

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT P 6403(10)  
PENNINGTON COUNTY

GRADING, BASE COURSE, DRAINAGE,  
& ASPHALT CONCRETE SURFACING PLANS

PCN 08P3

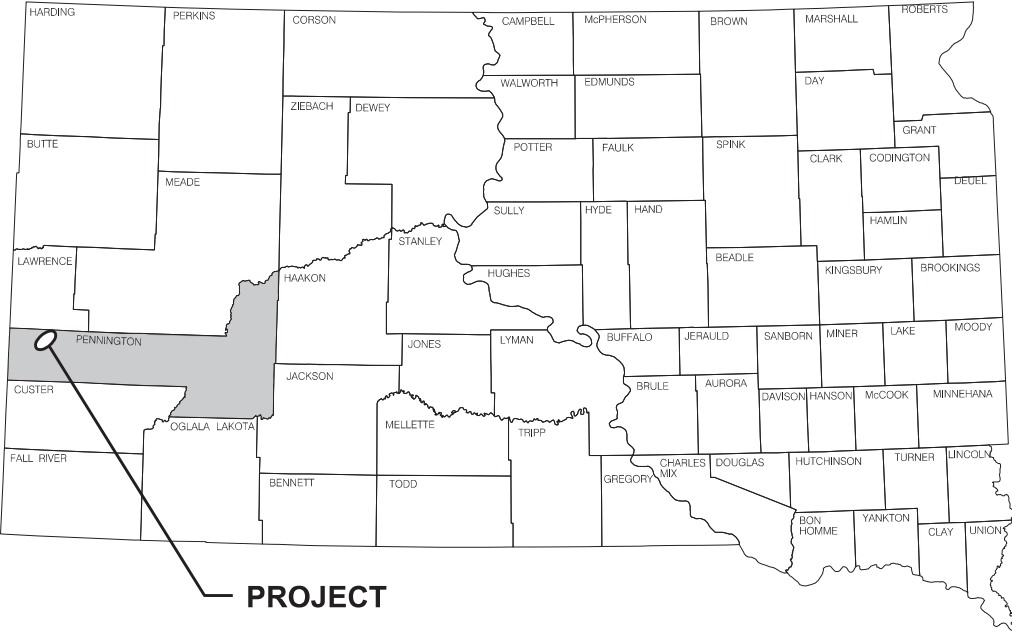
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	1	333

Plotting Date: 2/6/2023

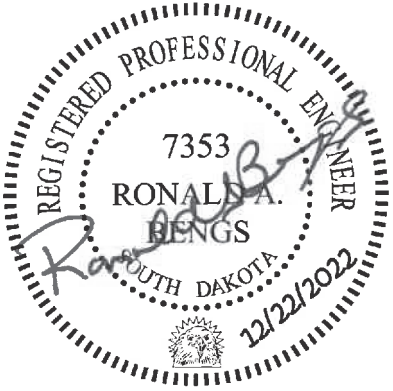
Revision Date: 9/7/2022  
Revision Date: 1/6/2023  
Revision Date: 2/6/2023

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PROJECT



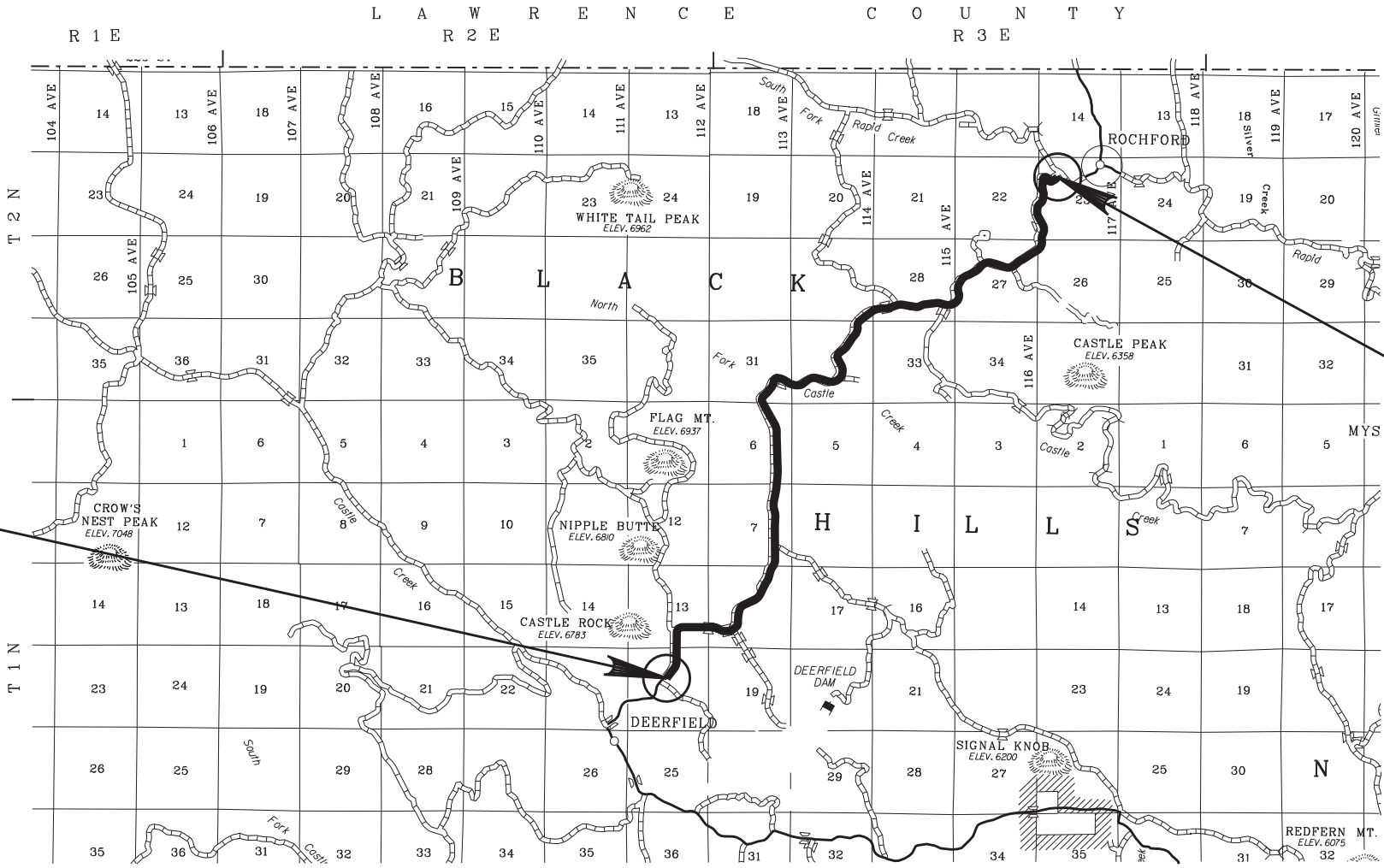
**BEGIN P 6403(10)**  
**SOUTH ROCHFORD ROAD**  
**Station 0+00.00**  
**1,684.30 feet South and**  
**2,909.67 feet West of the**  
**Northeast corner of Section 24 -**  
**Township 1 North - Range 2 East**

DESIGN DESIGNATION

ADT (2017)	130
ADT (2037)	190
DHV:	30
D:	50%
T DHV:	3.5%
T ADT:	7.7%
V	35 mph

STORM WATER PERMIT

Major Receiving  
Body of Water: Rapid Creek and North Fork Castle Creek  
Area Disturbed: 59.4 Acres  
Total Project Area: 95 Acres  
Approx. Begin Lat,Long: 44°02'01.68", 103°49'33.88"



**END P 6403(10)**  
**SOUTH ROCHFORD ROAD**  
**Station 534+30.81**  
**1,289.29 feet South and**  
**889.32 feet East of the**  
**Northwest corner of Section 23 -**  
**Township 2 North - Range 3 East**

Gross Length	53430.81 Feet	10.119 Miles
Length of Exceptions	0.00 Feet	0.000 Miles
Net Length	53430.81 Feet	10.119 Miles



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March 22, 2023

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Revised Date: 02/13/2023

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	20.48	Mile
009E3280	Slope Staking	20.480	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4300	Construction Schedule, Category III	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0210	Remove Building(s)	Lump Sum	LS
110E0550	Remove Cattle Guard	1	Each
110E0600	Remove Fence	46,941	Ft
110E1690	Remove Sediment	86.7	CuYd
110E1700	Remove Silt Fence	22,447	Ft
110E7802	Remove Fence for Reset	1,372	Ft
120E1000	Muck Excavation	2,178	CuYd
120E1100	Unclassified/Rock Excavation	493,590	CuYd
120E1200	Blasting	1,000	CuYd
120E2000	Undercutting	98,758	CuYd
120E6100	Water for Embankment	1,250.0	MGal
120E6200	Water for Granular Material	460.0	MGal
205E0010	Dust Control Chloride	71,000	Lb
205E0030	Dust Control Nonchloride	5,000	Lb
230E0010	Placing Topsoil	31,944	CuYd
240E0010	Obliterate Old Road	58	Sta
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	57,702.0	Ton
260E1060	Base Course, Modified	2,393.0	Ton
260E5000	Shot Rock	15,987.0	Ton
260E6010	Granular Material	5,873.0	Ton
270E0110	Salvage and Stockpile Granular Material	35,655.0	Ton
320E0007	PG 64-28 Asphalt Binder	1,964.0	Ton
320E1050	Class E Asphalt Concrete	37,306.0	Ton
320E3000	Compaction Sample	114	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	55.0	Ton
421E0100	Pipe Culvert Undercut	23	CuYd
450E4758	18" CMP 14 Gauge, Furnish	3,014	Ft
450E4760	18" CMP, Install	3,014	Ft
450E4768	24" CMP 14 Gauge, Furnish	316	Ft
450E4770	24" CMP, Install	316	Ft
450E4778	30" CMP 14 Gauge, Furnish	160	Ft
450E4780	30" CMP, Install	160	Ft
450E4788	36" CMP 14 Gauge, Furnish	130	Ft
450E4790	36" CMP, Install	130	Ft
450E4798	42" CMP 14 Gauge, Furnish	76	Ft
450E4800	42" CMP, Install	76	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E5015	24" CMP Elbow, Furnish	1	Each
450E5016	24" CMP Elbow, Install	1	Each
450E5211	18" CMP Flared End, Furnish	61	Each
450E5212	18" CMP Flared End, Install	61	Each
450E5215	24" CMP Flared End, Furnish	12	Each
450E5216	24" CMP Flared End, Install	12	Each
450E5219	30" CMP Flared End, Furnish	4	Each
450E5220	30" CMP Flared End, Install	4	Each
450E5227	42" CMP Flared End, Furnish	1	Each
450E5228	42" CMP Flared End, Install	1	Each
450E5406	18" CMP Safety End, Furnish	40	Each
450E5407	18" CMP Safety End, Install	40	Each
450E5420	36" CMP Safety End, Furnish	4	Each
450E5423	36" CMP Safety End, Install	4	Each
600E0300	Type III Field Laboratory	1	Each
620E0010	Type 1 Right-of-Way Fence	26,009	Ft
620E0020	Type 2 Right-of-Way Fence	18,208	Ft
20E0030	Type 3 Right-of-Way Fence	2,980	Ft
620E0260	Modified Type 6 Right-of-Way Fence	1,116	Ft
620E1020	2 Post Panel	65	Each
620E1030	3 Post Panel	59	Each
620E4100	Reset Fence	1,372	Ft
630E1010	Straight Class A W Beam Guardrail with Wood Posts	1,290.0	Ft
630E2010	W Beam Guardrail End Terminal	2	Each
630E2015	W Beam Guardrail Flared End Terminal	8	Each
634E0010	Flagging	5,040.0	Hour
634E0020	Pilot Car	1,680.0	Hour
634E0110	Traffic Control Signs	751.7	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	24	Each
634E0320	Temporary Flexible Vertical Markers (Tabs)	10.1	Mile
634E0630	Temporary Pavement Marking	20.4	Mile
634E1215	Contractor Furnished Portable Changeable Message Sign	5	Each
700E0210	Class B Riprap	12.0	Ton
730E0100	Cover Crop Seeding	29.7	Bu
730E0208	Type E Permanent Seed Mixture	1,188	Lb
731E0200	Fertilizing	59.40	Ton
732E0100	Mulching	178.2	Ton
734E0042	Soil Stabilizer	1,000.0	SqYd
734E0101	Type 1 Erosion Control Blanket	500	SqYd
734E0154	12" Diameter Erosion Control Wattle	27,814	Ft
734E0165	Remove and Reset Erosion Control Wattle	6,922	Ft
734E0325	Surface Roughening	104.4	Acre

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
734E0400	Rock Check Dam	105.0	CuYd
734E0510	Shaping for Erosion Control Blanket	450	Ft
734E0604	High Flow Silt Fence	22,447	Ft
734E0610	Mucking Silt Fence	1,560	CuYd
734E0620	Repair Silt Fence	5,610	Ft
831E0202	Woven Separator Fabric, Modified	17,500	SqYd
900E0010	Refurbish Single Mailbox	17	Each
900E1080	Orange Plastic Safety Fence	9700	Ft

## SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.





ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <<https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf> >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT A: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.519 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to the plan sheets for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
40 (wetland)	245+00 - 246+00 R	0.00	0.03	0.00	0.00	0.03
30 (wetland)	245+00 - 246+00 L	0.022	0.00	0.00	0.00	0.022
41 (wetland)	481+50 – 484+00 L	0.002	0.00	0.00	0.00	0.002
13 (wetland)	481+50 – 485+00 R	0.00	0.037	0.00	0.000	0.037
11c (fen)	500+00 – 506+00 R	0.00	0.011	0.00	0.00	0.011
11b (fen)	494+00 – 507+00 R	0.00	0.002	0.00	0.00	0.002
11a (fen)	498+50 - 499+50 L	0.01	0.00	0.00	0.00	0.01

9 (wetland)	528+00 - 534+50 R	0.00	0.047	0.00	0.00	0.047
8d (wetland)	507+00 - 510+00 R	0.00	0.002	0.00	0.00	0.002
8c (wetland)	509+50 - 510+00 R	0.00	0.006	0.00	0.00	0.006
8b (wetland)	510+50 R	0.00	0.003	0.00	0.00	0.003
8a (wetland)	510+50 - 536+00 L	0.347	0.00	0.00	0.00	0.347

Action Taken/Required:

Mitigation for wetlands will be created on-site to account for permanent project impacts to existing wetlands. The mitigation for the wetlands is shown in the plans. Mitigation consists of replacing the limestone base course adjacent to the wetlands with a granite material and there will be a restoration of fen wetlands at the Rochford Cemetery fen location.

The Contractor is not permitted to stage equipment or materials within identified wetland areas. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any wetlands. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in plan sheets. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
0+00 to 534+30 (L&R)	April 1 to October 31

Tree removal will occur between November 1<sup>st</sup> and March 31<sup>st</sup>.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: < <https://sdleastwanted.sd.gov/maps/default.aspx> >

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

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COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Rapid Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 mg/L daily maximum.

The North Fork Castle Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 mg/L daily maximum.

Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

≤  
[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_AddTemplInfoFillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTemplInfoFillable.pdf) >

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:

<  
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx> >

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the “Special Provision Regarding Storm Water Discharges to Waters of the State.”

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:  
<  
[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_CGPAppendixCCA2018Fillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf) >

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: < <https://dot.sd.gov/doing-business/environmental/stormwater> >

DANR:<  
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx> >

EPA: < <https://www.epa.gov/npdes> >

COMMITMENT F: SEASONAL WORK RESTRICTION

The State of South Dakota Game, Fish, and Parks has designated a cold water fishery associated with this project.

Action Taken/Required:

Construction or demolition activities should not take place during the Seasonal Work Restriction listed in the below table to avoid conflicts with spawning fish. If flows during this time are nonexistent or extremely low, the seasonal use restriction may not be applicable. The Contractor will not conduct in-stream work during the Seasonal Work Restriction without prior approval from the SDDOT Environmental Office.

Stream Name	Stream Classification	Seasonal Work Restriction
North Fork Castle Creek	Cold Water	October 1 to April 1

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal



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**COMMITMENT H: WASTE DISPOSAL SITE (continued)**

sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, “No Dumping Allowed”.

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

**COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES**

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

**Action Taken/Required:**

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will

immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

**COMMITMENT M: SECTION 4(f)/6(f) RESOURCES**

**COMMITMENT M1: SECTION 4(f) PROPERTY**

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) properties located within the project.

Station	Section 4(f) Property
0+00 – 13+73R 54+42 – 105+31R	Forest Service Management Area 8.2
536+25 – 536+75	Mickelson Trail
See Following Table	Environmentally Sensitive Sites

**Action Taken/Required:**

The following measures are required to minimize harm to Forest Service Area 8.2:

- Access to Forest Service Management Area 8.2 will always be maintained during construction activities via flagging operations and/or an approved detour.
- Construction of the Project would be phased to allow traffic continuous access to the area and campground
- Appropriate signage will be installed to alert users of Forest Service Management Area 8.2 of construction activities, access restrictions or closures, and to direct users to secondary access points.
- The staging and/or storage of construction equipment or materials will not take place outside proposed construction limits that are within the defined boundaries of the 4(f) property.
- The Contractor will be required to closely coordinate the construction schedule with SDDOT prior to the start of construction activities.

The following measures are required to minimize harm to the Mickelson Trail:

- Access to the Mickelson Trail will always be maintained during construction activities via flagging operations and/or signage

The Contractor is not permitted to stage equipment or materials within Forest Service Area 8.2 and the Mickelson Trail. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to

any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

**COMMITMENT N: SECTION 404 PERMIT**

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

**Action Taken/Required:**

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.



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**COMMITMENT P: TRADITIONAL CULTURAL PROPERTY MONITORING**

As a result of a Traditional Cultural Property (TCP) Survey, sensitive sites have been identified within and/or adjacent to the project rights-of-way.

The following TCP sites have been identified that require avoidance of construction activities:

**Table of Culturally Sensitive Sites**

Station	Offset (Ft.)	L/R	Environmental Sensitive Site	Action
-00+90	72	L	ESS-00	Tribal Monitoring/Site Fencing
17+43	28	R	ESS-1	Tribal Monitoring /Plating Operation
24+05	34	L	ESS-2	Tribal Monitoring/Site Fencing
30+98	57	R	ESS-3	Tribal Monitoring/Site Fencing
34+46 to 43+50	Varies	L/R	ESS-4	Tribal Monitoring/Site Fencing
34+97	57	L	ESS-5	Tribal Monitoring/Site Fencing
36+56	48	R	ESS-6	Tribal Monitoring/Site Fencing
77+00 to 82+50	Varies	L	ESS-7	Tribal Monitoring/Site Fencing
146+31	60	L	ESS-8	Tribal Monitoring/Site Fencing
164+54	67	L	ESS-9	Tribal Monitoring/Site Fencing
261+53	55	L	ESS-10	Tribal Monitoring/Site Fencing
262+62	70	L	ESS-11	Tribal Monitoring/Site Fencing
334+42	97	L	ESS-12	Tribal Monitoring/Site Fencing
365+88	40	R	ESS-13	Tribal Monitoring/Site Fencing
370+76 to 379+52	Varies	L/R	ESS-14	Tribal Monitoring/Site Fencing
375+36	41	L	ESS-15	Tribal Monitoring/Site Fencing
377+38	39	R	ESS-16	Tribal Monitoring/Site Fencing
386+46 to 402+80	Varies	L/R	ESS-17	Tribal Monitoring/Site Fencing

The locations and boundaries of the site(s) for avoidance are shown in the non-section plans.

**Action Taken/Required:**

If evidence of a TCP is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease, and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office who will consult with the Archaeological Research Center (ARC), the Rosebud Sioux Tribe (RST) THPO, Black Hills National Forest (BKNF) Heritage Program Manager, SHPO, and FHWA, to determine the appropriate course of action.

All artifacts, features, or other items of interest uncovered by project construction activities will not be displaced unless the ARC, RST THPO, BKNF Heritage Program Manager, and/or SHPO consent to it. Any artifacts found on National Forest System lands will remain property of the federal government.

Prior to the pre-construction meeting, the Contractor will contact the ARC (Phone: 605-394-1936), the RST THPO (Phone: 605-747-4255), and the BKNF Heritage Program Manager (Phone: 605-673-9265) to arrange for tribal monitors to be present during the installation of orange safety fence around the perimeter of the sensitive site(s) listed in the Table of Culturally Sensitive Sites to ensure proper location, quality, and visibility of the orange safety fence. The exact location of the safety fence will be determined later in the field by the ARC representative.

The Contractor will give written notice to the Engineer seven (7) days prior to the commencement of earth disturbing activities near listed sites identified in the Table of Culturally Sensitive Sites so the Engineer may notify ARC and tribal representative of the day work will start and schedule the installation of orange safety fence. ARC and tribal monitor are to be present during earth disturbing activities to monitor the removal of topsoil, ensure avoidance of the fenced sites, and identify any culturally sensitive sites that may be uncovered.

Work within the vicinity of the site(s) will not begin until the safety fence is installed. All costs associated with furnishing and installing the orange safety fence at the sites listed in the Table of Culturally Sensitive Sites will be incidental to the contract unit price per foot for “Orange Plastic Safety Fence”.

SDDOT will provide monitoring for the site(s) identified in the above table.

Prior to the pre-construction meeting, the Contractor will notify the ARC (Phone: 605-394-1936), the RST THPO (Phone: 605-747-4255), and the BKNF Heritage Program Manager (Phone: 605-673-9265) to be present at the meeting for the purposes of coordinating the monitoring schedule of the site(s) listed in the Table of Culturally Sensitive Sites. Work within vicinity of the site(s) will not begin until monitors are present at the site(s).

All costs associated with monitoring will be submitted to the Project Engineer for reimbursement.

Before earth disturbing activities near listed sites occurs, there will be seven (7) days prior notification provided to ARC for scheduling the installation of orange safety fence and/or monitoring at sensitive sites listed in the Table of Culturally Sensitive Sites. ARC and tribal monitor are to be present during earth disturbing activities to monitor the removal of topsoil, ensure avoidance of the fenced sites, and identify any culturally sensitive sites that may be uncovered.

These identified sites cannot be used for material sources, storage areas, waste sites, and/or any other project related activities outside the plan work limits.

**COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA**

This project is located within the Black Hills Forest Fire Protection Boundary.

**Action Taken/Required:**

The Contractor will adhere to the “Special Provision for Fire Plan”.

**COMMITMENT T: BIOLOGICAL MONITORING**

As a result of the wetland delineation, fen wetlands have been identified adjacent to the project rights-of-way. SDDOT will provide biological monitoring at the fen wetland sites. The locations that need to be monitored are noted in the table below.

**Table of Biological Monitoring Locations**

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	494+00 to 507+00	0.00	0.00	0.00	0.00	0.00

**Action Taken/Required:**

The wetland features and vegetation will be documented before, during, and after construction activities. This monitoring will determine if rapid dieback of acid intolerant species occurs and if remedial action is needed. Remedial actions will be determined by SDDOT, Pennington County, and U.S. Forest Service.

If dieback is occurring without establishment of new, acid-tolerant species, the manual re-vegetation of species such as *Betula glandulosa*, *Carex* spp. and *Sphagnum* spp. may be warranted.

**COMMITMENT U: CONSTRUCTION SCHEDULING TO PREVENT CONFLICTS WITH CEREMONIAL ACTIVITIES**

The SDDOT consulted with tribes that are parties to the Memorandum of Agreement to implement measures that limit construction noise and traffic control during ceremonies scheduled along the Project.

**Action Taken/Required:**

The SDDOT will provide the consulting tribes a written or electronic notice of the scheduled pre-construction meeting date. The name and contact information of the SDDOT’s point of contact will also be provided, in order for tribes to coordinate ceremonial events that could be disrupted by construction noise or traffic control.

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**COMMITMENT U: CONSTRUCTION SCHEDULING TO PREVENT  
CONFLICTS WITH CEREMONIAL ACTIVITIES (continued)**

In order to limit construction-related disturbances during ceremonial events, the tribes will provide a written or electronic notification to the SDDOT's point of contact. The notification will include the location, date(s), start and stop times, and contact information regarding the ceremony.

All tribes that are parties to the Memorandum of Agreement concur in good faith to:

1. Coordinate and schedule those ceremonies planned to be held on properties adjacent to the Project between Stations 10+00 and Station 230+00;
2. Coordinate and schedule only those ceremonies that would be disrupted by construction noise or traffic control, taking into consideration the location and type of ceremony;
3. Limit ceremonial activities, dates and times to the extent possible as to not unduly impede the construction schedule.
4. The SDDOT's point of contact will coordinate with the person that notified the SDDOT of the ceremony to establish boundaries for restricting construction activities. These boundaries will not extend beyond Station 10+00 to Station 230+00.
5. For those ceremonies scheduled prior to the pre-construction meeting date, the SDDOT will ensure that the construction contract includes provisions to temporarily cease construction activities within the established boundaries.
6. For ceremonies scheduled after the pre-construction meeting date and at least one week prior to the ceremony, the SDDOT will work with the contractor to minimize disruption from construction noise and traffic control activities to the extent possible. However, honoring such requests cannot be guaranteed due to contractual constraints.
7. Minimally, construction accommodations will be planned for three known Tribal ceremonies. These known ceremonies are held up to 4 days around the time of April 25, June 21, and September 21. Since these are seasonally based ceremonies, it will be necessary for the tribes to provide the specific dates and times of these events to the SDDOT's point of contact prior to the pre-construction meeting date for these ceremonies to be included in the construction contract provisions.

CLEARING AND DISPOSAL OF TIMBER

A. U.S. Forest Service Land

The Contractor will dispose of the brush and stumps remaining after Pennington County has logged the merchantable timber. The merchantable timber will be removed during the winter months of 2020/2021 and will be completed prior to this contract and work commencing. Merchantable timber was defined as any standing timber greater than 6 inch in diameter at breast height (DBH).

Slash and non-merchantable timber will be disposed of by chipping and/or mastication. All residue from chipping will be spread and broadcast, per Forest Service regulations avoiding large piles or concentrations of chips greater than 3” in depth.

Stumps from right-of-way clearing will be disposed of at locations off the right-of-way; as well as off land managed and owned by the Forest Service

B. Landowner Property

Merchantable timber will be defined as any species of tree with an inside bark diameter of 6 inches or greater and length greater than 8 feet. Merchantable timber will be limbed and decked outside the right-of-way.

Slash and non-merchantable timber will be disposed of by chipping and/or mastication. All residue will be spread and broadcast, per Forest Service regulations.

Stumps from right-of-way clearing will be disposed of at locations off the right-of-way; as well as off land managed and owned by the Forest Service

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

Water for Granular Material is estimated at the rate of 5 gallons of water per ton of Base Course.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical section(s) will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

A copy of the soils profile is available for review at the Rapid City Area Office, the Local Government Assistance Office in the SDDOT Central Office in Pierre as well as by emailing SDDOT Bid Letting Office at DOTBids@state.sd.us. The soils profile was created in 2009 and may not be completely accurate due to changes in alignment.

TYPE III FIELD LABORATORY

Substitution of a cellular telephone for the hard-wired touch-tone telephone is not allowed, as state personnel need the ability to download information over direct phone lines. The phone is intended for state personnel usage only. Contractor personnel are prohibited from using this phone unless pre-approved by the Project Engineer. The Contractor will submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items will be incidental to the contract unit price per each for “Type III Field Laboratory”.

UTILITIES

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

SHRINKAGE FACTOR: Embankment

			%
Station	to	Station	Shrinkage
0+00		36+00	35
36+00		74+00	25
74+00		190+00	30
190+00		221+00	25
221+00		290+00	10
290+00		364+00	25
364+00		382+00	15
382+00		414+00	20
414+00		532+00	15
532+00		583+50	40

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TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	341,752
Undercut	98,758
Topsoil	31,944
Unstable Material Excavation	2,667
Salvage & Stockpile Granular Material	18,469
Total	493,590





TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Undercut (CuYd)	* Muck Exc. (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)	** Haul (CuYdSta)
0+00	88+00	14,684	19,254	0	33,938	0	859,506
88+00	158+25	11,623	15,371	0	26,994	57	376,933
158+25	189+25	10,101	6,782	0	16,883	8,973	3,158
189+25	213+50	2,546	5,306	0	7,852	13	14,716
213+50	259+50	41,404	10,065	0	51,469	32,668	43,942
259+50	275+25	7,000	1,722	0	8,722	527	25,633
275+25	301+00	60,492	1,724	0	62,216	43,520	42,598
301+00	381+50	25,285	9,001	0	34,286	195	1,018,161
381+50	477+00	116,001	22,836	0	138,837	98,849	89,010
477+00	455+00	6,393	0	0	6,393	5,920	0
455+00	520+00	15,200	11	1,555	16,766	908	191,511
520+00	534+30	31,023	6,686	623	38,332	26,174	8,778
Totals:		341,752	98,758	2,178	442,688	217,803	2,673,946

\* The quantities for these items are in the Estimate of Quantities under their respective contract items.  
\*\* The quantities for these items are for information only.

PROCEDURES FOR DETERMINING UNCLASSIFIED/ROCK EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finalizing a project, the Unstable Material Excavation quantity will be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

Rock will be encountered within the project limits. All materials except those classified as Muck Excavation encountered during the construction of this project, regardless of their nature or the manner in which they are excavated, will be considered Unclassified/Rock Excavation.

HAUL

Included in the Table of Excavation Quantities by Balances is Haul. It is not a pay item and is for informational purposes only.

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

OBLITERATING OLD ROAD

The Contractor will obliterate the existing roadway at the locations listed in the Table of Obliterating Old Road.

The surfacing material of the existing roadway will be salvaged.

The Contractor will obliterate the existing roadway in accordance with Section 240 of the Specifications when the existing roadway is not being removed in accordance with the template section.

The earthwork necessary for obliterating the existing road will be accomplished to such an extent that placing topsoil and seeding can be done in a satisfactory manner. Quantities of topsoil, fertilizing, mulching, and seeding for the obliterated sections of the old road are included in the Erosion and Sediment Control Plans Estimate of Quantities.

TABLE OF OBLITERATING OLD ROAD

Station	to	Station	L/R	Length (Station)
276+50		290+00	R	13.5
290+00		295+00	L	5
295+00		299+00	R	4
378+00		385+00	R	7
407+50		412+50	L	5
415+00		420+00	L	5
448+00		454+00	L	6
472+00		480+00	R	8
523+00		525+00	L	4
Total:				58

HISTORICAL MARKER TURNOUT

A historical marker turnout exists near the north project end approximate station 534+00, care will be taken not to disturb or damage the historical marker.



UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4-foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) will then be replaced and compacted to the density specified for the section being constructed.

An exception to the undercut requirements will be made in sections that encounter in place rock. Cut sections made through in place rock will be excavated to the top of the subgrade surface only. Shallow embankment sections (as described above) placed over in place rock with less than 2 feet of soil cover will be excavated to the surface of the rock prior to placing any fill.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING

TABLE OF UNDERCUTTING			
Station	to	Station	Quantity (CuYd)
0+00		292+00	60,224
292+00		294+00	0
294+00		339+00	8,857
339+00		342+00	2
342+00		346+00	142
346+00		355+00	0
355+00		409+00	8,469
409+00		412+00	10
412+00		416+00	578
416+00		419+00	0
419+00		486+00	13,779
486+00		488+00	11
488+00		534+31	6,686
Total			98,758

BASE COURSE

Additional quantity has been added to the Base Course Item to grade approaches and driveways to the new asphalt surface. Upon completion of asphalt paving the approaches will be graded to transition to the new pavement, 1,500 tons has been included for this purpose.

BASE COURSE, MODIFIED

Due to the presence of Acidic Fen Wetlands in certain project areas and as part of the environmental commitments, the roadway in the following sections will be built with Base Course, Modified.

Base Course, Modified:

Begin Station	End Station	Length (ft)	Tons
463+00	469+00	600	653
490+00	506+00	1,600	1,740
Total		2,200	2,393

The existing base course in these areas will be required to be moved up or down station thereby removing the negative effects the existing base has on the Acidic Fen Wetlands adjacent to the roadway. Base Course, Modified, will have base course gradation, yet will have acidic properties. Limestone and similar carbonate materials have a pH outside the acidic range, which is detrimental to the Acidic Fen Wetlands. As such the Base Course, Modified will produce an acidic pH of 5 or lower, such as crushed granite, quartzite, rhyolite or similar material.

Test Method 9045C or approved equal will be used to determine the pH of Base Course, Modified (Acidic)

GRANULAR MATERIAL

Due to the presence of Acidic Fen Wetlands in certain project areas and as part of the environmental commitments, the roadway in the following sections will be built with Granular Material. In addition to the acidic nature the material will be porous, allowing a more sheet like flow of lower flow runoff events.

Begin Station	End Station	Length (ft)	Tons
245+13	247+13	200	653
490+00	506+00	1,600	5,220
Total		1,800	5,873

Granular Material will have the following gradation:

Passing 3 inch sieve	100%
Passing ¾ inch sieve	50-70%
Passing #4 sieve	20-40%
Passing #200 sieve	0-8%

Granular Material will have acidic properties. Limestone and similar carbonate materials have a pH outside the acidic range, which is detrimental to the Acidic Fen Wetlands. As such the Granular Material will produce an acidic pH of 5 or lower, such as crushed granite, quartzite, rhyolite or similar material.

Test Method 9045C or approved equal will be used to determine the pH of Granular Material.

Due to the moisture conditions likely to be encountered in the above locations, excavation/undercut operations and preparation for embankment/granular material placement will be followed immediately by placement of the embankment and granular material. At no time will the excavation be allowed to remain open without moving toward completing the section to top of granular material elevation.

FOR BIDDING PURPOSES ONLY  
SHOT ROCK

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The following Stations will have Shot Rock, See Typical Section.

Begin Station	End Station	Length (ft)	Tons
386+00	388+50	250	1,631
395+50	396+50	100	653
404+75	406+25	150	979
447+75	449+25	150	979
455+50	469+00	1,200	8,809
482+25	484+75	250	1,631
510+00	512+00	200	1,305
Total		2,300	15,987

Shot Rock will have acidic properties. Limestone and similar carbonate materials have a pH outside the acidic range, which is detrimental to the Acidic Fen Wetlands. As such the Granular Material will produce an acidic pH of 5 or lower, such as crushed granite, quartzite, rhyolite or similar material.

Test Method 9045C or approved equal will be used to determine the pH of Granular Material.

Shot Rock will consist of broken or crushed ledge rock produced from blasting or quarrying operations. Shot Rock material utilized in subgrade stabilization will be less than 8” in diameter with a nominal size of 4”.

Compaction will be to the satisfaction of the Engineer. Acceptance of Shot rock will be by Visual Inspection. Independent Assurance will not be required.

Once Shot Rock placement operations have been stabilized the subgrade, normal grading operations will resume.





WOVEN SEPERATOR FABRIC, MODIFIED

A geotextile fabric will be used to provide separation between the various permeable bases that are being used and the native soils. This fabric will also have the ability to move, wick, water through the fabric. TenCate Mirafi H<sub>2</sub>Ri is one such fabric, it or an approved equal will be used. The geotextile fabric will meet the following requirements:

			Minimum Average	
			Roll Value	
Mechanical Properties	Test Method	Unit	MD	CD
Wide Width Tensile Strength	ASTM D4595	lbs/ft (kN/m)	5280 (77.0)	5280 (77.0)
Wide Width Tensile Strength @ 2% strain	ASTM D4596	lbs/ft (kN/m)	480 (7.0)	1080 (15.8)
			Maximum Opening Size	
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	40 (0.425)	
			Minimum Roll Value	
Permittivity	ASTM D4491	sec <sup>-1</sup>	0.4	
Flow Rate	ASTM D4491	gal/min/ft <sup>2</sup> (l/min/m <sup>2</sup> )	30 (1222)	
			Minimum Test Value	
Pore Size (050)	ASTM D6767	microns	85	
Pore Size (095)	ASTM D6767	microns	195	
Wet Front Movement <sup>1</sup> (24 minutes)	ASTM C1559 <sup>2</sup>	inches	6.0 Vertical direction	
Wet Front Movement <sup>1</sup> (983 minutes) Zero Gradient	ASTM C1559 <sup>2</sup>	inches	73.3 Horizontal direction	

1 – STP: Standard Temperature & Pressure  
2 – Modified - Wet Front Movement (ASTM C1559) is not covered by our current A2LA accreditation.

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 2,667 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified/Rock Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station to	Station	L/R	Depth (Ft)	Qty (CuYd)
37+50	38+50	Rt	2.0	111
55+50	56+00	Lt	2.0	56
57+00	58+00	Rt	2.0	111
114+00	114+75	Lt & Rt	2.0	167
199+50	200+50	Rt	2.0	111
260+00	269+00	Rt	2.0	1,000
273+00	276+00	Rt	2.0	333
291+00	294+50	Rt	2.0	389
401+50	403+00	Rt	2.0	167
408+50	409+50	Rt	2.0	111
411+00	412+00	Rt	2.0	111
			Total	2,667

MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 2,178 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified/Rock excavation, the material will be measured and paid for as “Unclassified/Rock Excavation”.

TABLE OF MUCK EXCAVATION

Station to	Station	L/R	Depth (Ft)	Qty (CuYd)
480+00	484+00	Rt	3.0	444
508+00	510+00	Rt	3.0	222
510+00	511+00	Lt	3.0	111
514+00	521+00	Lt	3.0	778
529+50	530+50	Rt	3.0	111
532+00	534+30	Lt & Rt	3.0	511
			Total	2,178

SALVAGE AND STOCKPILE GRANULAR MATERIAL

An estimated 35,655 tons (18,469 Cubic Yards) of existing granular material, anticipated to be 4 inches in thickness, will be salvaged from the entire length of the existing roadway and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer. The material will be used on the project as salvage granular material per typical section. No gradation requirement for the salvage

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and stockpile granular material, a proctor will be run on the existing material establishing the ability to test the material in place density.

The quantity of salvage granular base material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of salvage granular material. Provided the existing granular base material quantity is less than anticipated the base course material quantity will be increased to maintain a total of 12” base course and salvaged granular material total thickness. Conversely if the existing granular material is greater than anticipated the base course material will be decreased to maintain a total of 12” base course and salvaged granular material total thickness.

PIPE CULVERT UNDERCUT

Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

If pipe culvert undercut is required, the table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. Pipes listed may or may not require undercutting and pipes not listed may require undercutting. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Quantity (CuYd)
246+12	1	23
Total:		23



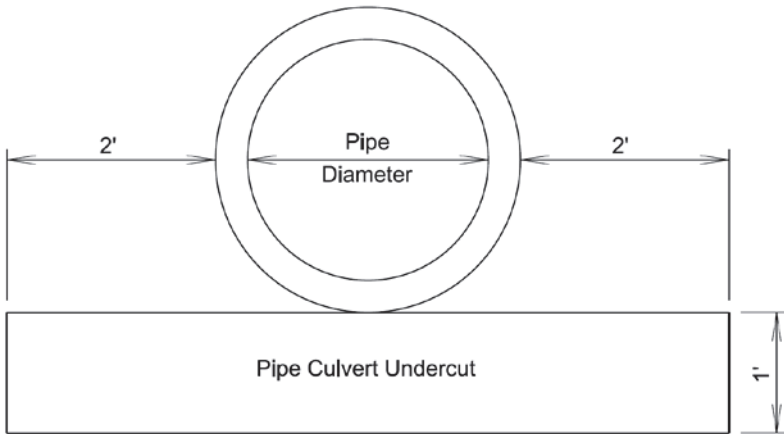


PIPE CULVERT UNDERCUT (continued)

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



SEISMIC DATA

The seismic data, as shown on the cross sections, are the results of single channel (Bison 1570-C) seismograph traverses run on representative segments of the excavation sections to estimate subsurface conditions and augment surface observations. These tests were conducted in areas where conditions and terrain would permit. The traverses averaged 100 feet in length and the data obtained from each traverse was extrapolated over the length of each segment to estimate the seismic velocities and depth to the change in velocities for each segment. Each individual traverse represents only subsurface conditions directly below the middle two-thirds of each traverse. The calculated results were placed on the cross sections nearest to the placement of the geophone. The calculated depths cannot be assumed to parallel the ground surface, nor can the interpretations be projected laterally with a high degree of reliability. The interpretations are subject to as much as 15 percent deviation in actual depths and 20 percent deviations in

velocities. Correlation between seismic velocity and difficulty of excavation for soil and rock based on seismic velocity alone can be quite variable. Rippability can vary with other factors, such as orientation of bedding and/or jointing in bedrock; size, type, and conditions of equipment; and skill of equipment operator.

BLASTING OPERATIONS

The Contractor will exercise utmost care so as not to endanger life or property while using explosives.

Before any drilling operations in preparation for blasting are started, the Contractor will furnish the Engineer a detailed plan of operations showing the method proposed for the prevention of damage. In order to ensure adequate protection, the plan may be modified to meet the conditions that may develop. The Contractor will also consider the location of adjacent structures in preparation of this plan.

Blasting operations will be conducted under the most careful supervision. Ordinarily only light shooting will be permitted. In using explosives, the Contractor will adopt precautions that will prevent damage to surrounding objects. The Contractor will use suitable mats or other approved means to smother the blasts as directed by the Engineer. Nothing herein will release the Contractor from full responsibility for damage or injury resulting from the use of explosives.

When using explosives, the Contractor will adopt precautions which will prevent damage to landscape features and other surrounding objects, and which will prevent the scattering of rocks, stumps or other debris outside the

finished roadway slopes. When directed by the Engineer, trees within an area designated to be cleared will be left as protective screen for surrounding vegetation during blasting operations. Trees left as a protective screen will be removed and disposed of after blasting has been completed.

Blasting may be required near the following list of houses. This list is not considered to be a complete listing of areas of concern; also, blasting may not be required near all of the listed locations. These house locations are included in order to indicate that good blasting control and observation will be required on the project.

Station	L/R
493+00	R
535+00	R

A. BLASTING CONSULTANT

The Contractor will retain a recognized blasting consultant to assist in the blast and pre-shear design. The blast design will include both the controlled and production blasting. The consultant will be an expert in the field of drilling and blasting who derives his primary source of income from providing education in an institution of higher education and/or specialized blasting and/or blasting consultant services. The consultant will not be an employee of the Contractor, explosives manufacturer, or explosives distributor.

B. PRE-BLAST CONDITION SURVEY

The Contractor will arrange for a pre-blast survey of any nearby buildings, structures, or utilities that may potentially be at risk from blasting damage. The survey method used will be acceptable to the Contractor's insurance company. The Contractor will be responsible for any damage resulting from blasting. The pre-blast survey records will be made available to the Engineer for review. Occupants of local buildings will be notified by the Contractor prior to the commencement of blasting.

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C. VIBRATION CONTROL AND MONITORING

When blasting near buildings, structures, or utilities which may be subject to damage from blast induced ground vibrations, the ground vibrations will be controlled by the use of properly designed delay sequences and allowable charge weights per delay. Allowable charge weights per delay will be based on vibration levels which will not cause damage, and will be established by carrying out trial blasts and measuring vibration levels. The trial blasts will be carried out in conformance with blasting test sections, and modified as required to limit ground vibrations to a level which will not cause damage.

Whenever vibration damage to adjacent structures is possible, the Contractor will monitor each blast with an approved seismograph located, as approved, between the blast area and the closest structure subject to blast damage. The seismograph used will be capable of recording particle velocity for the three mutually perpendicular components of vibration in the range generally found with controlled blasting.

Peak particle velocity of each component will not be allowed to exceed the safe limits of the nearest structure subject to vibration damage. The Contractor will employ a qualified vibration specialist to establish safe vibration limits. The vibration specialist will also interpret the seismograph records to insure that the seismograph data will be effectively utilized in the control of the blasting operations with respect to the existing structures. The vibration specialist used will be subject to the Engineer's approval.

Data recorded for each shot will be furnished to the Engineer prior to the next blast and will include the following:

1. Identification of instrument used.
2. Name of Qualified observer and interpreter.
3. Distance and direction of recording station from blast area.
4. Type of ground at recording station and material on which the instrument is sitting.
5. Maximum particle velocity in each component.
6. A dated and signed copy of photographic records of seismograph readings.

SCALING OF ROCK SLOPES

No loose rocks will be left on shot or ripped and dozed rock slopes. Loose or detached rock will be removed from the slopes as the depth of the cut progresses. Any rock protrusions on the slopes will be removed with the use of equipment or light blasting as the slope is developed.



REMOVAL OF BUILDING(S)

Included in these plans is the removal and disposal of one (1) building. The location and type of building is as follows:

Station	L/R	Type
241+50	R	Calving Shed/Barn

These buildings will be removed in accordance with Section 110 of the Specifications and all local codes. The disconnecting and capping of utility services will be the responsibility of the Contractor.

These buildings have not been inspected for asbestos. The Contractor will be responsible for providing an asbestos inspection and following all local, state, and federal regulations regarding the removal of asbestos, if found. All costs for the inspection will be incidental to the contract lump sum price for "Remove Building(s)". All costs for removal of the asbestos will be handled during construction by CCO.

TABLE OF CATTLE GUARD REMOVAL

Station	L/R	Size
31+60	Center	30 ft Cattle Guard with Wings

The existing Cattle Guards will be salvaged and stockpiled on site at a location approved by the Engineer. Pennington County will take possession of the salvaged cattle guards at the agreed upon stockpile location. Pennington County will then deliver the salvaged guardrail to the US Forest Service.

INCIDENTAL WORK, GRADING

Existing pipe removed will become the property of the Contractor, and be disposed of outside the ROW.

Pipe Removals				
Station	L/R	Size (in)	Length (ft)	Remarks
0+03	CL	21	40	CMP Mainline Crosspipe
8+51	CL	18	38	CMP Mainline Crosspipe
16+73	CL	18	36	CMP Mainline Crosspipe
23+06	CL	21	36	CMP Mainline Crosspipe
27+68	L	21	32	CMP Approach Pipe
29+23	L	21	56	CMP Mainline Crosspipe
57+05	CL	21	52	CMP Mainline Crosspipe
81+55	CL	18	46	CMP Mainline Crosspipe
113+60	CL	24	40	CMP Approach Pipe
114+58	CL	36	80	CMP Mainline Crosspipe
115+04	L	18	30	CMP Approach Pipe - Assumed 18"
116+33	L	18	28	CMP Approach Pipe
139+83	CL	36	72	CMP Mainline Crosspipe
142+94	CL	36	64	CMP Mainline Crosspipe
165+00	CL	18	70	CMP Mainline Crosspipe
175+29	CL	21	48	CMP Approach Pipe
185+74	CL	24	50	CMP Mainline Crosspipe
197+28	R	18	36	CMP Approach Pipe

197+38	L	21	36	CMP Approach Pipe
200+44	CL	24	48	CMP Mainline Crosspipe
219+14	R	18	36	CMP Mainline Crosspipe
230+82	L	18	24	CMP Approach Pipe
232+32	CL	24	54	CMP Mainline Crosspipe
240+77	R	18	40	CMP Approach Pipe
241+74	CL	24	40	CMP Mainline Crosspipe
242+54	R	24	24	CMP Approach Pipe
243+28	R	24	30	CMP Mainline Crosspipe
243+75	L	24	30	CMP Approach Pipe
246+16	CL	60	50	CMP Mainline Crosspipe
256+43	CL	18	30	CMP Approach Pipe
269+56	CL	21	34	CMP Mainline Crosspipe
277+89	CL	18	34	CMP Mainline Crosspipe
283+19	CL	18	38	CMP Mainline Crosspipe
285+72	CL	24	54	CMP Mainline Crosspipe
291+12	CL	30	70	CMP Mainline Crosspipe
297+08	R	24	50	CMP Approach Pipe
301+43	CL	24	50	CMP Mainline Crosspipe
308+04	CL	18	52	CMP Mainline Crosspipe
314+54	CL	18	40	CMP Mainline Crosspipe
320+30	R	18	34	CMP Approach Pipe
352+14	CL	18	58	CMP Mainline Crosspipe
356+88	R	18	32	CMP Approach Pipe
362+99	CL	18	40	CMP Mainline Crosspipe
371+76	L	18	36	CMP Approach Pipe
373+72	CL	18	42	CMP Mainline Crosspipe
379+92	CL	18	40	CMP Mainline Crosspipe
388+20	CL	18	40	CMP Mainline Crosspipe
396+13	CL	18	44	CMP Mainline Crosspipe
408+45	CL	18	42	CMP Mainline Crosspipe
411+51	CL	18	42	CMP Mainline Crosspipe
417+53	L	18	40	CMP Approach Pipe
418+99	L	18	40	CMP Approach Pipe
424+27	CL	18	42	CMP Mainline Crosspipe
435+96	CL	18	40	CMP Mainline Crosspipe
442+70	CL	18	36	CMP Mainline Crosspipe
448+97	CL	18	60	CMP Mainline Crosspipe
454+72	CL	24	40	CMP Mainline Crosspipe
456+98	CL	18	40	CMP Mainline Crosspipe
464+22	CL	18	44	CMP Mainline Crosspipe
468+09	CL	18	44	CMP Mainline Crosspipe
492+97	CL	24	52	CMP Mainline Crosspipe
499+39	CL	21	40	CMP Mainline Crosspipe
510+36	CL	21	54	CMP Mainline Crosspipe
511+81	CL	21	46	CMP Mainline Crosspipe
522+21	CL	18	30	CMP Mainline Crosspipe
527+50	CL	18	40	CMP Mainline Crosspipe

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530+10	CL	18	40	CMP Mainline Crosspipe
531+25	CL	18	20	CMP Mainline Crosspipe
535+44	CL	24	44	CMP Mainline Crosspipe

As a portion of the Incidental Work, Grading; the Contractor will salvage and stockpile peat material from the excavation near approximate stations 498+00 to 502+00. The material will contain no limestone or carbonate properties and be approved the engineer prior to the work commencing, as will the stockpile location. The stockpile location will be located off the ROW and within the limits of the above mentioned stations. The approximate quantity of stockpiled material is ten (10) cubic yards. As the availability of peat material is undetermined, alternate sources may be required. If alternate sources are required, the methodology and possible additional payment will be addressed during construction. The Incidental Work, grading item will be full compensation for the above mentioned pipe removal work and peat salvage and stockpile.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅜-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans. The soils within the project area are highly corrosive to steel. Corrugated metal pipe in these areas are specified in the Table of Pipe Quantities and the pipe will be 14 gauge steel. Corrugated metal pipe in these areas including the connection bands and elbows will be polymer coated and will be in conformance with AASHTO M245 and AASHTO M36. Riveted pipe will not be allowed. The connection bands will be 24 inches wide.

All damage to the polymer coating will be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items





PIPE FOR APPROACHES AND INTERSECTING ROADS

Class 2 reinforced concrete pipe, high density polyethylene pipe, corrugated polypropylene pipe, or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches and intersecting roads at no additional cost to the State.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will be satisfactorily cleared of vegetation, shaped and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

CLASS E ASPHALT CONCRETE

Mineral Aggregate for Class E Asphalt Concrete will conform to the requirements for Class E, Type 1. All other requirements for Class E will apply.

RATES OF MATERIALS

The Estimate of Quantities is based on the following quantities of materials per station.

Base Course 105.87 tons

Water for Granular Material at the rate of 0.85 MGal

CLASS E ASPHALT CONCRETE – Each 2 inch LIFT

Crushed Aggregate	33.49 tons
PG 64-28 Asphalt Binder	1.76 tons
Total Mix	35.25tons

The exact proportions of these material will be determined on construction.

Tack Application Rate: (Rate = 0.075 gallon per square yard).

TABLE OF GUARDRAIL

Station	to	Station	L/R
105+00		109+00	R
146+00		148+00	R
209+00		213+00	L
228+00		230+50	L
231+10		232+50	L

W BEAM GUARDRAIL TANGENT END TERMINAL

Payment for the W beam guardrail tangent end terminal will be based on a length of 50 feet and will be in accordance with Specifications Section 630.5 B.

MAILBOXES

If required, the Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact and where Refurbish Mailbox is required.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for “Refurbish Single Mailbox”.

TABLE OF REFURBISH MAILBOX

Station	R/L	Offset	Single (Each)
24+30	R	16.07	1
114+86	R	22.06	1
133+33	R	13.58	1
206+00	R	14.44	1
232+78	R	18.93	1
242+34	R	11.45	1
242+90	R	11.96	1
270+85	L	0.82	1
336+90	R	21.32	1
395+87	R	21.4	1
430+35	R	13.2	1
430+38	R	13.12	1
430+40	R	13.38	1
448+45	R	19.03	1
448+48	R	19.45	1
455+65	R	15.28	1
455+72	R	14.28	1
		Total	17

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16” x 3” lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following are contacts regarding the E-Z Brace:

Location	Straight Class B Guardrail w/ Wood Posts (Ft)	W Beam Guardrail End Terminal (Each)	W Beam Guardrail Flared End Terminal (Each)
105+00 to 109+00R	400	0	2
146+00 to 148+00 R	200	0	2
209+00 to 213+00 L	400	0	2
228+00 to 230+50 L	150	1	1
231+10 to 232+50 L	140	1	1
Totals:	1290	2	8

Roger Papka  
E-Z Brace  
1160 Karen St.  
Watertown, SD 57201  
605-881-6142

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PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

The estimated amount of topsoil to be placed is as follows:

Station	to	Station	Topsoil (CuYd)
0+00		534+31	31,944
Total:			31,944

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

Asphalt paving operations may not begin until the grading, subbase, and base course operations are complete throughout the entire project length most likely during season 2, at which time asphalt paving can commence. Paving must be completed by **September 1<sup>st</sup>, 2024**. Paving sequence will minimize truck haul on previously placed asphalt.

During grading, sub-base, & aggregate base operations it is anticipated that the Water for Embankment or Water for Granular will also control dust creation. Once the gravel within a section is completed the Contractor will maintain the surface in a state that will not produce dust. This water is separate from the above-mentioned items and will be incidental to the project.

Dust control chloride will be used in the following locations upon the beginning of haul operations through the area.

Begin Station	End Station	Length (ft)
14+00	30+00	1,600
113+00	117+00	400
216+00	291+00	7,500

The dust control chloride quantity anticipates the need for two applications throughout these areas.





SEQUENCE OF OPERATIONS (continued)

Dust control chlorides will not be used in areas adjacent to the wetlands as listed in the Environmental Commitments and tabled in “Commitment A Wetlands”, Non-Chloride

Snow removal between the 1<sup>st</sup> Season and the 2<sup>nd</sup> Season (between October 14<sup>th</sup> 2023 and April 28<sup>th</sup> 2024) will be conducted by Pennington County staff, no gravel maintenance or correcting grade slope or crowns will be completed by Pennington County staff.

The Contractor is advised that the County will implement Spring Load Limits on various routes surrounding the project. The exact dates and duration are set based on how severe the winter has been as well as the spring weather the area is experiencing at the time.

In addition, dependent upon the haul routes used haul road agreements will be required as per SDDOT procedure.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for “Traffic Control Signs”.

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

TEMPORARY PAVEMENT MARKING

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5’ the entire project length.

Temporary flexible vertical markers (tabs) will be required on the top lift of asphalt concrete surfacing.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

- 25% *Glomus intraradices*
- 25% *Glomus aggregatum or deserticola*
- 25% *Glomus mosseae*
- 25% *Glomus etunicatum*

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All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum will be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 <a href="http://www.reforest.com">www.reforest.com</a>

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 2,000 pounds per acre in accordance with the manufacturer’s recommended method of application.



FERTILIZING (continued)

The all-natural slow release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <a href="http://www.sustane.com">www.sustane.com</a>
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 <a href="http://www.perfect-blend.com">www.perfect-blend.com</a>

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding will be determined by the Engineer during construction.

EROSION CONTROL

The limits of erosion control work will be determined by the Engineer during construction.

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Type E Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Canada Wildrye	Mandan	2
Wildflowers		
Dotted Gayfeather ( <i>Liatris punctata</i> )		0.5
Black-eyed Susan ( <i>Rudbeckia hirta</i> )		0.5
Blue Flax ( <i>Linum lewisii</i> )		0.5
Pale Purple Coneflower ( <i>Echinacea angustifolia</i> )		0.5
Total:		20

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding, fertilizing, and mulching applications. Refer to Standard Plate 734.25 for details.

Surface roughening, temporary dirt berms and existing vegetation will be integral to the Project Erosion Control and will be used as grading work progresses. The goal is to reduce the quantity of 12" Erosion Control Wattle used during the construction sequence. Allowing the grading to progress

without temporary BMPs interrupting the work, while providing erosion control during the grading process.

A total disturbed area of 59.4 acres will be surface roughened. An additional 45 acres has been included to address the temporary surface roughening completed during construction to comply with the Erosion Control requirements.

The perimeter at the grading limits will be roughened for a distance/width of 8-10 feet. In the field areas will be defined where flows may compromise the roughened perimeter temporary dirt berms will supplement the roughened area. These combined efforts will be the perimeter controls.

MULCHING (GRASS HAY OR STRAW)

An additional 29.7 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

SOIL STABILIZER

An estimated quantity of 1,000 SqYd of soil stabilizer has been included in the Estimate of Quantities. The soil stabilizer will be applied on permanently seeded areas and areas deemed necessary by the Engineer.

The Contractor will apply soil stabilizer in accordance with the manufacturer's application instructions and at the rate specified in the list of approved soil stabilizers.

Wood fiber mulch that contains a green dye will be mixed with the soil stabilizer to be used as a tracer when the soil stabilizer is applied hydraulically. Wood fiber mulch will be added at a rate of 300 pounds per acre to all of the approved soil stabilizers listed in the table except for the Pam-12 Plus product. The wood fiber mulch will be a 100% wood fiber product and does not need to contain a tackifier.

All costs for furnishing and applying the soil stabilizer including wood fiber mulch, hauling, materials, equipment, labor, and incidentals necessary will be paid for at the contract unit price per SqYd for "Soil Stabilizer".

The soil stabilizer will be from the list below or an approved equal:

Product	Manufacturer
StarTak 600 Applied at a rate of 150 Lb/Acre	Chemstar Products Company Minneapolis, MN Phone: 1-800-328-5037 <a href="http://www.chemstar.com">www.chemstar.com</a>
Pam-12 Plus Applied at a rate of:	ENCAP, LLC Green Bay, WI Phone: 1-877-405-5050 <a href="http://professional.encap.net/">http://professional.encap.net/</a>
Slope	
None to 4:1	1000 Lb/Acre
4:1 to 3:1	1000 to 2000 Lb/Acre
3:1 to 2:1	2000 to 3000 Lb/Acre

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M-Binder  
Applied at a rate of 150 Lb/Acre

FiberRX  
Applied at a rate of:

Slope	
None to 4:1	50 Lb/Acre
3:1	60 Lb/Acre
2:1	70 Lb/Acre
1:1 or steeper	80 Lb/Acre

Enviropam  
Applied at a rate of 9 Lb/Acre

HydraTack, Tack Plus, Tack-P, or Tack-P Plus  
Applied at a rate of 30 Lb/Acre

FI-1045 Hydrobond or FI-1046 Hydrobond  
Applied at a rate of 15 Lb/Acre

HF5000 Tack  
Applied at a rate of 60 Lb/Acre

R-Tack  
Applied at a rate of 150 Lb/Acre

Ecology Controls  
Carpinteria, CA  
Phone: 1-805-684-0436  
[www.ssseeds.com](http://www.ssseeds.com)

Hydrostraw, LLC  
Manteno, IL  
Phone: 1-800-545-1755  
[hydrostraw.com](http://hydrostraw.com)

Innovative Turf Solutions, LLC  
Cincinnati, OH  
Phone: 1-513-317-8311  
[www.innovativeturfsolutions.com](http://www.innovativeturfsolutions.com)

Innovative Turf Solutions, LLC  
Cincinnati, OH  
Phone: 1-513-317-8311  
[www.innovativeturfsolutions.com](http://www.innovativeturfsolutions.com)

JRM Chemical, Inc.  
Cleveland, OH  
Phone: 1-216-475-8488  
[www.soilmoist.com](http://www.soilmoist.com)

Rantec Corporation  
Ranchester, WY  
Phone: 1-307-655-9565  
[www.ranteccorp.com](http://www.ranteccorp.com)

Rantec Corporation  
Ranchester, WY  
Phone: 1-307-655-9565  
[www.ranteccorp.com](http://www.ranteccorp.com)





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**HIGH FLOW SILT FENCE**

The high flow silt fence fabric provided will be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

High flow silt fence will be placed at the inlet to all Storm Water Pipes and drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

High Flow Silt Fence will also act as delineation and an indication as to the location of sensitive wetland areas. The silt fence has only been used in areas where sensitive wetlands approach the project limits. As such install of all BMPs will have the engineer's approval.

**Table of High Flow Silt Fence**

Begin Station	End Station	L/R	Location	Quantity (Ft)
114+00	115+00	L	Grading Limit	100
114+00	115+25	R	Grading Limit	125
138+75	140+60	L	Grading Limit	185
138+75	140+70	L	Grading Limit	195
232+00	239+75	L	Grading Limit	775
244+00	287+55	R	Grading Limit	4,355
244+75	246+91	L	Grading Limit	216
372+50	511+66	R	Grading Limit	13,916
481+25	484+05	L	Grading Limit	280
498+10	499+55	L	Grading Limit	145
510+00	523+30	L	Grading Limit	1,330
Various Pipe Locations		L/R	Pipes	825
Total:				22,447

**EROSION CONTROL WATTLE**

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

SpecTac  
Applied at a rate of:

<u>Slope</u>	
None	30 to 80 Lb/Acre
4:1	50 to 100 Lb/Acre
3:1	80 to 120 Lb/Acre
2:1	100 to 170 Lb/Acre

Rantec Corporation  
Ranchester, WY  
Phone: 1-307-655-9565  
[www.ranteccorp.com](http://www.ranteccorp.com)

Super Tack  
Applied at a rate of 60 Lb/Acre

Rantec Corporation  
Ranchester, WY  
Phone: 1-307-655-9565  
[www.ranteccorp.com](http://www.ranteccorp.com)

EarthGuard SFM  
Applied at a rate of 60 LB/Acre  
(approx. 6 Gallons/Acre)

Terra Novo Inc.  
Bakersfield, CA  
Phone: 1-661-747-5956  
[www.terranovo.com](http://www.terranovo.com)

**EROSION CONTROL BLANKET**

Erosion control blanket will be installed at locations determined by the Engineer during construction.

The erosion control blanket provided will be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

The quantity of Type 1 Erosion Control Blanket was included as a contingent quantity establishing a unit price in the event that it is determined that Type 1 Erosion Blanket is appropriate.

**SHAPING FOR EROSION CONTROL BLANKET**

The ditches will be shaped for the erosion control blanket as specified on Standard Plate 734.01.

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>





TABLE OF EROSION CONTROL WATTLE

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
0+00	0+58	R	12	Slope	58
0+08	1+85	L	12	Slope	177
1+87	2+26	L	12	Slope	39
3+17	3+58	R	12	Slope	41
3+60	4+20	R	12	Slope	60
4+18	5+83	R	12	Slope	165
5+20	7+26	L	12	Slope	206
7+18	8+17	L	12	Slope	99
10+97	11+75	L	12	Slope	78
13+40	14+50	L	12	Slope	110
14+45	16+25	L	12	Slope	180
18+58	20+25	L	12	Slope	167
57+78	63+85	L	12	Slope	607
146+10	148+47	R	12	Slope	237
218+48	229+55	L	12	Slope	1,107
237+00	239+21	R	12	Slope	221
263+20	269+23	L	12	Slope	603
276+09	279+61	L	12	Slope	352
280+63	285+25	L	12	Slope	462
285+79	289+97	L	12	Slope	418
295+00	298+95	L	12	Slope	395
298+64	301+65	R	12	Slope	301
301+66	314+56	L	12	Slope	1,290
320+18	323+20	R	12	Slope	302
322+56	326+26	L	12	Slope	370
327+80	329+02	L	12	Slope	122
329+17	331+93	R	12	Slope	276
330+86	333+10	L	12	Slope	224
337+19	340+70	R	12	Slope	351
356+50	358+90	L	12	Slope	240
367+91	369+53	L	12	Slope	162
373+82	375+53	L	12	Slope	171
379+98	385+14	L	12	Slope	516
386+72	397+65	L	12	Slope	1,093
398+15	401+25	L	12	Slope	310
403+16	407+65	L	12	Slope	449
412+08	414+96	L	12	Slope	288
412+07	412+70	L	12	Slope	63
413+14	414+96	L	12	Slope	182
426+37	433+33	L	12	Slope	696
437+24	442+51	L	12	Slope	527
444+00	453+25	L	12	Slope	925
445+00	453+25	L	12	Slope	825

460+40	463+32	L	12	Slope	292
460+40	462+95	L	12	Slope	255
466+35	467+92	L	12	Slope	157
466+35	467+46	L	12	Slope	111
468+13	471+88	L	12	Slope	375
468+13	471+88	L	12	Slope	375
472+21	478+76	L	12	Slope	655
472+21	477+54	L	12	Slope	533
484+48	486+27	L	12	Slope	179
500+02	502+22	L	12	Slope	220
503+54	504+67	L	12	Slope	113
505+63	509+69	L	12	Slope	406
521+76	524+95	R	12	Slope	319
523+02	524+13	L	12	Slope	111
530+32	531+50	L	12	Slope	118
0+00	0+58	L	12	Ditch	45
1+55	2+70	R	12	Ditch	75
32+91	37+63	R	12	Ditch	285
33+12	34+67	L	12	Ditch	105
46+25	56+96	R	12	Ditch	645
69+26	72+76	R	12	Ditch	210
92+29	93+92	R	12	Ditch	105
93+20	94+87	L	12	Ditch	105
104+94	109+10	R	12	Ditch	255
113+56	115+20	L	12	Ditch	105
113+56	115+20	R	12	Ditch	105
116+45	120+96	R	12	Ditch	285
117+77	124+05	L	12	Ditch	390
144+96	148+65	R	12	Ditch	225
187+69	191+35	L	12	Ditch	225
188+00	191+15	R	12	Ditch	195
224+20	230+16	L	12	Ditch	360
284+51	287+75	L	12	Ditch	195
292+60	310+60	L	12	Ditch	1,080
321+00	334+25	R	12	Ditch	795
321+45	331+68	L	12	Ditch	615
337+41	341+55	R	12	Ditch	255
350+70	351+85	R	12	Ditch	75
356+54	358+69	L	12	Ditch	135
380+15	400+96	L	12	Ditch	1,260
				Total	27,814

ROCK CHECK DAM

The rock for the rock check dam will be Pit Run per Specification 882 Table 1. The rock check dam will be constructed to the limits shown on Standard Plate 734.03. All costs for constructing the rock check dam including labor,

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equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

Begin Station	End Station	L/R	Location	Quantity (cuyd)
500+00	535+00	L	Ditch	54
501+45	535+00	R	Ditch	51
				105

Through the above Stations Rock Check Dams will be installed every 500 ft in the ditch.

DEWATERING AND SEDIMENT COLLECTING

The Contactor has the option to treat sediment laden water trapped within the project limits or the Contractor may elect to transport sediment laden water off the project. Refer to the OPTIONS FOR DEWATERING AND SEDIMENT COLLECTING detail sheet for more information.

Water transported off the project limits will not be disposed of in an area where it can enter a waterway. The disposal site must be approved by the Engineer.



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**TABLE OF CONSTRUCTION STAKING FOR PROJECT P 6403(10)**  
(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking		*Sets of Stakes	**Grade Staking Quantity (Mile)	Slope Staking Quantity (Mile)
					Length (Mile)	Lane Factor			
S. Rochford Road (2 Lanes AC Pavement)	0+00	534+30	2	53,540	10.1	1	2	20.2	20.2
S. Rochford Road (Musick Driveway)	0+00	7+14		714	0.14	1	2	0.28	0.28
Totals:								20.48	20.48

\* 1 = Blue Top Stakes Only (Subgrade & Base Course)  
\*\* Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)



**STORMWATER POLLUTION PREVENTION PLAN CHECKLIST**  
*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))*

**5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION**

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

**5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES**

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 95 Acres
- **5.3 (3b): Total Area to be Disturbed** 59.4 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 30 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 70%
  - **5.3 (3d): Description of Vegetative Cover** Native Grasses
- **5.3 (3e): Soil Properties:** Silty Sand, Sandy Silt, Clay Silt, Gravelly Silty Sand
- **5.3 (3f): Name of Receiving Water Body/Bodies** Rapid Creek, North Fork Castle Creek
- **5.3 (3g): Location of Construction Support Activity Areas** To be Determined, Contractor Responsibility

**5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES**

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Install utilities, storm sewers, curb and gutter.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

**5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES**

All controls will be maintained in good working order. Necessary repairs will

be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

**Perimeter Controls (See Detail Plan Sheets)**

Description	Estimated Start Date
<input checked="" type="checkbox"/> Natural Buffers (within 50 ft of Waters of State)	
<input type="checkbox"/> Silt Fence	
<input checked="" type="checkbox"/> Erosion Control Wattles	
<input checked="" type="checkbox"/> Temporary Berm / Windrow	
<input type="checkbox"/> Floating Silt Curtain	
<input type="checkbox"/> Stabilized Construction Entrances	
<input type="checkbox"/> Entrance/Exit Equipment Tire Wash	
<input type="checkbox"/> Other:	

**Structural Erosion and Sediment Controls**

Description	Estimated Start Date
<input checked="" type="checkbox"/> Silt Fence	
<input checked="" type="checkbox"/> Temporary Berm/Windrow	
<input checked="" type="checkbox"/> Erosion Control Wattles	
<input type="checkbox"/> Temporary Sediment Barriers	
<input type="checkbox"/> Erosion Bales	
<input type="checkbox"/> Temporary Slope Drain	
<input type="checkbox"/> Turf Reinforcement Mat	
<input type="checkbox"/> Riprap	
<input type="checkbox"/> Gabions	
<input checked="" type="checkbox"/> Rock Check Dams	
<input checked="" type="checkbox"/> Sediment Traps/Basins	
<input type="checkbox"/> Culvert Inlet Protection	
<input type="checkbox"/> Transition Mats	
<input type="checkbox"/> Median/Area Drain Inlet Protection	
<input type="checkbox"/> Curb Inlet Protection	
<input type="checkbox"/> Interceptor Ditch	
<input type="checkbox"/> Concrete Washout Facility	
<input type="checkbox"/> Work Platform	
<input type="checkbox"/> Temporary Water Barrier	
<input type="checkbox"/> Temporary Water Crossing	
<input type="checkbox"/> Permanent Stormwater Ponds	
<input type="checkbox"/> Permanent Open Vegetated Swales	
<input checked="" type="checkbox"/> Natural Depressions to allow for Infiltration	
<input checked="" type="checkbox"/> Sequential Systems that combine several practices	
<input type="checkbox"/> Other:	

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**Dust Controls**

Description	Estimated Start Date
<input type="checkbox"/> Tarps & Wind impervious fabrics	
<input checked="" type="checkbox"/> Watering	
<input type="checkbox"/> Stockpile location/orientation	
<input checked="" type="checkbox"/> Dust Control Chlorides	
<input type="checkbox"/> Other	

**Dewatering BMPs**

Description	Estimated Start Date
<input type="checkbox"/> Sediment Basins	
<input type="checkbox"/> Dewatering bags	
<input type="checkbox"/> Weir tanks	
<input type="checkbox"/> Temporary Diversion Channel	
<input type="checkbox"/> Other:	

**Stabilization Practices (See Detail Plan Sheets)**

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (**3.18**))

Description	Estimated Start Date
<input type="checkbox"/> Vegetation Buffer Strips	
<input checked="" type="checkbox"/> Temporary Seeding (Cover Crop Seeding)	
<input checked="" type="checkbox"/> Permanent Seeding	
<input type="checkbox"/> Sodding	
<input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization)	
<input checked="" type="checkbox"/> Mulching (Grass Hay or Straw)	
<input type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)	
<input checked="" type="checkbox"/> Soil Stabilizer	
<input type="checkbox"/> Bonded Fiber Matrix	
<input type="checkbox"/> Fiber Reinforced Matrix	
<input checked="" type="checkbox"/> Erosion Control Blankets	
<input checked="" type="checkbox"/> Surface Roughening (e.g. tracking)	
<input type="checkbox"/> Other:	

**Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.



5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure’s capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor’s Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in “DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES” above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

- **Material Management**
  - Housekeeping
    - Only needed products will be stored on-site by the Contractor.
    - Except for bulk materials the Contractor will store all materials under cover and/or in appropriate containers.
    - Products must be stored in original containers and labeled.
    - Material mixing will be conducted in accordance with the manufacturer’s recommendations.
    - When possible, all products will be completely used before properly disposing of the container off-site.
    - The manufacturer’s directions for disposal of materials and containers will be followed.
    - The Contractor’s site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
    - Dust generated will be controlled in an environmentally safe manner.
  - Hazardous Materials
    - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
    - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
    - If surplus product must be disposed of, manufacturer’s label directions for disposal will be followed.

- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➤ **Spill Control Practices**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer’s recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor’s site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

➤ **Spill Response**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor’s site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.

FOR BIDDING PURPOSES ONLY

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- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent’s designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor’s site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➤ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➤ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➤ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply).

- ☐ Concrete and Portland Cement
- ☐ Detergents
- ☒ Paints
- ☐ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Diesel Exhaust Fluid
- ☒ Cleaning Solvents
- ☒ Wood
- ☐ Cure
- ☐ Texture
- ☒ Chemical Fertilizers
- ☐ Other:

Product Specific Practices

- **Petroleum Products**  
All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- **Fertilizers**  
Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- **Paints**  
All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- **Concrete Trucks**  
Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:
  - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
  - The release or spill causes an immediate danger to human health or safety
  - The release or spill exceeds 25 gallons
  - The release or spill causes a sheen on surface water
  - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
  - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
  - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
  - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.
- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

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5.4: SWPPP CERTIFICATIONS

Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

South Dakota Department of Transportation

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

[Handwritten Signature]

Authorized Signature (See the General Permit, Section 7.4 (1))

Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

Contractor Information:

- Prime Contractor Name: \_\_\_\_\_
- Contractor Contact Name: \_\_\_\_\_
- Address: \_\_\_\_\_
- City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
- Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
- Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Erosion Control Supervisor

- Name: \_\_\_\_\_
- Address: \_\_\_\_\_
- City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
- Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
- Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

SDDOT Project Engineer

- Name: \_\_\_\_\_
- Business Address: \_\_\_\_\_
- Job Office Location: \_\_\_\_\_
- City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
- Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
- Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

SDDANR Contact Spill Reporting

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

SDDANR Contact for Hazardous Materials.

- (605) 773-3153

National Response Center Hotline

- (800) 424-8802.

SDDANR Stormwater Contact Information

- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

5.5 (1): Conditions Requiring SWPPP Modification

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The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

- When a new operator responsible for implementation of any part the SWPPP begins work on the site.
- When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
- To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
- If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
- To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
- If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.

5.5 (2): Deadlines for SWPPP Modification

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

5.5 (3): Documentation of Modifications to the Plan

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

5.5 (4): Certification Requirements

All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

5.5 (5): Required Notice to Other Operators

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.



## Plotting Date: 2/6/2023

REGISTERED PROFESSIONAL ENGINEER

7353

RONALD A. BENGS

SOUTH DAKOTA

12/22/2022

PIPE QUANTITIES													
Station	Offset (L/R)	450E4758	450E4768	450E4778	450E 4788	450E4798	450E 5211	450E 5406	450E 5215	450E 5015	450E 5219	450E 5420	450E 5227
		450E 4760	450E 4770	450E 4780	450E 4790	450E 4800	450E 5212	450E 5407	450E 5216	450E 5016	450E 5220	450E 5423	450E 5228
		18" 14 Ga	24" 14 Ga	30" 14 Ga	36" 14 Ga	42" 14 Ga 3x1 Ft	18" Flared End	18" Safety End	24" Flared End	24" Elbow 45° Each	30" Flared End	36" Safety End	42" Flared End
Station	Offset (L/R)	Ft	Ft	Ft	Ft	3x1 Ft	Each	Each	Each	Each	Each	Each	Each
	4+76 Cross Pipe	62.00					2						
	9+48 Cross Pipe	50.00					2						
	9+84 23ft L Approach Pipe	56.00						2					
	16+73 Cross Pipe	50.00					2						
	22+94 Cross Pipe	62.00					2						
	27+69 Cross Pipe	44.00					2						
	29+21 22 ft L Approach Pipe	66.00						2					
	32+68 54 ft R Approach Pipe	54.00						2					
	57+12 Cross Pipe	72.00					2						
	67+79 Cross Pipe	120.00					2						
	72+00 25 ft R Approach Pipe	106.00						2					
	81+76 Cross Pipe	72.00					2						
	86+06 24 ft R Approach Pipe	62.00						2					
	113+58 44 ft L Approach Pipe	50.00						2					
	114+59 Cross Pipe			74.00							2		
	115+00 54 ft L Approach Pipe		50.00						2				
	116+29 43 ft L Approach Pipe	40.00						2					
	139+84 Cross Pipe		74.00						2				
	142+78 Cross Pipe	88.00					2						
	165+00 Cross Pipe	74.00					2						
	177+28 Cross Pipe	40.00					2						
	186+18 Cross Pipe	60.00					2						
	197+27 23 ft R Approach Pipe	70.00						2					
	197+37 33 ft L Approach Pipe	40.00						2					
	200+44 Cross Pipe	54.00					2						
	230+78 37 ft L Approach Pipe	26.00						2					
	232+33 Cross Pipe	92.00					2						
	242+04 32 ft L Approach Pipe		48.00						2				
	242+75 39 ft L Approach Pipe		18.00						2				
	243+66 Cross Pipe		70.00						2	1			
	246+12 Cross Pipe					76.00							1
	256+44 Cross Pipe	64.00					2						
	268+35 Cross Pipe	56.00					2						
	271+46 21 ft L Approach Pipe	66.00						2					
	283+23 Cross Pipe	70.00					2						
	290+94 Cross Pipe	94.00					2						
	292+12 23 ft L Approach Pipe	58.00						2					
	320+31 23 ft R Approach Pipe	48.00						2					
	332+32 23 ft L Approach Pipe	56.00						2					
	351+88 33 ft L Approach Pipe	60.00						2					
	363+09 Cross Pipe		56.00						2				
	371+71 31 ft L Approach Pipe	38.00						2					
	373+73 Cross Pipe	54.00					2						
	379+78 Cross Pipe	66.00					2						
	388+18 Cross Pipe	50.00					2						
	408+47 Cross Pipe	56.00					2						
	417+53 94 ft L Approach Pipe	36.00						2					
	418+99 47 ft L Approach Pipe	24.00						2					
	424+30 Cross Pipe	56.00					2						
	424+88 26 ft L Approach Pipe	52.00						2					
	435+83 Cross Pipe	42.00					2						
	442+79 22 ft L Approach Pipe	52.00						2					
	448+92 Cross Pipe	72.00					2						
	456+96 Cross Pipe	42.00					2						
	468+06 Cross Pipe	62.00					2						
	483+66 Cross Pipe	62.00					2						
	492+93 Cross Pipe	56.00					2						
	499+36 Cross Pipe	56.00					1						
	503+30 Cross Pipe	56.00					2						
	510+48 Cross Pipe			86.00							2		
	527+65 Cross Pipe				66.00							2	
	530+17 Cross Pipe				64.00							2	
Subtotal:		3014	316	160	130	76	61	40	12	1	4	4	1
Total:		3014	316	160	130	76	61	40	12	1	4	4	1

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	P 6403(10)	25	333

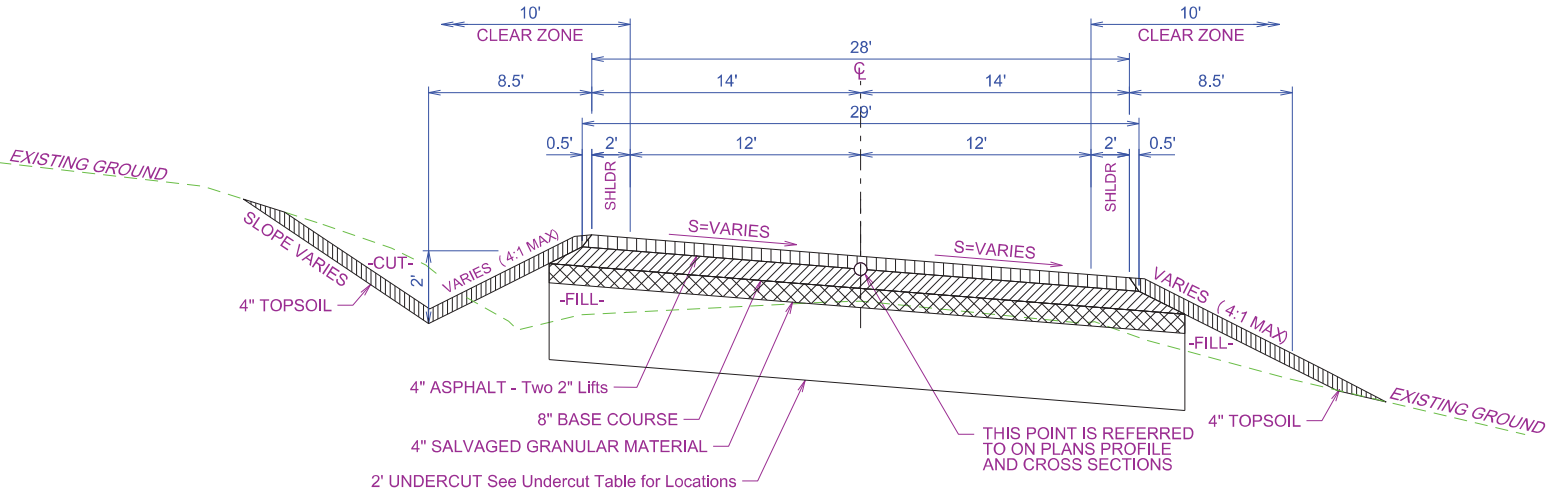
Plotting Date: 2/6/2023



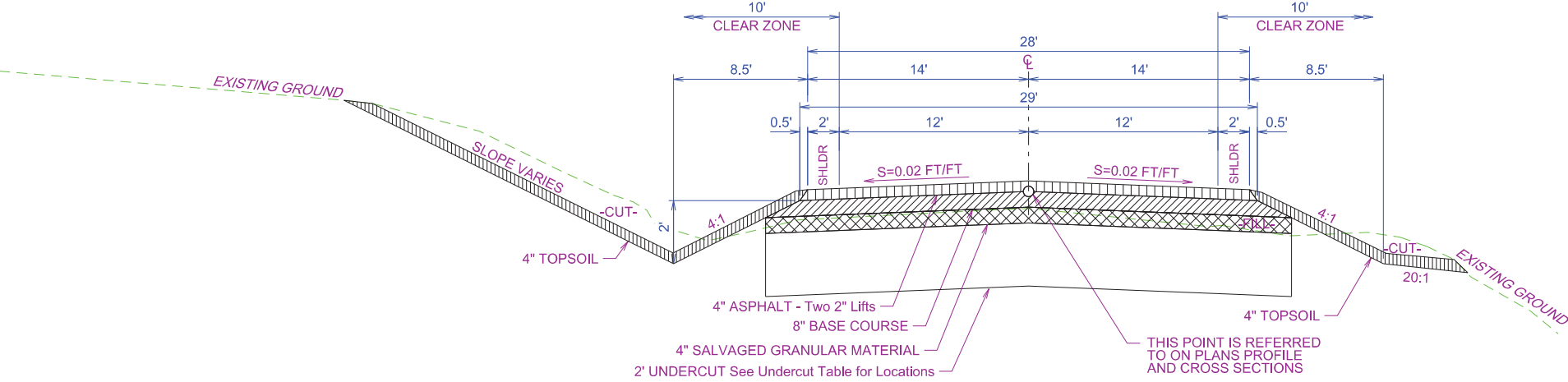
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	26	333

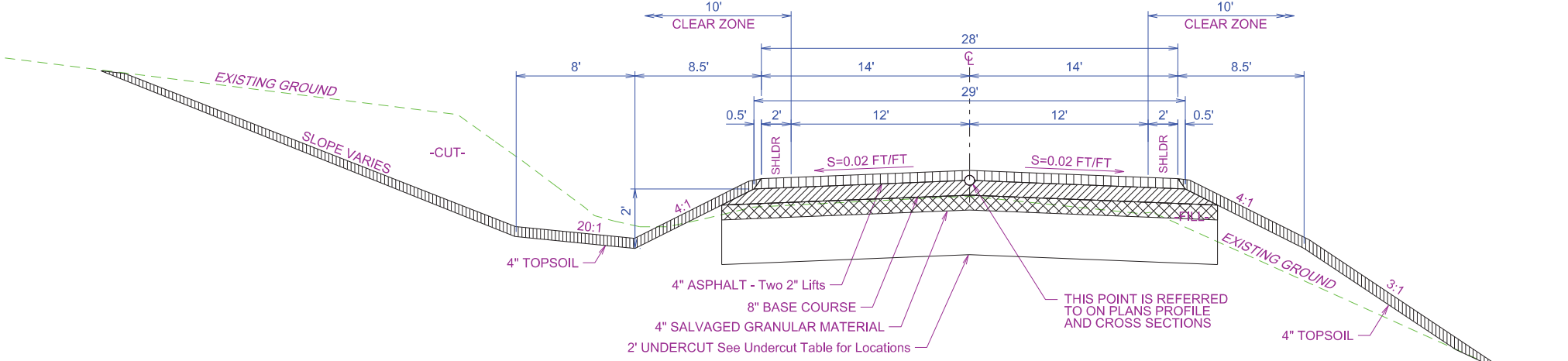
Plotting Date: 2/6/2023



**SUPERELEVATED SECTION**  
See Superelevated Table for Locations



**V-DITCH SECTION**  
See Cross Sections for Locations



**DITCH SECTION**  
See Cross Sections for Locations

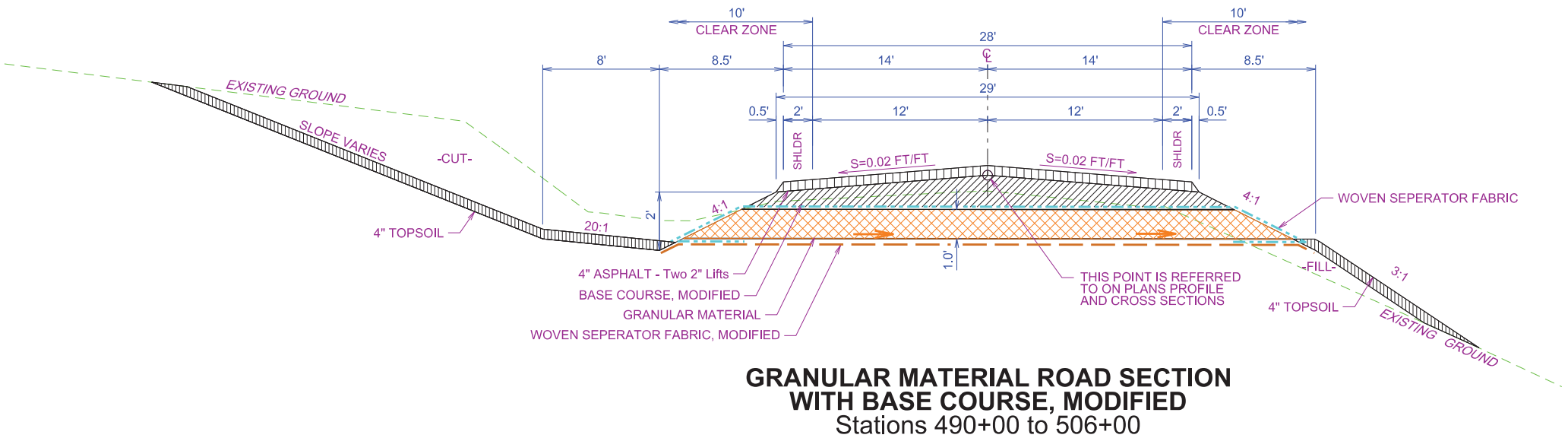
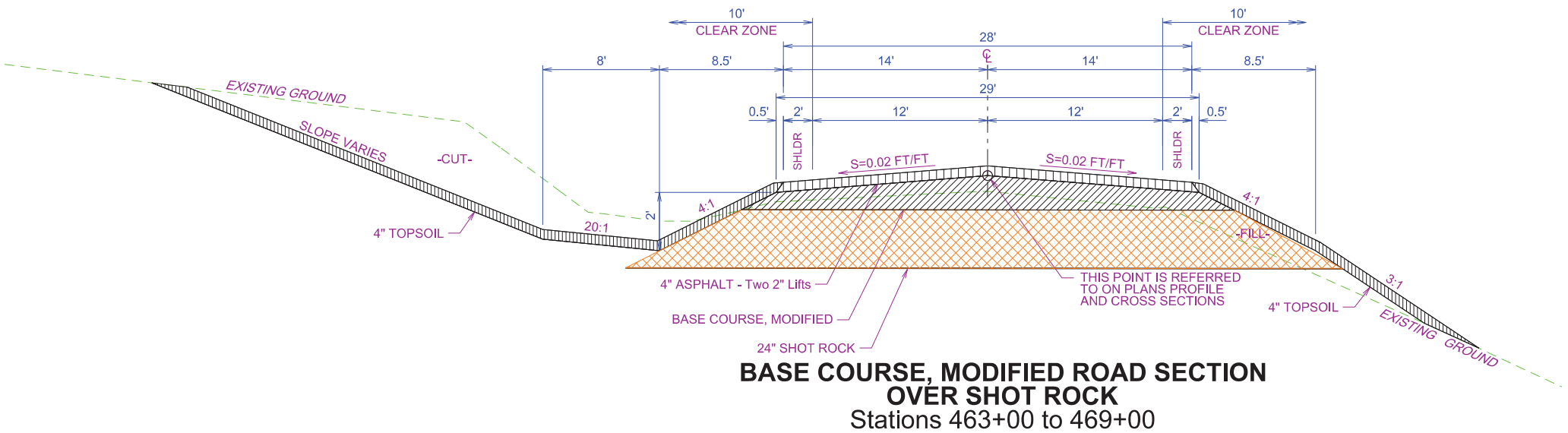
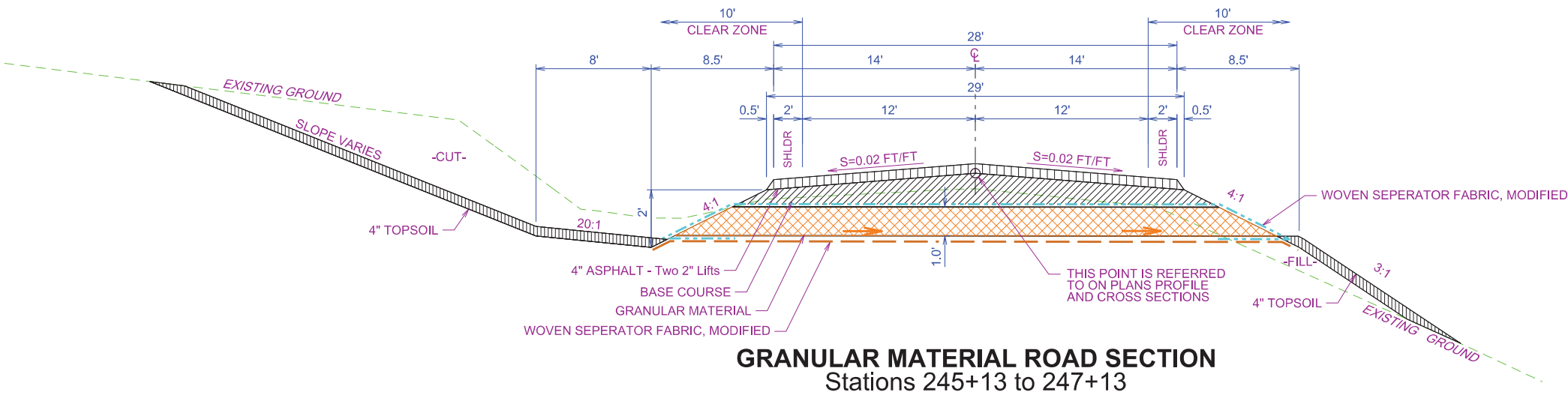




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	27	333

Plotting Date: 2/6/2023

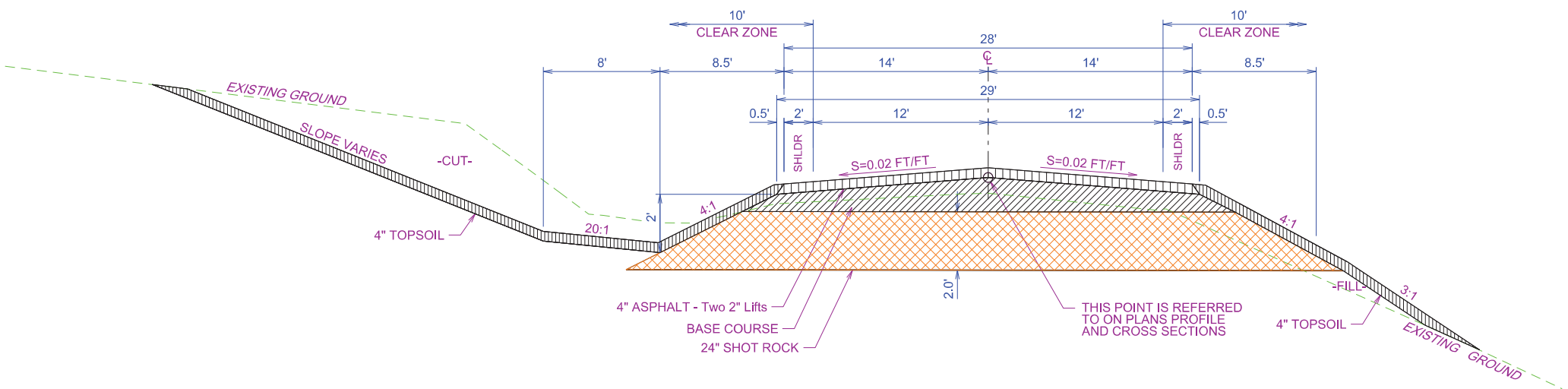


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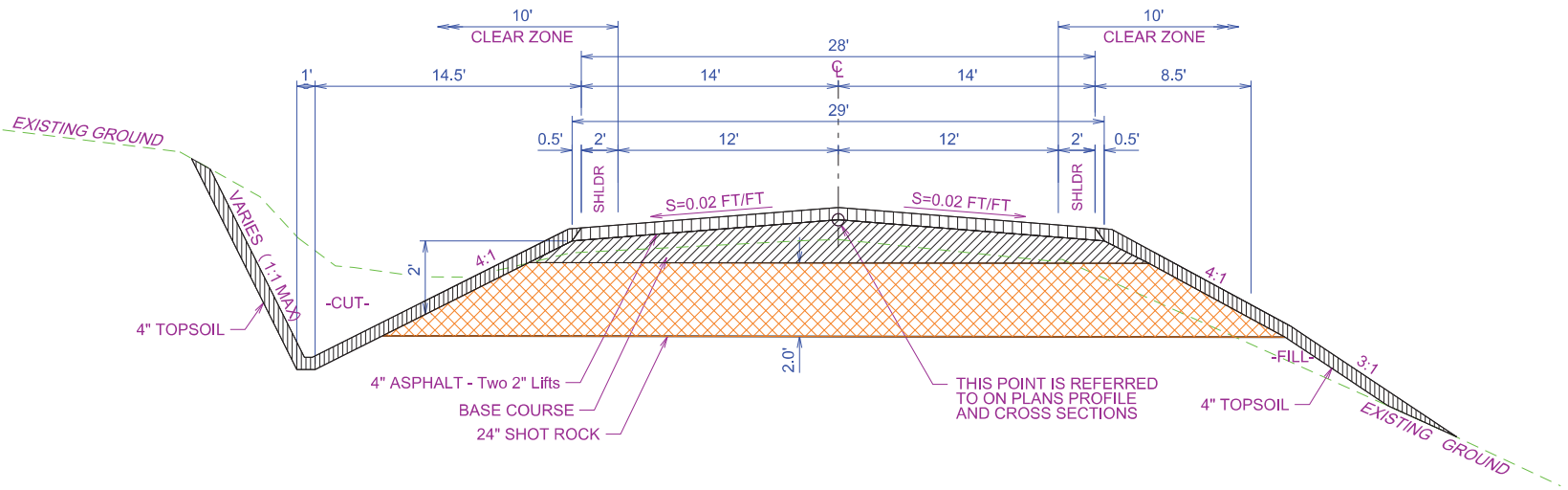
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	28	333

Plotting Date:

2/6/2023



**SHOT ROCK ROAD SECTION**  
Stations 386+00 to 388+50, 395+50 to 396+50,  
404+75 to 406+25, 447+75 to 449+25,  
455+50 to 463+00, & 482+25 to 484+75



**SHOT ROCK ROAD SECTION**  
Station 510+50 to 512+00



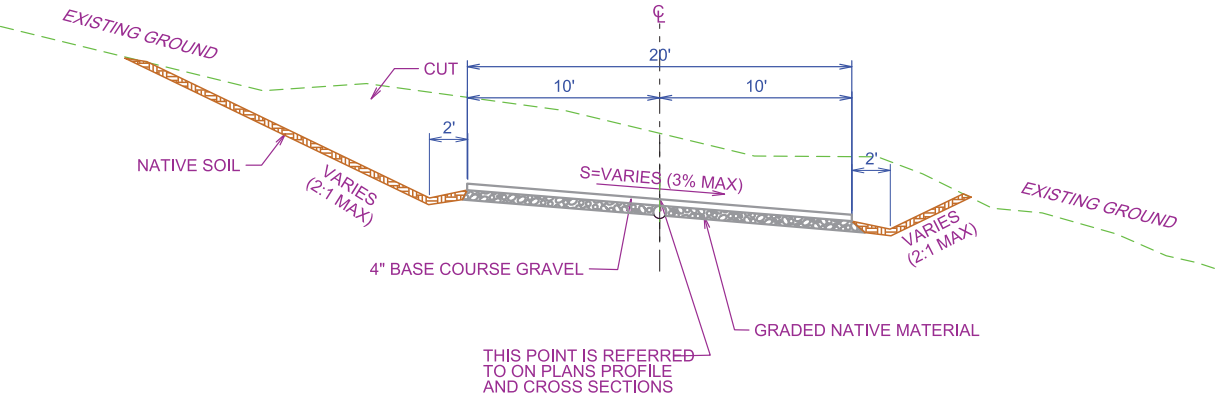


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	29	333

Plotting Date:

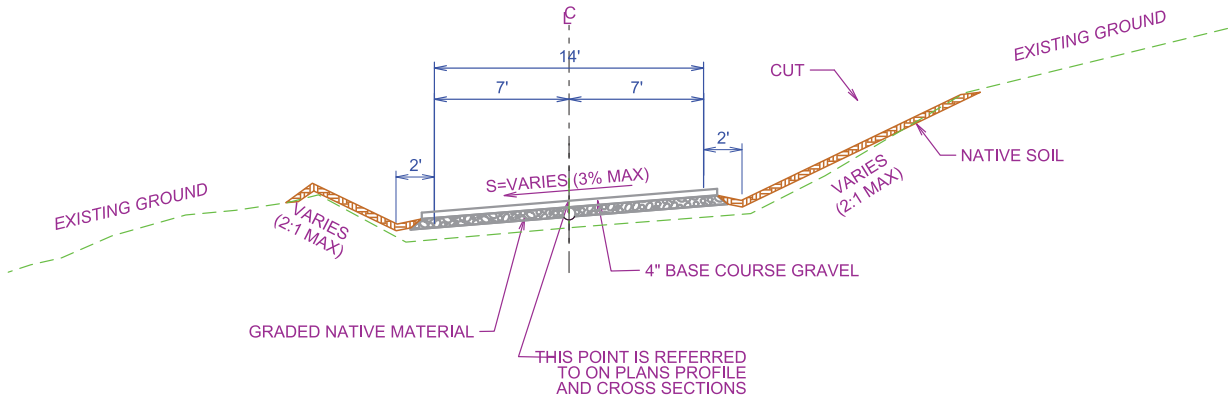
2/6/2023

Google Earth Image: 2016  
Image Not To scale



MUSICK DRIVEWAY SECTION  
STATION 4+75\* TO 6+50

\*TRANSITION FROM 3+20 TO 4+75



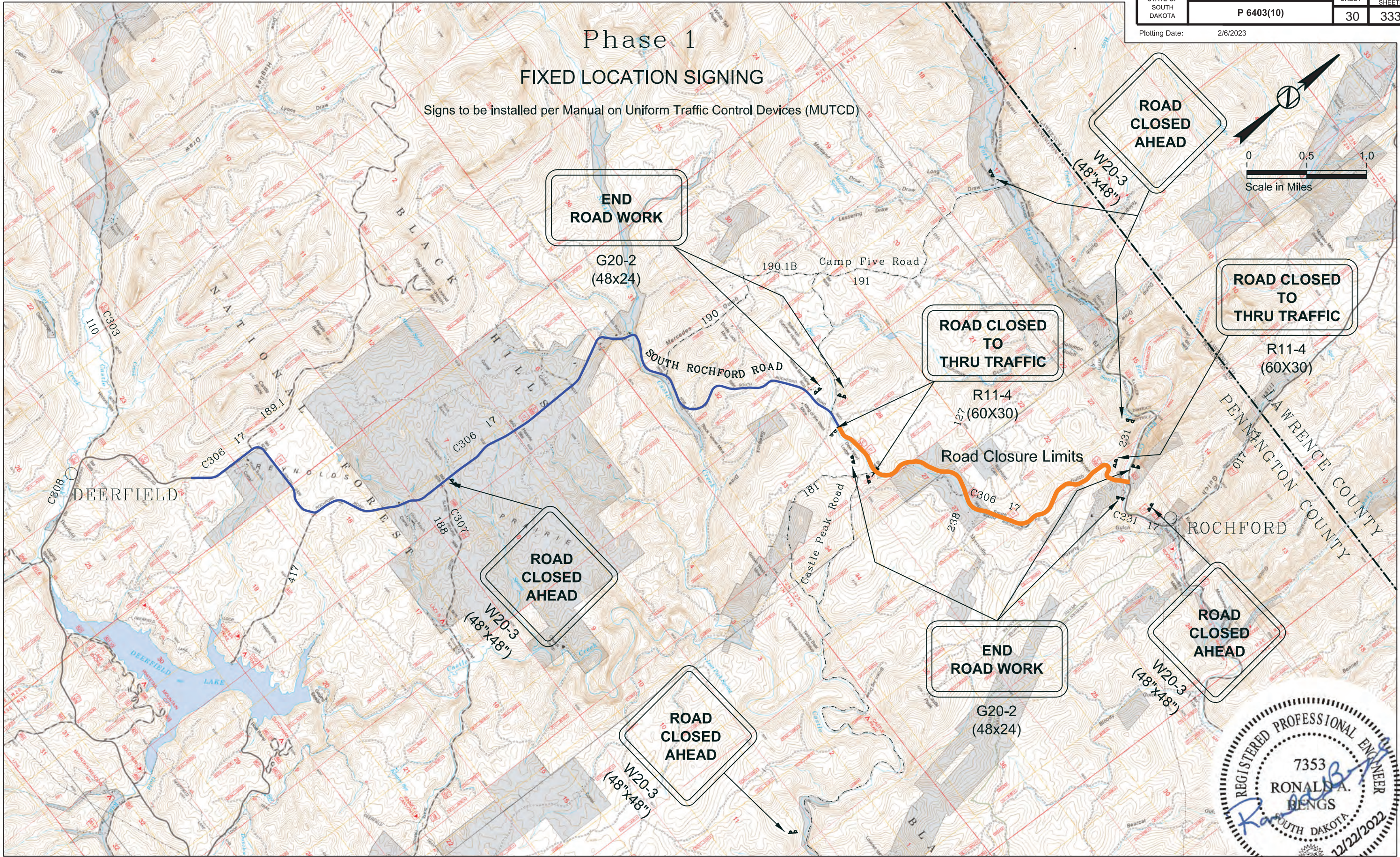
MUSICK DRIVEWAY SECTION  
STATION 0+00 TO 3+20\*





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	30	333

Plotting Date: 2/6/2023





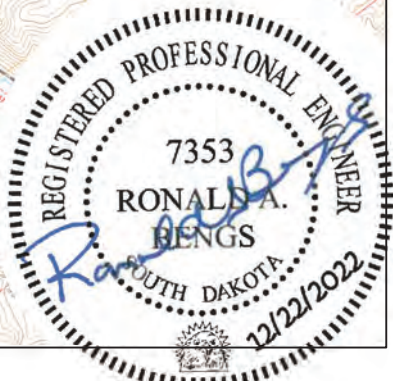
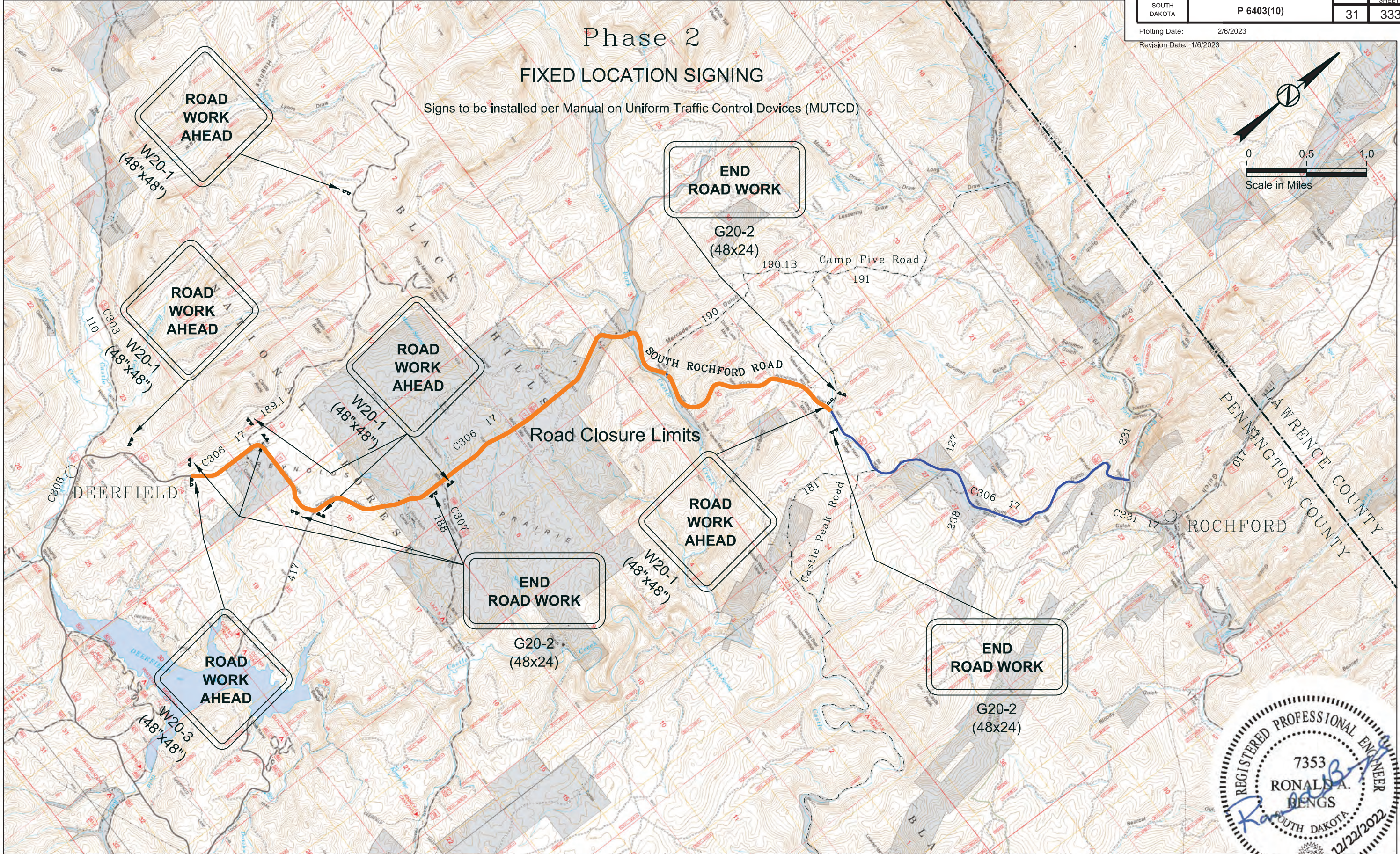
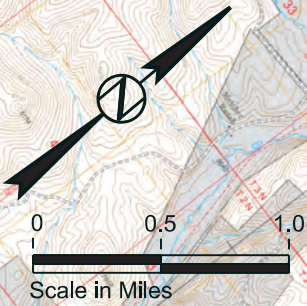
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	31	333

Plotting Date: 2/6/2023  
Revision Date: 1/6/2023

# Phase 2

## FIXED LOCATION SIGNING

Signs to be installed per Manual on Uniform Traffic Control Devices (MUTCD)





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	P 6403(10)	32	333

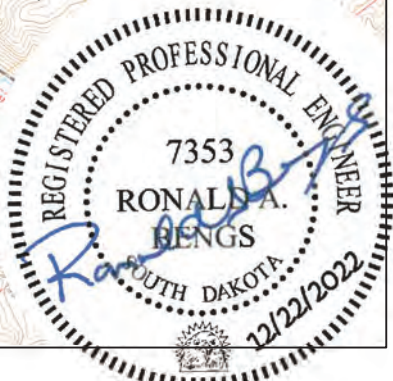
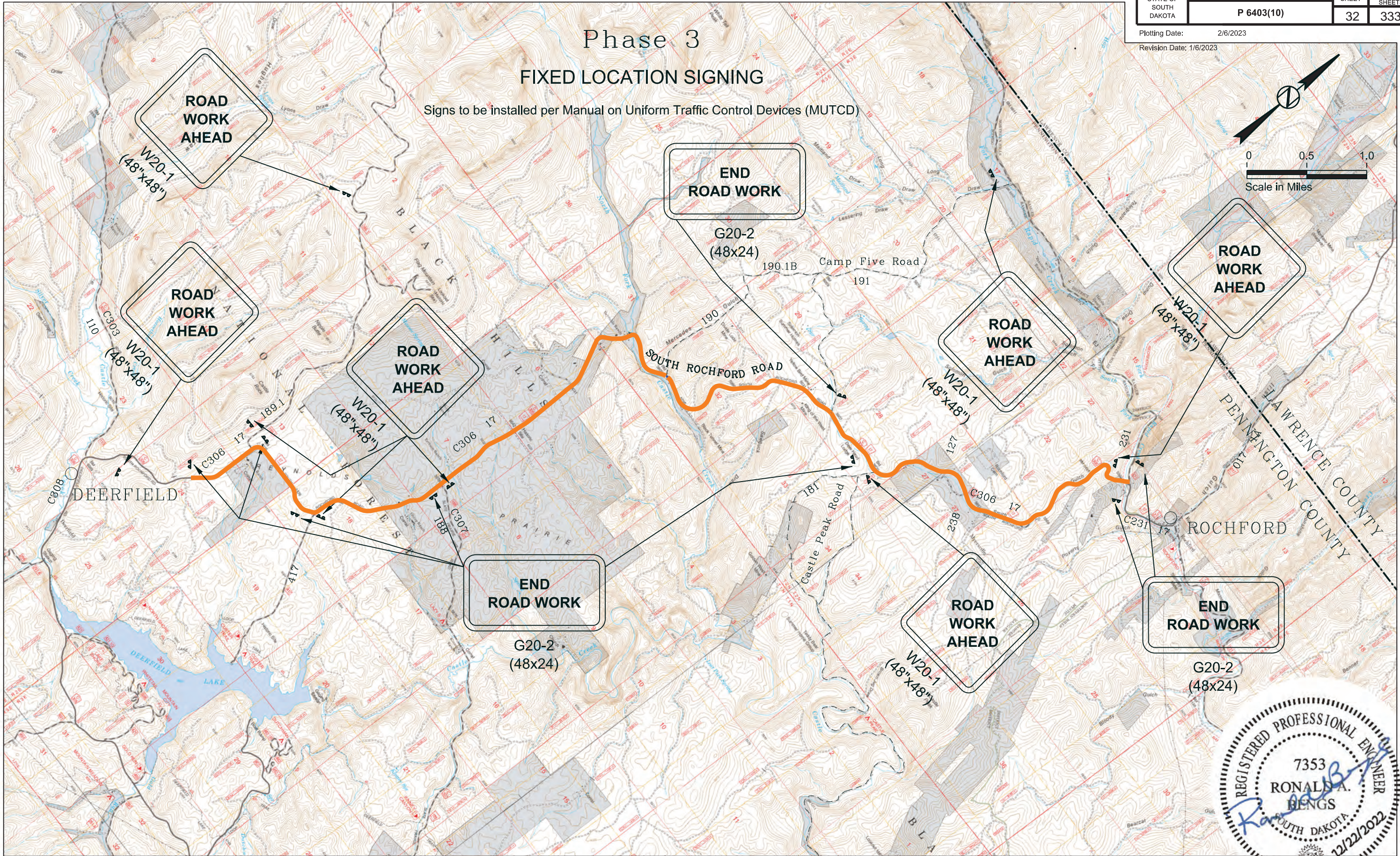
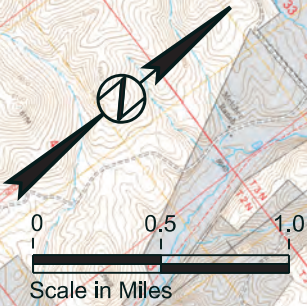
Plotting Date: 2/6/2023

Revision Date: 1/6/2023

# Phase 3

## FIXED LOCATION SIGNING

Signs to be installed per Manual on Uniform Traffic Control Devices (MUTCD)





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023  
Revised: 02/06/2023

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS					
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		QUANTITY	SIGN SIZE	SQFT PER SIGN	SQFT
R11-4	ROAD CLOSED TO THRU TRAFFIC	3	60"X30"	12.5	37.5
W3-4	BE PREPARED TO STOP	2	48"x48"	16	32
W8-1	BUMP	2	48"x48"	16	32
W8-7	LOOSE GRAVEL	2	48"x48"	16	32
W8-11	UNEVEN LANES	2	48"x48"	16	32
W20-1	ROAD WORK AHEAD	10	48"x48"	16	160
W20-3	ROAD CLOSED AHEAD	5	48"x48"	16	80
W20-4	ONE LANE ROAD AHEAD	2	48"x48"	16	32
W20-7	FLAGGER (Symbol)	2	48"x48"	16	32
W21-3	ROAD MACHINERY AHEAD	2	48"x48"	16	32
W22-1	BLASTING ZONE AHEAD	2	48"x48"	16	32
W22-2	TURN OFF 2-WAY RADIO AND CELL PHONE	2	42"X36"	10.5	21
W22-3	END BLASTING ZONE	2	36"x18"	5	10
G20-2	END ROAD WORK	10	36"x18"	5	50
SPECIAL	WINDROW	2	48"x48"	16	32
SPECIAL	WAIT FOR PILOT CAR	2	36"x36"	9	18
SPECIAL*	ADVANCED CLOSURE*	5	93"x27"	17.44	87.2
ROAD TRAFFIC CONTROL SIGNS SQFT					751.7



EROSION AND SEDIMENT CONTROL LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	34	333

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SYMBOLLOGY FOR BEST MANAGEMENT PRACTICES

	STORM WATER DISCHARGE POINT
	LOW FLOW SILT FENCE
	HIGH FLOW SILT FENCE
	SILT TRAP
	SEDIMENT CONTROL AT INLET WHEN SURFACING IS IN PLACE
	TEMPORARY SEDIMENT BARRIER
	TEMPORARY WATER BARRIER
	FLOATING SILT CURTAIN
	SEDIMENT FILTER BAGS
	TRIANGULAR SILT BARRIERS
	EROSION CONTROL WATTLES
	EROSION BALES
	SURFACE ROUGHENING
	SOIL STABILIZER / TEMPORARY MULCH / DUST CONTROL
	CUT INTERCEPTOR DITCH
	TEMPORARY SLOPE DRAIN
	SEDIMENT CONTROL AT INLET BEFORE PLACEMENT OF SURFACING
	HYDRAULIC STRAW MULCH / FIBER MULCHING / BONDED FIBER MATRIX / FIBER REINFORCED MATRIX
	ROCK CHECK DAM
	SODDING
	TYPE 1 EROSION CONTROL BLANKET
	TYPE 2 EROSION CONTROL BLANKET
	TYPE 3 EROSION CONTROL BLANKET
	TYPE 4 EROSION CONTROL BLANKET
	TYPE 1 TURF REINFORCEMENT MAT
	TYPE 2 TURF REINFORCEMENT MAT
	TYPE 3 TURF REINFORCEMENT MAT
	SYNTHETIC CHANNEL PROTECTION
	TOPSOIL STOCKPILES
	BORROW AREAS
	STABILIZED CONSTRUCTION ENTRANCES
	CONCRETE WASHOUTS
	VEGETATED BUFFER STRIPS
	ASPHALT PLANT SITE
	CONCRETE PLANT SITE
	ON-SITE CONSTRUCTION MATERIAL STORAGE AREAS
	SPILL KIT
	WORK PLATFORM
	PORTABLE TOILET
	VEHICLE AND EQUIPMENT PARKING, FUELING, AND MAINTENANCE AREAS
	DUMPSTER OR OTHER TRASH AND DEBRIS CONTAINERS

BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMP'S) SHOULD BE USED THROUGHOUT CONSTRUCTION. TO REMIND CONTRACTORS AND FIELD PERSONNEL THAT BMP'S FOR WATER QUALITY SHOULD BE UTILIZED THROUGHOUT THE CONSTRUCTION PROCESS, THE SYMBOLLOGY IS COLORED AS FOLLOWS:

RED BMP'S ARE TO BE INSTALLED BEFORE EARTH MOVING ACTIVITIES COMMENCE. RED BMP'S ARE USED FOR PERIMETER CONTROL. THEY PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING FROM ANOTHER SITE. THEY MAY ALSO DETER WATER AWAY FROM OR AROUND THE SITE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL.

BLUE BMP'S ARE TO BE INSTALLED DURING CONSTRUCTION. BLUE BMP'S ARE USED FOR TEMPORARY STABILIZATION. THEY PREVENT EROSION DURING CONSTRUCTION. THEY MAY ALSO BE SEDIMENT CONTROLS UTILIZED AFTER DRAIN PIPES AND STORM SEWERS ARE IN PLACE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL. SOME YELLOW BMP'S WILL BE REMOVED OR REPLACED DURING CONSTRUCTION.

GREEN BMP'S ARE TO BE INSTALLED WHEN GRADING IS COMPLETE. GREEN BMP'S ARE USED FOR FINAL STABILIZATION. THEY ARE PERMANENT EROSION CONTROL MEASURES THAT ARE NOT REMOVED.

IF THE CONTRACTOR OR ENGINEER DECIDE TO USE ADDITIONAL BEST MANAGEMENT PRACTICES OR LABEL THE LOCATIONS OF THEM THEY SHOULD USE THE SYMBOLLOGY SHOWN. OTHER BEST MANAGEMENT PRACTICES FOR WHICH THERE IS NO SYMBOLLOGY INCLUDE:

PERMANENT SEEDING IS DONE BEFORE THE APPLICATION OF ALL TYPES OF MULCHING AND HYDRAULICALLY APPLIED SOIL MULCHES AND MATRIXS. PERMANENT GRASS HAY/ STRAW MULCH IS NOT SHOWN ON PLAN SHEETS, BUT IT CAN BE ASSUMED THAT ALL AREAS THAT ARE NOT ROADWAYS ON RURAL PROJECTS WILL BE SEEDED THEN MULCHED. AREAS WHERE AN ALTERNATE TO GRASS HAY /STRAW MULCH IS USED WILL BE SHOWN WITH THE APPROPRIATE SYMBOLLOGY.

SEDIMENT BASINS UTILIZED DURING CONSTRUCTION WILL BE SHOWN ON PLAN SHEETS AND IN SECTION X.

GEOTEXTILE FABRIC USUALLY SUPPLEMENTS OTHER BMP'S, BUT IT MAY BE USED TO TEMPORARILY COVER AREAS FOR EROSION PROTECTION UNTIL IT IS PERMANENTLY INSTALLED.

STREET SWEEPING SHOULD BE DONE AS NEEDED TO KEEP SEDIMENT ON ROADWAYS FROM LEAVING THE SITE.

DEWATERING AND SEDIMENT COLLECTING IS SHOWN ON A DETAIL SHEET WHEN IT IS NEEDED. DEWATERING WITHOUT SEDIMENT COLLECTING DOES NOT HAVE A DETAIL, JUST A DETAILED NOTE. SEDIMENT LADEN WATER SHOULD NEVER BE PUMPED OFF THE SITE.

GABIONS AND RIP RAP AT PIPE AND CULVERT OUTLETS ARE DETAILED IN SECTION B.

PROJECT PHASING

PROJECT PHASING MAY BE ONE OF THE MOST IMPORTANT BMP'S. DURING PHASING REMEMBER THE FOLLOWING:

ALWAYS INSTALL PERIMETER CONTROLS BEFORE BEGINNING EARTH MOVING ACTIVITIES.

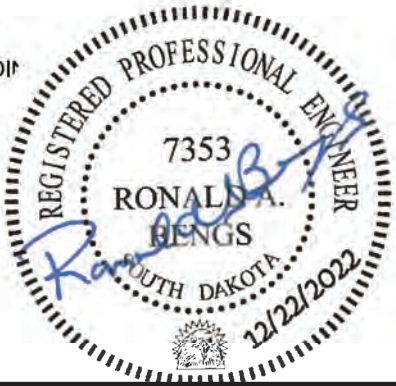
DO NOT DISTURB MORE AREA THAN WHAT IS NEEDED TO COMPLETE EACH PHASE OF CONSTRUCTION.

IF POSSIBLE CONSTRUCT SEDIMENT BASINS AND STABILIZE THEM BEFORE BEGINNING ROADWAY GRADING.

TEMPORARILY STABILIZE AREAS THAT WILL NOT BE TOUCHED WITHIN 14 DAYS.

PERMANENTLY STABILIZE AREAS WHEN GRADING IN THAT AREA IS COMPLETE. PERMANENT STABILIZATION CAN BE COMPLETED IN PHASES AND DOES NOT HAVE TO WAIT UNTIL THE WHOLE ROADWAY HAS BEEN CONSTRUCTED.

CONTINUALLY MAINTAIN ALL SEDIMENT CONTROLS AND MONITOR AREAS WHERE EROSION CONTROL HAS BEEN INSTALLED.

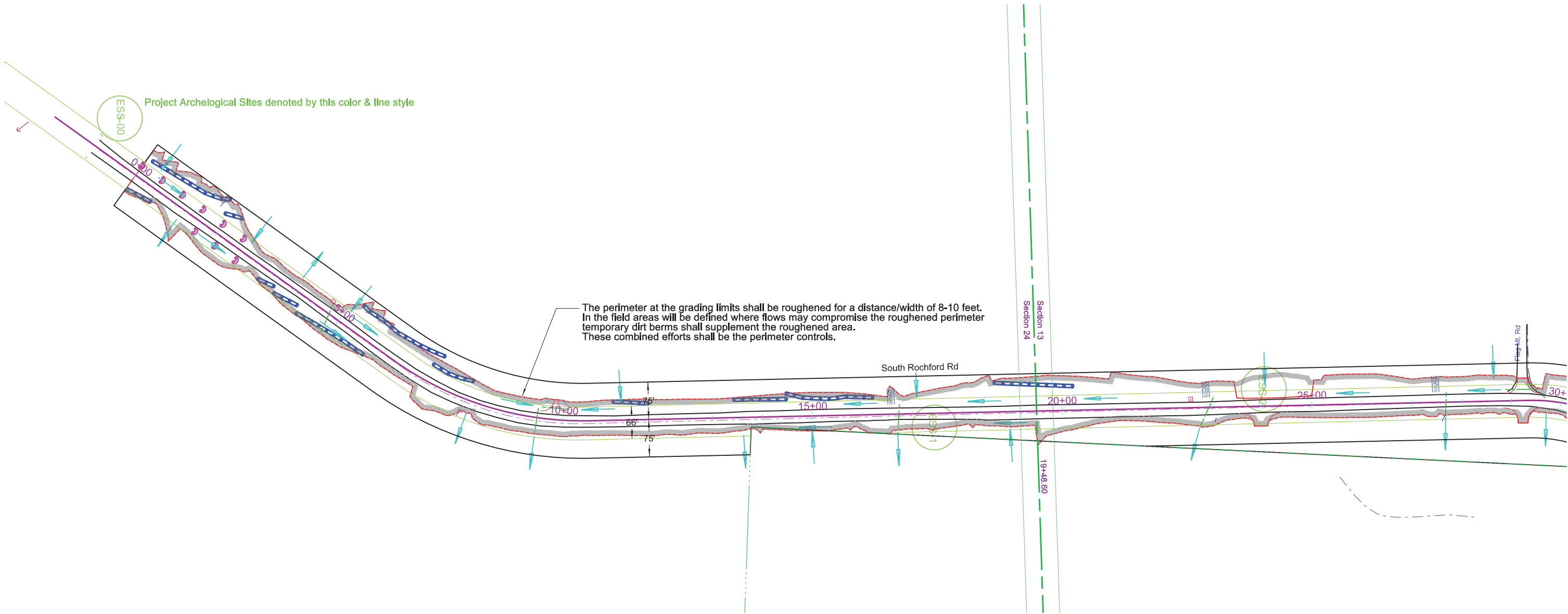




EROSION AND SEDIMENT CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	35	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
0+00	0+58	R	12	Slope	58
0+08	1+85	L	12	Slope	177
1+87	2+26	L	12	Slope	39
3+17	3+58	R	12	Slope	41
3+60	4+20	R	12	Slope	60
4+18	5+83	R	12	Slope	165
5+20	7+26	L	12	Slope	206
7+18	8+17	L	12	Slope	99
10+97	11+75	L	12	Slope	78
13+40	14+50	L	12	Slope	110
14+45	16+25	L	12	Slope	180
18+58	20+25	L	12	Slope	167

Erosion Control Straw Wattle - Ditch

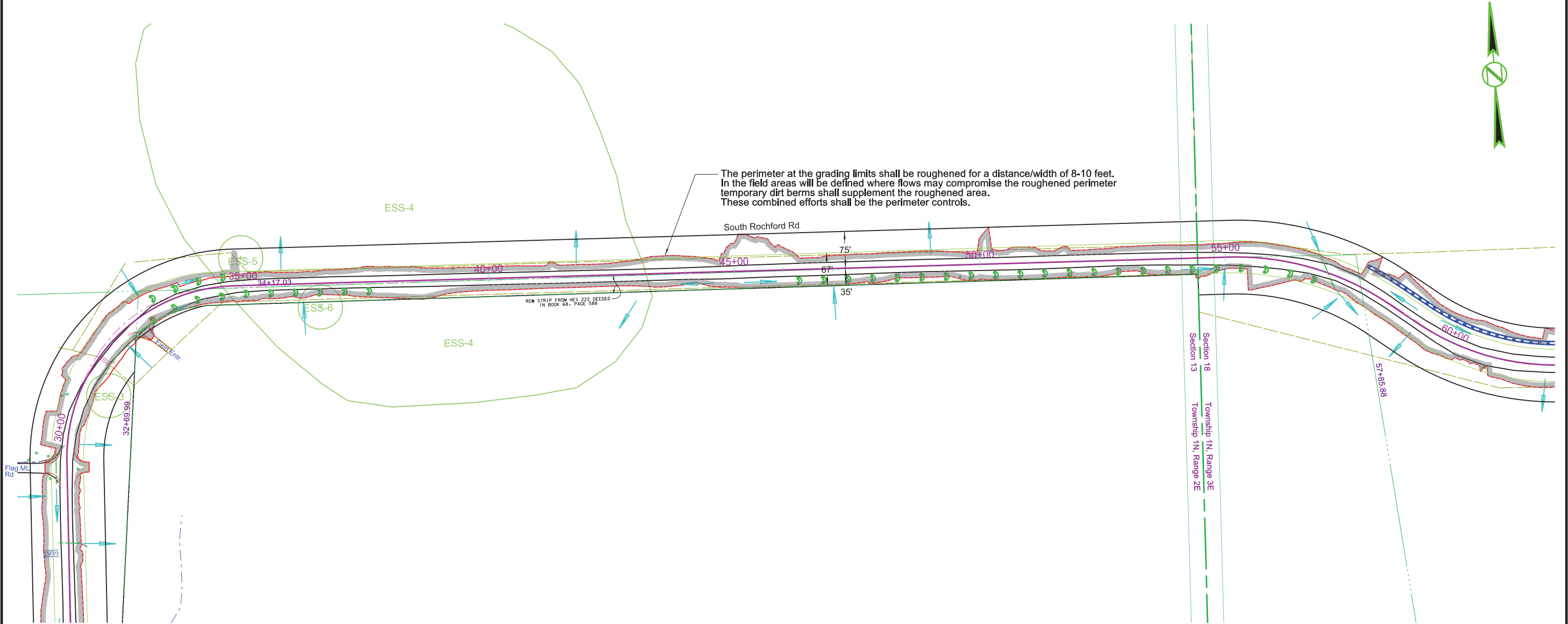
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
0+00	0+58	L	12	Ditch	45
1+55	2+70	R	12	Ditch	75



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	36	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope					
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
57+78	63+85	L	12	Slope	607

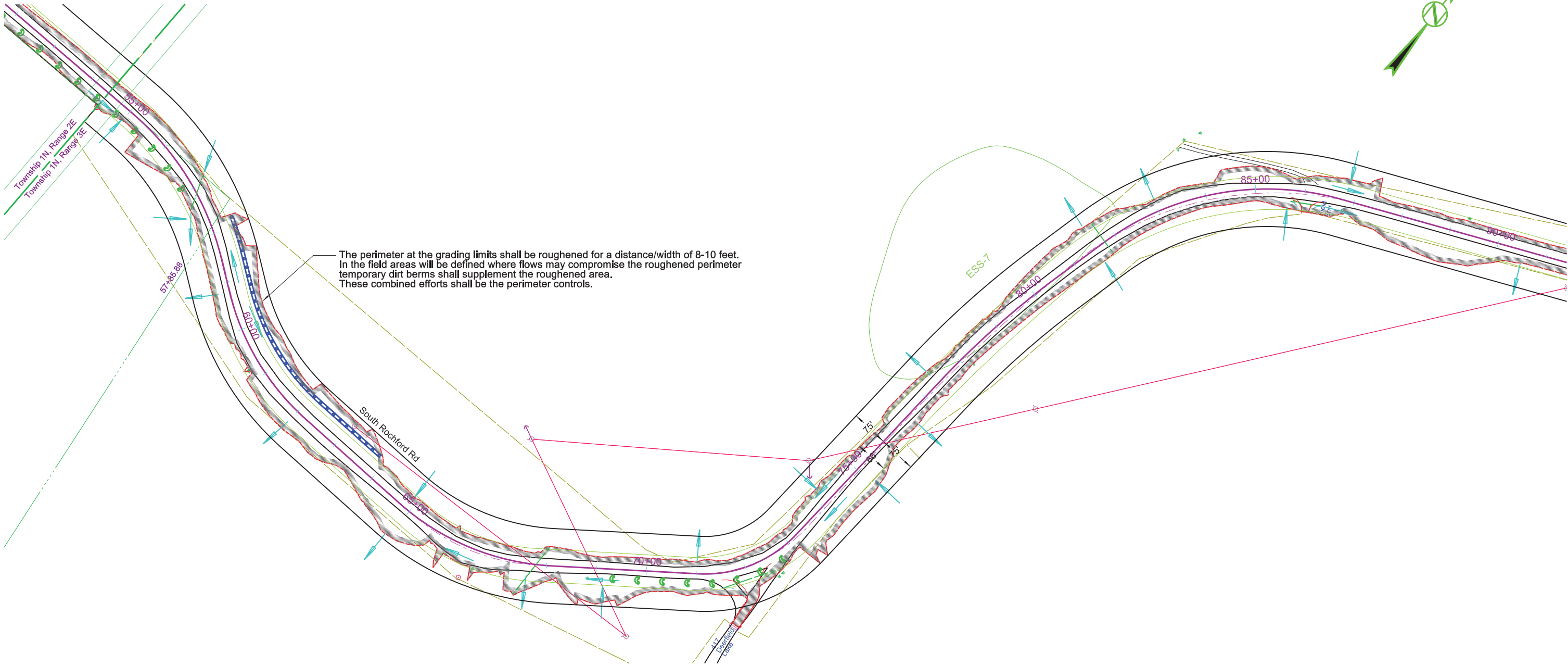
Erosion Control Straw Wattle - Ditch					
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
32+91	37+63	R	12	Ditch	285
33+12	34+67	L	12	Ditch	105
46+25	56+96	R	12	Ditch	645



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	37	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
69+26	72+76	R	12	Ditch	210

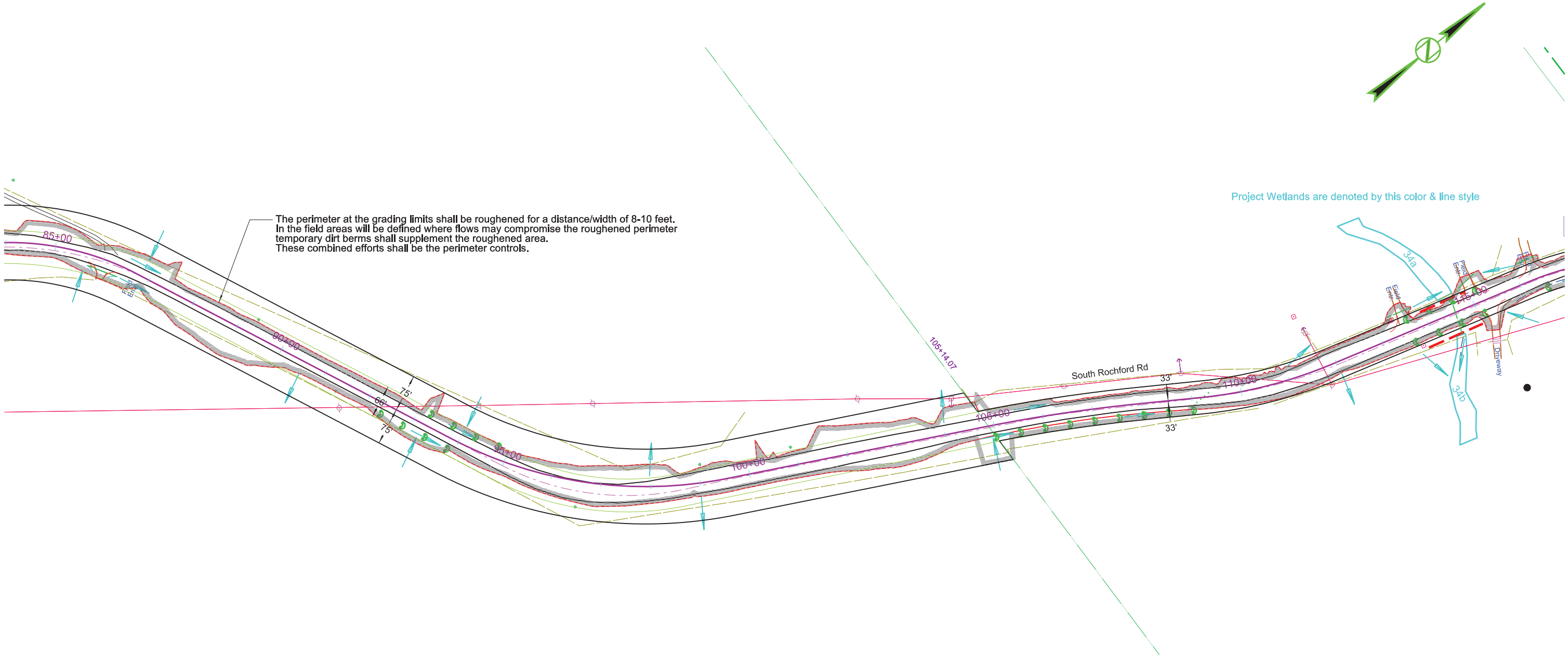
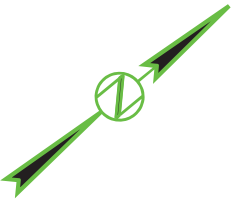




# EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	38	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



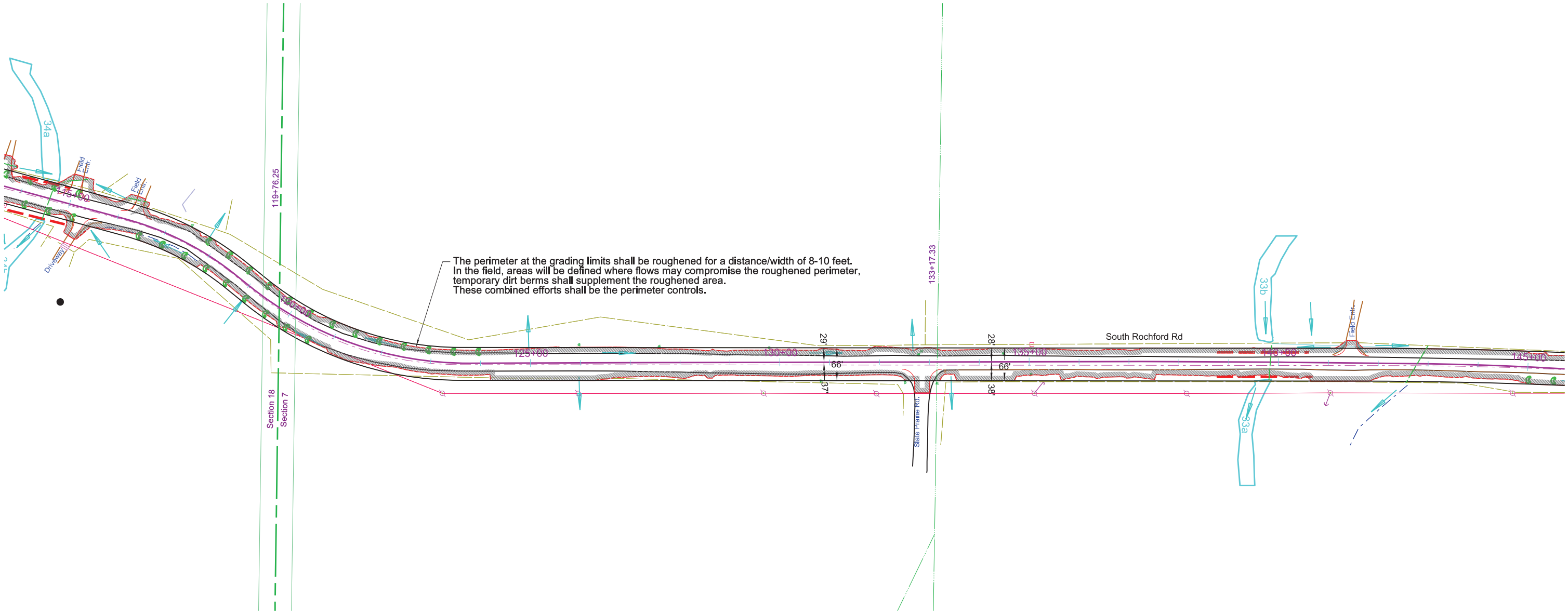
Erosion Control Straw Wattle - Ditch					
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
92+29	93+92	R	12	Ditch	105
93+20	94+87	L	12	Ditch	105
104+94	109+10	R	12	Ditch	255
113+56	115+20	L	12	Ditch	105
113+56	115+20	R	12	Ditch	105



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	39	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
116+45	120+96	R	12	Ditch	285
117+77	124+05	L	12	Ditch	390

High Flow Silt Fence

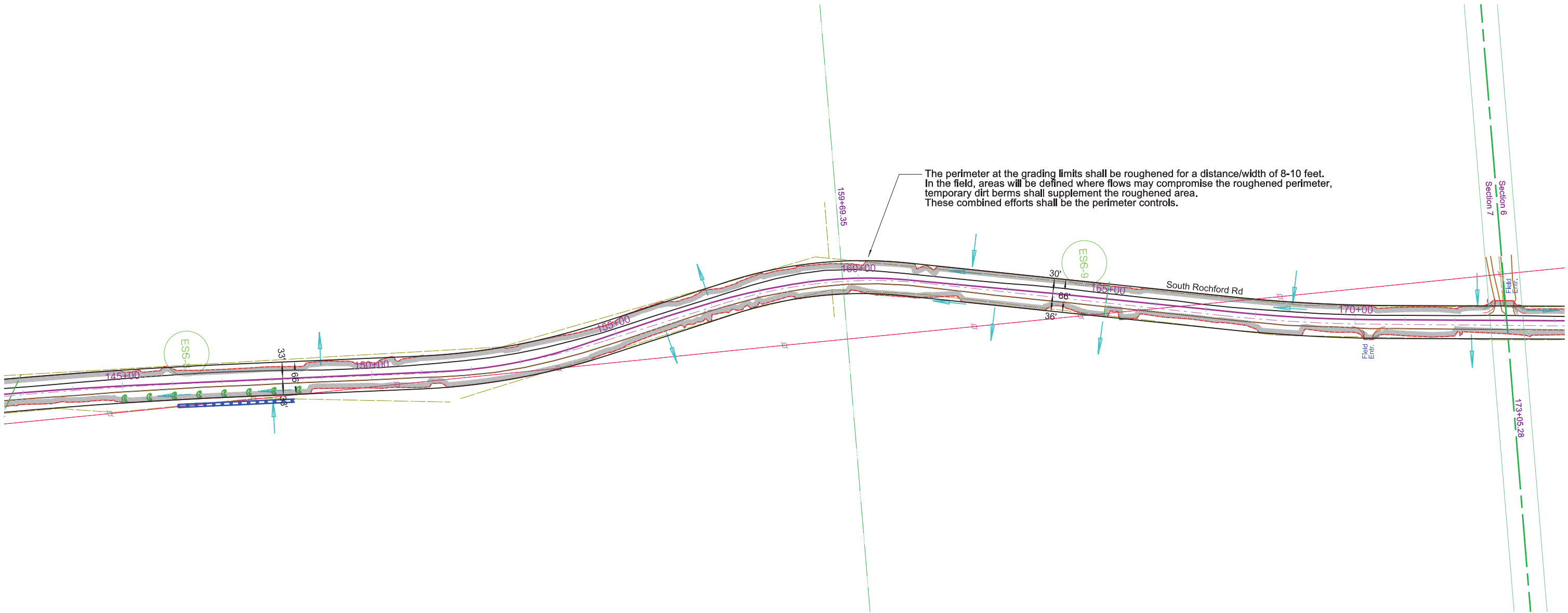
Begin Station	End Station	L/R	Location	Quantity (Ft)
138+75	140+60	L	Grading Limit	185
138+75	140+70	L	Grading Limit	195



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	40	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
146+10	148+47	R	12	Slope	237

Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
144+96	148+65	R	12	Ditch	225

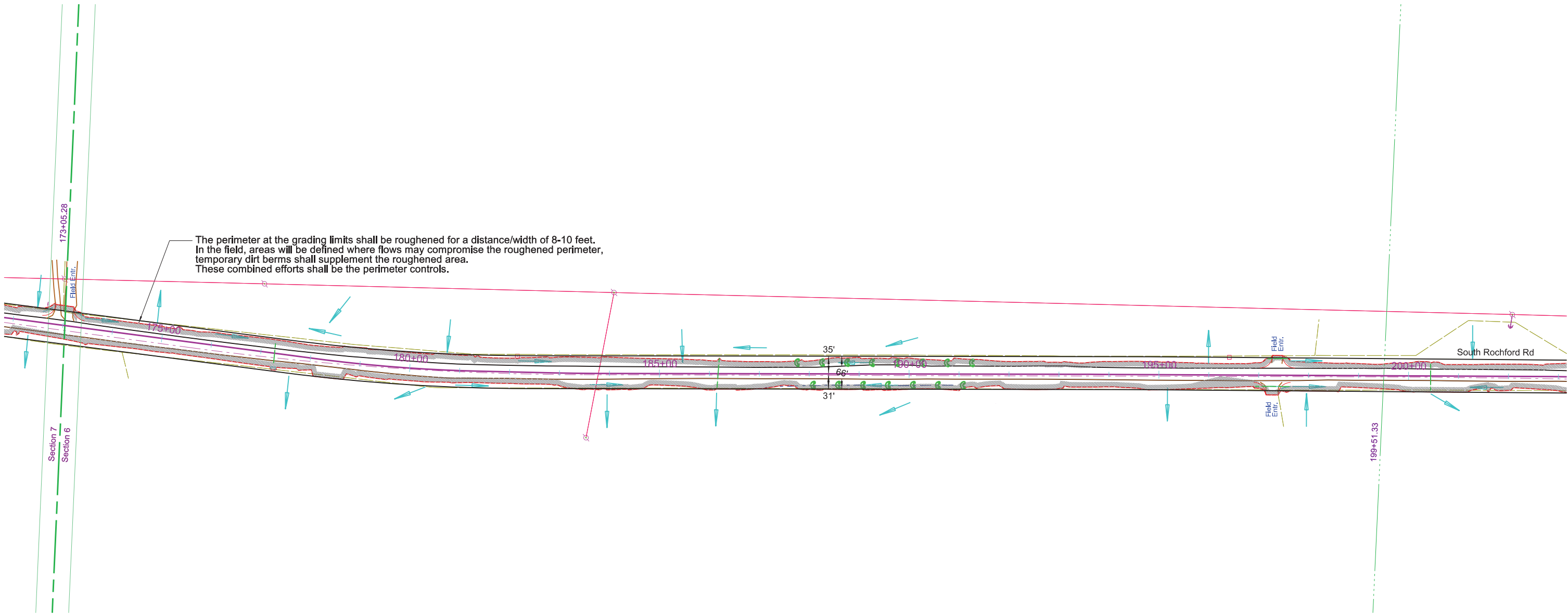




EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	41	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



The perimeter at the grading limits shall be roughened for a distance/width of 8-10 feet. In the field, areas will be defined where flows may compromise the roughened perimeter, temporary dirt berms shall supplement the roughened area. These combined efforts shall be the perimeter controls.

Erosion Control Straw Wattle - Ditch

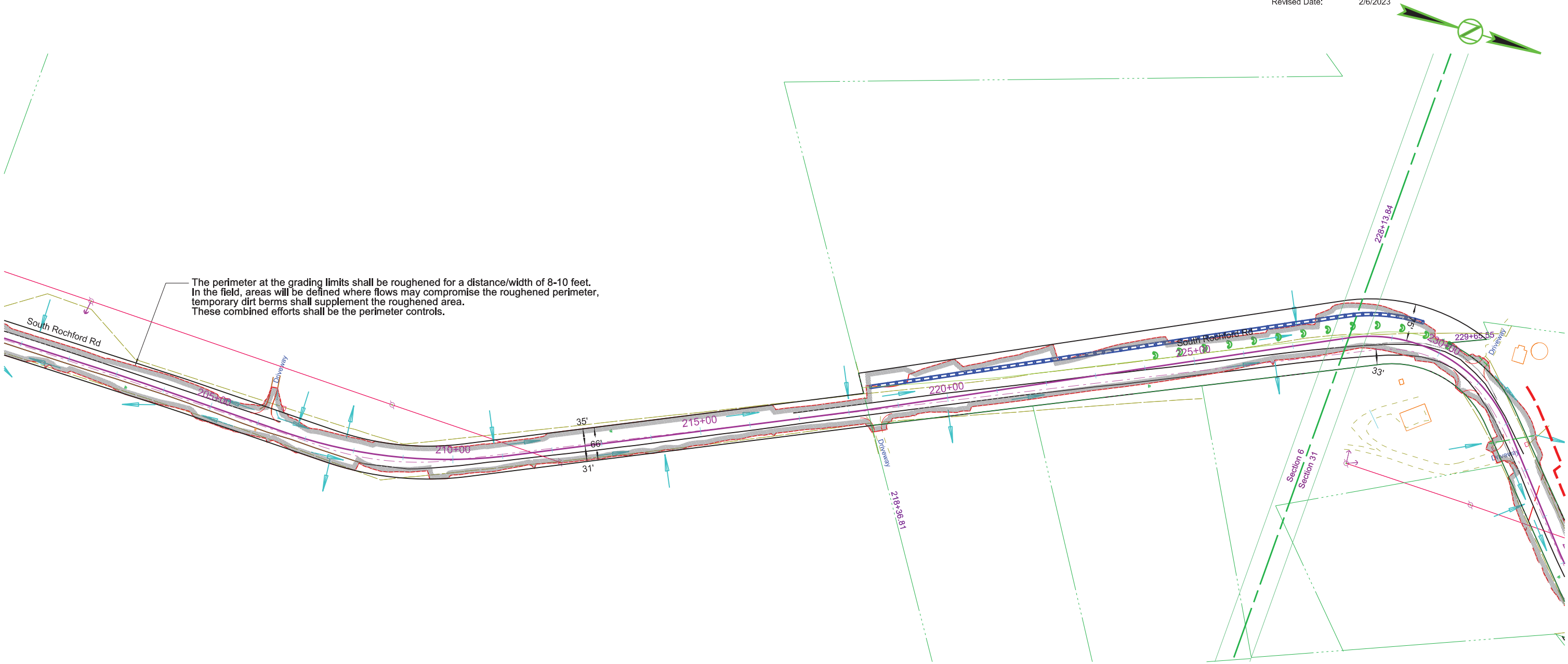
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
187+69	191+35	L	12	Ditch	225
188+00	191+15	R	12	Ditch	195



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	42	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
218+48	229+55	L	12	Slope	1,107

Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
224+20	230+16	L	12	Ditch	360

High Flow Silt Fence

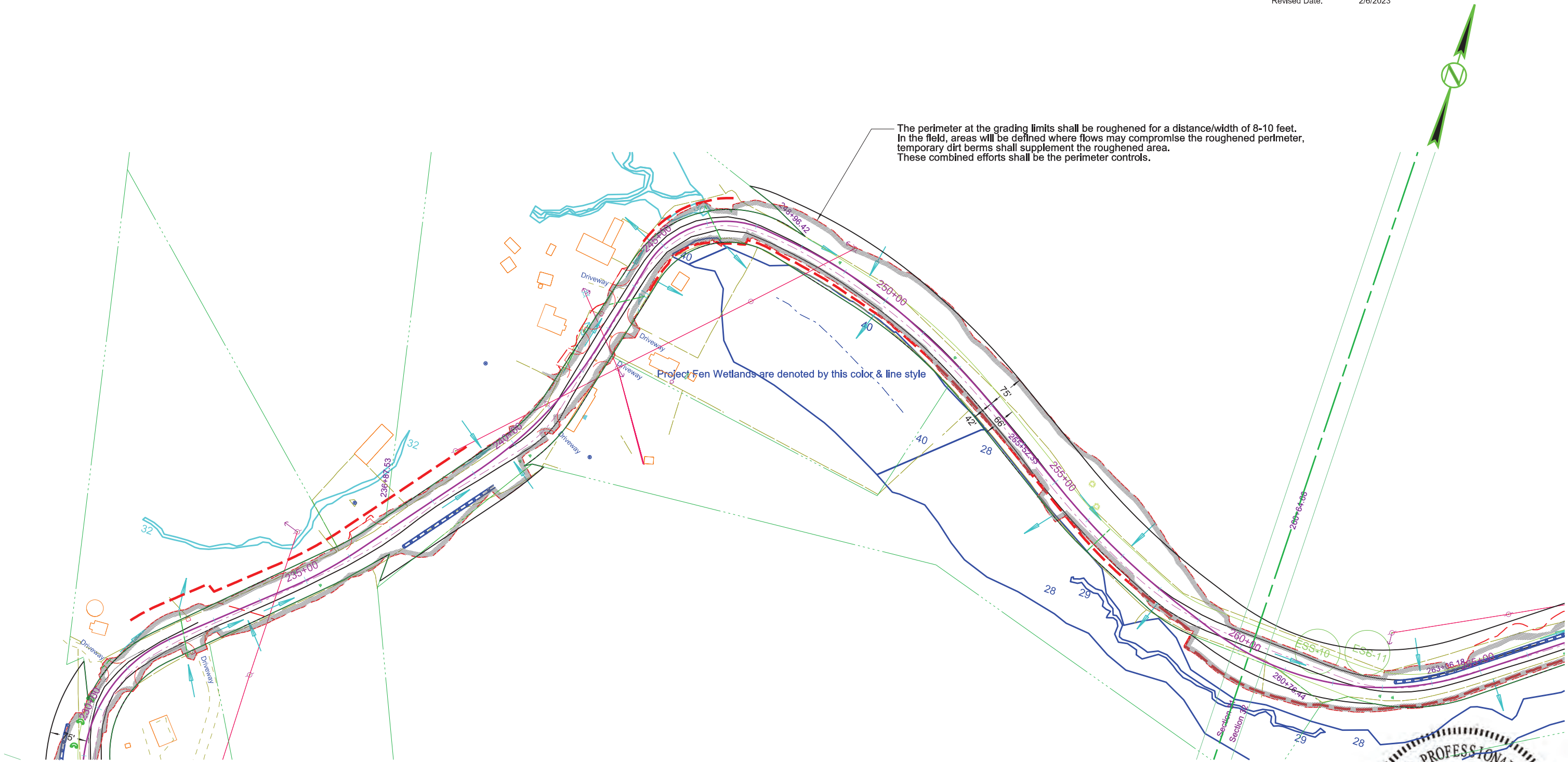
Begin Station	End Station	L/R	Location	Quantity (Ft)
232+00	239+75	L	Grading Limits	775



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	43	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

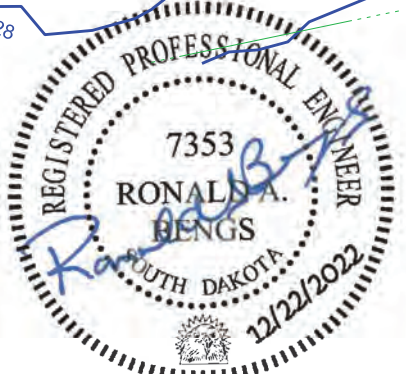


Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
237+00	239+21	R	12	Slope	221
263+20	269+23	L	12	Slope	603

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
244+00	287+55	R	Grading Limits	4,355
244+75	246+91	L	Grading Limits	216



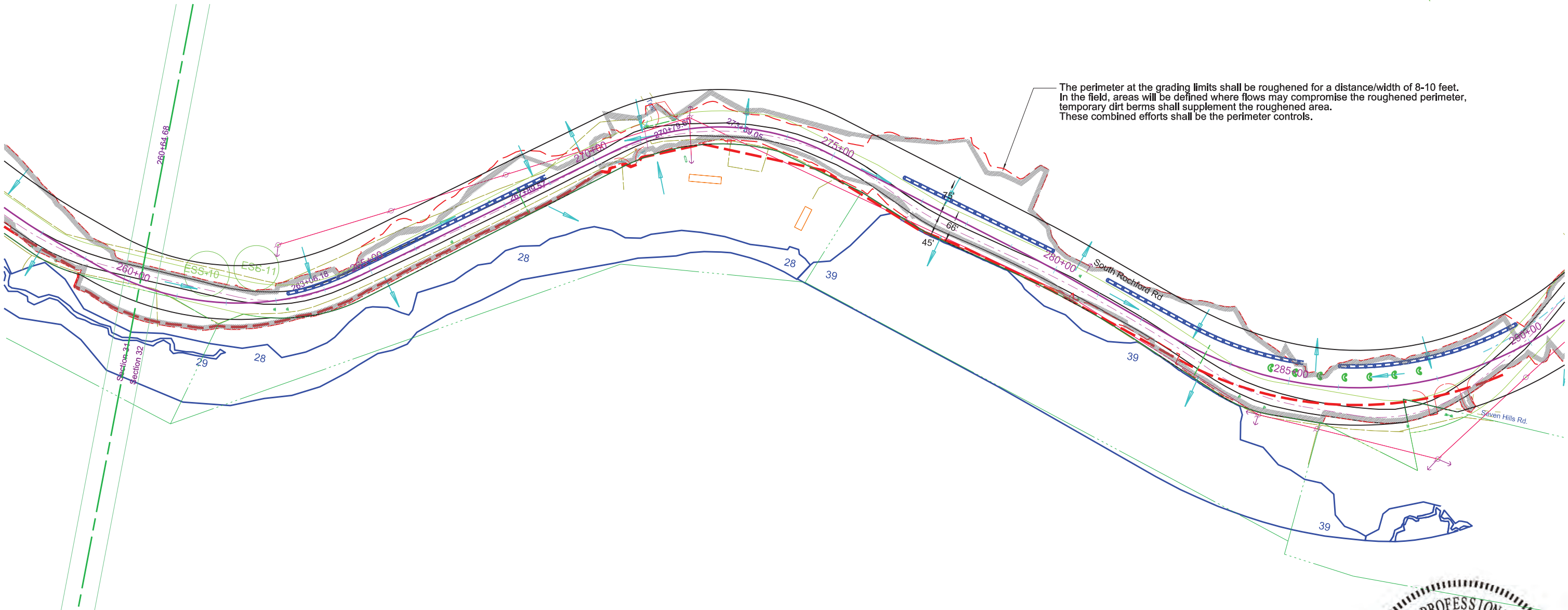


FOR BIDDING PURPOSES ONLY

# EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	44	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

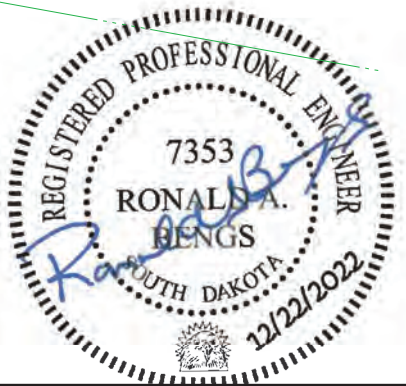


Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
276+09	279+61	L	12	Slope	352
280+63	285+25	L	12	Slope	462
285+79	289+97	L	12	Slope	418

Erosion Control Straw Wattle - Ditch

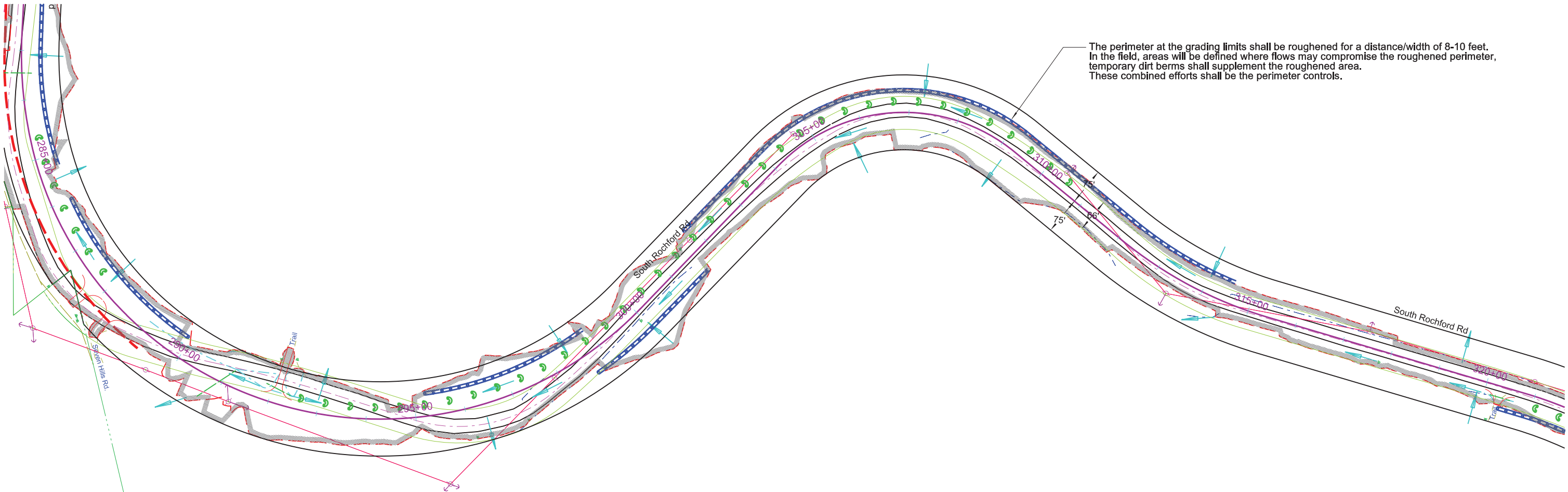
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
284+51	287+75	L	12	Ditch	195



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	45	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
295+00	298+95	L	12	Slope	395
298+64	301+65	R	12	Slope	301
301+66	314+56	L	12	Slope	1,290
320+18	323+20	R	12	Slope	302

Erosion Control Straw Wattle - Ditch

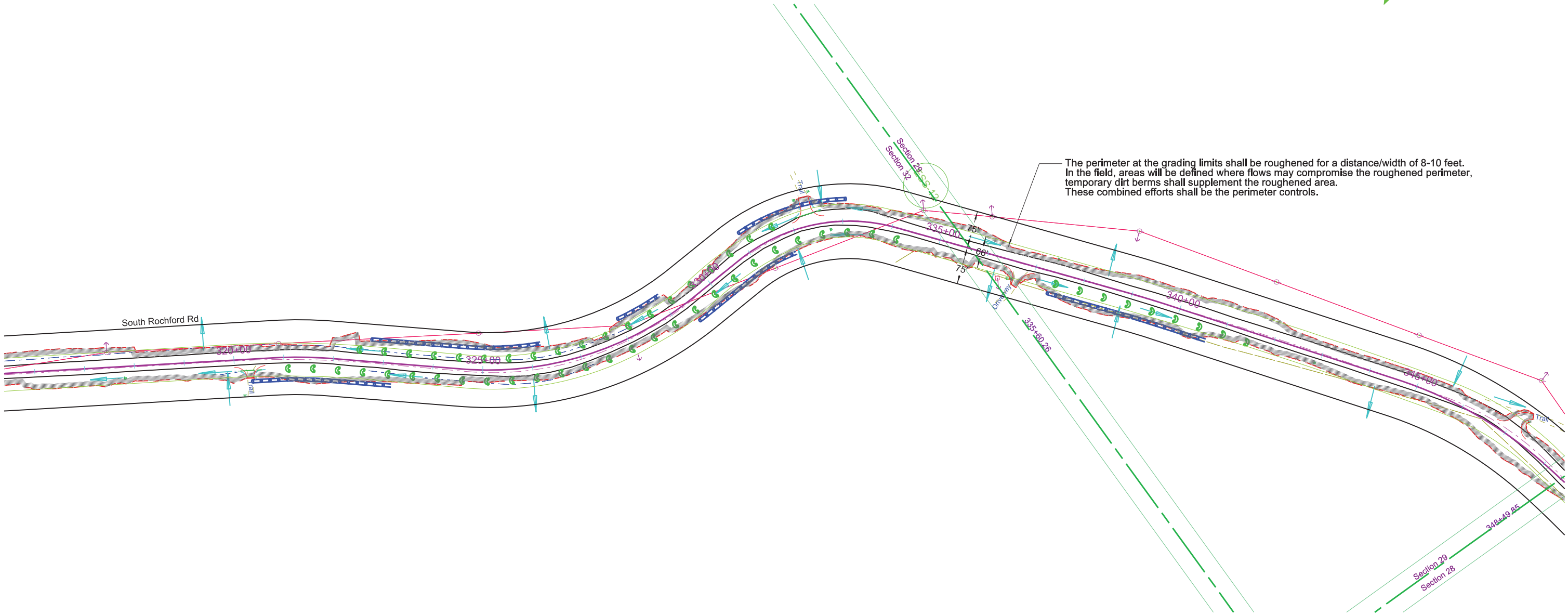
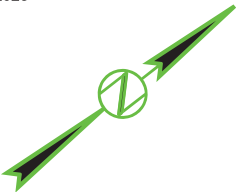
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
292+60	310+60	L	12	Ditch	1,080



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	46	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
322+56	326+26	L	12	Slope	370
327+80	329+02	L	12	Slope	122
329+17	331+93	R	12	Slope	276
330+86	333+10	L	12	Slope	224
337+19	340+70	R	12	Slope	351

Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
321+00	334+25	R	12	Ditch	795
321+45	331+68	L	12	Ditch	615
337+41	341+55	R	12	Ditch	255





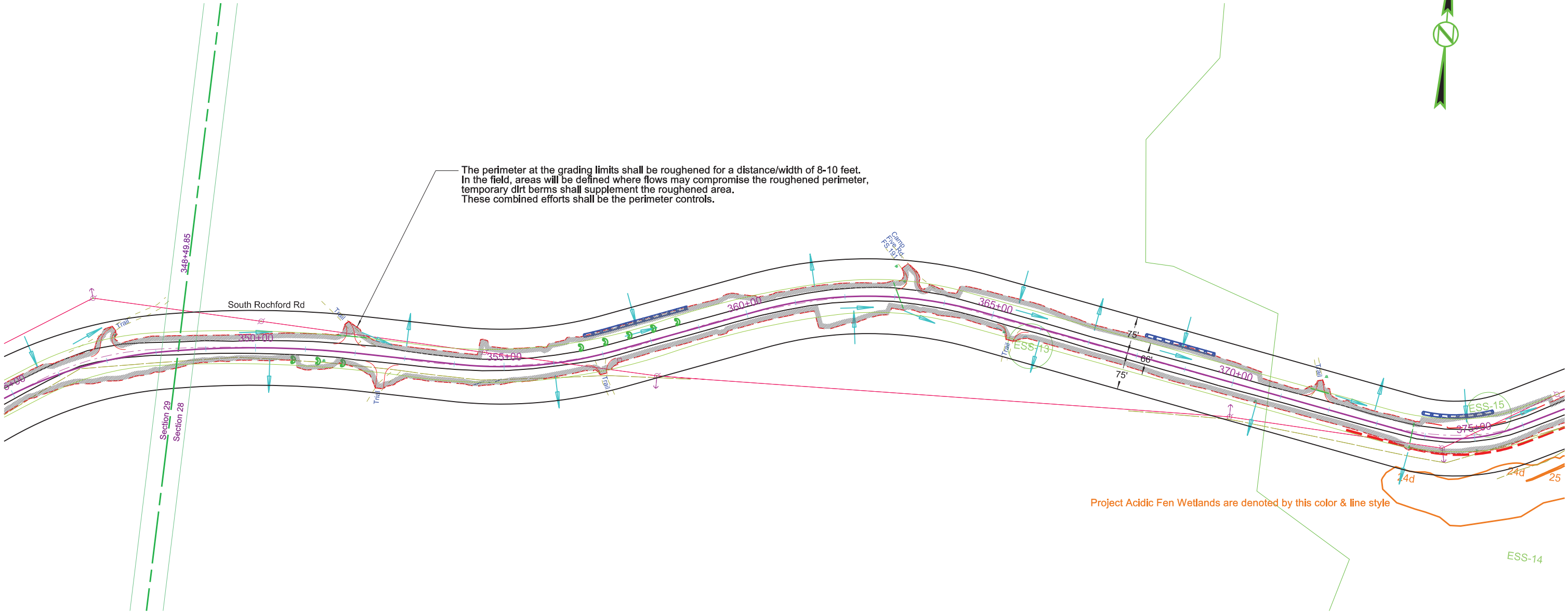
EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	47	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



The perimeter at the grading limits shall be roughened for a distance/width of 8-10 feet.  
In the field, areas will be defined where flows may compromise the roughened perimeter,  
temporary dirt berms shall supplement the roughened area.  
These combined efforts shall be the perimeter controls.



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
356+50	358+90	L	12	Slope	240
367+91	369+53	L	12	Slope	162
373+82	375+53	L	12	Slope	171

Erosion Control Straw Wattle - Ditch

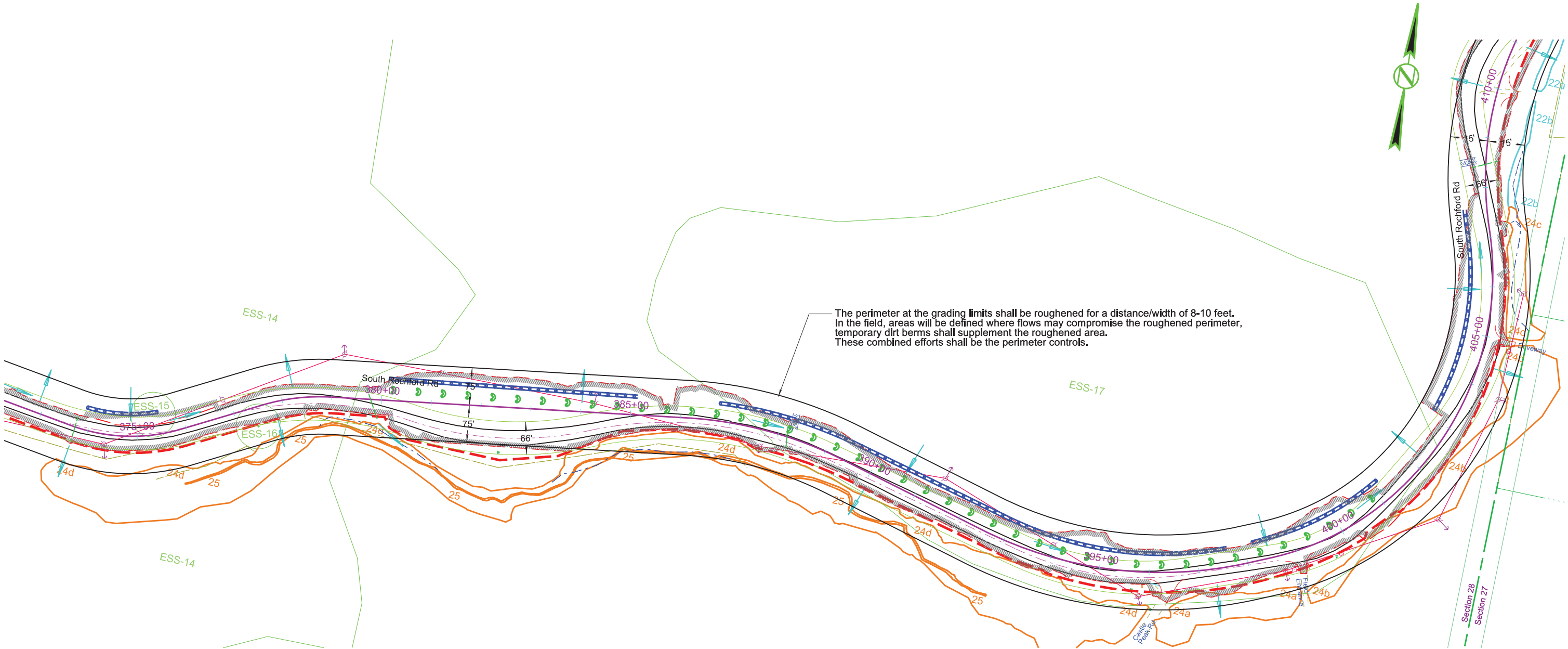
Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
350+70	351+85	R	12	Ditch	75
356+54	358+69	L	12	Ditch	135



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	48	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
379+98	385+14	R	12	Slope	516
386+72	397+65	L	12	Slope	1,093
398+15	401+25	L	12	Slope	310
403+16	407+65	L	12	Slope	449

Erosion Control Straw Wattle - Ditch

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
380+15	400+96	L	12	Ditch	1,260

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
372+50	410+00	R	Grading Limits	3,750

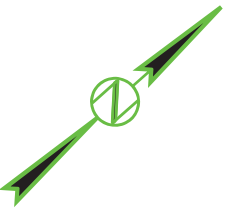




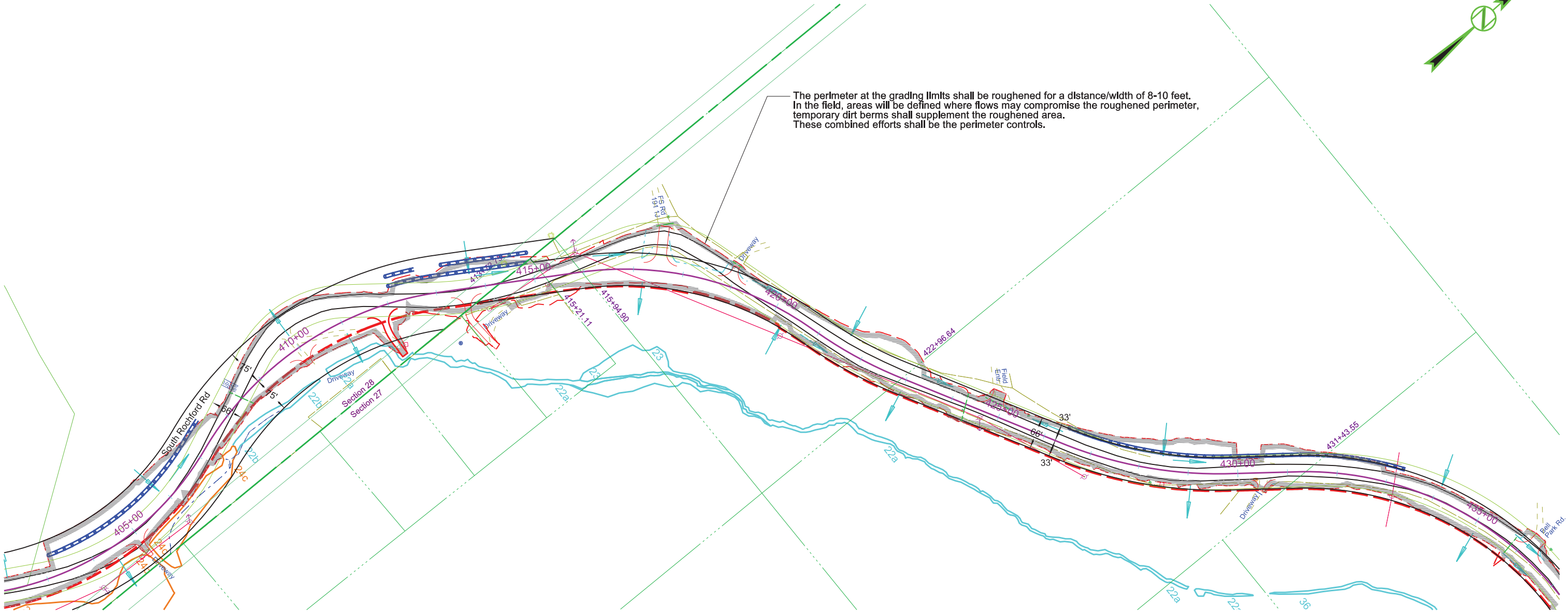
EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	49	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



The perimeter at the grading limits shall be roughened for a distance/width of 8-10 feet. In the field, areas will be defined where flows may compromise the roughened perimeter, temporary dirt berms shall supplement the roughened area. These combined efforts shall be the perimeter controls.



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
412+08	414+96	L	12	Slope	288
412+07	412+70	L	12	Slope	63
413+14	414+96	L	12	Slope	182
426+37	433+33	L	12	Slope	696

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
410+00	435+00	R	Grading Limits	2,500



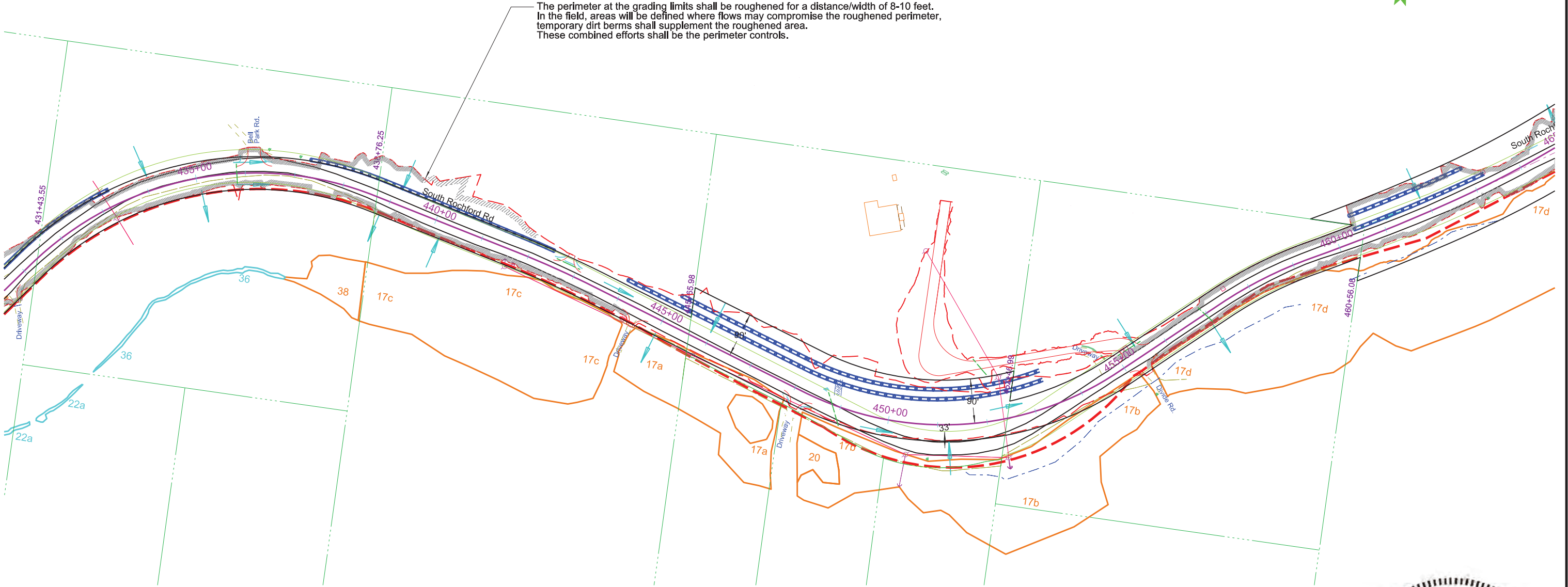
EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	50	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



The perimeter at the grading limits shall be roughened for a distance/width of 8-10 feet.  
In the field, areas will be defined where flows may compromise the roughened perimeter,  
temporary dirt berms shall supplement the roughened area.  
These combined efforts shall be the perimeter controls.



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
437+24	442+51	L	12	Slope	527
444+00	453+25	L	12	Slope	925
445+00	453+25	L	12	Slope	825

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
435+00	460+00	R	Grading Limits	2,500

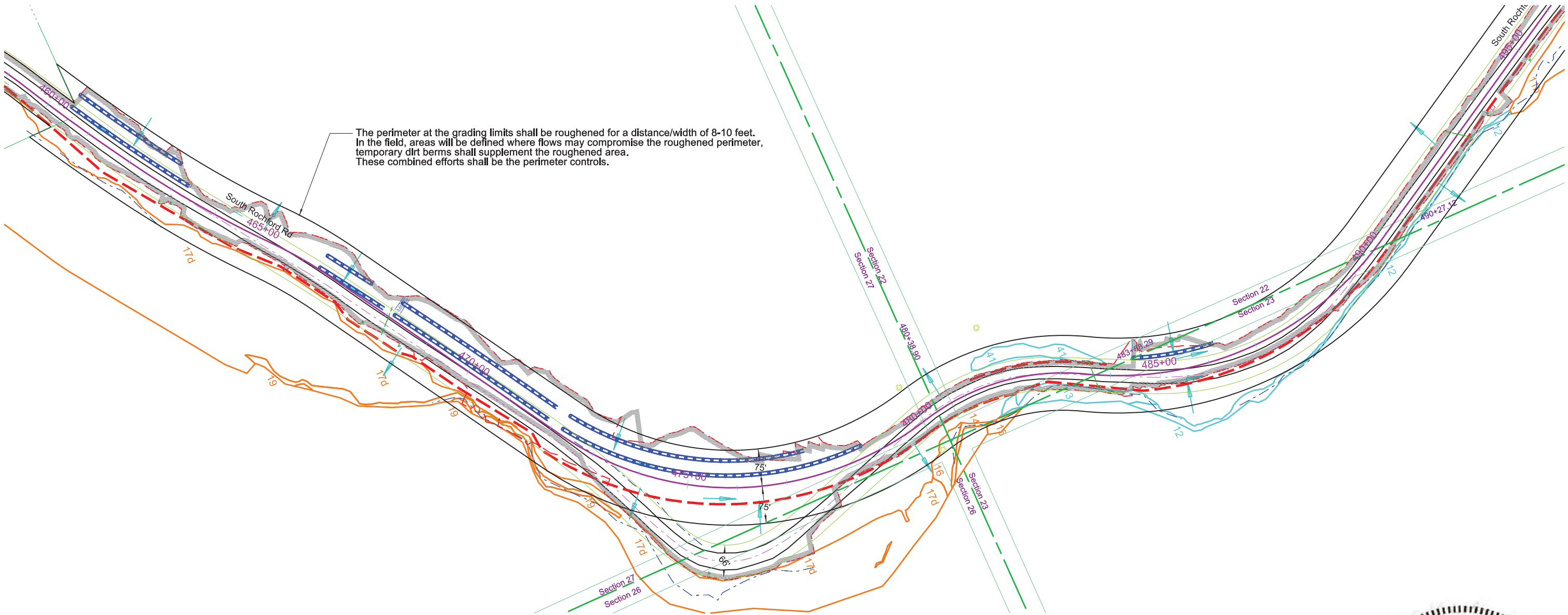




EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	51	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
460+40	463+32	L	12	Slope	292
460+40	462+95	L	12	Slope	255
466+35	467+92	L	12	Slope	157
466+35	467+46	L	12	Slope	111
468+13	471+88	L	12	Slope	375
468+13	471+88	L	12	Slope	375
472+21	478+76	L	12	Slope	655
472+21	477+54	L	12	Slope	533
484+48	486+27	L	12	Slope	179

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
481+25	484+05	L	Grading Limits	280

High Flow Silt Fence

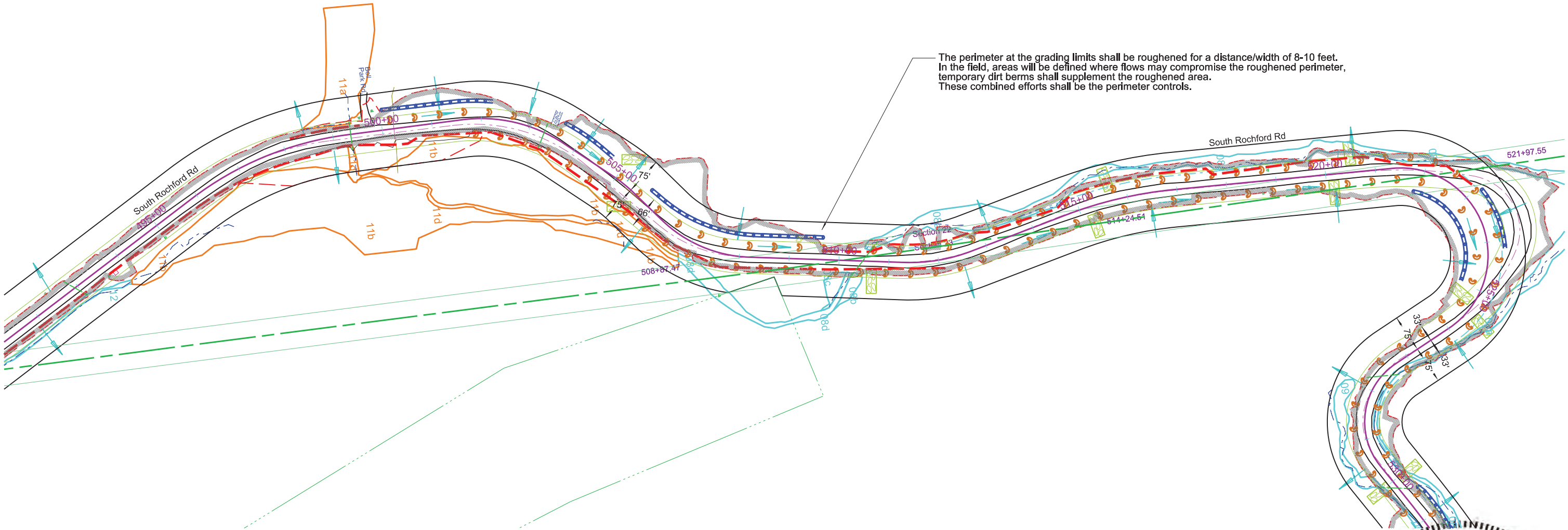
Begin Station	End Station	L/R	Location	Quantity (Ft)
460+00	495+00	R	Grading Limits	3,500



EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	52	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
500+02	502+22	L	12	Slope	220
503+54	504+67	L	12	Slope	113
505+63	509+69	L	12	Slope	406
521+76	524+95	R	12	Slope	319
523+02	524+13	L	12	Slope	111

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
498+10	499+55	L	Grading Limits	145

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
495+00	511+66	R	Grading Limits	1,666





EROSION AND SEDIMENT CONTROL PLAN (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	53	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



The perimeter at the grading limits shall be roughened for a distance/width of 8-10 feet.  
In the field, areas will be defined where flows may compromise the roughened perimeter,  
temporary dirt berms shall supplement the roughened area.  
These combined efforts shall be the perimeter controls.



Rock Check Dams

Begin Station	End Station	L/R	Location	Quantity (CuYd)	Number of Checks
500+00	535+00	L	Ditch	54	7
501+45	535+00	R	Ditch	51	7
Dams spaced at 500 ft					

Erosion Control Straw Wattle - Slope

Begin Station	End Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
530+32	531+50	L	12	Slope	118

High Flow Silt Fence

Begin Station	End Station	L/R	Location	Quantity (Ft)
510+00	523+30	L	Grading Limits	1,330



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	54	333

Plotting Date: 2/6/2023

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING (US survey foot)	EASTING (US survey foot)	ELEVATION (US survey foot)
2017188	7+76.34	104.43	CP-SPIKE	639743.499	1050911.252	6165.15
162	32+06.65	-137.33	BM TT 4 RF	642277.262	1050994.568	6237.19
2017161	60+74.17	-201.08	CP *REBAR-YPC	642144.509	1053939.370	6155.71
200	87+68.42	-142.47	CP	643725.710	1055398.367	6157.16
2017159	126+42.07	-88.68	CP *REBAR	646642.318	1057383.027	6044.57
157	168+61.73	35.26	CP *REBAR	650821.555	1057730.429	6050.23
2017156	191+18.84	25.27	CP *REBAR	653074.677	1057888.853	6049.02
2017264	191+73.48	60.48	CP *REBAR	653129.135	1057924.344	6052.25
155	205+59.13	70.38	CP *REBAR	654512.525	1057950.968	6031.32
2017154	214+66.24	16.41	CP *SPIKE	655384.303	1057663.950	5999.91
2017153	224+25.24	36.89	CP *SPIKE	656260.830	1057273.185	5958.22
2017152	230+59.54	-74.92	CP	656861.192	1056993.632	5911.77
2017150	245+37.11	-24.25	CP	658031.619	1057876.937	5832.22
148	263+60.27	-61.94	CP *REBAR	657618.037	1059538.915	5828.65
2017192	280+38.29	27.71	CP	657786.925	1061086.852	5787.15
2017144	288+38.02	86.90	CP	657670.274	1061903.831	5797.58
2017143	296+39.07	83.88	CP	658382.330	1062367.620	5842.41
2017196	300+69.26	-26.48	CP	658782.261	1062150.036	5884.81
2017141	314+18.21	-33.40	CP	659858.831	1062509.091	5981.09
139	332+13.34	-50.68	CP *REBAR	661384.664	1063316.361	6093.99
2017138	337+05.64	-29.97	CP	661718.151	1063703.191	6077.40
2017198	342+54.80	-36.95	CP	662038.597	1064150.708	6041.75
2017199	352+57.62	-40.69	CP	662318.968	1065111.439	5960.89
135	361+95.47	-38.05	CP *REBAR	662507.645	1066012.816	5903.61
2017146	371+78.79	-9.69	CP	657983.004	1060261.598	5806.22
2017263	376+15.66	-63.08	CP	662385.687	1067384.441	5871.57

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING (US survey foot)	EASTING (US survey foot)	ELEVATION (US survey foot)
2017133	381+71.27	92.46	CP	662364.649	1067955.203	5847.97
2017131	392+10.39	-34.42	BM TT 6 RF	662419.684	1068976.506	5822.25
2017130	397+90.59	174.61	CP	662227.635	1069596.748	5797.90
2017129	404+41.34	47.76	CP	662852.671	1069982.433	5779.16
2017128	415+24.83	20.98	CP	663866.825	1070129.441	5767.75
2017193	426+67.31	-33.10	CP	664471.130	1071061.487	5749.97
2017125	448+28.27	40.59	CP	664596.029	1072979.617	5681.67
2017124	452+20.47	64.13	CP	664556.254	1073396.146	5672.05
2017123	464+52.84	-13.28	CP	665269.073	1074417.002	5645.23
2017122	475+62.12	167.62	CP	665795.812	1075475.186	5603.36
2017201	481+99.67	-22.45	CP	666505.184	1075380.929	5580.32
2017260	483+56.61	106.17	CP *REBAR	666586.418	1075555.166	5573.51
2017121	487+51.67	61.02	CP *REBAR	667021.930	1075625.442	5557.28
2017249	496+92.96	20.34	CP *SPIKE	667885.936	1075218.685	5532.94
2017002	499+54.34	56.93	CP *REBAR-RPC	668135.042	1075227.179	5530.45
2017247	504+22.53	29.47	CP *SPIKE	668550.521	1075317.671	5515.85
2017116	511+13.49	24.25	CP *REBAR	669143.543	1075639.734	5480.70
2017115	515+27.23	20.95	CP *REBAR	669559.434	1075596.422	5465.20
2017114	518+61.09	-18.34	CP *REBAR	669891.467	1075568.146	5445.95
2017243	520+40.43	-80.70	CP *SPIKE	670075.336	1075520.759	5443.55
2017240	528+74.74	25.83	CP *SPIKE	669989.970	1076106.007	5379.15
2017239	532+23.86	16.77	CP *SPIKE	670141.068	1076433.580	5353.71
109	536+24.73	-23.91	CP *REBAR	670444.175	1076705.051	5333.15
102	South side of Rochford		BM Q177	670393.160	1079355.848	5279.99

The coordinates shown on this sheet are based on the South Dakota State Plane Coodinate System. South Zone (4002) (NAD83(2011))(Epoch: 2010.0000'.  
The elevations shown on this sheet are based on NAVD88 (Geoid 12A);  
Average Combined SF = 0.999665216

- \* Points labeled "CP" only are either a #5 Rebar or 3/8" spike.
- \* Point numbers beginning with "2017" are points that were occupied in 2017 with a fast-static session to confirm position. The other points are base control used for the static sessions from a survey in 2011





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	55	333

Plotting Date: 2/6/2023

# HORIZONTAL ALIGNMENT DATA

MAINLINE									
Type	Station			Northing	Easting				
POB	0+00.00			639183.780	1050336.120				
		TL=834.21		N 39°35'38" E					
PC	6+34.21			639672.492	1050740.322				
PI	8+51.32	R=650.00	Delta=36°56'28"	639839.797	1050878.698				
PT	10+53.29			640056.679	1050888.747				
		TL=1880.99		N 2°39'10" E					
PC	29+34.28			641935.657	1050975.806				
PI	32+81.82	R=350.00	Delta=89°35'43"	642282.822	1050991.891				
PI	34+81.59			642269.188	1051339.161				
		TL=2025.90		S 87°45'07" E					
PC	55+07.49			642189.716	1053363.500				
PI	56+84.07	R=550.00	Delta=35°35'54"	642182.789	1053539.942				
PT	58+49.21			642074.450	1053679.377				
		TL=72.68		S 52°09'12" E					
PC	59+21.89			642029.855	1053736.772				
PI	60+76.28	R=500.00	Delta=34°19'10"	641935.129	1053858.687				
PT	62+21.39			641925.630	1054012.785				
		TL=250.24		S 86°28'22" E					
PC	64+71.63			641910.235	1054262.549				
PI	66+47.91	R=500.00	Delta=38°50'34"	641899.389	1054438.503				
PT	68+10.59			642001.297	1054582.350				
		TL=294.01		N 54°41'04" E					
PC	71+04.60			642171.255	1054822.253				
PI	72+20.85	R=250.00	Delta=49°52'45"	642238.460	1054917.116				
PT	73+22.24			642354.308	1054926.854				
		TL=415.80		N 4°48'19" E					
PC	77+38.04			642768.650	1054961.687				
PI	78+96.20	R=1770.00	Delta=10°12'44"	642926.252	1054974.936				
PT	80+53.52			643079.008	1055015.916				
		TL=117.53		N 15°01'03" E					
PC	81+71.05			643192.528	1055046.371				
PI	84+40.81	R=550.00	Delta=52°15'08"	643453.069	1055116.268				
PT	86+72.64			643557.300	1055365.071				
		TL=713.47		N 67°16'11" E					
PC	93+86.11			643832.979	1056023.129				
PI	96+81.80	R=835.00	Delta=39°00'02"	643947.232	1056295.857				
PT	99+54.48			644207.659	1056435.902				
		TL=525.81		N 28°16'09" E					
PC	104+80.29			644670.759	1056684.936				
PI	106+35.07	R=3200.00	Delta=5°32'17"	644807.070	1056758.238				
PT	107+89.60			644935.672	1056844.352				
		TL=131.03		N 33°48'26" E					

PC	109+20.63			645044.550	1056917.260				
PI	110+55.46	R=905.00	Delta=16°56'51"	645156.581	1056992.279				
PT	111+88.32			645285.614	1057031.383				
		TL=429.87		N 16°51'35" E					
PC	116+18.19			645697.011	1057156.060				
PI	117+44.69	R=600.00	Delta=23°48'40"	645818.074	1057192.749				
PT	118+67.54			645914.020	1057275.191				
		TL=32.03		N 40°40'15" E					
PC	118+99.57			645938.315	1057296.066				
PI	121+48.83	R=700.00	Delta=39°12'00"	646127.369	1057458.511				
PT	123+78.49			646376.546	1057464.909				
		TL=387.72		N 1°28'15" E					
PC	127+66.21			646764.134	1057474.861				
PI	127+73.64	R=10000.00	Delta=0°05'07"	646771.569	1057475.052				
PT	127+81.08			646779.003	1057475.254				
		TL=904.29		N 1°33'22" E					
PC	136+85.37			647682.955	1057499.810				
PI	137+20.63	R=10000.00	Delta=0°24'15"	647718.205	1057500.768				
PT	137+55.89			647753.447	1057501.974				
		TL=229.66		N 1°57'36" E					
PC	139+85.55			647982.968	1057509.829				
PI	140+00.01	R=5000.00	Delta=0°19'53"	647997.423	1057510.324				
PT	140+14.47			648011.875	1057510.902				
		TL=259.80		N 2°17'30" E					
PC	142+74.28			648271.472	1057521.290				
PI	144+04.85	R=6000.00	Delta=2°29'36"	648401.935	1057526.511				
PT	145+35.37			648532.047	1057537.402				
		TL=607.19		N 4°47'06" E					
PC	151+42.57			649137.125	1057588.051				
PI	152+83.75	R=1000.00	Delta=16°04'19"	649277.815	1057599.828				
PT	154+23.08			649416.265	1057572.195				
		TL=157.33		N 11°17'14" W					
PC	155+80.41			649570.553	1057541.402				
PI	156+00.13	R=1500.00	Delta=1°30'23"	649589.892	1057537.542				
PT	156+19.84			649609.325	1057534.192				
		TL=65.30		N 9°46'51" W					
PC	156+85.15			649673.677	1057523.099				
PI	157+57.00	R=1250.00	Delta=6°34'48"	649744.487	1057510.892				
PT	158+28.70			649816.230	1057506.880				
		TL=23.52		N 3°12'03" W					
PC	158+52.21			649839.708	1057505.567				
PI	159+77.93	R=900.00	Delta=15°54'15"	649965.231	1057498.548				
PT	161+02.03			650087.872	1057526.194				
		TL=272.44		N 12°42'12" E					



The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.  
South Zone (4002) (NAD83(2011)(Epoch: 2010.0000)).  
The elevations shown on this sheet are based on NAVD88 (Geoid 12A);  
Average Combined SF = 0.999665216

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	56	333

Plotting Date: 2/6/2023

# HORIZONTAL ALIGNMENT DATA

## MAINLINE (Continued)

PC	163+74.48			650353.648	1057586.105			PC	244+47.44			657937.335	1057852.174
PI	164+00.65	R=5000.00	Delta=0°36'00"	650379.182	1057591.861			PI	246+13.31	R=186.00	Delta=83°27'04"	658097.641	1057894.771
PT	164+26.83			650404.654	1057597.884			PT	247+18.35			658073.606	1058058.889
		TL=320.77	N 13°18'11" E							TL=45.37	S 81°40'05" E		
PC	167+47.59			650716.812	1057671.693			PC	247+63.72			658067.031	1058103.781
PI	168+94.31	R=3000.00	Delta=5°35'59"	650859.595	1057705.454			PI	249+21.64	R=1004.00	Delta=17°52'42"	658044.147	1058260.040
PT	170+40.80			651004.990	1057725.120			PT	250+77.00			657974.396	1058401.728
		TL=769.34	N 7°42'12" E							TL=36.11	S 63°47'23" E		
PC	178+10.13			651767.384	1057828.246			PC	251+13.11			657958.447	1058434.126
PI	179+72.01	R=3000.00	Delta=6°10'37"	651927.795	1057849.944			PI	252+07.28	R=1309.50	Delta=8°13'34"	657916.857	1058518.610
PT	181+33.56			652089.609	1057854.255			PT	253+01.12			657863.607	1058596.274
		TL=153.52	N 1°31'35" E							TL=213.91	S 55°33'49" E		
PC	182+87.08			652243.076	1057858.345			PC	255+15.03			657742.645	1058772.695
PI	183+29.97	R=4000.00	Delta=1°13'43"	652285.949	1057859.487			PI	256+90.36	R=1504.00	Delta=13°17'54"	657643.499	1058917.296
PT	183+72.86			652328.836	1057859.710			PT	258+64.11			657580.273	1059080.826
		TL=958.87	N 0°17'52" E							TL=65.42	S 68°51'43" E		
PC	193+31.73			653287.696	1057864.692			PC	259+29.53			657556.681	1059141.848
PI	193+61.43	R=20000.00	Delta=0°10'13"	653317.397	1057864.846			PI	262+30.73	R=569.00	Delta=55°47'21"	657448.063	1059422.783
PT	193+91.13			653347.098	1057865.089			PT	264+83.57			657619.319	1059670.560
		TL=873.04	N 0°28'04" E							TL=559.54	N 55°20'56" E		
PC	202+64.18			654220.111	1057872.218			PC	270+43.11			657937.461	1060130.853
PI	203+29.57	R=5000.00	Delta=1°29'56"	654285.508	1057872.752			PI	272+83.25	R=480.00	Delta=53°09'24"	658073.999	1060328.399
PT	203+94.97			654350.869	1057874.997			PT	274+88.43			657997.780	1060556.121
		TL=258.69	N 1°58'00" E							TL=444.64	S 71°29'40" E		
PC	206+53.66			654609.410	1057883.874			PC	279+33.08			657856.651	1060977.774
PI	208+88.82	R=1000.00	Delta=26°27'58"	654844.427	1057891.944			PI	279+82.06	R=2000.00	Delta=2°48'21"	657841.105	1061024.221
PT	211+15.58			655058.411	1057794.429			PT	280+31.02			657823.304	1061069.853
		TL=710.68	N 24°29'58" W							TL=235.04	S 68°41'19" E		
PC	218+26.26			655705.105	1057499.722			PC	282+66.06			657737.882	1061288.818
PI	218+36.94	R=1000.00	Delta=1°13'27"	655714.826	1057495.291			PI	283+91.23	R=800.00	Delta=17°47'07"	657692.391	1061405.429
PT	218+47.63			655724.451	1057490.654							657686.030	1061512.070
		TL=964.39	N 25°43'25" W									657684.692	1061530.363
PC	228+12.02			656593.269	1057072.079			PCC	284+92.59			657672.977	1061720.478
PI	230+47.02	R=300.00	Delta=76°08'48"	656804.984	1056970.080			PI	286+83.07	R=692.000	Delta=30°46'46"		
PT	232+10.72			656954.709	1057151.214			PT	288+64.34			657760.201	1061889.809
		TL=255.24	N 50°25'23" E							TL=1.409	N 62°44'48" E		
PC	234+65.96			657117.328	1057347.947			PC	288+65.75			657760.846	1061891.062
PI	235+42.78	R=835.00	Delta=10°30'44"	657166.268	1057407.154			PI	295+97.41	R=725.000	Delta=90°31'26"	658095.892	1062541.5
PT	236+19.16			657225.189	1057456.439			PT	300+11.20			658743.239	1062200.521
		TL=286.37	N 39°54'39" E							TL=397.468	N 27°46'38" W		
PC	239+05.53			657444.845	1057640.171			PC	304+08.67			659094.905	1062015.287
PI	240+90.87	R=835.00	Delta=25°01'48"	657587.013	1057759.087			PI	307+31.83	R=350.000	Delta=85°26'00"	659380.825	1061864.684
PT	242+70.30			657766.142	1057806.685			PT	309+30.55			659553.715	1062137.705
		TL=177.13	N 14°52'51" E							TL=275.726	N 57°39'22" E		



The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.  
South Zone (4002) (NAD83(2011)(Epoch: 2010.0000)).  
The elevations shown on this sheet are based on NAVD88 (Geoid 12A);  
Average Combined SF = 0.999665216



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	57	333

Plotting Date: 2/6/2023

# HORIZONTAL ALIGNMENT DATA

## MAINLINE (Continued)

PC	312+06.28				659701.229	1062370.653	PC	386+13.70				662501.497	1068385.974
PI	313+75.66	R=835.000	Delta=22°56'00"		659791.846	1062513.75	PI	387+79.14	R=800.000	Delta=23°22'03"		662518.273	1068550.557
PT	315+40.50				659931.059	1062610.228	PT	389+39.97				662468.395	1068708.294
		TL=538.582		N 34°43'22" E					TL=311.681		S 72°27'09" E		
PC	320+79.08				660373.728	1062917.008	PC	392+51.65				662374.424	1069005.471
PI	321+36.62	R=835.000	Delta=7°53'05"		660421.026	1062949.786	PI	395+36.18	R=800.000	Delta=39°09'23"		662288.641	1069276.755
PT	321+93.99				660463.38	1062988.743	PT	397+98.38				662393.422	1069541.283
		TL=266.374		N 42°36'28" E					TL=46.040		N 68°23'28" E		
PC	324+60.36				660659.433	1063169.071	PC	398+44.42				662410.376	1069584.087
PI	327+20.00	R=650.000	Delta=43°32'53"		660850.529	1063344.841	PI	399+78.36	R=550.000	Delta=27°22'21"		662459.701	1069708.61
PT	329+54.40				661110.134	1063340.58	PCC	401+07.18				662560.755	1069796.512
		TL=120.431		N 0°56'25" W			PI	404+42.55	R=593.000	Delta=58°58'52"		662813.794	1070016.62
PC	330+74.83				661230.55	1063338.603	PRC	407+17.62				663132.821	1069913.193
PI	332+55.86	R=350.000	Delta=54°41'51"		661411.551	1063335.632	PI	410+33.03	R=653.000	Delta=51°33'45"		663432.857	1069815.922
PT	334+08.96				661518.575	1063481.633	PT	413+05.28				663695.568	1069990.467
		TL=478.259		N 53°45'26" E					TL=284.536		N 33°36'00" E		
PC	338+87.22				661801.326	1063867.358	PC	415+89.82				663932.564	1070147.927
PI	339+27.14	R=2000.000	Delta=2°17'14"		661824.93	1063899.558	PI	418+43.17	R=650.000	Delta=42°35'24"		664143.592	1070288.133
PT	339+67.06				661847.23	1063932.674	PT	420+72.98				664204.069	1070534.168
		TL=490.015		N 56°02'40" E					TL=32.294		N 76°11'24" E		
PC	344+57.07				662120.928	1064339.127	PC	421+05.28				664211.778	1070565.528
PI	346+35.19	R=835.000	Delta=24°04'58"		662220.414	1064486.868	PI	421+95.47	R=835.000	Delta=12°19'49"		664233.308	1070653.117
PCC	348+08.04				662250.954	1064662.346	PT	422+84.97				664273.046	1070734.087
PI	350+11.68	R=2000.000	Delta=11°37'38"		662285.87	1064862.964			TL=353.297		N 63°51'35" E		
PT	352+13.91				662279.635	1065066.502	PC	426+38.27				664428.699	1071051.248
		TL=188.017		S 88°14'44" E			PI	428+13.69	R=835.000	Delta=23°43'47"		664505.987	1071208.731
PC	354+01.93				662273.879	1065254.432	PT	429+84.09				664640.115	1071321.798
PI	355+63.31	R=835.000	Delta=21°52'39"		662268.938	1065415.738			TL=134.183		N 40°07'48" E		
PT	357+20.76				662324.459	1065567.269	PC	431+18.27				664742.71	1071408.282
		TL=298.667		N 69°52'37" E			PI	435+40.73	R=650.000	Delta=66°02'31"		665065.711	1071680.564
PC	360+19.43				662427.212	1065847.704	PT	438+67.50				664948.048	1072086.302
PI	362+53.56	R=835.000	Delta=31°19'36"		662507.763	1066067.543			TL=308.698		S 73°49'41" E		
PT	364+75.97				662462.272	1066297.213	PC	441+76.20				664862.069	1072382.785
		TL=888.375		S 78°47'47" E			PI	442+62.82	R=2000.000	Delta=4°57'36"		664837.943	1072465.977
PC	373+64.34				662289.664	1067168.658	PT	443+49.33				664806.715	1072546.772
PI	374+81.03	R=350.000	Delta=36°52'36"		662266.992	1067283.124			TL=467.240		S 68°52'05" E		
PT	375+89.61				662317.546	1067388.293	PC	448+16.57				664638.267	1072982.592
		TL=170.096		N 64°19'37" E			PI	451+85.94	R=635.000	Delta=60°22'19"		664505.103	1073327.123
PC	377+59.71				662391.237	1067541.598	PT	454+85.66				664738.755	1073613.201
PI	378+30.58	R=405.000	Delta=19°51'11"		662421.943	1067605.478			TL=248.303		N 50°45'36" E		
PT	379+00.04				662429.13	1067675.989	PC	457+33.96				664895.823	1073805.513
		TL=713.663		N 84°10'48" E			PI	458+36.33	R=835.000	Delta=13°58'45"		664960.58	1073884.8
							PRC	459+37.69				665004.266	1073977.383
							PI	460+88.10	R=4000.000	Delta=4°18'25"		665068.453	1074113.412
							PCC	462+38.37				665142.674	1074244.237
							PI	463+81.03	R=2000.000	Delta=8°09'36"		665213.069	1074368.318
							PT	465+23.21				665300.362	1074481.151
									TL=2.060		N 52°16'21" E		



The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System, South Zone (4002) (NAD83(2011)(Epoch: 2010.0000).  
The elevations shown on this sheet are based on NAVD88 (Geoid 12A);  
Average Combined SF = 0.999665216

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# HORIZONTAL ALIGNMENT DATA

## MAINLINE (Continued)

PC	465+25.27			665301.623	1074482.78	PC	530+43.74			670072.281	1076264.57
PI	465+98.13	R=900.000	Delta=9°15'27"	665346.21	1074540.412	PI	531+08.50	R=2000.000	Delta=3°42'33"	670103.284	1076321.426
PT	466+70.68			665380.945	1074604.465	PT	531+73.22			670130.543	1076380.169
		TL=555.450	N 61°31'47" E					TL=0.004	N 65°06'23" E		
PC	472+26.13			665645.729	1075092.743	PC	531+73.22			670130.545	1076380.173
PI	474+63.92	R=600.000	Delta=43°14'15"	665759.081	1075301.771	PI	532+37.48	R=350.000	Delta=20°48'26"	670157.594	1076438.462
PCC	476+78.92			665984.85	1075376.403	PT	533+00.33			670203.585	1076483.342
PI	478+47.14	R=650.000	Delta=29°01'15"	666144.576	1075429.203			TL=206.872	N 44°17'57" E		
PRC	480+08.15			666309.863	1075397.887	PC	535+07.20			670351.644	1076627.822
PI	481+87.71	R=450.000	Delta=43°30'28"	666486.291	1075364.459	PI	535+30.81	R=309.000	Delta=8°44'17"	670368.54	1076644.31
PRC	483+49.85			666637.264	1075461.677	PT	535+54.32			670382.735	1076663.173
PI	487+24.15	R=650.000	Delta=59°52'11"	666951.956	1075664.32			TL=114.021	N 53°02'14" E		
PT	490+29.05			667285.184	1075493.867	PC	536+68.35			670451.296	1076754.279
		TL=558.551	N 27°05'26" W			PI	537+50.16	R=635.000	Delta=14°40'59"	670500.49	1076819.65
PC	495+87.61			667782.456	1075239.504	PT	538+31.07			670564.647	1076870.417
PI	497+61.08	R=650.000	Delta=29°53'08"	667936.896	1075160.505			TL=78.007	N 38°21'15" E		
PT	499+26.65			668110.162	1075168.964	POE	539+09.08			670625.819	1076918.822
		TL=233.558	N 2°47'42" E								
PC	501+60.21			668343.442	1075180.353						
PI	502+72.11	R=300.000	Delta=40°54'38"	668455.207	1075185.81						
PT	503+74.41			668536.099	1075263.126						
		TL=117.632	N 43°42'20" E								
PC	504+92.05			668621.135	1075344.404						
PI	505+20.31	R=300.000	Delta=10°45'57"	668641.569	1075363.936						
PT	505+48.41			668657.996	1075386.941						
		TL=76.389	N 54°28'17" E								
PC	506+24.80			668702.387	1075449.109						
PI	507+26.76	R=264.000	Delta=42°14'00"	668761.635	1075532.085						
PT	508+19.40			668861.276	1075553.697						
		TL=310.363	N 12°14'17" E								
PC	511+29.77			669164.586	1075619.485						
PI	512+00.70	R=350.000	Delta=22°54'54"	669233.912	1075634.522						
PT	512+69.74			669303.621	1075621.38						
		TL=200.073	N 10°40'37" W								
PC	514+69.82			669500.231	1075584.312						
PI	515+82.70	R=835.000	Delta=15°23'53"	669611.16	1075563.398						
PT	516+94.22			669723.66	1075572.689						
		TL=440.076	N 4°43'16" E								
PC	521+34.30			670162.242	1075608.91						
PI	528+32.23	R=175.000	Delta=151°50'51"	670857.803	1075666.355						
PT	525+98.09			670217.427	1075943.886						
		TL=128.860	S 23°25'53" E								
PC	527+26.95			670099.193	1075995.127						
PI	528+80.19	R=140.000	Delta=95°10'17"	669958.587	1076056.064						
PT	529+59.50			670031.949	1076190.605						
		TL=84.246	N 61°23'50" E								



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Average Combined SF = 0.999665216



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TABLE OF SUPERELEVATION

TABLE OF SUPERELEVATION				
Curve	Station	to	Station	
	0+00			POB
	0+00	5+35.61		Normal Crown Section
	5+35.61	6+51.61		Superelevation Transition
1	6+51.61	10+35.89		650' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	10+35.89	11+51.89		Superelevation Transition
	11+51.89	28+35.68		Normal Crown Section
	28+35.68	29+51.68		Superelevation Transition
2	29+51.68	34+64.19		350' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	34+64.19	35+80.19		Superelevation Transition
	35+80.19	54+08.89		Normal Crown Section
	54+08.89	55+24.89		Superelevation Transition
3	55+24.89	57+69.31		550' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	57+69.31	58+85.31	LT	Superelevation Transition
	58+85.31	58+85.79	RT	Normal Crown Section
	58+85.79	60+01.79		Superelevation Transition
4	60+01.79	62+03.99		500' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	62+03.99	63+19.99		Superelevation Transition
	63+19.99	63+73.03		Normal Crown Section
	63+73.03	64+89.03		Superelevation Transition
5	64+89.03	67+93.19		500' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	67+93.19	69+09.19	RT	Superelevation Transition
	69+09.19	70+06.00	RT	Normal Crown Section
	70+06.00	71+22.00		Superelevation Transition
6	71+22.00	73+04.84		250' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	73+04.84	74+20.84	RT	Superelevation Transition
	74+20.84	76+53.29	LT	Normal Crown Section
	76+53.29	77+51.98		Superelevation Transition

7	77+51.98	80+06.58		1770' Radius Curve Right
				0.0481'/' Superelevation Rate
				Point of Rotation at Centerline
	80+06.58	81+05.27	LT	Superelevation Transition
	81+05.27	81+05.45		Normal Crown Section
	81+05.45	82+21.45		Superelevation Transition
8	82+21.45	86+55.24		550' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	86+55.24	87+71.24	LT	Superelevation Transition
	87+71.24	92+87.51	RT	Normal Crown Section
	92+87.51	94+03.51		Superelevation Transition
9	94+03.51	99+37.08		835' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	99+37.08	100+53.08	RT	Superelevation Transition
	100+53.08	104+09.17	LT	Normal Crown Section
	104+09.17	104+90.83		Superelevation Transition
10	104+90.83	107+59.56		3200' Radius Curve Right
				0.0363'/' Superelevation Rate
				Point of Rotation at Centerline
	107+59.56	108+41.22	LT	Superelevation Transition
	108+41.22	108+41.82	RT	Normal Crown Section
	108+41.82	109+57.46		Superelevation Transition
11	109+57.46	111+70.99		905' Radius Curve Left
				0.0597'/' Superelevation Rate
				Point of Rotation at Centerline
	111+70.99	112+86.63	RT	Superelevation Transition
	112+86.63	115+19.59	LT	Normal Crown Section
	115+19.59	116+35.59		Superelevation Transition
12	116+35.59	117+67.14		600' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	117+67.14	118+83.14	LT	Superelevation Transition
	118+83.14	118+83.97	RT	Normal Crown Section
	118+83.97	119+99.97		Superelevation Transition
13	119+99.97	123+61.09		700' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	123+61.09	124+77.09	RT	Superelevation Transition
	124+77.09	127+19.71	LT	Normal Crown Section
	127+19.71	127+70.58		Superelevation Transition

14	127+70.58	127+76.71		10,000' Radius Curve Right
				0.0151'/' Superelevation Rate
				Point of Rotation at Centerline
	127+76.71	128+27.58	LT	Superelevation Transition
	128+27.58	136+38.87	LT	Normal Crown Section
	136+38.87	136+89.74		Superelevation Transition
15	136+89.74	137+51.52		10,000' Radius Curve Right
				0.0151'/' Superelevation Rate
				Point of Rotation at Centerline
	137+51.52	138+02.39	LT	Superelevation Transition
	138+02.39	139+25.33	LT	Normal Crown Section
	139+25.33	139+93.35		Superelevation Transition
16	139+93.35	140+06.67		5000' Radius Curve Right
				0.0269'/' Superelevation Rate
				Point of Rotation at Centerline
	140+06.67	140+74.69		Superelevation Transition
	140+74.69	142+18.22		Normal Crown Section
	142+18.22	142+81.04		Superelevation Transition
17	142+81.04	145+28.61		6,000' Radius Curve Right
				0.0233'/' Superelevation Rate
				Point of Rotation at Centerline
	145+28.61	145+91.44	LT	Superelevation Transition
	145+91.44	150+45.31	RT	Normal Crown Section
	150+45.31	151+59.63		Superelevation Transition
18	151+59.63	153+91.51		1,000' Radius Curve Left
				0.0588'/' Superelevation Rate
				Point of Rotation at Centerline
	153+91.51	155+05.83		Superelevation Transition
	155+05.83	155+06.06		Normal Crown Section
	155+06.06	155+78.13		Superelevation Transition



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TABLE OF SUPERELEVATION (Continued)

19	155+78.13	155+78.13		1,500' Radius Curve Right 0.0516'/' Superelevation Rate Point of Rotation at Centerline
	155+78.13	156+50.19	LT	Superelevation Transition
	156+50.19	156+50.51	LT	Normal Crown Section
	156+50.51	157+44.17		Superelevation Transition
20	157+44.17	157+44.17		1,250' Radius Curve Right 0.0553'/' Superelevation Rate Point of Rotation at Centerline
	157+44.17	158+37.84	LT	Superelevation Transition
	158+37.84	158+37.86	LT	Normal Crown Section
	158+37.86	159+53.55		Superelevation Transition
21	159+53.55	160+84.70		900' Radius Curve Right 0.0598'/' Superelevation Rate Point of Rotation at Centerline
	160+84.70	162+00.38	LT	Superelevation Transition
	162+00.38	163+14.26	LT	Normal Crown Section
	163+14.26	163+82.28		Superelevation Transition
22	163+82.28	164+19.02		5,000' Radius Curve Right 0.0269'/' Superelevation Rate Point of Rotation at Centerline
	164+19.02	164+87.04	LT	Superelevation Transition
	164+87.04	166+74.97	RT	Normal Crown Section
	166+74.97	167+58.50		Superelevation Transition
23	167+58.50	170+29.89		3,000' Radius Curve Left 0.0376'/' Superelevation Rate Point of Rotation at Centerline
	170+29.89	171+13.42	RT	Superelevation Transition
	171+13.42	177+37.51	RT	Normal Crown Section
	177+37.51	178+21.04		Superelevation Transition
24	178+21.04	181+22.66		3000' Radius Curve Left 0.0376'/' Superelevation Rate Point of Rotation at Centerline
	181+22.66	182+06.19	RT	Superelevation Transition
	182+06.19	182+21.43	RT	Normal Crown Section
	182+21.43	182+96.25		Superelevation Transition
25	182+96.25	183+63.69		4000' Radius Curve Left 0.0316'/' Superelevation Rate Point of Rotation at Centerline
	183+63.69	184+38.51	RT	Superelevation Transition
	184+38.51	192+93.51	LT	Normal Crown Section
	192+93.51	193+34.04		Superelevation Transition
26	193+34.04	193+88.83		20000' Radius Curve Right 0.0790'/' Superelevation Rate Point of Rotation at Centerline
	193+88.83	194+29.36	LT	Superelevation Transition
	194+29.36	202+03.96	LT	Normal Crown Section
	202+03.96	202+71.98		Superelevation Transition
27	202+71.98	203+87.16		5,000' Radius Curve Right 0.0269'/' Superelevation Rate Point of Rotation at Centerline
	203+87.16	204+55.18	LT	Superelevation Transition
	204+55.18	205+56.40	RT	Normal Crown Section
	205+56.40	206+70.72		Superelevation Transition
28	206+70.72	210+98.52		1000' Radius Curve Left 0.0588'/' Superelevation Rate Point of Rotation at Centerline
	210+98.52	212+12.84	RT	Superelevation Transition
	212+12.84	217+29.00	RT	Normal Crown Section
	217+29.00	218+36.94		Superelevation Transition
29	218+37.00	218+37.00		1000' Radius Curve Left 0.0588'/' Superelevation Rate Point of Rotation at Centerline
	218+37.00	219+44.88	RT	Superelevation Transition
	219+44.88	227+13.42	LT	Normal Crown Section
	227+13.42	228+29.42		Superelevation Transition
30	228+29.42	231+93.32		300' Radius Curve Right 0.0600'/' Superelevation Rate Point of Rotation at Centerline
	231+93.32	233+09.32	LT	Superelevation Transition
	233+09.32	233+67.36	RT	Normal Crown Section
	233+67.36	234+83.36		Superelevation Transition
31	234+83.36	236+01.76		835' Radius Curve Left 0.0600'/' Superelevation Rate Point of Rotation at Centerline
	236+01.76	237+17.76	RT	Superelevation Transition
	237+17.76	238+06.93	RT	Normal Crown Section
	238+06.93	239+22.93		Superelevation Transition
32	239+22.93	242+42.40		835' Radius Curve Left 0.0600'/' Superelevation Rate Point of Rotation at Centerline
	242+42.40	243+58.40	RT	Superelevation Transition
	243+58.40	243+59.34	LT	Normal Crown Section
	243+59.34	244+75.34		Superelevation Transition
33	244+75.34	246+25.45		186' Radius Curve Right 0.0600'/' Superelevation Rate Point of Rotation at Centerline
	246+25.45	247+41.45	LT	Superelevation Transition
	247+41.45	247+42.01	LT	Normal Crown Section
	247+42.01	248+56.27		Superelevation Transition
34	248+56.27	249+82.95		1,004' Radius Curve Right 0.0588'/' Superelevation Rate Point of Rotation at Centerline
	249+82.95	250+97.21	LT	Superelevation Transition
	250+97.21	250+98.02	LT	Normal Crown Section
	250+98.02	252+05.89		Superelevation Transition
35	252+05.89	252+85.35		1,309' Radius Curve Right 0.0544'/' Superelevation Rate Point of Rotation at Centerline
	252+85.35	253+93.22	LT	Superelevation Transition
	253+93.22	254+26.24	RT	Normal Crown Section
	254+26.24	255+29.98		Superelevation Transition
36	255+29.98	257+88.16		1,504' Radius Curve Left 0.0515'/' Superelevation Rate Point of Rotation at Centerline
	257+88.16	258+91.89	RT	Superelevation Transition
	258+91.89	258+91.93	RT	Normal Crown Section
	258+91.93	260+07.93		Superelevation Transition
37	260+07.93	264+66.17		569' Radius Curve Left 0.0600'/' Superelevation Rate Point of Rotation at Centerline
	264+66.17	265+82.17	RT	Superelevation Transition
	265+82.17	269+44.51	LT	Normal Crown Section
	269+44.51	270+60.51		Superelevation Transition





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# TABLE OF SUPERELEVATION (Continued)

38	270+60.51	274+71.03		480' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	274+71.03	275+87.03	LT	Superelevation Transition
	275+87.03	278+51.32	LT	Normal Crown Section
	278+51.32	279+46.27		Superelevation Transition
39	279+46.27	280+17.83		2000' Radius Curve Right
				0.0455'/' Superelevation Rate
				Point of Rotation at Centerline
	280+17.83	281+12.77	LT	Superelevation Transition
	281+12.77	281+68.63	RT	Normal Crown Section
	281+68.63	282+83.16		Superelevation Transition
40	282+83.16	284+92.59		800' Radius Curve Left
				0.0590'/' Superelevation Rate
				Point of Rotation at Centerline
	Equation 284+96.04 Back = 284+74.			
PCC	284+92.59			
41	284+92.59	288+86.13		692' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	288+86.13	288+64.92		Superelevation Transition
	288+64.92	288+65.15		Normal Crown Section
	288+65.15	289+04.94		Superelevation Transition
42	289+04.94	300+15.59		725' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	300+15.59	301+31.59	RT	Superelevation Transition
	301+31.59	303+31.86	LT	Normal Crown Section
	303+31.86	304+47+86		Superelevation Transition
43	304+47+86	309+34.94		350' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	309+34.94	310+50.94	LT	Superelevation Transition
	310+50.94	311+29.47	RT	Normal Crown Section
	311+29.47	312+45.47		Superelevation Transition
44	312+45.47	315+44.89		835' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	315+44.89	316+60.89	RT	Superelevation Transition
	316+60.89	320+02.27	LT	Normal Crown Section
	320+02.27	321+18.27		Superelevation Transition
45	321+18.27	321+98.38		835' Radius Curve Right

				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	321+98.38	323+14.38	LT	Superelevation Transition
	323+14.38	323+83.55	RT	Normal Crown Section
	323+83.55	324+99.55		Superelevation Transition
46	324+99.55	329+20.29		650' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	329+20.29	330+36.29	RT	Superelevation Transition
	330+36.29	330+36.29	RT	Normal Crown Section
	330+36.29	331+52.52		Superelevation Transition
47	331+52.52	334+13.35		350' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	334+13.35	335+29.35	LT	Superelevation Transition
	335+29.35	338+27.26	LT	Normal Crown Section
	338+27.26	339+22.20		Superelevation Transition
48	339+22.20	339+75.66		2,000' Radius Curve Right
				0.0455'/' Superelevation Rate
				Point of Rotation at Centerline
	339+75.66	340+70.60	LT	Superelevation Transition
	340+70.60	343+80.26	LT	Normal Crown Section
	343+80.26	344+96.26		Superelevation Transition
49	344+96.26	348+08.04		835' Radius Curve Right
				0.0600'/' Superelevation Rate
PCC	348+08.04			
50	348+08.04	352+35.70		2000' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	352+35.70	352+95.66		Superelevation Transition
	352+95.66	353+03.33		Normal Crown Section
	353+03.33	354+41.12		Superelevation Transition
51	354+41.12	357+25.15		835' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	357+25.15	358+19.36		Superelevation Transition
	358+19.36	359+20.83		Normal Crown Section
	359+20.83	360+58.62		Superelevation Transition
52	360+58.62	364+80.36		835' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	364+80.36	365+38.36	RT	Superelevation Transition

	365+38.36	372+87.53	RT	Normal Crown Section
	372+87.53	374+03.53		Superelevation Transition
53	374+03.53	375+80.00		350' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	375+80.00	376+96.00	RT	Superelevation Transition
	376+96.00	376+96.90	LT	Normal Crown Section
	376+96.90	378+12.90		Superelevation Transition
54	378+12.90	379+04.43		405' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	379+04.43	380+20.43	LT	Superelevation Transition
	380+20.43	385+36.89	LT	Normal Crown Section
	385+36.89	386+52.89		Superelevation Transition
55	386+52.89	389+44.36		800' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	389+44.36	390+60.36	LT	Superelevation Transition
	390+60.36	391+74.84	RT	Normal Crown Section
	391+74.84	392+90.84		Superelevation Transition
56	392+90.84	397+26.77		800' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	397+26.77	398+42.77	RT	Superelevation Transition



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023

# TABLE OF SUPERELEVATION (Continued)

	398+42.77	398+43.65	RT	Normal Crown Section
	398+43.65	399+59.60		Superelevation Transition
57	399+59.60	401+07.18		550' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
PCC	401+07.18			
58	401+07.18	406+23.63		593' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	406+23.63	407+17.62	RT	Superelevation Transition
PRC	407+17.62			
	407+17.62	408+53.81		Superelevation Transition
59	408+53.81	413+09.67		653' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	413+09.67	414+25.67	LT	Superelevation Transition
	414+25.67	415+13.01	LT	Normal Crown Section
	415+13.01	416+29.01		Superelevation Transition
60	416+29.01	419+94.87		650' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	419+94.87	421+10.87	LT	Superelevation Transition
	421+10.87	421+10.97	RT	Normal Crown Section
	421+10.97	422+26.97		Superelevation Transition
61	422+26.97	422+89.36		835' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	422+89.36	424+05.36	RT	Superelevation Transition
	424+05.36	425+63.45	RT	Normal Crown Section
	425+63.45	426+76.96		Superelevation Transition
62	426+76.96	429+57.98		835' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	429+57.98	430+71.49	RT	Superelevation Transition
	430+71.49	430+72.46	LT	Normal Crown Section
	430+72.46	431+88.46		Superelevation Transition
63	431+88.46	438+71.89		650' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	438+71.89	439+87.89	LT	Superelevation Transition
	439+87.89	441+16.23	LT	Normal Crown Section

	441+16.23	442+11.17		Superelevation Transition
64	442+11.17	443+57.93		2,000' Radius Curve Right
				0.0455'/' Superelevation Rate
				Point of Rotation at Centerline
	443+57.93	444+52.87	LT	Superelevation Transition
	444+52.87	447+39.79	RT	Normal Crown Section
	447+39.79	448+55.75		Superelevation Transition
65	448+55.75	454+90.06		635' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	454+90.06	456+06.02	RT	Superelevation Transition
	456+06.02	456+57.15	LT	Normal Crown Section
	456+57.15	457+73.15		Superelevation Transition
66	457+73.15	458+59.58		835' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	458+59.58	459+75.58	LT	Superelevation Transition
	459+75.58	459+76.32	RT	Normal Crown Section
	459+76.32	459+37.69		Superelevation Transition
PRC	459+37.69			
	459+37.69	460+51.14		Superelevation Transition
67	460+51.14	462+38.37		4,000' Radius Curve Left
				0.0316'/' Superelevation Rate
				Point of Rotation at Centerline
PCC	462+38.37			
	462+38.37	462+70.22		Superelevation Transition
68	462+70.22	464+42.31		2,000' Radius Curve Left
				0.0455'/' Superelevation Rate
				Point of Rotation at Centerline
	464+42.31	465+37.25	RT	Superelevation Transition
	465+37.25	465+38.21	LT	Normal Crown Section
	465+38.21	466+53.89		Superelevation Transition
69	466+53.89	466+75.14		900' Radius Curve Right
				0.0598'/' Superelevation Rate
				Point of Rotation at Centerline
	466+75.14	467+90.82	LT	Superelevation Transition
	467+90.82	471+49.32	RT	Normal Crown Section
	471+49.32	472+65.32		Superelevation Transition
70	472+65.32	476+78.92		600' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
PCC	476+78.92			

71	476+78.92	479+13.54		650' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	479+13.54	480+08.15	RT	Superelevation Transition
PRC	480+08.15			
	480+08.15	480+30.34	LT	Normal Crown Section
	480+30.34	481+46.34		Superelevation Transition
72	481+46.34	482+55.24		450' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	482+55.24	483+49.85		Superelevation Transition
PRC	483+49.85			
	483+49.85	483+71.24	LT	Superelevation Transition
	483+71.24	483+72.04	RT	Normal Crown Section
	483+72.04	484+88.04		Superelevation Transition
73	484+88.04	490+33.44		650' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	490+33.44	491+49.44	RT	Superelevation Transition
	491+49.44	495+10.80	LT	Normal Crown Section
	495+10.80	496+26.80		Superelevation Transition
74	496+26.80	499+31.04		650' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	499+31.04	500+47.04	LT	Superelevation Transition
	500+47.04	500+83.40	LT	Normal Crown Section





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023

TABLE OF SUPERELEVATION (Continued)












































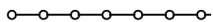












































































































































	500+83.40	501+99.40		Superelevation Transition
75	501+99.40	503+38.80		300' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	503+38.80	504+54.80	LT	Superelevation Transition
	504+54.80	504+55.24	LT	Normal Crown Section
	504+55.24	505+31.77		Superelevation Transition
76	505+31.77	505+31.77		300' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	505+31.77	506+08.30	LT	Superelevation Transition
	506+08.30	506+08.49	RT	Normal Crown Section
	506+08.49	507+24.49		Superelevation Transition
77	507+24.49	508+23.79		264' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	508+23.79	509+39.79	RT	Superelevation Transition
	509+39.79	510+52.98	RT	Normal Crown Section
	510+52.98	511+68.95		Superelevation Transition
78	511+68.95	512+74.14		350' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	512+74.14	513+90.11	RT	Superelevation Transition
	513+90.11	513+93.01	LT	Normal Crown Section
	513+93.01	515+09.01		Superelevation Transition
79	515+09.01	516+98.61		835' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	516+98.61	518+14.61	LT	Superelevation Transition
	518+14.61	520+57.49	LT	Normal Crown Section
	520+57.49	521+73.49		Superelevation Transition
80	521+73.49	525+67.98		175' Radius Curve Right
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	525+67.98	526+83.98	LT	Superelevation Transition
	526+83.98	526+84.64	RT	Normal Crown Section
	526+84.64	528+00.64		Superelevation Transition
81	528+00.64	529+15.39		140' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	529+15.39	530+31.39	RT	Superelevation Transition
	530+31.39	530+32.28	LT	Normal Crown Section

	530+32.28	531+09.27		Superelevation Transition
82	531+09.27	531+09.27		2,000' Radius Curve Right
				0.0455'/' Superelevation Rate
				Point of Rotation at Centerline
	531+09.27	531+86.26	LT	Superelevation Transition
	531+86.26	531+86.91	RT	Normal Crown Section
	531+86.91	533+02.91		Superelevation Transition
83	533+02.91	533+04.72		350' Radius Curve Left
				0.0600'/' Superelevation Rate
				Point of Rotation at Centerline
	533+04.72	543+20.72	RT	Superelevation Transition
	543+20.72	534+30.81		Normal Crown Section
		534+30.81		POE





LEGEND

Anchor		Hedge		Septic Tank		State and National Line	
Antenna		Highway ROW Marker		Shrub Tree		County Line	
Approach		Interstate Close Gate		Sidewalk		Section Line	
Assumed Corner		Iron Pin		Sign Face		Quarter Line	
Azimuth Marker		Irrigation Ditch		Sign Post		Sixteenth Line	
BBQ Grill/ Fireplace		Lake Edge		Slough Or Marsh		Property Line	
Bearing Tree		Lawn Sprinkler		Spring		Construction Line	
Bench Mark		Mailbox		Stream Gauge		ROW Line	
Box Culvert		Manhole Electric		Street Marker		New ROW Line	
Bridge		Manhole Gas		Subsurface Utility Exploration Test Hole		Cut and Fill Limits	
Brush		Manhole Miscellaneous		Telephone Fiber Optics		Control of Access	
Buildings		Manhole Sanitary Sewer		Telephone Junction Box		New Control of Access	
Bulk Tank		Manhole Storm Sewer		Telephone Pole		Proposed ROW (After Property Disposal)	
Cattle Guard		Manhole Telephone		Television Cable Jct Box			
Cemetery		Manhole Water		Television Tower			
Centerline		Merry-Go-Round		Test Wells/Bore Holes			
Cistern		Microwave Radio Tower		Traffic Signal		Drainage Arrow	
Clothes Line		Miscellaneous Line		Trash Barrel			
Commercial Sign Double Face		Miscellaneous Property Corner		Tree Belt		Remove Concrete Pavement	
Commercial Sign One Post		Miscellaneous Post		Tree Coniferous		Remove Concrete Driveway Pavement	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Deciduous		Remove Asphalt Concrete Pavement	
Commercial Sign Two Post		Overhead Utility Line		Tree Stumps		Remove Concrete Sidewalk	
Concrete Symbol		Parking Meter		Triangulation Station		Remove Concrete Median Pavement	
Control Point		Pedestrian Push Button Pole		Underground Electric Line		Remove Concrete Curb and/or Gutter	
Creek Edge		Pipe With End Section		Underground Gas Line			
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line		Detectable Warning	
Curb		Pipe Without End Section		Underground Sanitary Sewer		Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope	
Dam Grade/Dike/Levee		Playground Slide		Underground Storm Sewer			
Deck Edge		Playground Swing		Underground Tank			
Ditch Block		Power And Light Pole		Underground Telephone Line			
Doorway Threshold		Power And Telephone Pole		Underground Television Cable			
Drainage Profile		Power Meter		Underground Water Line			
Drop Inlet		Power Pole		Warning Sign One Post			
Edge Of Asphalt		Power Pole And Transformer		Warning Sign Two Post			
Edge Of Concrete		Power Tower Structure		Water Fountain			
Edge Of Gravel		Propane Tank		Water Hydrant			
Edge Of Other		Property Pipe		Water Meter			
Edge Of Shoulder		Property Pipe With Cap		Water Tower			
Electric Transformer/Power Junction Box		Property Stone		Water Valve			
Fence Barbwire		Public Telephone		Water Well			
Fence Chainlink		Railroad Crossing Signal		Weir Rock			
Fence Electric		Railroad Milepost Marker		Windmill			
Fence Miscellaneous		Railroad Profile		Wingwall			
Fence Rock		Railroad ROW Marker		Witness Corner			
Fence Snow		Railroad Signs					
Fence Wood		Railroad Switch					
Fence Woven		Railroad Track					
Fire Hydrant		Railroad Trestle					
Flag Pole		Rebar					
Flower Bed		Rebar With Cap					
Gas Valve Or Meter		Reference Mark					
Gas Pump Island		Regulatory Sign One Post					
Grain Bin		Regulatory Sign Two Post					
Guardrail		Retaining Wall					
Guide Sign One Post		Riprap					
Guide Sign Two Post		River Edge					
Gutter		Rock And Wire Baskets					
Guy Pole		Rockpiles					
Haystack		Satellite Dish					



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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27+68  
Take Out 21"-32' CMP  
(Incidental Work, Grading)

23+06  
Take Out 21"-36' CMP  
(Incidental Work, Grading)

29+23-L  
Take Out 21"-56' CMP  
(Incidental Work, Grading)

22+94  
Install 18" - 62 ft CMP  
Skewed 26° LHF  
& 2 Flared Ends  
& Ditch Block Left

USA Public Domain  
(Unpatented)  
Parcel 5 & 6

16+73  
Take Out 18"-36' CMP  
(Incidental Work, Grading)

16+73  
Install 18" - 50 ft CMP  
Skewed 5° LHF  
& 2 Flared Ends  
& Ditch Block Left

USA Public Domain  
(Unpatented)  
Parcel 1 & 2

8+51  
Take Out 18"-38' CMP  
(Incidental Work, Grading)

9+48  
Install 18" - 50 ft CMP  
Skewed 0°  
& 2 Flared Ends

4+76  
Install 18" - 62 ft CMP  
Skewed 12° RHF  
& 2 Flared Ends

0+03  
Take Out 21"-40' CMP  
(Incidental Work, Grading)

**BEGIN P 6403(10) - GRADING**  
Station 0+00

**Sec. 24 - T1N - R2E**

**Sec. 13 - T1N - R2E**



CURVE #1  
P.I. 8+51.32  
N 639839.7966  
E 1050878.6983  
Δ 36°56'28" L  
Dc 08°48'53"  
R 650.00'  
T 217.12'  
L 419.08'  
Super 6.00%  
MPH 44

CURVE #2  
P.I. 32+81.82  
N 642282.8216  
E 1050991.8911  
Δ 89°35'43" R  
Dc 16°22'13"  
R 350.00'  
T 347.54'  
L 547.31'  
Super 6.00%  
MPH 32

ESS-1  
Install Orange Safety Fence  
per Tribal Monitor

ESS-2  
Install Orange Safety Fence  
per Tribal Monitor

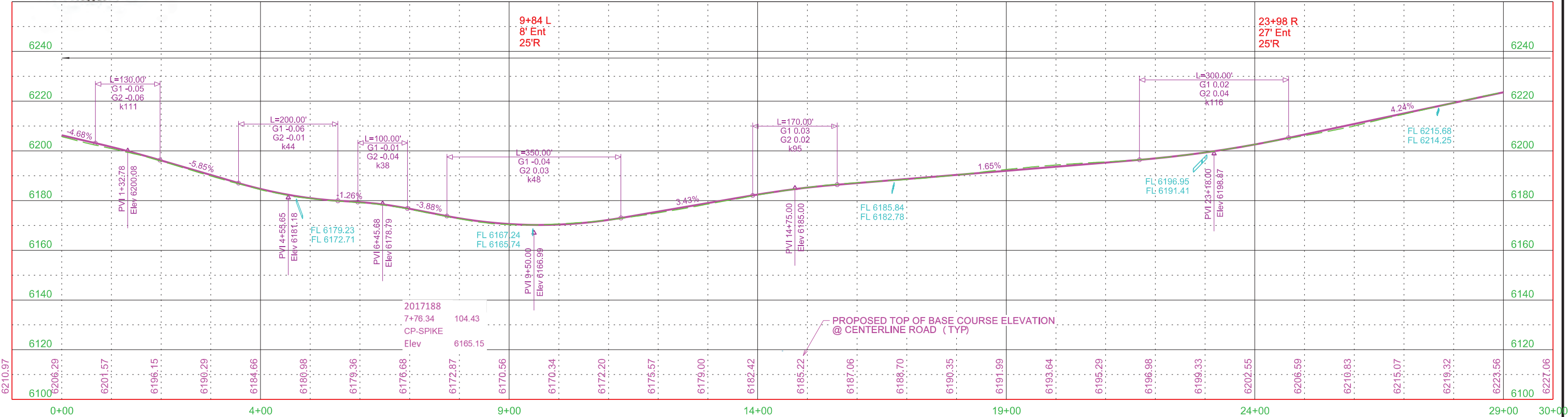
South Rochford Rd

Mary Alexander  
Parcel 4

Mary Alexander  
Parcel 3

Post Panels shown in approximate  
locations final placement by  
field determination

USA Public Domain  
(Unpatented)  
Parcel 1 & 2



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	66	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

CURVE #2  
P.I. 32+81.82  
N 642282.8216  
E 1050991.8911  
 $\Delta$  89°35'43" R  
Dc 16°22'13"  
R 350.00'  
T 347.54'  
L 547.31'  
Super 6.00%  
MPH 32

CURVE #3  
P.I. 56+84.07  
N 642182.7892  
E 1053539.9418  
 $\Delta$  35°35'54" R  
Dc 10°25'03"  
R 550.00'  
T 176.58'  
L 341.72'  
Super 6.00%  
MPH 41

CURVE #4  
P.I. 60+76.28  
N 641935.1290  
E 1053858.6874  
 $\Delta$  34°19'10" L  
Dc 11°27'33"  
R 500.00'  
T 154.39'  
L 299.49'  
Super 6.00%  
MPH 39

57+12  
Install 18" - 72 ft CMP  
Skewed 43° RHF  
& 2 Flared Ends

Sec. 18 - T1N - R3E

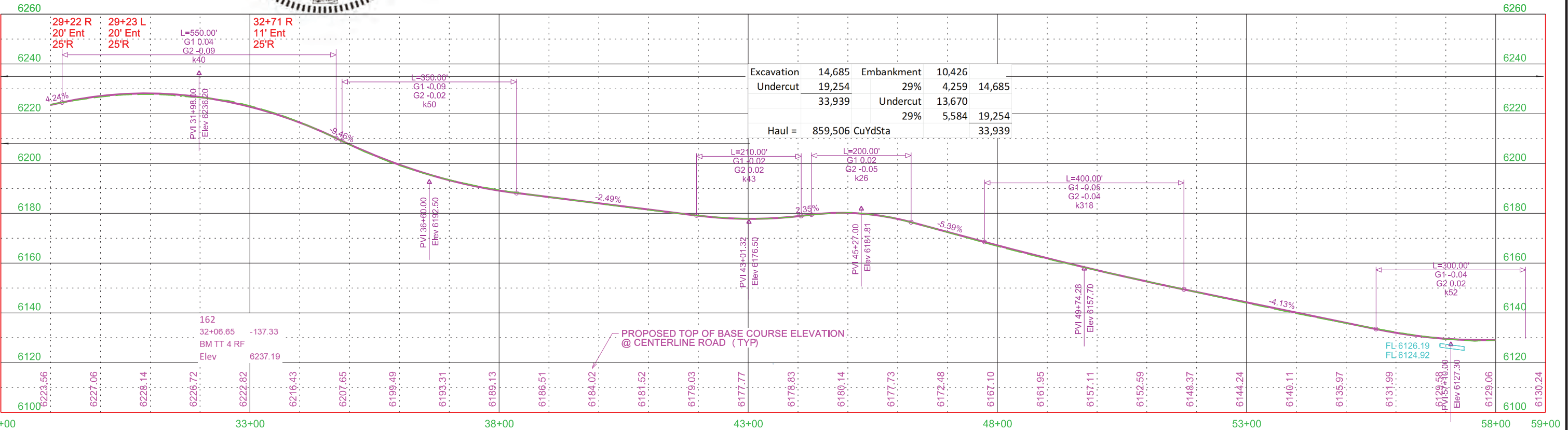


Mary Alexander  
Parcel 7, 7a & 8

HES #222

Sec. 13 - T1N - R2E

Post Panels shown in approximate  
locations final placement by  
field determination

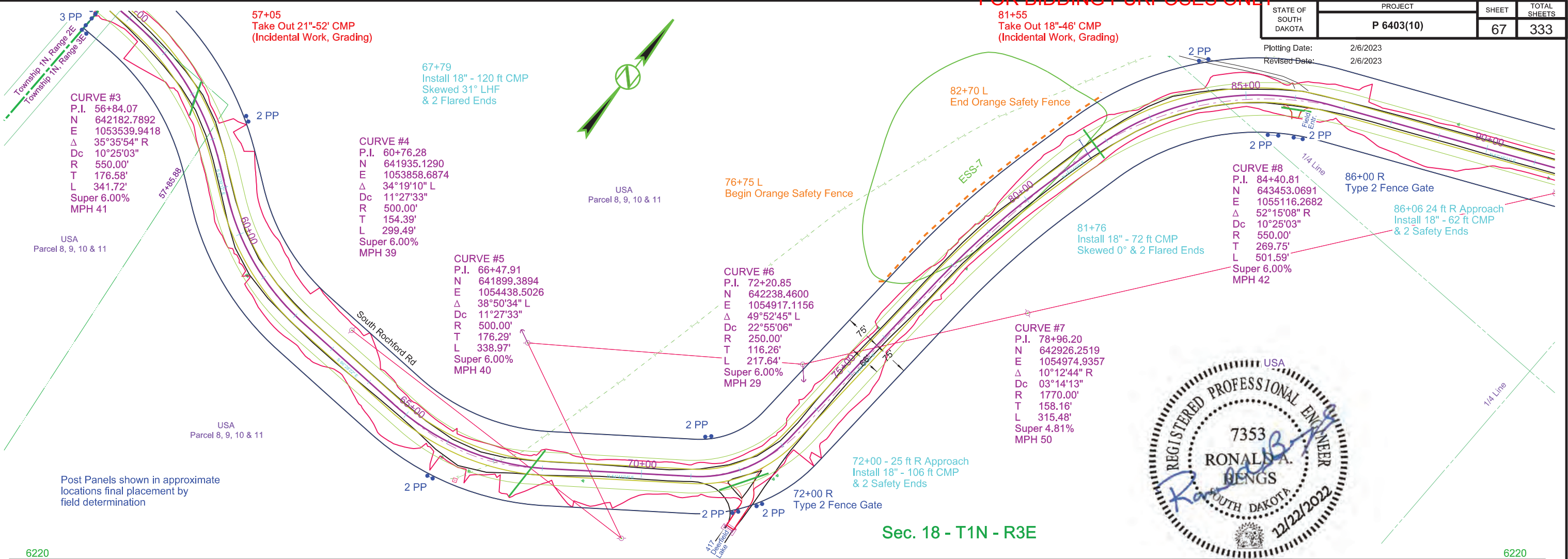




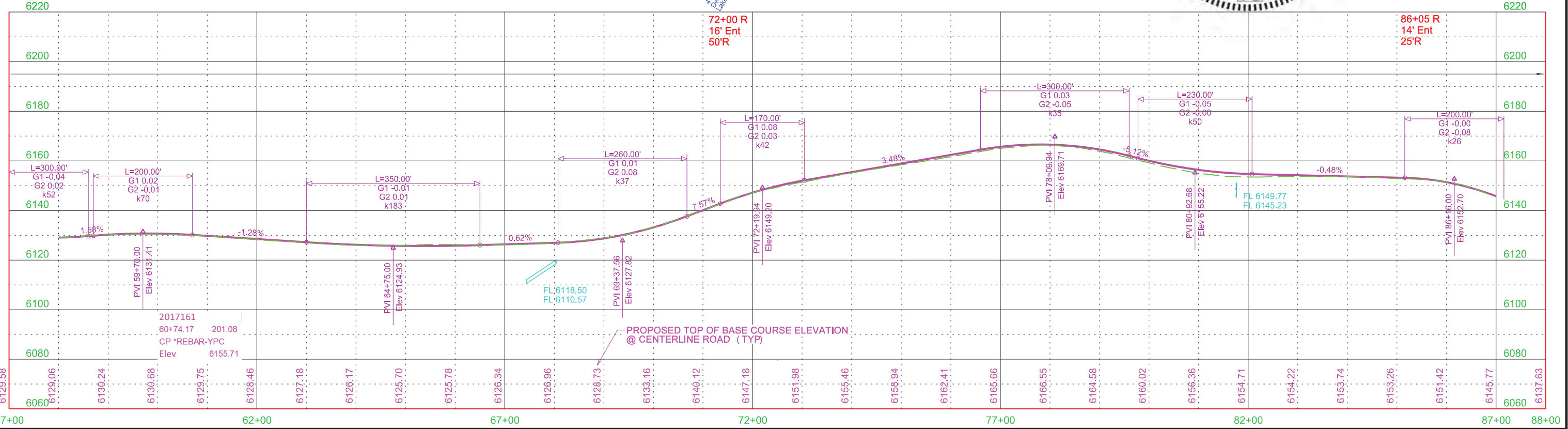
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	67	333

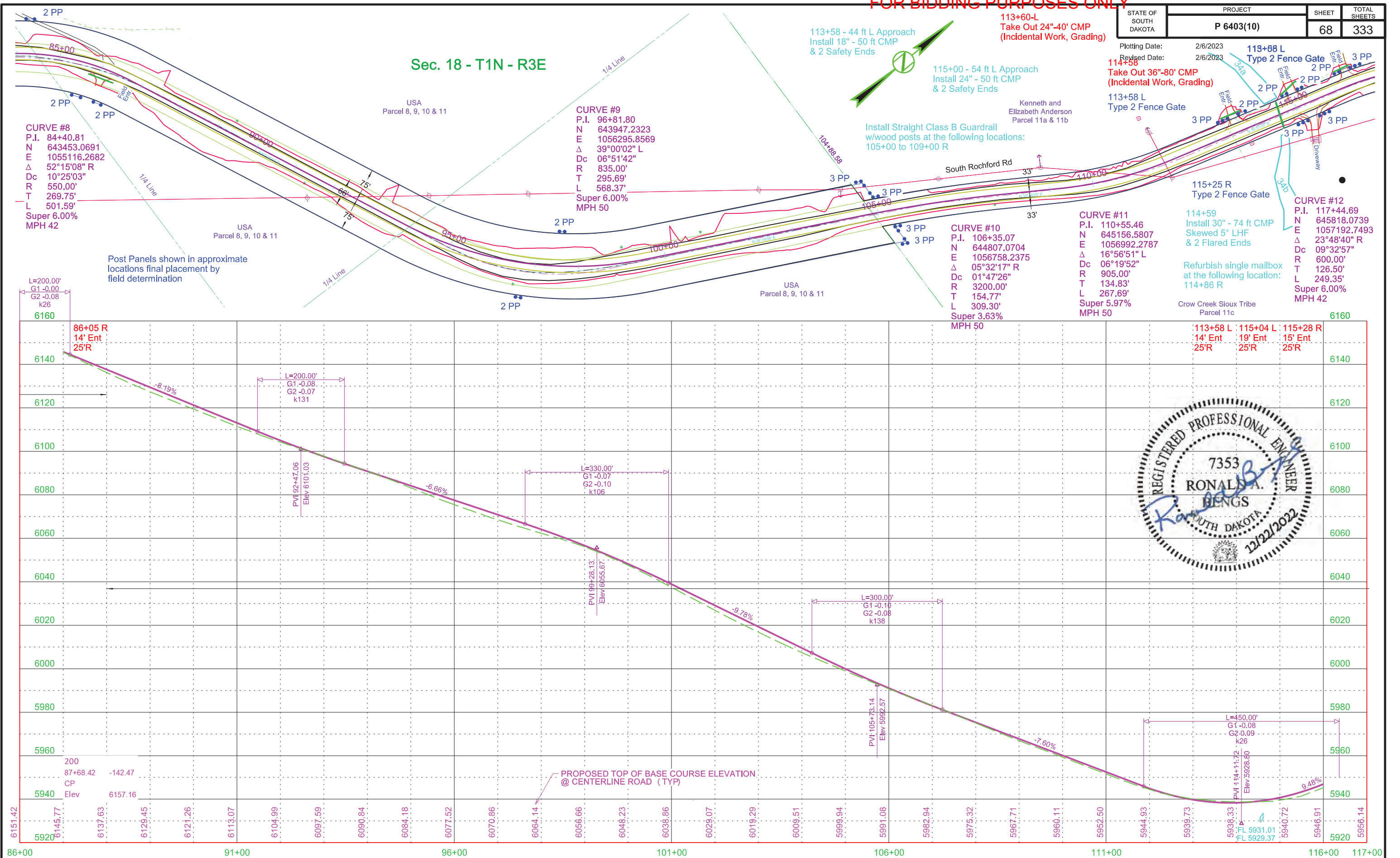
Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Sec. 18 - T1N - R3E



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	68	333

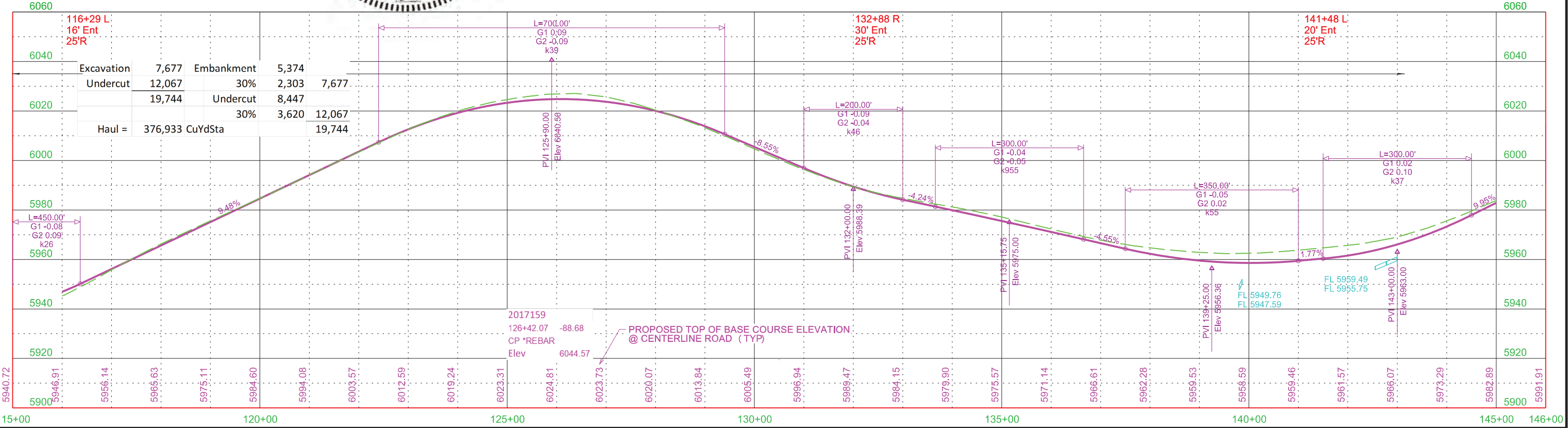
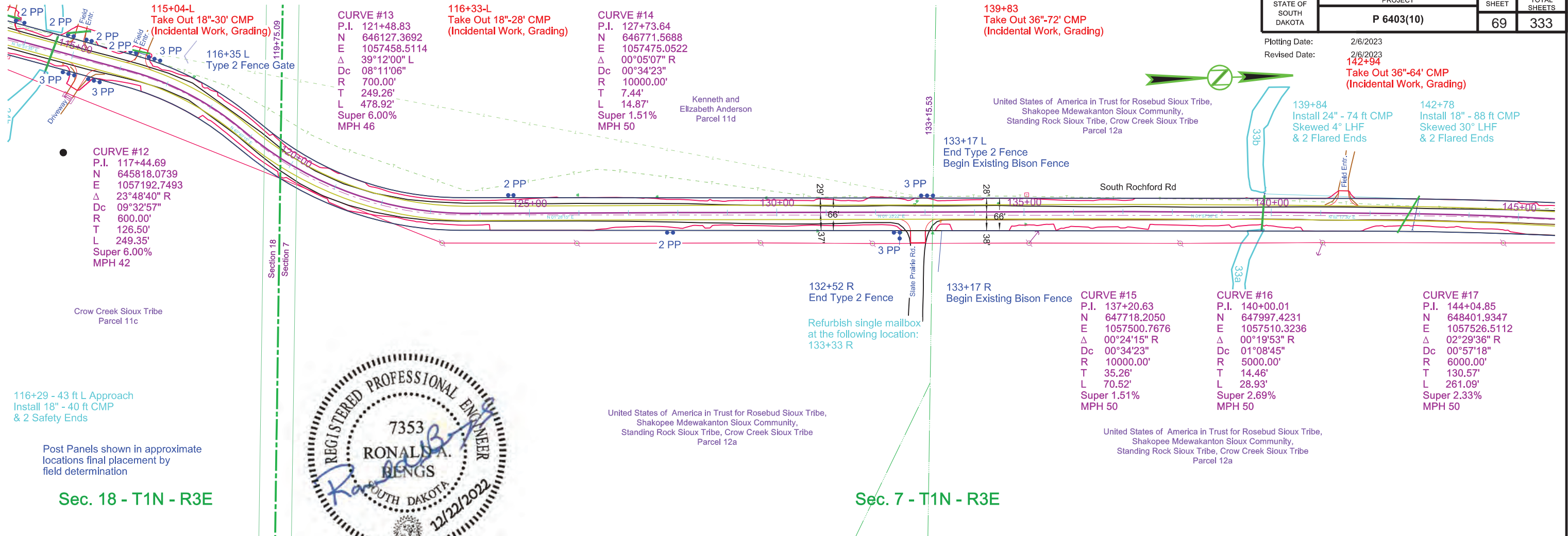




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	69	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023  
142+94  
Take Out 36"-64' CMP  
(Incidental Work, Grading)



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	70	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



