 | -8977 |
| West Subtotal | | | | | 1964 | 2039 | 4653 | 13630 | | |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 56+39.25 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56+75.00 | 0.0 | 21.3 | 44.3 | 30.8 | 0 | 14 | 29 | 25 | -14 | 4 |
| 56+88.72 | 0.0 | 31.8 | 2.2 | 163.6 | 0 | 13 | 12 | 62 | -27 | -46 |
| 57+00.00 | 0.0 | 38.2 | 1.8 | 256.0 | 0 | 15 | 1 | 110 | -42 | -155 |
| 57+25.00 | 1.2 | 26.1 | 0.8 | 186.0 | 1 | 30 | 1 | 257 | -71 | -411 |
| 57+50.00 | 55.1 | 25.0 | 9.2 | 136.6 | 26 | 24 | 5 | 187 | -69 | -593 |
| 57+63.84 | 51.3 | 22.3 | 11.3 | 124.6 | 27 | 12 | 5 | 84 | -54 | -672 |
| 57+75.00 | 49.2 | 21.0 | 12.6 | 118.6 | 21 | 9 | 5 | 63 | -42 | -730 |
| 57+93.54 | 46.8 | 19.6 | 12.0 | 122.8 | 33 | 14 | 8 | 104 | -23 | -826 |
| 58+00.00 | 46.2 | 19.5 | 11.6 | 126.0 | 11 | 5 | 3 | 38 | -17 | -861 |
| 58+25.00 | 45.4 | 19.9 | 9.9 | 140.1 | 42 | 18 | 10 | 154 | 7 | -1005 |
| 58+50.00 | 49.7 | 25.5 | 17.3 | 153.9 | 44 | 21 | 13 | 170 | 30 | -1162 |
| 58+54.44 | 50.5 | 26.5 | 18.9 | 156.2 | 8 | 4 | 3 | 33 | 34 | -1192 |
| 58+75.00 | 55.0 | 31.0 | 29.0 | 167.9 | 40 | 22 | 18 | 154 | 52 | -1328 |
| 59+00.00 | 55.3 | 31.3 | 35.7 | 180.0 | 51 | 29 | 30 | 202 | 74 | -1500 |
| 59+25.00 | 55.5 | 31.5 | 41.2 | 188.9 | 51 | 29 | 36 | 214 | 96 | -1678 |
| 59+50.00 | 55.8 | 31.7 | 49.1 | 192.4 | 52 | 29 | 42 | 222 | 119 | -1858 |
| 59+54.06 | 55.8 | 31.8 | 50.4 | 191.7 | 8 | 5 | 7 | 37 | 122 | -1888 |
| 59+75.00 | 55.9 | 31.8 | 56.6 | 187.5 | 43 | 25 | 41 | 184 | 140 | -2031 |
| 60+00.00 | 55.9 | 31.8 | 61.8 | 184.5 | 52 | 29 | 55 | 215 | 163 | -2191 |
| 60+25.00 | 49.0 | 31.9 | 77.2 | 183.6 | 49 | 30 | 65 | 213 | 182 | -2339 |
| 60+29.06 | 46.9 | 31.9 | 81.1 | 183.6 | 7 | 5 | 12 | 35 | 184 | -2362 |
| 60+50.00 | 35.9 | 31.8 | 101.0 | 183.1 | 32 | 25 | 71 | 178 | 191 | -2469 |
| 60+75.00 | 29.1 | 31.0 | 113.9 | 176.5 | 30 | 29 | 100 | 208 | 192 | -2577 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

51st St. NW (Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 21 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 60+94.43 | 24.3 | 30.5 | 118.9 | 158.4 | 19 | 22 | 83 | 150 | 189 | -2644 |
| 61+00.00 | 23.2 | 30.4 | 119.9 | 152.2 | 5 | 6 | 25 | 40 | 188 | -2659 |
| 61+01.75 | 22.8 | 30.4 | 120.1 | 150.4 | 1 | 2 | 8 | 13 | 187 | -2664 |
| 61+25.00 | 27.9 | 30.2 | 110.3 | 136.5 | 22 | 26 | 99 | 155 | 183 | -2720 |
| 61+41.06 | 33.4 | 30.1 | 102.5 | 127.0 | 18 | 18 | 63 | 98 | 183 | -2755 |
| 61+50.00 | 36.5 | 30.1 | 98.9 | 121.5 | 12 | 10 | 34 | 52 | 185 | -2773 |
| 61+75.00 | 45.0 | 30.0 | 92.7 | 109.6 | 38 | 28 | 89 | 134 | 195 | -2818 |
| 61+82.30 | 47.5 | 30.0 | 90.1 | 106.6 | 13 | 8 | 25 | 37 | 200 | -2830 |
| 61+92.30 | 51.2 | 30.1 | 84.8 | 103.3 | 18 | 11 | 33 | 49 | 207 | -2846 |
| 62+00.00 | 54.0 | 30.2 | 80.8 | 101.7 | 15 | 9 | 24 | 37 | 213 | -2859 |
| 62+02.30 | 54.3 | 30.3 | 80.4 | 101.4 | 5 | 3 | 7 | 12 | 215 | -2864 |
| 62+25.00 | 54.7 | 30.7 | 81.0 | 105.9 | 46 | 26 | 68 | 109 | 235 | -2905 |
| 62+30.66 | 54.8 | 30.8 | 81.2 | 109.1 | 11 | 6 | 17 | 29 | 240 | -2917 |
| 62+46.06 | 55.2 | 31.2 | 79.7 | 119.5 | 31 | 18 | 46 | 82 | 253 | -2953 |
| 62+50.00 | 55.3 | 31.3 | 79.7 | 122.7 | 8 | 5 | 12 | 23 | 256 | -2964 |
| 62+75.00 | 56.5 | 32.4 | 82.2 | 140.5 | 52 | 30 | 75 | 153 | 278 | -3042 |
| 63+00.00 | 57.1 | 33.1 | 86.2 | 152.5 | 53 | 30 | 78 | 170 | 301 | -3134 |
| 63+19.43 | 57.2 | 33.2 | 84.0 | 146.5 | 41 | 24 | 61 | 135 | 318 | -3208 |
| 63+25.00 | 57.1 | 33.1 | 82.7 | 143.3 | 12 | 7 | 17 | 38 | 323 | -3229 |
| 63+50.00 | 61.9 | 90.0 | 475.7 | 146.9 | 55 | 57 | 259 | 168 | 321 | -3138 |
| 63+75.00 | 54.6 | 80.6 | 398.2 | 144.5 | 54 | 79 | 404 | 169 | 296 | -2903 |
| 63+81.20 | 52.8 | 78.5 | 382.9 | 138.4 | 12 | 18 | 90 | 40 | 290 | -2853 |
| 64+00.00 | 0.0 | 74.6 | 414.5 | 120.7 | 18 | 53 | 278 | 113 | 255 | -2688 |
| 64+25.00 | 4.8 | 70.6 | 367.3 | 68.6 | 2 | 67 | 362 | 110 | 190 | -2436 |
| 64+50.00 | 24.8 | 67.8 | 318.5 | 52.2 | 14 | 64 | 318 | 70 | 140 | -2188 |
| 64+54.20 | 27.2 | 67.5 | 309.4 | 49.1 | 4 | 11 | 49 | 10 | 133 | -2149 |
| 64+75.00 | 35.0 | 64.2 | 272.9 | 45.4 | 24 | 51 | 225 | 45 | 106 | -1969 |
| 65+00.00 | 33.3 | 61.2 | 268.2 | 33.3 | 32 | 58 | 251 | 45 | 80 | -1763 |
| 65+25.00 | 32.1 | 59.2 | 255.9 | 21.0 | 30 | 56 | 243 | 32 | 54 | -1552 |
| 65+35.59 | 31.6 | 58.6 | 244.8 | 17.1 | 12 | 23 | 98 | 9 | 43 | -1463 |
| 65+50.00 | 31.1 | 58.2 | 235.2 | 12.9 | 17 | 31 | 128 | 10 | 29 | -1345 |
| 65+75.00 | 30.8 | 58.0 | 232.0 | 8.8 | 29 | 54 | 217 | 13 | 4 | -1141 |
| 66+00.00 | 30.6 | 58.0 | 236.1 | 4.4 | 28 | 54 | 217 | 8 | -22 | -932 |
| 66+25.00 | 30.6 | 58.0 | 225.9 | 0.1 | 28 | 54 | 214 | 3 | -48 | -721 |
| 66+50.00 | 30.5 | 57.9 | 208.7 | 2.4 | 28 | 54 | 201 | 2 | -74 | -522 |
| 66+69.35 | 30.5 | 57.9 | 204.4 | 3.3 | 22 | 42 | 148 | 3 | -94 | -377 |
| 66+75.00 | 30.4 | 57.9 | 202.9 | 4.0 | 6 | 12 | 43 | 2 | -100 | -336 |
| 66+87.88 | 30.3 | 78.0 | 228.9 | 2.2 | 14 | 32 | 103 | 2 | -118 | -235 |
| 67+00.00 | 30.4 | 58.7 | 186.8 | 4.0 | 14 | 31 | 94 | 2 | -135 | -143 |
| 67+25.00 | 30.6 | 57.0 | 177.8 | 1.5 | 28 | 54 | 169 | 4 | -161 | 22 |
| 67+37.88 | 30.6 | 56.2 | 166.8 | 1.2 | 15 | 27 | 82 | 2 | -173 | 102 |
| 67+50.00 | 30.7 | 55.4 | 155.6 | 2.5 | 14 | 25 | 72 | 2 | -184 | 172 |
| 67+75.00 | 30.7 | 55.5 | 160.2 | 2.4 | 28 | 51 | 146 | 3 | -207 | 315 |
| 68+00.00 | 30.7 | 55.7 | 166.6 | 1.4 | 28 | 52 | 151 | 3 | -231 | 463 |
| 68+25.00 | 30.4 | 55.6 | 169.9 | 1.3 | 28 | 52 | 156 | 2 | -255 | 617 |
| 68+50.00 | 30.8 | 55.6 | 176.2 | 1.0 | 28 | 51 | 160 | 2 | -278 | 775 |
| 68+75.00 | 30.6 | 55.3 | 183.8 | 1.0 | 28 | 51 | 167 | 2 | -301 | 940 |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
(Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 22 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 69+00.00 | 30.4 | 55.0 | 190.0 | 0.9 | 28 | 51 | 173 | 2 | -324 | 1111 |
| 69+25.00 | 30.6 | 55.4 | 190.5 | 0.9 | 28 | 51 | 176 | 2 | -347 | 1285 |
| 69+50.00 | 30.8 | 55.7 | 188.4 | 1.1 | 28 | 51 | 175 | 2 | -370 | 1458 |
| 69+75.00 | 30.7 | 55.7 | 178.9 | 2.2 | 28 | 52 | 170 | 2 | -394 | 1626 |
| 70+00.00 | 30.7 | 55.8 | 165.8 | 2.8 | 28 | 52 | 160 | 3 | -418 | 1783 |
| 70+25.00 | 31.2 | 56.2 | 161.1 | 2.0 | 29 | 52 | 151 | 3 | -441 | 1931 |
| 70+50.00 | 31.6 | 56.6 | 155.7 | 1.7 | 29 | 52 | 147 | 3 | -464 | 2075 |
| 70+75.00 | 31.3 | 56.3 | 141.8 | 2.4 | 29 | 52 | 138 | 3 | -487 | 2210 |
| 71+00.00 | 31.0 | 56.1 | 132.0 | 5.4 | 29 | 52 | 127 | 5 | -510 | 2332 |
| 71+25.00 | 30.9 | 56.0 | 131.4 | 8.7 | 29 | 52 | 122 | 9 | -533 | 2445 |
| 71+50.00 | 30.9 | 55.9 | 127.7 | 13.0 | 29 | 52 | 120 | 13 | -556 | 2552 |
| 71+75.00 | 30.5 | 55.6 | 120.2 | 15.5 | 28 | 52 | 115 | 17 | -580 | 2650 |
| 72+00.00 | 30.6 | 55.4 | 98.0 | 12.0 | 28 | 51 | 101 | 17 | -603 | 2734 |
| 72+25.00 | 30.5 | 55.2 | 106.1 | 14.4 | 28 | 51 | 94 | 15 | -626 | 2813 |
| 72+50.00 | 30.4 | 55.0 | 91.2 | 10.1 | 28 | 51 | 91 | 14 | -649 | 2890 |
| 73+00.00 | 0.0 | 0.0 | 0.0 | 0.0 | 28 | 51 | 84 | 12 | -672 | 2962 |
| East Subtotal | | | | | 2142 | 2814 | 8625 | 5663 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

51st St. NW (Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 23 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 1+23.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1+50.00 | 0.0 | 36.3 | 1.8 | 340.9 | 0 | 18 | 1 | 213 | -18 | -212 |
| 1+61.35 | 0.0 | 36.4 | 1.9 | 297.9 | 0 | 15 | 1 | 168 | -33 | -379 |
| 1+75.00 | 0.0 | 20.3 | 2.2 | 56.5 | 0 | 14 | 1 | 113 | -47 | -491 |
| 2+00.00 | 25.8 | 8.6 | 0.0 | 69.5 | 12 | 13 | 1 | 73 | -48 | -563 |
| 2+25.00 | 24.3 | 7.2 | 0.0 | 61.9 | 23 | 7 | 0 | 77 | -32 | -640 |
| 2+50.00 | 0.0 | 6.9 | 36.1 | 68.3 | 11 | 7 | 17 | 75 | -28 | -698 |
| 2+75.00 | 23.3 | 6.2 | 0.0 | 45.1 | 11 | 6 | 17 | 65 | -23 | -746 |
| 3+00.00 | 12.0 | 8.3 | 20.3 | 51.7 | 16 | 7 | 9 | 57 | -14 | -794 |
| 3+25.00 | 8.5 | 3.6 | 21.0 | 10.9 | 9 | 6 | 19 | 37 | -11 | -812 |
| 3+46.24 | 7.4 | 0.0 | 44.7 | 0.0 | 6 | 1 | 26 | 5 | -6 | -791 |
| Totals | | | | | 88 | 94 | 92 | 883 | | |

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Private Drive NE of 51st St NW

*Fill includes an additional 25% for shrinkage

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 24 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 1+23.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1+50.00 | 0.0 | 50.2 | 3.0 | 476.2 | 0 | 25 | 2 | 298 | -25 | -296 |
| 1+75.00 | 20.9 | 42.5 | 82.5 | 54.7 | 10 | 43 | 40 | 308 | -58 | -564 |
| 2+00.00 | 22.1 | 37.8 | 106.5 | 41.2 | 20 | 37 | 88 | 55 | -75 | -531 |
| 2+16.00 | 22.0 | 35.7 | 101.2 | 38.5 | 13 | 22 | 62 | 30 | -84 | -499 |
| 2+25.00 | 21.9 | 31.1 | 94.9 | 37.1 | 7 | 11 | 33 | 17 | -88 | -483 |
| 2+50.00 | 21.6 | 30.6 | 101.0 | 46.6 | 20 | 29 | 91 | 49 | -97 | -441 |
| 2+55.74 | 21.7 | 30.7 | 103.4 | 47.2 | 5 | 7 | 22 | 13 | -99 | -432 |
| 2+75.00 | 47.8 | 30.6 | 102.2 | 77.9 | 25 | 22 | 73 | 57 | -96 | -416 |
| 3+00.00 | 48.2 | 31.0 | 100.7 | 76.5 | 44 | 29 | 94 | 89 | -81 | -411 |
| 3+25.00 | 48.2 | 31.1 | 98.6 | 83.6 | 45 | 29 | 92 | 93 | -65 | -412 |
| 3+50.00 | 49.3 | 32.1 | 87.3 | 99.5 | 45 | 29 | 86 | 107 | -49 | -433 |
| 3+75.00 | 50.7 | 33.5 | 81.6 | 123.6 | 46 | 30 | 78 | 129 | -33 | -484 |
| 4+00.00 | 48.7 | 31.5 | 76.5 | 117.8 | 46 | 30 | 73 | 140 | -17 | -551 |
| 4+25.00 | 47.2 | 30.0 | 78.1 | 80.0 | 44 | 28 | 72 | 115 | -1 | -594 |
| 4+50.00 | 46.5 | 29.4 | 90.7 | 60.9 | 43 | 27 | 78 | 82 | 15 | -598 |
| 4+75.00 | 46.1 | 29.0 | 100.5 | 49.9 | 43 | 27 | 89 | 64 | 31 | -573 |
| 5+00.00 | 46.3 | 29.2 | 105.1 | 45.3 | 43 | 27 | 95 | 55 | 47 | -533 |
| 5+25.00 | 46.0 | 28.8 | 111.0 | 40.9 | 43 | 27 | 100 | 50 | 63 | -483 |
| 5+50.00 | 45.6 | 28.5 | 110.2 | 36.0 | 42 | 27 | 102 | 45 | 78 | -426 |
| 5+75.00 | 45.6 | 28.4 | 106.2 | 35.7 | 42 | 26 | 100 | 42 | 94 | -368 |
| 6+00.00 | 46.2 | 29.0 | 108.2 | 42.7 | 42 | 27 | 99 | 45 | 109 | -314 |
| 6+25.00 | 46.5 | 29.4 | 105.5 | 47.9 | 43 | 27 | 99 | 53 | 125 | -268 |
| 6+50.00 | 46.7 | 29.6 | 106.7 | 47.0 | 43 | 27 | 98 | 55 | 141 | -225 |
| 6+75.00 | 46.3 | 29.2 | 104.5 | 48.9 | 43 | 27 | 98 | 55 | 157 | -182 |
| 7+00.00 | 46.0 | 28.8 | 108.3 | 34.0 | 43 | 27 | 99 | 48 | 173 | -131 |
| 7+25.00 | 45.6 | 28.5 | 114.2 | 26.2 | 42 | 27 | 103 | 35 | 188 | -63 |
| 7+40.92 | 45.9 | 28.8 | 117.7 | 29.7 | 27 | 17 | 68 | 20 | 198 | -15 |
| 7+48.07 | 46.0 | 28.9 | 119.7 | 29.6 | 12 | 8 | 31 | 10 | 202 | 6 |
| Totals | | | | | 921 | 719 | 2165 | 2159 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

141st Ave. NW North of 51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 25 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 1+23.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1+60.00 | 0.0 | 10.7 | 25.3 | 0.0 | 0 | 7 | 17 | 0 | -7 | 17 |
| 1+75.00 | 0.0 | 24.7 | 2.1 | 101.6 | 0 | 10 | 8 | 35 | -17 | -10 |
| 2+00.00 | 0.0 | 34.8 | 2.0 | 204.0 | 0 | 28 | 2 | 177 | -45 | -185 |
| 2+14.02 | 0.0 | 27.6 | 2.0 | 132.3 | 0 | 16 | 1 | 109 | -61 | -293 |
| 2+25.00 | 0.0 | 21.2 | 2.0 | 78.6 | 0 | 10 | 1 | 54 | -71 | -346 |
| 2+40.00 | 0.0 | 0.0 | 61.2 | 0.0 | 0 | 6 | 18 | 28 | -77 | -356 |
| Totals | | | | | 0 | 77 | 47 | 403 | | |

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Private Drive at 9791+66.00

*Fill includes an additional 25% for shrinkage

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 26 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 1+50.00 | 6.7 | 4.9 | 26.9 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1+75.00 | 7.6 | 4.6 | 24.0 | 0.0 | 7 | 4 | 24 | 0 | 3 | 24 |
| 2+00.00 | 5.9 | 4.7 | 30.5 | 0.0 | 6 | 4 | 25 | 0 | 5 | 49 |
| 2+25.00 | 9.4 | 6.6 | 41.0 | 0.2 | 7 | 5 | 33 | 0 | 7 | 82 |
| 2+50.00 | 18.9 | 5.8 | 23.7 | 0.0 | 13 | 6 | 30 | 0 | 14 | 112 |
| 2+51.32 | 18.7 | 5.7 | 23.7 | 0.0 | 1 | 0 | 1 | 0 | 15 | 113 |
| South Total | | | | | 34 | 19 | 113 | 0 | | |
| Earthwork between 2+51.32 and 4+20.48 calculated with US 85 | | | | | | | | | | |
| 4+20.48 | 16.7 | 3.7 | 0.9 | 4.1 | 0 | 29 | 0 | 40 | -29 | -40 |
| 4+25.00 | 16.8 | 3.8 | 22.2 | 3.3 | 3 | 1 | 0 | 2 | -27 | -42 |
| 4+50.00 | 1.7 | 3.5 | 23.7 | 7.4 | 9 | 3 | 10 | 7 | -21 | -39 |
| 4+75.00 | 5.0 | 3.5 | 28.2 | 0.9 | 3 | 3 | 21 | 5 | -21 | -23 |
| 4+85.00 | 8.3 | 3.8 | 0.0 | 0.0 | 2 | 1 | 9 | 0 | -20 | -14 |
| North Total | | | | | 17 | 37 | 40 | 54 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

Connection at 9791+66.00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 27 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 20+80.79 | 43.2 | 38.9 | 0.0 | 23.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21+00.00 | 59.6 | 55.4 | 61.0 | 24.4 | 37 | 34 | 61 | 22 | 3 | 39 |
| 21+50.00 | 85.8 | 82.4 | 301.0 | 30.4 | 135 | 128 | 301 | 64 | 10 | 276 |
| 22+00.00 | 98.0 | 95.2 | 480.0 | 80.4 | 170 | 164 | 480 | 129 | 16 | 627 |
| 22+40.79 | 111.3 | 109.4 | 532.0 | 117.3 | 158 | 155 | 532 | 187 | 19 | 972 |
| 22+50.00 | 114.8 | 113.3 | 139.0 | 120.9 | 39 | 38 | 139 | 52 | 20 | 1059 |
| 22+91.71 | 133.8 | 134.8 | 686.0 | 105.2 | 192 | 192 | 686 | 219 | 20 | 1526 |
| 23+00.00 | 134.1 | 134.8 | 146.0 | 97.9 | 41 | 41 | 146 | 39 | 20 | 1633 |
| 23+50.00 | 137.6 | 136.3 | 948.0 | 73.2 | 252 | 251 | 948 | 198 | 21 | 2383 |
| 24+00.00 | 138.4 | 135.5 | 1128.0 | 46.4 | 256 | 252 | 1128 | 139 | 25 | 3372 |
| 24+50.00 | 142.1 | 138.4 | 1383.0 | 14.6 | 260 | 254 | 1383 | 70 | 31 | 4685 |
| 25+00.00 | 149.9 | 145.7 | 1755.0 | 0.0 | 270 | 263 | 1755 | 18 | 38 | 6422 |
| 25+02.62 | 150.5 | 146.2 | 105.0 | 0.0 | 15 | 14 | 105 | 0 | 39 | 6527 |
| 25+27.96 | 67.5 | 136.1 | 855.0 | 43.4 | 102 | 132 | 855 | 25 | 9 | 7357 |
| 25+50.00 | 1.6 | 65.3 | 418.0 | 131.0 | 28 | 82 | 418 | 89 | -45 | 7686 |
| 25+82.84 | 16.6 | 22.8 | 183.0 | 247.8 | 11 | 54 | 183 | 288 | -88 | 7581 |
| 26+00.00 | 0.0 | 41.9 | 1.0 | 326.2 | 5 | 21 | 1 | 228 | -104 | 7354 |
| 26+10.28 | 0.0 | 33.8 | 1.0 | 196.7 | 0 | 14 | 1 | 125 | -118 | 7230 |
| 26+37.00 | 0.0 | 0.0 | 60.0 | 0.0 | 0 | 17 | 60 | 122 | -135 | 7168 |
| West Totals | | | | | 1971 | 2106 | 9182 | 2014 | | |

*Fill includes an additional 25% for shrinkage

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Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

52nd St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 28 |

| Station | End Area (SF) | | | | Volume (CY) | | | | Mass Oridinate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Topsoil | | Embankment | | Topsoil | | Embankment | | Topsoil | Embankment |
| | Excavation | Fill | Excavation | Fill | Excavation | Fill | Excavation | Fill* | | |
| 27+78.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28+00.00 | 0.0 | 33.3 | 52.0 | 213.8 | 0 | 14 | 52 | 109 | -14 | -57 |
| 28+05.16 | 0.0 | 40.4 | 0.0 | 323.9 | 0 | 7 | 0 | 64 | -21 | -121 |
| 28+15.73 | 0.0 | 56.7 | 1.0 | 596.6 | 0 | 19 | 1 | 225 | -40 | -345 |
| 28+32.60 | 0.0 | 45.7 | 1.0 | 823.4 | 0 | 32 | 1 | 555 | -72 | -899 |
| 28+50.00 | 0.0 | 50.3 | 1.0 | 997.6 | 0 | 31 | 1 | 734 | -103 | -1632 |
| 28+87.48 | 0.0 | 48.3 | 1.0 | 924.2 | 0 | 68 | 1 | 1668 | -171 | -3299 |
| 29+00.00 | 0.0 | 87.5 | 36.0 | 729.4 | 0 | 31 | 36 | 479 | -202 | -3742 |
| 29+50.00 | 71.0 | 65.8 | 232.0 | 716.7 | 66 | 142 | 232 | 1674 | -278 | -5184 |
| 30+00.00 | 68.2 | 63.3 | 169.0 | 600.1 | 129 | 120 | 169 | 1524 | -269 | -6539 |
| 30+50.00 | 63.5 | 58.4 | 153.0 | 455.0 | 122 | 113 | 153 | 1222 | -260 | -7608 |
| 30+72.00 | 83.7 | 60.0 | 42.0 | 740.9 | 60 | 48 | 42 | 609 | -248 | -8175 |
| 31+00.00 | 56.6 | 52.1 | 55.0 | 326.6 | 73 | 58 | 55 | 692 | -233 | -8812 |
| 31+10.00 | 55.4 | 50.9 | 29.0 | 307.0 | 21 | 19 | 29 | 147 | -231 | -8930 |
| 31+50.00 | 50.6 | 45.9 | 91.0 | 212.0 | 78 | 72 | 91 | 480 | -225 | -9319 |
| 32+00.00 | 33.0 | 27.7 | 72.0 | 107.7 | 77 | 68 | 72 | 370 | -216 | -9617 |
| 32+50.00 | 27.2 | 22.2 | 58.0 | 32.7 | 56 | 46 | 58 | 163 | -206 | -9722 |
| 33+00.00 | 21.4 | 17.1 | 72.0 | 4.3 | 45 | 36 | 72 | 43 | -197 | -9693 |
| 33+10.00 | 20.5 | 16.3 | 16.0 | 3.2 | 8 | 6 | 16 | 2 | -195 | -9679 |
| 33+50.00 | 10.9 | 6.5 | 70.0 | 1.6 | 23 | 17 | 70 | 5 | -189 | -9614 |
| East Totals | | | | | 758 | 947 | 1151 | 10765 | | |

*Fill includes an additional 25% for shrinkage

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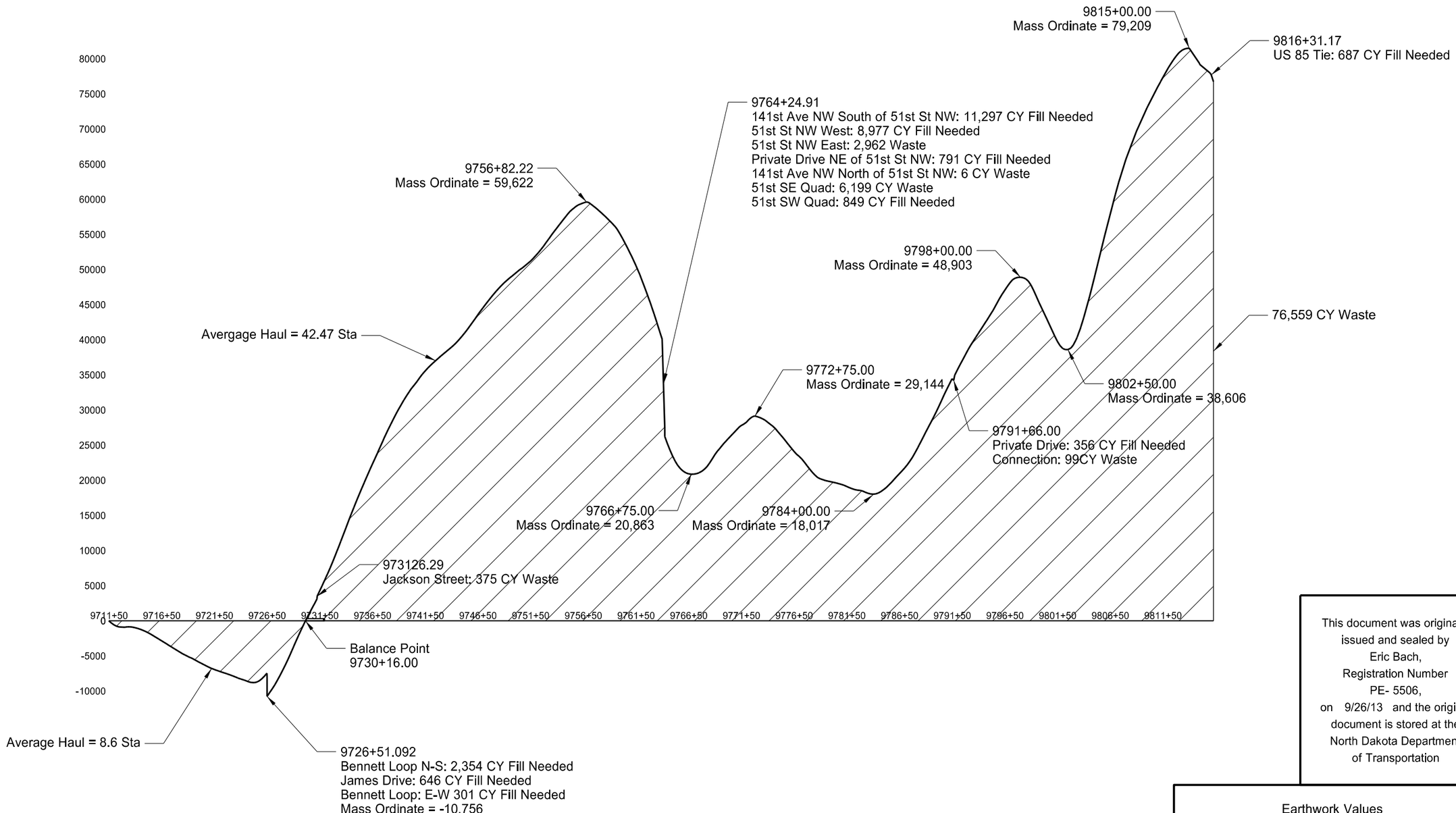
Earthwork Values

Williston NW Permanent Truck Reliever Route Phase 1A

52nd St. NW (Cont.)

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 11 | 29 |

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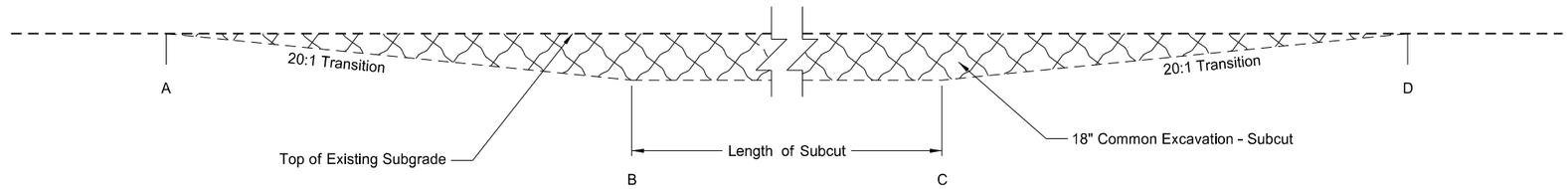
Earthwork Values

Williston NW Permanent Truck Reliever Route
Phase 1A

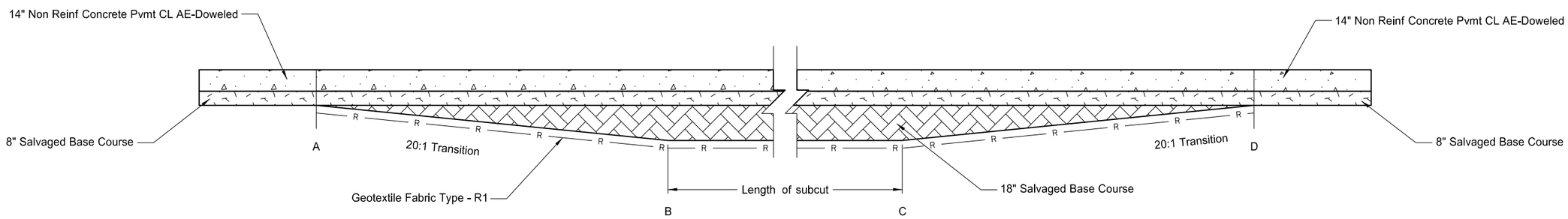
Mass Diagram

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 1 |

Note: Drawing not to scale




Subcut - Removal




Subcut - Backfill and Final Paving

| Subcut Summary | | | | |
|---|---|---|---|---|
| Number of Subcuts (1) | Length | Common Excavation - Subcut | Salvaged Base Course | Geotextile Fabric - Type R1 |
| Unit | LF | CY | TON | SY |
| BC | 1500 | 7912 | 14834 | 15818 |
| AB & CD | 60 | 158 | 297 | 633 |
| Total | 1560 | 8070 | 15131 | 16451 |

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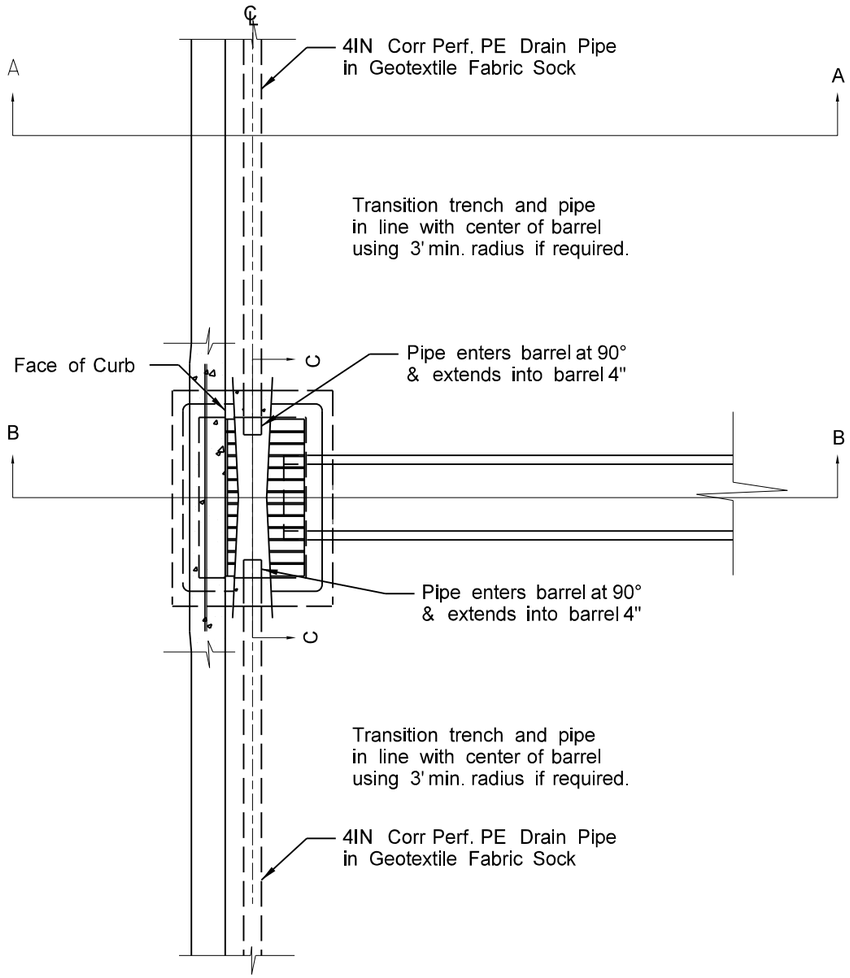
General Details

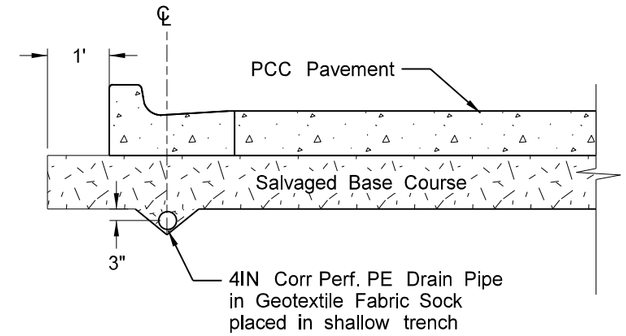
Williston NW Permanent Truck Reliever Route Phase 1A

Discretionary Subcut Detail

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 2 |

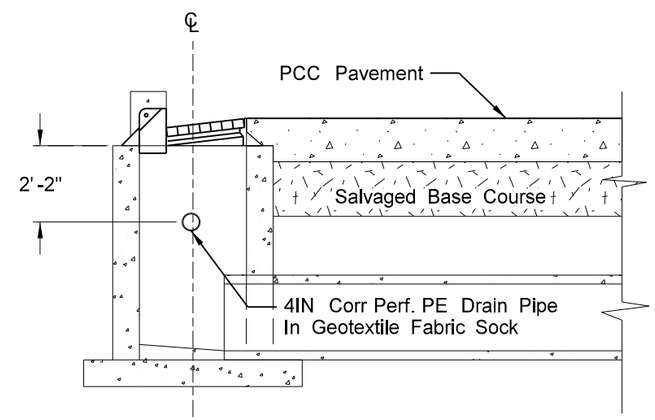



Edgedrain Connection to Inlets
Plan View



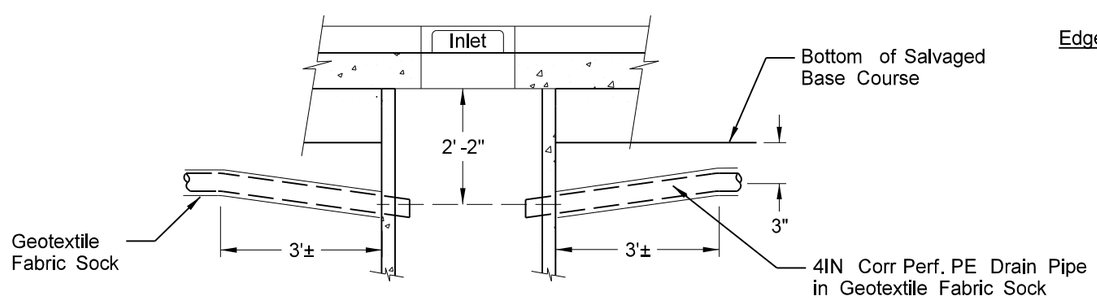

Edgedrain Layout
Profile View

SECTION A-A




Edgedrain Connection to Inlets
Profile View

SECTION B-B




Section C-C

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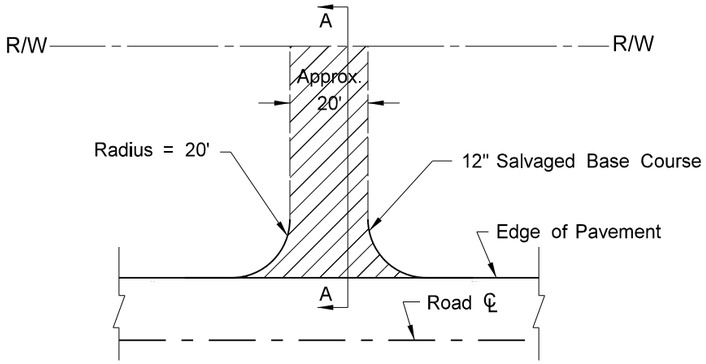
General Details

Williston NW Permanent Truck Reliever Route
Phase 1A

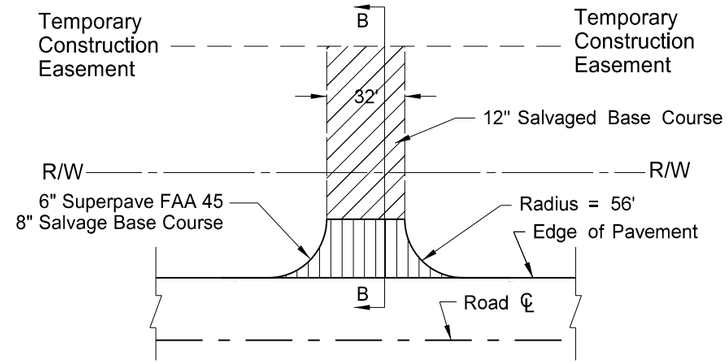
Edgedrain Detail

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 3 |




**(1) Gravel Private Drive Approach**

1+18 LT (PR_FR_S_BN_LP)
1+90 RT (PR_FR_S_BN_LP)
15+52 LT (PR_FR_S_BN_LP)
16+50 LT (PR_141_S_51)
30+72 LT (PR_52ND_ST)
30+72 RT (PR_52ND_ST)
Private Drive to Erickson Farm (PR_ELK)

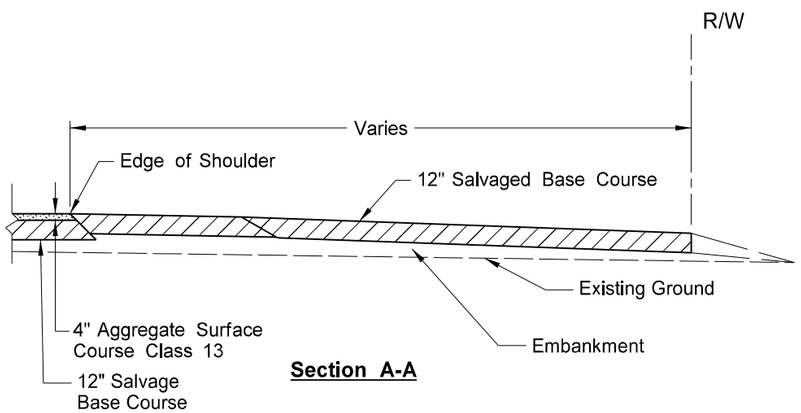



**(2) Paved Private Drive Approach**

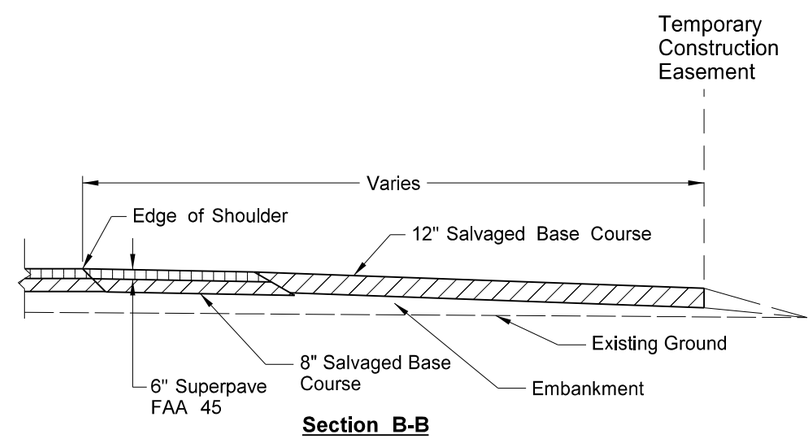
Private Drive NE of 51st St. NW (PR_PD_51_NE)
Private Drive NW of 51st St. NW (PR_PD_51_NW)
Private Drive to Erickson Farm (PR_ELK_CON)

Notes:

1. Actual HBP paving and salvaged base locations may vary in the field, as approved by the Engineer.
2. Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.
3. See Standard Drawing D203-08 Profiles and Cross Slope for maximum grades and side grading information.
4. Approximately 400 tons of salvaged base have been provided to fill in around the radii. This material will be required when sloughs are steeper than 4:1.




**Section A-A**




**Section B-B**

| Basis of Estimate | | | | (1) Gravel Drive | | (2) Paved Drive | | Total |
|---|---|---|---|---|---|---|---|---|
| Number of Locations | | | | 7 | | 3 | | |
| Spec | Code | Description | Unit | Total | Average | Total | Average | |
| 302 | 0100 | Salvaged Base Course @ 1.875 Ton/CY | Ton | 1230.0 | 175.7 | 3216.0 | 1072.0 | 4446 |
| 401 | 0100 | MC70 or 250 Liquid Asphalt @ 0.25 Gal/SY (one application on base course) | Gal | 0.0 | 0.0 | 222.0 | 74.0 | 222 |
| 401 | 0150 | SS-1h or CSS-1h or MS1 Emuls Asphalt @ 0.05 Gal/SY | Gal | 0.0 | 0.0 | 90.0 | 30.0 | 90 |
| 410 | 0215 | Superpave FAA 45 @ 2 Ton/CY | Ton | 0.0 | 0.0 | 277.0 | 92.3 | 277 |
| 410 | 0460 | PG 64-28 Asphalt Cement @ 6.0% | Ton | 0.0 | 0.0 | 18.0 | 6.0 | 18 |

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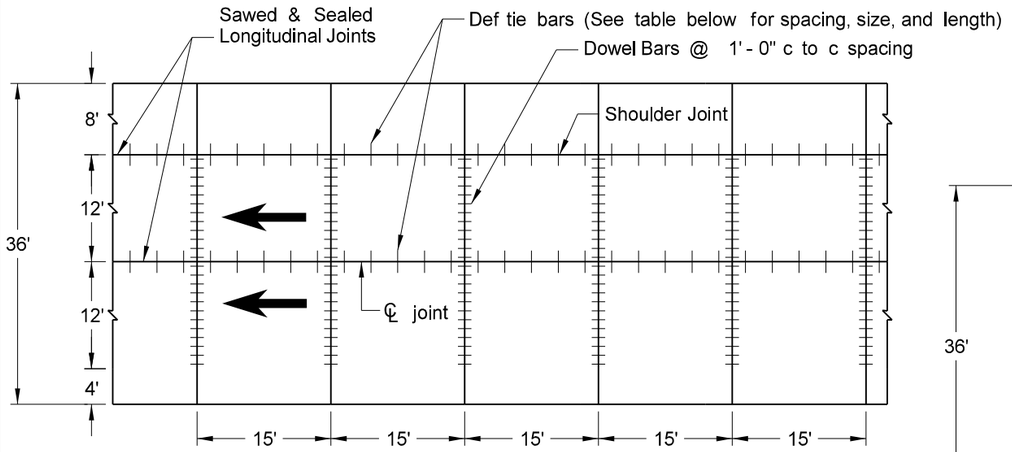
General Details

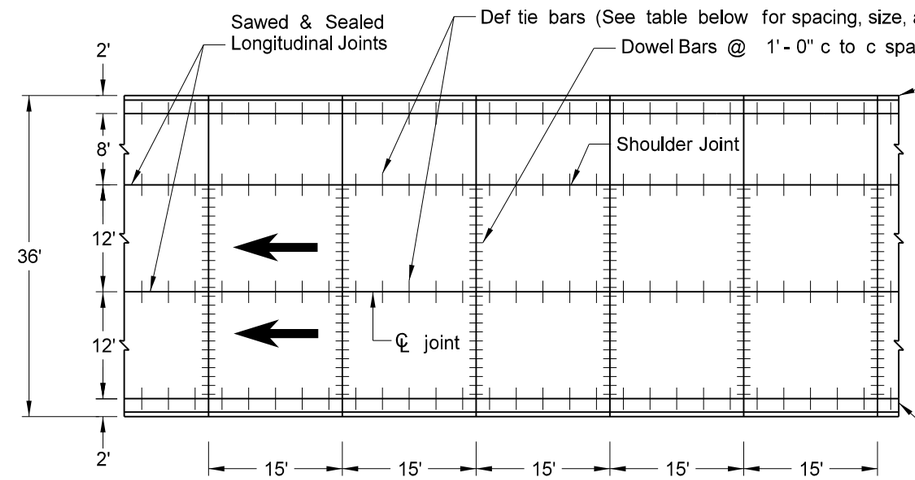
Williston NW Permanent Truck Reliever Route Phase 1A

Approach Paving Details

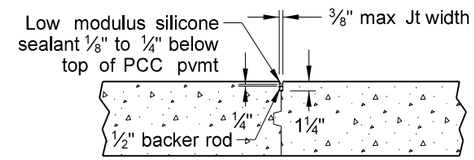
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 4 |



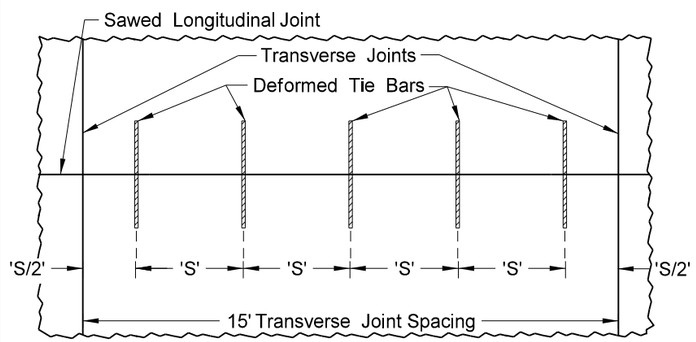

Mainline Joints
15' joint spacing

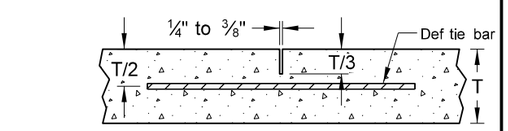



Mainline Joints
15' joint spacing

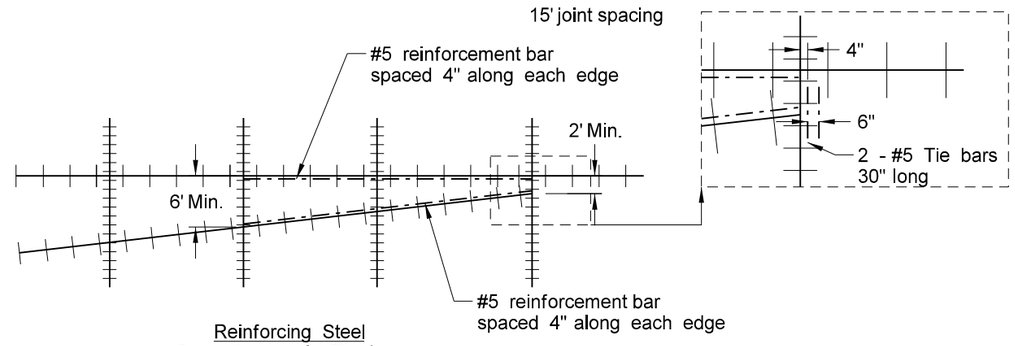



Longitudinal Joint Silicone Seal
(non-tied keyed joints)

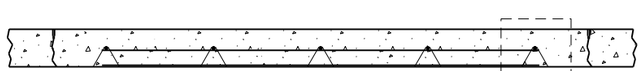


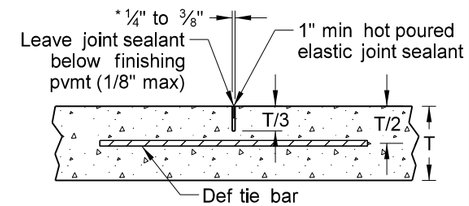

Joint Sawing Detail
(all sawed and tied joints)




Reinforcing Steel
Concrete panels 6' or less.
Stopper bars at end of longitudinal joint.



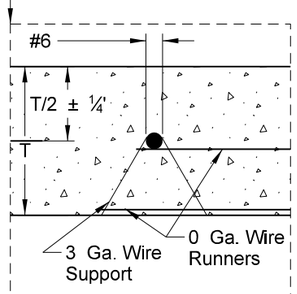
Longitudinal Tie Bar Assembly
(One unit shown)

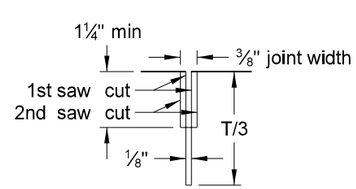



Joint Sealing Detail (all sawed and tied joints)
*Width requirement for top 1" only.
Bottom portion of saw cut may be narrower.

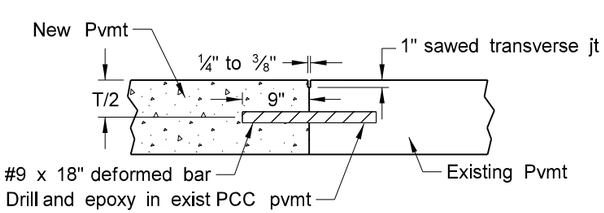
Notes:

1. T = Pavement Thickness
2. Dowel bars shall be 1½" x 18" for T greater than 10".
3. The cost for Reinforcing Steel shall be included in the unit price bid for "14IN Reinf Concrete Pavement CL AE-Doweled"




Transverse Joint Sawing




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

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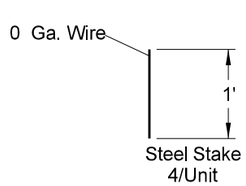
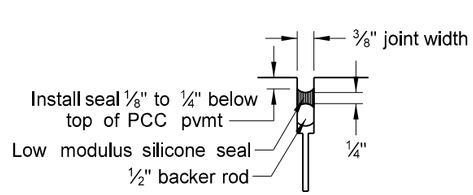
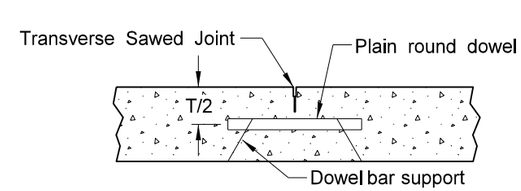
Longitudinal Joint Tie Bar Size, Length, and Spacing**

| | |
|---|---|
| Pavement Depth | 14" |
| CL ML | |
| Spacing 'S' | 36" |
| Size and Length | #6 Bar x 36" |
| 8' Shoulder | |
| Spacing 'S' | 36" |
| Size and Length | #6 Bar x 36" |




Transverse Joint Sealing




Doweled Transverse Joint

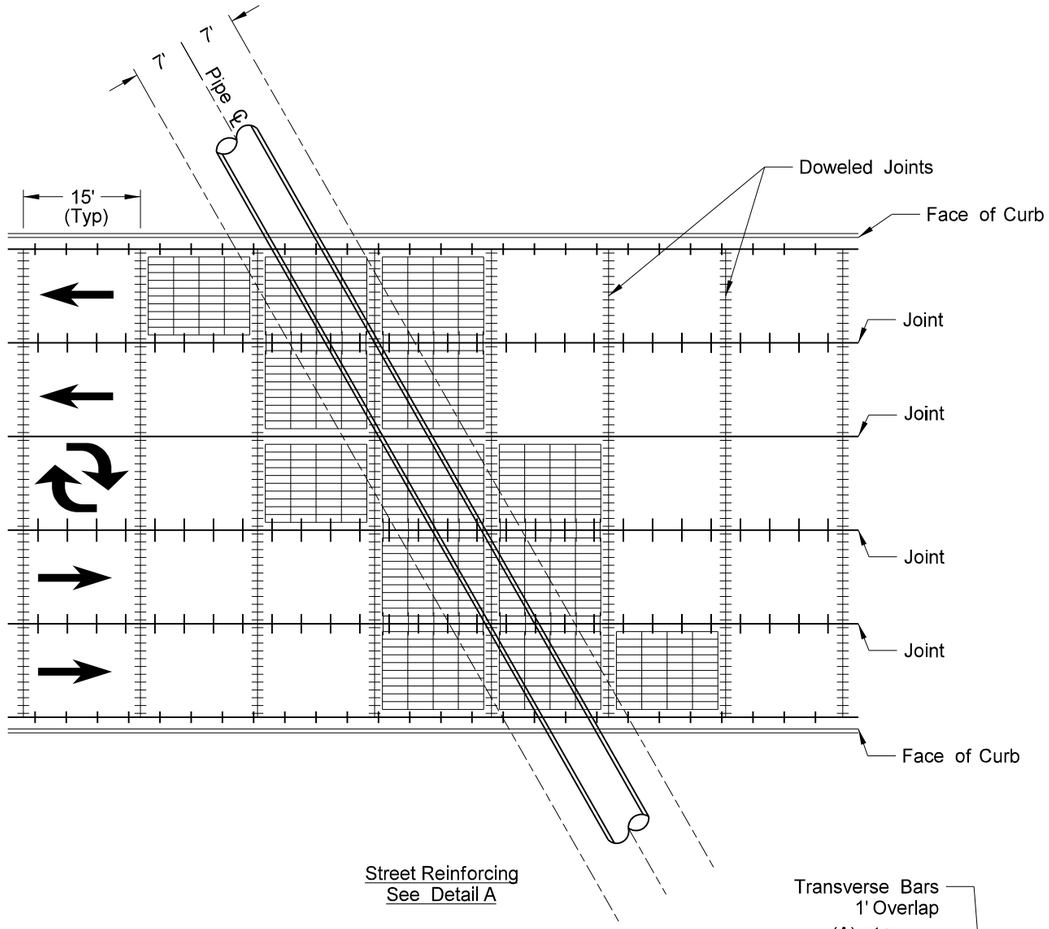
**Tie Bar Lengths listed are for Grade 40 Steel. See Std D-550-2 for Grade 60 Steel.

General Details

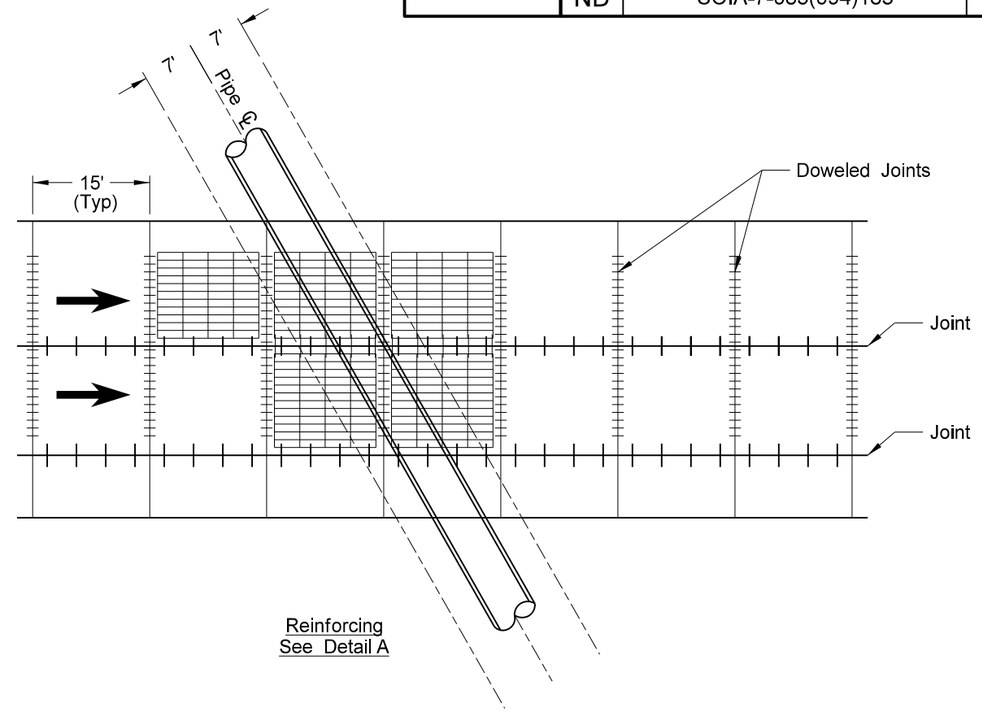
Williston NW Permanent Truck Reliever Route
Phase 1A

PCC Pavement Joint Details

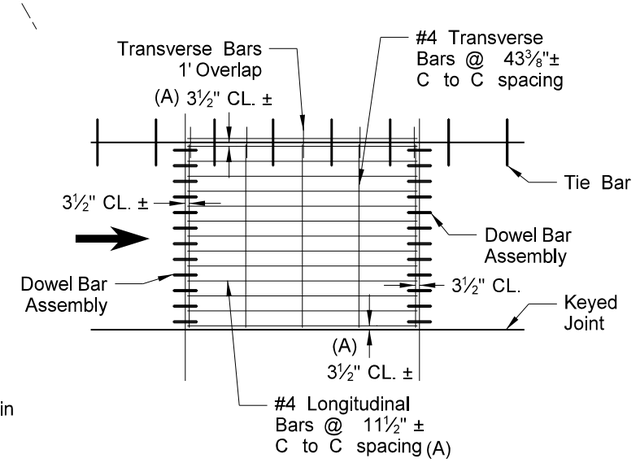
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 5 |




Street Reinforcing
See Detail A




Reinforcing
See Detail A




Detail A
Reinforcing Layout

(A) See Longitudinal Bar Spacings table for various panel widths.

| Longitudinal Bar Spacings | | |
|---|---|---|
| Panel Width | Longitudinal Bar Spacing | Bar Clearance, From Long. Joint |
| 12' | 11⅜" | 3½" |
| 14' | 11½" | 3¼" |
| 16' | 11½" | 3¾" |

NOTES:

1. Place reinforcing steel above dowel bars, above longitudinal centerline tie bars, and under shoulder tie bars.
2. A 1 foot minimum overlap of transverse reinforcing steel across the longitudinal tied joints shall be provided.
3. Transverse reinforcing steel shall be gapped across keyed joints a minimum of 6 inches (3 inches on each side of joint).
4. The complete panel shall be reinforced if any part of the panel lies within 7 feet of the pipe centerline.
5. All costs to furnish and install the reinforcing steel as shown shall be included in the price bid for concrete pavement items.
6. See Section 90 for joing types at pipe locations.

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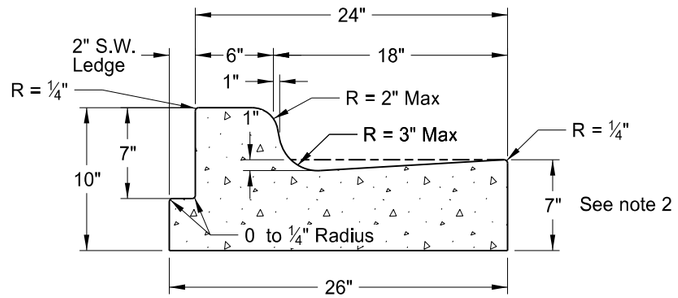
General Details

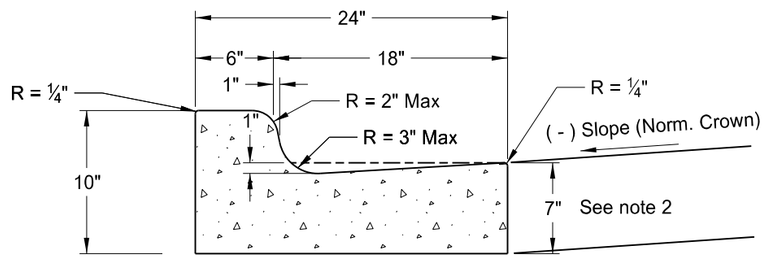
Williston NW Permanent Truck Reliever Route Phase 1A

Pavement Reinforcing at Pipe Locations

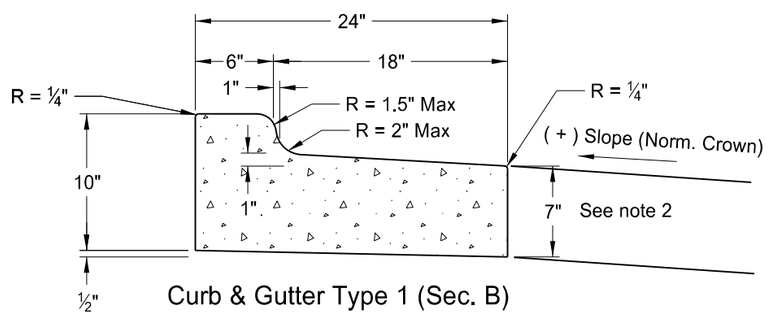
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 6 |



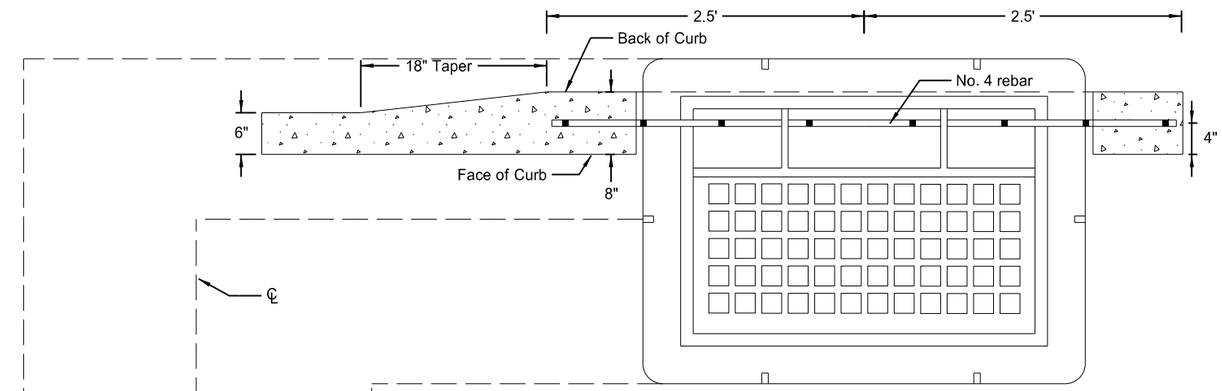

Curb & Gutter Type 1
Adjacent to Median



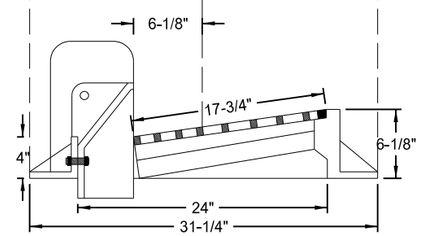

Curb & Gutter Type 1 (Sec. A)




Curb & Gutter Type 1 (Sec. B)




TOP



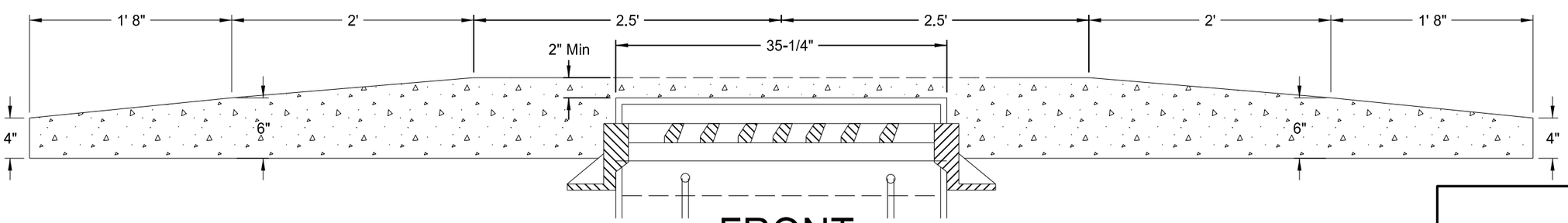

SIDE

NOTES:

1. Curb and Gutter Type 1 to be used. Section "A" to be used with ( - ) pavement slopes and section "B" to be used with ( + ) pavement slopes.

2. Depth of Face of Gutter: For hot bituminous pavement the depth of gutter shall be as shown. For PCC pavements the depth of gutter shall match adjacent PCC pavement.

3. On street returns and other locations where the new curb and gutter ends and does not abut existing curb and gutter, the end 3' 4" of the curb shall be tapered from 4" in height to 0". A 1/2" premolded isolation joint which is full depth and the same shape as the curb and gutter shall be installed just ahead of the taper. An 18" tie bar shall be installed across the joint.




FRONT

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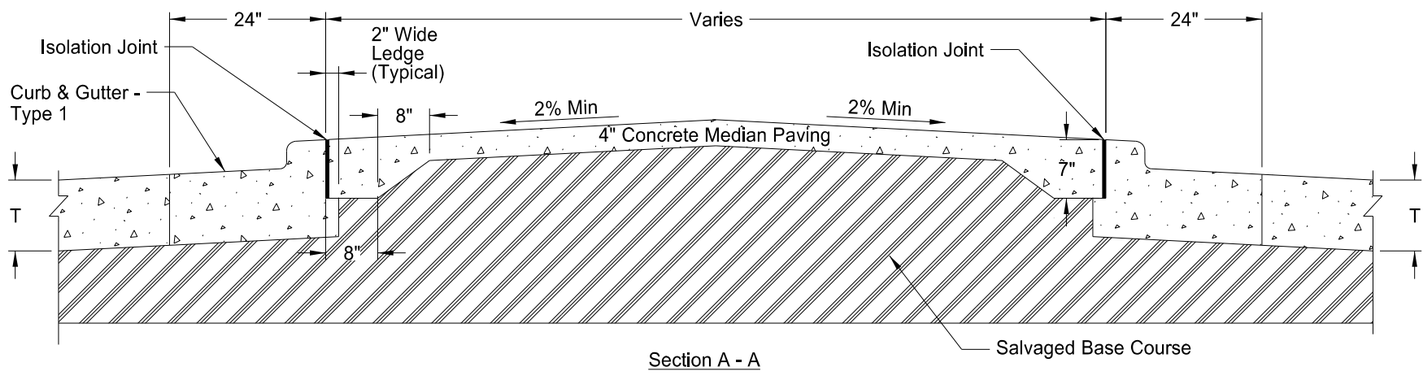
General Details

Williston NW Permanent Truck Reliever Route
Phase 1A

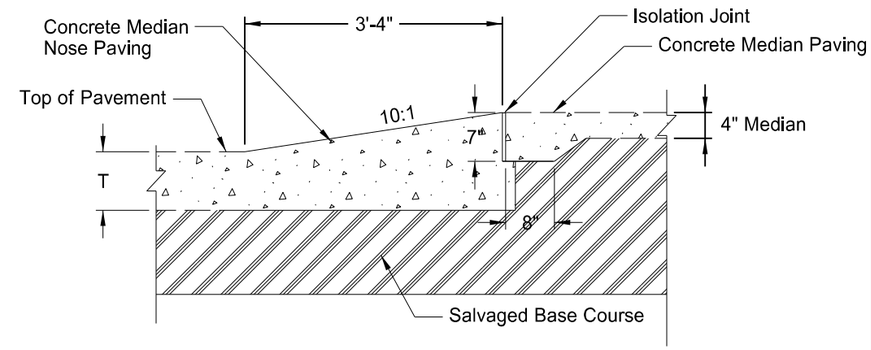
4" Curb and Transition at Structure Details

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 7 |

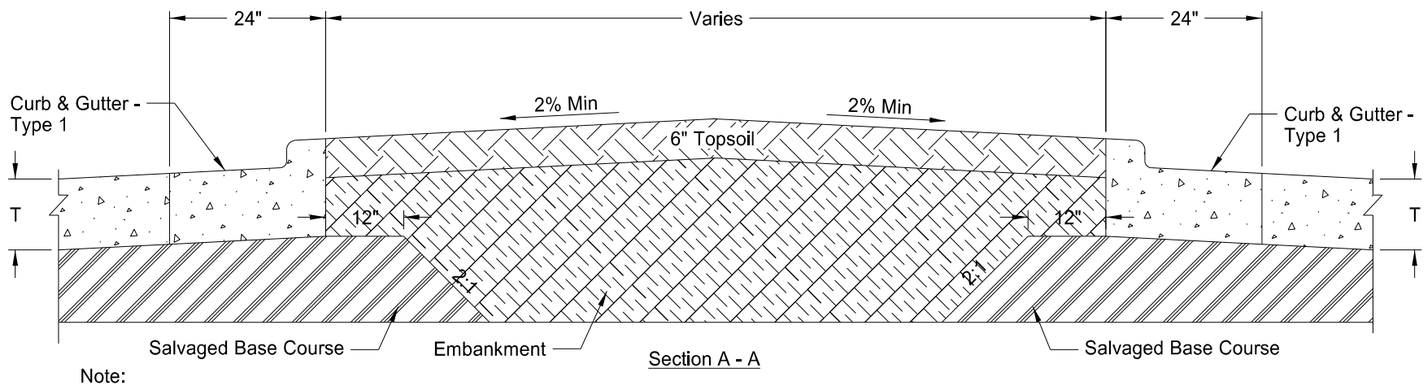



Section A - A

Concrete Median



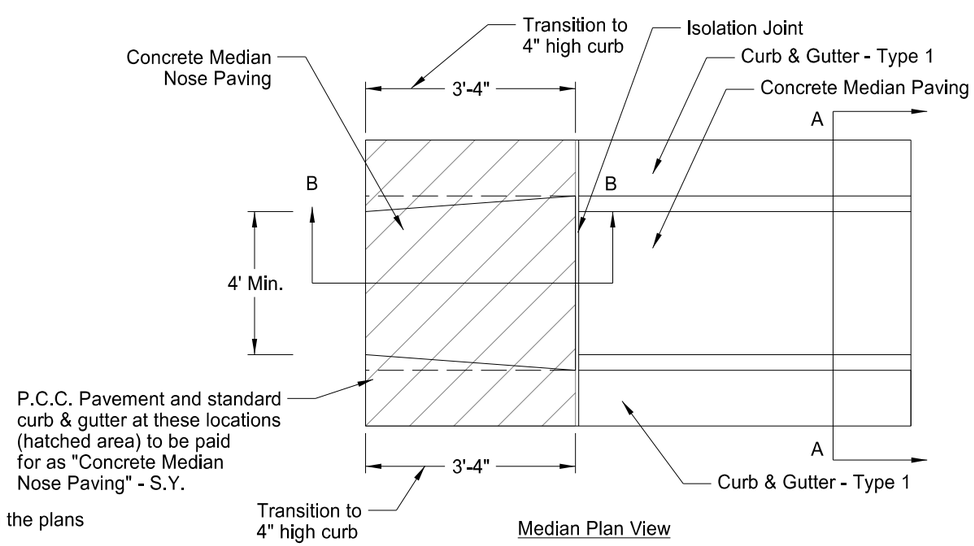

Section B-B




Section A - A

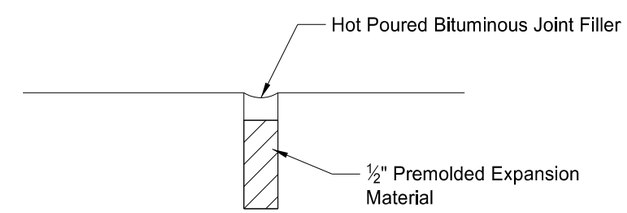
Grass Median

Note:
Construct grade break with minimum slope of 2% where median is greater than 5' in width.




Median Plan View

T = The P.C.C. thickness as shown in the plans




Isolation Joint

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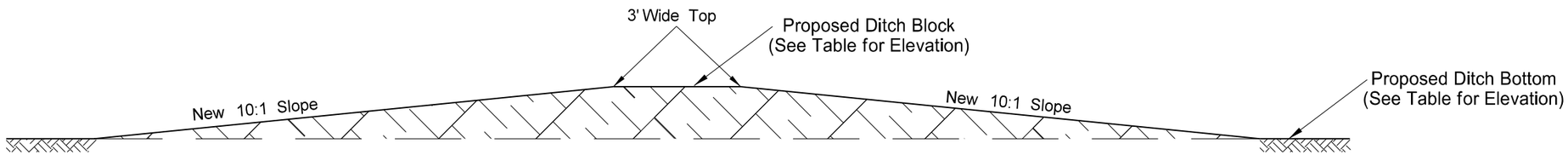
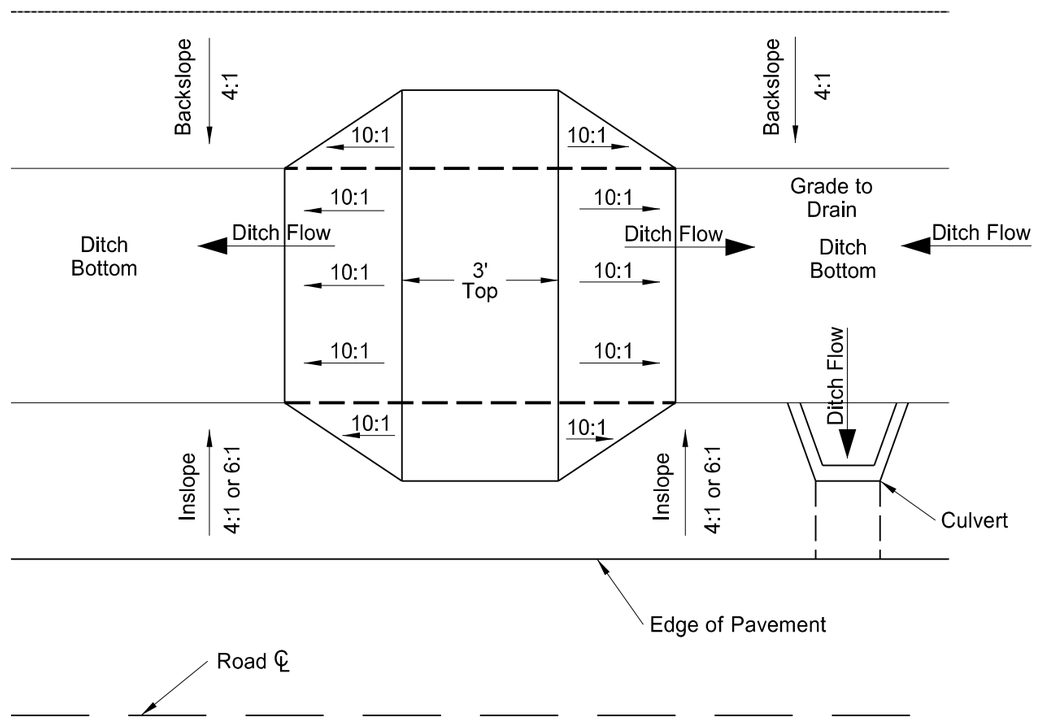
General Details

Williston NW Permanent Truck Reliever Route Phase 1A

Concrete Median Paving Detail

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 8 |

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| Ditch Block Location | | | Proposed Ditch Block Elevation | Proposed Ditch Bottom Elevation |
|---|---|---|---|---|
| Alignment | Station | Offset | | |
| Bennett Loop (PR_FR_S_BN_LP) | 6+85 | RT | 2073.0 | 2069.8 |

Note: The cost of the labor, equipment and materials to perform the following work will be included in the price bid for "Common Excavation."

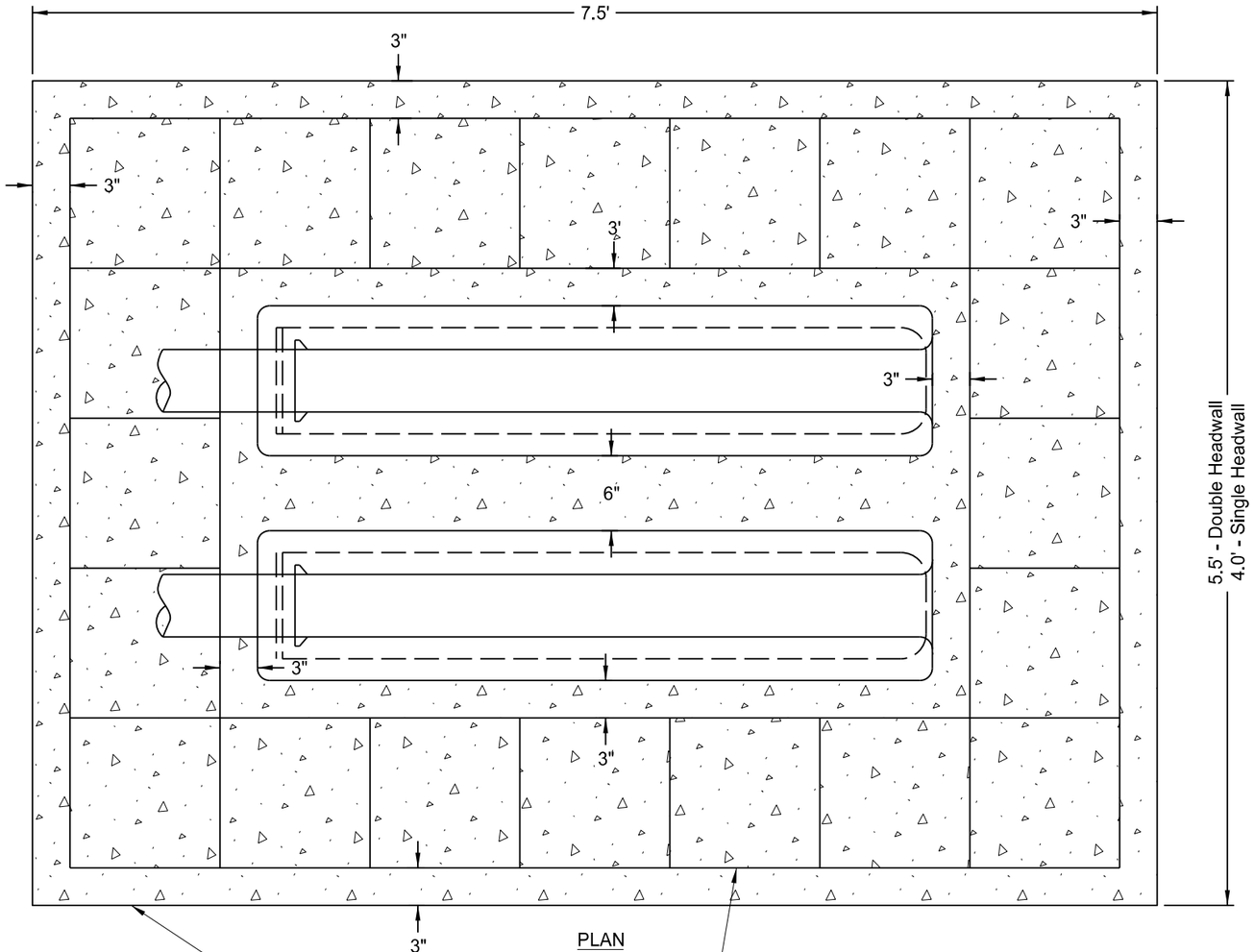
1. The material used to flatten the slope will be compacted in accordance with Section 203.02I of the Standard Specifications.

