

COUNTY ROUTE 1 RECONSTRUCTION
CR 10 TO US HWY 2
PROJECT NO. 01(62)23

MOUNTRAIL COUNTY, NORTH DAKOTA

PROJECT PROVISIONS



Date: January 28, 2025

Prepared by
Sauber Engineering Inc.
2401 46th Avenue SE, Suite 110
Mandan, ND 58554



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ADVERTISEMENT FOR BIDS
MOUNTRAIL COUNTY
STANLEY, NORTH DAKOTA
COUNTY ROUTE 1 RECONSTRUCTION

General Notice

MOUNTRAIL COUNTY (Owner) is requesting Bids for the construction of the following Project:

COUNTY ROUTE 1 RECONSTRUCTION
PROJECT NO. 01(62)23

Bids for the construction of the Project will be received at the **Mountrail County South Complex** located at **8103 61st Street NW, Stanley, ND**, until **Thursday, February 20, 2025 at 2:00 pm** local time. At that time the Bids received will be publicly opened and read.

The Project includes the following Work:

Grading, culverts, aggregate base and aggregate surface on 10.2 miles of County Route 1 beginning at County Route 10 (53rd Street NW) and ending at US Highway 2. The project will include the following approximate quantities: Common Excavation – Type A – 700,000 CY; Borrow-Excavation – 100,000 CY; Aggregate Base Course CL 5 – 80,000 Tons; Gravel Surfacing – 40,000 Tons; Geosynthetic Material Type G – 180,000 SY; Pipe Conduit (multiple sizes) – 9,000 LF.

The project has a date for substantial completion of **October 25, 2025**. Intermediate Milestone dates for partial completion are also required: Milestone 1 – **August 16, 2025**.

Obtaining the Bidding Documents

Bidding Documents may be viewed and ordered online at www.questcdn.com utilizing Quest project #9497803. QuestCDN can be contacted at (952)233-1632 or info@questcdn.com for assistance in free membership, downloading and working with the digital project information. The cost to download the bidding documents will be \$50.00.

The Issuing Office for the Bidding Documents is:

Sauber Engineering Inc.
2401 46th Avenue SE, Suite 110
Mandan, ND

Prospective Bidders may examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of 8:00 am and 5:00 pm. Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the website listed in this advertisement.

Instructions to Bidders

Bid will be submitted on the basis of cash payment for the work and materials. The owner intends to award a single (1) Contract on the basis of the low bid submitted by a responsible and responsive bidder for the aggregate sum of all bid items for the project.

Each bid must be accompanied by a separate envelope containing the contractor's license and bid security. The bid security must be a sum equal to five (5) percent of the full amount of the bid and must be in the form of a bidder's bond. The bond must be executed by the bidder as principal and a surety, conditioned that if the principal's bid is accepted and the contract awarded to the principal, the principal,

within 10 days after the notice of award, shall execute a contract in accordance with the terms of the bid and the bid bond and any condition of Mountrail County.

The bidder must be licensed for the full amount of the bid as required by sections 43-07-07 and 43-07-12 of the North Dakota Century Code.

No bid will be read or considered that does not fully comply with requirements pertaining to bid security and contractor's license.

The successful bidder will be required to furnish a performance and payment bond in the full amount of the contract.

Mountrail County reserves the right to reject any and all bids, waive any informality in any bid, rebid the project until a satisfactory bid is received and accept the bid most favorable to the County.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: **Mountrail County**

By: **Trudy Ruland**

Title: **Chairman, Board of County Commissioners**

Date: **January 21, 2025**

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *NDDOT*—North Dakota Department of Transportation

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf). It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and

responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 5 days of Owner's request, Bidder must submit the following information:
 - A. Evidence of Bidder's inclusion on the NDDOT Qualified Contractors List
 - B. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - C. Subcontractor and Supplier qualification information.
 - D. Other required information regarding qualifications.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.04 To be considered as the 'lowest responsible bidder', the Owner will consider each bidder and their subcontractor(s) based upon past experience, financial condition, past work completed by the bidder/subcontractor for the Owner, and any other pertinent attributes relating to completion of the project within the time frame and budget listed herein.
- 3.05 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A pre-bid conference will not be conducted for this Project.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
 - A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

- a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- D. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to

schedule, access, existing operations, security, liability insurance, and applicable safety programs.

- E. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. **Mail to – Sauber Engineering Inc, Attn: John Sauber, PO Box 399 Mandan, ND 58554 or**
 - B. **Email – jsauber@sauberengineering.com**
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract

Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 Bid Security must accompany the bid and be provided in an envelope separate from the bid.
- 8.03 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 10 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.04 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.05 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as

supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for any portions of the Work within five days after Bid opening.
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
 - A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted. A separate envelope containing the Bid security and a copy of the contractor's license shall accompany the bid form as required under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to **Mountrail County Road and Bridge Department, PO Box 275, Stanley, ND 58784.**
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any),

and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 10 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is not exempt from state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. **N/A**). Said taxes must not be included in the Bid.

ARTICLE 22—CONTRACTS TO BE ASSIGNED

- 22.01 None.

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BID FORM FOR CONSTRUCTION CONTRACT

COUNTY ROUTE 1 RECONSTRUCTION

PROJECT NO. 01(62)23

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: **Mountrail County Road & Bridge Department, 8103 61st Street NW, PO Box 275, Stanley, ND 58784**
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted, in a separate envelope, with and made a condition of this Bid:
- A. Required Bid security;
 - B. State of North Dakota Contractors License

ARTICLE 3—BASIS OF BID—UNIT PRICES

- 3.01 *Unit Price Bids*
- A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Spec.	Code	Description	Unit	Quantity	Unit Cost	Extended Cost
1	103	0100	CONTRACT BOND	L SUM	1		
2	201	0330	CLEARING & GRUBBING	L SUM	1		
3	202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	1,732		
4	202	0312	REMOVE EXISTING FENCE	LF	12,455		
5	203	0101	COMMON EXCAVATION-TYPE A	CY	615,460		
6	203	0109	TOPSOIL	CY	103,394		
7	203	0119	TOPSOIL-IMPORTED	CY	3,325		
8	203	0138	COMMON EXCAVATION-SUBCUT	CY	46,060		
9	203	0140	BORROW-EXCAVATION	CY	231,780		
10	203	0180	ROADWAY OBLITERATION	LF	5,400		
11	216	0100	WATER	M GAL	11,079		
12	230	0172	SUBGRADE PREPARATION-TYPE A-18IN	STA	358		

Item No.	Spec.	Code	Description	Unit	Quantity	Unit Cost	Extended Cost
13	251	0300	SEEDING CLASS III	ACRE	147.75		
14	251	2000	TEMPORARY COVER CROP	ACRE	147.75		
15	253	0101	STRAW MULCH	ACRE	295.5		
16	255	0103	ECB TYPE 3	SY	61,346		
17	255	0202	TRM TYPE 2	SY	5,183		
18	255	0310	REMOVE CONCRETE EROSION CONTROL BLANKET	SY	2,507		
19	255	0320	RESET CONCRETE EROSION CONTROL BLANKET	SY	2,507		
20	256	0100	RIPRAP GRADE I	CY	4,184		
21	260	0200	SILT FENCE SUPPORTED	LF	18,435		
22	260	0201	REMOVE SILT FENCE SUPPORTED	LF	18,435		
23	261	0112	FIBER ROLLS 12IN	LF	7,320		
24	261	0113	REMOVE FIBER ROLLS 12IN	LF	5,160		
25	261	0120	FIBER ROLLS 20IN	LF	19,560		
26	261	0121	REMOVE FIBER ROLLS 20IN	LF	9,780		
27	262	0100	FLOTATION SILT CURTAIN	LF	9,050		
28	262	0101	REMOVE FLOTATION SILT CURTAIN	LF	9,050		
29	302	0120	AGGREGATE BASE COURSE CL 5	TON	70,519		
30	302	0241	AGGREGATE FOR SUBGRADE REPAIR	TON	86,360		
31	302	0314	TEMPORARY TRAFFIC SURFACE AGGREGATE	TON	10,152		
32	350	0500	GRAVEL SURFACING	TON	36,965		
33	702	0100	MOBILIZATION	L SUM	1		
34	704	0100	FLAGGING	MHR	3,000		
35	704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,955		
36	704	1052	TYPE III BARRICADE	EA	4		
37	704	1080	STACKABLE VERTICAL PANELS	EA	240		
38	704	1185	PILOT CAR	HR	1,500		
39	706	0500	AGGREGATE LABORATORY	EA	1		
40	709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	181,701		
41	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	51,000		
42	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	12,669		
43	714	4105	PIPE CONDUIT 24IN	LF	834		
44	714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3,608		
45	714	4110	PIPE CONDUIT 30IN	LF	2,044		
46	714	4115	PIPE CONDUIT 36IN	LF	1,012		
47	714	4125	PIPE CONDUIT 48IN	LF	368		
48	714	4130	PIPE CONDUIT 54IN	LF	98		
49	720	0110	RIGHT OF WAY MARKERS	EA	106		
50	752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4,220		

Item No.	Spec.	Code	Description	Unit	Quantity	Unit Cost	Extended Cost
51	752	0400	FENCE BARBED WIRE 5 STRAND	LF	8,235		
52	752	0905	TEMPORARY FENCE	LF	12,455		
53	752	0993	FENCE TERMINAL	EA	1		
54	752	2100	VEHICLE GATE	EA	7		
55	752	3140	CORNER ASSEMBLY BARBED WIRE	EA	10		
56	752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	6		
57	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	226.8		
58	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	140.4		
59	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	743.7		
60	754	0592	RESET SIGN PANEL	EA	3		
61	754	0593	RESET SIGN SUPPORT	EA	3		
62	754	0805	OBJECT MARKERS - CULVERTS	EA	74		
63	766	0100	MAILBOX-ALL TYPES	EA	3		
Total of All Unit Price Bid Items							

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable)

BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Mountrail County Address <i>(principal place of business)</i> : PO Box 69, Stanley, ND 58784	Bid Project <i>(name and location)</i> : County Route 1 Reconstruction Project No. 01(62)23 Mountrail County, ND Bid Due Date: February 20, 2025
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NOTICE OF AWARD

Date of Issuance:

Owner: Mountrail County Owner's Project No.: 01(62)23

Engineer: Sauber Engineering Inc. Engineer's Project No.: 2023-1

Project: Project No. 01(62)23

Contract Name: County Route 1 Reconstruction

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

All work associated with the project.

The Contract Price of the awarded Contract is **\$(Contract Price)**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Two (2) unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☒ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 10 days of the date of receipt of this Notice of Award:

1. Deliver to Owner **two (2)** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: Mountrail County

By (signature): _____

Name (printed): Trudy Ruland

Title: Chairman, Board of County Commissioners

Copy: Engineer

EJCDC® C-510, Notice of Award.

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AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **Mountrail County** ("Owner") and [name of contracting entity] ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **grading, culvert replacement, aggregate base, aggregate surface and incidentals.**

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **County Route 1 Reconstruction; Project No. 01(62)23**

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained **Sauber Engineering Inc.** ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by "**Engineer**".

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

- A. The Work will be substantially complete on or before **October 25, 2025**. The work will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **November 8, 2025**.

4.03 *Milestones*

- A. Parts of the work must be substantially completed on or before the following Milestone(s):
1. Milestone 1 **completion of 5 miles of grading and aggregate base by August 16, 2025.**

4.04 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and

Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion*: Contractor shall pay Owner **\$4,000.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$4,000.00** for each day that expires after such time until the Work is completed and ready for final payment.
 3. *Milestones*: Contractor shall pay Owner **\$4,000.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of each Milestone, until each Milestone is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.04.A.1 will apply, rather than the Milestone rate.
 4. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Item No.	Spec.	Code	Description	Unit	Quantity	Unit Cost	Extended Cost
1	103	0100	CONTRACT BOND	L SUM	1		
2	201	0330	CLEARING & GRUBBING	L SUM	1		
3	202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	1,732		
4	202	0312	REMOVE EXISTING FENCE	LF	12,455		
5	203	0101	COMMON EXCAVATION-TYPE A	CY	615,460		
6	203	0109	TOPSOIL	CY	103,394		
7	203	0119	TOPSOIL-IMPORTED	CY	3,325		
8	203	0138	COMMON EXCAVATION-SUBCUT	CY	46,060		
9	203	0140	BORROW-EXCAVATION	CY	231,780		

Item No.	Spec.	Code	Description	Unit	Quantity	Unit Cost	Extended Cost
10	203	0180	ROADWAY OBLITERATION	LF	5,400		
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36	704	1052	TYPE III BARRICADE	EA	4		
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44	714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3,608		
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52	752	0905	TEMPORARY FENCE	LF	12,455		
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61	754	0593	RESET SIGN SUPPORT	EA	3		
62	754	0805	OBJECT MARKERS - CULVERTS	EA	74		
63	766	0100	MAILBOX-ALL TYPES	EA	3		
Total of All Unit Price Bid Items							

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

B. For all Work, at the prices stated in Contractor's Bid.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Engineer will prepare progress estimates for payment in accordance with Article 15 of the Supplementary Conditions and provide the progress estimates to the Owner.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of the progress estimates on or about the **20th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such estimates have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. **90** percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage.
 - b. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **95** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid within thirty (30) days from the approval of the estimate or the completion and acceptance date, shall bear interest at the rate per annum of two (2) percentage points below the Bank of North Dakota prime interest rate as set thirty days from the date of the estimate or completion date until the issuance of a proper warrant for the payment.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
 1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Drawings (not attached but incorporated by reference) consisting of **110** sheets with each sheet bearing the following general title: **County Route 1 Reconstruction**, and **51** sheets of standard drawings.

6. North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, 2024 Edition: Sections 151 through 896 (not attached but incorporated by reference).
7. Price Schedule for Miscellaneous Items (PS-1)
8. Addenda (numbers [number] to [number], inclusive).
9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 5. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and

procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

6. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
7. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
8. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
9. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
10. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

(If **[Type of Entity]** is a corporation, attach evidence of authority to sign. If **[Type of Entity]** is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

(typed or printed name of organization)

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

(If **[Type of Entity]** is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

License No.: _____
(where applicable)

State: _____

PERFORMANCE BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Mountrail County Mailing address <i>(principal place of business)</i> : PO Box 69, Stanley, ND 58784	Contract Description <i>(name and location)</i> : County Route 1 Reconstruction Project No. 01(62)23 Mountrail County, ND Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Mountrail County Mailing address <i>(principal place of business)</i> : PO Box 69, Stanley, ND 58784	Contract Description <i>(name and location)</i> : County Route 1 Reconstruction Project No. 01(62)23 Mountrail County, ND Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - 1. does not conform to the Contract Documents;
 - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
 - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. Abnormal weather conditions;
 - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
 - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
 - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
 - 1. include at least the specific coverages required;
 - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
 - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
 4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
 5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
 - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 6. Expenses incurred in preparing and advancing Claims.
 - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
 - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 3. by manufacturers of equipment furnished under the Contract Documents;
 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
 - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

COUNTY ROUTE 1 RECONSTRUCTION

PROJECT NO. 01(62)23

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

SC-1.01. Add to the list of definitions in Paragraph 1.01.A: Section 101 of the NDDOT Standard Specifications with the following re-definitions:

- (i) Department - Mountrail County
- (ii) Director – Mountrail County Board of County Commissioners
- (iii) Engineer – Sauber Engineering Inc.

Also add the following Definition:

“Lowest responsible bidder” means the lowest best bidder for the project considering past experience, financial condition, past work with the governing body (owner), and other pertinent attributes that may be identified in the advertisement for bids.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 Copies of Documents

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor four printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

2.07 Coordination of Documents (Section Added)

SC-2.07 Section 105.05 of the NDDOT Standard Specifications is applicable to this contract.

ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS

5.03 Subsurface and Physical Conditions

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None		

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at Sauber Engineering Inc, 2401 46th Avenue SE, Suite 110, Mandan, ND during regular business hours, or may request copies from Engineer.

5.06 *Hazardous Environmental Conditions*

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
None		

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. *Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
2. *Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

6.03 *Contractor's Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.A:

1. Contractor's Insurance shall meet the requirements of Section 107.14 of the NDDOT Standard Specifications.

6.04 *Builder's Risk and Other Property Insurance*

SC-6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. *Installation Floater*

1. Contractor shall provide and maintain installation floater insurance on a broad form or "all risk" policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work ("Covered Property"). Coverage under the Contractor's installation floater will include loss from covered "all risk" causes (perils) to Covered Property:

- a. of the Contractor, and Covered Property of others that is in Contractor's care, custody, and control;
 - b. while in transit to the Site, including while at temporary storage sites;
 - c. while at the Site awaiting and during installation, erection, and testing;
 - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk, or limited to property for which the Contractor is legally liable.
 3. The installation floater coverage will be in an amount sufficient to protect Contractor's interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
 4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.03 *Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Night time operations will not be allowed.
2. Requests to work outside regular working hours must be submitted in writing to the Engineer two business days before the day being requested.

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site must be performed during regular working hours, Monday through Saturday. Contractor will not perform Work on a Sunday or any legal holiday."

7.09 *Permits*

SC-7.09 Add the following paragraphs:

- B. A NDPDES Permit from the ND Department of Environmental Quality is required.
- C. Other permits may be required subject to contractor operations

7.13 *Safety and Protection*

SC-7.13 Insert the following after the second sentence of Paragraph 7.13.G:

The following Owner safety programs are applicable to the Work: None

7.16 *Shop Drawings, samples and other submittals*

SC-7.16 Replace paragraph 7.16.B.1.a with the following:

- a. Contractor shall submit a cover letter and two (2) paper copies or an electronic submittal.

SC-7.16 Add the following paragraph after Paragraph 7.16.C.8

9. Allow the Engineer 21 days to review shop drawings.

7.20 *Additional Contractor Responsibilities (added Section)*

SC-7.20.A The following sections from the NDDOT Standard Specifications are applicable to this contract: 104.07; 105.03; 105.06; 105.07; 105.12; 106.01; 106.03-.05; 107.02; 107.05-.07; 107.09; 107.17-.18; 108.01-.03

SC-7.20.B HAUL ROADS – SPECIAL PROVISION:

1. General:

Before submitting a proposal, contact the appropriate State, County, Township, or City officials to determine if there are any roadways that will be designated as “no haul” routes.

Notify the Engineer of each public road proposed for use as a haul road before hauling over that route. The Engineer will designate the most practical route for transporting materials and designate the route as a “haul road,” upon completion of the pre-haul inspection unless deemed unacceptable by a local jurisdiction request. Obtain written approval from the local jurisdiction and provide a copy of the approval, including any agreements, to the Engineer prior to using the road.

Change the route of a designated haul road only with the Engineer’s written approval and written approval from the local jurisdiction.

The Engineer will consider the entire haul cycle, loaded and empty, when designating haul routes.

2. Pre-Haul Inspection:

Before hauling over a designated haul road, the Engineer, the Contractor, and the agency charged with control and maintenance of the route will make a joint inspection of the haul road. The joint inspection will determine the existing condition of the haul road, including the type, thickness, and width of the surfacing material. The Engineer will record the results in an inspection report. The inspection report will set forth any special conditions for use, maintenance, and restoration of the route. The Contractor, the Engineer, and the agency charged with control and maintenance of the route shall review and sign the report.

3. Use, Maintenance, and Restoration:

Maintain the haul roads used by public traffic in a condition that safely and adequately accommodates public traffic. The Engineer will order the type and amount of maintenance work. If the Engineer determines that dust from hauling operations on designated haul roads is creating a hazard to traffic or a nuisance to the public, apply water to the haul road as necessary to control the dust.

After completing hauling operations over a designated haul road, restore the road to a condition at least equal to the condition existing at the time of the pre-haul inspection or as required by written agreement with the local jurisdiction.

Obtain a haul road release from the local jurisdiction and submit a copy of the executed release to the Engineer.

Maintain and restore the road as required despite the use of the haul road concurrently by other traffic.

4. Materials and Construction:

Materials and construction methods used in performing maintenance and restoration work shall meet the requirements of the relevant specifications.

5. Haul Road Costs:

Include all costs to maintain and restore the haul roads in other bid items. No additional compensation will be made for haul road maintenance and restoration.

SC-7.20.C BUY AMERICA – SPECIAL PROVISION:

Description:

Replace Section 106.08, “Buy America”, with the following:

Buy America:

A. General.

Provide materials from domestic sources when products are permanently incorporated into the work.

The requirements of this SP are not applicable to equipment, tools, and temporary items.

This definitions and requirements in this SP have been assembled based on the following Federal requirements:

- Iron and steel requirements are based on 23 CFR part 635, “Buy America”; and
- Construction materials and manufactured products are based on 2 CFR part 184, “Buy America Preferences for Infrastructure Projects” (BABA).

B. Certifications:

All certifications are submitted by the prime Contractor. When submitting certifications for materials that are subject to the requirements of this provision, the prime Contractor shall include a signed letter stating that the submitted documentation is the documentation that was received by the prime Contractor for material incorporated into the work. The prime Contractor’s signature on the Department’s Certificate of Compliance form meets this requirement.

C. Determination of Material Category:

1. General.

Only single category of Buy America requirements will apply to an item.

Some contract items are composed of multiple components that may fall into different categories. Individual components will be categorized based on their nature when they arrive at the work site. In cases where the classification of an item is in question or dispute, the Engineer's determination of the classification will be binding.

Exception:

Iron and steel components included in items classified as manufactured products must meet the requirements of Section S, "Steel and Iron Certification" of this SP.

2. Iron and Steel.

All iron and steel permanently incorporated into the work must meet the requirements of Section D, "Steel and Iron Certification" of this Special Provision. Buy America requirements do not apply to iron and steel items used by the Contractor to facilitate construction that are left in place upon completion of the work and are not required to be permanently installed as part of the contract requirements.

3. Manufactured Products.

An FHWA general applicability waiver exists for Manufactures Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

Manufactured product is defined as articles, materials , or supplies that have been:

- Processed into specific form or shape; or
- Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

4. Construction Materials.

The category of construction materials excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

Construction materials are materials that consist primarily of:

- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Fiber optic cables (including drop cable);
- Optical fiber;
- Lumber;
- Engineered wood; or
- Drywall.

Minor additions or articles, materials, supplies, or binding agents to a construction material do not change the categorization.

5. Exempt Materials [Section 70917(c) Materials].

The following materials are exempt from the requirements of this provision per Section 70917(c) of the Build America, Buy America Act:

- Cement and cementitious materials;
- Aggregate such as stone, sand, or gravel; or
- Aggregate binding agents or additives;

D. Steel and Iron Certification.

1. General.

Ensure all manufacturing processes, including applications of coatings, occur in the United States. A coating includes all processes required to apply the coating to a product to protect or enhance the value of the product.

2. Bulk Manufactures Steel and Iron Materials.

In addition to the requirements of Section 106.01 C, "Certificate of Compliance", submit a contractor's Certificate of Compliance stating that the iron and steel products listed in Table 1 that are permanently incorporated into the work are of domestic origin.

Table 1

Mailbox supports	Cable Fence Materials
Chai Link Fence Materials	Barbed Wire Fence Materials
Guardrail Components	Woven Wire Fence Materials
Culvert Markers	Delineators
Perforated Tube Sign Supports and Related Materials	

3. Other Steel and Iron Products.

For steel and iron products permanently incorporated into the work that are not listed in Table 1, submit a manufacturer's Certificate of Compliance as specified in Section 106.01 C, "Certificate of Compliance" and the following information:

- a. A signed mill test report.
- b. A signed certification from each fabricator and manufacturer that has handled the steel and iron products affirming that all processes performed on the steel and iron products were conducted in the United States.
- c. Material descriptions, quantities, and a means of material identification (lot number, bin number, heat number, or factory identification) for each process performed on the steel and iron products.

Each certification shall contain the material identification from all previous fabricators and manufacturers in the process.

4. Foreign or Uncertified Products.

These requirements allow the use of steel and iron products produced and manufactured outside the United States, or products that cannot be certified as originating in the United States, of a total value less than 0.1 percent of the original contract amount, or \$2,500, whichever is greater.

The total value is that shown to be the cost of the steel and iron products as delivered to the project site.

Document the cost of:

- Foreign steel and iron products, plus
- Steel and iron products which cannot be certified as originating in the United States.

Submit the documentation of foreign and uncertified products with the required certifications.

E. Manufactured Products:

An FHWA general applicability waiver exists for Manufactured Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

A manufactured product is acceptable under this provision if:

- The manufactured product was manufactured in the United States; and
- The cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

Compute the cost of components of manufactured products as follows:

- For components purchased by the manufacturer, the acquisition cost, including transportation costs to the place of incorporation into the manufactured product and any applicable duty; or
- For components manufactured by the manufacturer, all costs associated with the manufacture of the component, including transportation costs described in the prior bullet, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the manufactured product.

F. Construction Materials:

1. General.

Each material classified as a construction material has a specific standard for the material to be considered in compliance with this provision.

Except as specifically provided, only a single standard under this section should be applied to a single construction material.

2. Non-Ferrous Metals.

For non-ferrous metals, all manufacturing processes from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

3. Plastic and Polymer-Based Products.

For plastic and polymer-based products; including polyvinylchloride, composite building materials, and polymers used in fiber optic cables; all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

4. Glass.

For glass; including optic glass; all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

5. Fiber Optic Cable.

For fiber optic cable; including drop cable; all manufacturing processes, from the initial ribboning if applicable, through buffering, fiber stranding and jacketing, occurred in the United States.

All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

6. Optical Fiber.

For optical fiber, all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

7. Lumber.

For lumber, all manufacturing processes, from initial debarking through treatment and planning, occurred in the United States.

8. Drywall.

For drywall, all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

9. Engineered Wood.

For engineered wood, all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

SC-7.20.D GRAVEL SURFACING – SPECIAL PROVISION:

Description:

This work consists of furnishing and placing aggregate as a roadway surface course.

Equipment:

Equipment	Section
Tow-Type Pneumatic- Tired Rollers	151.01 B
Self-Propelled Pneumatic-Tired Rollers	151.01 C
Water Trucks	152.01 B
Aggregate Trucks	152.01 C

Materials:

A. General.

Sieve Size Or Testing Method	Aggregate
	Gravel Surfacing
	Percent passing or Test Limit
1"	100
¾"	70 – 100
No. 4	38 – 75
No. 8	22 – 62
No. 30	12 – 45
No. 200	7 – 15
Plasticity Index (PI)	3 – 9
ND T 113, Shale (max %)	12.0%
AASHTO T 96, L.A. Abrasion (max %)	50%
NDDOT 4, Fractured Faces ¹	10%

¹Minimum weight percentage allowable for the portion of the aggregate retained on a No. 4 sieve having at least 1 fractured face.

The Engineer's testing procedures will follow Section 302 of the Field Sampling and Testing Manual. Frequencies will follow this specification.

B. Acceptance of Aggregate.

1. Gradation.

The Engineer will collect three samples for each 1,000 tons of material placed, except when more than 1,000 tons are placed in a day. If more than 1,000 tons are placed in a day, the Engineer will collect three samples for that day's placement. If the aggregate fails to meet the specified gradation, the Engineer will apply a price reduction as specified in Section 302.06 B, "Contract Price Adjustments".

Do not incorporate additional aggregate if two consecutive lots deviate from the specified gradation. Restart placement operations after taking corrective actions and passing a gradation test.

2. Plasticity Index (PI).

The Engineer will collect three samples for each 5,000 ton lot of material produced. If a fractional lot is less than 1,500 tons it will be included in the previous lot. The Engineer will determine the PI.

The Engineer will average the results of the tests to determine the PI for the

lot of material. If the PI for the lot is below 2.0 or above 9.0, the Engineer will reject the material. If the PI is between 2.0 and 9.0, the Engineer will implement the cost adjustment factors in Table 1.

If the material represented by a PI lot is subject to a unit price reduction for gradation, shale content, or both, the highest cost adjustment factor for that will be applied for PI is 1.0.

3. Miscellaneous Properties.

The Engineer will collect three samples for each 10,000 ton lot of material produced. If a fractional lot is less than 2,500 tons it will be included in the previous lot. The Engineer will determine shale content and the number of fractured faces.

If the material fails to meet the requirement for fractured faces, make corrections to the stockpile before incorporating additional material into the work.

If the material exceeds the maximum shale content by less than 3 percentage points, the Engineer will apply a price reduction as specified in Basis of Payment B, "Contract Price Adjustments". The Engineer will reject the material if the maximum shale content is exceeded by 3 or more percentage points.

Construction Requirements:

A. Stockpiling Aggregate.

In addition to the requirements of Section 106.05, "Stockpiling Aggregate and Salvaged Materials", do not operate equipment on stockpiles that will remain the property of the Department.

B. Placement and Compaction.

1. General.

Place aggregate in lifts not exceeding 6 inches of compacted material.

Uniformly mix aggregate placed in windrows before spreading.

Compact aggregate, utilizing pneumatic-tired rollers, until the surface is tightly bound and shows no rutting or displacement occurs under the roller operation.

2. Limitations.

Do not place material on frozen subgrade.

When the roadway is open to traffic, the following limitations apply:

- The maximum windrow length is three miles; and
- Spread material within 48 hours of placing the material in the windrow.

Method of Measurement:

The engineer will measure, completed and in place, as specified in Section 109.01, "Measurement of Quantities".

Basis of Payment

A. General

Spec and Code	Pay Item	Pay Unit
350 – 0500	Gravel Surfacing	Ton
350 – 0501	Gravel Surfacing	Cubic Yard
350 – 0600	Stockpiled Gravel Surfacing	Ton
350 – 0601	Stockpiled Gravel Surfacing	Cubic Yard

Such Payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

B. Contract Price Adjustments.

1. General.

The Engineer will determine contract price adjustments by multiplying the applicable adjustment factor by the contract unit price for the aggregate and the amount of material in the lot represented by the test.

If contract price adjustments are warranted in more than one category, a contract price reduction will be applied for each area of deficiency.

2. Aggregate Gradation Adjustment Factor.

The Engineer will determine the aggregate gradation adjustment factor if aggregate base does not meet the specified gradations for all required samples, as calculated:

$$\text{Aggregate Gradation Adjustment Factor} = 5 \times \frac{\text{Sum of deviations from range limits on all sieves}}{\text{Sum of range limits on all sieves}}$$

3. Shale Content Adjustment Factor.

The engineer will determine the shale content adjustment factor if the limits for shale are exceeded, as calculated:

$$\text{Shale Content Adjustment Factor} = 5 \times (\text{Average of 3 Samples} - \text{Allowable Percentage})$$

4. Plastic Index Adjustment Factor.

The Engineer will determine the PI content adjustment factor using the Table 1.

Table 1	
PI Average	Pay Adjustment Factor
> 9.1	Non Acceptance
7.1 – 9.0	1.0
4.0 – 7.0	1.05
3.0 – 3.9	1.0
2.0 – 2.9	0.85
< 1.9	Non Acceptance

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 - 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 - 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 - 3. *Liaison*
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
 - 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 - 5. *Inspections and Tests*
 - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
 - 6. *Payment Requests:* Review Applications for Payment with Contractor.
 - 7. *Completion*
 - a. Participate in Engineer's visits regarding Substantial Completion.

- b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- 8. Construction Staking:
 - a. Section 105.10 of the NDDOT Standard Specifications is applicable to this contract.
- D. The RPR will not:
 - 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Authorize Owner to occupy the Project in whole or in part.

10.04 *Engineer's Authority*

SC-10.04 Add the following paragraph after paragraph 10.04.D:

- F. The Engineer has the authority as defined Section 105.09 of the NDDOT Standard Specifications including the authority to suspend work.

ARTICLE 11—CHANGES TO THE CONTRACT

11.07 *Change of Contract Price*

SC-11.07 Add the following paragraph after paragraph 11.07.B.3:

- 4. PS-1: for contract revisions covered by items listed on the Price Schedule for Miscellaneous Items (PS-1) the Engineer will determine compensation using the PS-1 unit prices.

ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK

13.03 *Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E.3

SC-13.03 Add the following Paragraphs immediately after Paragraph 13.03.E:

- F. The Engineer will utilize Section 104.02.C of the NDDOT Standard Specifications as it relates to change in quantities and alteration of work for basis of his determination described in Section 13.03.E.
- G. Measurement of quantities will be in accordance with Section 109.01 and the applicable bid item section of the NDDOT Standard Specifications.

ARTICLE 15 – PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

15.01 Progress Payments

SC-15.01 The term “Progress Estimate” shall be considered a synonym for the term “Application for Payment” in Article 15.

SC-15.01 Delete paragraph 15.01.B.1 and replace with the following:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), the Engineer will prepare a progress estimate covering the Work completed as of the date of the Estimate and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner’s interest therein, all of which must be satisfactory to Owner.

SC-15.01 Delete paragraph 15.01.B.3 and replace with the following:

3. The Contractor shall be required to sign the Final Estimate Only.

SC-15.01 Delete paragraph 15.01.C.1 and replace with the following:

1. The Engineer will provide the Progress Estimate to the Owner.

ARTICLE 17 – FINAL RESOLUTIONS OF DISPUTES

17.01 Methods and Procedures

SC-17.01 Delete section B and replace with the following:

B. Final Resolution of Disputes:

1. This Contract is governed by and construed in accordance with the laws of the State of North Dakota. Any action to enforce this Contract must be adjudicated exclusively in the state District Court of Mountrail County, North Dakota. Each party consents to the exclusive jurisdiction of such court and waives any claim of lack of jurisdiction or *forum non conveniens*.

COUNTY does not agree to any form of binding arbitration, mediation, or other forms of mandatory alternative dispute resolution. The parties have the right to enforce their rights and remedies in judicial proceedings. COUNTY does not waive any right to a jury trial.

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
PRICE SCHEDULE FOR MISCELLANEOUS ITEMS (PS-1)**

The Contractor agrees to accept the following unit prices for each listed item of work and or material when no project contract unit price exists for that item. Materials and construction methods used in performing maintenance and restoration work for 107.08 Haul Roads shall meet the requirements of the relevant specifications.

Each price listed will be full compensation for the cost of labor, material, and equipment necessary to provide the item of work and/or material, complete in place, including (but not limited to) royalty, disposal of unsuitable material, equipment rental, sales tax, use tax, overhead, profit, and incidentals.

Each listed item is referenced to the Standard Specifications by Section number and Section name.

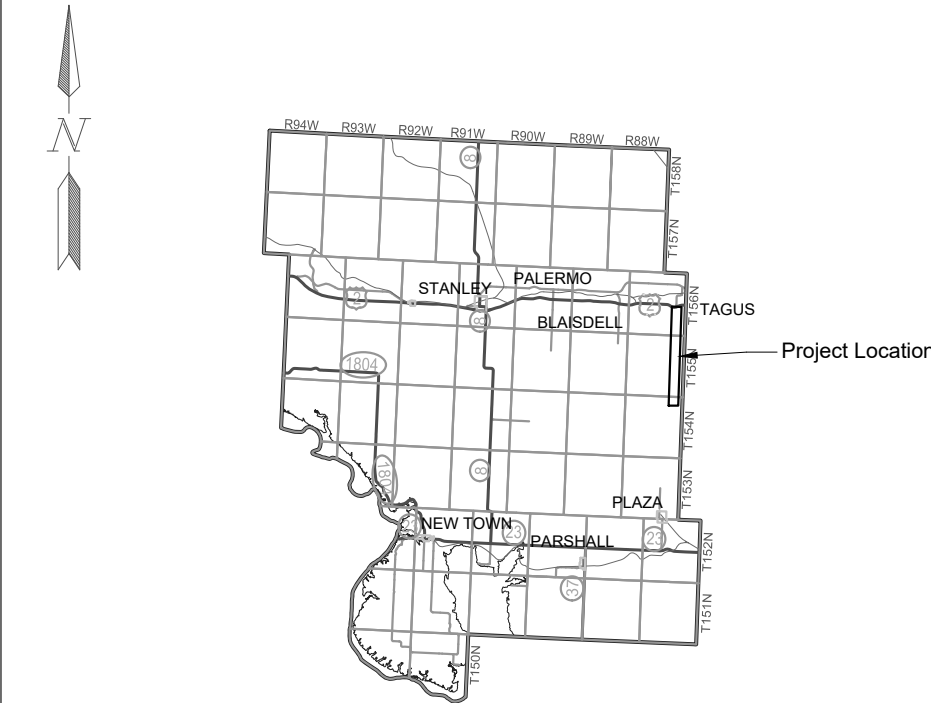
Spec	Code	Specification	Section No.	Section Name	Item	Price
100	9950	704.04	C.5	Temporary Traffic Control	Flagging	\$48.50 per MHR
100	9951	216.04		Water	Water	\$33.00 per M Gal
100	9952	430.04	G & I.3	HMA – Bituminous Materials	Patching – Machine	\$155.00per Ton
100	9952	430.04	G & I.3	HMA – Bituminous Materials	Patching – Hand Placed	\$175.00 Per Ton
100	9954	302.04	B	Aggregate Base and Surface Course	Aggregate Base CL 13	\$27.00 per Ton ¹
100	9955	203.01	C	Rock Excavation	Rock Excavation	\$14.75 per CY
100	9956	203.01	D	Shale Excavation	Shale Excavation	\$6.50 per CY
100	9957	203.01	E	Muck Excavation	Muck Excavation	\$9.85 per CY
100	9958	203.01 G & 203.05 G.3		Excavation and Embankment	Overhaul	\$0.08 per CY-Sta
100	9960	420.04	E	Bituminous Seal Coat	Blotter Sand	\$25.00 per Ton ¹
100	9962	260.06		Silt Fence	Cleaning Silt Fence	\$5.00 per LF
100	9963	261.06		Fiber Rolls	Cleaning of Fiber Rolls	\$5.00 per LF
100	9964	260.06		Silt Fence	Removal of Silt Fence ²	\$5.00 per LF
100	9965	261.06		Fiber Rolls	Removal of Fiber Rolls ²	\$5.00 per LF

¹ Price Includes haul up to 10 miles. Payment for haul exceeding 10 miles will be according to Section 109.03 E, "Force Account." The haul distance for aggregate base will be based on the average haul. The haul distance for blotter sand will be from the point where the haul begins to the point where it enters the project.

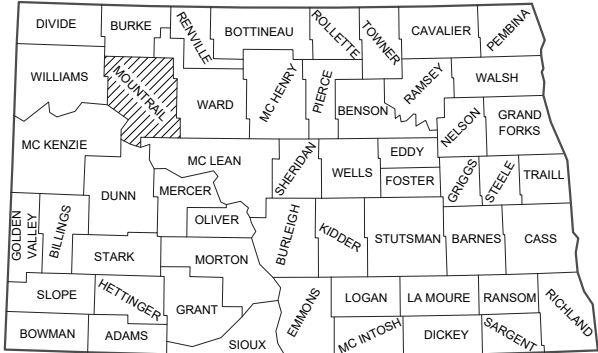
² This is only for pre-existing items that were not installed under the Contract.

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DESIGN DATA				
Traffic	Average Daily			
Current 2025	Pass: 25	Trucks: 9	Total: 34	
Forecast 2045	Pass: 37	Trucks: 14	Total: 51	
Clear Zone Distance: 18'		Design Speed: 55 MPH		
Minimum Sight Dist. for Stopping: 495'		Bridges: N/A		
Sight Dist. for No Passing Zone: N/A				
Pavement Design Life: N/A				
Design Life ESALs: N/A				



SKETCH MAP OF MOUNTRAIL COUNTY



STATE COUNTY MAP

DESIGNER John Sauber, Jr., PE/PLS
DESIGNER Joe Baneck, PE
DESIGNER Jared Walters

MOUNTRAIL COUNTY, NORTH DAKOTA

PLANS FOR

MOUNTRAIL COUNTY ROUTE 1 RECONSTRUCTION

PROJECT NO. 01(62)23
PROJECT IS LOCATED ON COUNTY ROUTE 1
FROM COUNTY ROUTE 10 TO US HIGHWAY 2

PROJECT CONSISTS OF GRADING, CULVERT REPLACEMENTS, AGGREGATE BASE COURSE,
AGGREGATE SURFACE COURSE, SEEDING, AND INCIDENTALS

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	01(62)23	N/A	1	1

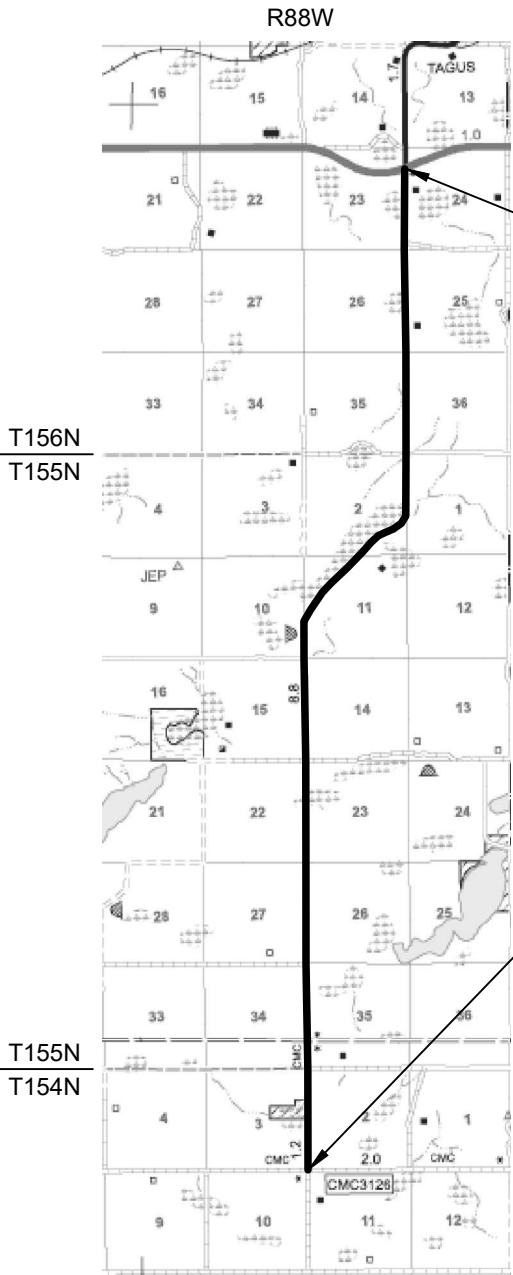
GOVERNING SPECIFICATIONS

Date Published and Adopted
by the North Dakota
Department of Transportation

Standard Specifications

7/1/2024

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
01(62)23	10.152	10.152



END Project - Sta. 1302+05

A point 22.49' west and 1,212.12' South of the
NW corner of Section 24, T156N, R88W
Mountrail County

BEGIN Project - Sta. 766+00

A point 2.44' east and 136.52' north of the
SW corner of Section 2, T154N, R88W
Mountrail County

Mountrail County Commissioners

John DeGroot
Joan Hollekim
Trudy Ruland
Wayne Olson
Jason Rice




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 1/28/25

Sauber Engineering, Inc



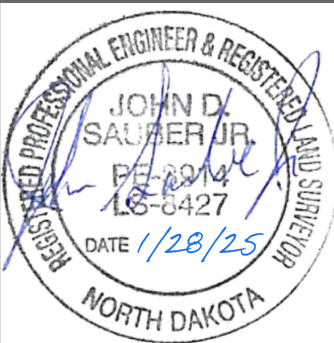
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					ND		01(62)23		2		1	
PLAN SECTIONS			LIST OF STANDARD DRAWINGS									
Section	Page(s)	Description	Number	Description								
1	1	Title Sheet	D-101-1, 2, 3, 4	NDDOT Abbreviations								
2	1	Table of Contents	D-101-10	NDDOT Utility Company and Organization Abbreviations								
4	1	Scope of Work	D-101-20, 21	Line Styles								
6	1 - 3	Notes	D-101-30, 31, 32, 33	Symbols								
8	1 - 2	Quantities	D-101-40	Cross Section Legend								
10	1	Basis of Estimate	D-203-8	Standard Rural Approaches								
11	1 - 9	Data Tables	D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation								
20	1 - 11	General Details	D-260-1	Erosion And Siltation Controls - Silt Fence								
30	1 - 2	Typical Sections	D-261-1	Erosion Control - Fiber Roll Placement Details								
51	1 - 4	Allowable Pipe List	D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube								
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76	1 - 14	Temporary Erosion Control	D-704-9	Construction Sign Details - Terminal And Guide Signs								
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100	1 - 2	Work Zone Traffic Control	D-704-13	Barricade And Channelizing Device Details								
110	1 - 17	Signing	D-704-14	Construction Sign Punching And Mounting Details								
200	1 - 208	Cross Sections	D-704-15	Road Closure Layouts								
			D-704-20	Terminal And Seal Coat Sign Layouts								
			D-704-22	Construction Truck And Temporary Detour Layouts								
			D-704-26	Miscellaneous Sign Layouts								
			D-704-30	Windrow Marking								
			D-704-50	Portable Sign Support Assembly								
			D-708-6	Erosion And Siltation Controls - Median Or Ditch Inlet Protection								
			D-714-1	Reinforced Concrete Pipe Culverts And End Sections (Round Pipe)								
			D-714-4	Round Corrugated Steel Pipe Culverts And End Sections								
			D-714-22	Concrete Pipe, Cattle Pass, or Precast Concrete Box Culvert Ties								
			D-714-25	Transverse Mainline Pipe Installation Detail - Pipes More Than 4 Feet Below Top of Subgrade								
			D-714-26	Transverse Mainline Pipe Installation Detail - Pipes 4 Feet or Less Below Top of Subgrade								
			D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway								
			D-720-1	Standard Monuments And Right Of Way Markers								
			D-752-1	Standard Barbed Wire Fence								
			D-754-23	Perforated Tube Assembly Details								
			D-754-24, 25	Mounting Details Perforated Tube								
			D-754-24A	Breakaway Coupler System For Perforated Tubes								
			D-754-26, 27, 29	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs								
			D-754-57, 58	Sign Punching, Stringer and Support Location Details - Route Marker Signs								
			D-754-83	Object Markers - Culverts								
			D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs								
			D-766-1	Mailbox Location Details								
SPECIAL PROVISIONS												
Number	Description											
SC-7.20.B	Haul Roads											
SC-7.20.C	Buy America											
SC-7.20.D	Gravel Surfacing											
												

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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County Route 1 - Scope of Work

- Grading
- Culvert Replacement
- Aggregate Base Course with Geosynthetic Material
- Aggregate Surface Course
- Seeding



Scope of Work

Reconstruction

County Route 1

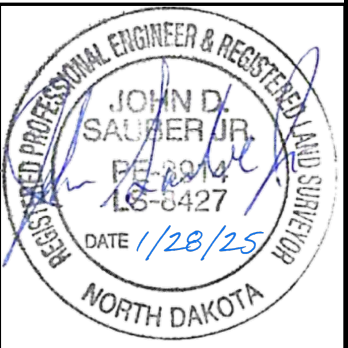
Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	6	1

NOTES

- 100-P01 GENERAL: The scope of the project includes grading, subgrade preparation, culvert replacement, geosynthetic material, aggregate base course, aggregate surface course and incidentals.
- 105-200 UTILITY COORDINATION: A utility coordination meeting is required.
- 105- P01 UTILITY COORDINATION: Coordinate work activities with the utility companies.
- 107-P01 MAINTAINING TRAFFIC – UNEVEN SHOULDER: If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:
- Construct a traversable wedge in the area of the drop-off or steep slope; or
 - Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging or pilot car operations.
- When constructing a wedge, construct a wedge composed of aggregate or earthen materials with a 4:1 or flatter slope along the entire length of the area. Compact materials using Type C compaction, as specified in 203.04 G.4, "Compaction Control Type C".
- Install stackable vertical panels that meet the requirements of Section 704.03 H, "Stackable Vertical Panels", along the edge of the driving lane closest to the wedge.
- The Engineer will measure stackable vertical panels as specified in Section 704.05, "Method of Measurement" and will pay for panels as specified in Section 704.06, "Basis of Payment".
- The Engineer will not measure material used to construct the wedge. Include the cost of materials, equipment, labor, and incidentals required for this operation in the price bid for other items.
- If a 4:1 or flatter wedge is not installed, provide 24 hour flagging or pilot car operations and associated traffic control at no additional cost to the County.
- 107-P02 AVOIDANCE AREA: Prior to beginning any work, install a temporary fence around the avoidance area near Sta. 1298+50 Lt as directed by the Engineer. Include all costs for installing temporary fence in other bid items.
- 108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.
- 108-P01 LIMITATION ON OPERATIONS: Limit grading operations, including removal of topsoil to a 3 mile length. Install geosynthetic material, aggregate base, and spread topsoil in the first of the 3 graded miles before extending grading operations to the next mile.

- 108-P02 MINOT AIR FORCE BASE: Invite the Minot Air Force Base office staff to the preconstruction conference.
- Contact:
Michelle Beavers
Missile Engineer
Phone # 701-723-3998
Email: michelle.beavers.2@us.af.mil
- 201-P01 CLEARING AND GRUBBING: The cost for removal of all trees (all sizes) and brush shall be included in the bid item "Clearing and Grubbing".
- The cost to remove the rock piles at Sta. 813+00 Rt, Sta. 815+00 Rt, Sta. 960+00 Rt, and Sta. 1029+00 Lt shall be included in the bid item "Clearing and Grubbing".
- 202-P01 FENCE REMOVAL: Notify landowners in writing, with a copy to the Engineer, a minimum of 30 days in advance of fence removal. Immediately prior to removing fence, coordinate verbally with adjacent landowners. Additional information, including property owners contact information will be available from the Engineer.
- Salvage the existing fence posts in a manner acceptable to the Engineer, and stockpile near the right-of-way line at a location designated by the Engineer. Remove all other existing fence items and dispose of in accordance with the specifications. Include all costs for salvaging fence posts in the bid item "Remove Existing Fence".
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 203-380 AVERAGE HAUL: The average haul shown on the plans does not include the dead haul from the borrow areas to the point of entry into the mass.
- 203-P01 TOPSOIL: The existing topsoil shall be removed and salvaged. Removal is based upon a 6" depth. Upon completion of the grading operations, the topsoil shall be spread evenly over disturbed areas and permanently stabilized. Measurements for all topsoil shall be Plan Quantity.
- 203-P02 BORROW-EXCAVATION: All borrow needed for the project shall be furnished by the contractor.

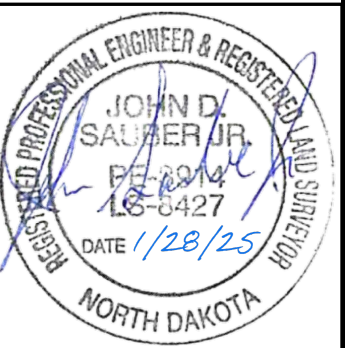


NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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- 203-P03 EMBANKMENT COMPACTION CONTROL: Embankment material shall be compacted in accordance with Section 203.04 G.2 of the Standard Specification. In areas not covered by subgrade preparation, scarify the subgrade to a depth of 6 inches within the roadbed and recompact material in accordance with Section 203.04 G.2 of the Standard Specification. Scarify and recompact fill areas prior to placing new embankment and in cut areas after excavation is complete.
- Conduct a proof roll of the entire project length to determine areas that are soft or weak. Conduct proof roll on the prepared subgrade after embankment has been constructed to grade.
- Perform proof roll under the observation of the Engineer with a fully loaded tandem axle dump truck with an approximate gross weight of 25 tons, or an approved equal. Proof roll at a vehicle speed between 1.5 and 3 miles per hour along the entire project length. The Engineer will require a minimum of three passes and may require enough passes such that unrolled areas between wheel paths are not wider than one (1) foot. Yielding of the subgrade shall be less than 1.5 inches. No permanent deformation of the subgrade will be allowed. Yielding includes pumping and/or rutting.
- Re-work areas not meeting the requirements of the proof roll until a passing proof test is obtained. Include all costs for the proof roll and the re-work of failed test areas in bid item "Common Excavation – Type A".
- 203-P04 DISCRETIONARY SUBCUT: If the Engineer determines that an area of the roadway is soft or weak, that area shall be subcut according to the discretionary subcut detail.
- 10,000 LF of discretionary subcut has been added to the quantities to be used at the discretion of the Engineer. For purposes of estimating quantities, it has been assumed there will be (20) separate 500 LF discretionary subcut sections.
- 230-P01 SUBGRADE PREPARATION – TYPE A – 18IN: Conduct subgrade preparation on the roadbed where the final subgrade elevation is within 4 feet of the existing road surface. Compaction control shall be in accordance with Section 203.04 G.2 of the Standard Specifications. In fill sections complete subgrade preparation on existing roadbed prior to placing new embankment. In cut sections complete subgrade preparation after excavation is complete.
- 251-P01 SEEDING & COVER CROP: seeding class III mixture shall contain 10 pounds per acre live seed of meadow broom grass, 5 pounds per acre live seed of alfalfa (Lodak) and oats or winter wheat at 10 pounds per acre of live seed. Measurements for seeding and cover crop shall be plan quantity.
- 253-P01 MULCH: Measurements for mulch shall be plan quantity.
- 256-P01 RIPRAP: Place riprap and fabric concurrently with embankment. Finished embankment slopes will be protected by riprap and fabric within 24 hours. Unfinished embankment slopes within the water will be limited to 500 lineal feet.

- 256-P02 EXISTING RIPRAP: The existing riprap may be salvaged and used for riprap on the project. The riprap must meet the specifications of Riprap Grade I. The existing riprap that may be salvaged has an estimated quantity of 3,690 CY. If the contractor does not elect to salvage this material, the removal cost of this material shall be included in other bid items.
- 261-P01 TEMPORARY EROSION CONTROL: Use the existing topsoil to create an earthen berm at the limits of construction. The topsoil berm in conjunction with the existing vegetation and the devices shown in the plans will serve as the temporary erosion control.
- Build the berm to a 1.0 foot minimum height. Allow stormwater to drain through the berm as needed by placing intermittent weirs along the length of the berm. Construct the weirs no more than 5.0 feet wide and place fiber rolls across the weirs on the downstream side of the berm. If stormwater is present at the time of the weir construction, place fiber rolls prior to construction of the weir. 3,000 LF has been added to the quantity of Fiber Rolls 12IN for the weirs and other areas where runoff leaves the site as directed by the Engineer.
- When the grading operations are complete, spread the topsoil berm over the disturbed area in preparation for the permanent erosion control measures. The topsoil berm is not a separate pay item. All costs associated with constructing, maintaining, and removing the berm shall be included in the bid item "Topsoil".
- 302-P01 TRAFFIC SURFACE AGGREGATE: Provide Traffic Surface Aggregate to maintain traffic during construction. The need and use of this material will be at the discretion of the Engineer.
- 302-P02 SALVAGE AGGREGATE SURFACE COURSE: The existing aggregate surface may be salvaged and used for traffic surface aggregate, pipe bedding/backfill (needs to meet CI 3 or CI 5 Specifications) or aggregate base (needs to meet CI 5 Specifications). The existing aggregate surface that may be salvaged has an estimated depth of 2 inches for an estimated quantity of 16,000 tons. If the contractor elects to salvage this material, a minimum aggregate surface, as determined by the Engineer, must be maintained on the existing roadway.
- 704-P01 WORK ZONE TRAFFIC CONTROL: Maintain traffic through the project for the duration of the project. Provide a minimum of one lane for traffic at all times and during all construction operations.



NOTES

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- 704-P02 TRAFFIC CONTROL: The traffic control devices list has been developed using the following layouts on the Standard Drawings for traffic control:
- 1. Standard D-704-15, Type A to be used any time conditions exist.
 - 2. Standard D-704-20, use for Terminal Layout
 - 3. Standard D-704-22, Type M use for culvert installation (Quantities based on two (2) concurrent pipe installations.) & Type K and Type L as conditions exist.
 - 4. Standard D-704-26, Type EE as conditions exist.
- 704-P03 FLAGGING LIMITATIONS: Limit the length of the work zone controlled by flaggers to no more than 3 miles for the earthwork and base items.
- 704-P04 WORK ZONE SPEED LIMIT: Limit the speed within the work zone to no more than 25 mph.
- 704-P05 ONE LANE ROAD: Install W20-4-48 signs at the nearest intersection roadways when any construction activity limits the travel way width to less than 28 feet.
- 706- P01 AGGREGATE LABORATORY: The Engineer will utilize the aggregate laboratory as a field office for the duration of the project. Have the aggregate laboratory on the project site and ready for use 1 week prior to the beginning of construction activities.
- 714-P01 APPROACH CULVERT: Notify the United States Air Force in writing, with a copy to the Engineer, a minimum of 30 days in advance of replacing the approach culvert at Sta. 860+46 Rt & Sta. 1164+73 Rt.
- Contact: Michelle Beavers
Missile Engineer
- Address: 5th Civil Engineer Squadron
Minot Air Force Base
300 Minuteman Drive
Minot AFB, ND 58705
- Phone # 701-723-3998
- Email: michelle.beavers.2@us.af.mil
- 714-P02 SUBMERSED CENTERLINE PIPE: Include all costs for cofferdams, including embankment, and dewatering for the installation of the submerged centerline pipes in the pipe conduit bid items.
- Dewater the pipe trench and work area. After installing the culverts, remove the cofferdam in its entirety. Remove all the cofferdam embankment and do not push the embankment into the water so it is below the water elevation. If the removed embankment is incorporated into other areas of the project, the material will be paid for as "Borrow-Excavation". If the cofferdam embankment is not incorporated into other areas of the project, haul the material back to the borrow pit prior to final cross sectioning.

- 752-P01 TEMPORARY FENCE: Install all temporary fence to match the existing fence.
- 752-P02 FENCE POSTS: Use wood posts for all, Double Brace Assemblies, Fence Terminals, Vehicle Gate, and Corner Brace Assemblies.
- All Corner posts, End posts, Brace posts, and Gate posts shall have a post length of 9' from sta. 817+00 to sta. 897+00.
- 752-P03 Vehicle Gate: Install the vehicle gate with an opening width as specified on the plan and profile sheet, where applicable. If no width is specified, install the vehicle gate with the width indicated on the standard drawing.



Estimated Quantities



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
103	0100	CONTRACT BOND	L SUM	1
201	0330	CLEARING & GRUBBING	L SUM	1
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	1732
202	0312	REMOVE EXISTING FENCE	LF	12455
203	0101	COMMON EXCAVATION-TYPE A	CY	615460
203	0109	TOPSOIL	CY	103394
203	0119	TOPSOIL-IMPORTED	CY	3325
203	0138	COMMON EXCAVATION-SUBCUT	CY	46060
203	0140	BORROW-EXCAVATION	CY	231780
203	0180	ROADWAY OBLITERATION	LF	5400
216	0100	WATER	M GAL	11079
230	0172	SUBGRADE PREPARATION-TYPE A-18IN	STA	358
251	0300	SEEDING CLASS III	ACRE	147.75
251	2000	TEMPORARY COVER CROP	ACRE	147.75
253	0101	STRAW MULCH	ACRE	295.5
255	0103	ECB TYPE 3	SY	61346
255	0202	TRM TYPE 2	SY	5183
255	0310	REMOVE CONCRETE EROSION CONTROL BLANKET	SY	2507
255	0320	RESET CONCRETE EROSION CONTROL BLANKET	SY	2507
256	0100	RIPRAP GRADE I	CY	4184
260	0200	SILT FENCE SUPPORTED	LF	18435
260	0201	REMOVE SILT FENCE SUPPORTED	LF	18435
261	0112	FIBER ROLLS 12IN	LF	7320
261	0113	REMOVE FIBER ROLLS 12IN	LF	5160
261	0120	FIBER ROLLS 20IN	LF	19560
261	0121	REMOVE FIBER ROLLS 20IN	LF	9780
262	0100	FLOTATION SILT CURTAIN	LF	9050
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	9050
302	0120	AGGREGATE BASE COURSE CL 5	TON	70519
302	0241	AGGREGATE FOR SUBGRADE REPAIR	TON	86360
302	0314	TEMPORARY TRAFFIC SURFACE AGGREGATE	TON	10152
350	0500	GRAVEL SURFACING	TON	36965
702	0100	MOBILIZATION	L SUM	1
704	0100	FLAGGING	MHR	3000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2955
704	1052	TYPE III BARRICADE	EA	4
704	1080	STACKABLE VERTICAL PANELS	EA	240
704	1185	PILOT CAR	HR	1500
706	0500	AGGREGATE LABORATORY	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	181701
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	51000
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	12669
714	4105	PIPE CONDUIT 24IN	LF	834
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	3608
714	4110	PIPE CONDUIT 30IN	LF	2044
714	4115	PIPE CONDUIT 36IN	LF	1012
714	4125	PIPE CONDUIT 48IN	LF	368

Estimated Quantities						STATE	PROJECT NO.	SECTION NO.	SHEET NO.
						ND	01(62)23	8	2
SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL					
714	4130	PIPE CONDUIT 54IN	LF	98					
720	0110	RIGHT OF WAY MARKERS	EA	106					
752	0320	FENCE BARBED WIRE 4 STRAND-STEEL POST	LF	4220					
752	0400	FENCE BARBED WIRE 5 STRAND	LF	8235					
752	0905	TEMPORARY FENCE	LF	12455					
752	0993	FENCE TERMINAL	EA	1					
752	2100	VEHICLE GATE	EA	7					
752	3140	CORNER ASSEMBLY BARBED WIRE	EA	10					
752	4100	DOUBLE BRACE ASSEMBLY BARBED WIRE	EA	6					
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	226.8					
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	140.4					
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	743.7					
754	0592	RESET SIGN PANEL	EA	3					
754	0593	RESET SIGN SUPPORT	EA	3					
754	0805	OBJECT MARKERS - CULVERTS	EA	74					
766	0100	MAILBOX-ALL TYPES	EA	3					

Basis of Estimate

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	10	1

Materials	
Aggregate Base Course Class 5	1.875 Tons/CY
Temporary Traffic Surface Aggregate	1,000 Tons/Mile
Gravel Surfacing	1.875 Tons/CY
Water	
Dust Palliative	25 MGal/Mile
Aggregate Base Course Class 5	20 Gal/Ton
Temporary Traffic Surface Aggregate	20 Gal/Ton
Gravel Surfacing	20 Gal/Ton
Embankment	10 Gal/CY
Topsoil	
6" Depth - Construction Limits minus existing road surface	
Seeding, Mulching, Temporary Cover Crop	
Based on a width 10' outside the construction limits.	
Fiber Rolls	
12IN Inlet Protection	4,320 LF
12IN Weirs/As Directed by Engineer	3,000 LF
20IN Ditch Checks	19,560 LF
Temporary Fence	
Install Temporary Fence (actual quantity will be subject to landowner needs)	
Traffic Control	
Stackable Vertical Panels based on 2 miles of shoulder drop-off	

OBJECT MARKERS - CULVERTS	
Location	Quantity (EA)
Sta. 782+75 (Lt & Rt)	2
Sta. 795+65 (Lt & Rt)	2
Sta. 802+94 Lt	1
Sta. 803+35 Rt	1
Sta. 814+00 (Lt & Rt)	2
Sta. 820+85 (Lt & Rt)	2
Sta. 827+20 (Lt & Rt)	2
Sta. 857+16 (Lt & Rt)	2
Sta. 865+21 (Lt & Rt)	2
Sta. 869+64 (Lt & Rt)	2
Sta. 884+99 Lt	1
Sta. 885+56 Rt	1
Sta. 892+79 Rt	1
Sta. 893+13 Lt	1
Sta. 908+97 (Lt & Rt)	2
Sta. 924+50 (Lt & Rt)	2
Sta. 939+25 Lt	1
Sta. 939+50 Rt	1
Sta. 951+60 (Lt & Rt)	2
Sta. 959+20 (Lt & Rt)	2
Sta. 985+39 Rt	1
Sta. 986+06 Lt	1
Sta. 991+83 (Lt & Rt)	2
Sta. 1015+00 (Lt & Rt)	2
Sta. 1029+51 (Lt & Rt)	2
Sta. 1043+65 (Lt & Rt)	2
Sta. 1059+80 (Lt & Rt)	2
Sta. 1064+20 (Lt & Rt)	2
Sta. 1074+62 (Lt & Rt)	2
Sta. 1088+00 (Lt & Rt)	2
Sta. 1117+19 (Lt & Rt)	2
Sta. 1125+95 (Lt & Rt)	2
Sta. 1129+17 (Lt & Rt)	2
Sta. 1153+70 Lt	1
Sta. 1153+89 Rt	1
Sta. 1182+35 (Lt & Rt)	2
Sta. 1213+84 (Lt & Rt)	2
Sta. 1218+95 (Lt & Rt)	2
Sta. 1231+15 (Lt & Rt)	2
Sta. 1238+30 (Lt & Rt)	2
Sta. 1268+15 (Lt & Rt)	2
Sta. 1274+68 (Lt & Rt)	2
Sta. 1285+88 (Lt & Rt)	2
Total	74

Subgrade Preperation Location			
Station	to	Station	Sta
764+00	to	768+00	4
774+00	to	780+00	6
783+00	to	785+00	2
791+00	to	796+00	5
806+00	to	812+00	6
816+00	to	818+00	2
822+00	to	832+00	10
837+00	to	872+00	35
875+00	to	892+00	17
895+00	to	898+00	3
904+00	to	906+00	2
911+00	to	922+00	11
930+00	to	933+00	3
936+00	to	938+00	2
943+00	to	949+00	6
952+00	to	961+00	9
967+00	to	975+00	8
979+00	to	990+00	11
994+00	to	1023+00	29
1026+00	to	1029+00	3
1034+00	to	1037+00	3
1040+00	to	1042+00	2
1046+00	to	1049+00	3
1052+00	to	1054+00	2
1066+00	to	1071+00	5
1080+00	to	1098+00	18
1106+00	to	1129+00	23
1136+00	to	1148+00	12
1157+00	to	1179+00	22
1184+00	to	1210+00	26
1214+00	to	1223+00	9
1230+00	to	1233+00	3
1236+00	to	1238+00	2
1245+00	to	1262+00	17
1265+00	to	1302+00	37
		Total	358

MAILBOXES			
Station	Type	Number	Work
1219+70 Lt	Single	1	Replace
1295+14 Lt	Single	1	Replace
1295+20 Lt	Single	1	Replace

RIGHT OF WAY MARKERS							
Station	Offset		Station	Offset		Station	Offset
765+38.46	75' Rt & Lt		905+00	75' Lt		1055+81.69	85.92' Rt
791+02.46	75' Rt & Lt		905+00	90' Lt		1055+81.69	85.37' Lt
804+22.84	43.72' Rt		910+00	95' Rt		1065+68.96	75' Rt & Lt
804+22.84	63.69' Rt		910+00	75' Rt		1088+72.32	75' Rt & Lt
804+22.84	64.31' Lt		911+00	90' Lt		1090+38.13	75' Lt
804+22.84	106.31' Lt		911+00	75' Lt		1091+33.87	75' Lt
812+00	63' Rt		922+31.23	75' Rt & Lt		1092+03.81	75' Rt
812+00	73' Rt		923+81.23	100' Rt		1093+07.67	75' Rt
816+58.73	73.09' Rt		923+81.23	85' Lt		1095+74.69	75' Rt & Lt
816+58.73	64.91' Lt		928+00	100' Rt		1116+13.96	75' Rt & Lt
818+08.74	44.91' Rt		928+00	75' Rt		1121+51.13	75' Rt
818+08.74	105.09' Lt		928+00	85' Lt		1123+28.03	75' Rt
843+81.62	75' Rt & Lt		928+00	75' Lt		1126+17.30	75' Rt & Lt
869+54.28	75' Rt & Lt		949+44.78	75' Rt & Lt		1129+48.86	75' Rt & Lt
871+04.28	75' Rt & Lt		975+08.16	75' Rt & Lt		1155+19	75' Rt & Lt
892+00	75' Rt		976+58.16	75' Rt & Lt		1156+69	75' Rt & Lt
892+00	100' Rt		1002+24.38	75' Rt & Lt		1182+48.27	75' Rt & Lt
892+00	75' Lt		1027+90.70	75' Rt & Lt		1208+27.54	75' Rt & Lt
892+00	85' Lt		1029+40.70	75' Rt & Lt		1209+77.54	75' Rt & Lt
894+00	85' Lt		1037+88.35	75' Rt & Lt		1235+24.07	75' Rt & Lt
894+00	75' Lt		1043+00	75' Rt		1260+63.49	75' Rt & Lt
895+00	100' Rt		1043+00	90' Rt		1262+13.49	75' Rt & Lt
895+00	75' Rt		1043+30.05	75' Rt		1287+77.89	75' Rt & Lt
896+67.72	75' Rt & Lt		1046+00	90' Rt		1300+34.15	75' Lt
905+00	75' Rt		1046+00	75' Rt		1300+93.56	75' Rt
905+00	95' Rt		1046+58.33	75' Lt			
Total						106	



Basis of Estimate

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
765+00	1.25	0	0.00	0	0.00	0.00	0.00	0.00	0.00
766+00	1.25	31.43	58.20	9.53	17.65	22.06	36.14	28.37	52.54
767+00	1.25	180.85	393.11	0	17.65	22.06	407.19	36.13	119.44
768+00	1.25	467.84	1201.28	0	0.00	0.00	1,608.47	59.63	177.33
769+00	1.25	675.99	2118.20	0	0.00	0.00	3,726.68	56.90	215.80
770+00	1.25	755.63	2651.15	0	0.00	0.00	6,377.82	59.72	215.96
771+00	1.25	769.48	2824.28	0	0.00	0.00	9,202.10	66.81	234.31
772+00	1.25	732.6	2781.63	0	0.00	0.00	11,983.73	65.65	245.30
773+00	1.25	761.66	2767.15	0	0.00	0.00	14,750.88	70.37	251.89
774+00	1.25	577.22	2479.41	0	0.00	0.00	17,230.29	70.47	260.81
775+00	1.25	311.07	1644.98	0	0.00	0.00	18,875.27	66.88	254.35
776+00	1.25	38.04	646.50	25.44	47.11	58.89	19,462.88	36.60	191.63
777+00	1.25	19.78	107.07	187.44	394.22	492.78	19,077.18	46.01	152.98
778+00	1.25	0	36.63	336.02	969.37	1211.71	17,902.09	42.40	163.72
779+00	1.25	0	0.00	425.14	1409.56	1761.94	16,140.15	42.65	157.50
780+00	1.25	0	0.00	465.25	1648.87	2061.09	14,079.06	42.73	158.11
781+00	1.25	54.95	101.76	460.89	1715.07	2143.84	12,036.98	52.60	176.54
782+00	1.25	0	101.76	500.17	1779.74	2224.68	9,914.06	38.16	168.07
783+00	1.25	0	0.00	530.13	1907.96	2384.95	7,529.11	39.62	144.04
784+00	1.25	35.3	65.37	266.14	1474.57	1843.22	5,751.26	44.79	156.31
785+00	1.25	677.8	1320.56	0	492.85	616.06	6,455.75	57.29	189.04
786+00	1.25	1056.47	3211.61	0	0.00	0.00	9,667.36	62.37	221.59
787+00	1.25	867.98	3563.80	0	0.00	0.00	13,231.16	62.84	231.87
788+00	1.25	1463.14	4316.89	0	0.00	0.00	17,548.05	89.61	282.31
789+00	1.25	1000.88	4563.00	0	0.00	0.00	22,111.05	71.85	299.00
789+81	1.25	-	0.00	-	160.00	200.00	21,911.05	-	-
790+00	1.25	1398.85	4443.94	0	0.00	0.00	26,354.99	63.26	250.20
791+00	1.25	746.88	3973.57	0	400.00	500.00	29,828.56	50.60	210.85
792+00	1.25	160.77	1680.83	116.98	216.63	270.79	31,238.61	47.09	180.91
793+00	1.25	0	297.72	321.83	812.61	1015.76	30,520.57	36.17	154.19
794+00	1.25	0	0.00	470.77	1467.78	1834.72	28,685.85	41.71	144.22
795+00	1.25	0	0.00	537.74	1867.61	2334.51	26,351.33	43.54	157.87
796+00	1.25	0	0.00	660.17	2218.35	2772.94	23,578.39	49.96	173.15
797+00	1.25	0	0.00	885.45	2862.26	3577.82	20,000.57	52.11	189.02
798+00	1.25	0	0.00	1010.49	3511.00	4388.75	15,611.82	52.33	193.41
799+00	1.25	0	0.00	735.45	3233.22	4041.53	11,570.29	46.08	182.24
800+00	1.25	4.62	8.56	330.96	1974.83	2468.54	9,110.31	34.78	149.74
801+00	1.25	233.3	440.59	134.08	861.19	1076.48	8,474.42	41.58	141.41
802+00	1.25	280.77	951.98	171.19	565.31	706.64	8,719.75	45.91	162.02
803+00	1.25	28.55	572.81	459.14	1167.28	1459.10	7,833.47	46.42	170.98
804+00	1.25	0	52.87	796.63	2325.50	2906.88	4,979.47	43.65	166.80
805+00	1.25	42.39	78.50	393.66	2204.24	2755.30	2,302.67	40.72	156.24
806+00	1.25	133.47	325.67	163.12	1031.07	1288.84	1,339.49	32.72	136.00
806+58	1.25	-	0.00	-	160.00	200.00	1,139.49	-	-
807+00	1.25	249.18	708.61	54.95	403.83	504.79	1,343.31	41.67	137.76
808+00	1.25	163.86	764.89	429.71	897.52	1121.90	986.30	41.79	154.56
809+00	1.25	202.7	678.81	136.39	1048.33	1310.42	354.70	30.77	134.37
810+00	1.25	615.64	1515.44	0.46	253.43	316.78	1,553.36	51.92	153.13
811+00	1.25	405.37	1890.76	27.02	50.89	63.61	3,380.51	45.86	181.07
812+00	1.25	31.11	808.30	311.99	627.80	784.75	3,404.06	33.65	147.24
813+00	1.25	0	57.61	1332.82	3045.94	3807.43	-345.76	54.91	164.00
814+00	1.25	0	0.00	1425.08	5107.22	6384.03	-6,729.79	55.27	204.04
815+00	1.25	0	0.00	984.72	4462.59	5578.24	-12,308.03	49.66	194.31
816+00	1.25	150.71	279.09	121.75	2049.02	2561.27	-14,590.21	42.46	170.59
817+00	1.25	588.86	1369.57	0	225.46	281.83	-13,502.46	41.46	155.41
817+24	1.25	-	0.00	-	160.00	200.00	-13,702.46	-	-
817+29	1.25	-	0.00	-	160.00	200.00	-13,902.46	-	-
818+00	1.25	167.27	1400.24	189.7	351.30	439.12	-12,941.34	37.51	146.24
819+00	1.25	61.53	423.70	520.88	1315.89	1644.86	-14,162.50	56.44	173.98
820+00	1.25	0	113.94	808.87	2462.50	3078.13	-17,126.68	44.16	186.30
821+00	1.25	0	0.00	822.97	3021.93	3777.41	-20,904.09	44.44	164.07
822+00	1.25	2.41	4.46	381.05	2229.67	2787.08	-23,686.71	24.54	127.74
823+00	1.25	580.94	1080.28	0	705.65	882.06	-23,488.49	65.17	166.13
824+00	1.25	1068.3	3054.15	0	0.00	0.00	-20,434.34	81.21	271.07
824+32	1.25	-	0.00	-	160.00	200.00	-20,634.34	-	-
824+85	1.25	-	0.00	-	160.00	200.00	-20,834.34	-	-
825+00	1.25	315.71	2562.98	33.24	61.56	76.94	-18,348.31	44.57	232.93
826+00	1.25	2.07	588.48	348.39	706.72	883.40	-18,643.23	37.27	151.56
827+00	1.25	0	3.83	555.75	1674.33	2092.92	-20,732.31	44.28	151.02
828+00	1.25	0	0.00	735.54	2391.28	2989.10	-23,721.41	45.54	166.33
829+00	1.25	0	0.00	695.9	2650.81	3313.52	-27,034.93	41.65	161.46
830+00	1.25	39.66	73.44	192.42	1645.04	2056.30	-29,017.78	42.21	155.30
831+00	1.25	495.47	990.98	0	356.33	445.42	-28,472.21	57.99	185.56
832+00	1.25	790.41	2381.26	0	0.00	0.00	-26,090.95	63.23	224.48
833+00	1.25	647.94	2663.61	0	0.00	0.00	-23,427.34	53.60	216.35
834+00	1.25	821.37	2720.94	0	0.00	0.00	-20,706.40	59.71	209.83
834+89	1.25	-	0.00	-	400.00	500.00	-21,206.40	-	-
835+00	1.25	1042.98	3452.50	0	0.00	0.00	-17,753.90	64.27	229.59
836+00	1.25	927.87	3649.72	0	0.00	0.00	-14,104.18	67.20	243.46
836+95	1.25	-	0.00	-	400.00	500.00	-14,604.18	-	-

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	1



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
837+00	1.25	680.59	2978.63	0	0.00	0.00	-11,625.55	61.81	238.91
838+00	1.25	276.6	1772.57	0	0.00	0.00	-9,852.97	46.79	201.11
839+00	1.25	141.37	774.02	42.57	78.83	98.54	-9,177.50	36.14	153.57
840+00	1.25	274.33	769.81	10.43	98.15	122.69	-8,530.37	46.94	153.85
841+00	1.25	457.96	1356.09	0	19.31	24.14	-7,198.42	50.37	180.20
842+00	1.25	428.29	1641.20	0	0.00	0.00	-5,557.21	51.04	187.80
843+00	1.25	355.61	1451.67	0	0.00	0.00	-4,105.55	48.12	183.63
843+90	1.25	-	0.00	-	400.00	500.00	-4,605.55	-	-
844+00	1.25	662.86	1886.06	0	0.00	0.00	-2,719.49	58.36	197.19
845+00	1.25	696.56	2517.44	0	0.00	0.00	-202.05	56.23	212.20
845+78	1.25	-	0.00	-	160.00	200.00	-402.05	-	-
846+00	1.25	869.86	2900.78	0	0.00	0.00	2,498.73	63.15	221.07
847+00	1.25	374.39	2304.17	0	0.00	0.00	4,802.90	51.69	212.67
848+00	1.25	12.32	716.13	75.87	140.50	175.63	5,343.40	32.77	156.41
848+20	1.25	-	0.00	-	400.00	500.00	4,843.40	-	-
849+00	1.25	0	22.81	283.52	665.54	831.92	4,034.30	33.96	123.57
850+00	1.25	4.16	7.70	297.82	1076.56	1345.69	2,696.31	38.38	133.96
851+00	1.25	76.33	149.06	165.86	858.67	1073.33	1,772.03	58.78	179.93
852+00	1.25	463.04	998.83	41.18	383.41	479.26	2,291.60	66.69	232.35
853+00	1.25	458.35	1706.28	52.87	174.17	217.71	3,780.17	78.91	269.63
854+00	1.25	31.82	907.72	225.95	516.33	645.42	4,042.48	37.61	215.78
855+00	1.25	0	58.93	492.4	1330.28	1662.85	2,438.56	34.47	133.48
856+00	1.25	0	0.00	719.61	2244.46	2805.58	-367.02	42.13	141.85
857+00	1.25	0	0.00	702.46	2633.46	3291.83	-3,658.85	43.33	158.26
858+00	1.25	0	0.00	321.22	1895.70	2369.63	-6,028.48	31.04	137.72
859+00	1.25	163.43	302.65	12.3	617.63	772.04	-6,497.87	46.12	142.89
860+00	1.25	807.72	1798.43	0	22.78	28.47	-4,727.92	68.03	211.39
860+31	1.25	-	0.00	-	160.00	200.00	-4,927.92	-	-
860+46	1.25	-	0.00	-	160.00	200.00	-5,127.92	-	-
861+00	1.25	665.58	2728.33	0	0.00	0.00	-2,399.58	64.83	246.04
862+00	1.25	103.63	1424.46	63.08	116.81	146.02	-1,121.14	38.99	192.26
863+00	1.25	28.78	245.20	328.85	725.80	907.25	-1,783.18	43.11	152.04
864+00	1.25	5.76	63.96	561.59	1648.96	2061.20	-3,780.42	42.15	157.89
865+00	1.25	5.15	20.20	634.03	2214.11	2767.64	-6,527.86	44.55	160.56
866+00	1.25	8.84	25.91	524.3	2145.06	2681.32	-9,183.27	42.98	162.09
867+00	1.25	149.2	292.67	148.27	1245.50	1556.88	-10,447.48	49.15	170.61
868+00	1.25	198.57	644.02	60.81	387.19	483.98	-10,287.44	49.27	182.26
869+00	1.25	28.28	420.09	190.2	464.83	581.04	-10,448.39	41.59	168.26
870+00	1.25	8.37	67.87	145.58	621.81	777.27	-11,157.79	34.96	141.76
870+29	1.25	-	0.00	-	160.00	200.00	-11,357.79	-	-
870+36	1.25	-	0.00	-	160.00	200.00	-11,557.79	-	-
871+00	1.25	286.6	546.24	19.98	306.59	383.24	-11,394.79	49.70	156.78
872+00	1.25	734.29	1890.54	0	37.00	46.25	-9,550.50	64.67	211.80
873+00	1.25	987.71	3188.89	0	0.00	0.00	-6,361.61	69.12	247.76
874+00	1.25	931.88	3554.80	0	0.00	0.00	-2,806.81	68.23	254.35
875+00	1.25	831.6	3265.70	0	0.00	0.00	458.89	66.02	248.61
876+00	1.25	471.02	2412.26	0	0.00	0.00	2,871.15	55.52	225.07
877+00	1.25	183.31	1211.72	55.19	102.20	127.75	3,955.12	46.22	188.41
878+00	1.25	123.08	567.39	150.96	381.76	477.20	4,045.31	54.11	185.80
879+00	1.25	329.41	837.94	29.53	334.24	417.80	4,465.45	56.05	204.00
880+00	1.25	798.82	2089.31	0	54.69	68.36	6,486.41	76.15	244.81
881+00	1.25	1533.32	4318.78	0	0.00	0.00	10,805.19	90.75	309.07
882+00	1.25	381.52	3546.00	0	0.00	0.00	14,351.19	60.32	279.76
883+00	1.25	0	706.52	312.25	578.24	722.80	14,334.90	30.94	169.00
884+00	1.25	128.25	237.50	379.46	1280.94	1601.18	12,971.22	53.09	155.61
884+80	1.25	-	0.00	-	400.00	500.00	12,471.22	-	-
885+00	1.25	0	237.50	270.8	1204.19	1505.23	11,203.49	23.15	141.19
886+00	1.25	110.29	204.24	207.76	886.22	1107.78	10,299.95	53.58	142.09
887+00	1.25	295.16	750.83	27.84	436.30	545.37	10,505.42	54.48	200.11
888+00	1.25	401.94	1290.93	2.71	56.57	70.72	11,725.63	52.35	197.83
889+00	1.25	236.3	1181.93	71.28	137.02	171.27	12,736.28	57.87	204.11
889+90	1.25	-	0.00	-	400.00	500.00	12,236.28	-	-
890+00	1.25	192.36	793.81	125.89	365.13	456.41	12,573.68	51.31	202.19
891+00	1.25	106.37	553.20	281.25	753.96	942.45	12,184.43	48.55	184.93
892+00	1.25	14.01	222.93	876.33	2143.67	2679.58	9,727.77	52.34	186.83
893+00	1.25	0	25.94	2118.07	5545.19	6931.48	2,822.24	69.44	225.52
894+00	1.25	0	0.00	1561.94	6814.83	8518.54	-5,696.31	58.53	236.98
895+00	1.25	0	0.00	543.01	3898.06	4872.57	-10,568.88	33.25	169.96
896+00	1.25	146.76	271.78	101.5	1193.54	1491.92	-11,789.02	44.21	143.44
896+20	1.25	-	0.00	-	160.00	200.00	-11,989.02	-	-
896+71	1.25	-	0.00	-	160.00	200.00	-12,189.02	-	-
897+00	1.25	764.37	1687.28	0	187.96	234.95	-10,736.69	66.27	204.59
897+57	1.25	-	0.00	-	160.00	200.00	-10,936.69	-	-
898+00	1.25	1110.55	3472.07	0	0.00	0.00	-7,464.62	69.04	250.57
899+00	1.25	976.1	3864.17	0	0.00	0.00	-3,600.45	65.85	249.80
900+00	1.25	577.28	2876.63	0	0.00	0.00	-723.82	47.13	209.22
901+00	1.25	955.35	2838.20	0	0.00	0.00	2,114.38	61.33	200.85
902+00	1.25	2261.44	5957.02	0	0.00	0.00	8,071.40	94.82	289.17
903+00	1.25	3366.23	10421.61	0	0.00	0.00	18,493.01	105.89	371.69
904+00	1.25	2796.21	11411.93	0	0.00	0.00	29,904.94	102.11	385.19

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	2



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
905+00	1.25	594.83	6279.70	0	0.00	0.00	36,184.64	54.11	289.30
906+00	1.25	0	1101.54	1584.25	2933.80	3667.25	33,618.93	65.28	221.09
907+00	1.25	0	0.00	2391.13	7361.81	9202.27	24,416.66	71.49	253.28
908+00	1.25	0	0.00	2449.53	8964.19	11205.23	13,211.43	71.64	265.06
909+00	1.25	0	0.00	2359.67	8905.93	11132.41	2,079.02	71.71	265.46
910+00	1.25	0	0.00	1561.92	7262.20	9077.75	-6,998.73	57.90	240.02
911+00	1.25	81.19	150.35	438.24	3704.00	4630.00	-11,478.38	45.28	191.07
912+00	1.25	67.93	276.15	115.84	1026.07	1282.59	-12,484.82	33.93	146.69
913+00	1.25	222.89	538.56	20.24	252.00	315.00	-12,261.27	38.12	133.43
914+00	1.25	178.5	743.31	19.77	74.09	92.62	-11,610.57	38.31	141.54
914+53	1.25	-	0.00	-	320.00	400.00	-12,010.57	-	-
915+00	1.25	1.16	332.70	412.31	800.15	1000.19	-12,678.05	41.37	147.56
916+00	1.25	0	2.15	560.29	1801.11	2251.39	-14,927.29	38.20	147.35
917+00	1.25	0	0.00	221.56	1447.87	1809.84	-16,737.13	27.37	121.43
918+00	1.25	315.35	583.98	0.46	411.15	513.94	-16,667.08	42.39	129.19
918+36	1.25	-	0.00	-	160.00	200.00	-16,867.08	-	-
919+00	1.25	975.66	2390.76	0	0.85	1.06	-14,477.39	62.56	194.35
920+00	1.25	1563.5	4702.15	0	0.00	0.00	-9,775.24	81.54	266.85
921+00	1.25	1038.56	4818.63	0	0.00	0.00	-4,956.61	76.62	292.89
922+00	1.25	63.81	2041.43	526.7	975.37	1219.21	-4,134.40	69.89	271.31
923+00	1.25	0	118.17	1534.99	3817.94	4772.43	-8,788.66	61.19	242.74
924+00	1.25	0	0.00	1799.16	6174.35	7717.94	-16,506.60	64.02	231.87
925+00	1.25	0	0.00	1707.79	6494.35	8117.94	-24,624.54	61.14	231.78
926+00	1.25	0	0.00	1505.45	5950.44	7438.06	-32,062.60	61.26	226.67
927+00	1.25	0	0.00	1302.96	5200.76	6500.95	-38,563.55	56.18	217.48
928+00	1.25	0	0.00	1085.12	4422.37	5527.96	-44,091.51	48.80	194.41
929+00	1.25	1.67	3.09	820.76	3529.41	4411.76	-48,500.18	47.56	178.44
930+00	1.25	0	3.09	640.32	2705.70	3382.13	-51,879.21	39.24	160.74
931+00	1.25	0	0.00	413.67	1951.83	2439.79	-54,319.00	34.47	136.50
932+00	1.25	103.36	191.41	69.49	894.74	1118.43	-55,246.02	27.44	114.65
933+00	1.25	1347.82	2687.37	0	128.69	160.86	-52,719.51	77.98	195.22
934+00	1.25	3670.83	9293.80	0	0.00	0.00	-43,425.71	114.37	356.20
935+00	1.25	3950.2	14113.02	0	0.00	0.00	-29,312.69	112.45	420.04
936+00	1.25	2250.61	11482.98	0	0.00	0.00	-17,829.71	102.16	397.43
937+00	1.25	245.99	4623.33	44.94	83.22	104.03	-13,310.41	48.06	278.19
938+00	1.25	0	455.54	748.04	1468.48	1835.60	-14,690.47	40.85	164.65
939+00	1.25	0	0.00	1283.22	3761.59	4701.99	-19,392.46	51.87	171.70
940+00	1.25	0	0.00	1376.36	4925.15	6156.44	-25,548.90	53.37	194.89
941+00	1.25	0	0.00	1166.76	4709.48	5886.85	-31,435.75	28.01	150.70
942+00	1.25	0	0.00	992.28	3998.22	4997.78	-36,433.53	47.61	140.04
943+00	1.25	0	0.00	425.52	2625.56	3281.94	-39,715.47	33.47	150.15
943+50	1.25	-	0.00	-	1360.00	1700.00	-41,415.47	-	-
944+00	1.25	427.29	791.28	0	788.00	985.00	-41,609.19	60.75	174.48
945+00	1.25	1284.14	3169.31	0	0.00	0.00	-38,439.88	80.92	262.35
946+00	1.25	1459.66	5081.11	0	0.00	0.00	-33,358.77	79.61	297.28
947+00	1.25	1063.94	4673.33	0	0.00	0.00	-28,685.44	63.97	265.89
948+00	1.25	335.23	2591.06	0	0.00	0.00	-26,094.38	47.97	207.30
949+00	1.25	9.55	638.48	402.5	745.37	931.71	-26,387.61	39.85	162.63
950+00	1.25	0	17.69	1087.71	2759.65	3449.56	-29,819.49	50.42	167.17
951+00	1.25	0	0.00	1045.89	3951.11	4938.89	-34,758.38	79.65	240.87
952+00	1.25	0	0.00	783.12	3387.06	4233.82	-38,992.19	128.63	385.70
953+00	1.25	0	0.00	431.42	2249.15	2811.44	-41,803.63	80.04	386.43
954+00	1.25	0	0.00	205.48	1179.44	1474.31	-43,277.94	37.10	216.93
955+00	1.25	42.04	77.85	46.48	466.59	583.24	-43,783.32	31.25	126.57
956+00	1.25	186.83	423.83	0	86.07	107.59	-43,467.08	41.64	134.98
956+36	1.25	-	0.00	-	160.00	200.00	-43,667.08	-	-
957+00	1.25	183.93	686.59	0.05	0.09	0.12	-42,980.61	39.29	149.87
958+00	1.25	70.26	470.72	27.24	50.54	63.17	-42,573.06	36.80	140.91
959+00	1.25	0	130.11	106.25	247.20	309.00	-42,751.95	26.15	116.57
960+00	1.25	45.54	84.33	40.3	271.39	339.24	-43,006.85	24.44	93.69
961+00	1.25	977.4	1894.33	0	74.63	93.29	-41,205.81	64.66	165.00
962+00	1.25	1804.65	5151.94	0	0.00	0.00	-36,053.86	84.27	275.80
962+43	1.25	0.00	0.00	-	160.00	200.00	-36,253.86	-	-
963+00	1.25	1289.85	5730.56	0	0.00	0.00	-30,523.31	79.06	302.46
964+00	1.25	822.25	3911.30	0	0.00	0.00	-26,612.01	64.97	266.72
965+00	1.25	1103.99	3567.11	0	0.00	0.00	-23,044.90	70.26	250.43
966+00	1.25	1562.75	4938.41	0	0.00	0.00	-18,106.49	80.65	279.46
966+15	1.25	-	0.00	-	160.00	200.00	-18,306.49	-	-
966+40	1.25	-	0.00	-	160.00	200.00	-18,506.49	-	-
967+00	1.25	845.27	4459.30	0	0.00	0.00	-14,047.19	71.24	281.28
968+00	1.25	54.63	1666.48	14.01	25.94	32.43	-12,413.14	34.20	195.26
969+00	1.25	0	101.17	124.69	256.85	321.06	-12,633.04	23.23	106.35
970+00	1.25	0.37	0.69	192.91	588.15	735.19	-13,367.54	27.43	93.81
971+00	1.25	0	0.69	203.57	734.22	917.78	-14,284.63	25.49	98.00
972+00	1.25	2.82	5.22	124.23	607.04	758.80	-15,038.21	29.80	102.39
973+00	1.25	76.16	146.26	20.44	267.91	334.88	-15,226.83	37.21	124.09
973+92	1.25	0.00	0.00	-	400.00	500.00	-15,726.83	-	-
974+00	1.25	402.34	886.11	0	37.85	47.31	-14,888.04	47.43	156.74
975+00	1.25	412.92	1509.74	0	0.00	0.00	-13,378.30	46.96	174.80
975+81	1.25	-	0.00	-	160.00	200.00	-13,578.30	-	-

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	3



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
975+85	1.25	-	0.00	-	160.00	200.00	-13,778.30	-	-
976+00	1.25	903.7	2438.19	0	0.00	0.00	-11,340.11	36.16	153.93
977+00	1.25	1134.5	3774.44	0	0.00	0.00	-7,565.67	70.13	196.83
978+00	1.25	895.12	3758.56	0	0.00	0.00	-3,807.11	58.47	238.15
979+00	1.25	612.13	2791.20	0	0.00	0.00	-1,015.91	56.73	213.33
979+48	1.25	-	0.00	-	160.00	200.00	-1,215.91	-	-
980+00	1.25	309.36	1706.46	0	0.00	0.00	490.56	45.51	189.33
981+00	1.25	208.62	959.22	0	0.00	0.00	1,449.78	39.78	157.94
982+00	1.25	149.93	663.98	1.56	2.89	3.61	2,110.15	37.88	143.81
983+00	1.25	113.65	488.11	11.17	23.57	29.47	2,568.79	38.63	141.69
984+00	1.25	169.22	523.83	4.68	29.35	36.69	3,055.94	50.42	164.91
985+00	1.25	0	313.37	165.95	315.98	394.98	2,974.33	25.74	141.04
986+00	1.25	31.14	57.67	134.96	557.24	696.55	2,335.44	43.84	128.85
987+00	1.25	80.26	206.30	39.68	323.41	404.26	2,137.48	38.68	152.81
988+00	1.25	116.77	364.87	95.68	250.67	313.33	2,189.02	44.25	153.57
989+00	1.25	6.54	228.35	261.01	660.54	825.67	1,591.70	32.54	142.20
990+00	1.25	126.59	246.54	676.51	1736.15	2170.19	-331.95	60.93	173.09
991+00	1.25	20.72	272.80	1121.17	3329.04	4161.30	-4,220.45	59.10	222.28
992+00	1.25	0	38.37	1277.93	4442.78	5553.47	-9,735.55	50.95	203.80
993+00	1.25	0	0.00	1168.48	4530.39	5662.99	-15,398.54	49.66	186.31
994+00	1.25	0	0.00	419.29	2940.31	3675.39	-19,073.93	32.26	151.70
995+00	1.25	361.75	669.91	0	776.46	970.58	-19,374.60	51.24	154.63
996+00	1.25	822.09	2192.30	0	0.00	0.00	-17,182.31	60.26	206.48
997+00	1.25	447.59	2351.26	1.56	2.89	3.61	-14,834.66	49.75	203.72
998+00	1.25	31.08	886.43	184.03	343.69	429.61	-14,377.84	40.67	167.44
999+00	1.25	11.97	79.72	358.45	1004.59	1255.74	-15,553.86	41.99	153.07
1000+00	1.25	33.01	83.30	267.26	1158.72	1448.40	-16,918.96	43.81	158.89
1001+00	1.25	0	61.13	194.73	855.54	1069.42	-17,927.25	26.56	130.31
1002+00	1.25	308.05	570.46	18.93	395.67	494.58	-17,851.38	57.63	155.91
1002+29	1.25	-	0.00	-	160.00	200.00	-18,051.38	-	-
1002+36	1.25	-	0.00	-	160.00	200.00	-18,251.38	-	-
1003+00	1.25	377.53	1269.59	8.83	51.41	64.26	-17,046.04	60.80	219.31
1004+00	1.25	3.98	706.50	230.04	442.35	552.94	-16,892.48	34.63	176.72
1005+00	1.25	0	7.37	370	1111.19	1388.98	-18,274.09	37.42	133.43
1006+00	1.25	39	72.22	200.06	1055.67	1319.58	-19,521.45	37.67	139.06
1007+00	1.25	347.08	714.96	47.86	459.11	573.89	-19,380.38	50.71	163.67
1008+00	1.25	83.59	797.54	56.3	192.89	241.11	-18,823.95	38.34	164.91
1009+00	1.25	0	154.80	192.02	459.85	574.81	-19,243.97	28.55	123.87
1010+00	1.25	60.81	112.61	50.17	448.50	560.63	-19,691.99	35.20	118.06
1011+00	1.25	471.61	985.96	0	92.91	116.13	-18,822.16	52.66	162.70
1012+00	1.25	1029.92	2780.61	0	0.00	0.00	-16,041.55	71.06	229.11
1013+00	1.25	538.37	2904.24	0	0.00	0.00	-13,137.31	65.08	252.11
1014+00	1.25	25.26	1043.76	119.02	220.41	275.51	-12,369.06	34.18	183.81
1015+00	1.25	0	46.78	183.11	559.50	699.38	-13,021.65	89.45	228.94
1016+00	1.25	99.7	184.63	54.81	440.59	550.74	-13,387.76	45.56	250.02
1017+00	1.25	648.08	1384.78	0	101.50	126.88	-12,129.86	63.26	201.52
1018+00	1.25	518.54	2160.41	0	0.00	0.00	-9,969.45	57.86	224.30
1019+00	1.25	19.04	995.52	121.63	225.24	281.55	-9,255.49	31.19	164.91
1020+00	1.25	0	35.26	389.71	946.93	1183.66	-10,403.88	33.69	120.15
1021+00	1.25	0	0.00	366.66	1400.69	1750.86	-12,154.74	34.01	125.37
1022+00	1.25	215.89	399.80	17.37	711.17	888.96	-12,643.90	50.63	156.74
1023+00	1.25	882.86	2034.72	0	32.17	40.21	-10,649.39	64.09	212.44
1024+00	1.25	1012.79	3510.46	0	0.00	0.00	-7,138.93	70.77	249.74
1024+97	1.25	-	0.00	-	400.00	500.00	-7,638.93	-	-
1025+00	1.25	1318.06	4316.39	0	0.00	0.00	-3,322.54	70.81	262.19
1025+05	1.25	-	0.00	-	400.00	500.00	-3,822.54	-	-
1026+00	1.25	1075.3	4432.15	0	0.00	0.00	609.61	71.06	262.72
1027+00	1.25	335.93	2613.39	0	0.00	0.00	3,223.00	56.67	236.54
1028+00	1.25	0	622.09	259.43	480.43	600.53	3,244.56	29.04	158.72
1028+38	1.25	-	0.00	-	400.00	500.00	2,744.56	-	-
1029+00	1.25	0	0.00	803.63	1968.63	2460.79	283.77	50.65	147.57
1030+00	1.25	2.34	4.33	891.57	3139.26	3924.07	-3,635.97	105.62	289.39
1031+00	1.25	86.15	163.87	755.36	3049.87	3812.34	-7,284.44	61.84	310.11
1032+00	1.25	84.12	315.31	375.1	2093.44	2616.81	-9,585.93	45.49	198.76
1033+00	1.25	37.7	225.59	363.74	1368.22	1710.28	-11,070.61	51.84	180.24
1034+00	1.25	15.25	98.06	504.79	1608.39	2010.49	-12,983.04	49.86	188.33
1035+00	1.25	0	28.24	550.69	1954.59	2443.24	-15,398.04	38.11	162.91
1036+00	1.25	246.44	456.37	0	1019.80	1274.75	-16,216.42	48.18	159.80
1037+00	1.25	1208.75	2694.80	0	0.00	0.00	-13,521.62	67.96	215.07
1038+00	1.25	1459.19	4940.63	0	0.00	0.00	-8,580.99	75.37	265.43
1039+00	1.25	1670.08	5781.65	0	0.00	0.00	-2,799.34	83.15	293.56
1039+36	1.25	-	0.00	-	160.00	200.00	-2,999.34	-	-
1039+39	1.25	-	0.00	-	160.00	200.00	-3,199.34	-	-
1040+00	1.25	1150.09	5222.82	0	0.00	0.00	2,023.48	71.32	286.06
1041+00	1.25	410.71	2895.58	0	0.00	0.00	4,919.06	49.85	224.39
1042+00	1.25	24.23	807.50	212.96	393.74	492.17	5,234.39	27.34	142.94
1043+00	1.25	18.65	80.41	1172.05	2553.82	3192.28	2,122.52	55.85	154.06
1044+00	1.25	39.51	109.58	1821.69	5519.13	6898.91	-4,666.81	68.06	229.46
1045+00	1.25	64.29	196.29	1379.6	5904.33	7380.41	-11,850.93	73.29	261.76
1046+00	1.25	167.3	439.30	838.92	4089.95	5112.44	-16,524.07	81.47	286.59

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	4



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1047+00	1.25	255.7	804.86	667.13	2774.94	3468.67	-19,187.88	85.32	308.87
1048+00	1.25	519.18	1473.31	118.91	1449.98	1812.48	-19,527.05	80.74	307.52
1048+57	1.25	-	0.00	-	160.00	200.00	-19,727.05	-	-
1049+00	1.25	1444.66	3698.52	0	219.70	274.63	-16,303.16	94.73	324.94
1050+00	1.25	2988.94	8263.78	0	0.00	0.00	-8,039.38	107.36	374.24
1051+00	1.25	2846.83	10831.00	0	0.00	0.00	2,791.62	91.92	369.04
1052+00	1.25	1708.07	8447.24	0	0.00	0.00	11,238.86	77.31	313.39
1053+00	1.25	842.42	4722.62	0	0.00	0.00	15,961.48	64.28	262.20
1054+00	1.25	165.39	1859.40	192.22	356.54	445.68	17,375.20	47.53	207.06
1055+00	1.25	0	304.26	658.61	1578.75	1973.44	15,706.02	36.06	154.80
1056+00	1.25	0	0.00	960.66	3006.91	3758.64	11,947.38	47.66	155.04
1057+00	1.25	0	0.00	831.8	3328.98	4161.23	7,786.15	41.83	165.72
1058+00	1.25	0	0.00	635.75	2723.35	3404.19	4,381.96	38.10	148.02
1059+00	1.25	0	0.00	773.07	2616.06	3270.07	1,111.89	43.88	151.81
1060+00	1.25	0	0.00	750.61	2833.98	3542.48	-2,430.59	46.28	166.96
1060+31	1.25	-	0.00	-	400.00	500.00	-2,930.59	-	-
1061+00	1.25	39.13	71.34	584.7	2484.73	3105.91	-5,965.16	57.49	192.17
1062+00	1.25	39.4	143.19	538.07	2087.42	2609.27	-8,431.24	55.38	209.02
1063+00	1.25	1.62	74.81	626.38	2162.27	2702.84	-11,059.27	47.81	191.09
1064+00	1.25	0	2.96	575.45	2227.87	2784.84	-13,841.15	34.09	151.67
1065+00	1.25	10.56	19.92	620.16	2215.09	2768.86	-16,590.09	48.96	153.80
1066+00	1.25	108.67	222.21	334.73	1771.00	2213.75	-18,581.63	66.13	213.13
1067+00	1.25	718.05	1530.96	0.25	620.33	775.42	-17,826.08	92.89	294.48
1068+00	1.25	857.08	2916.91	0	0.46	0.58	-14,909.75	94.66	347.31
1069+00	1.25	727.68	2934.74	32.86	60.85	76.06	-12,051.08	89.78	341.56
1070+00	1.25	473.25	2223.94	158.8	354.93	443.66	-10,270.79	90.85	334.50
1071+00	1.25	266.97	1370.78	348.76	939.93	1174.91	-10,074.92	82.59	321.19
1072+00	1.25	317.53	1082.41	421.97	1427.28	1784.10	-10,776.61	80.68	302.35
1073+00	1.25	258.57	1066.85	492.17	1692.85	2116.06	-11,825.82	74.20	286.81
1074+00	1.25	62.12	593.87	591.36	2006.54	2508.17	-13,740.12	54.79	238.87
1075+00	1.25	64.75	234.94	632.96	2267.26	2834.07	-16,339.25	56.66	206.39
1076+00	1.25	33.58	182.09	662.61	2399.20	2999.00	-19,156.17	50.59	198.61
1077+00	1.25	26.21	110.72	589.89	2319.44	2899.31	-21,944.75	52.77	191.41
1078+00	1.25	65.52	169.87	480.29	1981.81	2477.27	-24,252.15	61.21	211.07
1079+00	1.25	184.09	462.24	310.87	1465.11	1831.39	-25,621.30	67.88	239.06
1080+00	1.25	262.93	827.81	179.22	907.57	1134.47	-25,927.95	73.78	262.33
1081+00	1.25	352.09	1138.93	118.62	551.56	689.44	-25,478.47	70.46	267.11
1082+00	1.25	180.84	986.91	137.22	473.78	592.22	-25,083.78	55.63	233.50
1083+00	1.25	53.19	433.39	145.92	524.33	655.42	-25,305.81	36.78	171.13
1084+00	1.25	77.56	242.13	158.48	563.70	704.63	-25,768.31	39.51	141.28
1085+00	1.25	145.56	413.19	200.52	664.81	831.02	-26,186.14	58.82	182.09
1086+00	1.25	253.46	738.93	223.48	785.19	981.48	-26,428.70	71.03	240.46
1087+00	1.25	210.43	859.06	201.34	786.70	983.38	-26,553.02	70.06	261.28
1088+00	1.25	326.47	994.26	150.1	650.81	813.52	-26,372.28	69.19	257.87
1089+00	1.25	587.43	1692.41	0	277.96	347.45	-25,027.33	59.24	237.83
1090+00	1.25	806.12	2553.89	0	0.00	0.00	-22,473.44	66.00	231.93
1091+00	1.25	843.59	3030.66	0	0.00	0.00	-19,442.78	52.02	218.56
1092+00	1.25	953.07	3307.62	0	0.00	0.00	-16,135.16	24.45	141.61
1093+00	1.25	758.26	3153.04	0	0.00	0.00	-12,982.12	57.08	150.98
1093+17	1.25	-	0.00	-	160.00	200.00	-13,182.12	-	-
1094+00	1.25	672.33	2641.26	1.25	2.31	2.89	-10,543.75	65.57	227.13
1095+00	1.25	518.38	2205.29	61.24	116.00	145.00	-8,483.46	67.38	246.20
1096+00	1.25	357.62	1625.97	156.05	403.12	503.90	-7,361.39	70.07	254.54
1097+00	1.25	270.86	1163.85	199.54	658.50	823.13	-7,020.66	77.00	272.35
1098+00	1.25	176.05	827.61	315.36	953.52	1191.90	-7,384.95	83.98	298.11
1099+00	1.25	163.72	629.20	527.34	1560.56	1950.69	-8,706.44	95.02	331.48
1100+00	1.25	198.93	671.57	837.95	2528.31	3160.39	-11,195.26	103.77	368.13
1101+00	1.25	162.69	669.67	1567.56	4454.65	5568.31	-16,093.91	106.84	390.02
1102+00	1.25	171.6	619.06	1778.17	6195.80	7744.75	-23,219.60	123.84	427.19
1103+00	1.25	170.78	634.04	1757.75	6548.00	8185.00	-30,770.56	129.64	469.41
1104+00	1.25	153.23	600.02	1549.14	6123.87	7654.84	-37,825.38	137.89	495.43
1105+00	1.25	171.67	601.67	742.13	4243.09	5303.87	-42,527.58	140.75	516.00
1106+00	1.25	204.25	696.15	384.86	2087.02	2608.77	-44,440.20	141.46	522.61
1107+00	1.25	337.31	1002.89	247.49	1171.02	1463.77	-44,901.09	150.64	540.93
1108+00	1.25	734.3	1984.46	114.84	670.98	838.73	-43,755.35	155.85	567.57
1109+00	1.25	1248.39	3671.65	67.49	337.65	422.06	-40,505.76	150.93	568.11
1110+00	1.25	1695.08	5450.87	1.64	128.02	160.02	-35,214.91	141.71	541.93
1111+00	1.25	1550.45	6010.24	2.81	8.24	10.30	-29,214.97	130.32	503.76
1111+50	1.25	-	0.00	-	160.00	200.00	-29,414.97	-	-
1112+00	1.25	804.88	4361.72	16.81	36.33	45.42	-25,098.67	102.18	430.56
1113+00	1.25	667.59	2726.80	16.92	62.46	78.08	-22,449.95	85.20	347.00
1114+00	1.25	683.21	2501.48	53.92	131.19	163.98	-20,112.45	87.13	319.13
1115+00	1.25	584.78	2348.13	83.17	253.87	317.34	-18,081.66	83.78	316.50
1116+00	1.25	484.47	1980.09	165.62	460.72	575.90	-16,677.47	86.63	315.57
1117+00	1.25	179.88	1199.25	207.1	686.46	858.07	-16,336.29	67.56	285.54
1118+00	1.25	326.05	896.27	109.2	585.30	731.63	-16,171.65	74.70	263.44
1119+00	1.25	627.32	1744.18	28.14	252.68	315.85	-14,743.32	79.01	284.65
1120+00	1.25	679.83	2432.52	15.76	80.66	100.83	-12,411.63	68.23	272.67
1121+00	1.25	528.68	2256.27	0	29.22	36.53	-10,191.89	52.21	223.04
1122+00	1.25	554.14	2039.68	0	480.00	600.00	-8,752.21	53.94	196.57

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	5



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1123+00	1.25	324.96	1679.01	26.73	48.54	60.68	-7,133.88	35.98	166.52
1124+00	1.25	42.95	706.35	215.53	439.97	549.96	-6,977.49	36.37	133.98
1125+00	1.25	0	82.22	361.63	1054.76	1318.45	-8,213.72	35.50	133.09
1126+00	1.25	0	0.00	406.19	1412.94	1766.17	-9,979.89	34.67	129.94
1127+00	1.25	0	0.00	363.48	1425.31	1781.64	-11,761.54	33.71	126.63
1128+00	1.25	0	0.00	336.95	1297.09	1621.37	-13,382.90	31.76	121.24
1129+00	1.25	0	0.00	402.73	1369.78	1712.22	-15,095.13	33.55	120.94
1130+00	1.25	0	0.00	483.96	1642.02	2052.52	-17,147.65	37.84	132.20
1131+00	1.25	0	0.00	613.18	2031.74	2539.68	-19,687.32	40.58	145.22
1131+99	1.25	-	0.00	-	400.00	500.00	-20,187.32	-	-
1132+00	1.25	0	0.00	742.28	2510.11	3137.64	-23,324.96	41.66	152.30
1133+00	1.25	0	0.00	842.82	2935.37	3669.21	-26,994.18	45.55	161.50
1134+00	1.25	0	0.00	799.6	3041.52	3801.90	-30,796.07	44.49	166.74
1135+00	1.25	0	0.00	751.79	2872.94	3591.18	-34,387.25	42.97	161.96
1136+00	1.25	0	0.00	686.36	2663.24	3329.05	-37,716.31	41.90	157.17
1137+00	1.25	0	0.00	347.95	1915.39	2394.24	-40,110.54	33.48	139.59
1138+00	1.25	0.09	0.17	142.45	908.15	1135.19	-41,245.56	29.42	116.48
1139+00	1.25	0	0.17	166.42	571.98	714.98	-41,960.37	23.61	98.20
1139+07	1.25	-	0.00	-	400.00	500.00	-42,460.37	-	-
1140+00	1.25	0	0.00	716.23	1634.54	2043.17	-44,503.54	43.27	123.85
1141+00	1.25	0	0.00	985.27	3150.93	3938.66	-48,442.20	49.42	171.65
1142+00	1.25	0	0.00	882.44	3458.72	4323.40	-52,765.60	44.48	173.89
1143+00	1.25	0	0.00	463.44	2492.37	3115.46	-55,881.07	33.69	144.76
1144+00	1.25	10.3	19.07	76.72	1000.30	1250.37	-57,112.36	31.22	120.20
1145+00	1.25	278.83	535.43	0	142.07	177.59	-56,754.53	43.13	137.69
1146+00	1.25	484.08	1412.80	0	0.00	0.00	-55,341.73	50.07	172.59
1146+15	1.25	-	0.00	-	160.00	200.00	-55,541.73	-	-
1147+00	1.25	35.21	961.65	58.8	108.89	136.11	-54,716.19	30.31	148.85
1148+00	1.25	0	65.20	518.07	1068.28	1335.35	-55,986.34	36.18	123.13
1149+00	1.25	0	0.00	914.27	2652.48	3315.60	-59,301.94	45.41	151.09
1150+00	1.25	0	0.00	1218.06	3948.76	4935.95	-64,237.89	50.22	177.09
1151+00	1.25	0	0.00	1466.71	4971.80	6214.75	-70,452.63	53.08	191.30
1152+00	1.25	0	0.00	1565.5	5615.20	7019.00	-77,471.64	53.78	197.89
1153+00	1.25	0	0.00	1608.48	5877.74	7347.18	-84,818.82	55.65	202.65
1154+00	1.25	0	0.00	1469	5699.04	7123.80	-91,942.61	54.05	203.15
1155+00	1.25	0	0.00	1060.67	4684.57	5855.72	-97,798.33	47.30	187.69
1155+92	1.25	-	0.00	-	800.00	1000.00	-98,798.33	-	-
1155+94	1.25	-	0.00	-	400.00	500.00	-99,298.33	-	-
1156+00	1.25	0	0.00	497.3	2885.13	3606.41	-102,904.74	4.13	95.24
1157+00	1.25	0	0.00	379.2	1623.15	2028.94	-104,933.68	29.71	62.67
1158+00	1.25	0	0.00	218.28	1106.44	1383.06	-106,316.73	24.61	100.59
1159+00	1.25	5.24	9.70	106.06	600.63	750.79	-107,057.82	26.18	94.06
1160+00	1.25	39.54	82.93	35.93	262.94	328.68	-107,303.57	35.97	115.09
1161+00	1.25	48.16	162.41	25.18	113.17	141.46	-107,282.62	35.55	132.44
1162+00	1.25	44.19	171.02	31.31	104.61	130.76	-107,242.37	35.90	132.31
1163+00	1.25	63.86	200.09	16.38	88.31	110.39	-107,152.67	37.60	136.11
1164+00	1.25	132.7	364.00	3.37	36.57	45.72	-106,834.38	39.37	142.54
1164+73	1.25	-	0.00	-	160.00	200.00	-107,034.38	-	-
1165+00	1.25	230.1	671.85	0.12	6.46	8.08	-106,370.61	32.29	132.70
1166+00	1.25	195.78	788.67	0	0.22	0.28	-105,582.22	38.78	131.61
1167+00	1.25	76.35	503.94	17.51	32.43	40.53	-105,118.81	28.32	124.26
1168+00	1.25	54.22	241.80	40.53	107.48	134.35	-105,011.37	30.45	108.83
1169+00	1.25	34.58	164.44	56.08	178.91	223.63	-105,070.56	31.30	114.35
1170+00	1.25	56.13	167.98	44.87	186.94	233.68	-105,136.25	35.24	123.22
1171+00	1.25	99.44	288.09	11.92	105.17	131.46	-104,979.62	29.95	120.72
1172+00	1.25	228.55	607.39	0	22.07	27.59	-104,399.82	39.34	128.31
1172+58	1.25	-	0.00	-	160.00	200.00	-104,599.82	-	-
1172+74	1.25	-	0.00	-	160.00	200.00	-104,799.82	-	-
1173+00	1.25	412.74	1187.57	0	0.00	0.00	-103,612.25	46.47	158.91
1174+00	1.25	428.05	1557.02	0	0.00	0.00	-102,055.23	48.03	175.00
1175+00	1.25	419.56	1569.65	0	0.00	0.00	-100,485.58	46.92	175.83
1176+00	1.25	358.72	1441.26	0	0.00	0.00	-99,044.32	45.64	171.41
1177+00	1.25	1.66	667.37	54.39	100.72	125.90	-98,502.86	20.54	122.56
1178+00	1.25	0	3.07	473.73	978.00	1222.50	-99,722.28	38.62	109.56
1179+00	1.25	0	0.00	551.31	1898.22	2372.78	-102,095.06	36.18	138.52
1180+00	1.25	0	0.00	485.62	1920.24	2400.30	-104,495.36	33.82	129.63
1181+00	1.25	0	0.00	560.21	1936.72	2420.90	-106,916.26	34.68	126.85
1182+00	1.25	0	0.00	601.73	2151.74	2689.68	-109,605.94	38.86	136.19
1183+00	1.25	0	0.00	565.41	2161.37	2701.71	-112,307.65	36.63	139.80
1184+00	1.25	0	0.00	486.6	1948.17	2435.21	-114,742.86	35.97	134.44
1185+00	1.25	9.73	18.02	312.99	1480.72	1850.90	-116,575.75	42.12	144.61
1186+00	1.25	140.73	278.63	20.79	618.11	772.64	-117,069.75	43.11	157.83
1187+00	1.25	233.16	692.39	1.32	40.94	51.18	-116,428.55	38.54	151.20
1188+00	1.25	123.89	661.20	33.74	64.93	81.16	-115,848.50	36.12	138.26
1189+00	1.25	35.25	294.70	63.71	180.46	225.58	-115,779.38	29.99	122.43
1189+52	1.25	-	0.00	-	160.00	200.00	-115,979.38	-	-
1190+00	1.25	6.09	76.56	165.7	424.83	531.04	-116,433.86	31.91	114.63
1191+00	1.25	0	11.28	257.8	784.26	980.32	-117,402.91	26.38	107.94
1192+00	1.25	0	0.00	269.29	976.09	1220.12	-118,623.02	24.90	94.96
1193+00	1.25	0	0.00	229.23	923.19	1153.98	-119,777.00	22.79	88.31