142+78  
Install 18" - 88 ft CMP  
Skewed 30° LHF  
& 2 Flared Ends

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe  
Parcel 12a

CURVE #18  
P.I. 152+83.75  
N 649277.8145  
E 1057599.8281  
Δ 16°04'19" L  
Dc 05°43'46"  
R 1000.00'  
T 141.18'  
L 280.51'  
Super 5.88%  
MPH 50

165+00  
Install 18" - 68 ft CMP  
Skewed 3° LHF  
& 2 Flared Ends

ESS-9  
Install Orange Safety Fence  
per Tribal Monitor

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe  
Parcel 12a

ESS-8  
Install Orange Safety Fence  
per Tribal Monitor

Install Straight Class B Guardrail  
w/wood posts at the following locations:  
146+00 to 148+00 R

CURVE #17  
P.I. 144+04.85  
N 648401.9347  
E 1057526.5112  
Δ 02°29'36" R  
Dc 00°57'18"  
R 6000.00'  
T 130.57'  
L 261.09'  
Super 2.33%  
MPH 50

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe  
Parcel 12a

CURVE #19  
P.I. 156+00.13  
N 649589.8917  
E 1057537.5420  
Δ 01°30'23" R  
Dc 03°49'11"  
R 1500.00'  
T 19.72'  
L 39.44'  
Super 5.16%  
MPH 50

CURVE #20  
P.I. 157+57.00  
N 649744.4873  
E 1057510.8923  
Δ 06°34'48" R  
Dc 04°35'01"  
R 1250.00'  
T 71.85'  
L 143.55'  
Super 5.53%  
MPH 50

CURVE #21  
P.I. 159+77.93  
N 649965.2309  
E 1057498.5477  
Δ 15°54'15" R  
Dc 06°21'58"  
R 900.00'  
T 125.72'  
L 249.82'  
Super 5.98%  
MPH 50

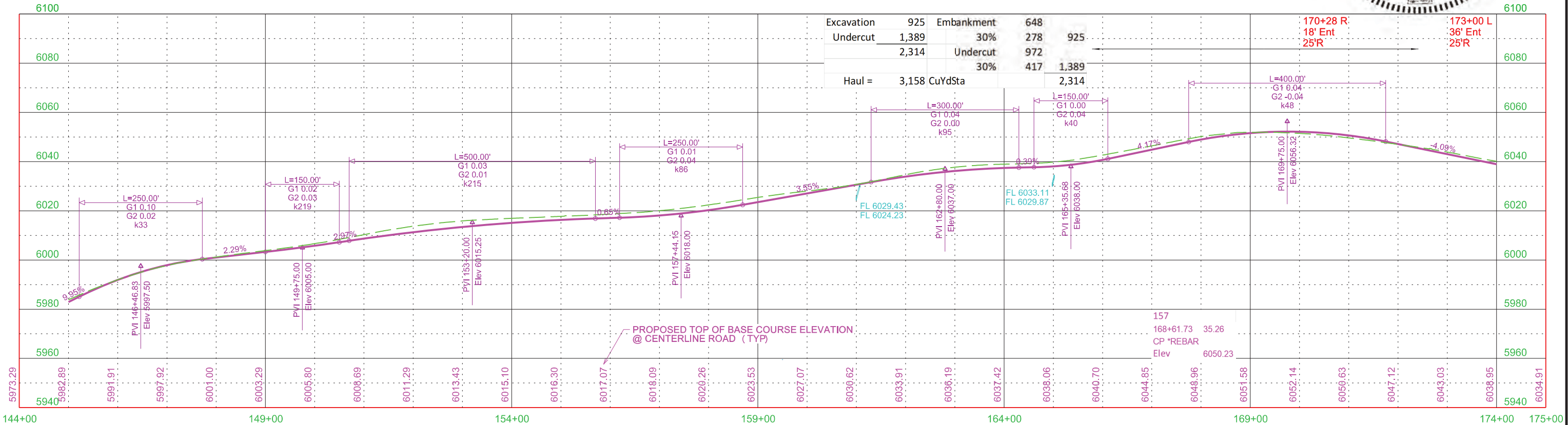
CURVE #22  
P.I. 164+00.65  
N 650379.1819  
E 1057591.8607  
Δ 00°36'00" R  
Dc 01°08'45"  
R 5000.00'  
T 26.17'  
L 52.35'  
Super 2.69%  
MPH 50

CURVE #23  
P.I. 168+94.31  
N 650859.5947  
E 1057705.4536  
Δ 05°35'59" L  
Dc 01°54'35"  
R 3000.00'  
T 146.72'  
L 293.21'  
Super 3.76%  
MPH 50

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe  
Parcel 12a



Sec. 7 - T1N - R3E





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	71	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

175+29  
Take Out 21"-48' CMP  
(Incidental Work, Grading)

177+28  
Install 18" - 46 ft CMP  
Skewed 2°  
& 2 Flared Ends

185+74  
Take Out 24"-50' CMP  
(Incidental Work, Grading)

186+18  
Install 18" - 60 ft CMP  
Skewed 4° LHF  
& 2 Flared Ends

197+28-R  
Take Out 21"-36' CMP  
(Incidental Work, Grading)

197+38-L  
Take Out 21"-36' CMP  
(Incidental Work, Grading)

200+44  
Take Out 24"-48' CMP  
(Incidental Work, Grading)

197+37- 33 ft L Approach  
Install 18" - 40 ft CMP  
& 2 Safety Ends

200+44  
Install 18" - 54 ft CMP  
Skewed 0°  
& 2 Flared Ends

197+27 - 23ft R Approach  
Install 18" - 70 ft CMP  
& 2 Safety Ends

CURVE #24  
P.I. 179+72.01  
N 651927.7948  
E 1057849.9439  
Δ 06°10'37" L  
Dc 01°54'35"  
R 3000.00'  
T 161.87'  
L 323.43'  
Super 3.76%  
MPH 50

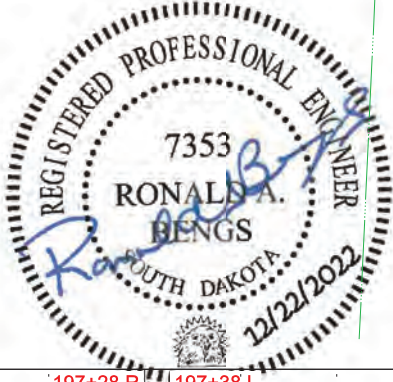
CURVE #25  
P.I. 183+29.97  
N 652285.9487  
E 1057859.4870  
Δ 01°13'43" L  
Dc 01°25'57"  
R 4000.00'  
T 42.89'  
L 85.77'  
Super 3.16%  
MPH 50

CURVE #26  
P.I. 193+61.43  
N 653317.3974  
E 1057864.8464  
Δ 00°10'13" R  
Dc 00°17'11"  
R 20000.00'  
T 29.70'  
L 59.40'  
Super 0.79%  
MPH 50

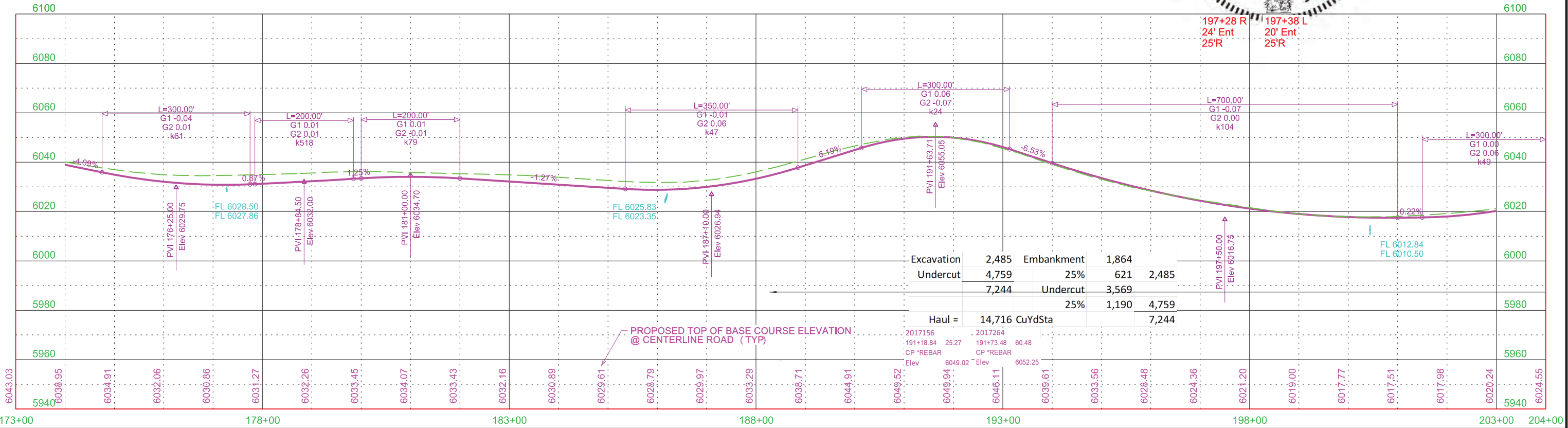
CURVE #27  
P.I. 203+29.57  
N 654285.5082  
E 1057872.7523  
Δ 01°29'56" R  
Dc 01°08'45"  
R 5000.00'  
T 65.40'  
L 130.79'  
Super 2.69%  
MPH 50

Shakopee Mdewakanton Sioux Community  
Parcel 12b, 12c & 12d

Sec. 6 - T1N - R3E



Post Panels shown in approximate  
locations final placement by  
field determination



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	72	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Shakopee Mdewakanton Sioux Community  
Parcel 12e & 12f

USA Public Domain  
( Unpatented)  
Parcel 18

Install Straight Class B Guardrail  
w/wood posts at the following locations:  
228+00 to 230+50 L  
231+10 to 232+50 L

Install Straight Class B Guardrail  
w/wood posts at the following locations:  
209+00 to 213+00 L

CURVE #27  
P.I. 203+29.57  
N 654285.5082  
E 1057872.7523  
 $\Delta$  01°29'56" R  
Dc 01°08'45"  
R 5000.00'  
T 65.40'  
L 130.79'  
Super 2.69%  
MPH 50

Refurbish single mailbox  
at the following location:  
206+00 R

CURVE #28  
P.I. 208+88.82  
N 654844.4273  
E 1057891.9444  
 $\Delta$  26°27'58" L  
Dc 05°43'46"  
R 1000.00'  
T 235.16'  
L 461.92'  
Super 5.88%  
MPH 50

Shakopee Mdewakanton Sioux Community  
Parcel 12e & 12f

CURVE #29  
P.I. 218+36.94  
N 655714.8264  
E 1057495.2912  
 $\Delta$  01°13'27" L  
Dc 05°43'46"  
R 1000.00'  
T 10.68'  
L 21.37'  
Super 5.88%  
MPH 50

Lot B  
of Lot 1

Gregory &  
Amanda English  
Parcel 12g

218+40 R  
End Existing Bison Fence  
Begin Type 1 Fence  
Type 1 Fence Gate

Lot A  
of Lot 1

Gregory &  
Amanda English  
Parcel 12g

REYNOLDS STAGE STOP SUBD

Section 8  
Section 31

Lot B  
of Lot 2

229+82 R  
End Reset Steel Panel Fence  
(if required)  
Begin Reset Wood Fence  
(if required)

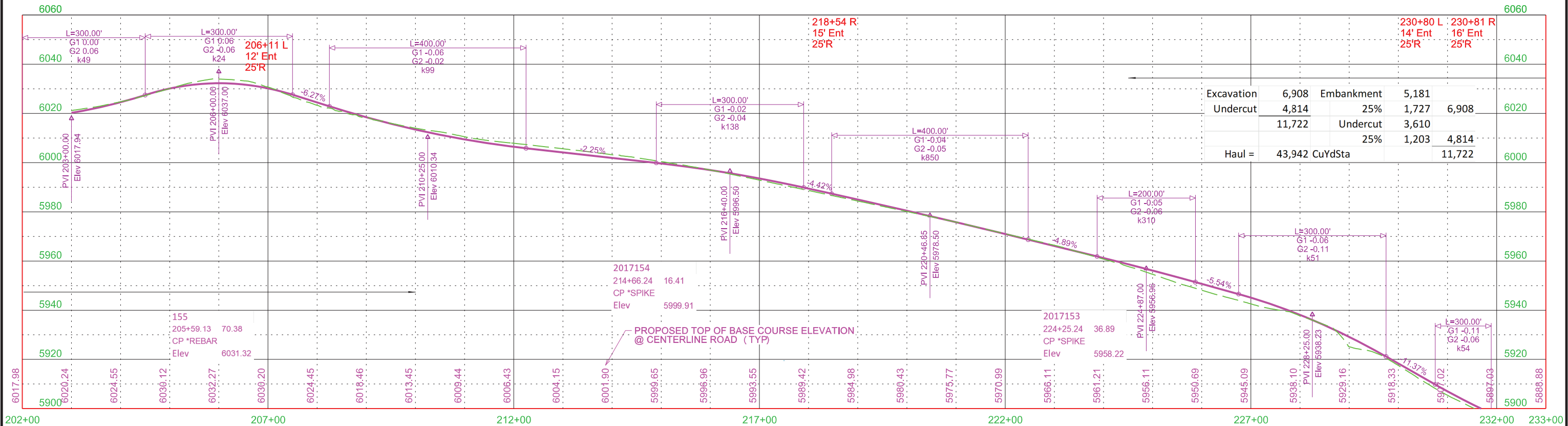
Lot A  
of Lot 2

Summers Family  
Irrevocable Trust/Sum  
No Parcel Listed

LOT 3

Post Panels shown in approximate  
locations final placement by  
field determination

Sec. 6 - T1N - R3E





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	73	333

USA Public Domain  
( Unpatented)  
Parcel 20, 20a & 20b

Sec. 32 - T2N - R3E

**CURVE #37**  
**P.I. 262+30.73**  
**N 657448.0626**  
**E 1059422.7826**  
**Δ 55°47'21" L**  
**Dc 10°04'10"**  
**R 569.00'**  
**T 301.20'**  
**L 554.04'**  
**Super 6.00%**  
**MPH 41**

USA Public Domain  
(Unpatented)  
Parcel 23

CURVE #35  
P.I. 252+07.28  
N 657916.8572  
E 1058518.6101  
Δ 08°13'34" R  
Dc 04°22'31"  
R 1309.50'  
T 94.17'  
L 188.01'  
Super 5.44%  
MPH 50

CURVE #36  
P.I. 256+90.36  
N 657643.4991  
E 1058917.2965  
Δ 13°17'54" L  
Dc 03°48'34"  
R 1504.00'  
T 175.33'  
L 349.08'  
Super 5.15%  
MPH 50

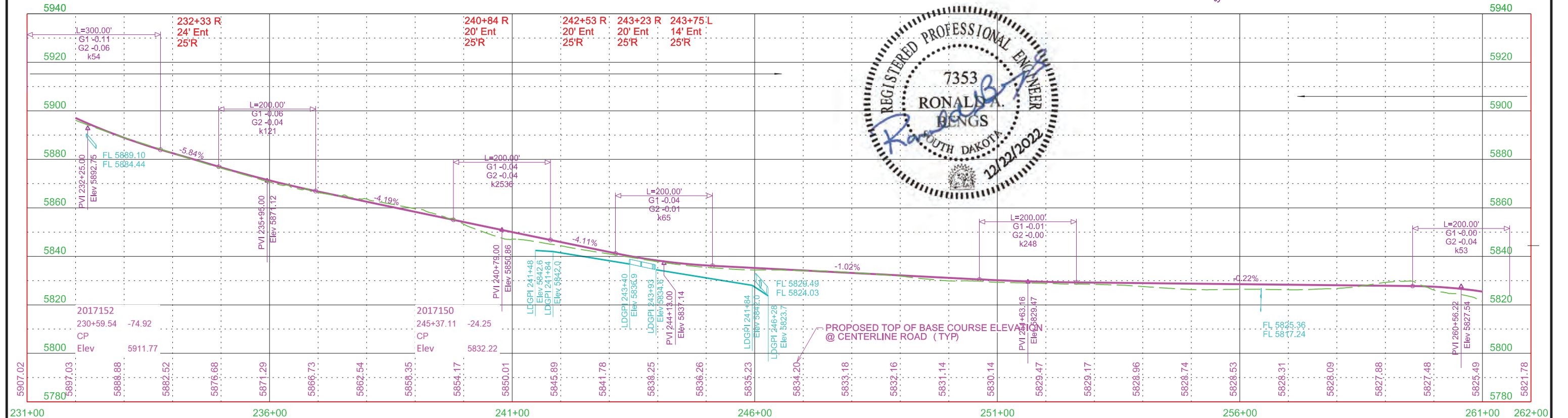
Sec. 31 - T2N - R3E

241+50-R  
Remove Building

Sec. 31 - T2N - R3E

Post Panels shown in approximate locations final placement by field determination

REGISTERED PROFESSIONAL ENGINEER  
7353  
RONALD A. BENGS  
SOUTH DAKOTA  
12/22/2022



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	74	333

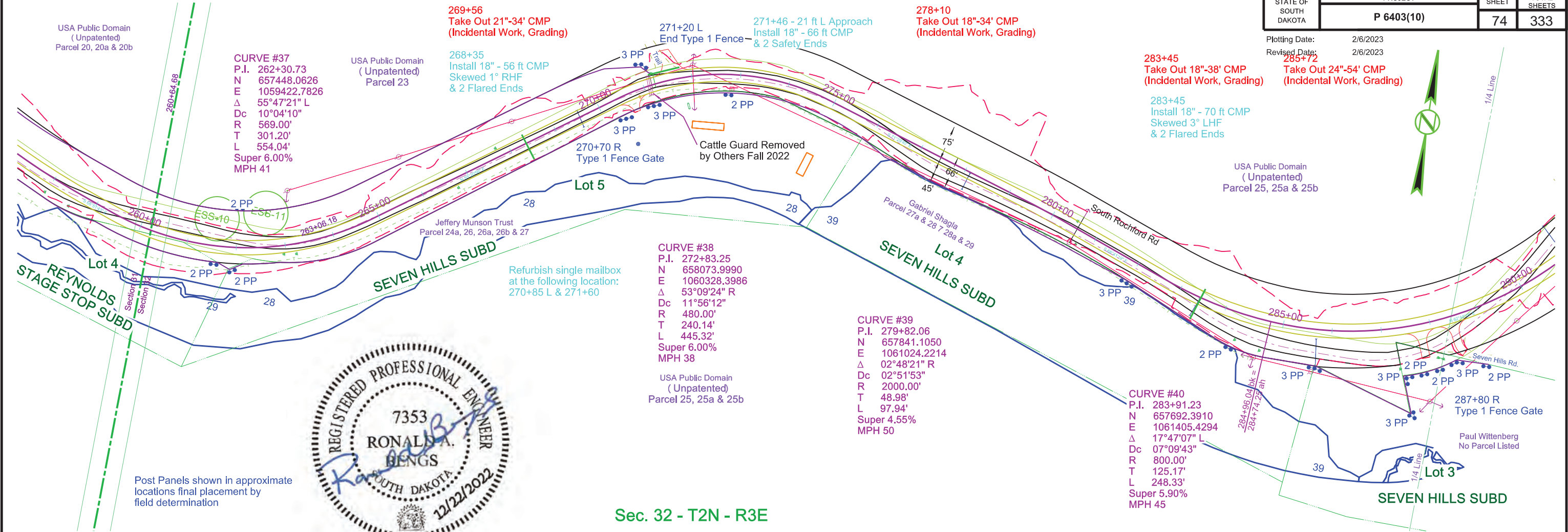
Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

283+45  
Take Out 18"-38" CMP  
(Incidental Work, Grading)

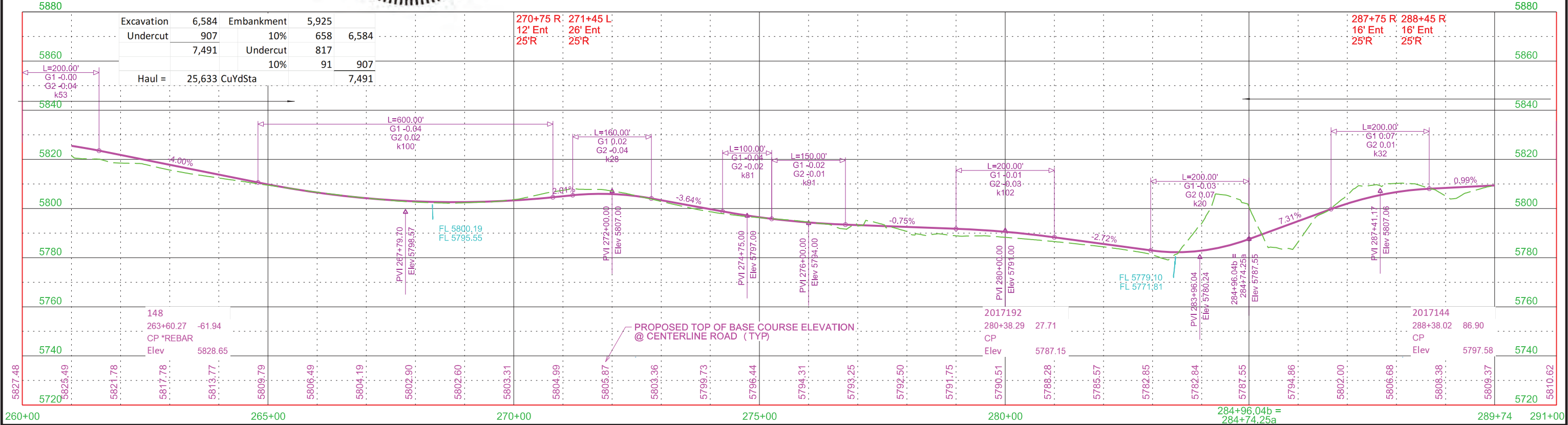
285+72  
Take Out 24"-54" CMP  
(Incidental Work, Grading)

283+45  
Install 18" - 70 ft CMP  
Skewed 3° LHF  
& 2 Flared Ends

USA Public Domain  
(Unpatented)  
Parcel 25, 25a & 25b



Sec. 32 - T2N - R3E





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	75	333

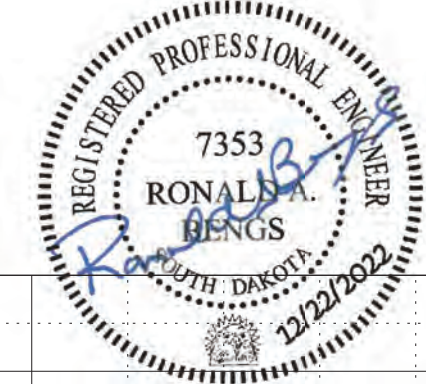
Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



USA Public Domain  
(Unpatented)  
Parcel 29a, 30, 31 & 32

320+31 23 ft R Approach  
Install 18" - 48 ft CMP  
& 2 Safety Ends

CURVE #45  
P.I. 321+36.62  
N 660421.0259  
E 1062949.7862  
Δ 07°53'05" R  
Dc 06°51'42" R  
R 835.00'  
T 57.55'  
L 114.91'  
Super 6.00%  
MPH 50



CURVE #44  
P.I. 313+75.65  
N 659791.8457  
E 1062513.7504  
Δ 22°56'00" L  
Dc 06°51'42" L  
R 835.00'  
T 169.38'  
L 334.22'  
Super 6.00%  
MPH 50

CURVE #43  
P.I. 307+31.83  
N 659380.8252  
E 1061864.6842  
Δ 85°26'00" R  
Dc 16°22'13" R  
R 350.00'  
T 323.16'  
L 521.88'  
Super 6.00%  
MPH 32

301+43  
Take Out 24"-50' CMP  
(Incidental Work, Grading)

297+08-R  
Take Out 24"-50' CMP  
(Incidental Work, Grading)

291+12  
Take Out 30"-70' CMP  
(Incidental Work, Grading)

290+94  
Install 18" - 94 ft CMP  
Skewed 30° LHF  
& 2 Flared Ends  
Class B Riprap

CURVE #41  
P.I. 286+83.07  
N 657672.9771  
E 1061720.4781  
Δ 30°46'46" L  
Dc 08°16'47" R  
R 692.00'  
T 190.48'  
L 371.75'  
Super 6.00%  
MPH 45

USA Public Domain  
(Unpatented)  
Parcel 29a, 30, 31 & 32

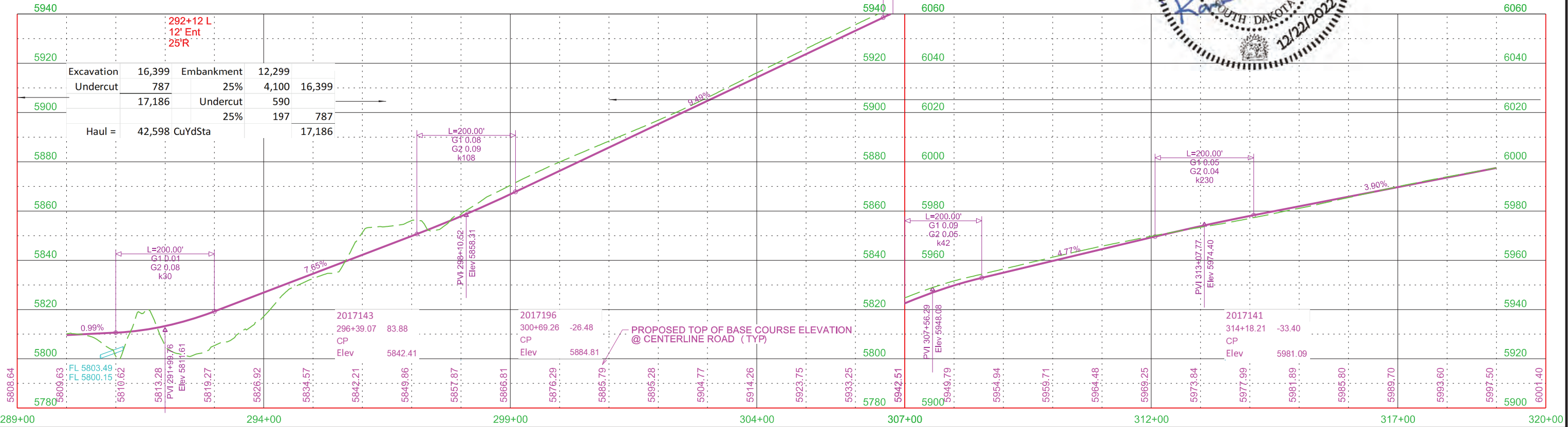
CURVE #42  
P.I. 295+97.41  
N 658095.8918  
E 1062541.4999  
Δ 90°31'26" L  
Dc 07°54'10" R  
R 725.00'  
T 731.66'  
L 1145.46'  
Super 6.00%  
MPH 47

Sec. 32 - T2N - R3E

Post Panels shown in approximate  
locations final placement by  
field determination

290+00 L to 299+00 R  
Obliterate Old Road

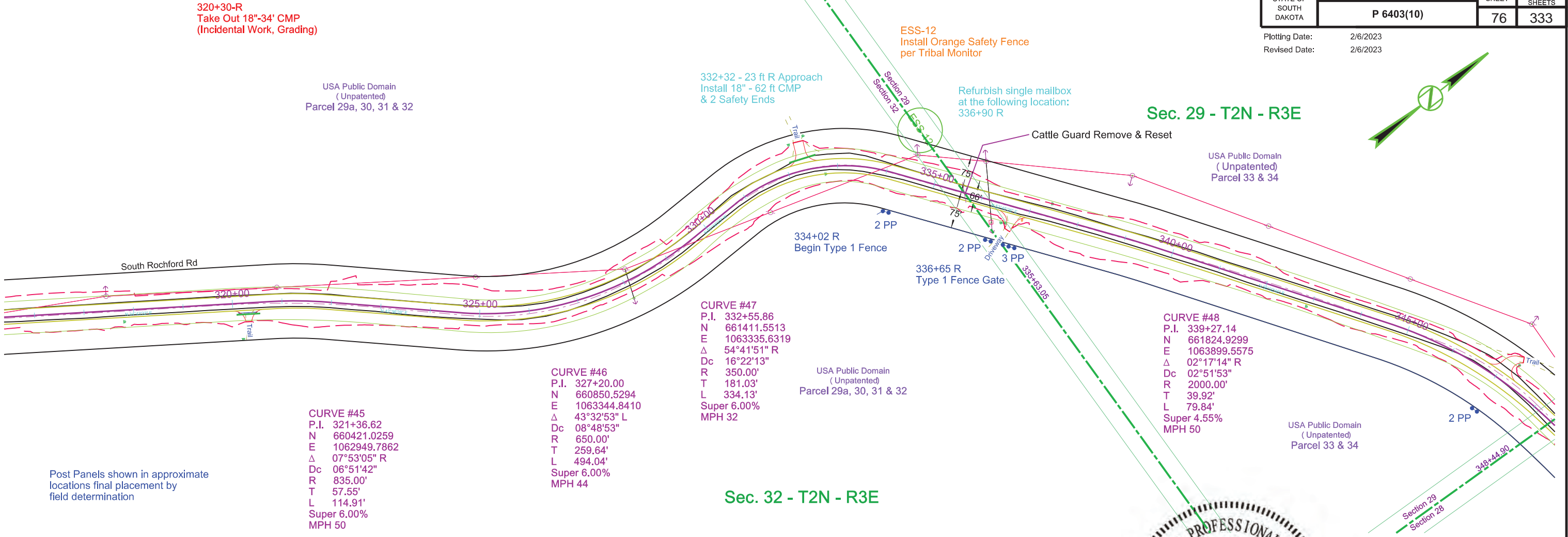
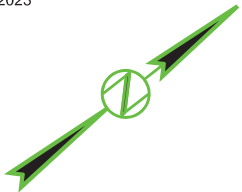
USA Public Domain  
(Unpatented)  
Parcel 29a, 30, 31 & 32



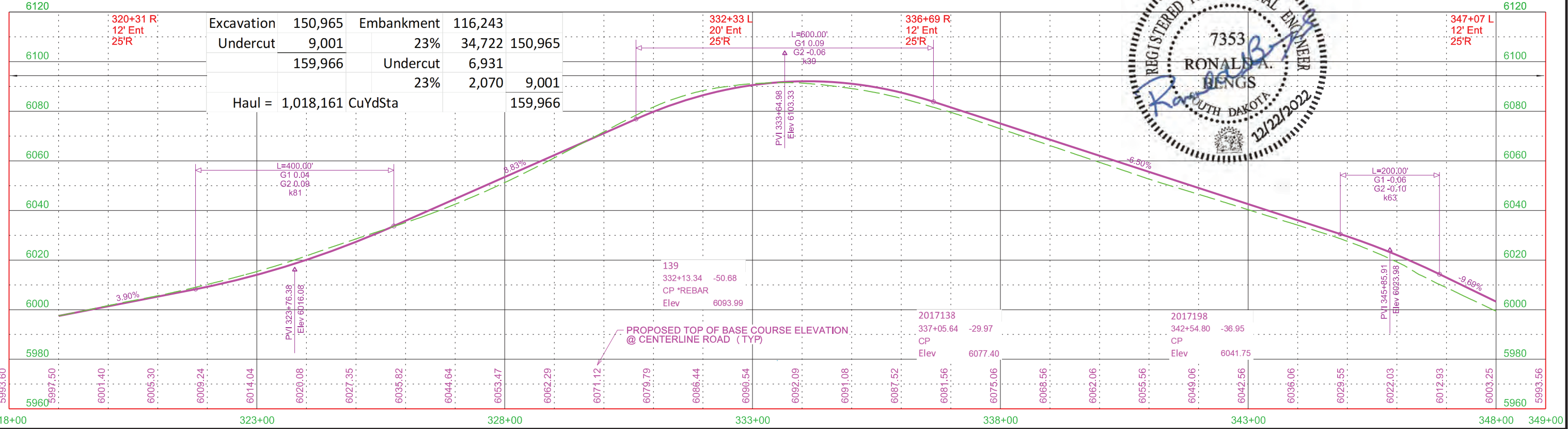
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	76	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Post Panels shown in approximate locations final placement by field determination





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	77	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

371+76 L  
Take Out 18"-36' CMP  
(Incidental Work, Grading)

373+72  
Take Out 18"-42' CMP  
(Incidental Work, Grading)

373+73  
Install 18" - 54 ft CMP  
Skewed 2° RHF  
& 2 Flared Ends

ESS-15  
Install Orange Safety Fence  
per Tribal Monitor

371+71 - 31 ft L Approach  
Install 18" - 42 ft CMP  
& 2 Safety Ends

370+75 L  
Begin Orange Safety Fence

370+75 R  
Begin Orange Safety Fence



362+99  
Take Out 18"-40' CMP  
(Incidental Work, Grading)

363+09  
Install 24" - 56 ft CMP  
Skewed 25° RHF  
& 2 Flared Ends

ESS-13  
Install Orange Safety Fence  
per Tribal Monitor

USA Public Domain  
(Unpatented)  
Parcel 35, 36, 37, 39a, 40 & 41

356+88-R  
Take Out 18"-32' CMP  
(Incidental Work, Grading)

352+14  
Take Out 18"-58' CMP  
(Incidental Work, Grading)

351+85 - 33 ft L Approach  
Install 18" - 60 ft CMP  
& 2 Safety Ends

Sec. 29  
T2N - R3E

USA Public Domain  
(Unpatented)  
Parcel 33 & 34

CURVE #52  
P.I. 362+53.56  
N 662507.7628  
E 1066067.5431  
Δ 31°19'36" R  
Dc 06°51'42"  
R 835.00'  
T 234.13'  
L 456.54'  
Super 6.00%  
MPH 50

Post Panels shown in approximate  
locations final placement by  
field determination

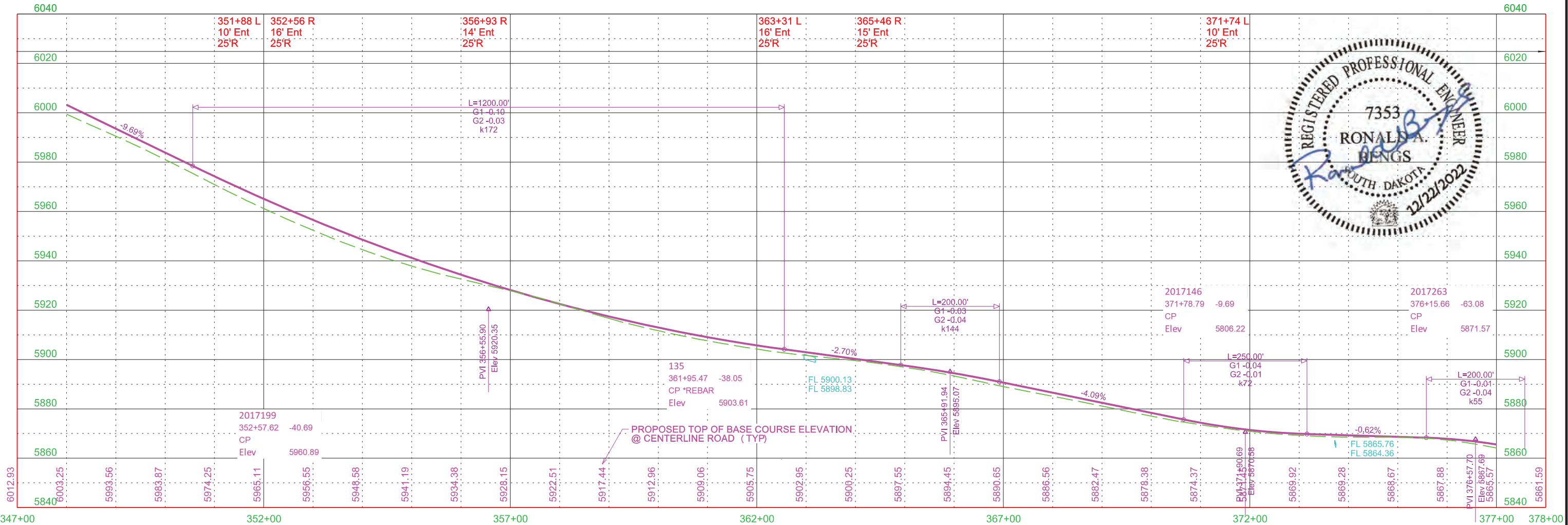
USA Public Domain  
(Unpatented)  
Parcel 35, 36, 37, 39a, 40 & 41

CURVE #51  
P.I. 355+63.31  
N 662268.9378  
E 1065415.7381  
Δ 21°52'39" L  
Dc 06°51'42"  
R 835.00'  
T 161.38'  
L 318.83'  
Super 6.00%  
MPH 45

CURVE #50  
P.I. 350+11.68  
N 662285.8697  
E 1064862.9639  
Δ 11°37'38" R  
Dc 02°51'53"  
R 2000.00'  
T 203.63'  
L 405.87'  
Super 6.00%  
MPH 50

CURVE #49  
P.I. 346+35.19  
N 662220.4143  
E 1064486.8680  
Δ 24°04'58" R  
Dc 06°51'42"  
R 835.00'  
T 178.12'  
L 350.97'  
Super 6.00%  
MPH 50

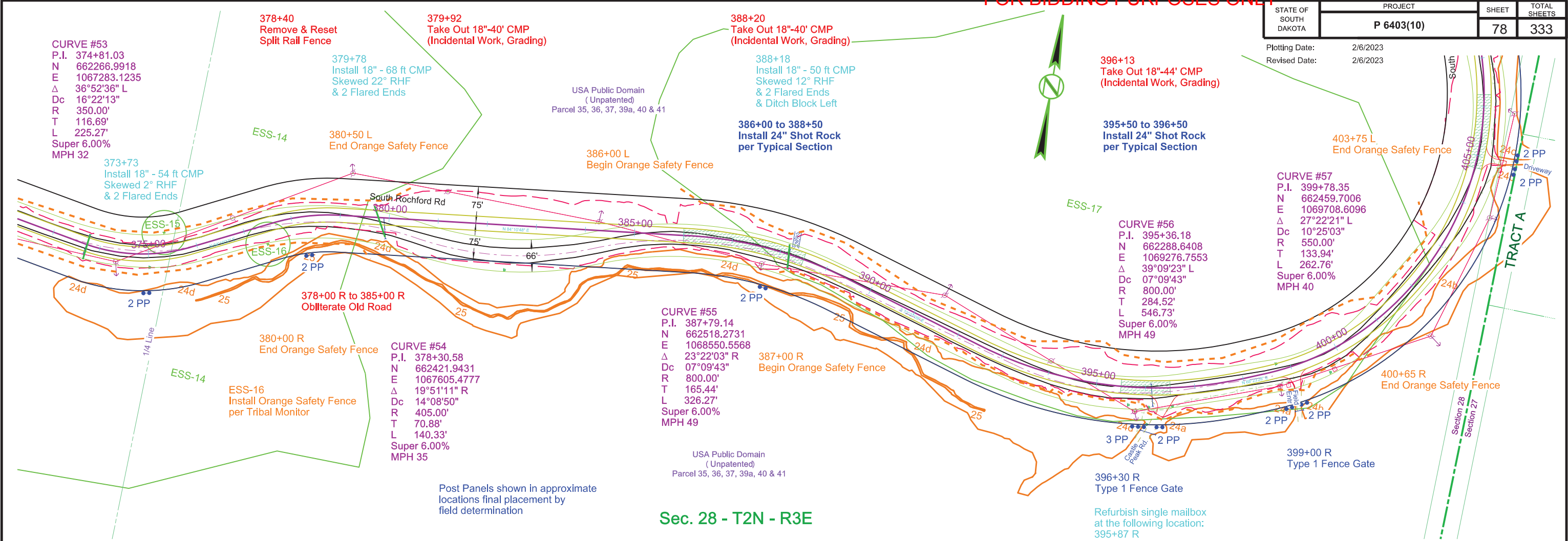
Sec. 28 - T2N - R3E



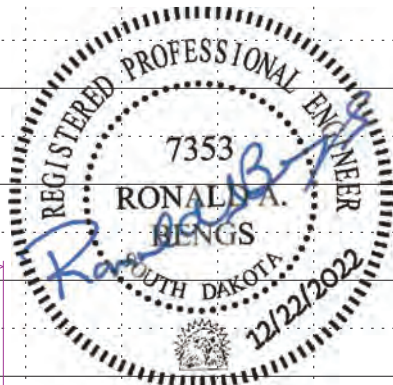
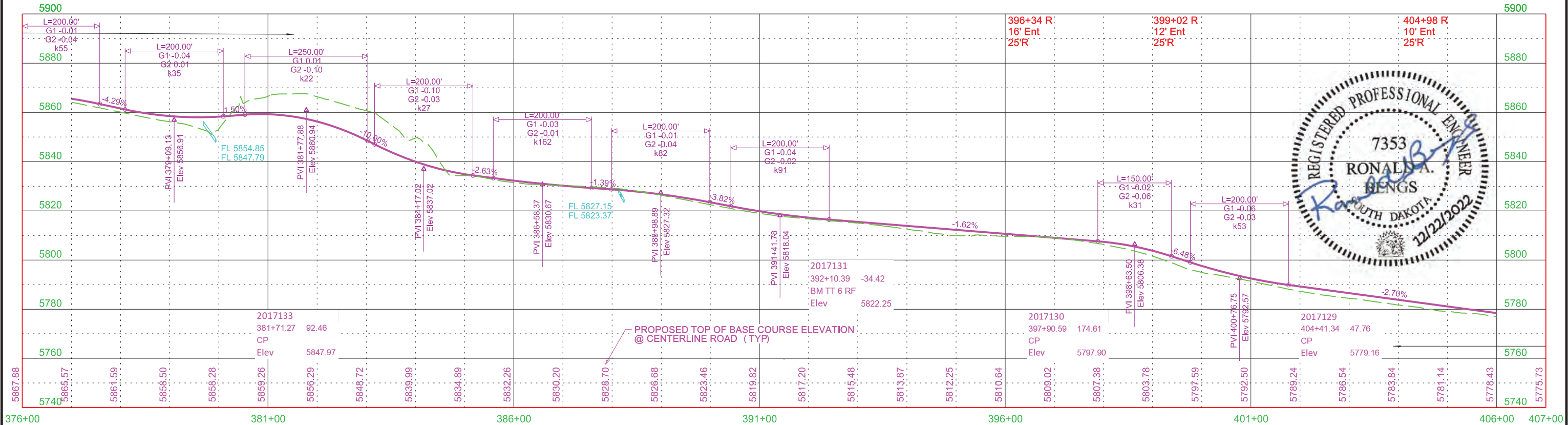
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	78	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



Sec. 28 - T2N - R3E

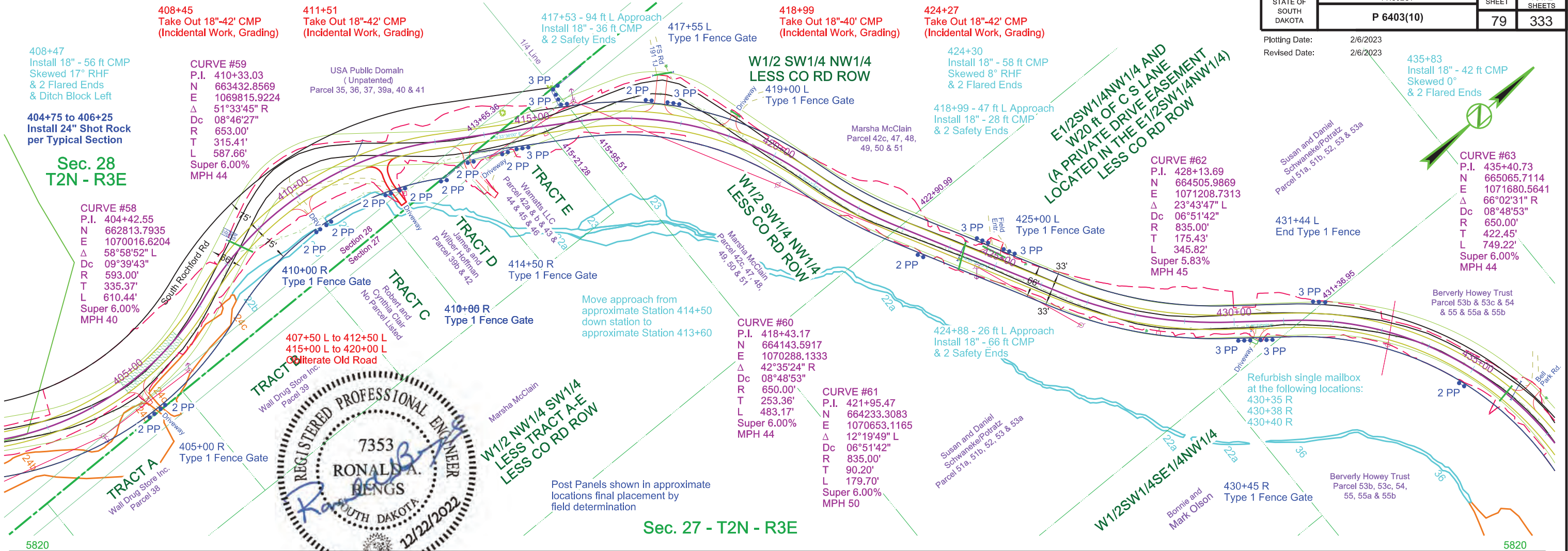




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	79	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	80	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

455+00 to 463+00  
Install 24" Shot Rock  
per Typical Section

**CURVE #66**  
P.I. 458+36.33  
N 664960.5803  
E 1073884.8002  
Δ 13°58'45" R  
Dc 06°51'42"  
R 835.00'  
T 102.37'  
L 203.73'  
Super 6.00%  
MPH 50

456+96  
Install 18" - 42 ft CMP  
Skewed 13° RHF  
& 2 Flared Ends

**CURVE #65**  
P.I. 451+85.94  
N 664505.1029  
E 1073327.1229  
Δ 60°22'19" L  
Dc 09°01'23"  
R 635.00'  
T 369.37'  
L 669.09'  
Super 6.00%  
MPH 43

448+97  
Take Out 18"-60' CMP  
(Incidental Work, Grading)

448+92  
Install 18" - 72 ft CMP  
Skewed 39° RHF  
& 2 Flared Ends  
& Ditch Block Left

THAT PT OF W1/2SW1/4NE1/4  
LYING N OF CO RD C306  
(AKA S ROCHFORD RD)

Wade Musick  
Parcel 57b & 58

447+75 to 449+25  
Install 24" Shot Rock  
per Typical Section

442+70  
Take Out 18"-36' CMP  
(Incidental Work, Grading)

E1/2SE1/4NW1/4  
LESS CO RD ROW

Alan and Bryan Harvey  
Parcel 55c, 56, 57 & 57a

442+79 - 22 ft L Approach  
Install 18" - 52 ft CMP  
& 2 Safety Ends

435+96  
Take Out 18"-40' CMP  
(Incidental Work, Grading)

435+83  
Install 18" - 42 ft CMP  
Skewed 0°  
& 2 Flared Ends

Beverly Howey Trust  
Parcel 53b, 53c, 54,  
55, 55a & 55b

Beverly Howey Trust  
Parcel 53b, 53c, 54,  
55, 55a & 55b

NE1/4NW1/4SW1/4;  
NW1/4SE1/4NW1/4 LESS CO RD ROW;  
E20 ft OF C S LANE  
(A PRIVATE DR EASEMENT LOCATED  
IN THE NW1/4SE1/4NW1/4)



**CURVE #64**  
P.I. 442+62.82  
N 664837.9429  
E 1072465.9773  
Δ 04°57'35" R  
Dc 02°51'53"  
R 2000.00'  
T 86.62'  
L 173.13'  
Super 4.55%  
MPH 50

E1/2SE1/4NW1/4  
LESS CO RD ROW

Alan and Bryan Harvey  
Parcel 55c, 56, 57 & 57a

Post Panels shown in approximate  
locations final placement by  
field determination

**CURVE #67**  
P.I. 460+88.10  
N 6650668.4526  
E 1074113.4121  
Δ 04°18'25" L  
Dc 01°25'57"  
R 4000.00'  
T 150.41'  
L 300.68'  
Super 3.16%  
MPH 50

THAT PT OF NE1/4SW1/4NE1/4  
LYING SOUTH OF ROCHFORD RD

Sec. 27 - T2N - R3E

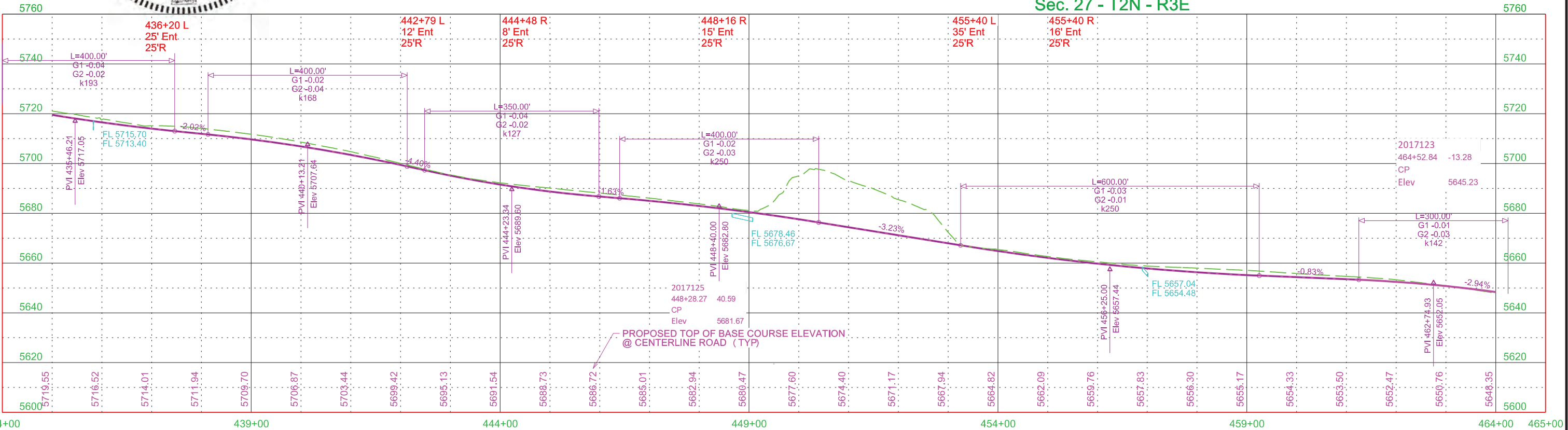
TRACT 1  
Randy and  
Stephanie Teunissen  
No Parcel Listed

444+48 R  
Type 1 Fence Gate

TRACT 2  
Dennis and  
Stacia Tuschen  
Parcel 57c

TRACT 3  
Jason and Jan Steele  
Parcel 59

BELL PINE SUBD

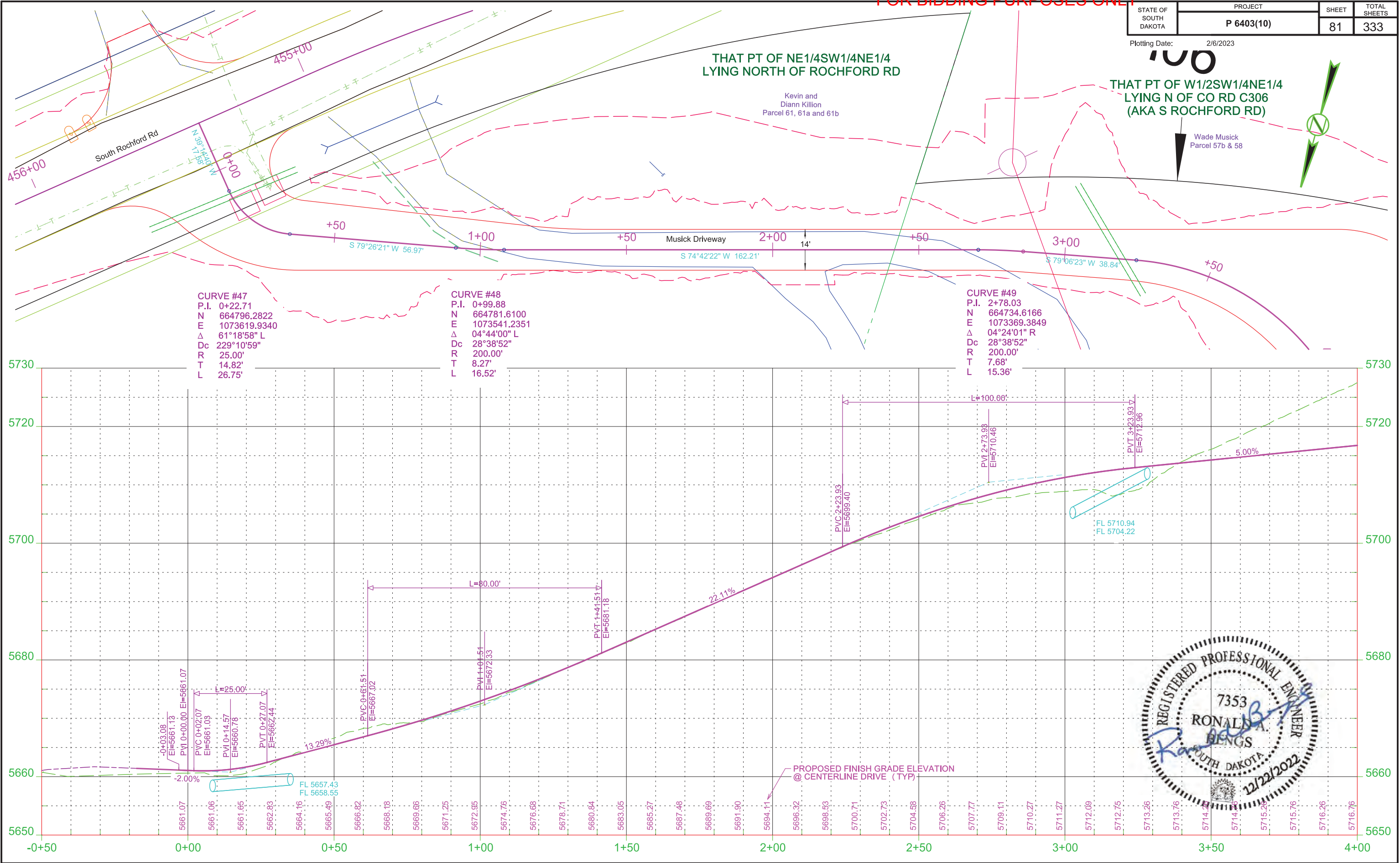




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	81	333

Plotting Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

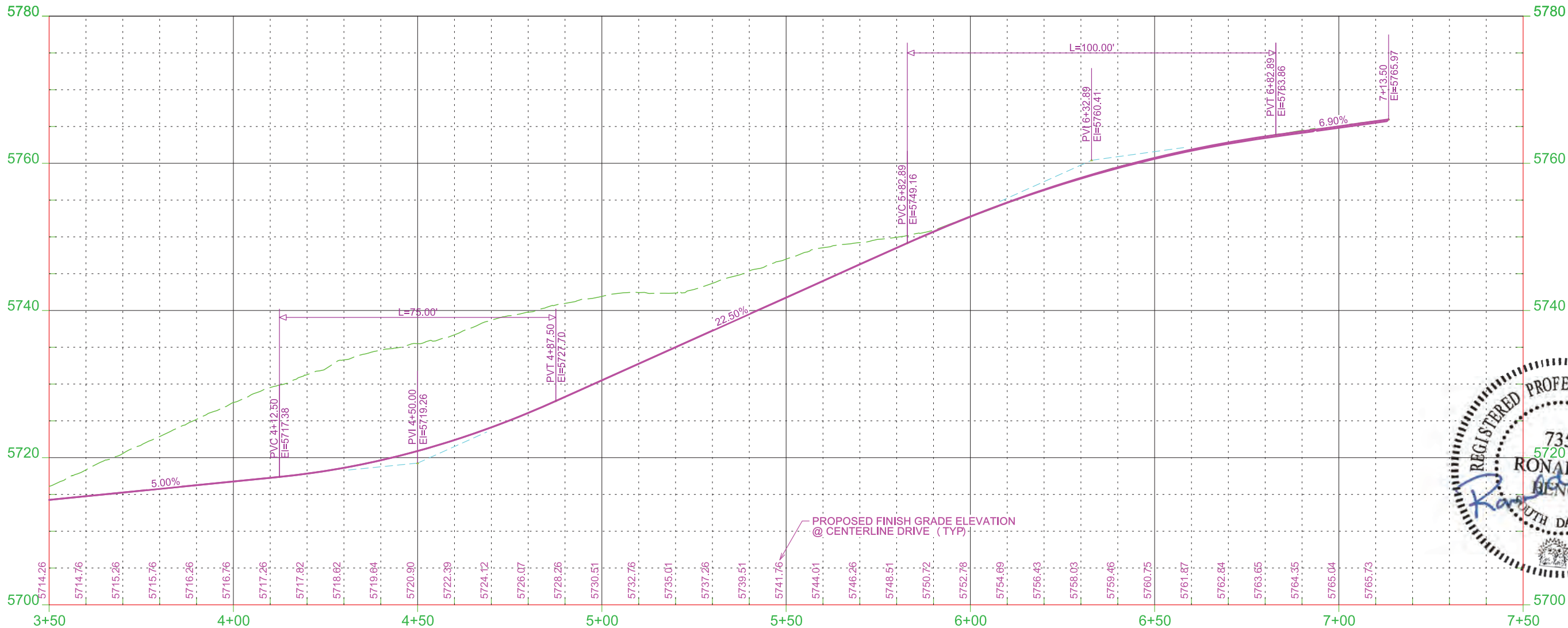
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	82	333

Plotting Date: 2/6/2023

THAT PT OF W1/2SW1/4NE1/4  
LYING N OF CO RD C306  
(AKA S ROCHFORD RD)

Wade Musick  
Parcel 57b & 58

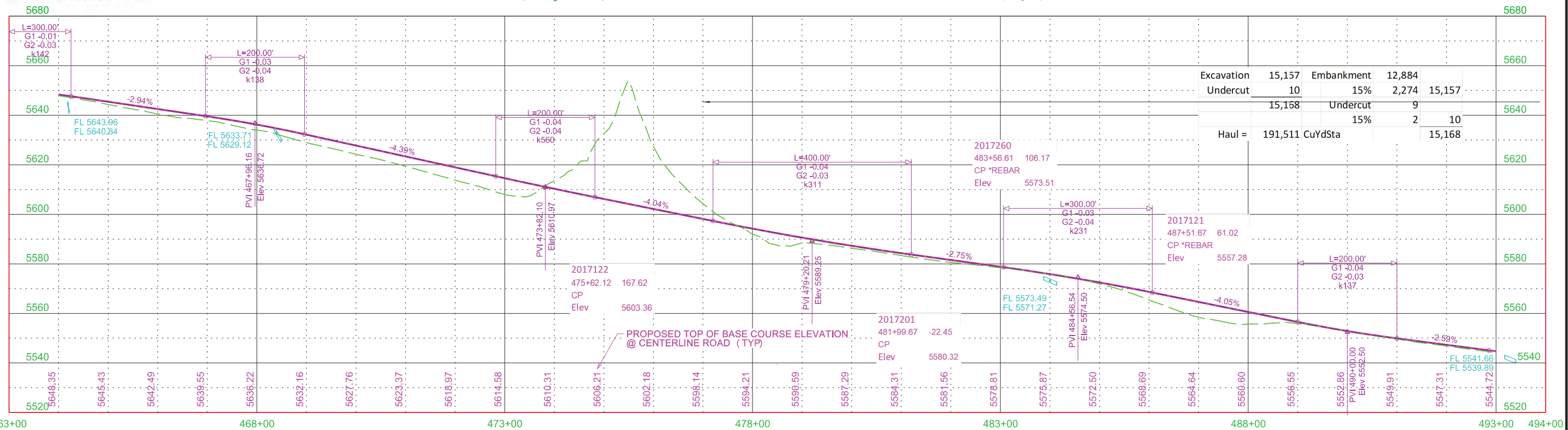
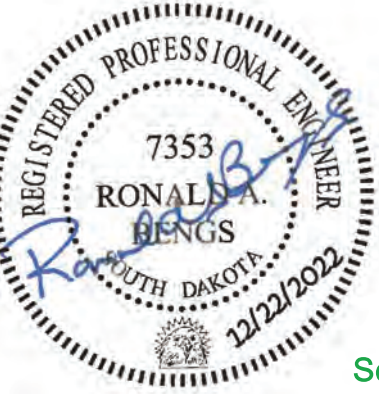
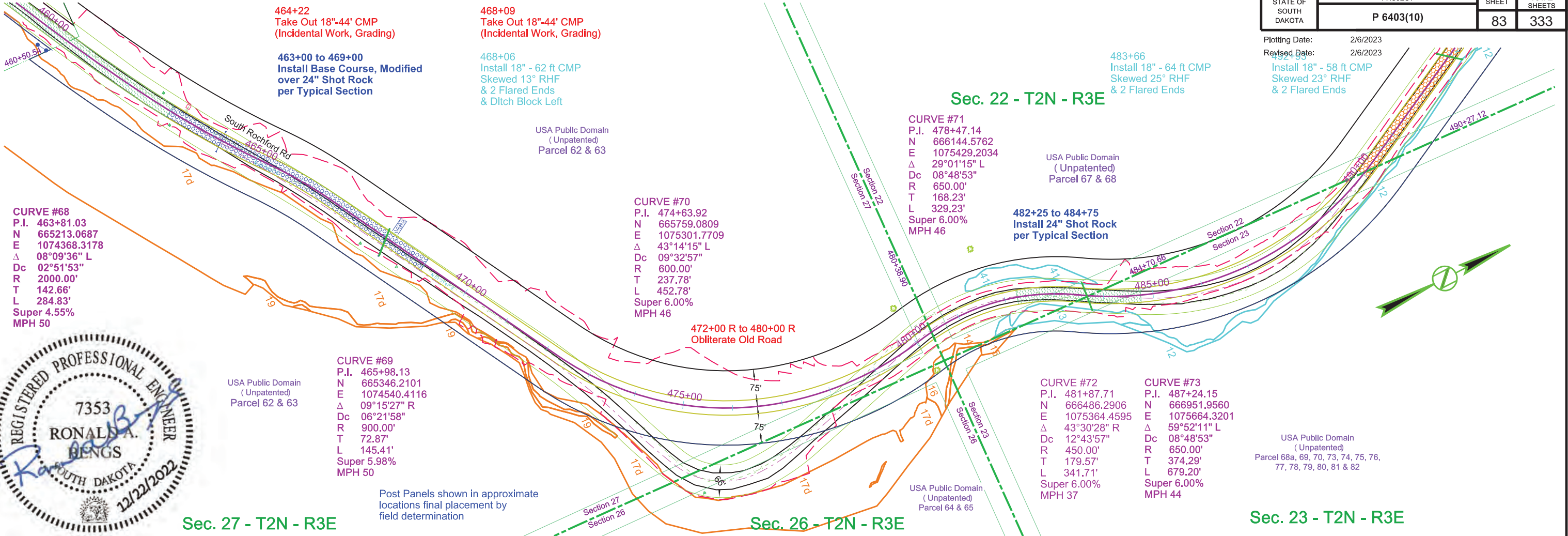
CURVE #50  
P.I. 4+32.33  
N 664705.4559  
E 1073217.8661  
 $\Delta$  103°28'30" R  
Dc 67°24'24"  
R 85.00'  
T 107.77'  
L 153.51'





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	83	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023  
Install 18" - 58 ft CMP  
Skewed 23° RHF  
& 2 Flared Ends



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	84	333

Plotting Date: 2/6/2023

Revised Date: 2/6/2023

522+21  
Take Out 18"-30' CMP  
(Incidental Work, Grading)

527+65  
Install 36" - 66 ft CMP  
Skewed 46° RHF  
& 2 Flared Ends

USA Public Domain  
(Unpatented)  
Parcel 68a, 69, 70, 73, 74, 75, 76,  
77, 78, 79, 80, 81 & 82

CURVE #78  
P.I. 512+00.70  
N 669233.9117  
E 1075634.5223  
Δ 22°54'54" L  
Dc 16°22'13"  
R 350.00'  
T 70.94'  
L 139.98'  
Super 6.00%  
MPH 32

CURVE #79  
P.I. 515+82.70  
N 669611.1596  
E 1075563.3977  
Δ 15°23'53" R  
Dc 06°51'42"  
R 835.00'  
T 112.88'  
L 224.41'  
Super 6.00%  
MPH 50

CURVE #80  
P.I. 528+32.23  
N 670857.8026  
E 1075666.3554  
Δ 151°50'51" R  
Dc 32°44'26"  
R 175.00'  
T 697.93'  
L 463.79'  
Super 6.00%  
MPH 23

USA Public Domain  
(Unpatented)  
Parcel 68a, 69, 70, 73, 74, 75, 76,  
77, 78, 79, 80, 81 & 82

CURVE #76  
P.I. 505+20.31  
N 668641.5693  
E 1075363.9362  
Δ 10°45'57" R  
Dc 19°05'55"  
R 300.00'  
T 28.27'  
L 56.37'  
Super 6.00%  
MPH 30

510+00 to 512+00  
Install 24" Shot Rock  
per Typical Section

CURVE #77  
P.I. 507+26.76  
N 668761.6351  
E 1075532.0847  
Δ 42°14'00" L  
Dc 21°42'11"  
R 264.00'  
T 101.96'  
L 194.60'  
Super 6.00%  
MPH 28

Sec. 23 - T2N - R3E

MARY BELL LODGE  
MS 167

Sec. 22 - T2N - R3E

CURVE #75  
P.I. 502+72.10  
N 668455.2074  
E 1075185.8095  
Δ 40°54'38" R  
Dc 19°05'55"  
R 300.00'  
T 111.90'  
L 214.21'  
Super 6.00%  
MPH 30

503+30  
Install 18" - 56 ft CMP  
Skewed 4° RHF  
& 2 Flared Ends  
& Ditch Block Left

510+36  
Take Out 21"-54' CMP  
(Incidental Work, Grading)

511+81  
Take Out 21"-46' CMP  
(Incidental Work, Grading)

499+39  
Take Out 21"-40' CMP  
(Incidental Work, Grading)

500+00  
Remove Split Rail Fence

499+36  
Install Upstream Perched 18" - 56 ft CMP  
Skewed 0°  
& 2 Flared Ends  
Pipe Design is perched to promote  
water flow through permeable base

492+97  
Take Out 24"-52' CMP  
(Incidental Work, Grading)

490+00 to 506+00  
Install Granular Material, Modified  
over Base Course, Modified  
per Typical Section

492+93  
Install 18" - 56 ft CMP  
Skewed 23° RHF  
& 2 Flared Ends

CURVE #74  
P.I. 497+61.08  
N 667936.8959  
E 1075160.5045  
Δ 29°53'08" R  
Dc 08°48'53"  
R 650.00'  
T 173.47'  
L 339.04'  
Super 6.00%  
MPH 44

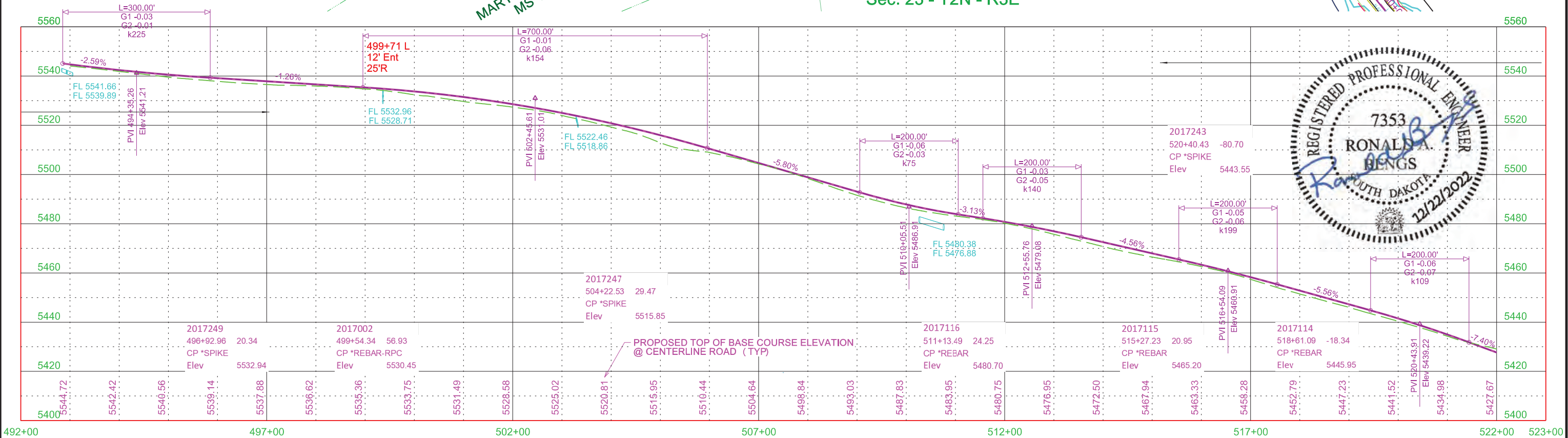
USA Public Domain  
(Unpatented)  
Parcel 67 & 68

USA Public Domain  
(Unpatented)  
Parcel 67 & 68

USA Public Domain  
(Unpatented)  
Parcel 68a, 69, 70, 73, 74, 75, 76,  
77, 78, 79, 80, 81 & 82

Cattle Guard Removed  
by Others Fall 2022

O Lynette  
Hardy Survivor's Trust/Hardy Trustee  
No Parcel Listed





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	85	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023

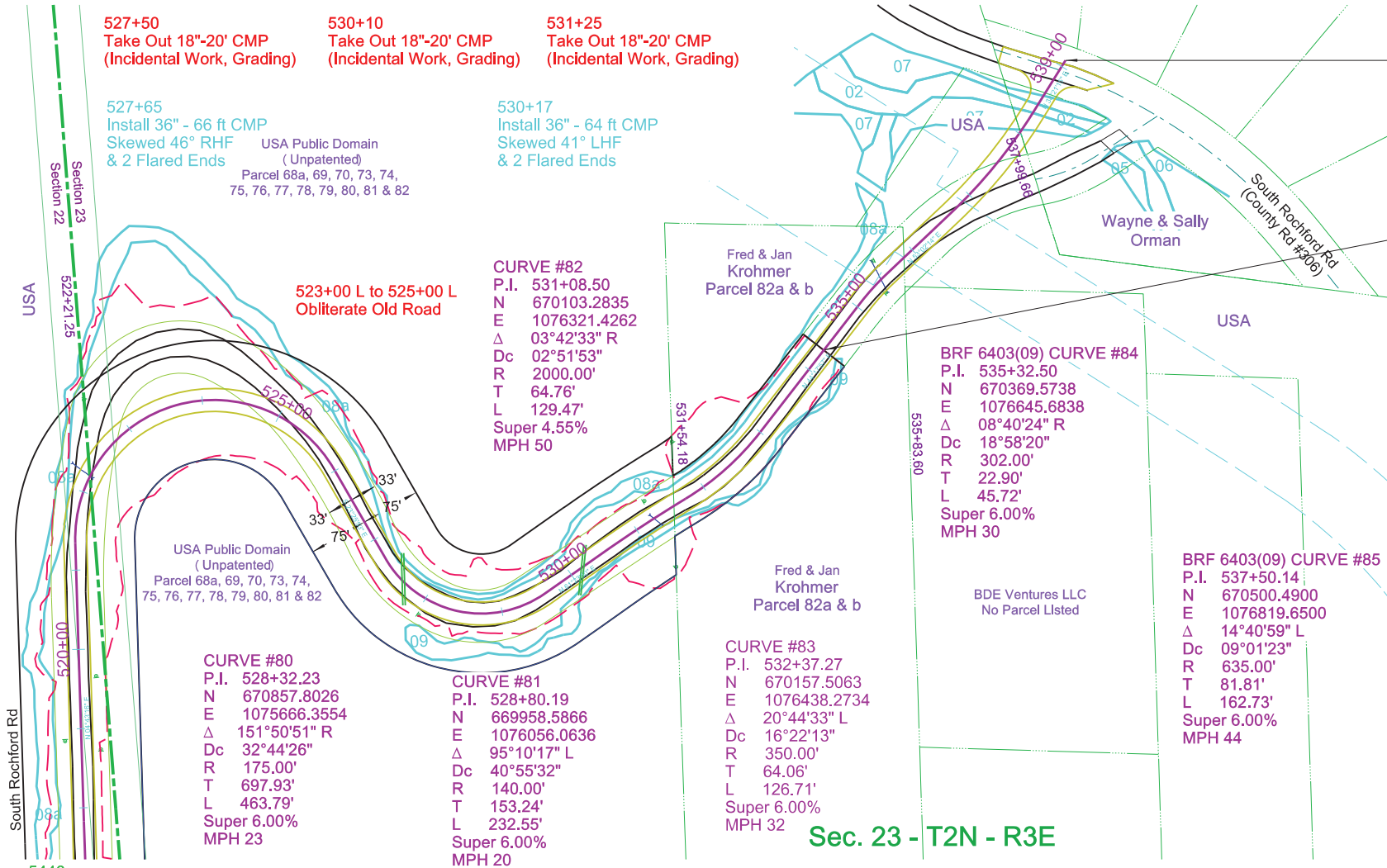


Install Asphalt Paving from EM 6403(06) project limit completing asphalt surface across bridge and tying into South Rochford Rd (County Rd #306) Quantity has been added to Bid Item for this work.

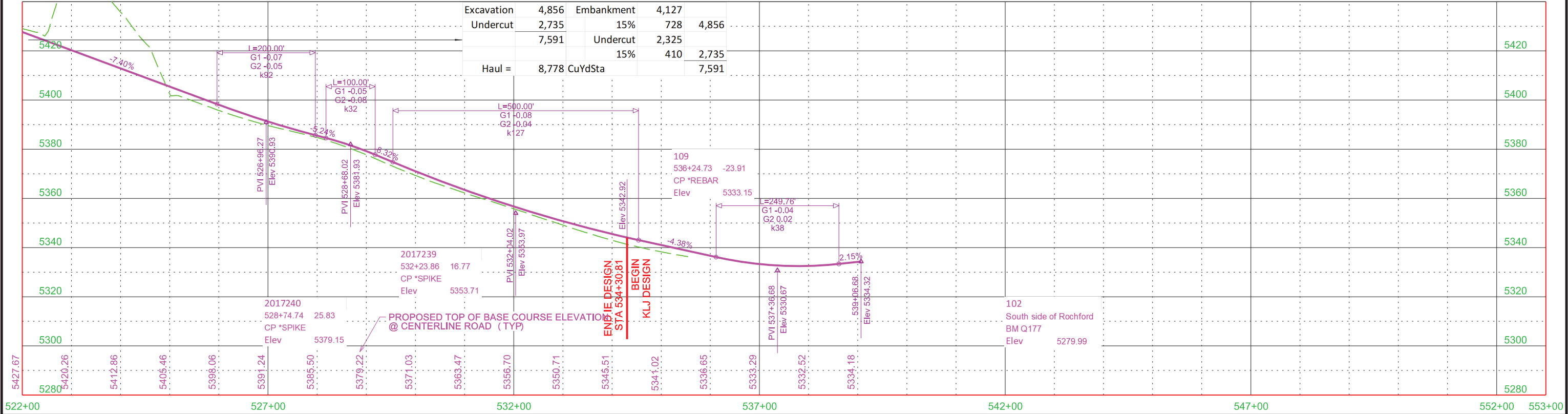
END P 6403(10) - Paving  
Station 538+92

END P 6403(10) - Grading  
Station 534+30

Do Not Disturb  
Historical Marker Located  
near Station 534+00



Sec. 23 - T2N - R3E

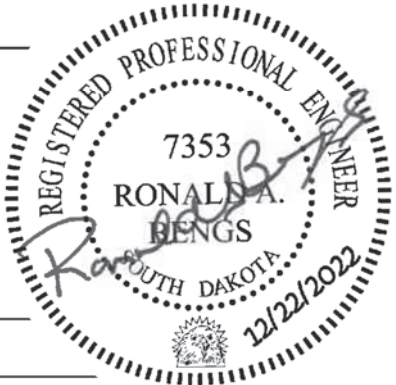


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	86	333

Plotting Date: 2/6/2023

RIGHT OF WAY PLAN TABLE

Parcel	Station to Station	Side	Type	Area	Owner	Description
1	Plat			6.24 Ac 271927 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NW1/4 & NE1/4 S24, T1N, R2E
2	Plat			Combined with Parcel 1	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NW1/4 & NE1/4 S24, T1N, R2E
3	Plat			0.03 Ac 1303 Sq Ft	MARY ALEXANDER	Located in HES #222 in S24, T1N, R2E
4	Plat			0.09 Ac 3899 Sq Ft	MARY ALEXANDER	Located in HES #222 in S24, T1N, R2E
5	Plat			8.26 Ac 359780 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S13, T1N, R2E
6	Plat			Combined with Parcel 5	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S13, T1N, R2E
7	Plat			0.02 Ac 1057 Sq Ft	MARY ALEXANDER	Located in HES #222 in S13, T1N, R2E
7a	32+38.76 to 32+97.50	R	Temp	0.02 Ac 632 Sq Ft	MARY ALEXANDER	HES #222 - SEC 13 T1N R2E
8	Plat			17 Sq Ft	MARY ALEXANDER	Located in HES #222 in S13, T1N, R2E
9	Plat			17.37 Ac 756812 Sq Ft	USA	A portion of HES #222, SW1/4, NW1/4, and NE 1/4 S18, T1N, R3E
10	Plat			Combined with Parcel 9	USA	A portion of HES #222, SW1/4, NW1/4, and NE 1/4 S18, T1N, R3E
11	Plat			Combined with Parcel 9	USA	A portion of HES #222, SW1/4, NW1/4, and NE 1/4 S18, T1N, R3E
11a	71+68.82 to 72+02.60	R	Temp	0.03 Ac 1447 Sq Ft	USA	A portion of HES #222, SW1/4, NW1/4, and NE 1/4 S18, T1N, R3E
11b	113+07.98 to 113+84.08	L	Temp	0.05 Ac 1940 Sq Ft	KENNETH & ELIZABETH ANDERSON	NW1/4NE1/4 LYING W OF CO. RD LESS RTY; N1/2NW 1/4
11c	114+58.64 to 115+50.76	L	Temp	0.05 Ac 2311 Sq Ft	KENNETH & ELIZABETH ANDERSON	NW1/4NE1/4 LYING W OF CO. RD LESS RTY; N1/2NW 1/4
11d	114+98.37 to 115+58.98	R	Temp	0.04 Ac 1700 Sq Ft	CROW CREEK SIOUX TRIBE	N1/2NE1/4 LYING EAST CO RD
11e	115+91.97 to 116+56.99	L	Temp	0.03 Ac 1386 Sq Ft	KENNETH & ELIZABETH ANDERSON	NW1/4NE1/4 LYING W OF CO. RD LESS RTY; N1/2NW 1/4
11f	140+99.57 to 141+78.31	L	Temp	0.02 Ac 1049 Sq Ft	United States of America in Trust for Rosebud Sioux Tribe, Shakopee Mdewakanton Sioux Community, Standing Rock Sioux Tribe, Crow Creek Sioux Tribe	E1/2SE1/4NW1/4 INCLUDING LOT A OF SE1/4NW1/4; SW1/4NE1/4 INCLUDING LOT A; NW1/4SE1/4
12	Plat			Combined with Parcel 9	USA	A portion of HES #222, SW1/4, NW1/4, and NE 1/4 S18, T1N, R3E
12a	172+45.96 to 173+02.64	L	Temp	0.01 Ac 589 Sq Ft	United States of America in Trust for Rosebud Sioux Tribe, Shakopee Mdewakanton Sioux Community, Standing Rock Sioux Tribe, Crow Creek Sioux Tribe	N1/2NE1/4, NE1/4NW 1/4, LOT 1-3, LESS ROW SEC 7 T1N R3E
12b	173+02.64 to 173+47.28	L	Temp	0.01 Ac 488 Sq Ft	SHAKOPEE MDEWAKANTON SIOUX COMMUNITY	LOT 6-7; NE1/4SW1/4; SE1/4SW1/4; SE1/4 LESS ROW
12c	197+05.16 to 197+69.49	R	Temp	0.02 Ac 654 Sq Ft	SHAKOPEE MDEWAKANTON SIOUX COMMUNITY	LOT 6-7; NE1/4SW1/4; SE1/4SW1/4; SE1/4 LESS ROW
12d	197+19.35 to 197+63.74	L	Temp	0.01 Ac 355 Sq Ft	SHAKOPEE MDEWAKANTON SIOUX COMMUNITY	LOT 6-7; NE1/4SW1/4; SE1/4SW1/4; SE1/4 LESS ROW
12e	205+88.91 to 206+49.10	L	Temp	0.04 Ac 1897 Sq Ft	SHAKOPEE MDEWAKANTON SIOUX COMMUNITY	HES #236 LESS LOT A LESS ROW SEC 6 T1N R3E
12f	218+27.34 to 218+43.31	R	Temp	0.004 Ac 185 Sq Ft	SHAKOPEE MDEWAKANTON SIOUX COMMUNITY	HES #236 LESS LOT A LESS ROW SEC 6 T1N R3E



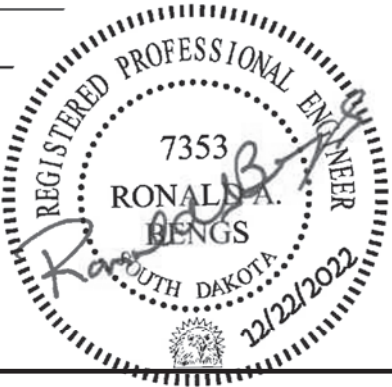


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	87	333

Plotting Date: 2/6/2023

RIGHT OF WAY PLAN TABLE (Continued)

Parcel	Station to Station	Side	Type	Area	Owner	Description
12g	218+43.31 to 218+76.69	R	Temp	0.01 Ac 589 Sq Ft	GREGORY & AMANDA ENGLISH	LOT B OF LOT 1 REYNOLDS STAGE STOP SUBD
18	Plat			1.47 Ac 64108 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NE1/4 SEC 6 T1N R3E
18a	230+05.41 to 235+89.92	L	Temp	0.17 Ac 7264 Sq Ft	LUCY GANJE TRUSTEE	LOT 3 REYNOLDS STAGE STOP SUBD SEC 31 T2N R3E
18b	232+15.07 to 232+73.20	R	Temp	0.02 Ac 963 Sq Ft	PAUL LARSON	LOT B OF LOT 2 REYNOLDS STAGE STOP SUBD SEC 31 T2N R3E
18c	232+94.20 to 236+69.18	R	Temp	0.12 Ac 5249 Sq Ft	SUMMERS FAMILY IRREVOCABLE TRUST/SUM	LOT A OF LOT 2 SEC 31 T2N R3E
18d	235+89.92 to 237+15.40	L	Temp	0.04 Ac 1646 Sq Ft	STAGE STOP PROPERTIES LLC	ALL LESS LOT 3 REYNOLDS STAGE STOP SUB AND LESS ROW SEVEN HILLS LODGE MS 2077 SEC 31 T2N R3E
18e	236+43.03 to 236+69.95	R	Temp	0.01 Ac 595 SqFt	SUMMERS FAMILY IRREVOCABLE TRUST/SUM	LOT A OF LOT 2 SEC 31 T2N R3E
19	Plat			3.93 Ac 170871 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 SEC 31 T2N R3E
19a	237+15.40 to 243+98.96	L	Temp	0.13 Ac 5455 Sq Ft	STAGE STOP PROPERTIES LLC	ALL LESS LOTS A AND B, LESS LOT 1-5 OF SEVEN HILLS SUB, LESS REYNOLDS STAGE STOP SUB AND LESS ROW (ALSO IN SEC 30 AND 32 T2N R3E AND SEC 25 AND 36 T2N R2E) SEVEN HILLS PLACER MS 1506
19ab	237+15.40 to 243+98.96	L	Drainage Easement	0.06 Ac 2567 Sq Ft	STAGE STOP PROPERTIES LLC	ALL LESS LOTS A AND B, LESS LOT 1-5 OF SEVEN HILLS SUB, LESS REYNOLDS STAGE STOP SUB AND LESS ROW (ALSO IN SEC 30 AND 32 T2N R3E AND SEC 25 AND 36 T2N R2E) SEVEN HILLS PLACER MS 1506
19b	237+03.91 to 238+25.87	R	Temp	0.04 Ac 1636 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #2077 SEC 31 T2N R3E
19c	242+23.53 to 242.57.21	R	Temp	0.01 Ac 272 Sq Ft	LOREN EGGERT	LOT 4 REYNOLDS STAGE STOP SUBD SEC 31 T2N R3E
19e	244+44.52 to 247+96.55	L	Temp	0.14 Ac 5950 Sq Ft	STAGE STOP PROPERTIES LLC	ALL LESS LOTS A AND B, LESS LOT 1-5 OF SEVEN HILLS SUB, LESS REYNOLDS STAGE STOP SUB AND LESS ROW (ALSO IN SEC 30 AND 32 T2N R3E AND SEC 25 AND 36 T2N R2E) SEVEN HILLS PLACER MS 1506
20	Plat			Combined with Parcel 19	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 SEC 31 T2N R3E
20a	249+96.33 to 257+95.70	L	Temp	0.22 Ac 9532 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #2077 SEC 31 T2N R3E
20c	258+70.35 to 261+81.78	R	Temp	0.13 Ac 5740 Sq Ft	LOREN EGGERT	LOT 4 REYNOLDS STAGE STOP SUBD SEC 31 T2N R3E
21	Plat			Combined with Parcel 19	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 SEC 31 T2N R3E
22	Plat			0.11 Ac 4584 Sq Ft	LOREN EGGERT	Lot 4 of Reynolds Stage Stop Subdivision, in the SE1/4 of Section 31 and in the SW1/4 of SW1/4 of Section 32, Township 2 North, Range 3 East
23	Plat			22.7 Ac 987917 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
23a	261+31.78 to 264+62.14	R	Temp	0.13 Ac 5746 Sq Ft	LOREN EGGERT	LOT 4 REYNOLDS STAGE STOP SUBD SEC 32 T2N R3E
24	Plat			Combined with Parcel 22	LOREN EGGERT	Lot 4 of Reynolds Stage Stop Subdivision, in the SE1/4 of Section 31 and in the SW1/4 of SW1/4 of Section 32, Township 2 North, Range 3 East
24a	261+89.18 to 264+62.02	R	Temp	25 Sq Ft	JEFFERY MUNSON TRUST	LOT 5 SEVEN HILLS SUBD S32 T2N R3E
25	Plat			Combined with Parcel 23	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
25a	276+07.45 to 279+33.56	L	Temp	0.47 Ac 20432 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #1808 SEC 32 T2N R3E
25b	281+88.46 to 284+16.67	L	Temp	0.09 Ac 4109 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #1808 SEC 32 T2N R3E

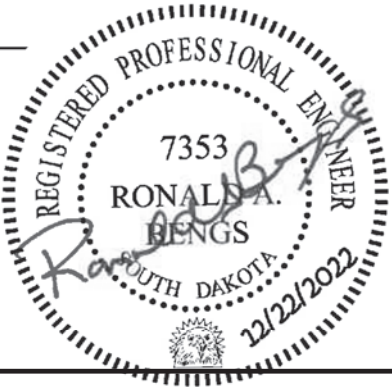


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	88	333

Plotting Date: 2/6/2023

RIGHT OF WAY PLAN TABLE (Continued)

Parcel	Station to Station	Side	Type	Area	Owner	Description
26	Plat			0.01 Ac 517 Sq Ft	JEFFERY MUNSON TRUST	LOT 5 SEVEN HILLS SUBD S32 T2N R3E
26a	260+25 to 262+00	R	Temp	0.06 Ac 2757 Sq Ft	JEFFERY MUNSON TRUST	LOT 5 SEVEN HILLS SUBD S32 T2N R3E
26b	262+00 to 263+75	R	Temp	0.056 Ac 2420 Sq Ft	JEFFERY MUNSON TRUST	LOT 5 SEVEN HILLS SUBD S32 T2N R3E
27a	275+58.19 to 276+66.19	R	Temp	0.03 Ac 1161 Sq Ft	GABRIEL SHAGLA	LOT 4 SEVEN HILLS SUBD S32 T2N R3E
28	Plat			0.01 Ac 461 SqFt	GABRIEL SHAGLA	LOT 4 SEVEN HILLS SUBD S32 T2N R3E
29a	291+94.11 to 292+31.56	L	Temp	0.03 Ac 1126 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #1808 S32 T2N R3E
29b	296+46.08 to 297+42.05	L	Temp	0.02 Ac 1028 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #1506, LESS PT MS #1808 S32 T2N R3E
30	Plat			Combined with Parcel 23	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
30a	299+35.99 to 300+85.62	R	Temp	0.07 Ac 2949 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
31	Plat			Combined with Parcel 23	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
32	Plat			Combined with Parcel 23	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NW1/4, NE1/4 SEC 32 T2N R3E
33	Plat			4.41 Ac 192276 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S29 T2N R3E
34	Plat			Combined with Parcel 33	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S29 T2N R3E
35	Plat			22.90 Ac 997615 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NE1/4, S28 T2N R3E
36	Plat			Combined with Parcel 35	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NE1/4, S28 T2N R3E
37	Plat			Combined with Parcel 35	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NE1/4, S28 T2N R3E
39b	411+60.04 to 412+11.25	R	Temp	0.02 Ac 720 Sq Ft	JAMES HOFFMAN	TRACT D OF NW1/4SW1/4 LESS CO RD ROW ROW S27 T2N R3E
41	Plat			Combined with Parcel 35	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4, SE1/4, NE1/4, S28 T2N R3E
42a	414+28.79 to 415+31.22	R	Temp	0.10Ac 4,205 Sq Ft	WAMATTS LLC	TRACT E OF NW1/4SW1/4 LESS CO RD ROW SEC 27 T2N R3E
45	Plat			136 Sq Ft	WAMATTS LLC	NW1/4 SW1/4 SEC 27, T2N, R3E
46	Plat			104 Sq Ft	WAMATTS LLC	NW1/4 SW1/4 SEC 27, T2N, R3E
49	Plat			.03 Ac 1101 Sq Ft	MARSHA MCCLAIN	W1/2 SW1/4 NW1/4 S27, T2N, R3E
50a	420+30.22 to 423+19.15	L	Temp	0.11 Ac 4998 Sq Ft	MARSHA MCCLAIN	W1/2SW1/4NW1/4 LESS CO RD ROW S27 T2N R3E
50b	423+19.15 to 423+34.21	L	Temp	164 Sq Ft	SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2SW1/4NW1/4 AND W20 ft OF C S LANE (A PRIVATE DRIVE EASEMENT LOCATED IN THE E1/2SW1/4NW1/4 SEC 27 T2N R3E)
51	Plat			0.37 Ac 16082 Sq Ft	MARSHA MCCLAIN	W1/2 SW1/4 NW1/4 S27, T2N, R3E



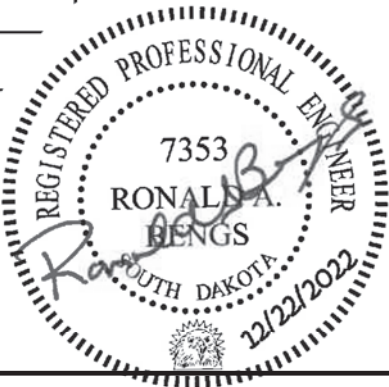


RIGHT OF WAY PLAN TABLE (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	89	333

Plotting Date: 2/6/2023

Parcel	Station to Station	Side	Type	Area	Owner	Description
51a	423+95.74 to 425+22.32	R	Temp	0.05 Ac 2001 Sq Ft	SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2SW1/4NW1/4 AND W20 ft OF C S LANE (A PRIVATE DRIVE EASEMENT LOCATED IN THE E1/2SW1/4NW1/4) LESS CO RD ROW S27 T2N R3E
51b	424+59.82 to 425+03.35	L	Temp	0.02 Ac 683 Sq Ft	SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2SW1/4NW1/4 AND W20 ft OF C S LANE (A PRIVATE DRIVE EASEMENT LOCATED IN THE E1/2SW1/4NW1/4) LESS CO RD ROW S27 T2N R3E
51c	425+84.77 to 431+87.48	L	Temp	0.32 Ac 13845 Sq Ft	SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2SW1/4NW1/4 AND W20 ft OF C S LANE (A PRIVATE DRIVE EASEMENT LOCATED IN THE E1/2SW1/4NW1/4) LESS CO RD ROW S27 T2N R3E
53	Plat				SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2 SW1/4 NW1/4 S27, T2N, R3E
53a	430+29.25 to 430+66.26	R	Temp	0.01 Ac 256 Sq Ft	SUSAN SCHWANEKE/POTRATZ/FALSEY	E1/2SW1/4NW1/4 AND W20 ft OF C S LANE (A PRIVATE DRIVE EASEMENT LOCATED IN THE E1/2SW1/4NW1/4) LESS CO RD ROW S27 T2N R3E
53b	430+86.07 to 432+03.59	R	Temp	0.02 Ac 843 Sq Ft	BEVERLY HOWEY TRUST	NE1/4NW1/4SW1/4; NW1/4SE1/4NW1/4 LESS CO RD ROW; E20 ft OF C S LANE (A PRIVATE DR EASEMENT LOCATED IN THE NW1/4SE1/4NW1/4) S27 T2N R3E
53c	431+87.48 to 433+29.17	L	Temp	0.02 Ac 950 Sq Ft	BEVERLY HOWEY TRUST	NE1/4NW1/4SW1/4; NW1/4SE1/4NW1/4 LESS CO RD ROW; E20 ft OF C S LANE (A PRIVATE DR EASEMENT LOCATED IN THE NW1/4SE1/4NW1/4) S27 T2N R3E
54	Plat			0.18 Ac 7993 Sq Ft	BEVERLY HOWEY TRUST	NW1/4 SE1/4 NW1/4 S27, T2N, R3E
55a	435+83.72 to 436+38.06	L	Temp	0.02 Ac 843 Sq Ft	BEVERLY HOWEY TRUST	NE1/4NW1/4SW1/4; NW1/4SE1/4NW1/4 LESS CO RD ROW; E20 ft OF C S LANE (A PRIVATE DR EASEMENT LOCATED IN THE NW1/4SE1/4NW1/4) S27 T2N R3E
55b	437+32.50 to 438+52.13	L	Temp	0.10Ac 4141 Sq Ft	BEVERLY HOWEY TRUST	NE1/4NW1/4SW1/4; NW1/4SE1/4NW1/4 LESS CO RD ROW; E20 ft OF C S LANE (A PRIVATE DR EASEMENT LOCATED IN THE NW1/4SE1/4NW1/4) S27 T2N R3E
55c	438+52.13 to 445+31.77	L	Temp	0.66 Ac 28579 Sq Ft	ALAN HARVEY/BRYAN HARVEY/JUDITH BELCHER	E1/2 SE1/4 NW1/4 LESS CO RD ROW S27, T2N, R3E
56	Plat			0.05 Ac 1960 Sq Ft	ALAN HARVEY/BRYAN HARVEY/JUDITH BELCHER	E1/2 SE1/4 NW1/4 S27, T2N, R3E
57	Plat			37 Sq Ft	ALAN HARVEY/BRYAN HARVEY/JUDITH BELCHER	E1/2 SE1/4 NW1/4 S27, T2N, R3E
57a	Musick Drive Alignment			0.86 Ac 37648 SqFt	WADE MUSICK	W1/2 SW1/4 NE1/4 S27, T2N, R3E
58	Plat			1.24 Ac 54131 SqFt	WADE MUSICK	W1/2 SW1/4 NE1/4 S27, T2N, R3E
60	Plat			0.05 Ac 2139 Sq Ft	JOHNNY & MAUD HOPKINS/KIMBERLY GRIFFITH	NE1/4 SW1/4 NE1/4 S27, T2N, R3E
61	Plat			0.06 Ac 2464 Sq Ft	KEVIN & DIANN KILLION	NE1/4 SW1/4 NE1/4 S27, T2N, R3E
61a & b	452+75.71 to 453+59.67	L	Temp	0.394Ac 17179 Sq Ft	KEVIN & DIANN KILLION	THAT PT OF NE1/4SW1/4NE1/4 LYING NORTH OF ROCHFORD RD S27 T2N R3E
61c	455+18.85 to 455+53.92	R	Temp	0.01 Ac 359 Sq Ft	JOHNNY & MAUD HOPKINS/KIMBERLY GRIFFITH	THAT PT OF NE1/4SW1/4NE1/4 LYING SOUTH OF ROCHFORD RD S27 T2N R3E
62	Plat			6.67 Ac 290613 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NE1/4 S27, T2N, R3E
62a	468+35.26 to 469+81.41	L	Temp	0.02 Ac 916 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	E1/2NE1/4; NW1/4NE1/4; N1/2NW1/4; E1/2SW1/4; SW1/4SW1/4; SE1/4 LESS PT MS #1620 LESS N1/2NE1/4NW1/4 S27 T2N R3E
62b	470+58.70 to 476+04.47	L	Temp	0.23 Ac 9889 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	E1/2NE1/4; NW1/4NE1/4; N1/2NW1/4; E1/2SW1/4; SW1/4SW1/4; SE1/4 LESS PT MS #1620 LESS N1/2NE1/4NW1/4 S27 T2N R3E
63	Plat			Combined with Parcel 62	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NE1/4 S27, T2N, R3E
64	Plat			0.25 Ac 10751 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NW1/4 S26, T2N, R3E
64a	475+04.12 to 477+27.97	R	Temp	0.07 Ac 3031 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS PT MS #164, LESS PT MS #1620, LESS PT MS #1654, LESS TRACT 0273 OF NW1/4SW1/4 S26 T2N R

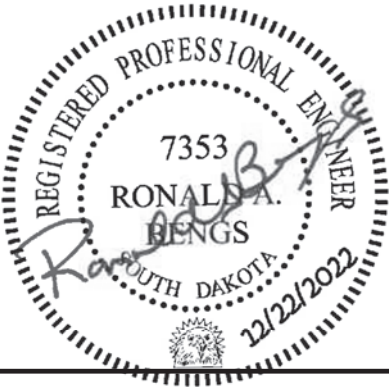


RIGHT OF WAY PLAN TABLE (Continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	90	333

Plotting Date: 2/6/2023

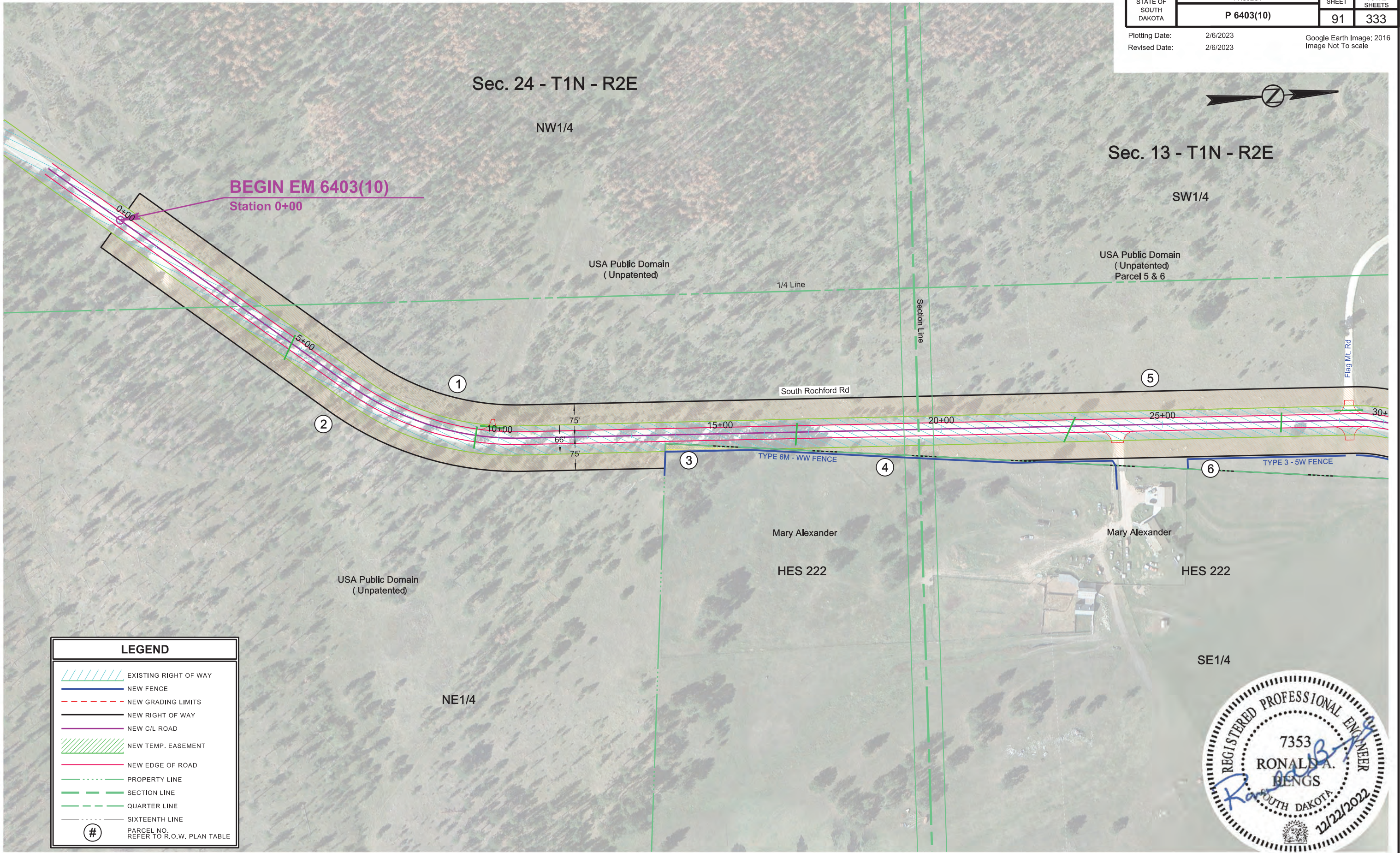
Parcel	Station to Station	Side	Type	Area	Owner	Description
65	Plat			Combined with Parcel 64	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NW1/4 S26, T2N, R3E
66	Plat			Combined with Parcel 62	USA PUBLIC DOMAIN (UNPATENTED)	A portion of NE1/4 S27, T2N, R3E
67	Plat			10.46 Ac 455551 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S22, T2N, R3E
68	Plat			Combined with Parcel 67	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 S22, T2N, R3E
69	Plat			7.12 Ac 310214 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4 S23, T2N, R3E
70	Plat			Combined with Parcel 69	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SW1/4 S23, T2N, R3E
71	Plat			Combined with Parcel 67	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 NE1/4 S22, T2N, R3E
71a	505+18.18 to 507+41.95	L	Temp	0.16 Ac 6924 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS S1/2SE1/4SW1/4 S22 T2N R3E
71b	508+08.22 to 508+59.39	L	Temp	0.01 Ac 223 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS S1/2SE1/4SW1/4 S22 T2N R3E
71c	522+66.16 to 523+05.1	L	Temp	0.01 Ac 517 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	ALL LESS S1/2SE1/4SW1/4 S22 T2N R3E
72	Plat			Combined with Parcel 67	USA PUBLIC DOMAIN (UNPATENTED)	A portion of SE1/4 NE1/4 S22, T2N, R3E
77a	522+17.75 to 524+25.25	R	Temp	0.02 Ac 898 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	BLL ON SE1/4NE1/4NE1/4 S23 T2N R3E
78a	523+05.10 to 524+56.92	L	Temp	0.21 Ac 9045 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	BLL ON SE1/4NE1/4NE1/4 S23 T2N R3E
82a	530+70.71 to 531+10.73	R	Temp	0.01 Ac 241 Sq Ft	USA PUBLIC DOMAIN (UNPATENTED)	BLL ON SE1/4NE1/4NE1/4 S23 T2N R3E
82b	531+10.73 to 535+56.15	R	Temp	0.19 Ac 8097 Sq Ft	Fred & Jan Kromer	KERN LOD MS 974 S23 T2N R3E
82c	531+74.80 to 536+07.05	L	Temp	0.21 Ac 9177 Sq Ft	Fred & Jan Kromer	KERN LOD MS 974 S23 T2N R3E





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	91	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



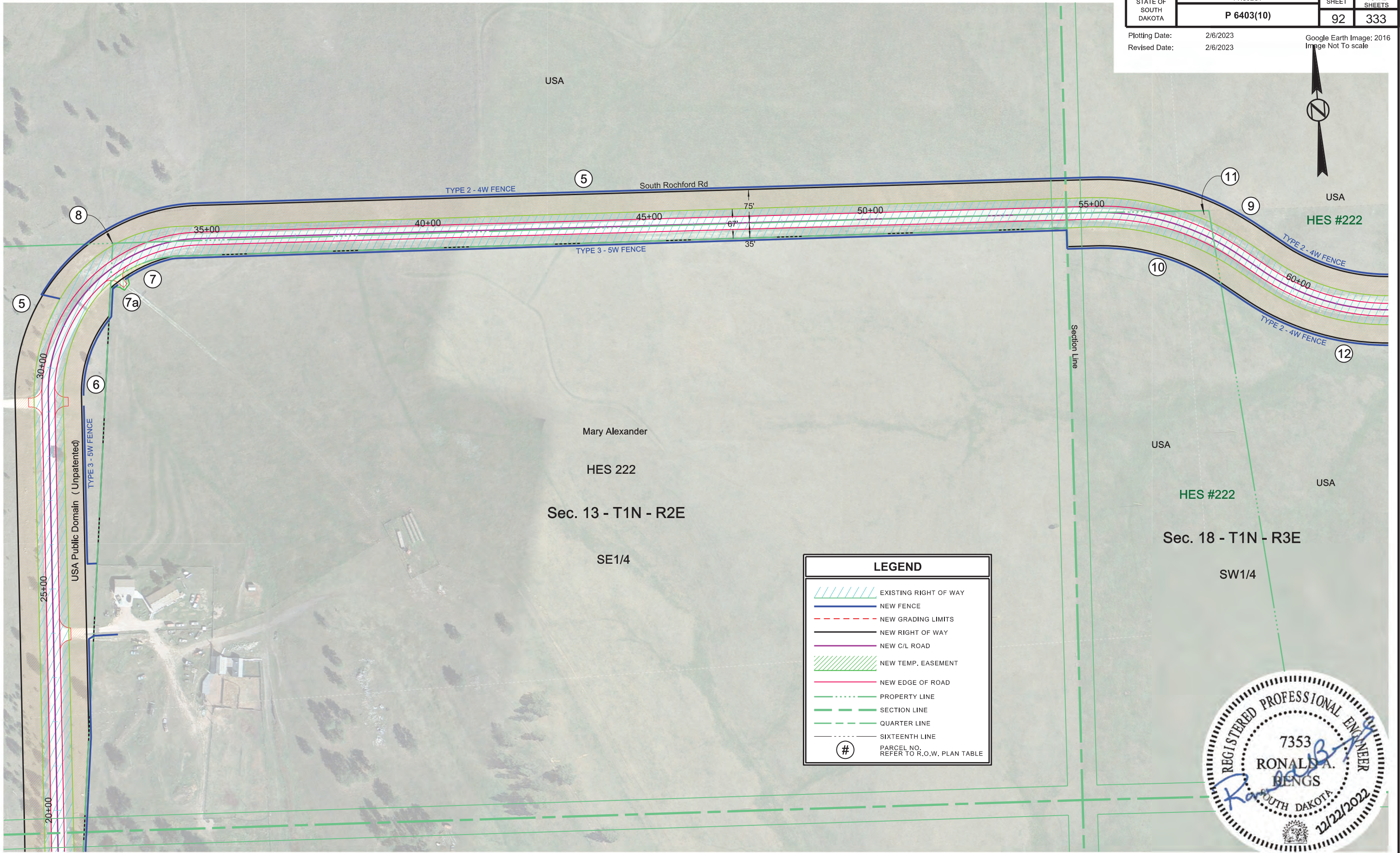
LEGEND	
	EXISTING RIGHT OF WAY
	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	92	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



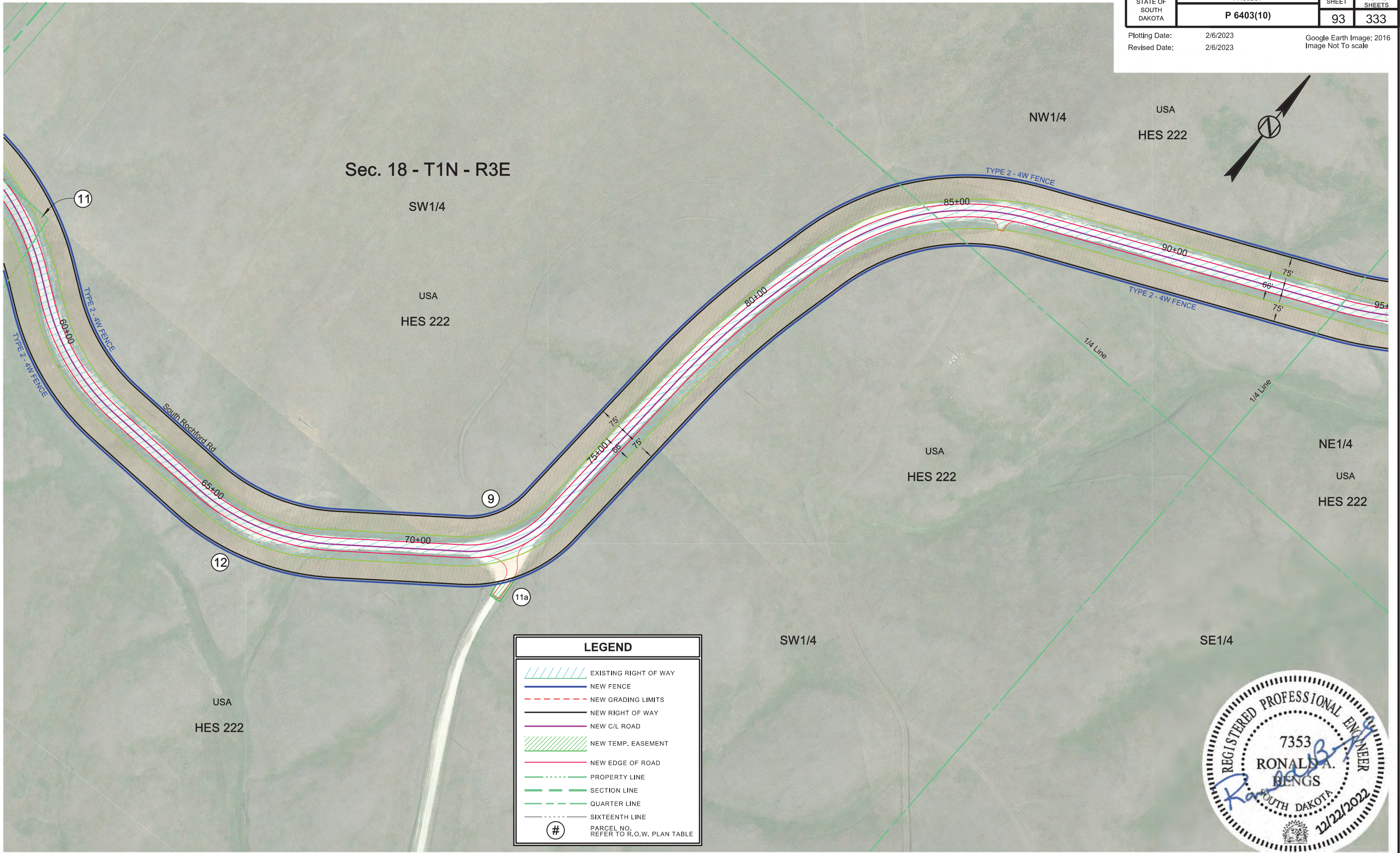
LEGEND	
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	93	333
Plotting Date:	2/6/2023	Google Earth Image: 2016	
Revised Date:	2/6/2023	Image Not To scale	

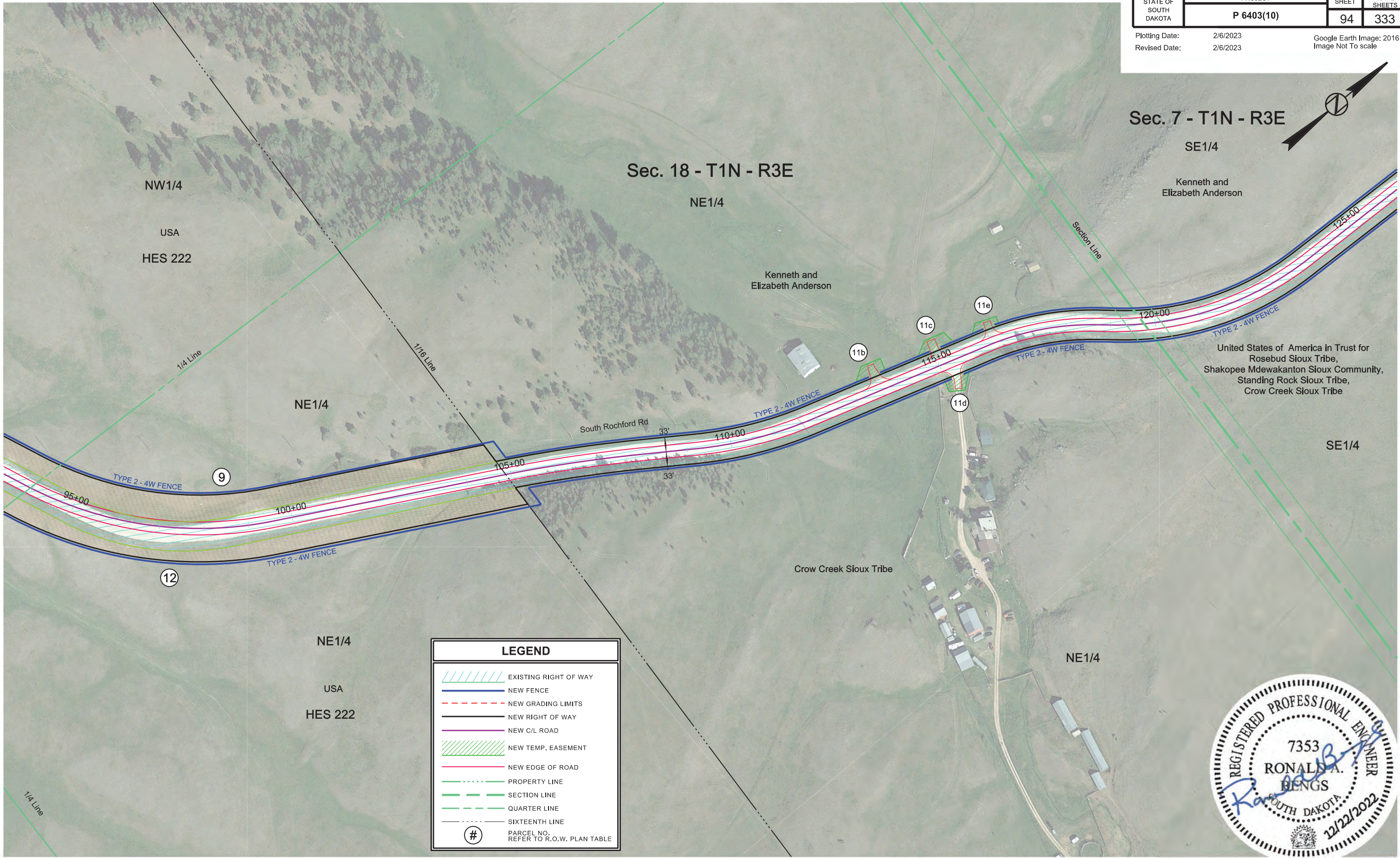


LEGEND	
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	94	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



LEGEND	
	EXISTING RIGHT OF WAY
	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	95	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



Sec. 7 - T1N - R3E

SE1/4

NE1/4

Kenneth and  
Elizabeth Anderson

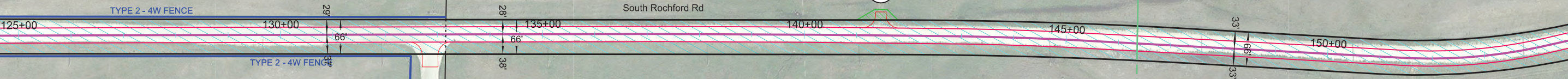
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Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

South Rochford Rd

11f

1/4 Line



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Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

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Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

SE1/4

LEGEND	
	EXISTING RIGHT OF WAY
	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	96	333
Plotting Date:	2/6/2023	Google Earth Image: 2016	
Revised Date:	2/6/2023	Image Not To scale	

Sec. 7 - T1N - R3E

NE1/4

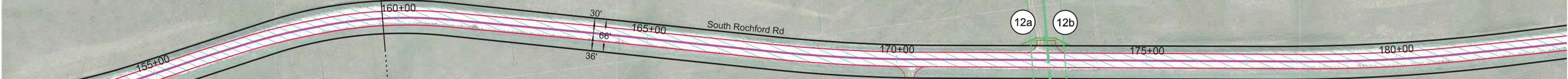
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Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

Sec. 6 - T1N - R3E

SE1/4

Shakopee Mdewakanton Sioux Community



United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

United States of America in Trust for Rosebud Sioux Tribe,  
Shakopee Mdewakanton Sioux Community,  
Standing Rock Sioux Tribe, Crow Creek Sioux Tribe

Shakopee Mdewakanton Sioux Community

SE1/4

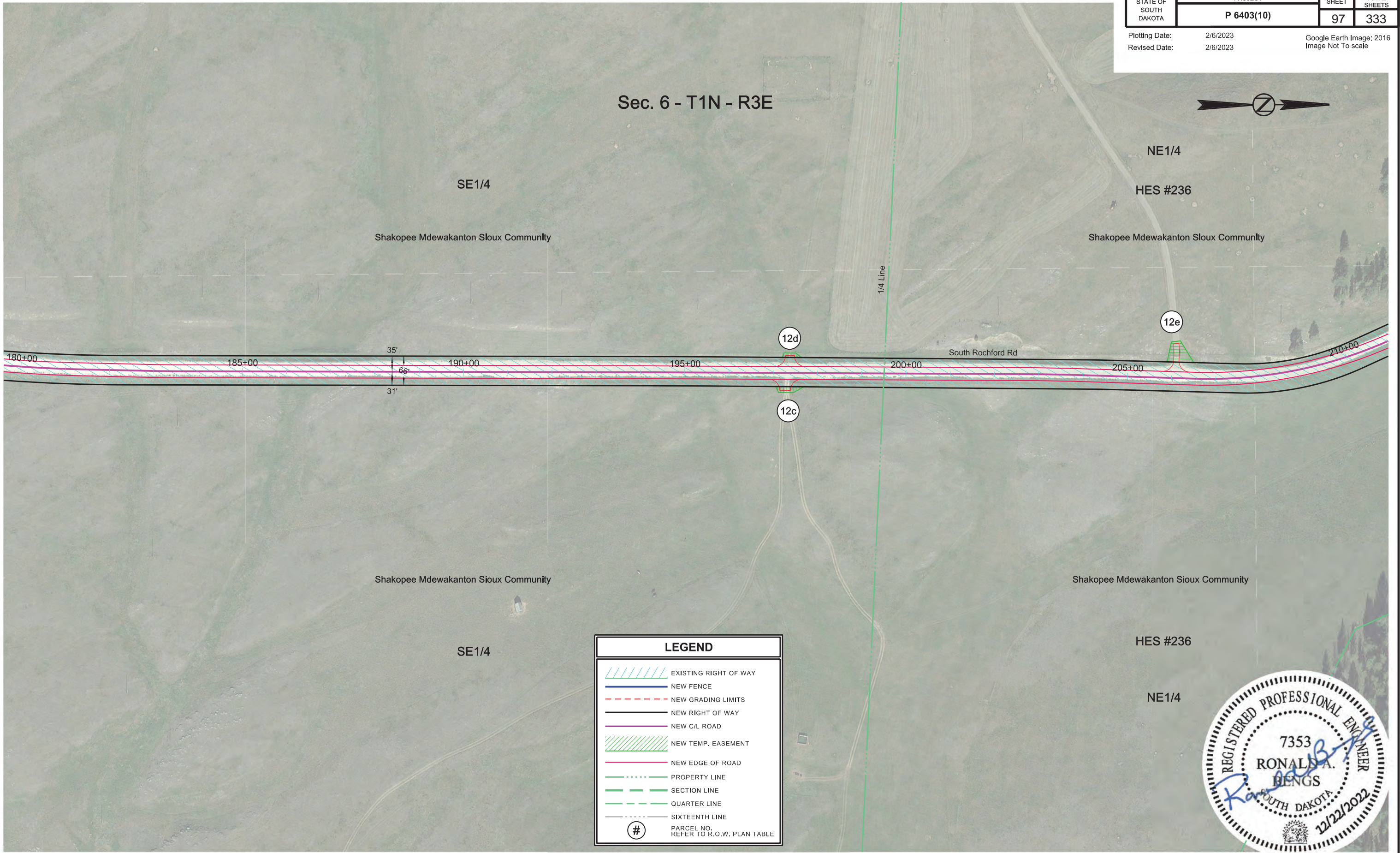
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
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	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

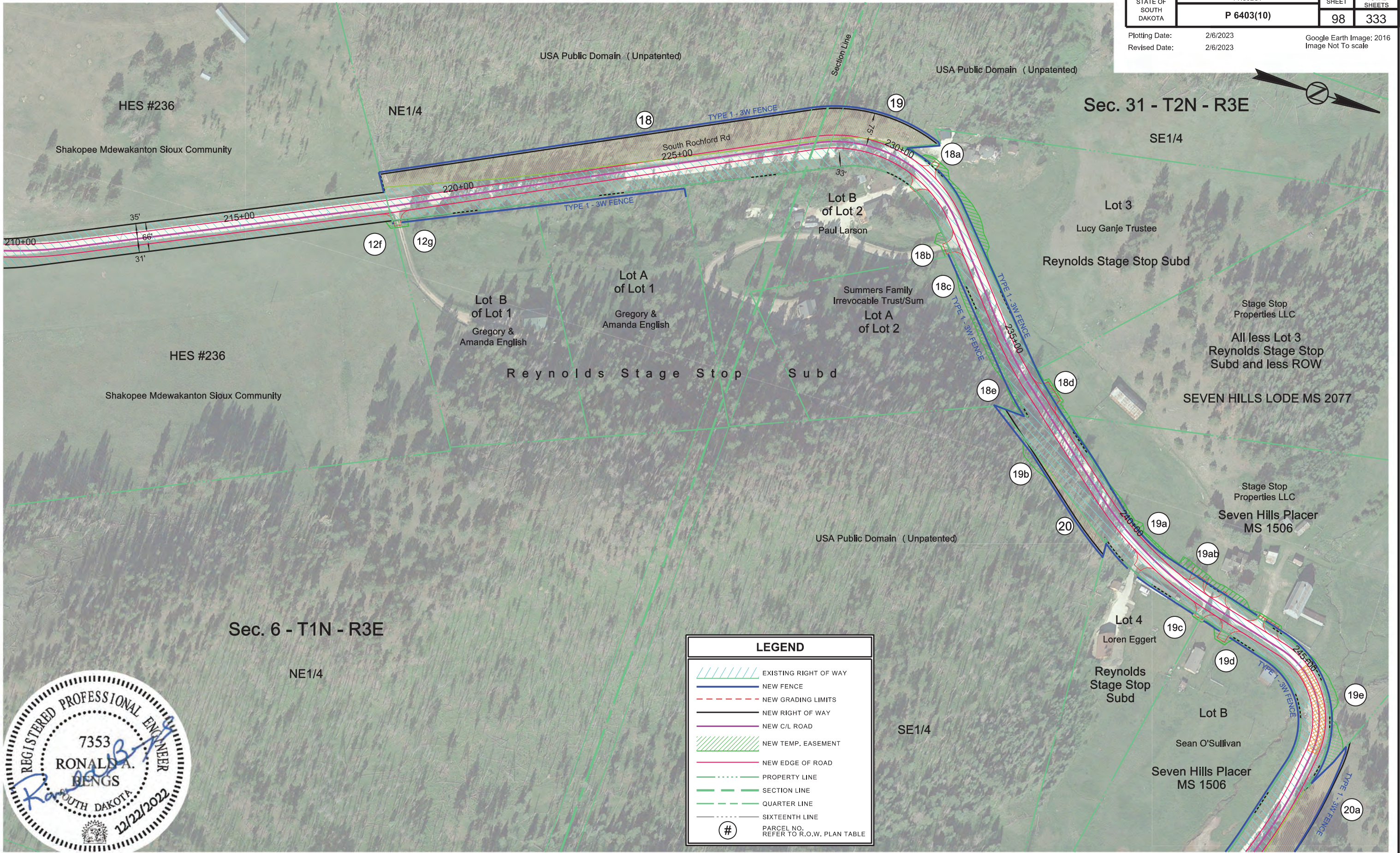
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Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



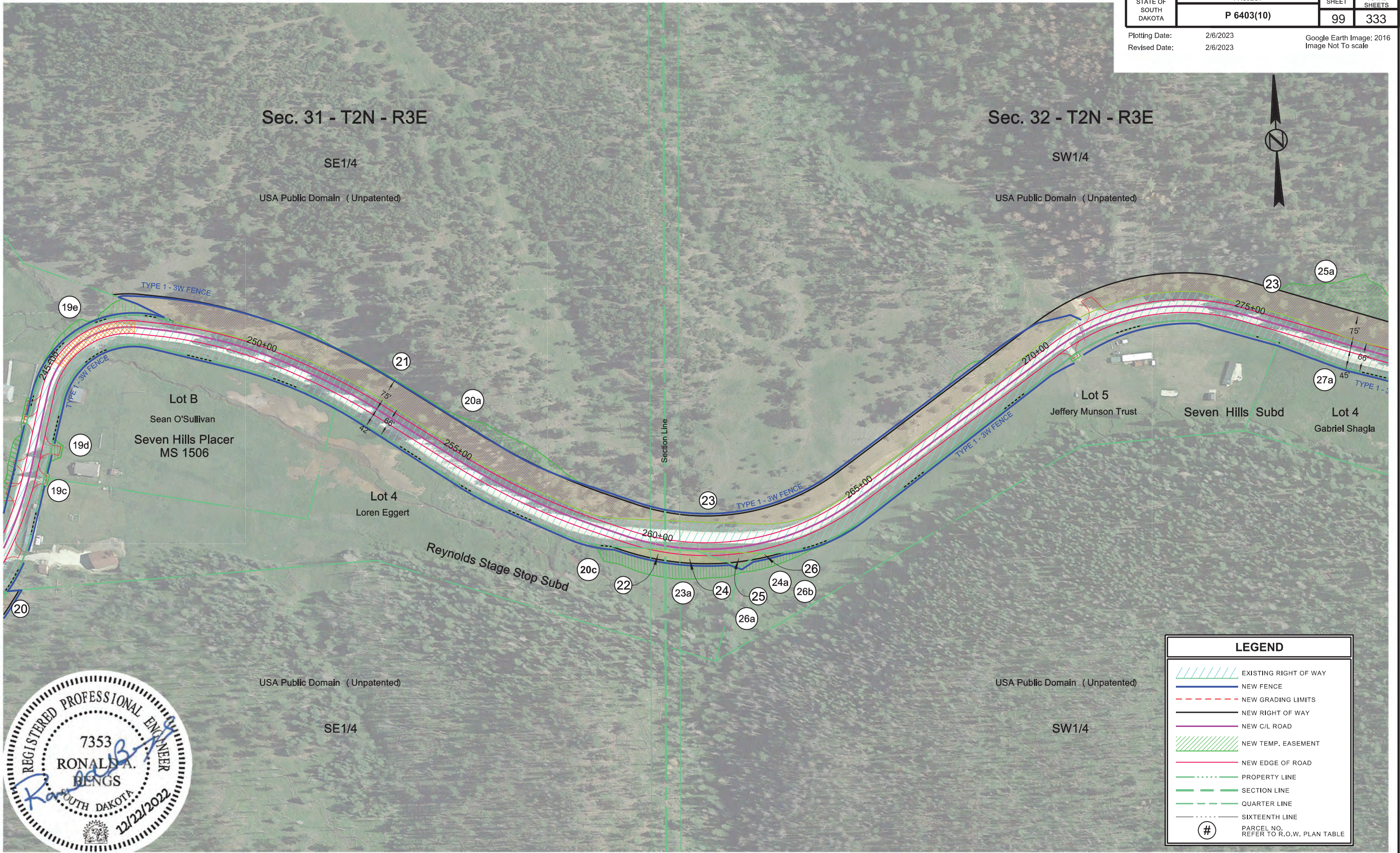
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

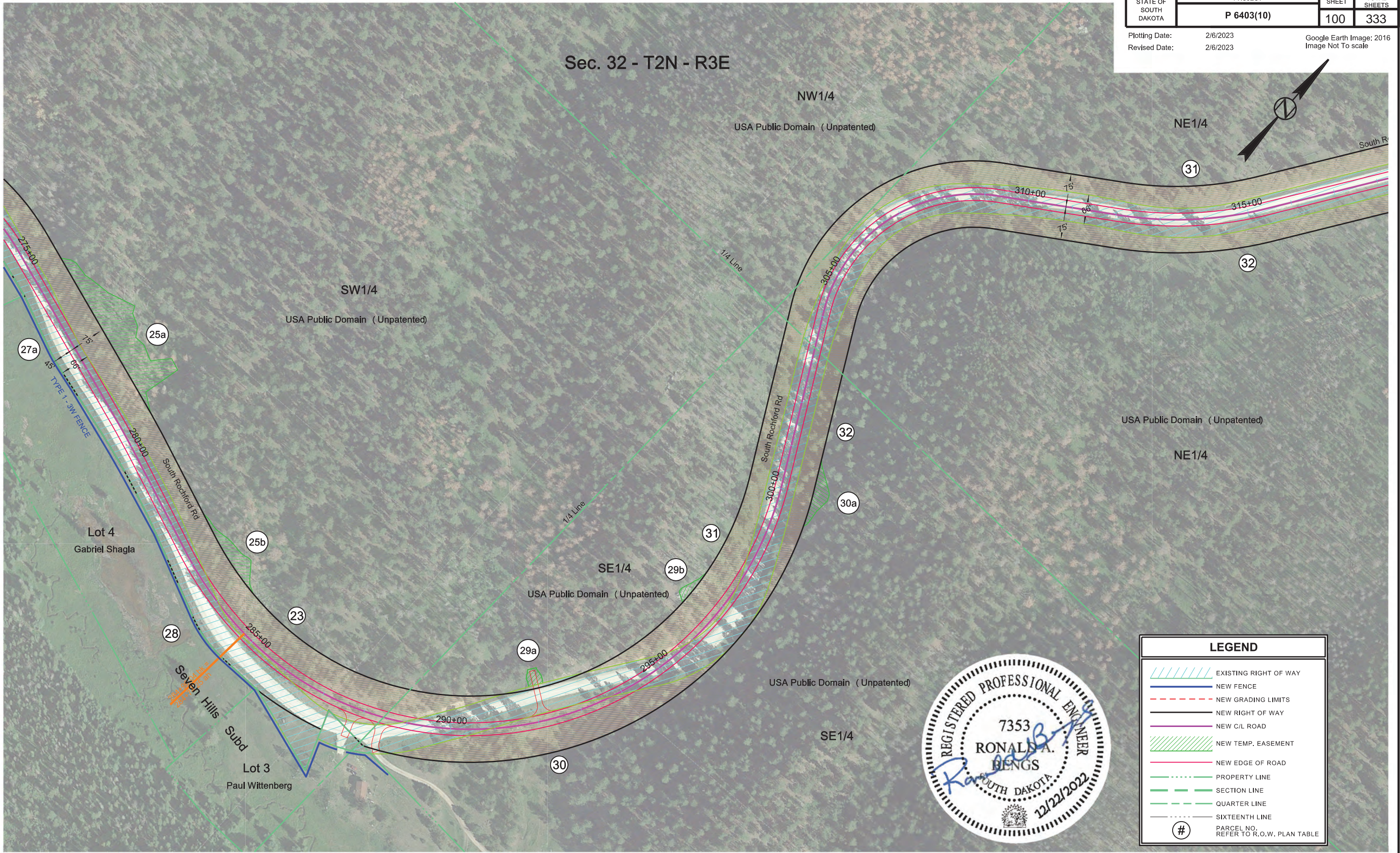
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Plotting Date:	2/6/2023	Google Earth Image: 2016 Image Not To scale	
Revised Date:	2/6/2023		





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date:	2/6/2023	Google Earth Image: 2016	
Revised Date:	2/6/2023	Image Not To scale	





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	

Sec. 32 - T2N - R3E

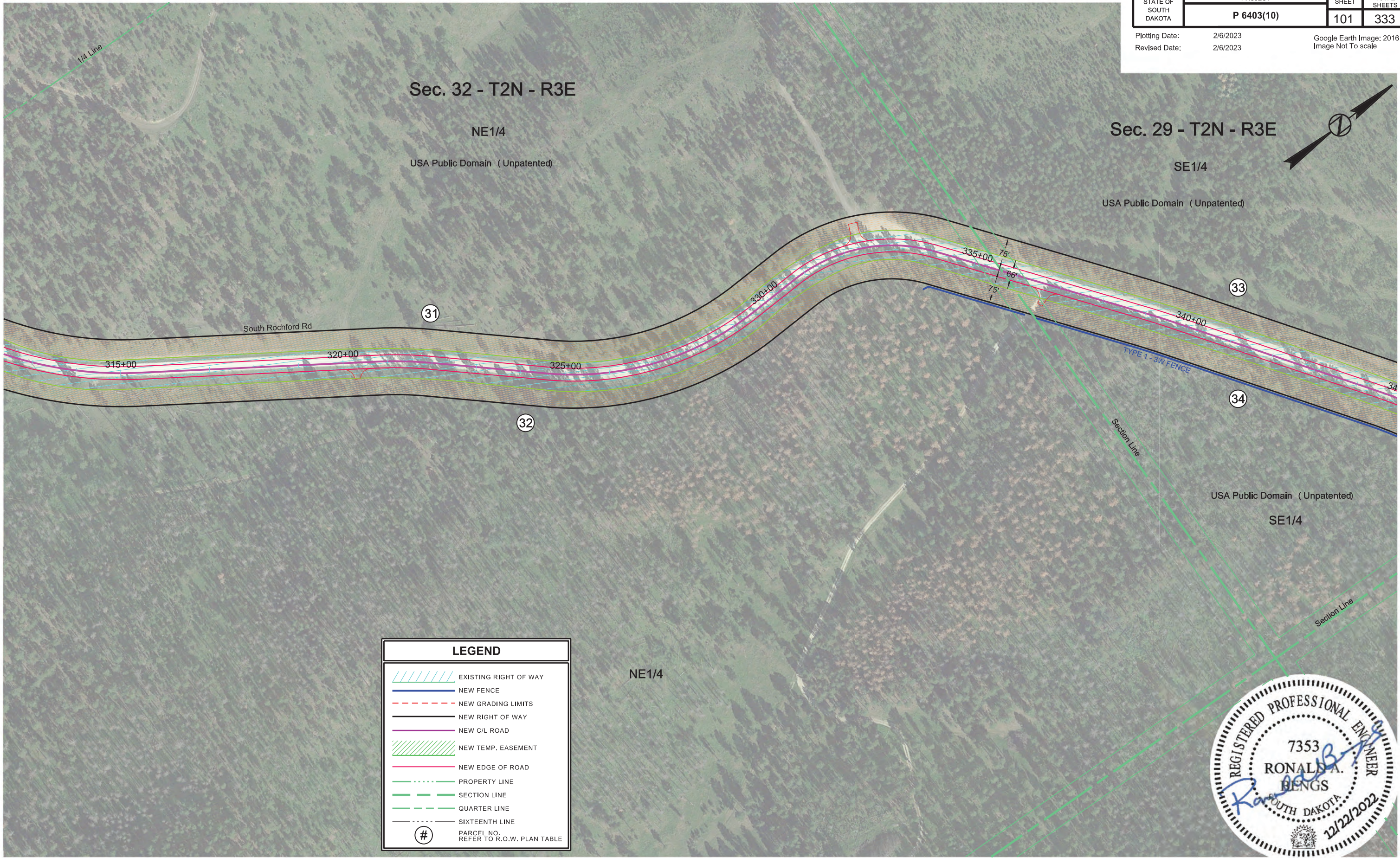
NE1/4

USA Public Domain (Unpatented)

Sec. 29 - T2N - R3E

SE1/4

USA Public Domain (Unpatented)



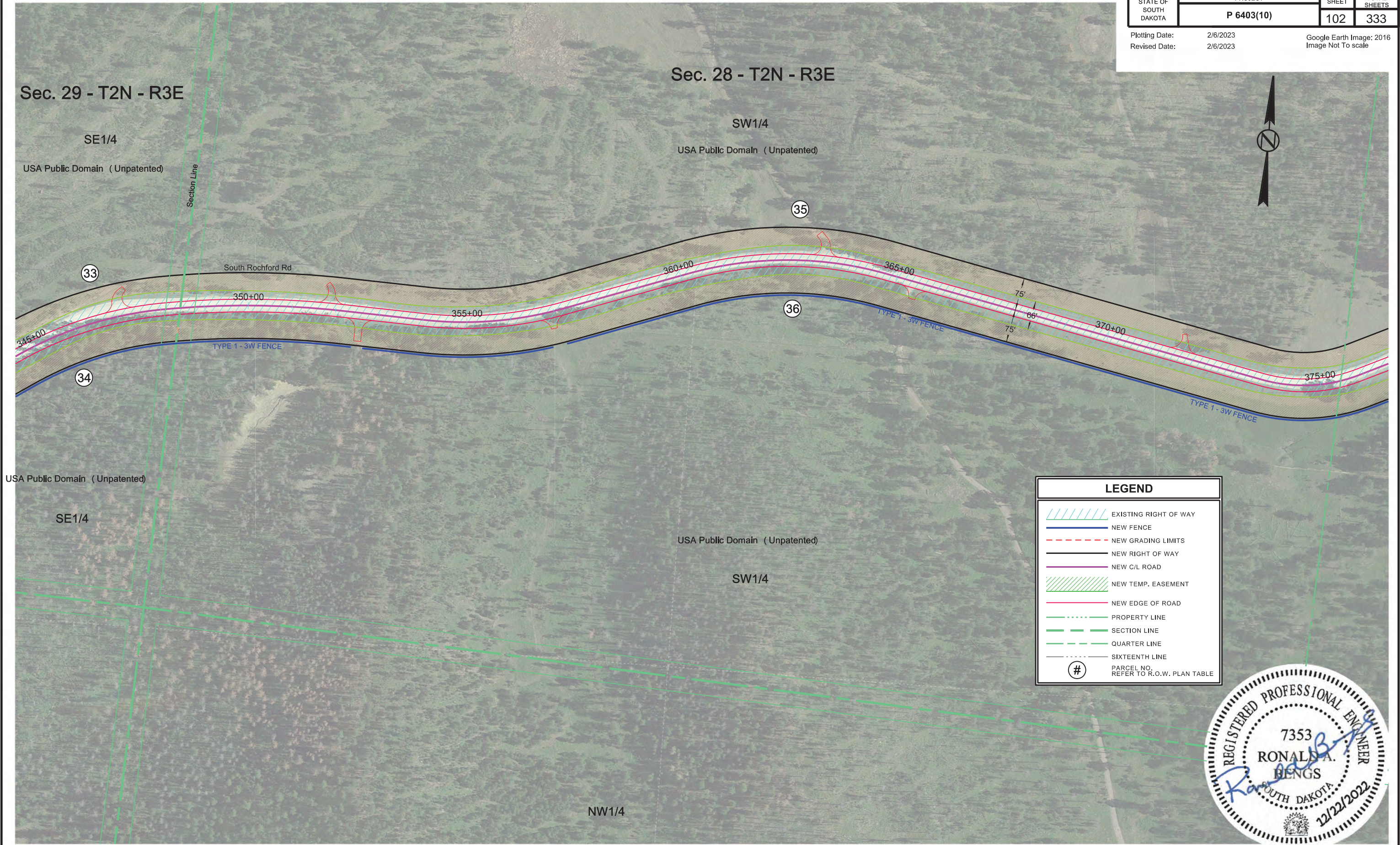
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

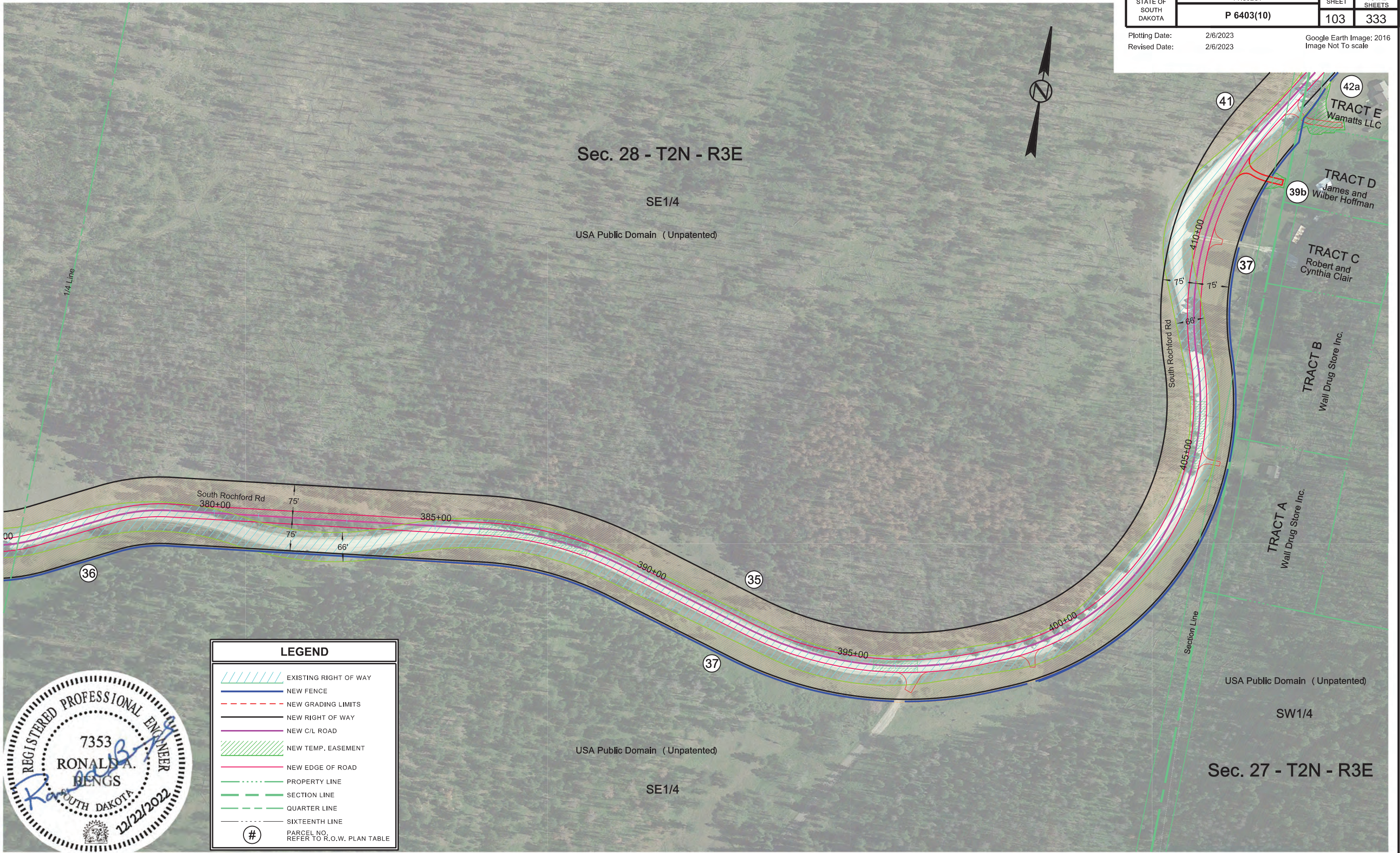
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Revised Date: 2/6/2023		Image Not To scale	





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	



LEGEND

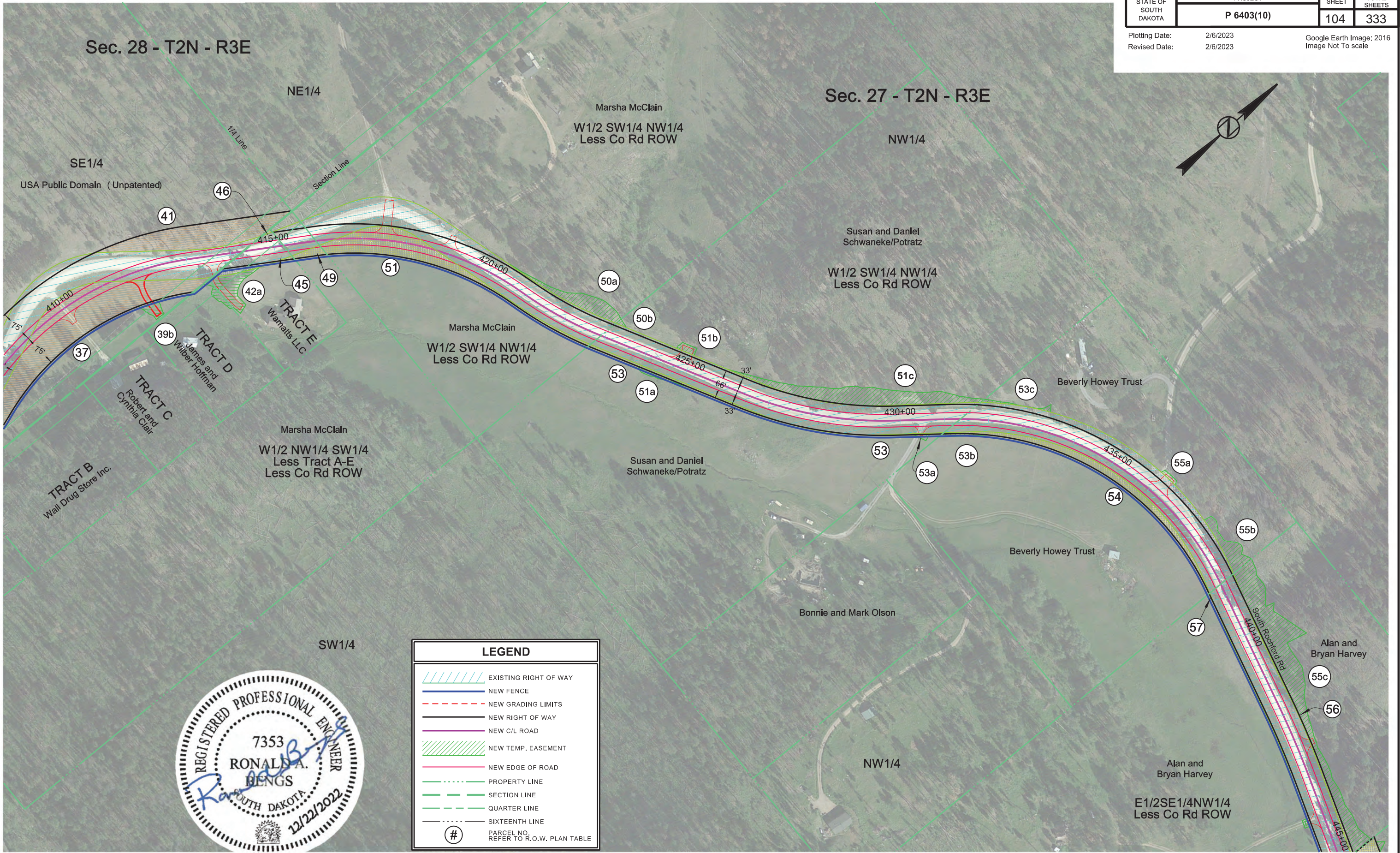
- EXISTING RIGHT OF WAY
- NEW FENCE
- NEW GRADING LIMITS
- NEW RIGHT OF WAY
- NEW C/L ROAD
- NEW TEMP. EASEMENT
- NEW EDGE OF ROAD
- PROPERTY LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

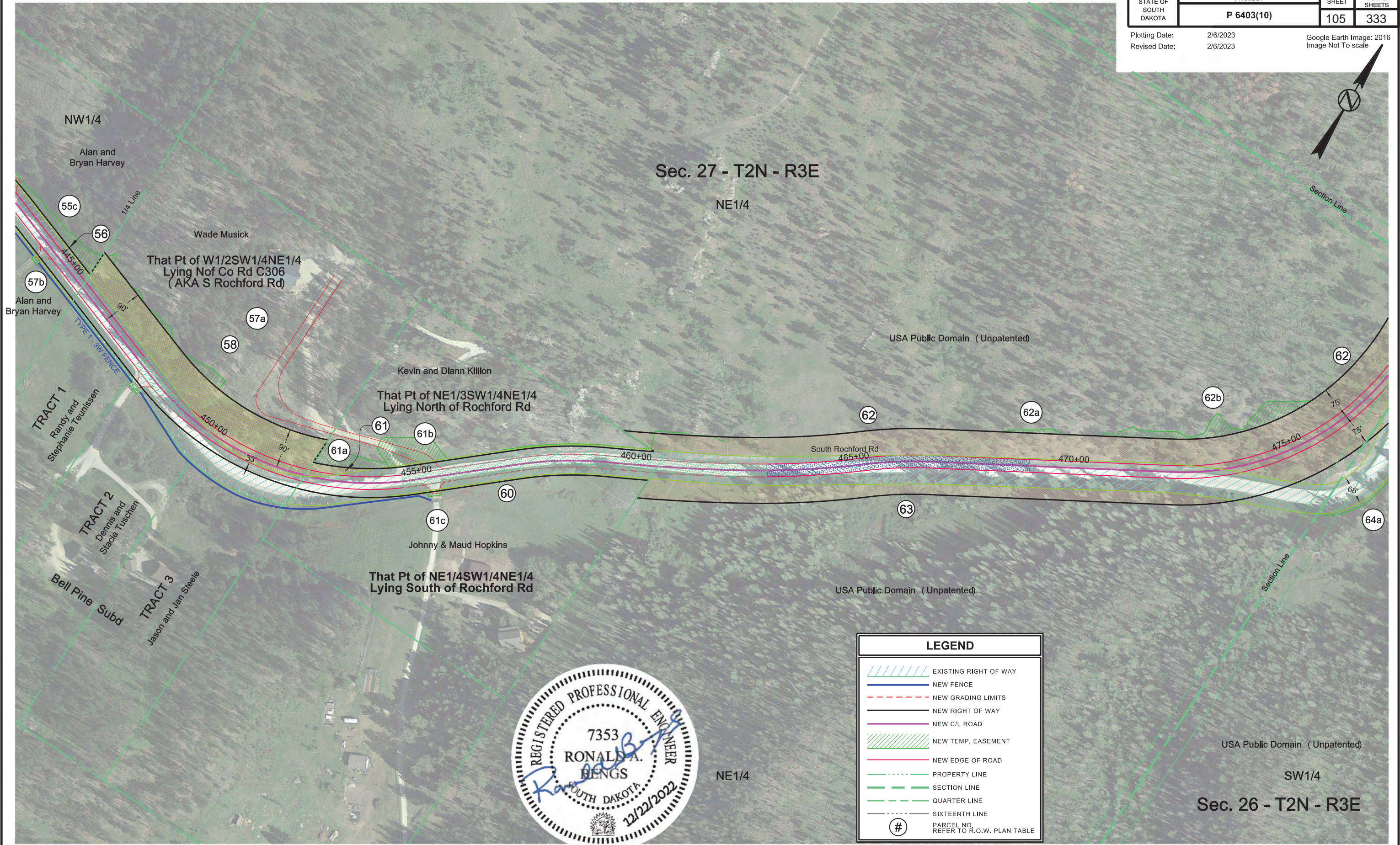
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FOR BIDDING PURPOSES ONLY

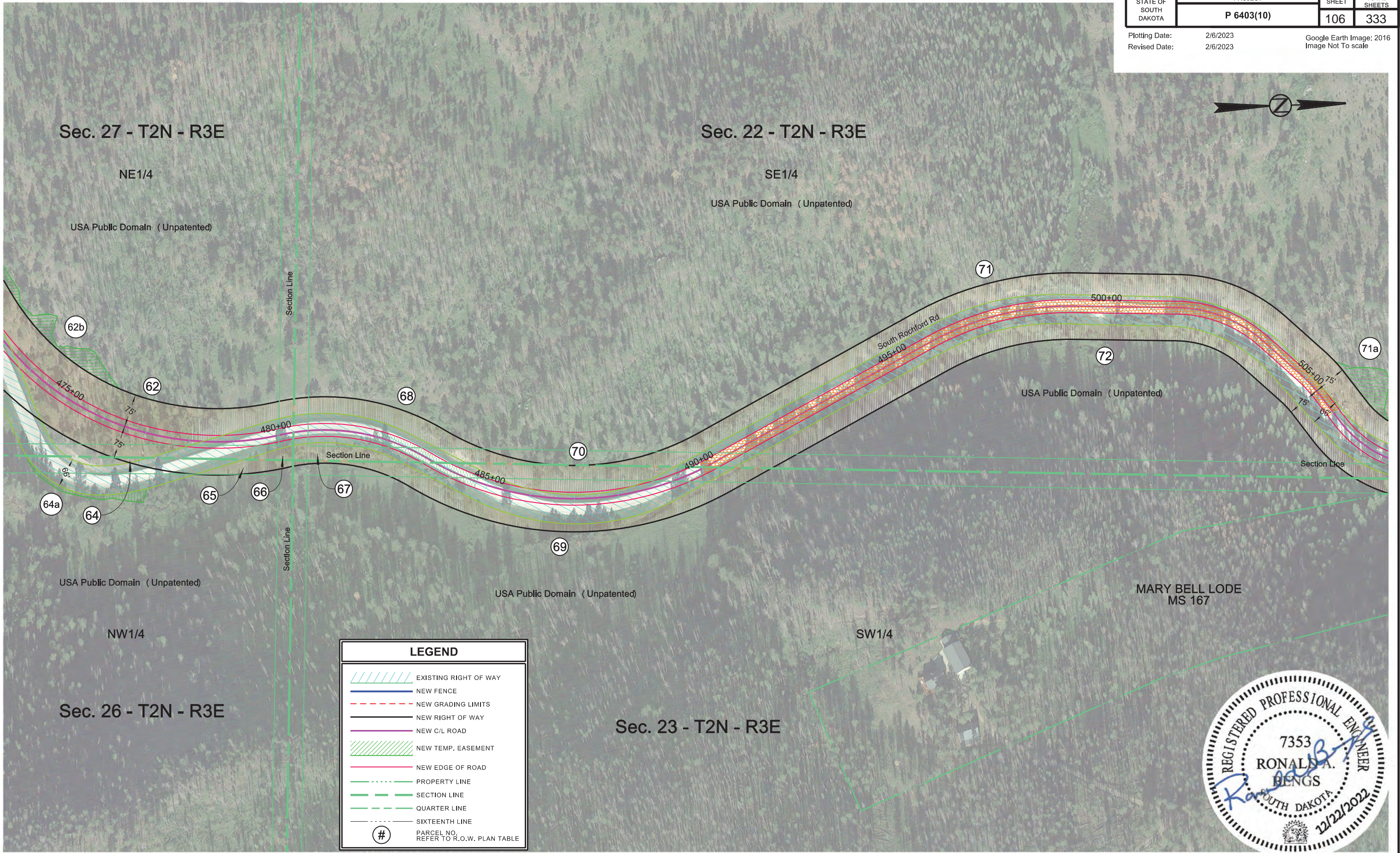
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	105	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 2/6/2023		Google Earth Image: 2016	
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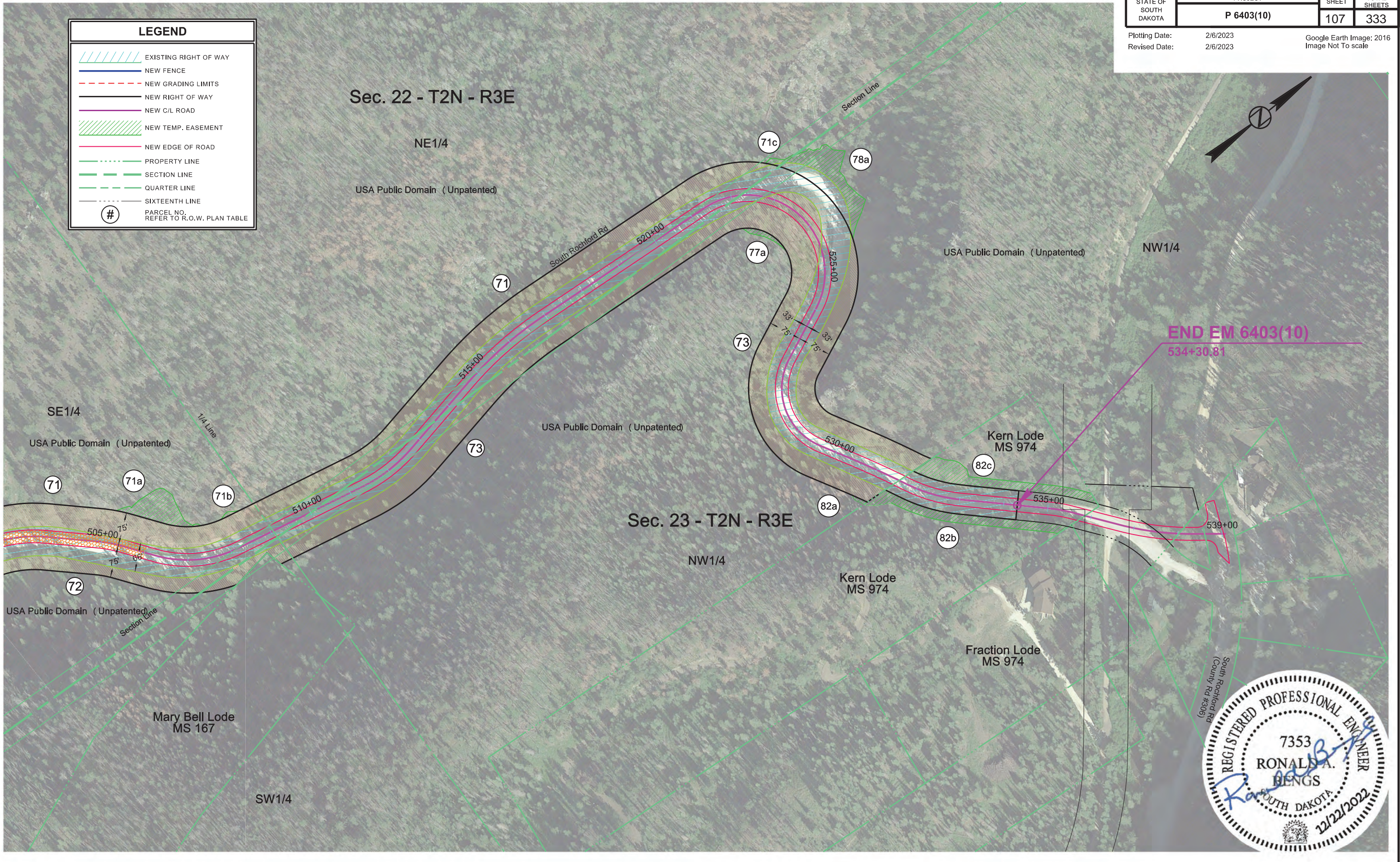
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	NEW FENCE
	NEW GRADING LIMITS
	NEW RIGHT OF WAY
	NEW C/L ROAD
	NEW TEMP. EASEMENT
	NEW EDGE OF ROAD
	PROPERTY LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	PARCEL NO. REFER TO R.O.W. PLAN TABLE





FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	107	333
Plotting Date: 2/6/2023		Google Earth Image: 2016	
Revised Date: 2/6/2023		Image Not To scale	

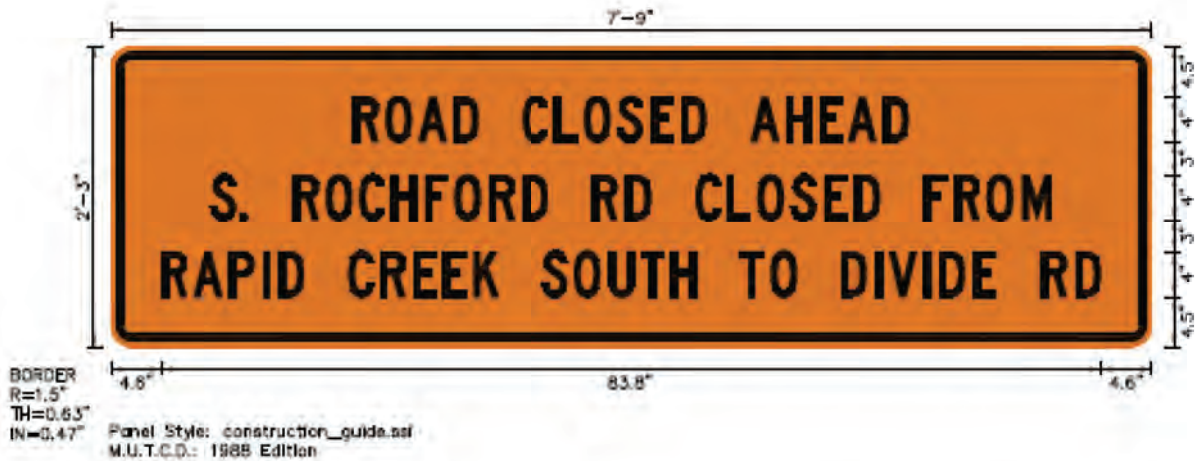




STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	108	333

Plotting Date: 2/6/2023  
Revised: 02/06/2023

SIGN DETAIL  
1:15



Panel Style: construction\_guide.ssi  
Dimensions are in inches, tenths

SIGN NUMBER	Advanced Closure
WIDTH x HGT.	7'-9" x 2'-3"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective COLOR: Orange
LEGEND/BORDER	TYPE: Reflective COLOR: White/Black

SYMBOL	ROT	X	Y	WID	HT

Letter locations are panel edge to lower left corner.

LETTER POSITIONS (X)																																LENGTH				SERIES/SIZE	
R	O	A	D		C	L	O	S	E	D		A	H	E	A	D																			C		
21.7	24.5	27.5	30.7	32.9	36.9	39.7	42.4	45.4	48.4	51.1	53.3	57.3	60.5	63.5	66	69.1																			49.6	4	
S	.		R	O	C	H	F	O	R	D		R	D		C	L	O	S	E	D		F	R	O	M											C	
8.9	11.6	12.4	16.4	19.2	22.2	25.1	28.1	30.8	33.9	36.9	39.1	43.1	46.2	48.4	52.4	55.2	57.9	60.9	63.9	66.6	68.8	72.8	75.4	78.3	81.5									75.1	4		
R	A	P	I	D		C	R	E	E	K		S	O	U	T	H		T	O		D	I	V	I	D	E		R	D							C	
4.6	7.4	10.6	13.6	15	17.2	21.2	24.1	27.1	29.8	32.5	34.7	38.7	41.5	44.7	47.5	50.2	52.4	56.4	59.1	61.4	65.4	68.4	69.6	72.7	74.1	77.2	79.2	83.2	86.2						83.8	4	

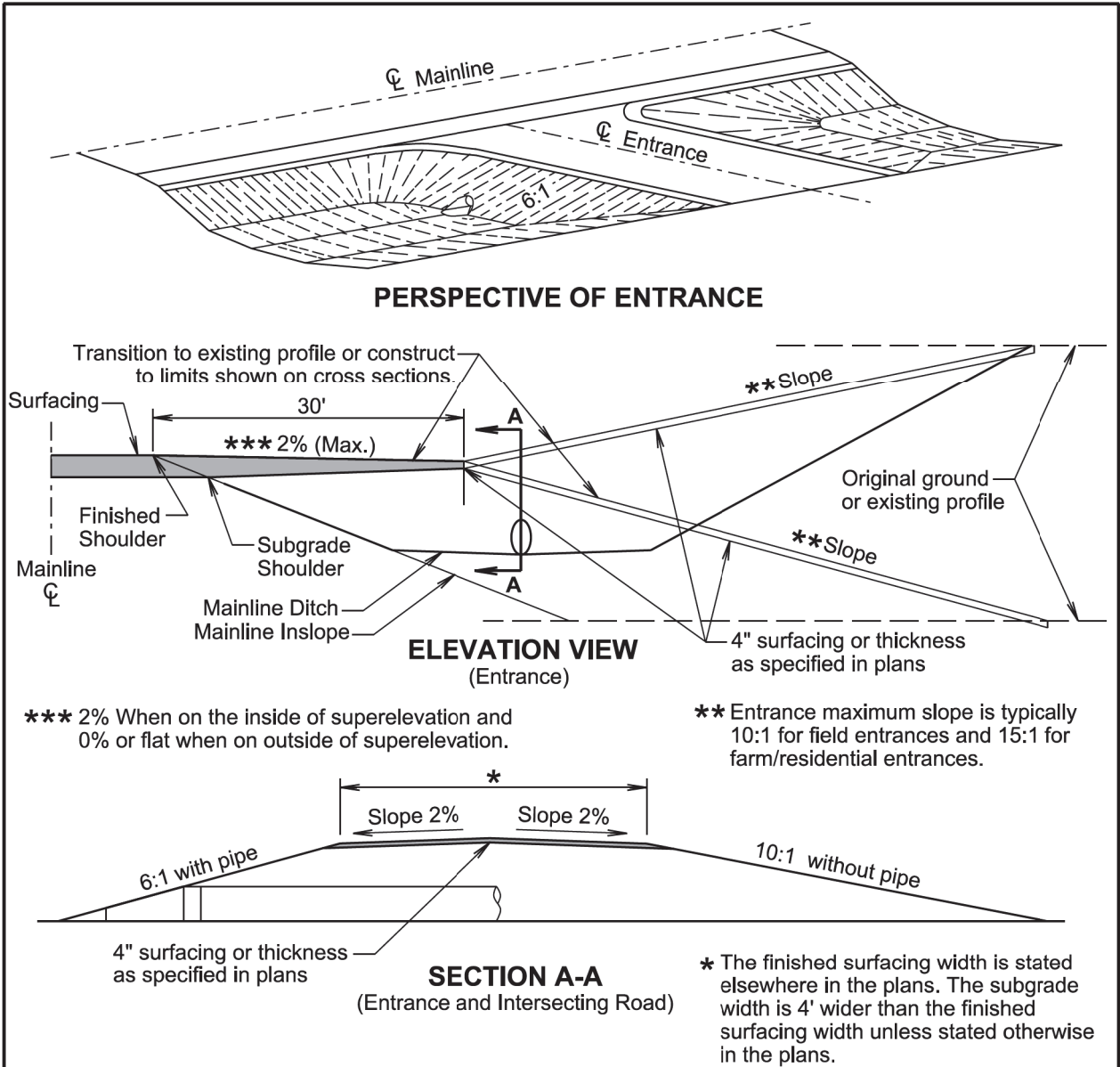
LOCATIONS FOR ADVANCED CLOSURE*	
1	NB MYSTIC RD N OF INT WITH DEERFIELD RD
2	NB S. ROCHFORD RD N OF INT WITH DEERFIELD RD
3	EB BLACK FOX RD W OF INT WITH DEERFIELD RD
4	SB N. ROCHFORD RD S OF INT WITH SD HWY 14A/85
5	WB ROCHFORD RD W OF INT WITH SD HWY 385





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	109	333

Plotting Date: 2/6/2023



**GENERAL NOTES:**

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

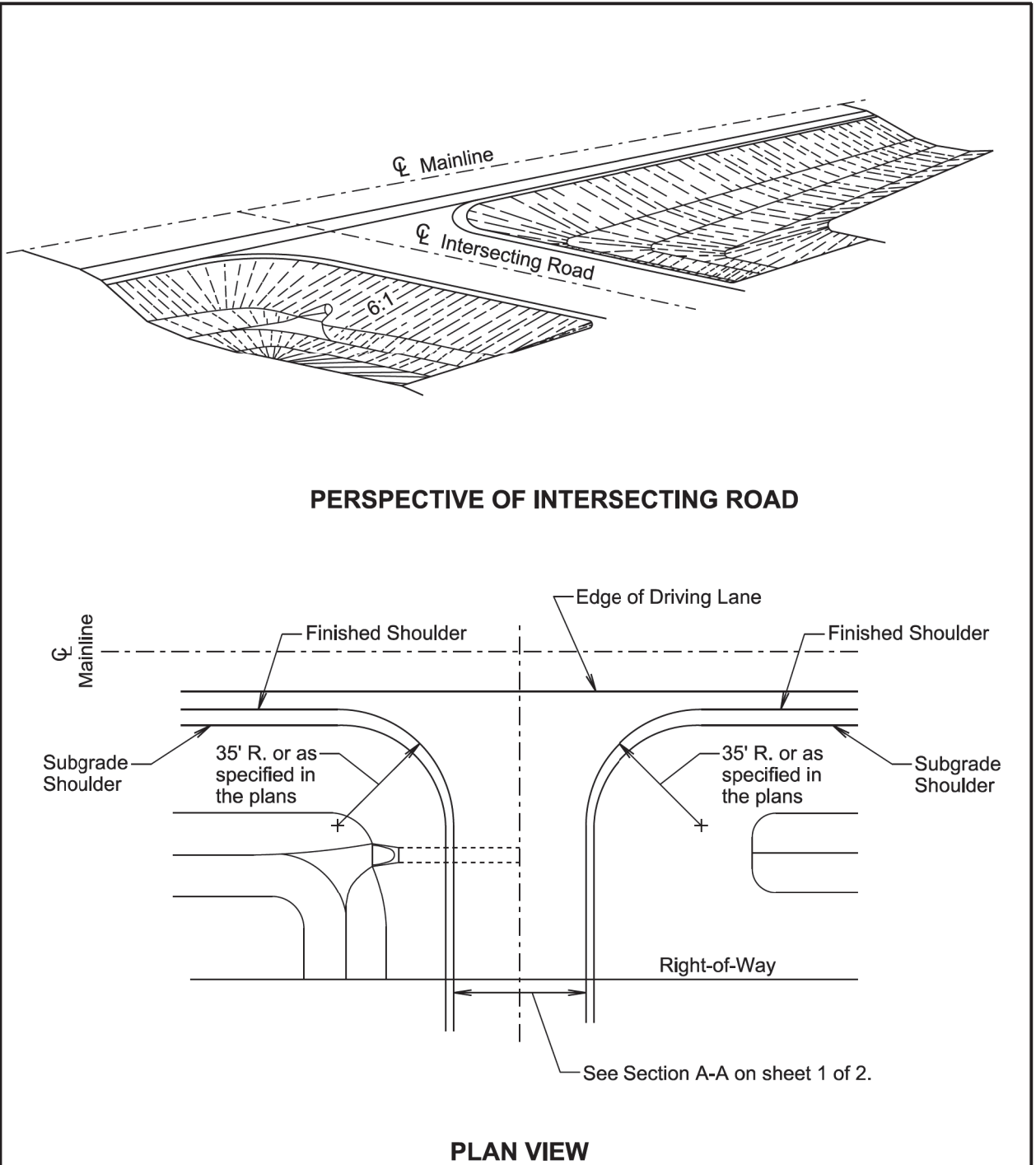
Published Date: 1st Qtr. 2023

S  
D  
D  
O  
T

INTERSECTING ROADS AND ENTRANCES

PLATE NUMBER  
120.01

Sheet 1 of 2



**GENERAL NOTES:**

The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

Published Date: 1st Qtr. 2023

S  
D  
D  
O  
T

INTERSECTING ROADS AND ENTRANCES

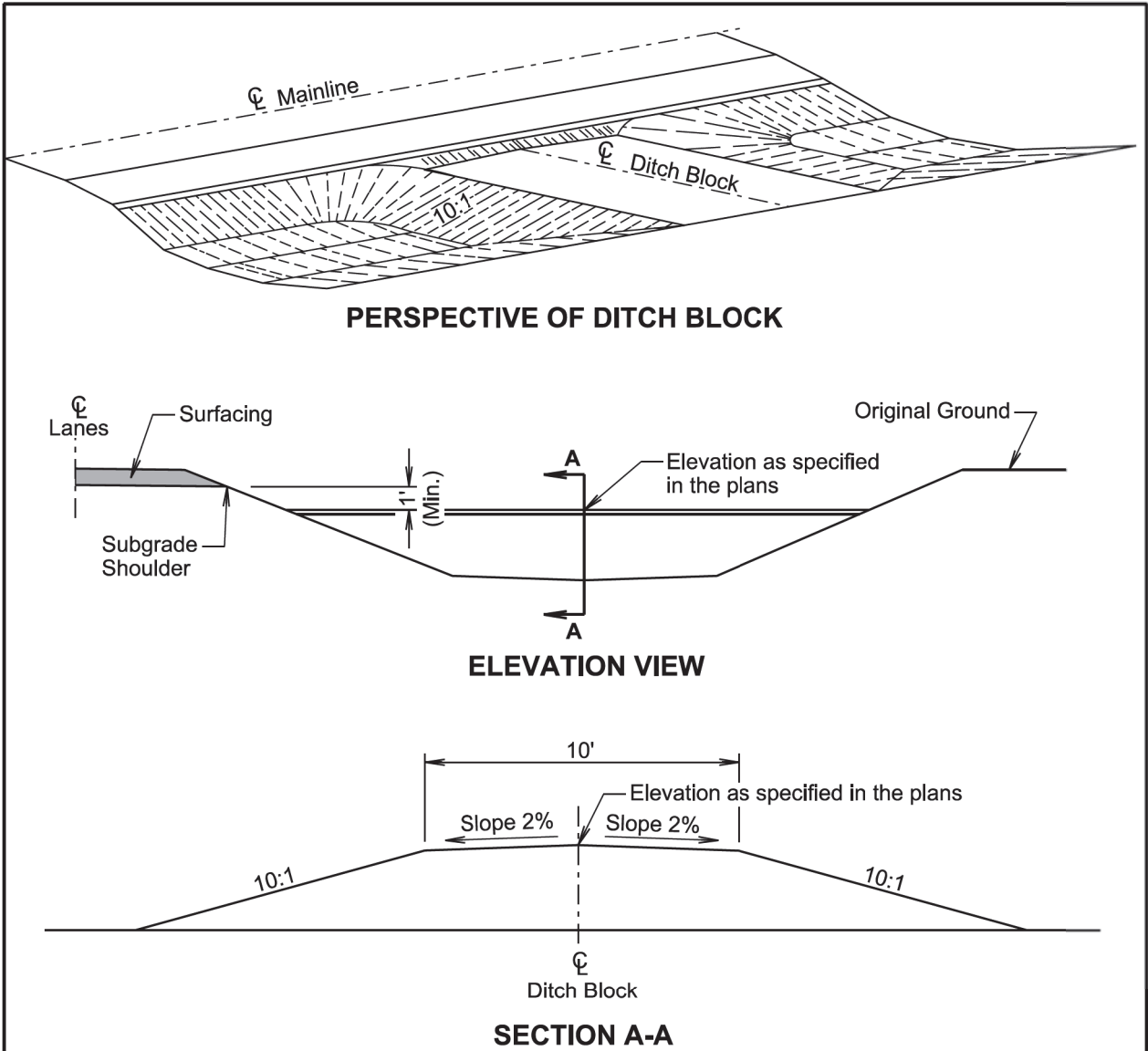
PLATE NUMBER  
120.01

Sheet 2 of 2



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	110	333

Plotting Date: 2/6/2023



**GENERAL NOTES:**

- The ditch section shown above in the perspective and elevation view is only for illustrative purpose.
- The inslopes of the ditch block will be 10:1 or as specified in the plans.
- The transition area between the mainline inslope and the ditch block inslope will be rounded to eliminate an abrupt transition.

September 14, 2018

<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>DITCH BLOCK</b>	PLATE NUMBER
			120.02
			Sheet 1 of 1

2 Piece			2 Piece			3 Piece				
5° to 45° Elbow			50° to 90° Elbow			90° Elbow				
Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

**FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS**

**GENERAL NOTES:**

- All dimensions shown are nominal.
- L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>C.M.P. FABRICATED LENGTHS FOR ELBOWS</b>	PLATE NUMBER
			450.32
			Sheet 1 of 1



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	111	333

Plotting Date: 2/6/2023

ARCH C.M.P. SLOPED ENDS										
Equiv. Dia. (Inch)	(Inches)		(Min.) Thick.	Dimensions (Inches)			L Dimensions			
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS								
Pipe Dia. (Inch)	(Min.) Thick.		Dimensions (Inches)			L Dimensions		
	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	4:1	20
18	.064	16	8	6	24	40	4:1	32
21	.064	16	8	6	27	43	4:1	44
24	.064	16	8	6	30	46	4:1	56
30	.109	12	12	9	36	60	4:1	80
36	.109	12	12	9	42	66	4:1	104
42	.109	12	16	12	48	80	4:1	128
48	.109	12	16	12	54	86	4:1	152
54	.109	12	16	12	60	92	4:1	176
60	.109	12	16	12	66	98	4:1	200

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Sloped ends will be fabricated from galvanized steel and will conform to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment will be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

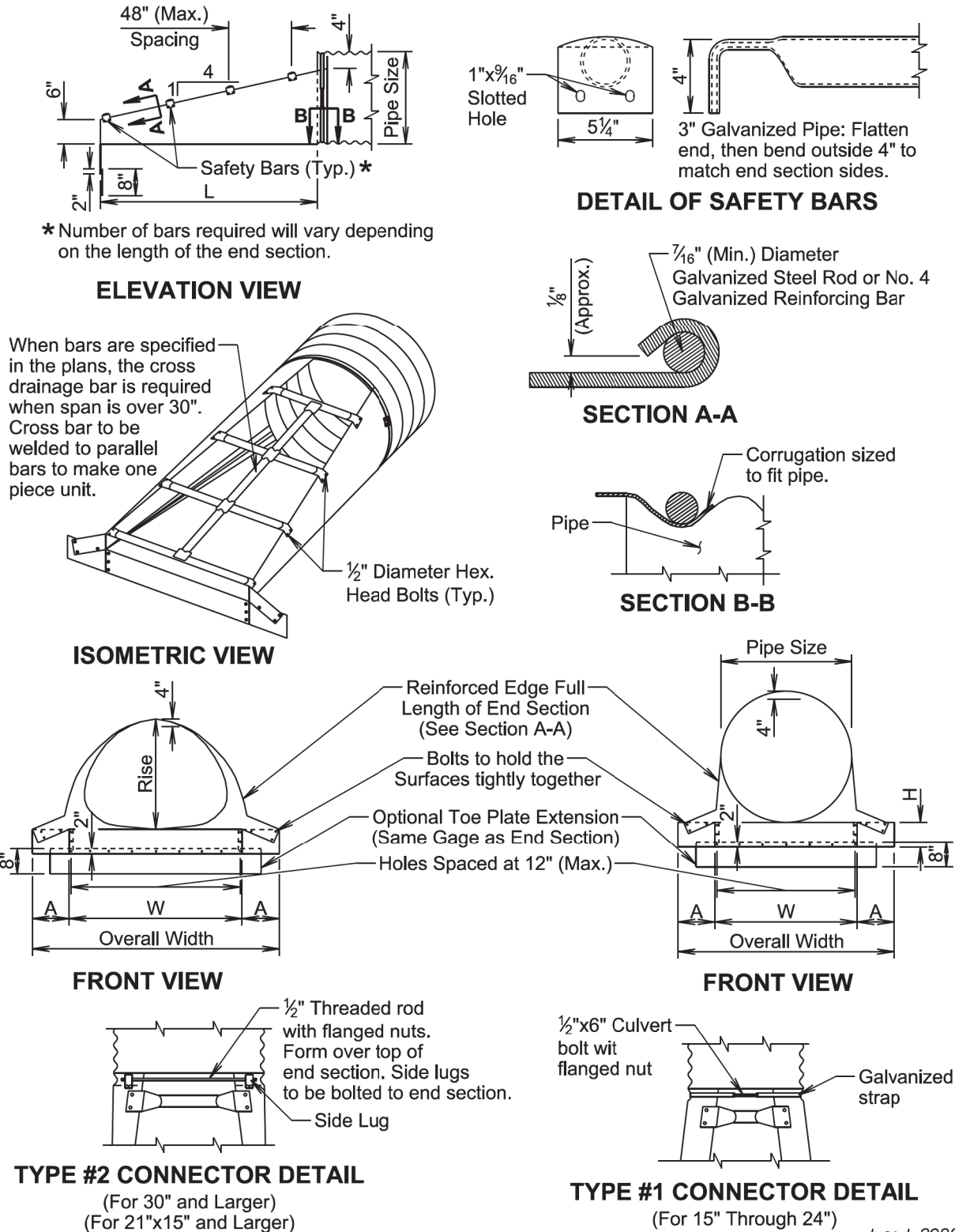
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

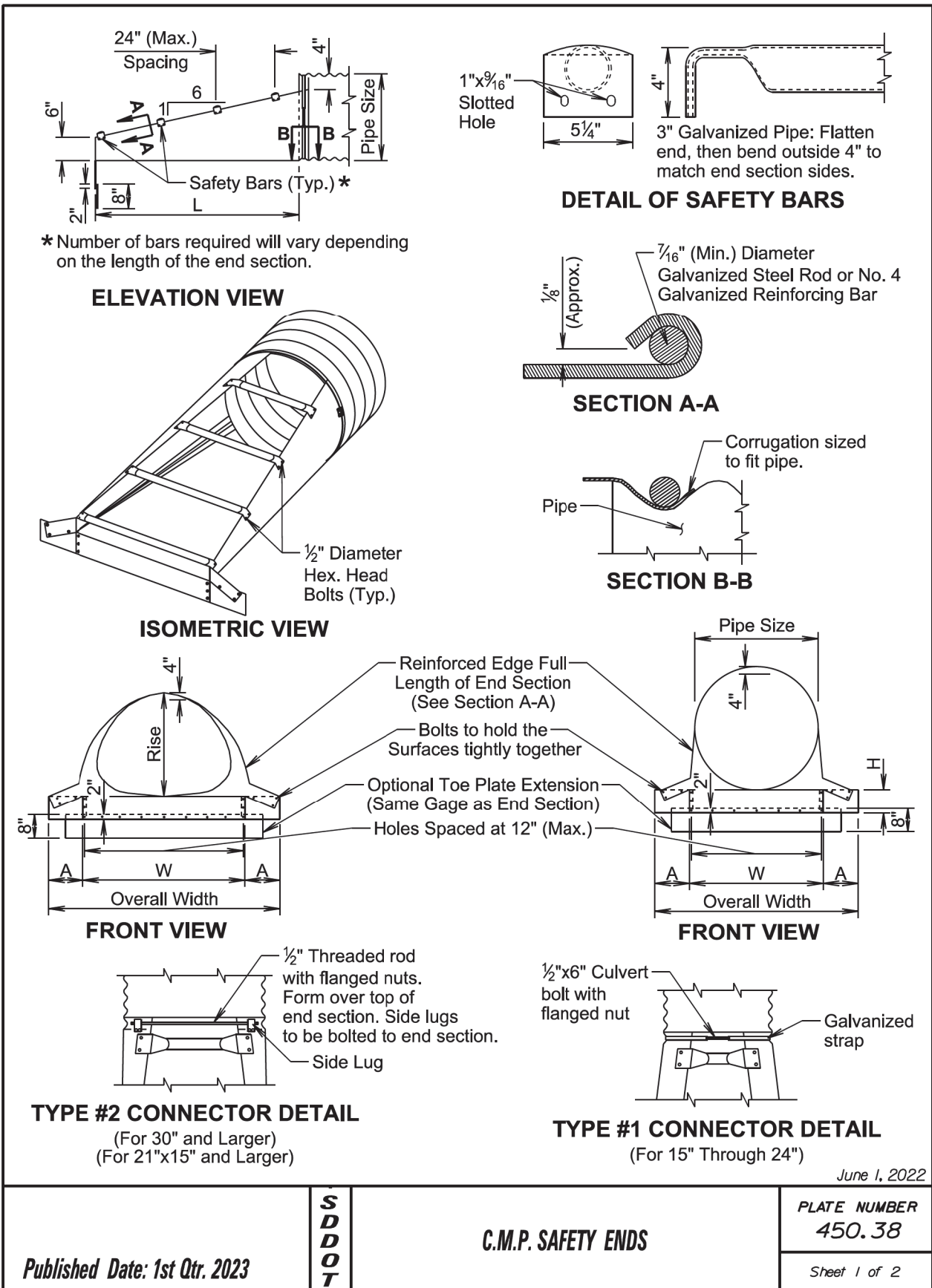
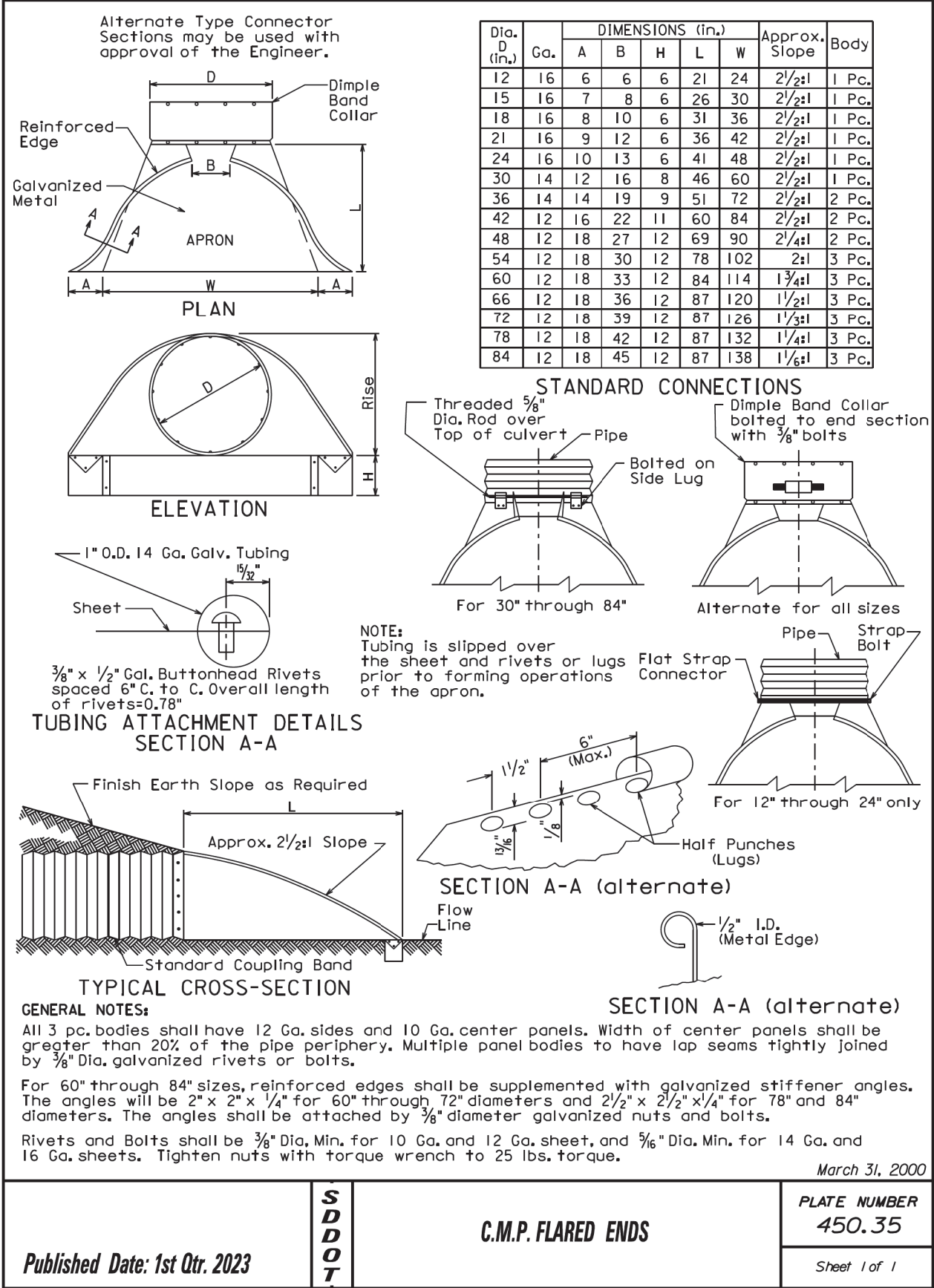
Cost of all work and materials required for fabrication and installation of sloped ends will be incidental to the bid items for the various sizes of sloped ends.

June 1, 2022

Published Date: 1st Qtr. 2023	S D D O T	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2









STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	113	333

Plotting Date: 2/6/2023

ARCH C.M.P. SAFETY ENDS										
Equiv. Dia. (Inch)	(Inches)		(Min.) Thick.		Dimensions (Inches)				L Dimensions	
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS								
Pipe Dia. (Inch)	(Min.) Thick.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Safety ends will be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment will be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of safety ends will be incidental to the bid items for the various sizes of safety ends.

June 1, 2022

Published Date: 1st Qtr. 2023	S D D O T	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2

SPECIFICATIONS:

Design Specifications: AASHTO Specifications for Highway Bridges, 1996 Edition (Service Load).

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Loading: HS20-44 AASHTO.

Cattle guards will be constructed in accordance with Section 610.

All concrete will be Class M6 in accordance with Section 462.

All reinforcing steel will conform to ASTM A615, Grade 60.

Use 1½" clear cover on all reinforcing steel except as shown.

All structural steel will conform to ASTM A709, Grade 36. The end welded deformed bar anchors will conform to ASTM A1064. The ½" diameter x 6" concrete anchors will conform to Section 970.2 B. All bolts and washers will conform to ASTM A307, except that lock washers will conform to AISI B18.21.1.

¾" diameter concrete inserts will be internally threaded for use with a standard galvanized A307 bolt and will be of such design that when installed in the concrete it will be capable of sustaining a safe working load in tension of 5500 pounds. The inserts will be galvanized or made of a corrosion resistant material.

Place ¾" diameter concrete inserts in ends of abutment foundations for ¾" diameter galvanized connecting bolts. See detail W on sheet 4 of 5.

The armor angles, connecting channels, and bearing plates will be painted with a paint system which conforms to Section 412. 2 and will be applied in accordance with the manufacturer's recommendations. The top coat will be green in color, conforming to Federal Standard 24108.

If the cattle guard must be installed to conform to a grade other than a zero grade, all elements of the cattle guard foundation will be built normal to the grade.

Alternate designs will be considered; submit detailed drawings and specifications of the proposed similar cattle guard through proper channels to the Office of Bridge Design for approval.

In lieu of concrete inserts and A307 bolts, a ¾" diameter A307 rod threaded full length may be drilled and epoxied into the hardened concrete. The diameter of the drilled holes in the concrete for the threaded rod will not be less than 1/8" nor more than 3/8" greater than the overall diameter of the threaded rod and the depth will be a minimum of ten rod diameters.

The epoxy resin mixture for bonding the threaded rod in place will conform to ASTM C881 Type IV Grade 3 requirements for bonding steel to hardened concrete.

The epoxy resin adhesive will be mixed and applied as recommended by the manufacturer. Special attention must be given to the elimination of voids by using effective grouting procedures as approved by the Engineer.

Soil bearing pressure will be a minimum of 3000 psf as approved by the Engineer.

August 27, 2020

Published Date: 1st Qtr. 2023	S D D O T	CAST-IN-PLACE CATTLE GUARD FOUNDATIONS	PLATE NUMBER 610.01
			Sheet 1 of 5



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	114	333

Plotting Date: 2/6/2023

INFORMATIONAL QUANTITIES  
(For Two Foundations)

ITEM	UNIT	QUANTITY					
		10' GUARD	12' GUARD	14' GUARD	20' GUARD	24' GUARD	30' GUARD
Class M6 Concrete	Cu. Yd.	2.8	3.3	3.9	5.5	6.6	8.3
Reinforcing Steel	Lb.	300	359	418	594	712	888
★ Structural Steel	Lb.	487	524	561	671	745	856

★ Includes armor angles with bar anchors, bearing plates with concrete anchors, connecting channels, bolts and washers; excludes concrete inserts.

REINFORCING SCHEDULE  
(For Two Foundations)

	Mk.	No.	Size	Length	Type		Mk.	No.	Size	Length	Type	Bending Details
10' GUARD	a	22	4	5'-4"	21A	20' GUARD	a	42	4	5'-4"	21A	Type 21A 3" 2'-10" 1'-3" 9"
	b	22	4	3'-11"	17A		b	42	4	3'-11"	17A	
	c	22	4	9'-9"	Str.		c	22	4	19'-9"	Str.	
	f	18	4	1'-9"	Str.		f	38	4	1'-9"	Str.	
12' GUARD	a	26	4	5'-4"	21A	24' GUARD	a	50	4	5'-4"	21A	Type 17A 1'-11" 1'-3"
	b	26	4	3'-11"	17A		b	50	4	3'-11"	17A	
	c	22	4	11'-9"	Str.		c	22	4	23'-9"	Str.	
	f	22	4	1'-9"	Str.		f	46	4	1'-9"	Str.	
14' GUARD	a	30	4	5'-4"	21A	30' GUARD	a	62	4	5'-4"	21A	
	b	30	4	3'-11"	17A		b	62	4	3'-11"	17A	
	c	22	4	13'-9"	Str.		c	22	4	29'-9"	Str.	
	f	26	4	1'-9"	Str.		f	58	4	1'-9"	Str.	

NOTE: All dimensions are out to out of bars.

BILL OF MATERIALS  
(For Two Foundations)

ITEM	UNIT	QUANTITY					
		10' GUARD	12' GUARD	14' GUARD	20' GUARD	24' GUARD	30' GUARD
Bearing $\overline{\text{L}}$ (6" Width)	Each	4	4	4	4	4	4
Bearing $\overline{\text{L}}$ (12" Width)	Each	8	10	12	18	22	28
Connecting Channels	Each	2	2	2	2	2	2
Clamping Bolts	Each	20	24	28	40	48	60
Connecting Bolts	Each	24	24	24	24	24	24

August 27, 2020

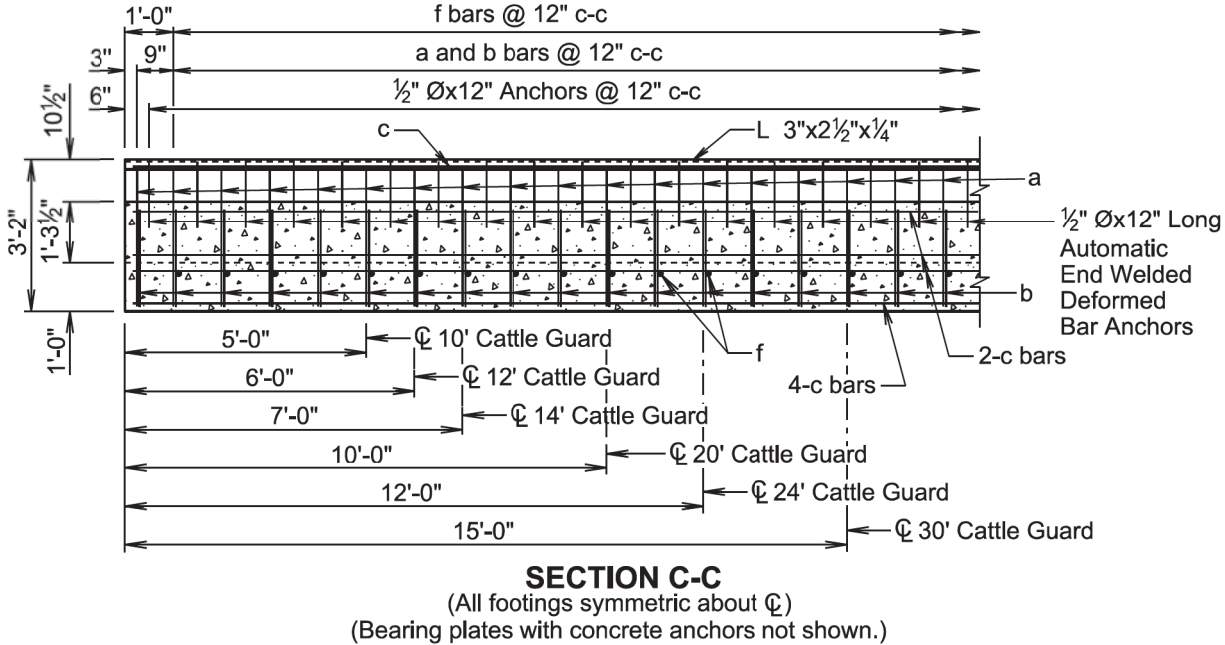
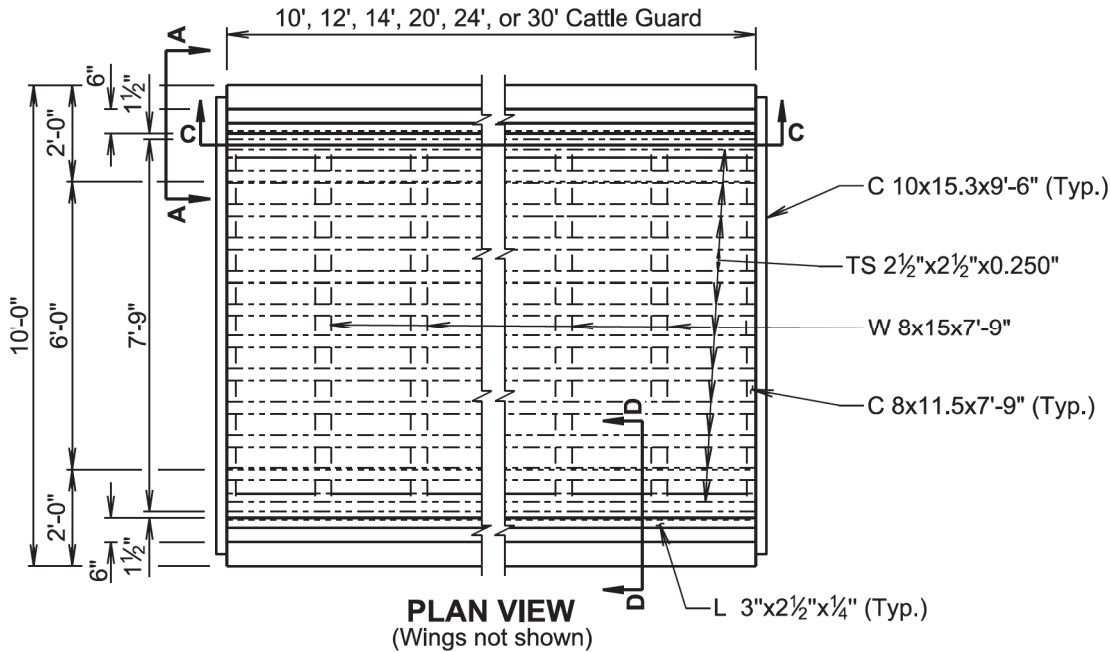
Published Date: 1st Qtr. 2023

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CAST-IN-PLACE CATTLE GUARD FOUNDATIONS

PLATE NUMBER  
610.01

Sheet 2 of 5



August 27, 2020

Published Date: 1st Qtr. 2023

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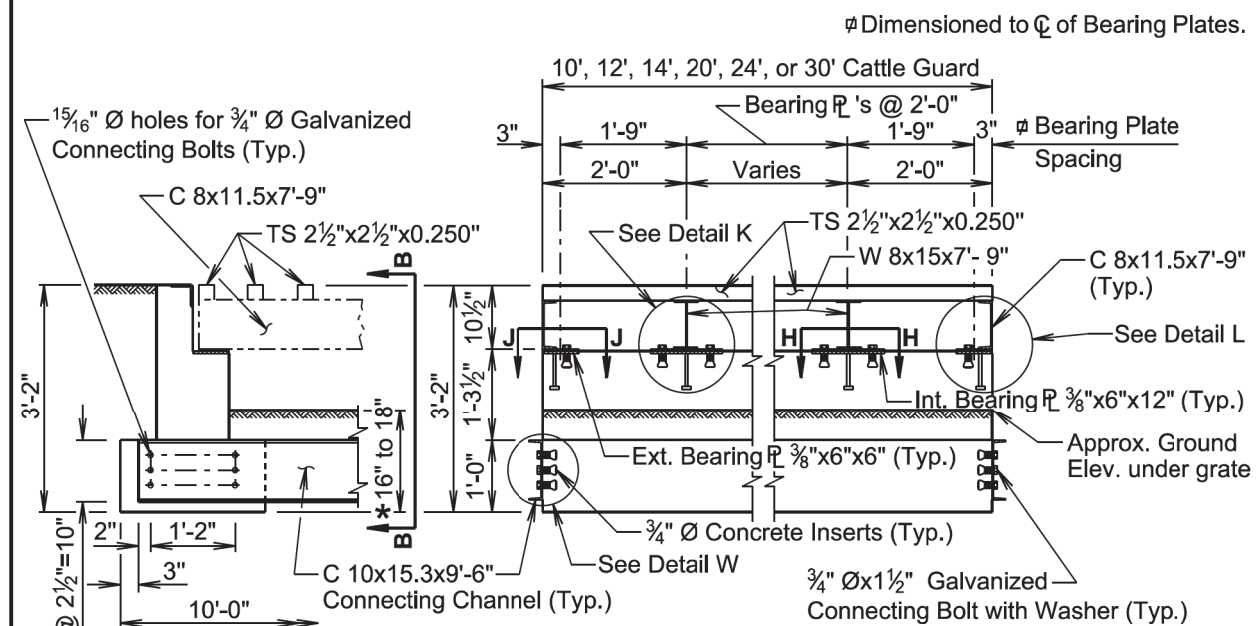
CAST-IN-PLACE CATTLE GUARD FOUNDATIONS

PLATE NUMBER  
610.01

Sheet 3 of 5

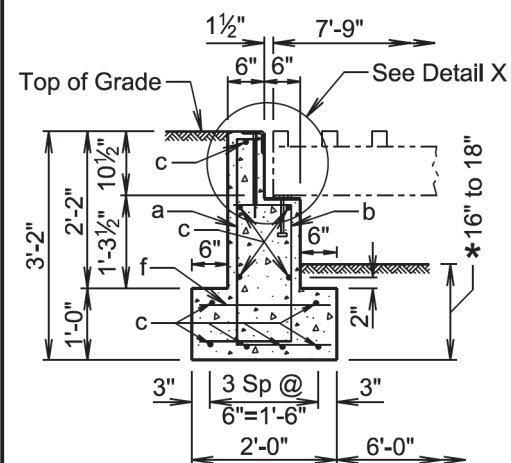


Plotting Date: 2/6/2023

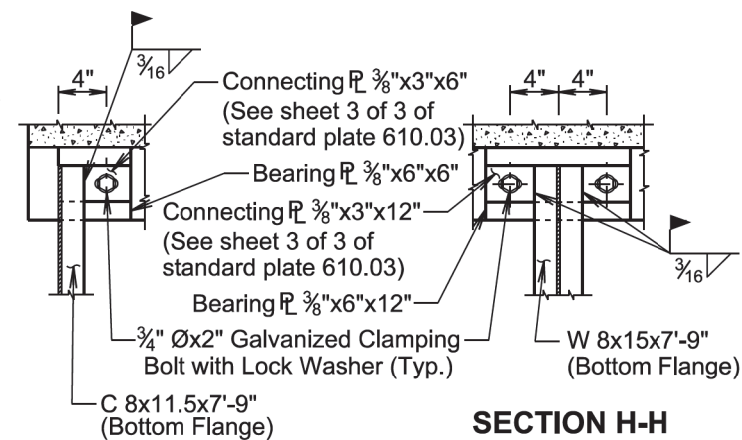


**VIEW A-A**

## SECTION B-B

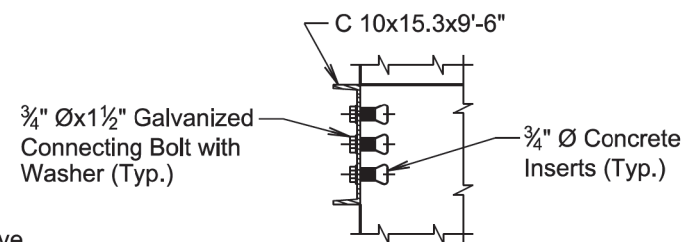


## SECTION D-D



## SECTION H-H

## SECTION J-J



## DETAIL W

**\* EXCAVATION NOTE**

Excavate, as necessary, the area between the two abutments to a depth of 16" to 18" above the bottom of the abutment footing elevation. Cut short outlet ditches from one or both ends of the cattle guard for drainage as necessary.

August 27, 2020

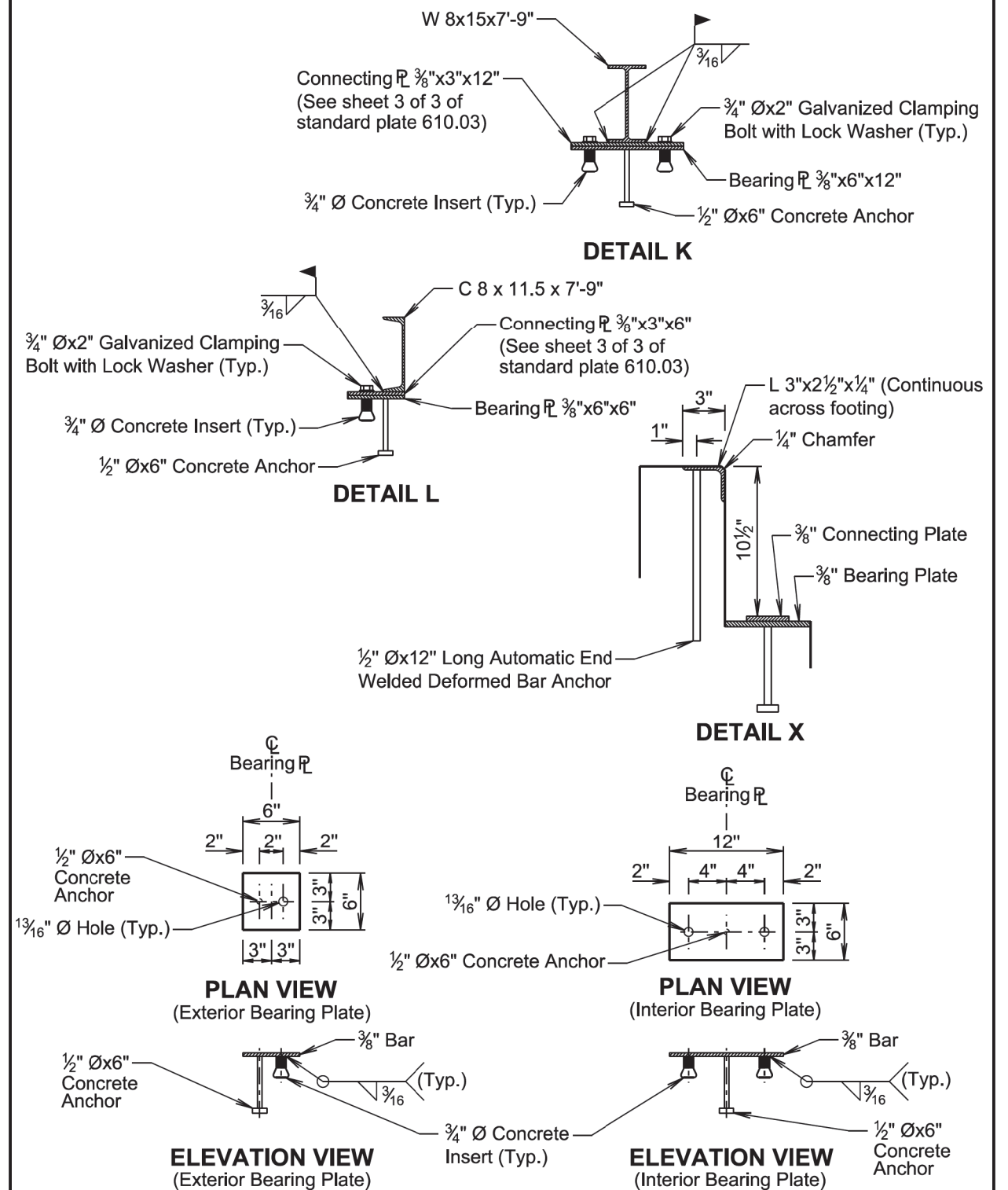
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## CAST-IN-PLACE CATTLE GUARD FOUNDATIONS

PLATE NUMBER  
610.01

Sheet 4 of 5



## BEARING PLATE DETAILS

August 27, 2020

**Published Date: 1st Qtr. 2023**

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## CAST-IN-PLACE CATTLE GUARD FOUNDATIONS

PLATE NUMBER  
610.01

Sheet 5 of 5



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	116	333

Plotting Date: 2/6/2023

**SPECIFICATIONS:**

Design Specifications: AASHTO Specifications for Highway Bridges, 1996 Edition (Service Load).

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

**GENERAL NOTES:**

Design Loading: HS20-44 AASHTO.

Cattle guards will be constructed in accordance with Section 610.

All concrete will be Class M6 in accordance with Section 462.

All reinforcing steel will conform to ASTM A615, Grade 60.

Use 1½" clear cover on all reinforcing steel except as shown.

All structural steel will conform to ASTM A709, Grade 36. The end welded deformed bar anchors will conform to ASTM A1064. The ½" diameter x 6" concrete anchors will conform to Section 970.2 B. All bolts, nuts, and washers will conform to ASTM A307, except that lock washers will conform to AISI B18.21.1.

Welding and weld inspection will be in accordance with AWS D1.1-(Current Year).

¾" diameter concrete inserts will be internally threaded for use with a standard galvanized A307 Bolt and will be of such design that when installed in the concrete it will be capable of sustaining a safe working load in tension of 5500 pounds. The inserts will be galvanized or made of a corrosion resistant material.

The armor angles, connecting plates, connecting channels, and bearing plates will be painted with a paint system which conforms to Section 412.2 and will be applied in accordance with the manufacturer's recommendations. The top coat will be green in color, conforming to Federal Standard 24108.

If the cattle guard must be installed to conform to a grade other than a zero grade, all elements of the cattle guard foundation will be built normal to the grade.

Alternate designs will be considered; submit detailed drawings and specifications of the proposed similar cattle guard through proper channels to the Office of Bridge Design for approval.

Soil bearing pressure will be a minimum of 3000 psf as approved by the Engineer.

BILL OF MATERIALS FOR CATTLE GUARD FOUNDATIONS						
WIDTH OF CATTLE GUARD	PRECAST FOUNDATION UNITS			CONN. CHANNELS	CLAMP. BOLTS	CONN. BOLTS
	6'-0"	8'-0"	10'-0"			
10'			2	2	20	24
12'	4			2	24	36
14'	2	2		2	28	36
20'			4	2	40	36
24'		6		2	48	48
30'			6	2	60	48

December 23, 2019

Published Date: 1st Qtr. 2023

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PRECAST CATTLE GUARD FOUNDATIONS

PLATE NUMBER  
610.02

Sheet 1 of 5

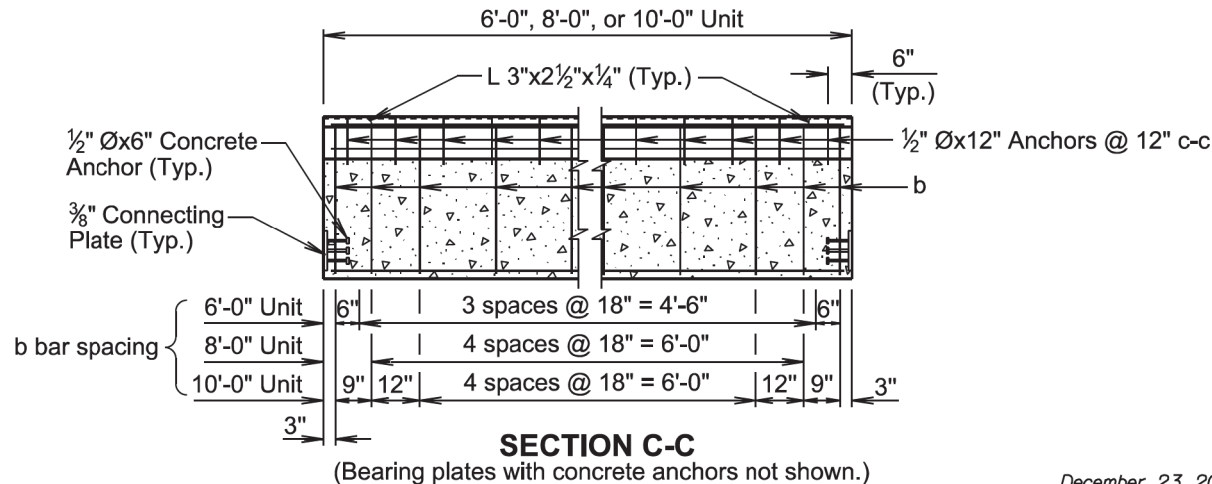
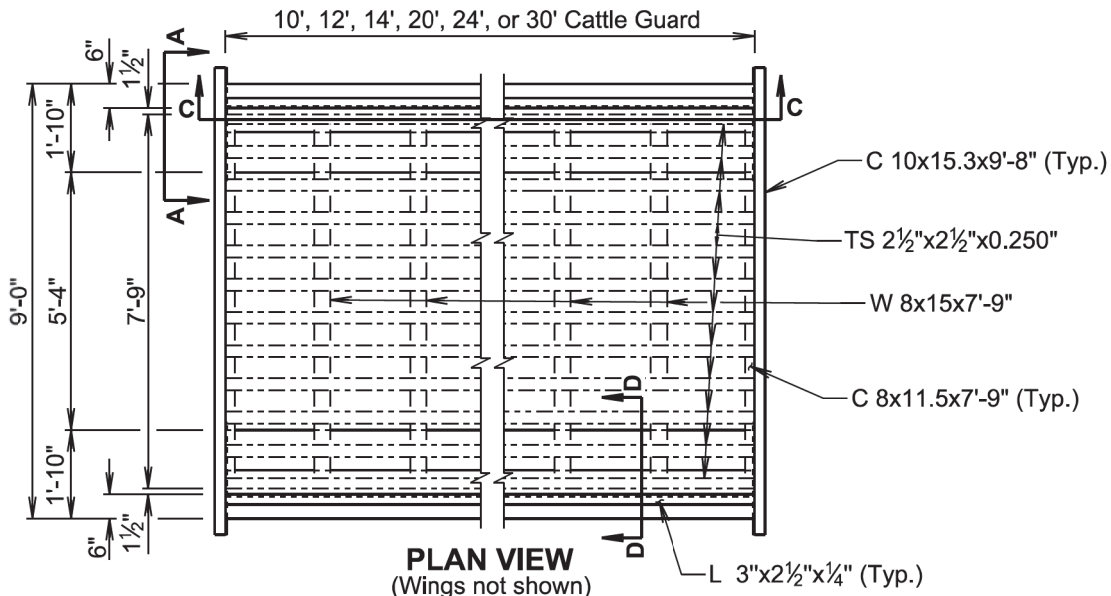
**MAKEUP QUANTITIES FOR PRECAST FOUNDATION UNITS**

TYPE OF UNIT	BEARING PLATES		M6 CONC. (Cu. Yds.)	APPROX. WEIGHT OF UNIT (Lb.)	CHANNEL CONN. PLATES	REINFORCING SCHEDULE				
	6" Width	12" Width				Mk.	No.	Size	Length	Type
6'-0"	2	2	0.9	3760	2	b	6	4	9'-0"	21A
8'-0"	2	3	1.2	4990	2	e	7	4	5'-8"	Str.
10'-0"	2	4	1.5	6270	2					
6'-0" Unit						b	7	4	9'-0"	21A
						e	7	4	7'-8"	Str.
8'-0" Unit						b	9	4	9'-0"	21A
						e	7	4	9'-8"	Str.
10'-0" Unit						b	9	4	9'-0"	21A
						e	7	4	9'-8"	Str.

3"  
6"  
10½"  
2'-2"  
3'-0½"  
1'-6" | b

Type 21A

NOTE:  
All dimensions are  
out to out of bars.



December 23, 2019

Published Date: 1st Qtr. 2023

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PRECAST CATTLE GUARD FOUNDATIONS

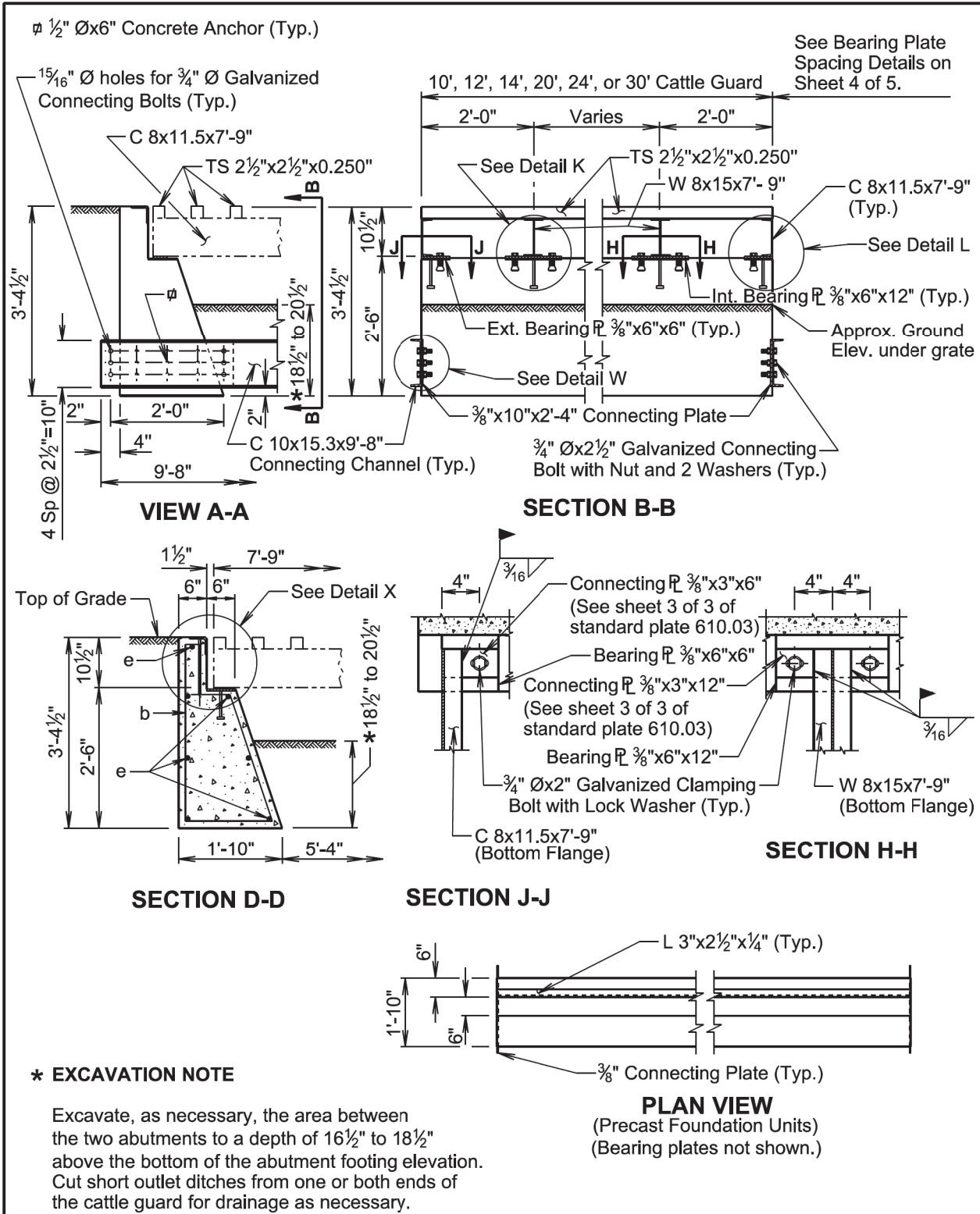
PLATE NUMBER  
610.02

Sheet 2 of 5



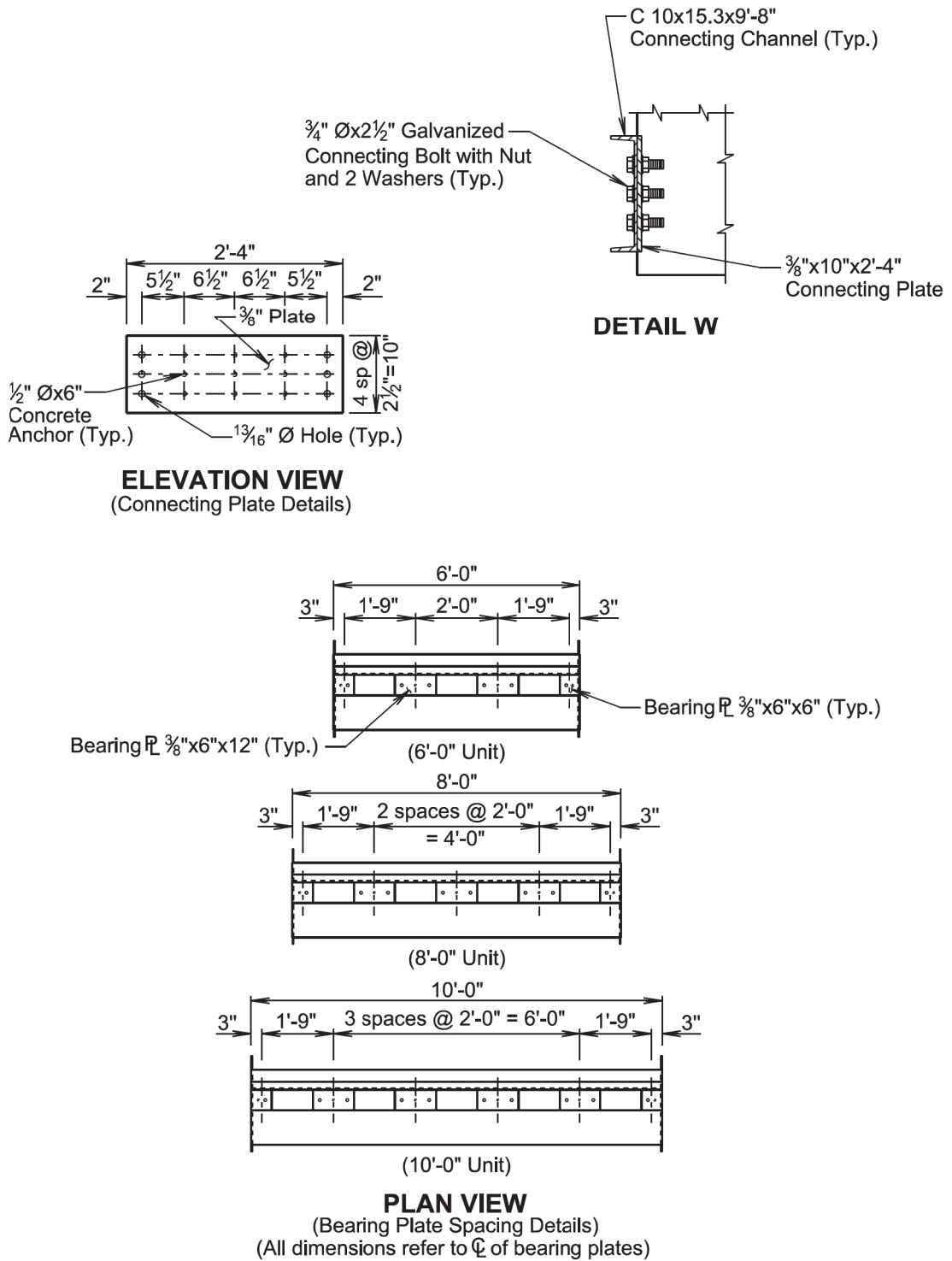
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	117	333

Plotting Date: 2/6/2023



December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	PRECAST CATTLE GUARD FOUNDATIONS	PLATE NUMBER
			610.02
			Sheet 3 of 5



December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	PRECAST CATTLE GUARD FOUNDATIONS	PLATE NUMBER
			610.02
			Sheet 4 of 5



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	118	333

Plotting Date: 2/6/2023

**SPECIFICATIONS:**

Design Specifications: AASHTO Specifications for Highway Bridges, 1996 Edition (Service Load).

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

**GENERAL NOTES:**

Design Loading: HS20-44 AASHTO.

Cattle guards will be constructed in accordance with Section 610.

All structural steel will conform to ASTM A709, Grade 36. Structural tubing will conform to ASTM A500, Grade B. All bolts and nuts will be galvanized and will conform to ASTM A307. All lock washers will be galvanized and will conform to AISI B18.21.1.

Welding and weld inspection will be in accordance with AWS D1.1-(Current Year).

Cattle guard grate, wings, and connecting plates will be painted with a paint system which conforms to Section 412. 2 and will be applied in accordance with the manufacturer's recommendations. The top coat will be green in color, conforming to Federal Standard 24108.

Grate sections may be combined to obtain larger grate widths. Refer to the detail of multiple installation joint on sheet 3 of 3 when larger grate widths are required.

Cattle guard grate and wing details will be used in conjunction with cast-in-place or precast cattle guard foundation details on standard plate 610.01 or 610.02 when cattle guard foundations are required.

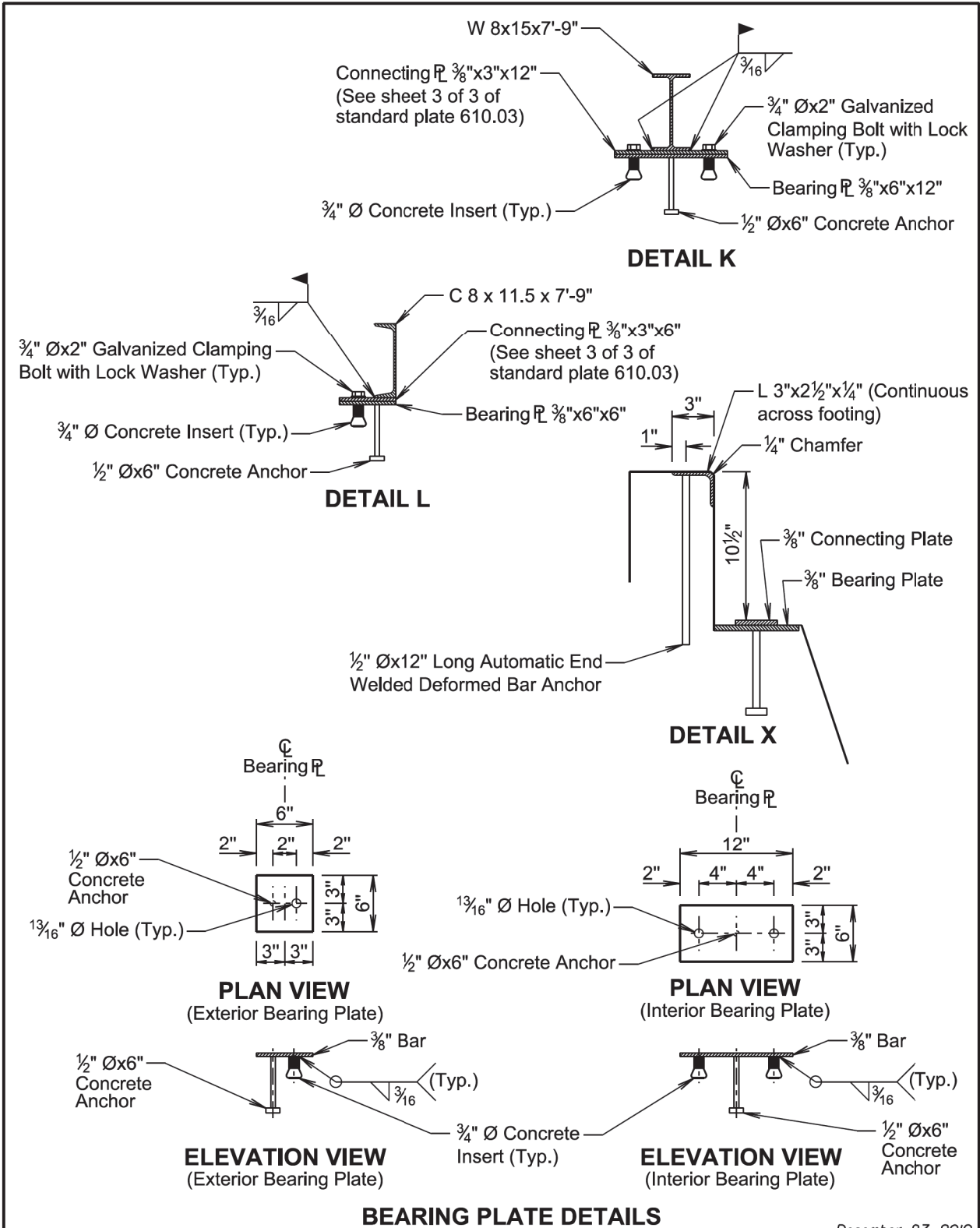
Alternate designs will be considered; submit detailed drawings and specifications of the proposed similar cattle guard grate or wing through proper channels to the Office of Bridge Design for approval.

**INFORMATIONAL QUANTITIES**

ITEM	UNIT	QUANTITY			
		10' GRATE	12' GRATE	14' GRATE	2-WINGS
Structural Steel	Lb.	1496	1783	2070	114

**BILL OF MATERIALS  
FOR CATTLE GUARD GRATES**

WIDTH OF CATTLE GUARD	CATTLE GUARD GRATE			CONNECTING PLATES		GRATE CONN. BOLTS
	10'-0"	12'-0"	14'-0"	6"	12"	
10'	1			4	8	—
12'		1		4	10	—
14'			1	4	12	—
20'	2			4	18	6
24'		2		4	22	6
30'	3			4	28	12



December 23, 2019

Published Date: 1st Qtr. 2023	S D O T	PRECAST CATTLE GUARD FOUNDATIONS	PLATE NUMBER 610.02
			Sheet 5 of 5

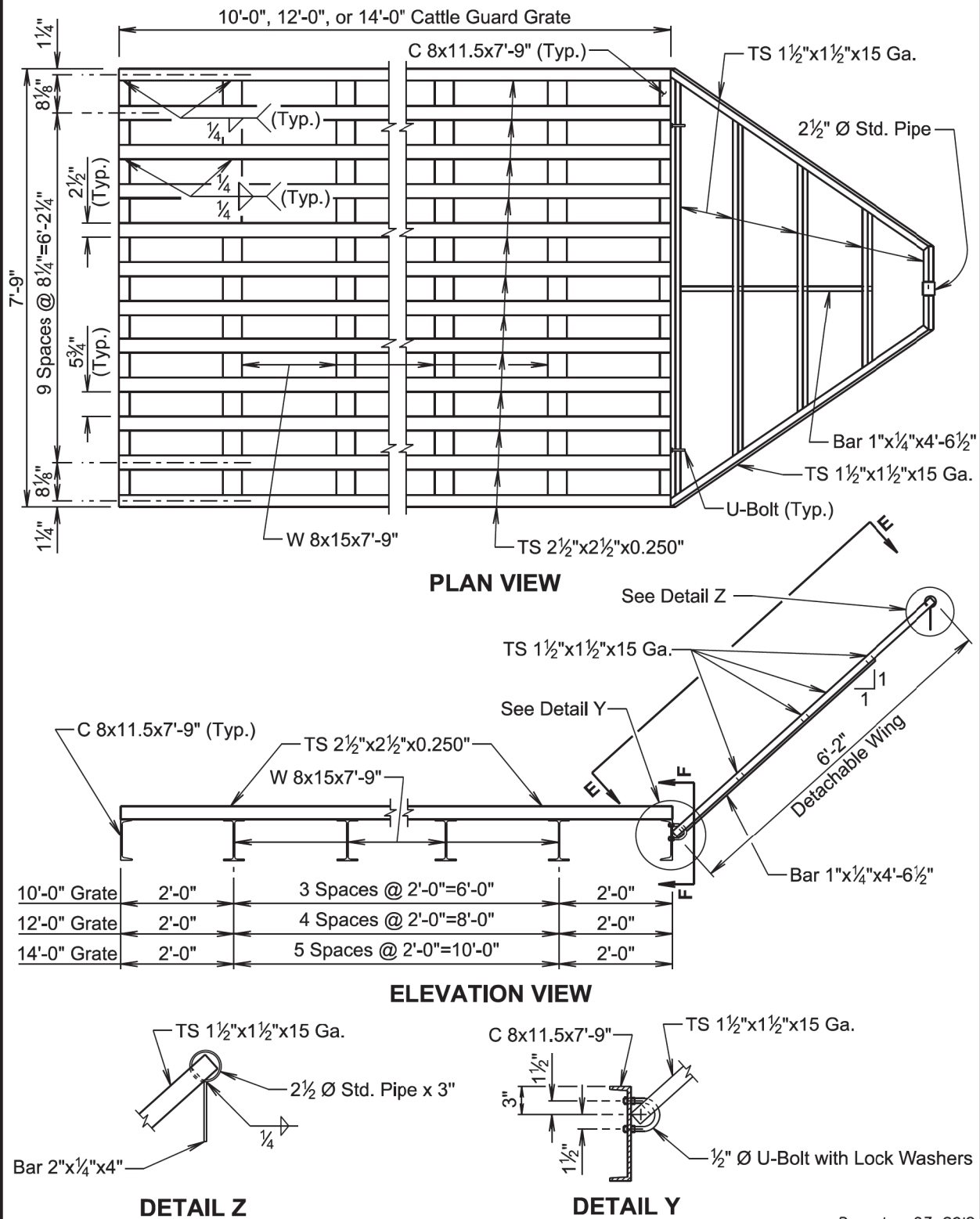
December 23, 2019

Published Date: 1st Qtr. 2023	S D O T	CATTLE GUARD GRATE AND WING	PLATE NUMBER 610.03
			Sheet 1 of 3



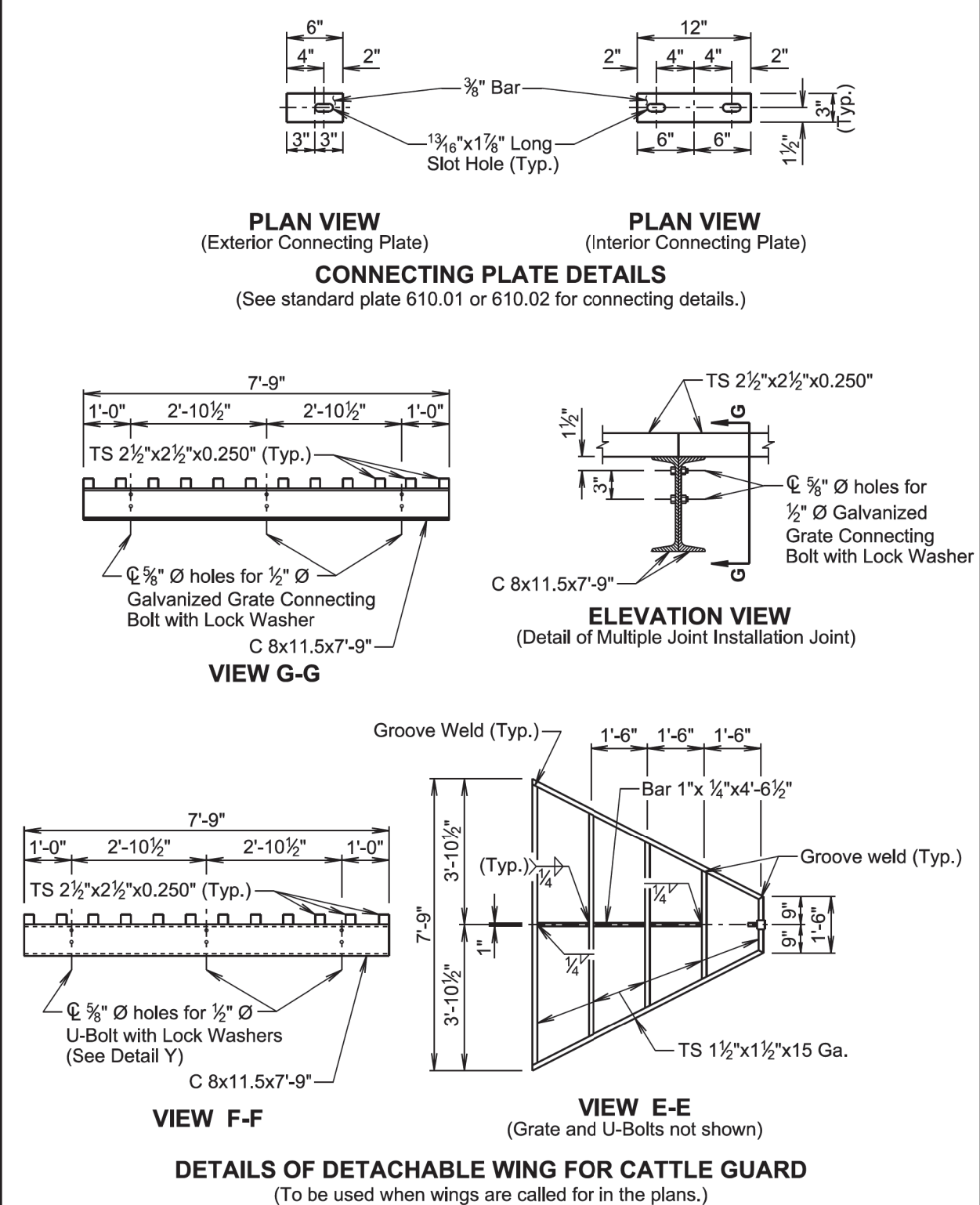
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	119	333

Plotting Date: 2/6/2023



December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	CATTLE GUARD GRATE AND WING	PLATE NUMBER 610.03
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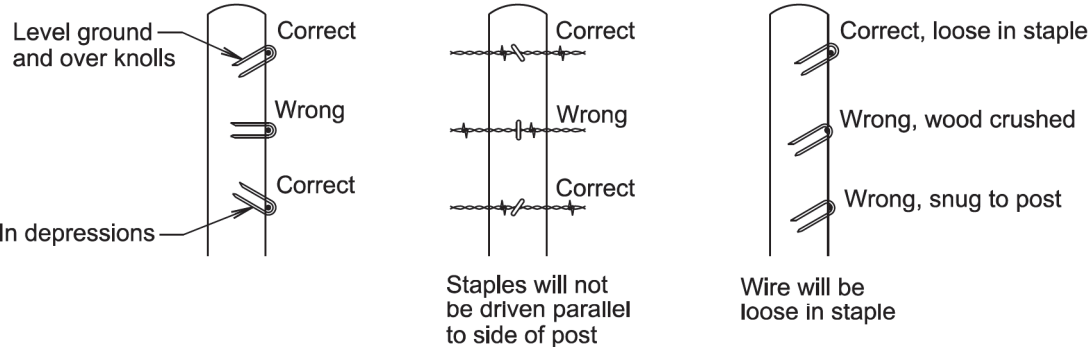
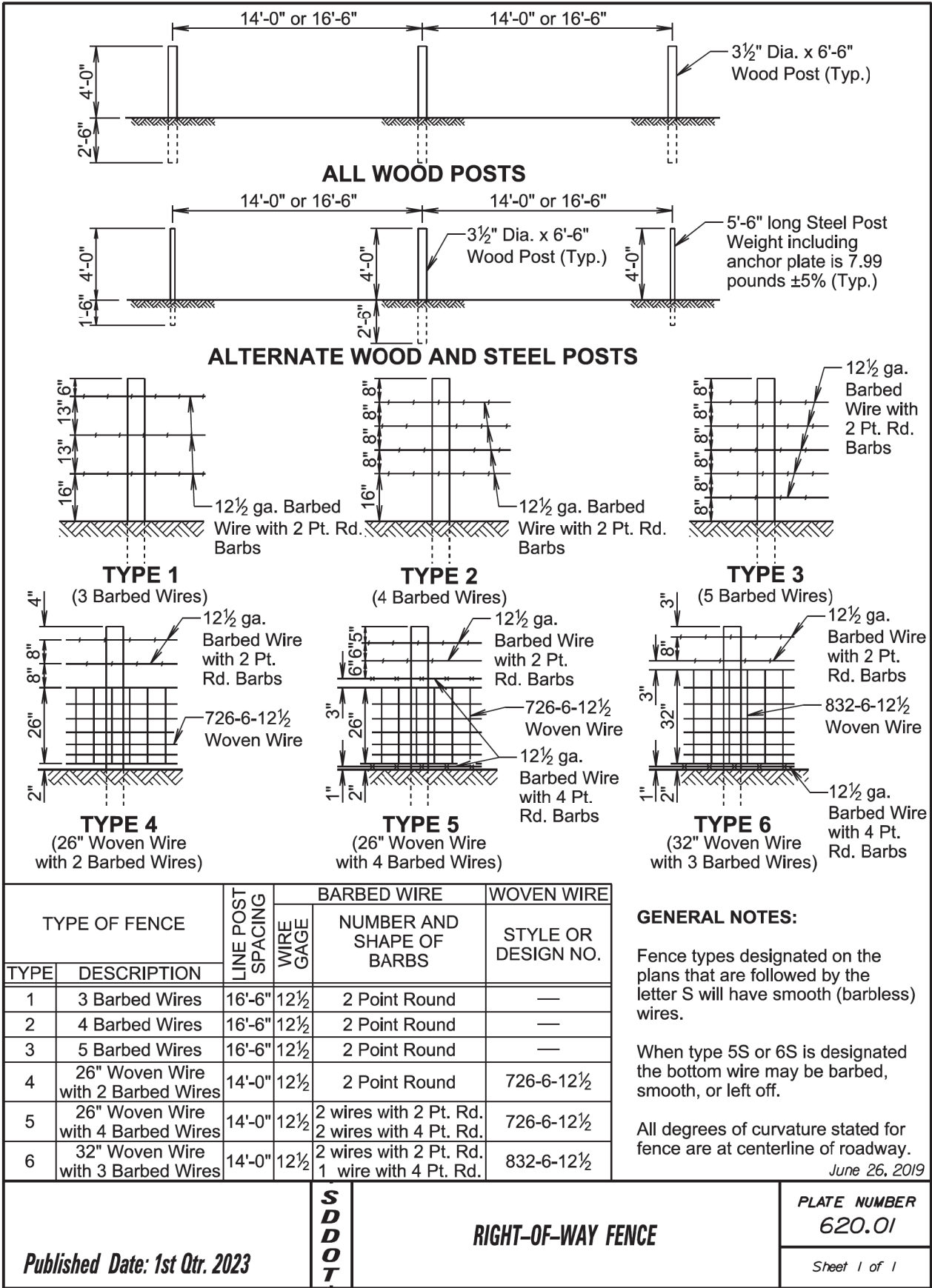
December 23, 2019

Published Date: 1st Qtr. 2023	S D D O T	CATTLE GUARD GRATE AND WING	PLATE NUMBER 610.03
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STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

June 26, 2019

Published Date: 1st Qtr. 2023

STAPLE INSTALLATION AND GENERAL  
RIGHT-OF-WAY FENCE NOTES

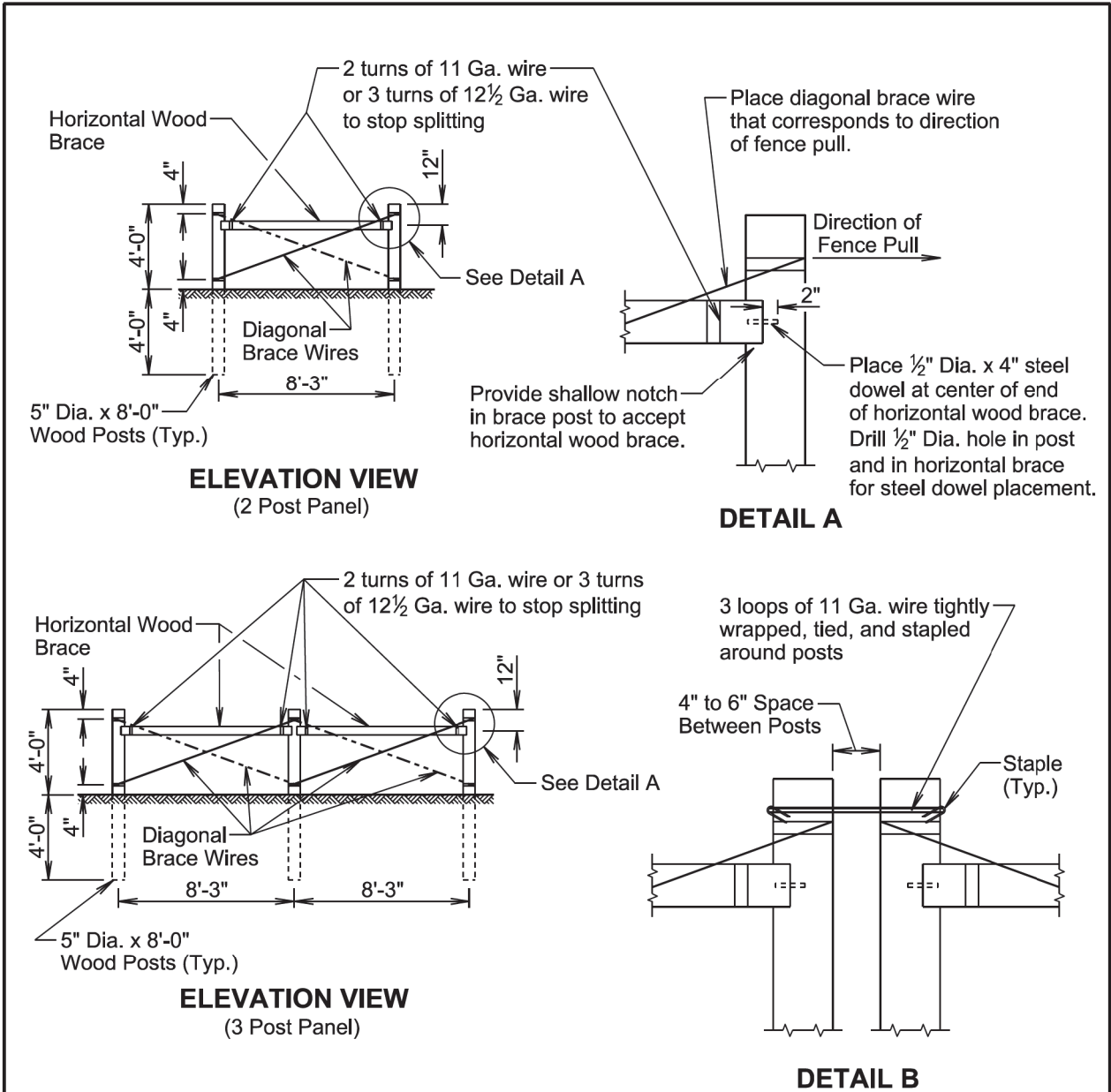
PLATE NUMBER  
620.02

Sheet 1 of 1



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	121	333

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**GENERAL NOTES:**

- Two Post Panels will be installed at least every 1320' between corners.
- Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.
- Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.
- Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

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			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	** At P.C., P.T., and at every 1320' between P.C. and P.T.

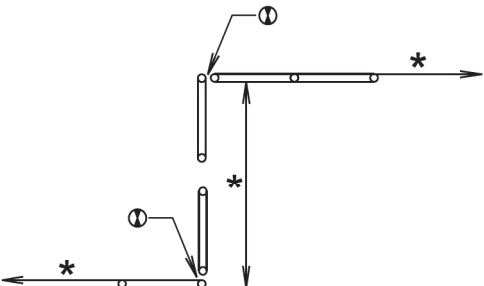
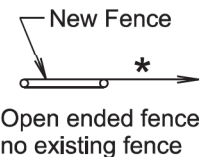
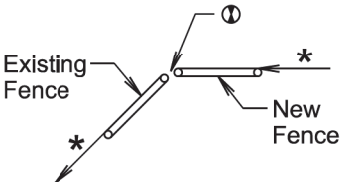
**GENERAL NOTE:**

All degrees of curvature stated for fence are at centerline of roadway.

- \* If fence length is less than 600' to next corner use a 2 post panel.
- If fence length is greater than 600' to next corner use a 3 post panel.

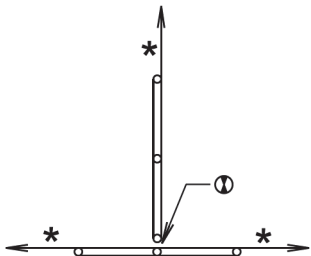
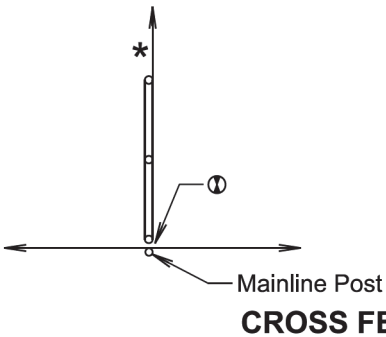
\*\* Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

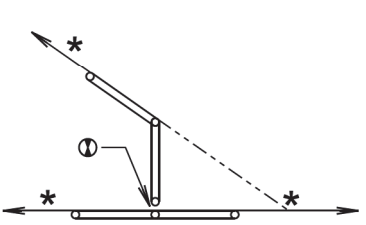
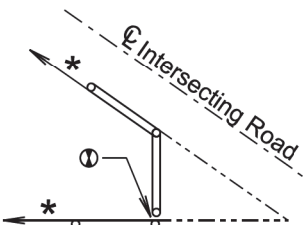
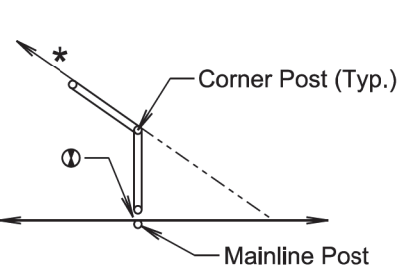


**BEGIN OR END FENCE**  
(Where new fence ties into existing fence)

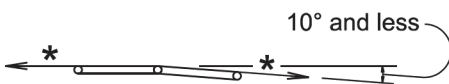
**SHORT JOGS IN FENCE**



**CROSS FENCE**



**SHARP ANGLES IN CROSS FENCE**



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

Additional fence panel is required when an angle in the mainline fence is greater than 10°.

**ANGLES IN MAINLINE FENCE**

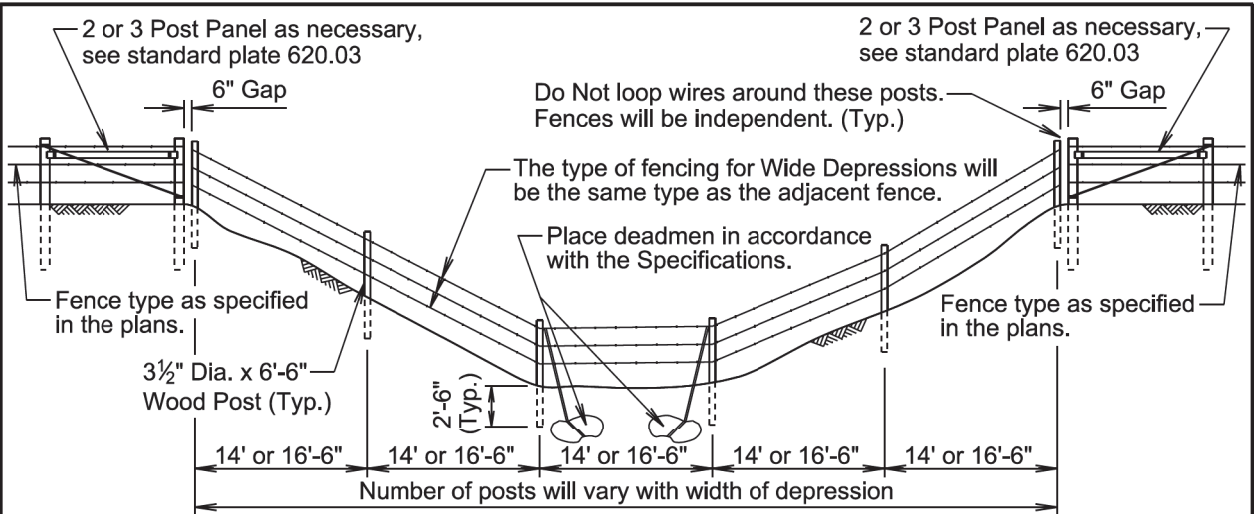
June 26, 2019

Published Date: 1st Qtr. 2023	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



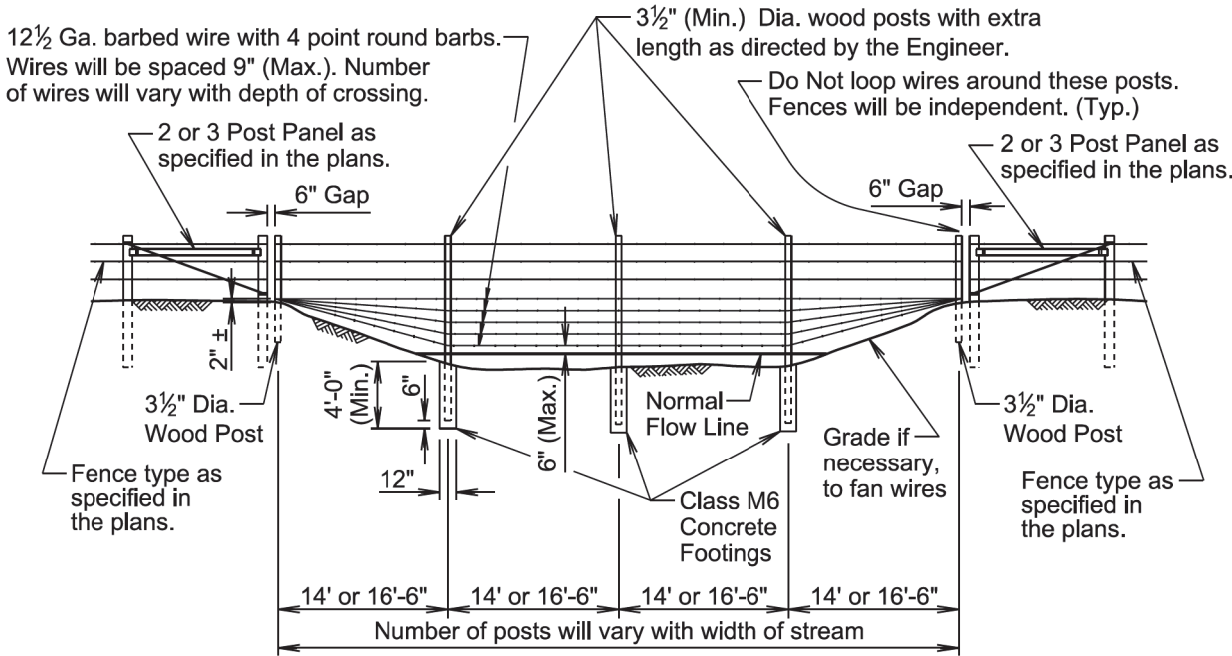
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	122	333

Plotting Date: 2/6/2023



This installation will be made when requested by the Engineer.

**FENCING AT WIDE DEPRESSION**  
(Subject to Flooding)



This installation will be made only when stated in the plans.

**FENCING AT STREAM CROSSING**

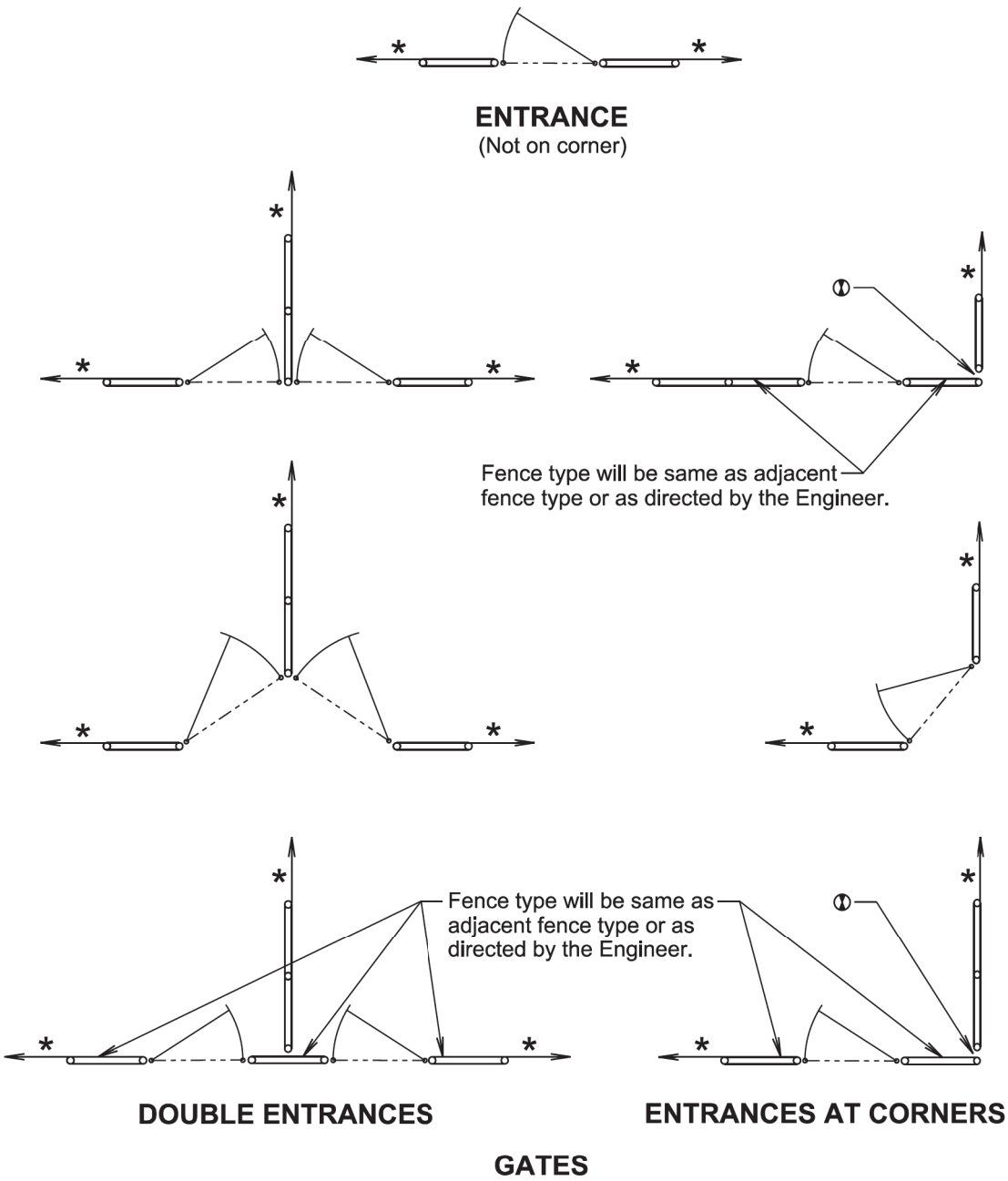
**GENERAL NOTES:**

There will be no extra payment for the additional work and materials required to construct the fencing at the wide depression(s) and/or the fencing at the stream crossing(s). The deadmen will be paid for in accordance with 620.5 A of the Specifications.