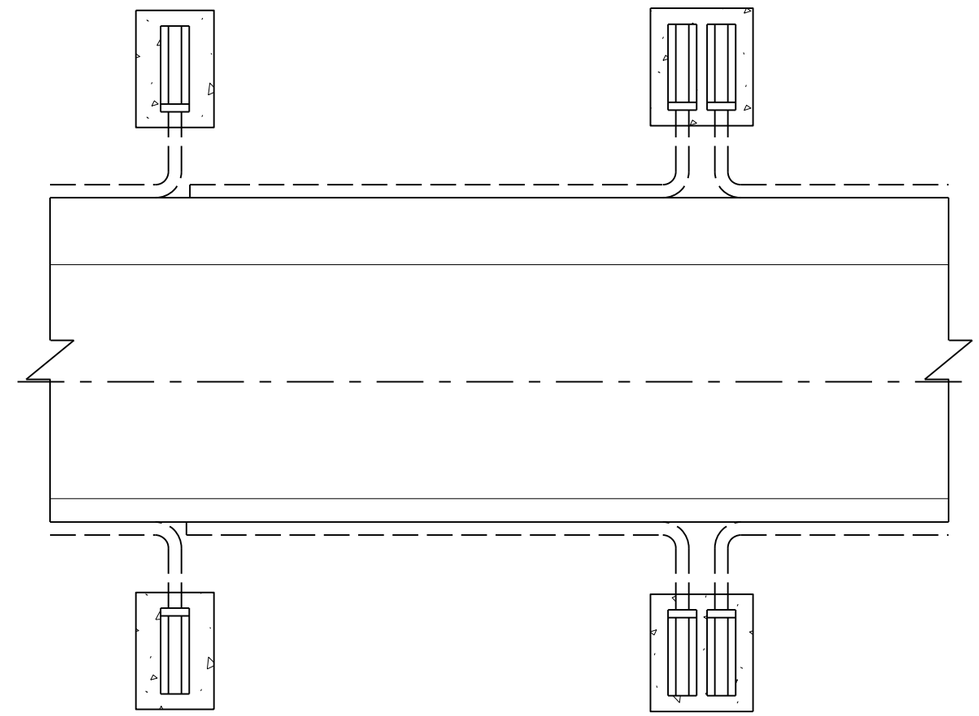
General Details

Williston NW Permanent Truck Reliever Route
Phase 1A

Ditch Block Detail

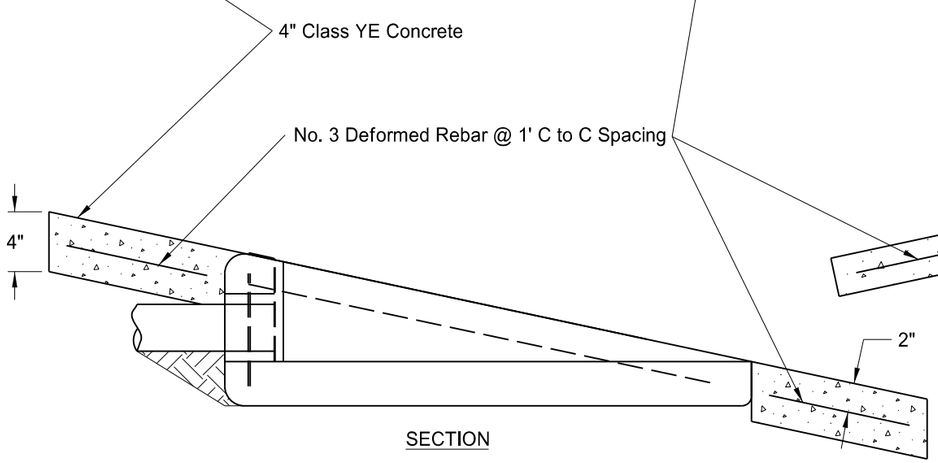
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 9 |

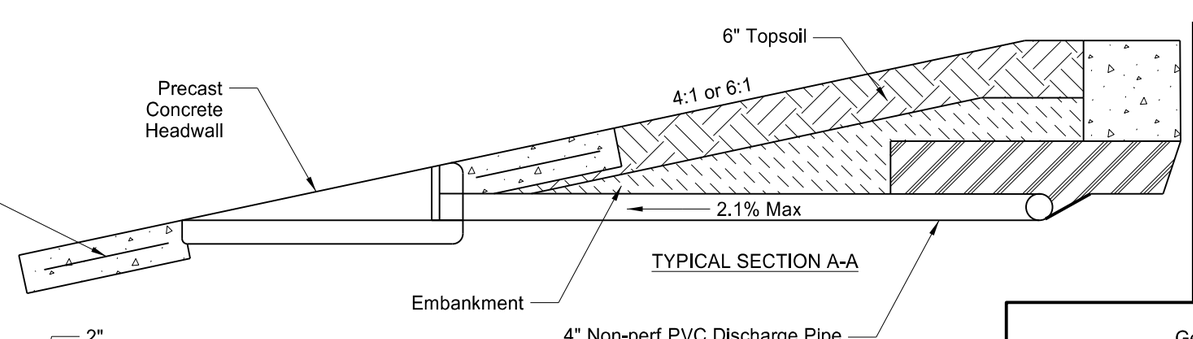


NOTE 1: Concrete Vegetation Barriers shall be placed around the headwalls of the edge drains as shown on the plan and profile sheets.

NOTE 2: MEASUREMENT AND PAYMENT (HEADWALL VEGETATION BARRIER):
The concrete shall be cast in place around the splashblock, the concrete and rebar shall not be measured for payment. The unit price bid for "Headwall Vegetation Barrier" shall include all costs to supply, prepare, form, and place the rebar and concrete for each Concrete Headwall.

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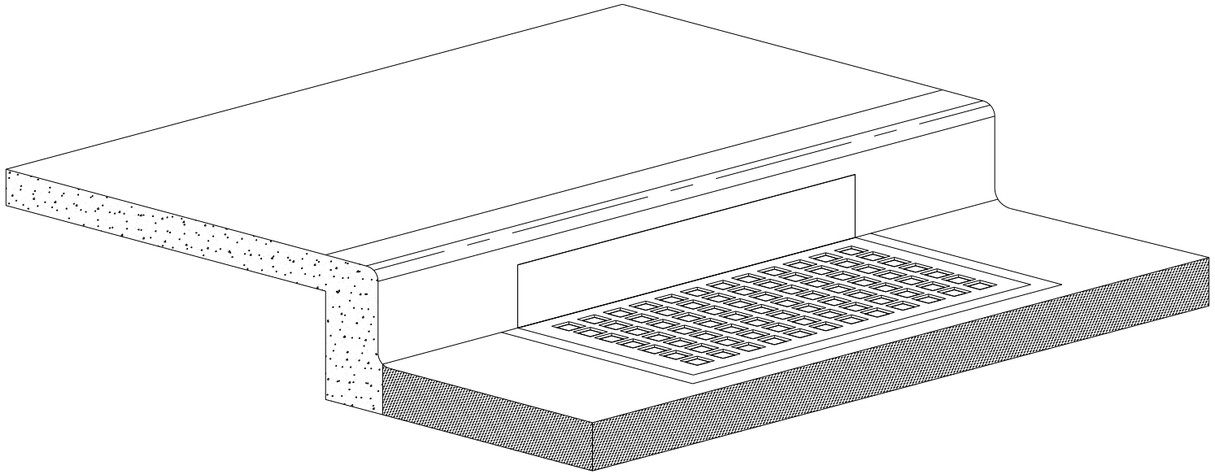
General Details

Williston NW Permanent Truck Reliever Route
Phase 1A

Headwall Vegetation Barrier

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 10 |



| | | | | |
|---|---|---|---|---|
| 708 | 1540 | Inlet Protection-Special | | |
| | | Project Limits | 61 | EA |
| 708 | 1541 | Remove Inlet Protection-Special | | |
| | | Project Limits | 61 | EA |

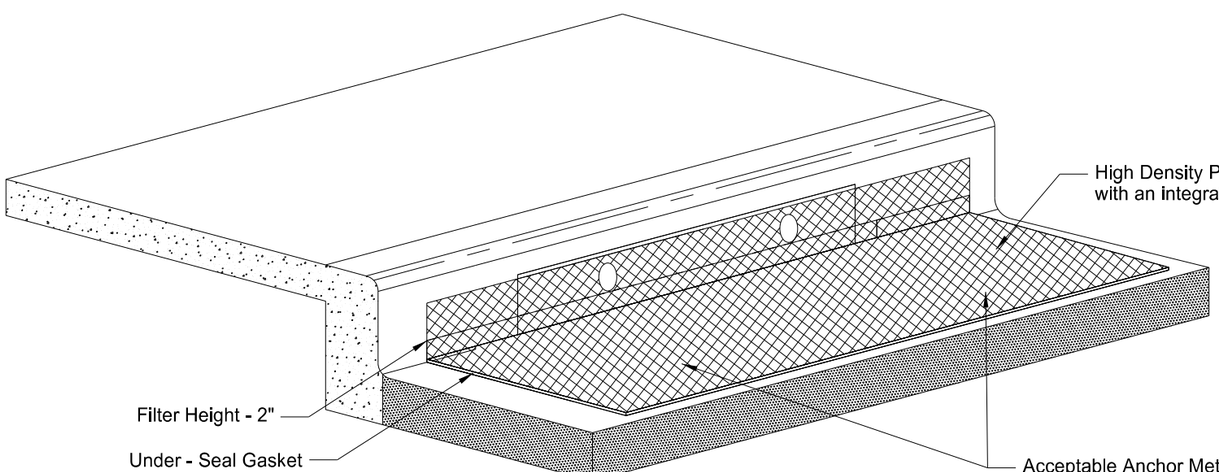
Inlet Protection Device

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 and sediment 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.

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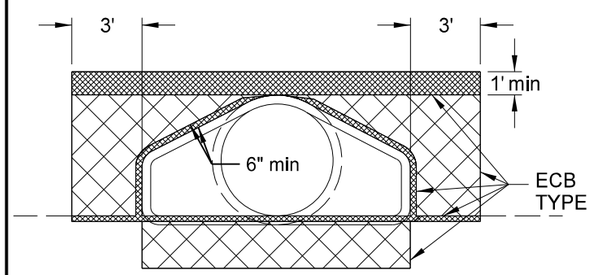
General Details

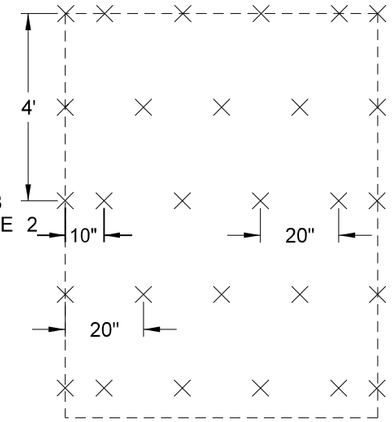
Williston NW Permanent Truck Reliever Route Phase 1A

Inlet Protection Device

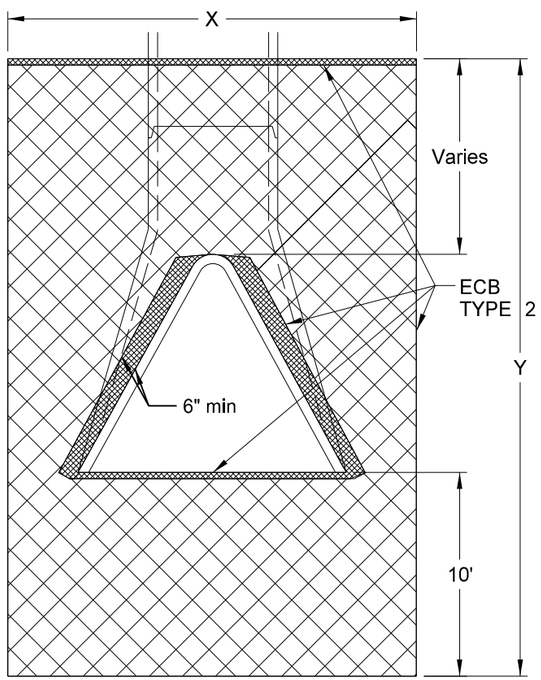
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 11 |




FRONT VIEW




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




TOP VIEW

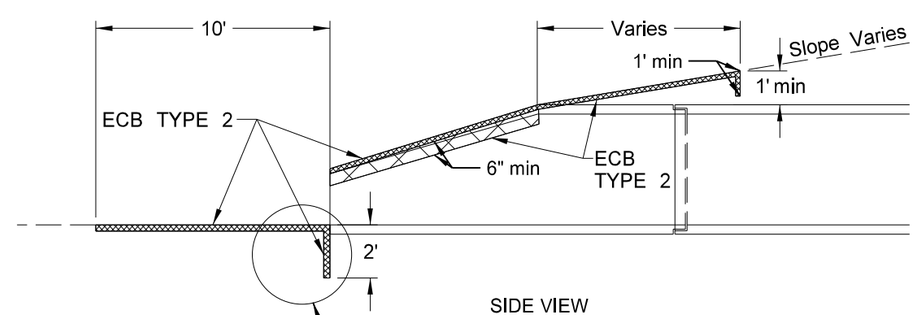
| DIA | X | Y | Surface Area to be | ECB |
|---|---|---|---|---|
| In. | Ft. | Ft. | SF | SY |
| 15 | 9.0 | 20.0 | 176 | 20 |
| 18 | 9.5 | 20.7 | 190.7 | 22 |
| 21 | 9.5 | 21.0 | 190.9 | 22 |
| 24 | 10.5 | 21.6 | 214.1 | 24 |
| 30 | 11.6 | 22.5 | 241.5 | 27 |
| 36 | 12.7 | 23.3 | 268.8 | 30 |
| 42 | 13.3 | 23.3 | 279.7 | 32 |
| 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: 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.

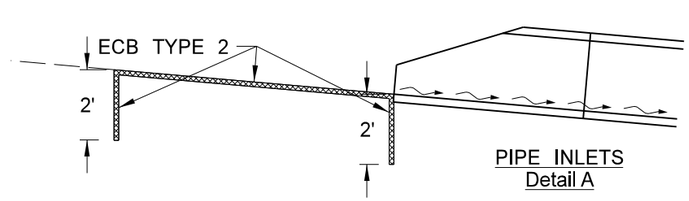
| Erosion Control Blanket (ECB) | | | | |
|---|---|---|---|---|
| Location of Surface Area to be Protected | Pipe Diam (Inch) | No. | Unit Quantity | Total Quantity Type 2 |
| Station - Offset | | | (SY) | (SY) |
| US 85 (PR85) | | | | |
| 9712+75 RT/LT | 29 x 18 | 2 | 24 | 48 |
| 9712+79 RT | 30 | 1 | 27 | 27 |
| 9712+82 RT/LT | 29 x 18 | 2 | 24 | 48 |
| 9712+82 LT | 15 | 1 | 20 | 20 |
| 9713+61 LT | 15 | 1 | 20 | 20 |
| 9729+05 LT | 24 | 1 | 24 | 24 |
| 9730+47 LT | 18 | 1 | 22 | 22 |
| 9732+10 LT | 18 | 1 | 22 | 22 |
| 9733+53 LT | 18 | 1 | 22 | 22 |
| 9735+75 LT | 18 | 1 | 22 | 22 |
| 9736+99 LT | 18 | 1 | 22 | 22 |
| 9738+91 LT | 18 | 1 | 22 | 22 |
| 9741+24 LT | 18 | 1 | 22 | 22 |
| 9746+63 RT | 18 | 1 | 22 | 22 |
| 9748+50 RT | 18 | 1 | 22 | 22 |
| 9751+01 RT | 18 | 1 | 22 | 22 |
| 9753+00 LT/RT | 48 | 2 | 33 | 66 |
| 9753+09 LT/RT | 48 | 2 | 33 | 66 |
| 9753+19 LT/RT | 48 | 2 | 33 | 66 |
| 9753+28 LT/RT | 48 | 2 | 33 | 66 |
| 9755+02 RT | 18 | 1 | 22 | 22 |
| 9756+82 RT | 18 | 1 | 22 | 22 |
| 9758+61 RT | 18 | 1 | 22 | 22 |
| 9763+30 LT | 30 | 1 | 27 | 27 |
| 9765+17 RT | 18 | 1 | 22 | 22 |
| 9767+49 RT | 18 | 1 | 22 | 22 |
| 9772+80 LT | 18 | 1 | 22 | 22 |
| 9791+36 RT | 18 | 1 | 22 | 22 |
| 9791+99 RT | 18 | 1 | 22 | 22 |
| 9799+52 LT | 60 | 1 | 35 | 35 |
| 9799+67 LT | 60 | 1 | 35 | 35 |
| 9816+10 LT/RT | 42 | 2 | 32 | 64 |

| Erosion Control Blanket (ECB) | | | | |
|---|---|---|---|---|
| Location of Surface Area to be Protected | Pipe Diam (Inch) | No. | Unit Quantity | Total Quantity Type 2 |
| Station - Offset | | | (SY) | (SY) |
| Bennett Loop - North/South (PR_FR_S_BN_LP) | | | | |
| 1+01 LT | 22 x 13 | 1 | 22 | 22 |
| 1+33 LT | 22 x 13 | 1 | 22 | 22 |
| 7+20 LT/RT | 18 | 2 | 22 | 44 |
| 7+24 LT/RT | 18 | 2 | 22 | 44 |
| 15+29 LT | 18 | 1 | 22 | 22 |
| 15+74 LT | 18 | 1 | 22 | 22 |
| 22+35 LT/RT | 22 x 13 | 2 | 22 | 44 |
| Bennett Loop - East/West (PR_BN_LP_TEMP) | | | | |
| 2+00 RT/LT | 18 | 2 | 22 | 44 |
| James Dr (PR_JAMES_DR) | | | | |
| 24+66 LT | 24 | 1 | 24 | 24 |
| 24+73 RT | 18 | 1 | 22 | 22 |
| 141st Ave NW, S of 51st St NW (PR_141_S_51) | | | | |
| 16+22 LT | 18 | 1 | 22 | 22 |
| 16+79 LT | 18 | 1 | 22 | 22 |
| 20+61 LT/RT | 48 | 2 | 33 | 66 |
| 21+00 LT/RT | 48 | 2 | 33 | 66 |
| 51st St NW (PR_51ST) | | | | |
| 51+06 LT | 18 | 1 | 22 | 22 |
| 54+00 LT | 30 | 1 | 27 | 27 |
| 57+00 LT | 24 | 1 | 24 | 24 |
| 57+58 RT | 24 | 1 | 24 | 24 |
| 62+58 LT | 18 | 1 | 22 | 22 |
| 63+56 LT | 18 | 1 | 22 | 22 |
| Private Drive N of 51st St NW (PR_RD_51_NW) | | | | |
| 2+00 LT | 30 | 1 | 27 | 27 |
| 7+48 LT | 30 | 1 | 27 | 27 |
| 52nd St NW (PR_52ND_ST) | | | | |
| 30+51 RT | 18 | 2 | 22 | 44 |
| 30+98 RT | 18 | 2 | 22 | 44 |

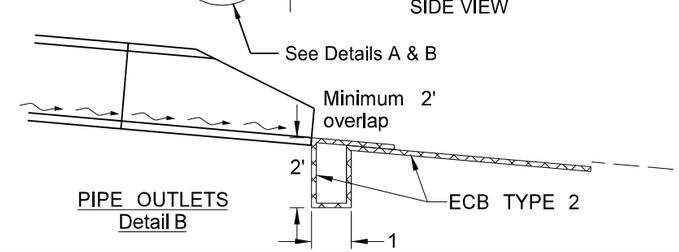
| Total (SYs) | 1777 |
|---|---|




SIDE VIEW




PIPE INLETS
Detail A




PIPE OUTLETS
Detail B

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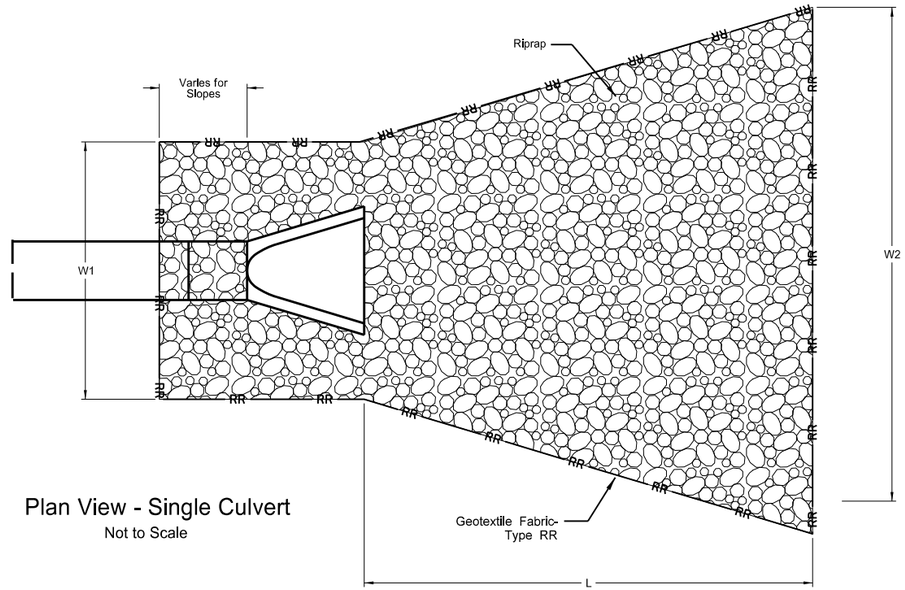
General Details

Williston NW Permanent Truck Reliever Route
Phase 1A

Erosion Control at Culvert Flared End Sections

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 12 |

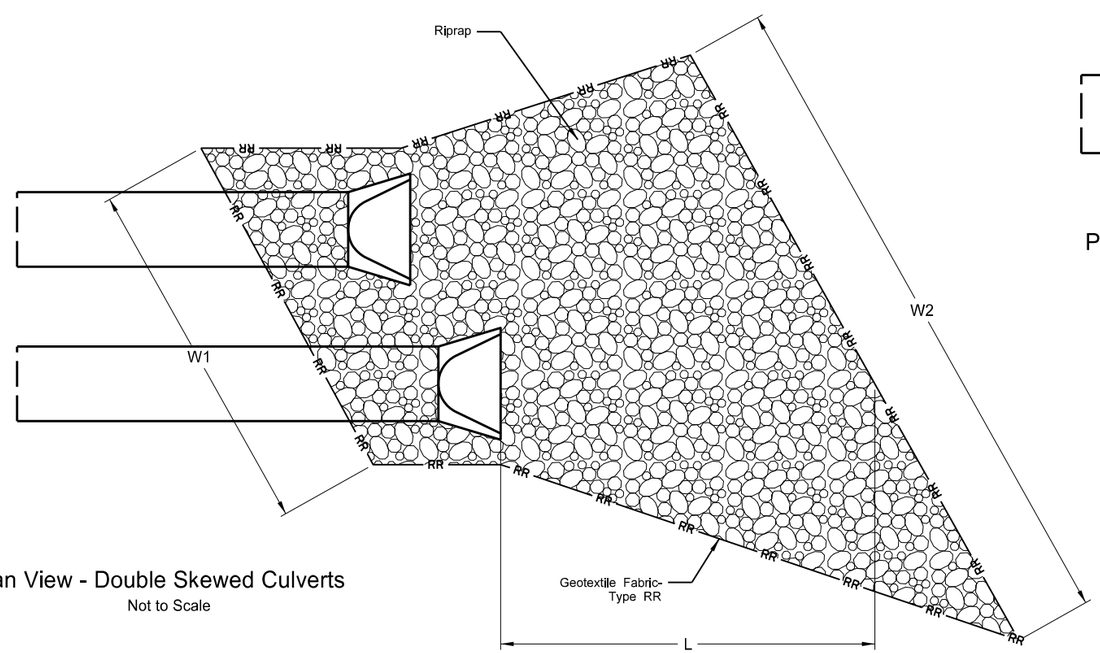



Plan View - Single Culvert
Not to Scale

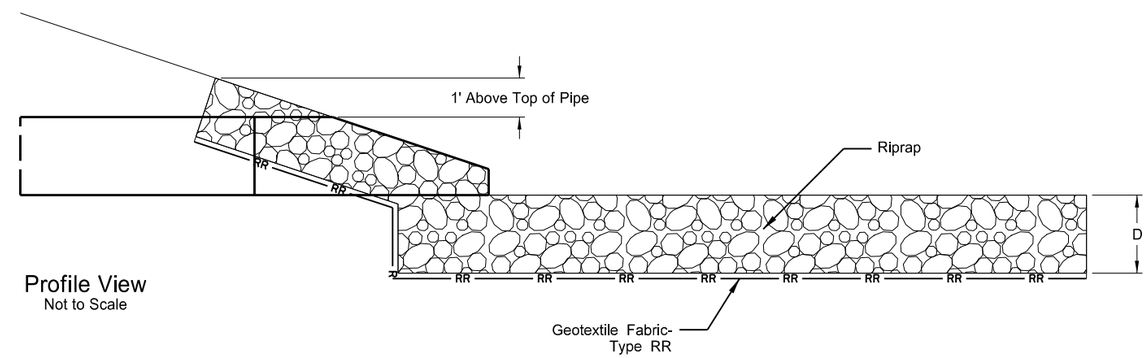
| Riprap Dimensions | | | | | |
|---|---|---|---|---|---|
| Culvert Type | Culvert Diameter (IN) | L (FT) | W1 (FT) | W2 (FT) | Riprap Depth, D (IN) |
| Double Skewed | 60 | 27 | 29 | 54 | 30 |
| Single | 30 | 12.5 | 9.6 | 17.9 | 24 |

| Riprap Quantities | | | | | | |
|---|---|---|---|---|---|---|
| End Sections with Riprap | | Pipe Diameter | Riprap Required for Smooth Pipe Alternatives | Riprap Required for Rough Pipe Alternatives | Geotextile Fabric Type RR | Riprap Loose Rock |
| Alignment | Station - Offset | (IN) | | | (SY) | (CY) |
| US 85 | 9798+41 - 82' RT | 60 | Yes | No | 219.0 | 127.7 |
| US 85 | 9798+55 - 82' RT | 60 | Yes | No | | |
| 141st Ave NW, N of 51st St | 2+00 - 37' RT | 30 | Yes | No | 45.5 | 18.7 |
| 141st Ave NW, N of 51st St | 7+48 - 38' RT | 30 | Yes | No | 45.5 | 18.7 |
| | | | Total | | 310.0 | 165.1 |

* Note: Riprap is to be installed by the Contractor outside of the Clear Zone and inside of the Right of Way at the Engineer's discretion




Plan View - Double Skewed Culverts
Not to Scale




Profile View
Not to Scale

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General Details

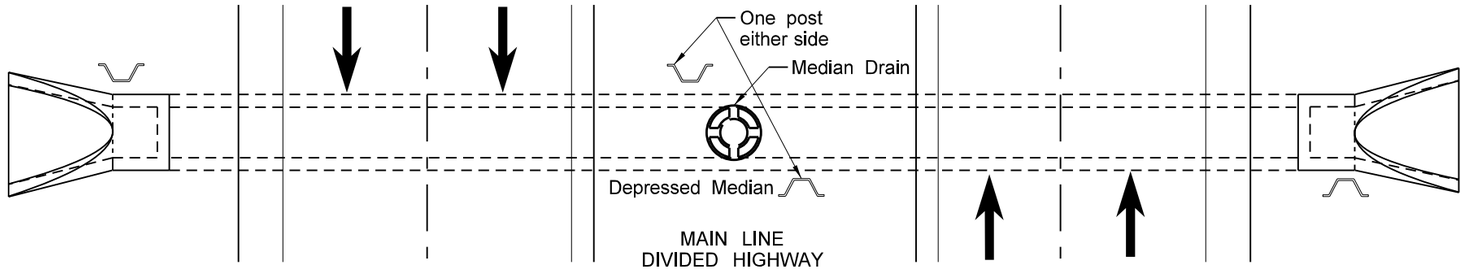
Williston NW Permanent Truck Reliever Route
Phase 1A

Riprap at Pipe Outlets

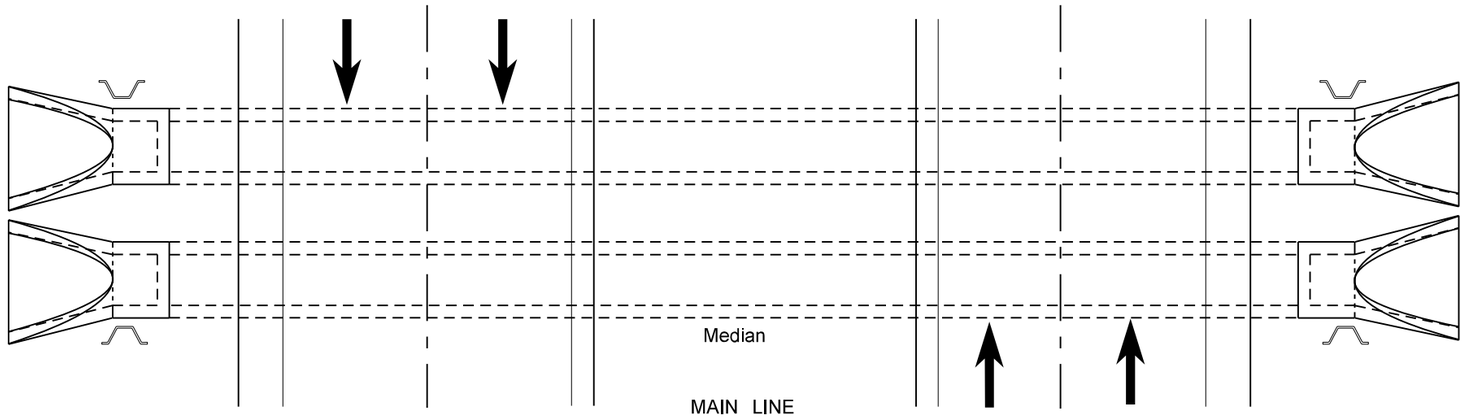
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 20 | 13 |

754 0805 Object Marker - Culverts

79 EA



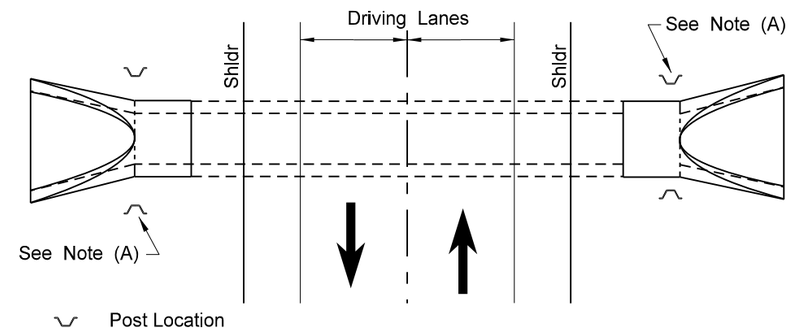

MAIN LINE
DIVIDED HIGHWAY
CULVERTS




MAIN LINE
DIVIDED HIGHWAY

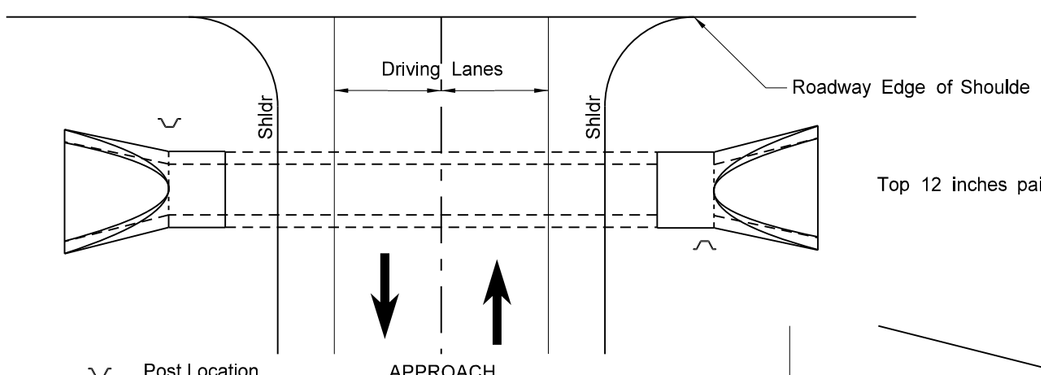
-MULTIPLE INSTALLATIONS-
CULVERTS

Post Location

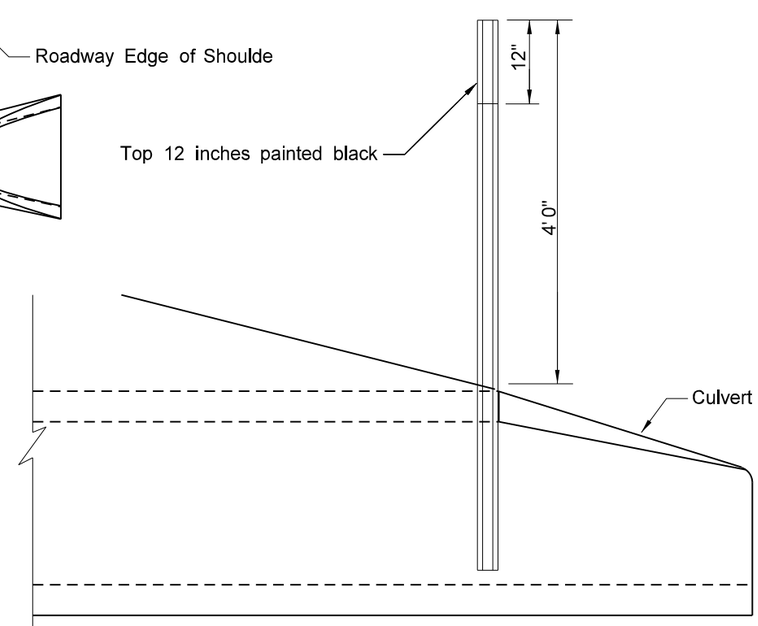



TWO-LANE HIGHWAY

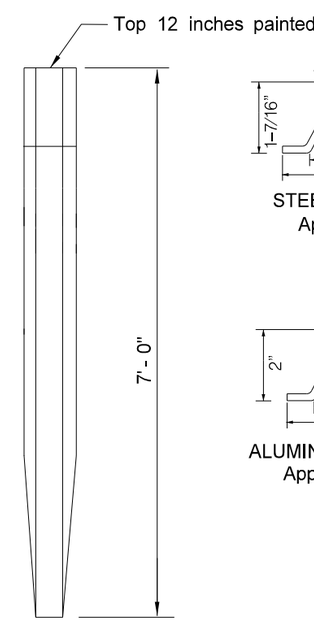
(A) Additional marker shall be installed where multiple pipe installations have a width of greater than 10'.



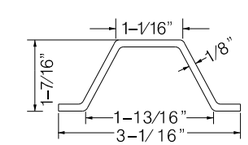

APPROACH



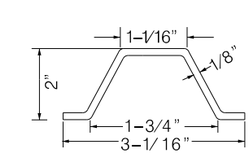

INSTALLATION




U TYPE POST




STEEL POST DETAIL
Approx. 2 lbs. / ft




ALUMINUM POST DETAIL
Approx. 0.88 lbs. / ft

NOTES:
Each end of culverts crossing the roadway within the right-of-way shall be marked with a post as shown.

INSTALLATION:
Posts are to be installed in front of the culvert in the direction of travel along the side of the culvert and one foot from the culvert opening unless shown otherwise on the plans.

POSTS:
Posts shall conform to section 894.06 of the Standard Specifications.

BASIS OF PAYMENT:
All costs for furnishing and installing the markers shall be included in the price bid for the item "Object Marker - Culverts".

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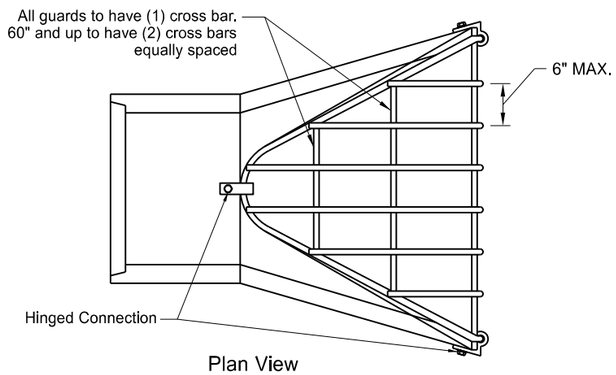
General Details

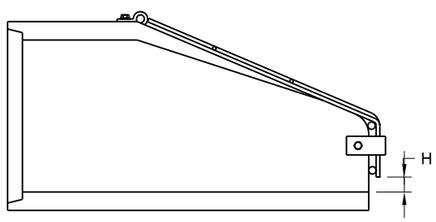
Williston NW Permanent Truck Reliever Route Phase 1A

Object Markers-Culverts

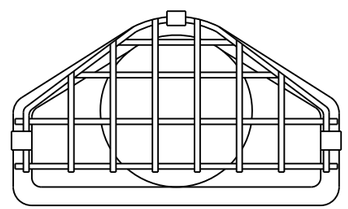
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(092)183 | 20 | 14 |




Plan View




Elevation View



Plan View

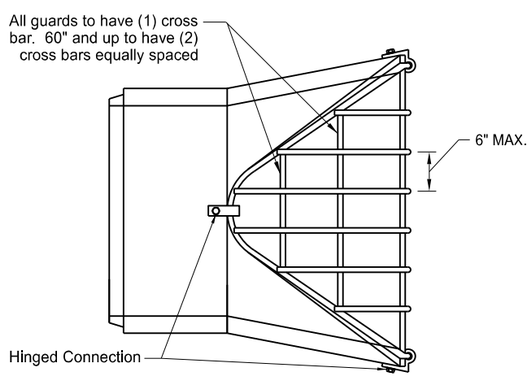
Round Pipe

| Bar Sizes | | | |
|---|---|---|---|
| Standard Design | | | |
| Pipe Size | Hole Dia. Required | Bolt Dia. | Bar Size |
| 12" - 24" | 3/4" | 5/8" | 5/8" |
| 27" - 48" | 7/8" | 3/4" | 3/4" |
| 54" - 90" | 1 1/8" | 1" | 1" |
| Bolt Length = Pipe Wall Thickness + 2 1/2" | | | |

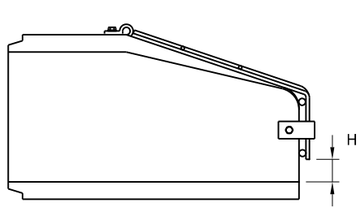
| Round | |
|---|---|
| Pipe Size | H |
| 12" | 2 1/2" |
| 15" | 3" |
| 18" - 24" | 4" |
| 27" - 36" | 5" |
| 42" - 54" | 6" |
| 60" - 72" | 7" |
| 78" - 90" | 8" |

Notes:
1. All metal parts are to be hot galvanized per ASTM A153
2. Drawing not to scale.

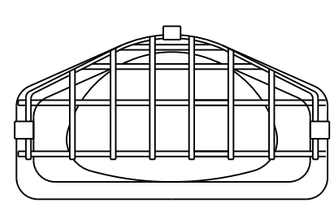
| Trash Rack Locations: | Pipe Type | Pipe Size |
|---|---|---|
| US 85 Sta 9712+75 - 66' RT | Arch | 29" x 18" |
| US 85 Sta 9712+82 - 66' RT | Arch | 29" x 18" |
| James Dr Sta 24+79 - 45' RT | Round | 18" |
| 51st St NW 54+00 - 71' LT | Round | 30" |
| 51st St NW 57+05 - 60' LT | Round | 24" |




Plan View




Elevation View



Plan View

Arch Pipe

| Bar Sizes | | | |
|---|---|---|---|
| Standard Design | | | |
| Pipe Size | Hole Dia. Required | Bolt Dia. | Bar Size |
| 22" - 29" | 3/4" | 5/8" | 5/8" |
| 36" - 59" | 7/8" | 3/4" | 3/4" |
| 65" - 88" | 1 1/8" | 1" | 1" |
| Bolt Length = Pipe Wall Thickness + 2 1/2" | | | |

| Arch | |
|---|---|
| Pipe Size | H |
| 22" - 29" | 4" |
| 36" - 44" | 5" |
| 51" - 65" | 6" |
| 73" - 88" | 7" |

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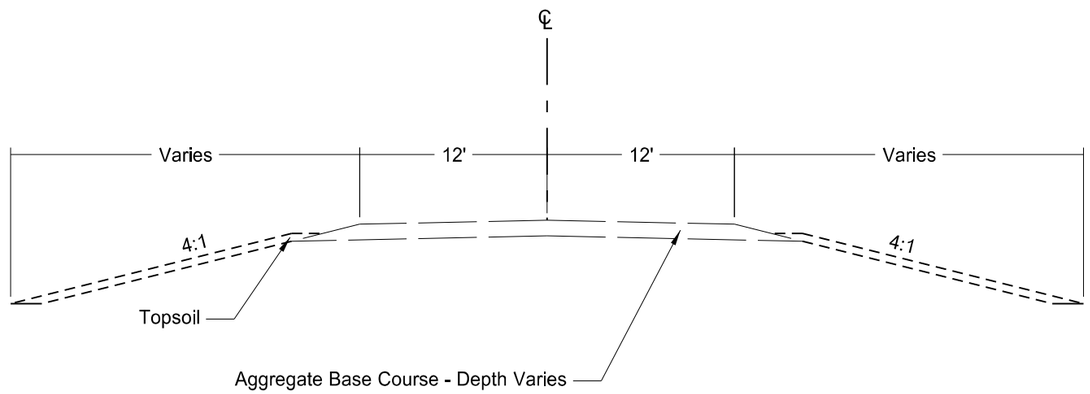
General Details

Williston NW Permanent Truck Reliever Route Phase 1A

Trash Guard Detail

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 1 |




2 Lane Gravel Road
Frontage Road (NE of US 2/US 85)
Jackson St.
James Dr.
Bennett Loop
51st St. NW
141st Ave. NW
52nd St. NW

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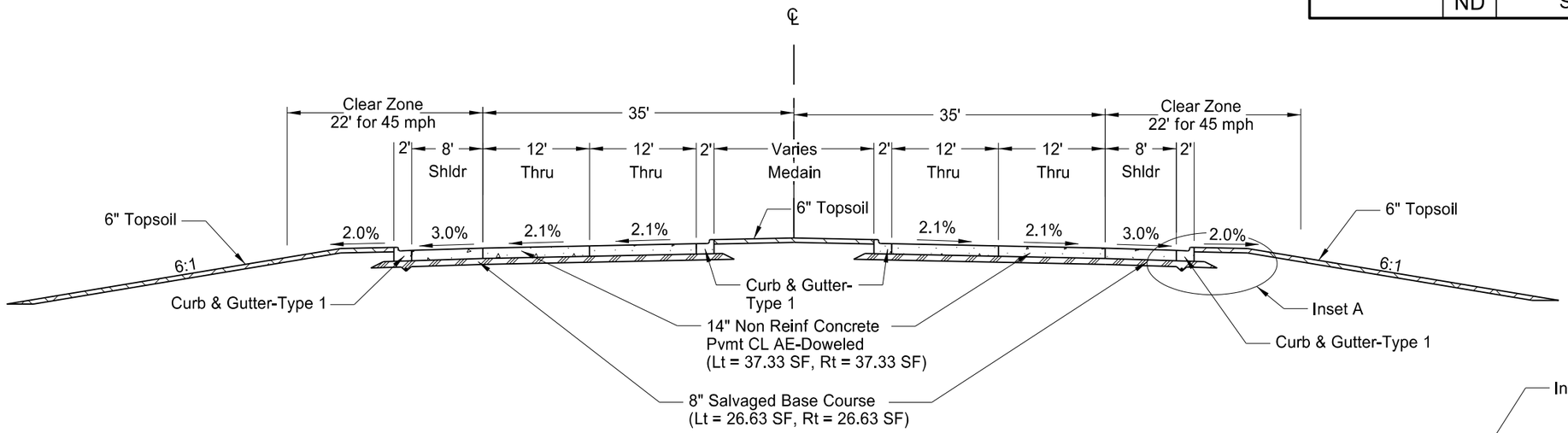
Existing Typical Sections

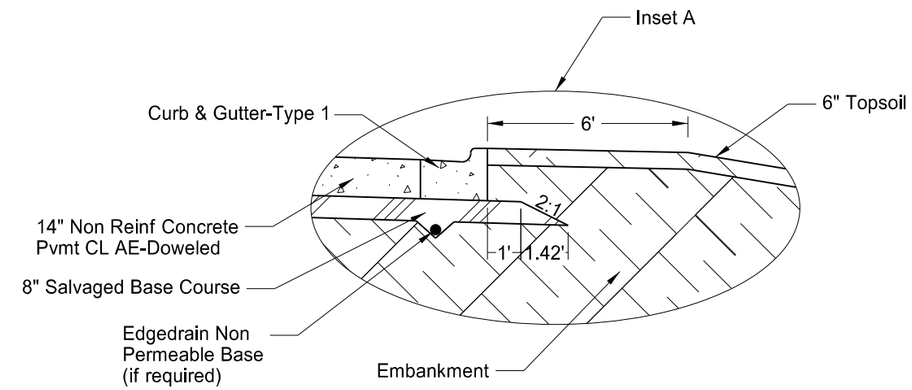
Williston NW Permanent Truck Reliever Route
Phase 1A

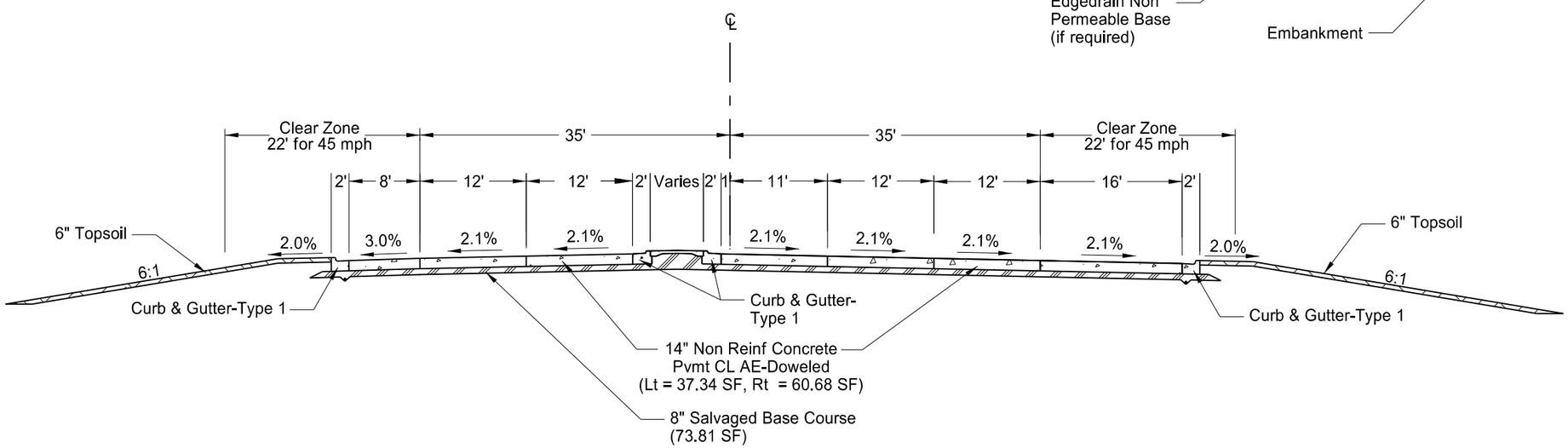
2 Lane Gravel Road

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 2 |




4 Lane Section w/ Raised Median
US 85
Sta 9711+50 to 9718+41.05
Sta 9734+90.75 to 9757+05.90
Sta 9771+26.10 to 9774+00




4 Lane Section w/ Raised Median & Left and Right Turn
US 85
Sta 9718+41.05 to 9719+08.98
Sta 9734+12.54 to 9734+90.75
Sta 9757+05.90 to 9771+26.10

Note: See plan sheet 20-12 for concrete median paving details.

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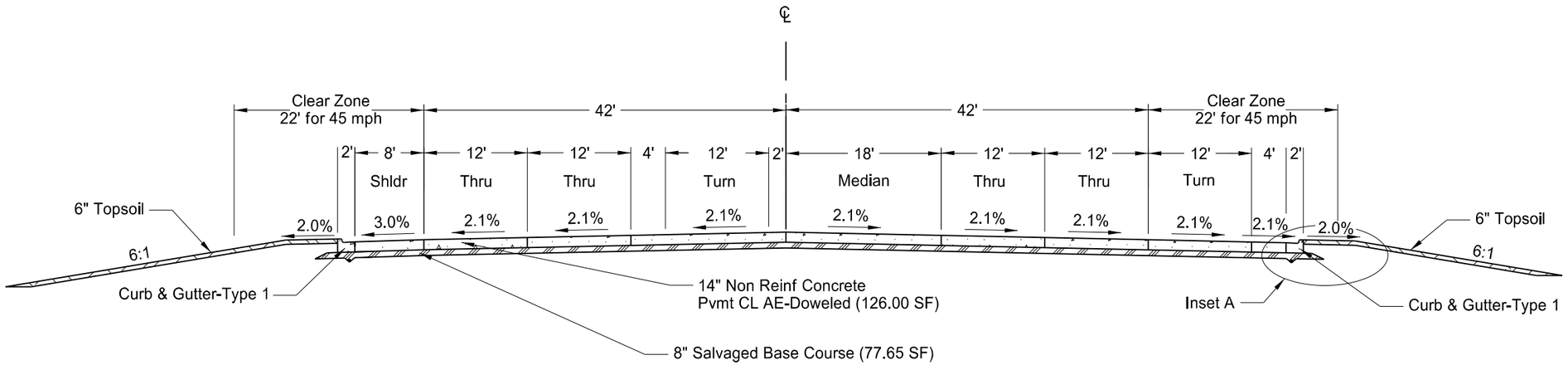
Proposed Typical Sections

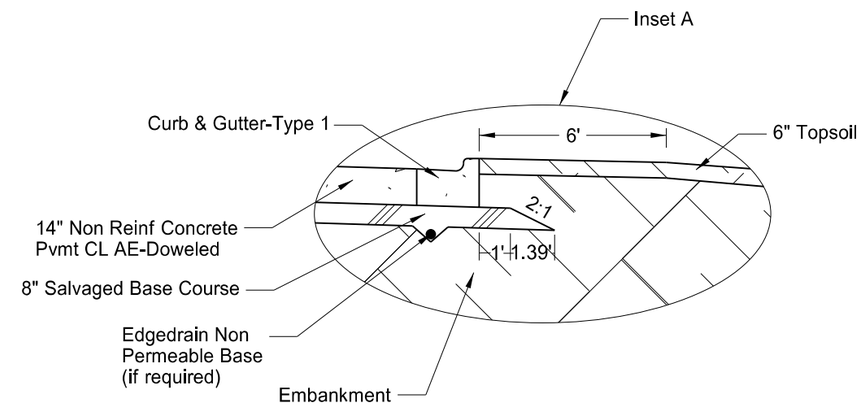
Williston NW Permanent Truck Reliever Route
Phase 1A

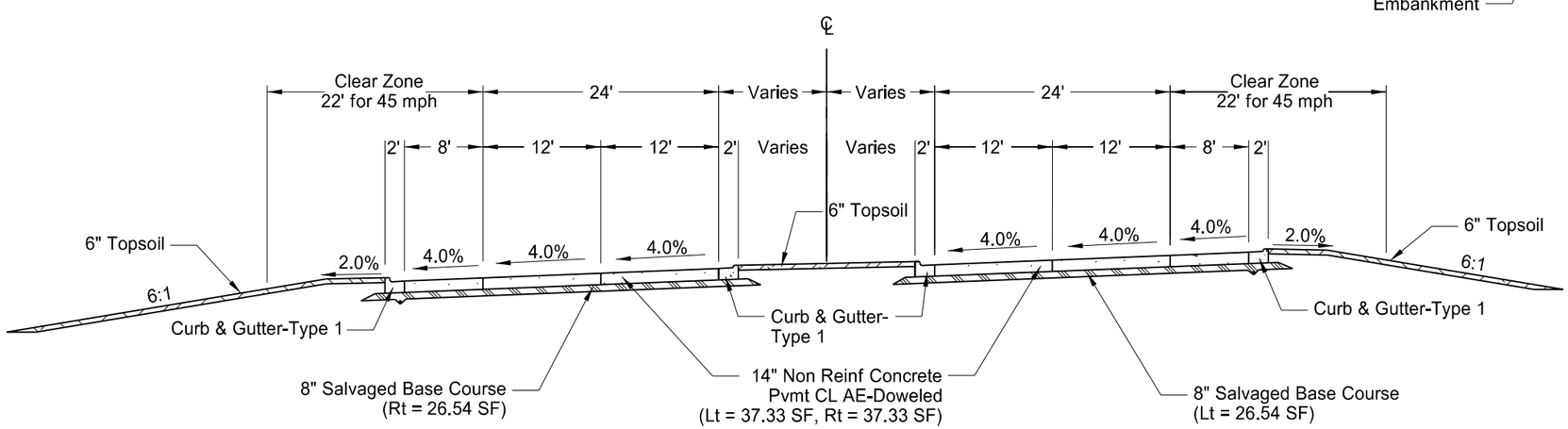
US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 3 |




4 Lane Section w/o Raised Median & Right and Left Turn
US 85
Sta 9719+08.98 to 9734+12.54




Super Elevated 4 Lane Section w/ Raised Median
US 85

Note: See plan sheet 20-12 for concrete median paving details.

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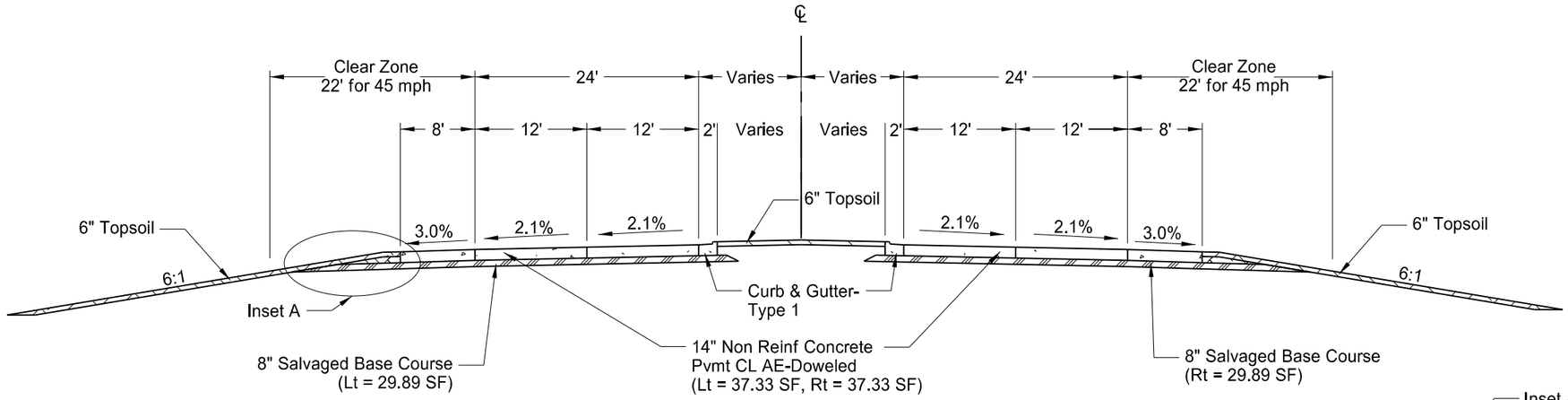
Proposed Typical Sections

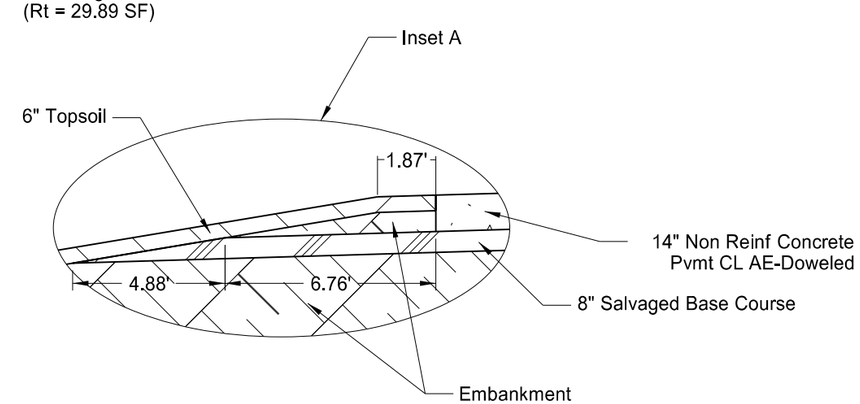
Williston NW Permanent Truck Reliever Route
Phase 1A

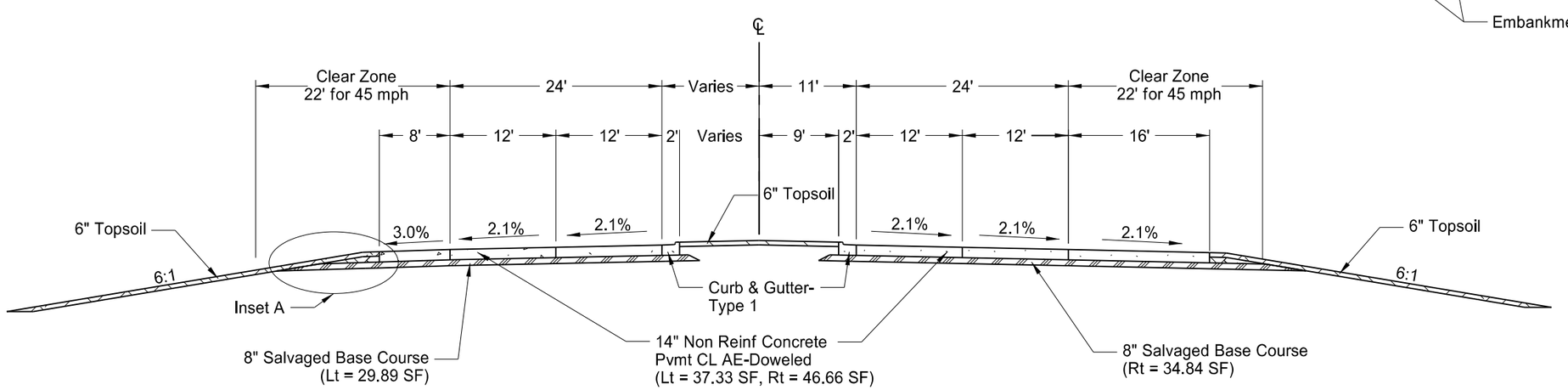
US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 4 |




4 Lane Section w/ Raised Median
US 85
Sta 9774+00 to 9788+37.76
Sta 9795+39.22 to 9802+00




4 Lane Section w/ Raised Median and Right Turn
US 85
Sta 9788+37.76 to 9791+66

Note: See plan sheet 20-12 for concrete median paving details.

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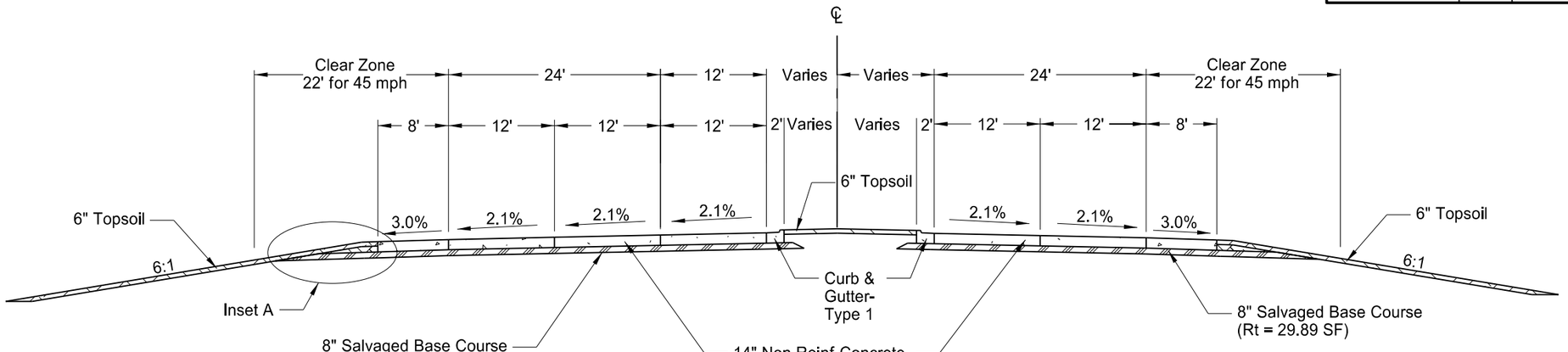
Proposed Typical Sections

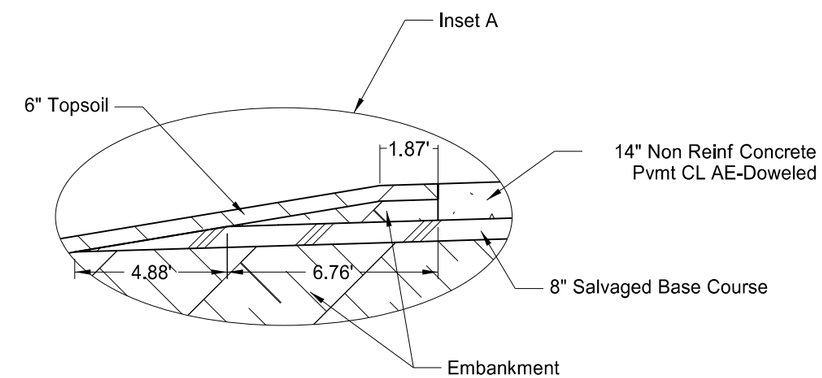
Williston NW Permanent Truck Reliever Route
Phase 1A

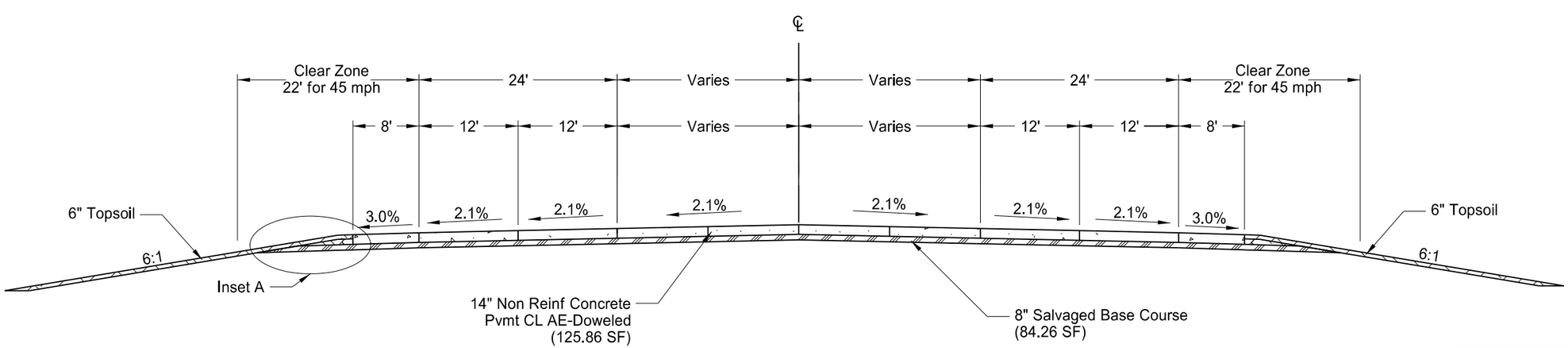
US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 5 |




4 Lane Section w/ Raised Median and Left Turn
US 85
Sta 9791+66 to 9795+39.22




4 Lane Section w/ Paved Median
US 85
Sta 9802+00 to 9803+37.14

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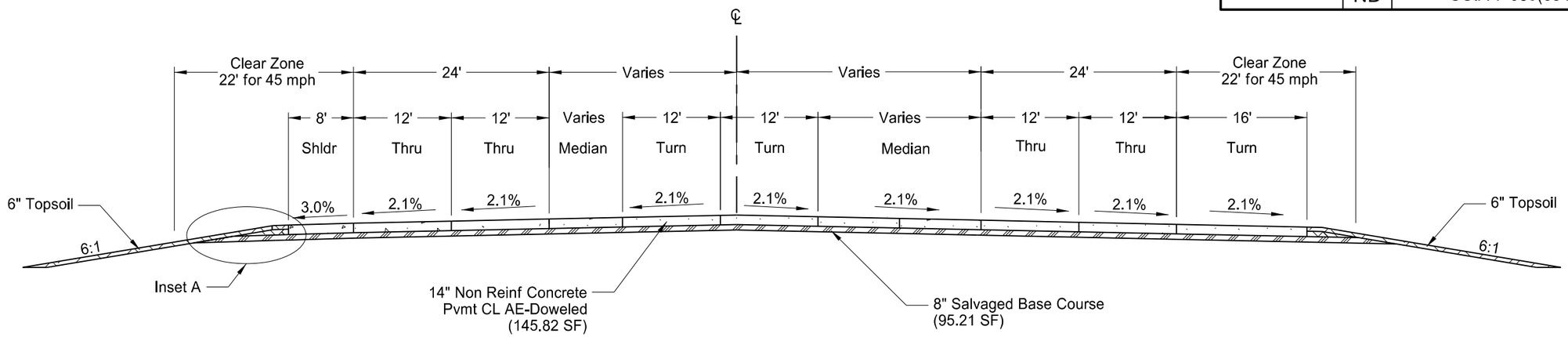
Proposed Typical Sections

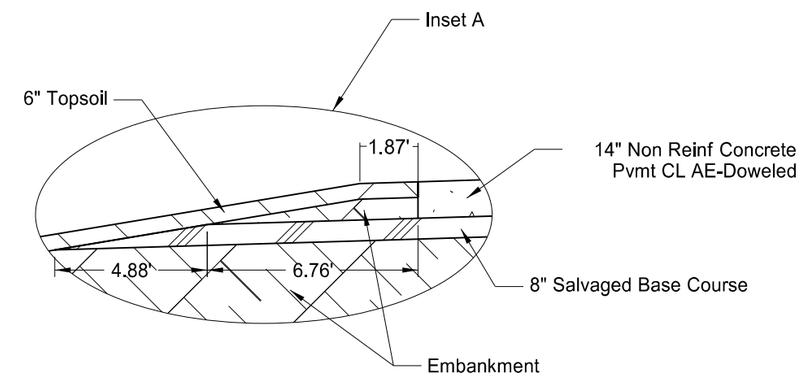
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 6 |




4 Lane Section w/ Paved Median and Turn Lanes
US 85
Sta 9803+37.14 to 9816+31.17

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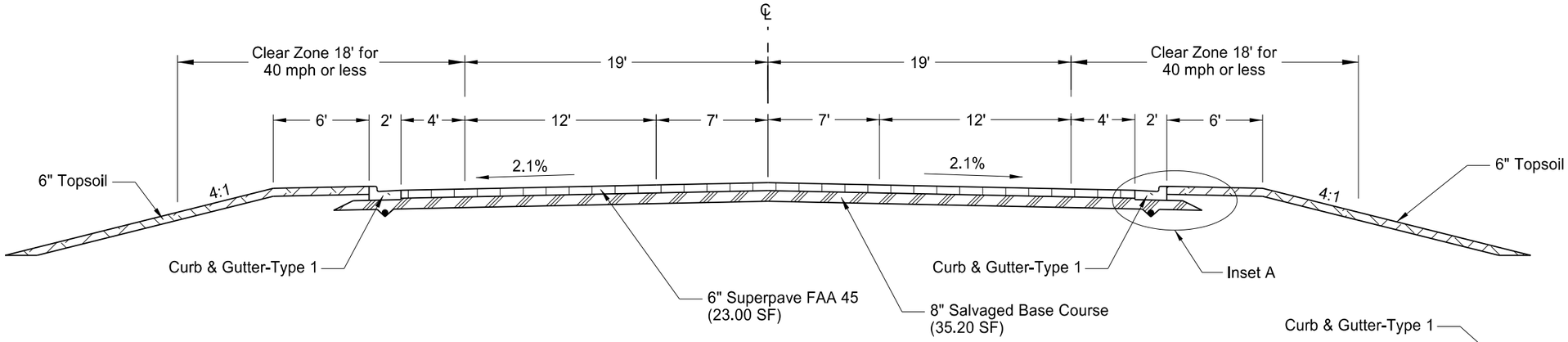
Proposed Typical Sections

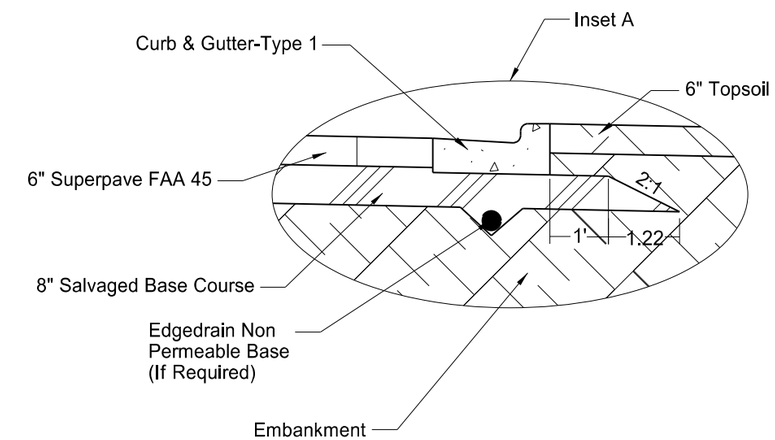
Williston NW Permanent Truck Reliever Route
Phase 1A

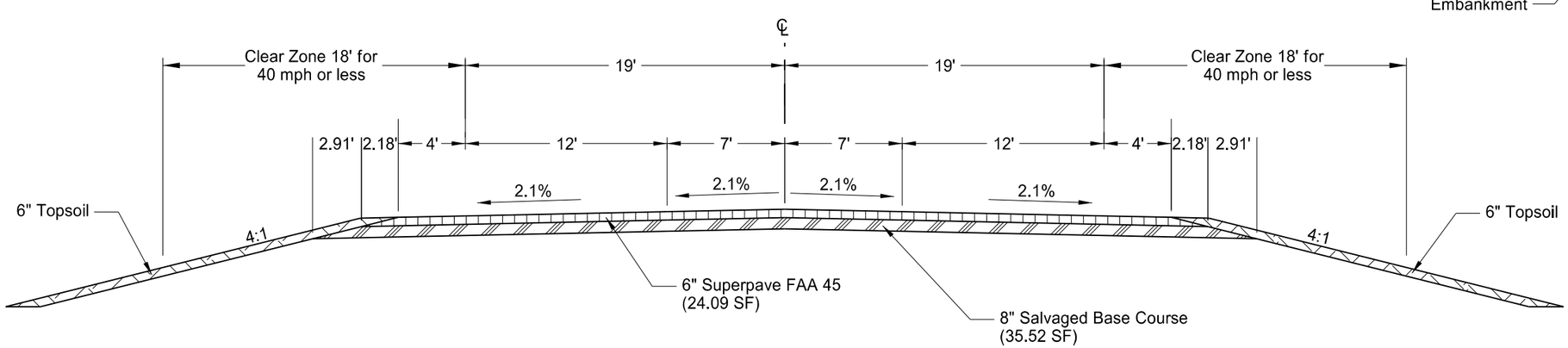
US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 7 |




2 Lane Section w/ Center Left Turn Lane
51st St. NW Sta 47+72.99 to 54+75.43




2 Lane Section w/ Center Left Turn Lane
51st St. NW Sta 57+04.06 to 64+54.20

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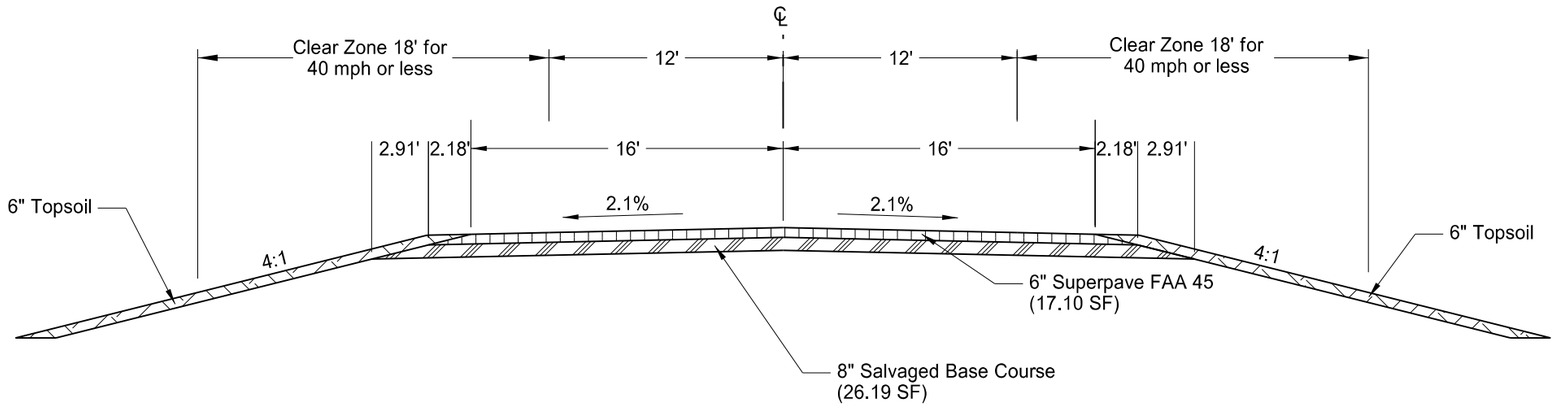
Proposed Typical Sections

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 8 |




2 Lane Section
51st St. NW
Sta 64+54.20 to 66+87.88

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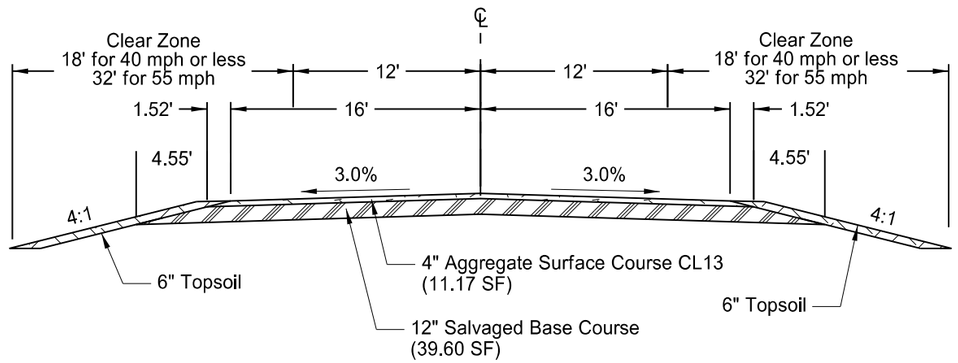
Proposed Typical Sections

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 9 |




Proposed Aggregate Surfaced Frontage/Backage Road

| | |
|---|---|
| Bennett Loop (NB & SB) | Sta 0+16 to 23+07.20 |
| Jackson St. (South of James Drive) | Sta 3+23.22 to 5+28.18 |
| James Drive | Sta 23+80 to 24+32.88 |
| Bennett Loop (EB & WB) | Sta 1+58 to 2+36.89 |
| 141st Ave. NW (South of 51st St. NW) | Sta 15+84.07 to 28+11.66 |
| 51st St. NW | Sta 44+60 to 47+72.99, Sta 66+87.88 to 67+37.88 |
| 52nd St. (West of US 85) | Sta 20+80.79 to 25+99.72 |
| 52nd St. (East of US 85) | Sta 28+15.72 to 33+50 |
| US 85 Tie-Down (North of 52nd St. NW) | Sta 2+32.05 to 6+69.55 |

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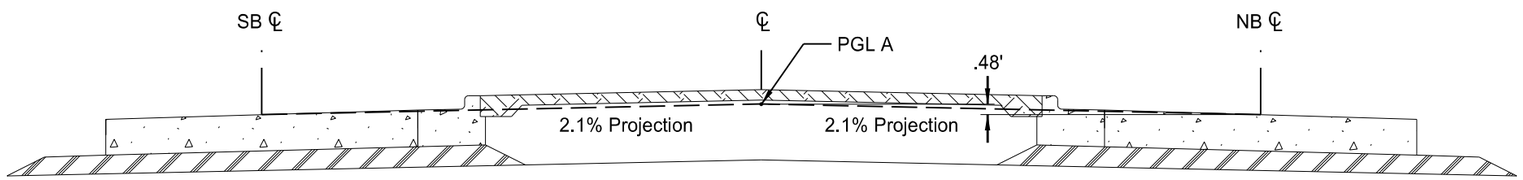
Proposed Typical Sections

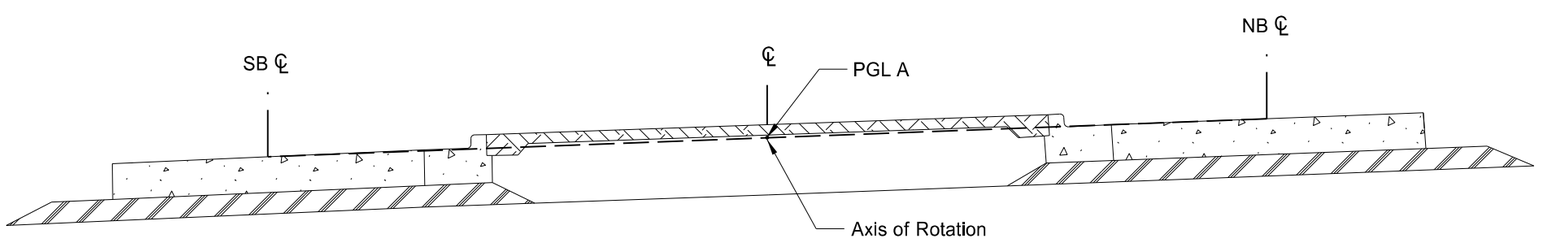
Williston NW Permanent Truck Reliever Route
Phase 1A

Gravel Roadways

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 10 |




Profile Grade Line A (Tangent Section)




Profile Grade Line A (Super Elevated Section)

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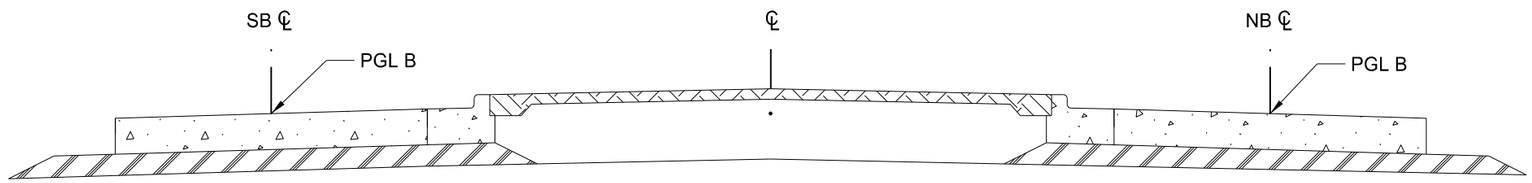
Profile Grade Lines

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85

Note: PGL = Profile Grade Line
See Section 60

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 30 | 11 |




Profile Grade Line B

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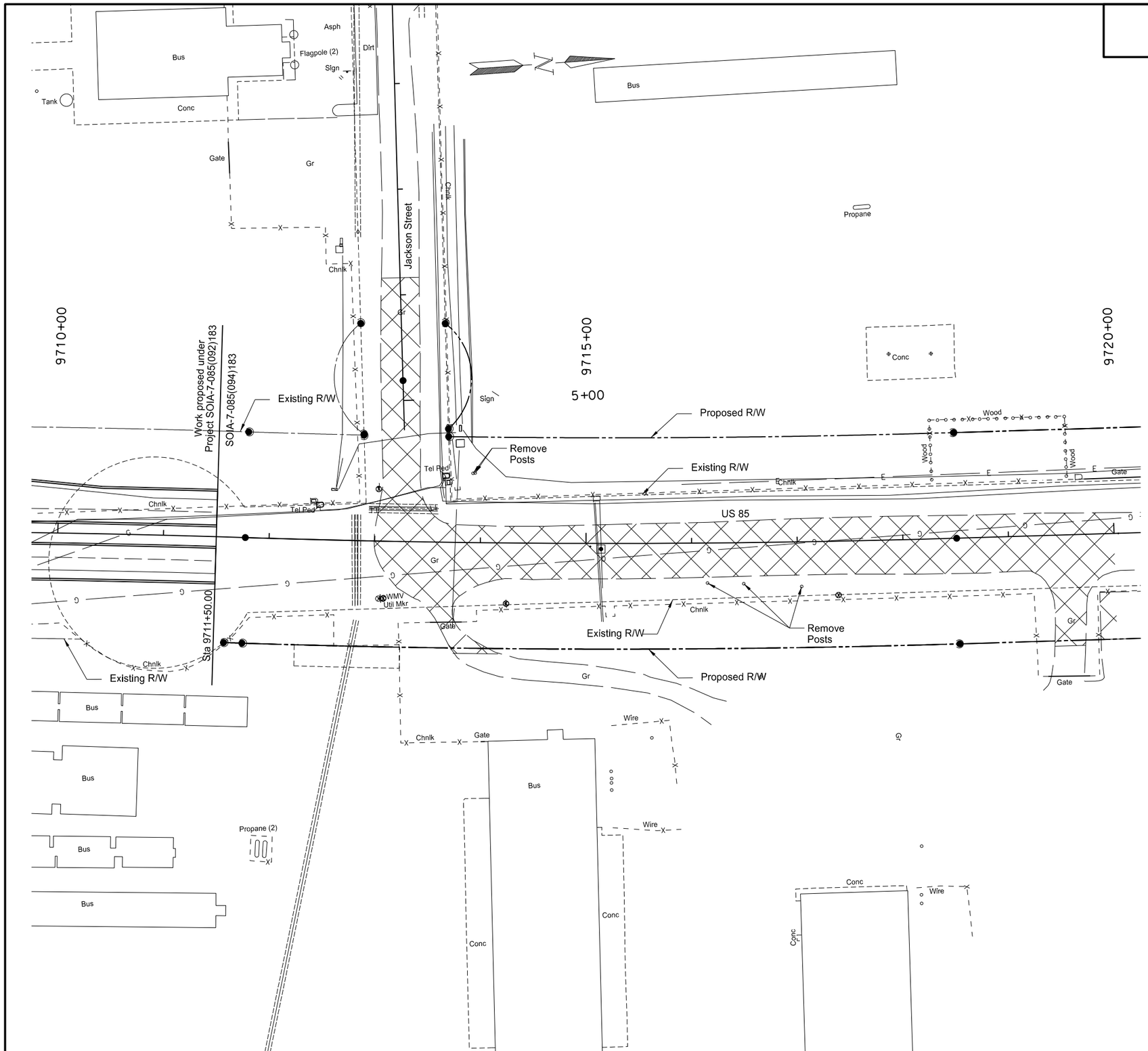
Profile Grade Lines