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	11	6



Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1194+00	1.25	0	0.00	143.51	690.26	862.82	-120,639.83	18.55	76.56
1195+00	1.25	17.52	32.44	38.31	336.70	420.88	-121,028.26	32.24	94.06
1196+00	1.25	163.71	335.61	0	70.94	88.68	-120,781.33	37.91	129.91
1197+00	1.25	327.19	909.07	0	0.00	0.00	-119,872.26	41.89	147.78
1198+00	1.25	389.01	1326.30	0	0.00	0.00	-118,545.96	43.87	158.81
1199+00	1.25	323.51	1319.48	0	0.00	0.00	-117,226.48	41.88	158.80
1199+61	1.25	-	0.00	-	160.00	200.00	-117,426.48	-	-
1200+00	1.25	131.33	842.30	0	0.00	0.00	-116,584.19	34.59	141.61
1201+00	1.25	47.95	332.00	26.82	49.67	62.08	-116,314.27	28.22	116.31
1202+00	1.25	67.71	214.19	10.17	68.50	85.63	-116,185.71	26.98	102.22
1203+00	1.25	114.01	336.52	1.31	21.26	26.57	-115,875.76	34.15	113.20
1204+00	1.25	203.41	587.81	0	2.43	3.03	-115,290.98	40.31	137.89
1205+00	1.25	272.94	882.13	0	0.00	0.00	-114,408.85	42.75	153.81
1206+00	1.25	207.18	889.11	0	0.00	0.00	-113,519.74	40.50	154.17
1207+00	1.25	62.12	498.70	11.57	21.43	26.78	-113,047.82	34.16	138.26
1208+00	1.25	18.17	148.69	146.07	291.93	364.91	-113,264.04	29.94	118.70
1209+00	1.25	0	33.65	330.48	882.50	1103.13	-114,333.52	27.23	105.87
1210+00	1.25	0	0.00	482.34	1505.22	1881.53	-116,215.05	33.08	111.69
1211+00	1.25	0	0.00	516.67	1850.02	2312.52	-118,527.57	34.35	124.87
1212+00	1.25	0	0.00	443.33	1777.78	2222.22	-120,749.79	31.65	122.22
1213+00	1.25	0	0.00	511.36	1767.94	2209.93	-122,959.72	33.20	120.09
1214+00	1.25	0	0.00	632.92	2119.04	2648.80	-125,608.52	37.81	131.50
1214+48	1.25	-	0.00	-	400.00	500.00	-126,108.52	-	-
1215+00	1.25	0	0.00	525.58	2145.37	2681.71	-128,790.23	35.61	135.96
1215+19	1.25	-	0.00	-	400.00	500.00	-129,290.23	-	-
1216+00	1.25	11.04	20.44	189.69	1324.57	1655.72	-130,925.50	36.56	133.65
1217+00	1.25	94.6	195.63	93.25	523.96	654.95	-131,384.83	45.61	152.17
1218+00	1.25	84.84	332.30	134.56	421.87	527.34	-131,579.87	43.31	164.67
1219+00	1.25	10.97	177.43	465.99	1112.13	1390.16	-132,792.61	40.25	154.74
1219+56	1.25	-	0.00	-	160.00	200.00	-132,992.61	-	-
1220+00	1.25	352.73	673.52	6.54	875.06	1093.82	-133,412.91	46.48	160.61
1221+00	1.25	630.15	1820.15	0	12.11	15.14	-131,607.90	58.70	194.78
1222+00	1.25	186.61	1512.52	84.11	155.76	194.70	-130,290.08	50.10	201.48
1223+00	1.25	0	345.57	652.6	1364.28	1705.35	-131,649.85	38.20	163.52
1224+00	1.25	0	0.00	1439.26	3873.81	4842.27	-136,492.12	53.67	170.13
1225+00	1.25	0	0.00	1706.26	5825.04	7281.30	-143,773.42	56.29	203.63
1226+00	1.25	1.15	2.13	1752.86	6405.78	8007.22	-151,778.51	61.03	217.26
1227+00	1.25	0.94	3.87	1559.94	6134.81	7668.52	-159,443.16	57.86	220.17
1228+00	1.25	60.43	113.65	1136.87	4994.09	6242.62	-165,572.13	77.25	250.20
1229+00	1.25	68.3	238.39	822.61	3628.67	4535.83	-169,869.57	55.67	246.15
1230+00	1.25	139.34	384.52	515.59	2478.15	3097.69	-172,582.74	57.68	209.91
1231+00	1.25	0	258.04	396.59	1689.22	2111.53	-174,436.23	39.04	179.11
1232+00	1.25	155.13	287.28	0	734.43	918.03	-175,066.98	20.73	110.69
1233+00	1.25	1076.7	2281.17	0	0.00	0.00	-172,785.82	59.21	148.04
1234+00	1.25	2164.65	6002.50	0	0.00	0.00	-166,783.32	87.38	271.46
1235+00	1.25	2406.91	8465.85	0	0.00	0.00	-158,317.46	92.07	332.31
1236+00	1.25	1321.11	6903.74	0	0.00	0.00	-151,413.72	82.15	322.63
1237+00	1.25	0	2446.50	217.02	401.89	502.36	-149,469.58	34.78	216.54
1238+00	1.25	0	0.00	961.77	2182.94	2728.68	-152,198.26	92.94	236.52
1239+00	1.25	0	0.00	1204.72	4012.02	5015.02	-157,213.29	51.19	266.91
1240+00	1.25	0	0.00	1333.2	4699.85	5874.81	-163,088.10	49.84	187.09
1241+00	1.25	0	0.00	1325.28	4923.11	6153.89	-169,241.99	48.45	182.02
1242+00	1.25	5.82	10.78	1178.91	4637.39	5796.74	-175,027.95	51.50	185.09
1243+00	1.25	0	10.78	1212.52	4428.57	5535.72	-180,552.89	46.97	182.35
1244+00	1.25	0	0.00	1008.19	4112.43	5140.53	-185,693.42	44.79	169.93
1245+00	1.25	25.67	47.54	462.46	2723.43	3404.28	-189,050.17	48.52	172.80
1246+00	1.25	86.57	207.85	102.44	1046.11	1307.64	-190,149.95	35.17	154.98
1247+00	1.25	774.64	1594.83	0	189.70	237.13	-188,792.25	69.61	194.04
1248+00	1.25	922.46	3142.78	0	800.00	1000.00	-186,649.47	50.47	222.37
1249+00	1.25	647.3	2906.96	0	0.00	0.00	-183,742.51	58.04	200.94
1250+00	1.25	316.22	1784.30	1.57	2.91	3.63	-181,961.85	51.09	202.09
1251+00	1.25	0.08	585.74	204.54	381.69	477.11	-181,853.21	25.94	142.65
1252+00	1.25	5.81	10.91	729.95	1730.54	2163.17	-184,005.48	49.90	140.44
1253+00	1.25	0	10.76	1031.8	3262.50	4078.13	-188,072.84	52.51	189.65
1254+00	1.25	0	0.00	869.06	3520.11	4400.14	-192,472.98	48.22	186.54
1255+00	1.25	0	0.00	276.93	2122.20	2652.75	-195,125.74	33.29	150.94
1256+00	1.25	280.2	518.89	0	512.83	641.04	-195,247.89	37.24	130.61
1257+00	1.25	703.56	1821.78	0	0.00	0.00	-193,426.11	47.74	157.37
1258+00	1.25	782.92	2752.74	0	0.00	0.00	-190,673.37	51.35	183.50
1259+00	1.25	560.26	2487.37	0	0.00	0.00	-188,186.00	52.11	191.59
1260+00	1.25	59.95	1148.54	4.45	8.24	10.30	-187,047.76	22.71	138.56
1261+00	1.25	0	111.02	606.68	1131.72	1414.65	-188,351.40	47.54	130.09
1262+00	1.25	0	0.00	1264.91	3465.91	4332.38	-192,683.78	60.14	199.41
1263+00	1.25	0	0.00	1276.33	4706.00	5882.50	-198,566.28	59.10	220.81
1264+00	1.25	0	0.00	785.45	3818.11	4772.64	-203,338.92	42.86	188.81
1264+29	1.25	-	0.00	-	800.00	1000.00	-204,338.92	-	-
1264+37	1.25	-	0.00	-	400.00	500.00	-204,838.92	-	-
1265+00	1.25	0	0.00	469.43	2323.85	2904.81	-207,743.74	40.75	154.83
1266+00	1.25	0	0.00	363.13	1541.78	1927.22	-209,670.96	53.88	175.24
1267+00	1.25	0	0.00	254.07	1142.96	1428.70	-211,099.66	62.17	214.91

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Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

Earthwork Quantities Report

Station	Factor	Cut Area (SF)	Cut Volume (CY)	Fill Area (SF)	Fill Volume (CY)	Facotred Fill Volume (CY)	Mass Ordinate (CY)	Topsoil Area (SF)	Topsoil Volume (CY)
1268+00	1.25	0	0.00	138.34	726.69	908.36	-212,008.02	31.01	172.56
1269+00	1.25	10.88	20.15	53.16	354.63	443.29	-212,431.16	20.17	94.78
1270+00	1.25	9.09	36.98	38.98	170.63	213.29	-212,607.46	19.32	73.13
1271+00	1.25	24.27	61.78	25.12	118.70	148.38	-212,694.07	23.49	79.28
1272+00	1.25	12.77	68.59	36.64	114.37	142.96	-212,768.44	17.38	75.69
1273+00	1.25	6.75	36.15	73.09	203.20	254.00	-212,986.29	24.15	76.91
1274+00	1.25	7.32	26.06	79.85	283.22	354.03	-213,314.26	25.91	92.70
1275+00	1.25	6.96	26.44	75.95	288.52	360.65	-213,648.47	25.40	95.02
1276+00	1.25	11.16	33.56	112.4	348.80	436.00	-214,050.91	30.12	102.81
1277+00	1.25	9.03	37.39	149.62	485.22	606.53	-214,620.05	34.60	119.85
1278+00	1.25	7.84	31.24	119.58	498.52	623.15	-215,211.95	27.94	115.81
1279+00	1.25	4.57	22.98	152.4	503.67	629.58	-215,818.56	29.19	105.80
1280+00	1.25	87.22	169.98	131.3	525.37	656.71	-216,305.29	60.60	166.28
1281+00	1.25	266.01	654.13	95.23	419.50	524.38	-216,175.53	68.51	239.09
1282+00	1.25	341.81	1125.59	68.36	302.94	378.68	-215,428.62	64.26	245.87
1283+00	1.25	379	1334.83	0	126.59	158.24	-214,252.03	42.84	198.33
1284+00	1.25	313.76	1282.89	0	0.00	0.00	-212,969.14	37.43	148.65
1285+00	1.25	45.24	664.81	39.59	73.31	91.64	-212,395.97	32.18	128.91
1286+00	1.25	0	83.78	324.93	675.04	843.80	-213,155.99	37.64	129.30
1287+00	1.25	0	0.00	553.27	1626.30	2032.87	-215,188.86	42.70	148.78
1288+00	1.25	2.33	4.31	712.94	2344.83	2931.04	-218,115.58	47.97	167.91
1289+00	1.25	2.16	8.31	614.99	2459.13	3073.91	-221,181.18	40.77	164.33
1290+00	1.25	5	13.26	492.97	2051.78	2564.72	-223,732.64	32.35	135.41
1291+00	1.25	5.05	18.61	337.69	1538.26	1922.82	-225,636.86	29.49	114.52
1292+00	1.25	0	9.35	206.05	1006.93	1258.66	-226,886.16	10.14	73.39
1292+06	1.25	-	0.00	-	400.00	500.00	-227,386.16	-	-
1292+10	1.25	-	0.00	-	400.00	500.00	-227,886.16	-	-
1293+00	1.25	7.6	14.07	319.83	973.85	1217.31	-229,089.40	33.38	80.59
1294+00	1.25	4.59	22.57	296.24	1140.87	1426.09	-230,492.92	38.81	133.69
1295+00	1.25	35.24	73.76	116	763.41	954.26	-231,373.42	20.72	110.24
1295+10	1.25	-	0.00	-	400.00	500.00	-231,873.42	-	-
1296+00	1.25	6.01	76.39	57.91	322.06	402.57	-232,199.60	27.94	90.11
1297+00	1.25	163.48	313.87	8.18	122.39	152.99	-232,038.71	28.79	105.06
1297+76	1.25	-	0.00	-	160.00	200.00	-232,238.71	-	-
1298+00	1.25	180.28	636.59	0	15.15	18.94	-231,621.06	20.44	91.17
1298+63	1.25	-	0.00	-	160.00	200.00	-231,821.06	-	-
1299+00	1.25	15.83	363.17	76.06	140.85	176.06	-231,633.95	23.25	80.91
1300+00	1.25	4.28	37.24	83.81	296.06	370.07	-231,966.78	23.30	86.20
1301+00	1.25	2.35	12.28	24.73	201.00	251.25	-232,205.75	24.59	88.69
1302+00	1.25	129.35	243.89	0.07	45.93	57.41	-232,019.27	33.68	107.91
1303+00	1.25	0	239.54	0	0.13	0.16	-231,779.90	0.00	62.37
			615460.36		Total	847240.26		Total	103393.93

203 0119 Topsoil Imported (CY)	
Station	CY
791+70 to 798+70 Lt	246
794+00 to 798+50 Rt	158
825+05 to 829+00 Rt	139
905+85 to 909+75 Rt	137
906+10 to 910+50 Lt	155
922+05 to 927+30 Lt	185
922+75 to 928+30 Rt	195
949+90 to 955+05 Rt	181
950+15 to 959+70 Lt	336
1027+80 to 1030+60 Rt	99
1059+90 to 1065+70 Lt	204
1082+20 to 1089+20 Lt	246
1099+05 to 1101+00 Lt	69
1123+70 to 1131+00 Lt	257
1266+30 to 1282+90 Lt	584
1285+15 to 1288+95 Lt	134
Total	3325

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Approach Quantities				
Station	Factored Fill Volume (CY)		Station	Factored Fill Volume (CY)
789+81 Lt	200		1002+36 Rt	200
791+00 Rt	500		1024+97 Lt	500
806+58 Lt	200		1025+05 Rt	500
817+24 Lt	200		1028+38 Lt	500
817+29 Rt	200		1039+36 Rt	200
824+32 Rt	200		1039+39 Lt	200
824+85 Lt	200		1048+57 Lt	200
834+89 Lt	500		1060+31 Rt	500
836+95 Rt	500		1093+17 Rt	200
843+90 Lt	500		1111+50 Lt	200
845+78 Rt	200		1122+00 Rt	600
848+20 Lt	500		1131+99 Lt	500
860+31 Lt	200		1139+07 Rt	500
860+46 Rt	200		1146+15 Lt	200
870+29 Lt	200		1155+92 Lt	1000
870+36 Rt	200		1155+94 Rt	500
884+80 Rt	500		1164+73 Rt	200
889+90 Lt	500		1172+58 Rt	200
896+20 Lt	200		1172+74 Lt	200
896+71 Rt	200		1189+52 Lt	200
897+57 Lt	200		1199+61 Rt	200
914+53 Lt & Rt	400		1214+48 Lt	500
918+36 Lt	200		1215+19 Rt	500
943+50 Lt & Rt	1700		1219+56 Rt	200
956+36 Rt	200		1248+00 Lt & Rt	1000
962+43 Rt	200		1264+29 Lt	1000
966+15 Rt	200	1264+37 Rt	500	
966+40 Lt	200	1292+06 Lt	500	
973+92 Rt	500	1292+10 Rt	500	
975+81 Rt	200	1295+10 Rt	500	
975+85 Lt	200	1297+76 Rt	200	
979+48 Lt	200	1298+63 Lt	200	
1002+29 Lt	200	Total	23800	

*Approach quantities are included in the earthwork summary table and mass diagram

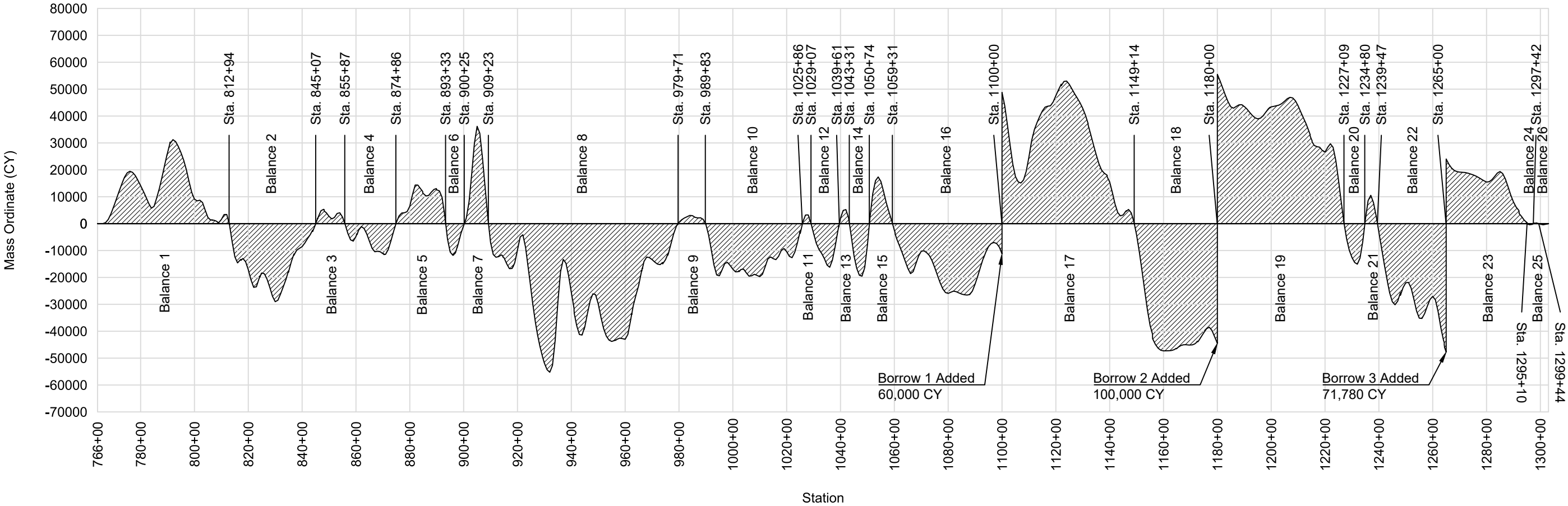


Earthwork Summary

Reconstruction
County Route 1

Mountrail County, ND

CR 1 Mass Diagram



Balance 1
Haul = 572,738 CY Sta
Excavation Hauled = 49,148 CY
Average Haul for Balance = 11.65 Sta

Balance 2
Haul = 506,373 CY Sta
Excavation Hauled = 38,486 CY
Average Haul for Balance = 13.16 Sta

Balance 3
Haul = 33,277 CY Sta
Excavation Hauled = 7,815 CY
Average Haul for Balance = 4.26 Sta

Balance 4
Haul = 118,270 CY Sta
Excavation Hauled = 17,495 CY
Average Haul for Balance = 6.76 Sta

Balance 5
Haul = 167,736 CY Sta
Excavation Hauled = 17,125 CY
Average Haul for Balance = 9.79 Sta

Balance 6
Haul = 49,326 CY Sta
Excavation Hauled = 12,389 CY
Average Haul for Balance = 3.98 Sta

Balance 7
Haul = 167,025 CY Sta
Excavation Hauled = 36,185 CY
Average Haul for Balance = 4.62 Sta

Balance 8
Haul = 1,816,208 CY Sta
Excavation Hauled = 120,058 CY
Average Haul for Balance = 15.13 Sta

Balance 9
Haul = 20,592 CY Sta
Excavation Hauled = 3,107 CY
Average Haul for Balance = 6.63 Sta

Balance 10
Haul = 505,752 CY Sta
Excavation Hauled = 32,227 CY
Average Haul for Balance = 15.69 Sta

Balance 11
Haul = 6,907 CY Sta
Excavation Hauled = 3,245 CY
Average Haul for Balance = 2.13 Sta

Balance 12
Haul = 100,372 CY Sta
Excavation Hauled = 16,616 CY
Average Haul for Balance = 6.04 Sta

Balance 13
Haul = 12,951 CY Sta
Excavation Hauled = 5,235 CY
Average Haul for Balance = 2.47 Sta

Balance 14
Haul = 94,317 Sta
Excavation Hauled = 19,727 CY
Average Haul for Balance = 4.78 Sta

Balance 15
Haul = 86,884 CY Sta
Excavation Hauled = 17,376 CY
Average Haul for Balance = 5.00 Sta

Balance 16
Haul = 669,634 CY Sta
Excavation Hauled = 40,279 CY
Average Haul for Balance = 16.62 Sta

Balance 17
Haul = 1,468,103 CY Sta
Excavation Hauled = 90,125 CY
Average Haul for Balance = 16.29 Sta

Balance 18
Haul = 1,212,074 CY Sta
Excavation Hauled = 54,021 CY
Average Haul for Balance = 22.44 Sta

Balance 19
Haul = 1,804,943 CY Sta
Excavation Hauled = 68,099 CY
Average Haul for Balance = 26.50 Sta

Balance 20
Haul = 76,170 CY Sta
Excavation Hauled = 15,067 CY
Average Haul for Balance = 5.06 Sta

Balance 21
Haul = 29,979 CY Sta
Excavation Hauled = 10,530 CY
Average Haul for Balance = 2.85 Sta

Balance 22
Haul = 695,918 CY Sta
Excavation Hauled = 65,241 CY
Average Haul for Balance = 10.67 Sta

Balance 23
Haul = 459,524 CY Sta
Excavation Hauled = 27,946 CY
Average Haul for Balance = 16.44 Sta

Balance 24
Haul = 638 CY Sta
Excavation Hauled = 420 CY
Average Haul for Balance = 1.52 Sta

Balance 25
Haul = 267 CY Sta
Excavation Hauled = 546 CY
Average Haul for Balance = 0.49 Sta

Balance 26
Haul = 810 Sta
Excavation Hauled = 426 CY
Average Haul for Balance = 1.90 Sta

Haul for Project
Haul = 10,676,788 CY Sta
Excavation Hauled = 768,934 CY
Average Haul for Balance = 13.89 Sta



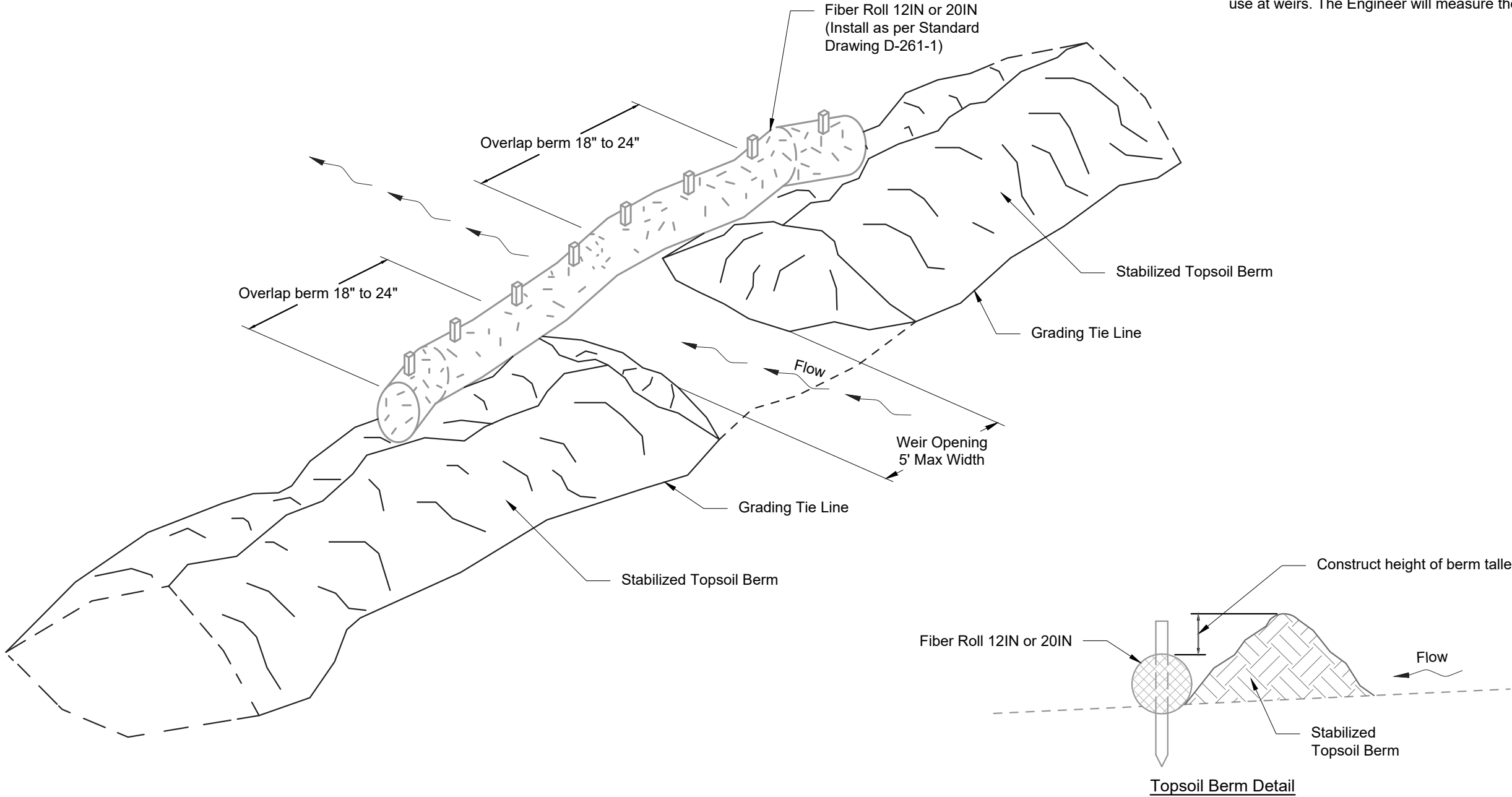
Mass Diagram

Reconstruction
County Route 1

Mountrail County, ND

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A quantity of 3,000 LF of Fiber Roll 12IN has been included in the quantities for use at weirs. The Engineer will measure the actual quantity required in the field.



Notes:

1. Windrow the existing topsoil from the foreslope to create a berm at the grading tie line.
2. Stabilize berms in accordance with the Construction General Permit.
3. Place weirs intermittently throughout the length of the berm to allow stormwater to drain through the berm.
4. Avoid placing weirs adjacent to waterbodies.
5. Install fiber rolls as the weirs are created in the topsoil berm.
6. Include costs to create, stabilize, maintain, and dismantle the berm in the unit price bid for "Topsoil".
7. Include costs for fiber rolls in the unit price bid for "Fiber Rolls 12IN" or "Fiber Rolls 20IN".

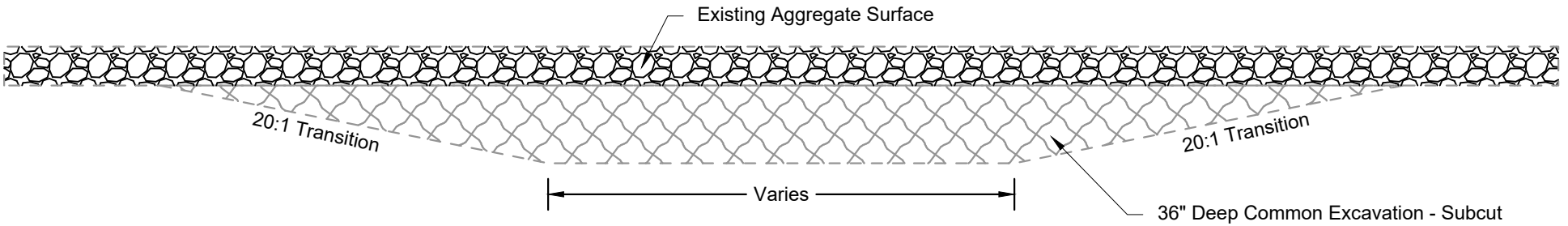


Temporary Topsoil Berm & Weir Detail

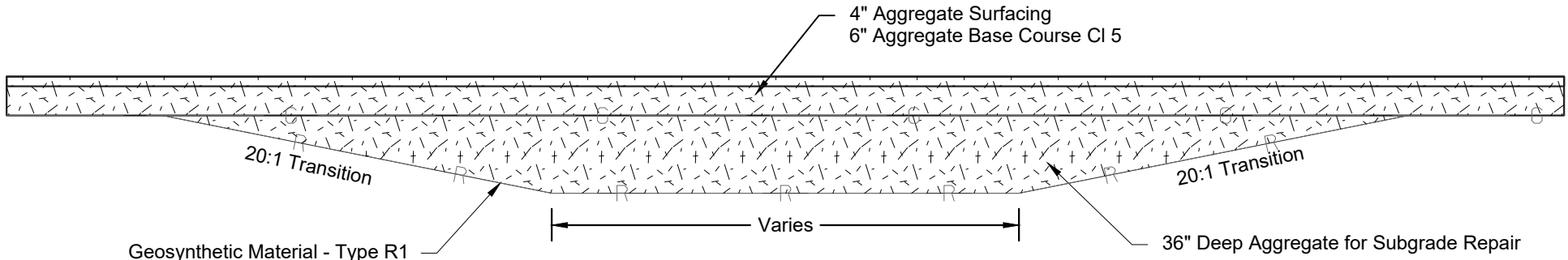
Reconstruction
County Route 1

Mountrail County, ND

Discretionary Subcut Estimates					
	(1) Width	Length	Common Excavation-Subcut	(2,4) Aggregate for subgrade Repair	(3) Geosynthetic Material - Type R1
	LF	LF	CY	Ton	SY
Full Depth	37	500	2,056	3,855	2,056
Transition	37	120	247	463	494
Total (20 Locations)			46,060	86,360	51,000
Note: for estimating purposes, it has been assumed there will be 2 - 500' subcut per mile					
	(1) Width is based on a 37' wide subgrade once base is removed				
	(2) Aggregate for Subgrade Repair calculated using 1.875 Ton/CY				
	(3) Geosynthetic Material - Type R1 will be placed in 37' widths.				
	(4) Can be either Class 3 or Class 5				



SUBCUT - REMOVAL

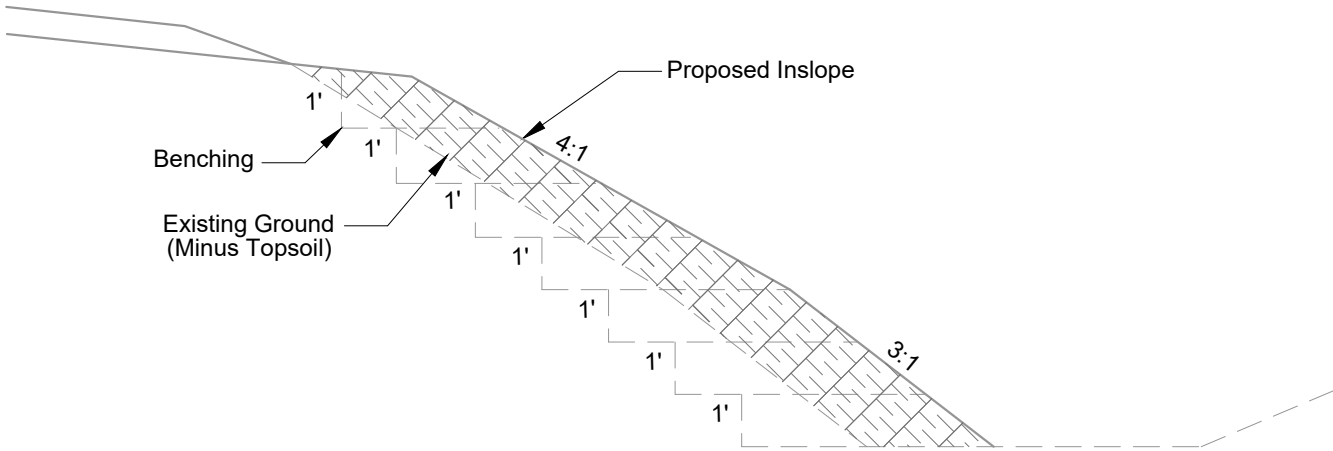


SUBCUT - BACKFILL



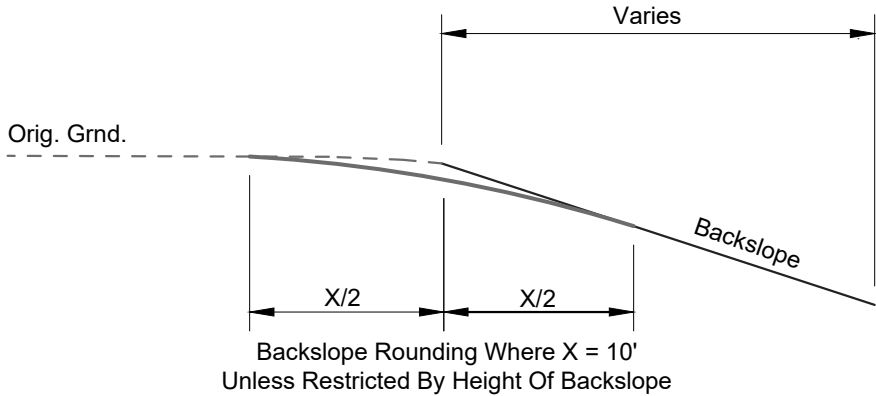
Subcut Details
Reconstruction
County Route 1
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	3



BENCHING TYPICAL SECTION

Not to Scale



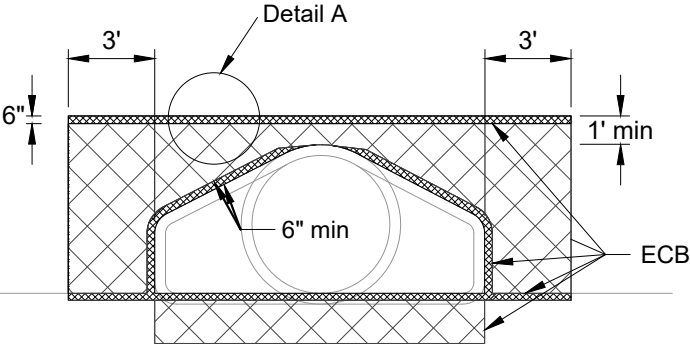
BACKSLOPE ROUNDING

Not to Scale

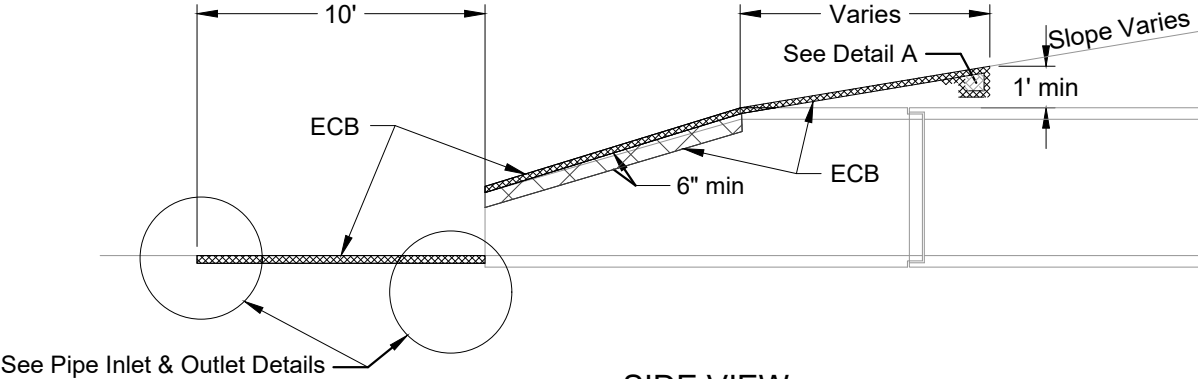


Benching & Backslope Detail
Reconstruction
County Route 1
Mountrail County, ND

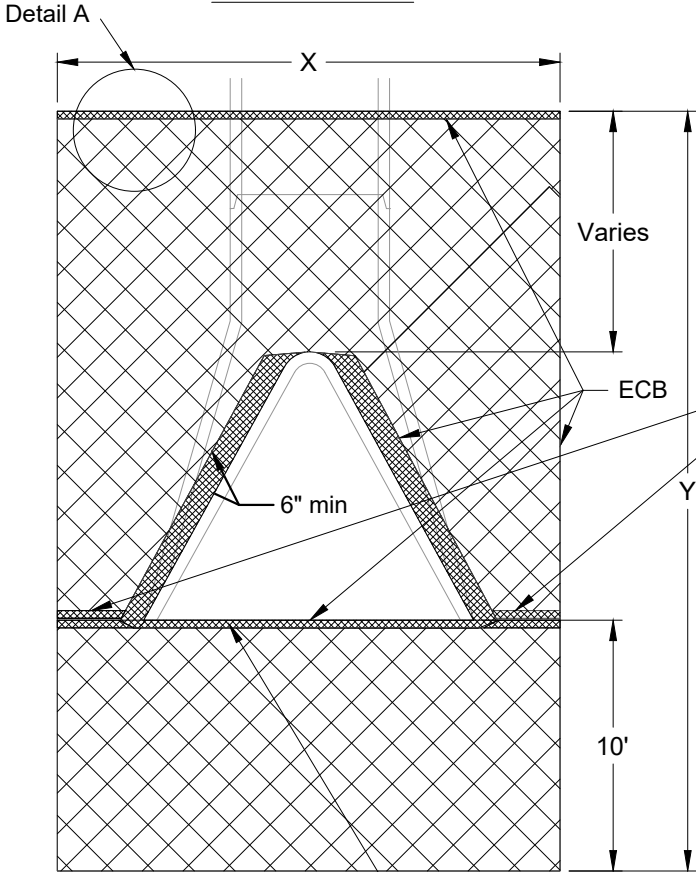
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	4



FRONT VIEW



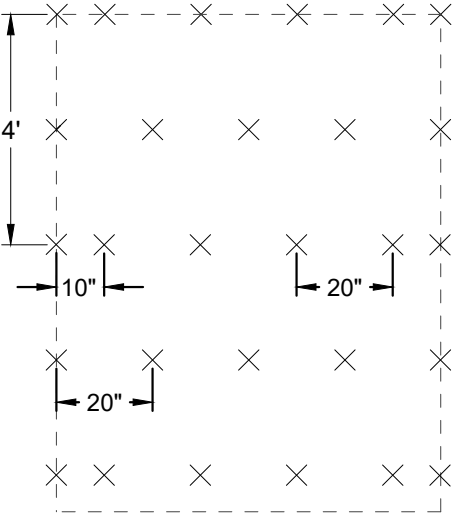
SIDE VIEW



TOP VIEW

Inlet side - see applicable detail for pipe inlet.
Outlet side - see applicable detail for pipe outlet.

Tuck this end a minimum of 6" into the embankment.



STAPLE PATTERN

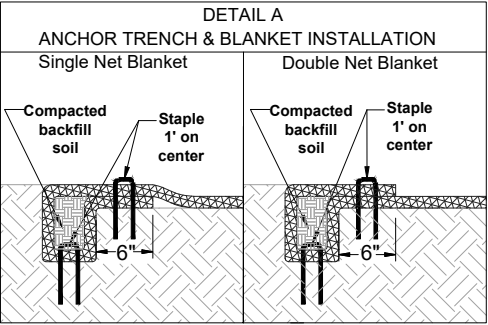
APPROACH CULVERTS					
DIA	X	Y	Surface area to be protected	ECB	
In	Ft	Ft	SF	SY	
15	9.0	20.0	176.0	20	
18	9.5	20.7	190.7	22	
21	9.5	21.0	190.9	22	
24	10.5	21.6	214.1	24	
27	11.0	22.0	226.3	25	
30	11.6	22.5	241.5	27	
36	12.7	23.3	268.8	30	
42	13.3	23.3	279.7	31	
48	13.8	24.0	293.2	33	
54	14.5	23.4	300.6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

Note: Quantities based on 8:1 slope.

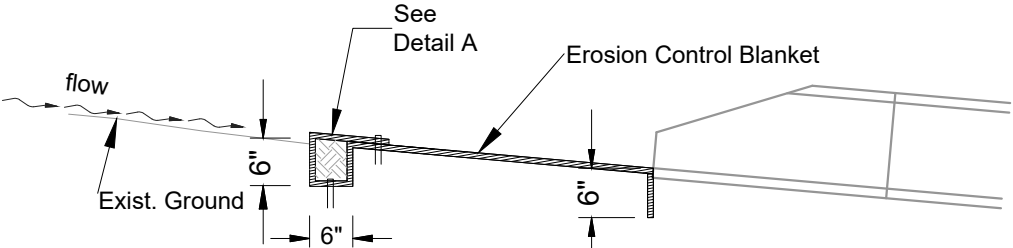
CENTERLINE CULVERTS									
DIA	X	Y	Surface area to be protected	ECB		DIA	X	Y	Surface area to be protected
In	Ft	Ft	SF	SY		In	Ft	Ft	SF
24	10.5	19.6	193.1	22		24	10.5	17.6	172.1
27	11.0	20.0	204.3	23		27	11.0	18.0	182.3
30	11.6	20.5	218.3	25		30	11.6	18.5	195.1
36	12.7	21.2	242.1	27		36	12.7	19.2	216.7
42	13.3	21.2	251.8	28		42	13.3	19.2	225.2
48	13.8	22.0	265.6	30		48	13.8	20.0	238.0
54	14.5	21.5	273.7	31		54	14.5	19.5	244.7
60	15.0	21.0	278.3	31		60	15.0	19.0	248.3
66	15.6	22.0	295.7	33		66	15.6	20.0	264.5
72	16.2	22.5	309.2	35		72	16.2	20.5	276.8

Note: Quantities based on 6:1 slope.

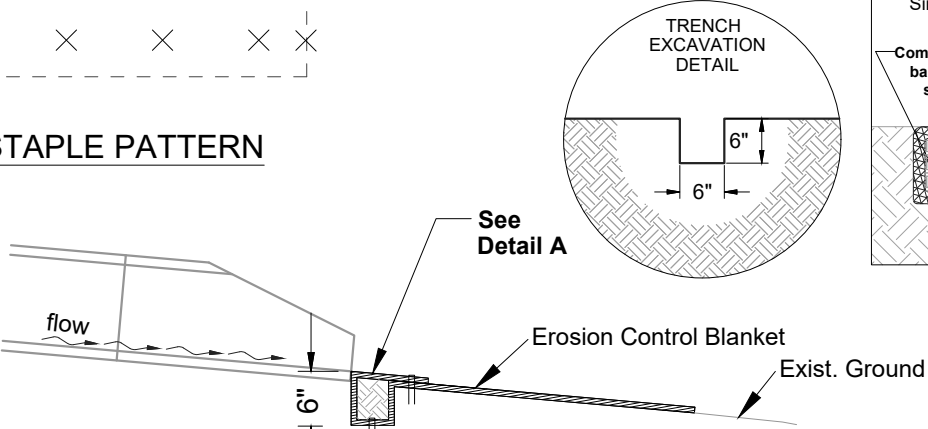
Note: Quantities based on 4:1 slope.



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



PIPE INLETS



PIPE OUTLETS

Erosion Control at Culvert Flared End Sections
Reconstruction
County Route 1
Mountrail County, ND

Erosion Control Blanket (ECB)								
Location to be Protected	Culvert Type	Pipe Diam	No.	Unit Quantity	Total Quantity			
					Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
782+75	CL	30	1	22			22	
789+81 L	APPR	24	2	24			48	
791+00 R	APPR	24	2	24			48	
803+18	CL	36	2	24			48	
806+58 L	APPR	24	2	24			48	
817+24 L	APPR	24	2	24			48	
817+29 R	APPR	24	2	24			48	
820+85	CL	30	1	22			22	
824+32 R	APPR	24	2	24			48	
834+89 L	APPR	24	2	24			48	
836+95 R	APPR	24	2	24			48	
843+90 L	APPR	24	2	24			48	
845+78 R	APPR	24	2	24			48	
848+20 L	APPR	24	2	24			48	
857+16	CL	54	2	28			56	
860+31 L	APPR	24	2	24			48	
860+46 R	APPR	24	2	24			48	
865+21	CL	24	2	20			40	
869+64	CL	24	2	20			40	
870+36 R	APPR	24	2	24			48	
884+80 R	APPR	24	2	24			48	
885+23	CL	30	2	22			44	
889+90 L	APPR	24	2	24			48	
892+97	CL	30	1	22			22	
897+57 L	APPR	24	2	24			48	
914+53 L	APPR	24	2	24			48	
918+36 L	APPR	24	2	24			48	
939+37	CL	30	1	22			22	
951+60	CL	30	2	22			44	
956+36 R	APPR	24	2	24			48	
959+20	CL	24	2	20			40	
962+43 R	APPR	24	2	24			48	
966+15 R	APPR	24	2	24			48	
966+40 L	APPR	24	2	24			48	
973+92 R	APPR	24	2	24			48	
975+81 R	APPR	24	2	24			48	
975+85 L	APPR	24	2	24			48	
979+48 L	APPR	24	2	24			48	
958+70	CL	30	2	22			44	
991+83	CL	36	2	24			48	

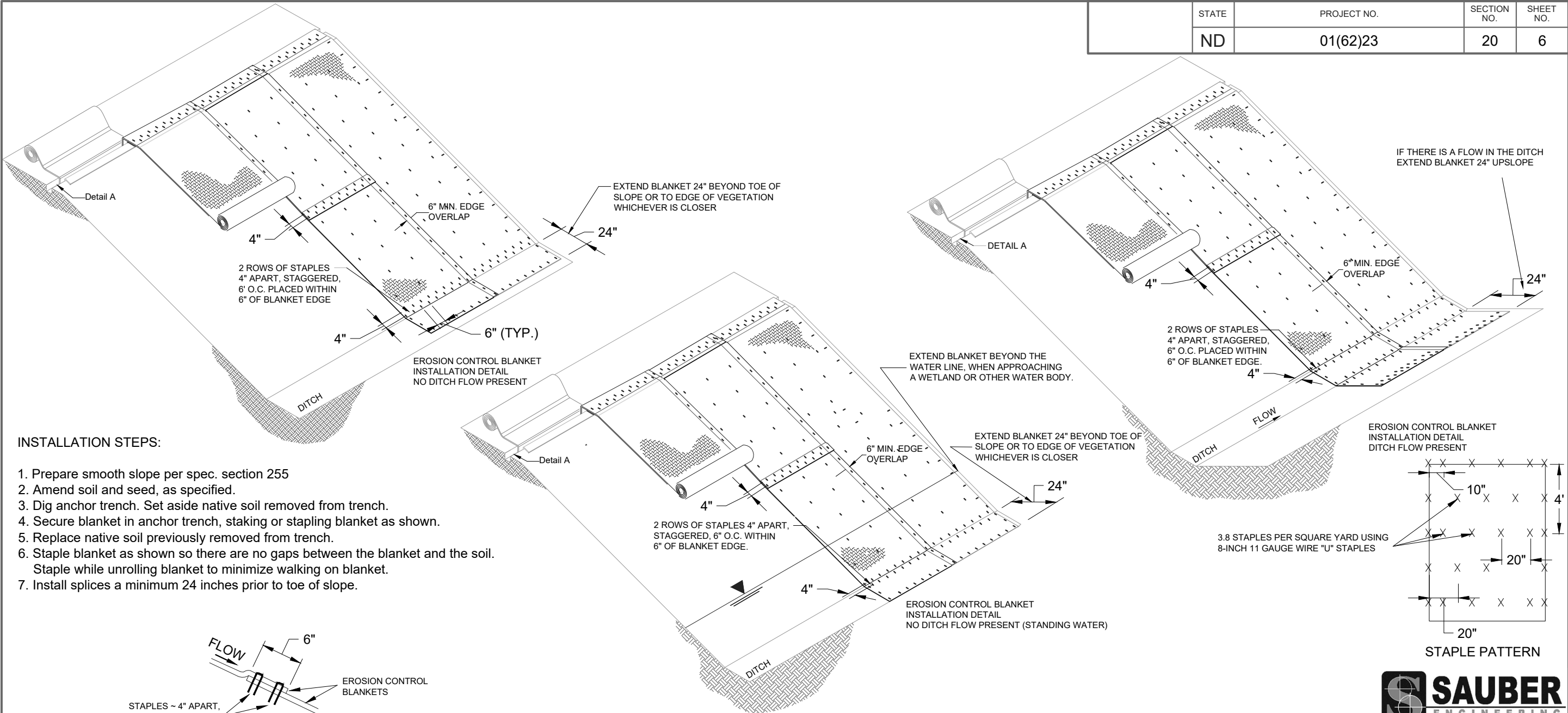
Erosion Control Blanket (ECB)								
Location to be Protected	Culvert Type	Pipe Diam	No.	Unit Quantity	Total Quantity			
					Type 1	Type 2	Type 3	Type 4
Station	Appr/CL	(Inch)		(SY)	(SY)	(SY)	(SY)	(SY)
1002+29 L	APPR	24	2	24			48	
1002+36 R	APPR	24	2	24			48	
1015+00	CL	24	1	20			20	
1024+97 L	APPR	24	2	24			48	
1025+05 R	APPR	24	2	24			48	
1029+51	CL	36	1	24			24	
1039+36 R	APPR	24	2	24			48	
1039+39 L	APPR	24	2	24			48	
1043+65	CL	30	2	22			44	
1048+57 L	APPR	24	2	24			48	
1059+80	CL	30	2	22			44	
1064+20	CL	36	2	24			48	
1074+62	CL	24	2	20			40	
1088+00	CL	30	2	22			44	
1117+19	CL	24	2	20			40	
1122+00 R	APPR	24	2	24			48	
1125+95	CL	36	1	24			24	
1129+17	CL	36	2	24			48	
1131+99 L	APPR	24	2	24			48	
1153+80	CL	36	2	24			48	
1155+94 R	APPR	24	2	24			48	
1164+73 R	APPR	24	2	24			48	
1172+58 R	APPR	24	2	24			48	
1172+74 L	APPR	24	2	24			48	
1182+35	CL	36	2	24			48	
1189+52 L	APPR	24	2	24			48	
1199+61 R	APPR	24	2	24			48	
1213+84	CL	30	2	22			44	
1218+95	CL	30	2	22			44	
1231+15	CL	48	2	27			54	
1238+30	CL	30	1	22			22	
1248+00 L	APPR	24	2	24			48	
1248+00 R	APPR	24	2	24			48	
1264+29 L	APPR	24	1	24			24	
1264+37 R	APPR	24	1	24			24	
1268+15	CL	36	1	24			24	
1274+68	CL	36	1	24			24	
1292+06 L	APPR	24	2	24			48	
1292+10 R	APPR	24	2	24			48	
1297+76 R	APPR	24	2	24			48	
Total (Sys)					3480			



Erosion Control Locations

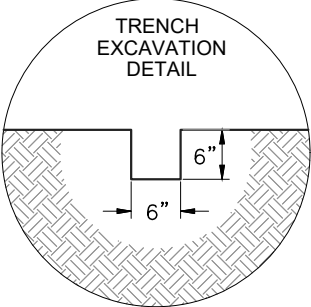
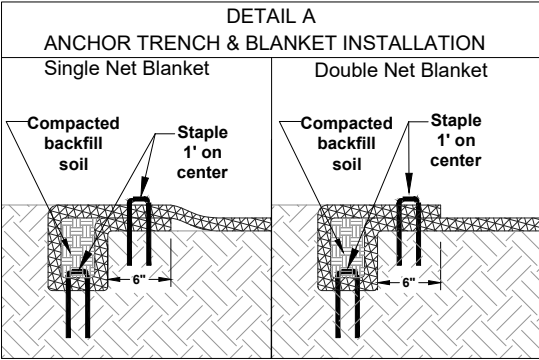
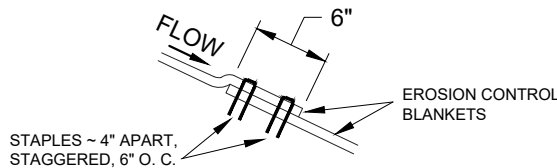
Reconstruction
County Route 1

Mountrail County, ND



INSTALLATION STEPS:

1. Prepare smooth slope per spec. section 255
2. Amend soil and seed, as specified.
3. Dig anchor trench. Set aside native soil removed from trench.
4. Secure blanket in anchor trench, staking or stapling blanket as shown.
5. Replace native soil previously removed from trench.
6. Staple blanket as shown so there are no gaps between the blanket and the soil.
Staple while unrolling blanket to minimize walking on blanket.
7. Install splices a minimum 24 inches prior to toe of slope.



NOTE:
Install Single Net Blanket with netting on top of installed blanket.

Erosion Control Blanket		
Location to be Protected Station	Total Quantity	
	Type 3 (SY)	
776+50 - 779+50 Rt	662	
793+50 - 799+50 Lt	1,668	
796+50 - 798+50 Rt	474	
803+50 - 804+50 Lt	234	
804+50 - 805+50 Rt	122	
806+50 - 807+50 Lt	267	
807+50 - 808+50 Rt	172	
811+50 - 815+50 Rt	1,047	
812+50 - 815+50 Lt	770	
816+50 - 817+50 Lt	261	
819+50 - 821+50 Lt	527	
822+50 - 824+50 Rt	333	
827+50 - 828+50 Rt	228	
828+50 - 829+50 Lt	206	
851+50 - 852+50 Rt	383	
852+50 - 853+50 Lt	383	
856+50 - 857+50 Rt	215	
863+50 - 866+50 Lt	710	

Erosion Control Blanket		
Location to be Protected Station	Total Quantity	
	Type 3 (SY)	
877+50 - 878+50 Rt	201	
891+50 - 894+50 Rt	1,333	
892+50 - 894+50 Lt	722	
902+50 - 903+50 Rt	393	
902+50 - 904+50 Lt	767	
905+50 - 910+50 Lt	2,499	
905+50 - 910+50 Rt	2,917	
914+50 - 916+50 Rt	587	
919+50 - 921+50 Rt	777	
921+50 - 928+50 Lt	2,548	
922+50 - 928+50 Rt	2,096	
934+50 - 936+50 Rt	780	
937+50 - 941+50 Lt	964	
938+50 - 942+50 Rt	1,328	
949+50 - 952+50 Rt	930	
949+50 - 952+50 Lt	757	
989+50 - 993+50 Lt	1,059	
990+50 - 993+50 Rt	839	

Erosion Control Blanket		
Location to be Protected Station	Total Quantity	
	Type 3 (SY)	
998+50 - 999+50 Lt	216	
1028+50 - 1031+50 Rt	829	
1028+50 - 1031+50 Lt	788	
1034+50 - 1035+50 Rt	234	
1042+50 - 1047+50 Rt	2,071	
1054+50 - 1063+50 Lt	3,030	
1067+50 - 1070+50 Rt	1,167	
1139+50 - 1142+50 Rt	866	
1148+50 - 1155+50 Lt	2,743	
1149+50 - 1154+50 Rt	1,317	
1181+50 - 1183+50 Lt	422	
1213+50 - 1215+50 Lt	502	
1218+50 - 1219+50 Lt	344	
1219+50 - 1221+50 Rt	778	
1223+50 - 1231+50 Lt	2,439	
1223+50 - 1227+50 Rt	1,281	
1237+50 - 1244+50 Lt	2,018	
1237+50 - 1241+50 Rt	1,323	

Erosion Control Blanket		
Location to be Protected Station	Total Quantity	
	Type 3 (SY)	
1242+50 - 1244+50 Rt	473	
1251+50 - 1254+50 Lt	1,012	
1252+50 - 1254+50 Rt	578	
1260+50 - 1264+50 Rt	1,171	
1260+50 - 1265+50 Lt	1,638	
1286+50 - 1288+50 Lt	467	
Total SY	57,866	

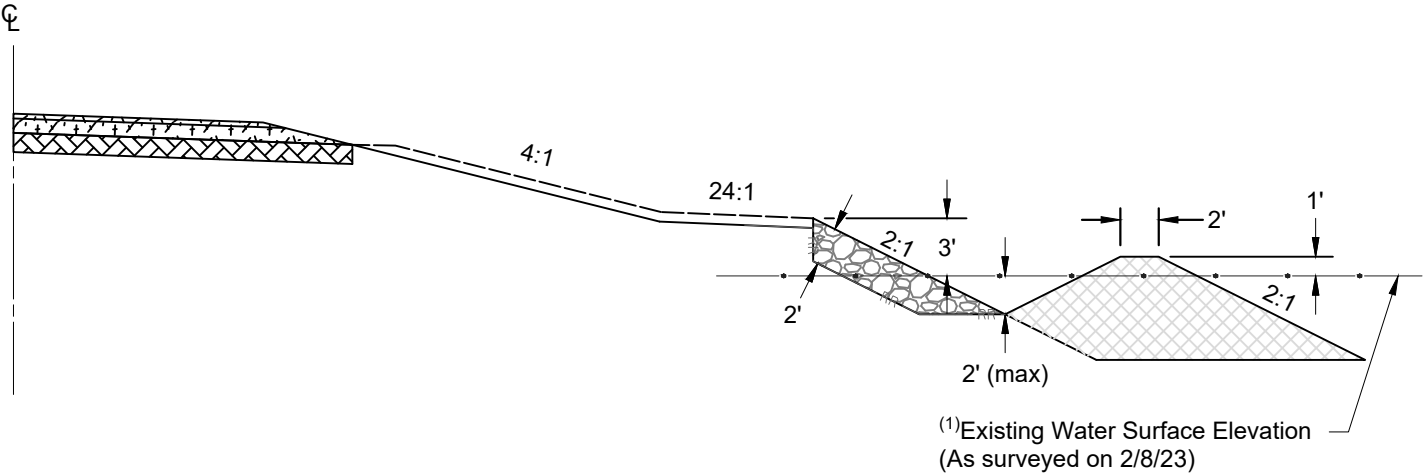
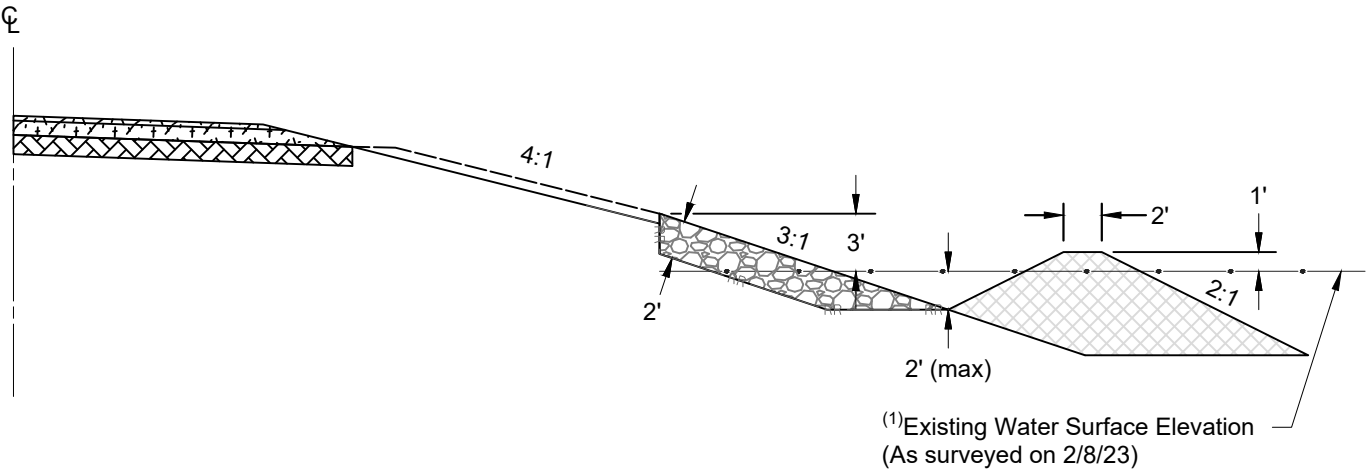
Note: Place ECB on all disturbed slopes steeper than 3:1



Slope Erosion Control Blanket Installation Details

Reconstruction
County Route 1

Mountrail County, ND



Water Surface Elevation and Riprap Table			
Station	⁽¹⁾ Water Surface Elevation	256 0100	709 0155
		Riprap Grade I (CY)	Geosynthetic Material Type RR (SY)
791+70 to 798+70 Lt	2072.0	389	1244
794+00 to 798+50 Rt	2072.0	250	800
825+05 to 829+00 Rt	2106.8	249	746
905+85 to 909+75 Rt	2041.2	217	693
906+10 to 910+50 Lt	2042.2	244	782
922+05 to 927+30 Lt	2088.5	292	933
922+75 to 928+30 Rt	2092.3	308	987
949+90 to 955+05 Rt	2083.1	286	916
950+15 to 959+70 Lt	2083.1	424	1167
1027+80 to 1030+60 Rt	2112.6	156	498
1059+90 to 1065+70 Lt	2105.7	172	516
1082+20 to 1089+20 Lt	2105.7	389	1244
1099+05 to 1101+00 Lt	2105.7	108	347
1123+70 to 1131+00 Lt	2105.7	324	892
1266+30 to 1272+45 Lt	2133.0	365	888
Total		4,173	12,653



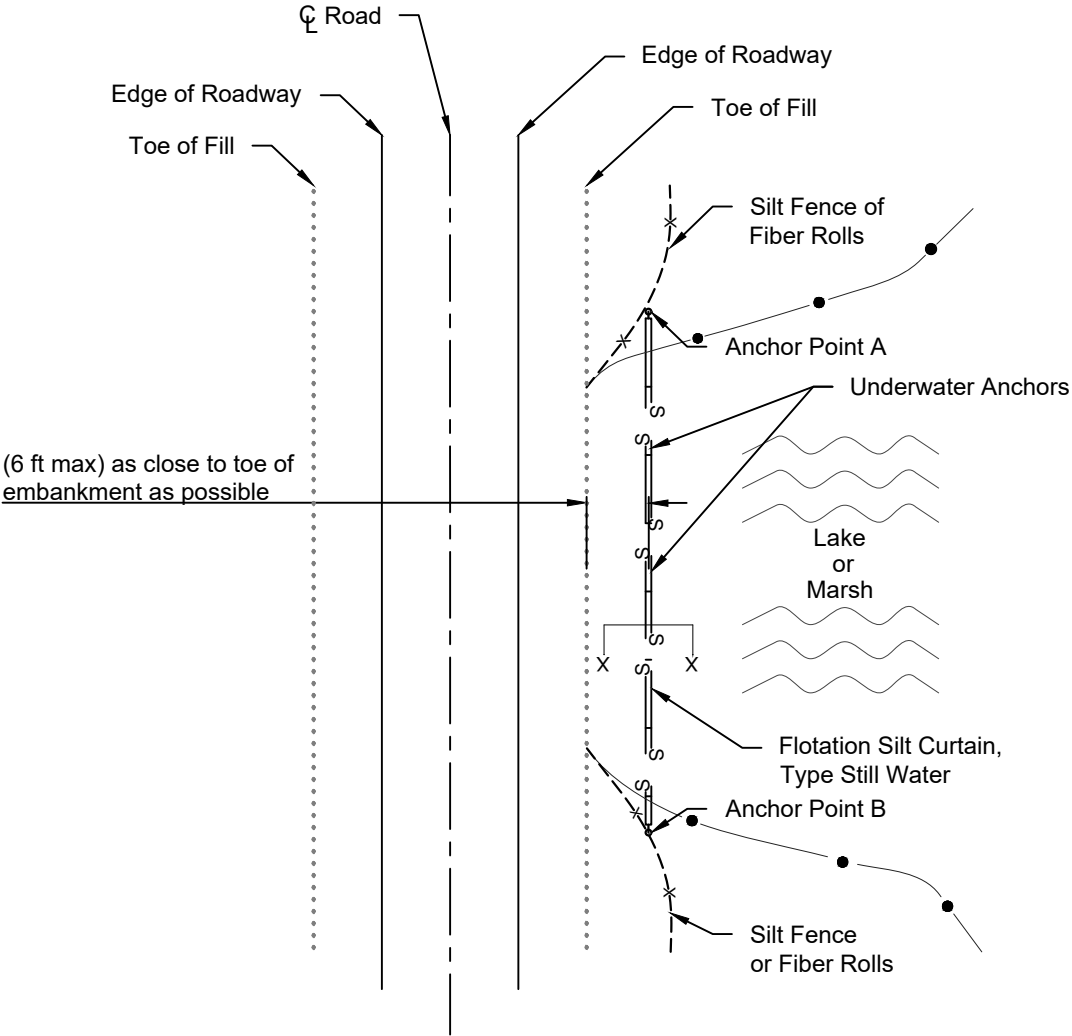
Riprap Placement Detail

Reconstruction
County Route 1

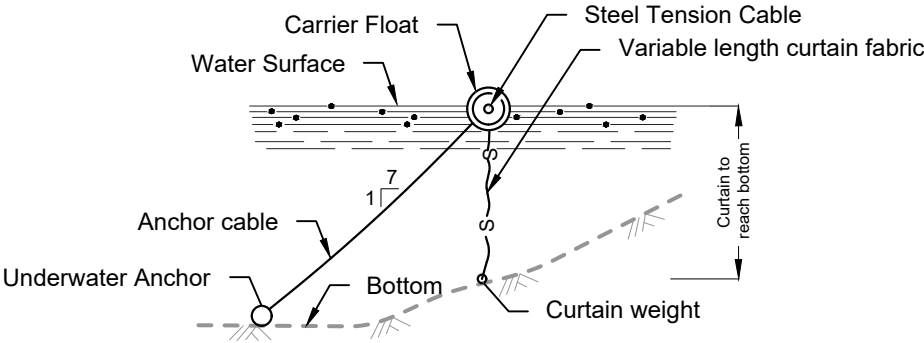
Mountrail County, ND

TYPICAL INSTALLATIONS
May vary with conditions

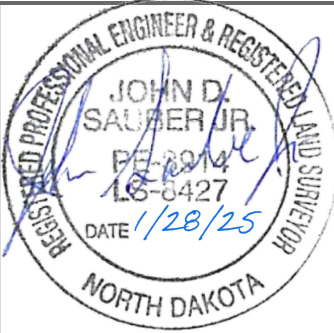
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	20	8



FLOTATION SILT CURTAIN - TYPE STILL WATER
Extend silt curtain onto shore and anchor there also.



FLOTATION SILT CURTAINS
SECTION X-X

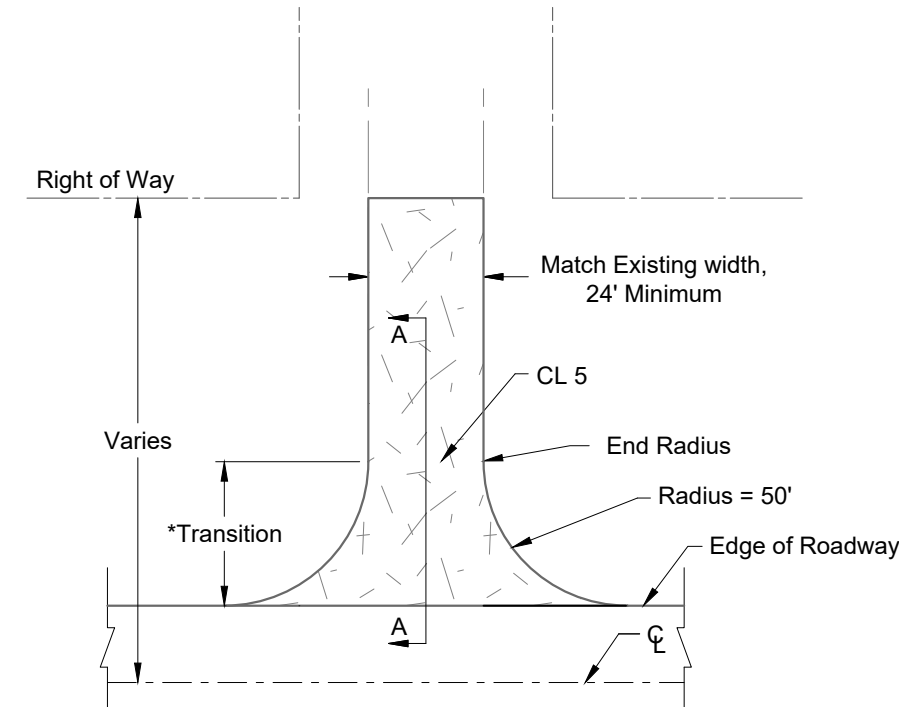


Temporary Erosion Control - Flotation Silt Curtain

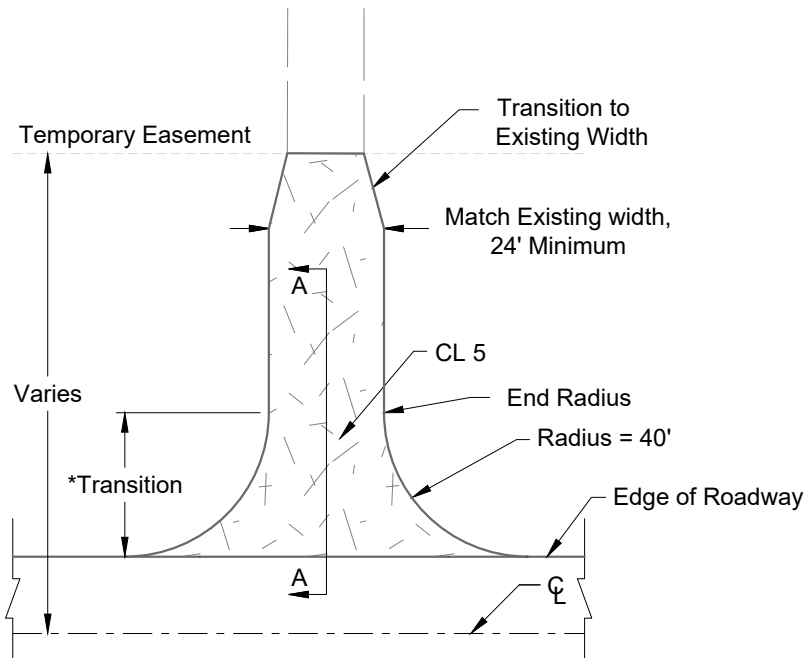
Reconstruction
County Route 1

Mountrail County, ND

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	ND	01(62)23	20	9

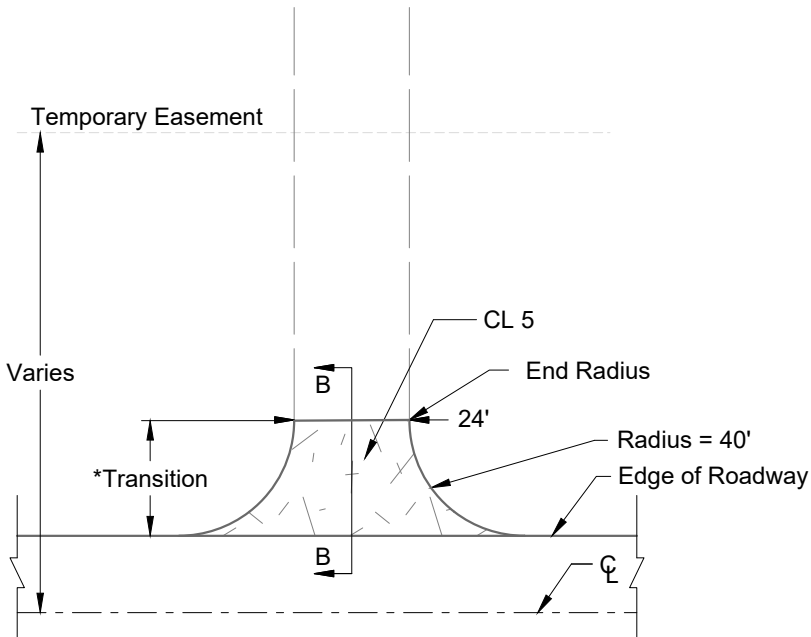


(1) Gravel Section Line, County Road, or Street Approach

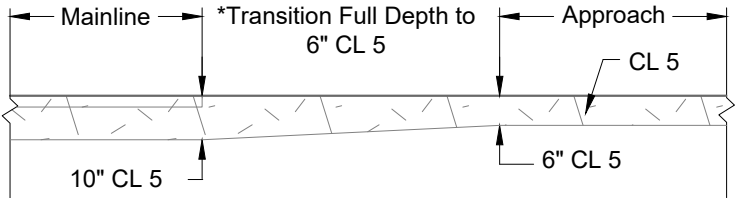


(2) Gravel Private Drive Approach

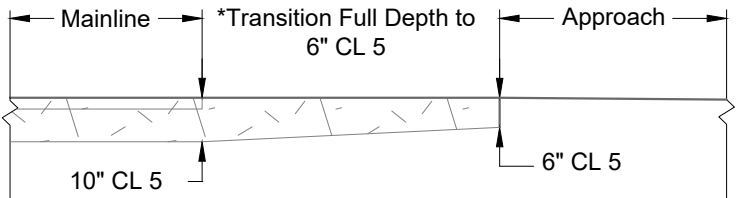
- Notes:
- Actual aggregate surface locations may vary in the field, as approved by the Engineer.
 - Quantity totals have been included in the bid items of the "Estimate of Quantities" of the plans.



(3) Field Drive Approach



Section A-A



Section B-B



BASIS OF ESTIMATE		(1)	(2)	(3)	
ITEM	UNIT	Gravel Section Line	Gravel Private Drive	Field Drive	TOTALS
Number of Locations	#	7	7	54	68
Aggregate Base Course CL 5	TON	1,050	875	4,752	6,677

Approach Detail
Reconstruction
County Route 1
Mountrail County, ND

Curve PCL-CR1-5

P.C. Station 1037+88.35
P.I. Station 1052+53.93
Delta = 44°45'07" (RT)
Degree = 1°36'34"
Tangent = 1,465.58'
Length = 2,780.61'
Radius = 3,560.00'
P.T. Station 1065+68.96

Station	Left Slope	Right Slope
1036+28.27	-4.0	-4.0
1037+24.27	0.0	-4.0
1038+20.27	4.0	-4.0
1065+37.04	4.0	-4.0
1066+33.04	0.0	-4.0
1067+29.04	-4.0	-4.0

Curve PCL-CR1-7

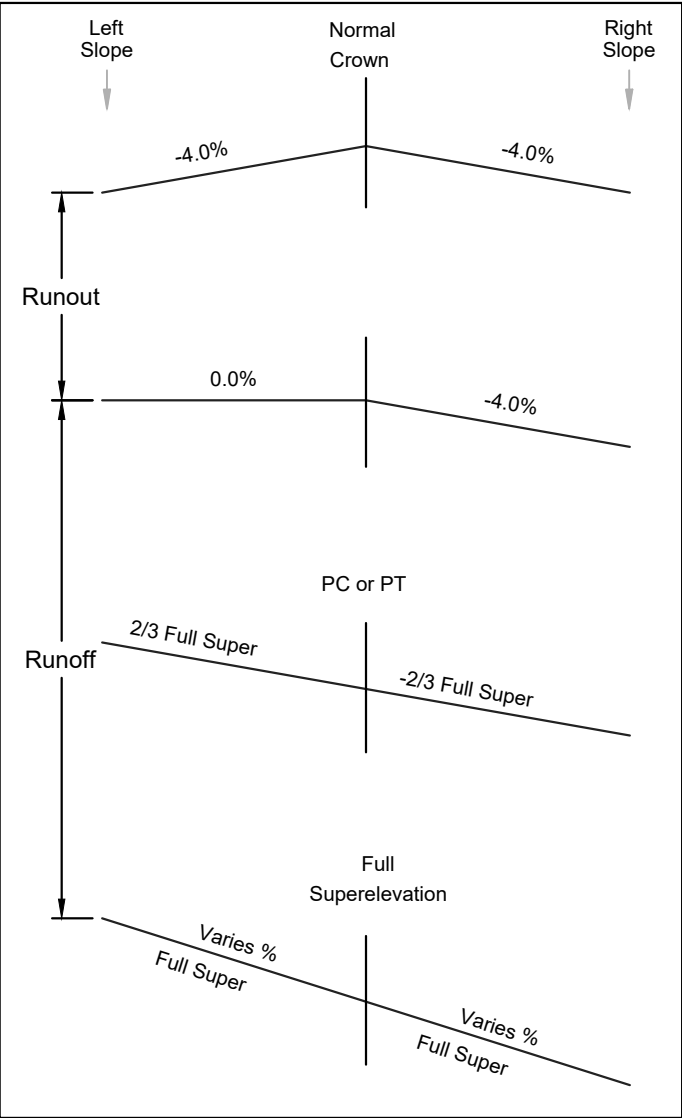
P.C. Station 1116+13.96
P.I. Station 1121+56.78
Delta = 54°13'59" (LT)
Degree = 5°24'19"
Tangent = 542.82'
Length = 1,003.34'
Radius = 1,060.00'
P.T. Station 1126+17.30

Station	Left Slope	Right Slope
1114+21.96	-4.0	-4.0
1115+17.96	-4.0	0.0
1116+13.96	-4.0	4.0
1116+61.96	-6.0	6.0
1125+69.31	-6.0	6.0
1126+17.31	-4.0	4.0
1127+13.31	-4.0	0.0
1128+09.31	-4.0	-4.0

Curve PCL-CR1-6

P.C. Station 1088+72.32
P.I. Station 1092+24.33
Delta = 9°34'54" (RT)
Degree = 1°21'51"
Tangent = 352.01'
Length = 702.37'
Radius = 4,200.00'
P.T. Station 1095+74.69

Station	Left Slope	Right Slope
1087+12.24	-4.0	-4.0
1088+08.24	0.0	-4.0
1089+04.24	4.0	-4.0
1095+42.77	4.0	-4.0
1096+38.77	0.0	-4.0
1097+34.77	-4.0	-4.0



Note:

Calculations based on AASHTO method five. A design speed of 55 mph and maximum superelevation of 6% were used.

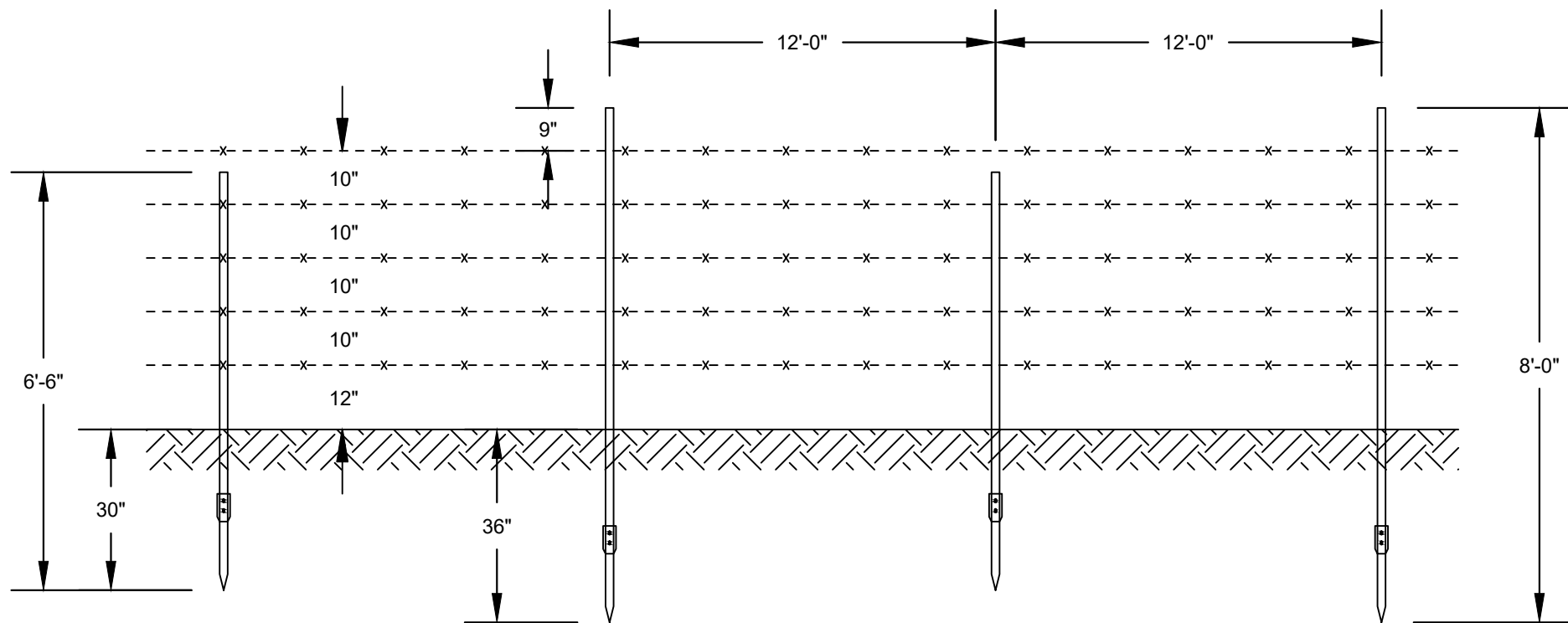


Superelevation Table

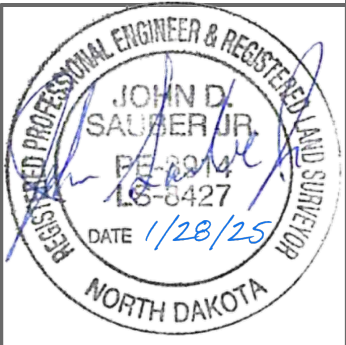
Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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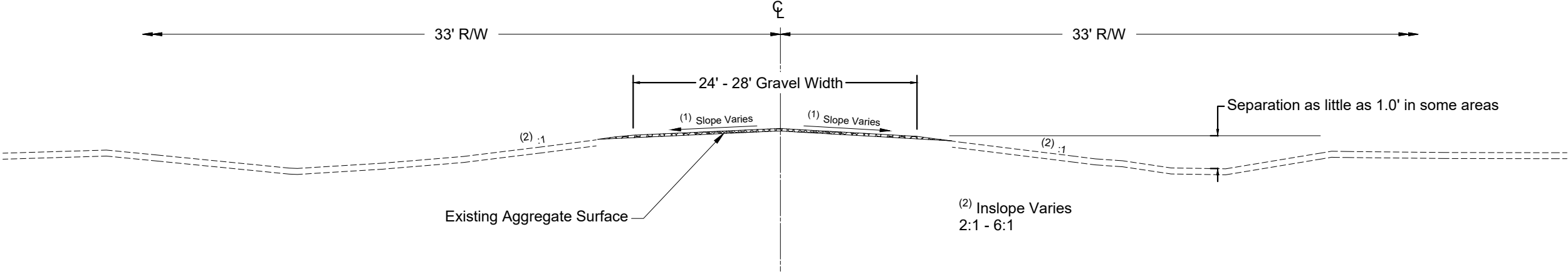


Fence Barbed Wire 5 Strand
Line Post Detail

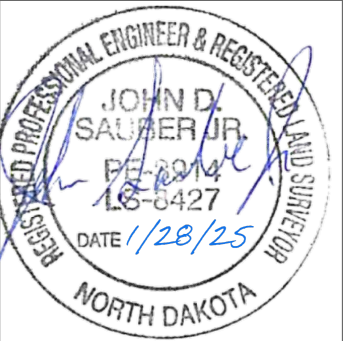


Fence Barbed Wire 5 Strand Detail
Reconstruction
County Route 1
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	30	1

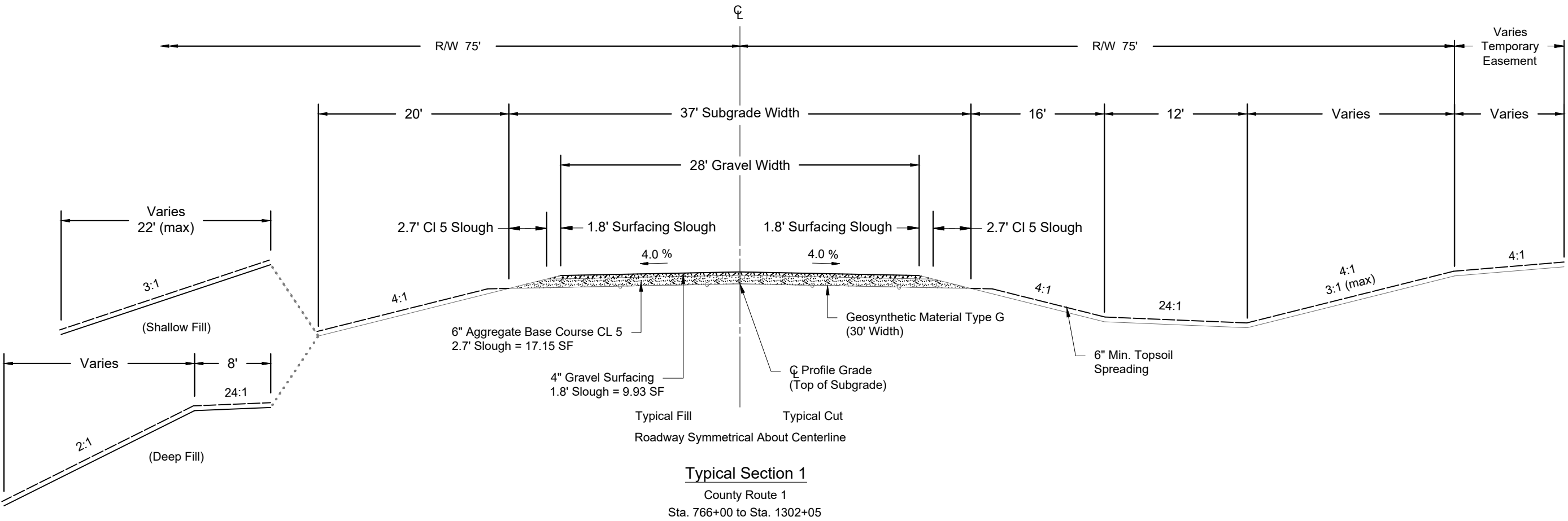


Existing Section
County Route 1
Sta. 766+00 to Sta. 1302+05
(1) Cross Slope Varies Between 3% - 5%



Existing Typical Section
Reconstruction
County Route 1
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	30	2



Proposed Typical Section
Reconstruction
County Route 1
Mountrail County, ND

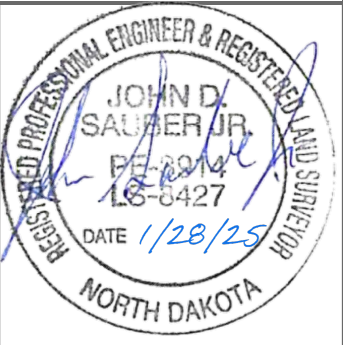
Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)		Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
												Begin	End	
				In	Bid Item	LF	In	Type		In	SY	EA	EA	
782+75	44' Lt	782+75	54' Rt	30	Pipe Conduit	98'	Reinforced Concrete Pipe - Class II (barrel length = 95 LF)				71	FES	FES	Standard D-714-25
							Corrugated Steel Pipe			0.064				
							Spiral Rib Steel Pipe		3/4, 1	0.064				
789+49	45' Lt	790+35	45' Lt	24	Pipe Conduit - Approach	86'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
790+71	45' Rt	791+45	45' Rt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
795+65	56' Lt	795+65	56' Rt	30	Pipe Conduit	112'	Reinforced Concrete Pipe - Class III (barrel length = 109 LF)				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe			0.064				
							Spiral Rib Steel Pipe			0.064				
802+94	56' Lt	803+35	39' Rt	36	Pipe Conduit	104'	Reinforced Concrete Pipe - Class II (barrel length = 99 LF)				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
806+04	45' Lt	806+96	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
814+00	60' Lt	814+00	68' Rt	30	Pipe Conduit	128'	Reinforced Concrete Pipe - Class III (barrel length = 125 LF)				92	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
816+82	45' Lt	817+88	45' Lt	24	Pipe Conduit - Approach	106'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
816+89	41' Rt	817+91	41' Rt	24	Pipe Conduit	102'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
820+85	59' Lt	820+85	47' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II (barrel length = 103 LF)				77	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
823+90	45' Rt	824+66	45' Rt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
827+20	56' Lt	827+20	58' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class III (barrel length = 111 LF)				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
834+58	45' Lt	835+18	45' Lt	24	Pipe Conduit - Approach	60'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
836+58	45' Rt	837+30	45' Rt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
843+52	45' Lt	844+42	45' Lt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
845+53	45' Rt	846+19	45' Rt	24	Pipe Conduit - Approach	66'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
847+97	45' Lt	848+67	45' Lt	24	Pipe Conduit - Approach	70'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
857+16	44' Lt	857+16	54' Rt	54	Pipe Conduit	98'	Reinforced Concrete Pipe - Class II (barrel length = 93 LF)				93	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Corrugated Steel Pipe		P	3, 5				
							Spiral Rib Steel Pipe		P	3/4				
							Spiral Rib Steel Pipe		P	1				
859+96	45' Lt	860+70	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
860+10	45' Rt	860+88	45' Rt	24	Pipe Conduit - Approach	78'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
865+21	62' Lt	865+21	36' Rt	24	Pipe Conduit	98'	Reinforced Concrete Pipe - Class III (barrel length = 93 LF)				65	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
869+64	56' Lt	869+64	32' Rt	24	Pipe Conduit	88'	Reinforced Concrete Pipe - Class III (barrel length = 83 LF)				59	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
870+06	45' Rt	870+60	45' Rt	24	Pipe Conduit - Approach	54'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
884+35	45' Rt	885+16	68' Rt	24	Pipe Conduit - Approach	84'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				

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

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

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

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
(^) Culvert lengths adjusted around the horizontal curve.



Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)		Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
												Begin	End	
				In	Bid Item	LF	In	Type		In	SY	EA	EA	
884+99	42' Lt	885+56	57' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class II (barrel length = 111 LF)				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe			0.064				
							Spiral Rib Steel Pipe		3/4, 1	0.064				
889+44	45' Lt	890+20	45' Lt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
893+13	74' Lt	892+79	92' Rt	30	Pipe Conduit	170'	Reinforced Concrete Pipe - Class IV (barrel length = 167 LF)				123	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
897+20	45' Lt	897+98	45' Lt	24	Pipe Conduit - Approach	78'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
908+97	82' Lt	908+97	80' Rt	48	Pipe Conduit	162'	Reinforced Concrete Pipe - Class IV (barrel length = 158 LF)				144	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2, 3, 5				
							Spiral Rib Steel Pipe		P	3/4, 1				
914+02	45' Lt	914+76	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
917+73	45' Lt	918+65	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
924+50	72' Lt	924+50	72' Rt	30	Pipe Conduit	144'	Reinforced Concrete Pipe - Class IV (barrel length = 141 LF)				104	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
939+25	64' Lt	939+50	70' Rt	30	Pipe Conduit	136'	Reinforced Concrete Pipe - Class IV (barrel length = 133 LF)				98	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
951+60	62' Lt	951+60	62' Rt	30	Pipe Conduit	124'	Reinforced Concrete Pipe - Class IV (barrel length = 121 LF)				90	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
956+10	45' Rt	956+64	45' Rt	24	Pipe Conduit - Approach	54'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
959+20	34' Lt	959+20	38' Rt	24	Pipe Conduit	72'	Reinforced Concrete Pipe - Class III (barrel length = 67 LF)				48	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
961+90	45' Rt	962+80	45' Rt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
965+58	45' Rt	966+58	45' Rt	24	Pipe Conduit - Approach	100'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
965+87	45' Lt	966+81	45' Lt	24	Pipe Conduit - Approach	94'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
973+48	45' Rt	974+28	45' Rt	24	Pipe Conduit - Approach	80'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
975+40	45' Rt	976+14	45' Rt	24	Pipe Conduit	74'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
975+40	45' Lt	976+22	45' Lt	24	Pipe Conduit	82'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Standard D-714-27
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
979+08	45' Lt	979+82	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
986+06	50' Lt	985+39	42' Rt	30	Pipe Conduit	114'	Reinforced Concrete Pipe - Class II (barrel length = 111 LF)				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
991+83	62' Lt	991+83	62' Rt	36	Pipe Conduit	124'	Reinforced Concrete Pipe - Class III (barrel length = 119 LF)				96	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
1001+79	45' Lt	1002+71	45' Lt	24	Pipe Conduit - Approach	92'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
1001+99	45' Rt	1002+67	45' Rt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				
1015+00	42' Lt	1015+00	38' Rt	24	Pipe Conduit	80'	Reinforced Concrete Pipe - Class III (barrel length = 75 LF)				53	FES	FES	Standard D-714-25
							Corrugated Steel Pipe		P	2				
							Spiral Rib Steel Pipe		P	3/4, 1				
1024+54	45' Lt	1025+42	45' Lt	24	Pipe Conduit - Approach	88'	Corrugated Steel Pipe		Z, A, P	2		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe		Z, A, P	3/4, 1				

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

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

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

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TES = Traversable End Section
(*) Culvert lengths adjusted around the horizontal curve.



Allowable Pipe List
Reconstruction
County Route 1
Mountrail County, ND

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)		Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
												Begin	End	
				In	Bid Item	LF	In	Type		In	SY	EA	EA	
1024+70	45' Rt	1025+46	45' Rt	24	Pipe Conduit - Approach	76'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1029+51	64' Lt	1029+51	60' Rt	36	Pipe Conduit	124'	Reinforced Concrete Pipe - Class III (barrel length = 119 LF)				96	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1038+87	45' Rt	1039+69	45' Rt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1038+76	45' Lt	1039+80	45' Lt	24	Pipe Conduit - Approach	^106'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1043+65	58' Lt	1043+65	80' Rt	30	Pipe Conduit	138'	Reinforced Concrete Pipe - Class III (barrel length = 135 LF)				100	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1048+06	45' Lt	1049+04	45' Lt	24	Pipe Conduit - Approach	^100'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1059+80	70' Lt	1059+80	42' Rt	30	Pipe Conduit	112'	Reinforced Concrete Pipe - Class III (barrel length = 109 LF)				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1064+20	62' Lt	1064+20	42' Rt	36	Pipe Conduit	104'	Reinforced Concrete Pipe - Class II (barrel length = 99 LF)				81	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1074+62	62' Lt	1074+62	32' Rt	24	Pipe Conduit	94'	Reinforced Concrete Pipe - Class III (barrel length = 89 LF)				63	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1088+00	54' Lt	1088+00	36' Rt	30	Pipe Conduit	90'	Reinforced Concrete Pipe - Class II (barrel length = 87 LF)				65	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1117+19	32' Lt	1117+19	34' Rt	24	Pipe Conduit	66'	Reinforced Concrete Pipe - Class III (barrel length = 61 LF)				48	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1121+68	45' Rt	1122+36	45' Rt	24	Pipe Conduit - Approach	^72'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1125+95	44' Lt	1125+95	42' Rt	36	Pipe Conduit	86'	Reinforced Concrete Pipe - Class II (barrel length = 81 LF)				67	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1129+17	44' Lt	1129+17	44' Rt	36	Pipe Conduit	88'	Reinforced Concrete Pipe - Class III (barrel length = 83 LF)				68	FES	FES	Standard D-714-26
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1131+60	45' Lt	1132+28	45' Lt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1153+70	69' Lt	1153+89	63' Rt	36	Pipe Conduit	134'	Reinforced Concrete Pipe - Class IV (barrel length = 129 LF)				104	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1155+36	56' Rt	1156+42	56' Rt	24	Pipe Conduit - Approach	106'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1164+27	45' Rt	1165+07	45' Rt	24	Pipe Conduit - Approach	80'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1172+22	45' Rt	1173+06	45' Rt	24	Pipe Conduit - Approach	84'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1172+40	45' Lt	1173+14	45' Lt	24	Pipe Conduit - Approach	74'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1182+35	64' Lt	1182+35	42' Rt	36	Pipe Conduit	106'	Reinforced Concrete Pipe - Class IV (barrel length = 101 LF)				82	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				
1189+13	50' Lt	1189+85	50' Lt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1199+17	45' Rt	1199+99	45' Rt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe	Z, A, P	2	0.064		FES	FES	Specification 714.04 A
							Spiral Rib Steel Pipe	Z, A, P	3/4, 1	0.064				
1213+84	64' Lt	1213+84	42' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II (barrel length = 103 LF)				77	FES	FES	Standard D-714-25
							Corrugated Steel Pipe	P	2	0.064				
							Spiral Rib Steel Pipe	P	3/4, 1	0.064				

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

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FES = Flared End Section
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(^*) Culvert lengths adjusted around the horizontal curve.