Measurement and payment for the fencing at the wide depression(s) and/or the fencing at the stream crossing(s) will be at the contract unit price per foot for the corresponding Right-of-Way fence contract item.

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			Sheet 1 of 1



\* If fence length is less than 600' to next corner use a 2 post panel.  
\* If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

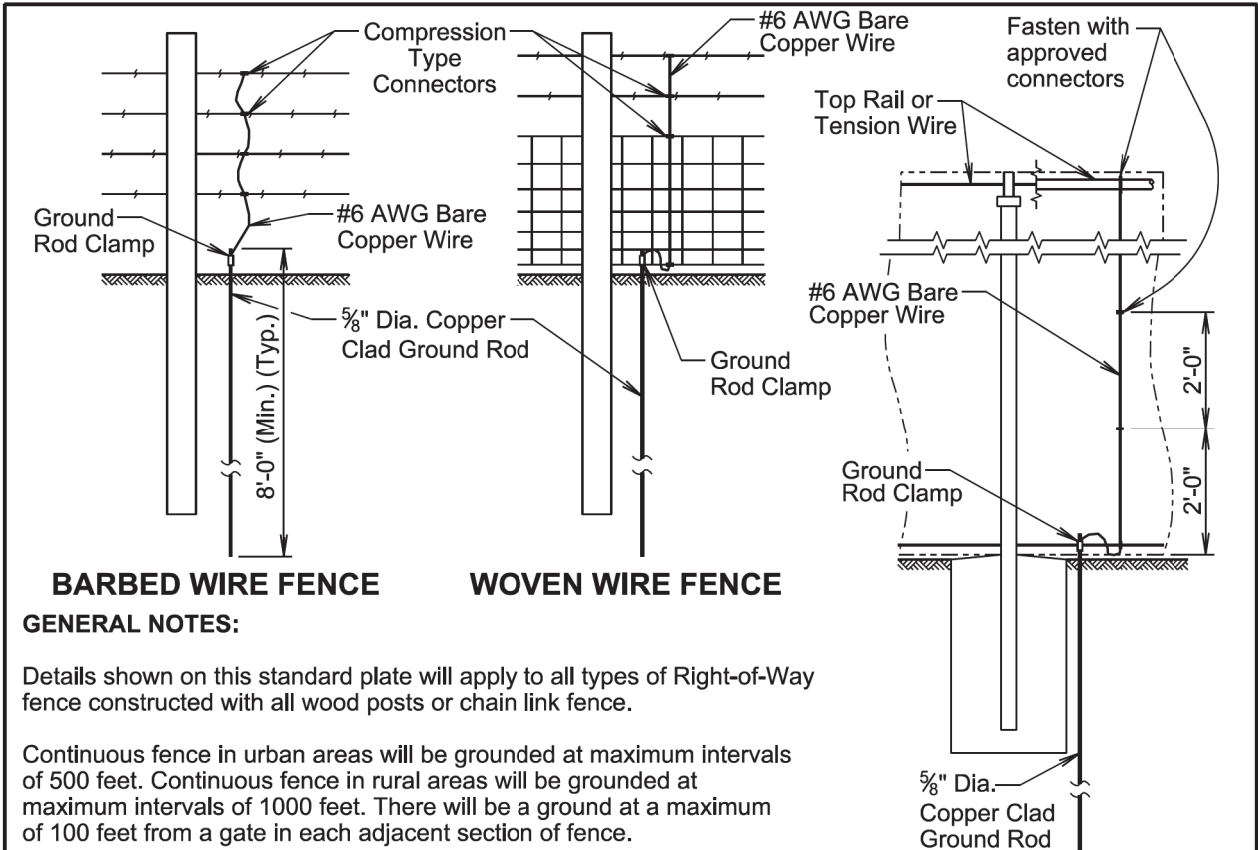
June 26, 2019

Published Date: 1st Qtr. 2023	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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### BARBED WIRE FENCE

#### GENERAL NOTES:

Details shown on this standard plate will apply to all types of Right-of-Way fence constructed with all wood posts or chain link fence.

Continuous fence in urban areas will be grounded at maximum intervals of 500 feet. Continuous fence in rural areas will be grounded at maximum intervals of 1000 feet. There will be a ground at a maximum of 100 feet from a gate in each adjacent section of fence.

Fence placed under a power line will be grounded with three grounds. One ground will be placed directly below the crossing and the other two will be placed 25 feet to 50 feet away, one on each side.

One ground will be placed directly below each telephone or cable crossing.

Ground rods will be located on the post side of the fence and will be as close as possible to the post and fence.

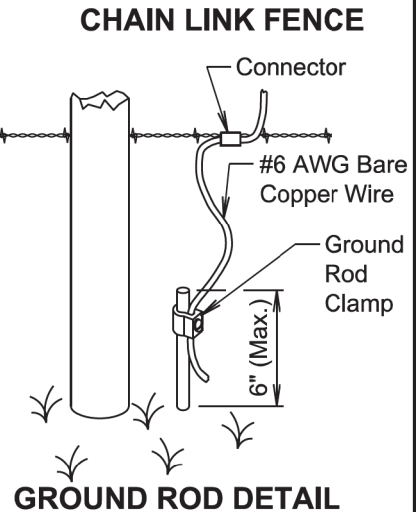
The cost of furnishing and placing all materials for grounding will be incidental to the contract unit price per foot for the respective Right-of-Way fence or chain link fence contract item.

The approximate quantities of materials per each installation of a ground are:

- 1 ground rod clamp.
- 1 5/8" diameter x 8' long copper clad ground rod
- 1 #6 AWG bare copper wire; 7' long for Right-of-Way fence or 10' long for chain link fence.

Compression type or other type of connectors:

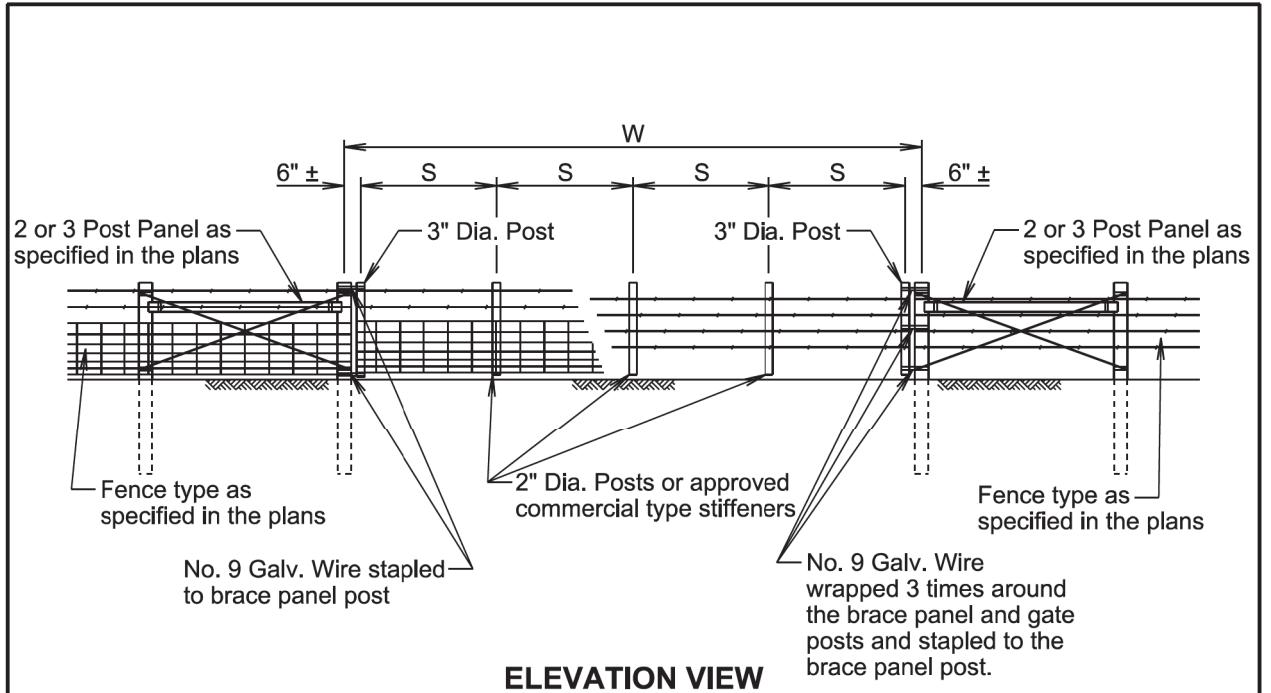
- 26" woven wire will have a total of two connectors, one secured to the top and one secured to the bottom.
- 32" woven wire will have a total of three connectors, one secured to the top, one secured to the middle, and one secured to the bottom.
- One connector will be used for each strand of barbed wire.
- A minimum of 3 connectors will be installed on chain link fence, the connectors will be placed vertically at every 2-foot increment and connectors will be placed on the top and bottom tension wires or top rail.



GROUND ROD DETAIL

June 26, 2019

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			Sheet 1 of 1



ELEVATION VIEW

W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

#### GENERAL NOTES:

Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

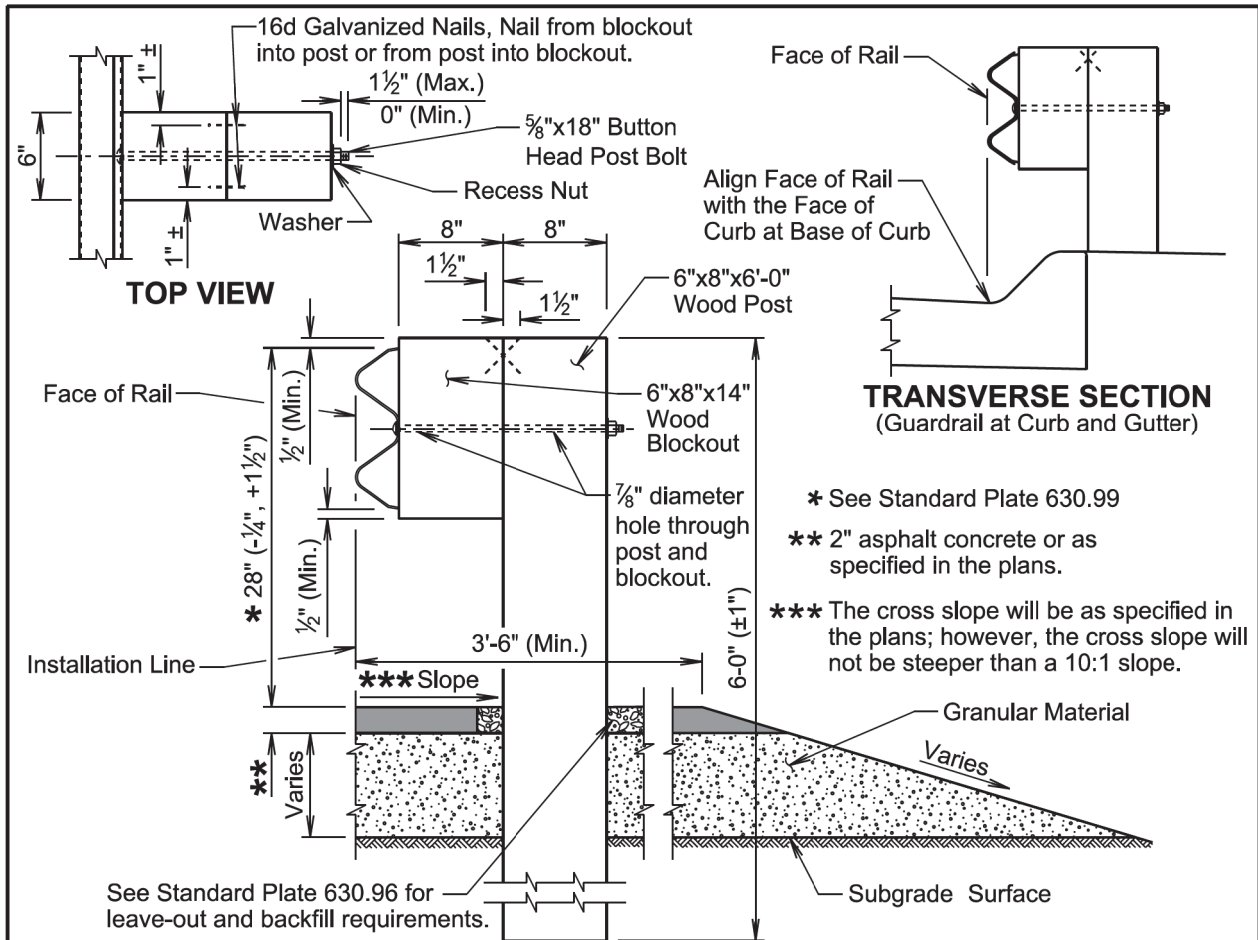
June 26, 2019

Published Date: 1st Qtr. 2023	S D D O T	WIRE GATES	PLATE NUMBER 620.20
			Sheet 1 of 1



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**GENERAL NOTES:**

**TRANSVERSE SECTION**

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite".

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

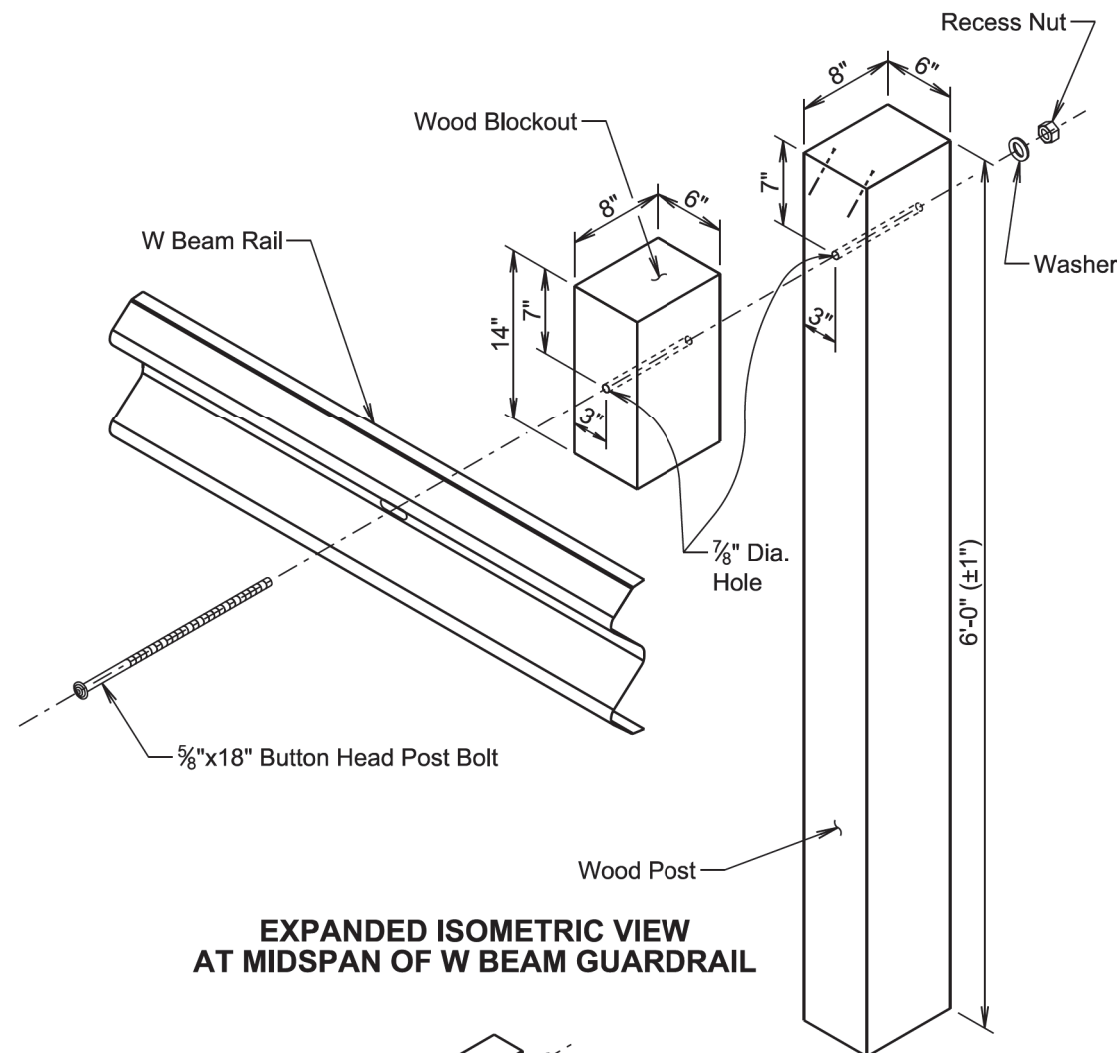
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

The top of post and top of block will have a true square cut. The top of block will be a maximum of ± 1/2 inch from the top of the post.

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**EXPANDED ISOMETRIC VIEW**  
**OF DOUBLE (NESTED) W**  
**BEAM GUARDRAIL AT MIDSPAN**  
(For Information Only, Not to Scale)

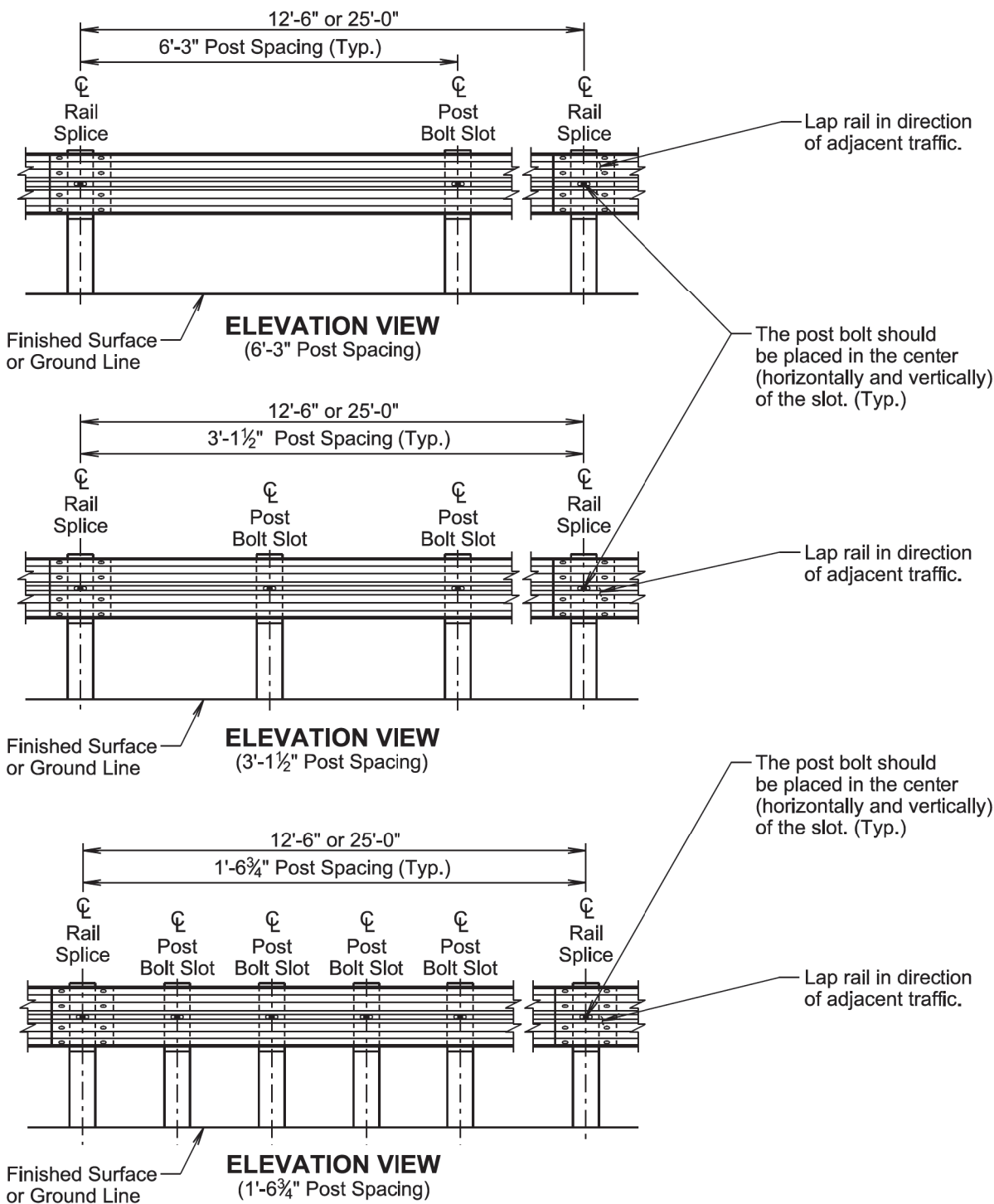
September 14, 2019

Published Date: 1st Qtr. 2023	S D D O T	W BEAM GUARDRAIL	PLATE NUMBER
			630.10
			Sheet 2 of 5



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	P 6403(10)	125	333

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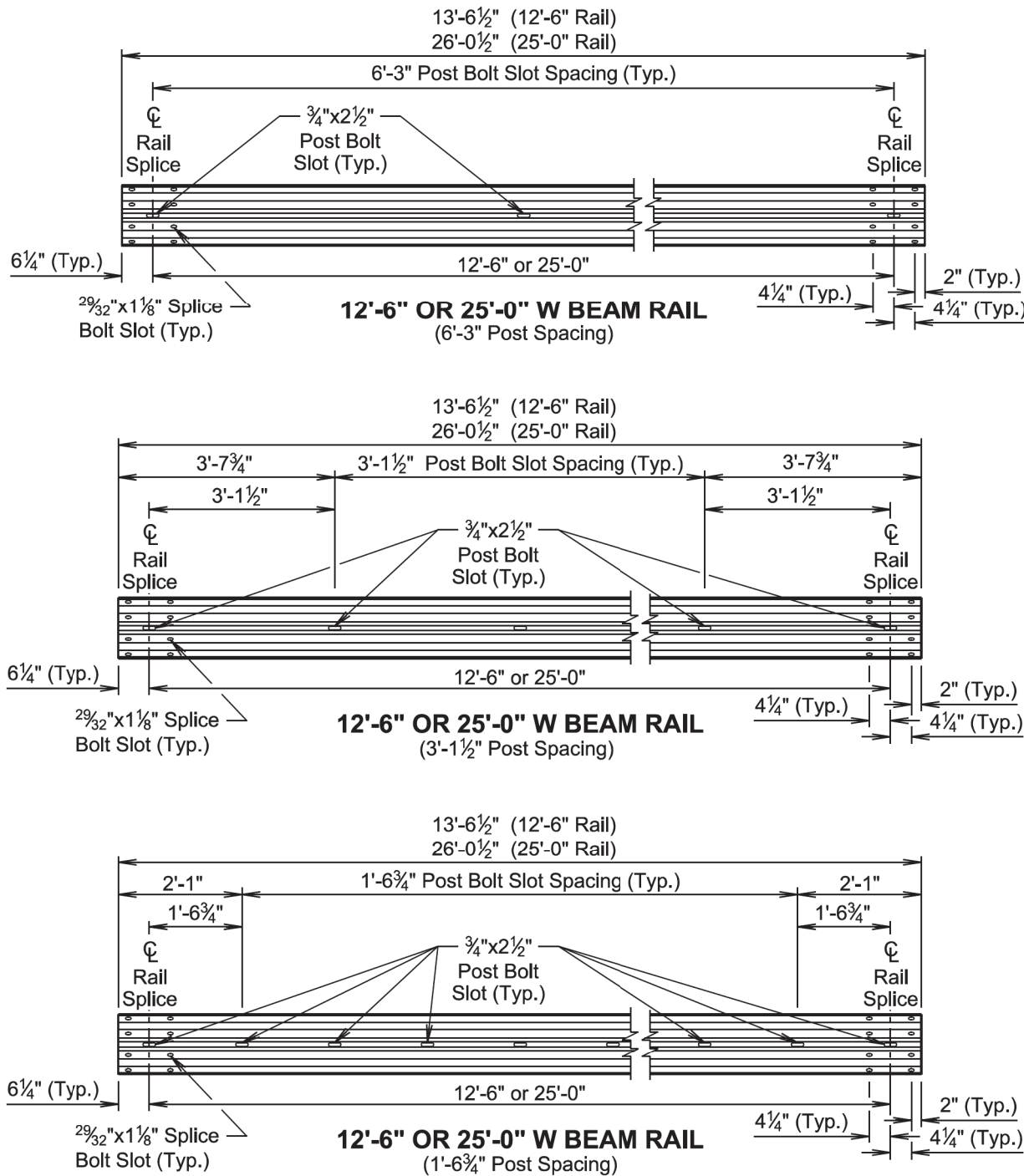
Published Date: 1st Qtr. 2023

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W BEAM GUARDRAIL

PLATE NUMBER  
630.10

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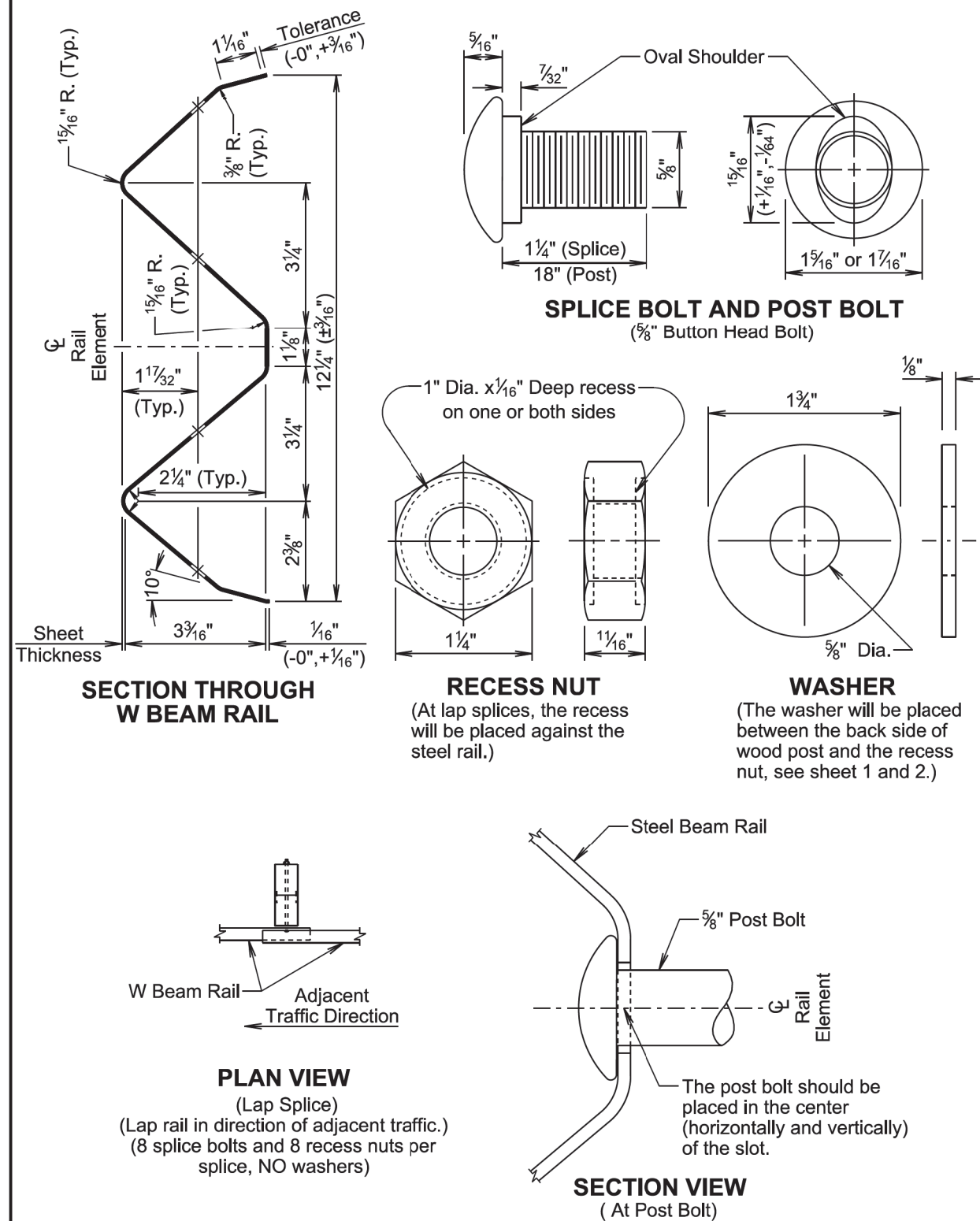
W BEAM GUARDRAIL

PLATE NUMBER  
630.10

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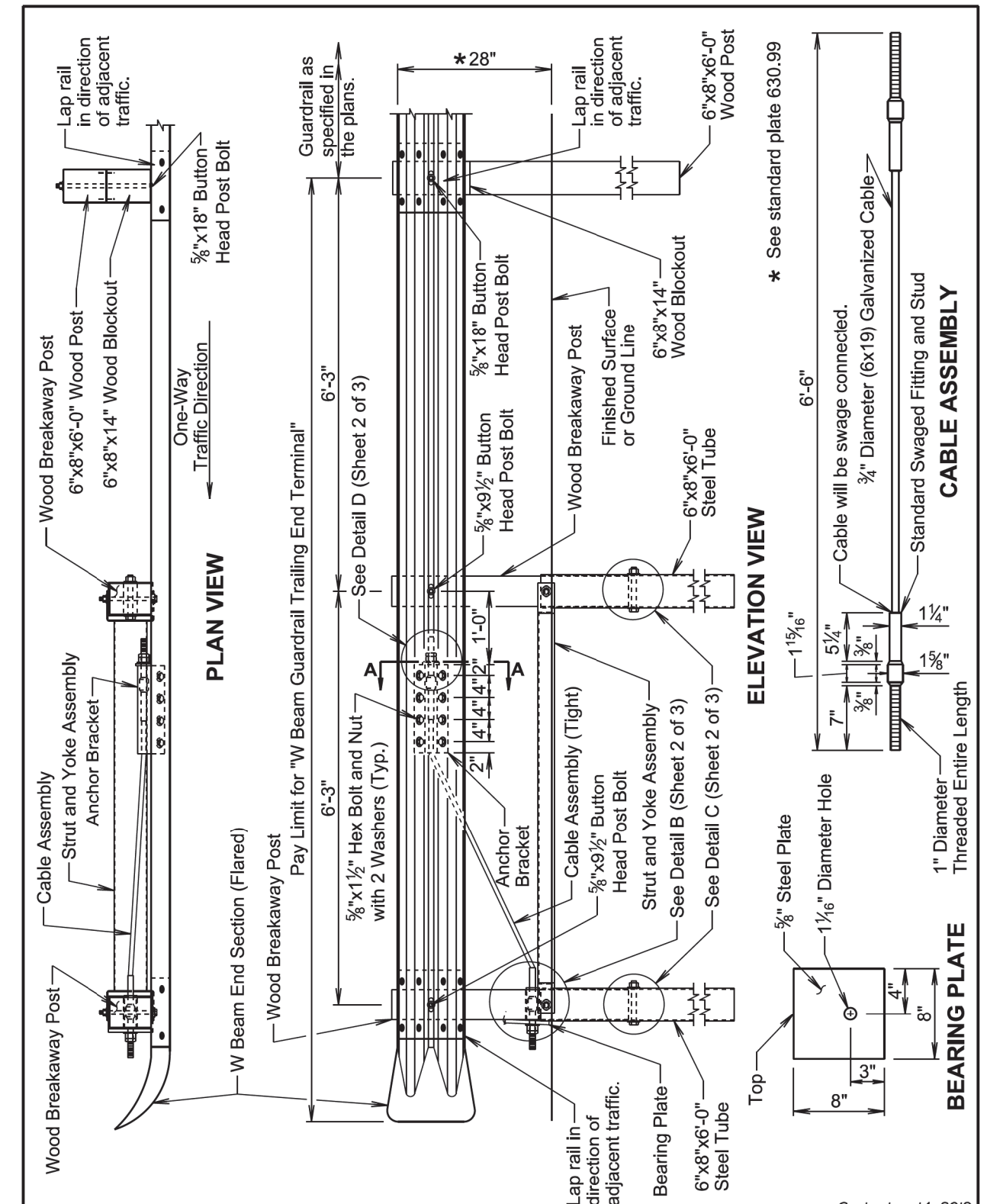
**Published Date: 1st Qtr. 2023**

SDOT

**W BEAM GUARDRAIL**

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**W BEAM GUARDRAIL  
TRAILING END TERMINAL**

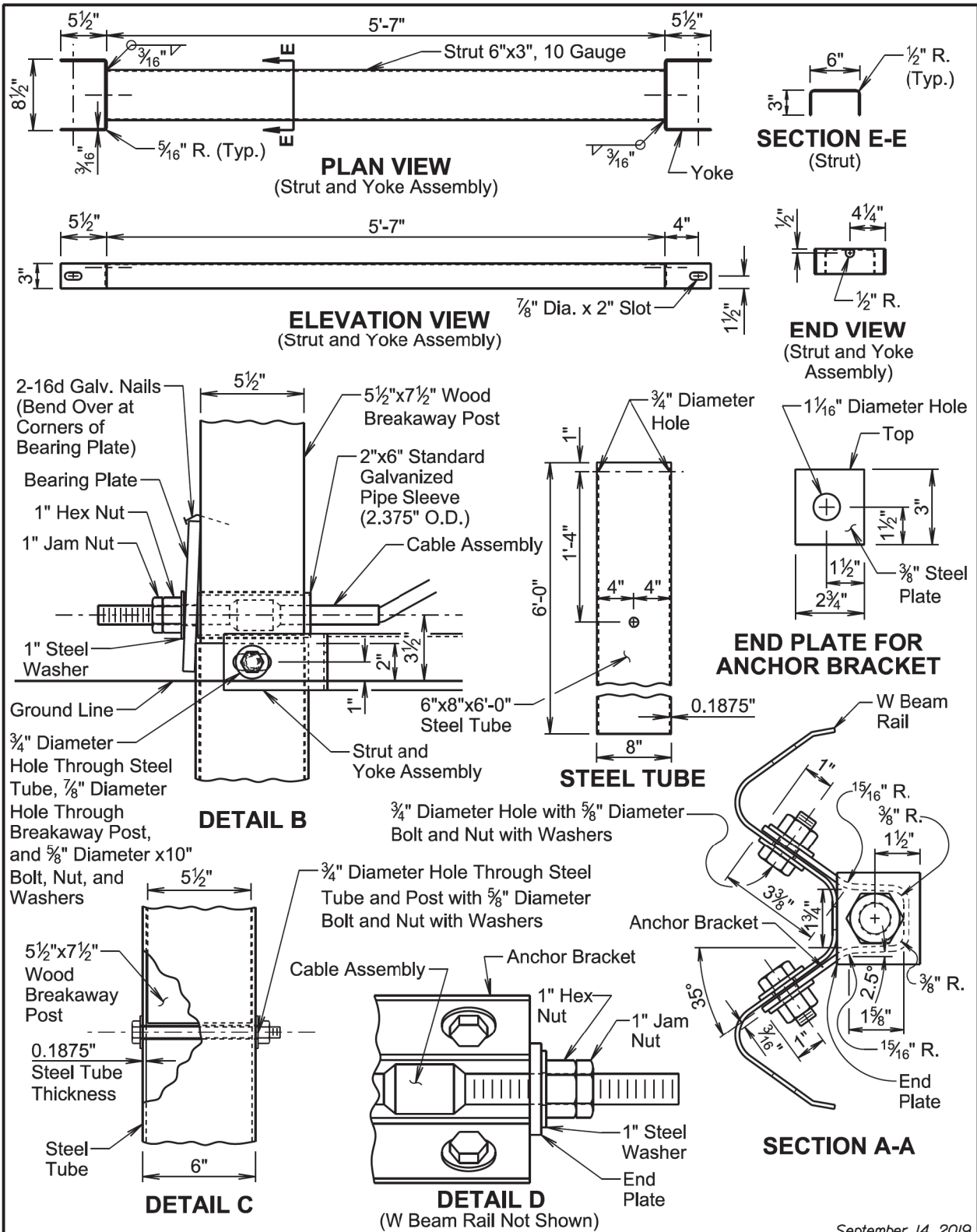
PLATE NUMBER  
630.81

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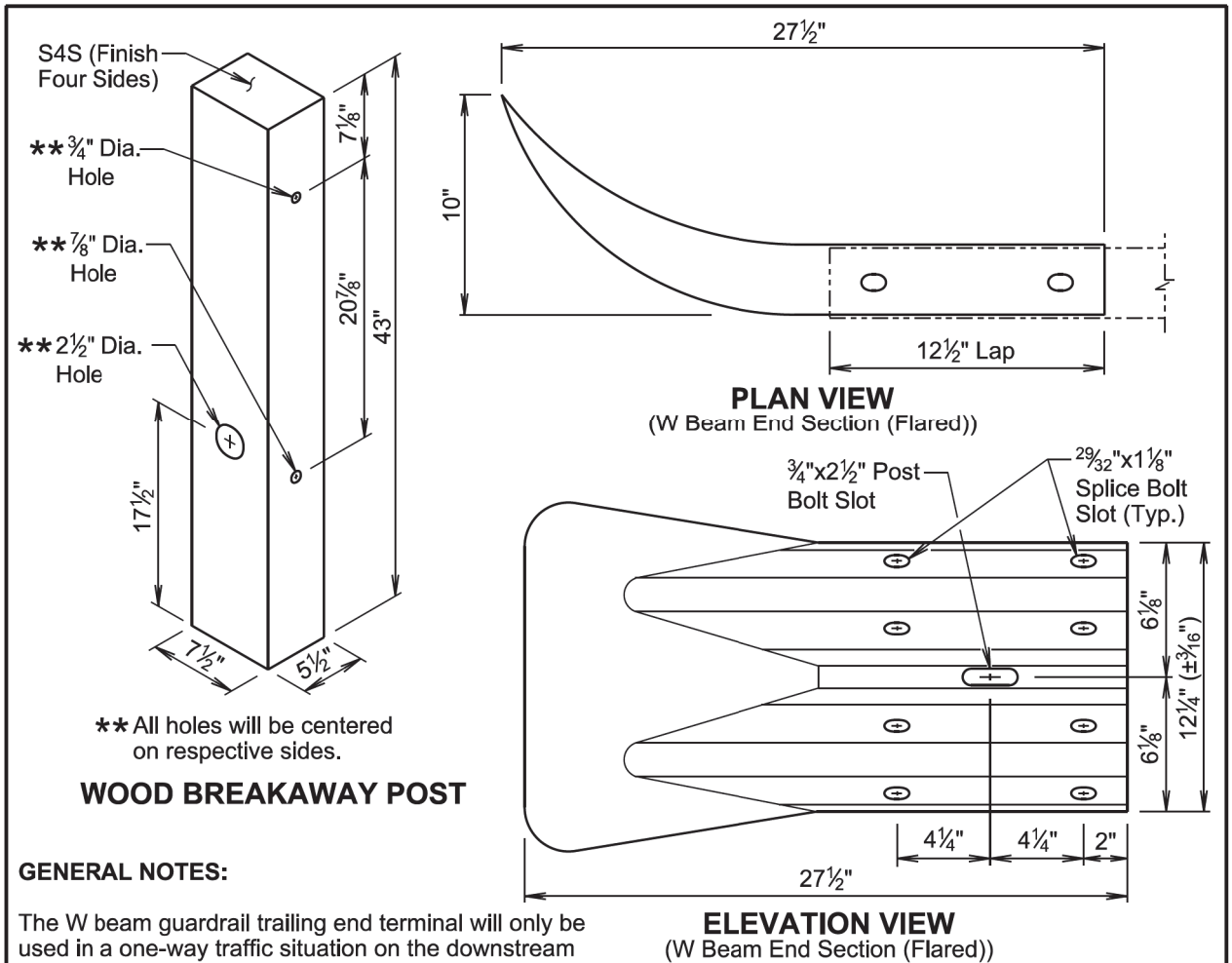
Published Date: 1st Qtr. 2023

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W BEAM GUARDRAIL  
TRAILING END TERMINAL

PLATE NUMBER  
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Sheet 2 of 3



GENERAL NOTES:

The W beam guardrail trailing end terminal will only be used in a one-way traffic situation on the downstream traffic flow end.

W beam end section (flared) will be 12 gauge.

The cable will be 3/4", Type II, with Class A coating in conformance with AASHTO M30.

The steel tube will meet the requirements of ASTM A500, Grade B, and will be galvanized after fabrication in accordance with the requirements of AASHTO M111.

All hardware will be galvanized in accordance with ASTM A153.

The anchor bracket, strut and yoke assembly, and bearing plate will be fabricated from steel that meets ASTM A36 Specifications. They will be galvanized after fabrication in accordance with ASTM A123.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and constructing the W beam guardrail trailing end terminal including labor, equipment, materials which includes W beam rail section, two wood breakaway posts, steel tubes, strut and yoke assembly, cable assembly, bearing plate, anchor bracket, W beam end section (flared), one wood post and blockout, hardware, and incidentals will be included in the contract unit price per each for "W Beam Guardrail Trailing End Terminal".

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W BEAM GUARDRAIL  
TRAILING END TERMINAL

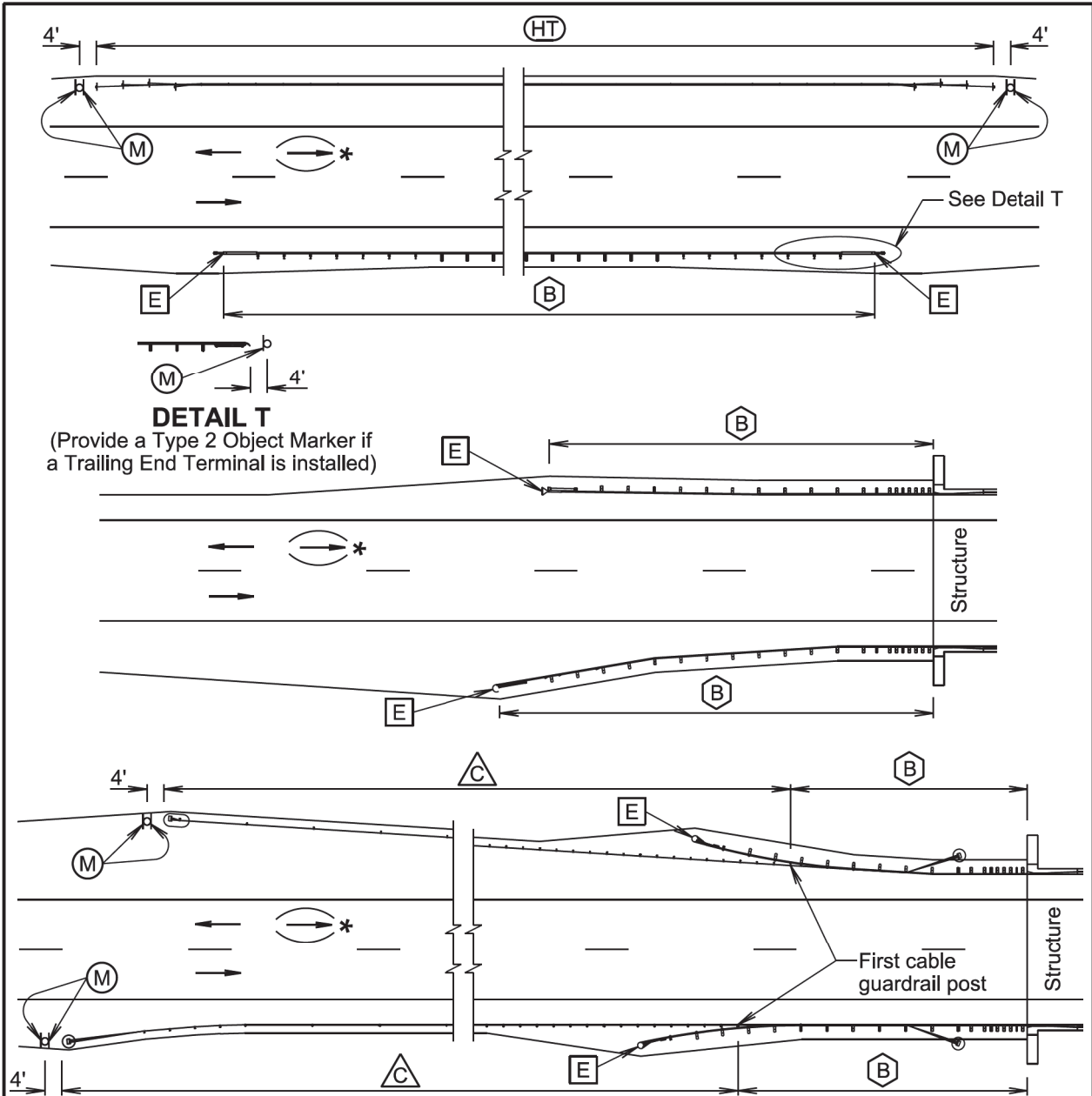
PLATE NUMBER  
630.81

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**DETAIL T**  
(Provide a Type 2 Object Marker if  
a Trailing End Terminal is installed)

**PLAN VIEW**  
(Typical Guardrail Layouts)

- B

Steel Beam Guardrail Delineation

E

Guardrail End Terminal Object Marker

C

3 Cable Guardrail (Low Tension) Delineation
- HT

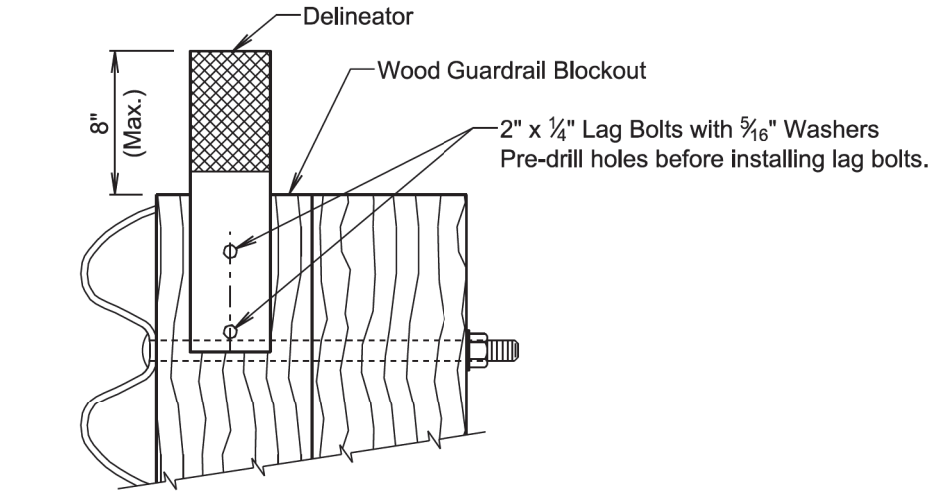
High Tension Cable Guardrail Delineation
- M

Type 2 Object Marker

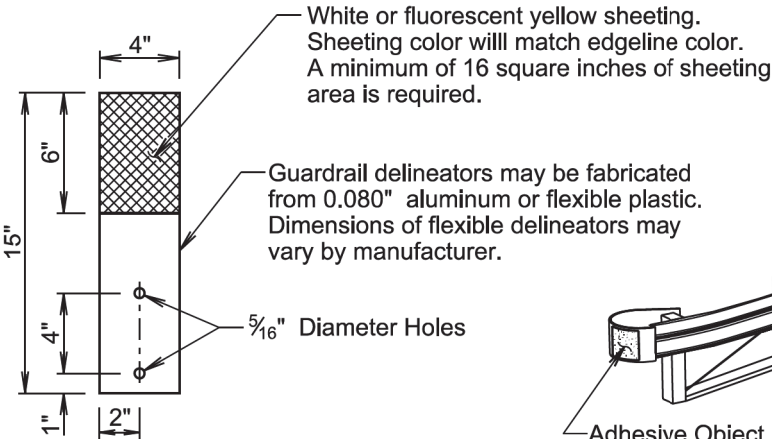
\* For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

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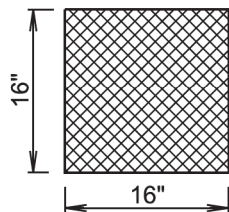
Published Date: 1st Qtr. 2023	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
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**B STEEL BEAM GUARDRAIL DELINEATION**

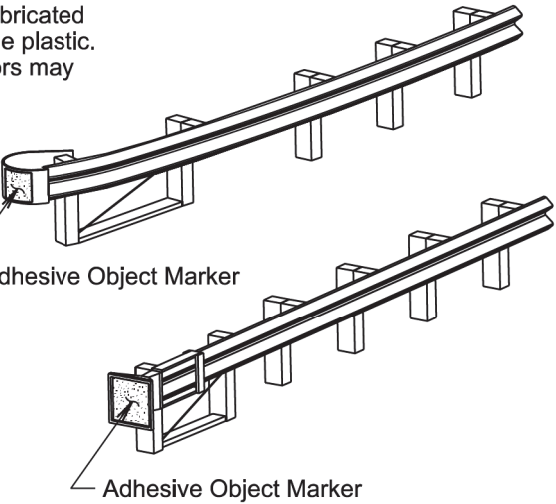


**DELINEATOR**  
(For Steel Beam Guardrail)



**ADHESIVE OBJECT MARKER**

Adhesive object marker dimensions may vary due to shape of terminal end. A minimum of 256 square inches of object marker sheeting area is required. The sheeting will be fluorescent yellow.



**E GUARDRAIL END TERMINAL OBJECT MARKER**

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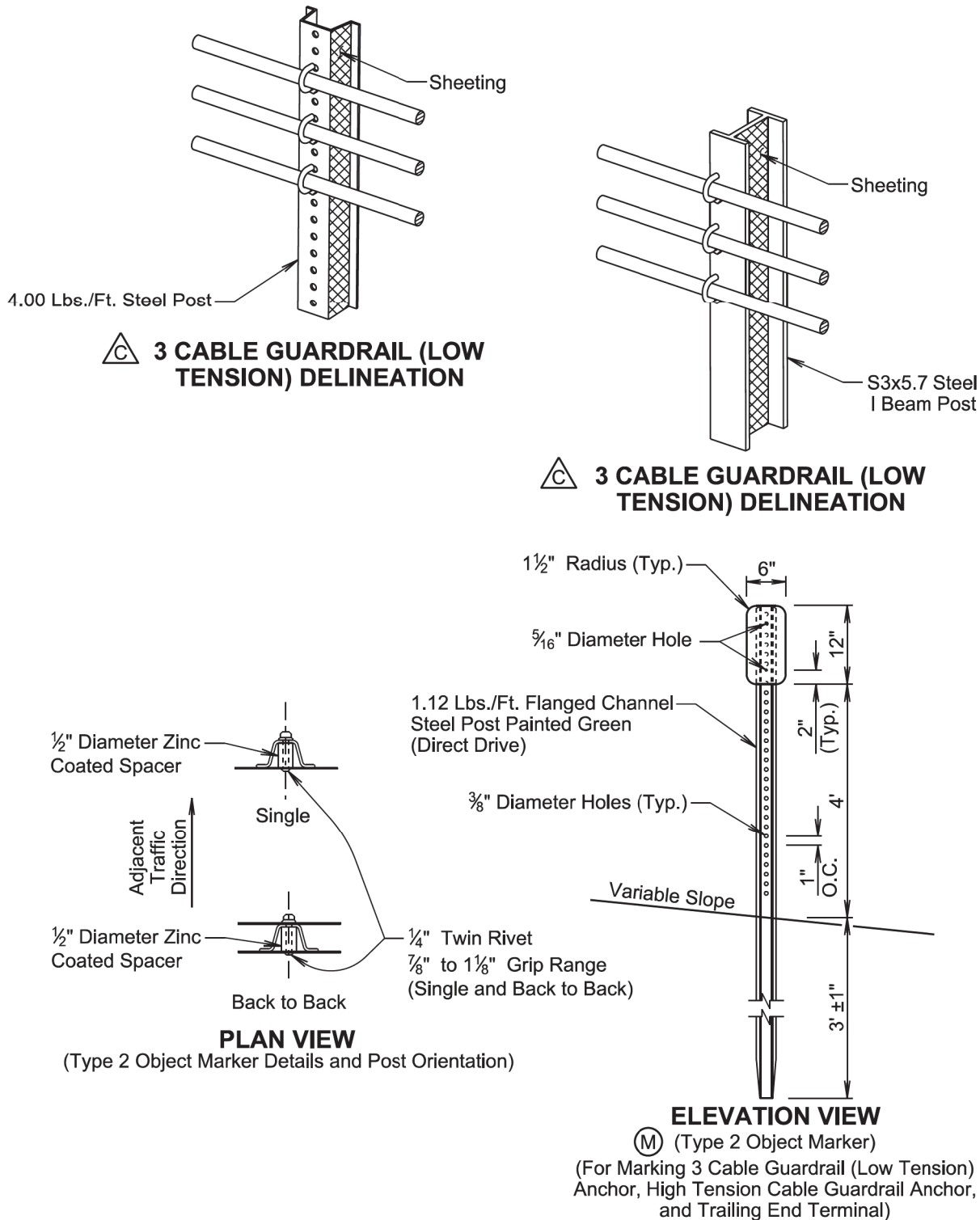
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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GENERAL NOTES:

- The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every other post cap or cable spacer. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting shall be the same as the nearest pavement marking.
- The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.
- When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.
- At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.
- At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.
- Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.
- Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.
- All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".
- All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.
- An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.
- A type 2 object marker will be placed adjacent to the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, and trailing end terminal at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

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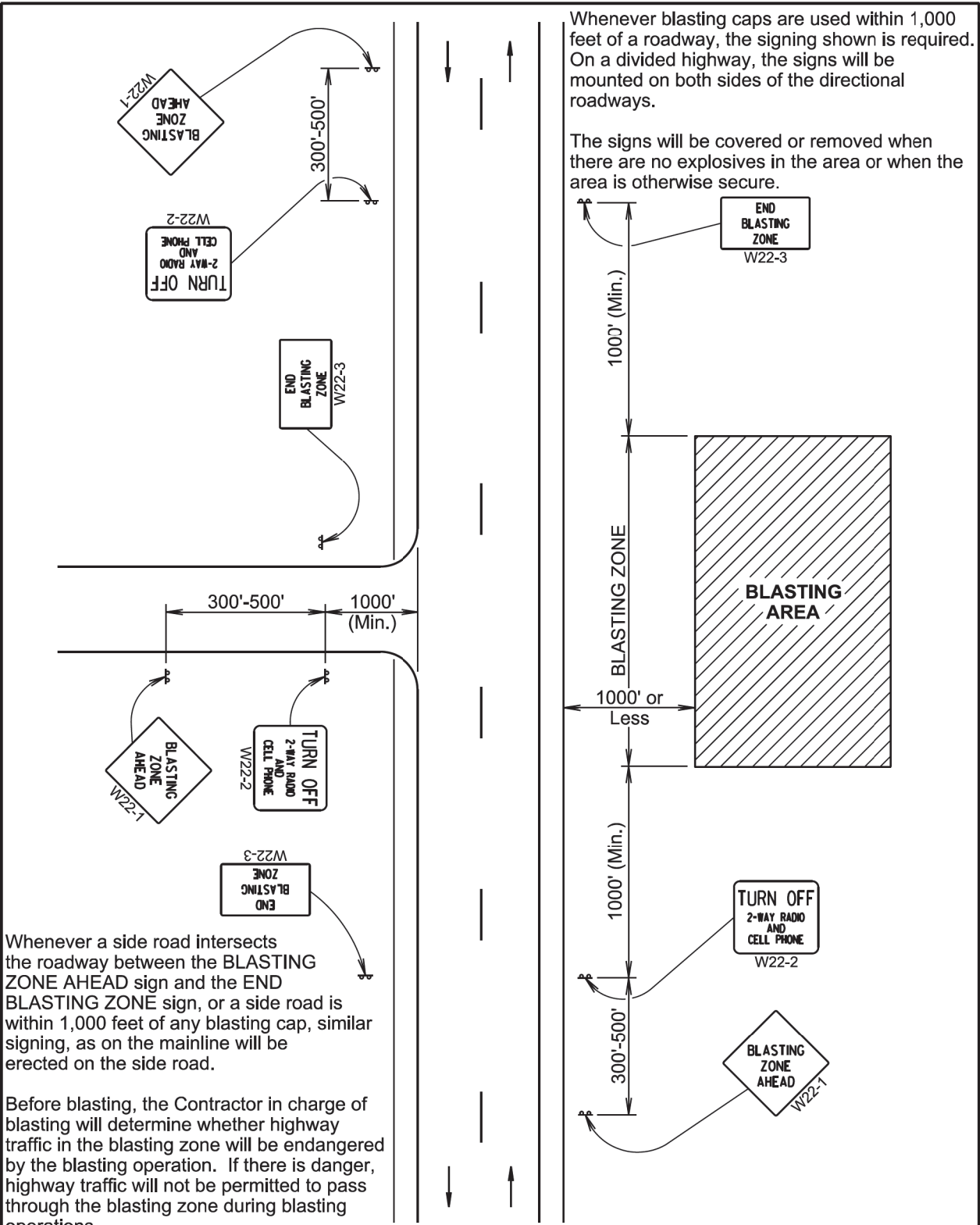


Published Date: 1st Qtr. 2023	S D D O T	DELINEATION OF GUARDRAIL	December 23, 2019
			PLATE NUMBER 632.40
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Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

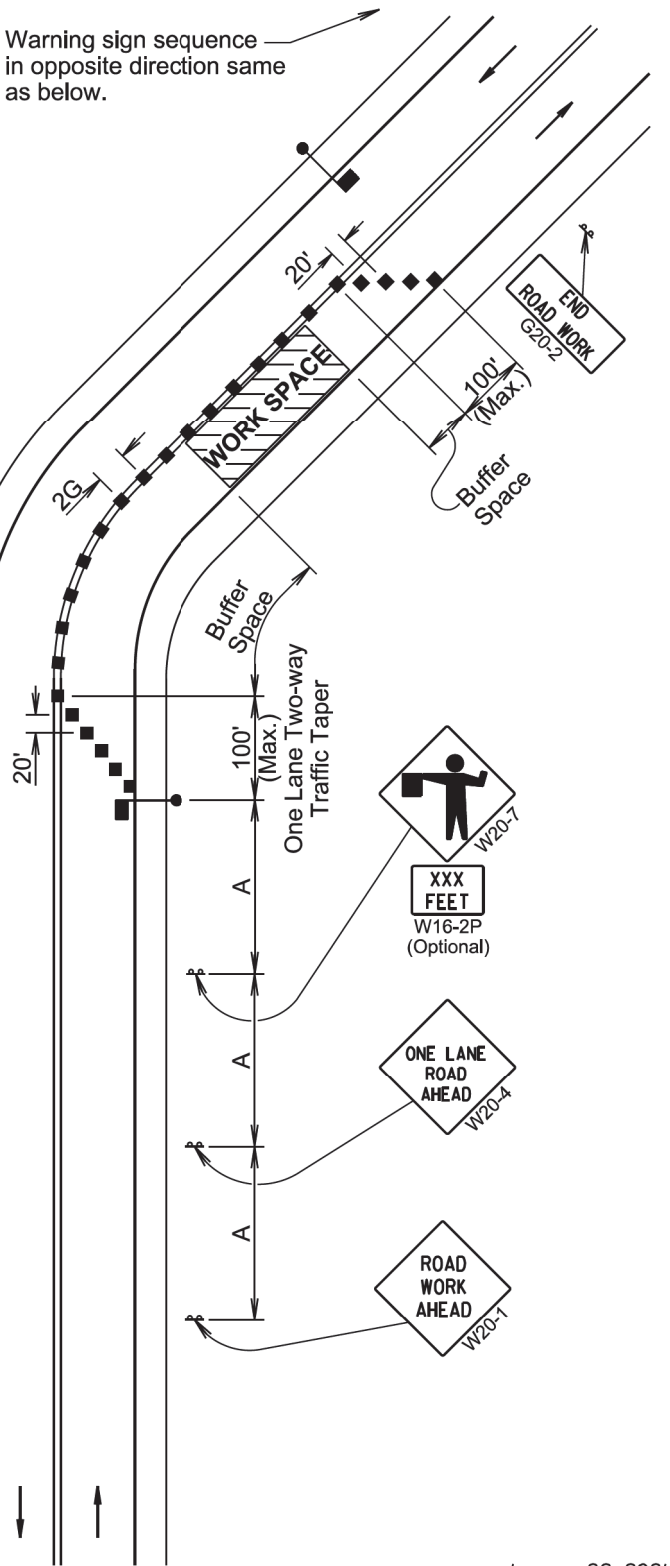
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

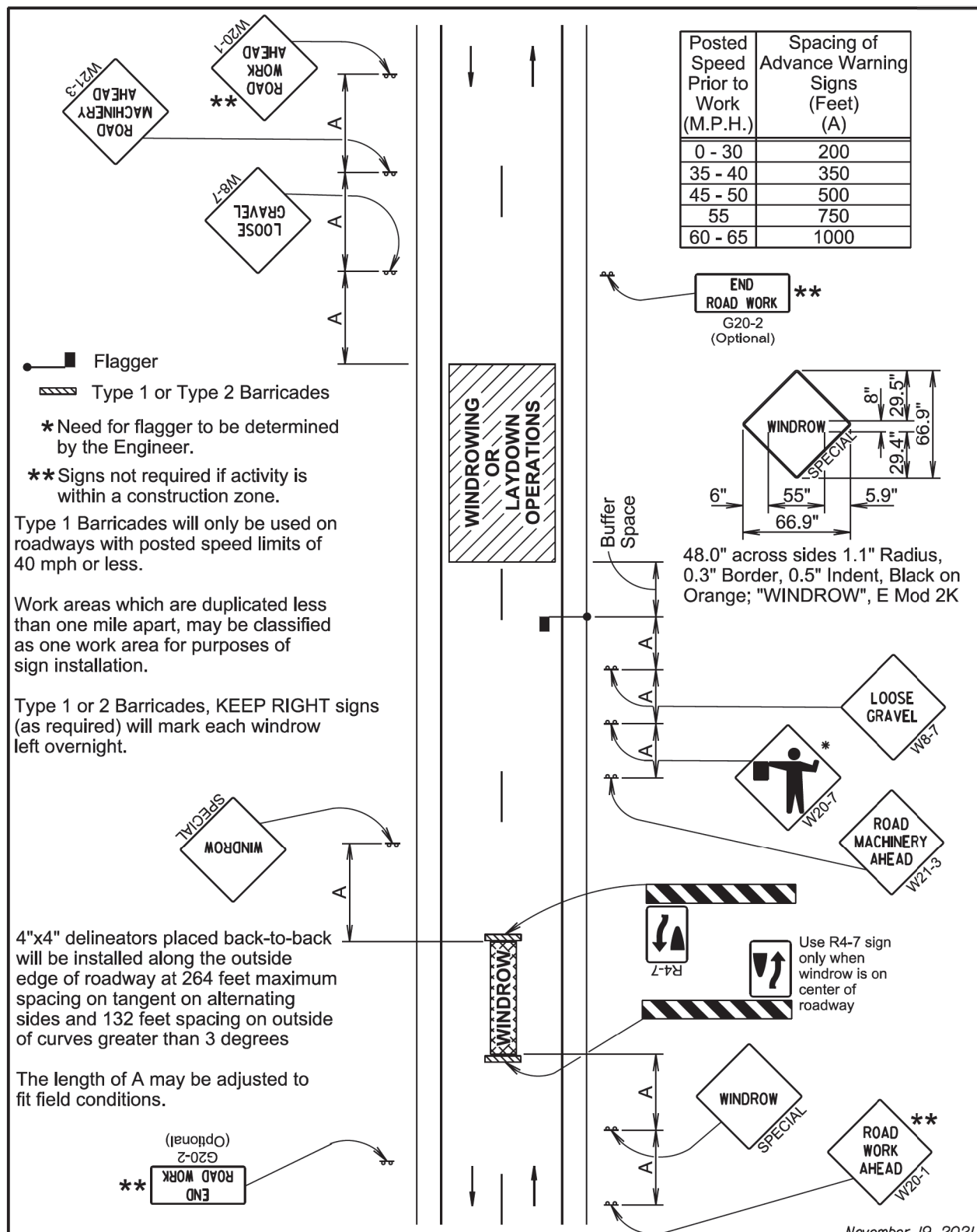
Warning sign sequence in opposite direction same as below.



Published Date: 1st Qtr. 2023	S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



Plotting Date: 2/6/2023



November 19, 2021

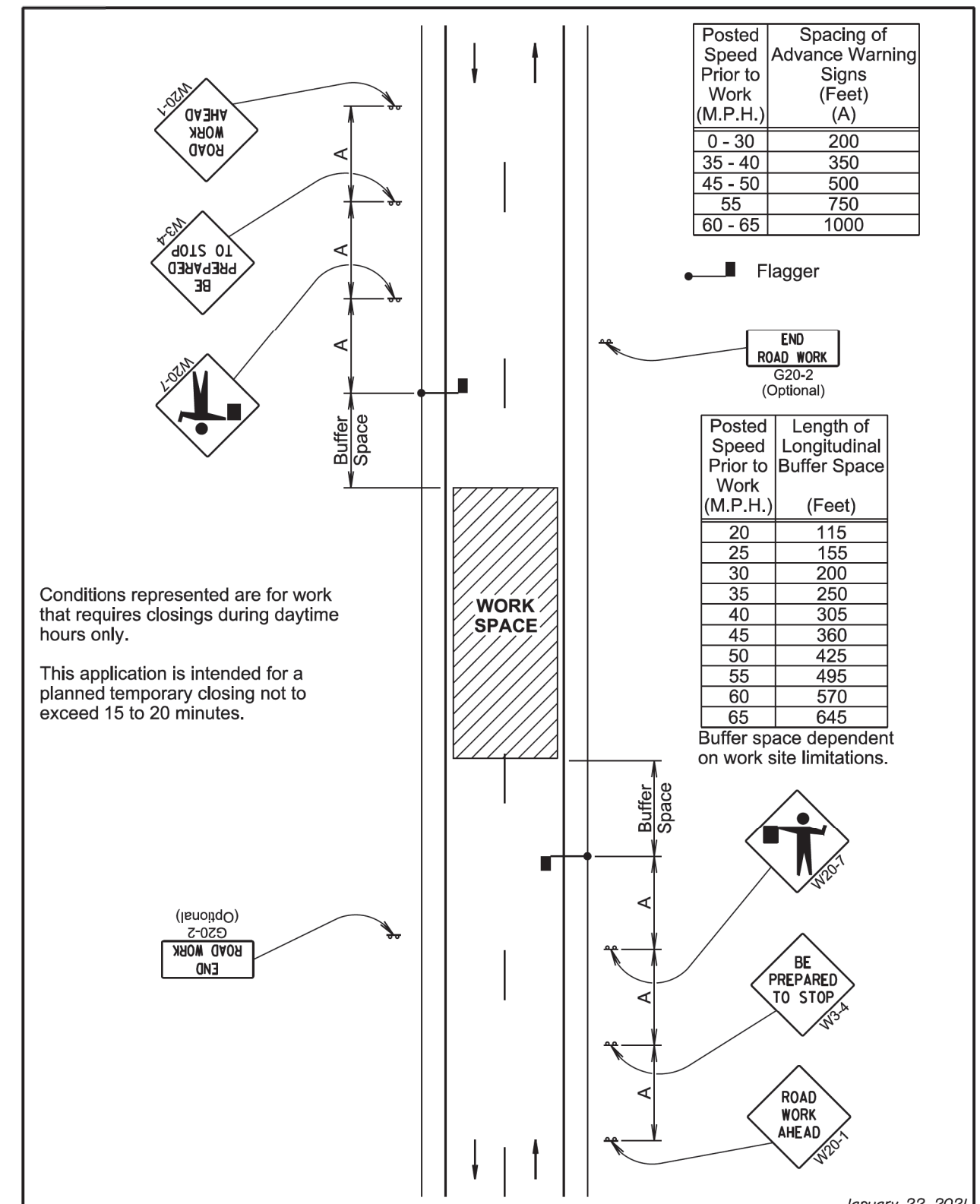
**Published Date: 1st Qtr. 2023**

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### **WINDROWING OR LAYDOWN OPERATION**

PLATE NUMBER  
634.27

Sheet 1 of 1



January 22, 2021

**Published Date: 1st Qtr. 2023**

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## TEMPORARY ROAD WORK

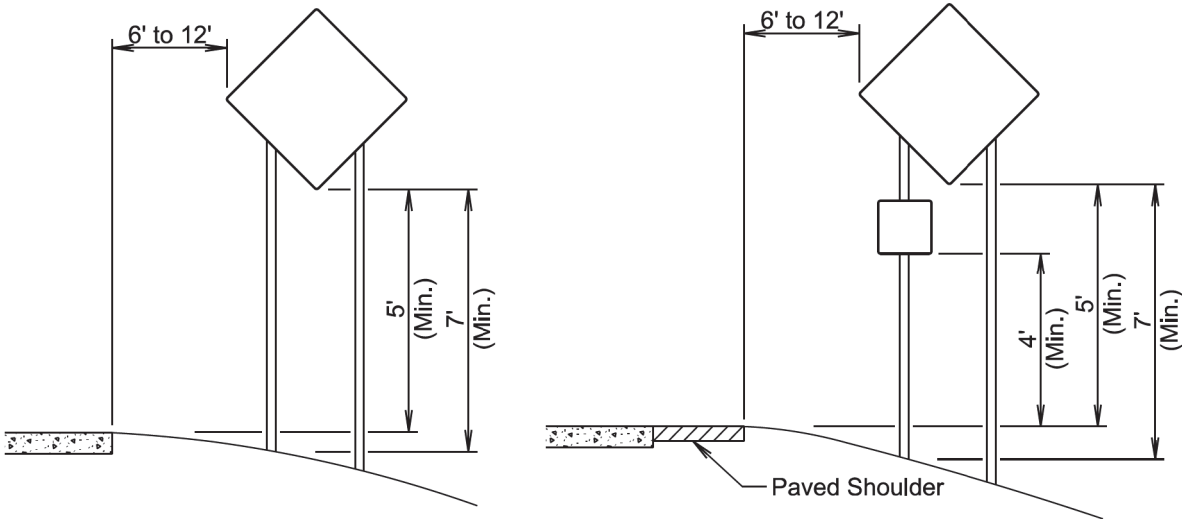
PLATE NUMBER  
634.30

Sheet 1 of 1



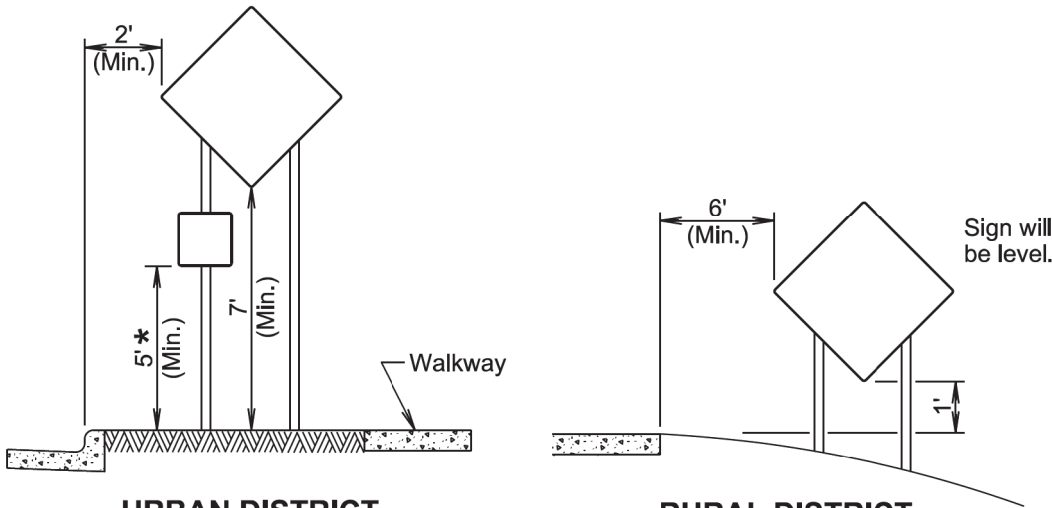
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	132	333

Plotting Date: 2/6/2023



RURAL DISTRICT

RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

RURAL DISTRICT  
3 DAY MAXIMUM  
(Not applicable to regulatory signs)

\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

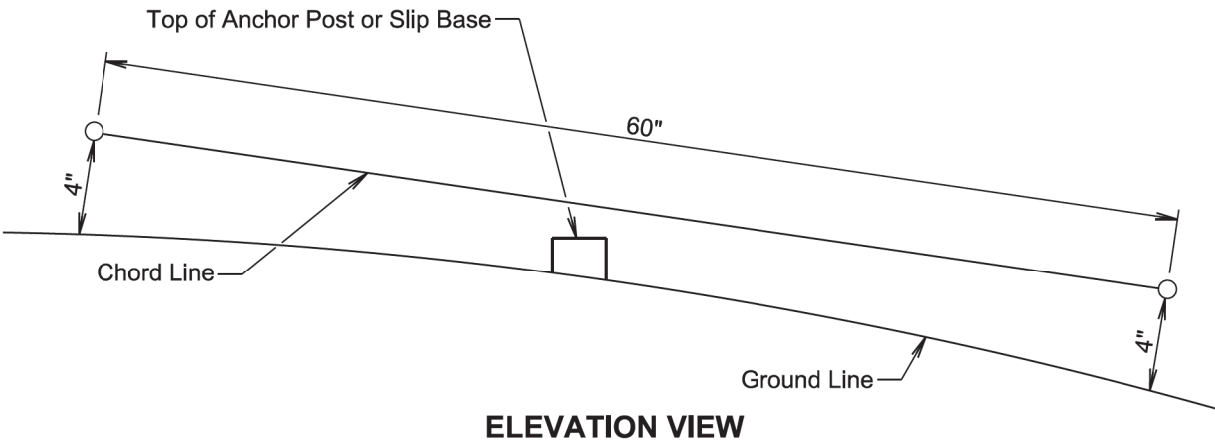
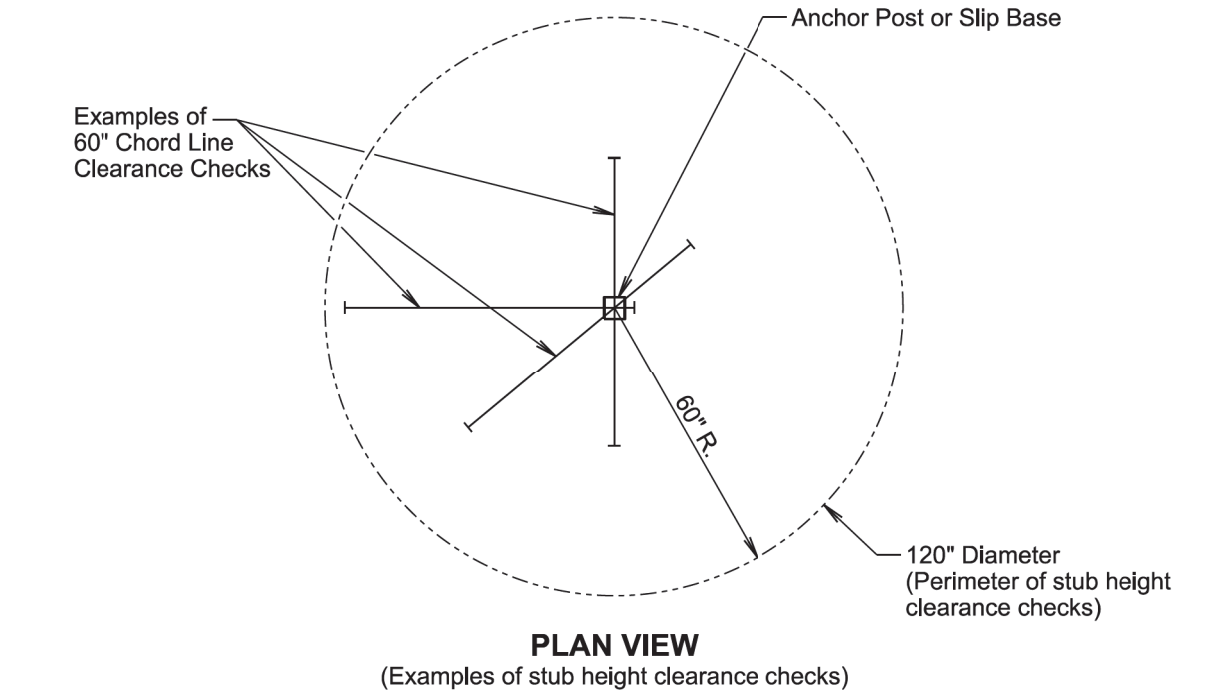
Published Date: 1st Qtr. 2023

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CRASHWORTHY SIGN SUPPORTS  
(Typical Construction Signing)

PLATE NUMBER  
634.85

Sheet 1 of 1



GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

Published Date: 1st Qtr. 2023

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BREAKAWAY SUPPORT STUB CLEARANCE

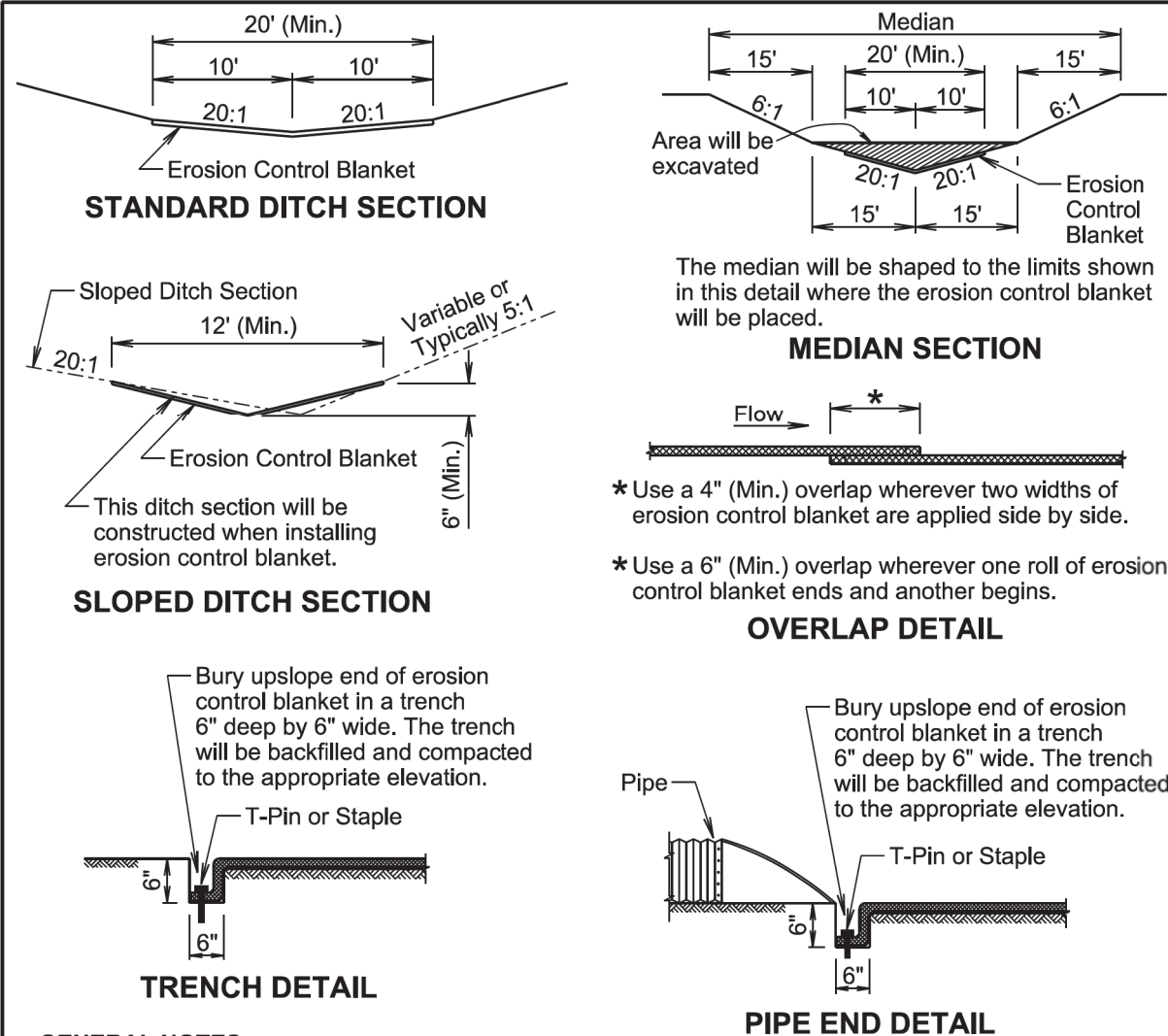
PLATE NUMBER  
634.99

Sheet 1 of 1



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	133	333

Plotting Date: 2/6/2023



**GENERAL NOTES:**

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

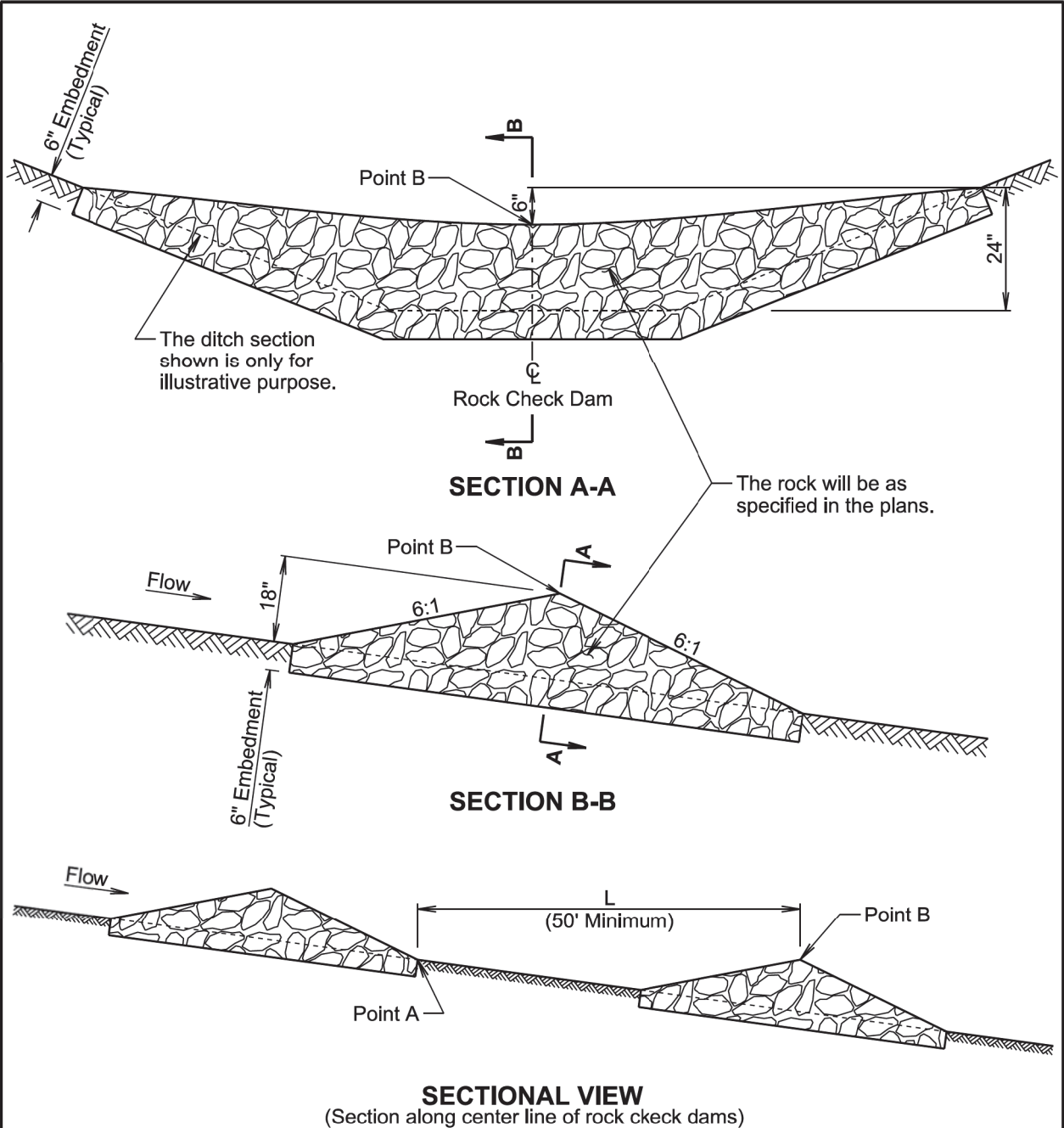
The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

February 14, 2020

Published Date: 1st Qtr. 2023	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1



**GENERAL NOTES:**

The elevation of Point A and Point B will be the same. The distance L is the distance required such that Point A and Point B are at the same elevation.

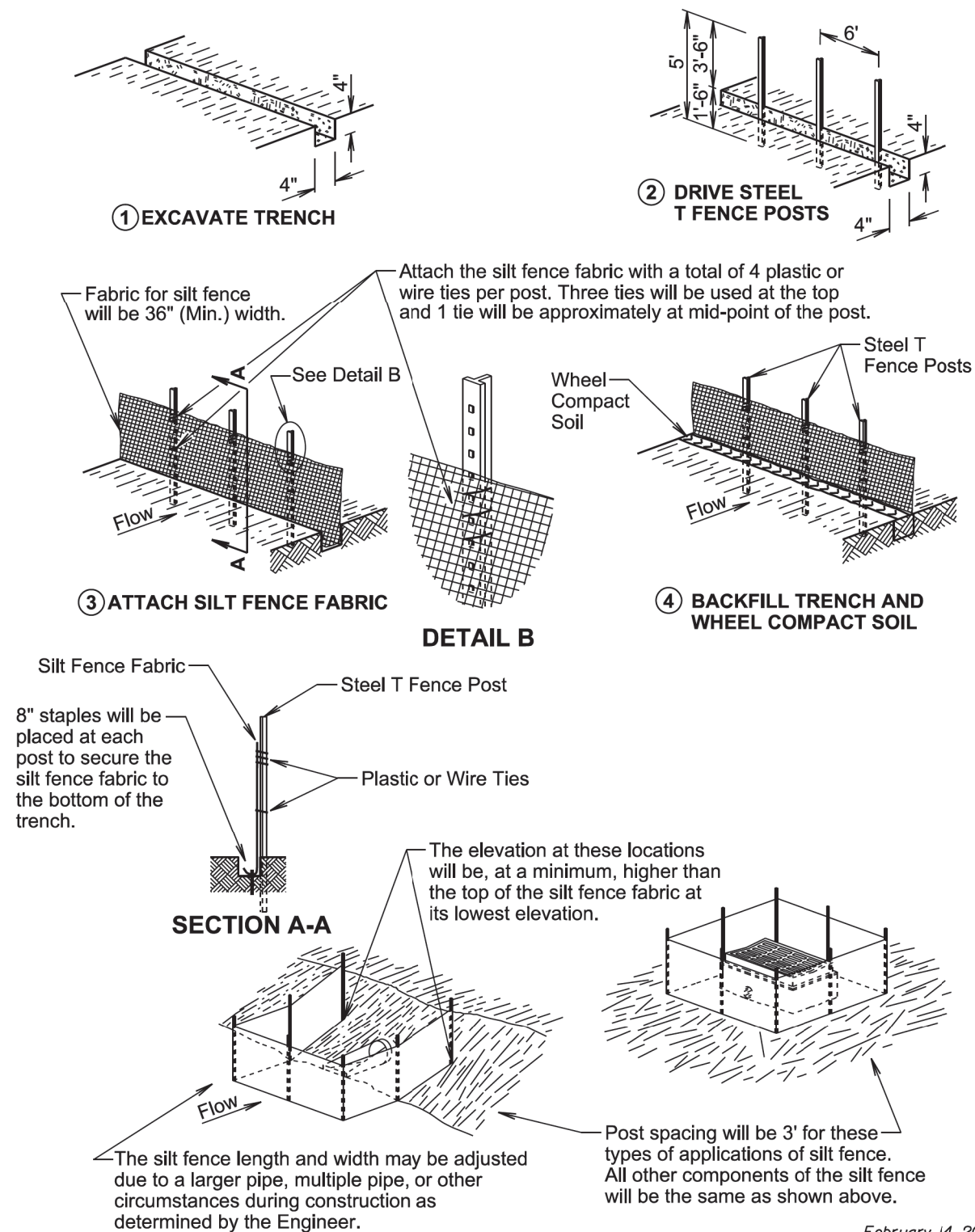
All costs for constructing the rock check dam including labor, equipment, excavation, and rock will be incidental to the contract unit price per cubic yard for "Rock Check Dam".

February 14, 2020

Published Date: 1st Qtr. 2023	S D D O T	ROCK CHECK DAM	PLATE NUMBER 734.03
			Sheet 1 of 1



## MANUAL HIGH FLOW SILT FENCE INSTALLATION



February 14, 2020

**Published Date: 1st Qtr. 2023**

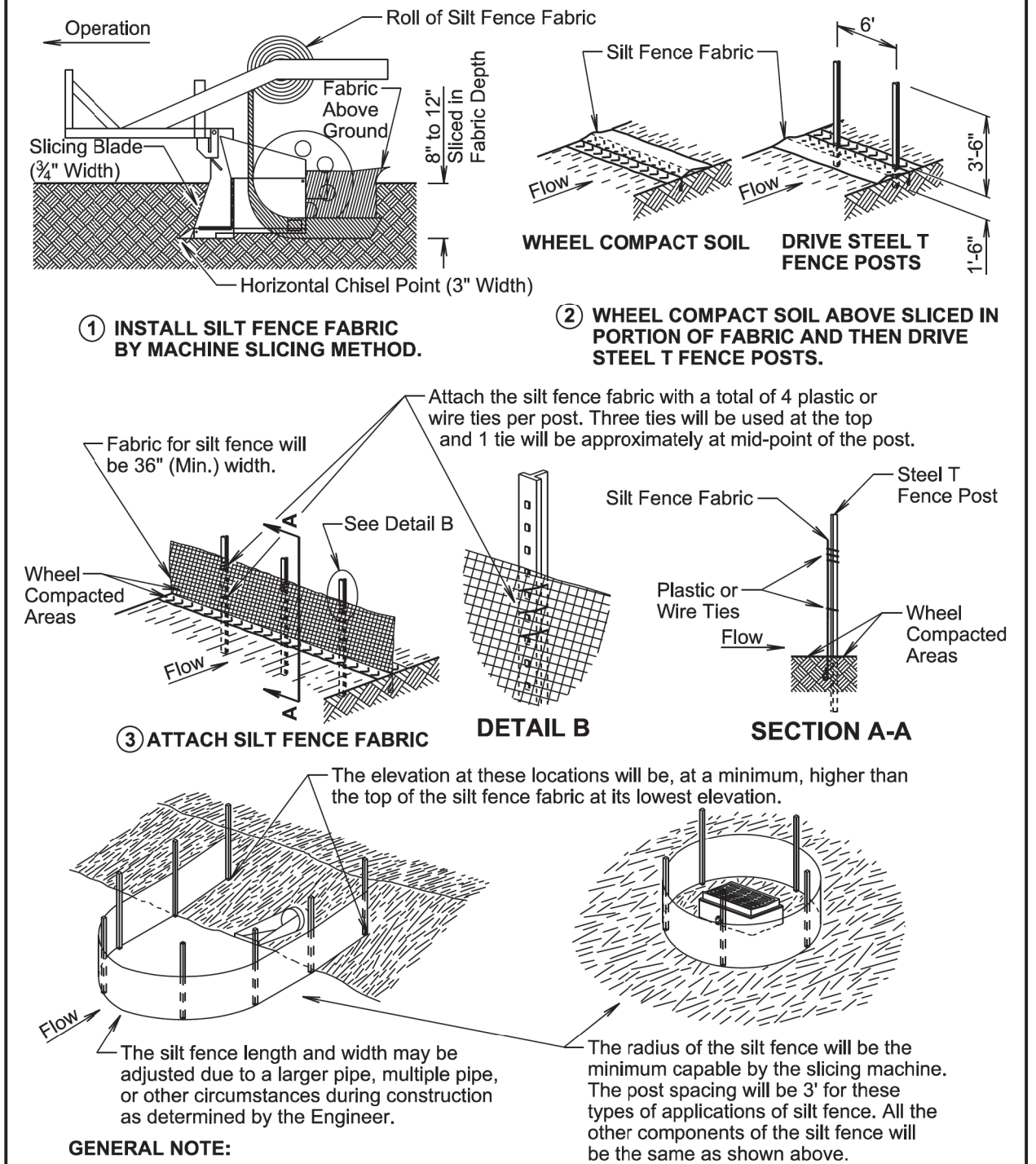
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## HIGH FLOW SILT FENCE

PLATE NUMBER  
734.05

Sheet 1 of 2

## MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



**GENERAL NOTE:**

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

February 14, 2020

**Published Date: 1st Qtr. 2023**

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## HIGH FLOW SILT FENCE

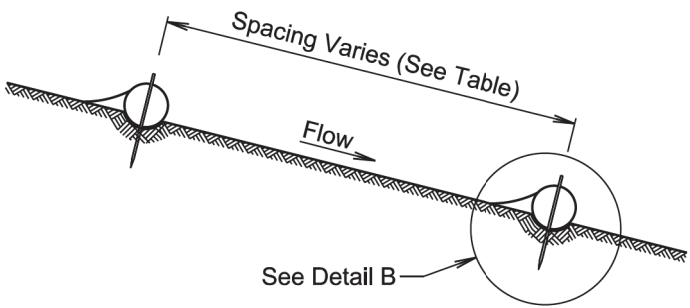
PLATE NUMBER  
734.05

Sheet 2 of 2



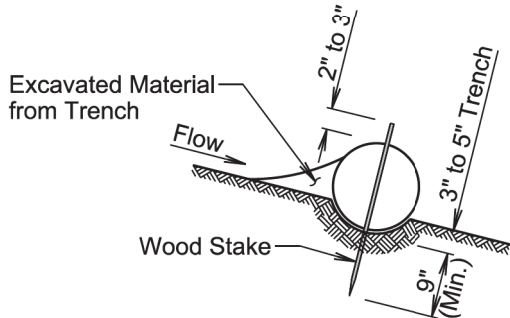
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	135	333

Plotting Date: 2/6/2023

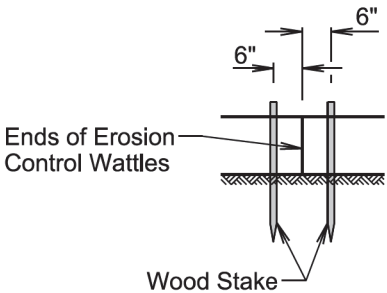


CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40

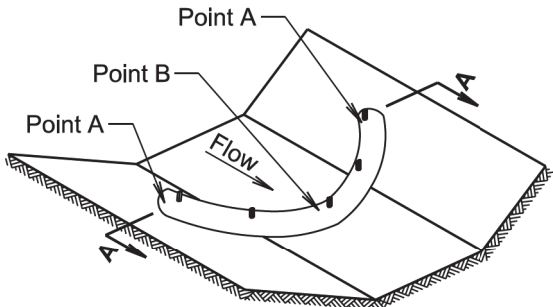
**ELEVATION VIEW**  
(Cut or Fill Slope Installation)



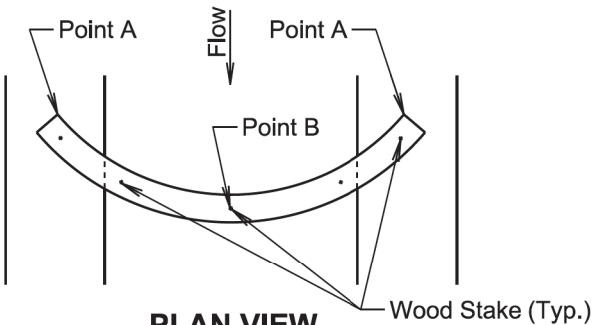
**DETAIL B**  
(Typical of All Installations)



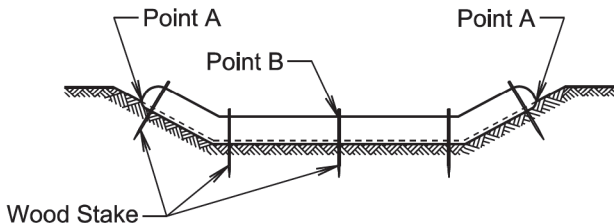
**DETAIL C**  
(See General Notes)



**ISOMETRIC VIEW**  
(Ditch Installation)



**PLAN VIEW**  
(Ditch Installation)



**SECTION A-A**

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50

February 14, 2020

Published Date: 1st Qtr. 2023

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EROSION CONTROL WATTLE

PLATE NUMBER  
734.06

Sheet 1 of 2

**GENERAL NOTES:**

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 1st Qtr. 2023

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EROSION CONTROL WATTLE

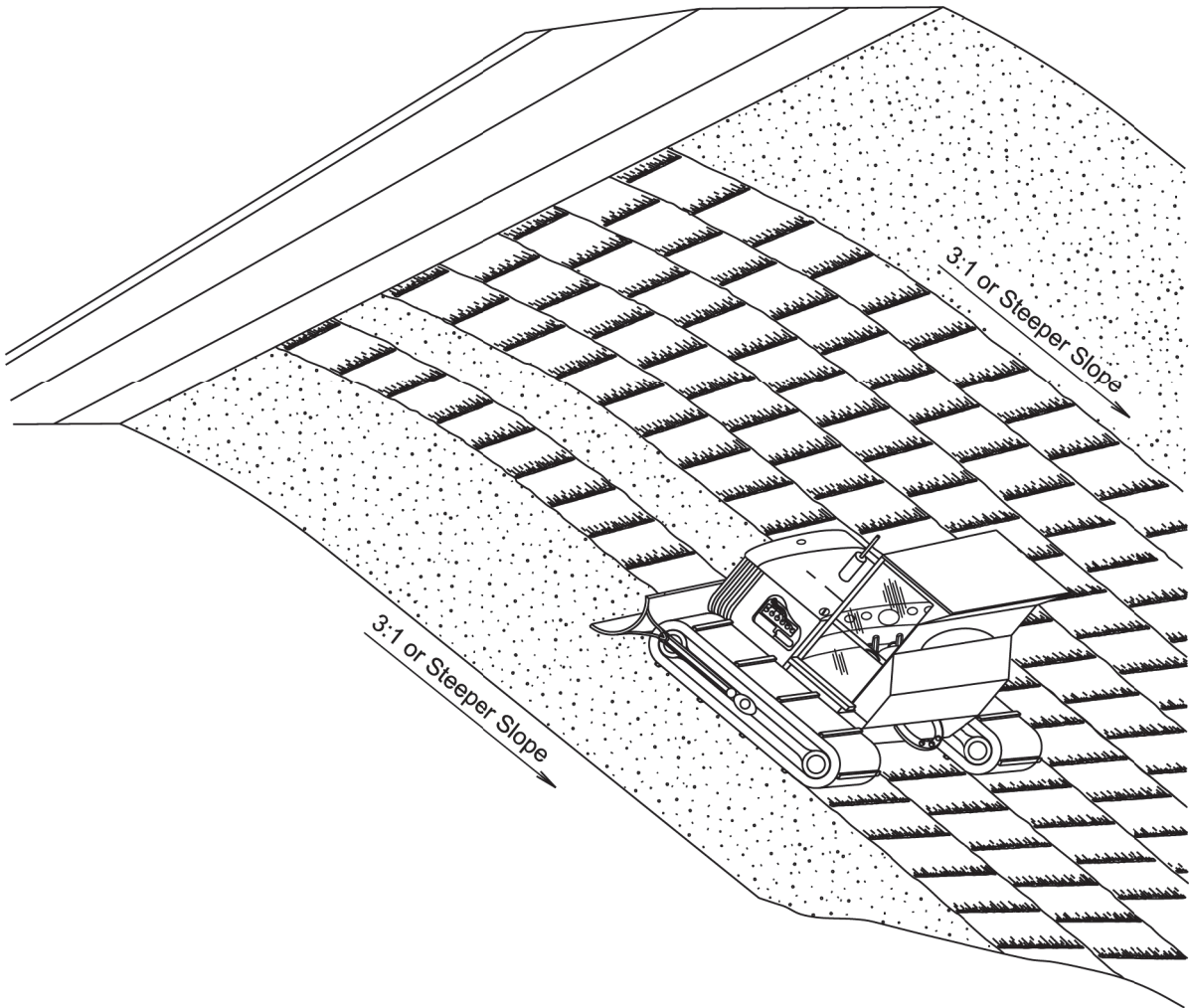
PLATE NUMBER  
734.06

Sheet 2 of 2



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	136	333

Plotting Date: 2/6/2023



**GENERAL NOTES:**

Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

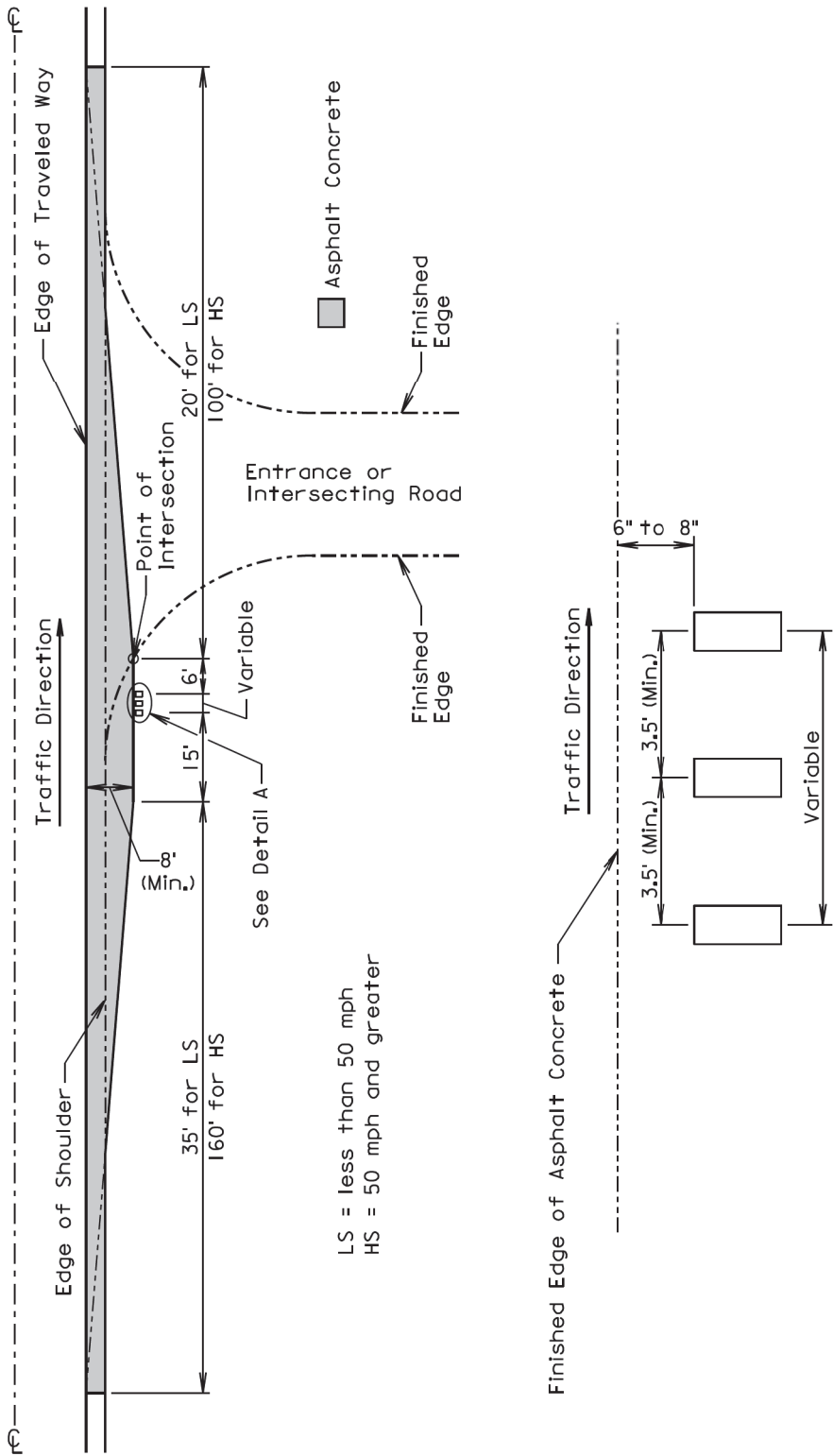
The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

Measurement for surface roughening will be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

February 14, 2020

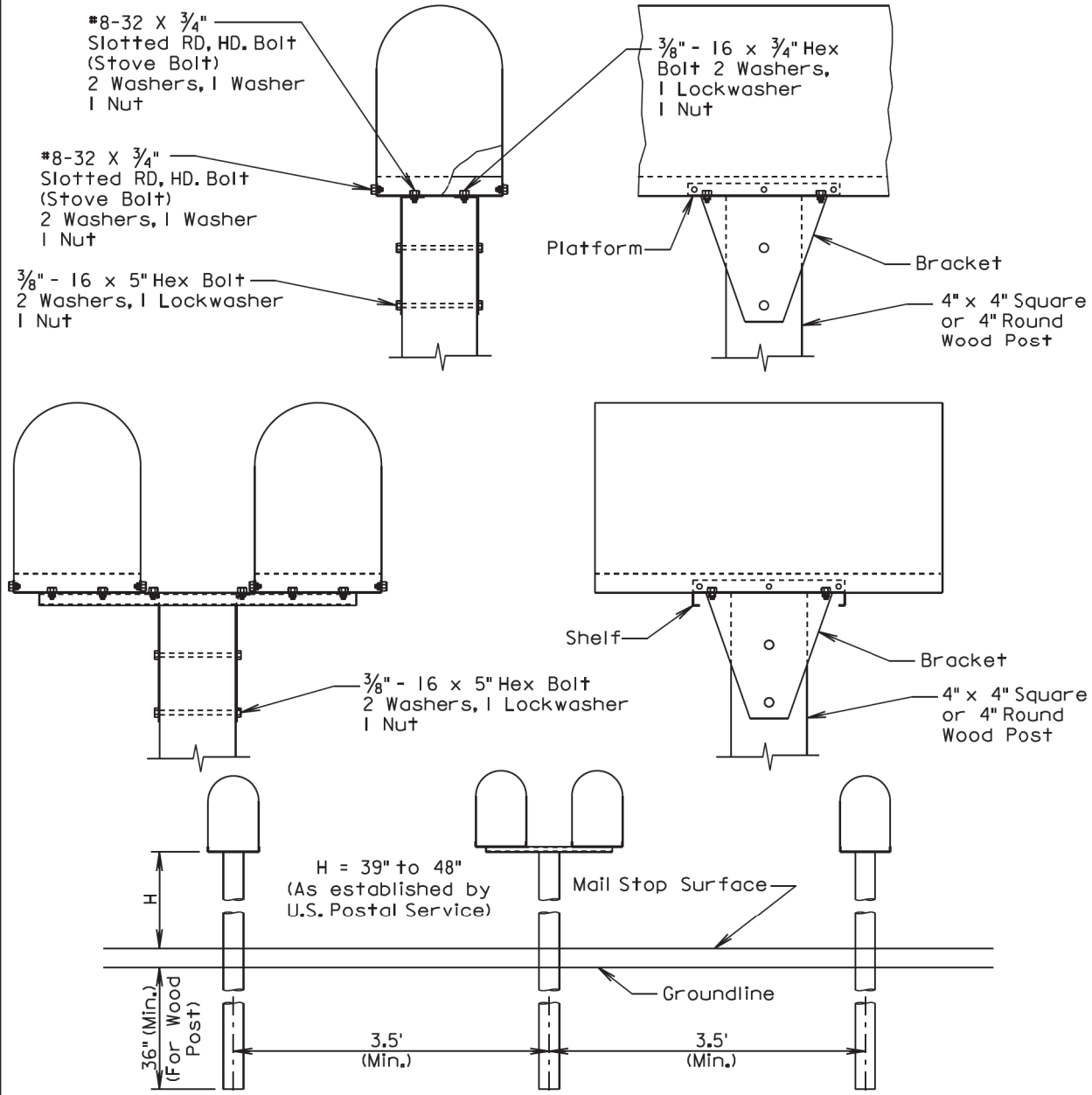
<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>SURFACE ROUGHENING</b>	PLATE NUMBER 734.25
			Sheet 1 of 1



September 6, 2015

<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>MAILBOX TURNOUT</b>	PLATE NUMBER 900.01
			Sheet 1 of 1





GENERAL NOTES:

SPACING FOR MULTIPLE POST INSTALLATION

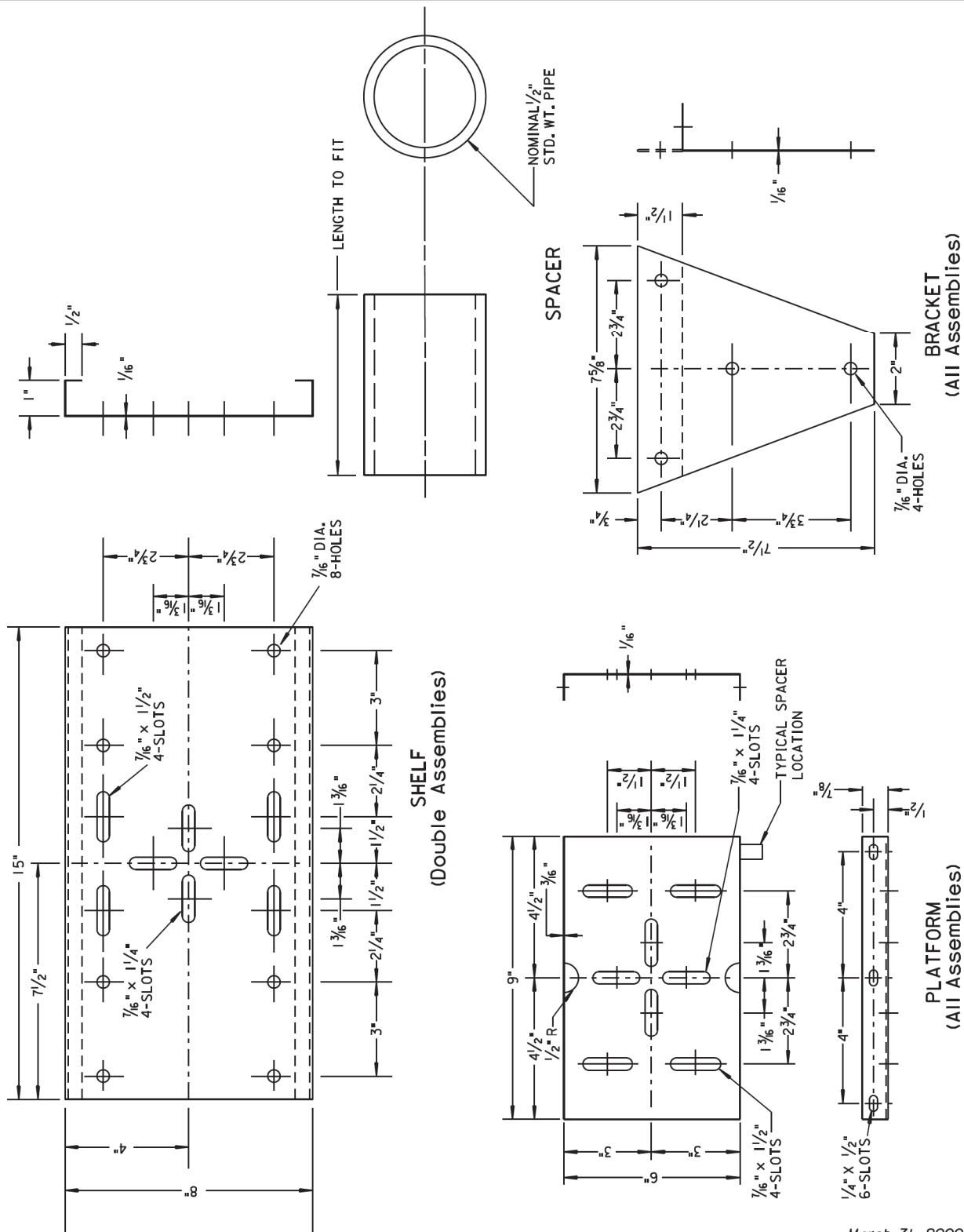
The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

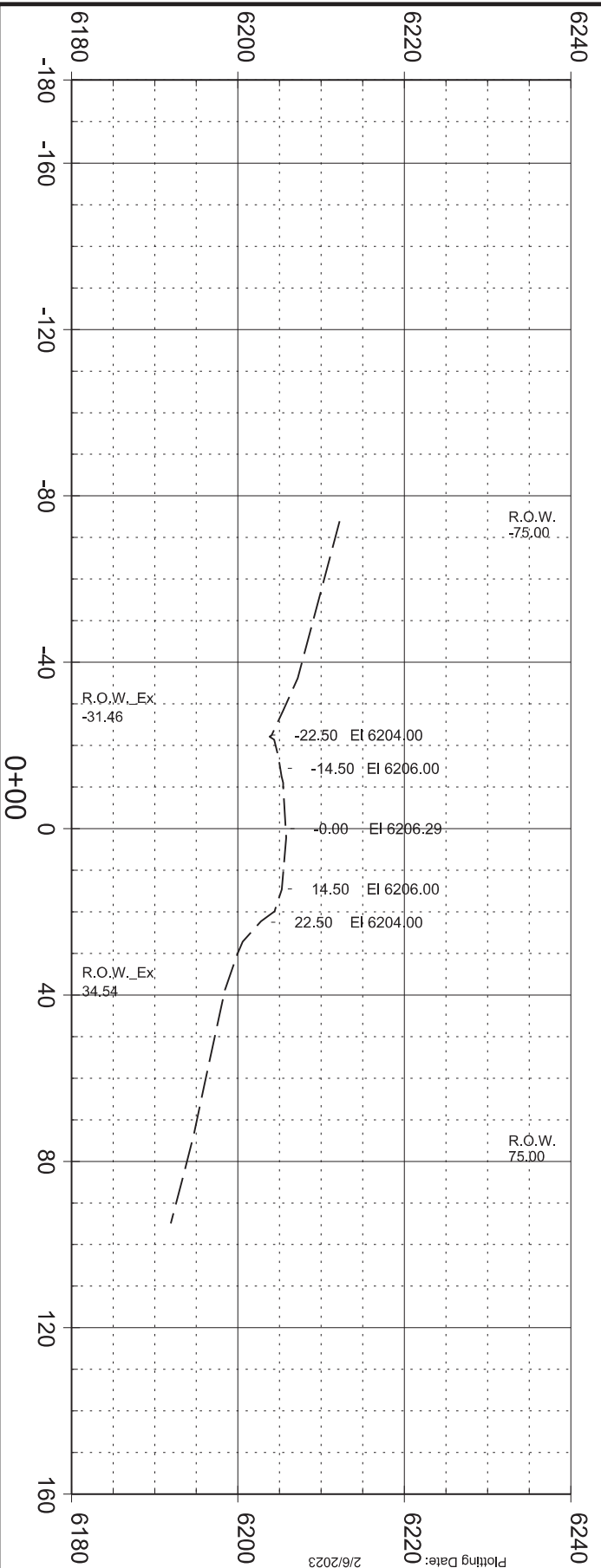
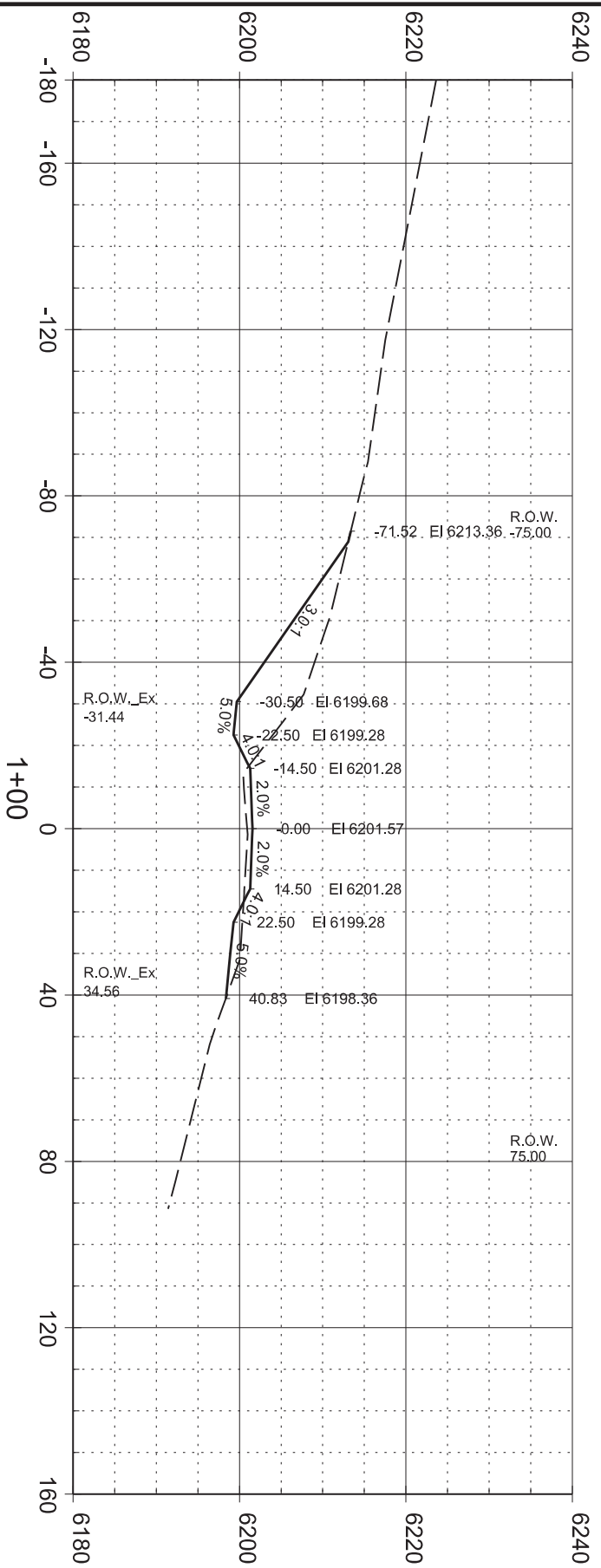
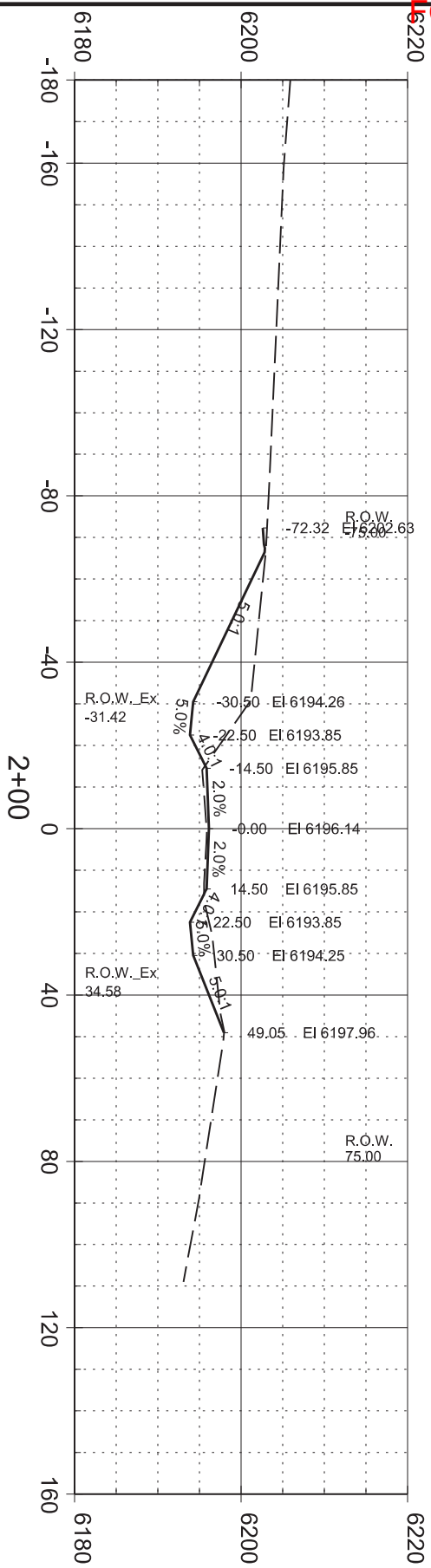
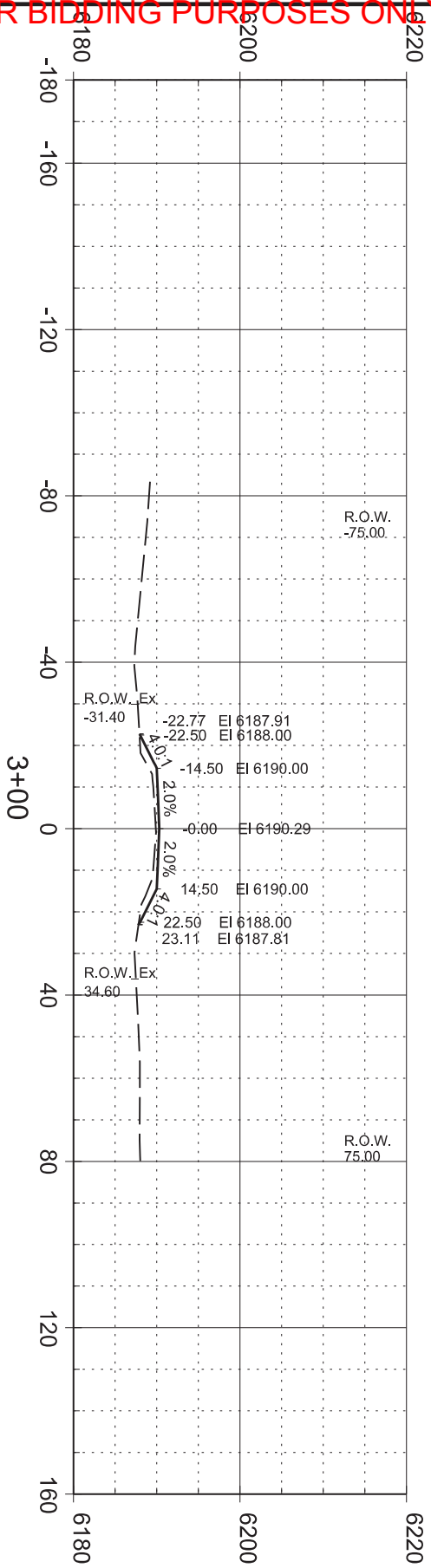
Published Date: 1st Qtr. 2023	S D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER
			900.02
			Sheet 1 of 1



March 31, 2000

Published Date: 1st Qtr. 2023	S D O T	MAILBOX SUPPORT HARDWARE	PLATE NUMBER
			900.03
			Sheet 1 of 1





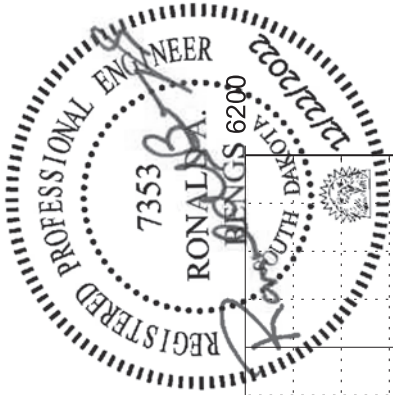
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		138		333		333	

Plotting Date: 2/6/2023

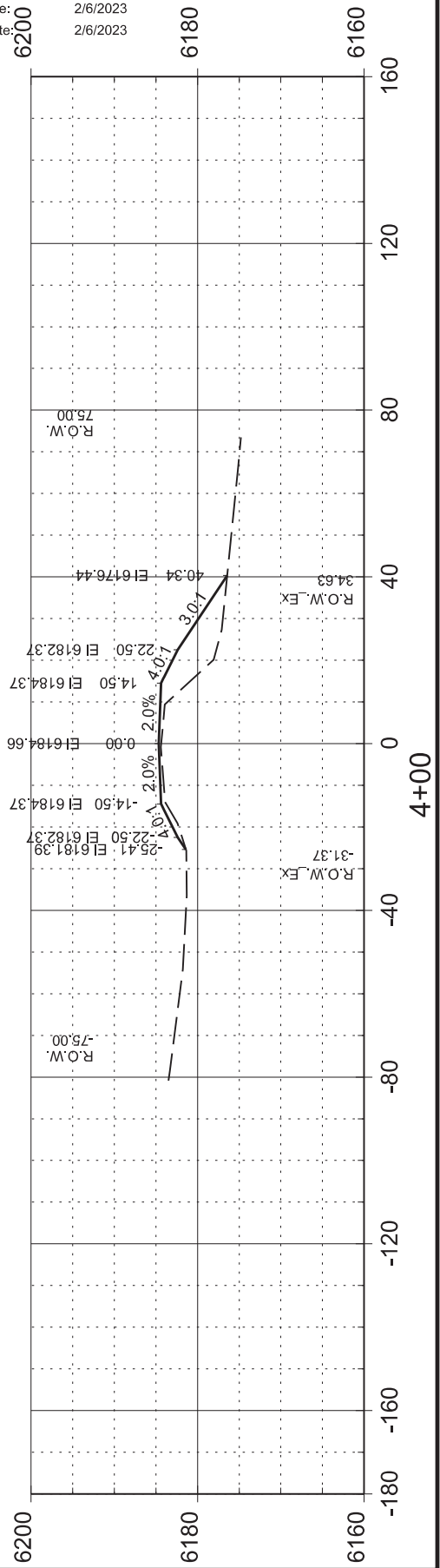
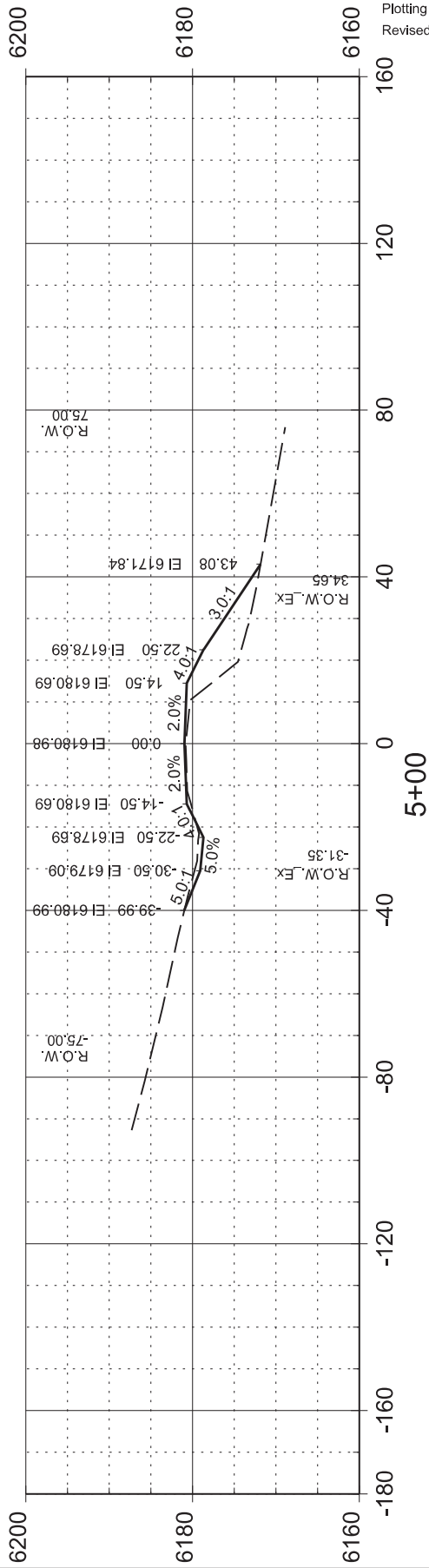
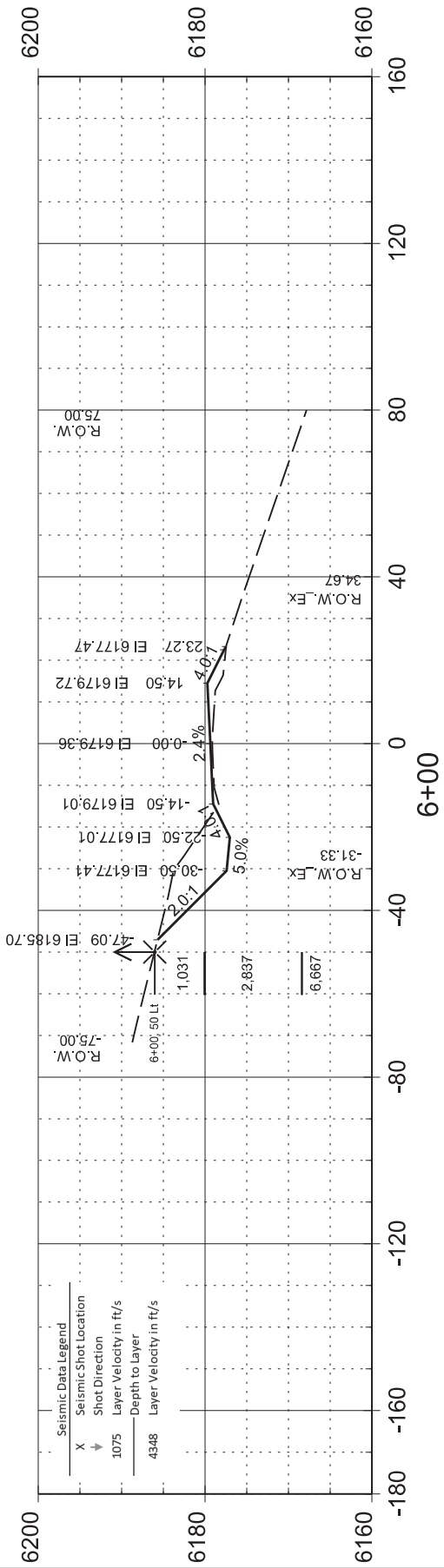
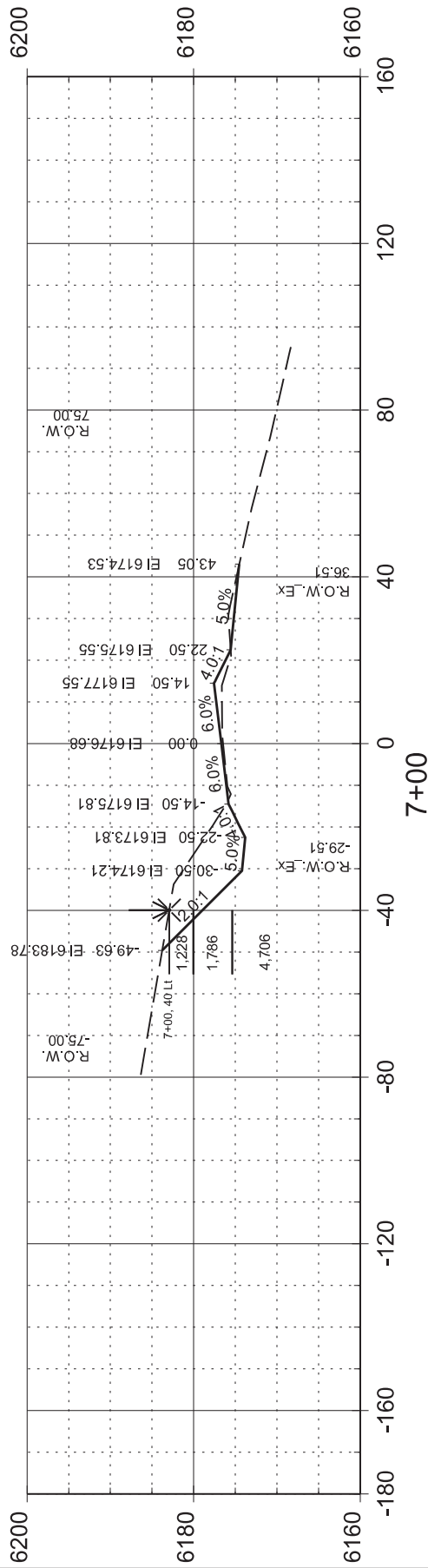
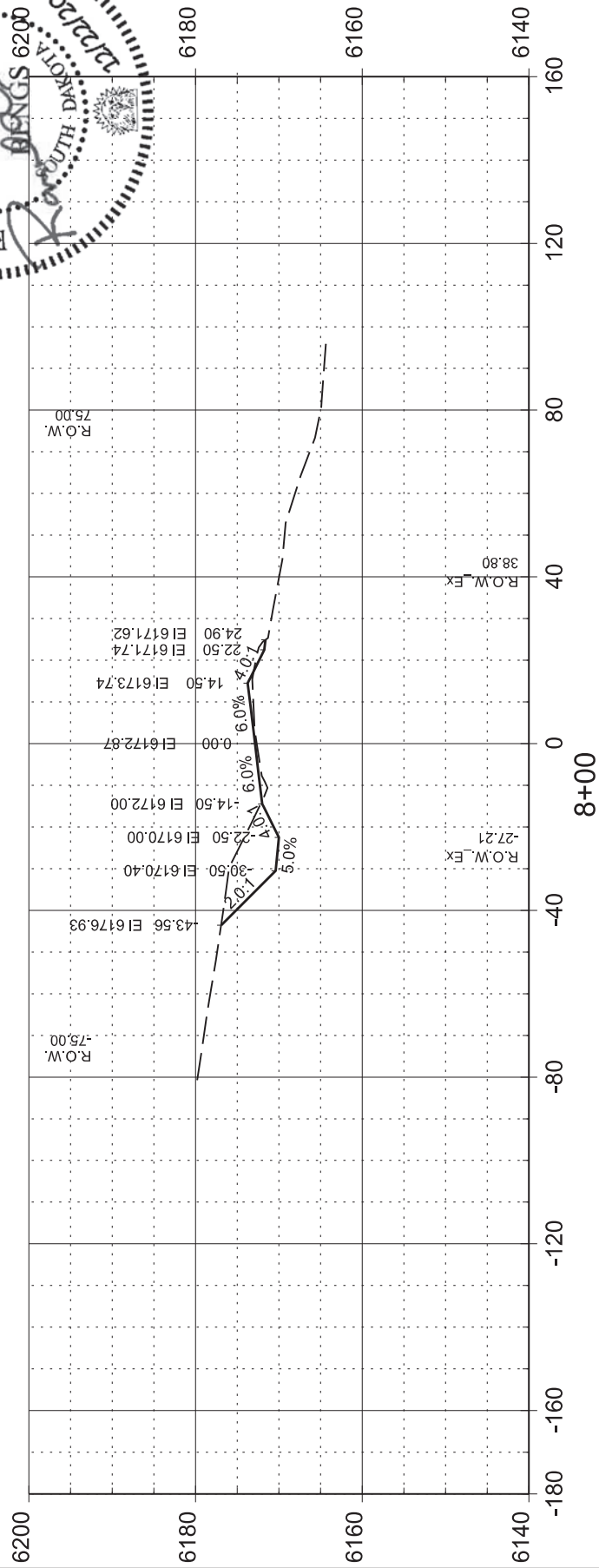


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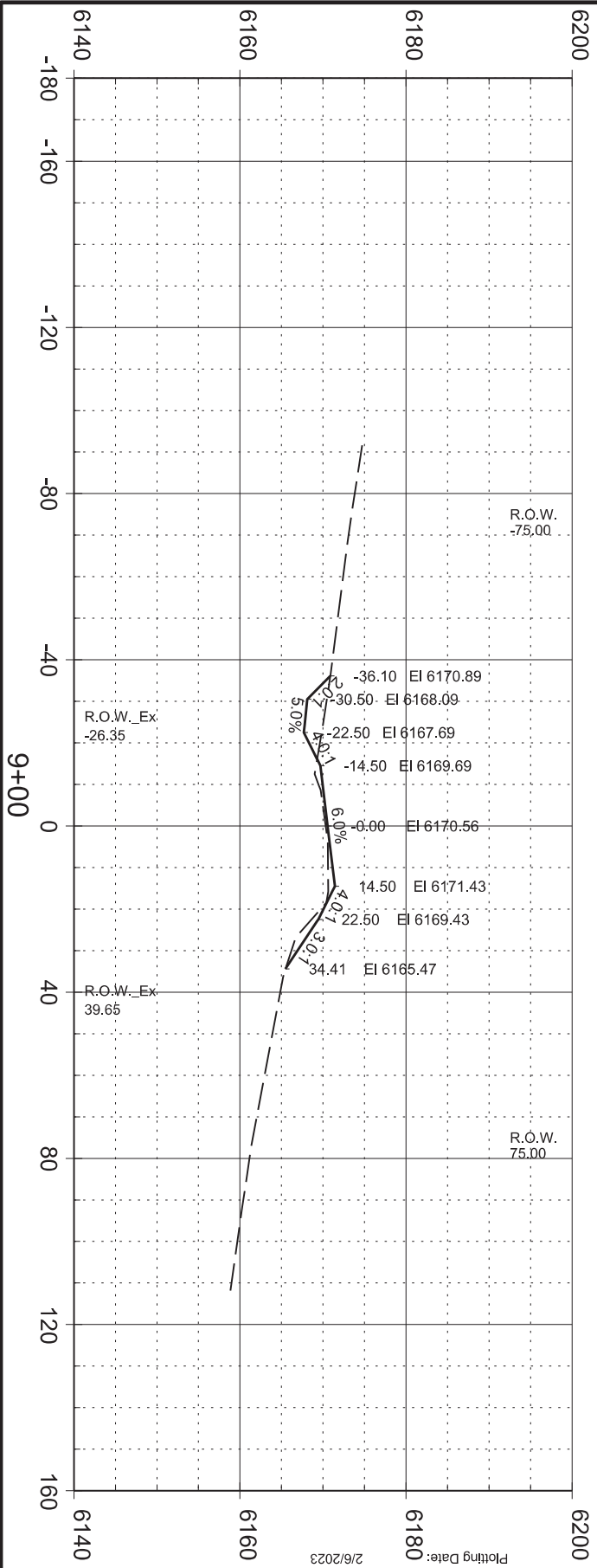
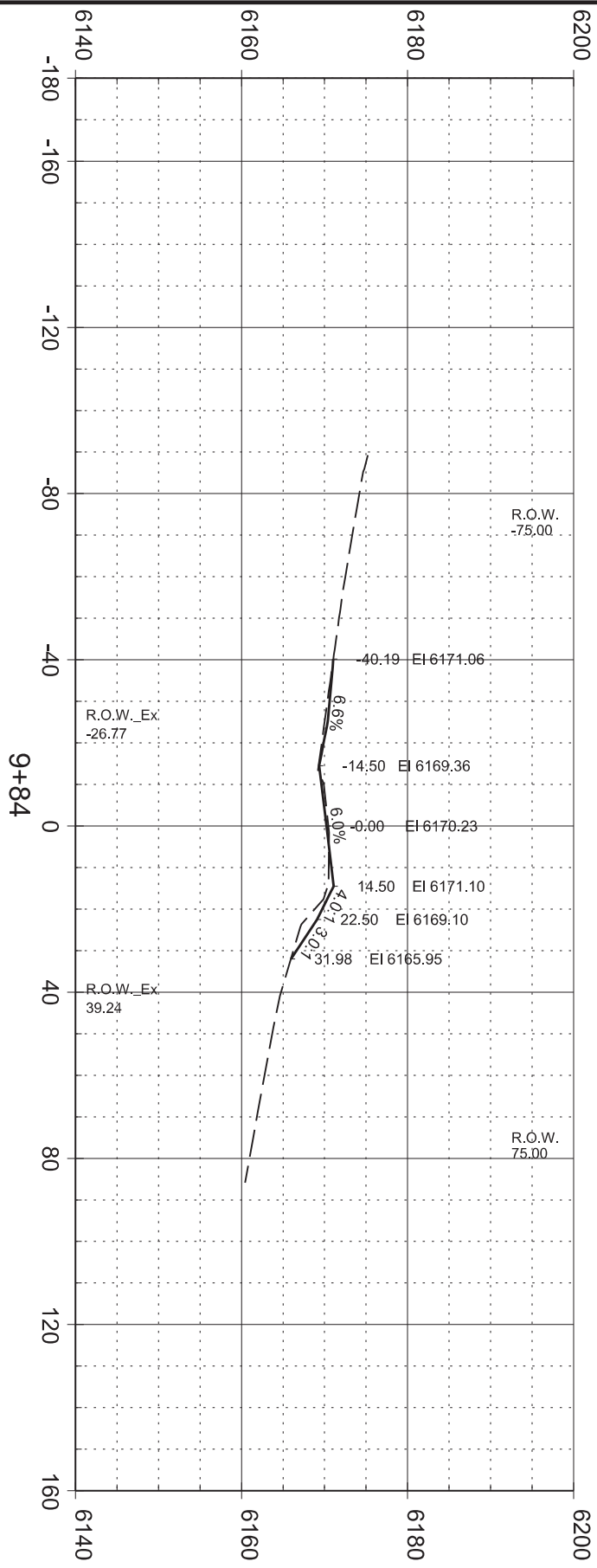
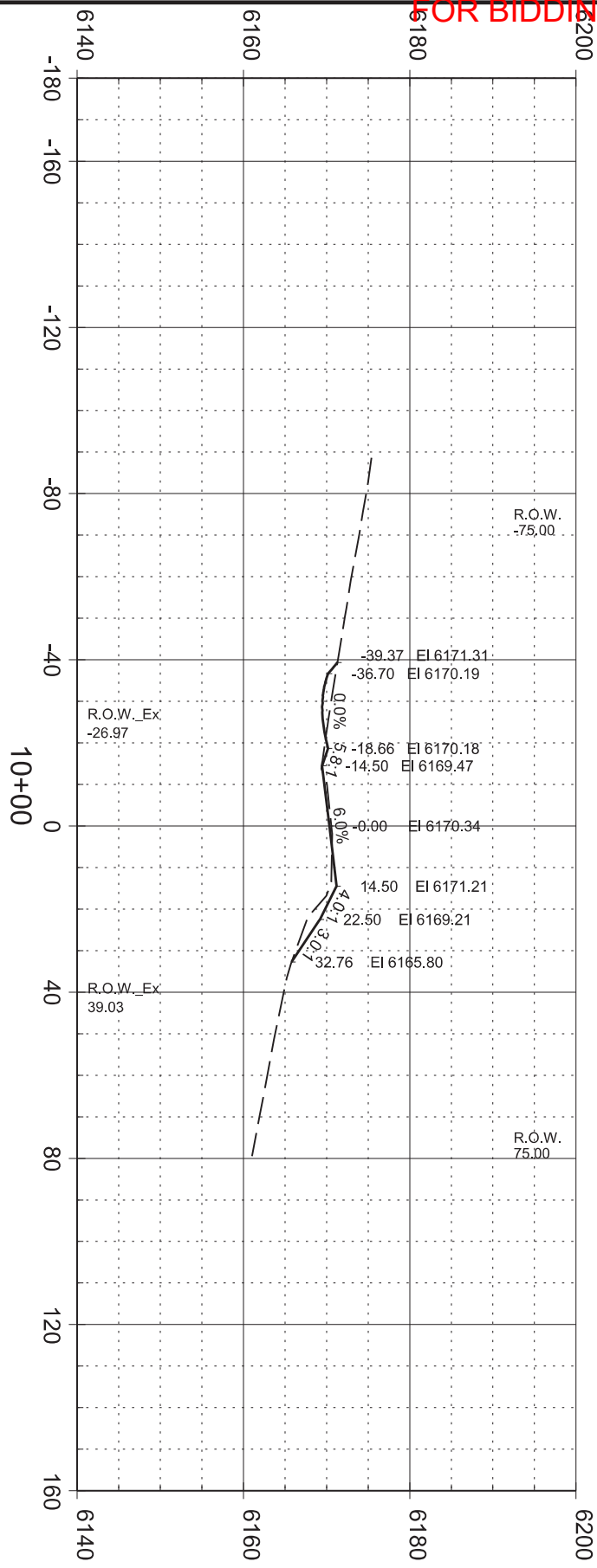
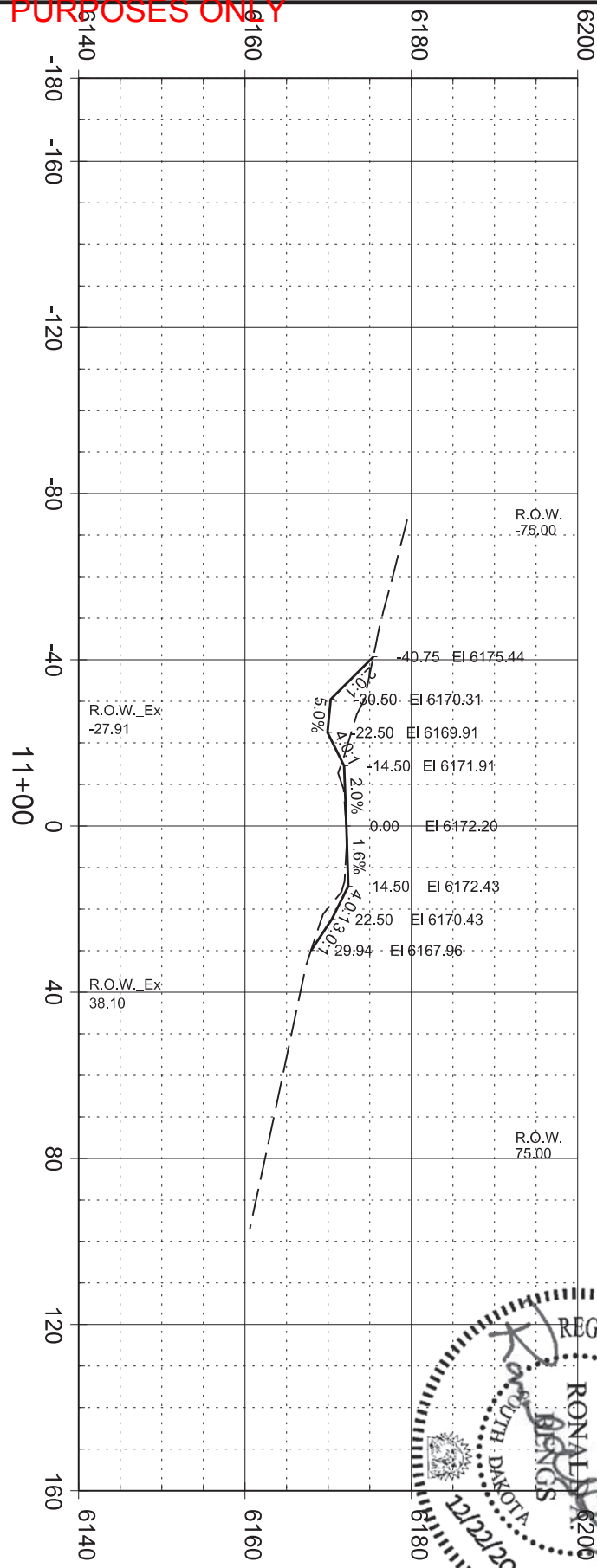


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Revised Date: 2/6/2023







STATE OF SOUTH DAKOTA	P 6403(10)	140	333
	PROJECT	SHEET	TOTAL SHEETS

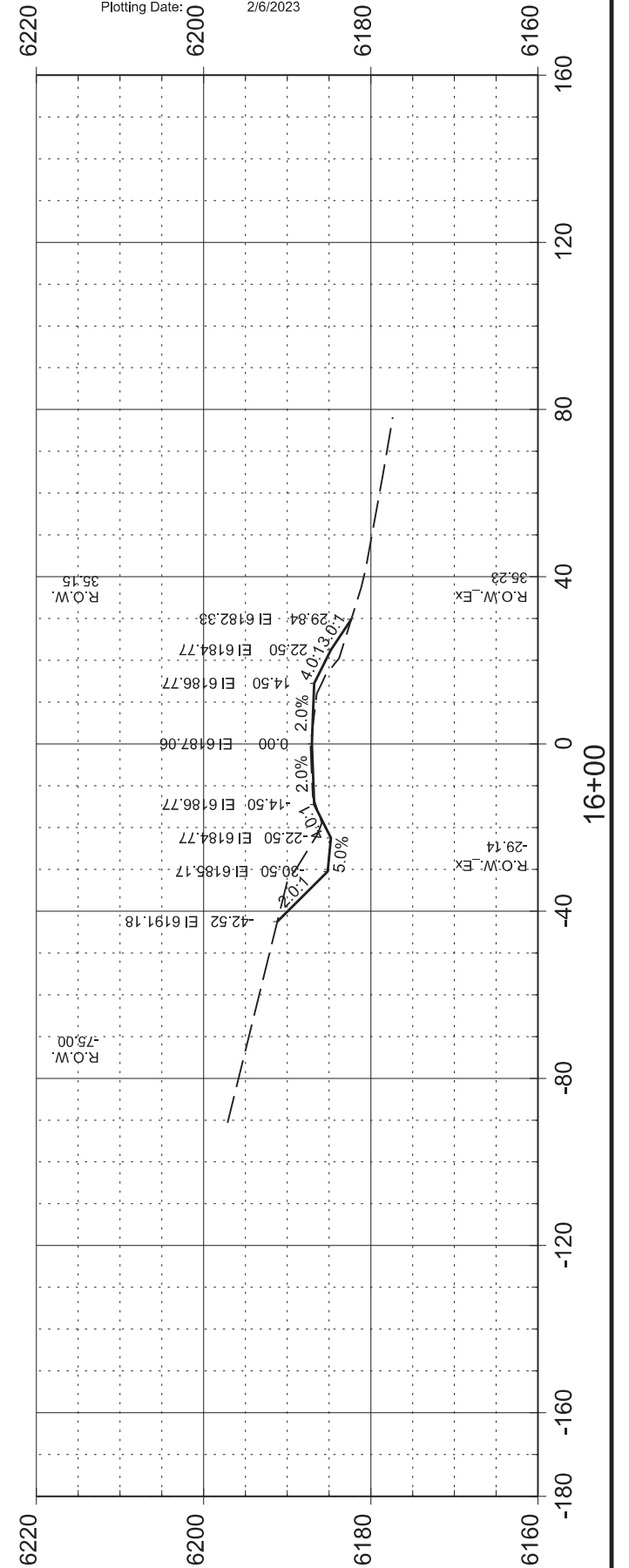
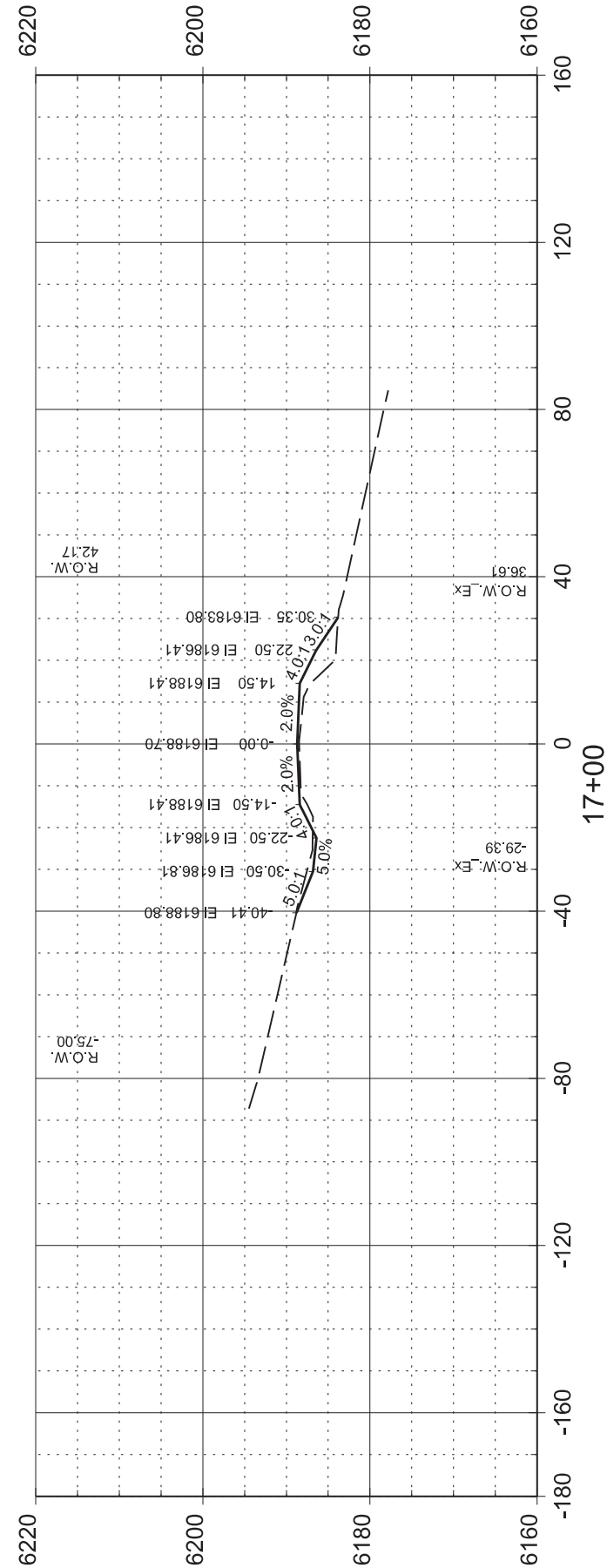
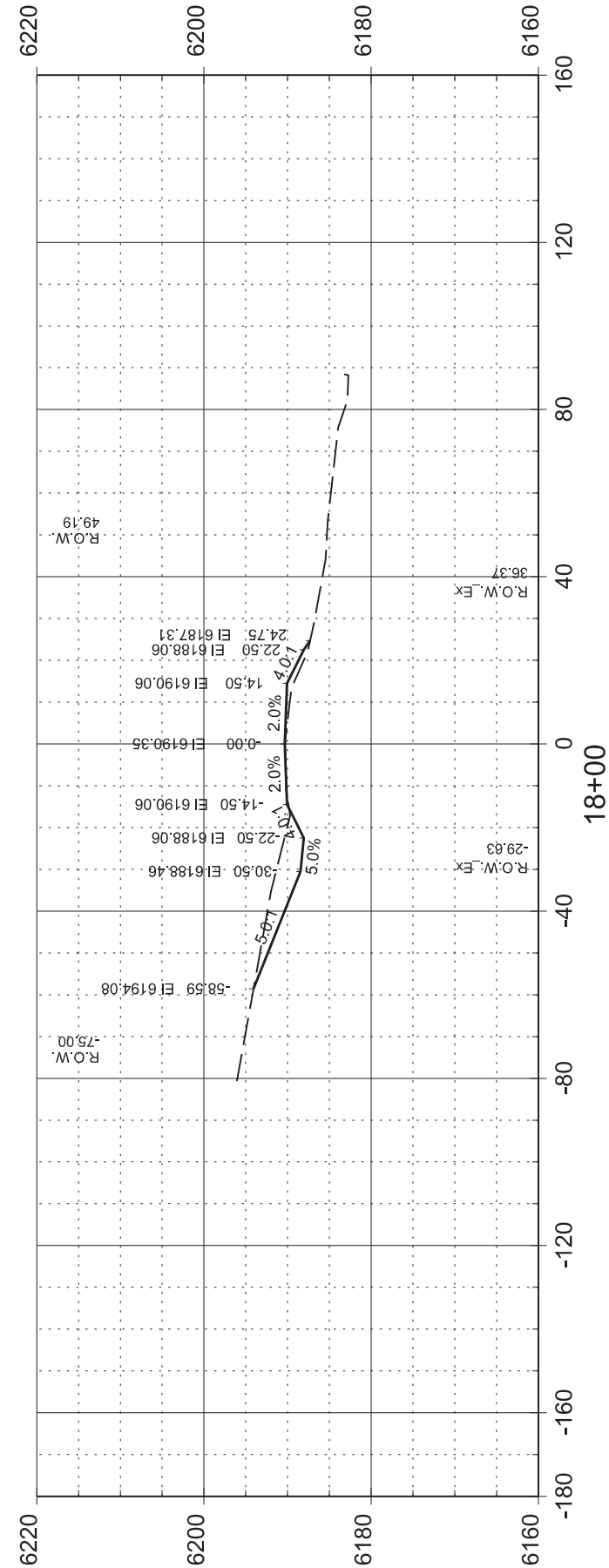
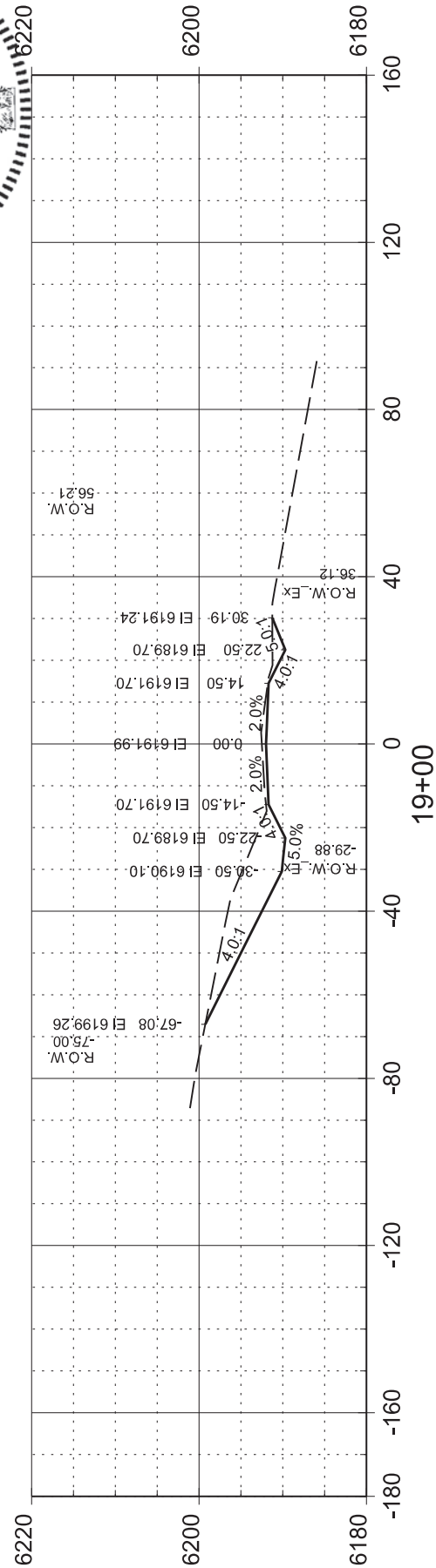




STATE OF SOUTH DAKOTA	P 6403(10)		141	333
	PROJECT		SHEET	TOTAL SHEETS



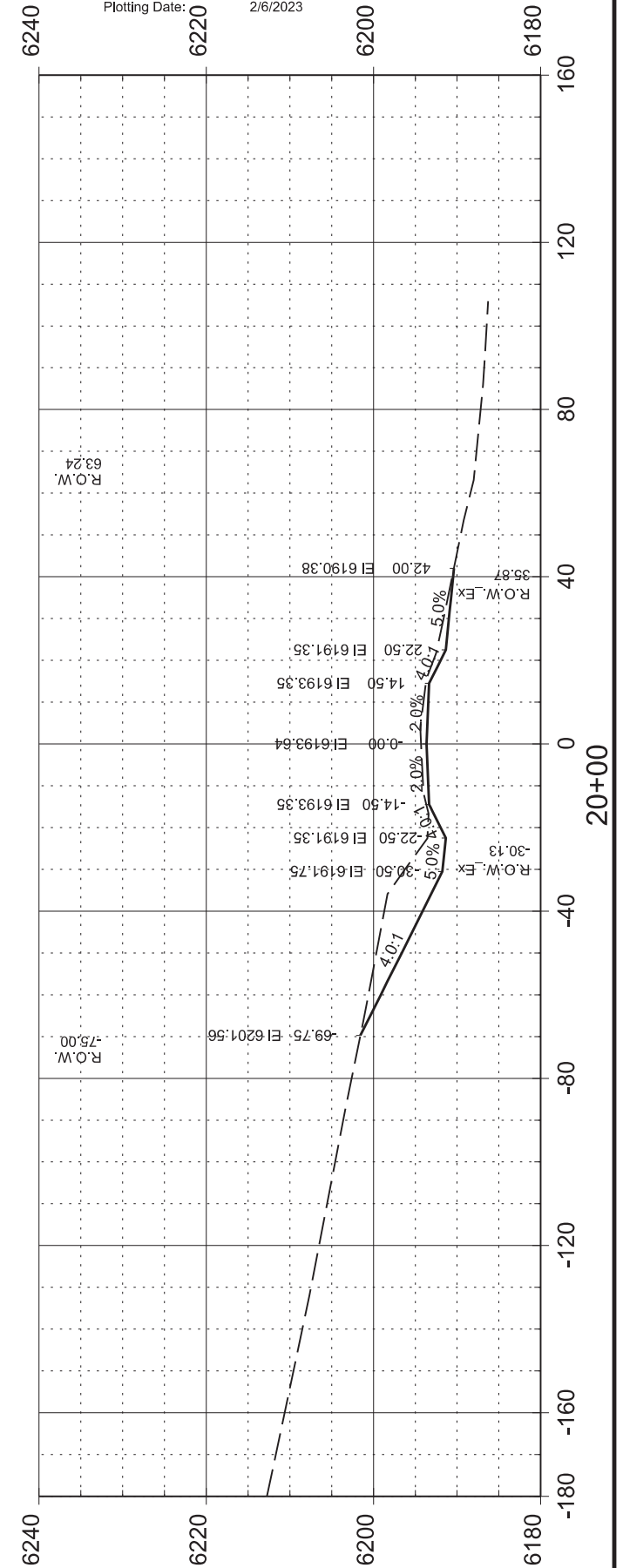
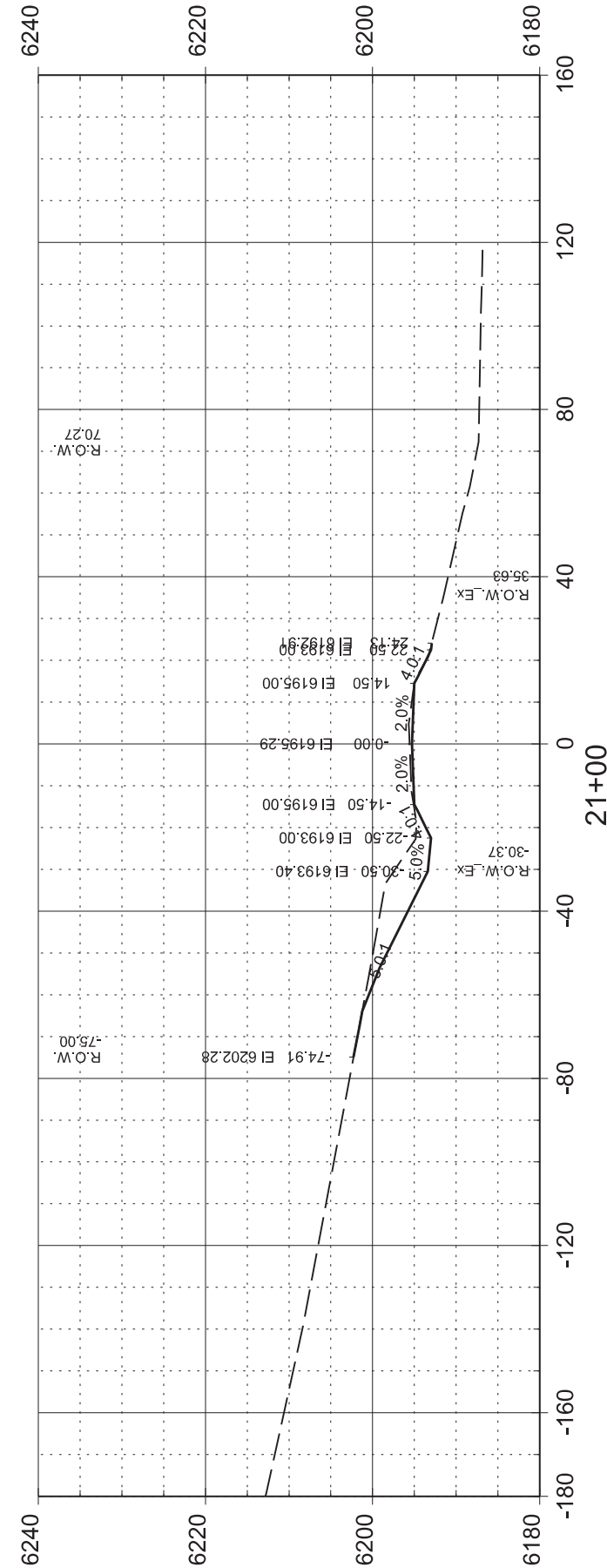
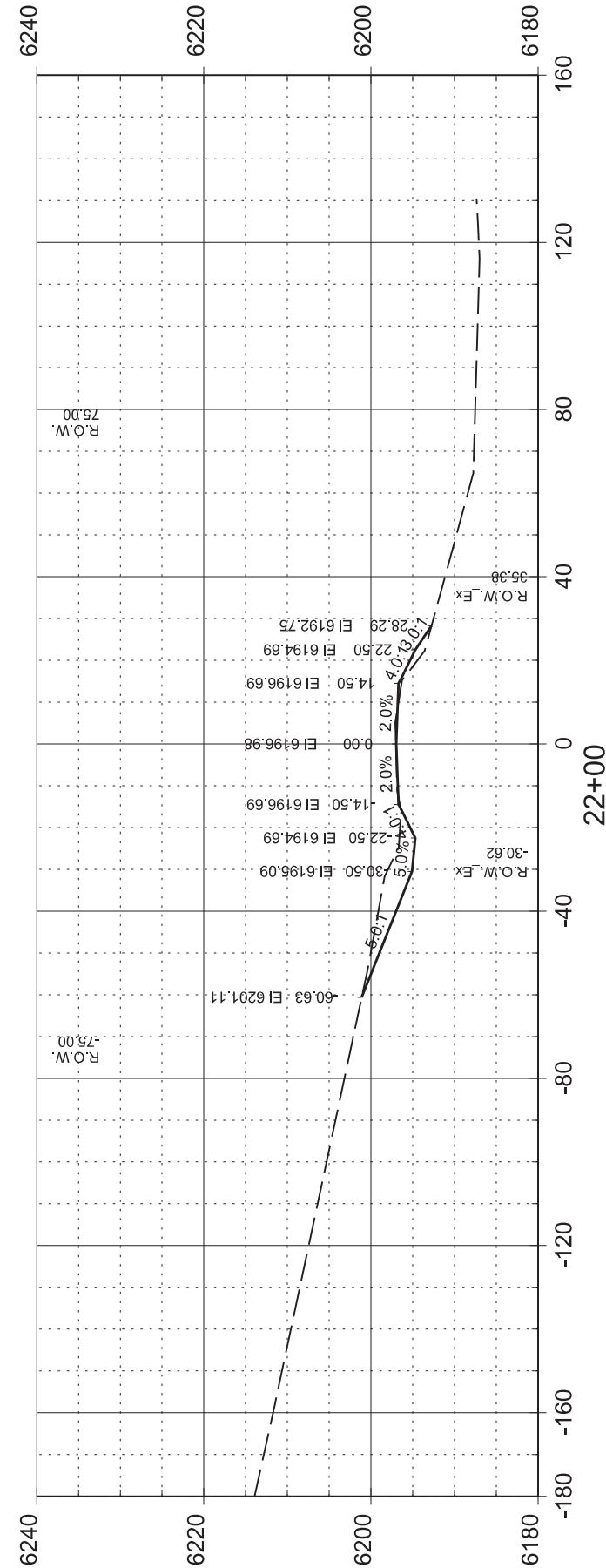
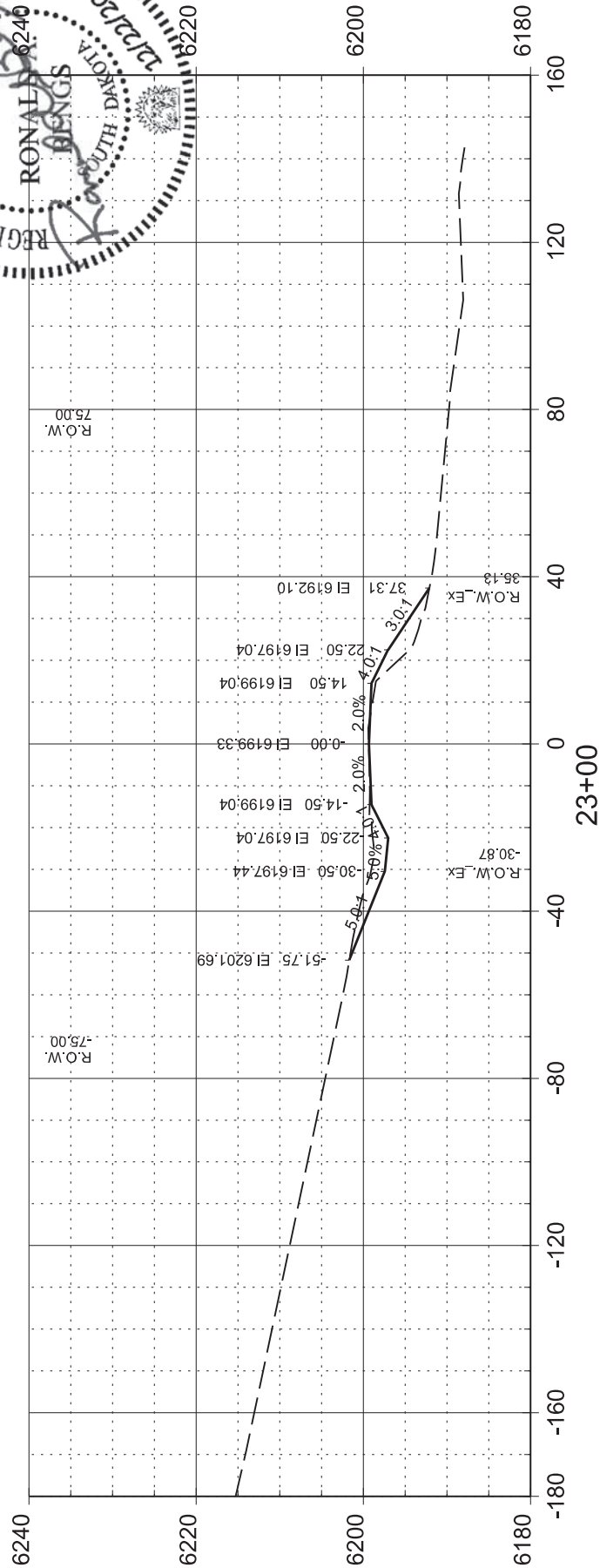
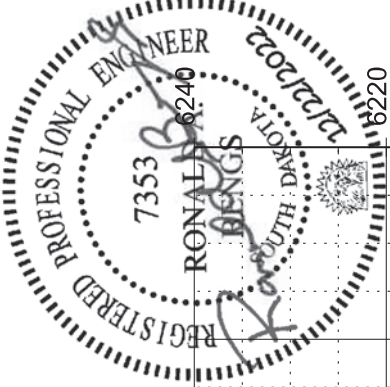
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	142	333



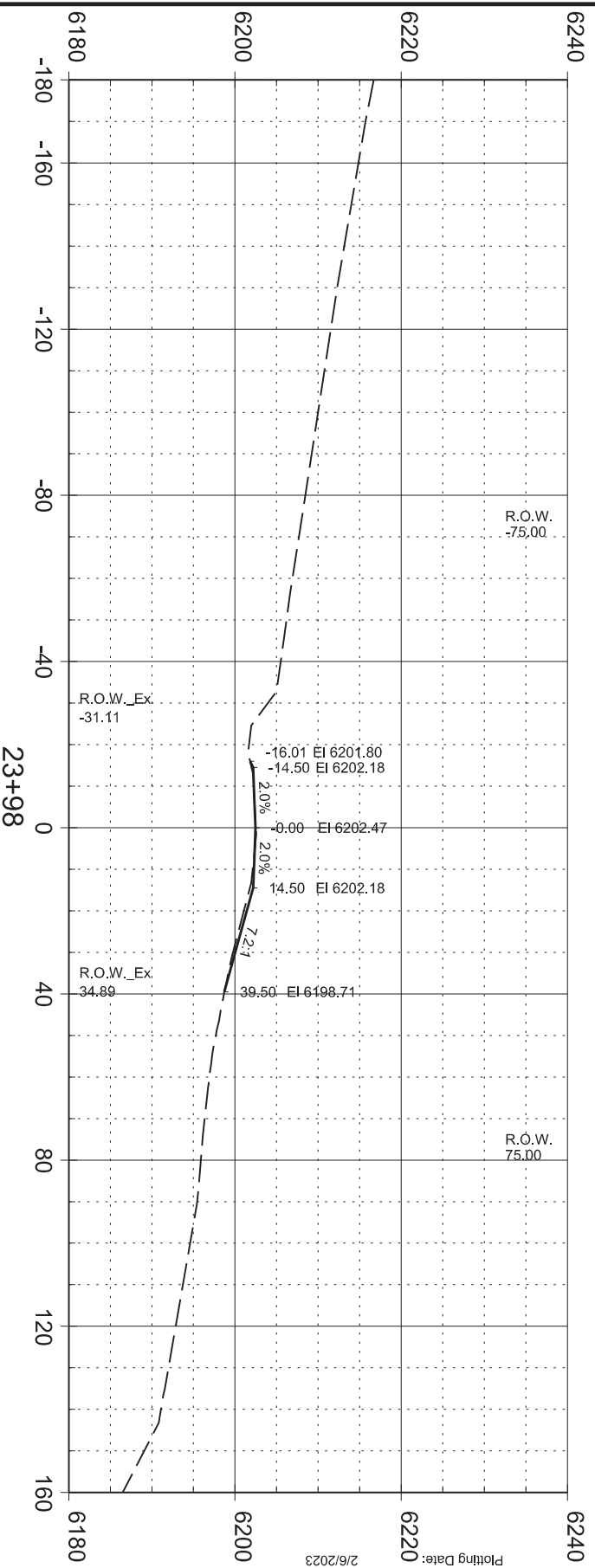
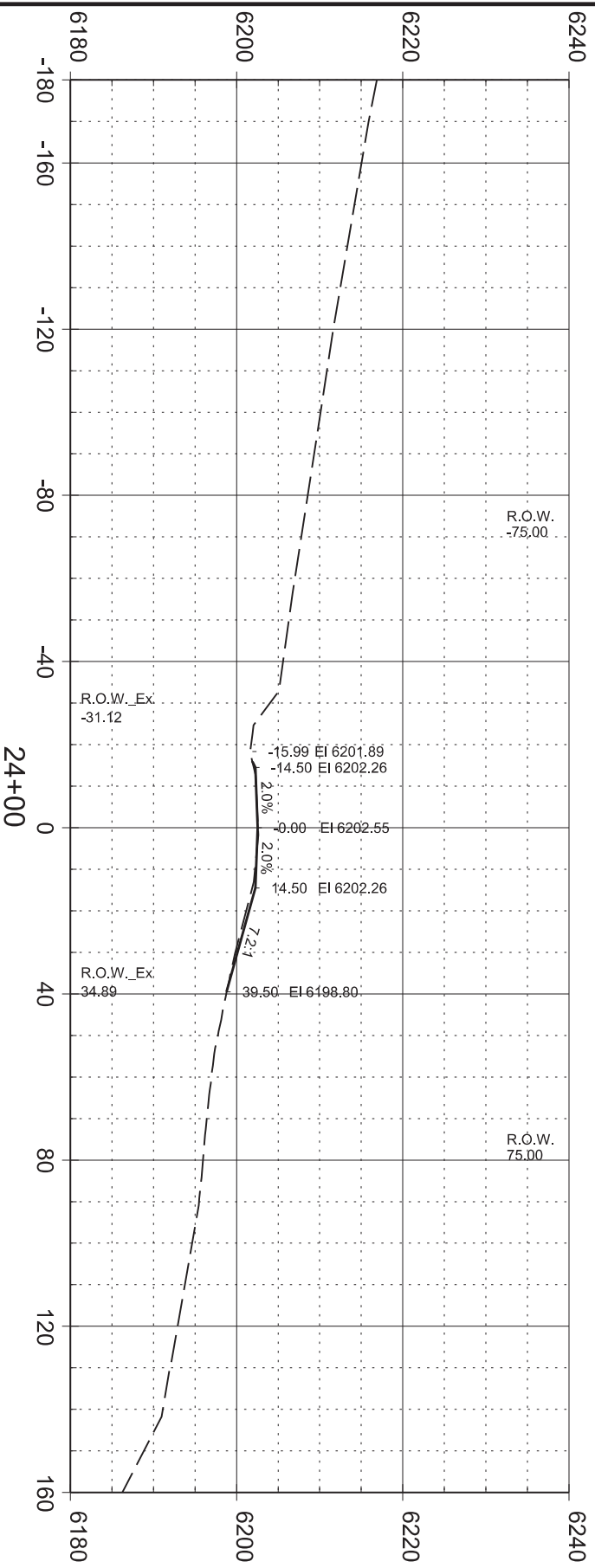
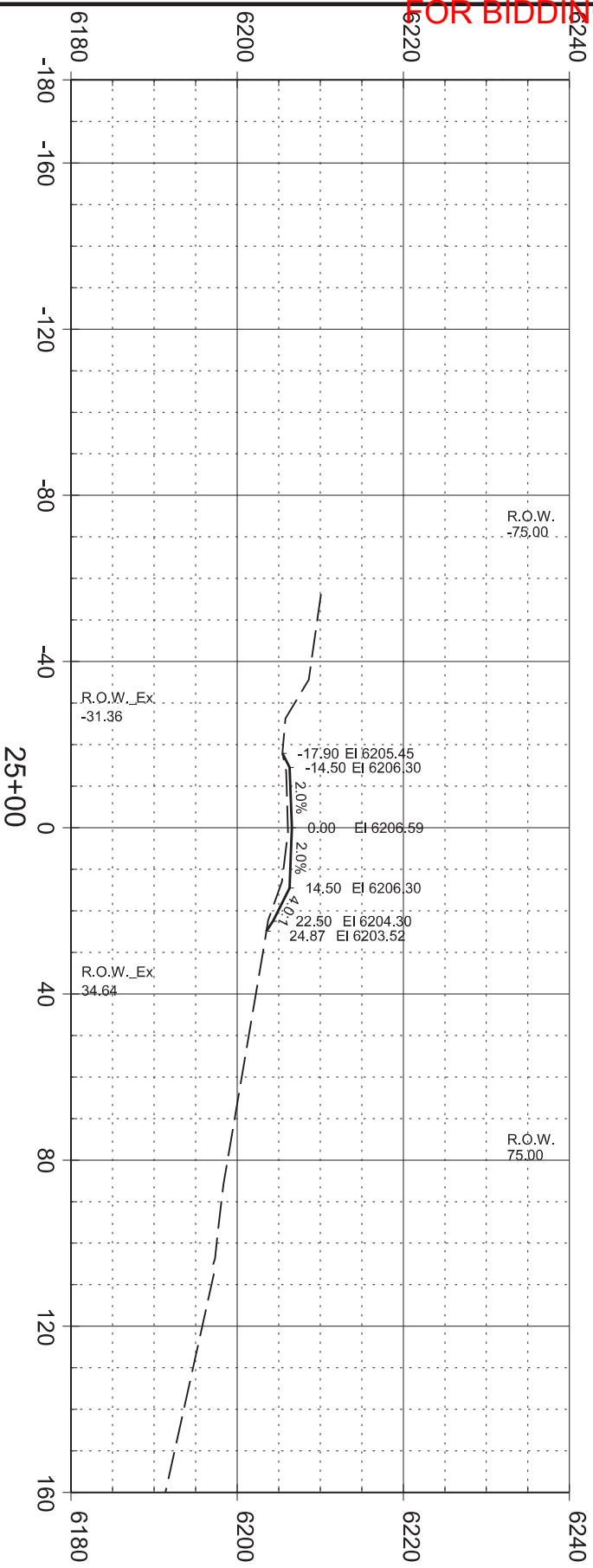
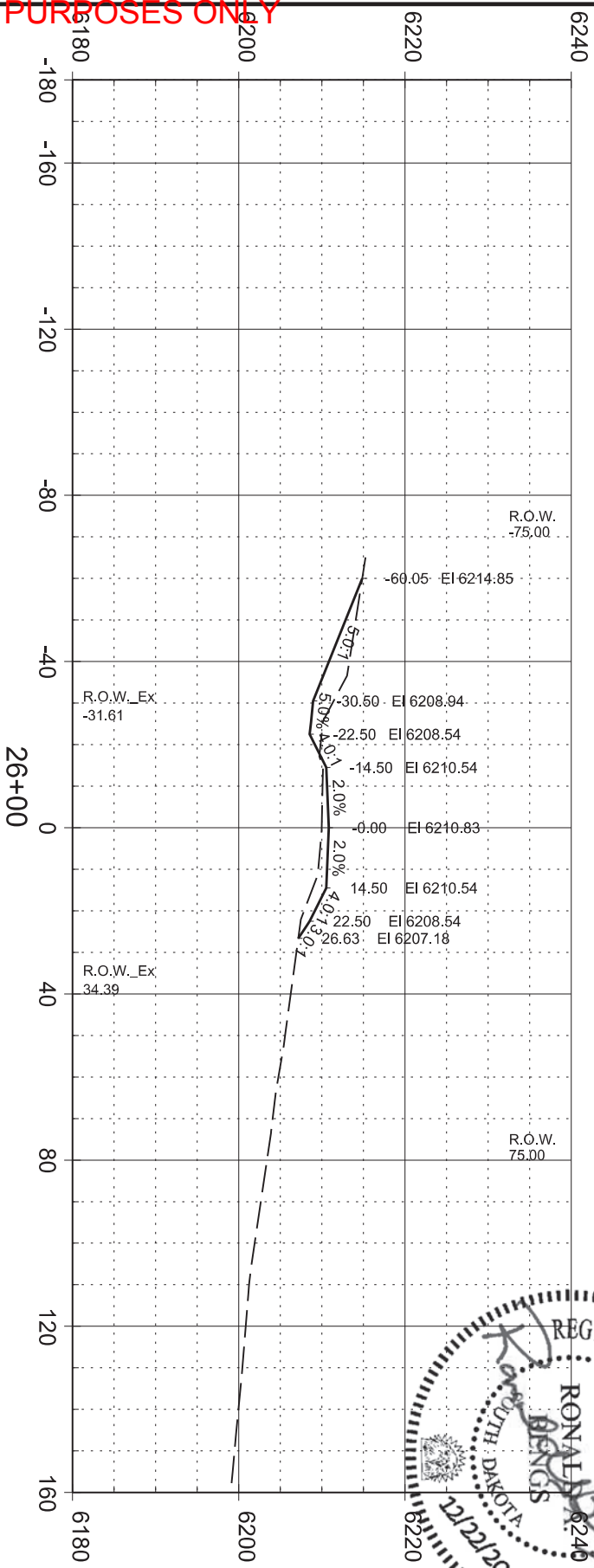


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	143	333







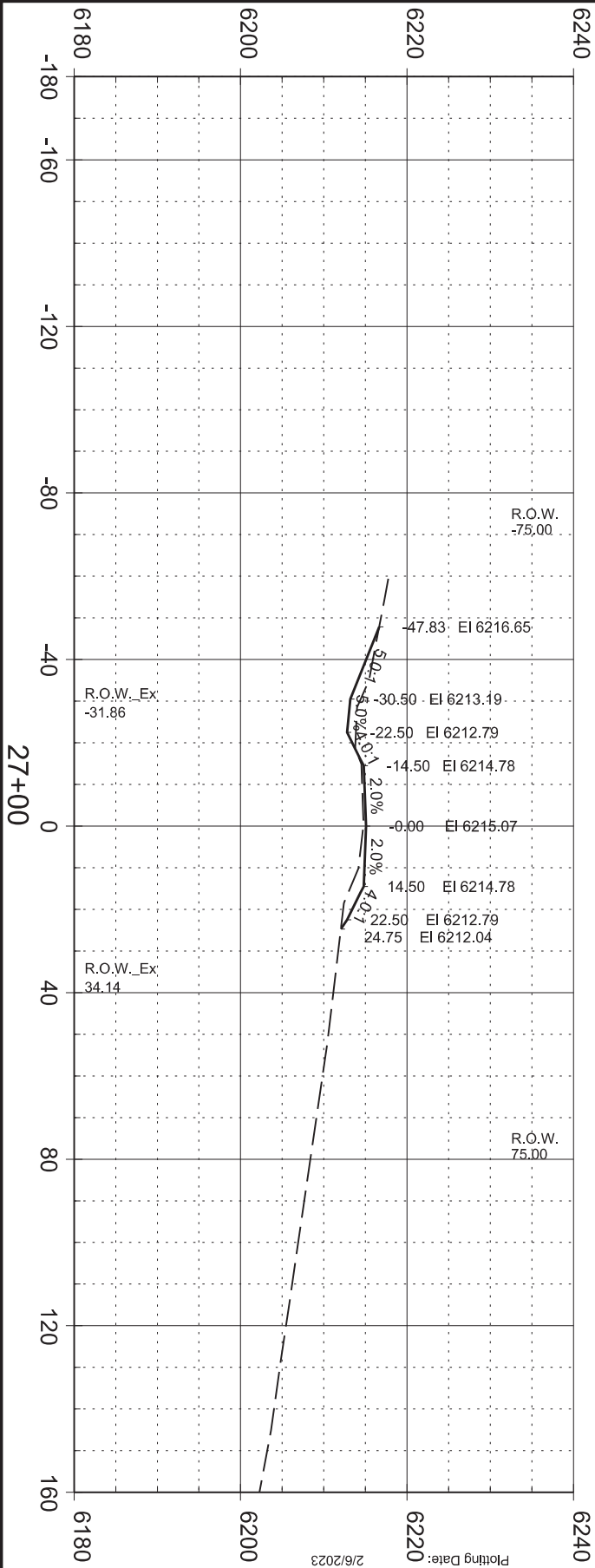
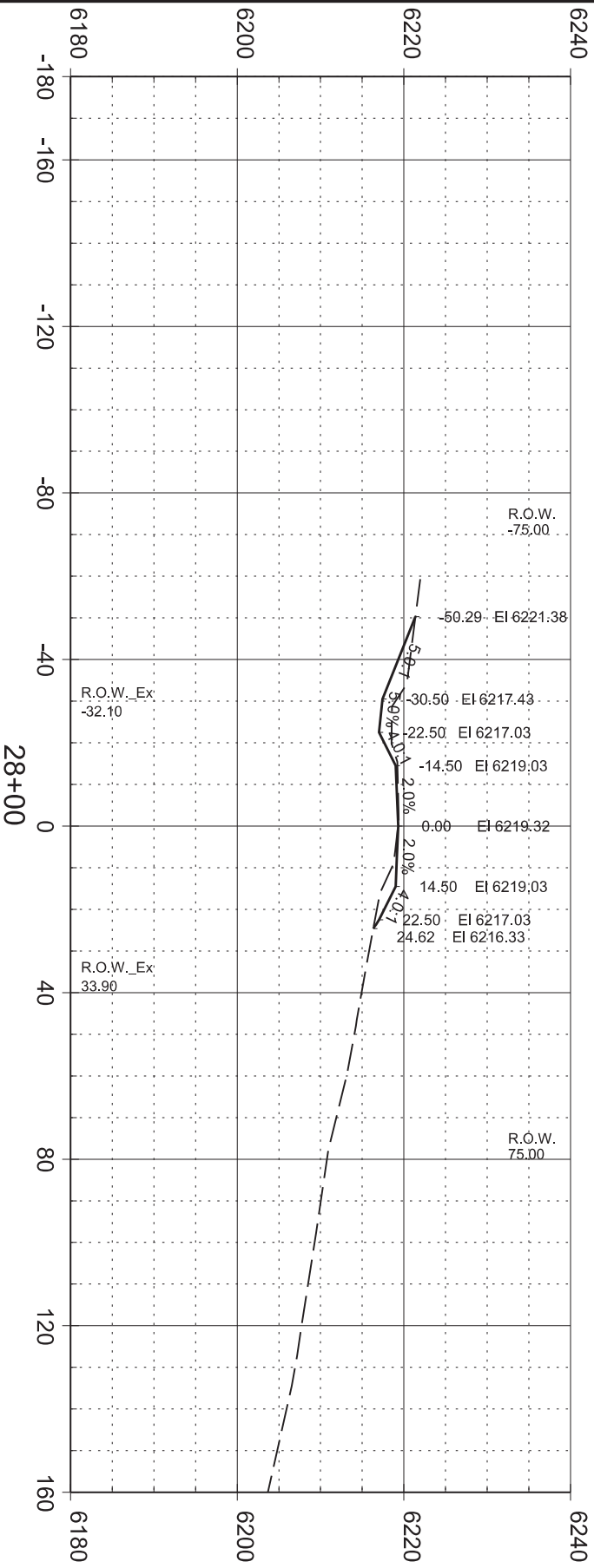
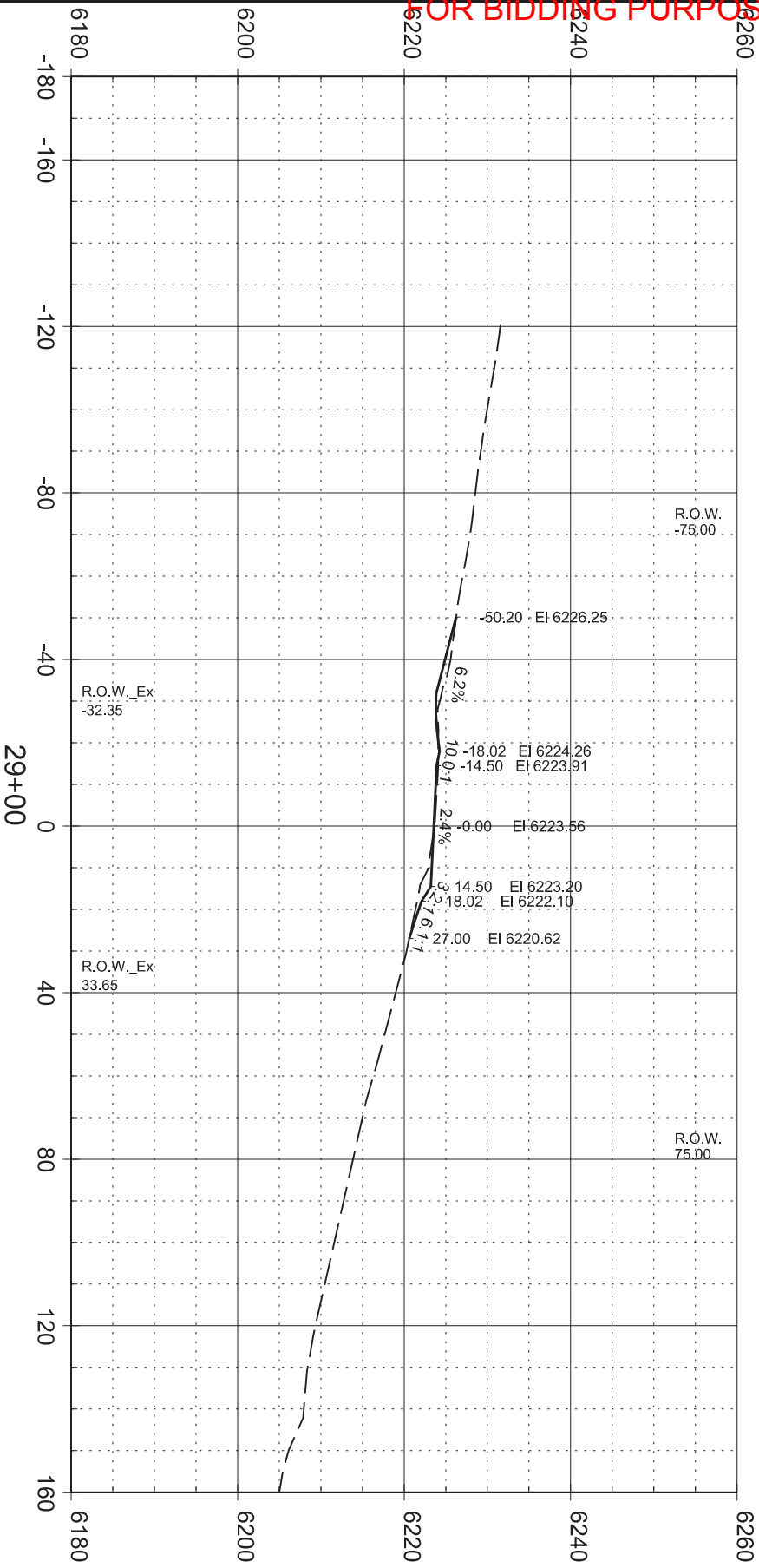
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 6403(10)	144	333
		SHEET	TOTAL SHEETS





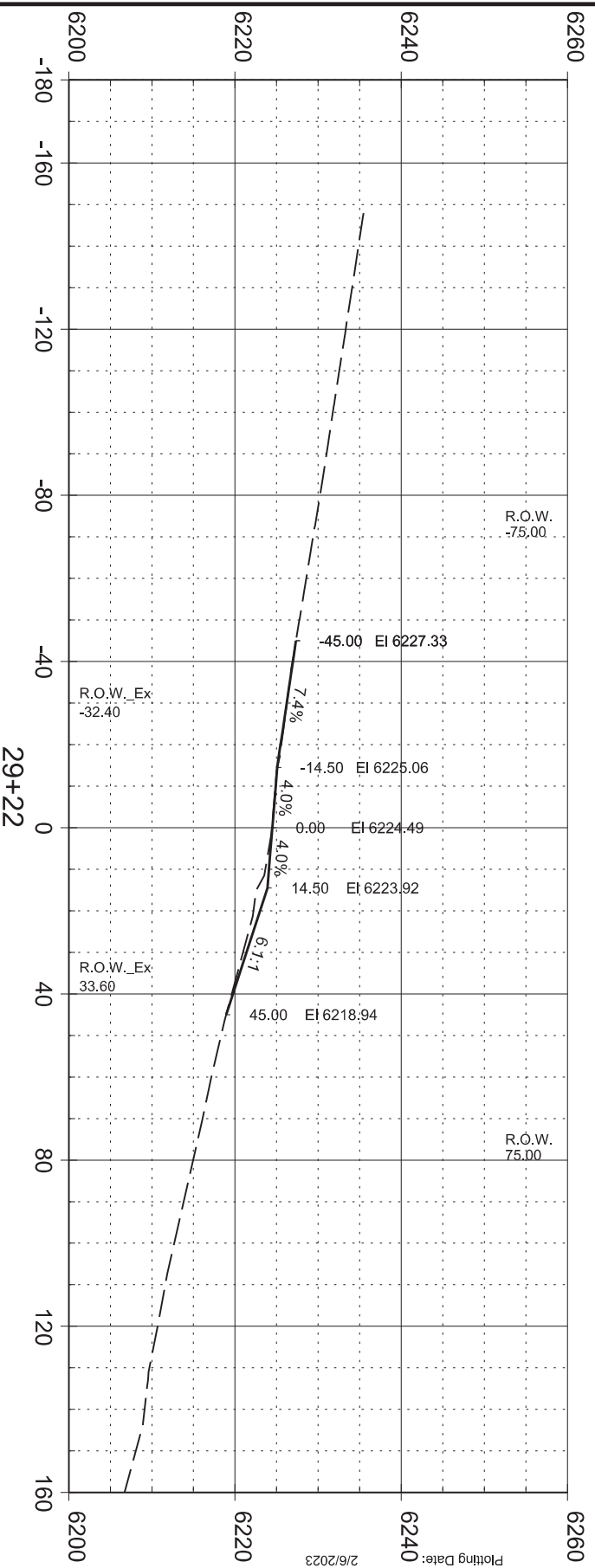
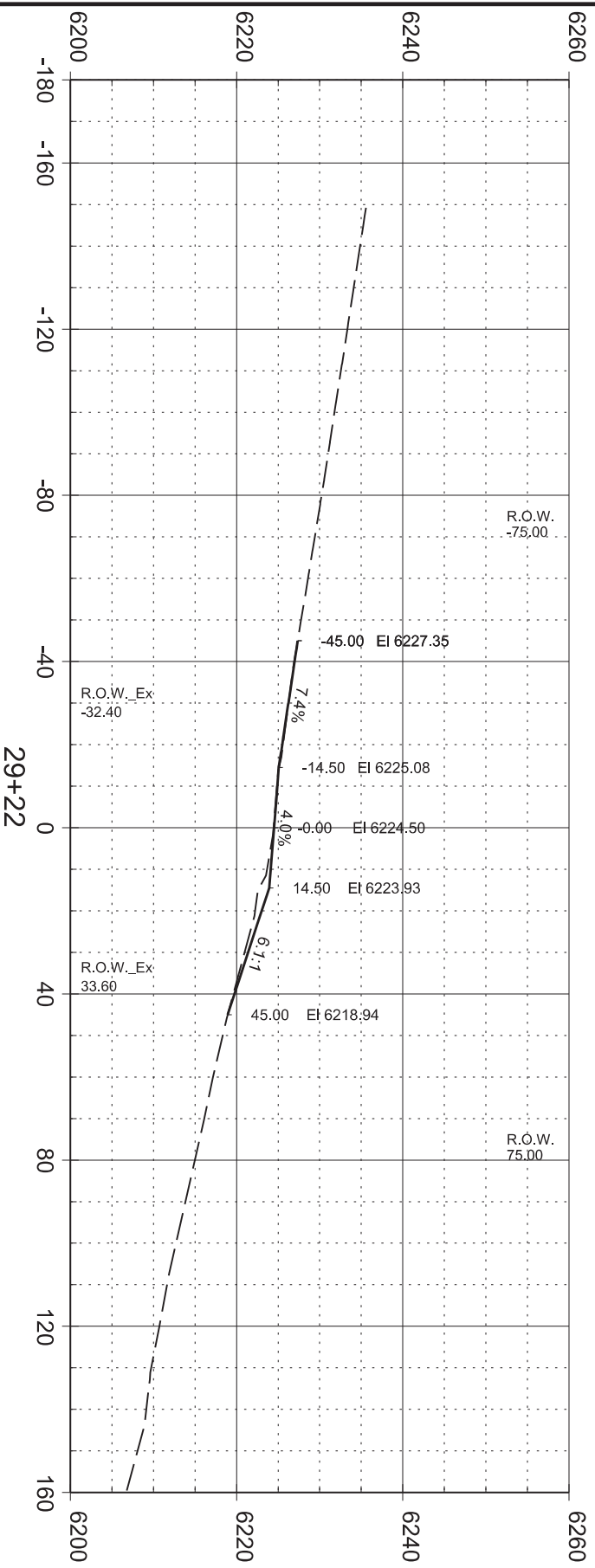
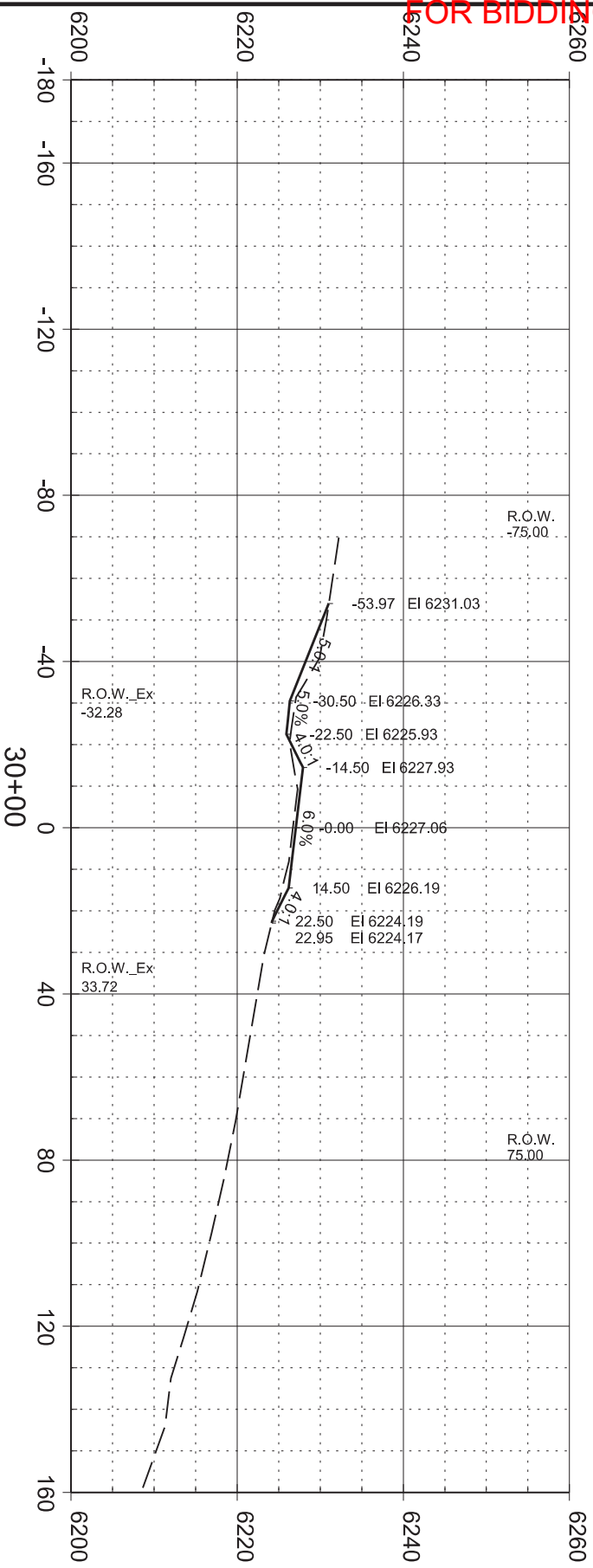
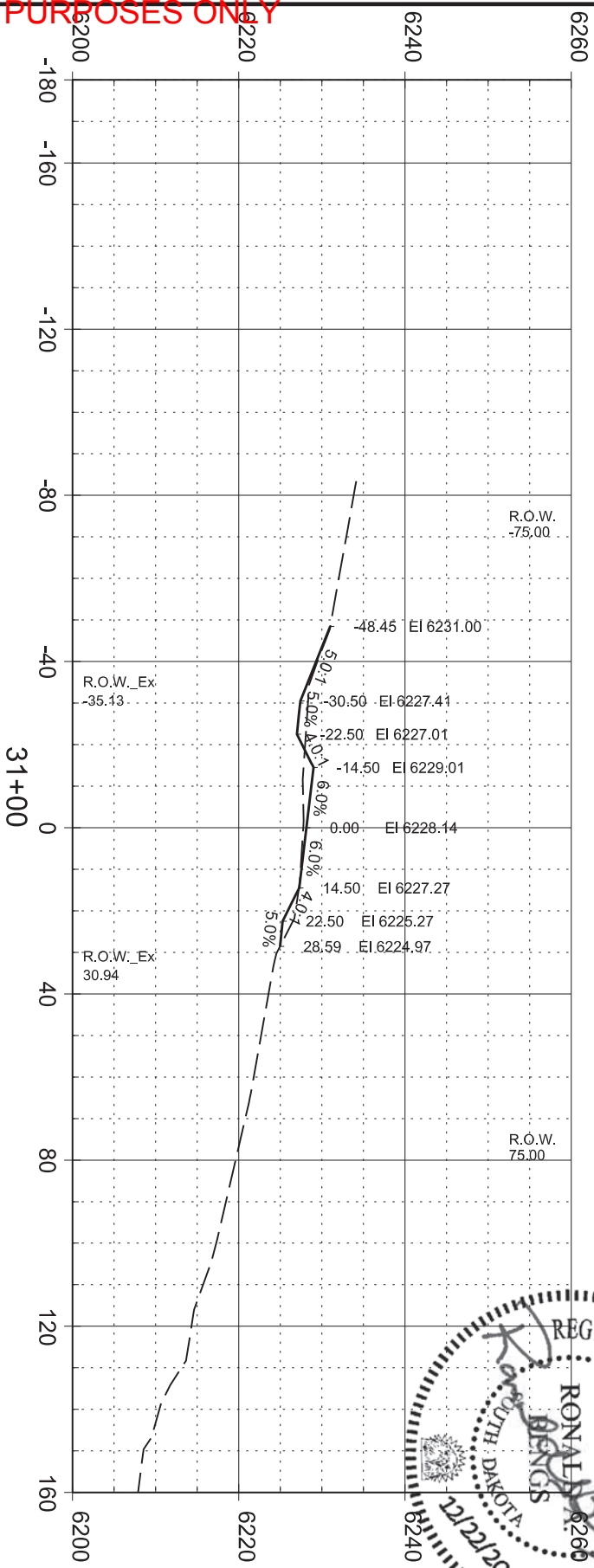
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA		P 6403(10)	145	333
PROJECT				

Plotting Date: 2/6/2023





STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		146		333			
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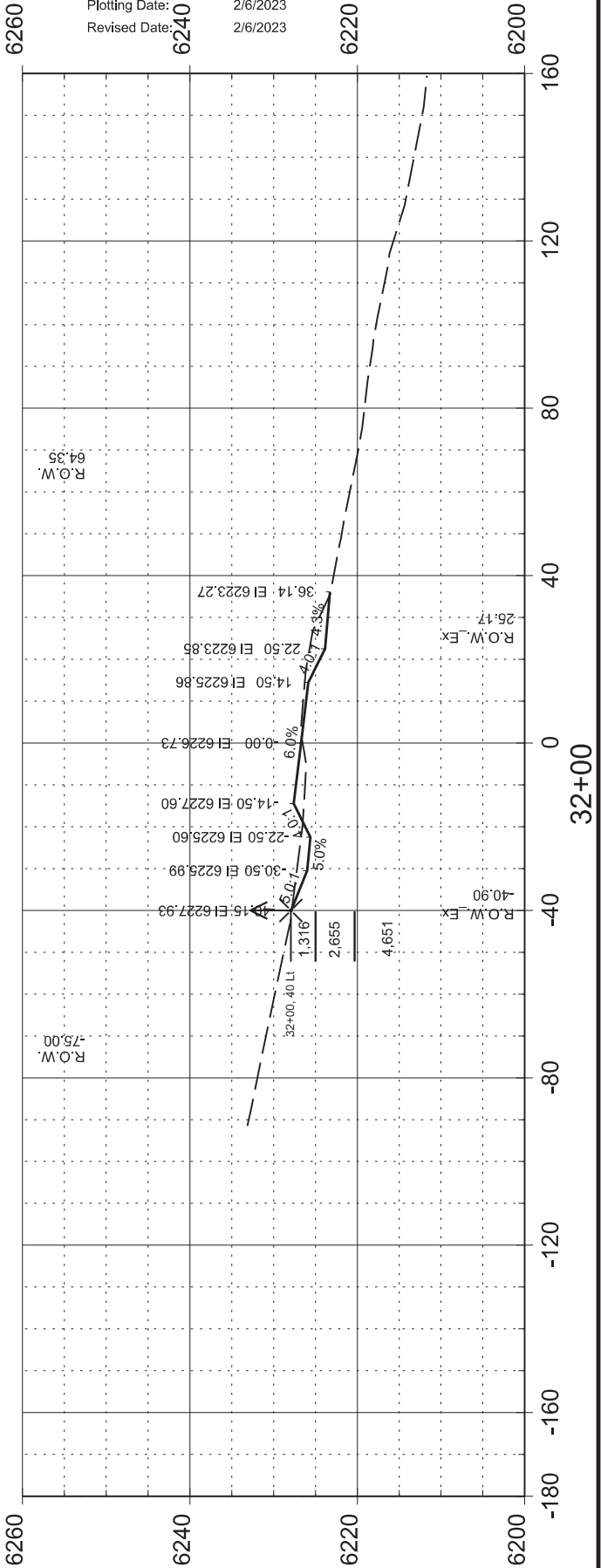
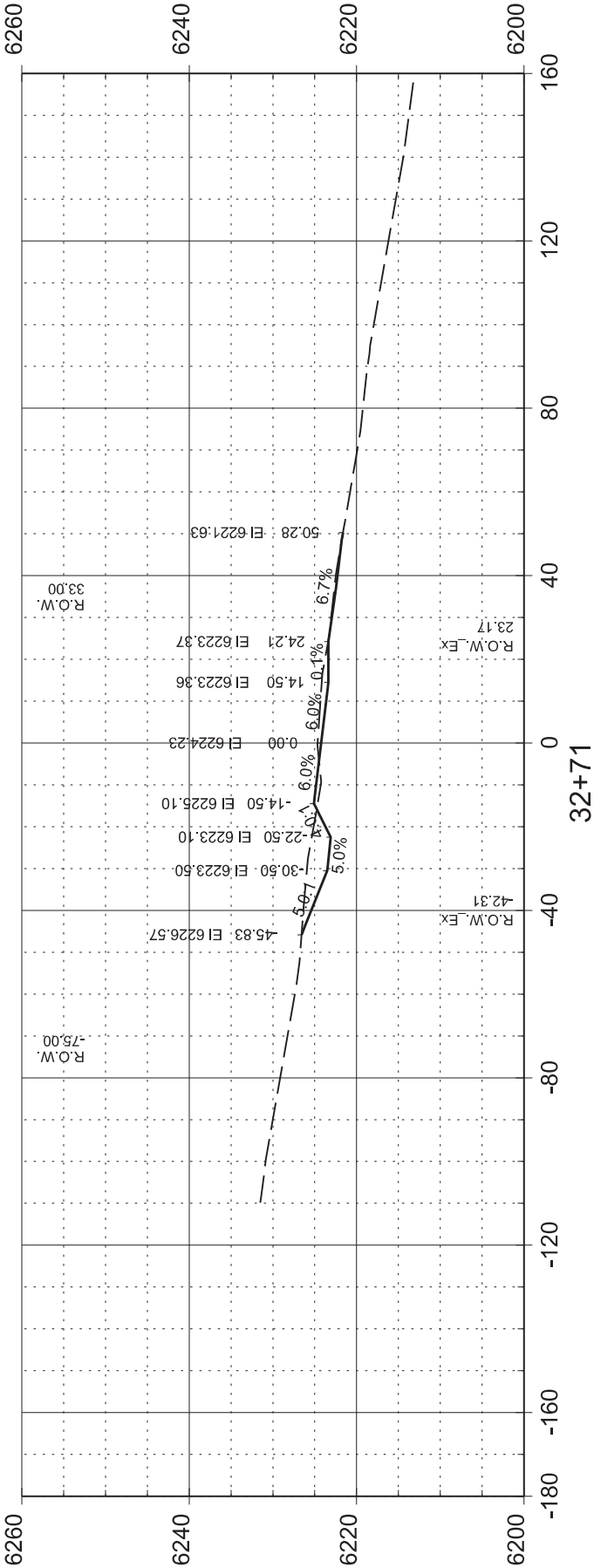
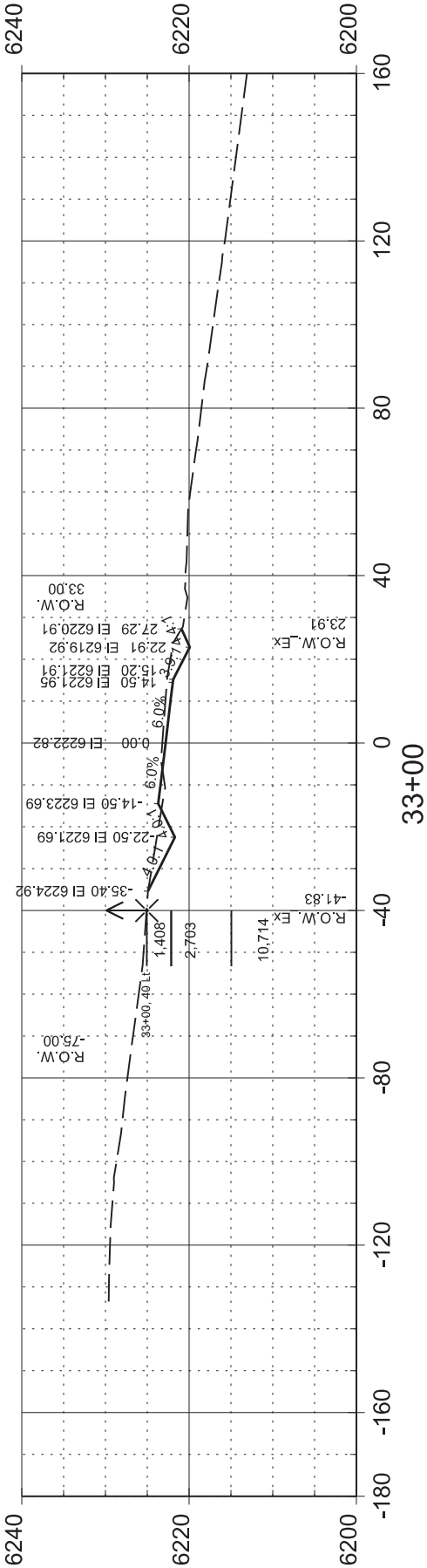
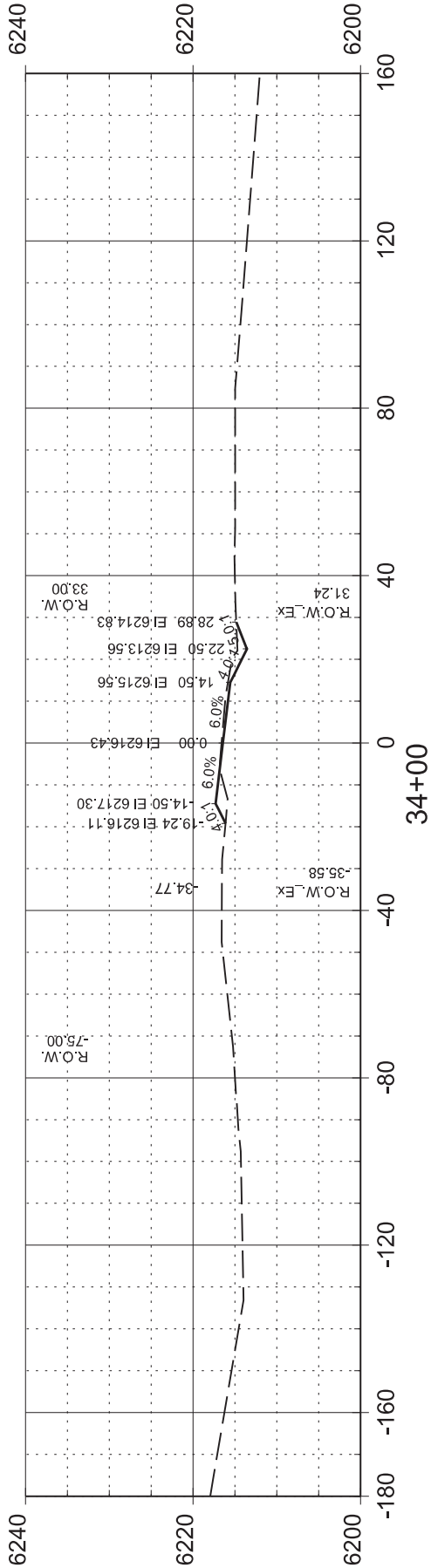




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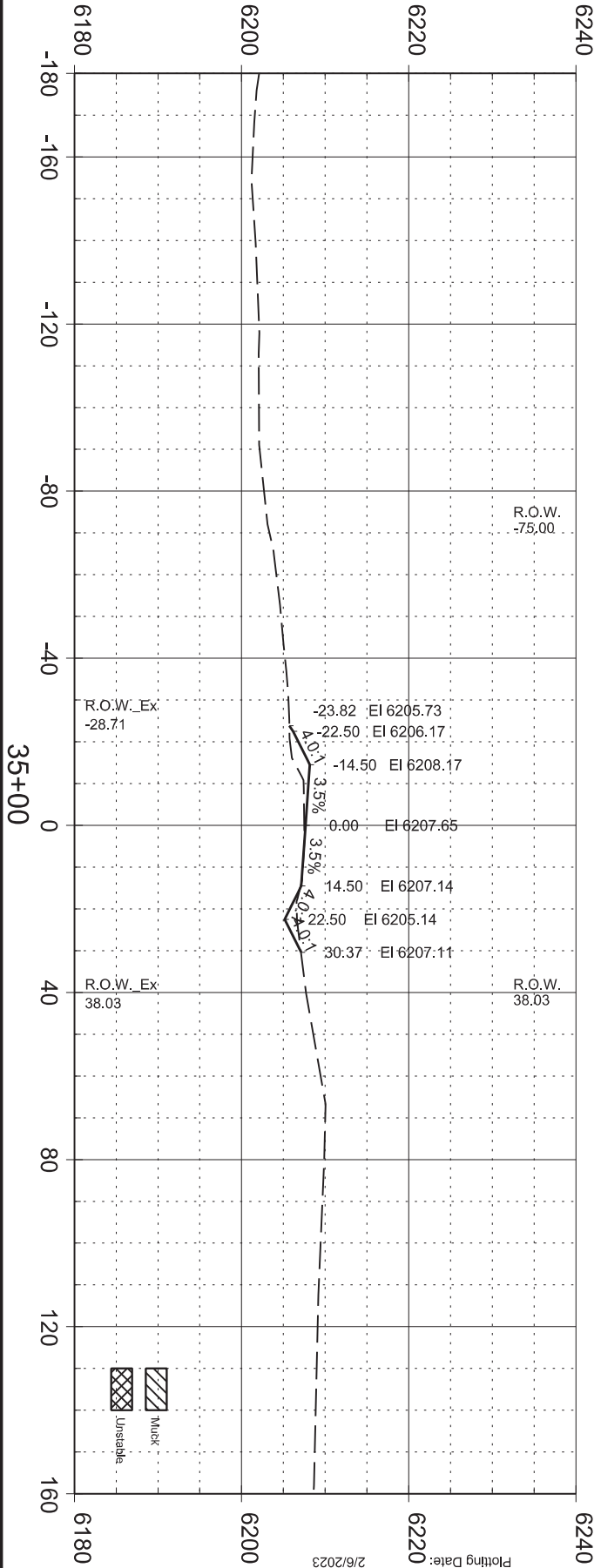
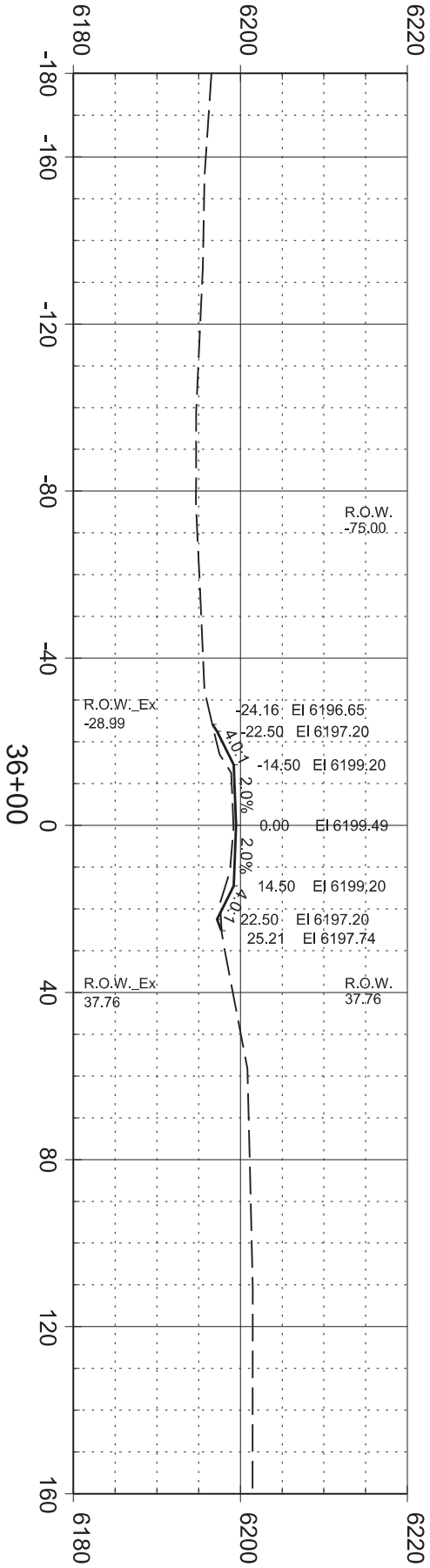
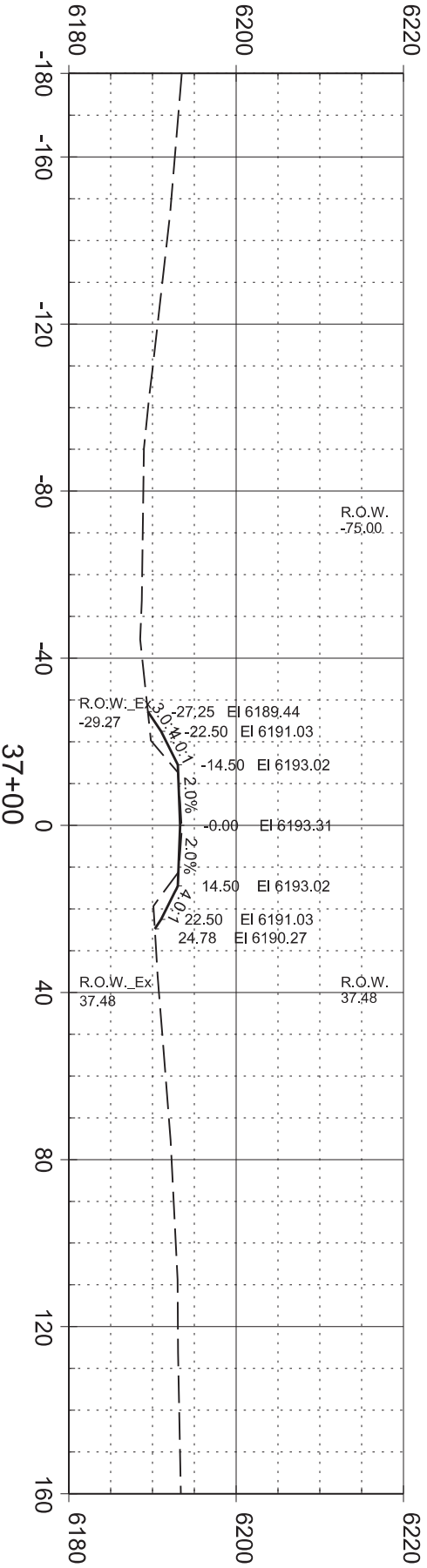
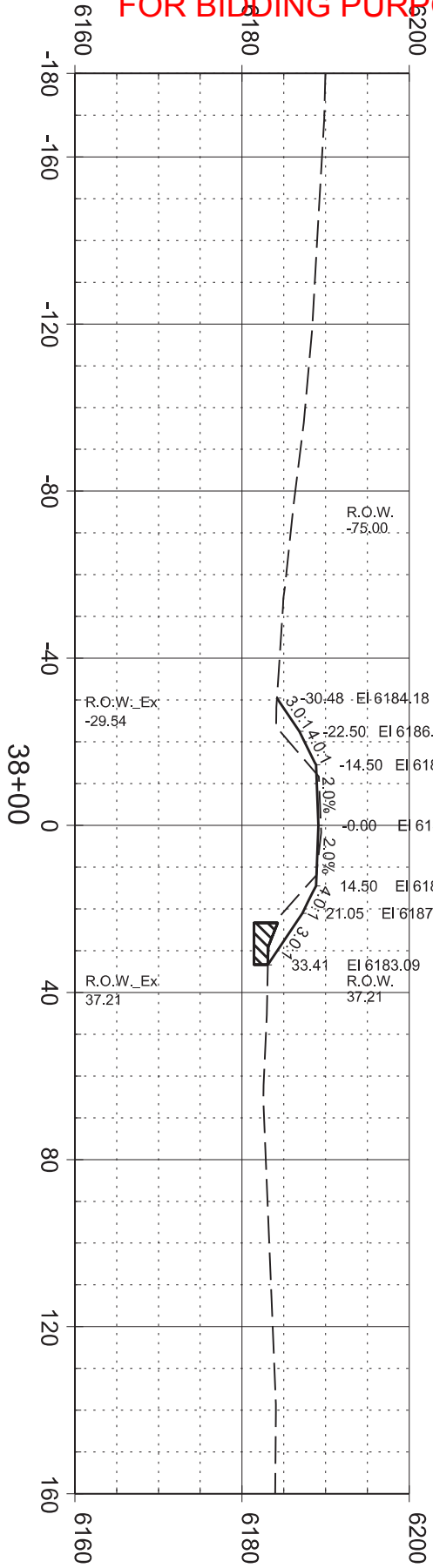
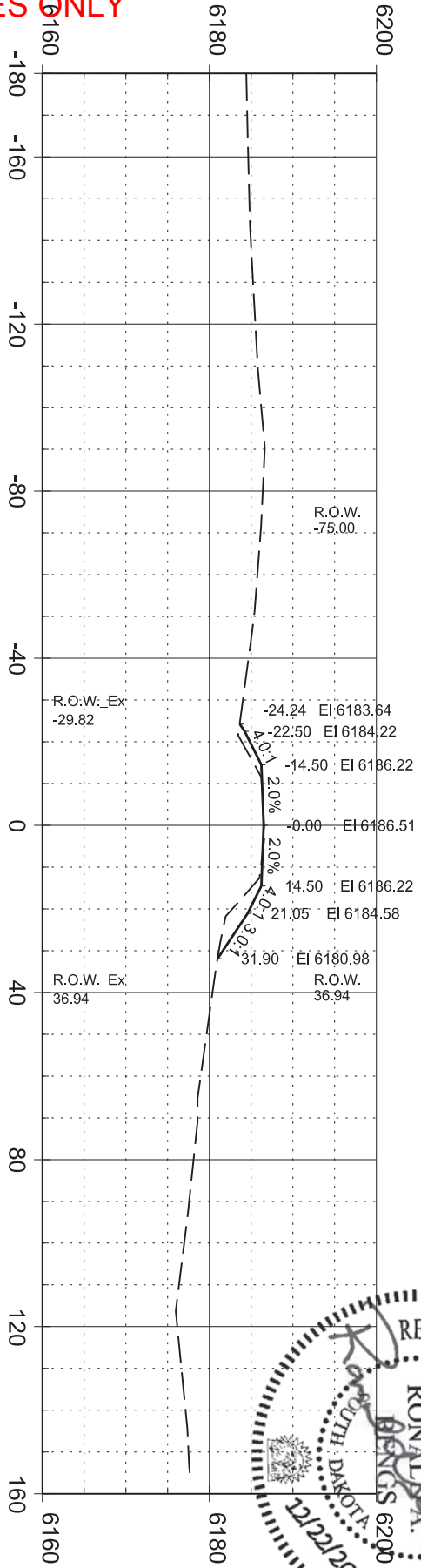
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	147	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



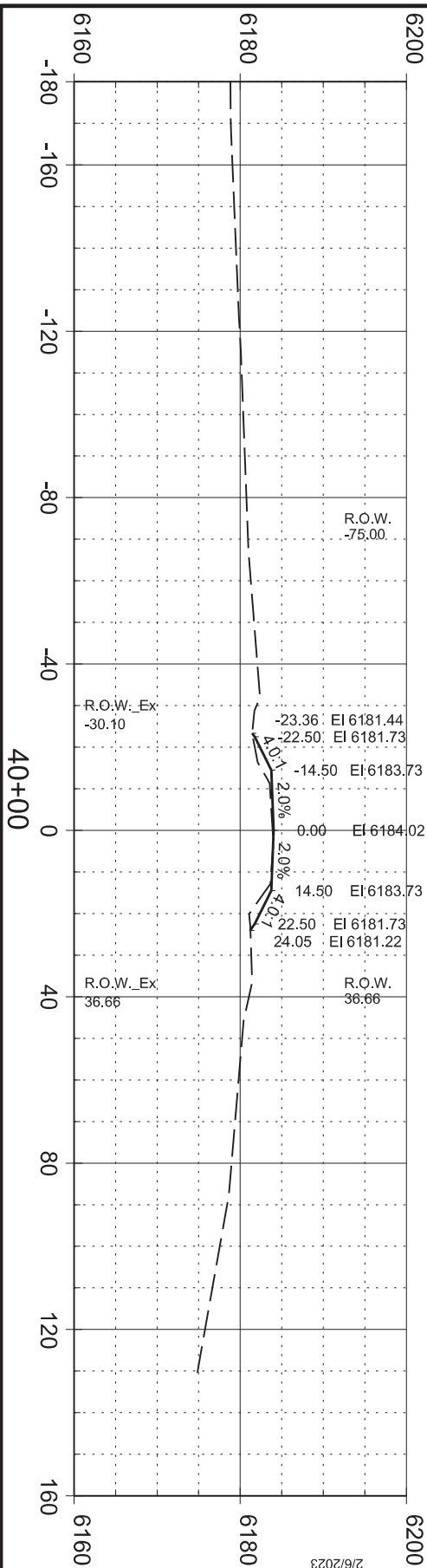
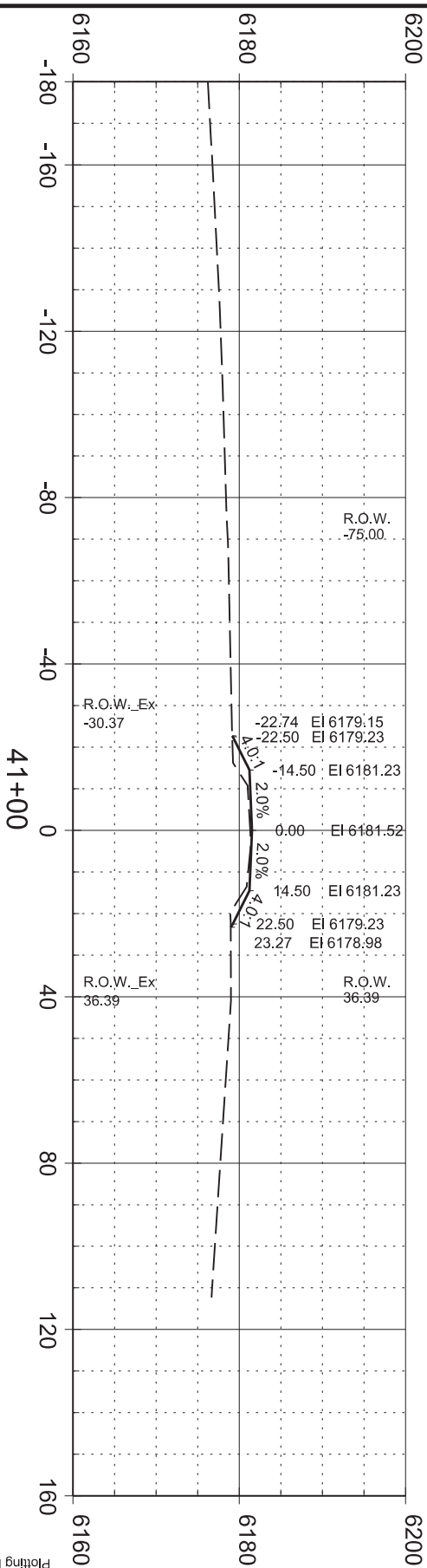
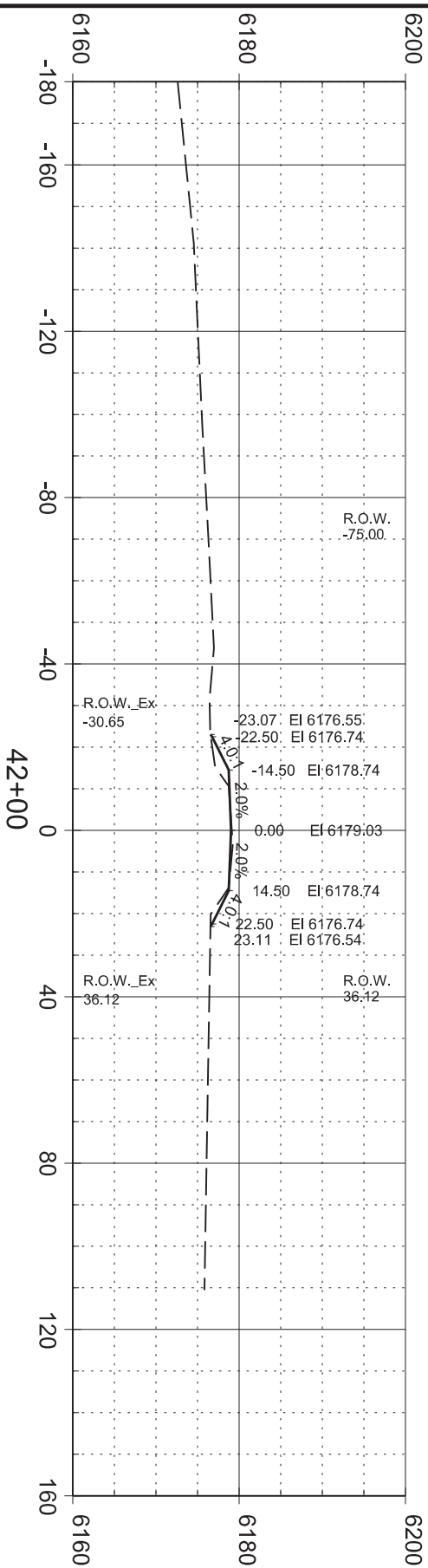
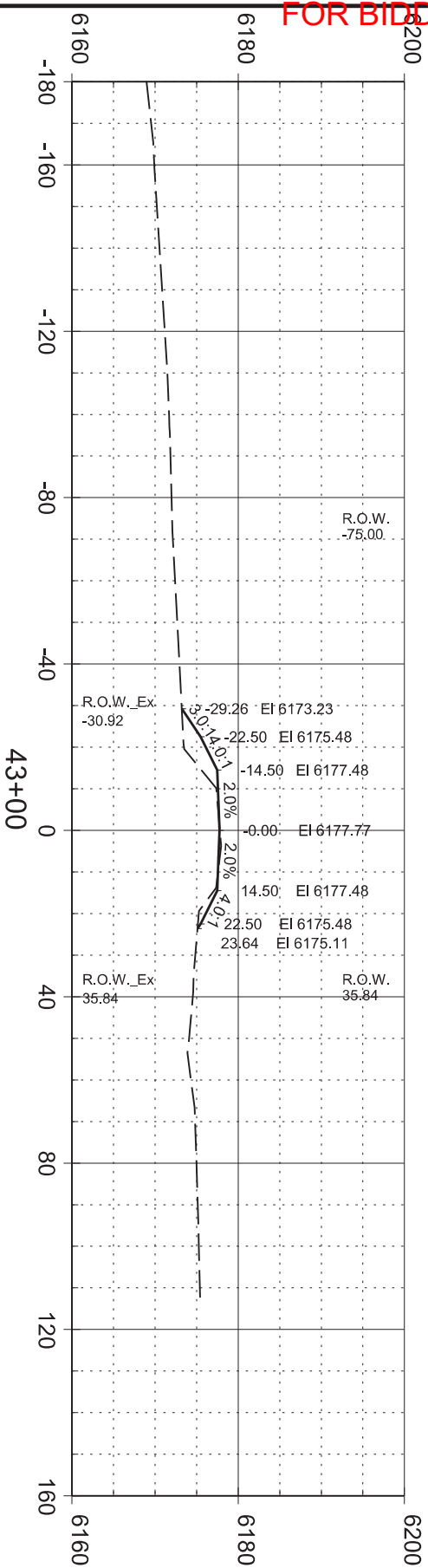
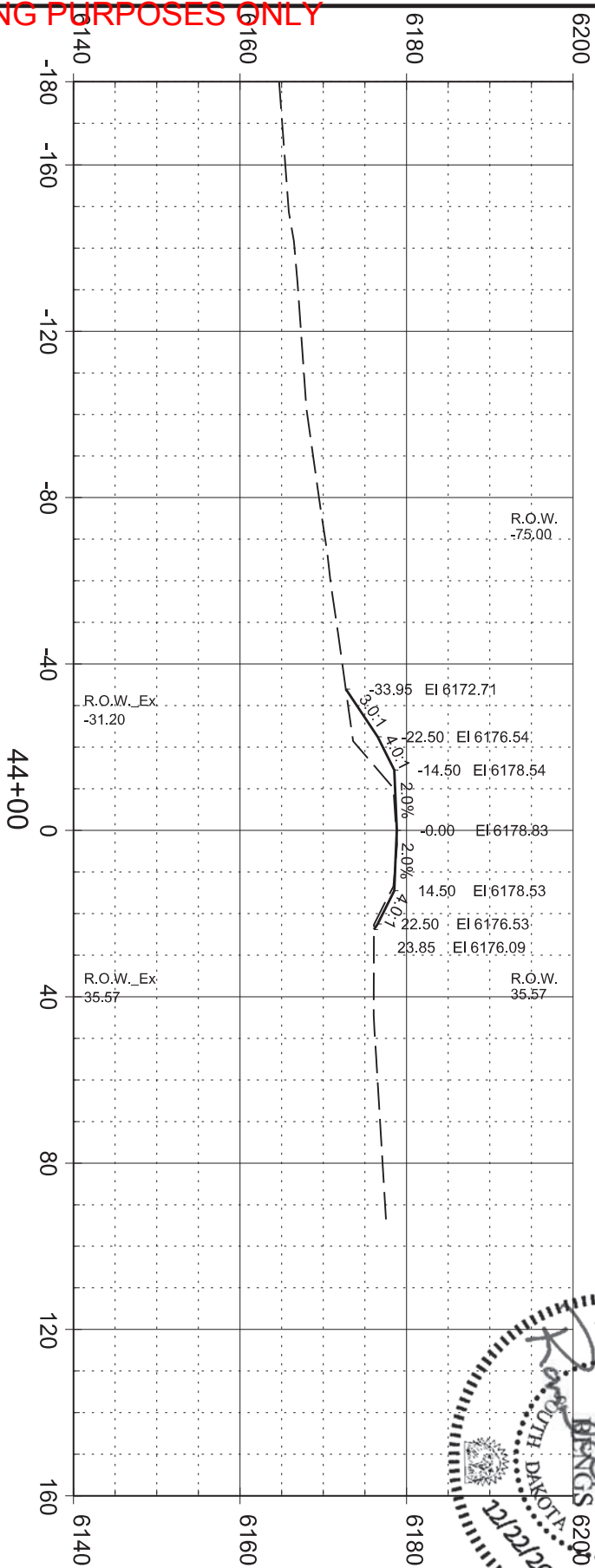


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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		148		333			
Plotting Date: 2/6/2023							





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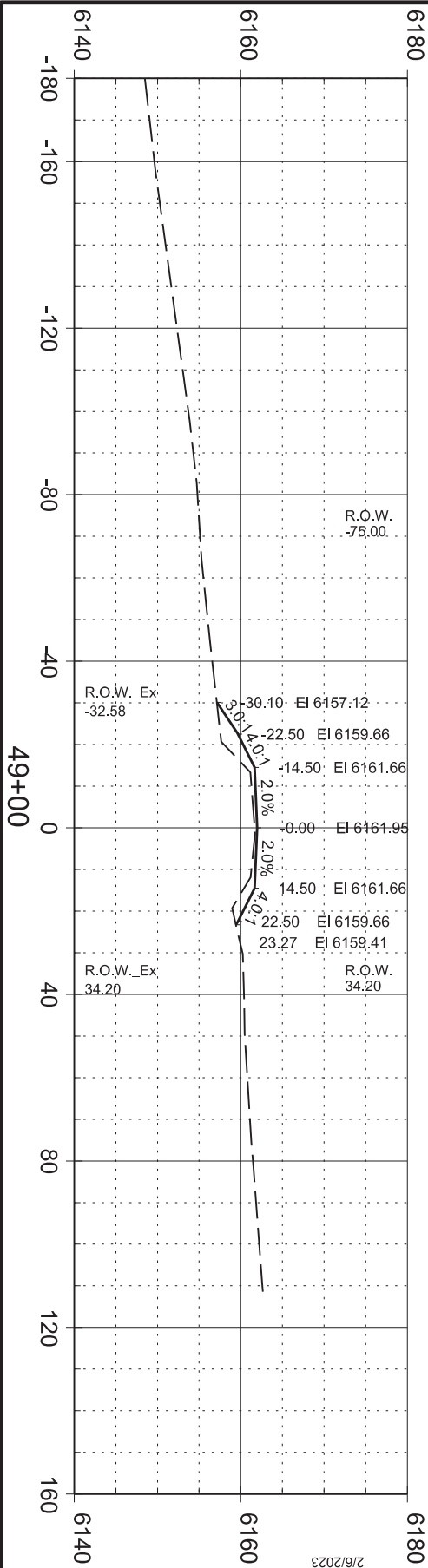
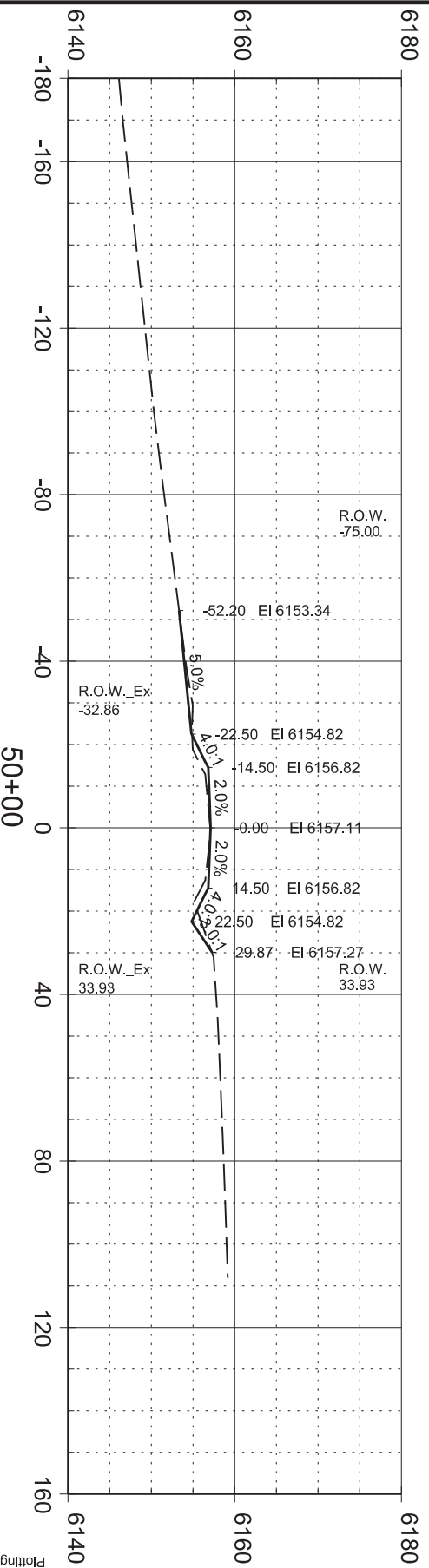
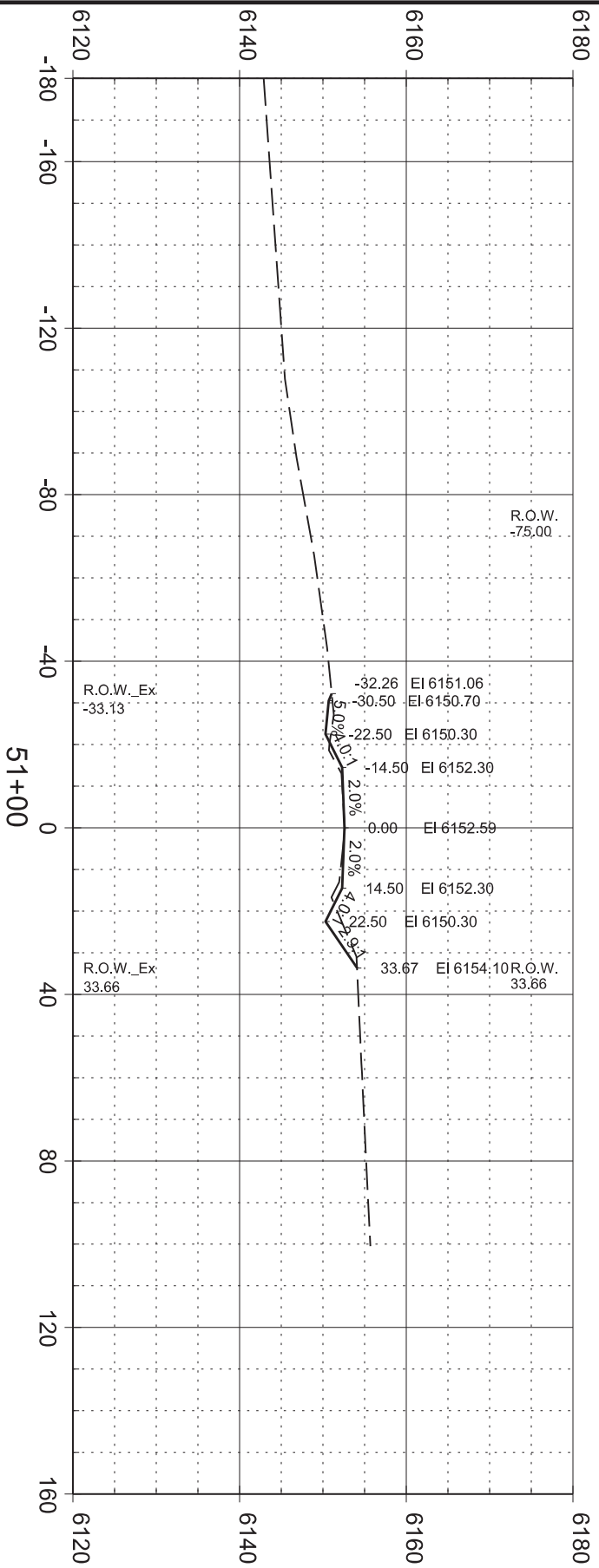
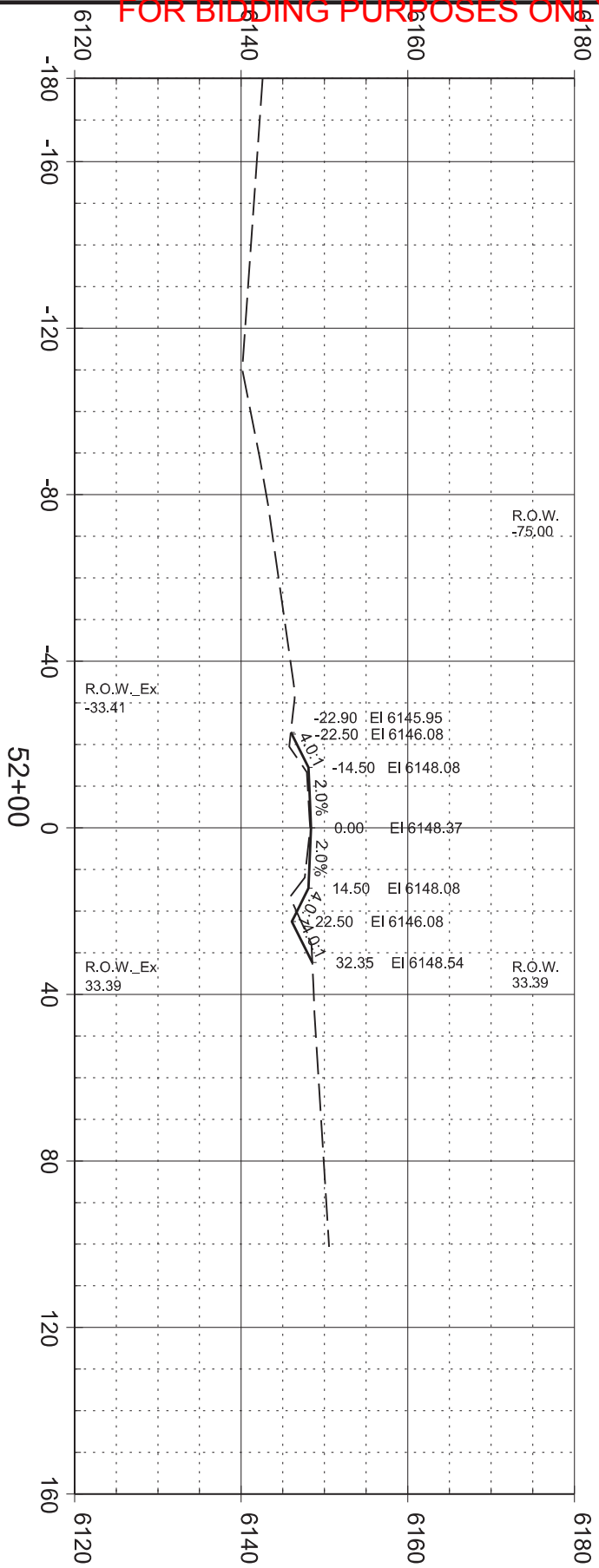
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		149		333		333	
Plotting Date: 2/6/2023		2/6/2023		2/6/2023		2/6/2023	



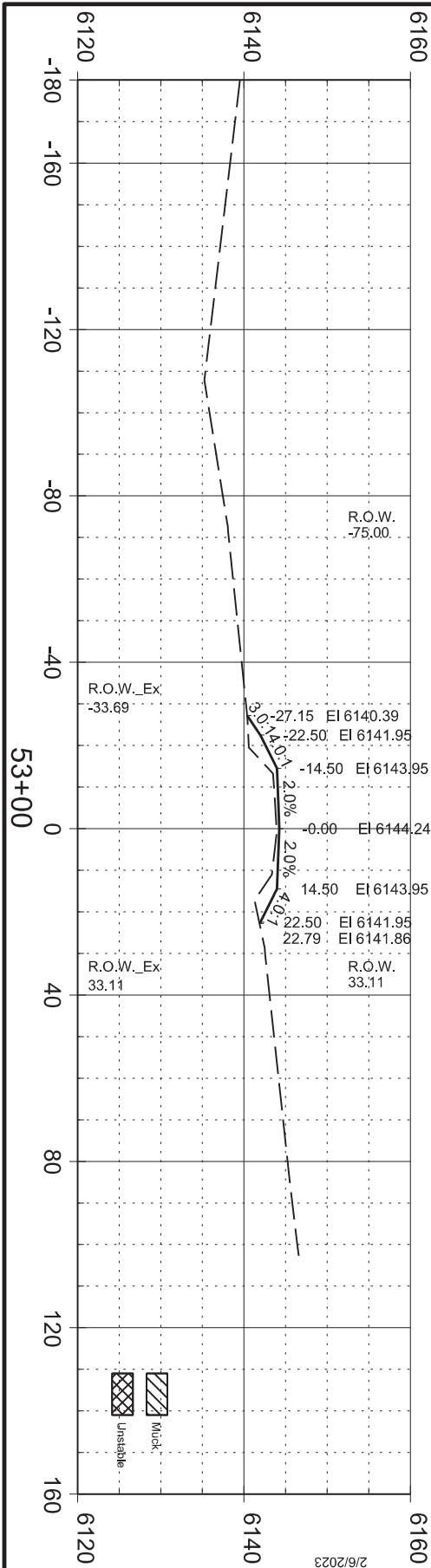
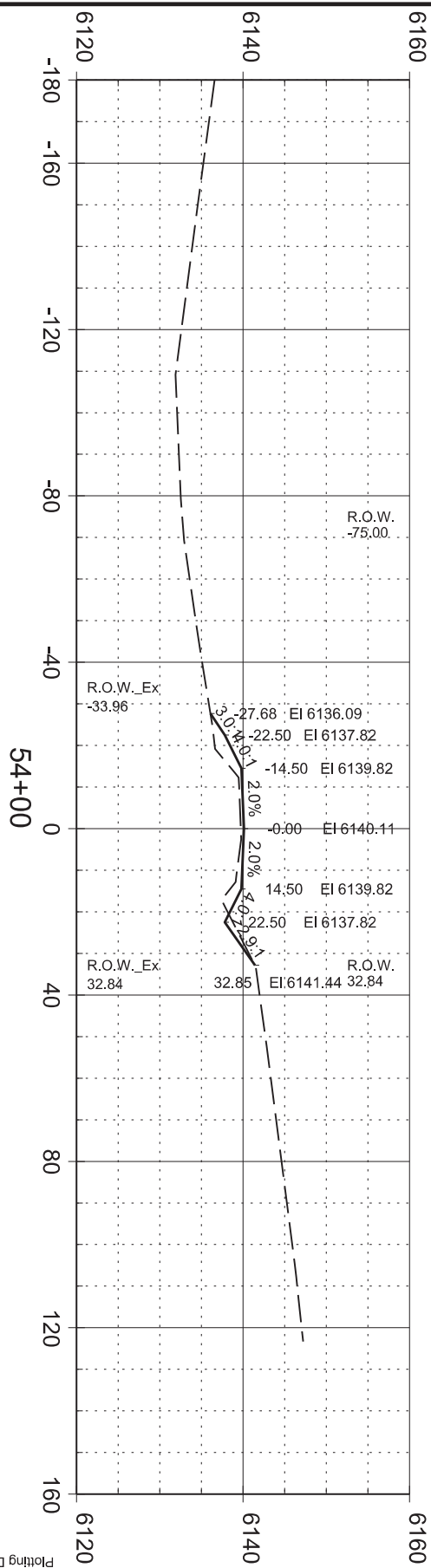
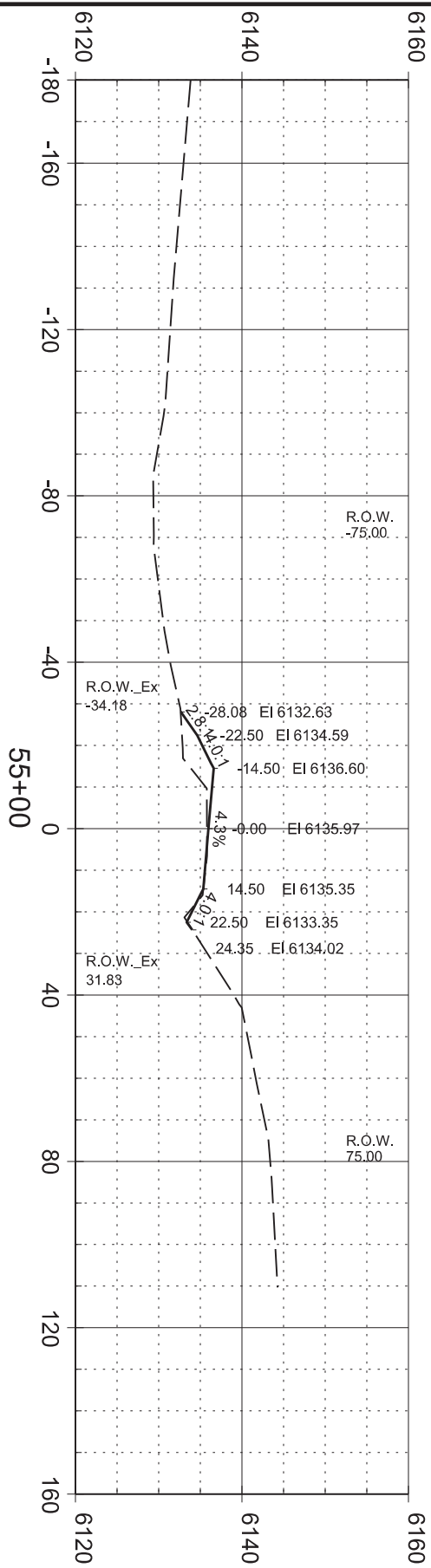
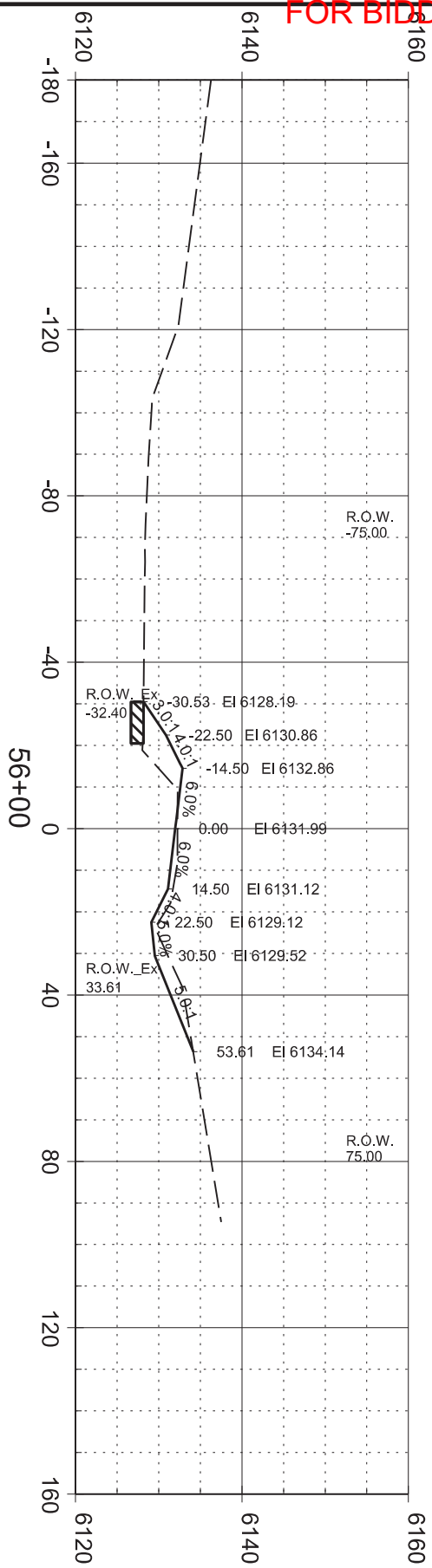
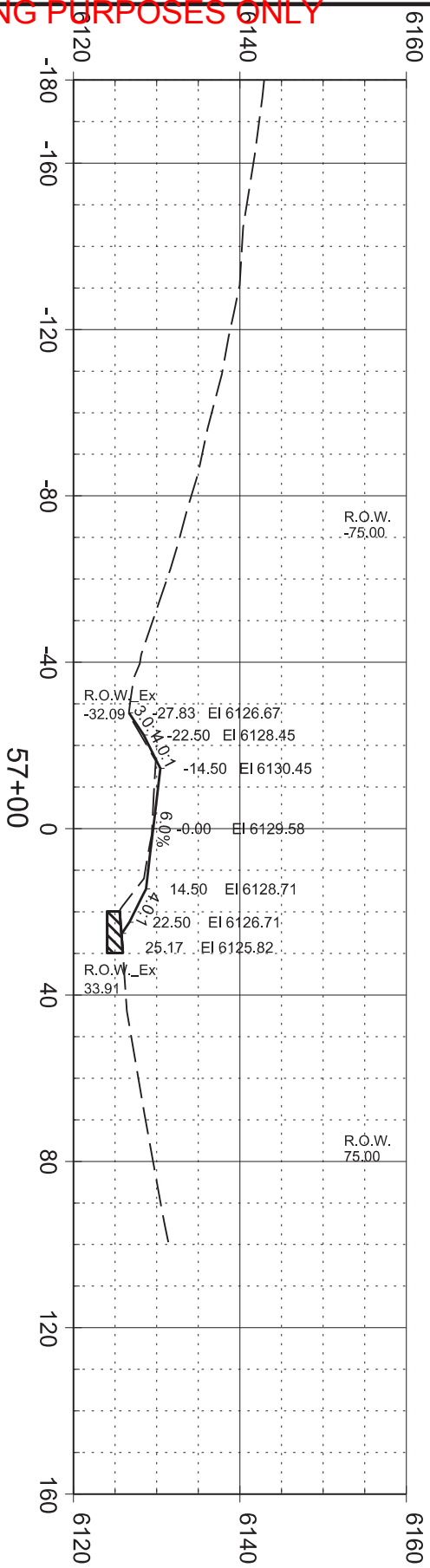