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

Note: PGL = Profile Grade Line
See Section 60

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 1 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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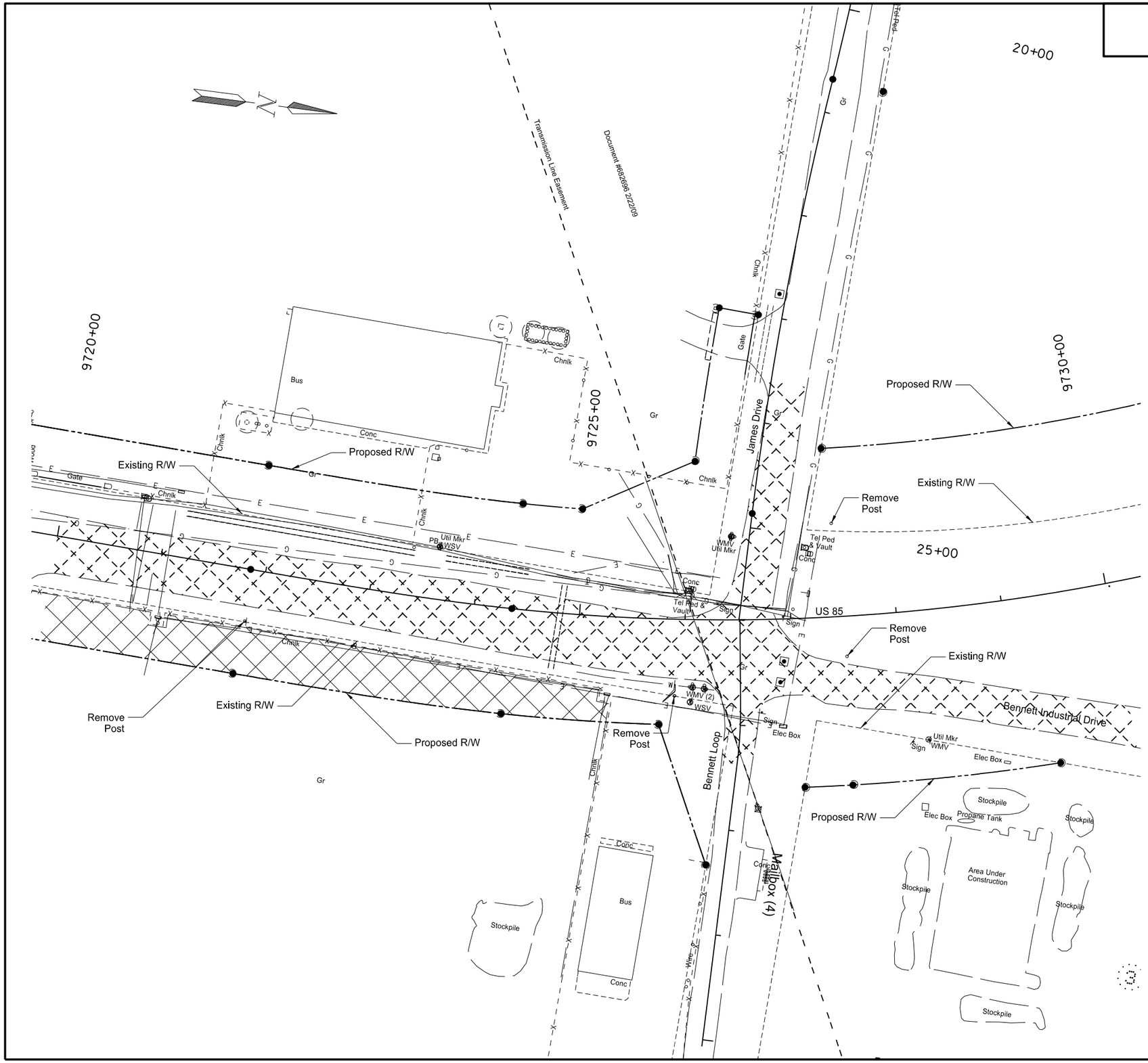
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9710+00 to 9720+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 2 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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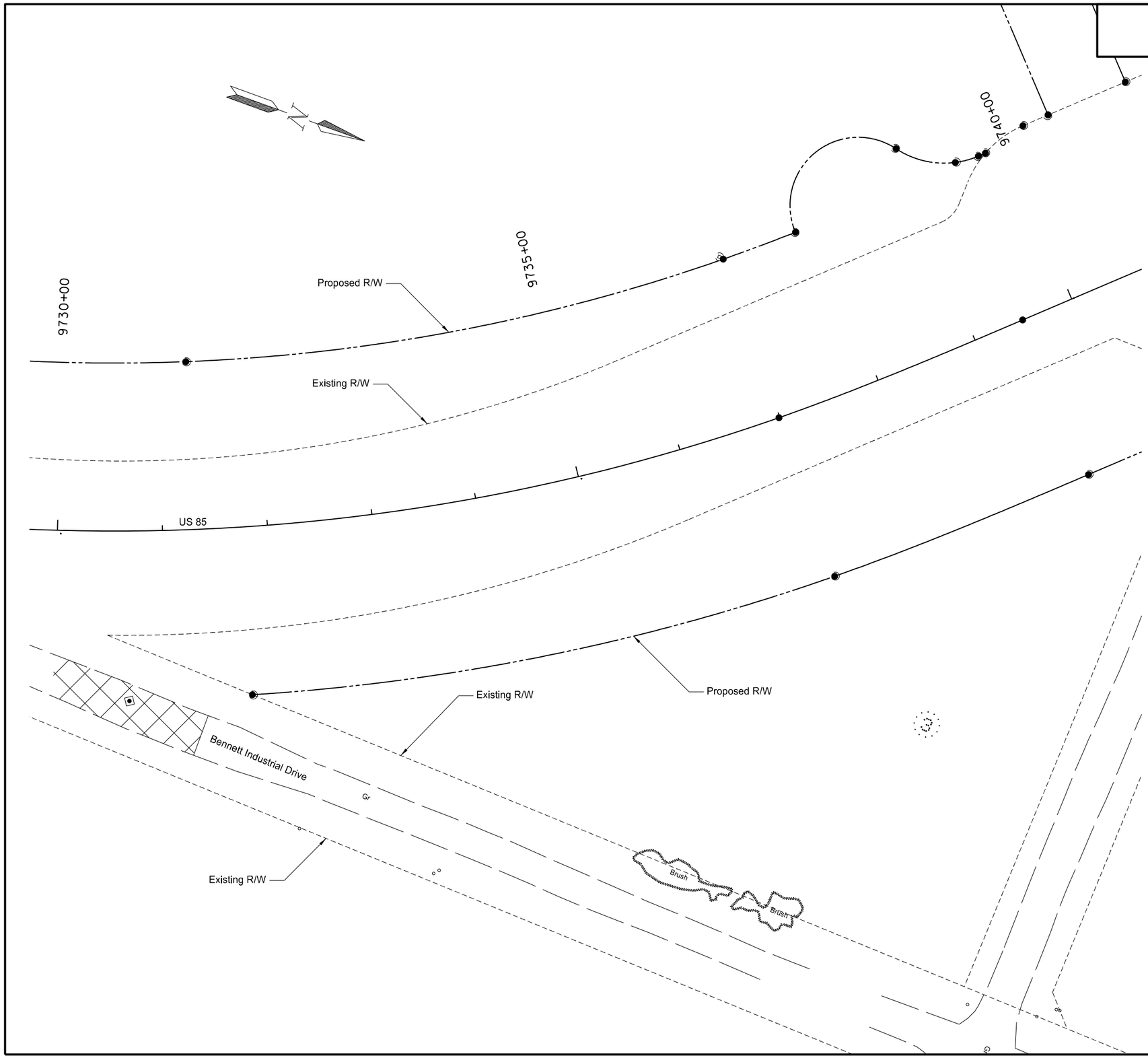
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9720+00 to 9730+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 3 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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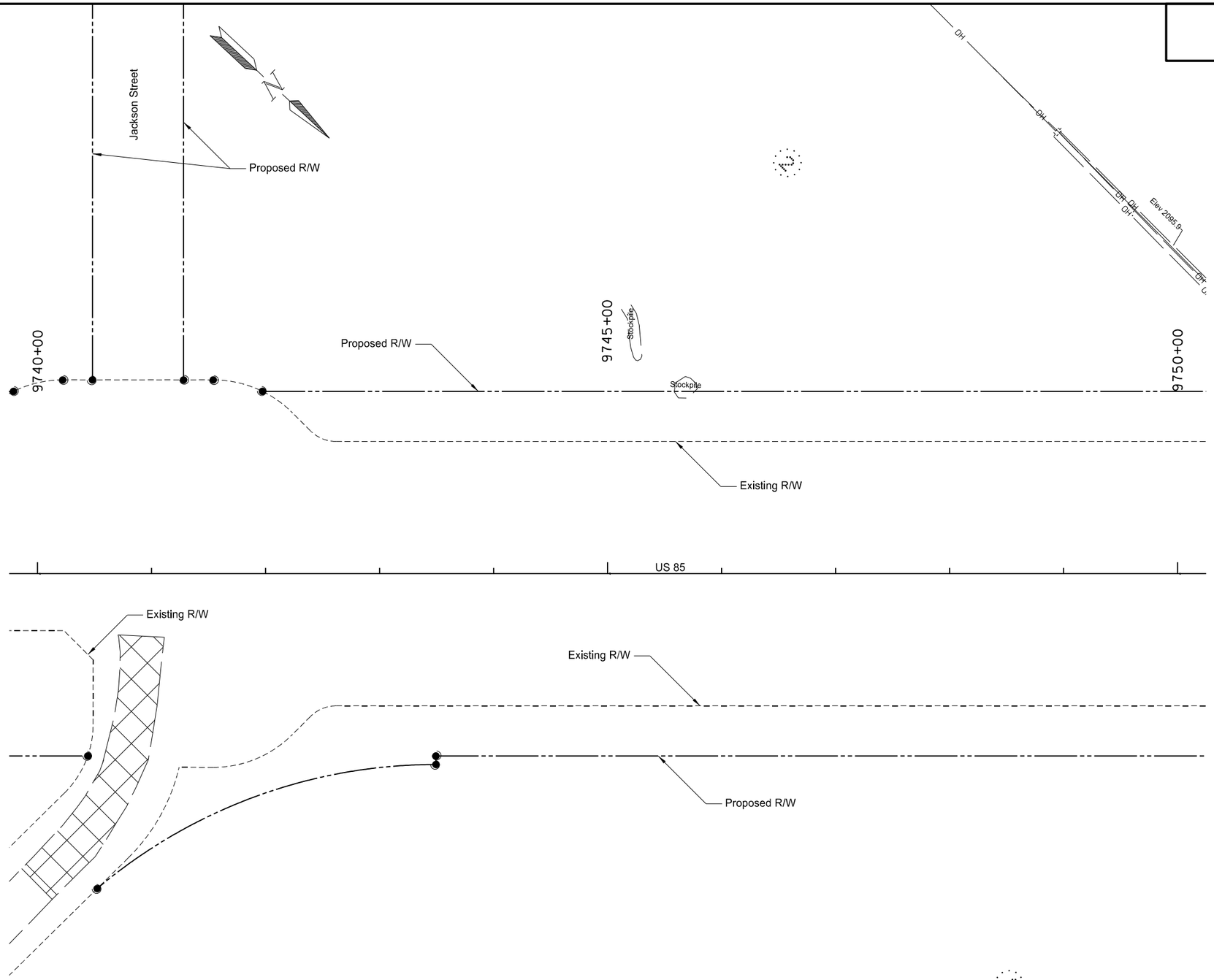
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9730+00 to 9740+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 4 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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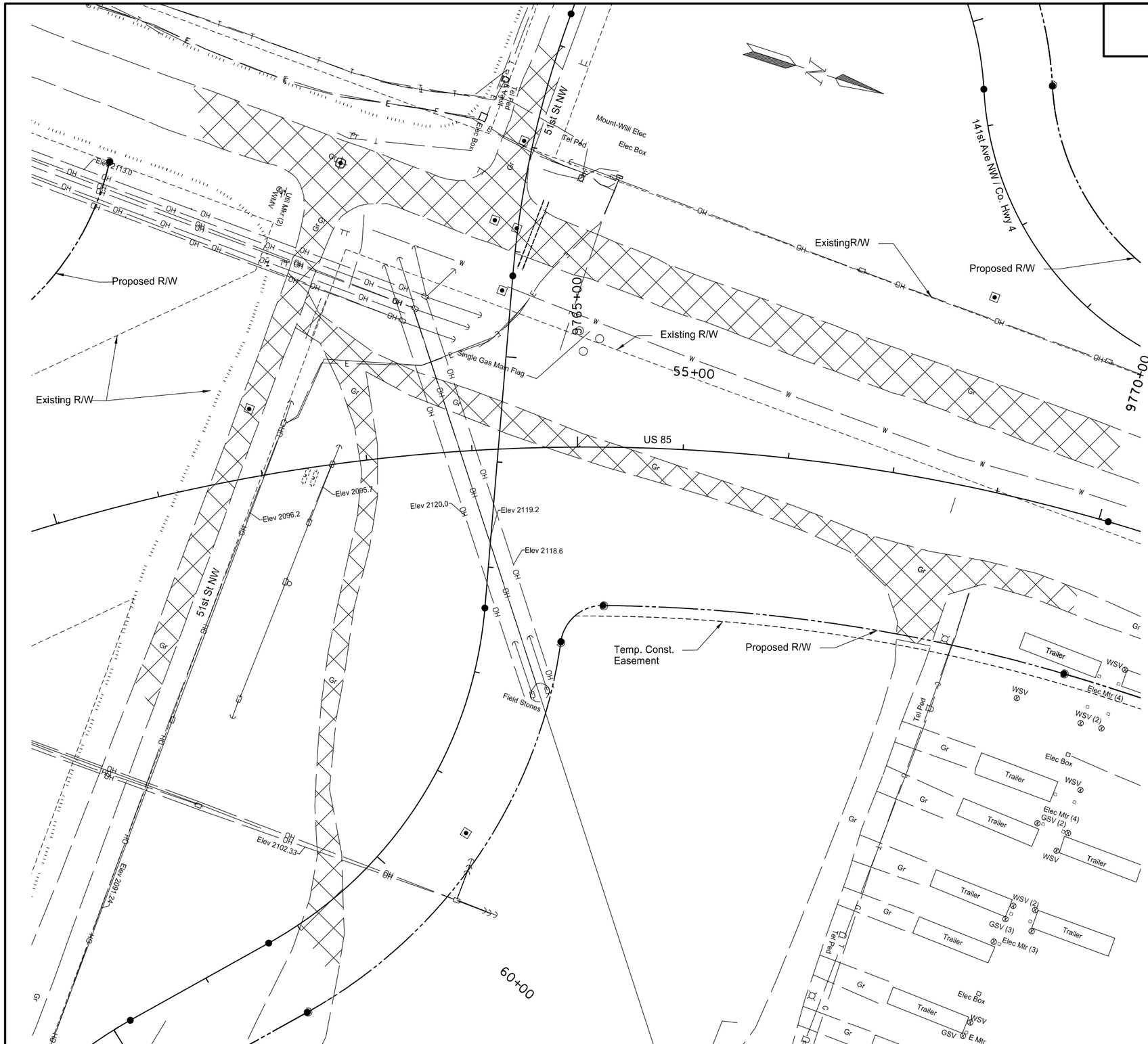
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9740+00 to 9750+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 5 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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Removals

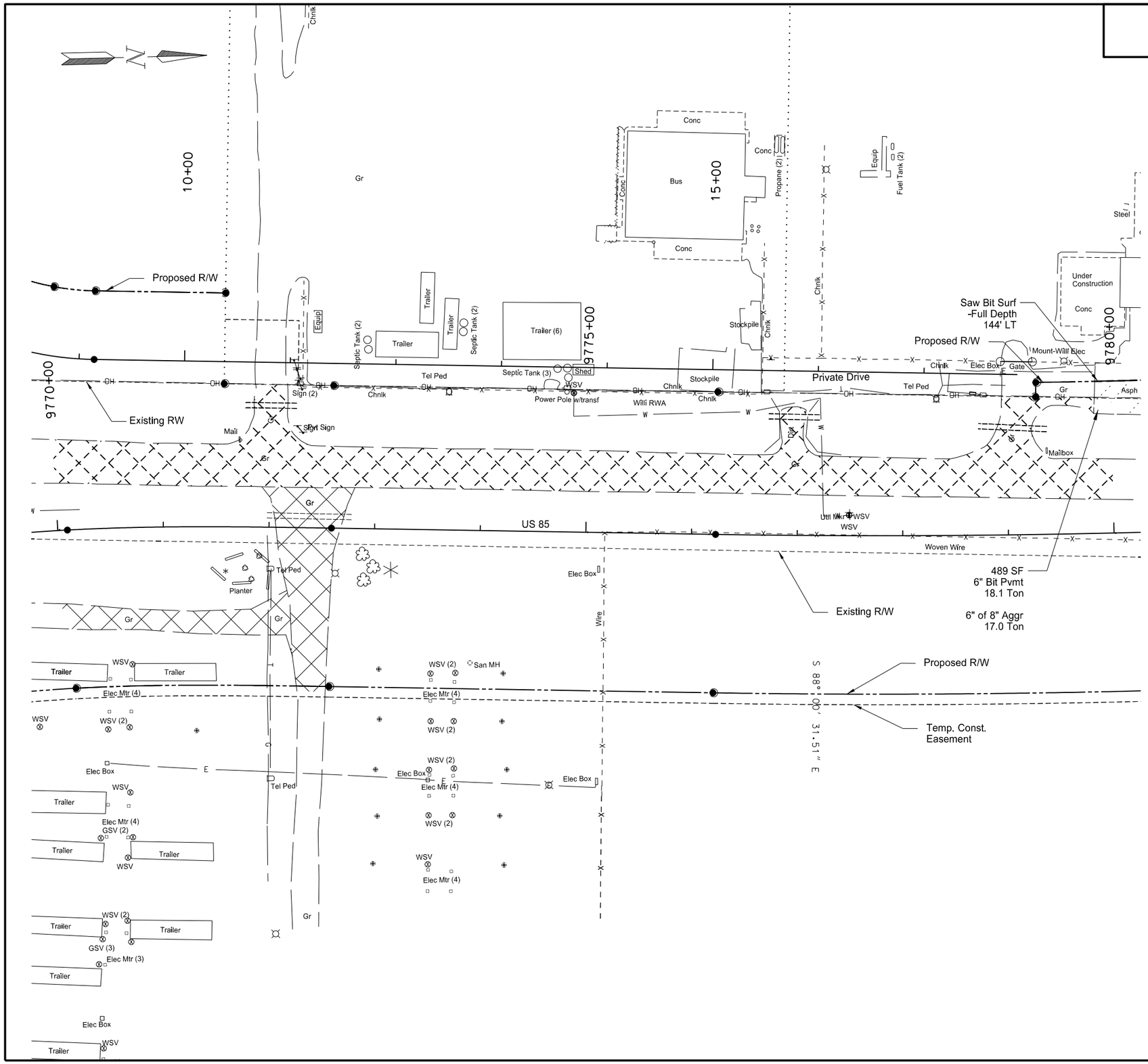
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9760+00 to 9770+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 6 |

| | | | | |
|---|---|---|---|---|
| 202 | 0136 | Removal of Pavement | | |
| | | 9779+83 to 9780+00 | 35 | TON |
| 302 | 0356 | Saw Bituminous Surfacing - Full Depth | | |
| | | 9779+85 - 144' LT to 9780+00 - 144' LT | 15 | LF |

Note: Stations & Offsets from US 85 Chain: PR85




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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Removals

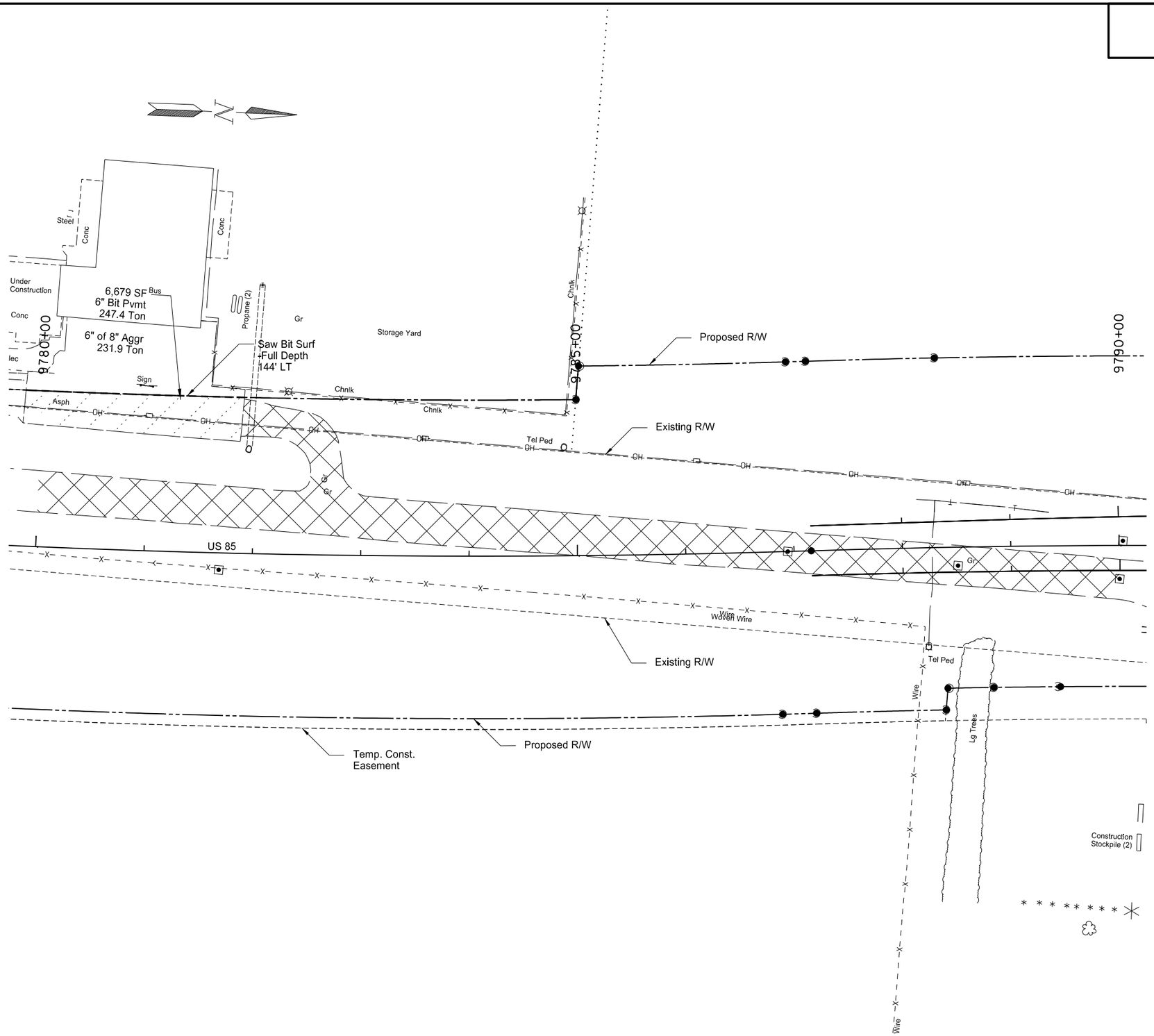
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9780+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 7 |

| | | | | |
|---|---|---|---|---|
| 202 | 0136 | Removal of Pavement | | |
| | | 9780+00 to 9781+96 | 480 | TON |
| 302 | 0356 | Saw Bituminous Surfacing - Full Depth | | |
| | | 9780+00 - 144' LT to 9781+90 - 144' LT | 190 | LF |

Note: Stations & Offsets from US 85 Chain: PR85




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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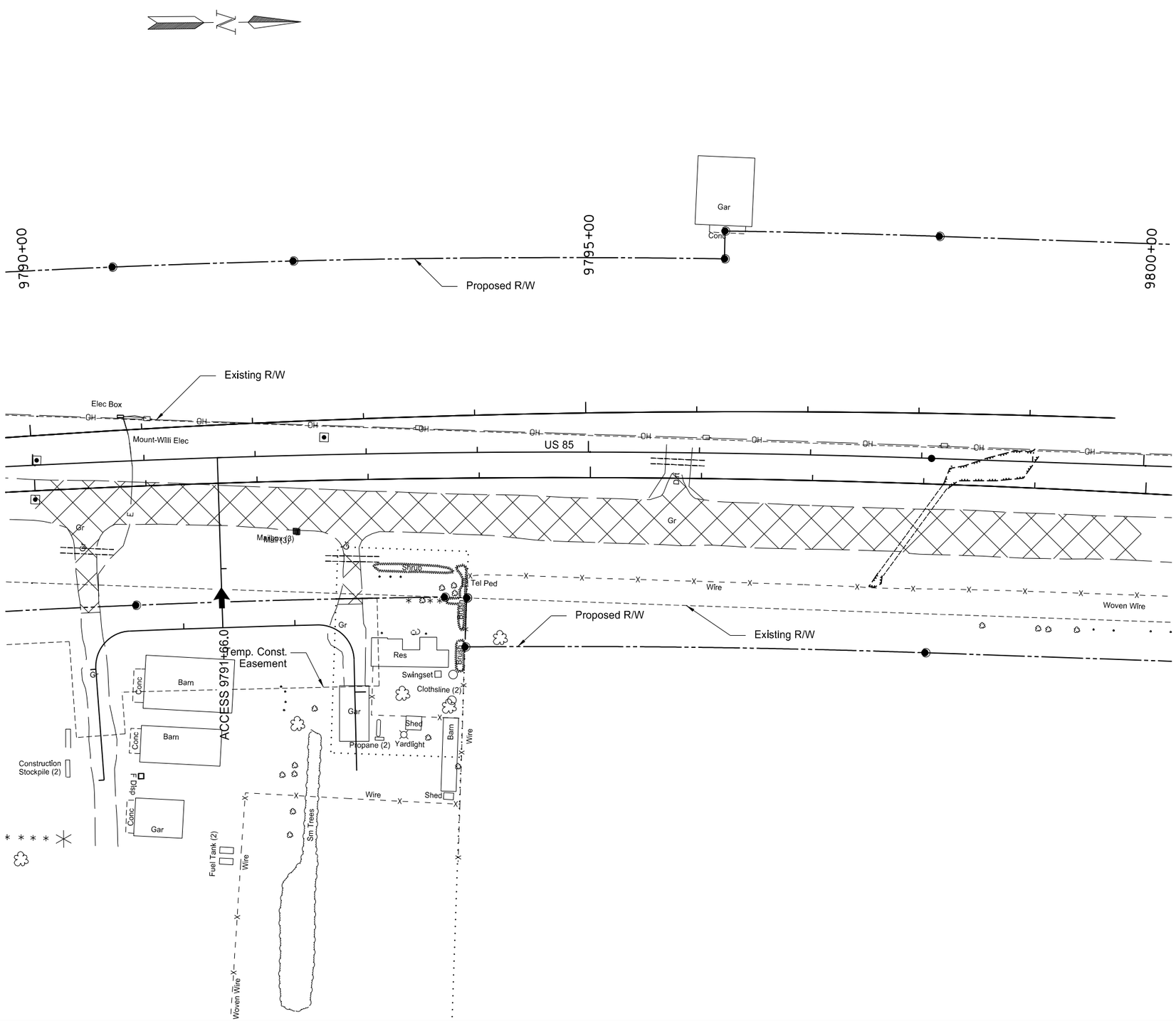
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9780+00 to 9790+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 8 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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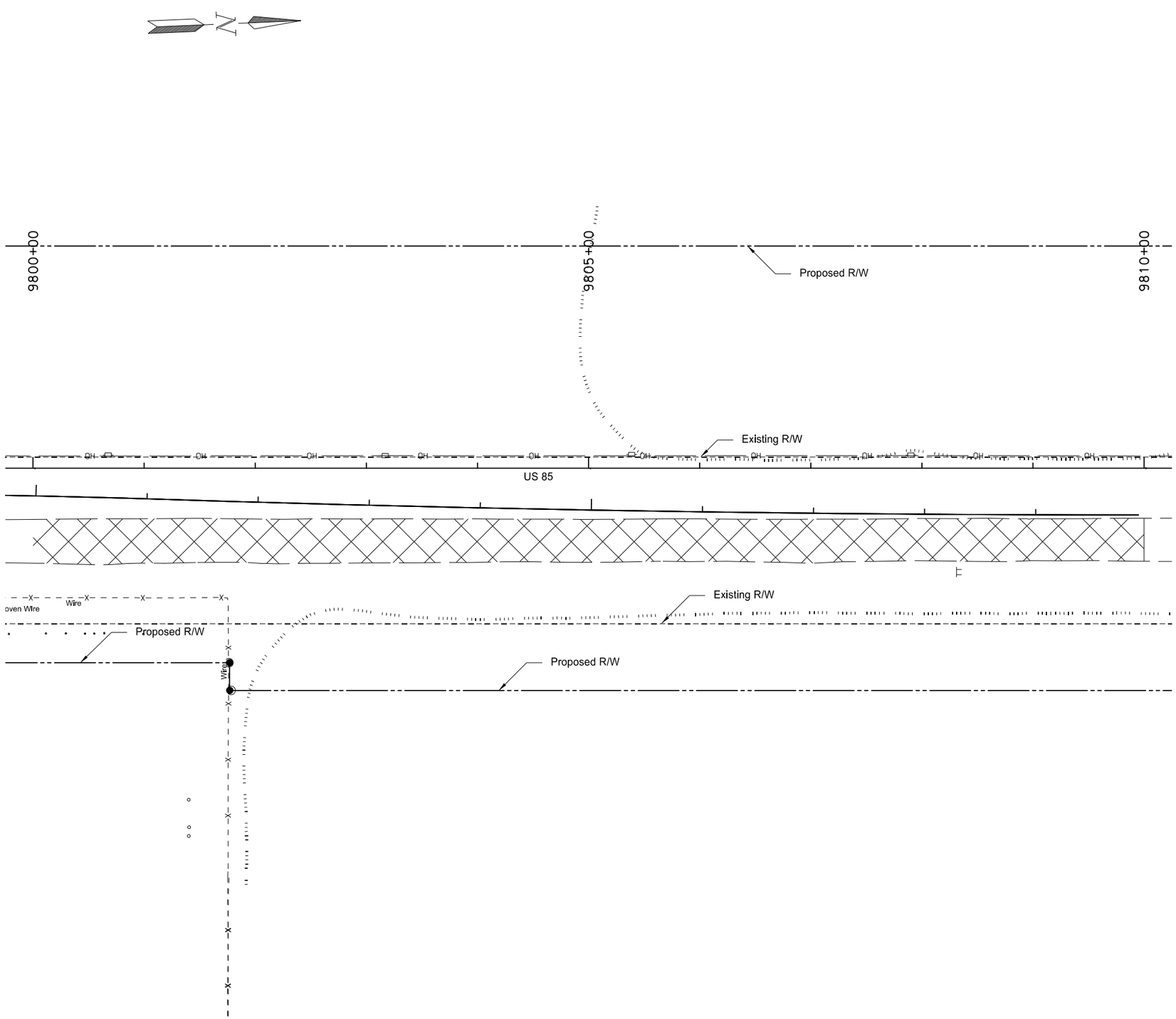
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9790+00 to 9800+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 9 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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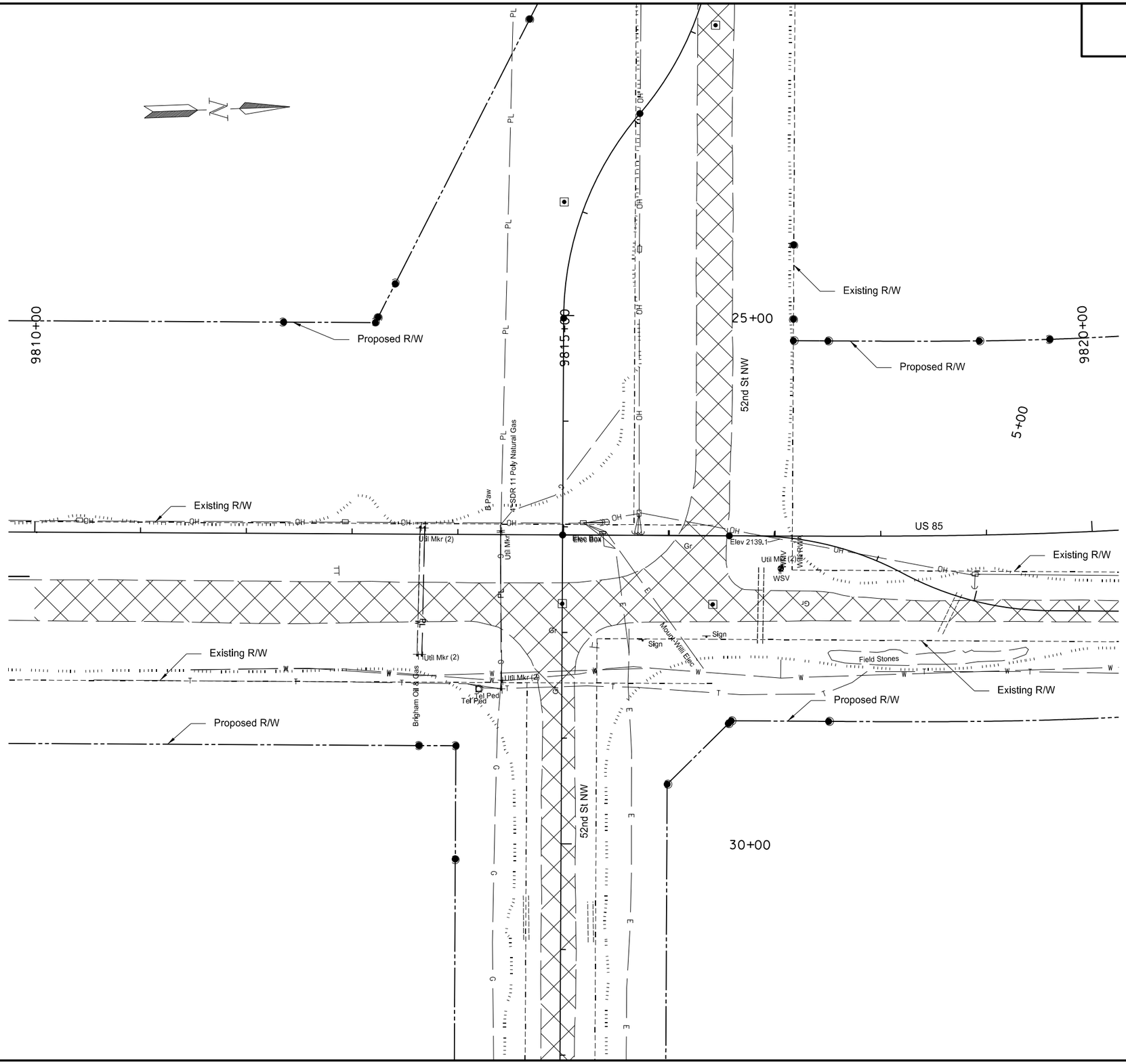
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9800+00 to 9810+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 10 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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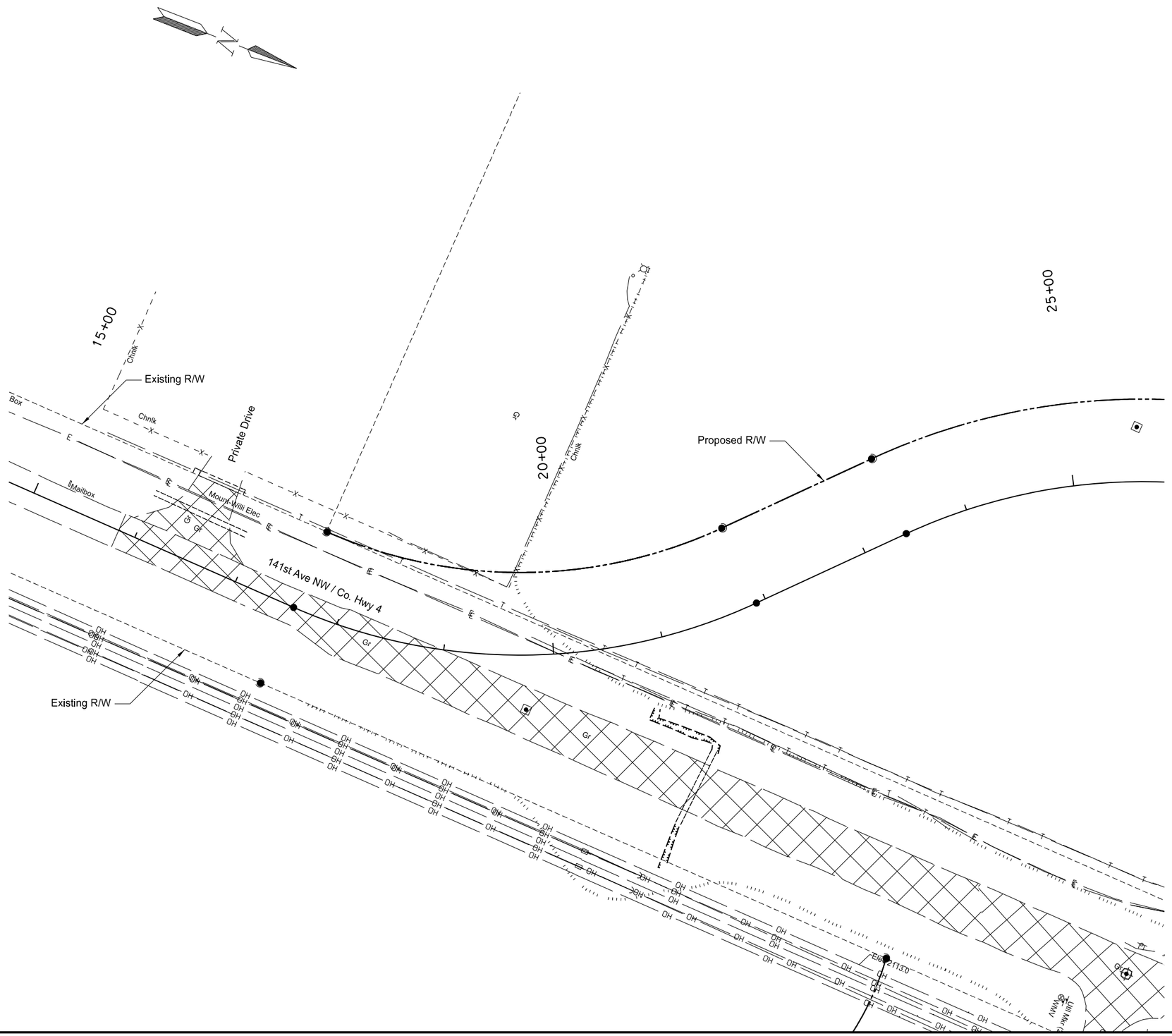
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9810+00 to 9820+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 11 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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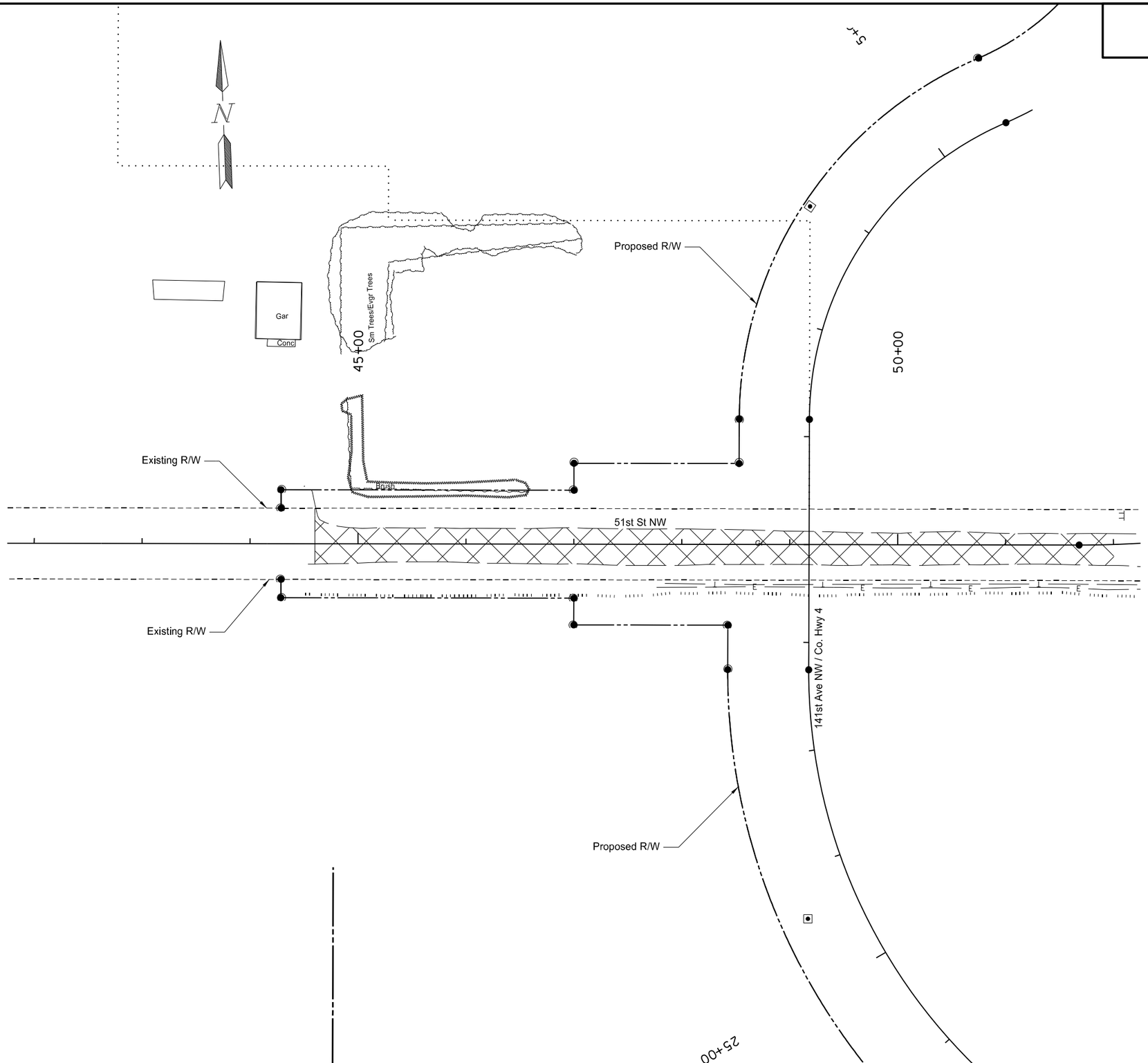
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW, South of 51st St. NW
15+00 to 25+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 12 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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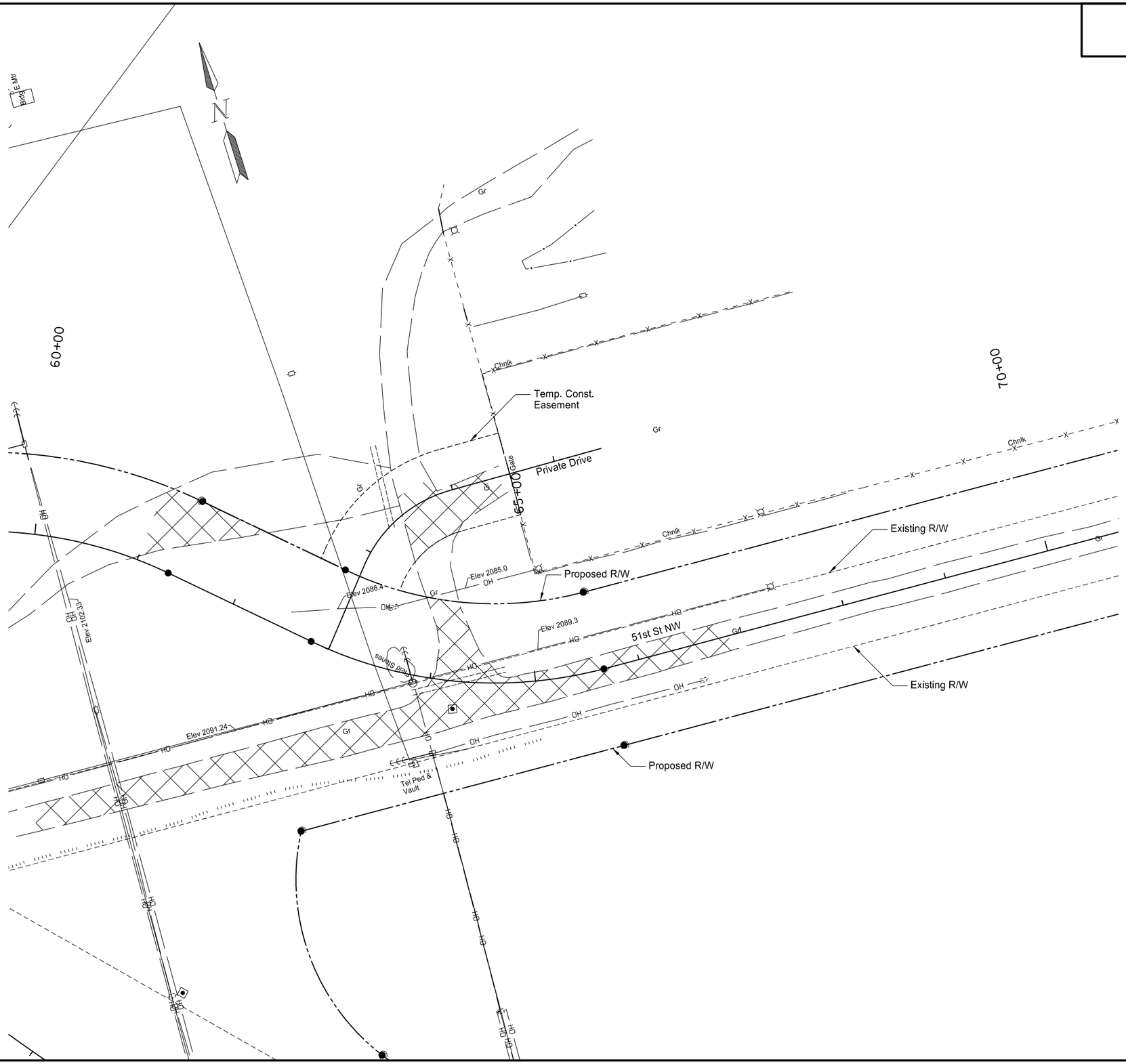
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
42+00 to 52+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 13 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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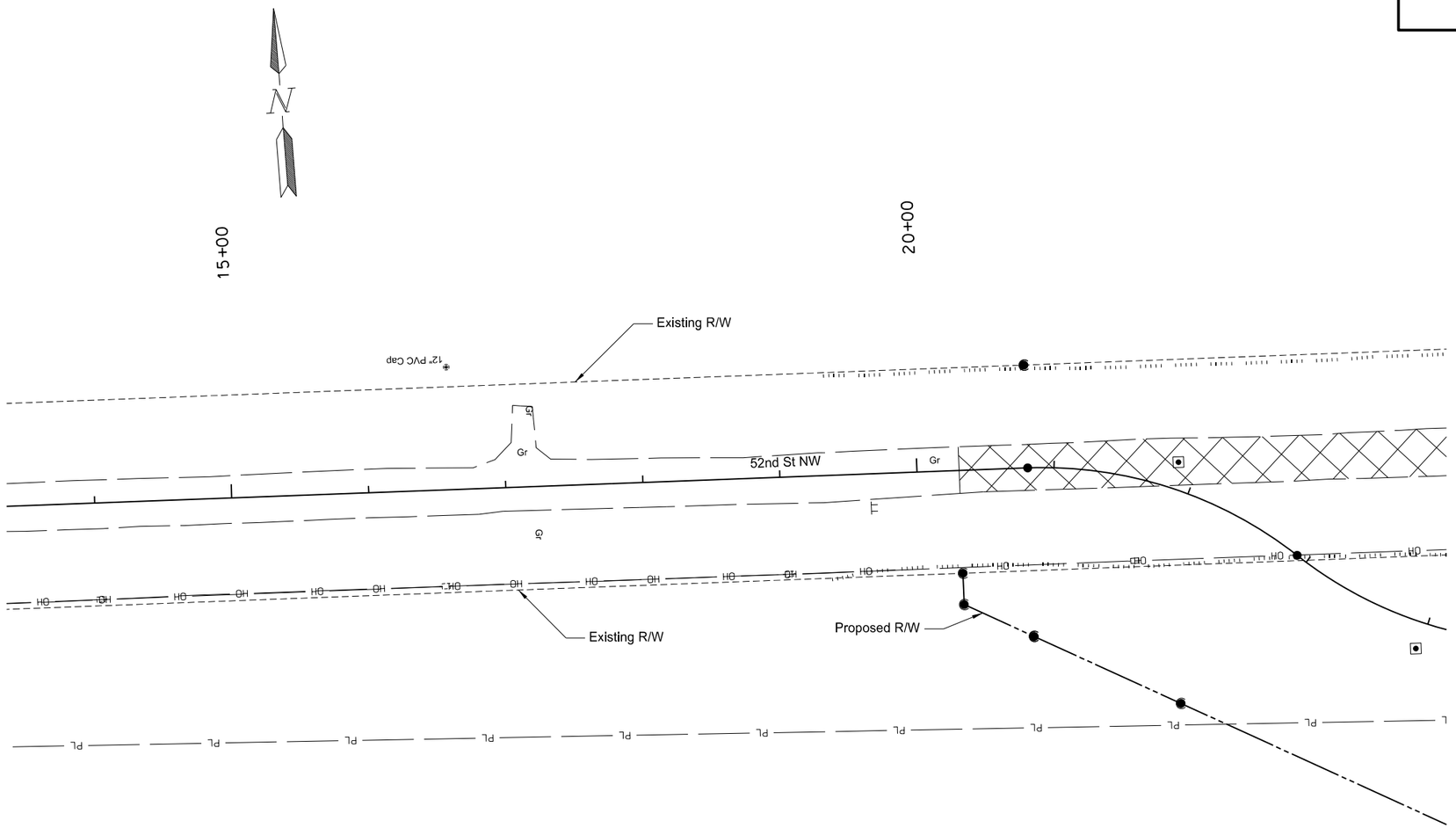
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
60+00 to 70+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 14 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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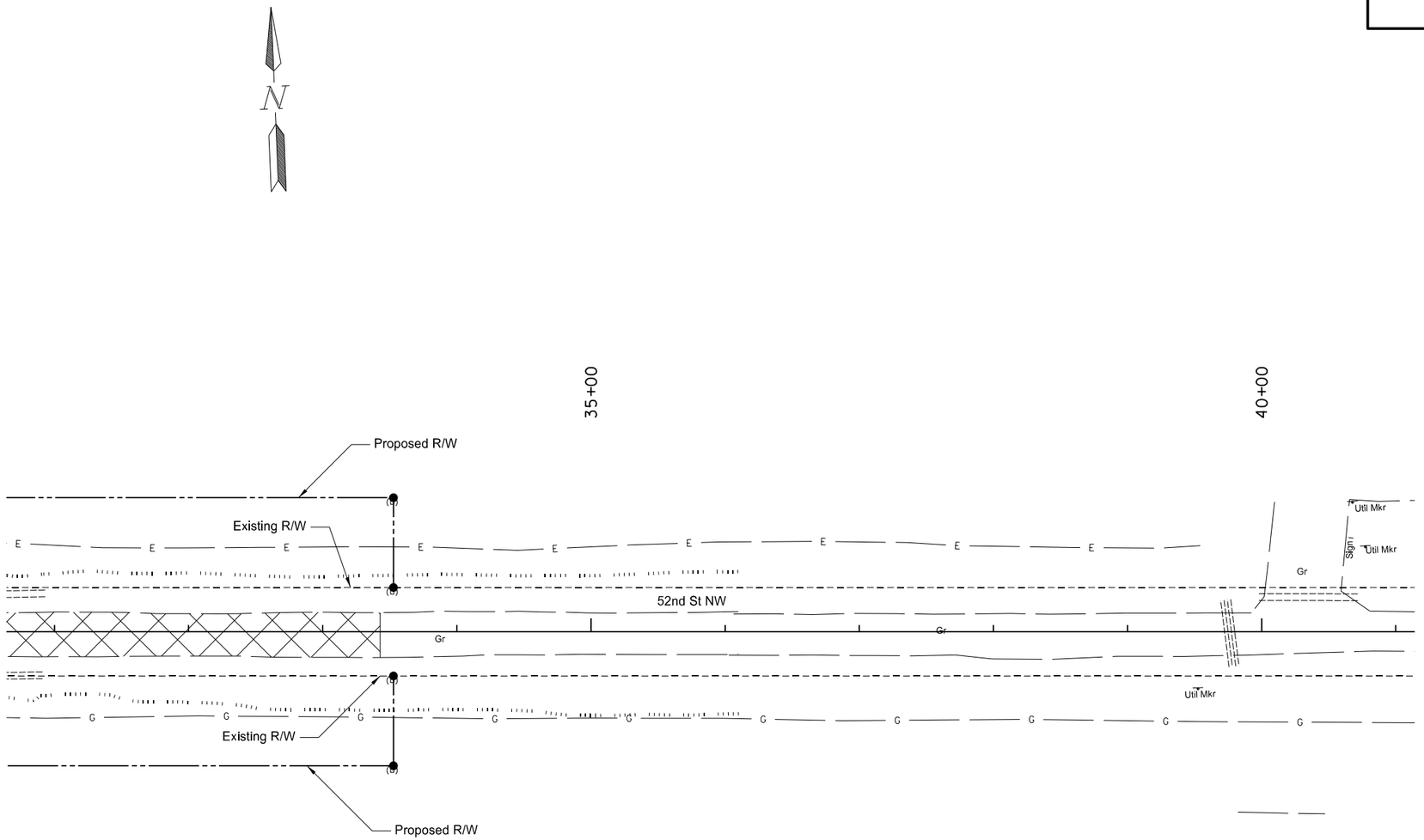
Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
40+00 to 50+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 40 | 15 |




LEGEND

Aggregate Removal
(Quantity included in Common Excavation Bid Item)

Asphalt Removal
-Paid as Removal of Pavement
(includes Aggregate Base)

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Removals

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
57+00 to 67+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 50 | 1 |

Hydraulic Data For SOIA-7-085(094)183

| | | | | | 25-Year Data | | | | 100-Year Data | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alignment and Station | Existing Pipe | Proposed Pipe Size | Notes | Drainage Area | Design Discharge | Design Headwater | Design Velocity | Design Stage | 100-Year Discharge | 100-Year Stage |
| | | (IN) | | (AC) | (CFS) | (FT) | (FPS) | (NAVD 88) | (CFS) | (NAVD 88) |
| 9753+00 - US 85 | 24" x 290' CSP | 48 | (A) | 1267 | 285 | 4.24 | 6.5 | 2069.93 | 466 | 2071.99 |
| 9753+09 - US 85 | | 48 | (A) | | | 4.24 | 6.5 | 2069.93 | | 2071.99 |
| 9753+19 - US 85 | | 48 | (A) | | | 4.24 | 6.5 | 2069.93 | | 2071.99 |
| 9753+28 - US 85 | | 48 | (A) | | | 4.24 | 6.5 | 2069.93 | | 2071.99 |
| 9798+91 - US 85 | 48" x 97' CSP | 60 | (A) (B) | 1282 | 268 | 5.29 | 10.7 | 2088.78 | 440 | 2091.85 |
| 9799+06 - US 85 | | 60 | (A) (B) | | | 5.19 | 10.8 | 2088.78 | | 2091.85 |
| 9816+10 - US 85 | 24" x 72' CSP | 42 | (C) | 66 | 35 | 2.98 | 7.6 | 2117.48 | 58 | 2118.83 |
| | | | | | 15-Year Data | | | | 100-Year Data | |
| 7+20 - Bennet Loop | none | 18 | (A) | 47 | 21 | 2.47 | 8.4 | 2072.17 | 44 | 2073.52 |
| 7+24 - Bennet Loop | none | 18 | (A) | | | 2.46 | 8.0 | 2072.17 | | 2073.52 |
| 22+35 - Bennet Loop | none | 22 x 13 | (A) | 4 | 4 | 1.17 | 3.5 | 2085.17 | 8 | 2085.89 |
| 2+00 - Bennett Loop E/W | none | 18 | (A) | 2 | 2 | 0.69 | 3.5 | 2091.33 | 3 | 2091.72 |
| 20+60.6 - 141 Ave NW, S of 51st St | none | 48 | (C) | 777 | 159 | 3.58 | 8.7 | 2076.83 | 331 | 2079.14 |
| 20+86.86 - 141 Ave NW, S of 51st St | none | 48 | (C) | | | 3.56 | 8.7 | 2076.83 | | 2079.14 |
| 21+00 - 141 Ave NW, S of 51st St | none | 48 | (C) | | | 3.59 | 8.7 | 2076.83 | | 2079.14 |
| 2+00 - 141 Ave NW, N of 51st St | none | 30 | (A) (B) | 42 | 18 | 2.33 | 11.9 | 2090.98 | 39 | 2092.97 |
| 7+48 - 141 Ave NW, N of 51st St | none | 30 | (A) (B) | 23 | 14 | 2.12 | 12.5 | 2090.32 | 29 | 2091.53 |

(A) Hydraulic data provided is for smooth-wall conduits.

(B) Riprap required for smooth-wall pipe alternatives. Riprap is not required for rough-wall pipe alternatives

(C) Hydraulic data provided is for rough-wall conduits.

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Culvert Hydraulic Data

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

# INLET AND MANHOLE SUMMARY

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 50 | 2 |

| | |
|---|---|
| Inlet No. | 40A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9714+00.08 R 2 - 44' Lt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2094.24 |
| Base Elev. | 2089.76 |
| Invert Elev. | 2089.95 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 40B |
| Type | Inlet - Type 2 - Double |
| Sta. | 9714+00.08 R 2 - 46' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2094.20 |
| Base Elev. | 2089.72 |
| Invert Elev. | 2089.91 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Manhole No. | 40 - 48In. |
| Type | Manhole |
| Sta. | 9714+00.08 R 2 - 0' Rt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2095.64 |
| Base Elev. | 2089.27 |
| Invert Elev. | 2089.477 |
| Riser | 4.87 |

| | |
|---|---|
| 18 In. Conduit S | 2089.48 |
| 15 In. Conduit W | 2089.78 |
| 15 In. Conduit E | 2089.73 |

| | |
|---|---|
| Inlet No. | 41A |
| Type | Inlet - Type 2 |
| Sta. | 9713+00.00 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2093.91 |
| Base Elev. | 2089.43 |
| Invert Elev. | 2089.62 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 41B |
| Type | Inlet - Type 2 |
| Sta. | 9713+00.00 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2093.91 |
| Base Elev. | 2089.43 |
| Invert Elev. | 2089.62 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Manhole No. | 41 - 48In. |
| Type | Manhole |
| Sta. | 9713+00.00 R 2 - 0' Rt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2095.31 |
| Base Elev. | 2088.77 |
| Invert Elev. | 2088.98 |
| Riser | 5.04 |

| | |
|---|---|
| 18 In. Conduit S | 2088.98 |
| 15 In. Conduit W | 2089.44 |
| 15 In. Conduit E | 2089.44 |
| 18 In. Conduit N | 2089.08 |

| | |
|---|---|
| Manhole No. | 42 - 54In. |
| Type | Manhole |
| Sta. | 9712+81.67 R 2 - 48' Lt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2094.17 |
| Base Elev. | 2086.36 |
| Invert Elev. | 2086.61 |
| Riser | 6.14 |

| | |
|---|---|
| 24 In. Conduit E | 2086.61 |
| 24 In. Conduit W | 2087.51 |

| | |
|---|---|
| Manhole No. | 43 - 54In. |
| Type | Manhole |
| Sta. | 9712+74.65 R 2 - 48' Lt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2094.18 |
| Base Elev. | 2086.36 |
| Invert Elev. | 2086.61 |
| Riser | 6.15 |

| | |
|---|---|
| 24 In. Conduit E | 2086.61 |
| 24 In. Conduit W | 2087.51 |

| | |
|---|---|
| Inlet No. | 4A |
| Type | Inlet - Type 1 |
| Sta. | 9719+22.21 R 2 - 59' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2095.39 |
| Base Elev. | 2090.91 |
| Invert Elev. | 2091.1 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Manhole No. | 4 - 48In. |
| Type | Manhole |
| Sta. | 9719+20.34 R 2 - 56' Lt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2095.82 |
| Base Elev. | 2090.35 |
| Invert Elev. | 2090.54 |
| Riser | 3.97 |

| | |
|---|---|
| 15 In. Conduit N | 2090.54 |
| 15 In. Conduit E | 2090.64 |

| | |
|---|---|
| Inlet No. | 5A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9721+23.13 R 2 - 59' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2095.02 |
| Base Elev. | 2090.54 |
| Invert Elev. | 2090.73 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 5B |
| Type | Inlet - Type 2 |
| Sta. | 9721+23.13 R 2 - 51' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2094.48 |
| Base Elev. | 2089.90 |
| Invert Elev. | 2090.09 |
| H' Dist. | 4.25 |

| | |
|---|---|
| 15 In. Conduit W | 2090.09 |
| 15 In. Conduit E | 2090.19 |

| | |
|---|---|
| Manhole No. | 5 - 48In. |
| Type | Manhole |
| Sta. | 9721+23.13 R 2 - 58' Lt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2094.77 |
| Base Elev. | 2089.27 |
| Invert Elev. | 2089.48 |
| Riser | 4.00 |

| | |
|---|---|
| 18 In. Conduit N | 2089.48 |
| 15 In. Conduit E | 2090.06 |
| 15 In. Conduit S | 2089.73 |

| | |
|---|---|
| Inlet No. | 6A |
| Type | Inlet - Type 2 |
| Sta. | 9722+65.65 R 2 - 51' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2093.77 |
| Base Elev. | 2089.29 |
| Invert Elev. | 2089.48 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Manhole No. | 6 - 48In. |
| Type | Manhole |
| Sta. | 9722+65.96 R 2 - 58' Lt. (PR85) |
| Casting Type | Solid Cover |
| Top Elev. | 2094.05 |
| Base Elev. | 2088.60 |
| Invert Elev. | 2088.81 |
| Riser | 3.95 |

| | |
|---|---|
| 18 In. Conduit N | 2088.81 |
| 15 In. Conduit E | 2089.45 |
| 18 In. Conduit S | 2088.91 |

| | |
|---|---|
| Inlet No. | 7A |
| Type | Inlet - Special, Type 2 -48 IN |
| Sta. | 9724+19.18 R 2 - 50.9' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2092.23 |
| Base Elev. | 2087.38 |
| Invert Elev. | 2087.59 |
| H' Dist. | 4.52 |

| | |
|---|---|
| 18 In. Conduit N | 2087.59 |
| 18 In. Conduit S | 2087.69 |

Note: Station and offset is to the center of structure.

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Drainage Summary

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

# INLET AND MANHOLE SUMMARY

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 50 | 3 |

| | |
|---|---|
| Inlet No. | 8A |
| Type | Inlet - Special, Type 2 -48 IN |
| Sta. | 9725+60.71 R 2 - 57.7' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2091.10 |
| Base Elev. | 2085.81 |
| Invert Elev. | 2086.06 |
| H' Dist. | 4.96 |

| | |
|---|---|
| 24 In. Conduit N | 2086.06 |
| 18 In. Conduit S | 2086.06 |

| | |
|---|---|
| Inlet No. | 9A |
| Type | Inlet - Type 2 - Double |
| Sta. | 24+73.19 - 23' Rt. (PR_JAMES_DR) |
| Grate Type | D |
| Grate Elev. | 2090.10 |
| Base Elev. | 2085.30 |
| Invert Elev. | 2085.55 |
| H' Dist. | 4.47 |

| | |
|---|---|
| 18 In. Conduit S | 2085.55 |
| 18 In. Conduit S | 2085.55 |

| | |
|---|---|
| Inlet No. | 9B |
| Type | Inlet - Special, Type 2 -48 IN |
| Sta. | 24+73.19 - 45.3' Lt. (PR_JAMES_DR) |
| Grate Type | V |
| Grate Elev. | 2089.61 |
| Base Elev. | 2085.09 |
| Invert Elev. | 2085.34 |
| H' Dist. | 4.19 |

| | |
|---|---|
| 18 In. Conduit S | 2085.34 |
| 24 In. Conduit S | 2085.34 |

| | |
|---|---|
| Inlet No. | 11A |
| Type | Inlet - Special, Type 2 -60 IN |
| Sta. | 9729+04.57 R 2 - 57.5' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2089.37 |
| Base Elev. | 2084.23 |
| Invert Elev. | 2084.48 |
| H' Dist. | 4.81 |

| | |
|---|---|
| 24 In. Conduit W | 2084.48 |
| 24 In. Conduit S | 2084.48 |

| | |
|---|---|
| Inlet No. | 12A |
| Type | Inlet - Type 2 |
| Sta. | 9730+46.27 R 2 - 59' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2088.67 |
| Base Elev. | 2083.79 |
| Invert Elev. | 2084 |
| H' Dist. | 4.55 |

| | |
|---|---|
| Inlet No. | 13A |
| Type | Inlet - Type 2 |
| Sta. | 9732+10.38 R 2 - 51' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2088.16 |
| Base Elev. | 2082.99 |
| Invert Elev. | 2083.2 |
| H' Dist. | 4.84 |

| | |
|---|---|
| Inlet No. | 14A |
| Type | Inlet - Type 2 |
| Sta. | 9733+51.85 R 2 - 51' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2087.46 |
| Base Elev. | 2082.28 |
| Invert Elev. | 2082.49 |
| H' Dist. | 4.85 |

| | |
|---|---|
| Inlet No. | 15A |
| Type | Inlet - Type 2 |
| Sta. | 9735+74.61 R 2 - 51' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2086.34 |
| Base Elev. | 2081.17 |
| Invert Elev. | 2081.38 |
| H' Dist. | 4.84 |

| | |
|---|---|
| Inlet No. | 16A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9736+99.06 R 2 - 10' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2088.16 |
| Base Elev. | 2083.68 |
| Invert Elev. | 2083.87 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 16B |
| Type | Inlet - Type 2 |
| Sta. | 9736+99.11 R 2 - 50.98' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2085.72 |
| Base Elev. | 2080.54 |
| Invert Elev. | 2080.75 |
| H' Dist. | 4.85 |

| | |
|---|---|
| 18 In. Conduit SW | 2080.75 |
| 15 In. Conduit NE | 2081.43 |

| | |
|---|---|
| Inlet No. | 17A |
| Type | Inlet - Type 2 |
| Sta. | 9738+35.00 R 2 - 10' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2087.24 |
| Base Elev. | 2082.76 |
| Invert Elev. | 2082.95 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 17B |
| Type | Inlet - Type 2 |
| Sta. | 9738+86.68 R 2 - 10' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2086.89 |
| Base Elev. | 2080.23 |
| Invert Elev. | 2080.44 |
| H' Dist. | 6.33 |

| | |
|---|---|
| 18 In. Conduit SW | 2080.44 |
| 15 In. Conduit SE | 2082.60 |

| | |
|---|---|
| Inlet No. | 18A |
| Type | Inlet - Type 2 |
| Sta. | 9741+22.50 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2084.58 |
| Base Elev. | 2080.10 |
| Invert Elev. | 2080.29 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 18B |
| Type | Inlet - Type 2 |
| Sta. | 9741+22.50 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2084.56 |
| Base Elev. | 2078.42 |
| Invert Elev. | 2078.63 |
| H' Dist. | 5.81 |

| | |
|---|---|
| 18 In. Conduit SW | 2078.63 |
| 15 In. Conduit NE | 2079.94 |

| | |
|---|---|
| Inlet No. | 19A |
| Type | Inlet - Type 2 |
| Sta. | 9746+62.18 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2078.08 |
| Base Elev. | 2073.60 |
| Invert Elev. | 2073.79 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 19B |
| Type | Inlet - Type 2 |
| Sta. | 9746+62.18 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2078.08 |
| Base Elev. | 2072.51 |
| Invert Elev. | 2072.72 |
| H' Dist. | 5.24 |

| | |
|---|---|
| 18 In. Conduit NE | 2072.72 |
| 15 In. Conduit SW | 2073.44 |

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Drainage Summary

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

# INLET AND MANHOLE SUMMARY

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 50 | 4 |

| | |
|---|---|
| Inlet No. | 20A |
| Type | Inlet - Type 2 |
| Sta. | 9748+50.00 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2076.39 |
| Base Elev. | 2071.91 |
| Invert Elev. | 2072.10 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 20B |
| Type | Inlet - Type 2 |
| Sta. | 9748+50.00 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2076.39 |
| Base Elev. | 2070.49 |
| Invert Elev. | 2070.70 |
| H' Dist. | 5.57 |

| | |
|---|---|
| 18 In. Conduit NE | 2070.70 |
| 15 In. Conduit SW | 2071.75 |

| | |
|---|---|
| Inlet No. | 21A |
| Type | Inlet - Type 2 |
| Sta. | 9751+00.00 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.09 |
| Base Elev. | 2070.61 |
| Invert Elev. | 2070.80 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 21B |
| Type | Inlet - Type 2 |
| Sta. | 9751+00.00 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.09 |
| Base Elev. | 2068.06 |
| Invert Elev. | 2068.27 |
| H' Dist. | 6.70 |

| | |
|---|---|
| 18 In. Conduit NE | 2068.27 |
| 15 In. Conduit SW | 2070.45 |

| | |
|---|---|
| Inlet No. | 22A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9752+24.88 R 2 - 44' Lt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2074.48 |
| Base Elev. | 2070.00 |
| Invert Elev. | 2070.19 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 22B |
| Type | Inlet - Type 2 - Double |
| Sta. | 9752+24.88 R 2 - 44' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2074.48 |
| Base Elev. | 2069.55 |
| Invert Elev. | 2069.74 |
| H' Dist. | 4.60 |

| | |
|---|---|
| 15 In. Conduit SE | 2069.74 |
| 15 In. Conduit SW | 2069.84 |

| | |
|---|---|
| Inlet No. | 23A |
| Type | Inlet - Type 1 |
| Sta. | 9772+79.92 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2096.84 |
| Base Elev. | 2091.60 |
| Invert Elev. | 2091.81 |
| H' Dist. | 4.91 |

| | |
|---|---|
| Inlet No. | 24A |
| Type | Inlet - Type 2 |
| Sta. | 9767+49.97 R 2 - 2' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2086.47 |
| Base Elev. | 2081.99 |
| Invert Elev. | 2082.18 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 24B |
| Type | Inlet - Type 2 |
| Sta. | 9767+49.96 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2084.58 |
| Base Elev. | 2079.57 |
| Invert Elev. | 2079.78 |
| H' Dist. | 4.68 |

| | |
|---|---|
| 18 In. Conduit E | 2079.78 |
| 15 In. Conduit W | 2080.29 |

| | |
|---|---|
| Inlet No. | 25A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9765+15.60 R 2 - 2' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2082.84 |
| Base Elev. | 2078.36 |
| Invert Elev. | 2078.55 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 25B |
| Type | Inlet - Type 2 - Double |
| Sta. | 9765+15.60 R 2 - 51.88' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2080.63 |
| Base Elev. | 2075.05 |
| Invert Elev. | 2075.26 |
| H' Dist. | 5.25 |

| | |
|---|---|
| 18 In. Conduit E | 2075.26 |
| 15 In. Conduit W | 2076.34 |

| | |
|---|---|
| Inlet No. | 26A |
| Type | Inlet - Type 2 - Double |
| Sta. | 57+29.44 - 35.67' Rt. (PR_51ST) |
| Grate Type | D |
| Grate Elev. | 2076.69 |
| Base Elev. | 2071.61 |
| Invert Elev. | 2071.86 |
| H' Dist. | 4.75 |

| | |
|---|---|
| 24 In. Conduit SE | 2071.86 |
| 24 In. Conduit NW | 2072.60 |

| | |
|---|---|
| Inlet No. | 27A |
| Type | Inlet - Type 1 |
| Sta. | 51+06.40 - 24' Rt. (PR_51ST) |
| Grate Type | V |
| Grate Elev. | 2088.92 |
| Base Elev. | 2084.44 |
| Invert Elev. | 2084.63 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 27B |
| Type | Inlet - Type 1 |
| Sta. | 51+06.40 - 24' Lt. (PR_51ST) |
| Grate Type | V |
| Grate Elev. | 2088.49 |
| Base Elev. | 2083.50 |
| Invert Elev. | 2083.71 |
| H' Dist. | 4.66 |

| | |
|---|---|
| 18 In. Conduit N | 2083.71 |
| 15 In. Conduit S | 2084.20 |

| | |
|---|---|
| Inlet No. | 28A |
| Type | Inlet - Type 2 - Double |
| Sta. | 54+02.54 - 31.2' Lt. (PR_51ST) |
| Grate Type | D |
| Grate Elev. | 2086.00 |
| Base Elev. | 2078.68 |
| Invert Elev. | 2078.97 |
| H' Dist. | 6.99 |

| | |
|---|---|
| 30 In. Conduit SE | 2078.97 |
| 30 In. Conduit N | 2079.44 |

Note: Station and offset is to the center of structure.

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Drainage Summary

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

# INLET AND MANHOLE SUMMARY

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 50 | 5 |

| | |
|---|---|
| Inlet No. | 29A |
| Type | Inlet - Type 2 |
| Sta. | 9759+56.54 R 2 - 10' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2079.14 |
| Base Elev. | 2073.06 |
| Invert Elev. | 2073.25 |
| H' Dist. | 5.75 |

| | |
|---|---|
| Inlet No. | 29B |
| Type | Inlet - Type 2 |
| Sta. | 9759+56.56 R 2 - 52' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2076.42 |
| Base Elev. | 2072.17 |
| Invert Elev. | 2072.38 |
| H' Dist. | 3.92 |

| | |
|---|---|
| 18 In. Conduit SE | 2072.38 |
| 15 In. Conduit SW | 2072.63 |

| | |
|---|---|
| Inlet No. | 30A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9757+98.09 R 2 - 10' Lt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2078.02 |
| Base Elev. | 2073.54 |
| Invert Elev. | 2073.73 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 30B |
| Type | Inlet - Type 2 |
| Sta. | 9758+60.64 R 2 - 10' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2078.50 |
| Base Elev. | 2073.19 |
| Invert Elev. | 2073.38 |
| H' Dist. | 4.98 |

| | |
|---|---|
| 15 In. Conduit NE | 2073.38 |
| 15 In. Conduit SE | 2073.48 |

| | |
|---|---|
| Inlet No. | 30C |
| Type | Inlet - Type 2 |
| Sta. | 9758+60.64 R 2 - 52' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.78 |
| Base Elev. | 2071.80 |
| Invert Elev. | 2072.01 |
| H' Dist. | 3.65 |

| | |
|---|---|
| 18 In. Conduit NE | 2072.01 |
| 15 In. Conduit SW | 2072.26 |
| 18 In. Conduit NW | 2072.01 |

| | |
|---|---|
| Inlet No. | 31A |
| Type | Inlet - Type 2 |
| Sta. | 9756+82.22 R 2 - 52' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.90 |
| Base Elev. | 2065.23 |
| Invert Elev. | 2065.44 |
| H' Dist. | 10.34 |

| | |
|---|---|
| Inlet No. | 32A |
| Type | Inlet - Type 2 |
| Sta. | 9755+00.00 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.27 |
| Base Elev. | 2070.79 |
| Invert Elev. | 2070.98 |
| H' Dist. | 4.15 |

| | |
|---|---|
| Inlet No. | 32B |
| Type | Inlet - Type 2 |
| Sta. | 9755+00.01 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2075.10 |
| Base Elev. | 2065.69 |
| Invert Elev. | 2065.90 |
| H' Dist. | 9.08 |

| | |
|---|---|
| 18 In. Conduit NE | 2065.90 |
| 15 In. Conduit SW | 2070.62 |
| 15 In. Conduit SE | 2069.40 |

| | |
|---|---|
| Inlet No. | 33A |
| Type | Inlet - Type 2 - Double |
| Sta. | 9753+94.48 R 2 - 44' Lt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2074.56 |
| Base Elev. | 2070.08 |
| Invert Elev. | 2070.27 |

| | |
|---|---|
| Inlet No. | 33B |
| Type | Inlet - Type 2 - Double |
| Sta. | 9753+94.48 R 2 - 44' Rt. (PR85) |
| Grate Type | D |
| Grate Elev. | 2074.56 |
| Base Elev. | 2069.63 |
| Invert Elev. | 2069.82 |
| H' Dist. | 4.60 |

| | |
|---|---|
| 15 In. Conduit NW | 2069.82 |
| 15 In. Conduit SW | 2069.92 |

| | |
|---|---|
| Inlet No. | 34A |
| Type | Inlet Tee - Type 1 |
| Sta. | 9752+99.98 R 2 - 44' Lt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2074.34 |
| Base Elev. | 2065.20 |
| Invert Elev. | 2065.62 |
| H' Dist. | 3.21 |

| | |
|---|---|
| Inlet No. | 34B |
| Type | Inlet Tee - Type 1 |
| Sta. | 9753+00.00 R 2 - 44' Rt. (PR85) |
| Grate Type | V |
| Grate Elev. | 2074.44 |
| Base Elev. | 2065.02 |
| Invert Elev. | 2065.44 |
| H' Dist. | 3.91 |

| | |
|---|---|
| Inlet No. | 44A |
| Type | Inlet - Shallow, Catch Basin - 9IN Beehive |
| Sta. | 4+09.66 - 33.33' Lt. (PR_JACKSON_ST) |
| Grate Type | Beehive |
| Grate Elev | 2092.91 |
| Base Elev. | 2089.69 |
| Invert Elev. | 2089.88 |
| H' Dist. | 2.56 |

| | |
|---|---|
| Inlet No. | 45A |
| Type | Inlet - Shallow, Catch Basin - 9IN Beehive |
| Sta. | 4+09.66 - 34.5' Rt. (PR_JACKSON_ST) |
| Grate Type | Beehive |
| Grate Elev. | 2092.34 |
| Base Elev. | 2089.41 |
| Invert Elev. | 2089.60 |
| H' Dist. | 2.27 |

Note: Station and offset is to the center of the structure.

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Drainage Summary

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 51 | 1 |

| Begin Station/ Location | Begin Offset | End Station/ Location | End Offset | (A) Length (LF) | Pipe Conduit Storm Drain Pay Size (IN) | Allowable Material | Required Diameter (IN) | Minimum Thickness (IN) | (B) End Sections Begin | (B) End Sections End |
|---|---|---|---|---|---|---|---|---|---|---|
| 4A | | 4 | | 115 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 4 | | 5 | | 203 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 5A | | 5B | | 110 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 5B | | 5 | | 7 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 5 | | 6 | | 142 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 6A | | 6 | | 7 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 6 | | 7A | | 151 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 7A | | 8A | | 138 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 8A | | 11A | | 333 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 11A | | US 85 STA 9729+04.83 R 2 | 84.24' LT | 25 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| JAMES DR STA 24+73.19 | 54.98' RT | 9A | | 32 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 9A | | 9B | | 69 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 9B | | JAMES DR STA 24+66.45 | 71.88' LT | 27 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 12A | | US 85 STA 9730+46.27 R 2 | 87.14' LT | 28 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 13A | | US 85 STA 9732+10.45 R 2 | 50.98' LT | 30 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 14A | | US 85 STA 9733+52.70 R 2 | 81.07' LT | 30 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 15A | | US 85 STA 9735+74.63 R 2 | 81.05' LT | 30 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 16A | | 16B | | 61 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 16B | | US 85 STA 9736+99.15 R 2 | 81.08' LT | 30 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 17A | | 17B | | 52 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 17B | | US 85 STA 9738+91.47 R 2 | 82.71' LT | 93 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |

(A) Pipe length is to the center of the structure.
(B) Not paid for separately, to be included in the price bid for Pipe Conduit.