Allowable Pipe List
Reconstruction
County Route 1
Mountrail County, ND

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)		Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill			
												Begin	End				
				In	Bid Item	LF	In	Type		In	SY	EA	EA				
1218+95	68' Lt	1218+95	38' Rt	30	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II (barrel length = 103 LF)			30		77	FES	FES	Standard D-714-25		
							Corrugated Steel Pipe			30	P					2	0.064
							Spiral Rib Steel Pipe			30	P					3/4, 1	0.064
1231+15	60' Lt	1231+15	46' Rt	48	Pipe Conduit	106'	Reinforced Concrete Pipe - Class II (barrel length = 102 LF)			48		94	FES	FES	Standard D-714-25		
							Corrugated Steel Pipe			48	P					2	0.064
							Spiral Rib Steel Pipe			48	P					3/4, 1	0.064
1238+30	66' Lt	1238+30	66' Rt	30	Pipe Conduit	132'	Reinforced Concrete Pipe - Class IV (barrel length = 129 LF)			30		95	FES	FES	Standard D-714-25		
							Corrugated Steel Pipe			30	P					2	0.064
							Spiral Rib Steel Pipe			30	P					3/4, 1	0.064
1247+53	45' Rt	1248+43	45' Rt	24	Pipe Conduit - Approach	90'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1247+57	45' Lt	1248+39	45' Lt	24	Pipe Conduit - Approach	82'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1263+97	62' Lt	1264+69	62' Lt	24	Pipe Conduit - Approach	72'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1263+97	70' Rt	1264+75	70' Rt	24	Pipe Conduit	78'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Standard D-714-27	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1268+15	38' Lt	1268+15	38' Rt	36	Pipe Conduit	76'	Reinforced Concrete Pipe - Class II (barrel length = 71 LF)			36		59	FES	FES	Standard D-714-25		
							Corrugated Steel Pipe			36	P					2	0.064
							Spiral Rib Steel Pipe			36	P					3/4, 1	0.064
1274+68	34' Lt	1274+68	32' Rt	36	Pipe Conduit	66'	Reinforced Concrete Pipe - Class II (barrel length = 61 LF)			36		51	FES	FES	Standard D-714-26		
							Corrugated Steel Pipe			36	P					2	0.064
							Spiral Rib Steel Pipe			36	P					3/4, 1	0.064
1285+88	54' Lt	1285+88	46' Rt	48	Pipe Conduit	100'	Reinforced Concrete Pipe - Class II (barrel length = 96 LF)			48		89	FES	FES	Standard D-714-25		
							Corrugated Steel Pipe			48	P					2, 3, 5	0.064
							Spiral Rib Steel Pipe			48	P					3/4, 1	0.064
1291+66	45' Lt	1292+30	45' Lt	24	Pipe Conduit - Approach	64'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1291+71	45' Rt	1292+39	45' Rt	24	Pipe Conduit - Approach	68'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				
1297+26	45' Rt	1298+14	45' Rt	24	Pipe Conduit - Approach	88'	Corrugated Steel Pipe			24	Z, A, P	2	0.064	FES	FES	Specification 714.04 A	
							Spiral Rib Steel Pipe			24	Z, A, P	3/4, 1	0.064				

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5 = 5"x1"

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

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

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TES = Traversable End Section
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Allowable Pipe List

Reconstruction
County Route 1

Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	1

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

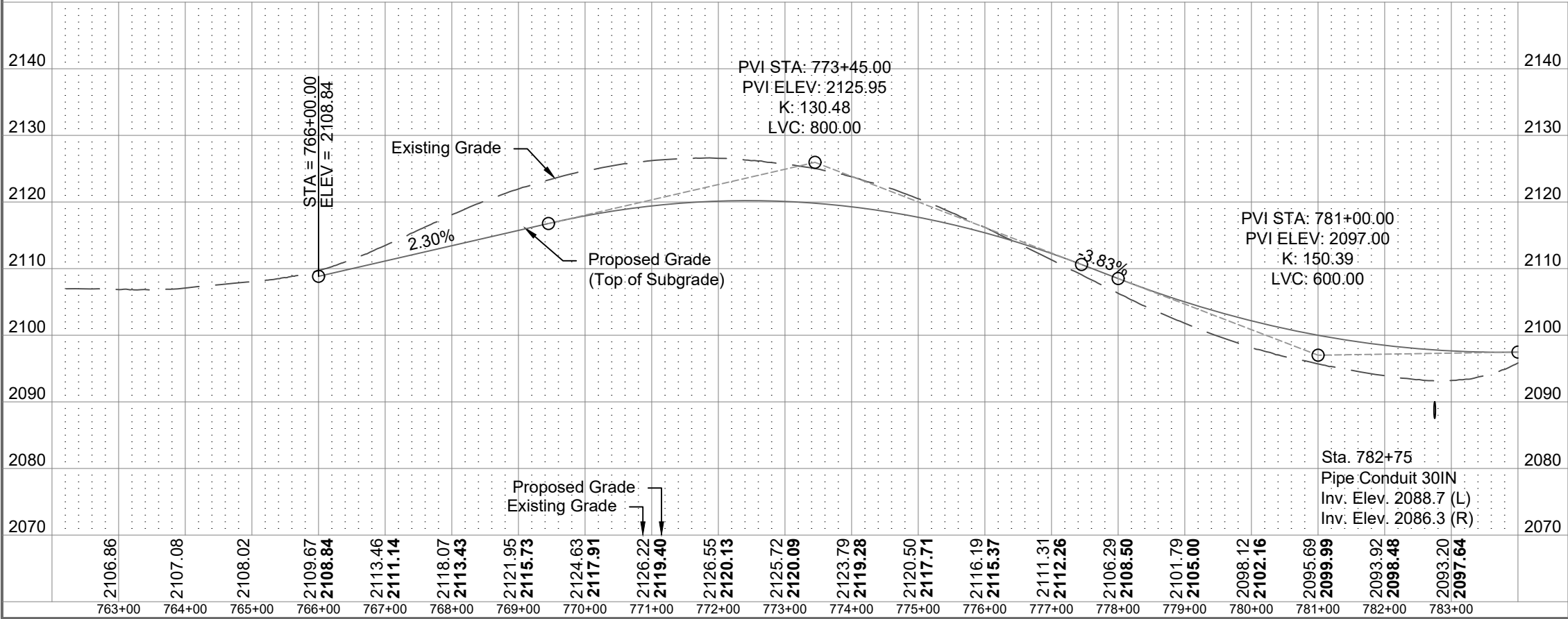
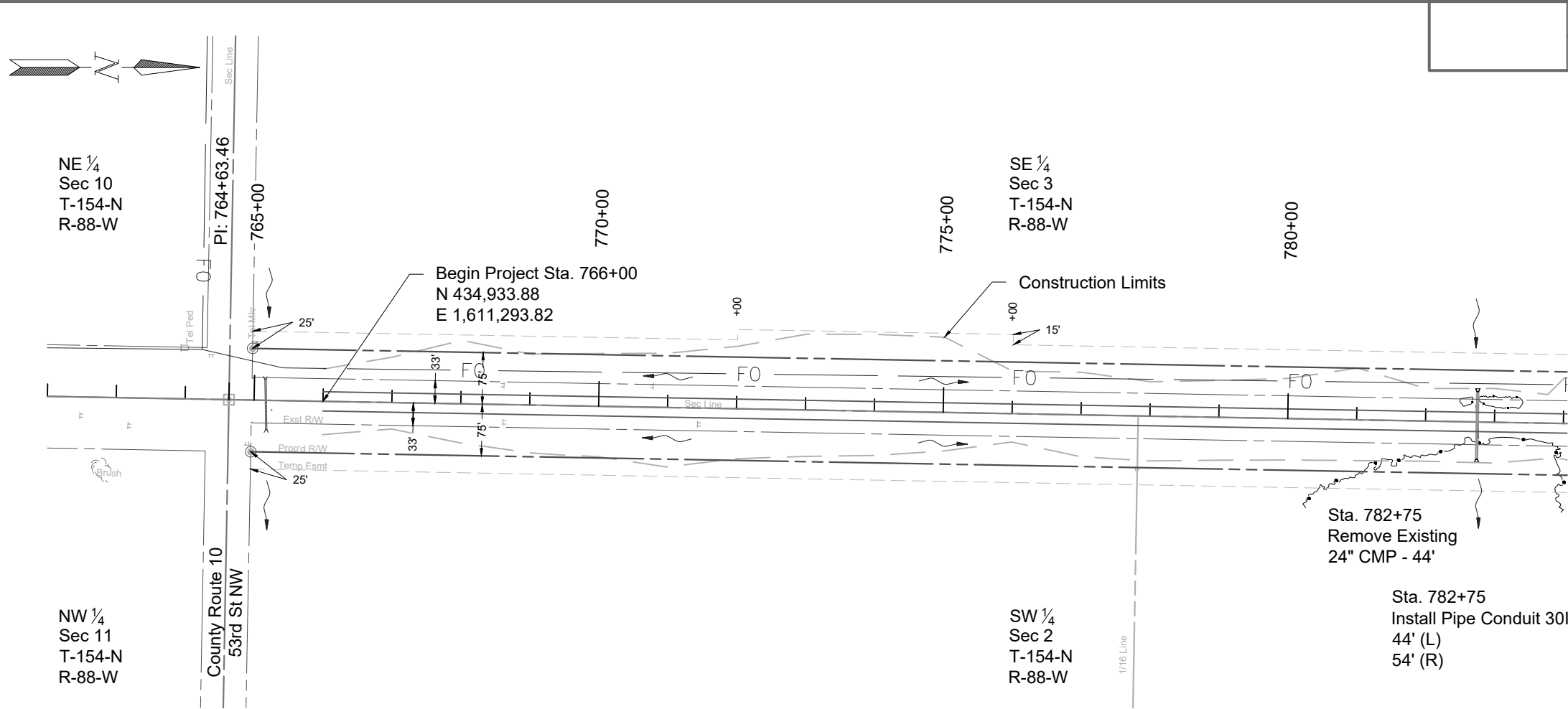
Sta. 782+75 44 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

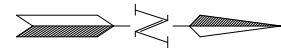
Sta. 782+75 71 SY

714 4110 PIPE CONDUIT 30IN

Sta. 782+75 98 LF



Plan & Profile
Sta. 763+00 to Sta. 783+00
Reconstruction
County Route 1
Mountrail County, ND



SE ¼
Sec 3
T-154-N
R-88-W

Sta. 789+81 (45' Lt)
Install Pipe Conduit
24IN-Approach
54.0' (A) Inv. 2082.48
32.0' (B) Inv. 2085.31

NE ¼
Sec 3
T-154-N
R-88-W

SW ¼
Sec 2
T-154-N
R-88-W

Curve PCL-CR1-1
PI = 791+02.46
Δ = 1°27'13" (RT)
D = 0°36'32"
T = 119.36'
L = 238.71'
R = 9,410.00'

Old Line

PI: 791+02.46

Existing Riprap

Construction Limits

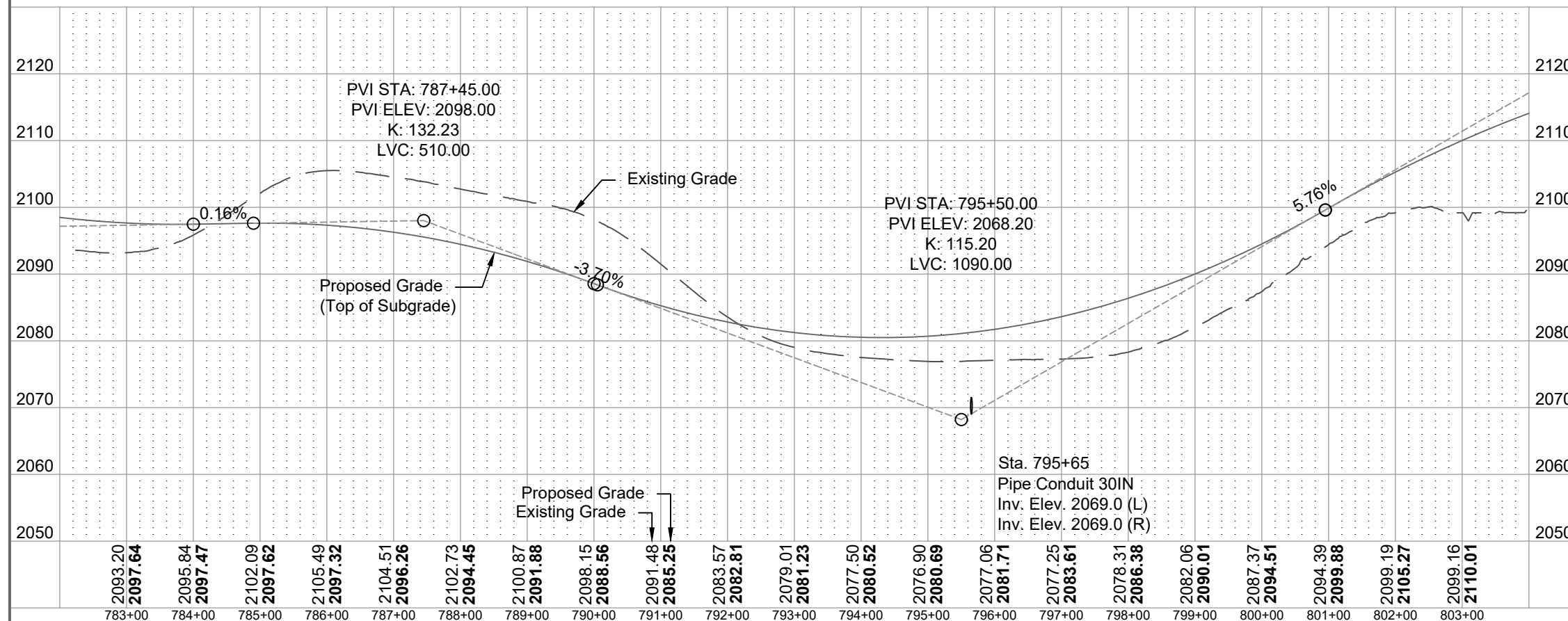
PC: 803+08.80

Sta. 791+00 (45' Rt)
Install Pipe Conduit
24IN-Approach
45.0' (A) Inv. 2079.43
29.0' (B) Inv. 2081.56

Sta. 795+63
Remove Existing
24" CMP - 36'

Sta. 795+65
Install Pipe Conduit 30IN
56' (L)
56' (R)

NW ¼
Sec 2
T-154-N
R-88-W



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	2

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 795+63 36 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 795+65 81 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 789+81 Lt 86 LF

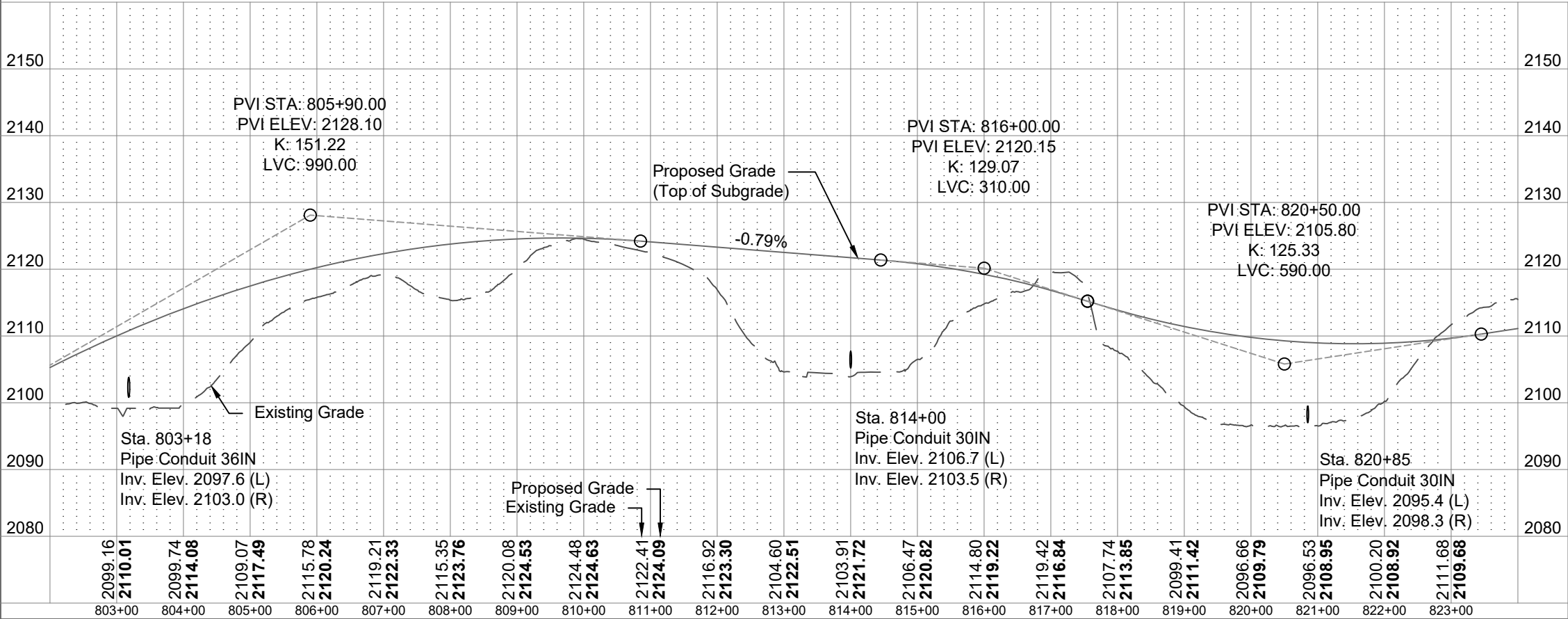
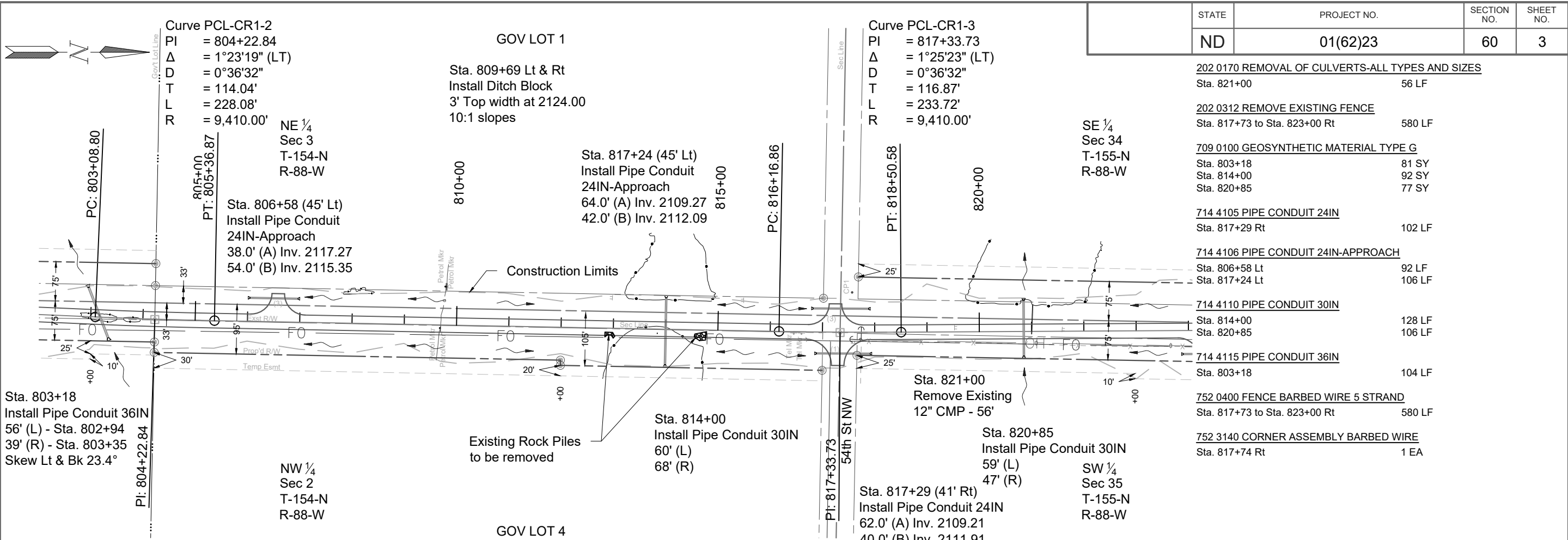
Sta. 791+00 Rt 74 LF

714 4110 PIPE CONDUIT 30IN

Sta. 795+65 112 LF



Plan & Profile
Sta. 783+00 to Sta. 803+00
Reconstruction
County Route 1
Mountrail County, ND

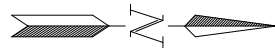


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	3

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES	
Sta. 821+00	56 LF
202 0312 REMOVE EXISTING FENCE	
Sta. 817+73 to Sta. 823+00 Rt	580 LF
709 0100 GEOSYNTHETIC MATERIAL TYPE G	
Sta. 803+18	81 SY
Sta. 814+00	92 SY
Sta. 820+85	77 SY
714 4105 PIPE CONDUIT 24IN	
Sta. 817+29 Rt	102 LF
714 4106 PIPE CONDUIT 24IN-APPROACH	
Sta. 806+58 Lt	92 LF
Sta. 817+24 Lt	106 LF
714 4110 PIPE CONDUIT 30IN	
Sta. 814+00	128 LF
Sta. 820+85	106 LF
714 4115 PIPE CONDUIT 36IN	
Sta. 803+18	104 LF
752 0400 FENCE BARBED WIRE 5 STRAND	
Sta. 817+73 to Sta. 823+00 Rt	580 LF
752 3140 CORNER ASSEMBLY BARBED WIRE	
Sta. 817+74 Rt	1 EA



Plan & Profile
Sta. 803+00 to Sta. 823+00
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	4

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 836+95 Rt 44 LF

202 0312 REMOVE EXISTING FENCE

Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 827+20 82 SY

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 824+32 Rt 76 LF
Sta. 834+89 Lt 60 LF
Sta. 836+95 Rt 72 LF

714 4110 PIPE CONDUIT 30IN

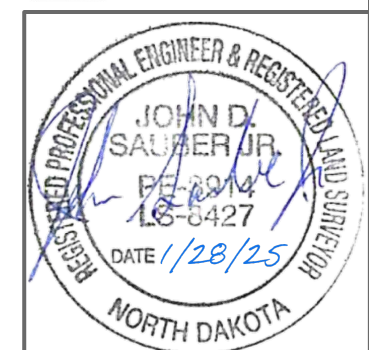
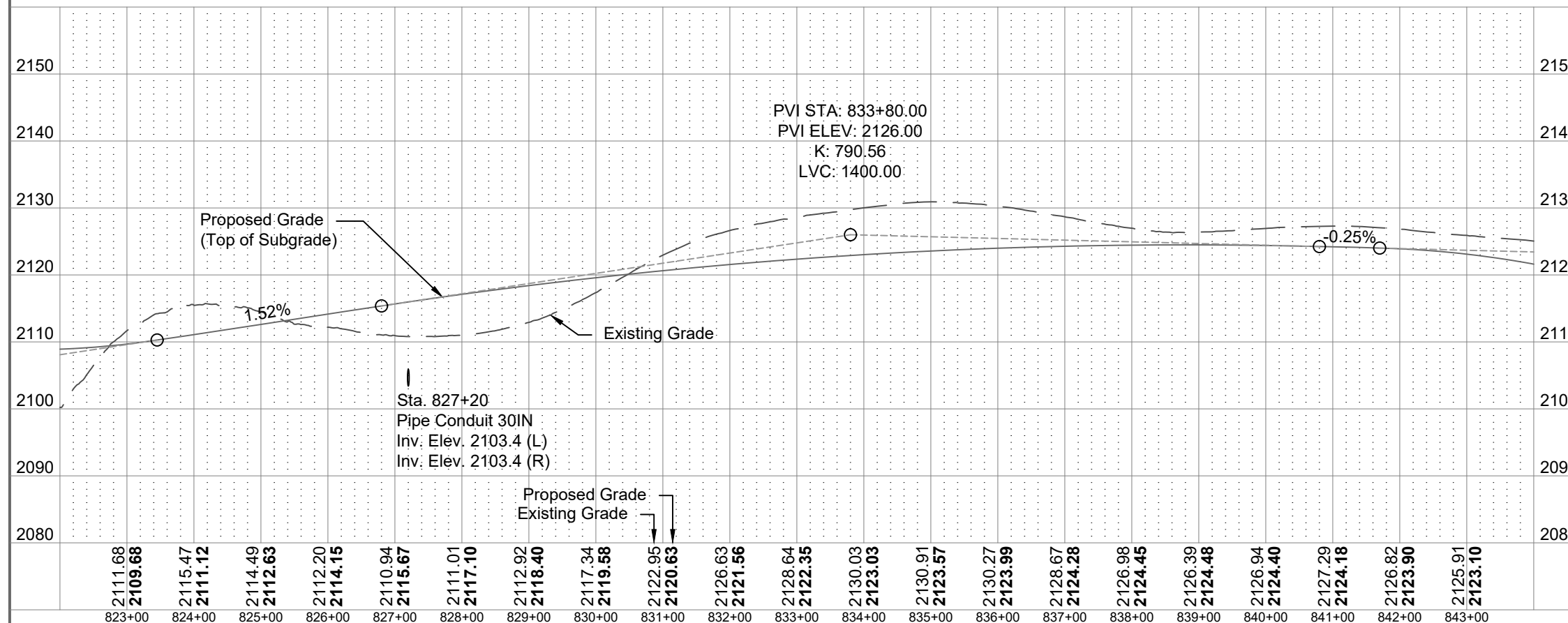
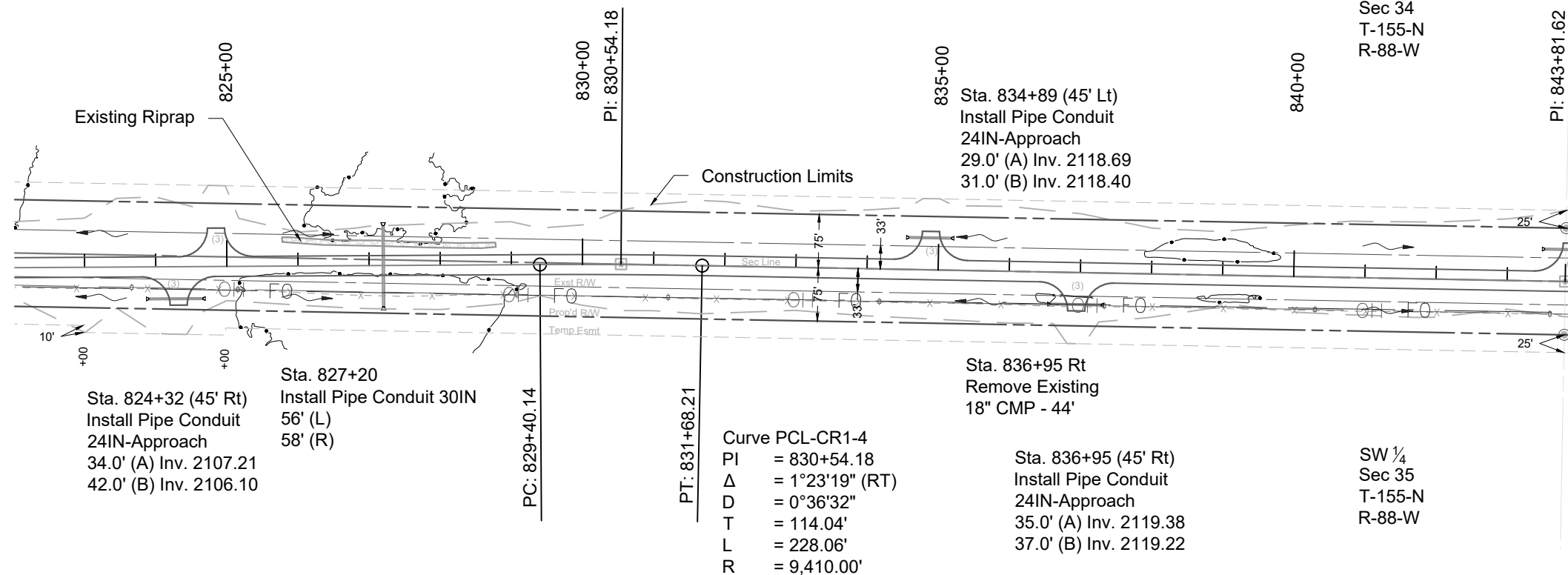
Sta. 827+20 114 LF

752 0400 FENCE BARBED WIRE 5 STRAND

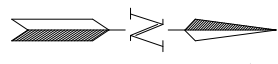
Sta. 823+00 to Sta. 843+00 Rt 2,000 LF

752 2100 VEHICLE GATE

Sta. 824+32 Rt 1 EA
Sta. 836+95 Rt 1 EA



Plan & Profile
Sta. 823+00 to Sta. 843+00
Reconstruction
County Route 1
Mountrail County, ND

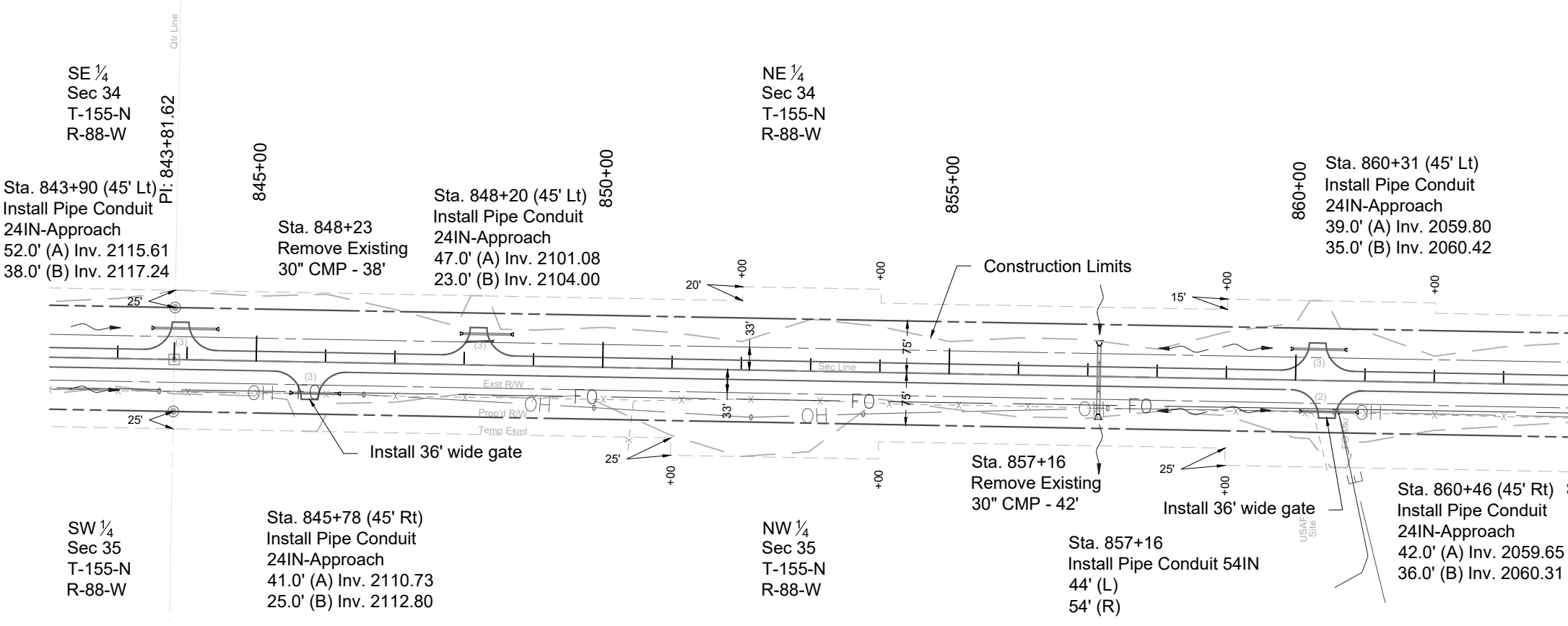


SE 1/4
Sec 34
T-155-N
R-88-W

NE 1/4
Sec 34
T-155-N
R-88-W

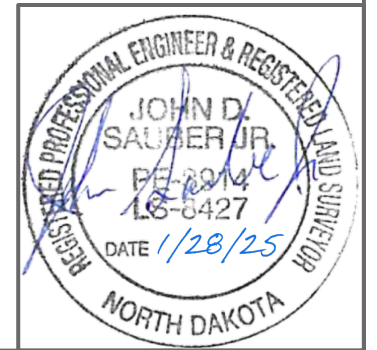
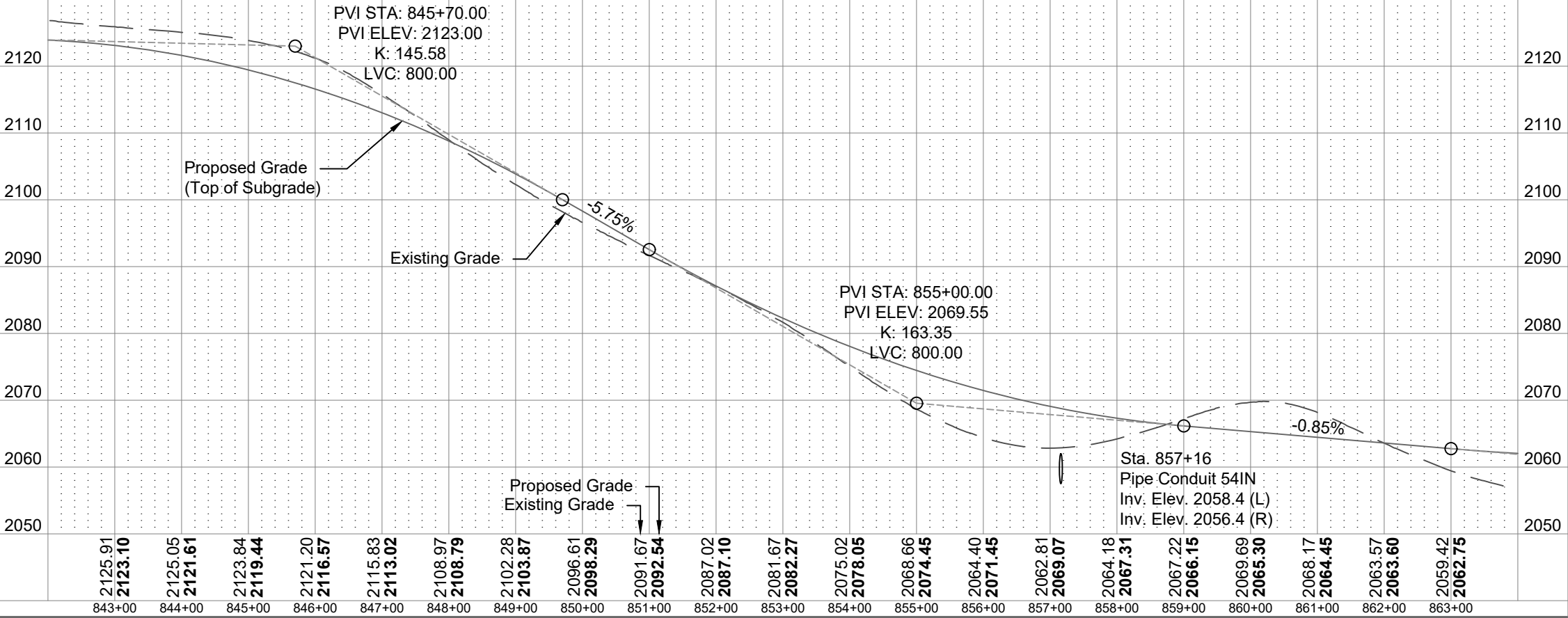
SW 1/4
Sec 35
T-155-N
R-88-W

NW 1/4
Sec 35
T-155-N
R-88-W

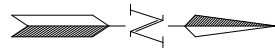


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	5

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES	
Sta. 848+23 Lt	38 LF
Sta. 857+16	42 LF
202 0312 REMOVE EXISTING FENCE	
Sta. 843+00 to Sta. 863+00 Rt	2,130 LF
709 0100 GEOSYNTHETIC MATERIAL TYPE G	
Sta. 857+16	93 SY
714 4106 PIPE CONDUIT 24IN-APPROACH	
Sta. 843+90 Lt	90 LF
Sta. 845+78 Rt	66 LF
Sta. 848+20 Lt	70 LF
Sta. 860+31 Lt	74 LF
Sta. 860+46 Rt	78 LF
714 4130 PIPE CONDUIT 54IN	
Sta. 857+16	98 LF
752 0400 FENCE BARBED WIRE 5 STRAND	
Sta. 843+00 to Sta. 863+00 Rt	2,130 LF
752 2100 VEHICLE GATE	
Sta. 845+78 Rt	1 EA
Sta. 860+46 Rt	1 EA
752 3140 CORNER ASSEMBLY BARBED WIRE	
Sta. 850+45 Rt	1 EA
Sta. 860+25 Rt	1 EA
752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE	
Sta. 843+00 Rt	1 EA
Sta. 856+00 Rt	1 EA



Plan & Profile
Sta. 843+00 to Sta. 863+00
Reconstruction
County Route 1
Mountrail County, ND

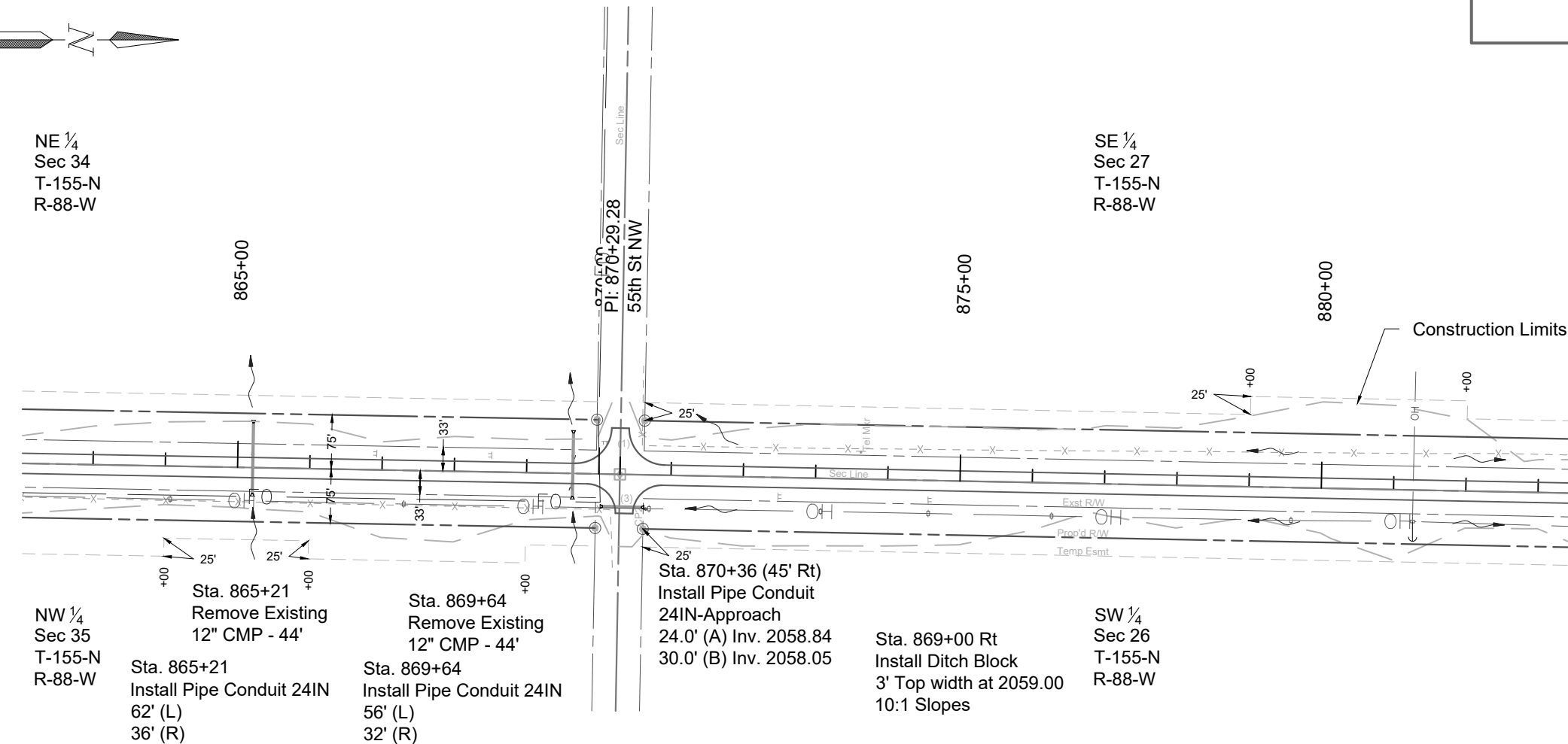


NE ¼
Sec 34
T-155-N
R-88-W

SE ¼
Sec 27
T-155-N
R-88-W

NW ¼
Sec 35
T-155-N
R-88-W

SW ¼
Sec 26
T-155-N
R-88-W



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	6

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 865+21	44 LF
Sta. 869+64	44 LF

202 0312 REMOVE EXISTING FENCE

Sta. 863+00 to Sta. 870+20 Rt	770 LF
Sta. 870+59 to Sta. 883+00 Lt	1,300 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 865+21	65 SY
Sta. 869+64	59 SY

714 4105 PIPE CONDUIT 24IN

Sta. 865+21	98 LF
Sta. 869+64	88 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 870+36 Rt	54 LF
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752 0400 FENCE BARBED WIRE 5 STRAND

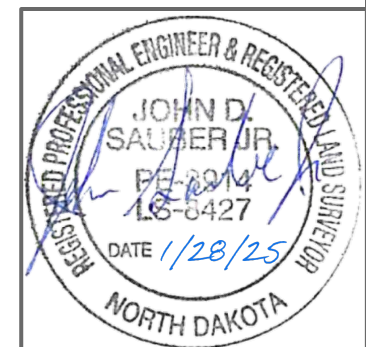
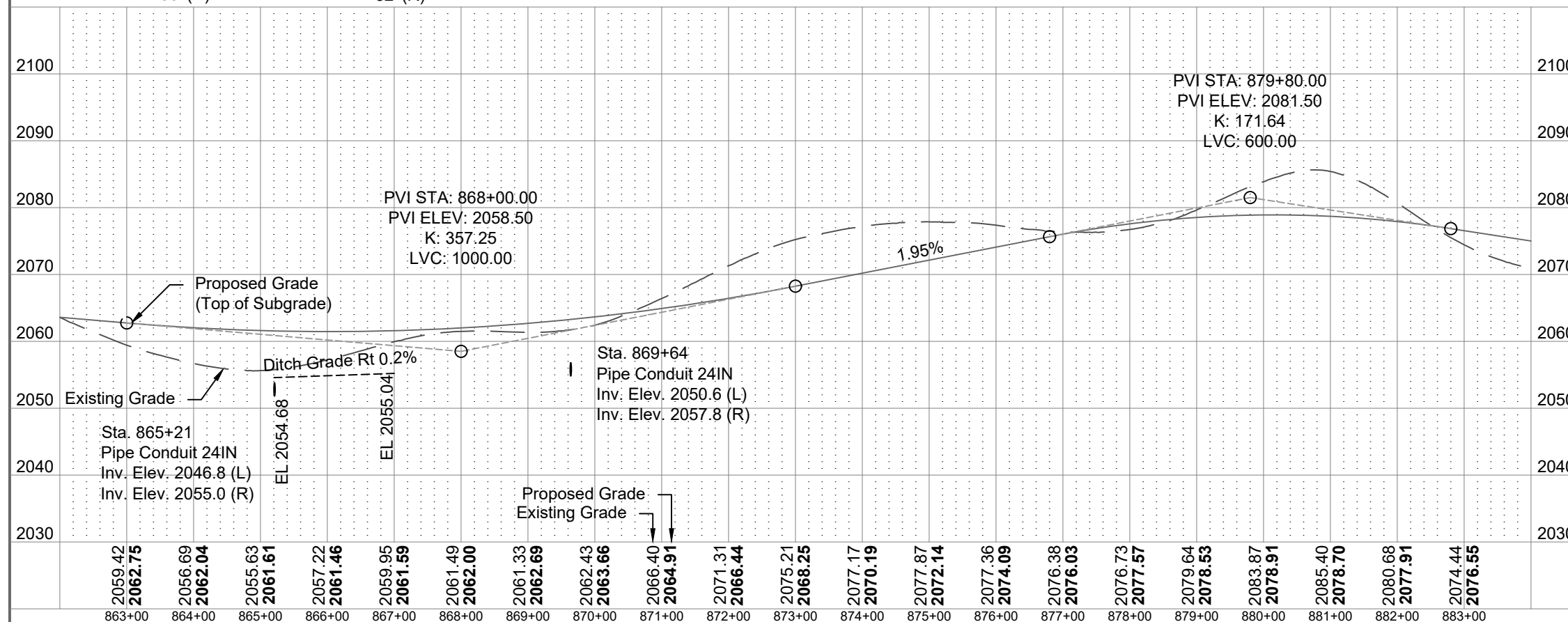
Sta. 863+00 to Sta. 870+20 Rt	770 LF
Sta. 870+59 to Sta. 883+00 Lt	1,300 LF

752 3140 CORNER ASSEMBLY BARBED WIRE

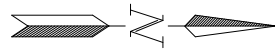
Sta. 870+17 Rt	1 EA
Sta. 870+59 Lt	1 EA

752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE

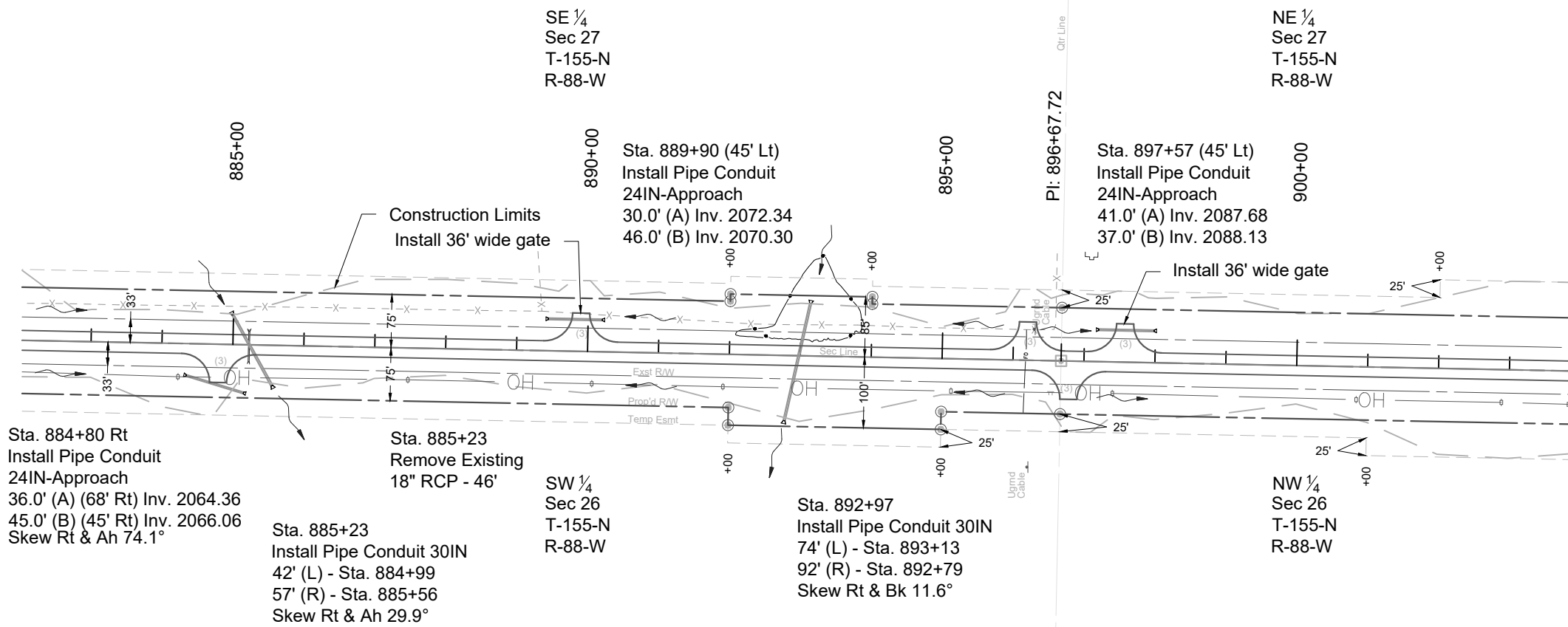
Sta. 880+00 Lt	1 EA
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Plan & Profile
Sta. 863+00 to Sta. 883+00
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	7



202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES
Sta. 885+23 46 LF

202 0312 REMOVE EXISTING FENCE
Sta. 883+00 to Sta. 896+59 Lt 1,455 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G
Sta. 885+23 82 SY
Sta. 892+97 123 SY

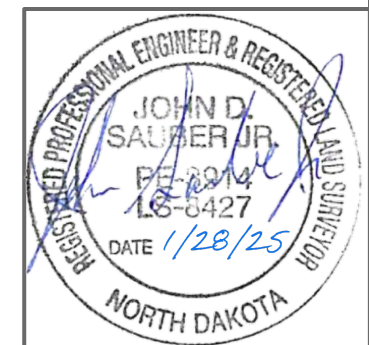
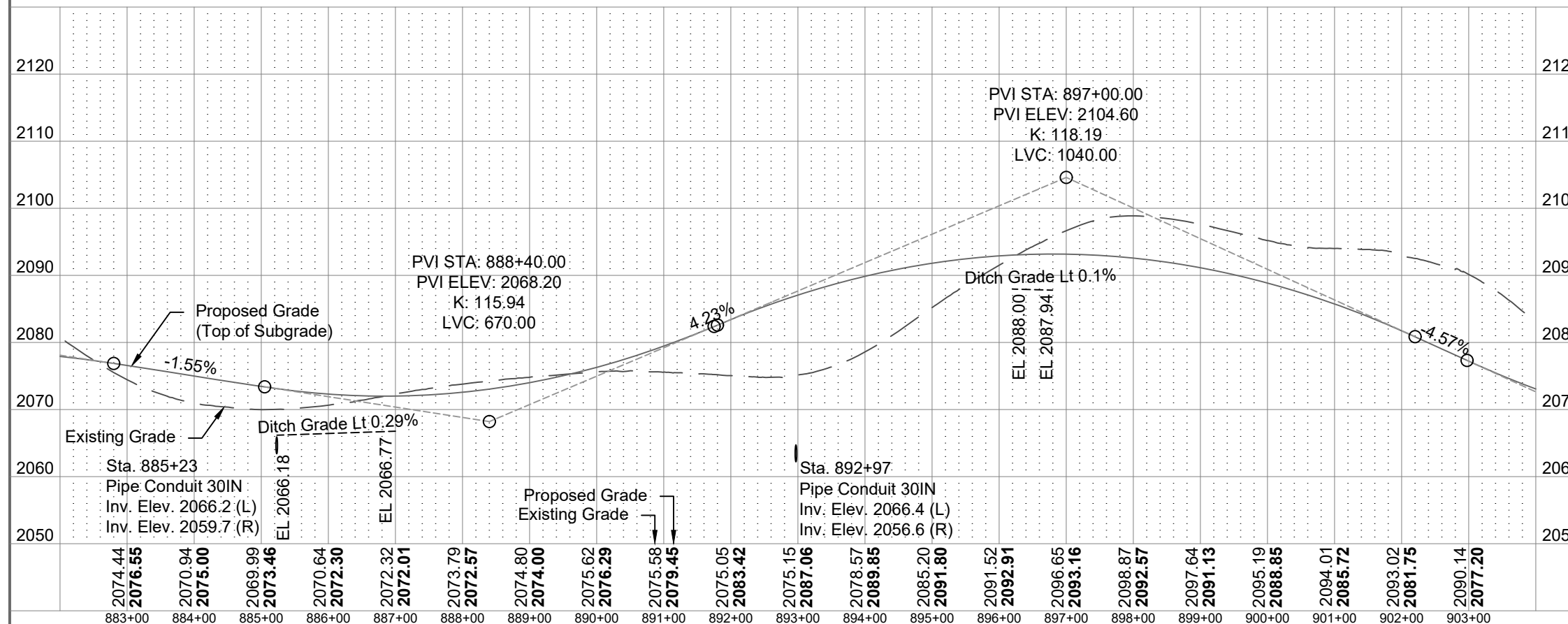
714 4106 PIPE CONDUIT 24IN-APPROACH
Sta. 884+80 Rt 84 LF
Sta. 889+90 Lt 76 LF
Sta. 897+57 Lt 78 LF

714 4110 PIPE CONDUIT 30IN
Sta. 885+23 114 LF
Sta. 892+97 170 LF

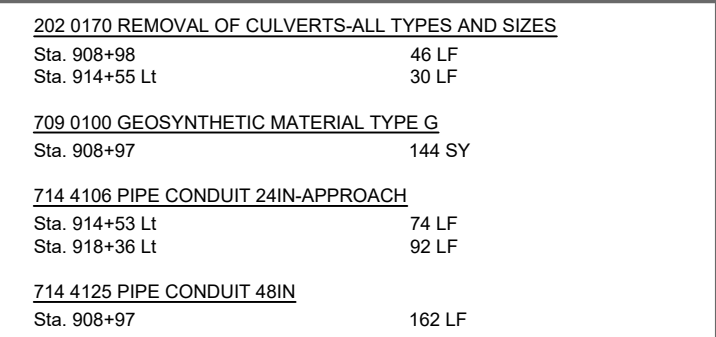
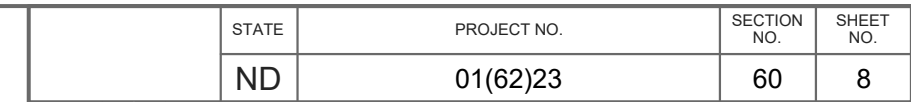
752 0400 FENCE BARBED WIRE 5 STRAND
Sta. 883+00 to Sta. 896+59 Lt 1,455 LF

752 2100 VEHICLE GATE
Sta. 889+90 Lt 1 EA
Sta. 896+20 Lt 1 EA

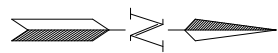
752 3140 CORNER ASSEMBLY BARBED WIRE
Sta. 889+34 Lt 1 EA
Sta. 896+57 Lt 1 EA



Plan & Profile
Sta. 883+00 to Sta. 903+00
Reconstruction
County Route 1
Mountrail County, ND



Plan & Profile
Sta. 903+00 to Sta. 923+00
Reconstruction
County Route 1
Mountrail County, ND

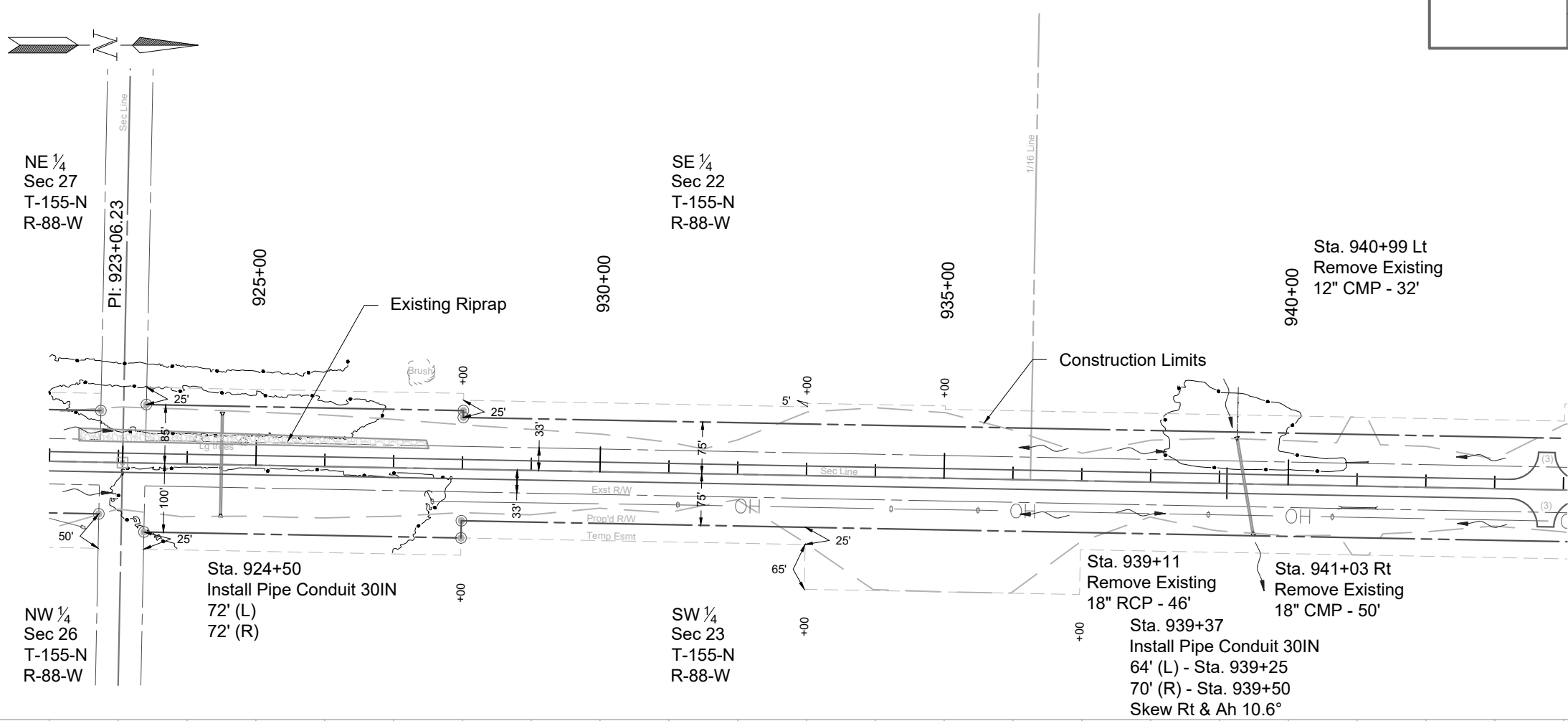


NE 1/4
Sec 27
T-155-N
R-88-W

NW 1/4
Sec 26
T-155-N
R-88-W

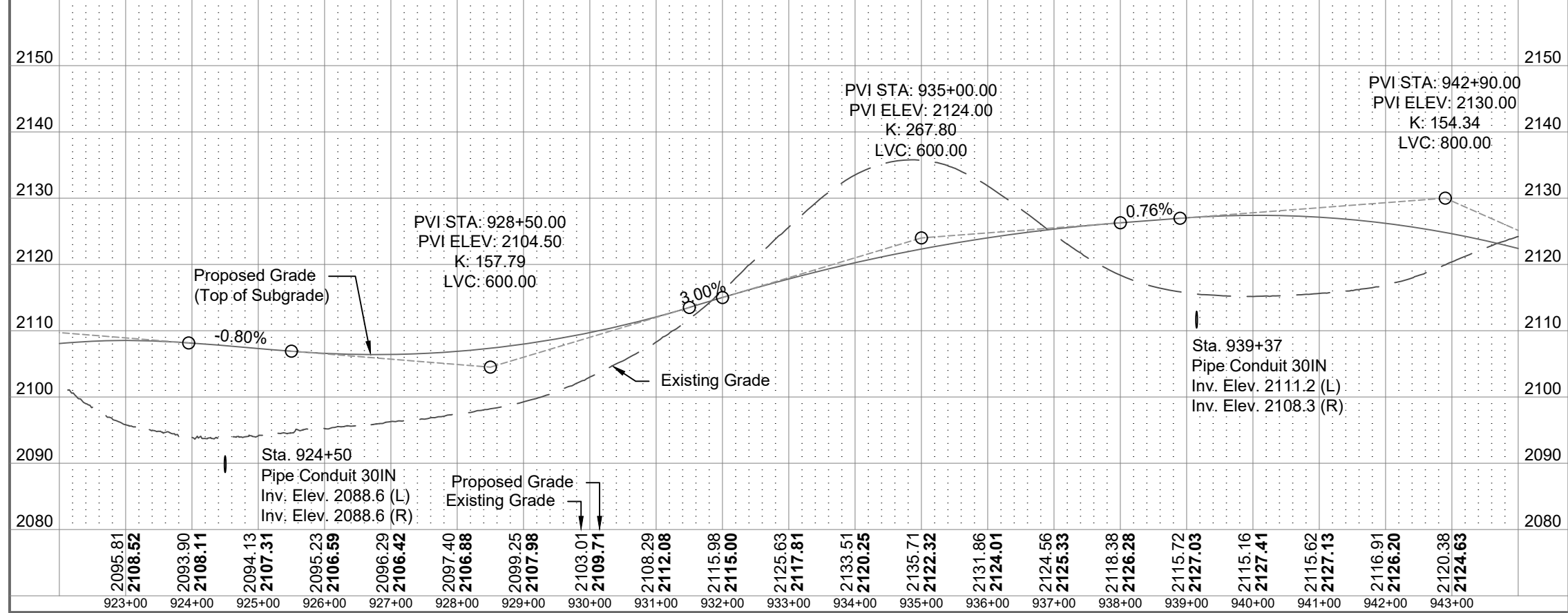
SE 1/4
Sec 22
T-155-N
R-88-W

SW 1/4
Sec 23
T-155-N
R-88-W

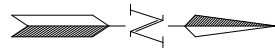


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	9

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES	
Sta. 939+11	46 LF
Sta. 940+99 Lt	32 LF
Sta. 941+03 Rt	50 LF
709 0100 GEOSYNTHETIC MATERIAL TYPE G	
Sta. 924+50	104 SY
Sta. 939+37	98 SY
714 4110 PIPE CONDUIT 30IN	
Sta. 924+50	144 LF
Sta. 939+37	136 LF



Plan & Profile
Sta. 923+00 to Sta. 943+00
Reconstruction
County Route 1
Mountrail County, ND



SE ¼
Sec 22
T-155-N
R-88-W

NE ¼
Sec 22
T-155-N
R-88-W

SW ¼
Sec 23
T-155-N
R-88-W

NW ¼
Sec 23
T-155-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	10

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 951+60	90 SY
Sta. 959+20	48 SY

714 4105 PIPE CONDUIT 24IN

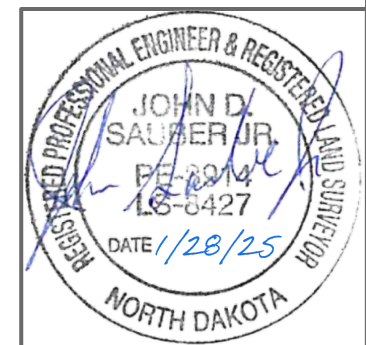
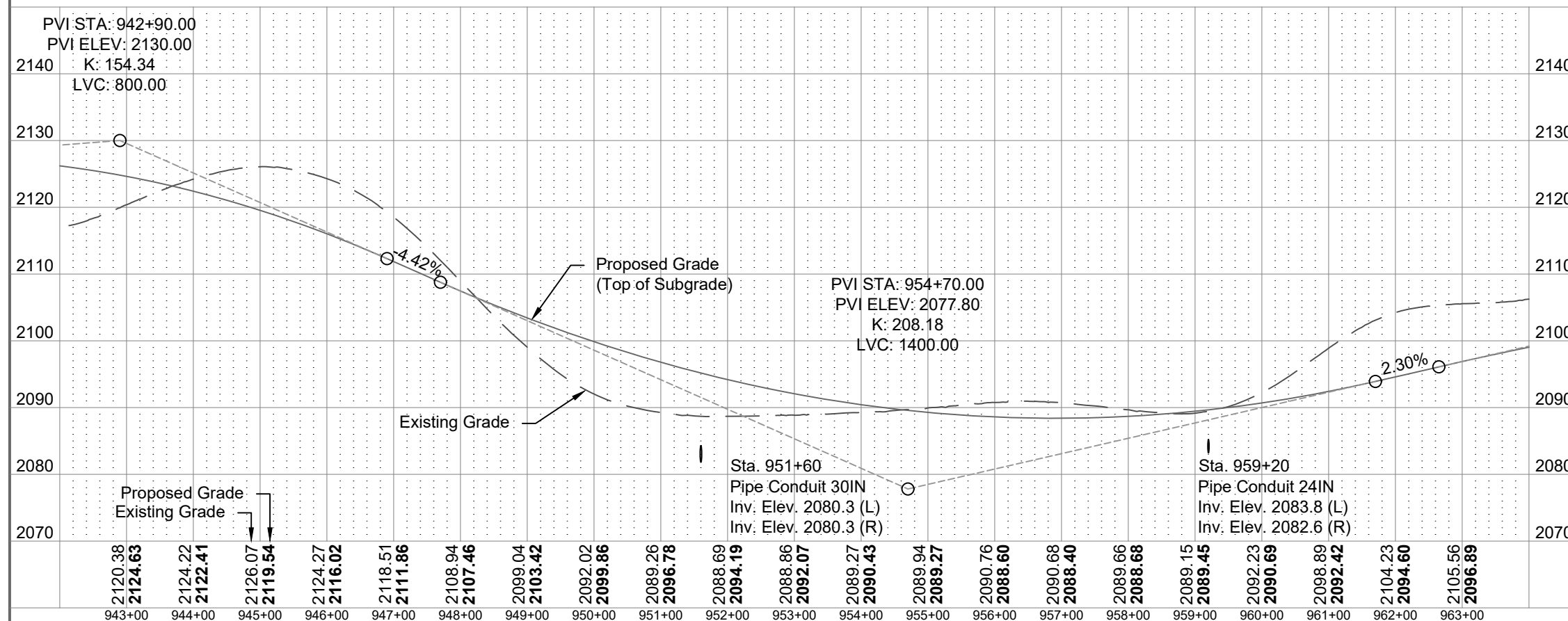
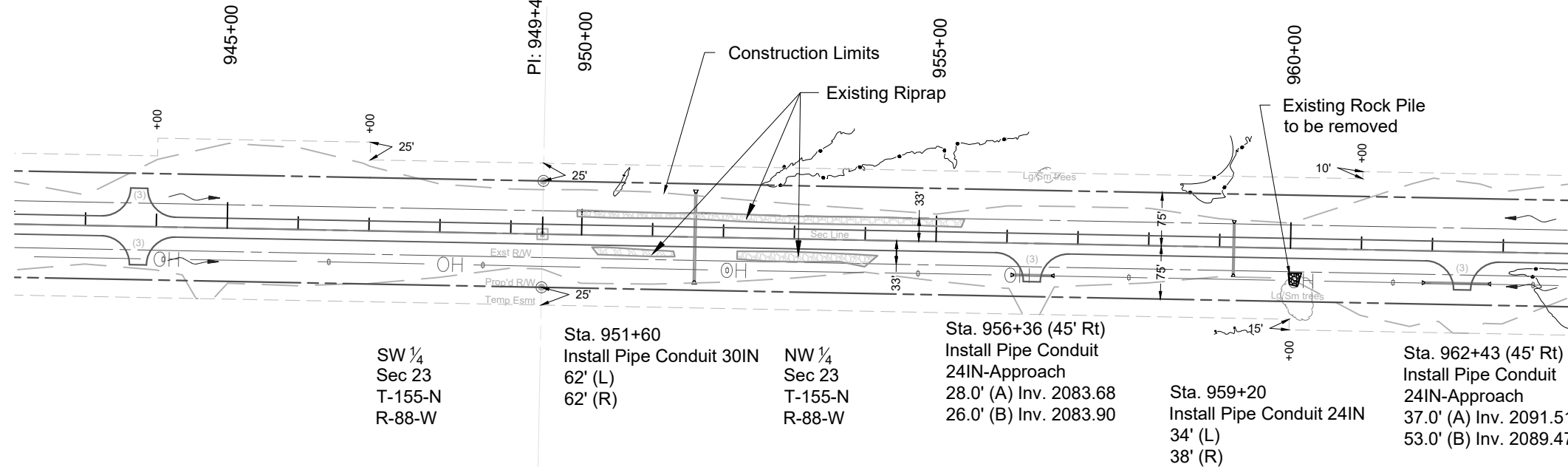
Sta. 959+20	72 LF
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714 4106 PIPE CONDUIT 24IN-APPROACH

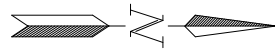
Sta. 956+36 Rt	54 LF
Sta. 962+43 Rt	90 LF

714 4110 PIPE CONDUIT 30IN

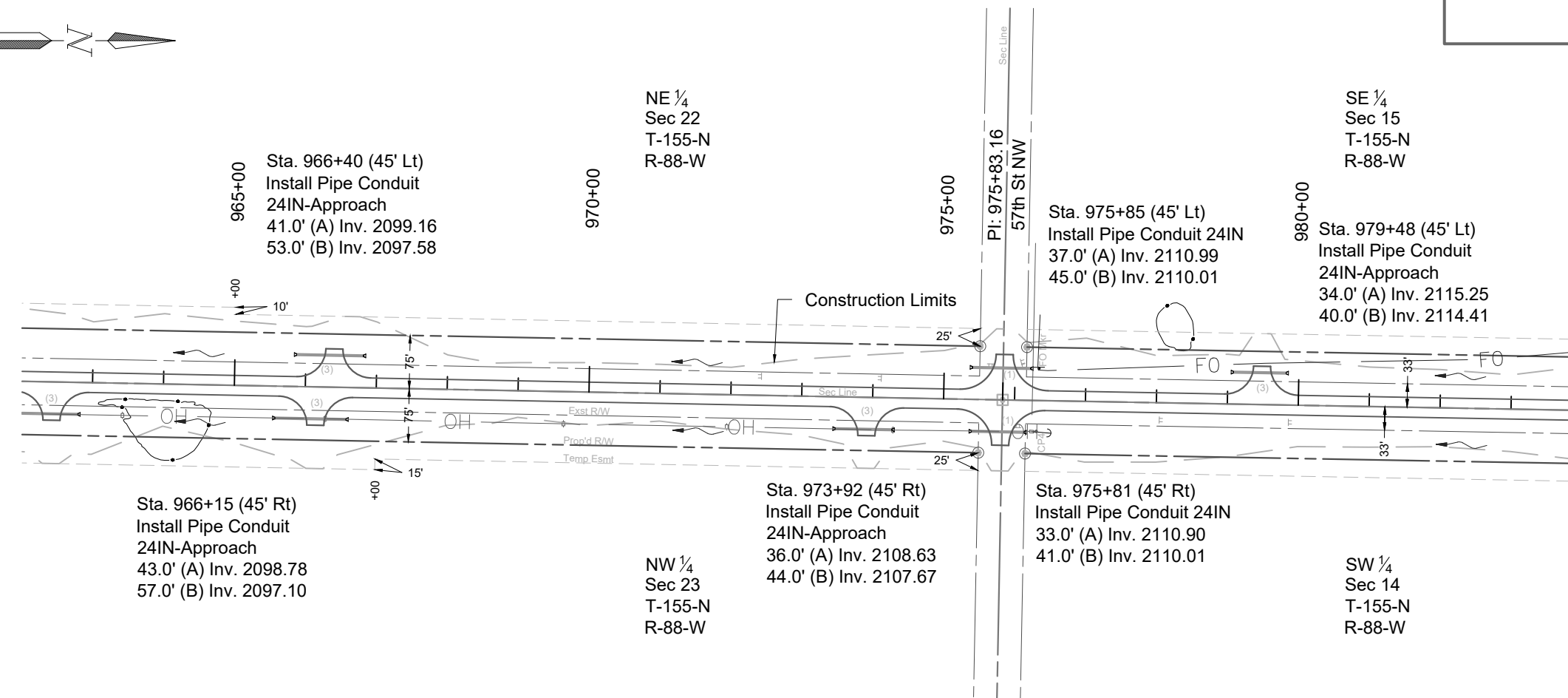
Sta. 951+60	124 LF
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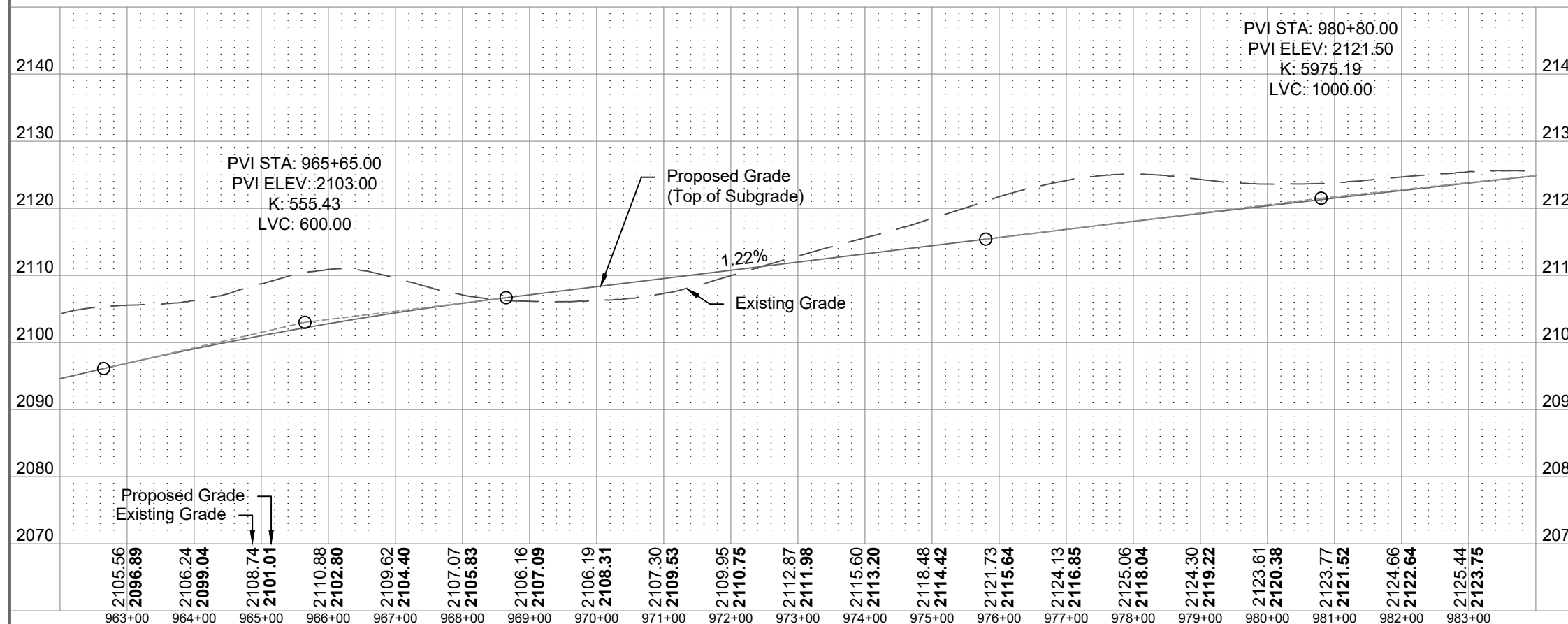
Plan & Profile
Sta. 943+00 to Sta. 963+00
Reconstruction
County Route 1
Mountrail County, ND



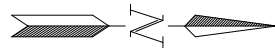
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	11



714 4105 PIPE CONDUIT 24IN	
Sta. 975+81 Rt	74 LF
Sta. 975+85 Lt	82 LF
714 4106 PIPE CONDUIT 24IN-APPROACH	
Sta. 966+15 Rt	100 LF
Sta. 966+40 Lt	94 LF
Sta. 973+92 Rt	80 LF
Sta. 979+48 Lt	74 LF

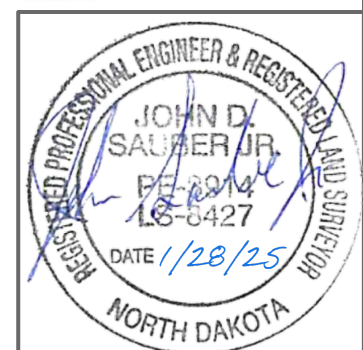
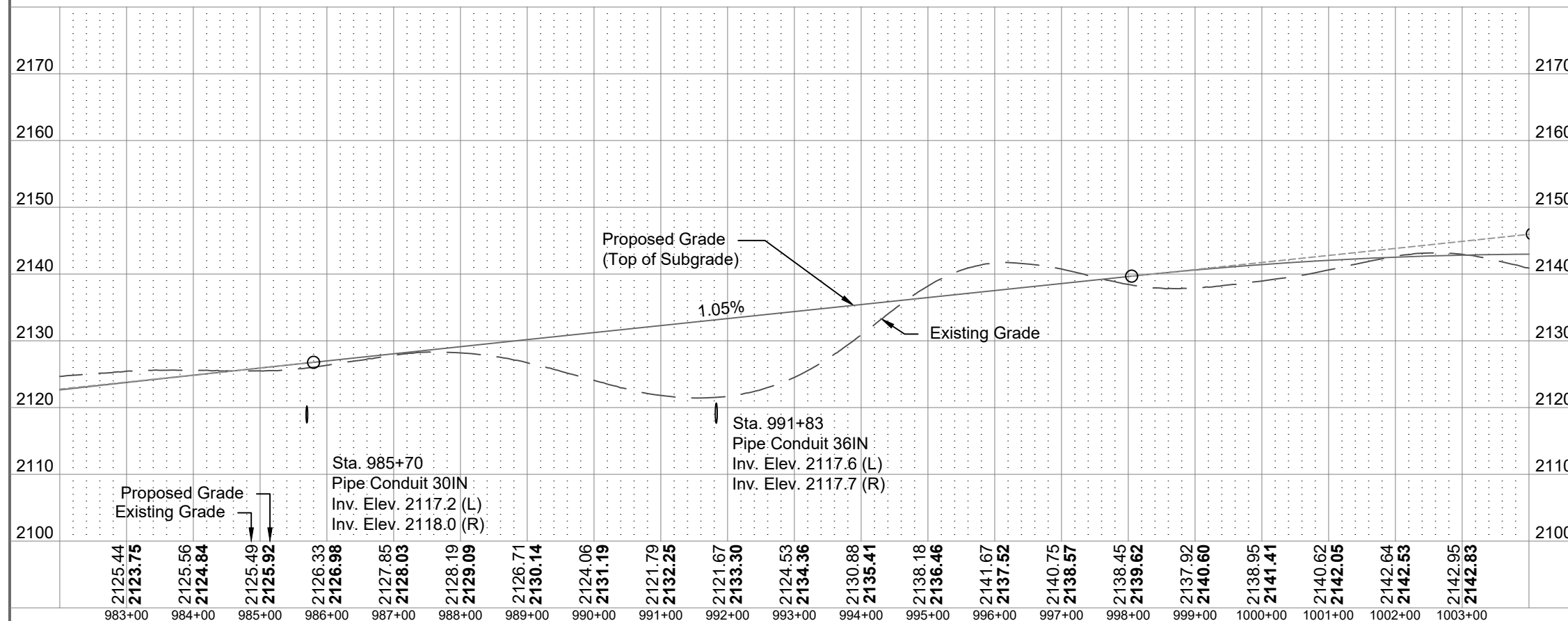
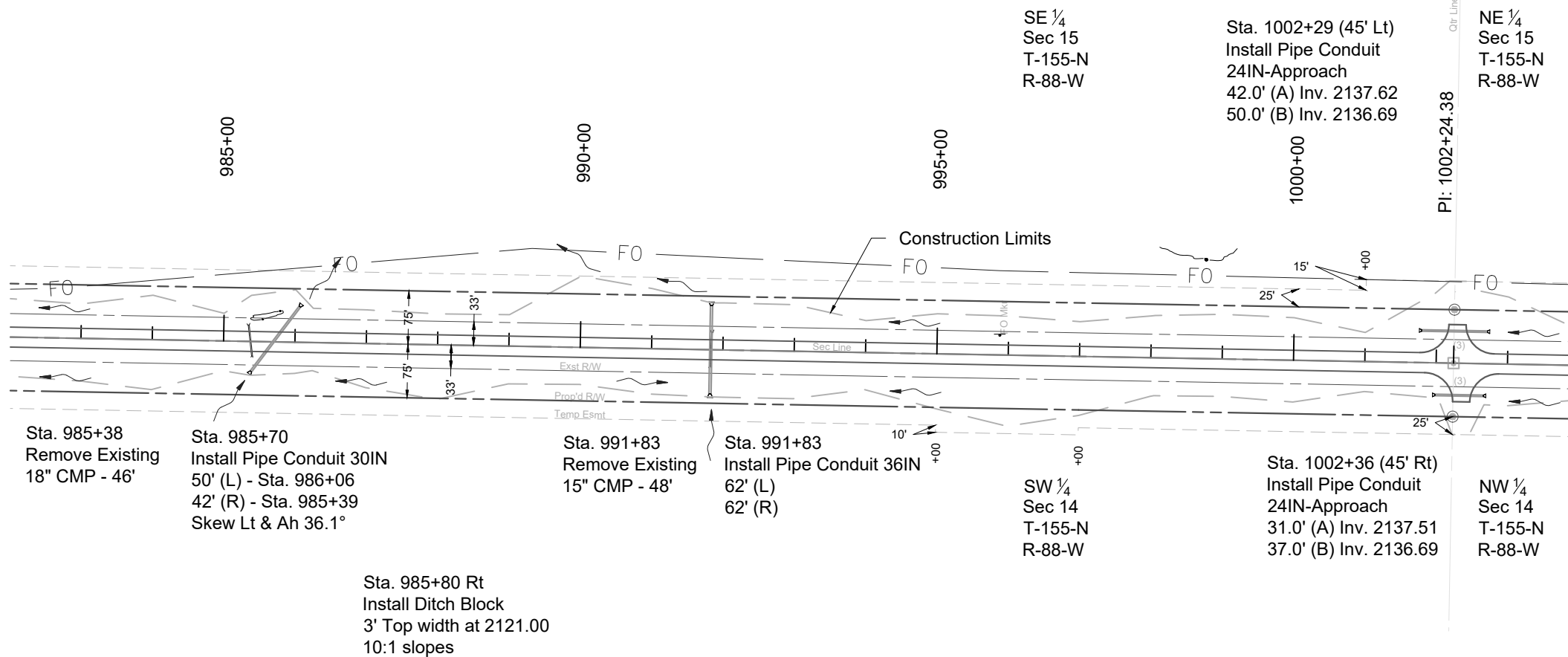


Plan & Profile
Sta. 963+00 to Sta. 983+00
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	12

<u>202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES</u>	
Sta. 985+38	46 LF
Sta. 991+83	48 LF
<u>709 0100 GEOSYNTHETIC MATERIAL TYPE G</u>	
Sta. 985+70	82 SY
Sta. 991+83	96 SY
<u>714 4106 PIPE CONDUIT 24IN-APPROACH</u>	
Sta. 1002+29 Lt	92 LF
Sta. 1002+36 Rt	68 LF
<u>714 4110 PIPE CONDUIT 30IN</u>	
Sta. 985+70	114 LF
<u>714 4115 PIPE CONDUIT 36IN</u>	
Sta. 991+83	124 LF



Plan & Profile
Sta. 983+00 to Sta. 1003+00
Reconstruction
County Route 1
Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	60	13

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

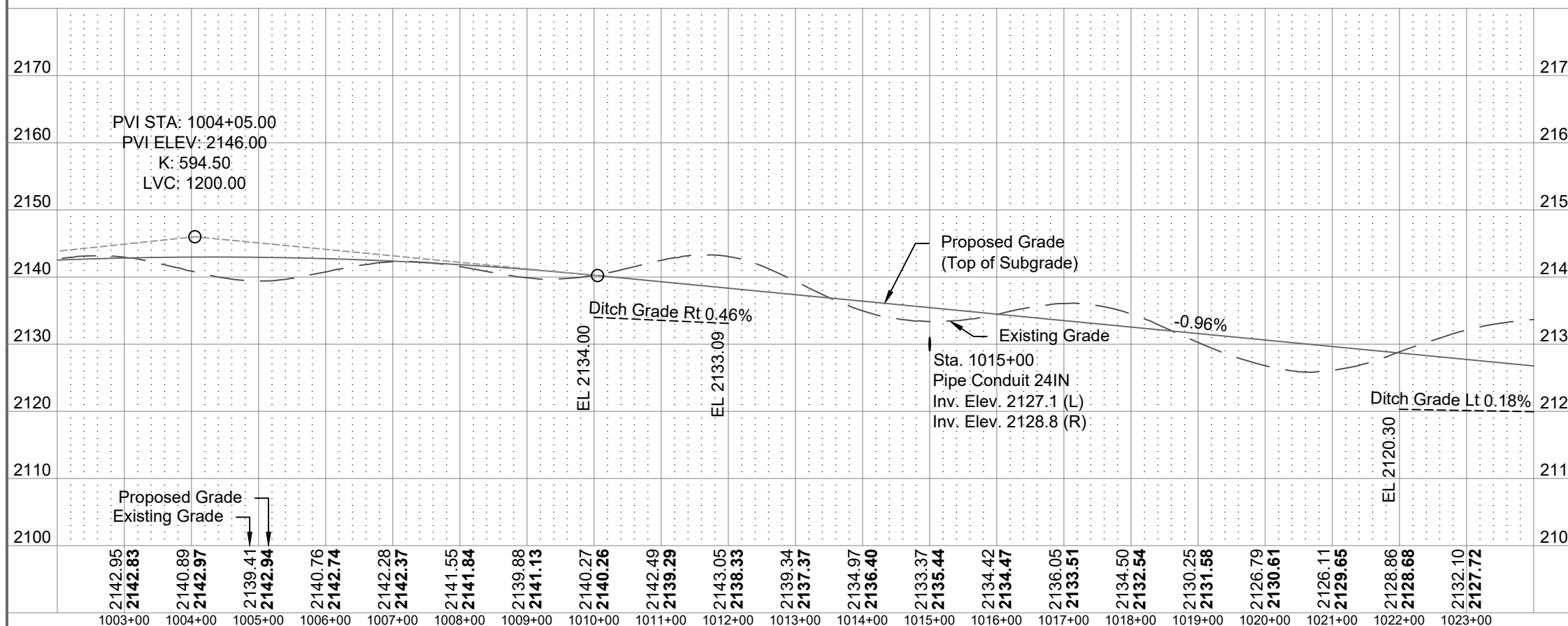
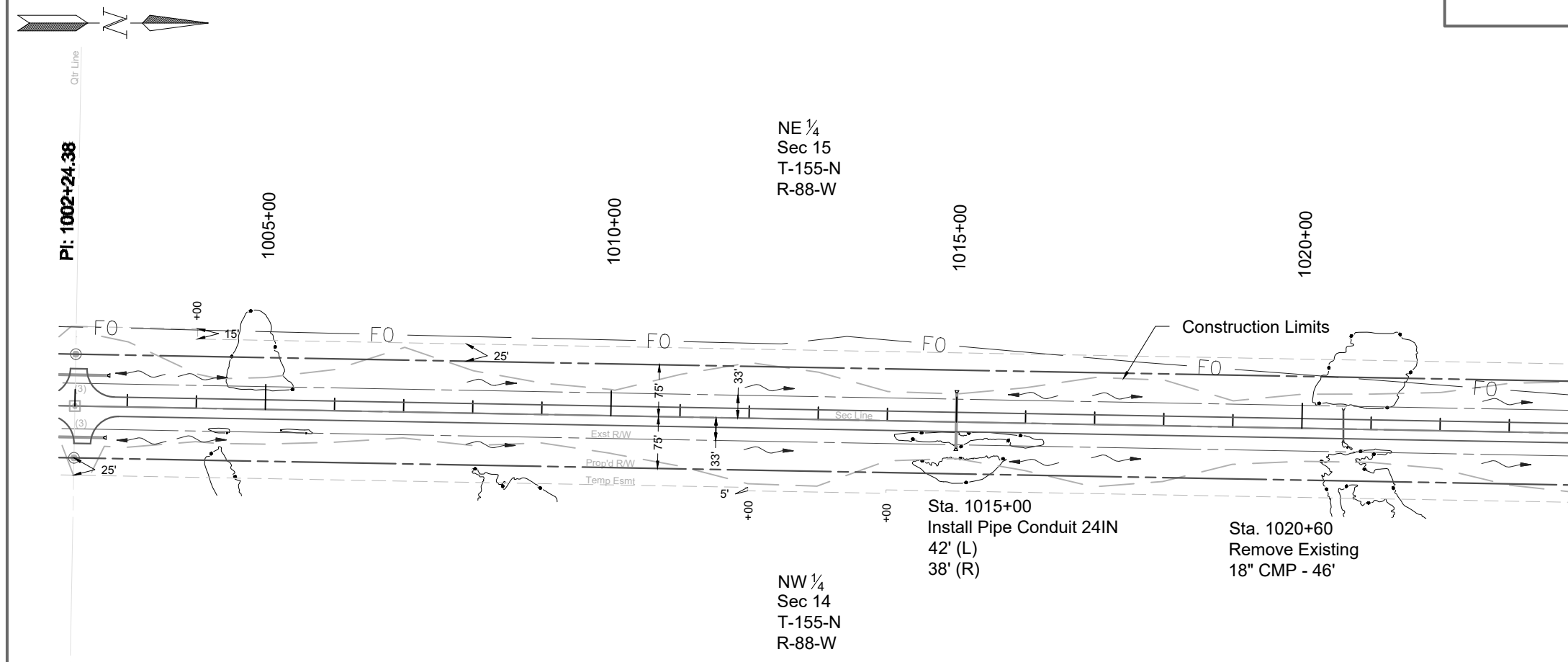
Sta. 1020+60	46 LF
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709 0100 GEOSYNTHETIC MATERIAL TYPE G

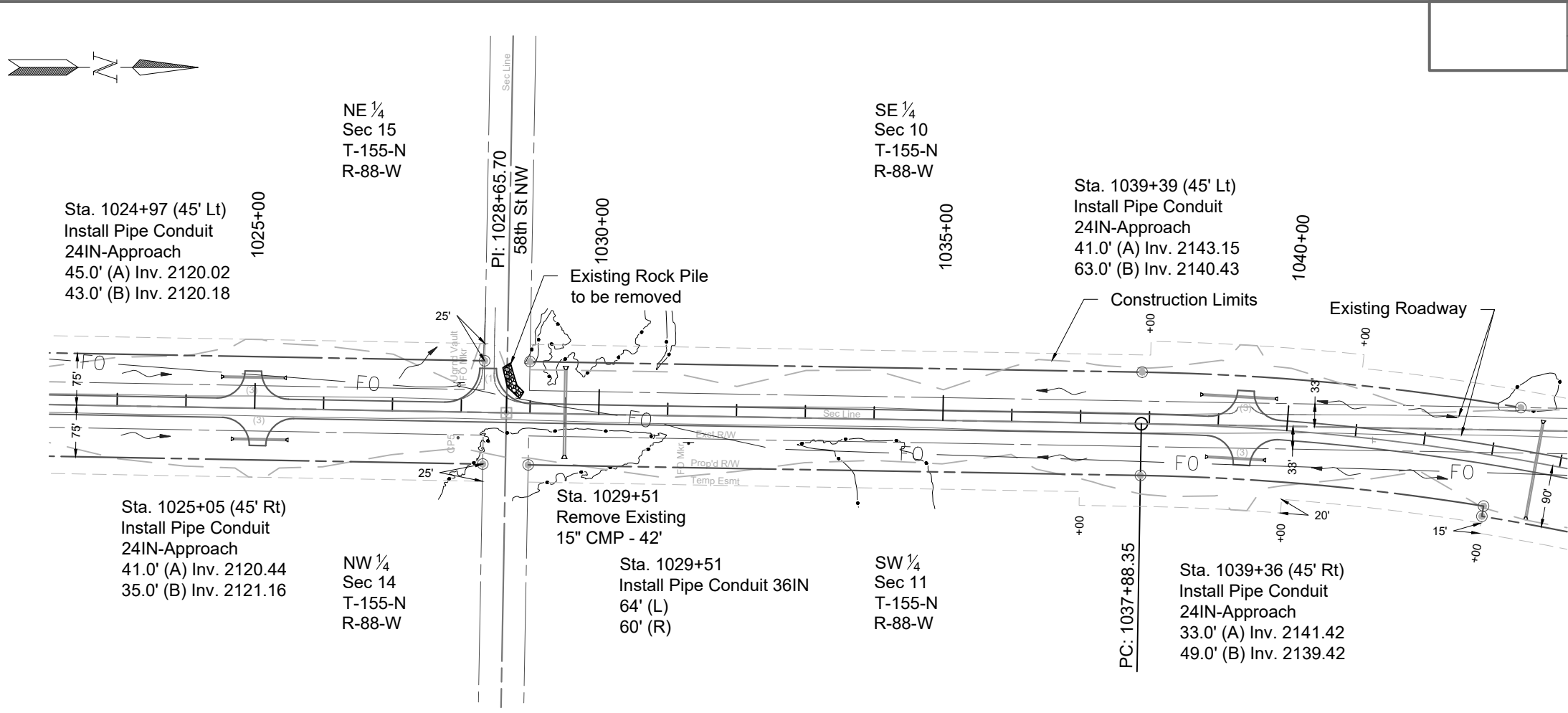
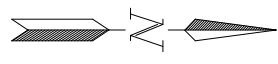
Sta. 1015+00	53 SY
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714 4105 PIPE CONDUIT 24IN

Sta. 1015+00	80 LF
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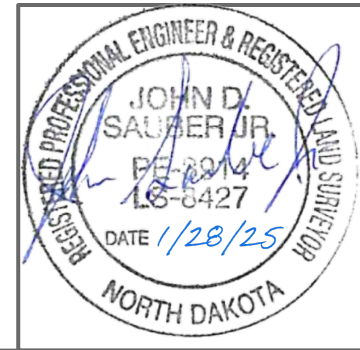
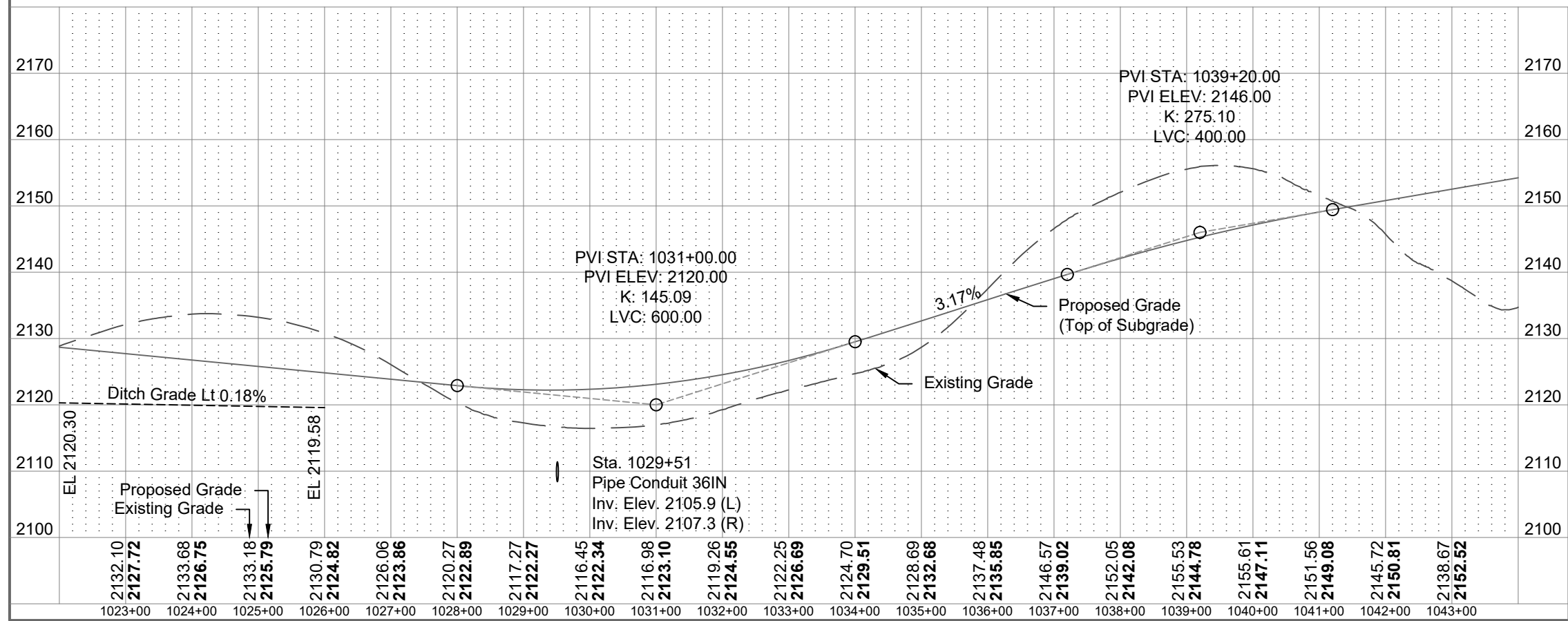


Plan & Profile
Sta. 1003+00 to Sta. 1023+00
Reconstruction
County Route 1
Mountrail County, ND

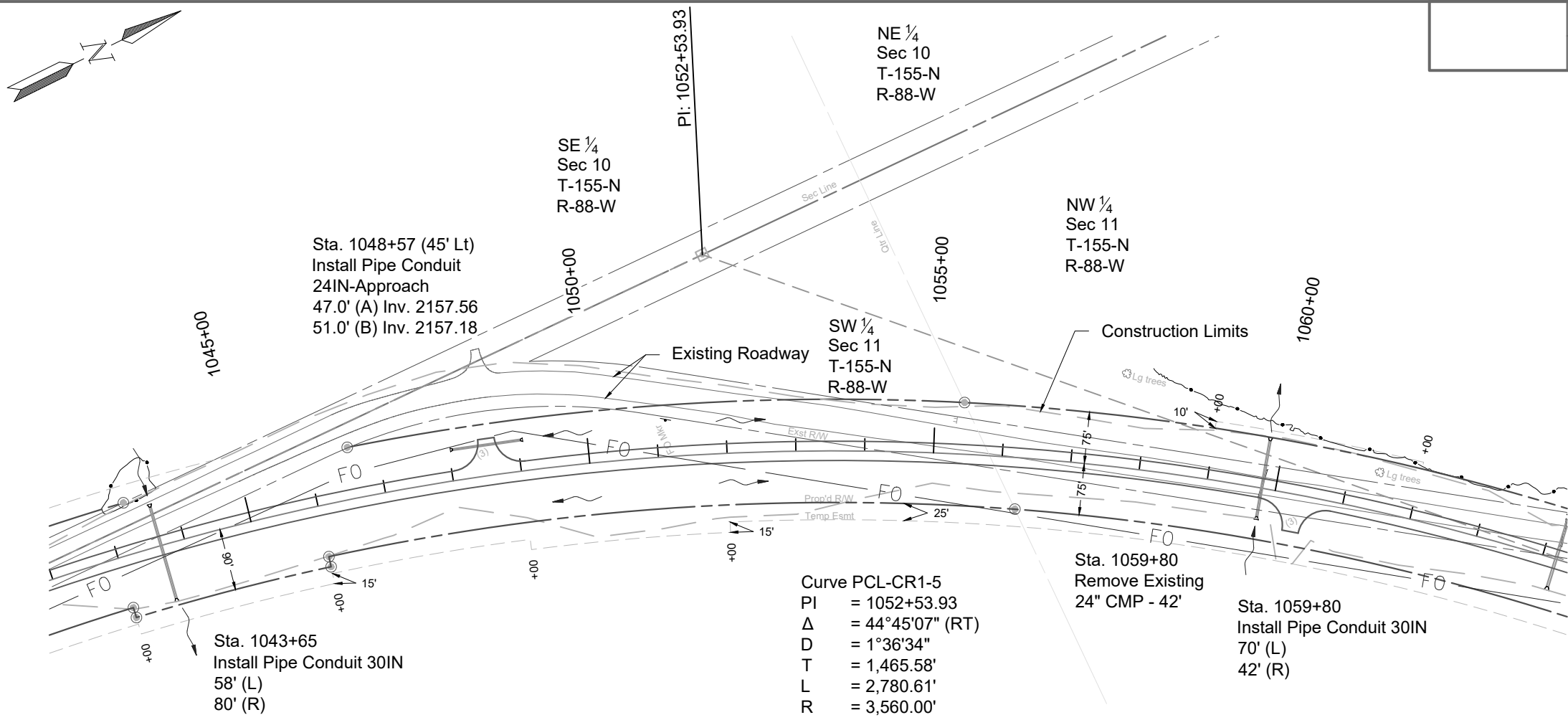
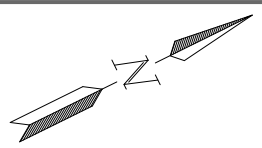


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	14

<u>202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES</u>	
Sta. 1029+51	42 LF
<u>709 0100 GEOSYNTHETIC MATERIAL TYPE G</u>	
Sta. 1029+51	96 SY
<u>714 4106 PIPE CONDUIT 24IN-APPROACH</u>	
Sta. 1024+97 Lt	88 LF
Sta. 1025+05 Rt	76 LF
Sta. 1039+36 Rt	82 LF
Sta. 1039+39 Lt	106 LF
<u>714 4115 PIPE CONDUIT 36IN</u>	
Sta. 1029+51	124 LF

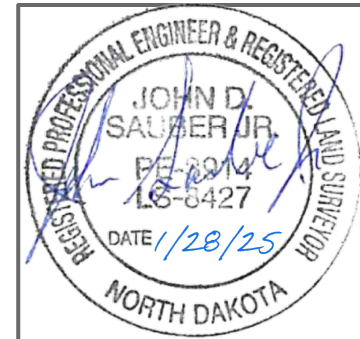
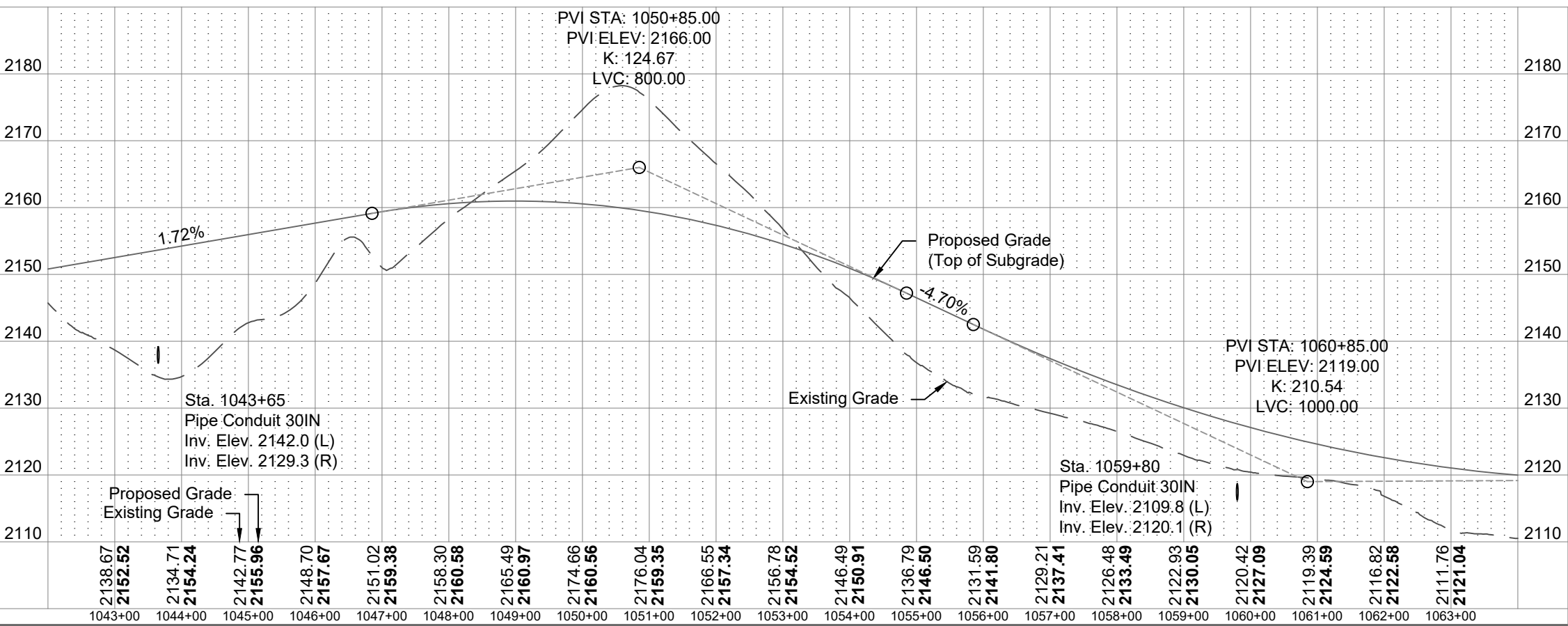


Plan & Profile
Sta. 1023+00 to Sta. 1043+00
Reconstruction
County Route 1
Mountrail County, ND

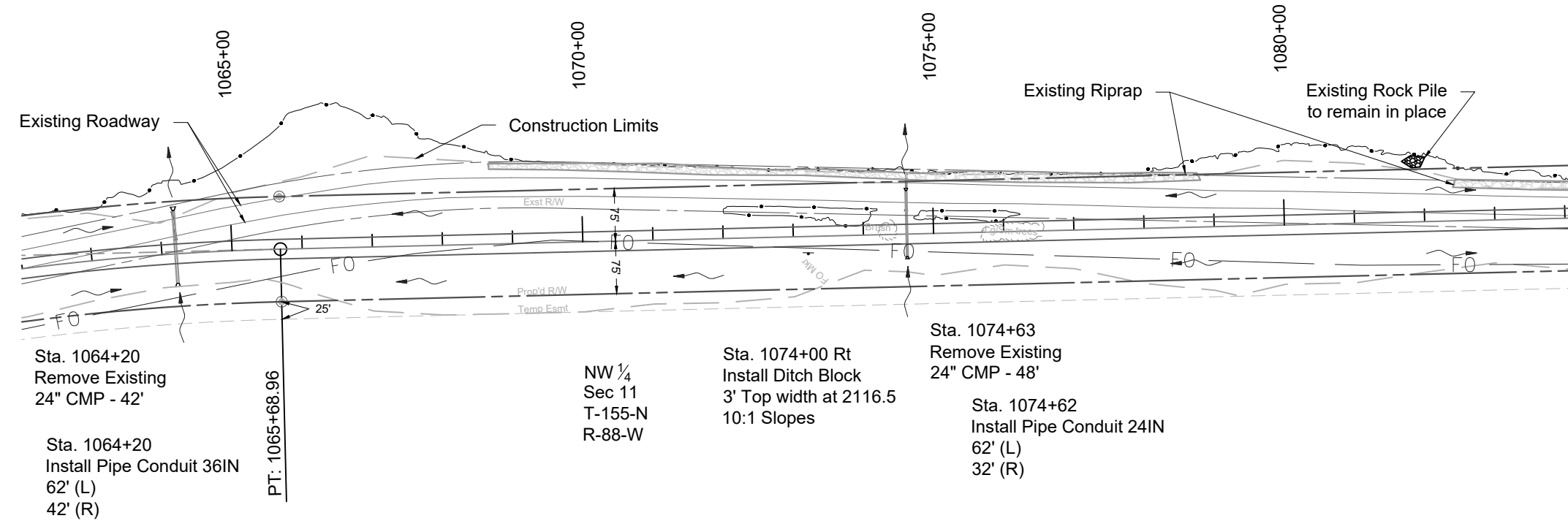
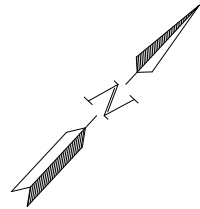


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	15

<u>202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES</u>	
Sta. 1059+80	42 LF
<u>203 0180 ROADWAY OBLITERATION</u>	
Sta. 1043+00 to Sta. 1054+00	1,100 LF
<u>709 0100 GEOSYNTHETIC MATERIAL TYPE G</u>	
Sta. 1043+65	100 SY
Sta. 1059+80	81 SY
<u>714 4106 PIPE CONDUIT 24IN-APPROACH</u>	
Sta. 1048+57 Lt	100 LF
<u>714 4110 PIPE CONDUIT 30IN</u>	
Sta. 1043+65	138 LF
Sta. 1059+80	112 LF



Plan & Profile
Sta. 1043+00 to Sta. 1063+00
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	16

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1064+20	42 LF
Sta. 1074+63	48 LF

203 0180 ROADWAY OBLITERATION

Sta. 1065+00 to Sta. 1082+00	1,700 LF
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709 0100 GEOSYNTHETIC MATERIAL TYPE G

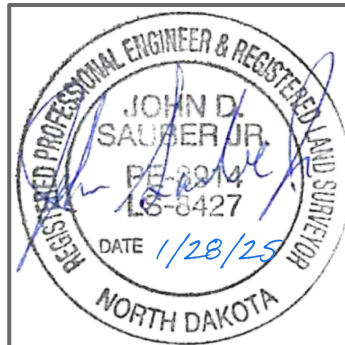
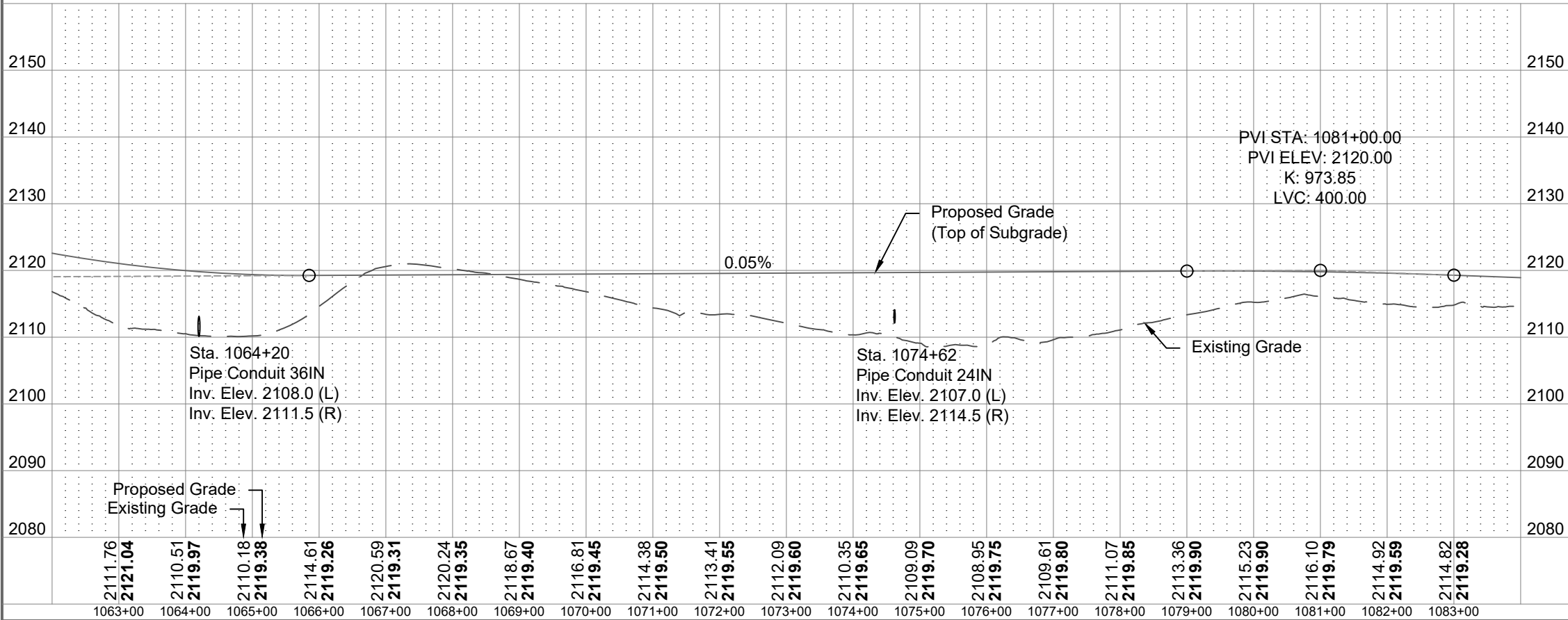
Sta. 1064+20	81 SY
Sta. 1074+62	63 SY

714 4105 PIPE CONDUIT 24IN

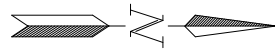
Sta. 1074+62	94 LF
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714 4115 PIPE CONDUIT 36IN

Sta. 1064+20	104 LF
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Plan & Profile
Sta. 1063+00 to Sta. 1083+00
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	21

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1164+70 Rt	60 LF
Sta. 1182+19	48 LF

202 0312 REMOVE EXISTING FENCE

Sta. 1182+11 to Sta. 1183+00 Lt	140 LF
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709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1182+35	82 SY
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714 4106 PIPE CONDUIT 24IN-APPROACH

Sta. 1164+73 Rt	80 LF
Sta. 1172+58 Rt	84 LF
Sta. 1172+74 Lt	74 LF

714 4115 PIPE CONDUIT 36IN

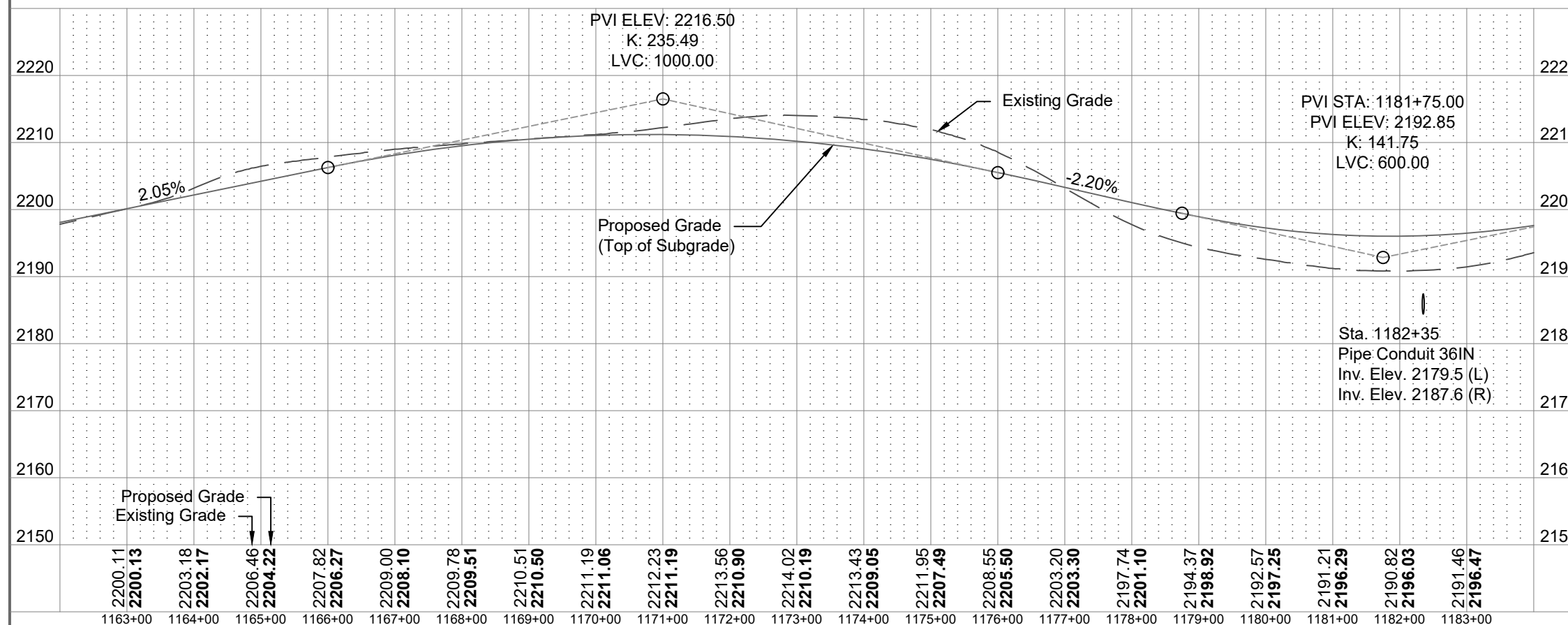
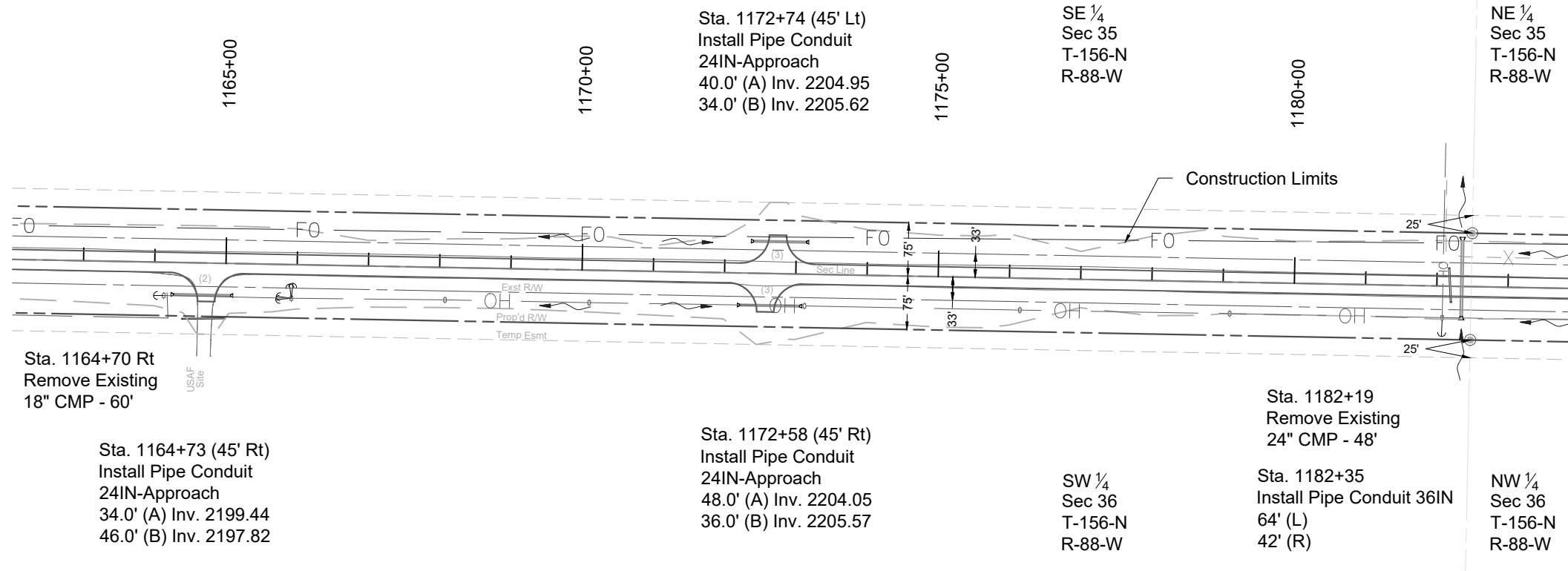
Sta. 1182+35	106 LF
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752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST

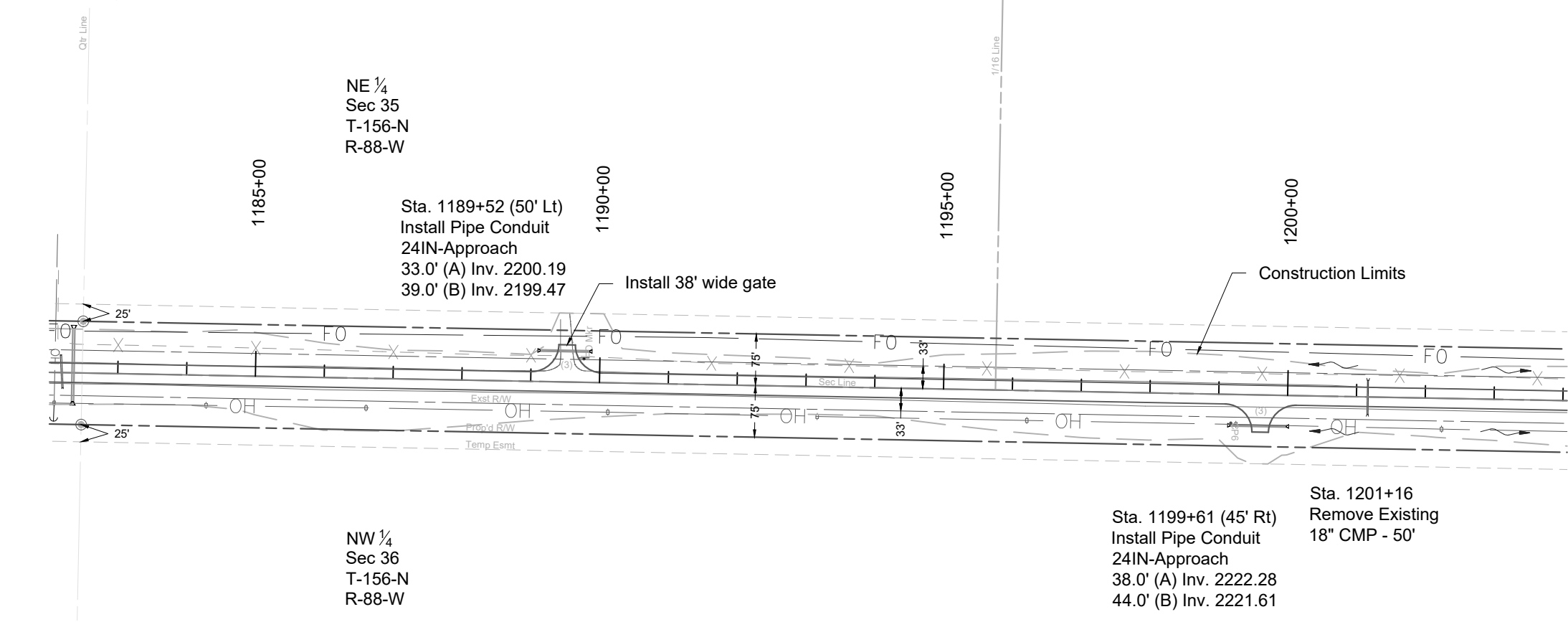
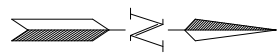
Sta. 1182+11 to Sta. 1183+00 Lt	140 LF
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752 3140 CORNER ASSEMBLY BARBED WIRE

Sta. 1182+12 Lt	1 EA
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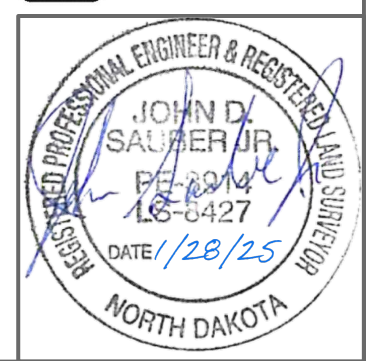
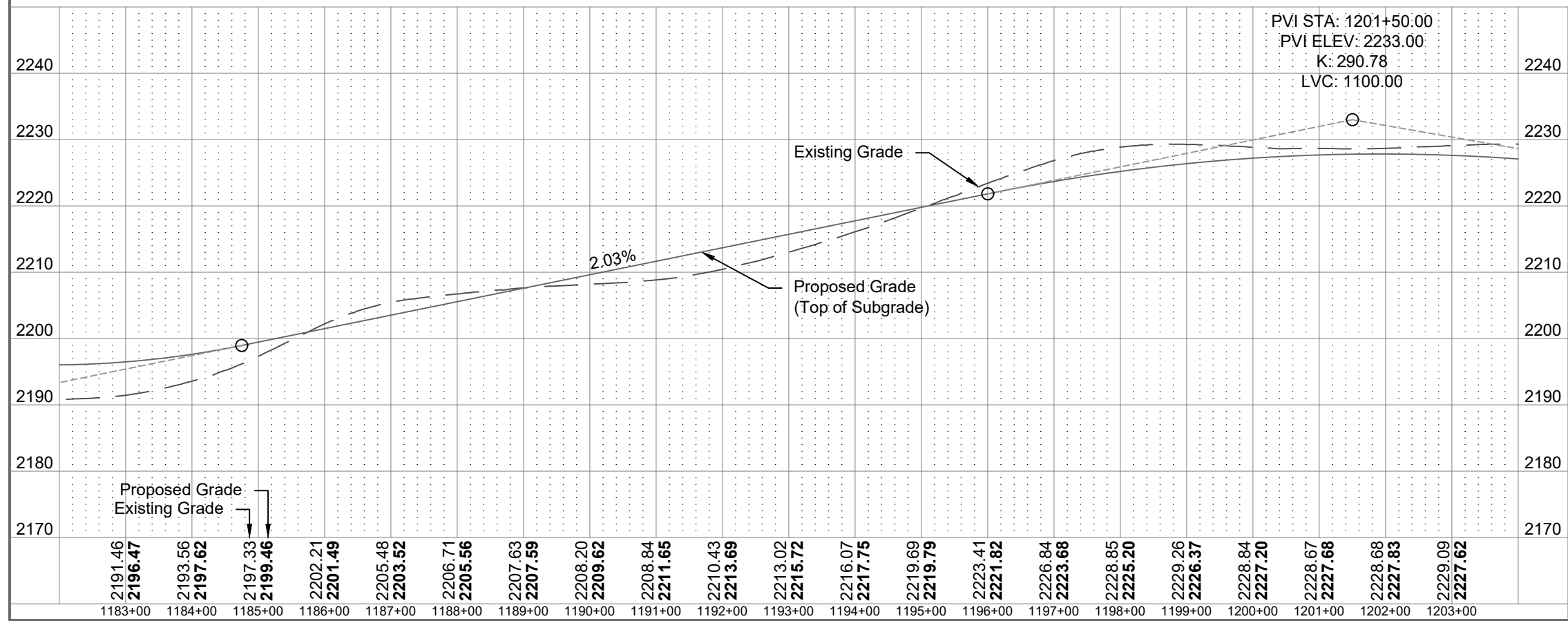


Plan & Profile
Sta. 1163+00 to Sta. 1183+00
Reconstruction
County Route 1
Mountrail County, ND

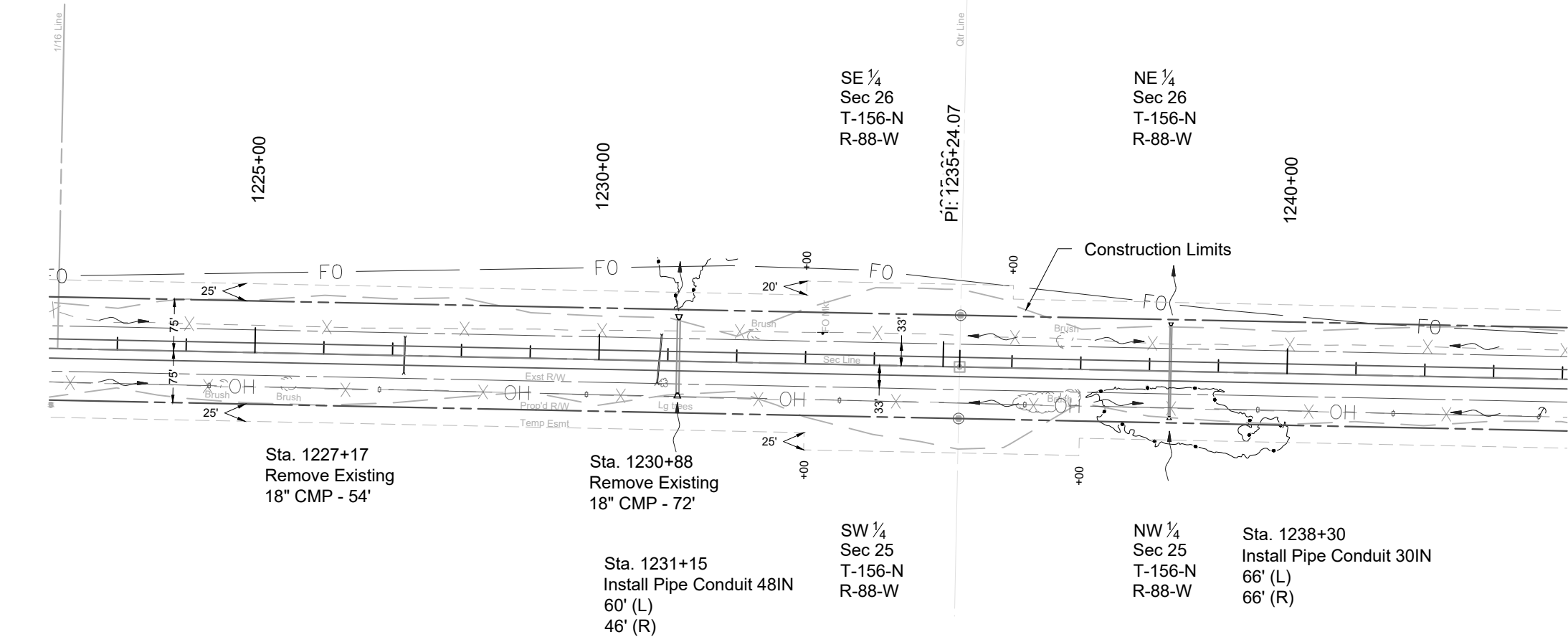
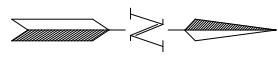


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	22

<u>202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES</u>	
Sta. 1201+16	50 LF
<u>202 0312 REMOVE EXISTING FENCE</u>	
Sta. 1183+00 to Sta. 1195+75 Lt	1,275 LF
<u>714 4106 PIPE CONDUIT 24IN-APPROACH</u>	
Sta. 1189+52 Lt	72 LF
Sta. 1199+61 Rt	82 LF
<u>752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST</u>	
Sta. 1183+00 to Sta. 1195+75 Lt	1,275 LF
<u>752 2100 VEHICLE GATE</u>	
Sta. 1189+52 Lt	1 EA
<u>752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE</u>	
Sta. 1195+75 Lt	1 EA