STATE OF SOUTH DAKOTA	P 6403(10)		150	333
	PROJECT		SHEET	TOTAL SHEETS





STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		151		333	



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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		152		333	

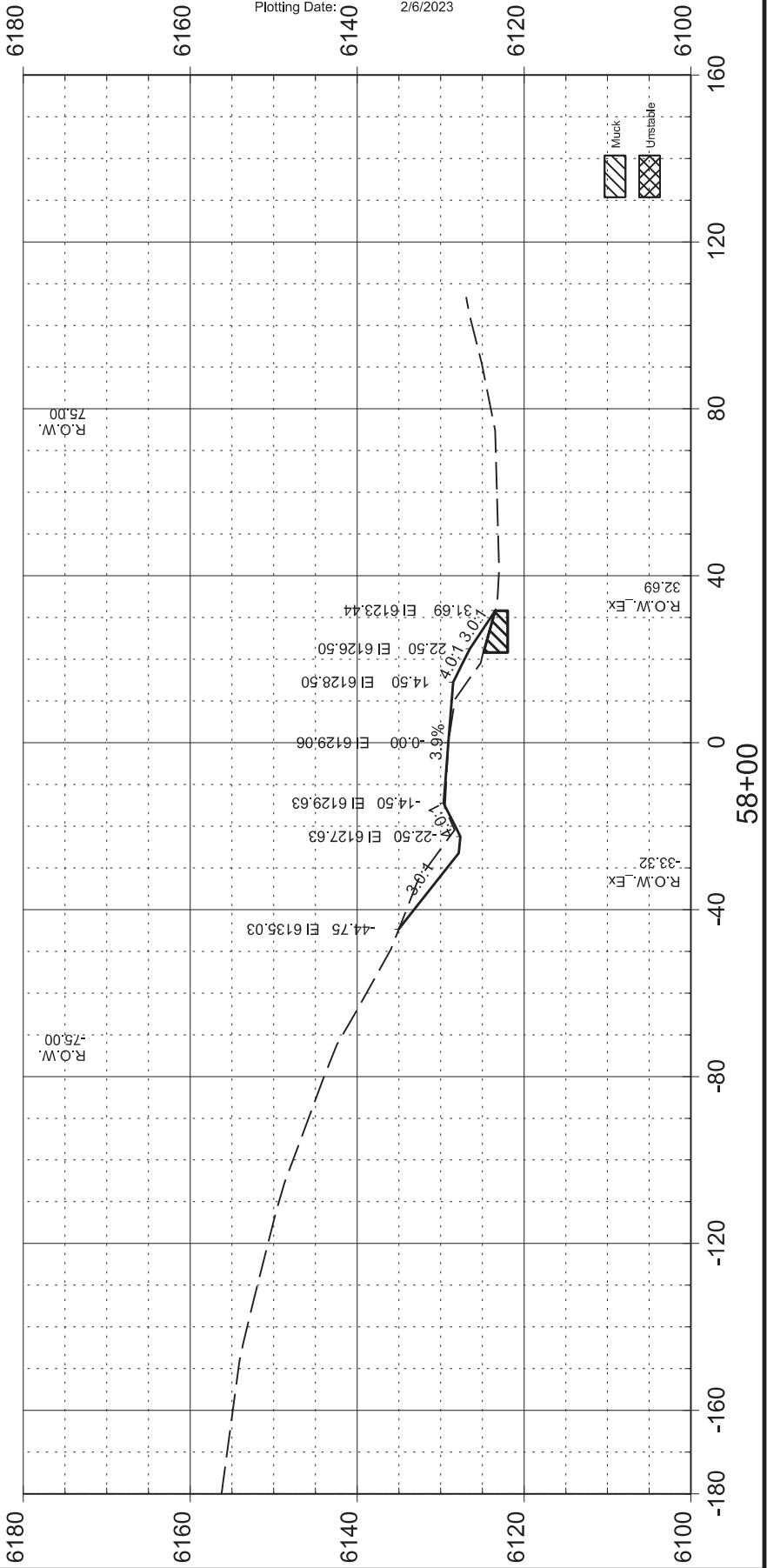
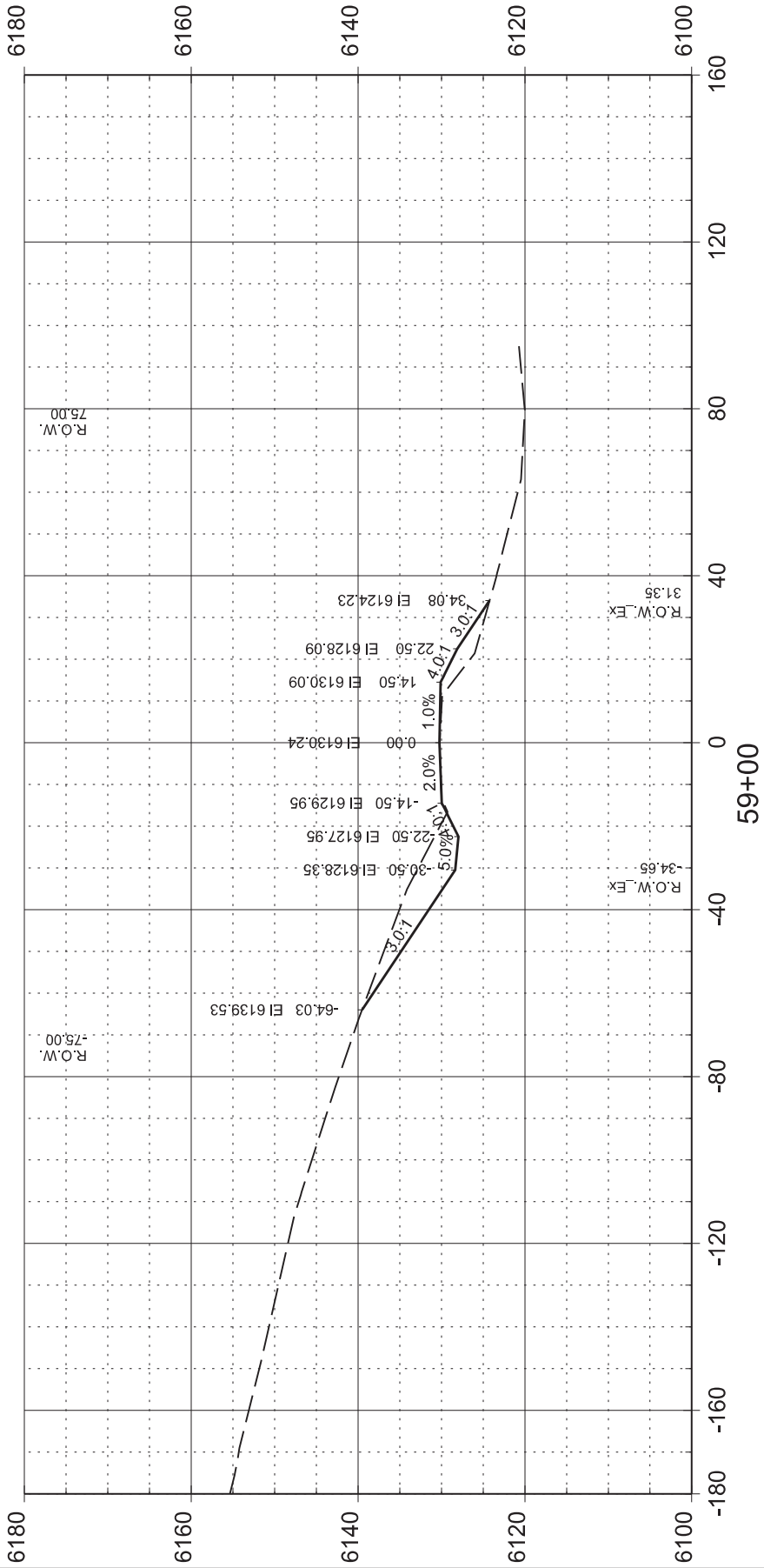
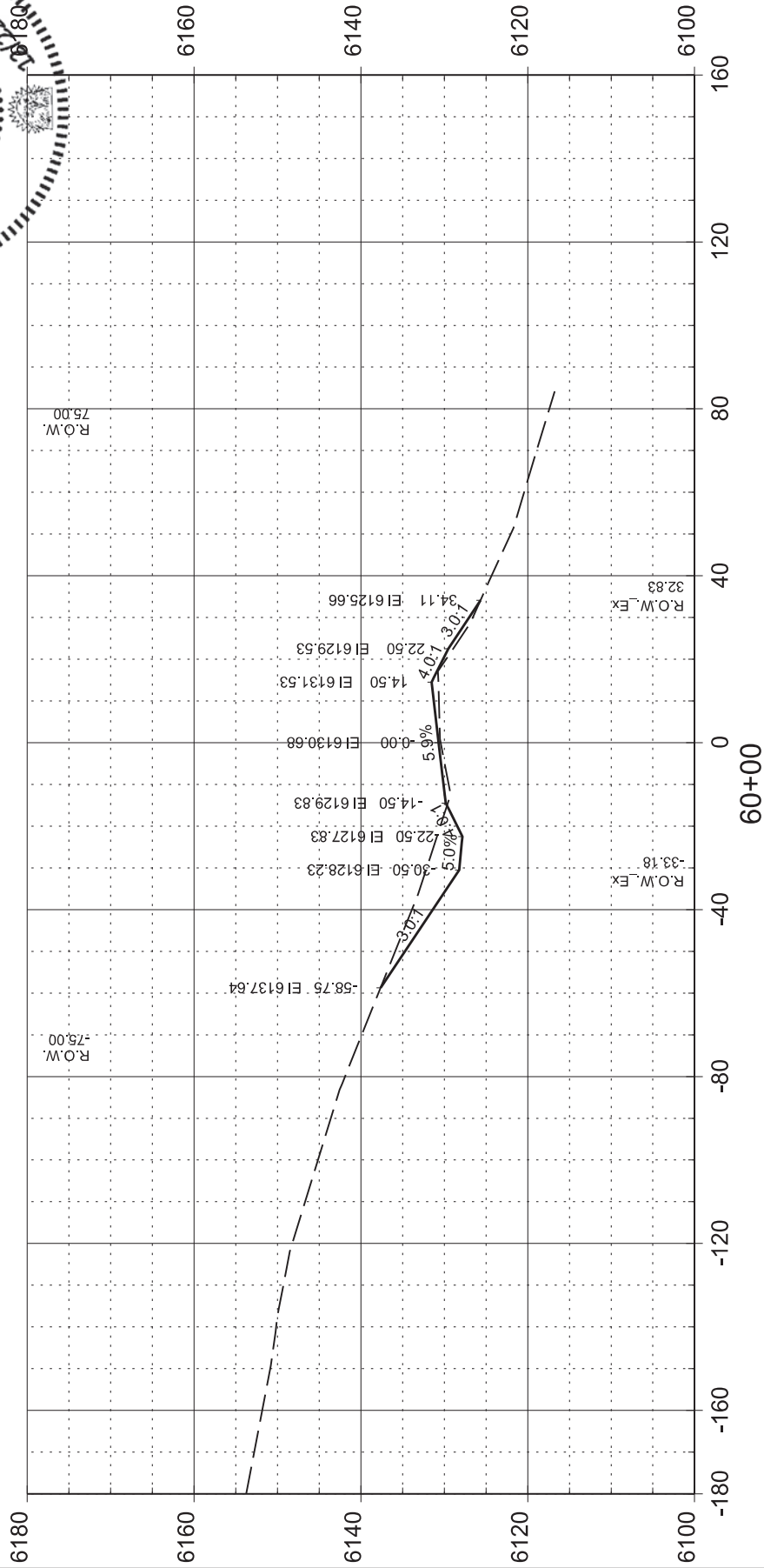


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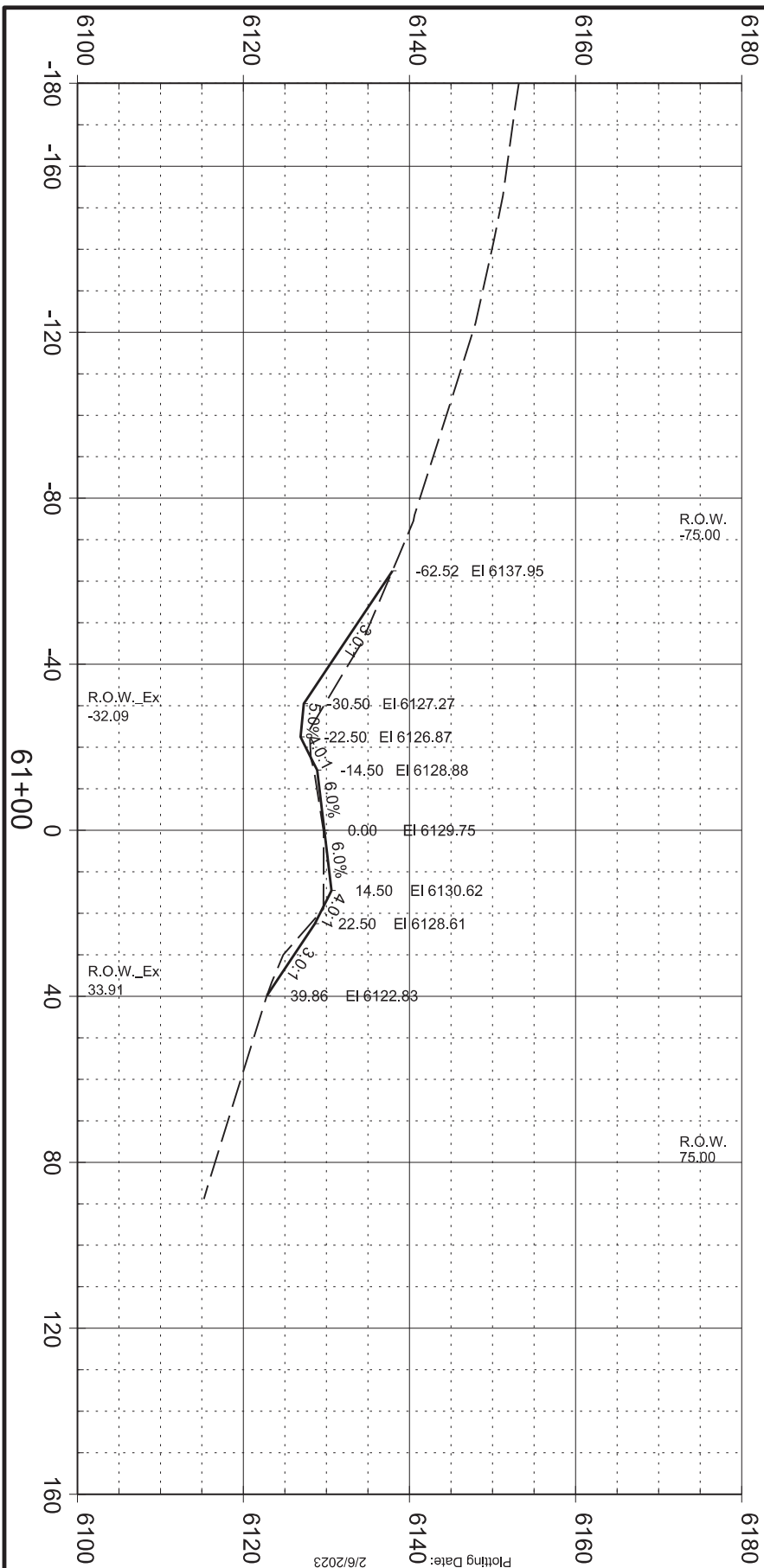
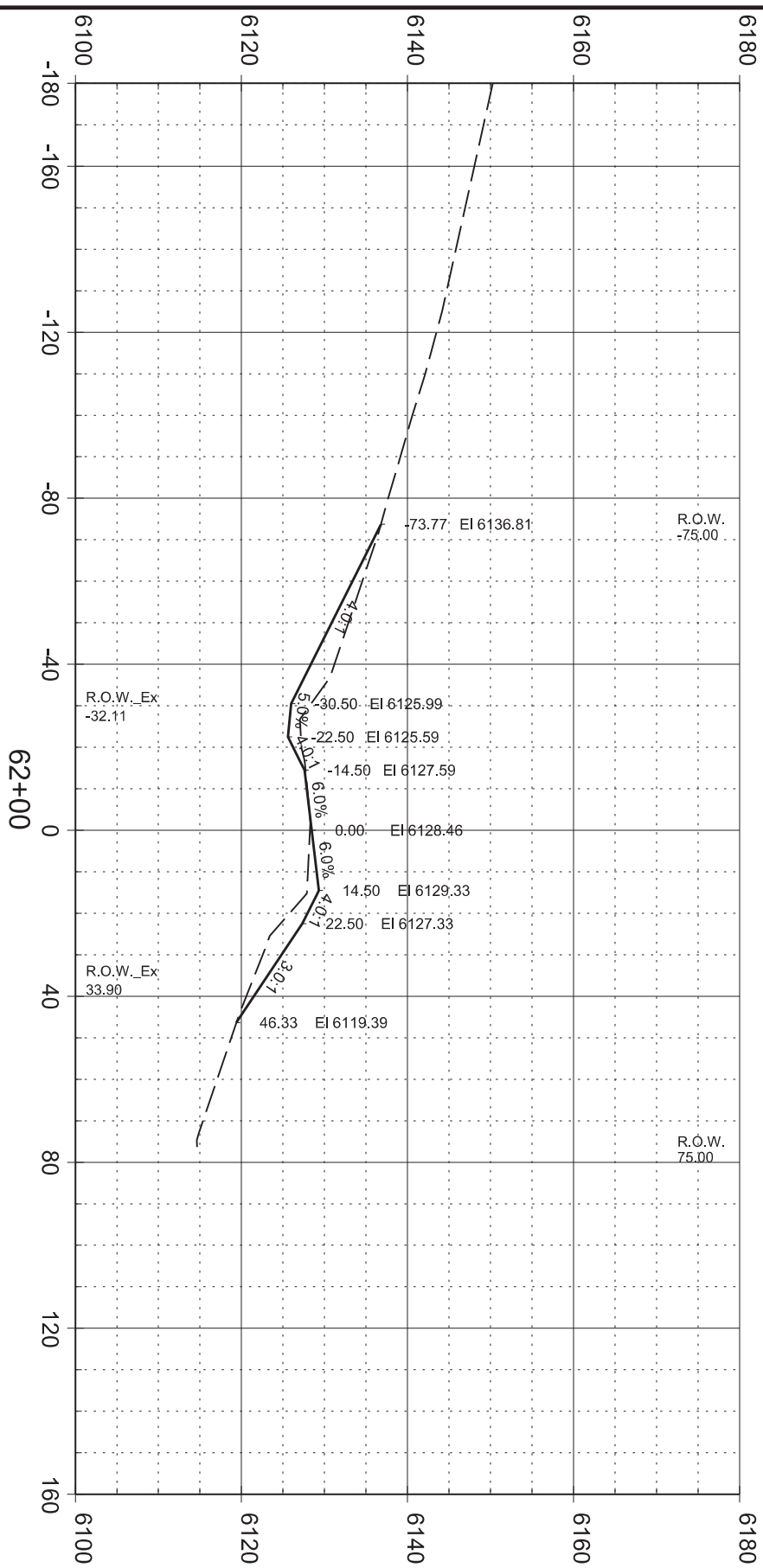
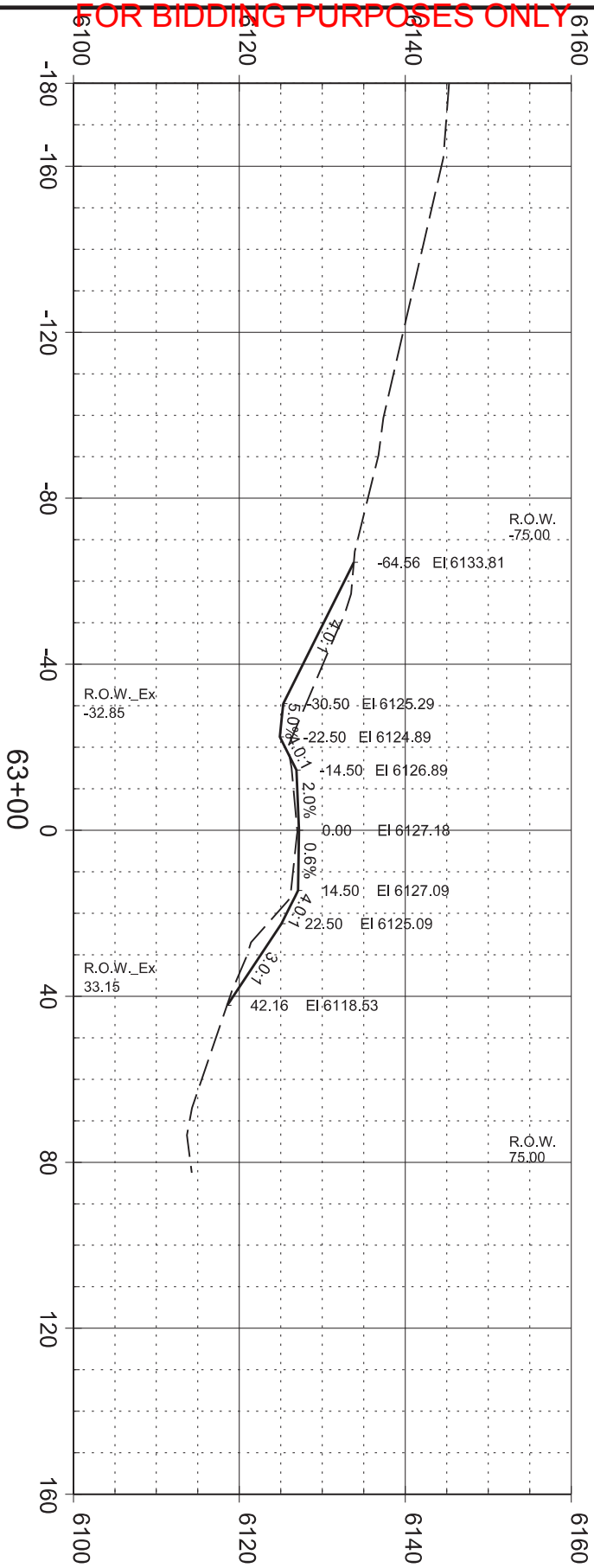
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	153	333

Plotting Date: 2/6/2023





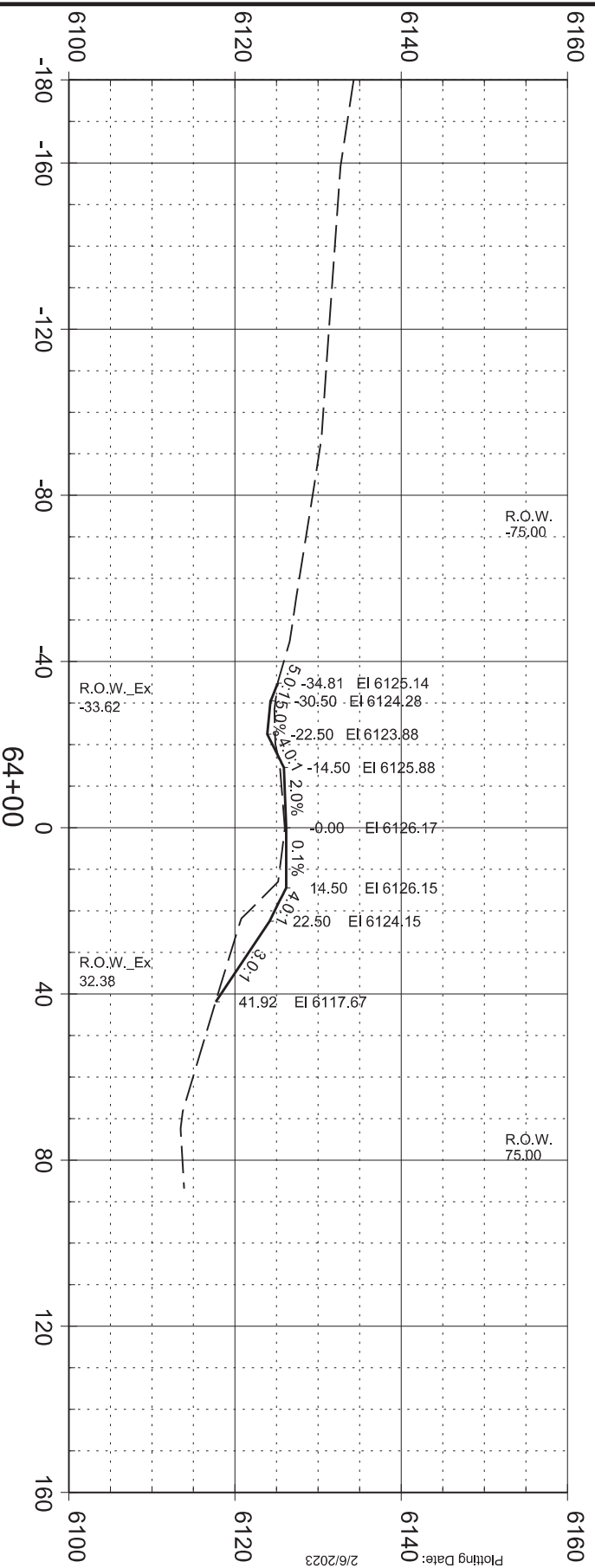
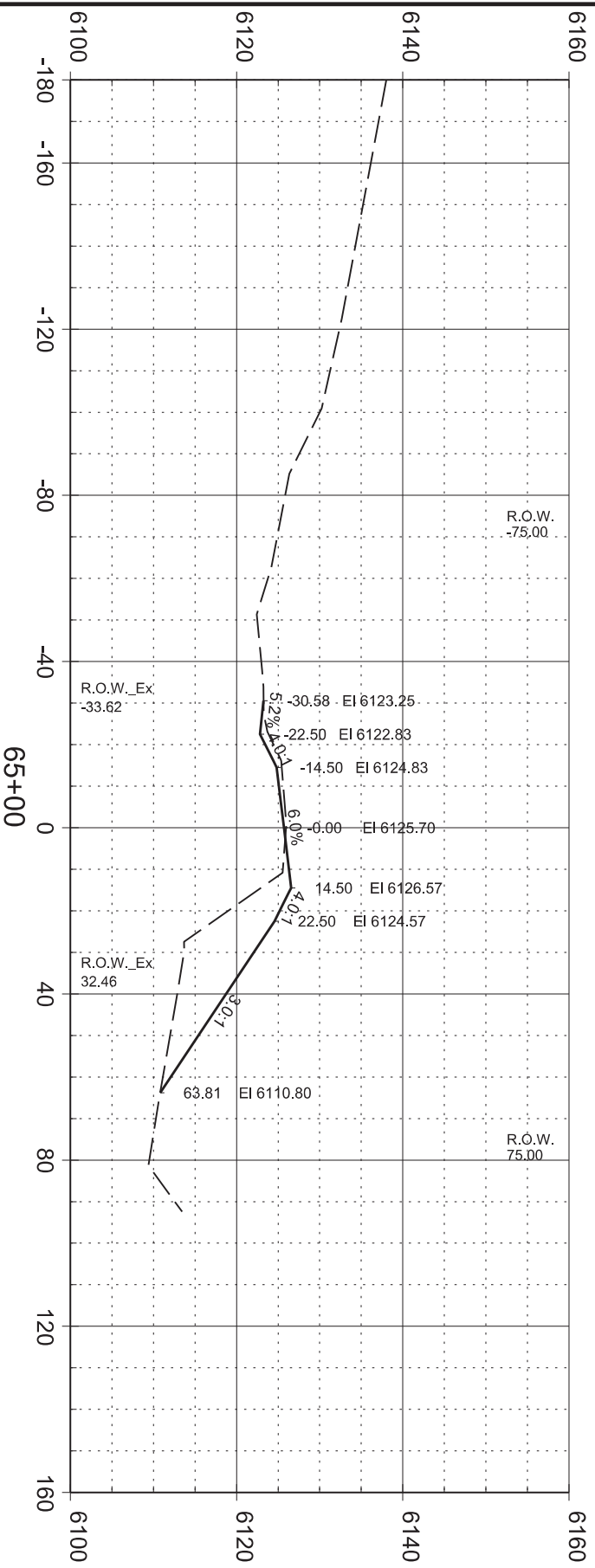
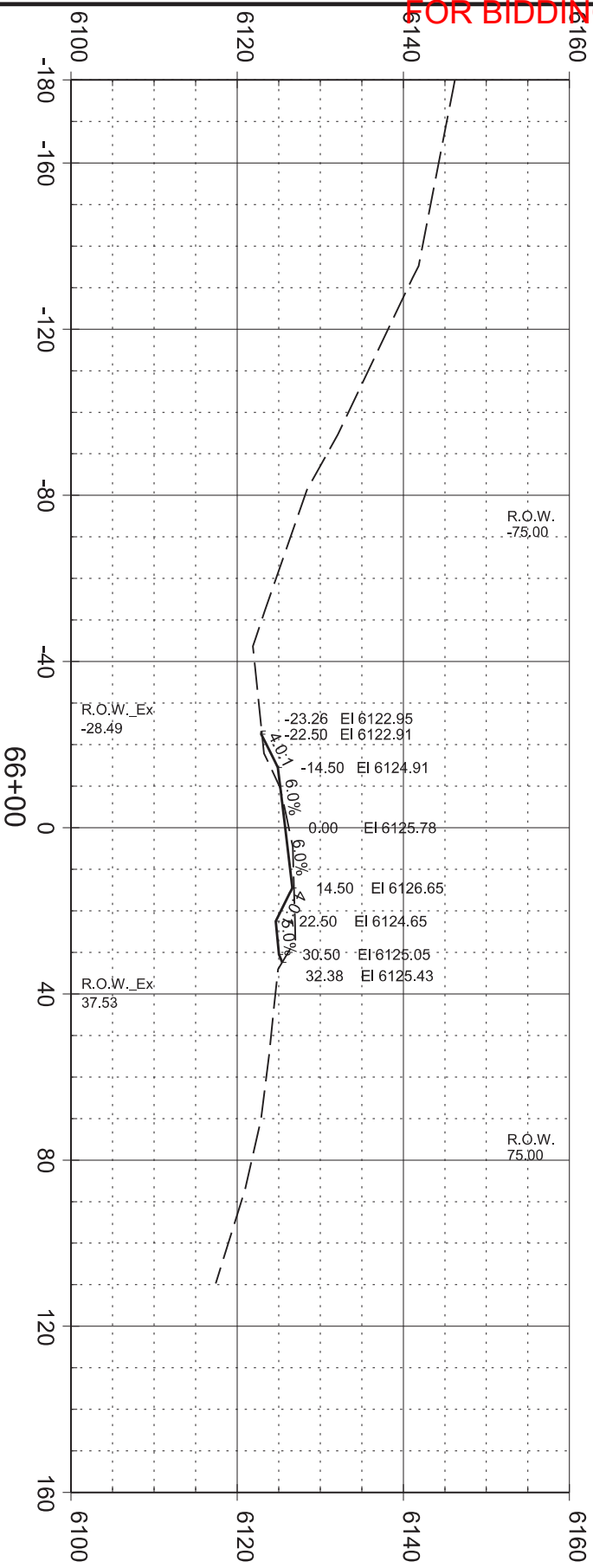
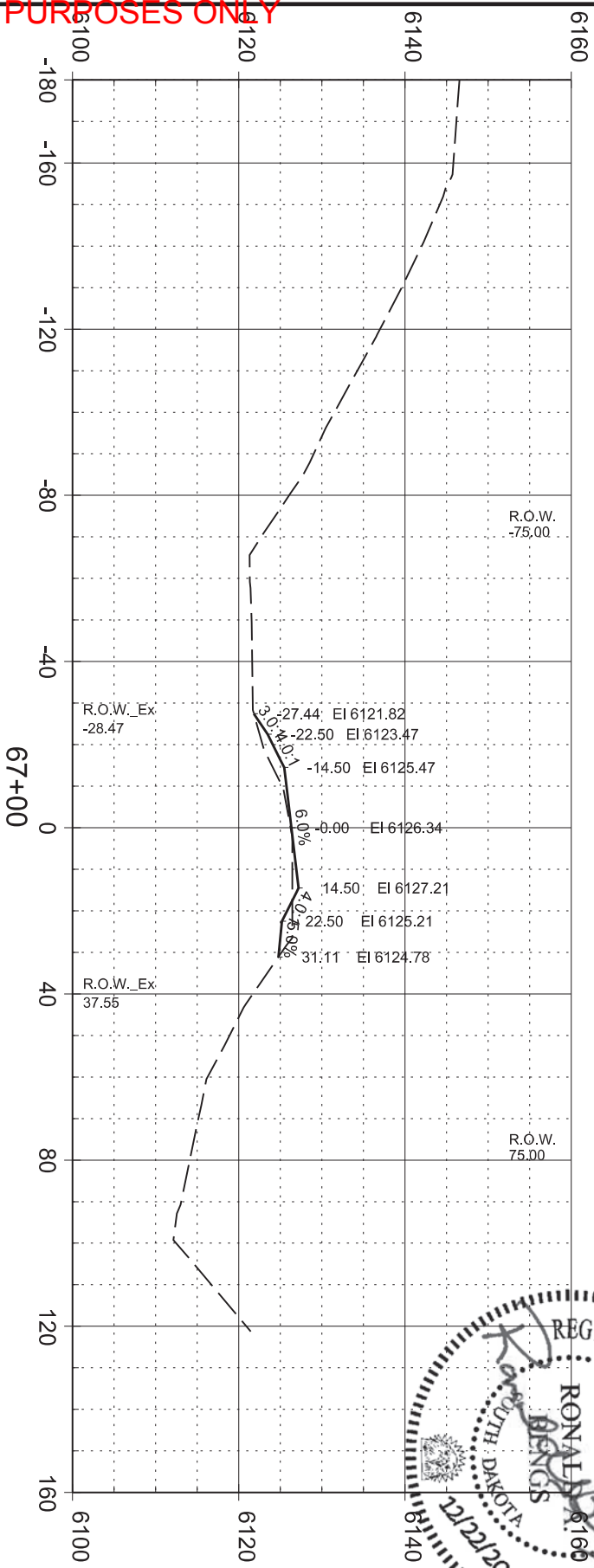
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		154		333		333	

Plotting Date: 2/6/2023

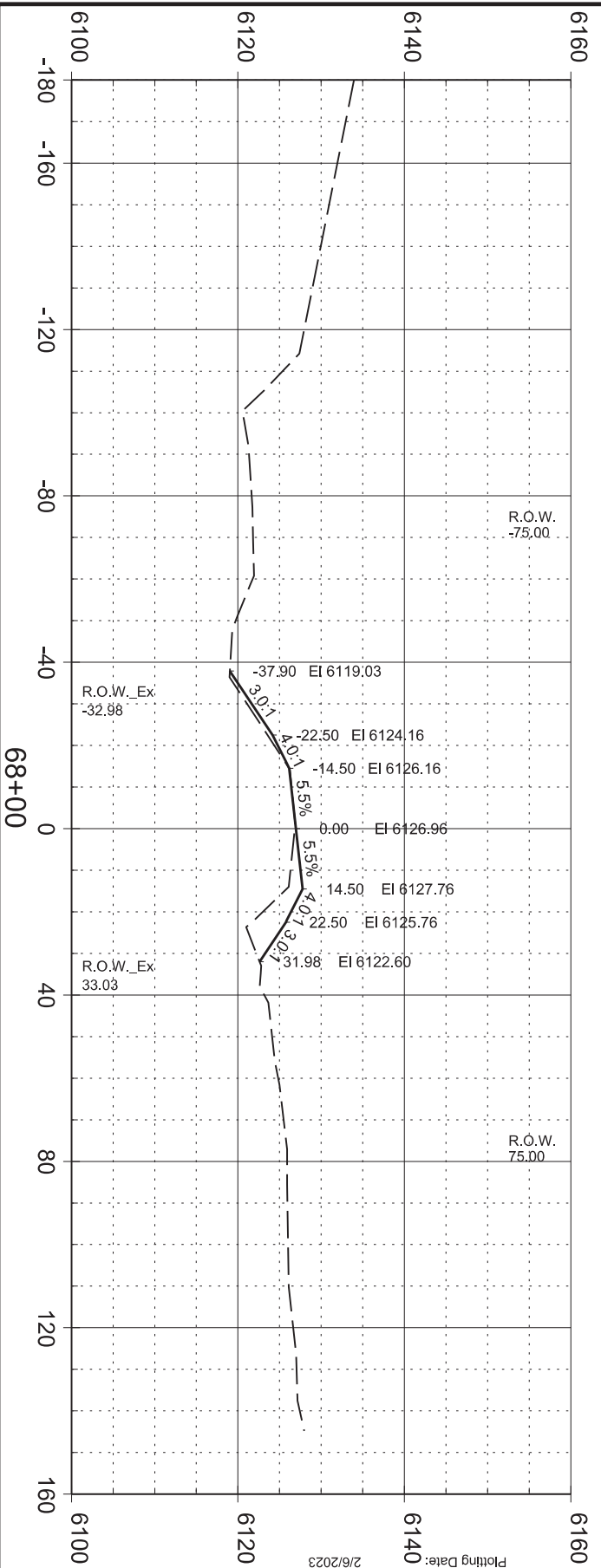
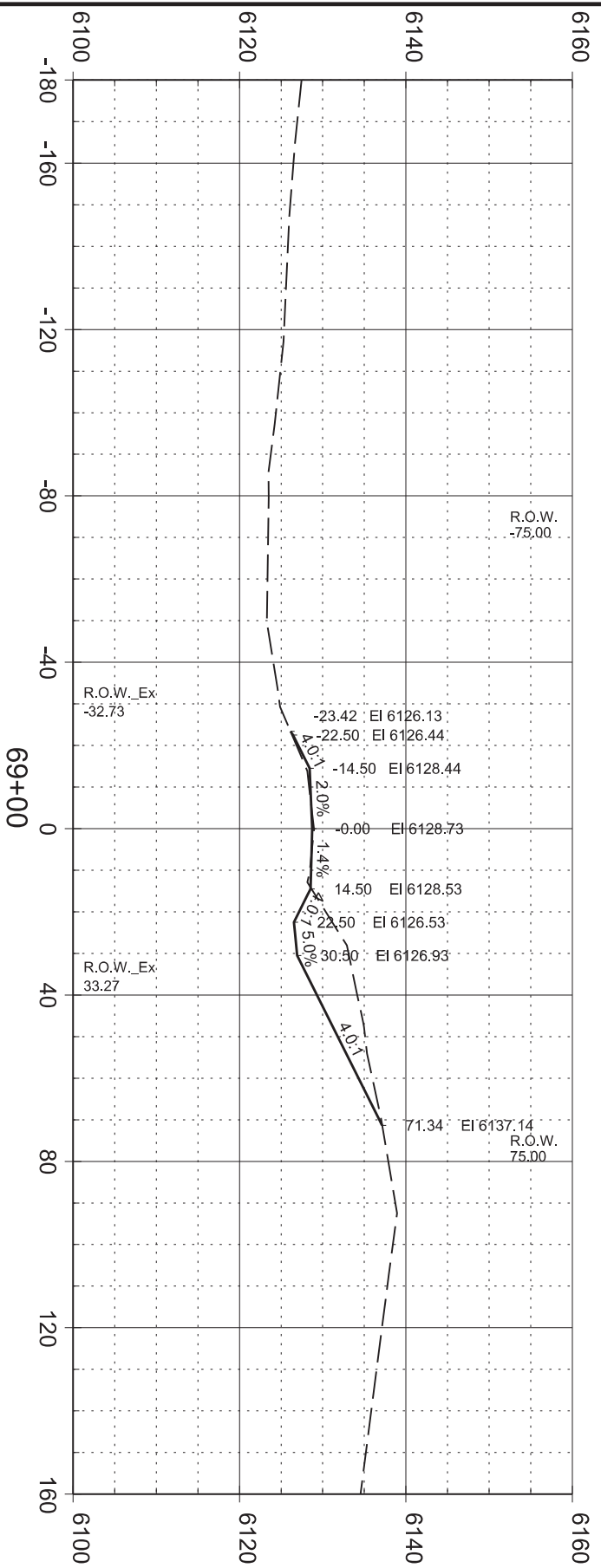
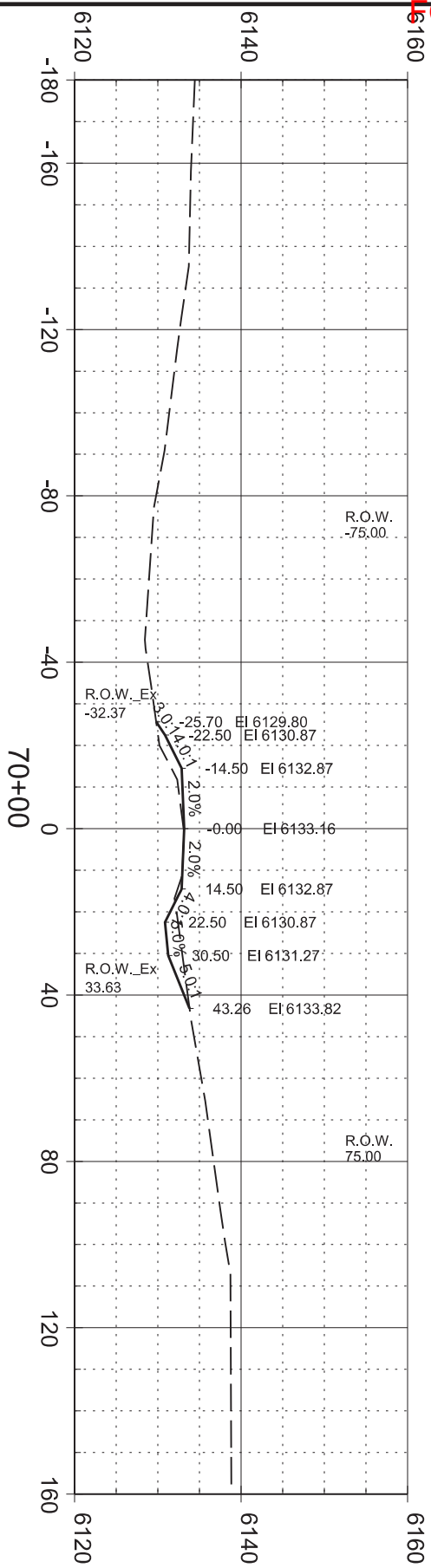
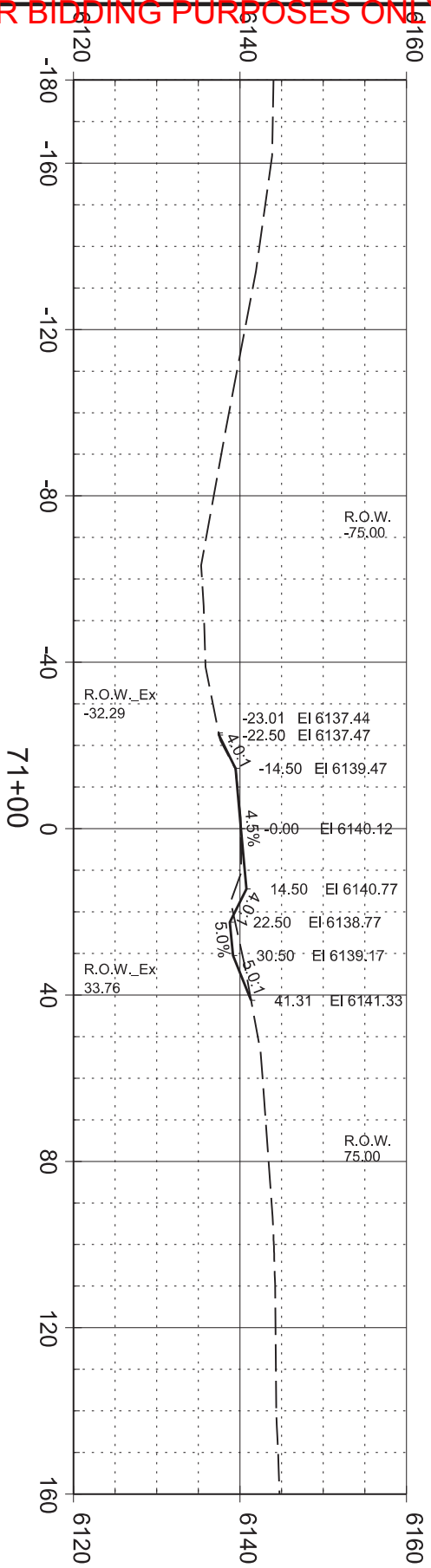




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA		PROJECT	P 6403(10)	SHEET	155	TOTAL SHEETS	333
DAKOTA							

Plotting Date: 2/6/2023



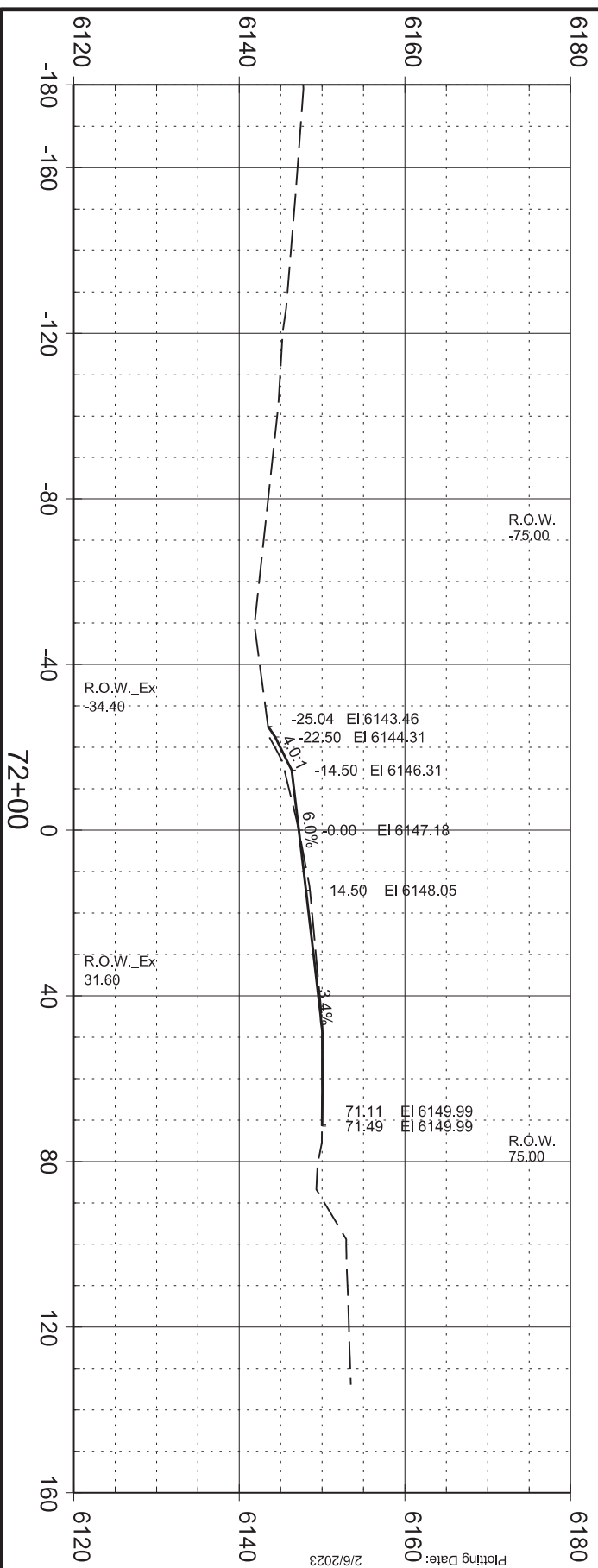
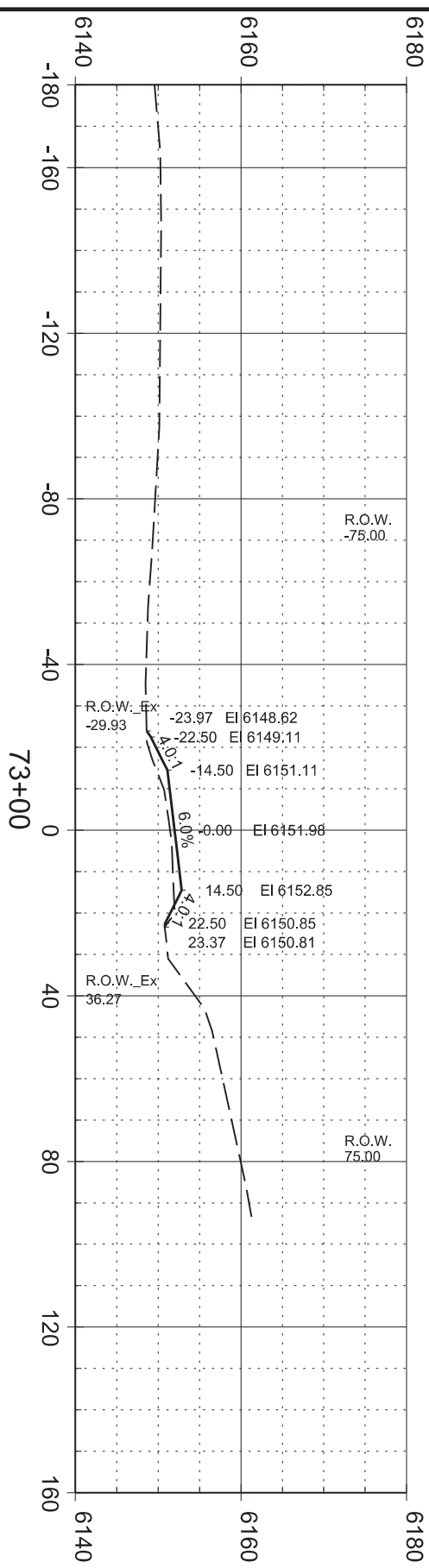
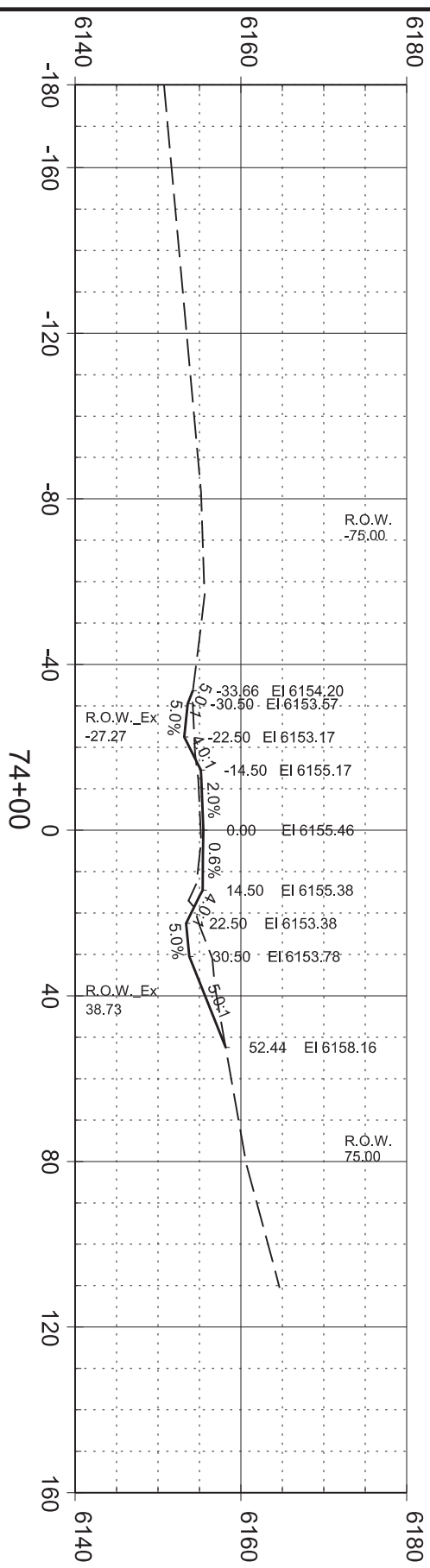
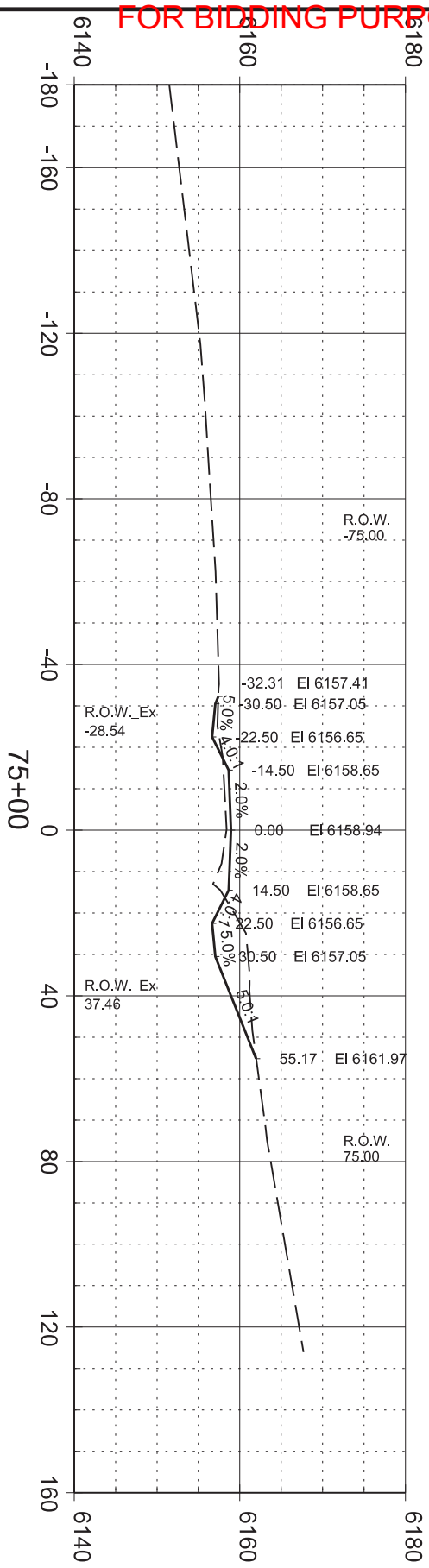
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	P 6403(10)	SHEET	156	333
			TOTAL SHEETS		

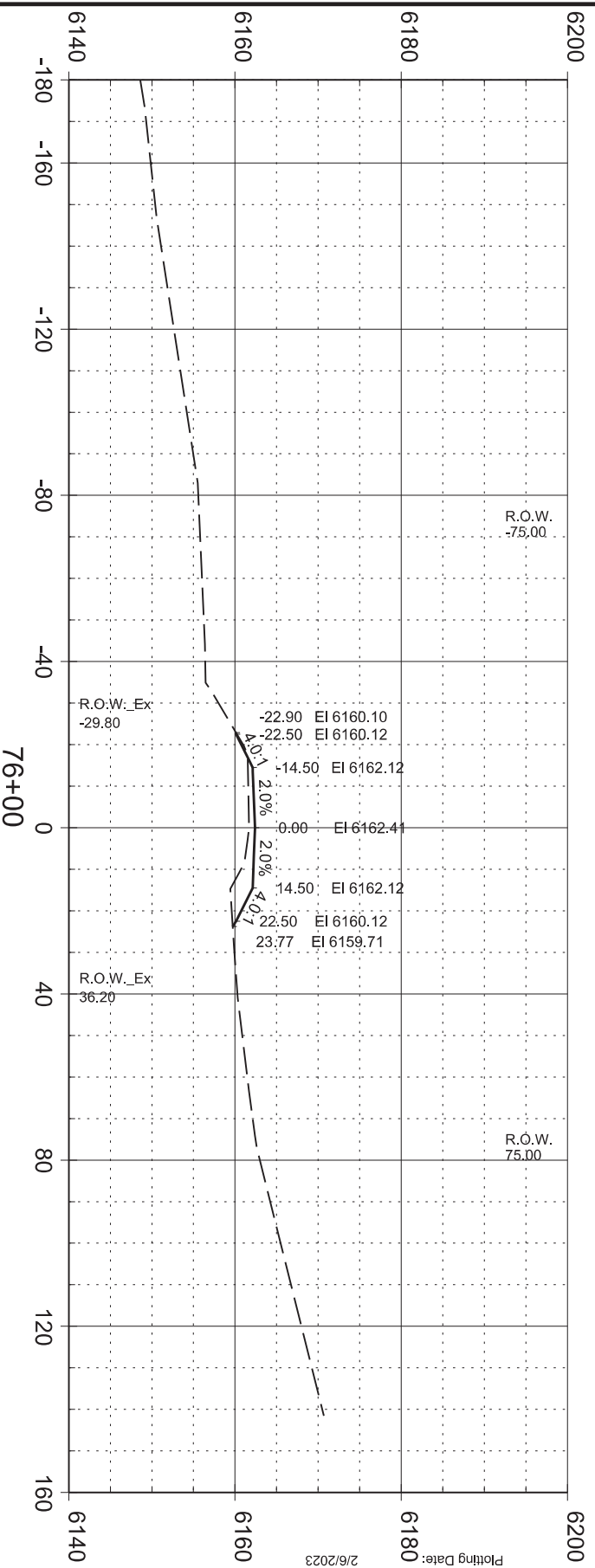
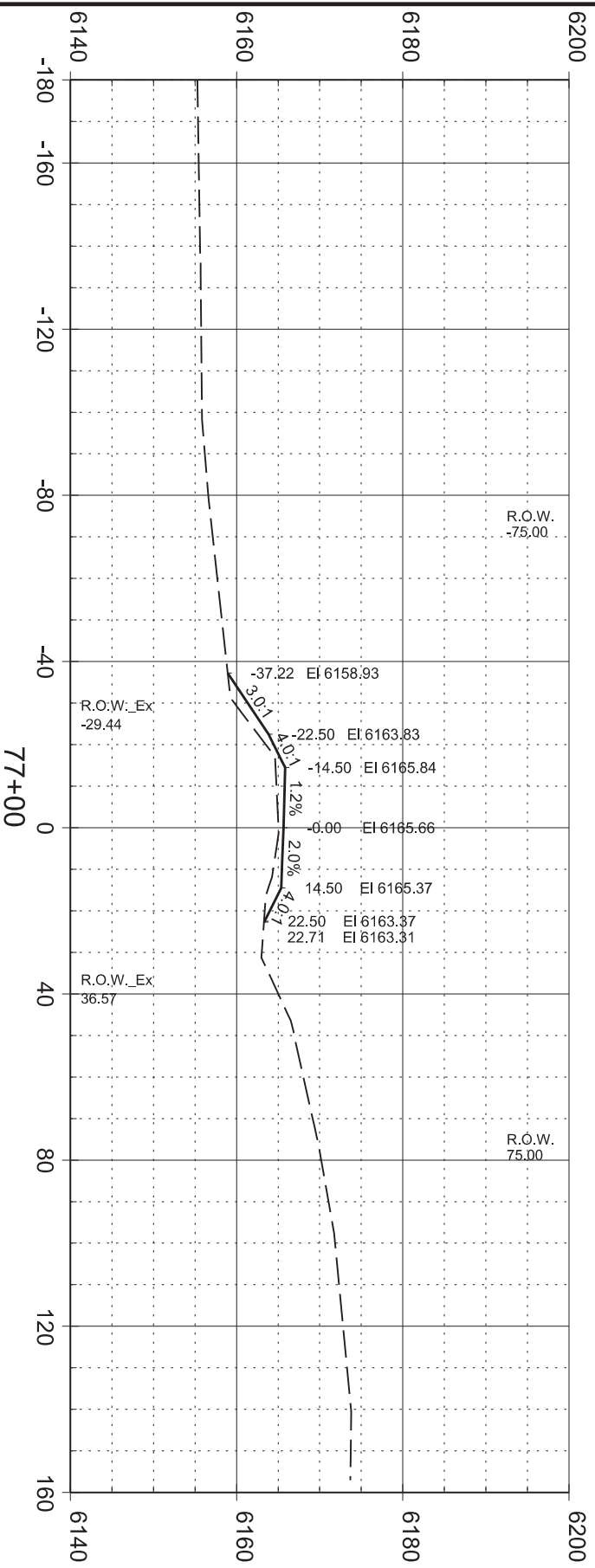
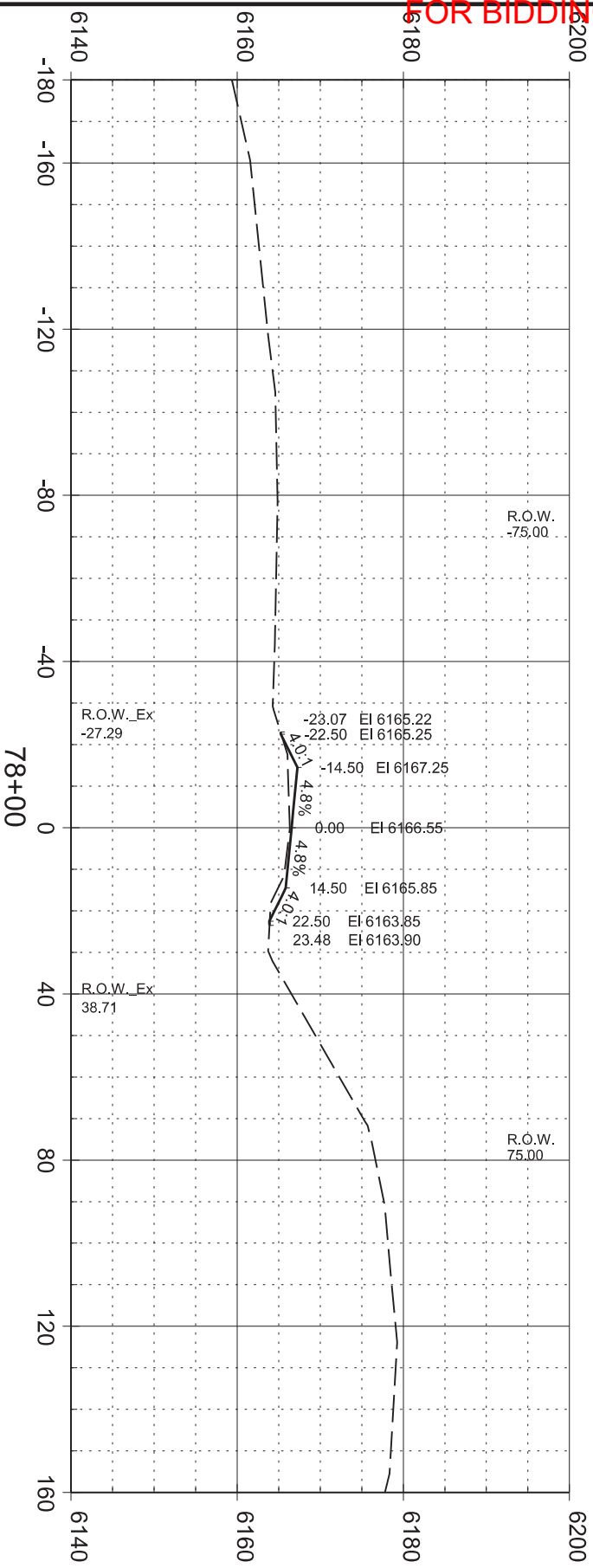
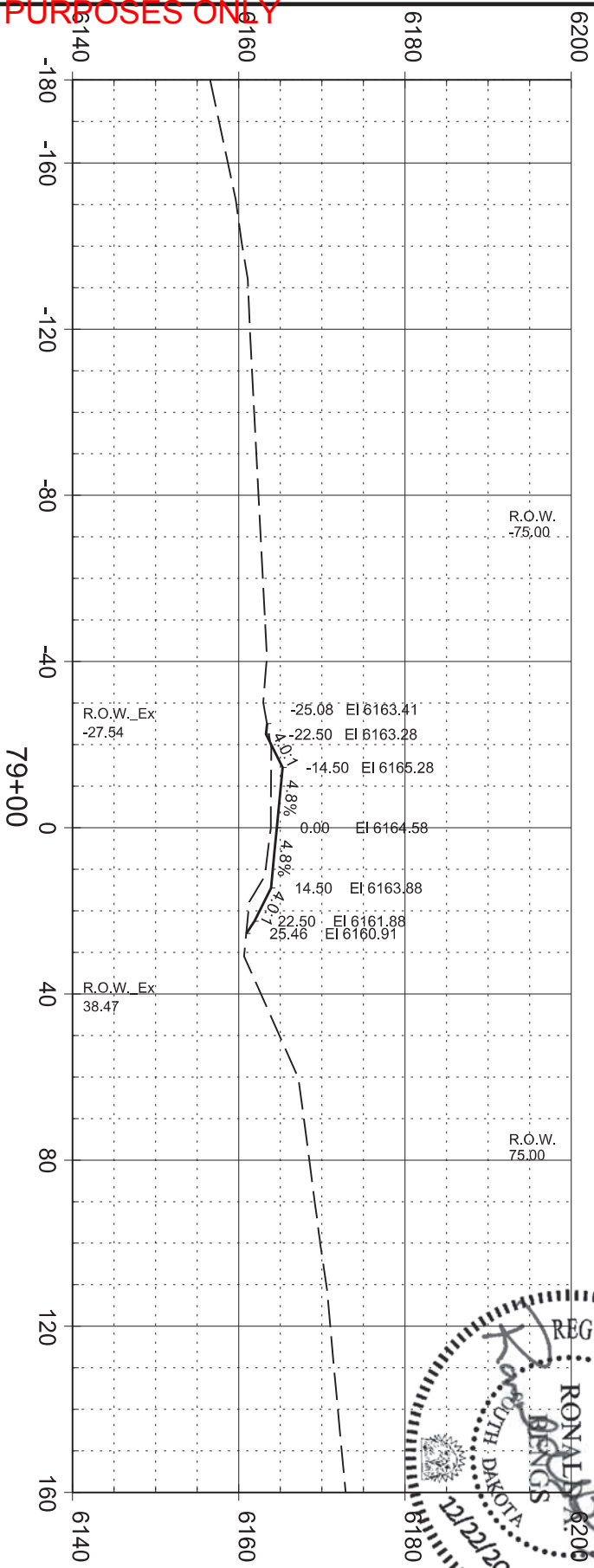




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STATE OF SOUTH DAKOTA		P 6403(10)	157	333
PROJECT				



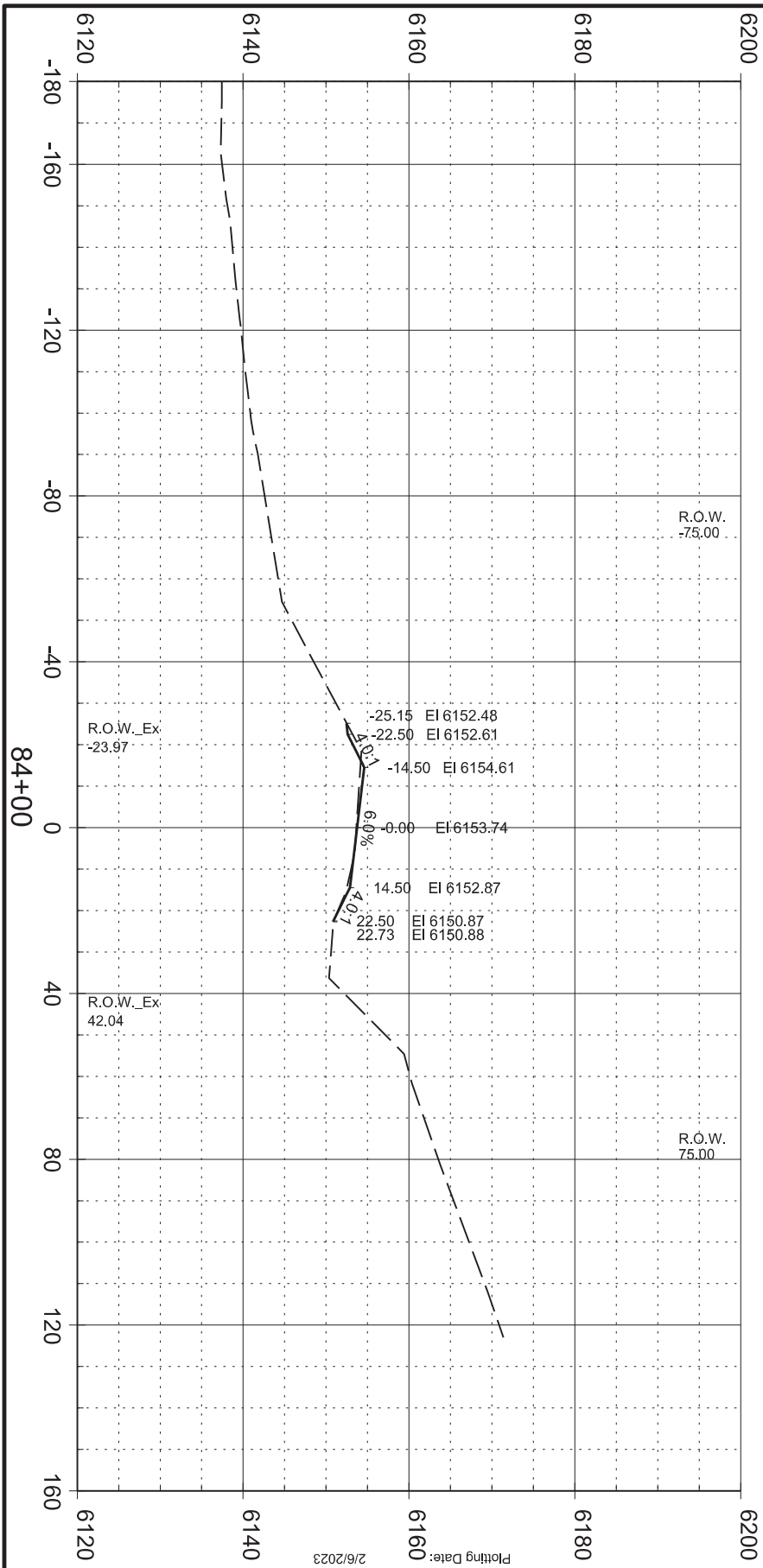
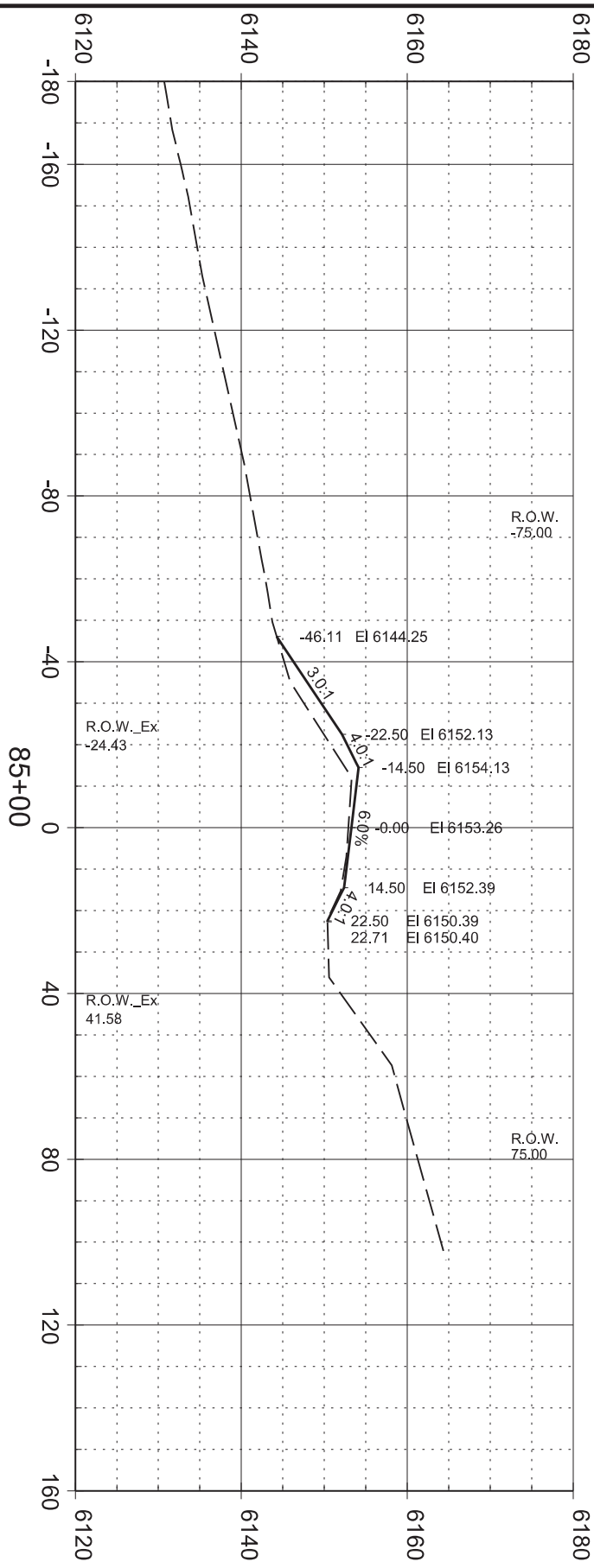
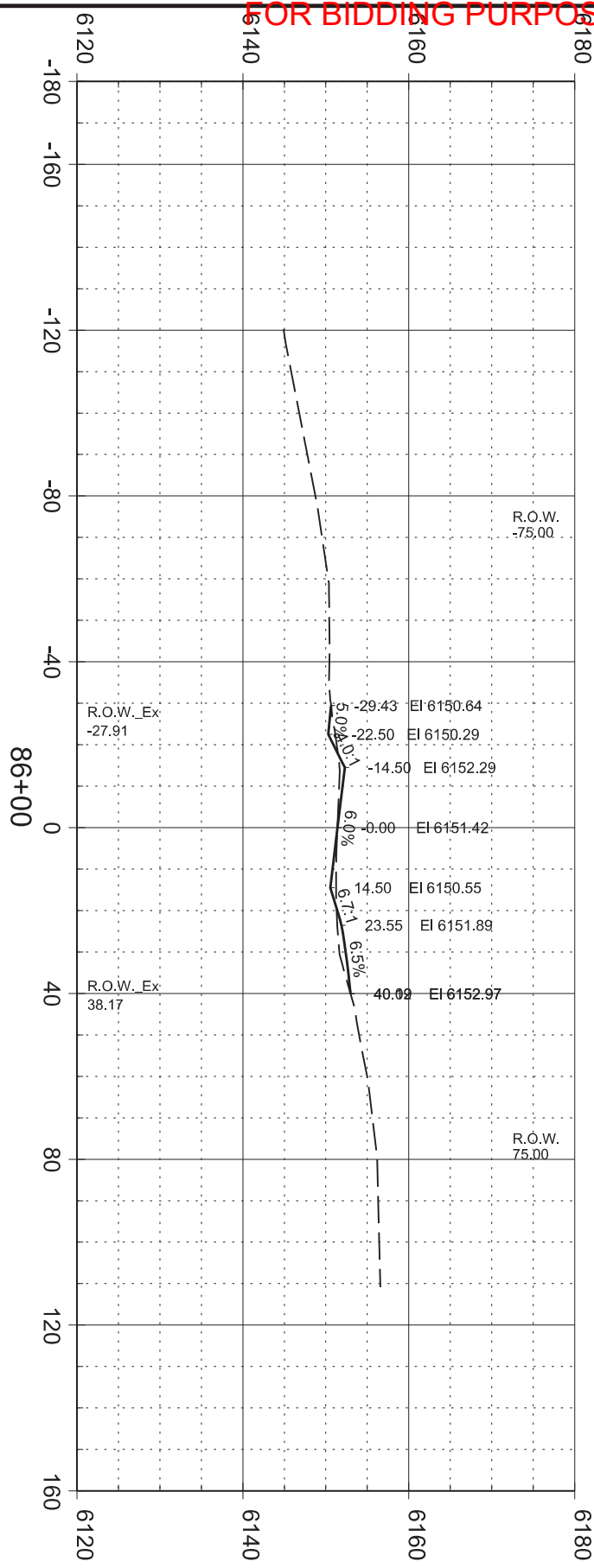
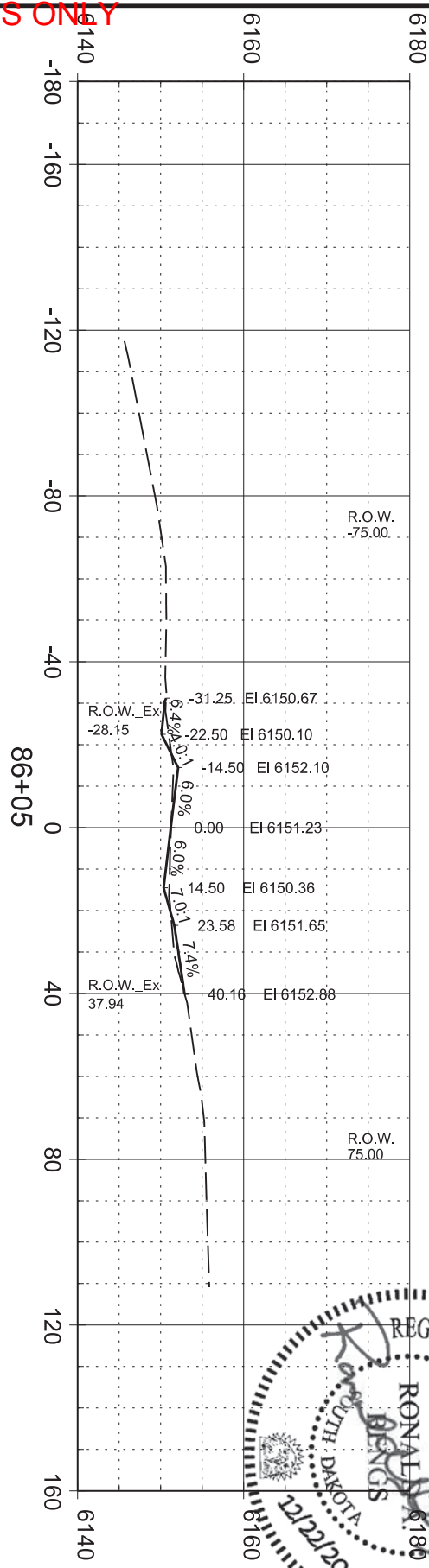
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA		PROJECT	SHEET	TOTAL SHEETS
P 6403(10)				
158		333		

Plotting Date: 2/6/2023



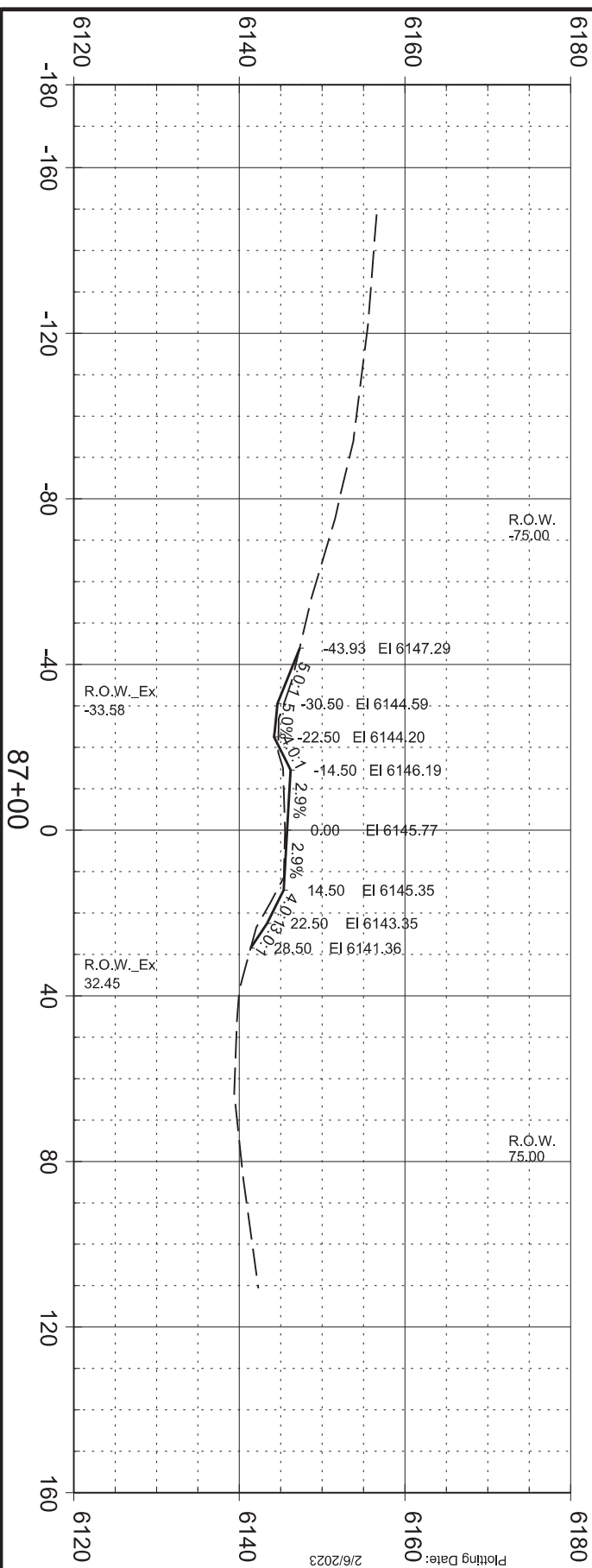
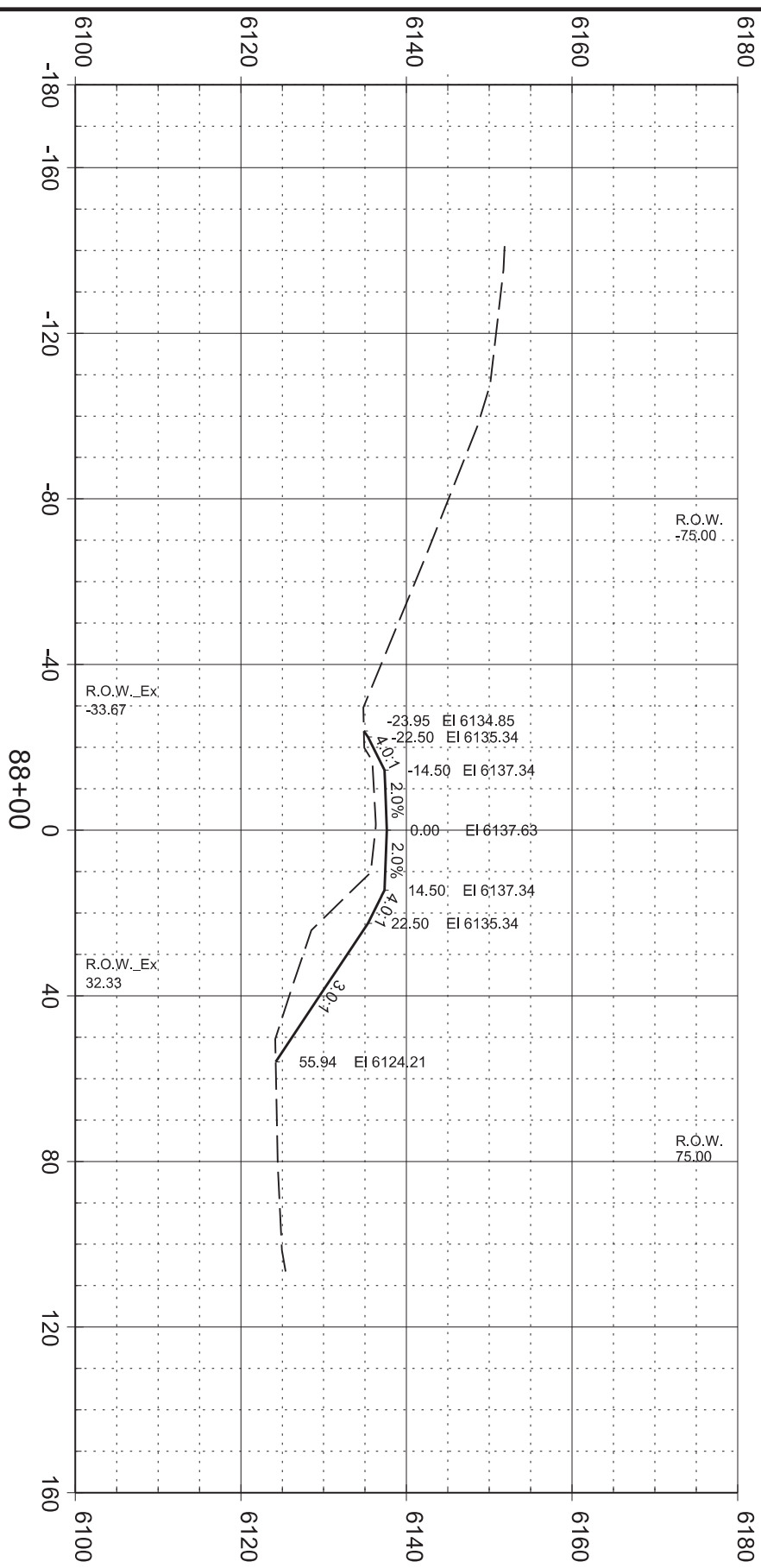
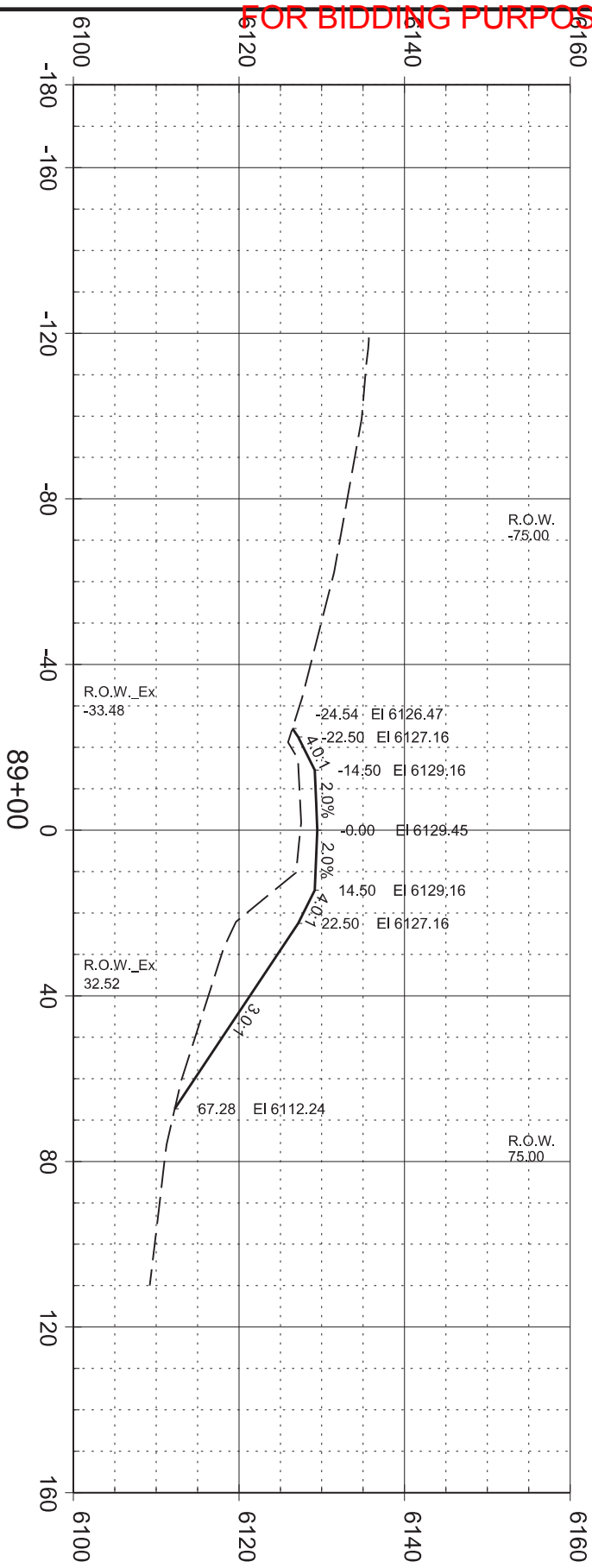






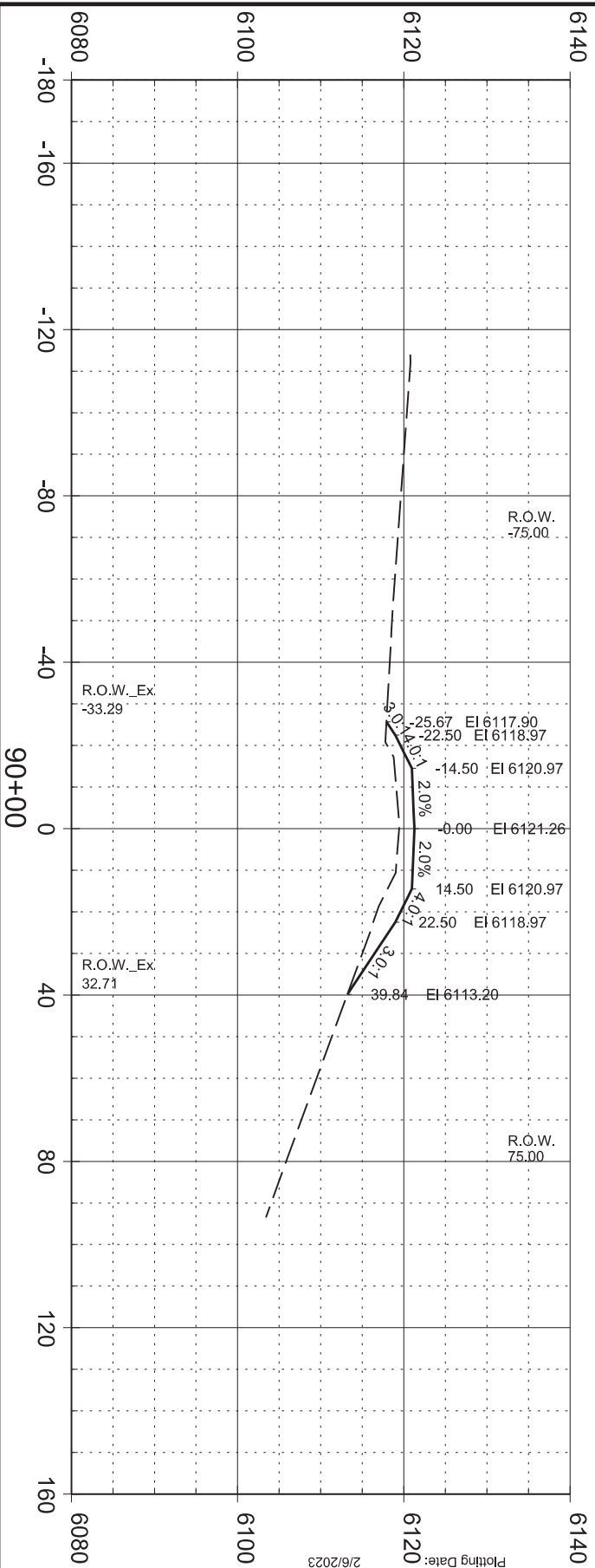
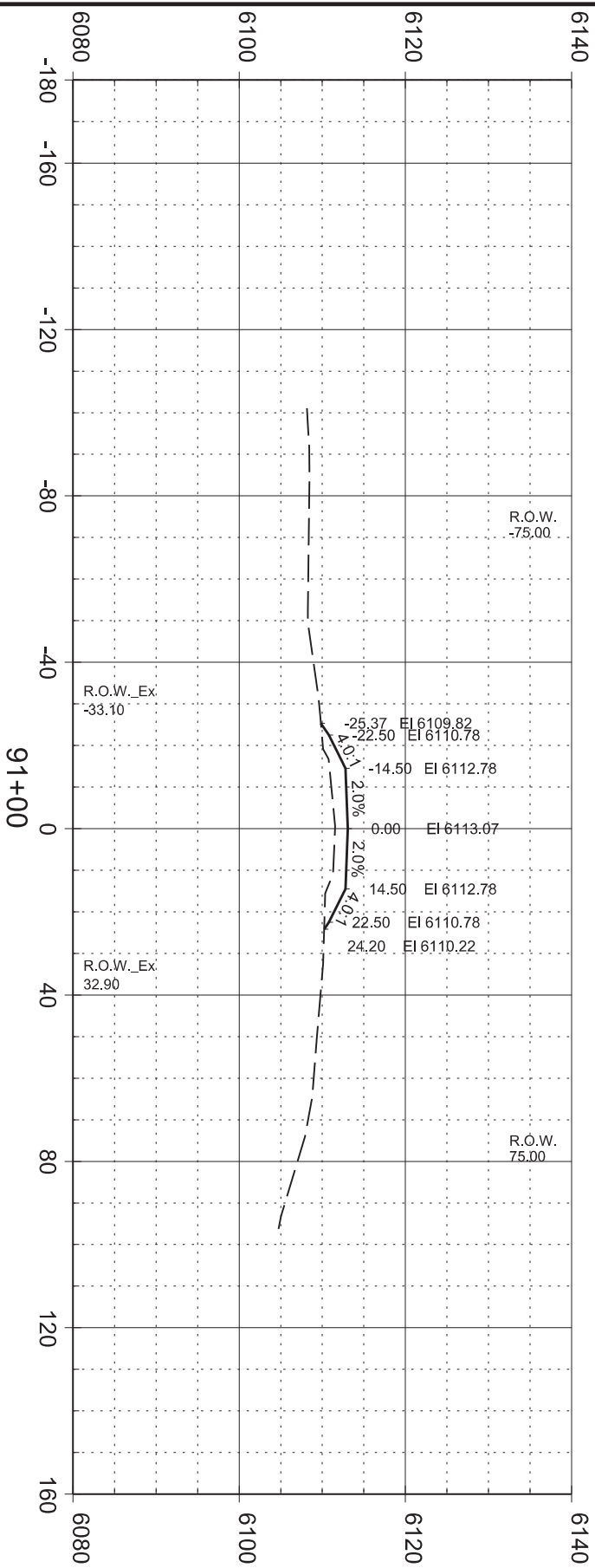
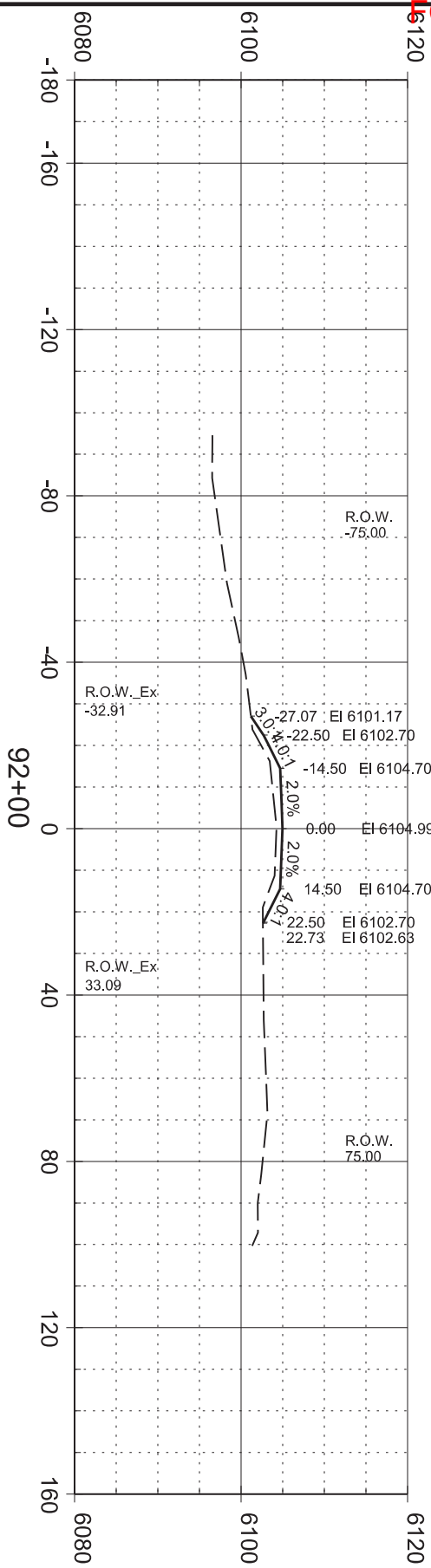
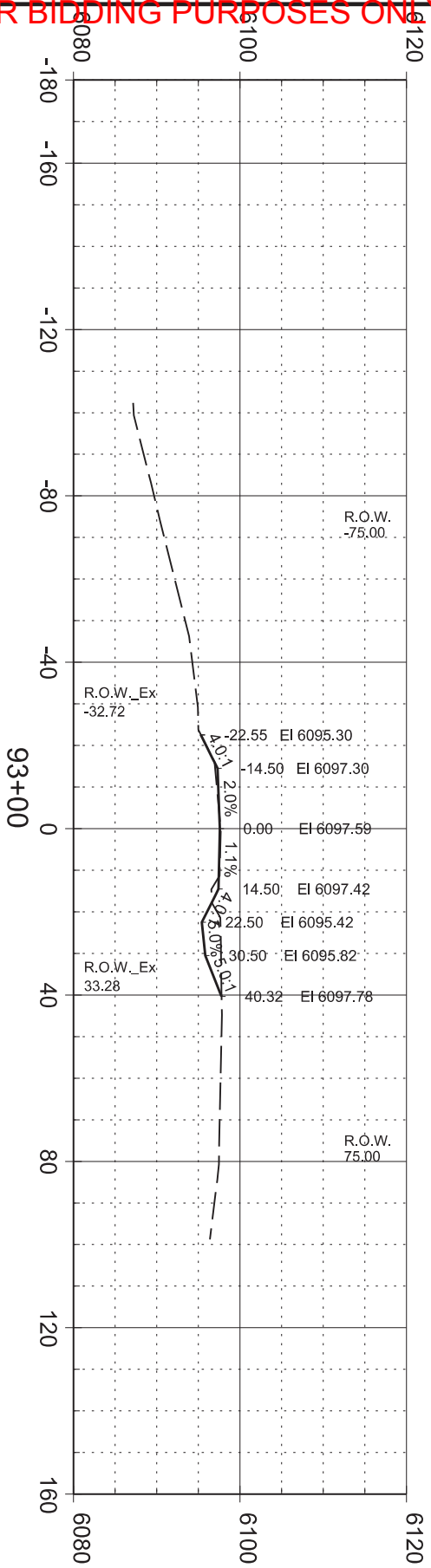


FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA		P 6403(10)	161	TOTAL SHEETS	333
PROJECT					

Plotting Date: 2/6/2023



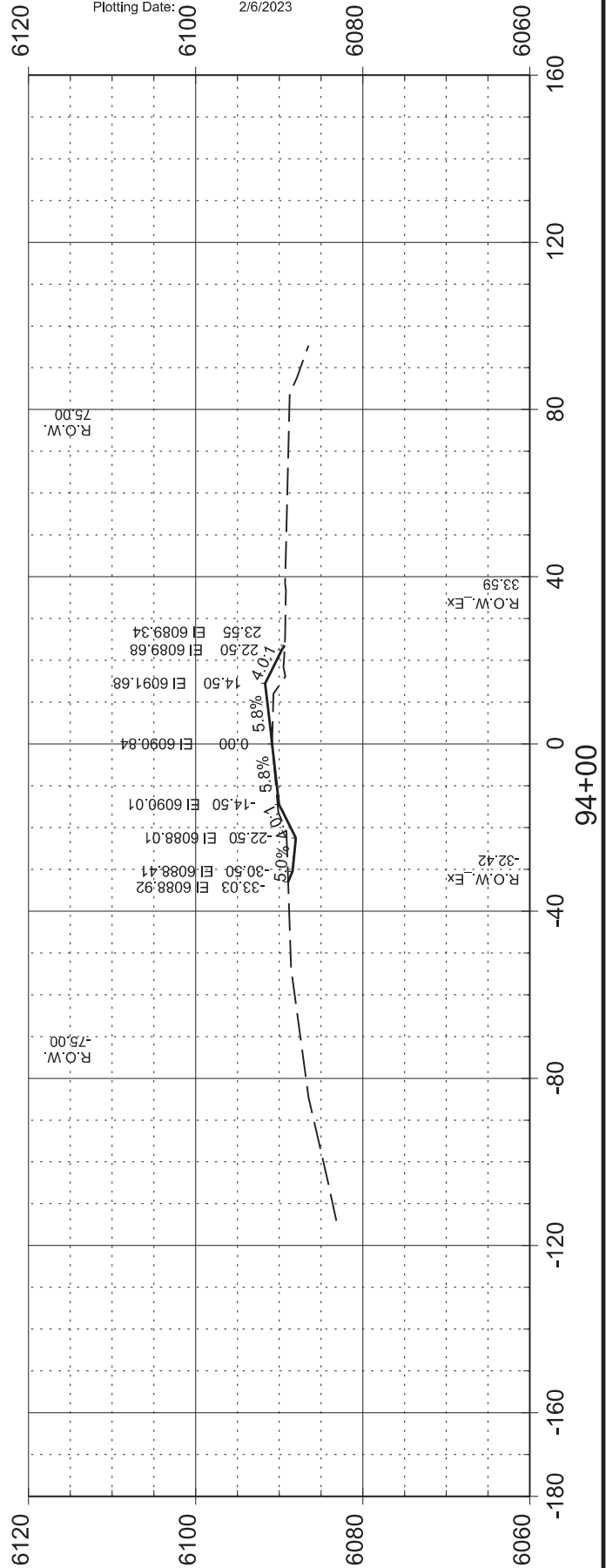
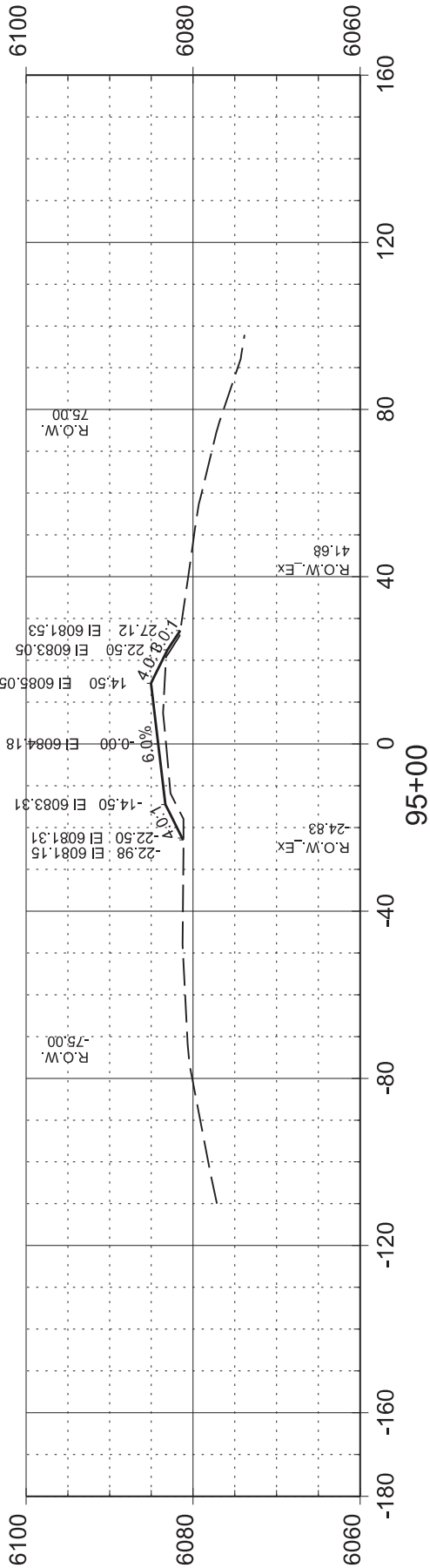
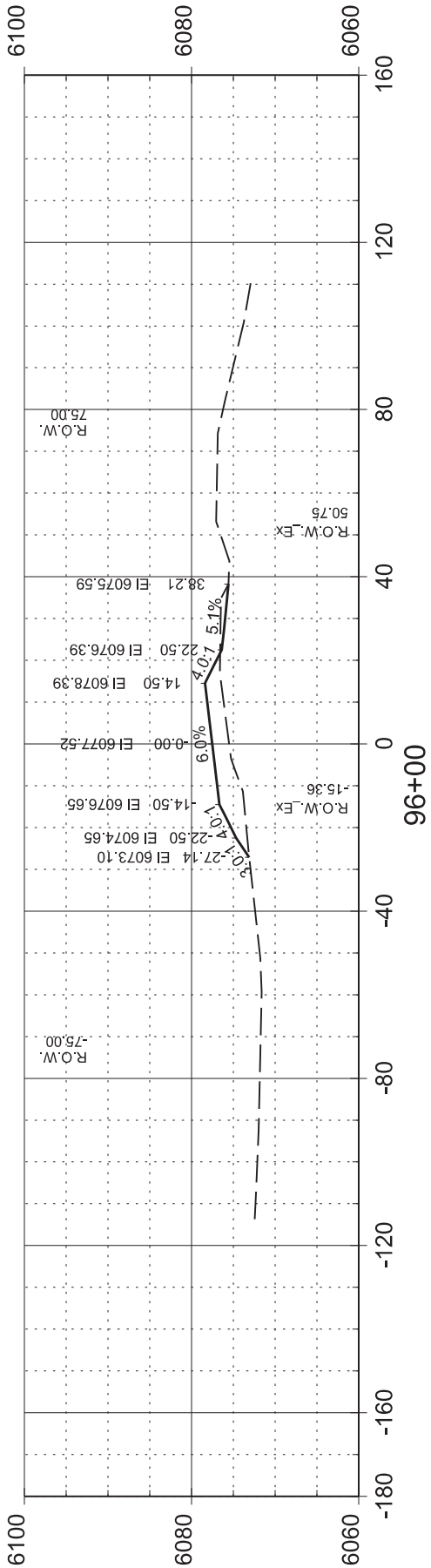
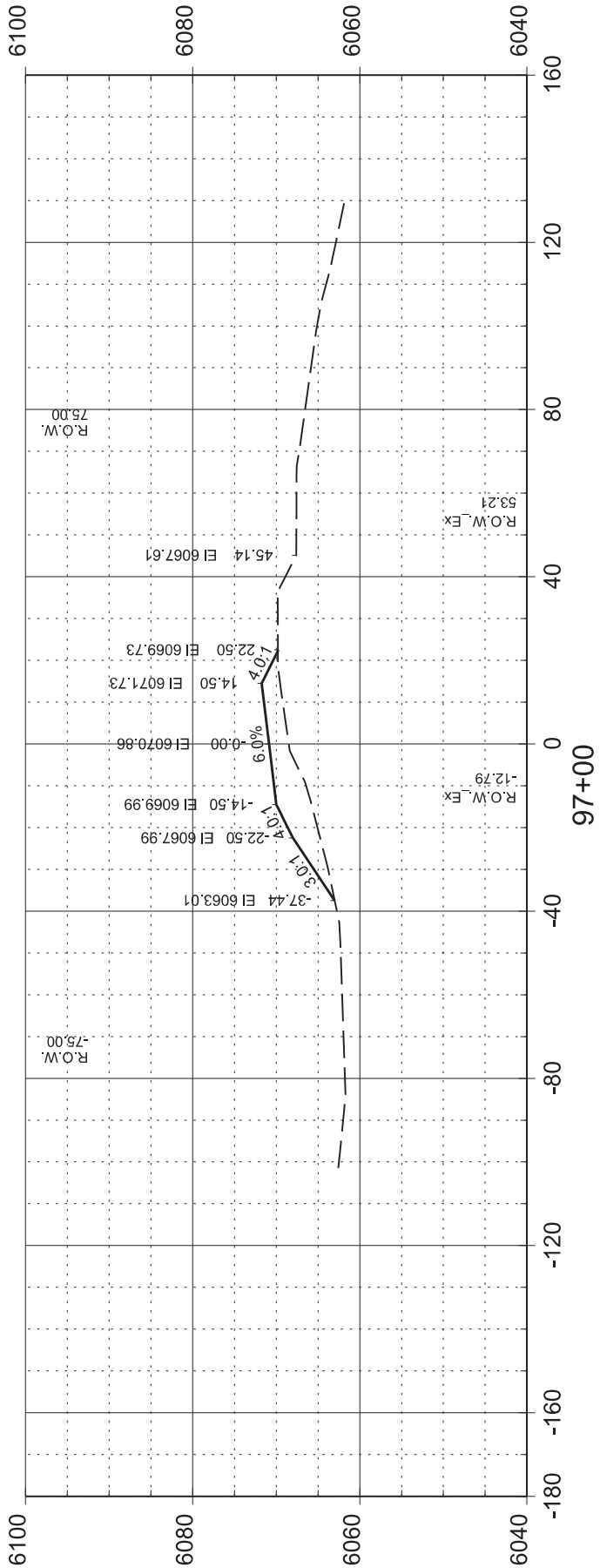
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		162		333			
2/6/2023		Plotting Date:		90+00			





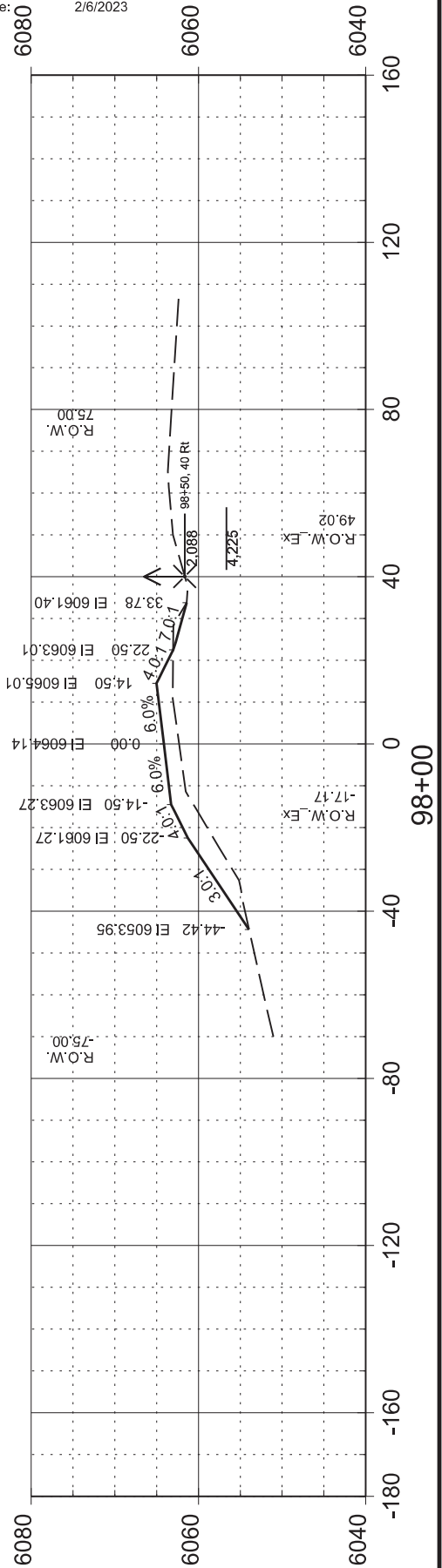
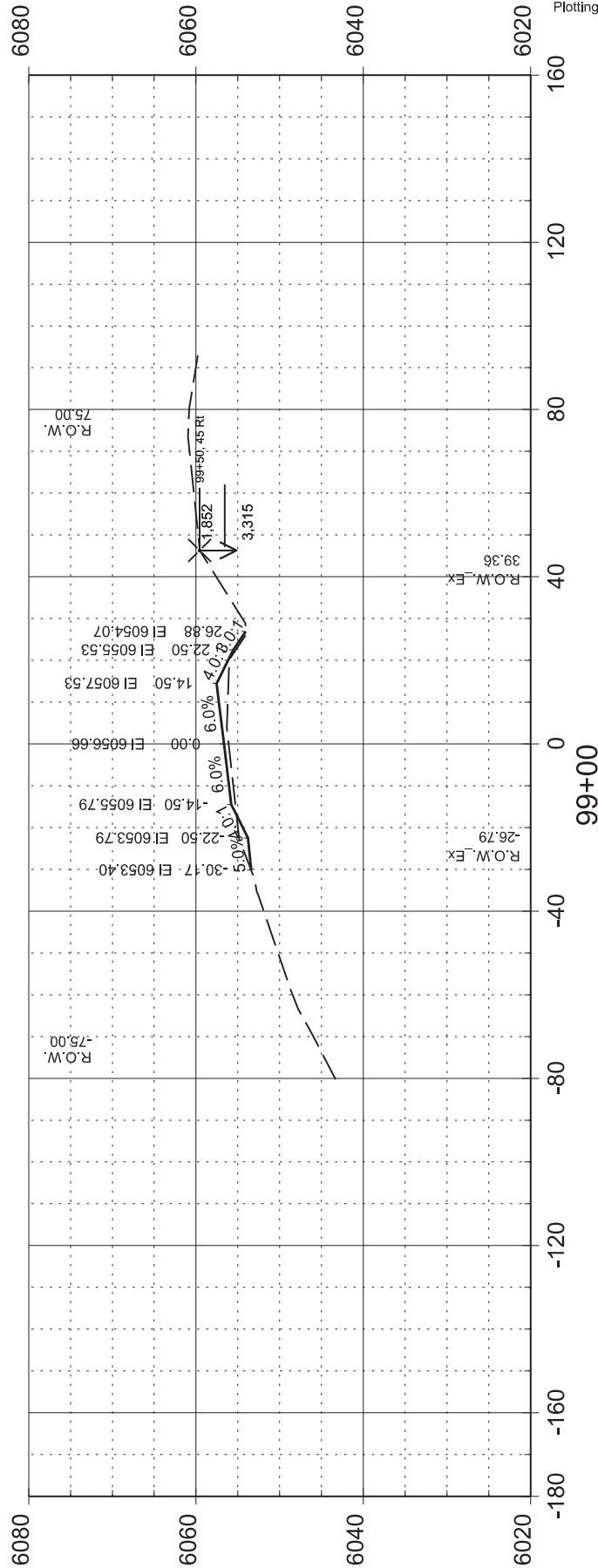
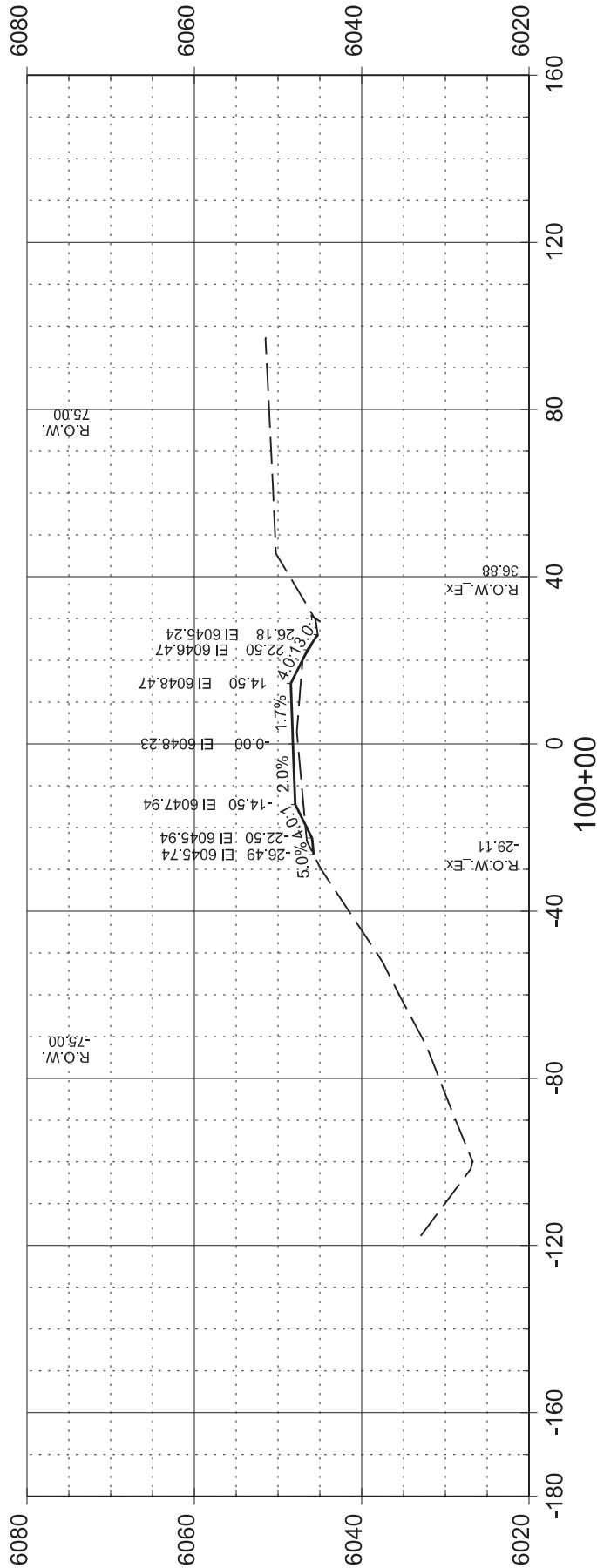
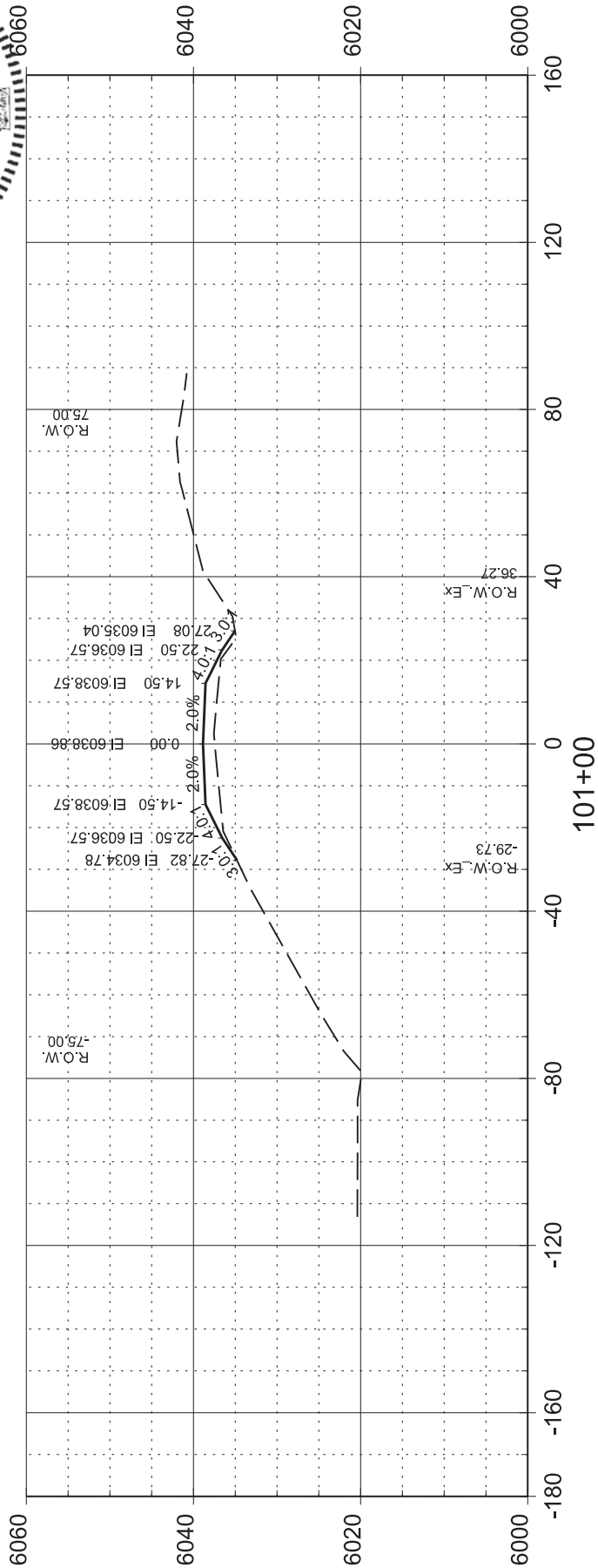
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	163	333

Plotting Date: 2/6/2023



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	164	333

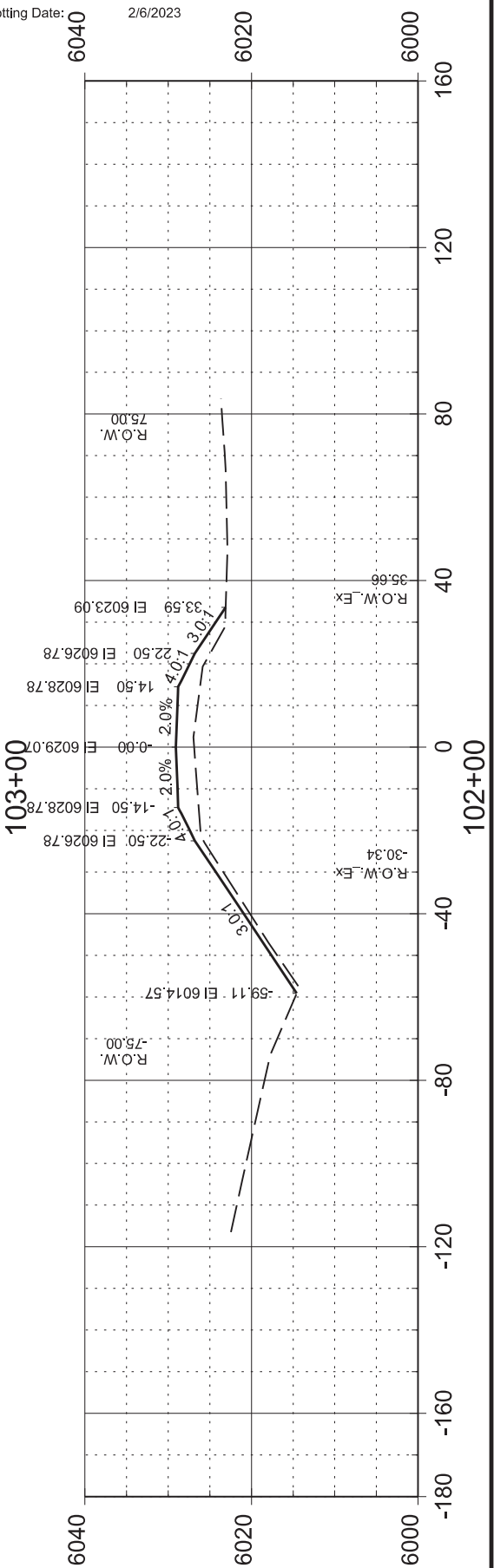
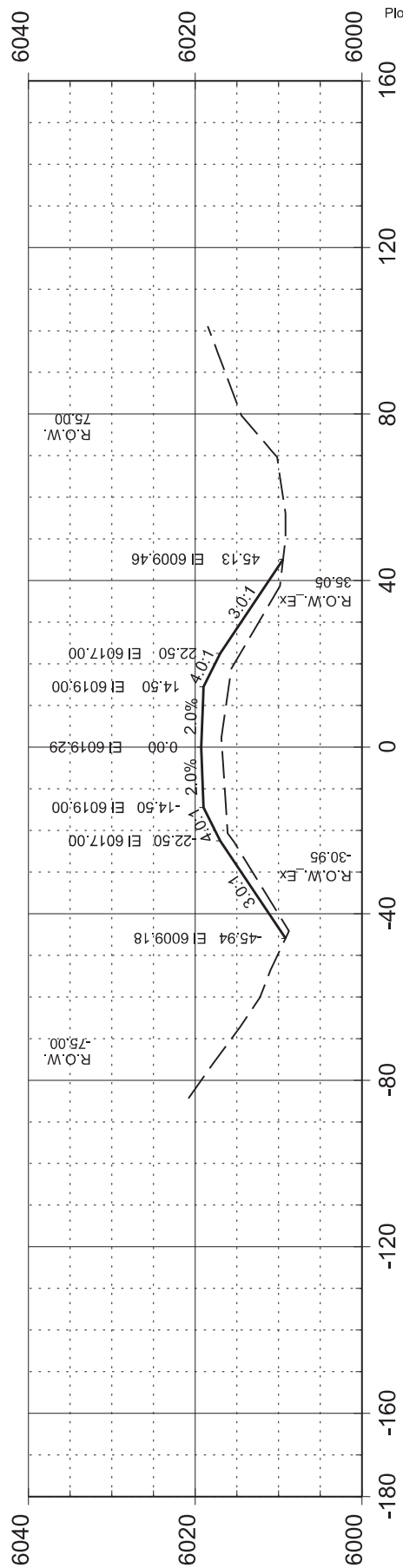
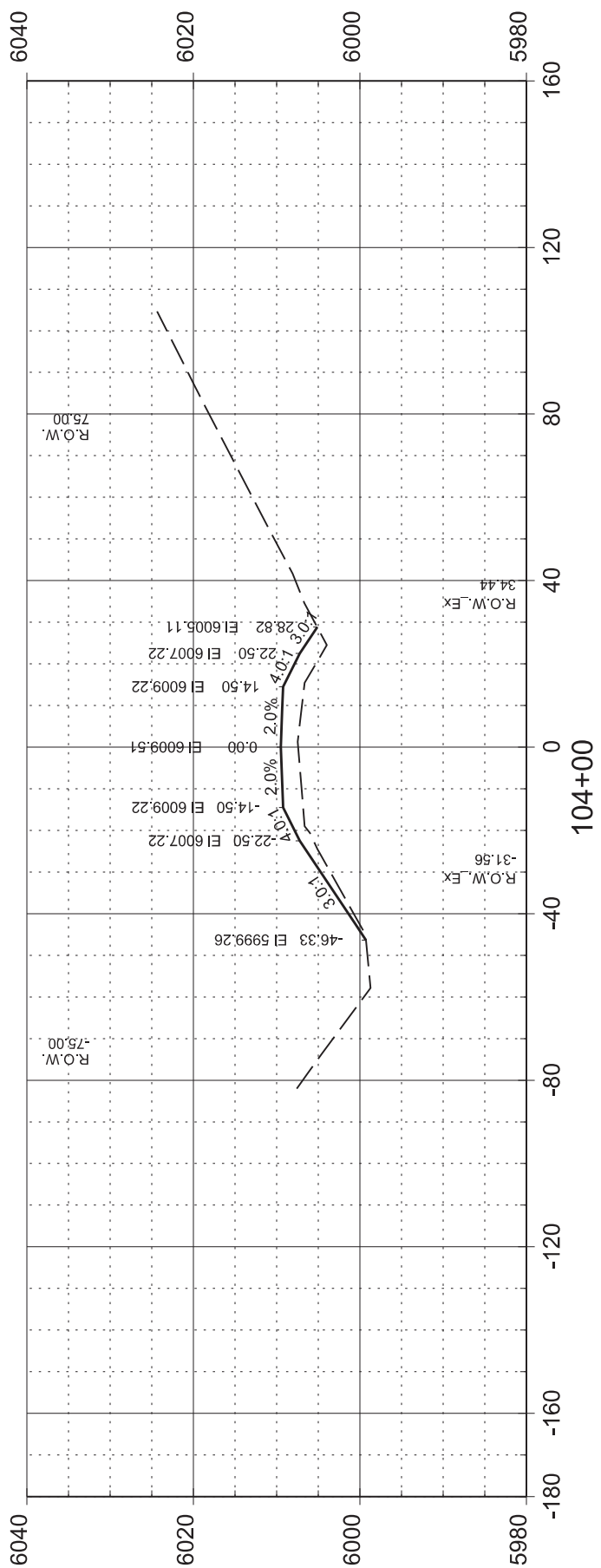
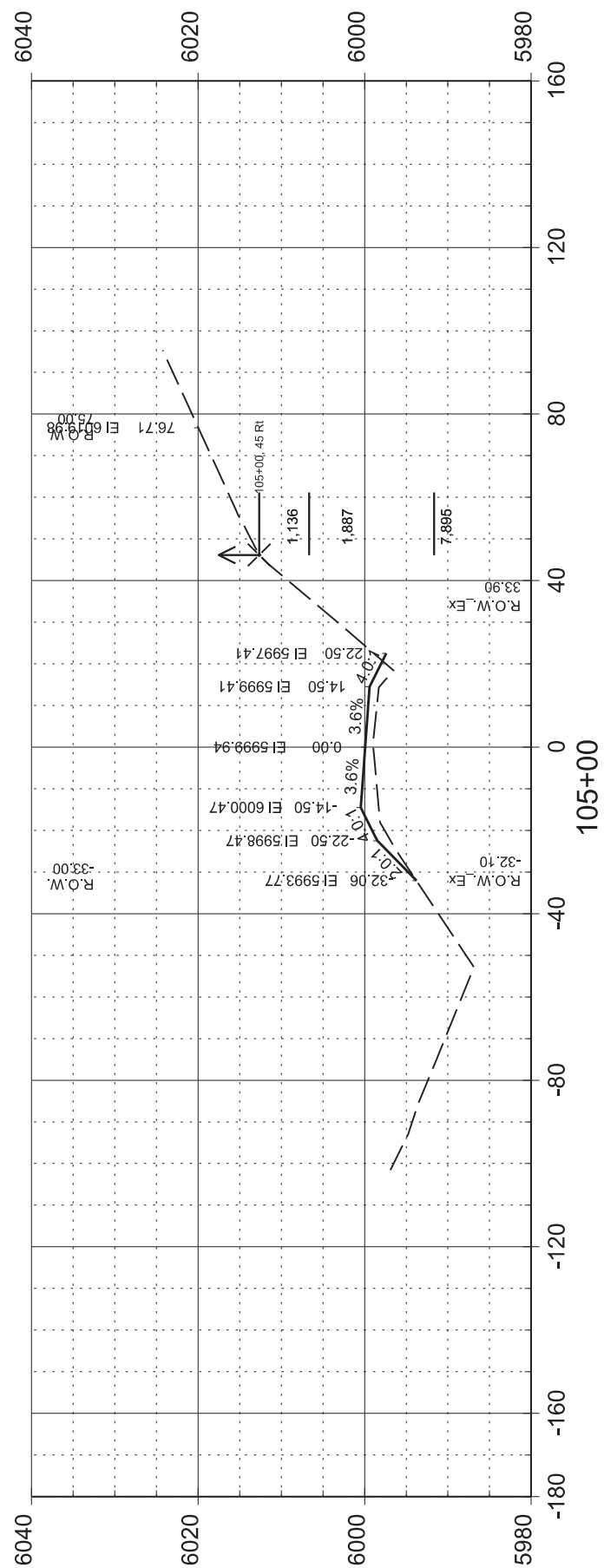
Plotting Date: 2/6/2023



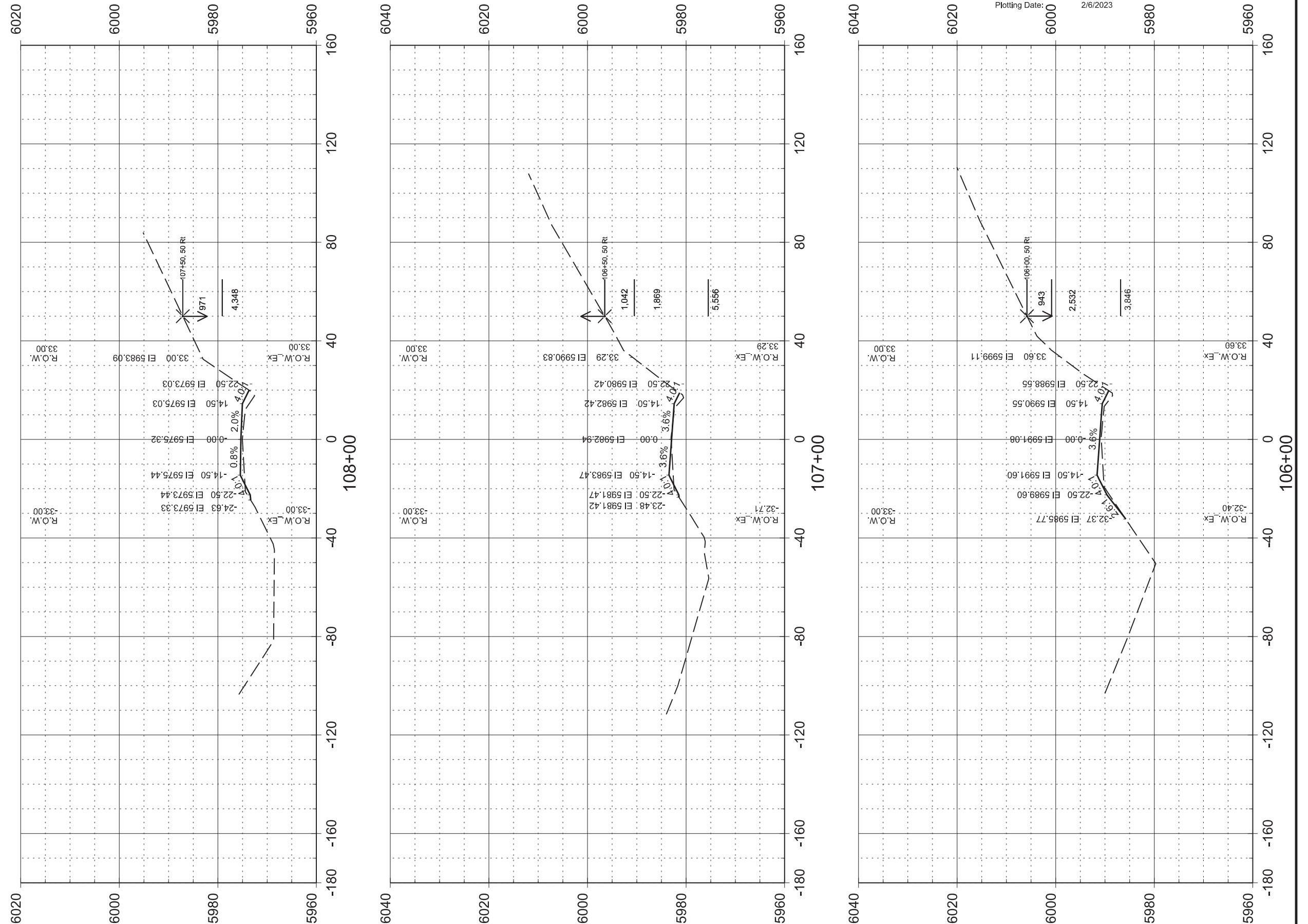




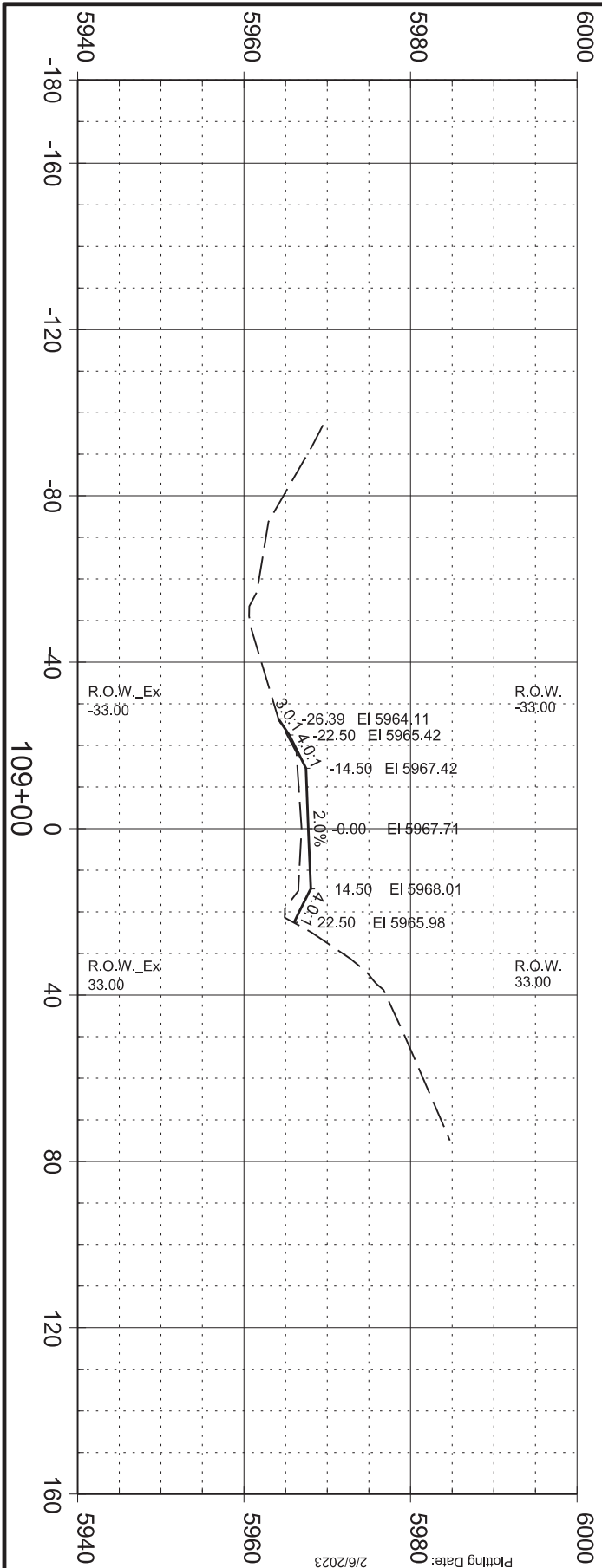
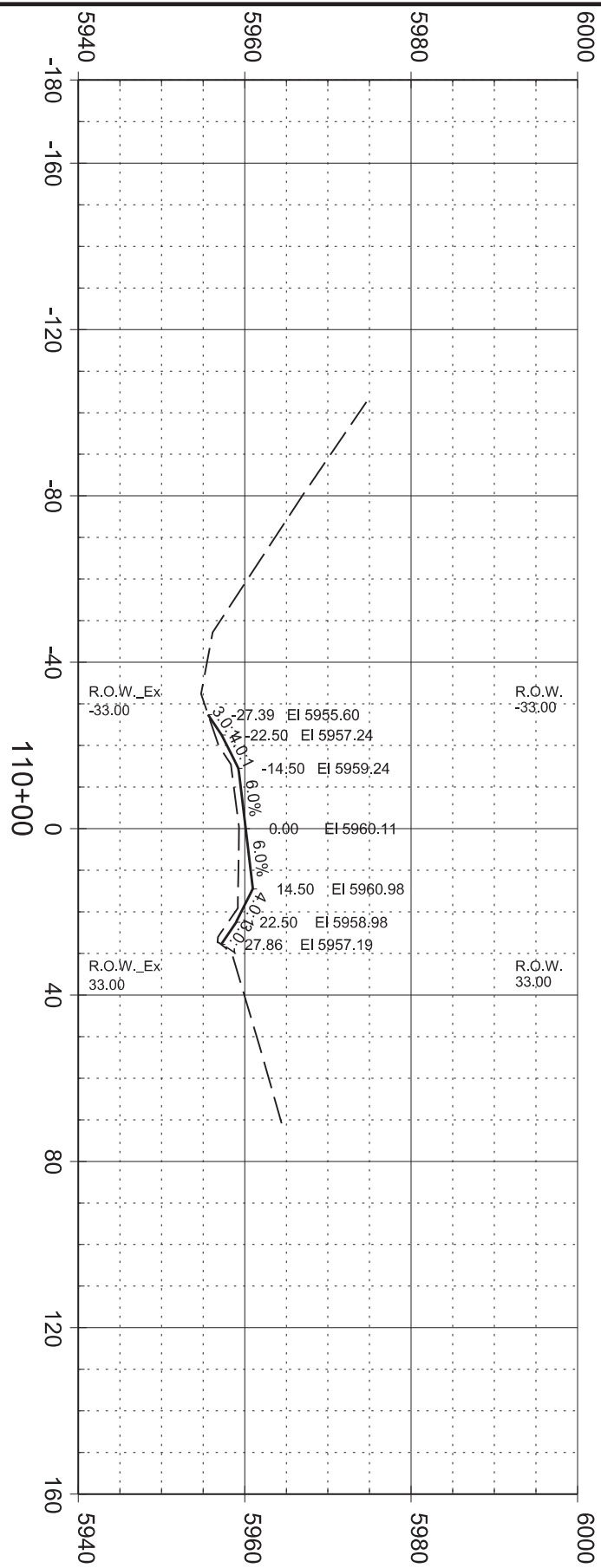
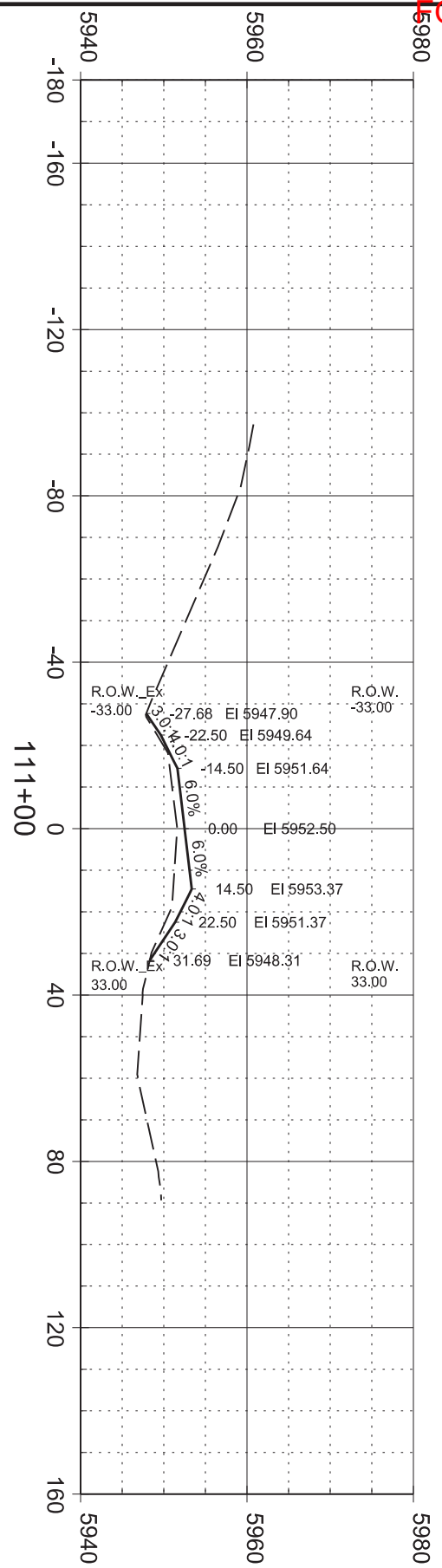
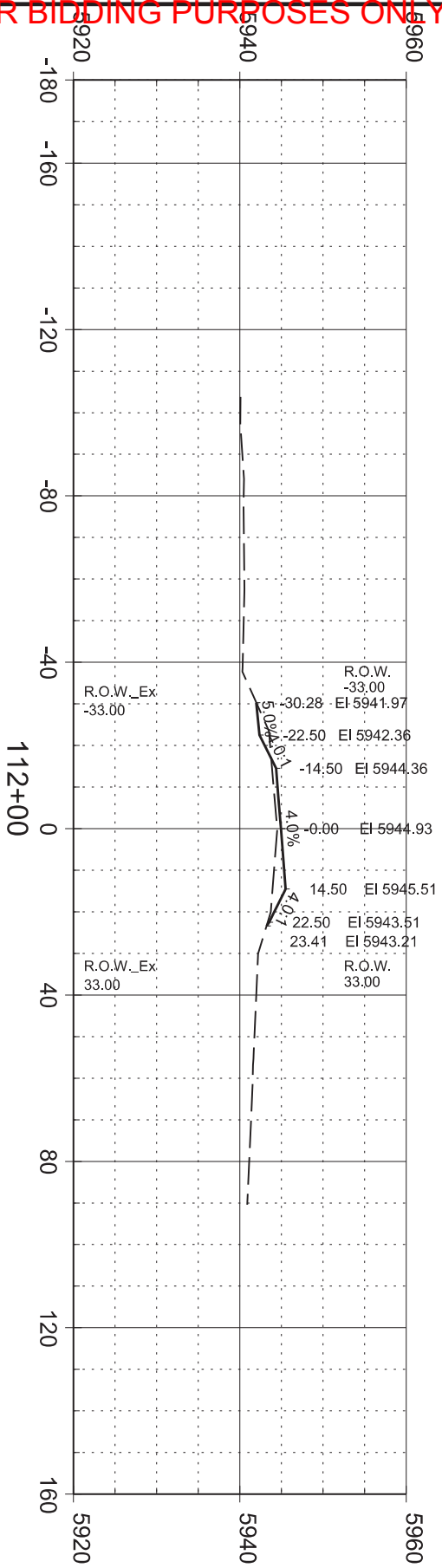
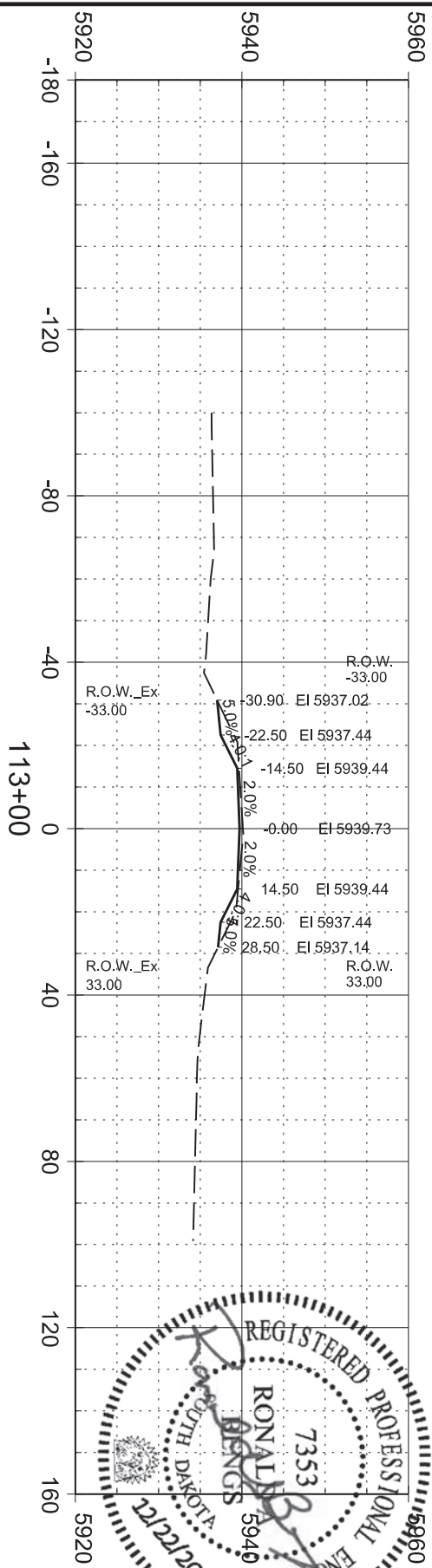
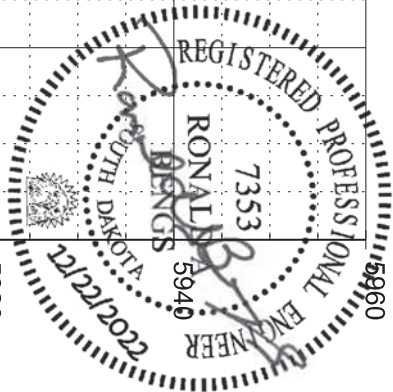
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	165	333



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	166	333



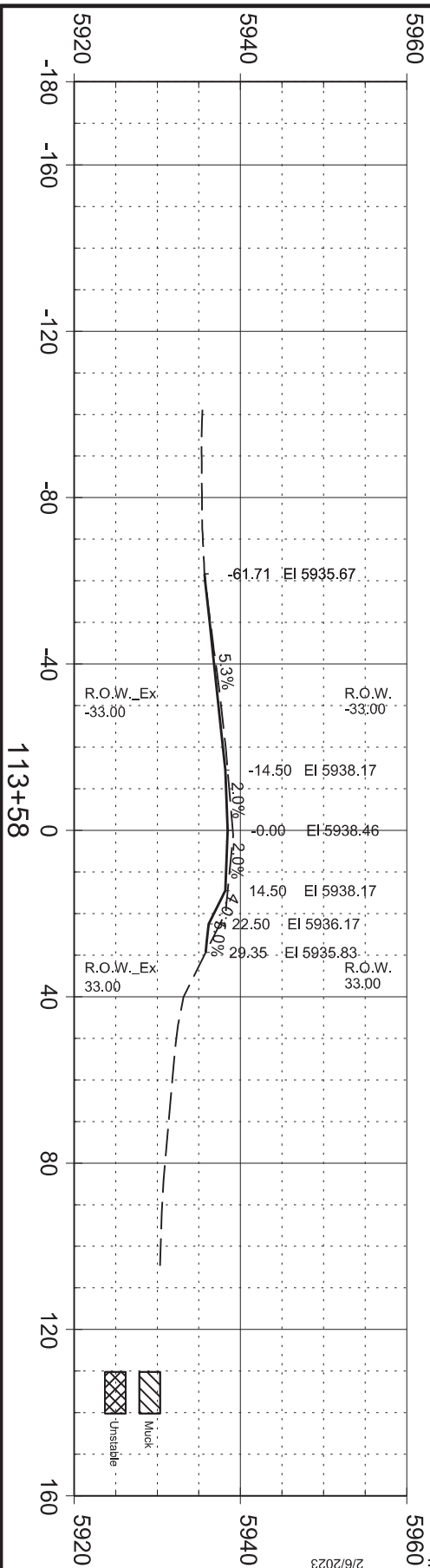
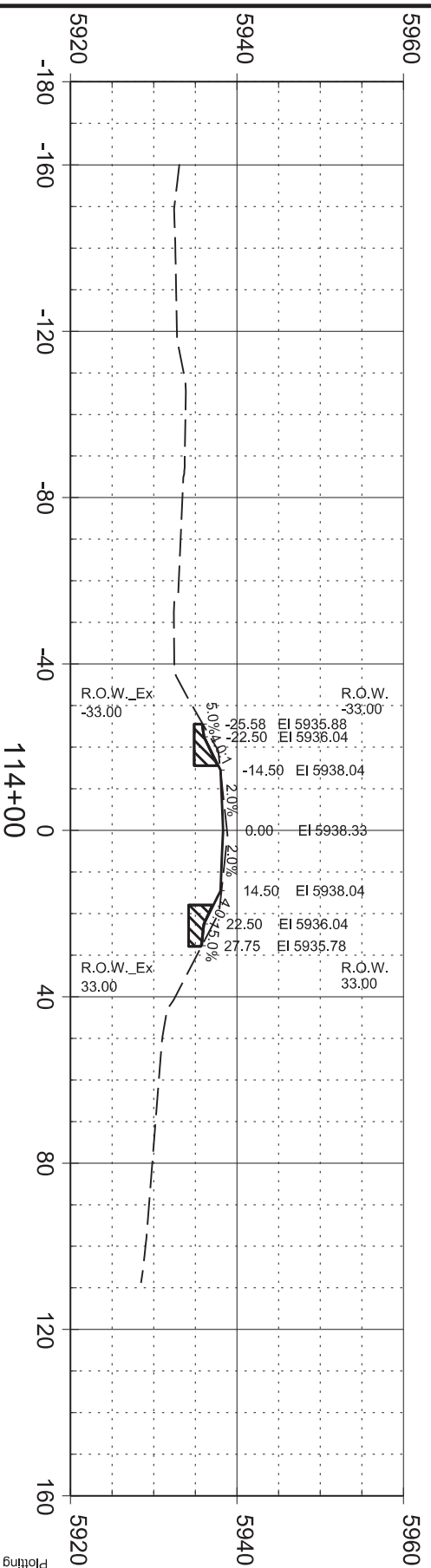
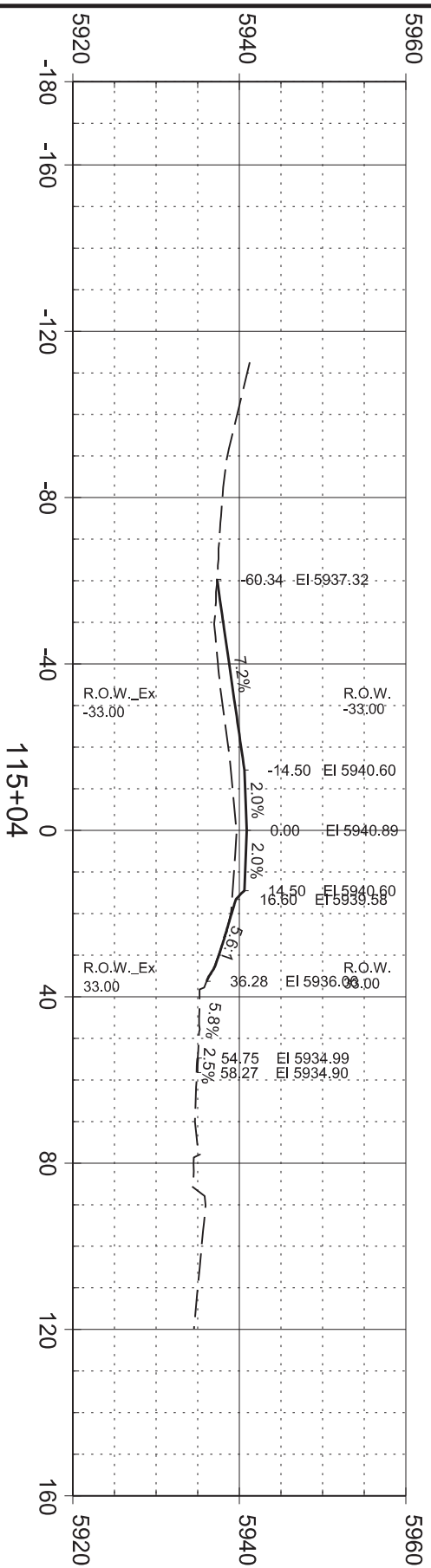
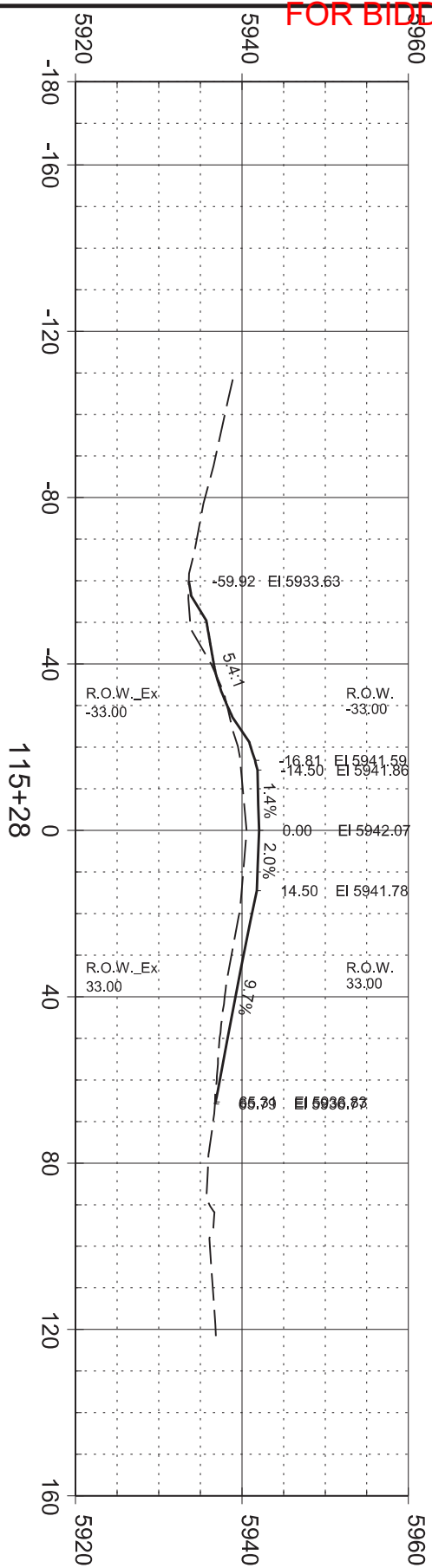
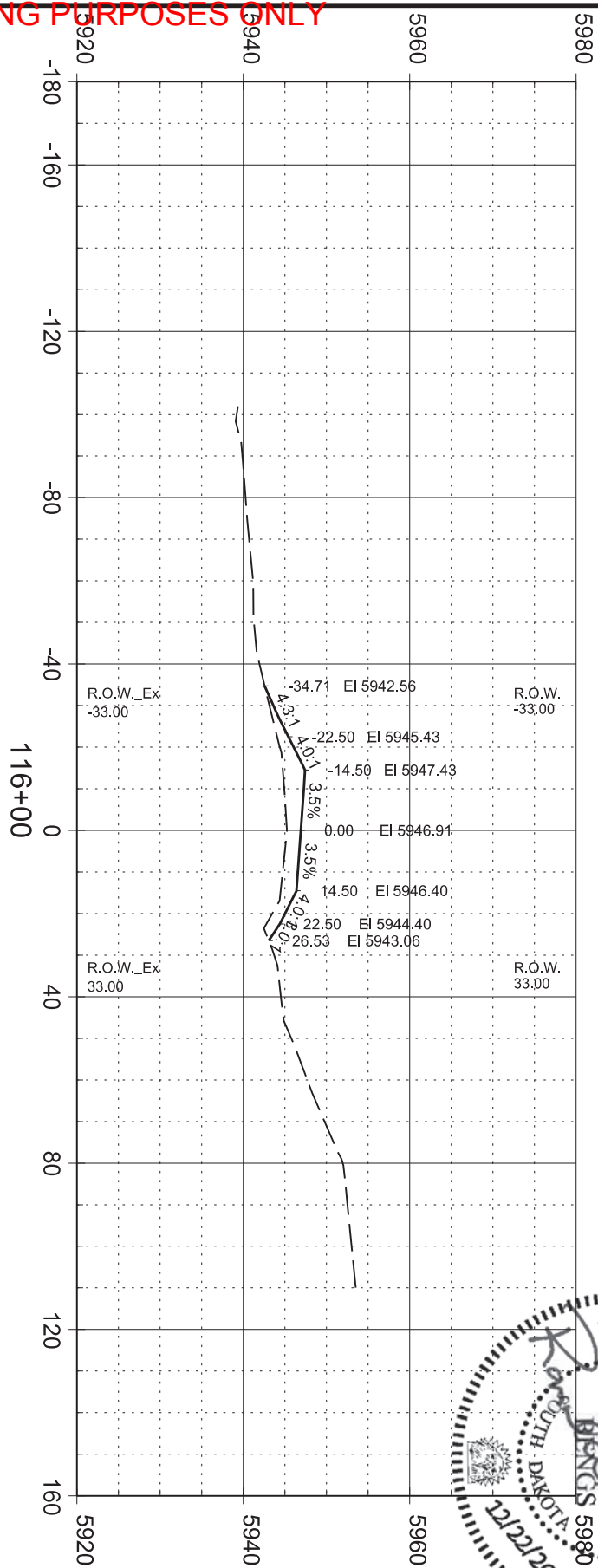




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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		167		333		333	

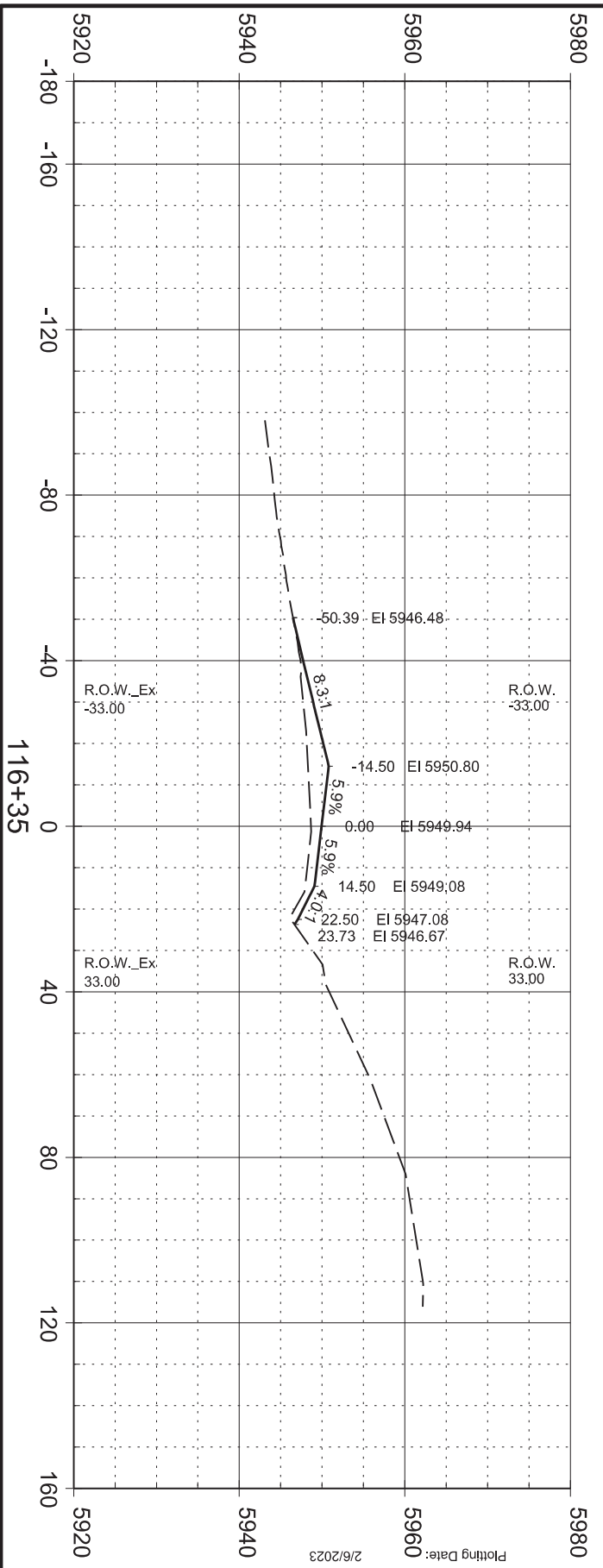
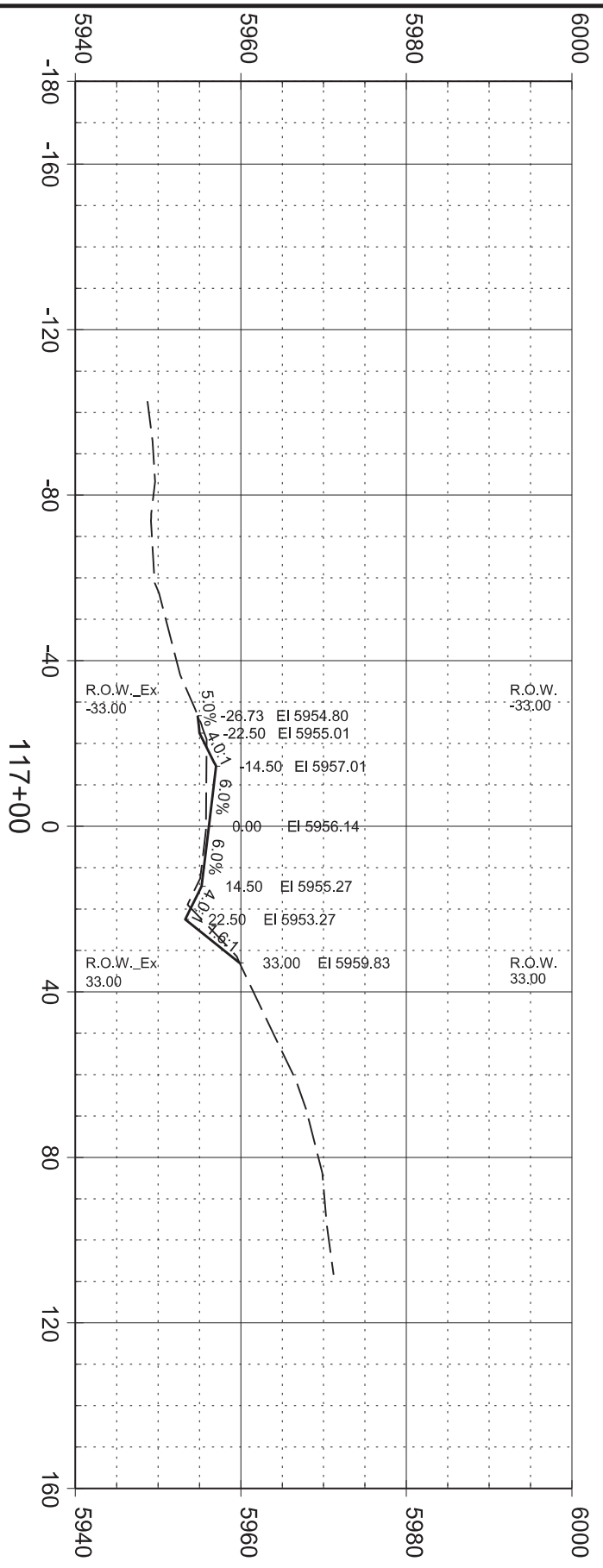
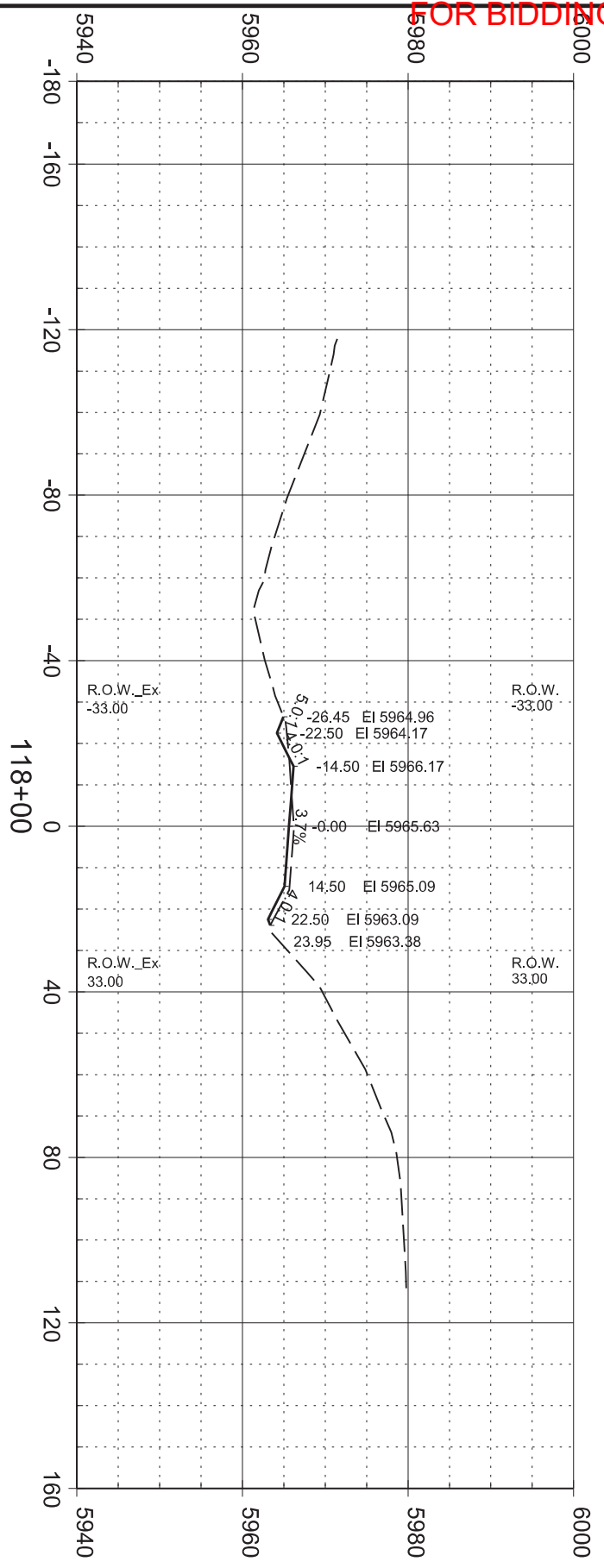
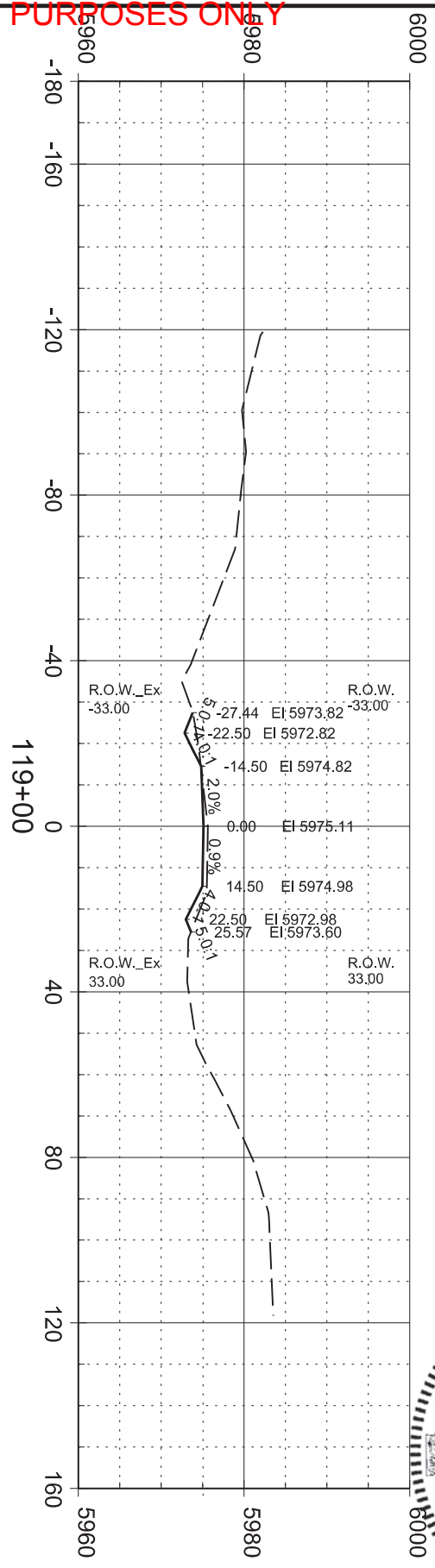
Plotting Date: 2/6/2023

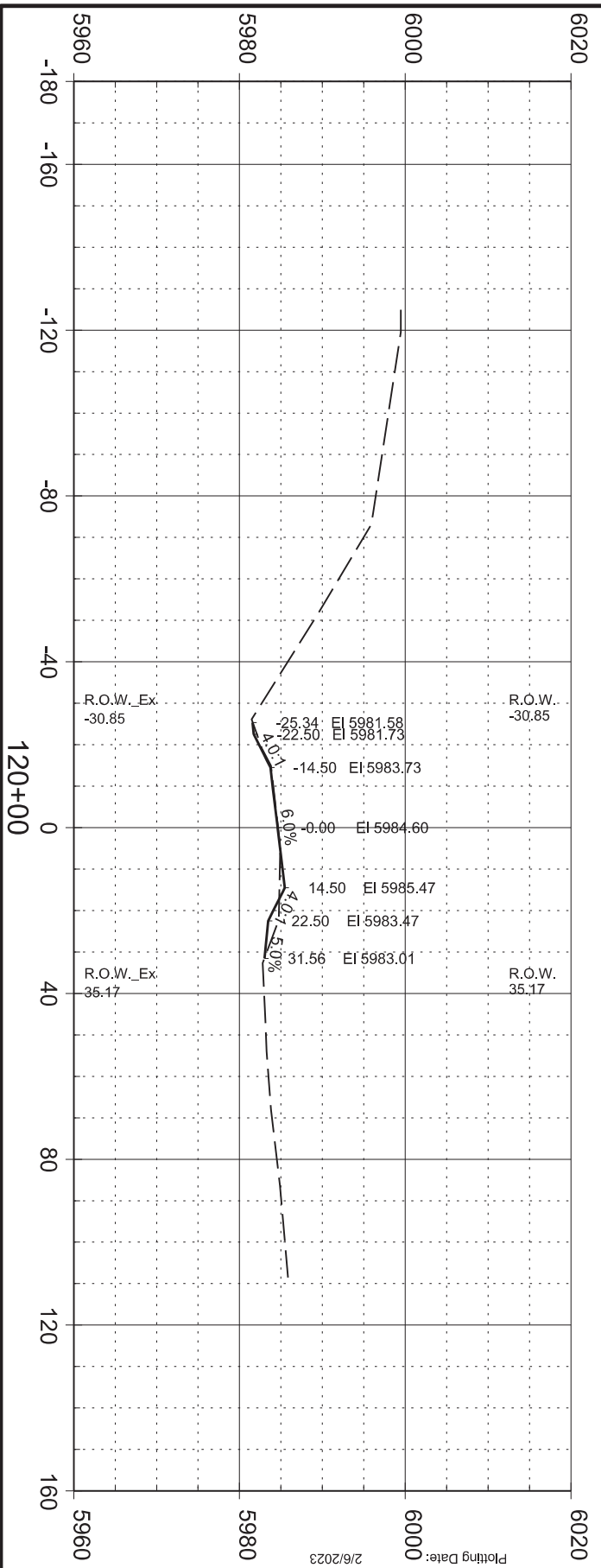
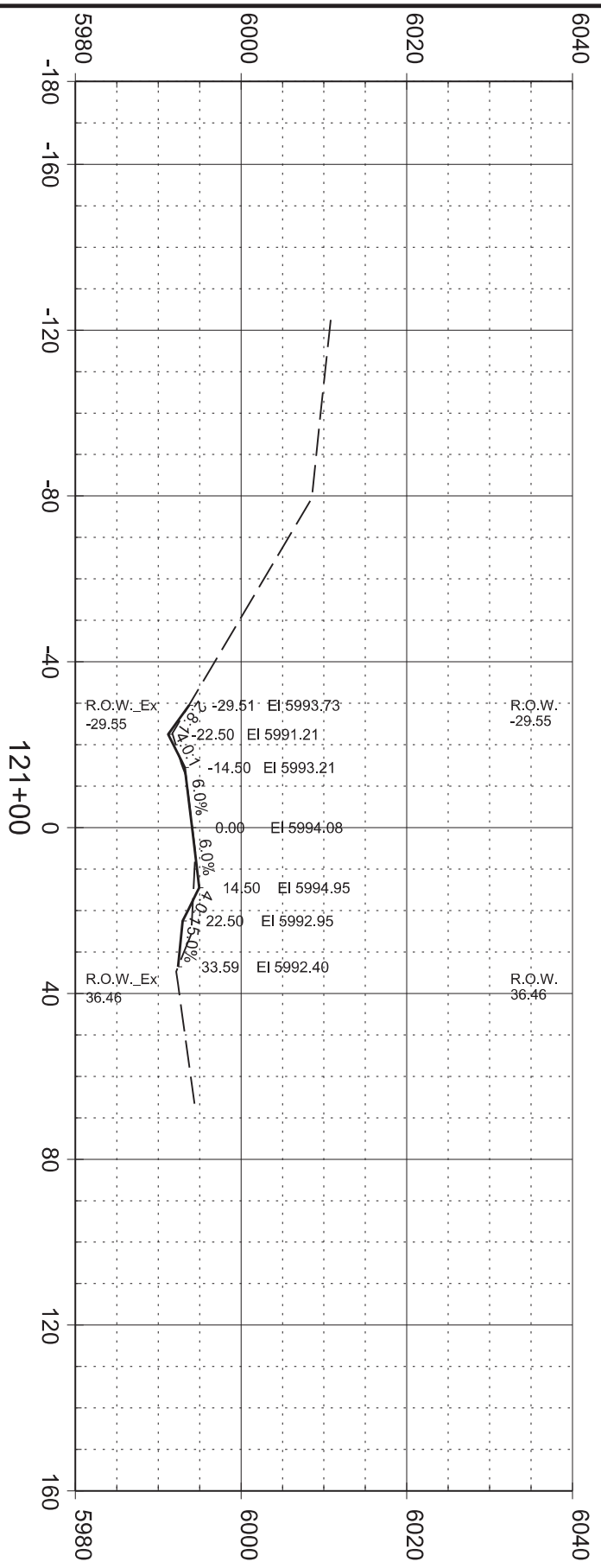
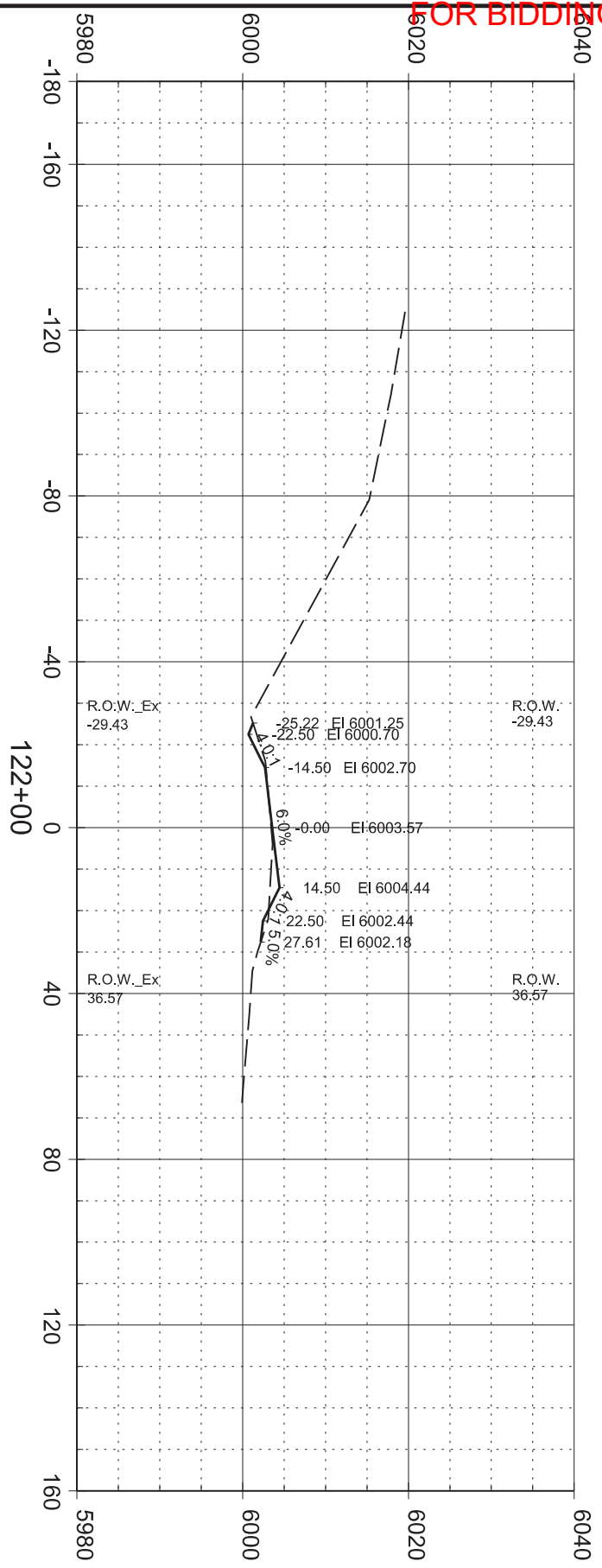
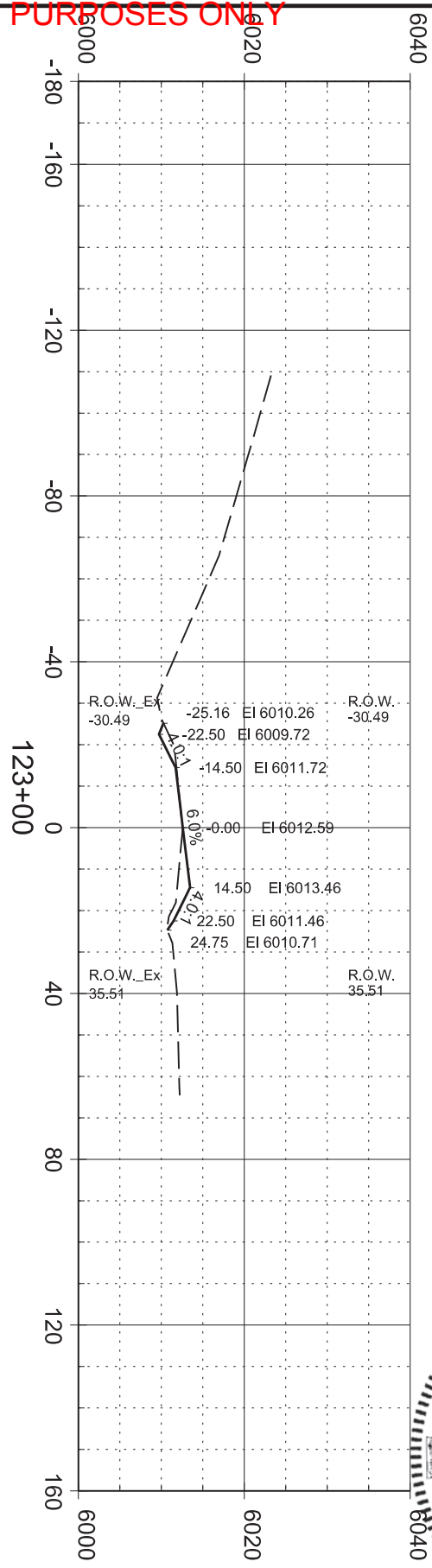


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STATE OF SOUTH DAKOTA	P 6403(10)	168	333
		SHEET	TOTAL SHEETS

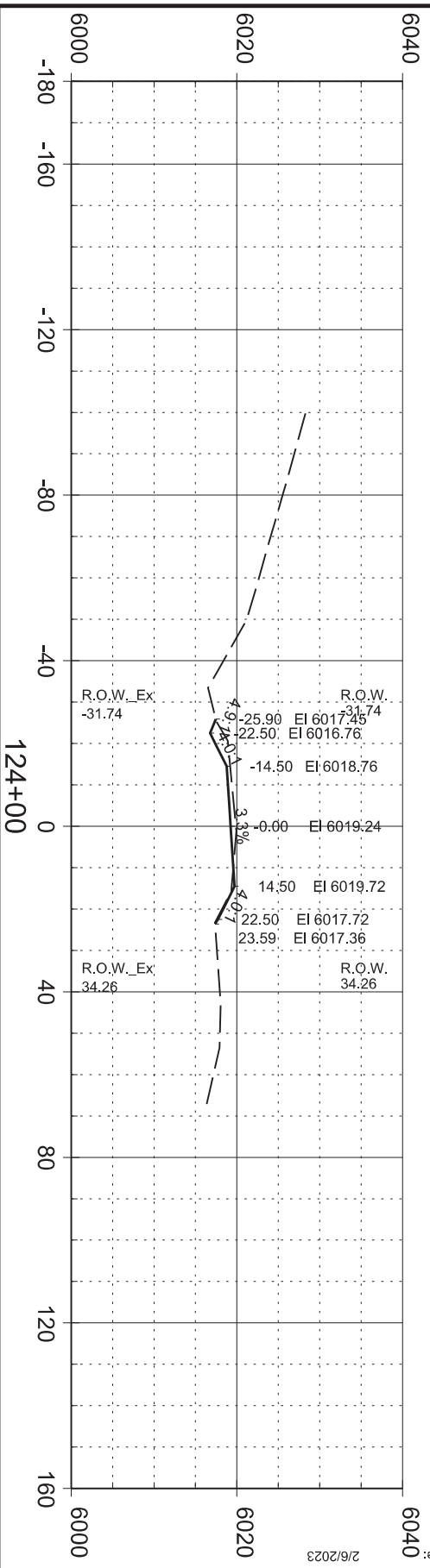
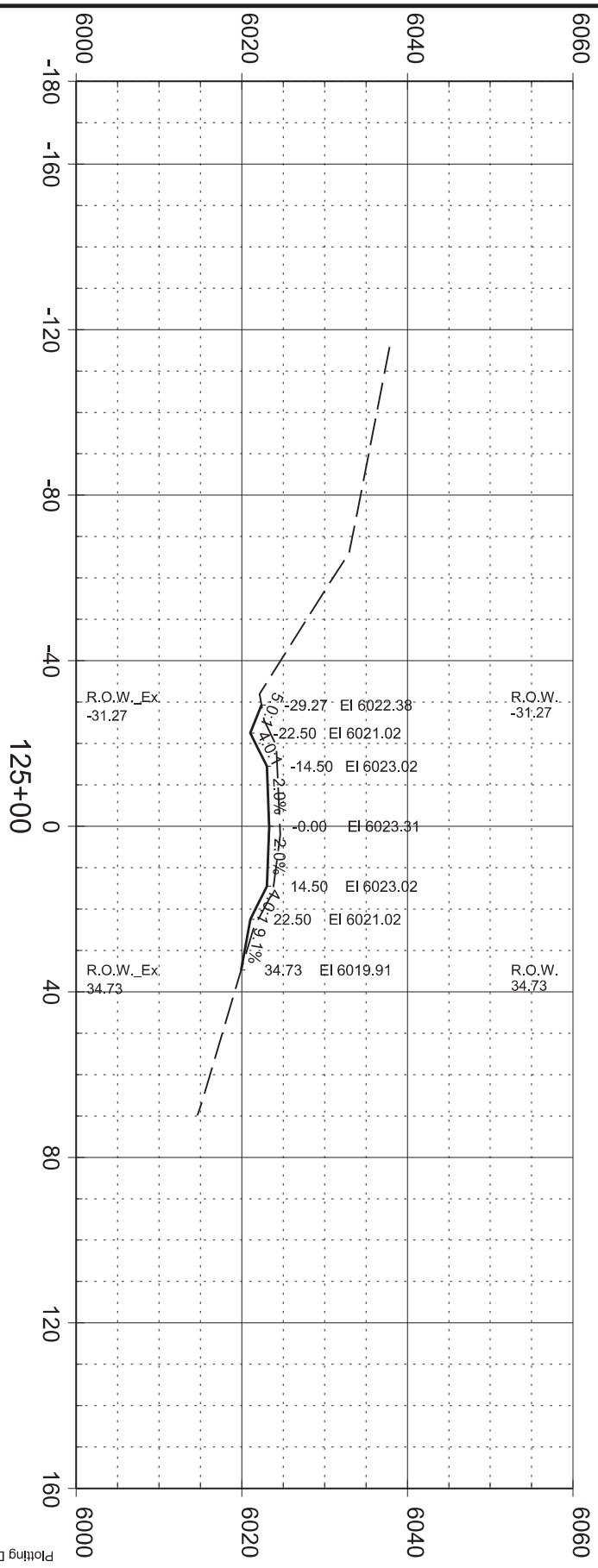
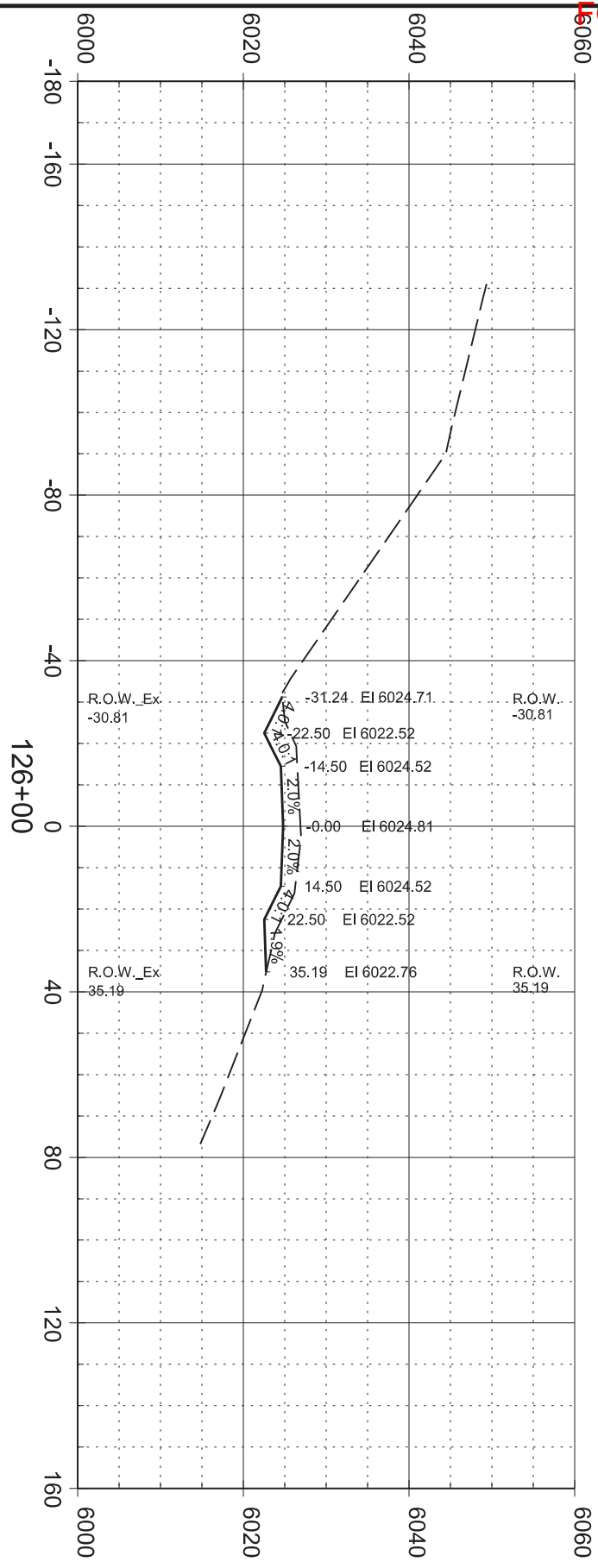
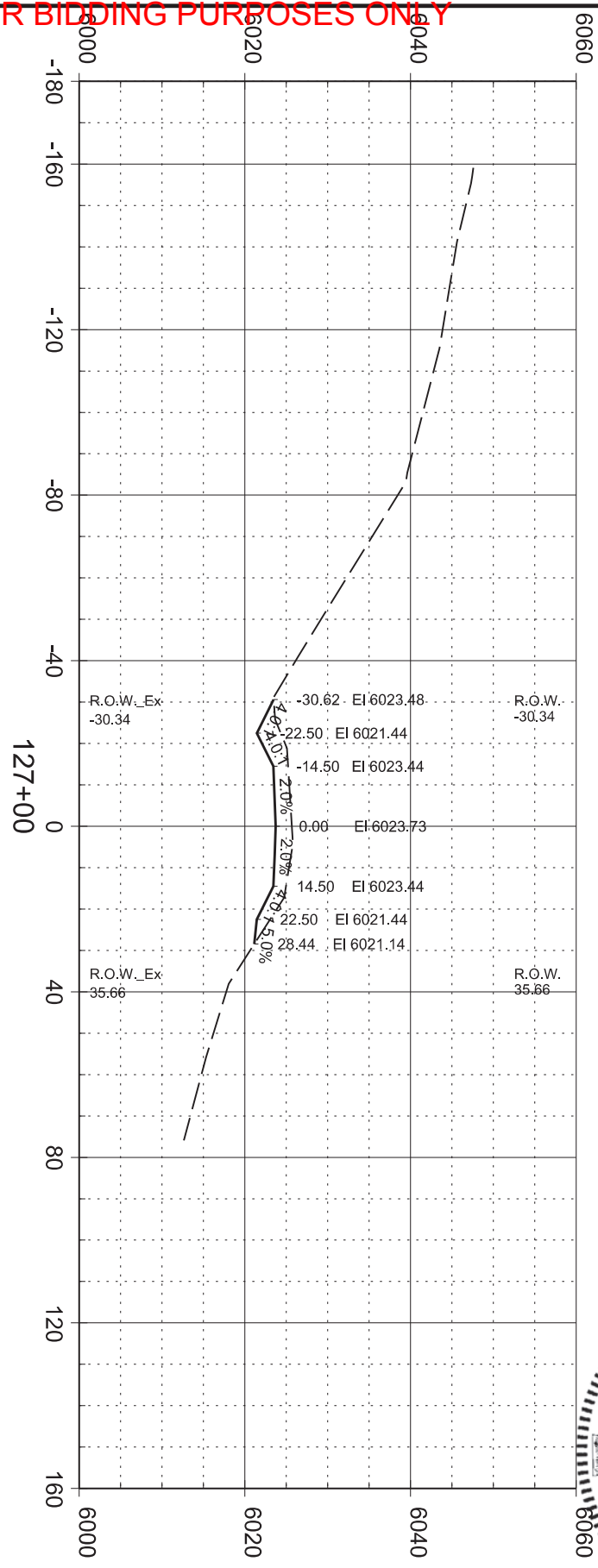








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2/6/2023

STATE OF  
SOUTH  
DAKOTA

P 6403(10)

171  
SHEET

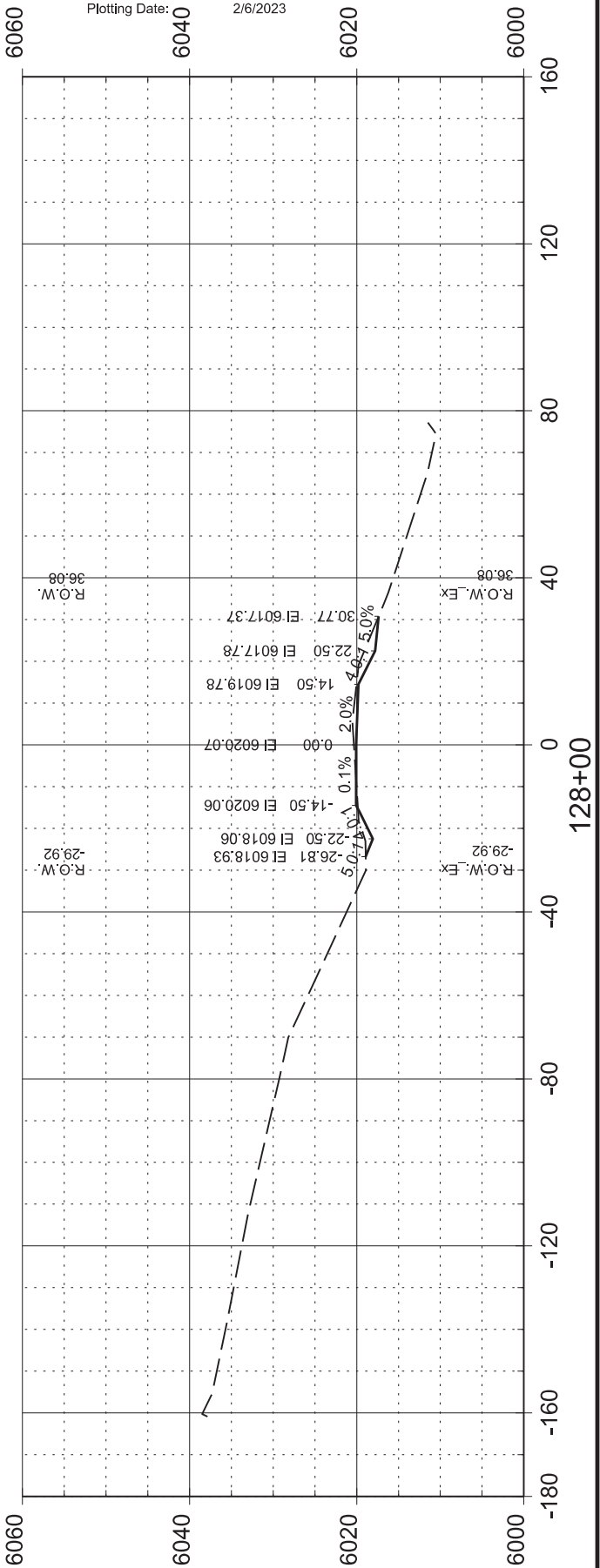
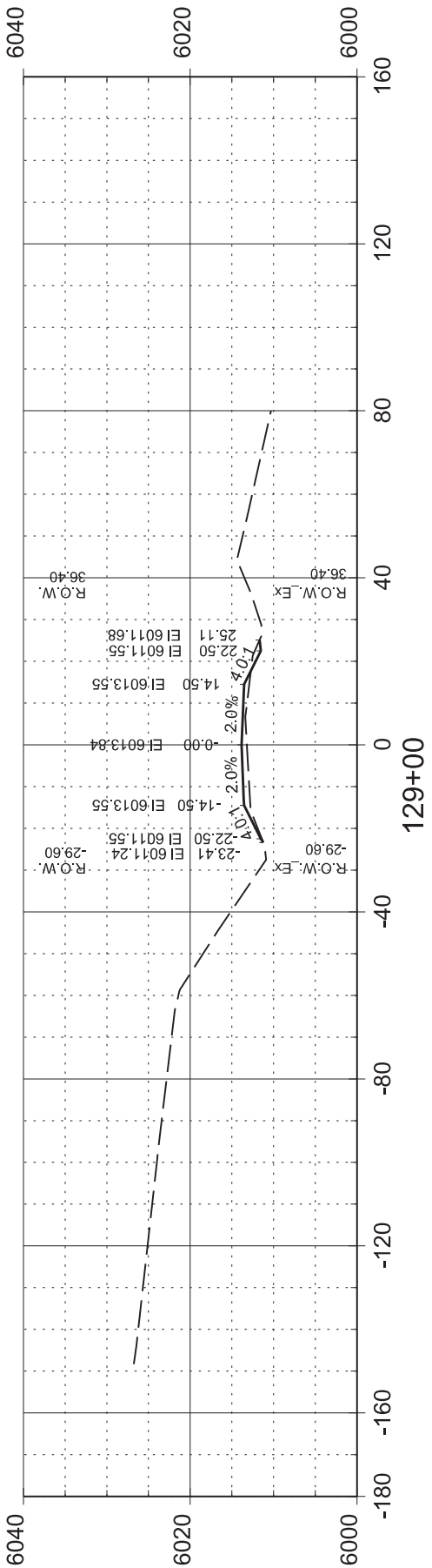
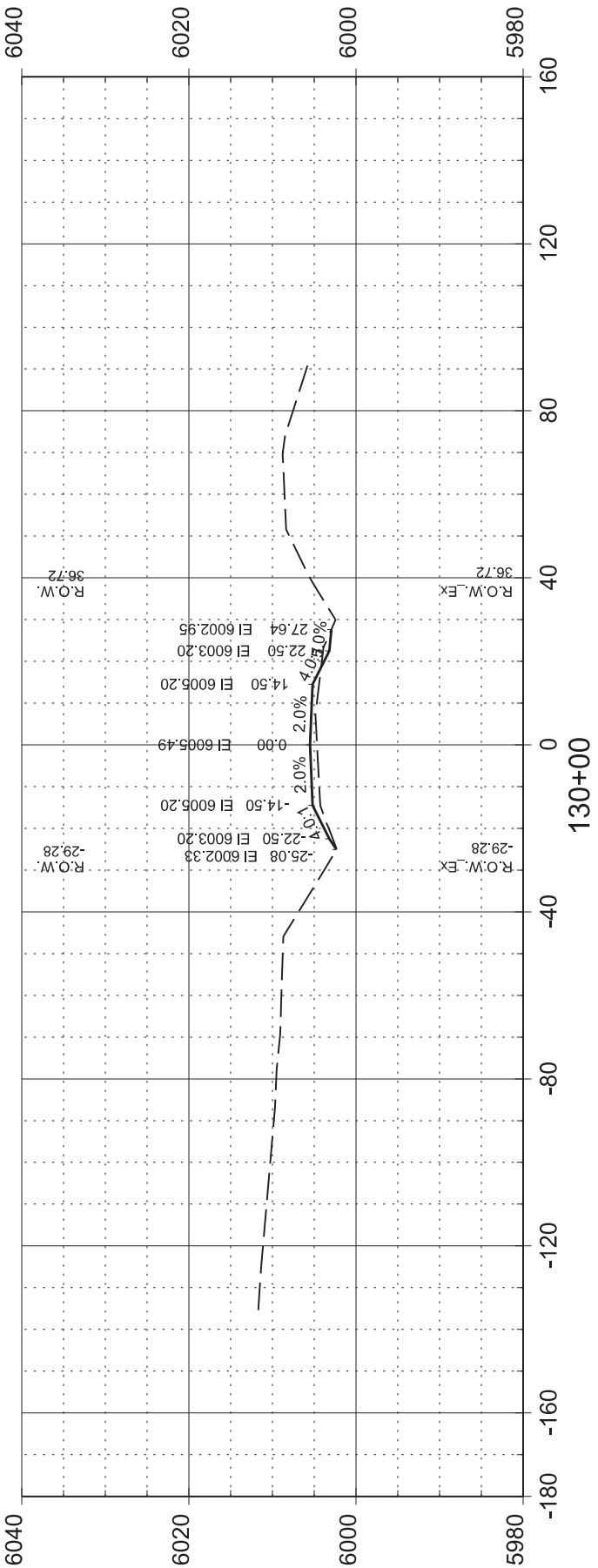
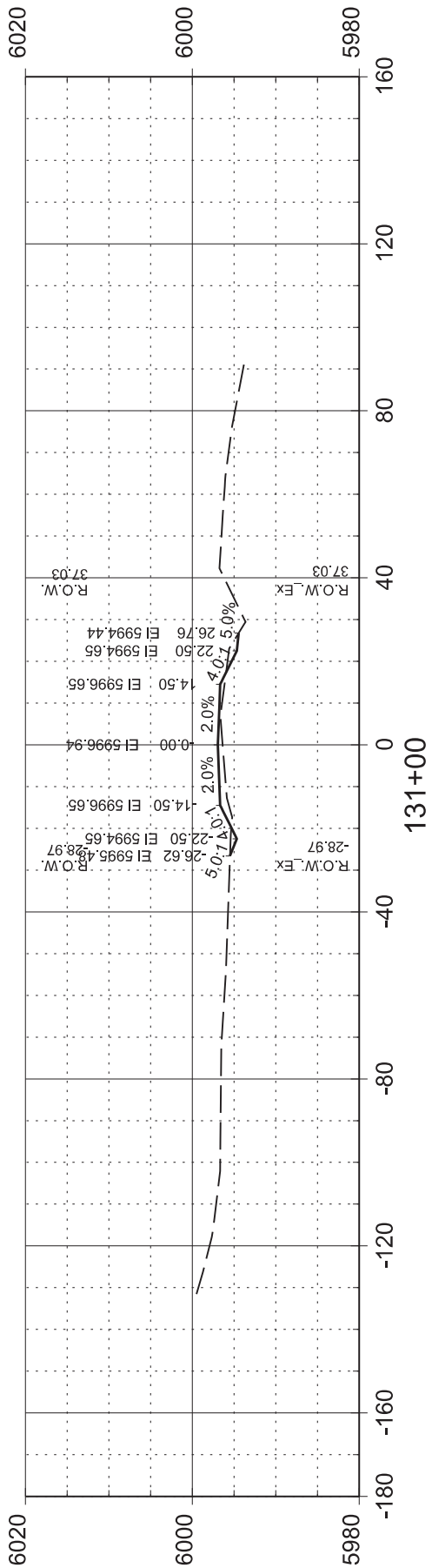
333  
TOTAL  
SHEETS



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	172	333

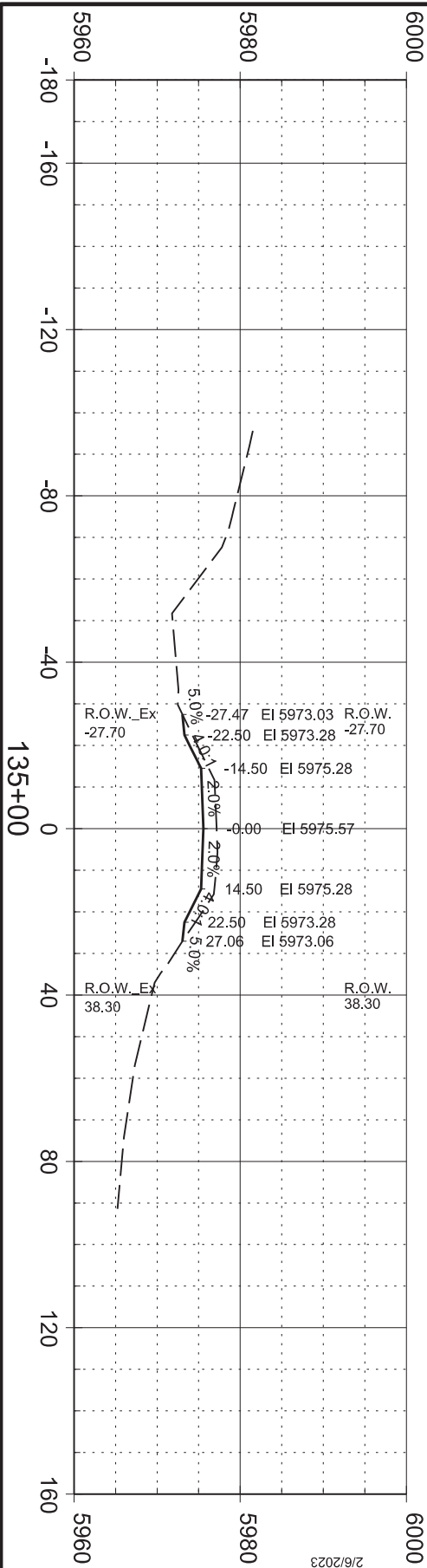
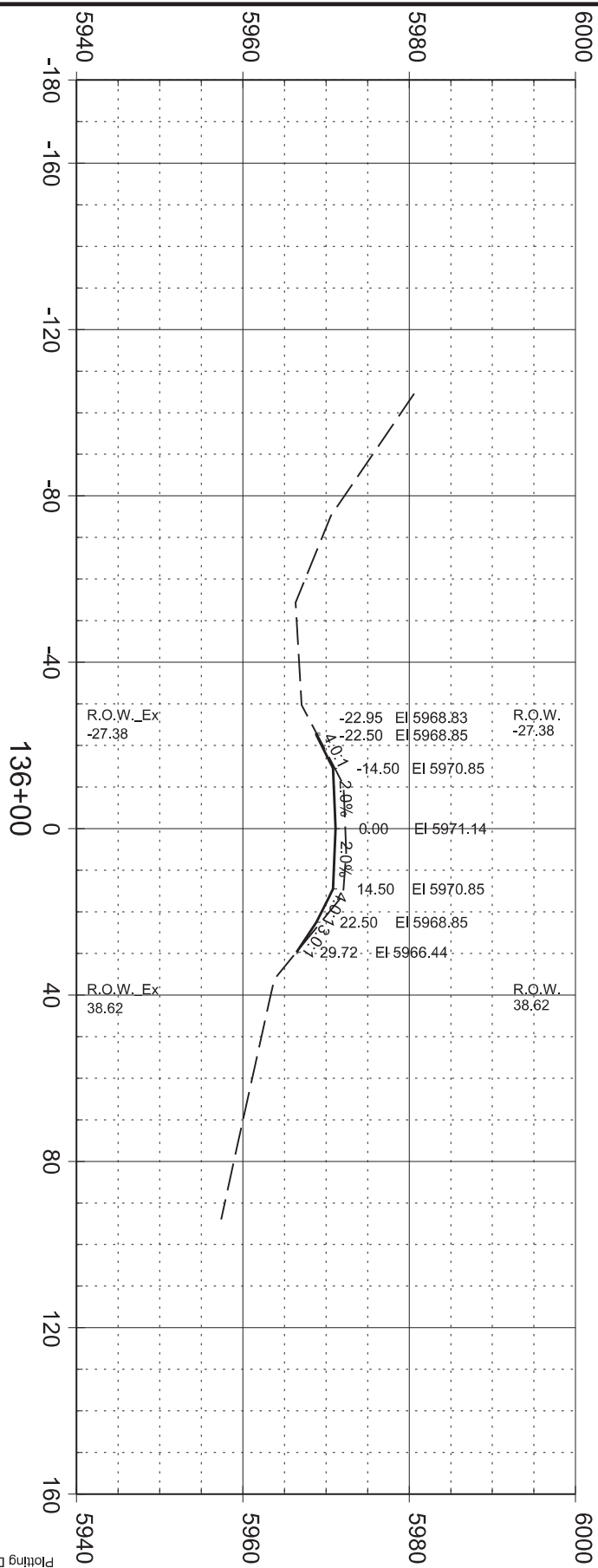
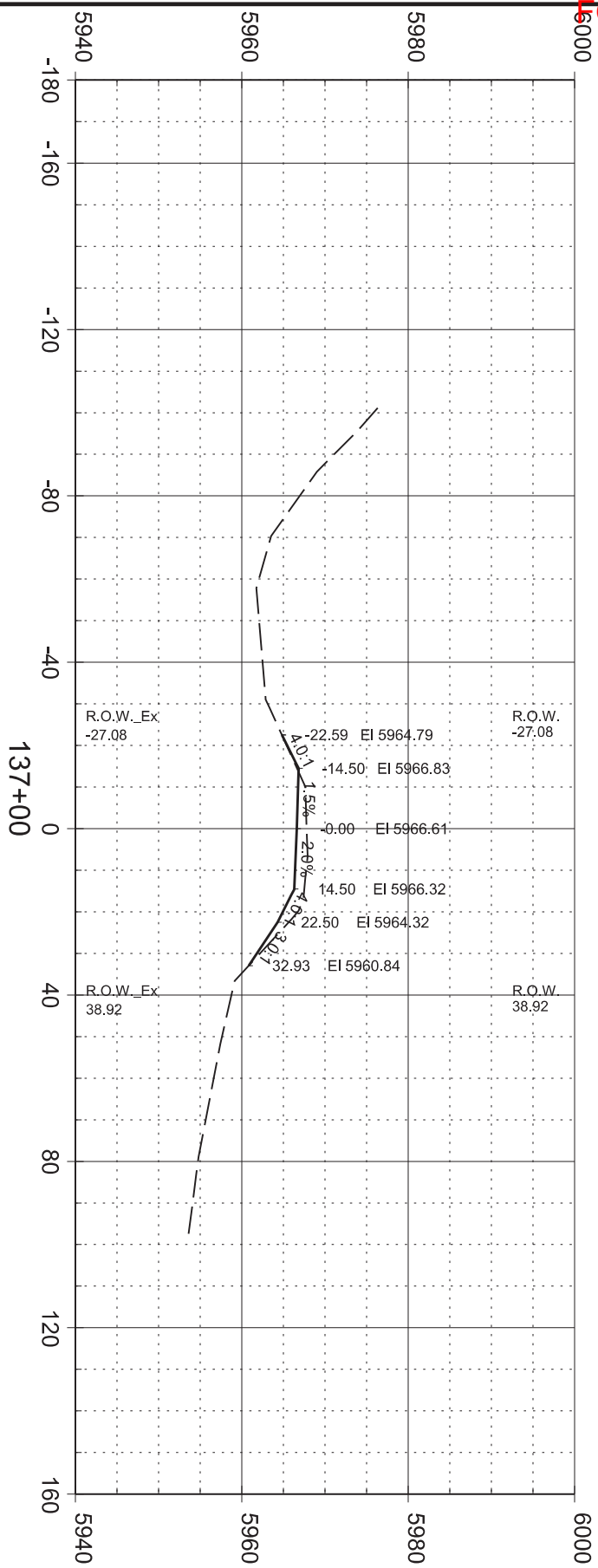
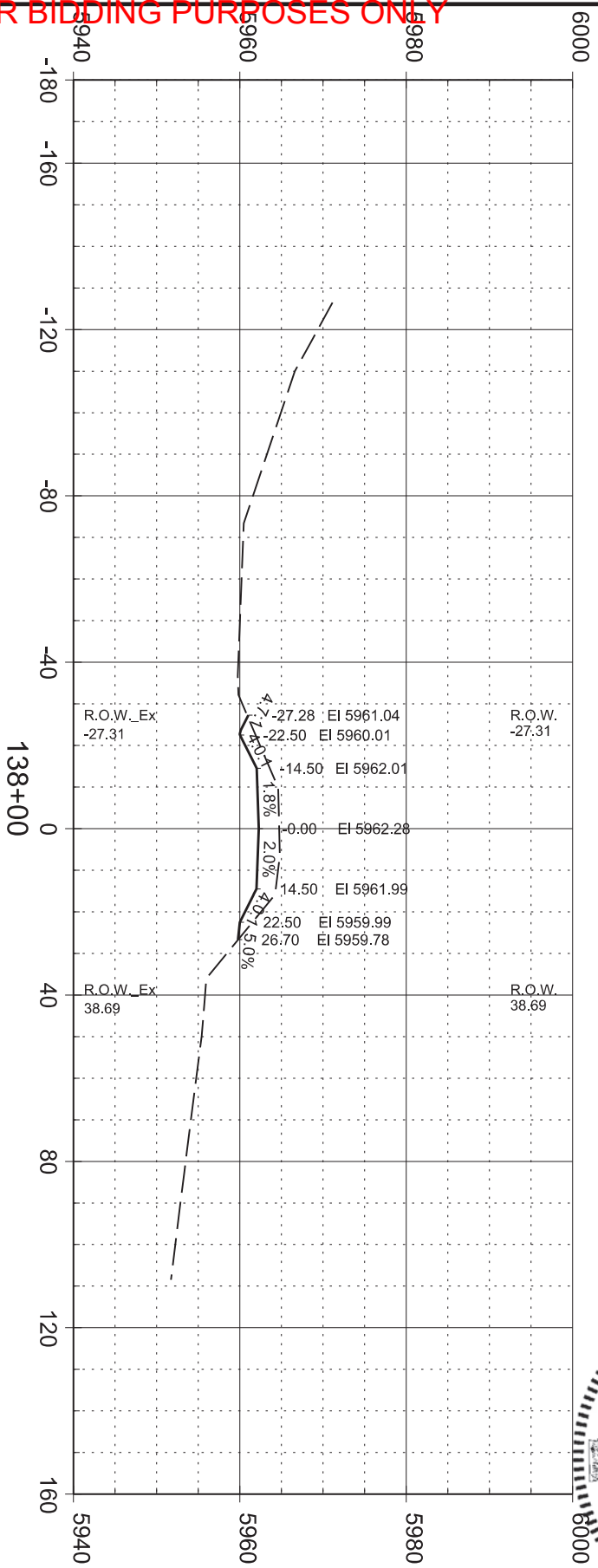
Plotting Date: 2/6/2023







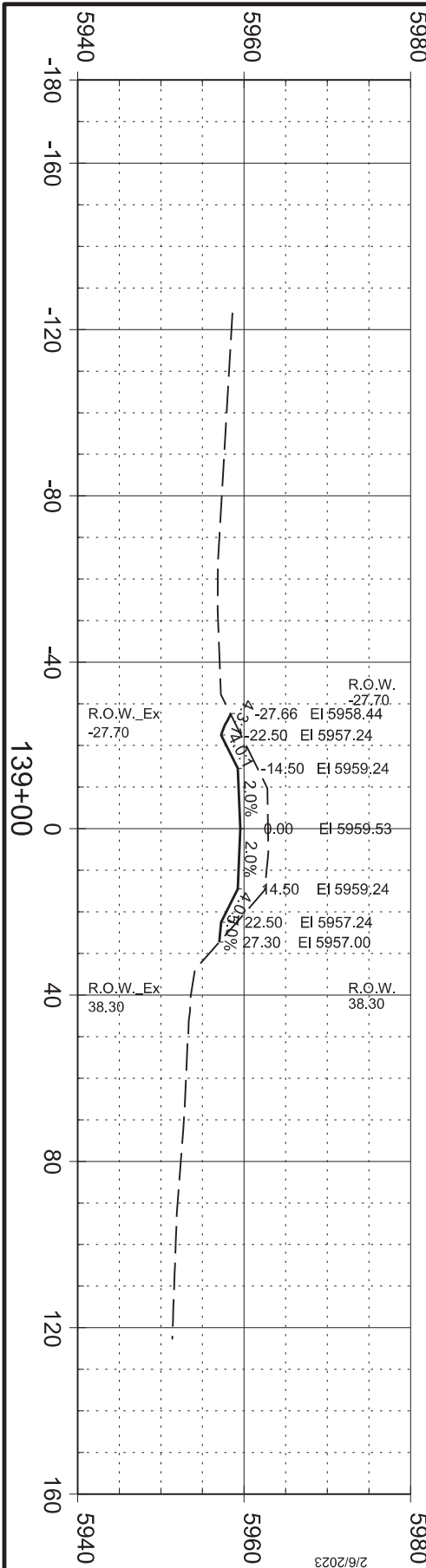
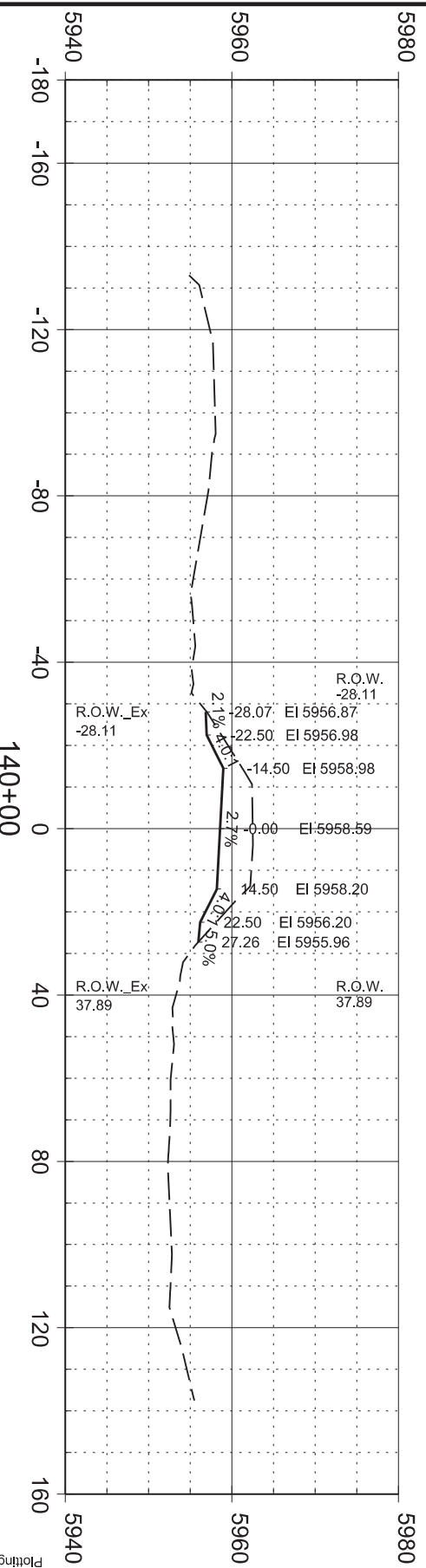
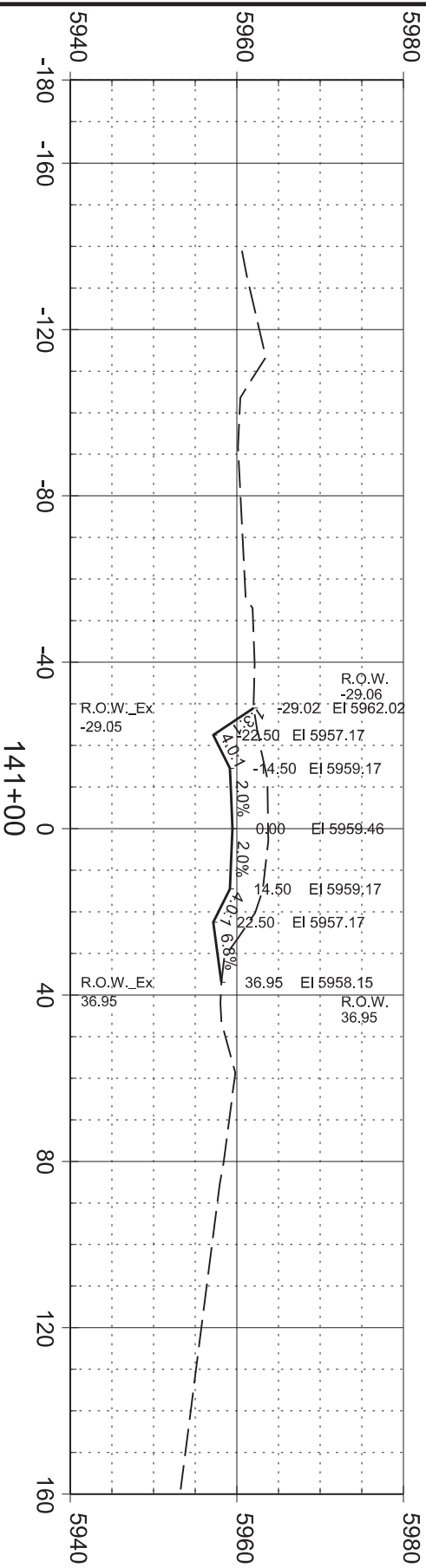
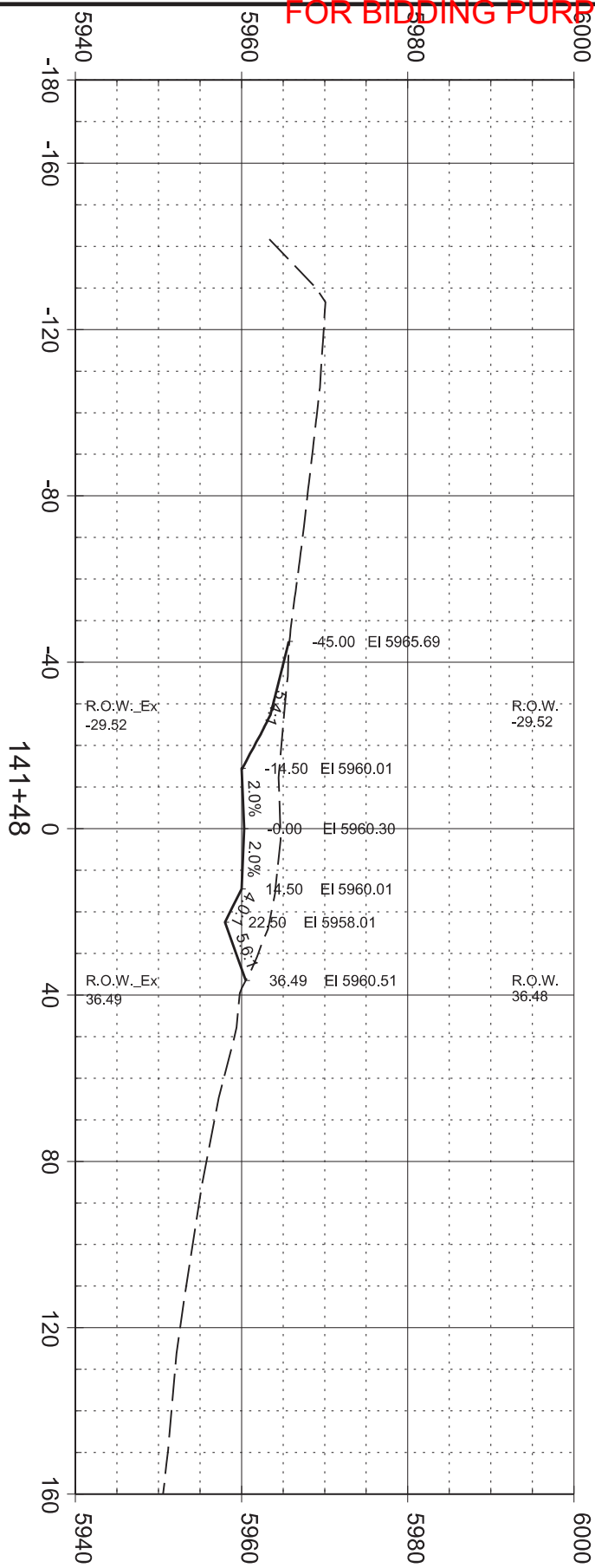
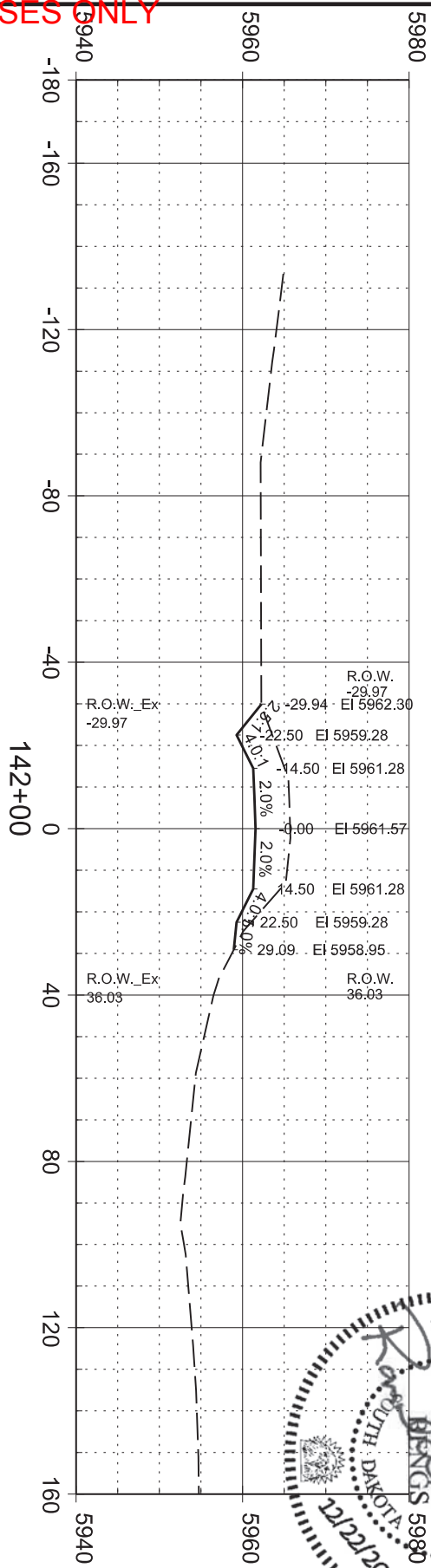
STATE OF SOUTH DAKOTA	P 6403(10)		173	333
	PROJECT		SHEET	TOTAL SHEETS



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		174		333			

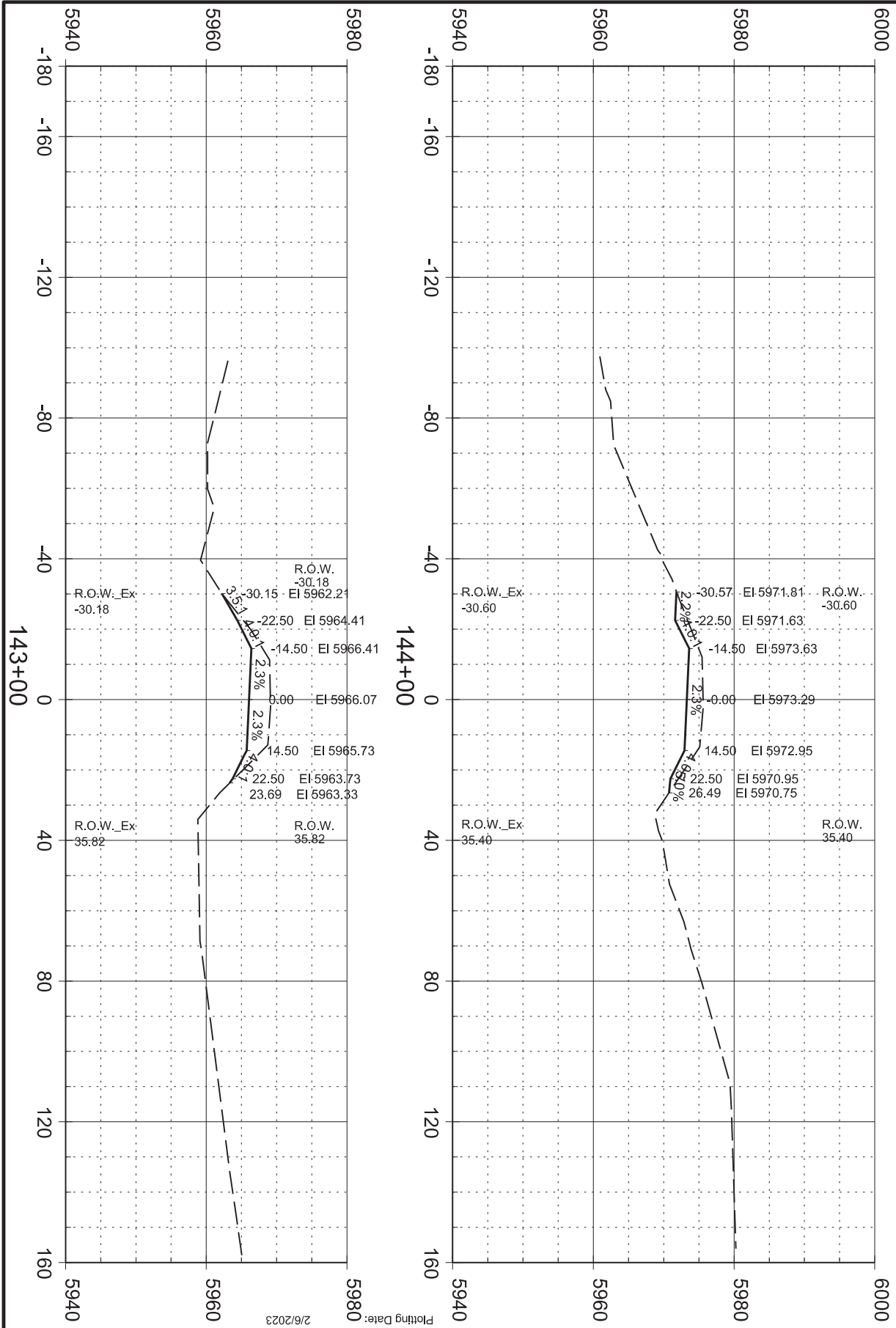
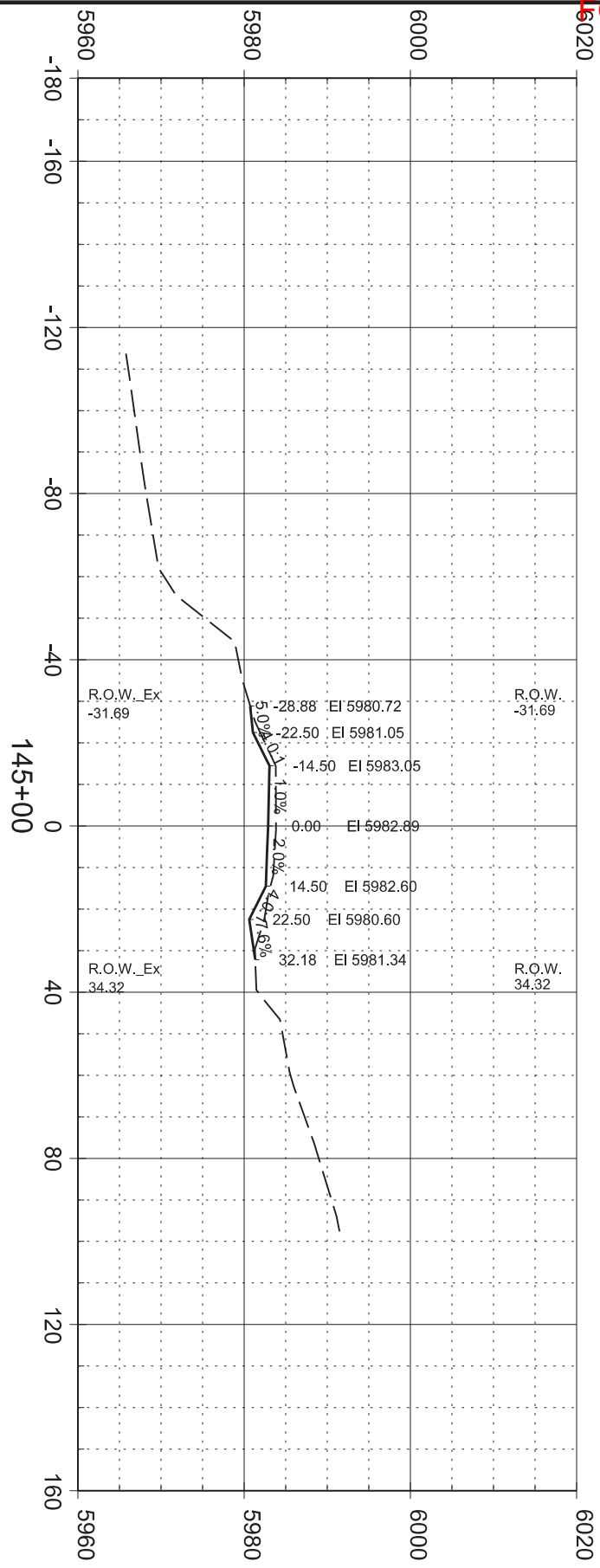
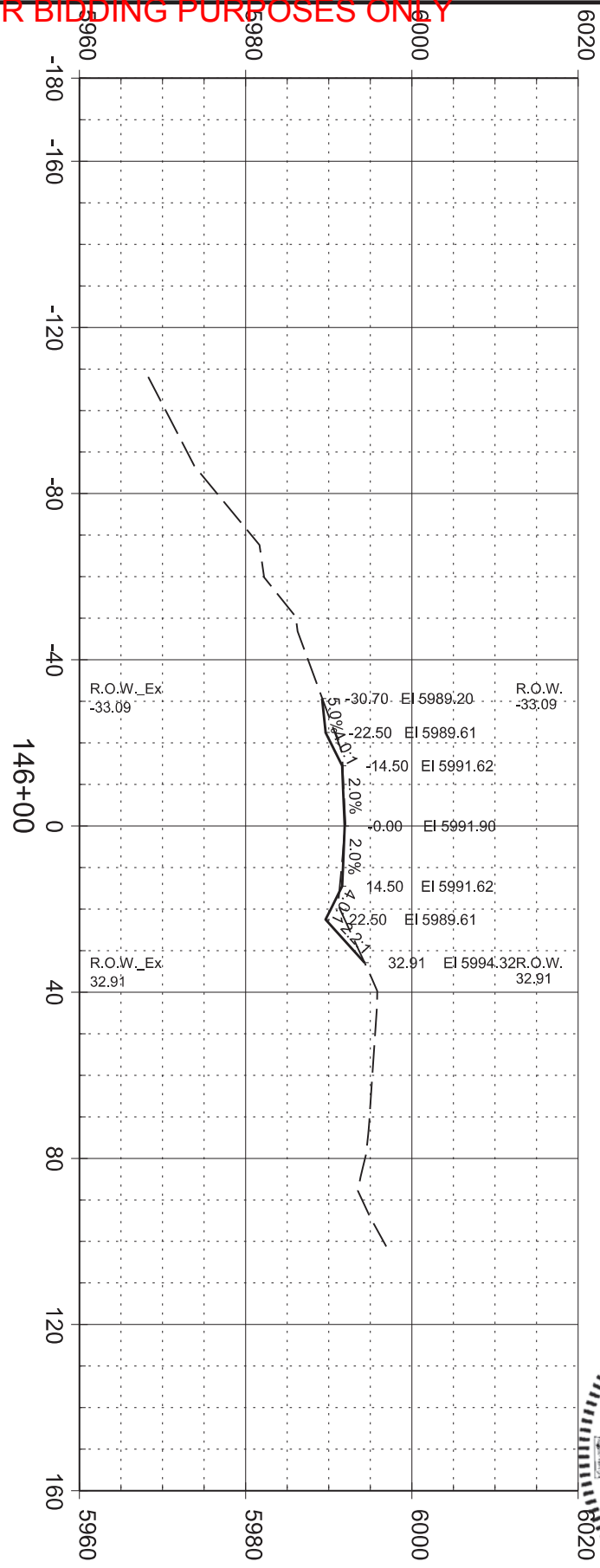
Plotting Date: 2/6/2023



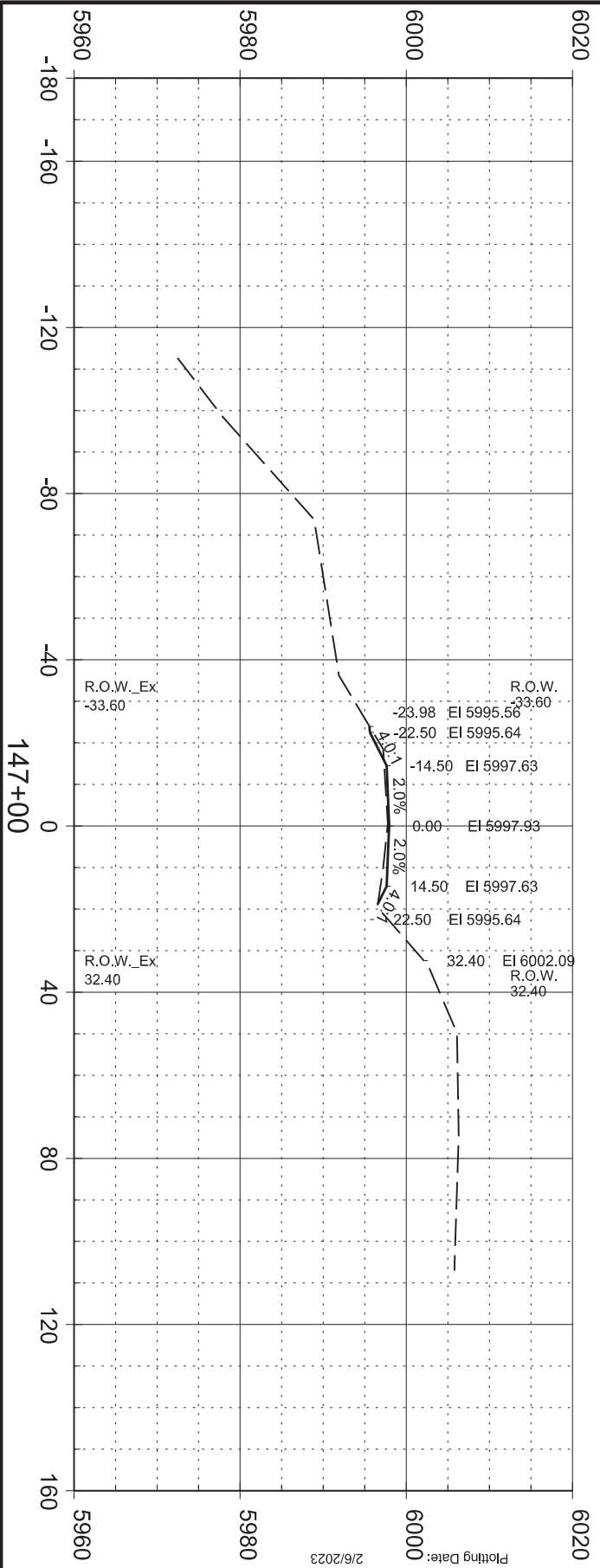
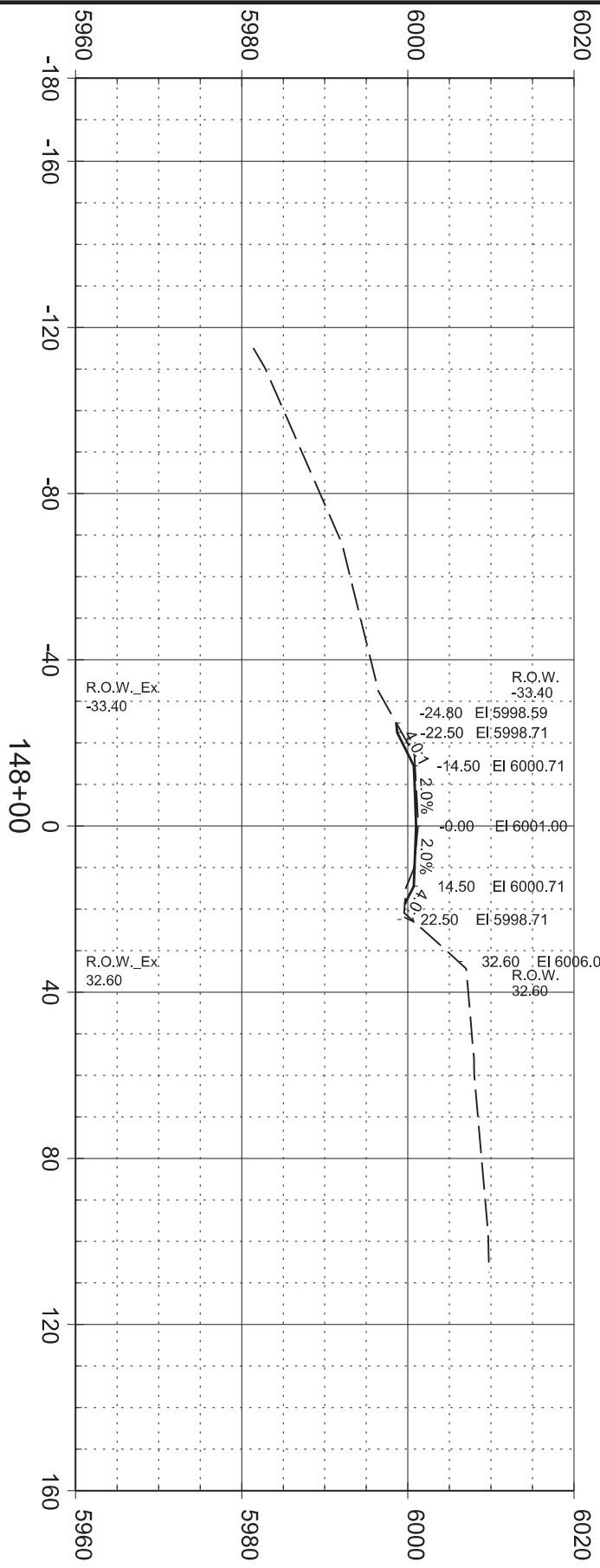
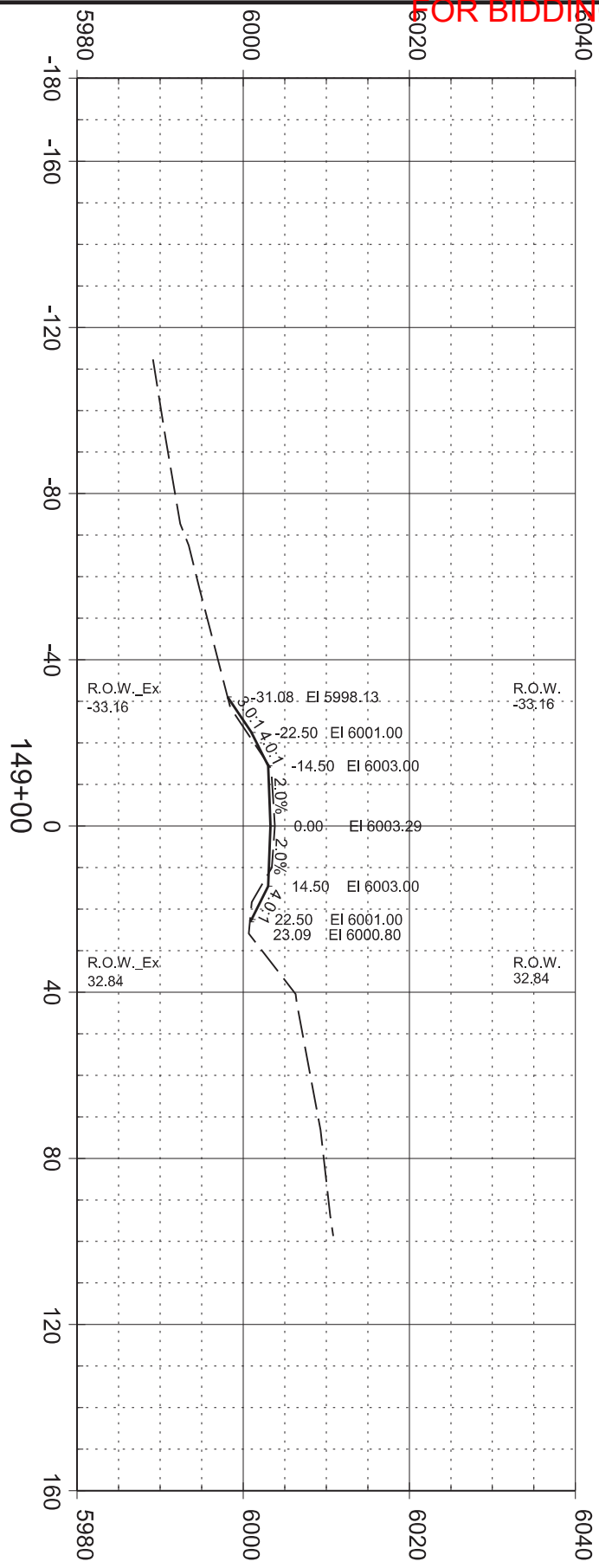
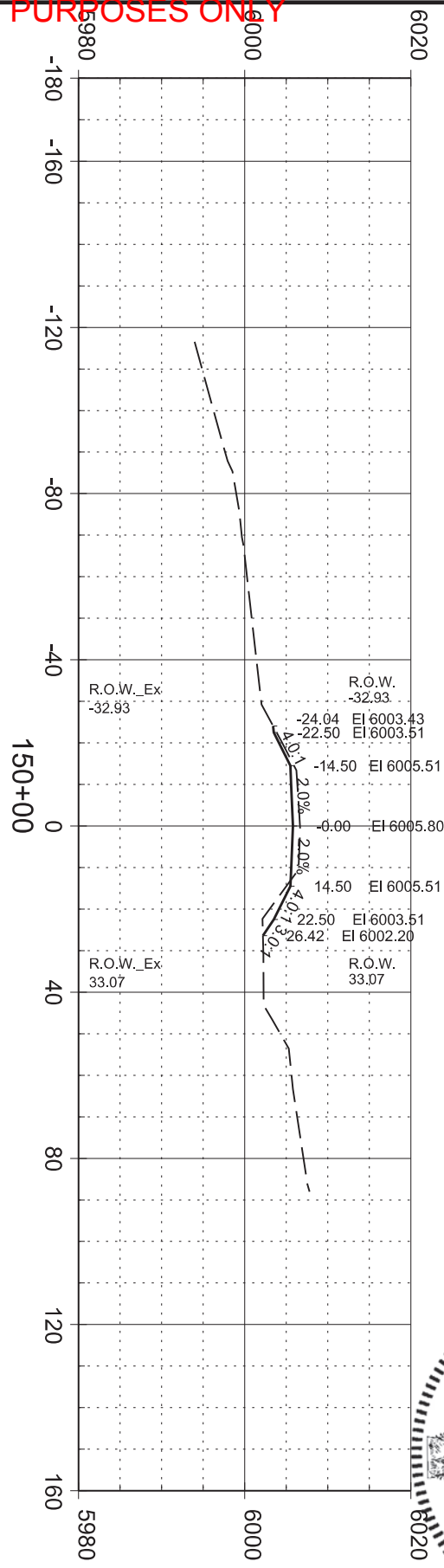


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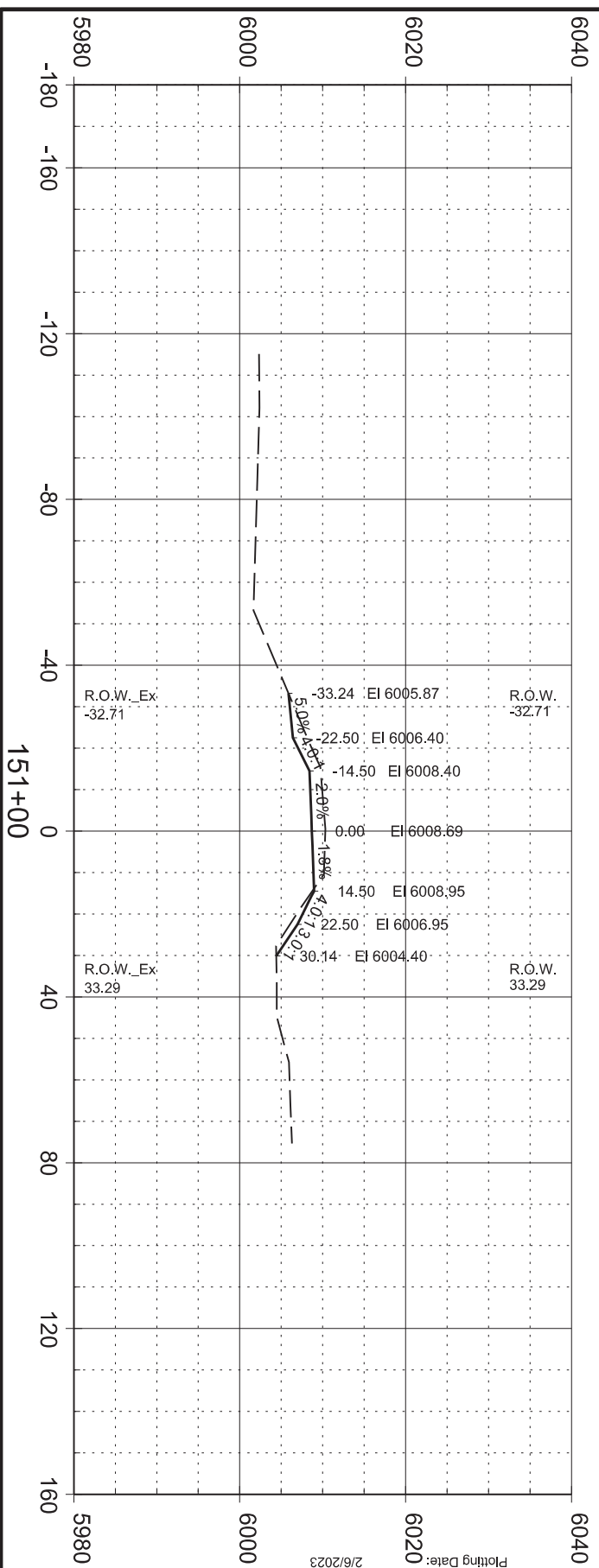
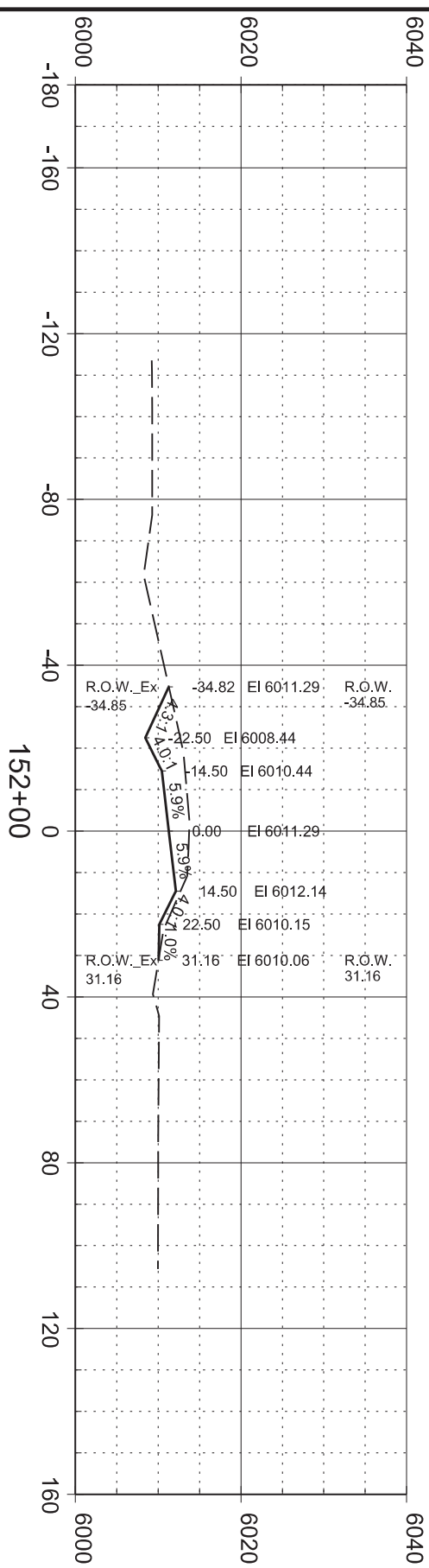
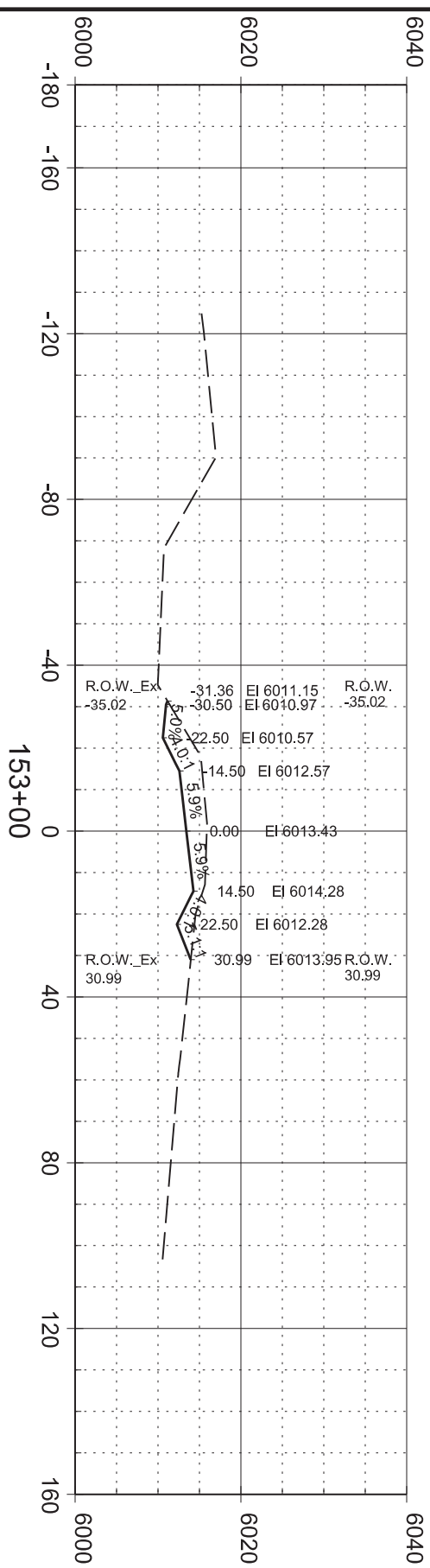
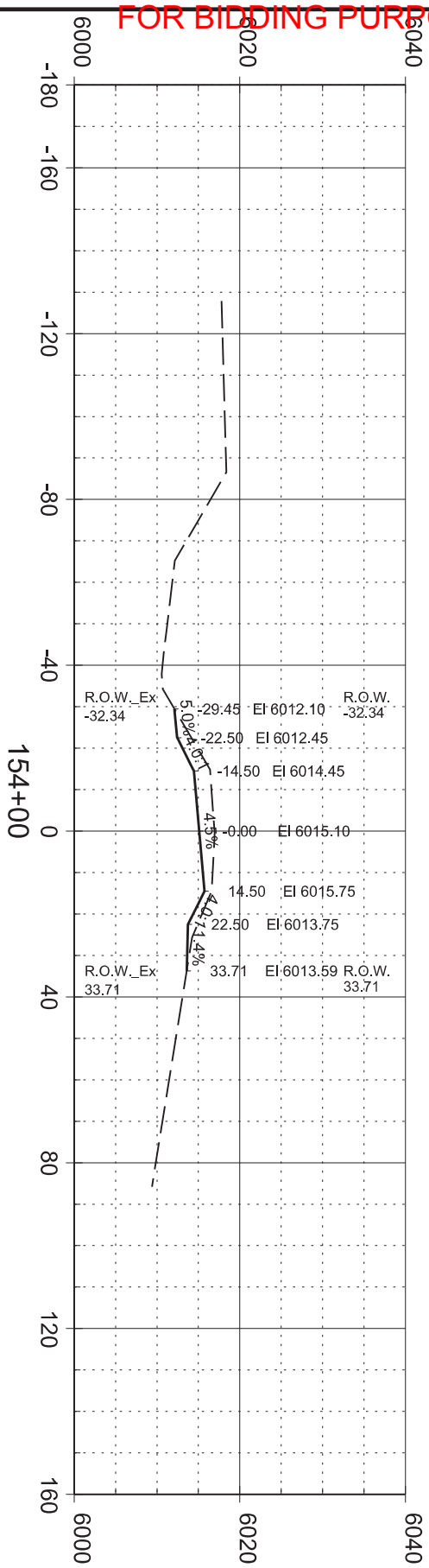
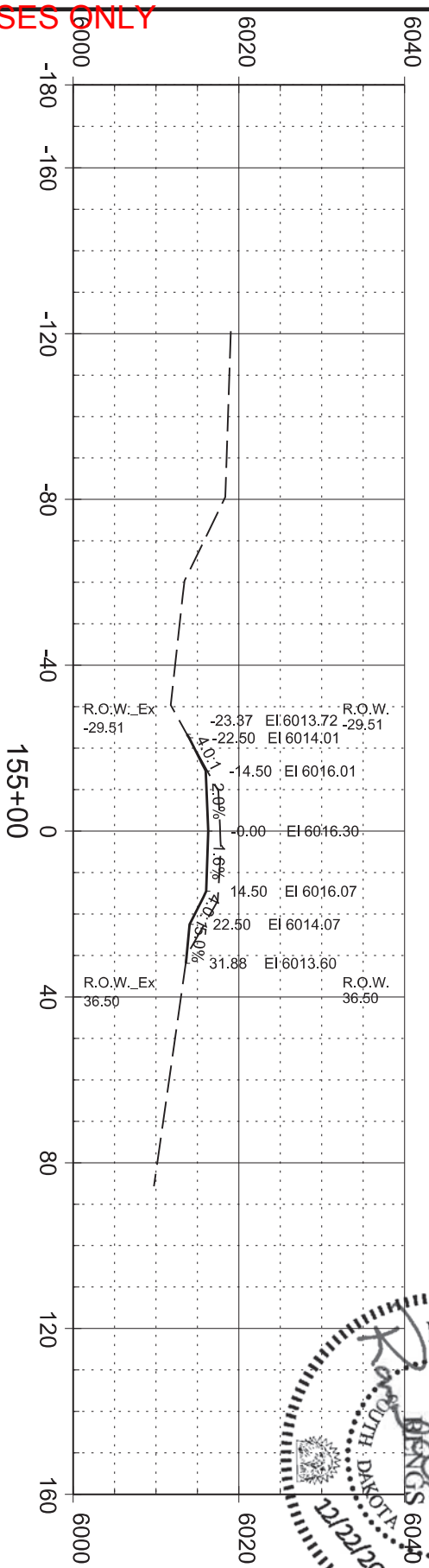
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		175		333	