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Allowable Pipe List - Storm Drain

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 51 | 2 |

| Begin Station/ Location | Begin Offset | End Station/ Location | End Offset | (A) Length (LF) | Pipe Conduit Storm Drain Pay Size (IN) | Allowable Material | Required Diameter (IN) | Minimum Thickness (IN) | (B) End Sections Begin | (B) End Sections End |
|---|---|---|---|---|---|---|---|---|---|---|
| 18A | | 18B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 18B | | US 85 STA 9741+23.59 R 2 | 80.23' LT | 36 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 19A | | 19B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 19B | | US 85 STA 9746+62.79 R 2 | 76.62' RT | 33 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 20A | | 20B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 20B | | US 85 STA 9748+50.00 R 2 | 78.74' RT | 35 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 21A | | 21B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 21B | | US 85 STA 9751+01.18 R 2 | 85.91' RT | 34 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 22A | | 22B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 22B | | 21B | | 125 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 23A | | US 85 STA 9772+79.92 R 2 | 74.44' LT | 30 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 24A | | 24B | | 40 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 24B | | US 85 STA 9767+48.85 R 2 | 73.04' RT | 29 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 25A | | 25B | | 44 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 25B | | US 85 STA 9765+17.37 R 2 | 93.83' RT | 42 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 51ST ST STA 57+00.00 | 55.57' LT | 26A | | 96 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 26A | | 51ST ST STA 57+58.25 | 60.24' RT | 36 | 24 | Reinforced Concrete Pipe - Class III | 24 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 27A | | 27B | | 48 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 27B | | 51ST ST STA 51+06.40 | 45.69' LT | 22 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 51ST ST STA 54+00.00 | 51.07' LT | 28A | | 20 | 30 | Reinforced Concrete Pipe - Class III | 30 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |

(A) Pipe length is to the center of the structure.

(B) Not paid for separately, to be included in the price bid for Pipe Conduit.

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Allowable Pipe List - Storm Drain

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 51 | 3 |

| Begin Station/ Location | Begin Offset | End Station/ Location | End Offset | (A) Length (LF) | Pipe Conduit Storm Drain Pay Size (IN) | Allowable Material | Required Diameter (IN) | Minimum Thickness (IN) | (B) End Sections Begin | (B) End Sections End |
|---|---|---|---|---|---|---|---|---|---|---|
| 28A | | US 85 STA 9763+30.30 R 2 | 110.12' LT | 171 | 30 | Reinforced Concrete Pipe - Class III | 30 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 29A | | 29B | | 62 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 29B | | 30C | | 93 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 30A | | 30B | | 63 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 30B | | 30C | | 62 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 30C | | US 85 STA 9758+60.64 R 2 | 73.61' RT | 22 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 31A | | US 85 STA 9756+82.22 R 2 | 117.15' RT | 65 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 32A | | 32B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 32B | | US 85 STA 9755+01.51 R 2 | 101.06' RT | 57 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 33A | | 33B | | 88 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 33B | | 32B | | 106 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 40A | | 40 | | 44 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 40 | | 41 | | 100 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 40B | | 40 | | 46 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 41A | | 41 | | 62 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 41B | | 41 | | 44 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 41 | | 1 | | 161 | 18 | Reinforced Concrete Pipe - Class III | 18 | | | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| US 85 STA 9712+81.66 R 2 | 66.42' LT | 42 | | 18 | 29 x 18 Arch | Reinforced Concrete Pipe - Class III | 29 x 18 Arch | | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 42 | | US 85 STA 9712+81.78 R 2 | 82.42' RT | 130 | 29 x 18 Arch | Reinforced Concrete Pipe - Class III | 29 x 18 Arch | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| US 85 STA 9712+74.62 R 2 | 66.4' LT | 43 | | 18 | 29 x 18 Arch | Reinforced Concrete Pipe - Class III | 29 x 18 Arch | | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 43 | | US 85 STA 9712+74.83 R 2 | 81.91' RT | 130 | 29 x 18 Arch | Reinforced Concrete Pipe - Class III | 29 x 18 Arch | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 44A | | US 85 Sta 9713+61.29 R 2 | 89.47' LT | 136 | 15 | Reinforced Concrete Pipe - Class III | 15 | | Y | |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |
| 45A | | US 85 Sta 9712+81.66 R 2 | 94.03' LT | 128 | 15 | Reinforced Concrete Pipe - Class III | 15 | | | Y |
| | | | | | | Polymeric Coated Steel (3/4" x 3/4" Rib @ 7-1/2") | | 0.064 | | |
| | | | | | | Polymeric Coated Steel (3/4" x 1" Rib @ 11-1/2") | | 0.064 | | |

(A) Pipe length is to the center of the structure.
(B) Not paid for separately, to be included in the price bid for Pipe Conduit.

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Allowable Pipe List - Storm Drain

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 51 | 4 |

| Alignment | Begin Station/ Location | Begin Offset | End Station/ Location | End Offset | Pipe Conduit Pay Length (LF) | Pipe Conduit Pay Size (IN) | Allowable Material Centerline Culverts | Required Diameter (IN) | Minimum Thickness (IN) | End Sections Begin (EA) | End Sections End (EA) | Reinforcement Fabric Type R1 (SY) | Applicable Backfill Detail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US 85 | 9753+00 | 78.1' LT | 9753+00 | 80.3' Rt | 158 | 48 | Reinforced Concrete Pipe - Class III (barrel length 154 = LF) | 48 | N/A | Y | Y | 411 | D-714-25 |
| US 85 | 9753+09 | 78.1 LT | 9753+09 | 80.3' Rt | 158 | 48 | Reinforced Concrete Pipe - Class III (barrel length 154 = LF) | 48 | N/A | Y | Y | 153 | D-714-25 |
| US 85 | 9753+19 | 78.2 LT | 9753+19 | 80.4' Rt | 159 | 48 | Reinforced Concrete Pipe - Class III (barrel length 154 = LF) | 48 | N/A | Y | Y | 153 | D-714-25 |
| US 85 | 9753+28 | 78.2' LT | 9753+28 | 80.4' Rt | 159 | 48 | Reinforced Concrete Pipe - Class III (barrel length 154 = LF) | 48 | N/A | Y | Y | 411 | D-714-25 |
| US 85 | 9797+52 | 99.8' LT | 9798+41 | 81.9' RT | 214 | 60 | Reinforced Concrete Pipe - Class III (barrel length = 208 LF) | 60 | N/A | Y | Y | 684 | D-714-25 |
| | | | | | | | Zinc Coated Corrugated Steel | 72 | 0.168 | | | | |
| | | | | | | | Aluminum Coated Corrugated Steel (Type 2) | 72 | 0.138 | | | | |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 72 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 72 | 0.164 | | | | |
| US 85 | 9799+67 | 100.6' LT | 9798+55 | 82.2' RT | 215 | 60 | Reinforced Concrete Pipe - Class III (barrel length = 208 LF) | 60 | N/A | Y | Y | 692 | D-714-25 |
| | | | | | | | Zinc Coated Corrugated Steel | 72 | 0.168 | | | | |
| | | | | | | | Aluminum Coated Corrugated Steel (Type 2) | 72 | 0.138 | | | | |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 72 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 72 | 0.164 | | | | |
| US 85 | 9816+10 | 89.9' LT | 9816+10 | 119.7' Rt | 219 | 42 | Zinc Coated Corrugated Steel | 42 | 0.168 | Y | Y | 1200 | D-714-25 |
| | | | | | | | Aluminum Coated Corrugated Steel (Type 2) | 42 | 0.138 | | | | |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 42 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 42 | 0.075 | | | | |
| Bennett Loop | 7+20 | 27.5' LT | 7+20 | 30.7' RT | 58 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 54 LF) | 18 | N/A | Y (TES) | Y | 123 | D-714-26 |
| Bennett Loop | 7+24 | 27.6' LT | 7+24 | 30.4' RT | 58 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 54 LF) | 18 | N/A | Y (TES) | Y | 122 | D-714-26 |
| Bennett Loop | 22+35 | 23.2' LT | 22+35 | 23.7' RT | 47 | 22 x 13 | Reinforced Concrete Pipe - Class III (barrel length = 40 LF) | 22 x 13 | N/A | Y | Y | 157 | D-714-26 |
| Bennett Loop | 2+00 | 34.9' RT | 2+00 | 35.3' LT | 70 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 62 LF) | 18 | N/A | Y | Y | 314 | D-714-26 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 18 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 18 | 0.060 | | | | |
| 141 Ave NW, S of 51st St | 20+61 | 36.9' LT | 20+61 | 47.1' RT | 84 | 48 | Aluminum Coated Corrugated Steel (Type 2) | 48 | 0.138 | Y | Y | 243 | D-714-25 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 48 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 48 | 0.105 | | | | |
| 141 Ave NW, S of 51st St | 20+87 | 37.3' LT | 20+87 | 48.2' RT | 86 | 48 | Aluminum Coated Corrugated Steel (Type 2) | 48 | 0.138 | Y | Y | 81 | D-714-25 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 48 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 48 | 0.105 | | | | |
| 141 Ave NW, S of 51st St | 21+00 | 37.7' LT | 21+00 | 49.3' RT | 87 | 48 | Aluminum Coated Corrugated Steel (Type 2) | 48 | 0.138 | Y | Y | 248 | D-714-25 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 48 | 0.064 | | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 48 | 0.105 | | | | |
| 141 Ave NW, N of 51st St | 2+00 | 28.2' LT | 2+00 | 36.5' RT | 65 | 30 | Reinforced Concrete Pipe - Class III (barrel length = 62 LF) | 30 | N/A | Y (TES) | Y | 388 | D-714-26 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 30 | 0.064 | | | | D-714-26 |
| 141 Ave NW, N of 51st St | 7+48 | 26.4' LT | 7+48 | 38.3' RT | 65 | 30 | Reinforced Concrete Pipe - Class III (barrel length = 62 LF) | 30 | N/A | Y (TES) | Y | 394 | D-714-26 |
| | | | | | | | Polymeric Coated Steel (over zinc or aluminum coated steel) | 30 | 0.064 | | | | D-714-26 |

TES = Traversable End Section

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Allowable Pipe List - Culverts

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| Alignment | Begin Station/ Location | Begin Offset | End Station/ Location | End Offset | Pipe Conduit Pay Length (LF) | Pipe Conduit Pay Size (IN) | Allowable Material Approach Culverts | Required Diameter (IN) | Minimum Thickness (IN) | End Sections Begin (EA) | End Sections End (EA) | Applicable Backfill Detail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US 85 | 9791+36 | 114' RT | 9797+98 | 114' RT | 64 | 22 x 13 | Reinforced Concrete Pipe - Class III (barrel length = 56 LF) | 22 x 13 | N/A | Y | Y | D-203-8 |
| Bennet Loop | 1+33 | 28' LT | 1+01 | 28' LT | 33 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 30 LF) | 18 | N/A | Y (TES) | Y (TES) | D-203-8 |
| Bennet Loop | 15+74 | 28' LT | 15+29 | 28' LT | 45 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 44 LF) | 18 | N/A | Y (TES) | Y (TES) | D-203-8 |
| 141st Ave NW, S of 51st St | 16+22 | 48' LT | 16+79 | 48' LT | 58 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 50 LF) | 18 | N/A | Y | Y | D-203-8 |
| 51st St NW | 62+58 | 59' LT | 63+56 | 58' LT | 88 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 80 LF) | 18 | N/A | Y | Y | D-203-8 |
| | | | | | | | 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 | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 18 | 0.060 | | | |
| 52nd St NW | 30+51 | 61' LT | 30+98 | 61' LT | 47 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 38 LF) | 18 | N/A | Y | Y | D-203-8 |
| | | | | | | | 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 | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 18 | 0.060 | | | |
| 52nd St NW | 30+51 | 66' LT | 30+98 | 66' LT | 47 | 18 | Reinforced Concrete Pipe - Class III (barrel length = 38 LF) | 18 | N/A | Y | Y | D-203-8 |
| | | | | | | | 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 | | | |
| | | | | | | | Corrugated Aluminum Alloy Pipe | 18 | 0.060 | | | |

TES = Traversable End Section

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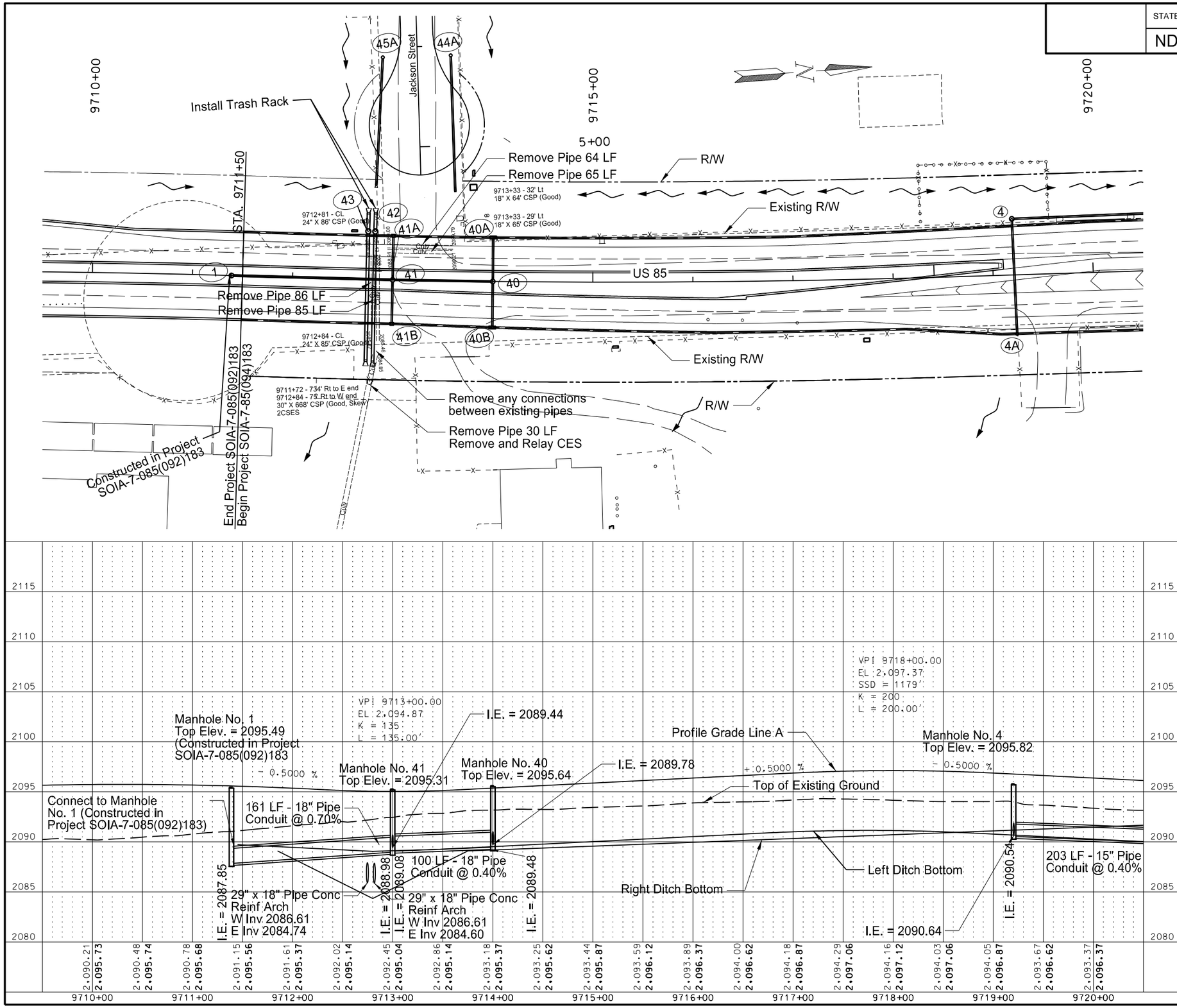
Allowable Pipe List - Culverts

Williston NW Permanent Truck Reliever Route Phase 1A

US 85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 1 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9712+81 - CL | 86 | LF |
| | | 9712+84 - CL | 85 | LF |
| | | 9712+84 - 75' RT | 30 | LF |
| | | 9713+33 - 29' LT | 65 | LF |
| | | 9713+33 - 32' LT | 64 | LF |
| 714 | 4097 | Pipe Conduit 15IN - Storm Drain | | |
| | | 40A to 40 | 44 | LF |
| | | 40B to 40 | 46 | LF |
| | | 41A to 41 | 62 | LF |
| | | 41B to 41 | 44 | LF |
| | | 4A to 4 | 115 | LF |
| | | 4 to 9720+00 | 80 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 40 to 41 | 100 | LF |
| | | 41 to 1 | 161 | LF |
| 714 | 4218 | Pipe Conduit Arch 29IN x 18IN | | |
| | | 9712+82- 66' LT to 42 | 18 | LF |
| | | 42 to 9712+82- 82' RT | 130 | LF |
| | | 9712+75- 66' LT to 43 | 18 | LF |
| | | 43 to 9712+75- 82' RT | 130 | LF |
| 714 | 9660 | Remove & Relay End Section - All Types & Sizes | | |
| | | 9712+84 - 75' RT | 1 | EA |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9711+50 to 1B | 150 | LF |
| | | 1B to 2B | 100 | LF |
| | | 2B to 9720+00 | 599 | LF |
| | | 9711+50 to 1A | 151 | LF |
| | | 1A to 2A | 101 | LF |
| | | 2A to 4A | 525 | LF |
| | | 4A to 9720+00 | 78 | LF |
| 722 | 0100 | Manhole 48IN | | |
| | | 4 | 1 | EA |
| | | 40 | 1 | EA |
| | | 41 | 1 | EA |
| 722 | 0107 | Manhole 54IN | | |
| | | 42 | 1 | EA |
| | | 43 | 1 | EA |
| 722 | 1100 | Manhole Riser 48IN | | |
| | | 4 | 3.97 | LF |
| | | 40 | 4.87 | LF |
| | | 41 | 5.04 | LF |
| 722 | 1106 | Manhole Riser 54IN | | |
| | | 42 | 6.14 | LF |
| | | 43 | 6.15 | LF |
| 722 | 2490 | Manhole Storm Connection | | |
| | | 41 to Existing Manhole 1 | 1 | EA |
| 722 | 3500 | Inlet-Type 1 | | |
| | | 4A | 1 | EA |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 41A | 1 | EA |
| | | 41B | 1 | EA |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 40A | 1 | EA |
| | | 40B | 1 | EA |
| 910 | 0480 | Trash Rack | | |
| | | 9712+75- 66' LT | 1 | EA |
| | | 9712+82- 66' LT | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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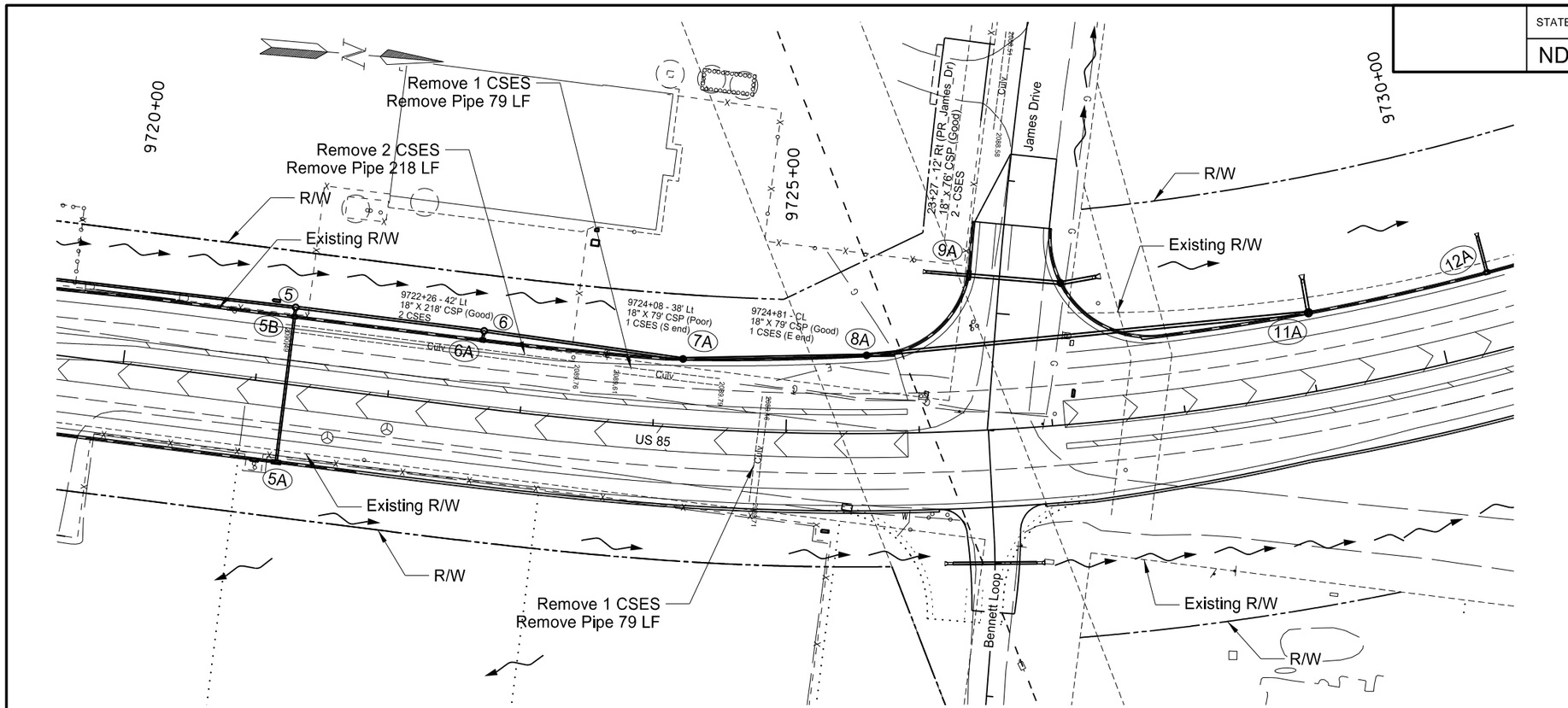
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

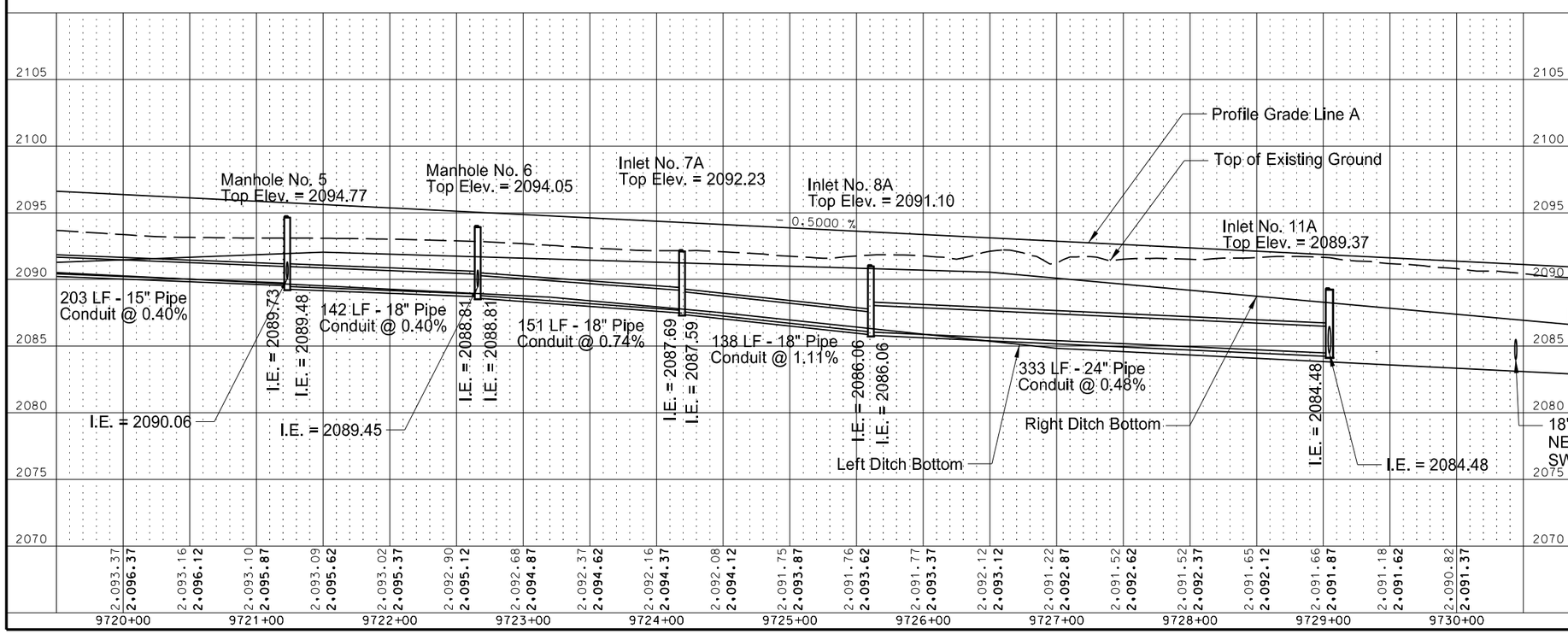
US 85
9711+50 to 9720+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 2 |




| | | | | |
|---|---|---|---|---|
| 202 | 0169 | Removal of End Section - All Types & Sizes | | |
| | | 9722+26 - 42' LT | 2 | EA |
| | | 9724+08 - 38' LT | 1 | EA |
| | | 9724+81 - CL | 1 | EA |
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9722+26 - 42' LT | 218 | LF |
| | | 9724+08 - 38' LT | 79 | LF |
| | | 9724+81 - CL | 79 | LF |
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 5A to 5B | 110 | LF |
| | | 5B to 5 | 7 | LF |
| | | 6A to 6 | 7 | LF |
| | | 9720+00 to 5 | 123 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 5 to 6 | 142 | LF |
| | | 6 to 7A | 151 | LF |
| | | 7A to 8A | 138 | LF |
| 714 | 4107 | Pipe Conduit 24IN-Storm Drain | | |
| | | 8A to 11A | 333 | LF |
| | | 11A to 9729+05- 84' LT | 25 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9720+00 to 5B | 123 | LF |
| | | 5B to 6A | 143 | LF |
| | | 6A to 7A | 151 | LF |
| | | 7A to 8A | 138 | LF |
| | | 8A to 9726+49 | 147 | LF |
| | | 9727+11 to 11A | 245 | LF |
| | | 11A to 9730+00 | 93 | LF |
| | | 9720+00 to 5A | 124 | LF |
| | | 5A to 9721+86 | 63 | LF |
| 722 | 0100 | Manhole 48IN | | |
| | | 5 | 1 | EA |
| | | 6 | 1 | EA |
| 722 | 1100 | Manhole Riser 48IN | | |
| | | 5 | 4 | LF |
| | | 6 | 3.95 | LF |
| | | 7A | 4.52 | LF |
| | | 8A | 4.96 | LF |
| 722 | 1110 | Manhole Riser 60IN | | |
| | | 11A | 4.81 | LF |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 5B | 1 | EA |
| | | 6A | 1 | EA |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 5A | 1 | EA |
| 722 | 3701 | Inlet Special-Type 2 48IN | | |
| | | 7A | 1 | EA |
| | | 8A | 1 | EA |
| 722 | 3761 | Inlet Special-Type 2-60IN | | |
| | | 11A | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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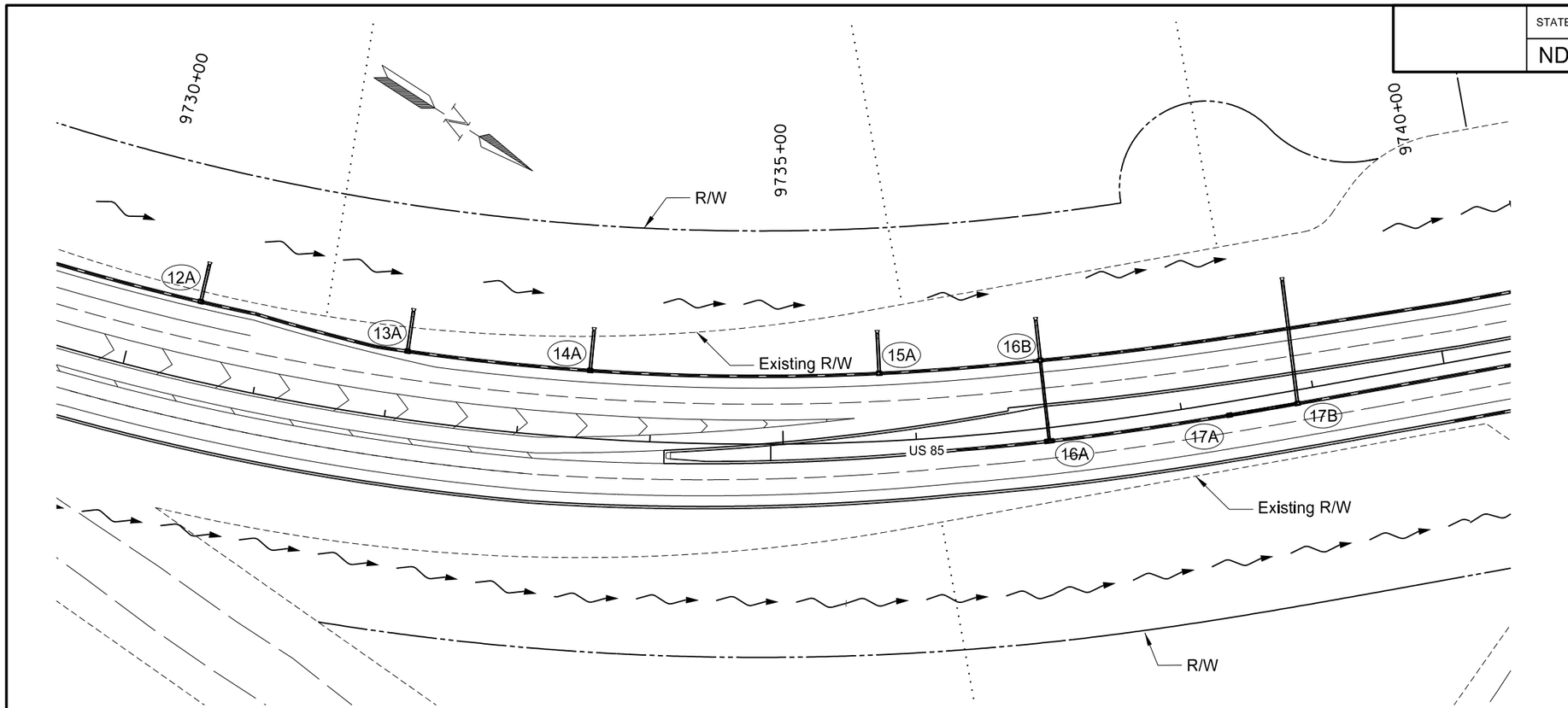
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

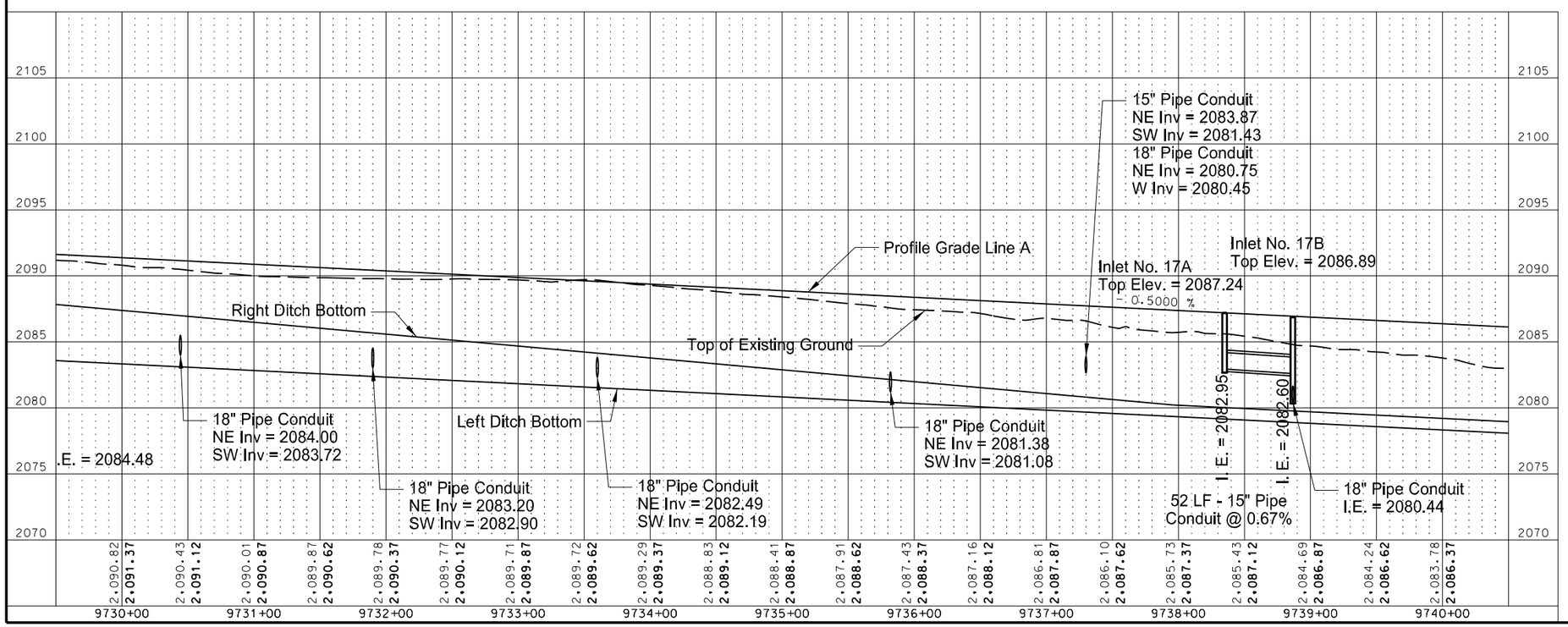
US 85
9720+00 to 9730+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 3 |




| | | | | |
|---|---|---|---|---|
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 16A to 16B | 61 | LF |
| | | 17A to 17B | 52 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 12A to 9730+46- 87' LT | 28 | LF |
| | | 13A to 9732+10- 81' LT | 30 | LF |
| | | 14A to 9733+53- 81' LT | 30 | LF |
| | | 15A to 9735+75- 81' LT | 30 | LF |
| | | 16B to 9736+99- 81' LT | 30 | LF |
| | | 17B to 9738+91- 83' LT | 93 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9730+00 to 12A | 45 | LF |
| | | 12A to 13A | 160 | LF |
| | | 13A to 14A | 138 | LF |
| | | 14A to 15A | 217 | LF |
| | | 15A to 16B | 121 | LF |
| | | 16B to 9740+00 | 299 | LF |
| | | 9736+30 to 16A | 71 | LF |
| | | 16A to 17A | 137 | LF |
| | | 17A to 17B | 52 | LF |
| | | 17B to 9740+00 | 114 | LF |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 12A | 1 | EA |
| | | 13A | 1 | EA |
| | | 14A | 1 | EA |
| | | 15A | 1 | EA |
| | | 16B | 1 | EA |
| | | 17A | 1 | EA |
| | | 17B | 1 | EA |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 16A | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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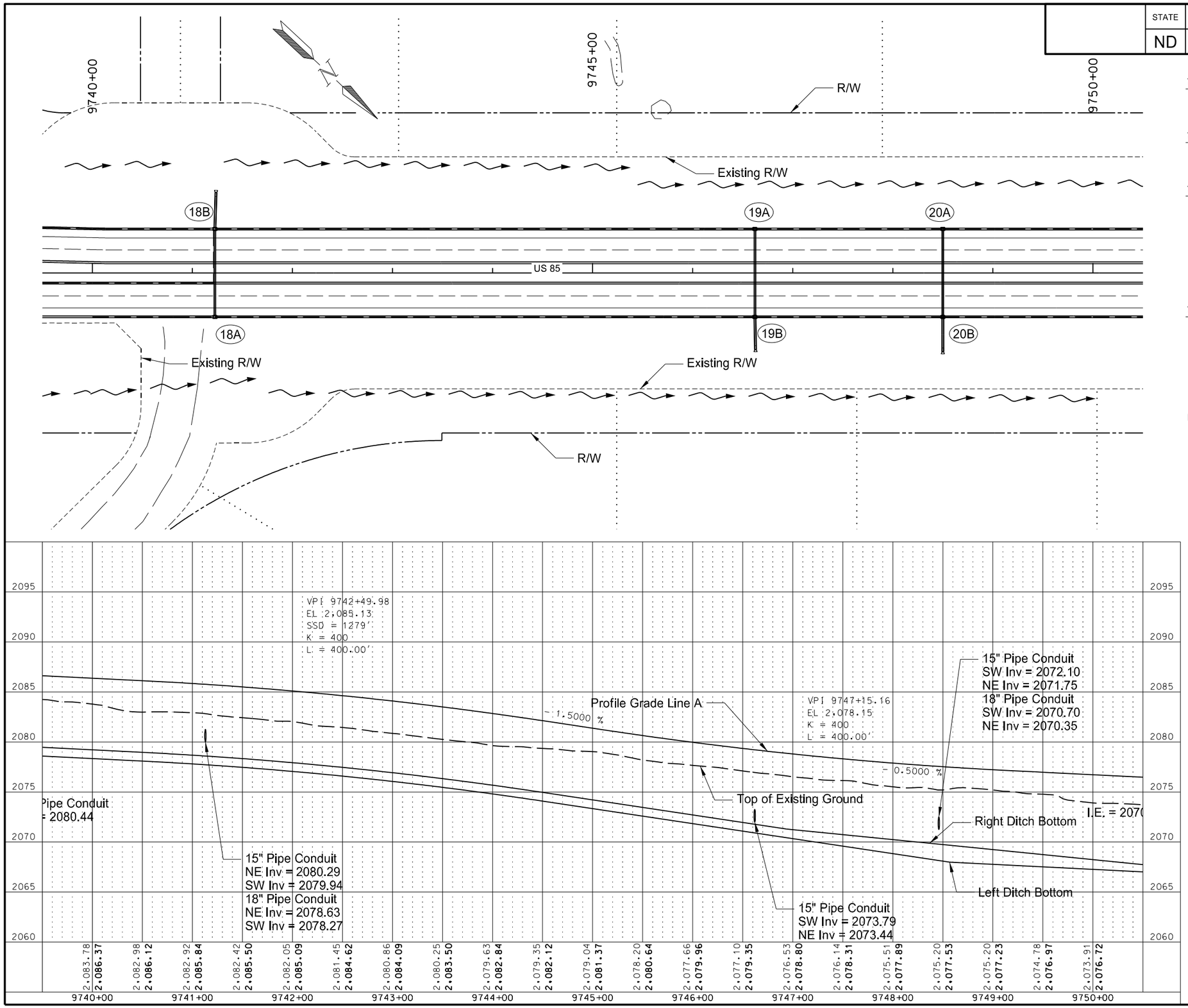
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9730+00 to 9740+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 4 |




| | | | | |
|---|---|---|---|---|
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 18A to 18B | 88 | LF |
| | | 19A to 19B | 88 | LF |
| | | 20A to 20B | 88 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 18B to 9741+24- 80' LT | 36 | LF |
| | | 19B to 9746+63- 77' RT | 33 | LF |
| | | 20B to 9748+50- 79' RT | 35 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9740+00 to 18B | 123 | LF |
| | | 18B to 19A | 540 | LF |
| | | 19A to 20A | 188 | LF |
| | | 20A to 9750+00 | 151 | LF |
| | | 9740+00 to 18A | 123 | LF |
| | | 18A to 19B | 540 | LF |
| | | 19B to 20B | 188 | LF |
| | | 20B to 9750+00 | 150 | LF |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 18A | 1 | EA |
| | | 18B | 1 | EA |
| | | 19A | 1 | EA |
| | | 19B | 1 | EA |
| | | 20A | 1 | EA |
| | | 20B | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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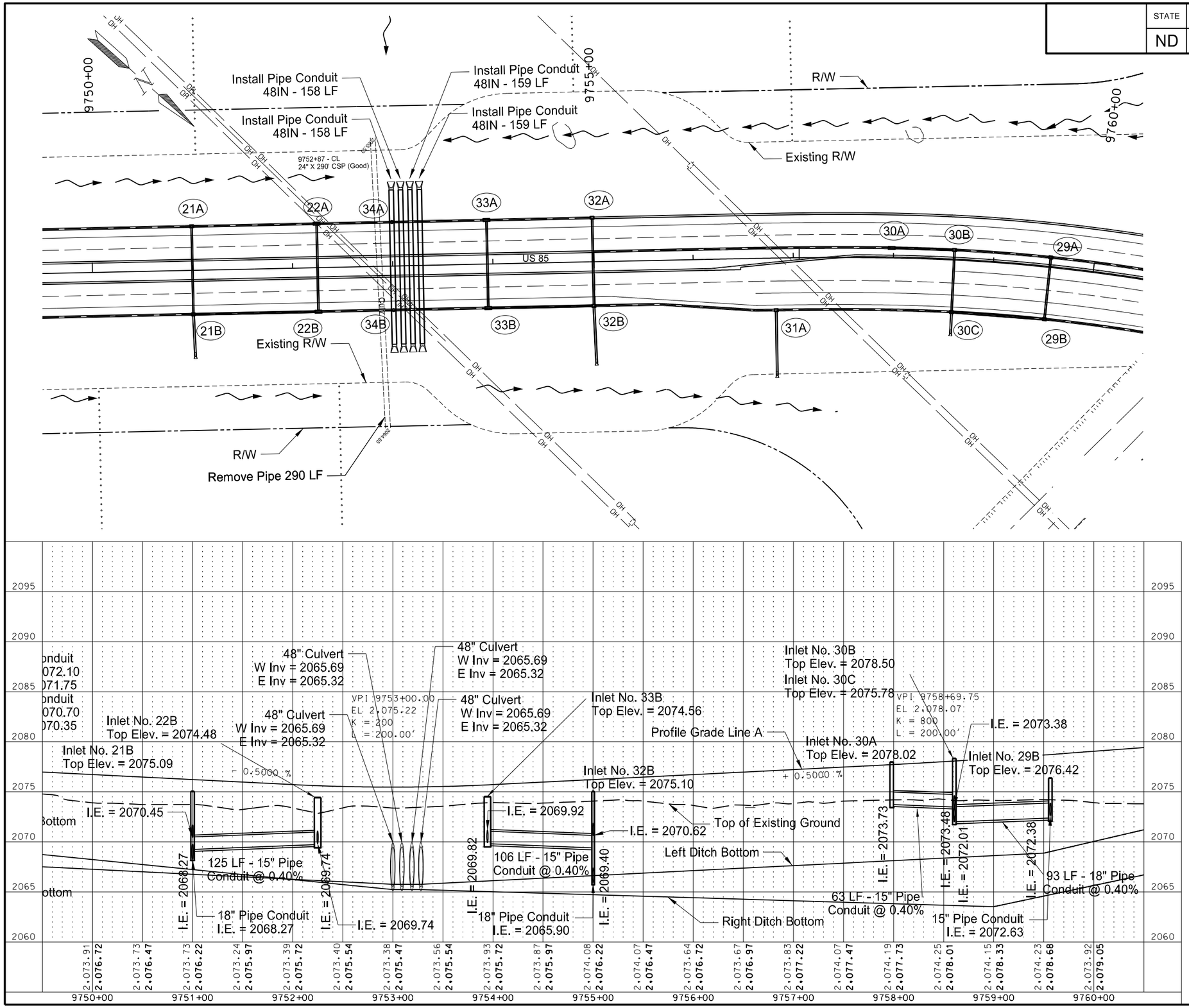
Storm Sewer

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9740+00 to 9750+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 5 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9752+87 - CL | 290 | LF |
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 21A to 21B | 88 | LF |
| | | 22A to 22B | 88 | LF |
| | | 22B to 21B | 125 | LF |
| | | 33A to 33B | 88 | LF |
| | | 33B to 32B | 106 | LF |
| | | 32A to 32B | 88 | LF |
| | | 30A to 30B | 63 | LF |
| | | 30B to 30C | 62 | LF |
| | | 29A to 29B | 62 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 21B to 9751+01- 86' RT | 34 | LF |
| | | 29B to 30C | 93 | LF |
| | | 30C to 9758+61- 74' RT | 22 | LF |
| | | 31A to 9756+82- 117' RT | 65 | LF |
| | | 32B to 9755+02- 101' RT | 57 | LF |
| 714 | 4125 | Pipe Conduit 48IN | | |
| | | 9753+00 | 158 | LF |
| | | 9753+09 | 158 | LF |
| | | 9753+19 | 159 | LF |
| | | 9753+28 | 159 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9750+00 to 21A | 100 | LF |
| | | 21A to 22A | 126 | LF |
| | | 22A to 34A | 75 | LF |
| | | 34A to 33A | 95 | LF |
| | | 33A to 32A | 106 | LF |
| | | 9750+00 to 21B | 100 | LF |
| | | 21B to 22B | 126 | LF |
| | | 22B to 34B | 75 | LF |
| | | 34B to 33B | 95 | LF |
| | | 33B to 32B | 106 | LF |
| | | 32B to 31A | 183 | LF |
| | | 31A to 30C | 175 | LF |
| | | 30C to 29B | 94 | LF |
| | | 29B to 9760+00 | 43 | LF |
| | | 32B to 30A | 351 | LF |
| | | 30A to 30B | 63 | LF |
| | | 30B to 29A | 97 | LF |
| | | 29A to 9760+00 | 44 | LF |
| 722 | 1100 | Manhole Riser 48IN | | |
| | | 34A | 3.21 | LF |
| | | 34B | 3.91 | LF |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 21A | 1 | EA |
| | | 21B | 1 | EA |
| | | 32B | 1 | EA |
| | | 32A | 1 | EA |
| | | 31A | 1 | EA |
| | | 30B | 1 | EA |
| | | 30C | 1 | EA |
| | | 29A | 1 | EA |
| | | 29B | 1 | EA |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 22A | 1 | EA |
| | | 22B | 1 | EA |
| | | 33A | 1 | EA |
| | | 33B | 1 | EA |
| | | 30A | 1 | EA |
| 722 | 4420 | Inlet Tee Section - Type 1 | | |
| | | 34A | 1 | EA |
| | | 34B | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85

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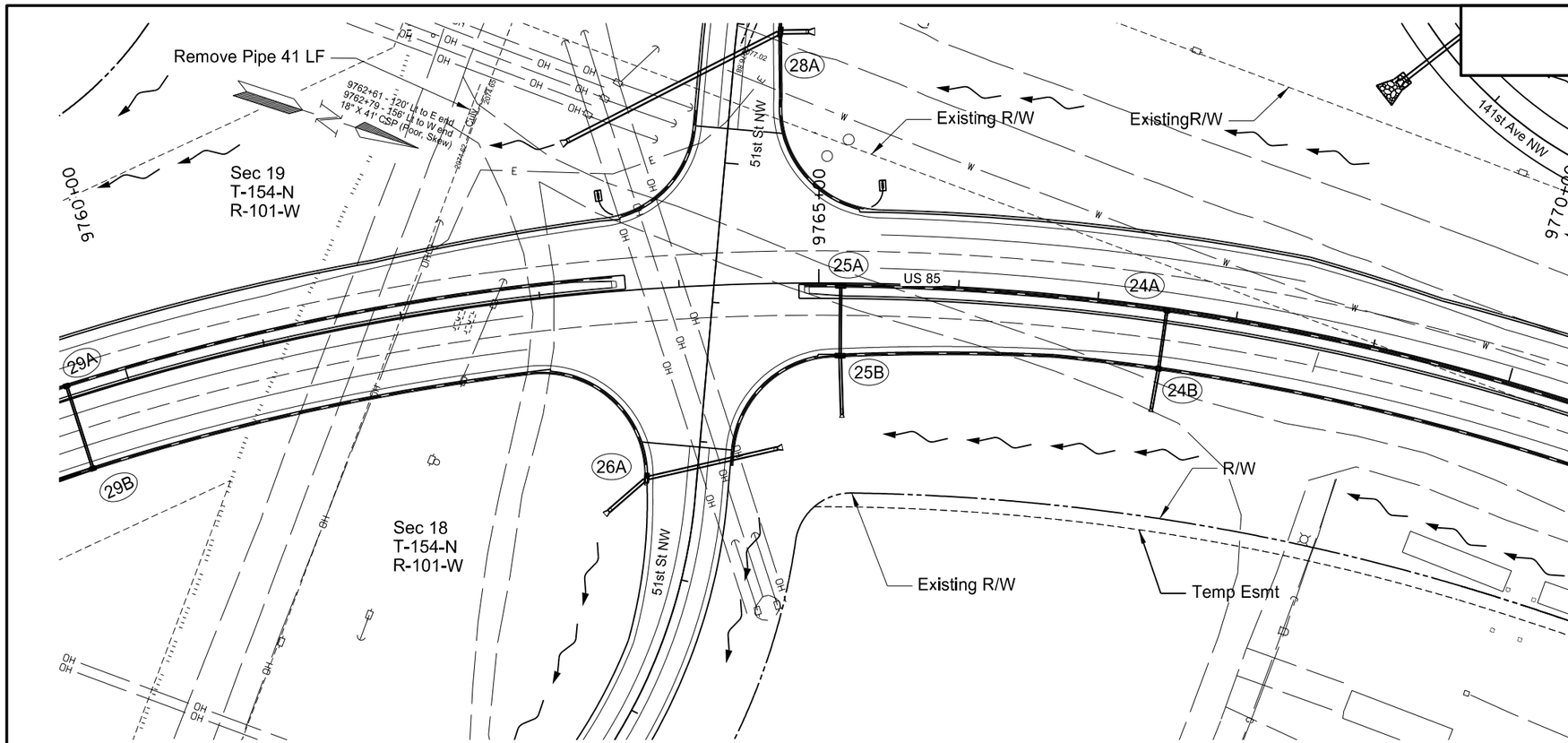
Storm Sewer

Williston NW Permanent Truck Reliever Route Phase 1A

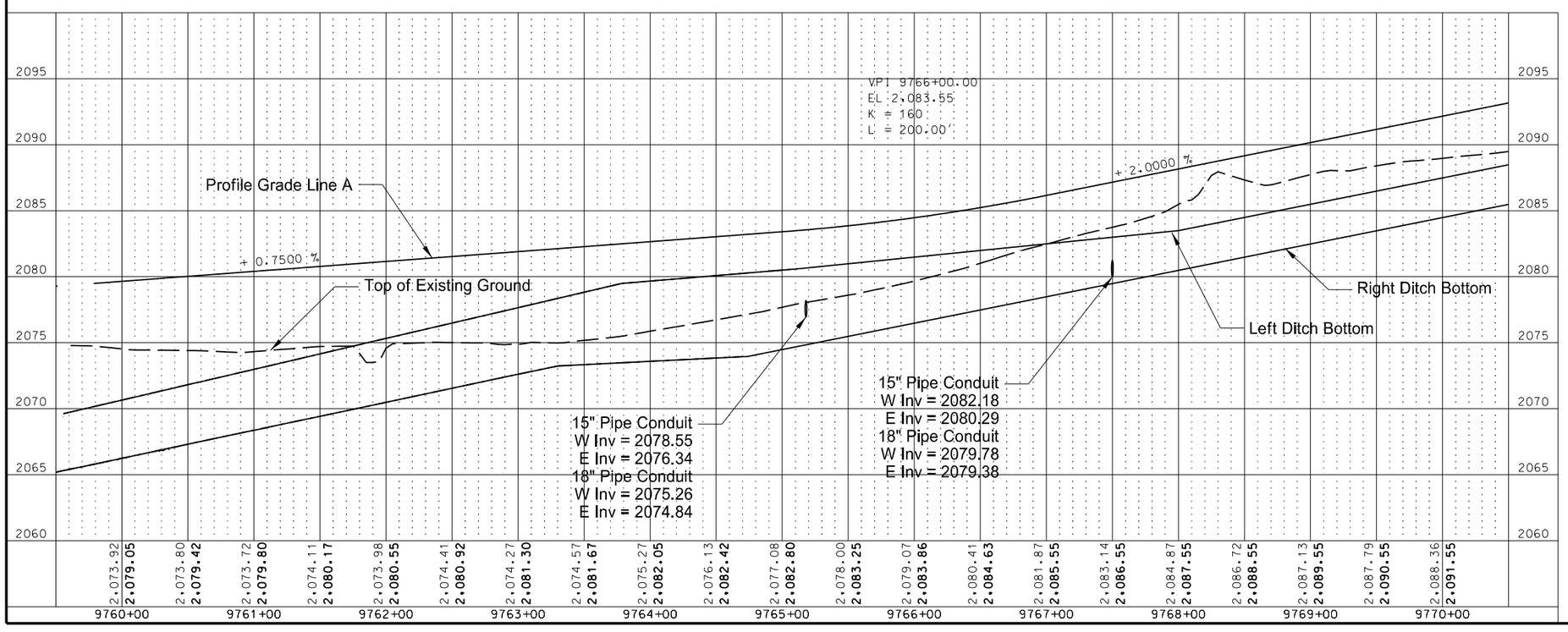
US 85
9750+00 to 9760+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 6 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9762+61 - 120' LT to 9762+79 - 156' LT | 41 | LF |
| 714 | 3150 | Headwall - Precast Concrete 4IN | | |
| | | 9763+48 LT | 1 | EA |
| | | 9765+44 LT | 1 | EA |
| 714 | 3159 | Headwall Vegetation Barrier | | |
| | | 9763+48 LT | 1 | EA |
| | | 9765+44 LT | 1 | EA |
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 25A to 25B | 44 | LF |
| | | 24A to 24B | 40 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 24B to 9767+49- 73' RT | 29 | LF |
| | | 25B to 9765+17- 94' RT | 42 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9763+64 to 9764+16 | 87 | LF |
| | | 9764+75 to 9765+29 | 107 | LF |
| | | 9760+00 to 9763+56 | 358 | LF |
| | | 9764+89 to 25A | 27 | LF |
| | | 25A to 24A | 235 | LF |
| | | 24A to 9770+00 | 250 | LF |
| | | 9760+00 to 9763+64 | 380 | LF |
| | | 9764+34 to 25B | 111 | LF |
| | | 25B to 24B | 231 | LF |
| | | 24B to 9770+00 | 244 | LF |
| 722 | 3510 | Inlet-Type 2 | | |
| | | 24A | 1 | EA |
| | | 24B | 1 | EA |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 25A | 1 | EA |
| | | 25B | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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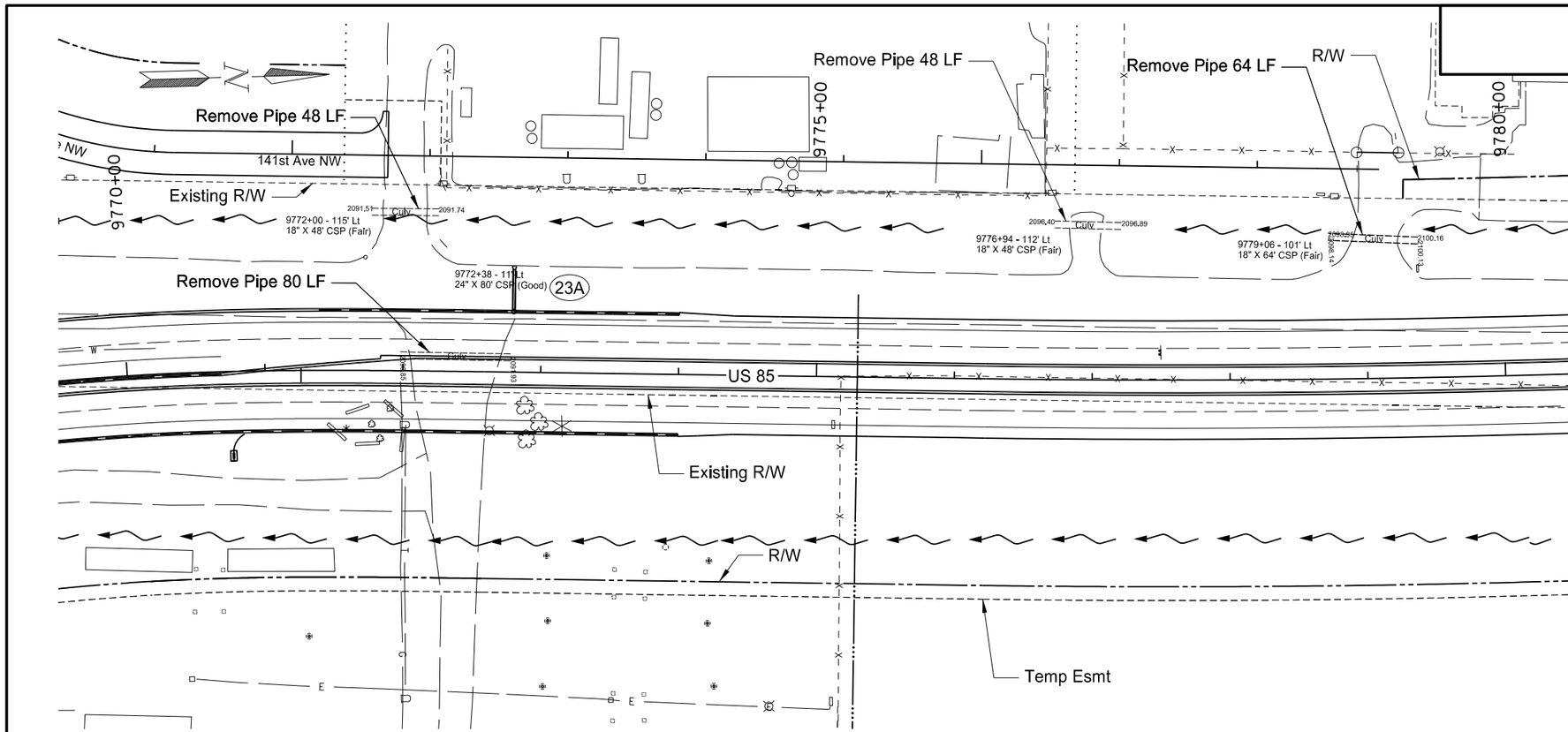
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

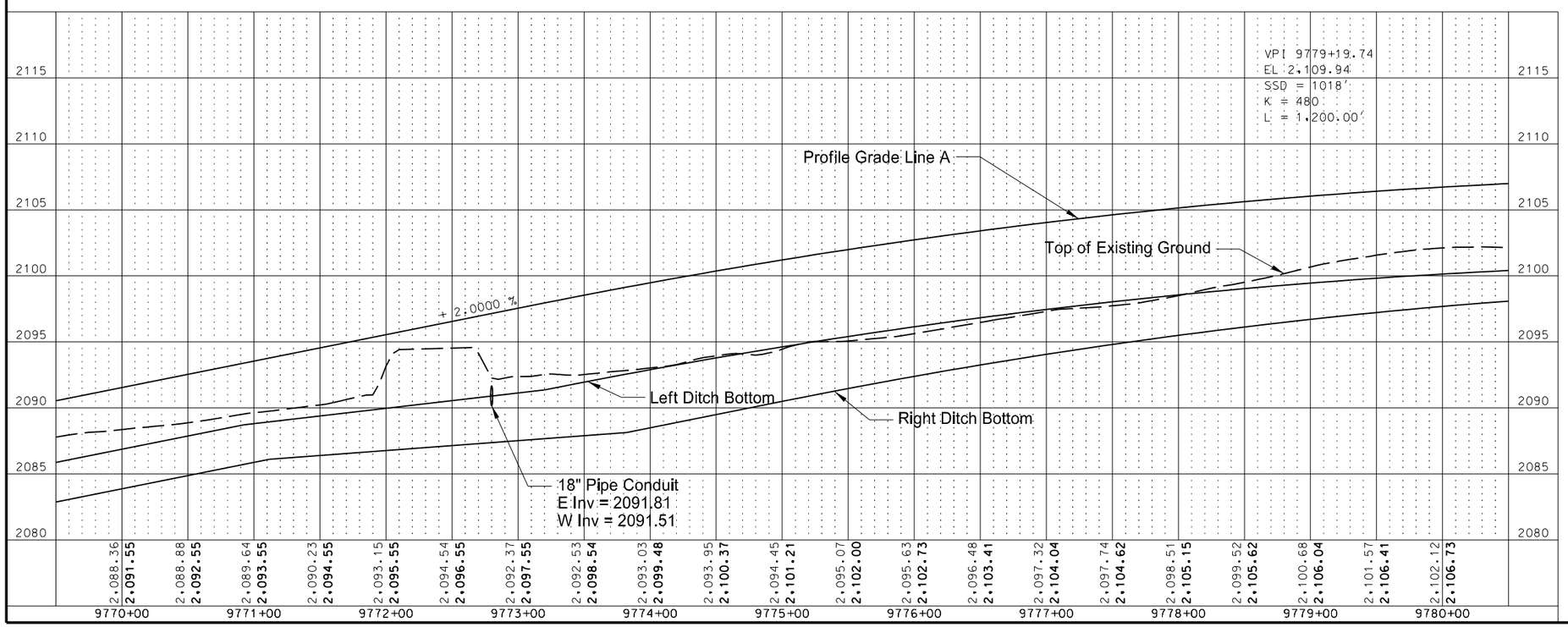
US 85
9760+00 to 9770+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 7 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9772+00 - 115' LT | 48 | LF |
| | | 9772+38 - 11' LT | 80 | LF |
| | | 9776+94 - 112' LT | 48 | LF |
| | | 9779+06 - 101' LT | 64 | LF |
| 714 | 3150 | Headwall - Precast Concrete 4IN | | |
| | | 9770+76 RT | 1 | EA |
| 714 | 3159 | Headwall Vegetation Barrier | | |
| | | 9770+76 RT | 1 | EA |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 23A to 9772+80- 74' LT | 30 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 9771+38 to 23A | 143 | LF |
| | | 23A to 9774+00 | 121 | LF |
| | | 9770+00 to 9770+69 | 69 | LF |
| | | 9770+00 to 9774+00 LT | 387 | LF |
| 722 | 3500 | Inlet-Type 1 | | |
| | | 23A | 1 | EA |

Note: Stations & Offsets from US 85 Chain: PR85

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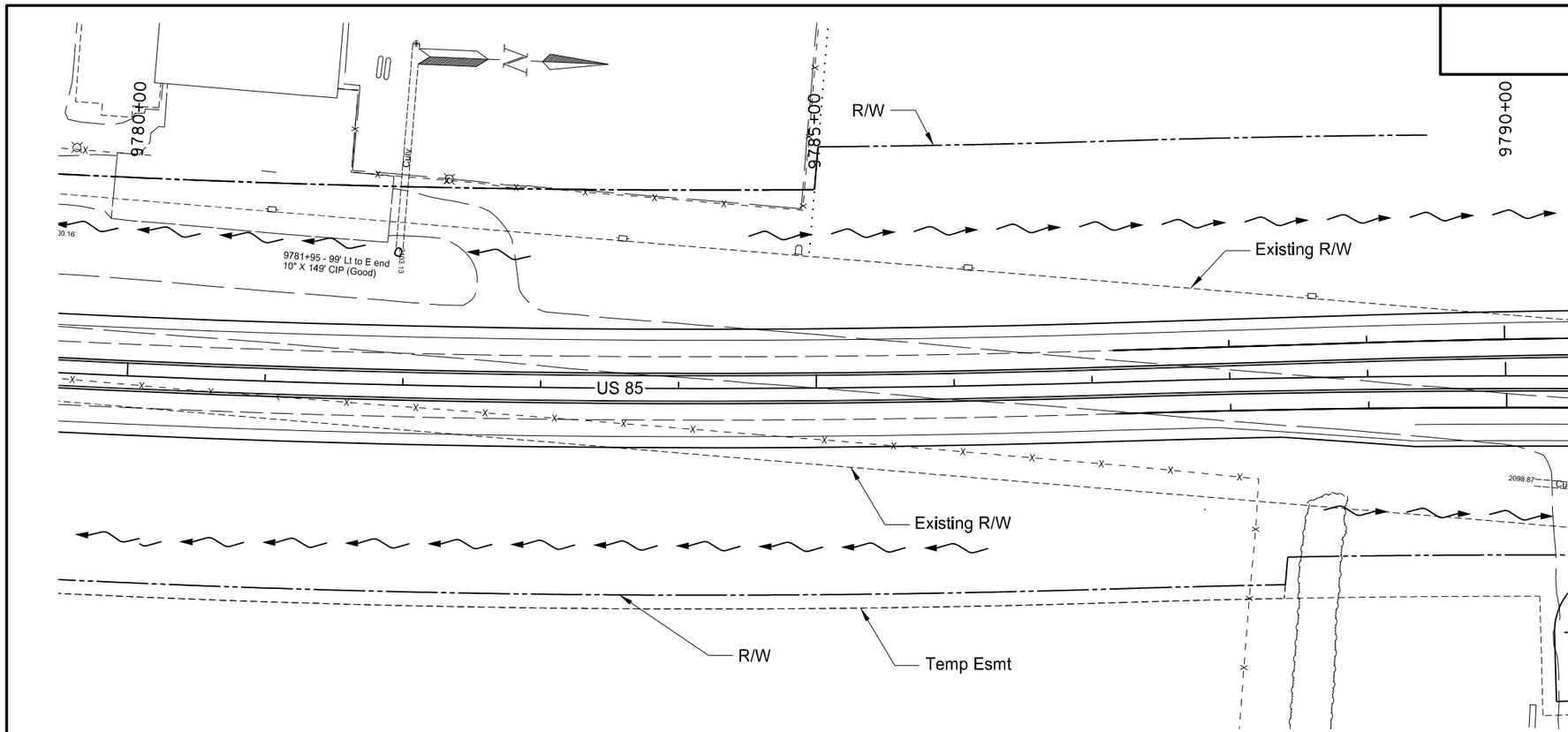
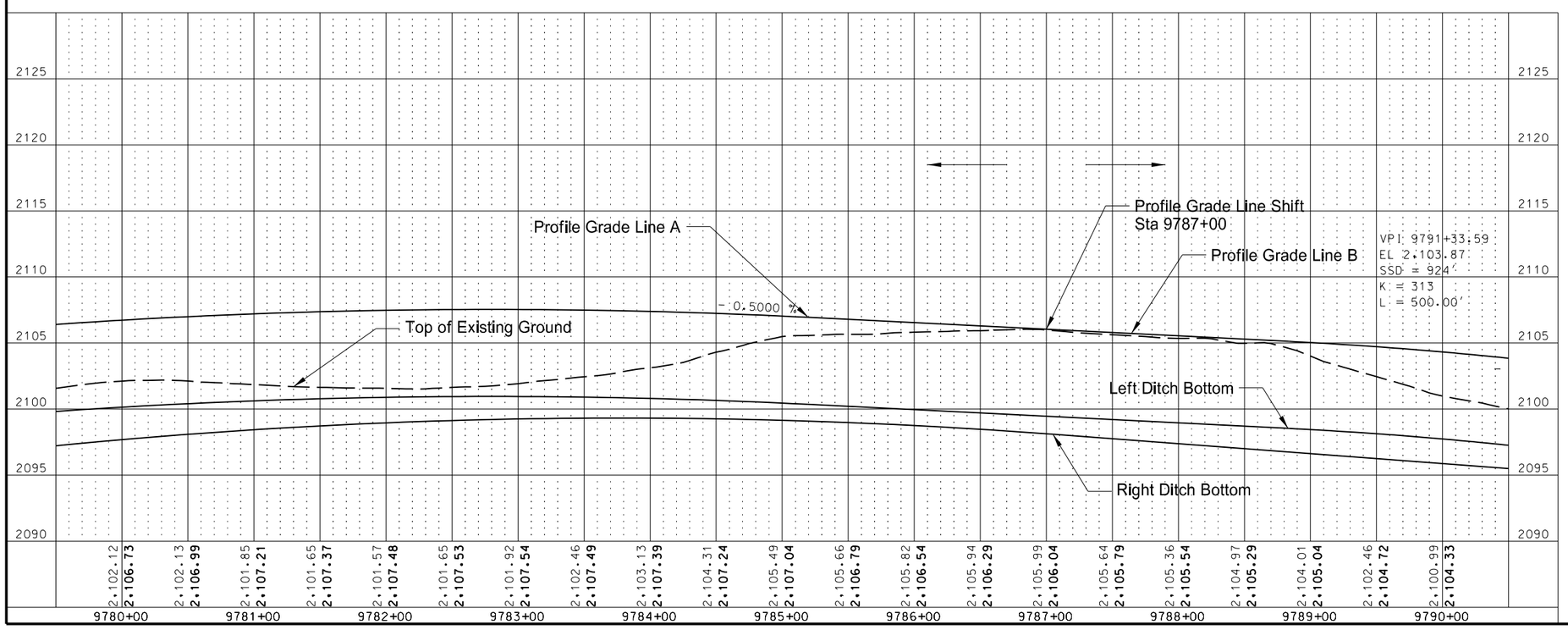
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9780+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 8 |




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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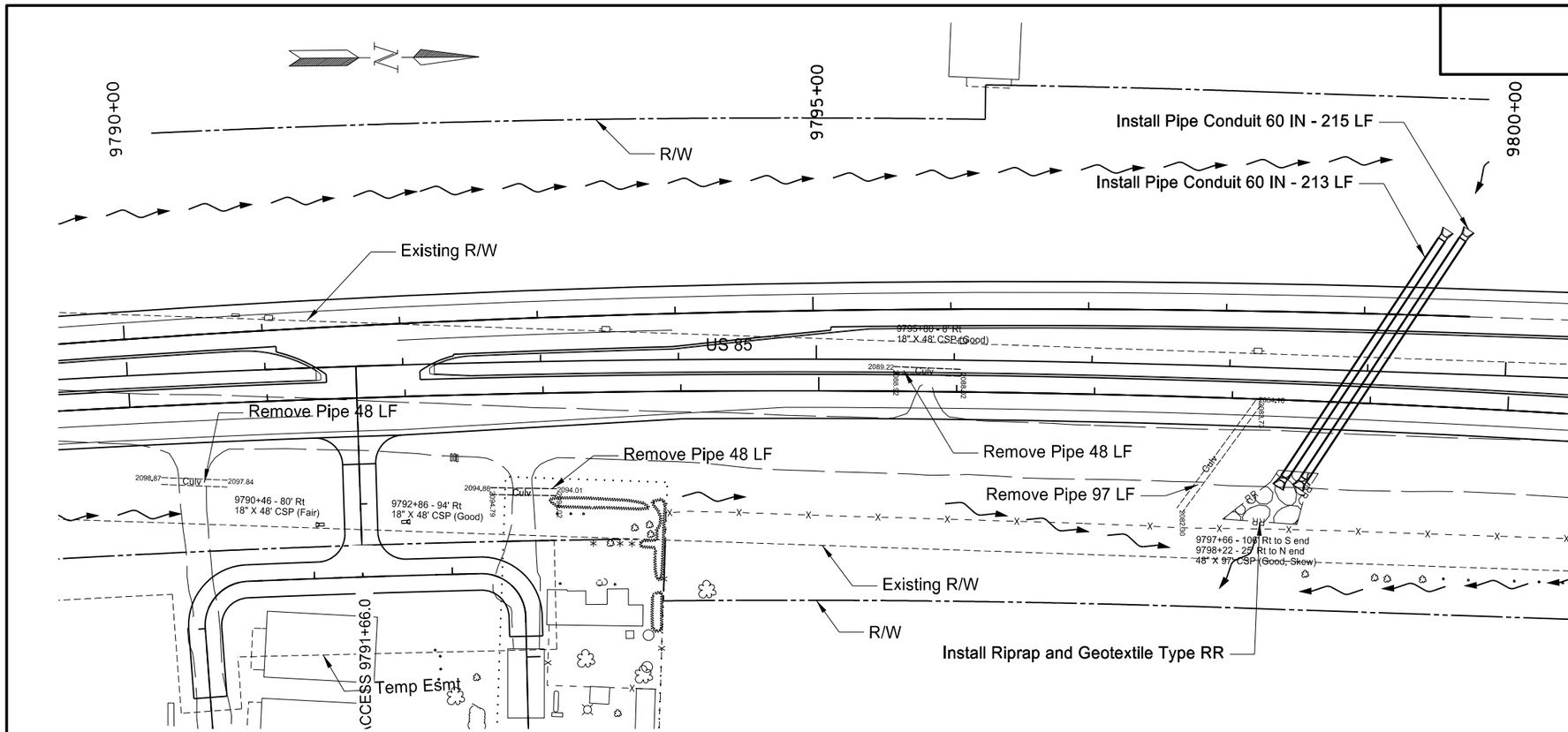
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

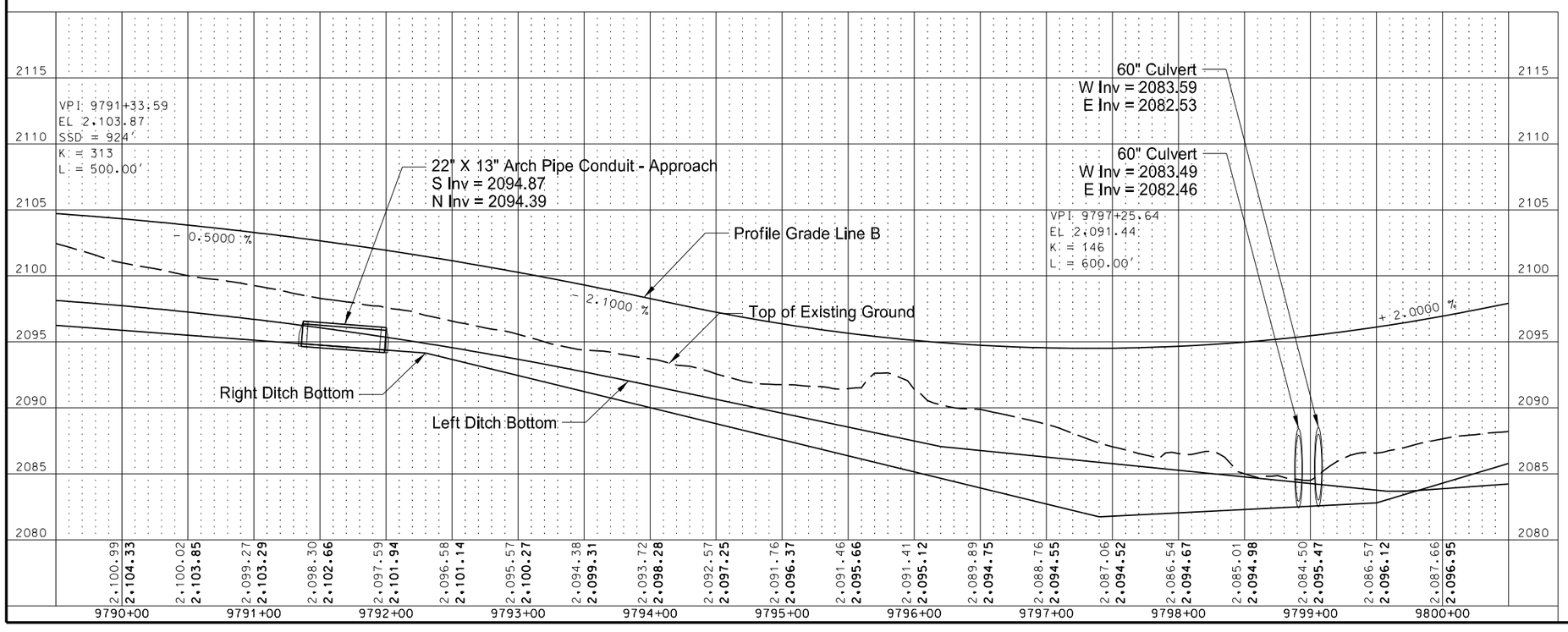
US 85
9780+00 to 9790+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 9 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 9790+46 - 80' RT | 48 | LF |
| | | 9792+86 - 94' RT | 48 | LF |
| | | 9795+80 - 8' RT | 48 | LF |
| | | 9797+66 - 106' RT to 9798+22 - 25' RT | 97 | LF |
| 708 | 1020 | Riprap - Loose Rock | | |
| | | 9798+44 - 90' RT | 127.7 | CY |
| 709 | 0600 | Geotextile Fabric-Type RR | | |
| | | 9798+44 - 90' RT | 219.0 | SY |
| 714 | 4135 | Pipe Conduit 60IN | | |
| | | 9799+52 - 100' LT to 9798+41 - 82' RT | 213 | LF |
| | | 9799+67 - 101' LT to 9798+55 - 82' RT | 215 | LF |

Note: Stations & Offsets from US 85 Chain: PR85




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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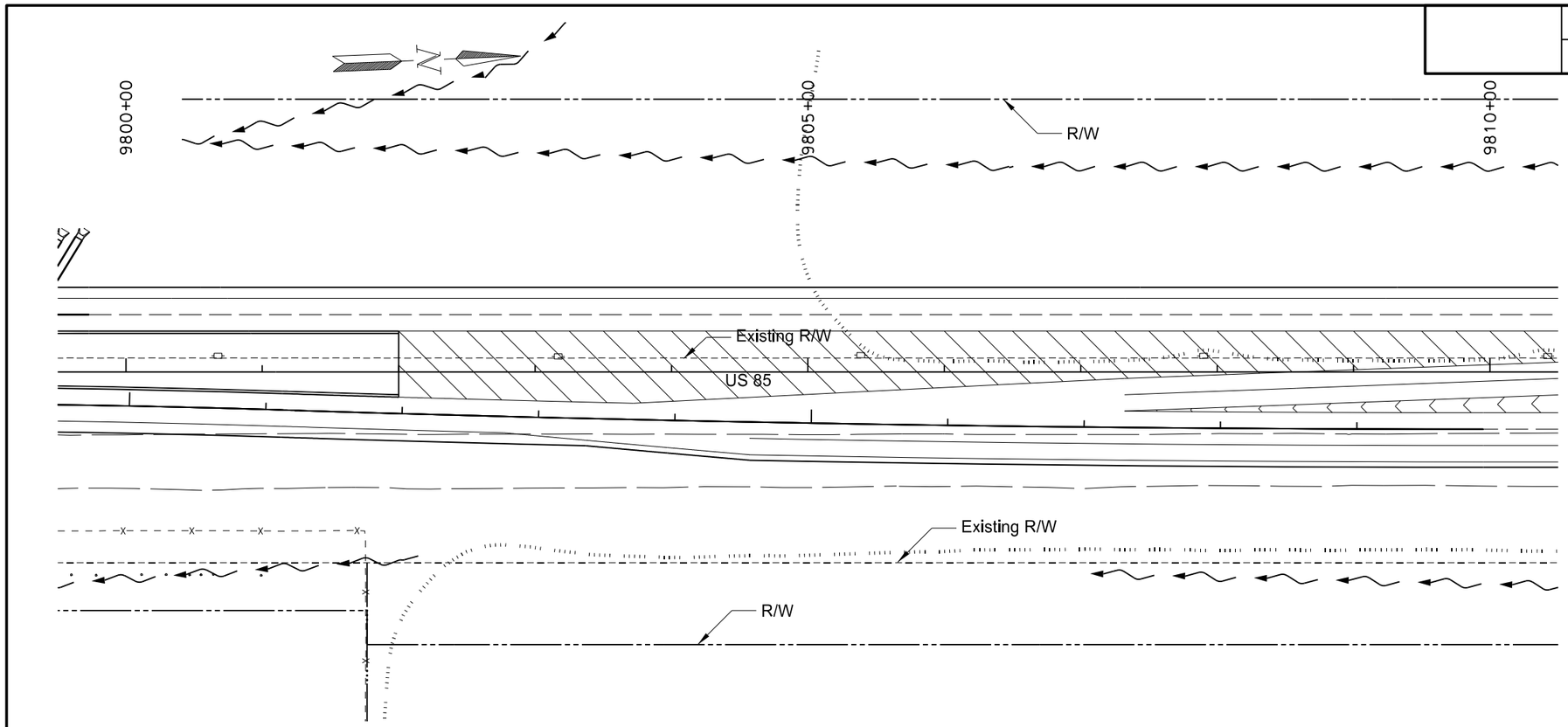
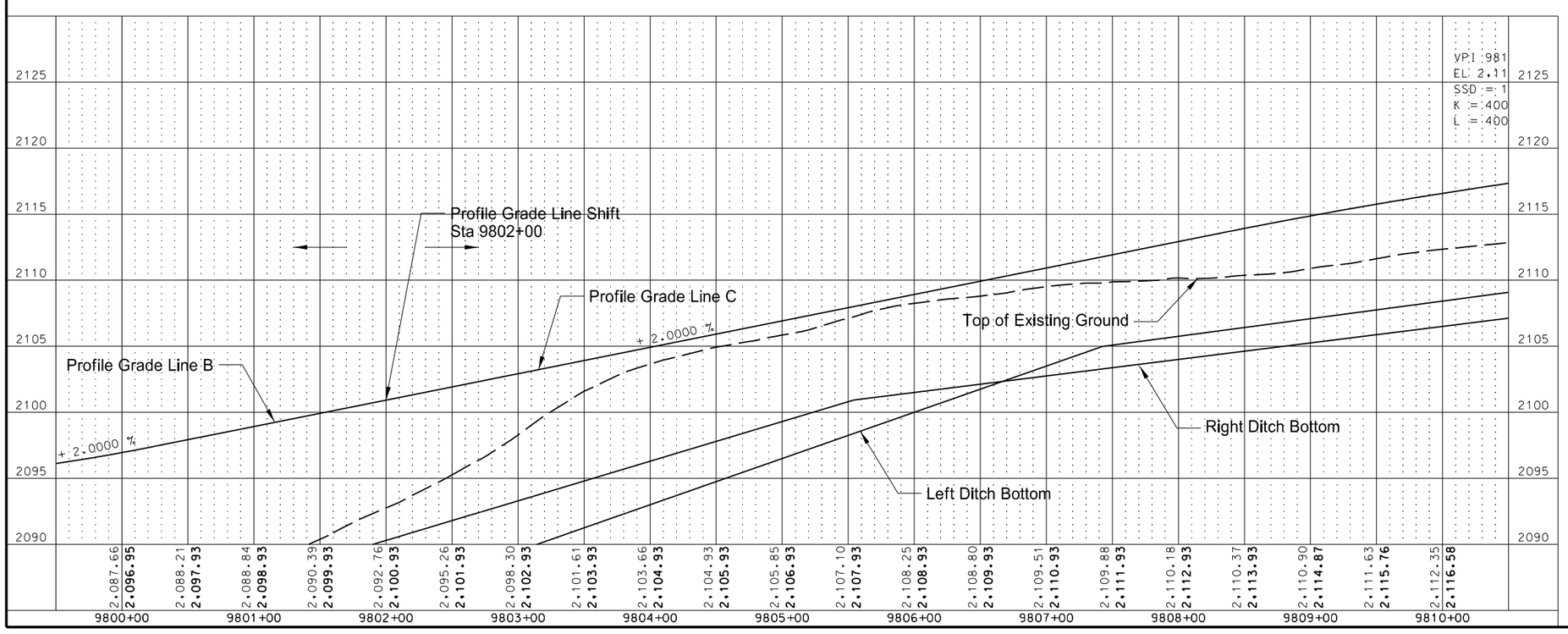
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9790+00 to 9800+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 10 |