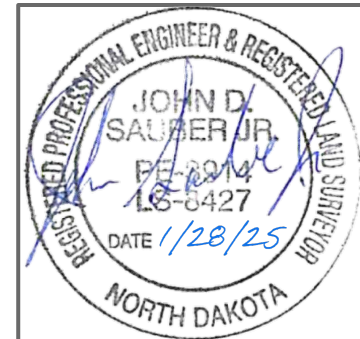
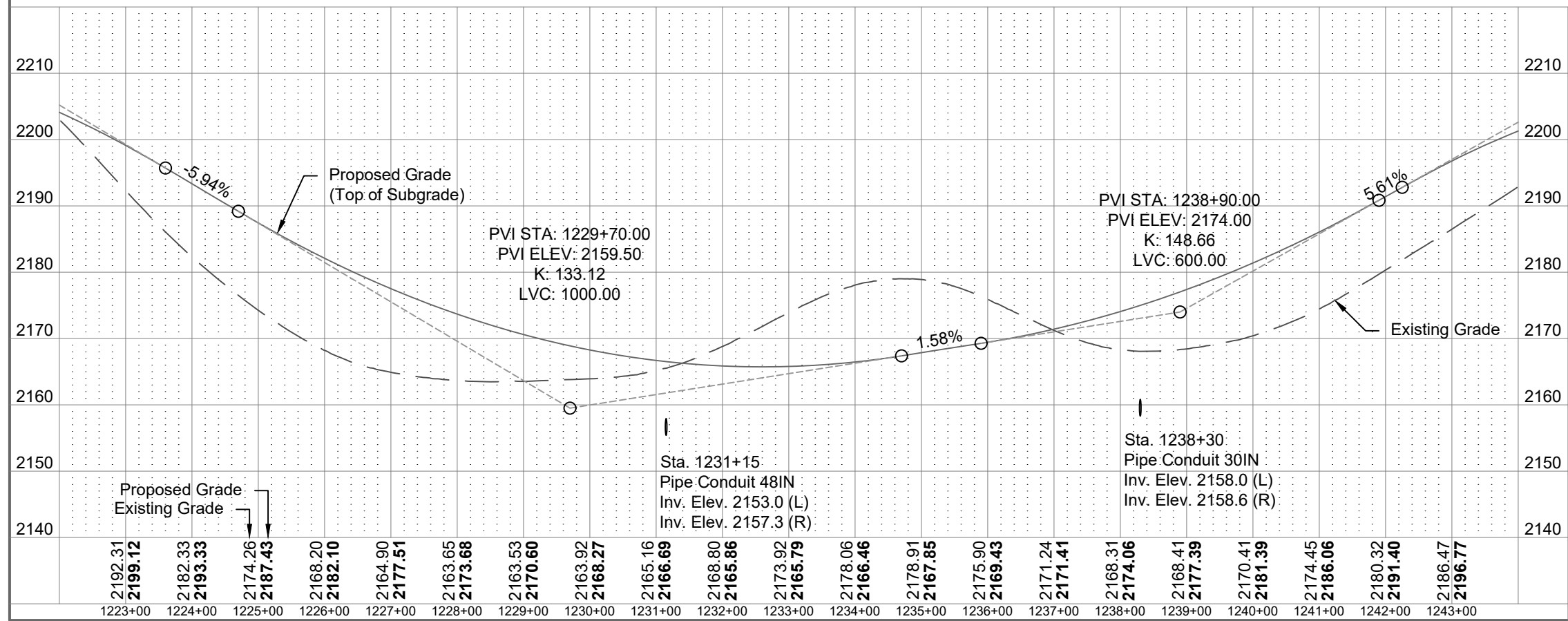


Plan & Profile
Sta. 1183+00 to Sta. 1203+00
Reconstruction
County Route 1
Mountrail County, ND

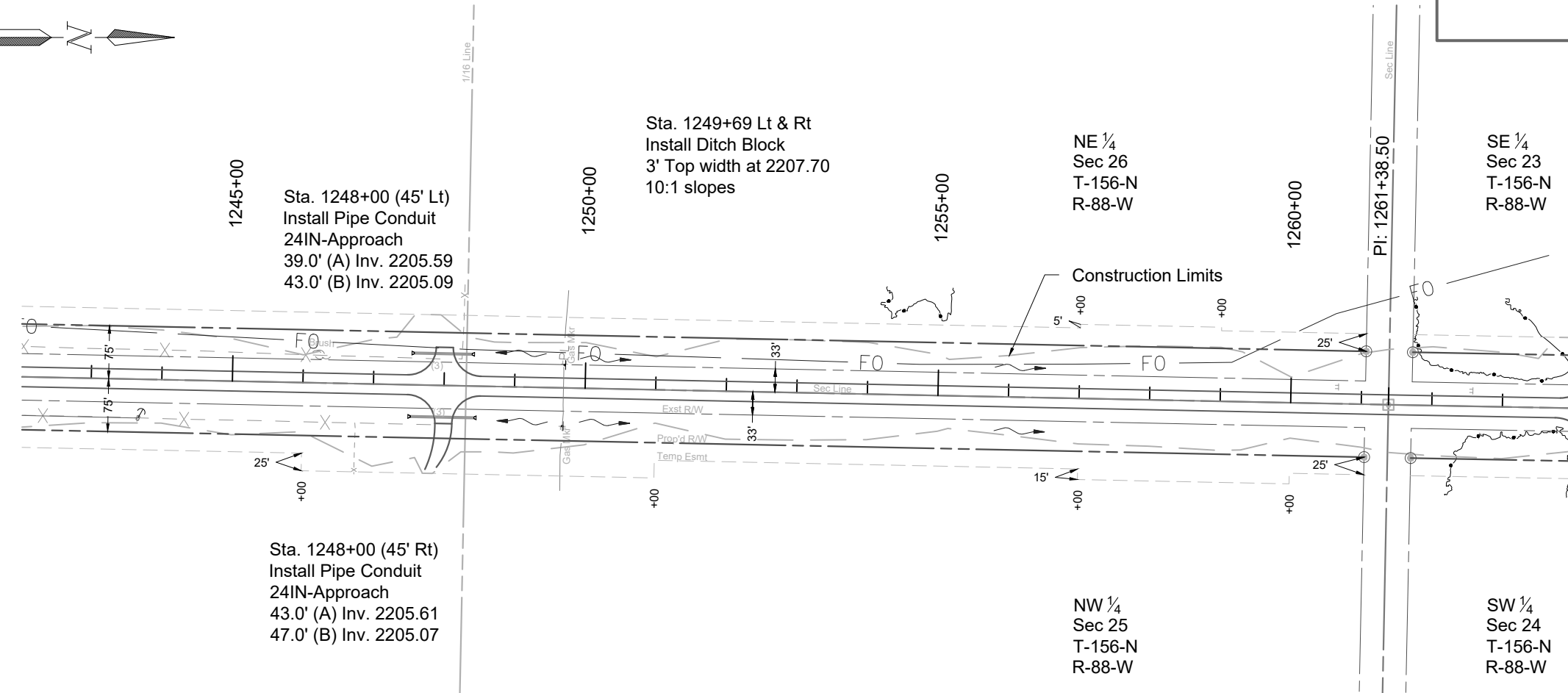
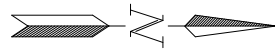


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	24

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES	
Sta. 1227+17	54 LF
Sta. 1230+88	72 LF
202 0312 REMOVE EXISTING FENCE	
Sta. 1223+00 to Sta. 1243+00 Rt	2,000 LF
709 0100 GEOSYNTHETIC MATERIAL TYPE G	
Sta. 1231+15	94 SY
Sta. 1238+30	95 SY
714 4110 PIPE CONDUIT 30IN	
Sta. 1238+30	132 LF
714 4125 PIPE CONDUIT 48IN	
Sta. 1231+15	106 LF
752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST	
Sta. 1223+00 to Sta. 1243+00 Rt	2,000 LF
752 4100 DOUBLE BRACE ASSEMBLY BARBED WIRE	
Sta. 1230+21 Rt	1 EA
Sta. 1239+17 Rt	1 EA

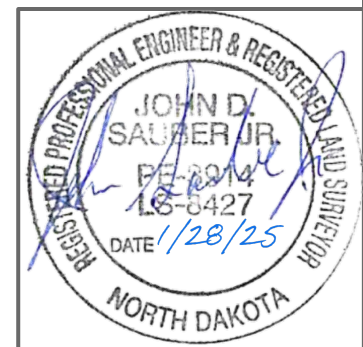
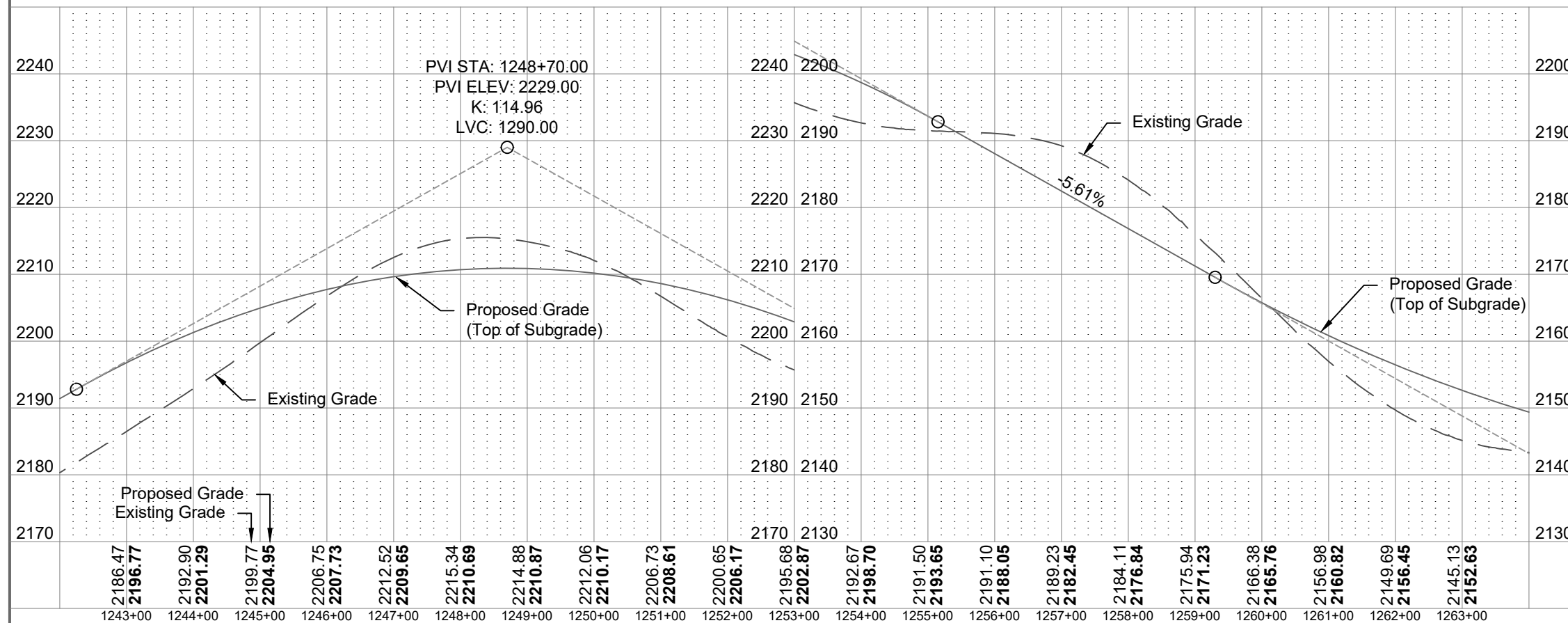


Plan & Profile
Sta. 1223+00 to Sta. 1243+00
Reconstruction
County Route 1
Mountrail County, ND

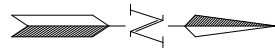


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	25

202 0312 REMOVE EXISTING FENCE	
Sta. 1243+00 to Sta. 1247+85 Rt	555 LF
714 4106 PIPE CONDUIT 24IN-APPROACH	
Sta. 1248+00 Lt	82 LF
Sta. 1248+00 Rt	90 LF
752 0320 FENCE BARBED WIRE 4 STRAND-STEEL POST	
Sta. 1243+00 to Sta. 1247+85 Rt	555 LF
752 0993 FENCE TERMINAL	
Sta. 1247+85 Rt	1 EA
752 3140 CORNER ASSEMBLY BARBED WIRE	
Sta. 1246+74 Rt	1 EA



Plan & Profile
Sta. 1243+00 to Sta. 1263+00
Reconstruction
County Route 1
Mountrail County, ND



Sta. 1264+29 (62' Lt)
Install Pipe Conduit
24IN-Approach
40.0' (A) Inv. 2134.25
32.0' (B) Inv. 2136.11

Sta. 1264+37 (70' Rt)
Install Pipe Conduit 24IN
38.0' (A) Inv. 2134.66
40.0' (B) Inv. 2134.12

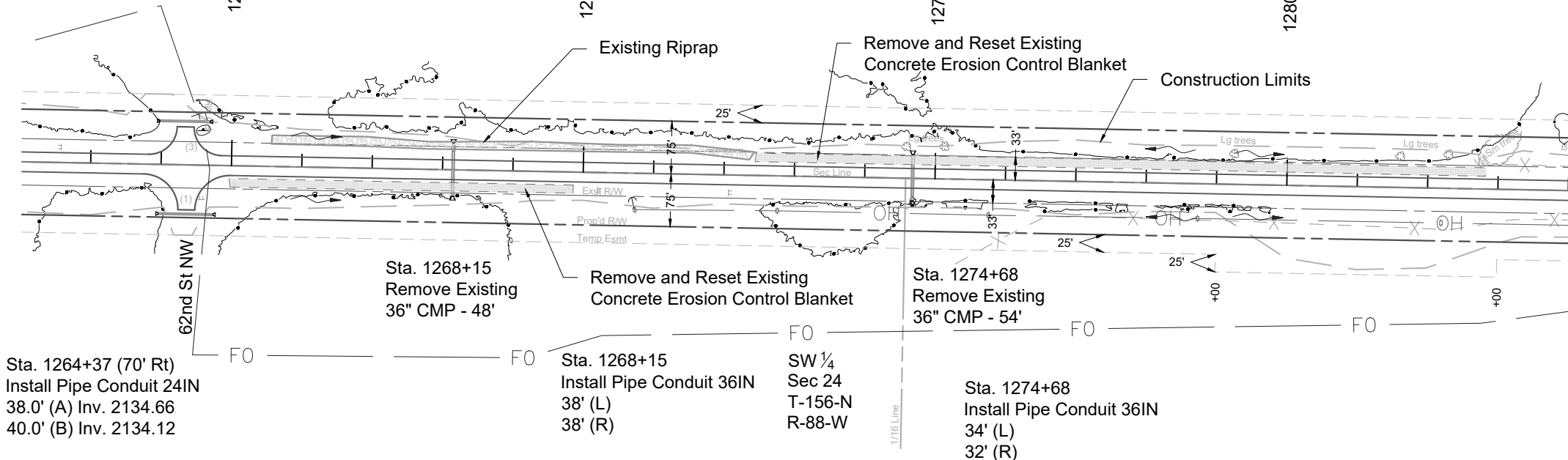
SE ¼
Sec 23
T-156-N
R-88-W

SW ¼
Sec 24
T-156-N
R-88-W

1270+00

1275+00

1280+00



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	26

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES

Sta. 1268+15 48 LF
Sta. 1274+68 54 LF

709 0100 GEOSYNTHETIC MATERIAL TYPE G

Sta. 1268+15 59 SY
Sta. 1274+68 51 SY

714 4105 PIPE CONDUIT 24IN

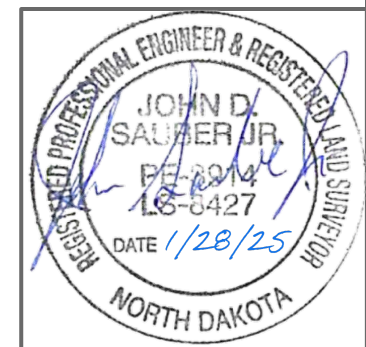
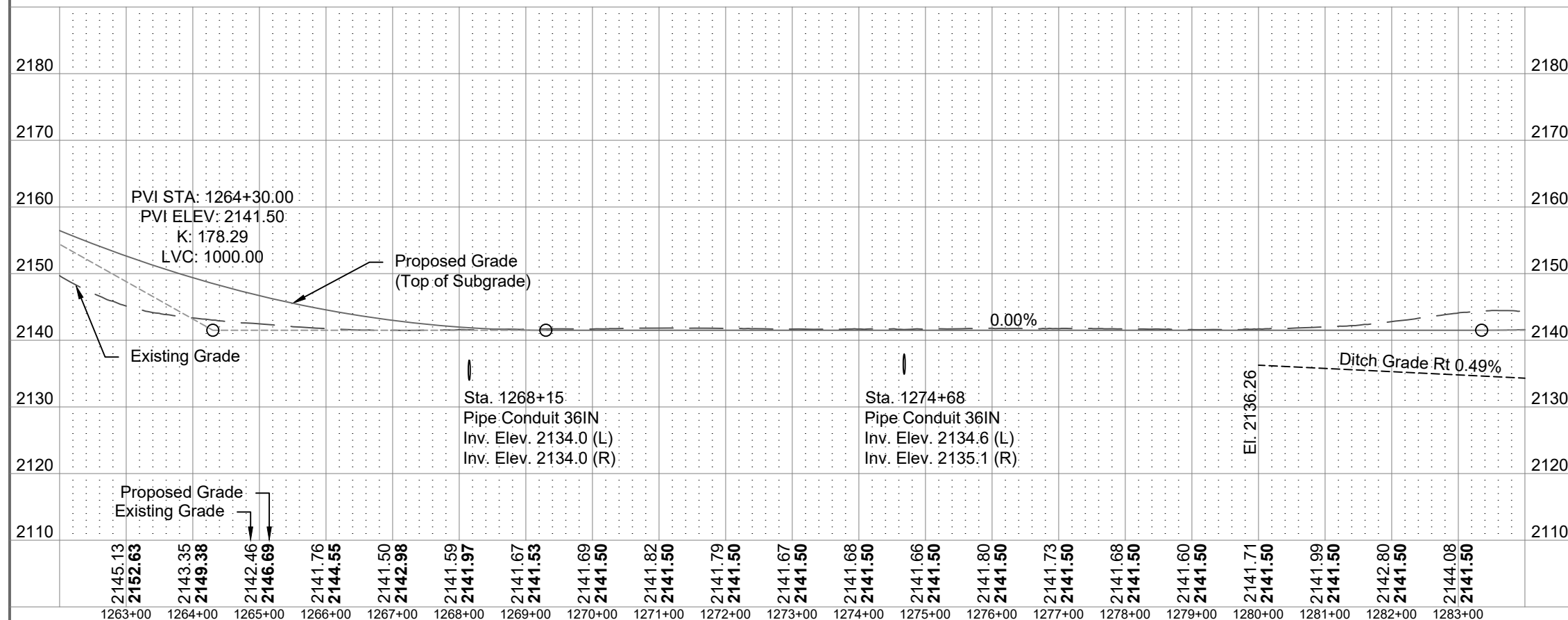
Sta. 1264+37 Rt 78 LF

714 4106 PIPE CONDUIT 24IN-APPROACH

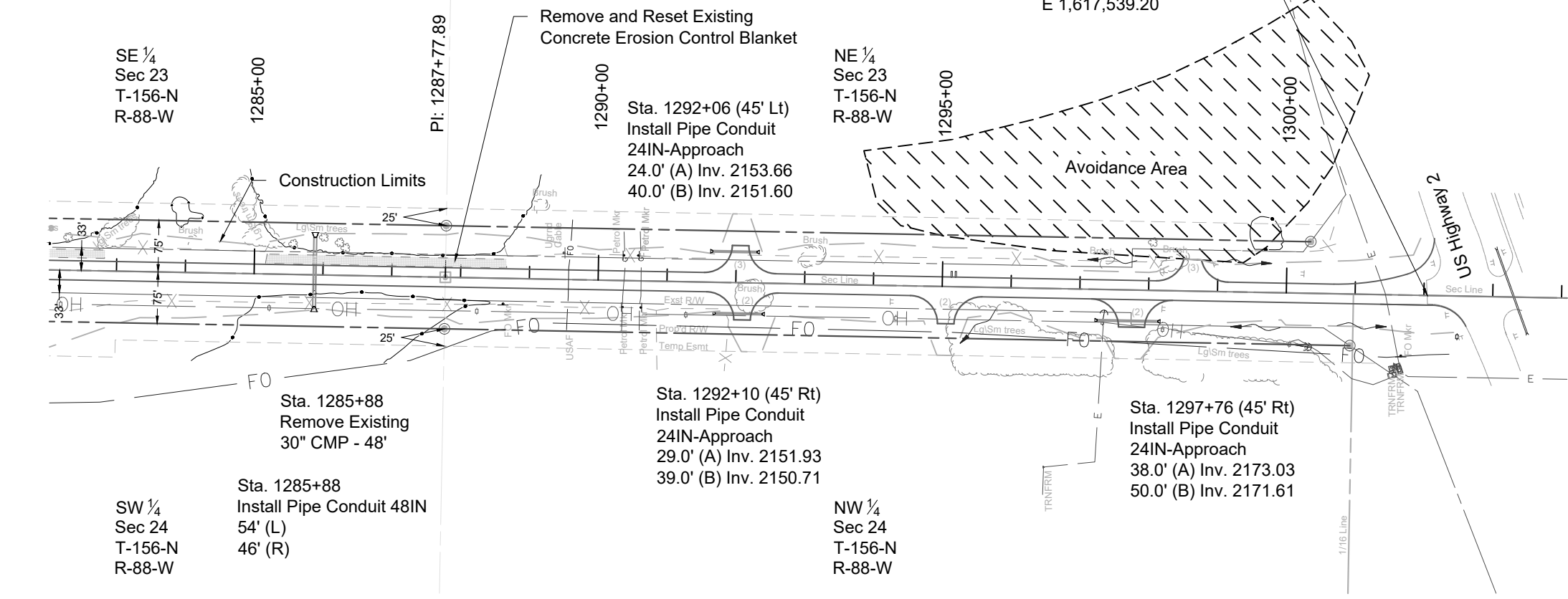
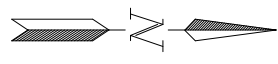
Sta. 1264+29 Lt 72 LF

714 4115 PIPE CONDUIT 36IN

Sta. 1268+15 76 LF
Sta. 1274+68 66 LF

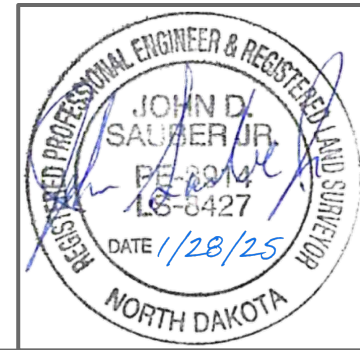
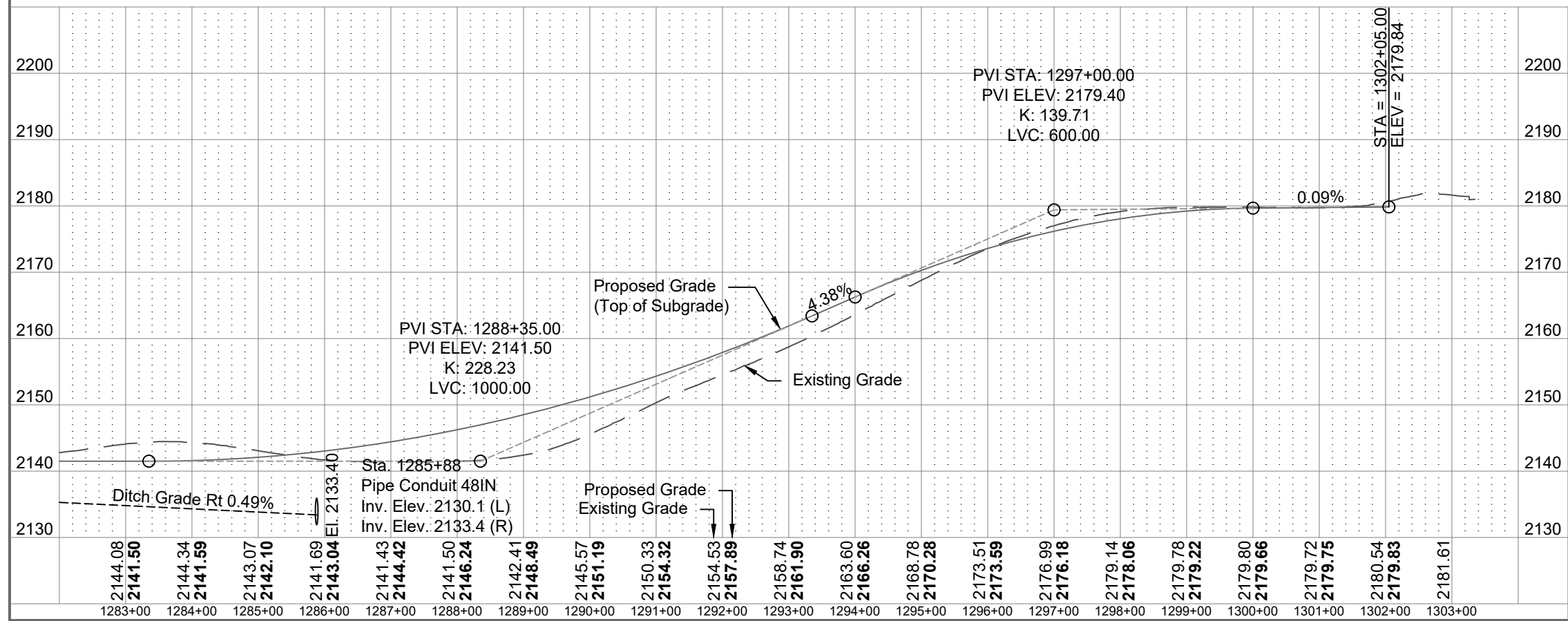


Plan & Profile
Sta. 1263+00 to Sta. 1283+00
Reconstruction
County Route 1
Mountrail County, ND

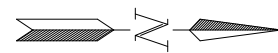


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	60	27

202 0170 REMOVAL OF CULVERTS-ALL TYPES AND SIZES	
Sta. 1285+88	48 LF
709 0100 GEOSYNTHETIC MATERIAL TYPE G	
Sta. 1285+88	89 SY
714 4106 PIPE CONDUIT 24IN-APPROACH	
Sta. 1292+06 Lt	64 LF
Sta. 1292+10 Rt	68 LF
Sta. 1297+76 Rt	88 LF
714 4125 PIPE CONDUIT 48IN	
Sta. 1285+88	100 LF



Plan & Profile
Sta. 1283+00 to Sta. 1303+00
Reconstruction
County Route 1
Mountrail County, ND



NE 1/4
Sec 10
T-154-N
R-88-W

NW 1/4
Sec 11
T-154-N
R-88-W

County Route 10
53rd St NW
Pl: 764+63.46

765+00

770+00

775+00

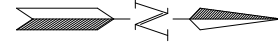
SE 1/4
Sec 3
T-154-N
R-88-W

780+00

Begin Project Sta. 766+00
N 434,933.88
E 1,611,293.82

Construction Limits

20" Fiber Roll Ditch Check
Sta. 776+30 to Sta. 778+05 Lt
6 - 20 LF Fiber Rolls @ 35'



SE 1/4
Sec 3
T-154-N
R-88-W

NE 1/4
Sec 3
T-154-N
R-88-W

785+00

790+00

795+00

800+00

Pl: 791+02.46

20" Fiber Roll Ditch Check
Sta. 789+30 to Sta. 790+50 Lt
2 - 20 LF Fiber Rolls @ 20'

Construction Limits

20" Fiber Roll Ditch Check
Sta. 789+45 to Sta. 790+50 Rt
4 - 20 LF Fiber Rolls @ 35'

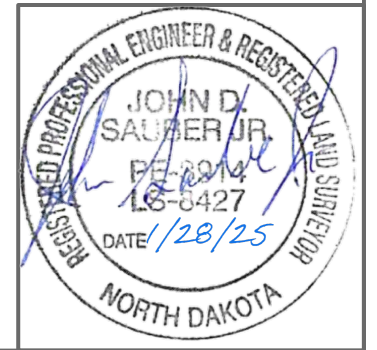
20" Fiber Roll Ditch Check
Sta. 799+00 to Sta. 803+00 Rt
21 - 20 LF Fiber Rolls @ 20'

NW 1/4
Sec 2
T-154-N
R-88-W

PC: 789+83.10

PT: 792+21.81

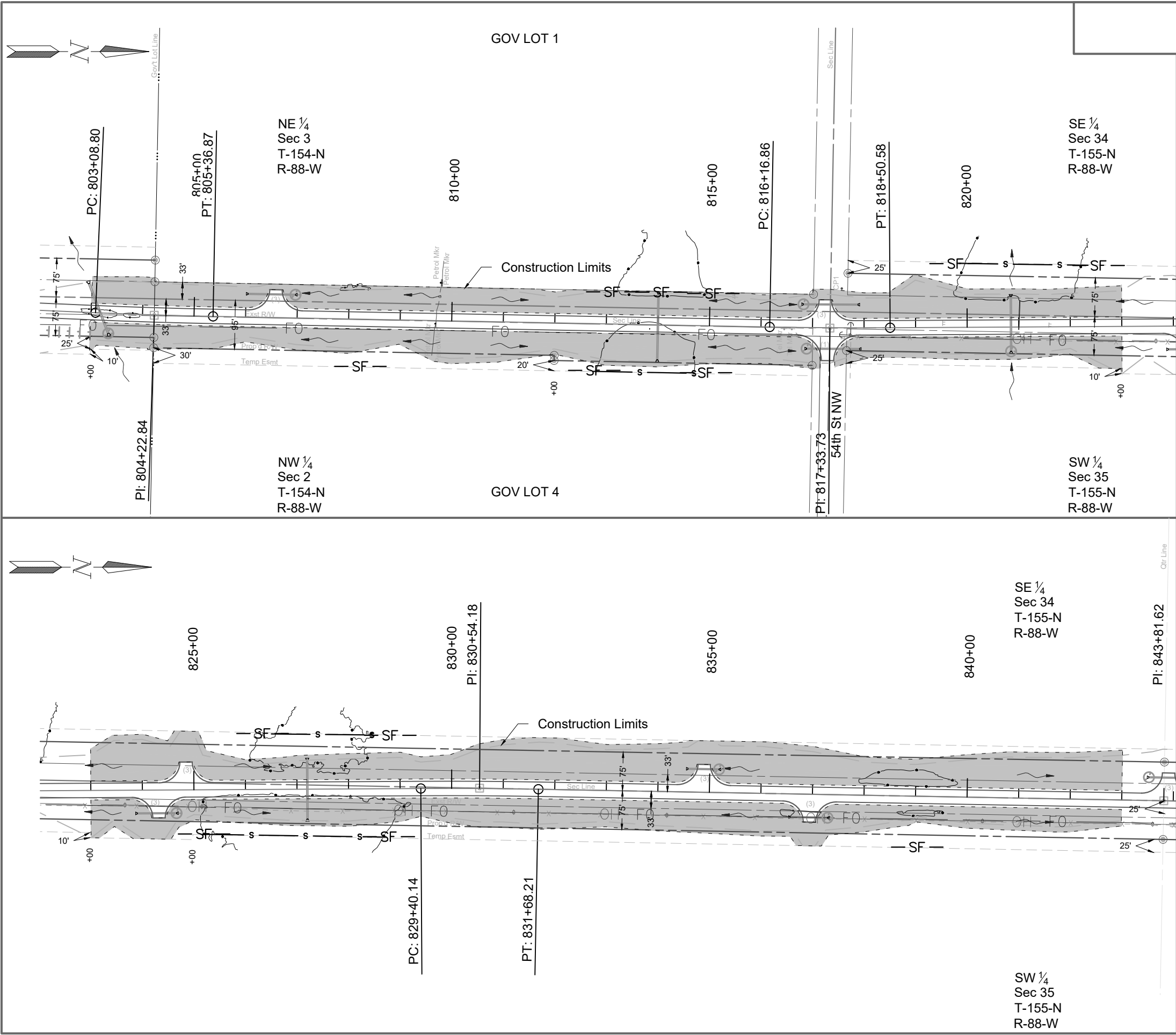
PC: 803+08.80





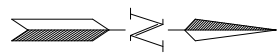
Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	1

<u>251 2000 TEMPORARY COVER CROP</u>	
Sta. 765+00 to Sta. 803+00	10.34 Acre
<u>253 0101 STRAW MULCH</u>	
Sta. 765+00 to Sta. 803+00	10.34 Acre
<u>260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED</u>	
Sta. 765+17 Rt	135 LF
Sta. 780+05 Lt	150 LF
Sta. 780+50 Rt	30 LF
Sta. 784+00 Rt	30 LF
Sta. 789+50 Rt	150 LF
Sta. 791+50 Lt	30 LF
Sta. 794+50 Rt	30 LF
Sta. 798+00 Rt	30 LF
Sta. 799+00 Lt	30 LF
Sta. 801+50 Lt	80 LF
<u>261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN</u>	
Sta. 782+75 Lt	30 LF
Sta. 789+49 Lt	30 LF
Sta. 790+71 Rt	30 LF
<u>261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN</u>	
Sta. 776+30 to Sta. 778+05 Lt	120 LF
Sta. 789+30 to Sta. 790+50 Lt	40 LF
Sta. 789+45 to Sta. 790+50 Rt	80 LF
Sta. 799+00 to Sta. 803+00 Rt	420 LF
<u>262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN</u>	
Sta. 782+00 Rt	350 LF
Sta. 795+00 Lt	750 LF
Sta. 796+00 Rt	350 LF



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	2
251 2000 TEMPORARY COVER CROP Sta. 803+00 to Sta. 843+00 9.75 Acre			
253 0101 STRAW MULCH Sta. 803+00 to Sta. 843+00 9.75 Acre			
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED Sta. 808+20 Rt 175 LF Sta. 813+00 Rt 30 LF Sta. 814+50 Lt 235 LF Sta. 815+00 Rt 30 LF Sta. 820+00 Lt 30 LF Sta. 822+00 Lt 30 LF Sta. 825+00 Rt 30 LF Sta. 826+00 Lt 30 LF Sta. 829+00 Lt 30 LF Sta. 829+00 Rt 30 LF Sta. 839+00 Rt 200 LF			
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN Sta. 803+40 Rt 30 LF Sta. 806+96 Lt 30 LF Sta. 816+82 Lt 30 LF Sta. 816+89 Rt 30 LF Sta. 820+85 Rt 30 LF Sta. 824+66 Rt 30 LF Sta. 835+18 Lt 30 LF Sta. 837+30 Rt 30 LF			
262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN Sta. 814+00 Rt 200 LF Sta. 821+00 Lt 250 LF Sta. 827+50 Lt 200 LF Sta. 827+00 Rt 350 LF			
<div> </div>			
Temporary Erosion Control Reconstruction County Route 1 Mountrail County, ND			



SE 1/4
Sec 34
T-155-N
R-88-W

PI: 843+81.62

845+00

20" Fiber Roll Ditch Check
Sta. 846+00 to Sta. 849+00 Lt
12 - 20 LF Fiber Rolls @ 20'

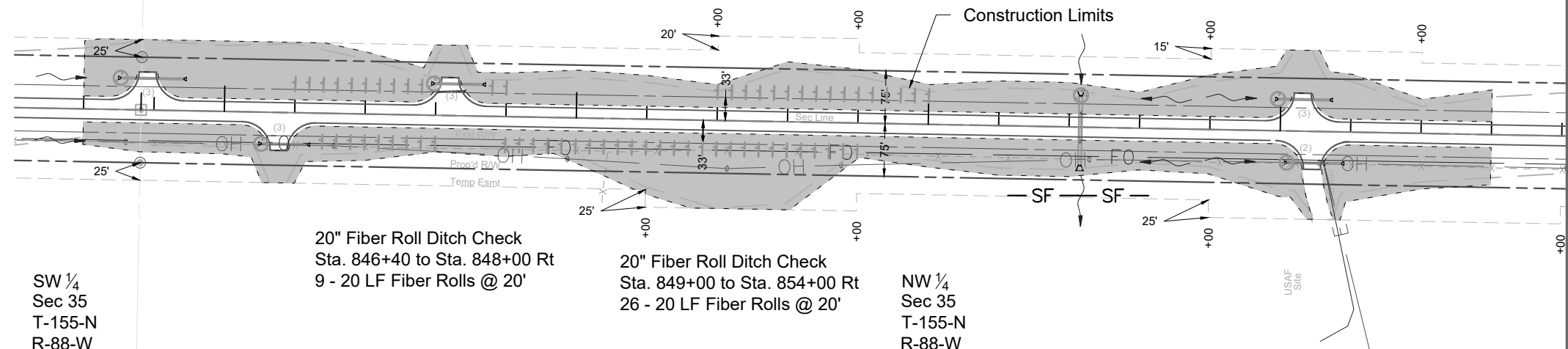
850+00

20" Fiber Roll Ditch Check
Sta. 852+00 to Sta. 855+00 Lt
16 - 20 LF Fiber Rolls @ 20'

NE 1/4
Sec 34
T-155-N
R-88-W

855+00

860+00

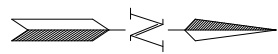


SW 1/4
Sec 35
T-155-N
R-88-W

20" Fiber Roll Ditch Check
Sta. 846+40 to Sta. 848+00 Rt
9 - 20 LF Fiber Rolls @ 20'

20" Fiber Roll Ditch Check
Sta. 849+00 to Sta. 854+00 Rt
26 - 20 LF Fiber Rolls @ 20'

NW 1/4
Sec 35
T-155-N
R-88-W



NE 1/4
Sec 34
T-155-N
R-88-W

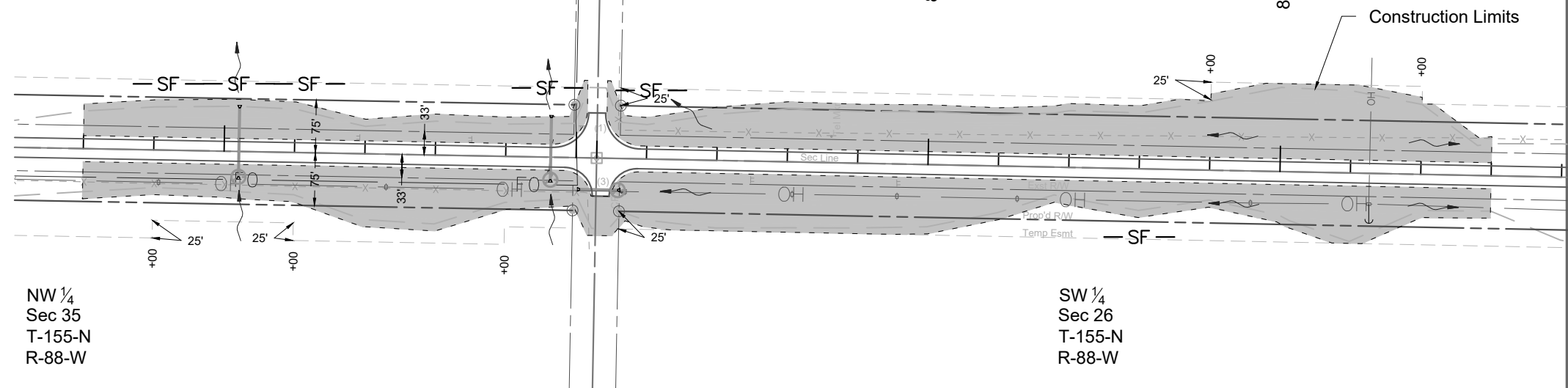
865+00

PI: 870+29.28
55th St NW

875+00



SE 1/4
Sec 27
T-155-N
R-88-W

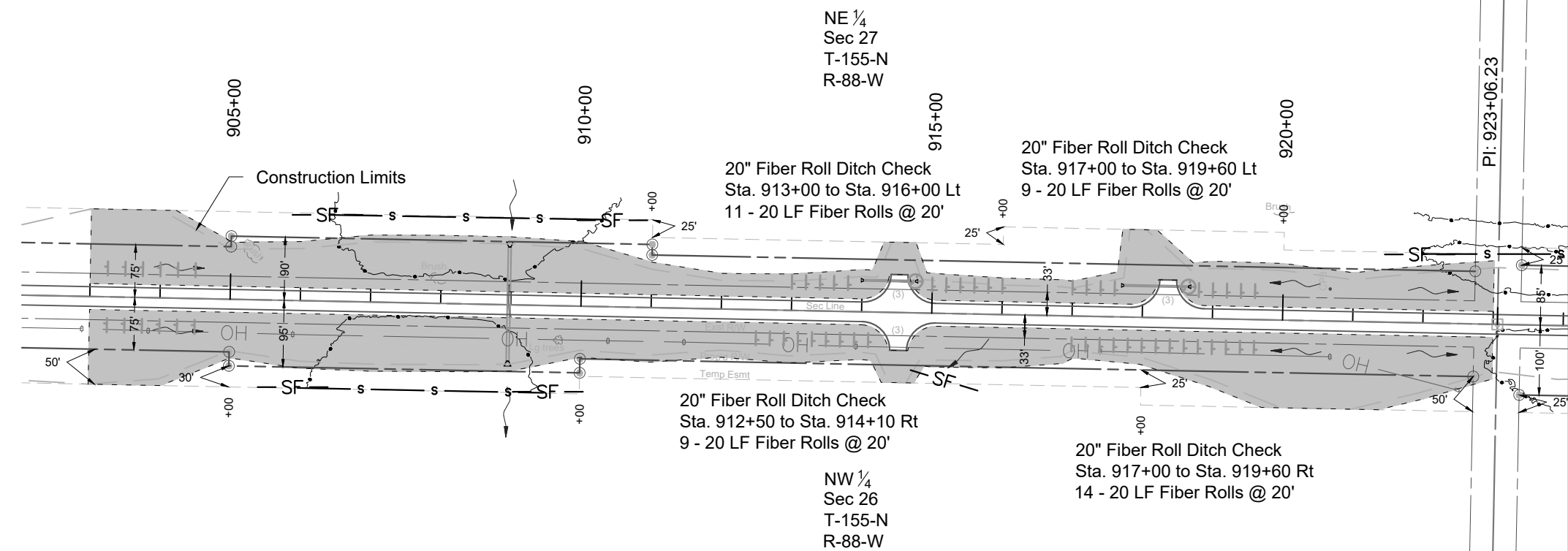
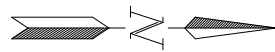
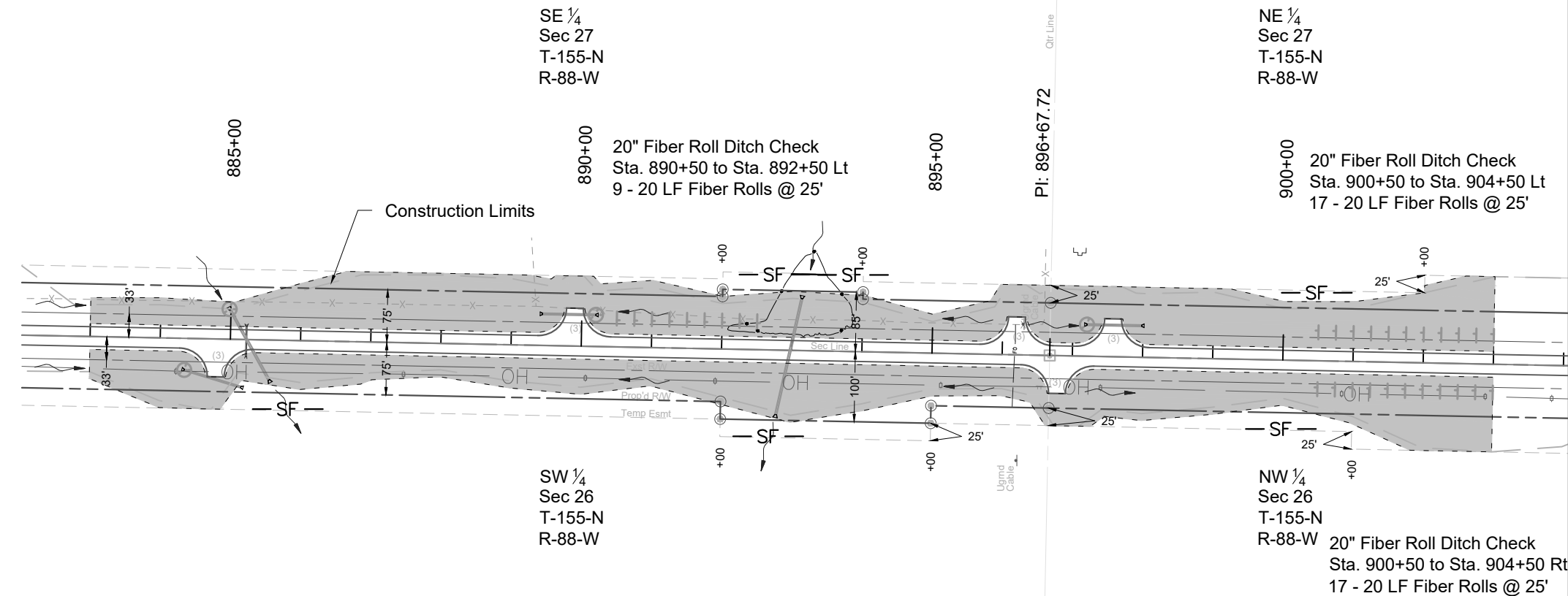
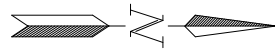
880+00



NW 1/4
Sec 35
T-155-N
R-88-W

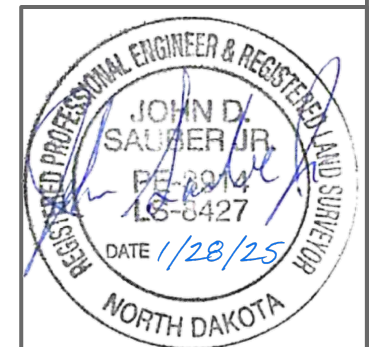
SW 1/4
Sec 26
T-155-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	3
251 2000 TEMPORARY COVER CROP Sta. 843+00 to Sta. 883+00 10.72 Acre			
253 0101 STRAW MULCH Sta. 843+00 to Sta. 883+00 10.72 Acre			
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED Sta. 857+16 Rt 250 LF Sta. 865+21 Lt 300 LF Sta. 869+64 Lt 130 LF Sta. 870+60 Lt 50 LF Sta. 878+00 Rt 160 LF			
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN Sta. 843+52 Lt 30 LF Sta. 845+53 Rt 30 LF Sta. 847+97 Lt 30 LF Sta. 857+16 Lt 30 LF Sta. 859+96 Lt 30 LF Sta. 860+10 Rt 30 LF Sta. 865+21 Rt 30 LF Sta. 869+64 Rt 30 LF Sta. 870+60 Rt 30 LF			
261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN Sta. 846+00 to Sta. 849+00 Lt 240 LF Sta. 846+40 to Sta. 848+00 Rt 180 LF Sta. 849+00 to Sta. 854+00 Rt 520 LF Sta. 852+00 to Sta. 855+00 Lt 320 LF			
 			
Temporary Erosion Control Reconstruction County Route 1 Mountrail County, ND			

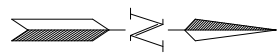


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	4

251 2000 TEMPORARY COVER CROP	
Sta. 883+00 to Sta. 923+00	11.81 Acre
253 0101 STRAW MULCH	
Sta. 883+00 to Sta. 923+00	11.81 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 885+56 Rt	135 LF
Sta. 892+80 Lt	30 LF
Sta. 893+13 Rt	50 LF
Sta. 893+30 Lt	30 LF
Sta. 900+00 Rt	140 LF
Sta. 900+50 Lt	110 LF
Sta. 906+00 Rt	30 LF
Sta. 906+50 Lt	30 LF
Sta. 909+50 Rt	30 LF
Sta. 910+50 Lt	30 LF
Sta. 915+00 Rt	50 LF
Sta. 922+00 Lt	30 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 884+46 Rt	30 LF
Sta. 884+99 Lt	30 LF
Sta. 890+20 Lt	30 LF
Sta. 897+20 Lt	30 LF
Sta. 914+76 Lt	30 LF
Sta. 918+65 Lt	30 LF
261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN	
Sta. 890+50 to Sta. 892+50 Lt	180 LF
Sta. 900+50 to Sta. 904+50 Lt	340 LF
Sta. 900+50 to Sta. 904+50 Rt	340 LF
Sta. 912+50 to Sta. 914+10 Rt	180 LF
Sta. 913+00 to Sta. 916+00 Lt	220 LF
Sta. 917+00 to Sta. 919+60 Lt	180 LF
Sta. 917+00 to Sta. 919+60 Rt	280 LF
262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN	
Sta. 893+05 Lt	50 LF
Sta. 908+00 Rt	350 LF
Sta. 908+50 Lt	400 LF



Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND



NE 1/4
Sec 27
T-155-N
R-88-W

Sec Line
PI: 923+06.23

925+00

SE 1/4
Sec 22
T-155-N
R-88-W

930+00

935+00

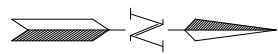
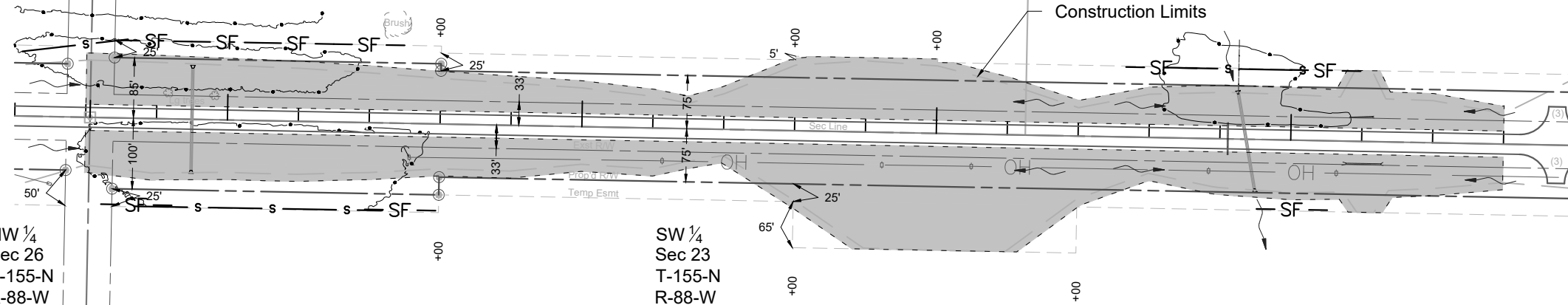
940+00

NW 1/4
Sec 26
T-155-N
R-88-W

SW 1/4
Sec 23
T-155-N
R-88-W

1/16 Line

Construction Limits



SE 1/4
Sec 22
T-155-N
R-88-W

NE 1/4
Sec 22
T-155-N
R-88-W

PI: 949+44.78

945+00

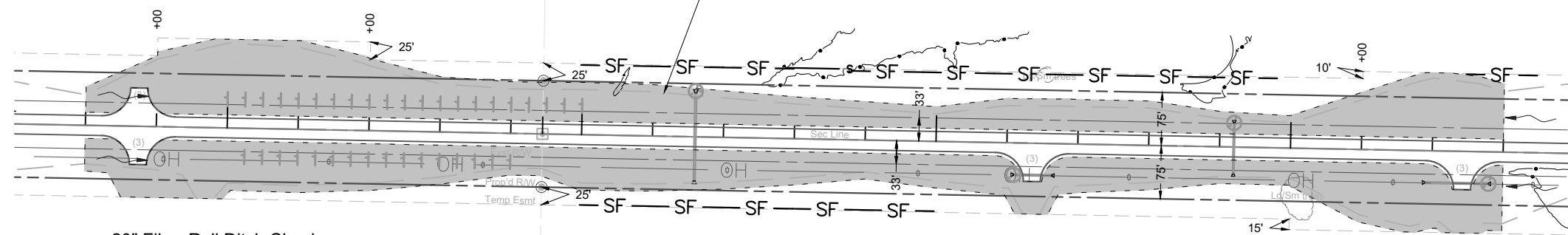
20" Fiber Roll Ditch Check
Sta. 945+00 to Sta. 950+00 Lt
21 - 20 LF Fiber Rolls @ 25'

950+00

955+00

960+00

Construction Limits



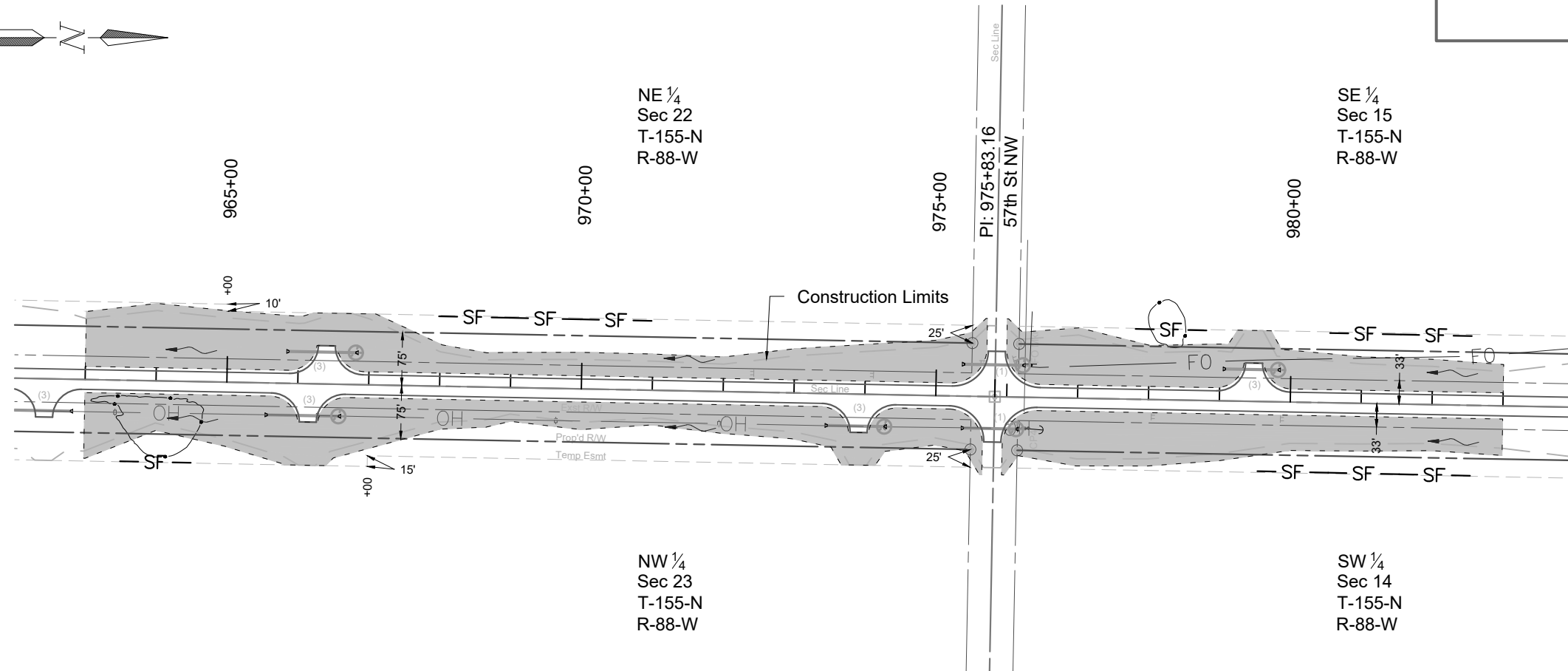
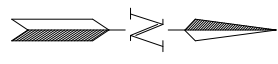
20" Fiber Roll Ditch Check
Sta. 945+25 to Sta. 949+00 Rt
16 - 20 LF Fiber Rolls @ 25'

SW 1/4
Sec 23
T-155-N
R-88-W

NW 1/4
Sec 23
T-155-N
R-88-W

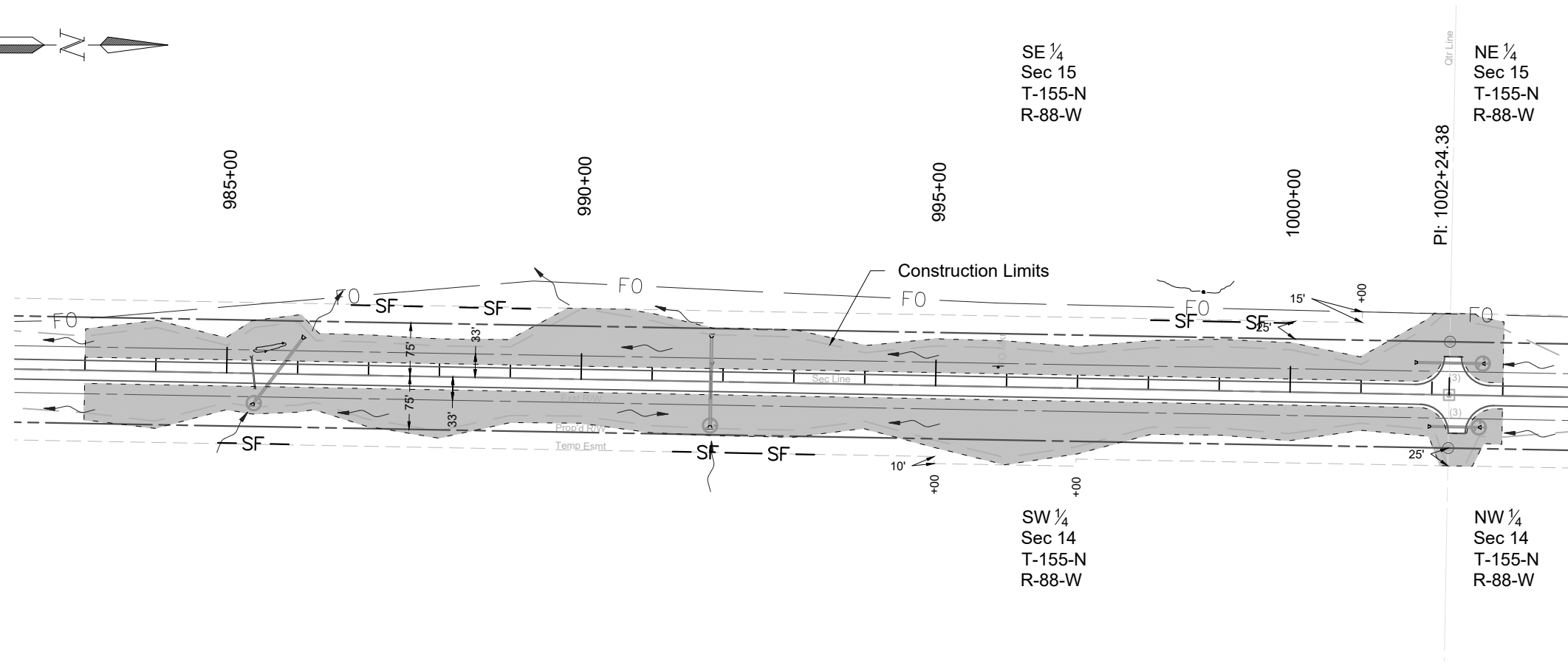
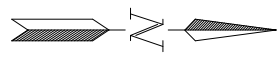
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	5
251 2000 TEMPORARY COVER CROP Sta. 923+00 to Sta. 963+00 11.23 Acre			
253 0101 STRAW MULCH Sta. 923+00 to Sta. 963+00 11.23 Acre			
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED Sta. 923+50 Rt 30 LF Sta. 926+50 Lt 350 LF Sta. 927+00 Rt 30 LF Sta. 938+00 Lt 30 LF Sta. 940+00 Lt 30 LF Sta. 940+00 Rt 200 LF Sta. 951+50 Lt 300 LF Sta. 952+00 Rt 455 LF Sta. 957+00 Lt 550 LF Sta. 962+90 Lt 85 LF			
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN Sta. 951+60 Lt 30 LF Sta. 956+10 Rt 30 LF Sta. 959+20 Lt 30 LF Sta. 962+80 Rt 30 LF			
261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN Sta. 945+00 to Sta. 950+00 Lt 420 LF Sta. 945+25 to Sta. 949+00 Rt 320 LF			
262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN Sta. 923+00 Lt 150 LF Sta. 925+50 Rt 350 LF Sta. 939+00 Lt 200 LF Sta. 953+25 Lt 100 LF			

Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

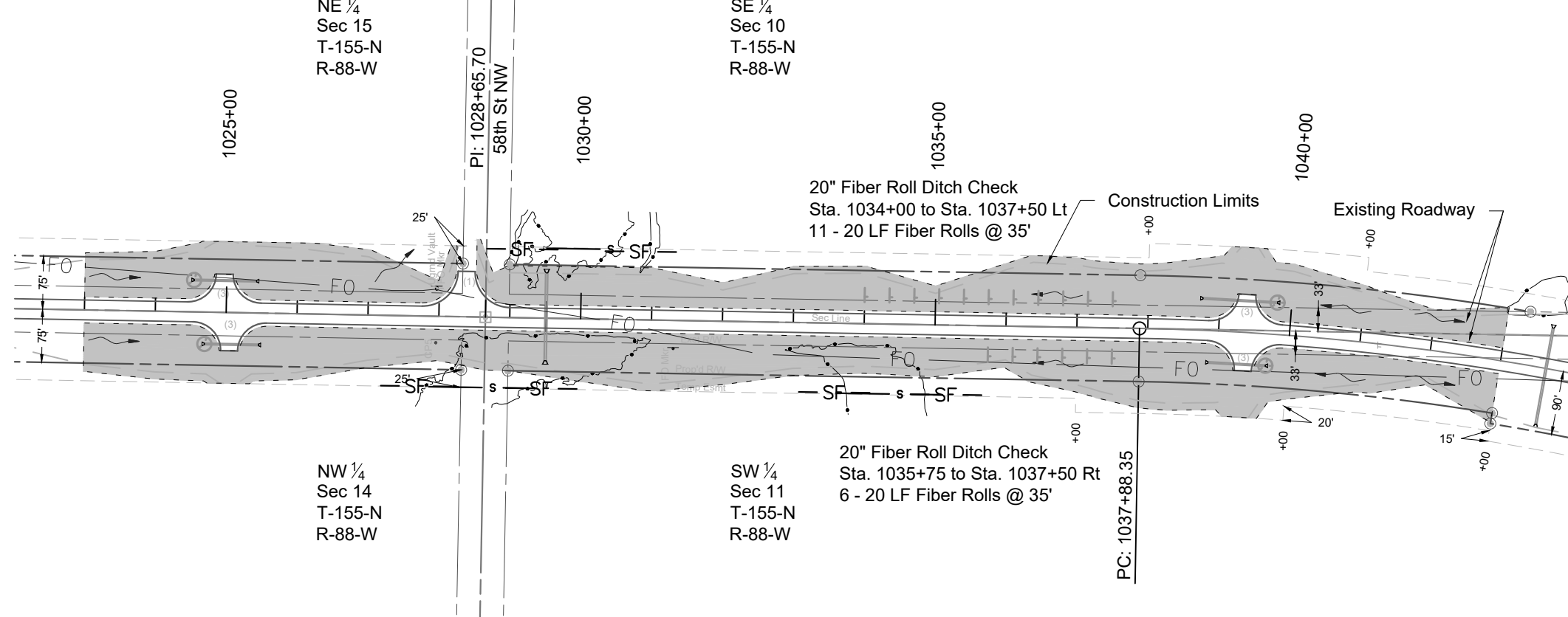
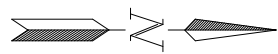
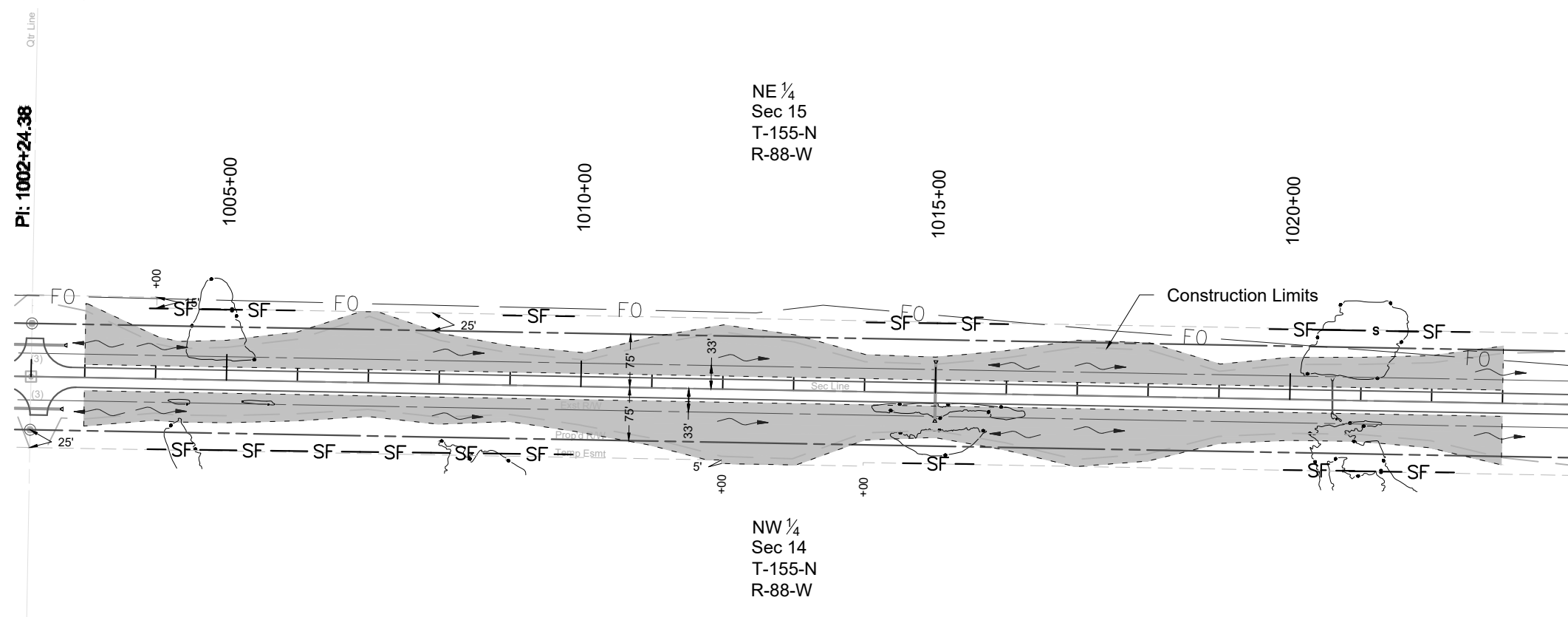
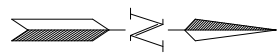


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	6

251 2000 TEMPORARY COVER CROP	
Sta. 963+00 to Sta. 1003+00	9.84 Acre
253 0101 STRAW MULCH	
Sta. 963+00 to Sta. 1003+00	9.84 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 964+00 Rt	100 LF
Sta. 969+50 Lt	350 LF
Sta. 978+50 Lt	110 LF
Sta. 981+00 Rt	320 LF
Sta. 981+50 Lt	260 LF
Sta. 985+50 Rt	140 LF
Sta. 987+20 Lt	105 LF
Sta. 988+70 Lt	50 LF
Sta. 992+00 Rt	275 LF
Sta. 999+00 Lt	250 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 966+58 Rt	30 LF
Sta. 966+81 Lt	30 LF
Sta. 974+28 Rt	30 LF
Sta. 976+14 Rt	30 LF
Sta. 976+22 Lt	30 LF
Sta. 979+82 Lt	30 LF
Sta. 985+39 Rt	30 LF
Sta. 991+83 Rt	30 LF
Sta. 1002+67 Rt	30 LF
Sta. 1002+71 Lt	30 LF

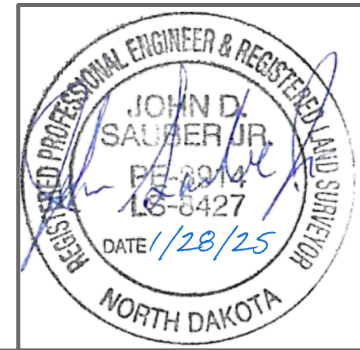


Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

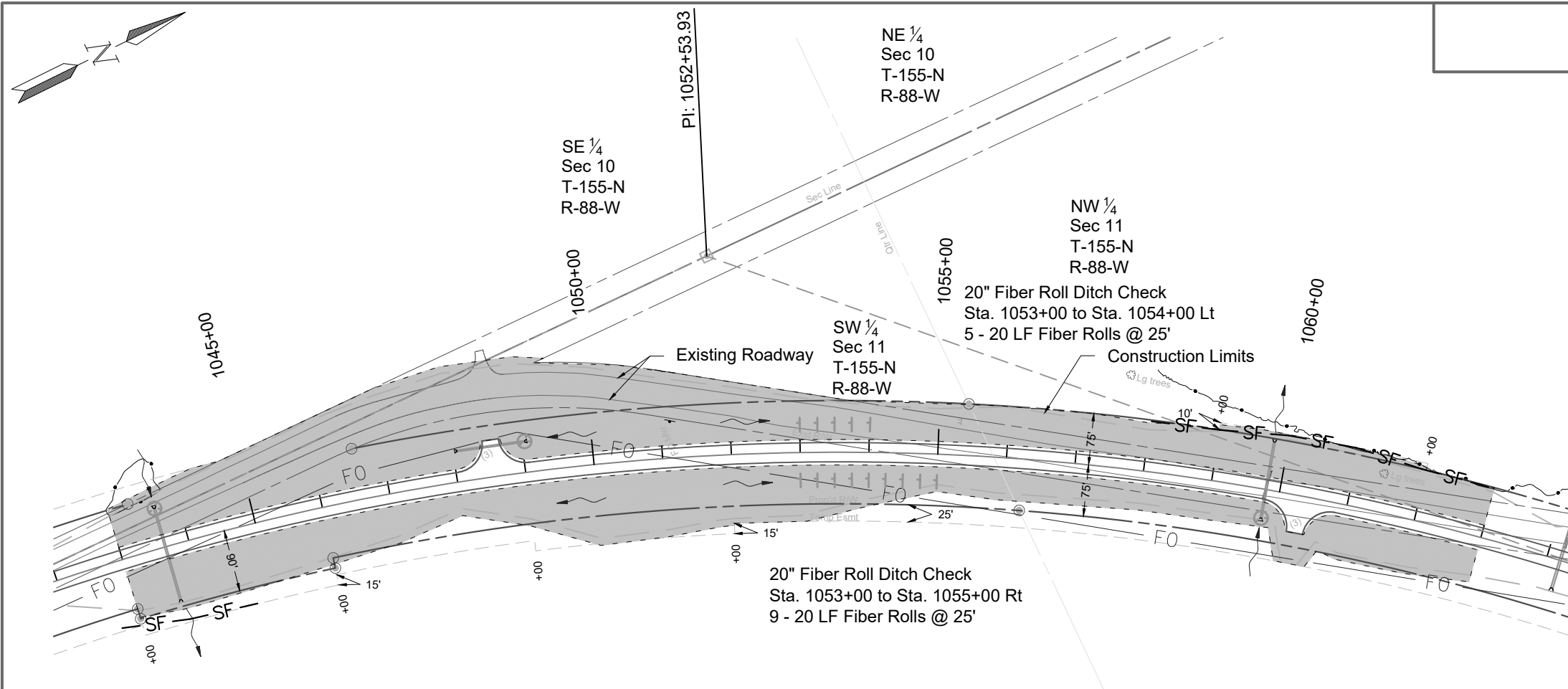


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	7

251 2000 TEMPORARY COVER CROP	
Sta. 1003+00 to Sta. 1043+00	10.38 Acre
253 0101 STRAW MULCH	
Sta. 1003+00 to Sta. 1043+00	10.38 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 1004+60 Lt	30 LF
Sta. 1005+10 Lt	30 LF
Sta. 1006+50 Rt	580 LF
Sta. 1009+50 Lt	135 LF
Sta. 1015+00 Lt	240 LF
Sta. 1015+00 Rt	130 LF
Sta. 1020+50 Lt	30 LF
Sta. 1020+50 Rt	90 LF
Sta. 1021+50 Lt	30 LF
Sta. 1021+50 Rt	30 LF
Sta. 1028+00 Rt	30 LF
Sta. 1029+50 Lt	70 LF
Sta. 1029+50 Rt	30 LF
Sta. 1030+50 Lt	70 LF
Sta. 1033+50 Rt	30 LF
Sta. 1035+00 Rt	30 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 1024+54 Lt	30 LF
Sta. 1024+70 Rt	30 LF
Sta. 1039+69 Rt	30 LF
Sta. 1039+80 Lt	30 LF
261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN	
Sta. 1034+00 to Sta. 1037+50 Lt	220 LF
Sta. 1035+75 to Sta. 1037+50 Rt	120 LF
262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN	
Sta. 1004+80 Lt	50 LF
Sta. 1020+70 Lt	100 LF
Sta. 1021+20 Rt	50 LF
Sta. 1028+50 Rt	150 LF
Sta. 1030+00 Lt	100 LF
Sta. 1034+00 Rt	150 LF

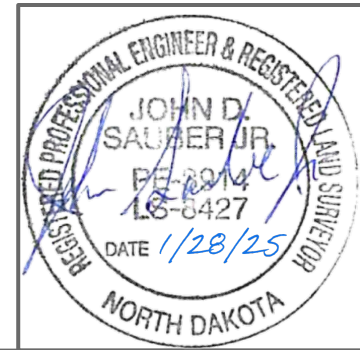
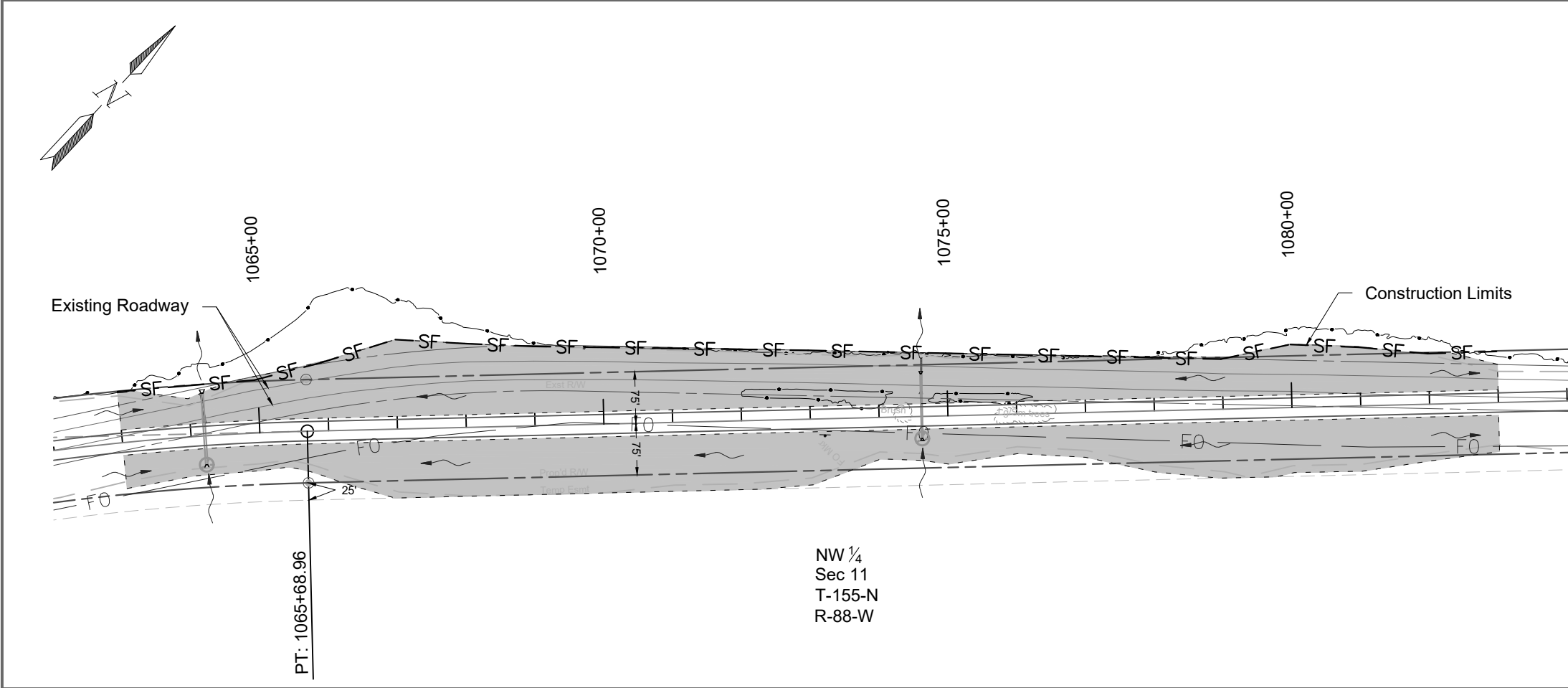


Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	8

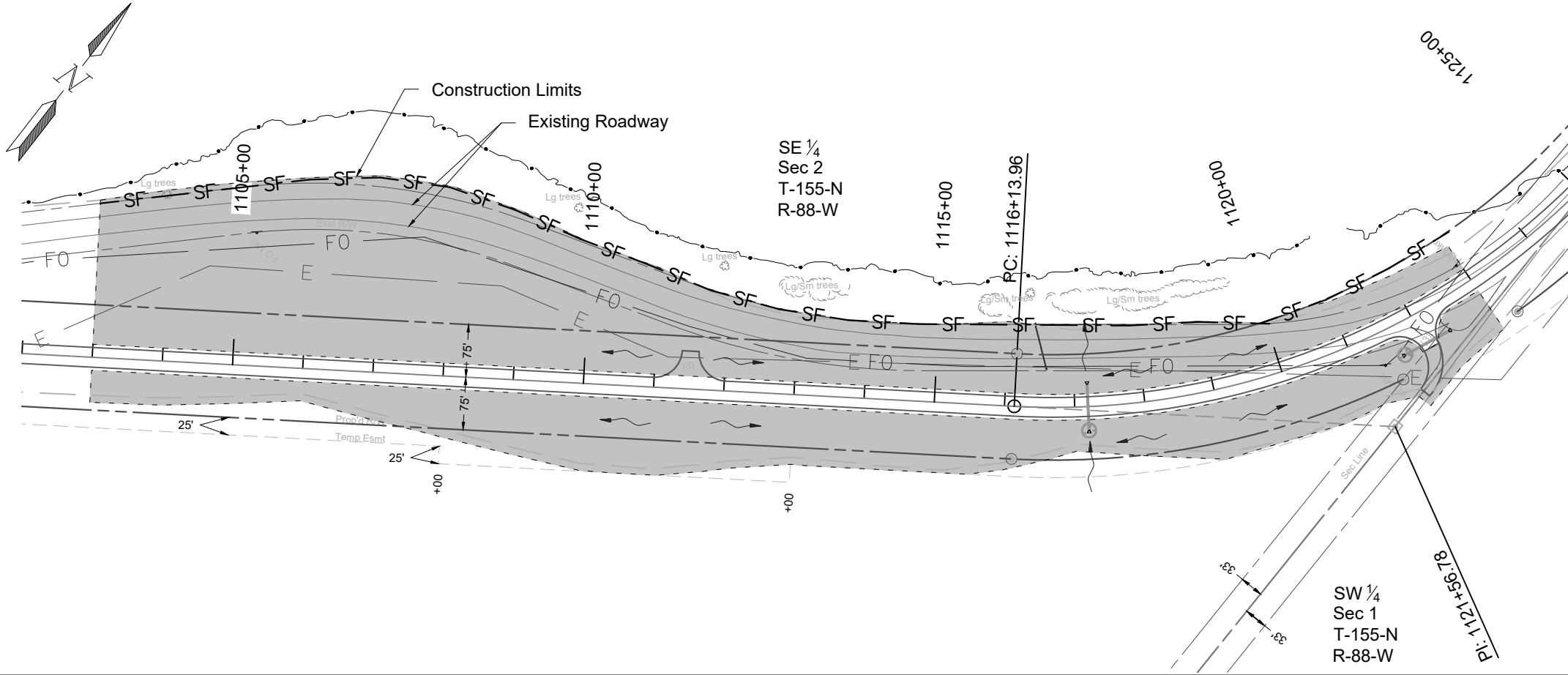
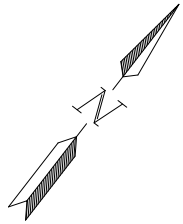
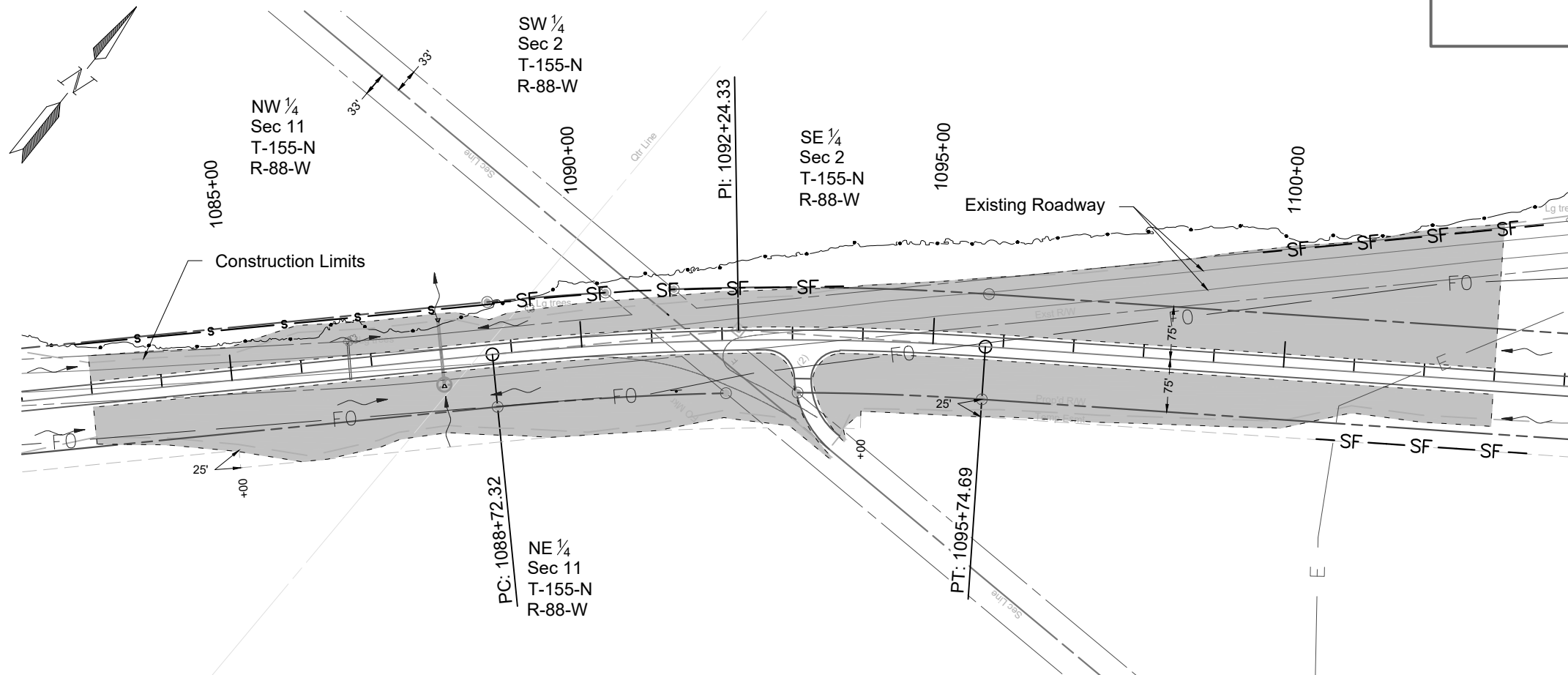
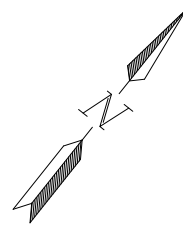
251 2000 TEMPORARY COVER CROP	
Sta. 1043+00 to Sta. 1083+00	13.03 Acre
253 0101 STRAW MULCH	
Sta. 1043+00 to Sta. 1083+00	13.03 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 1043+50 Rt	200 LF
Sta. 1058+00 to Sta. 1083+00 Lt	2,525 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 1043+65 Lt	30 LF
Sta. 1049+04 Lt	30 LF
Sta. 1059+80 Rt	30 LF
Sta. 1064+20 Rt	30 LF
Sta. 1074+62 Rt	30 LF
261 0120 FIBER ROLLS 20IN & 261 0121 REMOVE FIBER ROLLS 20IN	
Sta. 1053+00 to Sta. 1054+00 Lt	100 LF
Sta. 1053+00 to Sta. 1055+00 Rt	180 LF



Temporary Erosion Control

Reconstruction
County Route 1

Mountrail County, ND

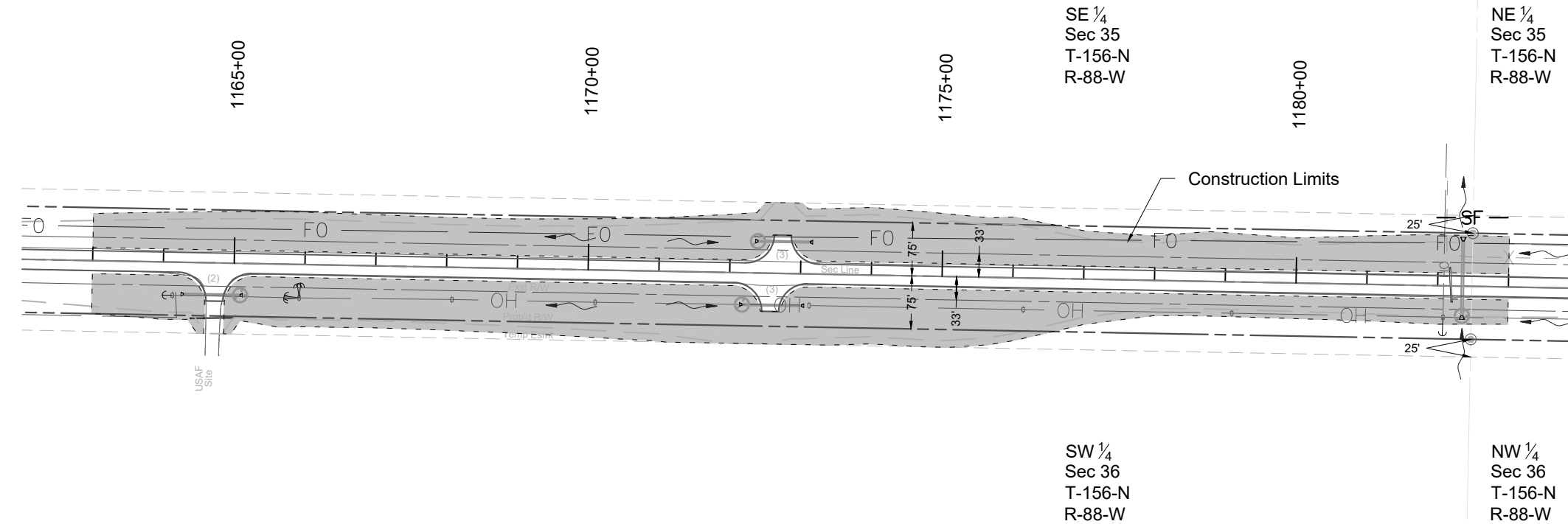
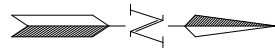


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	9

251 2000 TEMPORARY COVER CROP	
Sta. 1083+00 to Sta. 1123+00	17.16 Acre
253 0101 STRAW MULCH	
Sta. 1083+00 to Sta. 1123+00	17.16 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 1091+50 Lt	525 LF
Sta. 1102+00 Rt	300 LF
Sta. 1109+50 to Sta. 1123+00 Lt	2,300 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 1088+00 Rt	30 LF
Sta. 1117+19 Rt	30 LF
Sta. 1121+68 Rt	30 LF
262 0100 FLOTATION SILT CURTAIN & 262 0101 REMOVE FLOTATION SILT CURTAIN	
Sta. 1086+00 Lt	600 LF

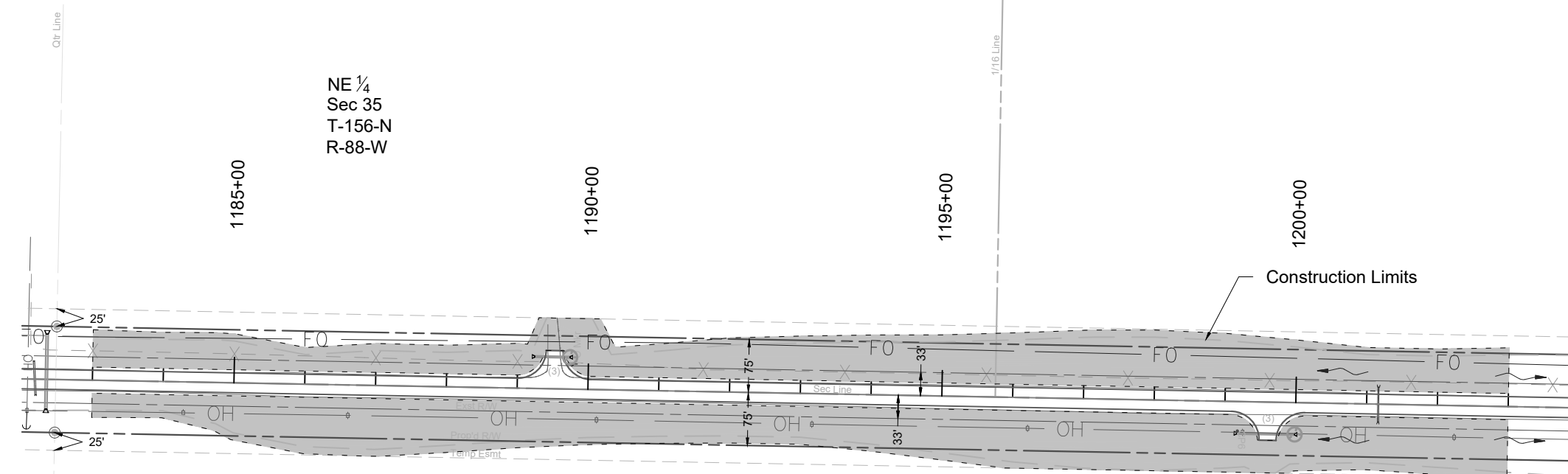
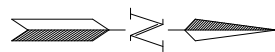


Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

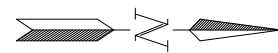


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	76	11

251 2000 TEMPORARY COVER CROP	
Sta. 1163+00 to Sta. 1203+00	11.10 Acre
253 0101 STRAW MULCH	
Sta. 1163+00 to Sta. 1203+00	11.10 Acre
260 0200 SILT FENCE SUPPORTED & 260 0201 REMOVE SILT FENCE SUPPORTED	
Sta. 1182+50 Lt	50 LF
261 0112 FIBER ROLLS 12IN & 261 0113 REMOVE FIBER ROLLS 12IN	
Sta. 1165+09 Rt	30 LF
Sta. 1172+18 Rt	30 LF
Sta. 1172+39 Lt	30 LF
Sta. 1182+35 Rt	30 LF
Sta. 1189+74 Lt	30 LF
Sta. 1199+99 Rt	30 LF



Temporary Erosion Control
Reconstruction
County Route 1
Mountrail County, ND



NE 1/4
Sec 10
T-154-N
R-88-W

NW 1/4
Sec 11
T-154-N
R-88-W

County Route 10
53rd St NW
Pl: 764+63.46

765+00

785+00

790+00

795+00

800+00

803+00

808.80

810

815

820

825

830

835

840

845

850

855

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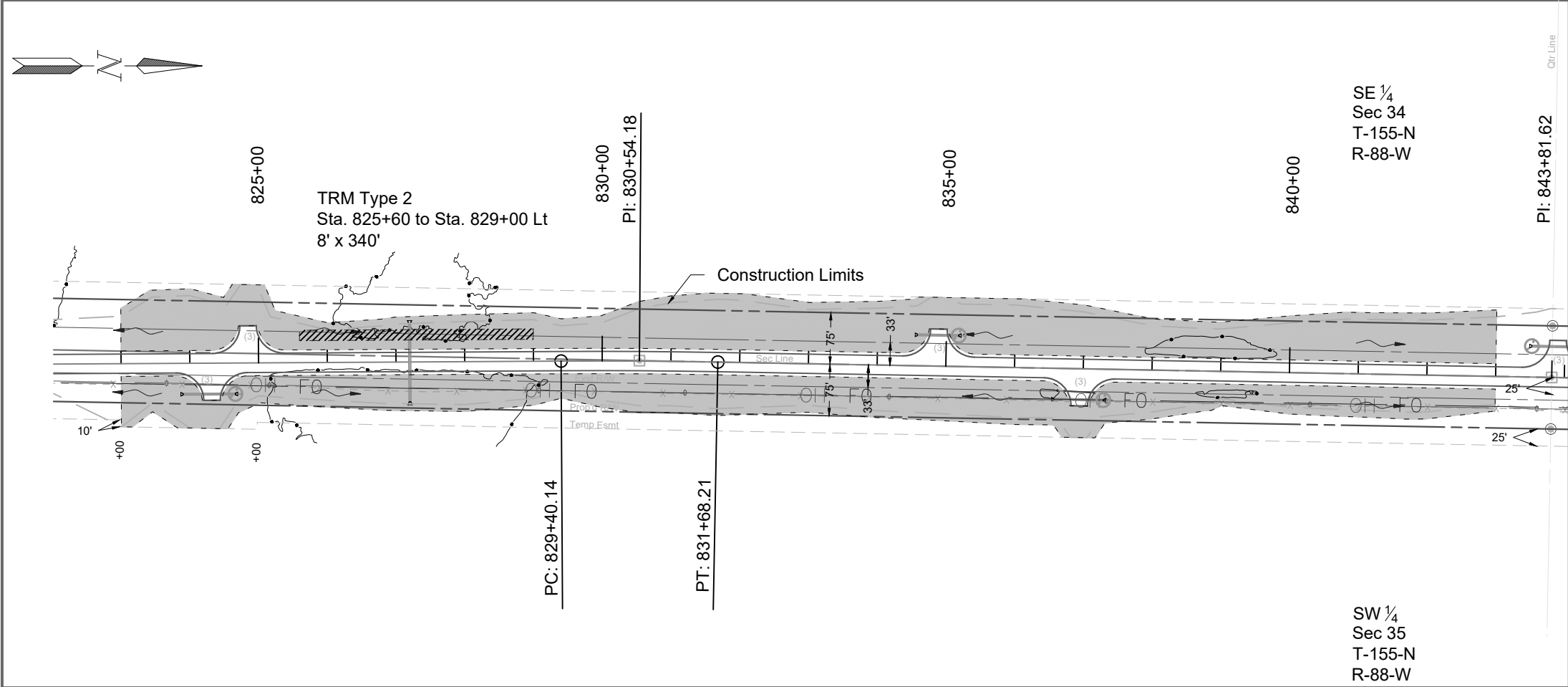
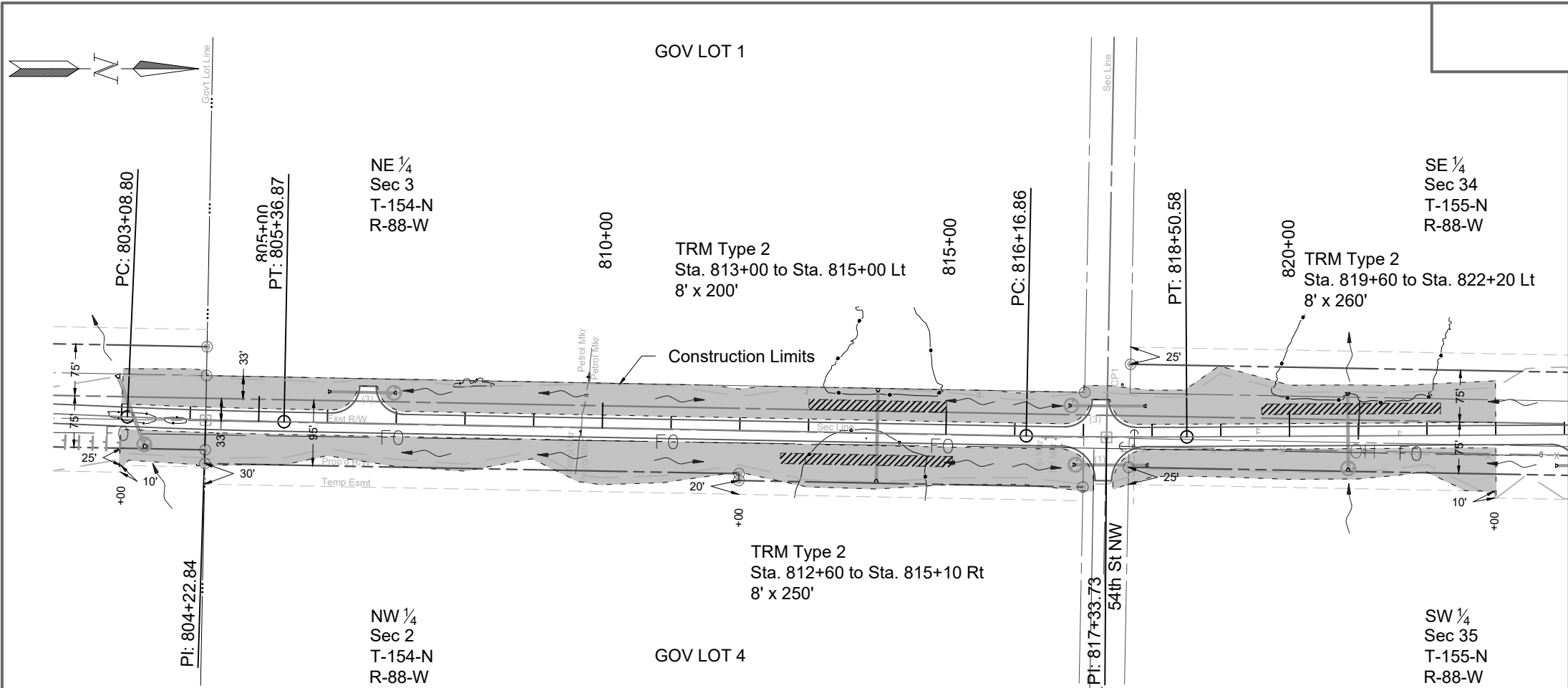
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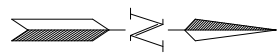


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	2

251 0300 SEEDING CLASS III	
Sta. 803+00 to Sta. 843+00	9.75 Acre
253 0101 STRAW MULCH	
Sta. 803+00 to Sta. 843+00	9.75 Acre
255 0202 TRM TYPE 2	
Sta. 812+60 to Sta. 815+10 Rt	222 SY
Sta. 813+00 to Sta. 815+00 Lt	178 SY
Sta. 819+60 to Sta. 822+20 Lt	231 SY
Sta. 825+60 to Sta. 829+00 Lt	302 SY
261 0112 FIBER ROLLS 12IN	
Sta. 803+40 Rt	30 LF
Sta. 806+96 Lt	30 LF
Sta. 816+82 Lt	30 LF
Sta. 816+89 Rt	30 LF
Sta. 820+85 Rt	30 LF
Sta. 824+66 Rt	30 LF
Sta. 835+18 Lt	30 LF
Sta. 837+30 Rt	30 LF

Permanent Erosion Control	
Reconstruction	
County Route 1	
Mountrail County, ND	





SE 1/4
Sec 34
T-155-N
R-88-W

PI: 843+81.62

845+00

20" Fiber Roll Ditch Check
Sta. 846+00 to Sta. 849+00 Lt
12 - 20 LF Fiber Rolls @ 20'

850+00

20" Fiber Roll Ditch Check
Sta. 852+00 to Sta. 855+00 Lt
16 - 20 LF Fiber Rolls @ 20'

NE 1/4
Sec 34
T-155-N
R-88-W

855+00

860+00

Construction Limits

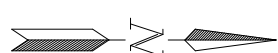
USAF Site

SW 1/4
Sec 35
T-155-N
R-88-W

20" Fiber Roll Ditch Check
Sta. 846+40 to Sta. 848+00 Rt
9 - 20 LF Fiber Rolls @ 20'

20" Fiber Roll Ditch Check
Sta. 849+00 to Sta. 854+00 Rt
26 - 20 LF Fiber Rolls @ 20'

NW 1/4
Sec 35
T-155-N
R-88-W



NE 1/4
Sec 34
T-155-N
R-88-W

865+00

PI: 870+29.28
55th St NW

875+00

SE 1/4
Sec 27
T-155-N
R-88-W


880+00

Construction Limits

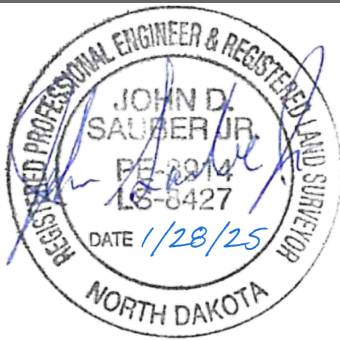
NW 1/4
Sec 35
T-155-N
R-88-W

SW 1/4
Sec 26
T-155-N
R-88-W

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	3
<u>251 0300 SEEDING CLASS III</u>			
Sta. 843+00 to Sta. 883+00		10.72 Acre	
<u>253 0101 STRAW MULCH</u>			
Sta. 843+00 to Sta. 883+00		10.72 Acre	
<u>261 0112 FIBER ROLLS 12IN</u>			
Sta. 843+52 Lt		30 LF	
Sta. 845+53 Rt		30 LF	
Sta. 847+97 Lt		30 LF	
Sta. 857+16 Lt		30 LF	
Sta. 859+96 Lt		30 LF	
Sta. 860+10 Rt		30 LF	
Sta. 865+21 Rt		30 LF	
Sta. 869+64 Rt		30 LF	
Sta. 870+60 Rt		30 LF	
<u>261 0120 FIBER ROLLS 20IN</u>			
Sta. 846+00 to Sta. 849+00 Lt		240 LF	
Sta. 846+40 to Sta. 848+00 Rt		180 LF	
Sta. 849+00 to Sta. 854+00 Rt		520 LF	
Sta. 852+00 to Sta. 855+00 Lt		320 LF	



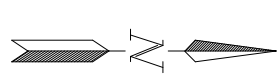
SAUBER
ENGINEERING



Permanent Erosion Control

Reconstruction
County Route 1

Mountrail County, ND



NE 1/4
Sec 27
T-155-N
R-88-W

Sec Line
PI: 923+06.23

925+00

SE 1/4
Sec 22
T-155-N
R-88-W

930+00

TRM Type 2
Sta. 938+00 to Sta. 940+30 Lt
8' x 230'

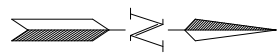
935+00

940+00

NW 1/4
Sec 26
T-155-N
R-88-W

SW 1/4
Sec 23
T-155-N
R-88-W

+00



SE 1/4
Sec 22
T-155-N
R-88-W

NE 1/4
Sec 22
T-155-N
R-88-W

Qtr Line
PI: 949+44.78

945+00

20" Fiber Roll Ditch Check
Sta. 945+00 to Sta. 950+00 Lt
21 - 20 LF Fiber Rolls @ 25'

950+00

955+00

960+00

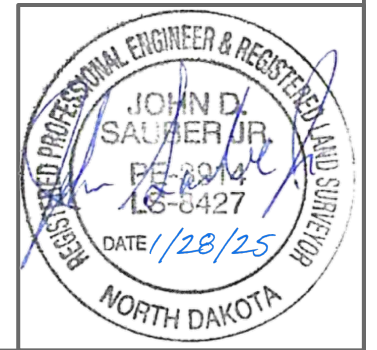
Construction Limits

20" Fiber Roll Ditch Check
Sta. 945+25 to Sta. 949+00 Rt
16 - 20 LF Fiber Rolls @ 25'

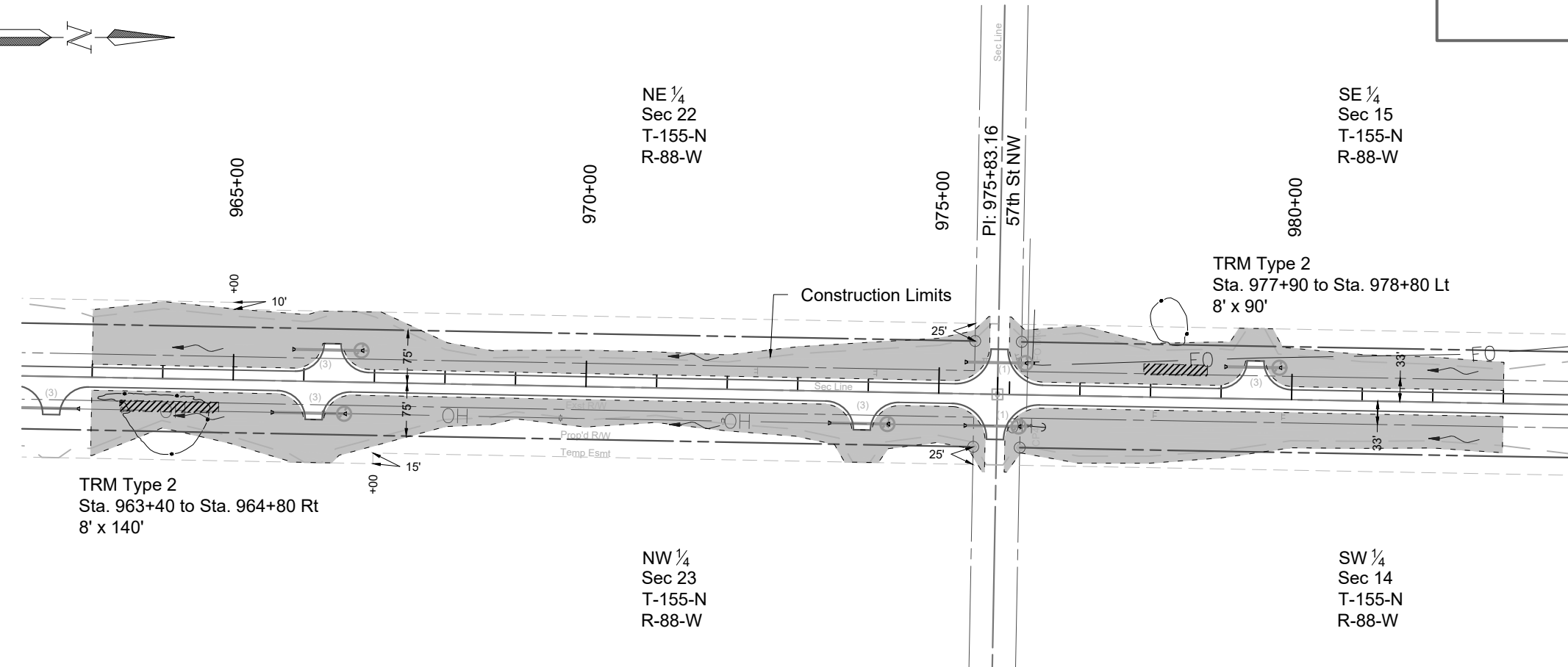
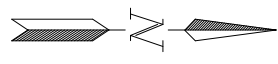
SW 1/4
Sec 23
T-155-N
R-88-W

NW 1/4
Sec 23
T-155-N
R-88-W

+00

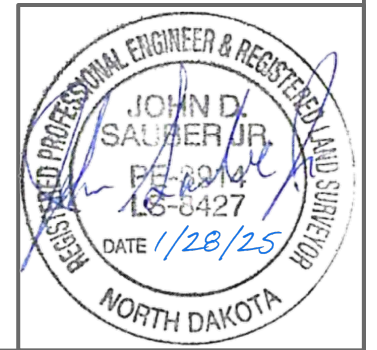
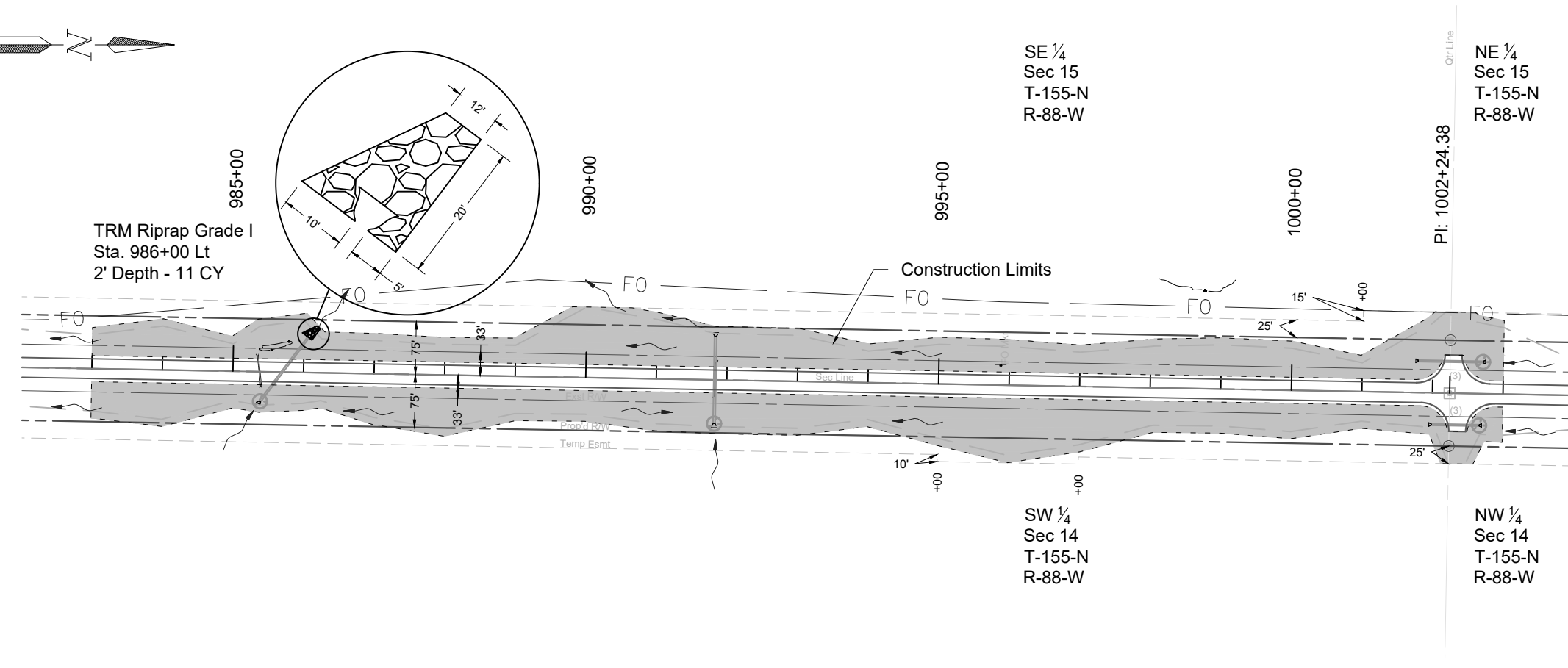
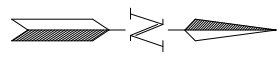


Permanent Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

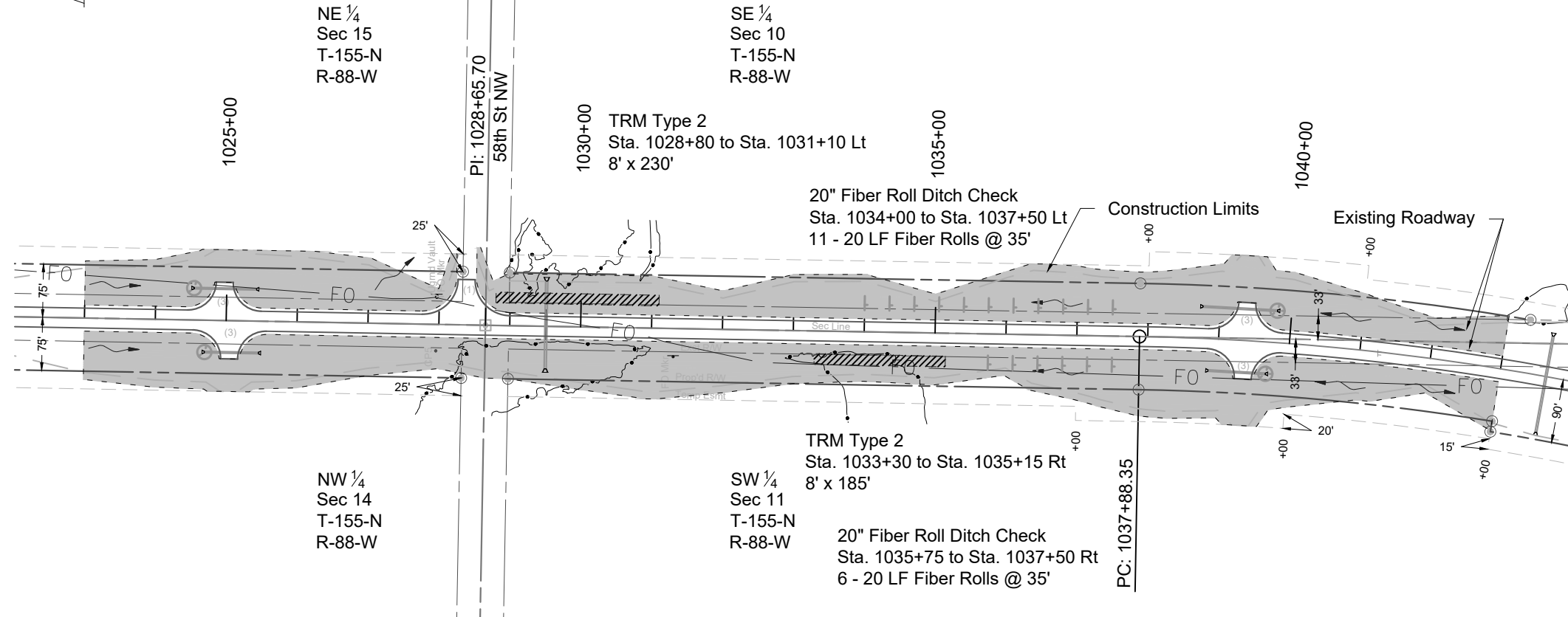
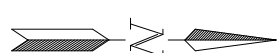
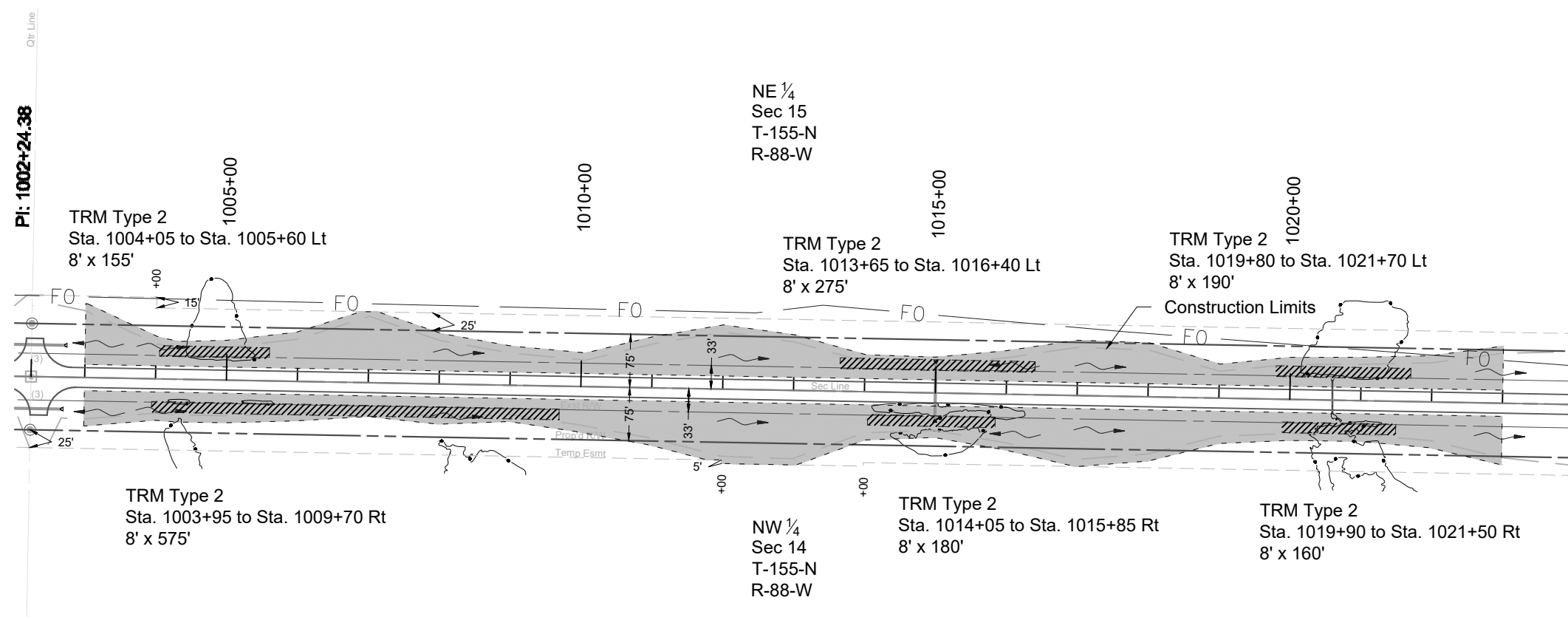
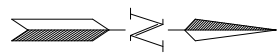