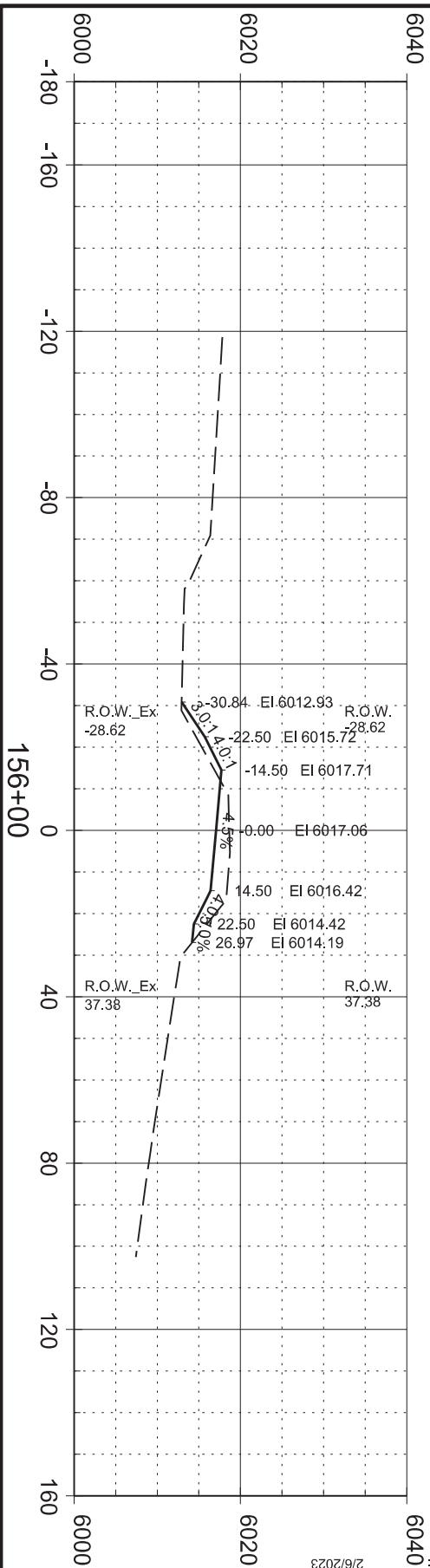
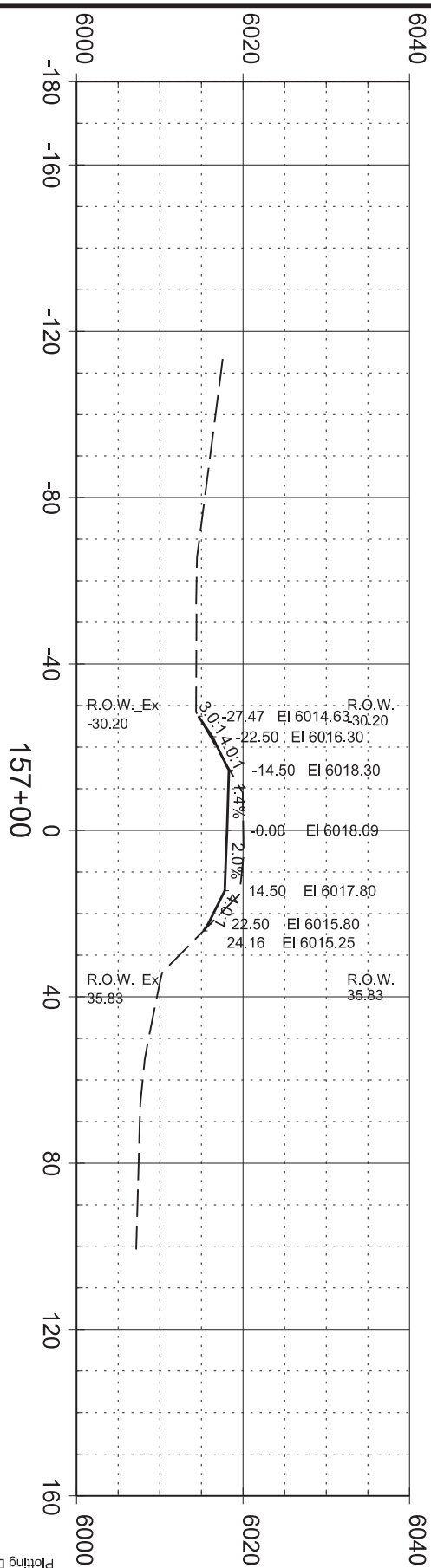
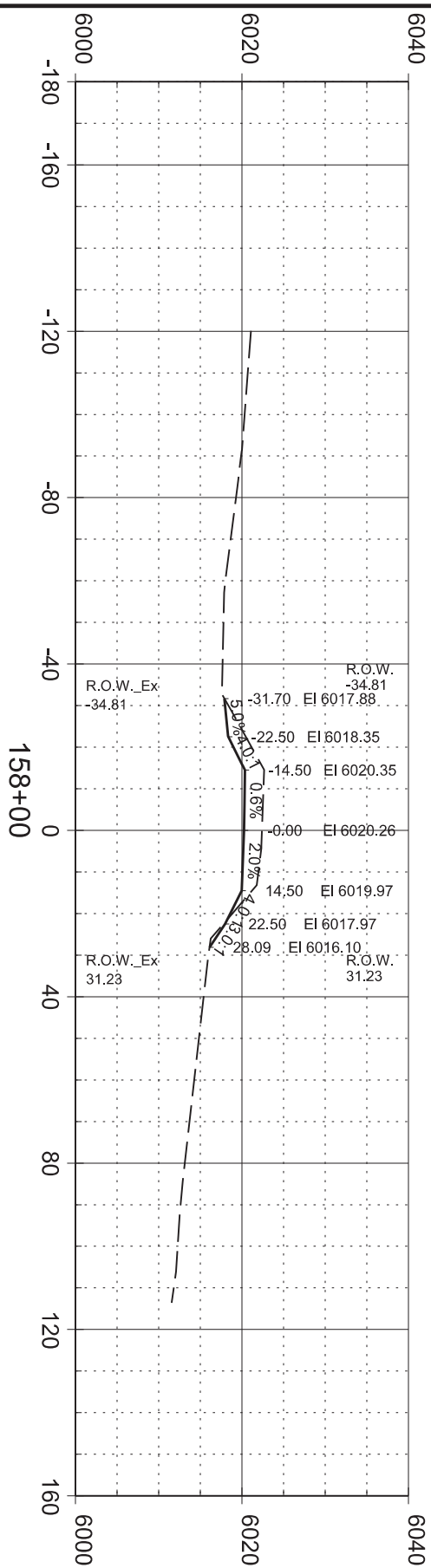
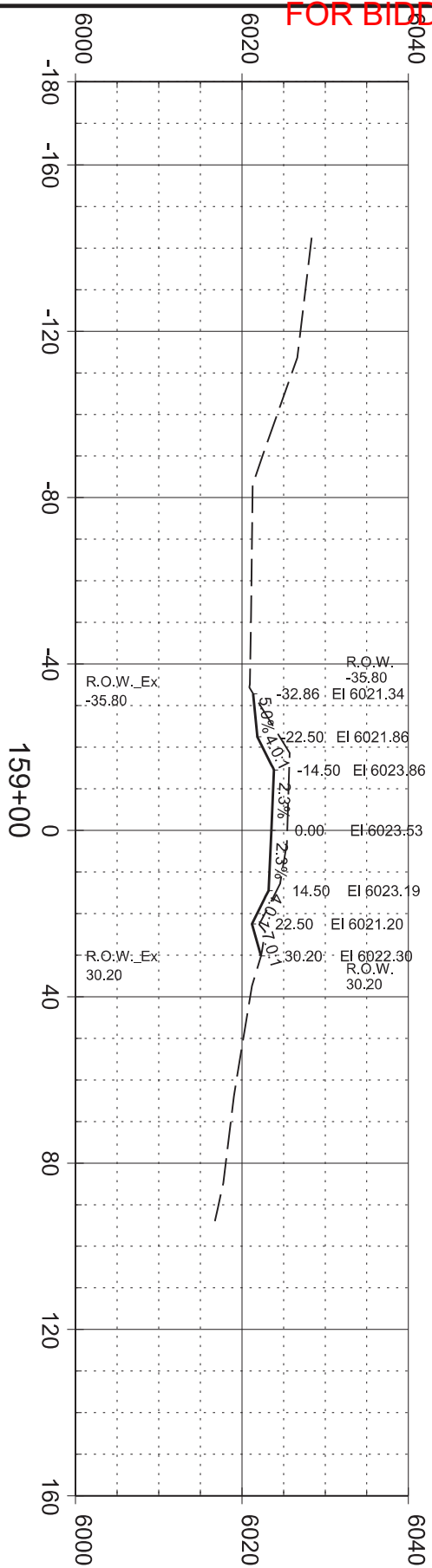
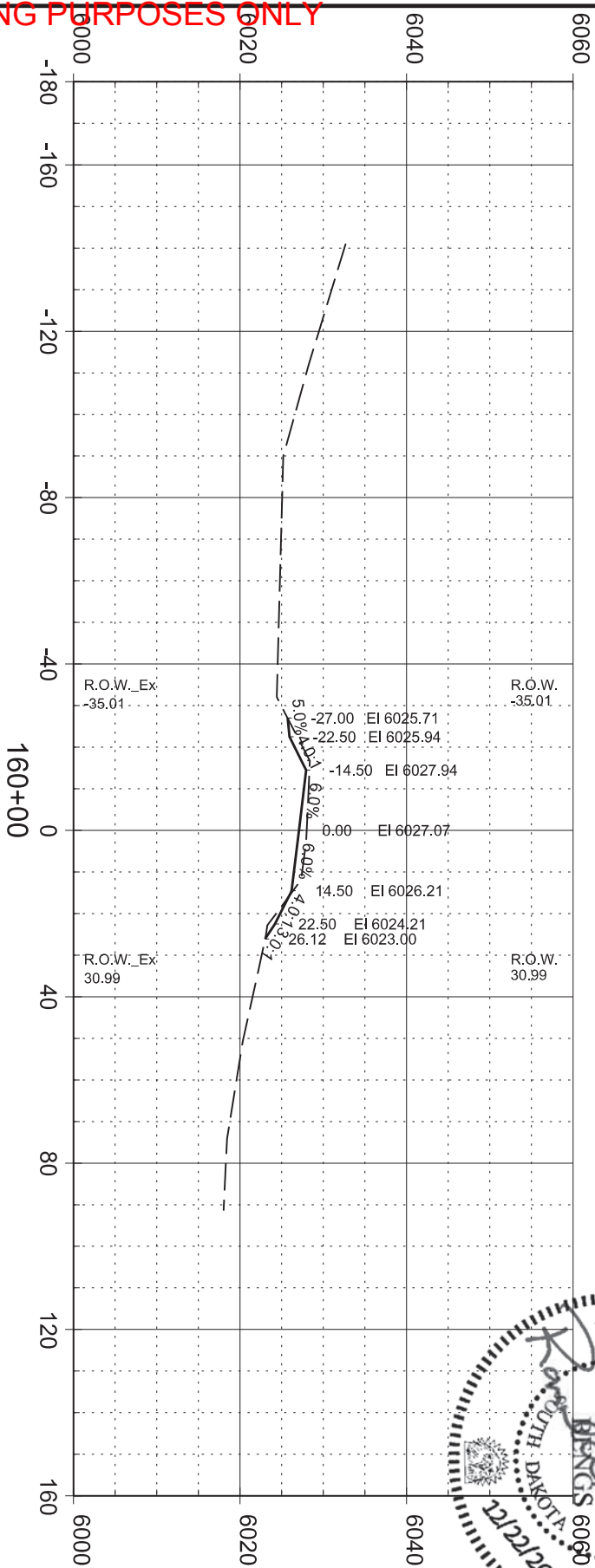
STATE OF SOUTH DAKOTA	P 6403(10)		177	333
	PROJECT		SHEET	TOTAL SHEETS



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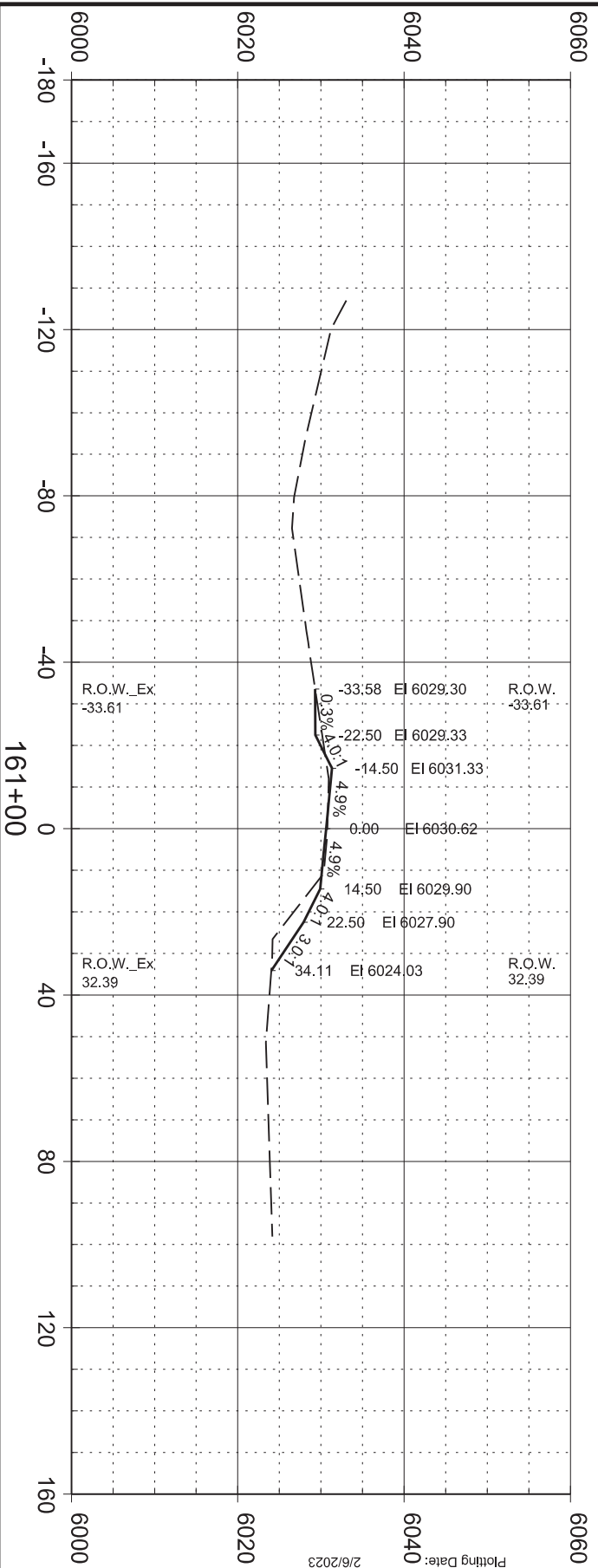
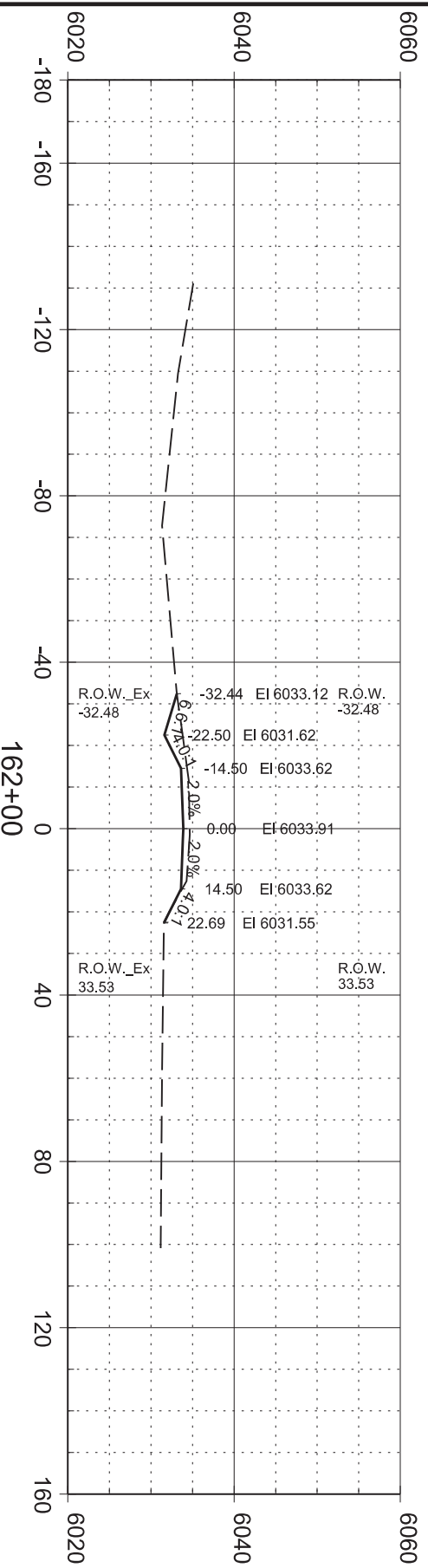
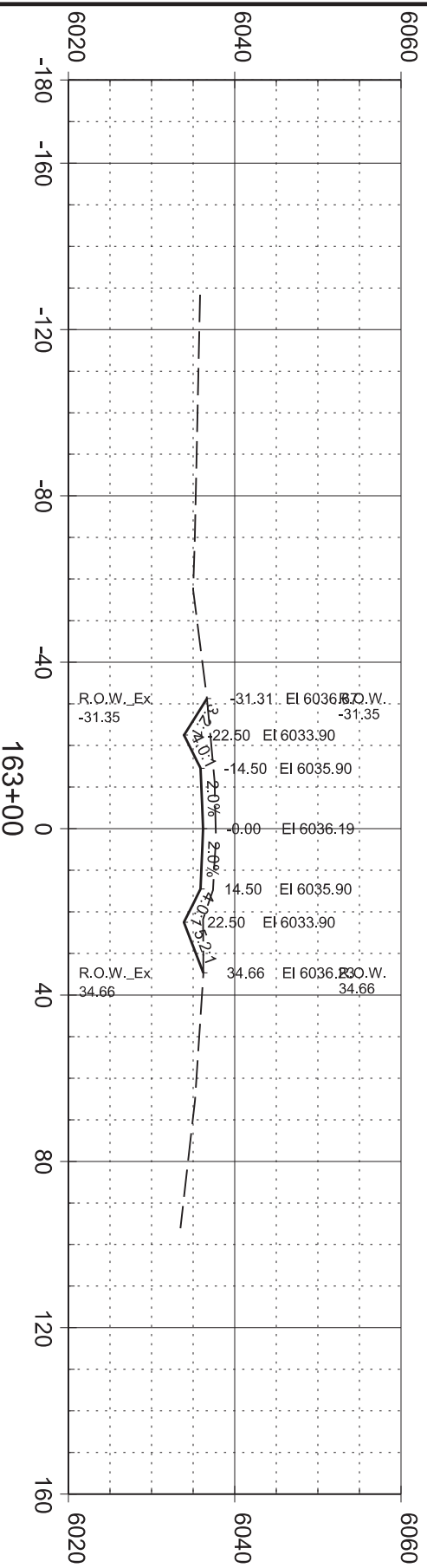
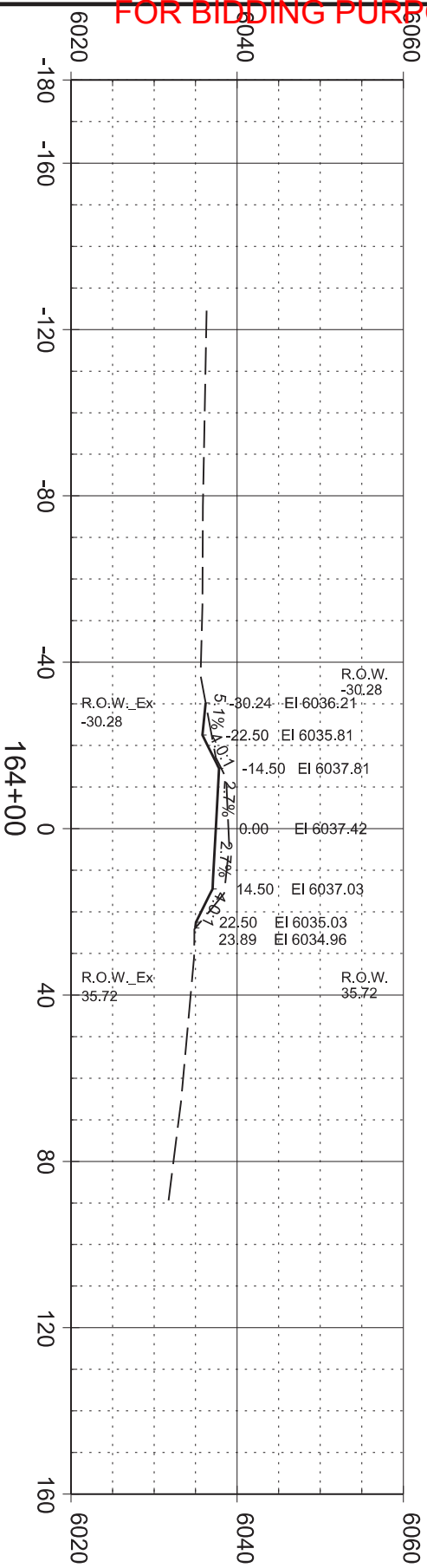
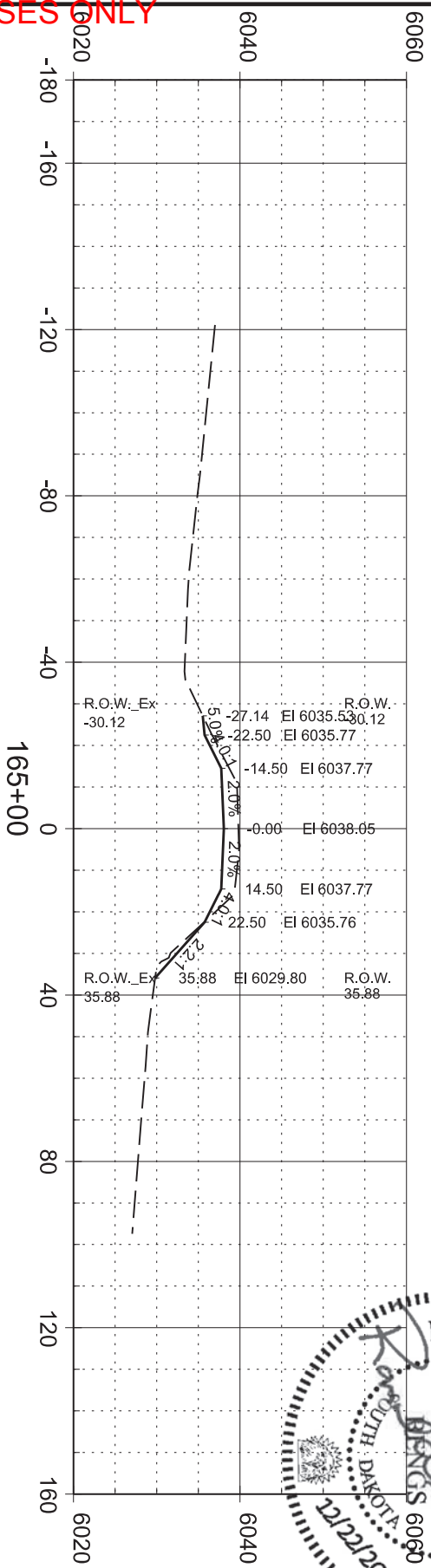
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		178		333		333	





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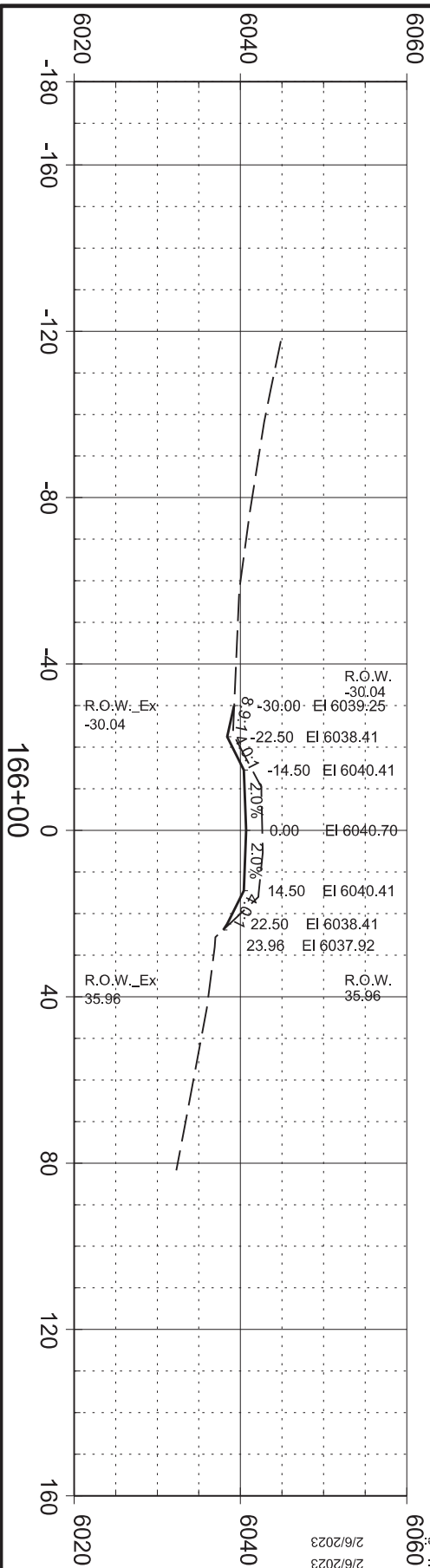
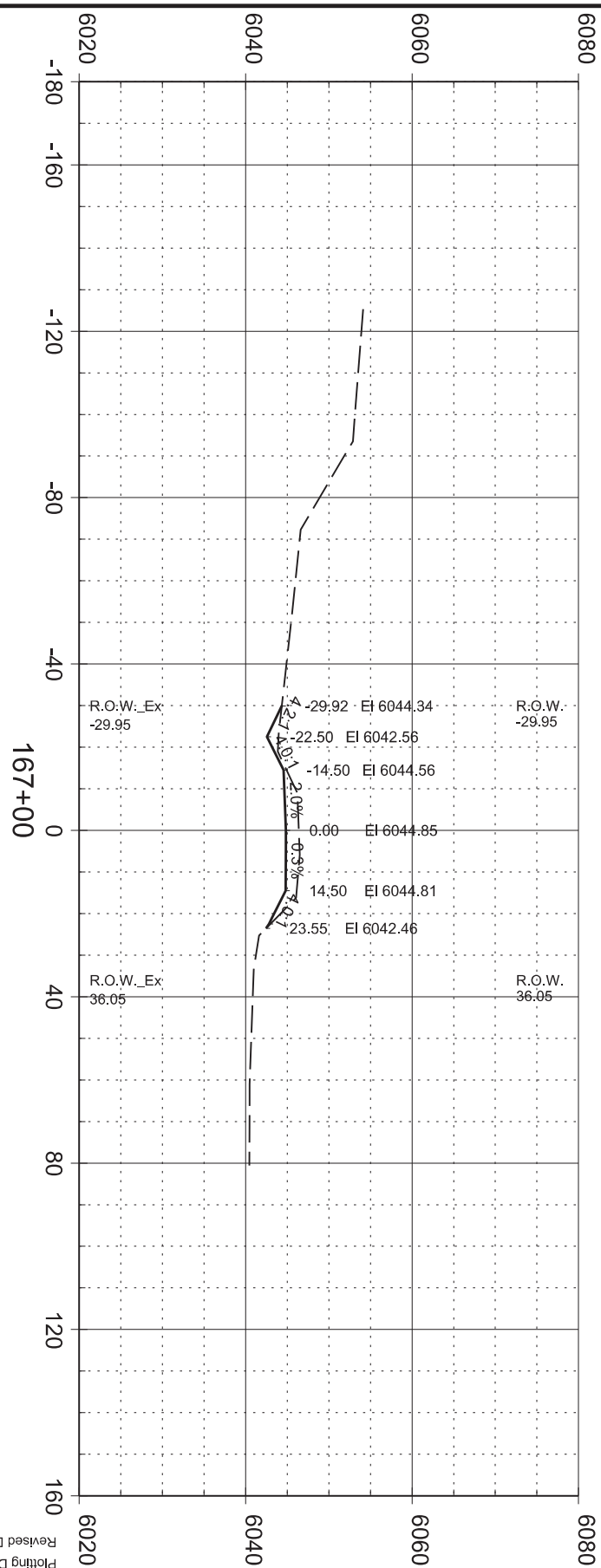
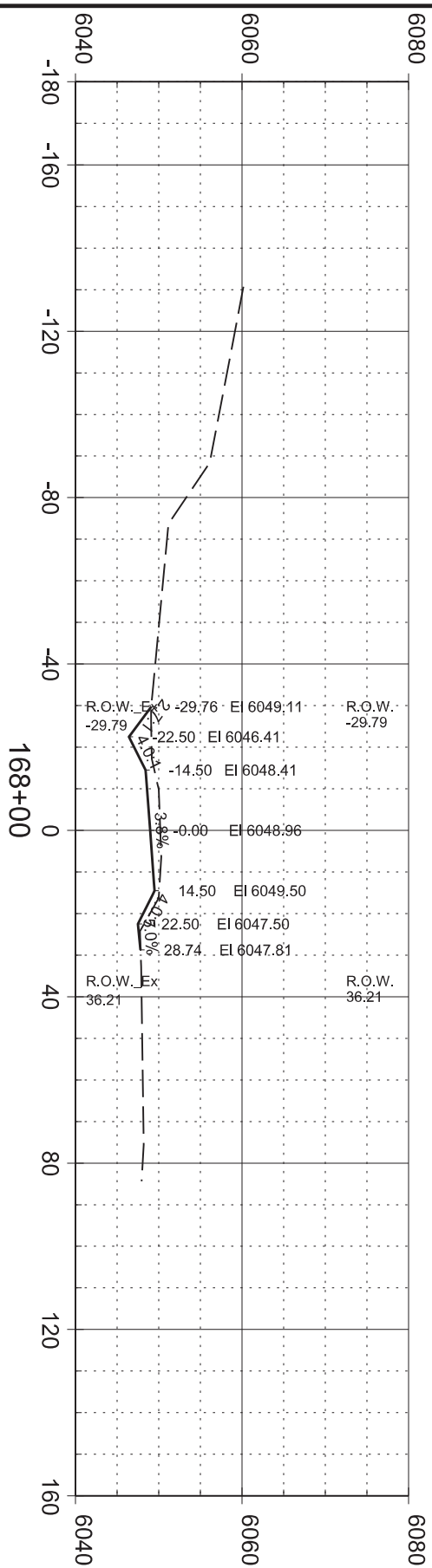
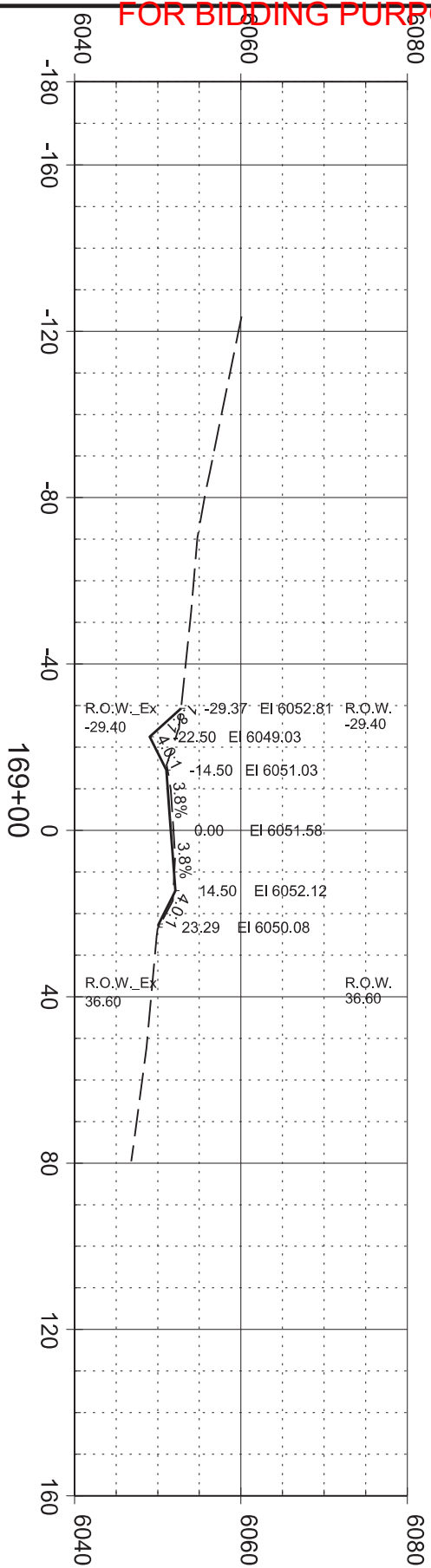
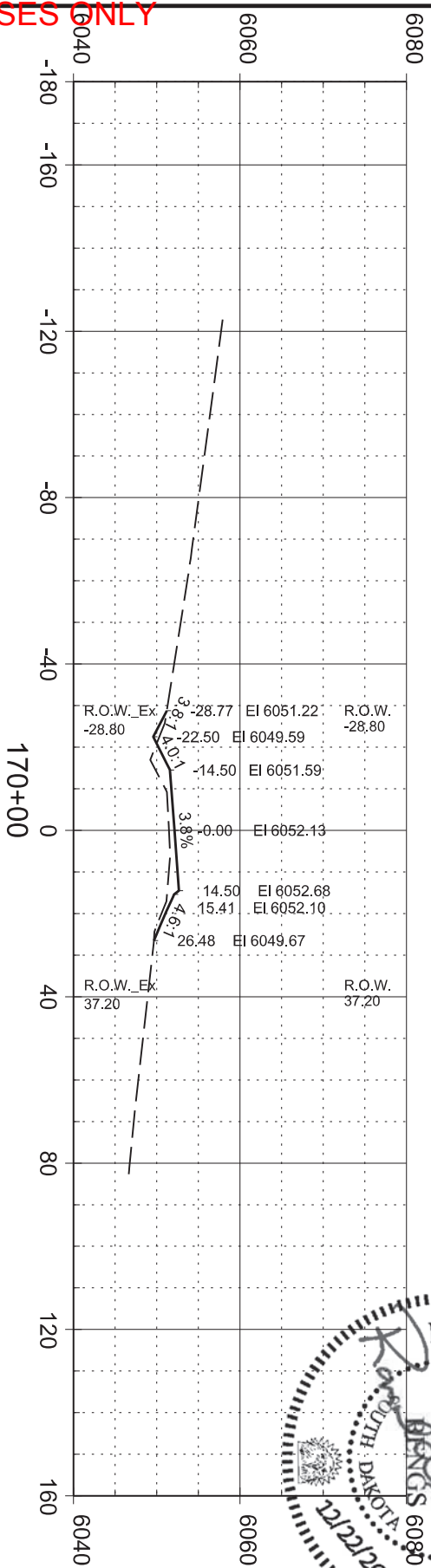
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		179		333	



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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		180		333			





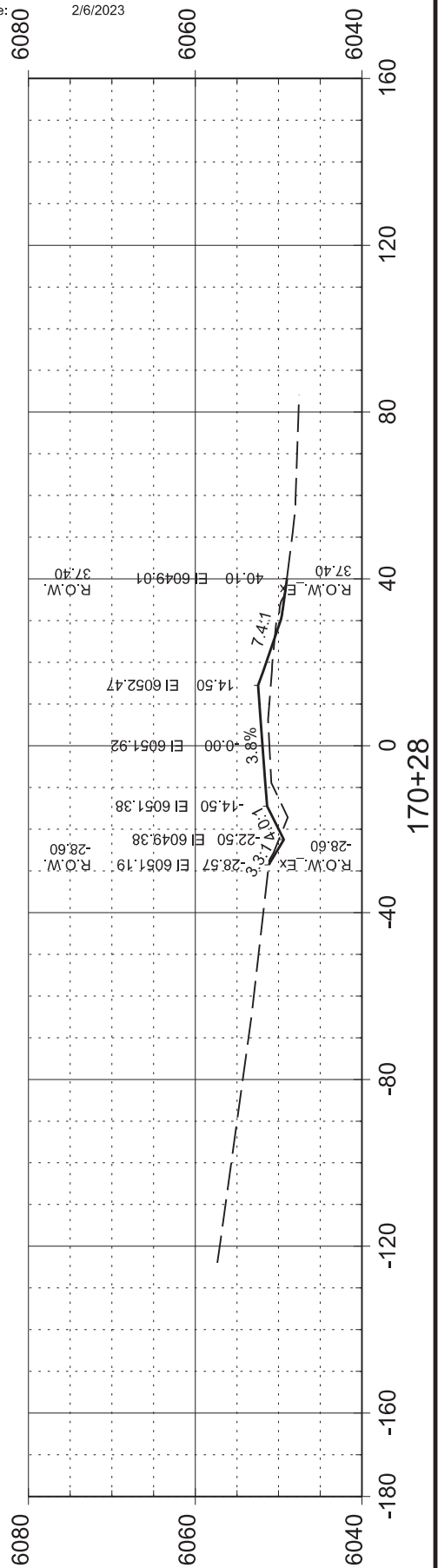
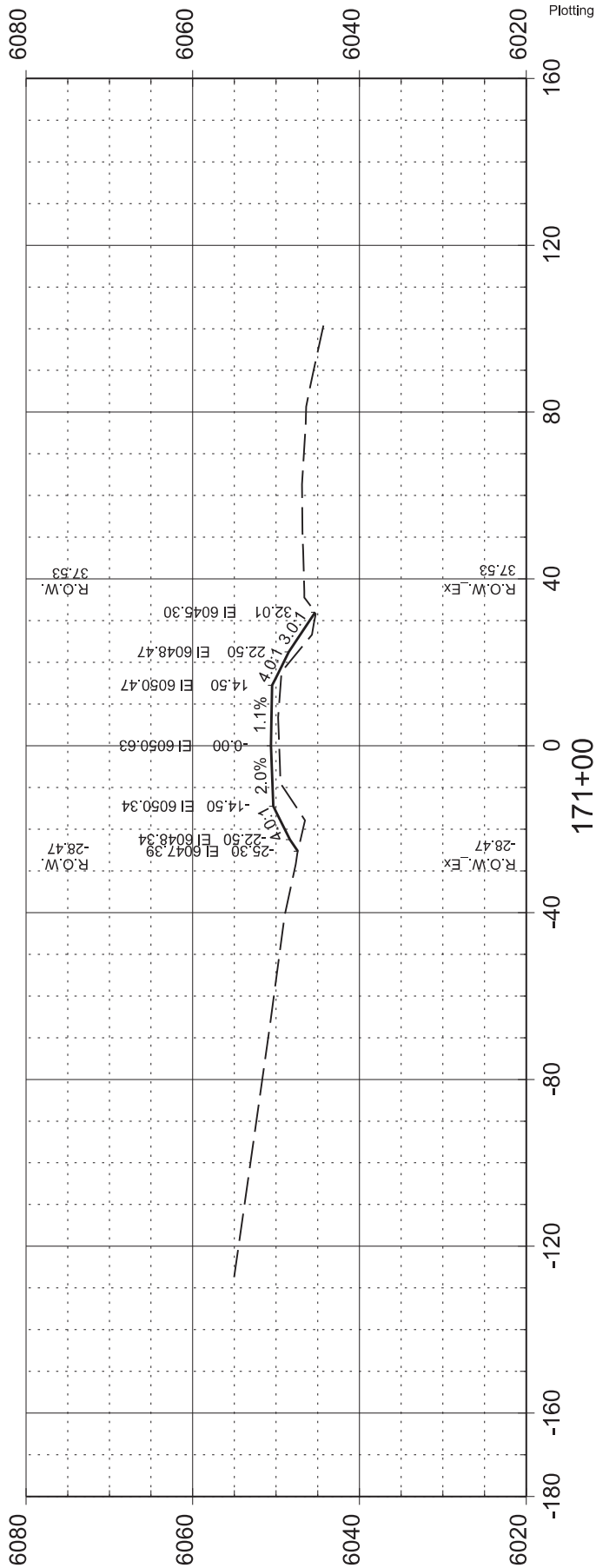
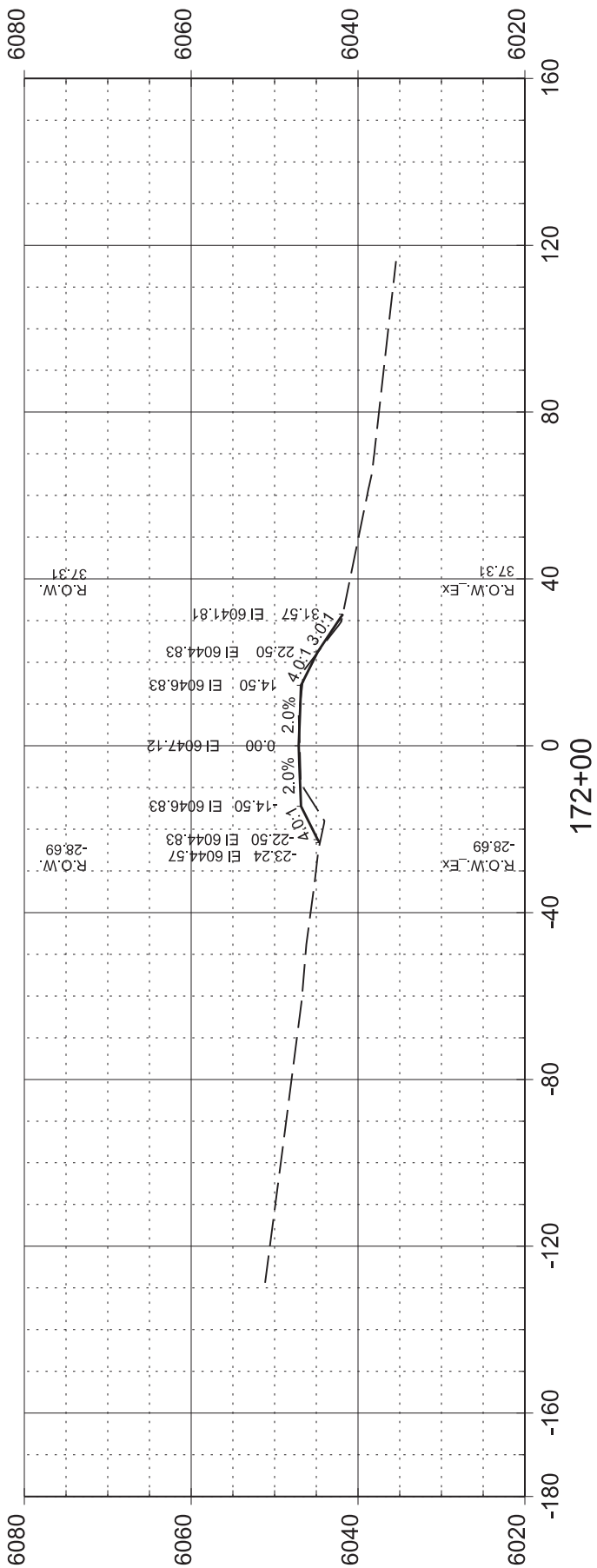
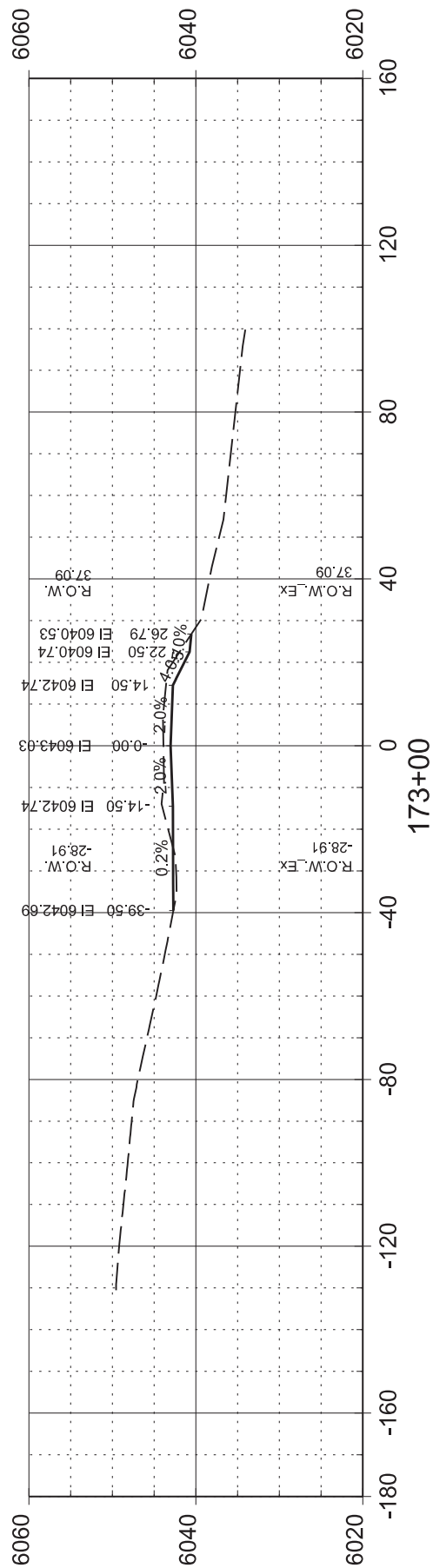
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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Revised Date: 2/6/2023		P 6403(10)		181		333	



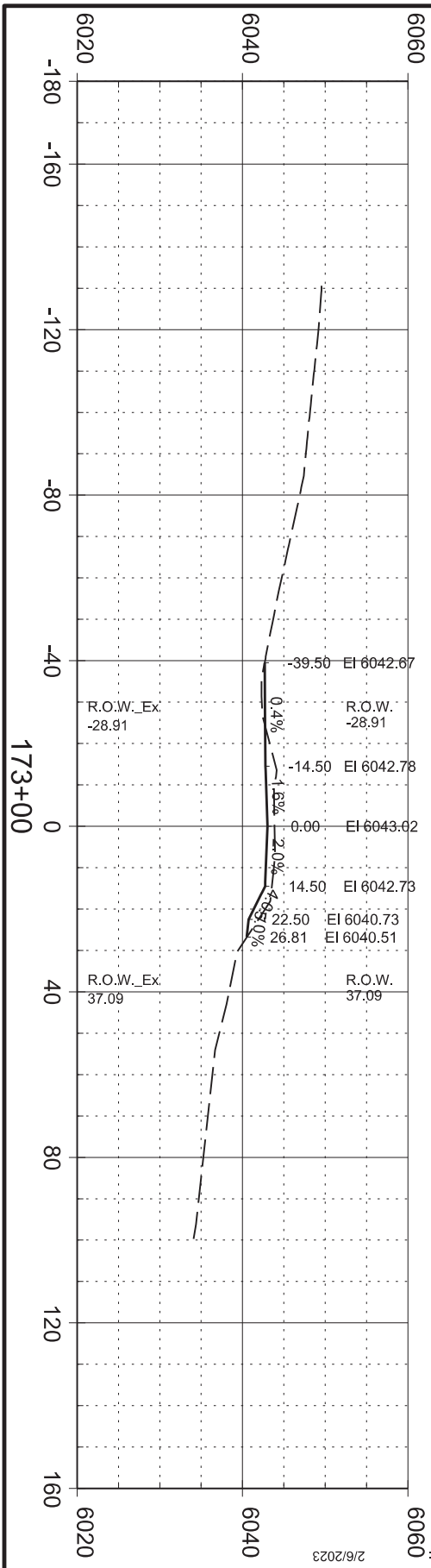
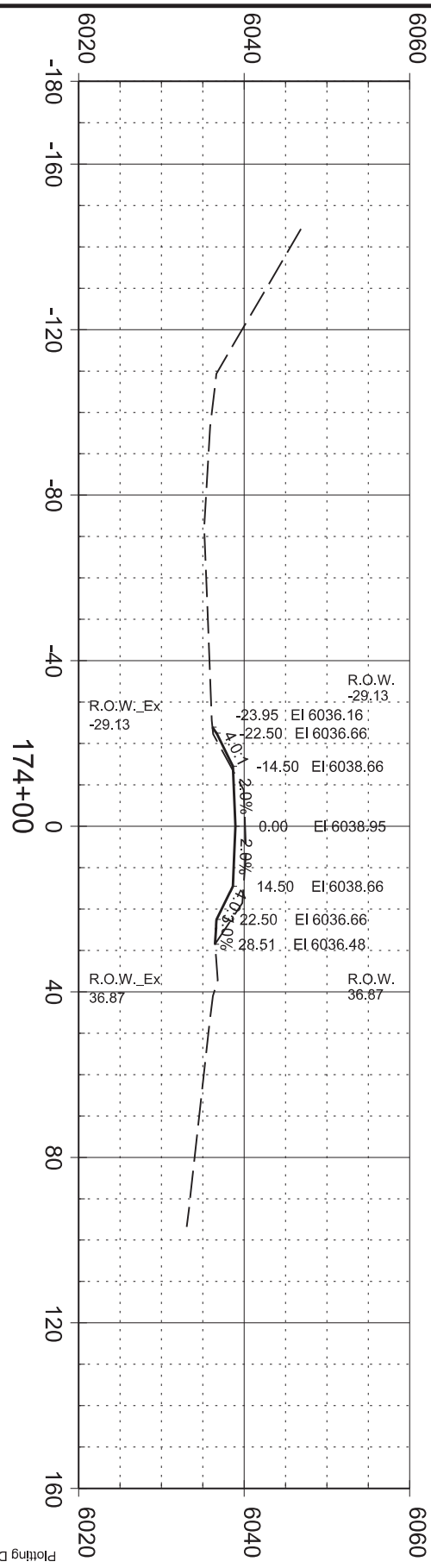
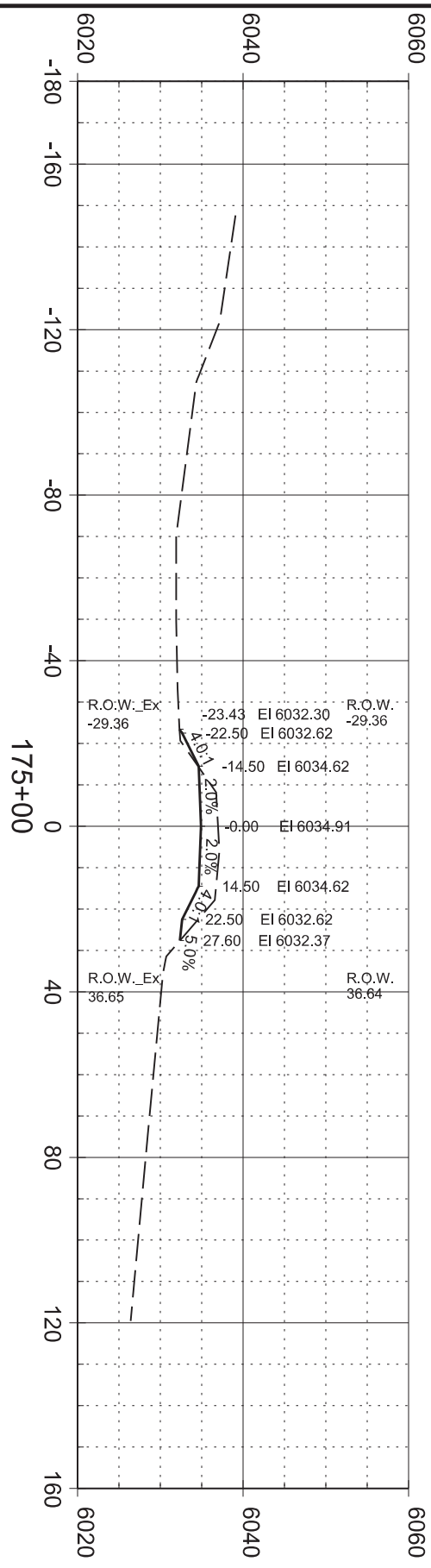
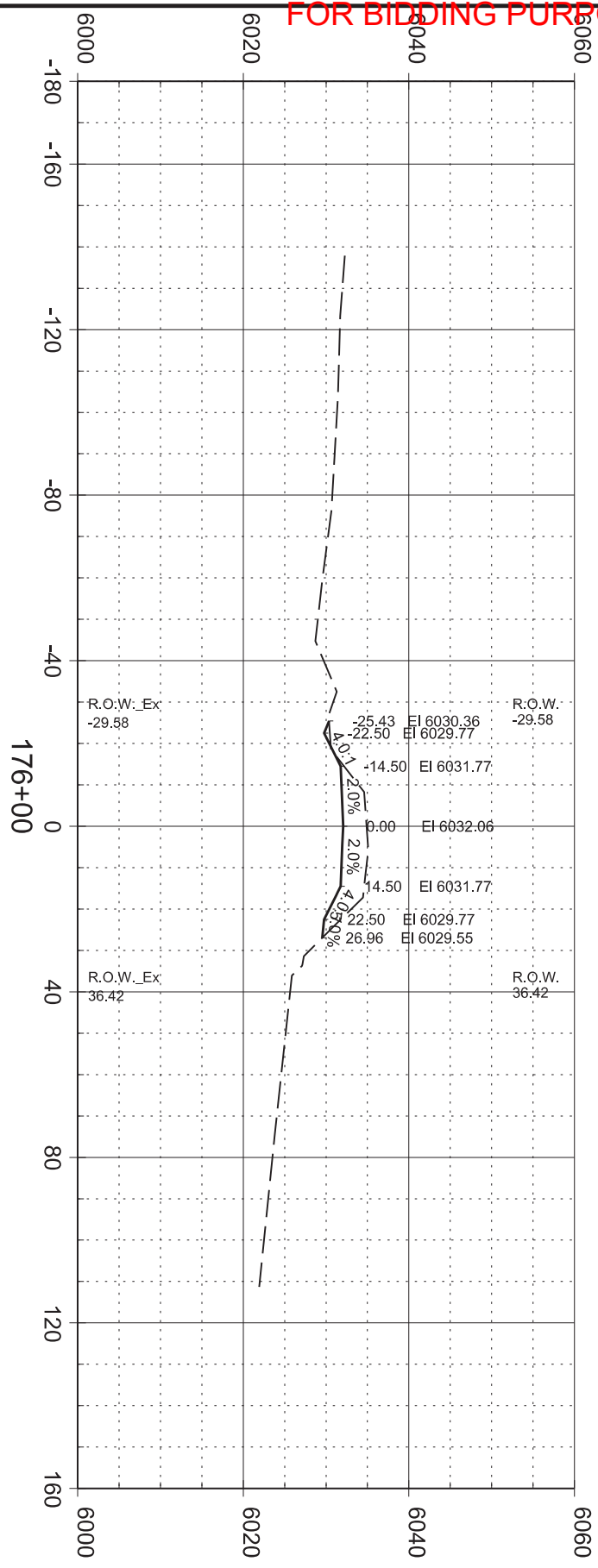
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	182	333

Plotting Date: 2/6/2023

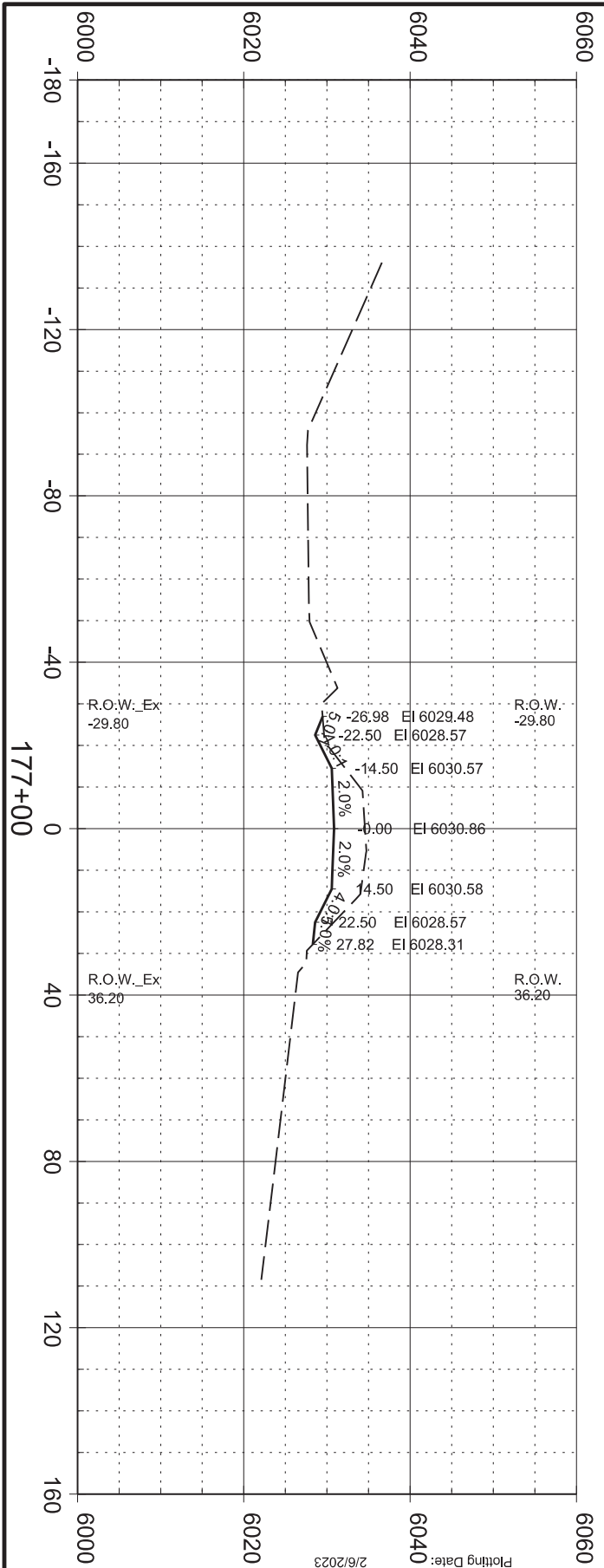
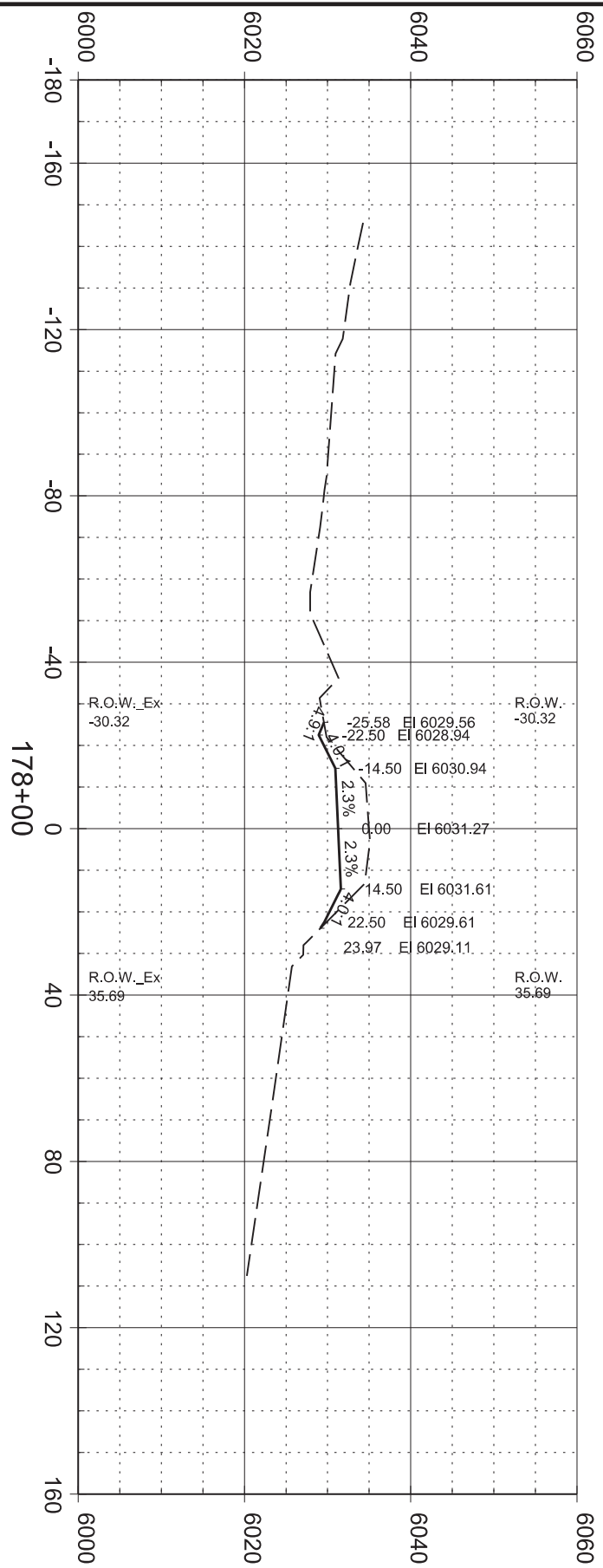
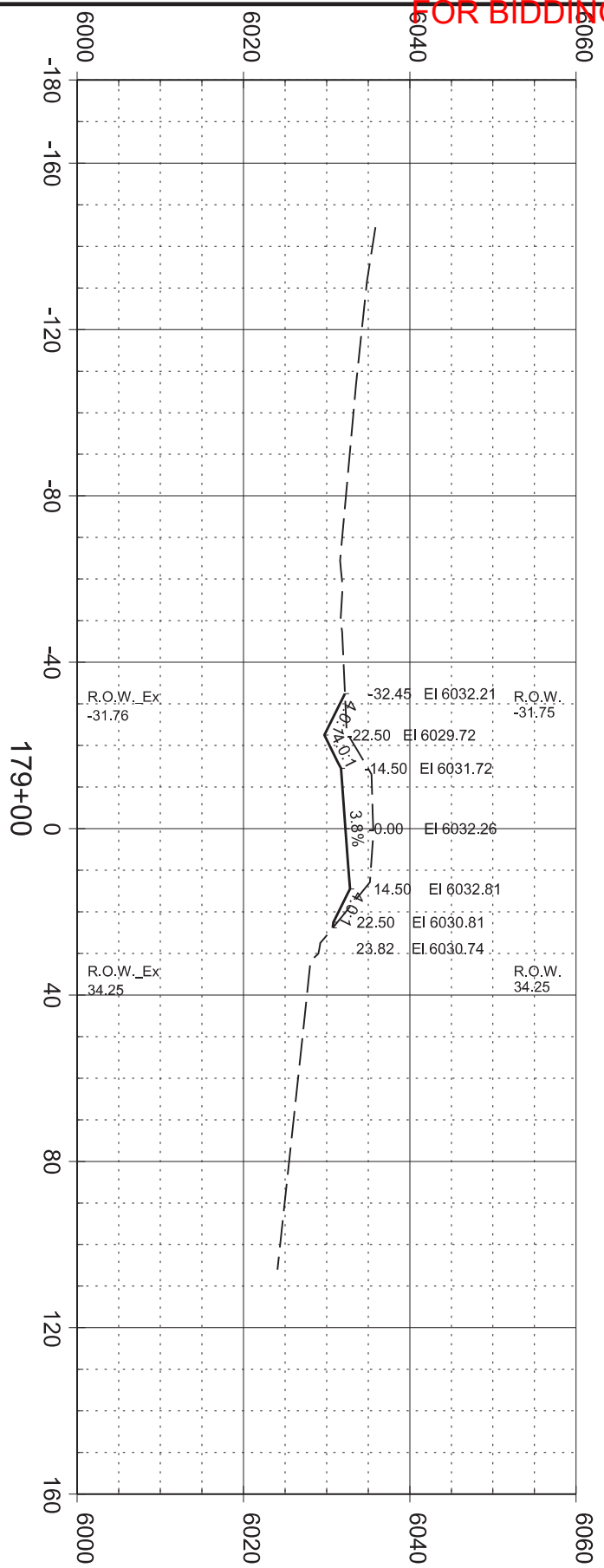
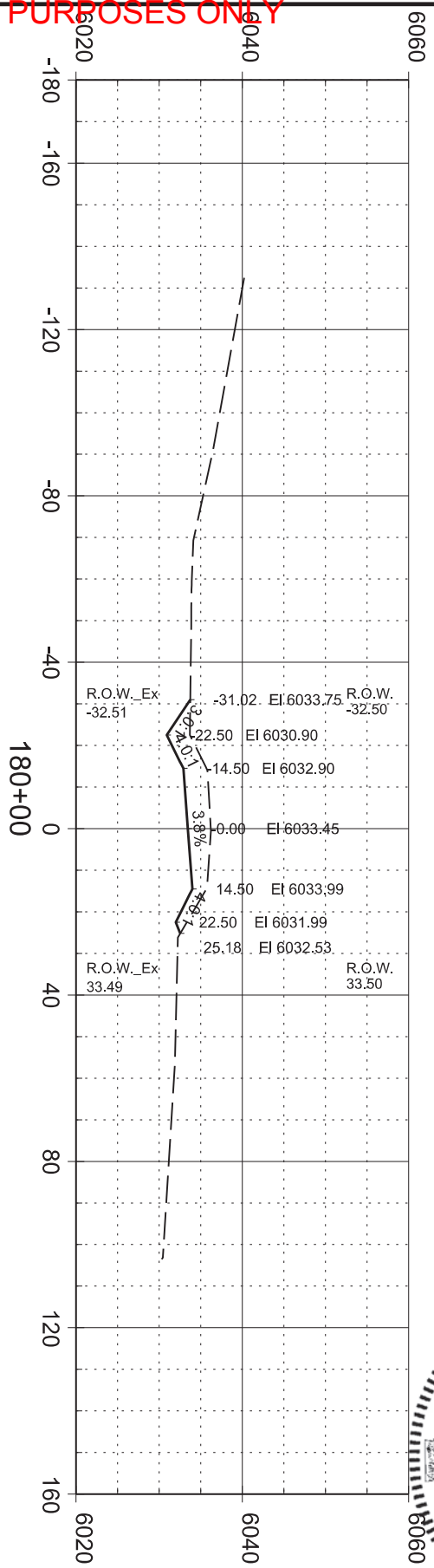




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STATE OF SOUTH DAKOTA	P 6403(10)	183	333
	PROJECT	SHEET	TOTAL SHEETS

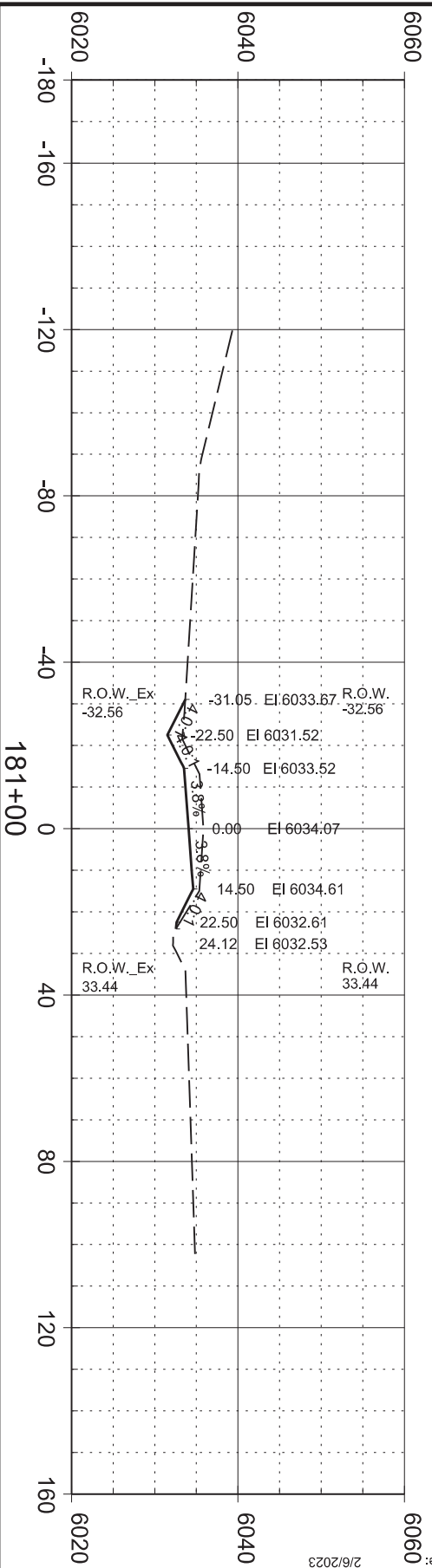
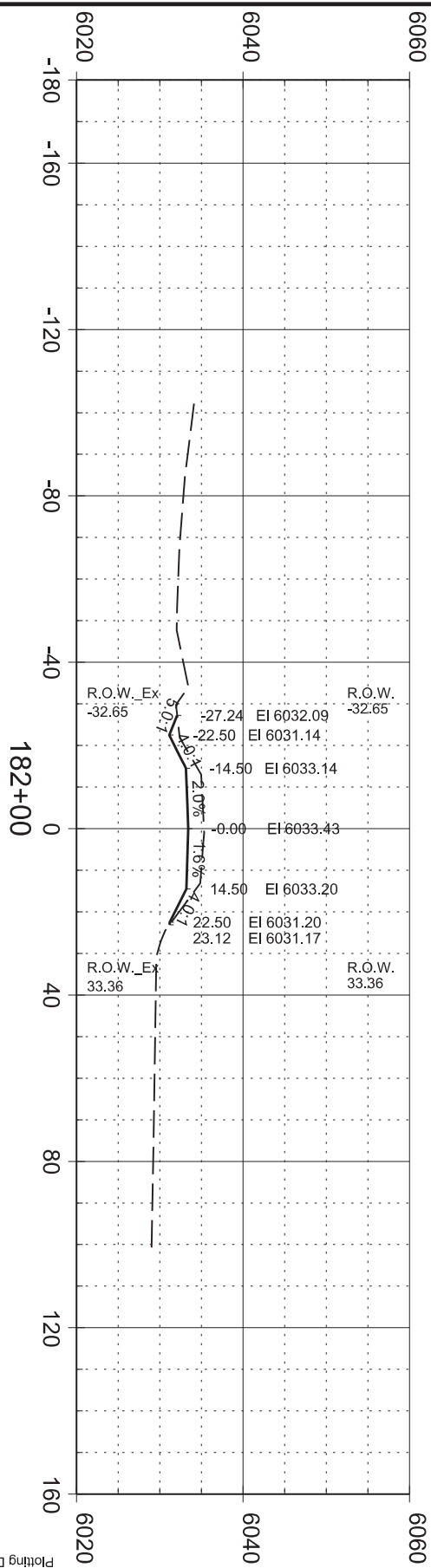
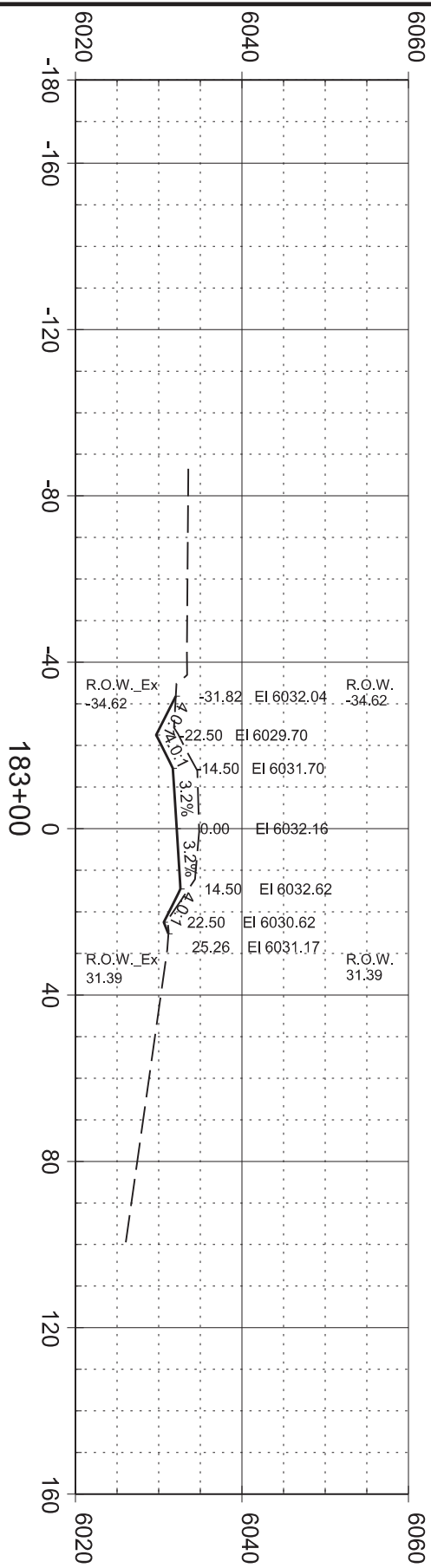
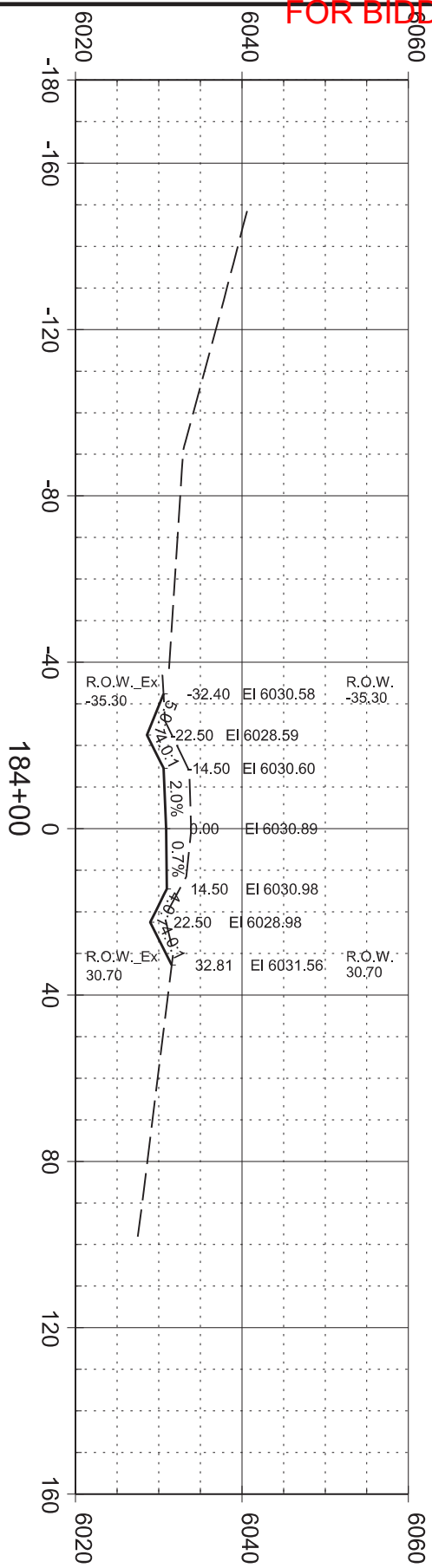
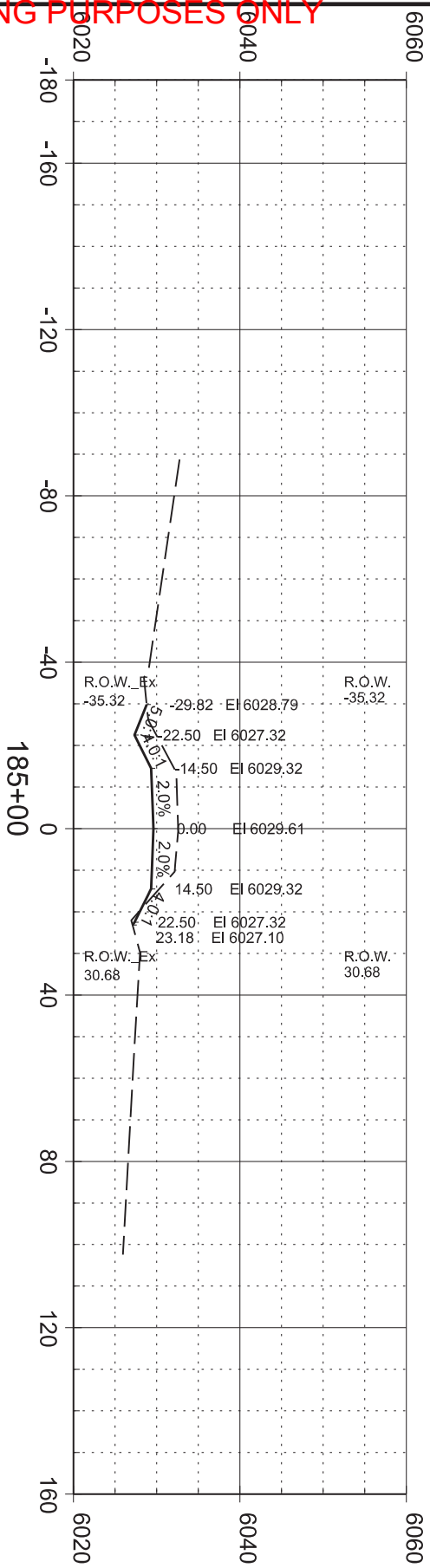


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA		PROJECT	P 6403(10)	SHEET	184	TOTAL SHEETS	333

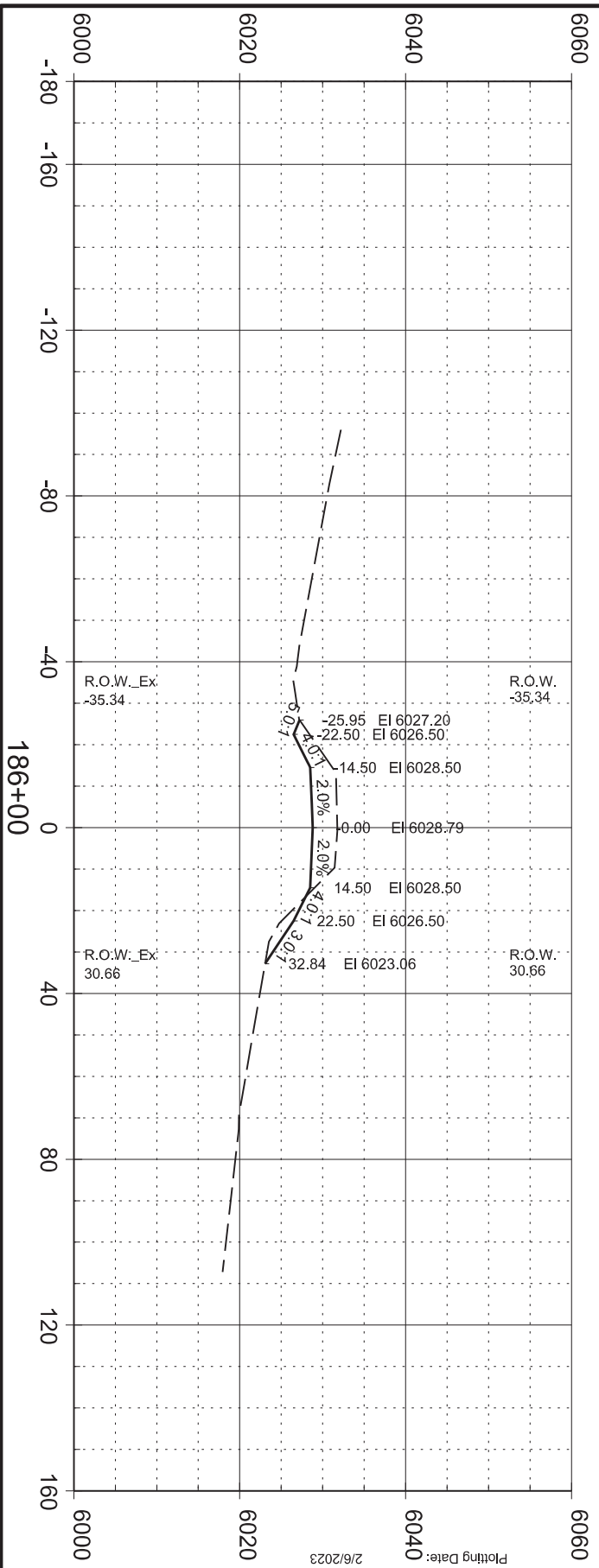
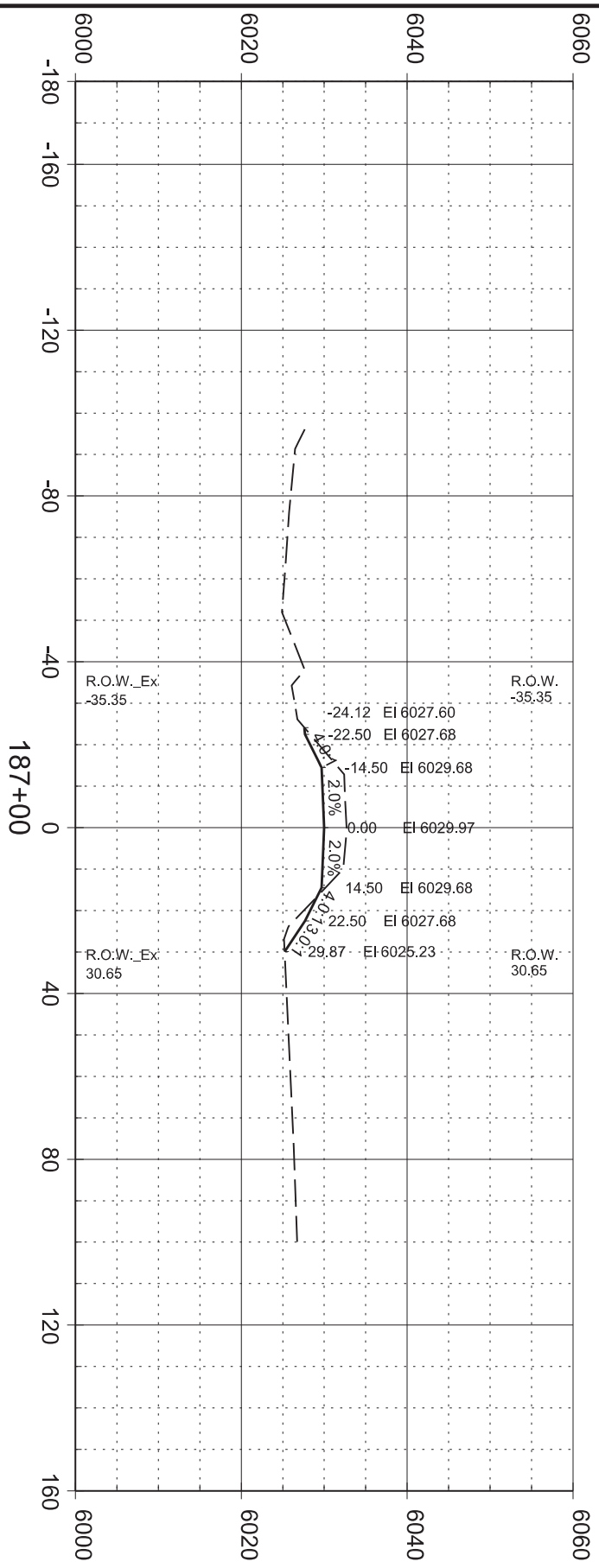
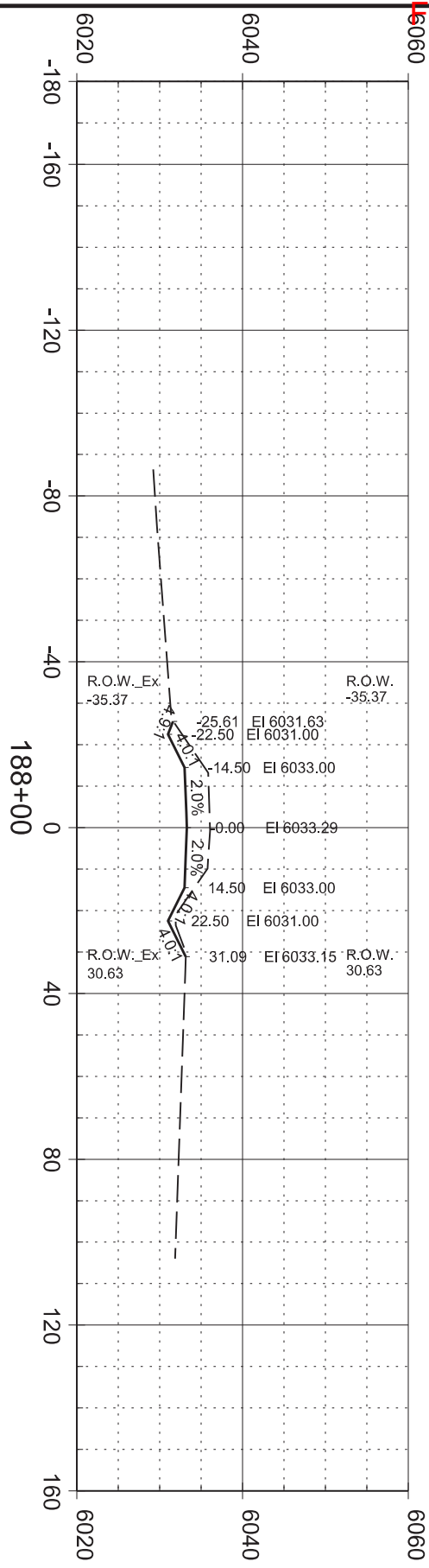
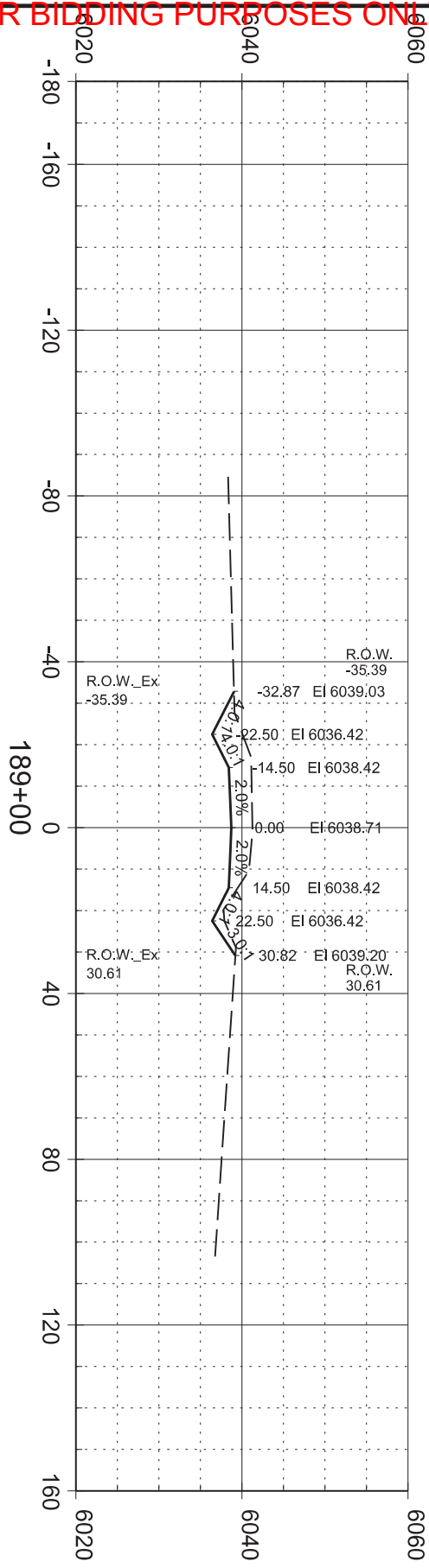
Plotting Date: 2/6/2023



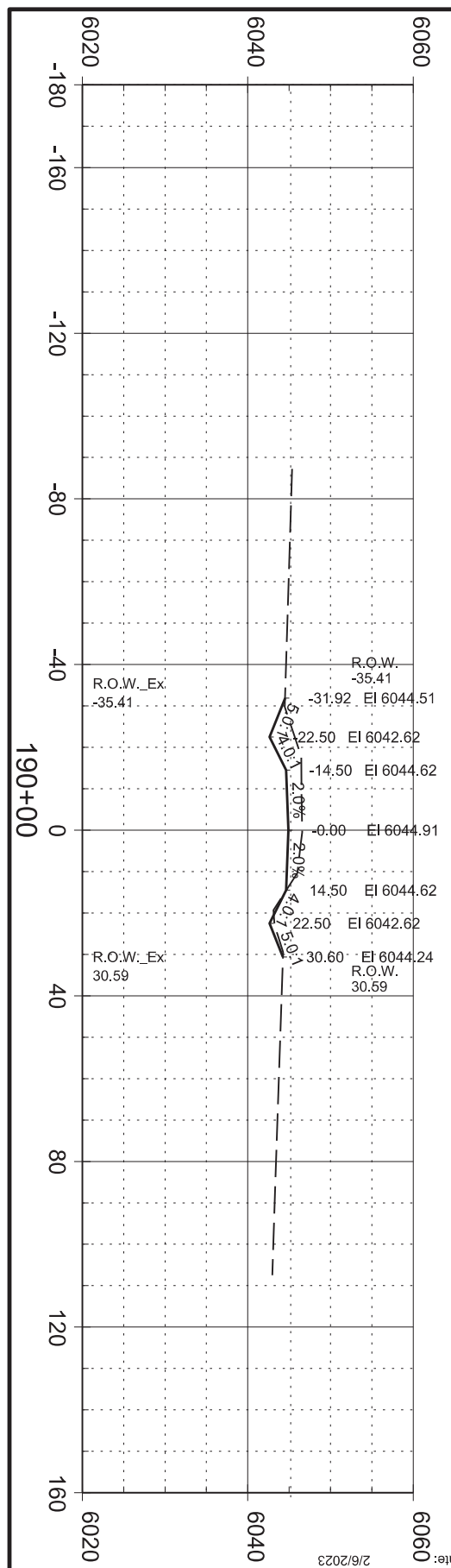
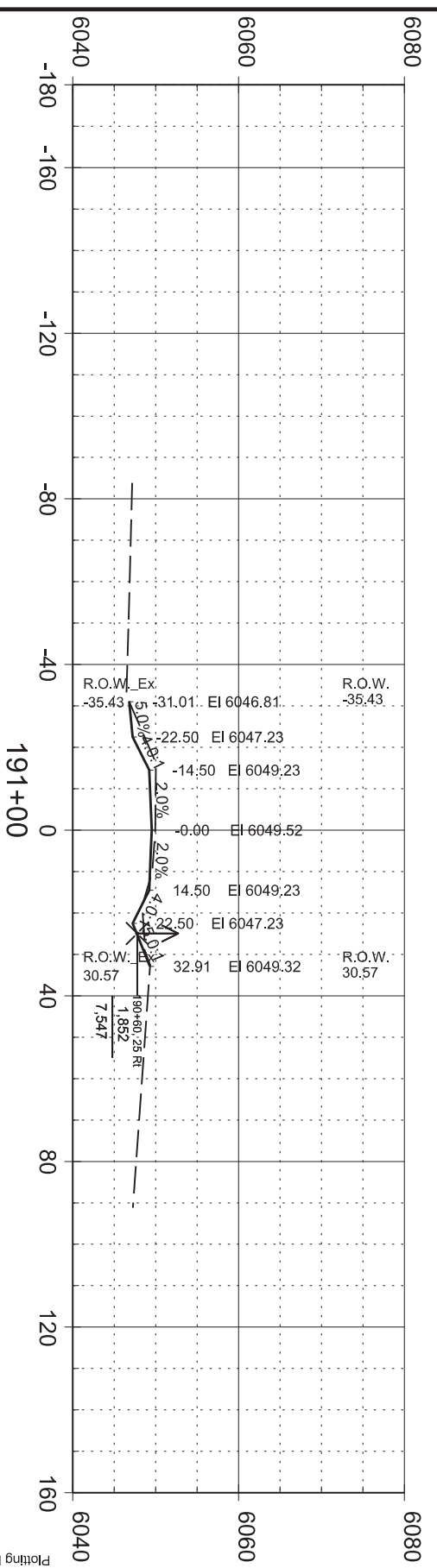
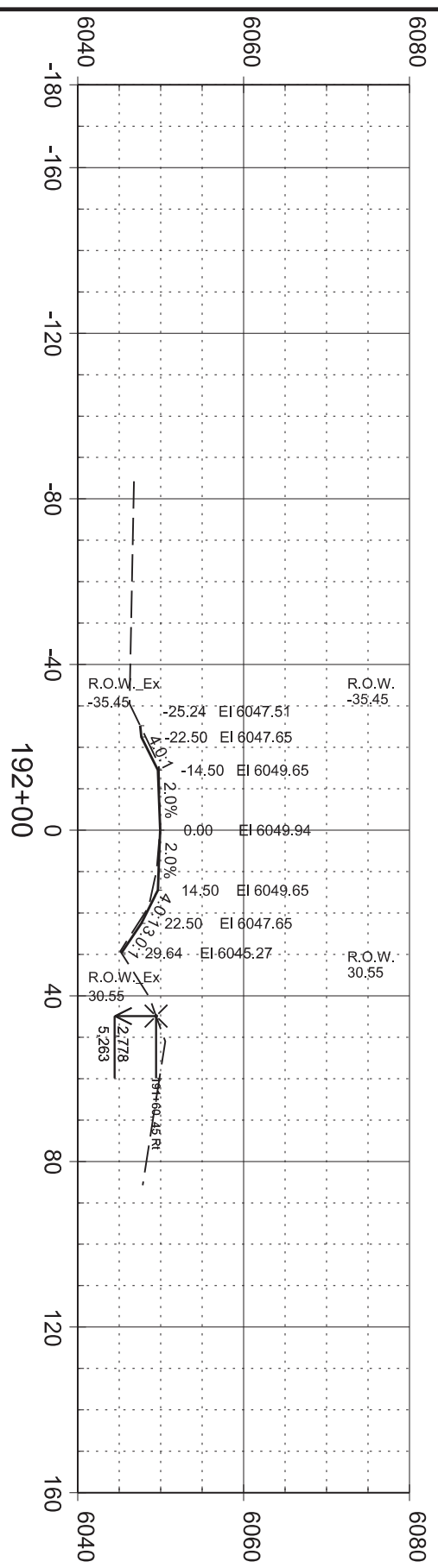
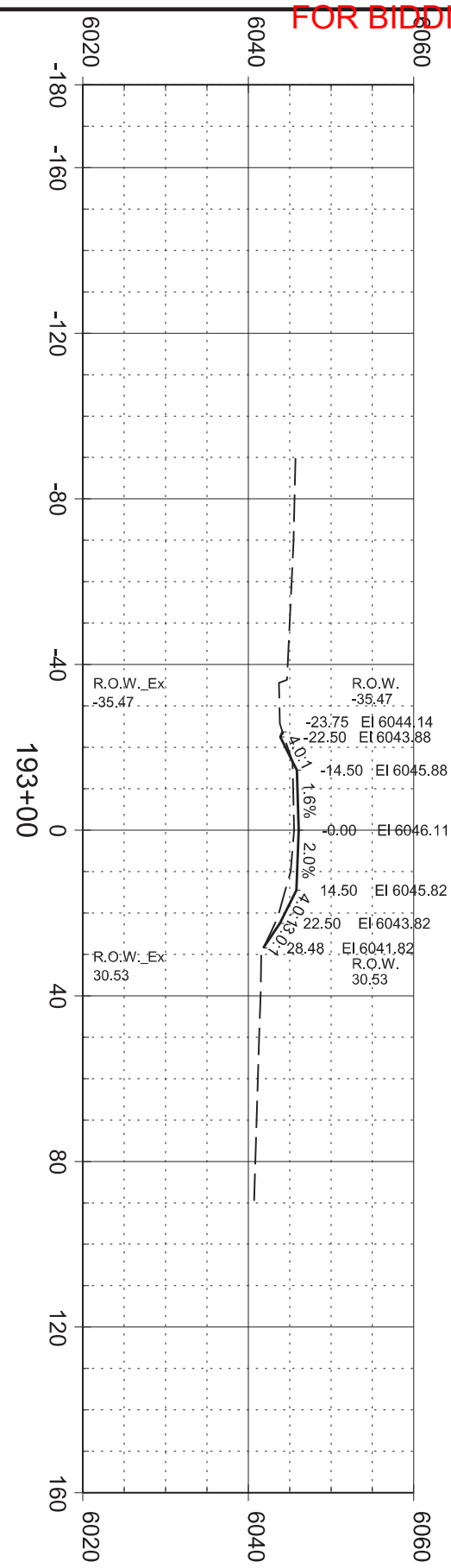
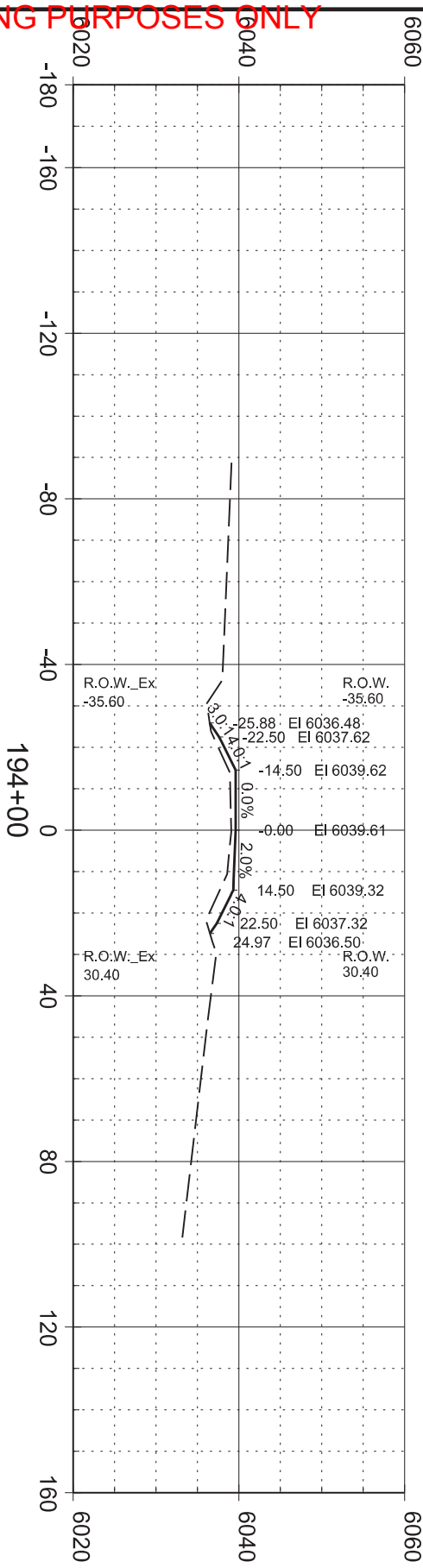


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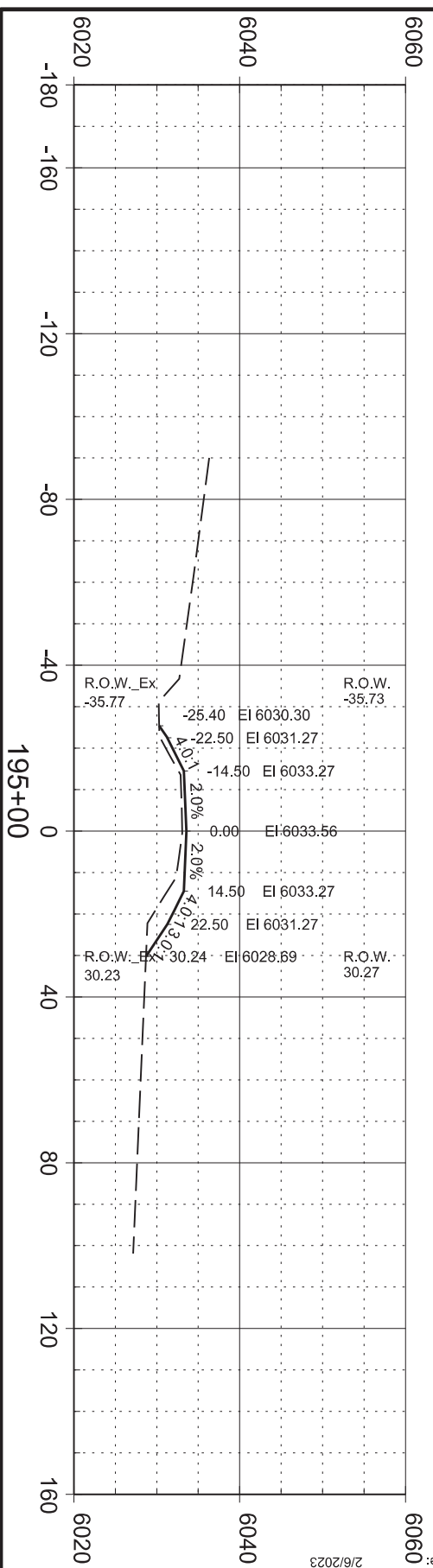
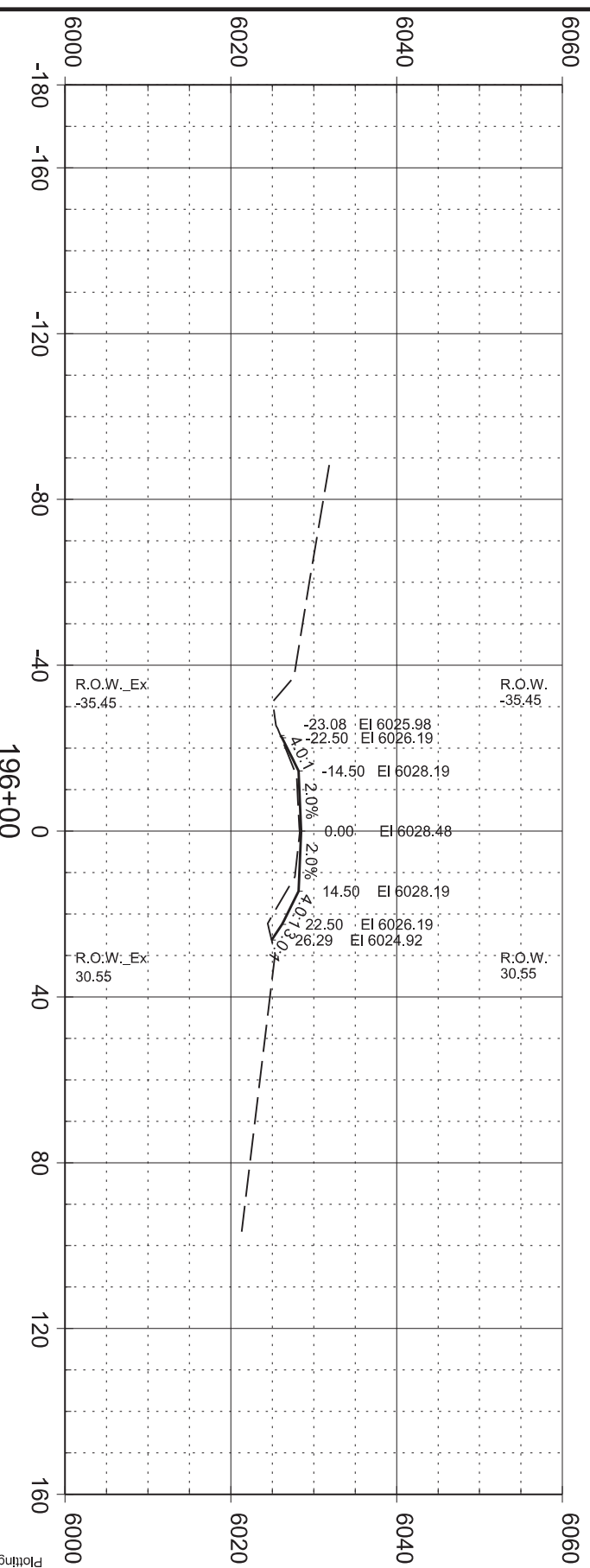
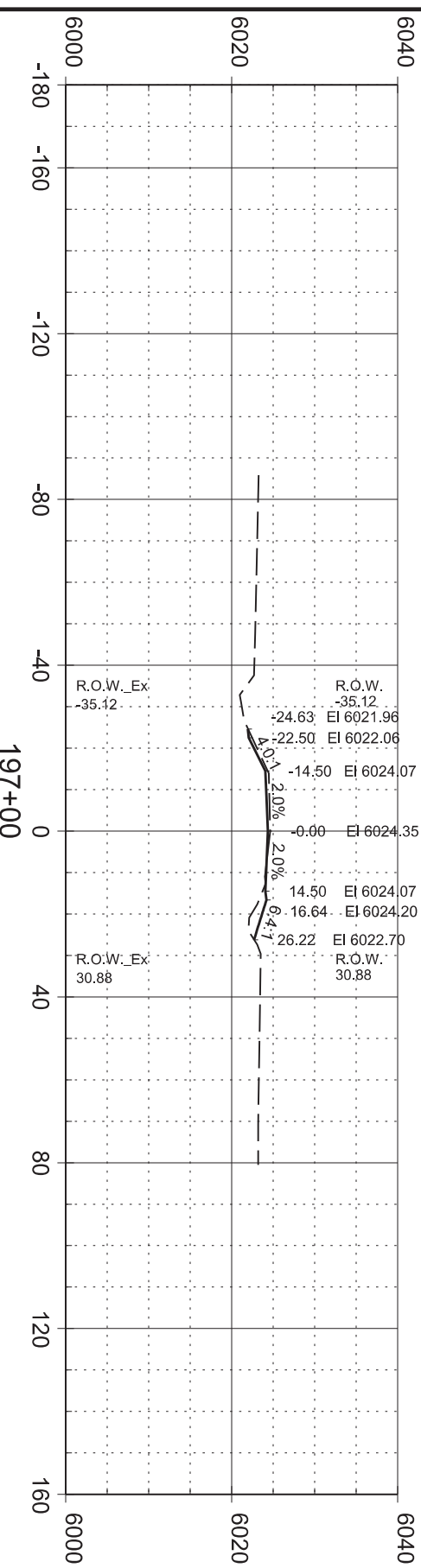
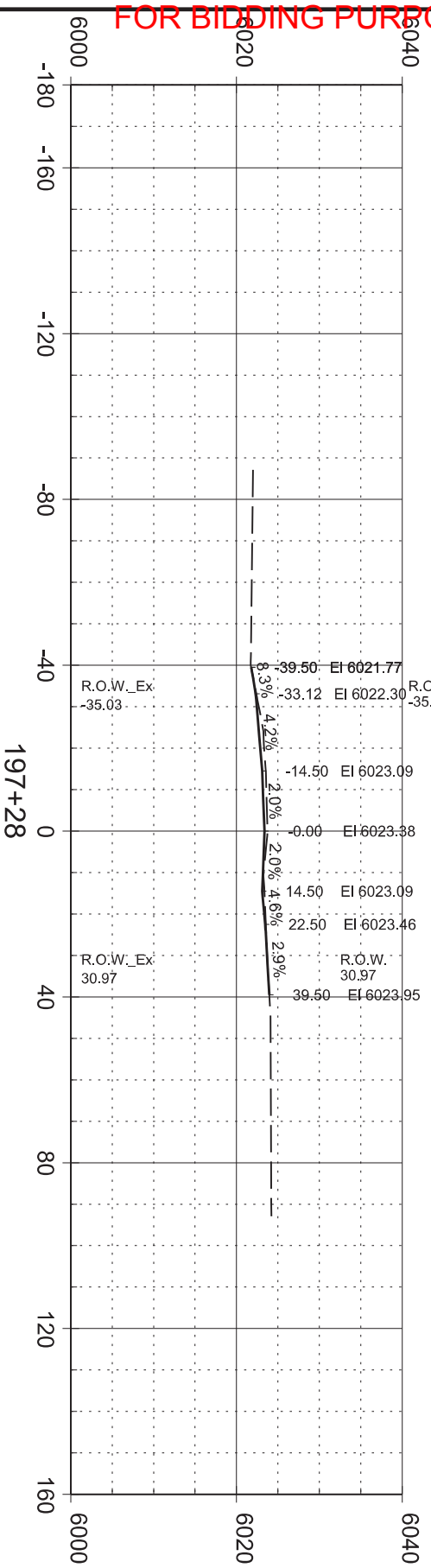
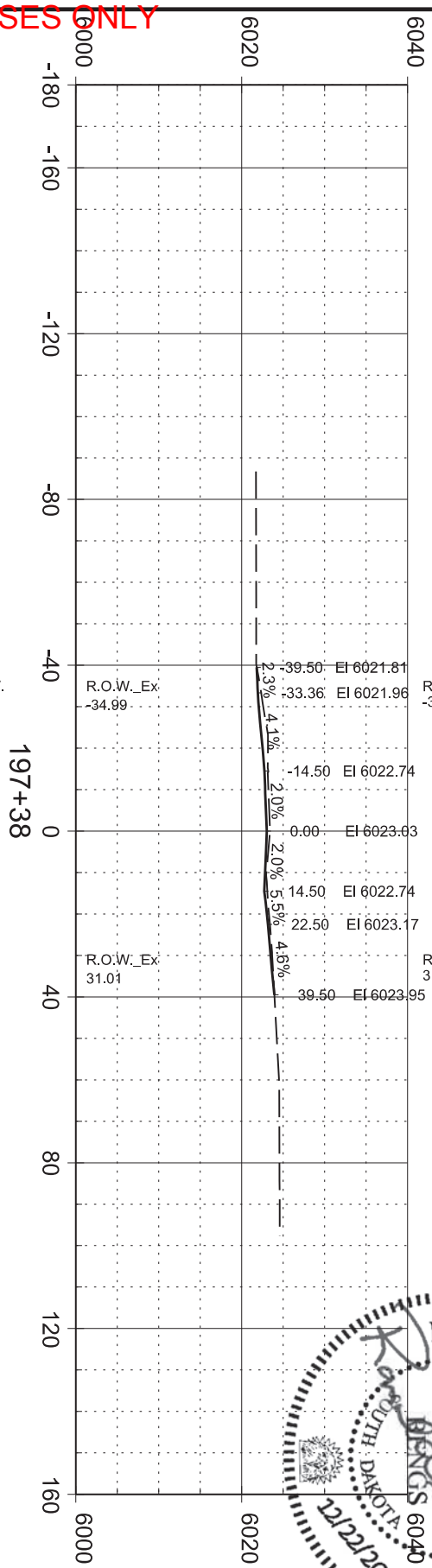
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
DAKOTA		P 6403(10)		185		333	
Plotting Date: 2/6/2023							







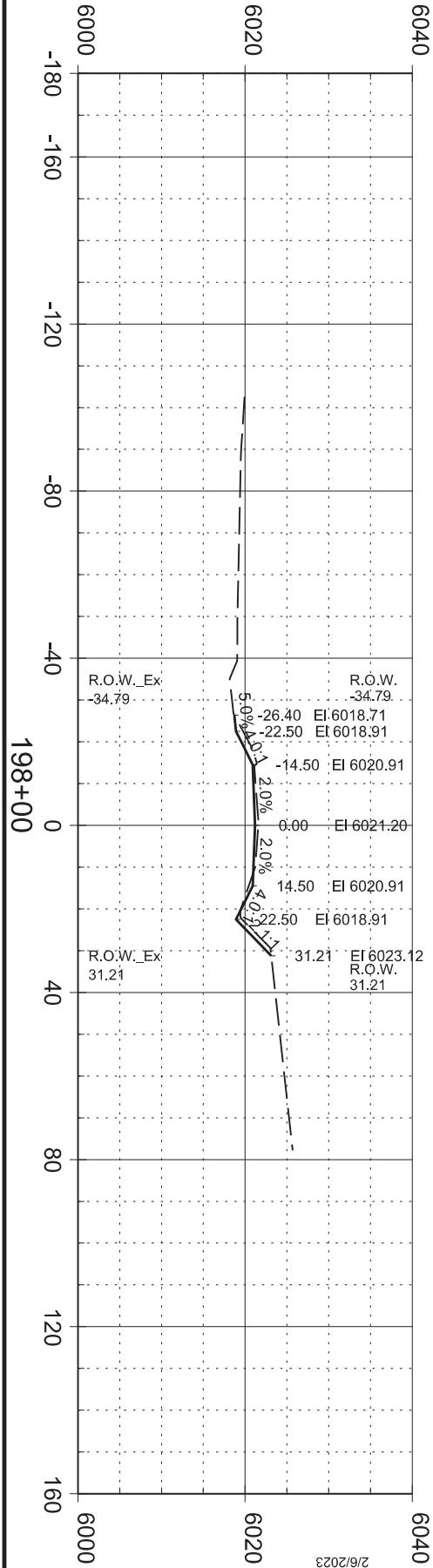
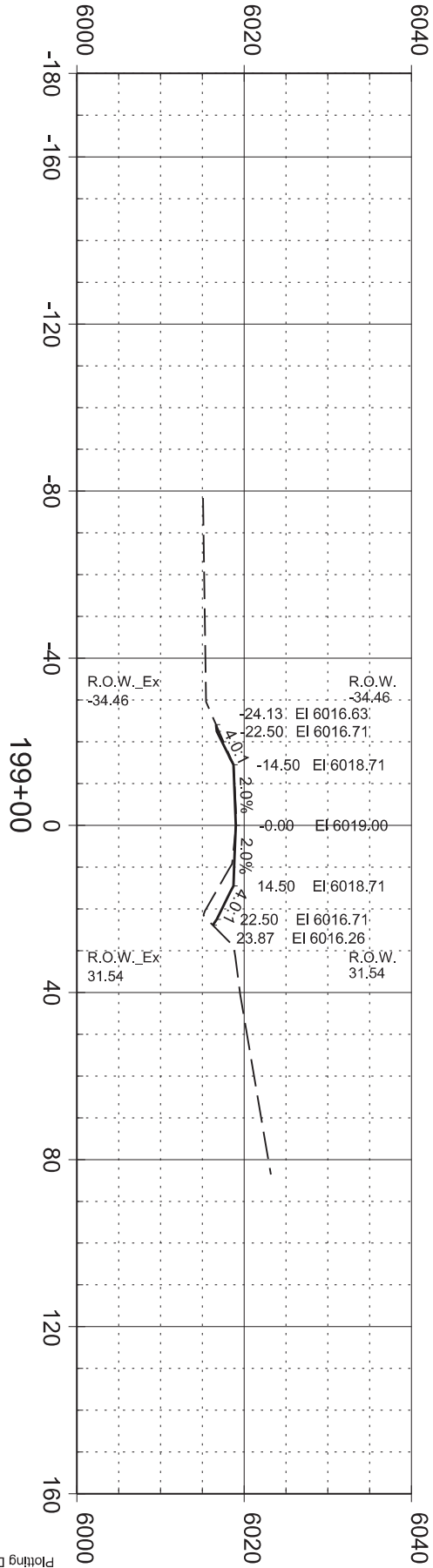
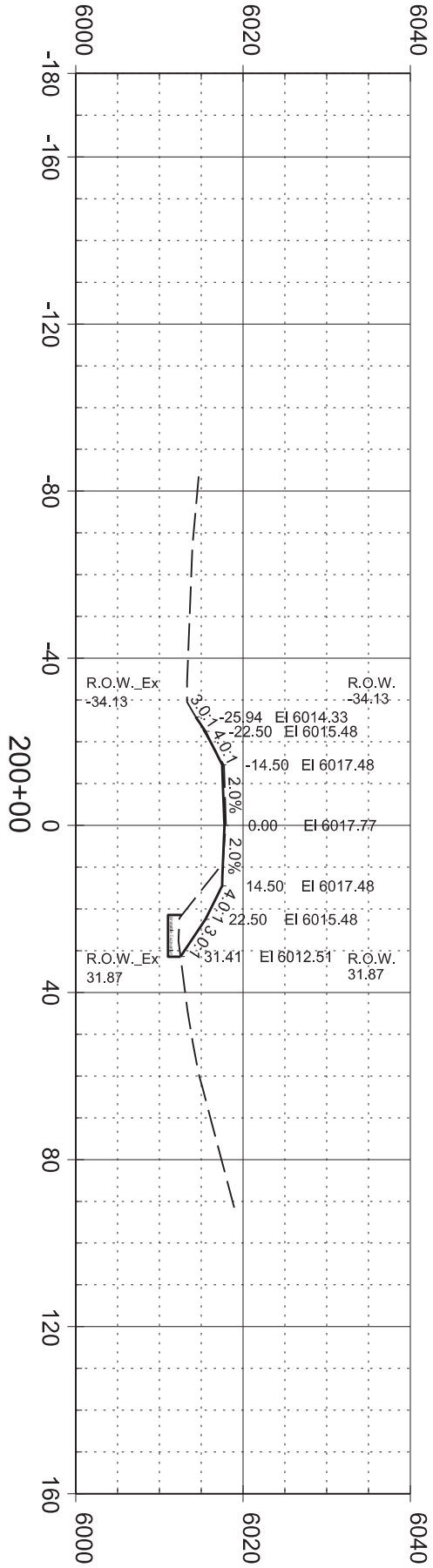
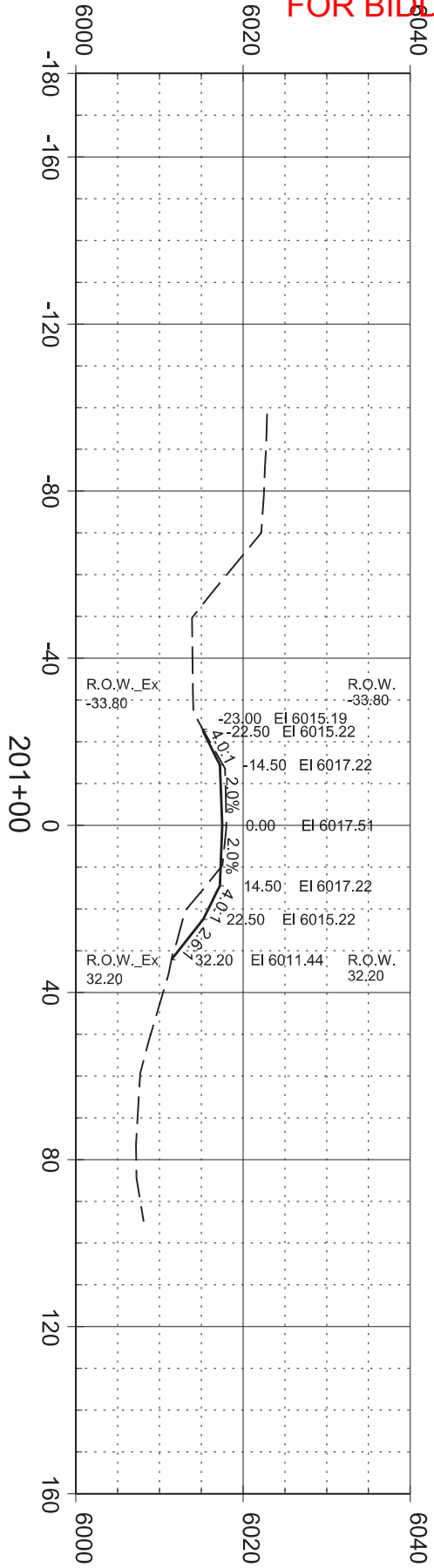
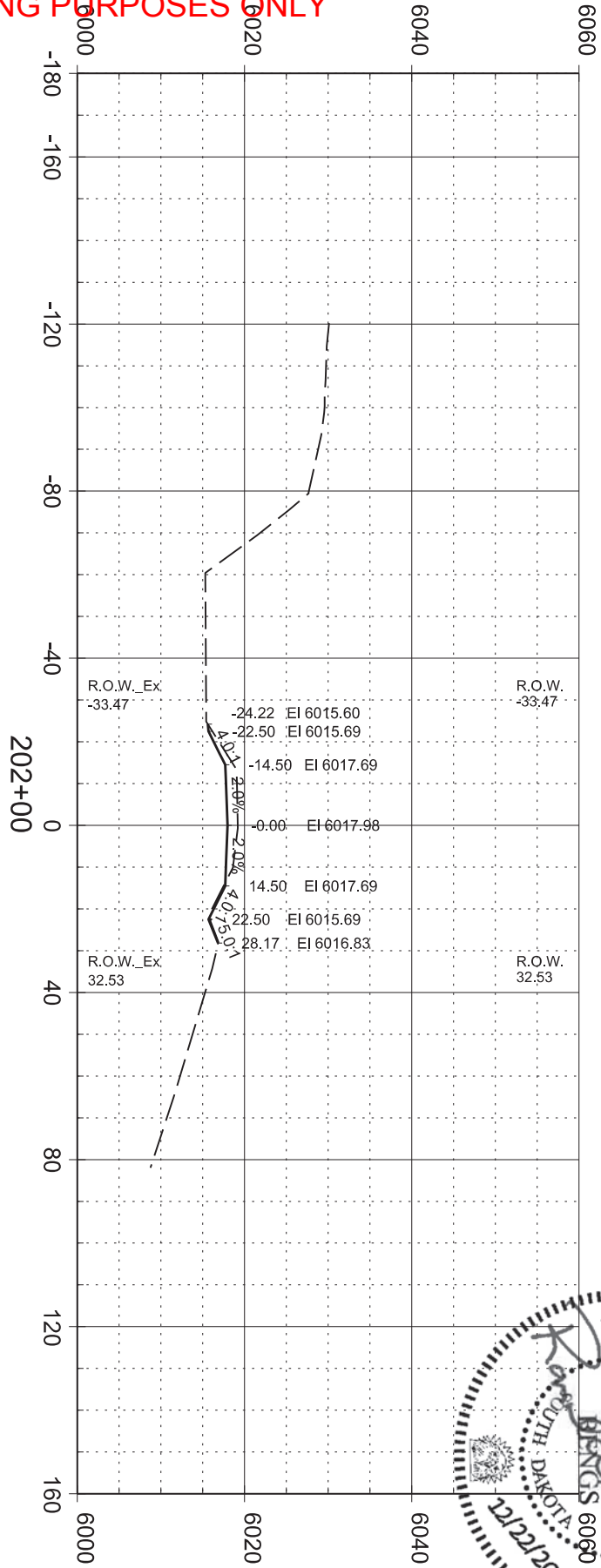
STATE OF SOUTH DAKOTA	P 6403(10)	187	333
PROJECT		SHEET	TOTAL SHEETS



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STATE OF SOUTH DAKOTA	P 6403(10)	188	333
		SHEET	TOTAL SHEETS





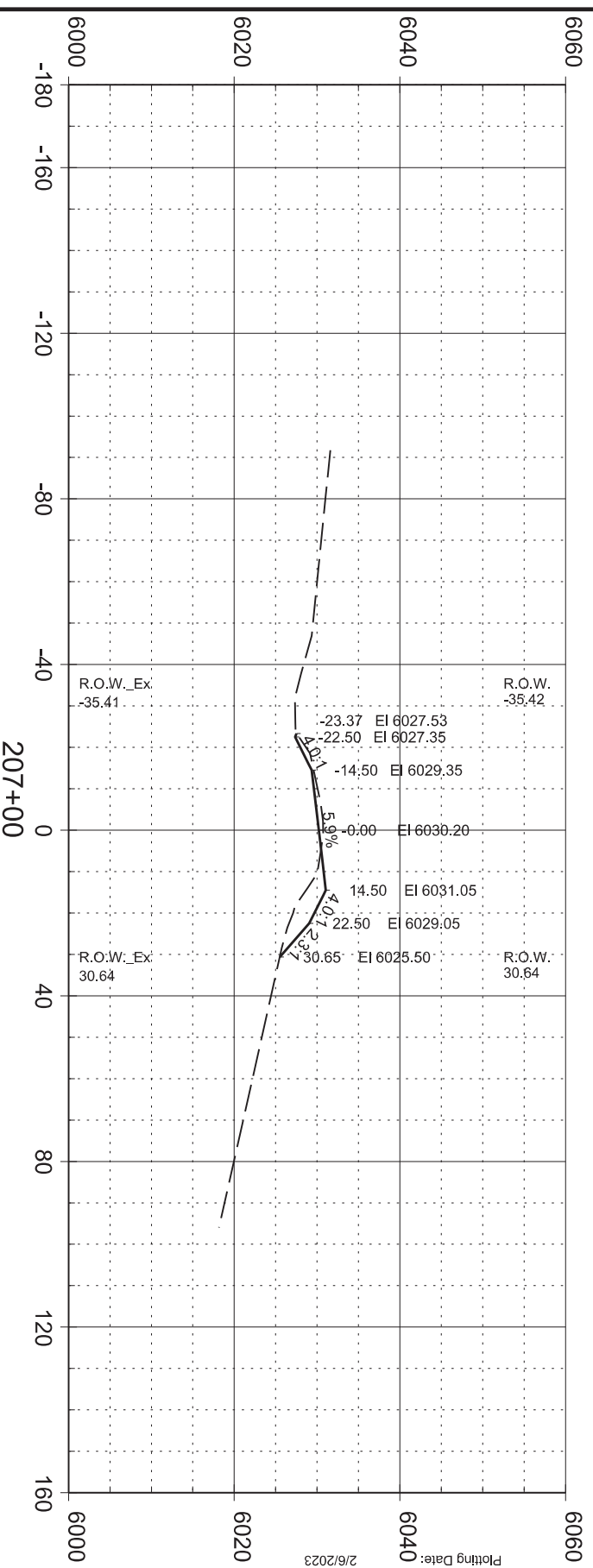
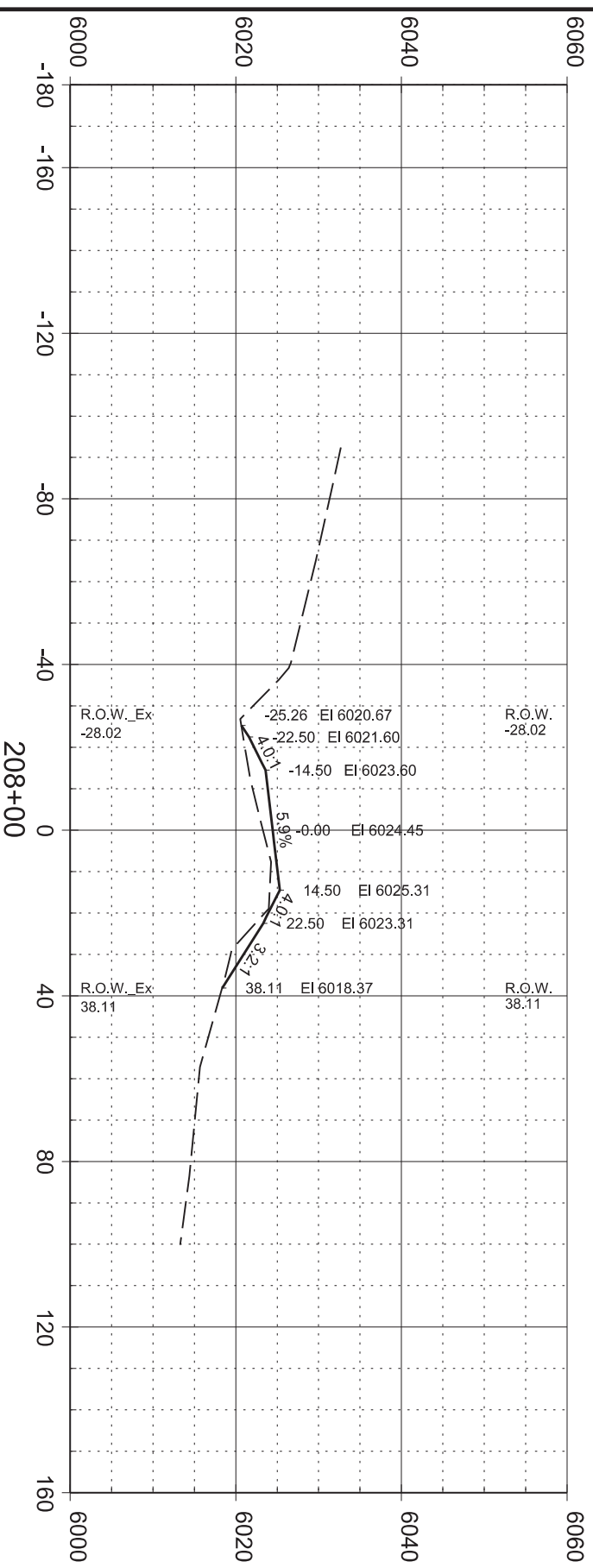
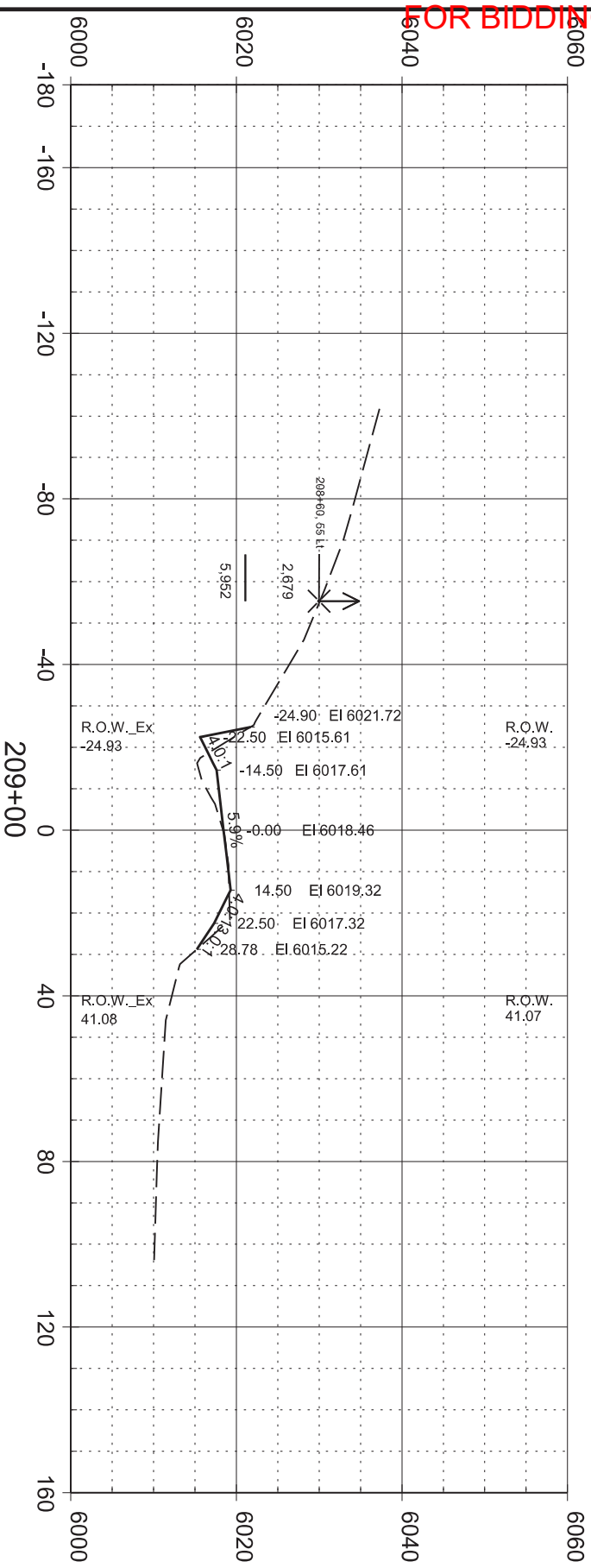
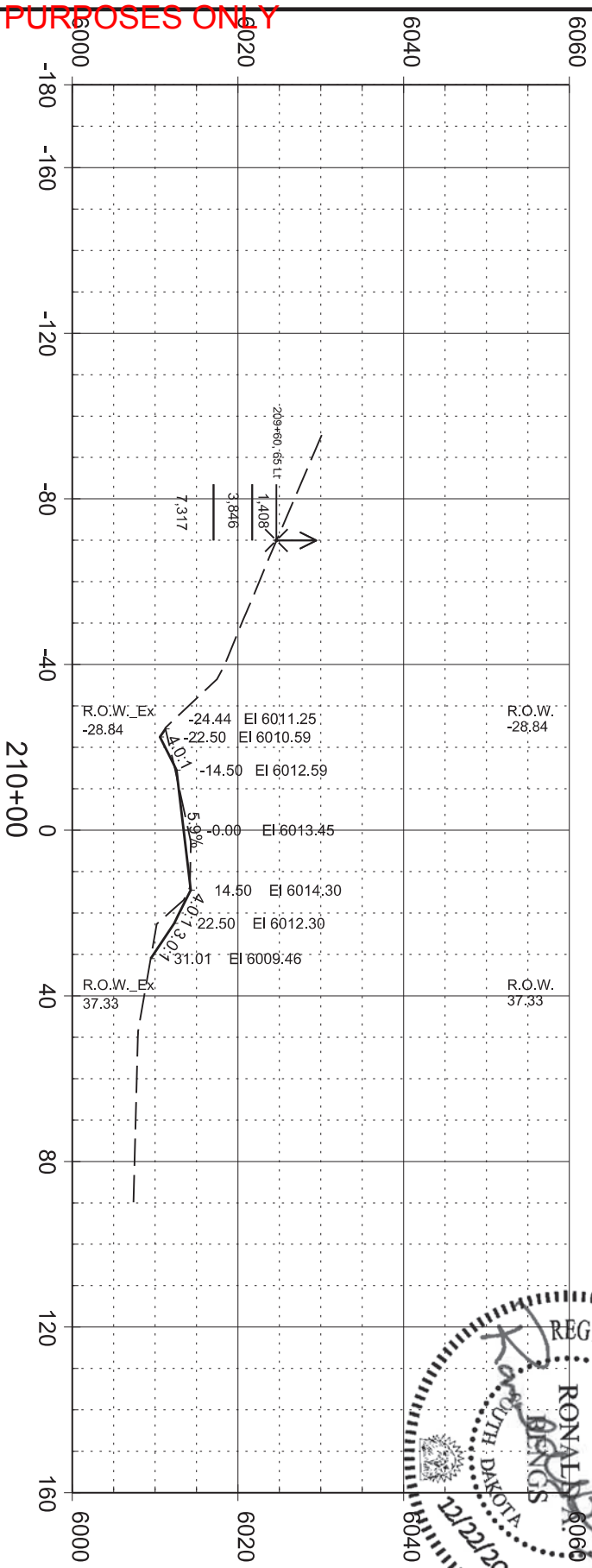
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
Plotting Date: 2/6/2023	P 6403(10)	189	333



STATE OF SOUTH DAKOTA	P 6403(10)	190	333
	PROJECT	SHEET	TOTAL SHEETS

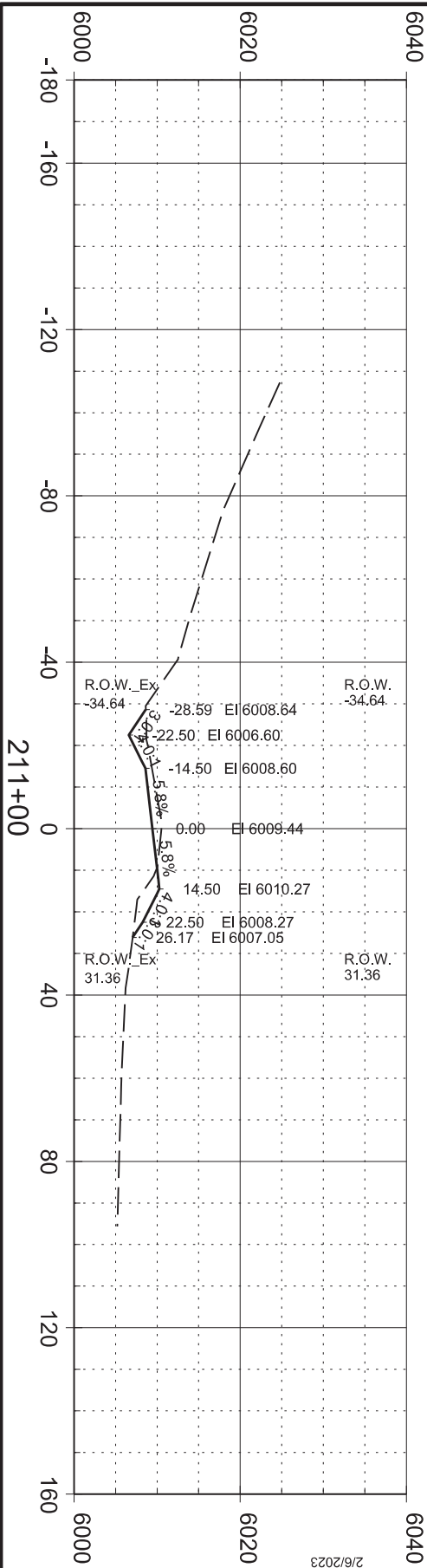
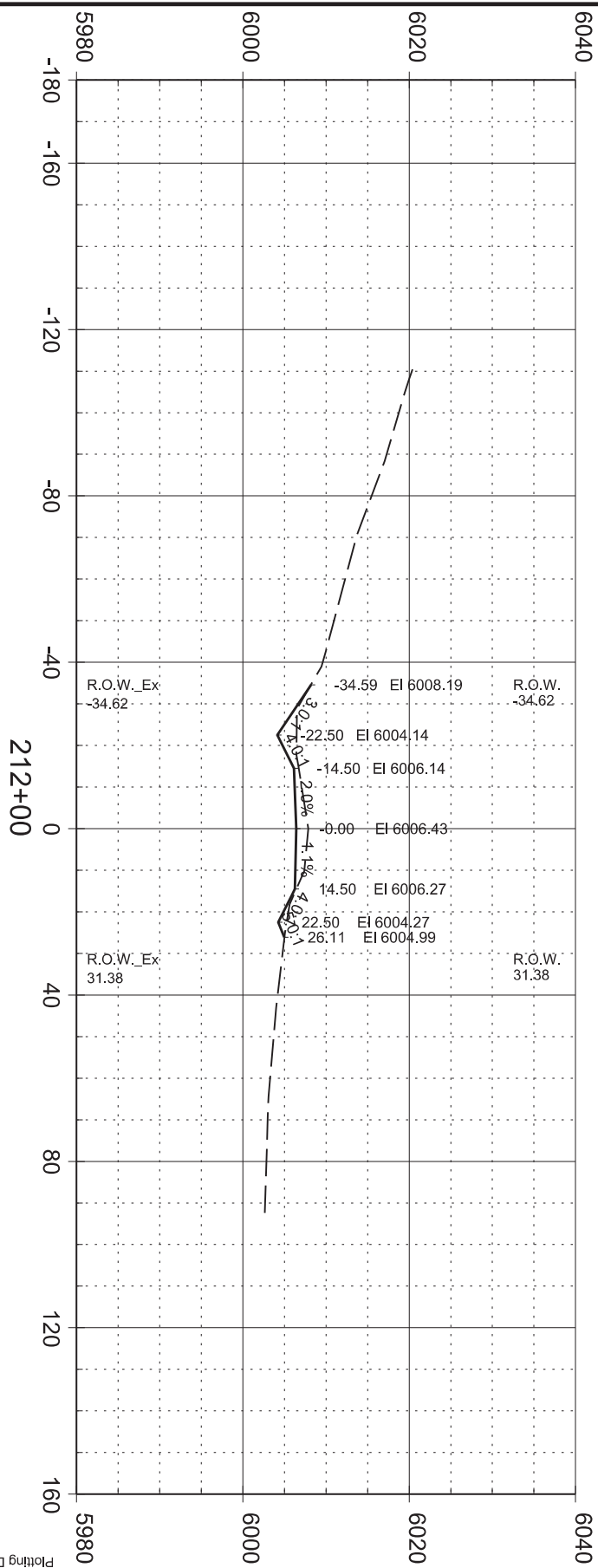
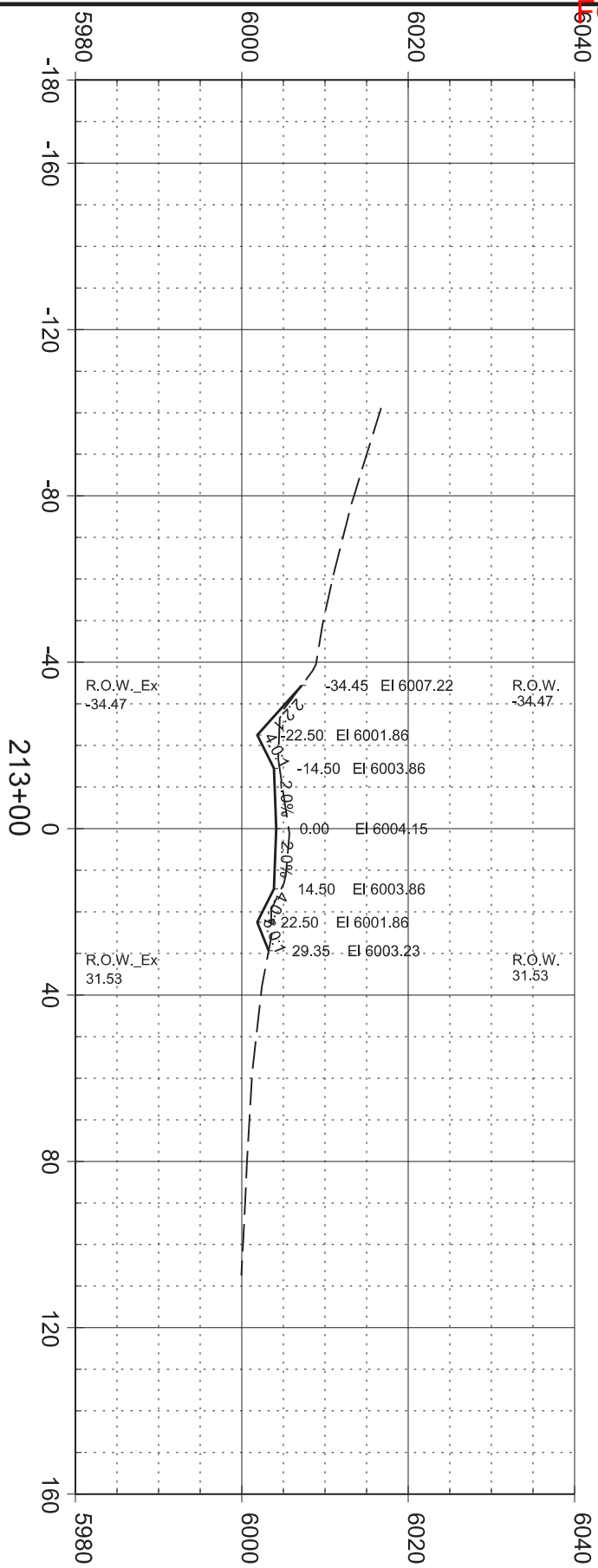
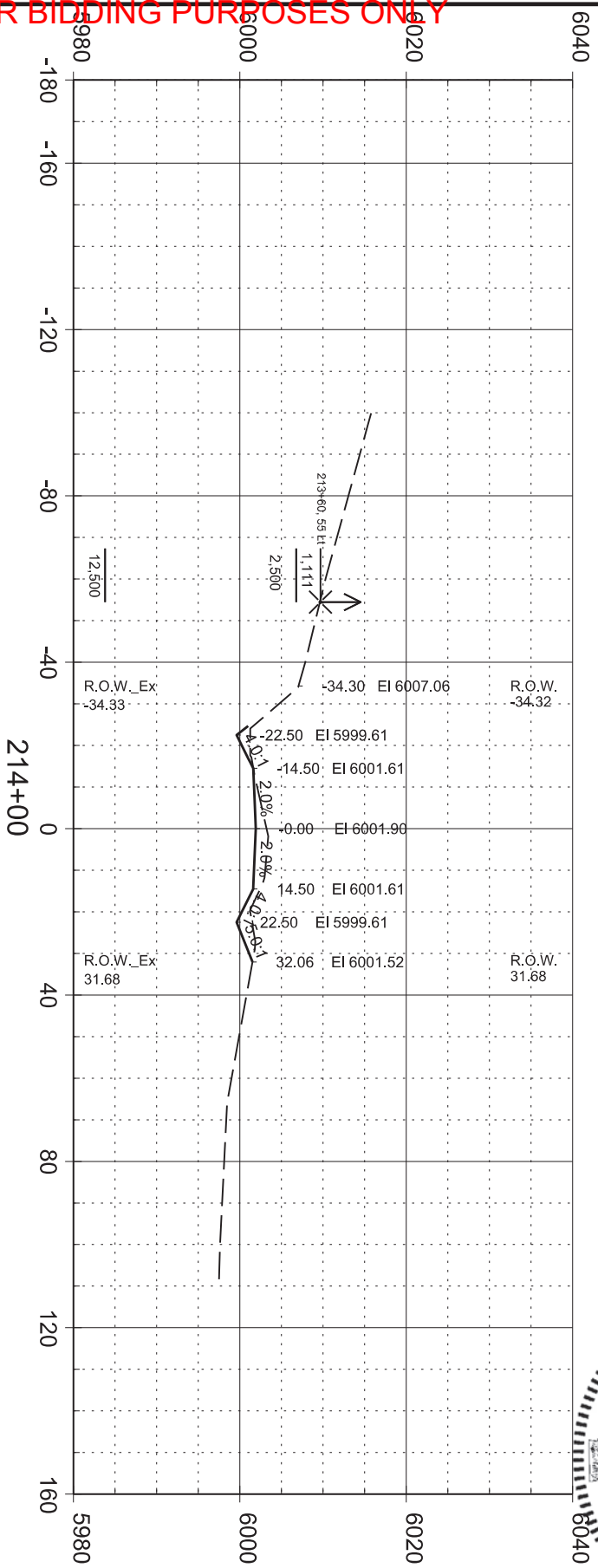




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STATE OF SOUTH DAKOTA		PROJECT	SHEET	TOTAL SHEETS
P 6403(10)				
191		333		

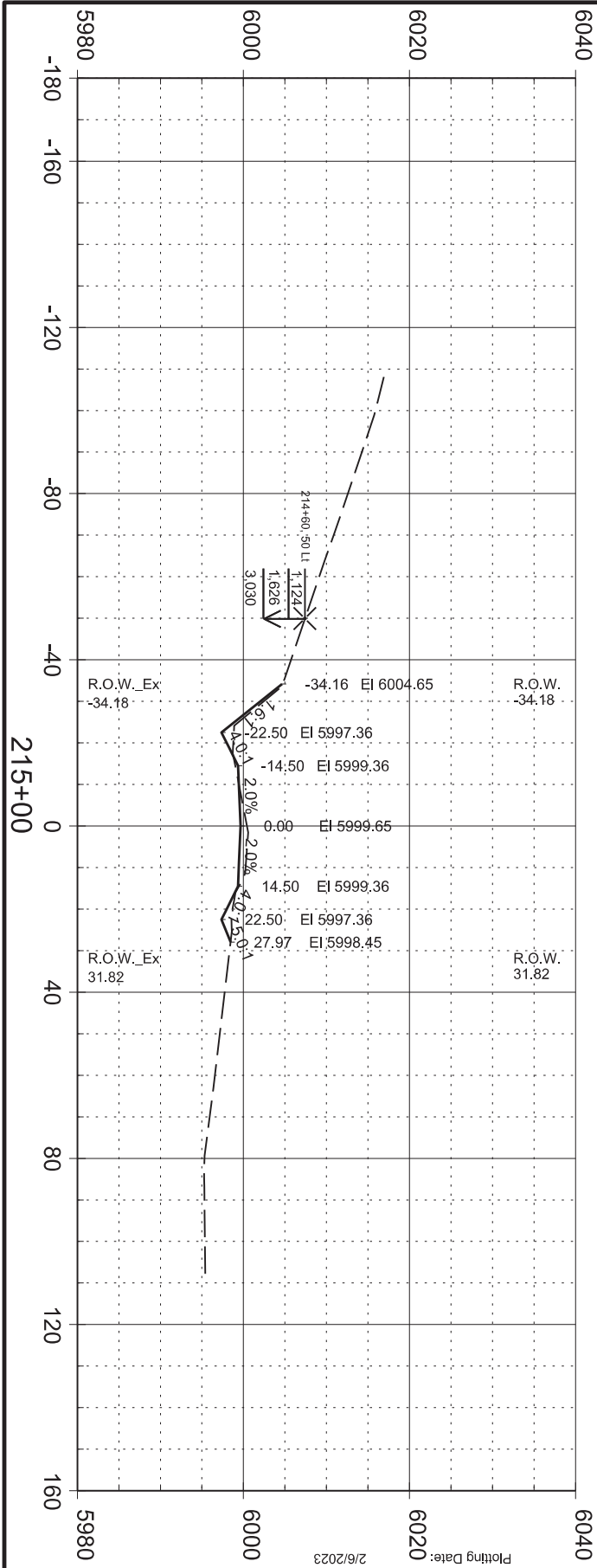
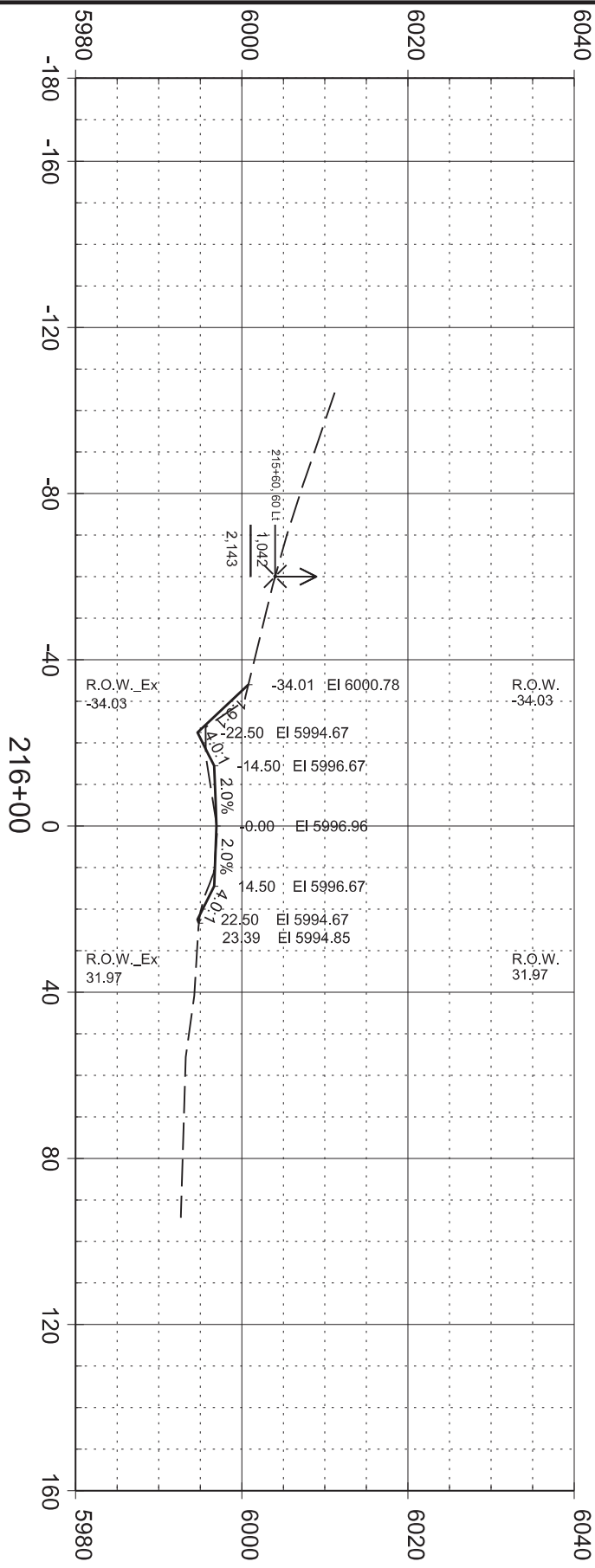
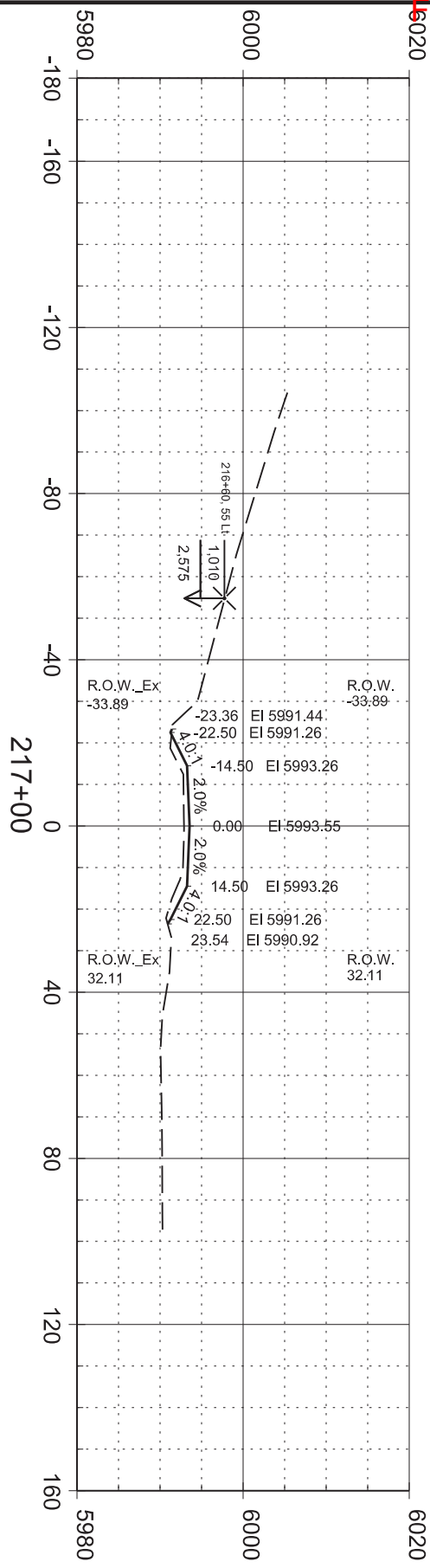
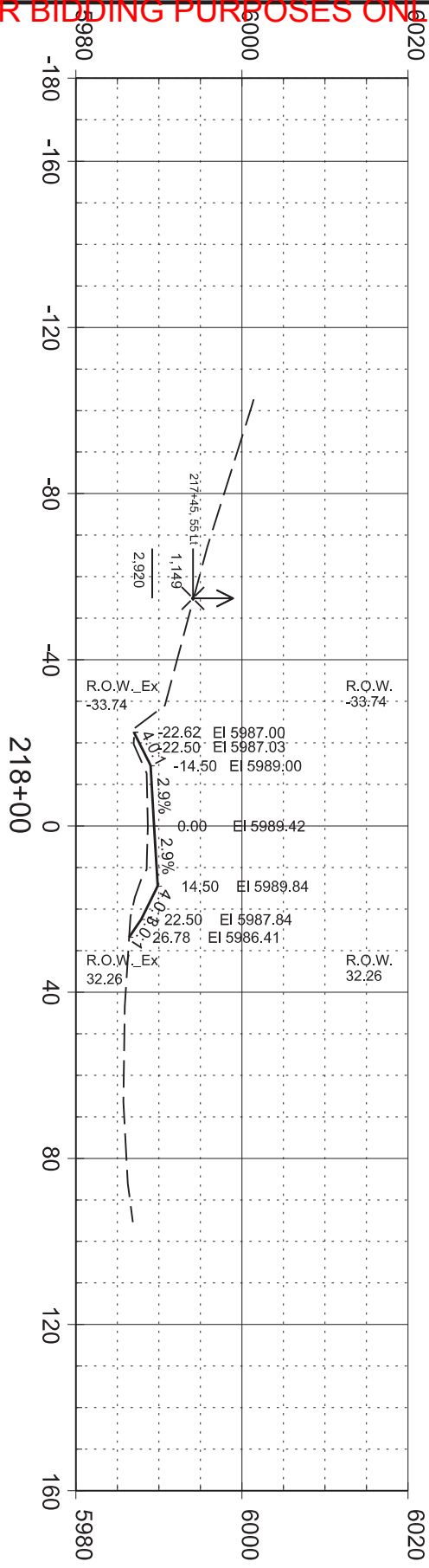
Plotting Date: 2/6/2023

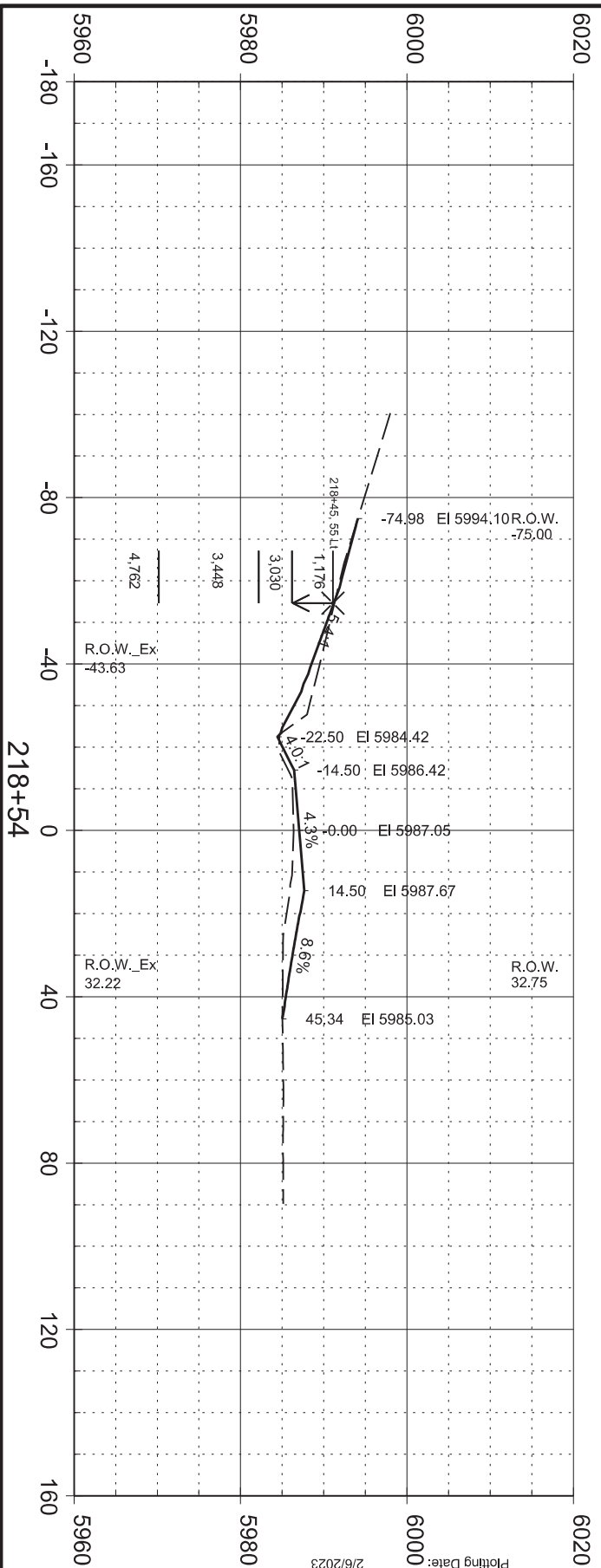
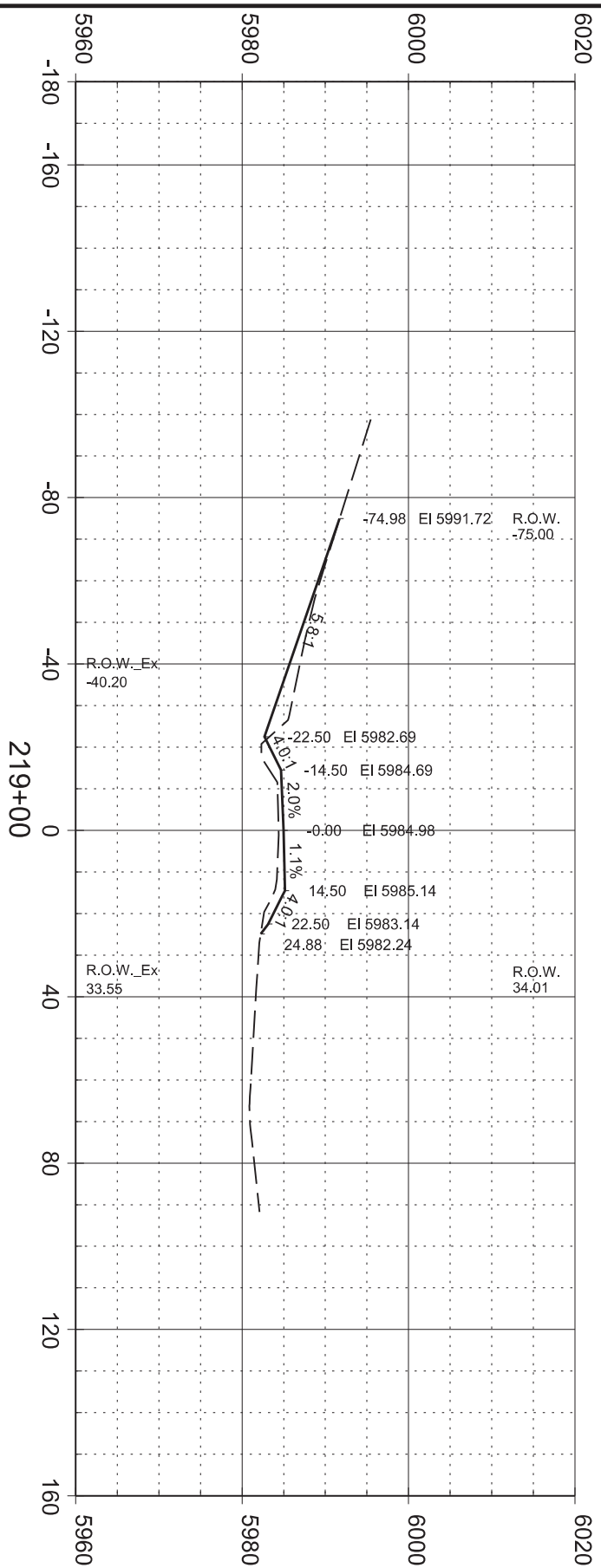
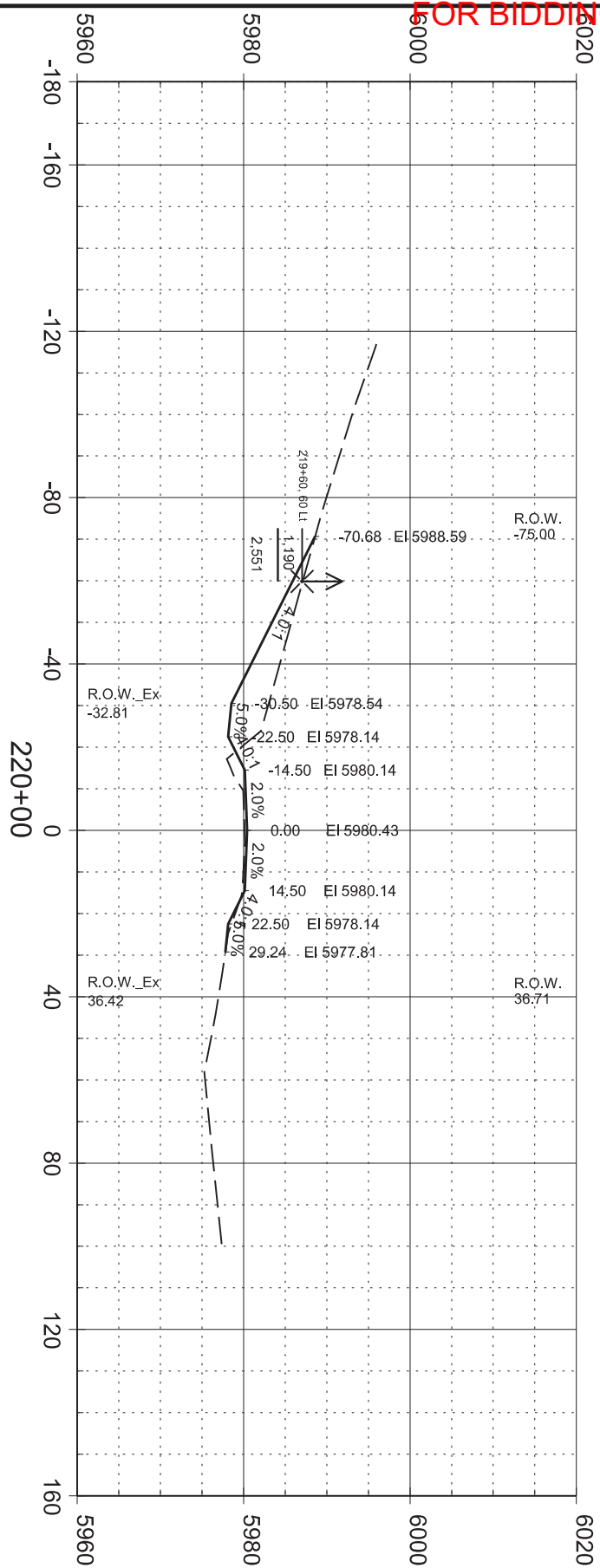
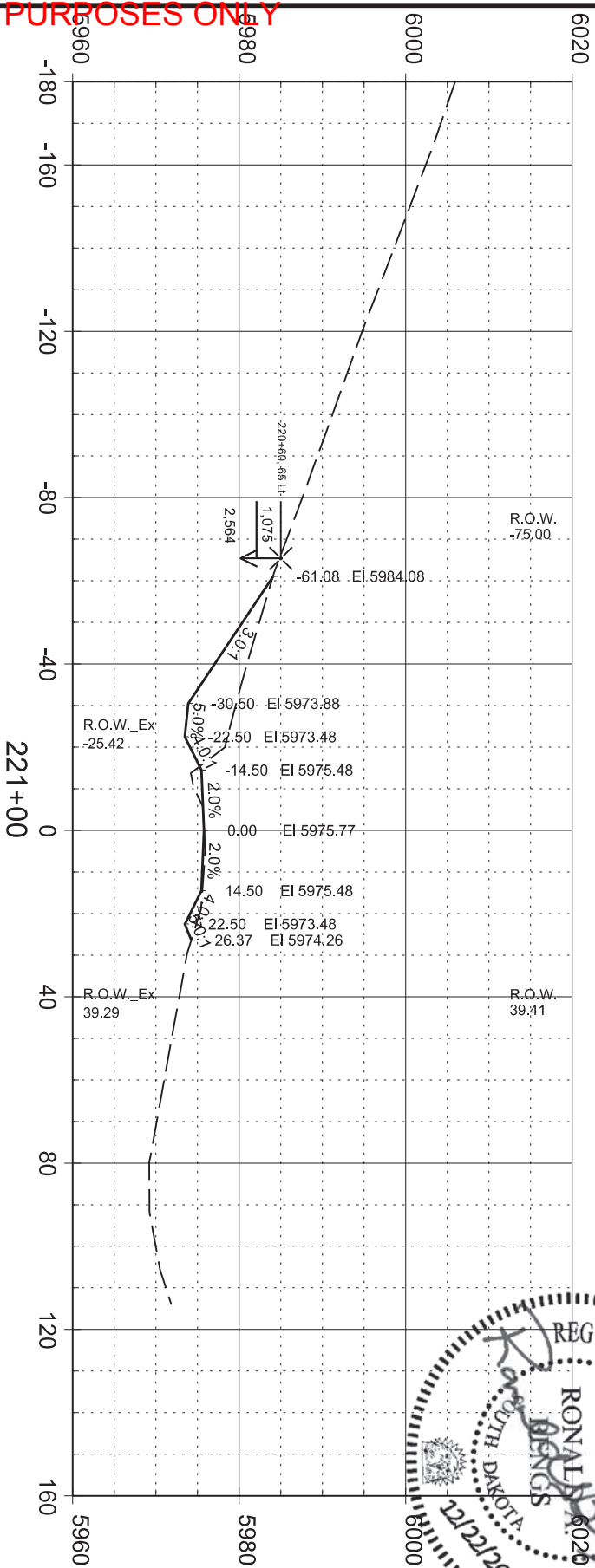


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STATE OF SOUTH DAKOTA	P 6403(10)	192	333
		SHEET	TOTAL SHEETS







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STATE OF SOUTH DAKOTA		P 6403(10)	194	TOTAL SHEETS	333
PROJECT					

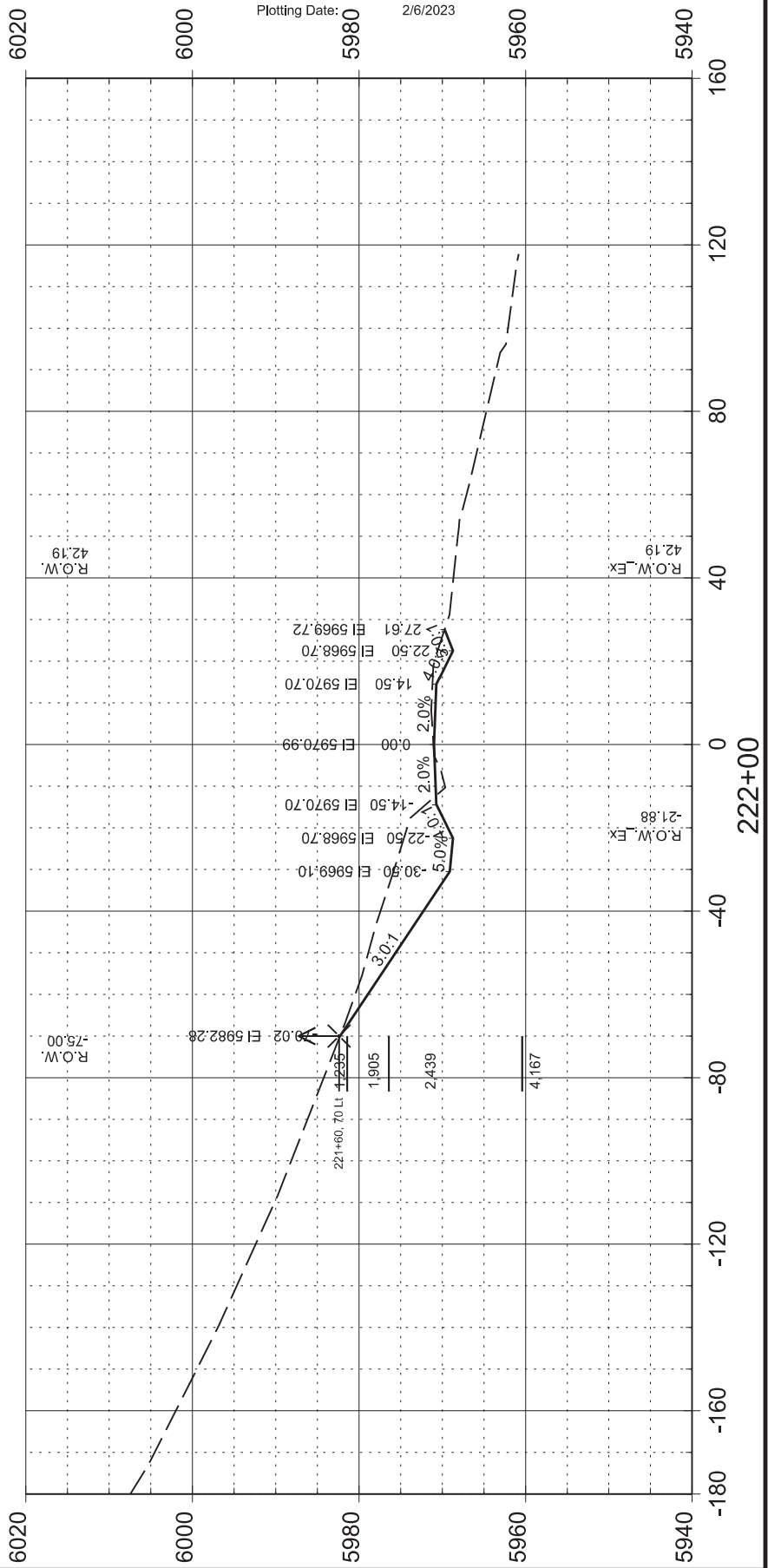
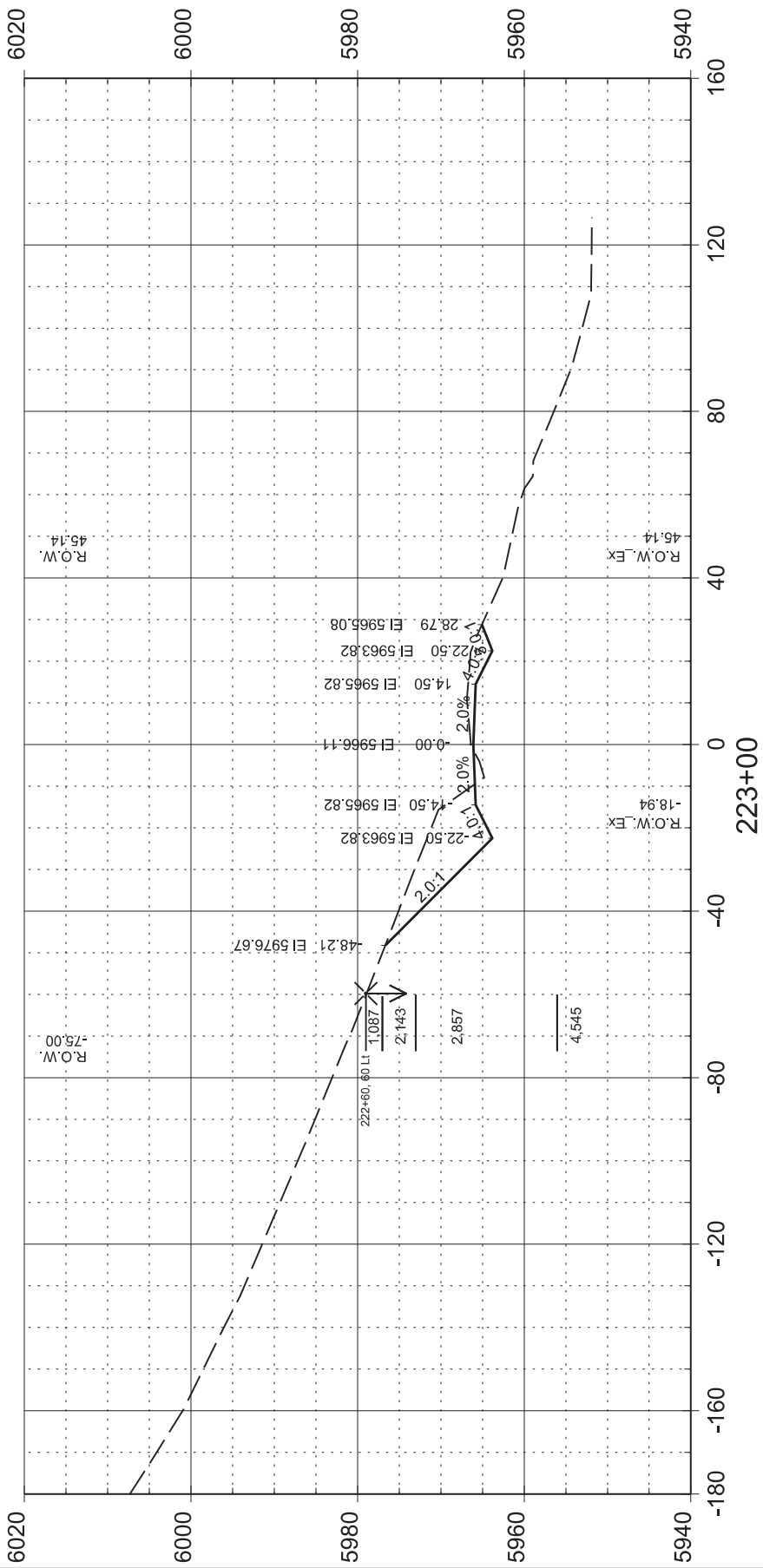
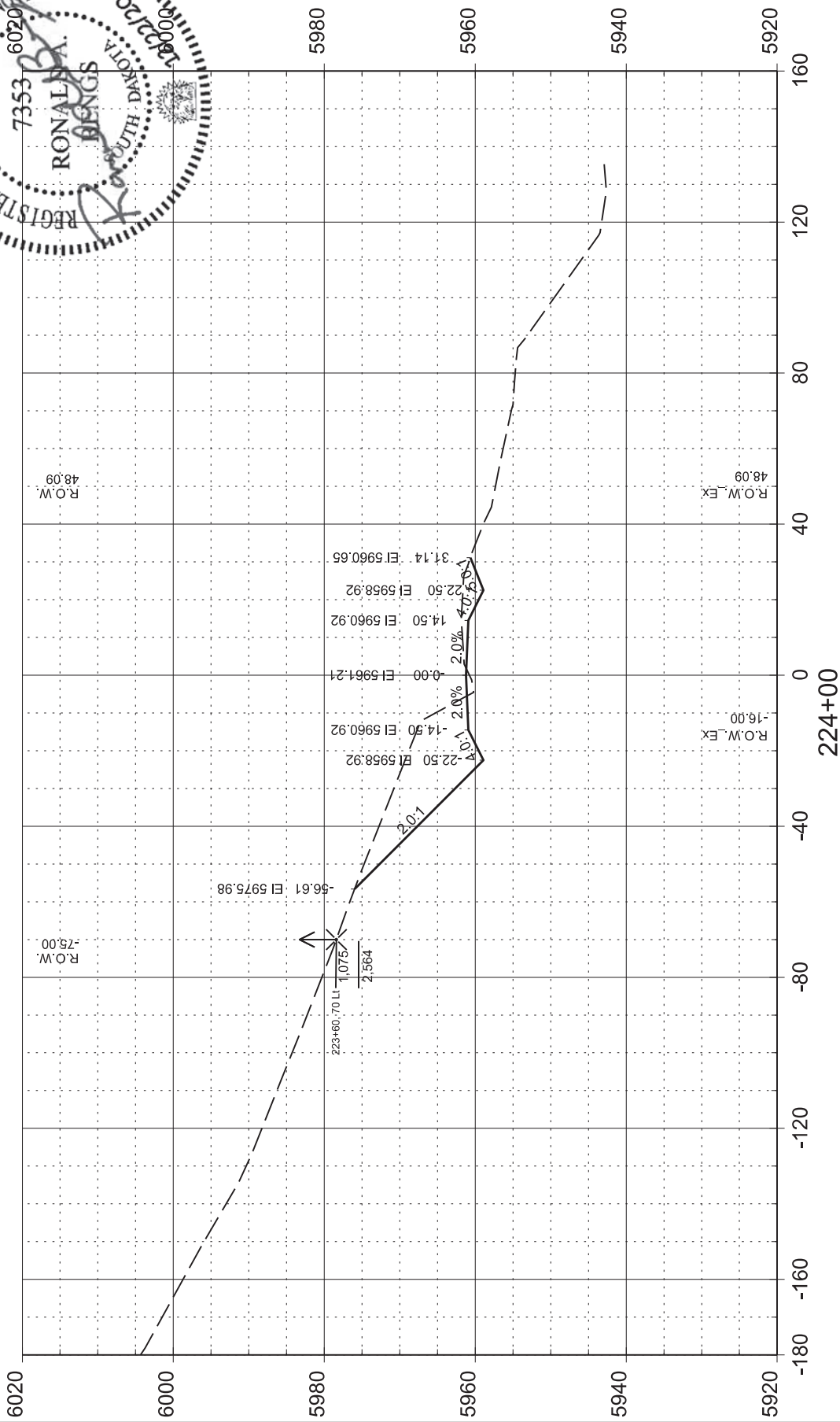
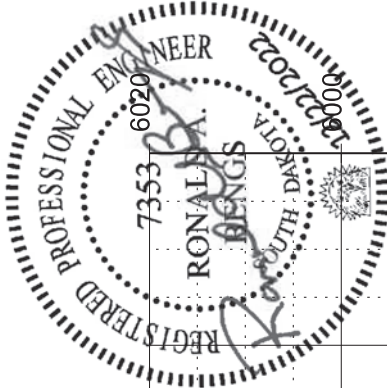
Plotting Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	195	333

Plotting Date: 2/6/2023

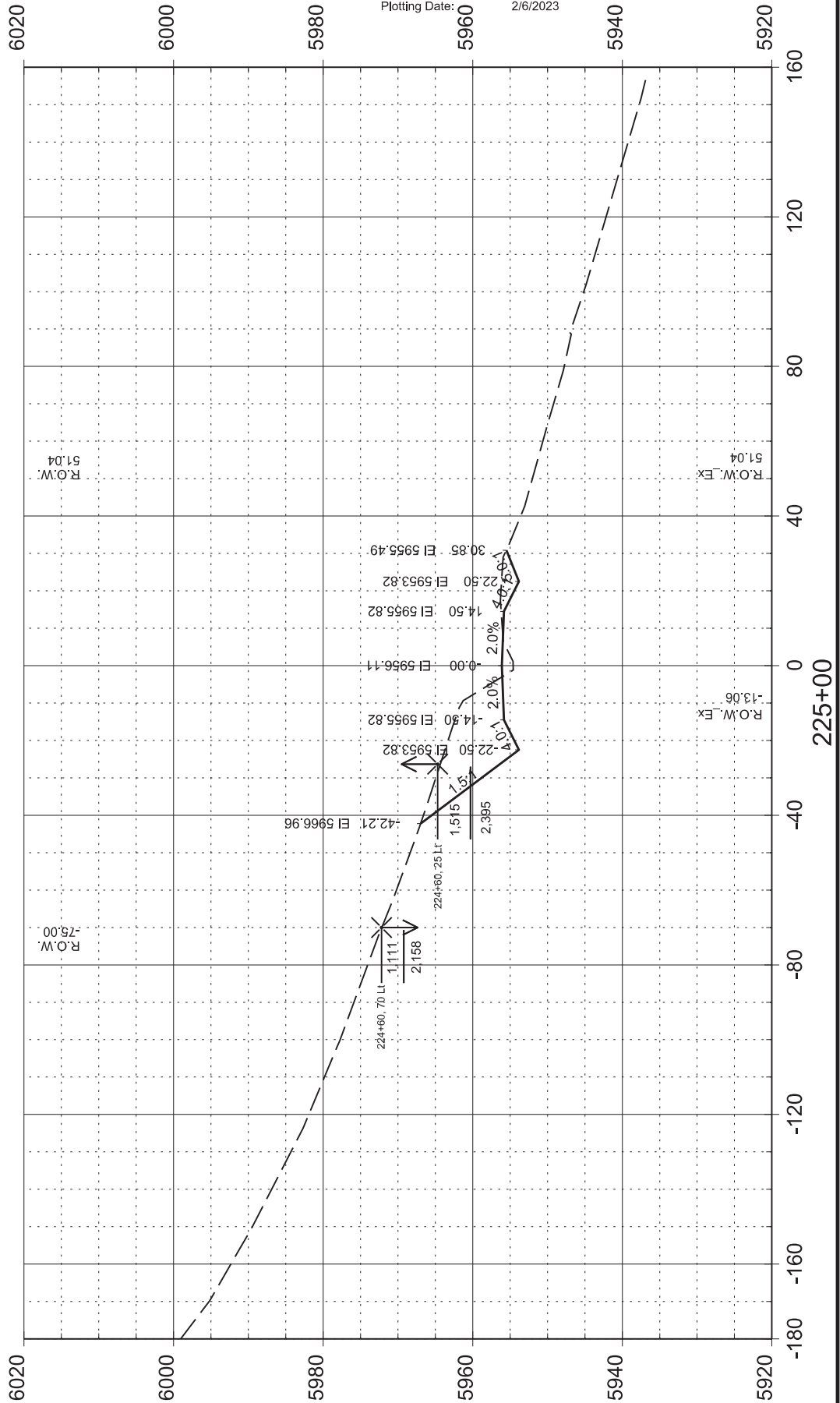
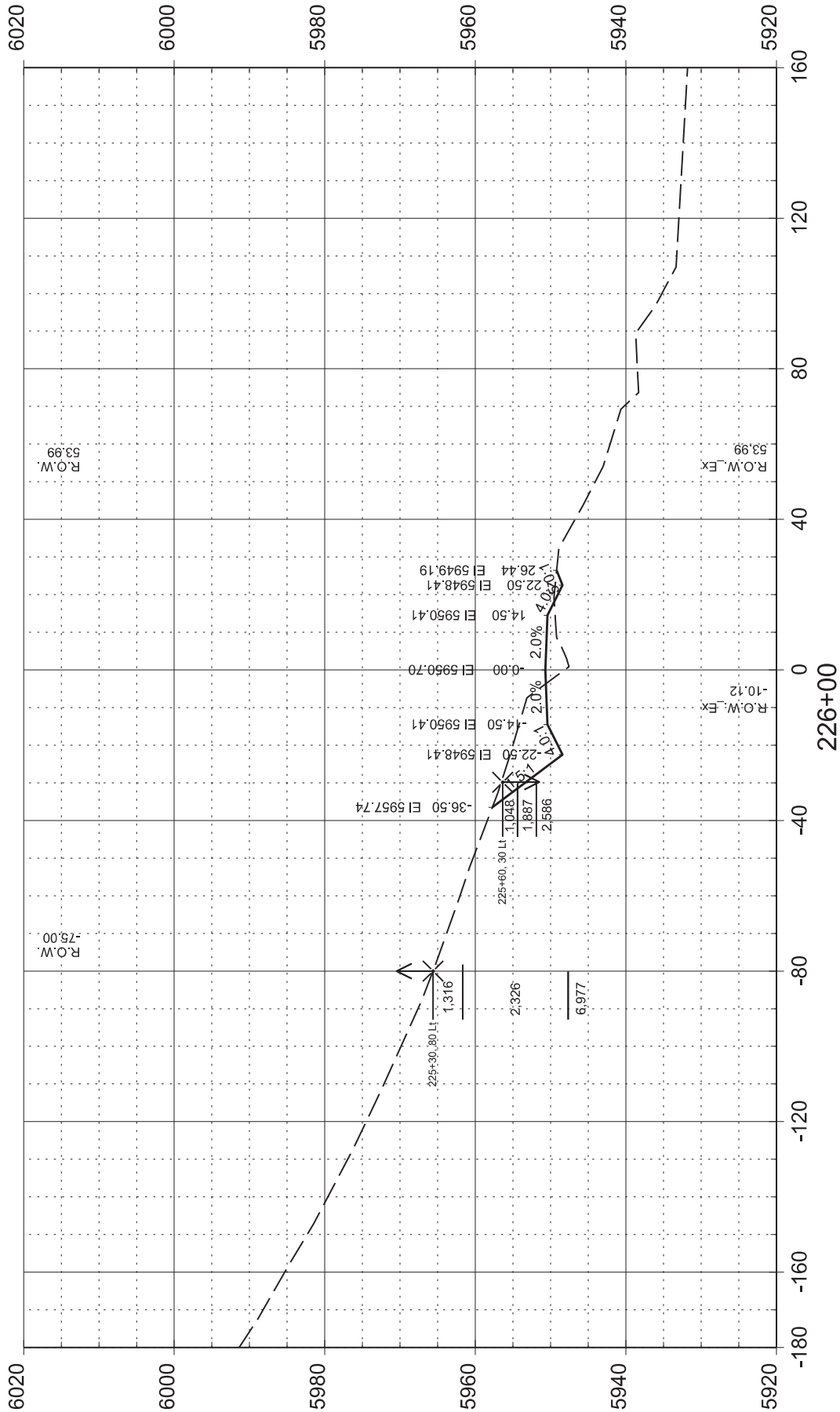




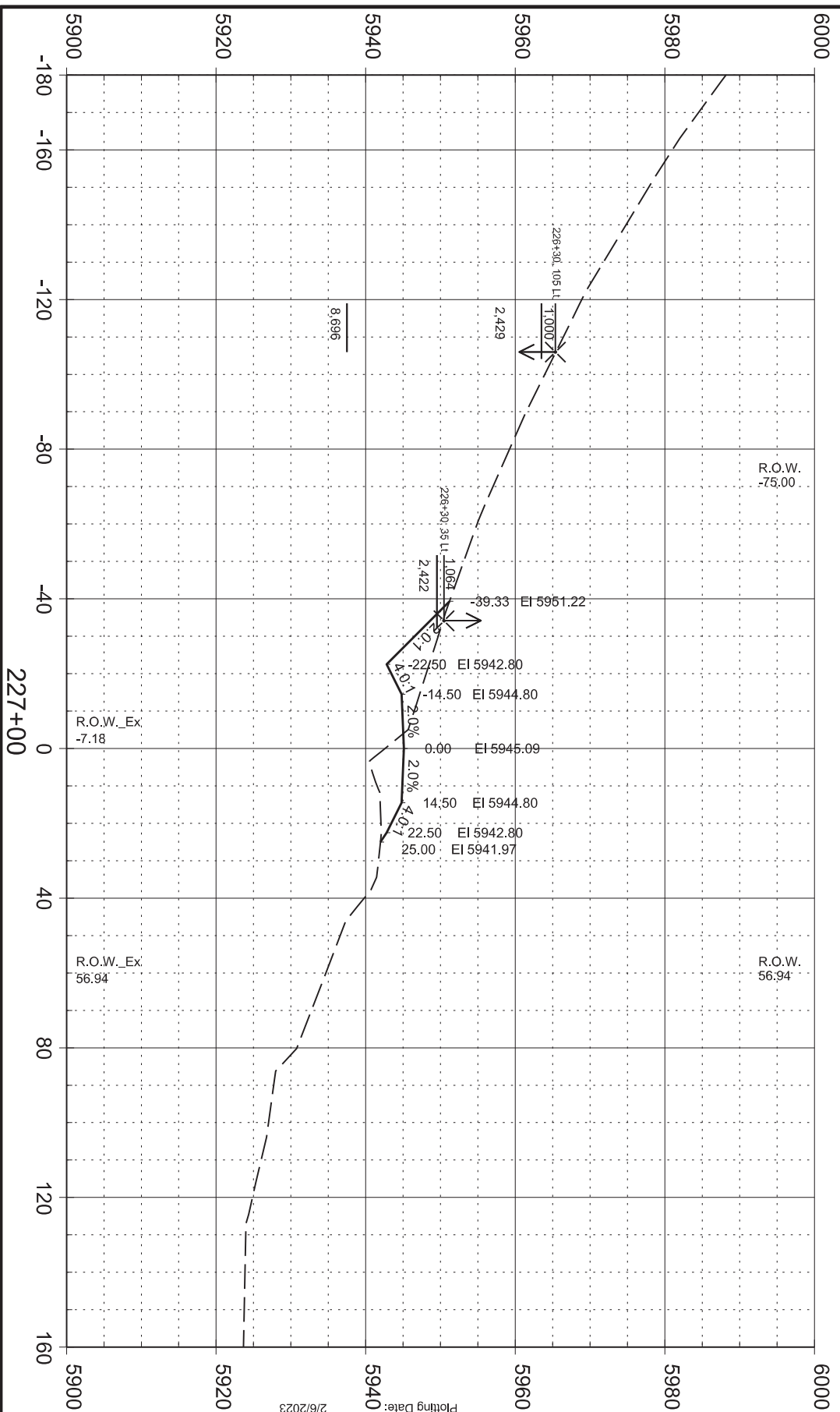
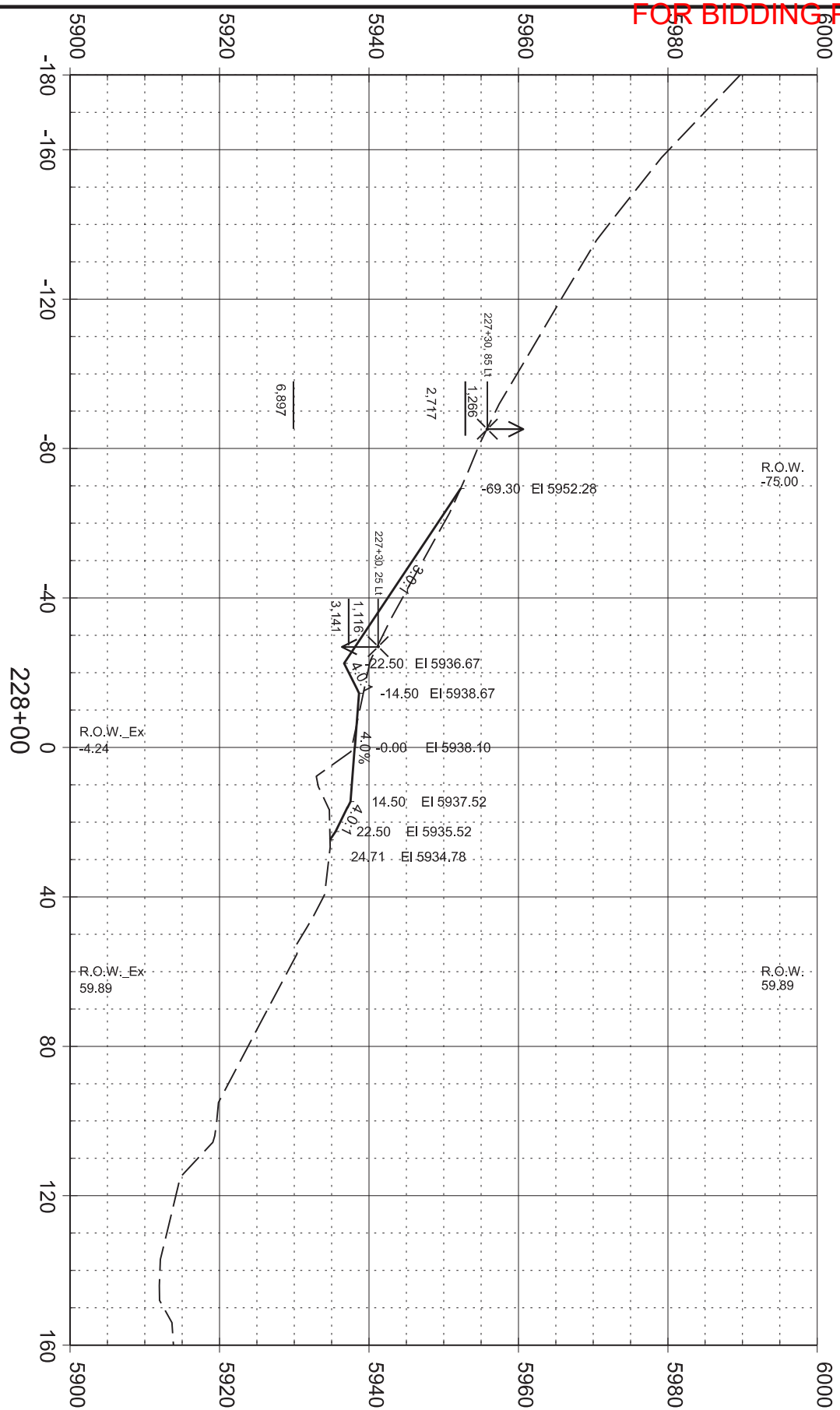
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	196	333

Plotting Date: 2/6/2023







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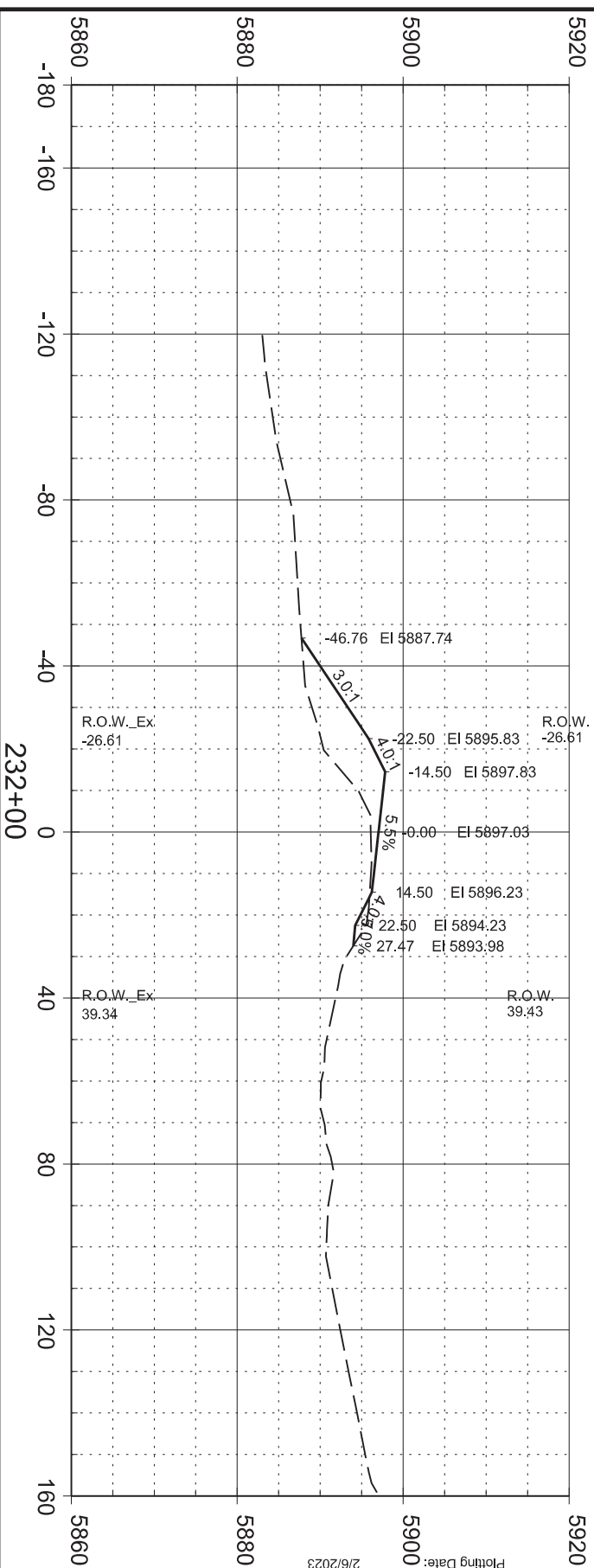
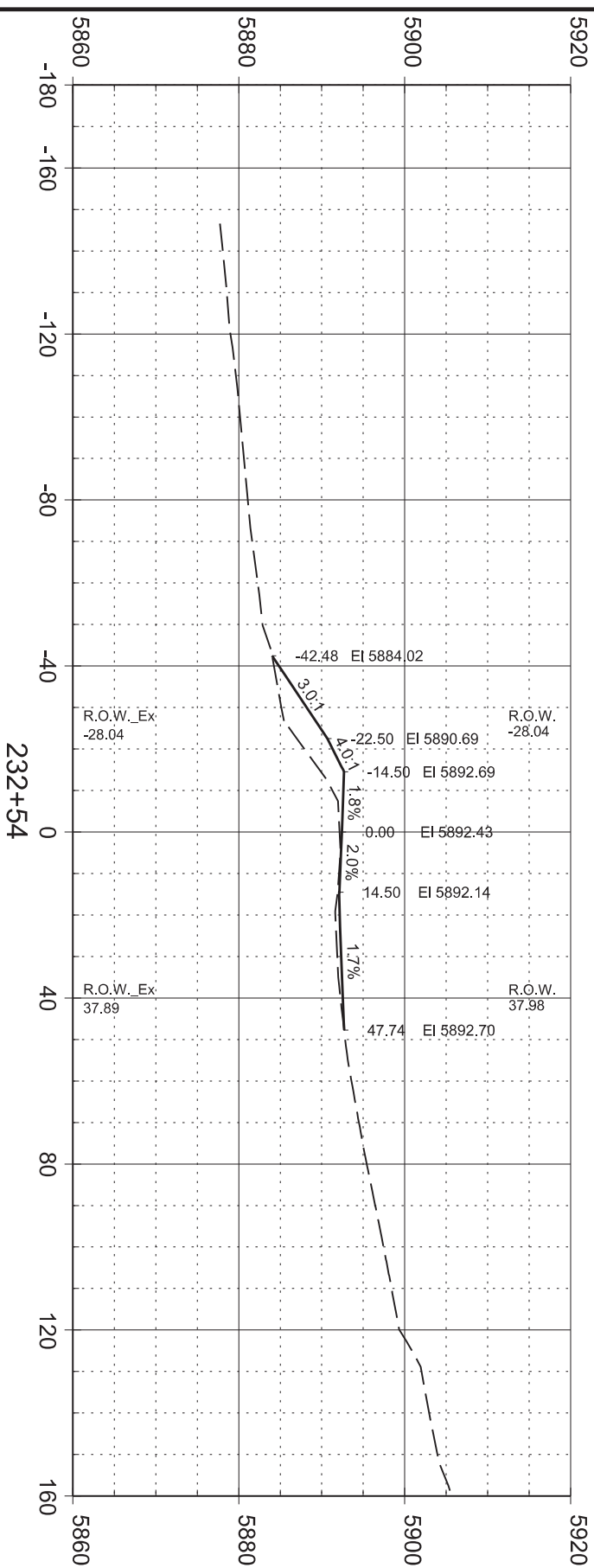
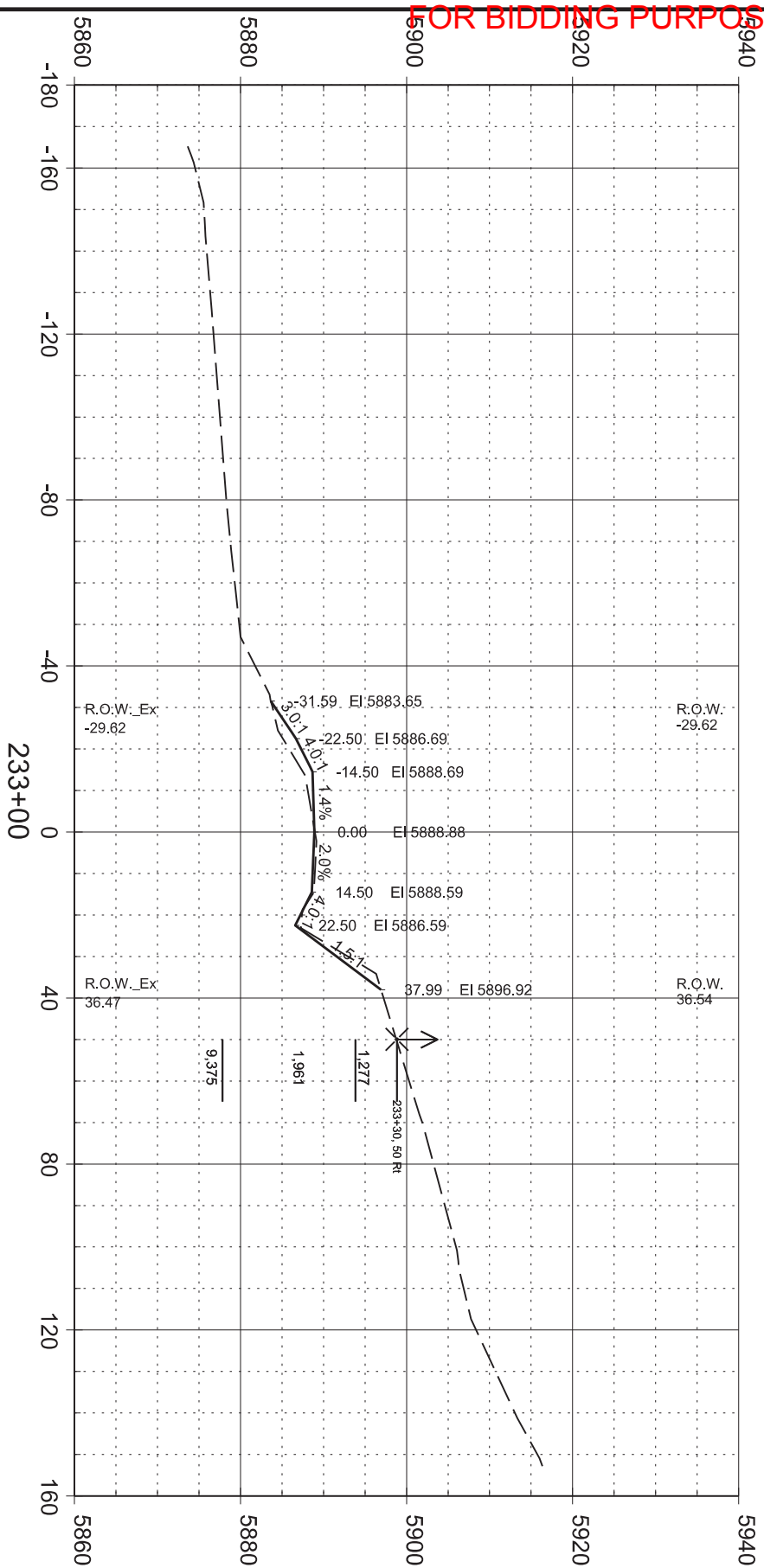
STATE OF SOUTH DAKOTA	P 6403(10)		197	333
	PROJECT		SHEET	TOTAL SHEETS







FOR BIDDING PURPOSES ONLY

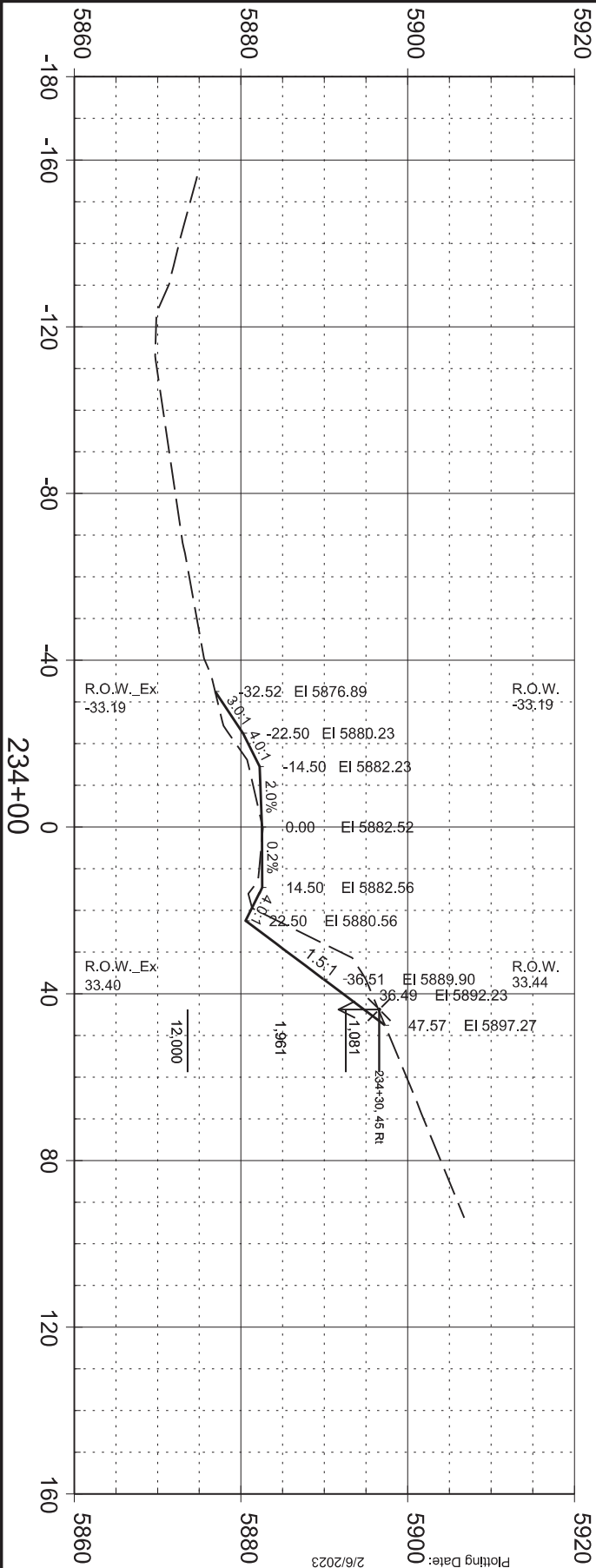
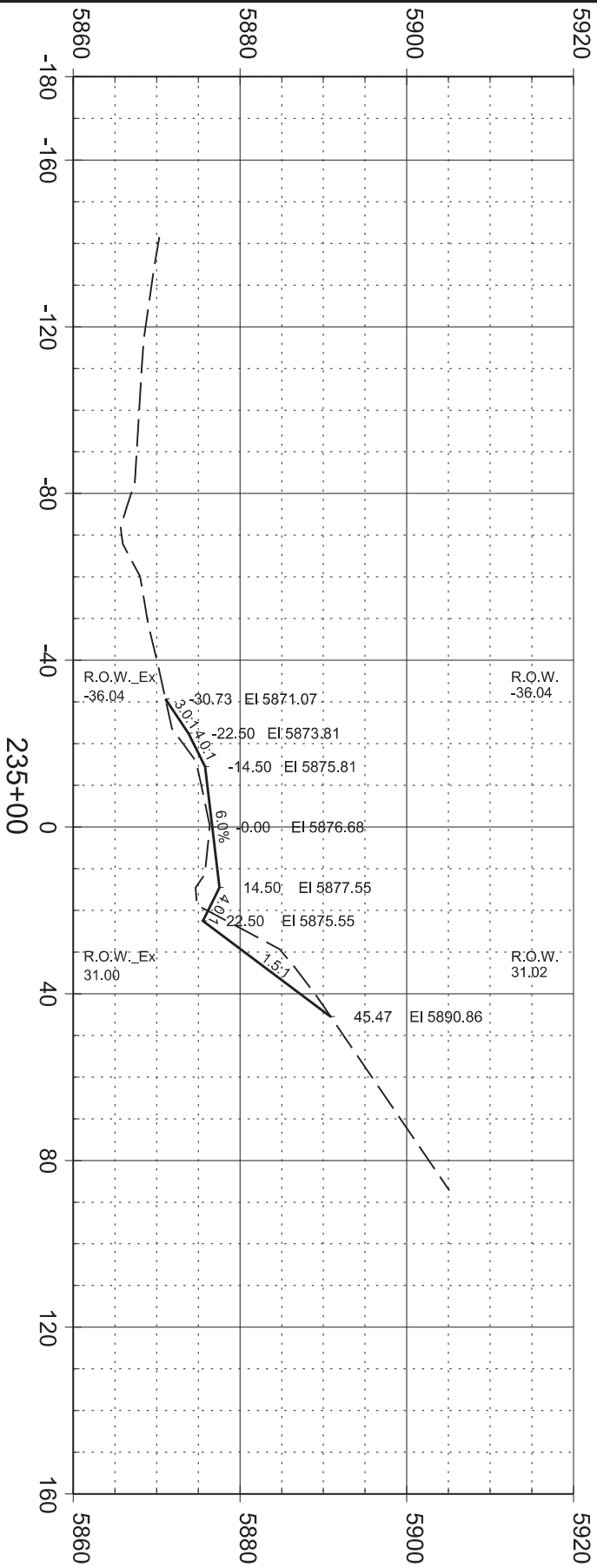
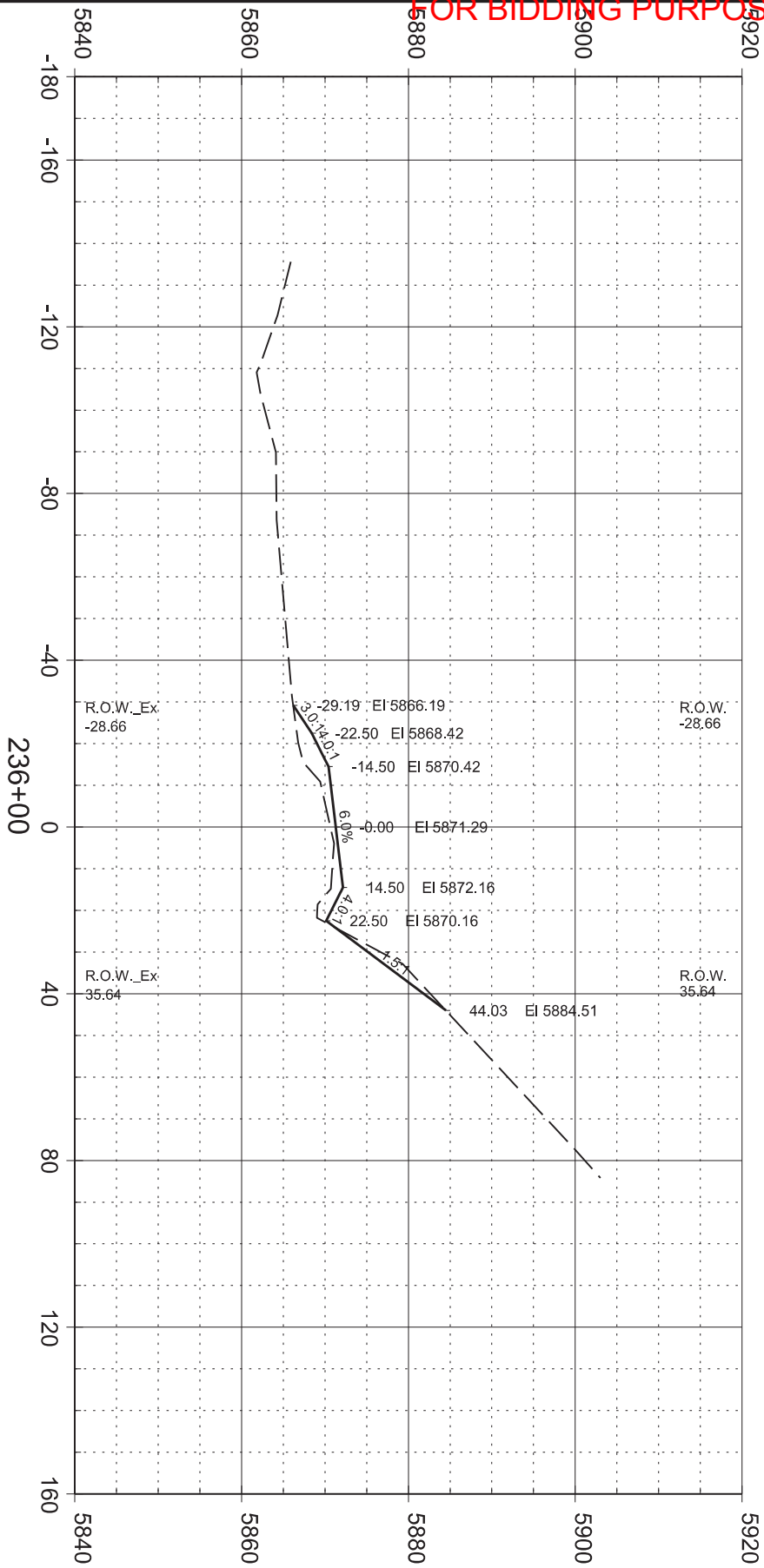


STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		199		333		333	

Plotting Date: 2/6/2023



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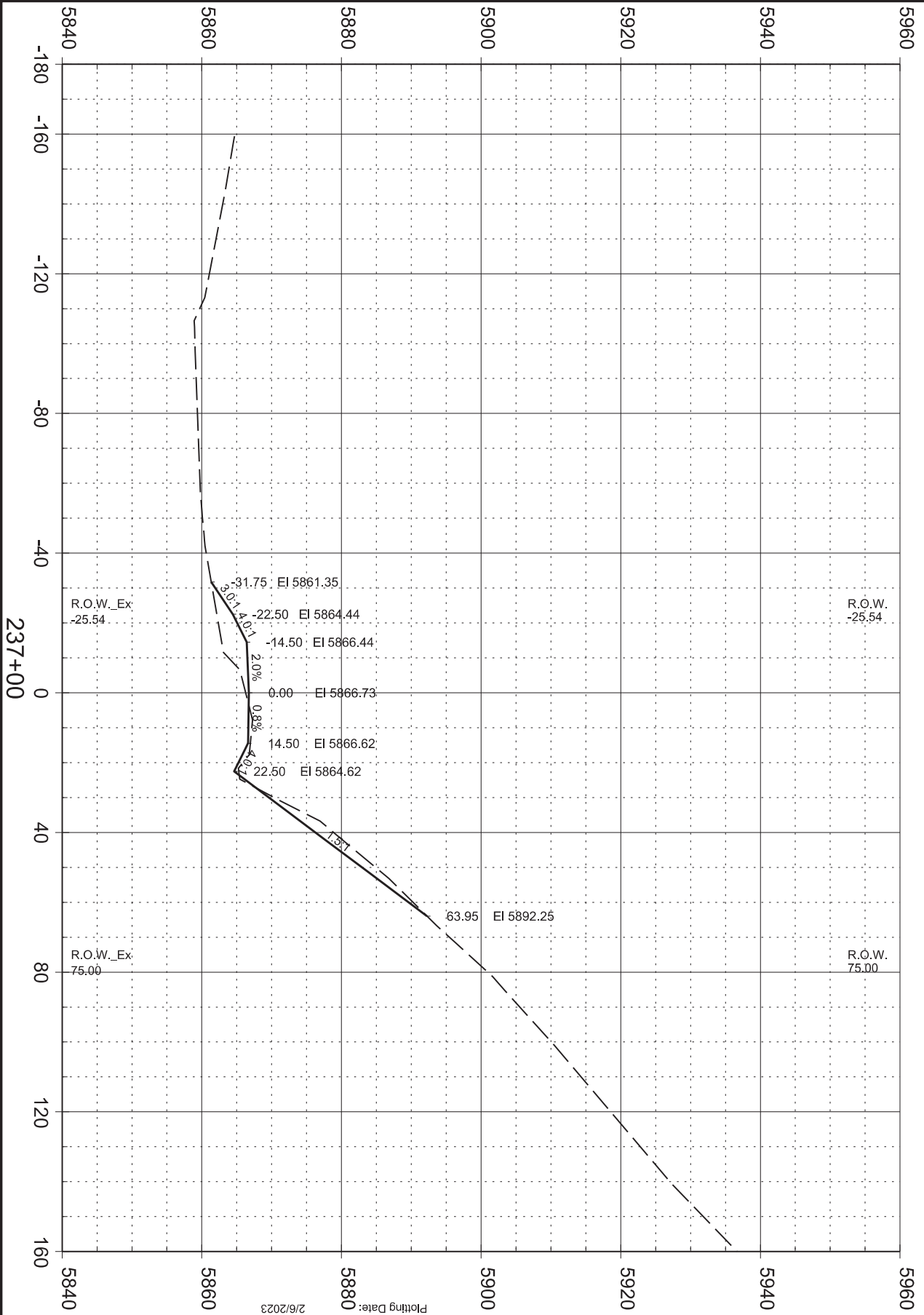
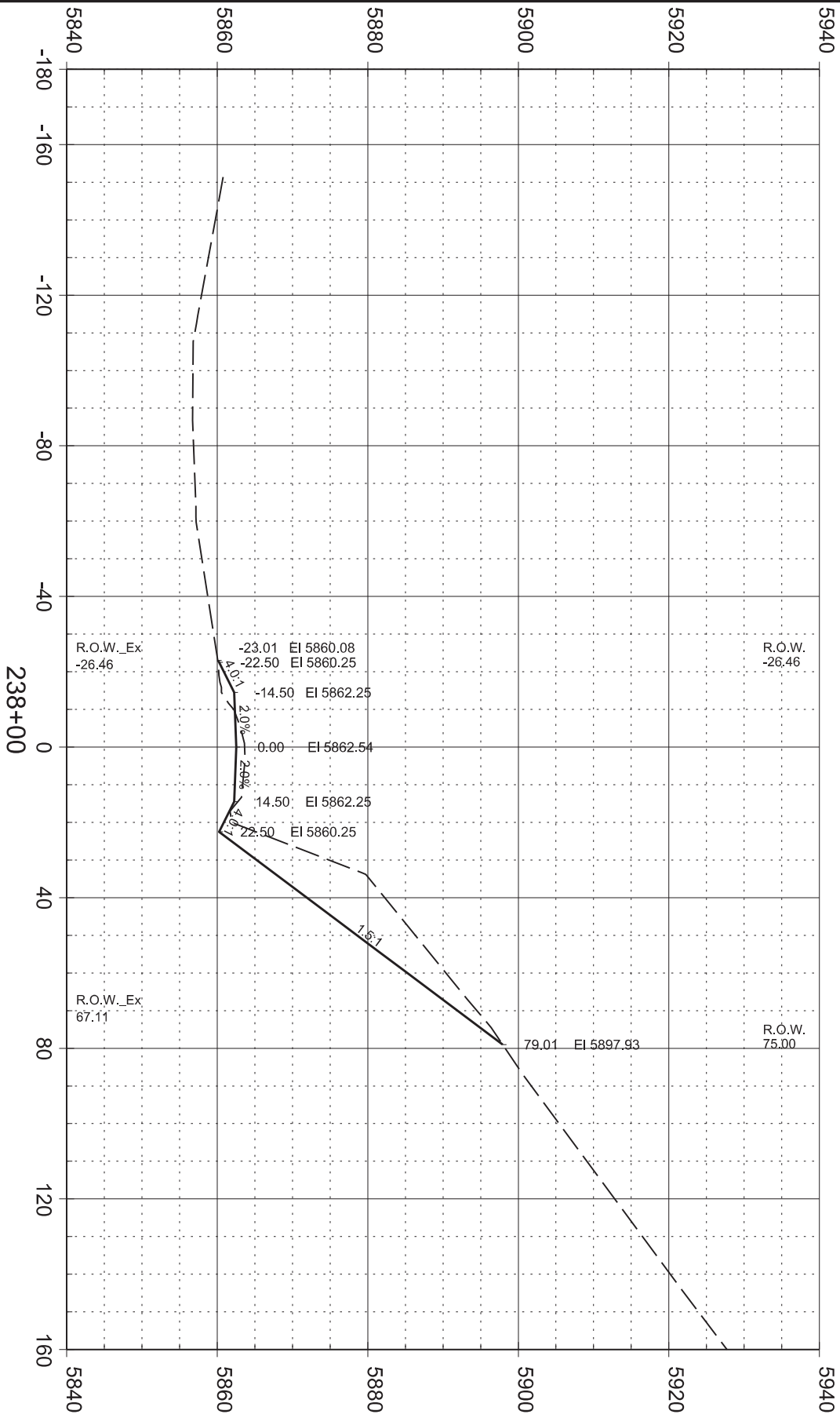
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		200		333		333	

Plotting Date: 2/6/2023



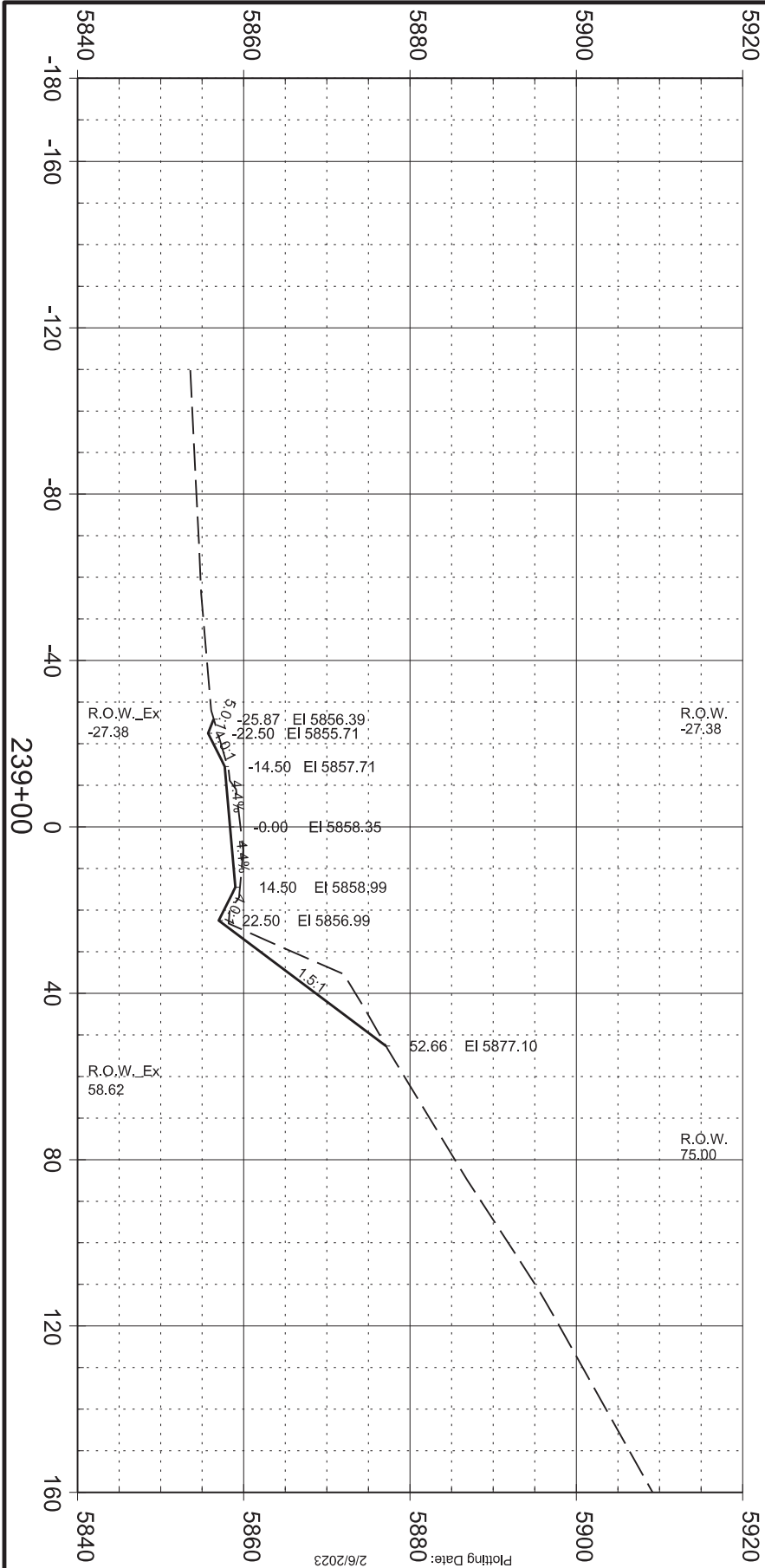
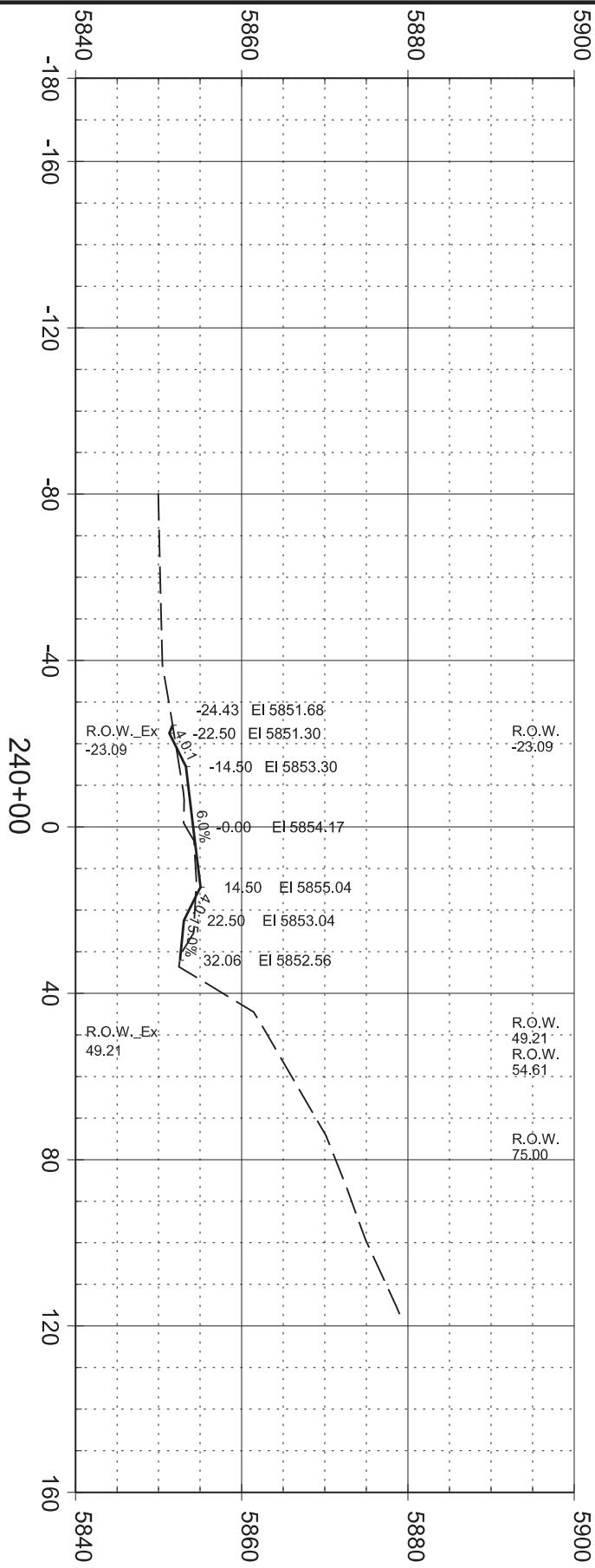
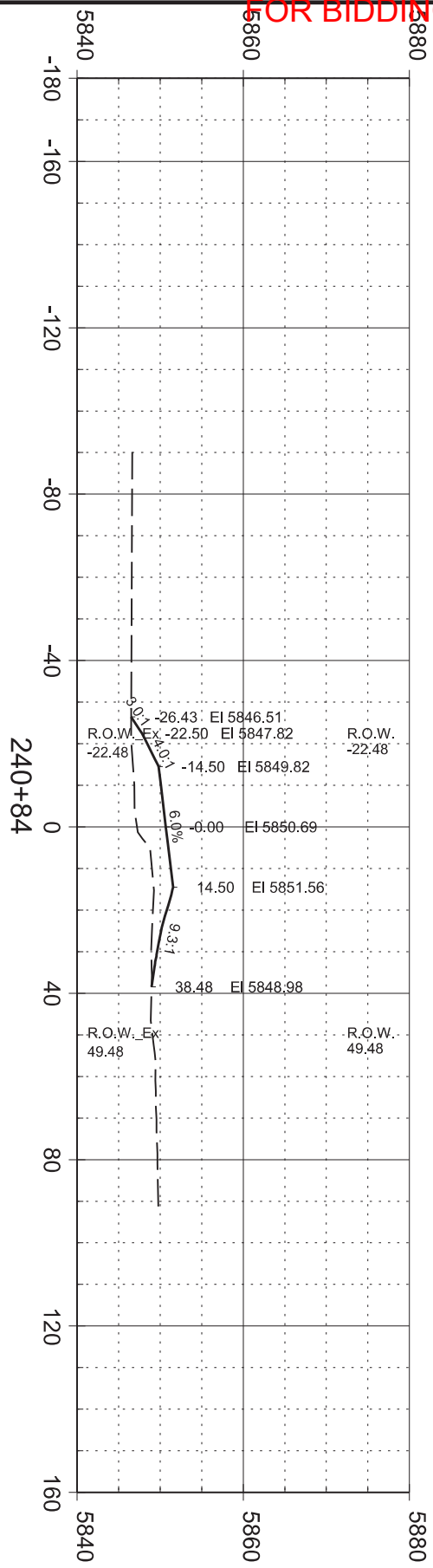
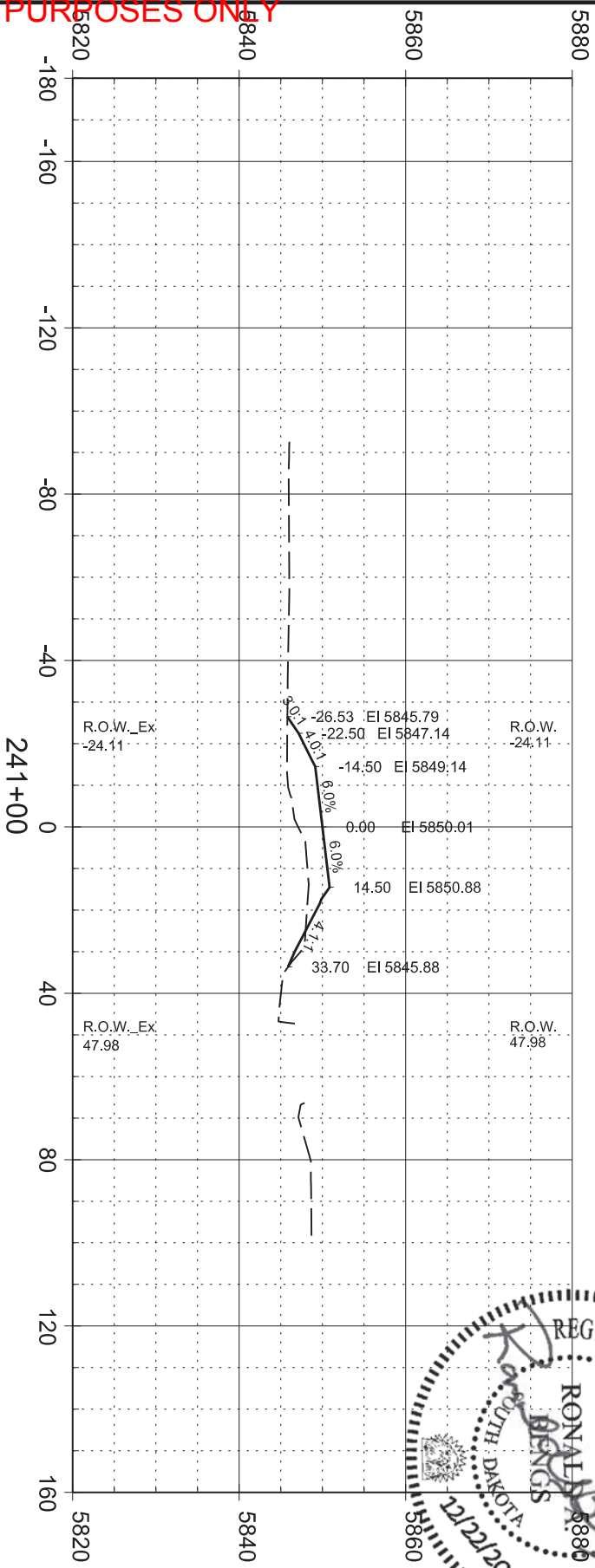


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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		201		333		333	

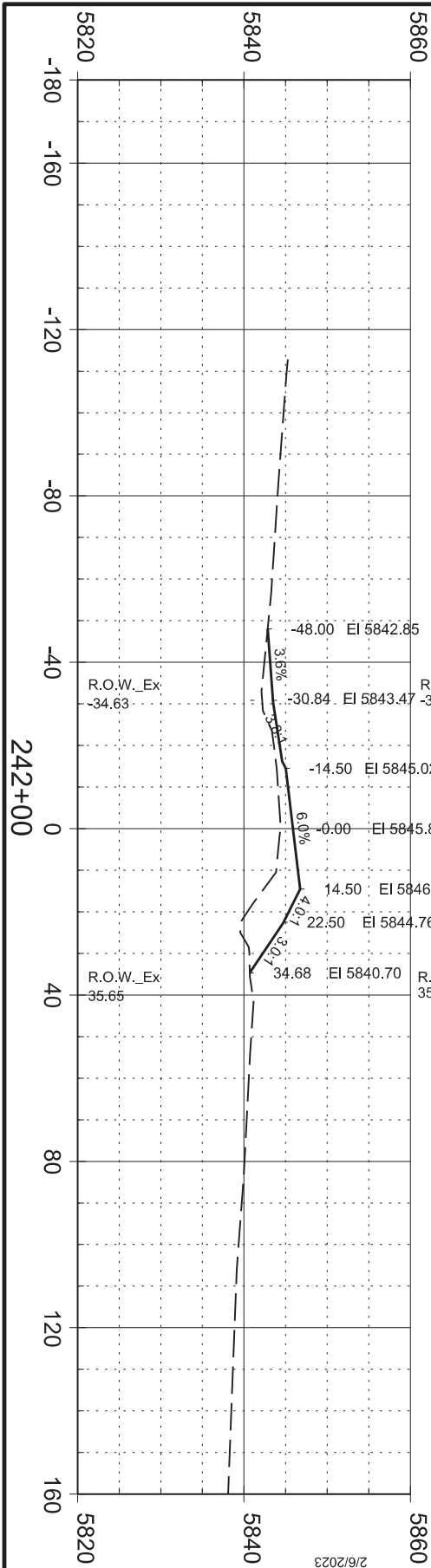
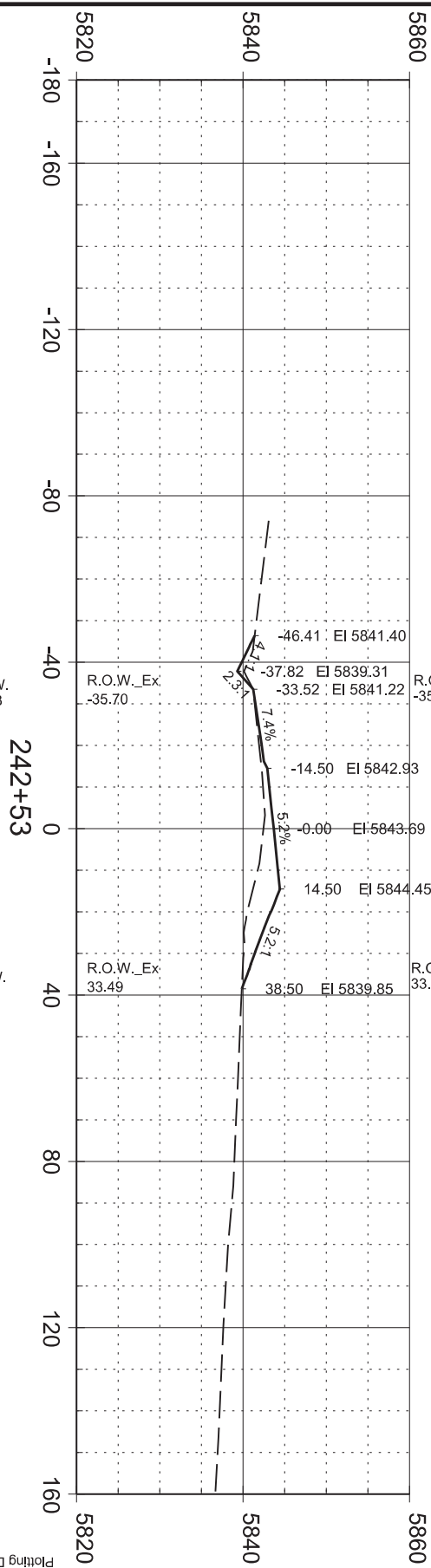
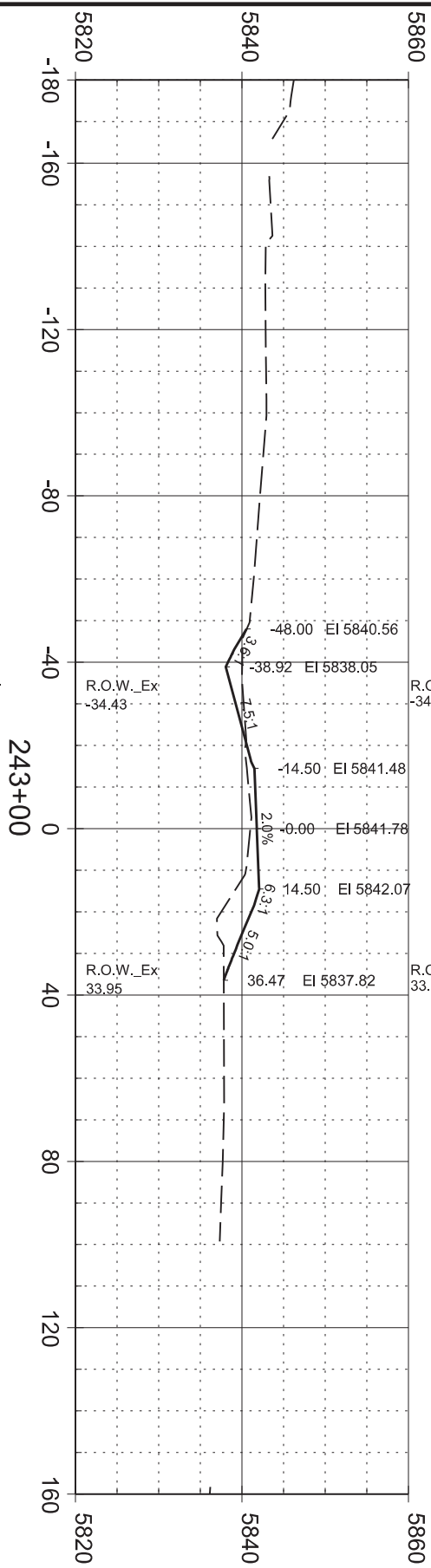
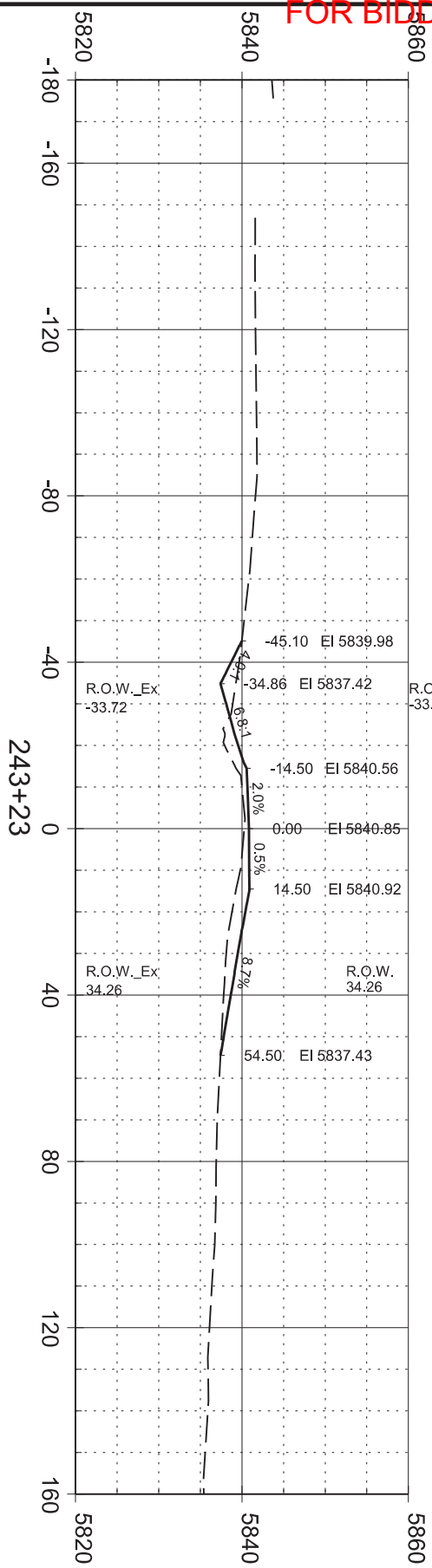
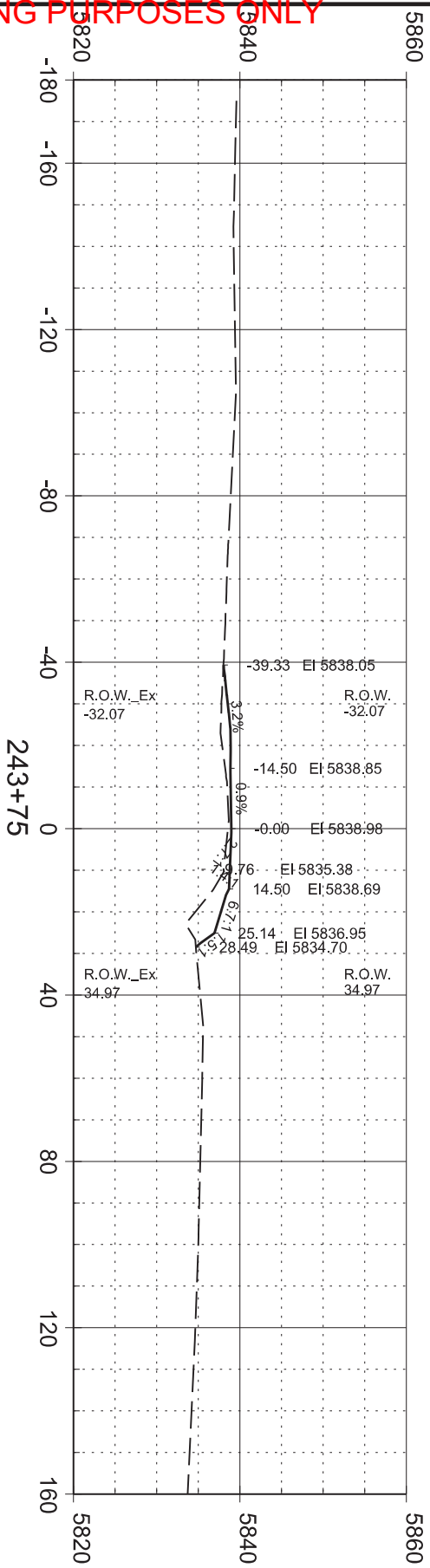
Plotting Date: 2/6/2023



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STATE OF SOUTH DAKOTA	PROJECT	P 6403(10)	202	333
			SHEET	TOTAL SHEETS





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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		203		333	



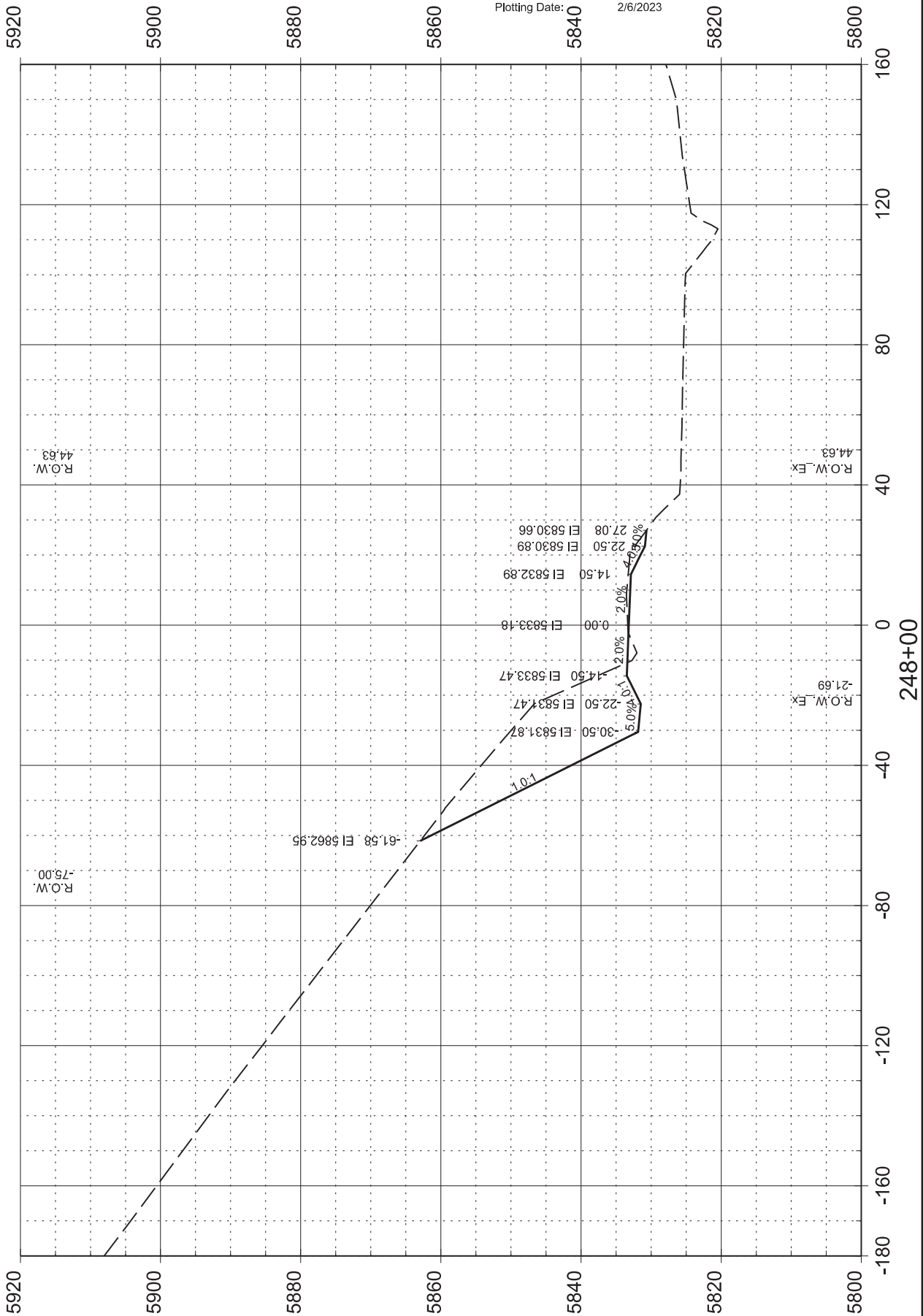
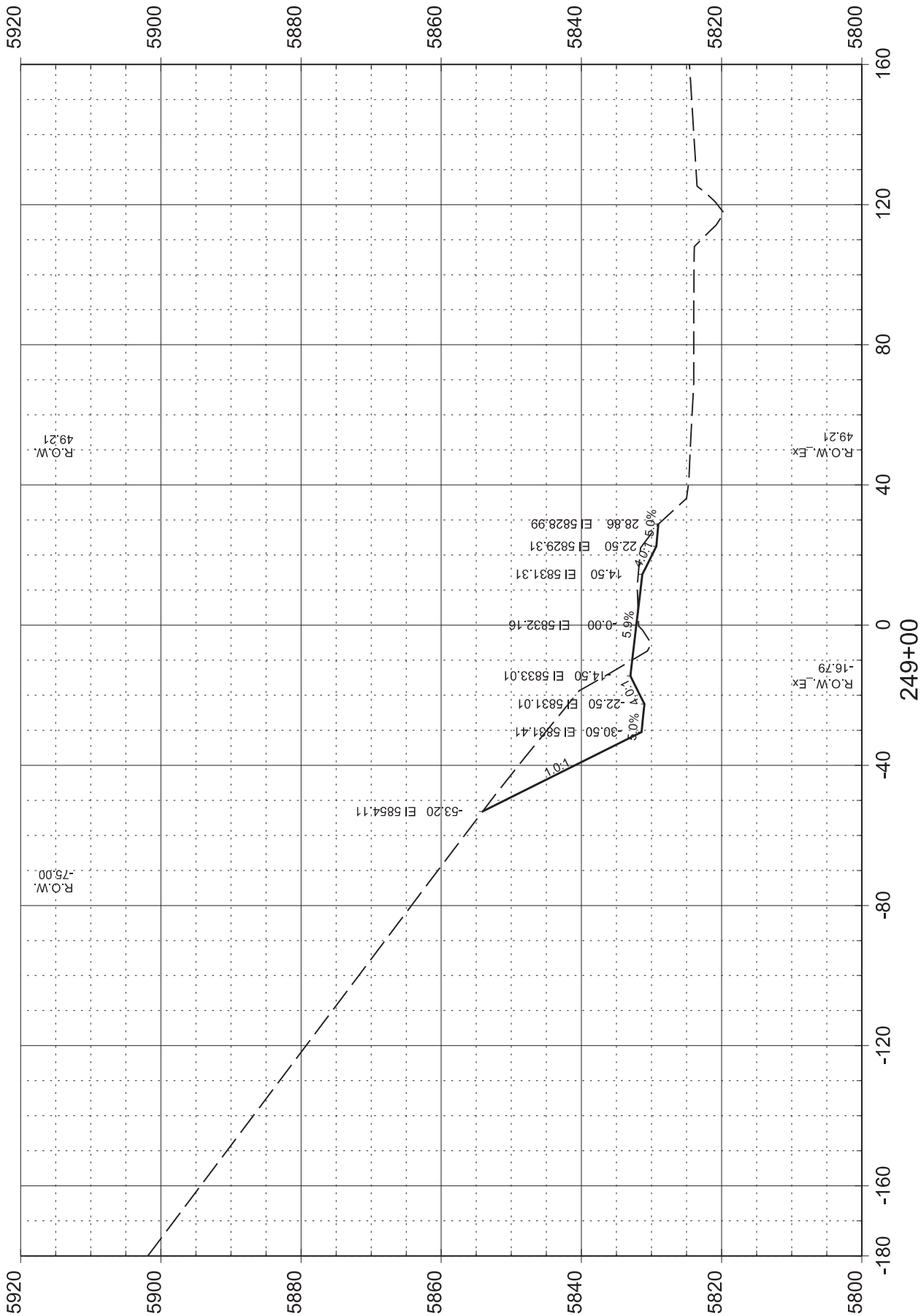


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	205	333

Plotting Date: 2/6/2023

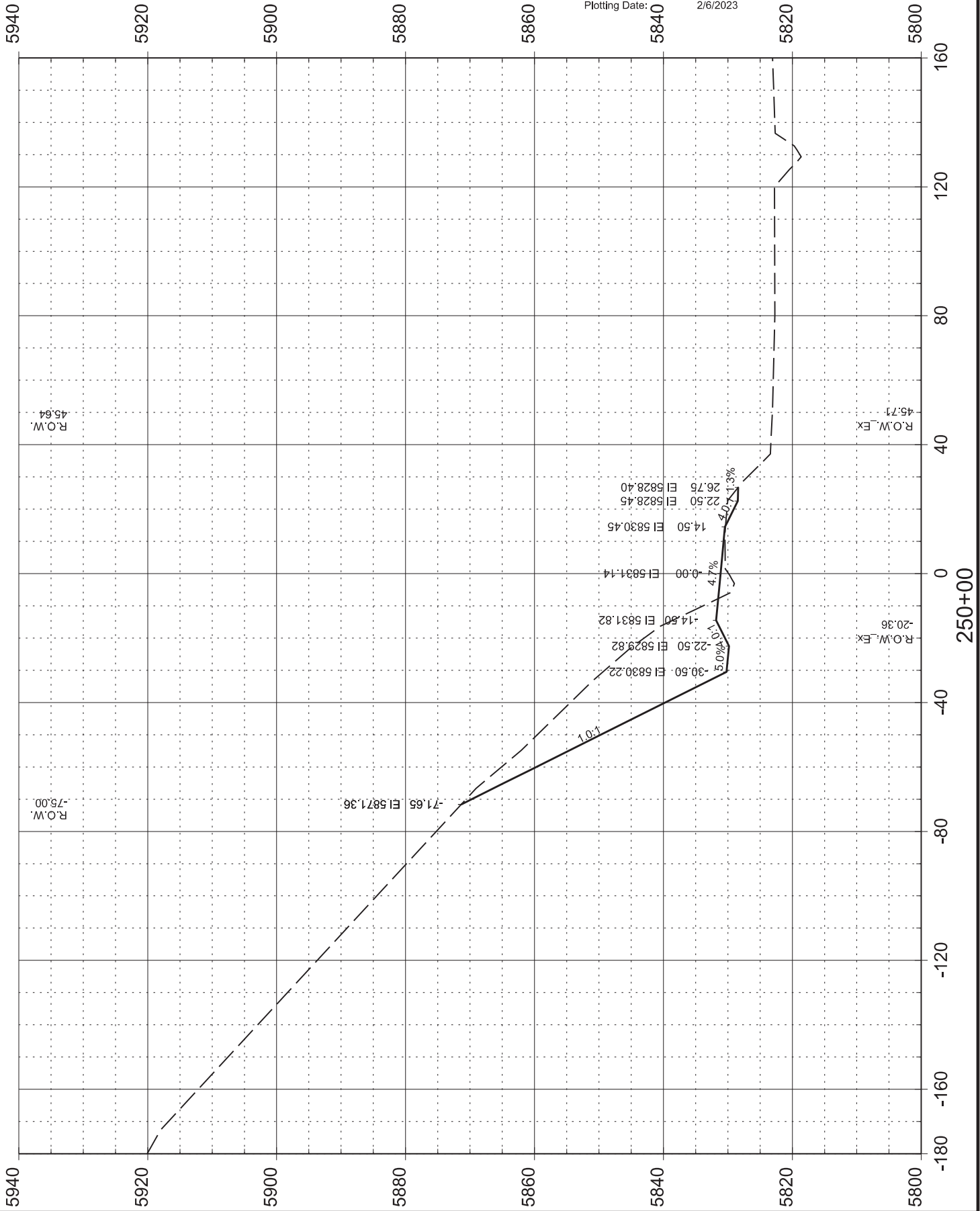


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	206	333

Plotting Date: 2/6/2023



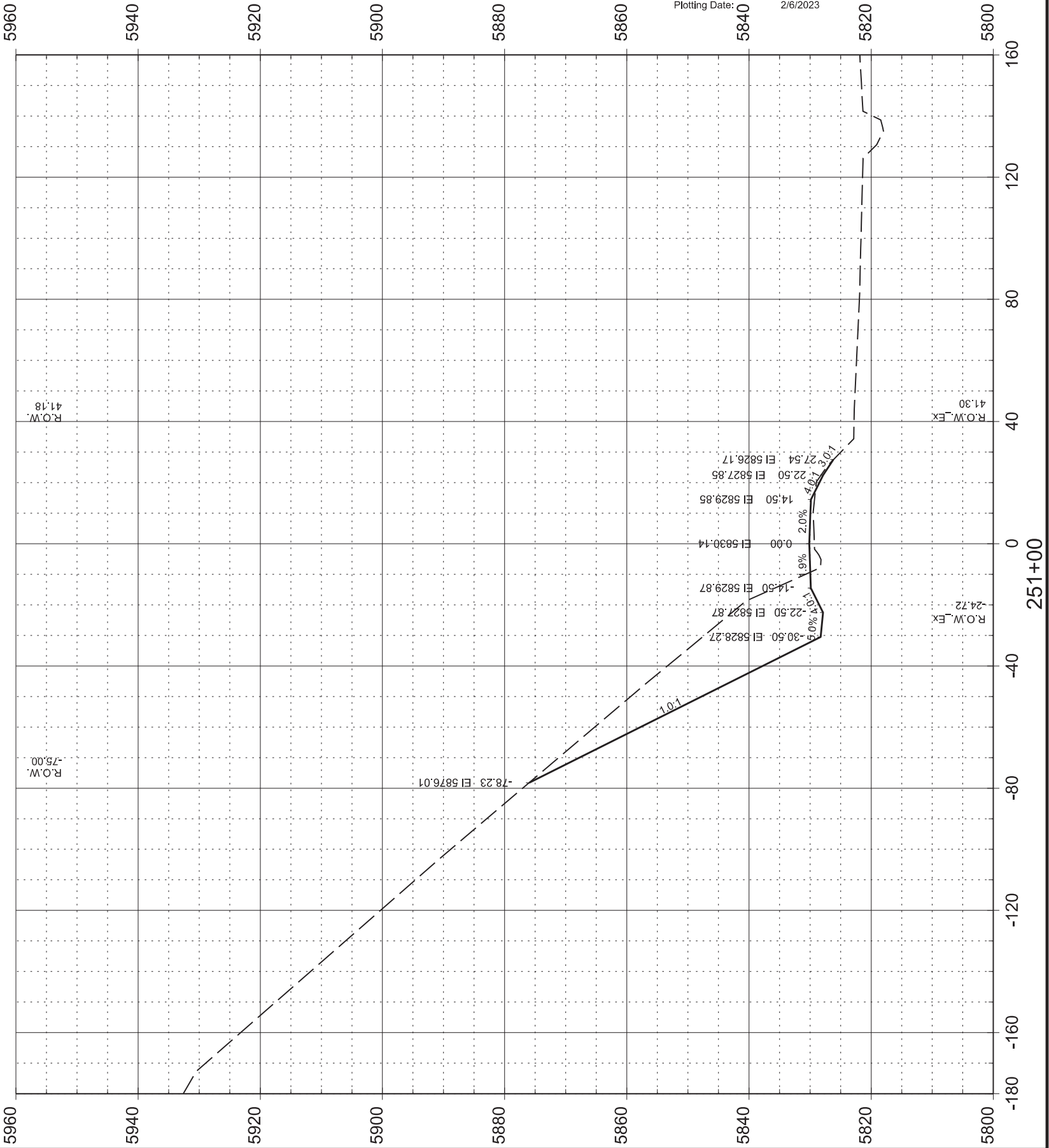


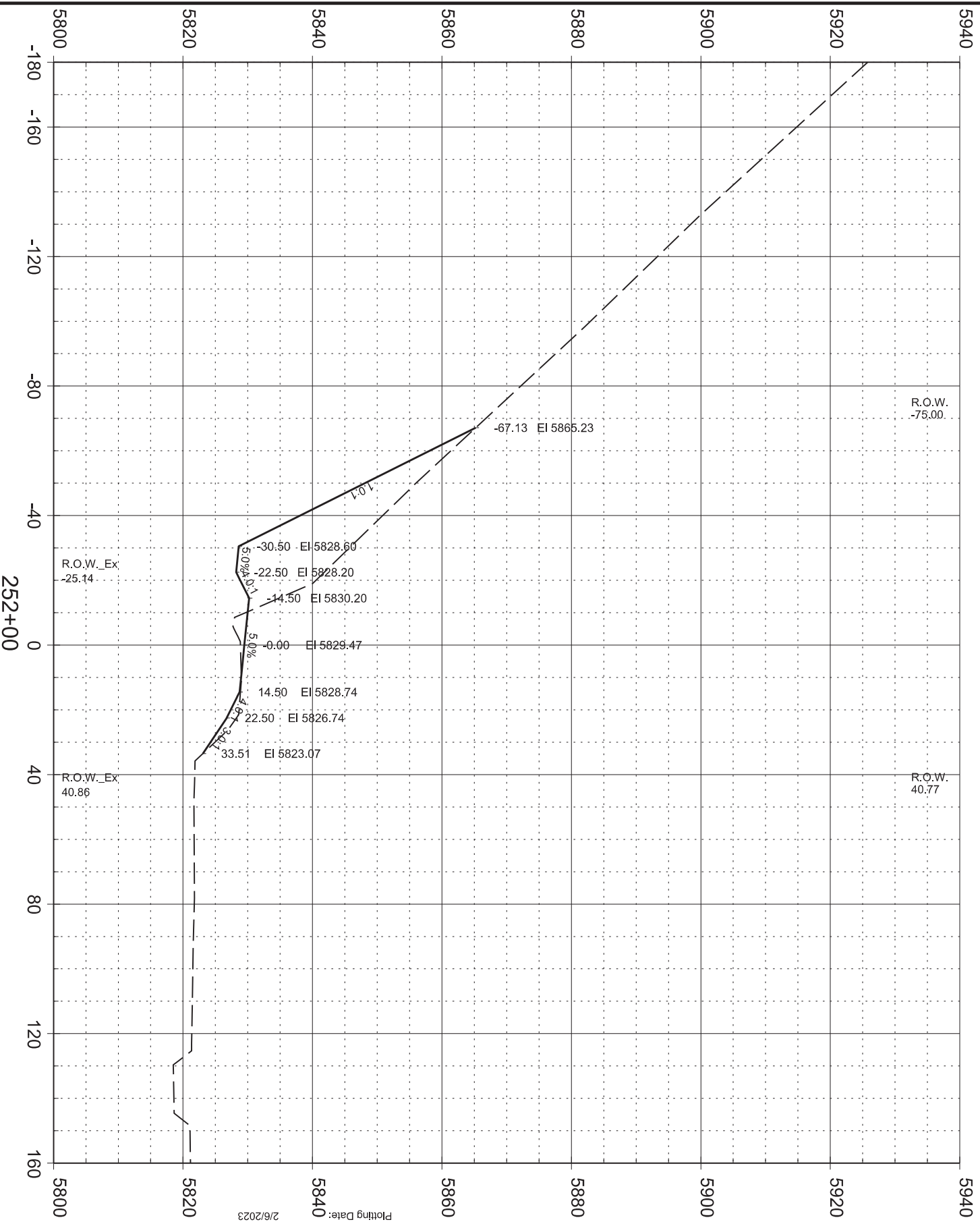
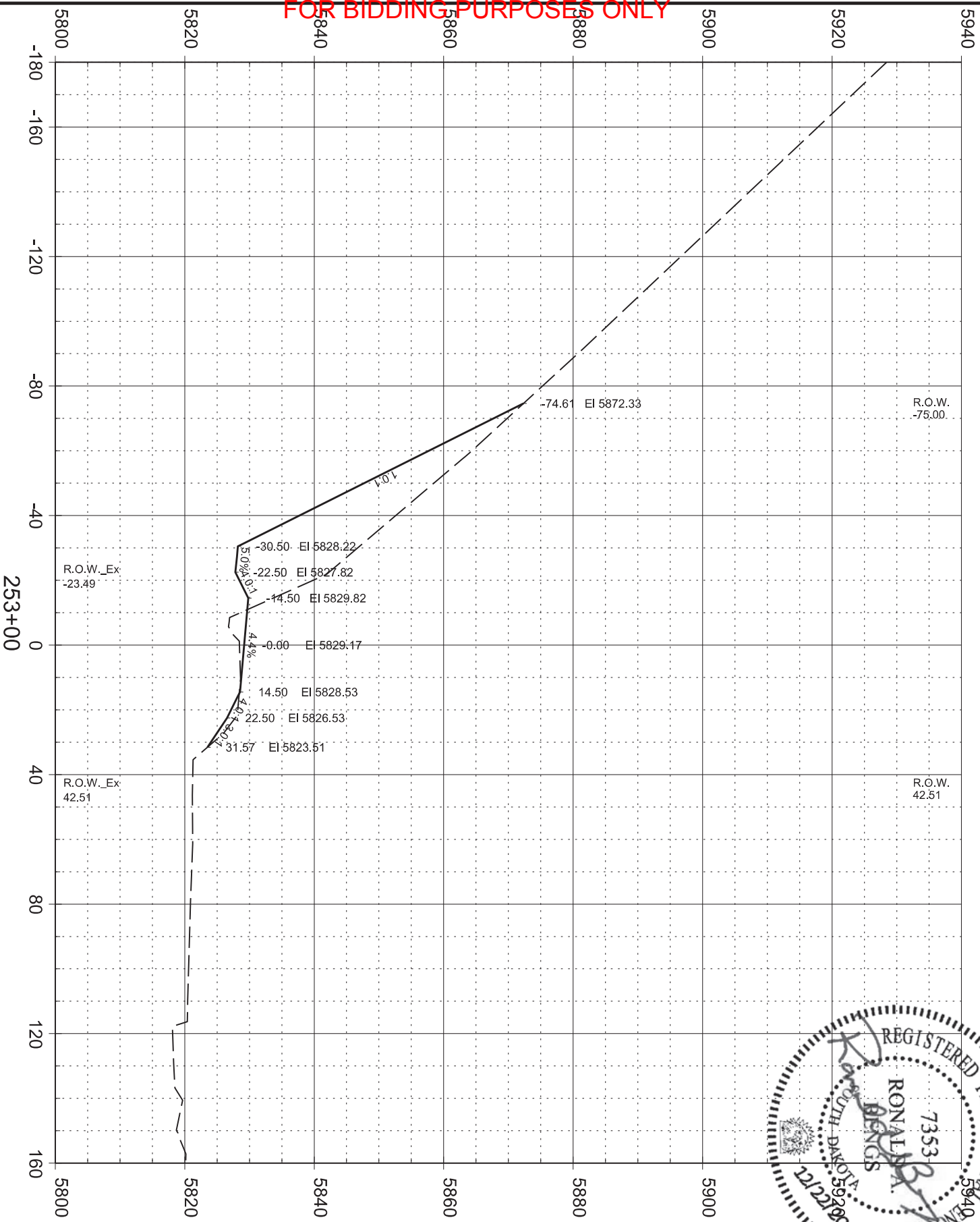
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	207	333

Plotting Date: 2/6/2023





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STATE OF SOUTH DAKOTA		P 6403(10)	208	333
PROJECT				

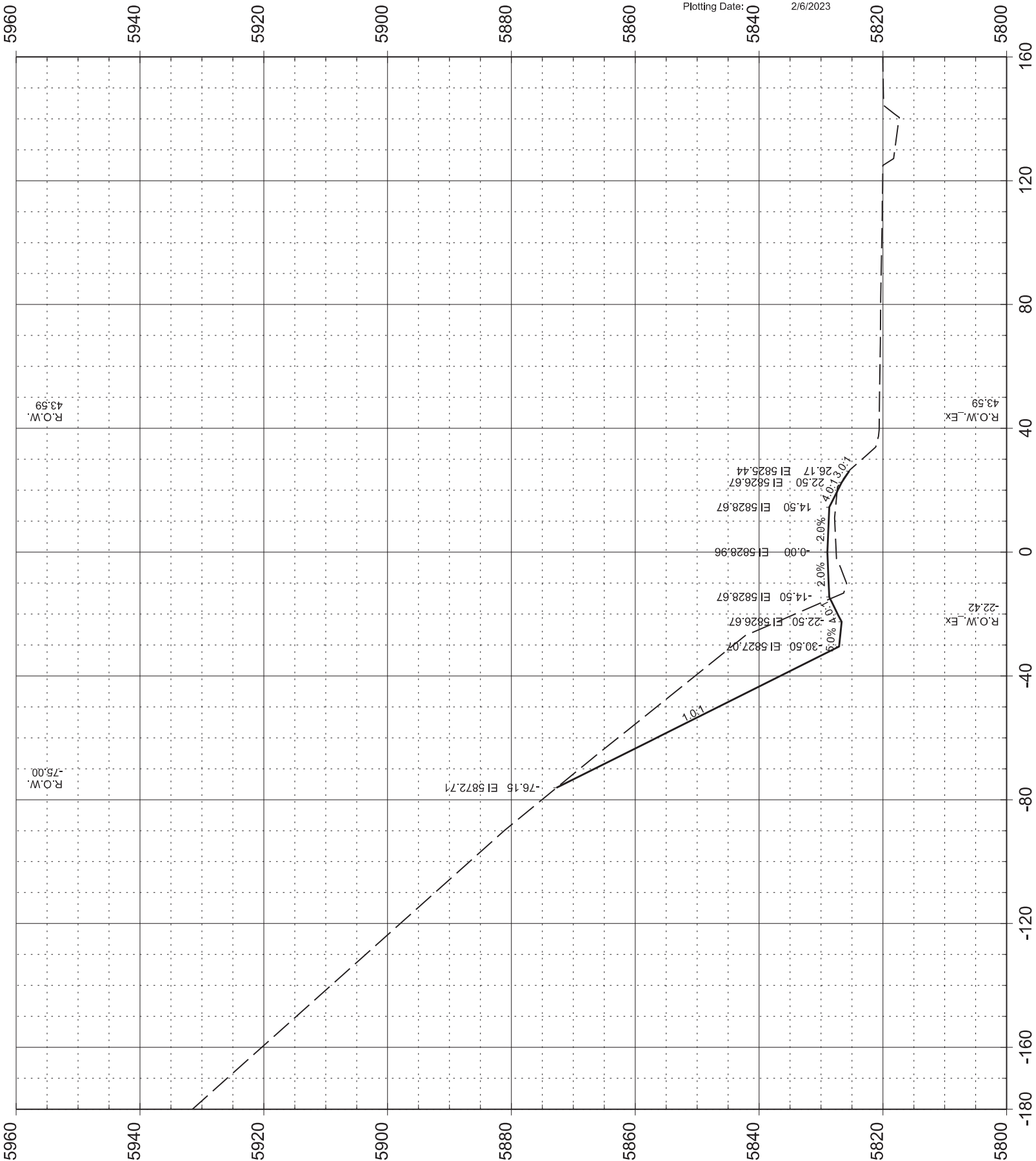
Plotting Date: 2/6/2023

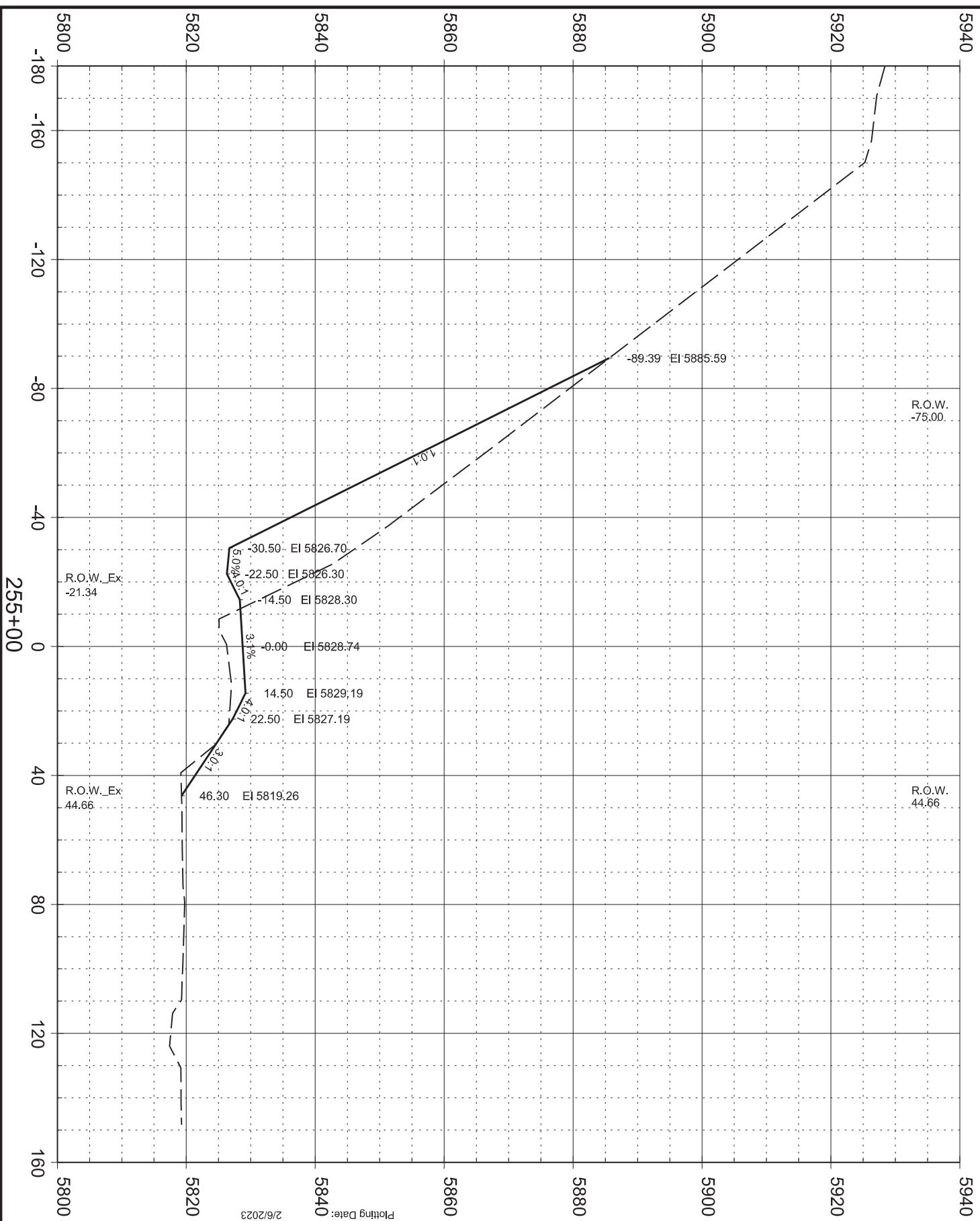
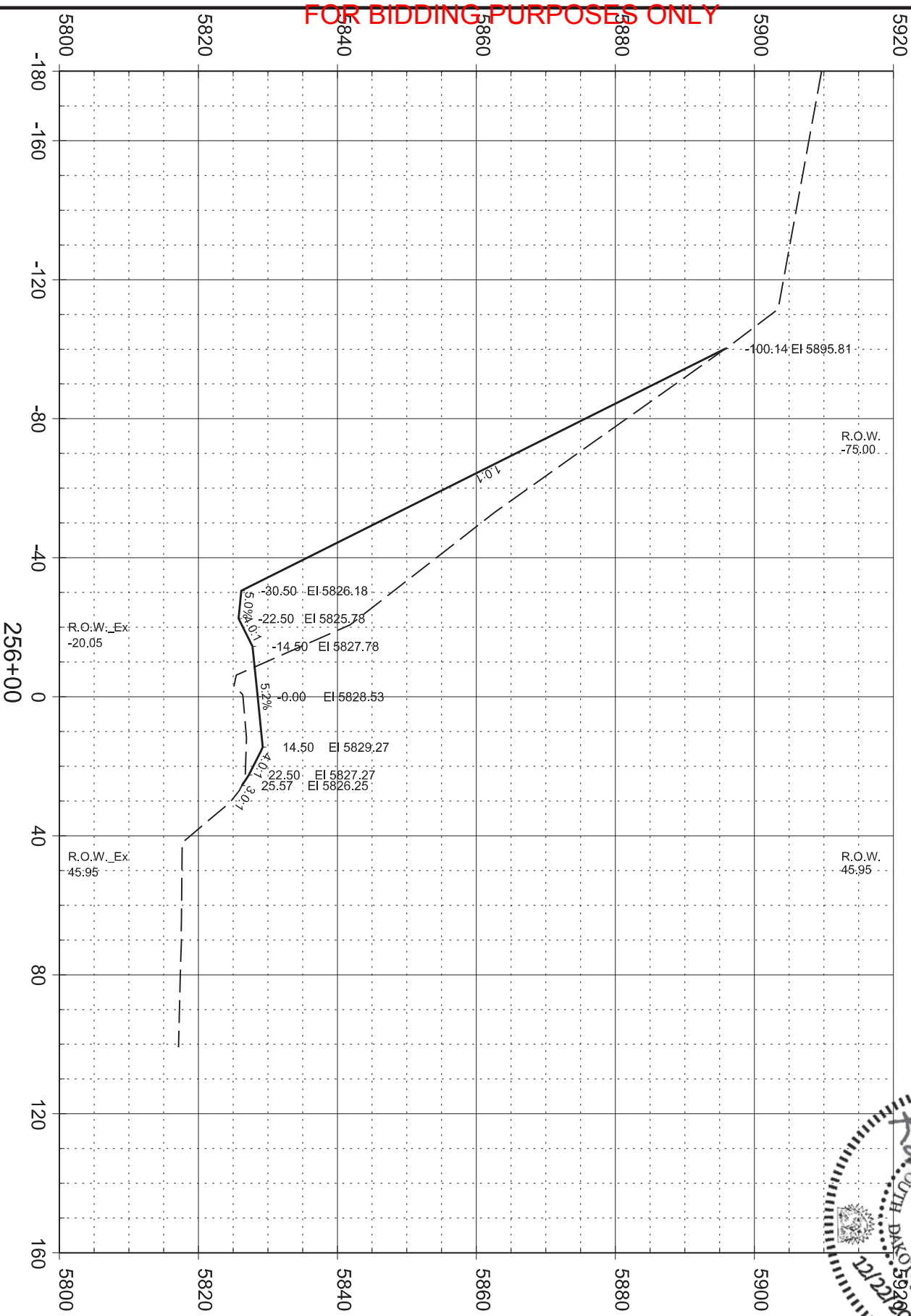


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	209	333

Plotting Date: 2/6/2023





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PROJECT		STATE OF SOUTH DAKOTA	
P 6403(10)		210	
SHEET		333	
TOTAL SHEETS		333	

Plotting Date: 2/6/2023



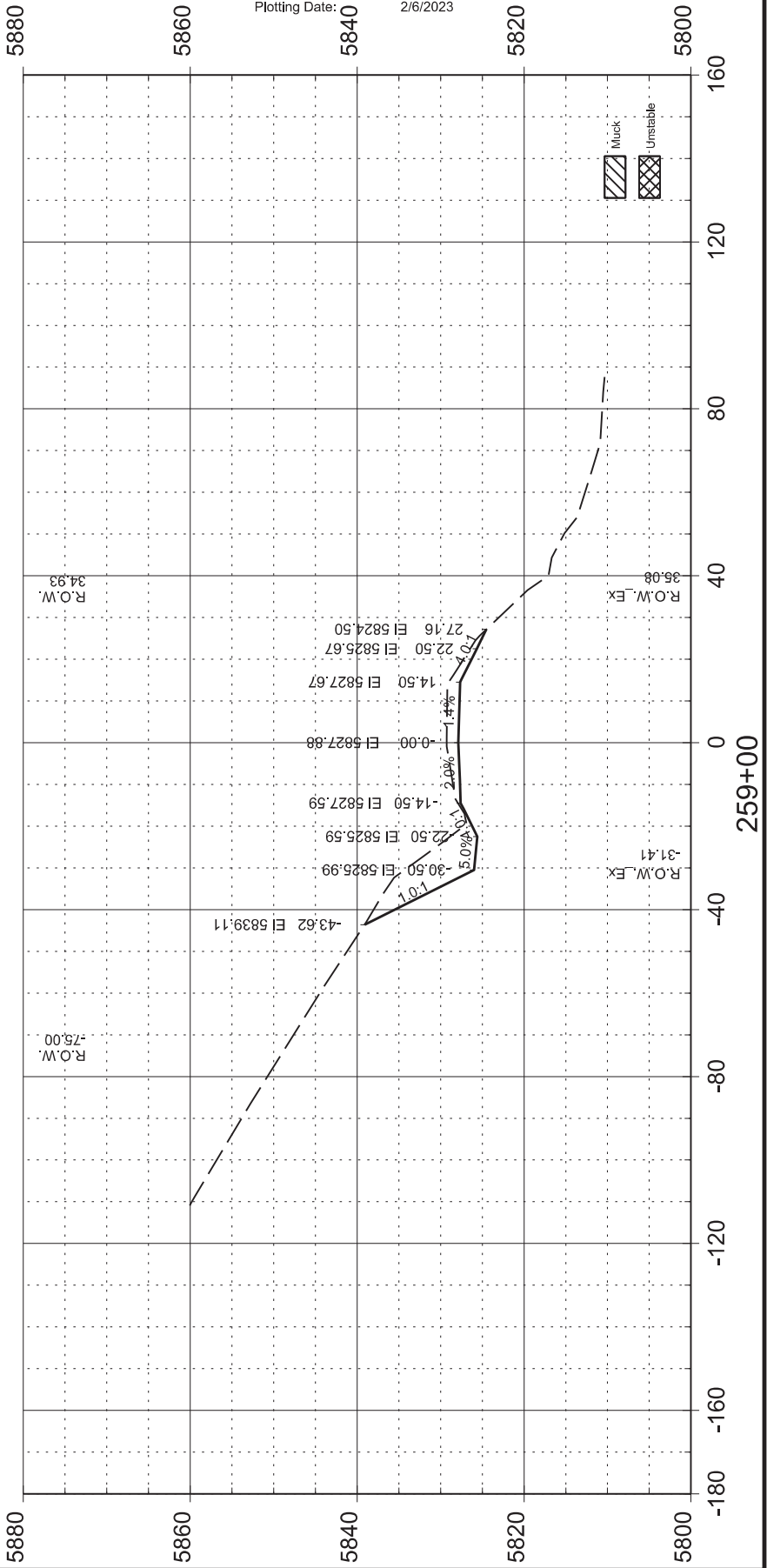
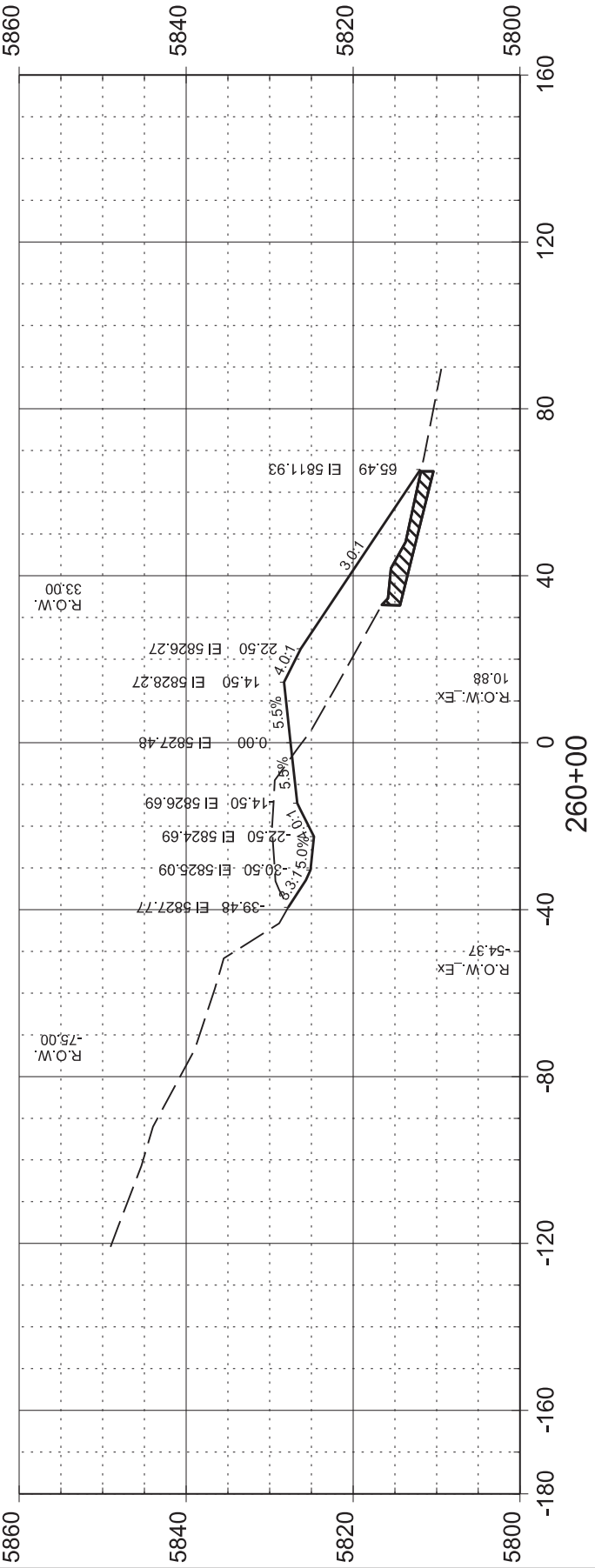
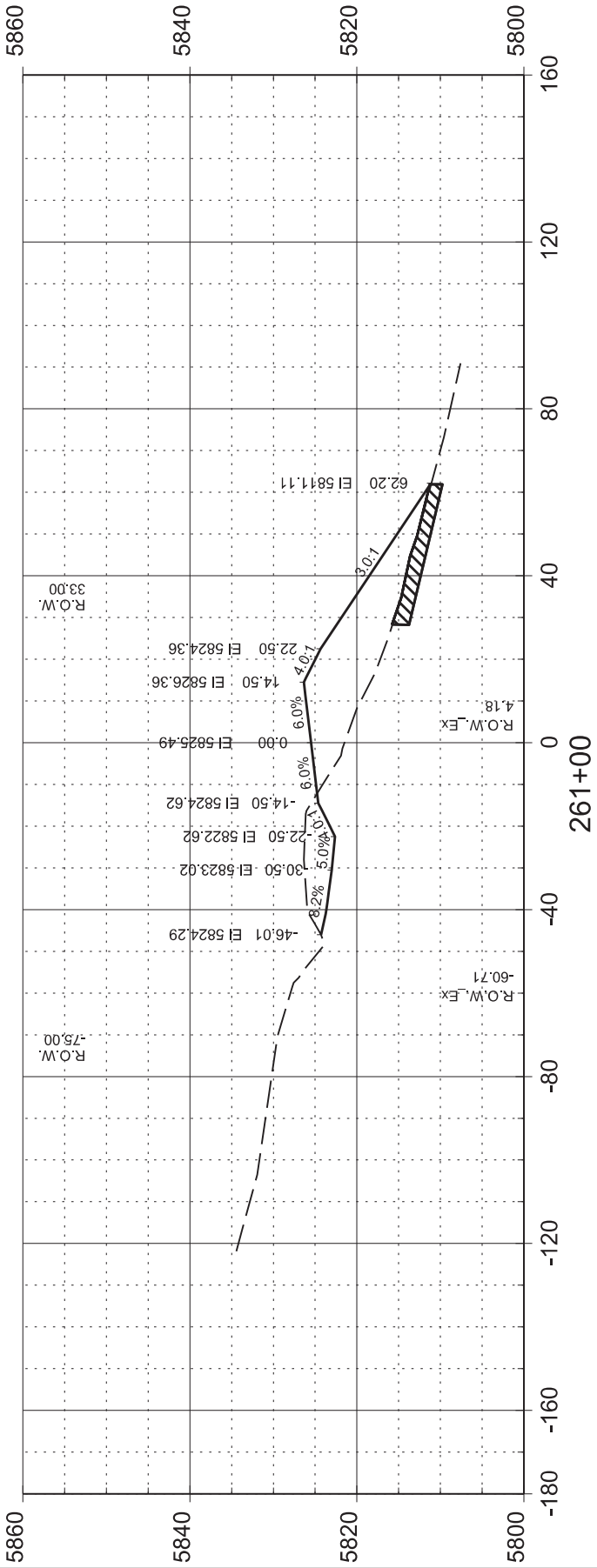
A circular professional engineer seal for Ronald P. Bengs, No. 7353, State of South Dakota. The seal features the text "REGISTERED PROFESSIONAL ENGINEER" around the top and "RONALD P. BENGS" in the center. The number "7353" is to the right of the name. The state name "SOUTH DAKOTA" is on the left, and the expiration date "12/22/2022" is at the bottom. A small emblem is on the left side. A signature is written across the seal.