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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Storm Sewer

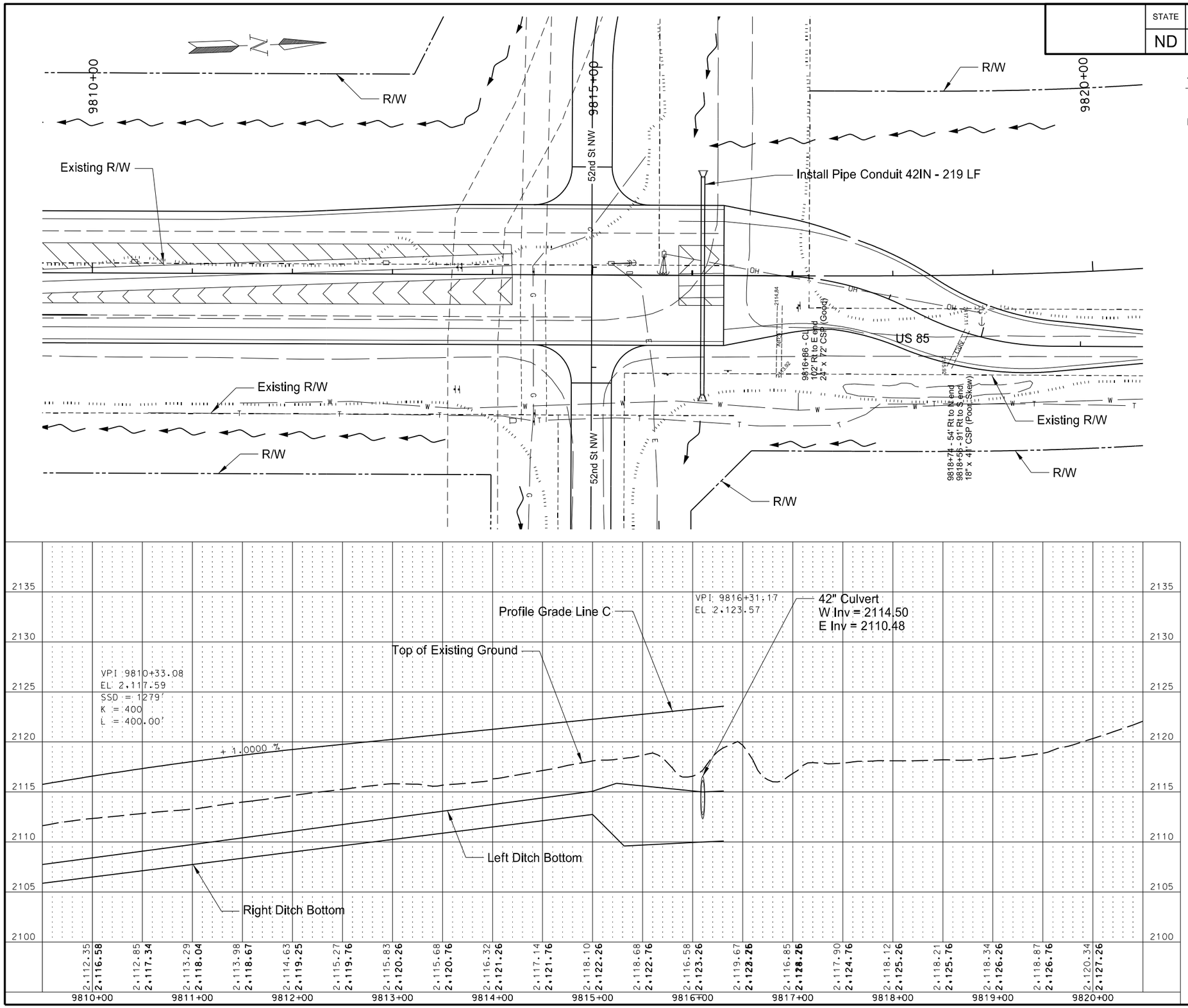
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9800+00 to 9810+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 11 |

714 4120 Pipe Conduit 42IN
9816+10 - 99' LT to 9816+10 - 120' RT 219 LF

Note: Stations & Offsets from US 85 Chain: PR85

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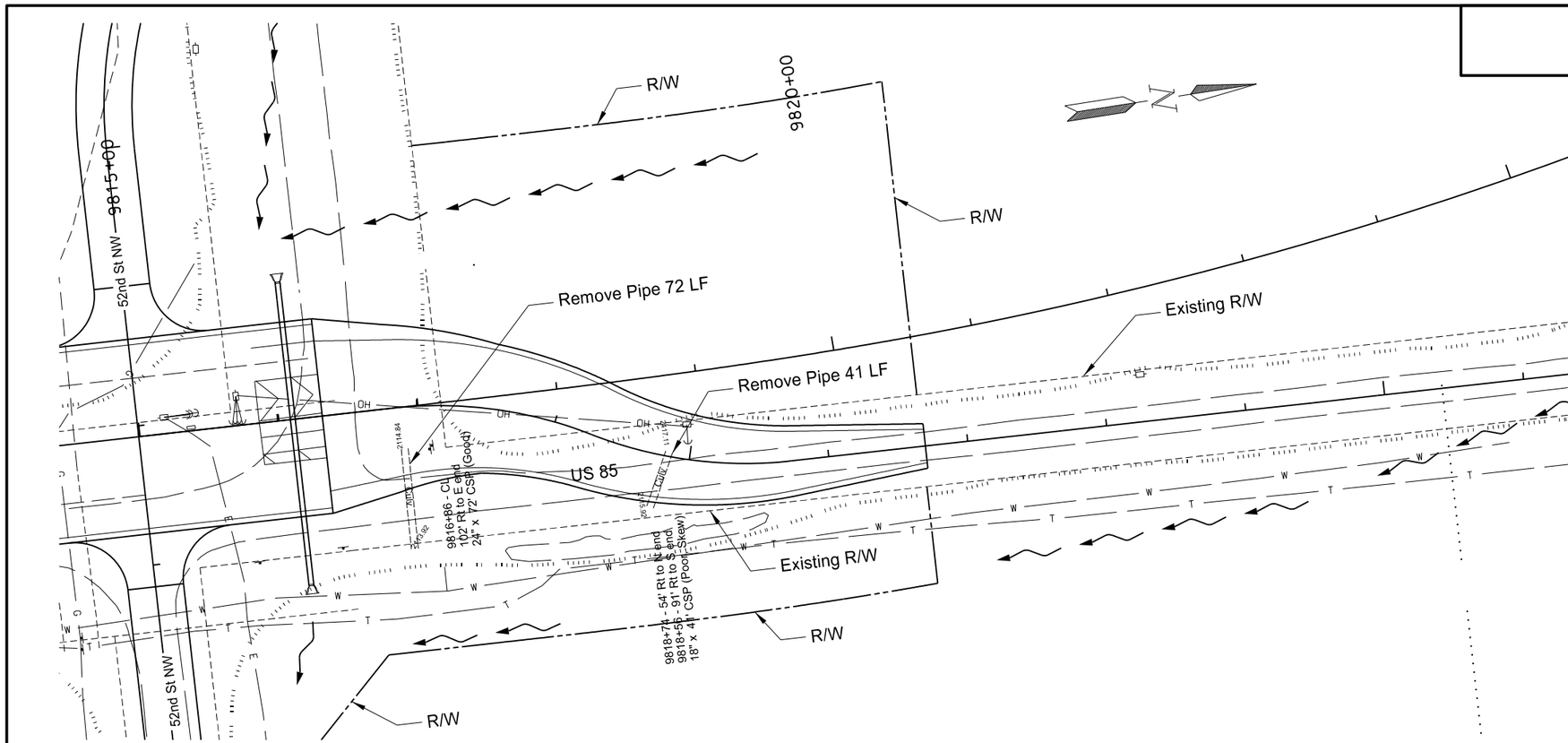
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
US 85 9810+00 to 9816+31.17

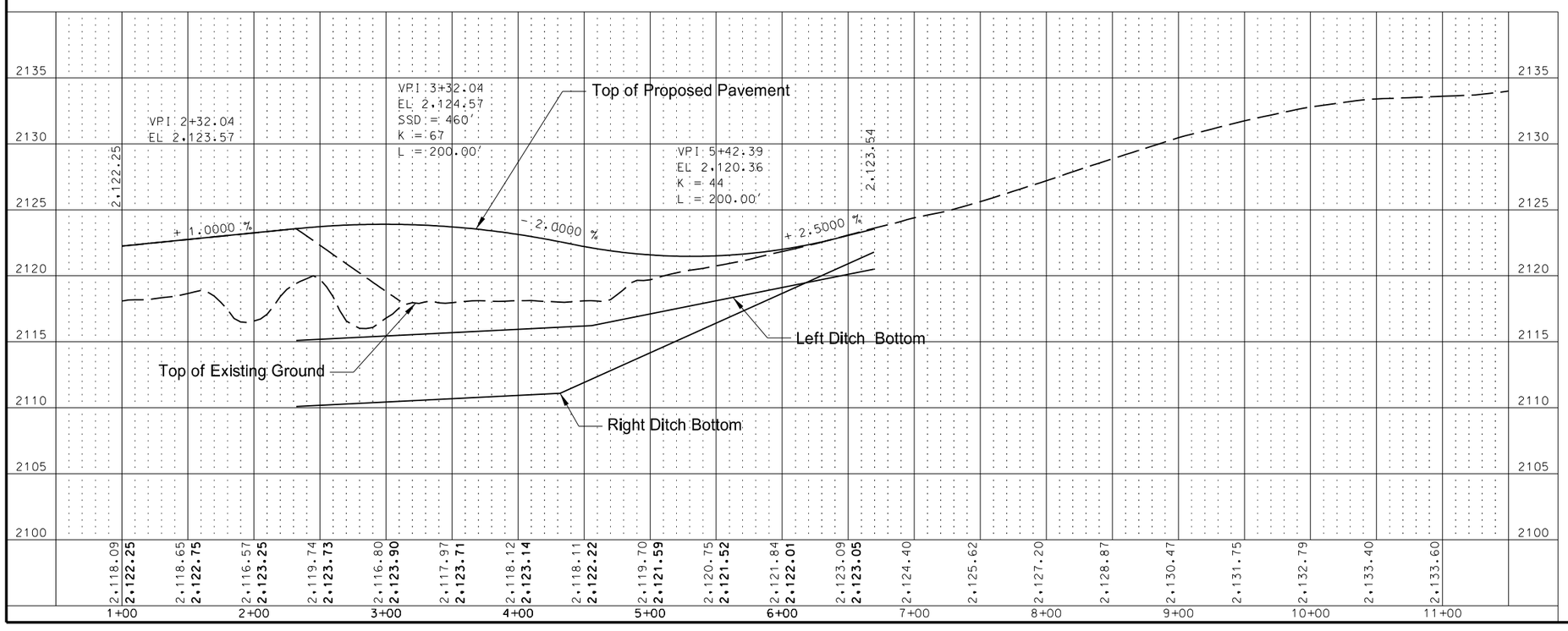
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 12 |




202 0174 Removal of Pipe - All Types & Sizes

| | | | |
|---|---|---|---|
| 9816+86 - 30' RT to 9816+86 - 103' RT | 72 | LF |
| 9818+74 - 54' RT to 9818+56 - 91' RT | 41 | LF |

Note: Stations & Offsets from US 85 Chain: PR85

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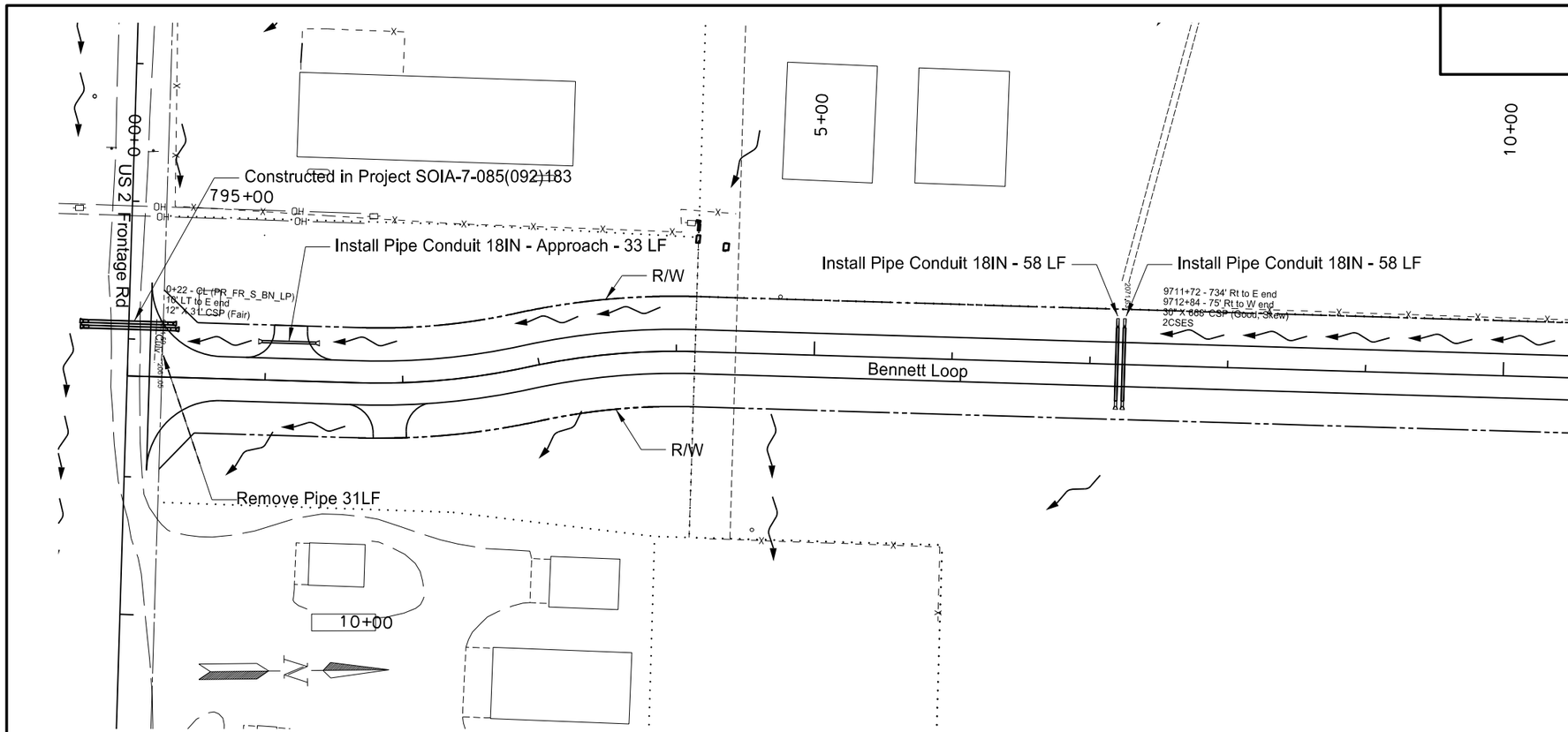
Storm Sewer

Williston NW Permanent Truck Reliever Route Phase 1A

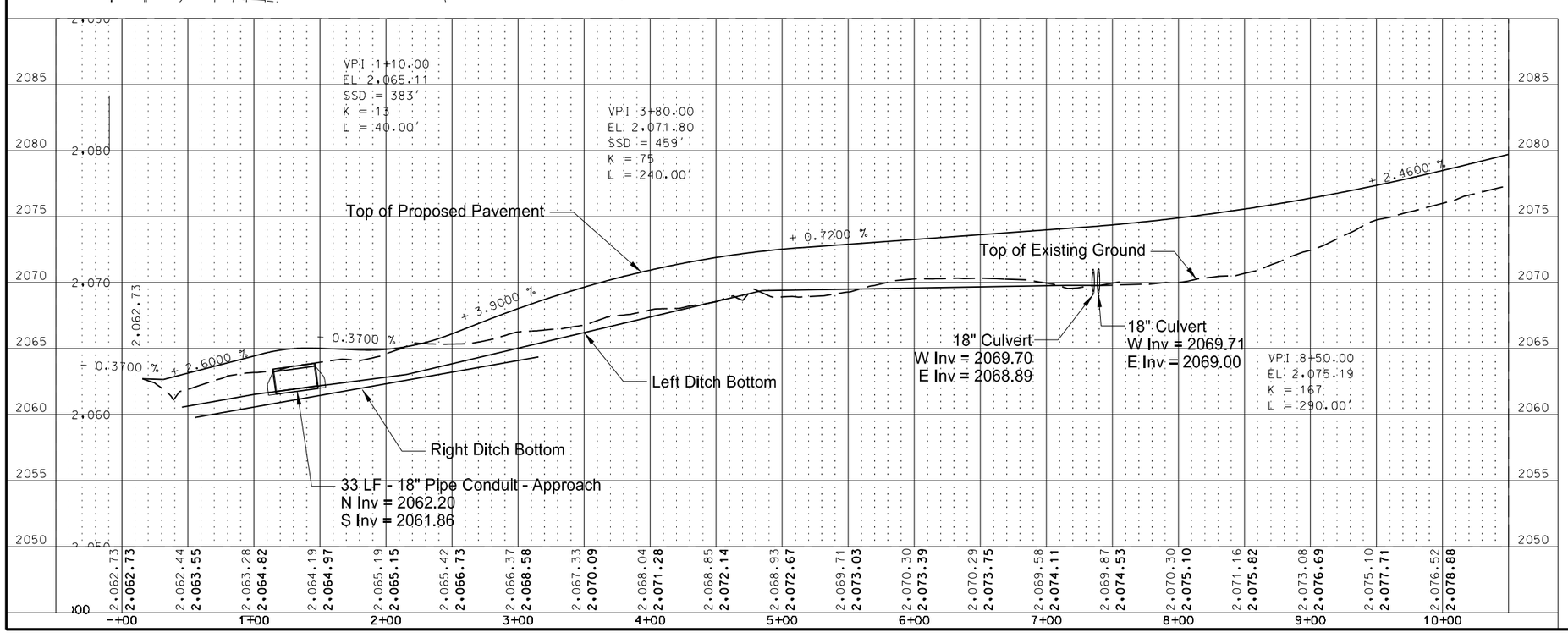
US 85 Gravel Tie-Down N. of 52nd St. NW 2+34.55 to 6+71.30

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 13 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 0+22 - CL | 31 | LF |
| 714 | 4099 | Pipe Conduit 18IN - Approach | | |
| | | 1+33 - 28' LT to 1+01 - 28' LT | 33 | LF |
| 714 | 4100 | Pipe Conduit 18IN | | |
| | | 7+20 - 28' LT to 7+20 - 31' RT | 58 | LF |
| | | 7+24 -28' LT to 7+24 - 30' RT | 58 | LF |

Note: Station and Offsets from Bennet Loop Chain: PR_FR_S_BN_LP

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Storm Sewer

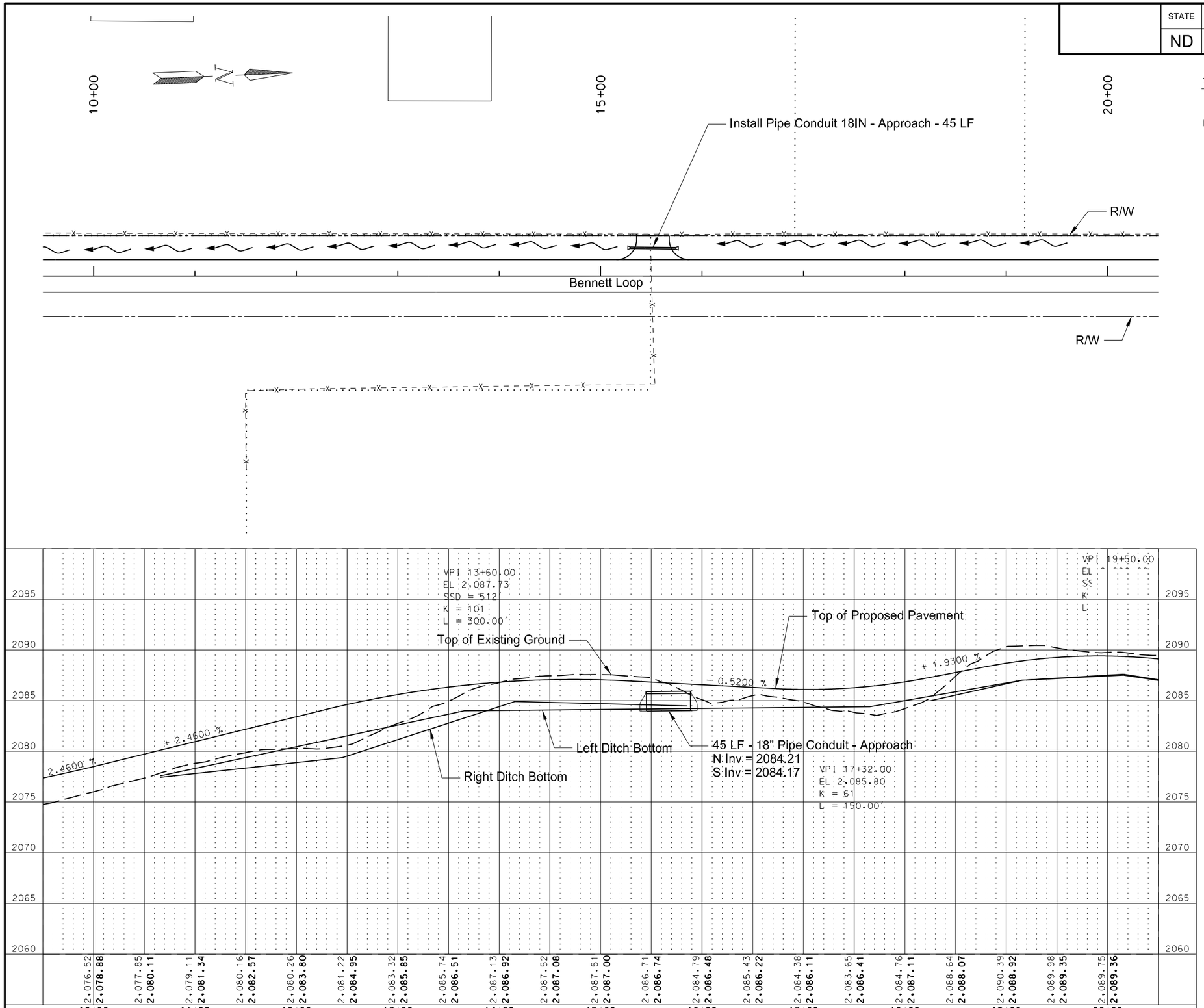
Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
0+16 to 10+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 14 |

714 4099 Pipe Conduit 18IN - Approach
15+74 - 28' LT to 15+29 - 28' LT 45 LF

Note: Station and Offsets from Bennet Loop Chain: PR_FR_S_BN_LP

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Storm Sewer

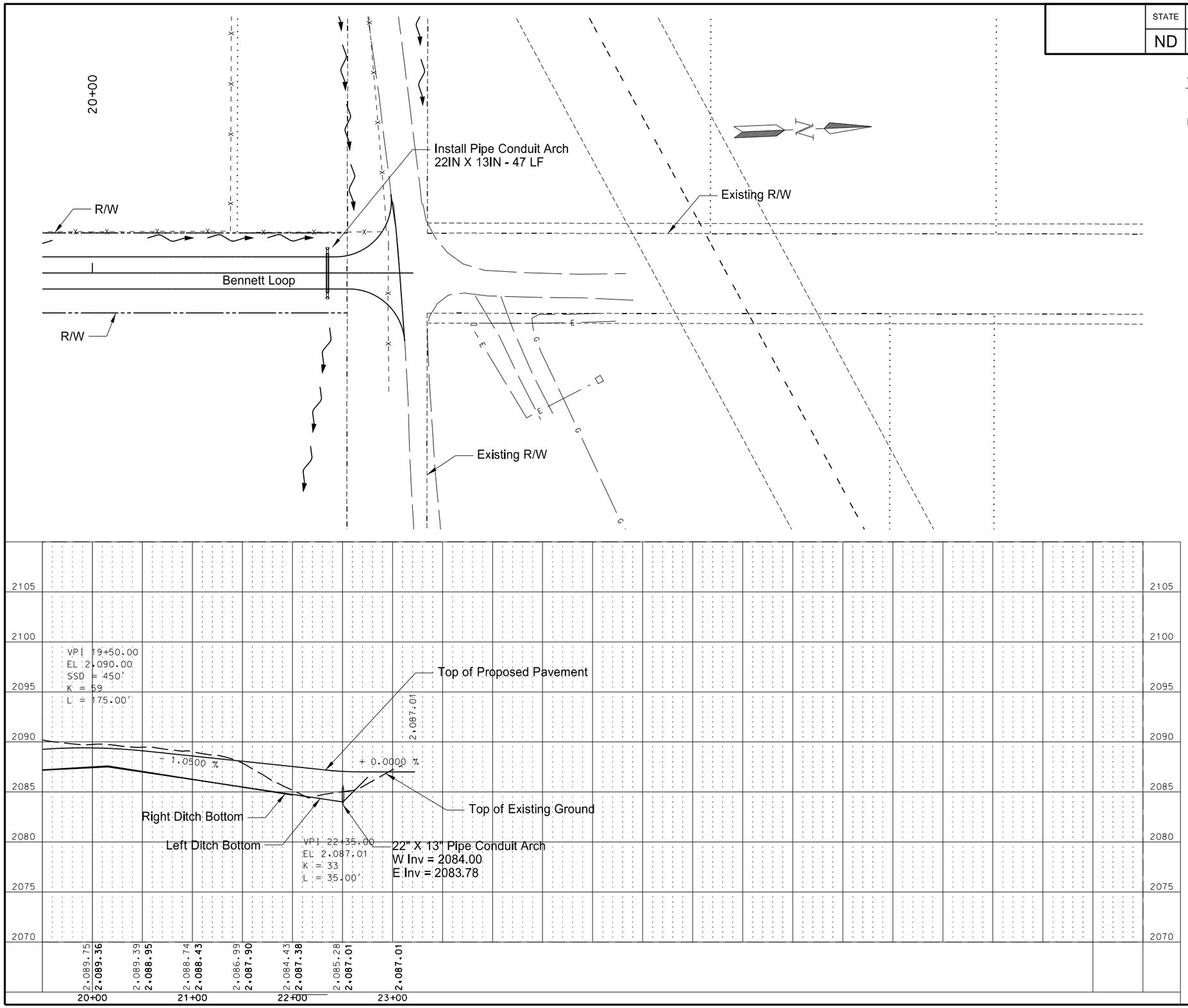
Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
10+00 to 20+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 15 |

714 4218 Pipe Conduit Arch 22IN x 13IN
22+35 - 23' LT to 22+35 - 24' RT 47 LF

Note: Station and Offsets from Bennet Loop Chain: PR_FR_S_BN_LP

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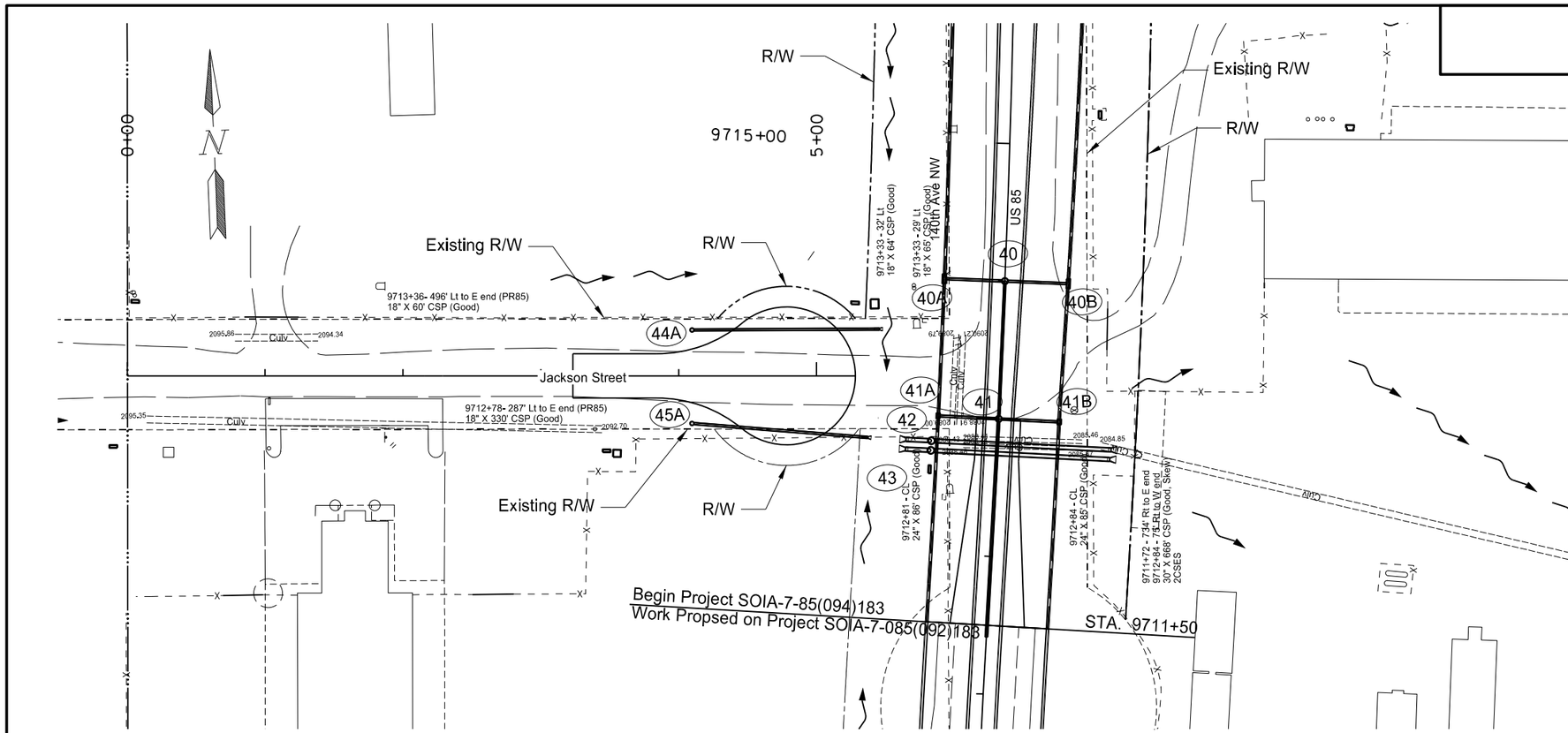
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

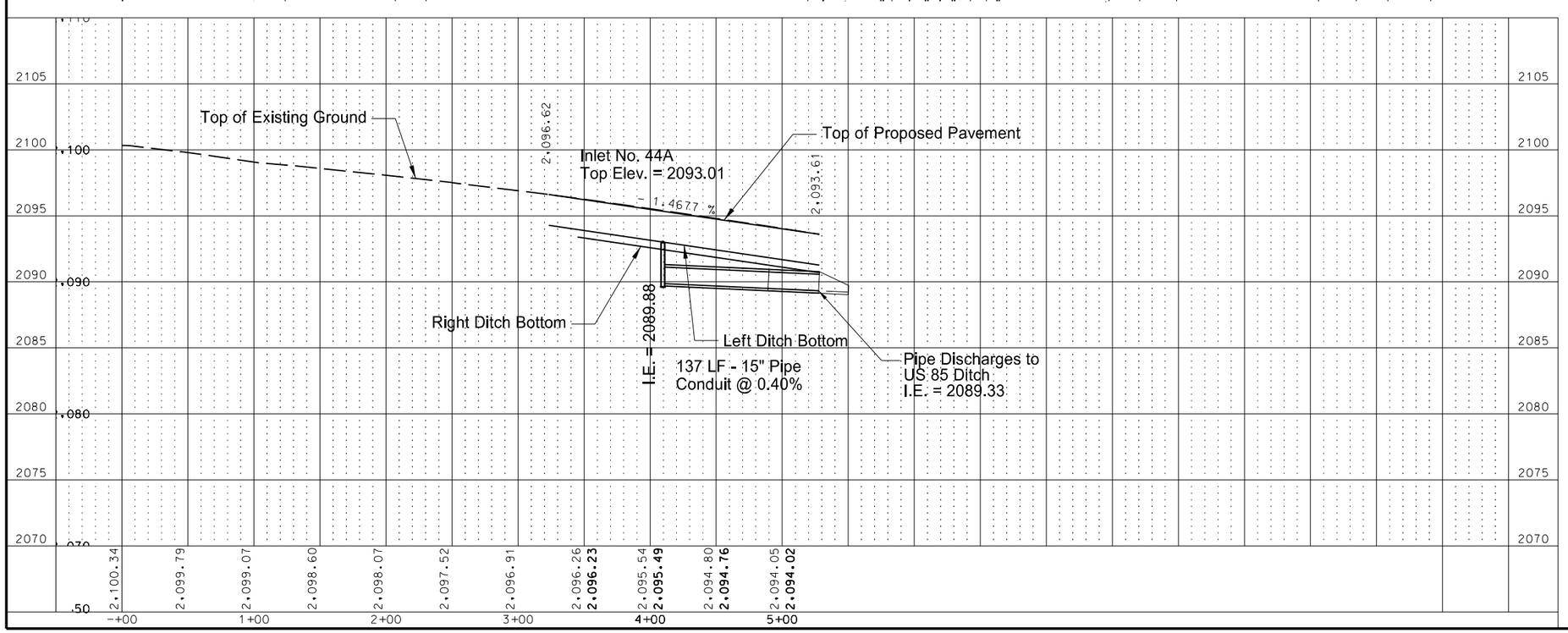
Bennett Loop
20+00 to 23+07.20

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 16 |




| | | | | |
|---|---|---|---|---|
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 44A to PR85 Sta 9713+61 - 89' LT | 136 | LF |
| | | 45A to PR85 Sta 9712+82 - 94' LT | 128 | LF |
| 722 | 3570 | Inlet Shallow Catch Basin 9IN Beehive | | |
| | | 44A | 1 | EA |
| | | 45A | 1 | EA |

Note: Station and Offsets from Bennet Loop Chain: PR_JACKSON_ST

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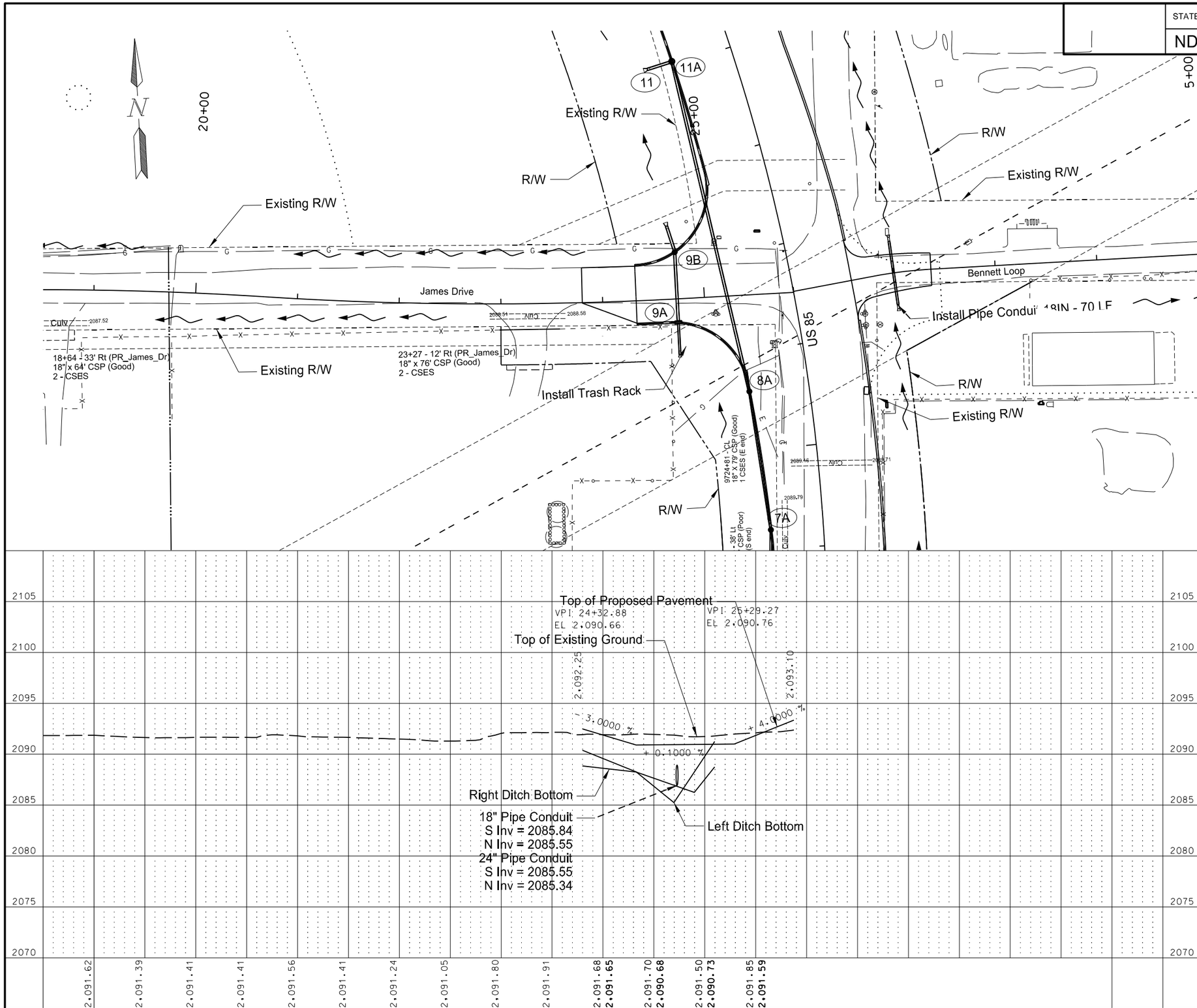
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

Jackson Street
3+83.80 to 5+28.18

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 17 |




| | | | | |
|---|---|---|---|---|
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 24+73 - 55' RT to 9A | 32 | LF |
| 714 | 4107 | Pipe Conduit 24IN-Storm Drain | | |
| | | 9A to 9B | 69 | LF |
| | | 9B to 24+66 - 72' LT | 27 | LF |
| 722 | 1100 | Manhole Riser 48IN | | |
| | | 9B | 4.19 | LF |
| 722 | 3541 | Inlet-Type 2-Double | | |
| | | 9A | 1 | EA |
| 722 | 3701 | Inlet Special-Type 2 48IN | | |
| | | 9B | 1 | EA |
| 910 | 0480 | Trash Rack | | |
| | | 24+73- 55' RT | 1 | EA |

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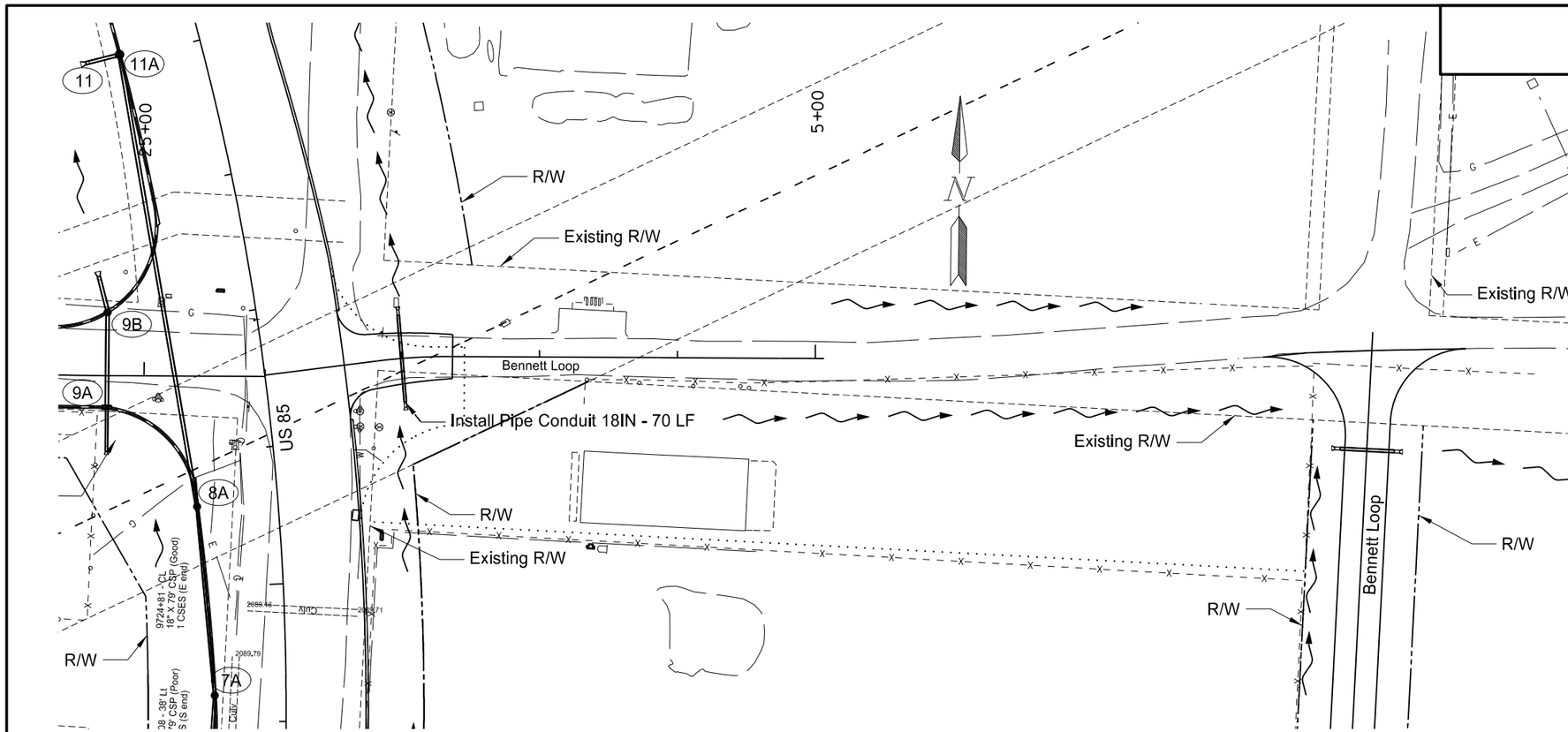
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

James Drive
23+80 to 24+32.88

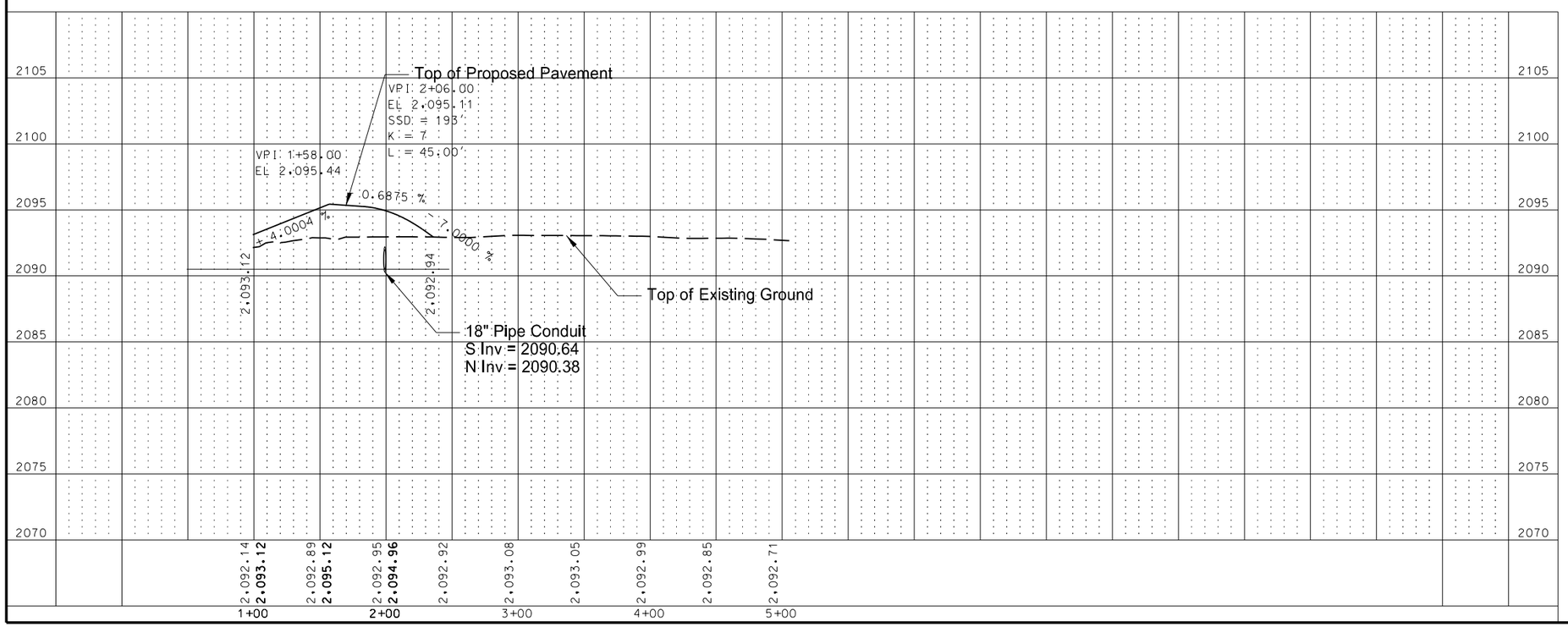
| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 18 |




714 4100 Pipe Conduit 18IN

| | | |
|---|---|---|
| 2+00 - 35' RT to 2+00 - 35' LT | 70 | LF |

Note: Stations & Offsets from Bennett Loop E/W Chain:

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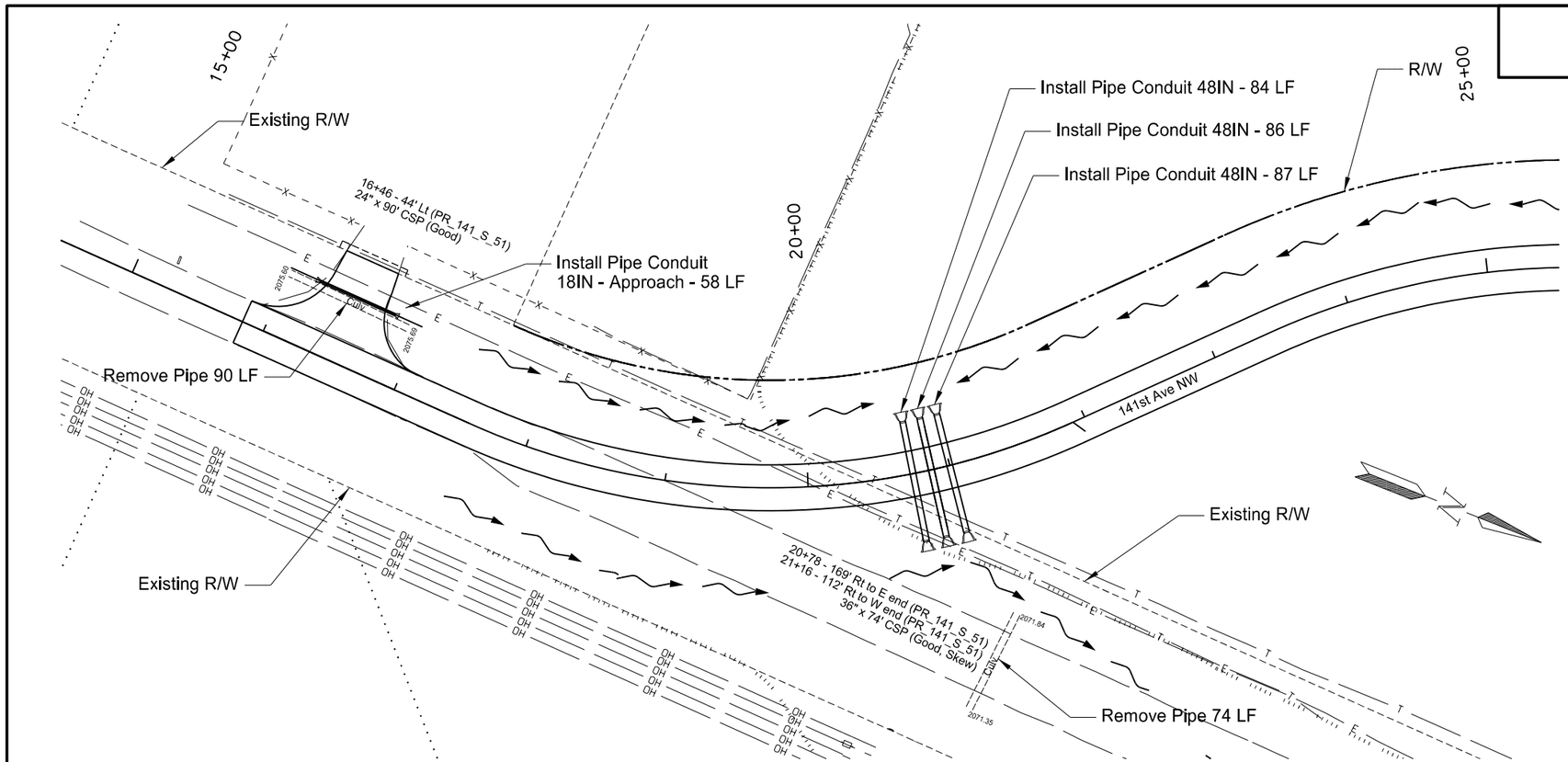
Storm Sewer

Williston NW Permanent Truck Reliever Route Phase 1A

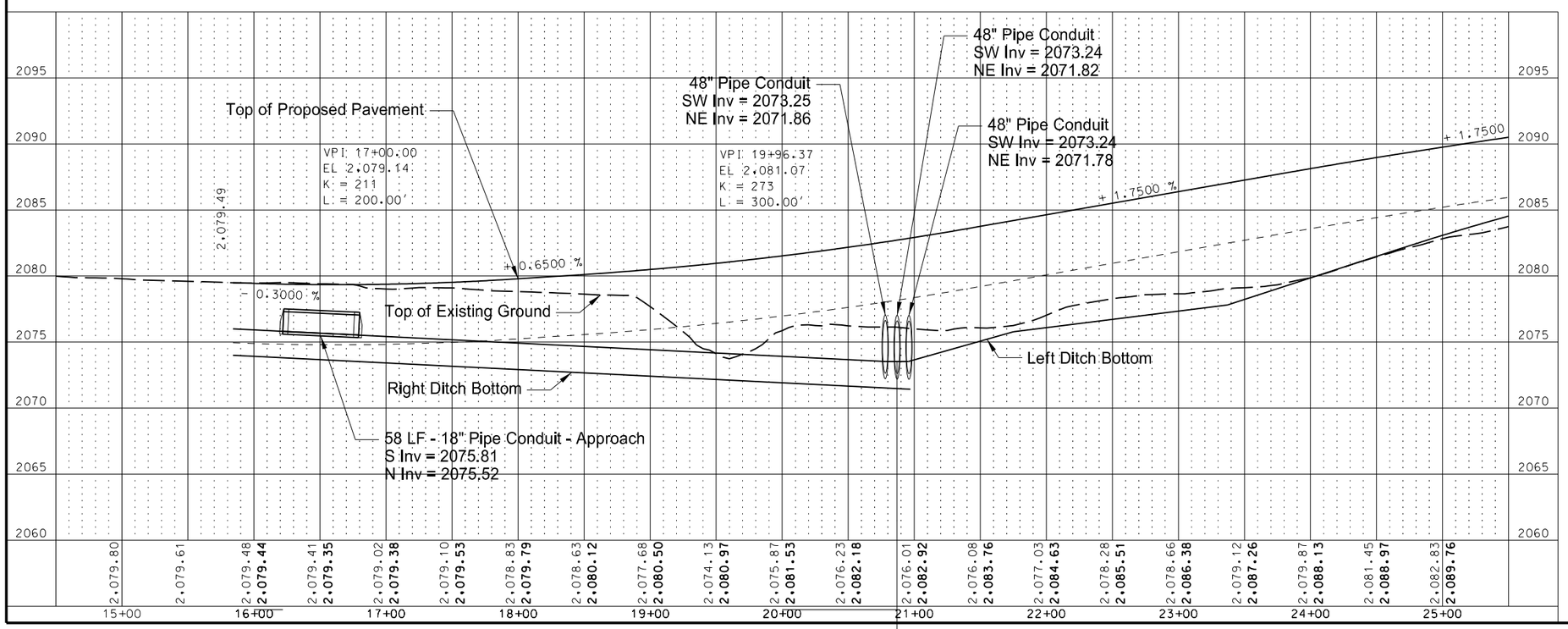
Bennett Loop
1+58 to 2+36.89

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 19 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 16+46 - 44' LT | 90 | LF |
| | | 20+78 - 169' RT to 21+16 - 112' RT | 74 | LF |
| 714 | 4099 | Pipe Conduit 18IN - Approach | | |
| | | 16+22 - 48' LT to 16+75 - 48' LT | 58 | LF |
| 714 | 4125 | Pipe Conduit 48IN | | |
| | | 20+61 - 37' LT to 20+61 - 47' RT | 84 | LF |
| | | 20+87 - 37' LT - to 20+87 - 48' RT | 86 | LF |
| | | 21+00 - 38' LT to 21+00 - 49' RT | 87 | LF |

Note: Stations & Offsets from 141st Ave NW Chain: PR_141_S_51

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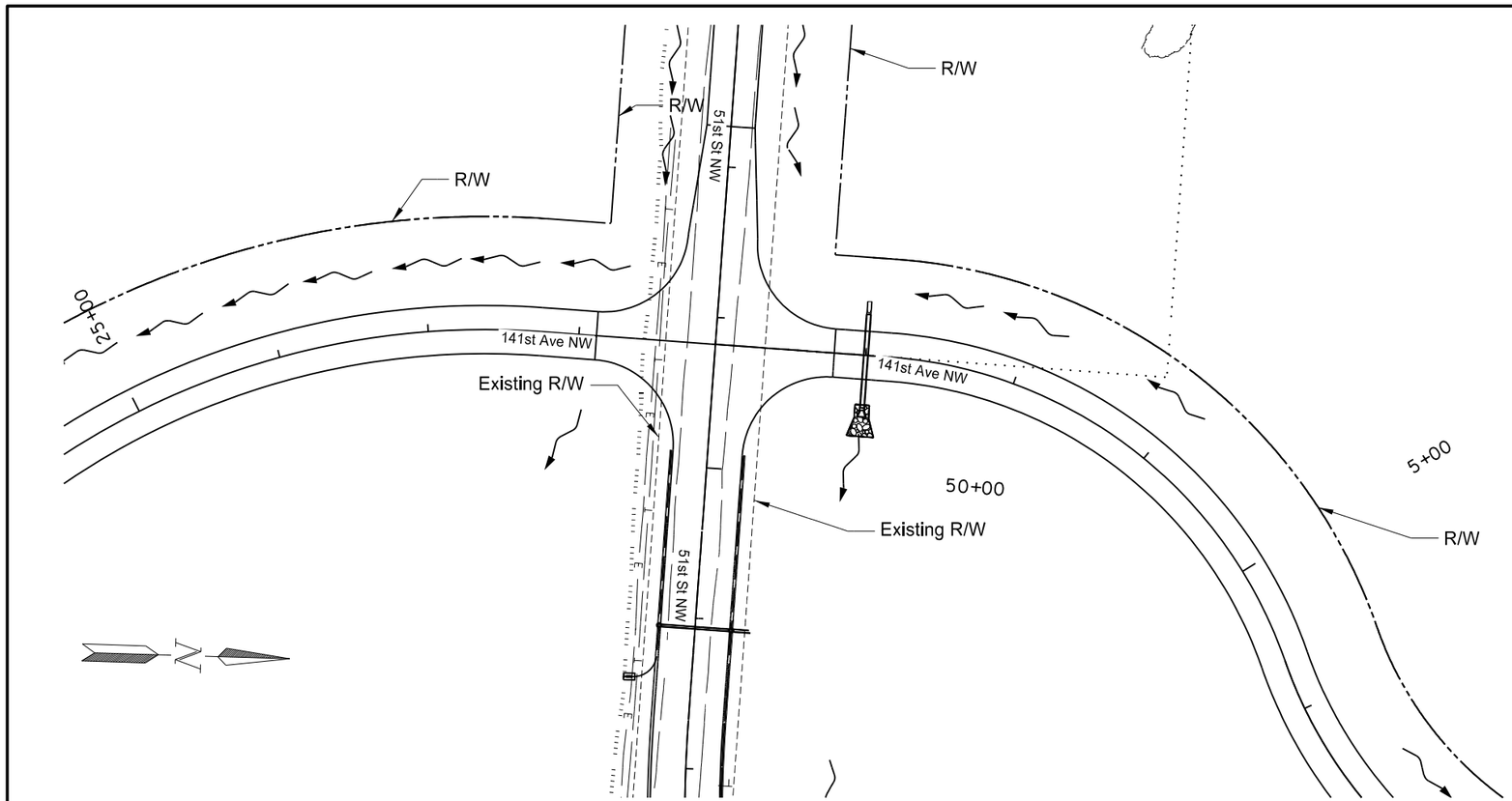
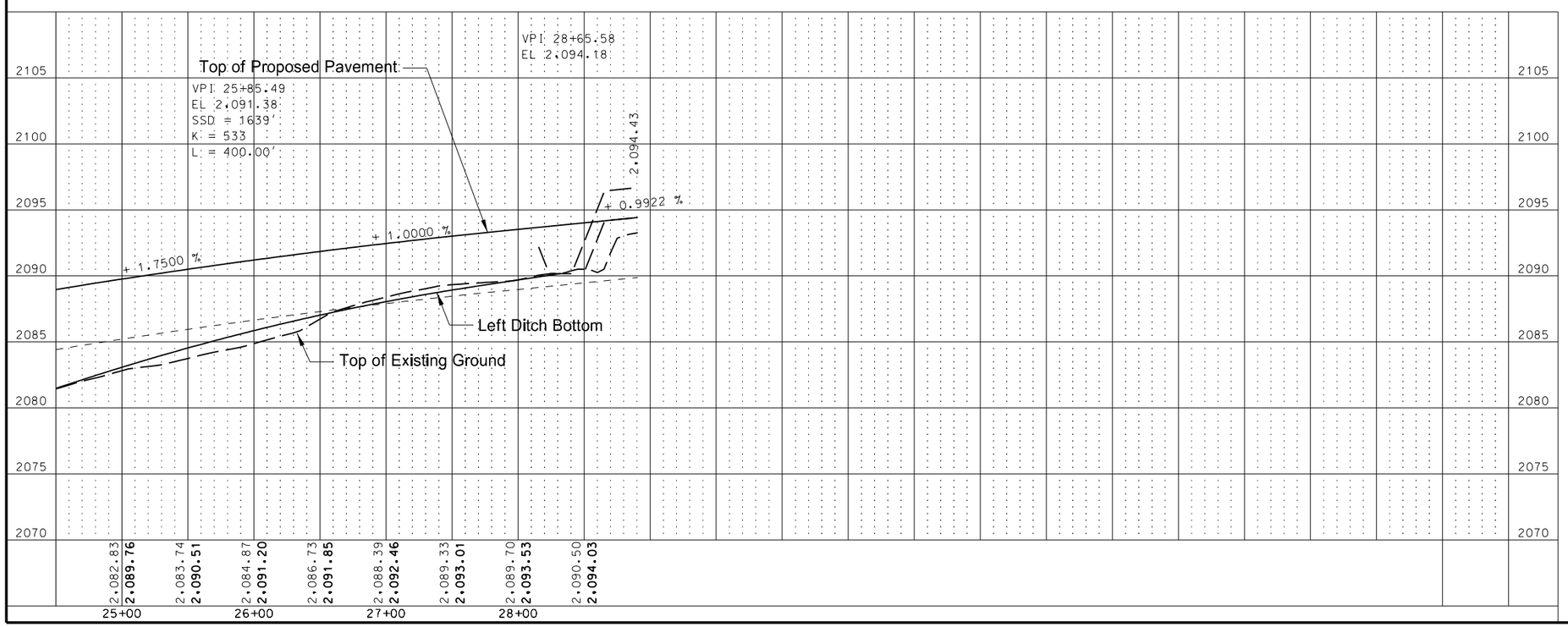
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW
15+84.07 to 25+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 20 |

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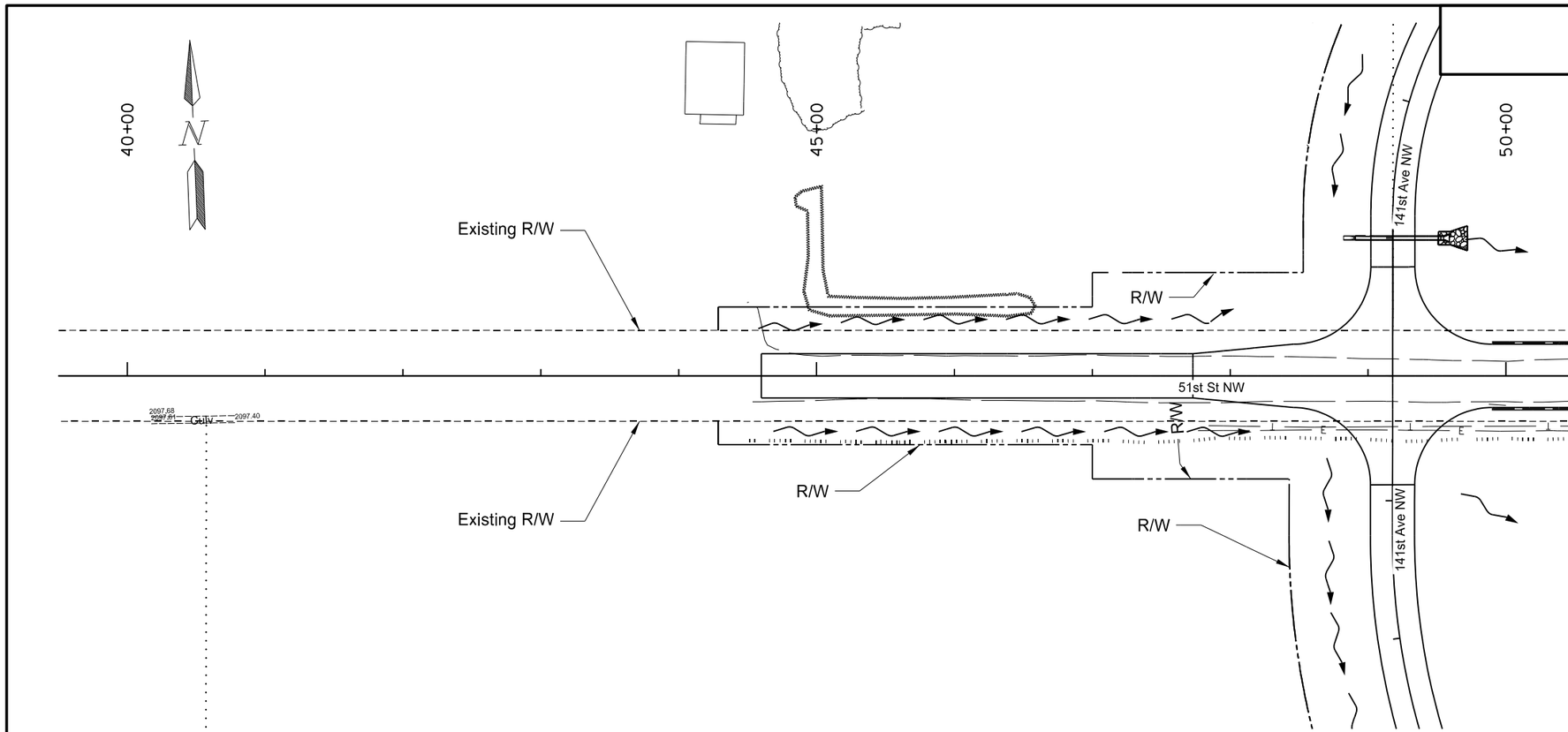
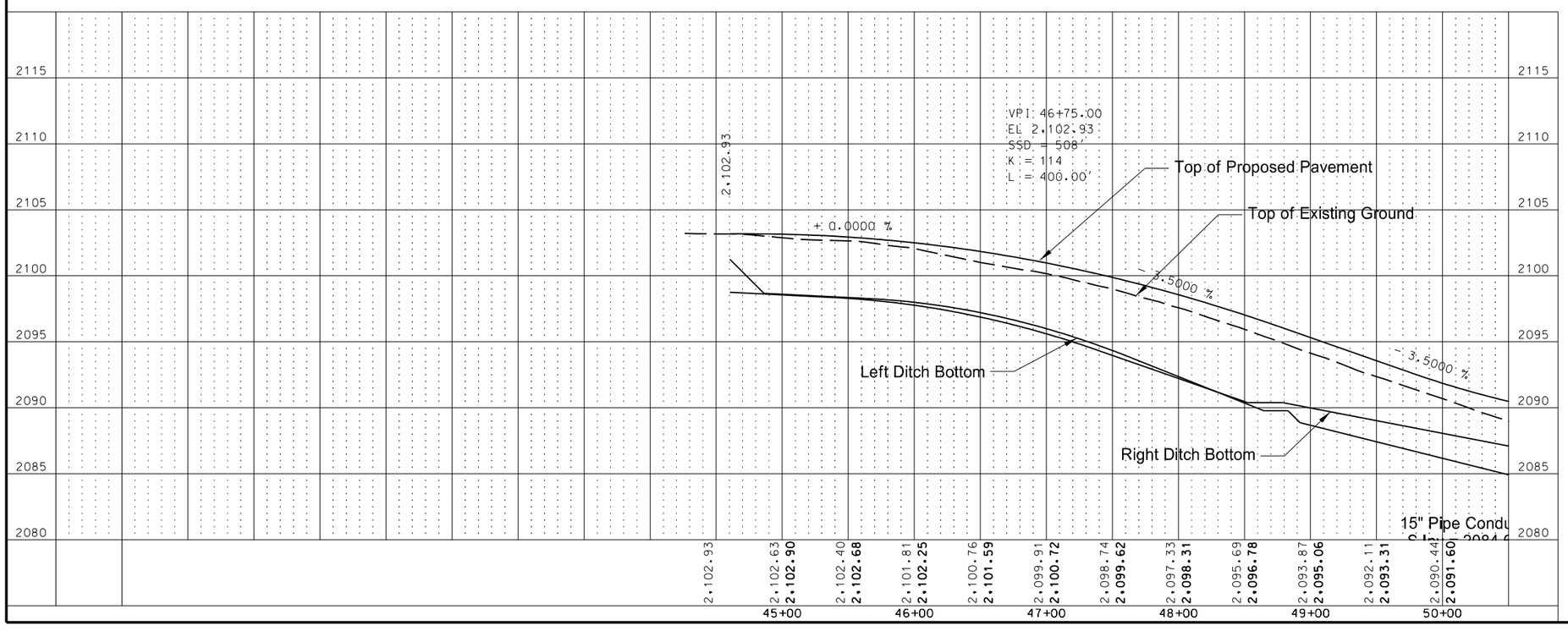
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW
25+00 to 28+72.86

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 21 |

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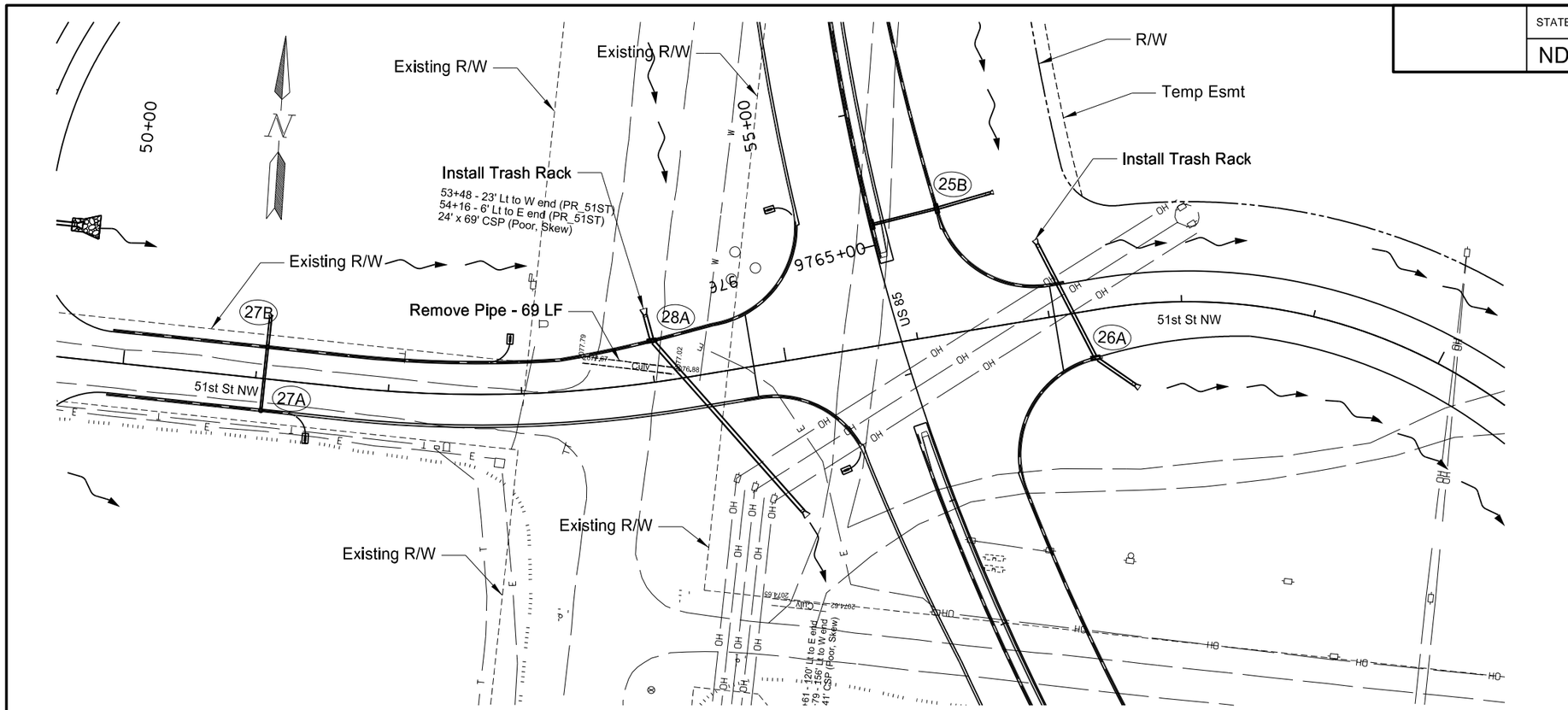
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

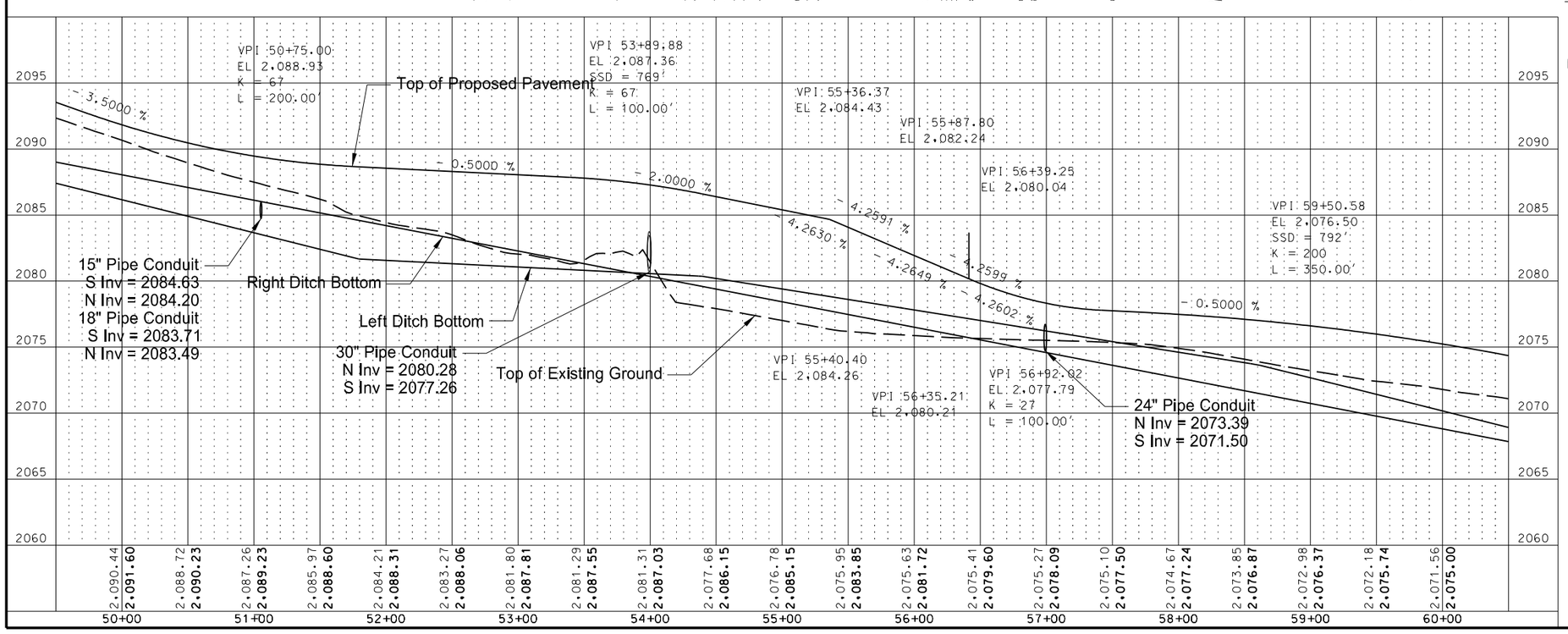
51st St. NW
44+60 to 50+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 22 |




| | | | | |
|---|---|---|---|---|
| 202 | 0169 | Removal of Pipe - All Types & Sizes | | |
| | | 53+48 - 23' LT to 54+16 - 6' LT | 69 | LF |
| 714 | 3150 | Headwall - Precast Concrete 4IN | | |
| | | 51+42 RT | 1 | EA |
| | | 52+92 LT | 1 | EA |
| 714 | 3159 | Headwall Vegetation Barrier | | |
| | | 51+42 RT | 1 | EA |
| | | 52+92 LT | 1 | EA |
| 714 | 4097 | Pipe Conduit 15IN-Storm Drain | | |
| | | 27A to 27B | 48 | LF |
| 714 | 4101 | Pipe Conduit 18IN-Storm Drain | | |
| | | 27B to 51+06- 46' LT | 22 | LF |
| 714 | 4107 | Pipe Conduit 24IN-Storm Drain | | |
| | | 57+00- 56' LT to 26A | 96 | LF |
| | | 26A to 57+58- 60' RT | 36 | LF |
| 714 | 4110 | Pipe Conduit 30IN | | |
| | | 54+00- 51' LT to 28A | 30 | LF |
| | | 28A to US 85 Sta 97+63+30- 110' LT | 171 | LF |
| 714 | 9696 | Edgedrain Non Permeable Base | | |
| | | 50+00 to 27B | 117 | LF |
| | | 27B to 28A | 291 | LF |
| | | 50+00 to 27A | 117 | LF |
| | | 27A to 51+27 | 21 | LF |
| | | 57+04 to 26A | 27 | LF |
| | | 28A to 54+50 | 47 | LF |
| | | 54+64 to 54+75 RT | 12 | LF |
| | | 57+04 to 57+15 LT | 11 | LF |
| 722 | 3500 | Inlet - Type 1 | | |
| | | 27A | 1 | EA |
| | | 27B | 1 | EA |
| 722 | 3541 | Inlet - Type 2 -Double | | |
| | | 28A | 1 | EA |
| | | 26A | 1 | EA |
| 910 | 0480 | Trash Rack | | |
| | | 51st St NW 54+00- 51' LT | 1 | EA |
| | | 51st St NW 57+00 - 56' LT | 1 | EA |

Note: Stations & Offsets from 51st St NW Chain: PR_51ST

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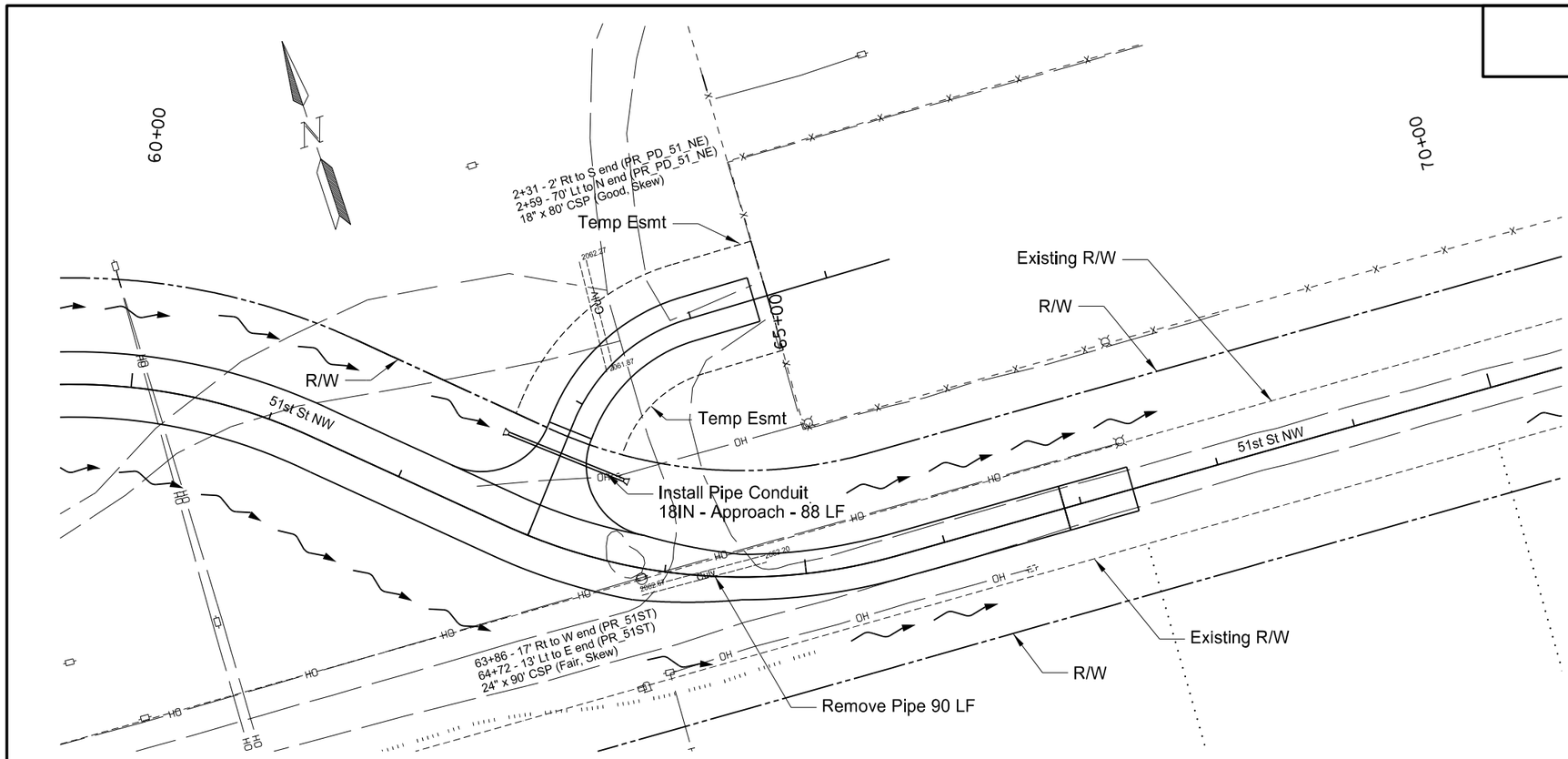
Storm Sewer