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	6

251 0300 SEEDING CLASS III	
Sta. 963+00 to Sta. 1003+00	9.84 Acre
253 0101 STRAW MULCH	
Sta. 963+00 to Sta. 1003+00	9.84 Acre
255 0202 TRM TYPE 2	
Sta. 963+40 to Sta. 964+80 Rt	124 SY
Sta. 977+90 to Sta. 978+80 Lt	80 SY
256 0100 RIPRAP GRADE I	
Sta. 986+00 Lt	11 CY
261 0112 FIBER ROLLS 12IN	
Sta. 966+58 Rt	30 LF
Sta. 966+81 Lt	30 LF
Sta. 974+28 Rt	30 LF
Sta. 976+14 Rt	30 LF
Sta. 976+22 Lt	30 LF
Sta. 979+82 Lt	30 LF
Sta. 985+39 Rt	30 LF
Sta. 991+83 Rt	30 LF
Sta. 1002+67 Rt	30 LF
Sta. 1002+71 Lt	30 LF
709 0155 Geosynthetic Material Type RR	
Sta. 986+00 Lt	16 SY

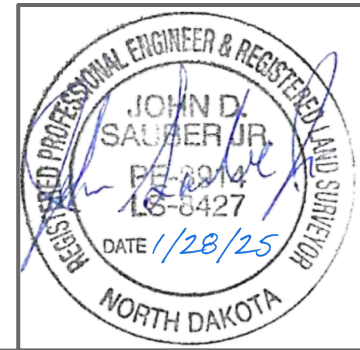


Permanent Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

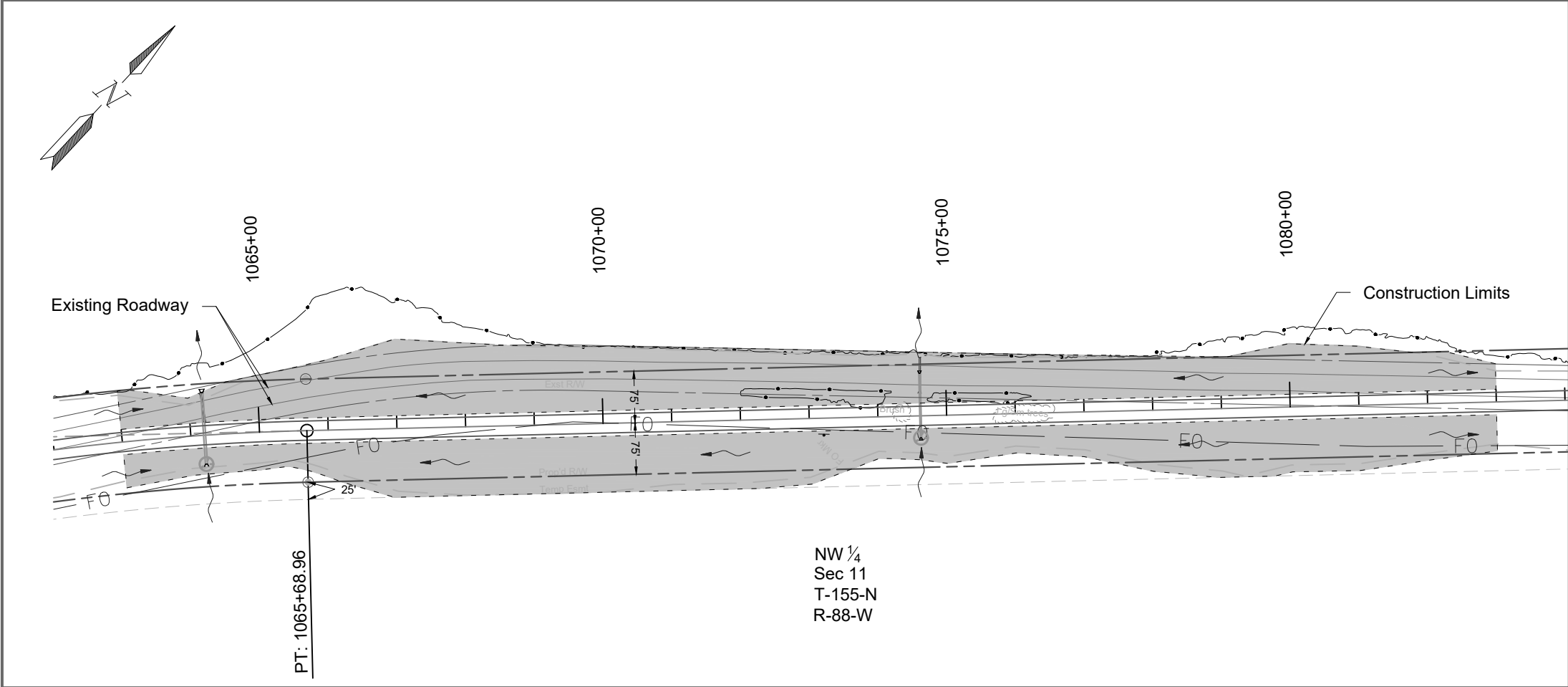
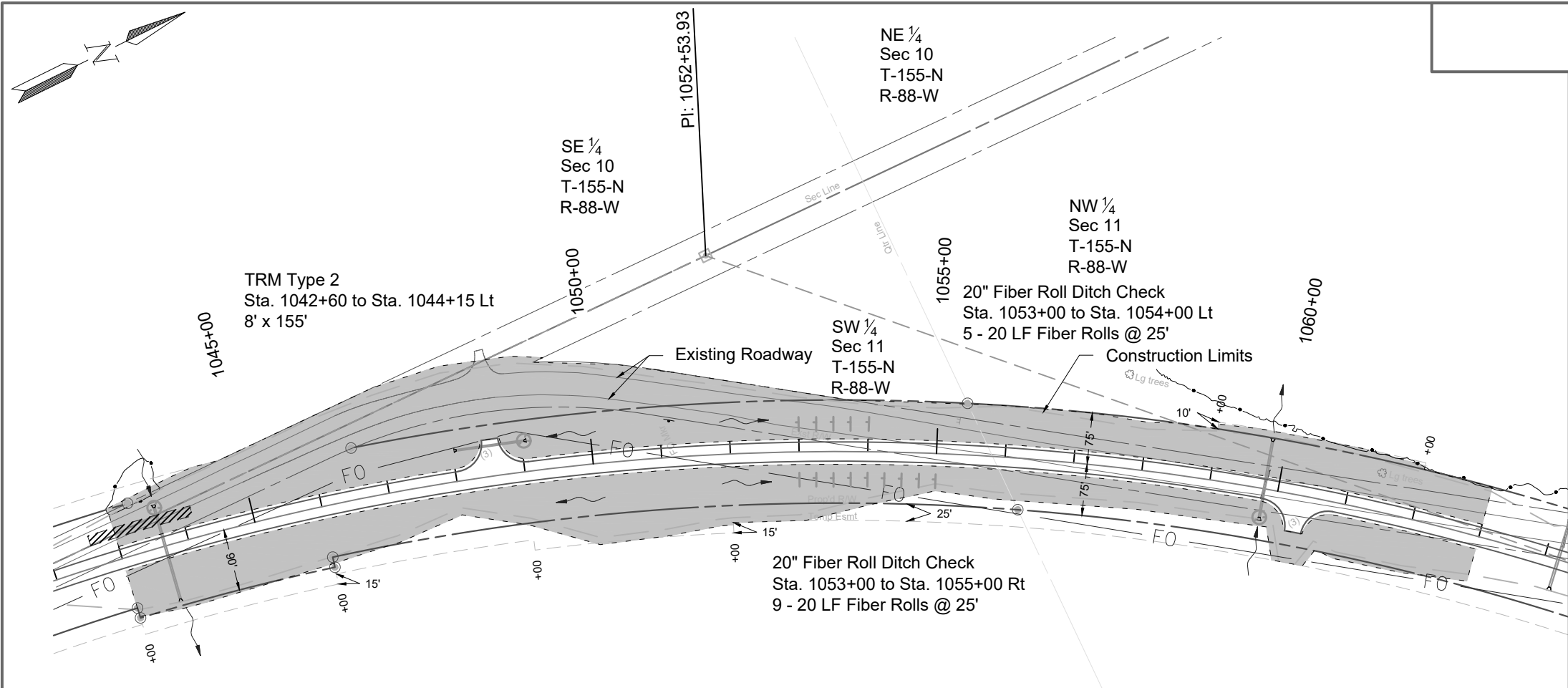


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	7

251 0300 SEEDING CLASS III	
Sta. 1003+00 to Sta. 1043+00	10.38 Acre
253 0101 STRAW MULCH	
Sta. 1003+00 to Sta. 1043+00	10.38 Acre
255 0202 TRM TYPE 2	
Sta. 1003+95 to Sta. 1009+70 Rt	511 SY
Sta. 1004+05 to Sta. 1005+60 Lt	138 SY
Sta. 1013+65 to Sta. 1016+40 Lt	244 SY
Sta. 1014+05 to Sta. 1015+85 Rt	160 SY
Sta. 1019+80 to Sta. 1021+70 Lt	169 SY
Sta. 1019+90 to Sta. 1021+50 Rt	142 SY
Sta. 1028+80 to Sta. 1031+10 Lt	204 SY
Sta. 1033+30 to Sta. 1035+15 Rt	164 SY
261 0112 FIBER ROLLS 12IN	
Sta. 1024+54 Lt	30 LF
Sta. 1024+70 Rt	30 LF
Sta. 1039+69 Rt	30 LF
Sta. 1039+80 Lt	30 LF
261 0120 FIBER ROLLS 20IN	
Sta. 1034+00 to Sta. 1037+50 Lt	220 LF
Sta. 1035+75 to Sta. 1037+50 Rt	120 LF




Permanent Erosion Control
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	8

251 0300 SEEDING CLASS III	
Sta. 1043+00 to Sta. 1083+00	13.03 Acre
253 0101 STRAW MULCH	
Sta. 1043+00 to Sta. 1083+00	13.03 Acre
255 0202 TRM TYPE 2	
Sta. 1042+60 to Sta. 1044+15 Lt	138 SY
261 0112 FIBER ROLLS 12IN	
Sta. 1043+65 Lt	30 LF
Sta. 1049+04 Lt	30 LF
Sta. 1059+80 Rt	30 LF
Sta. 1064+20 Rt	30 LF
Sta. 1074+62 Rt	30 LF
261 0120 FIBER ROLLS 20IN	
Sta. 1053+00 to Sta. 1054+00 Lt	100 LF
Sta. 1053+00 to Sta. 1055+00 Rt	180 LF

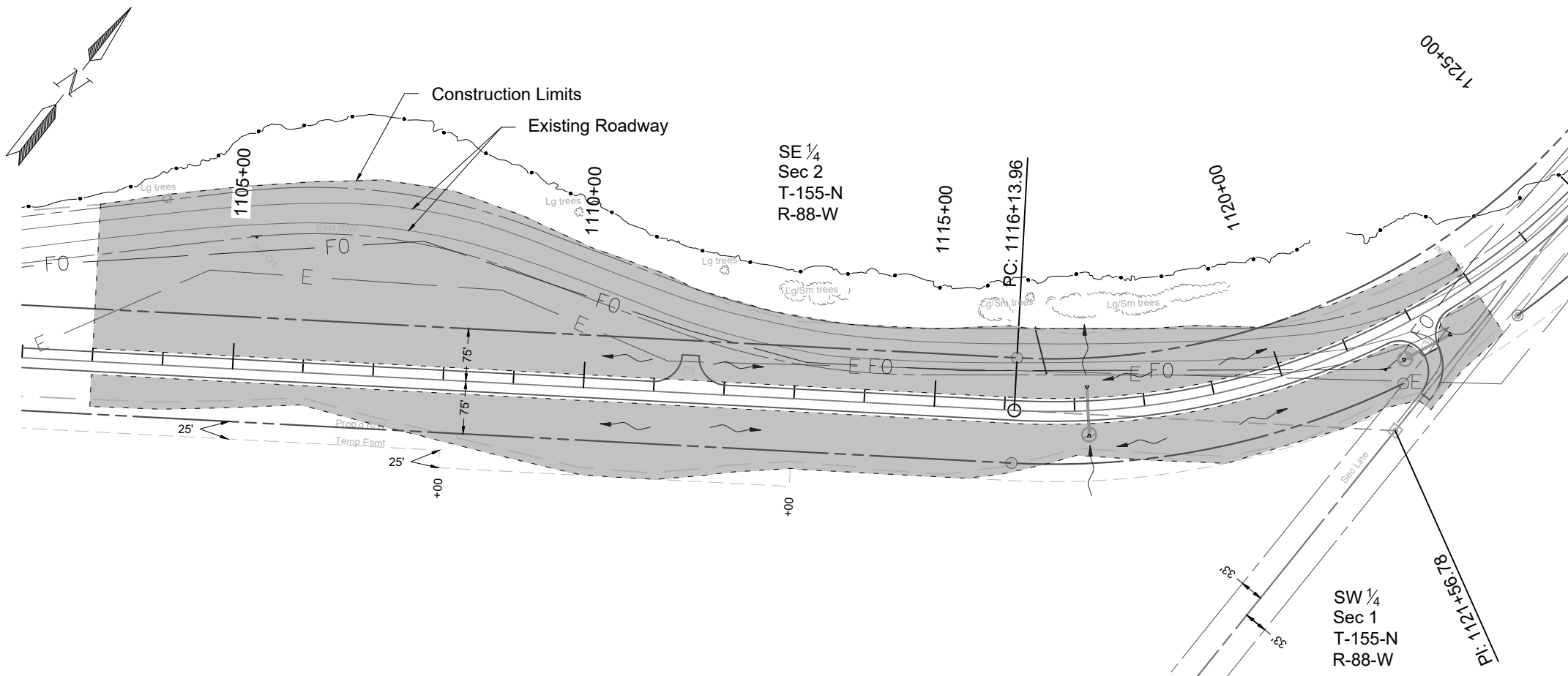
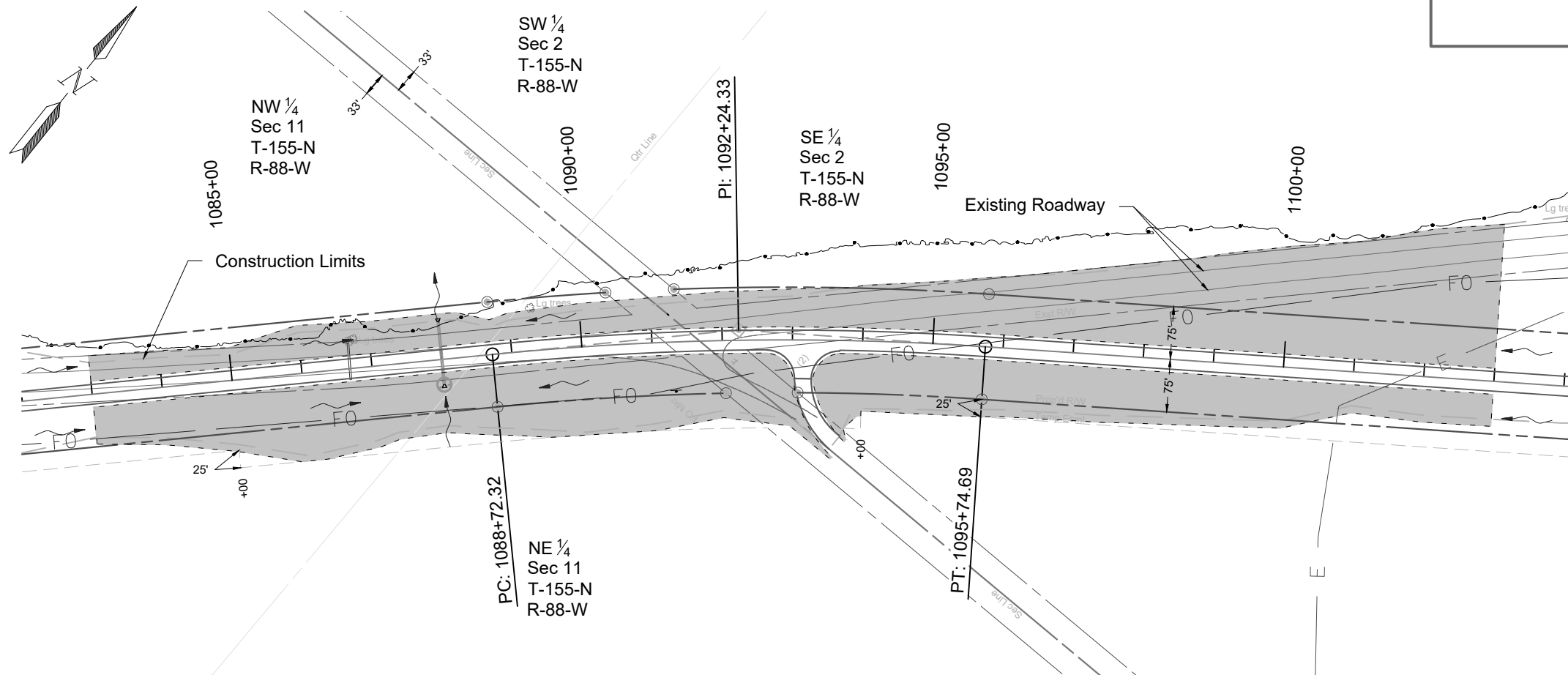
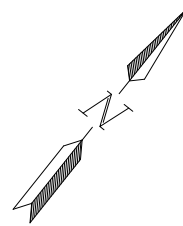



Permanent Erosion Control

Reconstruction

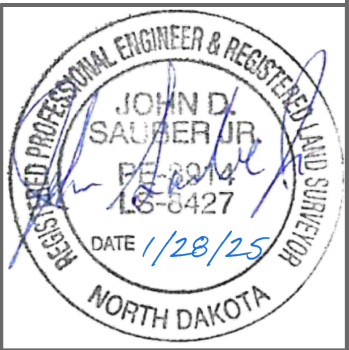
County Route 1

Mountrail County, ND

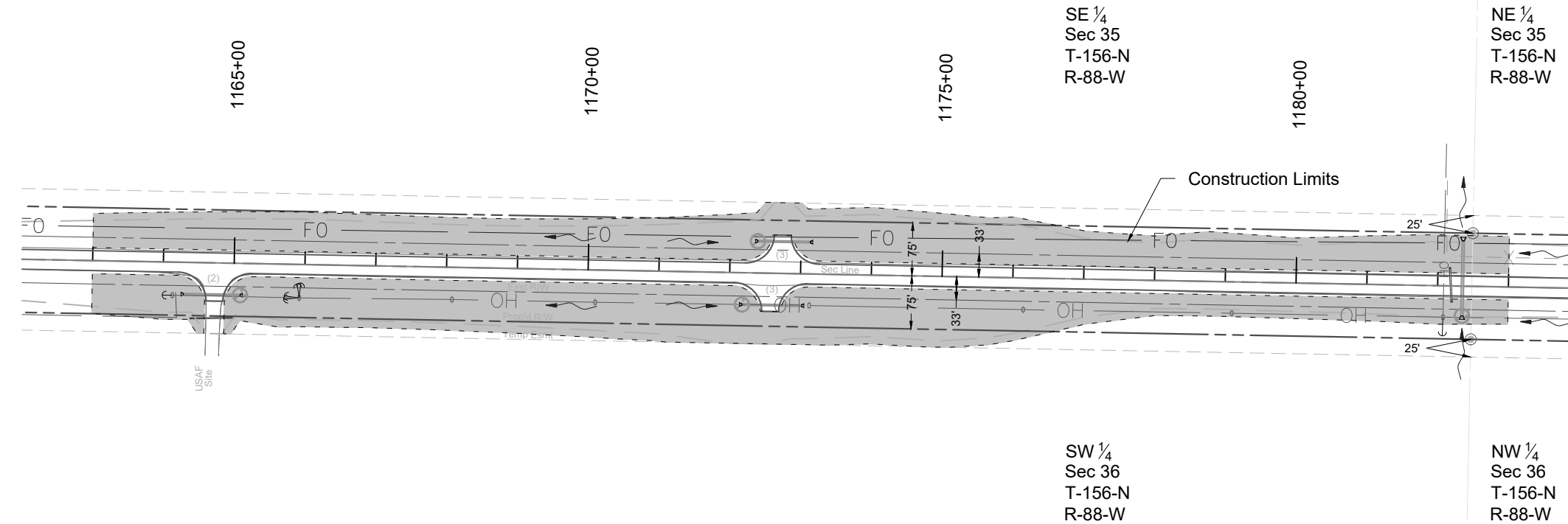
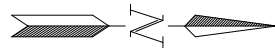


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	9

251 0300 SEEDING CLASS III	
Sta. 1083+00 to Sta. 1123+00	17.16 Acre
253 0101 STRAW MULCH	
Sta. 1083+00 to Sta. 1123+00	17.16 Acre
261 0112 FIBER ROLLS 12IN	
Sta. 1088+00 Rt	30 LF
Sta. 1117+19 Rt	30 LF
Sta. 1121+68 Rt	30 LF

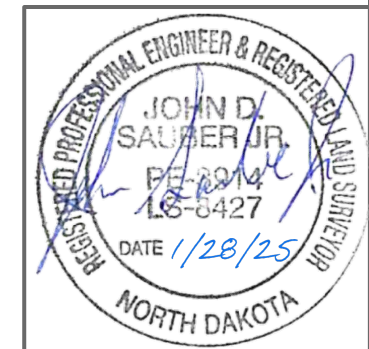
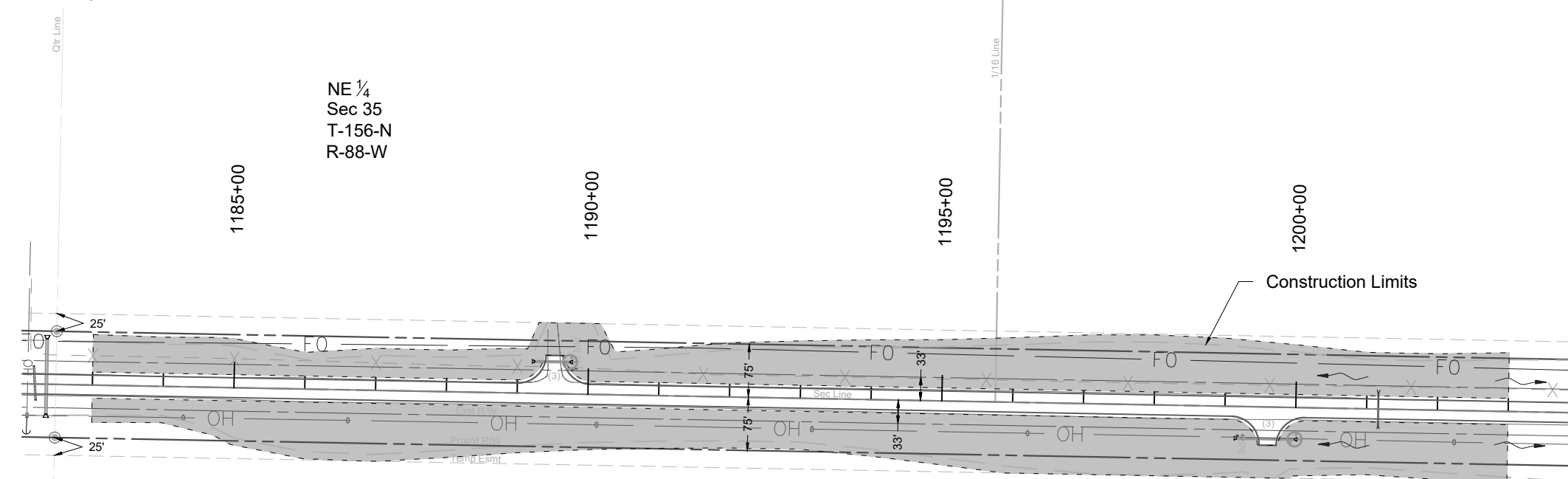
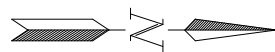


Permanent Erosion Control
Reconstruction
County Route 1
Mountrail County, ND

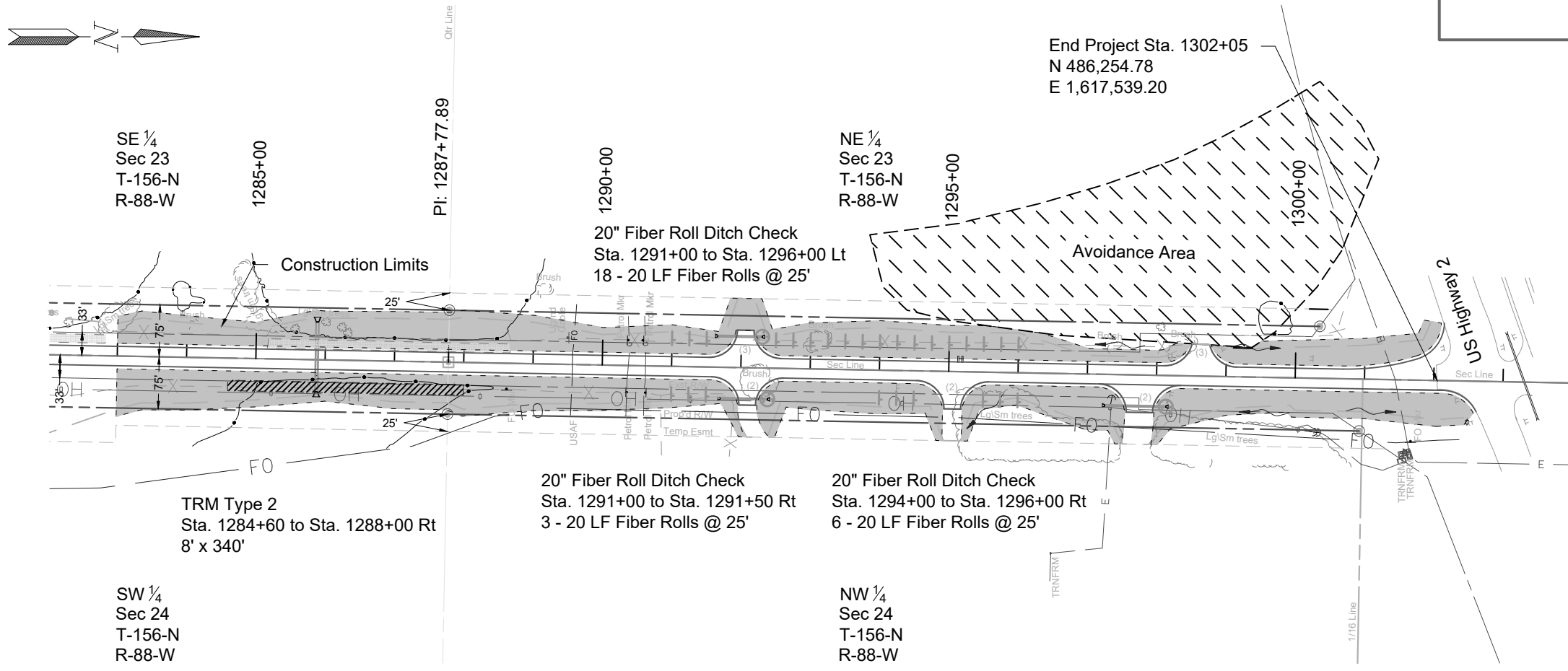
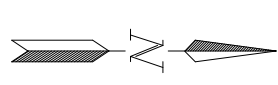




STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	11

251 0300 SEEDING CLASS III	
Sta. 1163+00 to Sta. 1203+00	11.10 Acre
253 0101 STRAW MULCH	
Sta. 1163+00 to Sta. 1203+00	11.10 Acre
261 0112 FIBER ROLLS 12IN	
Sta. 1165+09 Rt	30 LF
Sta. 1172+18 Rt	30 LF
Sta. 1172+39 Lt	30 LF
Sta. 1182+35 Rt	30 LF
Sta. 1189+74 Lt	30 LF
Sta. 1199+99 Rt	30 LF



Permanent Erosion Control
Reconstruction
County Route 1
Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	77	14
<div>251 0300 SEEDING CLASS III Sta. 1283+00 to Sta. 1303+003.77 Acre</div> <div>253 0101 STRAW MULCH Sta. 1283+00 to Sta. 1303+003.77 Acre</div> <div>255 0202 TRM TYPE 2 Sta. 1284+60 to Sta. 1288+00 Rt302 SY</div> <div>255 0310 REMOVE CONCRETE EROSION CONTROL BLANKET Sta. 1285+15 to Sta. 1288+65 Lt467 SY</div> <div>255 0320 RESET CONCRETE EROSION CONTROL BLANKET Sta. 1285+15 to Sta. 1288+65 Lt467 SY</div> <div>261 0112 FIBER ROLLS 12IN Sta. 1292+30 Lt30 LF Sta. 1292+39 Rt30 LF Sta. 1298+14 Rt30 LF</div> <div>261 0120 FIBER ROLLS 20IN Sta. 1291+00 to Sta. 1296+00 Lt360 LF Sta. 1291+00 to Sta. 1291+50 Rt60 LF Sta. 1294+00 to Sta. 1296+00 Rt120 LF</div>			
<div></div> <div></div> <div>Permanent Erosion Control</div> <div>Reconstruction</div> <div>County Route 1</div> <div>Mountrail County, ND</div>			

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - COUNTY ROUTE 1										STATE		PROJECT NO.		SECTION NO.	SHEET NO.	
										ND	01(62)23			81	1	
HORIZONTAL ALIGNMENT				CURVE DATA		US PUBLIC LAND SURVEY DATA				SURVEY CONTROL POINTS						
PNT	STATION	NORTHING	EASTING	ARC DEFINITION		DESC.	SEC-TWP-RGE	NORTHING	EASTING	PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	
PI	738+20.26	432,154.60	1,611,242.92	Curve PCL-CR1-1	Curve PCL-CR1-5	SE Sec Cor	3-154-88	434,797.36	1,611,291.38	CP1	440,088.76	1,611,343.73	2119.92	817+56	76.1 (LT)	
PI	764+63.46	434,797.36	1,611,291.38	PI Sta = 791+02.46	PI Sta = 1052+53.93	E Qtr Cor	3-154-88	437,435.94	1,611,338.52	CP2	445,395.96	1,611,533.81	2064.23	870+66	47.4 (RT)	
PC	789+83.10	437,316.60	1,611,336.38	Delta = 01°27'13" (RT)	Delta = 44°45'07" (RT)	NE Sec Cor	3-154-88	440,066.37	1,611,388.47	CP3	450,398.29	1,611,539.84	2108.63	920+67	45.8 (LT)	
PI	791+02.46	437,435.94	1,611,338.52	Da = 0°36'32"	Da = 1°36'34"	E Qtr Cor	34-155-88	442,713.43	1,611,437.16	CP4	455,959.92	1,611,734.59	2119.69	976+31	43.5 (RT)	
PT	792+21.81	437,555.19	1,611,343.67	R = 9,410.00'	R = 3,560.00'	NE Sec Cor	34-155-88	445,360.64	1,611,485.69	CP5	461,124.08	1,611,821.84	2113.23	1027+96	37.4 (RT)	
PC	803+08.80	438,641.16	1,611,390.65	T = 119.36'	T = 1,465.58'	E Qtr Cor	27-155-88	447,998.57	1,611,537.95	CP6	475,969.09	1,617,380.26	2225.73	1199+18	41.8 (RT)	
PI	804+22.84	438,755.10	1,611,395.58	L = 238.71'	L = 2,780.61'	NE Sec Cor	27-155-88	450,636.56	1,611,590.33							
PT	805+36.87	438,869.12	1,611,397.74			E Qtr Cor	22-155-88	453,274.64	1,611,640.22							
PC	816+16.86	439,948.92	1,611,418.25	Curve PCL-CR1-2	Curve PCL-CR1-6	NE Sec Cor	22-155-88	455,912.54	1,611,690.23							
PI	817+33.73	440,065.76	1,611,420.47	PI Sta = 804+22.84	PI Sta = 1092+24.33	E Qtr Cor	15-155-88	458,553.33	1,611,737.91							
PT	818+50.58	440,182.63	1,611,419.78	Delta = 01°23'19" (LT)	Delta = 09°34'54" (RT)	NE Sec Cor	15-155-88	461,194.22	1,611,785.74							
PC	829+40.14	441,272.17	1,611,413.41	Da = 0°36'32"	Da = 1°21'51"	E Qtr Cor	10-155-88	463,834.93	1,611,831.26							
PI	830+54.18	441,386.20	1,611,412.75	R = 9,410.00'	R = 4,200.00'	N Qtr Wit.Cor	11-155-88	466,413.04	1,614,667.07							
PT	831+68.21	441,500.22	1,611,414.84	T = 114.04'	T = 352.01'	NE Sec Wit.Cor	11-155-88	466,577.12	1,617,161.65							
PI	843+81.62	442,713.43	1,611,437.16	L = 228.08'	L = 702.37'	NE Sec Cor	2-155-88	471,646.49	1,617,257.94							
PI	870+29.28	445,360.64	1,611,485.69			NE Sec Cor	35-156-88	476,954.11	1,617,356.86							
PI	896+67.72	447,998.57	1,611,537.95	Curve PCL-CR1-3	Curve PCL-CR1-7	E Qtr Cor	26-156-88	479,575.10	1,617,410.14							
PI	923+06.23	450,636.56	1,611,590.33	PI Sta = 817+33.73	PI Sta = 1121+56.78	NE Sec Cor	26-156-88	482,188.98	1,617,463.51							
PI	949+44.78	453,274.64	1,611,640.22	Delta = 01°25'23" (LT)	Delta = 54°13'59" (LT)	E Qtr Cor	23-156-88	484,827.92	1,617,512.72							
PI	975+83.16	455,912.54	1,611,690.23	Da = 0°36'32"	Da = 5°24'19"	NE Sec Cor	23-156-88	487,466.90	1,617,561.69							
PI	1002+24.38	458,553.33	1,611,737.91	R = 9,410.00'	R = 1,060.00'											
PI	1028+65.70	461,194.22	1,611,785.74	T = 116.87'	T = 542.82'											
PC	1037+88.35	462,116.73	1,611,801.65	L = 233.72'	L = 1,003.34'											
PI	1052+53.93	463,582.10	1,611,826.91													
PT	1065+68.96	464,604.96	1,612,876.52	Curve PCL-CR1-4												
PC	1088+72.32	466,212.52	1,614,526.13	PI Sta = 830+54.18												
PI	1092+24.33	466,458.19	1,614,778.23	Delta = 01°23'19" (RT)												
PT	1095+74.69	466,658.47	1,615,067.71	Da = 0°36'32"												
PC	1116+13.96	467,818.76	1,616,744.71	R = 9,410.00'												
PI	1121+56.78	468,127.61	1,617,191.10	T = 114.04'												
PT	1126+17.30	468,670.33	1,617,201.41	L = 228.06'												
PI	1155+94.00	471,646.49	1,617,257.94													
PI	1209+02.54	476,954.11	1,617,356.86			<input type="checkbox"/> Assumed Coordinates					INITIALIZING BENCH MARK					
PI	1235+24.07	479,575.10	1,617,410.14			<input checked="" type="checkbox"/> All coordinates on this sheet are Mountrail County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83 (2011), North Zone Combination Factor (cf) = 1.0001650272				<input checked="" type="checkbox"/> NAVD-88						
PI	1261+38.50	482,188.98	1,617,463.51	NOTES:	Date Survey Completed: 9/7/23					<input type="checkbox"/> _____						
PI	1287+77.89	484,827.92	1,617,512.72							<input type="checkbox"/> GEOID12B	<input type="checkbox"/> _____					
PI	1314+17.33	487,466.90	1,617,561.69							<input checked="" type="checkbox"/> GEOID18						

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





ROAD WORK
NEXT 10.2 MILES

G20-1-60

SPEED LIMIT ENFORCED
MINIMUM FEE \$80
WHEN WORKERS PRESENT

G20-55-96



(2) W20-1-48

ROAD WORK
NEXT 10.2 MILES

(2) G20-52aR-72

ROAD WORK
NEXT 2.8 MILES
NEXT 7.4 MILES

G20-50a-72

ROAD WORK
NEXT 5.2 MILES
NEXT 5 MILES

G20-50a-72

ROAD WORK
NEXT 8.2 MILES
NEXT 2 MILES

G20-50a-72

ROAD WORK
NEXT 10.2 MILES

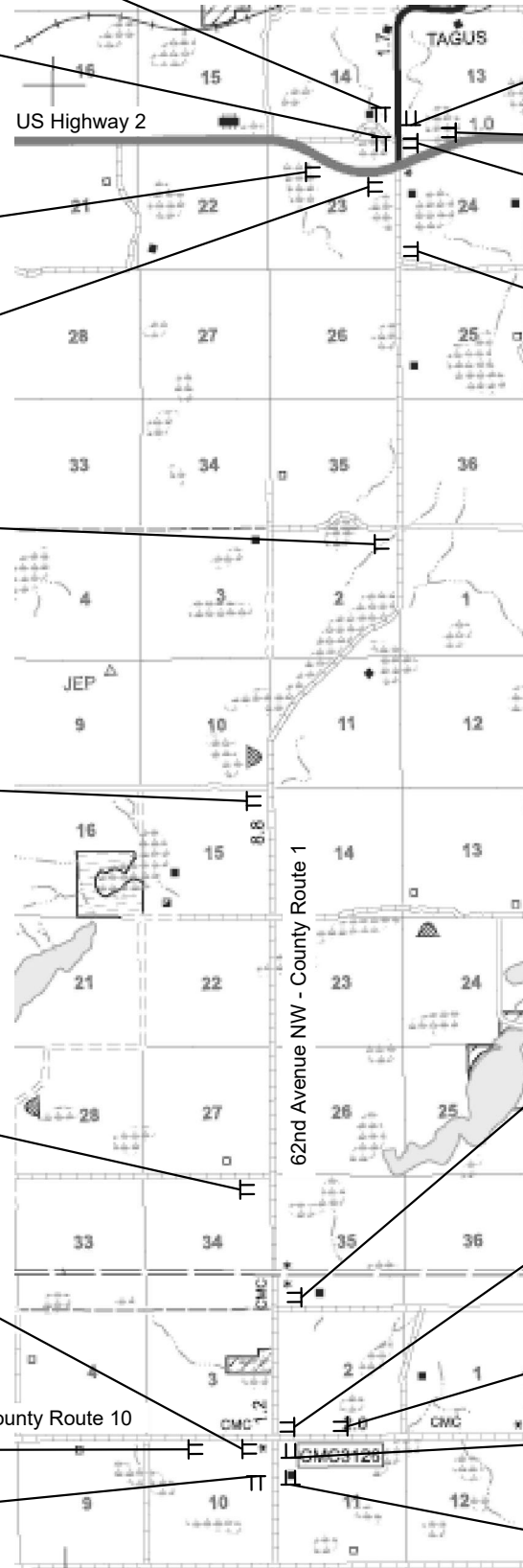
G20-52aL-72



W20-1-48

END
ROAD WORK

G20-2-48



END
ROAD WORK

G20-2-48



(2) W20-1-48

ROAD WORK
NEXT 10.2 MILES

(2) G20-52aL-72

ROAD WORK
NEXT 9.5 MILES
NEXT 0.7 MILES

G20-50a-72

ROAD WORK
NEXT 1 MILES
NEXT 9.2 MILES

G20-50a-72

ROAD WORK
NEXT 10.2 MILES

G20-52aR-72



W20-1-48

SPEED LIMIT ENFORCED
MINIMUM FEE \$80
WHEN WORKERS PRESENT

G20-55-96

ROAD WORK
NEXT 10.2 MILES

G20-1-60

STATE

ND

PROJECT NO.

01(62)23

SECTION
NO.

100

SHEET
NO.

2




Traffic Control Layout

Reconstruction
County Route 1

Mountrail County, ND

																	STATE	PROJECT NO.			SECTION NO.	SHEET NO.	
																	ND	01(62)23			110	1	
Station/RP	Sign No.	Assembly No	Flat Sheet for signs		Sign Support Length				Verticle Clearance	Support Size	Max Post Len	Sleeve Length				Sleeve Size	Anchor EA	Anchor EA	Anchor Size	Reset Sign	Reset Sign	Break-away EA	Comments
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF					Panel EA	Support Ea		
766+80 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
768+80 Lt	M1-6-24 & M6-4-21	399	6.2		12.5				5.0	2.25 x 2.25 12 ga	12.7						1	4	2.5 x 2.5 12 ga				
770+80 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
772+80 Lt	W2-1-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
800+69 Lt	WPA																			1	1		
800+92 Lt	WPA																			1	1		
811+12 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
815+12 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
817+55 Rt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
819+41 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
823+41 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
864+17 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
868+17 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
870+03 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
872+48 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
876+48 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
969+73 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
973+73 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
975+59 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
976+07 Rt	R1-1-30	1		5.2	11.7				5.0	2.25 x 2.25 12 ga	13.7						1	4	2.5 x 2.5 12 ga				
976+09 Lt	BREDAHL'S																			1	1		
977+93 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
981+93 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1022+26 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1026+26 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1028+12 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1030+58 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1034+58 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1037+85 Rt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1065+70 Lt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				



REGISTERED PROFESSIONAL ENGINEER & REGISTERED LAND SURVEYOR

JOHN D. SAUBER JR.

PE-22914

LS-8427

DATE 1/28/25

NORTH DAKOTA

Sign Summary

Reconstruction

County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	2

Station/RP	Sign No.	Assembly No	Flat Sheet for signs		Sign Support Length				Verticle Clearance	Support Size	Max Post Len	Sleeve Length				Sleeve Size	Anchor EA	Anchor EA	Anchor Size	Reset Sign	Reset Sign	Break-away EA	Comments
			IV SF	XI SF	1st LF	2nd LF	3rd LF	4th LF				1st LF	2nd LF	3rd LF	4th LF					Panel EA	Support Ea		
1088+70 Rt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1095+75 Lt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1116+10 Rt	W1-2L-30	19		6.3	12.2				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1126+20 Lt	W1-2R-30	19		6.3	12.4				5.0	2.5 x 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1149+80 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1153+80 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1155+66 Lt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1158+06 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1162+06 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1258+22 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1262+22 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1264+63 Rt	R1-1-30 & D3-1-36	Special Assembly 2	12.0	5.2	13.3				5.0	2.5 x 2.5 10 ga	15.9						1	4	3 x 3 7 ga			1	
1266+49 Rt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
1270+49 Rt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1289+95 Rt	W3-1-30	19		6.3	12.4				5.0	2.5 X 2.5 12 ga	14.5						1	4	3 x 3 7 ga				
1293+95 Rt	M1-4-24 & M2-1-21	391	6.2		12.5				5.0	2.25 x 2.25 12 ga	12.7						1	4	2.5 x 2.5 12 ga				
1296+11 Lt	R2-1-24	9		5.0	11.7				5.0	2.25 x 2.25 12 ga	15.0						1	4	2.5 x 2.5 12 ga				
1300+11 Lt	M1-6-24 & R12-2-24	Special Assembly A	4.0	5.0	13.2				5.0	2.5 X 2.5 10 ga	14.2						1	4	3 x 3 7 ga			1	
Sub Total			140.4	226.8	Total	563.7											Total	180		3	3	20	
Grand Total			140.4	226.8	Total	563.7											Total	180		3	3	20	

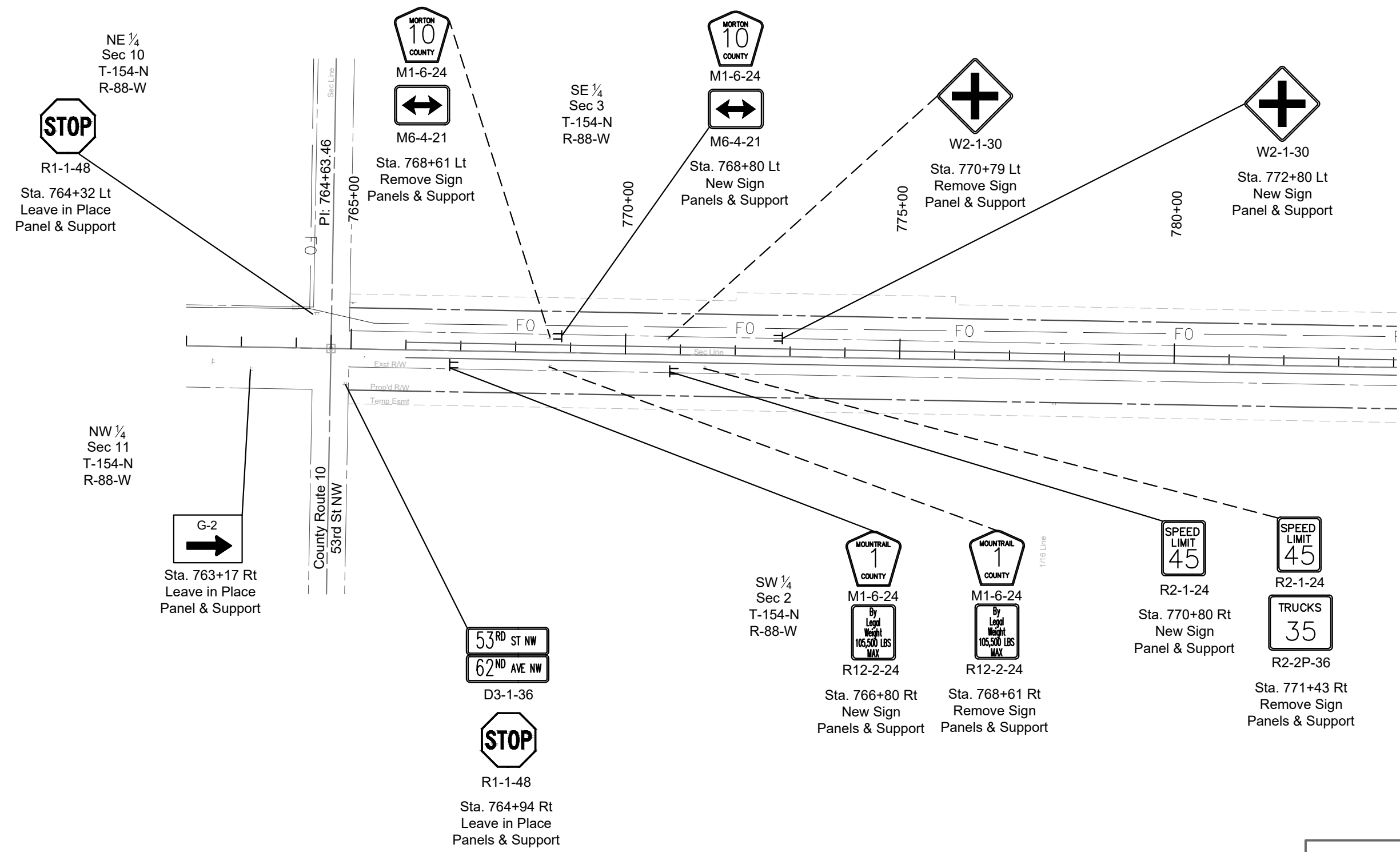
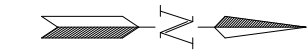


Sign Summary

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	3

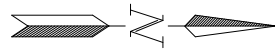


Permanent Sign Layout

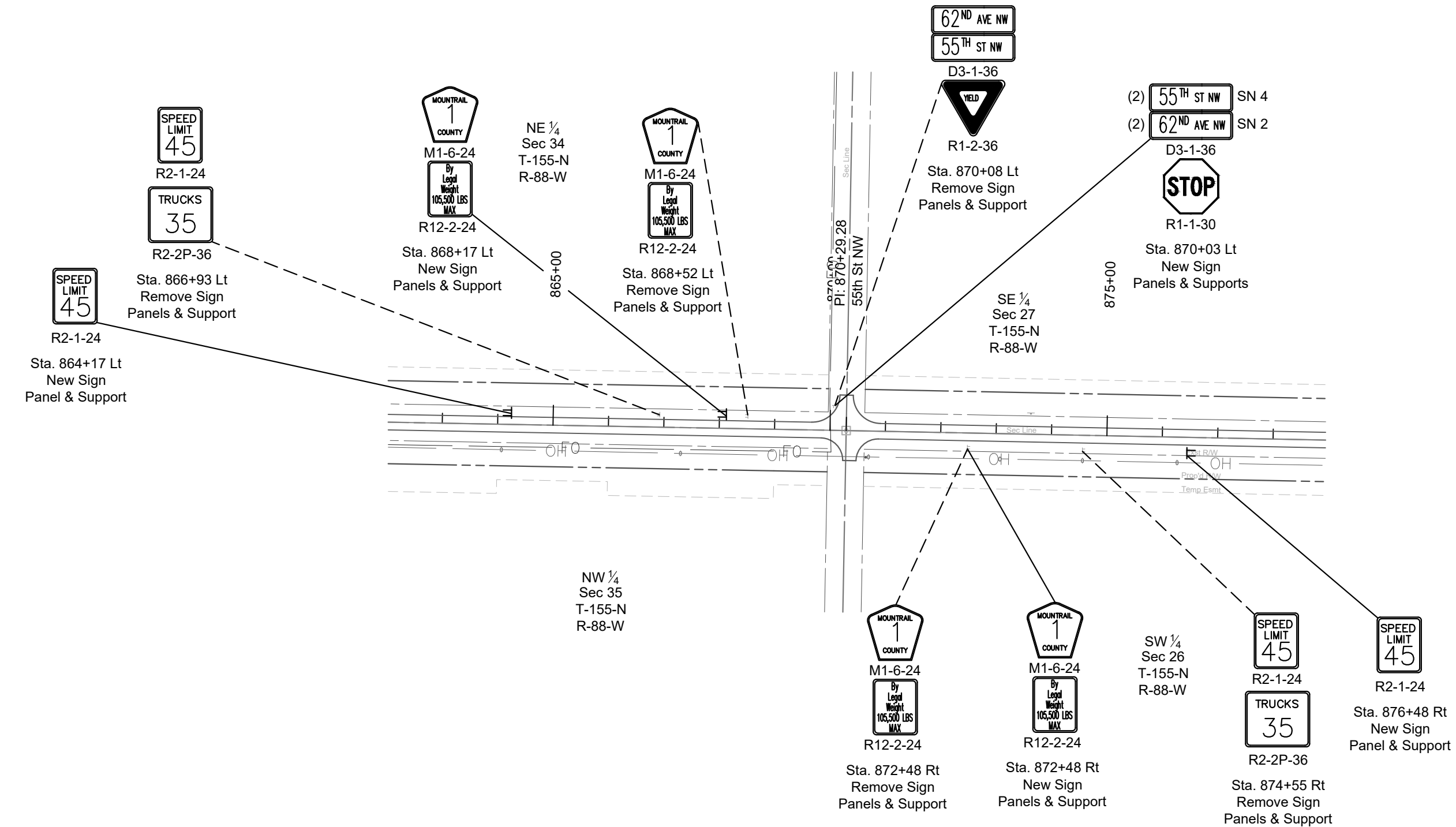
Reconstruction

County Route 1

Mountrail County, ND



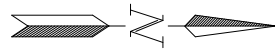
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	5



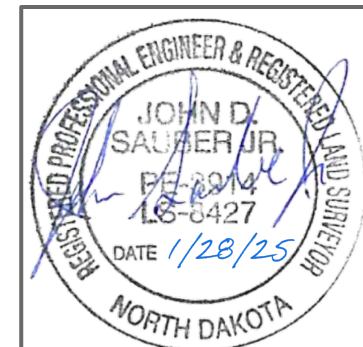
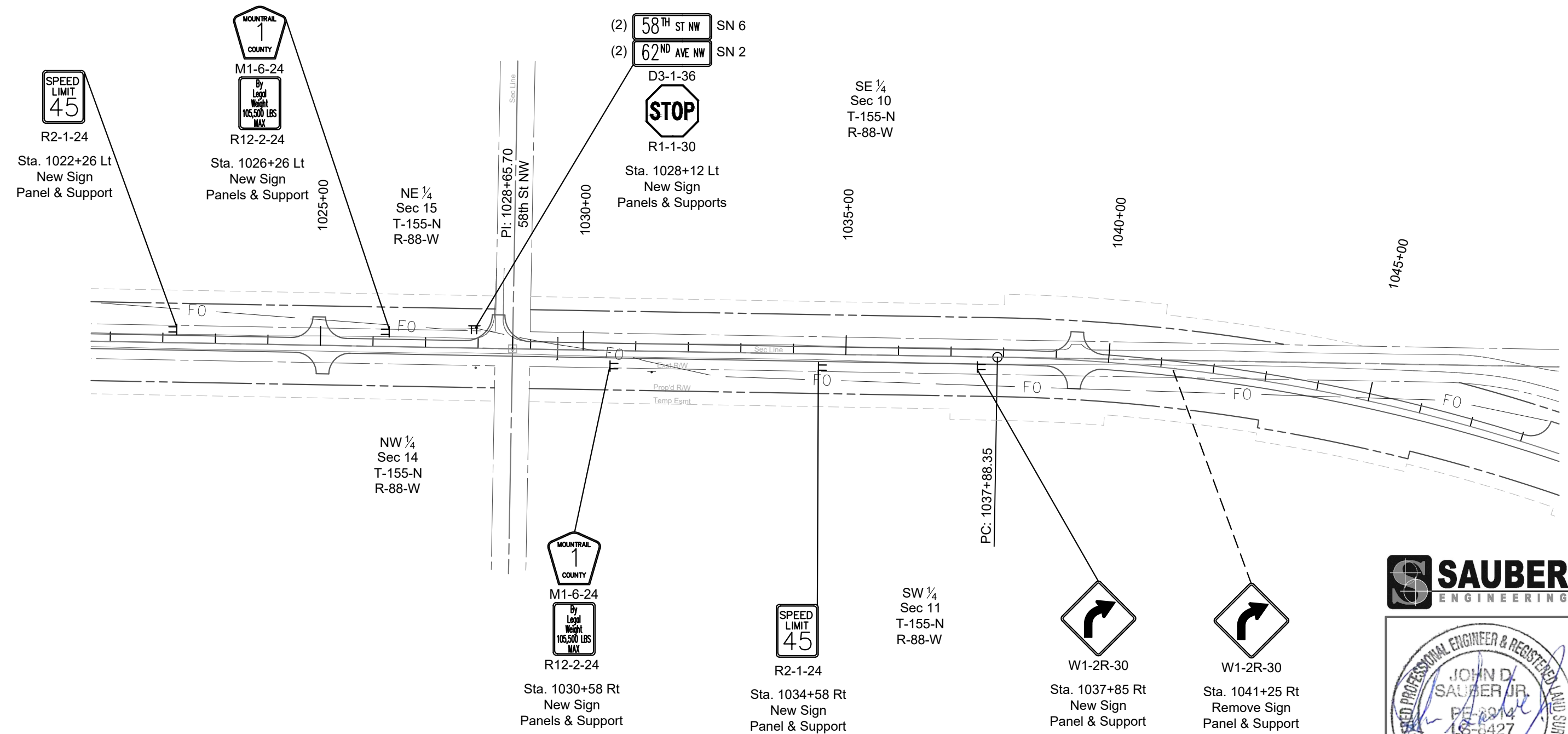
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND



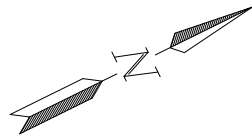
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	7



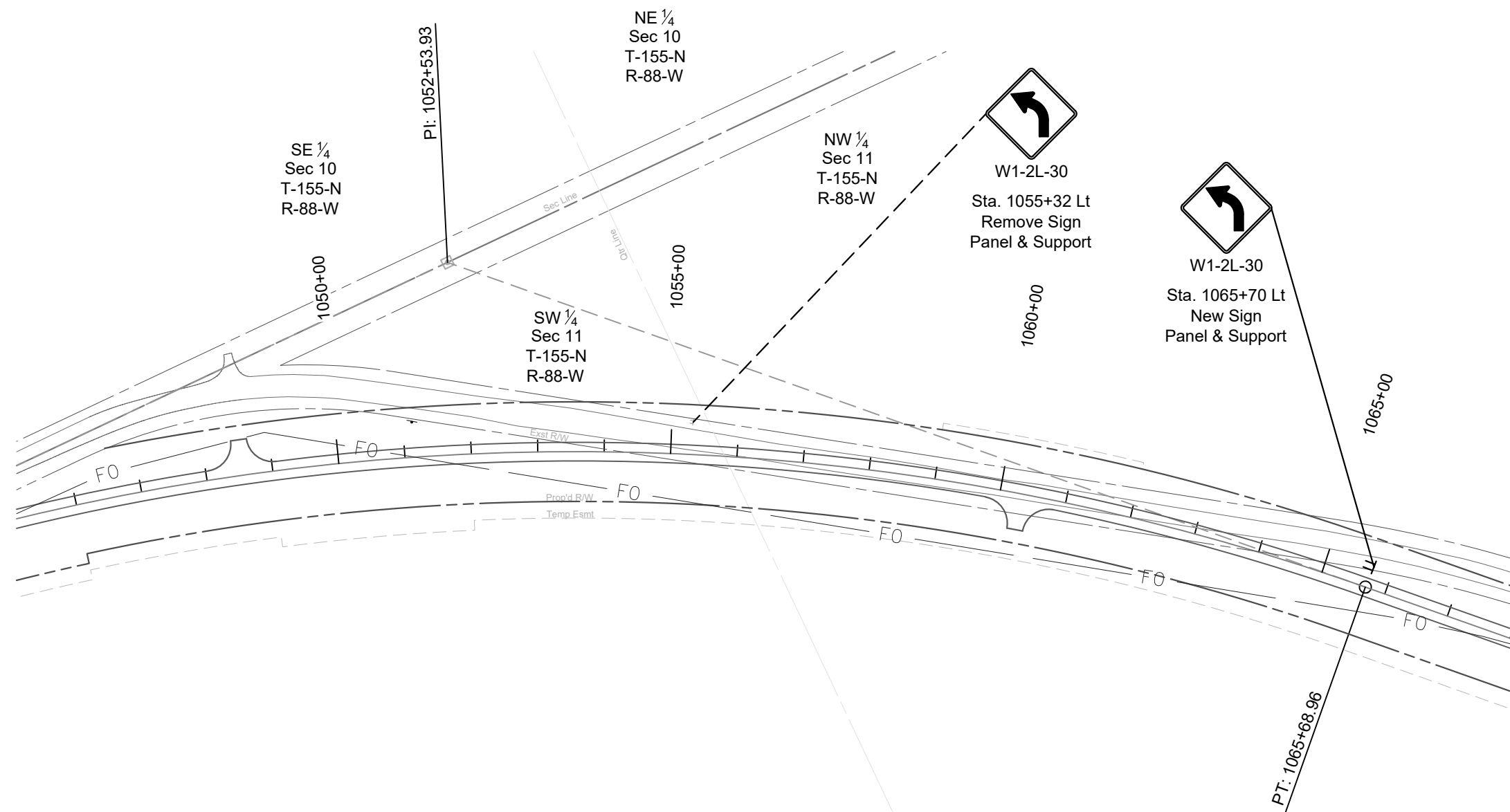
Permanent Sign Layout

Reconstruction
County Route 1

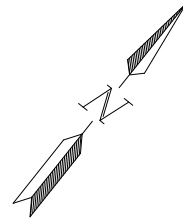
Mountrail County, ND



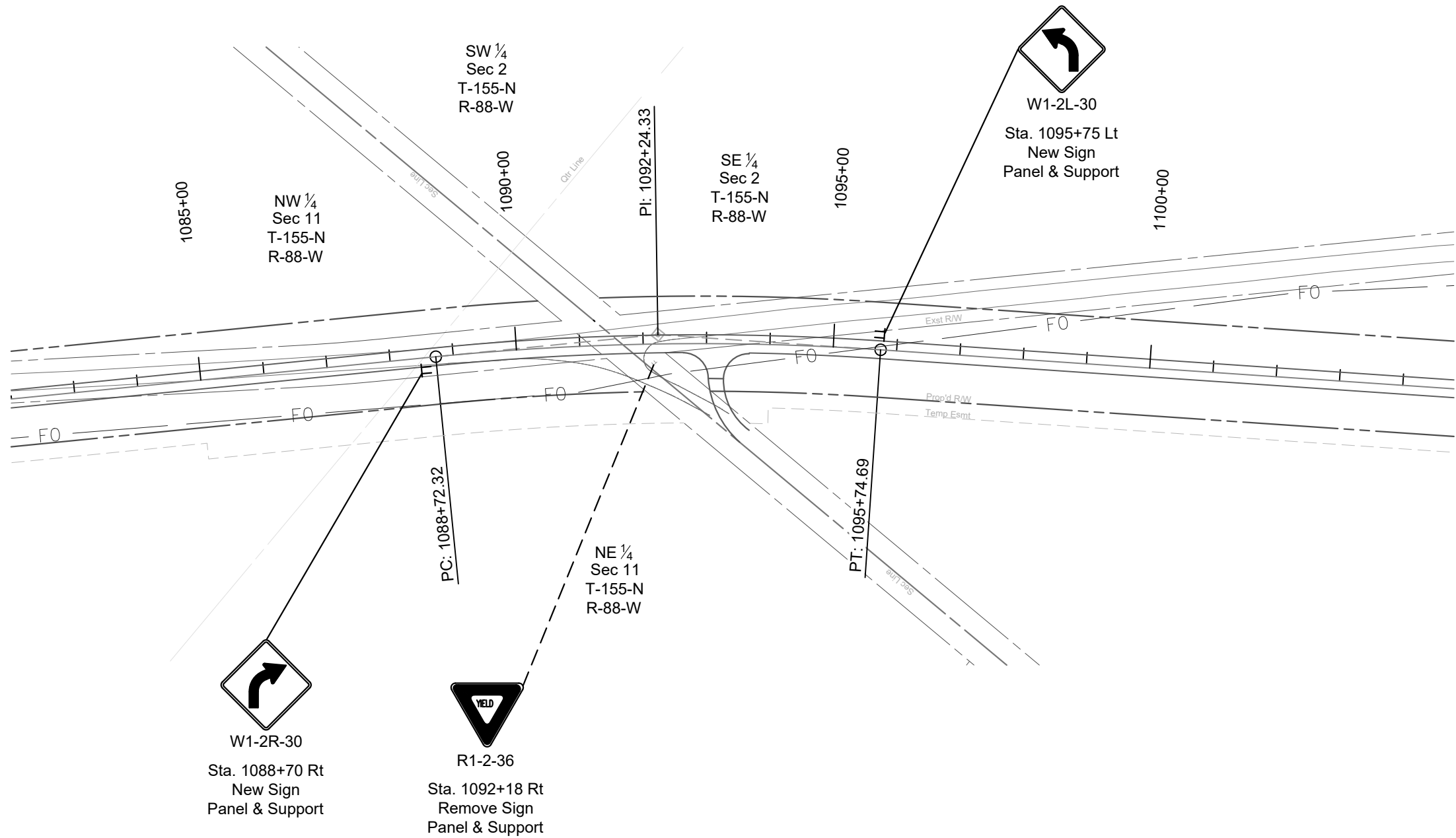
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	8



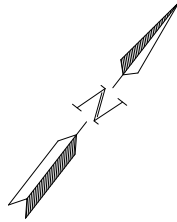
Permanent Sign Layout
Reconstruction
County Route 1
Mountrail County, ND



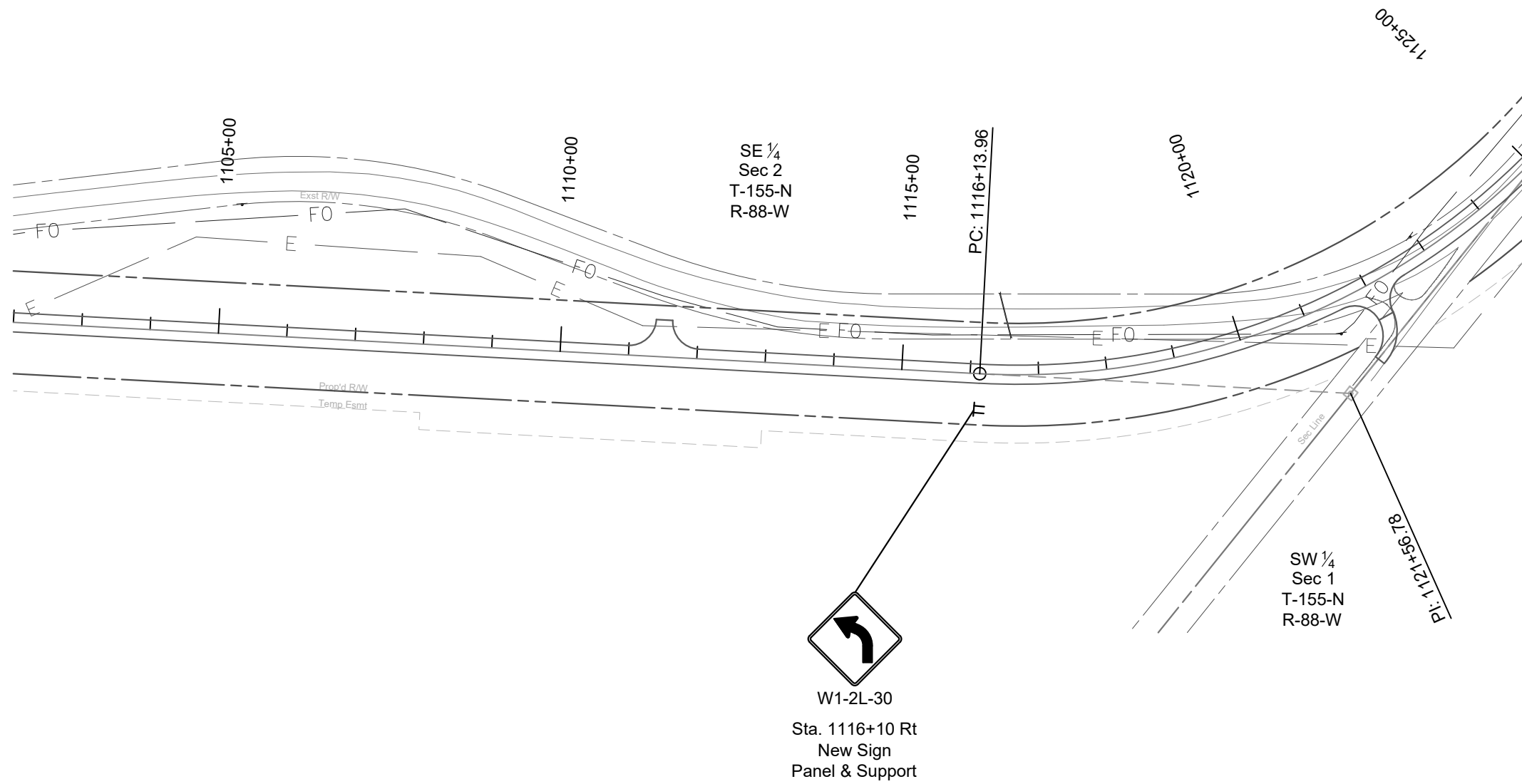
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	9



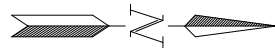
Permanent Sign Layout
Reconstruction
County Route 1
Mountrail County, ND



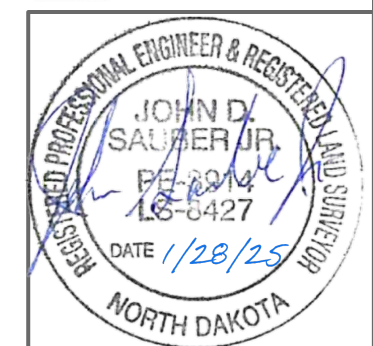
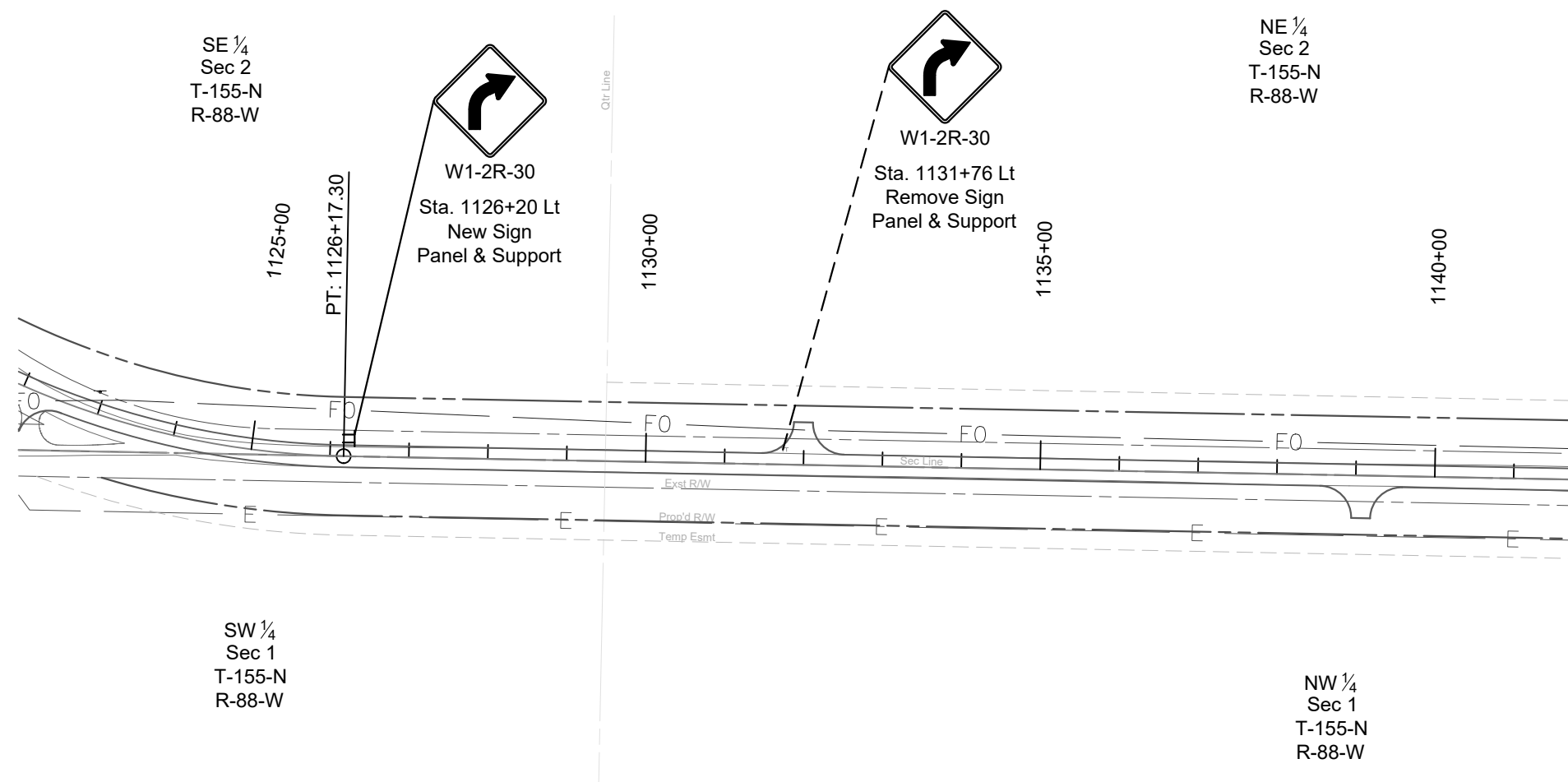
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	110	10



Permanent Sign Layout
Reconstruction
County Route 1
Mountrail County, ND



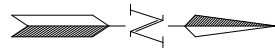
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	11



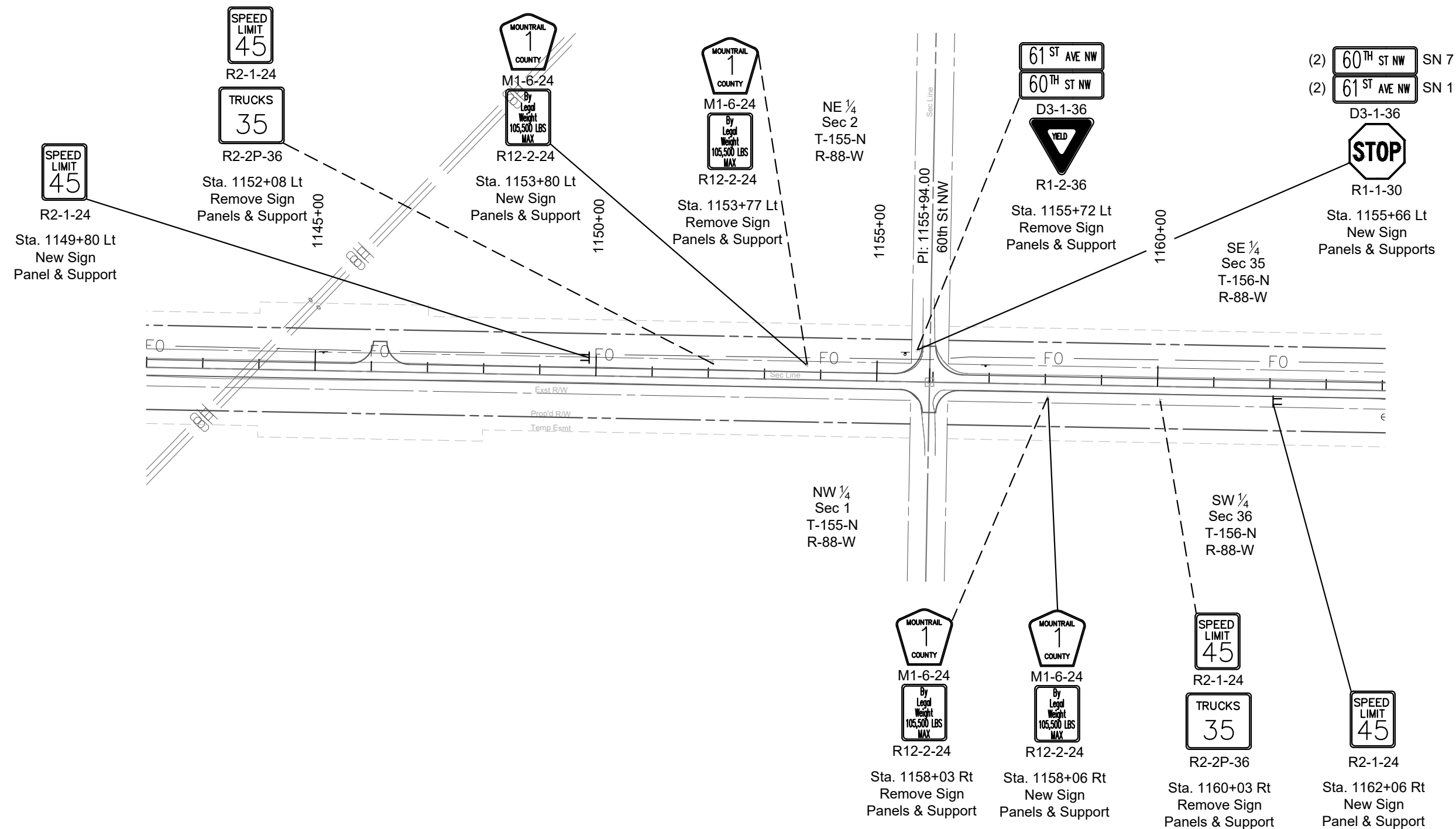
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	12

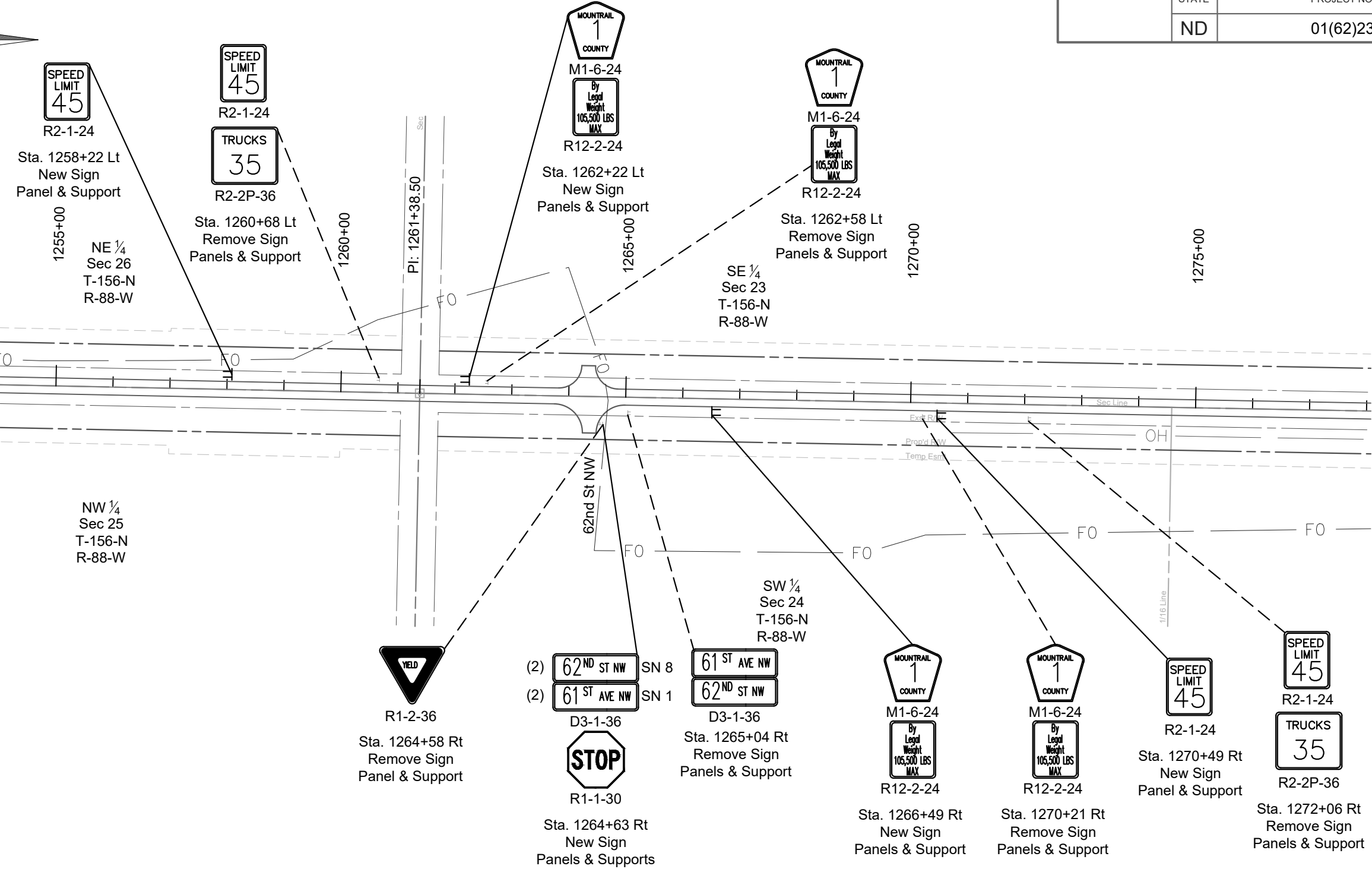
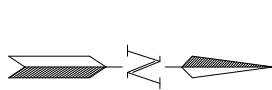


Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

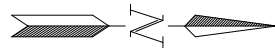
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	13



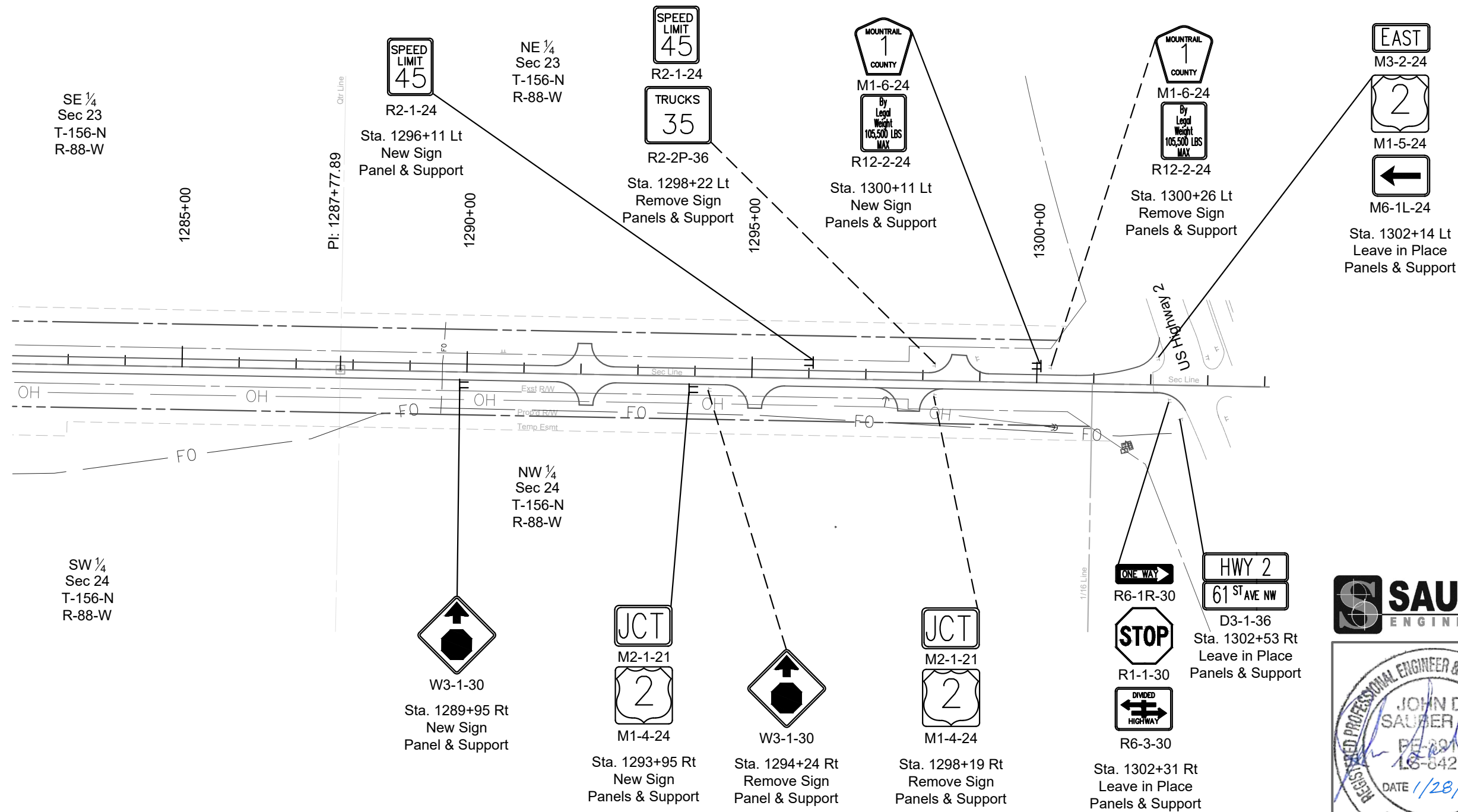
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	01(62)23	110	14



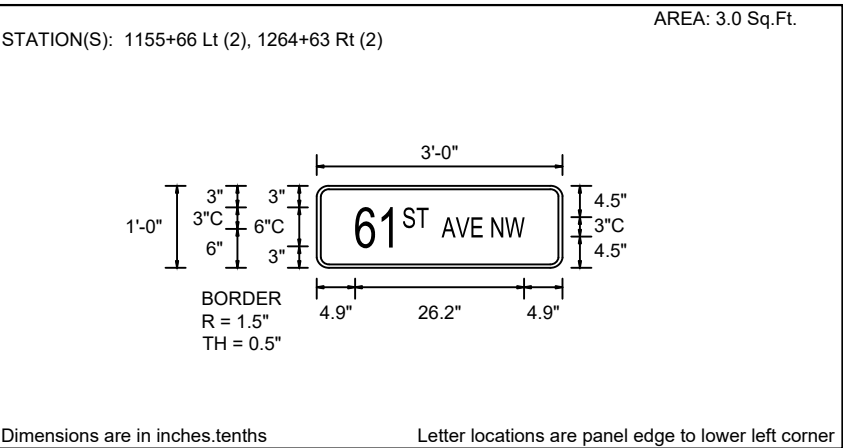
Permanent Sign Layout

Reconstruction
County Route 1

Mountrail County, ND

SIGN NUMBER	SN 1
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

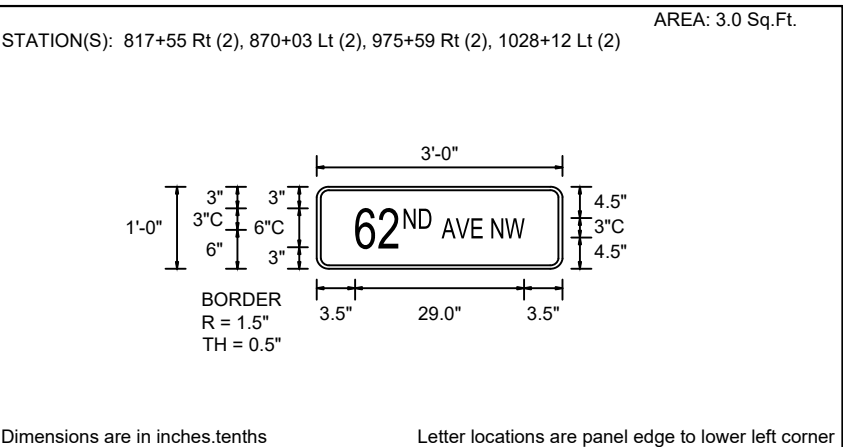
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)												LENGTH	SIZE	SERIES
6	1	S	T		A	V	E		N	W		26.2	6	C 2000
4.9	9.3	11.6	13.8		18.3	20.6	23.3		26.3	28.8				

SIGN NUMBER	SN 2
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

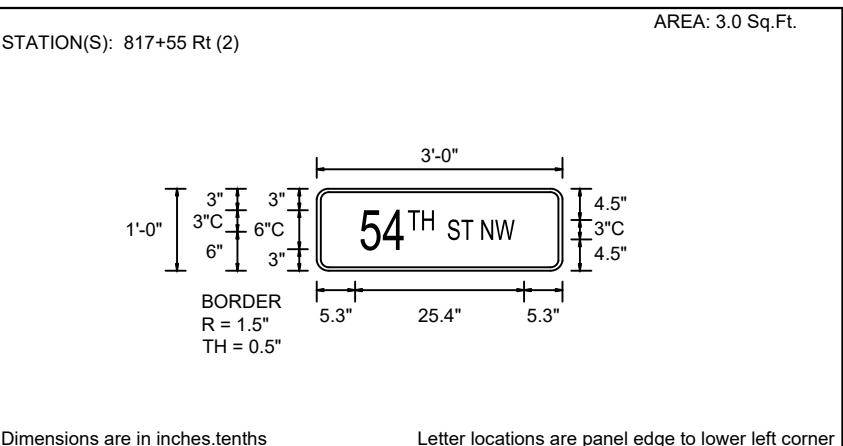
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)												LENGTH	SIZE	SERIES
6	2	N	D		A	V	E		N	W		29.0	6	C 2000
3.5	7.8	12.1	15.1		19.7	22.0	24.7		27.7	30.2				

SIGN NUMBER	SN 3
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

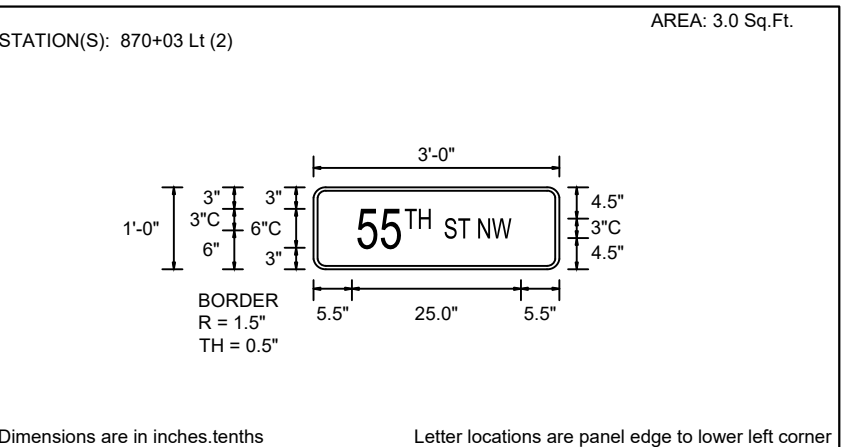
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)												LENGTH	SIZE	SERIES
5	4	T	H		S	T		N	W			25.4	6	C 2000
5.3	9.2	13.6	16.0		20.7	22.9		25.9	28.4					

SIGN NUMBER	SN 4
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)												LENGTH	SIZE	SERIES
5	5	T	H		S	T		N	W			25.0	6	C 2000
5.5	9.6	13.5	15.9		20.4	22.7		25.7	28.2					



Sign Details

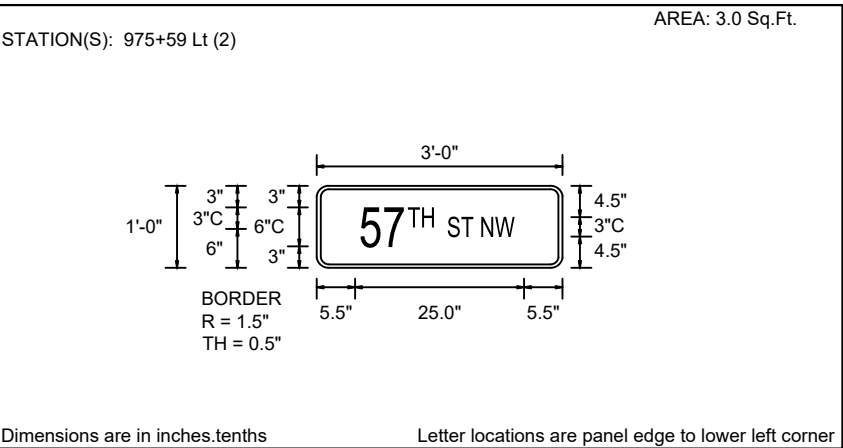
Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	16

SIGN NUMBER	SN 5
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
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LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

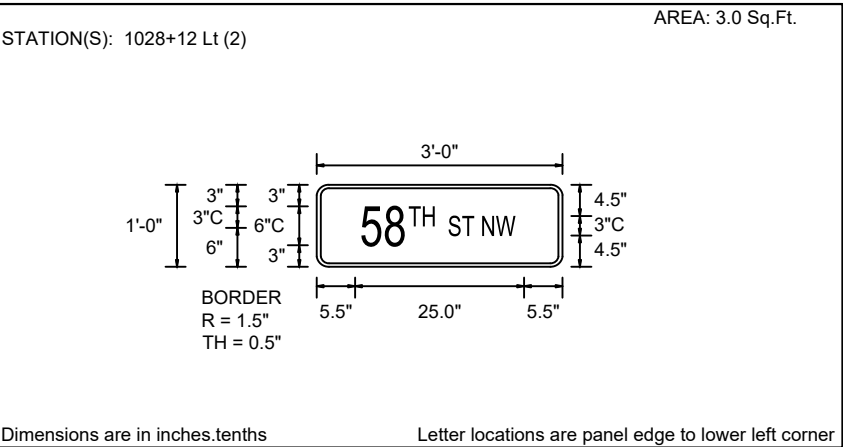
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)														LENGTH	SIZE	SERIES
5	7	T	H		S	T		N	W					25.0	6	C 2000
5.5	9.4	13.5	15.9		20.4	22.7		25.7	28.2							

SIGN NUMBER	SN 6
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

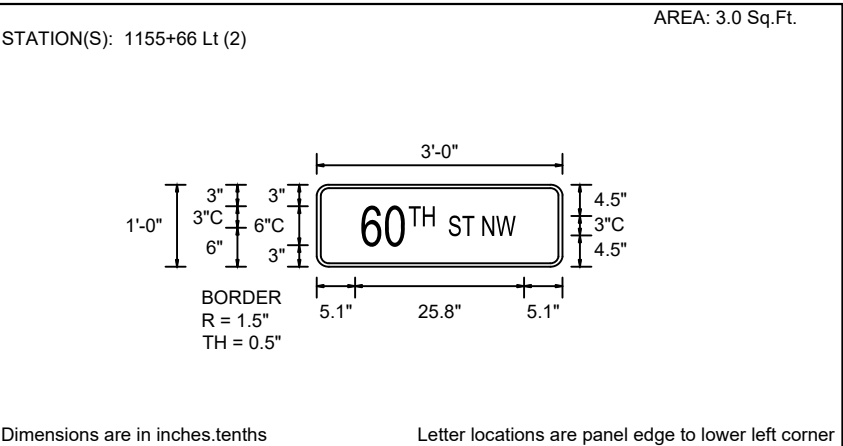
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)														LENGTH	SIZE	SERIES
5	8	T	H		S	T		N	W					25.0	6	C 2000
5.5	9.6	13.5	15.9		20.4	22.7		25.7	28.2							

SIGN NUMBER	SN 7
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

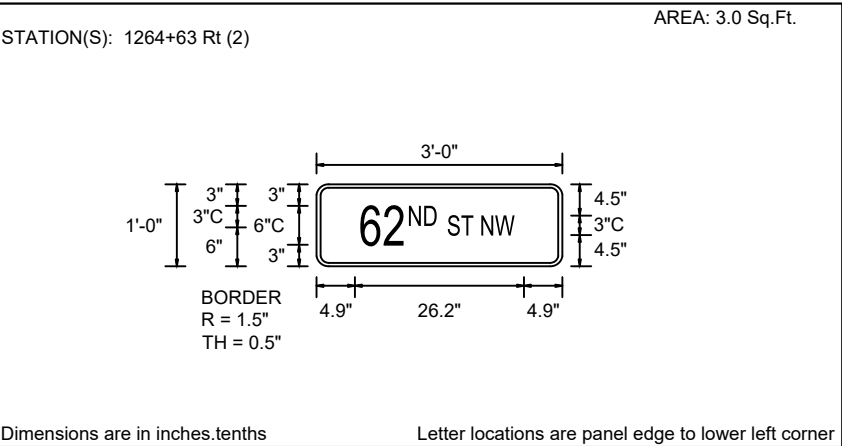
SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)														LENGTH	SIZE	SERIES
6	0	T	H		S	T		N	W					25.8	6	C 2000
5.1	9.5	13.8	16.2		20.9	23.1		26.1	28.6							

SIGN NUMBER	SN 8
WIDTH X HEIGHT	3'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White/White

SYMBOL	X	Y	WID	HT	ANGLE



LETTER POSITION (X)														LENGTH	SIZE	SERIES
6	2	N	D		S	T		N	W					26.2	6	C 2000
4.9	9.2	13.5	16.5		21.1	23.3		26.3	28.9							

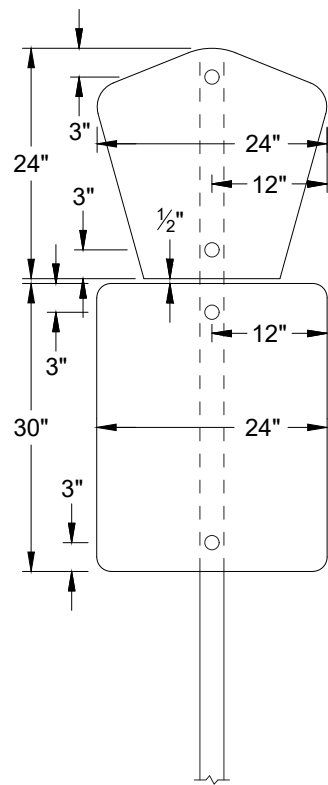


Sign Details

Reconstruction
County Route 1

Mountrail County, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	01(62)23	110	17



Special Assembly A



Sign Special Assembly
Reconstruction
County Route 1
Mountrail County, ND

NDDOT ABBREVIATIONS

?	This is a special text character used in the labeling of existing features. It indicates a feature that has an unknown characteristic, potentially based on: lack of description, location accuracy or purpose.	C Gdrl	cable guardrail	Culv	culvert	FOS	factor of safety
Abn	abandoned	Calc	calculate	C&G	curb & gutter	Fed	Federal
Abut	abutment	CIP	cast iron pipe	CI	curb inlet	FP	feed point
Adj	adjusted	CB	catch basin	CR	curb ramp	Fn	fence
Aggr	aggregate	CRS	cationic rapid setting	C	cut	Fn P	fence post
Ahd	ahead	C Gd	cattle guard	Dd Ld	dead load	FO	fiber optic
ARV	air release valve	C To C	center to center	Defl	deflection	FD	field drive
Align	alignment	CL or \varnothing	centerline	Defm	deformed	F	fill
Al	alley	Ch	chain	DInt	delineate	FAA	fine aggregate angularity
Alt	alternate	Chnlk	chain-link	DIntr	delineator	FH	fire hydrant
Alum	aluminum	Ch Blk	channel block	Depr	depression	FI	flange
ADA	Americans with Disabilities Act	Ch Ch	channel change	Desc	description	FIRD	flared
&	and	Chk	check	Det	detail	FES	flared end section
Appr	approach	Chsld	chiseled	DWP	detectable warning panel	F Bcn	flashing beacon
Approx	approximate	Cir	circle	Dtr	detour	FA	flight auger sample
ACP	asbestos cement pipe	Cl	class	Dia or \varnothing	diameter	FL	flow line
Asph	asphalt	Clnt	clean-out	Dir	direction	Ftg	footing
AC	asphalt cement	Clr	clear	Dist	distance	FM	force main
Assmd	assumed	Cl&gr	clearing & grubbing	DM	disturbed material	Fnd	found
@	at	Comb.	combination	DB	ditch block	Fdn	foundation
Atten	attenuation	Coml	commercial	DG	ditch grade	Frac	fractional
ATR	automatic traffic recorder	Compr	compression	Dbl	double	Frwy	freeway
Ave	Avenue	CADD	computer aided drafting & design	Dn	down	Frt	front
Avg	average	Conc	concrete	Dwg	drawing	FF	front face
ADT	average daily traffic	CECB	concrete erosion control blanket	Dr	drive	F Disp	fuel dispenser
		Cond	conductor	Drw	driveway	FFP	fuel filler pipes
		Const	construction	DI	drop inlet	FLS	fuel leak sensor
		Cont	continuous	D	dry density	Furn	furnish/ed
		CSB	continuous split barrel sample				
		Contr	contraction				
		Contr	contractor				
Bk	back	CP	control point				
BF	back face	Coord	coordinate	Ea	each		
Balc	balcony	Cor	corner	Esmt	easement		
B Wire	barbed wire	Corr	corrected	E	East		
Barr	barricade	CAES	corrugated aluminum end section	EB	Eastbound		
Btry	battery	CAP	corrugated aluminum pipe	Elast	elastomeric		
BI	beehive inlet	CMES	corrugated metal end section	EL	electric locker		
Beg	begin	CMP	corrugated metal pipe	E Mtr	electric meter		
BG	below grade	CPVCP	corrugated poly-vinyl chloride pipe	Elec	electric/al		
BM	bench mark	CSES	corrugated steel end section	EDM	electronic distance meter		
Bkwy	bikeway	CSFES	corrugated steel flared end section	Elev or El	elevation		
Bit	bituminous	CSP	corrugated steel pipe	Ellipt	elliptical		
Blk	block	CSTES	corrugated steel traversable end section	Emb	embankment		
BH	bore hole	Co	County	Emuls	emulsion/emulsified		
Bot	bottom	Crse	course	ES	end section		
Blvd	Boulevard	Ct	Court	Engr	engineer		
Bndry	boundary	Xarm	cross arm	ESS	environmental sensor station		
Brkwy	breakaway	Xbuck	cross buck	Eq	equal		
Br	bridge	Xsec	cross sections	Evgr	evergreen		
Bldg	building	Xing	crossing	Exc	excavation		
Bus.	business	Xrd	crossroad	Exst	existing		
BV	butterfly valve	Crn	crown	Exp	expansion		
Byp	bypass			Expy	Expressway		
				E	external of curve		
				Extru	extruded		

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NDDOT ABBREVIATIONS

D-101-2

Galv	galvanized	Ln	lane	Obsc	obscure(d)	Qty	quantity
Gar	garage	Lg	large	Ocpd	occupied	Qtr	quarter
Gs L	gas line	Lat	latitude	Ocpy	occupy		
G Reg	gas line regulator	Lt	left	O/s	offset		
GMV	gas main valve	Lens	lenses	OC	on center	Rad or R	radius
G Mtr	gas meter	Lvl	level	C	one dimensional consolidation	RR	railroad
GSV	gas service valve	Lvng	leveling	OC	organic content	Rlwy	railway
GVP	gas vent pipe	Lht	light	Orig	original	Rsd	raised
GV	gate valve	LP	light pole	O To O	out to out	RC	rapid curing
Ga	gauge	Ltg	lighting	OD	outside diameter	Rec	record
Gov	government	Liq	liquid	OH	overhead	Rcy	recycle
Grd	graded/grade	LL	liquid limit			RAP	recycled asphalt pavement
Grnd	ground	Loc	location			RPCC	recycled portland cement concrete
GWM	ground water monitor	Long.	longitude	PMT	pad mounted transformer	Ref	reference
Gdrl	guardrail	Lp	loop	Pg	pages	R Mkr	reference marker
Gtr	gutter	LD	loop detector	Pntd	painted	RM	reference monument
		Lum	luminaire	Pr	pair	RP	reference point
				Pnl	panel	Refl	reflectorized
H Plg	H piling			Pk	park	RCB	reinforced concrete box
Hdwl	headwall	Mb	mailbox	PSD	passing sight distance	RCES	reinforced concrete end section
Ht	height	ML	main line	Pvmt	pavement	RCFES	reinforced concrete flared end section
Hel	helical	MH	manhole	Ped	pedestal	RCP	reinforced concrete pipe
HDPE	high density polyethylene	Mkd	marked	Ped	pedestrian	RCPS	reinforced concrete pipe sewer
HM	high mast	Mkr	marker	PPP	pedestrian pushbutton post	RCTES	reinforced concrete traversable end section
HP	high pressure	Mkg	marking	Pen.	penetration	Reinf	reinforcement
HPS	high pressure sodium	MA	mast arm	Perf	perforated	Res	reservation
HTCG	high tension cable guardrail	Matl	material	Per.	perimeter	Res	residence
Hwy	highway	Max	maximum	Perm	permanent	Ret	retaining
Hor	horizontal	MC	meander corner	PL	pipeline	Rev	reverse
HBP	hot bituminous pavement	Meas	measure	Pl	place	Rt	right
HMA	hot mix asphalt	Mdn	median	P&P	plan & profile	R/W	right of way
Hyd	hydrant	MD	median drain	PL	plastic limit	Riv	river
Ph	hydrogen ion content	MC	medium curing	Pl or P _L	plate	Rd	road
		MGS	Midwest Guardrail System	Pt	point	Rdbd	road bed
		MM	mile marker	PE	polyethylene	Rdwy	roadway
Id	identification	MP	mile post	PVC	polyvinyl chloride	RWIS	roadway weather information system
Incl	inclinometer tube	Min	minimum	PCC	Portland Cement concrete	Rk	rock
IMH	inlet manhole	Misc	miscellaneous	PP	power pole	Rt	route
ID	inside diameter	Mon	monument	Preempt	preemption		
Inst	instrument	Mnd	mound	Prefab	prefabricated		
Intchg	interchange	Mtbl	mountable	Prfmd or Pref	preformed		
Intmdt	intermediate	Mtd	mounted	Prep	preperation		
Intscn	intersection	Mtg	mounting	Press.	pressure		
Inv	invert	Mk	muck	PRV	pressure relief valve		
IP	iron pipe			Prestr	prestressed		
				Pvt	private		
				PD	private drive		
Jt	joint	Neop	neoprene	Prod.	production/produce		
Jct	junction	Ntwk	network	Prog	programmed		
		N	North	Prop.	property		
		NE	North East	Prop Ln	property line		
		NW	North West	Ppsd	proposed		
		NB	Northbound	PB	pull box		
		No. or #	number				

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Salv	salvage(d)	Tel	telephone
San	sanitary sewer line	Tel B	Telephone Booth
Sec	section	Tel P	telephone pole
SL	section line	Tv	television
Sep	separation	Temp	temperature
Seq	sequence	Temp	temporary
Serv	service	TBM	temporary bench mark
Sht	sheet	T	thinwall tube sample
Shtng	sheeting	Ts	topsoil
Shldr	shoulder	Traf	traffic
Sw or Sdwk	sidewalk	TSCB	traffic signal control box
SD	sight distance	Tr	trail
SN	sign number	Transf	transformer
Sig	signal	Trans	transition
Sgl	single	TT	transmission tower
SRCP	slotted reinforced concrete pipe	TES	traversable end section
SC	slow curing	Trans	transverse
SS	slow setting	Trtd	treated
Sm	small	Trmt	treatment
S	South	Qc	triaxial compression
SE	South East	TERO	tribal employment rights ordinance
SW	South West	Tpl	triple
SB	Southbound	Typ	typical
Sp	spaces		
Spcl	special	Qu	unconfined compressive strength
SA	special assembly	Ugrnd	underground
SP	special provisions	Util	utility
G	specific gravity		
Spk	spike		
SB	split barrel sample	VG	valley gutter
SH	sprinkler head	Vap	vapor
SV	sprinkler valve	Vert	vertical
Sq	square	VCP	vitrified clay pipe
Stk	stake	Vol	volume
Std	standard	VSFS	vehicle speed feedback sign
N	standard penetration test		
Std Specs	standard specifications	Wkwy	walkway
Stm L	steam line	W	water content
SEC	steel encased concrete	WGV	water gate valve
SMA	stone matrix asphalt	WL	water line
SSD	stopping sight distance	WM	water main
SD	storm drain	WMV	water main valve
St	street	W Mtr	water meter
SPP	structural plate pipe	WSV	water service valve
SPPA	structural plate pipe arch	WW	water well
Str	structure	Wrng	wearing
Subd	subdivision	WIM	weigh in motion
Sub	subgrade	W	west
Sub Prep	subgrade preparation	WB	westbound
Ss	subsoil	Wrng	wiring
SS	supplement specification	W/	with
Supp	supplemental	W/o	without
Surf	surfacing	WC	witness corner
Surv	survey		
Sym	symmetrical		

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MEASUREMENTS

ac	acres
A	ampere
Bd Ft	board feet
Cd	candela
cm	centimeter
C	coulomb
CF	cubic feet
m3	cubic meter
m3/s	cubic meters per second
CY	cubic yard
CY/mi	cubic yards per mile
D or Deg	degree
F	Fahrenheit
F	farad
ft	feet/foot
Gal	gallon
G	giga
Ha	hectare
H	henry
Hz	hertz
hr	hour(s)
in	inch
J	joule
K	kelvin
kN	kilo newton
kPa	kilo pascal
kg	kilogram
kg/m3	kilogram per cubic meter
km	kilometer
K	Kip(s)
LF	linear foot
L	litre
Lm	lumen
L sum	lump sum
Lx	lux
M Hr	man hour
M	mega
m	meter
m/s	meters per second
mi	mile
mL	milliliter
mm	millimeter
mm/hr	millimeters per hour
n	nano
N	newton
Pa	pascal
lb	pounds
sec	seconds
S	siemens
SF	square feet
km2	square kilometer
m2	square meter
SY	square yard
Sta Yd	station yards
SI	Systems International

T	tesla
T/mi	tons per mile
V	volt
W	watt
Wb	weber

SURVEY DESCRIPTIONS

Az	azimuth
Bs	backsight
Brg	bearing
BP Cap	blue plastic cap
BS	both sides
BC	brass cap
CS	curve to spiral
Eq	equation
E	external of curve
FS	far side
FB	field book
Fs	foresight
Geod	geodetic
GIS	Geographical Information System
GPS	Global Positioning System
HI	height of instrument
IM	iron monument
I Pn	iron pin
LS	Land Surveyor (licensed)
LSIT	Land Surveyor In Training
L	length of curve
LC	long chord
LB	level book
Mer	meridian
M	mid ordinate of curve
NGS	National Geodetic Survey
NS	near side
Obsn	observation
Off Loc	office location
OP Cap	orange plastic cap
PK	Parker-Kalon nail
P Cap	plastic cap
PP Cap	pink plastic cap
PCC	point of compound curve
PC	point of curve
PI	point of intersection
PRC	point of reverse curvature
PT	point of tangent
POC	point on curve
POT	point on tangent
RTP	random traverse point
Rge	range
RP Cap	red plastic cap
SC	spiral to curve
ST	spiral to tangent
Sta	station
SE	superelevation
Tan	tangent
T	tangent (semi)
TS	tangent to spiral
Twp	township
TB	transit book
TP	traverse point
TP	turning point
USC&G	US Coast & Geodetic Survey
USGS	US Geologic Survey
VC	vertical curve
WGS	World Geodetic System
YP Cap	yellow plastic cap
Z	zenith

SOIL TYPES

Cl	clay
Cl F	clay fill
Cl Hvy	clay heavy
Cl Lm	clay loam
Co S	coal slack
C Gr	coarse gravel
CS	coarse sand
FS	fine sand
Gr	gravel
Lig Co	lignite coal
Lig Sl	lignite slack
Lm	loam
Rk	rock
Sd	sand
Sdy Cl	sandy clay
Sdy Cl Lm	sandy clay loam
Sdy Fl	sandy fill
Sdy Lm	sandy loam
Sc	scoria
Sh	shale
Si Cl	silt clay
Si Cl Lm	silty clay loam
Si Lm	silty loam

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
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KIRK J. HOFF

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PE-4683

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NORTH DAKOTA

12 18 2020

NDDOT UTILITY COMPANY AND ORGANIZATION ABBREVIATIONS

D-101-10

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

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

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

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LINE STYLES

D-101-20

Existing Topography

	Existing Ground Void
	Existing Cemetary Boundary
	Existing Box Culvert Bridge
	Existing Concrete Surface
	Existing Drainage Structure
	Existing Gravel Surface
	Existing Riprap
	Existing Dirt Surface
	Existing Asphalt Surface
	Existing Tie Point Line
	Existing Railroad Centerline
	Existing Guardrail Cable
	Existing Guardrail Metal
	Existing Edge of Water
	Existing Fence
	Existing Railroad
	Existing Field Line
	Exst Flow
	Existing Curb
	Existing Valley Gutter
	Existing Driveway Gutter
	Existing Curb and Gutter
	Existing Mountable Curb and Gutter

	Existing 3-Cable w Posts
	Site Boundary
	Existing Berm, Dike, Pit, or Earth Dam
	Existing Ditch Block
	Existing Tree Boundary
	Existing Brush or Shrub Boundary
	Existing Retaining Wall
	Existing Planter or Wall
	Existing W-Beam Guardrail with Posts
	Existing Railroad Switch
	Gravel Pit - Borrow Area
	Existing Wet Area-Vegetation Break
	Existing High Tension Cable Guardrail
	Existing High Tension Cable Guardrail with Posts

Proposed Topography

	3-Cable w Posts
	Flow
	Fence
	Remove Line
	Wall
	Retaining Wall (Plan View)
	W-Beam w Posts
	High Tension Cable Guardrail with Posts

Existing Utilities

	Existing Electrical
	Existing Fiber Optic Line
	Existing TV Fiber Optic
	Existing Gas Pipe
	Existing Overhead Utility Line
	Existing Power
	Existing Fuel Pipeline
	Existing Undefined Above Ground Pipe Line
	Existing Sanitary Sewer
	Existing Sanitary Force Main
	Existing Storm Drain
	Existing Storm Drain Force Main
	Existing Culvert
	Existing Telephone Line
	Existing TV Line
	Existing Water or Steam Line
	Existing Under Drain
	Existing Slotted Drain
	Existing Conduit
	Existing Conductor
	Existing Down Guy Wire Down Guy
	Existing Underground Vault or Lift Station

Proposed Utilities

	24 Inch Pipe
	Reinforced Concrete Pipe
	Under Drain
	Edge Drain

Traffic Utilities

	Conductor
	Fiber Optic
	Existing Loop Detector
	Existing Double Micro Loop Detector
	Micro Loop Detector Double
	Existing Micro Loop Detector
	Micro Loop Detector
	Signal Head with Mast Arm
	Existing Signal Head with Mast Arm

Sign Structures

	Existing Overhead Sign Structure
	Existing Overhead Sign Structure Cantilever
	Overhead Sign Structure Cantilever

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14






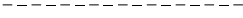







REVISIONS

DATE	CHANGE
09-23-16	Added and Revised Items, Organized by Functional Groups
12-18-20	General Revisions



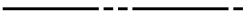
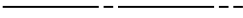
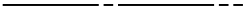




LINE STYLES

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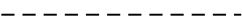
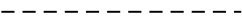
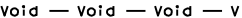





Right Of Way

	Easement
	Existing Easement
	Right of Way
	Existing Right of Way
	Existing Right of Way Railroad
	Existing Right of Way Not State Owned
	Existing Government Lot Line
	Existing Adjacent Block Lines
	Existing Adjacent Lot Lines
	Existing Adjacent Property Line
	Existing Adjacent Subdivision Lines
	Sight Distance Triangle Line
	Dimension Leader







Boundary Control


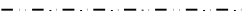
	Existing City Corporate Limits or Reservation Boundary
	Existing State or International Line
	Existing Township
	Existing County
	Existing Section Line
	Existing Quarter Section Line
	Existing Sixteenth Section Line
	Existing Centerline
	Tangent Line

Cross Sections and Typicals



	Existing Ground
	Existing Topsoil (Cross Section View)
	Existing Ground Void (Not Surveyed)
	Existing Concrete
	Existing Aggregate (Cross Section View)
	Existing Curb and Gutter (Cross Section View)
	Existing Asphalt (Cross Section View)
	Existing Reinforcement Rebar

Geotechnical



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

	Subgrade Reinforcement
	Failure Line







Countours

	Depression Contours
	Supplemental Contour


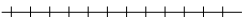

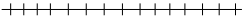
Profile

	Subgrade, Subcut or Ditch Grade
	Topsoil Profile










Striping

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








Pavement Joints

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




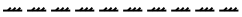
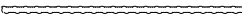
Bridge Details

	Small Hidden Object
	Large Hidden Object
	Phantom Object
	Existing Conditions Object
	Centerline Main
	Centerline Secondary
	Excavation Limits
	Proposed Ground
	Sheet Piling

Erosion Control

	Limits of Const Transition Line
	Bale Check
	Rock Check
	Floating Silt Curtain
	Silt Fence
	Excavation Limits
	Fiber Rolls

Environmental

	Wetland Mitigation
	Existing Wetland Easement USFWS
	Existing Wetland Jurisdictional
	Existing Wetland
	Tree Row

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

07-01-14

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KIRK J. HOFF

REGISTERED

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PE-4683

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NORTH DAKOTA

12 18 2020

SYMBOLS

D-101-30



North Arrow (Half Scale)

Alignment Data Point

Alignment Monument

Spot Elevation

Existing Miscellaneous Spot

Existing Access Control Arrow

Existing Benchmark

Reset USGS Marker

Iron Monument Found

Iron Pin R/W Monument

Property Corner

Iron Pin Reference Monument

Right of Way Marker (Exst, Ppsd, Reset)

Existing Federal Reference Corner

Existing Section Corner (Full, Quarter, Sixteenth, Meander)

Existing Witness Corner

Existing Control Point (CP, GPS-RTK, TRI)

Existing Traverse PI Aerial Panel

Existing Reference Marker Point NGS

Existing EFB Misc

Existing Bush or Shrub

Existing Large Evergreen Tree

Existing Small Evergreen Tree

Existing Large Tree

Existing Small Tree

Existing Tree Trunk

Cairn or Stone Circle

Existing Artifact

Existing Satellite Dish

Existing Weather Station

Existing Windmill or Tower

Reinforced Pavement

Continuous Split Barrel Sample

Flight Auger Sample

Split Barrel Sample

Thinwall Tube Sample

Standard Penetration Test

Inclinometer Tube

Excavation Unit

Existing Ground Water Well Bore Hole

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions

KIRK J. HOFF

REGISTERED

PROFESSIONAL

PE-4683

ENGINEER

NORTH DAKOTA


12 18 2020

SYMBOLS

D-101-31

				Flexible Delineator						Highway Sign (Exst, Ppsd)
				Flexible Delineator Type A (Exst, Ppsd)						Mile Post Type A (Exst-Ppsd-Reset)
				Flexible Delineator Type B (Exst, Ppsd)						Mile Post Type B (Exst, Ppsd)
				Flexible Delineator Type C (Exst, Ppsd)						Mile Post Type C (Exst, Ppsd)
				Flexible Delineator Type D (Exst, Ppsd)						Object Marker Type I (Exst, Ppsd)
				Flexible Delineator Type E (Exst, Ppsd)						Object Marker Type II (Exst, Ppsd)
				Delineator Type A (Exst, Ppsd, Diamond Grade-Reset)						Object Marker Type III (Exst, Ppsd)
				Delineator Type B (Exst, Ppsd, Diamond Grade-Reset)						Existing Reference Marker
				Delineator Type C (Exst, Ppsd, Diamond Grade)						Road Closure Gate 18 Ft (Exst, Ppsd)
				Delineator Type D (Exst, Ppsd, Diamond Grade)						Road Closure Gate 28 Ft (Exst, Ppsd)
				Delineator Type E (Exst, Ppsd, Diamond Grade)						Road Closure Gate 40 Ft (Exst, Ppsd)
				Barricade (Type I, Type II, Type III)						Existing Railroad Battery Box
				Arrow Panel (Caution Mode, Double Direction, Left Directional, Right Directional, Sequencing, Truck Mounted)						Existing RR Profile Spot
				Attenuation Device						Existing Railroad Crossbuck
				Truck Mounted Attenuator						Existing Railroad Frog
				Delineator Drums						Existing Mailbox (Private, Federal)
				Flagger						
				Tubular Marker						
				Traffic Cone						
				Back to Back Vertical Panel Sign						

















































































NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions




12 18 2020

SYMBOLS


D-101-32

	Existing Luminaire			High Mast Light Standard 3 Luminaire (Exst, Ppsd)		Existing Traffic Signal Standard			
	Luminaire LED			High Mast Light Standard 4 Luminaire (Exst, Ppsd)				Pull Box (Exst-Ppsd-Undefined)	
	Existing Light Standard Luminaire			High Mast Light Standard 5 Luminaire (Exst, Ppsd)				Intelligent Transportation Pull Box (Exst, Ppsd)	
	Relocate Light Standard			High Mast Light Standard 6 Luminaire (Exst, Ppsd)				Transformer (Exst, Ppsd)	
	Light Standard Light LED Luminaire			High Mast Light Standard 7 Luminaire (Exst, Ppsd)				Power Pole (Exst-Ppsd-with Transformer)	
	Light Standard 35 Watt High Pressure Sodium Vapor Luminaire			High Mast Light Standard 8 Luminaire (Exst, Ppsd)				Wood Pole (Exst, Ppsd)	
	Light Standard 50 Watt High Pressure Sodium Vapor Luminaire			High Mast Light Standard 9 Luminaire (Exst, Ppsd)				Pedestrian Push Button Post (Exst, Ppsd)	
	Light Standard 70 Watt High Pressure Sodium Vapor Luminaire			High Mast Light Standard 10 Luminaire (Exst, Ppsd)				Existing Pole	
	Light Standard 100 Watt High Pressure Sodium Vapor Luminaire			Overhead Sign Structure Load Center (Exst, Ppsd)				Existing Telephone Pole	
	Light Standard 150 Watt High Pressure Sodium Vapor Luminaire			Traffic Signal Controller (Exst, Ppsd)				Existing Post	
	Light Standard 200 Watt High Pressure Sodium Vapor Luminaire			Pad Mounted Traffic Signal Controller (Exst, Ppsd)					Connection Conductor (Ground, Neutral, Phase 1, Phase 2)
	Light Standard 250 Watt High Pressure Sodium Vapor Luminaire			Flashing Beacon (Exst, Ppsd)					
	Light Standard 310 Watt High Pressure Sodium Vapor Luminaire			Concrete Foundation (Exst, Ppsd)					
	Light Standard 400 Watt High Pressure Sodium Vapor Luminaire			Pipe Mounted Flasher (Exst, Ppsd)					
	Light Standard 700 Watt High Pressure Sodium Vapor Luminaire			Pad Mounted Feed Point (Exst, Ppsd)					
	Light Standard 1000 Watt High Pressure Sodium Vapor Luminaire			Pipe Mounted Feed Point with Pad (Exst, Ppsd)					
	Emergency Vehicle Detector			Pole Mounted Feed Point (Exst, Ppsd)					
	Video Detection Camera			Junction Box (Exst, Ppsd)					
				Existing Pedestrian Head with Number					
				Existing Signal Head					
				Pole Mounted Head					
				Existing Lighting Standard Pole					

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions



12 18 2020

SYMBOLS

D-101-33

			Existing Manhole (Electrical, Gas, Telephone)		Cap or Stub Exst Gas, Exst Sanitary, Exst Storm Drain, Ppsd Storm Drain, Exst Water
			Water Manhole (Exst, Exst with Valve)		Existing Pedestal Electrical, Telephone, Fiber Optic Telephone, TV, Fiber Optic TV, Undefined
			Sanitary Sewer Manhole (Exst, Ppsd, Exst with Valve)		Existing Pipe Vent Gas, Fuel, Sanitary, Storm Drain, Water, Undefined
			Sanitary Force Main Manhole (Exst, Ppsd, Exst with Valve)		Valve Exst Gas, Exst Water, Ppsd Water, Exst Undefined
			Storm Drain Manhole (Exst, Ppsd, Exst with Inlet, Ppsd with Inlet)		Pump Sanitary, Storm Drain, Exst Water
			Force Main Storm Drain Manhole (Exst, Exst with Valve)		Corrugated Metal End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)
			Manhole (Ppsd, Ppsd 48 Inch, Exst Undefined)		Reinforced Concrete End Section (18, 24, 30, 36, 42, 48, 54, 60 Inch)
			Existing Water Appurtenance		Existing Utility Marker
			Sprinkler Head (Exst, Ppsd)		Existing Meter
			Fire Hydrant (Exst, Ppsd)		Existing Fuel Dispensers
			Cleanout (Exst Sanitary, Underdrain)		Existing Fuel Filler Pipes
			Existing Catch Basin Inlet (Round, Square)		Existing Fuel Leak Sensors
			Existing Curb Inlet (Round, Square)		
			Existing Slotted Reinforced Concrete Pipe		
			Catch Basin (Riser 30 Inch, Beehive, Type A)		
			Inlet Mountable Curb (Type A, Type B)		
			Inlet Saddle Base (Type 1, Type 2)		
			Inlet Special (Catch Basin, Type 1, Type A)		
			Inlet (Tee, Type 1, Type 2, Type 2 Double)		
			Median Drain		
			Headwall (Exst, Ppsd, Ppsd Single with Vegetation Barrier, Ppsd Double with Vegetation Barrier)		

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
07-01-14	
REVISIONS	
DATE	CHANGE
12-18-20	General Revisions Sheet added - Continued from D-101-32

KIRK J. HOFF
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PROFESSIONAL
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ENGINEER
NORTH DAKOTA
12 18 2020

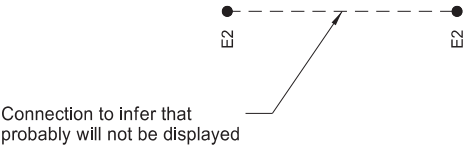
Cross Section Legend

D-101-40

Description	Longitudinal Parallel to Roadway	Transverse Perpendicular to Roadway*
Cable Line	● CBL1	● CBL2
Conduit Line	● CDU1	● CDU2
Electric Line	● E1	● E2
Fiber Optic Line	● F1	● F2
Gas Main Line	● GM1	● GM2
Gas Service Line	● GS1	● GS2
Gas Transmission Line	● GT1	● GT2
Fuel Pipeline	● PL1	● PL2
Sanitary Sewer Force Main	● SSF1	● SSF2
Sanitary Sewer	● SS1	● SS2
Steam Line	● STE1	● STE2
Storm Drain (Assumed Depth)	● SD1	● SD2
Telephone Line	● T1	● T2
TV Line	● TV1	● TV2
Water Main Line	● WM1	● WM2
Water Service Line	● WS1	● WS2

Description	Longitudinal Parallel to Roadway	Transverse Perpendicular to Roadway*
Overhead Power Transmission Line	↑ OHT1	↑ OHT2
Overhead Line	↑ OH1	↑ OH2

* Usually the transverse utilities are shown on a cross section with 2 or more symbols. The utility runs from one symbol to the other, but the connection may not be shown.