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	212	333

Plotting Date: 2/6/2023



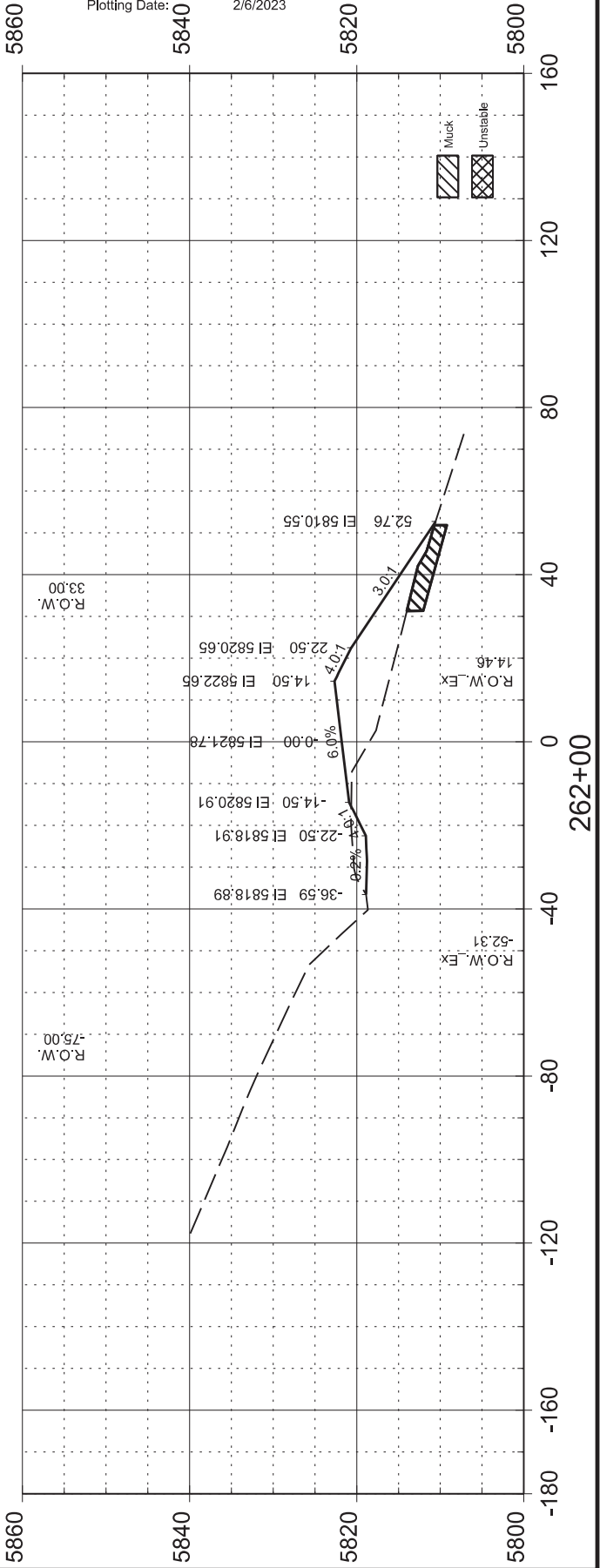
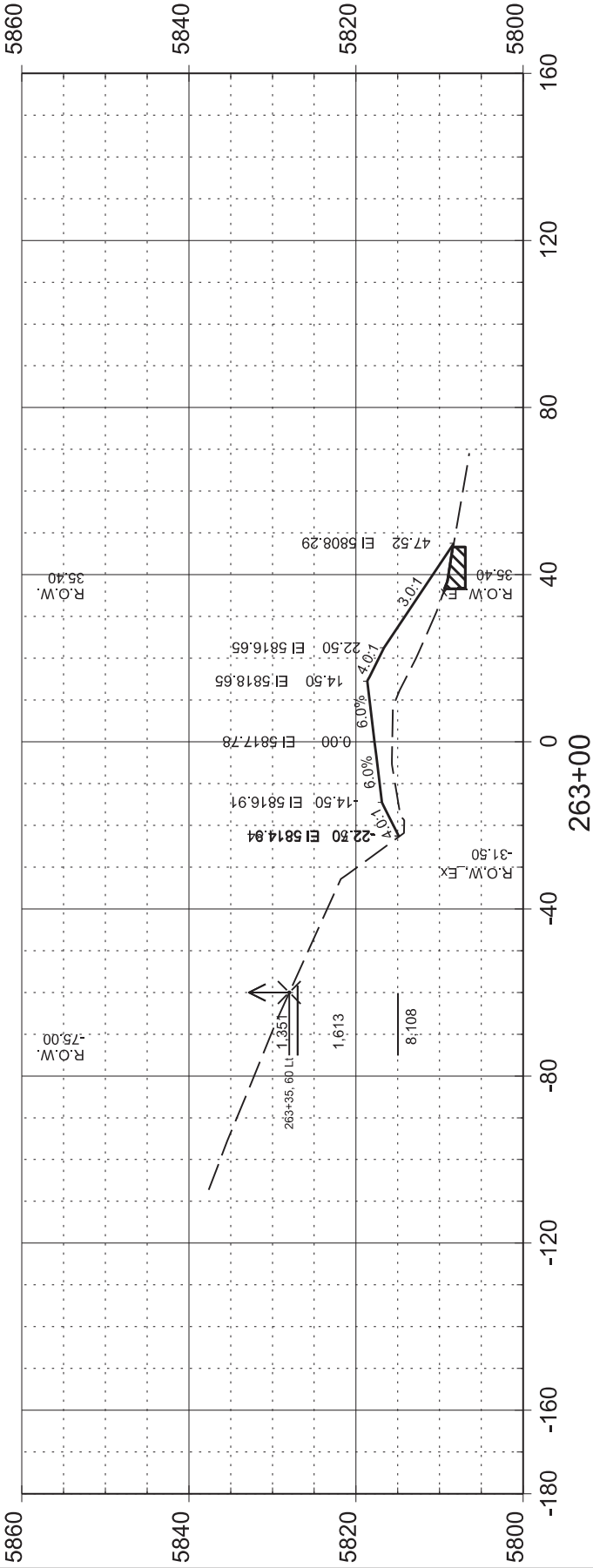
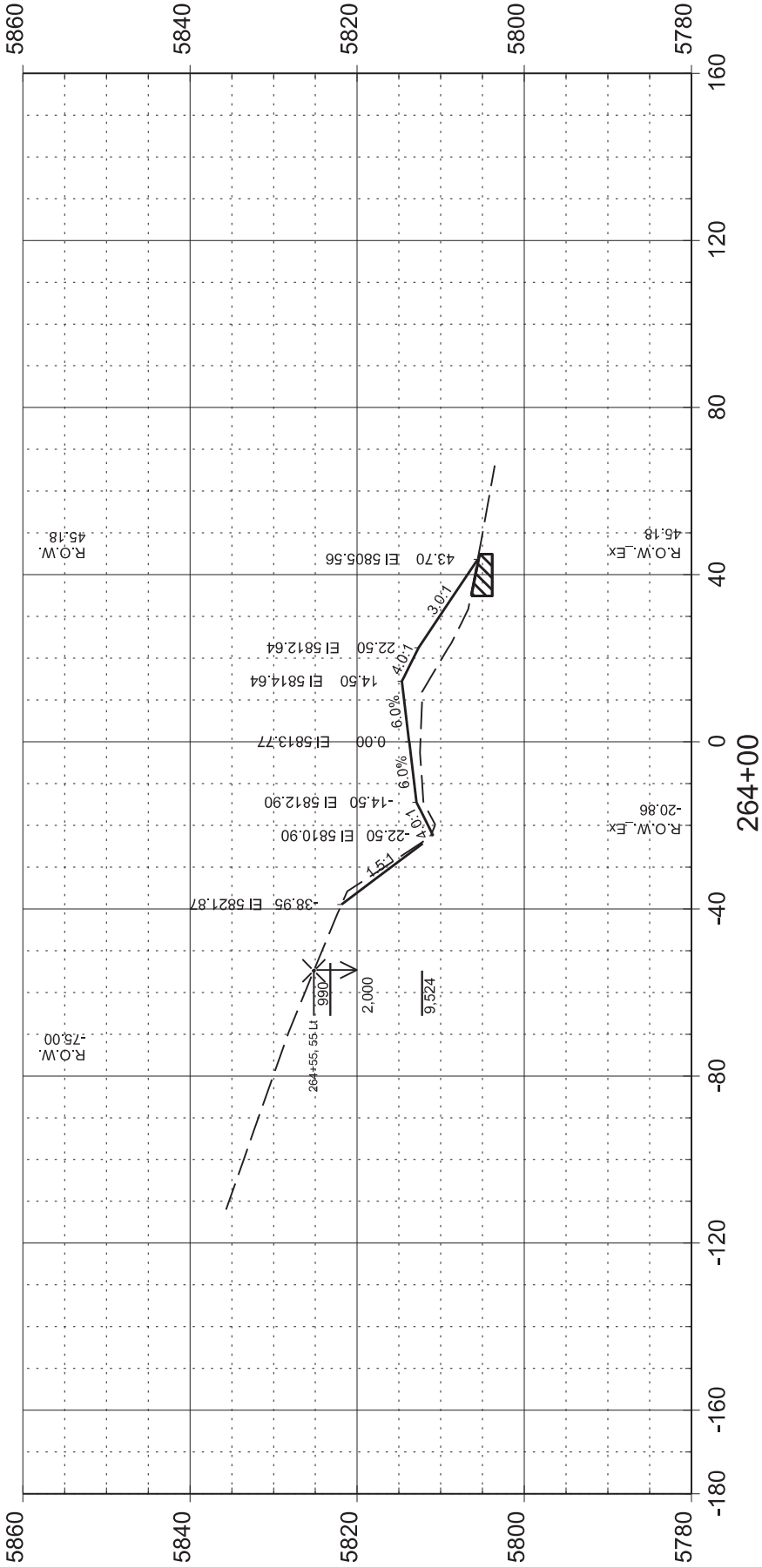


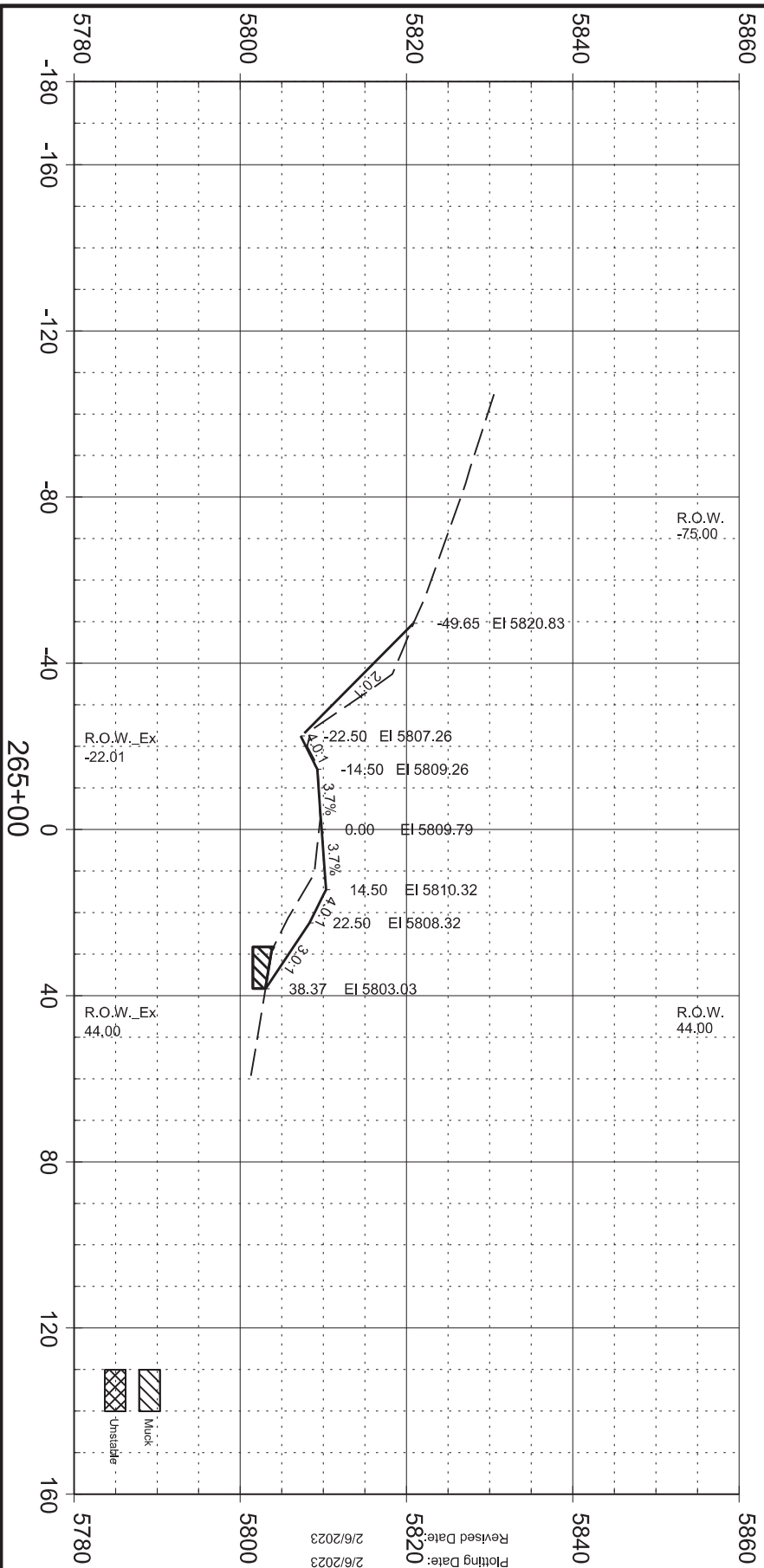
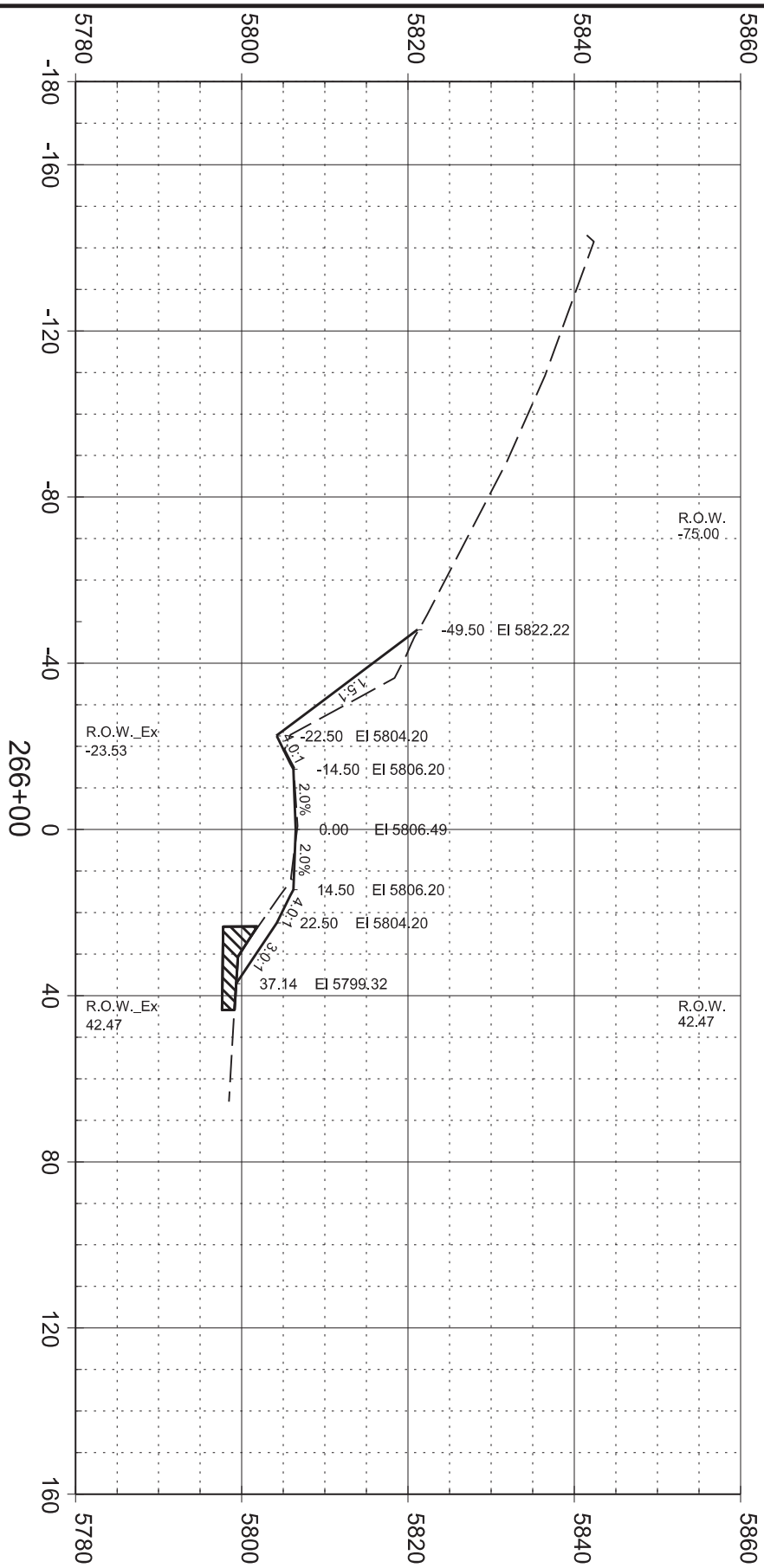
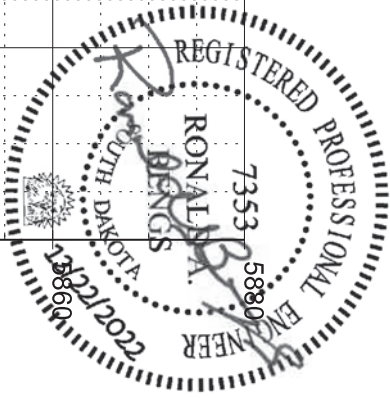
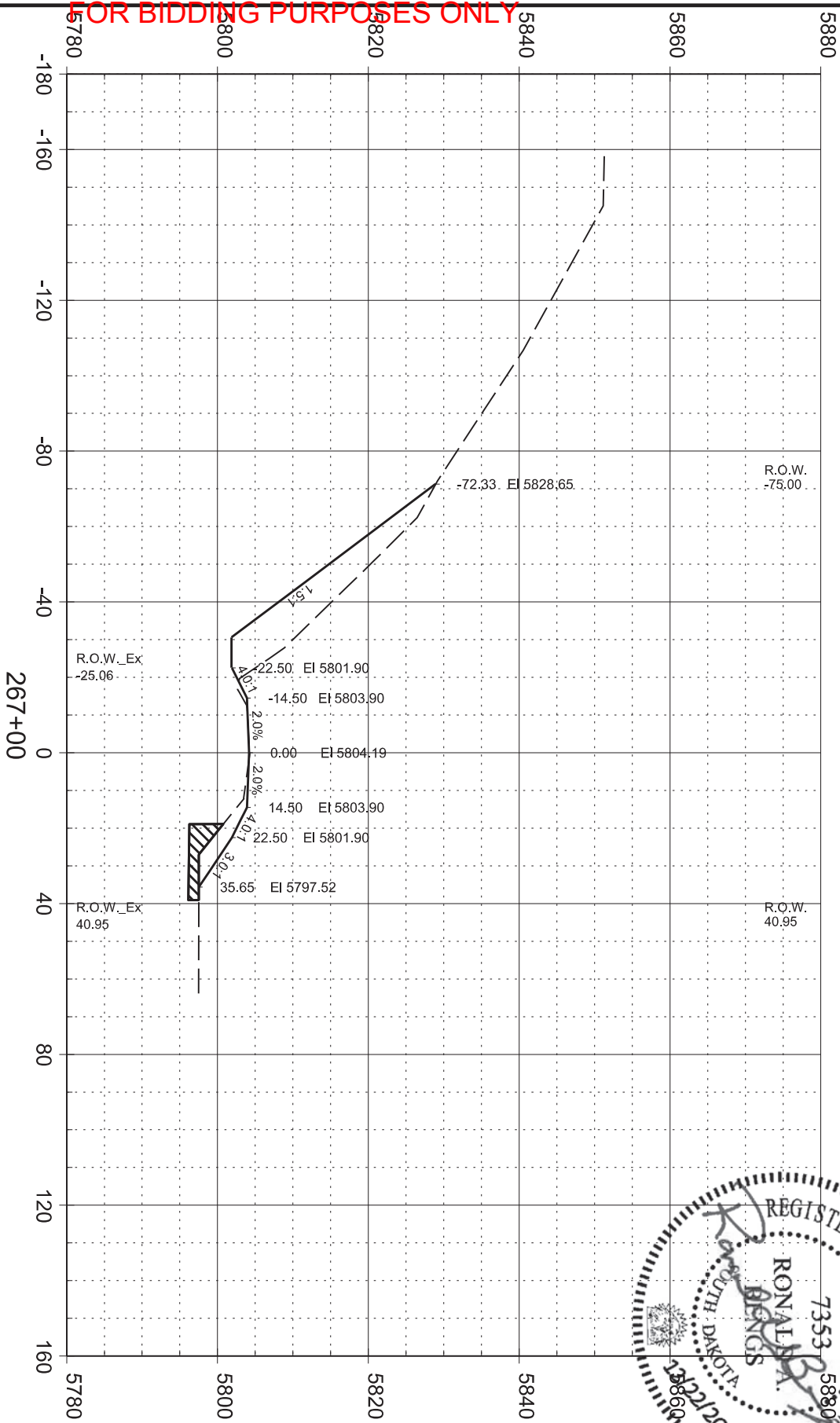


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	213	333

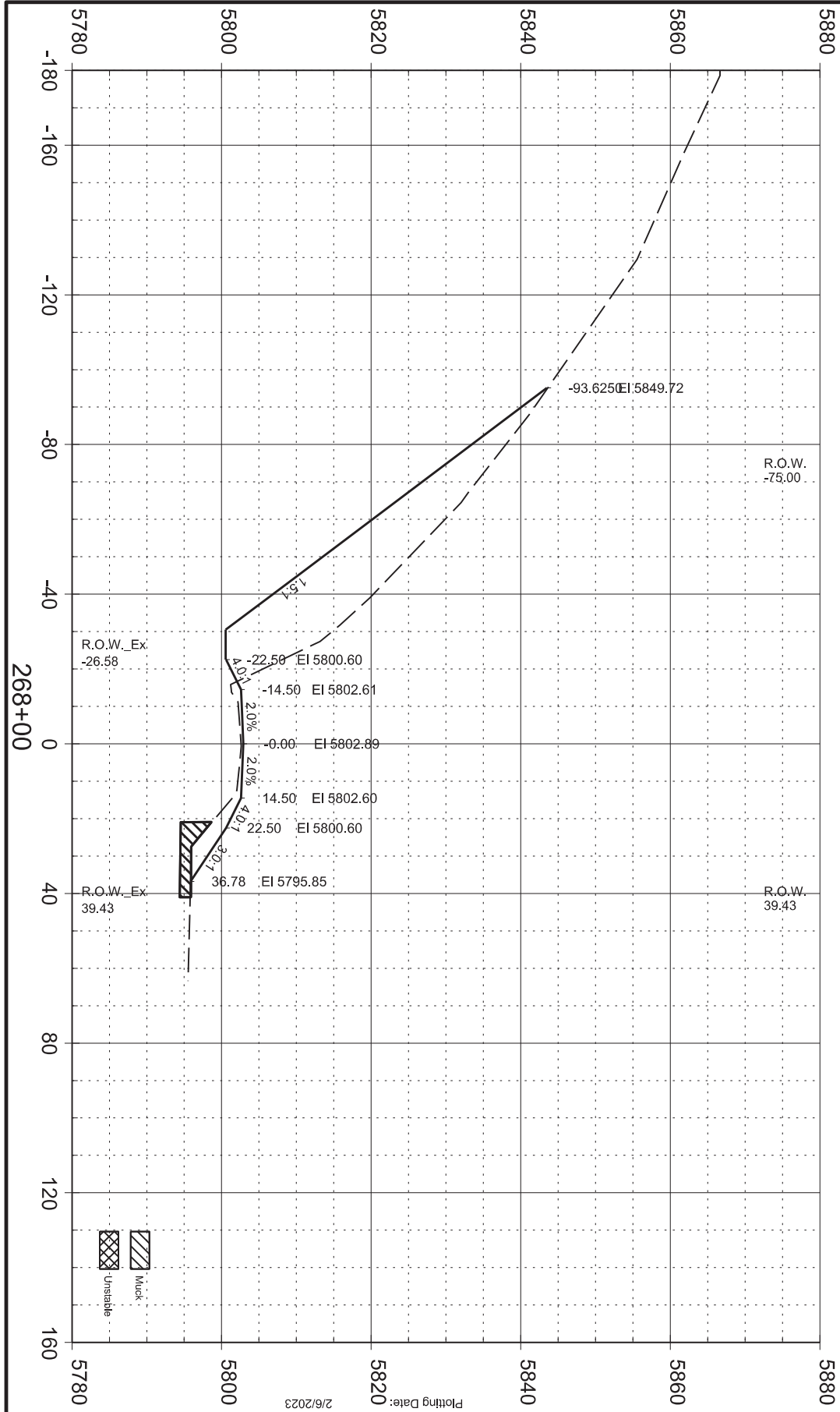
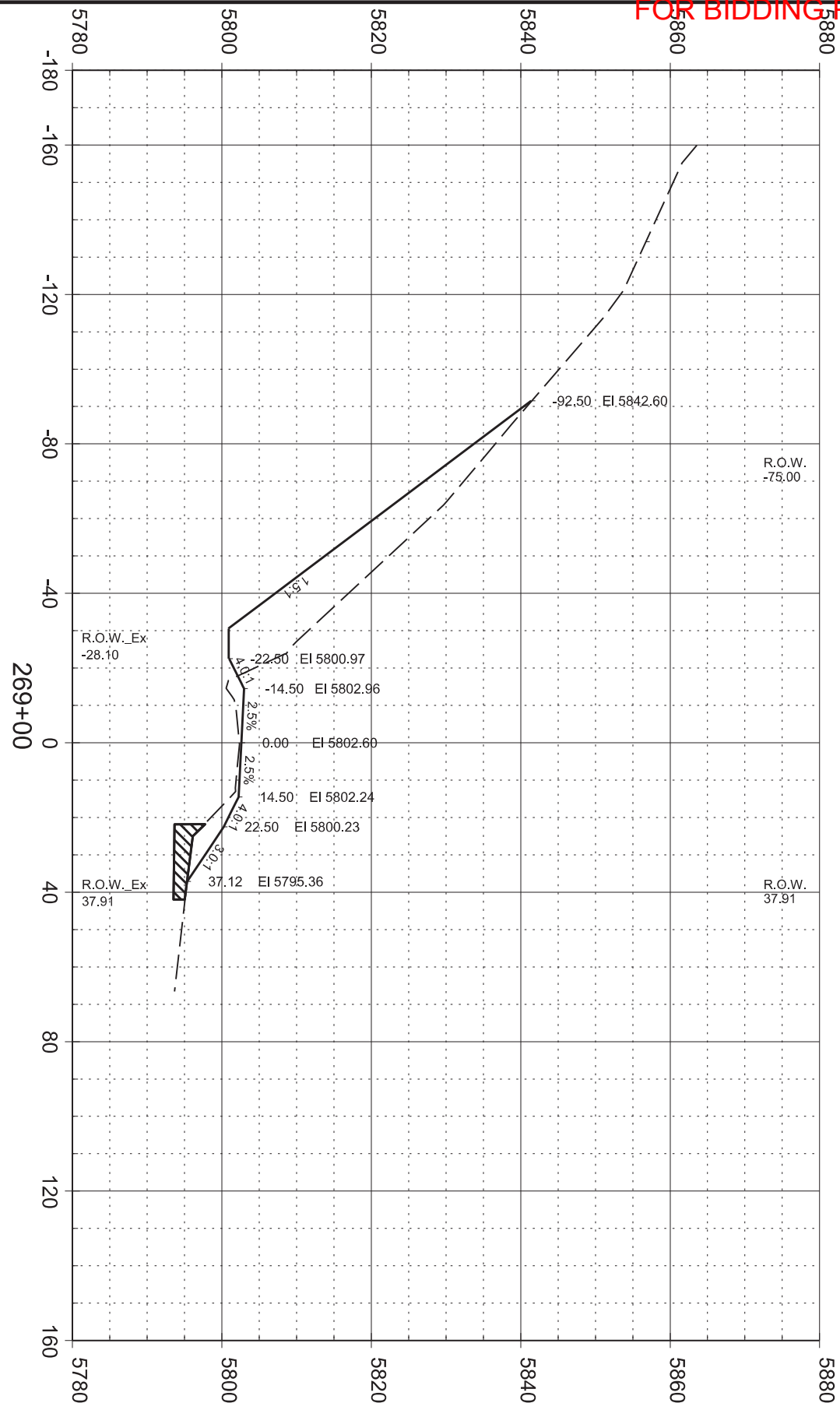
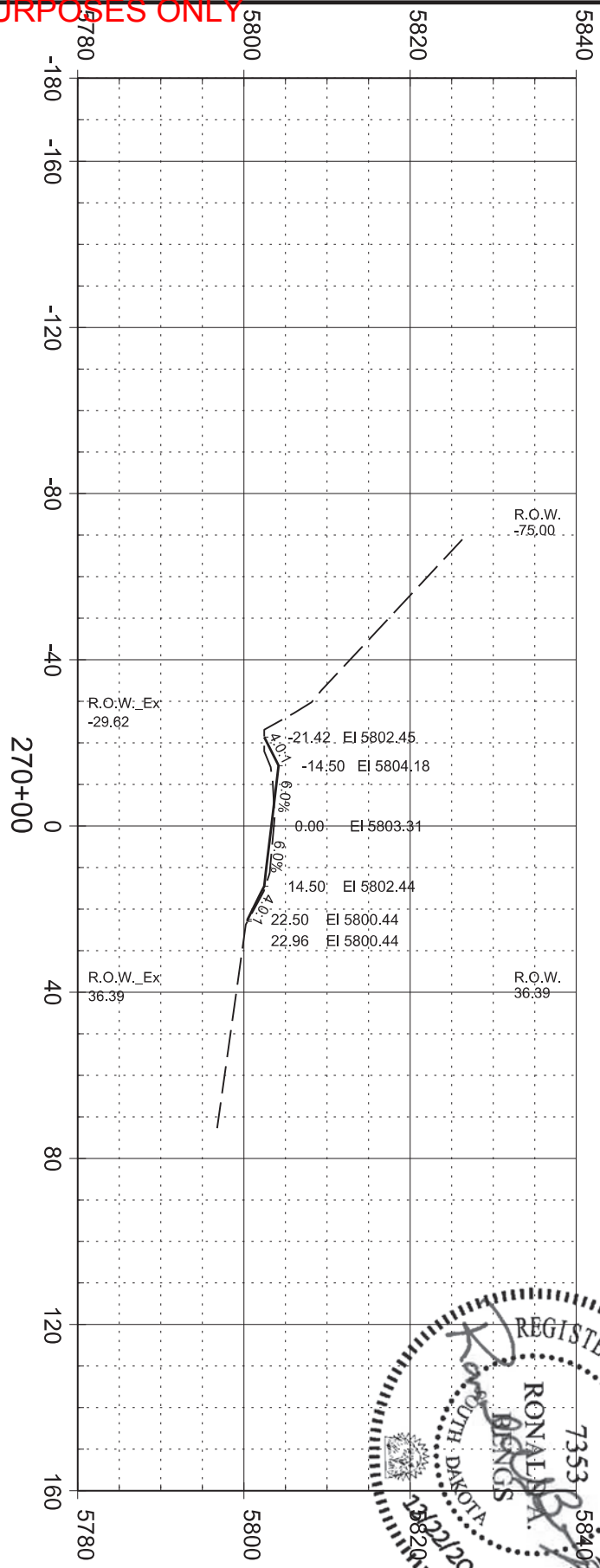
Plotting Date: 2/6/2023





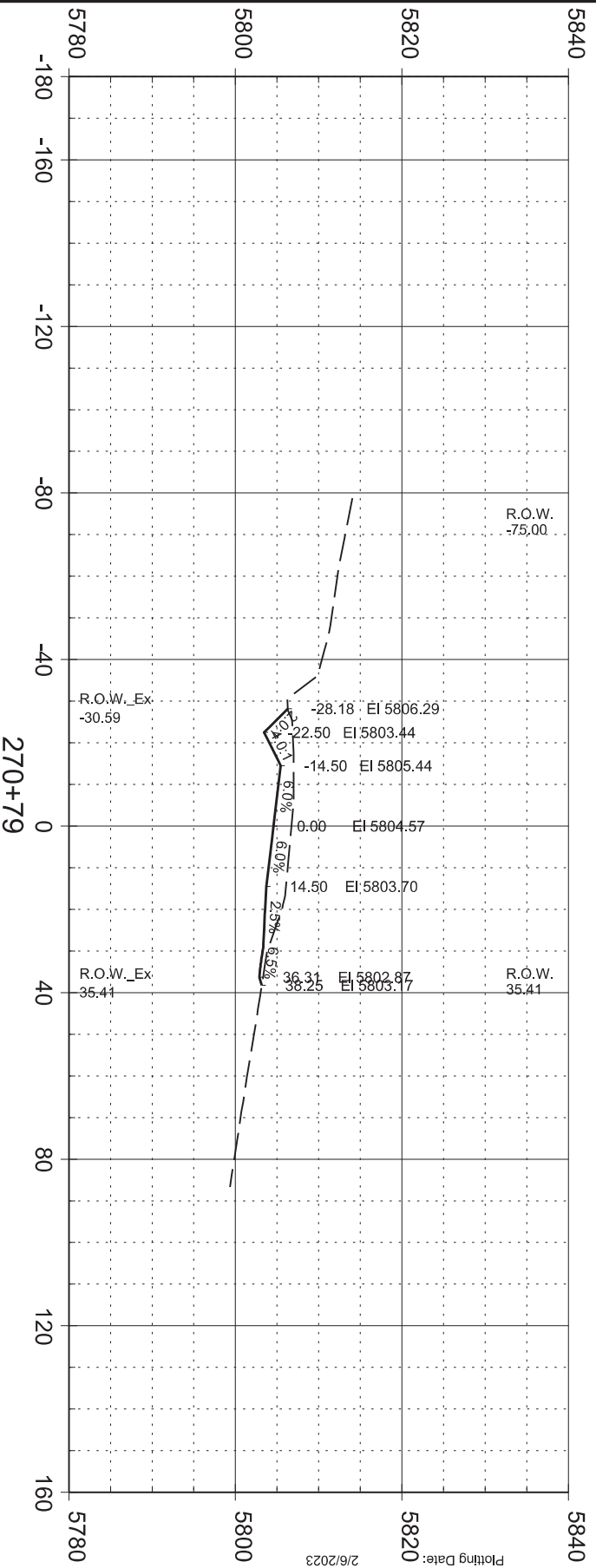
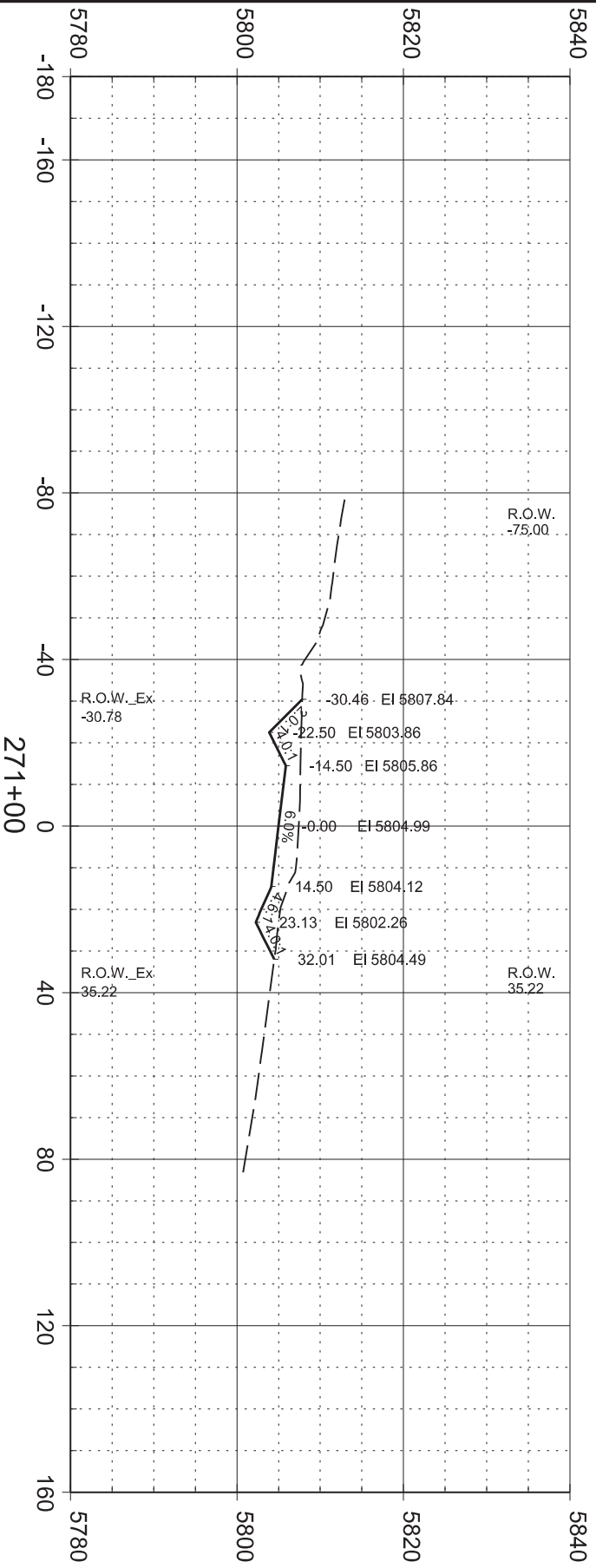
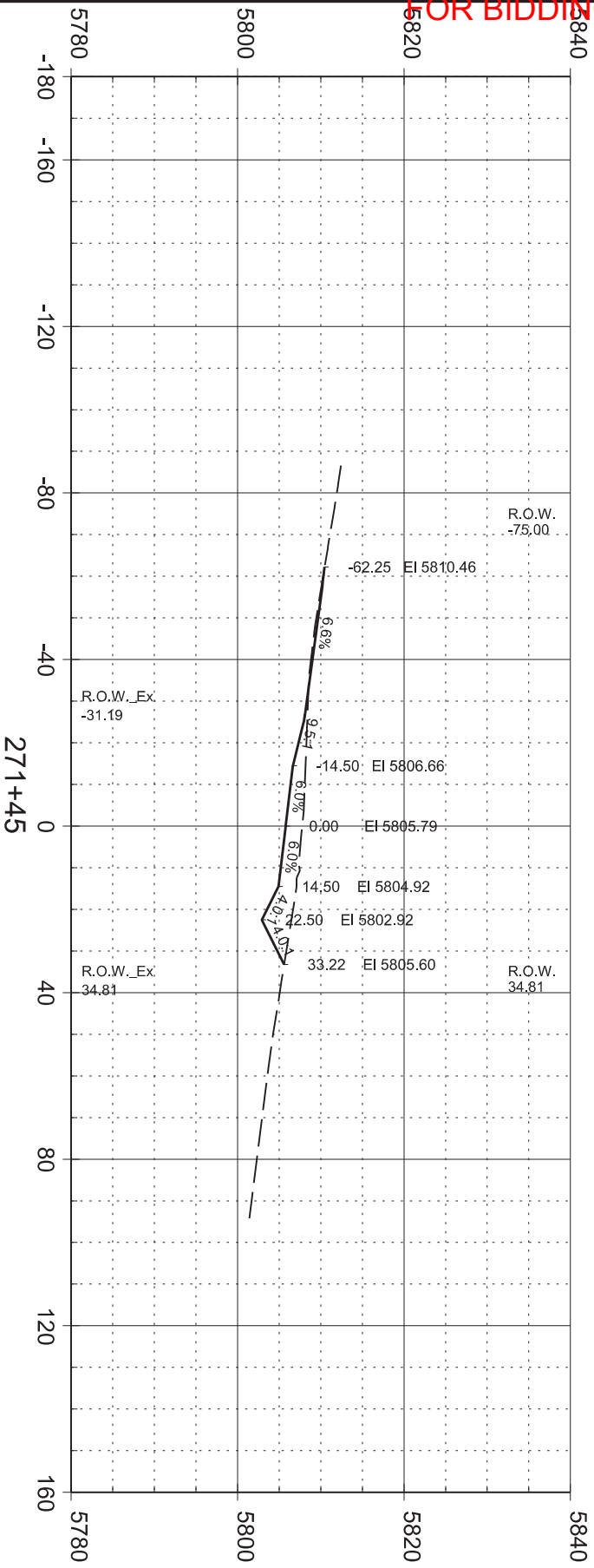
STATE OF SOUTH DAKOTA		PROJECT	
P 6403(10)		SHEET	
214		333	
TOTAL SHEETS		333	







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STATE OF SOUTH DAKOTA		Plotting Date: 2/6/2023	
PROJECT		P 6403(10)	
SHEET		216	
TOTAL SHEETS		333	

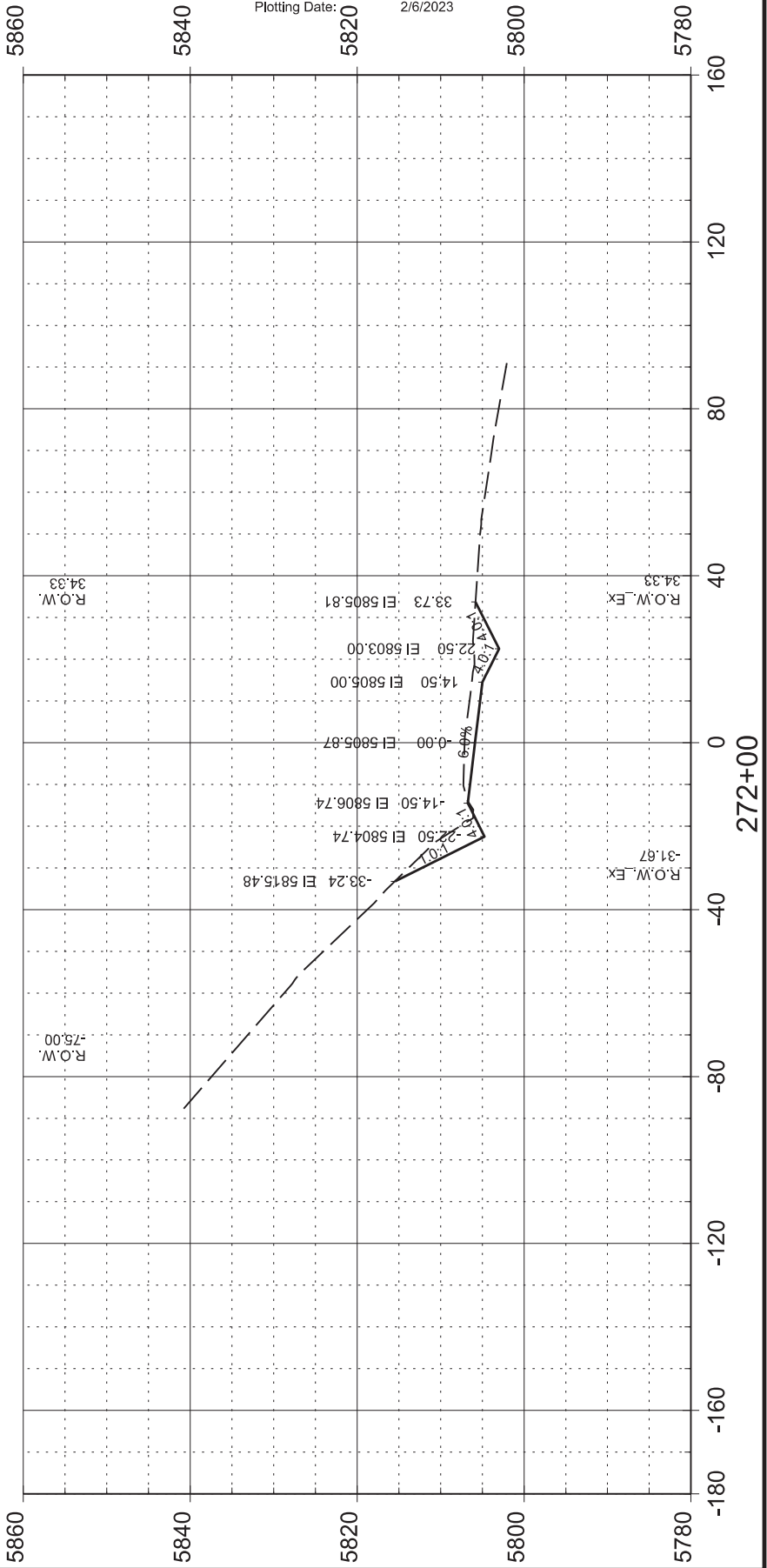
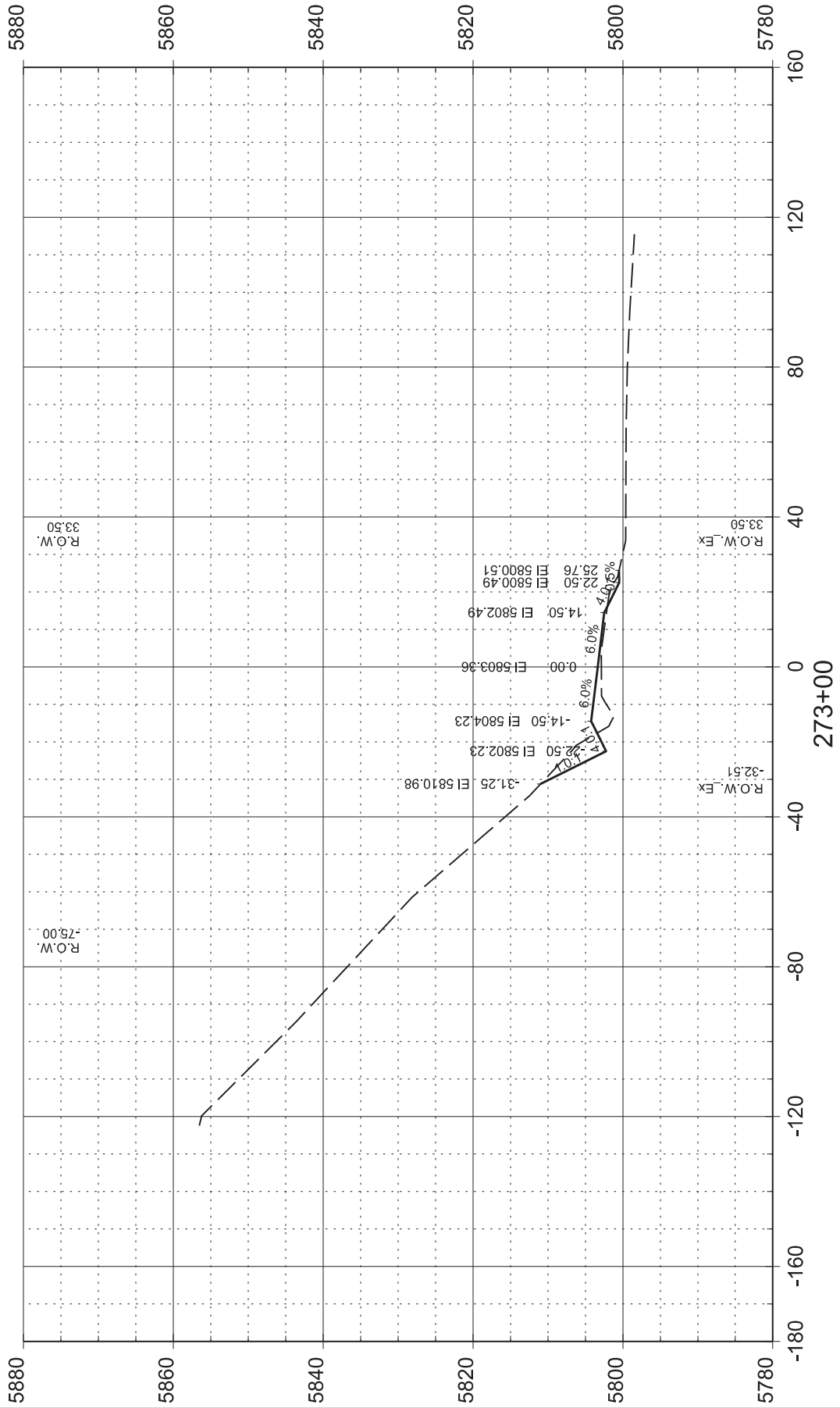




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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	217	333

Plotting Date: 2/6/2023

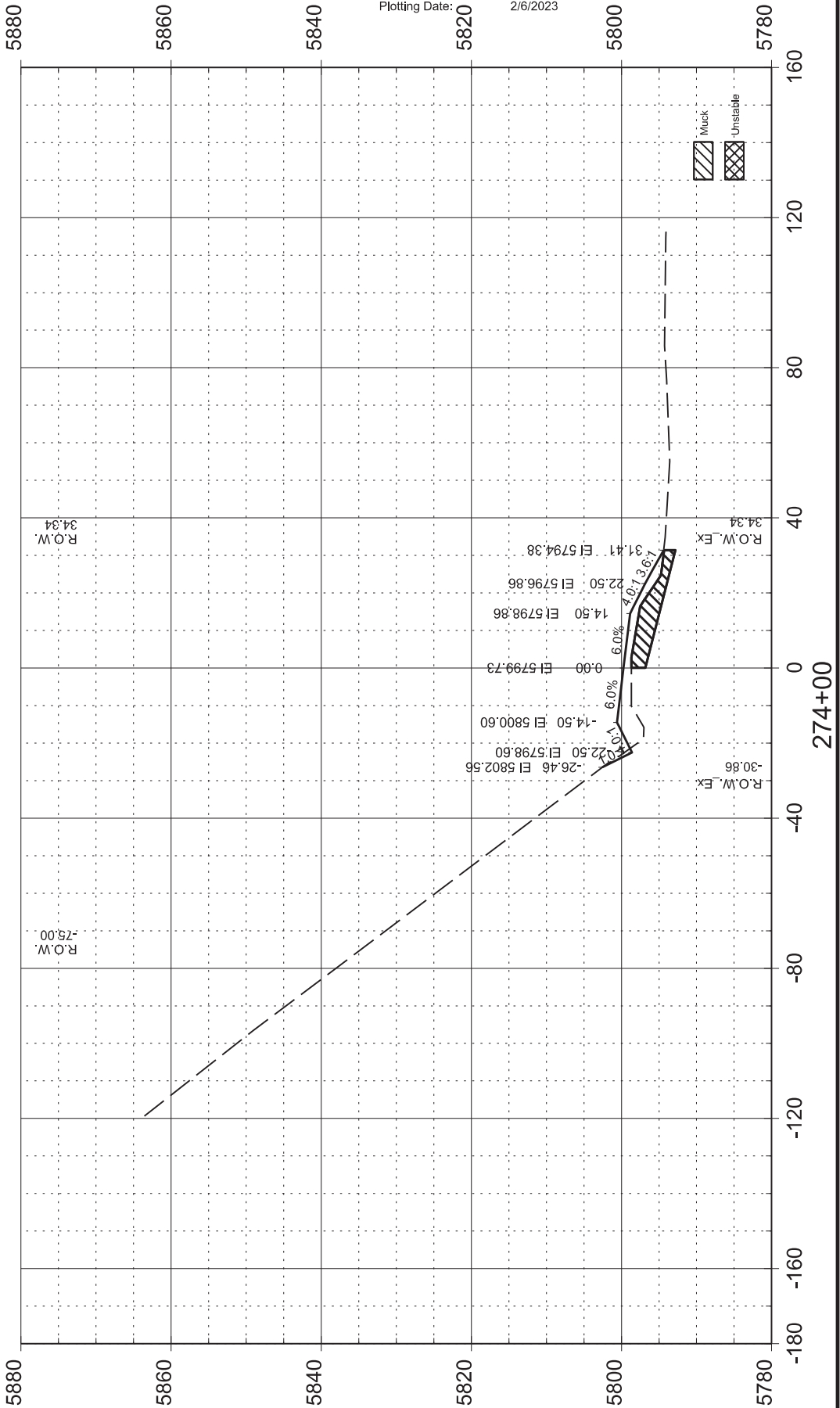
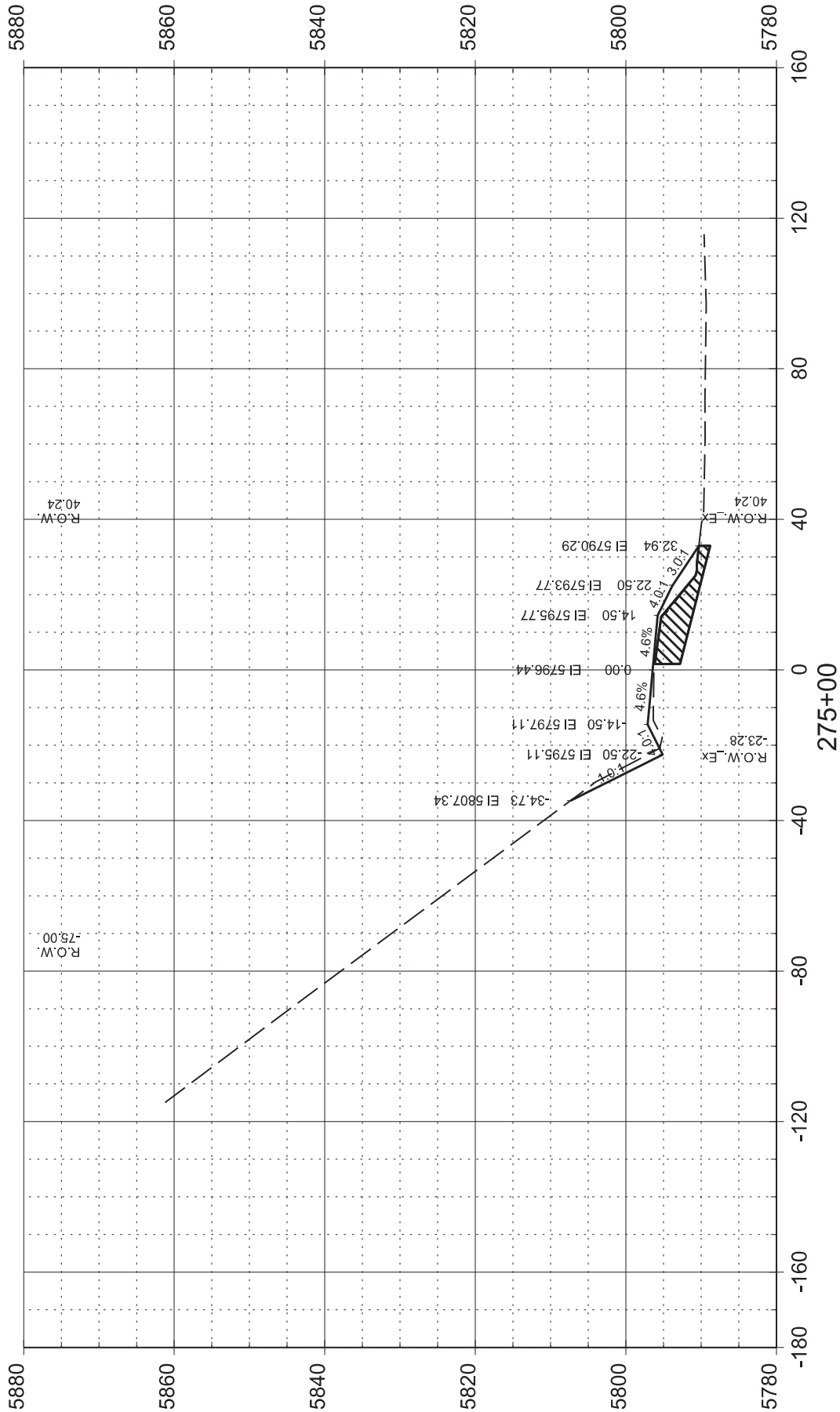




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	218	333

Plotting Date: 2/6/2023



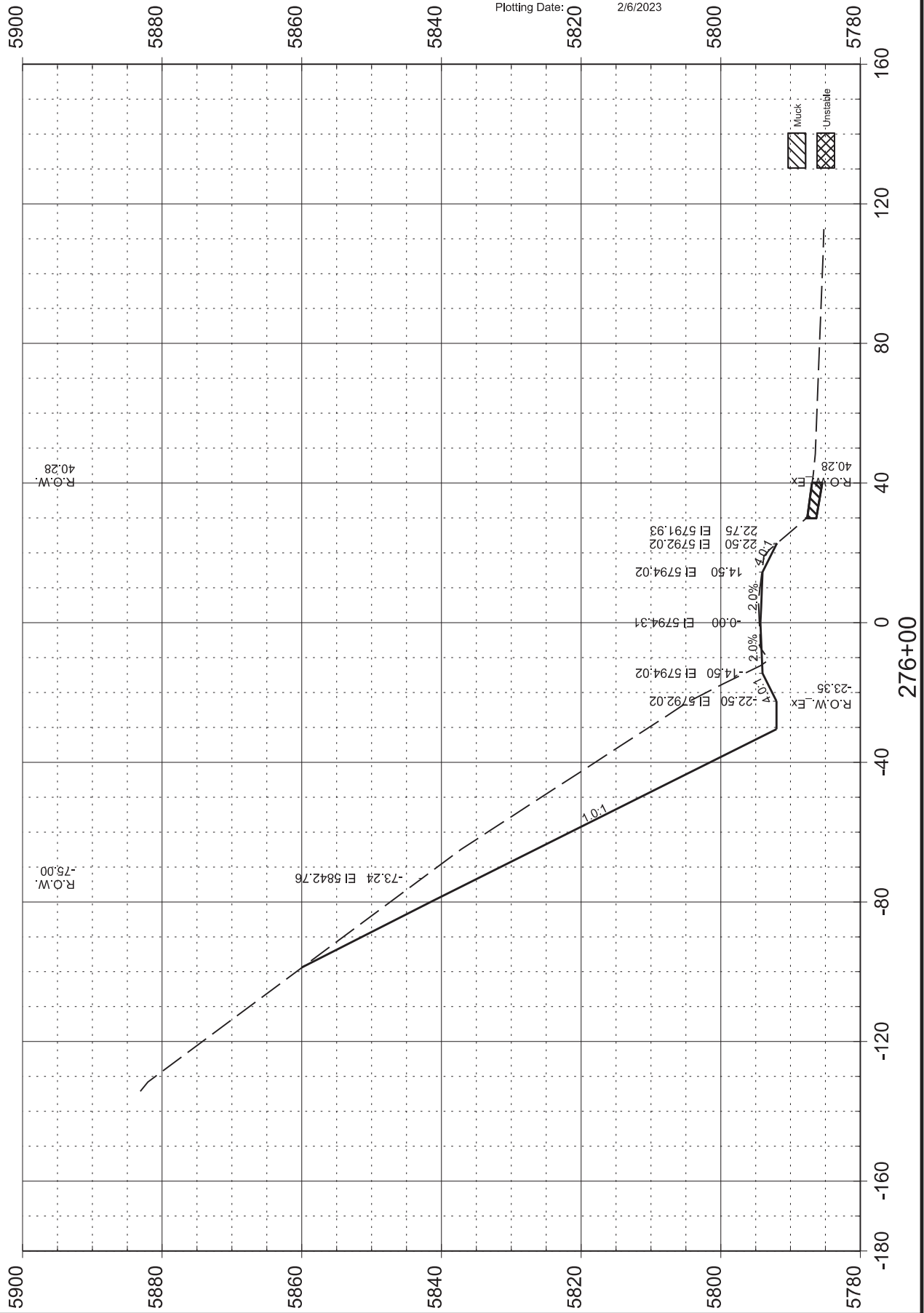


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	219	333

Plotting Date: 2/6/2023

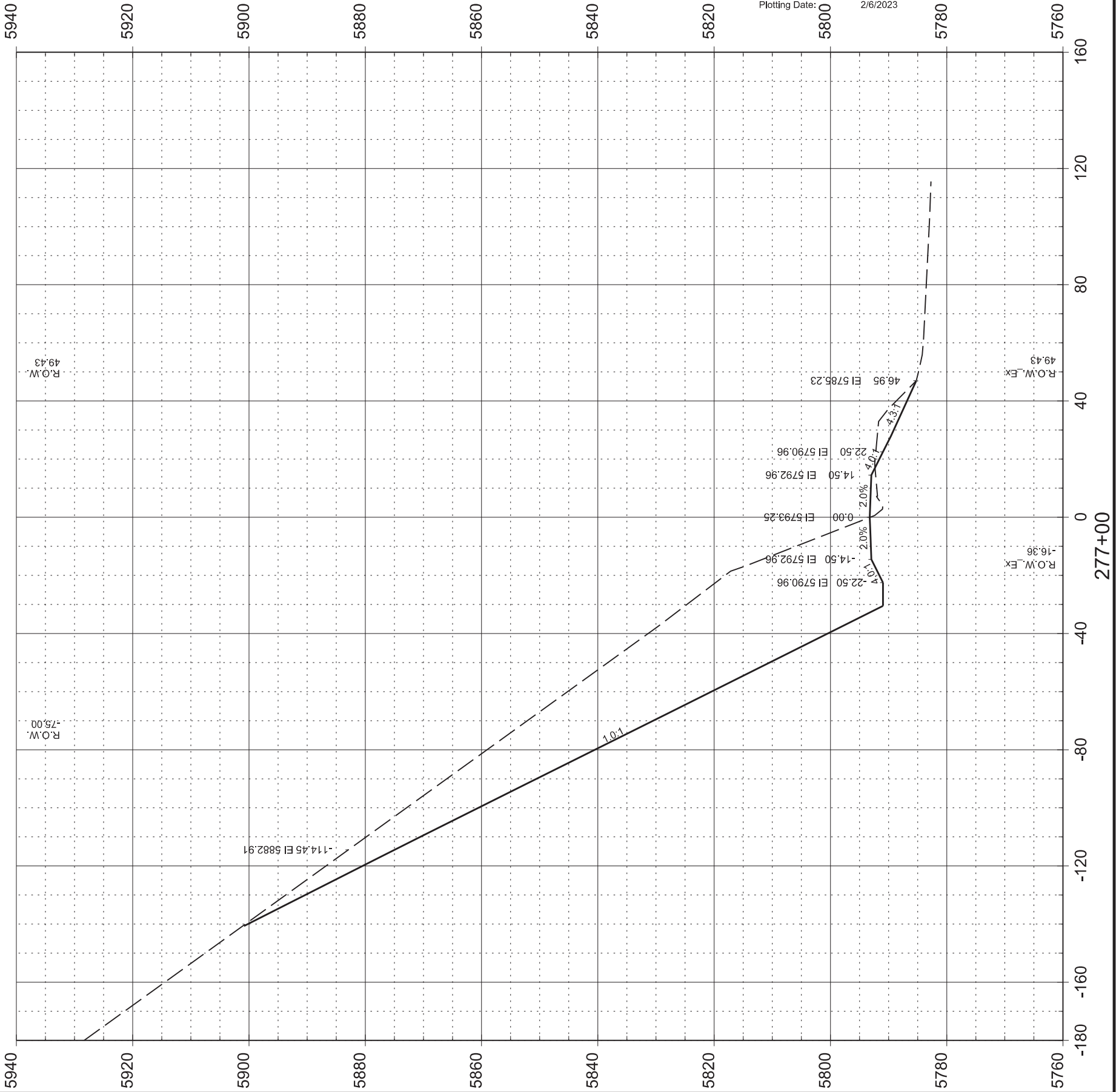


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	220	333

Plotting Date: 2/6/2023



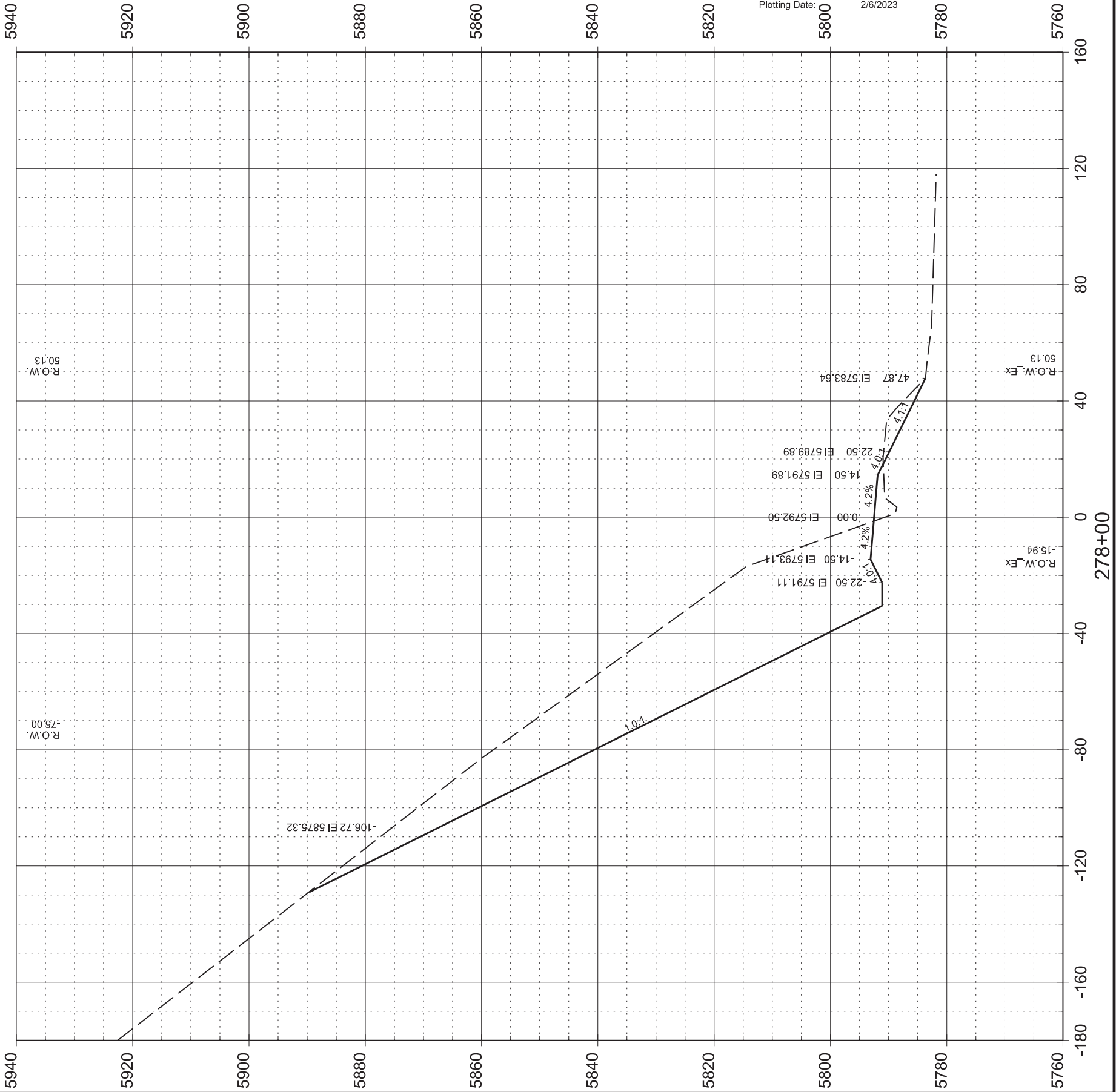


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	221	333

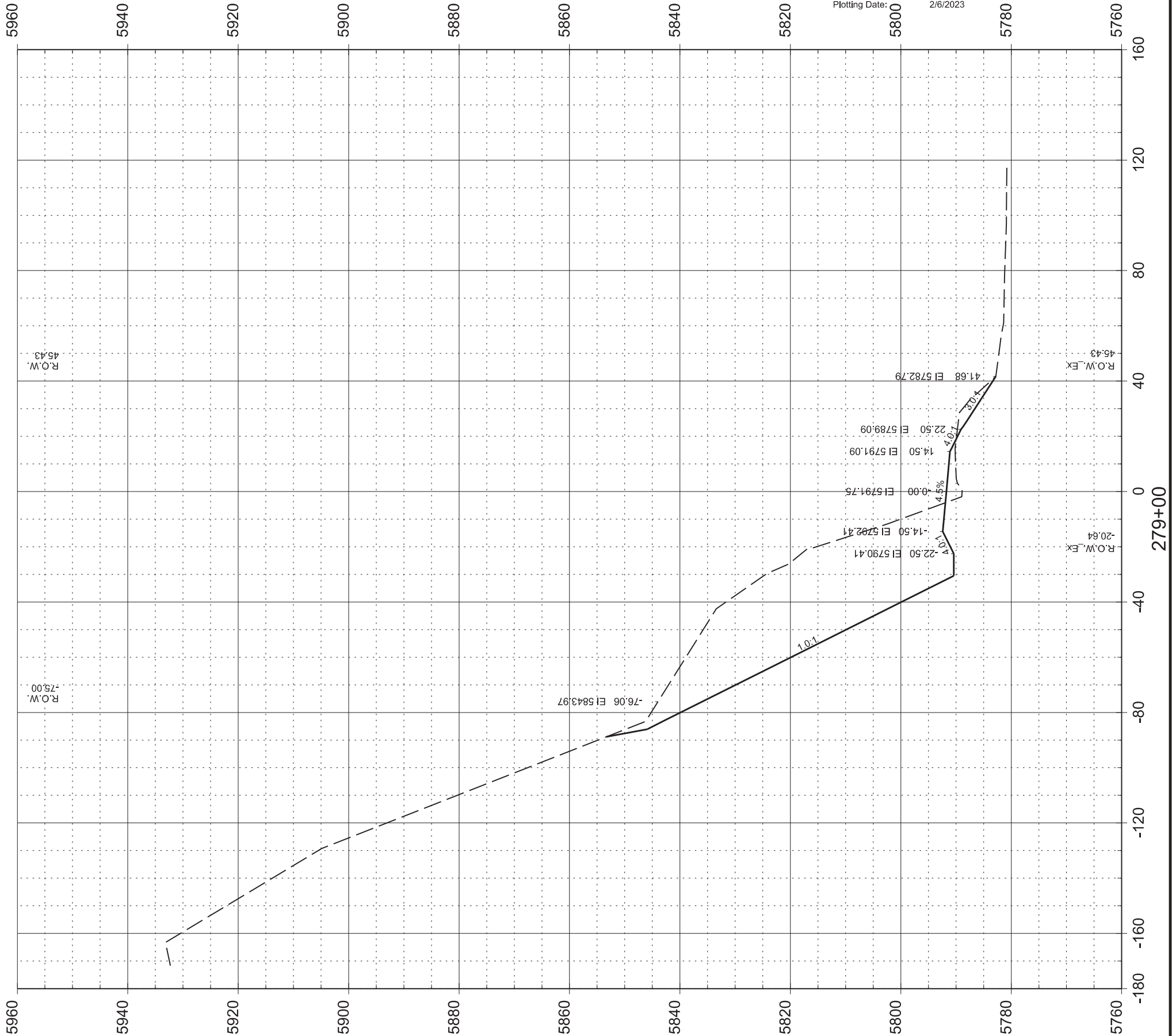
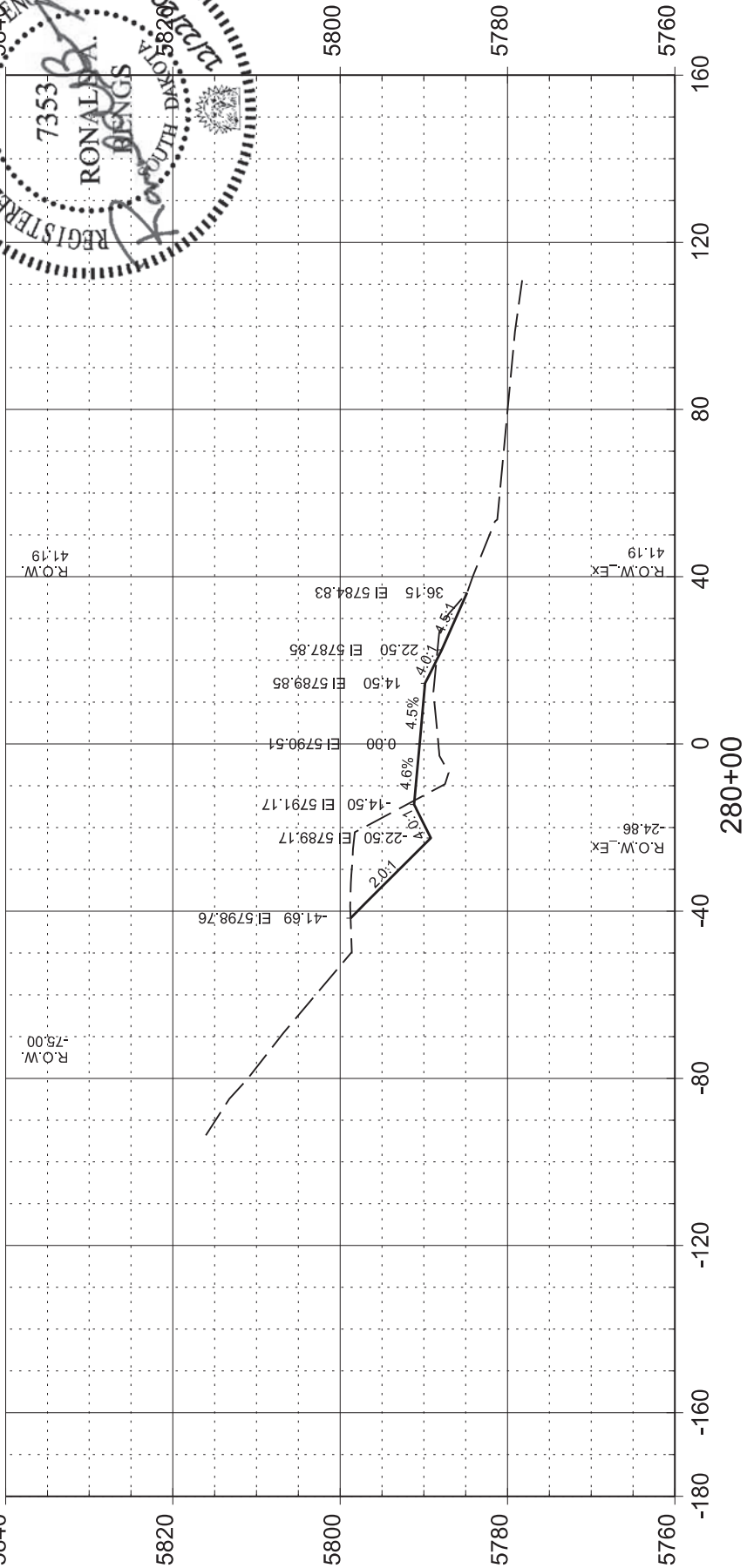
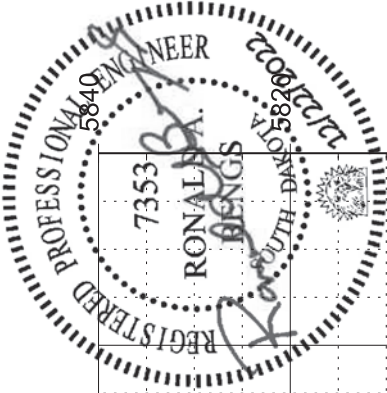
Plotting Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	222	333

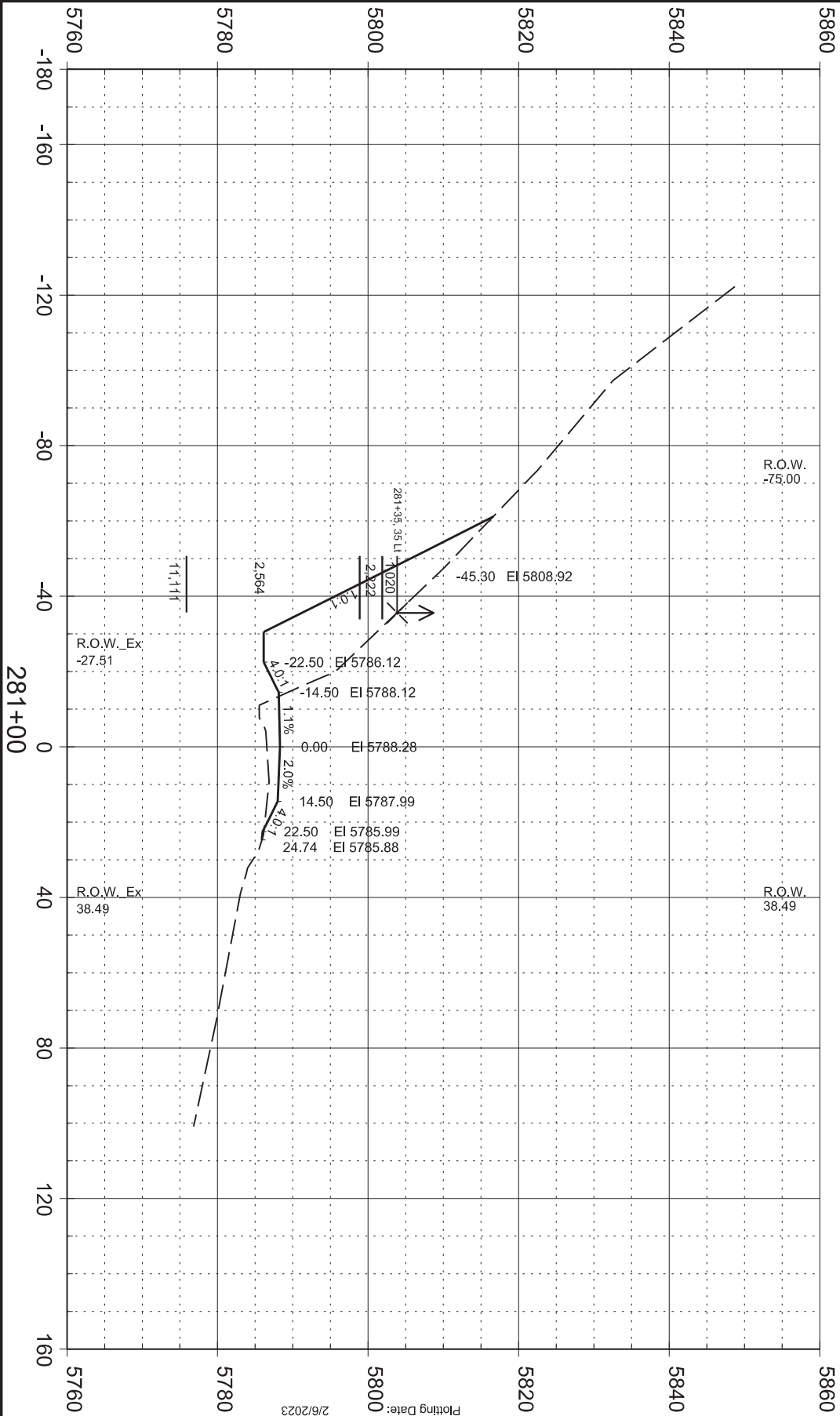
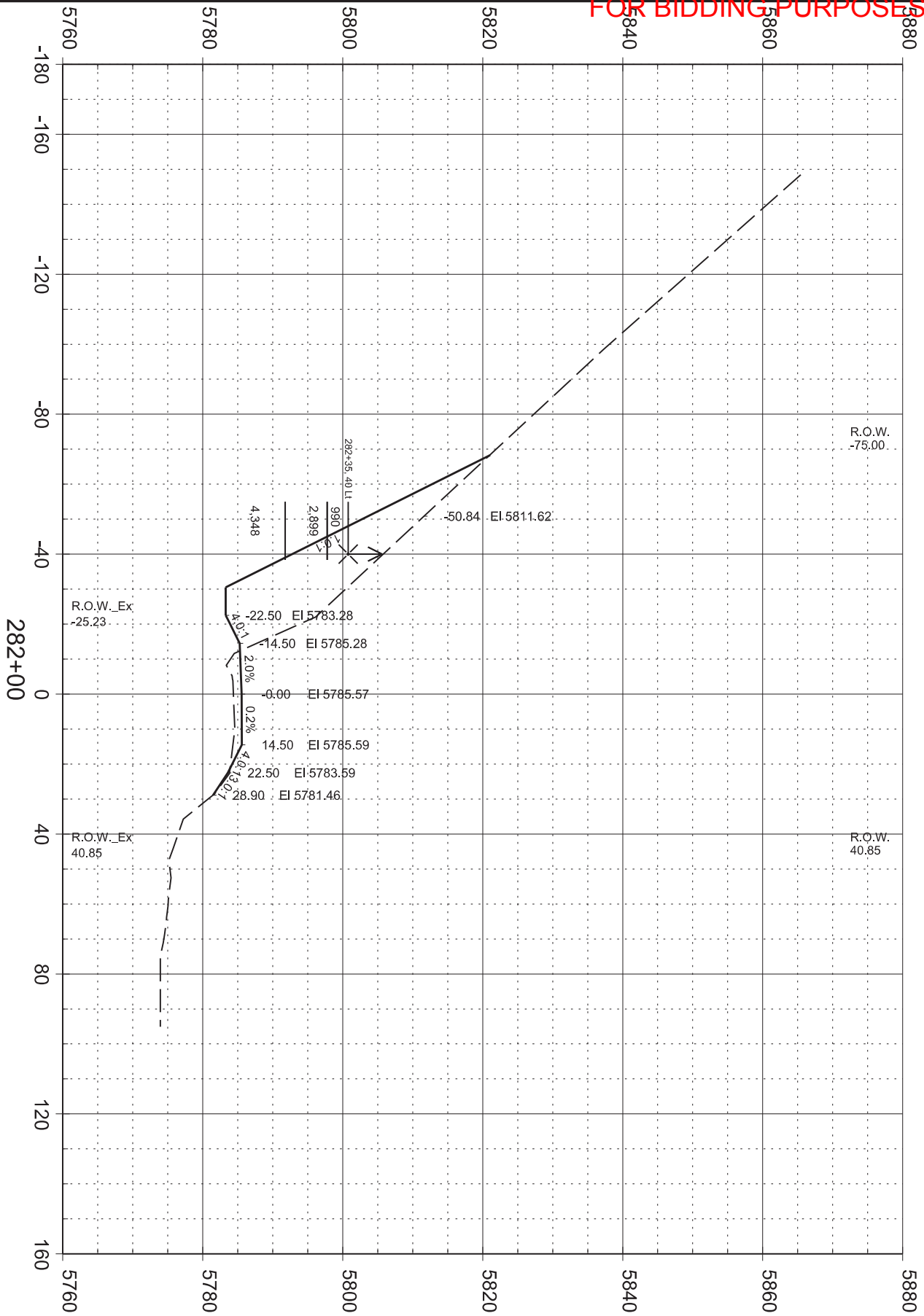
Plotting Date: 2/6/2023







FOR BIDDING PURPOSES ONLY



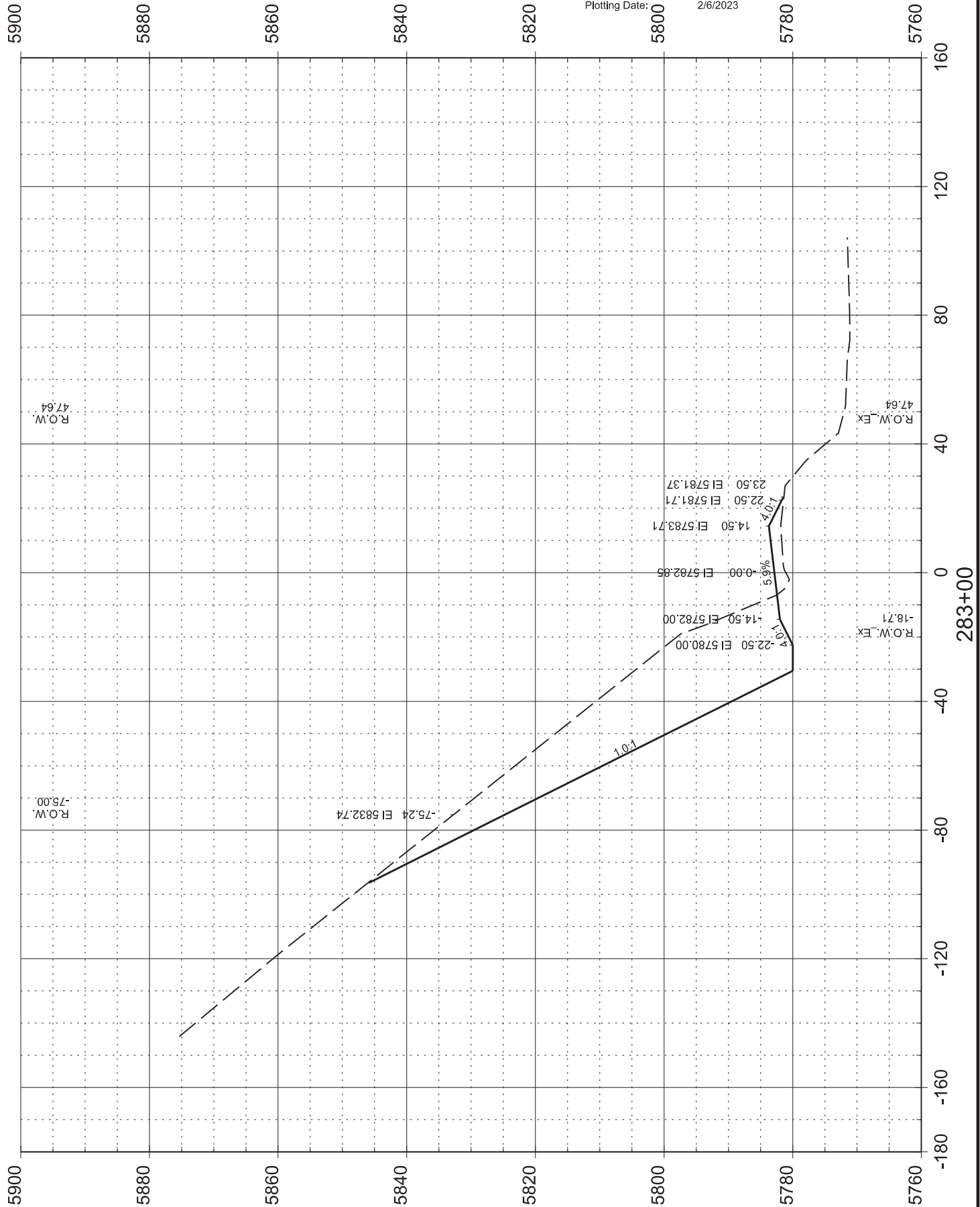
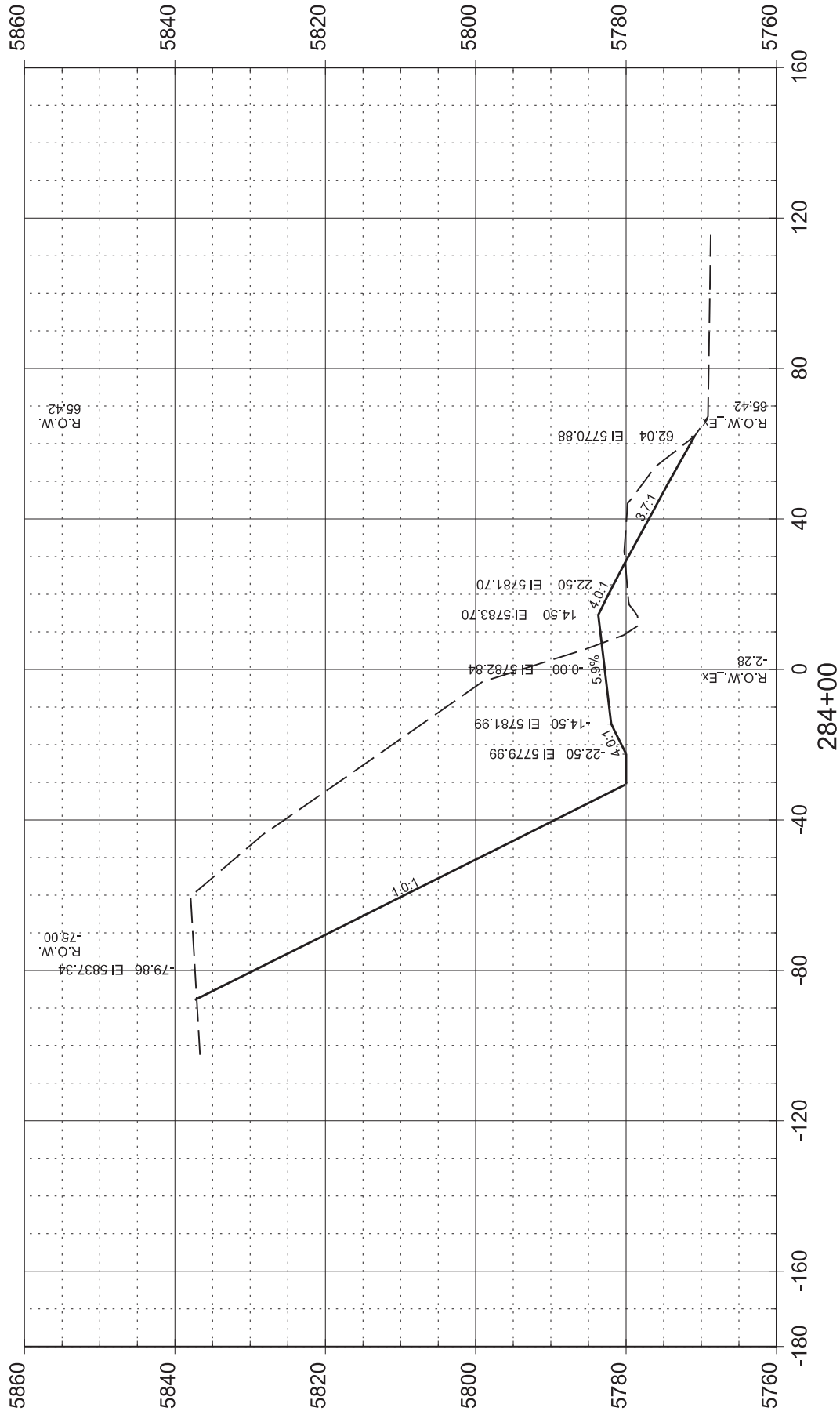
STATE OF SOUTH DAKOTA		P 6403(10)	223	333
PROJECT			SHEET	TOTAL SHEETS

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	224	333

Plotting Date: 2/6/2023



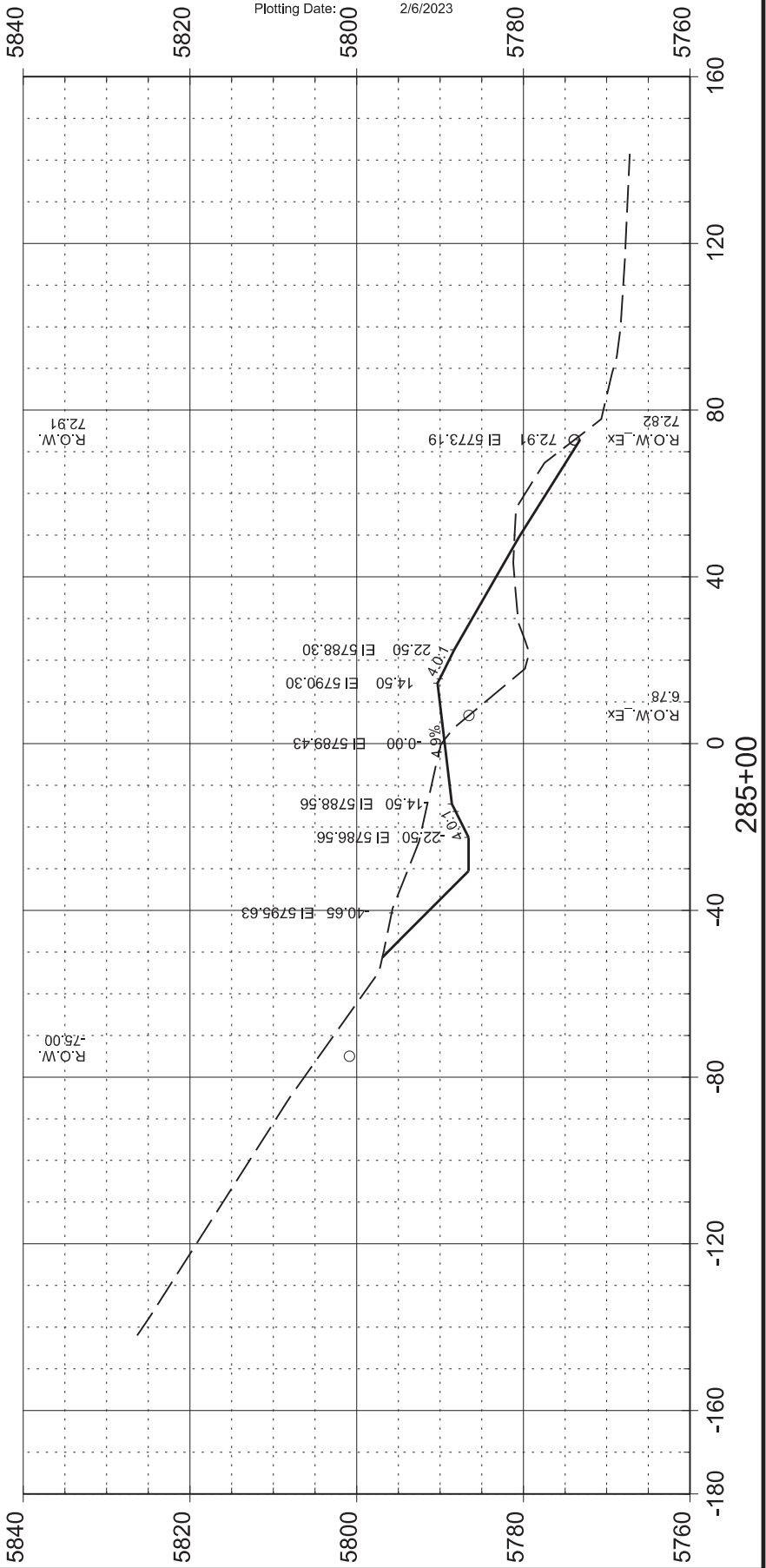
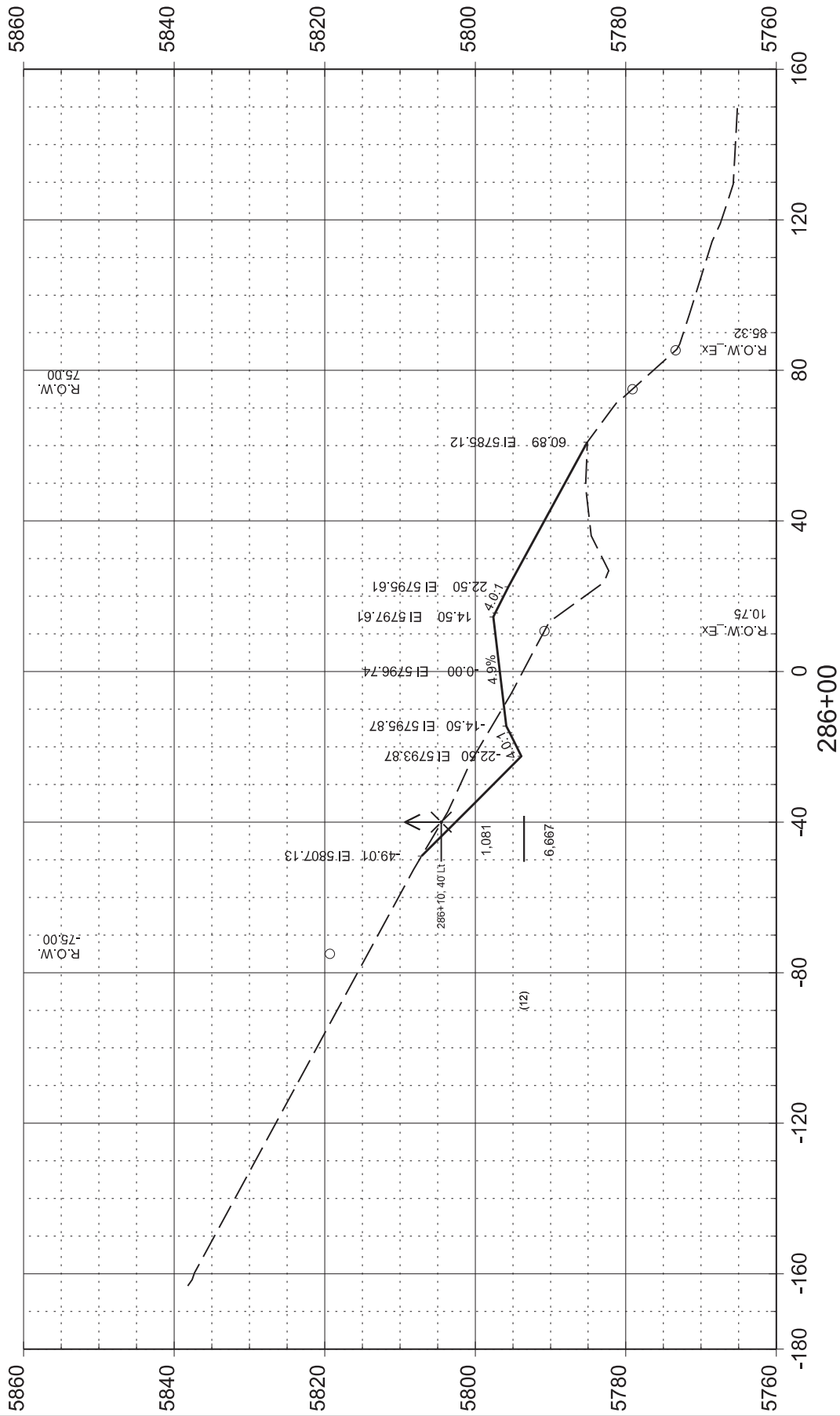




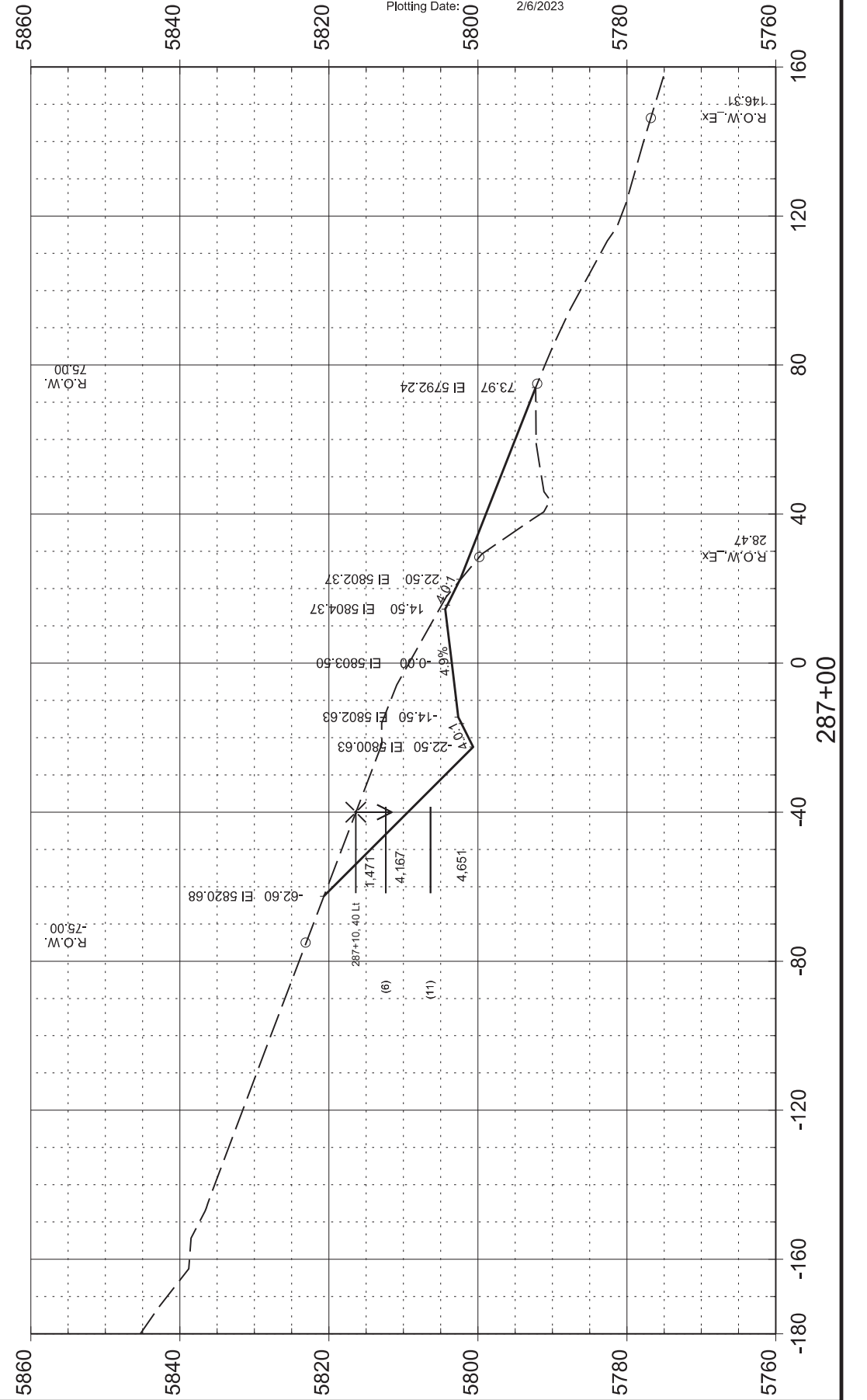
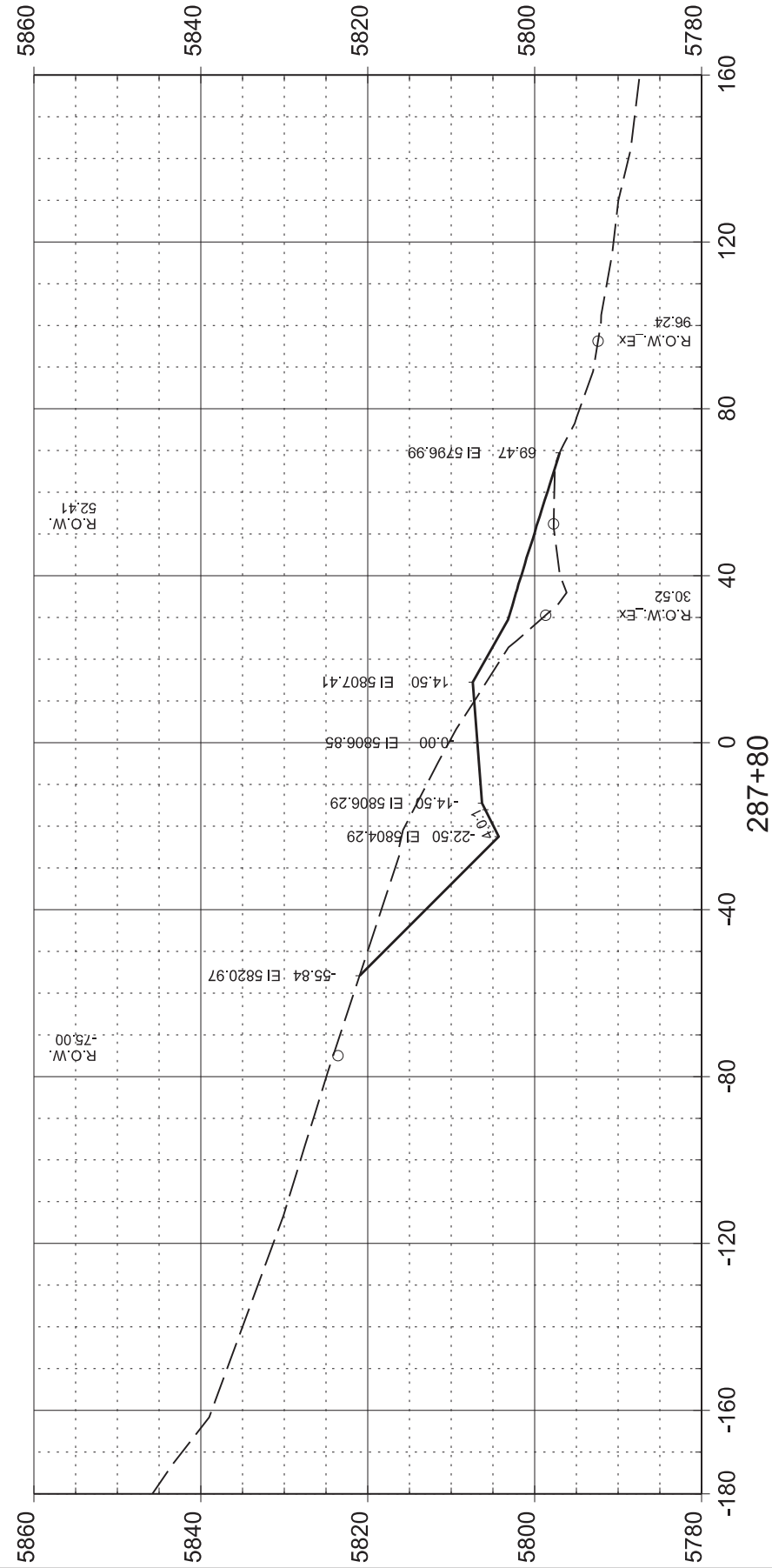
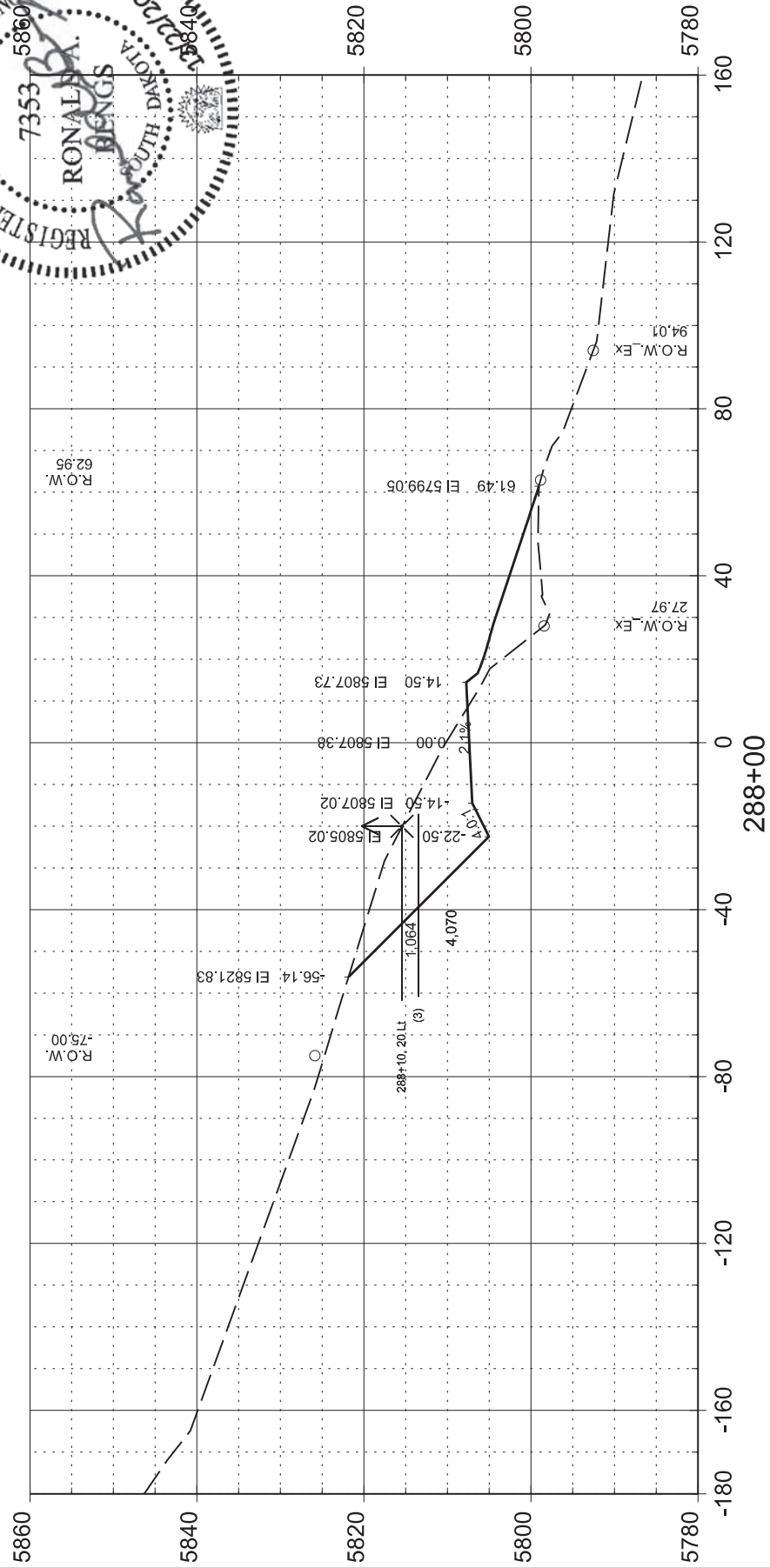
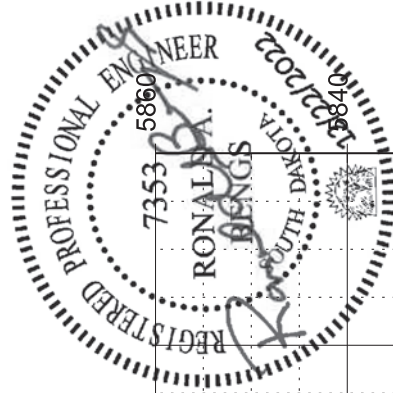
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	225	333

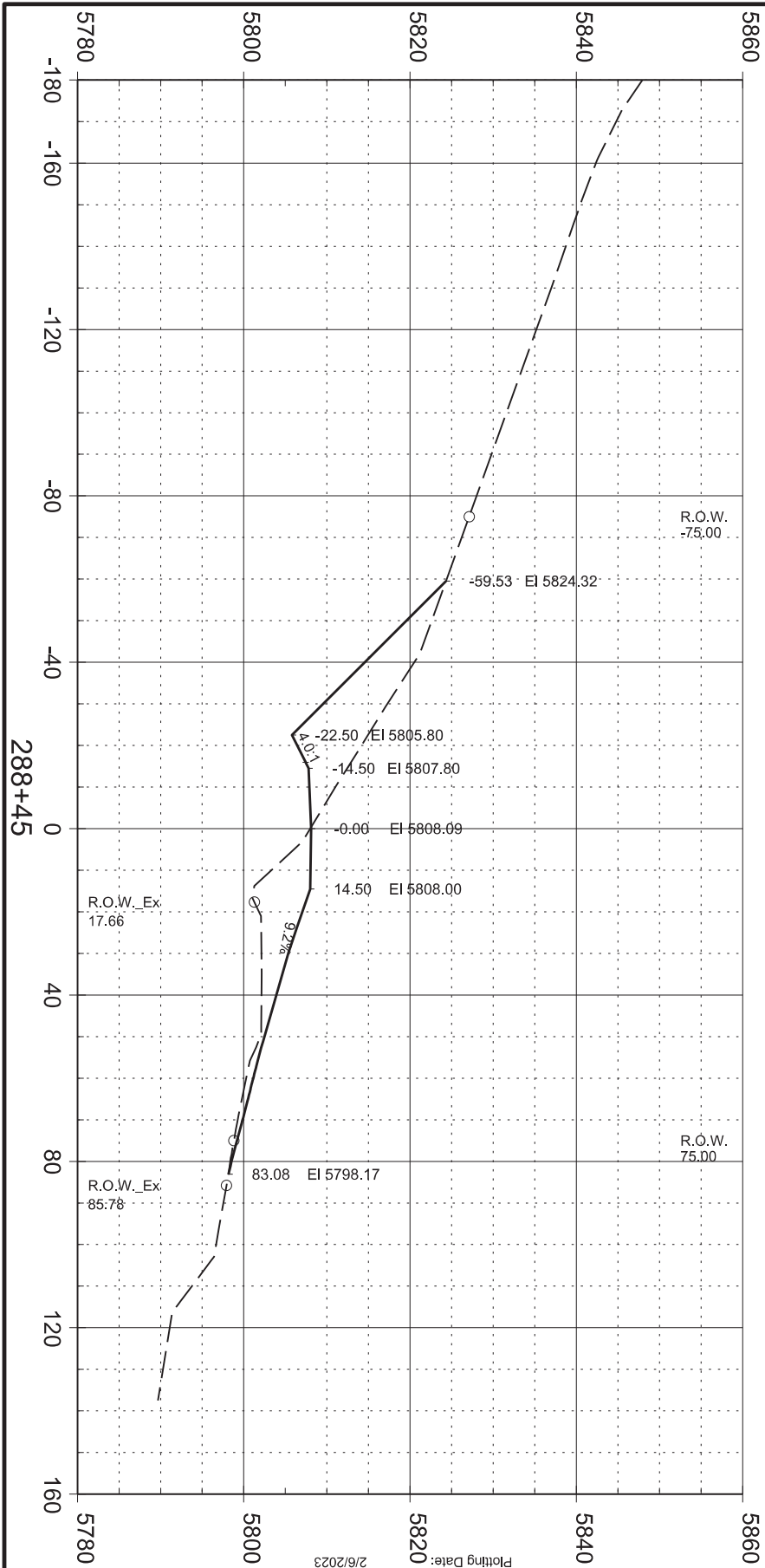
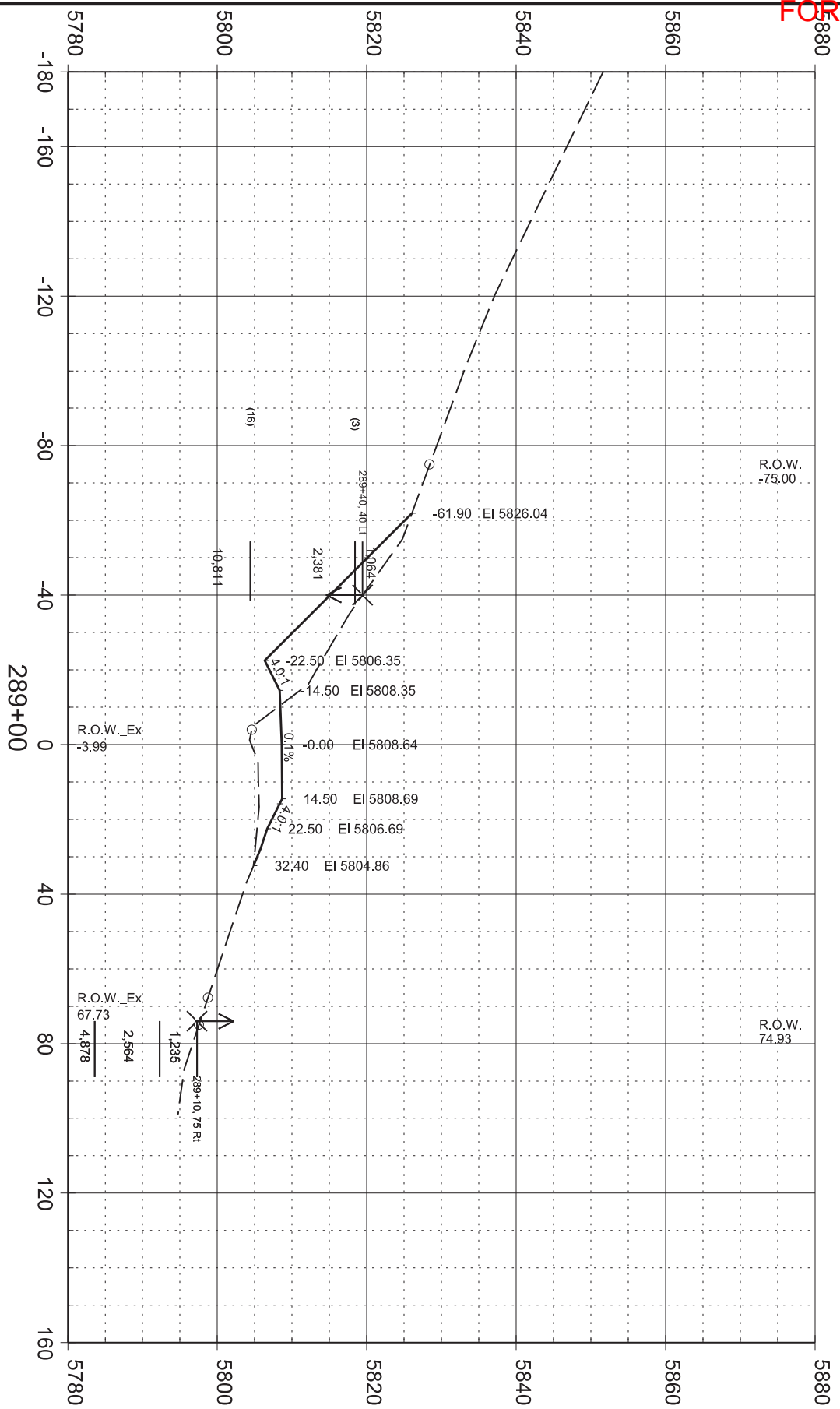
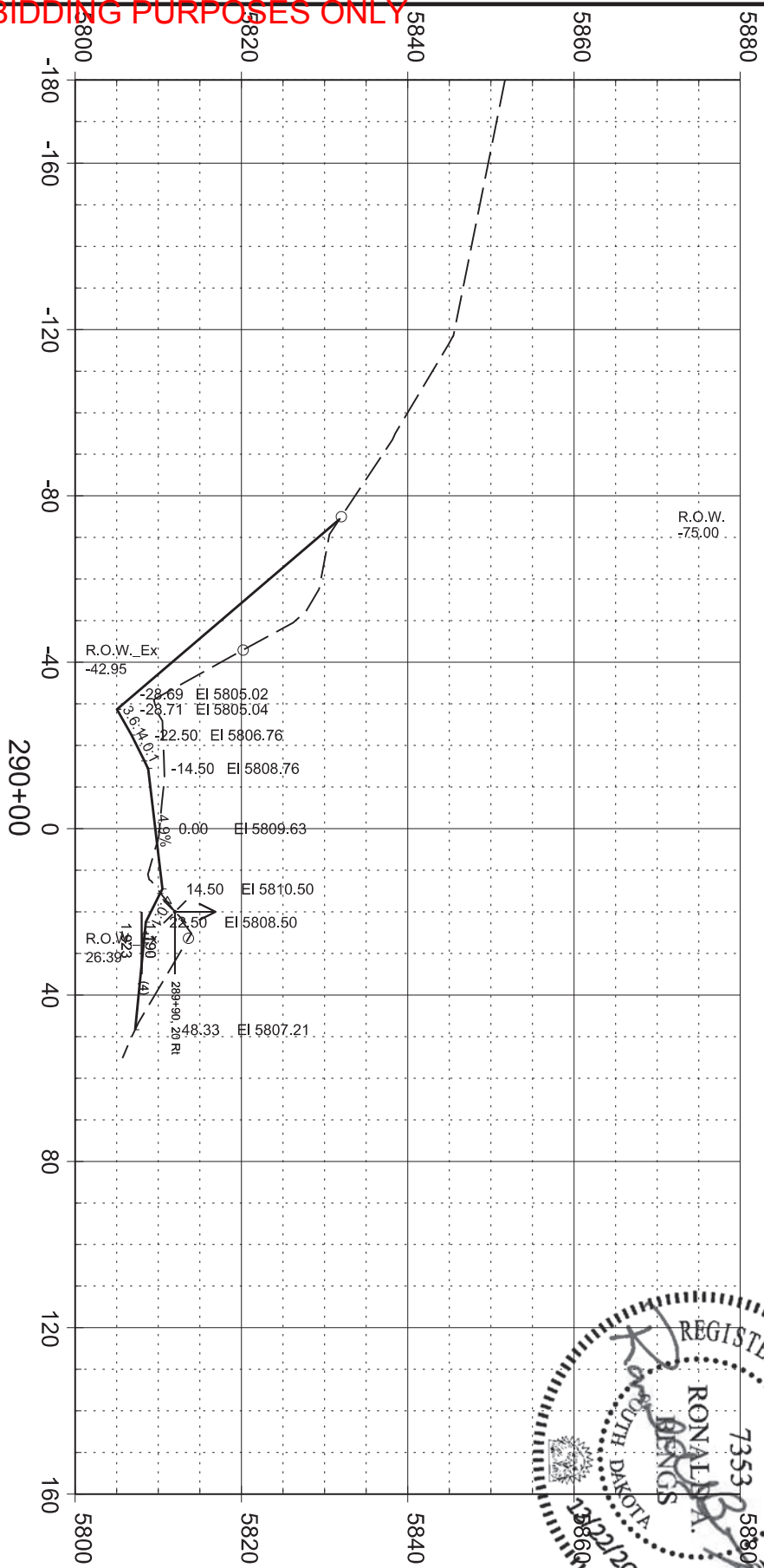
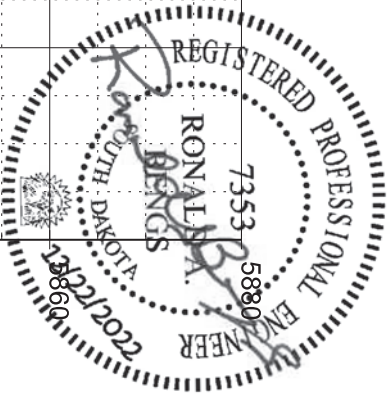
Plotting Date: 2/6/2023



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	226	333

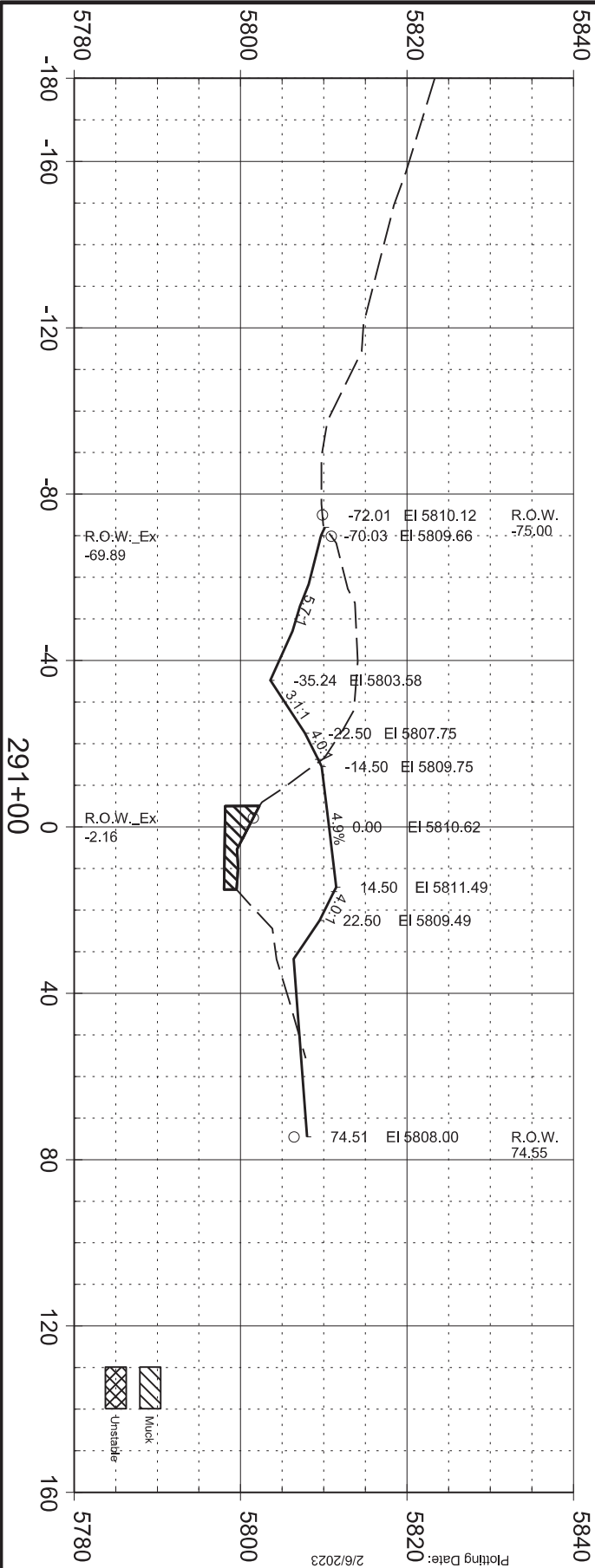
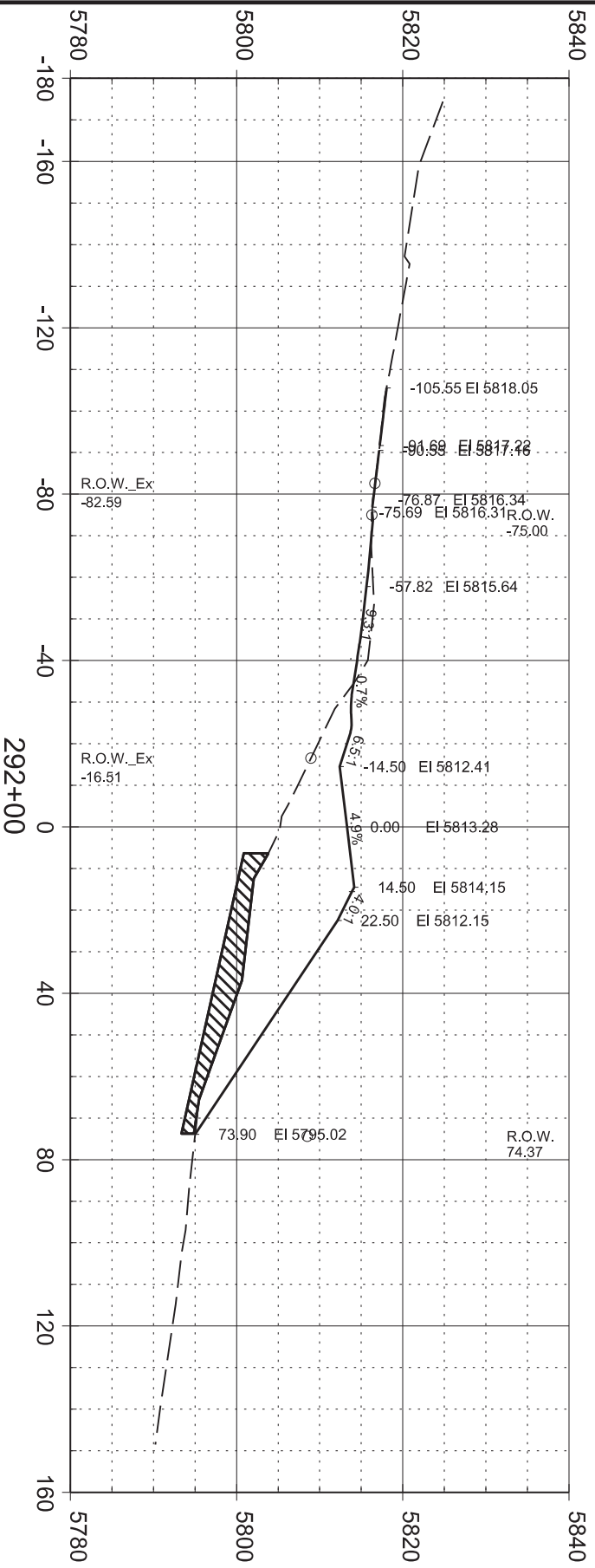
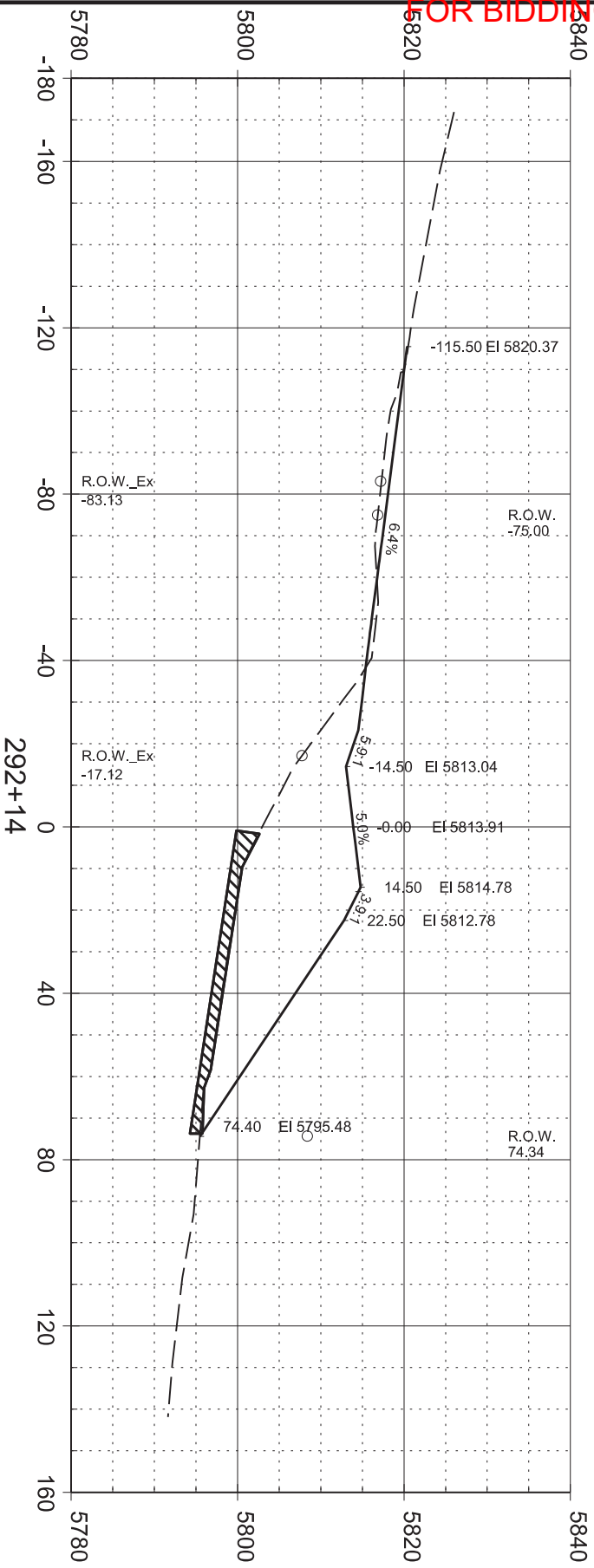
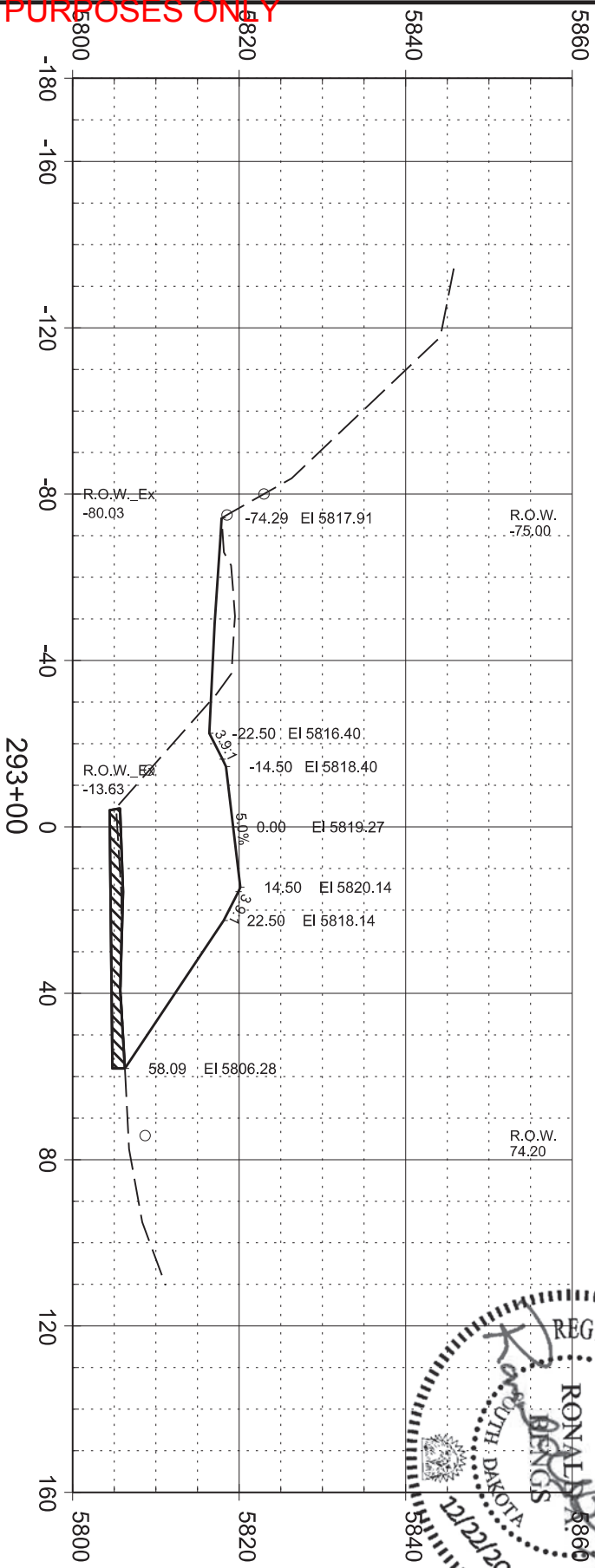






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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		227		333			
Plotting Date: 2/6/2023							



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		228		333			
Plotting Date: 2/6/2023							

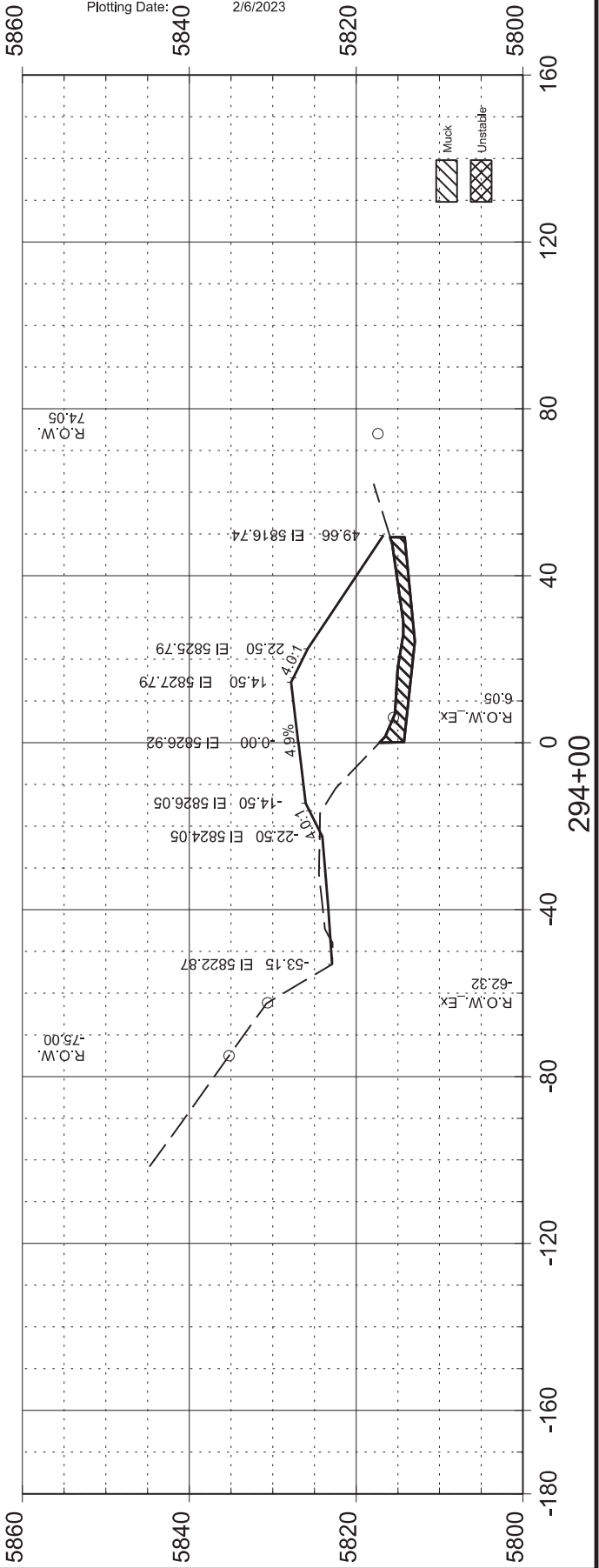
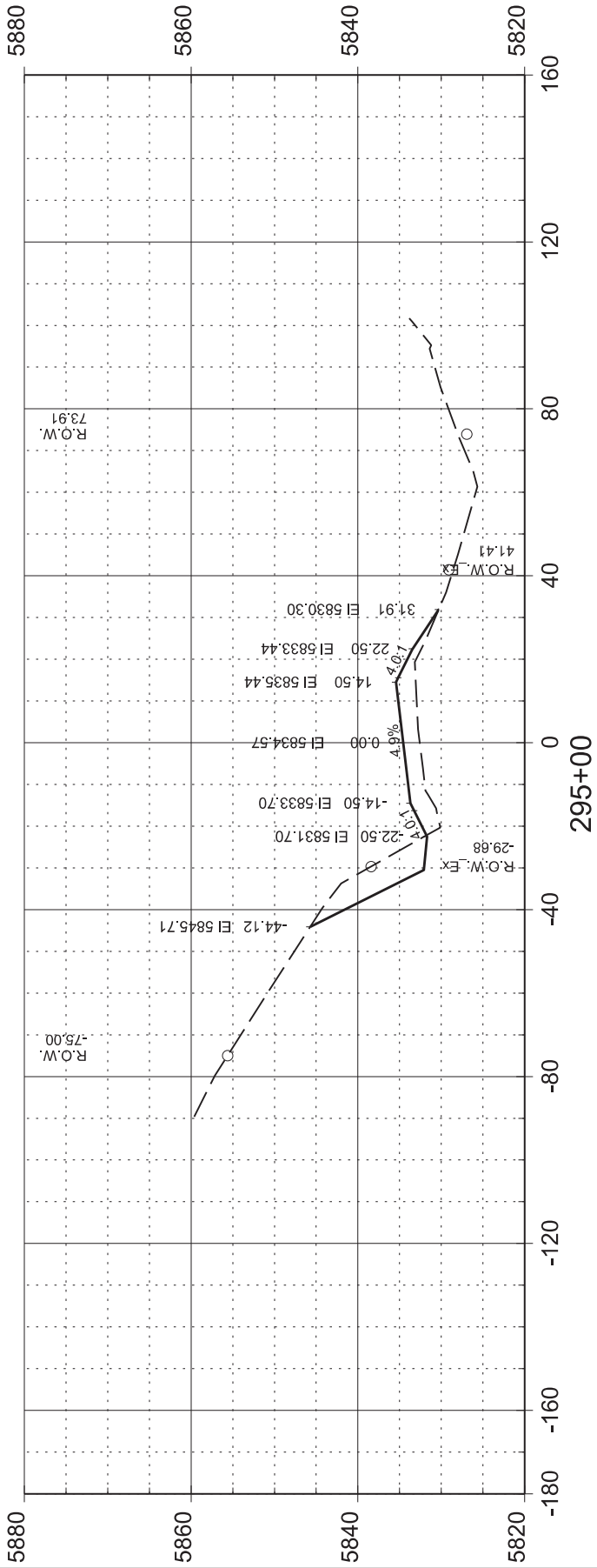
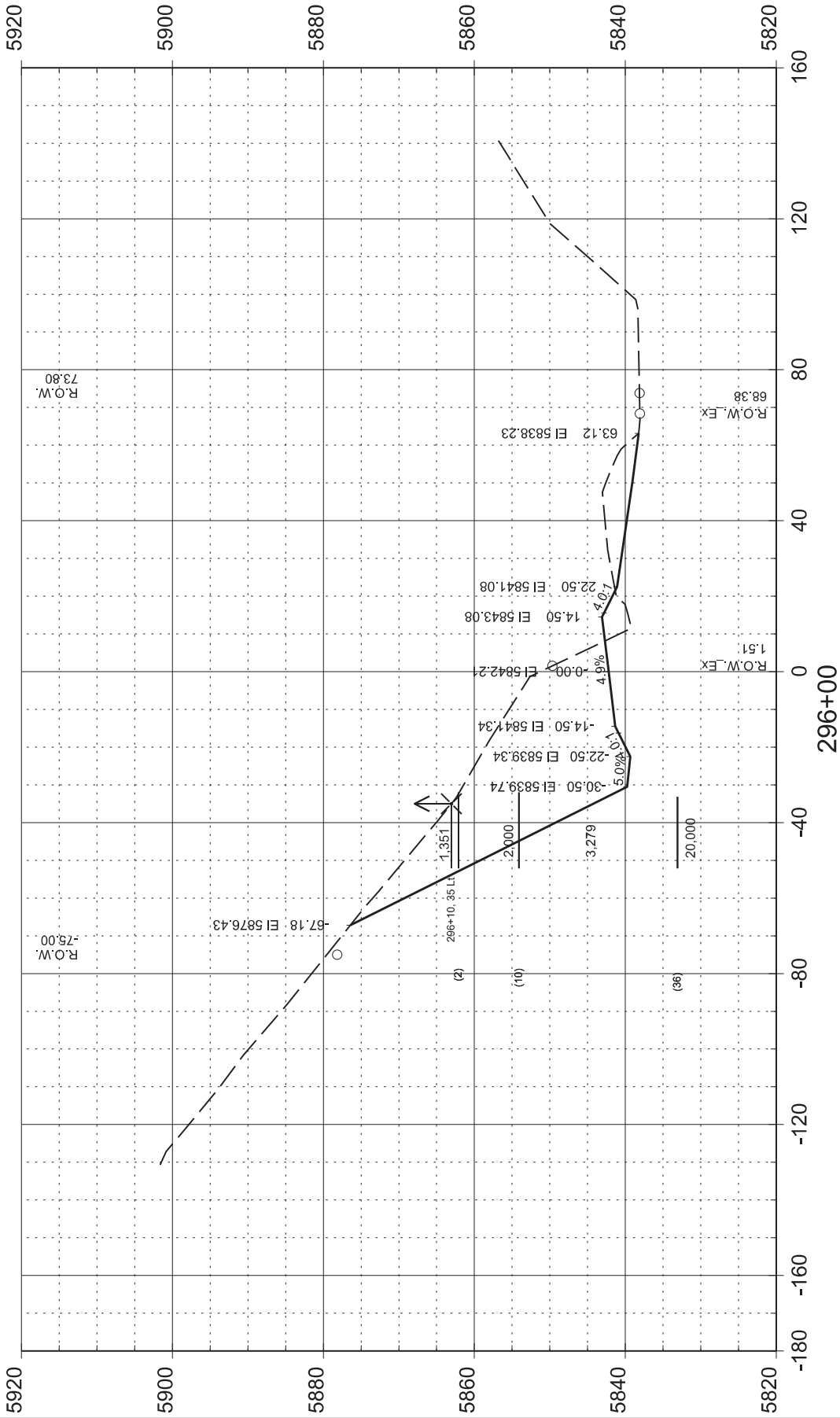




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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	229	333

Plotting Date: 2/6/2023





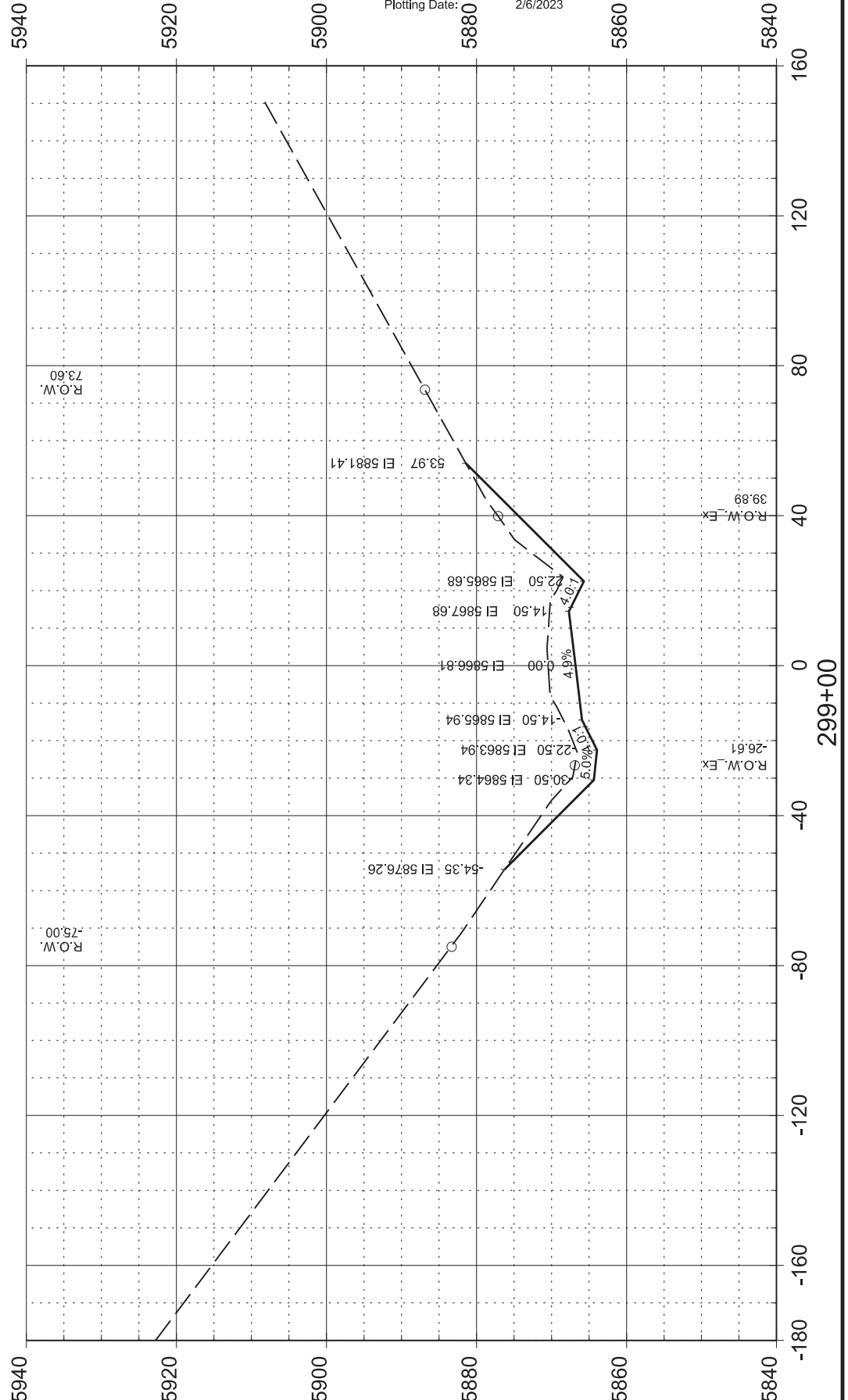
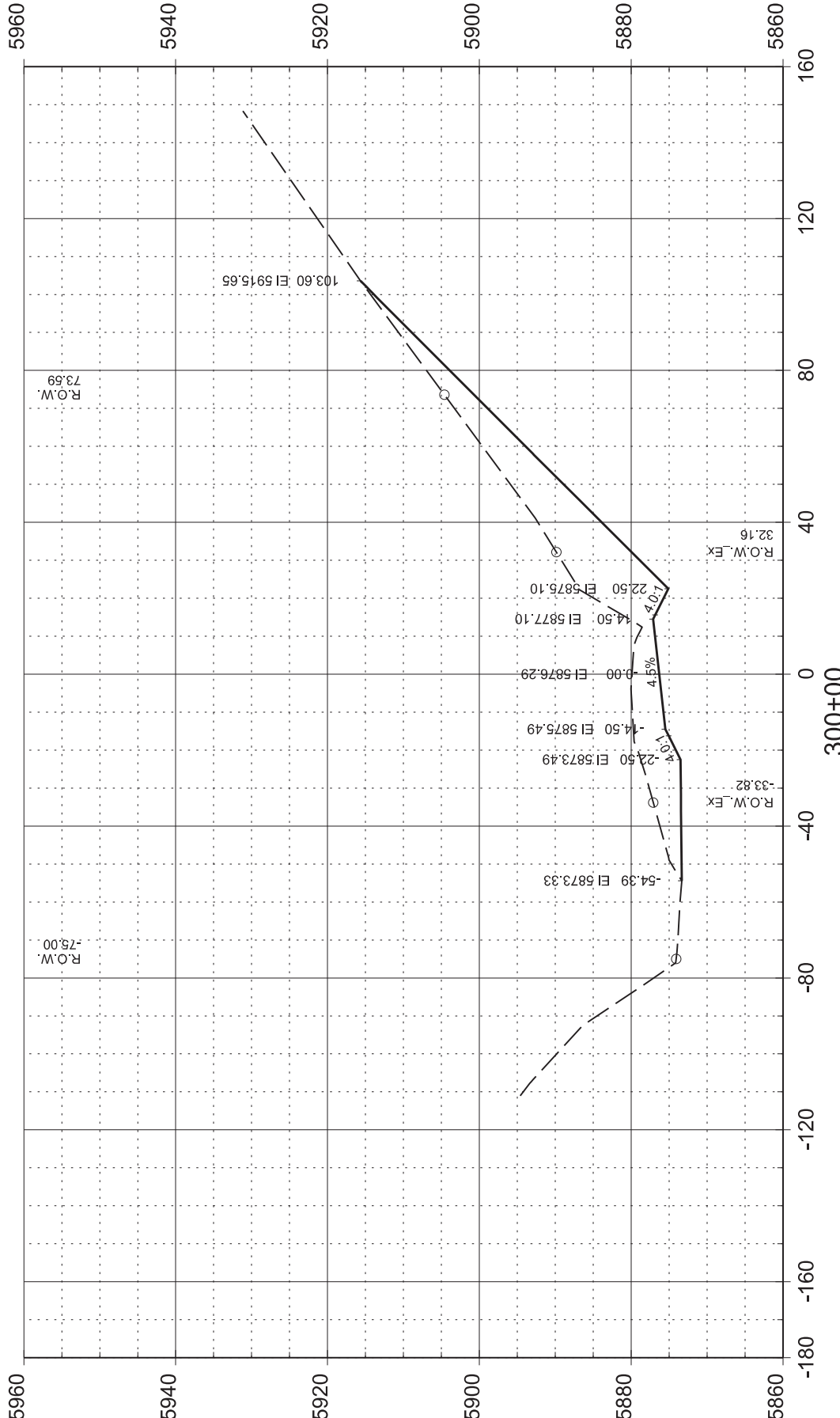
333
TOTAL SHEETS

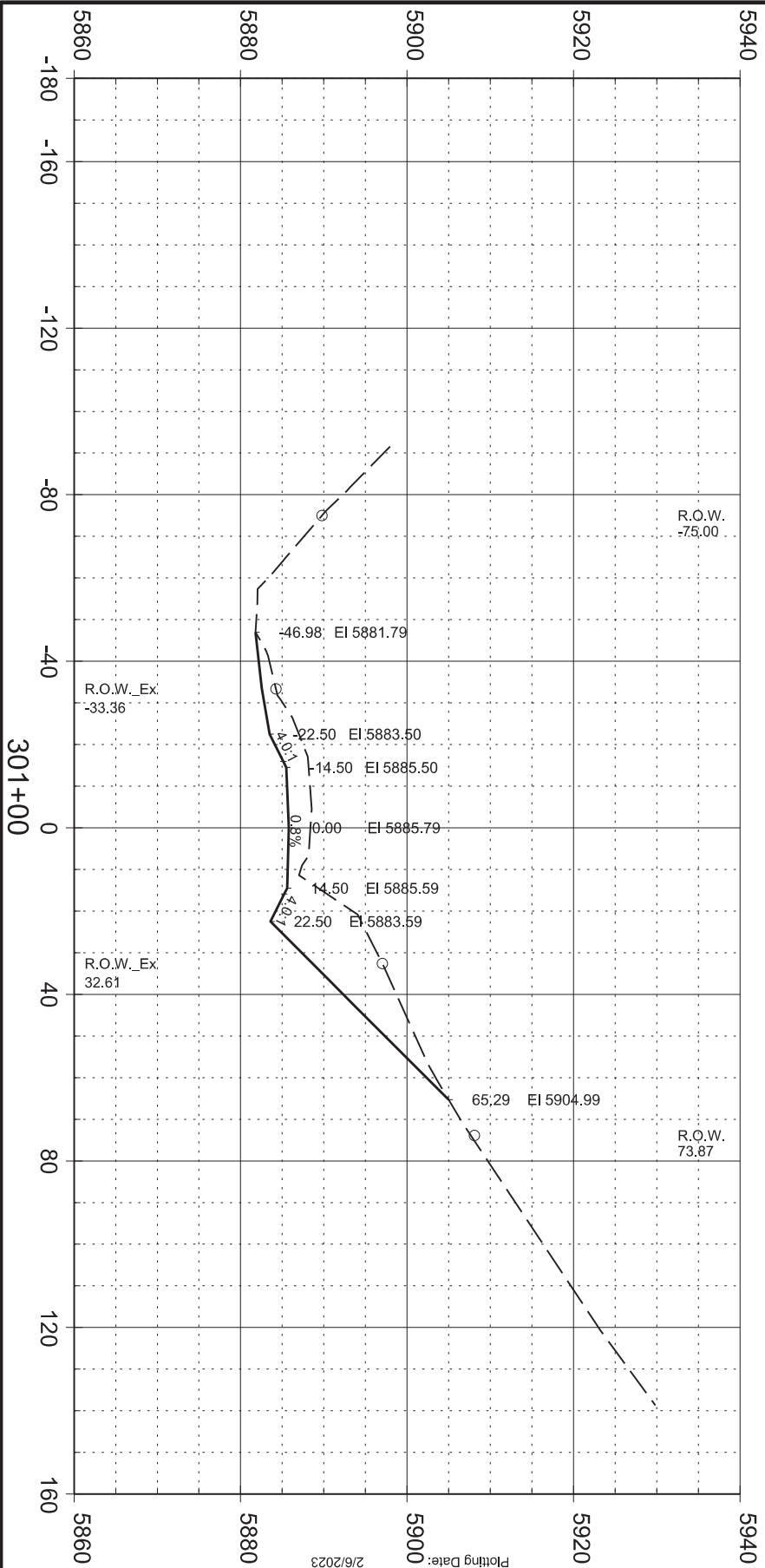
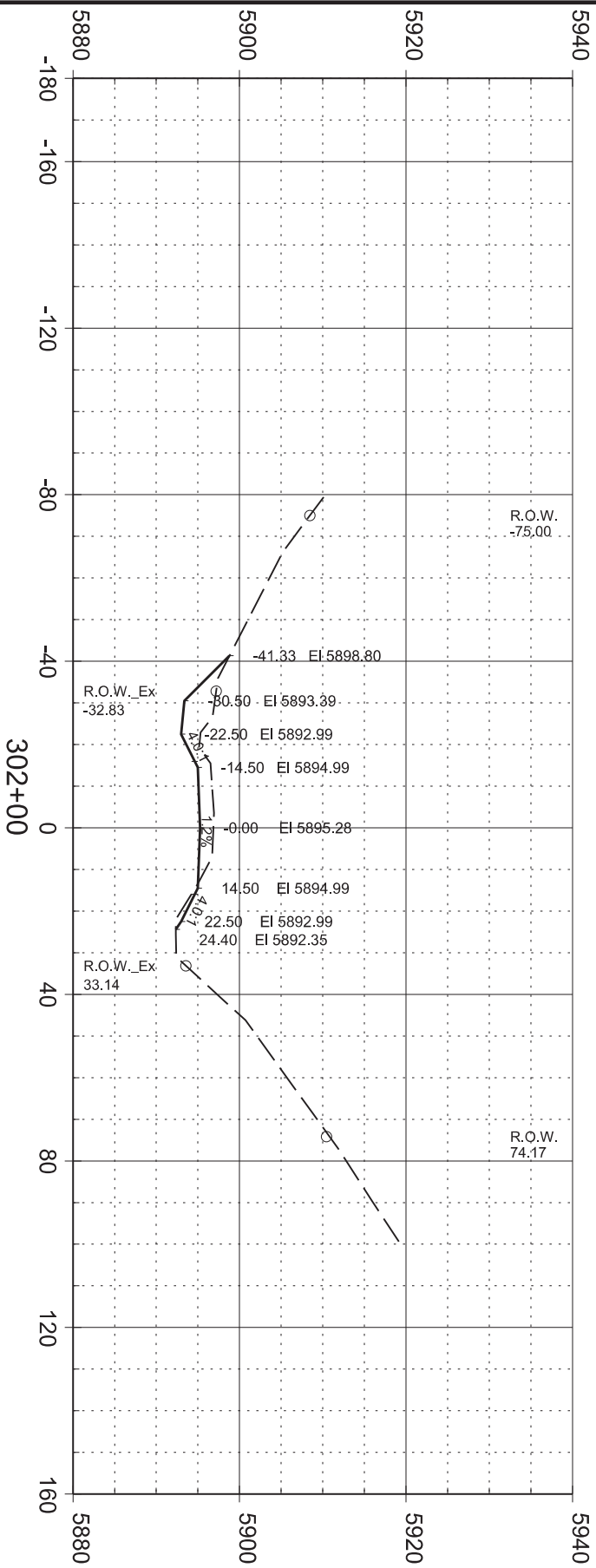
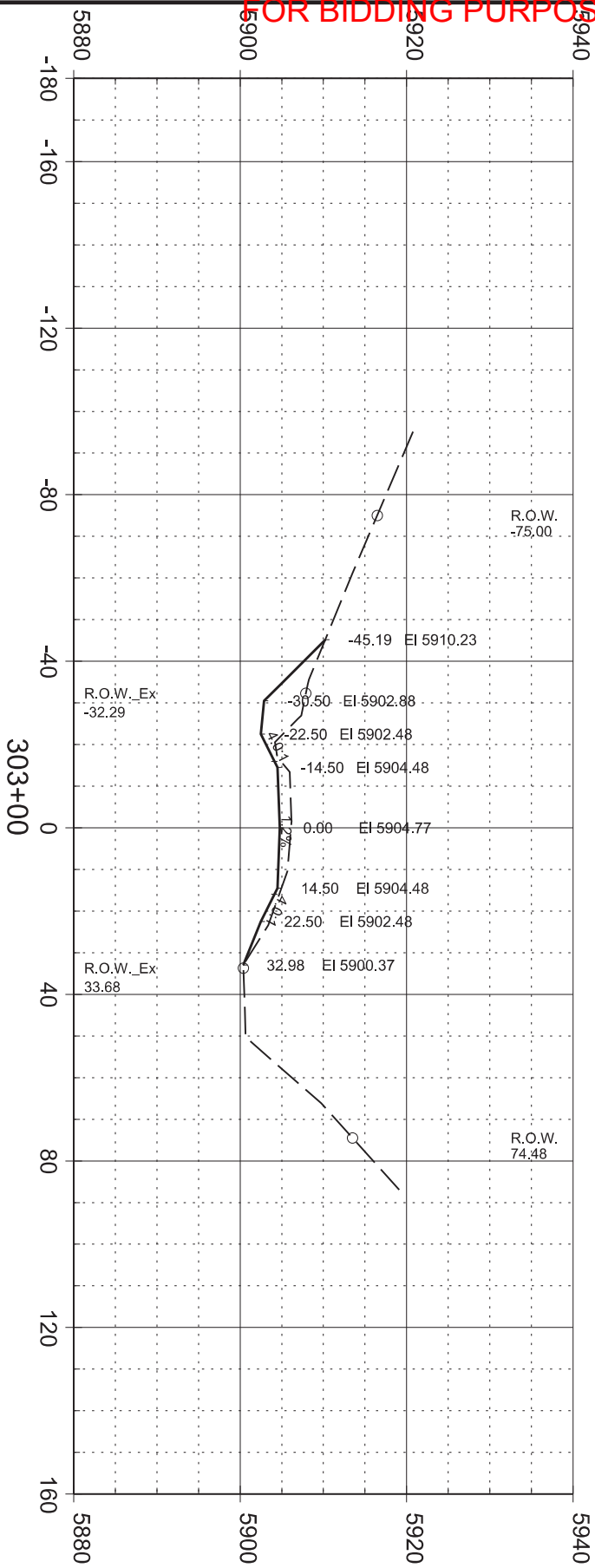
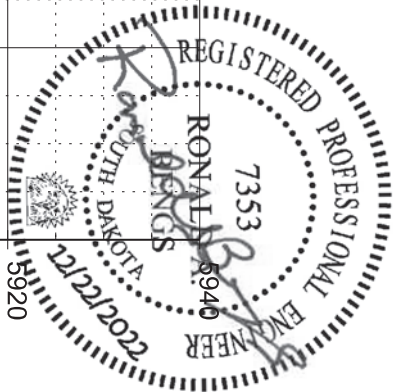
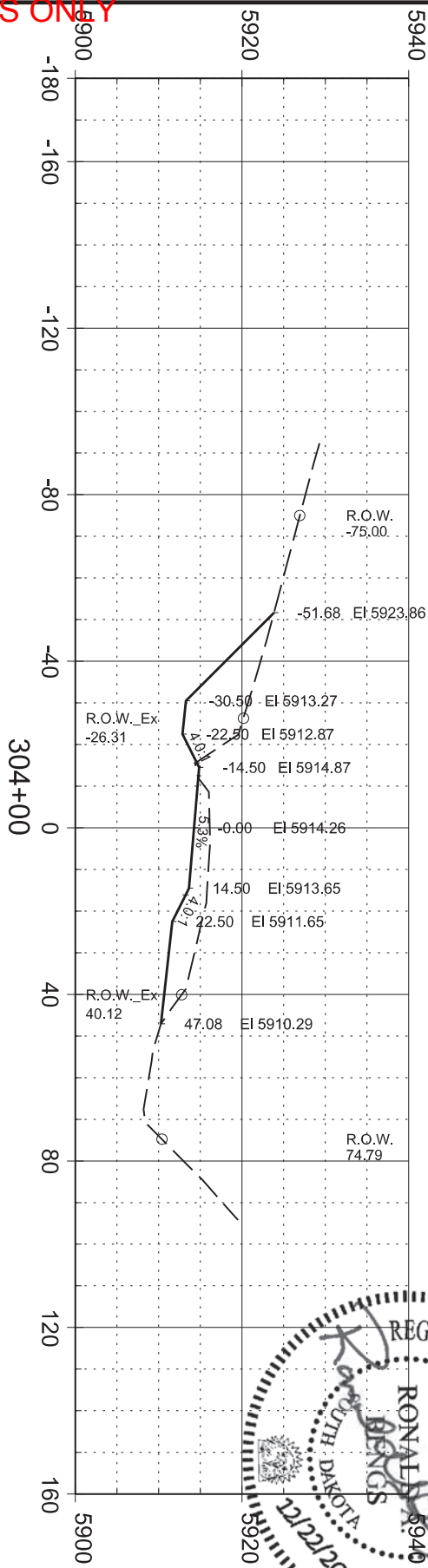




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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	231	333

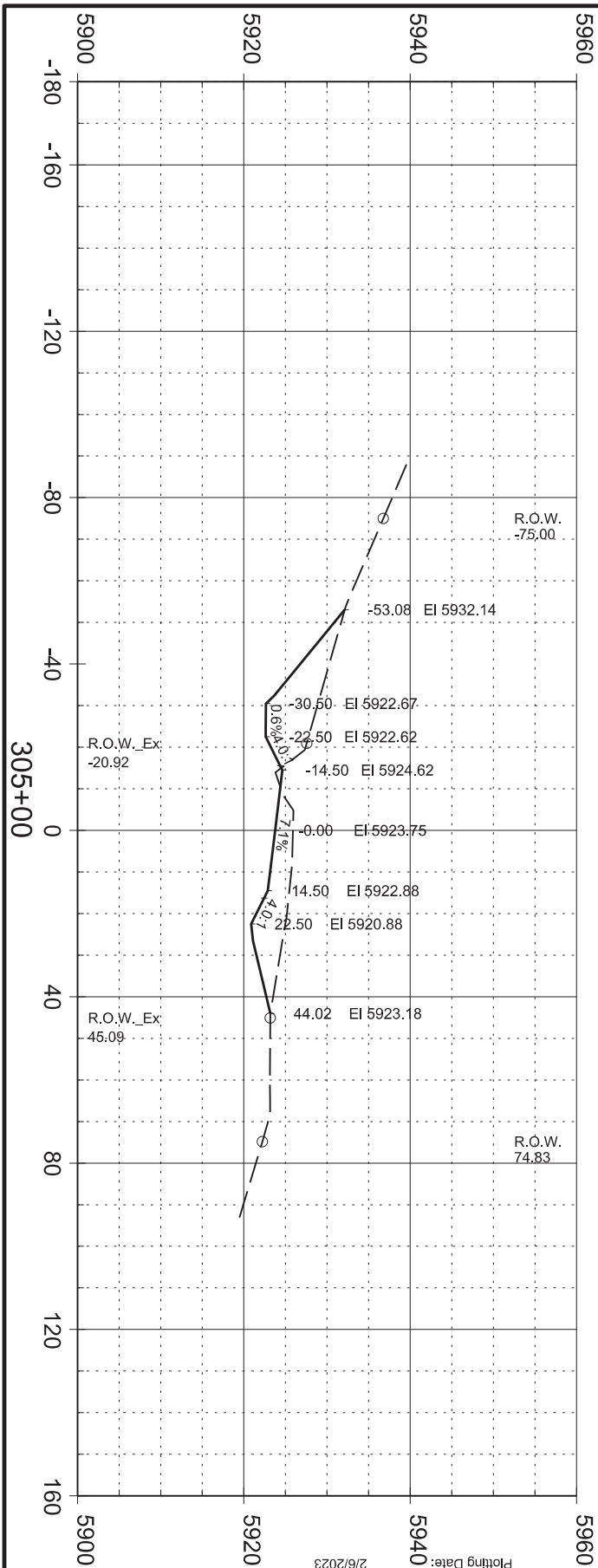
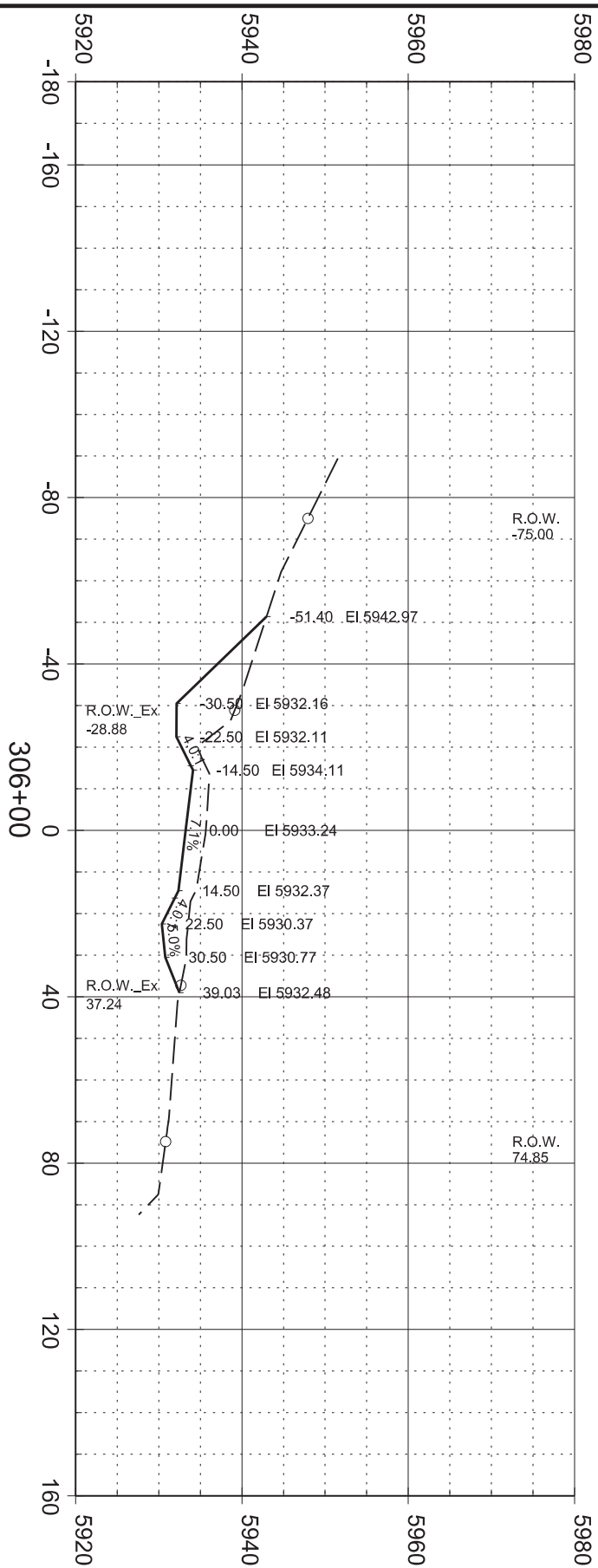
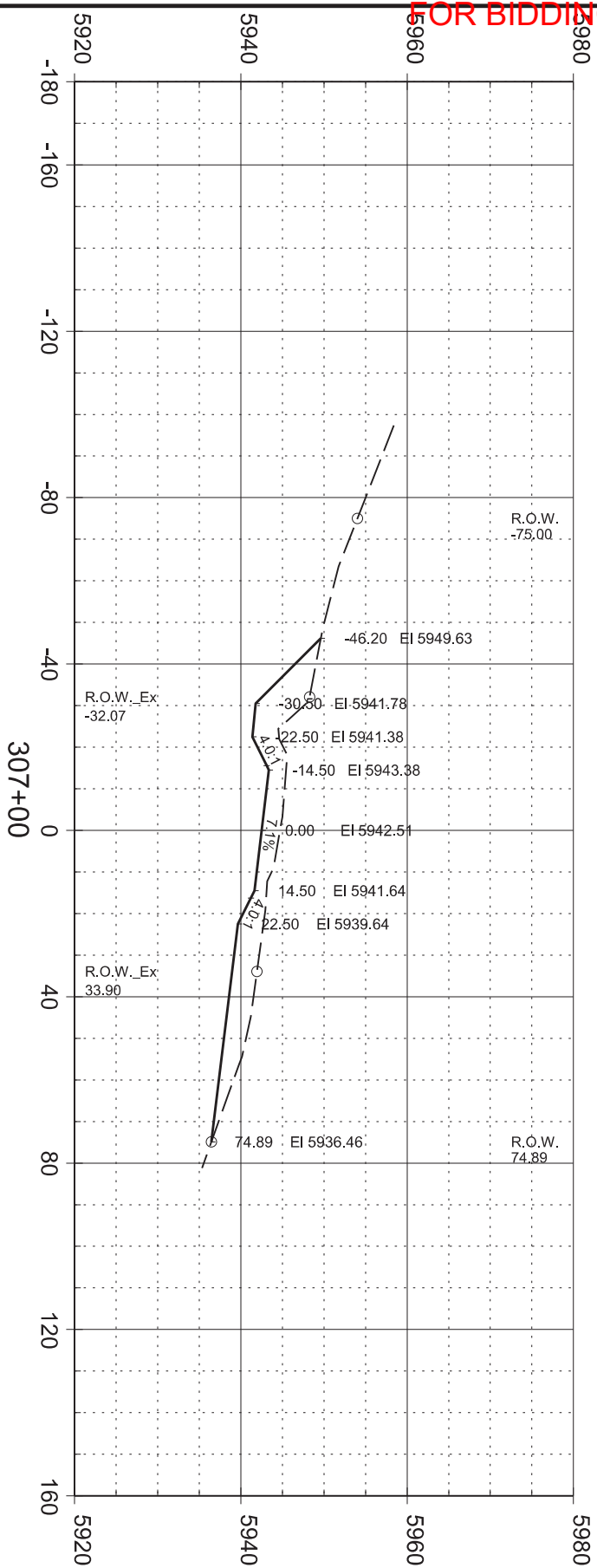




STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		232		333			
Plotting Date: 2/6/2023							



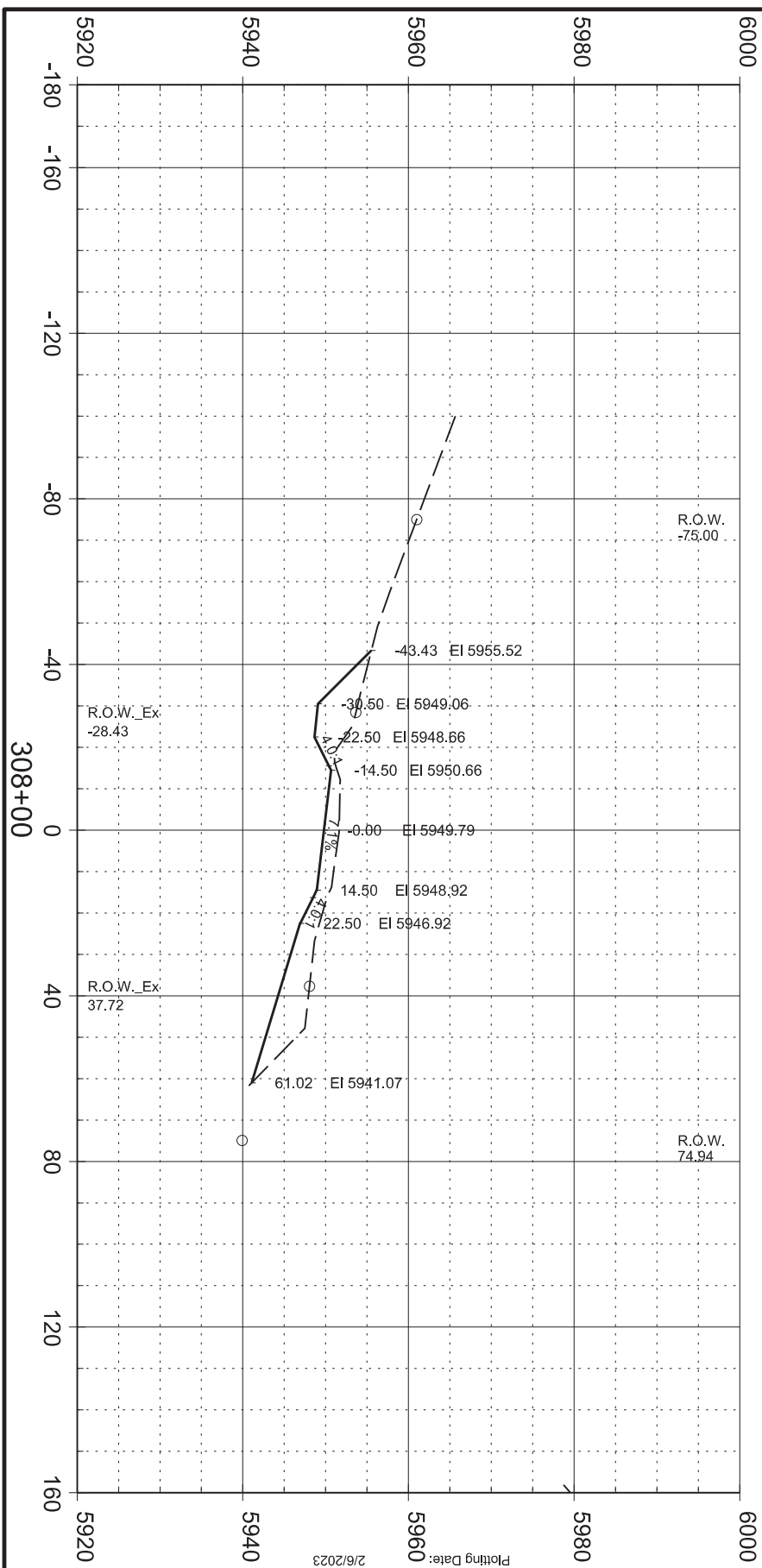
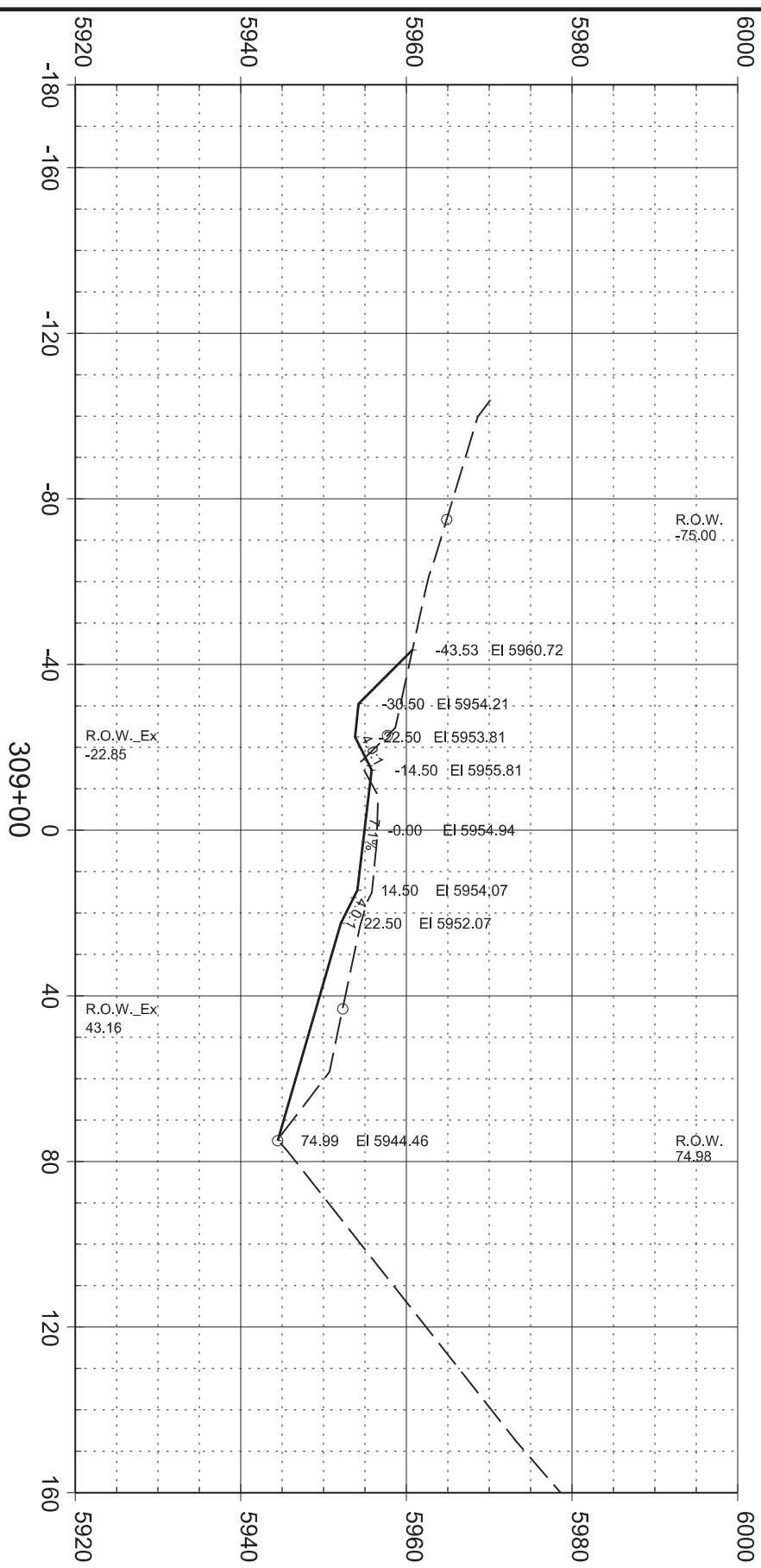
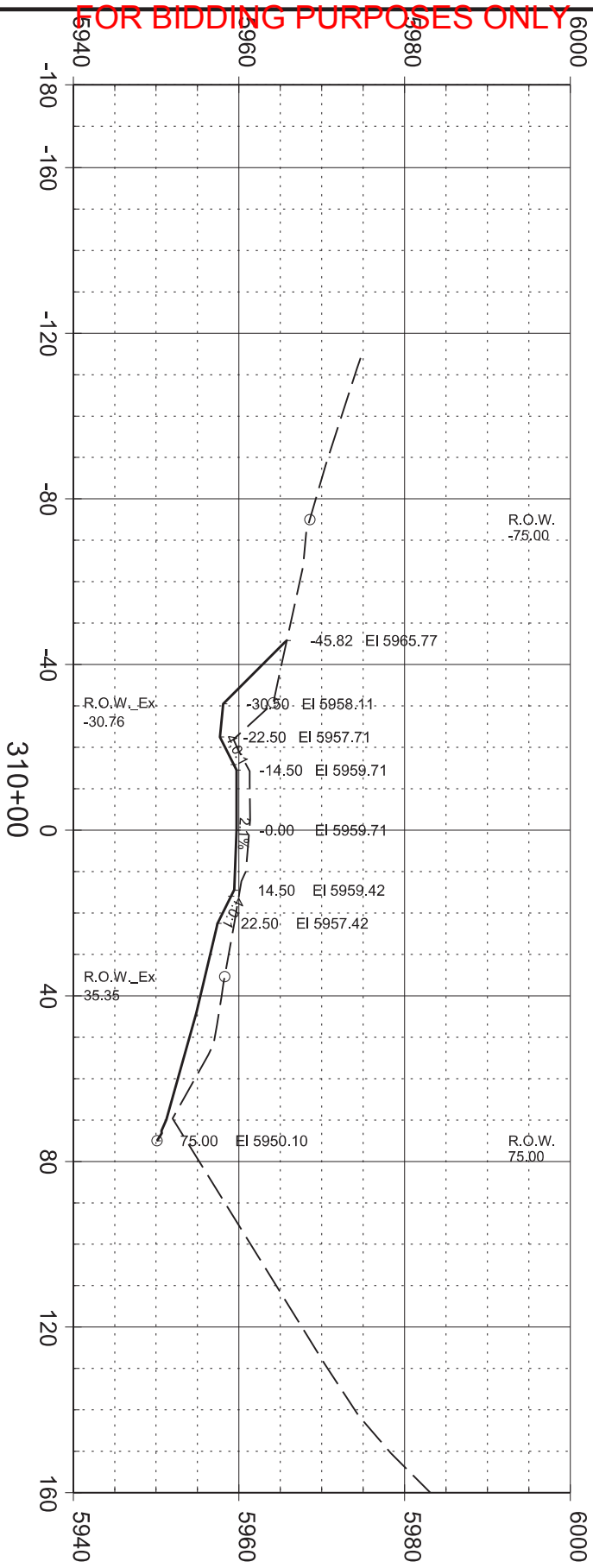
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STATE OF SOUTH DAKOTA	P 6403(10)		233	333
	PROJECT		SHEET	TOTAL SHEETS



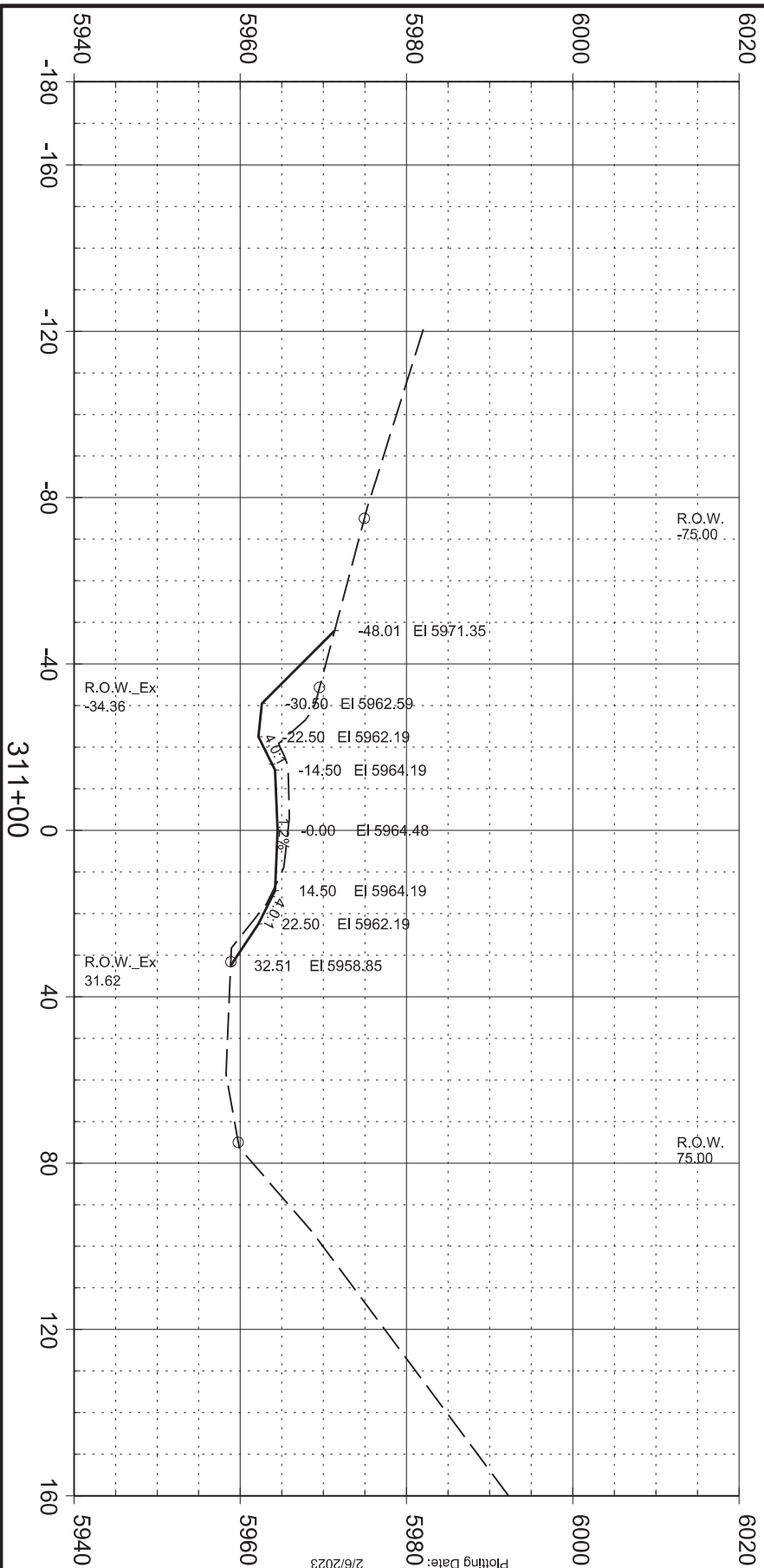
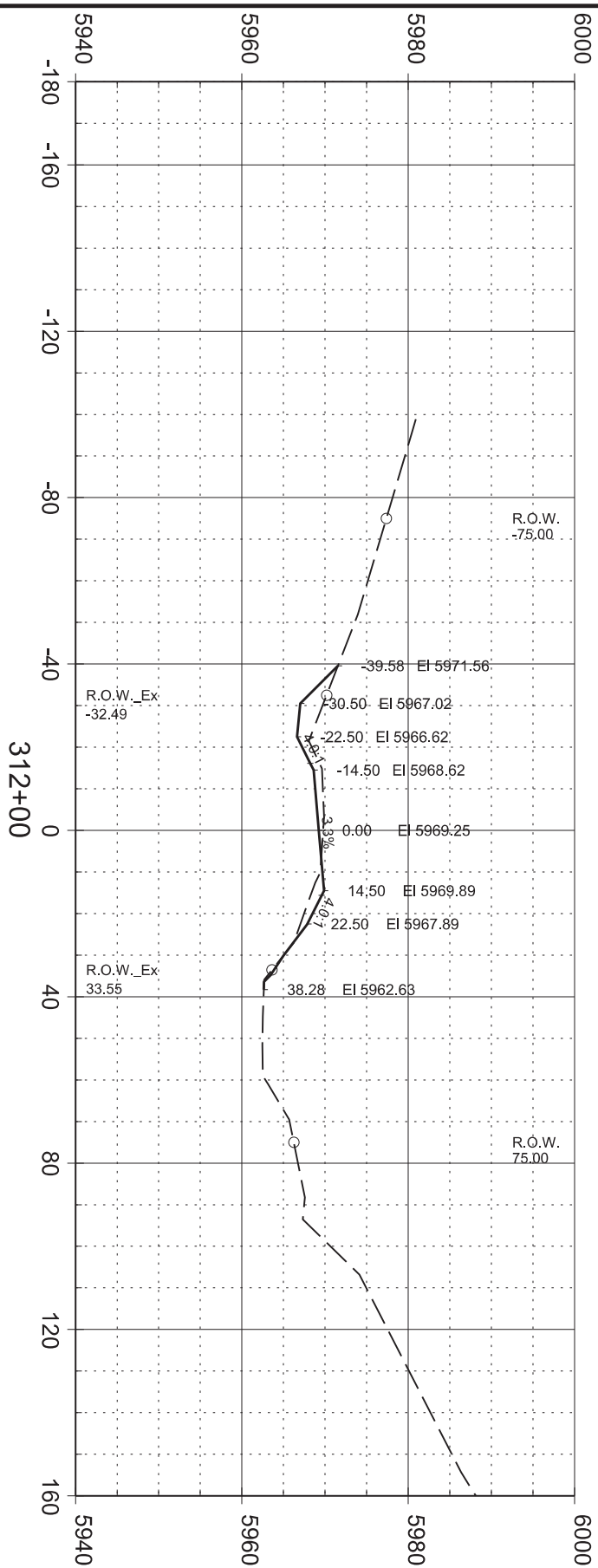
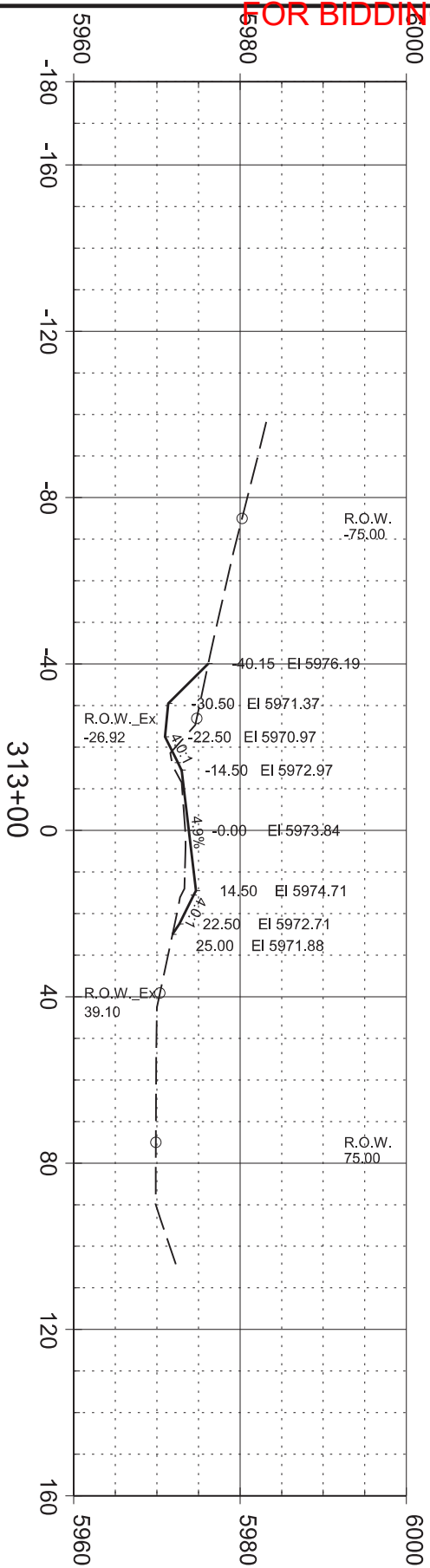
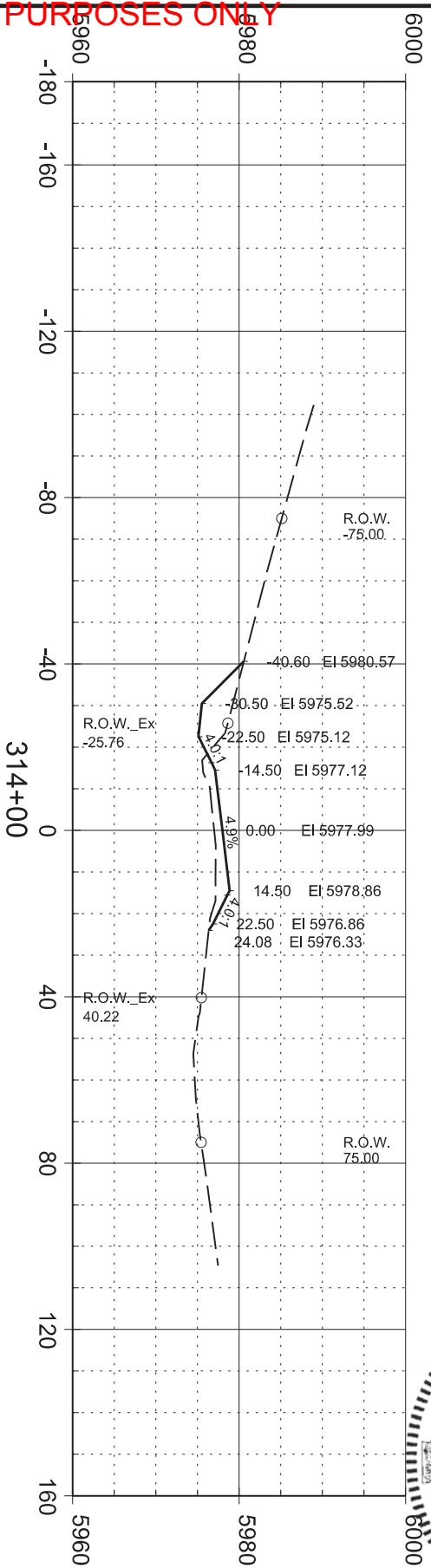
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		234		333			

Plotting Date: 2/6/2023

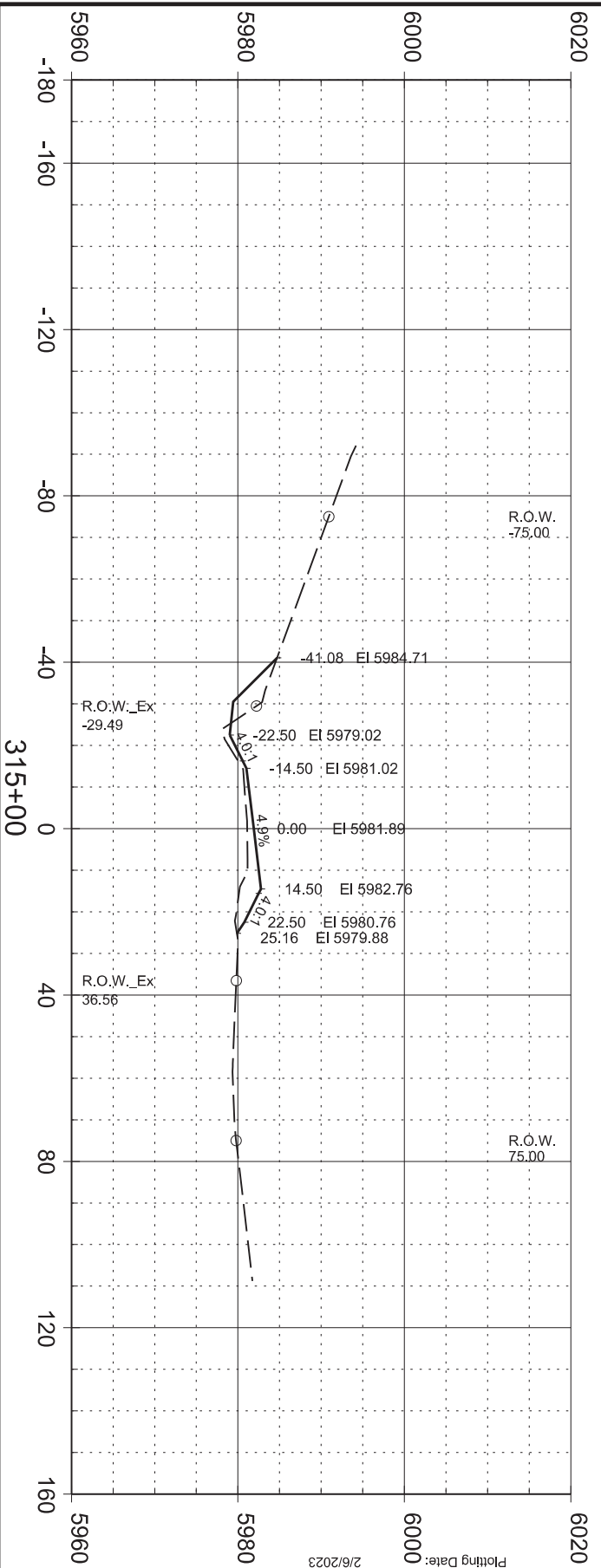
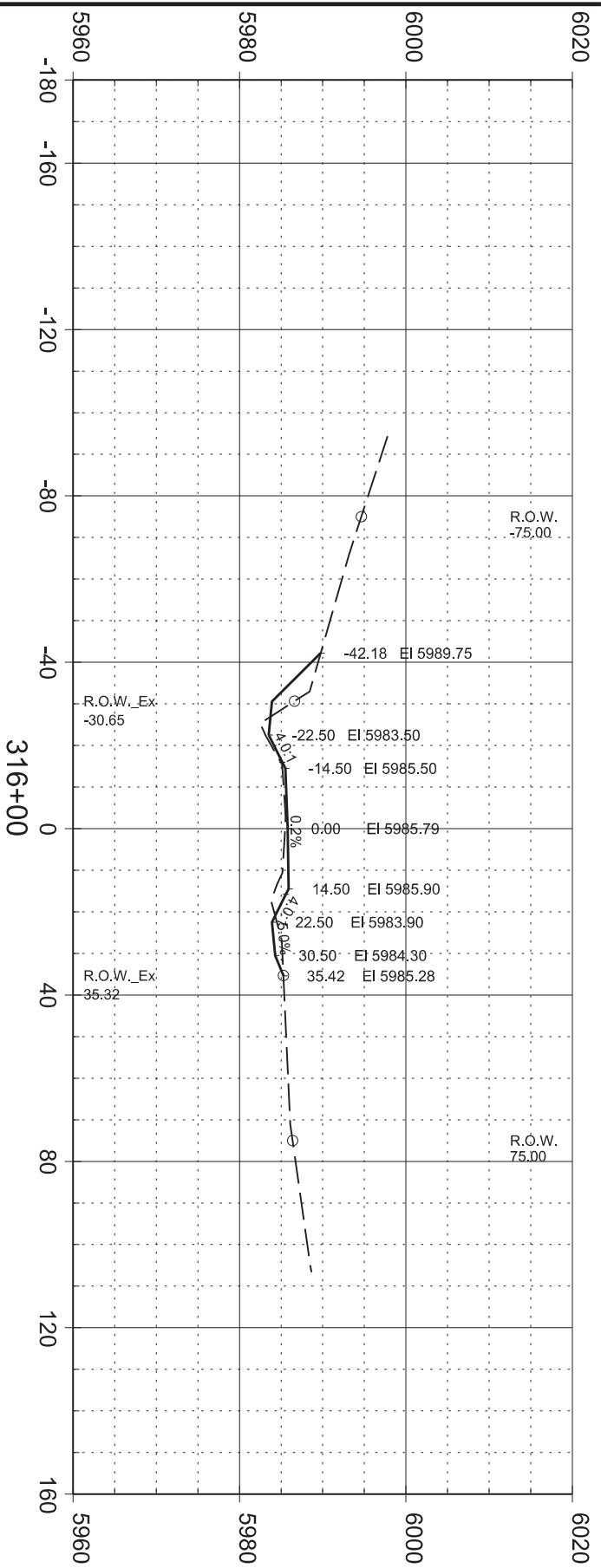
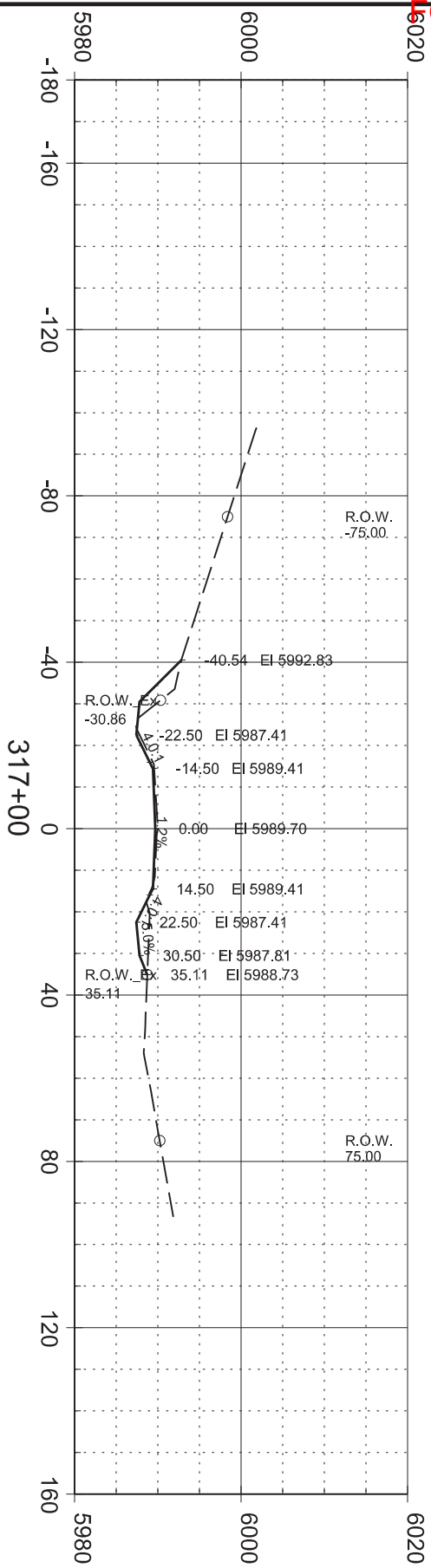
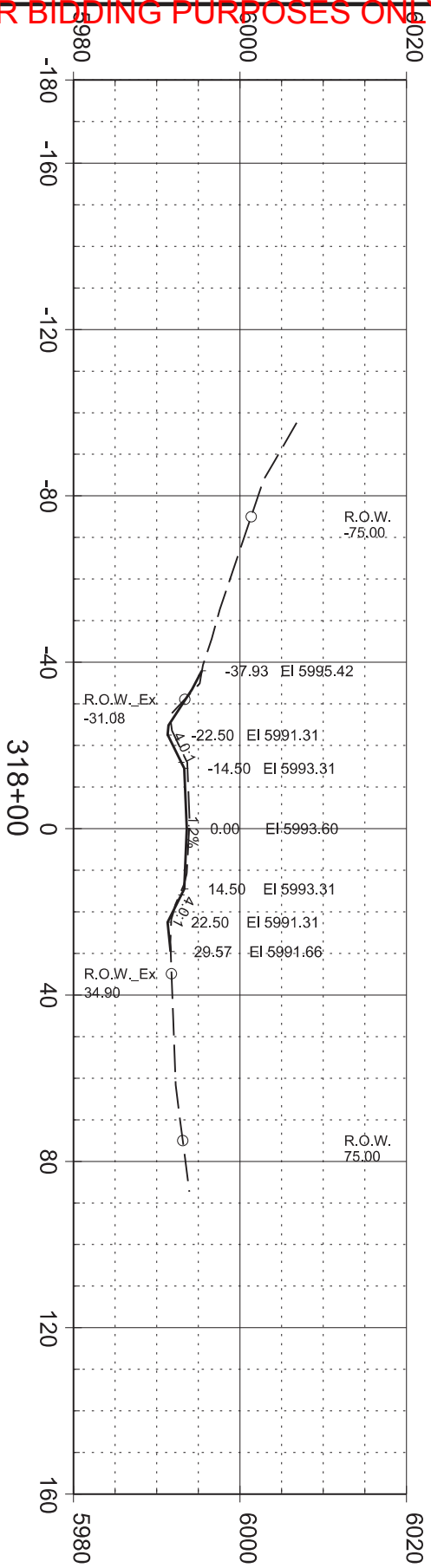




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STATE OF SOUTH DAKOTA		PROJECT	235	333
P 6403(10)		SHEET		
TOTAL SHEETS				

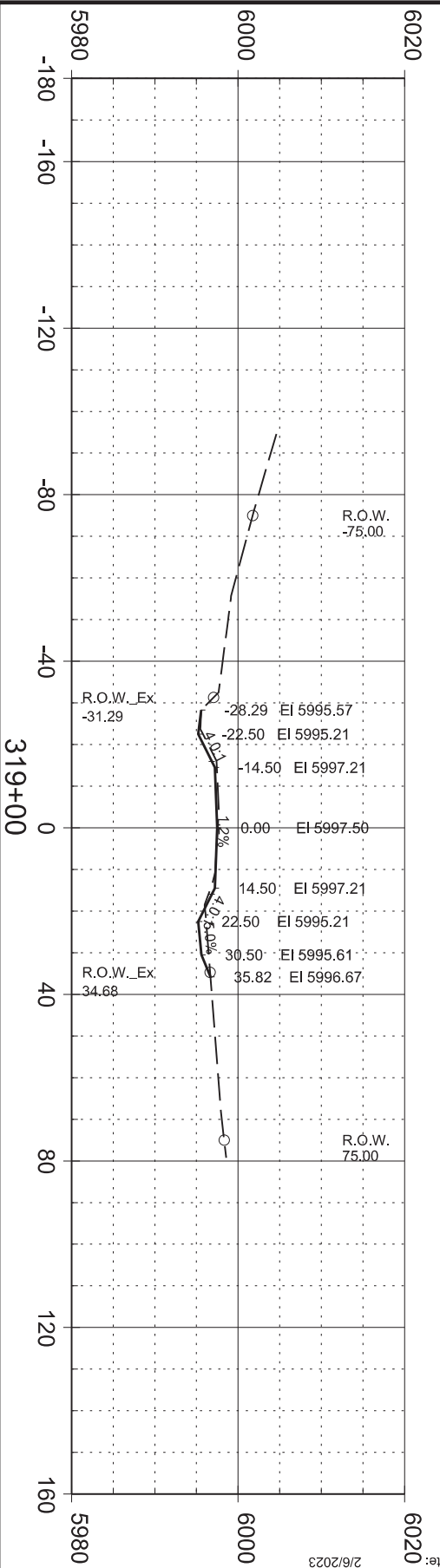
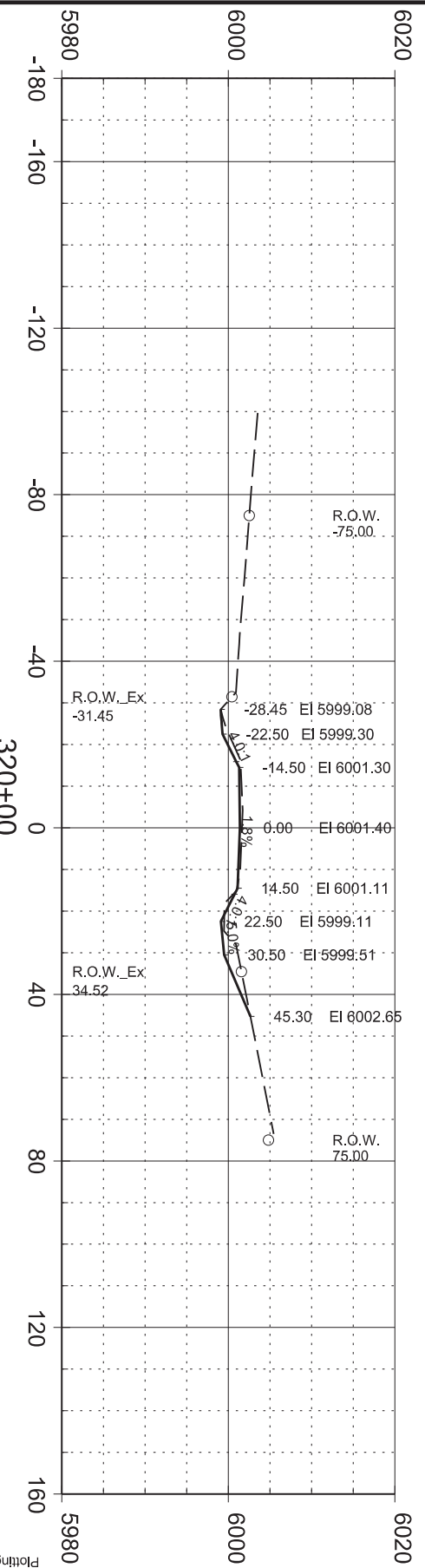
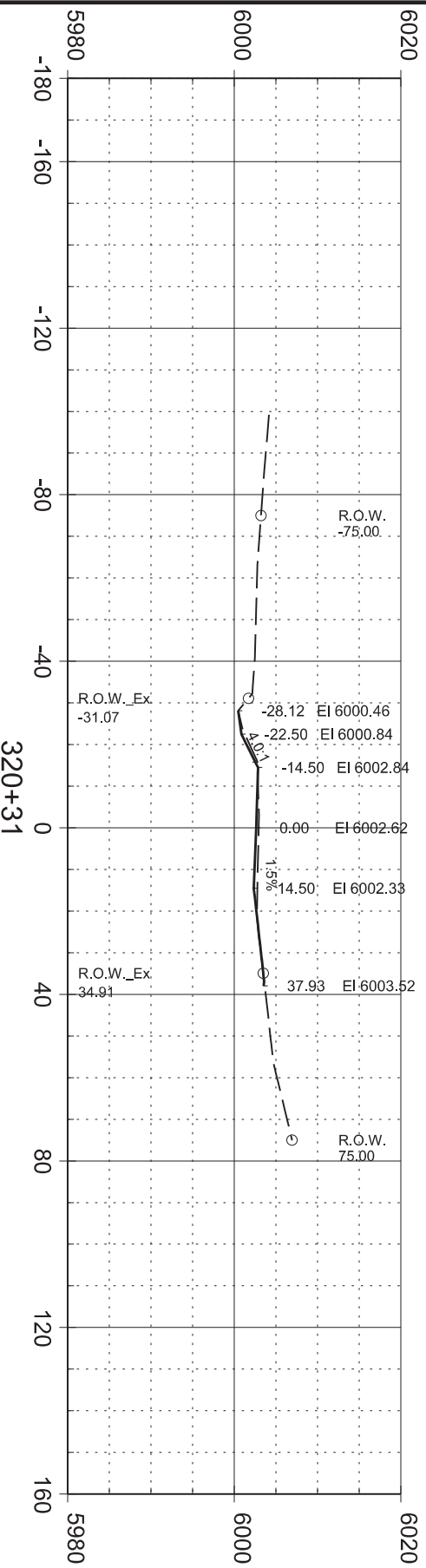
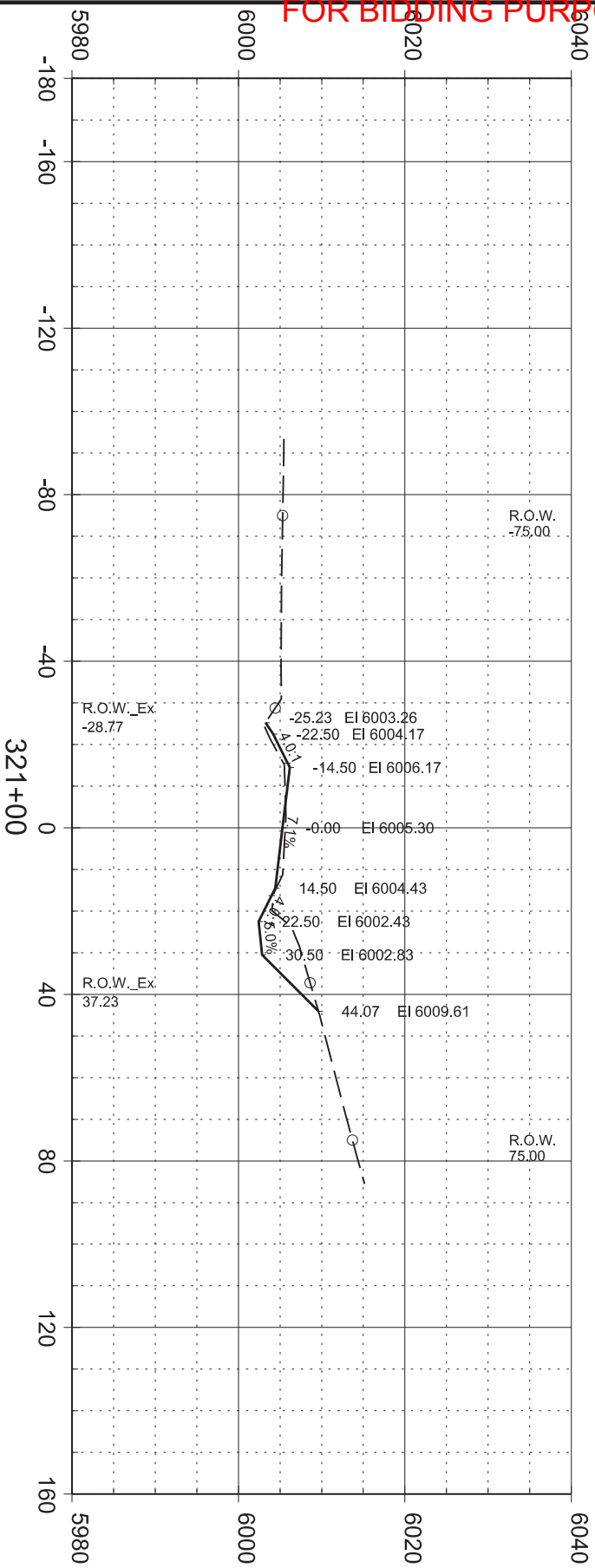
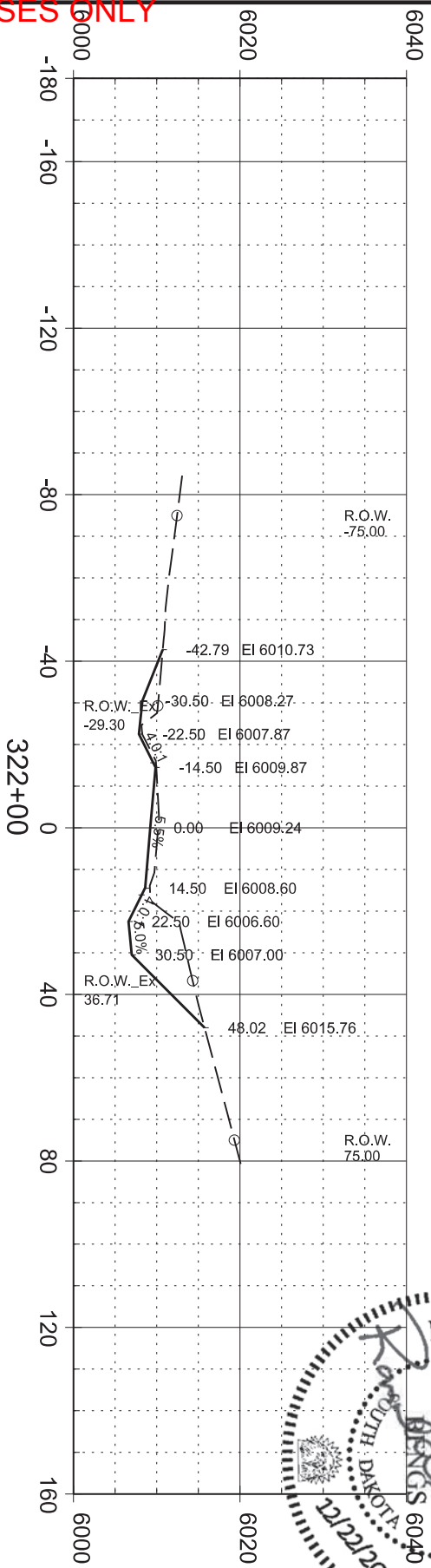
Plotting Date: 2/6/2023