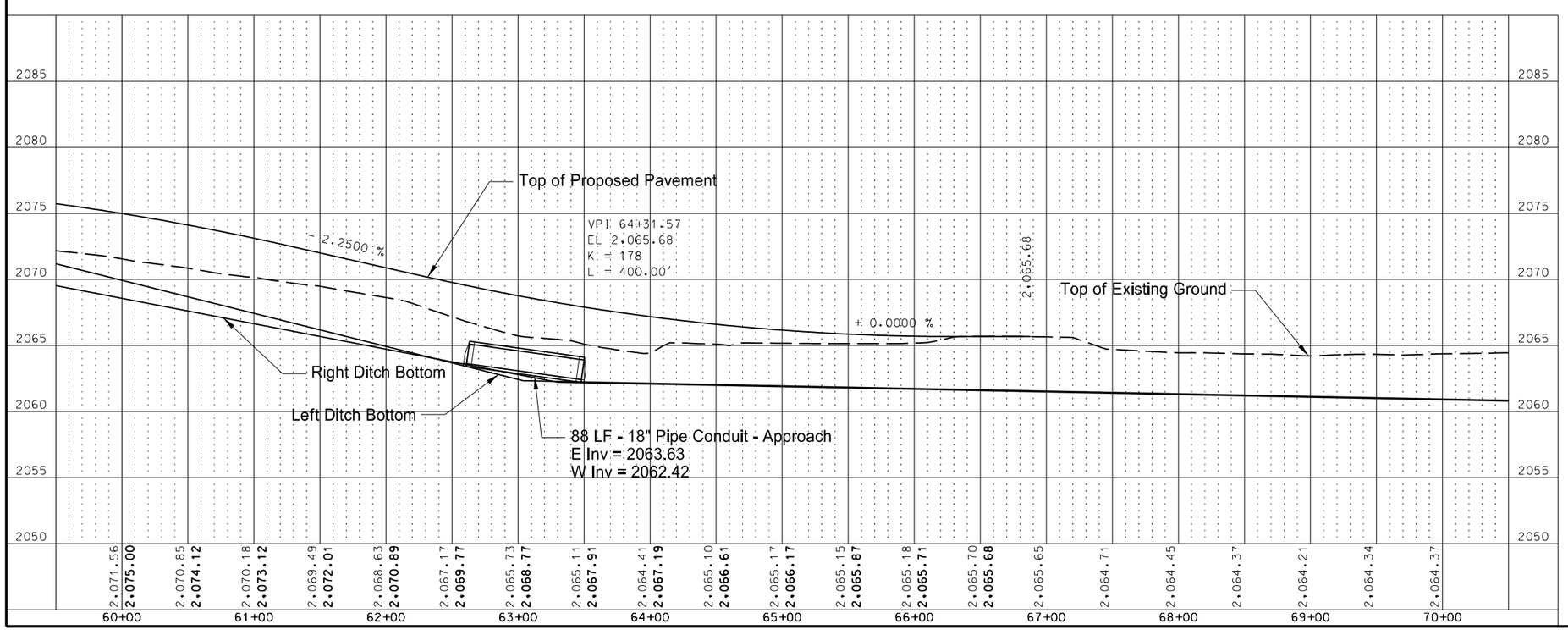
Williston NW Permanent Truck Reliever Route
Phase 1A
51st St. NW
50+00 to 54+75.42
57+04.06 to 60+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 23 |

| | | | | |
|---|---|---|---|---|
| 202 | 0169 | Removal of Pipe - All Types & Sizes | | |
| | | 63+86 - 17' RT to 64+72 - 13' LT | 90 | LF |
| 714 | 4100 | Pipe Conduit 18IN - Approach | | |
| | | 62+61 - 59' LT to 63+56 - 58' LT | 88 | LF |

Note: Stations & Offsets from 51st St NW Chain: PR_51ST

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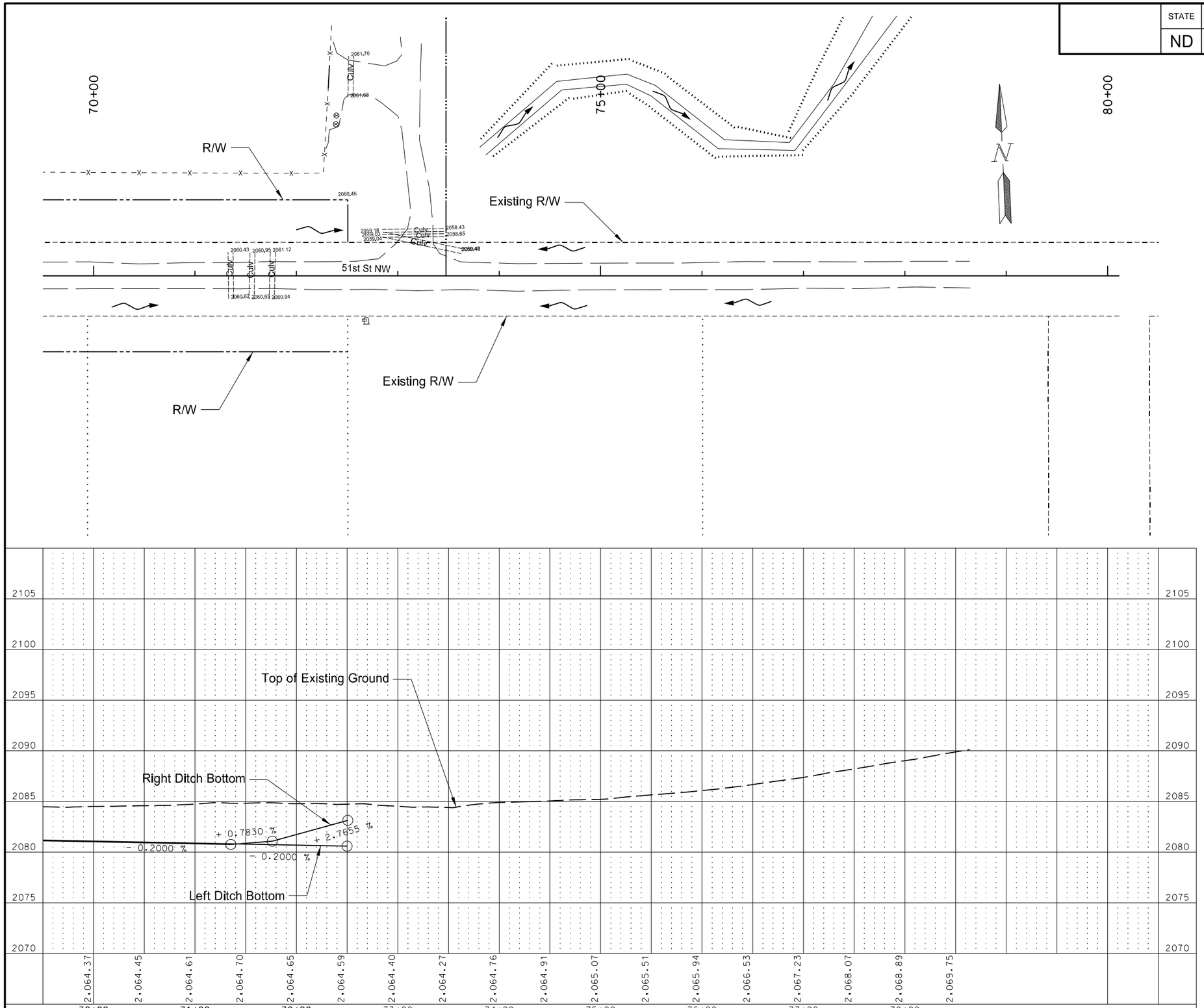
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW
60+00 to 67+37.88

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 24 |




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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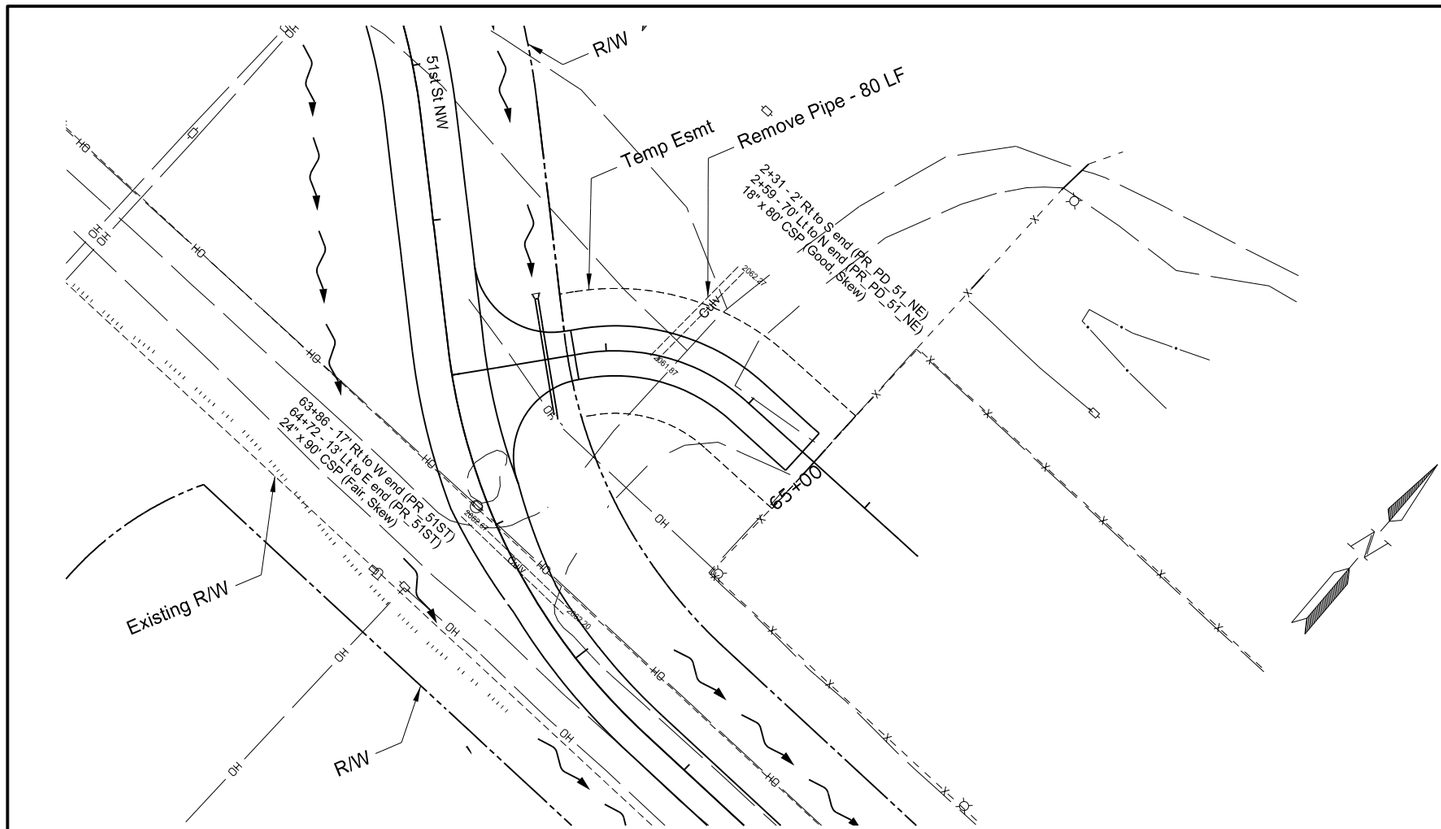
Storm Sewer

Williston NW Permanent Truck Reliever Route Phase 1A

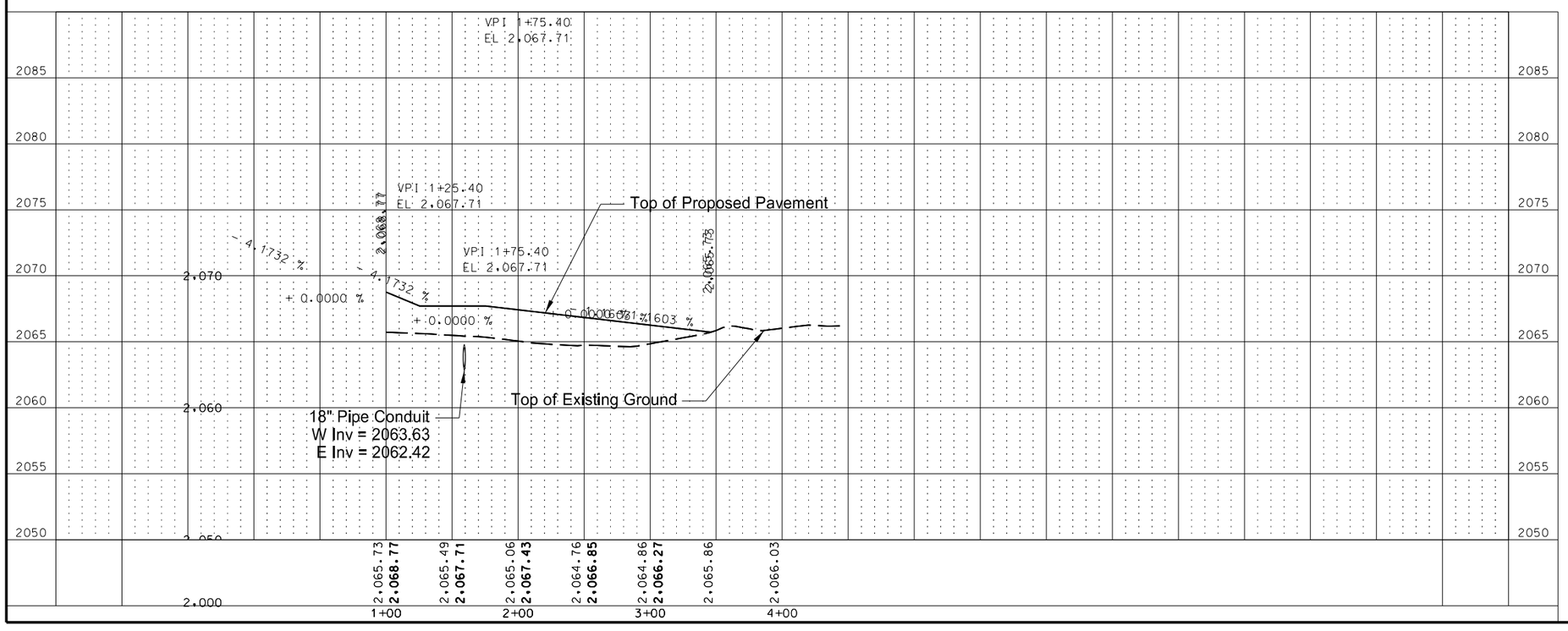
51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 25 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 2+31 -2' RT to 2+59 - 70' LT | 80 | LF |

Note: Stations & Offsets from Private Drive Chain: PR_RD_51_NE




See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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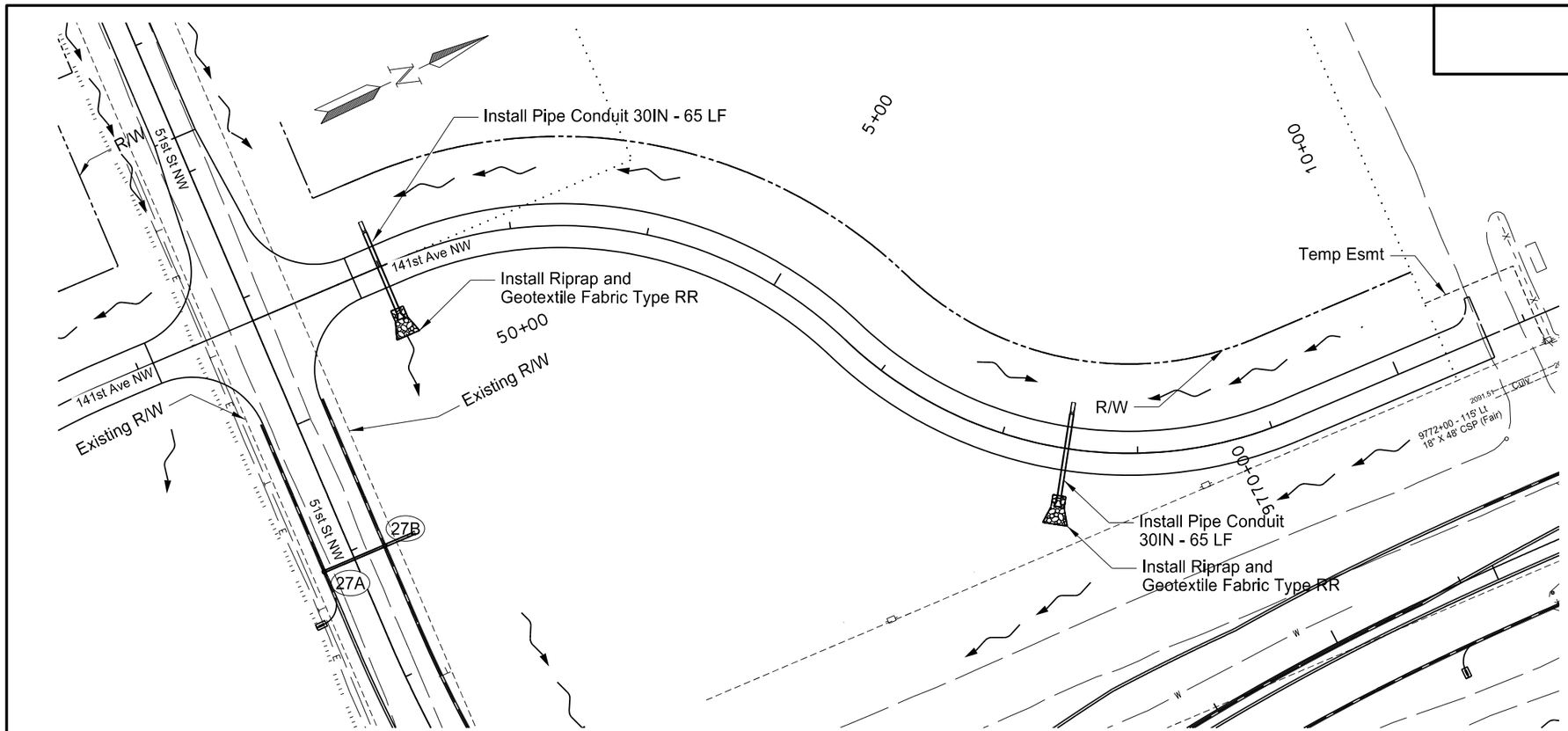
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

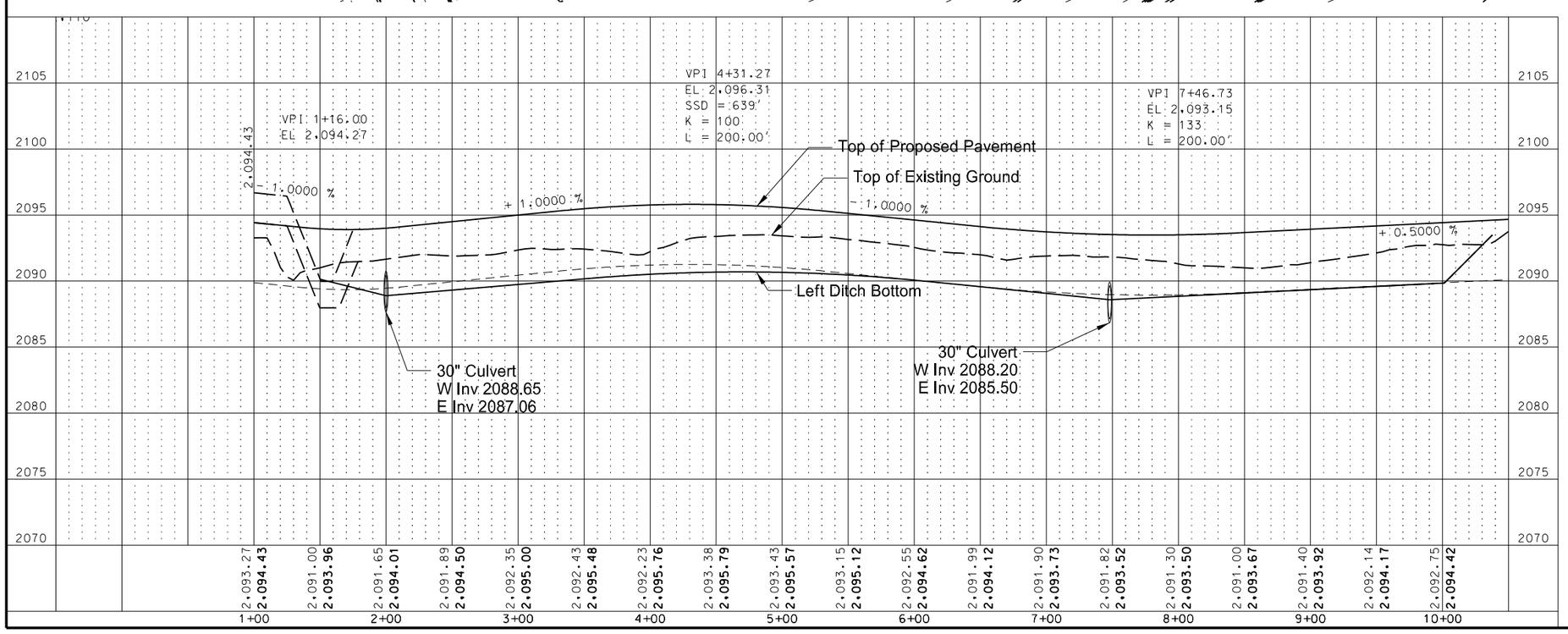
Private Drive
1+23 to 3+46.24

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 26 |




| | | | | |
|---|---|---|---|---|
| 708 | 1020 | Riprap - Loose Rock | | |
| | | 2+00 - 37' RT | 18.7 | CY |
| | | 7+48 - 38' RT | 18.7 | CY |
| 709 | 0600 | Geotextile Fabric-Type RR | | |
| | | 2+00 - 37' RT | 45.5 | SY |
| | | 7+48 - 38' RT | 45.5 | SY |
| 714 | 4110 | Pipe Conduit 30IN | | |
| | | 2+00 - 28' LT to 2+00 - 37' RT | 65 | LF |
| | | 7+48 - 26' LT to 7+48 - 38' RT | 65 | LF |

Note: Stations & Offsets from 141st Ave NW Chain: PR_PD_51_NW

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Storm Sewer

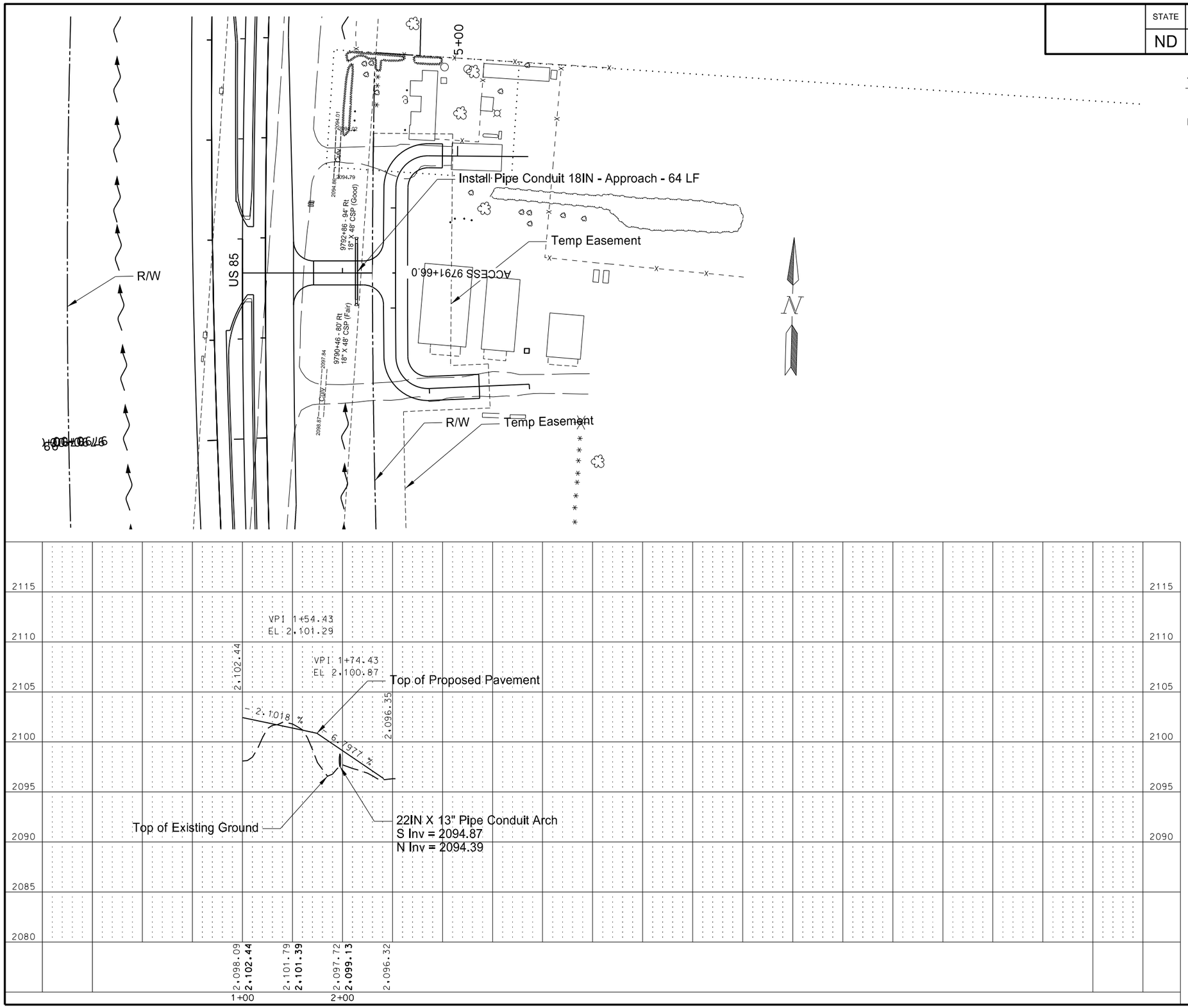
Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW North of 51st St. NW
1+23 to 10+69.57

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 27 |

714 4216 Pipe Conduit Arch - 22IN x 13IN
9791+42 - 114' RT to 9797+90 - 114' RT 64 LF

Note: Stations & Offsets from US 85 Chain: PR85

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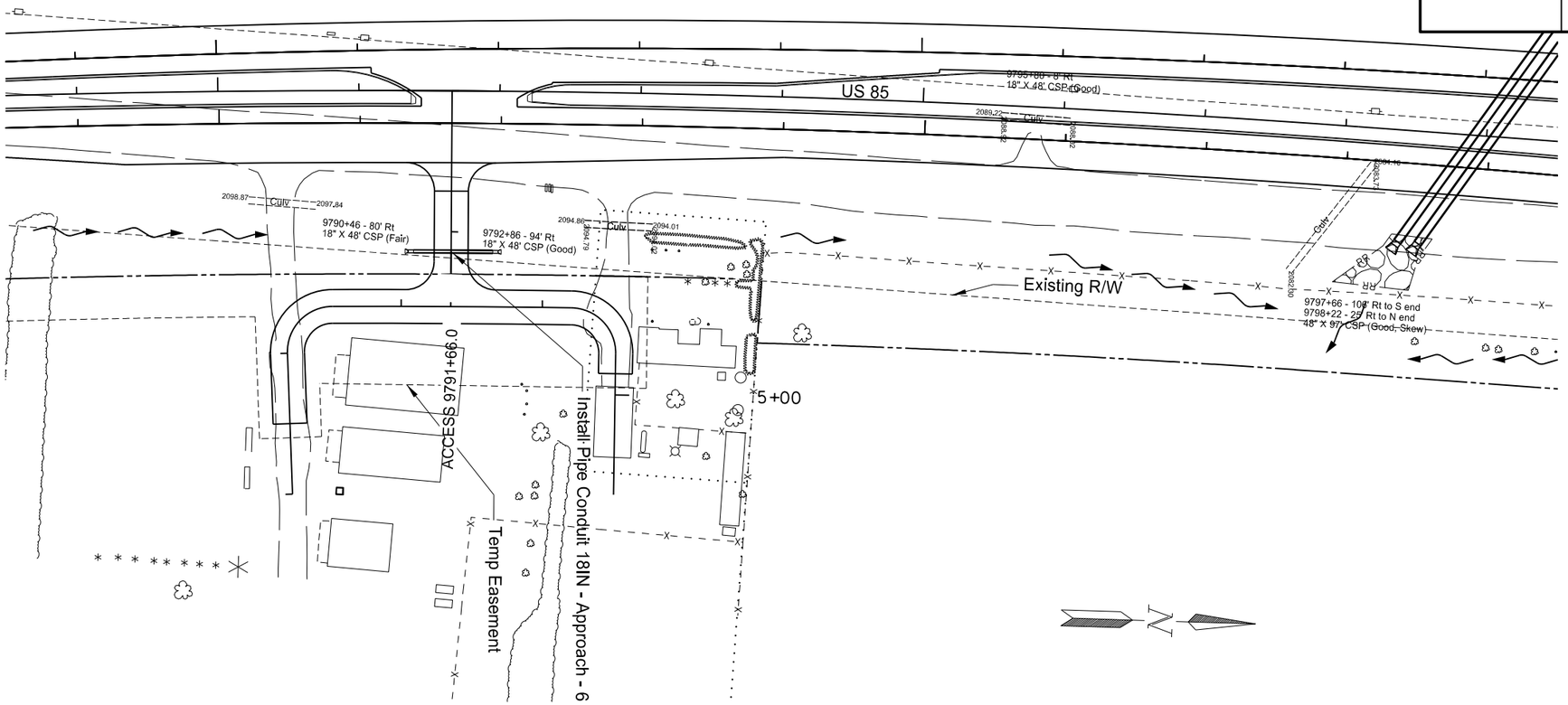
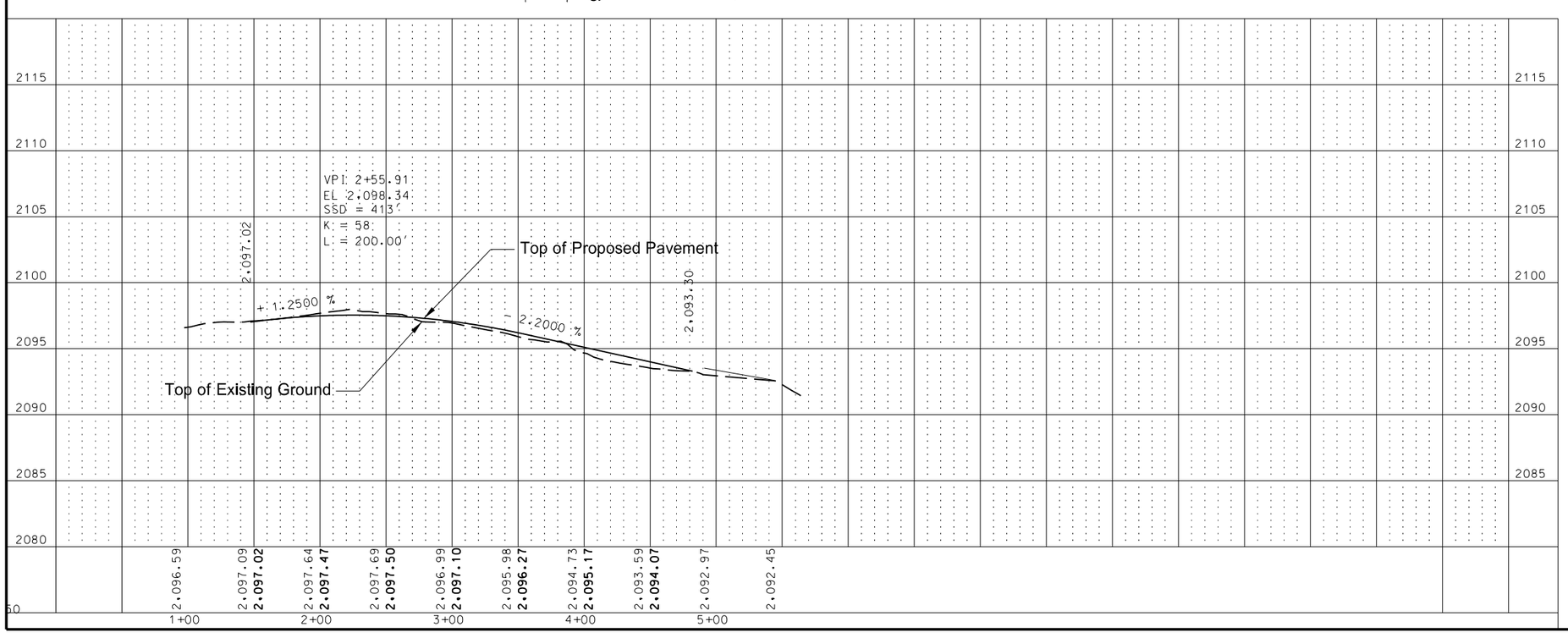
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive
1+51 to 2+41.05

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 28 |

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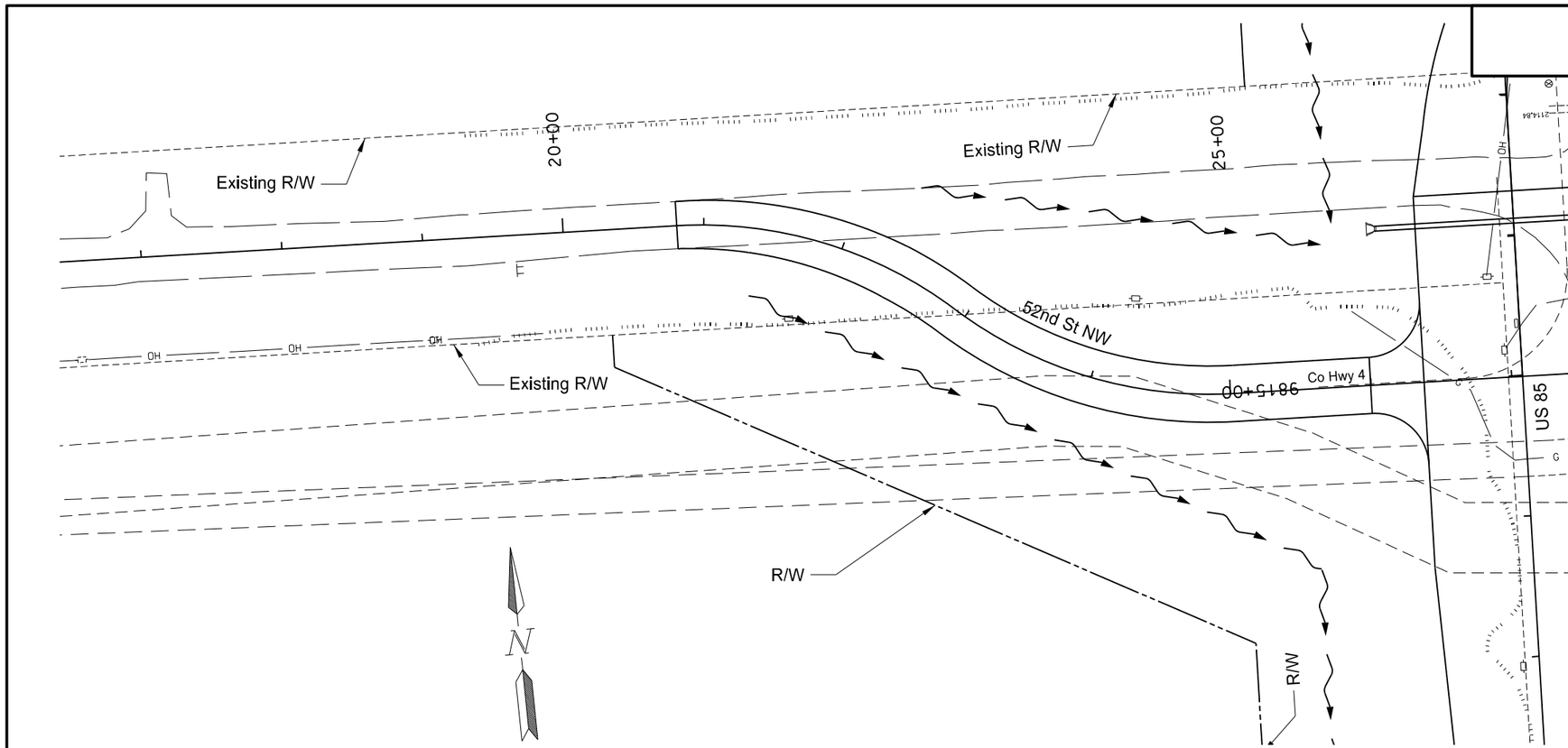
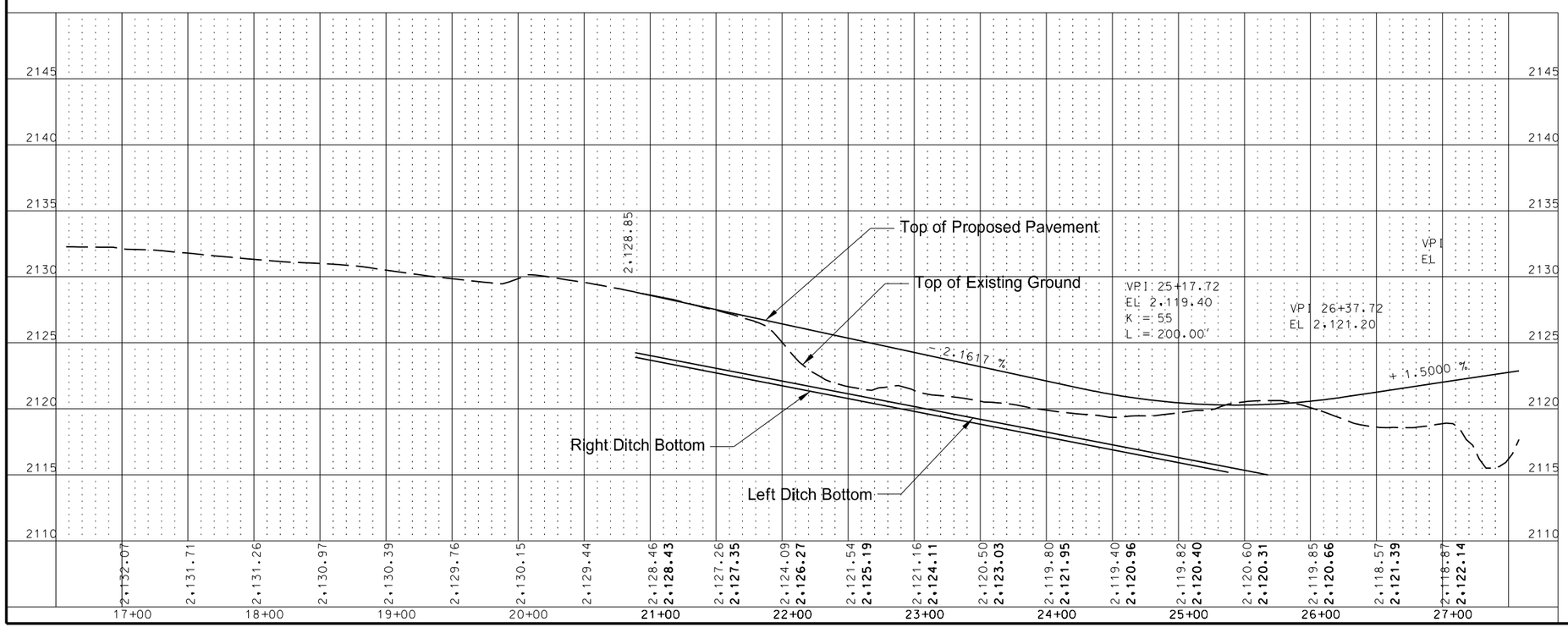
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive
1+50 to 4+85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 29 |

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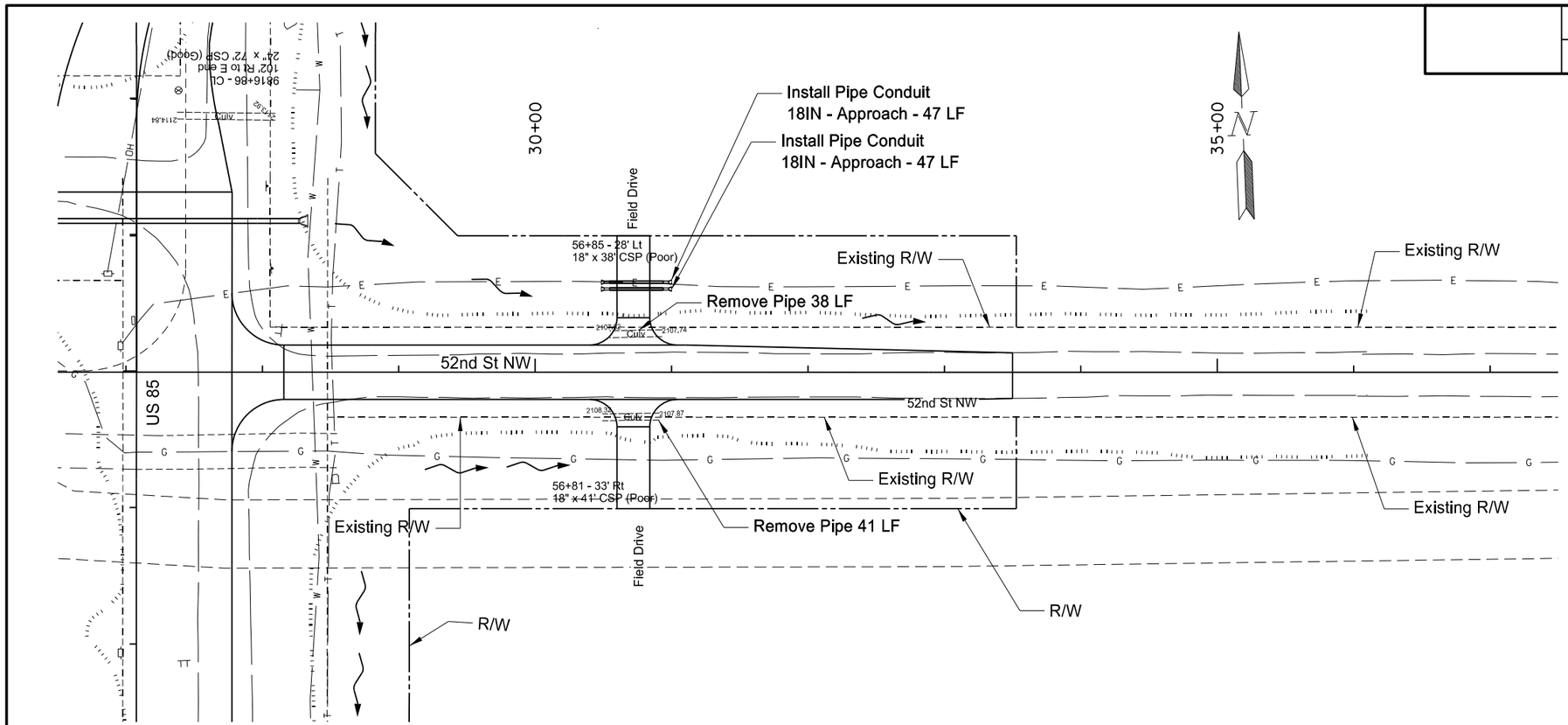
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

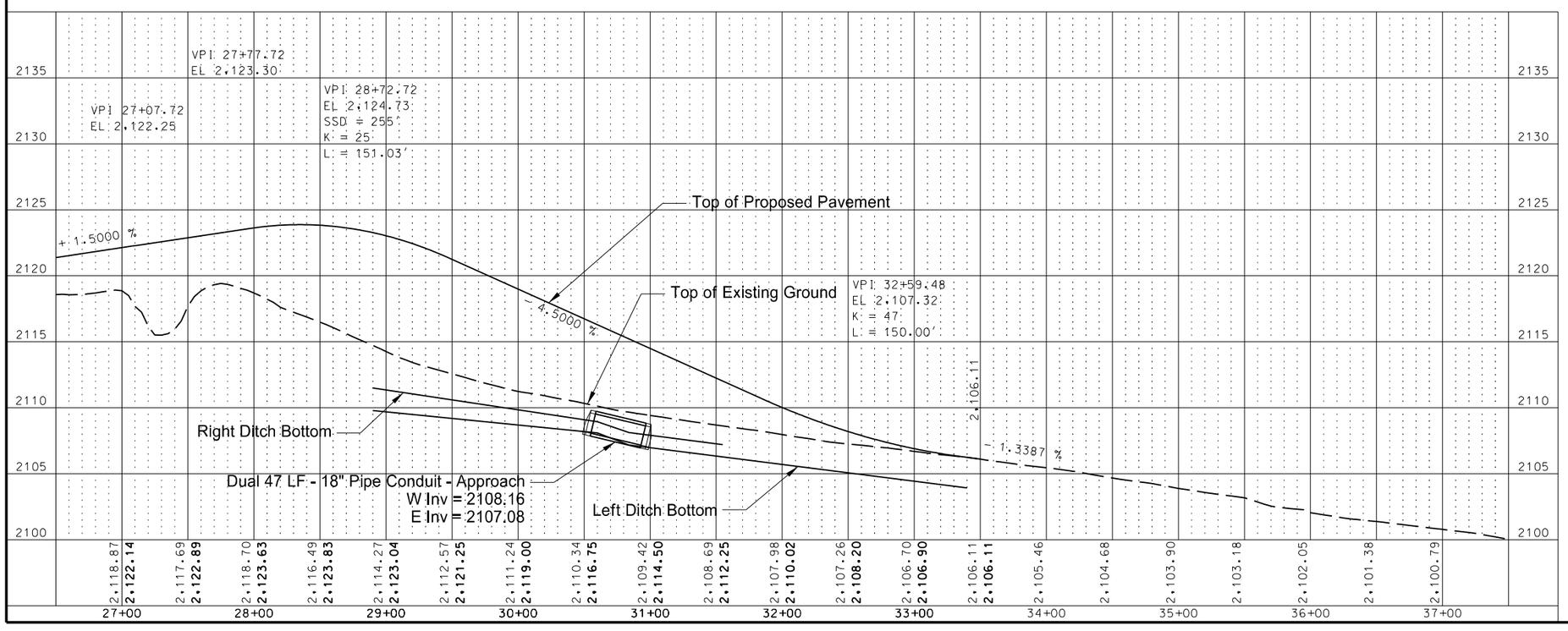
52nd St. NW
20+80.79 to 26+37.72

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 55 | 30 |




| | | | | |
|---|---|---|---|---|
| 202 | 0174 | Removal of Pipe - All Types & Sizes | | |
| | | 56+81 - 33' RT | 41 | LF |
| | | 56+85 - 28' LT | 38 | LF |
| 714 | 4099 | Pipe Conduit 18IN - Approach | | |
| | | 30+51 - 61' LT to 30+98 - 61' LT | 47 | LF |
| | | 30+51 - 61' LT to 30+98 - 66' LT | 47 | LF |

Note: Stations & Offsets from 52nd St NW Chain: PR_52_W

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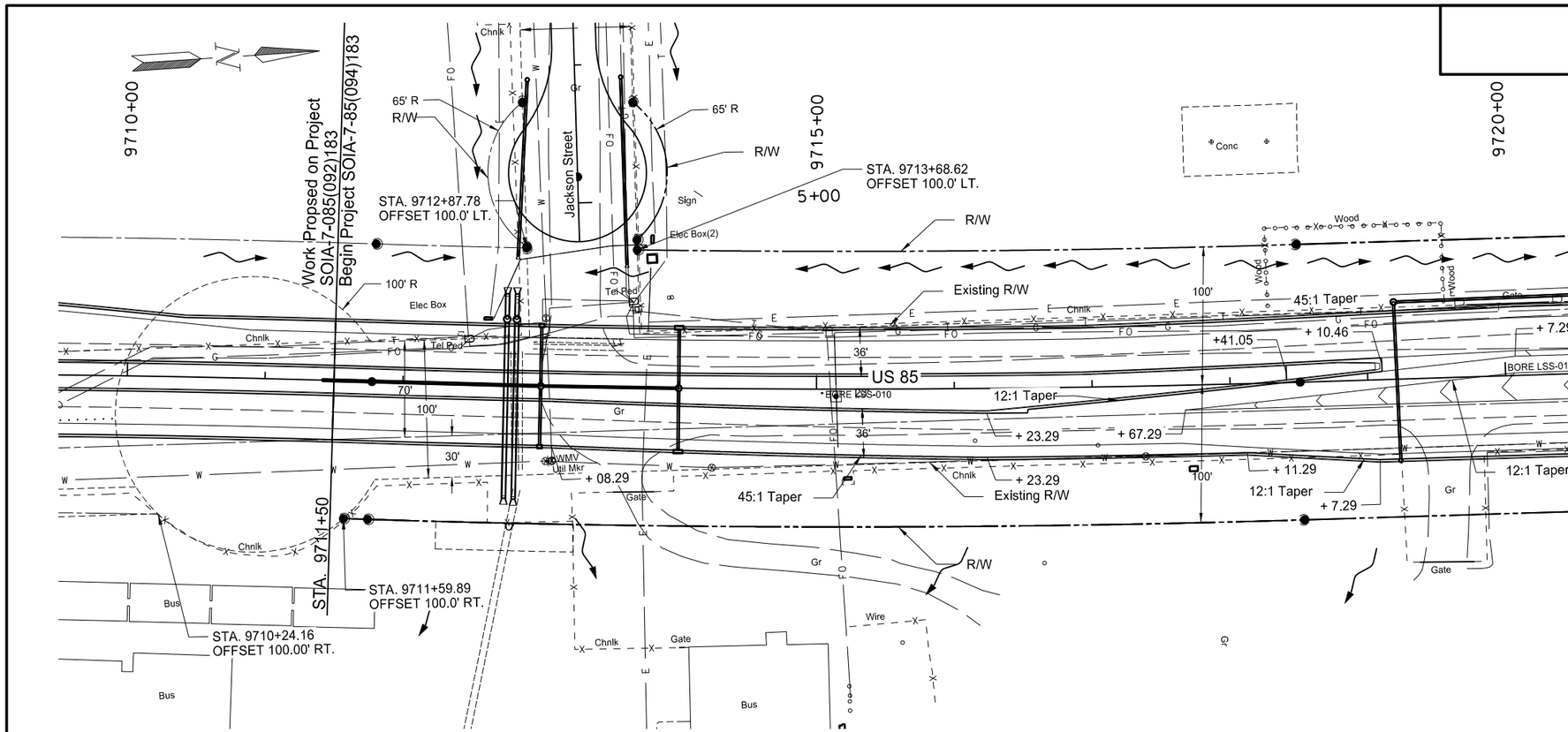
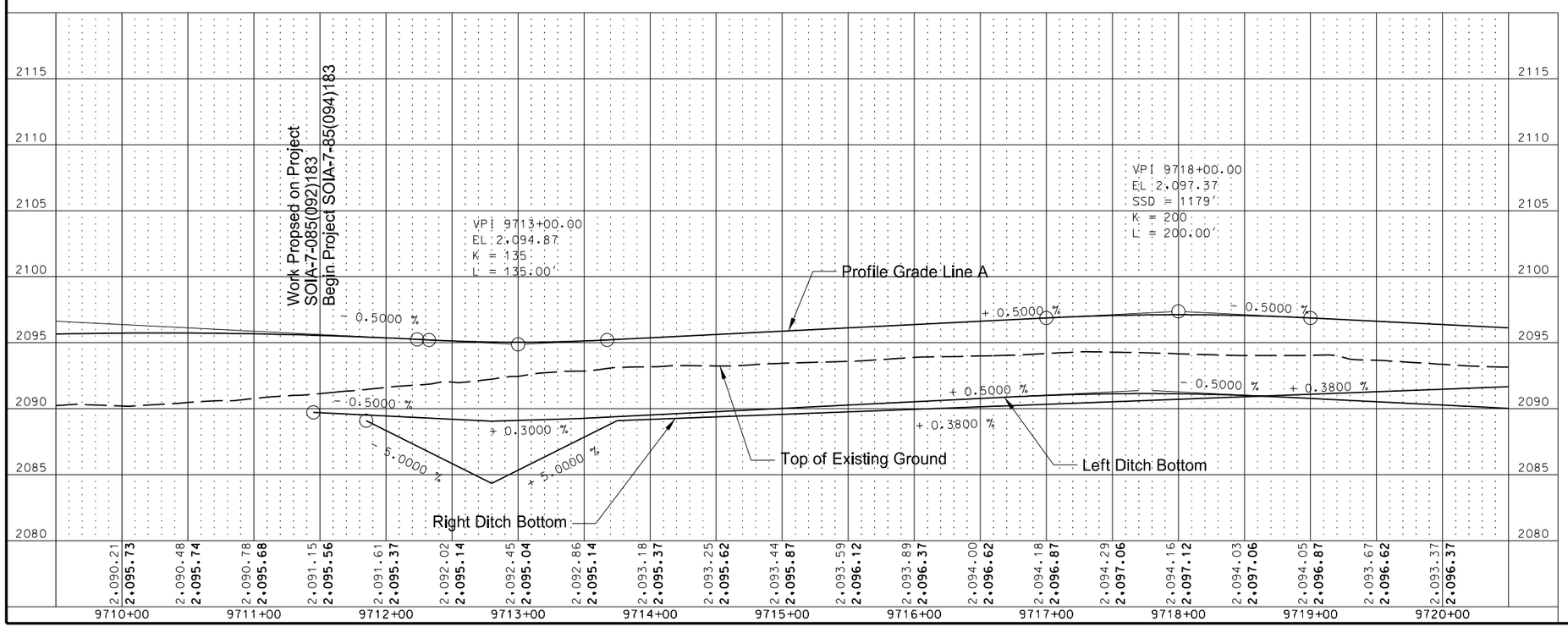
Storm Sewer

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
27+77.72 to 33+50

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 1 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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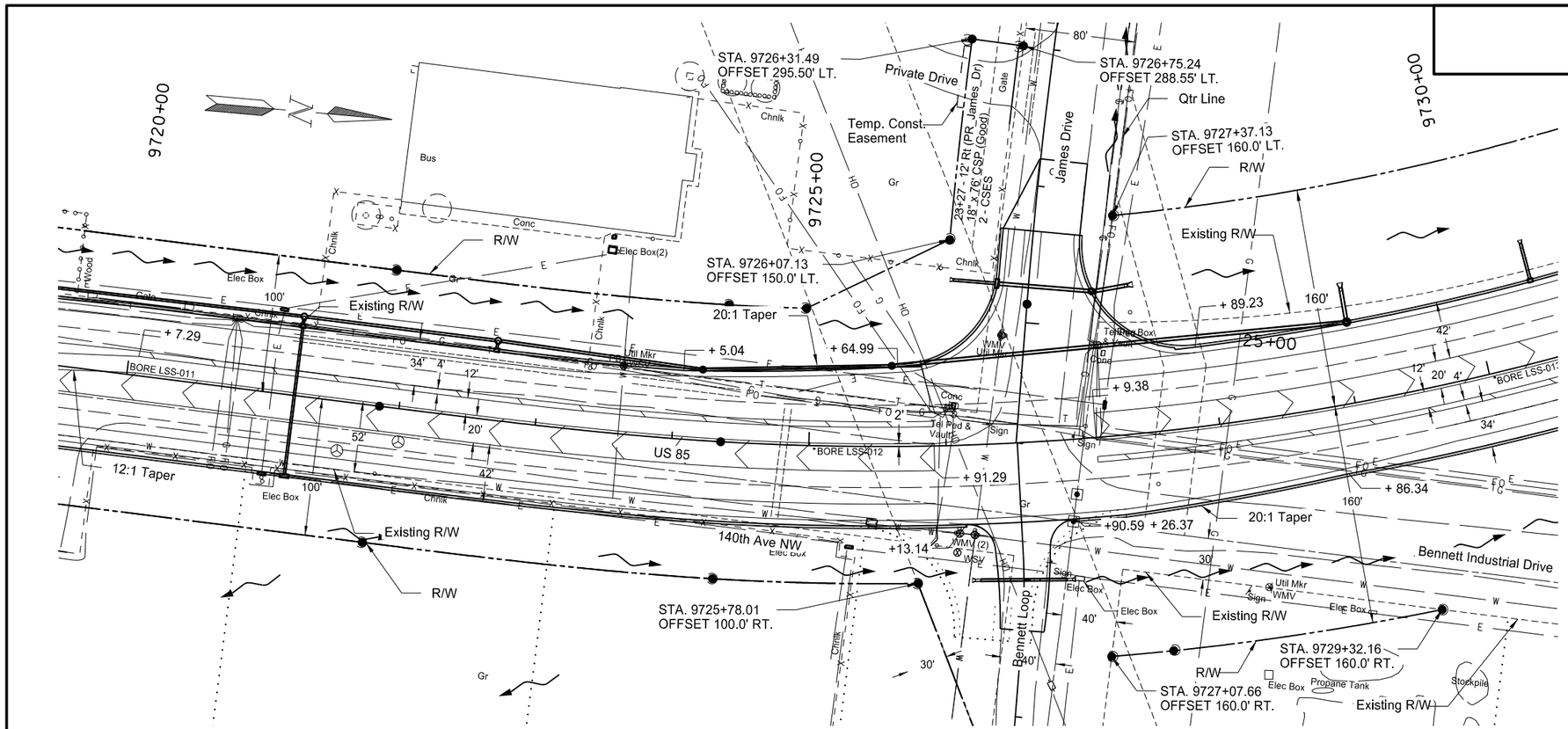
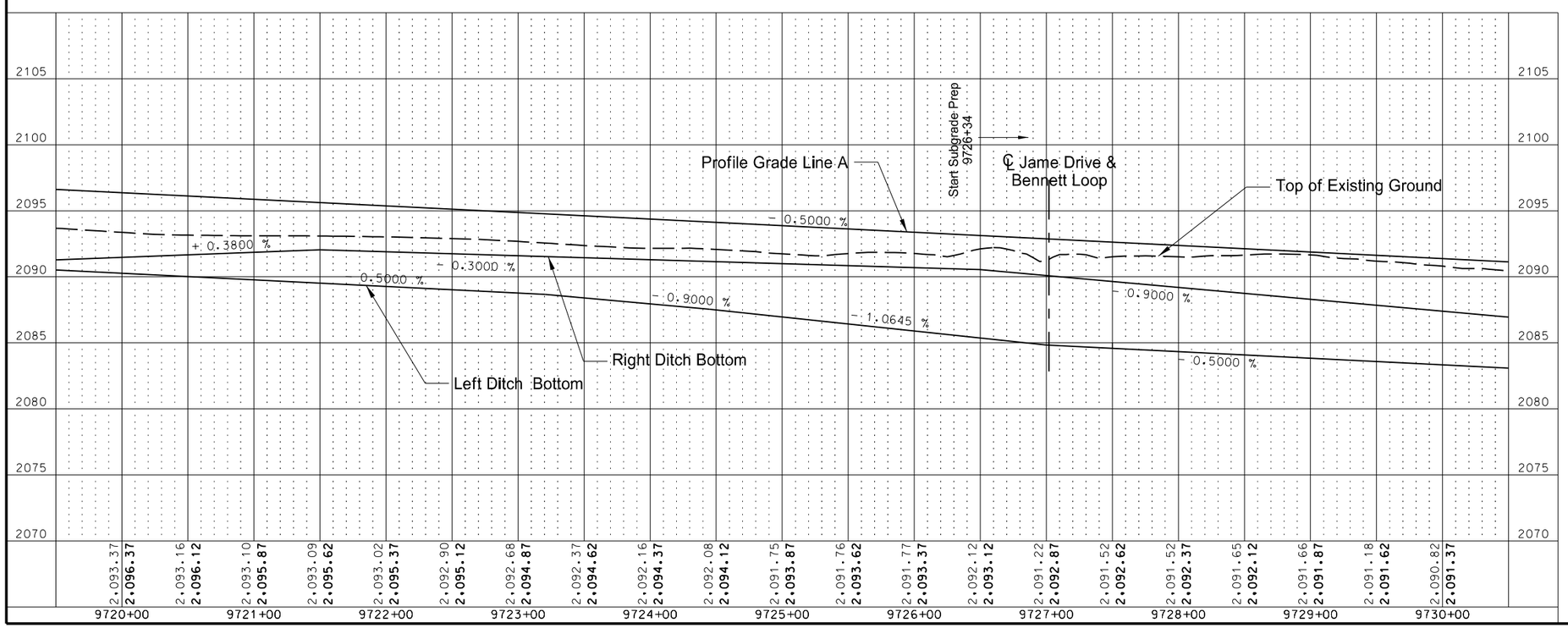
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