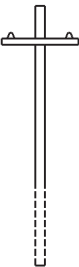
When storm drain invert elevations are NOT used to draw pipe, they will appear as shown to the left. When invert elevations are used to draw pipe, they will be a cross section similar to the graphics shown below.



Light Standard - Multiple Variations
Concrete
Steel
Wood
with Traffic Signal



Pole - Multiple Variations
Utility
Brace
Feed Point
Guy
Power
Power Structure
Power with Light
Power with Transformer



Manhole - Multiple Variations
Electric
Fiber Optic
Gas
Inlet
Sanitary Force Main
Sanitary
Sanitary with Valve
Steam
Storm
Storm Force Main
Storm with Valve
Telephone
Water
Water with Meter
Water with Valve
Water with Air Release Valve



Anchor



High Tension Cable Guardrail



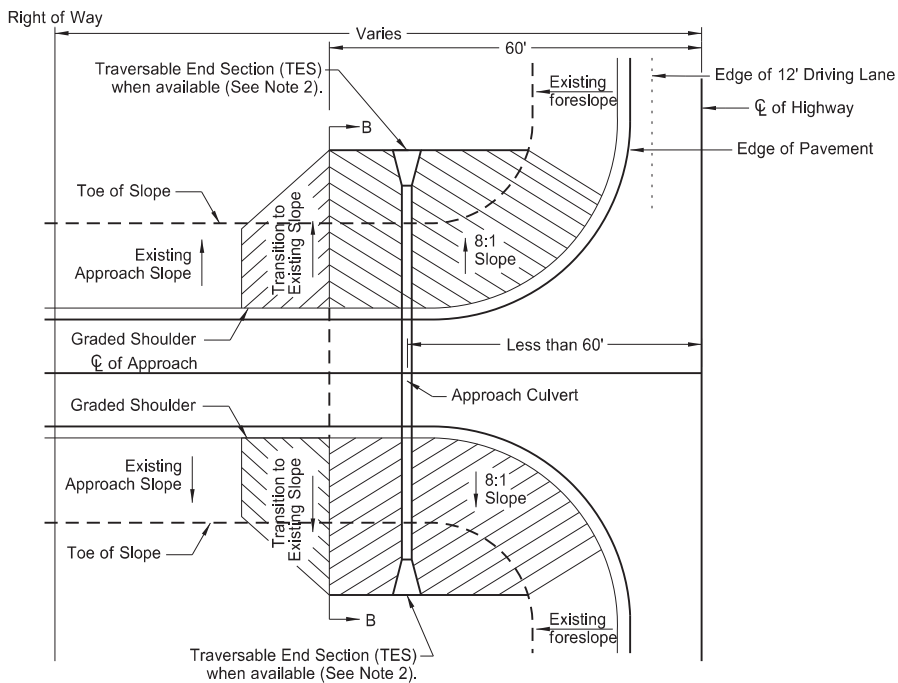
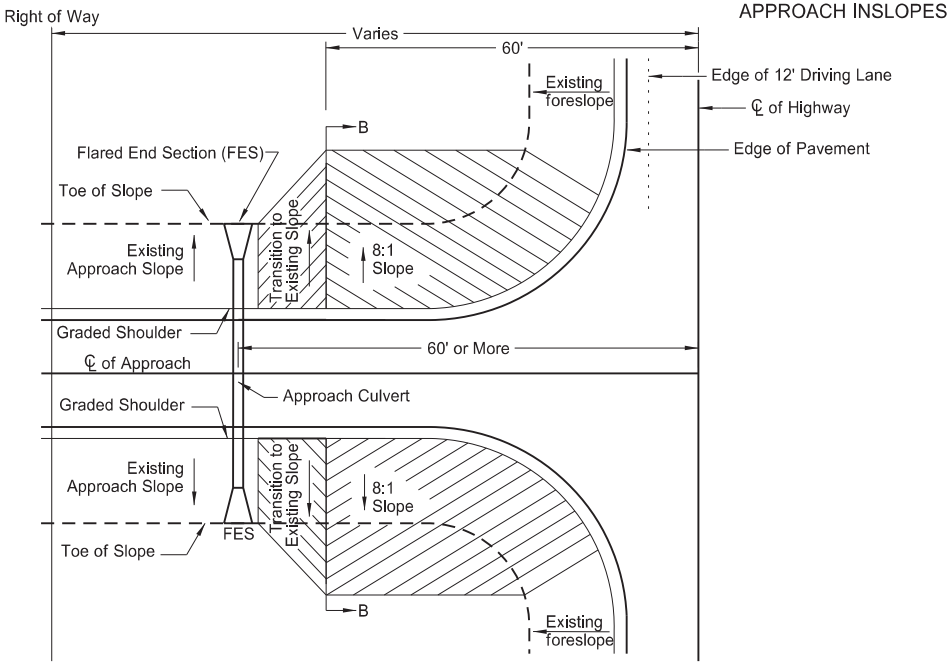
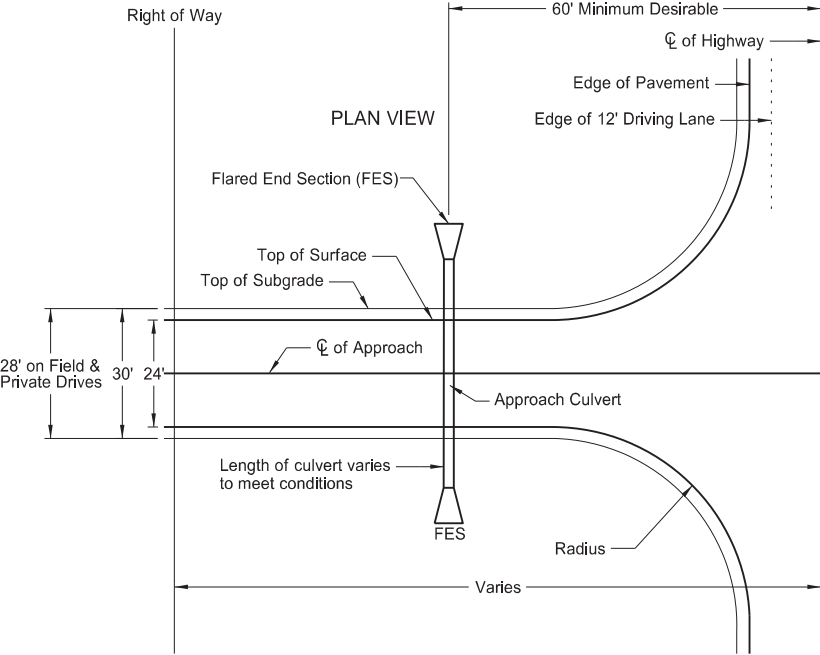
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-20-18	
REVISIONS	
DATE	CHANGE
6/14/2023	CADD Standards Update



06/14/23

STANDARD RURAL APPROACHES

D-203-8



CASE 1

APPROACH PIPE LOCATED
60' OR MORE FROM C

CASE 2

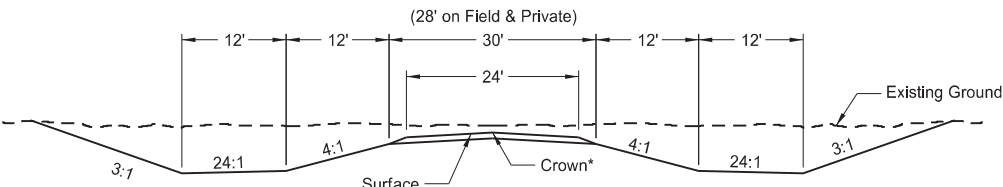
APPROACH PIPE LOCATED
LESS THAN 60' FROM C

Approach Pipe Traversable End Sections (TES)

RCP	CSP	CSP Arch
15"	15"	
18"	18"	21"x15"
		24"x18"
24"	24"	28"x20"

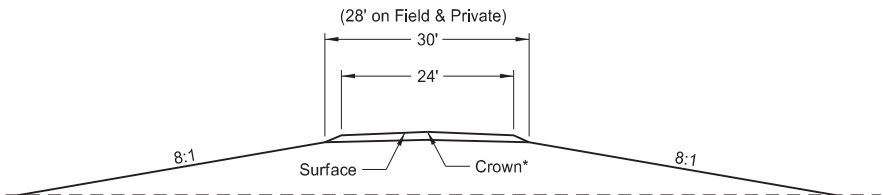
CRITERIA FOR RURAL APPROACH TYPES

	Field Drives	Private Drives	Low Volume Public Roads
Radius	R=40 ft	R=40 ft	R=50 ft
Maximum Grade	10%	7%	7%
Storage Platform	24 ft	24 ft	50 ft
Vertical Curve Length	10 ft	10 ft	Varies (Min. 20 mph)

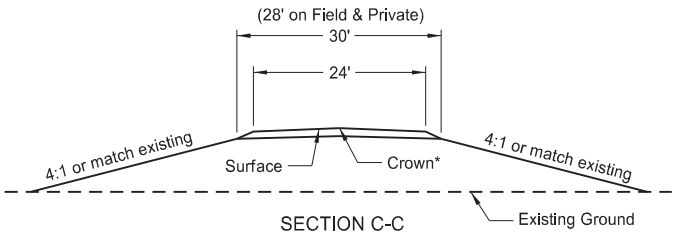


SECTION A-A

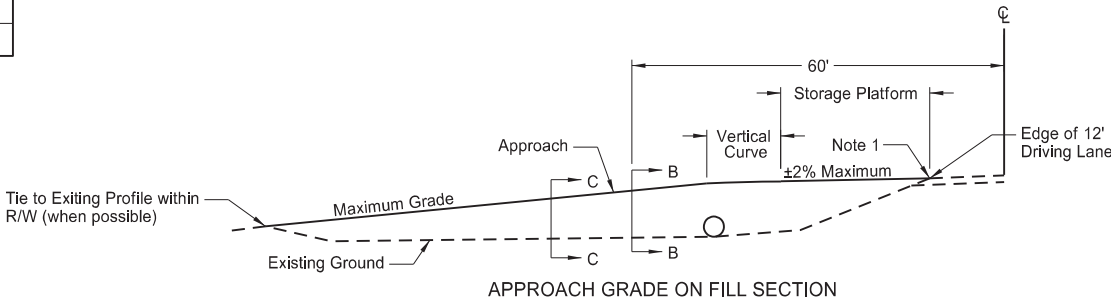
*2.1% crown for paved surface
*3.0% crown for gravel surface



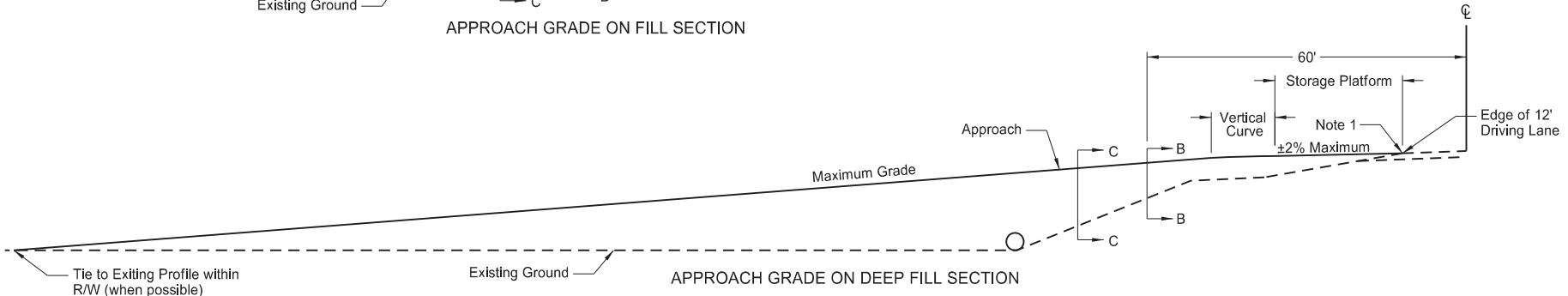
SECTION B-B



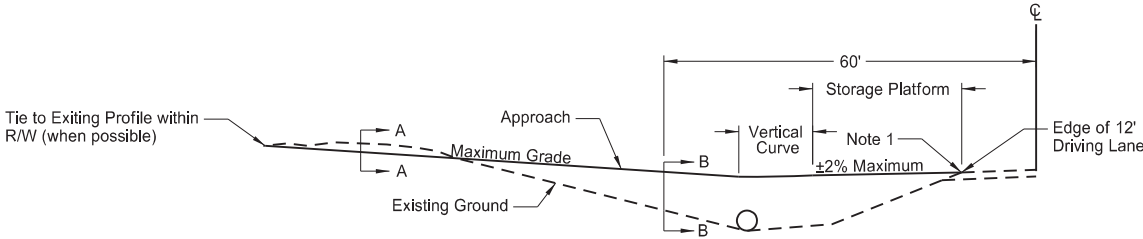
SECTION C-C



APPROACH GRADE ON FILL SECTION



APPROACH GRADE ON DEEP FILL SECTION



APPROACH GRADE ON CUT SECTION

NOTES:

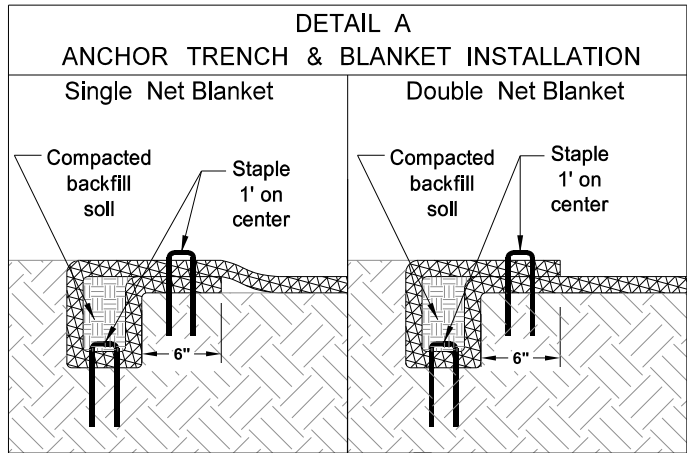
- 5% Max Rollover between approach storage platform and highway.
- Approach pipes up to 24" diameter are acceptable (with traversable end sections) for Case 2. Install approach pipes larger than 24" diameter in accordance with Case 1.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-25-14	
REVISIONS	
DATE	CHANGE
06-30-17	Revised Radius, Storage Platform, Inslope dimensions, and Note 1
10-25-19	Changed "Inslope" to "Foreslope"
06-29-22	Added "TES", Table, and Note 2

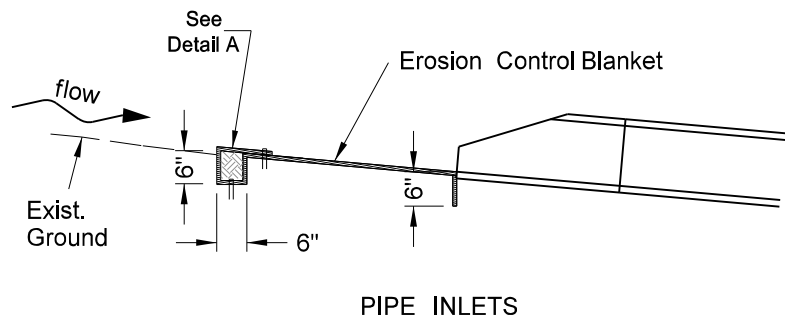
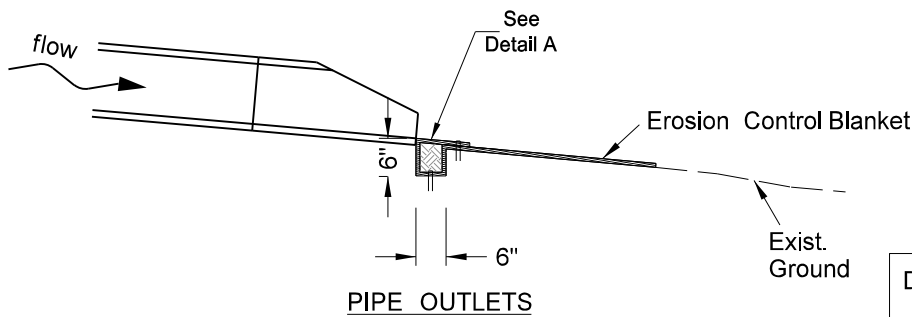


06/29/22

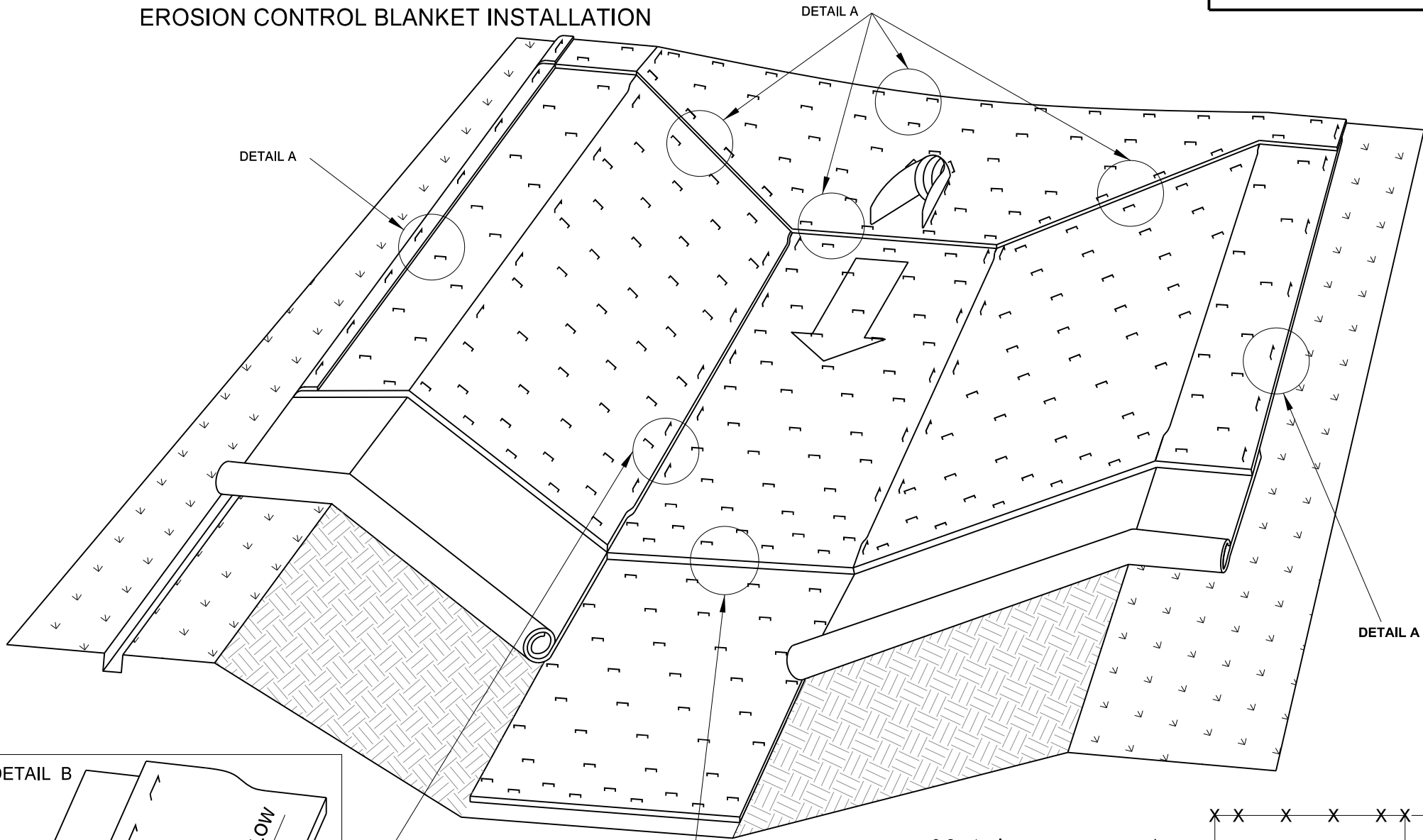
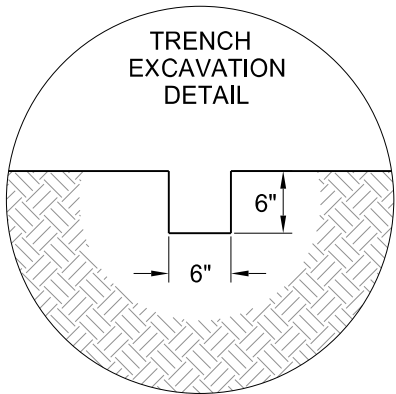
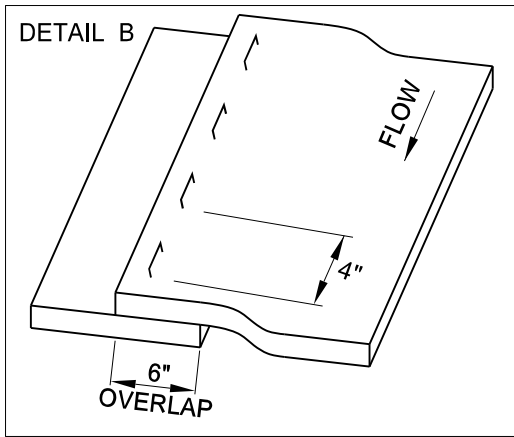
EROSION AND SILTATION CONTROL
EROSION CONTROL BLANKET INSTALLATION



NOTE:
If a Single Net Blanket is used the side with the netting should be on the top once the blanket is installed.

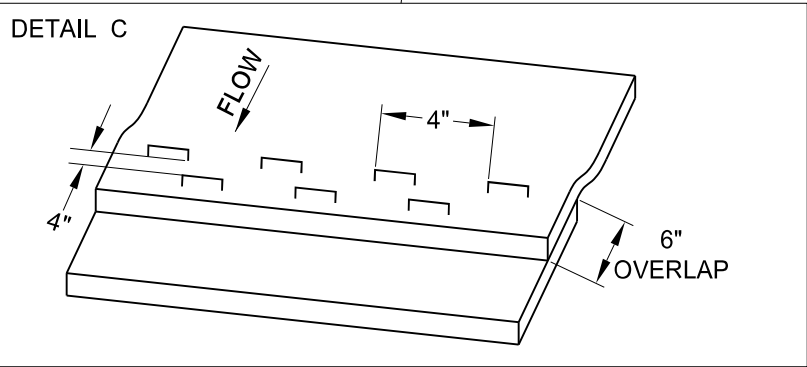
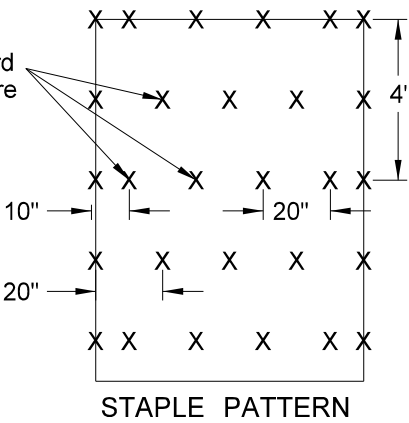


INSTALLATION AT PIPE ENDS



BLANKET LAYOUT
CHANNEL OR SLOPE INSTALLATION

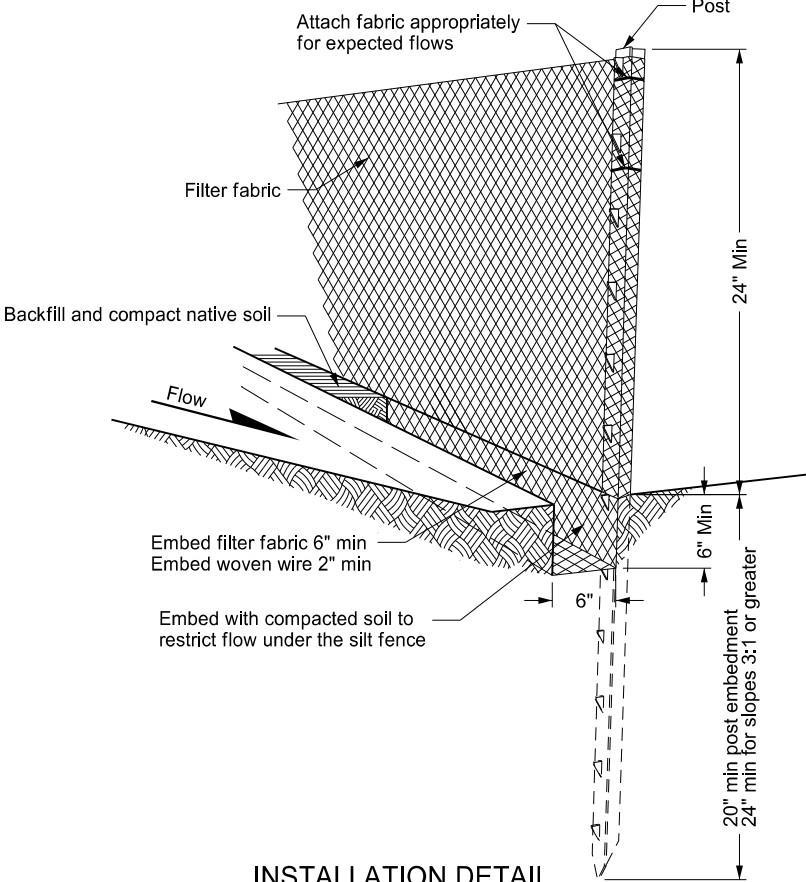
3.8 staples per square yard
using 8-inch 11 gauge wire
"u" staples.



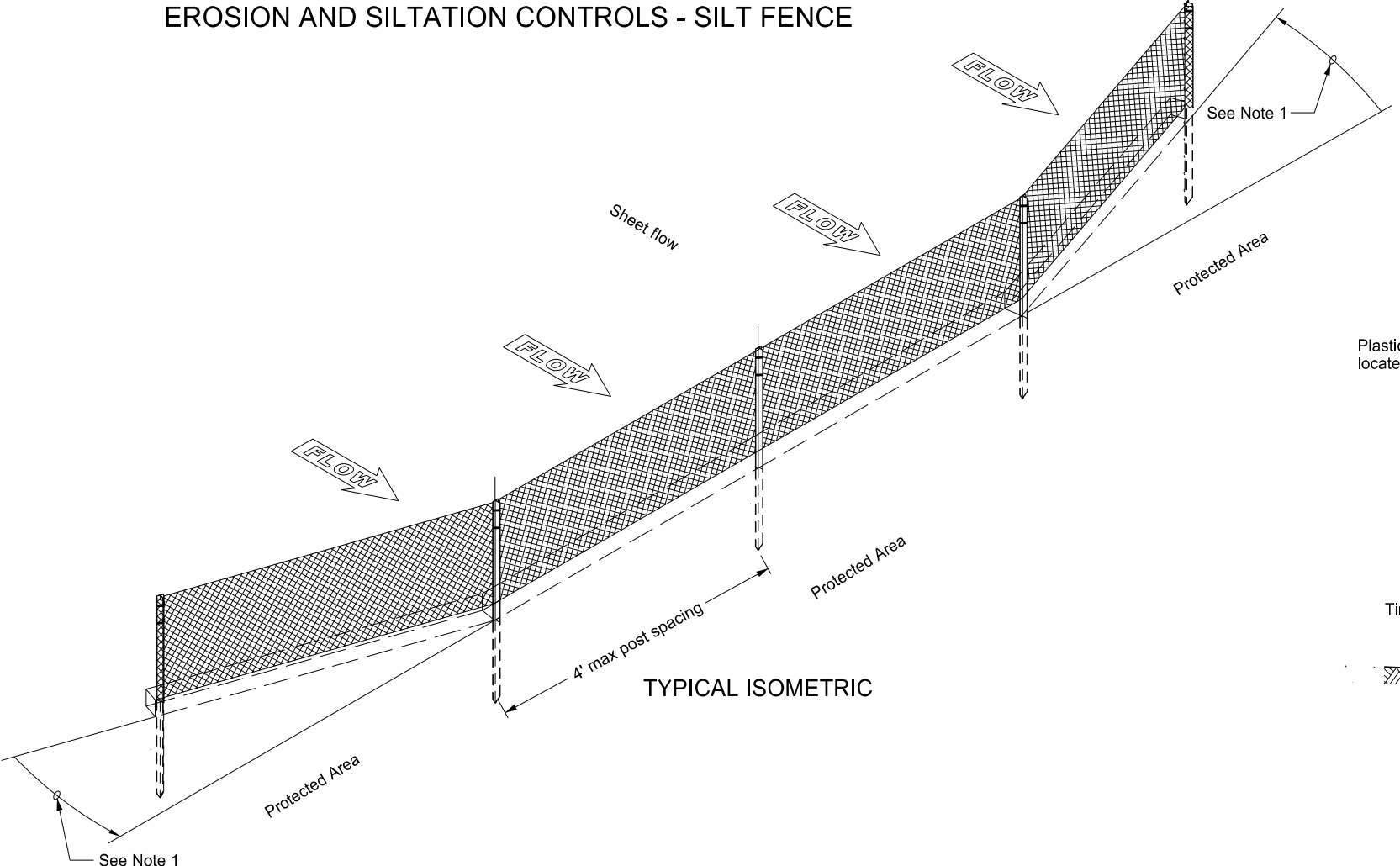
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Changed standard drawing number from D-708-S to D-255-2.
07-27-15	Changed installation details such as trench depth and overlap dimensions.
08-27-19	New Design Engineer PE Stamp.

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

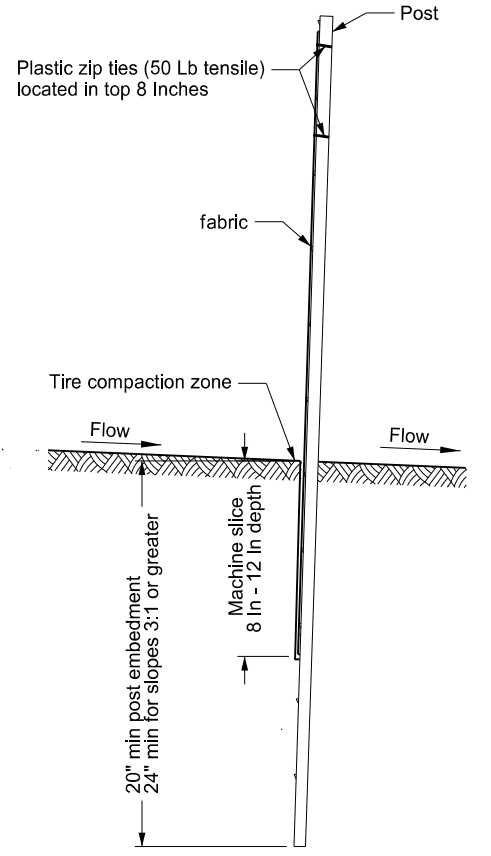
EROSION AND SILTATION CONTROLS - SILT FENCE



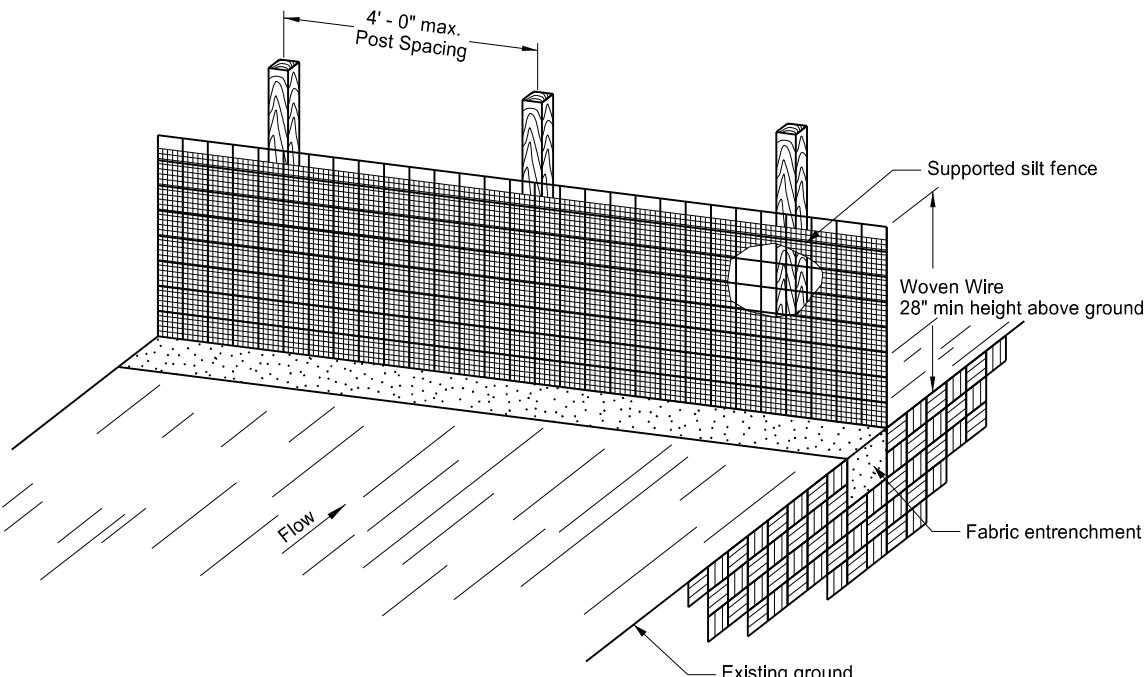
INSTALLATION DETAIL



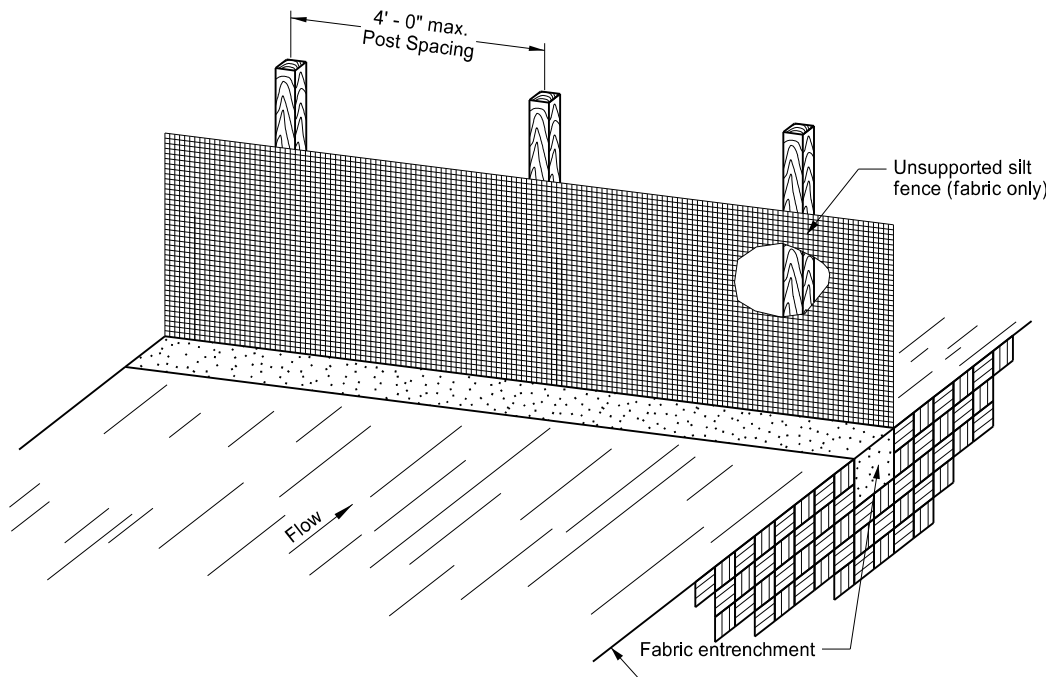
TYPICAL ISOMETRIC



MACHINE SLICED SILT FENCE



SILT FENCE SUPPORTED



SILT FENCE UNSUPPORTED

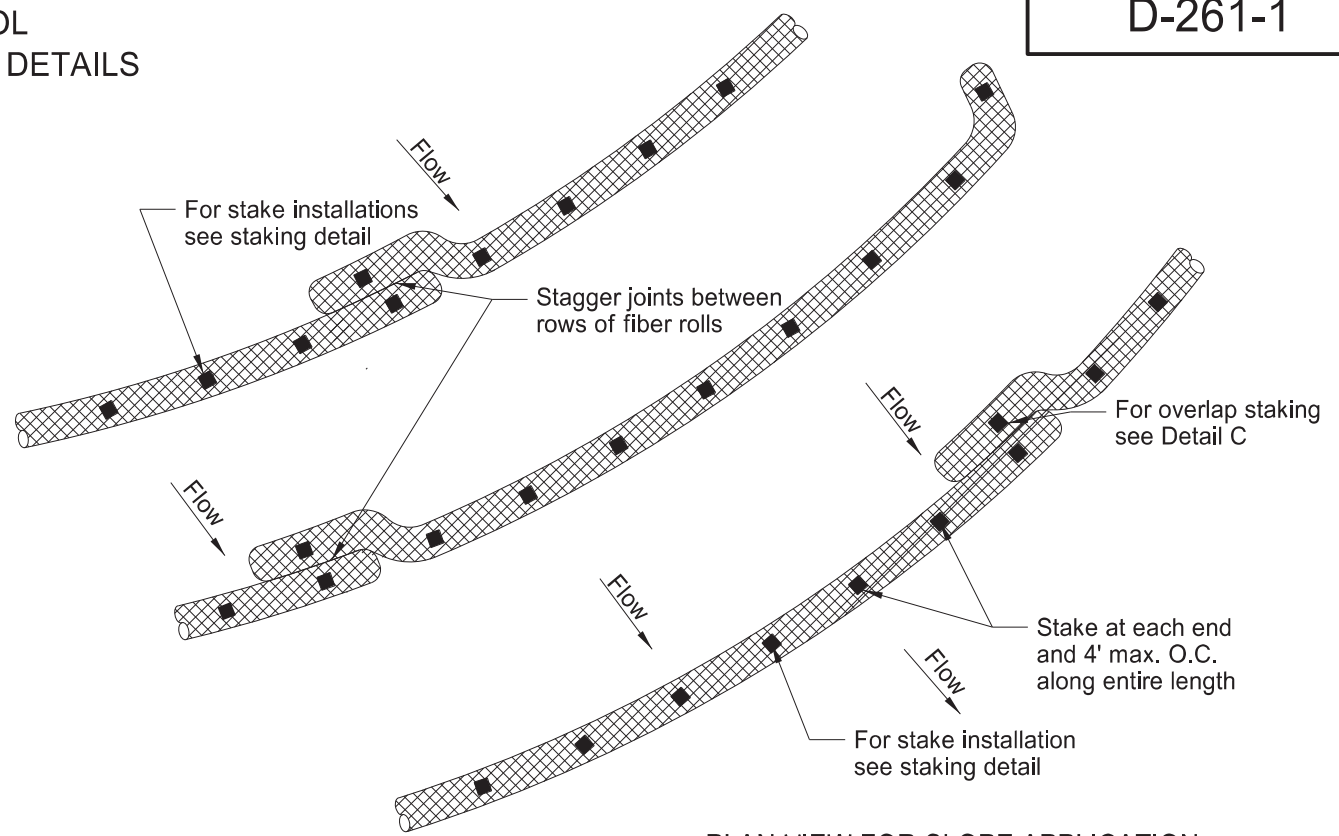
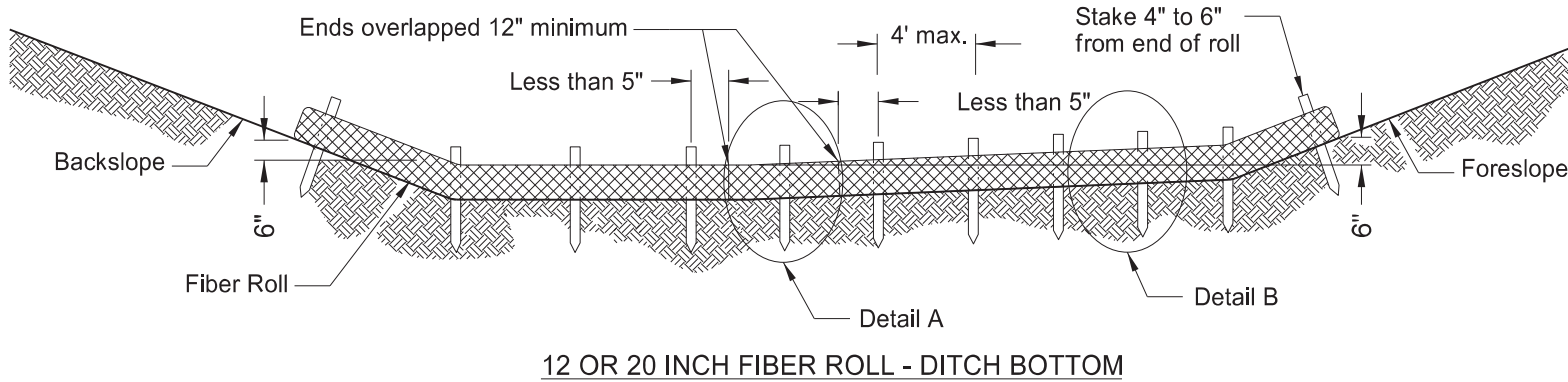
- NOTES:
1. Install the ends of the silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
 2. Place splices outside low spots.
 3. Install silt fencing parallel to contour lines.
 4. Do not embed silt fence when placed in standing water.
 5. Silt fence material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

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

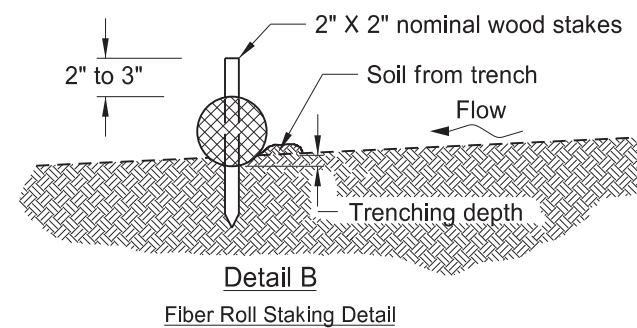
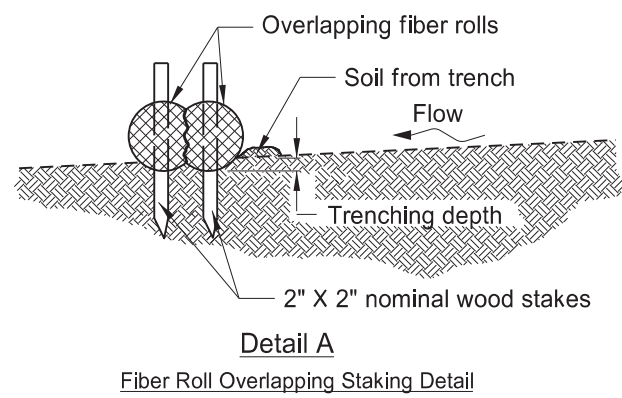
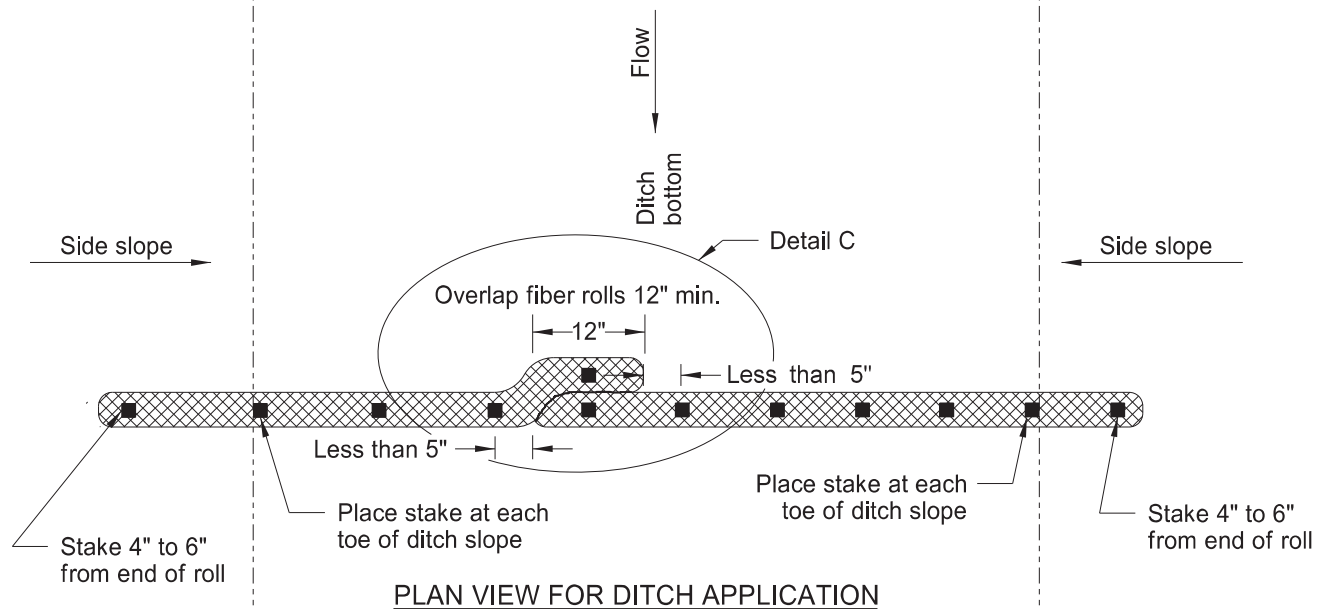
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Registration Number
PE- 4683,
on 08/27/19 and the original document is stored at the
North Dakota Department
of Transportation

EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

D-261-1



Ensure fiber rolls are placed along the contours of the slope.



FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

NOTE: Runoff must not be allowed to run under or around roll.

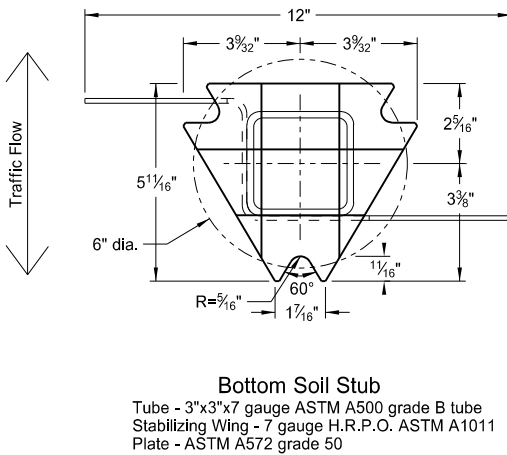
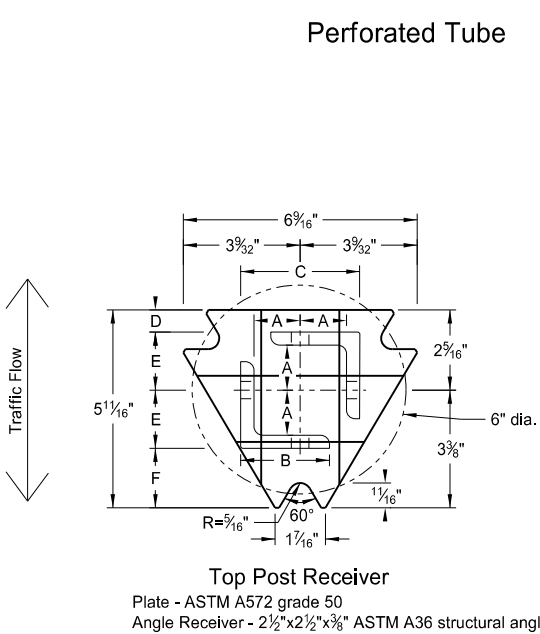
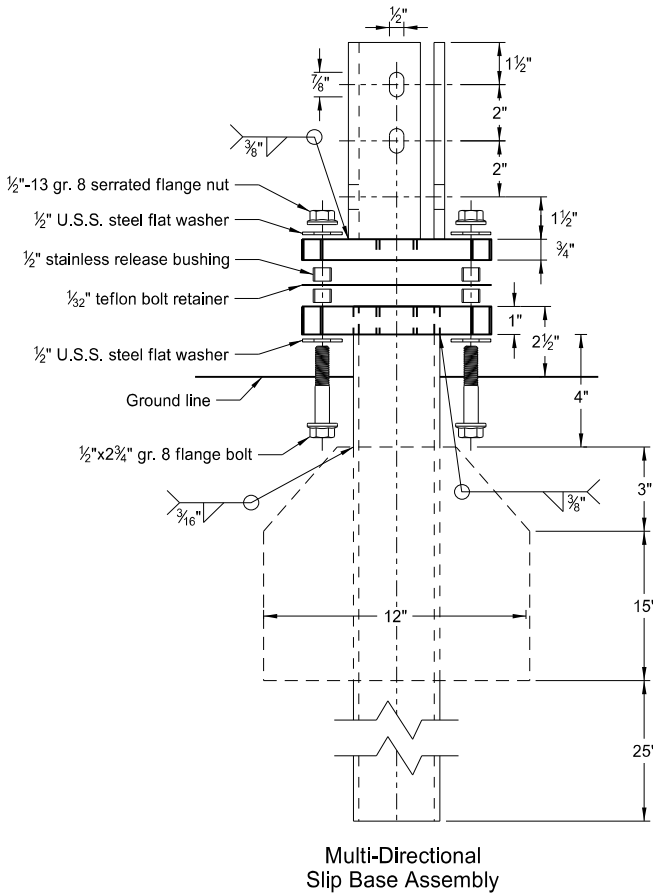
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-18-10	
REVISIONS	
DATE	CHANGE
06-10-13	Added plan view for ditch and slope application. Added table with values for stake and trench dimensions.
10-04-13	Revised fiber roll overlap detail.
06-26-14	Changed standard drawing number from D-708-7 to D-261-1.
08-27-19	New Design Engineer PE Stamp
04-22-24	Slope Plan View-Overlap Change.



04/22/24

Perforated Tube

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

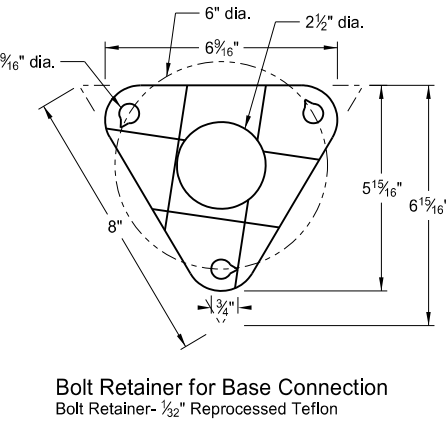
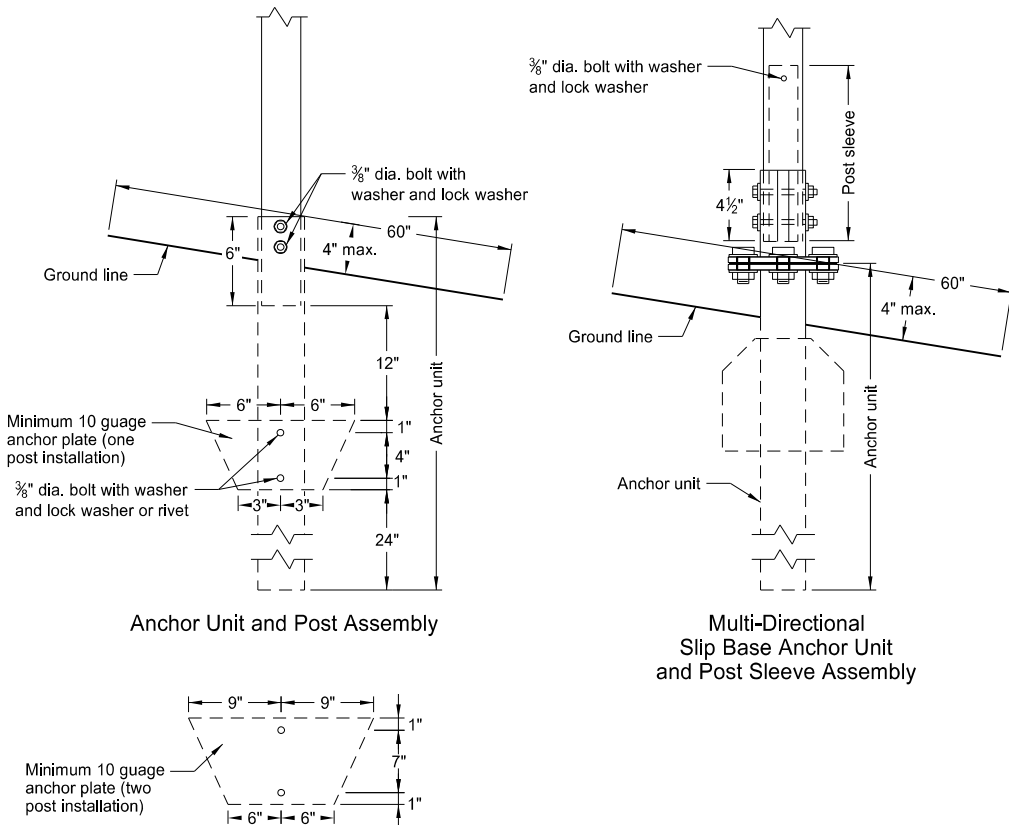


Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2 1/4
1	2 1/4	12			No	2 1/2
1	2 1/2	12			(A)	3
1	2 1/2	10			Yes	
1	2 1/4	12	2	12	Yes	
1	2 1/2	12	2 1/4	12	Yes	
2	2	12			No	2 1/4
2	2 1/4	12			No	2 1/2
2	2 1/2	12			Yes	
2	2 1/2	12			Yes	
2	2 1/4	10	2	12	Yes	
2	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/2	12			Yes	
3 & 4	2 1/2	10			Yes	
3 & 4	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/4	12	2	12	Yes	
3 & 4	2 1/2	10	2 3/16	10	Yes	

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in. ⁴	Cross Sec. Area in. ²	Section Modulus in. ³
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/8 x 2 3/8	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.785

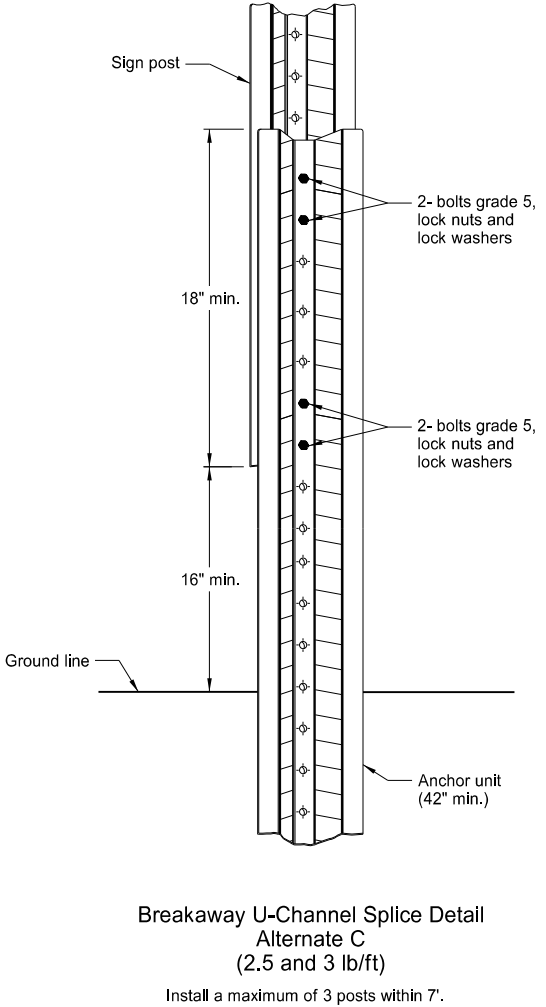
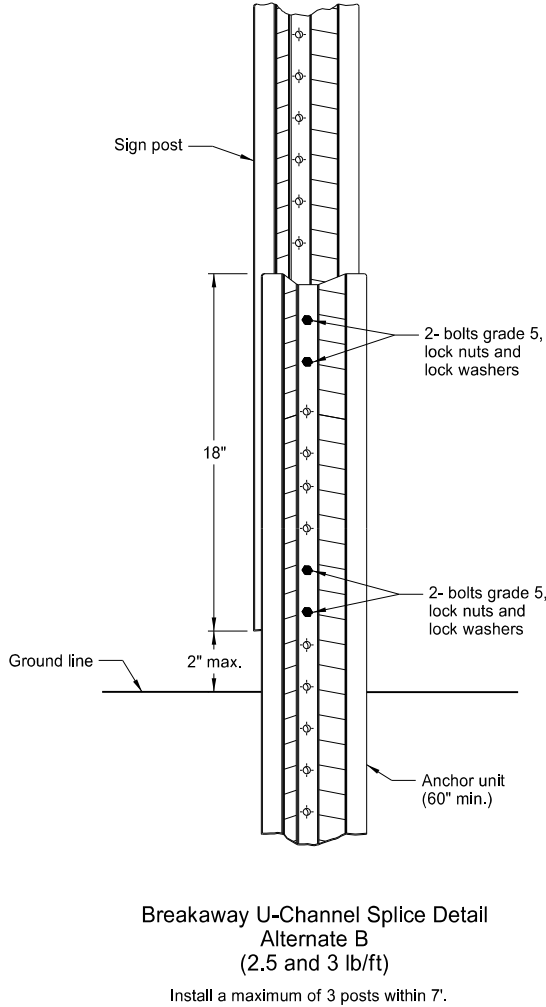
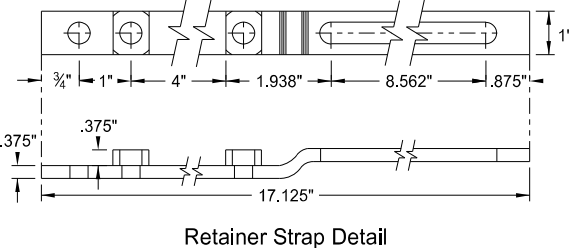
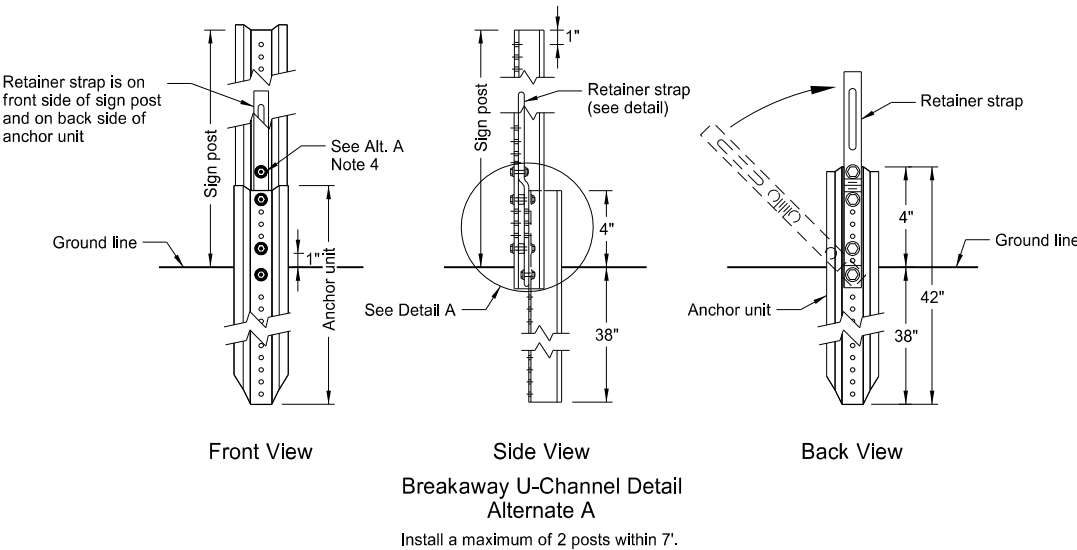
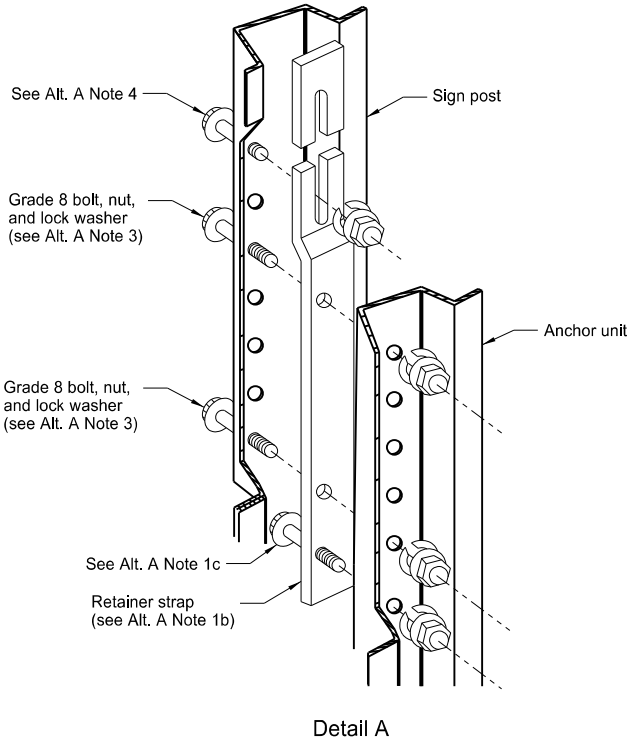
Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 5/16"	2 1/2"	3 1/2"	2 5/32"	1 33/64"	1 7/8"
2 1/2"x10 ga.	1 3/32"	2 1/2"	3 5/16"	5/8"	1 21/32"	1 3/4"

- (A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.
- (B) For additional wind load, insert the 2 3/8"x10 ga. into 2 1/2"x10 ga.



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

U-Channel Post



Alternate A Steps of Installation:

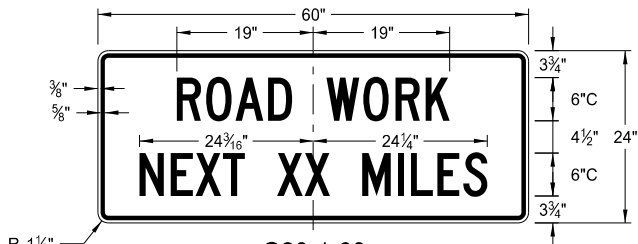
- a) Drive anchor unit to within 12" of ground level.
b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
d) Rotate strap 90° to left.
- a) Drive anchor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

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

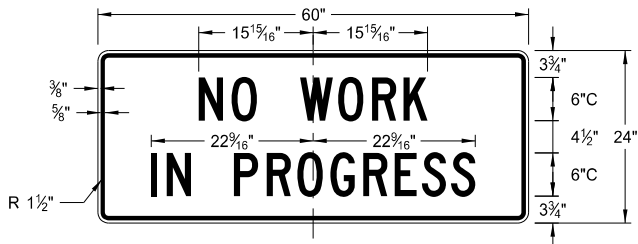
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Registration Number
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on 10/03/19 and the original document is stored at the North Dakota Department of Transportation

CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS

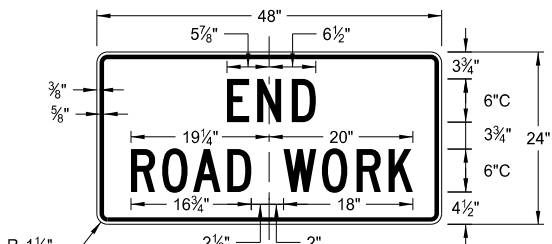
D-704-9



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



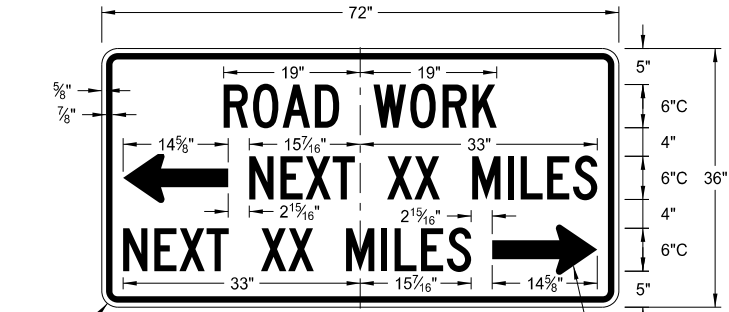
G20-1b-60
Legend: black (non-refl)
Background: orange



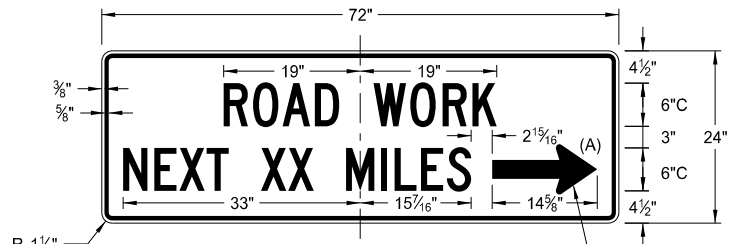
G20-2-48
Legend: black (non-refl)
Background: orange



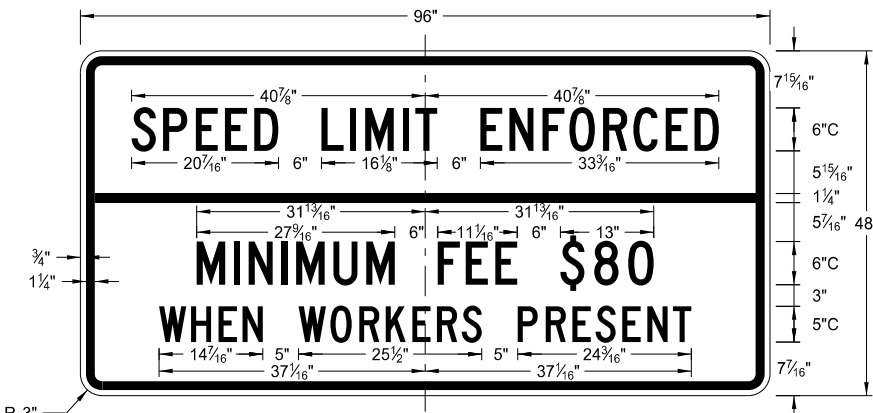
G20-4b-36
Legend: black (non-refl)
Background: orange



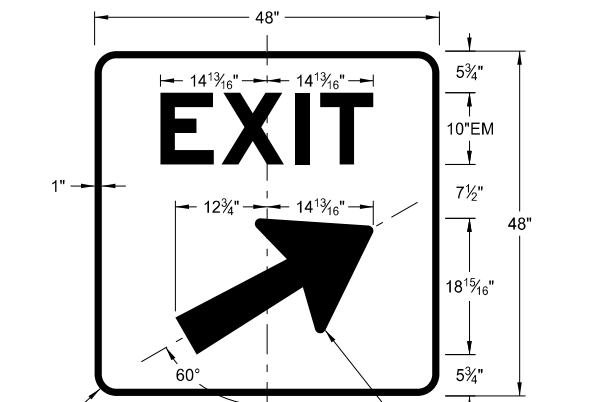
G20-50a-72
Legend: black (non-refl)
Background: orange



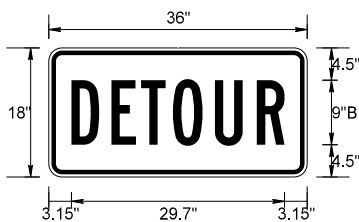
G20-52a-72
Legend: black (non-refl)
Background: orange



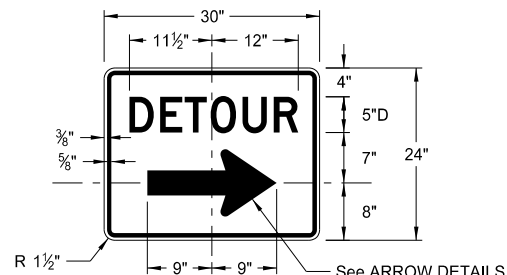
G20-55-96
Legend: black (non-refl)
Background: orange



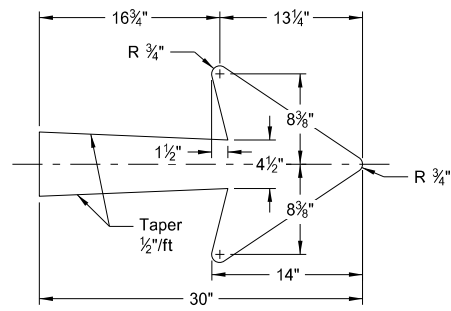
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



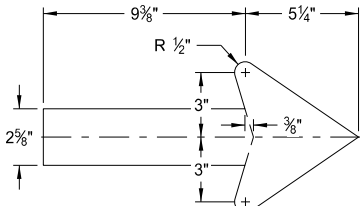
M4-8-36
Legend: black (non-refl)
Background: orange



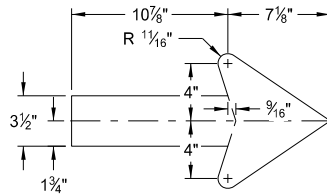
M4-9(L or R)-30 & M4-9-30
Legend: black (non-refl)
Background: orange



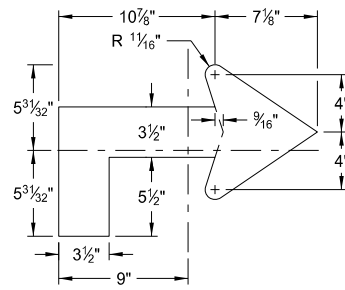
E5-1-48



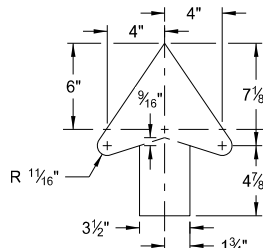
G20-50a-72
G20-52a-72



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



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

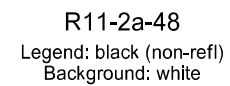
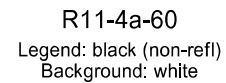
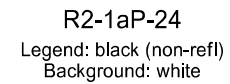
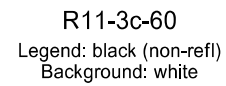
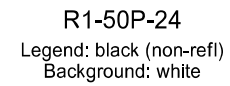


M4-9-30
Straight

ARROW DETAILS

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

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

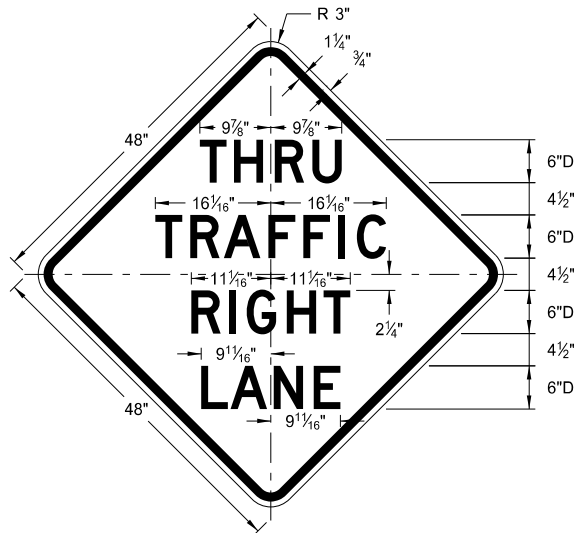


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17 10-03-19	Revised sign number New Design Engineer PE Stamp

This document was originally issued and sealed by
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 Registration Number
 PE- 4683,
 on 10/03/19 and the original document is stored at the
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 of Transportation

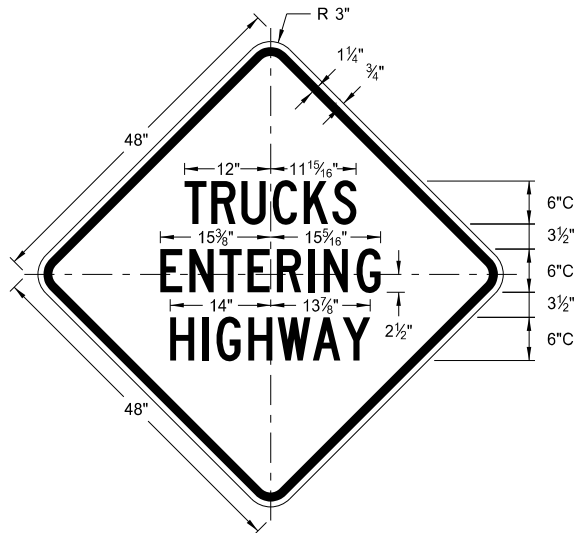
CONSTRUCTION SIGN DETAILS
WARNING SIGNS

D-704-11



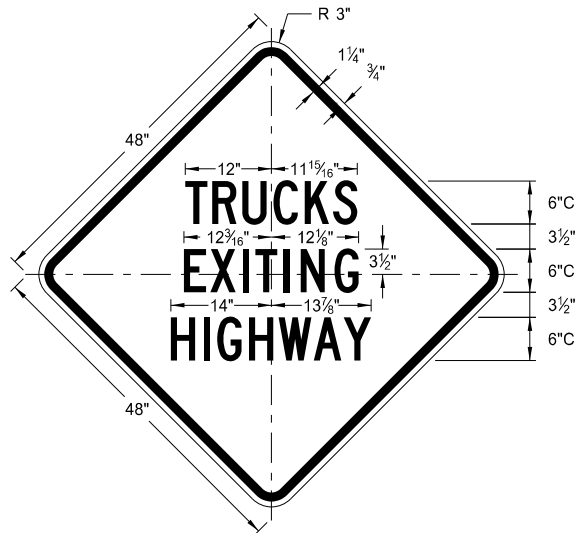
W5-8-48

Legend: black (non-refl)
Background: orange



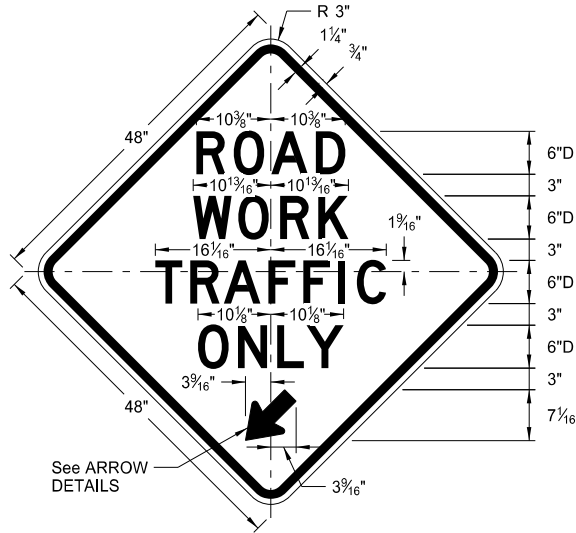
W8-53-48

Legend: black (non-refl)
Background: orange



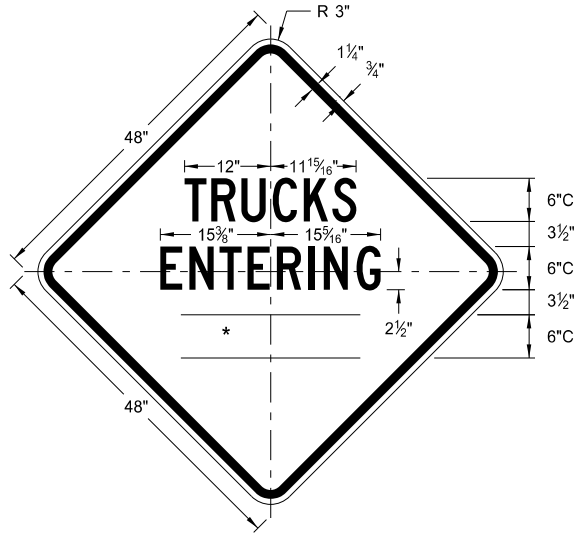
W8-56-48

Legend: black (non-refl)
Background: orange



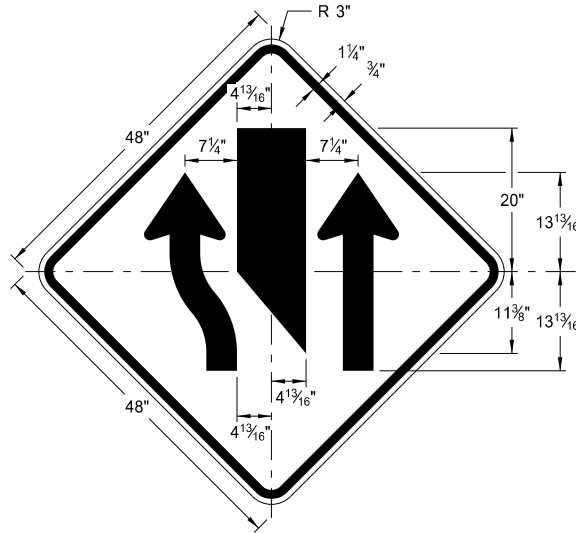
W5-9-48

Legend: black (non-refl)
Background: orange



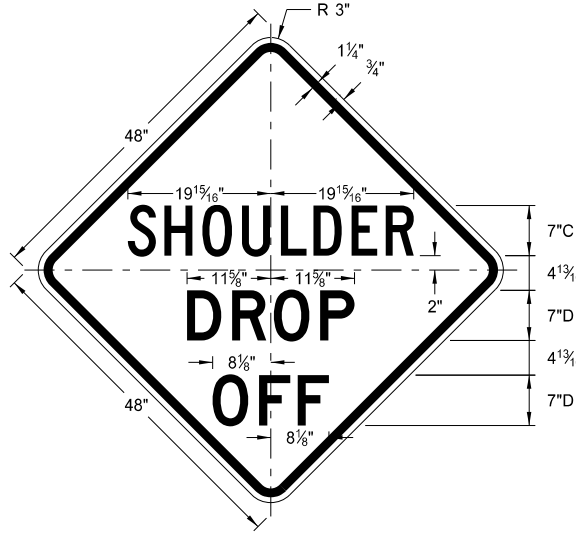
W8-54-48

Legend: black (non-refl)
Background: orange



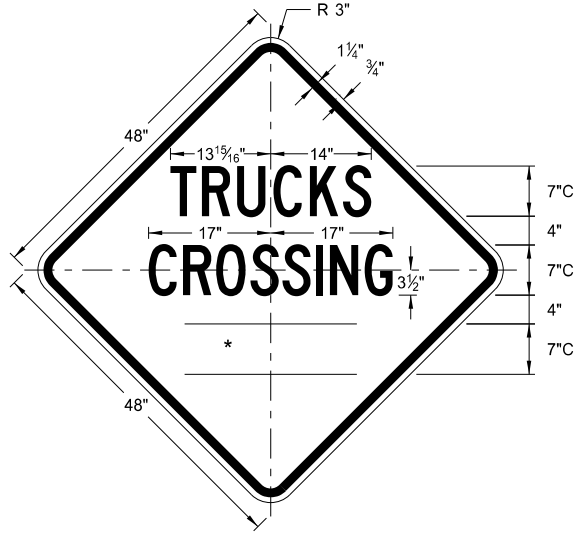
W9-3a-48

Legend: black (non-refl)
Background: orange



W8-9a-48

Legend: black (non-refl)
Background: orange

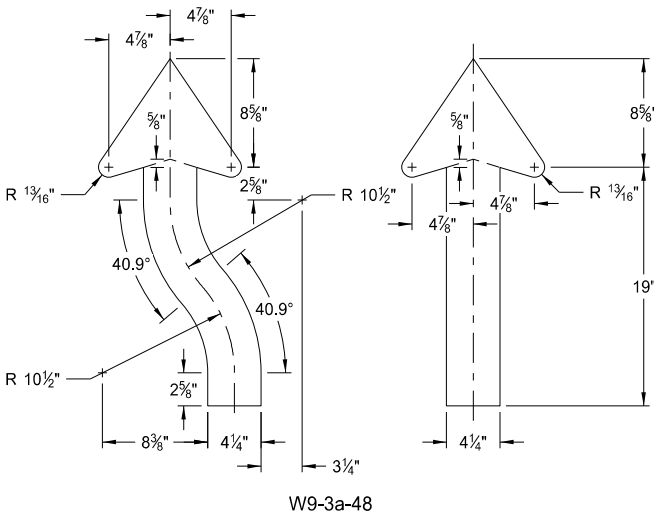
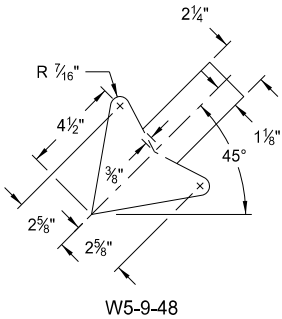


W8-55-48

Legend: black (non-refl)
Background: orange

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

* DISTANCE MESSAGES



ARROW DETAILS

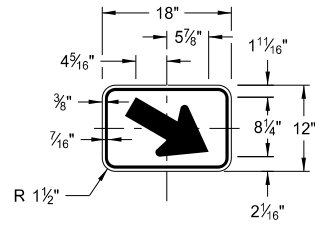
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17 5-31-18 10-03-19	Updated sign number Revised sign and arrow details New Design Engineer PE Stamp

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PE- 4683,
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CONSTRUCTION SIGN DETAILS
WARNING SIGNS

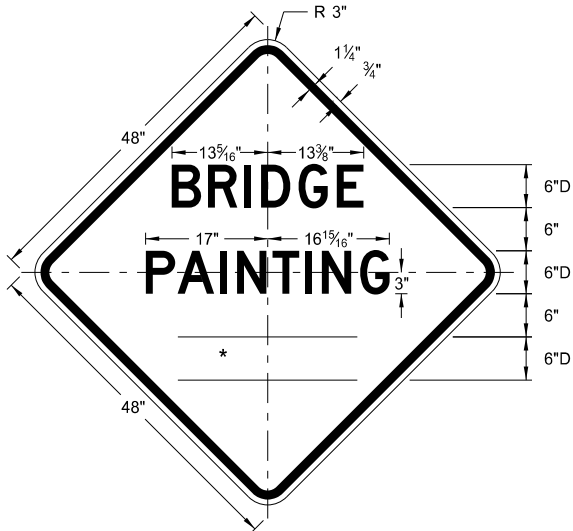
WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



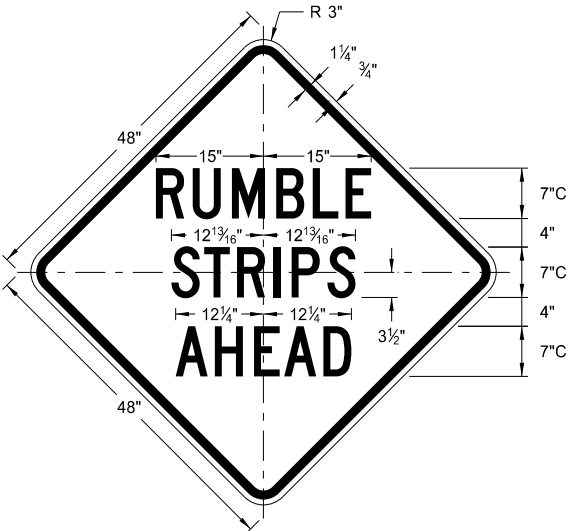
W16-7aP-18

Legend: black (non-refl)
Background: orange



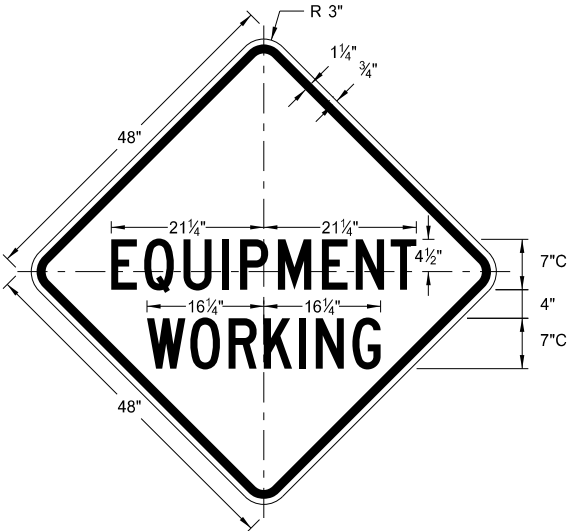
W21-50-48

Legend: black (non-refl)
Background: orange



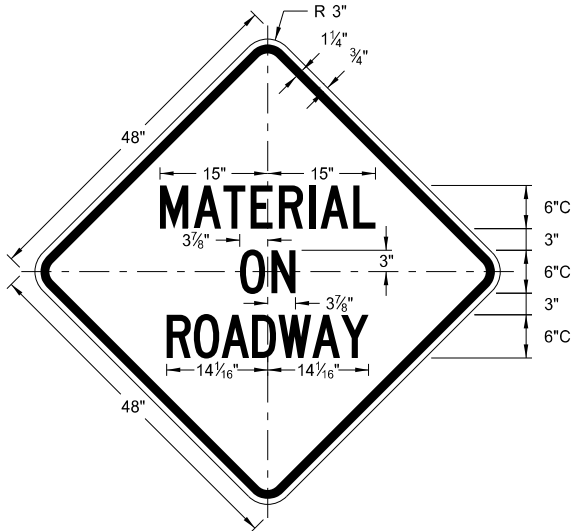
W21-53-48

Legend: black (non-refl)
Background: orange



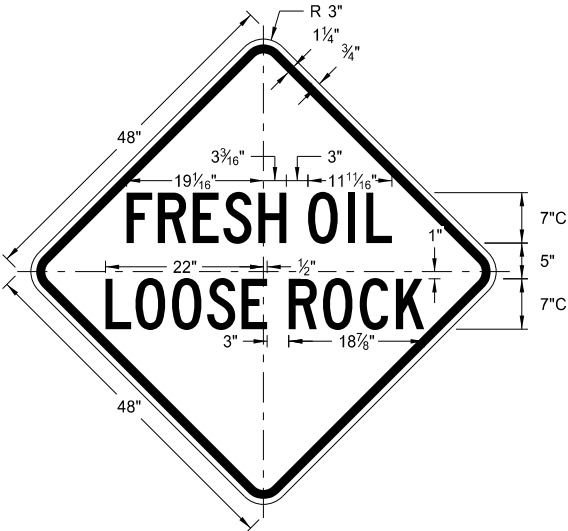
W20-51-48

Legend: black (non-refl)
Background: orange



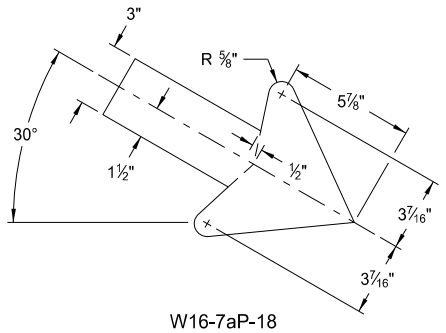
W21-51-48

Legend: black (non-refl)
Background: orange

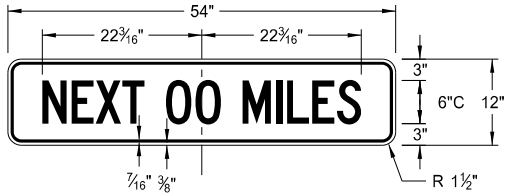


W22-8-48

Legend: black (non-refl)
Background: orange

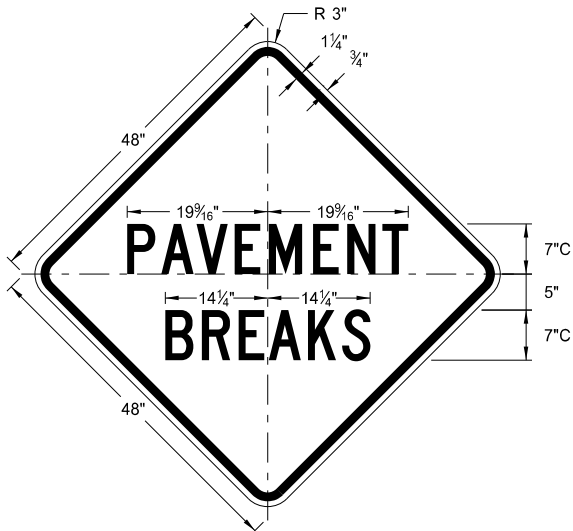


W16-7aP-18



W20-52P-54

Legend: black (non-refl)
Background: orange

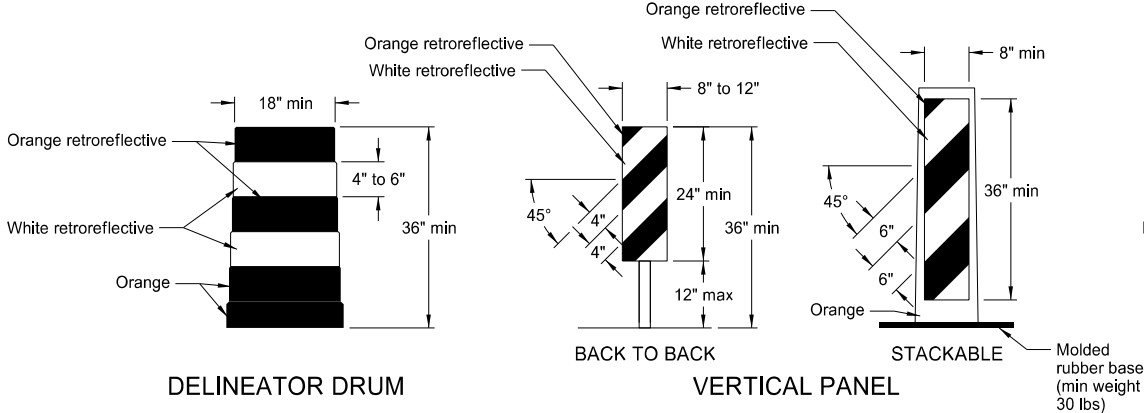


W21-52-48

Legend: black (non-refl)
Background: orange

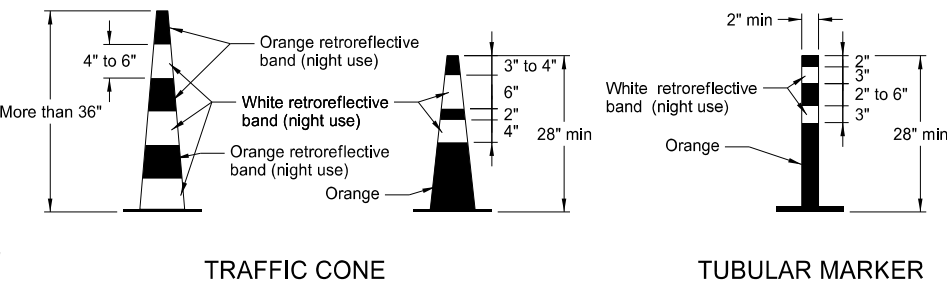
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683, on 11/1/19 and the original document is stored at the North Dakota Department of Transportation
5-31-18		
REVISIONS		
DATE	CHANGE	
11-01-19	Added details for sign W16-7aP-18.	

BARRICADE AND CHANNELIZING DEVICE DETAILS



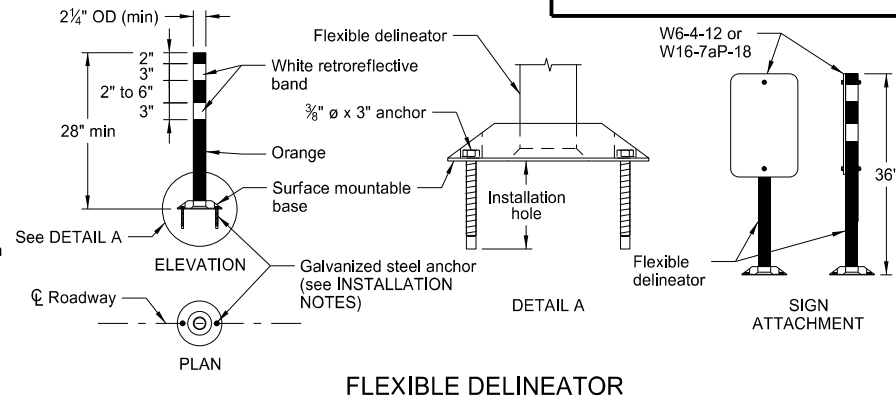
Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectORIZED spaces between the horizontal orange and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

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



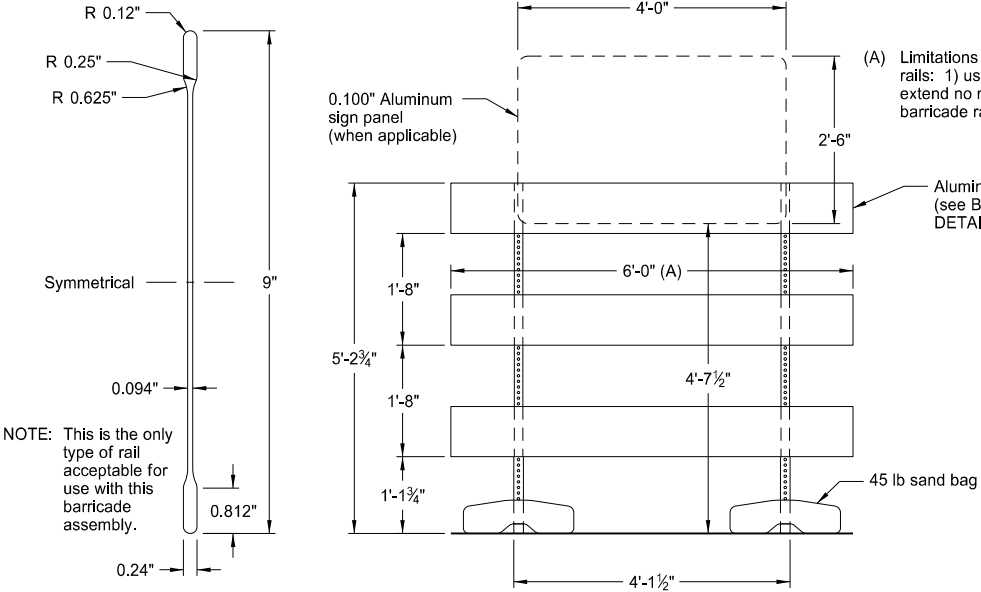
Provide retroreflectORIZATION of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectORIZED space between the orange and white stripes.

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



INSTALLATION NOTES:

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

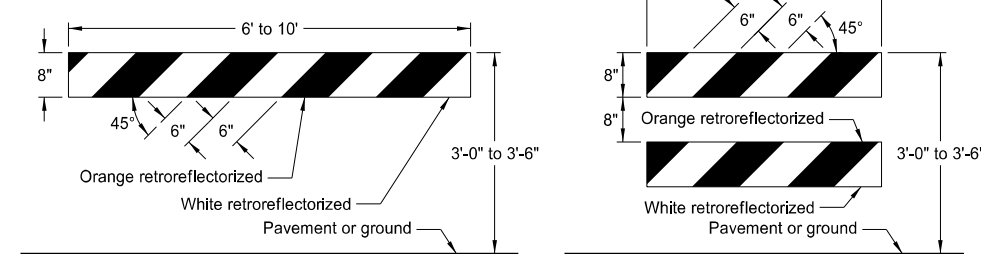


BARRICADE BLADE DETAIL

ELEVATION VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

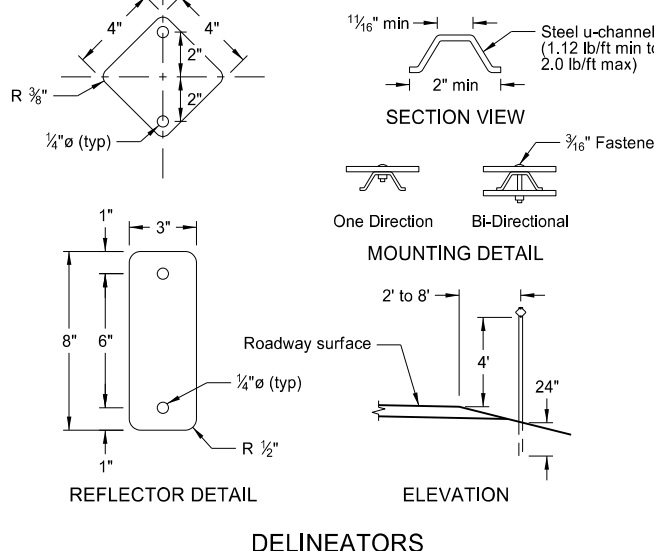
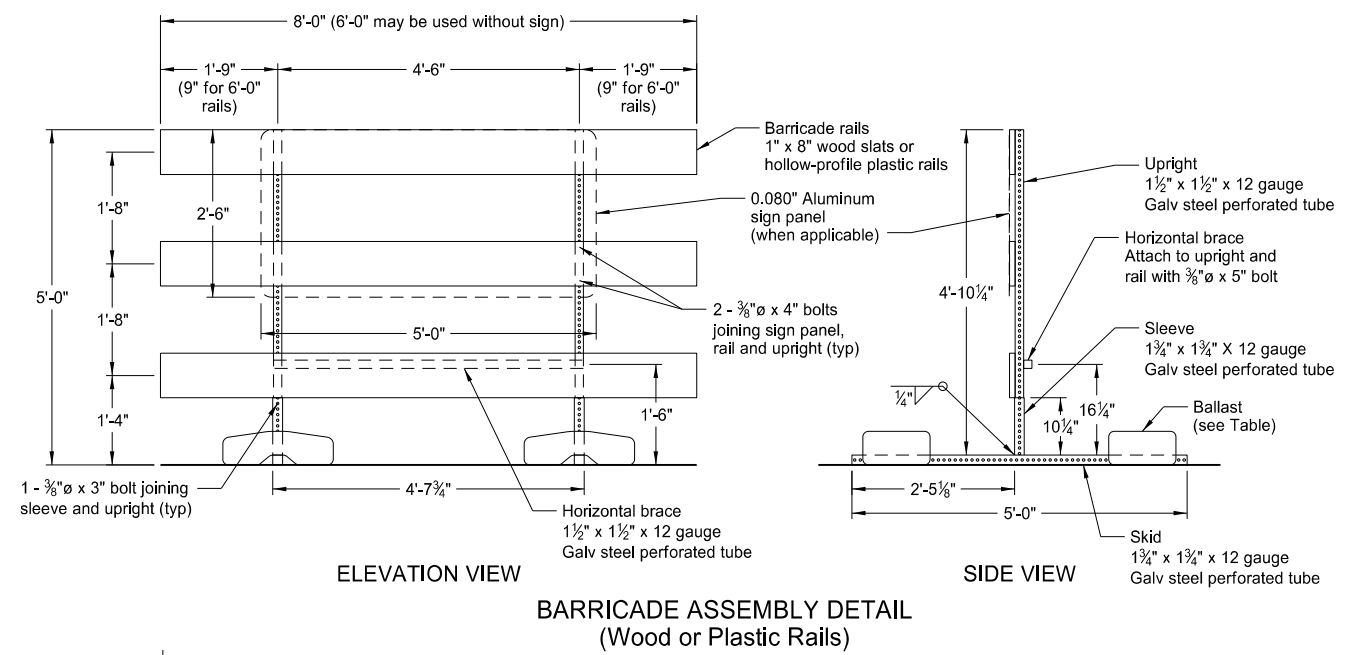
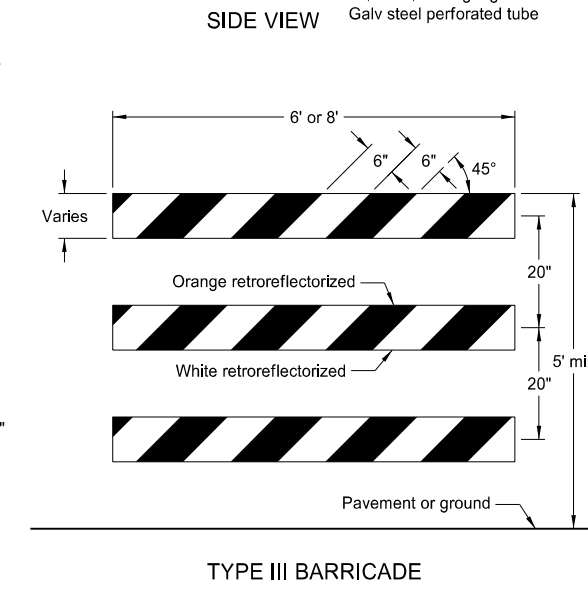
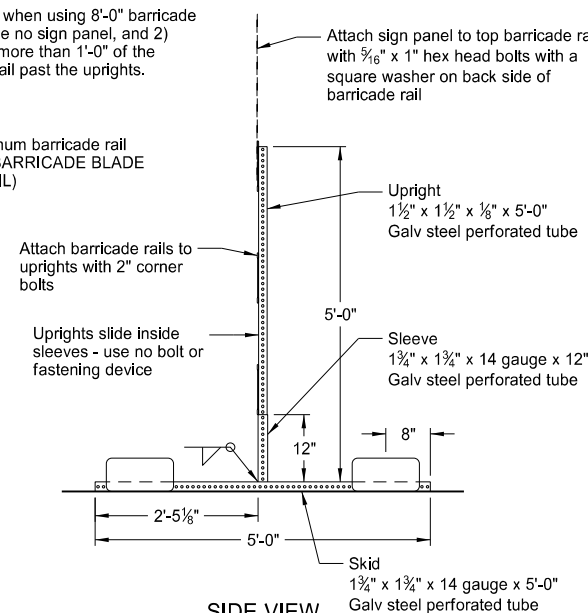
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

TYPE II BARRICADE

BARRICADE RAIL DETAILS



MINIMUM BALLAST
(For each side of barricade support)

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

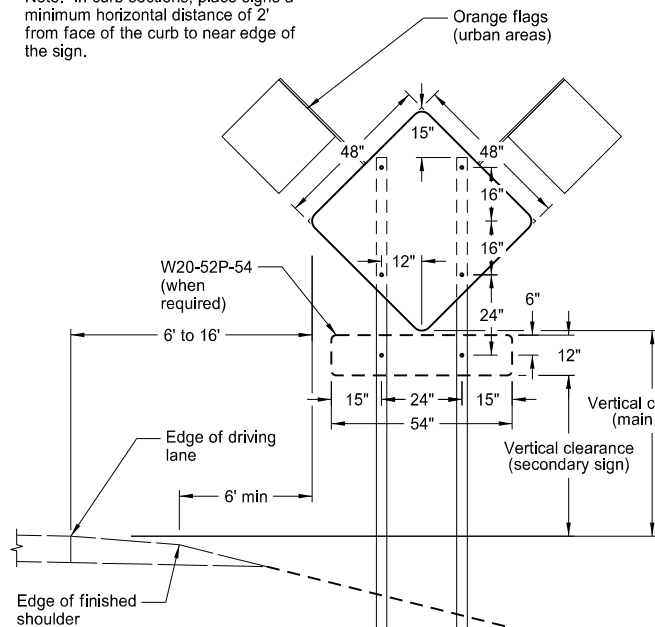
Note: Number of sandbags based on a wind speed of 55 MPH. Sandbags assumed to be placed at or near the ends of the skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION 10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17 11-01-19	Updated to active voice Revised details for Flexible Delineator

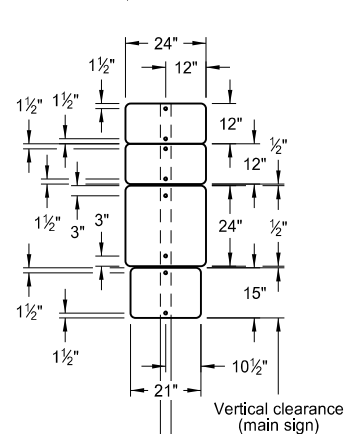
This document was originally issued and sealed by
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CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

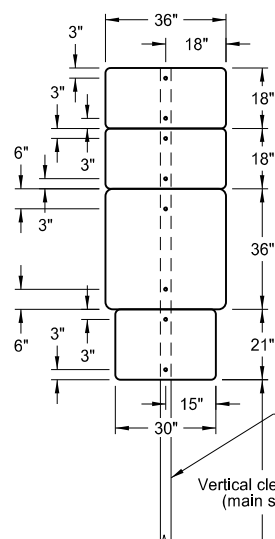
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



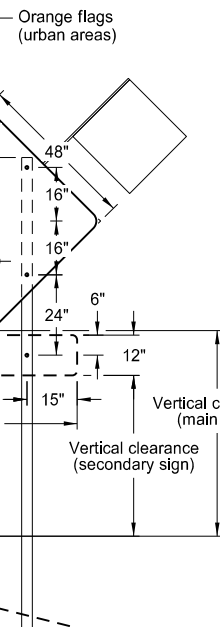
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



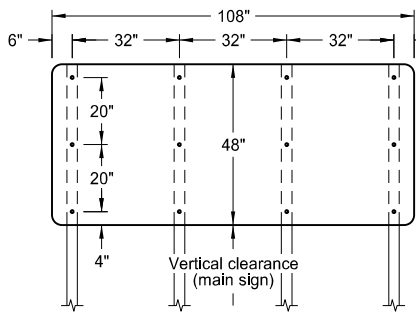
24" x 24"
ROUTE MARKER
ASSEMBLY



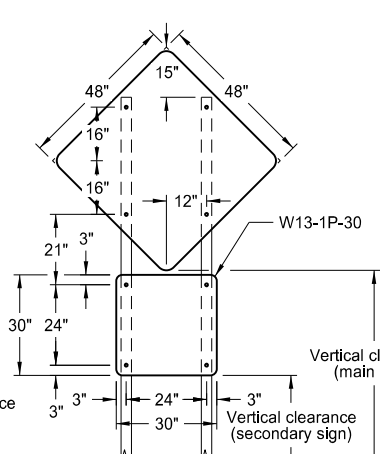
36" x 36"
ROUTE MARKER
ASSEMBLY



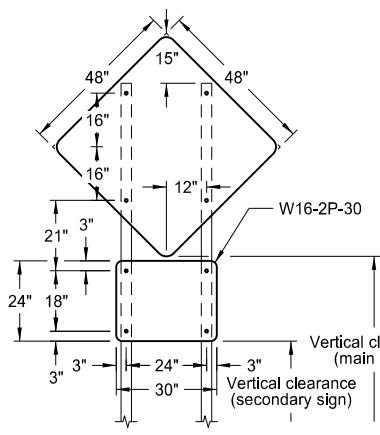
18" x 18"
DIAMOND SIGN



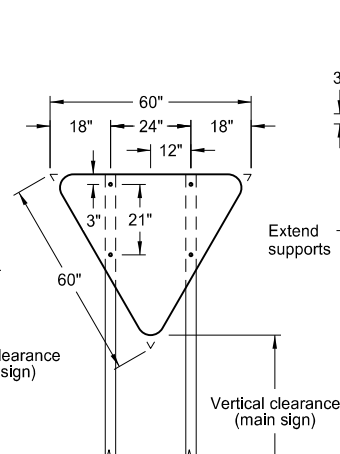
108" x 48" SIGN



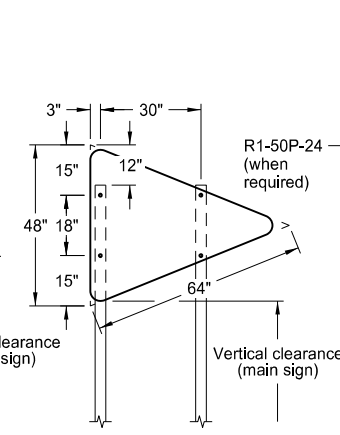
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



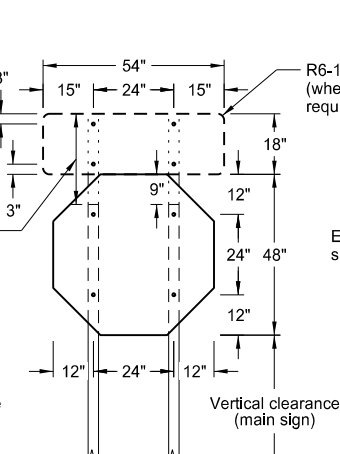
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



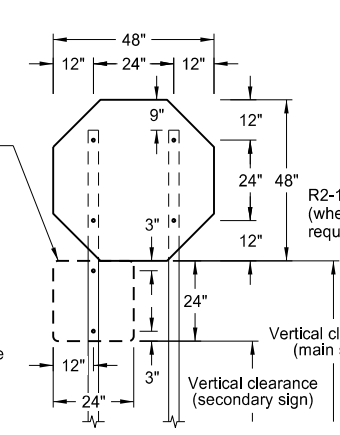
R1-2-60 - YIELD SIGN



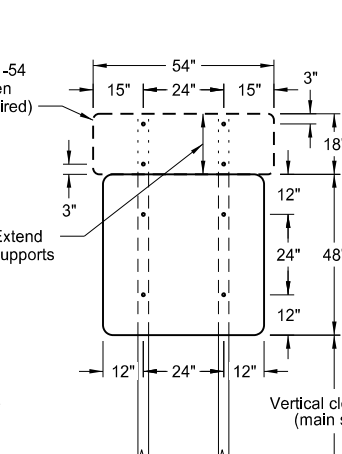
W14-3-64 - PENNANT SIGN



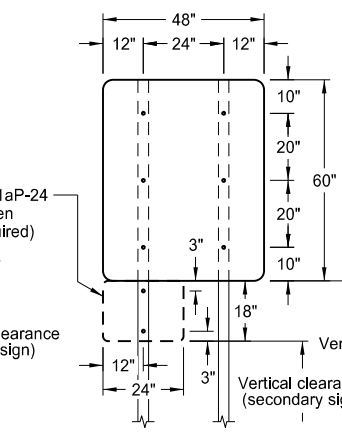
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



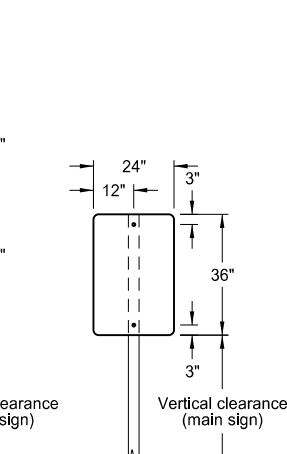
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



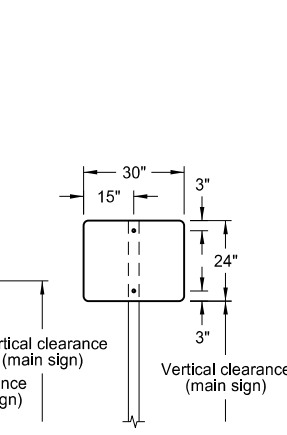
48" x 48" SIGN
(with R6-1-54 sign as required)



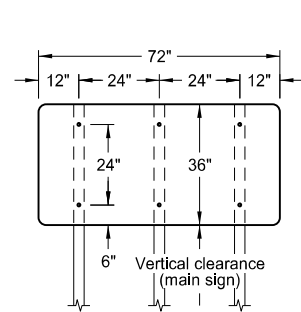
48" x 48" SIGN
(with R2-1aP-24 sign as required)



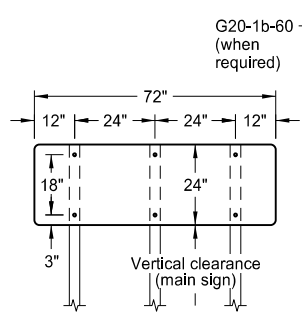
24" x 36" SIGN



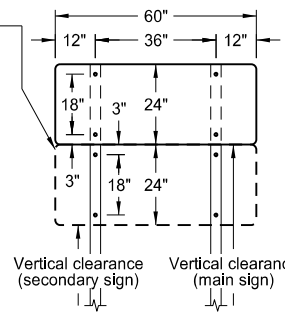
30" x 24" SIGN



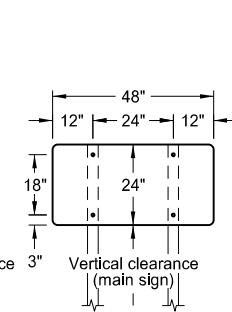
72" x 36" SIGN



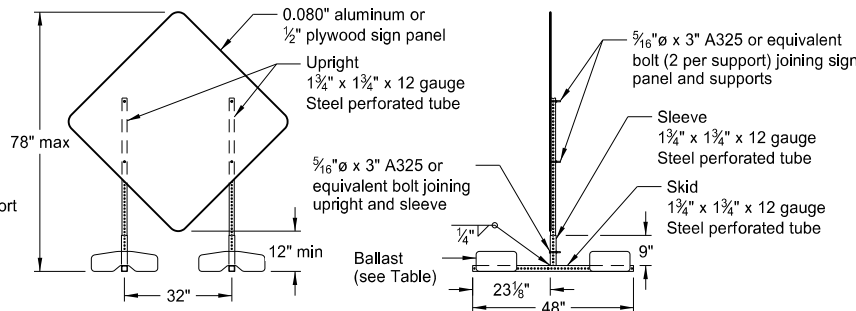
72" x 24" SIGN



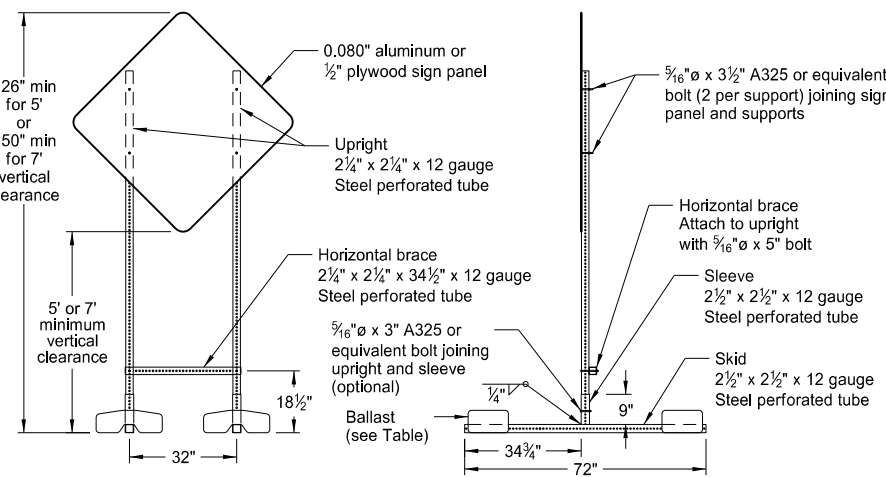
60" x 24" SIGN



48" x 24" SIGN



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Galvanize or paint supports. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.

Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.

Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.
2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. Punch all holes round for ⅝" bolts.
3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on lane closure sign)
4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

Interstate - white legend on blue background
Interstate Business Loop - white legend on green background
US and State - black legend on white background
County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.). In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

The vertical clearance to secondary signs is 1'-0" less than the vertical clearance stated above.

Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

6. Portable Signs: Provide portable signs that meet the vertical clearance stated above when it is necessary to place signs within the pavement surface.

Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed as long as the view of the sign is not obstructed. Time delays caused by unforeseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

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

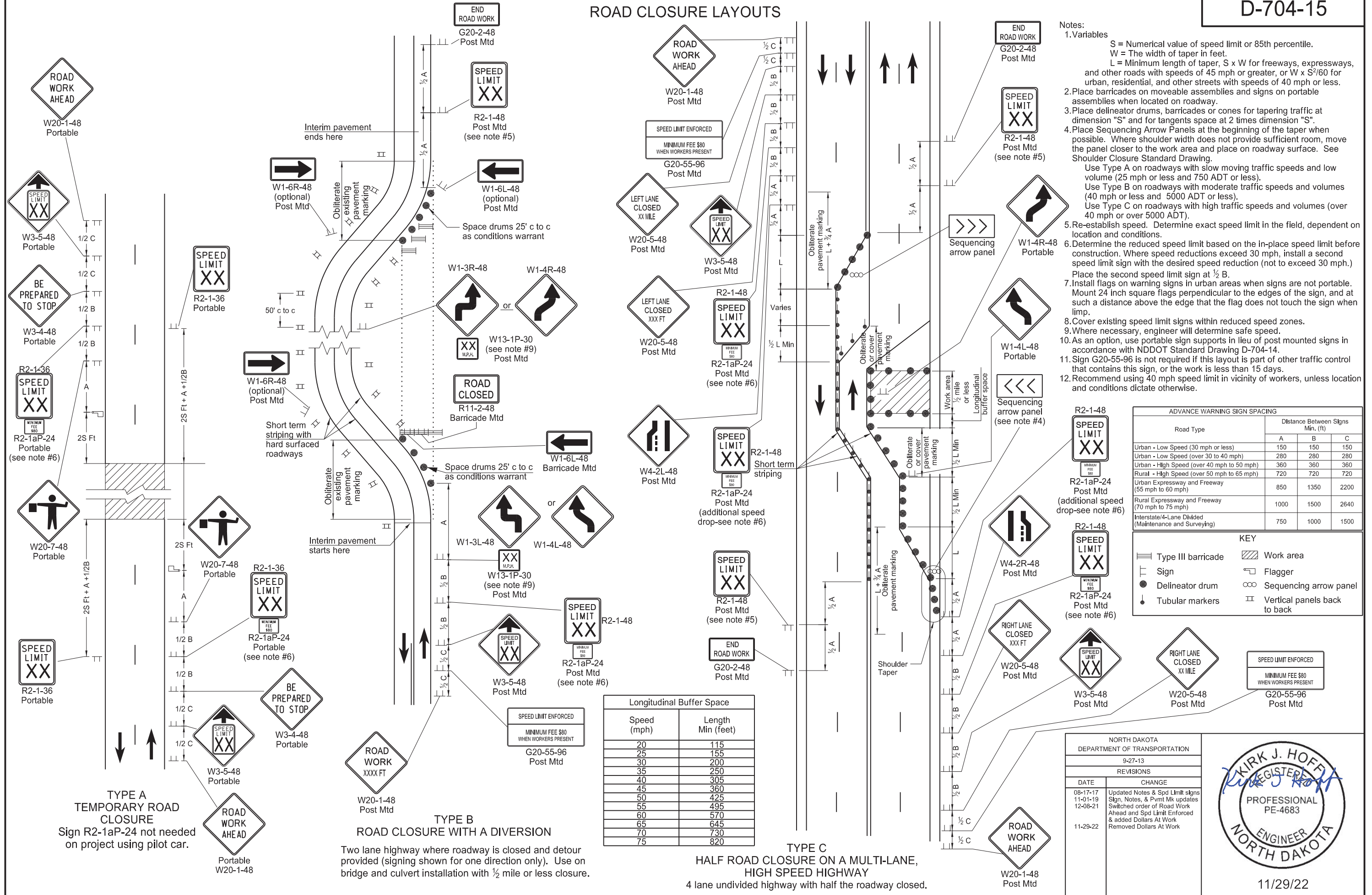
Note: The number of sandbags are based on a wind speed of 55 MPH. Place sandbags at or near the ends of skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail

This document was originally issued and sealed by

Kirk J Hoff,
Registration Number
PE-4683,
on 11/1/19 and the original document is stored at the North Dakota Department of Transportation

ROAD CLOSURE LAYOUTS



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Updated Notes & Spd Limit signs
11-01-19	Sign, Notes, & Pmnt Mk updates
12-08-21	Switched order of Road Work Ahead and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work

KIRK J. HOFF

REGISTERED

PROFESSIONAL

PE-4683

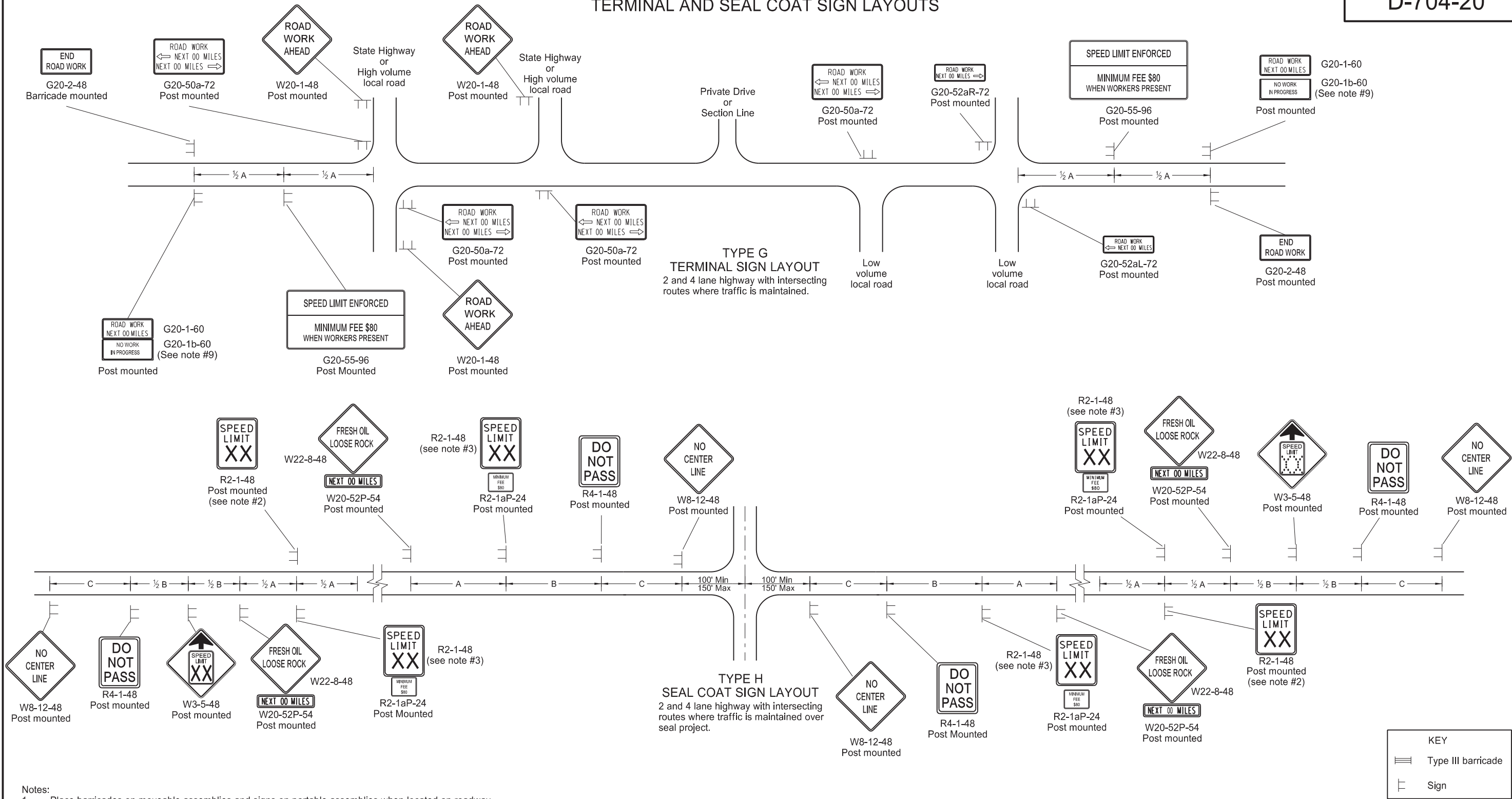
ENGINEER

NORTH DAKOTA

11/29/22

TERMINAL AND SEAL COAT SIGN LAYOUTS

D-704-20



Notes:

- Place barricades on moveable assemblies and signs on portable assemblies when located on roadway.
- Determine the exact speed limit in the field, based on location and conditions.
- Determine the reduced speed limit based on the in place speed limit before construction. Where speed limit reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 MPH.) Place the second speed limit sign at ½ B.
- Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
- Cover existing speed limit signs within a reduced speed zone.
- On seal coat projects, place signs R2-1-48, R2-1aP-24, R4-1-48, W22-8-48 and W20-52P-54 after all important intersections and at five mile intervals. Place sign W8-12-48 after all important intersections and at 2 mile intervals until short term center line pavement marking is placed.
- As an option, use portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Drawing D-704-14.
- Cover or remove speed limit signs from layout Type H when loose aggregate is removed.
- Install sign G20-1b-60 when work is suspended for winter.
- Use other traffic control layouts in immediate work areas. Place sign R2-1aP-24 below speed limit signs in reduced speed limit work areas.
- Sign G20-55-96 is not required if this layout is part of other traffic control that contains this sign, or the work is less than 15 days.
- Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

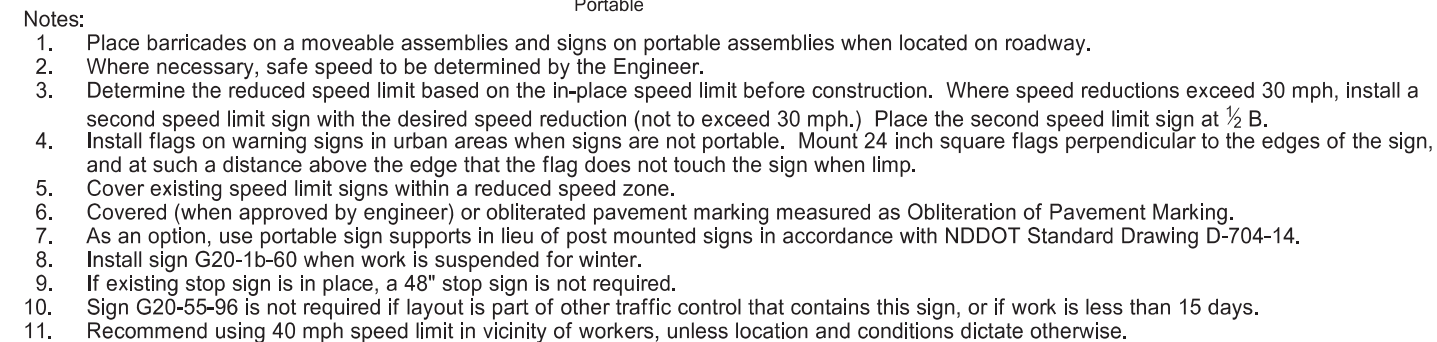
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs		
	Min. (ft)		
A	B	C	
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Updated notes & sign numbers
11-01-19	Updated note & sign
12-08-21	Switched order of Road Work and Spd Limit Enforced & added Dollars At Work
11-29-22	Removed Dollars At Work



11/29/22

D-704-22



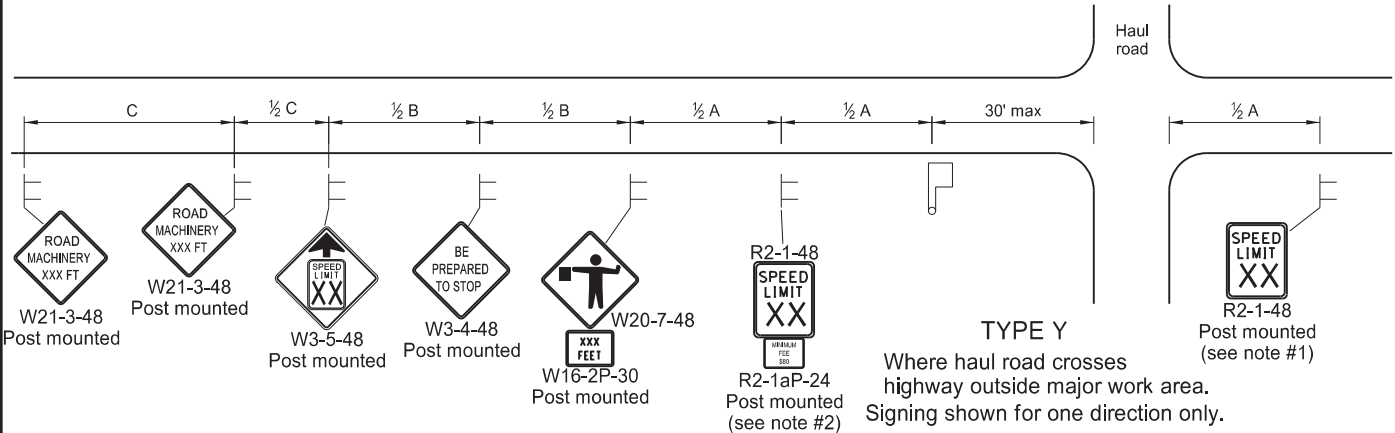
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
08-17-17	Update notes & sign numbers
11-01-19	Revised sign numbers & note
12-09-21	Added Speed Limit Enforced and Dollars At Work signs
11-29-22	Removed Dollars At Work

A circular professional engineer seal for Kirk J. Hoff, North Dakota. The seal contains the text: KIRK J. HOFF, REGISTERED, PROFESSIONAL, PE-4683, ENGINEER, and NORTH DAKOTA. A blue ink signature, "Kirk J Hoff", is written across the seal.

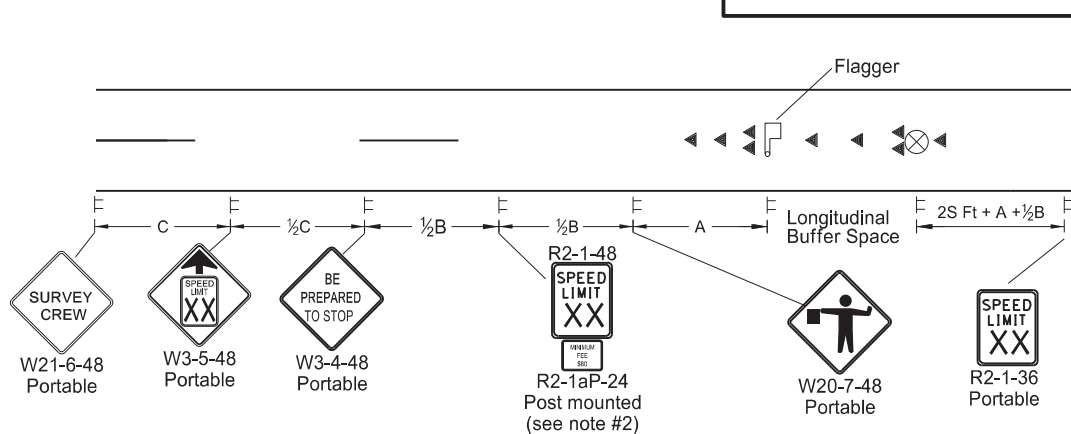
11/29/22

MISCELLANEOUS SIGN LAYOUTS

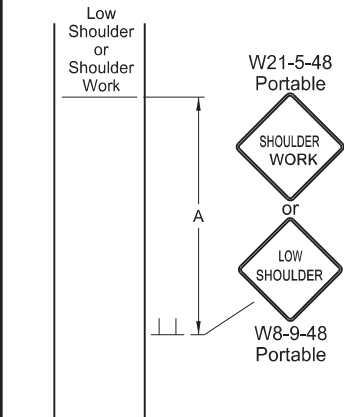


TYPE Y
Where haul road crosses
highway outside major work area.
Signing shown for one direction only.

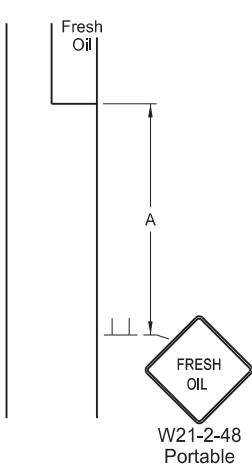
TYPE Z
Where speed zone is needed
Signing shown for one direction only.



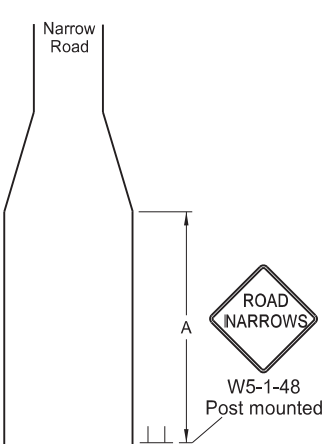
TYPE AA
Where survey crew is used
Signing shown for one direction only.



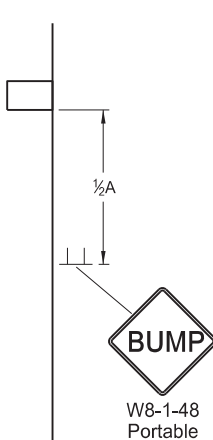
TYPE BB
Within major work area
where sign conditions exist



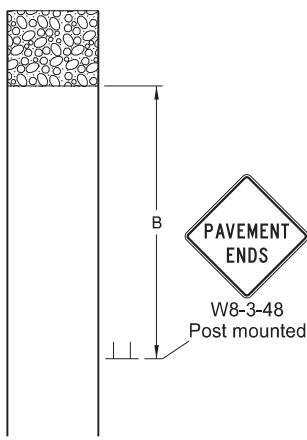
TYPE CC
Where sign conditions exist



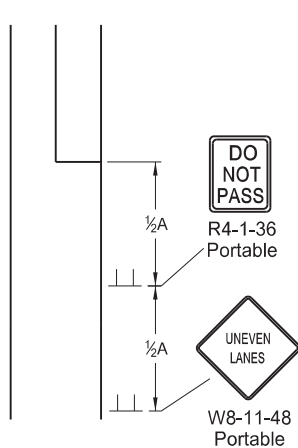
TYPE DD
Where sign conditions exist



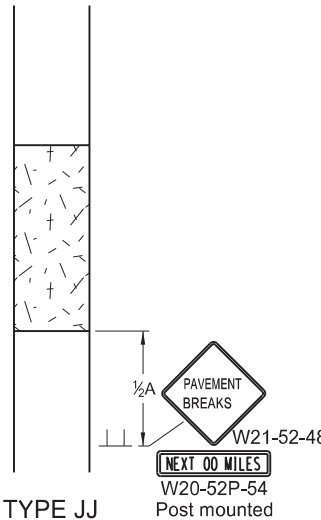
TYPE EE
Where sign conditions exist



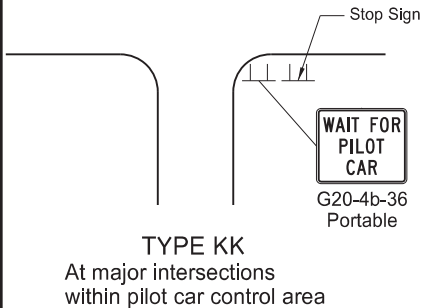
TYPE FF
Where sign conditions exist
Signing shown for one direction only.



TYPE GG
Where elevation difference
exists between lanes



TYPE JJ
For break in pavement.
Install signs when conditions exist
and remove when not applicable.
Signing shown for one direction only.



TYPE KK
At major intersections
within pilot car control area

- Notes
1. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
 2. Determine reduced speed limit based on in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at 1/2 B.
 3. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
 4. Cover existing speed limit signs within reduced speed zones.
 5. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
 6. Sign G20-55-96 is not required if this standard is part of other traffic control layouts, or work is less than 15 days.
 7. When pilot car operation is used, place sign G20-4b-36 "Wait For Pilot Car" at major intersections within pilot car control area.
 8. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
 9. Layouts shown for one direction only.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space	
*Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

* Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

KEY

Flagger

Sign

Cones

Survey Equipment

S = Numerical value of speed limit or 85th percentile.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added speed limit signs. Updated notes & sign numbers.
11-01-19	Revised note 5 & sign numbers.
2-23-23	Revised distance & removed signs.

KIRK J. HOFF

REGISTERED

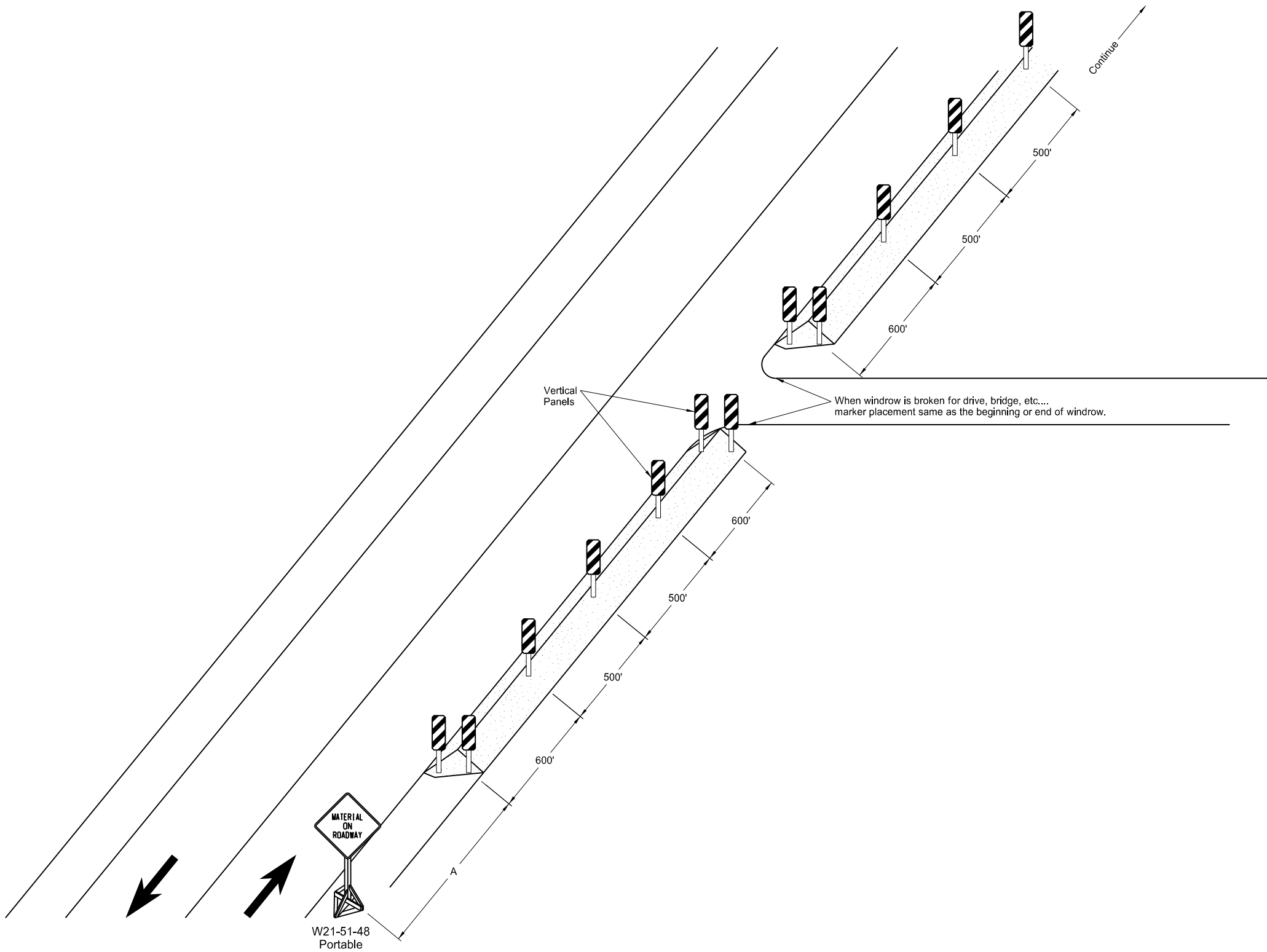
PROFESSIONAL

PE-4683

ENGINEER

NORTH DAKOTA

02/23/23



Notes:
As an option, use portable sign supports in lieu of post mounted sign in accordance with NDDOT Standard Drawing D-704-14.

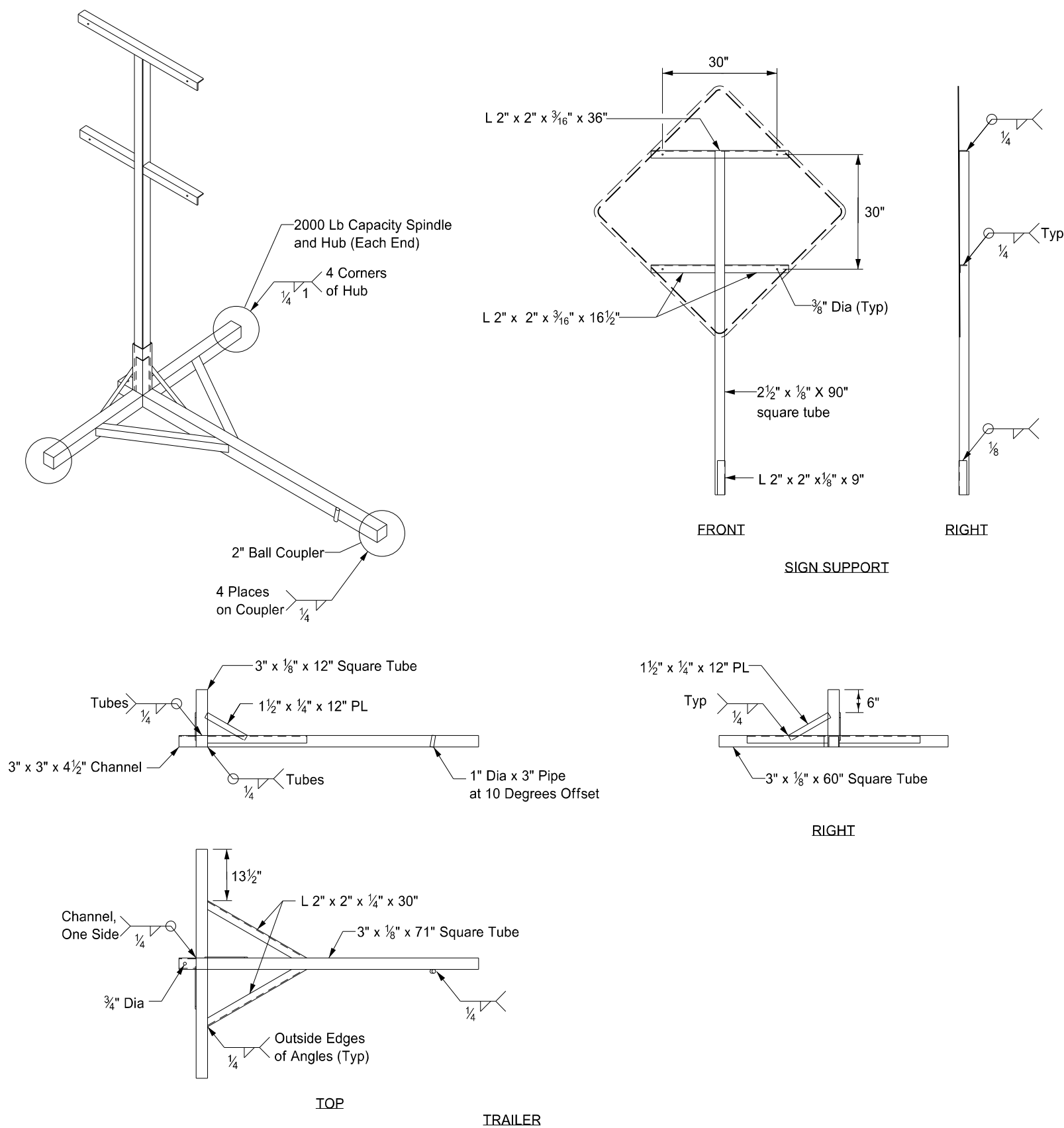
ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (55 mph to 60 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
6-24-14 8-17-17 11-01-19	Revised Note Updated notes & sign support Revised note

This document was originally issued and sealed by
Kirk J Hoff,
Registration Number
PE- 4683,
on 11/1/19 and the original document is stored at the
North Dakota Department
of Transportation

PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50

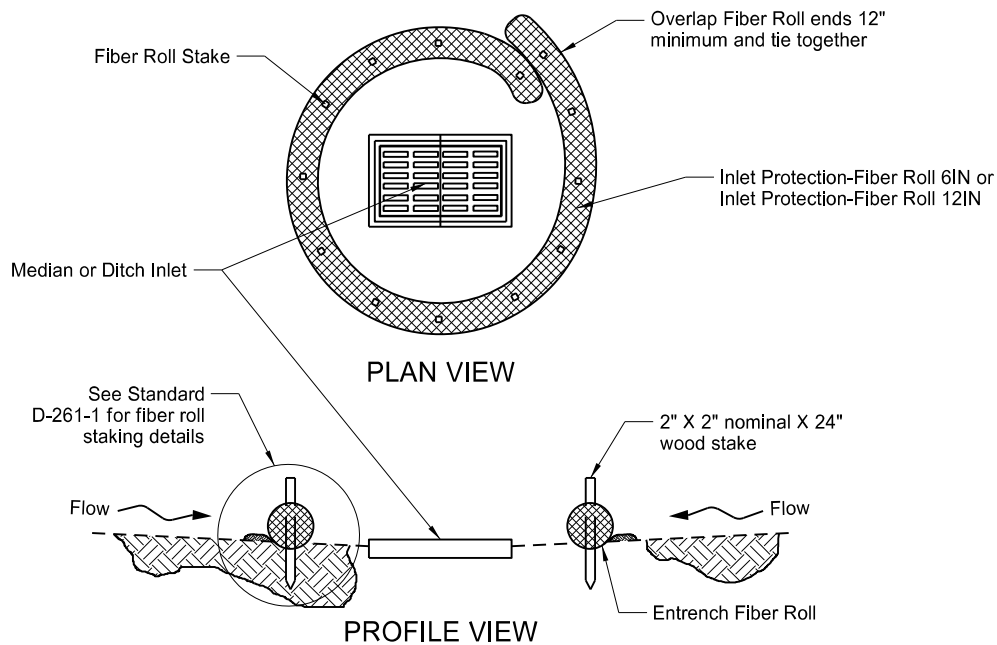


- Notes:
- 1. Maximum 250 pound weight of assembly.
 - 2. Use a 14" wheel and tire.
 - 3. Use no automotive and equipment axle assemblies for trailer-mounted sign supports.
 - 4. Other NCHRP 350 or MASH crash tested assemblies are acceptable.

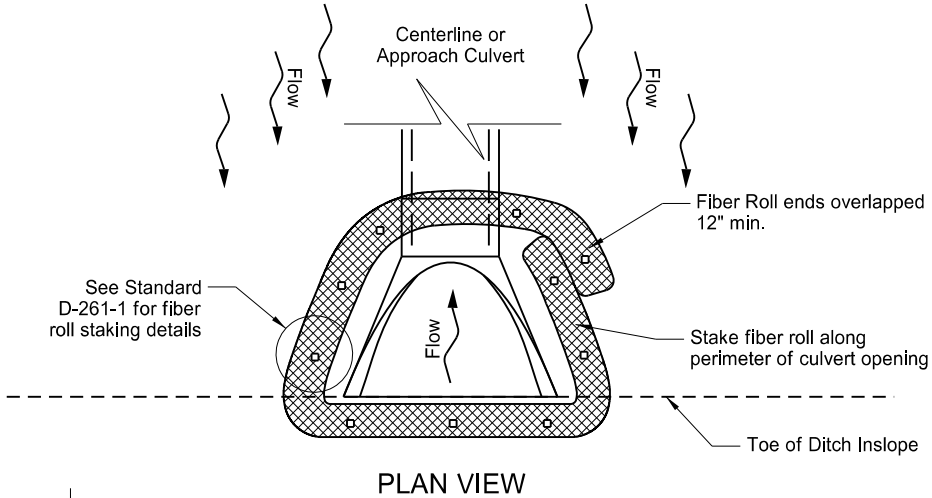
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.



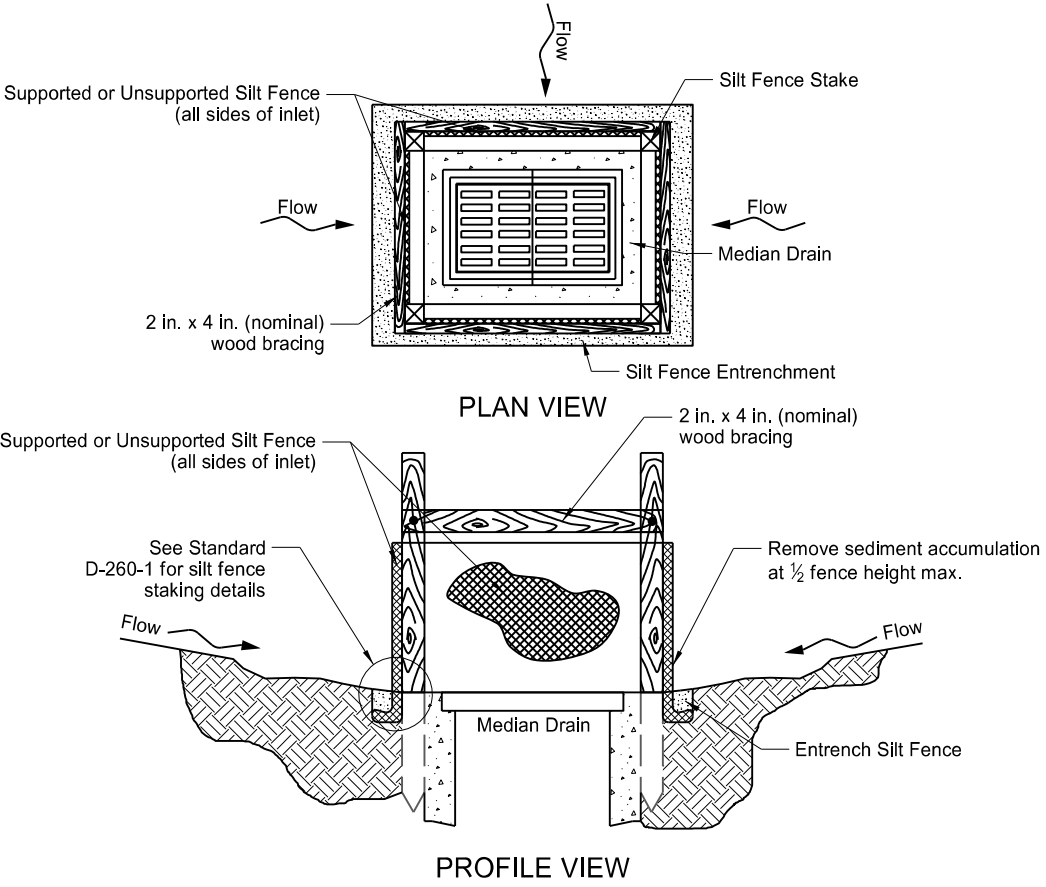
EROSION AND SILTATION CONTROLS
MEDIAN OR DITCH INLET PROTECTION



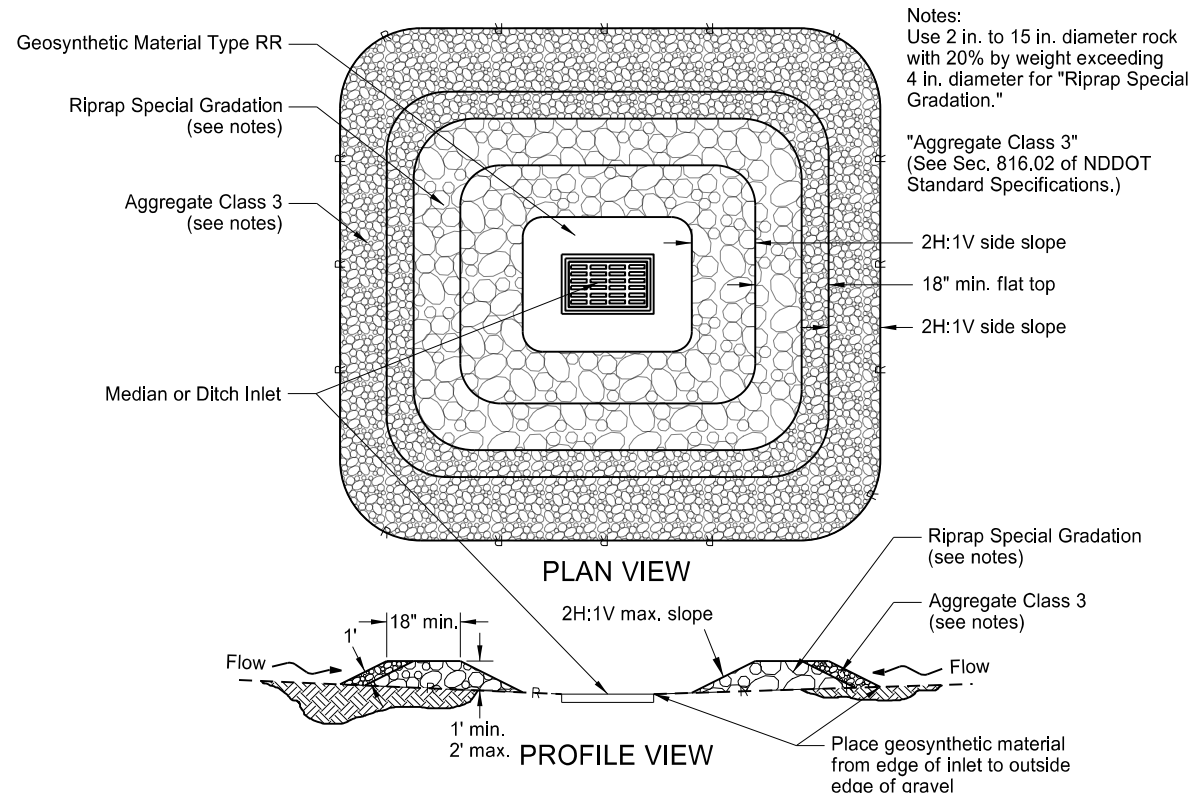
FIBER ROLL PROTECTION
(MEDIAN OR DITCH INLET)



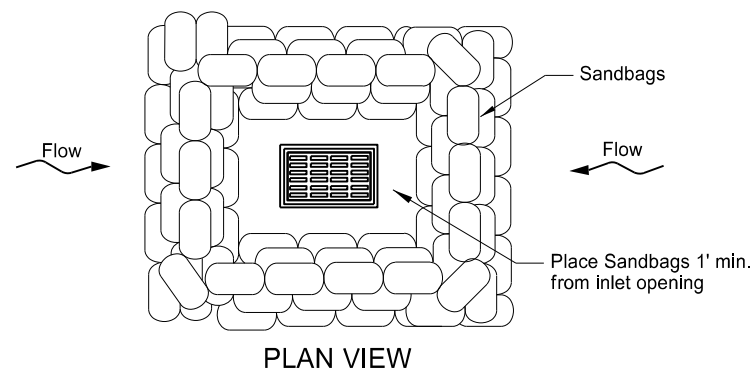
FIBER ROLL PROTECTION
(INLET OF CULVERT)



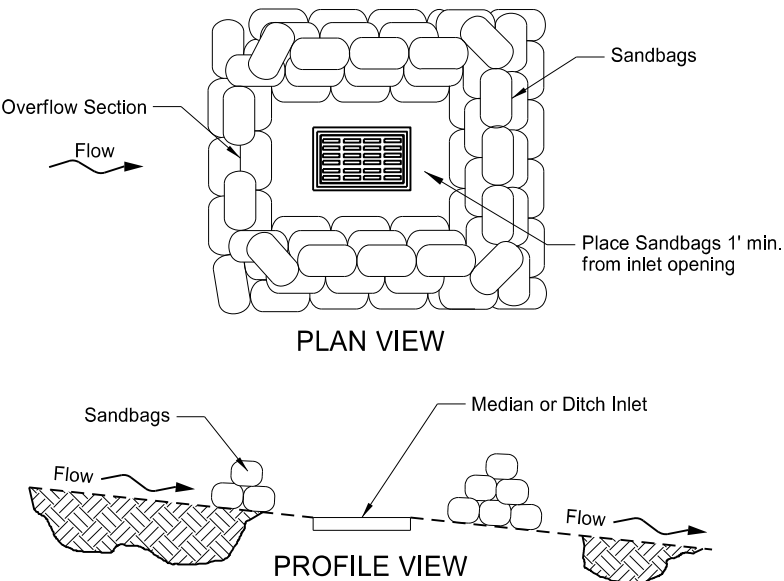
SILT FENCE PROTECTION
(MEDIAN OR DITCH INLET)



GRAVEL INLET PROTECTION
(MEDIAN OR DITCH INLET)



SANDBAG PROTECTION
(LOW POINT)

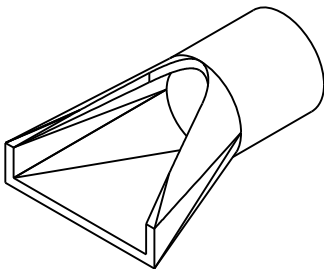


SANDBAG PROTECTION
(ON SLOPE)

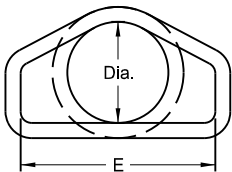
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Updated reference to standard drawing number for fiber roll staking details.
10-01-14	Updated reference to standard drawing number for silt fence.
10-17-17	Updated to active voice.
08-27-19	New Design Engineer PE Stamp.

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

FLARED END SECTION						
TERMINAL DIMENSIONS						
DIA	A	B	C	D	E	U
12	0'-4"	2'-0"	4'-0 ⁷ / ₈ "	6'-0 ⁷ / ₈ "	2'-0"	2"
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2 ¹ / ₄ "
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2 ¹ / ₂ "
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2 ³ / ₄ "
24	0'-9 ¹ / ₂ "	3'-7 ¹ / ₂ "	2'-6"	6'-1 ¹ / ₂ "	4'-0"	3"
27	0'-10 ¹ / ₂ "	4'-0"	2'-1 ¹ / ₂ "	6'-1 ¹ / ₂ "	4'-6"	3 ¹ / ₂ "
30	1'-0"	4'-6"	1'-7 ³ / ₄ "	6'-1 ³ / ₄ "	5'-0"	3 ¹ / ₂ "
36	1'-3"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42	1'-9"	5'-3"	2'-9"	8'-0"	6'-6"	4 ¹ / ₂ "
48	2'-0"	6'-0"	2'-0"	8'-0"	7'-0"	5"
54	2'-3"	5'-5"	2'-9 ¹ / ₂ "	8'-2 ¹ / ₄ "	7'-6"	5 ¹ / ₂ "
60	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"	5"
66	2'-6"	6'-0"	2'-3"	8'-3"	8'-6"	5 ¹ / ₂ "
72	3'-0"	6'-6"	1'-9"	8'-3"	9'-0"	6"
78	3'-0"	7'-6"	1'-9"	9'-3"	9'-6"	6 ¹ / ₂ "
84	3'-0"	7'-6 ¹ / ₂ "	1'-9"	9'-3 ¹ / ₂ "	10'-0"	6 ¹ / ₂ "
90	3'-5"	7'-3 ¹ / ₂ "	2'-0"	9'-3 ¹ / ₄ "	11'-0"	6 ¹ / ₂ "

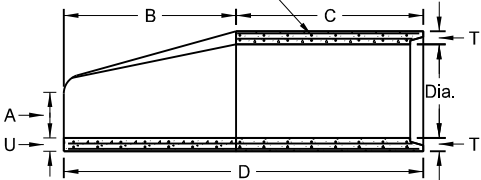


PERSPECTIVE

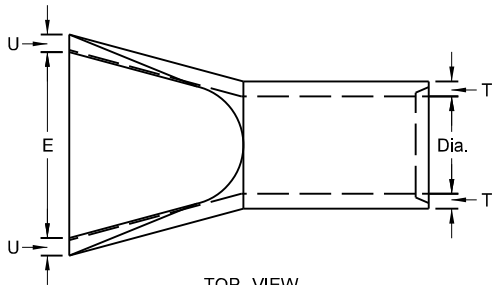


END VIEW

Standard Reinforcement for Class III pipe reinforced as per AASHTO M170



SIDE VIEW



TOP VIEW

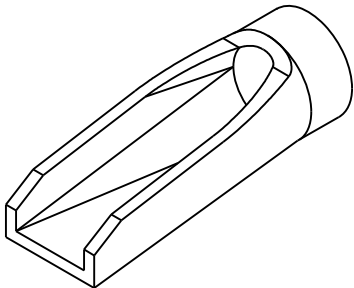
NOTES:

- All reinforcing steel shall meet AASHTO M170 requirements.
- All circular, longitudinal, and elliptical reinforcement shall be assembled and securely fastened in cage fashion so as to maintain reinforcement in exact shape and correct positions within the forms.
- Laying length of pipe: 12" to 66" (incl.) = not less than 4 feet
66" to 108" (incl.) = not less than 6 feet
- Joints shall be sealed with rubber gaskets or with sealer approved by the engineer whenever pipe are specified for storm drain or sanitary sewers.
- For Class IV and Class V reinforced concrete pipe and end section sizes which do not have reinforcement specified by AASHTO M170, shop drawings and design calculations shall be prepared and sealed by a Professional Engineer and submitted for the Engineer's review.

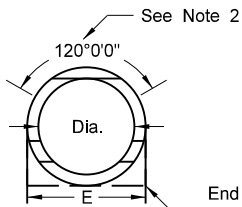
REINFORCED CONCRETE PIPE - FLARED END SECTION

Reinforcement to be equivalent to Class III RCP

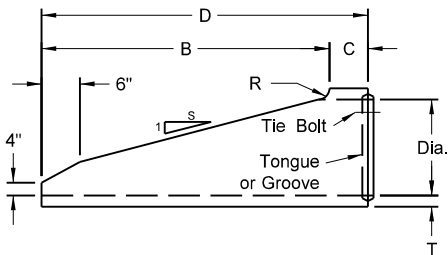
TRAVERSABLE END SECTION						
DIA	B	C	D	E	R	S
15"	4'	9"	4'-9"	1'-7 ¹ / ₂ "	3"	6
18"	5'-9"	9"	6'-6"	1'-11"	3"	6
24"	6'	1'	7'	2'-6"	3"	4
30"	7'-6"	1'	8'-6"	3'-1"	3 ¹ / ₂ "	4
36"	7'-3"	15"	8'-6"	3'-8"	3"	4



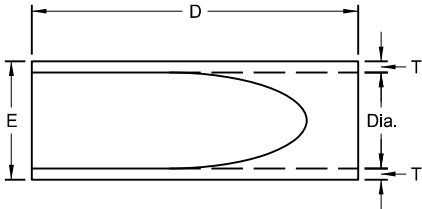
PERSPECTIVE



END VIEW



SIDE VIEW



TOP VIEW

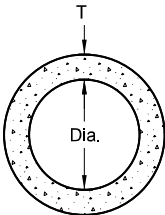
NOTES (Traversable End Section):

- Manufactured in accordance with applicable portions of ASTM C76/AASHTO M170.
- Reinforcement per Class III RCP with double reinforcement in the upper 120° of the full barrel portion.

REINFORCED CONCRETE PIPE - TRAVERSABLE END SECTION

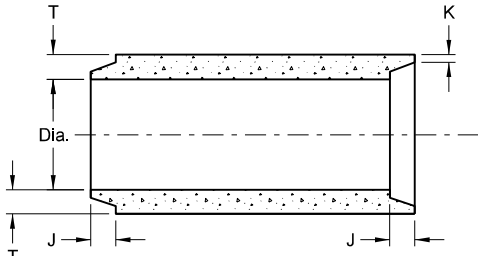
Reinforcement to be equivalent to Class III RCP

All Classifications of Round Concrete Pipe						
Internal Dia. of pipe in Inches	Cross-Sectional Water Area	Weight per Lin. Foot of pipe Std. Wall	Joint J Groove End Min./Max.	Joint K Tongue Min.	Minimum Wall Thickness (T)	
Dia	Sq. ft.	Lbs.	In.	In.	In.	
12	0.79	92	1 ⁵ / ₈ -2 ³ / ₈	3/4	2	
15	1.23	127	1 ³ / ₄ -2 ¹ / ₄	7/8	2 ¹ / ₄	
18	1.77	168	1 ¹ / ₂ -2 ¹ / ₂	1	2 ¹ / ₂	
21	2.40	214	1 ¹ / ₂ -3 ¹ / ₈	1 ¹ / ₈	2 ³ / ₄	
24	3.14	265	2 ³ / ₄ -3 ¹ / ₄	1 ¹ / ₈	3	
27	3.98	322	2 ³ / ₄ -4	1 ¹ / ₄	3 ¹ / ₄	
30	4.91	384	3 ¹ / ₄ -4 ¹ / ₄	1 ¹ / ₄	3 ¹ / ₂	
33	5.94	452	3 ¹ / ₄ -4 ¹ / ₄	1 ¹ / ₂	3 ³ / ₄	
36	7.07	524	3 ¹ / ₄ -4 ¹ / ₄	1 ¹ / ₂	4	
42	9.62	685	3 ³ / ₄ -4 ³ / ₄	1 ³ / ₄	4 ¹ / ₂	
48	12.57	685	3 ³ / ₄ -4 ³ / ₄	1 ³ / ₄	5	
54	15.90	1070	4 ¹ / ₂ -5 ¹ / ₄	2	5 ¹ / ₂	
60	19.63	1296	4 ¹ / ₂ -5 ¹ / ₂	2 ¹ / ₄	6	
66	23.76	1542	5-6	2 ³ / ₈	6 ¹ / ₂	
72	28.27	1810	5 ⁵ / ₈ -6 ³ / ₄	2 ³ / ₈	7	
78	33.18	2098	6 ¹ / ₄ -7 ¹ / ₄	2 ³ / ₈	7 ¹ / ₂	
84	38.48	2410	5 ⁵ / ₈ -7 ³ / ₄	3 ³ / ₈	8	
90	44.18	2793	6 ³ / ₄ -8 ¹ / ₂	3 ³ / ₈	8 ¹ / ₂	
96	50.27	3092	7-8 ¹ / ₄	3 ¹ / ₂	9	
102	56.75	3466	7-8 ¹ / ₄	3 ¹ / ₂	9 ¹ / ₂	
108	63.62	3864	7 ¹ / ₄ -8 ¹ / ₂	3 ³ / ₄	10	

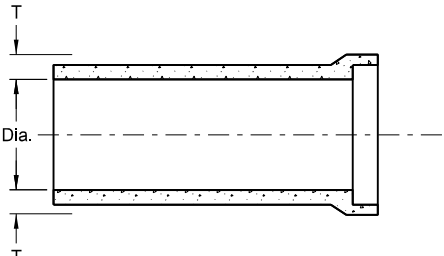


END VIEW

CIRCULAR PIPE

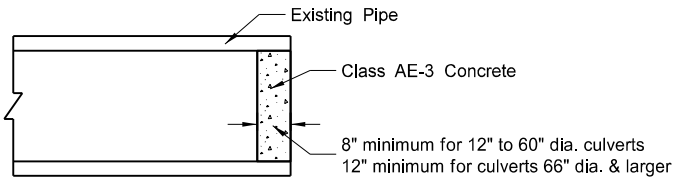


TONGUE & GROOVE JOINT



BELL & SPIGOT JOINT

JOINTS FOR REINFORCED CONCRETE PIPE



CONCRETE PIPE PLUG

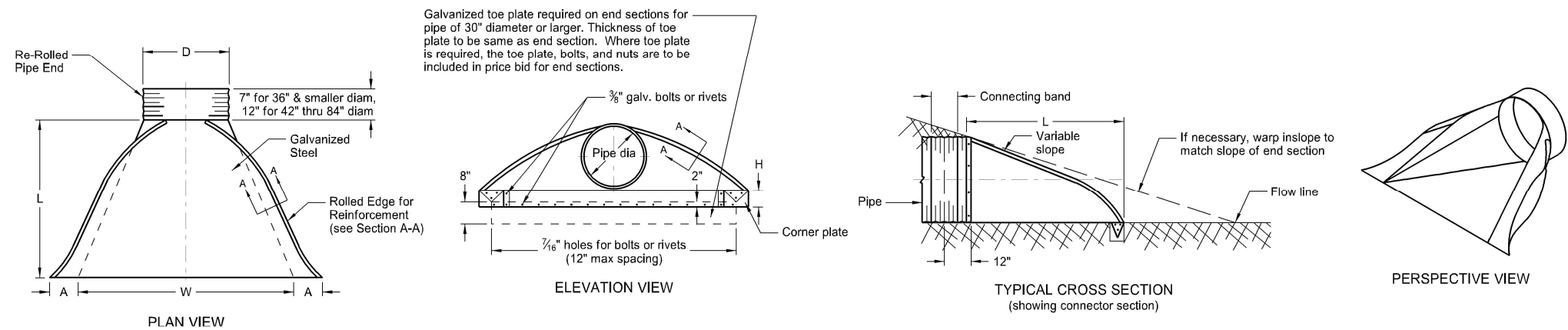
SEE STANDARD DRAWING D-714-22 FOR DETAILS OF CONCRETE PIPE TIES (TIE BOLTS).

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-12-14	
REVISIONS	
DATE	CHANGE
01-21-15	Revised Note 5
11-21-16	Revised End Section Dimensions
09-18-19	Updated Perspective View Details

This document was originally issued and sealed by
Jon Ketterling
Registration Number
PE- 4684 ,
on 9/18/19 and the original document is stored at the
North Dakota Department
of Transportation

ROUND CORRUGATED STEEL PIPE CULVERTS AND END SECTIONS

D-714-4



PIPE DIA.	GALVANIZED THICKNESS	END SECTION DIMENSIONS						APPROX. SLOPE RATE	BODY
		A	B	H	L	W			
15	0.064 - 0.079	7	8	6	26	30		2 1/2:1	1
18	0.064 - 0.109	8	10	6	31	36		2 1/2:1	1
24	0.064 - 0.109	10	13	6	41	48		2 1/2:1	1
30	0.064 - 0.109	12	16	8	51	60		2 1/2:1	1 or 2
36	0.064 - 0.109	14	19	9	60	72		2 1/2:1	2
42	0.064 - 0.138	16	22	11	69	84		2 1/2:1	2
48	0.064 - 0.168	18	27	12	78	90		2 1/2:1	2
54	0.064 - 0.168	18	30	12	84	102		2:1	2
* 60	0.064 - 0.168	18	33	12	87	114		1 1/2:1	3
* 66	0.064 - 0.168	18	36	12	87	120		1 1/2:1	3
* 72	0.064 - 0.168	18	39	12	87	126		1 1/2:1	3
* 78	0.064 - 0.168	18	42	12	87	132		1 1/2:1	3
* 84	0.064 - 0.168	18	45	12	87	138		1 1/2:1	3

* These sizes have 0.109" sides and 0.138" center panels.

** Pipe diameter is equal to dimension "D" of end section.

Manufacturers tolerances of above dimensions will be allowed.

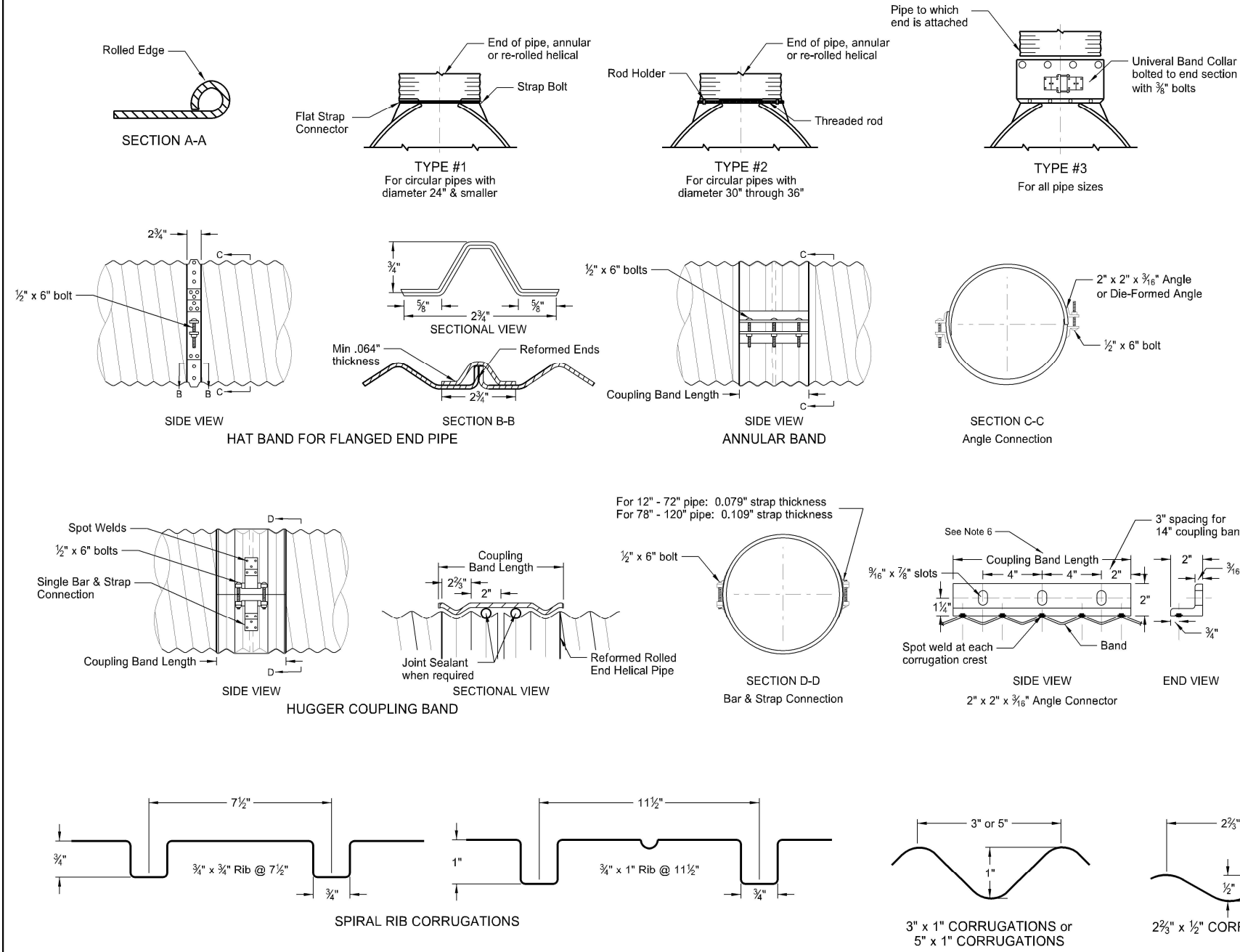
Splices to be the lap riveted type.

Multiple panel bodies shall have lap seams which are to be tightly joined with 3/8" dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.

NOTES:

- Pipes and connecting bands shall conform to applicable sections of NDDOT Standard Specifications and to AASHTO M-36.
- Top edge of all end sections to have rolled edges for reinforcement (see Section A-A). The reinforced edges are to be supplemented with 2" x 2" x 1/8" galv. angle for 60" through 72" dia. and 2 1/2" x 2 1/2" x 1/8" galv. angle for 78" and 84" dia.. Angles to be attached by galv. 3/8" dia. bolts and nuts. Angles are to extend from pipe to the corner wing bend.
- Elongated pipes shall be factory preformed so that the vertical diameter shall be 5% greater and the horizontal diameter 5% less than a circular pipe.
- Coupling bands shall be two-piece for pipes larger than 36" as shown in Section C-C & D-D details. For pipes 36" and smaller, a one-piece band is acceptable.
- 1/2" x 8" bolts may be used as a substitute for the 1/2" x 6" bolts shown in the details.
- Coupling bands wider than 14" may be used if a minimum of four 1/2" bolts with maximum spacing of 5 1/2" are used for the connection.
- Length of spot welds shall be minimum 1/2".

COUPLING BAND DIMENSIONS				
COUPLING TYPE	CORRUGATION PITCH x DEPTH	PIPE SIZE	COUPLING BAND LENGTH	MIN. BAND THICKNESS
Hat Band	2 3/8" x 1/2"	12" - 48"	2 3/4"	.064"
Annular Band	2 3/8" x 1/2"	12" - 72"	12"	.052"
		78" - 84"	12"	.079"
Hugger Band	2 3/8" x 1/2" Rerolled End	12" - 72"	10 1/2"	.052"
		78" - 84"	10 1/2"	.079"
	3" x 1" Rerolled End	48" - 120"	10 1/2"	.052"
		48" - 120"	12"	.064"

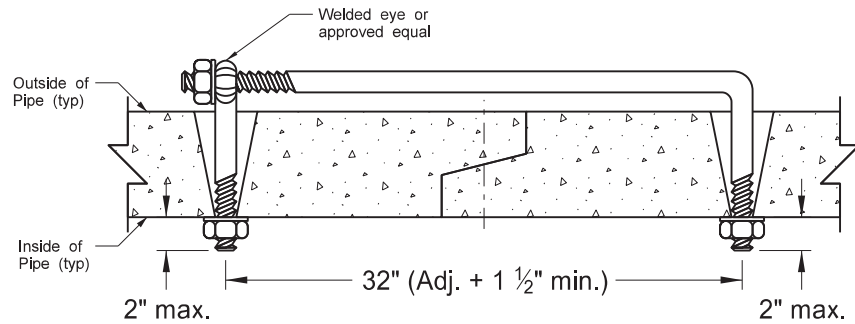


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
08-16-13	
REVISIONS	
DATE	CHANGE
01-07-14	End Section Plan View
02-27-14	3" x 1" Corrugation Detail
09-18-19	Added Perspective View Detail
09-23-22	Galvanized Thickness Table

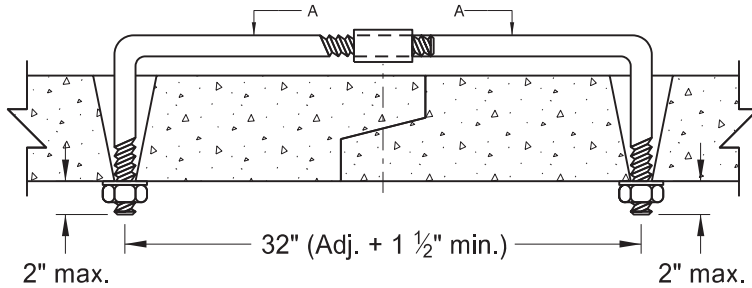
Professional Engineer Seal for Nathan D Kettering, State of North Dakota, License No. PE-4684. The seal is circular with the engineer's name and 'NORTH DAKOTA' around the perimeter. The date 09/23/22 is stamped at the bottom.

CONCRETE PIPE, CATTLE PASS, OR
PRECAST CONCRETE BOX CULVERT TIES

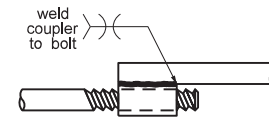
D-714-22



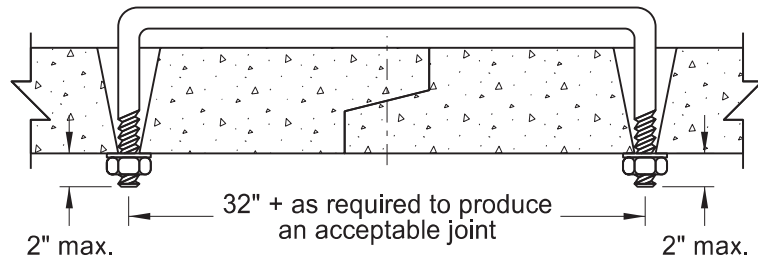
EYE BOLT TIE (PIPES ONLY)



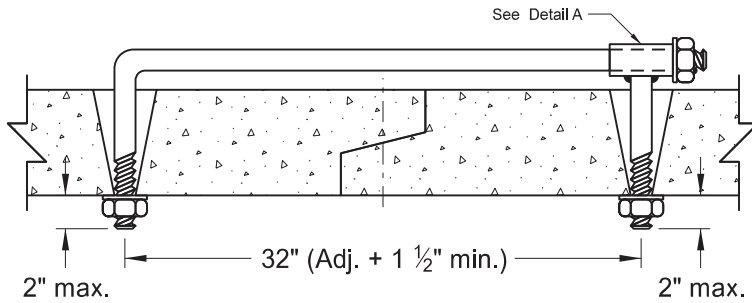
ADJUSTABLE TIE (RCB AND PIPES ONLY)



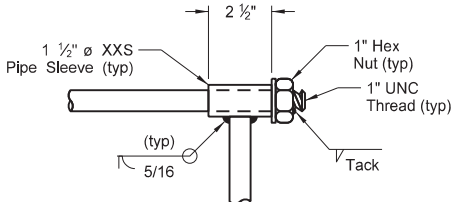
SECTION A-A



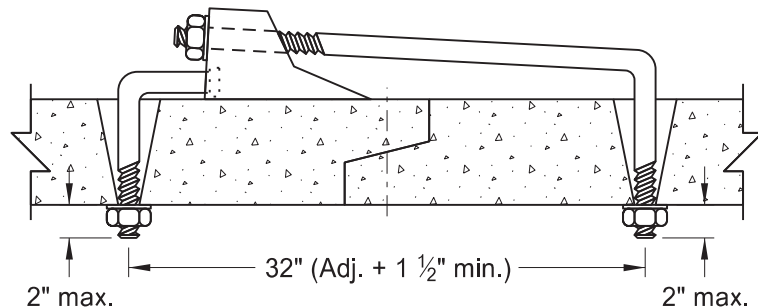
U BOLT TIE (RCB, PIPES, OR CATTLE PASSES)



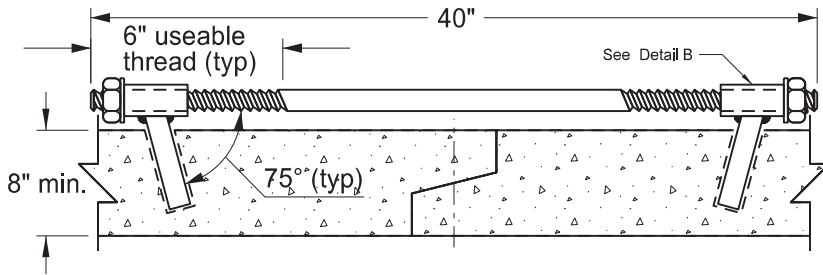
WELDED TIE (RCB AND PIPES ONLY)



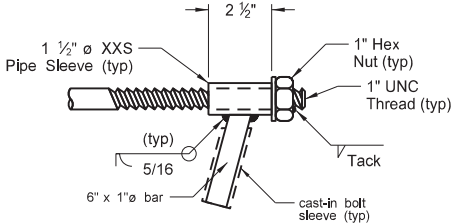
DETAIL A



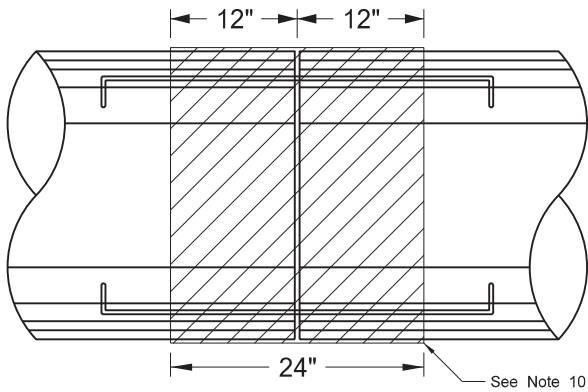
CANOPY TIE (PIPES ONLY)



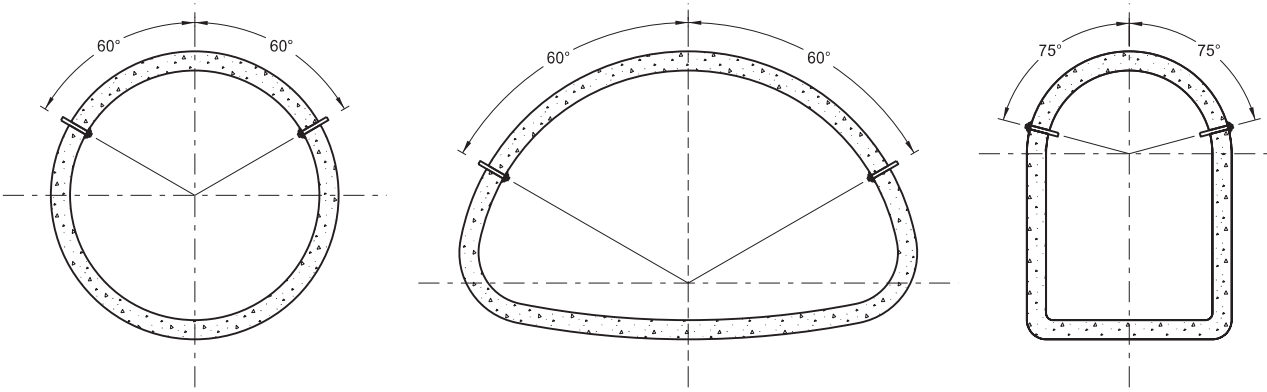
HIDDEN TIE (RCB ONLY)



DETAIL B



PLAN VIEW (PIPES ONLY)



END VIEW

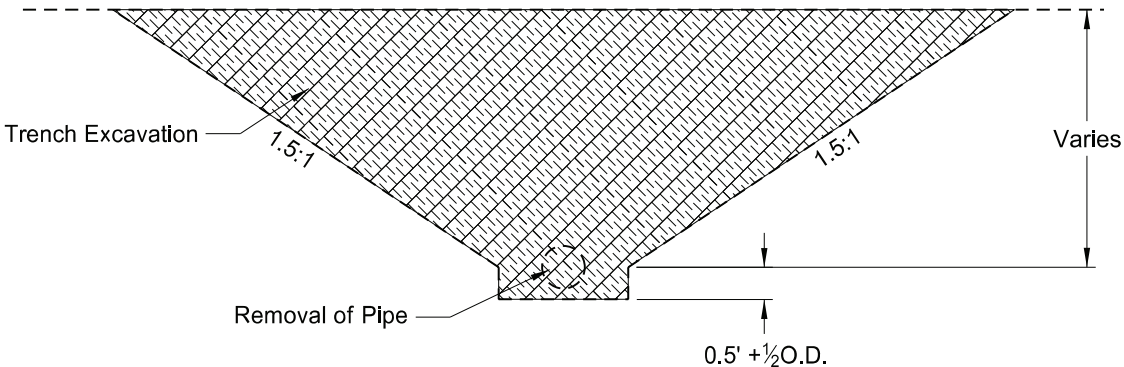
REQUIRED SIZE OF TIE BOLTS		
Pipe Size	Thread ϕ	XXS Pipe Sleeve Inner ϕ
18" - 24"	$\frac{5}{8}$ " See note 3	$\frac{3}{4}$ "
30" - 66"	$\frac{3}{4}$ "	1"
72" - 120"	1"	1 $\frac{1}{4}$ "
RCB/Cattle Pass		

- NOTES:
- The pipe size listed is the inside diameter of round pipe or the equivalent diameter of pipe arch.
 - Insert pipe ties from the inside of the pipes and grout in place for Cattle Pass and Jacked and Bored pipes. Jacked and bored pipes with a diameter of 24" or less do not require pipe ties.
 - Nuts and washers are not required on Jacked and Bored pipes or pipes with a 24" diameter or less. Insert and grout tie bars into place where nuts and washers are not used.
 - Do not use pipe ties to pull the pipe or RCB sections tight. The ties are only for holding sections together.
 - Use only tie bolt assemblies that have been hot dip galvanized in accordance with ASTM A 153.
 - Holes in pipes to accommodate tie bolts can be precast or drilled. Tapered holes are permitted when precast. Use holes that have a diameter $\frac{1}{4}$ " larger than the diameter of the thread. In precast RCB's, use holes that contain cast-in bolt sleeves with an inside diameter of 1 $\frac{1}{4}$ ".
 - Select the type of tie bolt used from those shown.
 - Include the cost of precasting or drilling the required holes and furnishing and installing the tie bolts in the price bid for the appropriate conduit or RCB pay item.
 - Tie all centerline and approach RCP culvert joints. Tie the first three joints including the end section of all free ends of storm drain systems. Free ends are defined as any storm drain end which does not terminate at an inlet or manhole. Outfall culverts with end sections which drain adjacent ditches are examples of free ends.
 - Place joint wrap prior to installing ties. Firmly secure the wrap around the full perimeter. For concrete pipes, overlap the joint by 12" in both directions. For box culverts, use a waterproof membrane that meets ASTM C877 (Type III). Provide a membrane that is a minimum of 12" wide and center it at the joint. Provide a minimum overlap of 2.5" at the seams.
 - Use tie bolts that conform to ASTM A 36. Use heavy hex nuts that conform to ASTM A 563. Use washers that conform to ASTM F 436, Type 1. Use welded pipe sleeves and cast-in bolt sleeves that conform to ASTM A 53, Grade B.
 - Tie RCB's at locations shown on the plans.

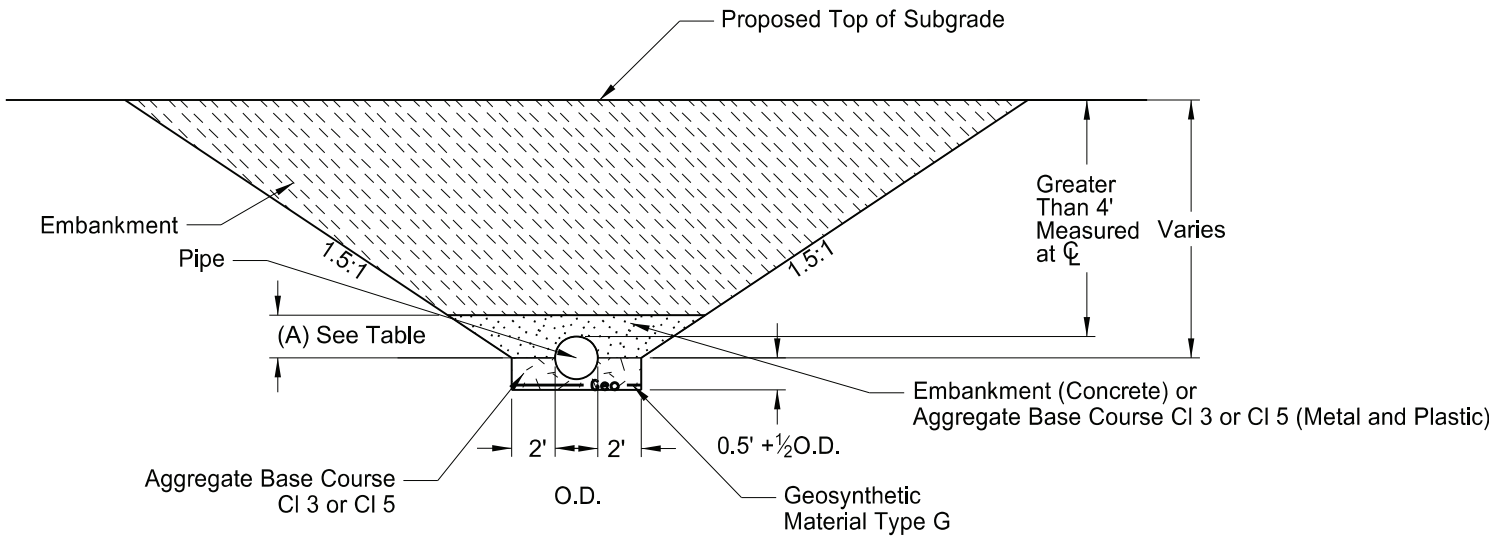
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-18-14	
REVISIONS	
DATE	CHANGE
7-21-15	Note 8
6-8-17	Notes 2-11, Table, Title, Labels
8-11-21	Notes 2-12, Table, Label



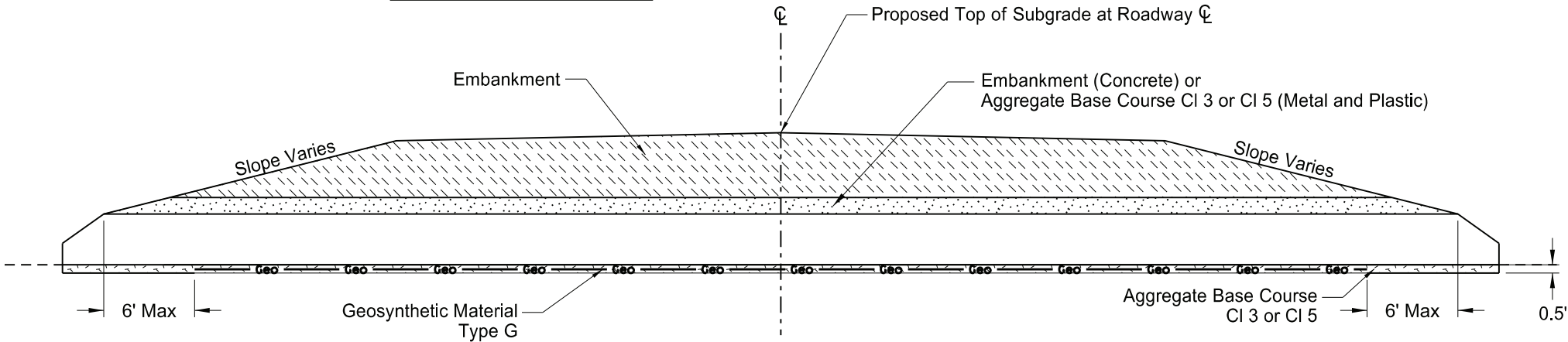
TRANSVERSE MAINLINE PIPE INSTALLATION DETAIL
PIPES MORE THAN 4 FEET BELOW TOP OF SUBGRADE



EXCAVATION DETAIL



INSTALLATION DETAIL



CROSS SECTION

Pay Items

- 1) Pipe*
- 2) Geosynthetic Material Type G
- 3) Removal of Pipe (if required)

*Included in Pipe Pay Item

- 1) Pipe
- 2) Trench excavation
- 3) Aggregate Base Course CI 3 or CI 5
- 4) Embankment

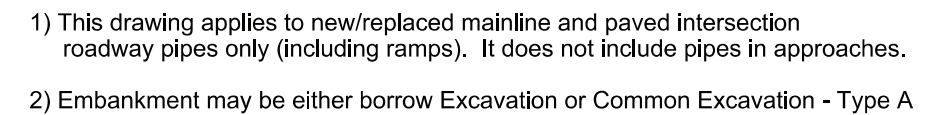
NOTES:

- 1) This drawing applies to new/replaced mainline and paved intersection roadways (including ramps). It does not include pipes in approaches.
- 2) Embankment may be either Borrow Excavation or Common Excavation - Type A.

Backfill Dimensions	
Pipe Materials	Dimension (A)
Concrete	0.5 O.D.
Metal and Plastic	0.5 O.D. + 1 Foot

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-26-13	
REVISIONS	
DATE	CHANGE
10-15-13	Label Formatting
1-21-14	Nomenclature
9-18-15	Title Rewording
12-10-15	Added Plastic Pipe
5-27-20	Replaced R1 Fabric with Geogrid Changed bedding depth



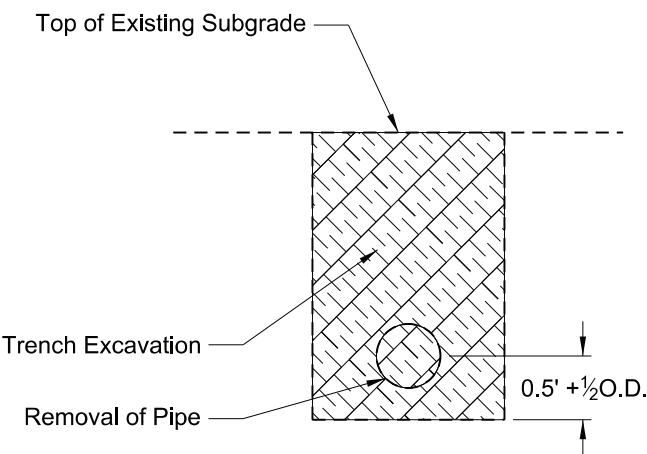


CROSS SECTION

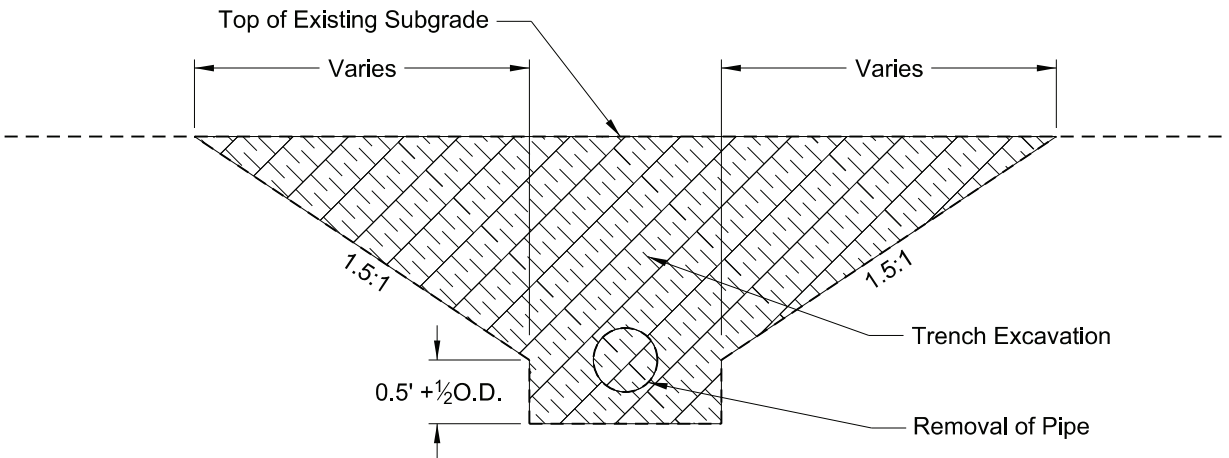
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-26-13	
REVISIONS	
DATE	CHANGE
10-15-13	Label Formatting
1-21-15	Nomenclature
9-18-15	Title Rewording
5-27-20	Replaced R1 Fabric with Geogrid
	Changed bedding depth



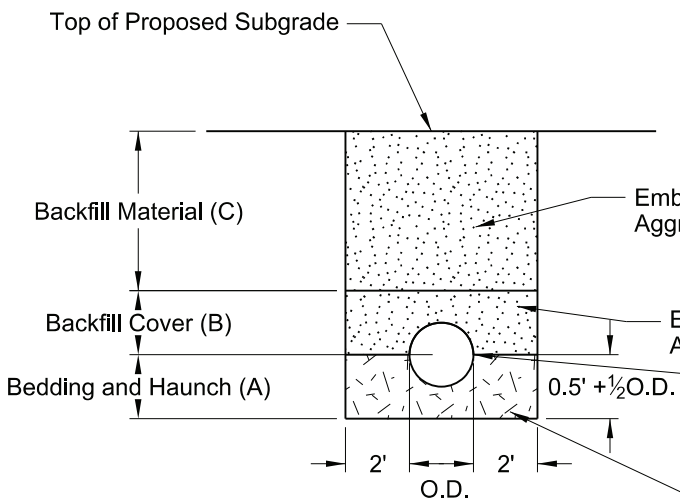
PIPE INSTALLATION DETAIL FOR LONGITUDINAL MAINLINE PIPE
OR PIPE NOT UNDER THE ROADWAY



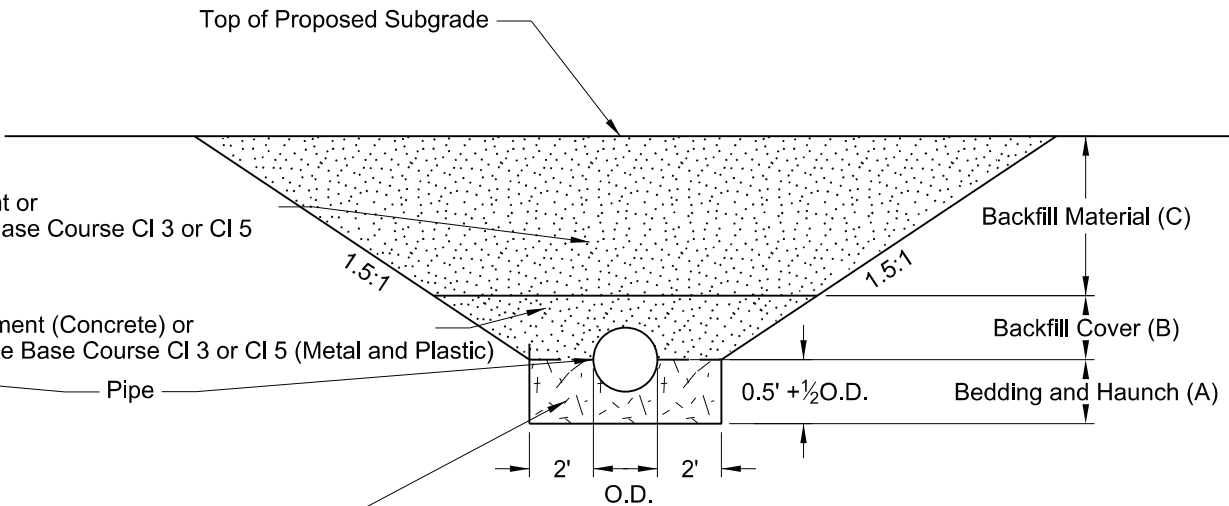
EXCAVATION DETAIL A



EXCAVATION DETAIL B



BACKFILL DETAIL A



BACKFILL DETAIL B

Pay Items

- 1) Pipe*
- 2) Removal of Pipe (if required)

*Included in Pipe Pay Item

- 1) Pipe
- 2) Trench excavation
- 3) Aggregate base course CI 3 or CI 5
- 4) Embankment

NOTES:

- 1) This drawing does not apply to pipes in approaches.
- 2) It is the contractor's option to select Detail A or B.
- 3) Embankment may be either Borrow Excavation or Common Excavation - Type A

Bedding and Haunch (A)
Pipes Not Under Roadway = 0.5 O.D. + 0.5 Feet
Pipes Under the Roadway = 0.5 O.D. + 0.5 Feet
Backfill Cover (B)
Concrete Pipe = 0.5 O.D.
Metal and Plastic = 0.5 O.D. + 1 Foot
Backfill Material (C)
Top of Pipe 4 Feet or Less Below the Top of Proposed Subgrade = Aggregate Base Course CI3 or CI 5
Top of Pipe Greater than 4 Feet Below the Top of Proposed Subgrade = Common Excavation - Type A
Pipe Not Under Roadway = Common Excavation - Type B

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-26-13	
REVISIONS	
DATE	CHANGE
10-15-13	Label Formatting
1-21-15	Nomenclature
12-10-15	Added Plastic Pipe
5-27-20	Changed bedding depth and updated table



STANDARD MONUMENTS AND RIGHT OF WAY MARKERS

D-720-1

NOTES:

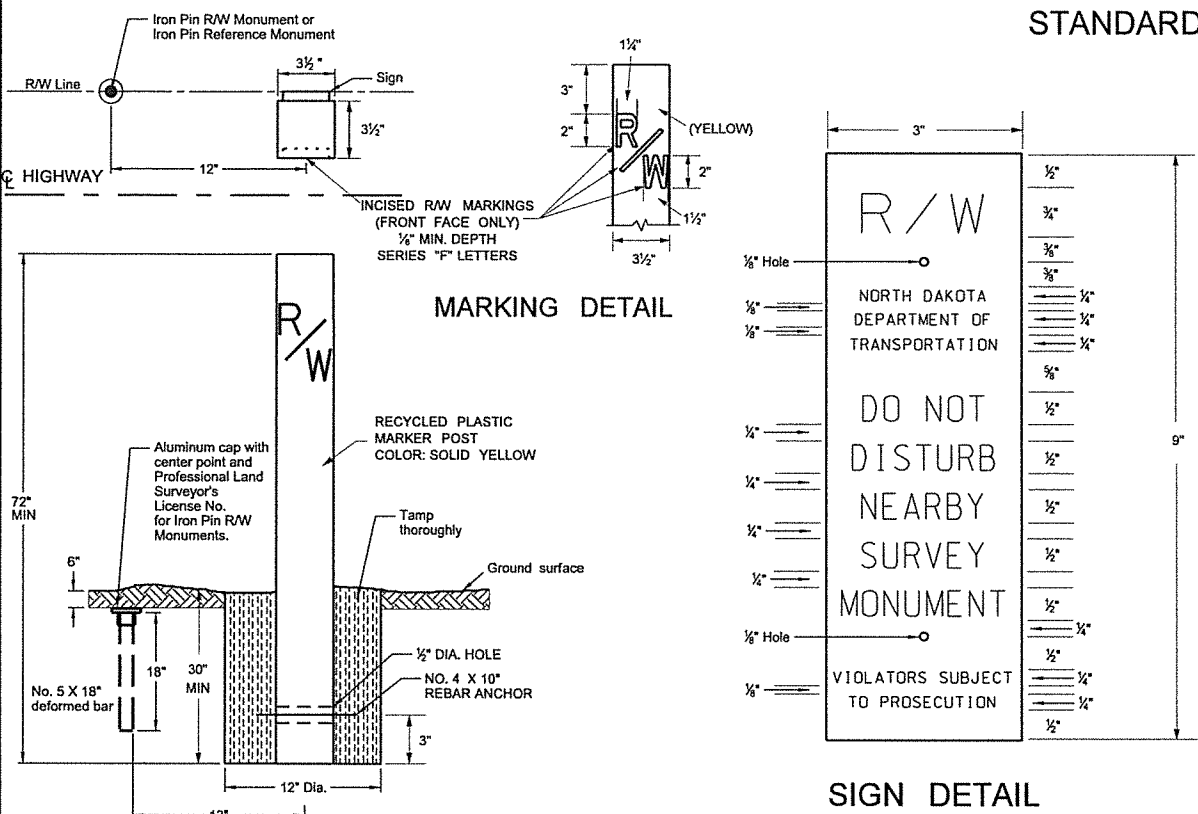
Construct and install Alignment Monuments, Iron Pin Reference Monuments, Iron Pin R/W Monuments, and Right of Way Markers (witness posts) according to Section 720 of the Standard Specifications.

ALIGNMENT MONUMENTS: Place Iron Pin or Precast Concrete Alignment Monuments with aluminum caps on the centerline alignment PI's, section corners, quarter corners, section line crossings, quarter line crossings, and at curve points (PC's, PT's, TS's, and ST's) on the centerline.

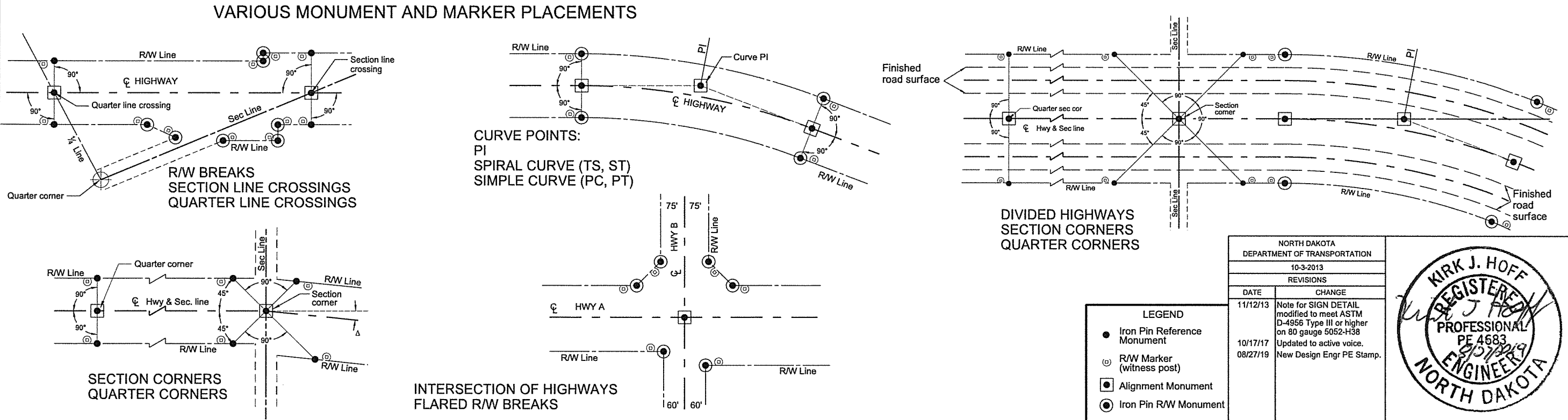
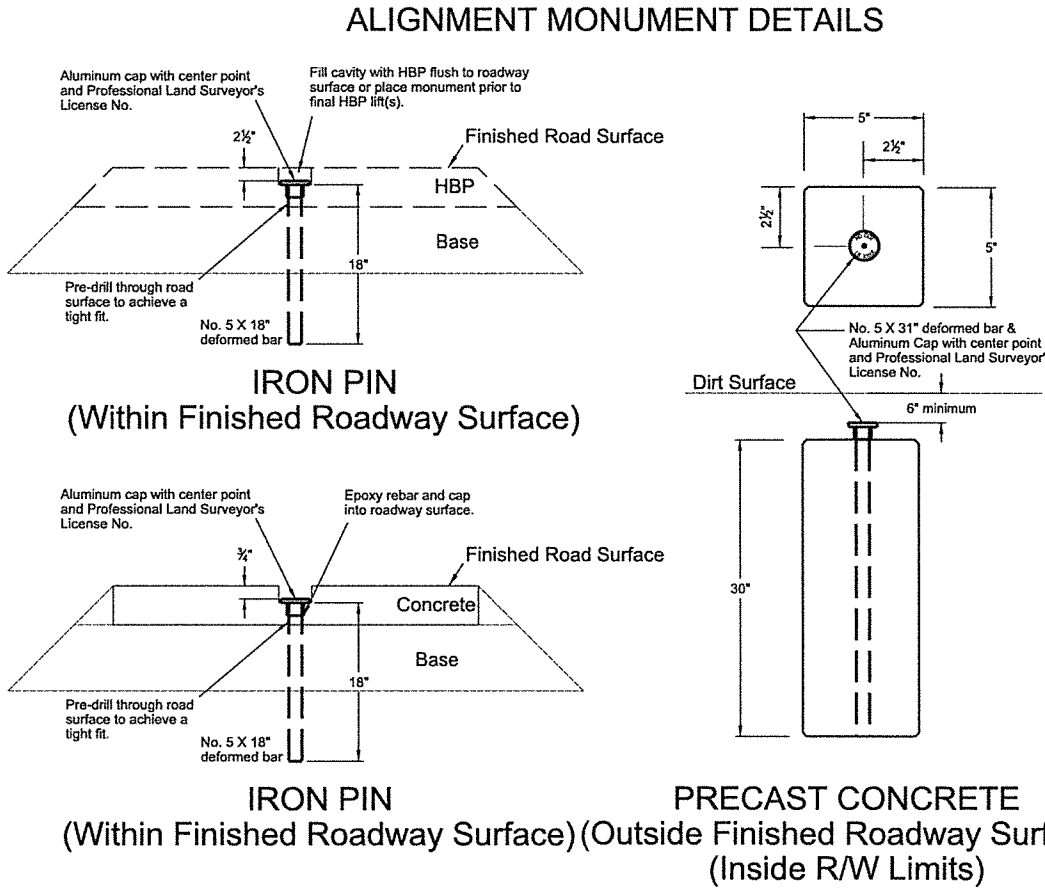
IRON PIN R/W MONUMENT: Place Iron Pins with aluminum caps (No. 5 X 18") at breaks on the Right of Way line, and at curve points (PC's, PT's, TS's and ST's) on the Right of Way line.

IRON PIN REFERENCE MONUMENT: Place Iron Pins without aluminum caps (No. 5 X 18") as reference monuments on the Right of Way line at section corners, quarter corners, section line crossings, and quarter line crossings.

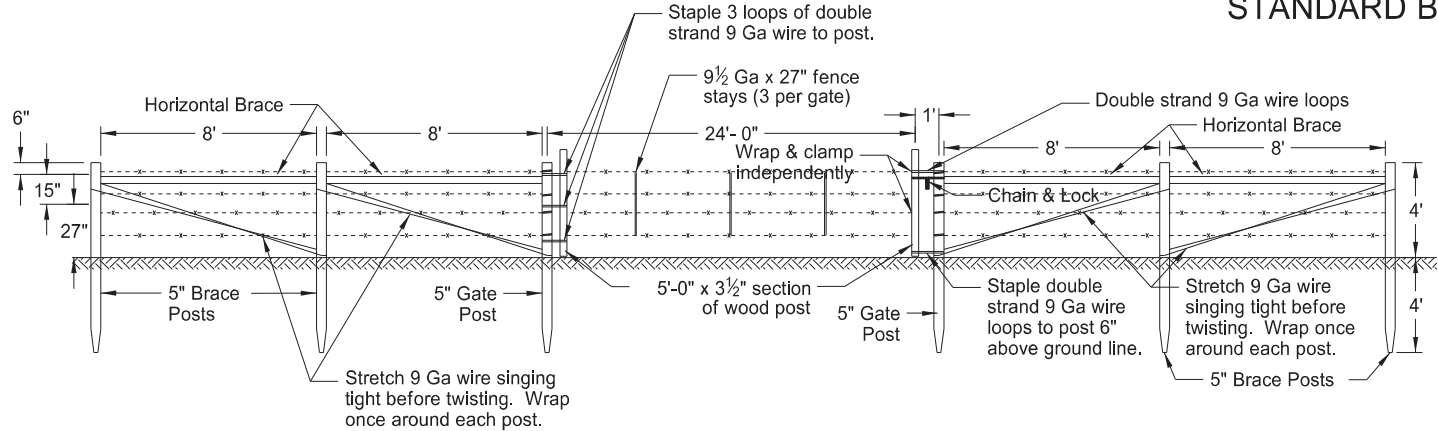
R/W MARKERS (WITNESS POST) WITHIN DRIVEWAYS: If a single iron Pin R/W or Reference Monument is within a driveway, place right of way marker (witness post) 50 feet back, in stationing, from the Iron Pin Monument along the R/W line. If R/W break is within a driveway, place right of way markers (witness posts) 50 feet back, or ahead from respective Iron Pin R/W Monuments along the R/W lines. Maintain Iron Pin R/W or Reference Monument original position within driveway.



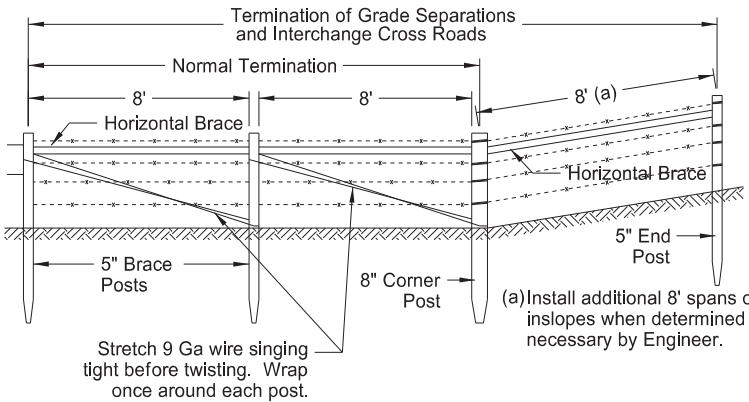
RECYCLED PLASTIC RIGHT OF WAY MARKER (WITNESS POST) DETAILS & IRON PIN REFERENCE AND R/W MONUMENT DETAILS



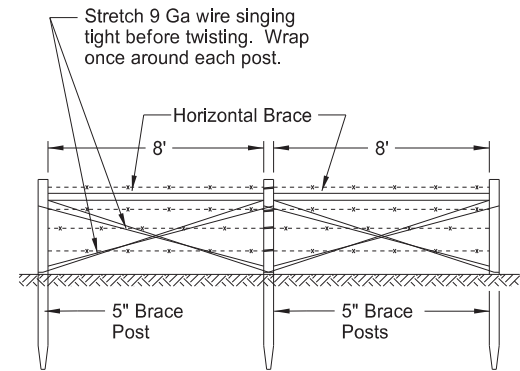
STANDARD BARBED WIRE FENCE



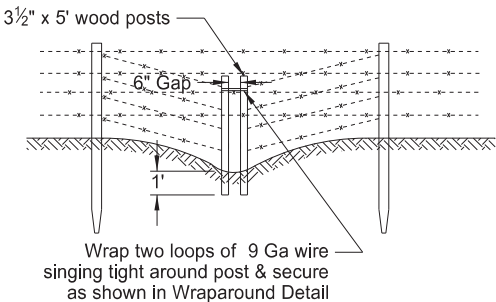
VEHICLE GATE



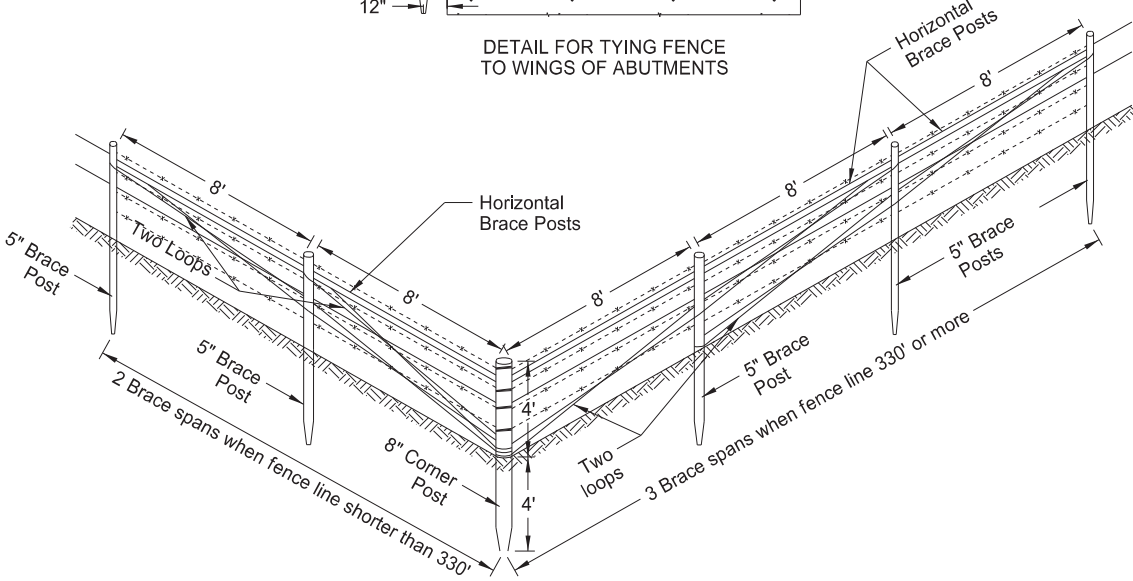
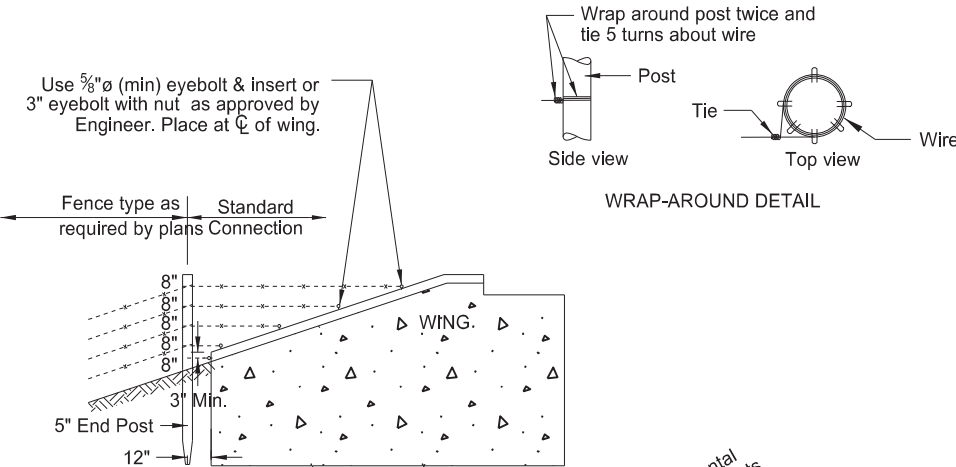
FENCE TERMINAL



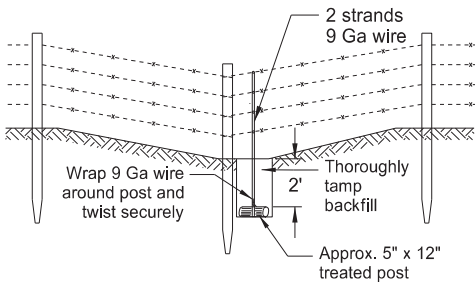
DOUBLE BRACE ASSEMBLY



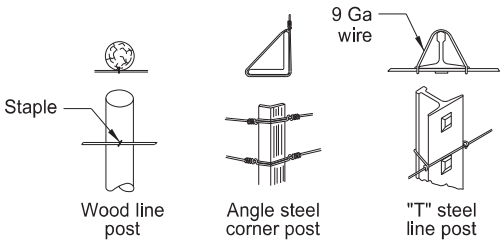
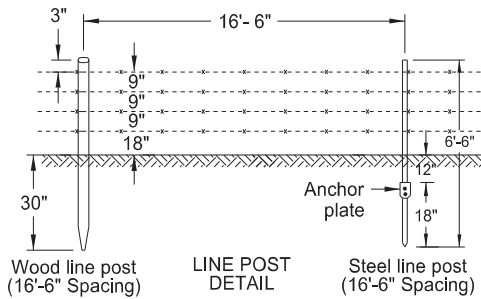
BREAK-AWAY FENCE FOR NARROW DEPRESSIONS SUBJECT TO FLOODING



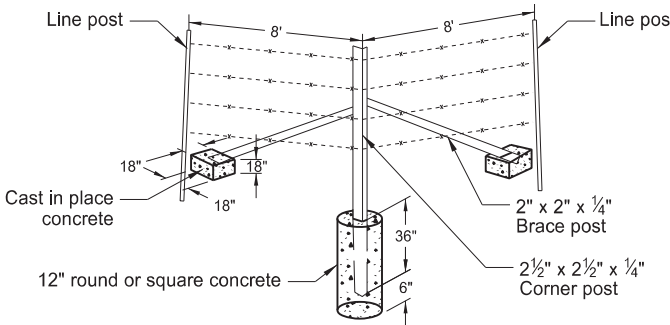
CORNER ASSEMBLY



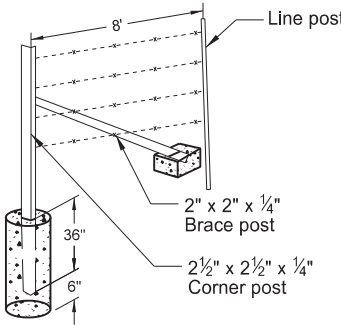
DETAIL FOR ANCHORING FENCES IN DEPRESSIONS*
*Determine locations in the field and include in price bid for fencing. Use other methods of anchoring fence if approved by the Engineer.