STATE OF SOUTH DAKOTA	P 6403(10)		236	333
	PROJECT	SHEET	TOTAL SHEETS	

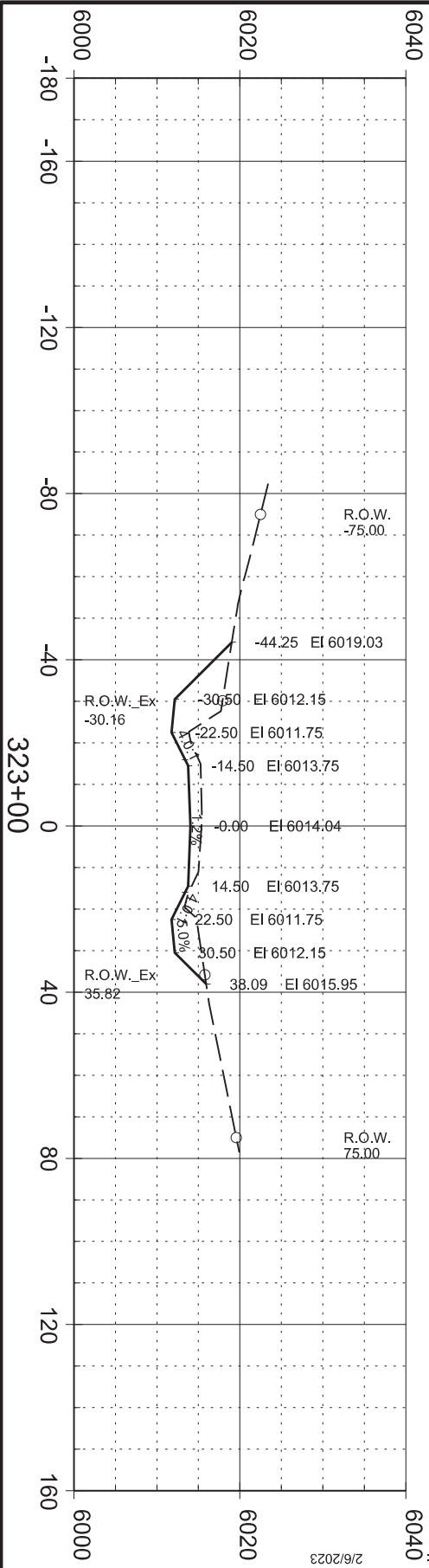
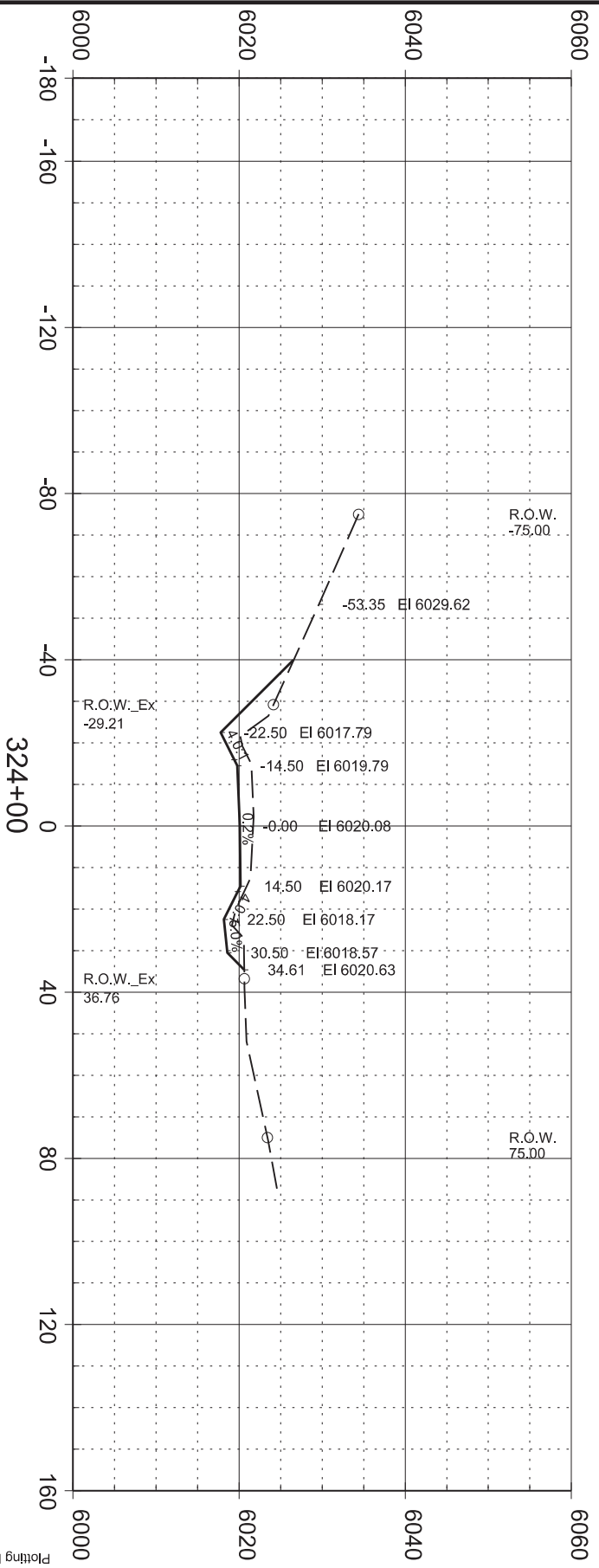
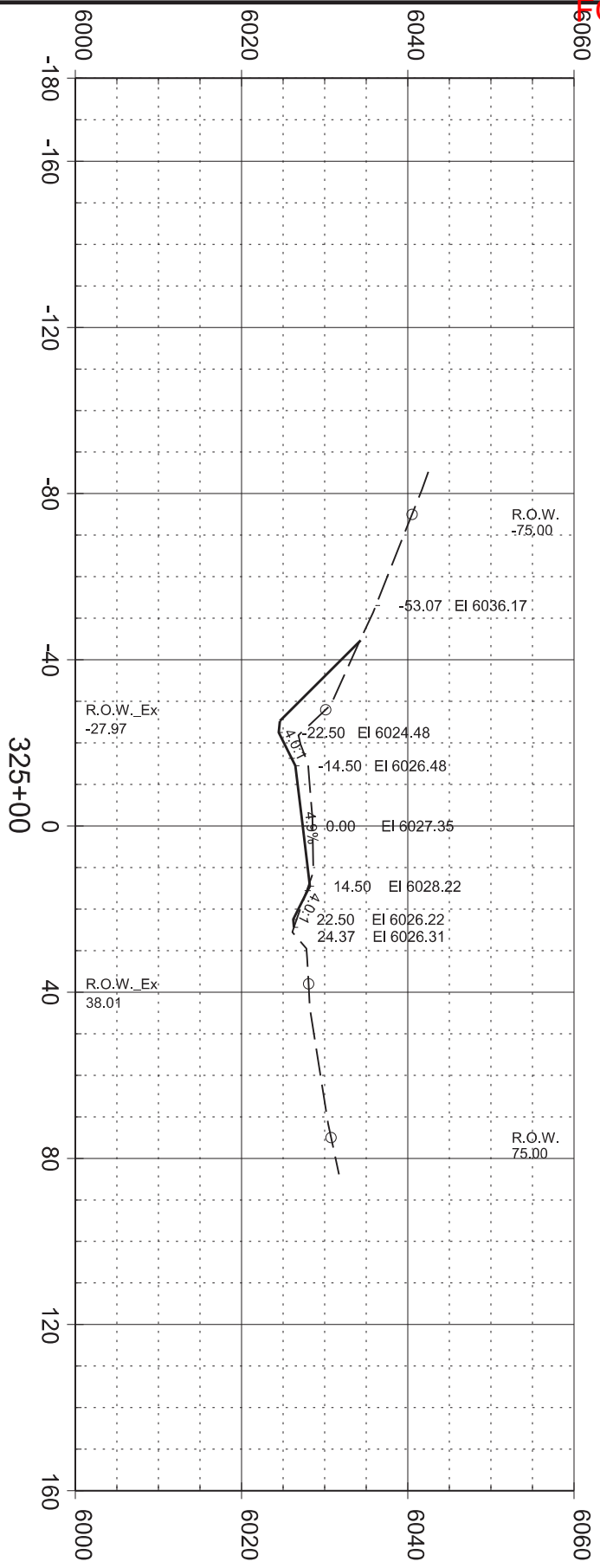
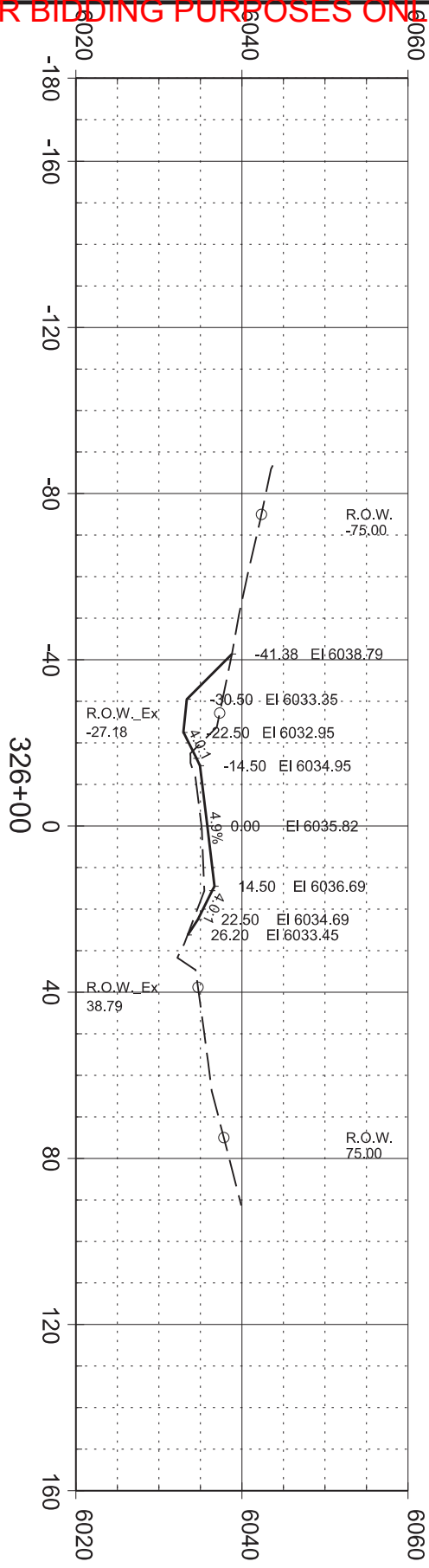
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FOR BIDDING PURPOSES ONLY

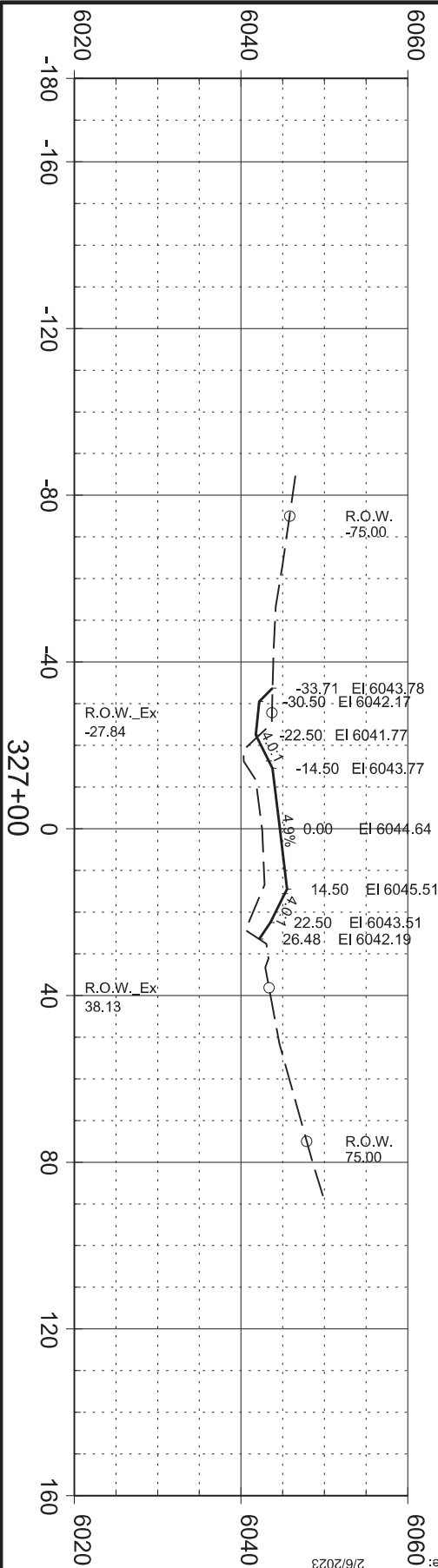
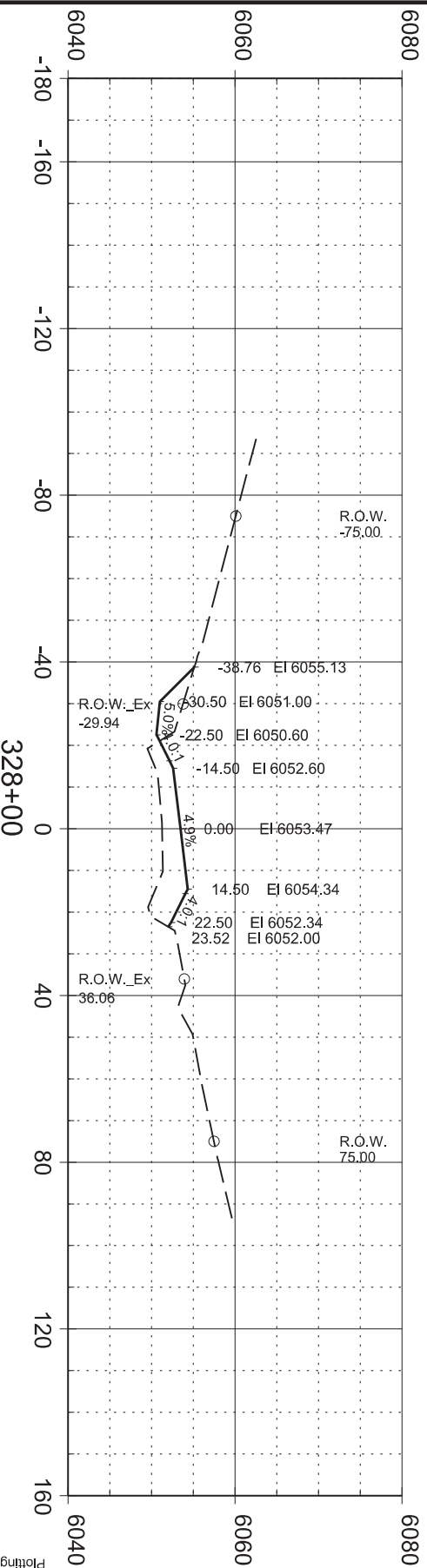
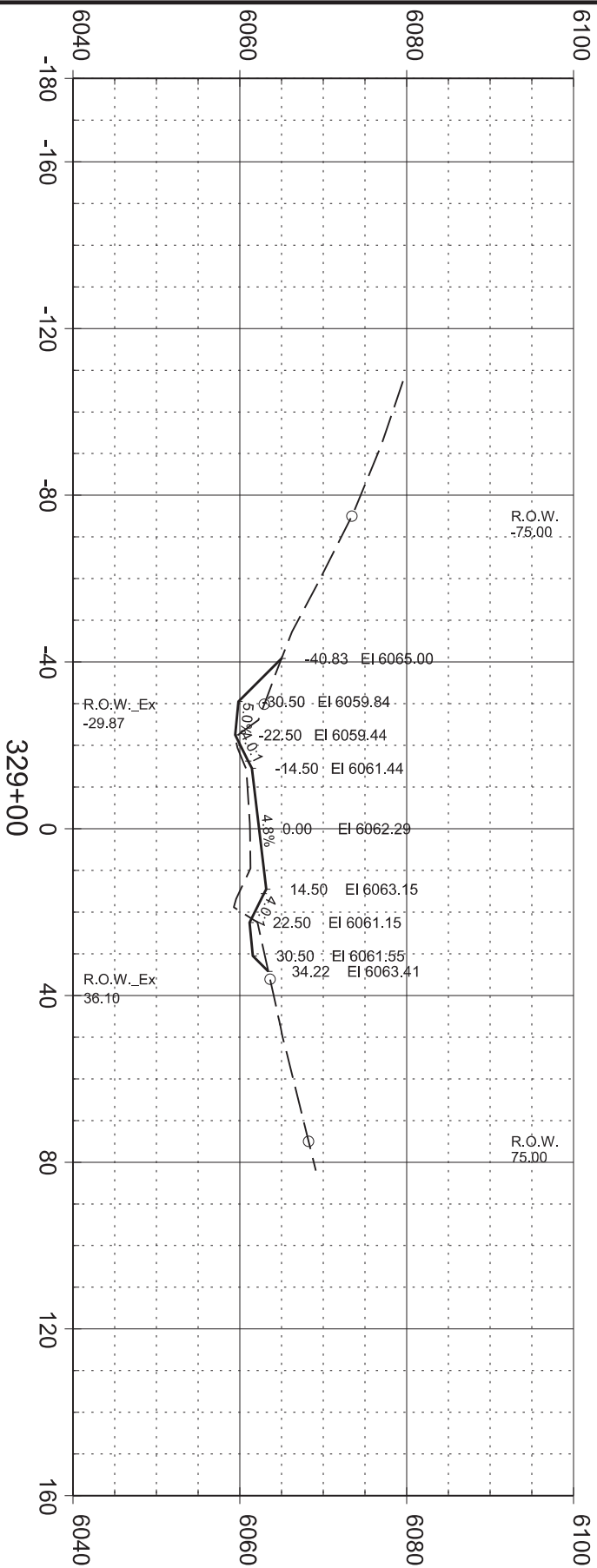
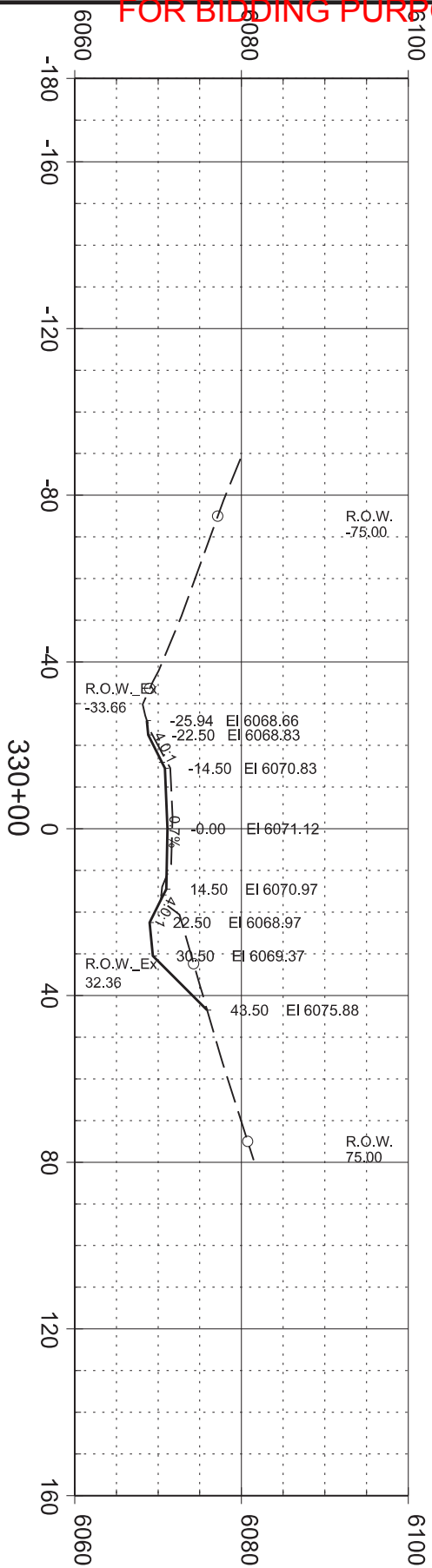
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		237		333	







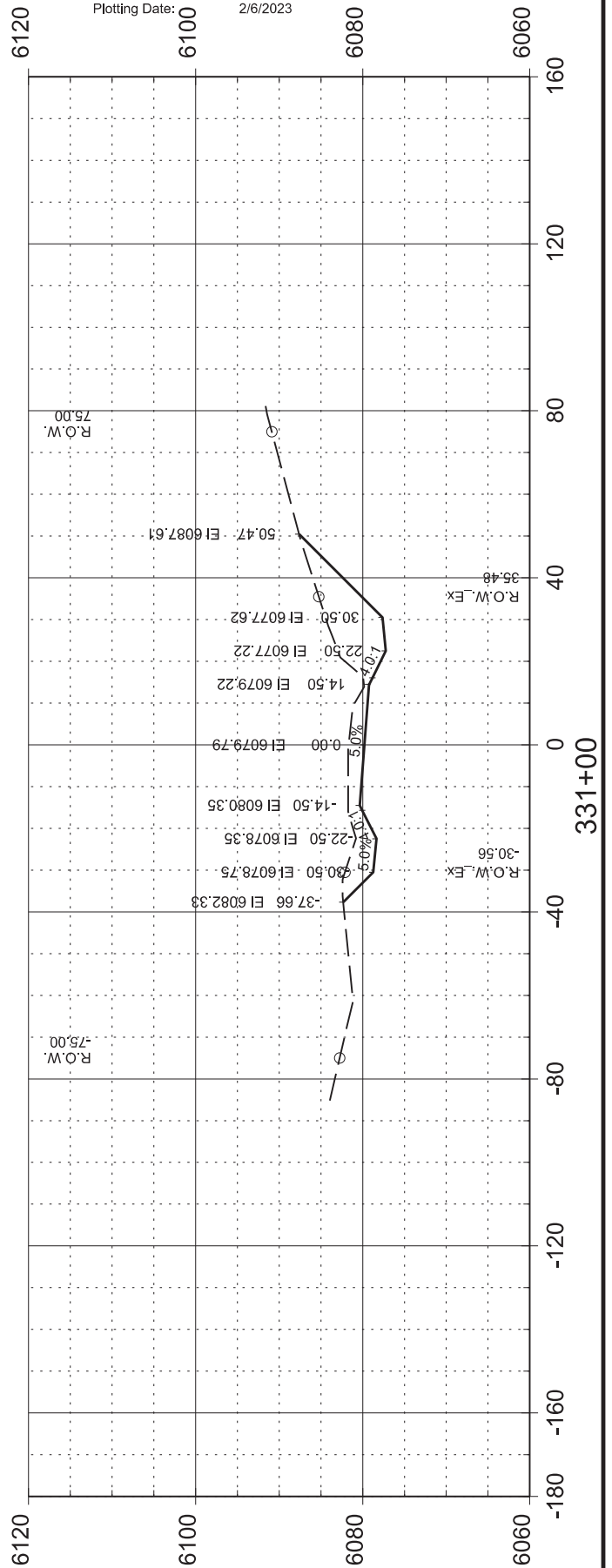
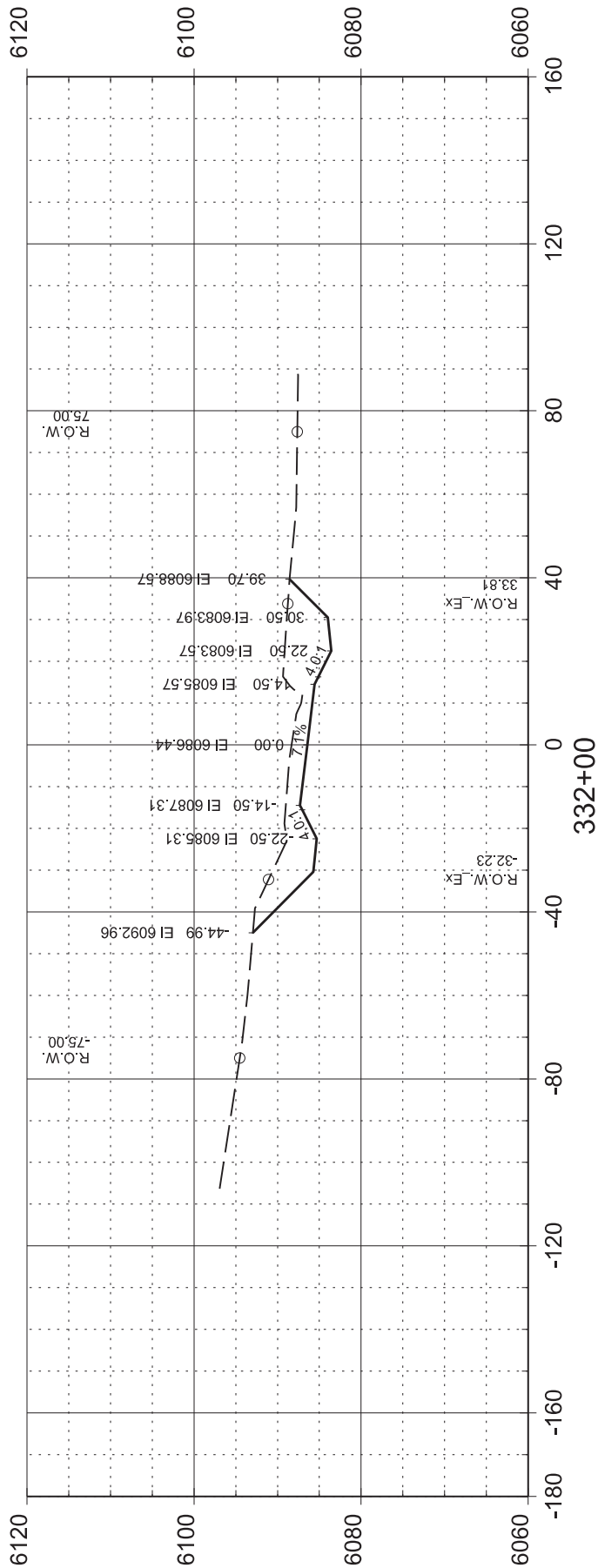
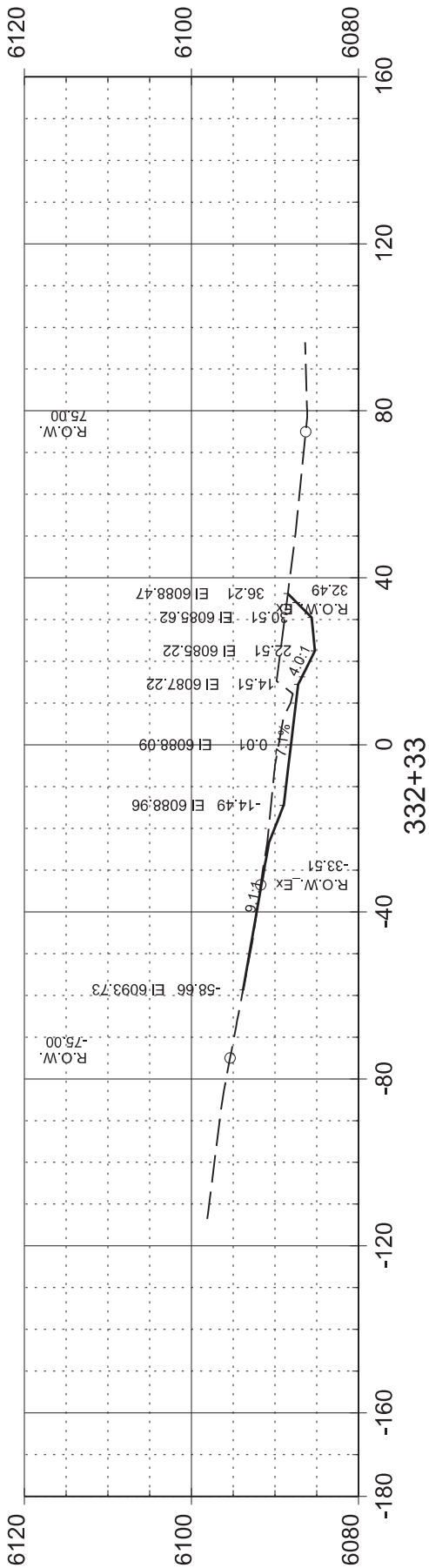
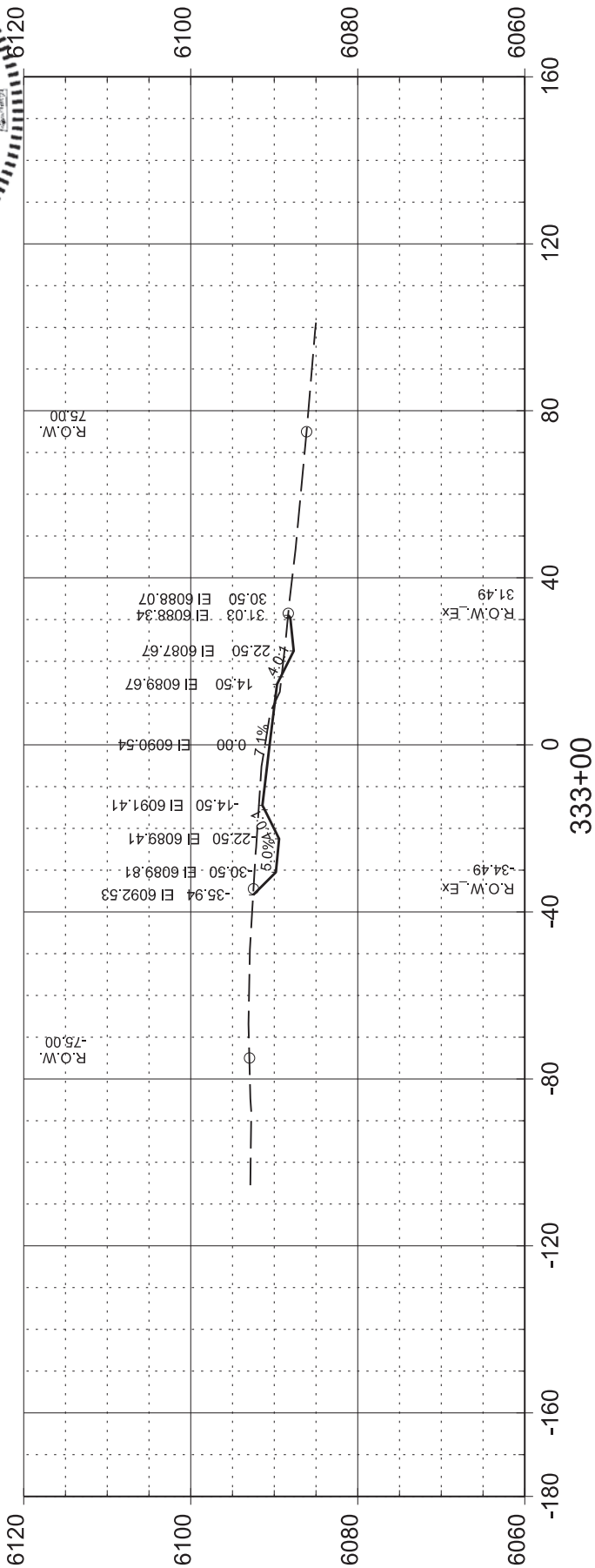
FOR BIDDING PURPOSES ONLY



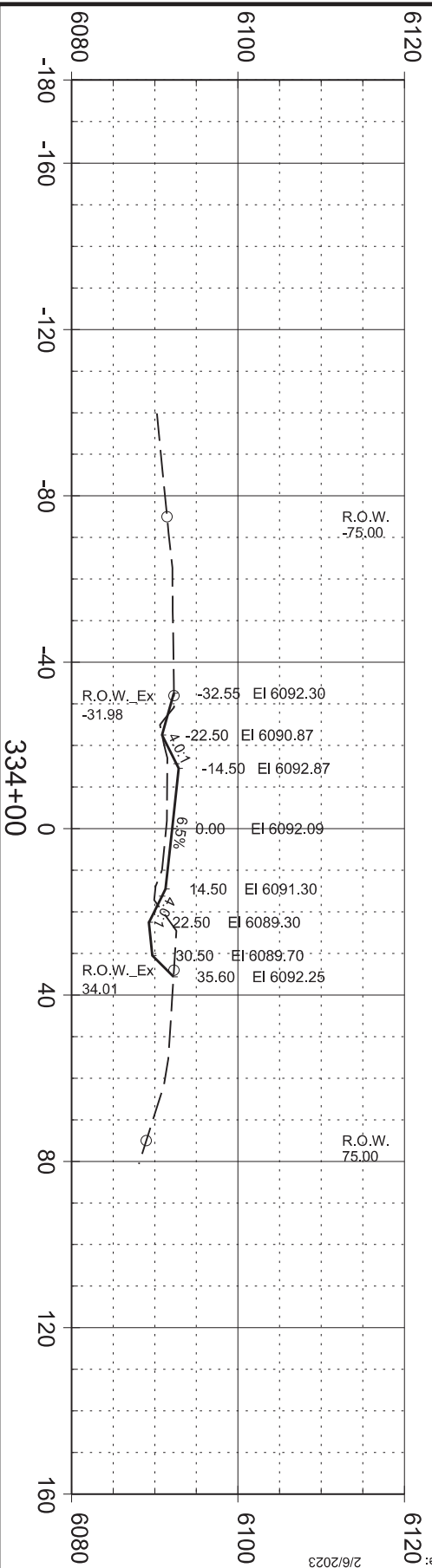
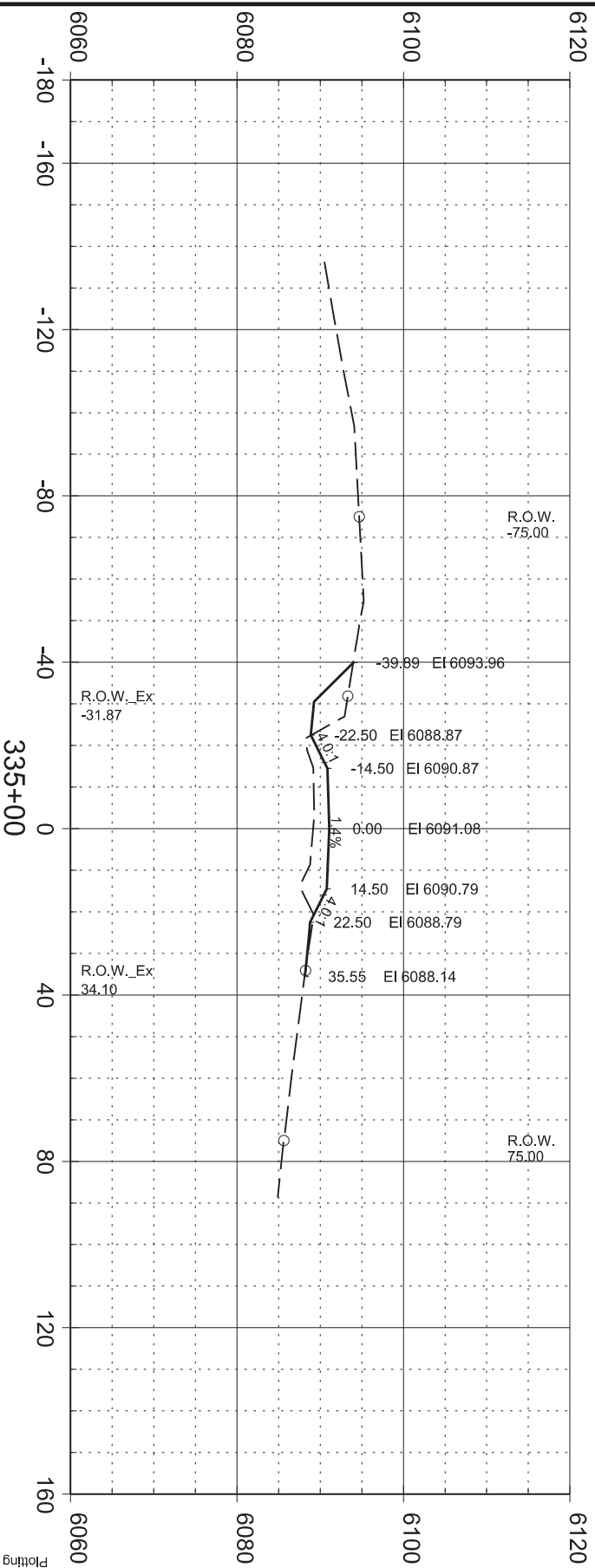
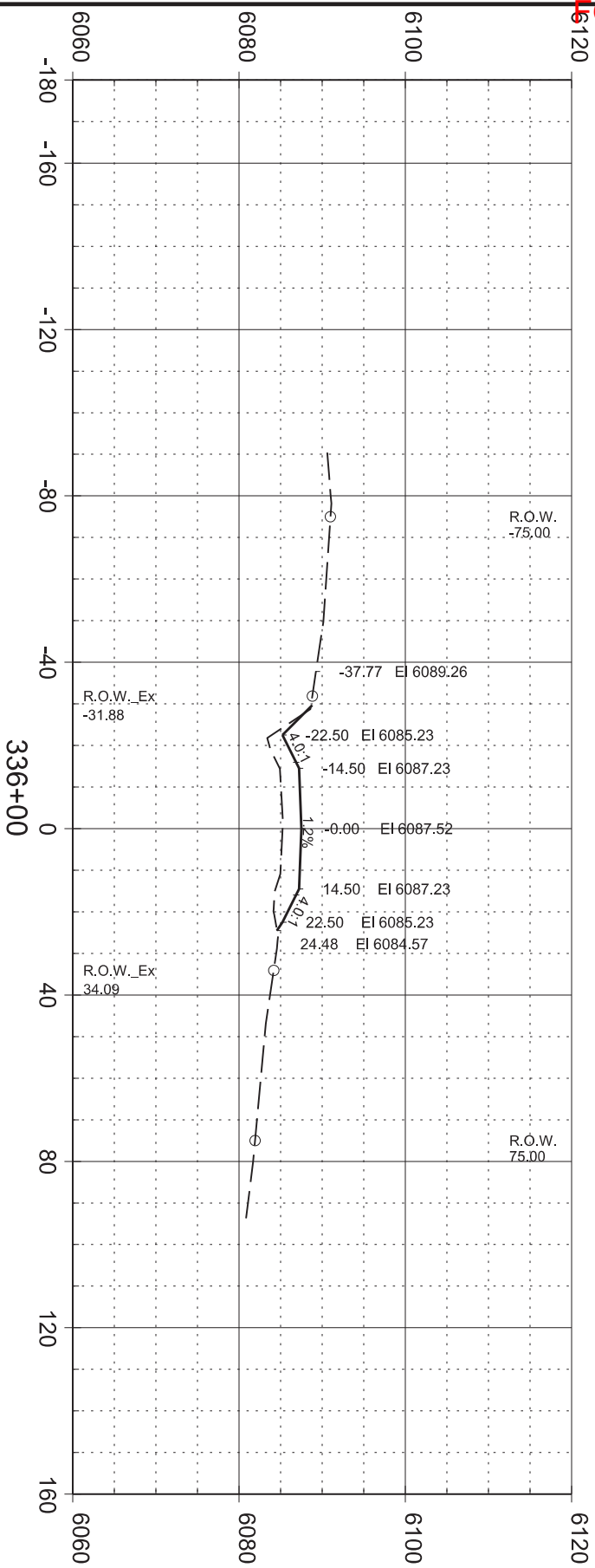
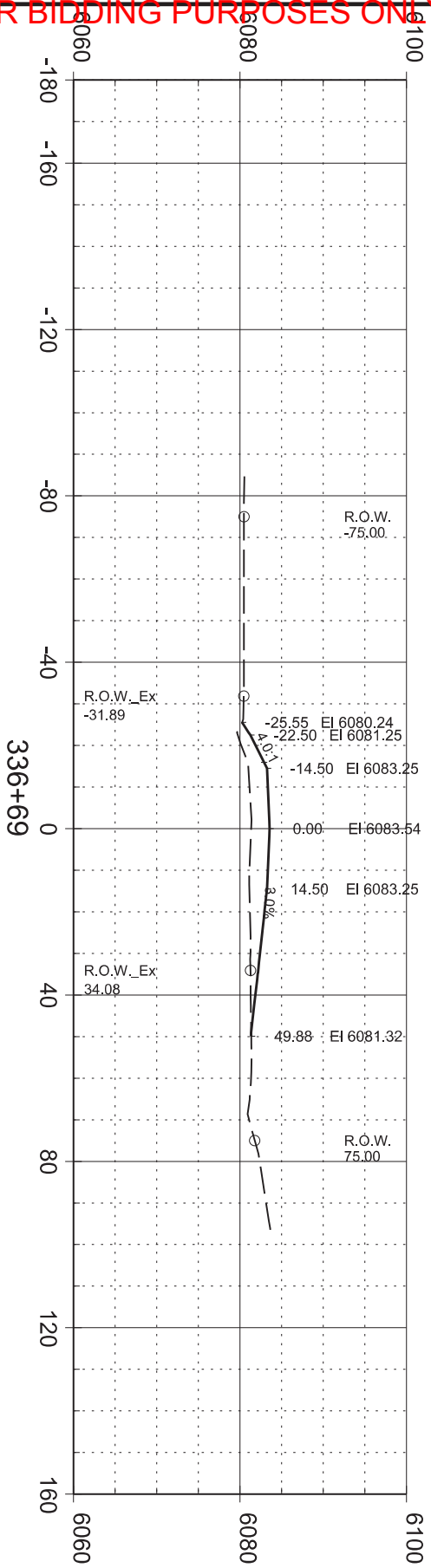
STATE OF SOUTH DAKOTA	P 6403(10)	239	333
		SHEET	TOTAL SHEETS

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	240	333

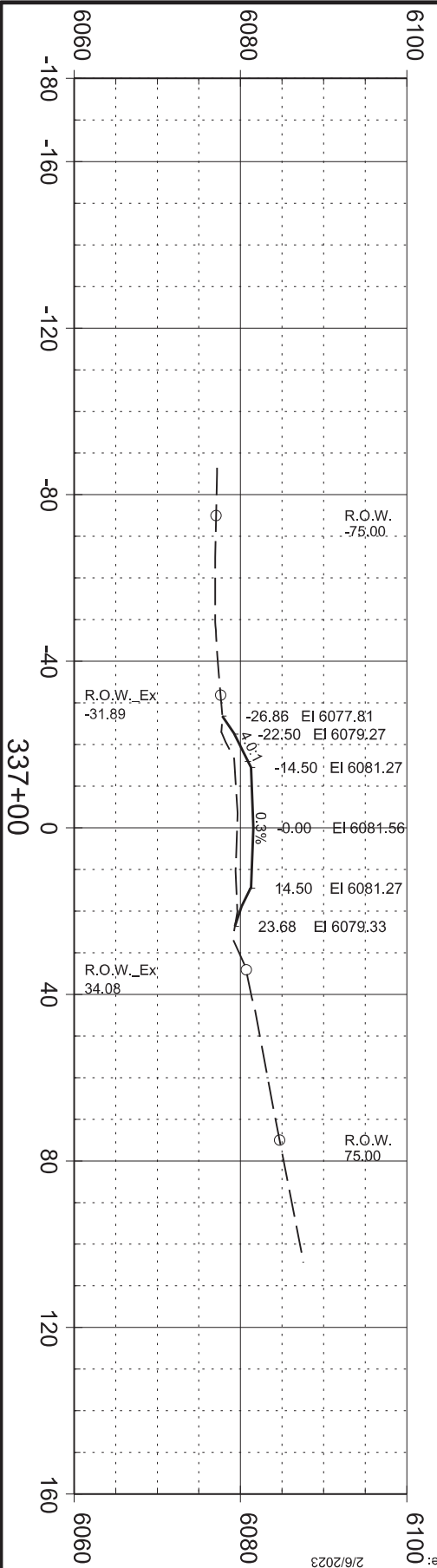
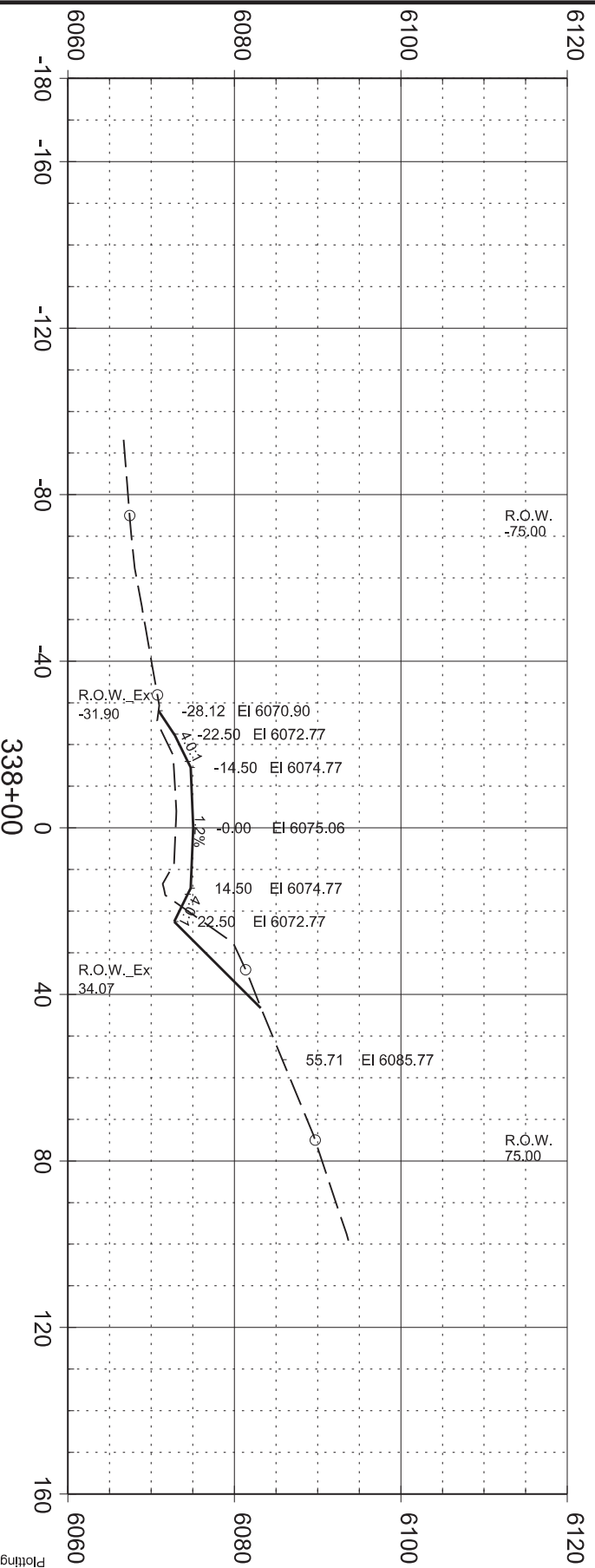
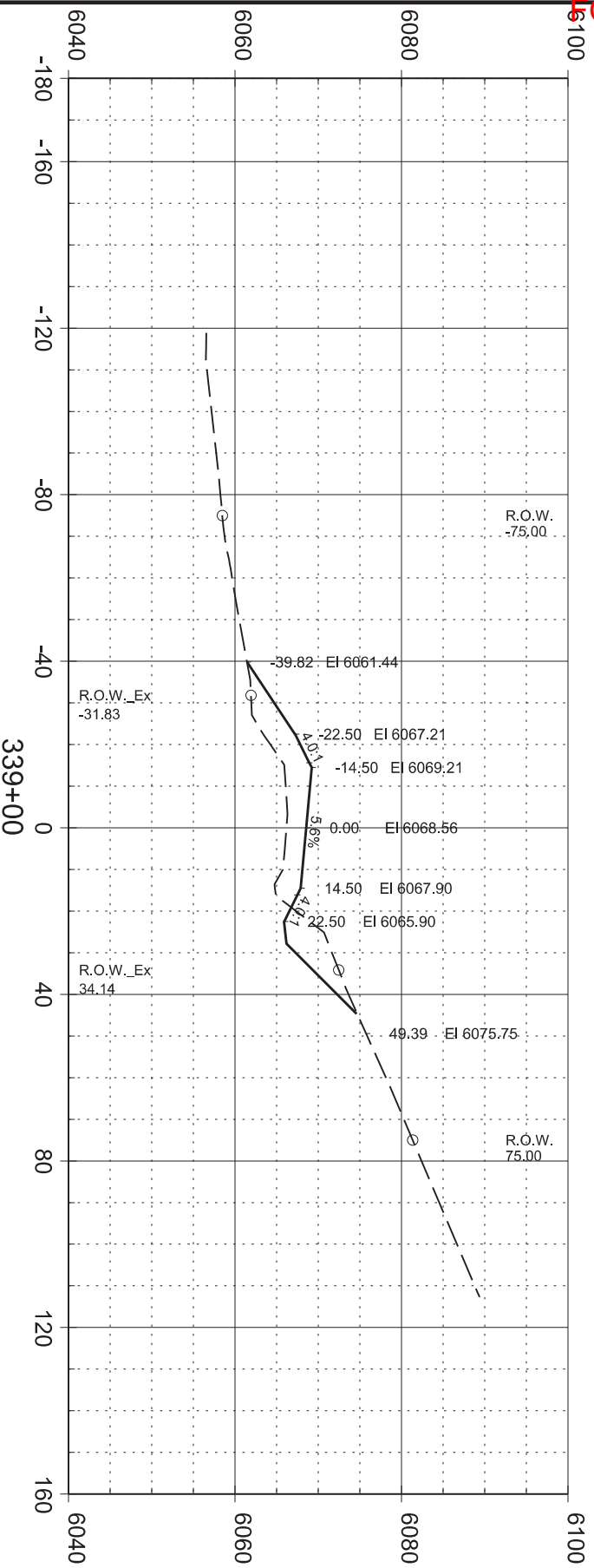
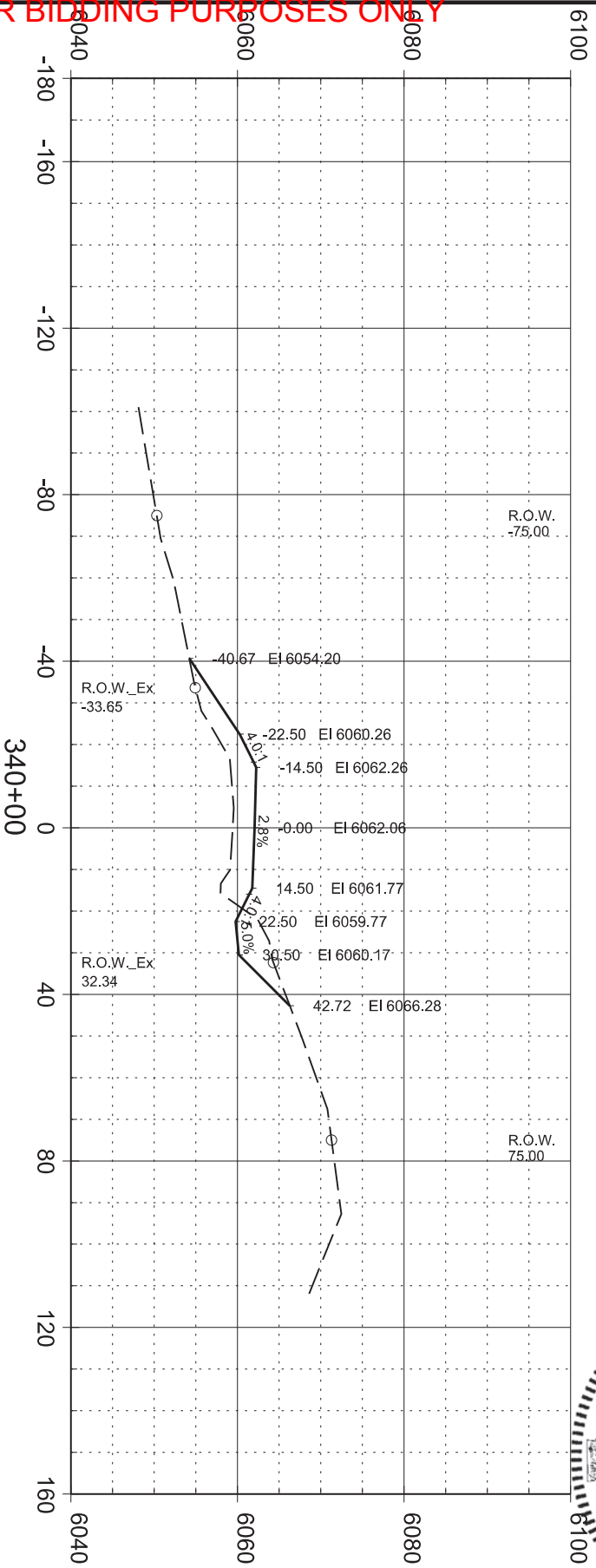






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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
26/2023		P 6403(10)		241		333	



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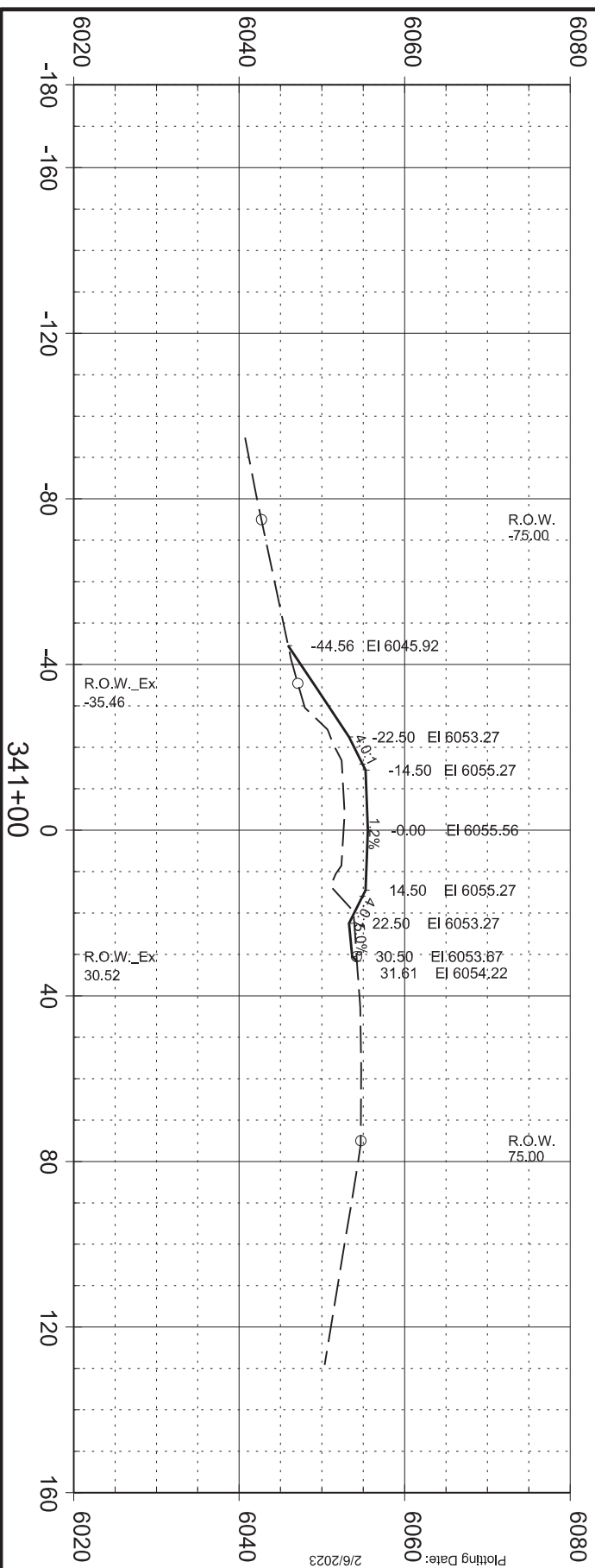
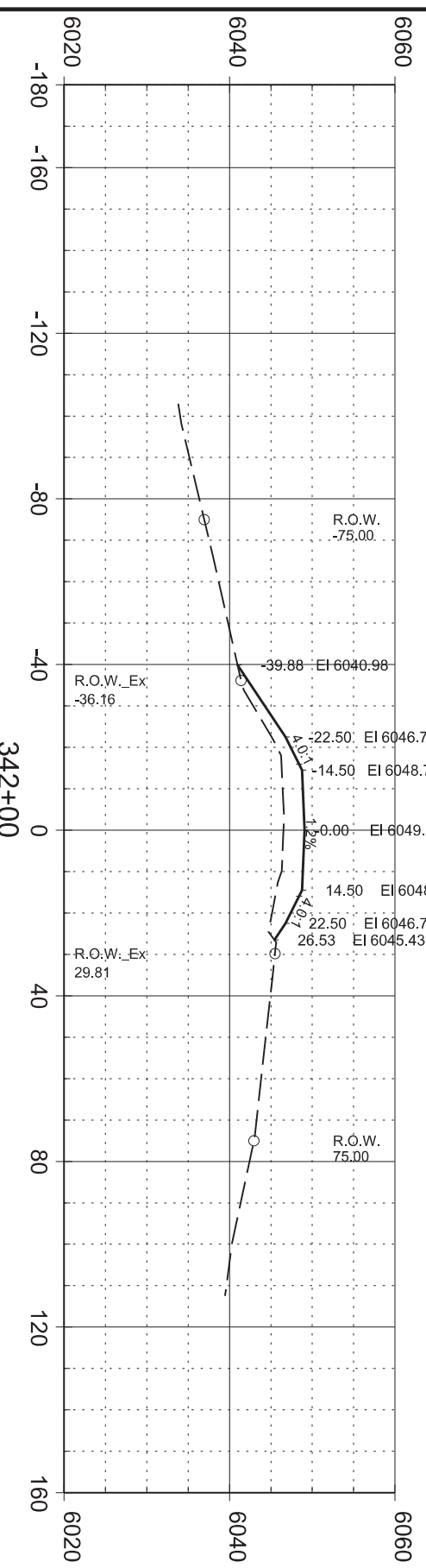
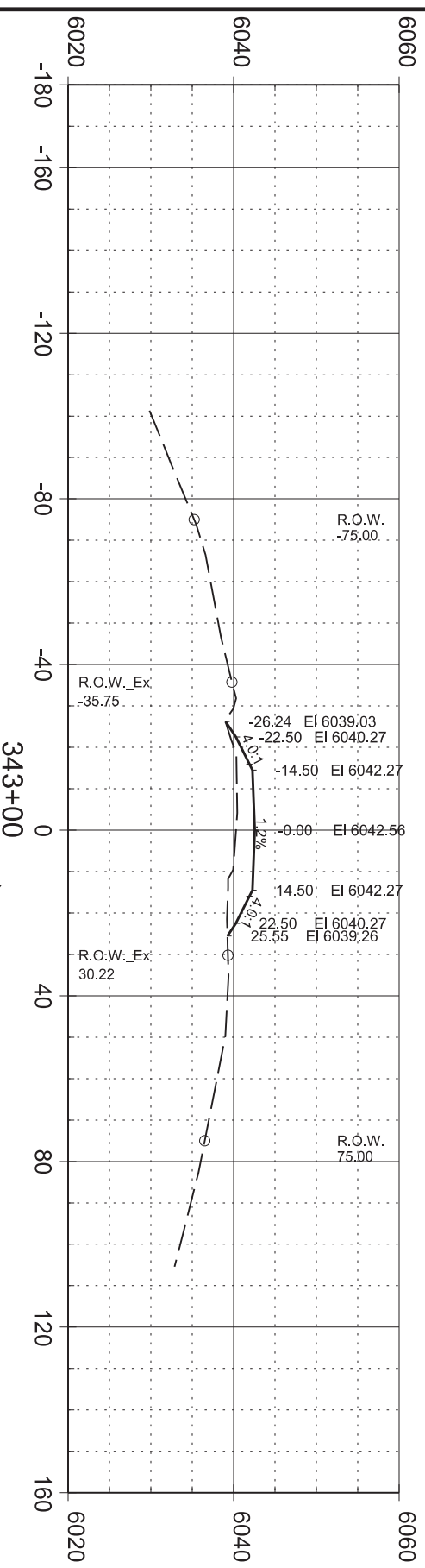
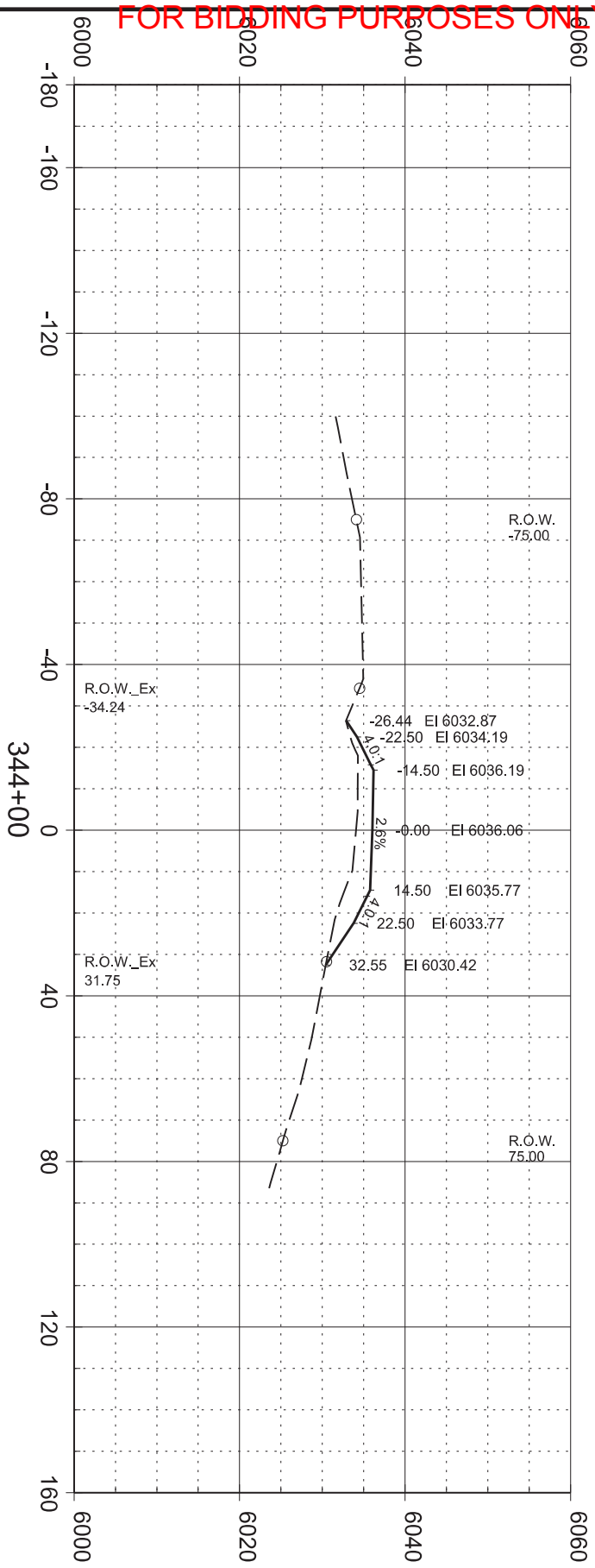
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		242		333		333	

Plotting Date: 2/6/2023





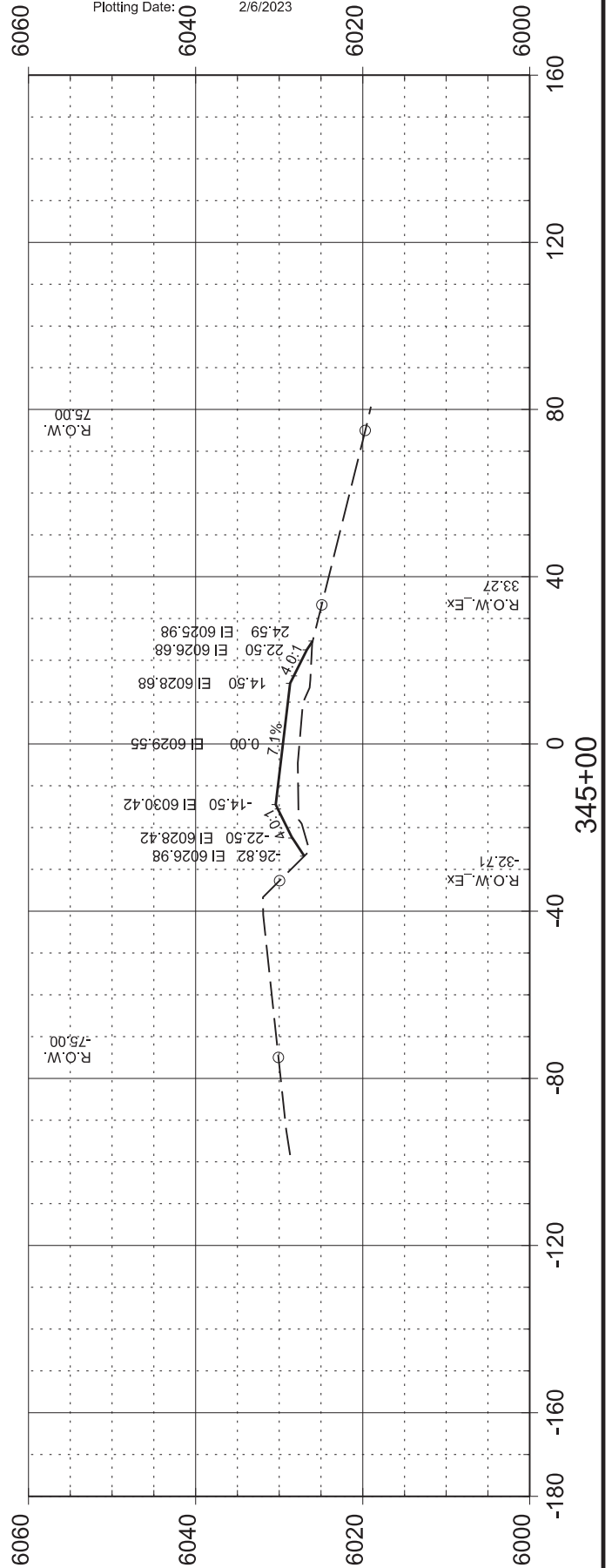
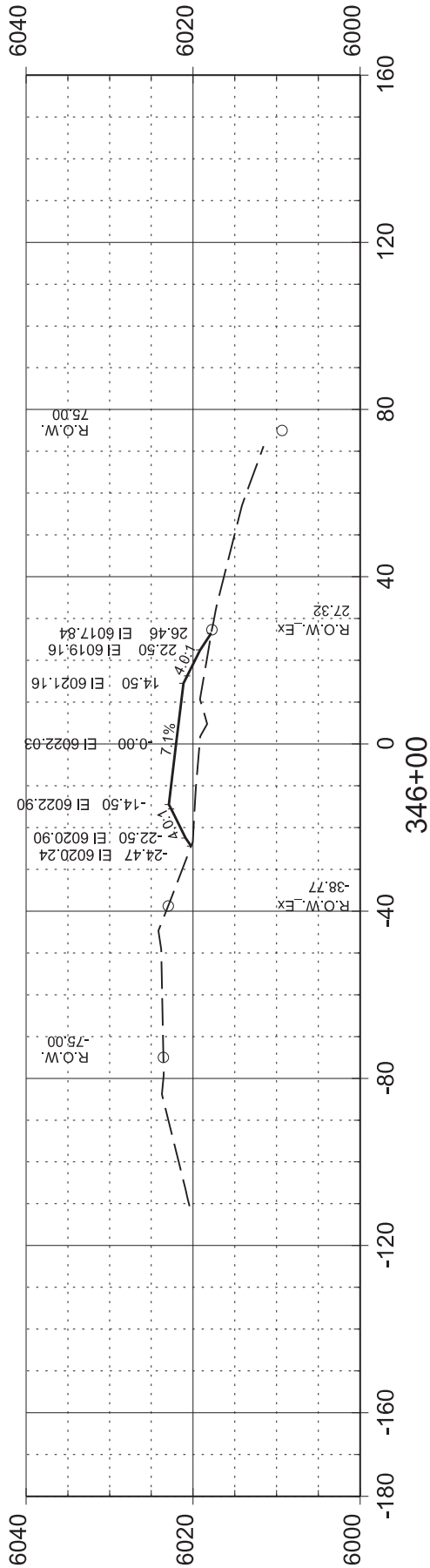
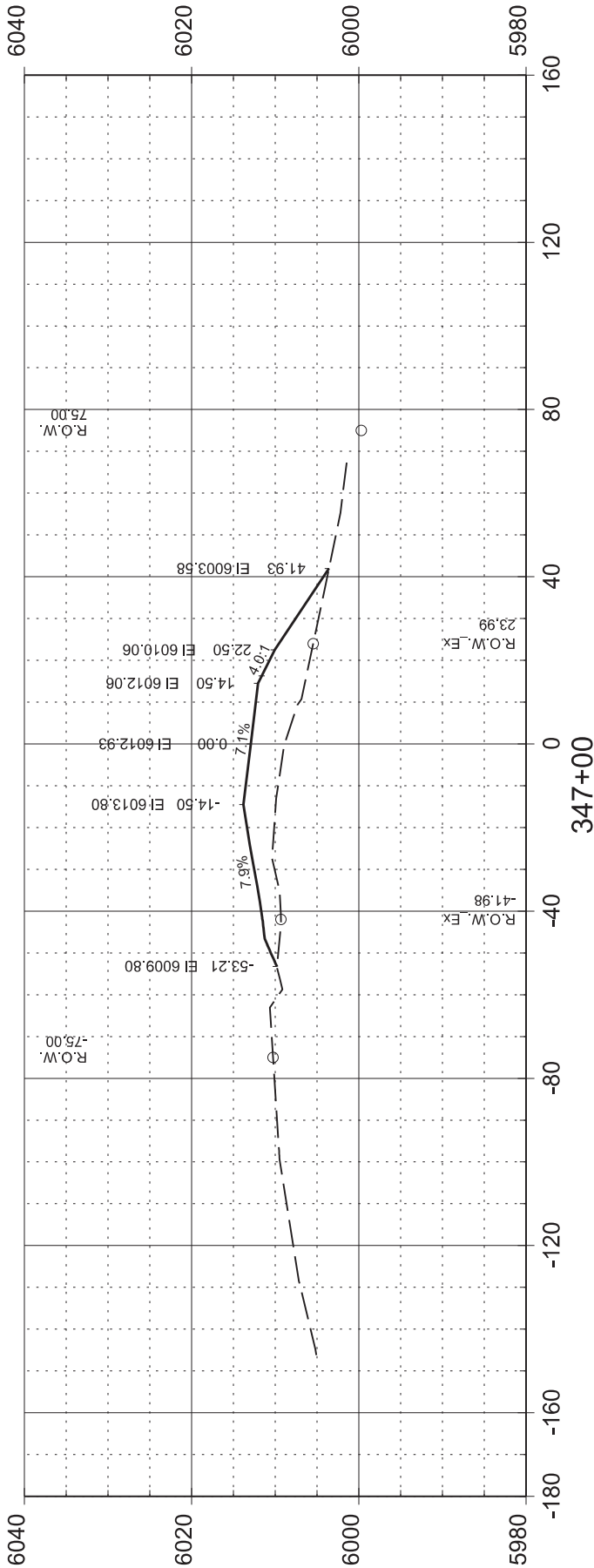
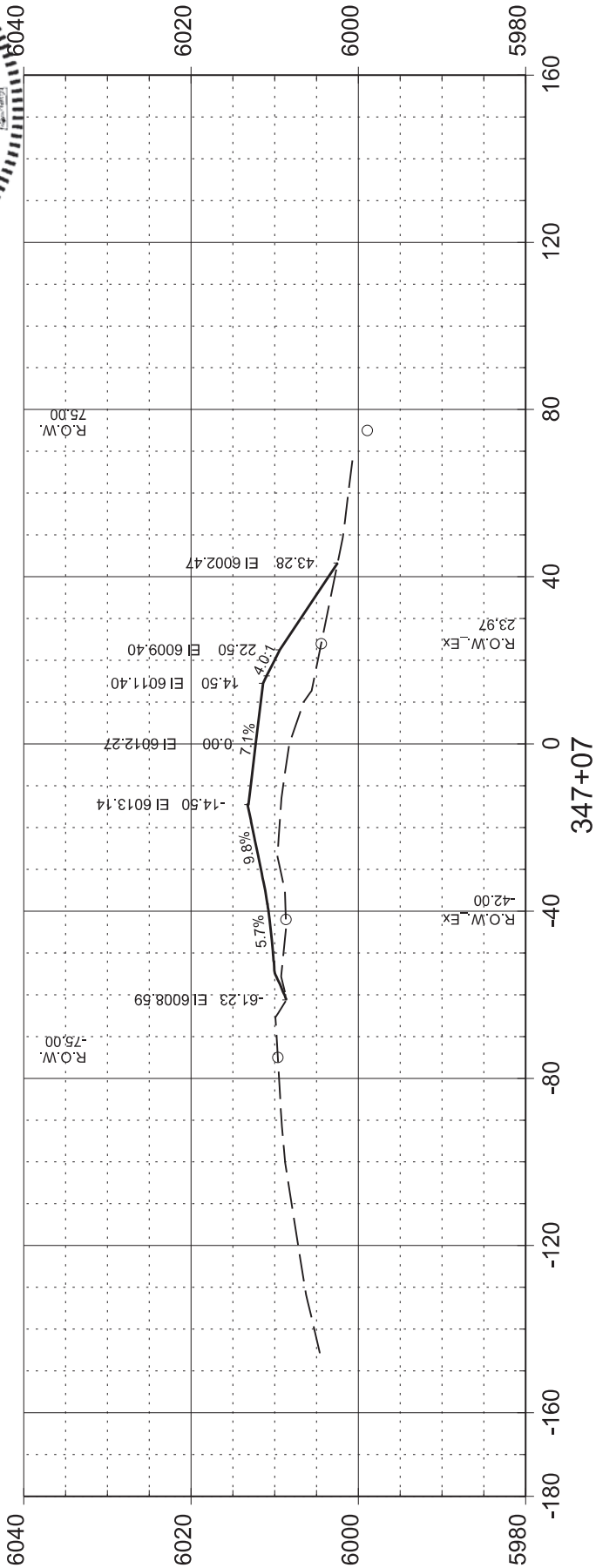
FOR BIDDING PURPOSES ONLY



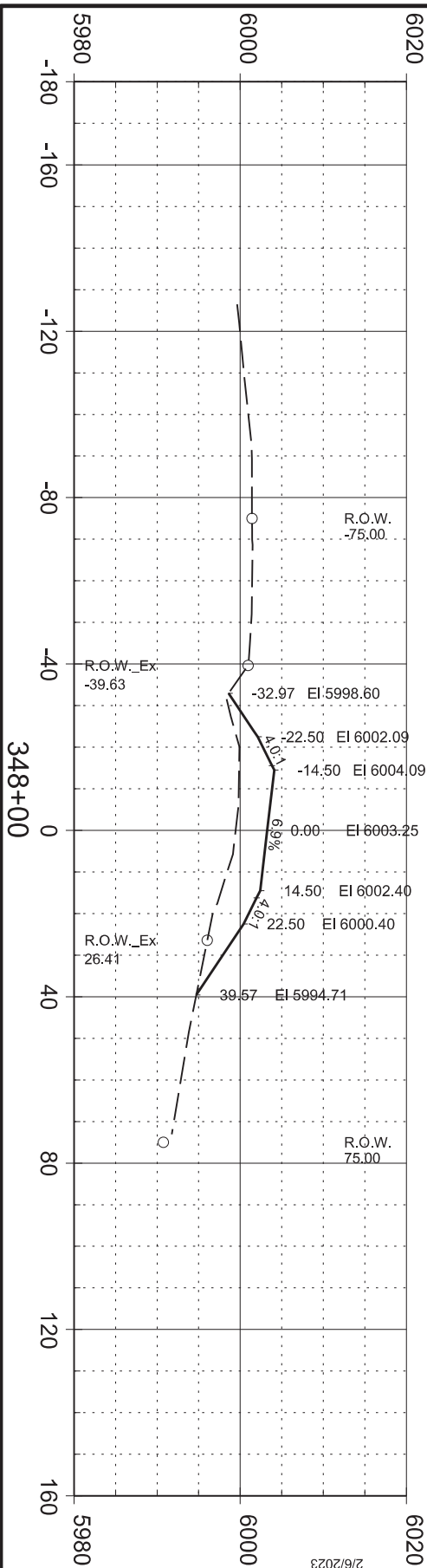
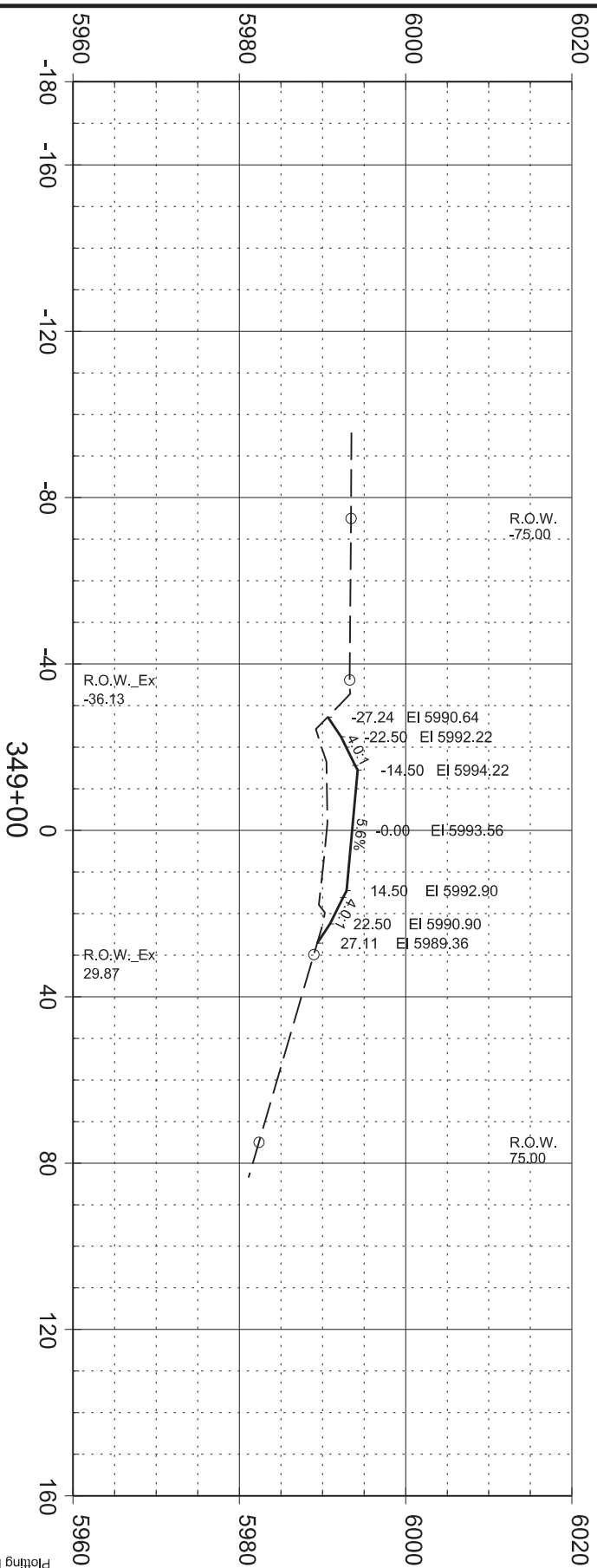
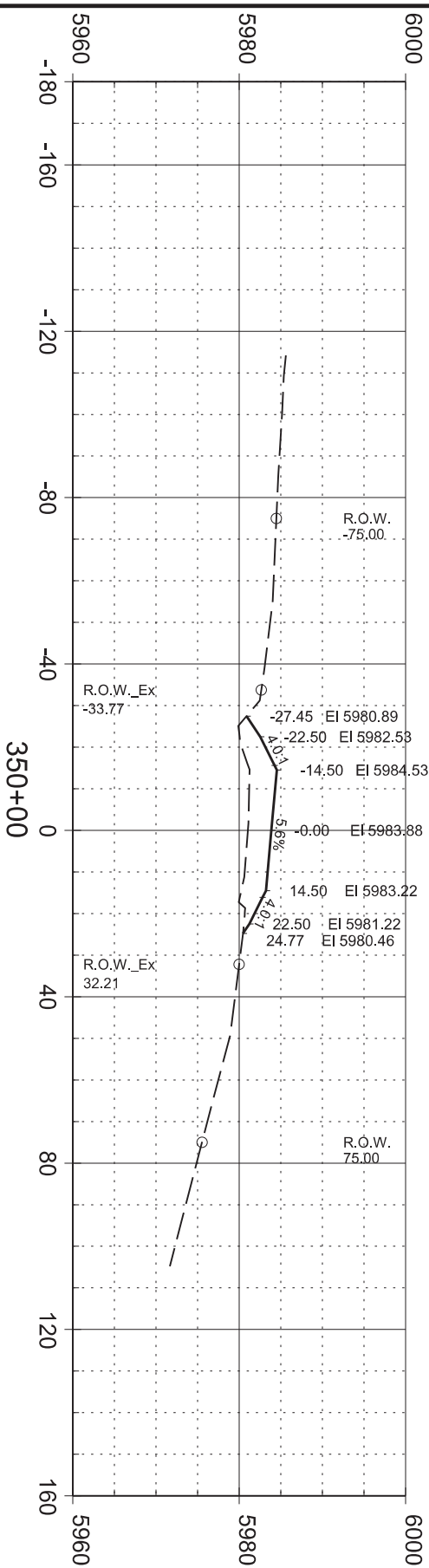
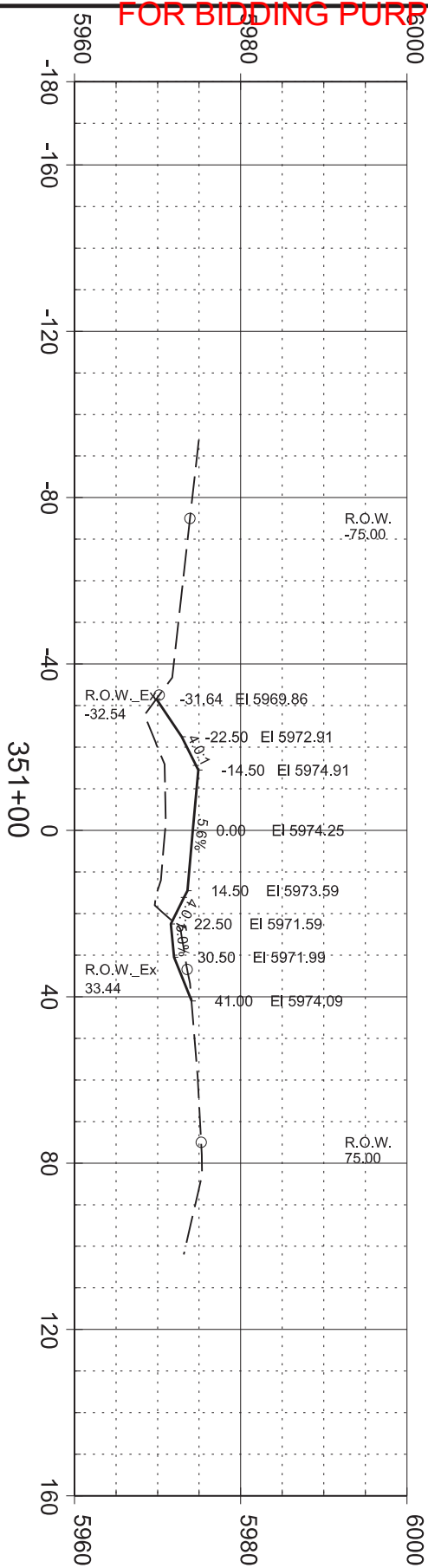
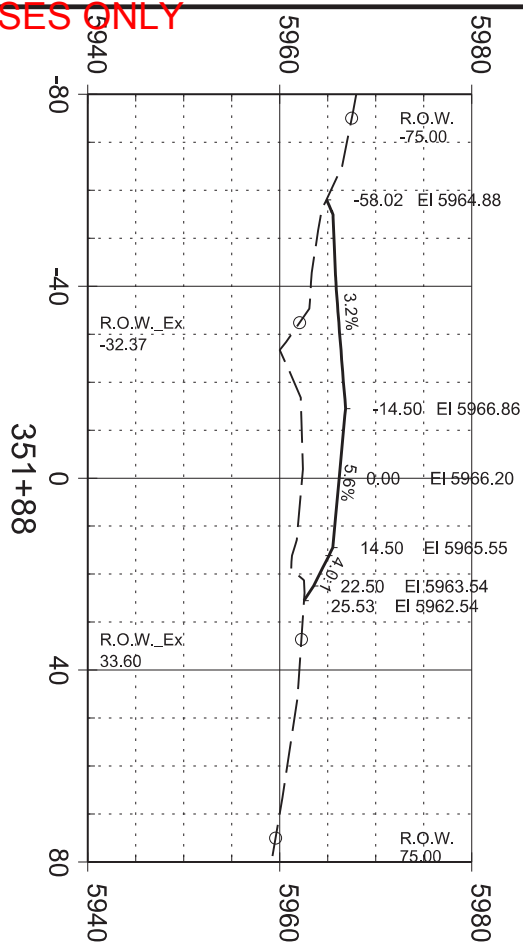
STATE OF SOUTH DAKOTA	PROJECT	P 6403(10)	243	333
			SHEET	TOTAL SHEETS

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	244	333





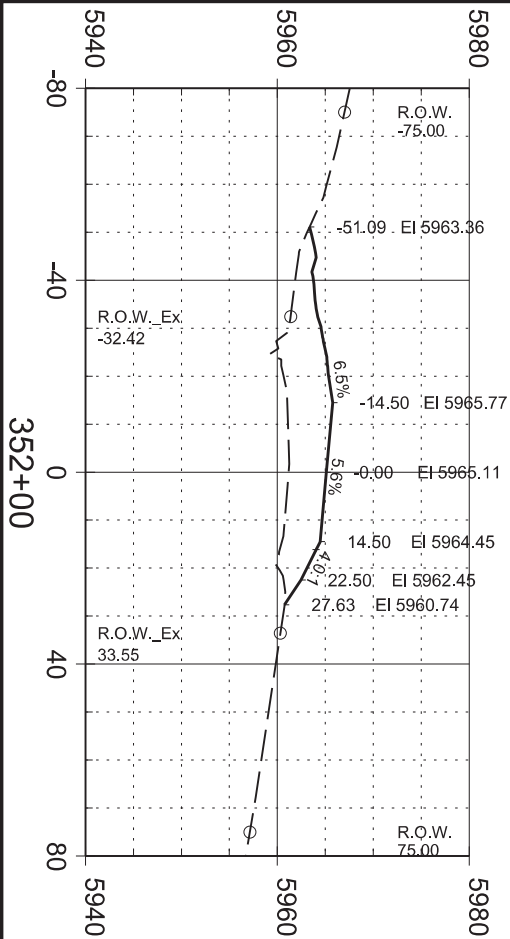
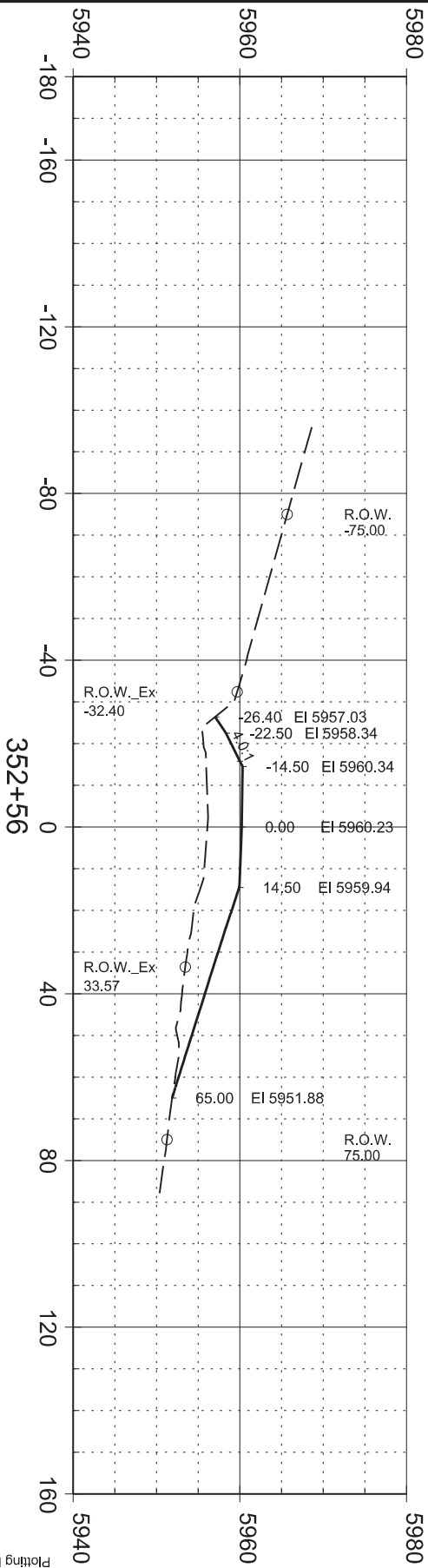
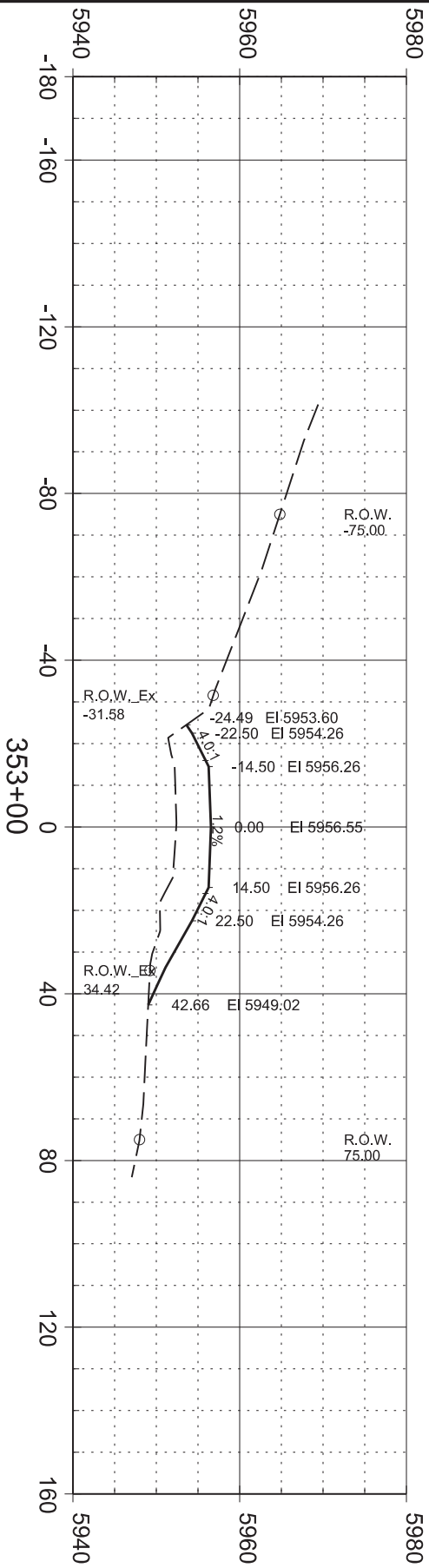
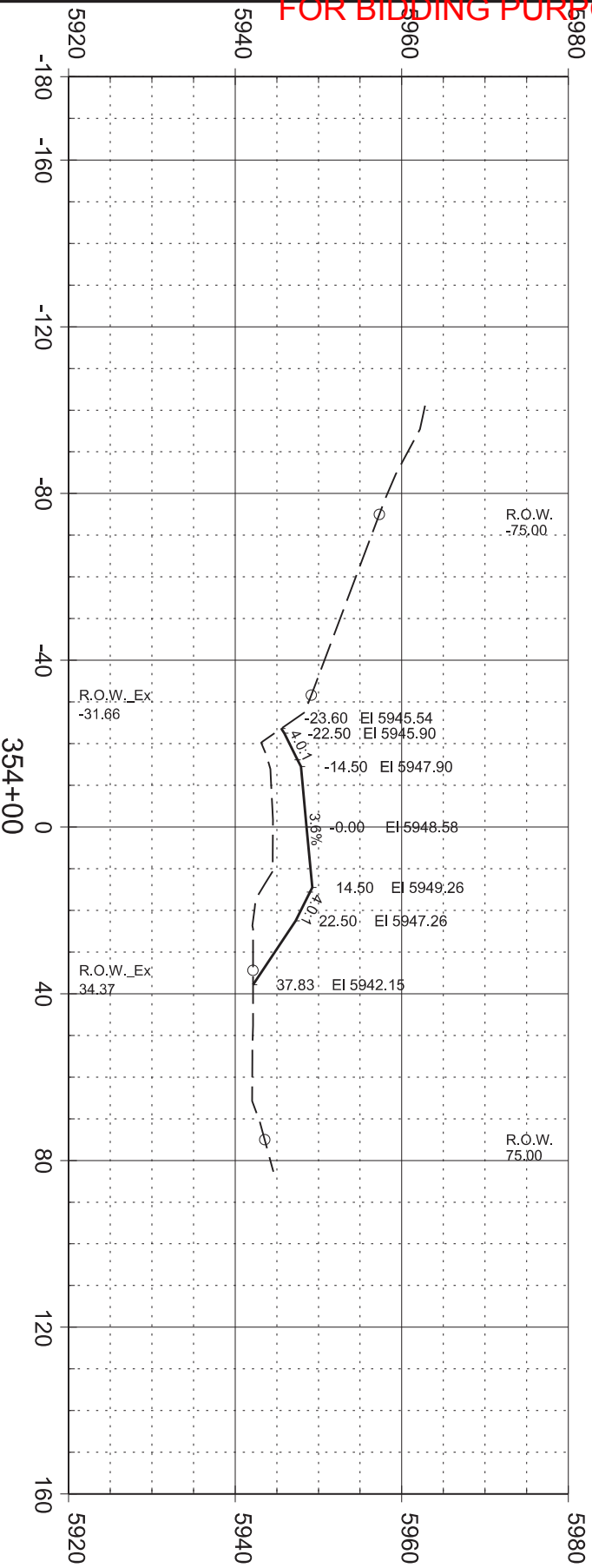


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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Plotting Date: 2/6/2023		P 6403(10)		245		333	



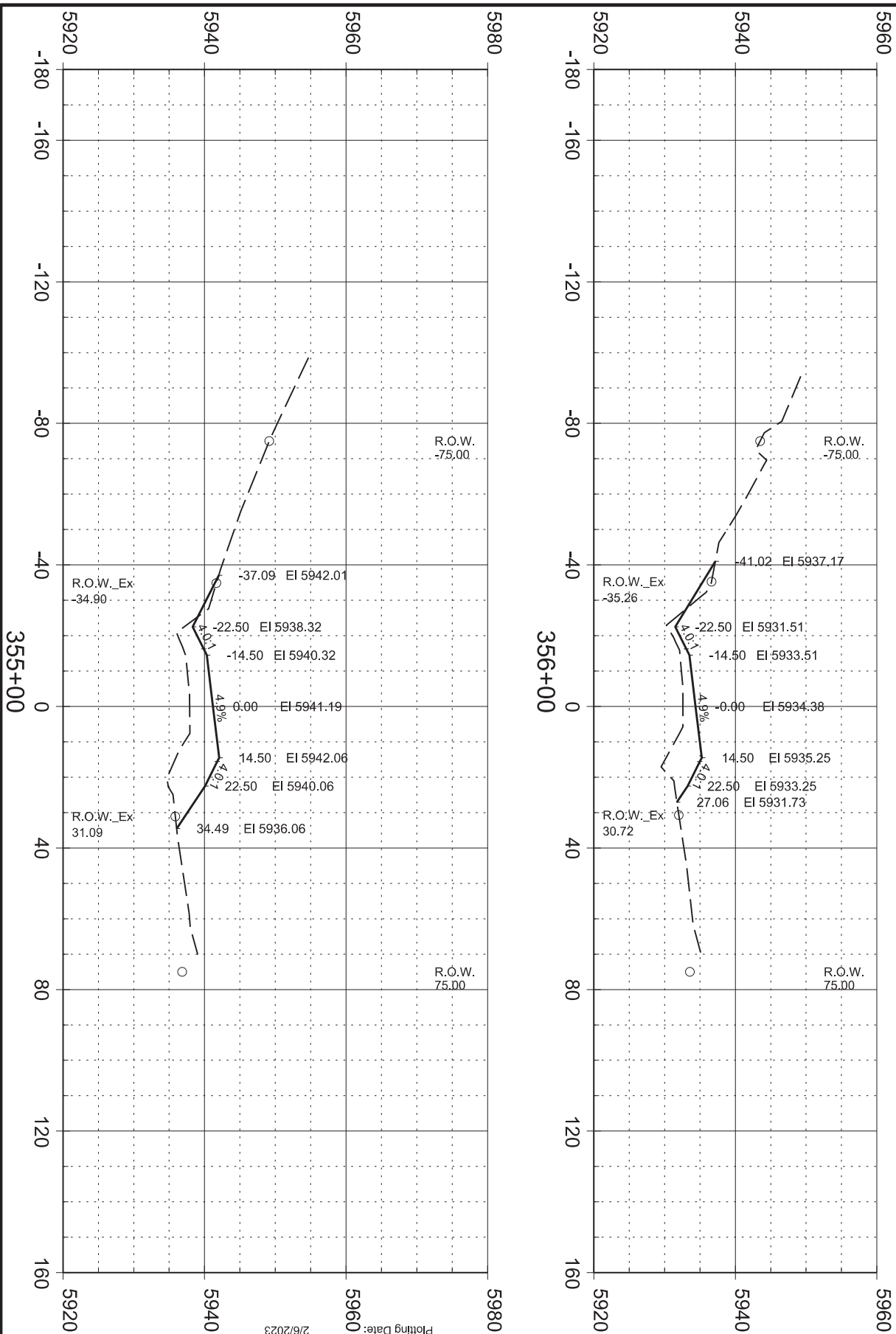
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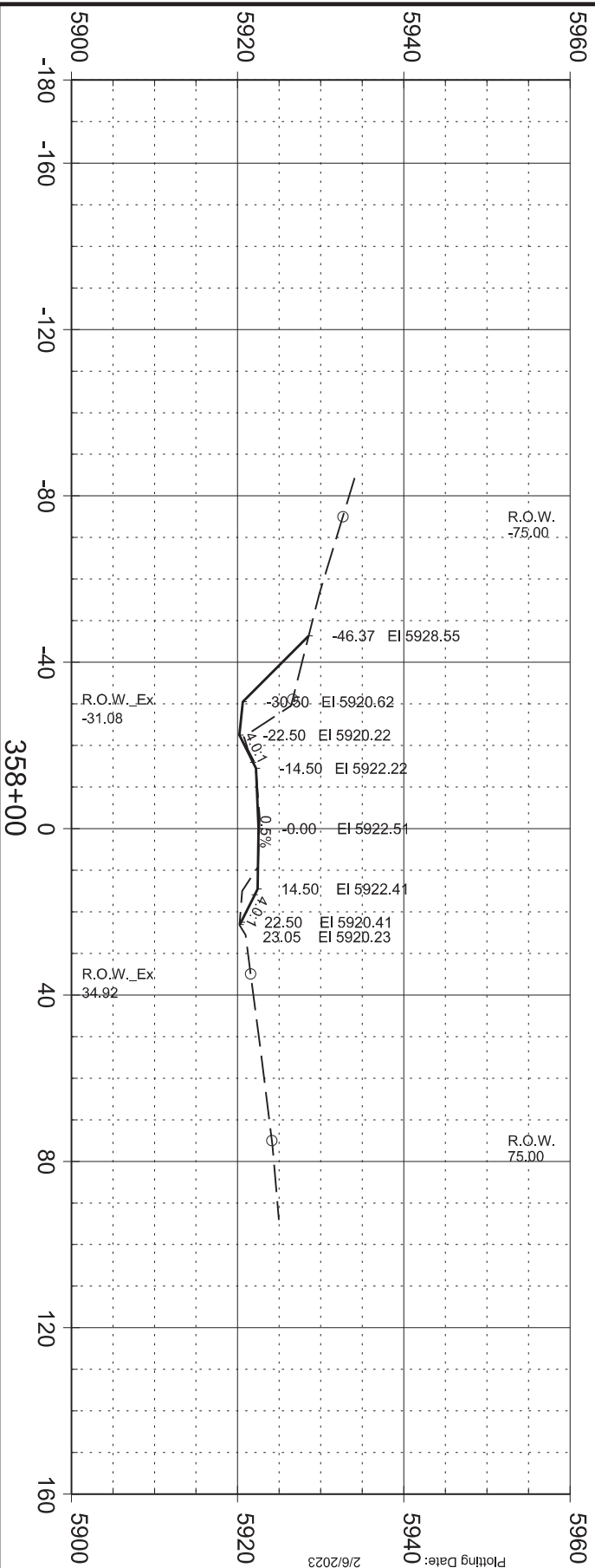
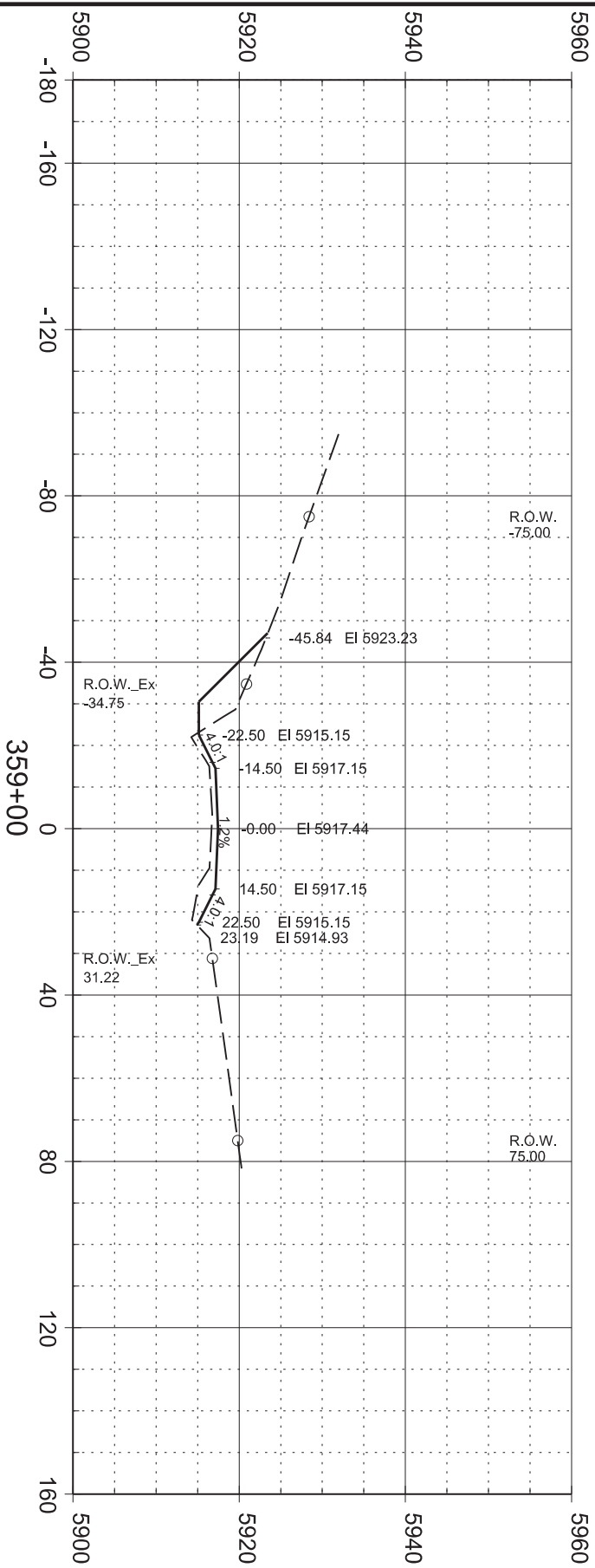
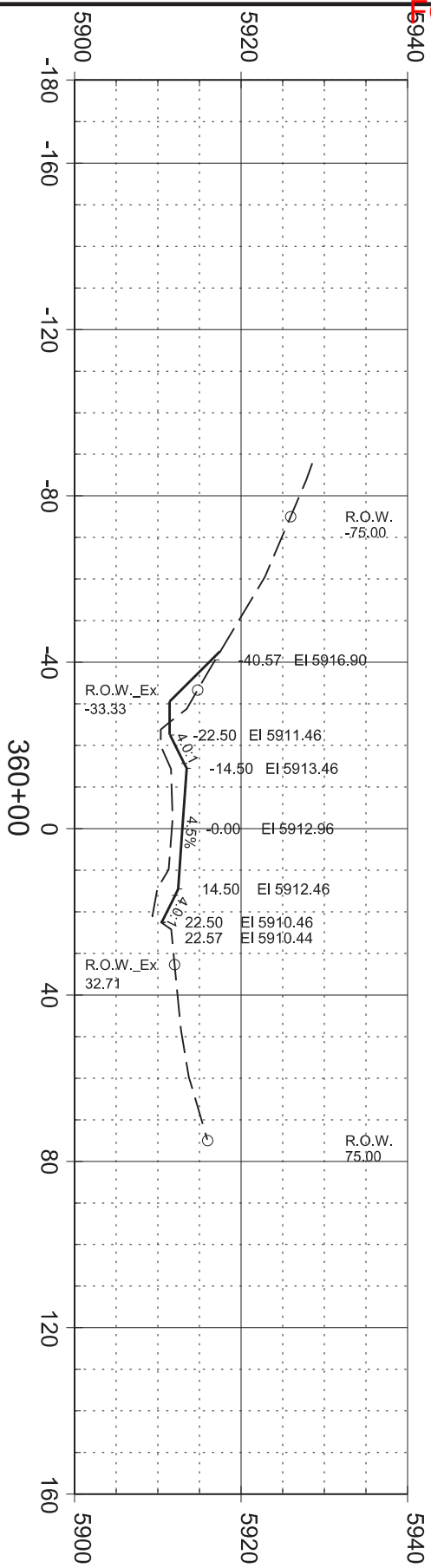
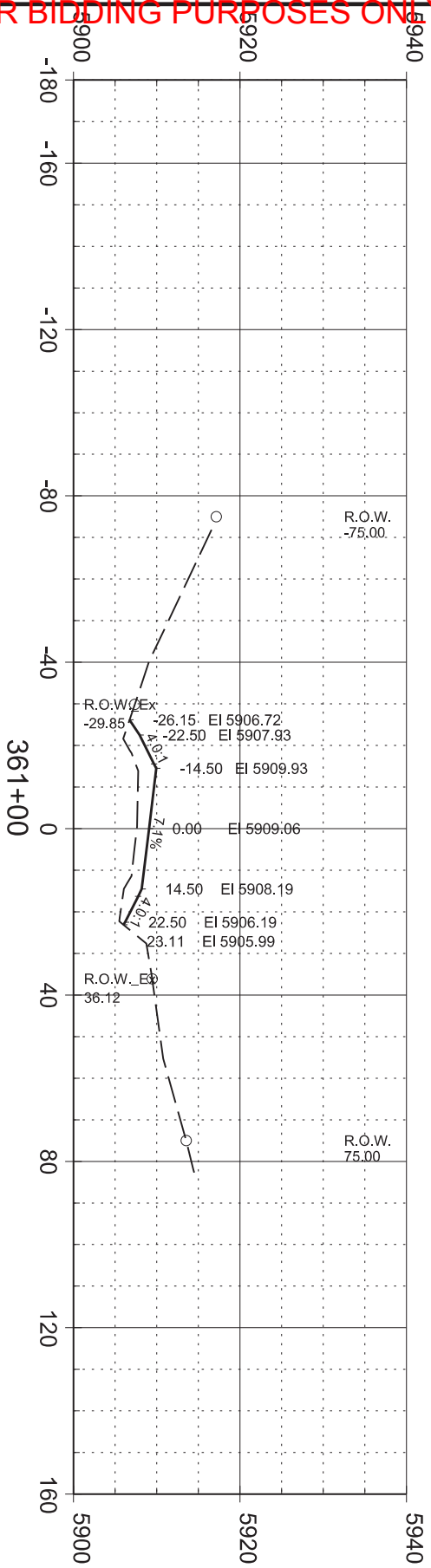
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		246		333			

Plotting Date: 2/6/2023





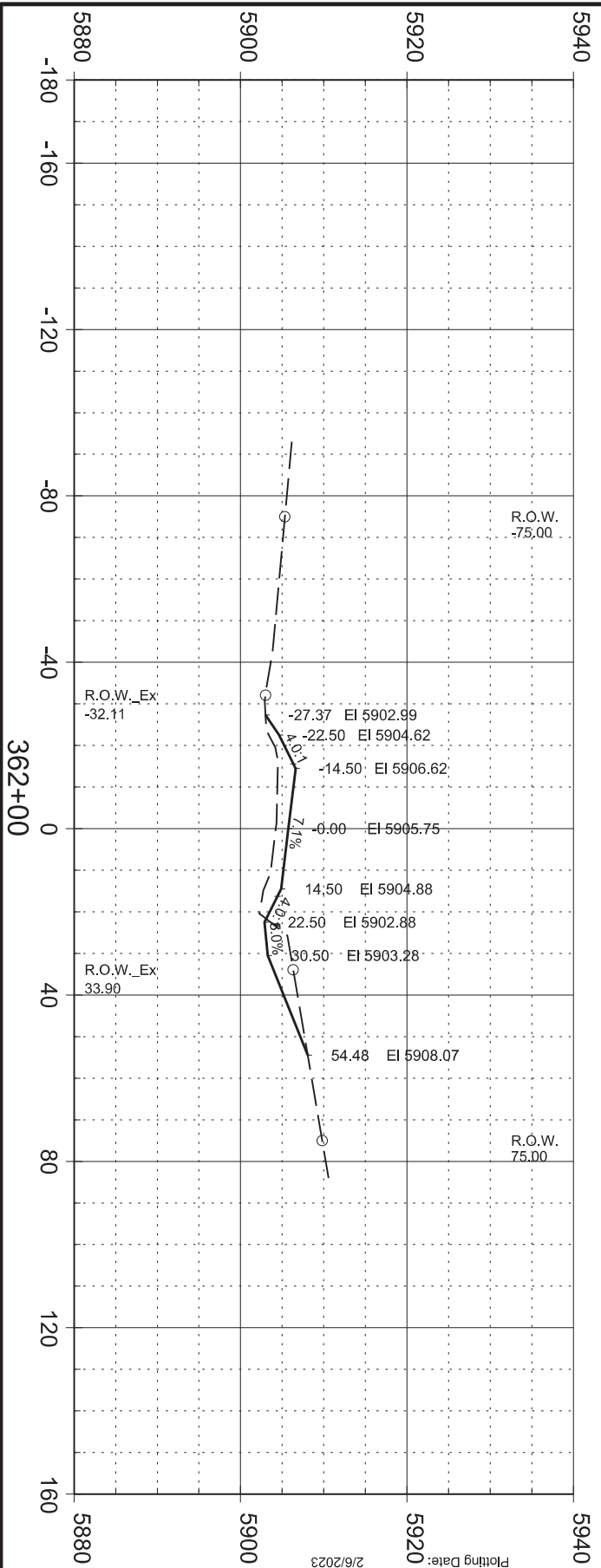
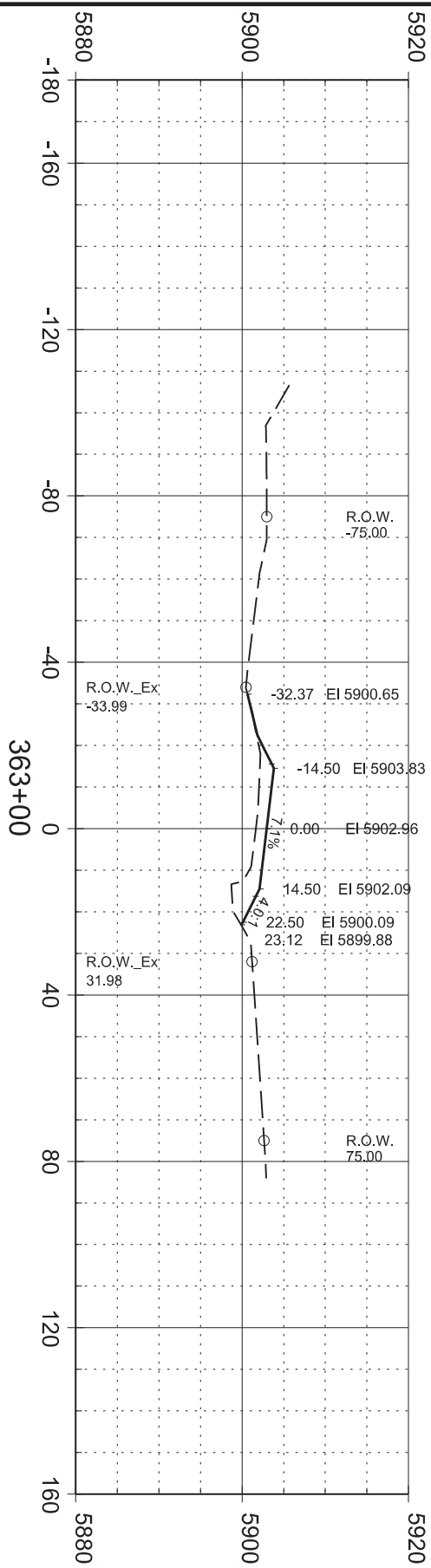
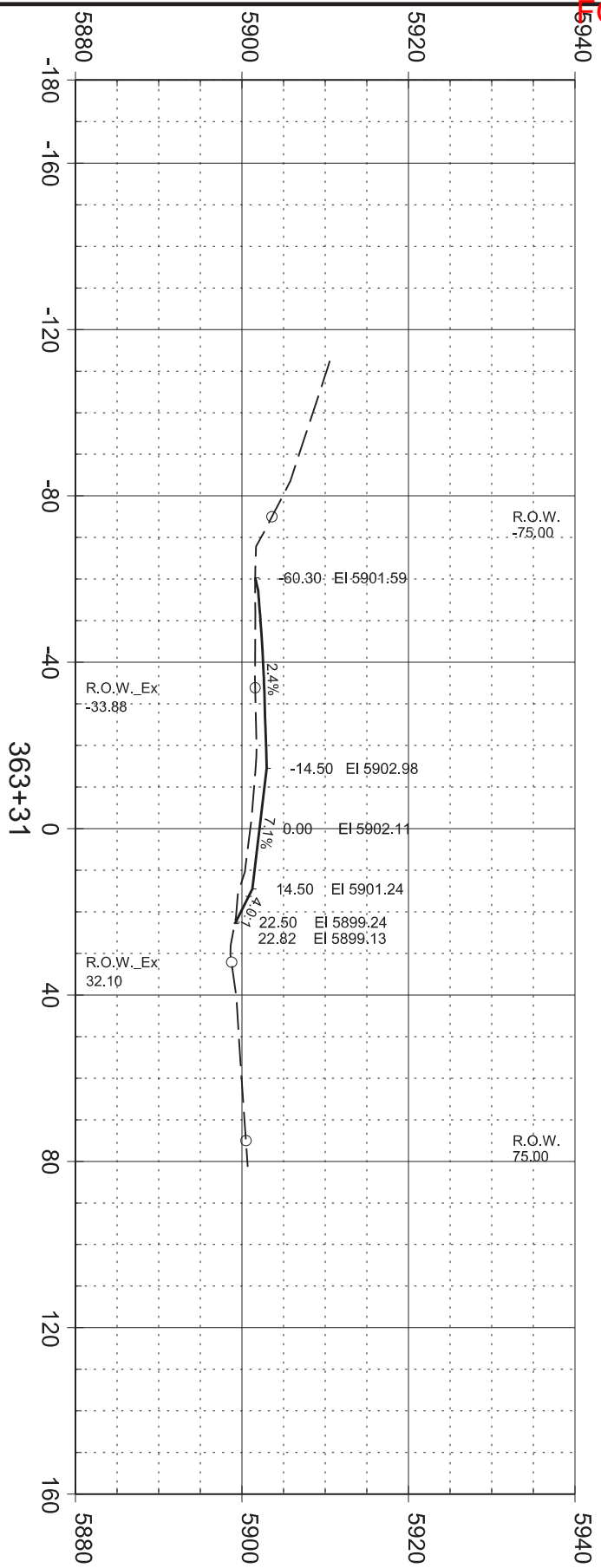
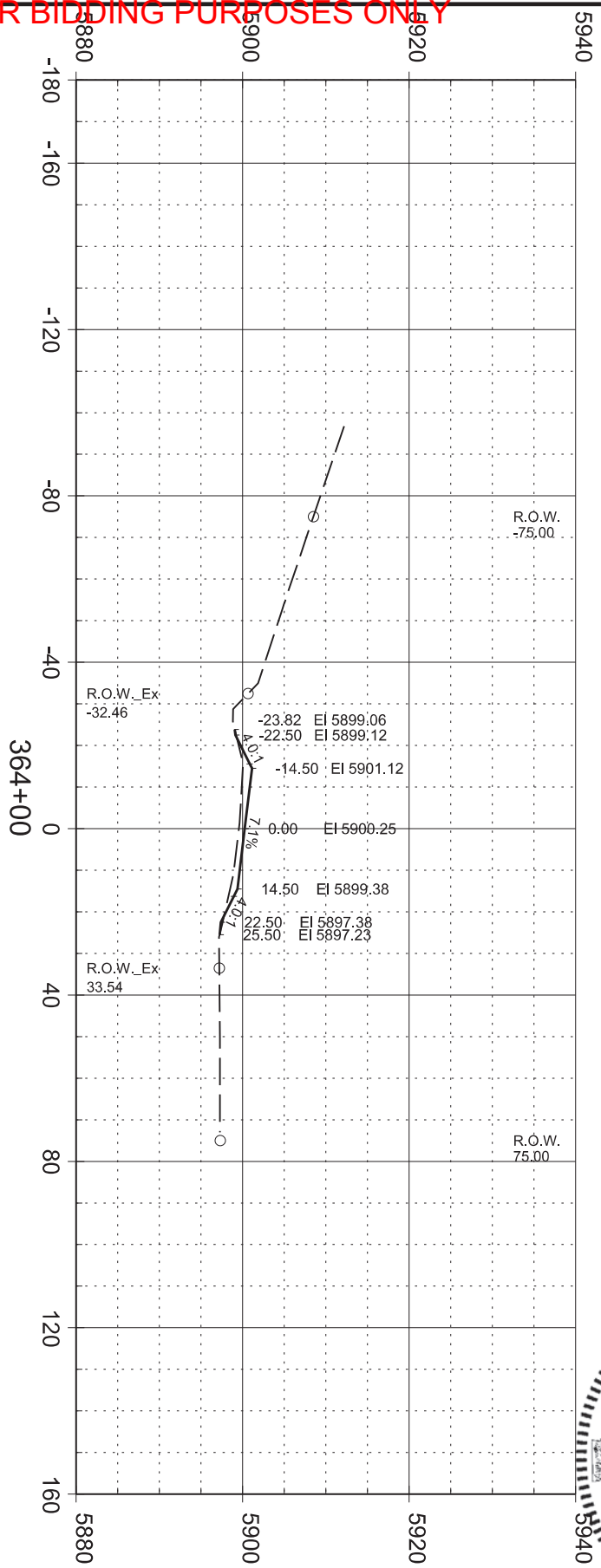
STATE OF SOUTH DAKOTA	P 6403(10)		247	333
	PROJECT		SHEET	TOTAL SHEETS



STATE OF SOUTH DAKOTA		P 6403(10)	248	333
PROJECT				

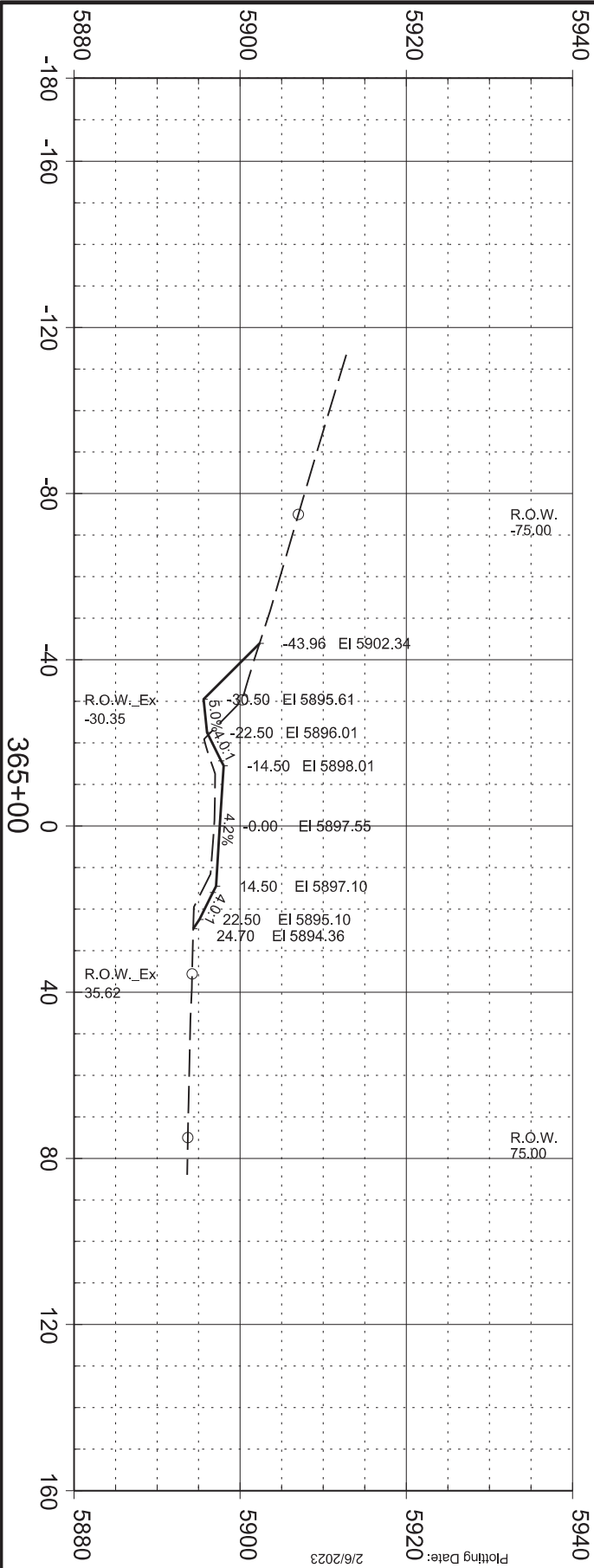
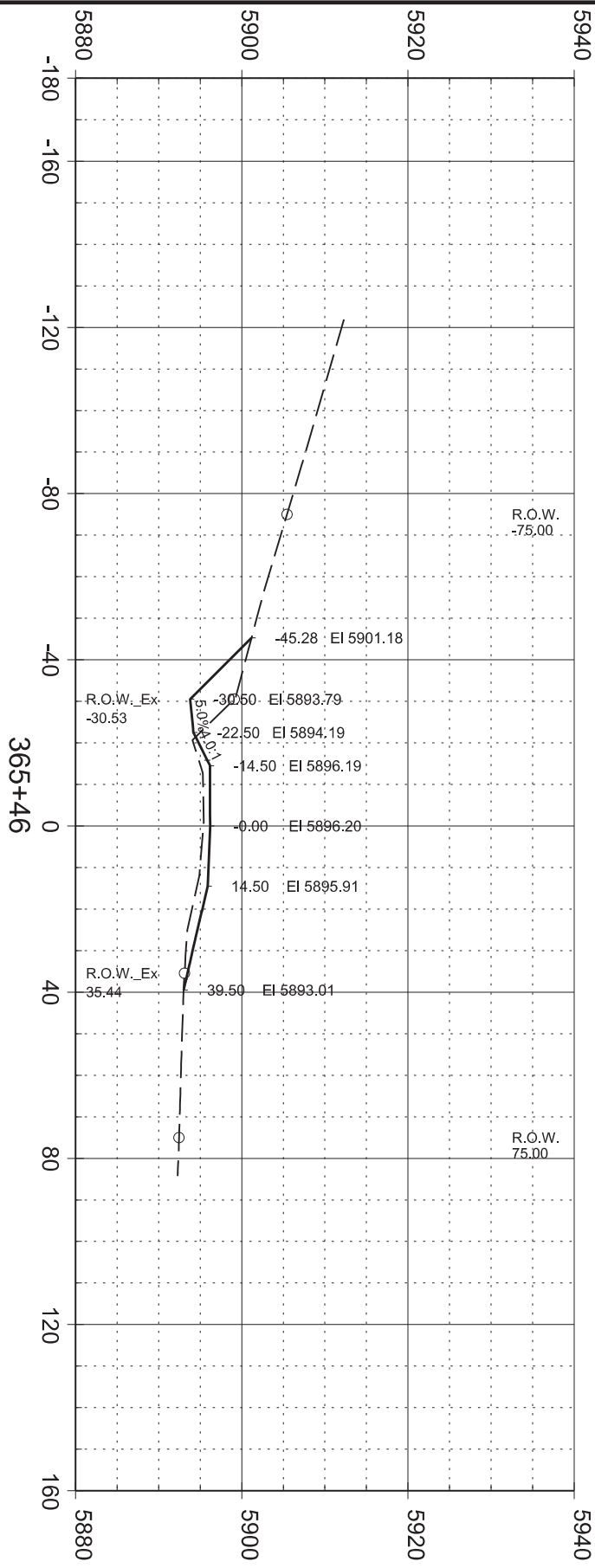
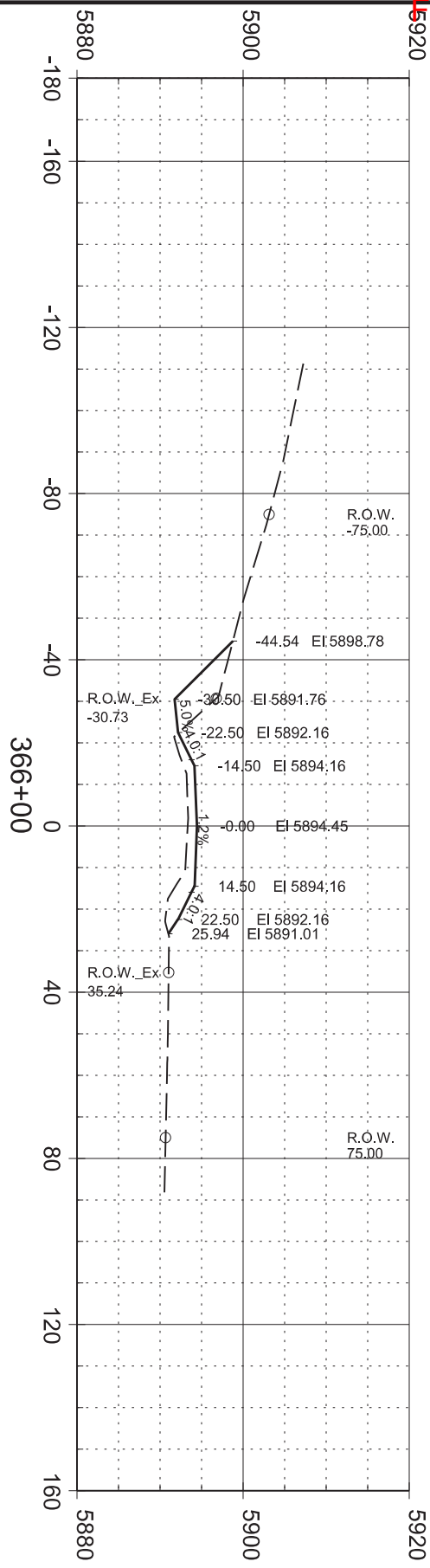
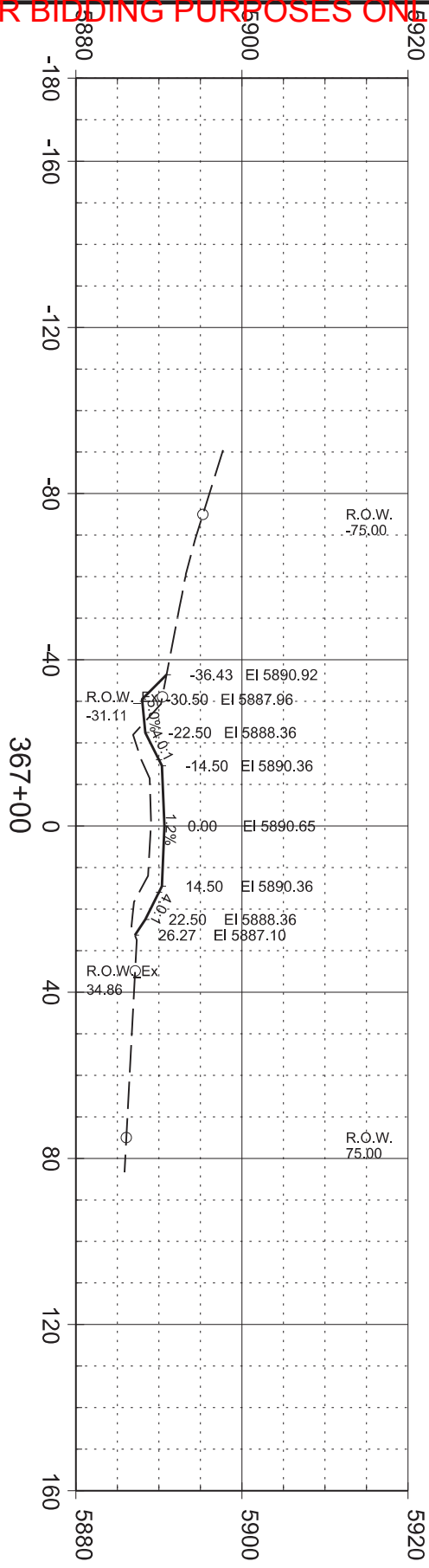
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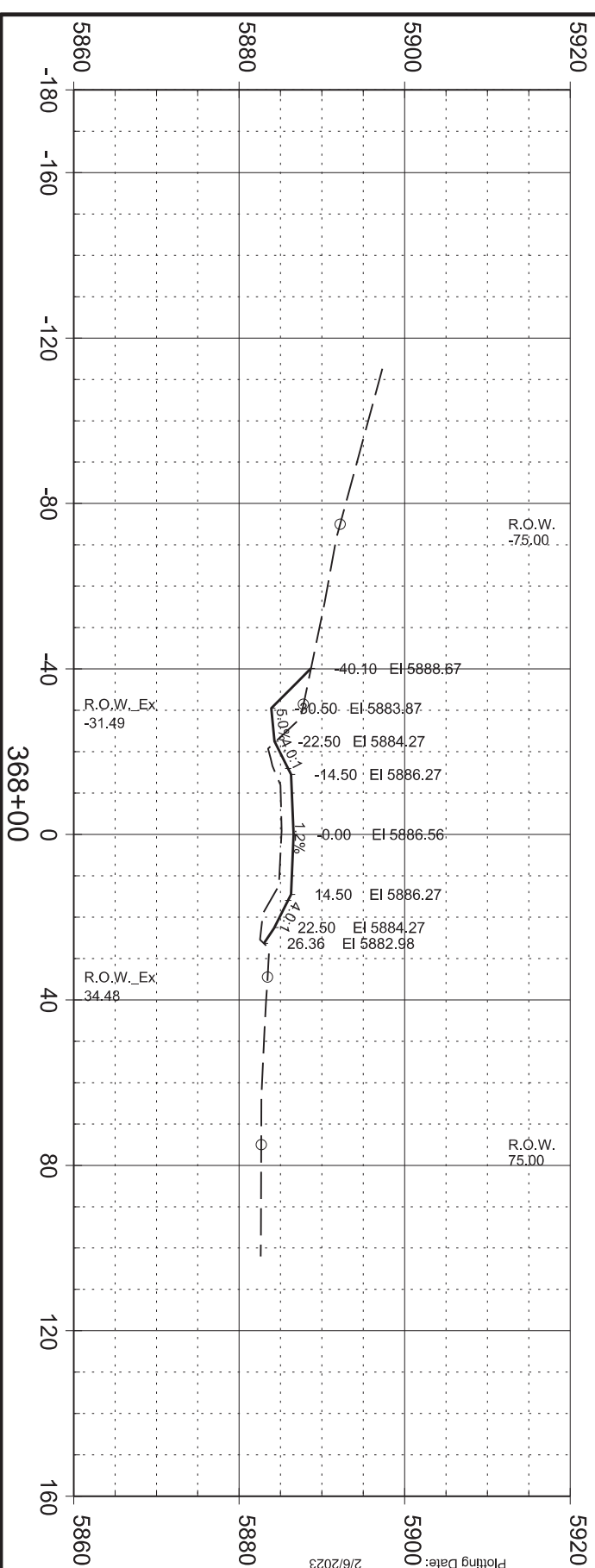
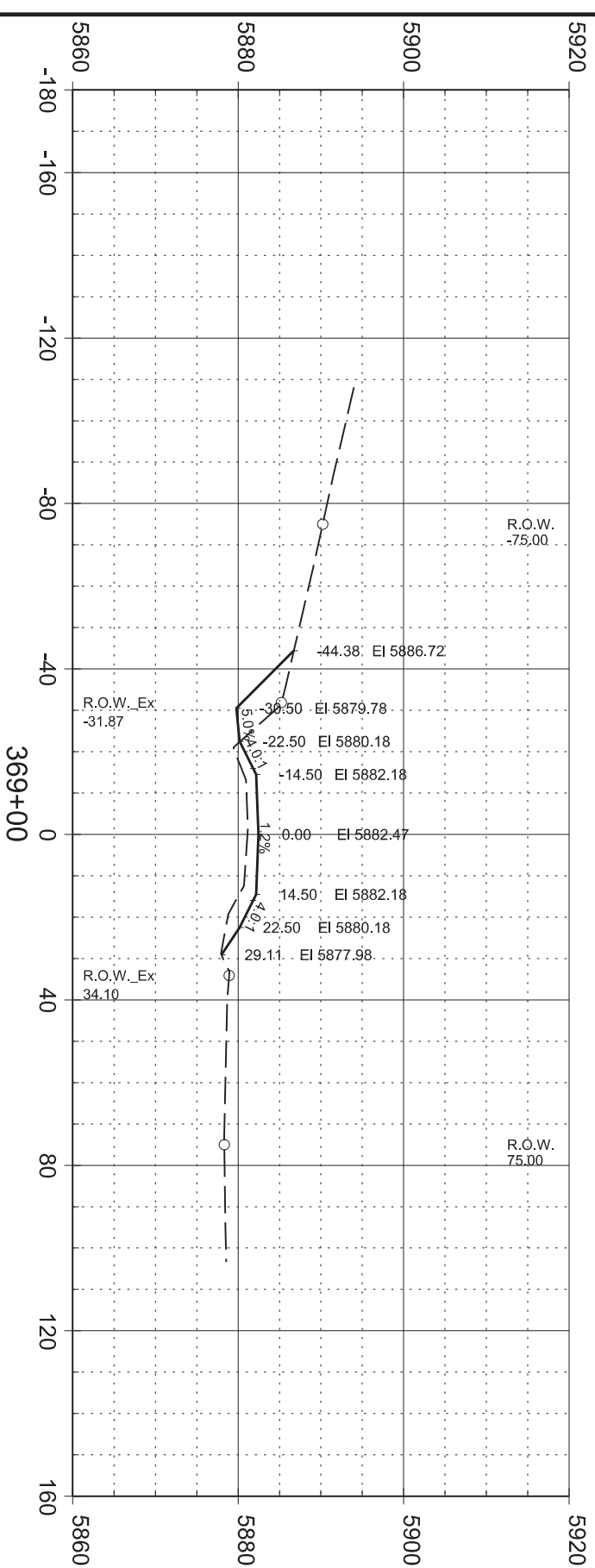
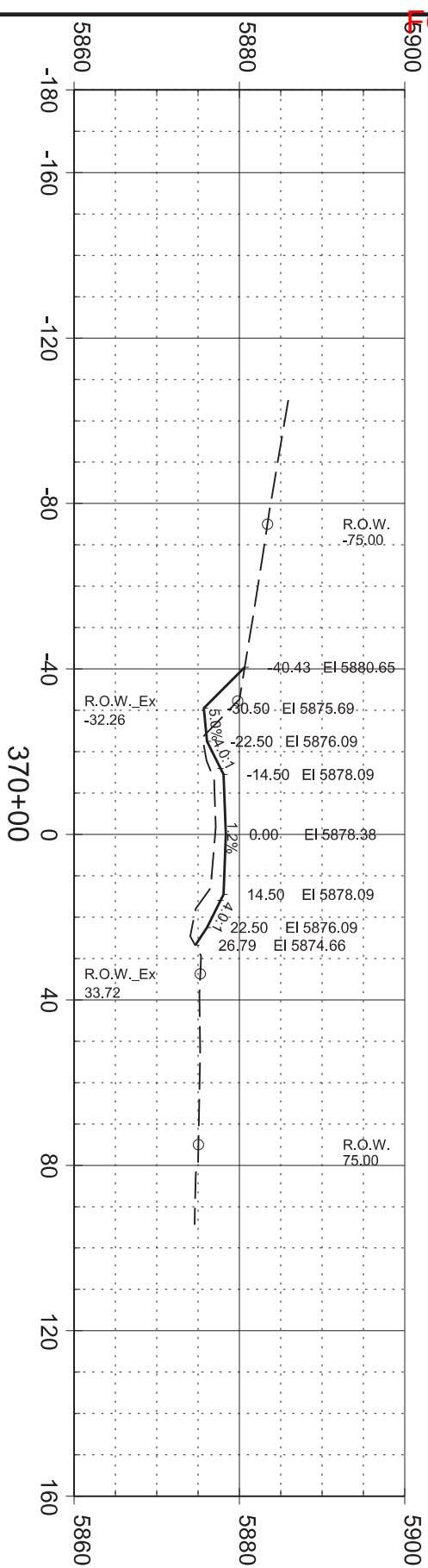
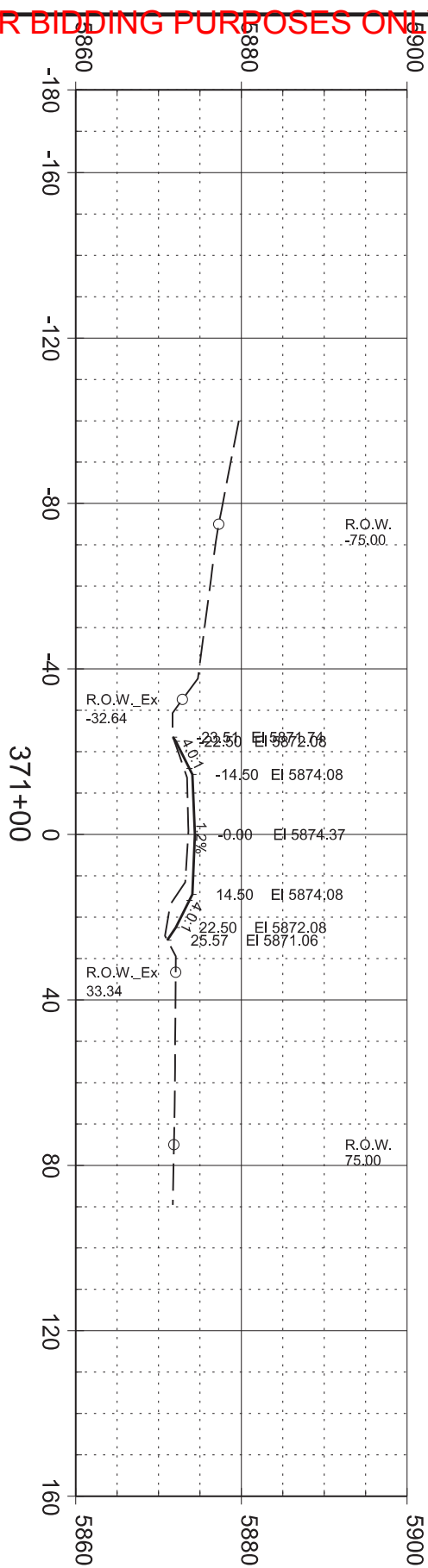
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT P 6403(10)	249	333
		SHEET	TOTAL SHEETS





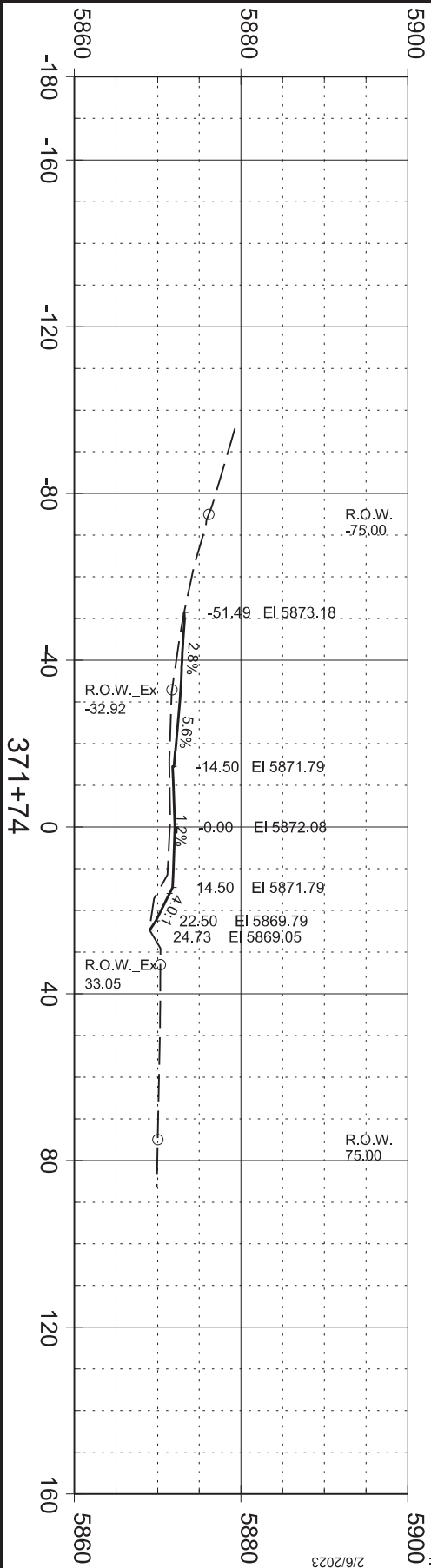
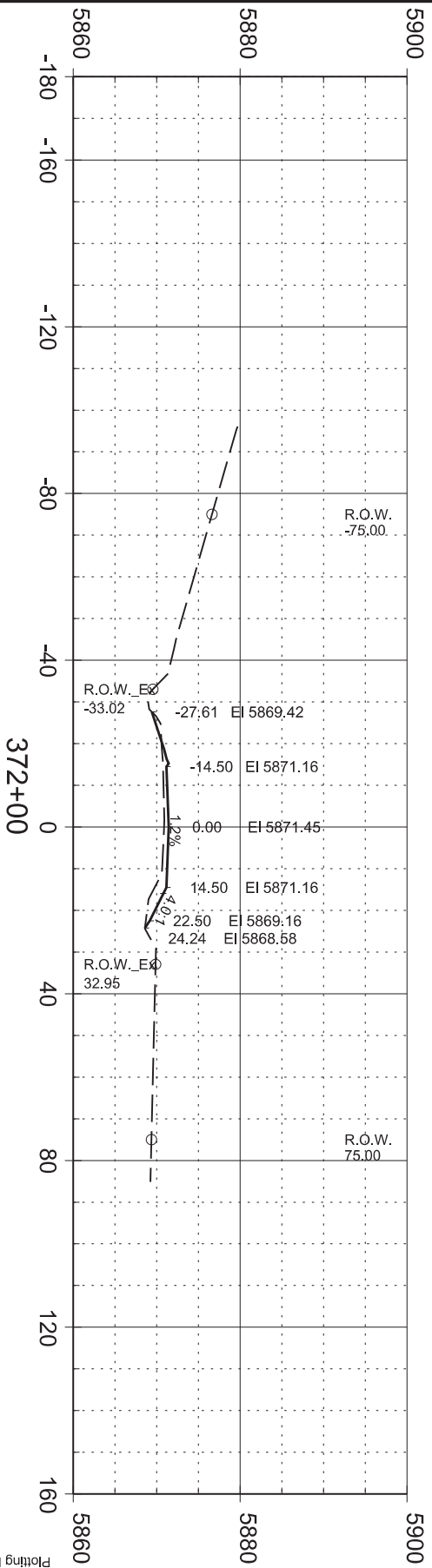
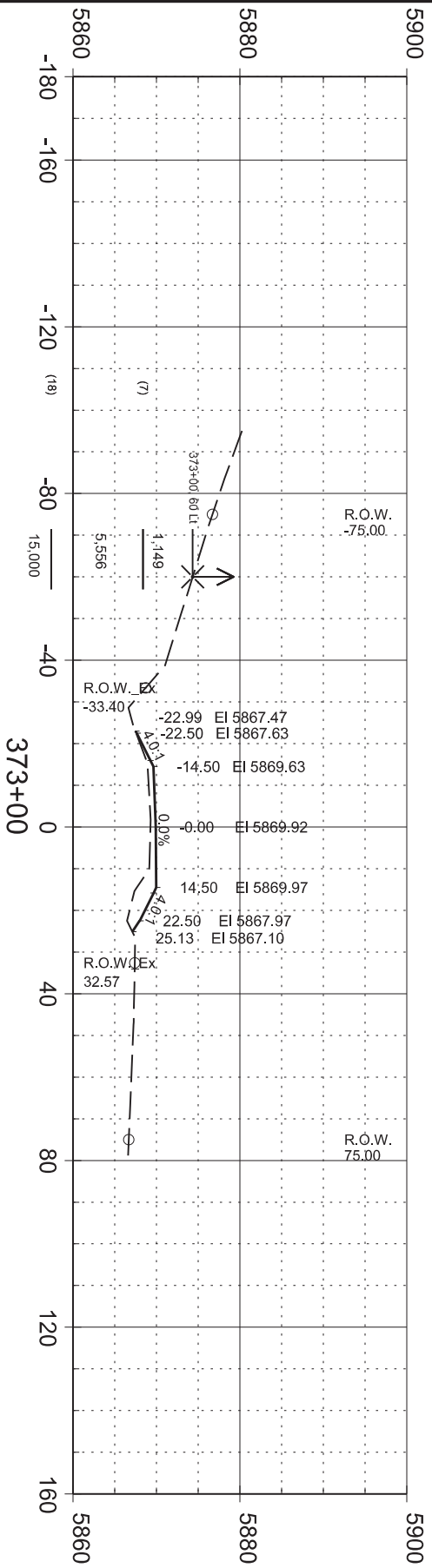
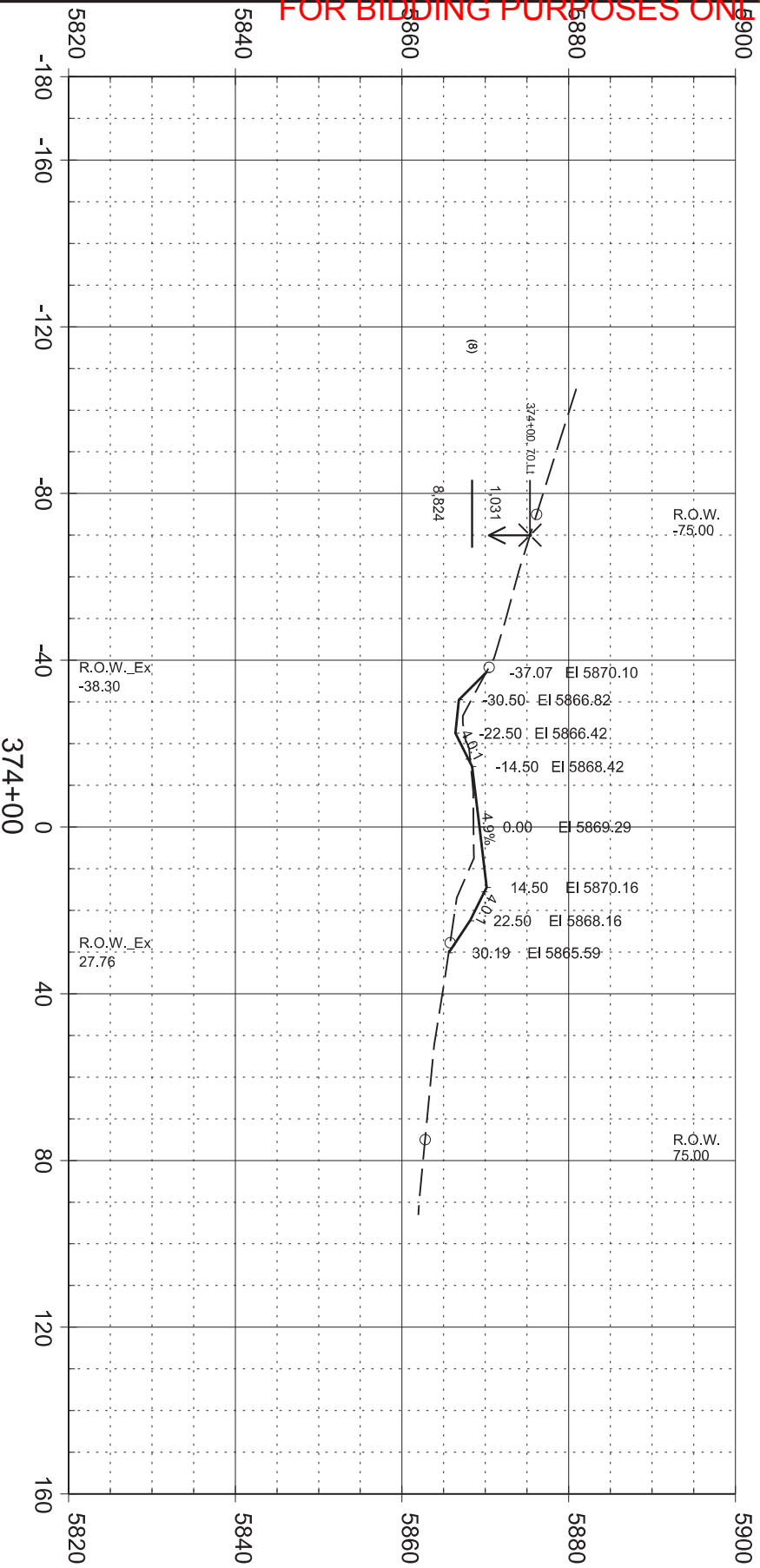
**FOR BIDDING PURPOSES ONLY**



STATE OF SOUTH DAKOTA	P 6403(10)		251	333
	PROJECT		SHEET	TOTAL SHEETS



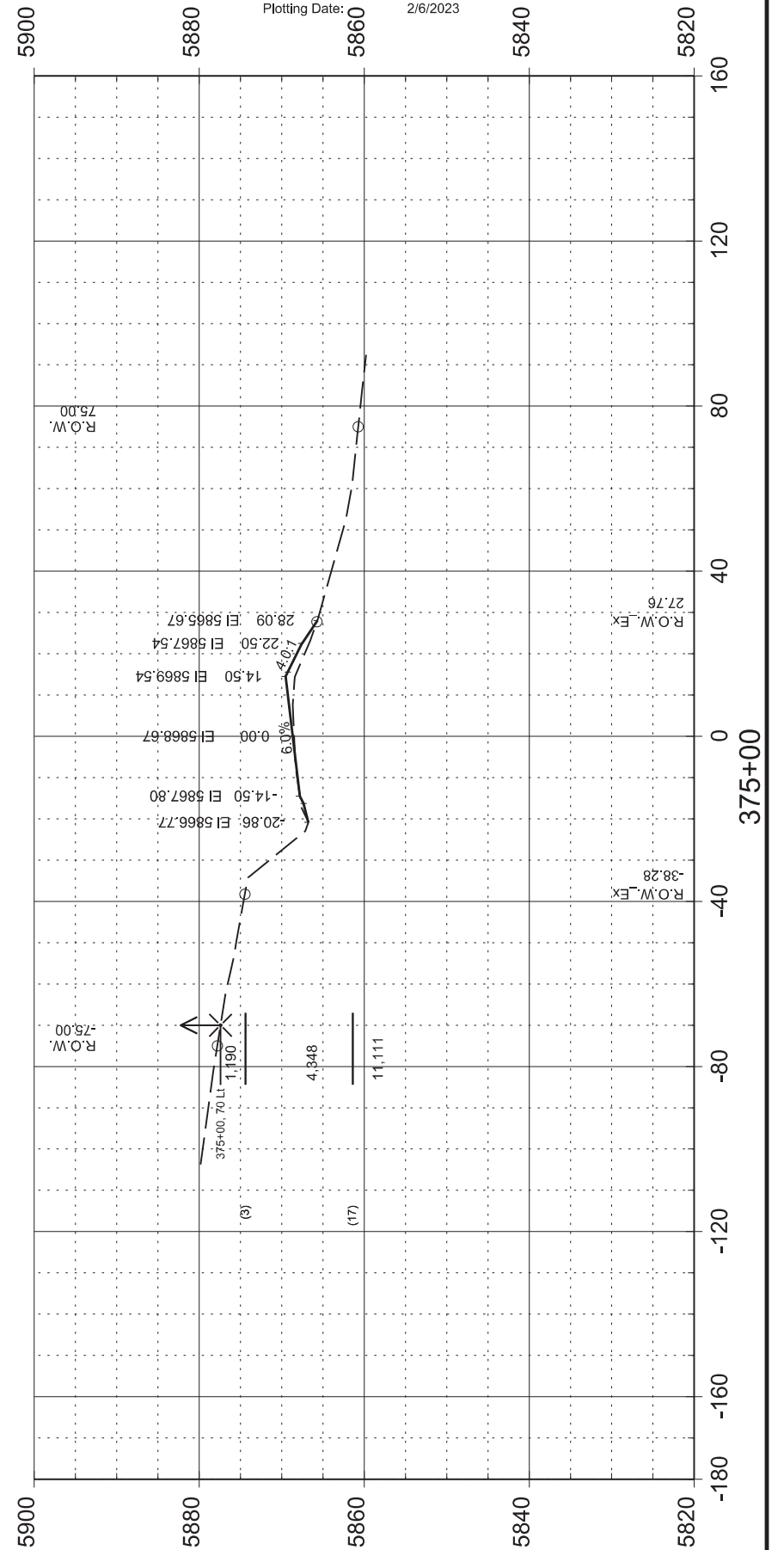
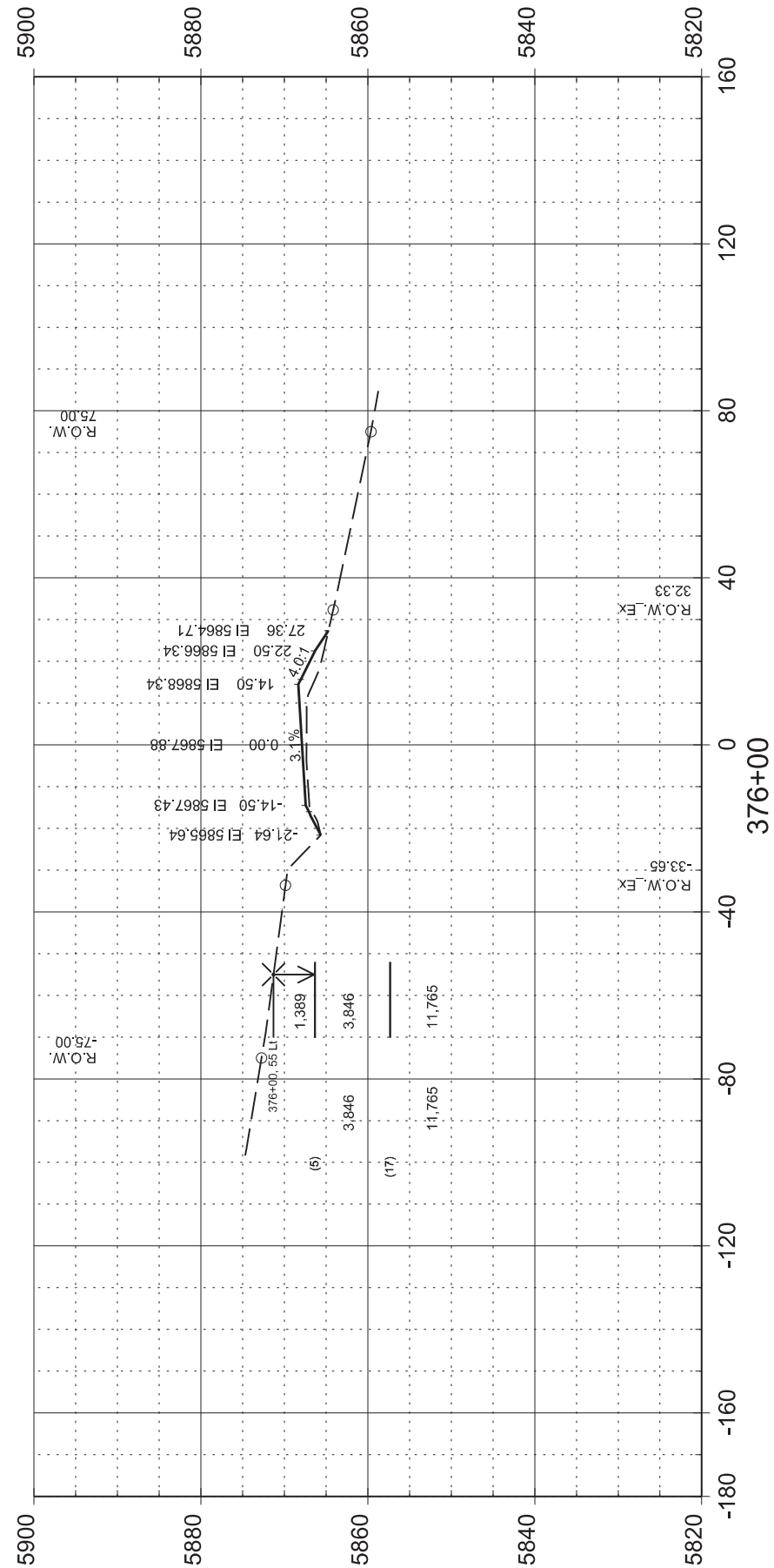
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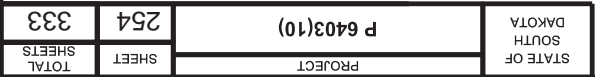
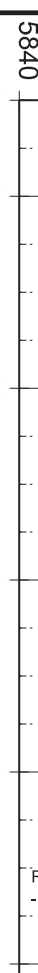


STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
26/2023		P 6403(10)		252		333	



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	253	333





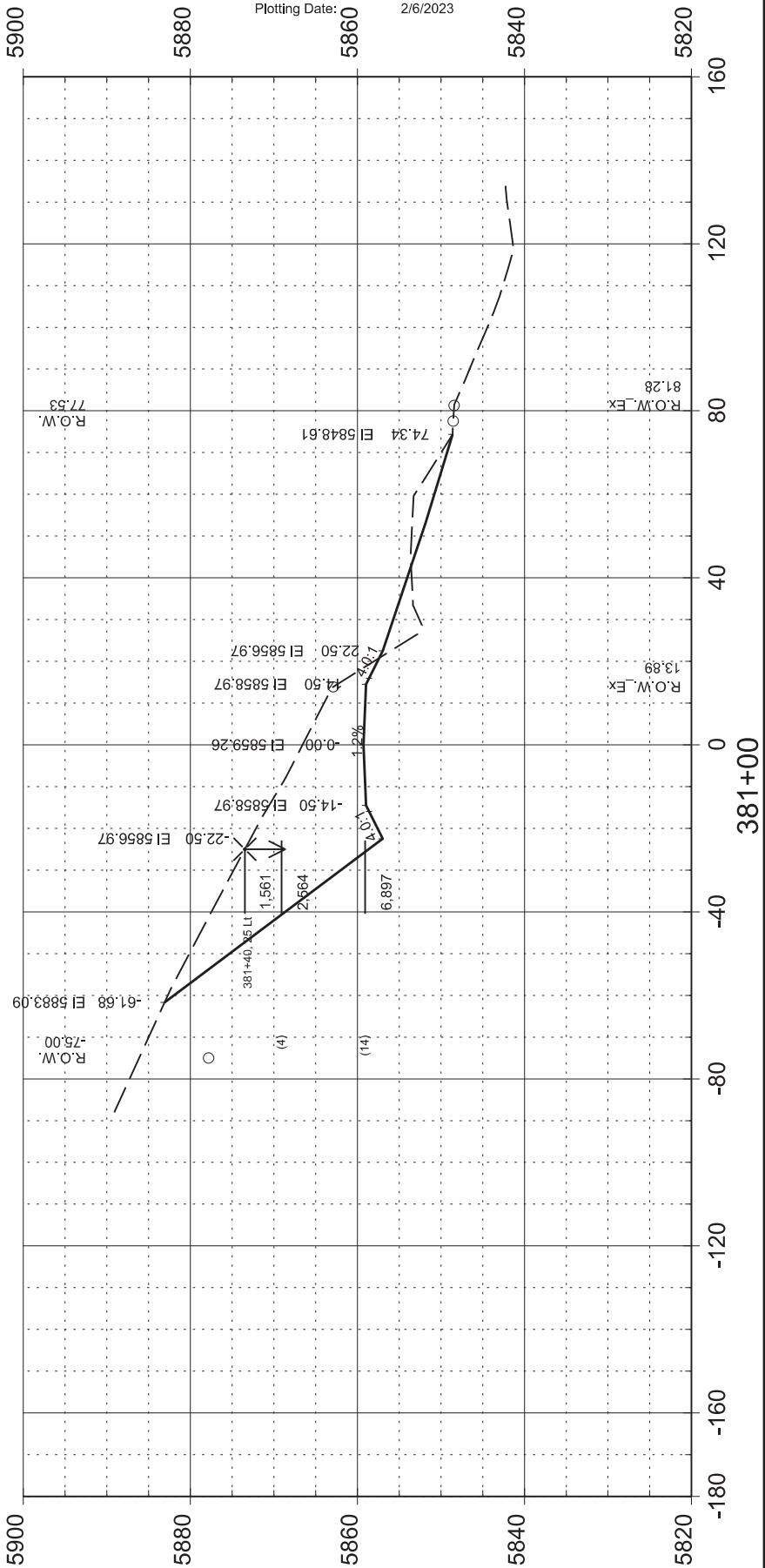
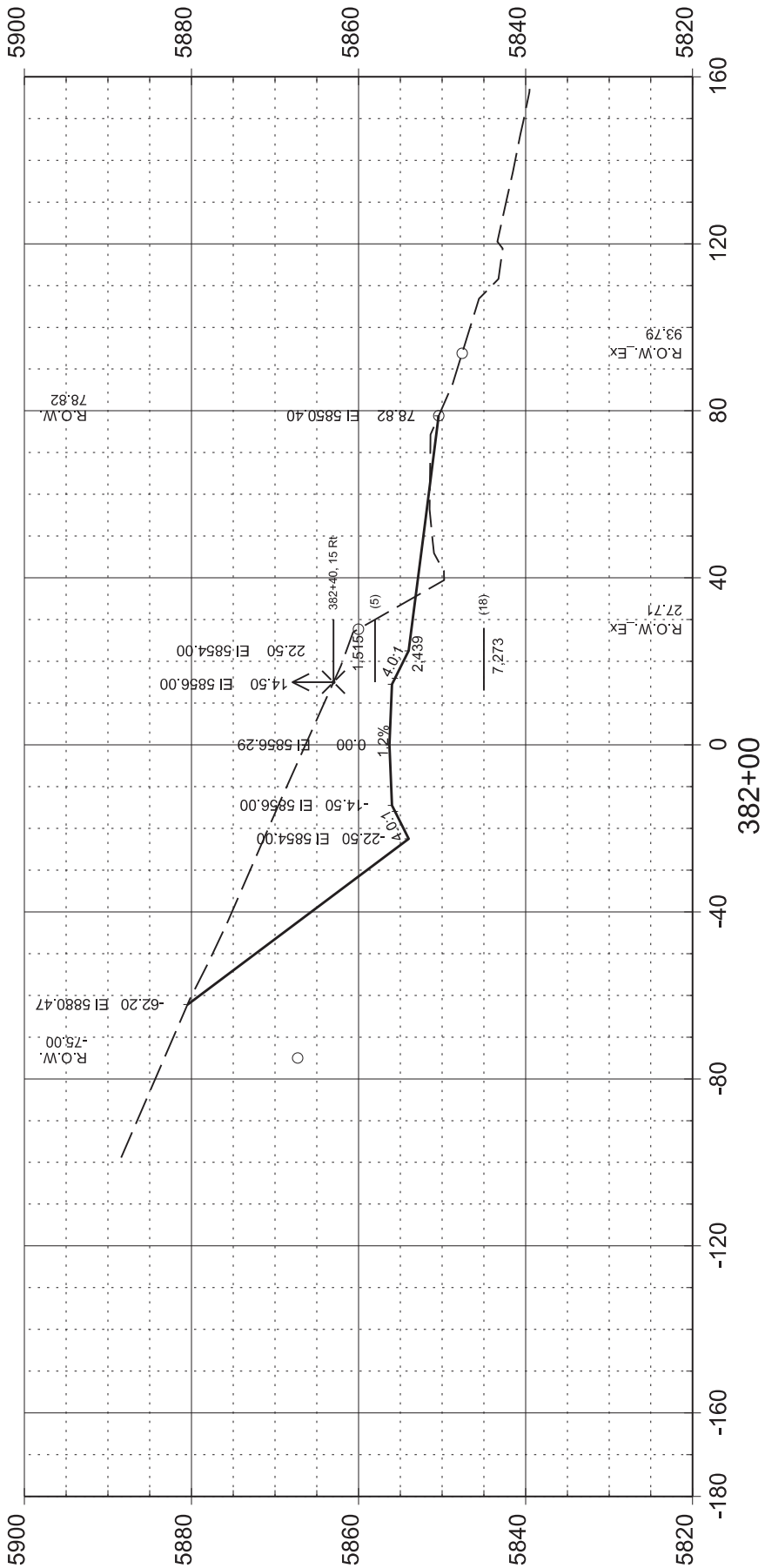
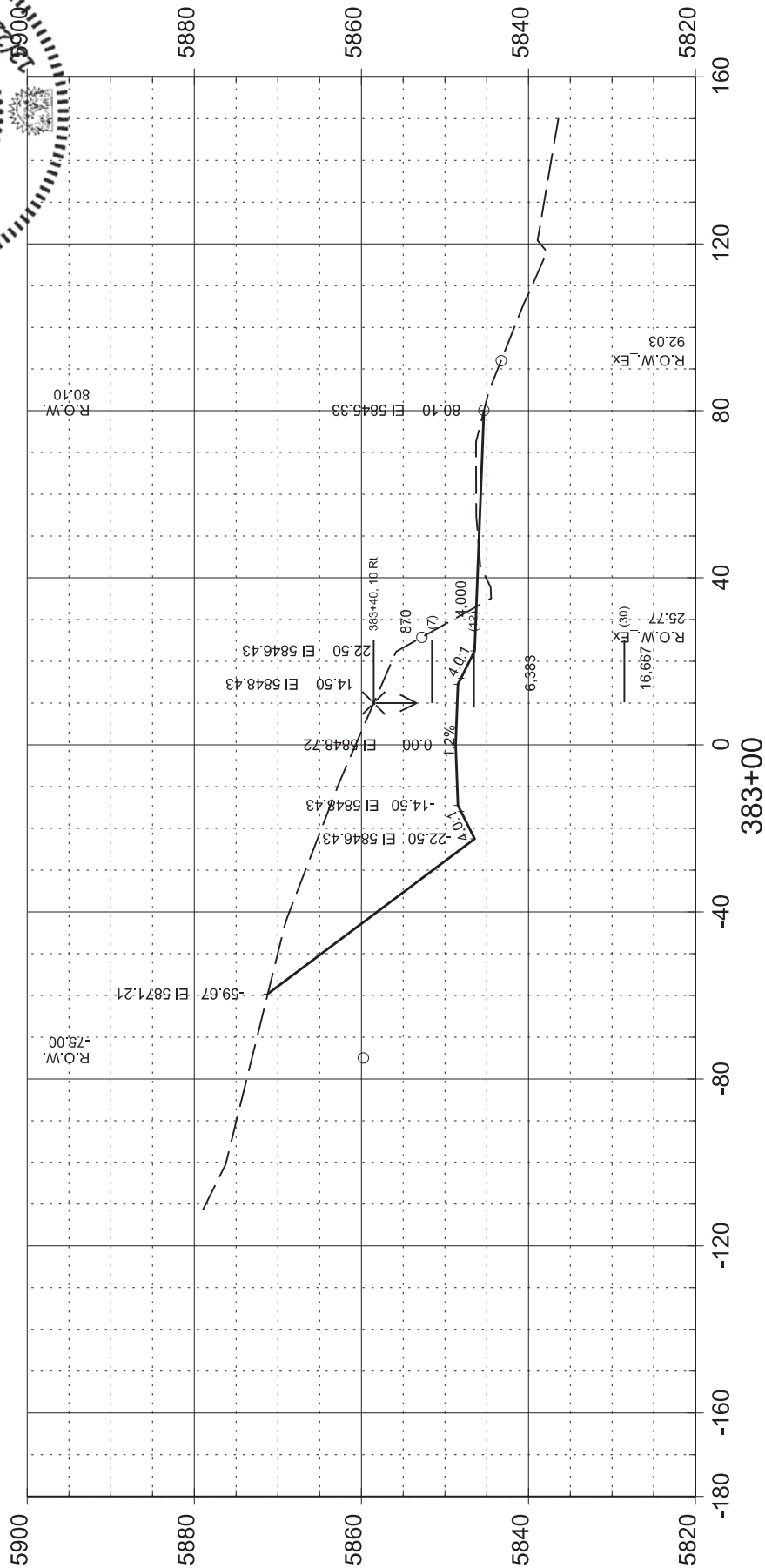


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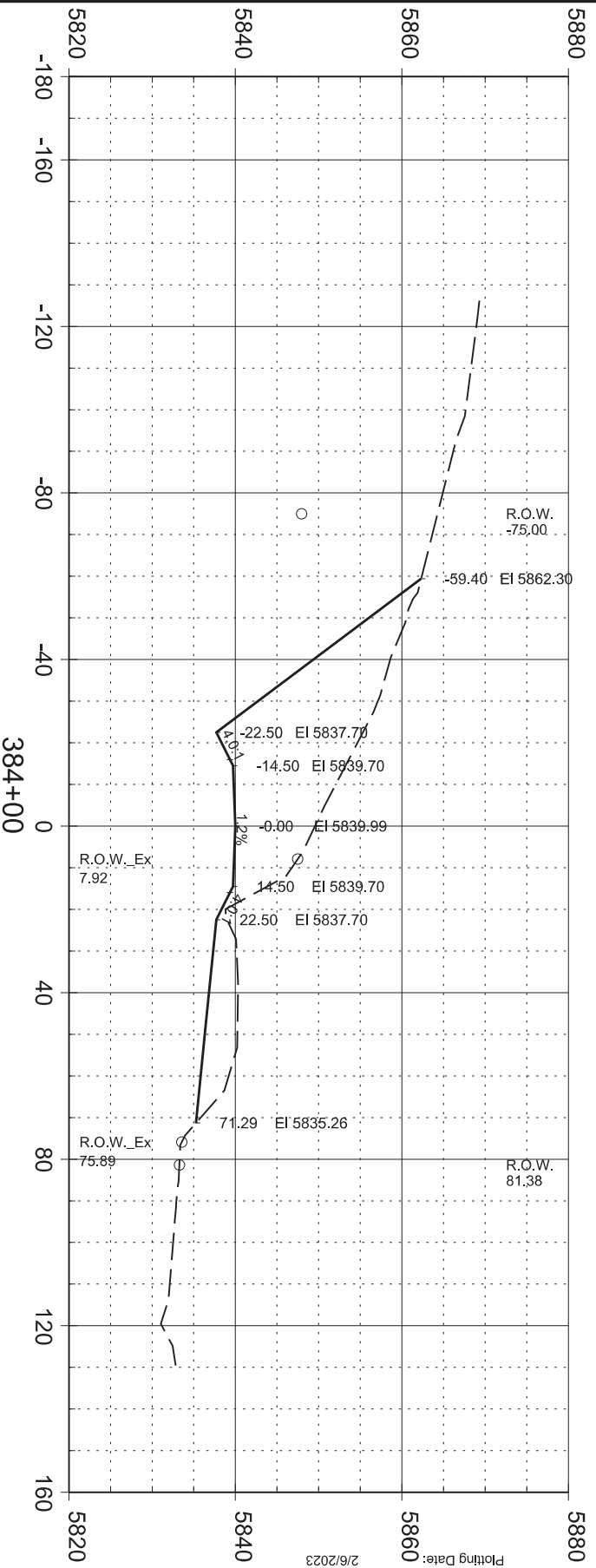
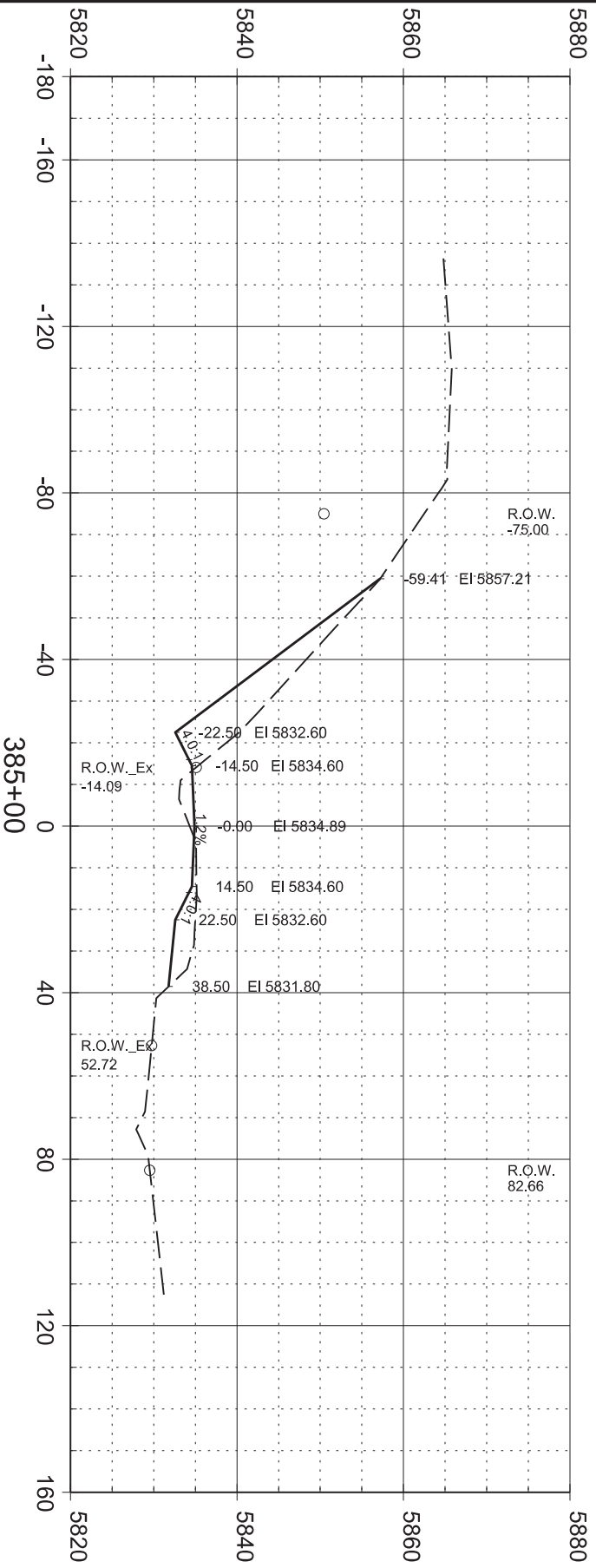
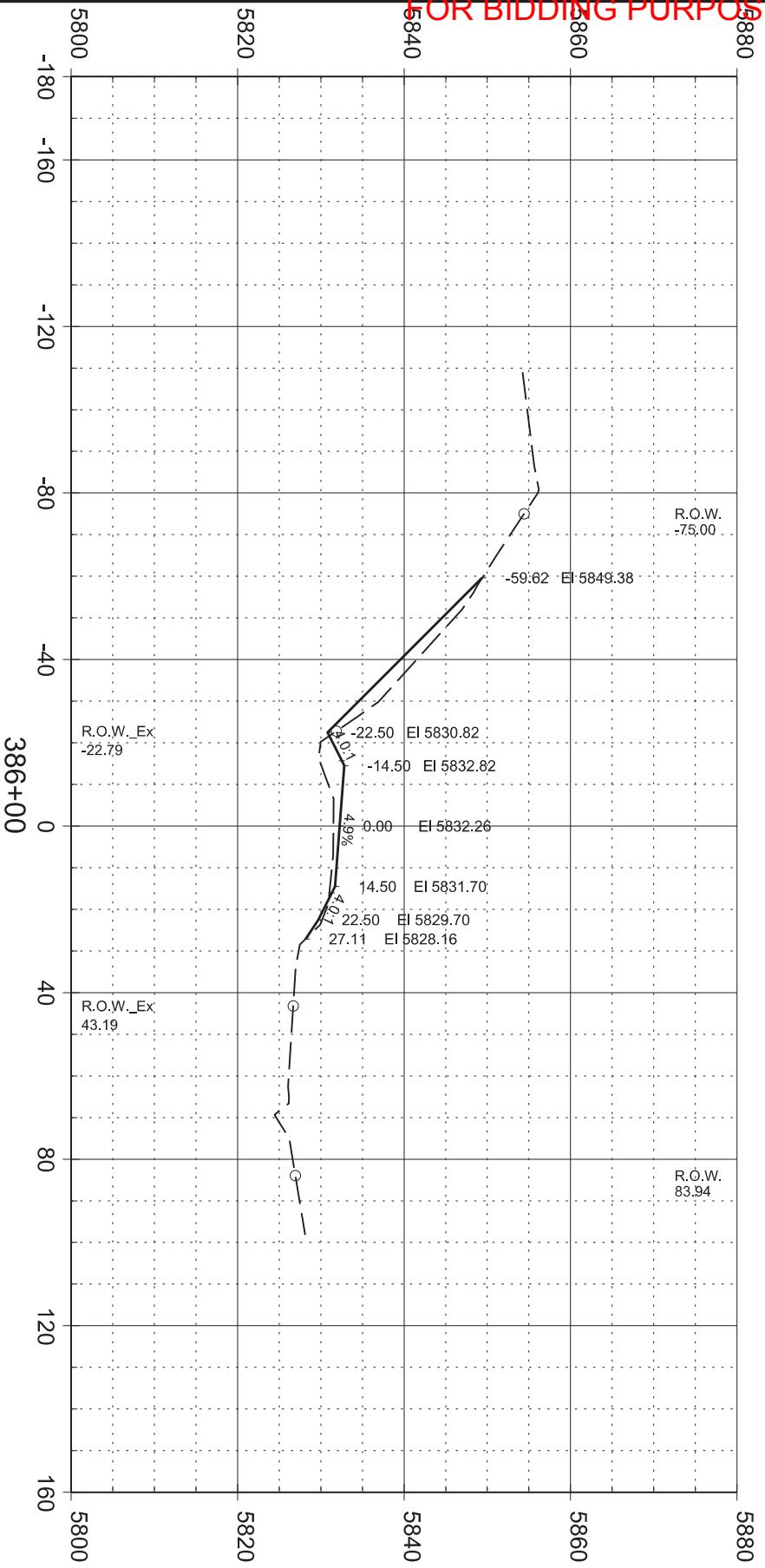
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	255	333

Plotting Date: 2/6/2023





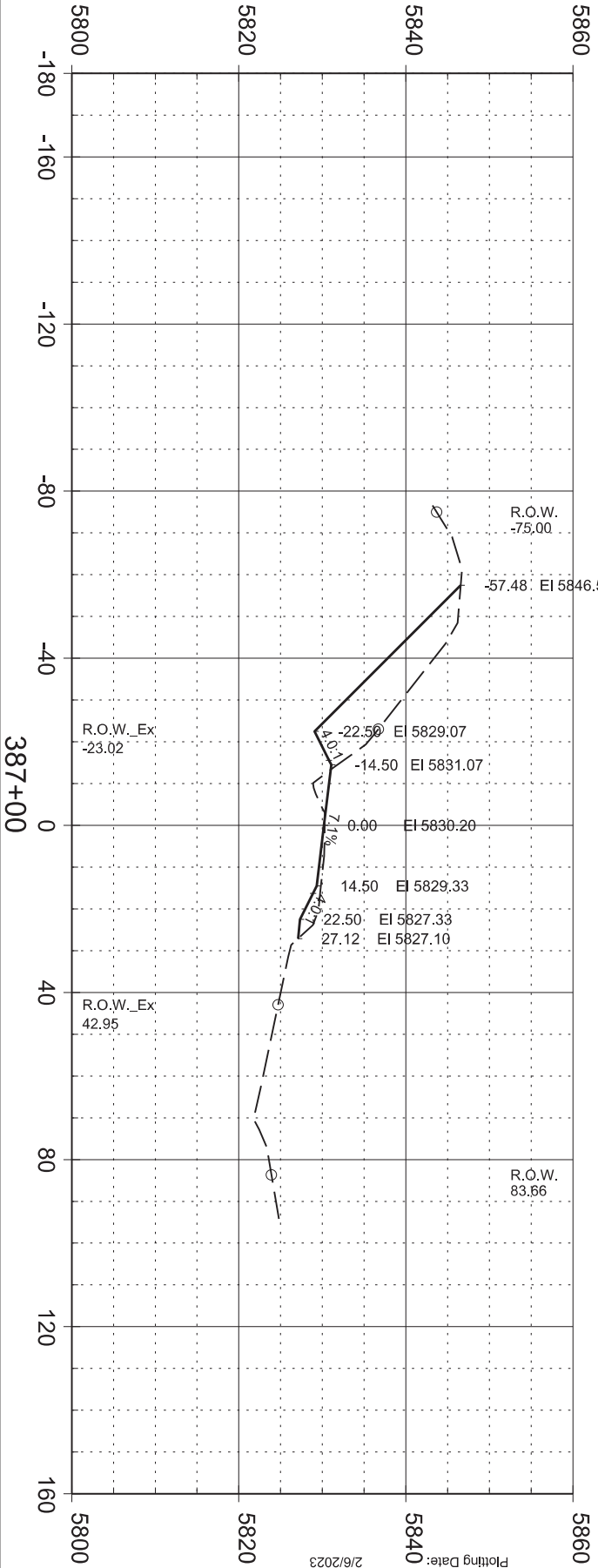
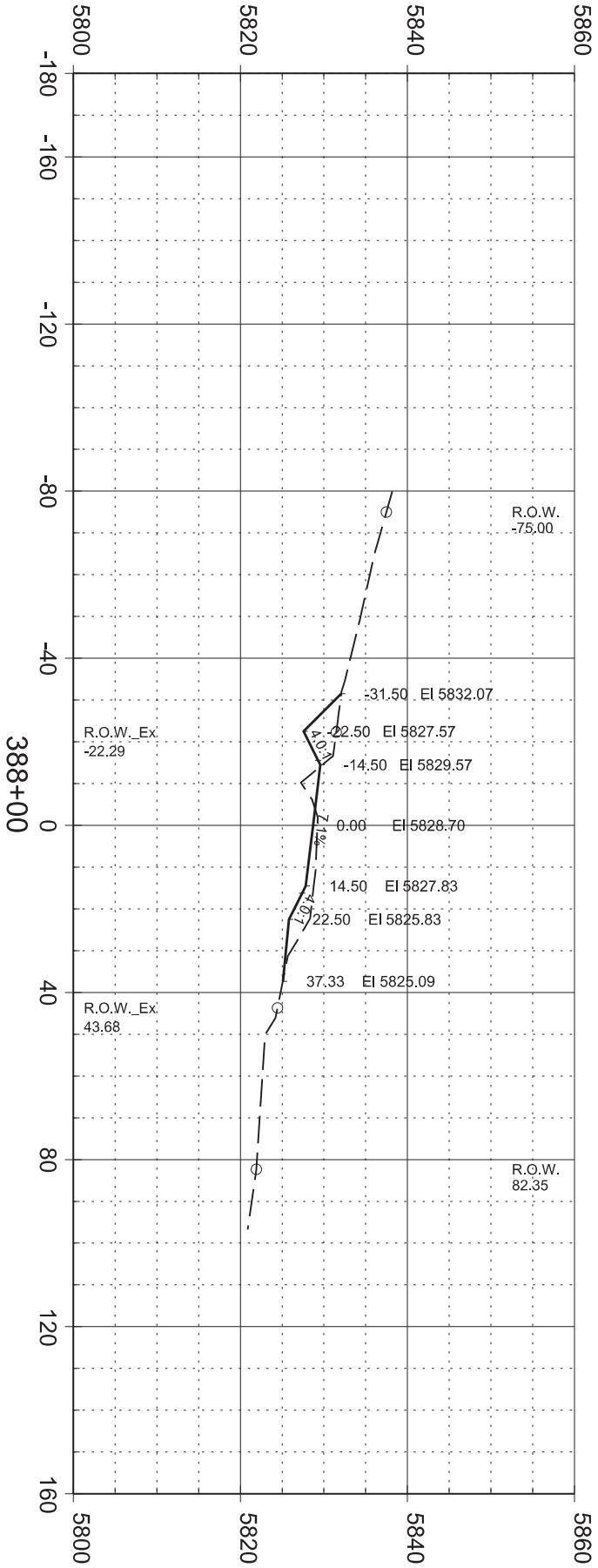
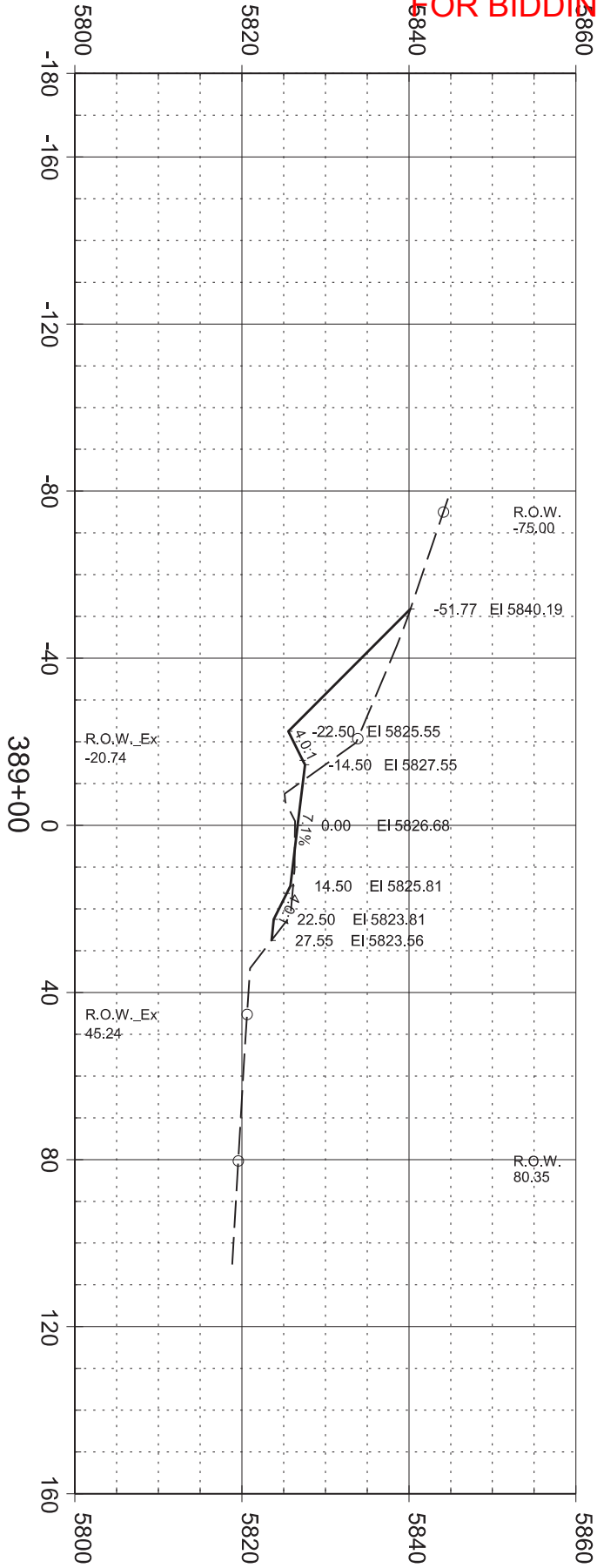
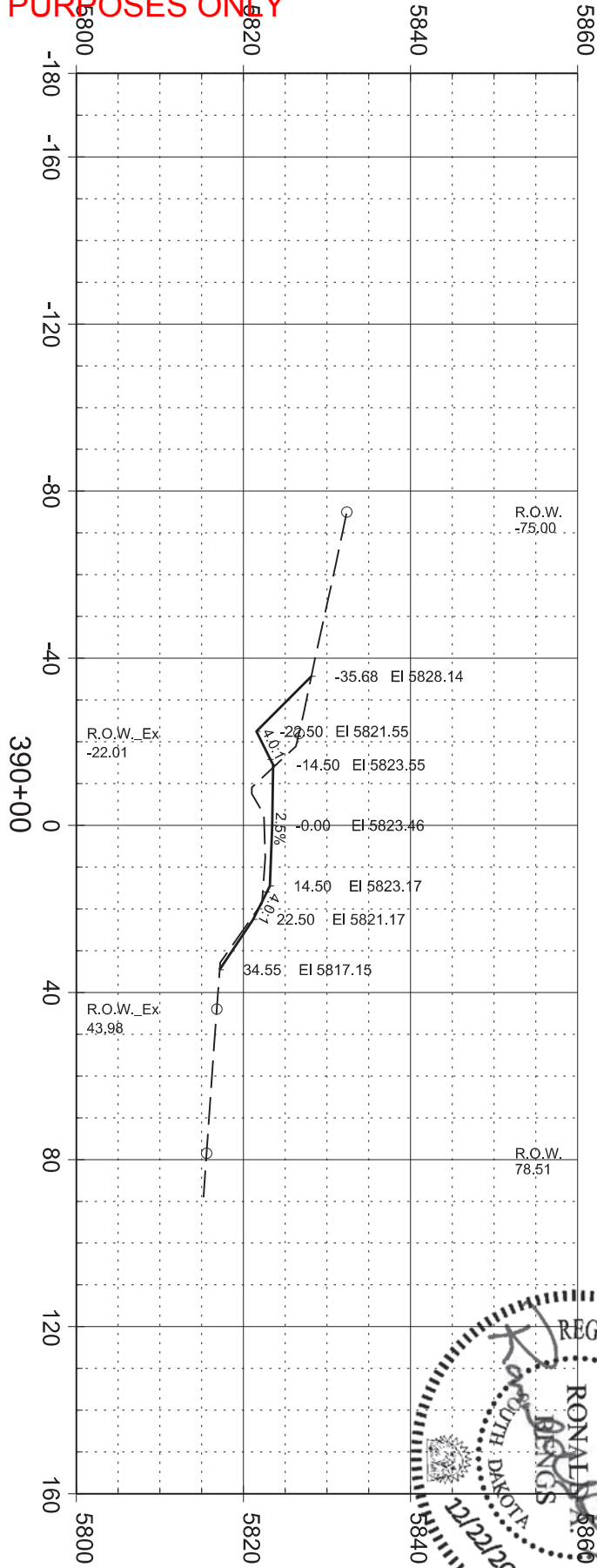
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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		256		333			

Plotting Date: 2/6/2023





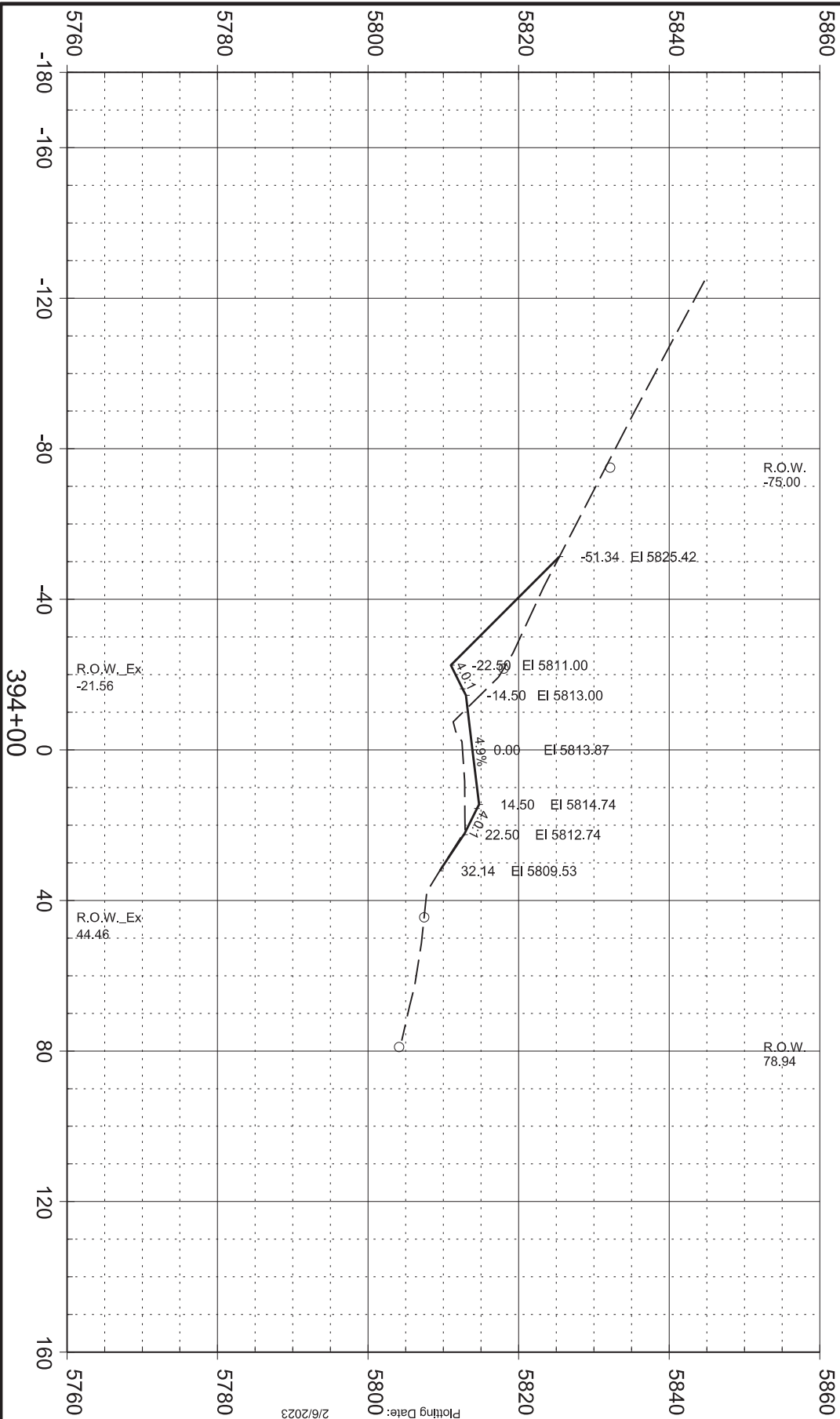
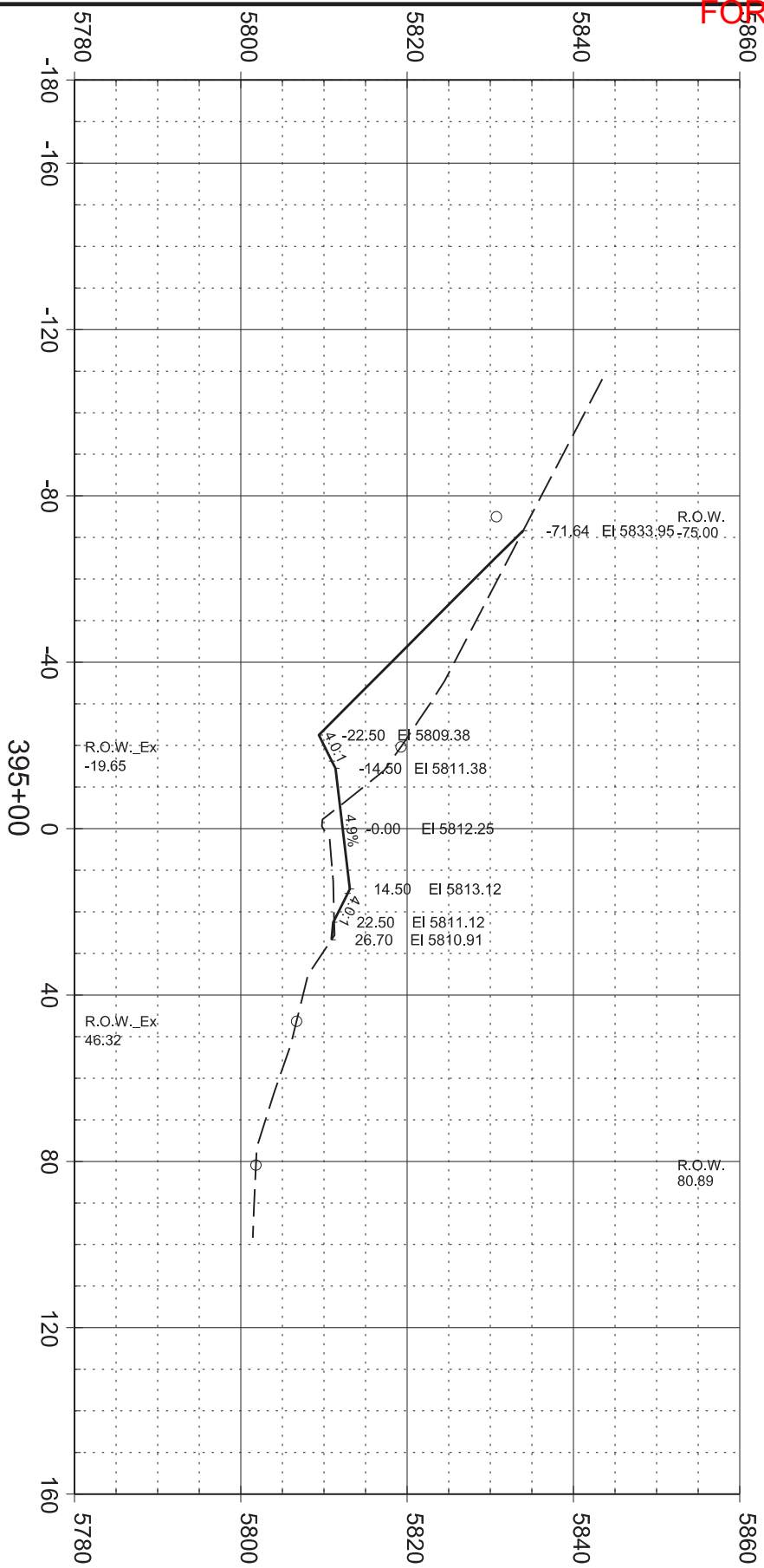
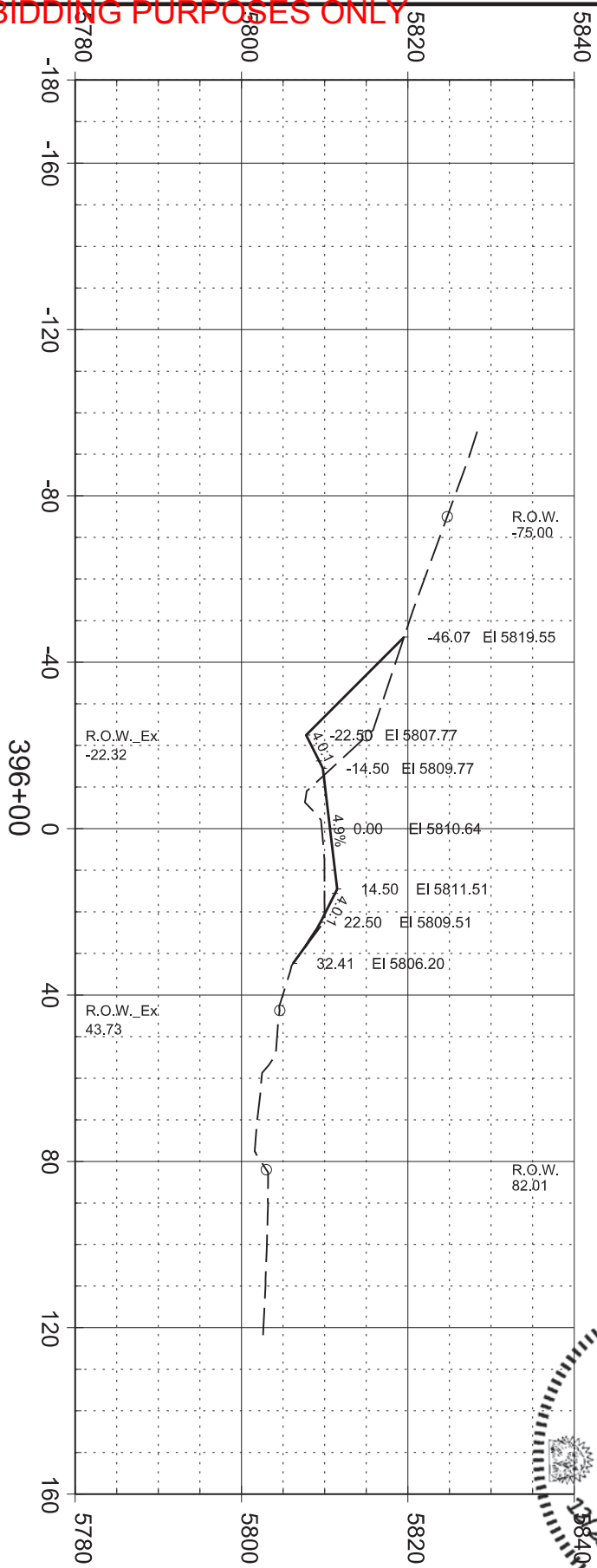
STATE OF SOUTH DAKOTA	P 6403(10)		257	333
	PROJECT		SHEET	TOTAL SHEETS



P 6403(10)

333  
TOTAL  
SHEETS

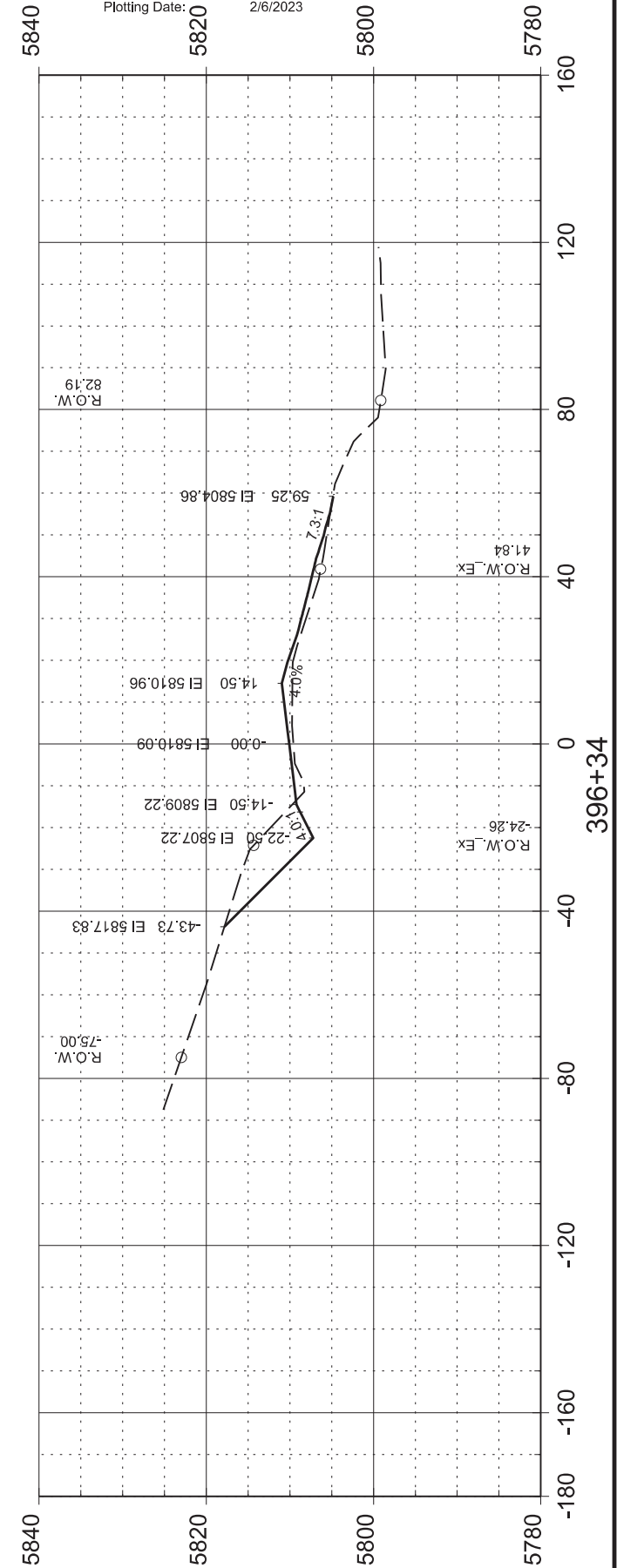
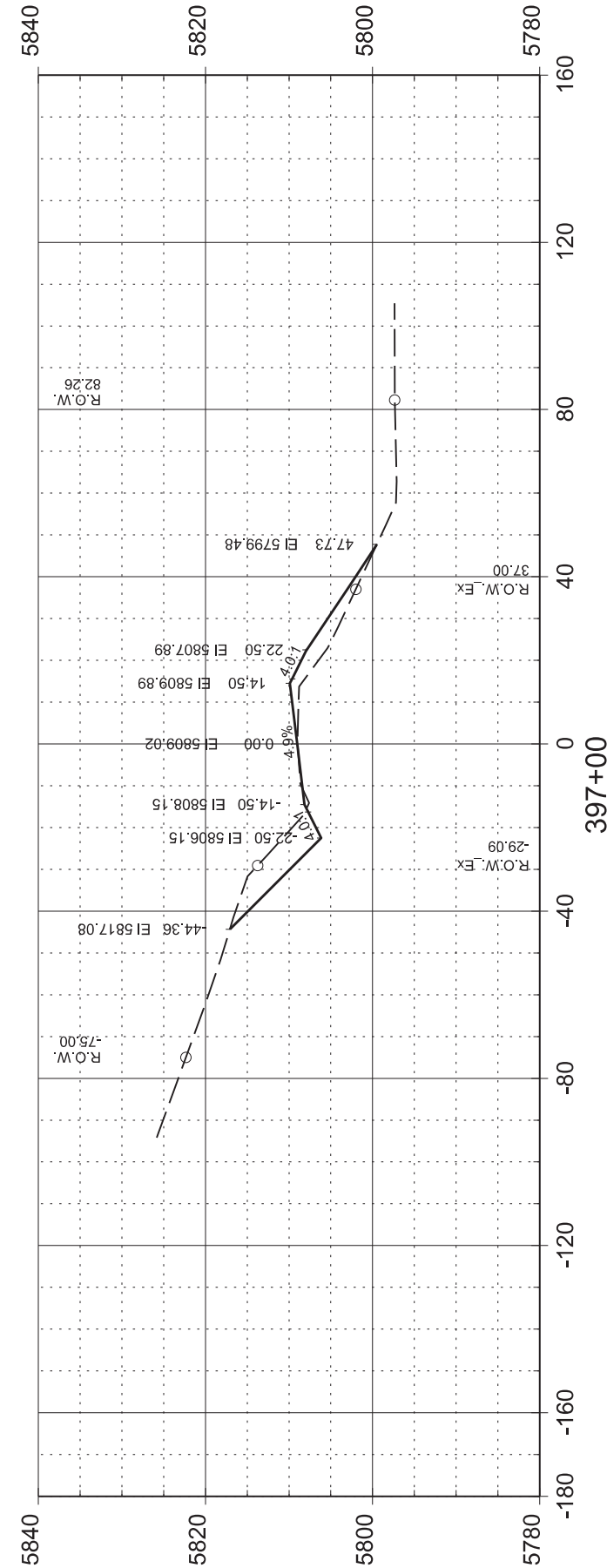
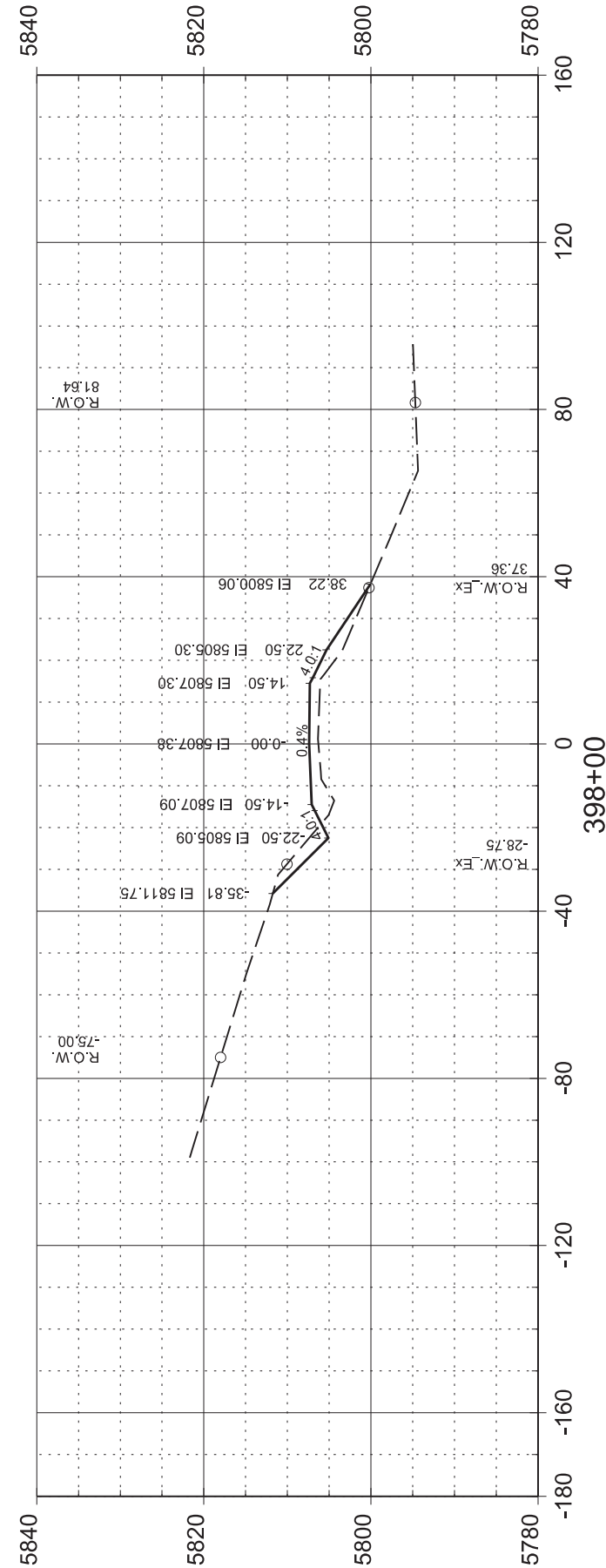
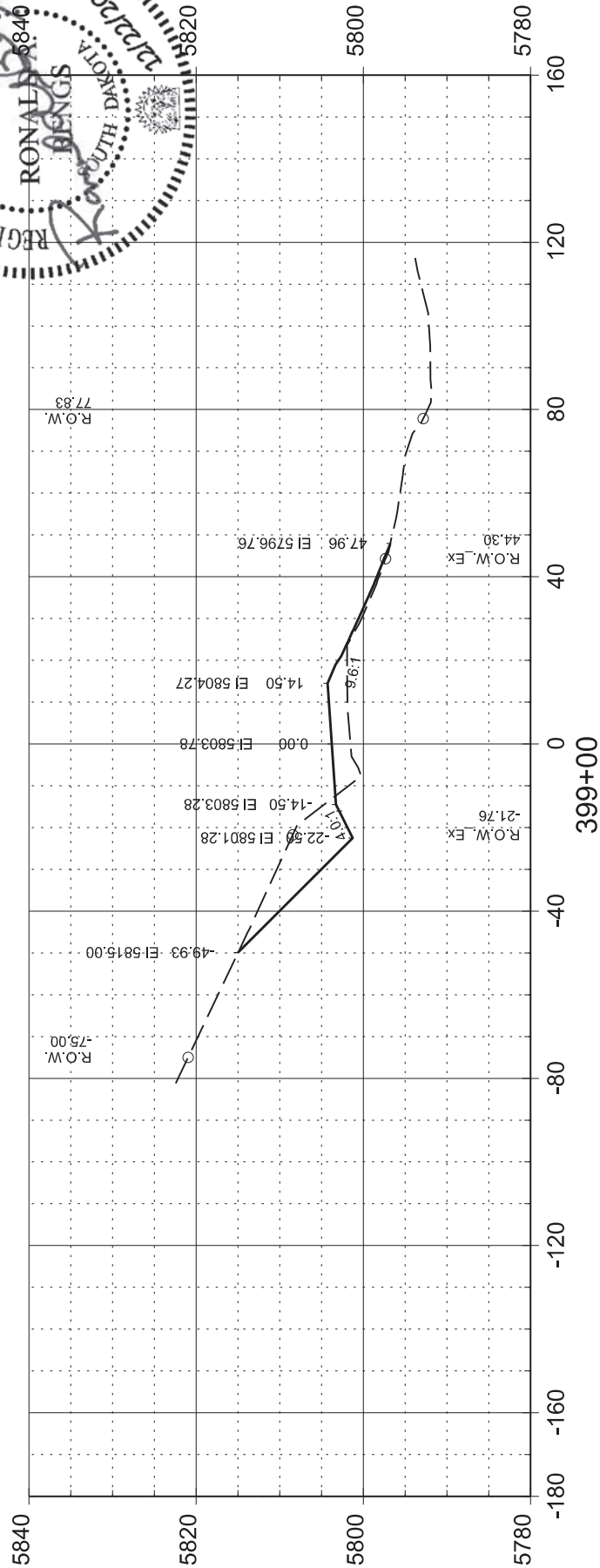




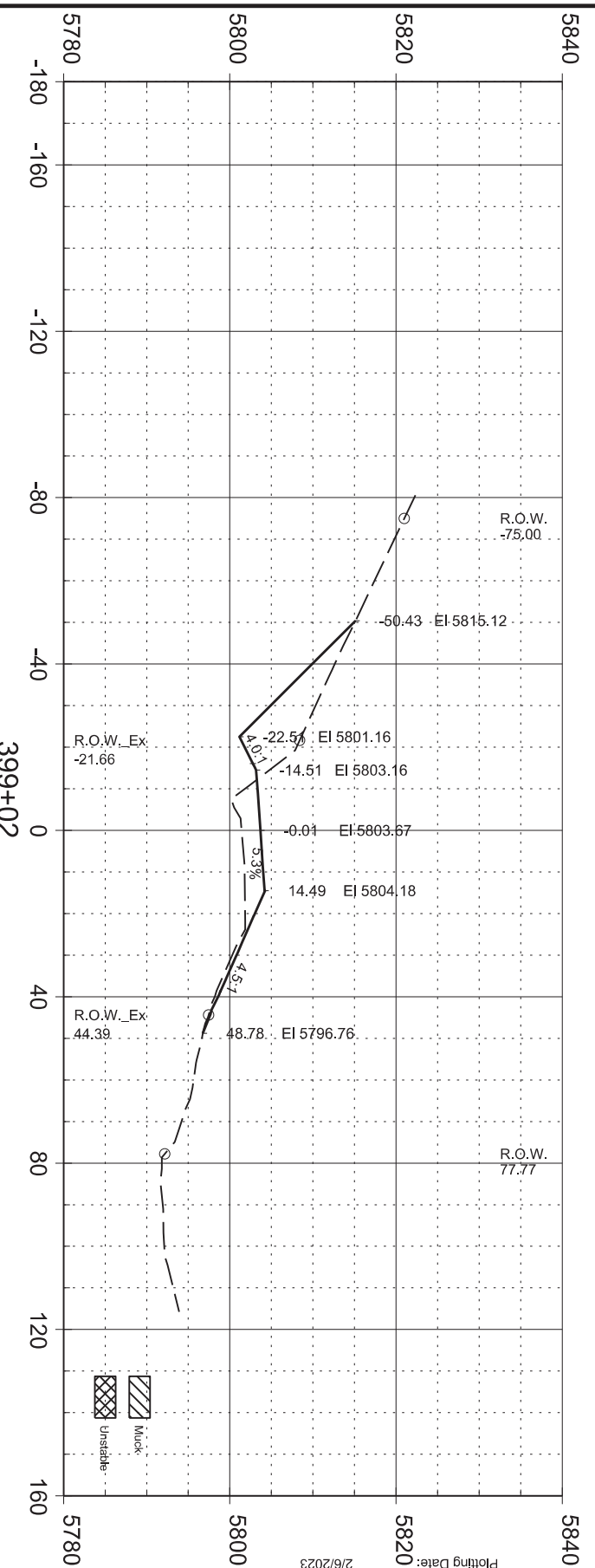
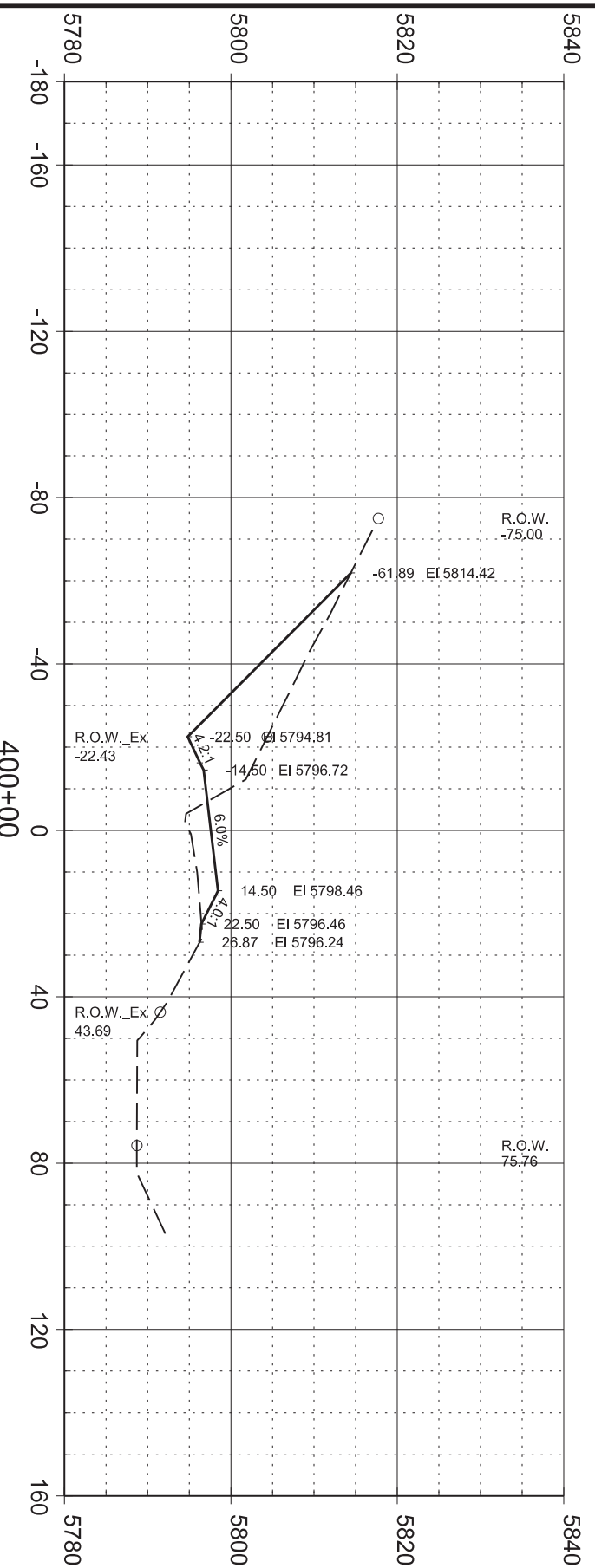
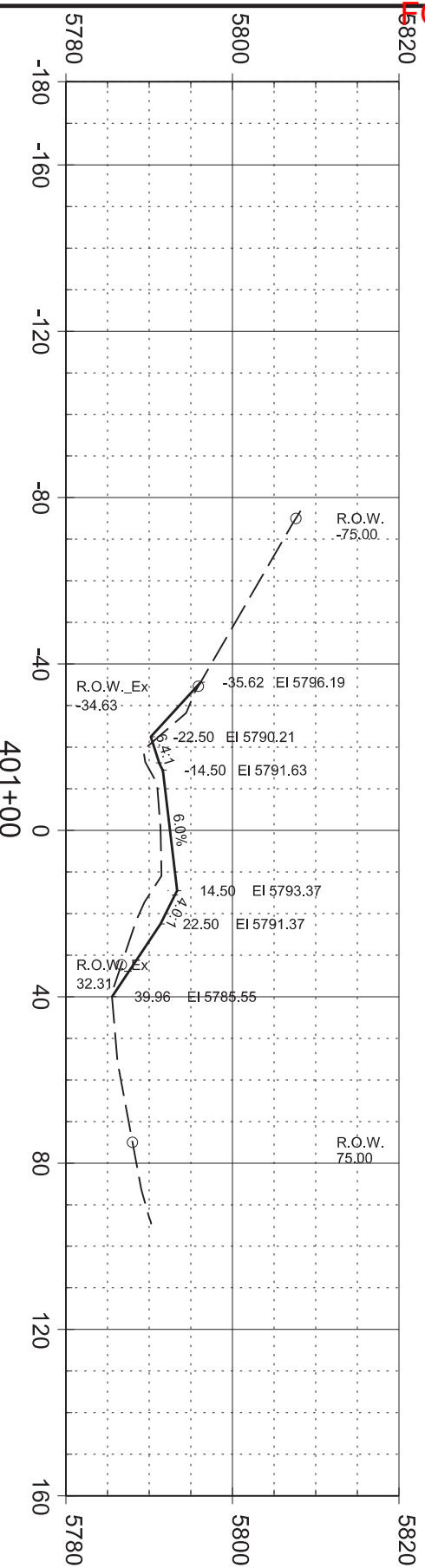
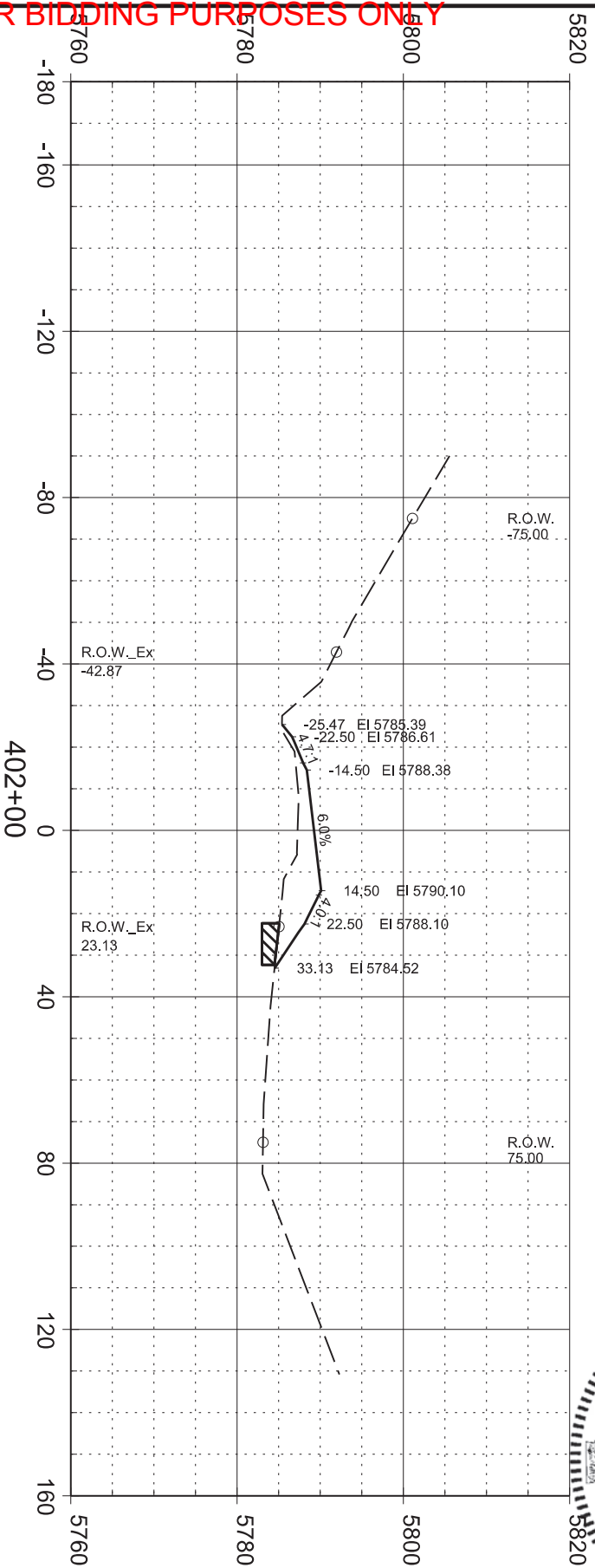
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STATE OF SOUTH DAKOTA	PROJECT	P 6403(10)	259	333
			SHEET	TOTAL SHEETS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	260	333



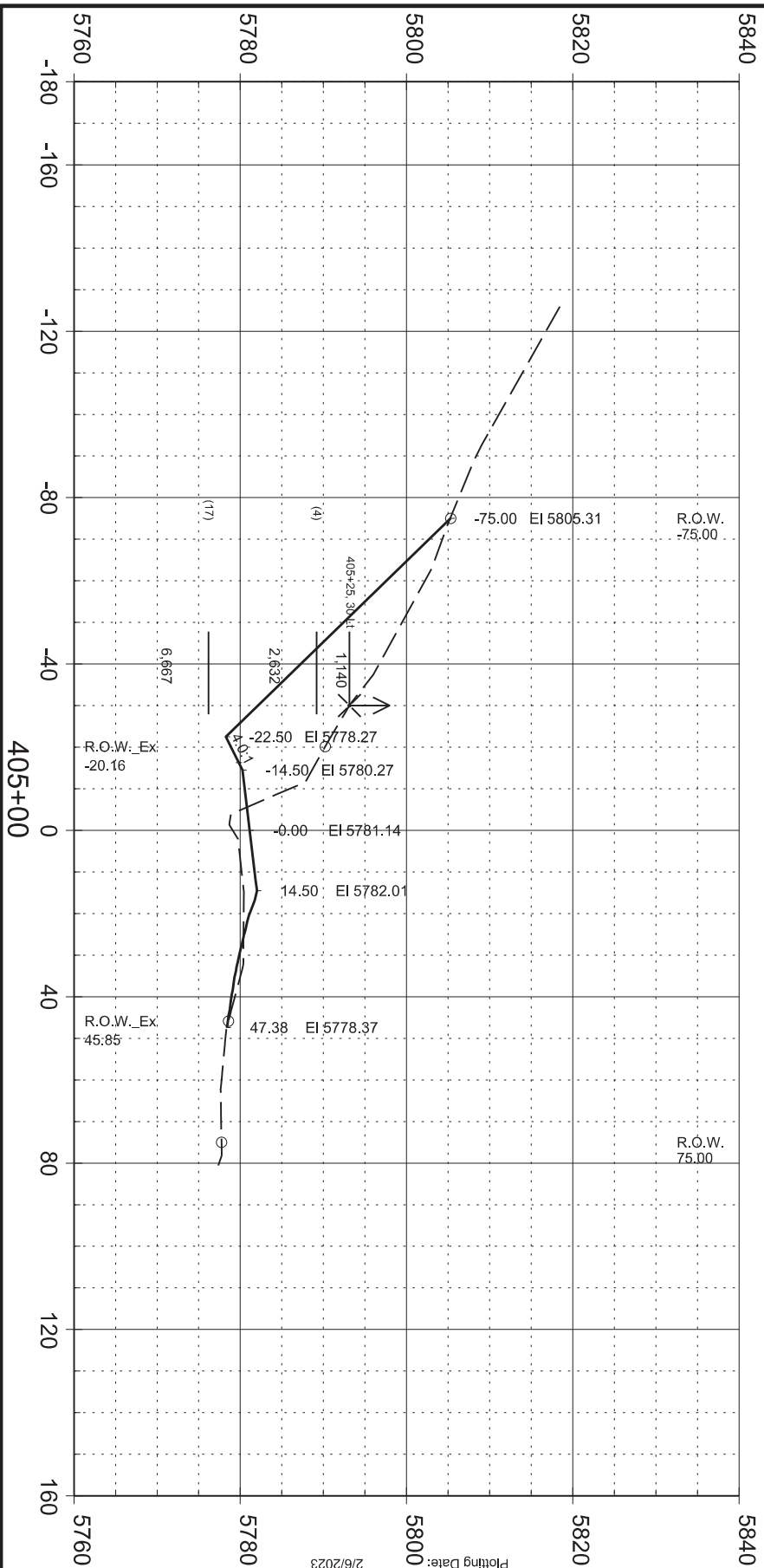
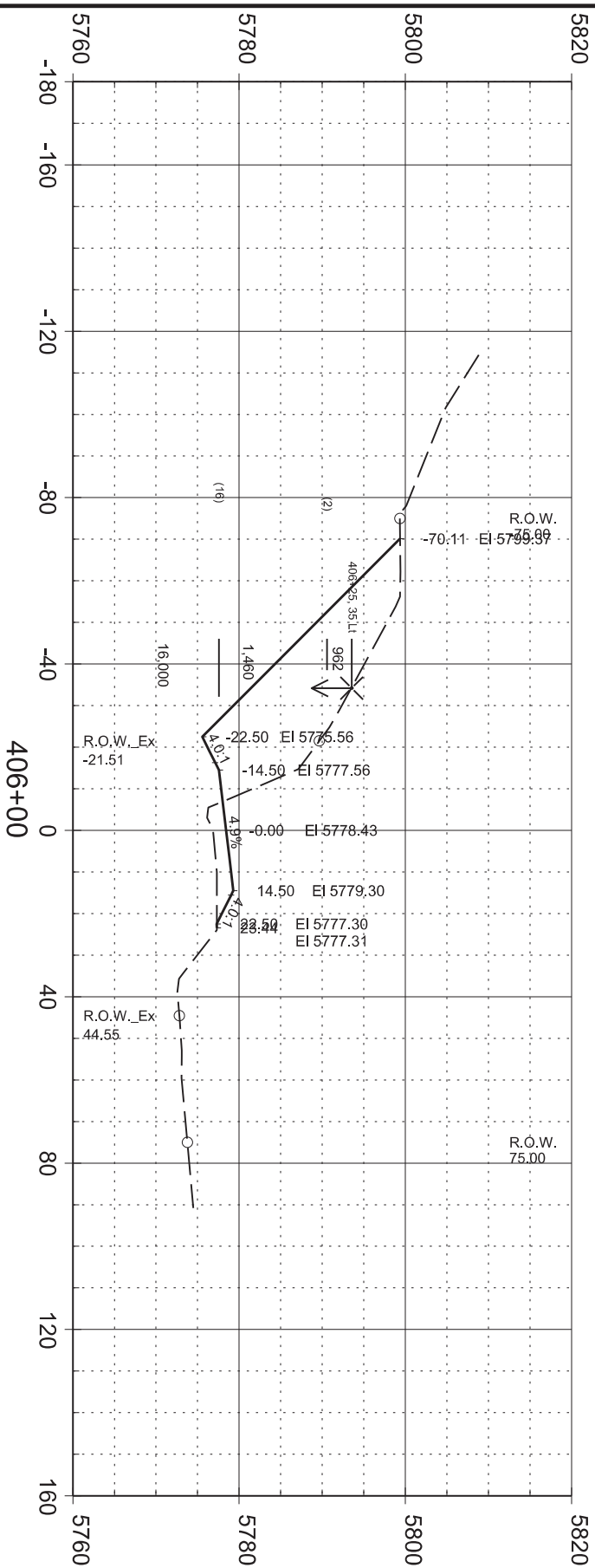
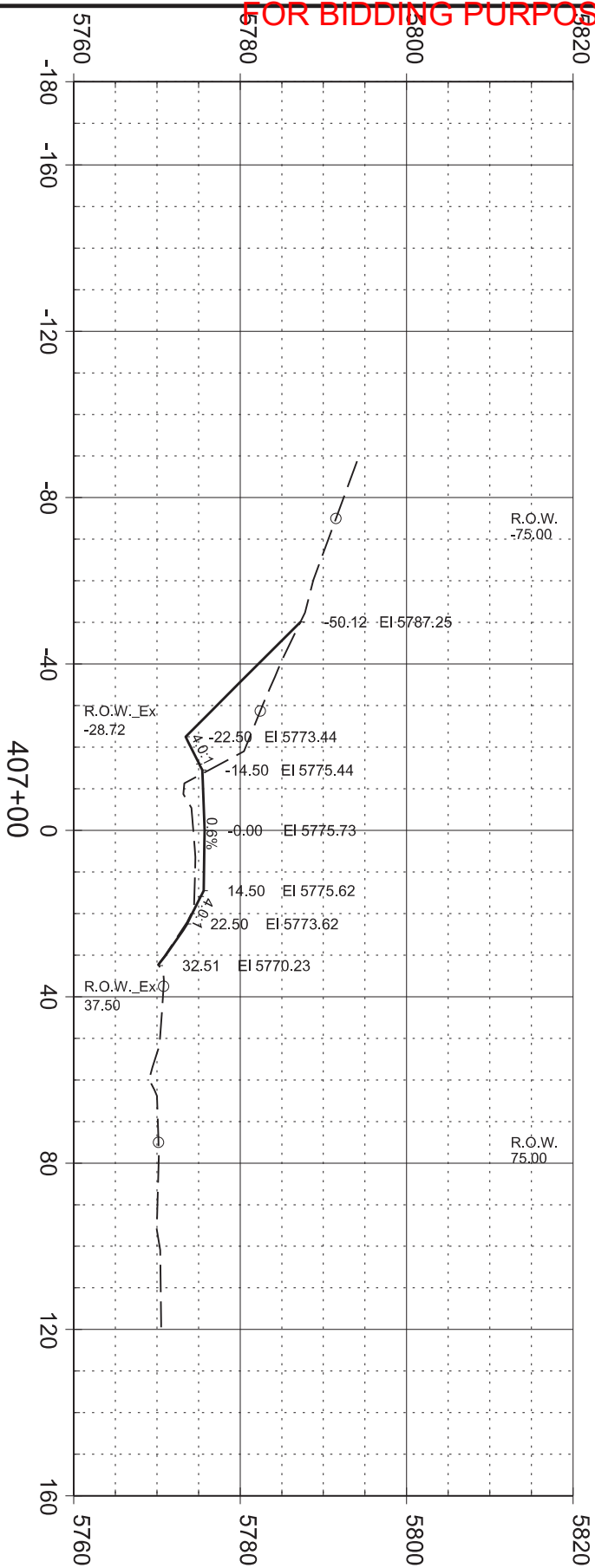




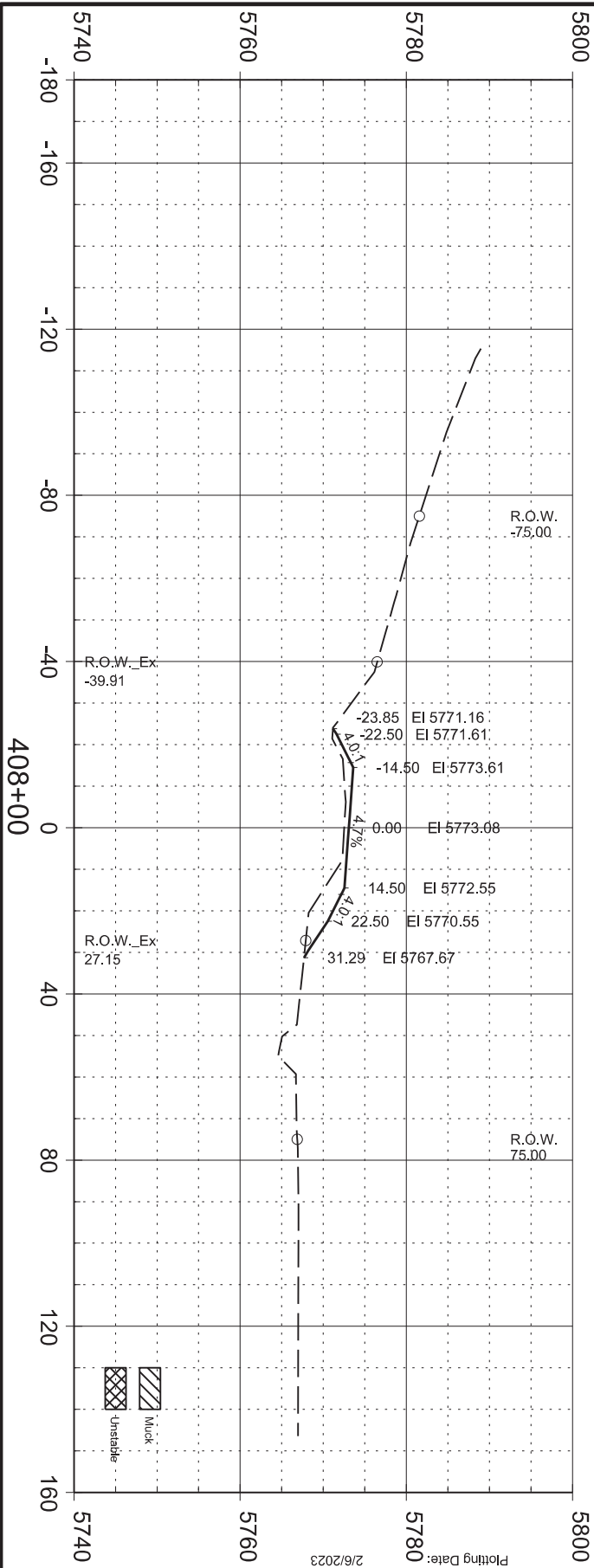
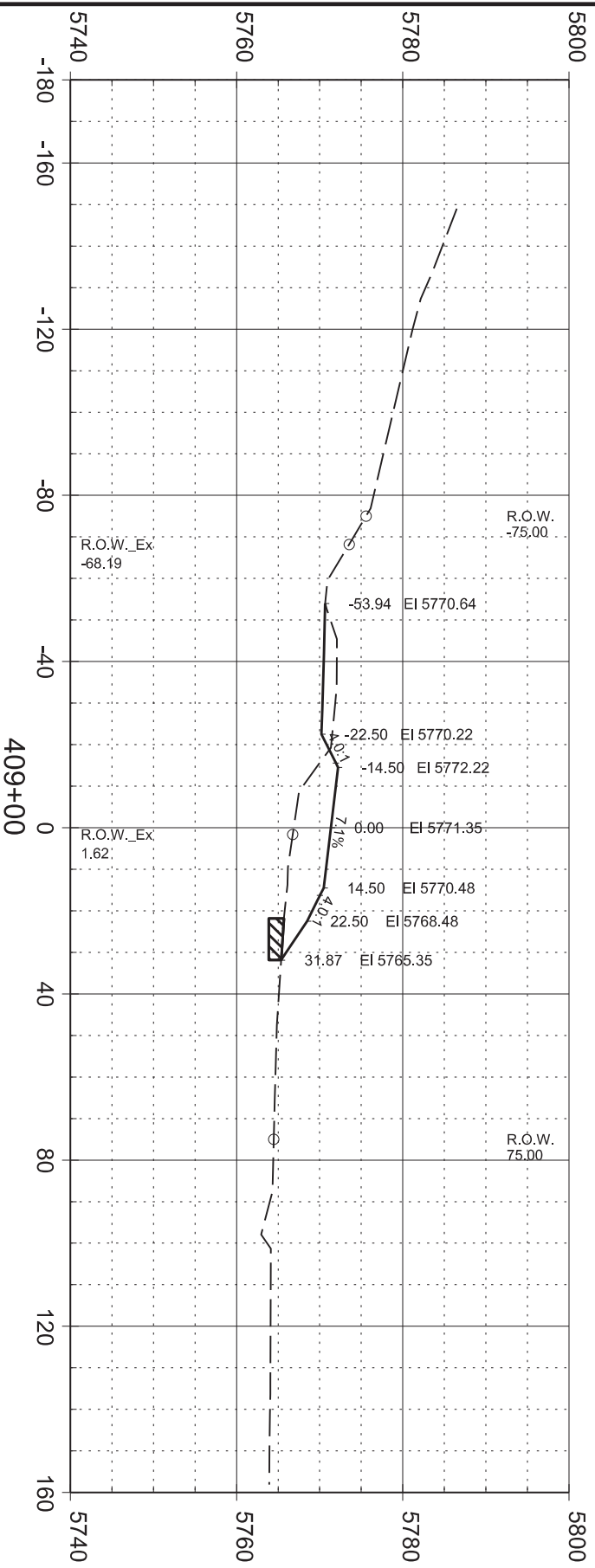
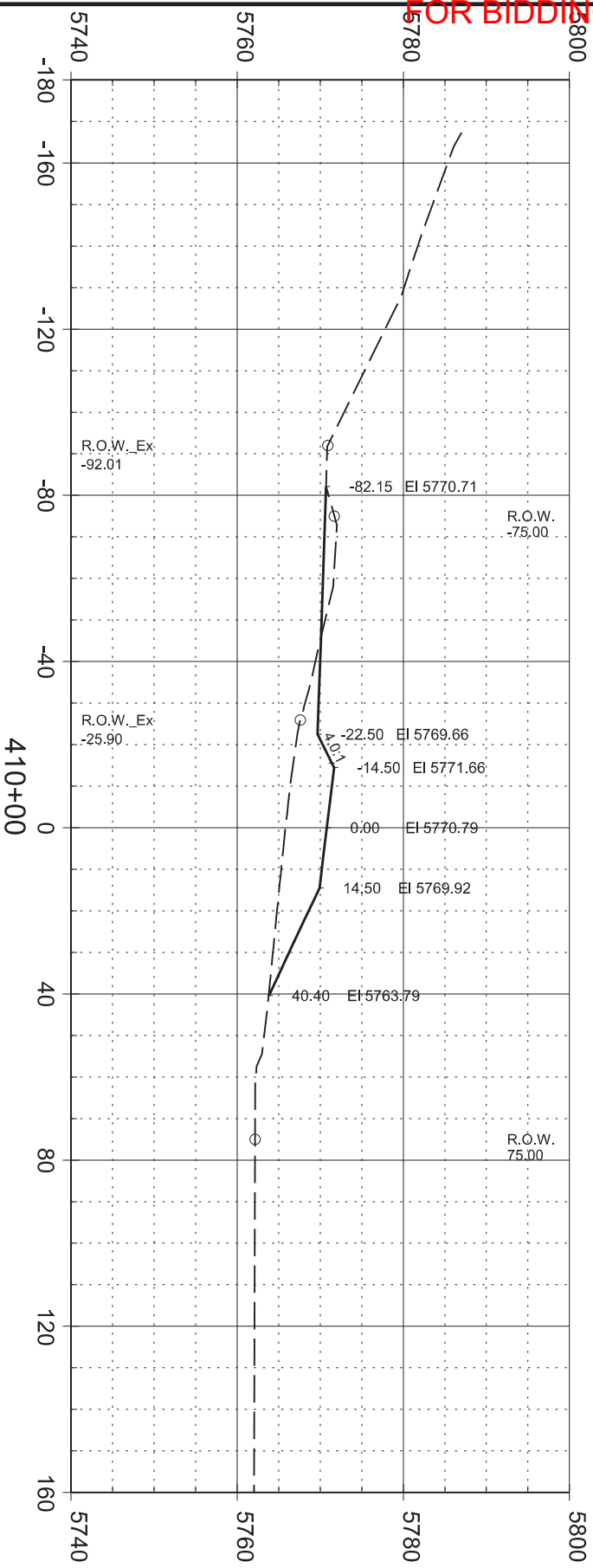
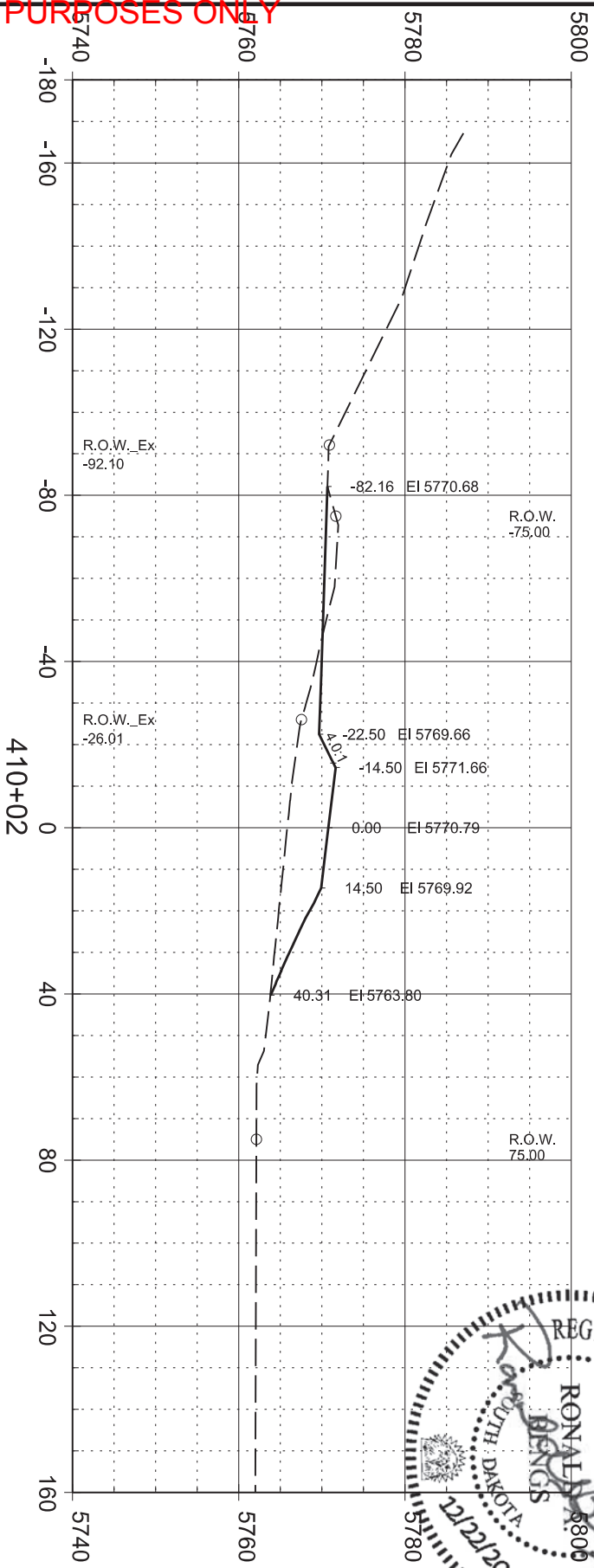
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		261		333			
Plotting Date: 2/6/2023							







STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		263		333			
Plotting Date: 2/6/2023							



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		264		333			

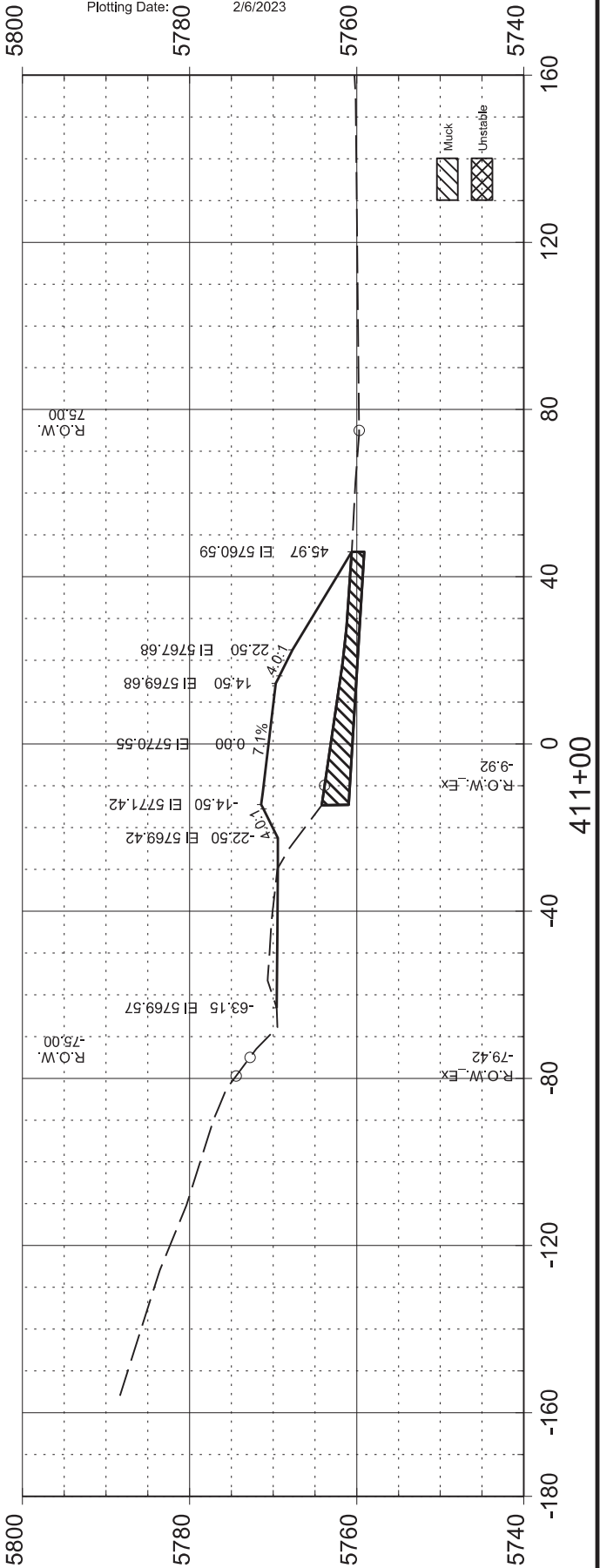
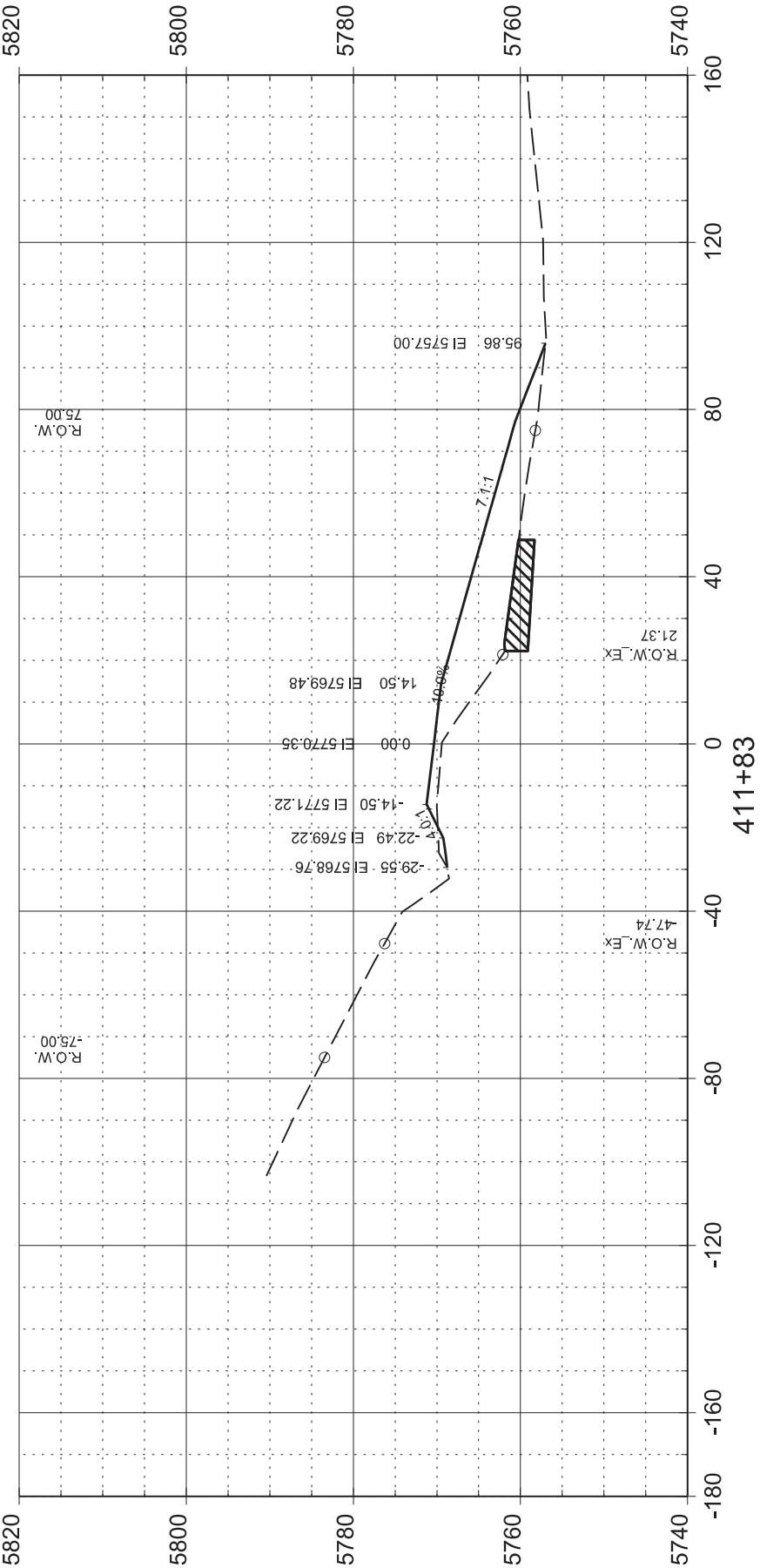
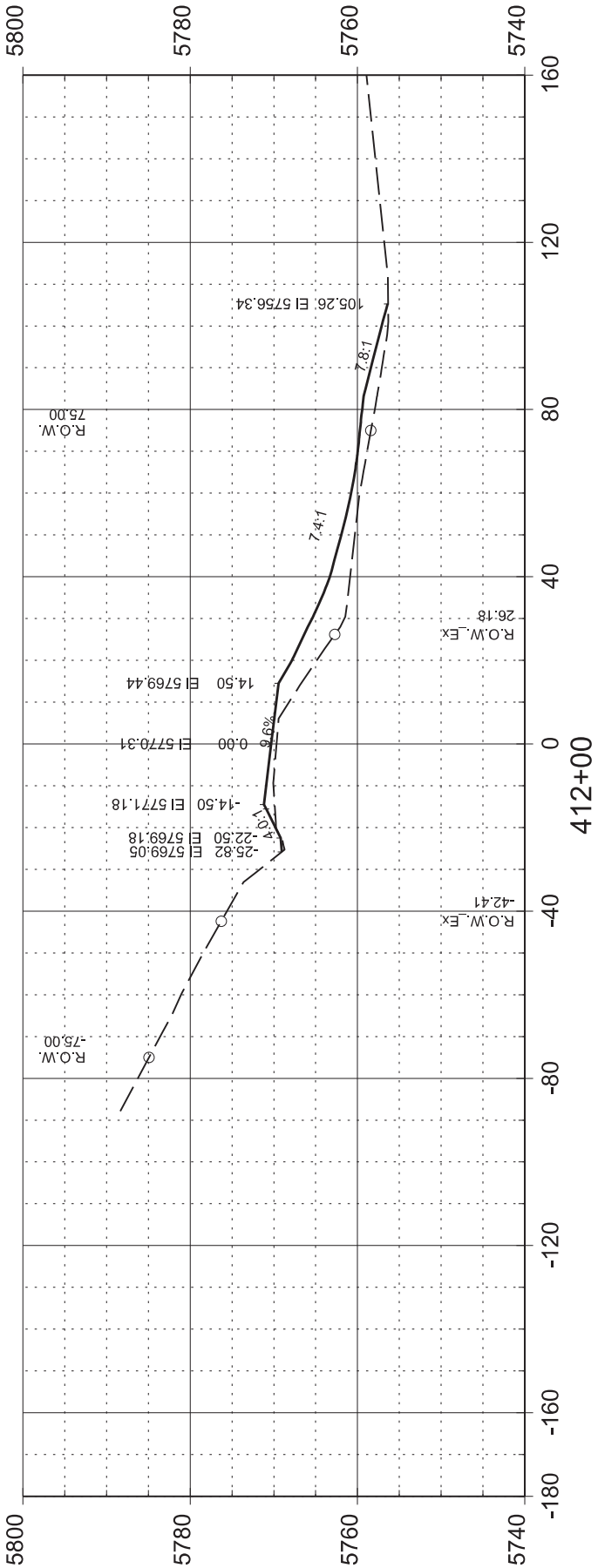