US 85
9711+50 to 9720+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 2 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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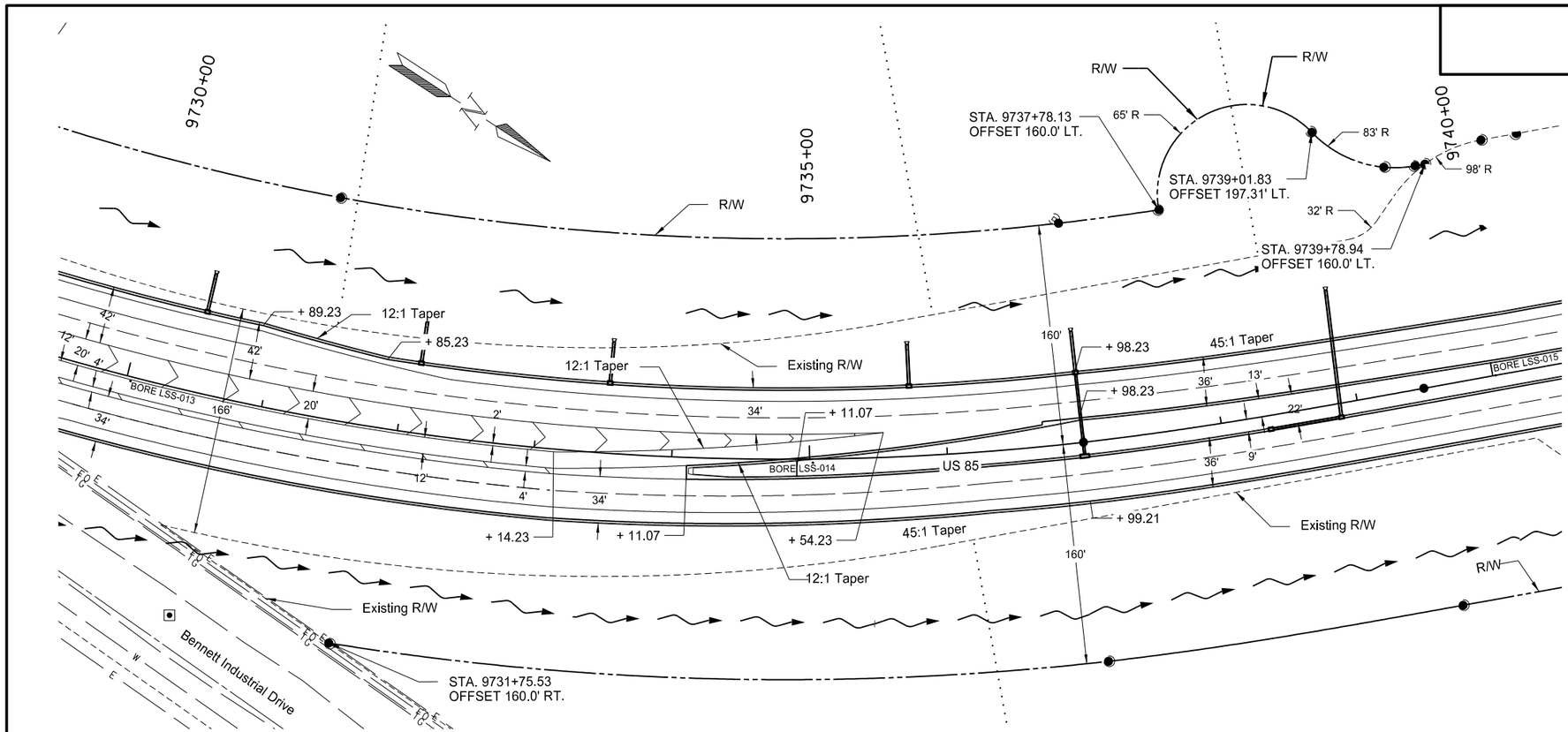
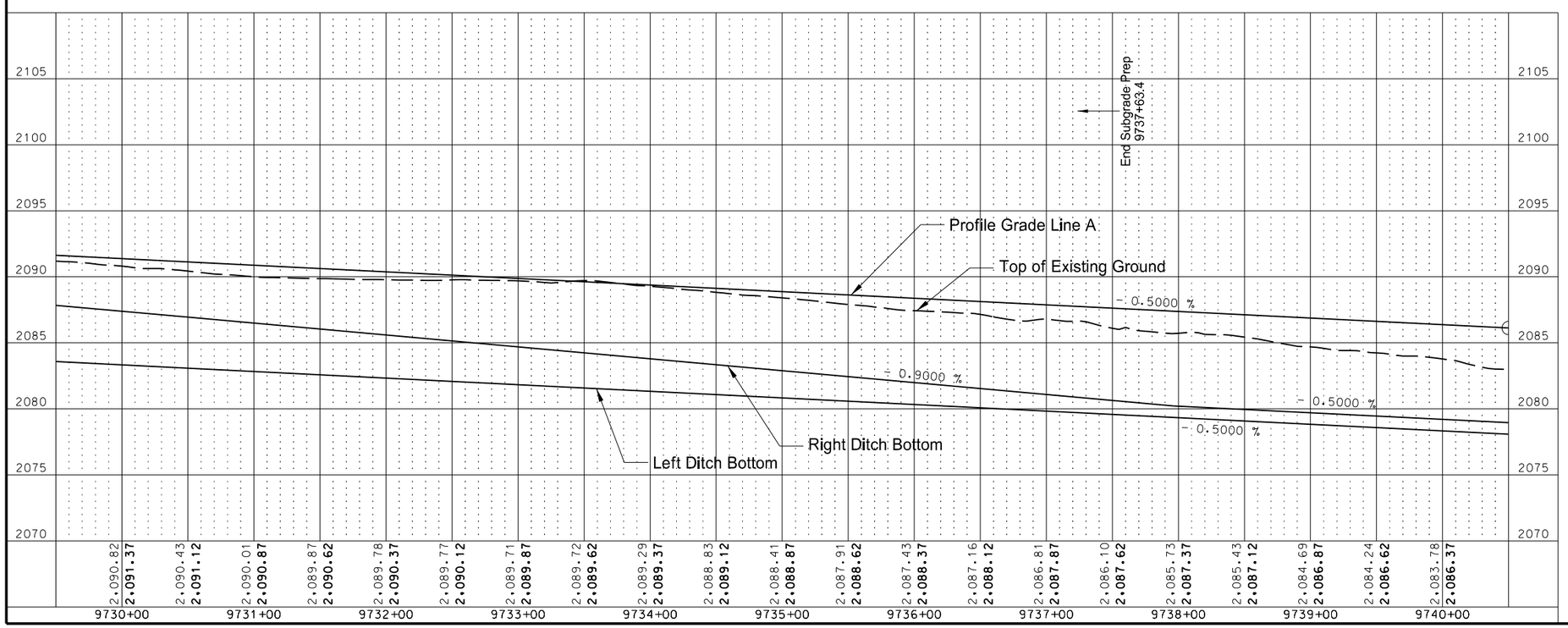
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9720+00 to 9730+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 3 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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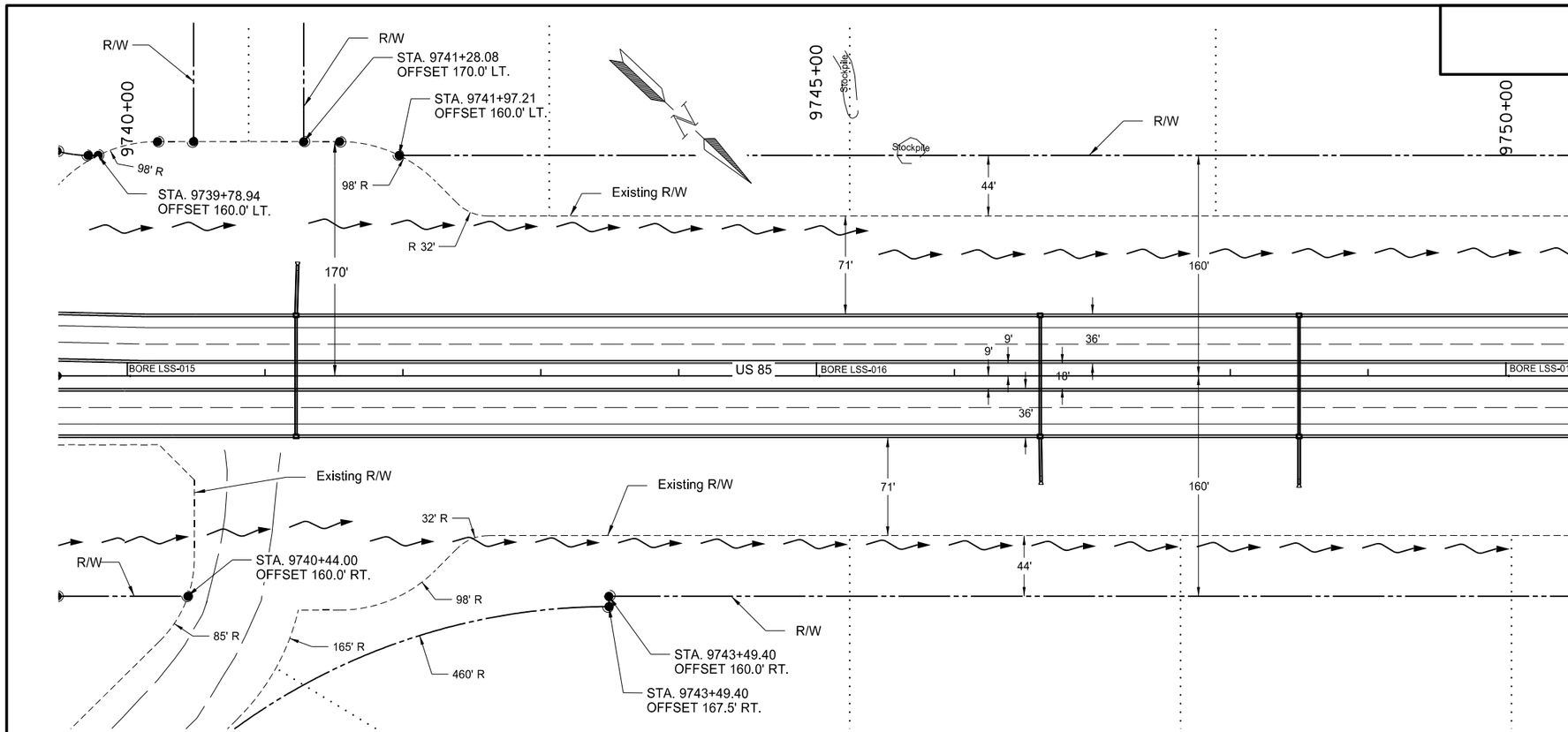
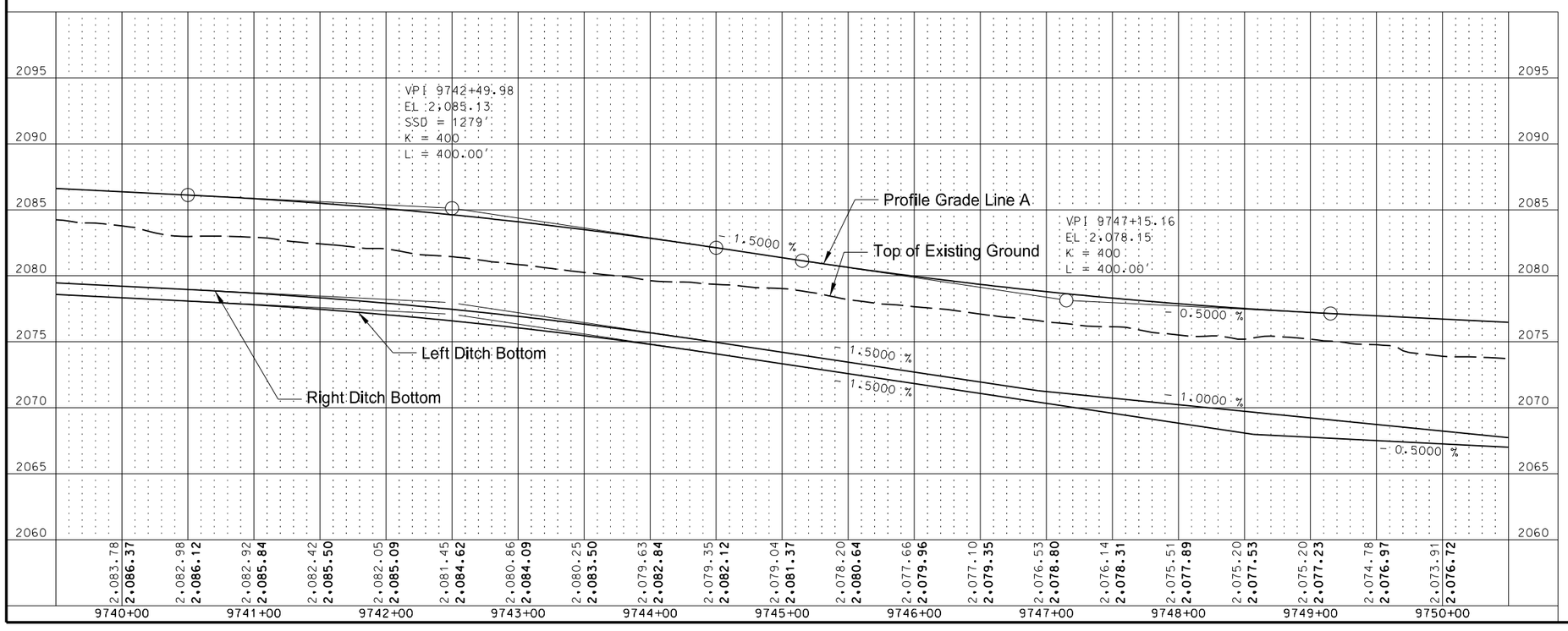
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9730+00 to 9740+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 4 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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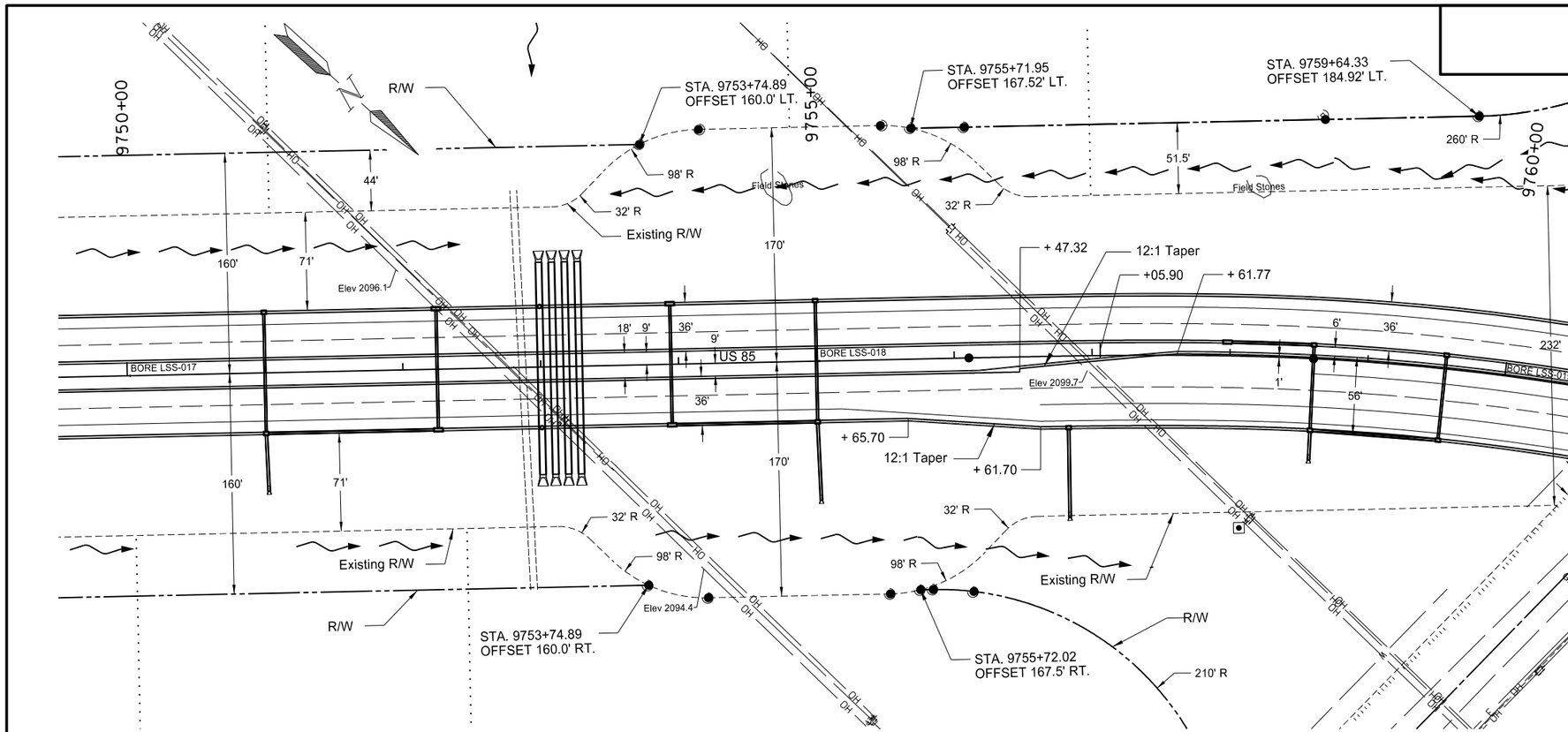
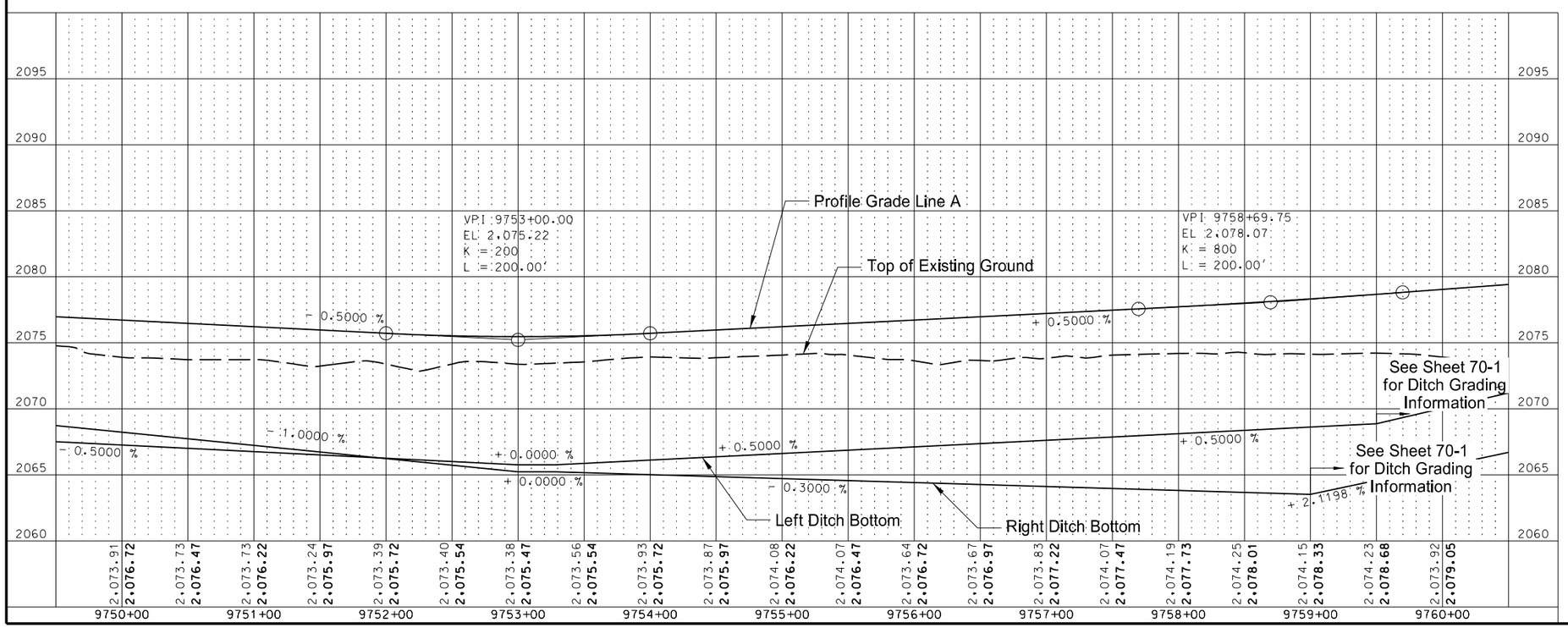
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9740+00 to 9750+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 5 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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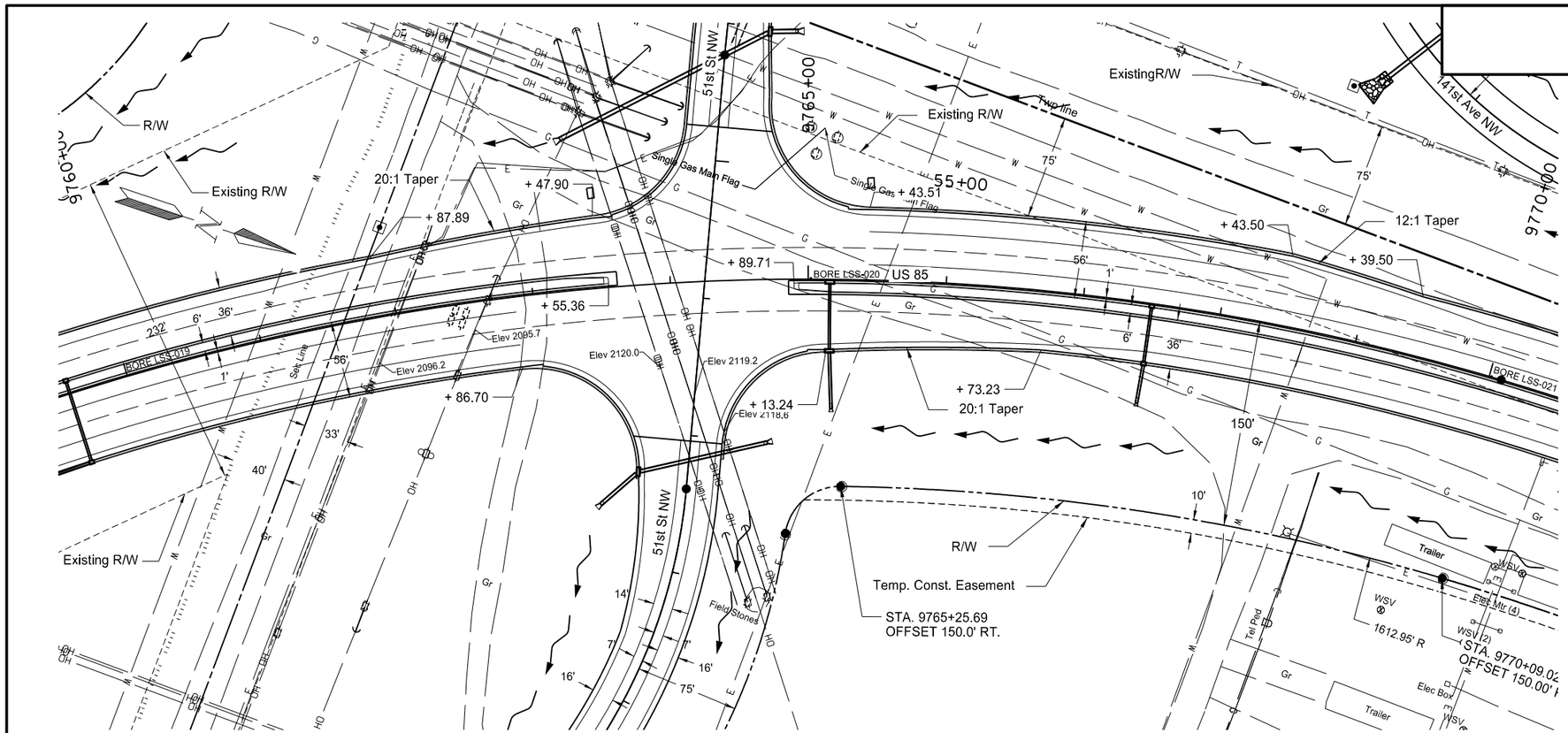
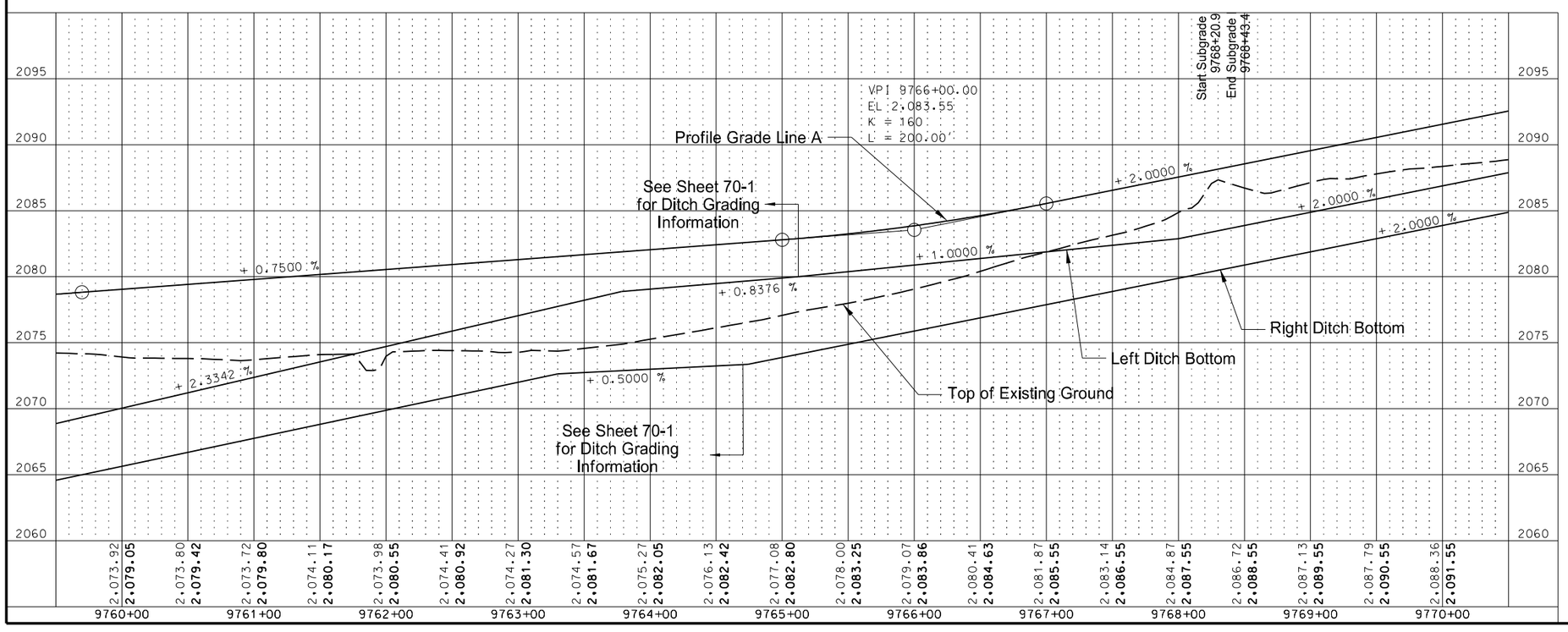
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9750+00 to 9760+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 6 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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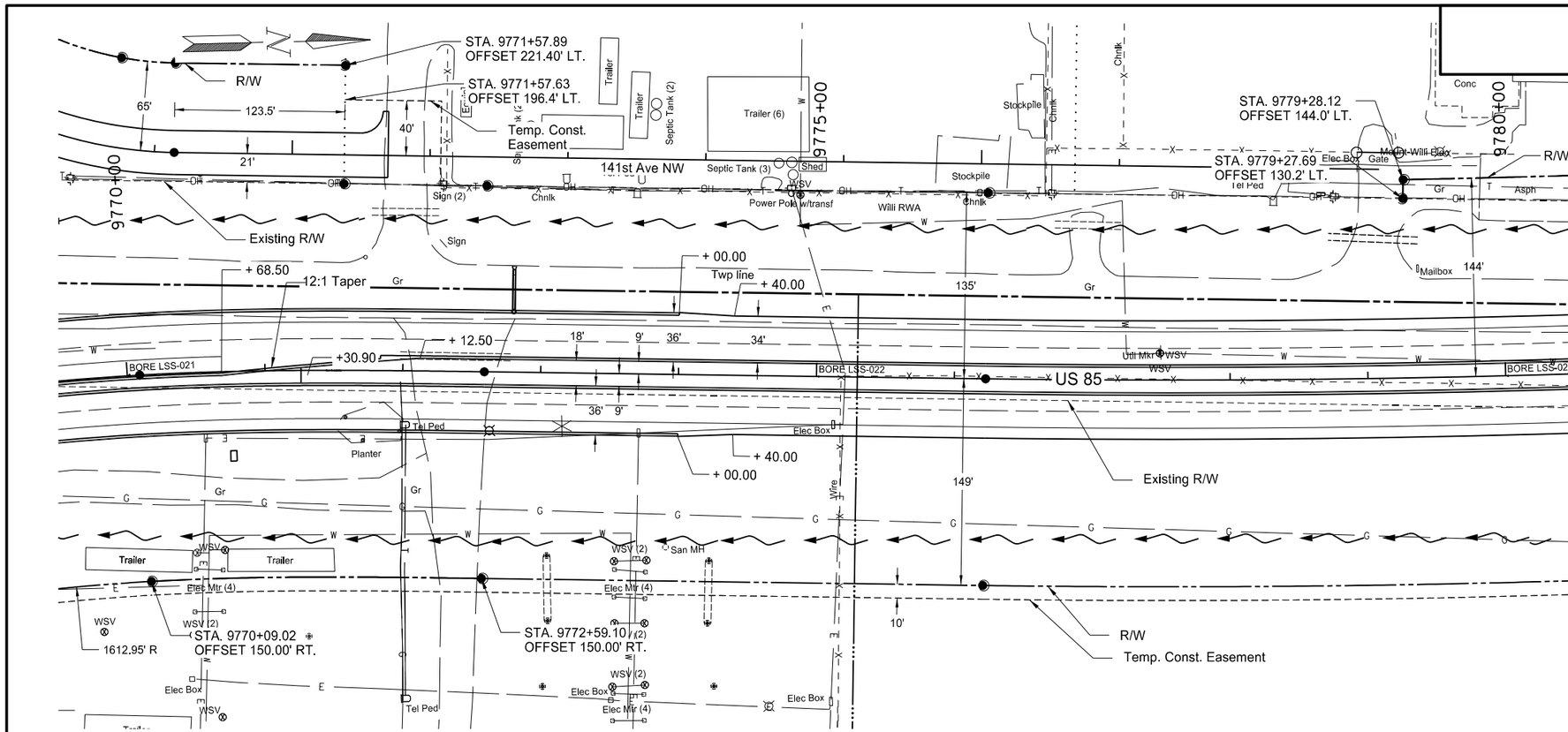
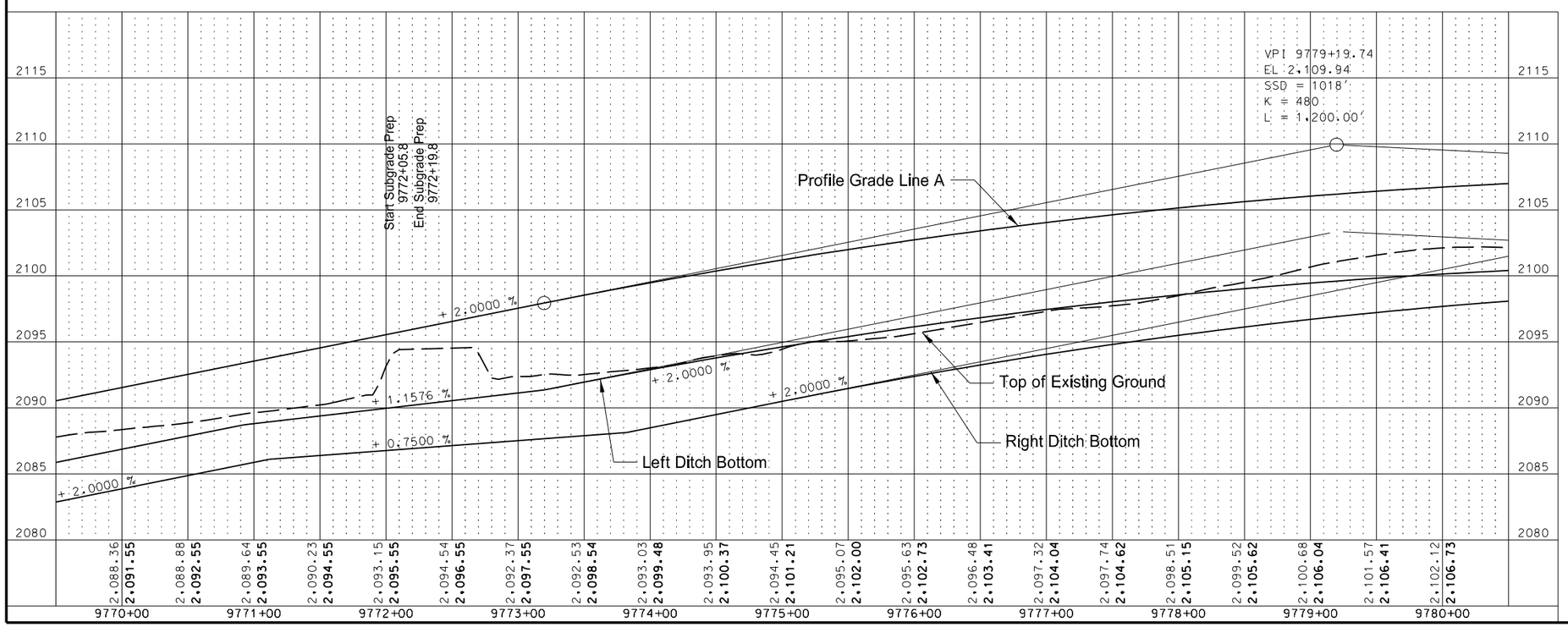
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9760+00 to 9770+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 7 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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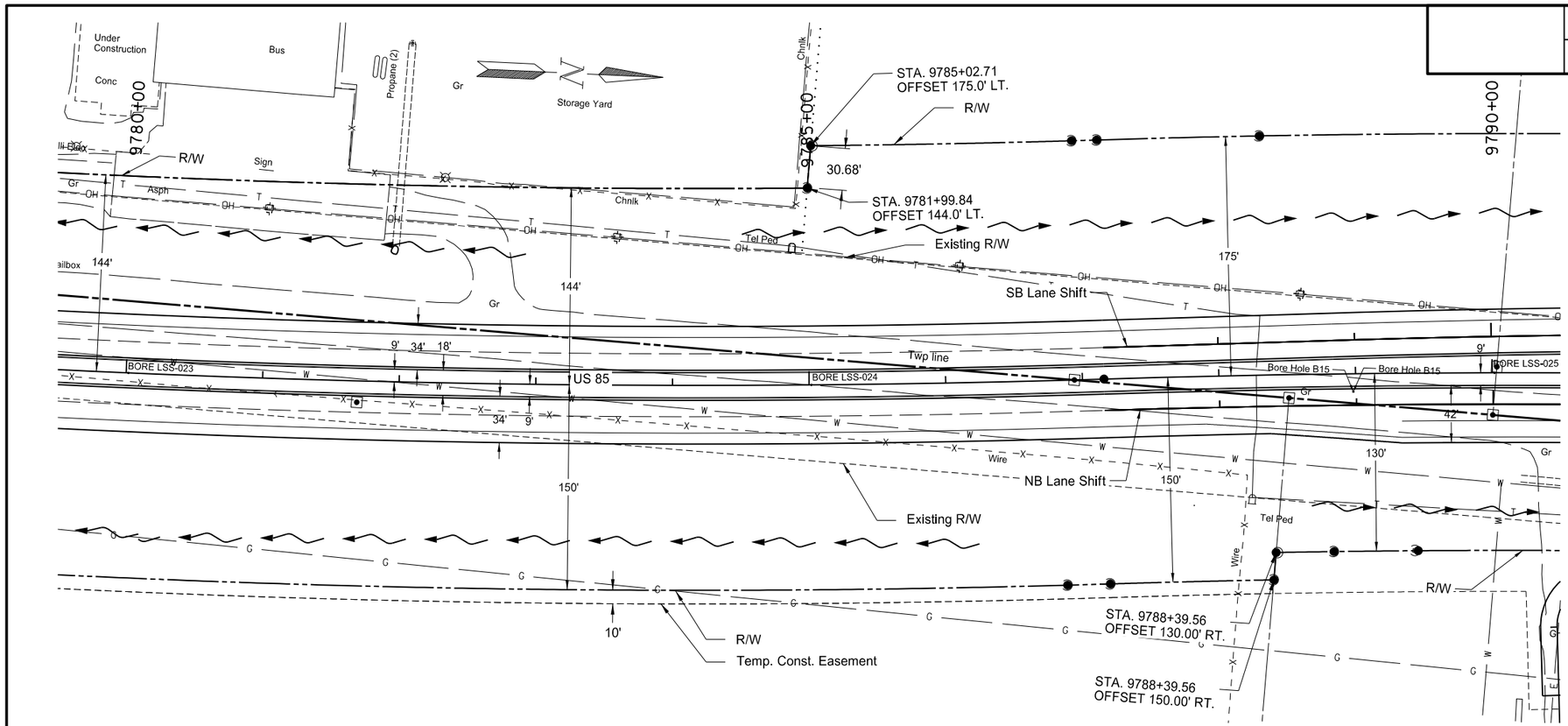
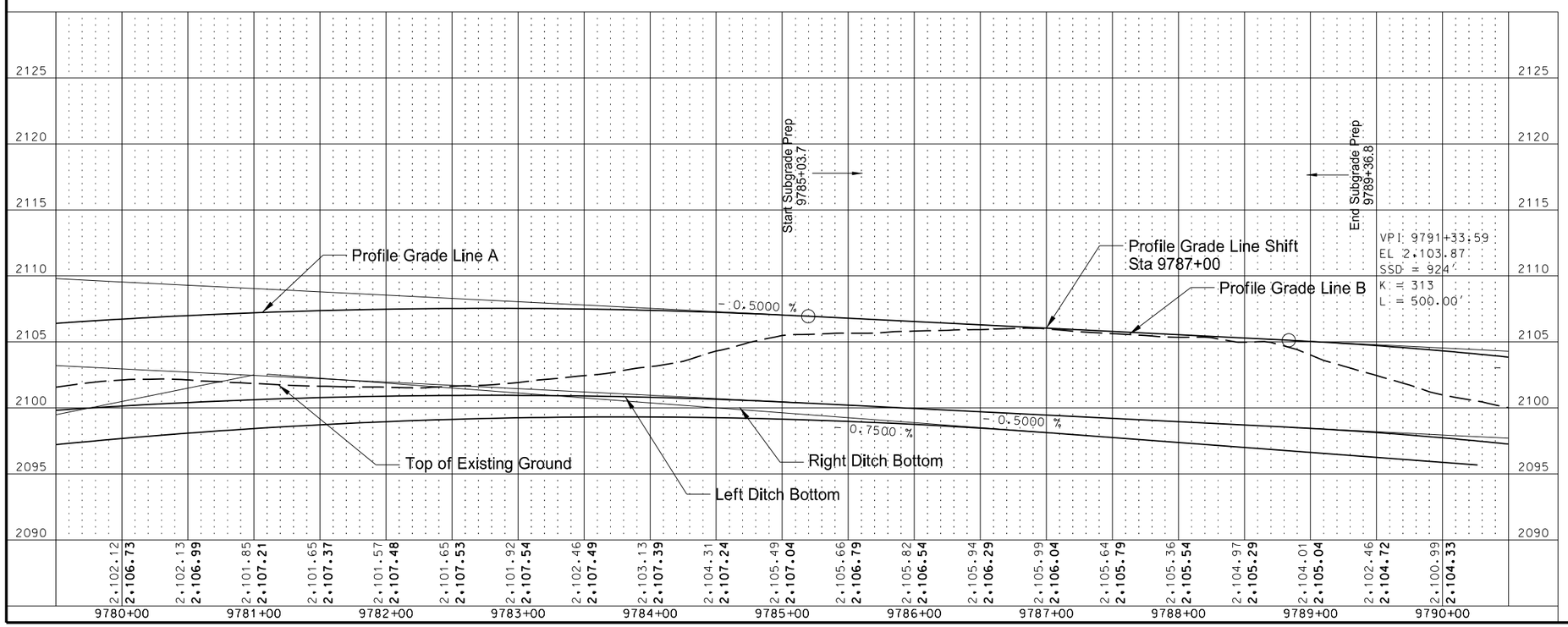
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9770+00 to 9780+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 8 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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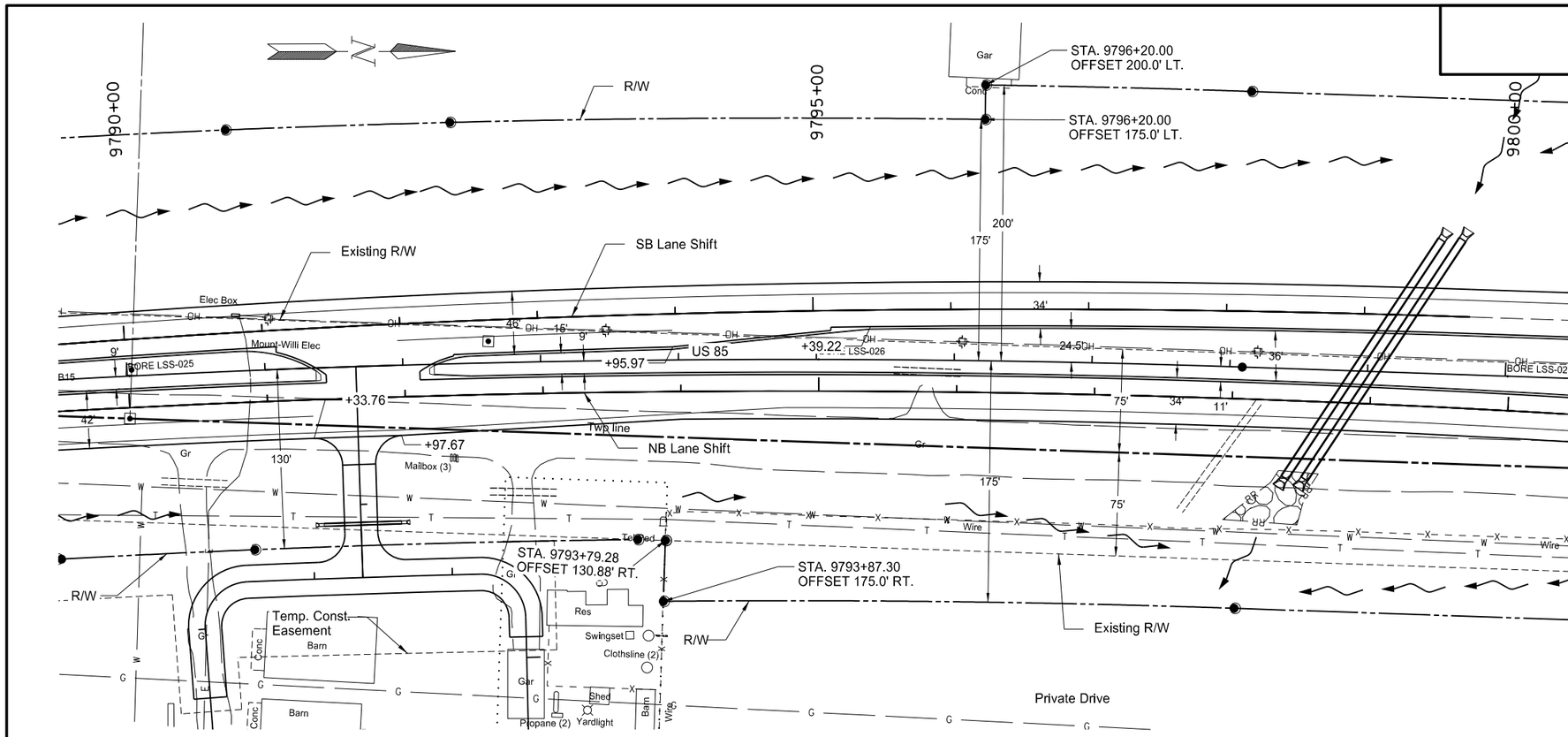
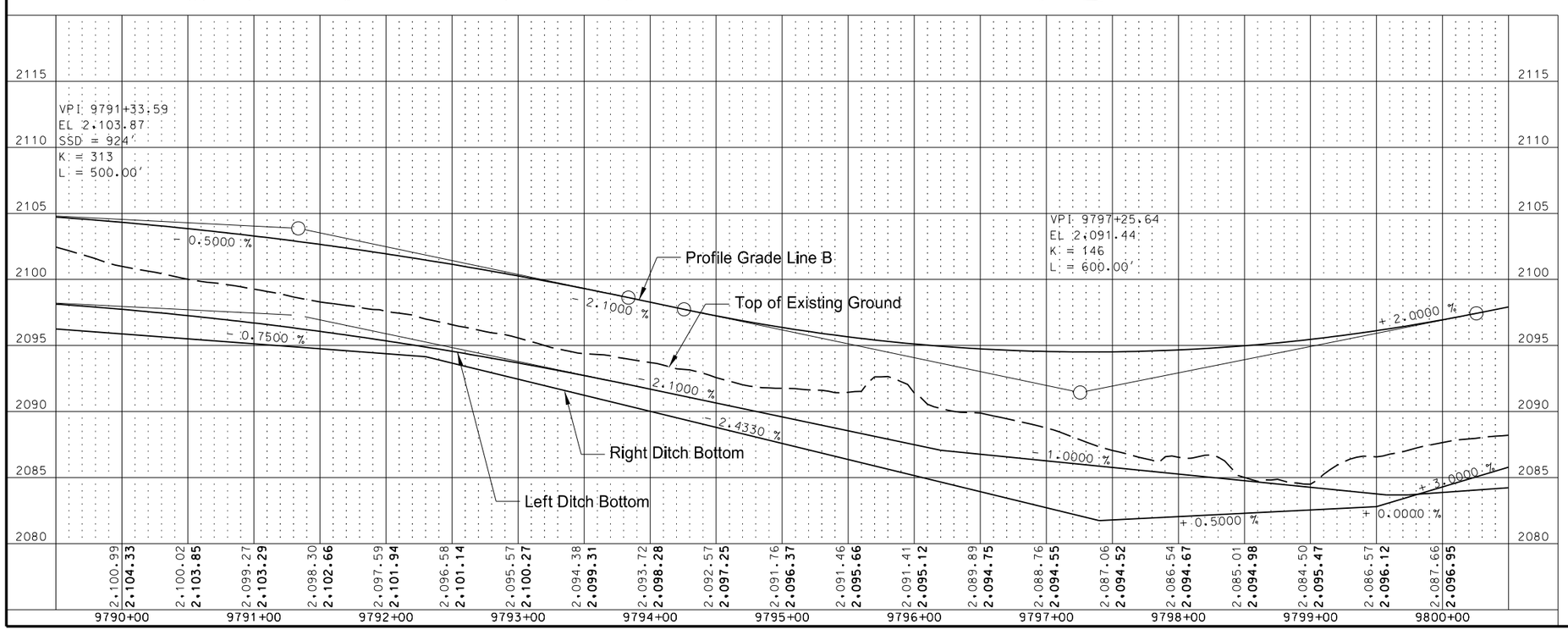
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9780+00 to 9790+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 9 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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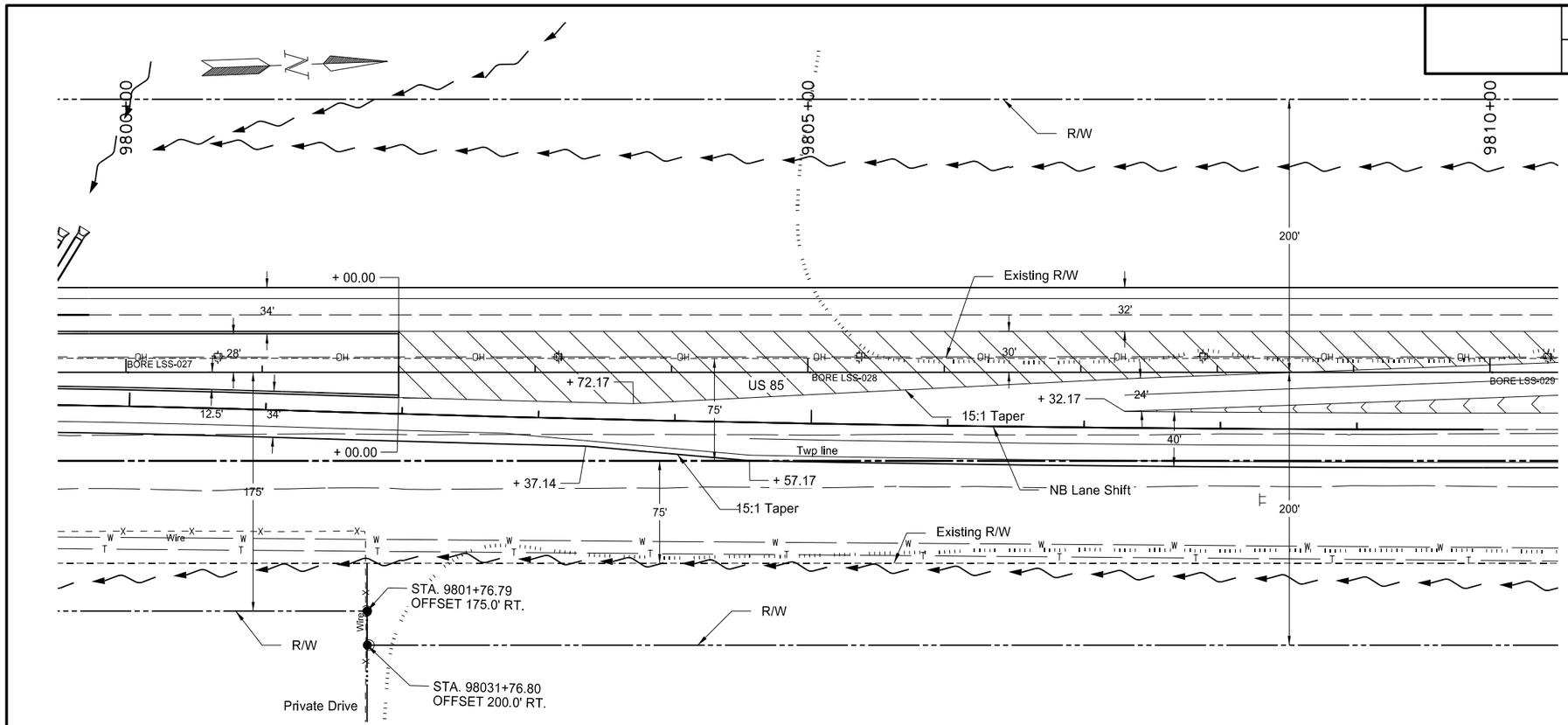
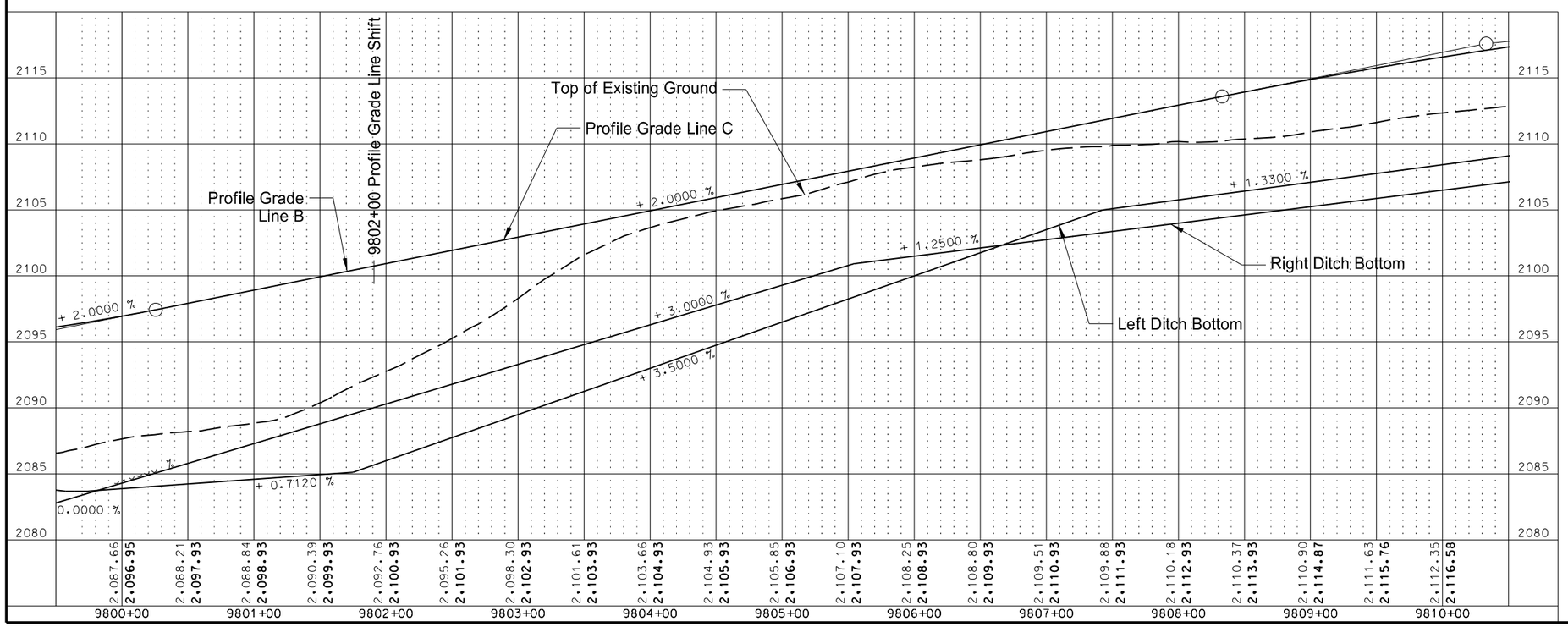
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9790+00 to 9800+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 10 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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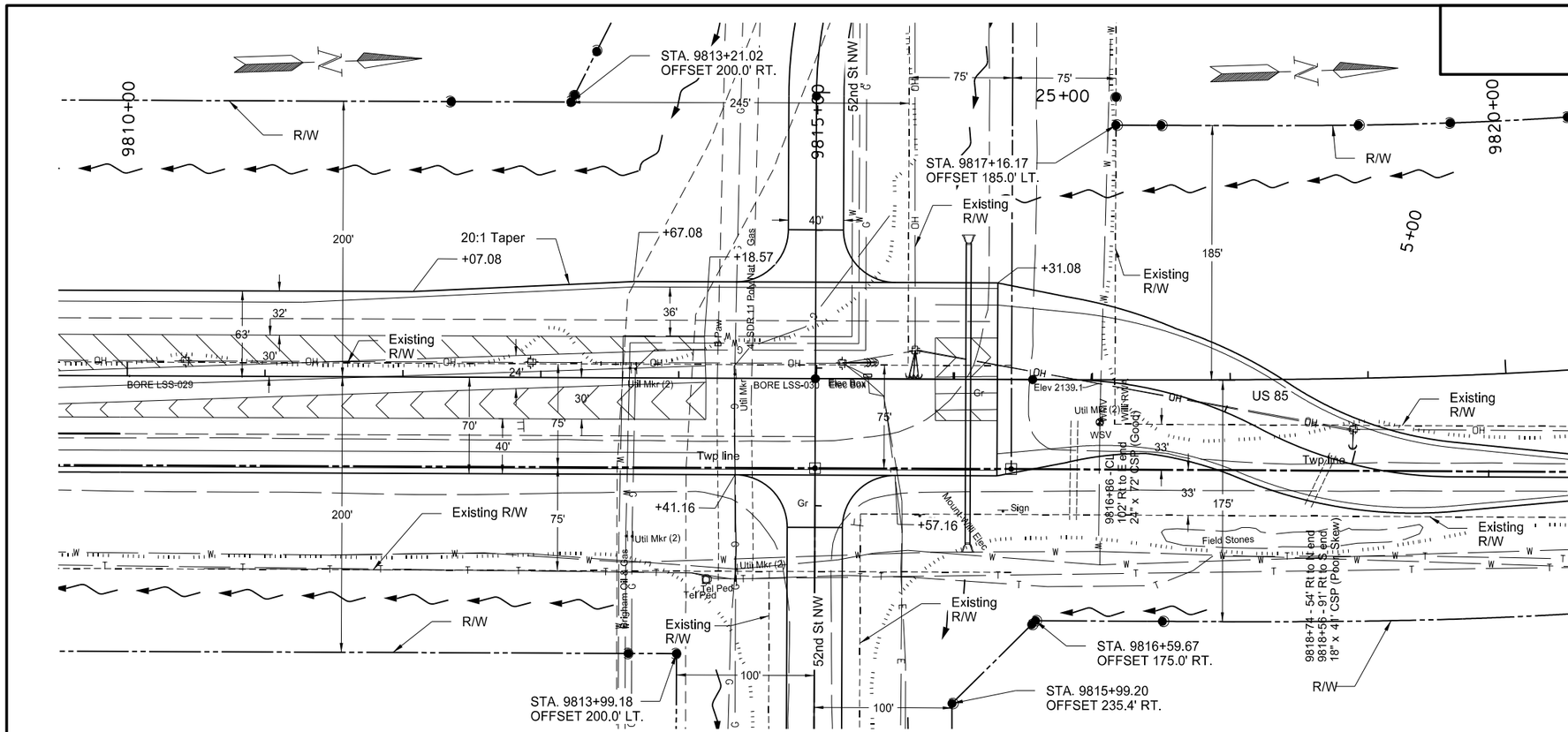
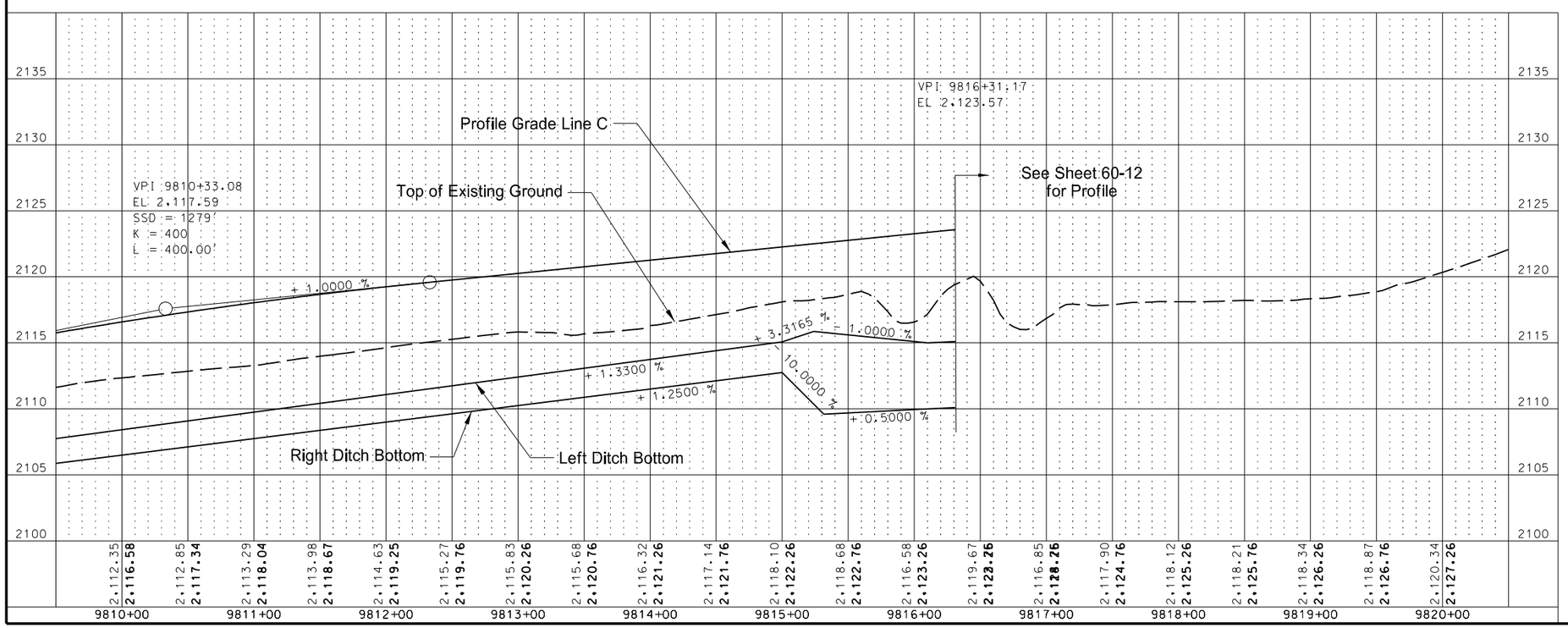
Williston NW Permanent Truck Reliever Route
Phase 1A

US 85
9800+00 to 9810+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 11 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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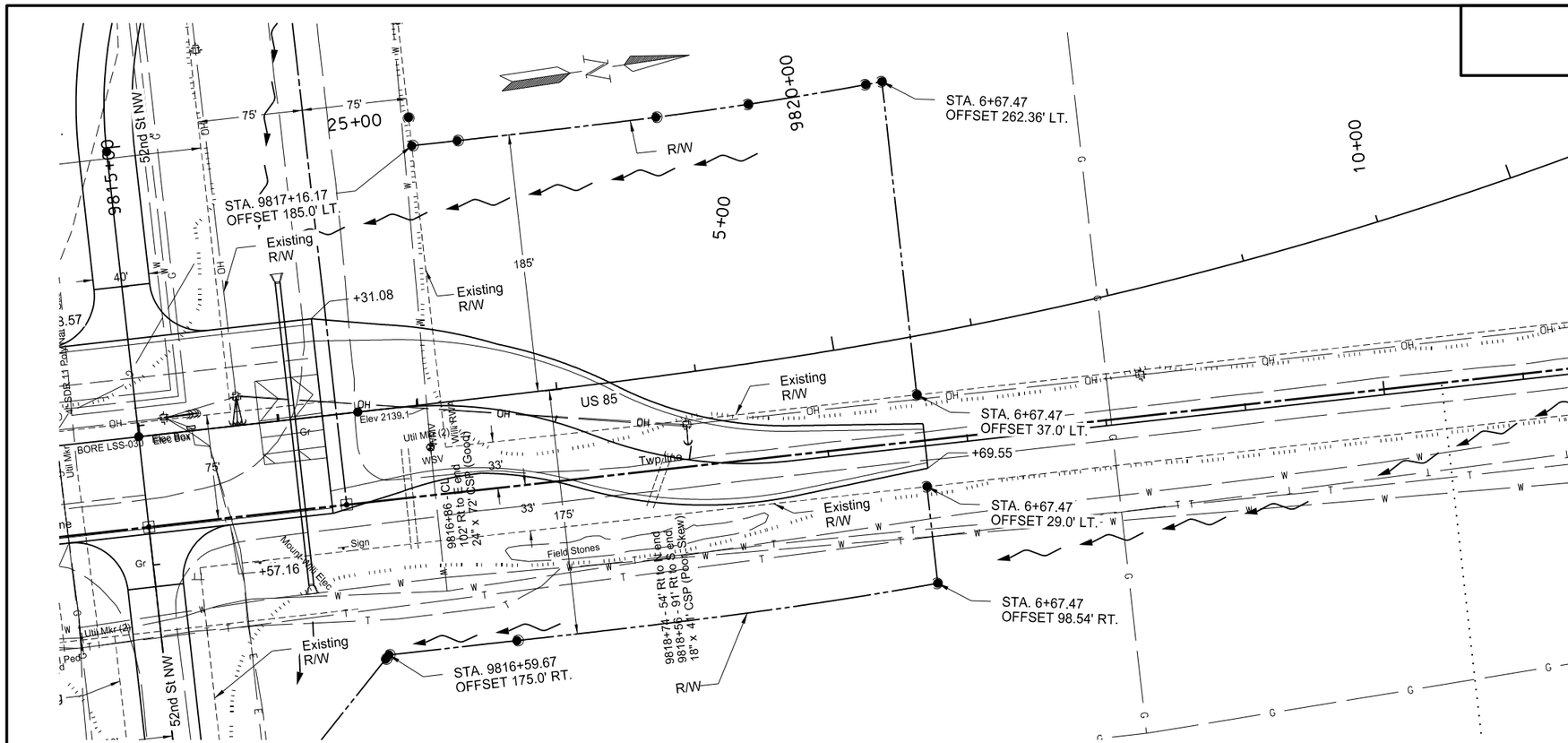
Williston NW Permanent Truck Reliever Route
Phase 1A

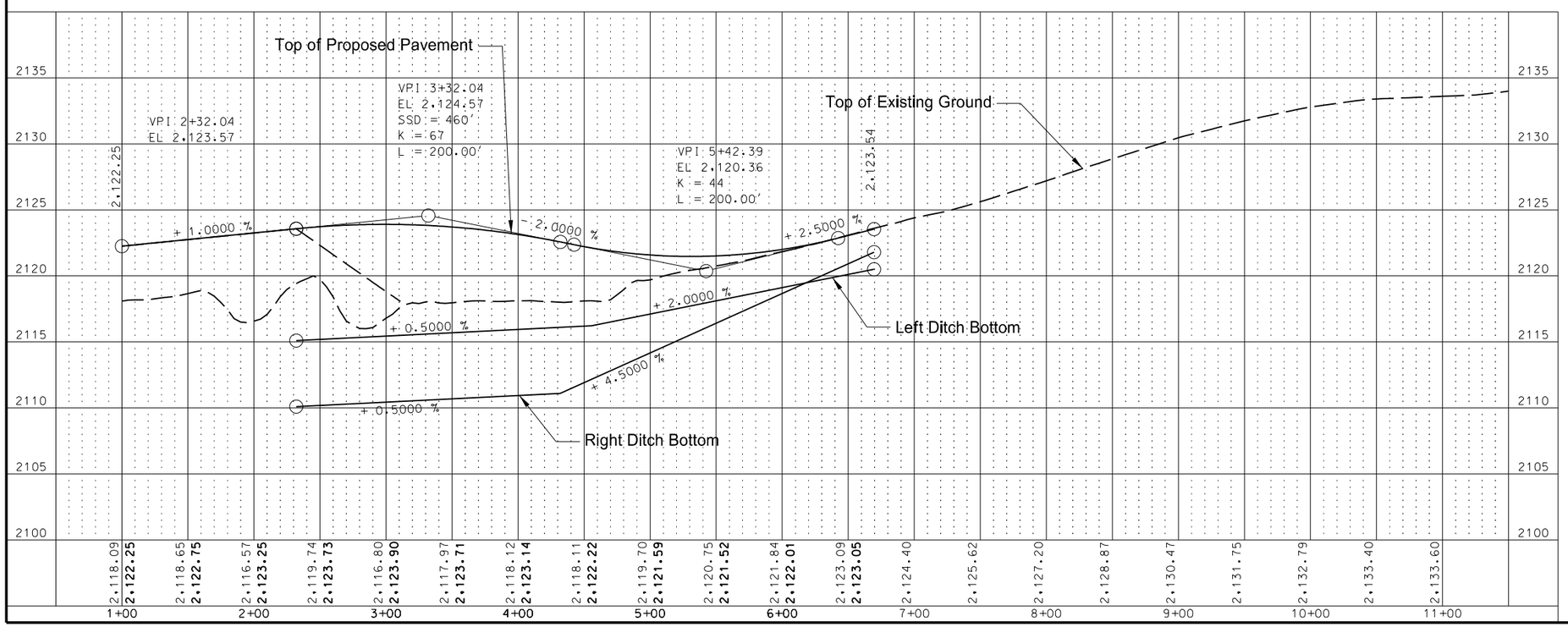
US 85
US 85 9810+00 to 9816+31.17

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 12 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 2+32.05 to 6+69.55 | 2560 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 2+32.05 to 6+69.55 | 797 | TON |

Note: Stations & Offsets from US 85 Tie-Down Chain: (PR85_TIE)




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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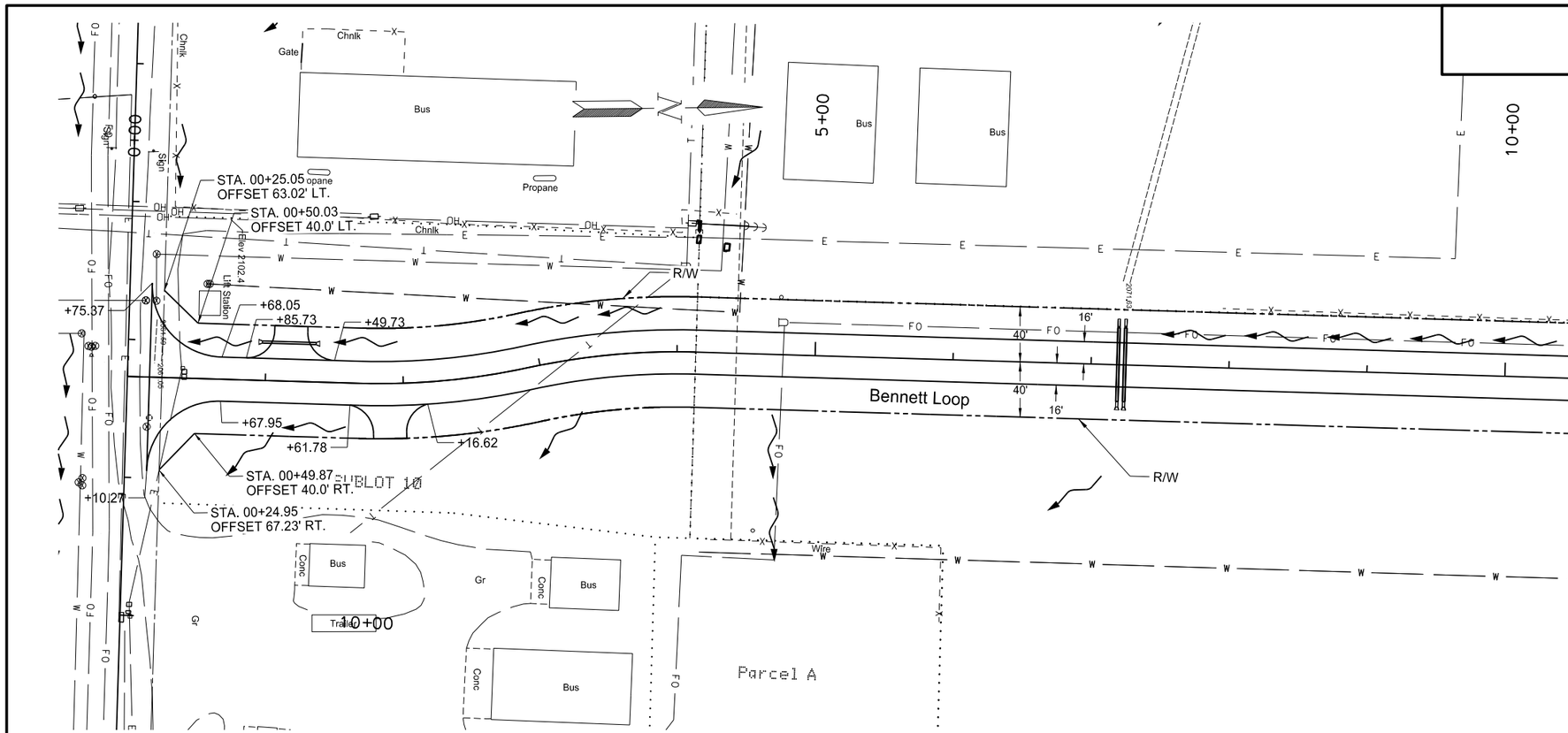
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

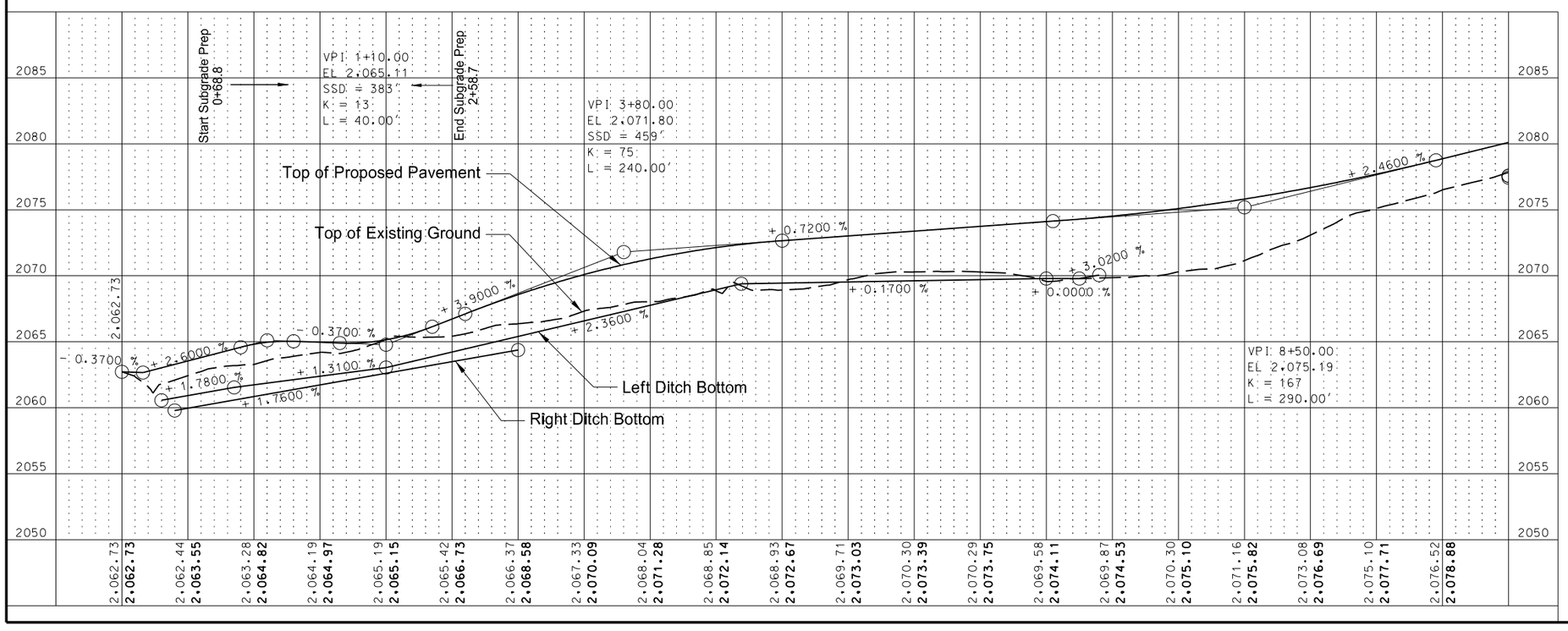
US 85 Gravel Tie-Down N. of 52nd St. NW
2+32.05 to 6+69.55

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 13 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 0+16 to 10+00 | 2709 | TON |
| | | 1+18 LT | 66 | TON |
| | | 1+90 RT | 64 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 0+16 to 10+00 | 786 | TON |

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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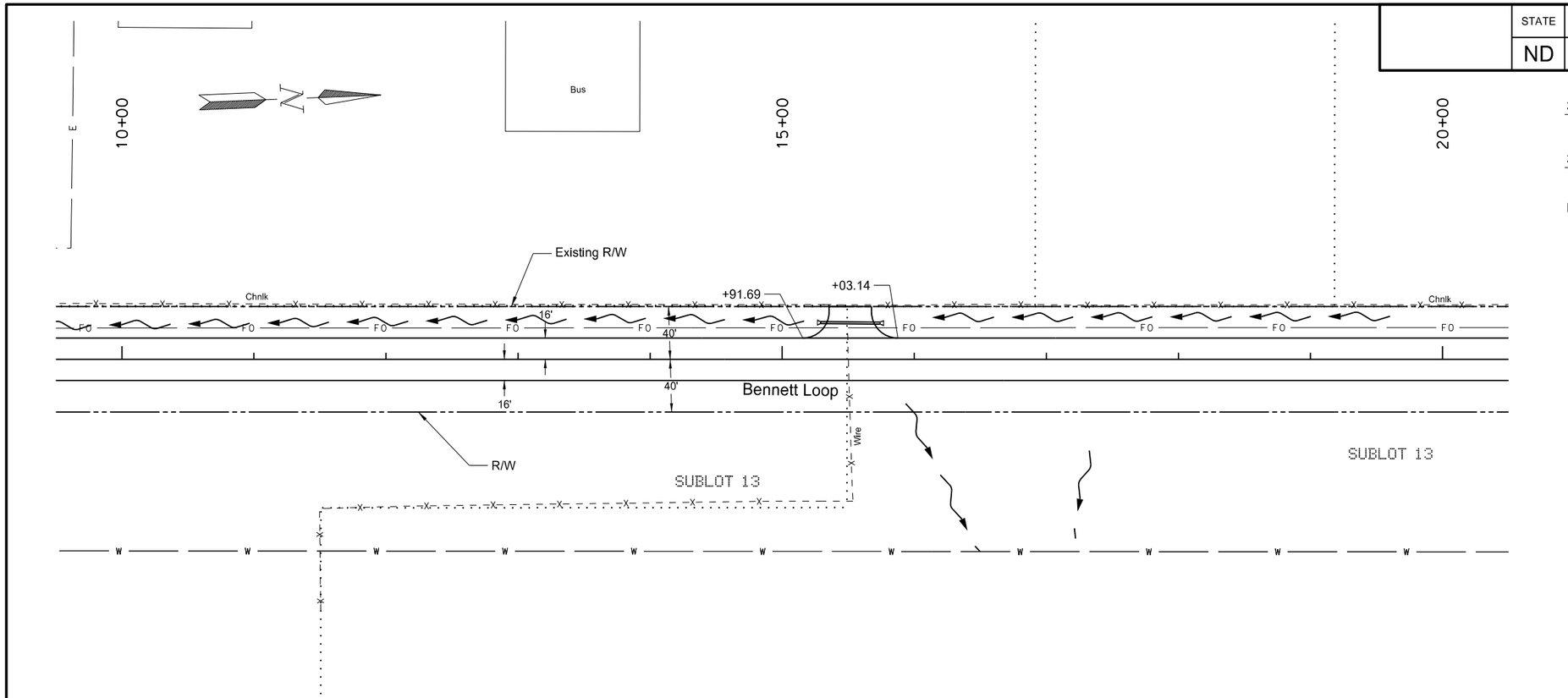
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

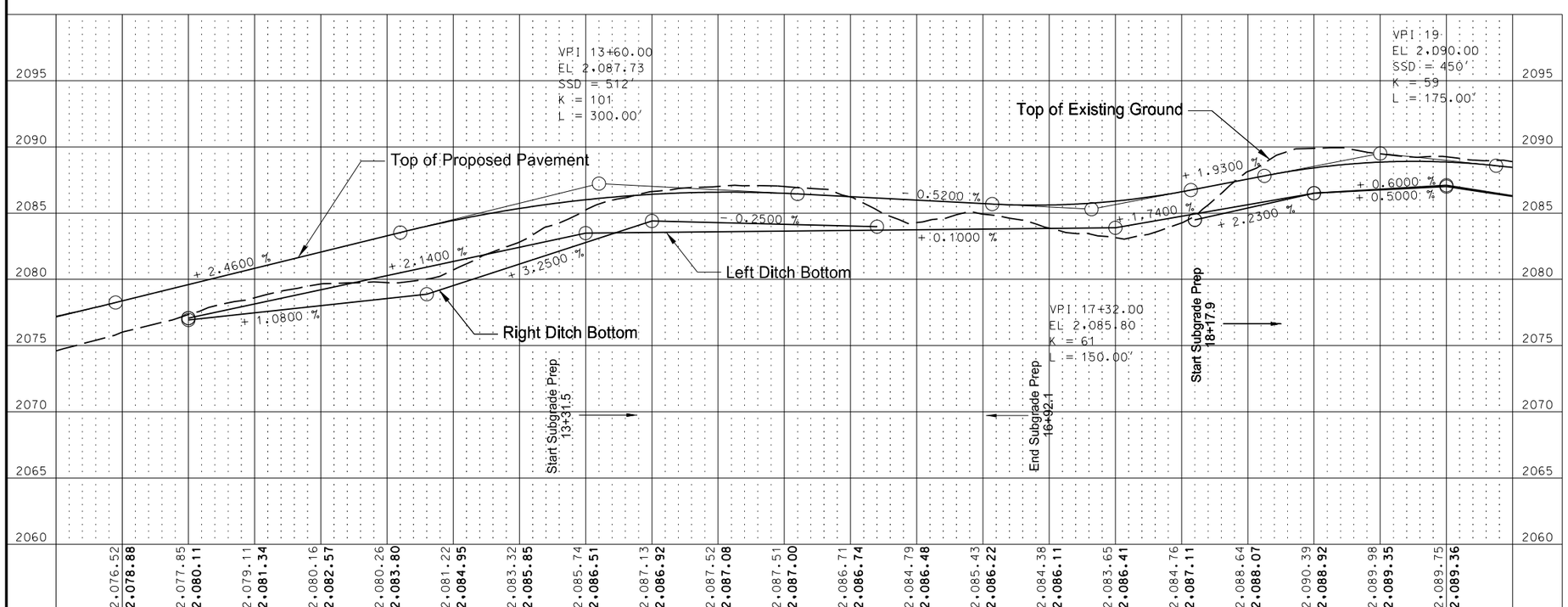
Bennett Loop
0+16 to 10+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 14 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 10+00 to 20+00 | 2669 | TON |
| | | 15+52 LT | 80 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 10+00 to 20+00 | 771 | TON |

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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Plan & Profile

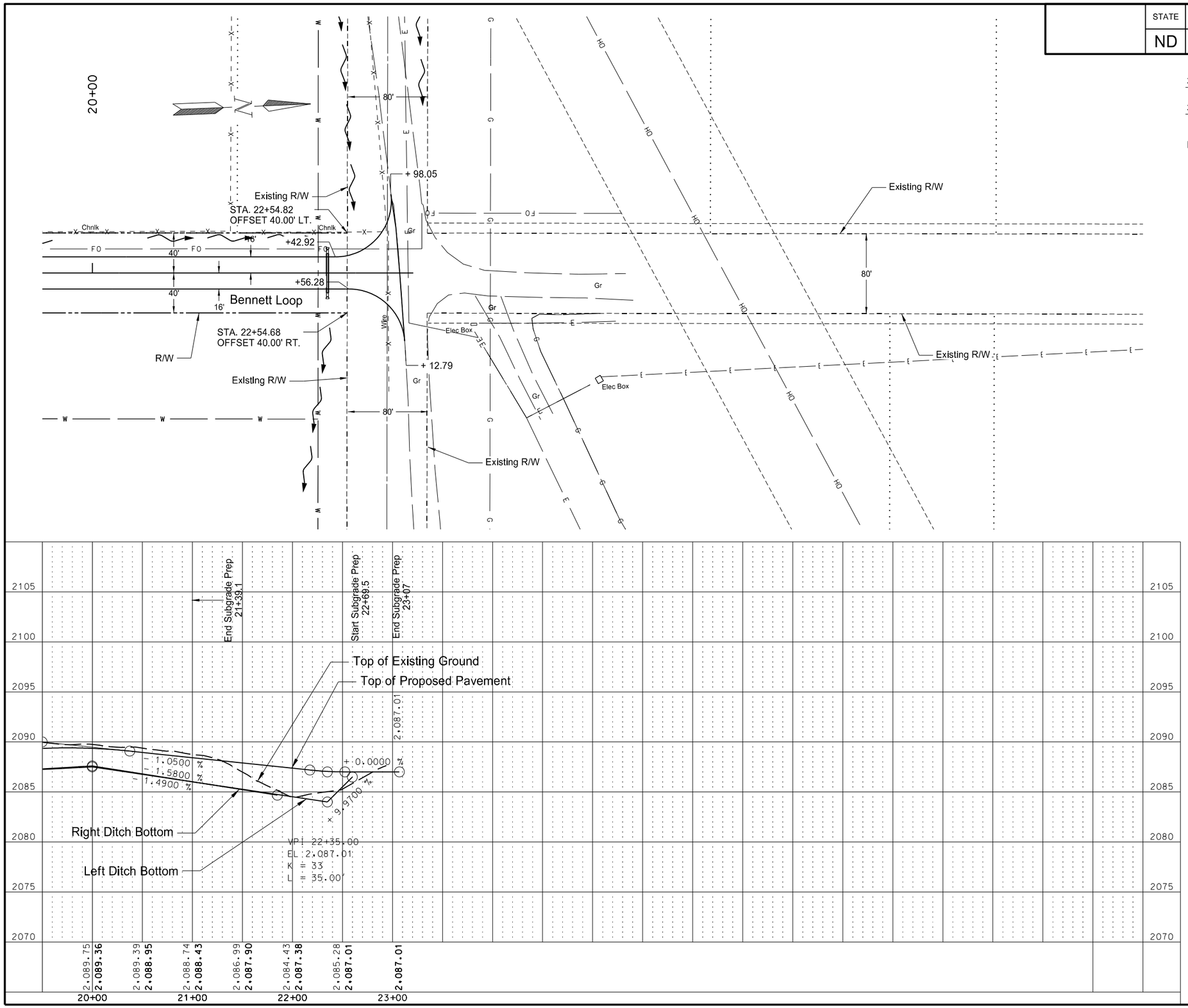
Williston NW Permanent Truck Reliever Route
Phase 1A

Bennett Loop
10+00 to 20+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 15 |

| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 20+00 to 23+07.20 | 980 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 20+00 to 23+07.20 | 275 | TON |

Note: Stations & Offsets from Bennett Loop Chain: PR_FR_S_BN_LP




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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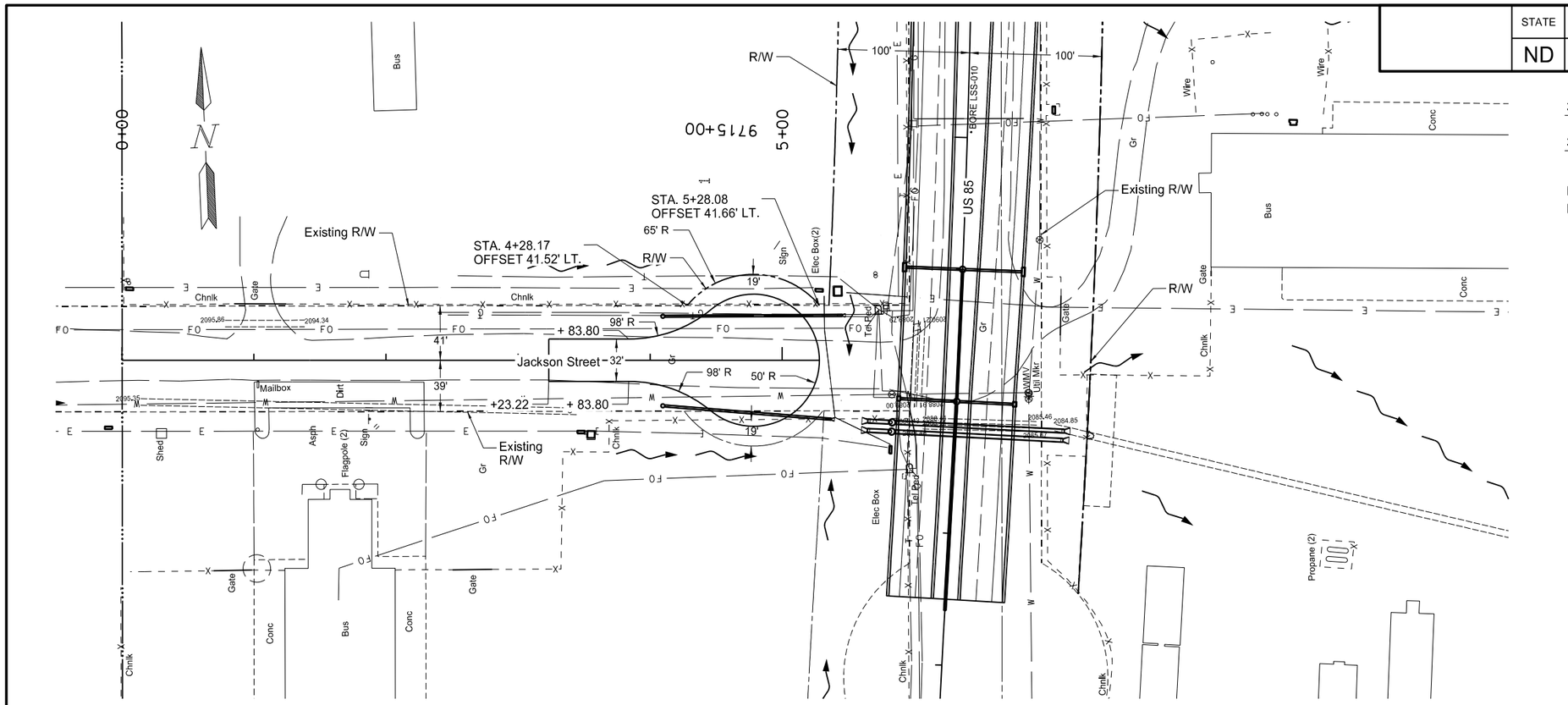
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

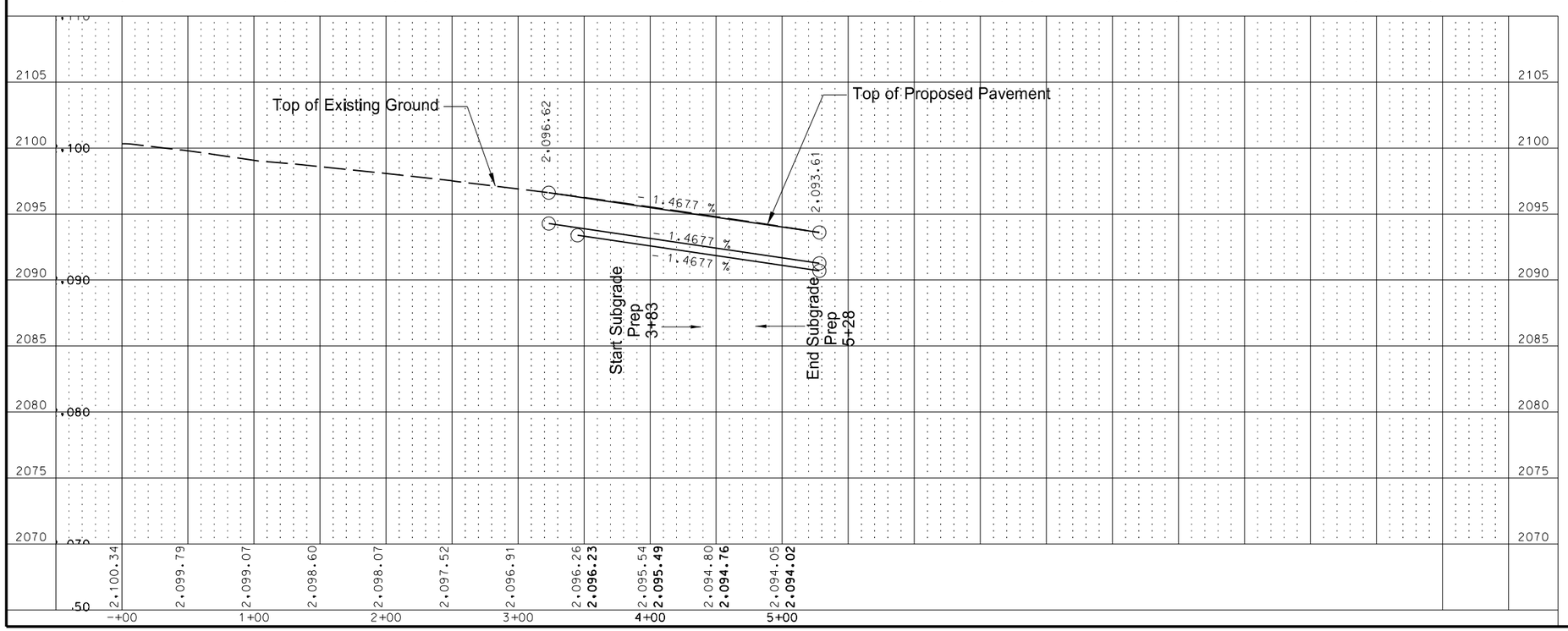
Bennett Loop
20+00 to 23+07.20

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 16 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 3+23.22 to 5+28.18 | 933 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 3+23.22 to 5+28.18 | 280 | TON |

Note: Stations & Offsets from Jackson Street Chain:
PR_JACKSON_ST




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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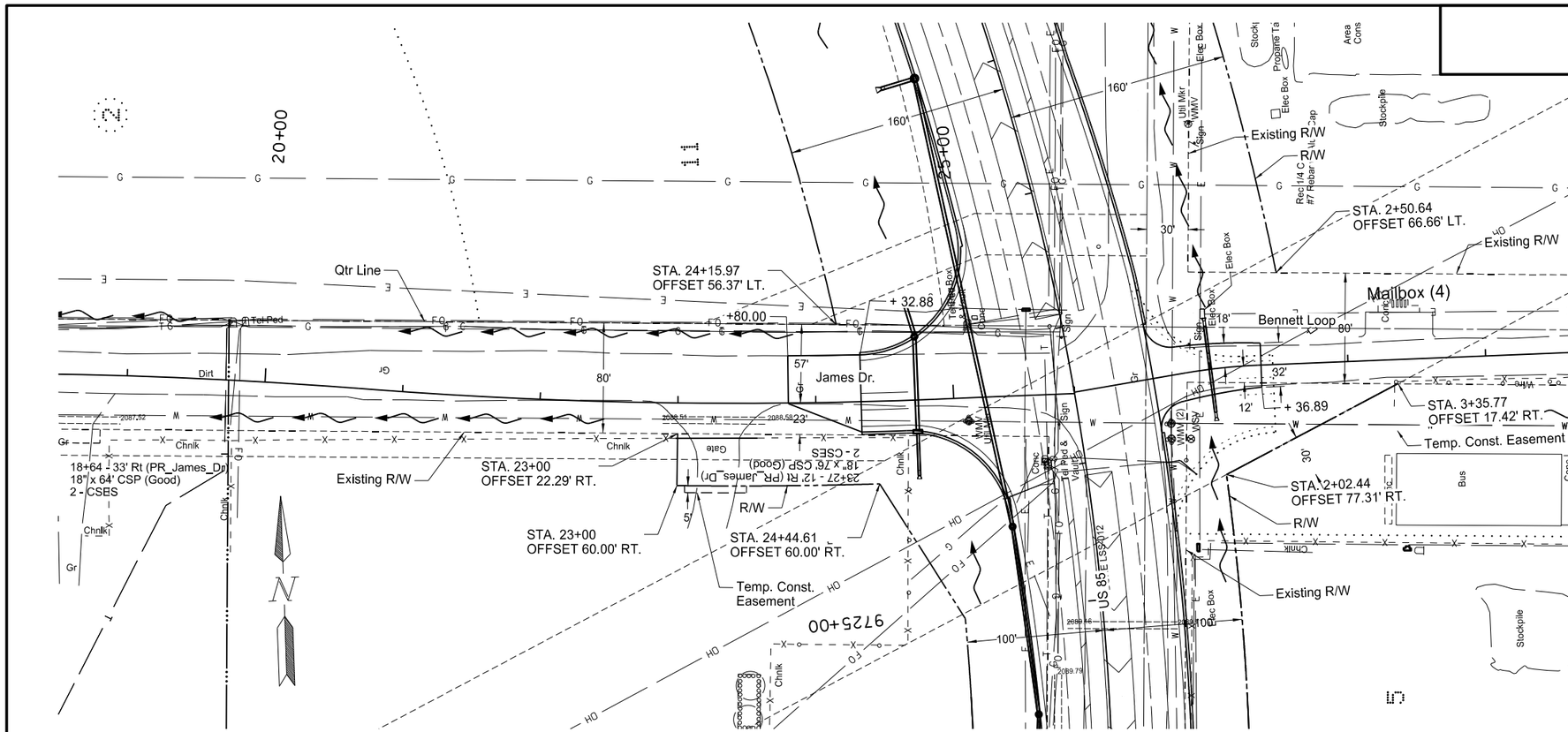
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

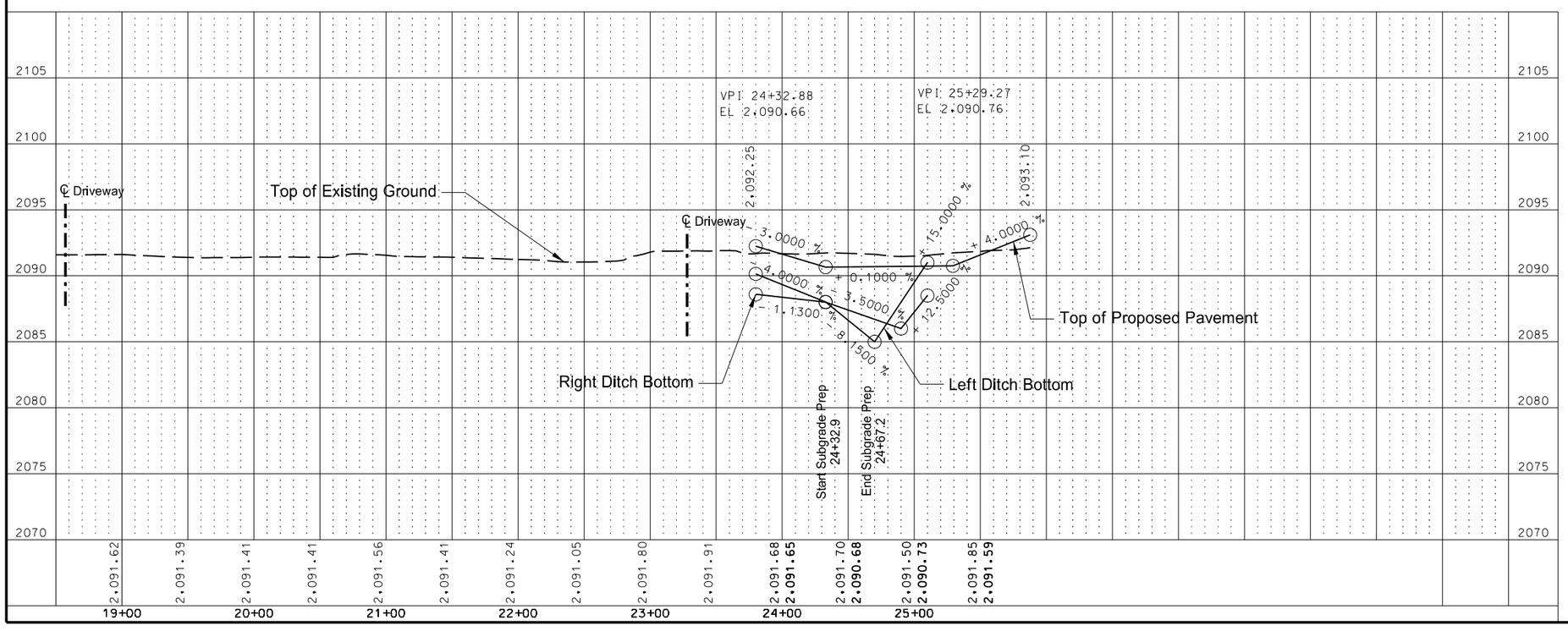
Jackson Street
3+23.22 to 5+28.18

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 17 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 23+80 to 24+32.88 | 200 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 23+80 to 24+32.88 | 58 | TON |

Note: Stations & Offsets from James Drive Chain: PR_JAMES_DR




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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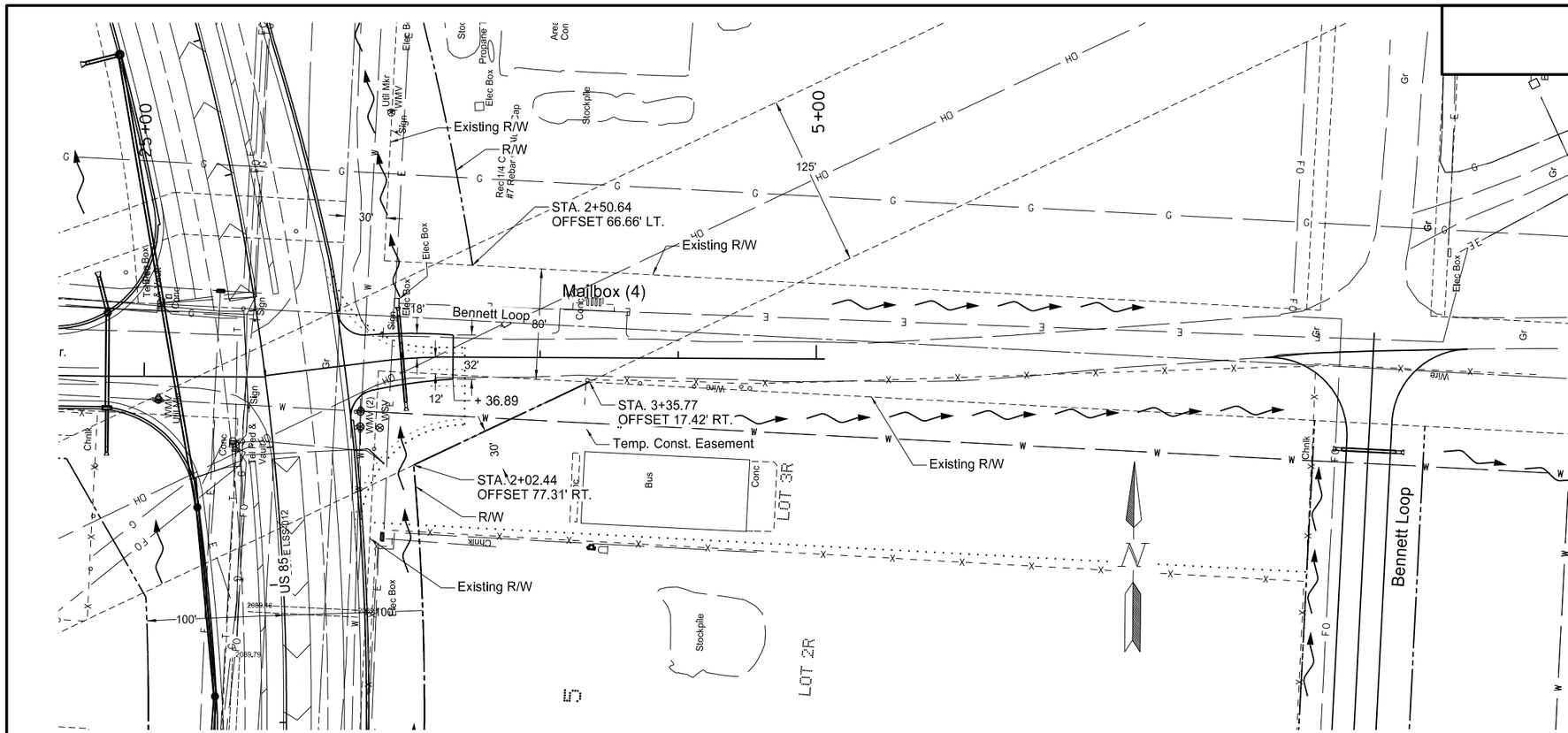
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