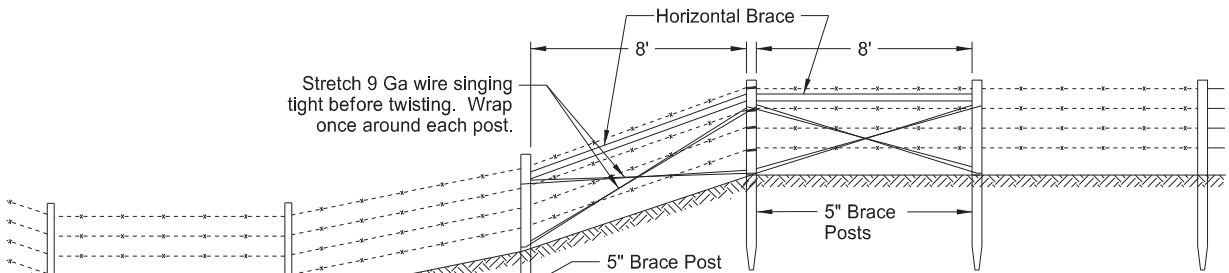
FASTENING TO POSTS



CORNER AND DOUBLE BRACE ASSEMBLY STEEL POSTS



FENCE TERMINAL STEEL POSTS



Use double brace installation, as shown, on opposite side of depression.
Decrease line post spacing as needed due to terrain.

NOTES

1. No deduction in measured pay length of fence made for gates, corner assemblies, double brace assemblies, fence terminals, or depression fencing. Include all costs for abutment fencing in the price bid for fencing bid items.
2. Install double brace assemblies at locations shown on the plans or established by the Engineer. Place adjacent fence terminals, corner assemblies, or double brace assemblies at a maximum spacing of 1,320 feet.
3. Include all costs of furnishing and installing inserts and eyebolts in the unit price bid for fencing bid items. Use eyebolts galvanized according to AASHTO designation M-30; inserts of corrosion resistant material do not require galvanization. Use concrete inserts capable of developing the full strength of the 5/8" diameter threaded eyebolt, when installed in concrete.
4. Determine post type used, either wood or steel, unless otherwise specified in the plans.
5. Include the cost of bracing at vehicle gates in the price bid for "Vehicle Gate."

POST SIZES					
USE OF POST	TREATED WOOD		STEEL		
	Post dia.	Post length	Post length	Post wt. Lbs./Ft.	Anchor wt. Lbs.
Line post	3 1/2"	6'-6"	6'-6"	1.33	0.67
Corner post	8"	8'	7'	4.10	(Conc.)
End post	5"	8'			
Brace post	5"	8'	7'	3.19	(Conc.)
Gate post	5"	8'			
Horizontal brace	4"	8'	As approved by the Engineer		

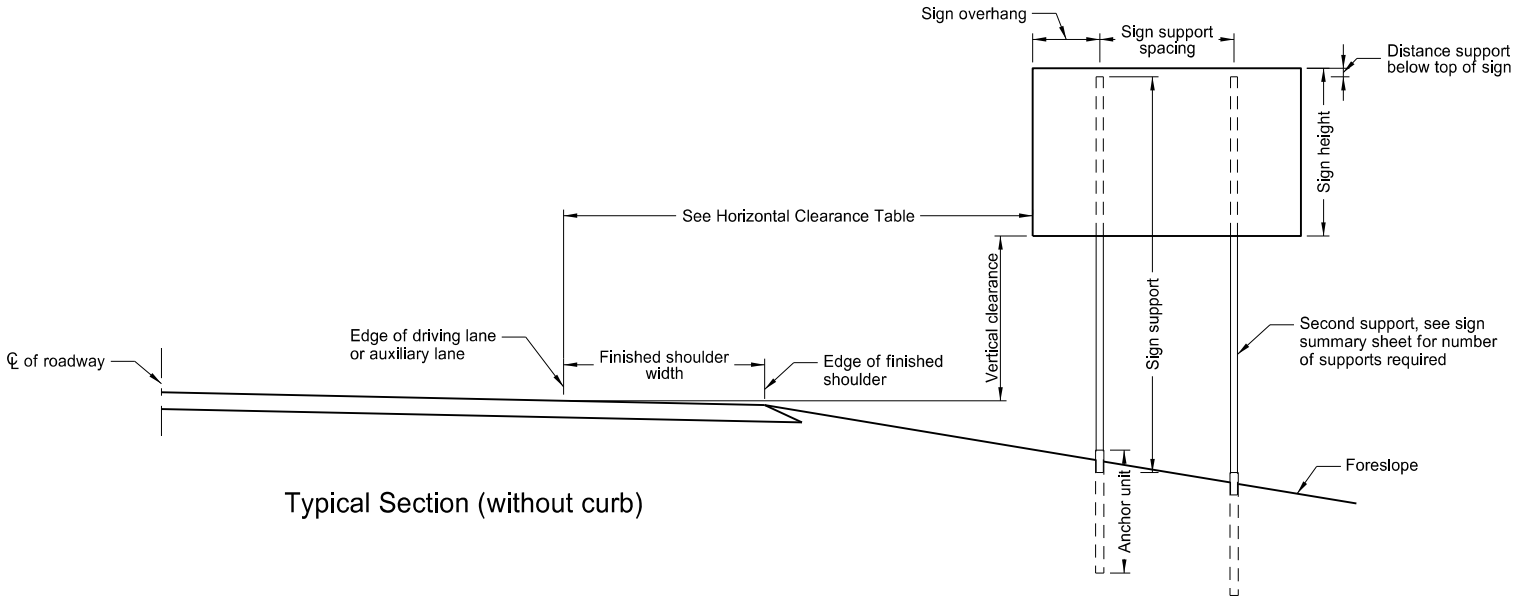
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-2-10	
REVISIONS	
DATE	CHANGE
10-02-12	Notes, steel assemblies/posts.
11-25-13	Revised Vehicle Gate.
10-17-17	Updated to active voice.
02-23-23	Revised post spacing/brace size.



02/23/23

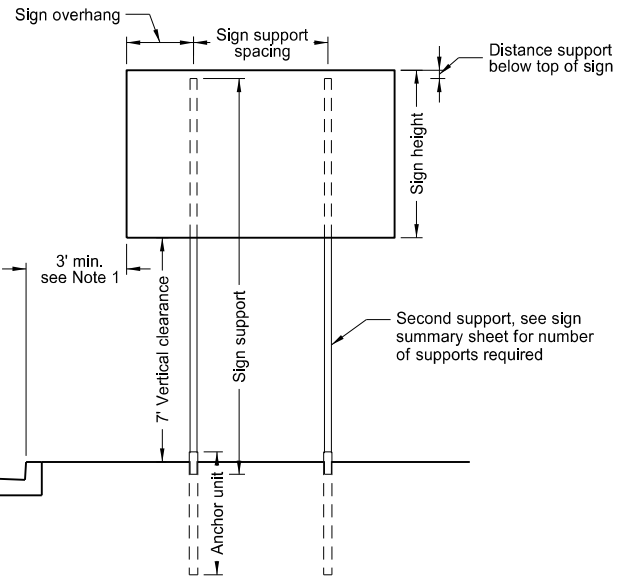
Notes:

1. Curbed Roadways: Use a 3' clearance from face of the curb except where right of way or sidewalk width is limited; Use a minimum 2' clearance. Increase the horizontal clearance if required to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.
2. Minimum vertical clearance: Provide at least 5' measured from the bottom of the sign to the edge of the driving lane or auxiliary lane at the side of the road in rural districts. Provide at least 7' clearance to the bottom of the sign, where parking or pedestrian movements occur.
- Install signs on expressways a minimum height of 7'.
- Install adopt-a-highway signs on Freeways at least 7' above the edge of the driving lane.
- Maximum vertical clearance is 6" greater than the minimum vertical clearance.
3. Offset signs: Use a vertical clearance of 5' above the edge of the driving lane for signs placed 30 feet or more from the edge of the traveled way.
4. Provide a horizontal clearance from edge of shared use path to edge of sign of 3', except where width is limited. Provide a minimum clearance of 2'.

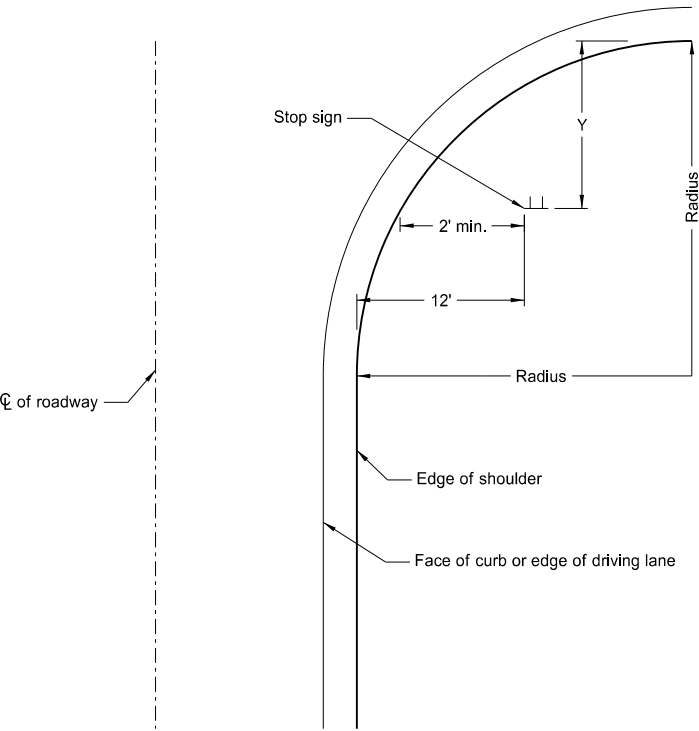


Typical Section (without curb)

Horizontal Clearance Table	
Shoulder Width ft	Offset ft
0 to 2	16
>2 to 4	18
>4 to 6	20
>6 to 8	22
>8 to 10	24

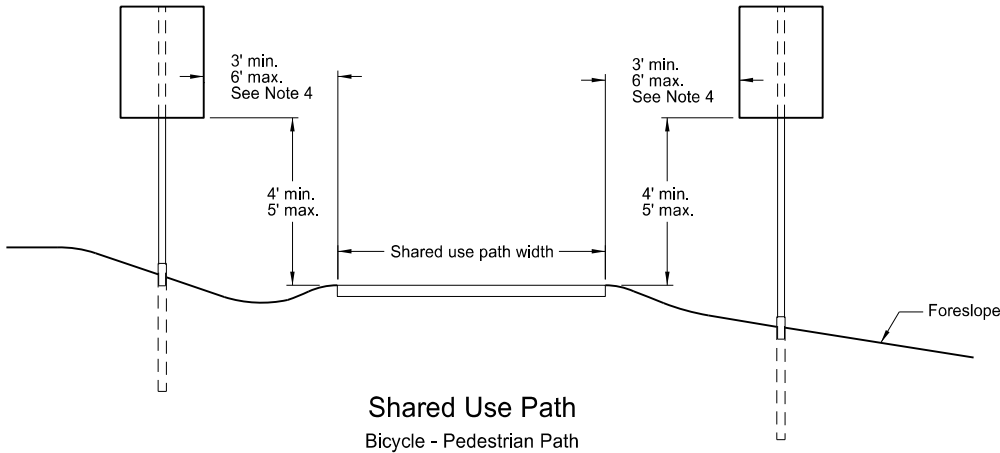


Typical Section (with curb)
Residential or Business District



Stop Sign Location
Wide Throat Intersection
Use layout for the placement of "Stop" signs.

Radius ft.	Y-max. ft.	Y-min. ft.
40	50	15
45	50	18
50	50	21
55	50	25
60	50	28
65	50	32
70	50	35
75	50	39
80	50	43



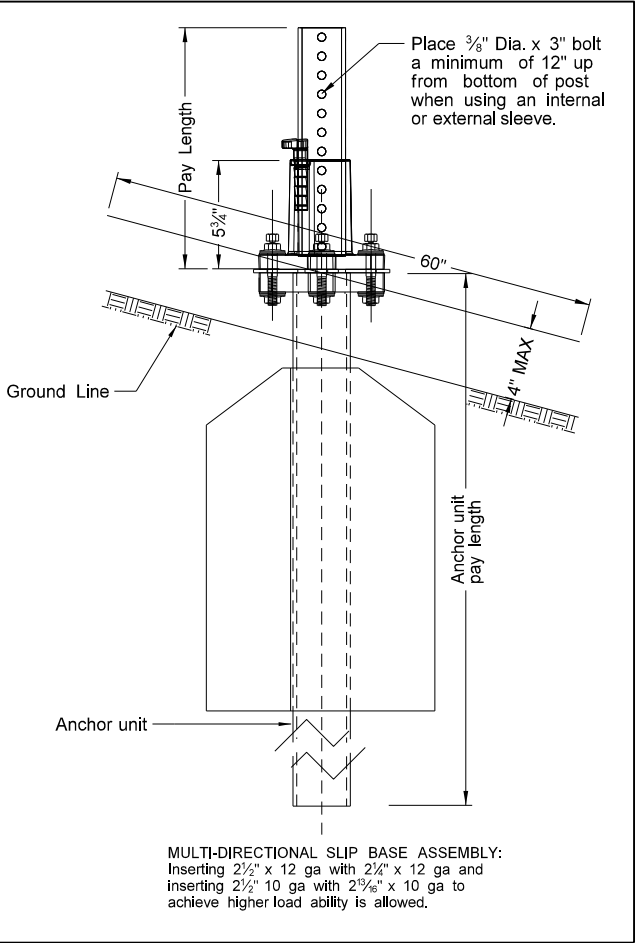
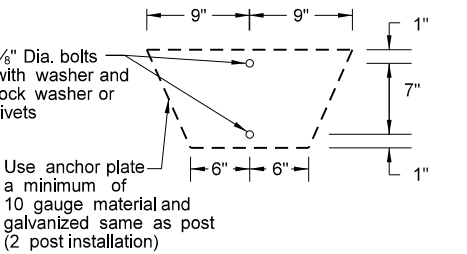
Shared Use Path
Bicycle - Pedestrian Path

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
7-8-14	Revised note 2, added note 4.
8-30-18	Updated notes to active voice.
8-29-19	New Design Engineer PE Stamp.

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

Telescoping Perforated Tube							
Number of Posts	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2½	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2½(D)	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2½(D)	12	Yes		7
3 & 4	2½	10	2¾	10	Yes		7

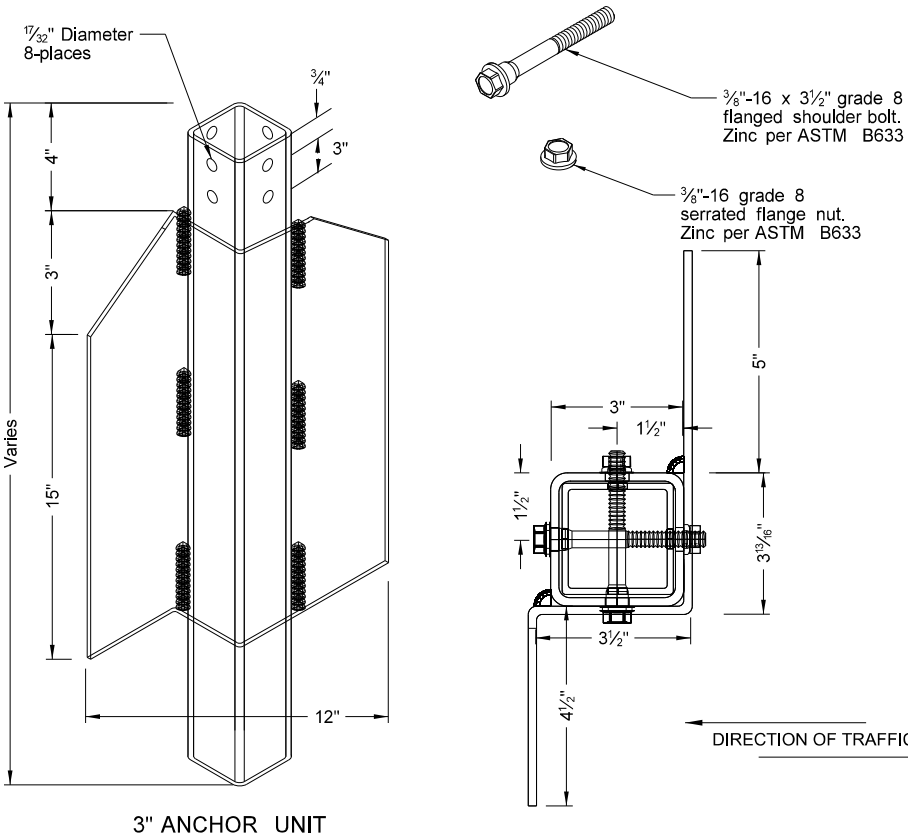
(B) - Provide a shim as specified by the manufacturer when placing 2½", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.



MULTI-DIRECTIONAL SLIP BASE ASSEMBLY:
Inserting 2½" x 12 ga with 2¼" x 12 ga and inserting 2½" 10 ga with 2¾" x 10 ga to achieve higher load ability is allowed.

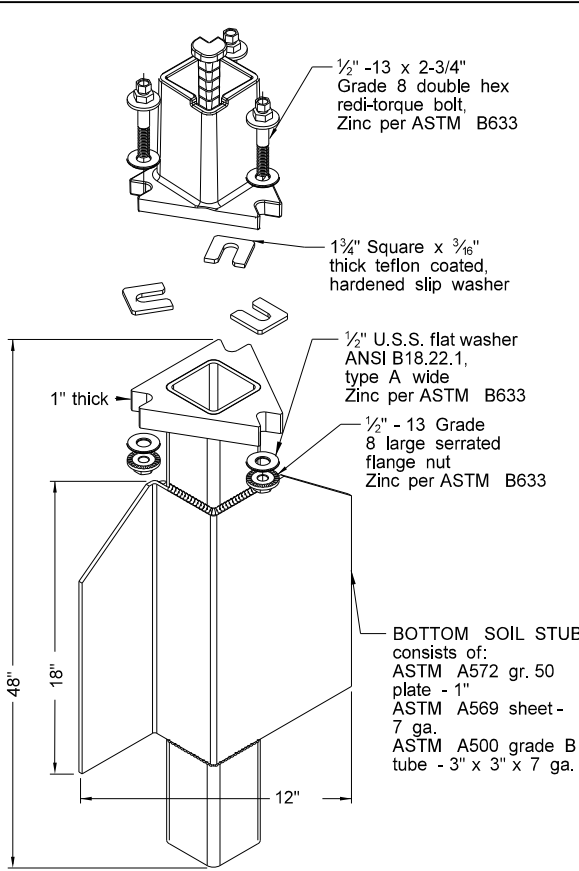
SHOULDER BOLT

Shimming agent to reduce tolerance between 3" anchor unit and 2½" post.
(use standard ¾" diameter grade 8 bolt with proper shim)

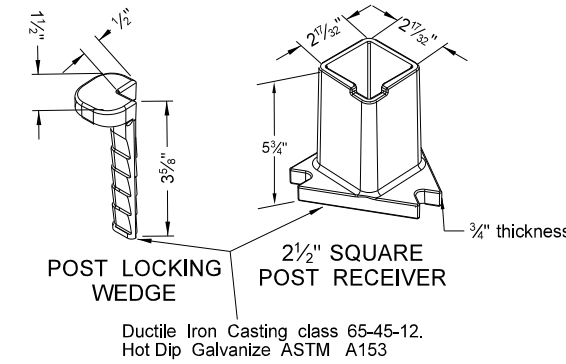


3" ANCHOR UNIT

Mounting Details Perforated Tube



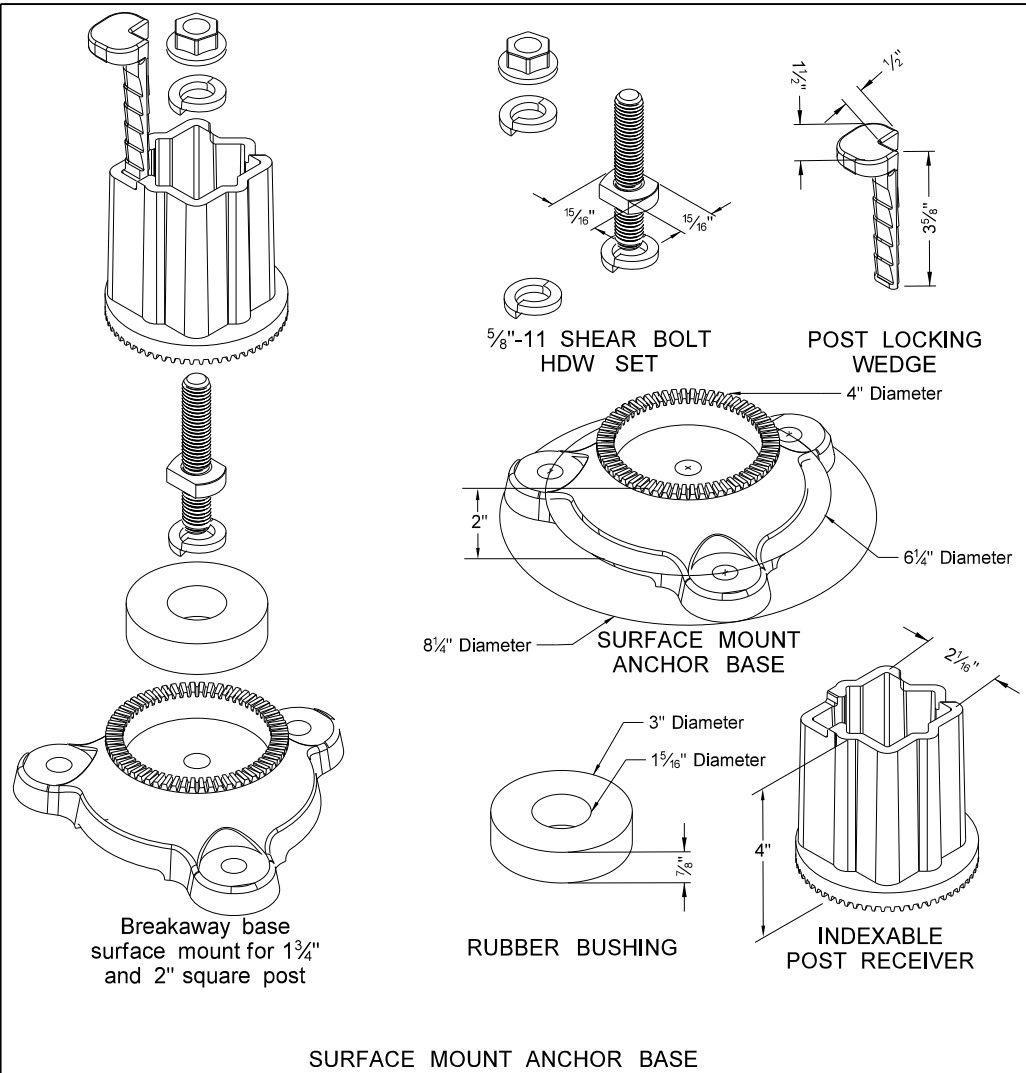
SLIP BASE FOR 2½" POST



SLIP BASE DETAIL

Properties of Telescoping Perforated Tubes							
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. ⁴	Cross Sect. Area In. ²	Section Modulus In. ³	
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172	
2 x 2	0.105	12	2.416	0.372	0.590	0.372	
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499	
2¾ x 2¾	0.135	10	3.432	0.605	0.841	0.590	
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643	
2½ x 2½	0.135	10	4.006	0.979	1.010	0.783	

The 2 ¾" size 10 gauge is shown as 2.19" size on the plans;
The 2½" size is shown as 2.51" size on the plans.



NOTE:

- 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
- Provide 7 gauge HRPO commercial quality ASTM A569 and 3" x 3" x 7" gauge ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI tensile strength. Hot dip galvanize anchor per ASTM A123/153. Tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless otherwise noted.
- Eliminate wings when anchor is used in concrete sidewalk.
- Provide a minimum 8" distance between the first and fourth post on four post signs.
- Install in accordance with manufacturers recommendation.
- Use a minimum ½" diameter x 4" grade 8 concrete fastener for surface mount breakaway base.

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

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

Breakaway Coupler System
for Perforated Tubes

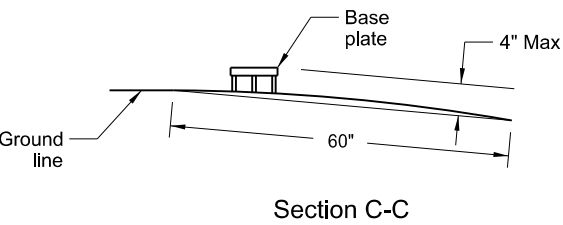
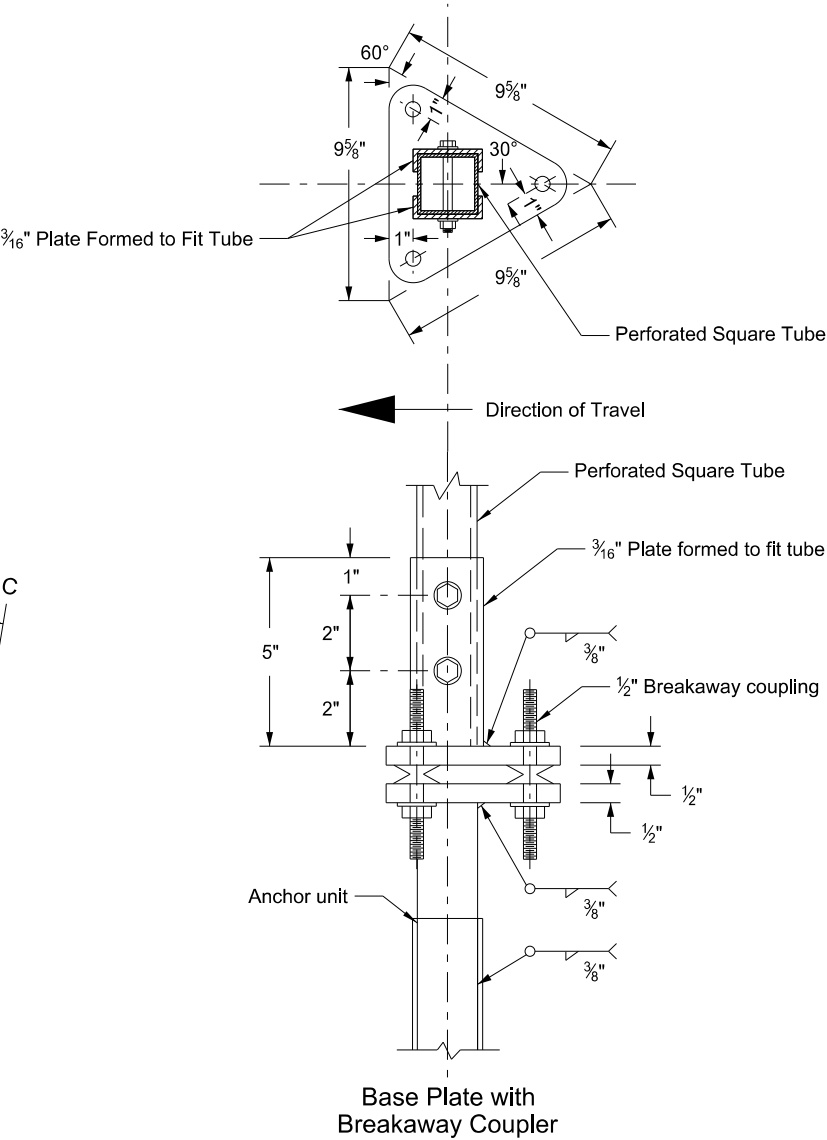
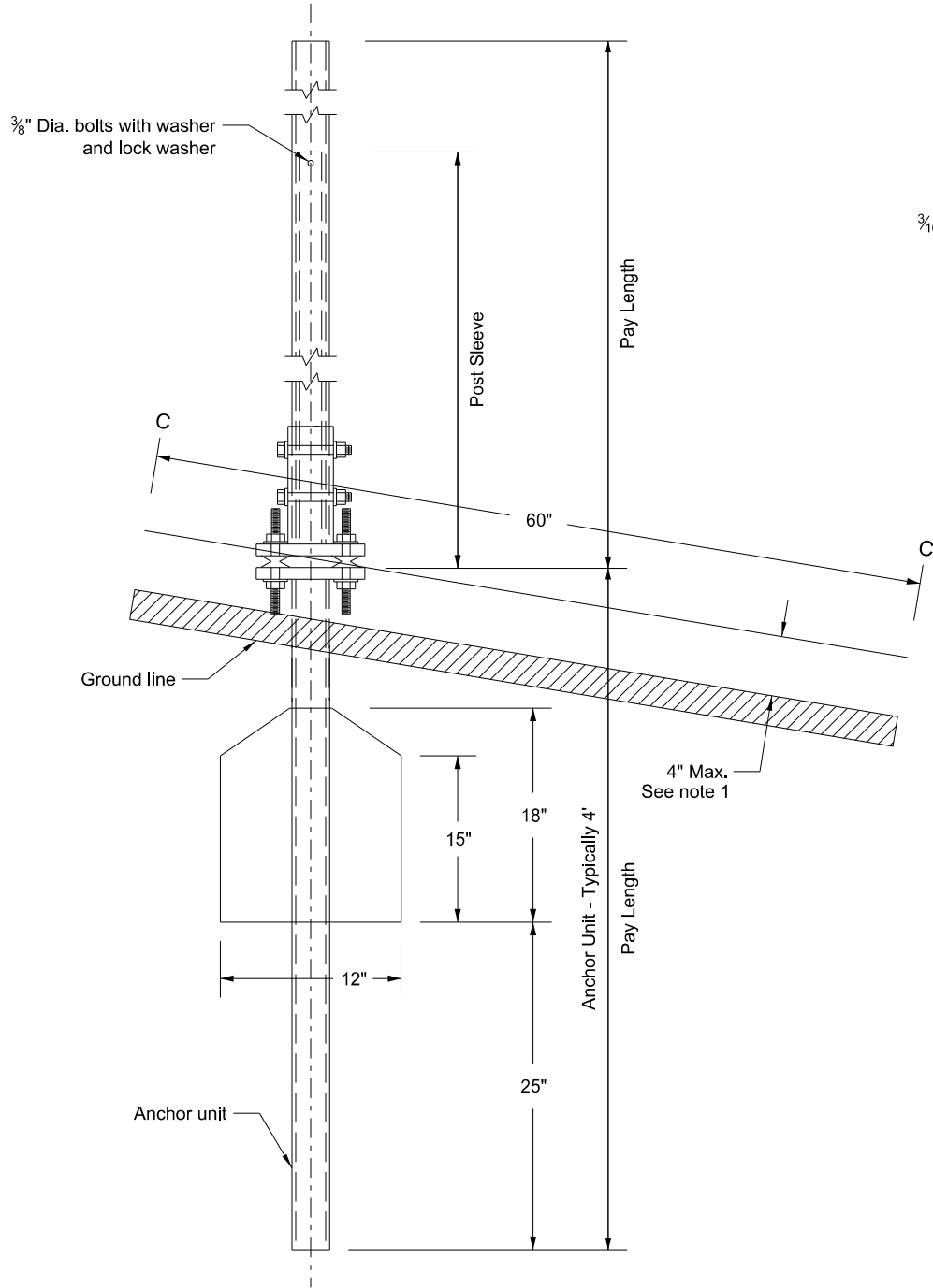
Notes:

1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
2. Use anchor unit of the same size and specification as the post.
3. Provide a minimum 8' distance between the first and fourth post on four post signs.
4. Use the breakaway base system on standard D-754-24 or the breakaway coupling system manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements specified by DENT BREAKAWAY IND., INC. which meets the test requirements of NCHRP Report 350.

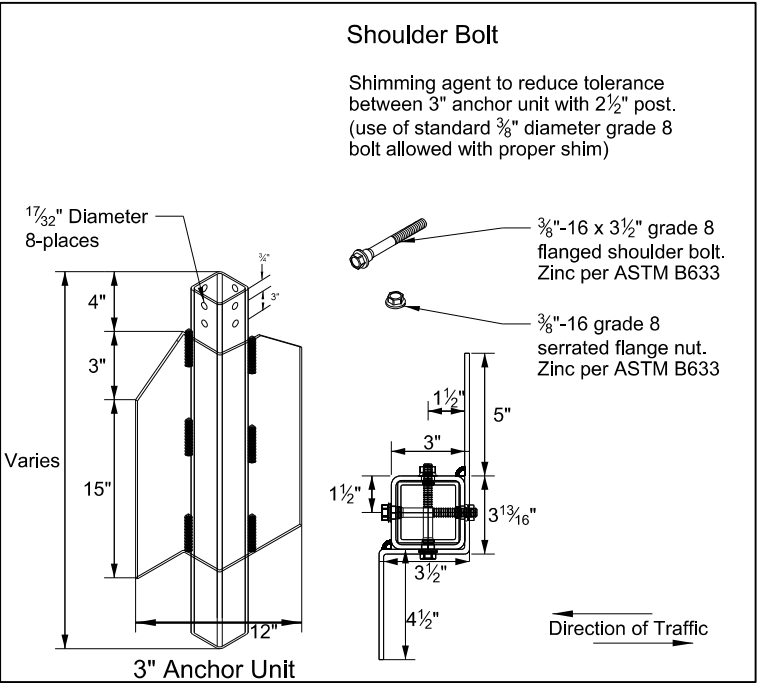
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2	12	Yes		7
3 & 4	2½	10	2¾	10	Yes		7

(B) - 2½" 12 gauge posts do not need breakaway bases unless support is placed in boggy, wet, or loose soil areas.

(C) - 3" anchor unit

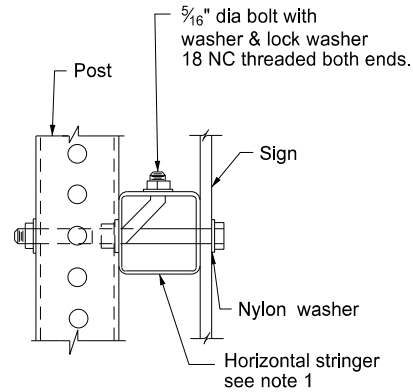


Max protection of the stub post is 4" above a 60" chord aligned radially to the center line of the highway and connecting any point, within the length of the chord, on the ground surface on one side of the support to a point in the ground surface on the other side.

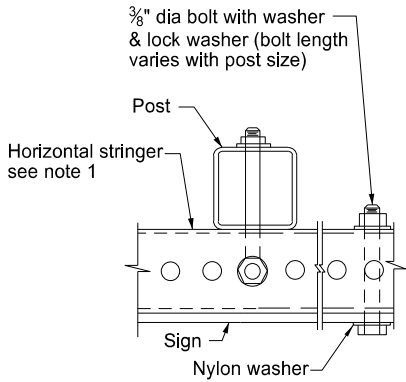


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683, on 8/30/19 and the original document is stored at the North Dakota Department of Transportation
10-3-2013		
REVISIONS		
DATE	CHANGE	
8-30-18 8-30-19	Updated notes to active voice. New Design Engr PE Stamp.	

Mounting Details Perforated Tube

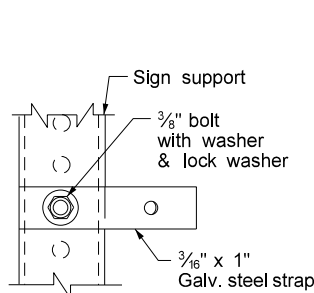


Side View

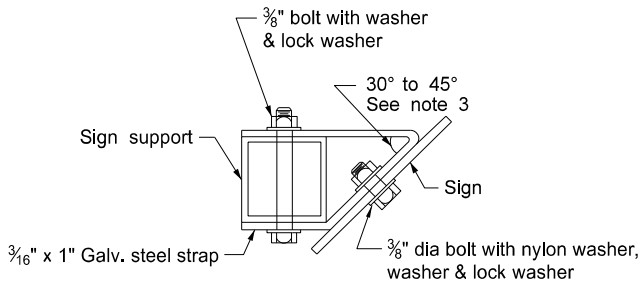


Top View

STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)

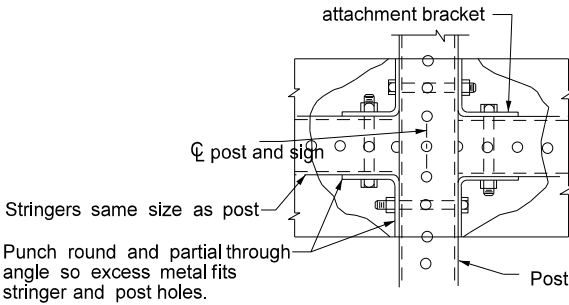


Side View

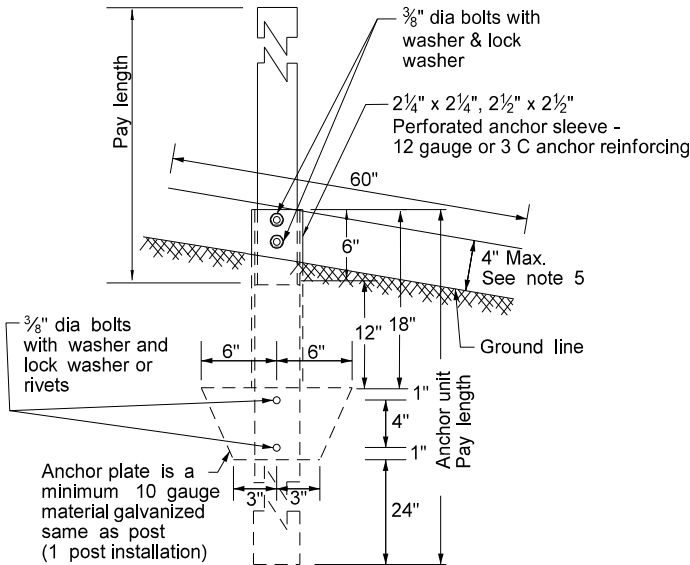


Top View

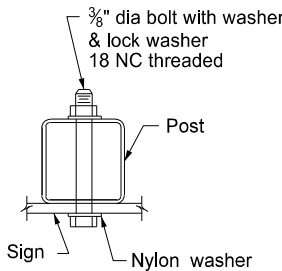
STRAP DETAIL



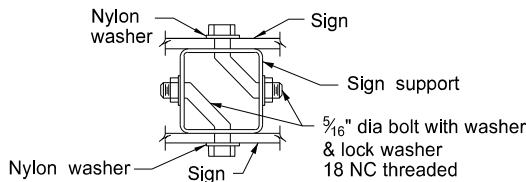
STREET NAME SIGNS AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR BACK TO BACK MOUNTING



ANCHOR UNIT AND POST ASSEMBLY

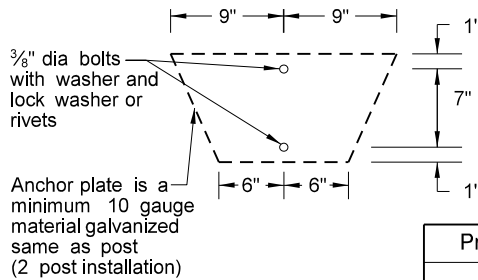


BOLT MOUNTING



Top View

BACK TO BACK MOUNTING



Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia In. ⁴	Cross Sect. area In. ²	Section Modulus In. ³
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.783

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

Note:

1. Horizontal stringers - Use perforated tubes or 1 3/4" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel z bar stringers.
2. Use minimum outside diameter 1 5/16" ± 1/16" and 10 gauge thick metal washers on sign face.
3. Place No Parking signs with directional arrows at a 30 to 45 degree angle with the line of traffic flow. Turning the support to the correct angle for No Parking signs requiring the above angles is allowed. If the No Parking sign is placed with another sign that requires placement at a 90 degree angle with the line of traffic flow, use the detailed angle strap to mount the No Parking sign. Use flat washers and lock washers with all nylon washers.
4. Punching the sign backing and placing the bolt through the sign, the stringer and the post is allowed in lieu of using the bent bolt to attach the post to the stringer.
5. 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.

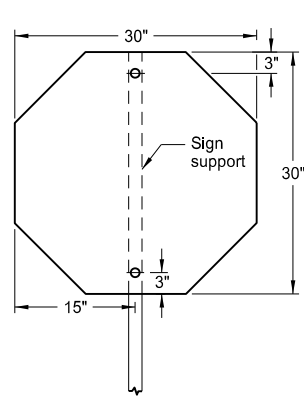
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2 1/4	12
1	2 1/4	12			No	2 1/2	12
1	2 1/2	12			(B)	3(C)	7
1	2 1/2	10			Yes		7
1	2 1/4	12	2 1/2(D)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

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

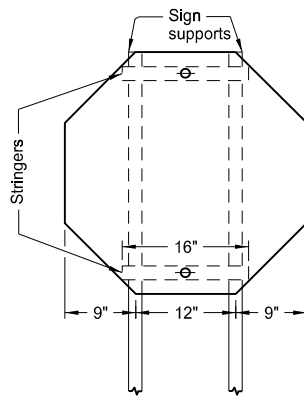
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION		This document was originally issued and sealed by Kirk J Hoff, Registration Number PE- 4683 , on 8/30/19 and the original document is stored at the North Dakota Department of Transportation
8-6-09		
REVISIONS		
DATE	CHANGE	
7-8-14 8-30-18 8-30-19	Revised Note 3. Updated notes to active voice. New Design Engr PE Stamp.	

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

D-754-26

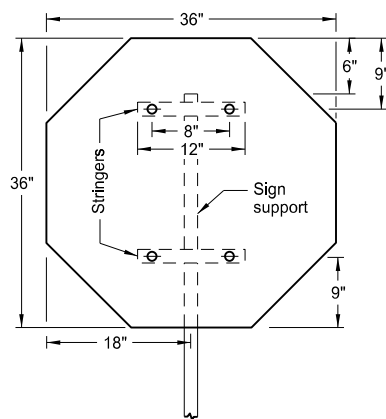


1 Post

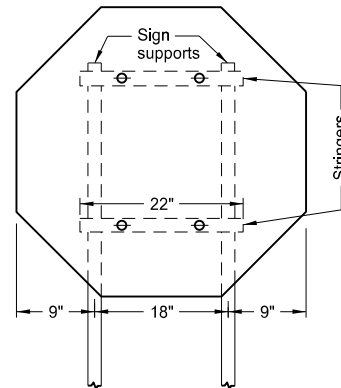


2 Posts

Assembly No. 1

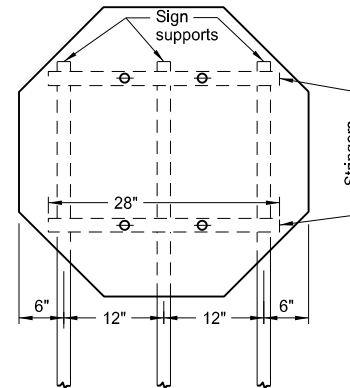


1 Post



2 Posts

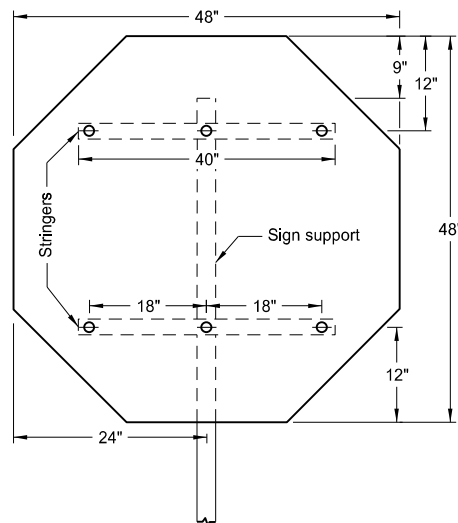
Assembly No. 2



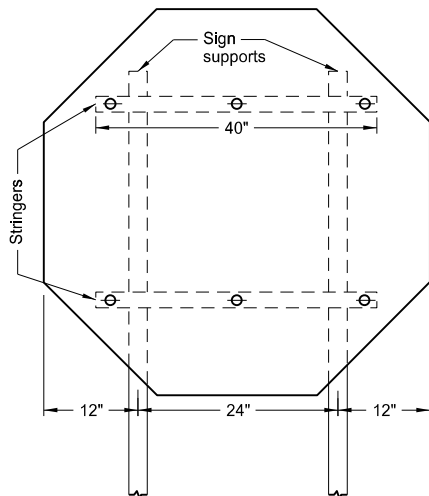
3 Posts

Notes:

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

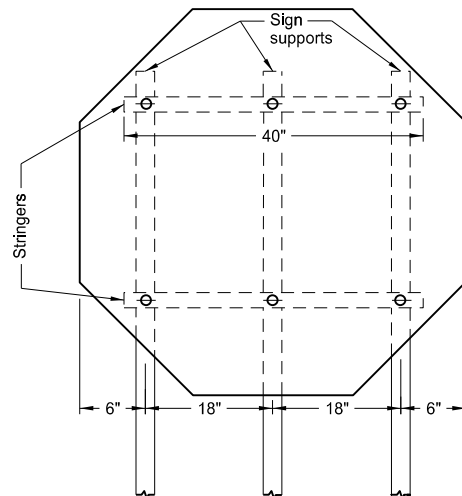


1 Post

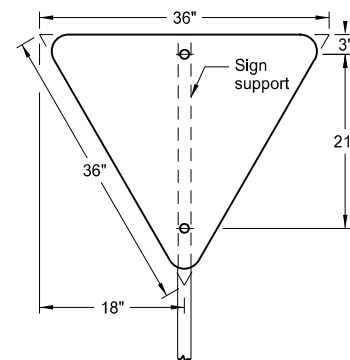


2 Posts

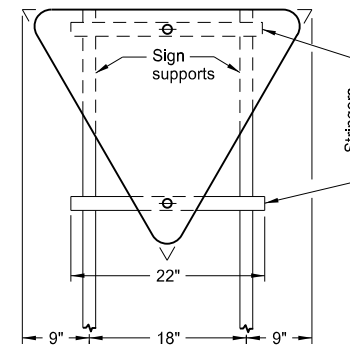
Assembly No. 3



3 Posts

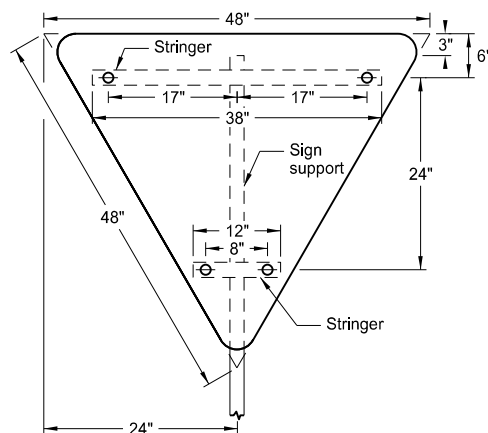


1 Post

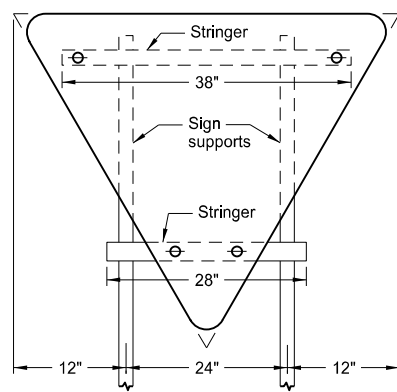


2 Posts

Assembly No. 4

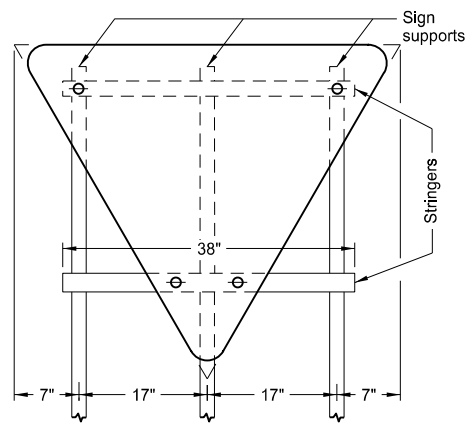


1 Post



2 Posts

Assembly No. 5

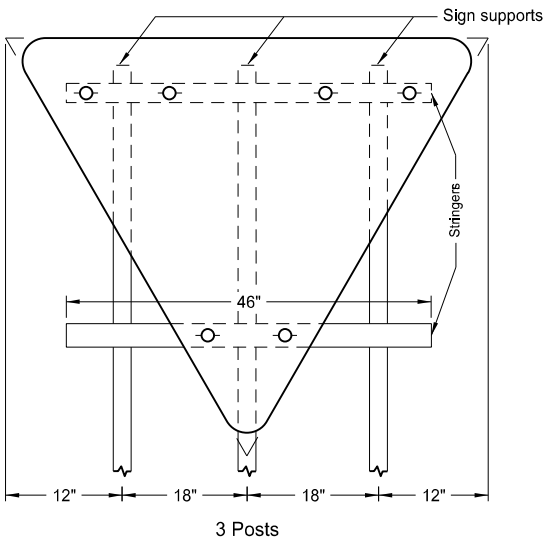
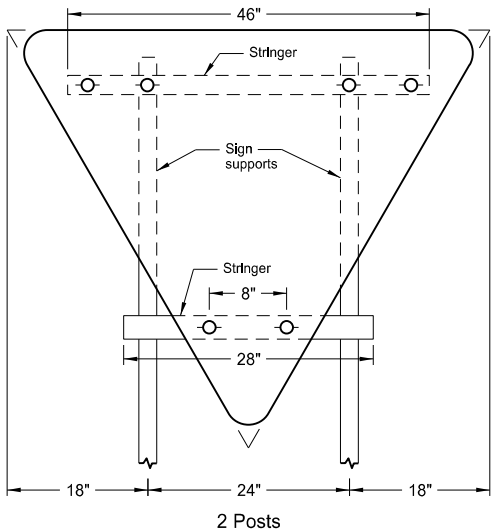
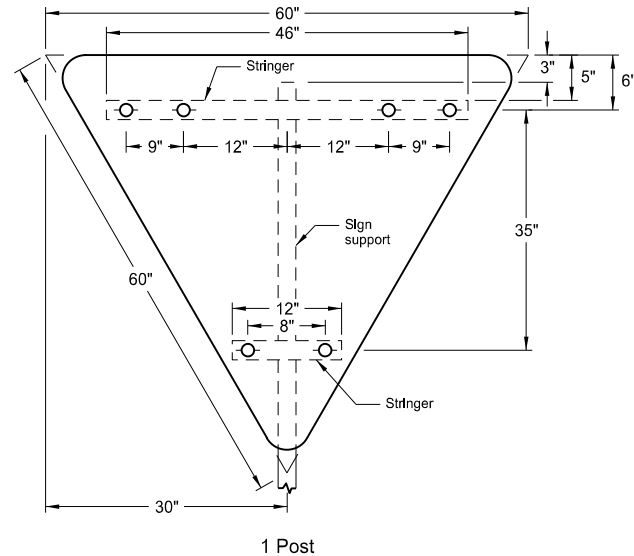


3 Posts

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

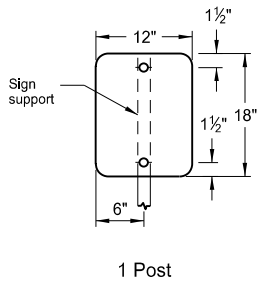
This document was originally
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SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS

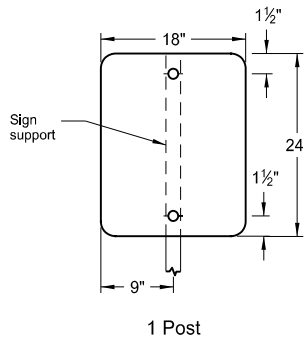


Assembly No. 6

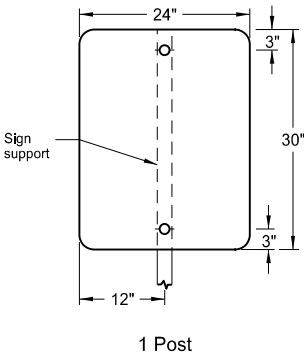
- Notes:
1. Use 0.100 inch minimum thickness sign backing material.
 2. Use 1½" x 1½" perforated square tube stringers.
 3. Punch holes round for ⅝" bolt.



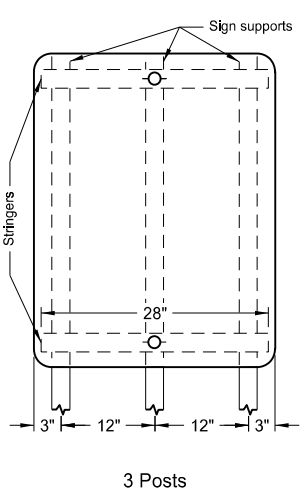
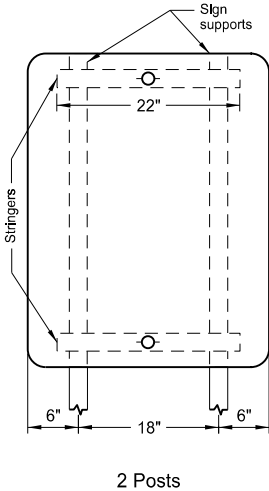
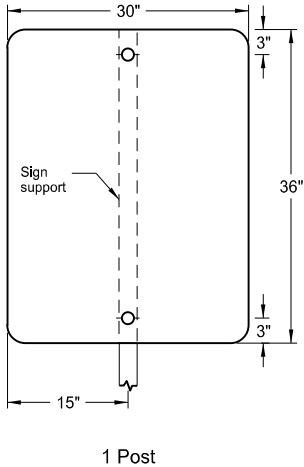
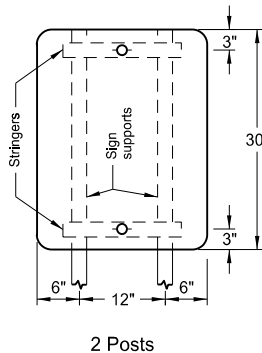
Assembly No. 7



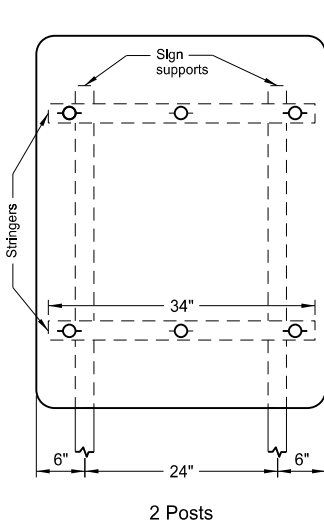
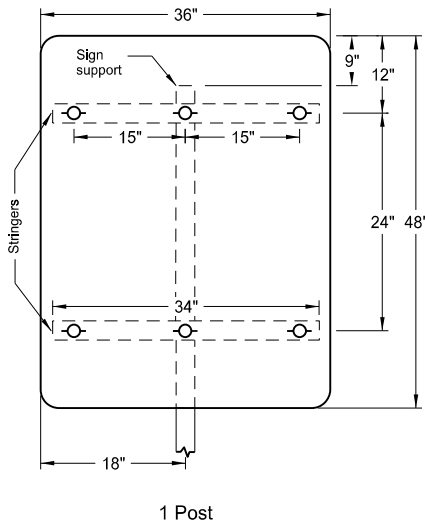
Assembly No. 8



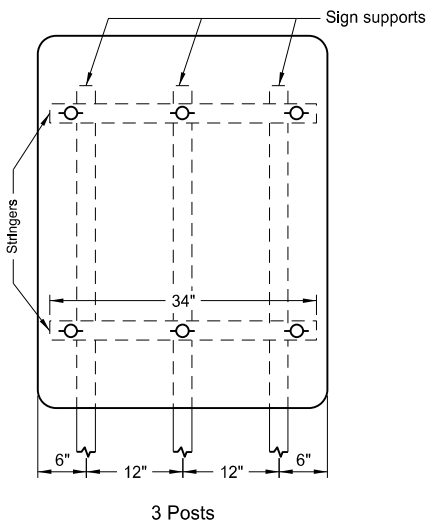
Assembly No. 9



Assembly No. 10



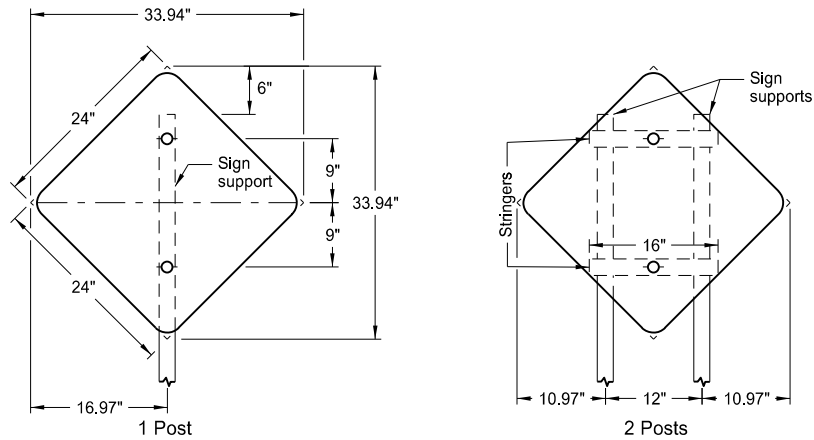
Assembly No. 11



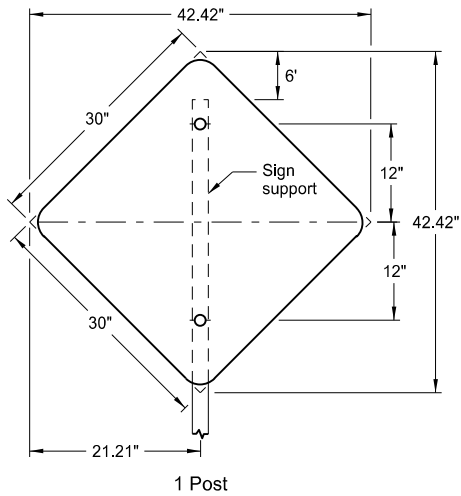
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
8-30-19	New Design Engineer PE Stamp.

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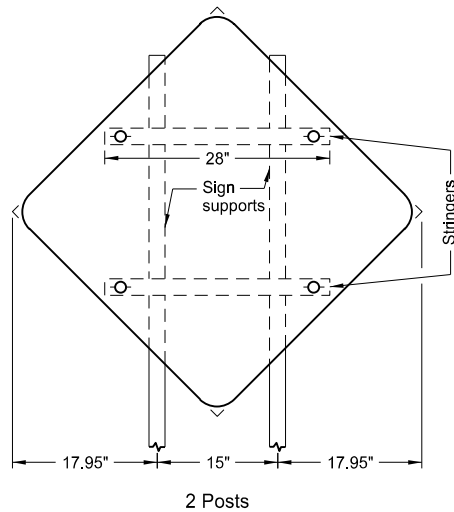
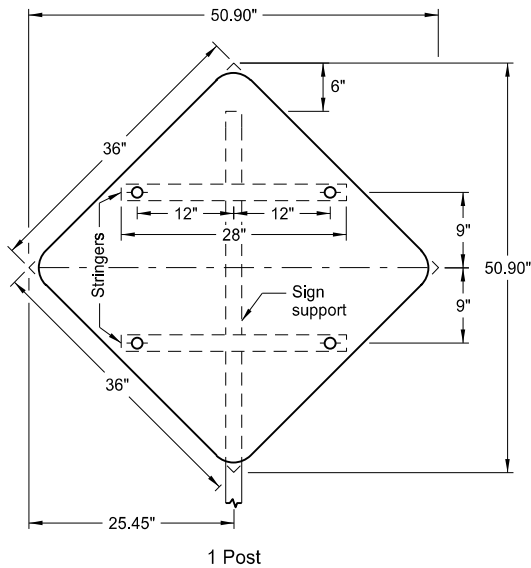
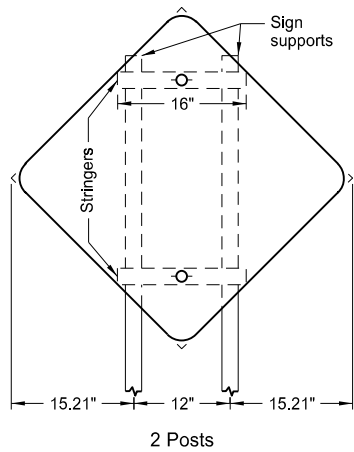
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



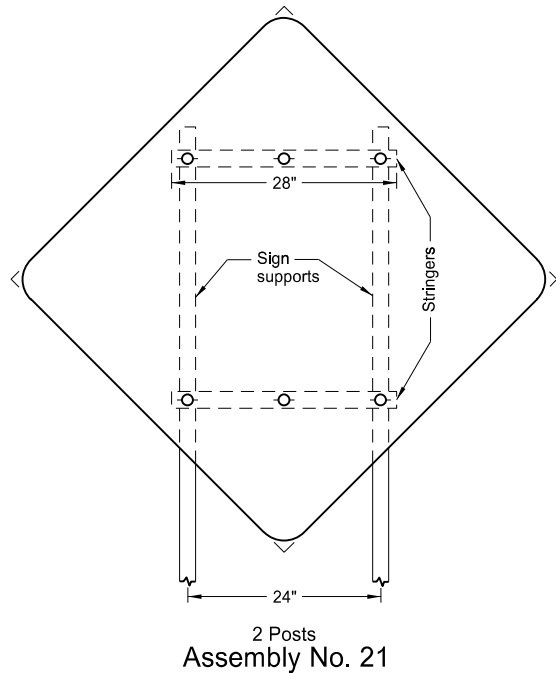
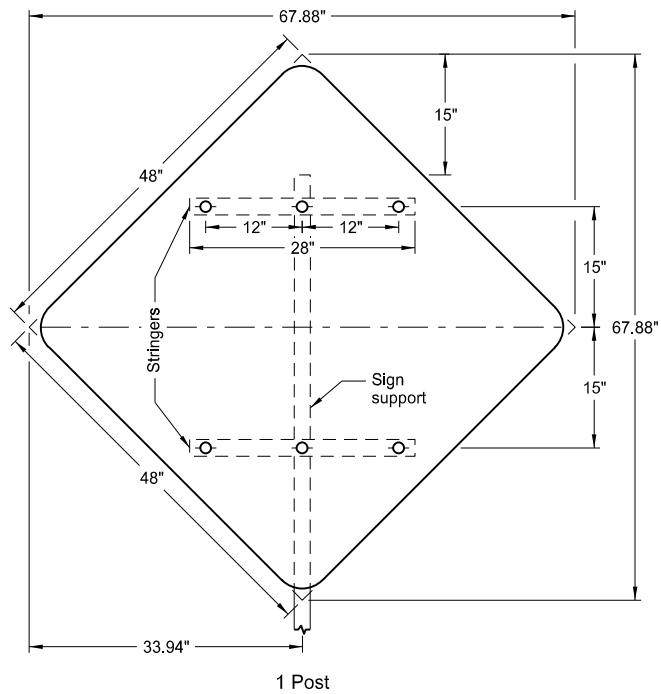
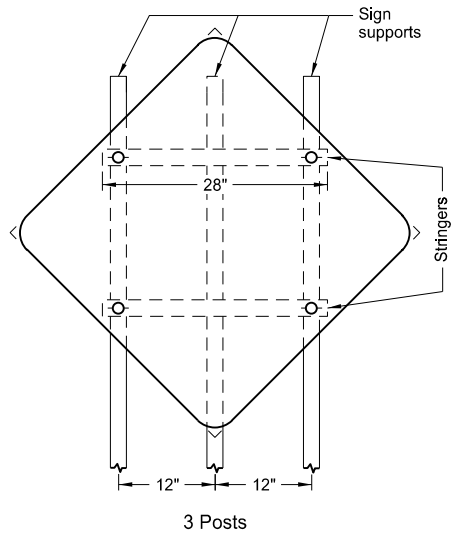
Assembly No. 18



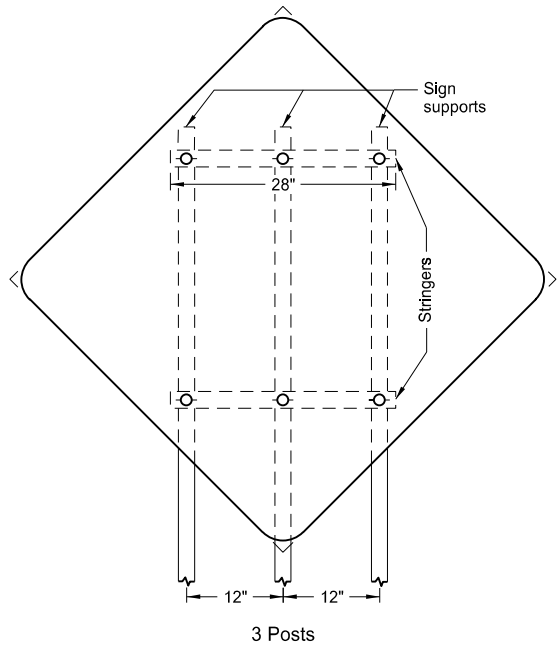
Assembly No. 19



Assembly No. 20



Assembly No. 21

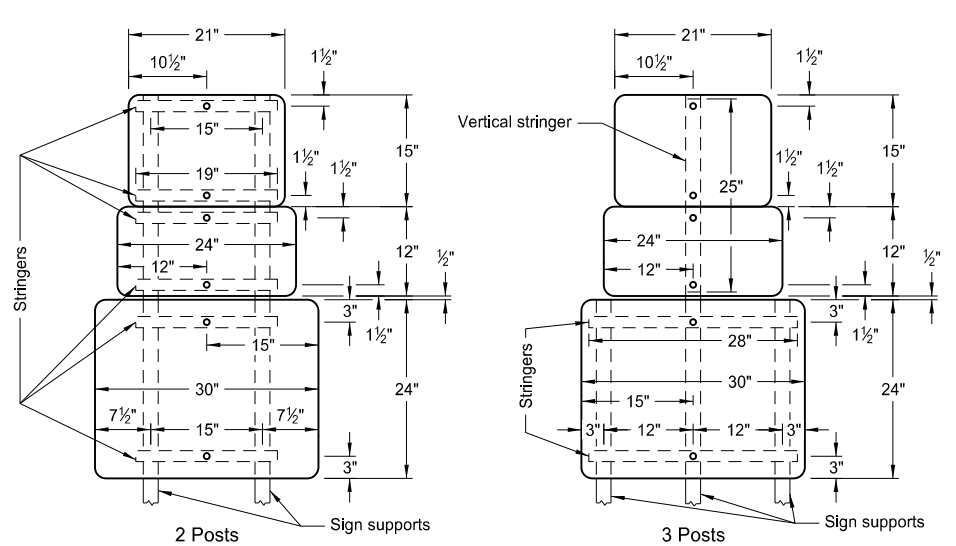
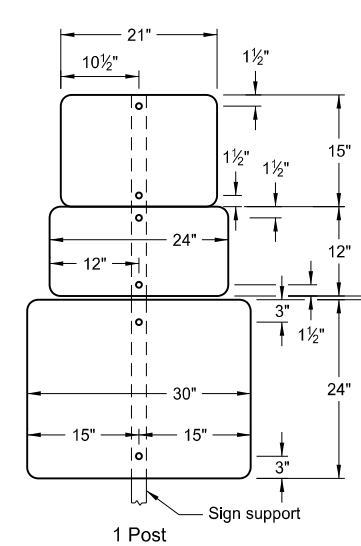
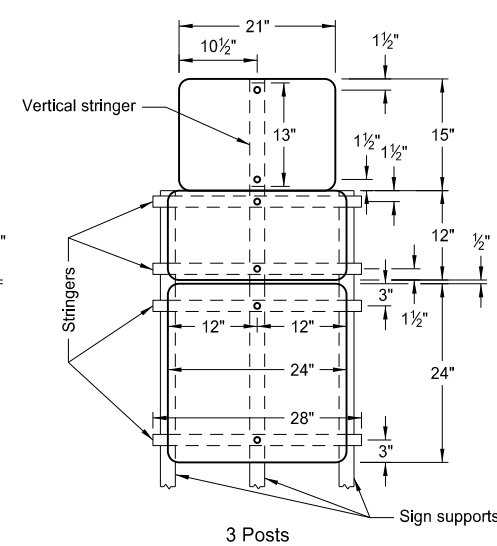
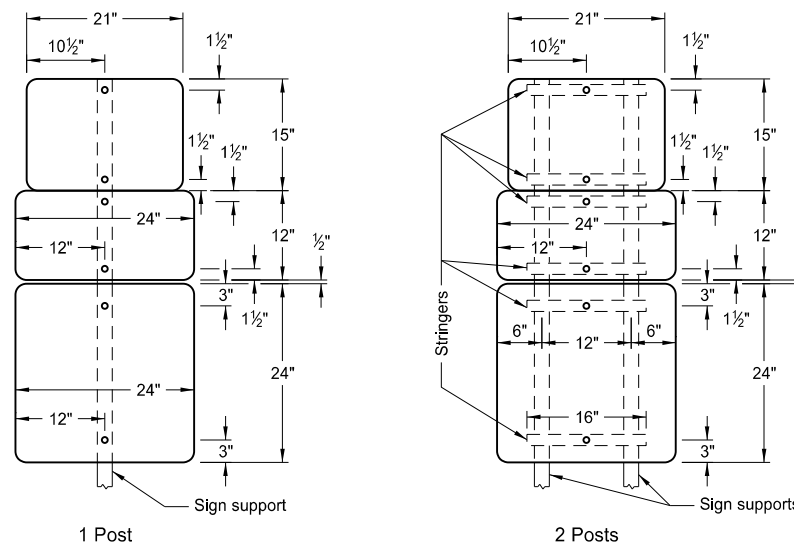
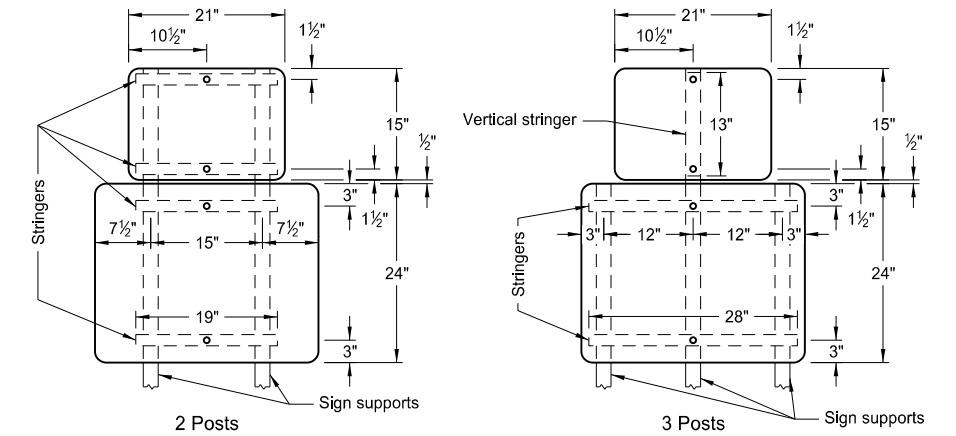
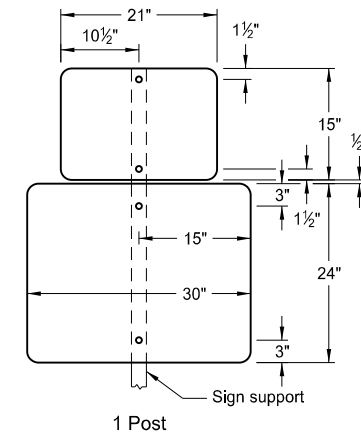
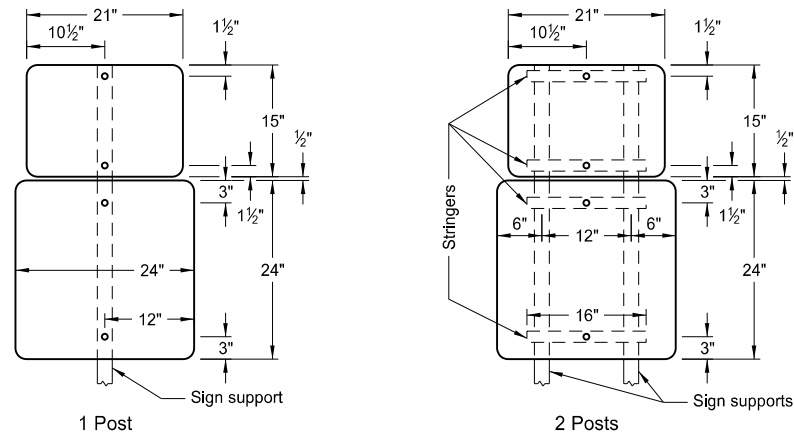


- Notes:
1. Use 0.100 inch minimum thickness sign backing material.
 2. Use 1½" x 1½" perforated square tube stringers.
 3. Punch holes round for ⅜" bolt.

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

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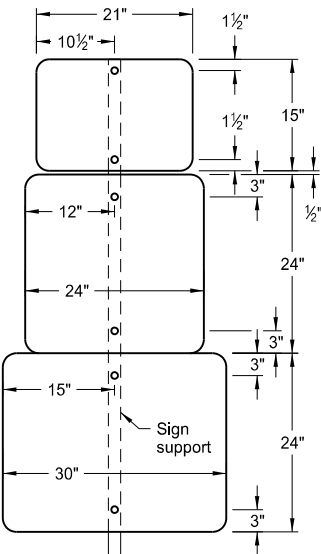
D-754-57



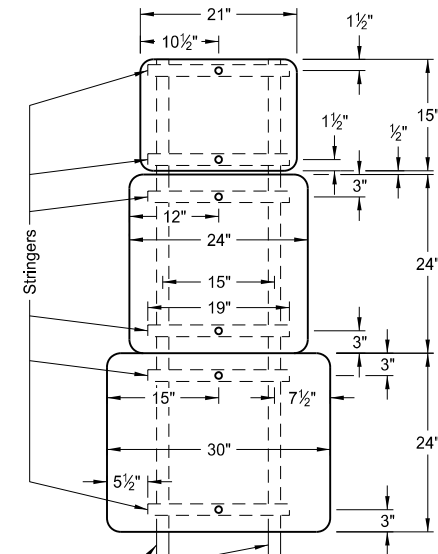
- Notes:
1. Use 0.100 inch minimum thickness sign backing material.
 2. Use 1½"x1½" perforated square tube stringers.
 3. Punch holes round for ⅜" bolt.

NORTH DAKOTA	
DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & added dimension to Assembly 393 & 394
9-04-19	New Design Engineer PE Stamp.

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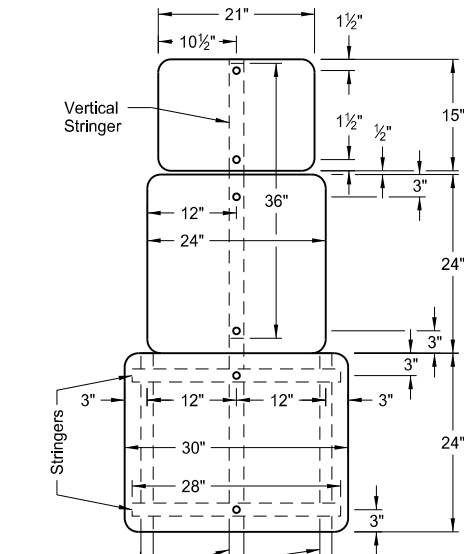


1 Post

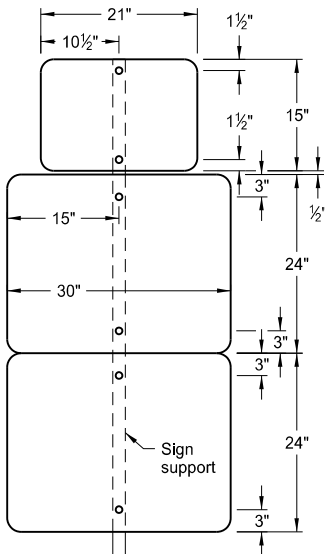


2 Posts

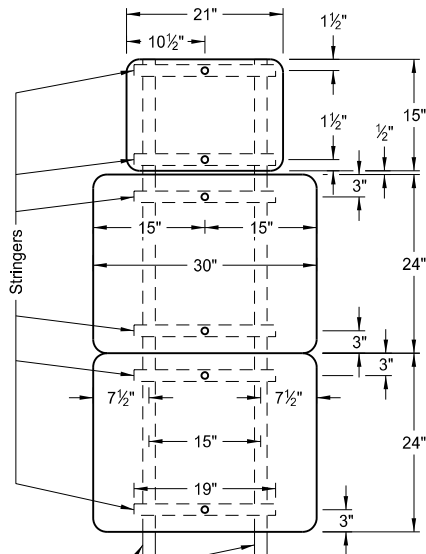
ASSEMBLY 396



3 Posts

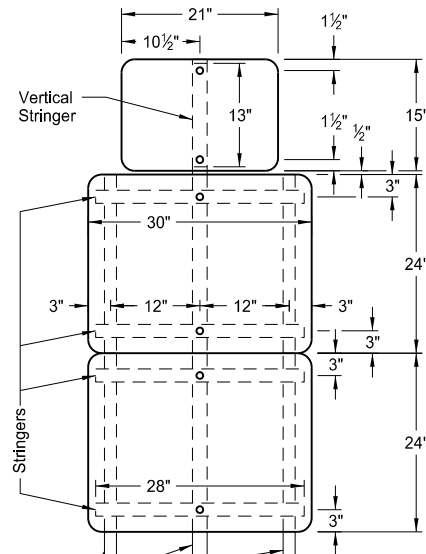


1 Post

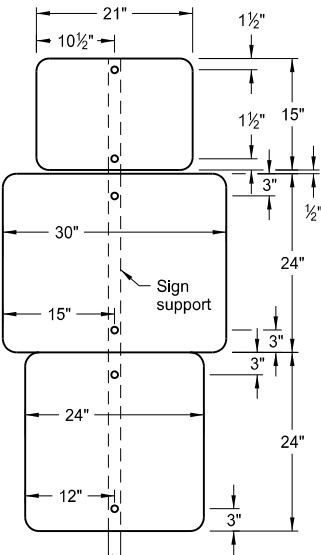


2 Posts

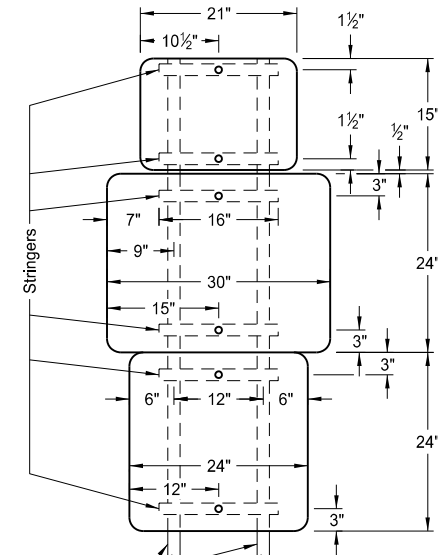
ASSEMBLY 397



3 Posts

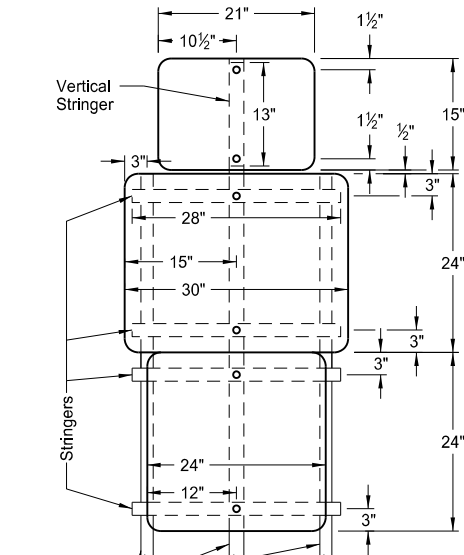


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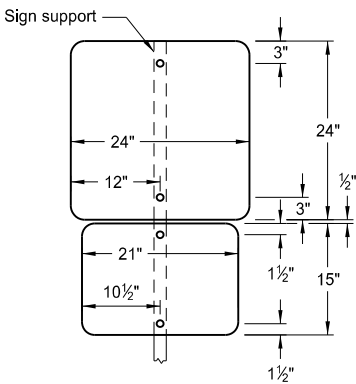


2 Posts

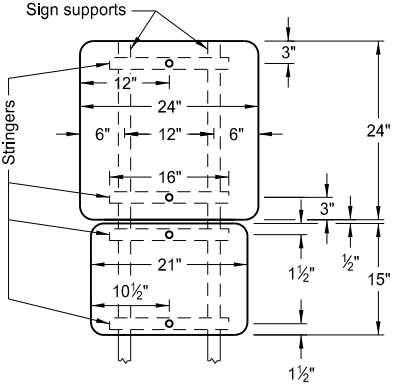
ASSEMBLY 398



3 Posts



1 Post



2 Posts

ASSEMBLY 399

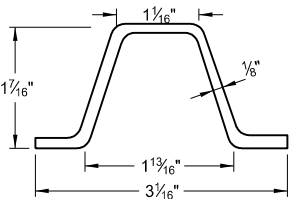
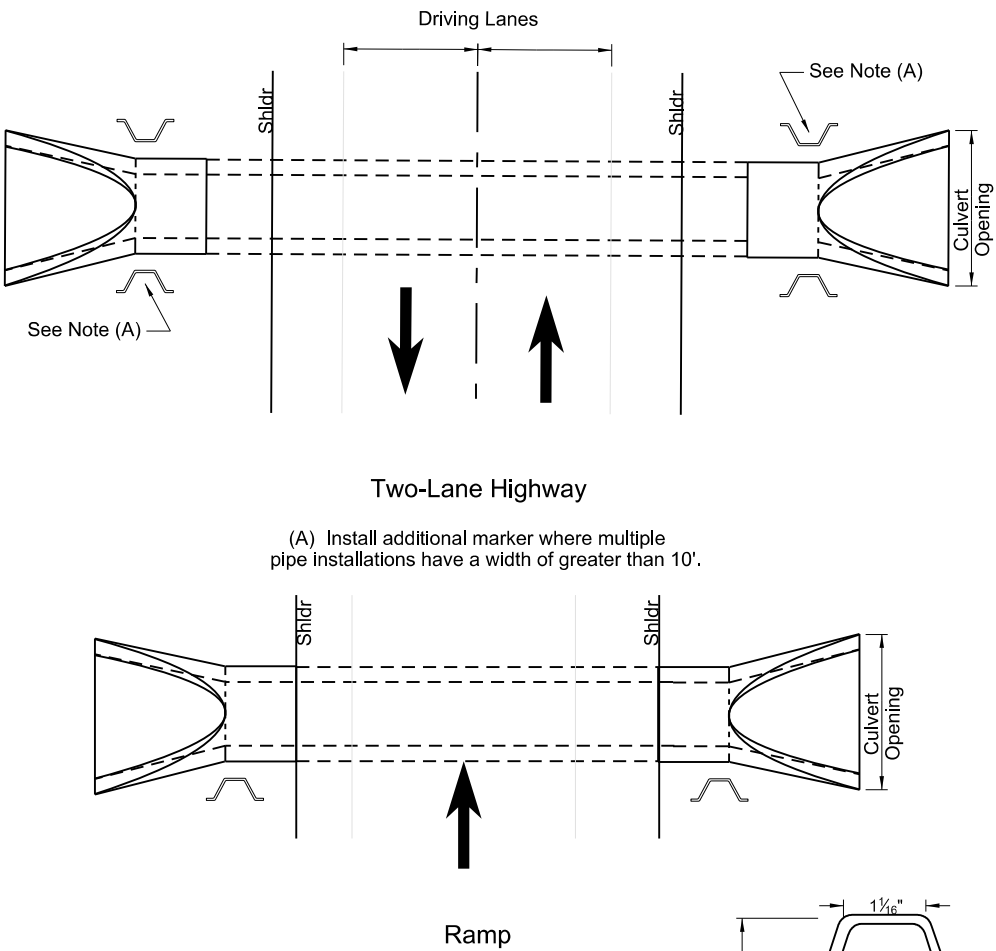
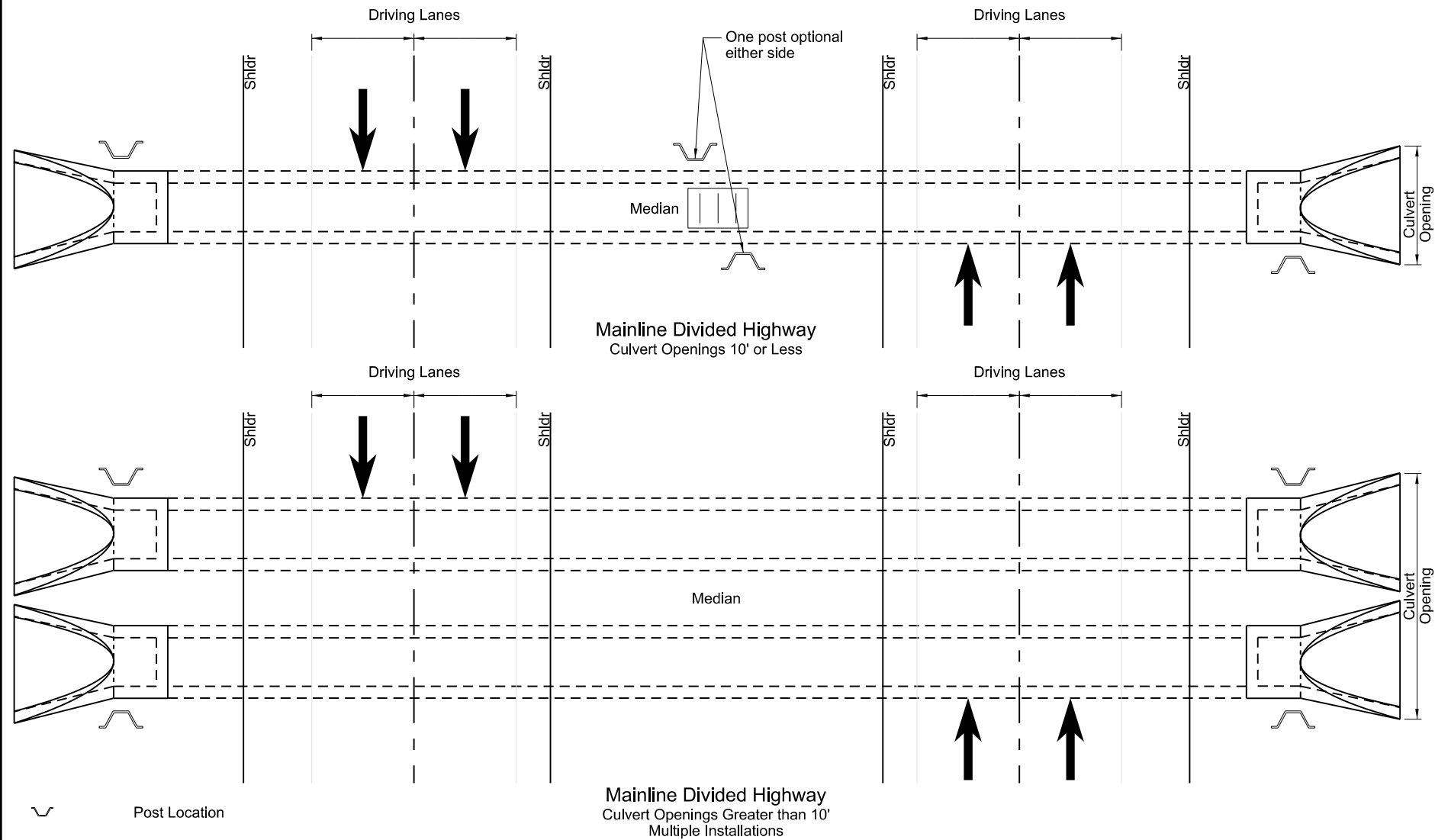
- Notes:
- 1. Use 0.100 inch minimum thickness sign backing material.
 - 2. Use 1 1/2"x1 1/2" perforated square tube stringers.
 - 3. Punch holes round for 3/8" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & added Assembly 398 dimension.
9-04-19	New Design Engineer PE Stamp.

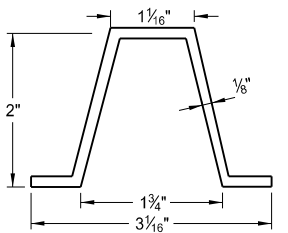
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OBJECT MARKERS - CULVERTS

D-754-83



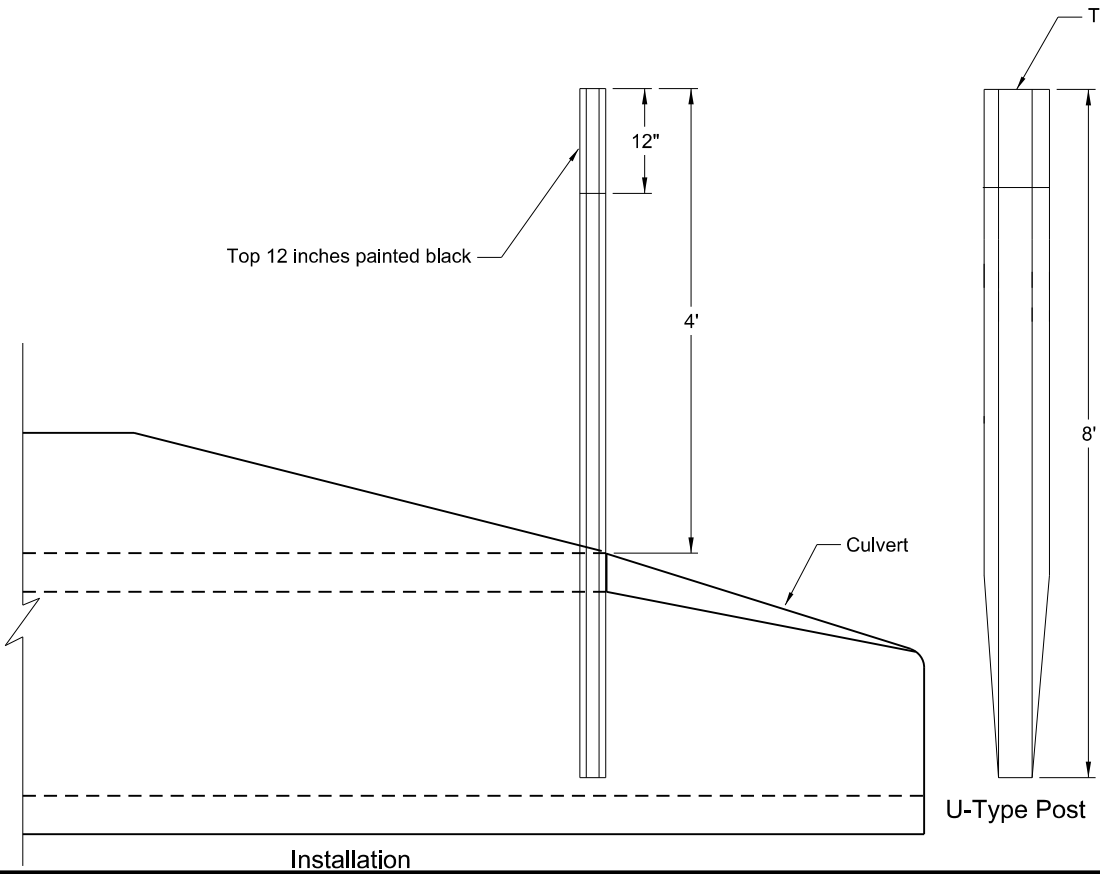
Steel Post Detail
Approx. 2.0 lbs/ft



Aluminum Post Detail
Approx. 0.88 lbs/ft

Notes:

Mark each end of culverts crossing the roadway within the right-of-way with a post. Install posts in front of culvert in direction of travel along the side of culvert and one foot from culvert opening unless shown otherwise in plans.

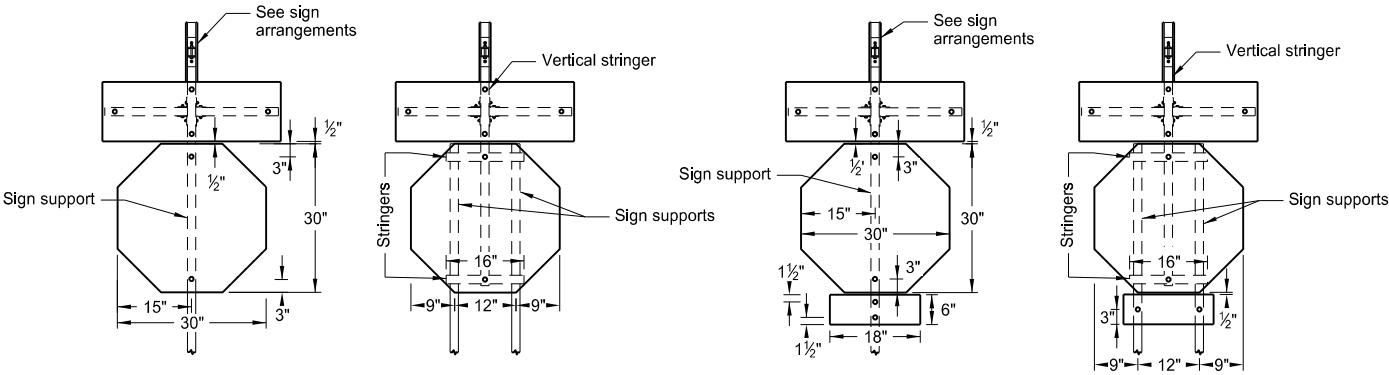


NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-05-13	
REVISIONS	
DATE	CHANGE
7-7-14	Revised Notes
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.

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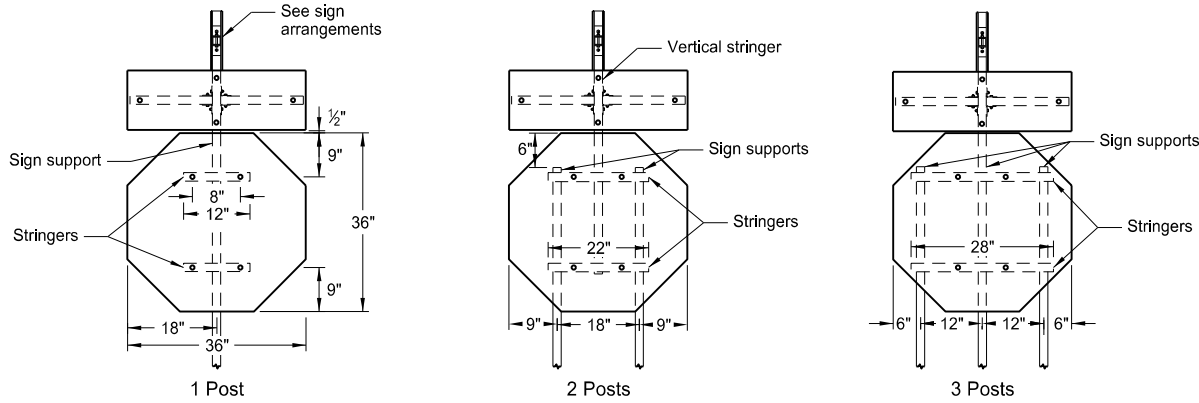
The diagram illustrates two methods of sign placement. On the left, a single post supports two signs: a smaller 'Sign with least area' on top and a larger 'Sign with greatest area' below it. A horizontal dimension line below the signs is labeled 'Varies'. The entire assembly is labeled '1 Post' and 'Sign support'. On the right, two separate posts are shown. Each post supports a sign. The top sign on each post is the 'Sign with least area', and the bottom sign is the 'Sign with greatest area'. Horizontal dimension lines between the signs and between the posts are labeled 'Varies'. The posts are labeled 'Sign support nearest roadway' and 'Sign support'. Both diagrams include a reference to 'See sign arrangements' at the top.

Special Assembly 1 (A, B, C, D or E)

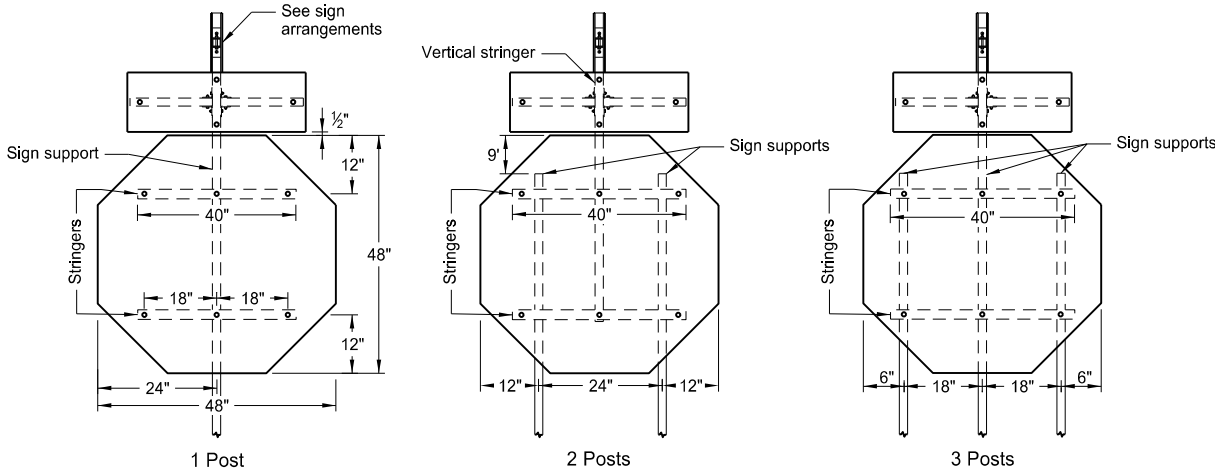


Special Assembly 2 (A, B, C, D or E)

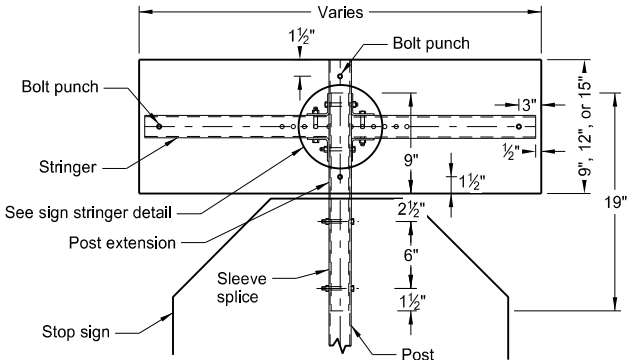
Special Assembly 3 (A, B, C, D or E)



Special Assembly 4 (A, B, C, D or E)



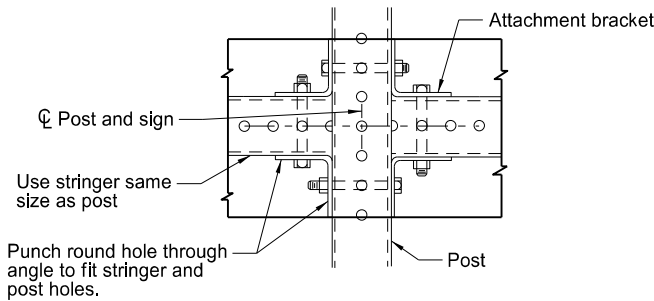
Special Assembly 5 (A, B, C, D or E)



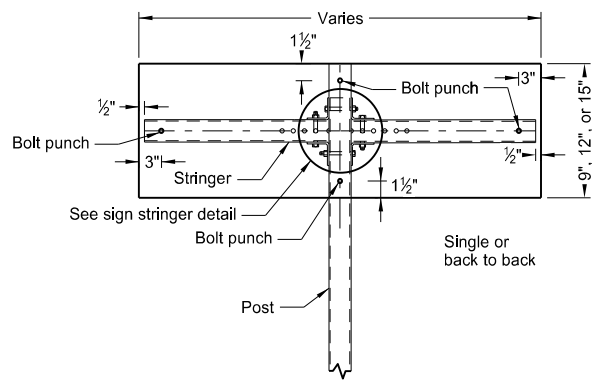
Front View

Sleeve Splice Detail

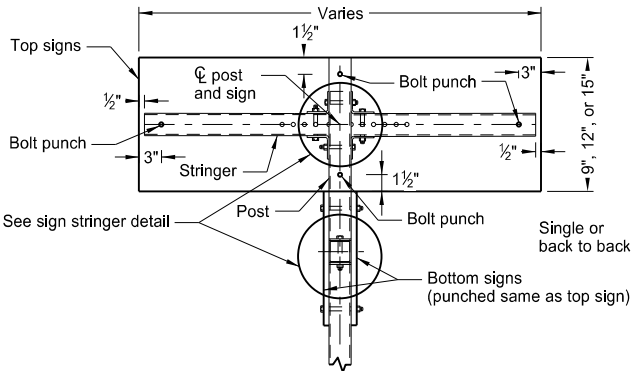
Note: Only use splice method with approval of engineer.



Sign Stringer Detail



Detail A or B

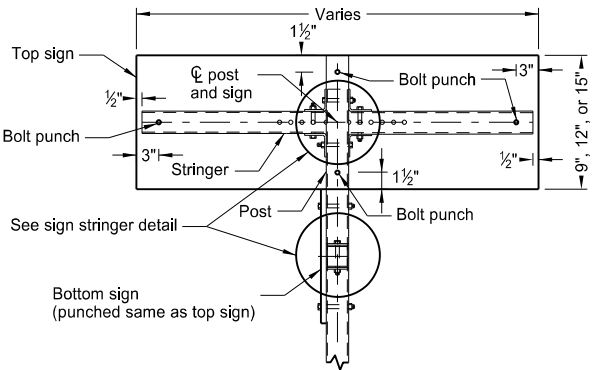


Detail D or E

Diagram illustrating the placement of a stop sign at a street intersection. The diagram shows the face of the curb or edge of the driving lane, the edge of the finished shoulder, and the distance from the curb to the stop sign (20' min. to 30' max.). The stop sign is placed on the shoulder, and the distance from the curb to the stop sign is labeled as 14'. The diagram also shows the placement of street name or 911 signs on the shoulder.

Intersection Layout

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



Detail C

Sign Arrangements

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

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of Transportation

MAILBOX LOCATION DETAILS

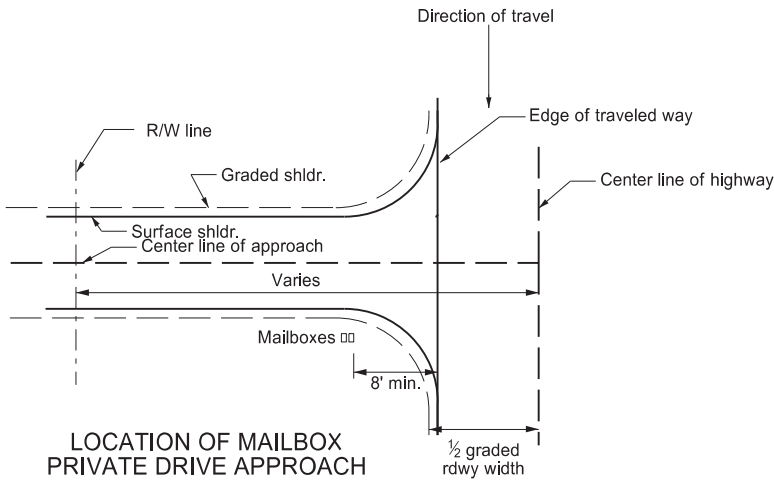
D-766-1

Notes:

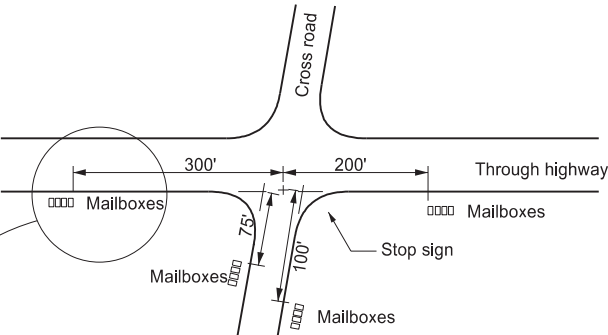
1. The mailbox support and hardware details consist of the "V-Loc Mailbox Support System" manufactured by:

Tapco Traffic & Parking Control Co. Inc.

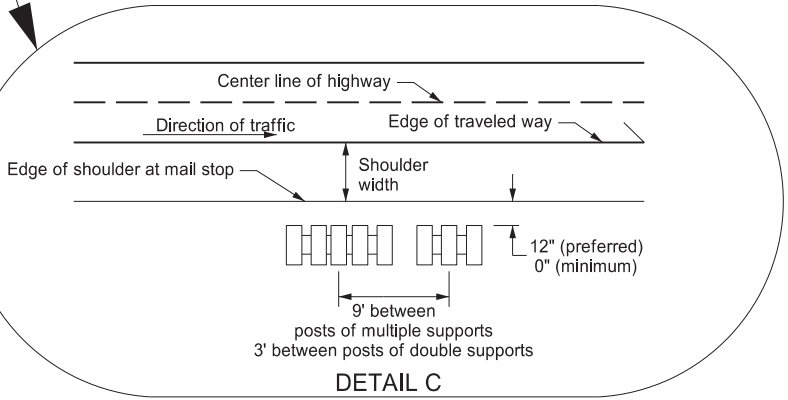
Use any equal crash tested and Federal Highway Administration approved support system meeting the requirements of NCHRP Report 350 or MASH. Install approved alternate mailbox assemblies in the manner and arrangement crash tested.
2. Install mailboxes in Alternate "A" locations when possible. Install mailboxes in Alternate "B" locations when warranted by existing field conditions.
3. Locate mailboxes on the right-hand side of the road in the direction traveled by the carrier. The Engineer will verify the correct direction with the postmaster before installion.
4. Install mailboxes on private drive approaches on the downstream side of the approach.
5. Install angle connection parallel to traffic flow for size 2 mailbox mounted on single posts.
6. For Size 2 mailbox mounted on multiple supports, attach the adapter plate to mounting bracket with 2 each, 3/8" by 9/16" bolts with lock washers and nuts. Then attach the unit to the formed tube support frame using 4 angle connections as shown in Detail A.
7. Space multiple support frames a minimum of 4 feet apart. Space single support frames a minimum of 3 ft apart. Do not place more than five No. 1 mailboxes, three No. 2 mailboxes, or any combination of four No. 1-A and No. 2 mailboxes on multiple support frames.



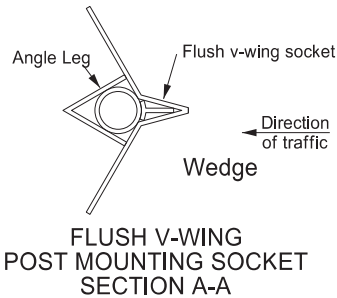
LOCATION OF MAILBOX
PRIVATE DRIVE APPROACH
ALTERNATE "A" LOCATION



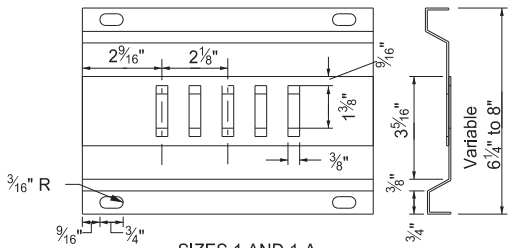
MINIMUM CLEARANCE DISTANCE TO NEAREST
MAILBOX ALONG ROADWAY AT INTERSECTIONS
ALTERNATE "B" LOCATION



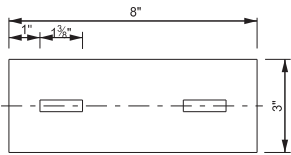
DETAIL C



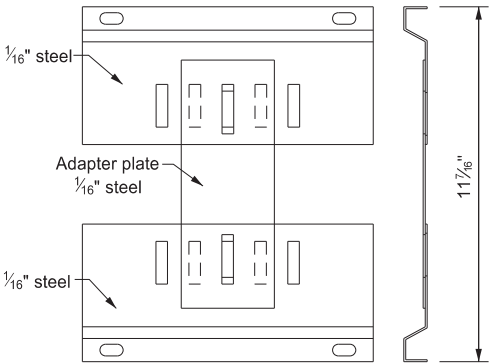
FLUSH V-WING
POST MOUNTING SOCKET
SECTION A-A



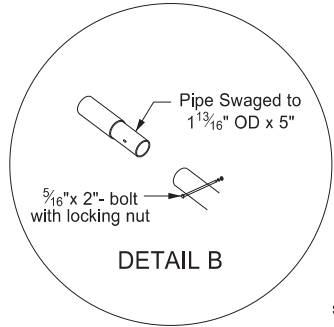
SIZES 1 AND 1-A
MOUNTING BRACKET



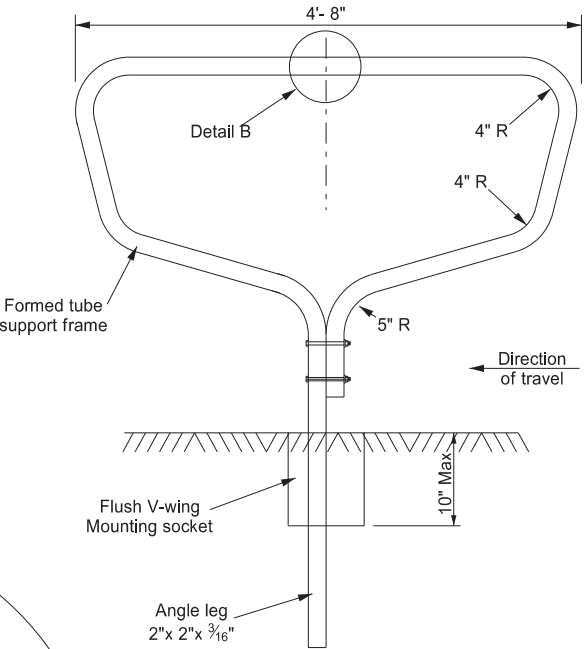
ADAPTOR PLATE



SIZE 2 WITH ADAPTOR PLATE
MOUNTING BRACKET



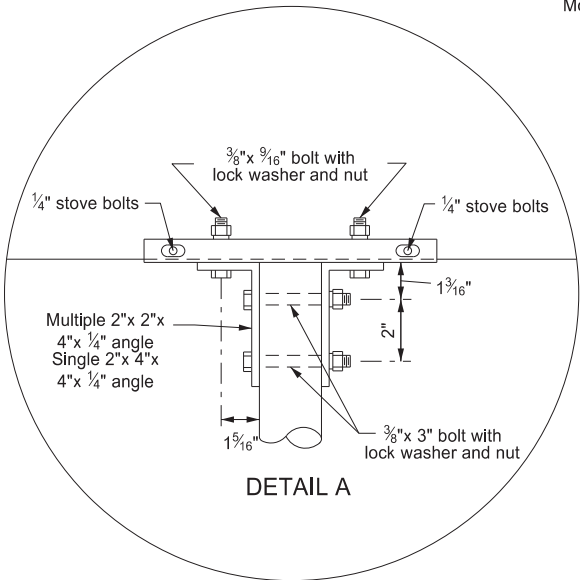
DETAIL B



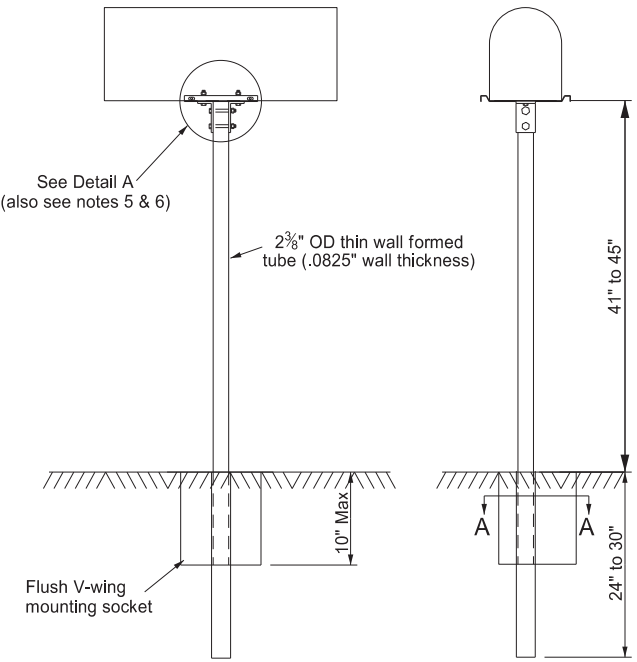
FRONT

TABLE A

TYPICAL MAILBOX DIMENSIONS			
Size	Width	Height	Length
1	6 1/2"	8 1/2"	19"
1-A	8"	10 1/2"	21"
2	11 1/2"	13 1/2"	23 1/2"



DETAIL A



SIDE

FRONT

SINGLE SUPPORT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-15-2010	
REVISIONS	
DATE	CHANGE
08-25-2023	Dsn Engr stamp/signature update



08/25/23