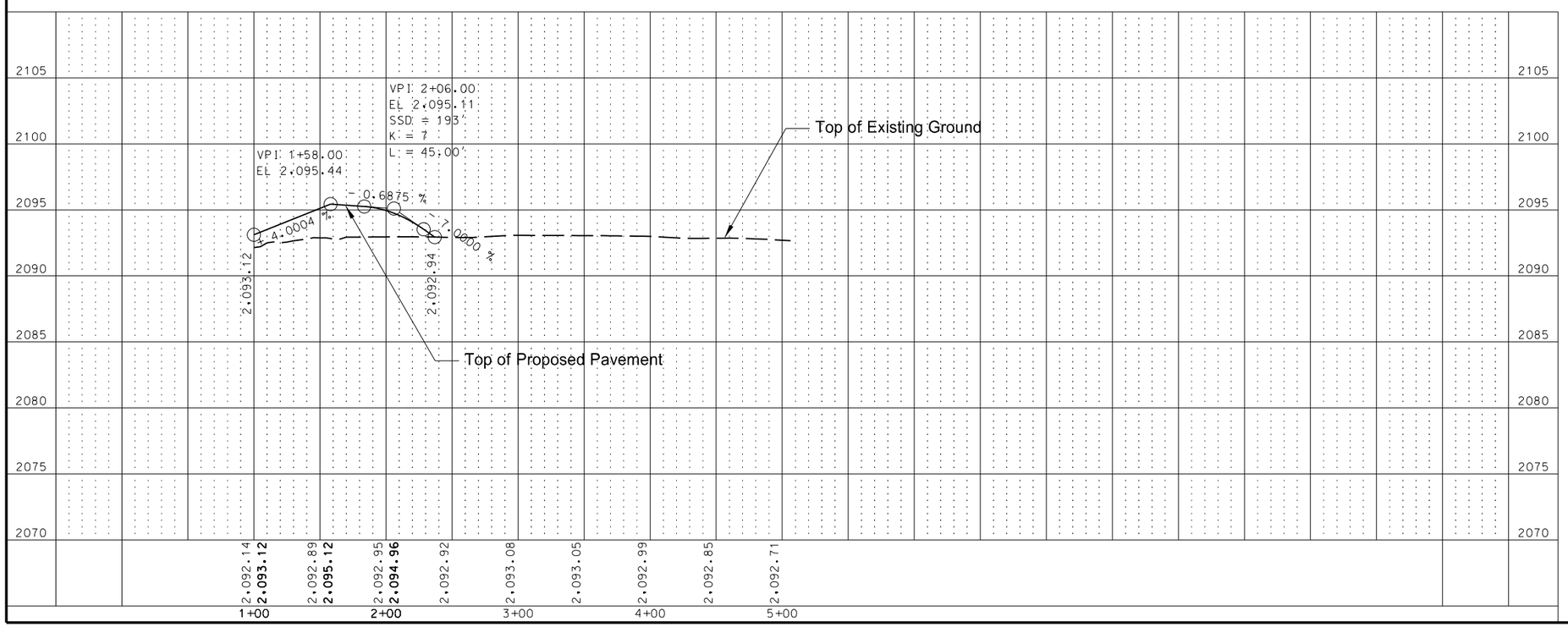
James Drive
23+80 to 24+32.88

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 18 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 1+58 to 2+36.89 | 264 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 1+58 to 2+36.89 | 75 | TON |

Note: Stations & Offsets from Bennett Loop Chain: PR_BN_LP_TEMP




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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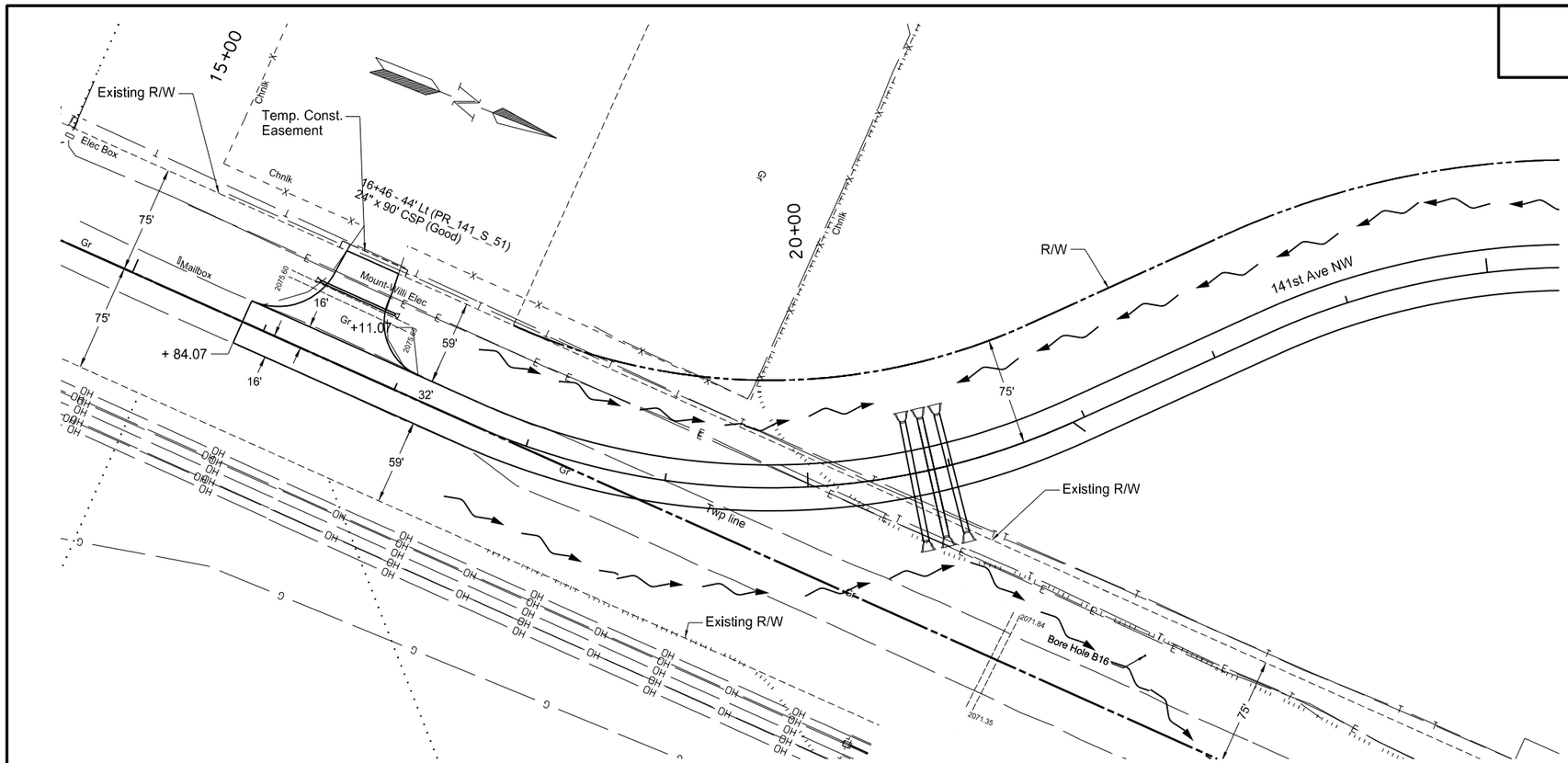
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

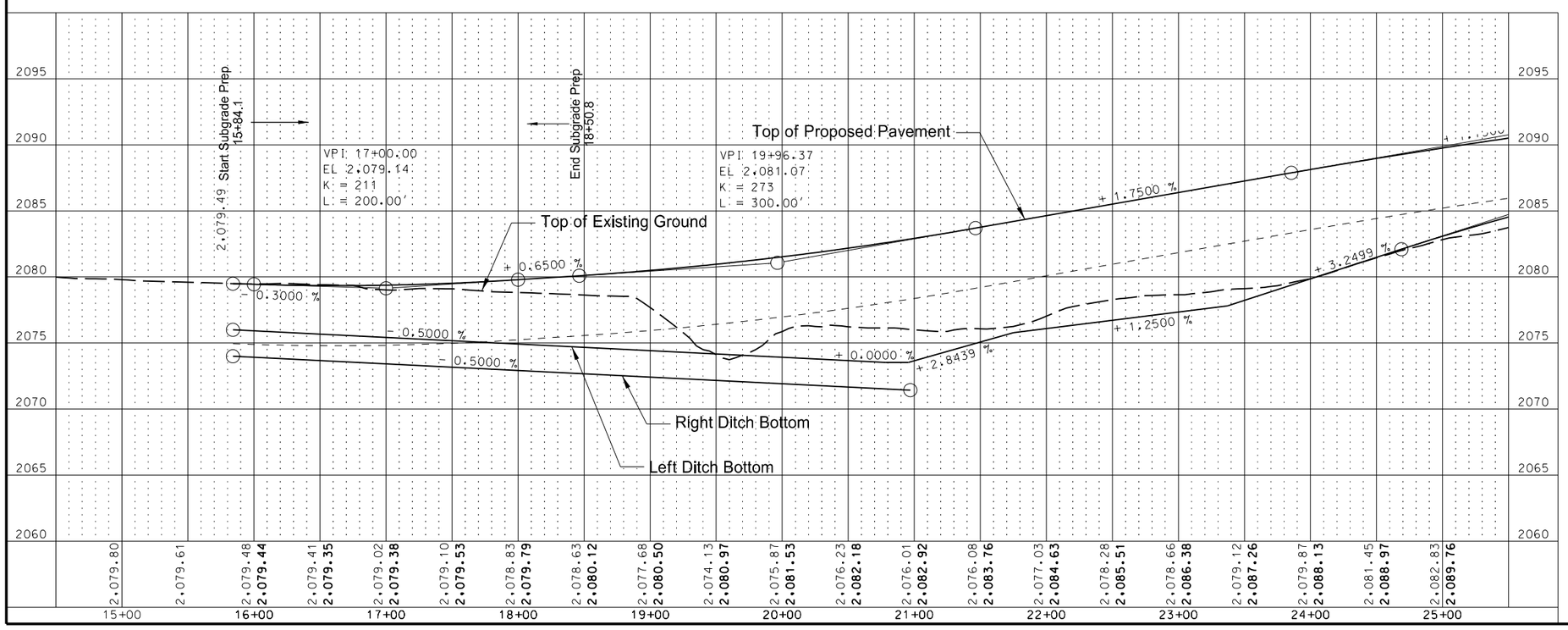
Bennett Loop
1+58 to 2+36.89

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 19 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 15+84.07 to 25+00 | 2438 | TON |
| | | 16+50 LT | 254 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 15+84.07 to 25+00 | 706 | TON |

Note: Stations & Offsets from 141st Ave. NW Chain: PR_141_S_51




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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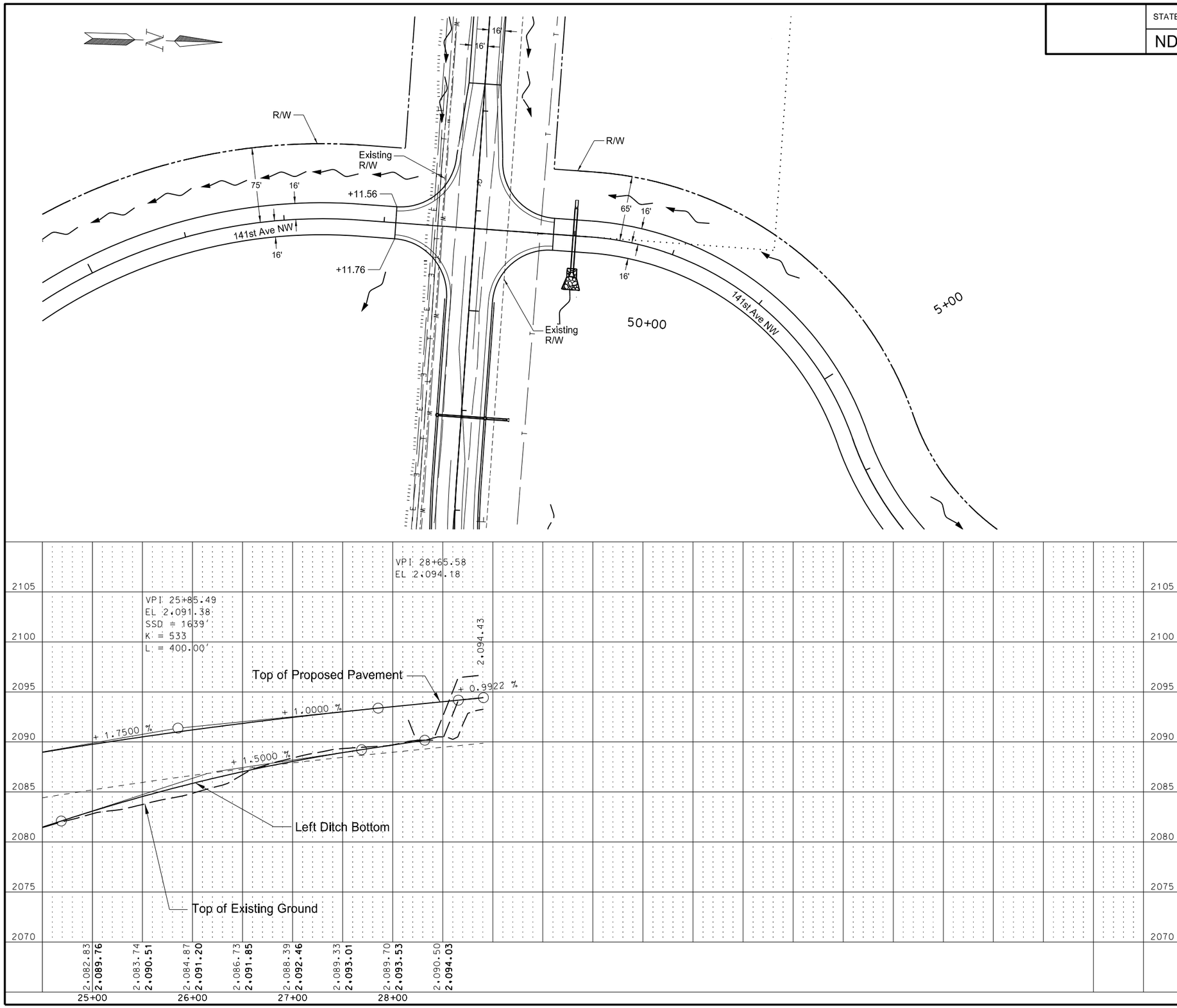
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

141st Ave. NW South of 51st St. NW
15+84.07 to 25+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 20 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 25+00 to 28+11.66 | 837 | TON |
| | | 28+11.66 to 28+67.66 | 178 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 25+00 to 28+11.66 | 241 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 28+11.66 to 28+67.66 | 99 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 28+11.66 to 28+67.66 | 40 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 28+11.66 to 28+67.66 | 124 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 28+11.66 to 28+67.66 | 8 | TON |

Note: Stations & Offsets from 141st Ave. NW Chain: PR_141_S_51

All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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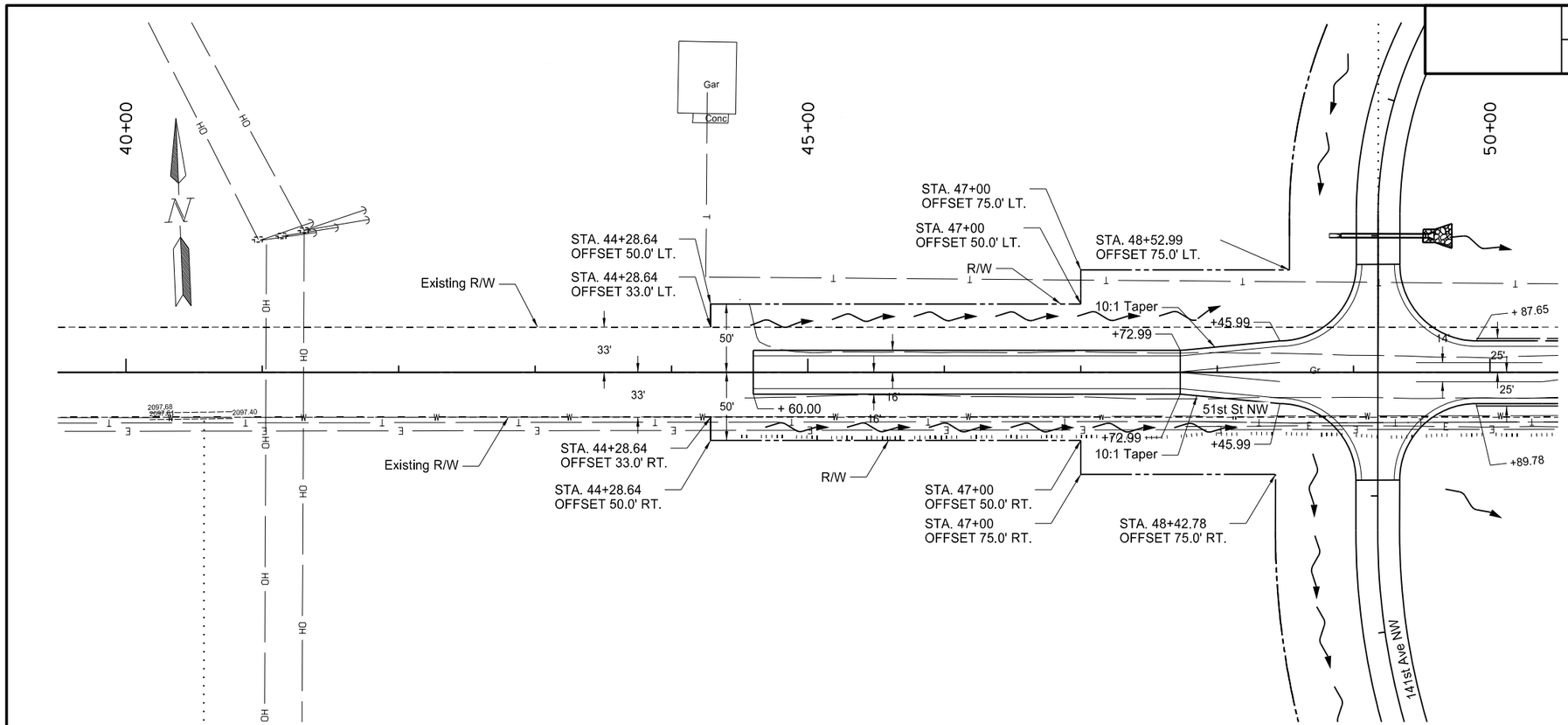
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

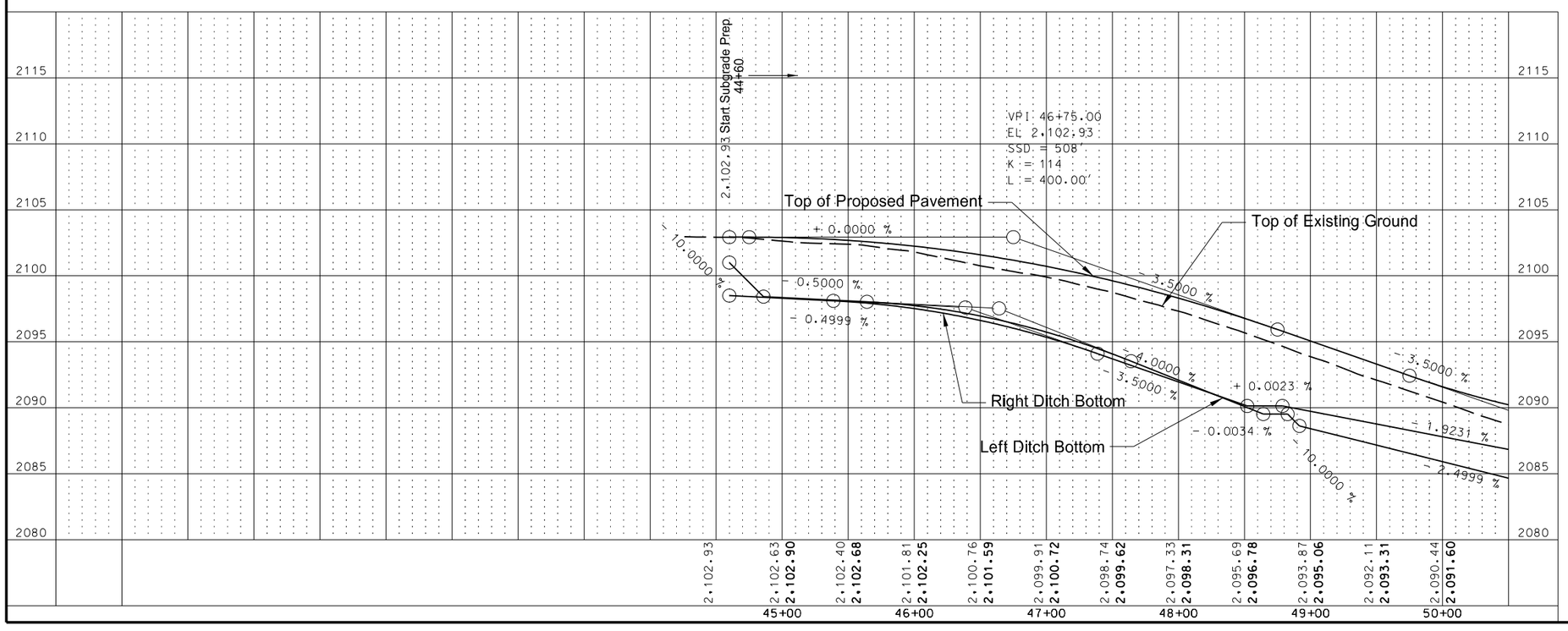
141st Ave. NW South of 51st St. NW
25+00 to 28+67.66

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 21 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 44+60 to 47+72.99 | 848 | TON |
| | | 47+72.99 to 50+00 | 486 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 44+60 to 47+72.99 | 242 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 47+72.99 to 50+00 | 285 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 47+72.99 to 50+00 | 114 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 47+72.99 to 50+00 | 374 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 47+72.99 to 50+00 | 23 | TON |
| 748 | 0140 | Curb & Gutter-Type I | | |
| | | 49+89.88 to 50+00 LT | 10 | LF |
| | | 49+89.88 to 50+00 RT | 10 | LF |

Note: Stations & Offsets from 51st St. NW Chain: PR_51ST




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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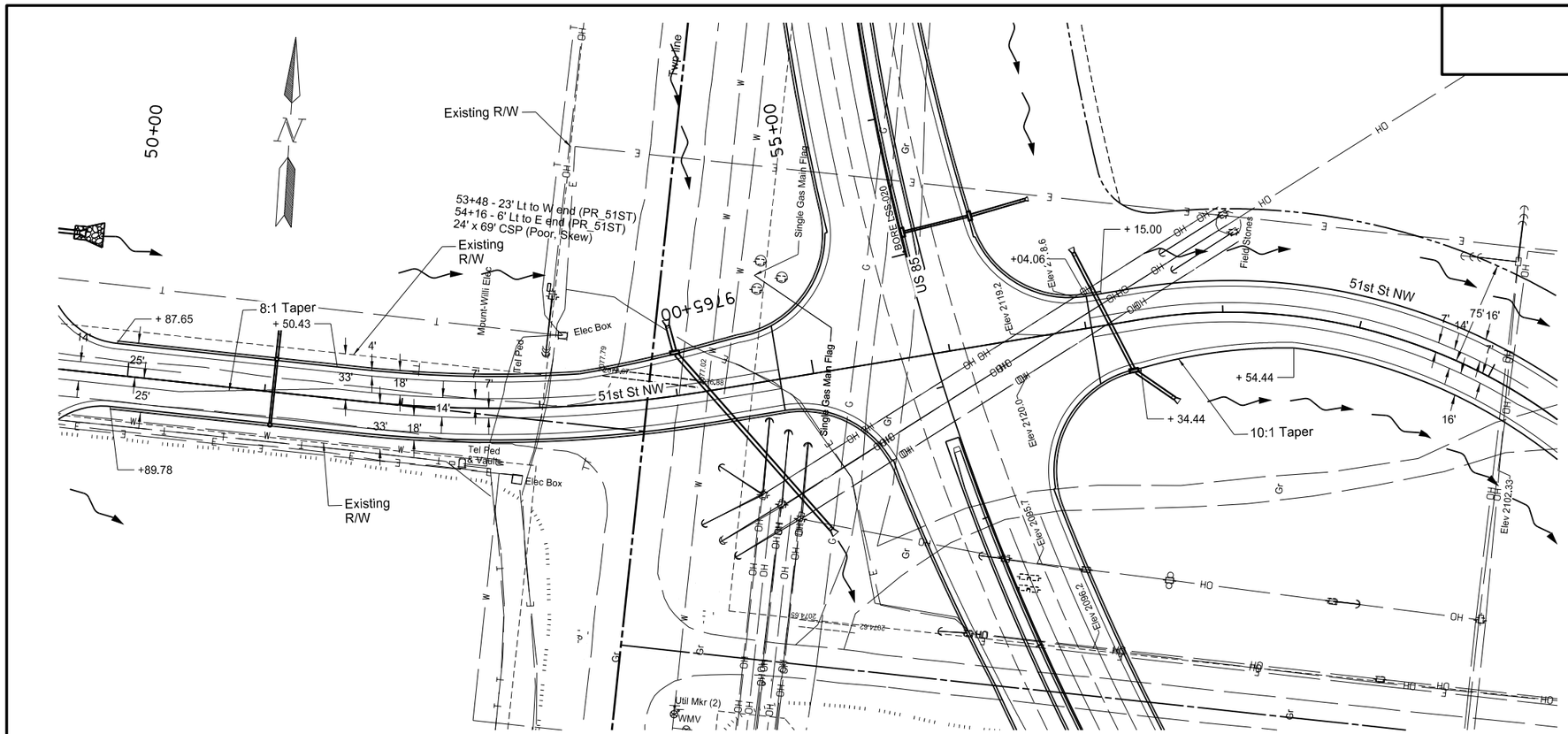
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

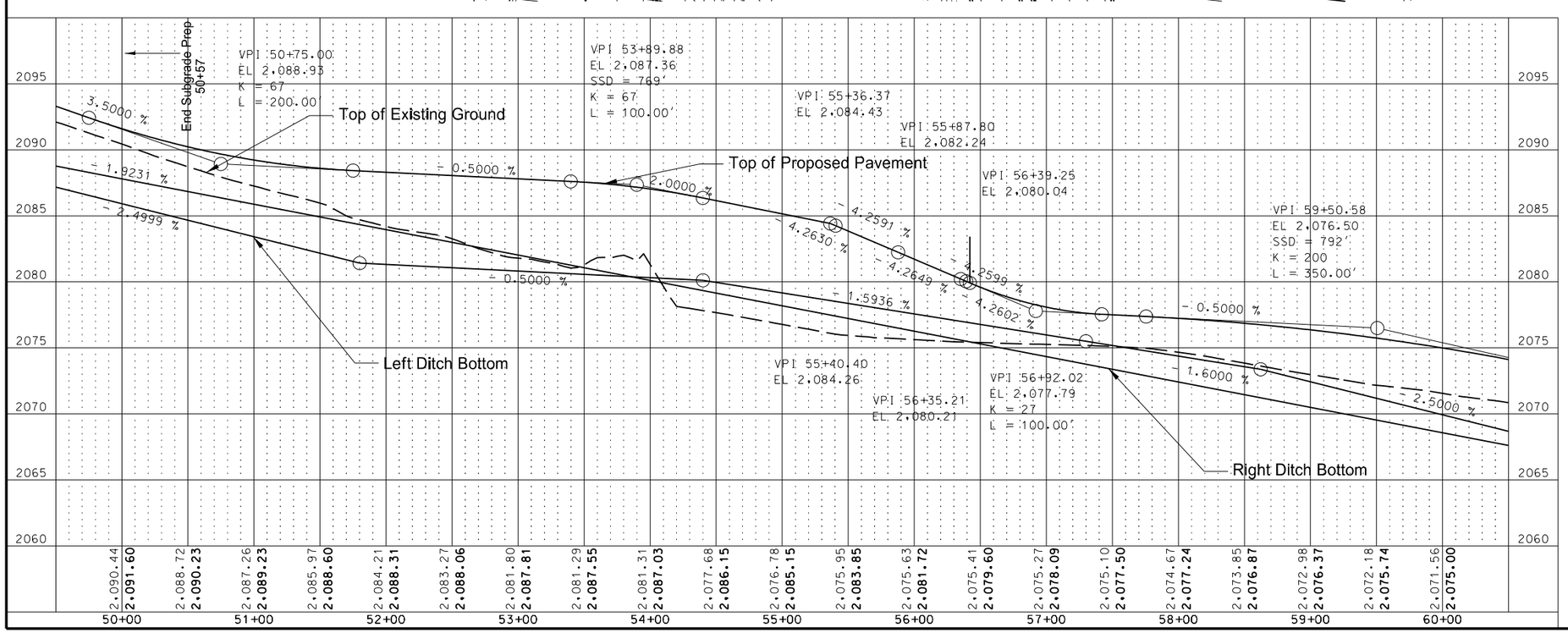
51st St. NW
44+60 to 50+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 22 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 50+00 to 54+75.42 | 1199 | TON |
| | | 57+04.06 to 60+00 | 774 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 50+00 to 54+75.42 | 637 | GAL |
| | | 57+04.06 to 60+00 | 440 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 50+00 to 54+75.42 | 258 | GAL |
| | | 57+04.06 to 60+00 | 176 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 50+00 to 54+75.42 | 849 | TON |
| | | 57+04.06 to 60+00 | 566 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 50+00 to 54+75.42 | 51 | TON |
| | | 57+04.06 to 60+00 | 34 | TON |
| 748 | 0140 | Curb & Gutter-Type I | | |
| | | 50+00 to 54+75.42 LT | 470 | LF |
| | | 50+00 to 54+75.42 RT | 482 | LF |
| | | 57+04.06 to 57+15 LT | 11 | LF |
| | | 57+04.06 to 57+34.44 RT | 31 | LF |

Note: Stations & Offsets from 51st St. NW Chain: PR_51ST




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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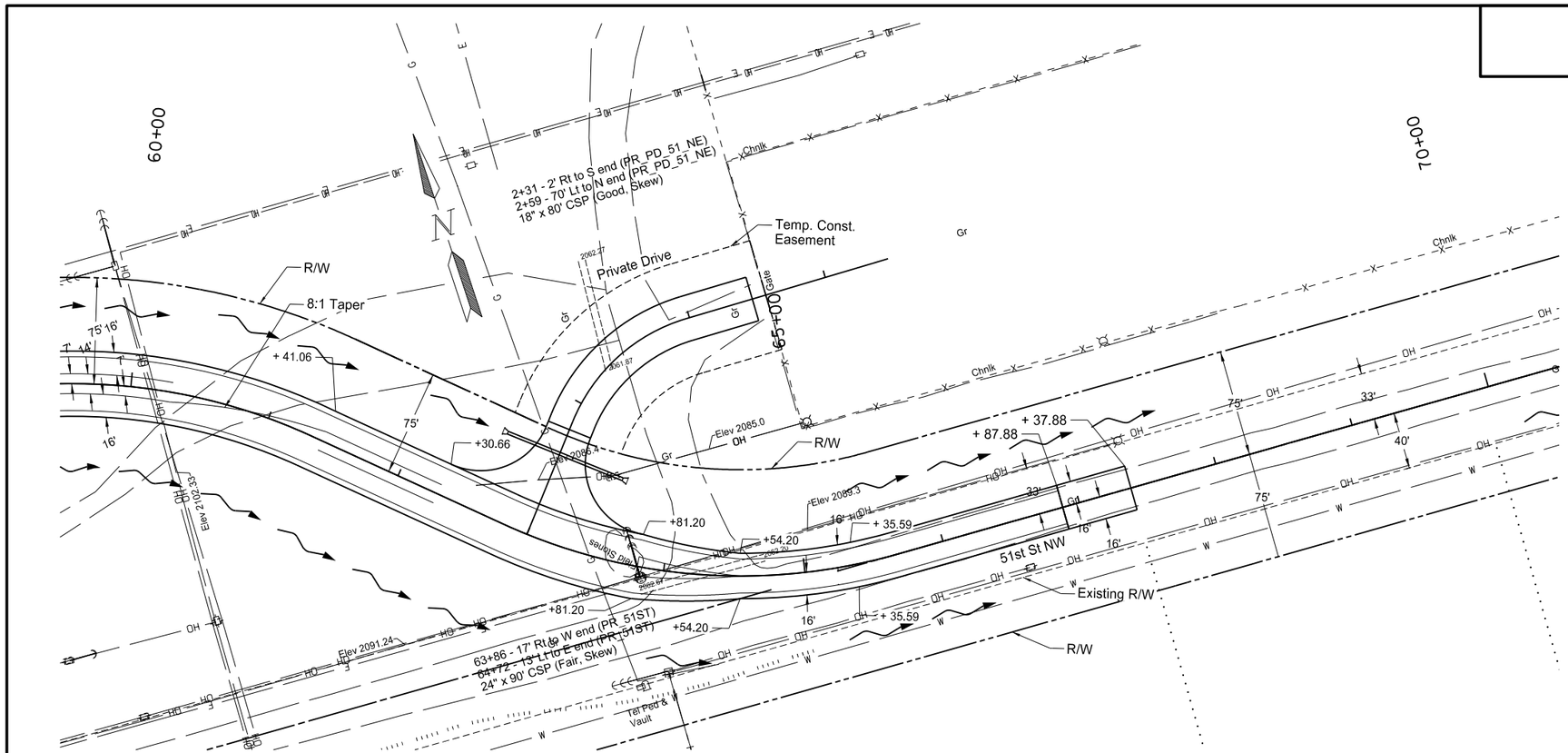
Plan & Profile

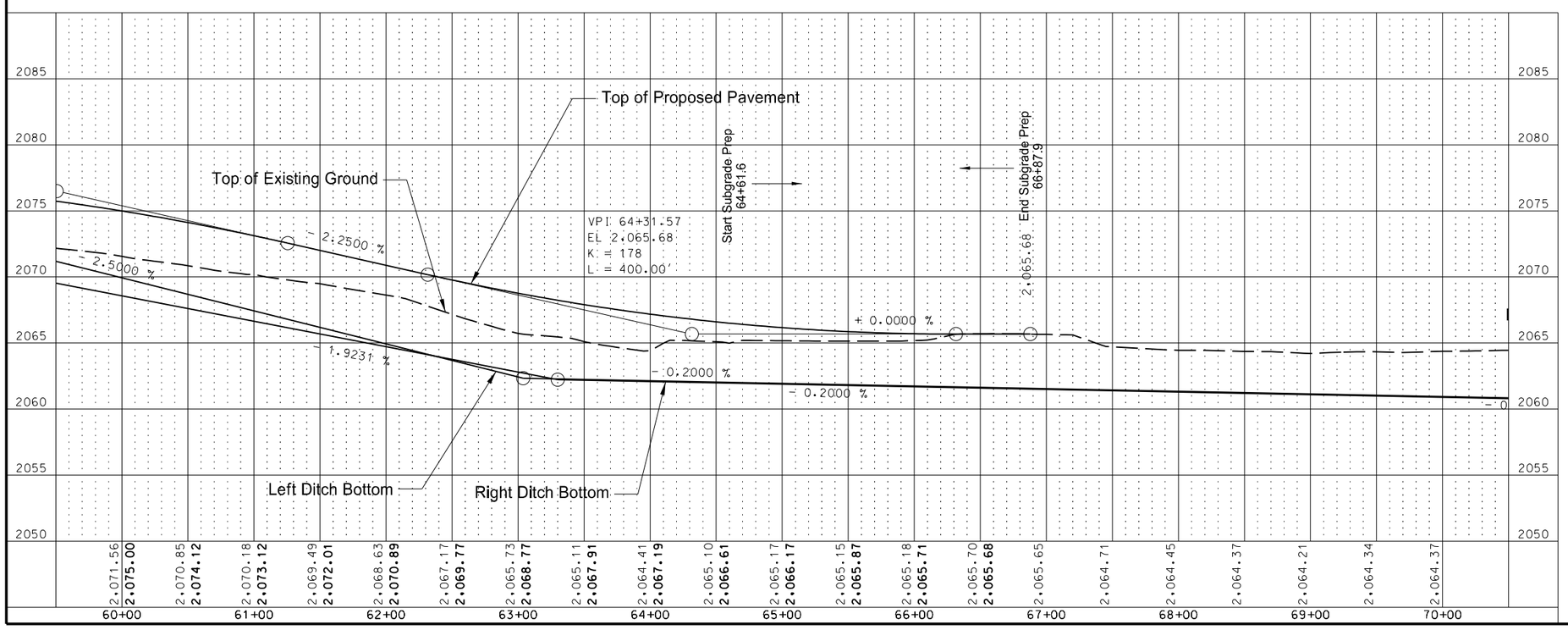
Williston NW Permanent Truck Reliever Route
Phase 1A
51st St. NW
50+00 to 54+75.42
57+04.06 to 60+00

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 23 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 60+00 to 66+87.88 | 1485 | TON |
| | | 66+87.88 to 67+37.88 | 142 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 66+87.88 to 67+37.88 | 40 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 60+00 to 66+87.88 | 844 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 60+00 to 66+87.88 | 338 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 60+00 to 66+87.88 | 1079 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 60+00 to 66+87.88 | 65 | TON |

Note: Stations & Offsets from 51st St. NW Chain: PR_51ST




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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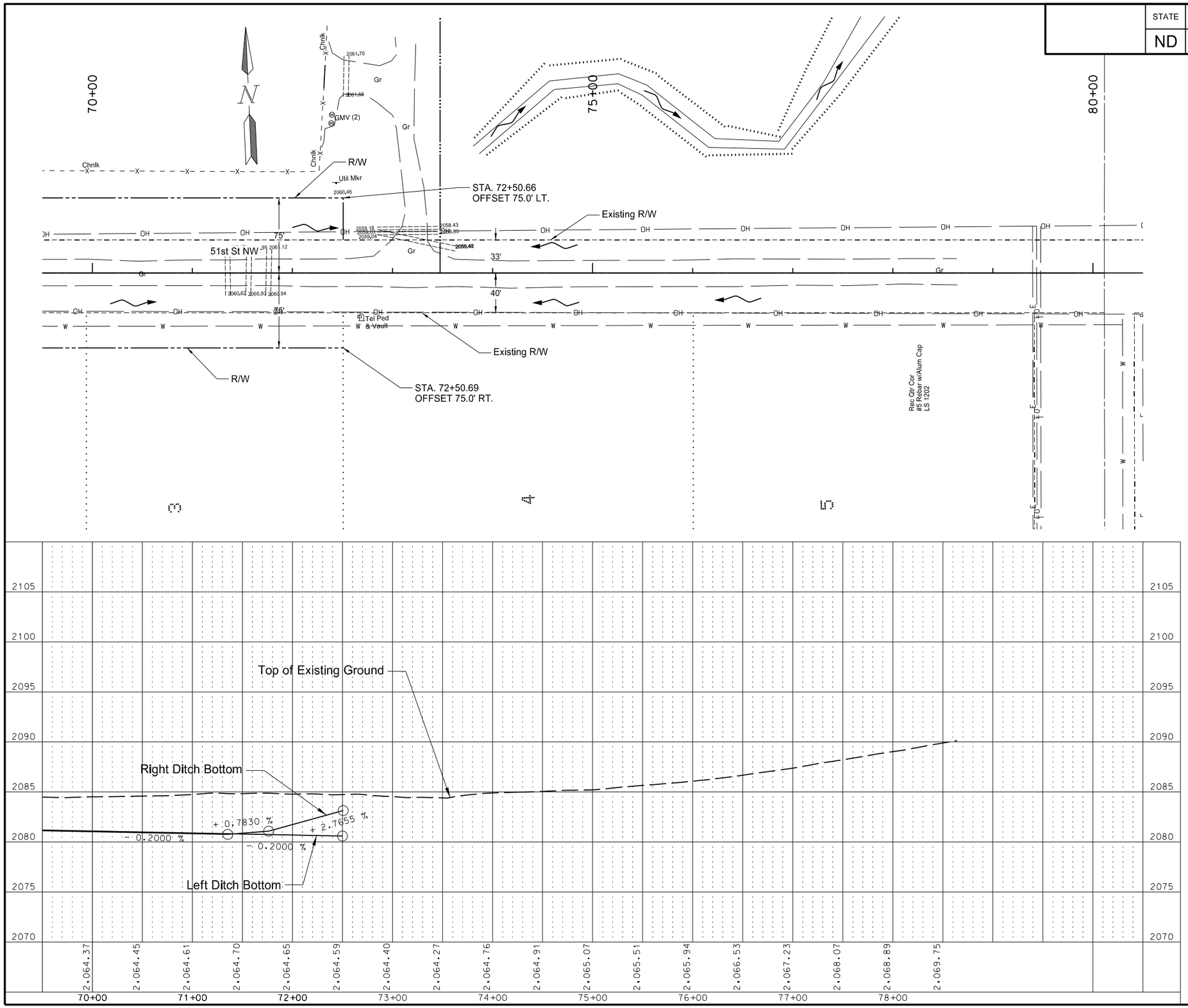
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

51st St. NW
60+00 to 67+37.88

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 24 |




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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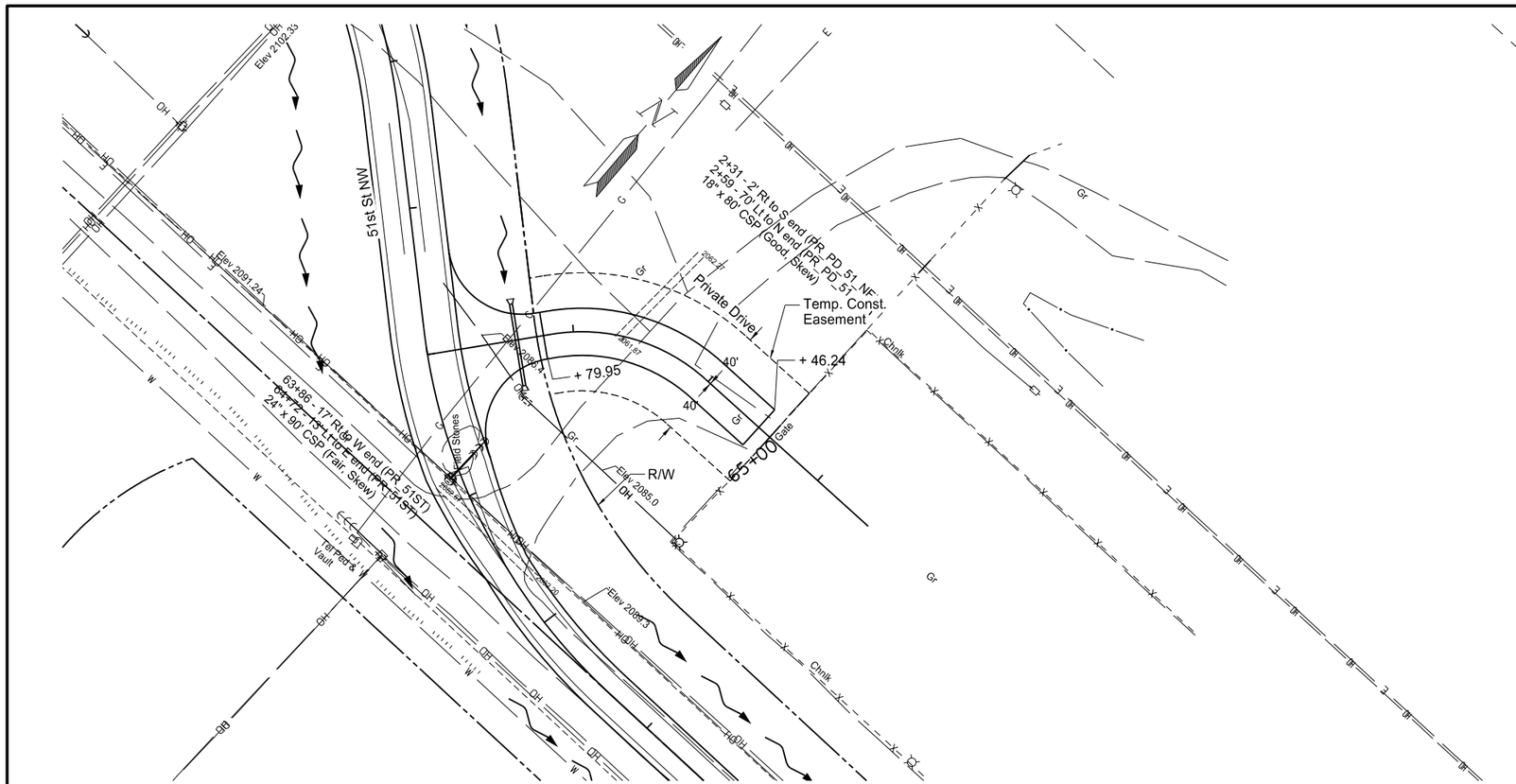
Williston NW Permanent Truck Reliever Route Phase 1A

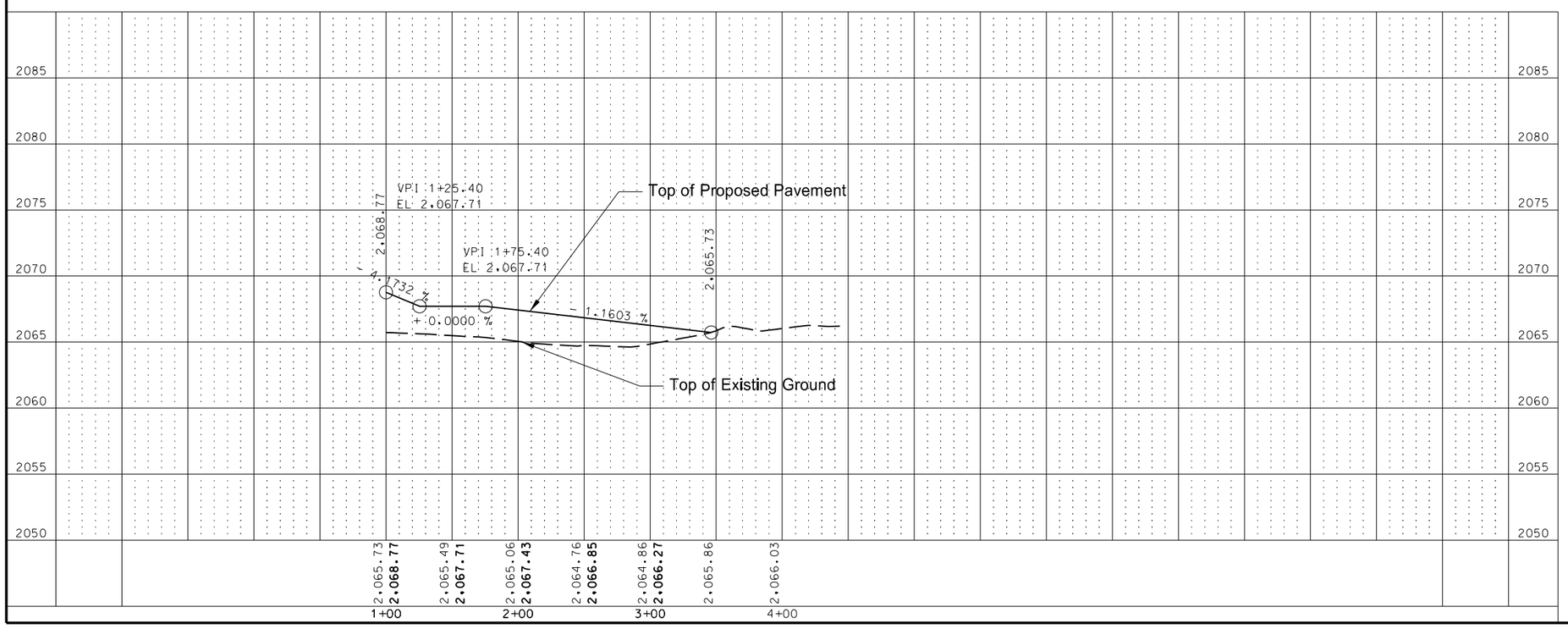
51st St. NW

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 25 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 1+23 to 1+79.69 | 178 | TON |
| | | 1+79.69 to 3+46.24 | 421 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 1+23 to 1+79.69 | 100 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 1+23 to 1+79.69 | 40 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 1+23 to 1+79.69 | 125 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 1+23 to 1+79.69 | 8 | TON |

Note: Stations & Offsets from Private Drive Chain: PR_PD_51_NE




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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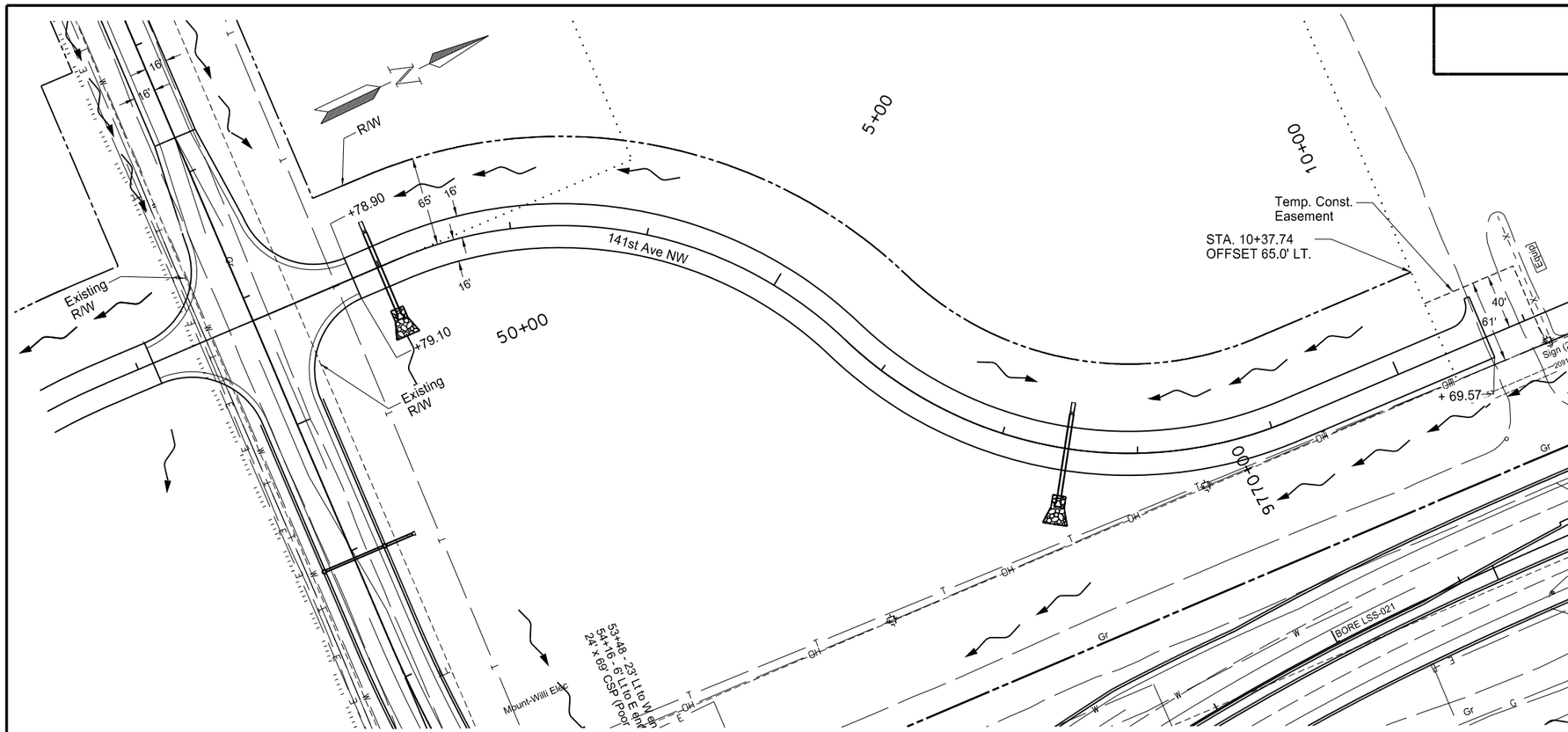
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

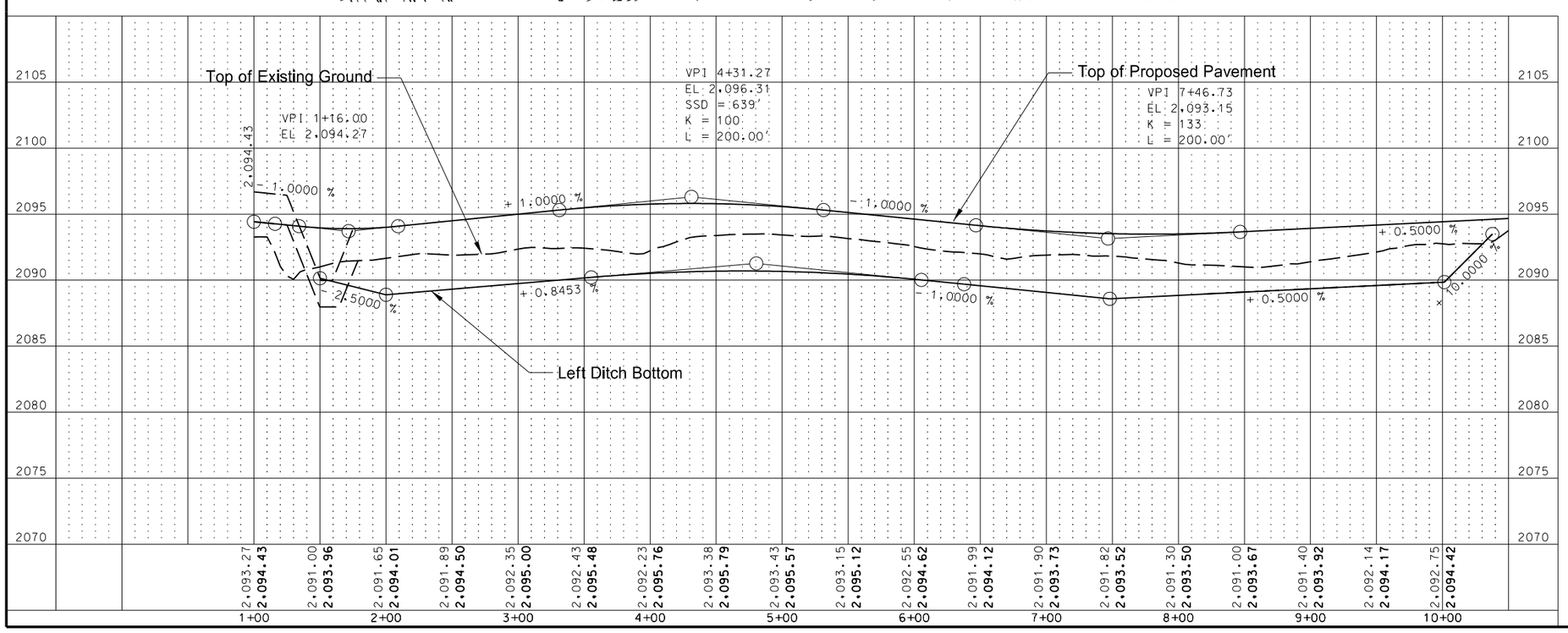
Private Drive
1+23 to 3+46.24

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 26 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 1+23 to 1+79 | 178 | TON |
| | | 1+79 to 10+69.57 | 2243 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 1+23 to 1+79 | 99 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 1+23 to 1+79 | 40 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 1+23 to 1+79 | 124 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 1+23 to 1+79 | 8 | TON |

Note: Stations & Offsets from 141st Ave. NW Chain: PR_PD_51_NW




All Pavement Dimensions to the Lip of the Gutter

See Section 30 Sheet 14 for Profile Grade Line Information and Ditch Profile

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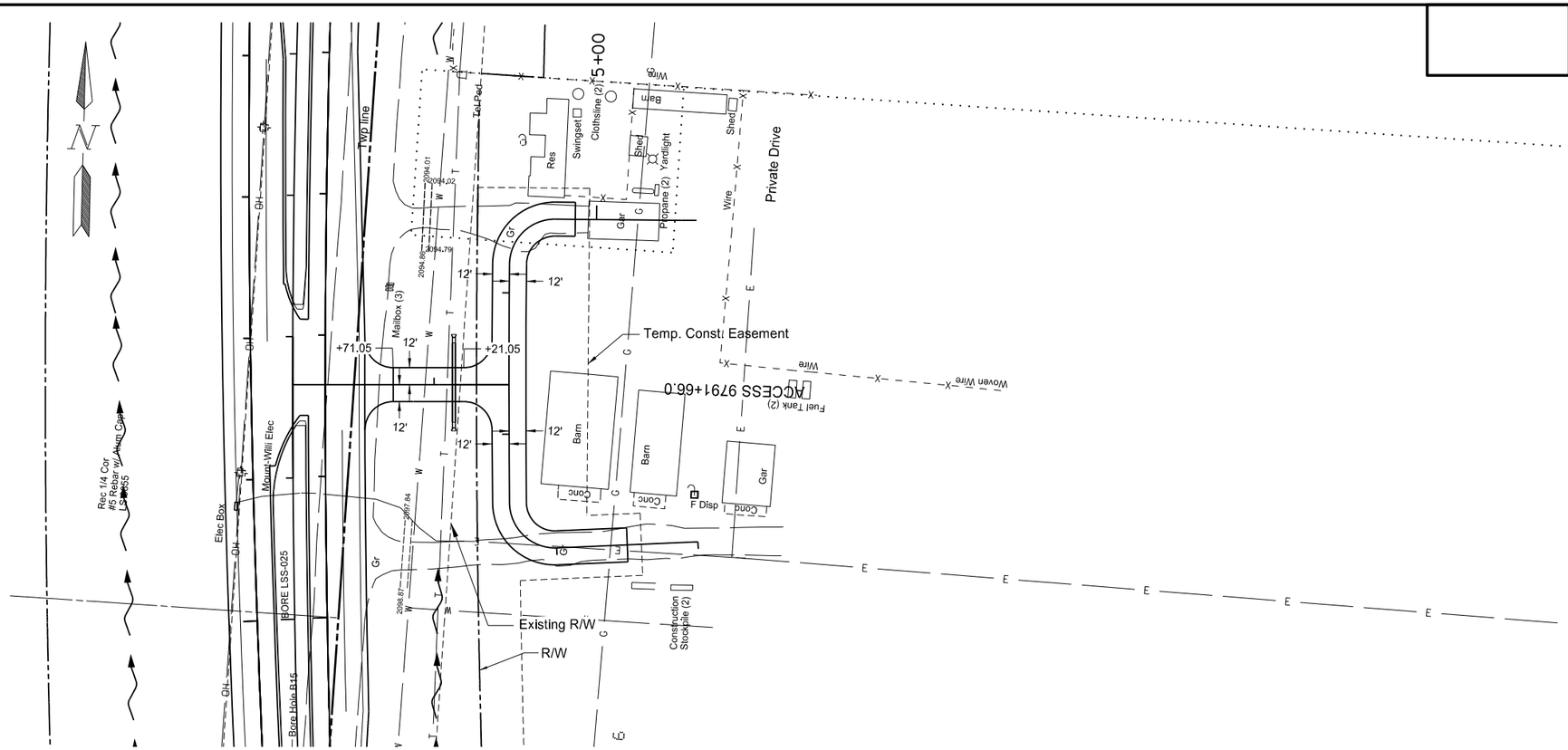
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

141st Ave. NW North of 51st St. NW
1+23 to 10+69.57

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 27 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 1+51 to 1+71.05 | 44 | TON |
| | | 1+71.05 to 2+41.05 | 152 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 1+51 to 1+71.05 | 23 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 1+51 to 1+71.05 | 10 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 1+51 to 1+71.05 | 28 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 1+51 to 1+71.05 | 2 | TON |

Note: Stations & Offsets from Private Drive Chain: PR_ELK

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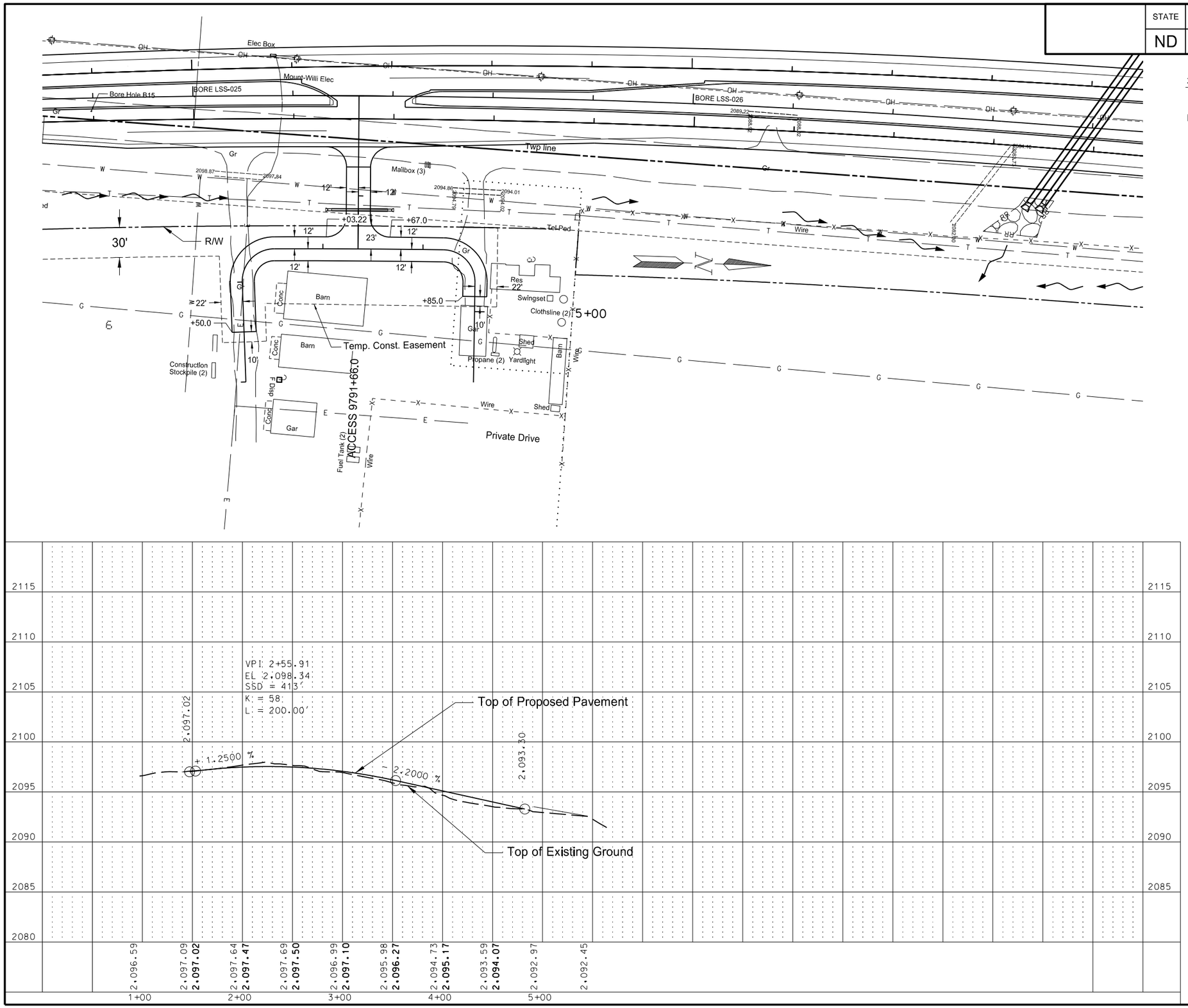
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

Private Drive
1+51 to 2+41.05

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 28 |




302 0100 Salvaged Base Course

1+50 to 4+85 650 TON

Note: Stations & Offsets from Private Drive Chain: PR_ELK_CON

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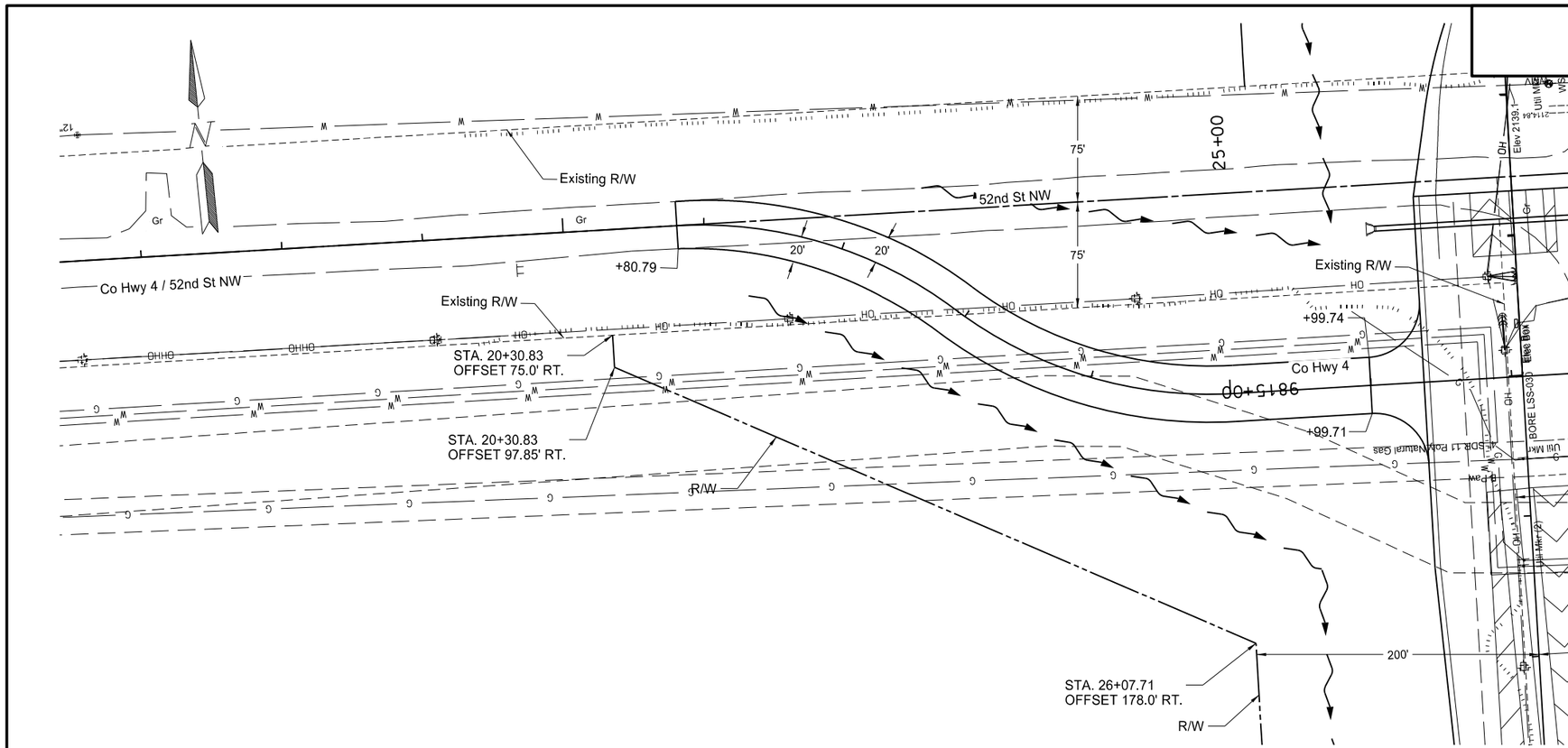
Plan & Profile

Williston NW Permanent Truck Reliever Route Phase 1A

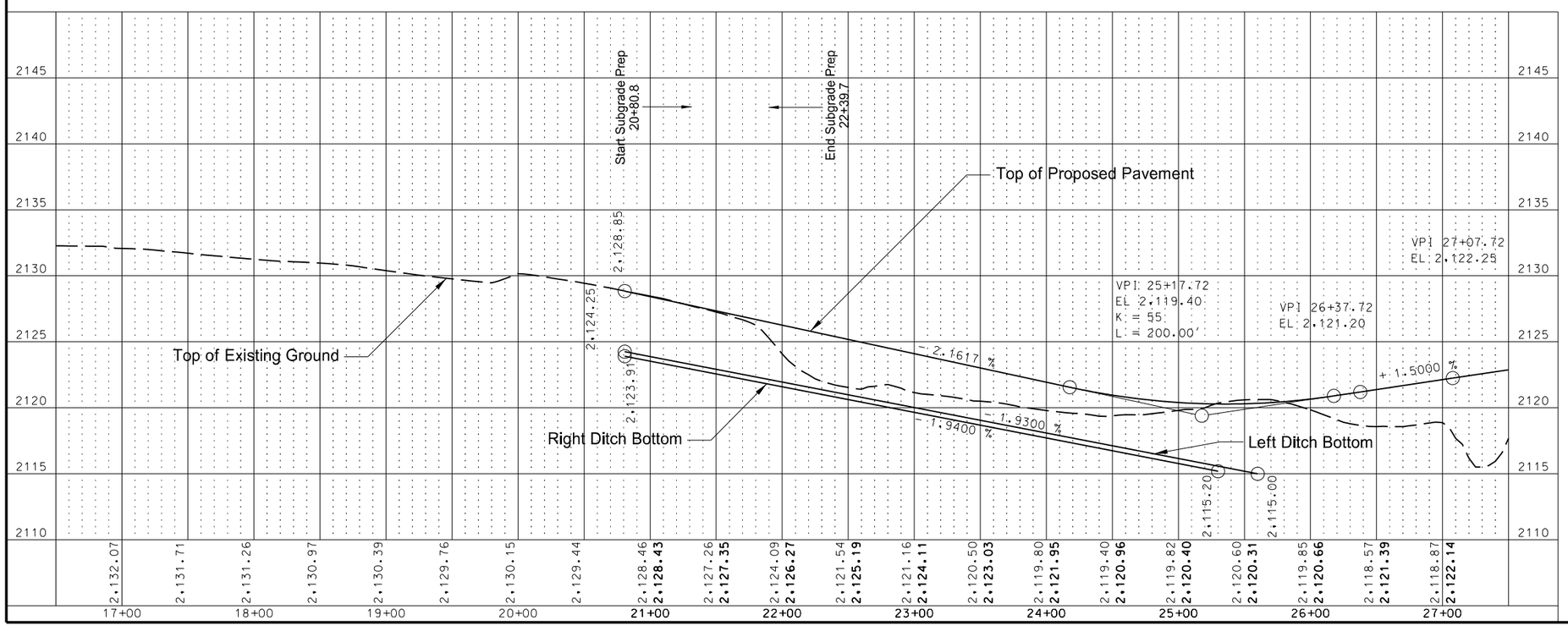
Private Drive
1+50 to 4+85

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 29 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 20+80.79 to 25+99.72 | 1655 | TON |
| | | 25+99.72 to 26+37.72 | 124 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 20+80.79 to 25+99.72 | 486 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 25+99.72 to 26+37.72 | 69 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 25+99.72 to 26+37.72 | 28 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 25+99.72 to 26+37.72 | 86 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 25+99.72 to 26+37.72 | 6 | TON |

Note: Stations & Offsets from 52nd St. NW Chain: PR_52ND_ST

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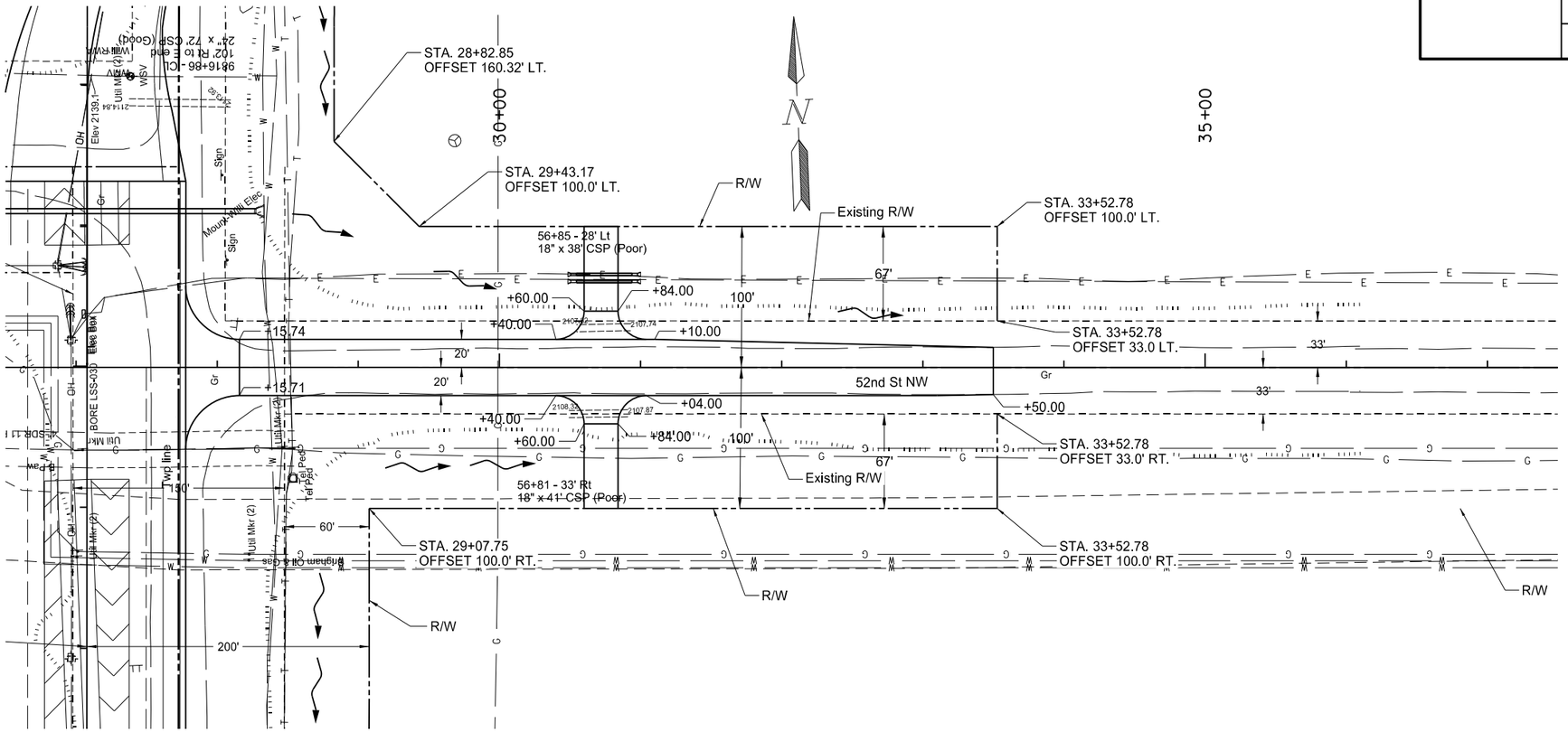
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

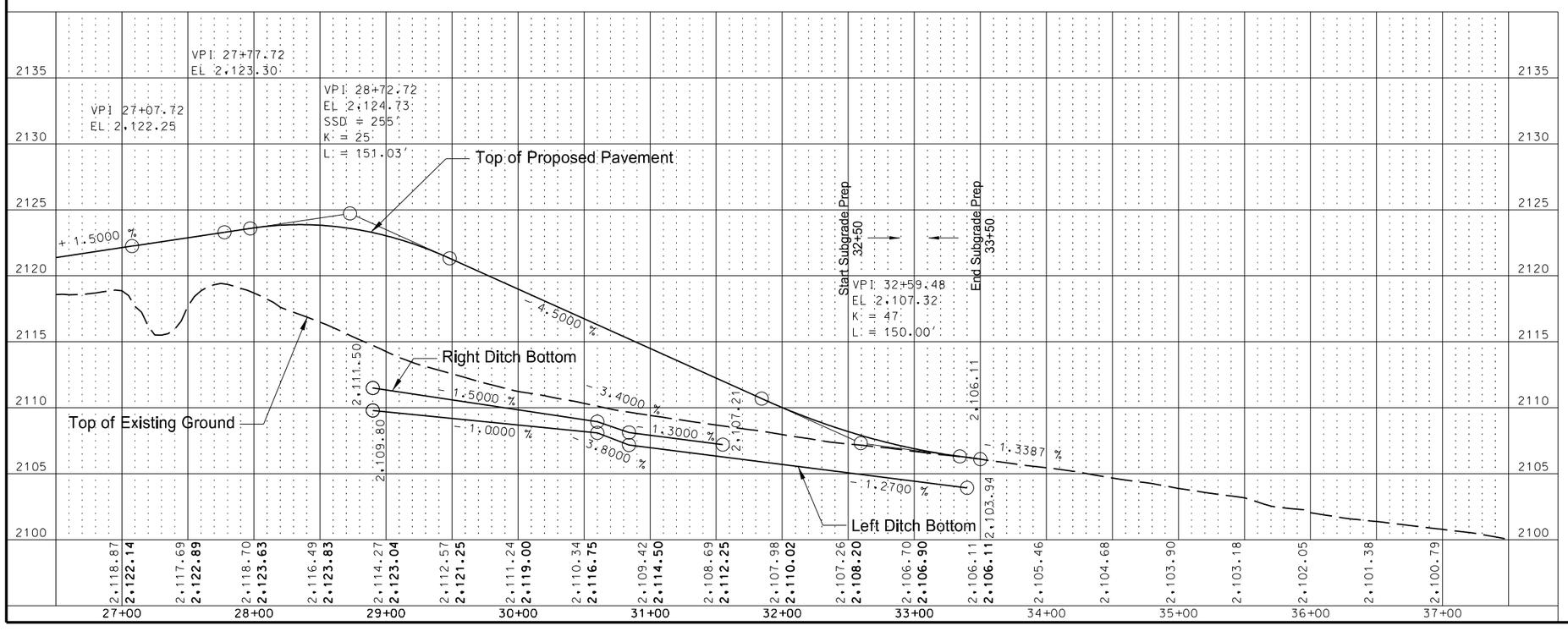
52nd St. NW
20+80.79 to 26+37.72

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 60 | 30 |




| | | | | |
|---|---|---|---|---|
| 302 | 0100 | Salvaged Base Course | | |
| | | 27+77.72 to 28+15.72 | 124 | TON |
| | | 28+15.72 to 33+50 | 1659 | TON |
| | | 30+72 LT | 58 | TON |
| | | 30+73 RT | 58 | TON |
| 302 | 0356 | Aggregate Surface Course CL 13 | | |
| | | 28+15.72 to 33+50 | 494 | TON |
| 401 | 0100 | MC70 or 250 Liquid Asphalt | | |
| | | 27+77.72 to 28+15.72 | 69 | GAL |
| 401 | 0150 | SS1H or CSS1H or MS 1 Emulsified Asphalt | | |
| | | 27+77.72 to 28+15.72 | 28 | GAL |
| 410 | 0215 | Superpave FAA 45 | | |
| | | 27+77.72 to 28+15.72 | 86 | TON |
| 410 | 0460 | PG 64-28 Asphalt Cement | | |
| | | 27+77.72 to 28+15.72 | 6 | TON |

Note: Stations & Offsets from 52nd St. NW Chain: PR_52ND_ST

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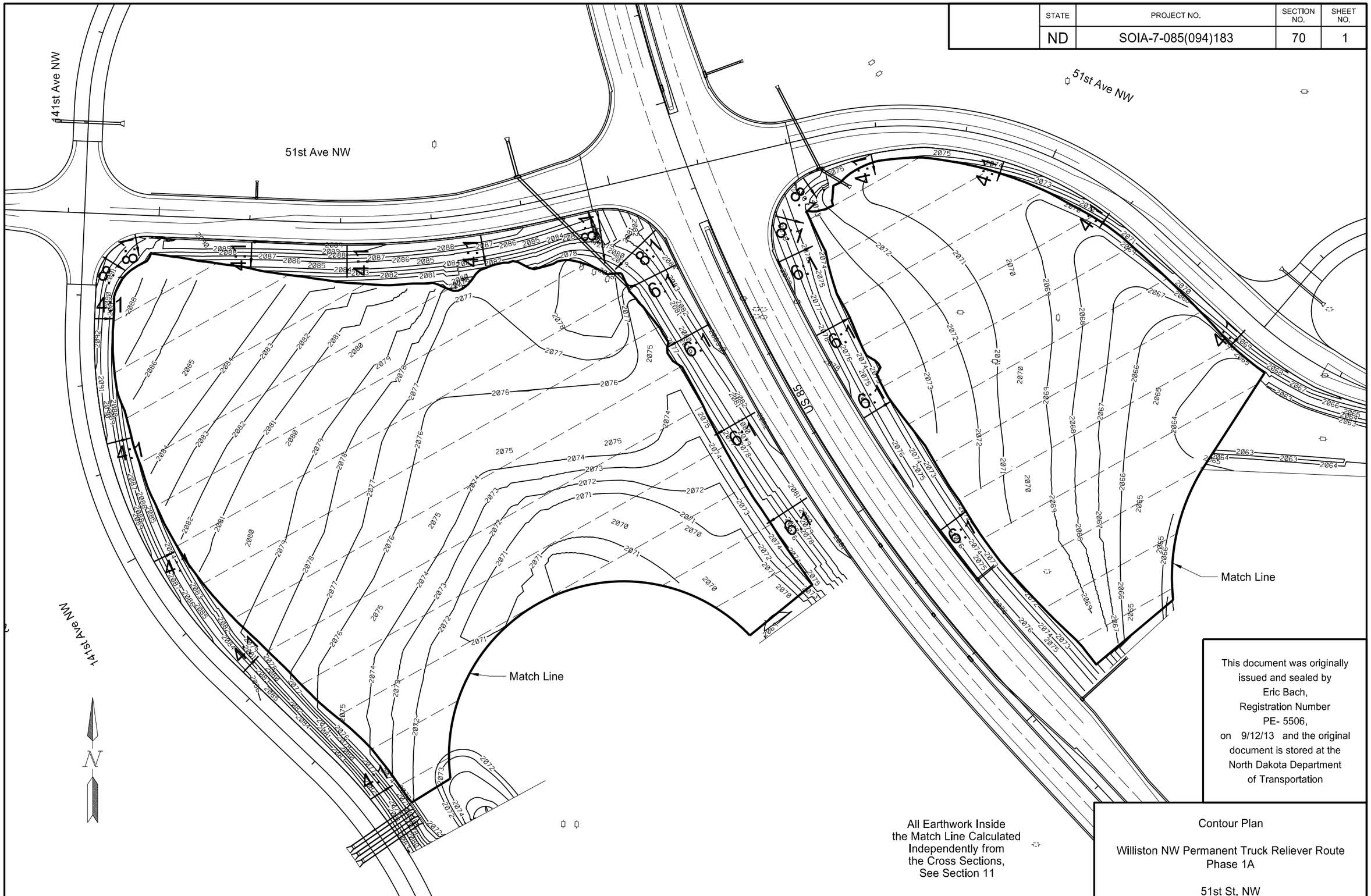
Plan & Profile

Williston NW Permanent Truck Reliever Route
Phase 1A

52nd St. NW
27+77.72 to 33+50

| STATE | PROJECT NO. | SECTION NO. | SHEET NO. |
|---|---|---|---|
| ND | SOIA-7-085(094)183 | 70 | 1 |




All Earthwork Inside
the Match Line Calculated
Independently from
the Cross Sections,
See Section 11

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Contour Plan

Williston NW Permanent Truck Reliever Route
Phase 1A

51st St. NW



SRF Consulting Group, Inc.