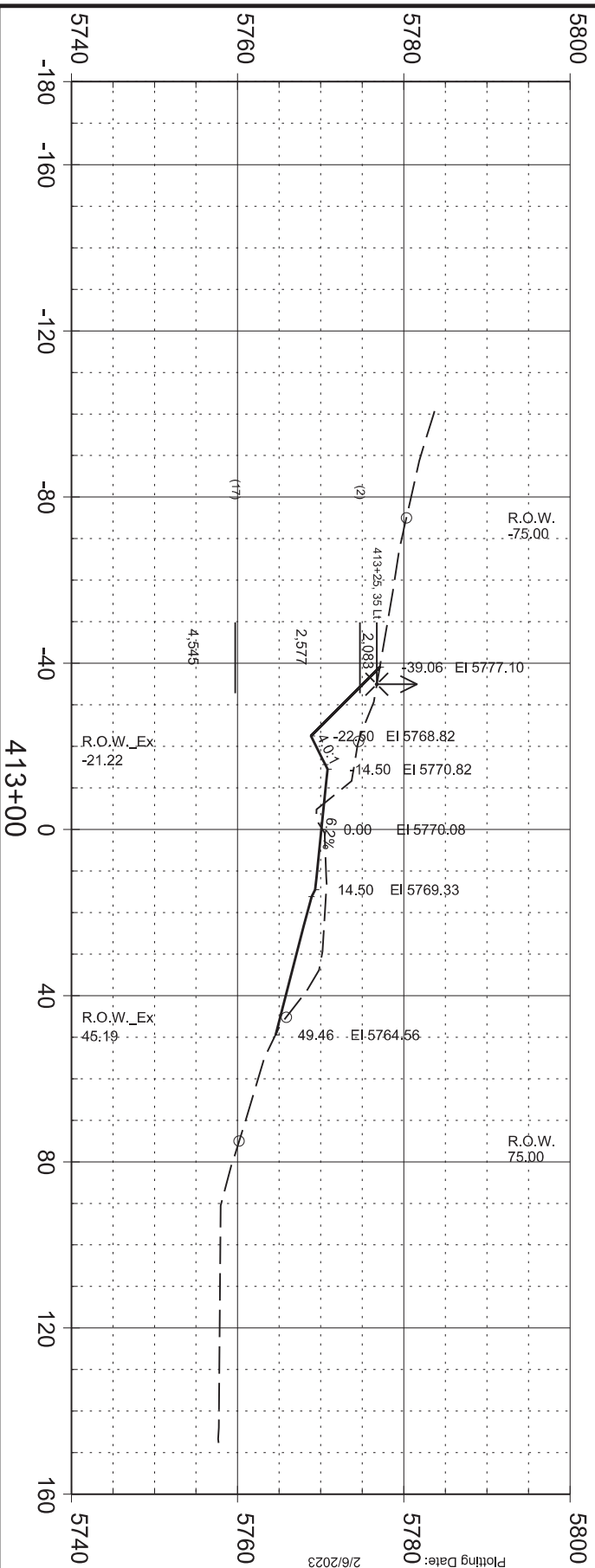
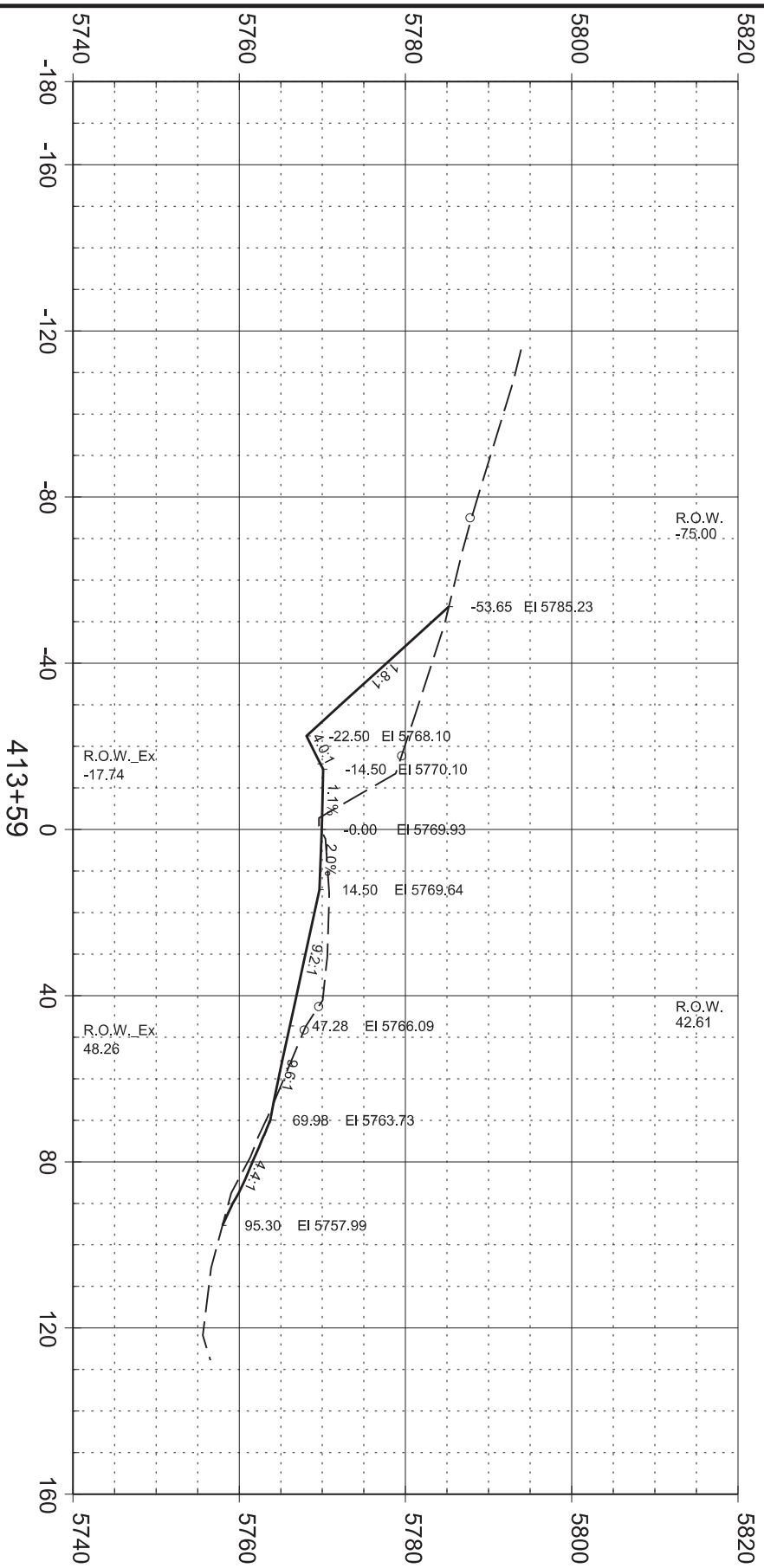
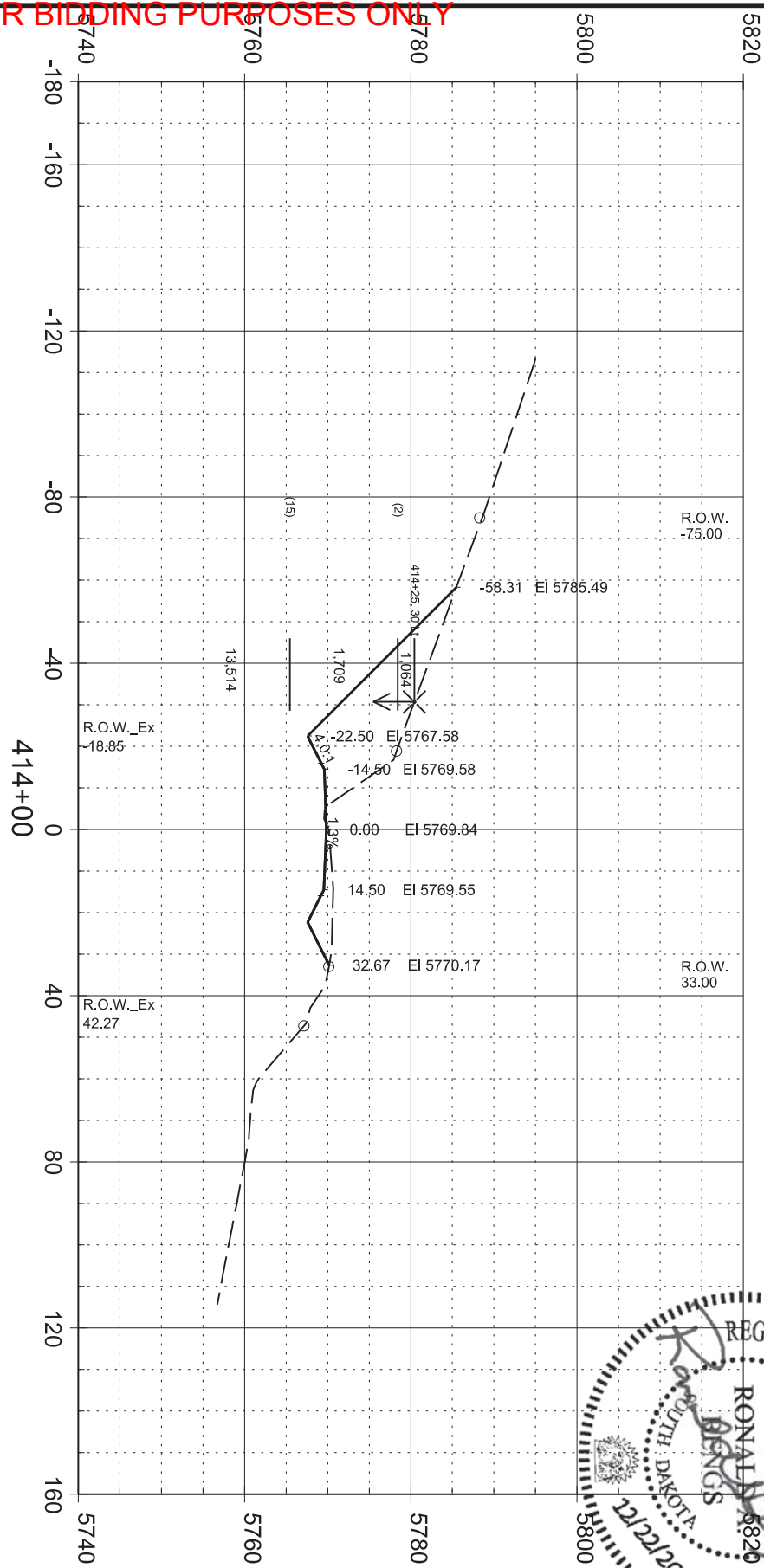


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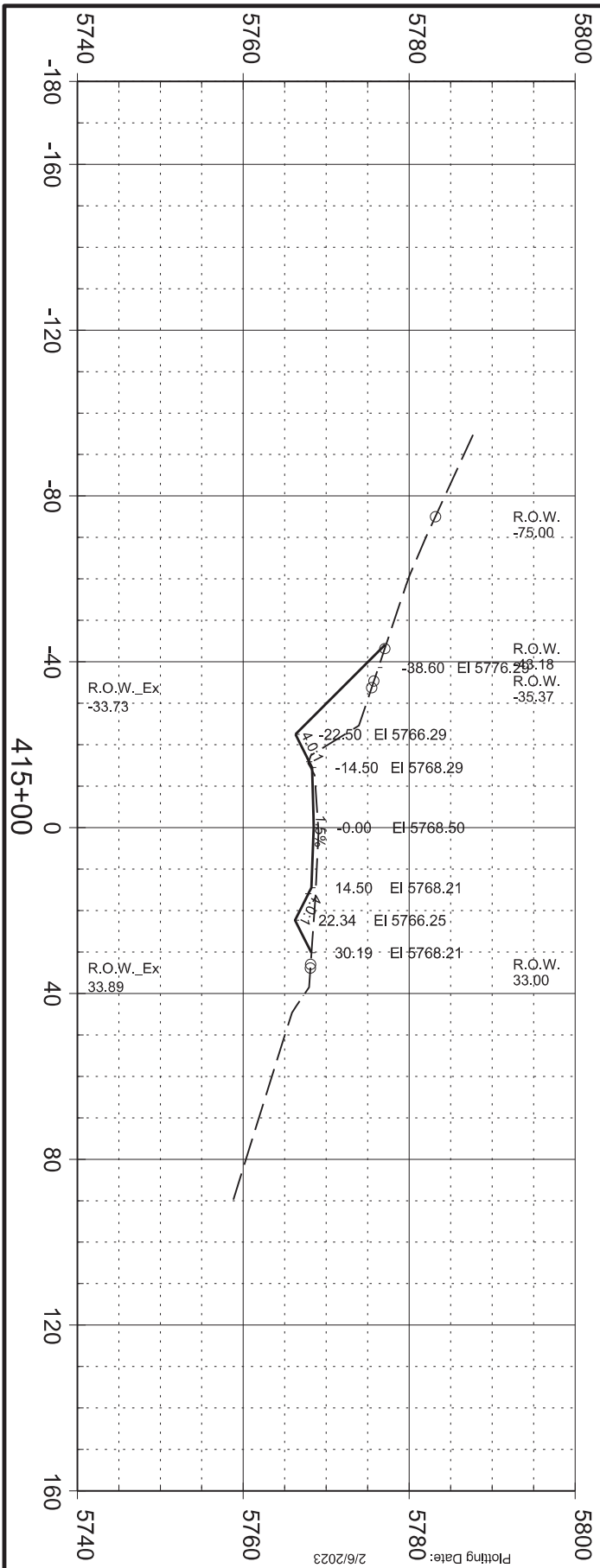
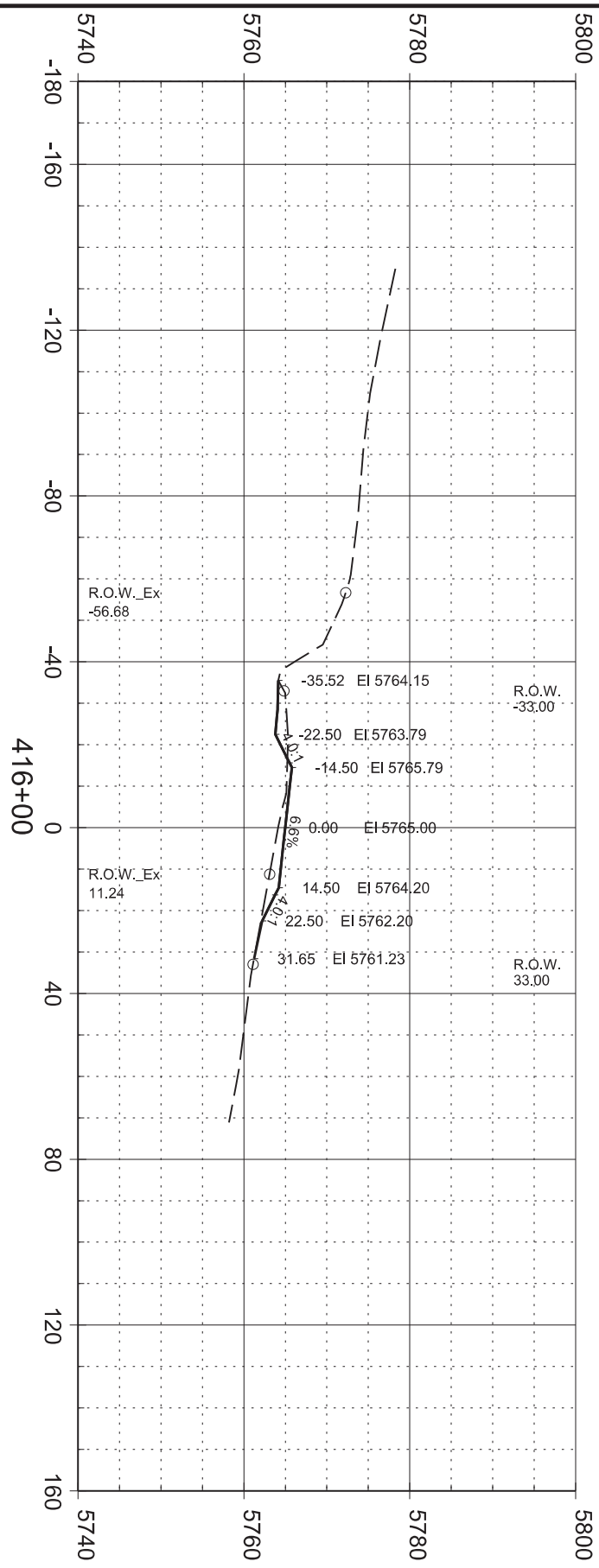
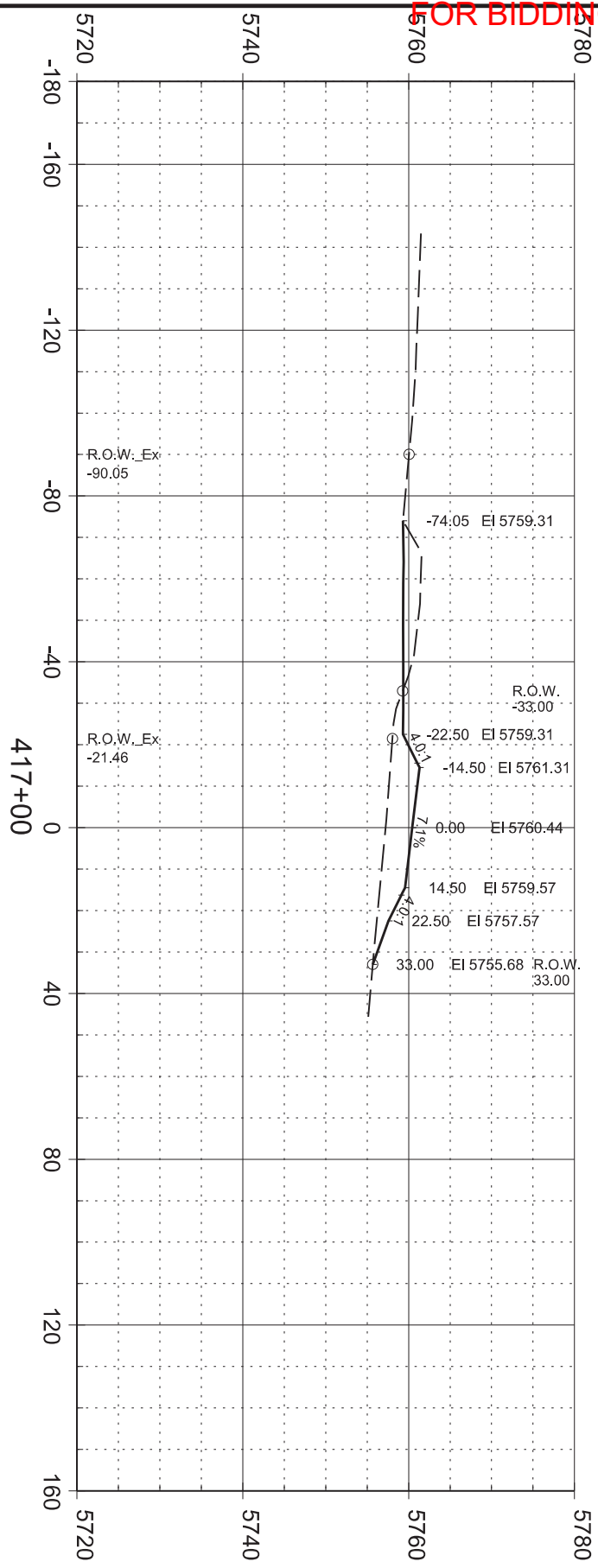
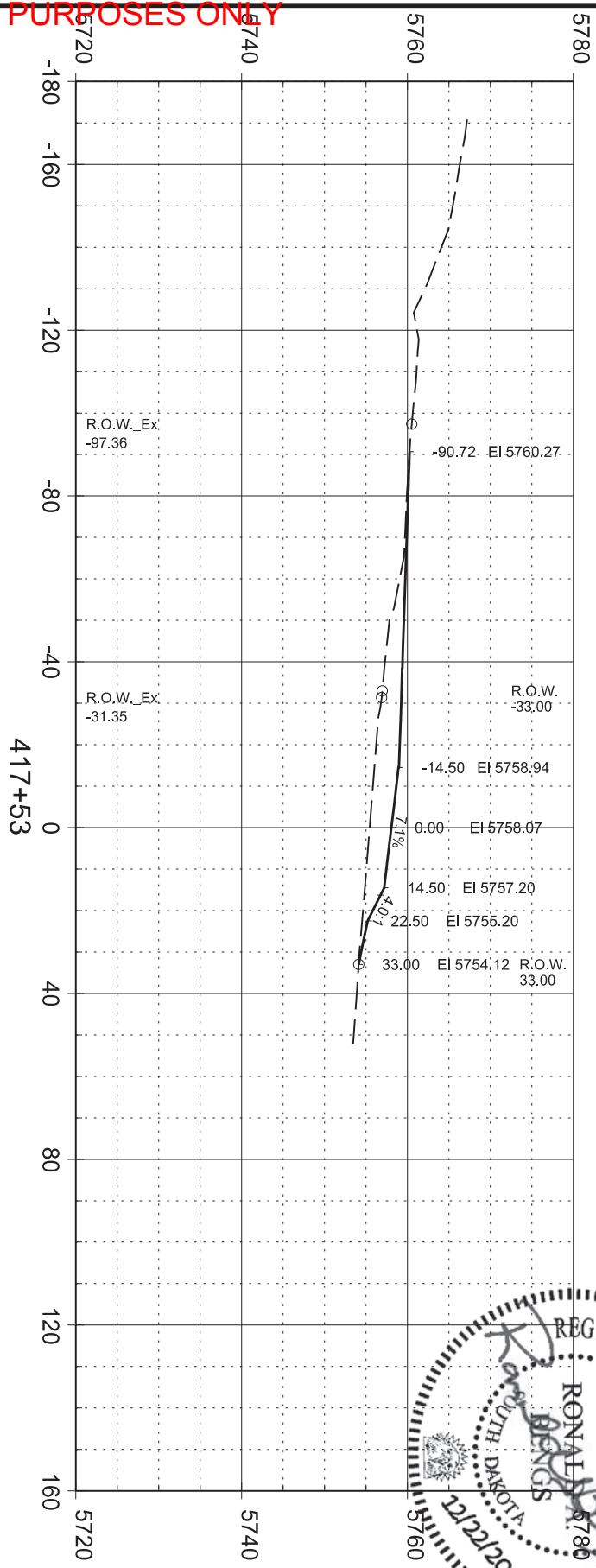
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	265	333

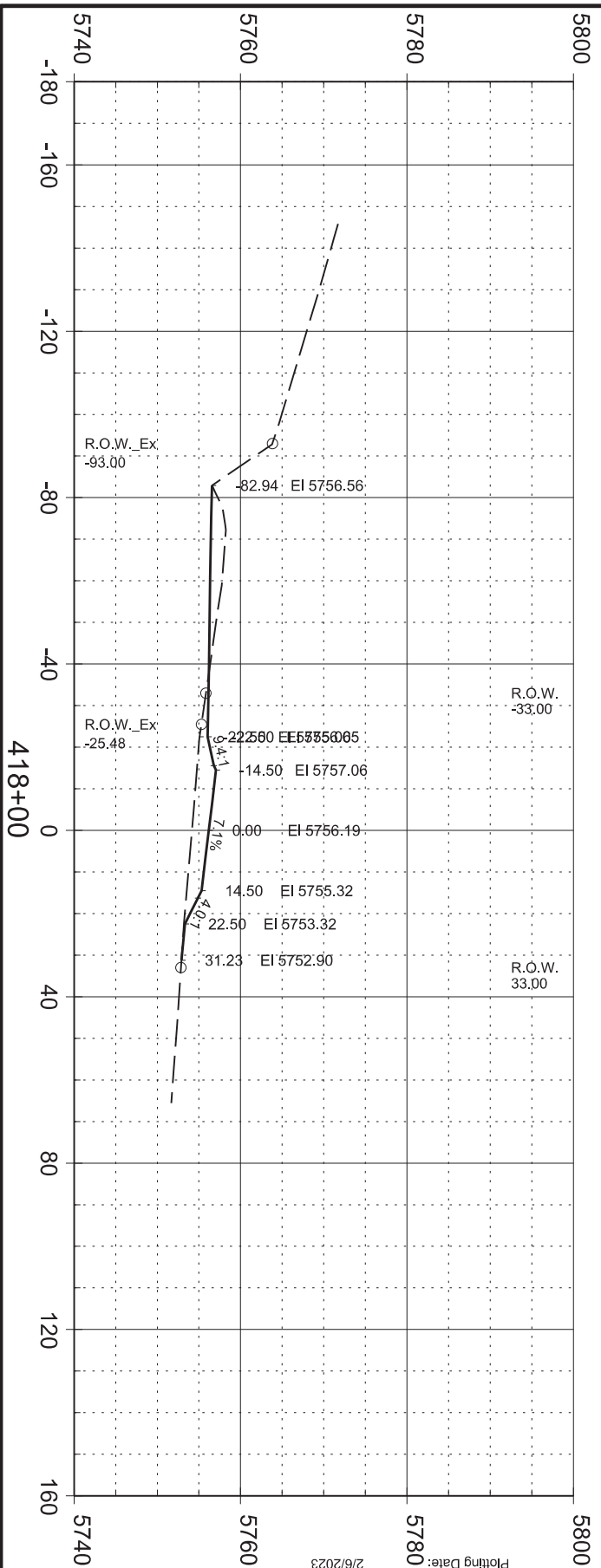
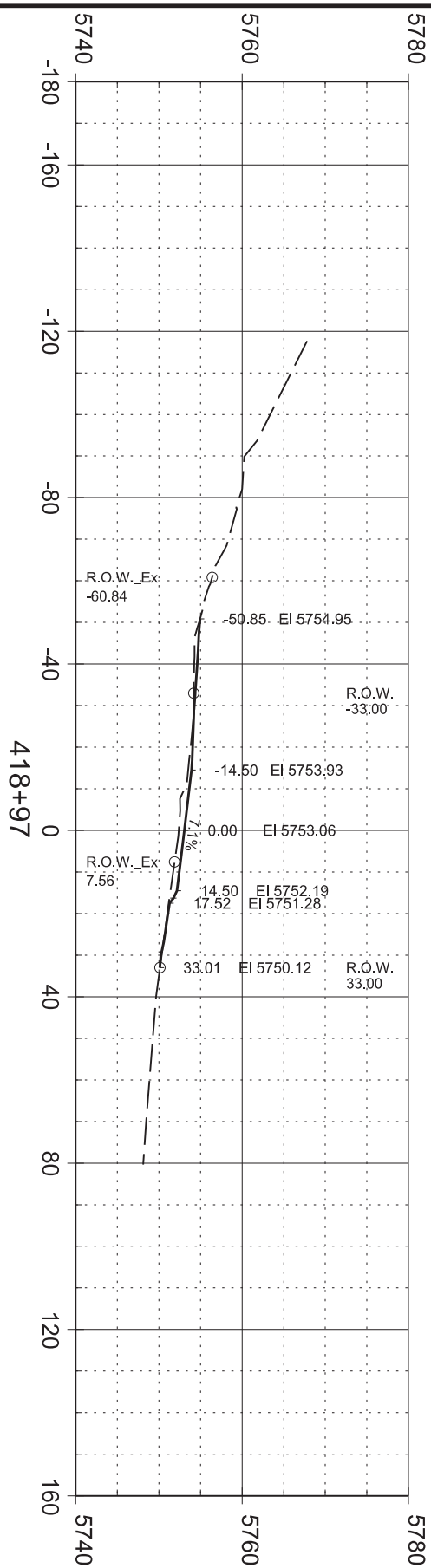
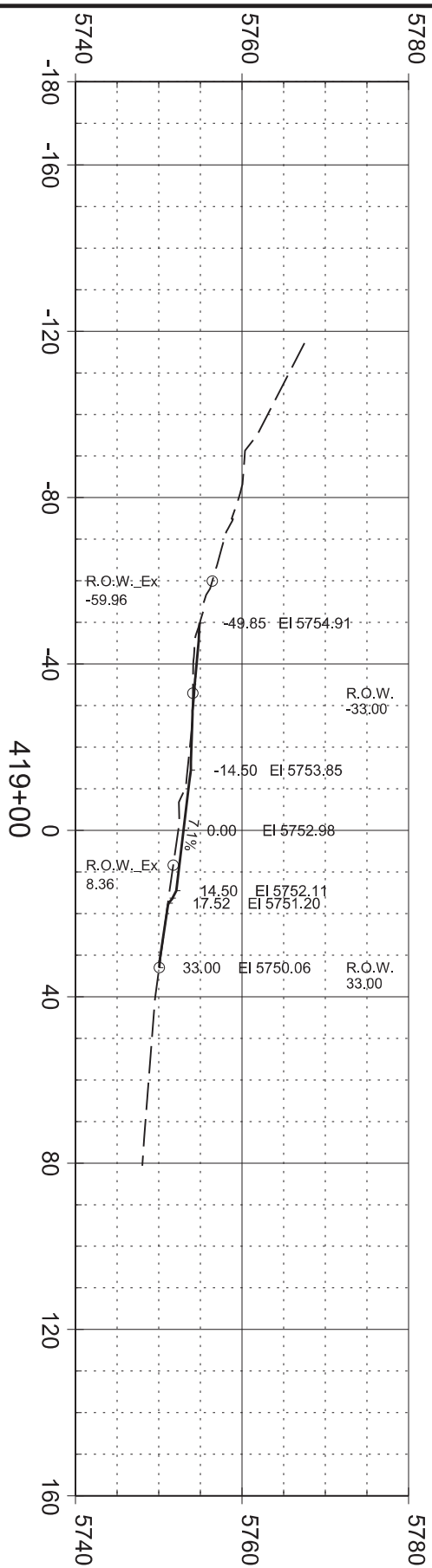
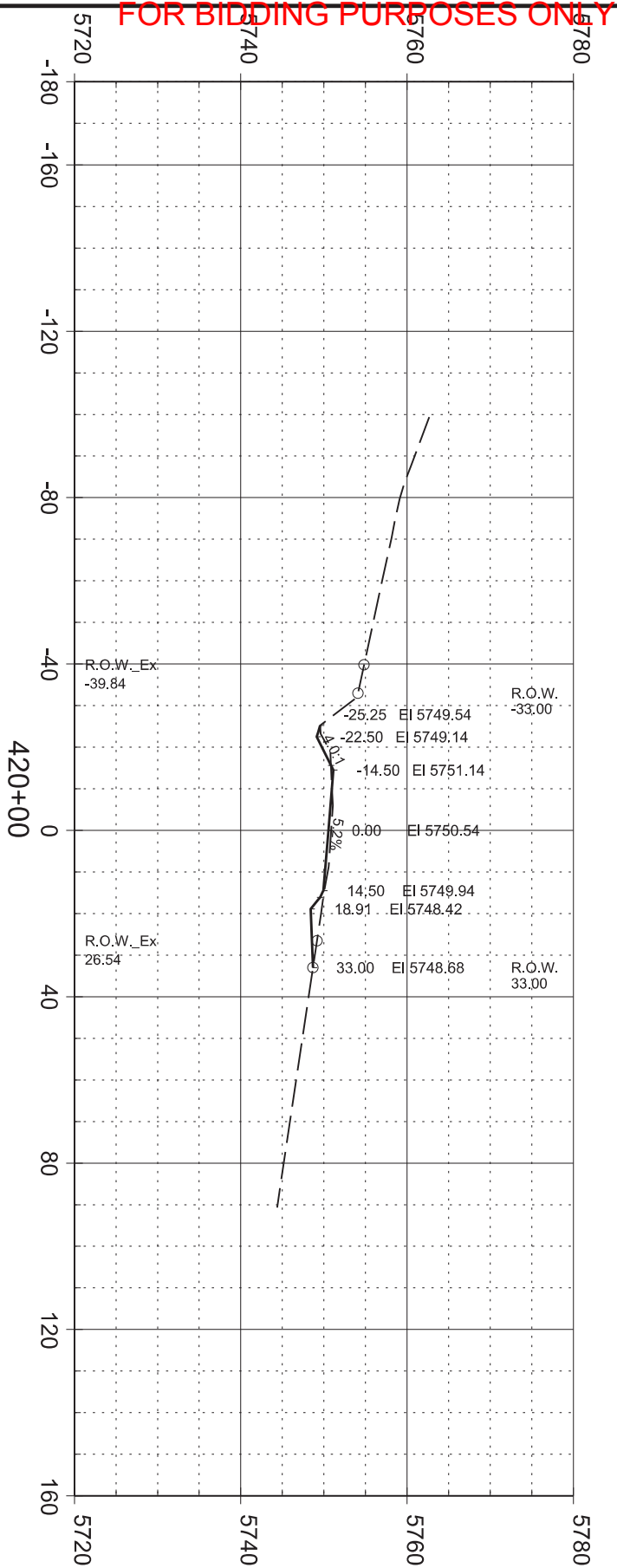
Plotting Date: 2/6/2023









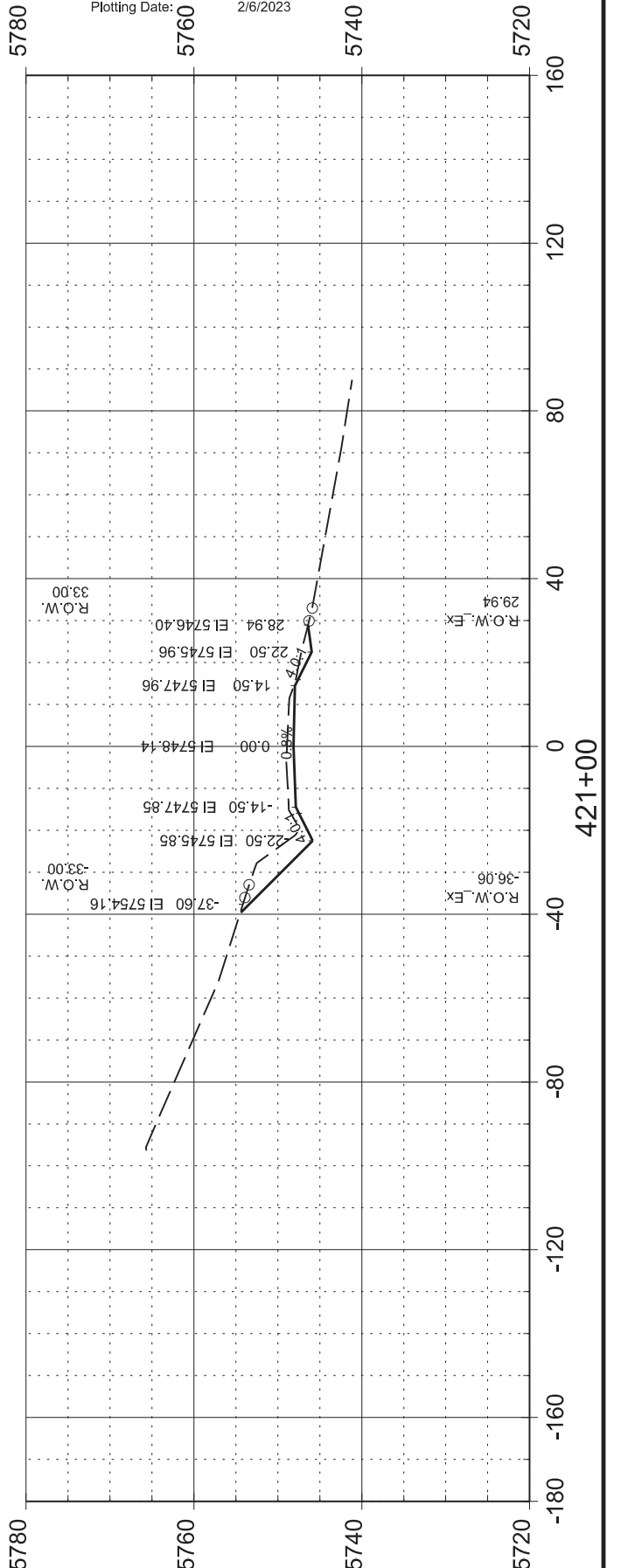
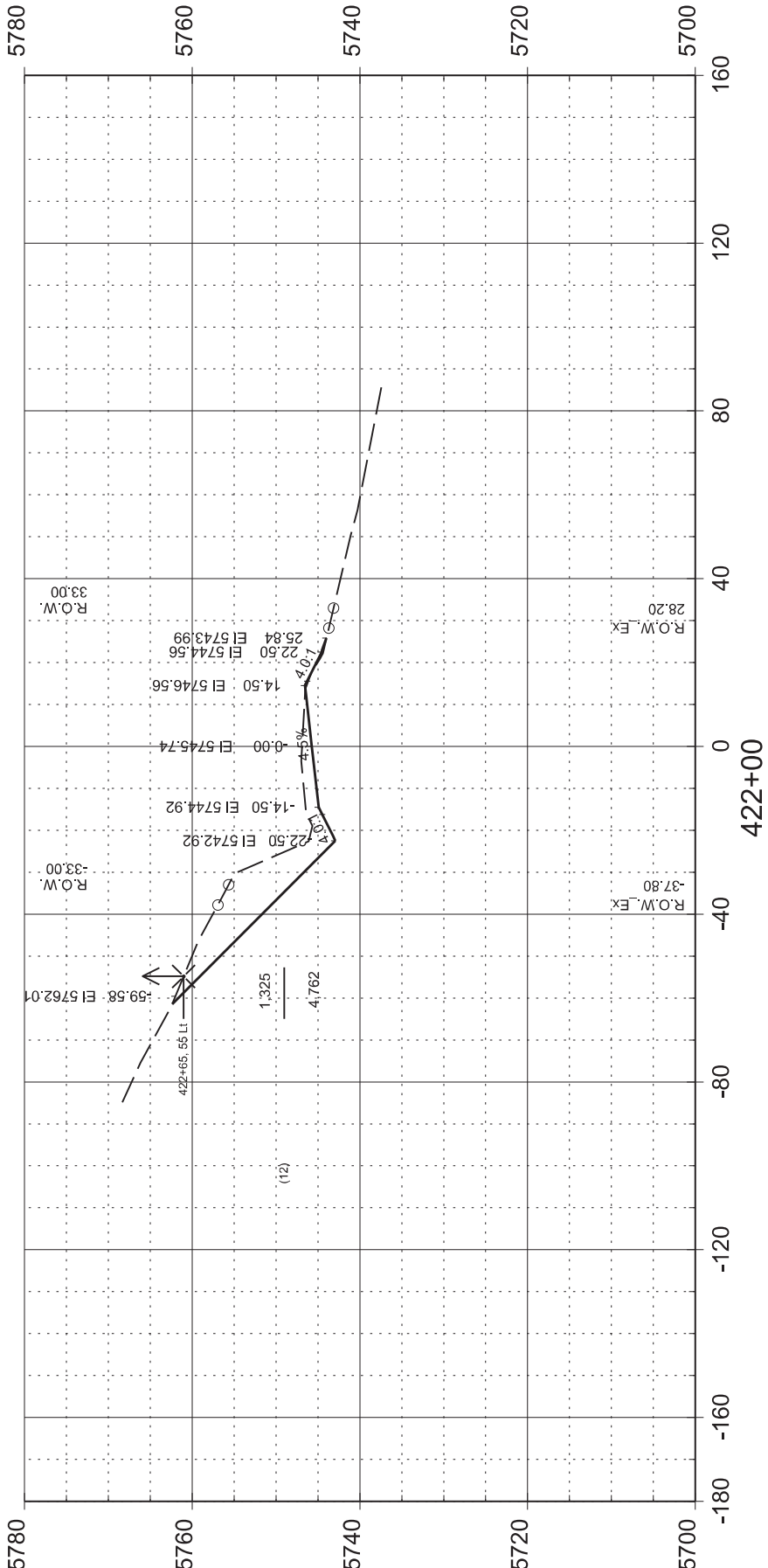
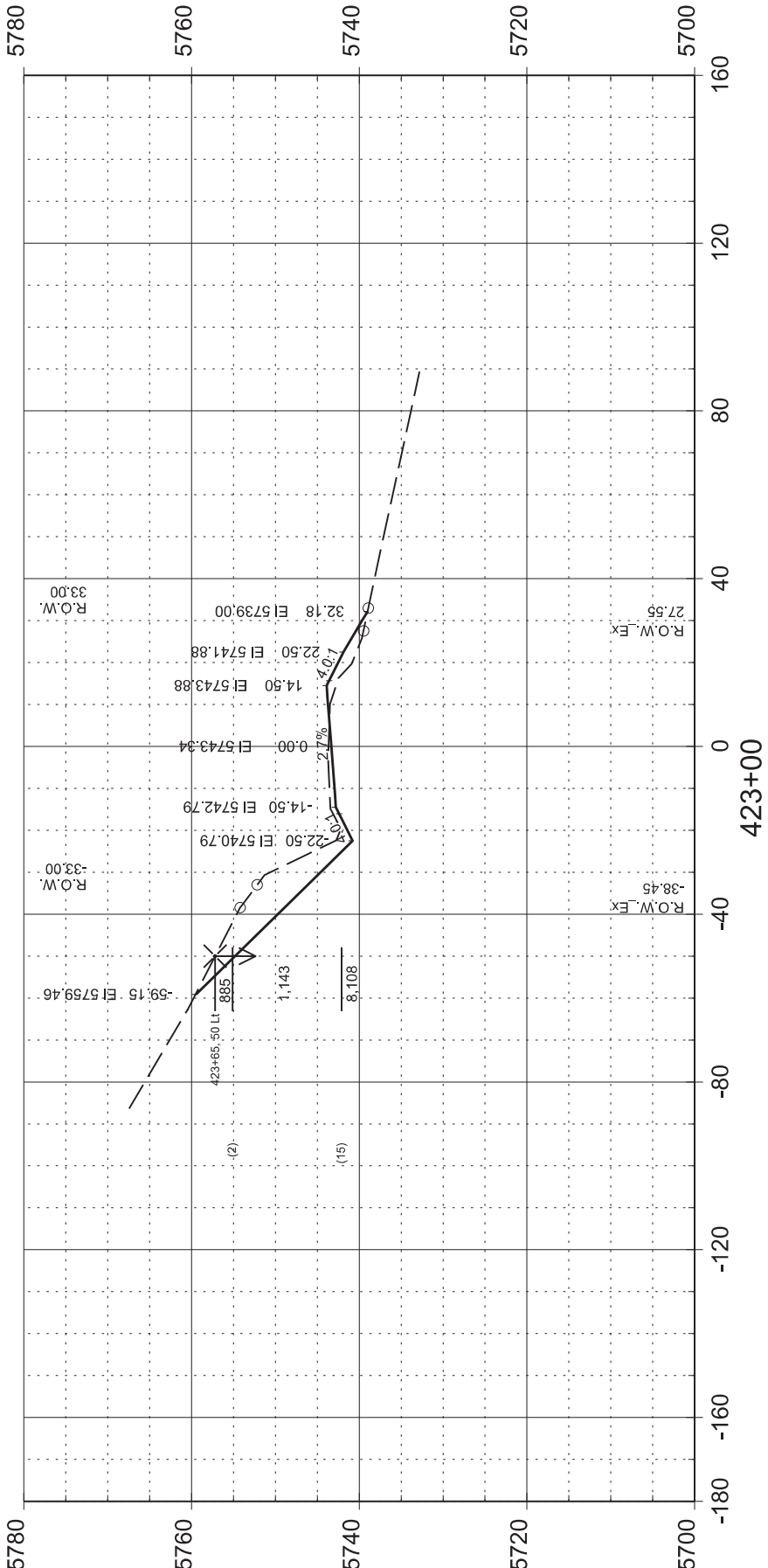


STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		268		333			
Plotting Date: 2/6/2023							



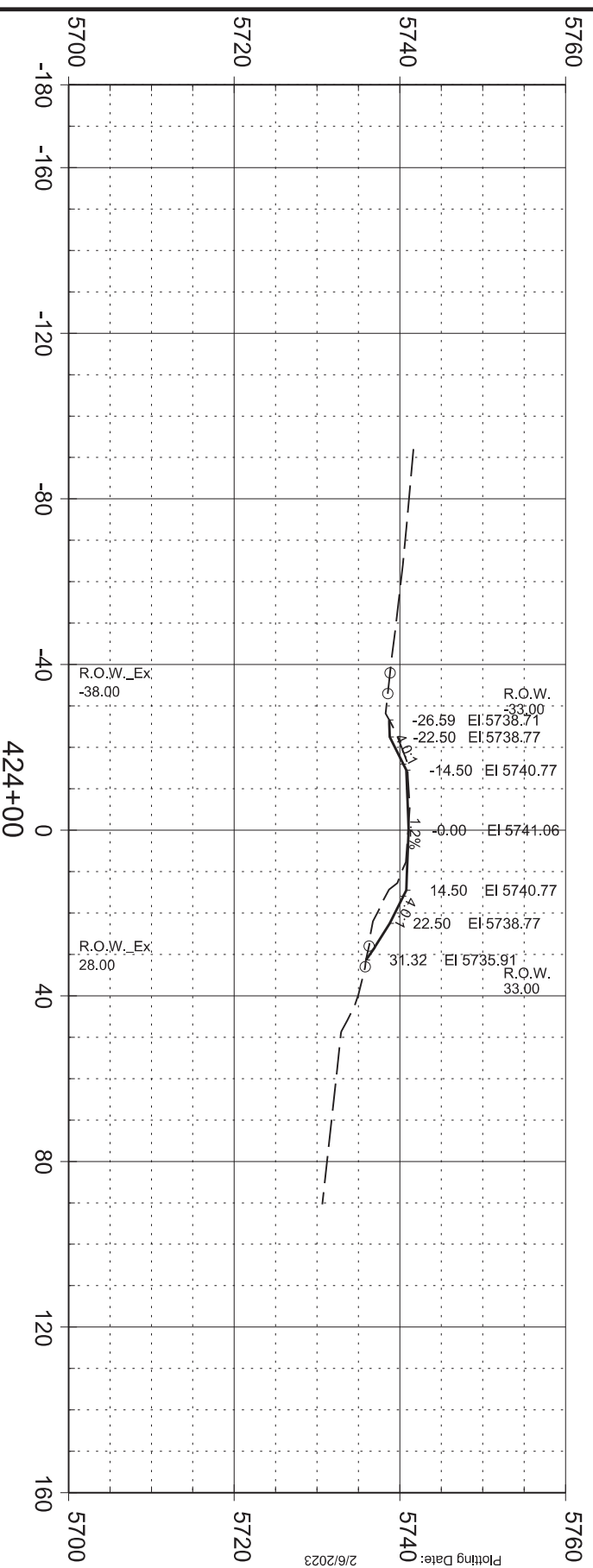
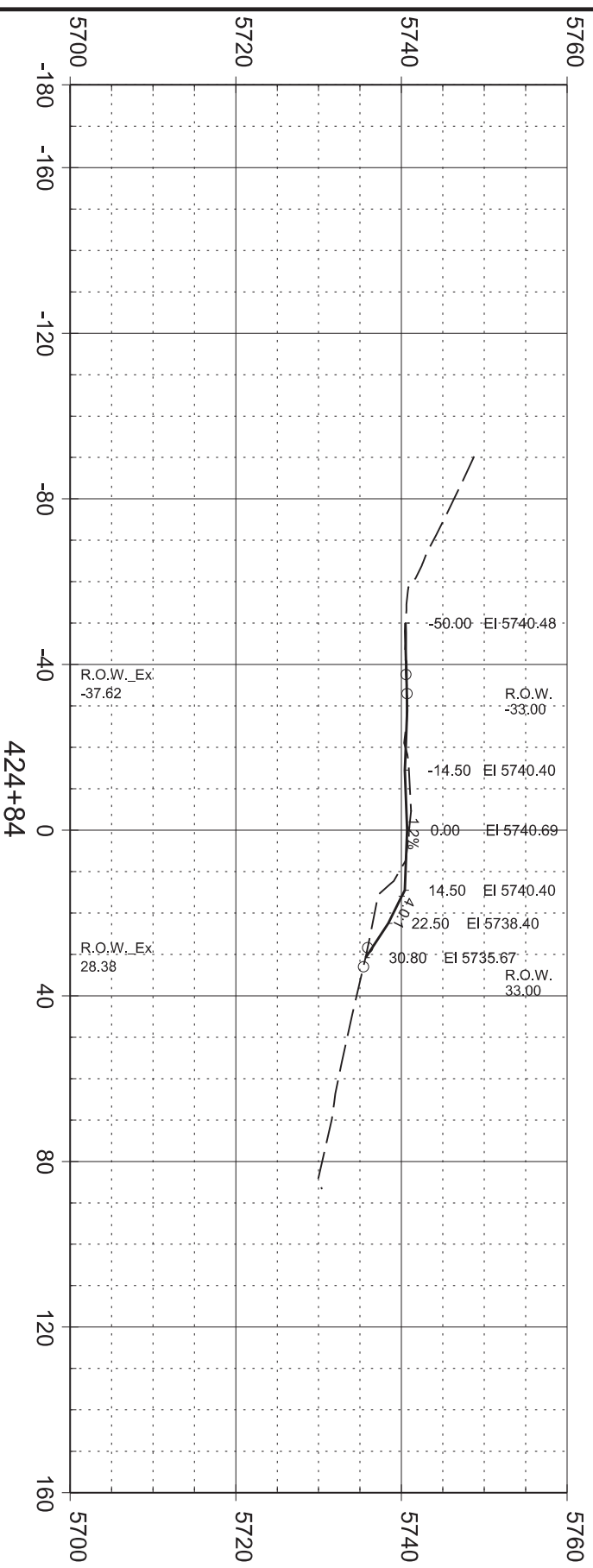
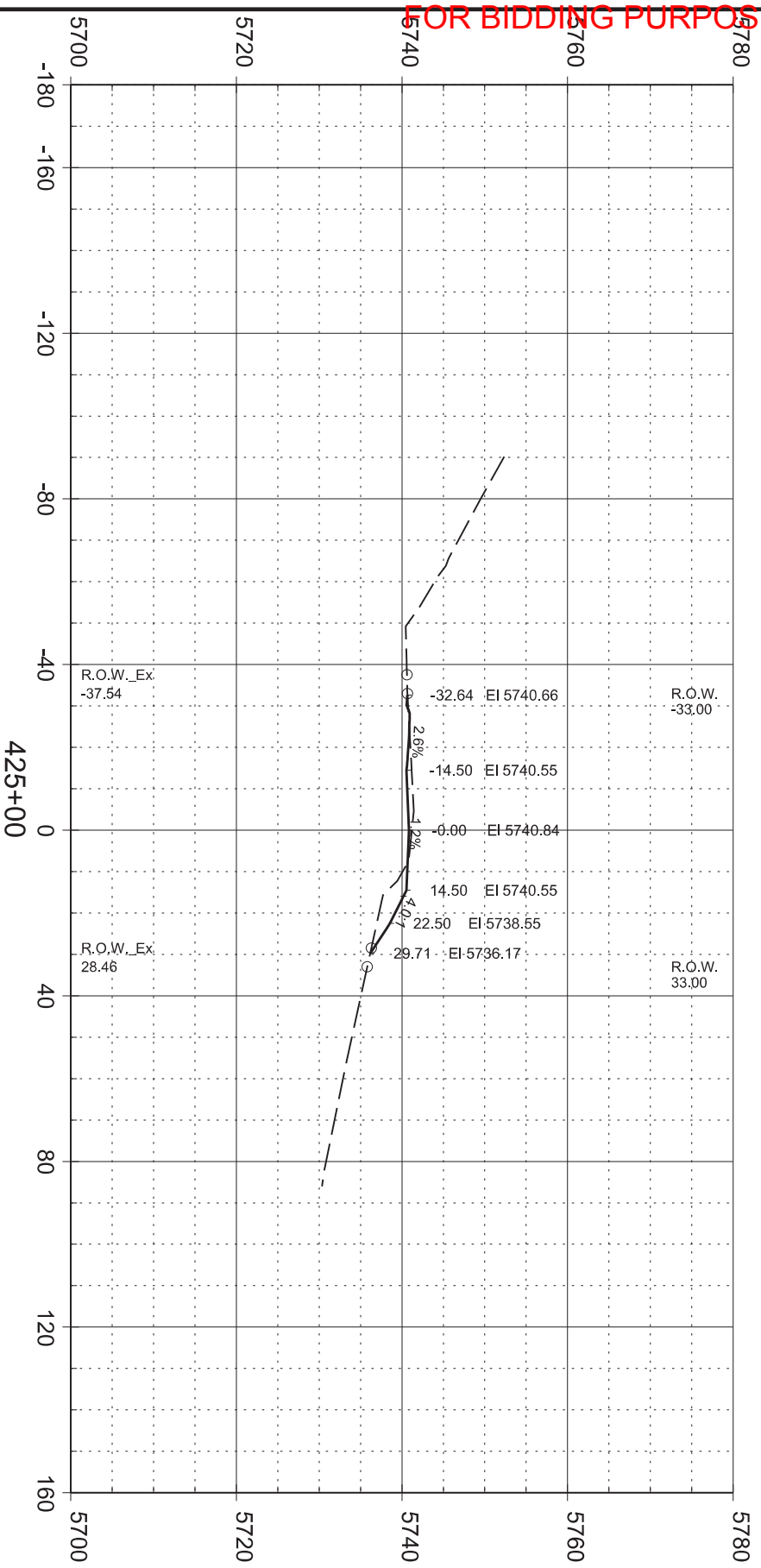
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	269	333





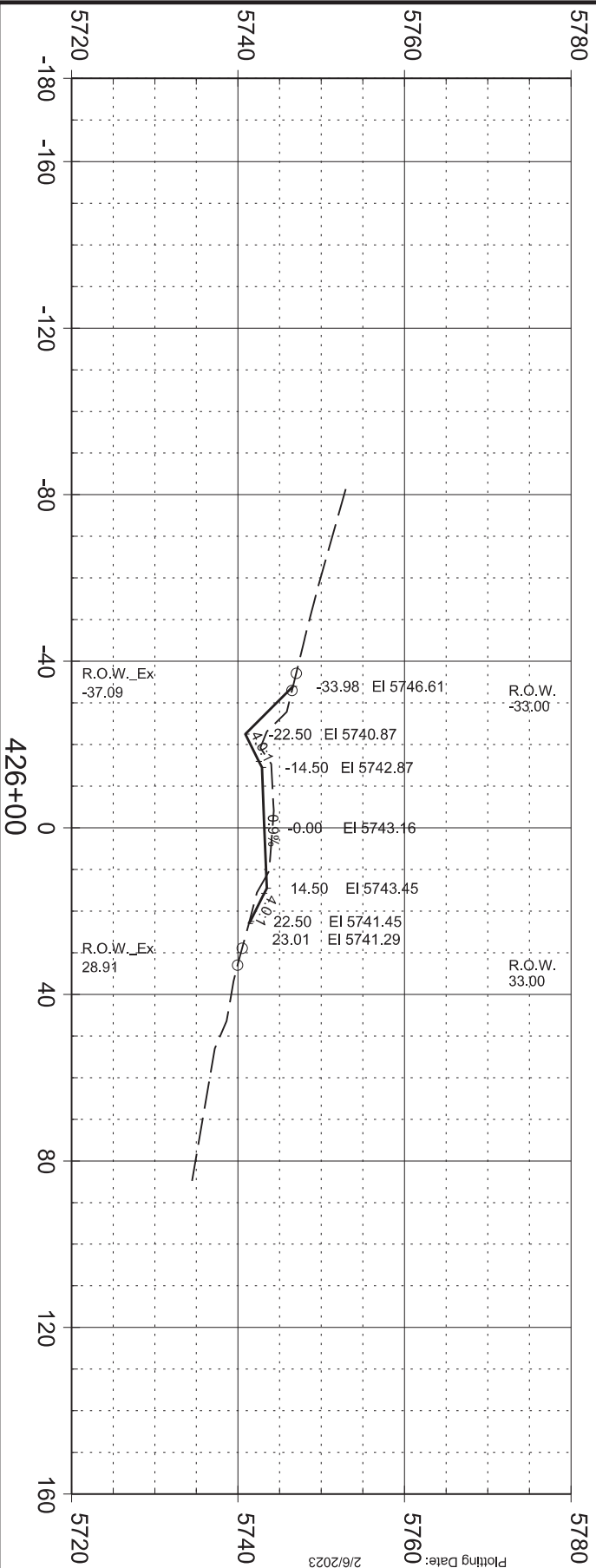
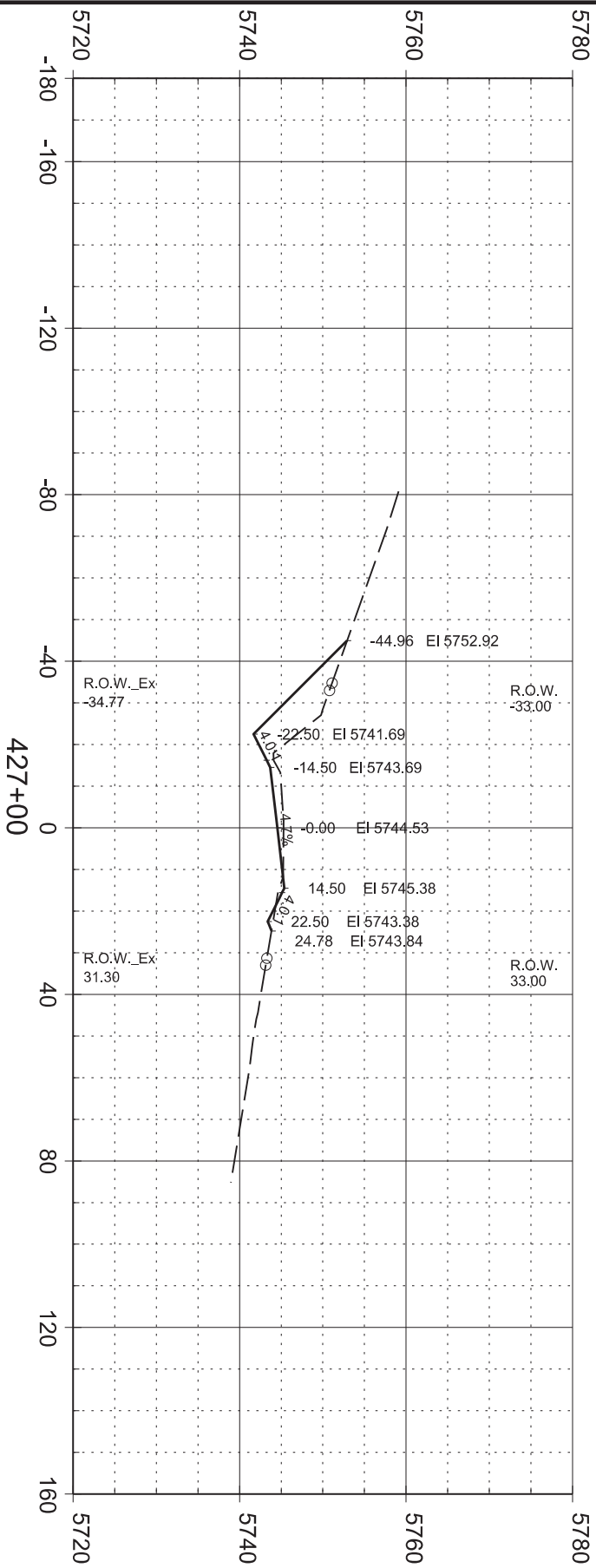
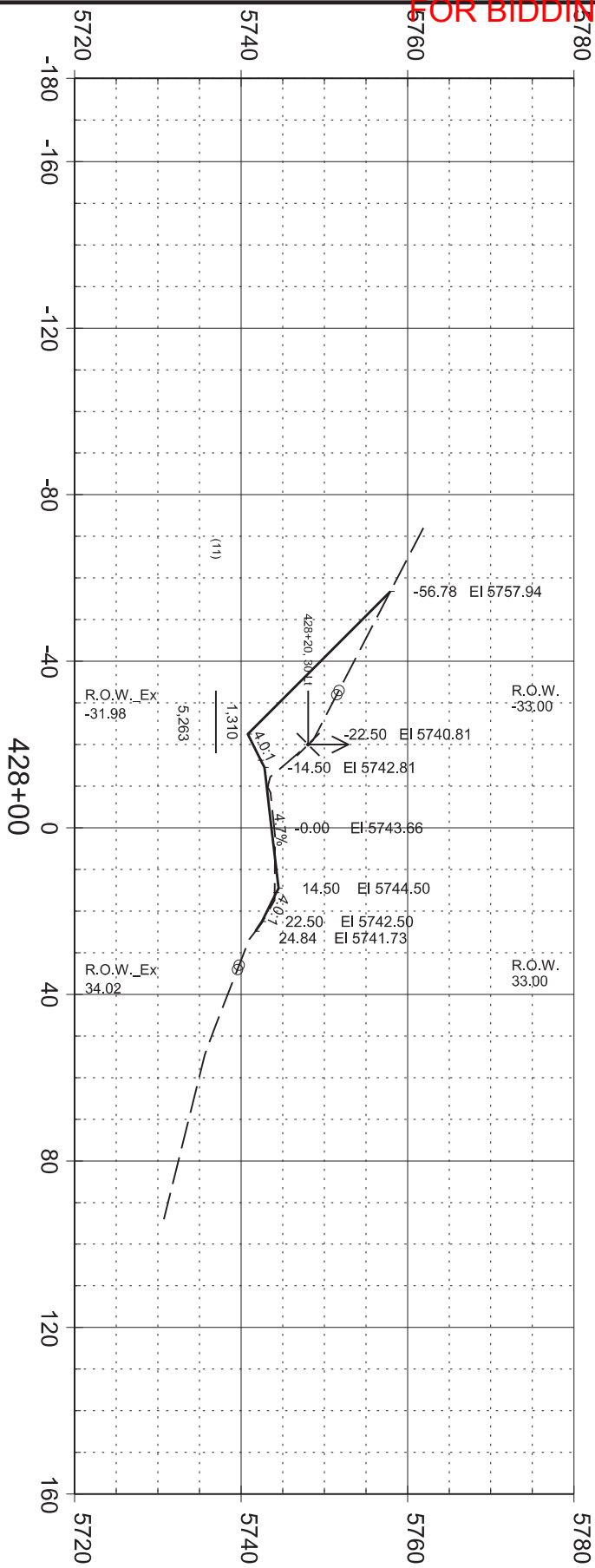
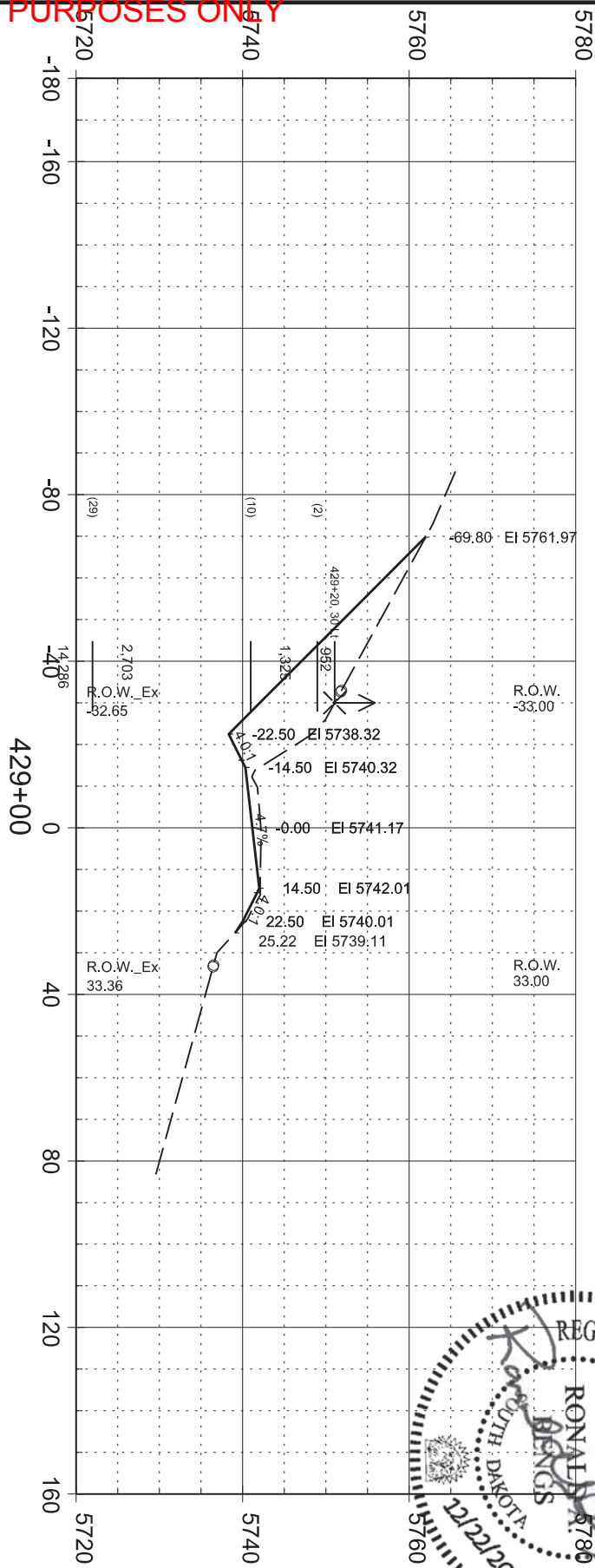
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STATE OF SOUTH DAKOTA		PROJECT	P 6403(10)	SHEET	270	TOTAL SHEETS	333
DAKOTA							

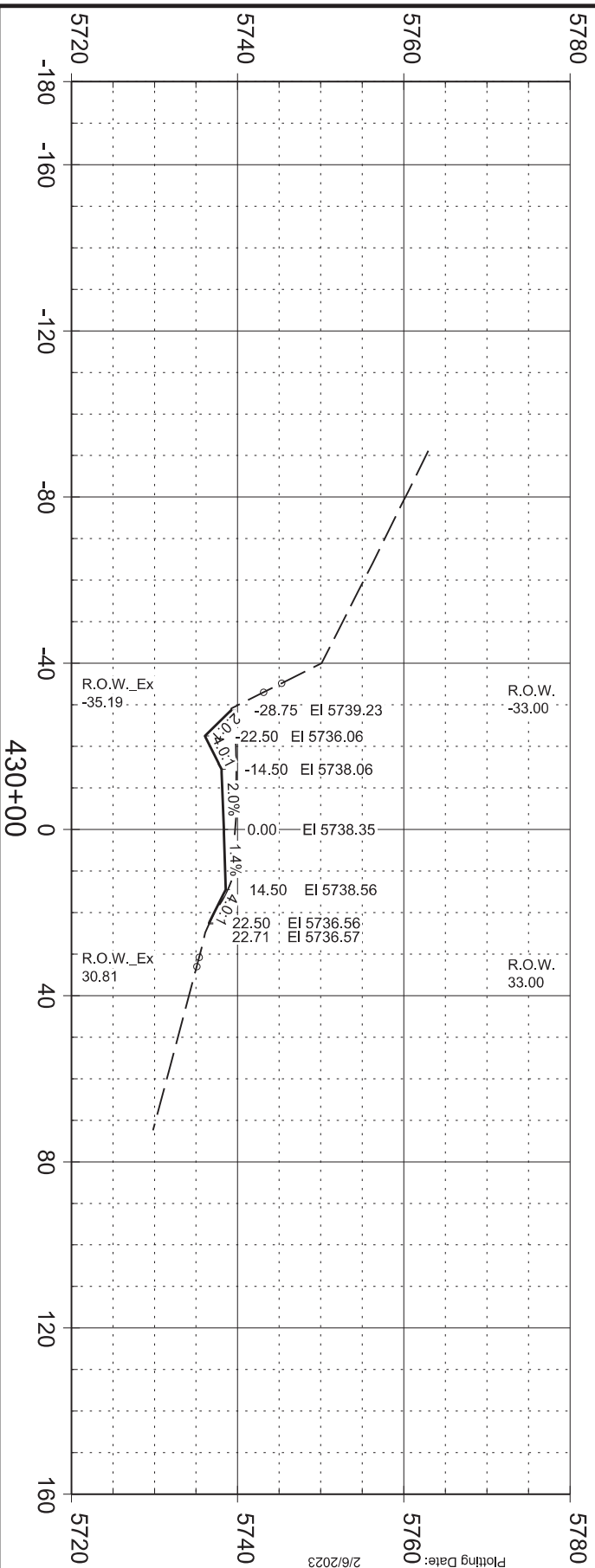
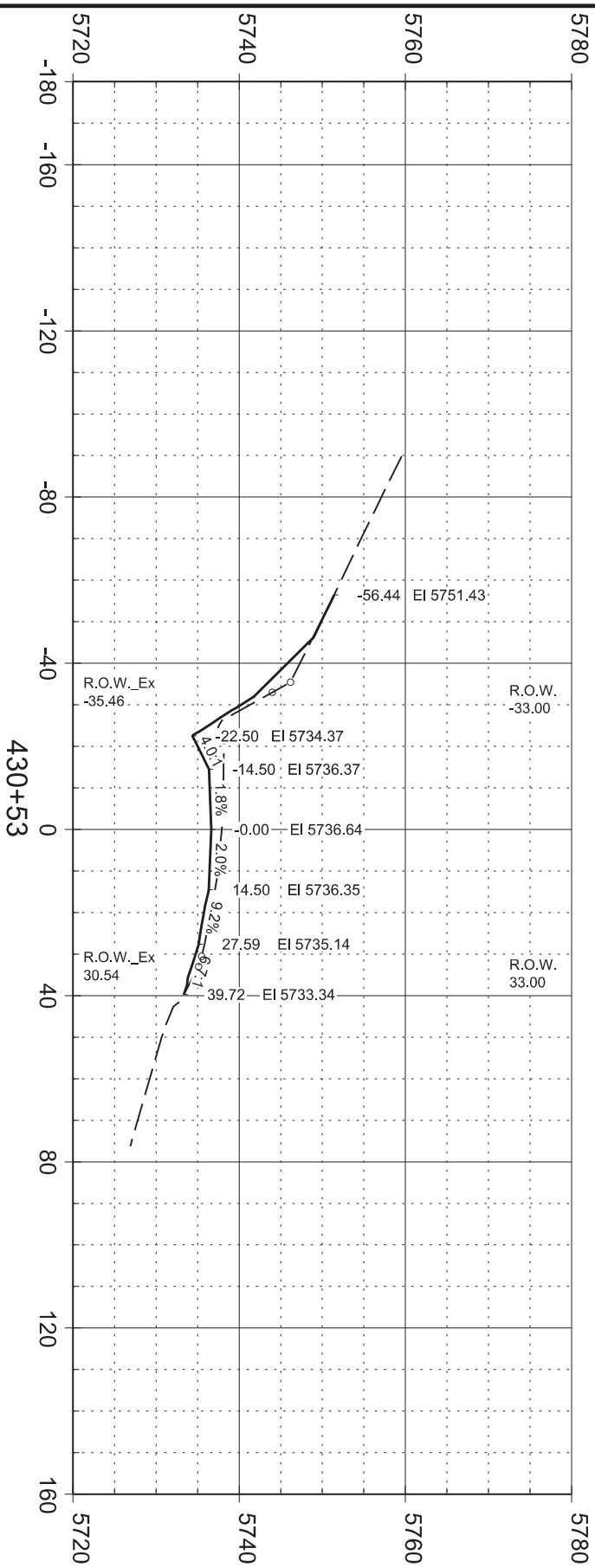
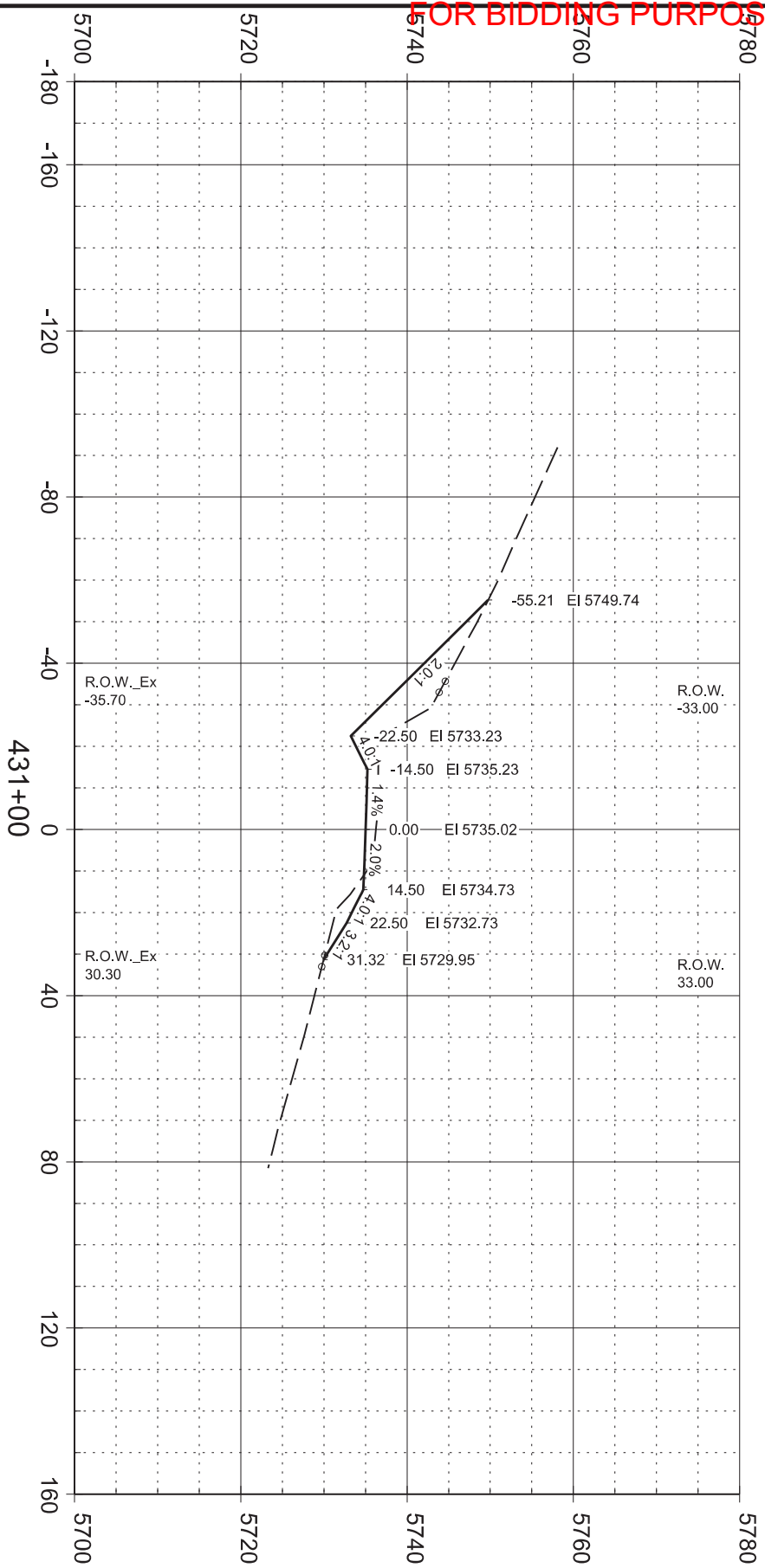
Plotting Date: 2/6/2023





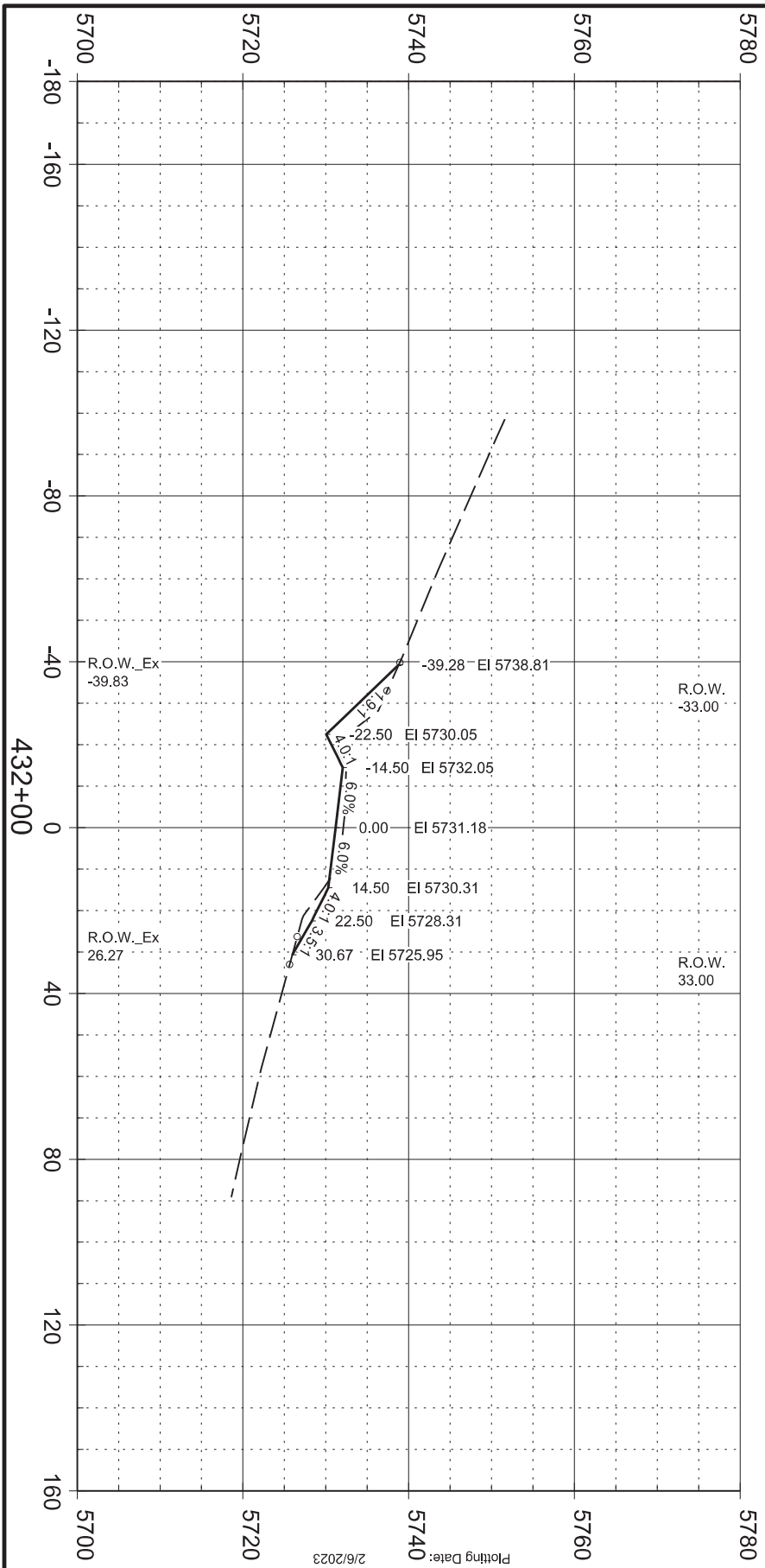
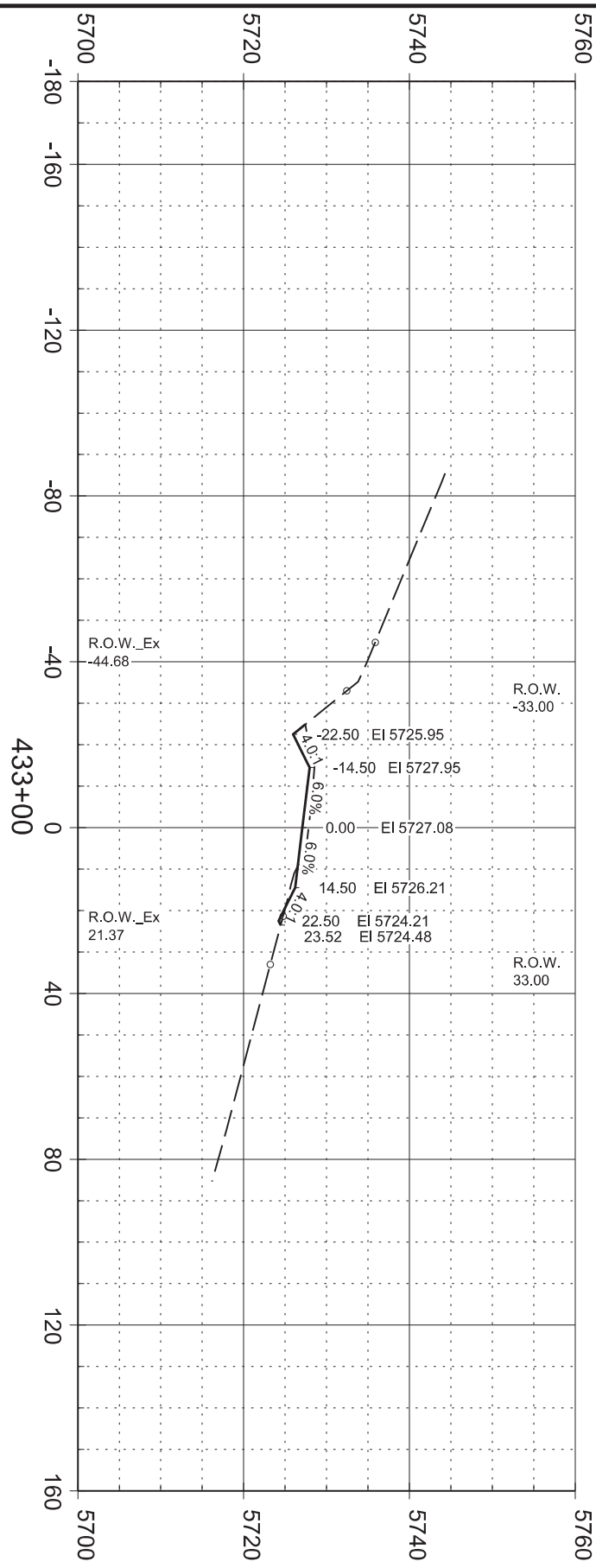
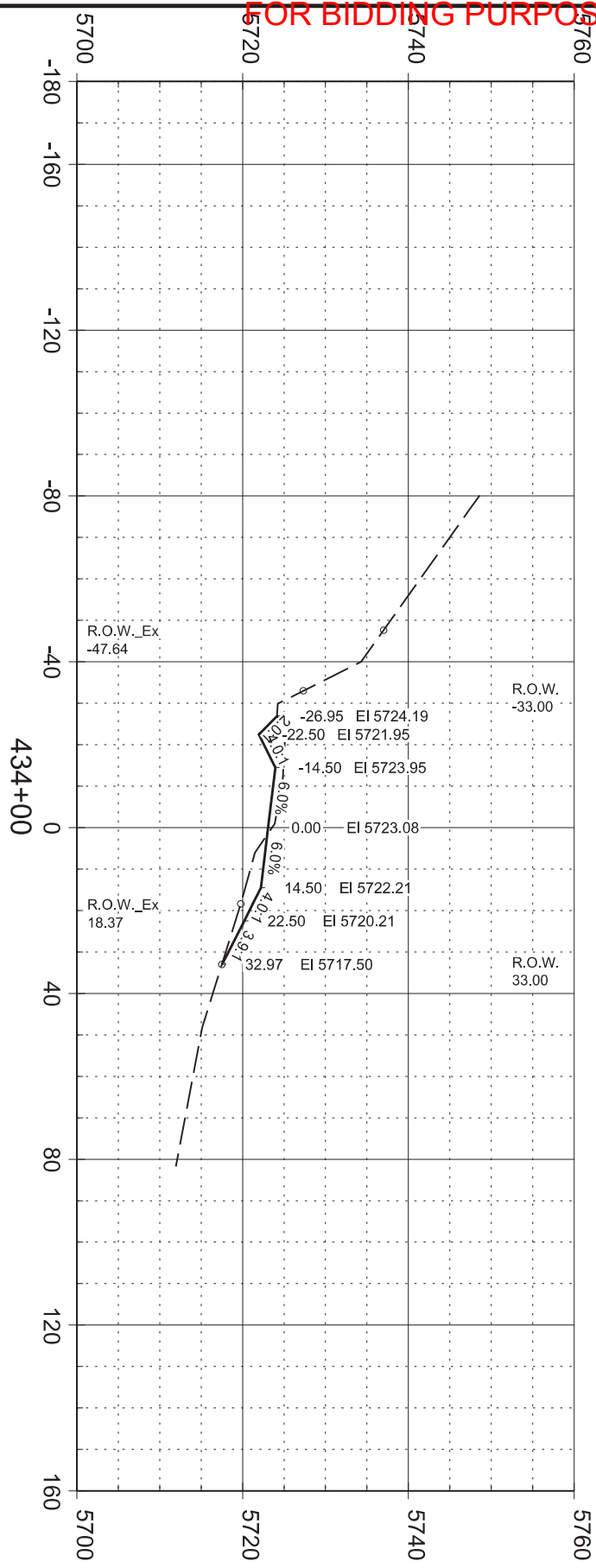
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		271		333			

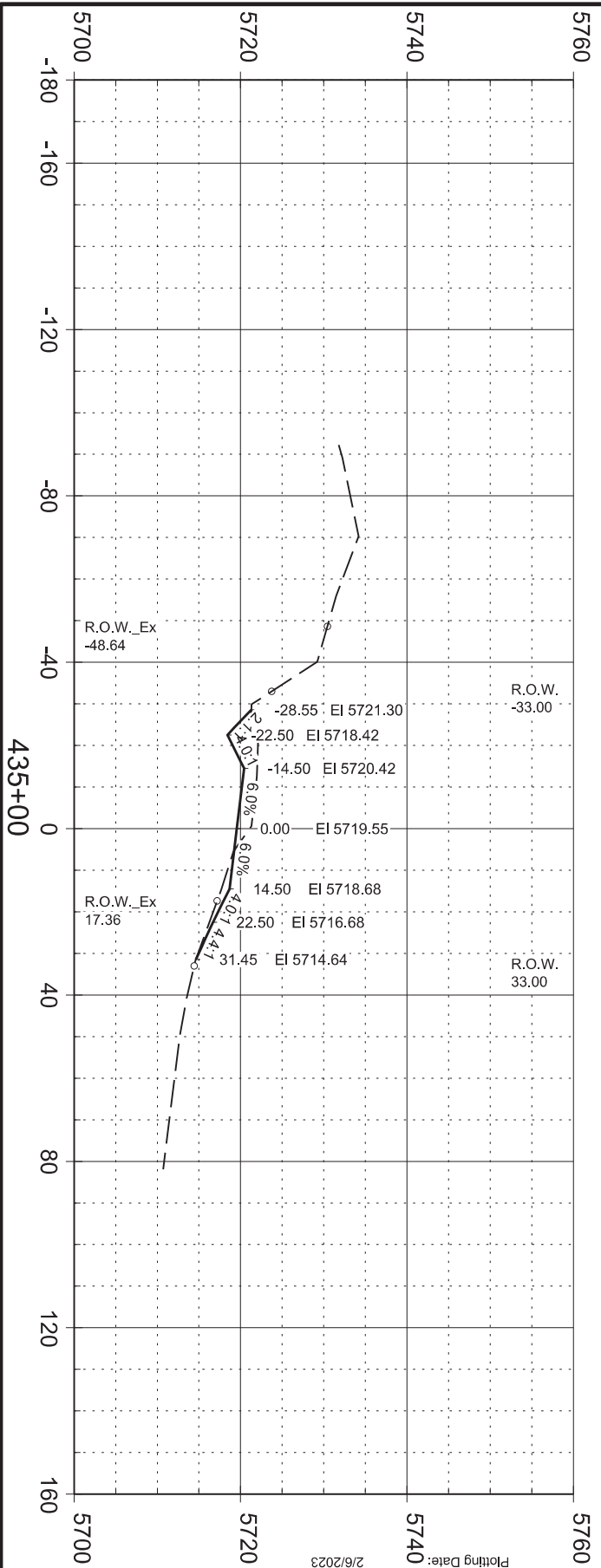
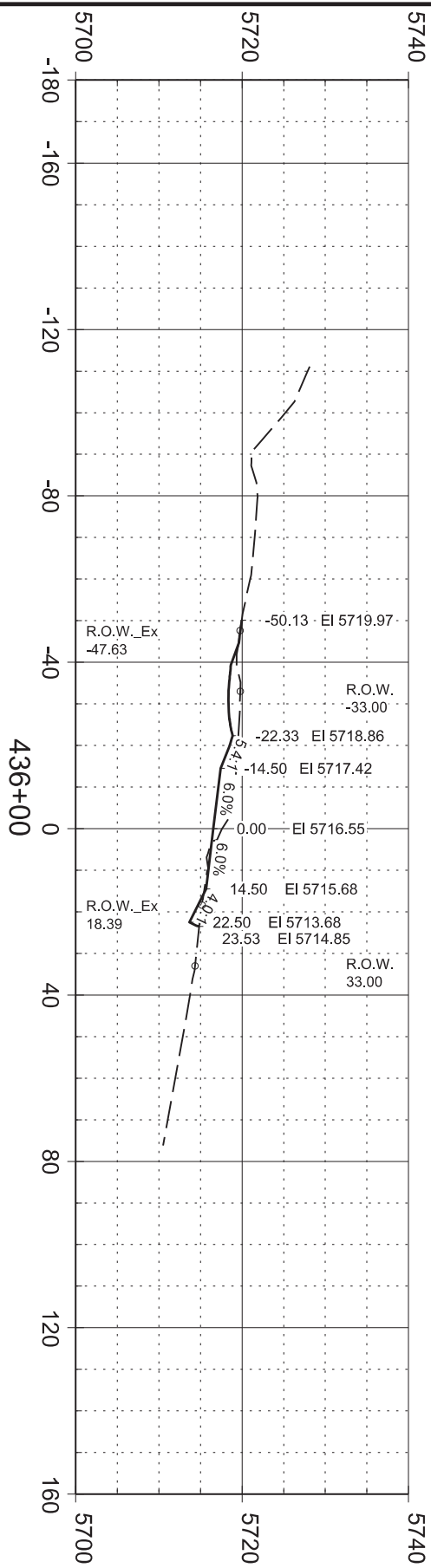
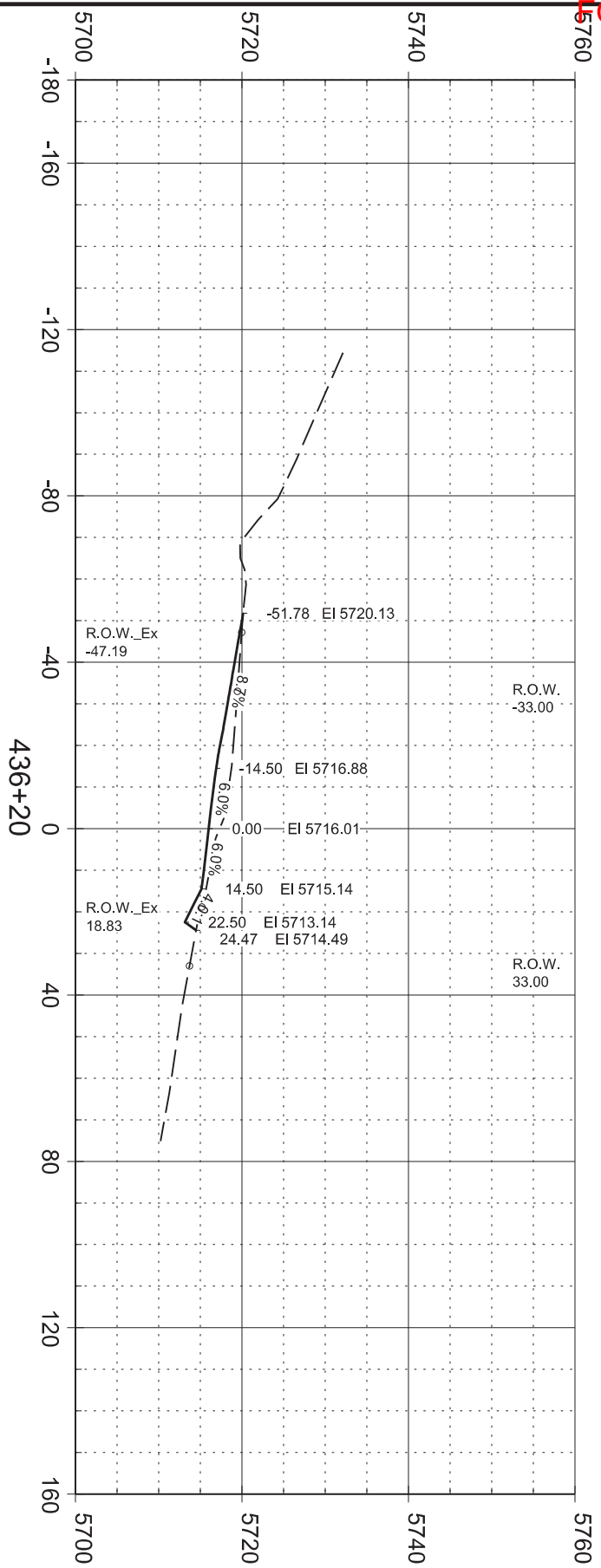
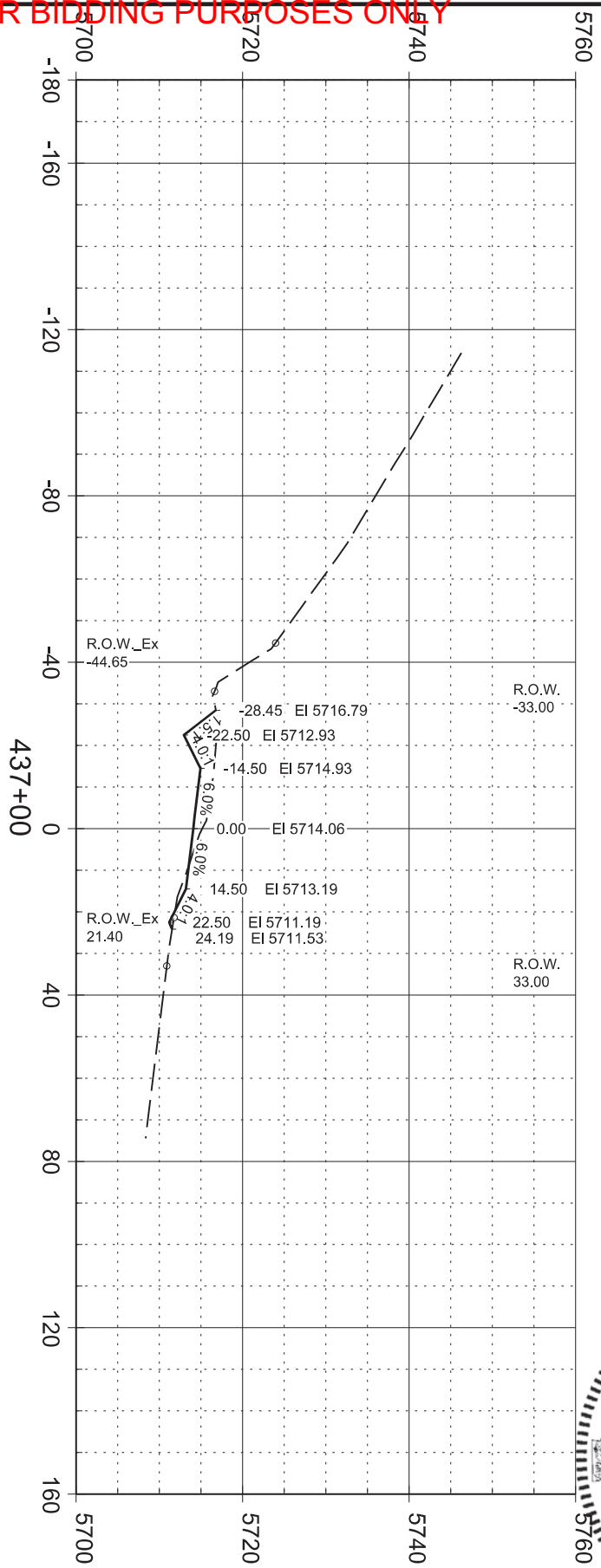
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STATE OF SOUTH DAKOTA	P 6403(10)		272	333
	PROJECT		SHEET	TOTAL SHEETS







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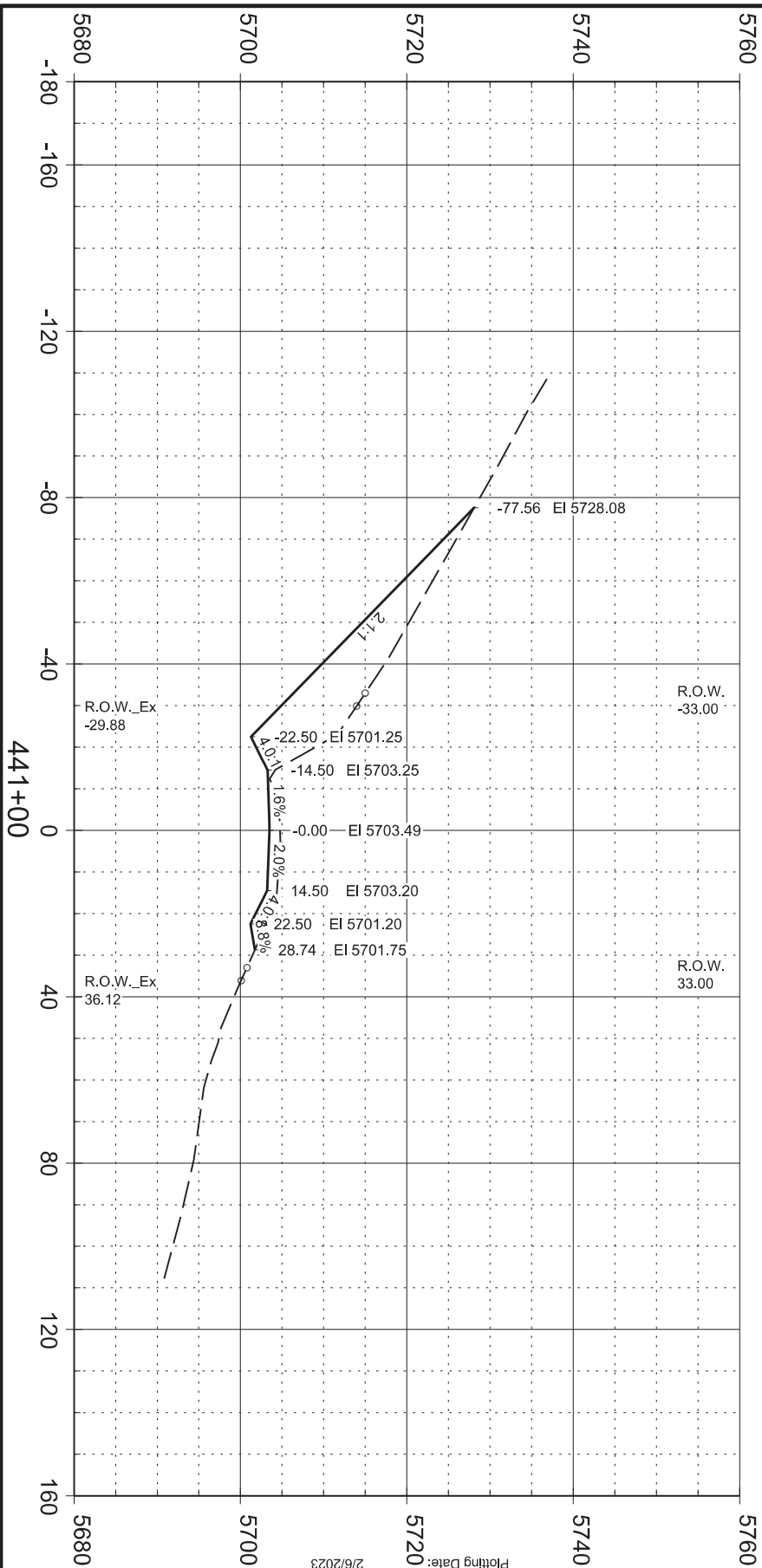
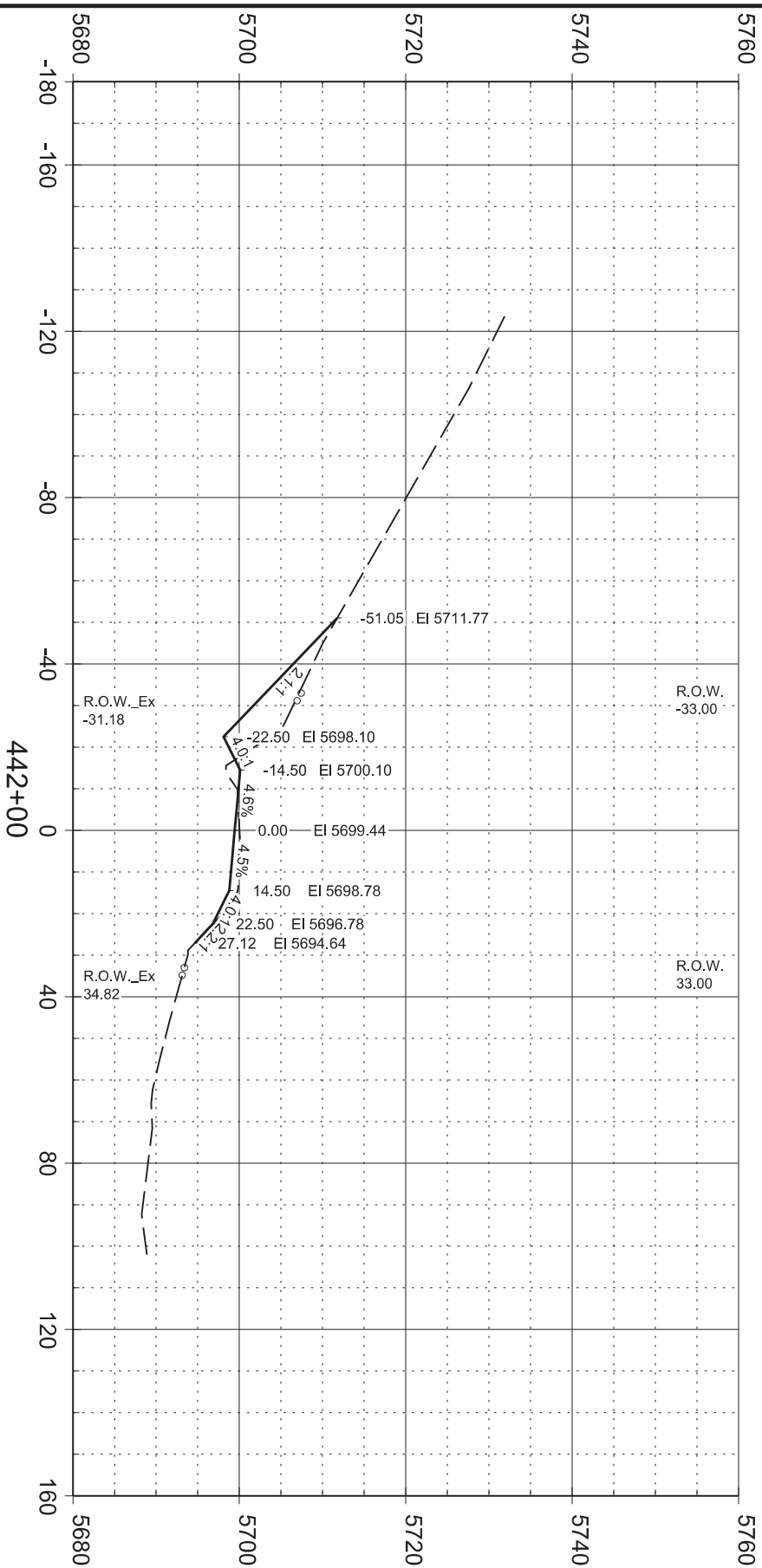
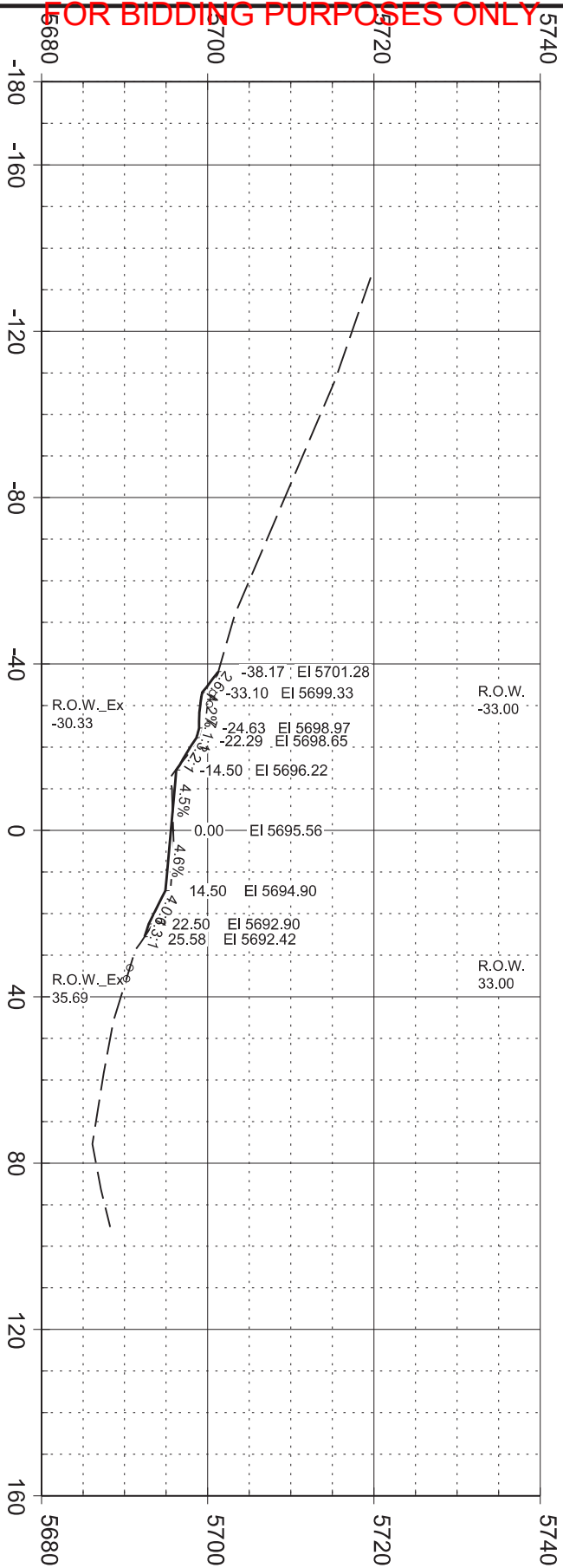
STATE OF SOUTH DAKOTA		PROJECT	P 6403(10)	SHEET	274	TOTAL SHEETS	333

Plotting Date: 2/6/2023





STATE OF SOUTH DAKOTA	P 6403(10)	275	333
PROJECT		SHEET	TOTAL SHEETS



STATE OF SOUTH DAKOTA	P 6403(10)	276	333
		SHEET	TOTAL SHEETS

Plotting Date: 2/6/2023

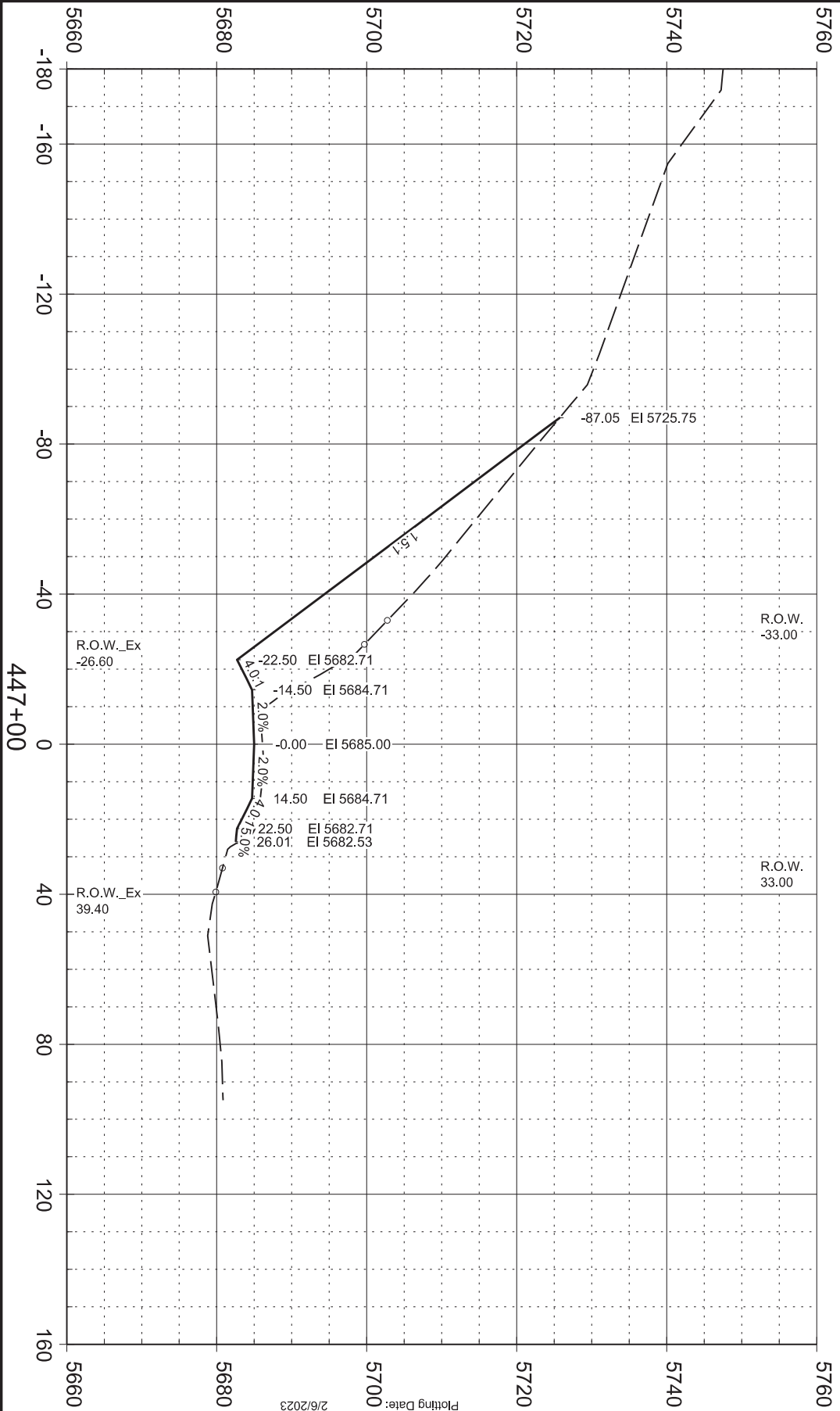
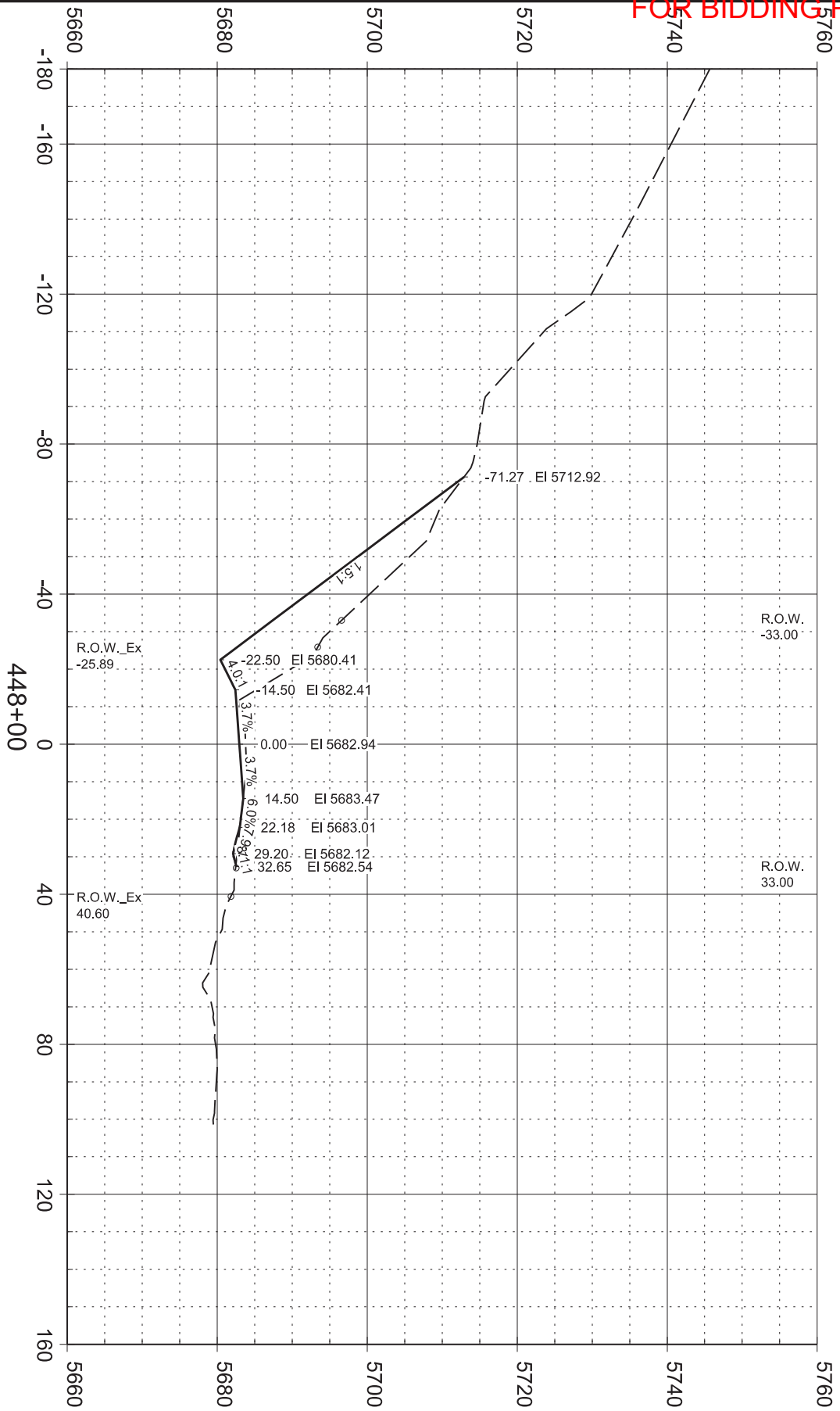




STATE OF SOUTH DAKOTA	P 6403(10)		277	333
	PROJECT		SHEET	TOTAL SHEETS



FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		278		333			

Plotting Date: 2/6/2023

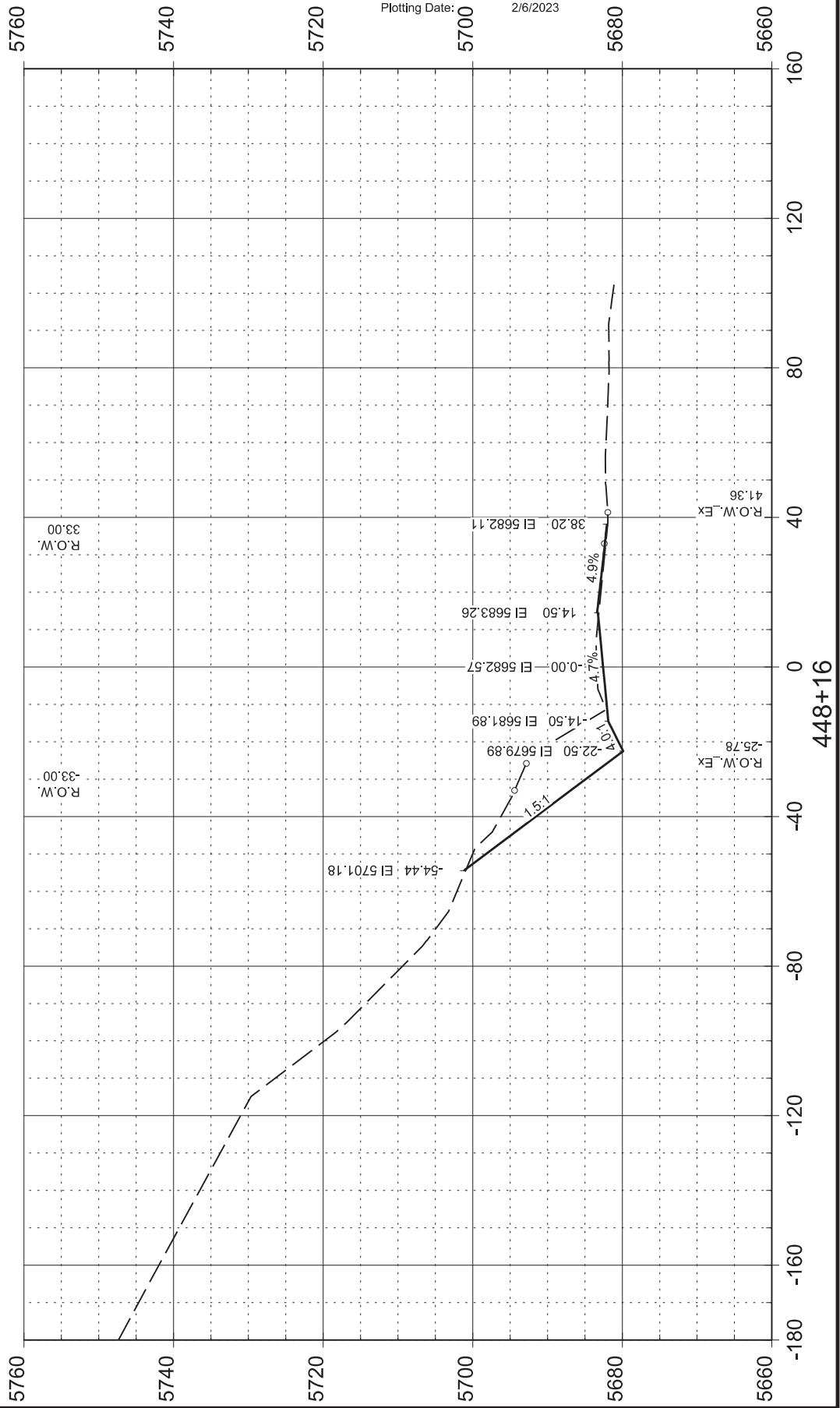
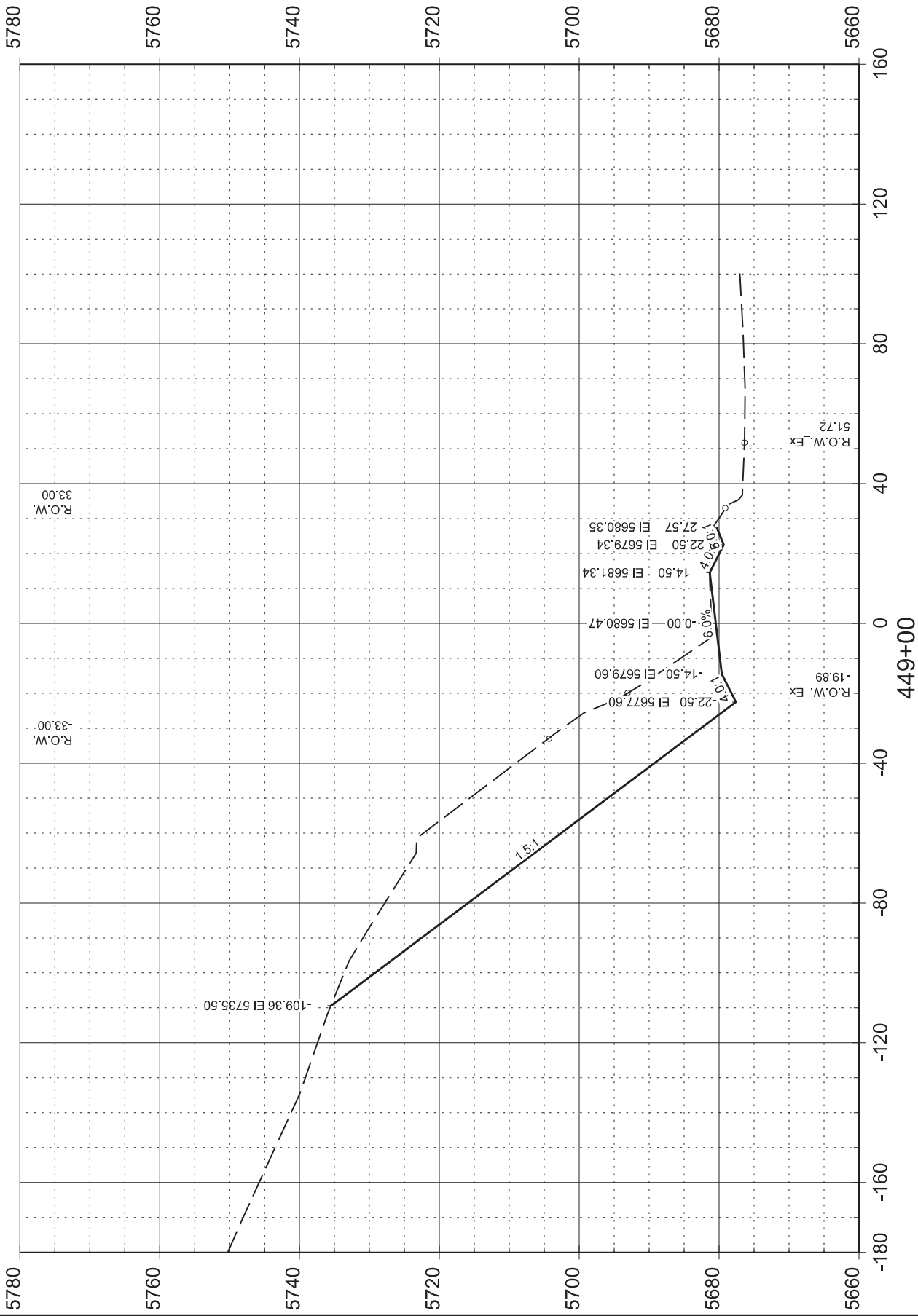




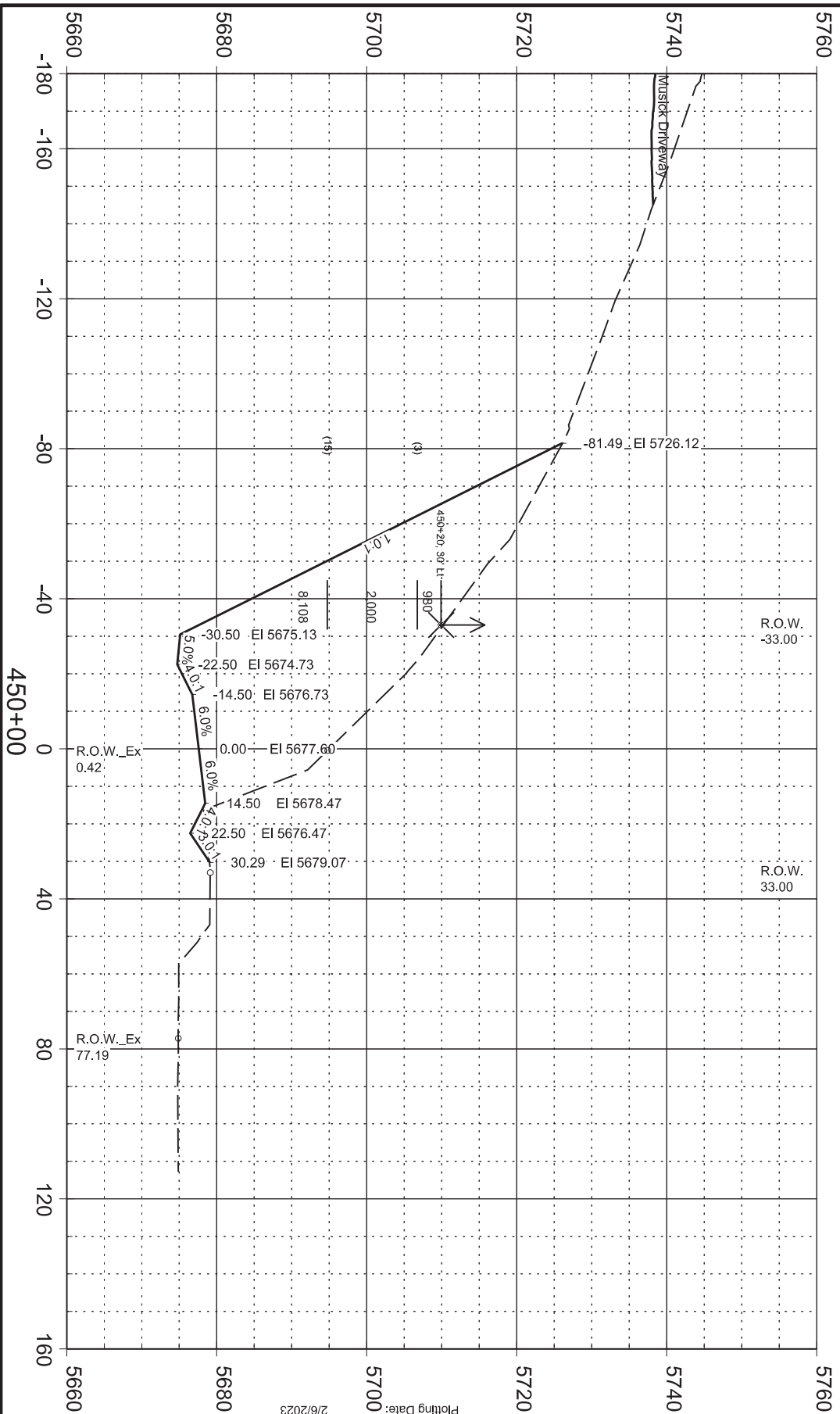
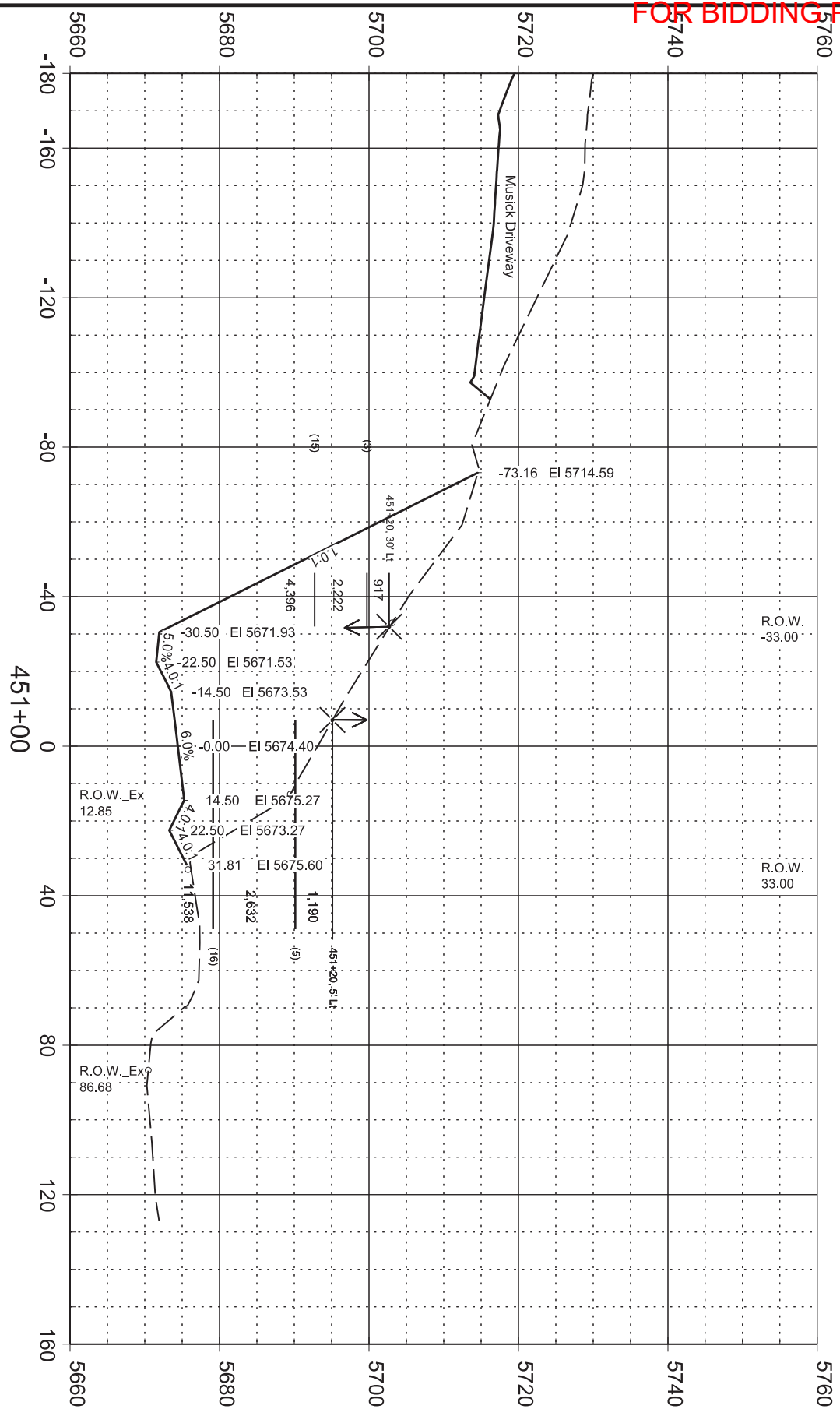
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	279	333

Plotting Date: 2/6/2023



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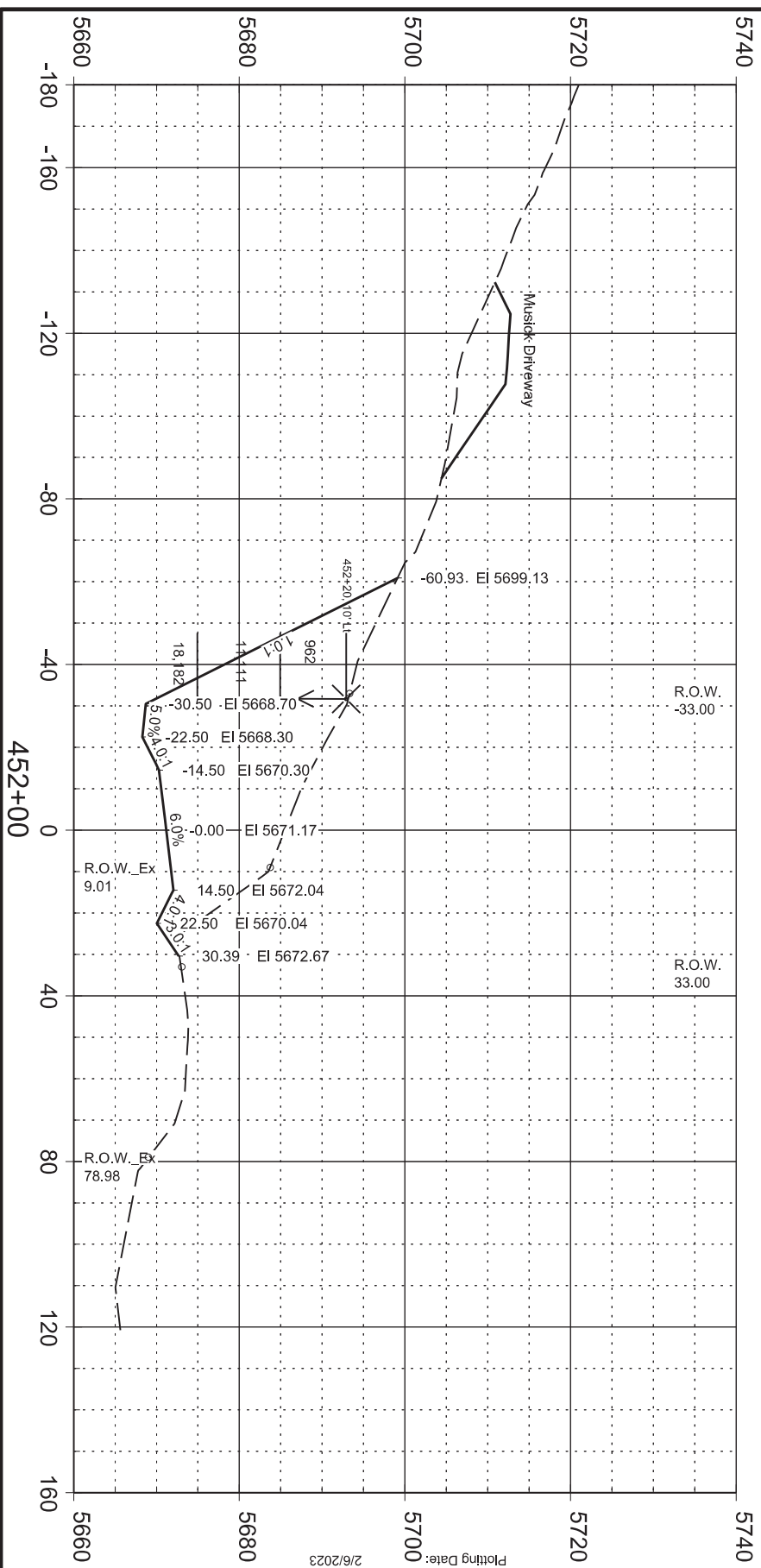
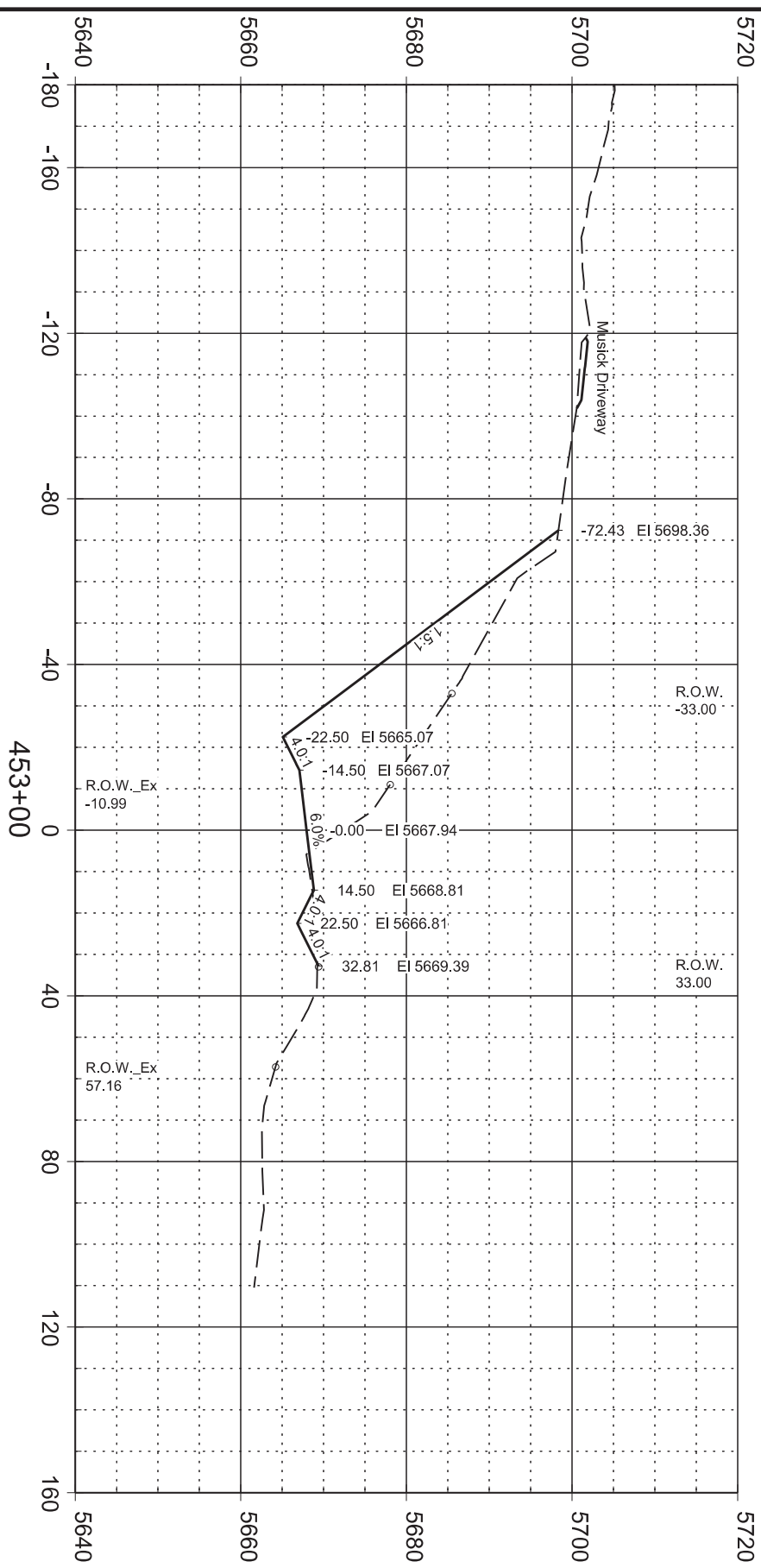
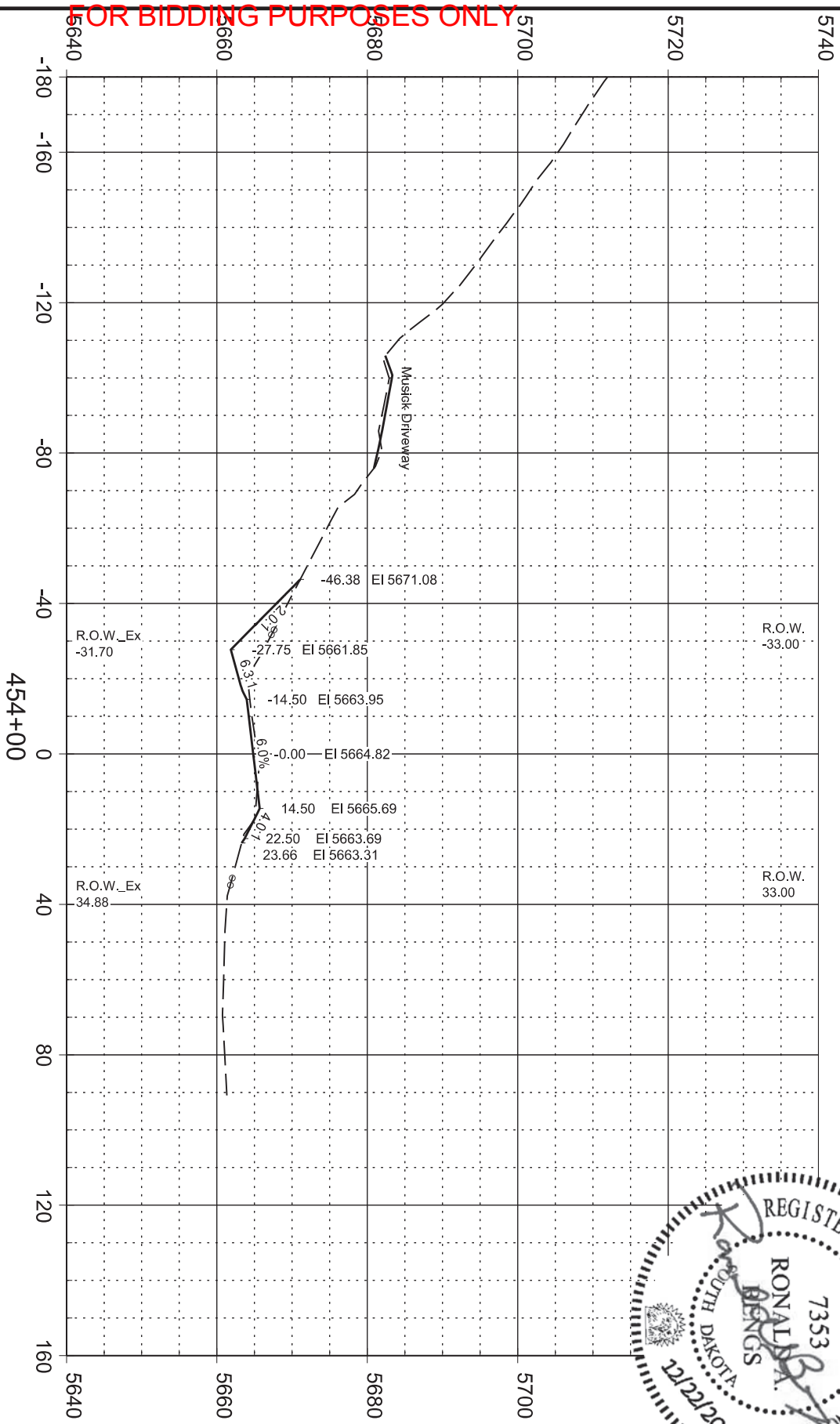


STATE OF SOUTH DAKOTA	P 6403(10)		280	333
	PROJECT		SHEET	TOTAL SHEETS





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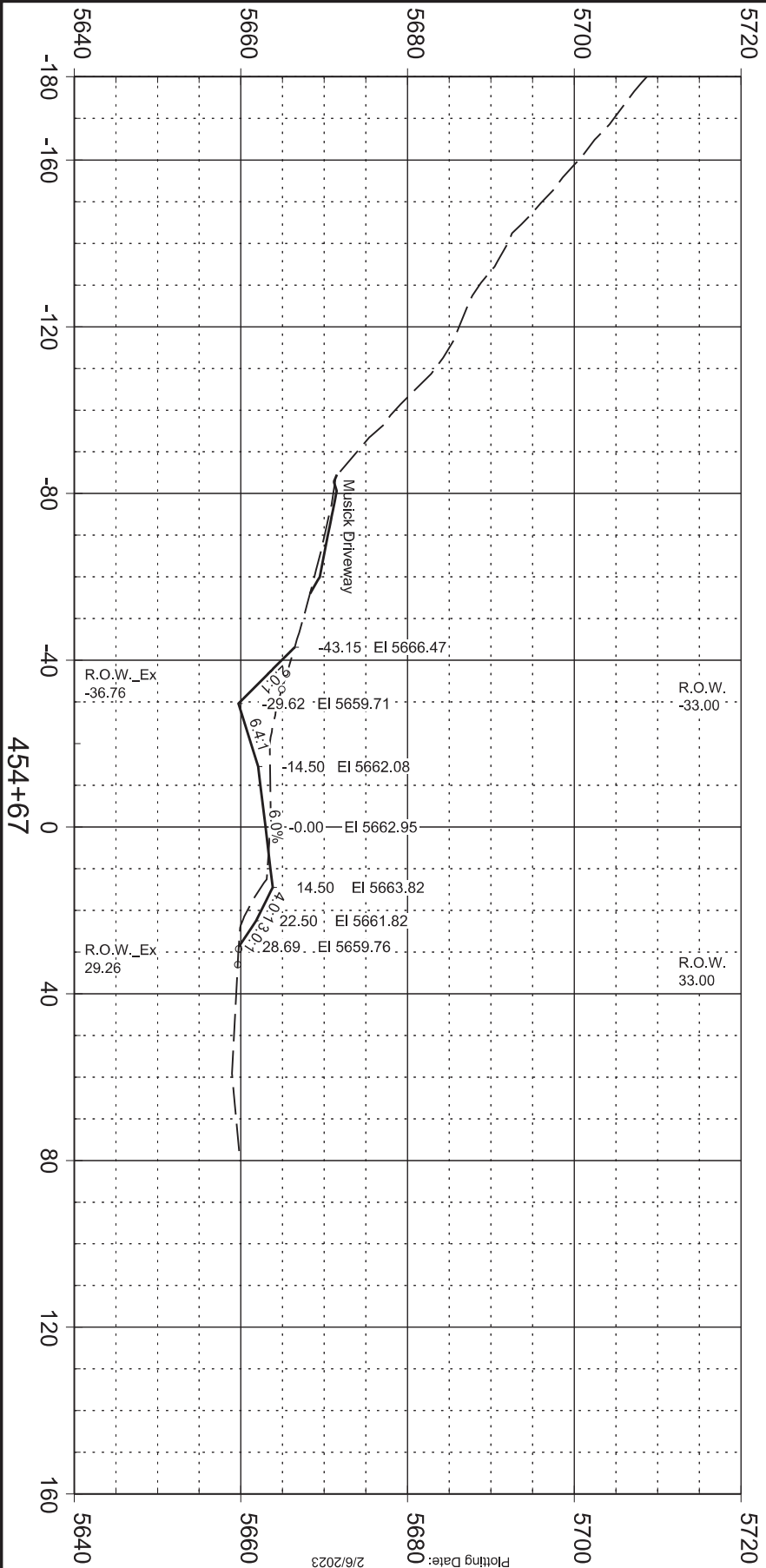
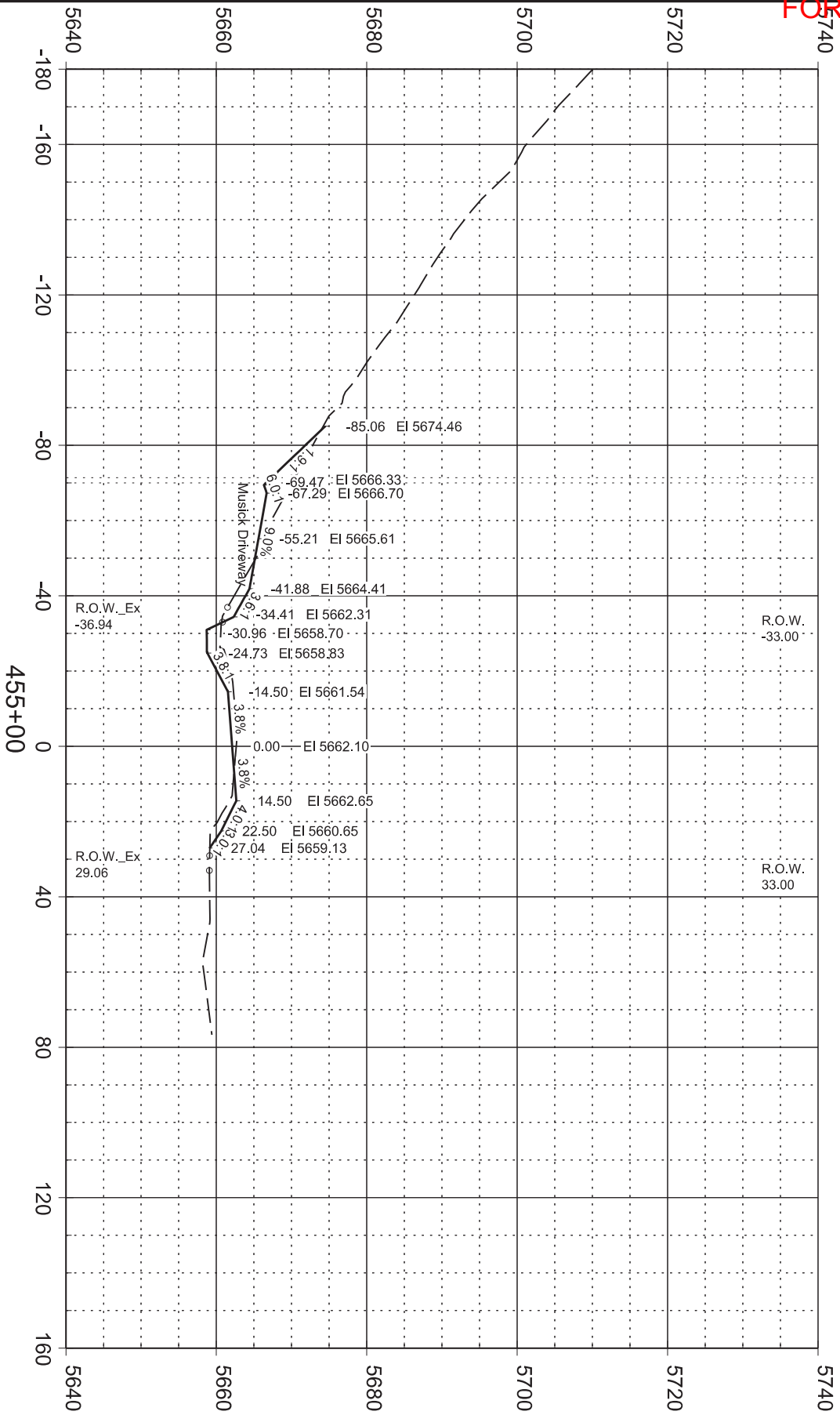


STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		281		333		333	

Plotting Date: 2/6/2023



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STATE OF SOUTH DAKOTA		P 6403(10)	282	333
PROJECT			SHEET	TOTAL SHEETS

Plotting Date: 2/6/2023

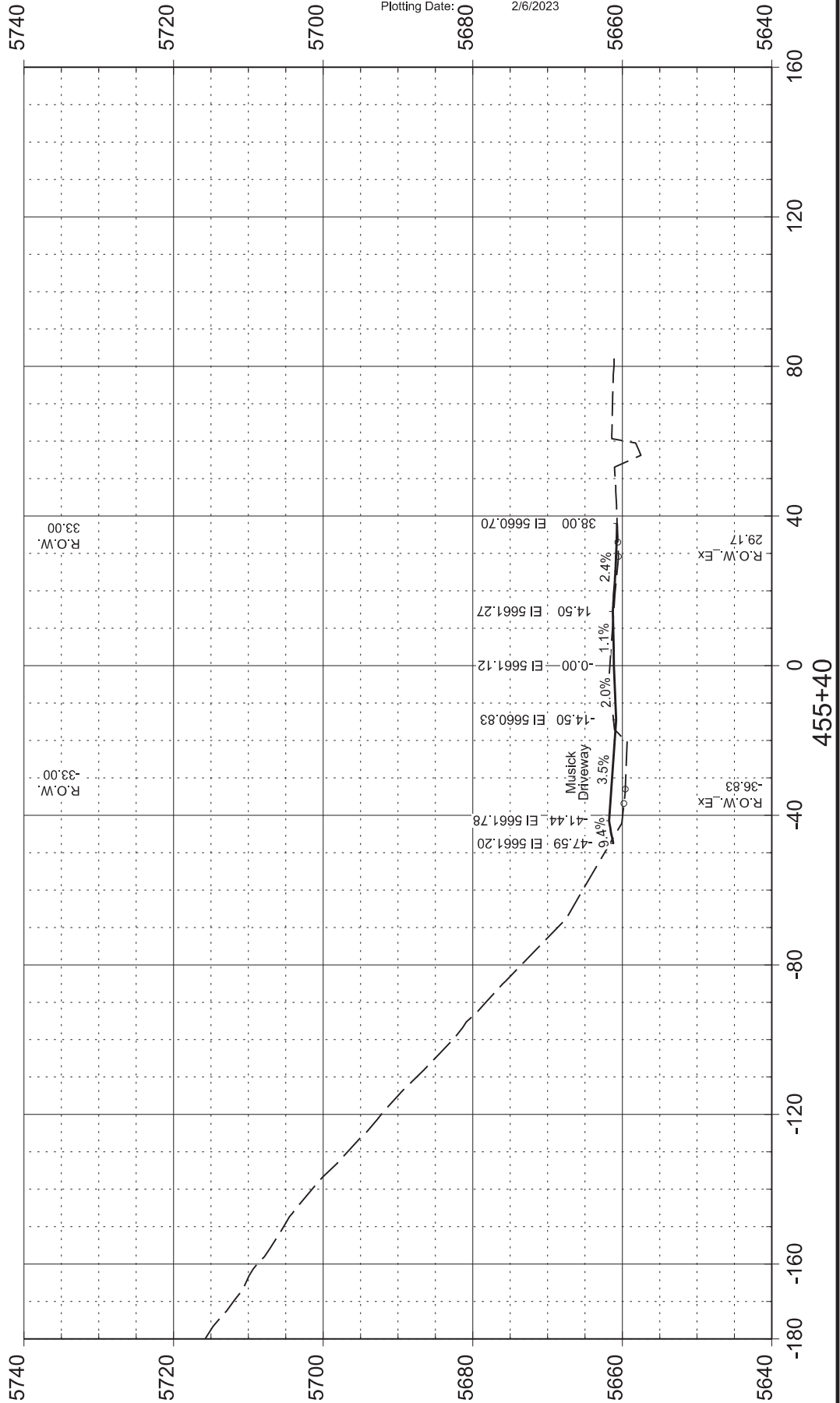
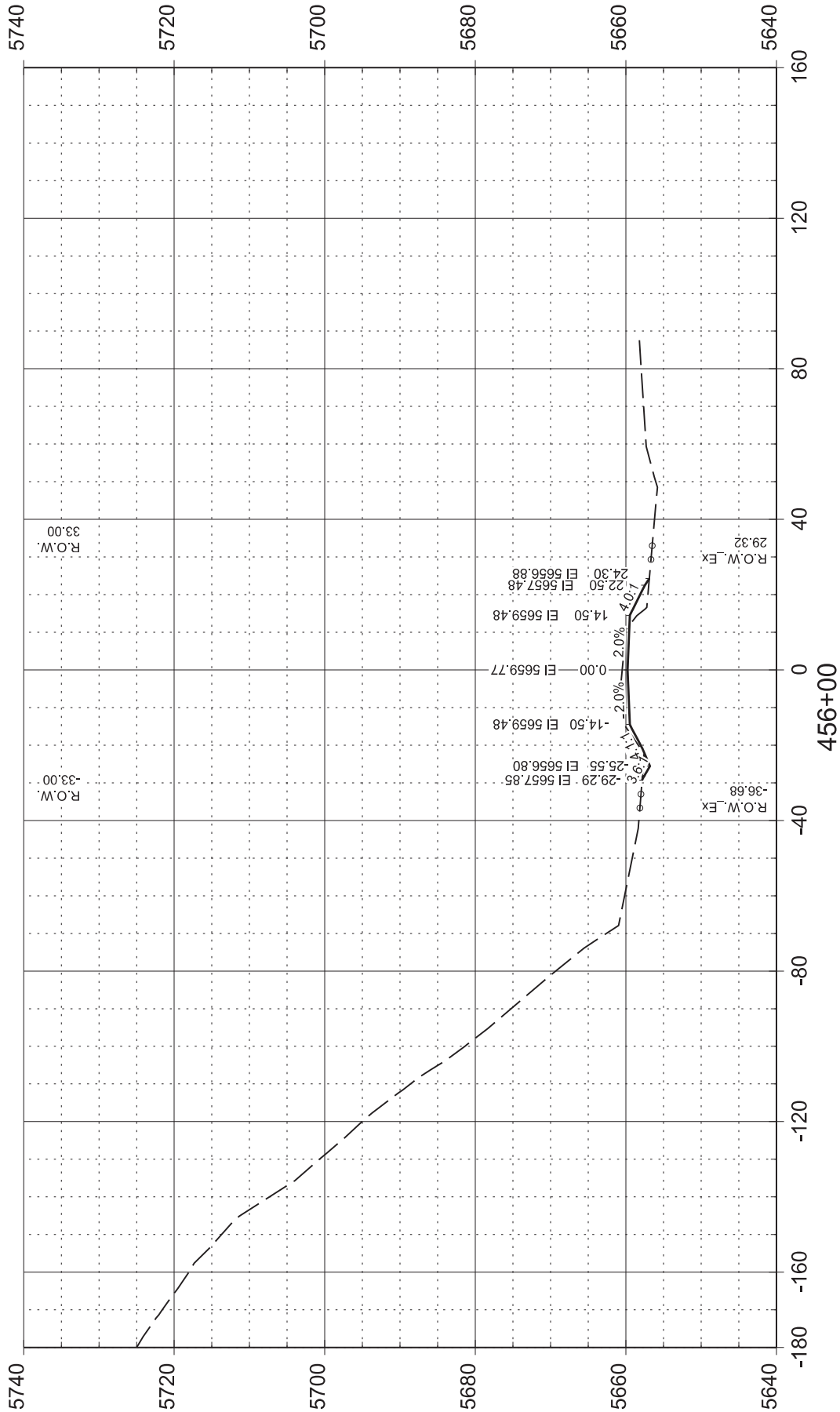




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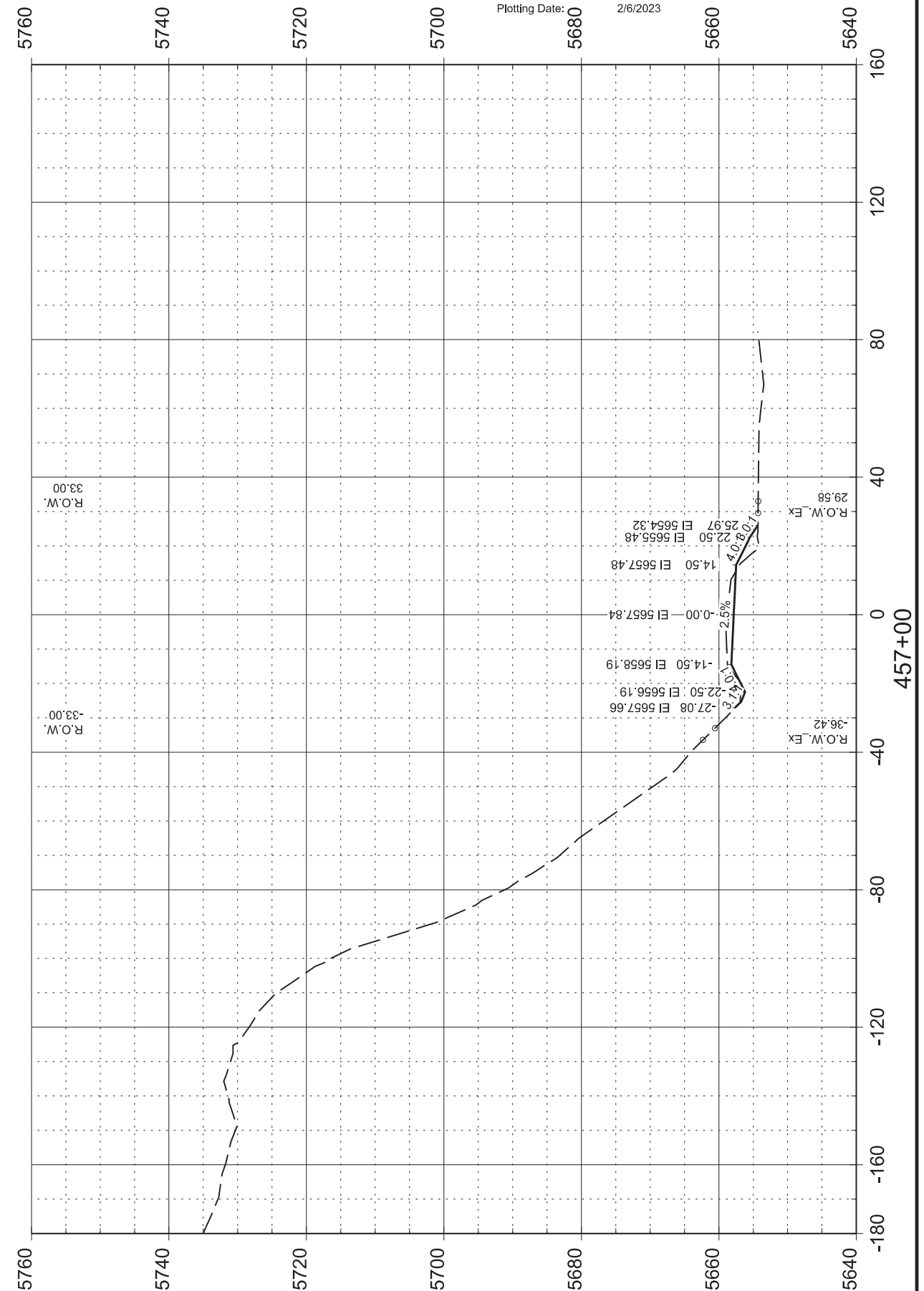
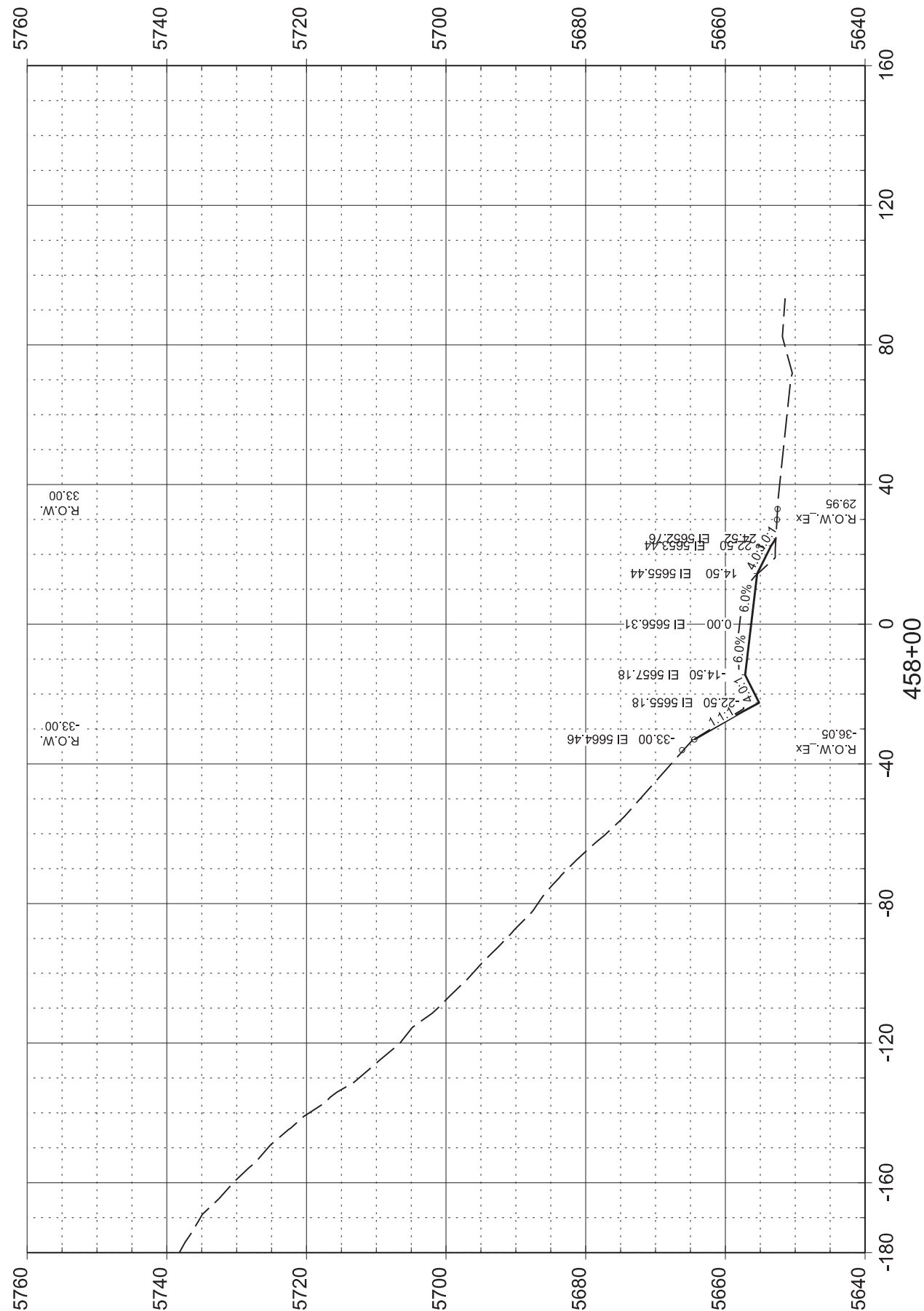
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	283	333

Plotting Date: 2/6/2023

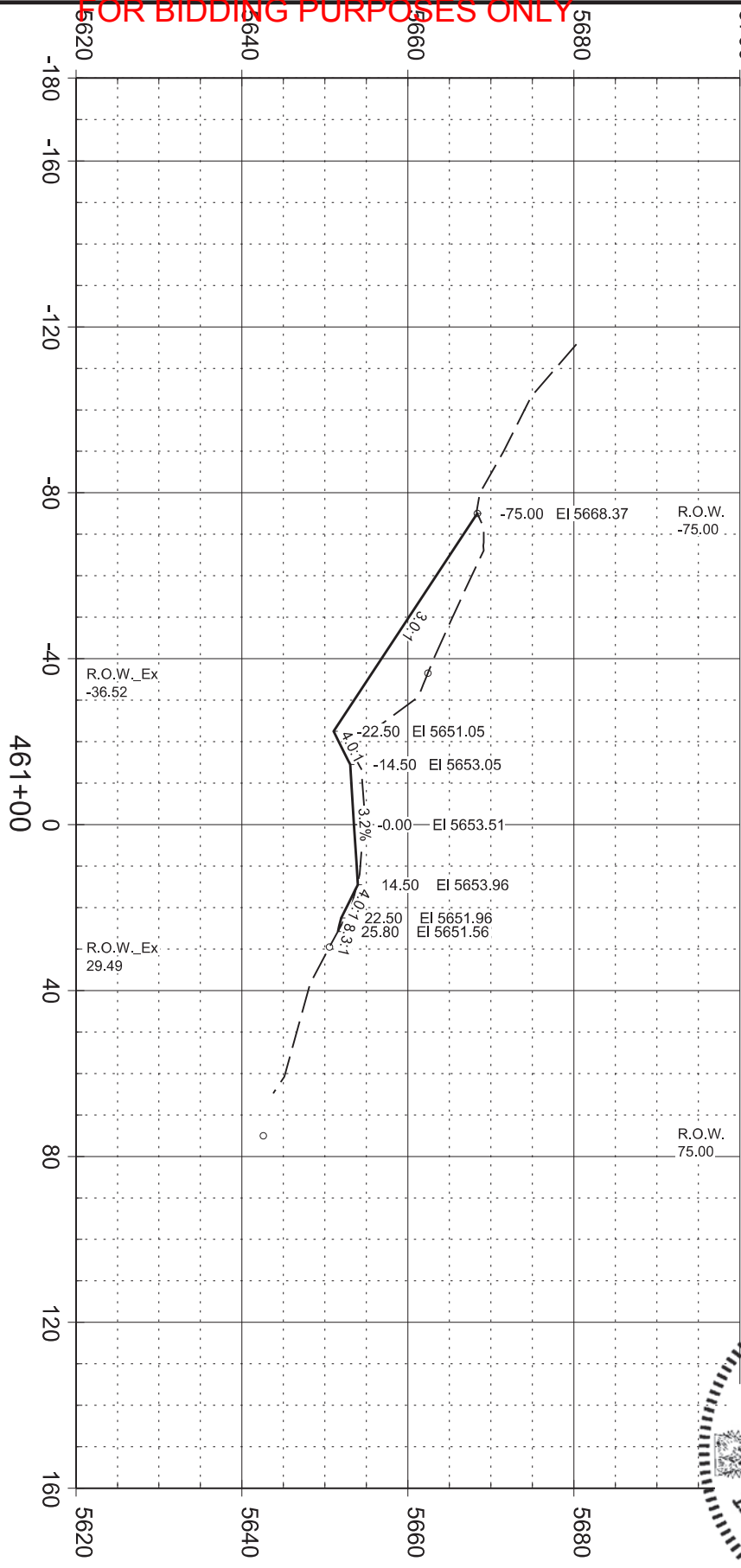
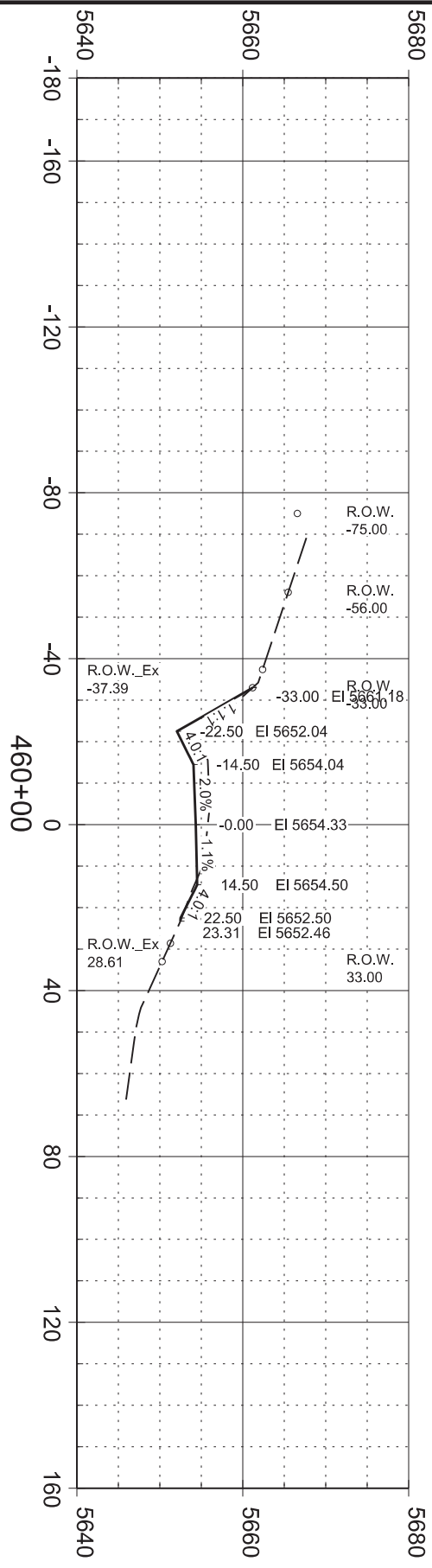
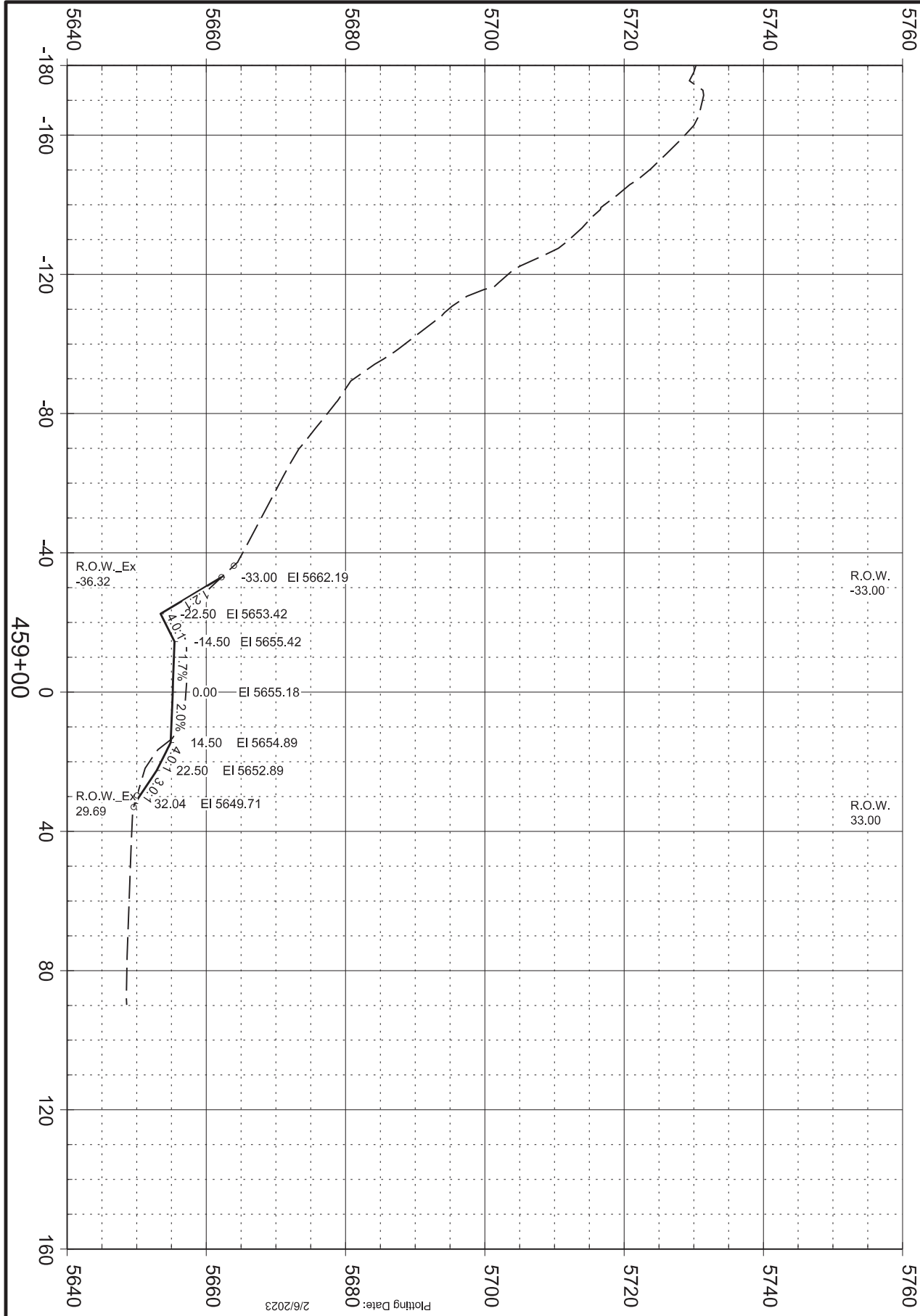


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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	284	333



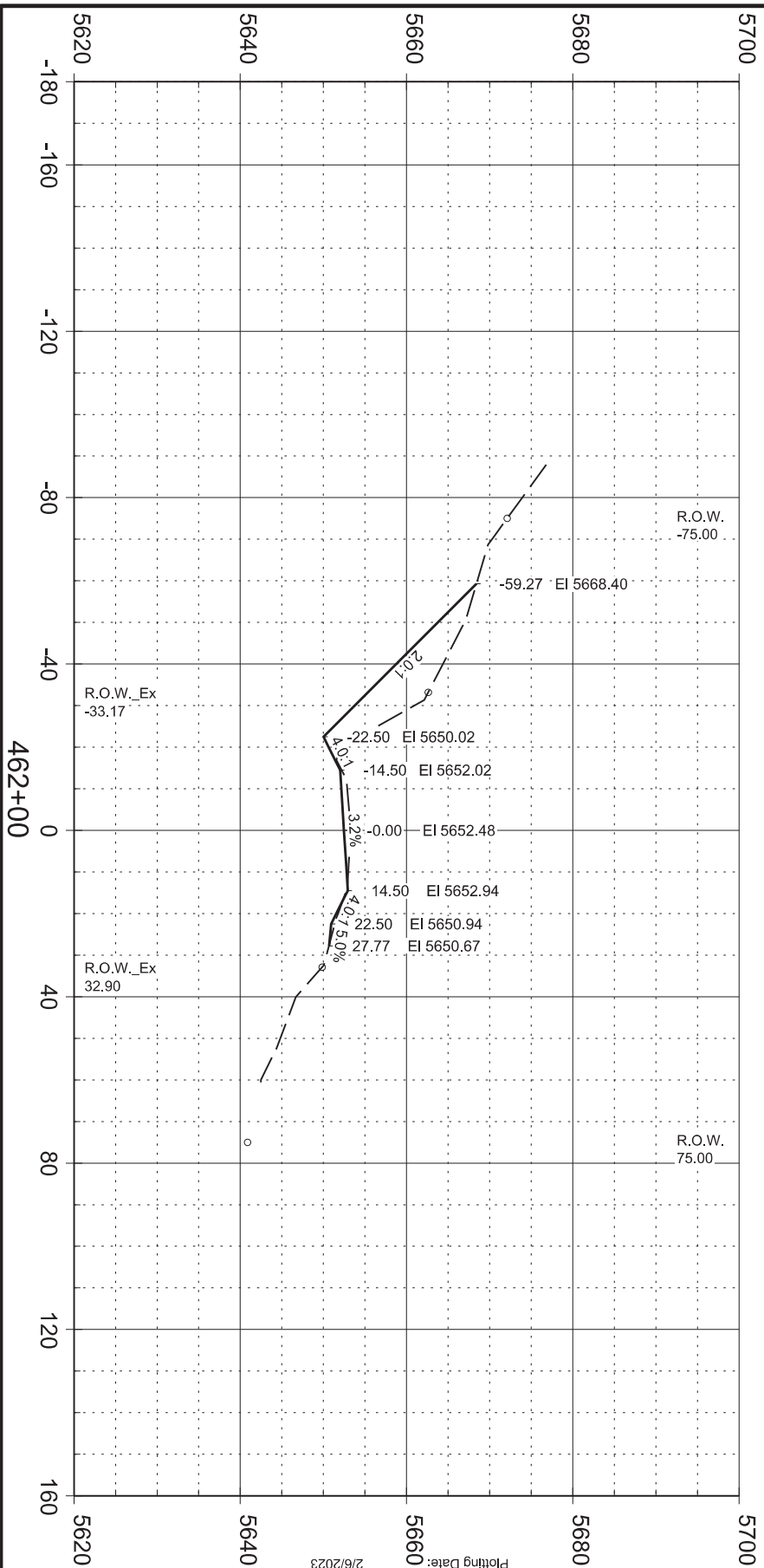




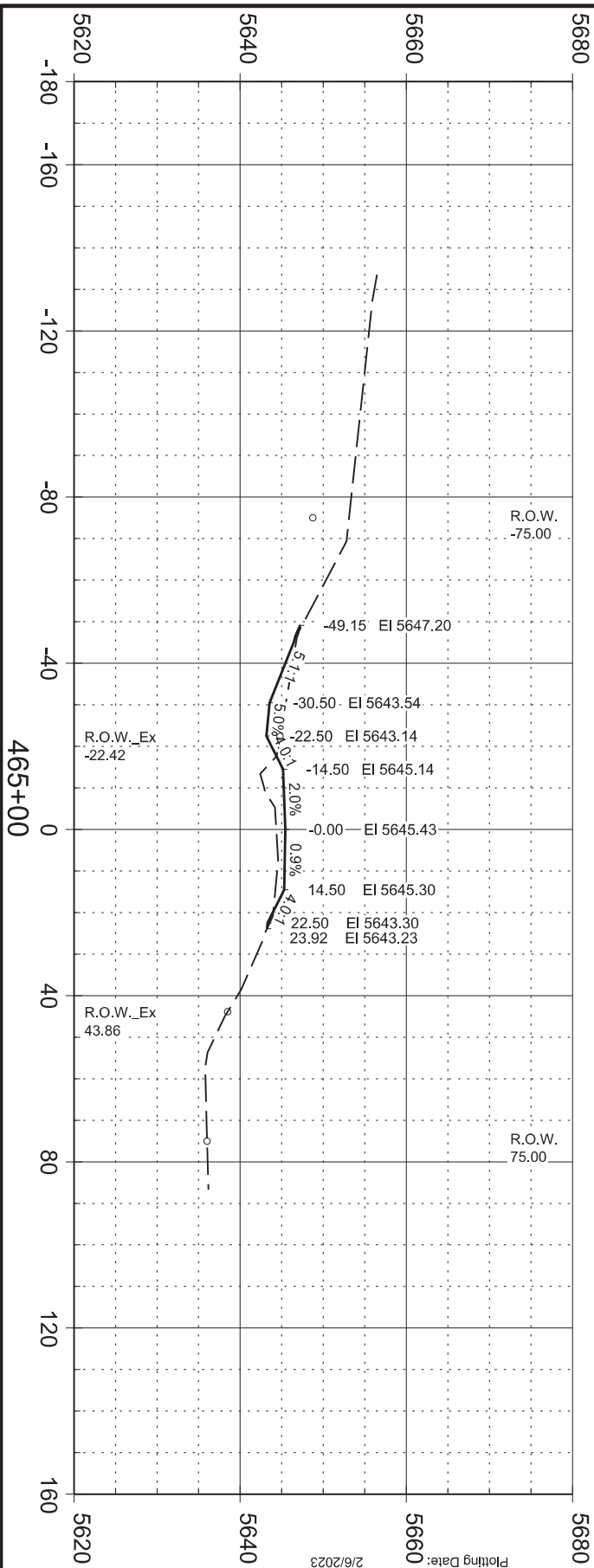
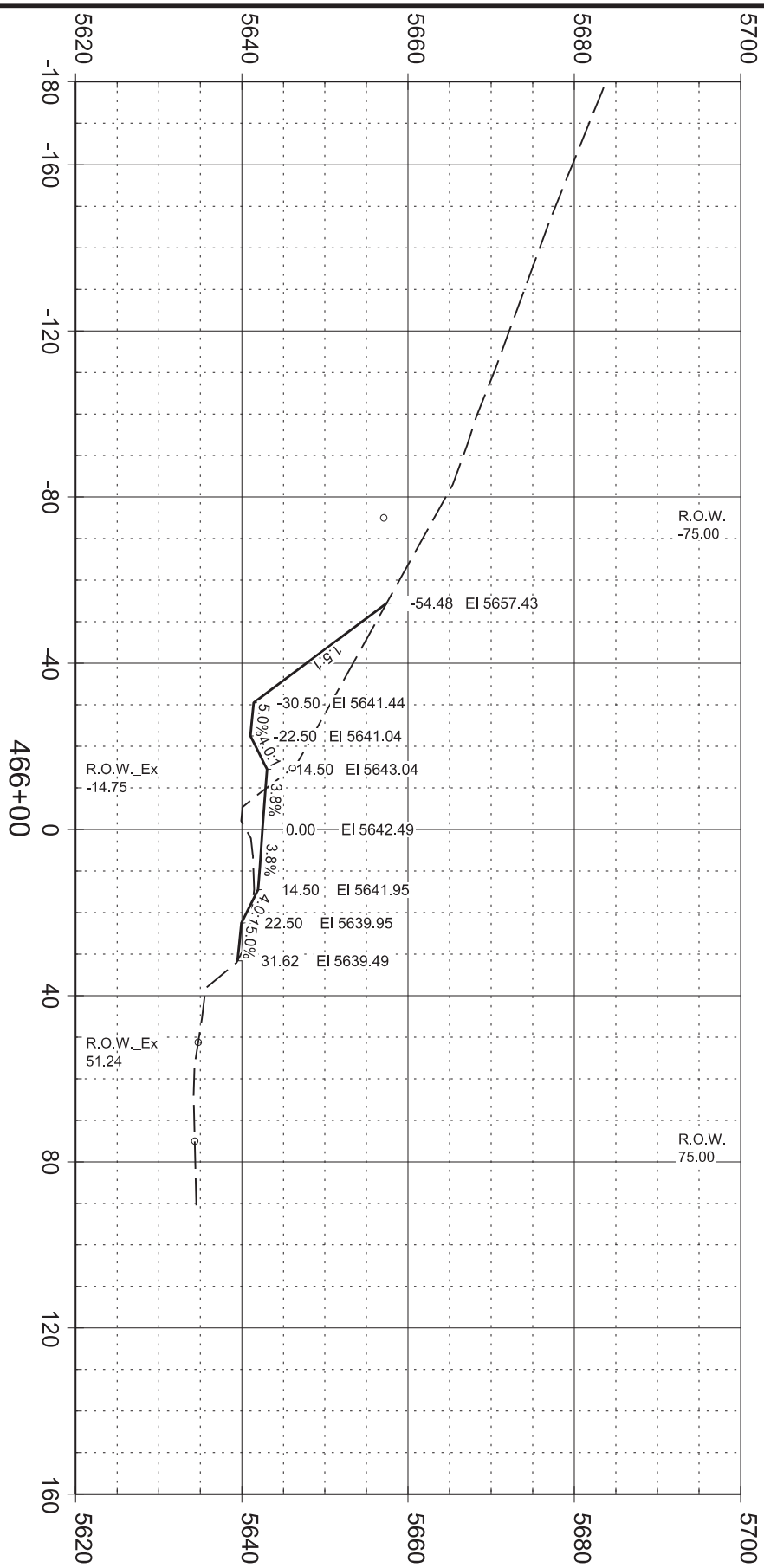
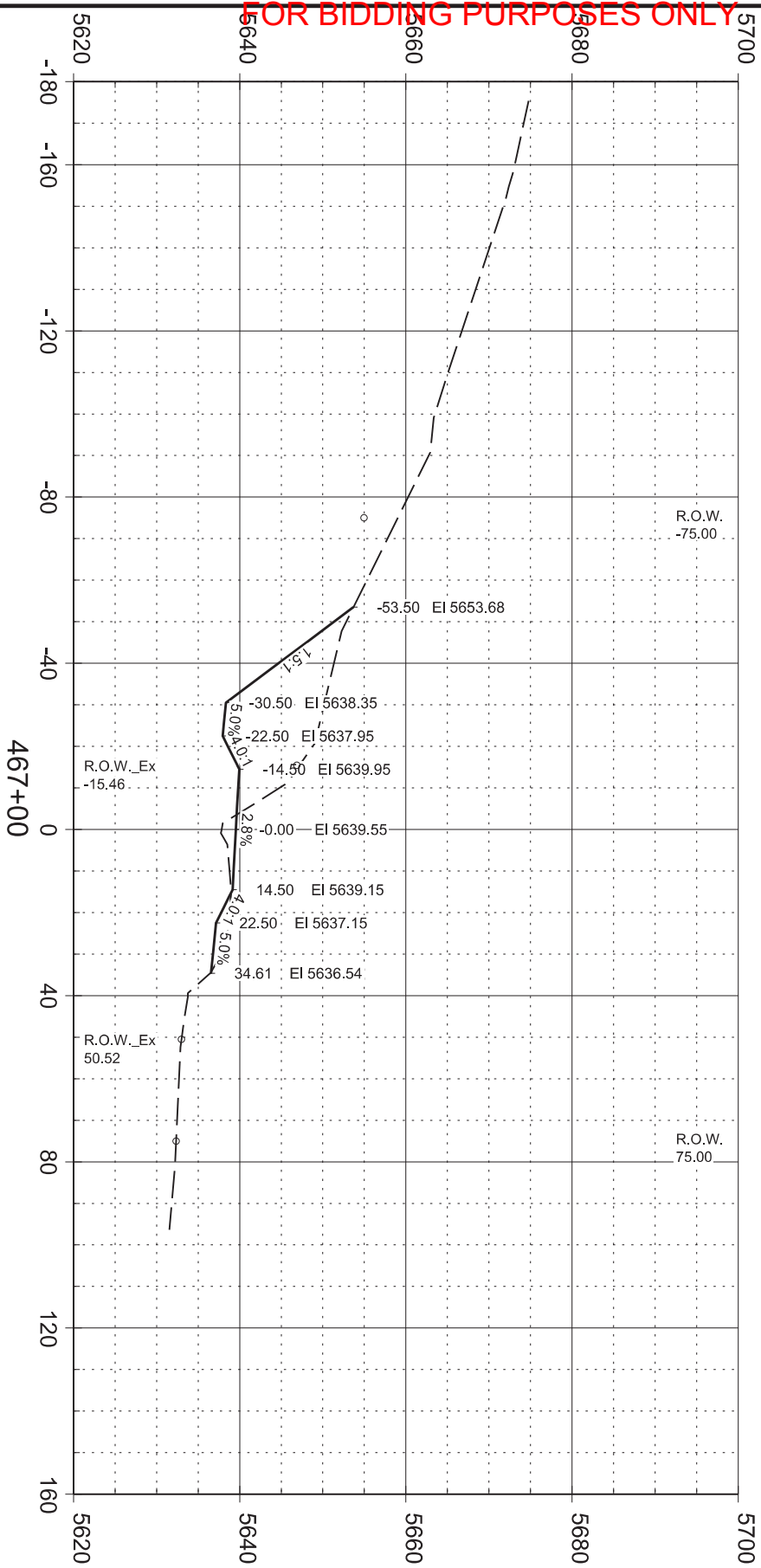
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REGISTERED PROFESSIONAL ENGINEER  
7353  
RONALD B. KINGS  
SOUTH DAKOTA  
12/22/2022

STATE OF SOUTH DAKOTA	P 6403(10)	285	333
		SHEET	TOTAL SHEETS



333	286
TOTAL SHEETS	SHEET



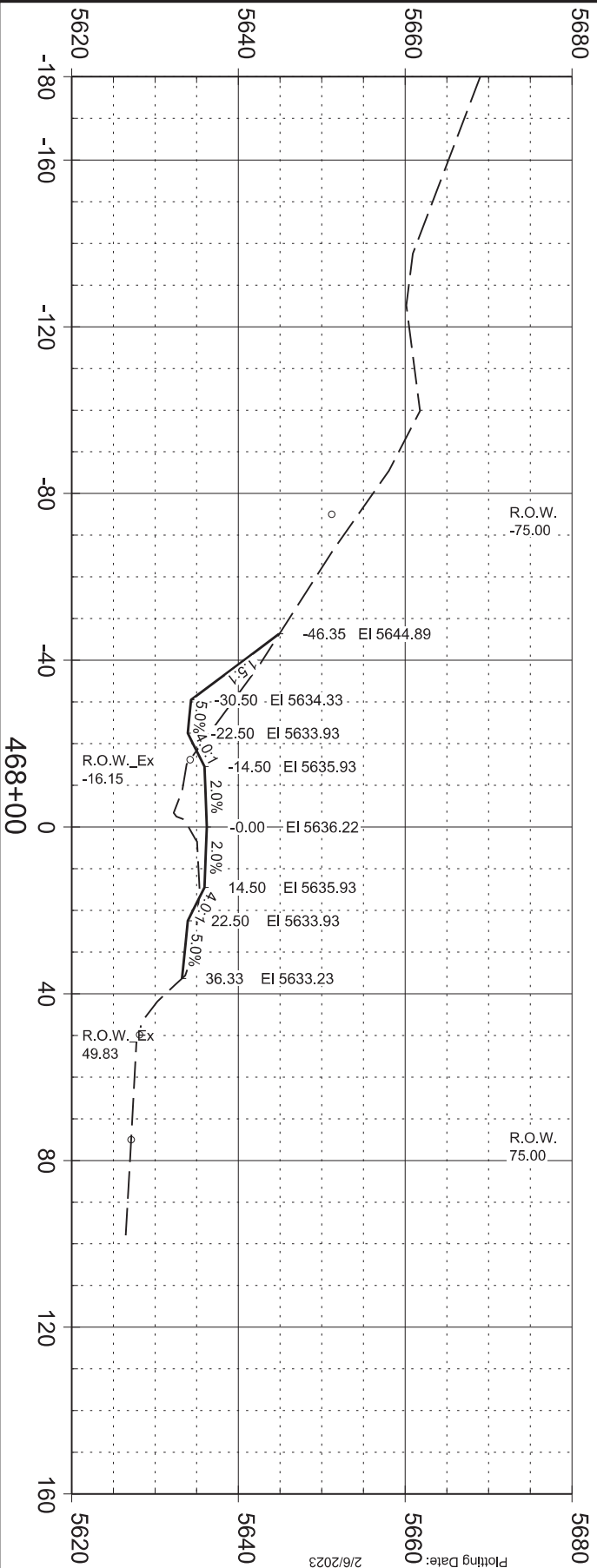
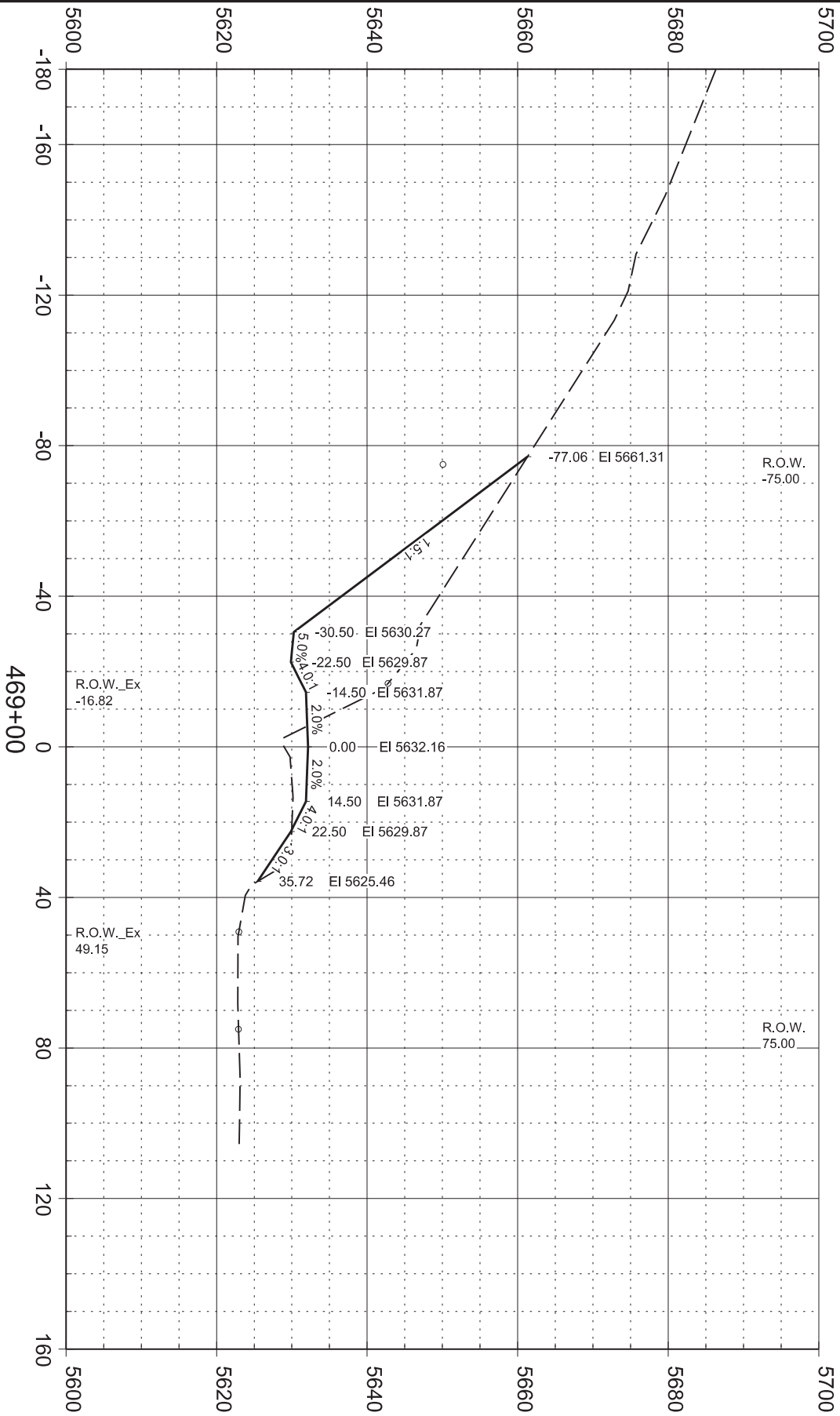
STATE OF SOUTH DAKOTA		PROJECT	P 6403(10)	SHEET	287	TOTAL SHEETS	333

Plotting Date: 2/6/2023

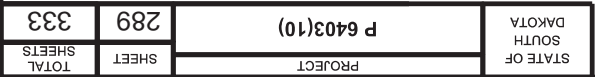


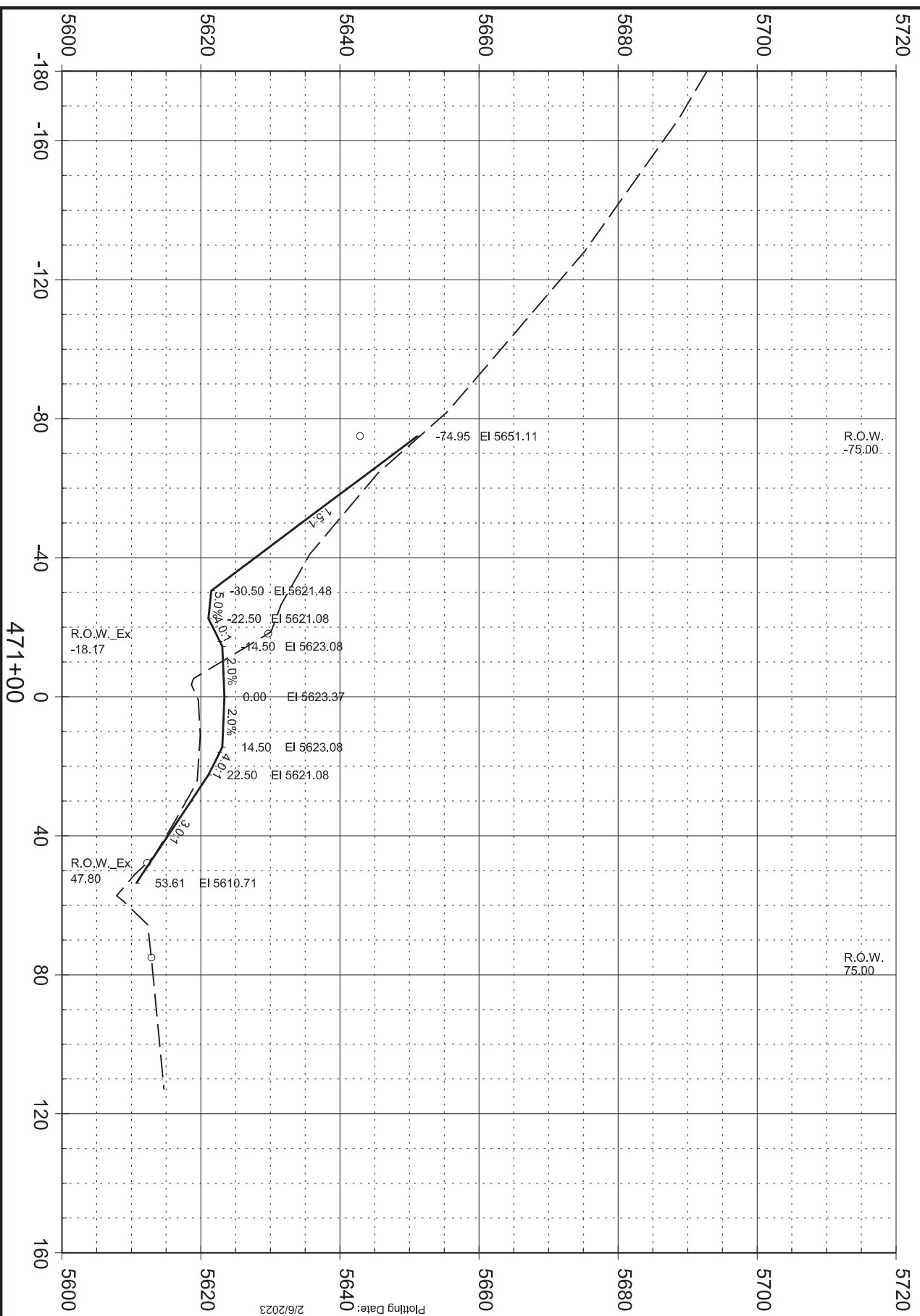
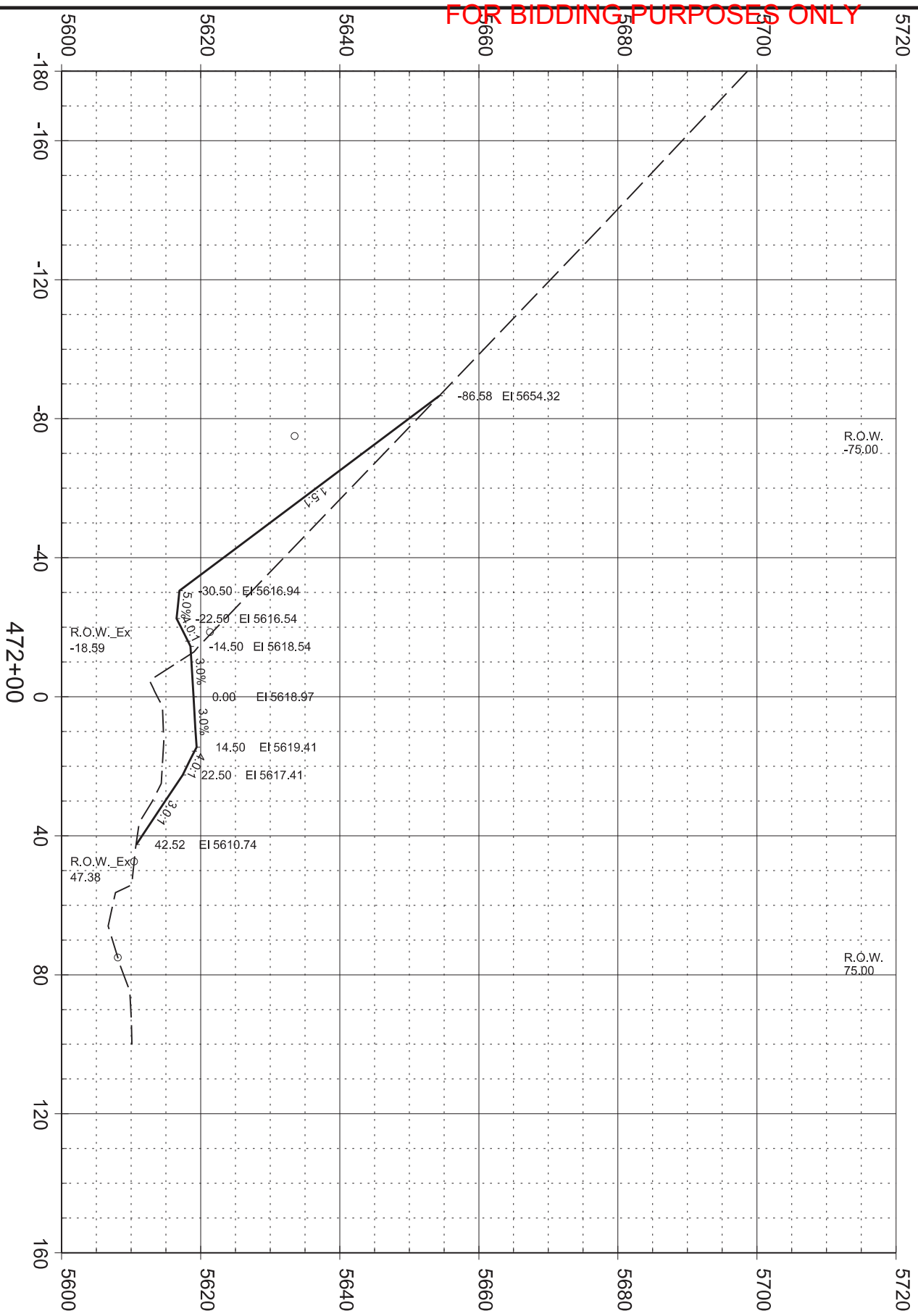


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STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		288		333			
DAKOTA		2/6/2023		Plotting Date:			





STATE OF SOUTH DAKOTA	P 6403(10)	290	333
PROJECT		SHEET	TOTAL SHEETS

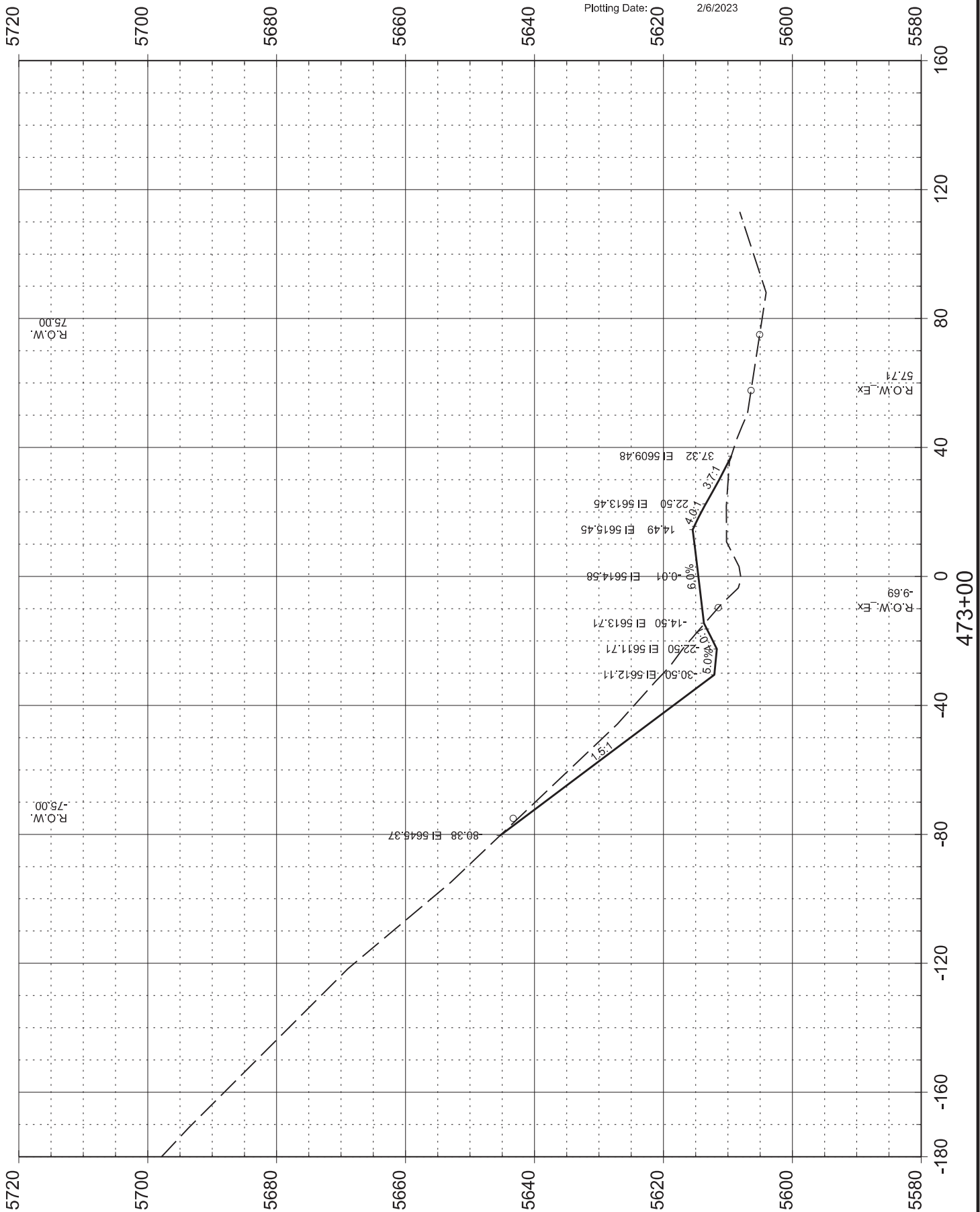
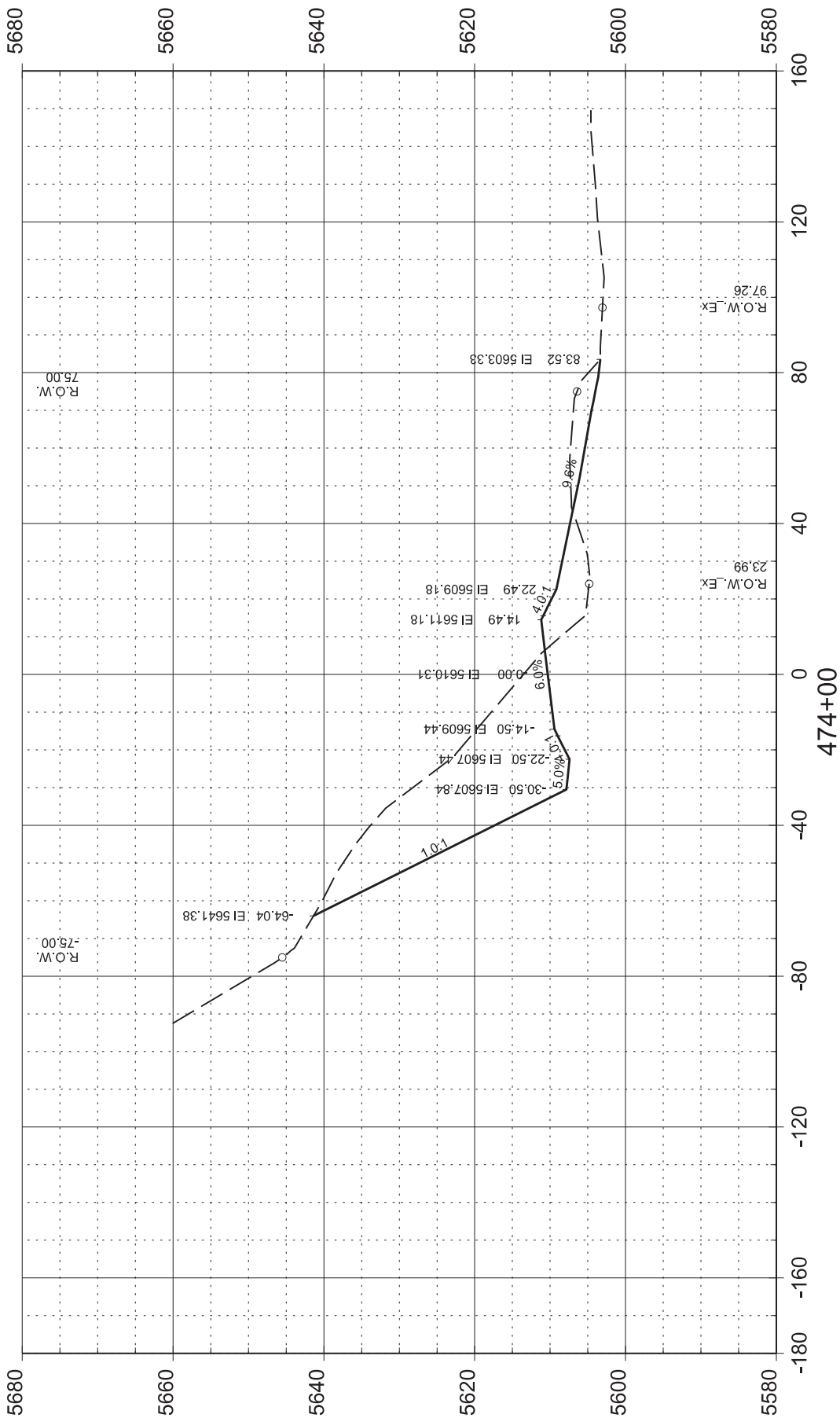


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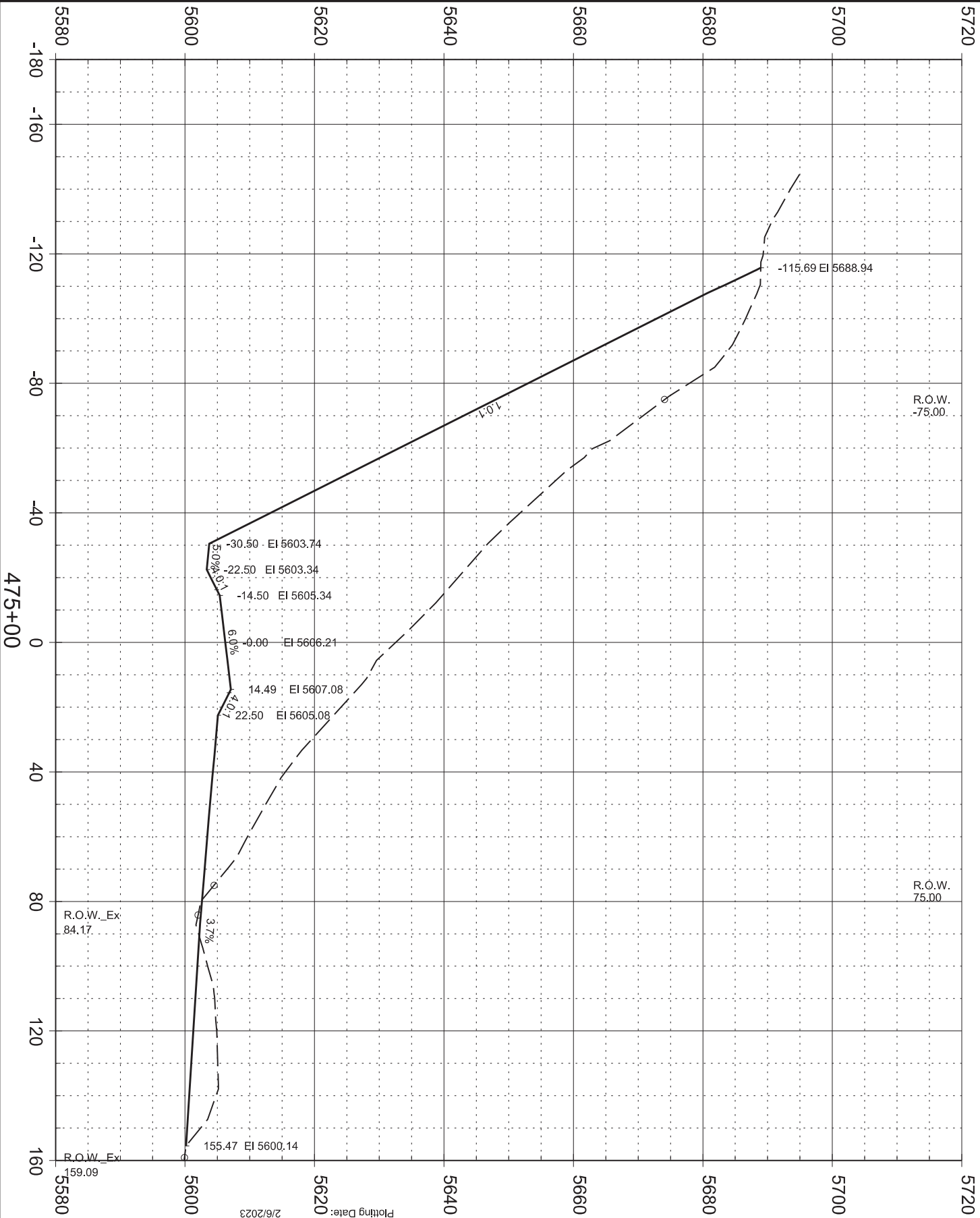
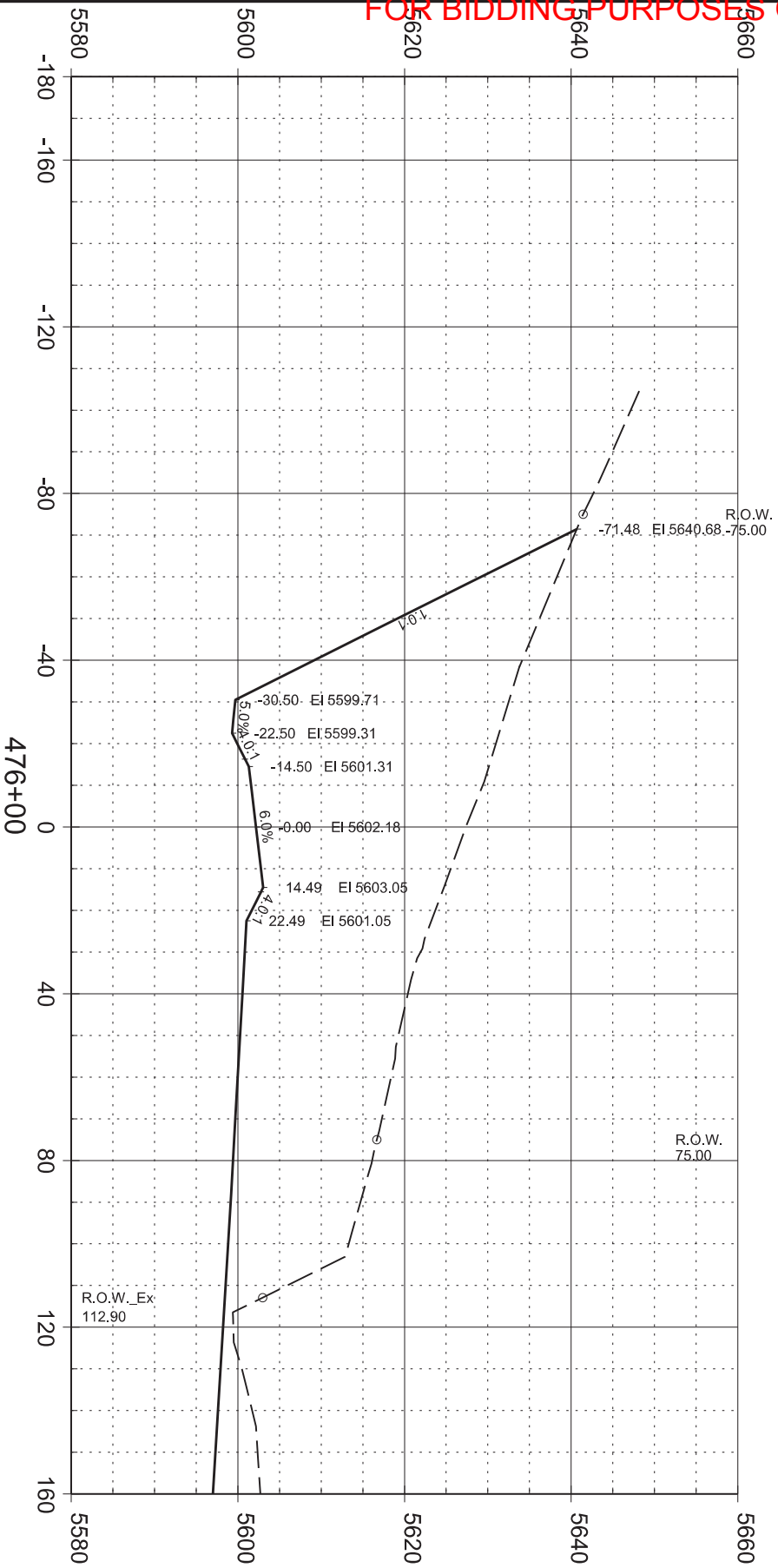
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	291	333

Plotting Date: 2/6/2023



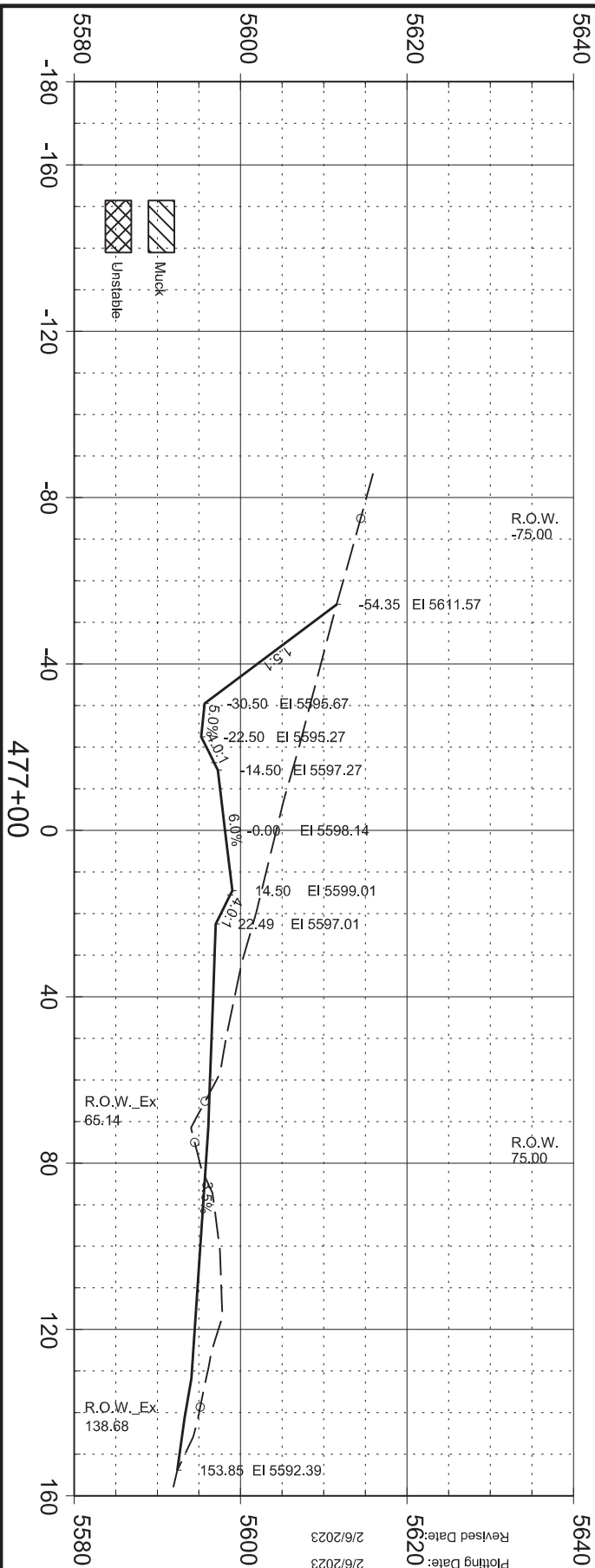
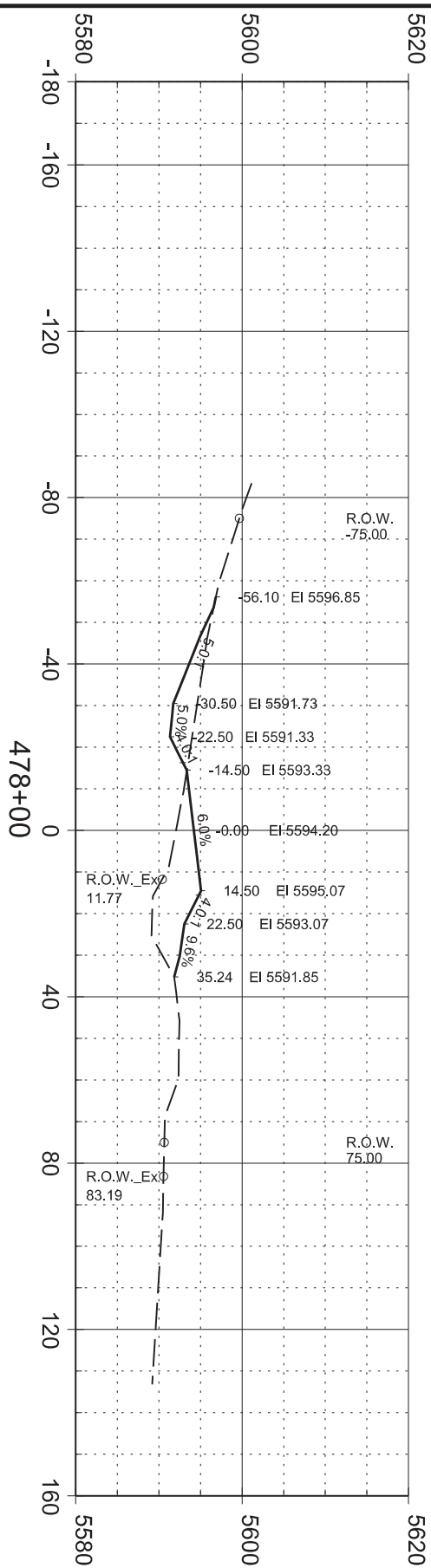
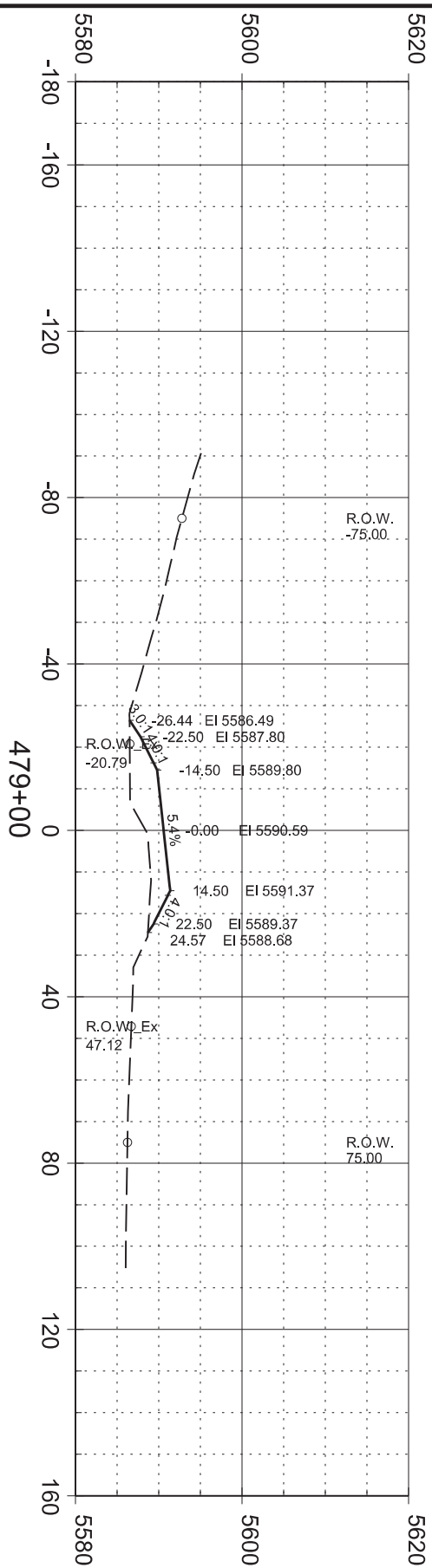
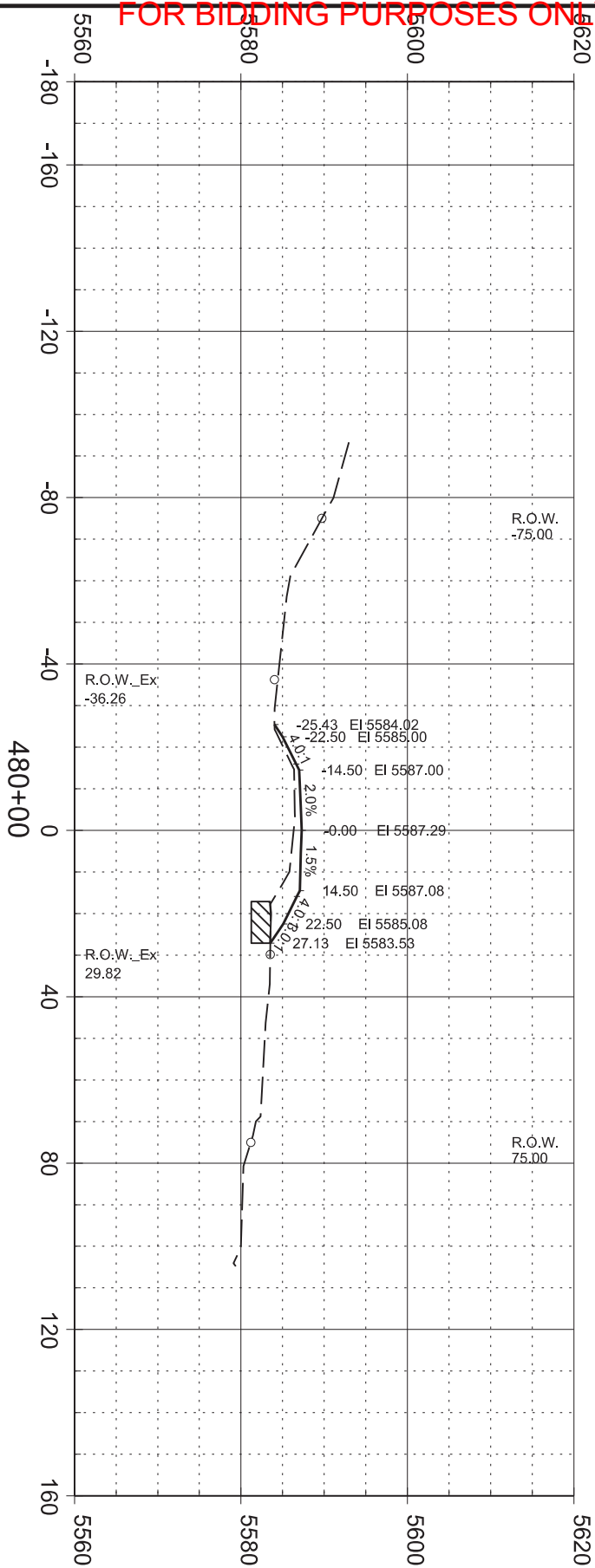


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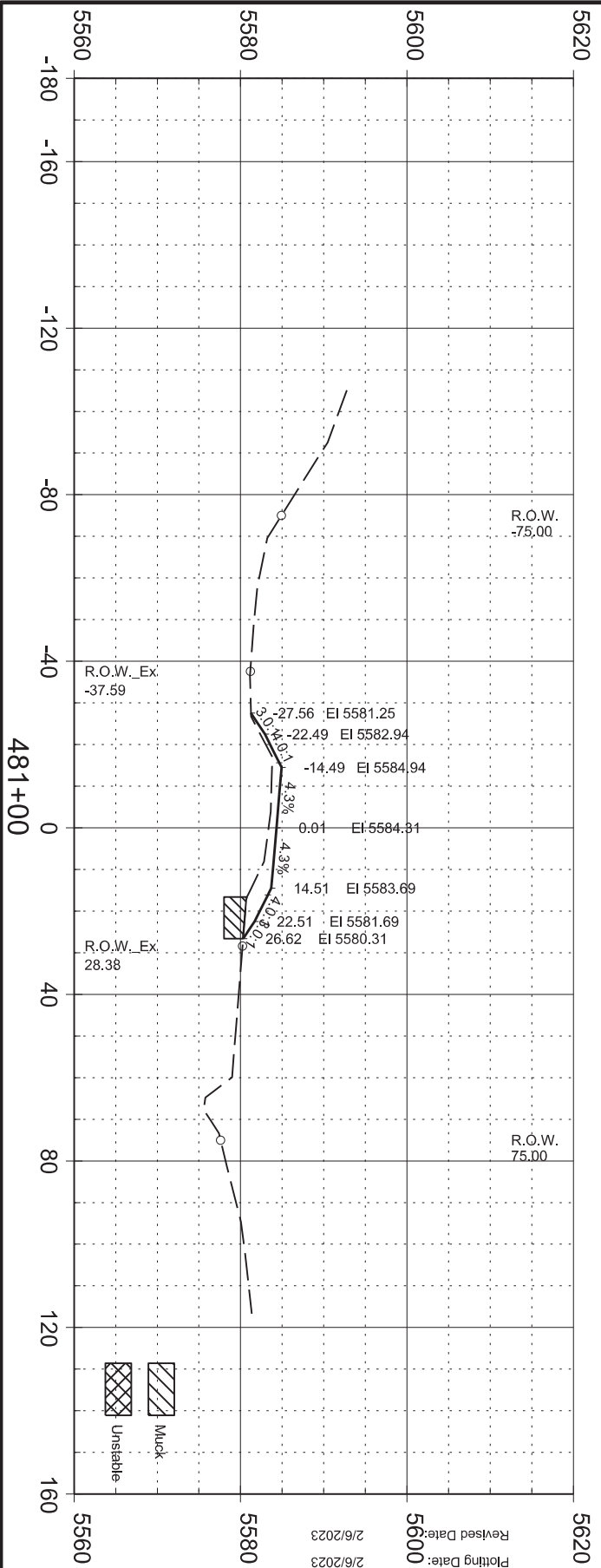
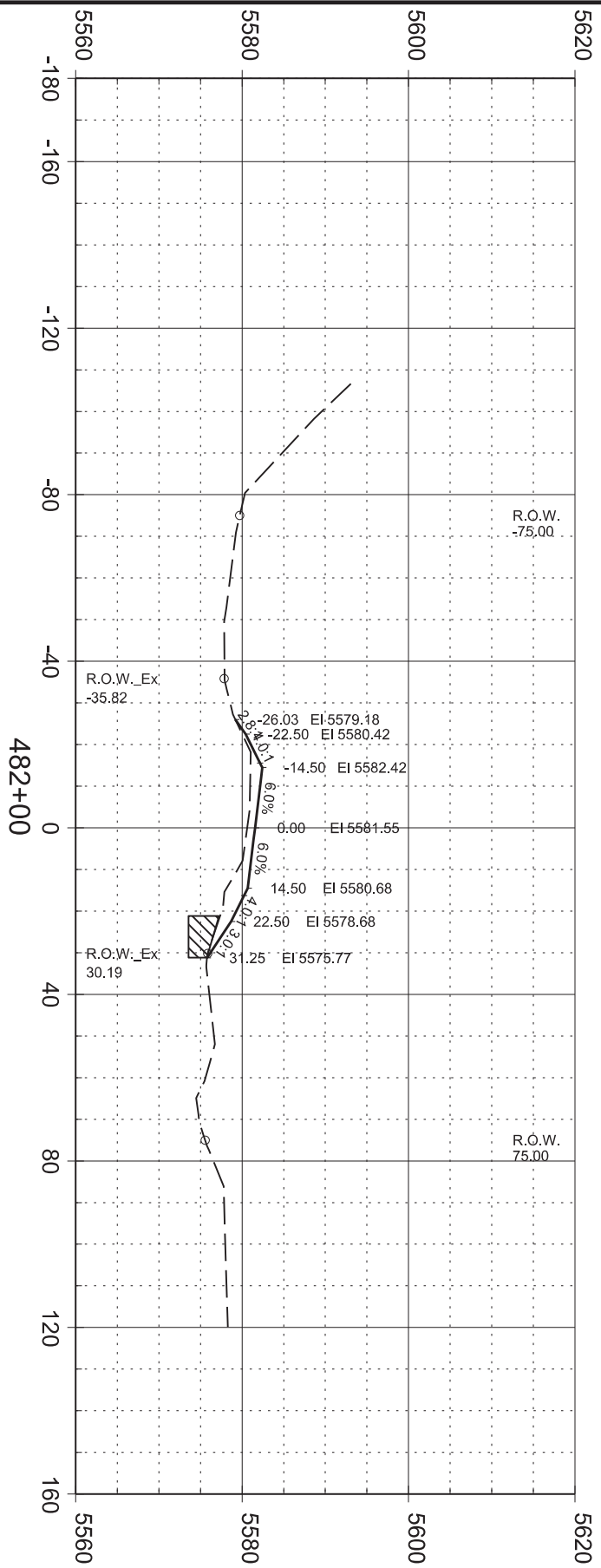
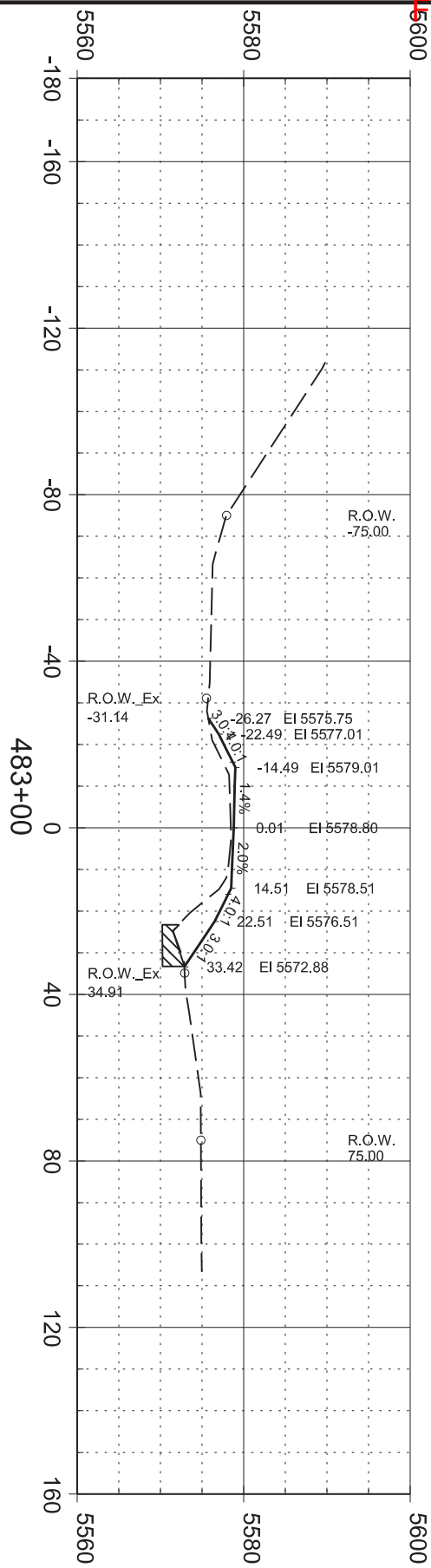
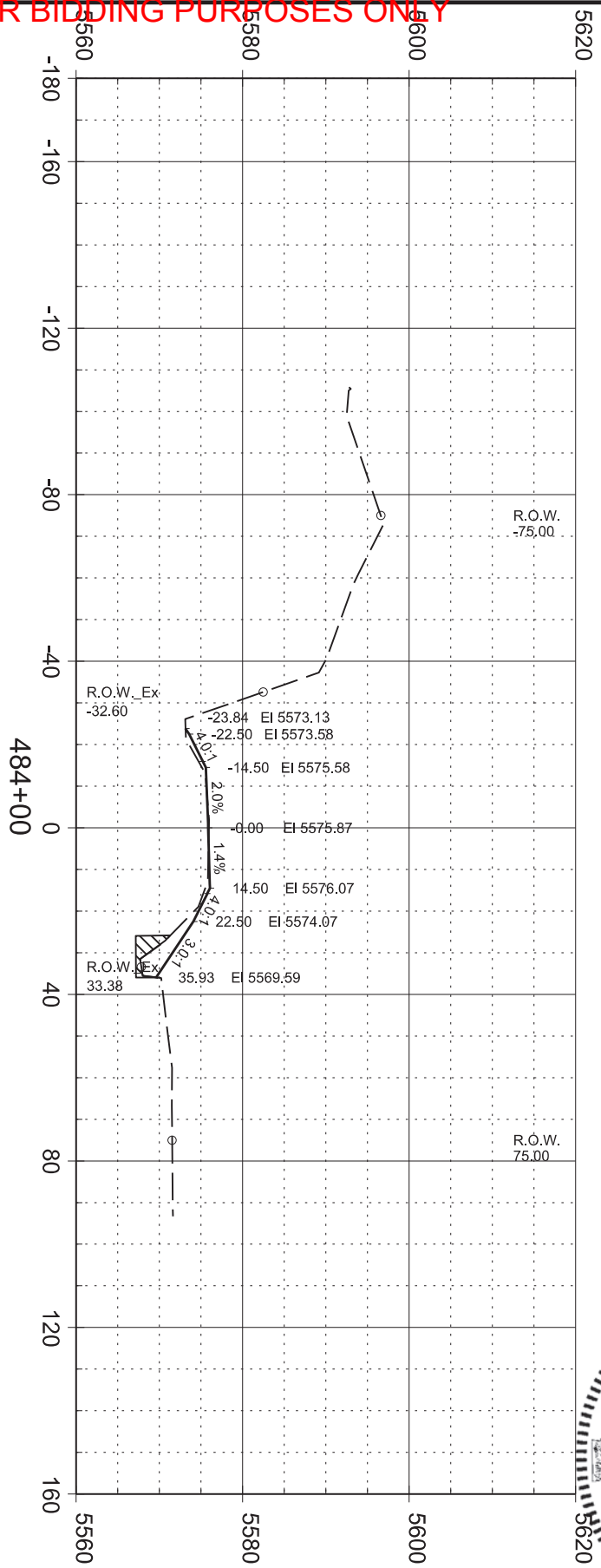
STATE OF SOUTH DAKOTA		P 6403(10)	292	333
PROJECT				

Plotting Date: 2/6/2023



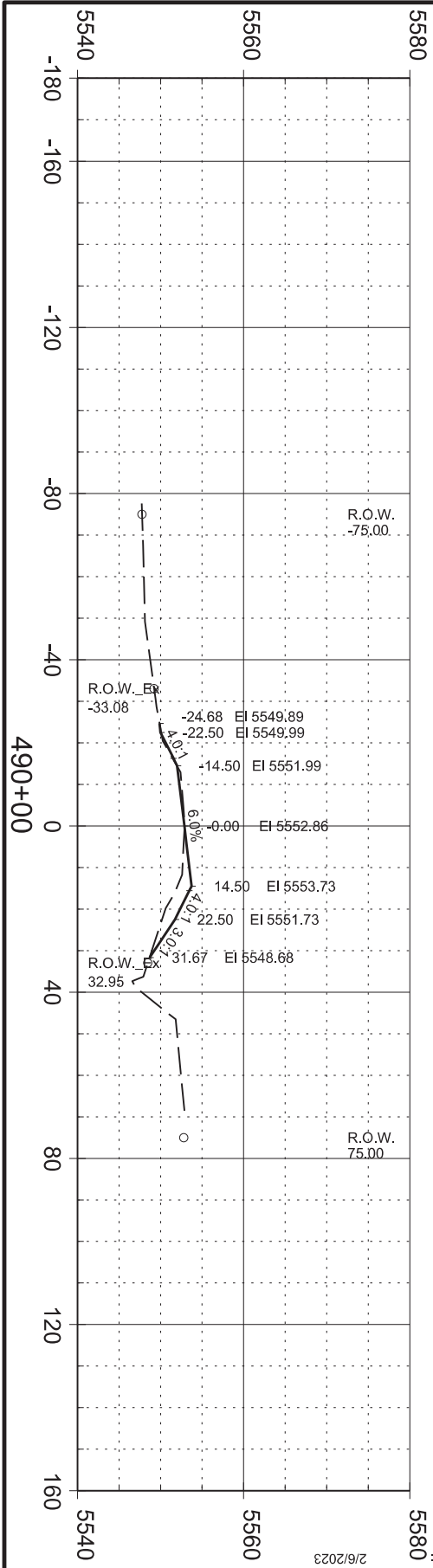
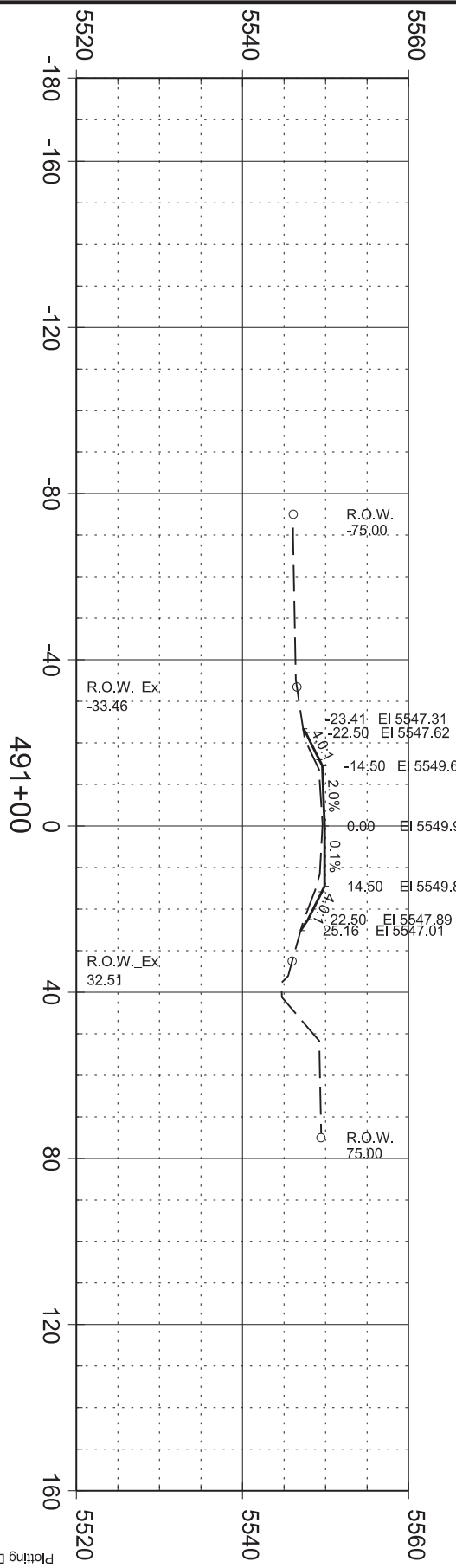
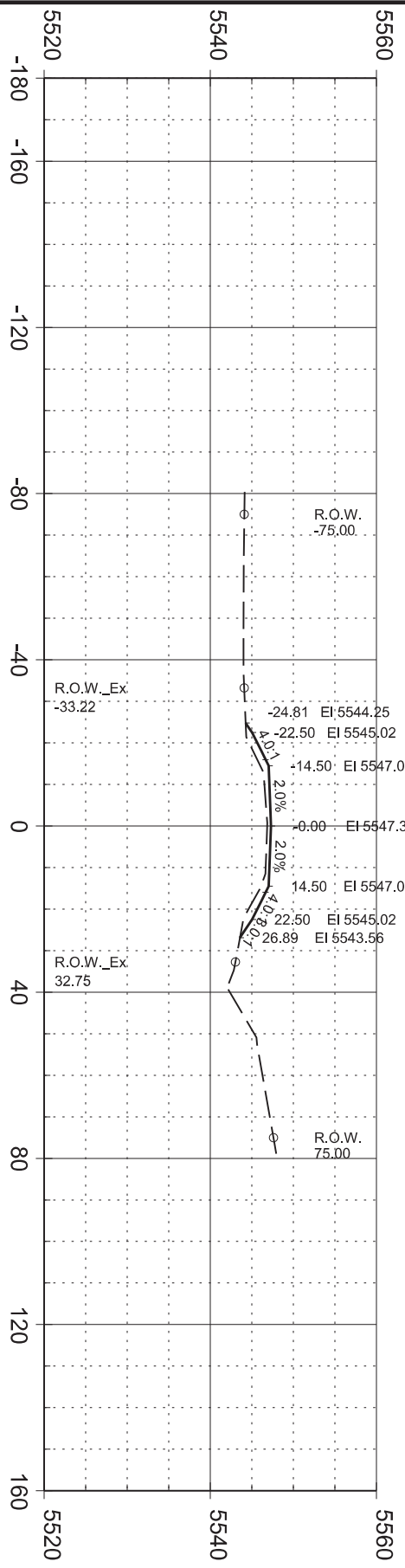
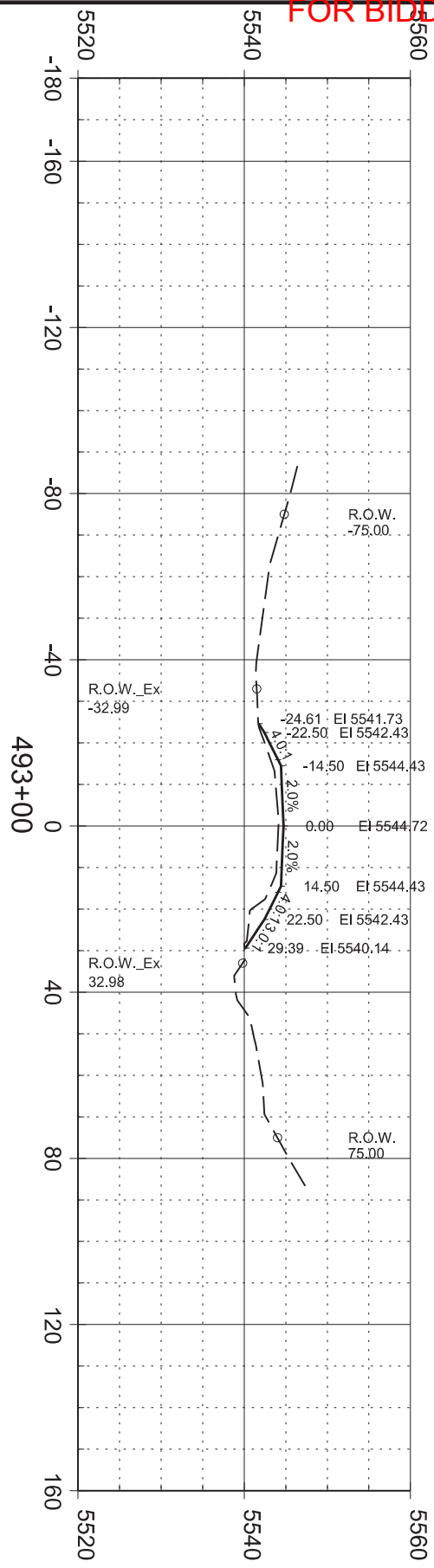
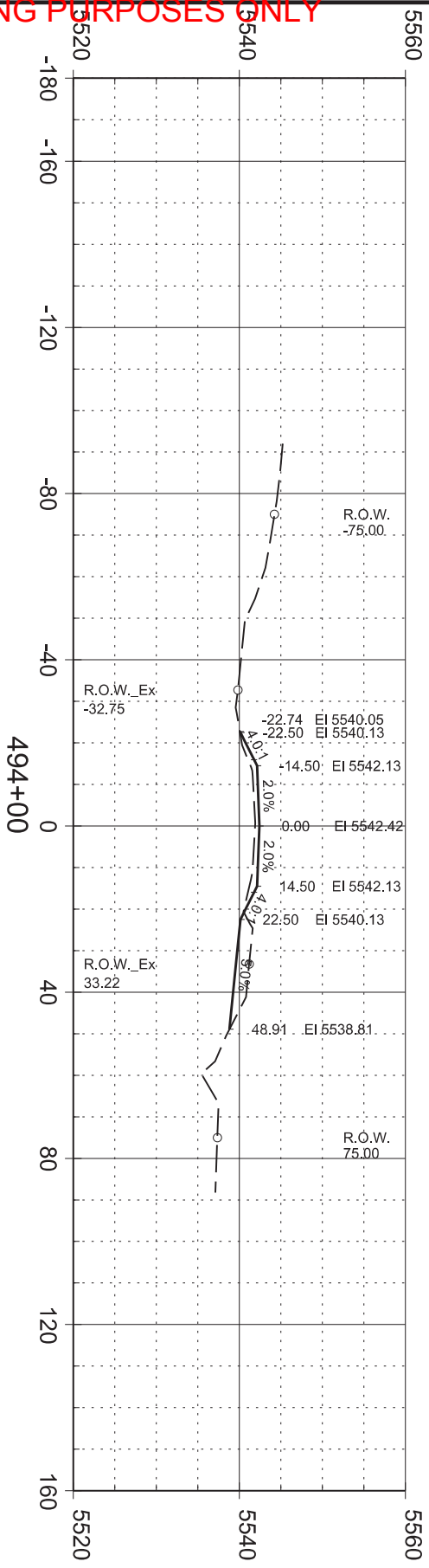
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Revised Date: 2/6/2023		P 6403(10)		293		333	
Plotting Date: 2/6/2023							





STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
Revised Date: 2/6/2023		P 6403(10)		294		333	
Plotting Date: 2/6/2023							



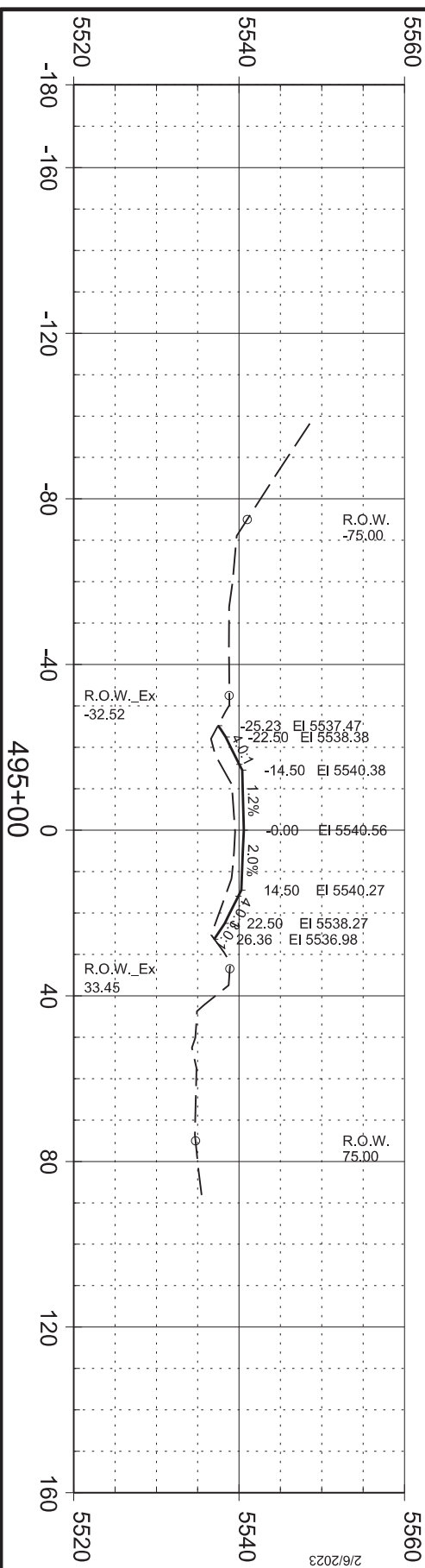
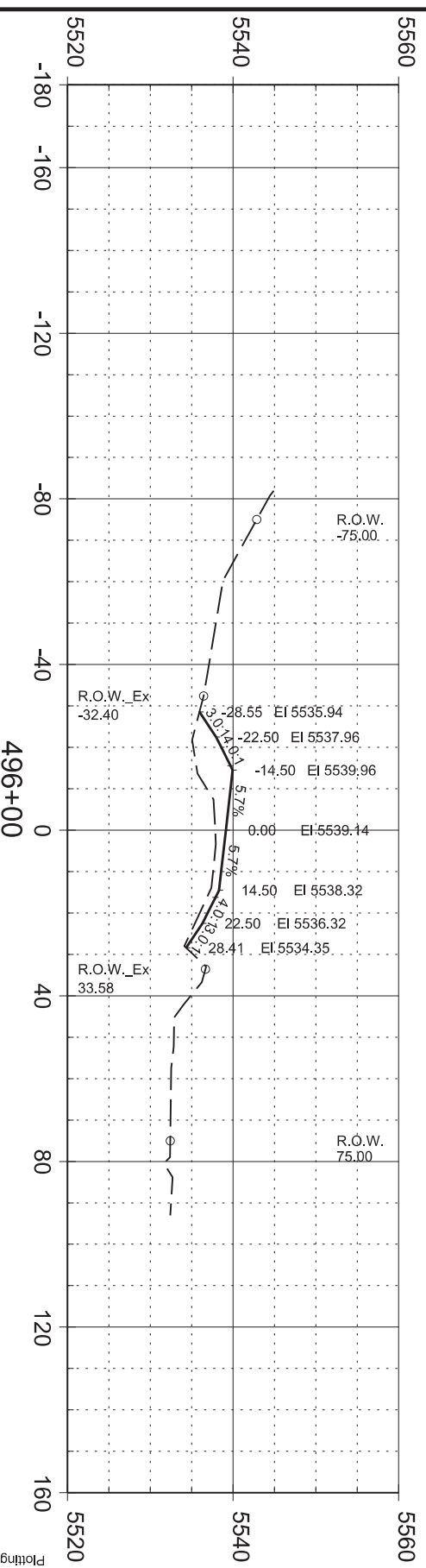
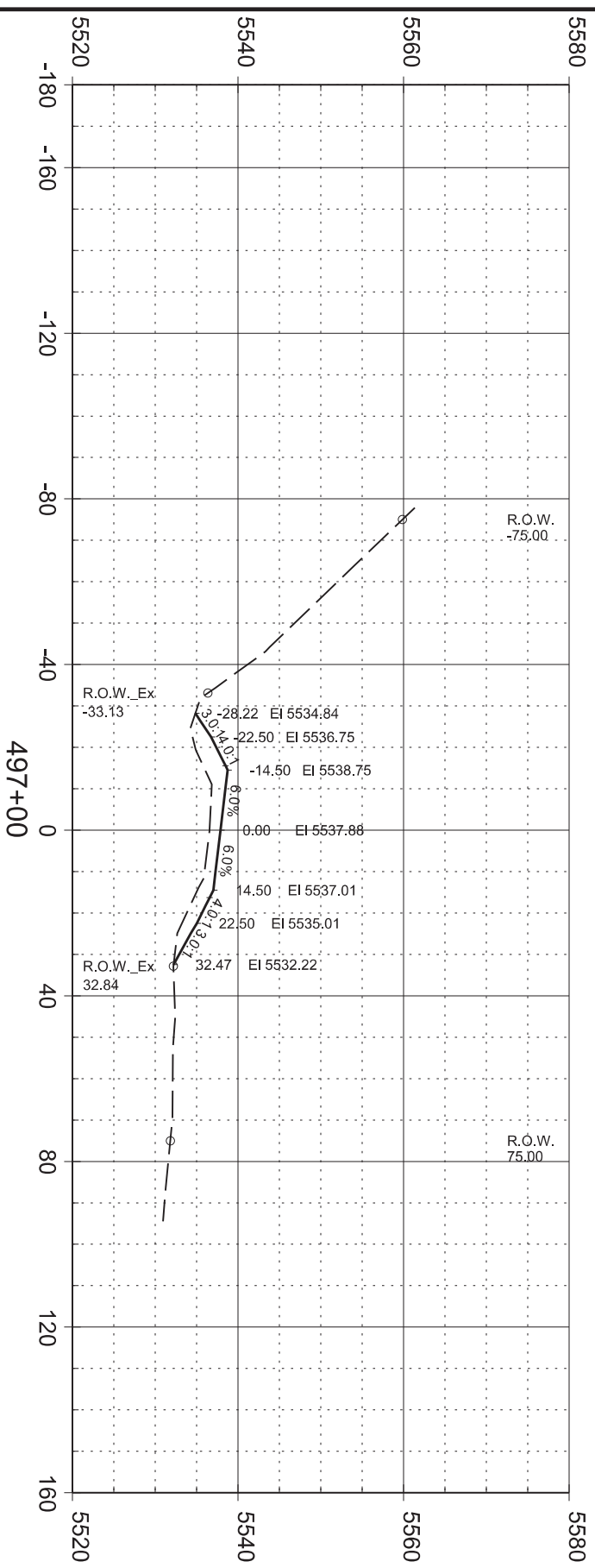
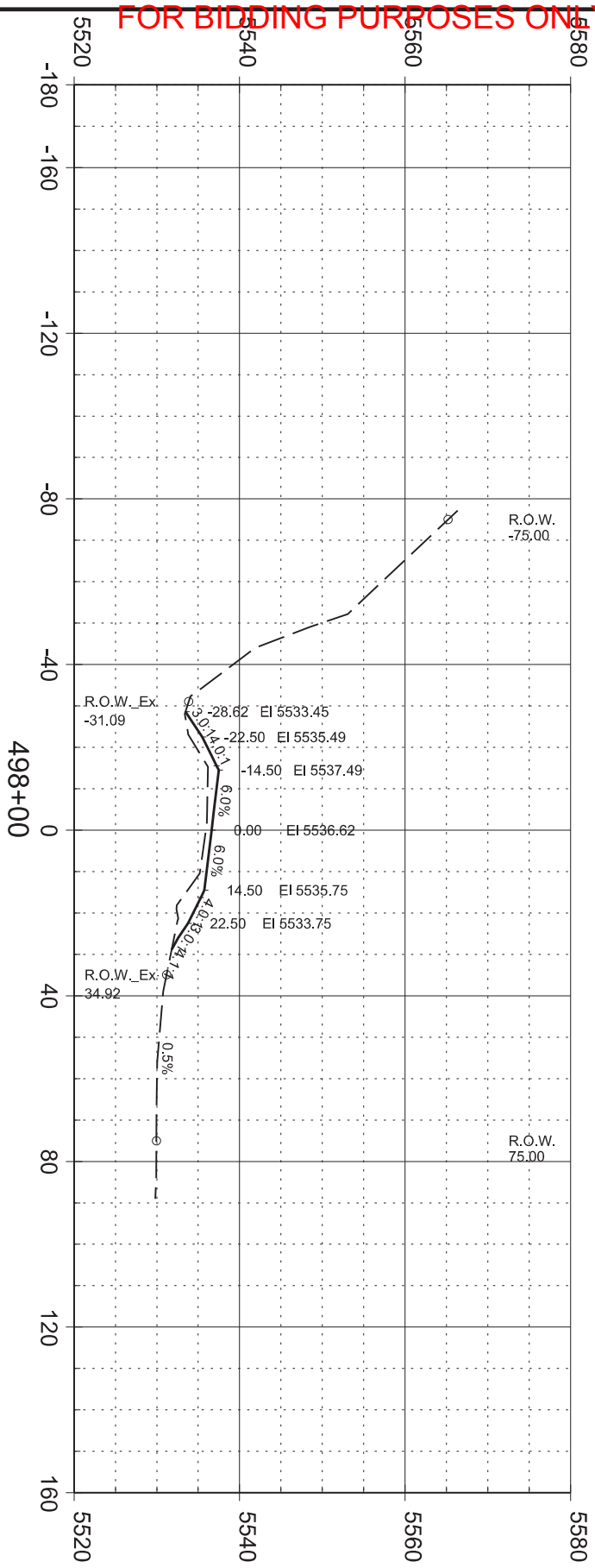


STATE OF SOUTH DAKOTA	P 6403(10)	296	333
PROJECT	SHEET	TOTAL SHEETS	



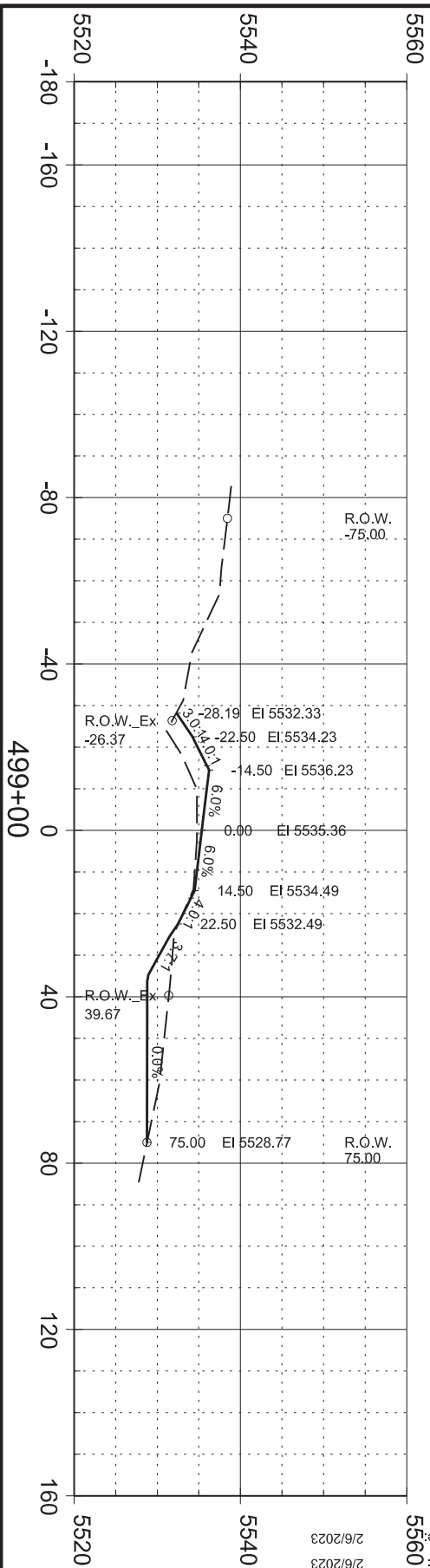
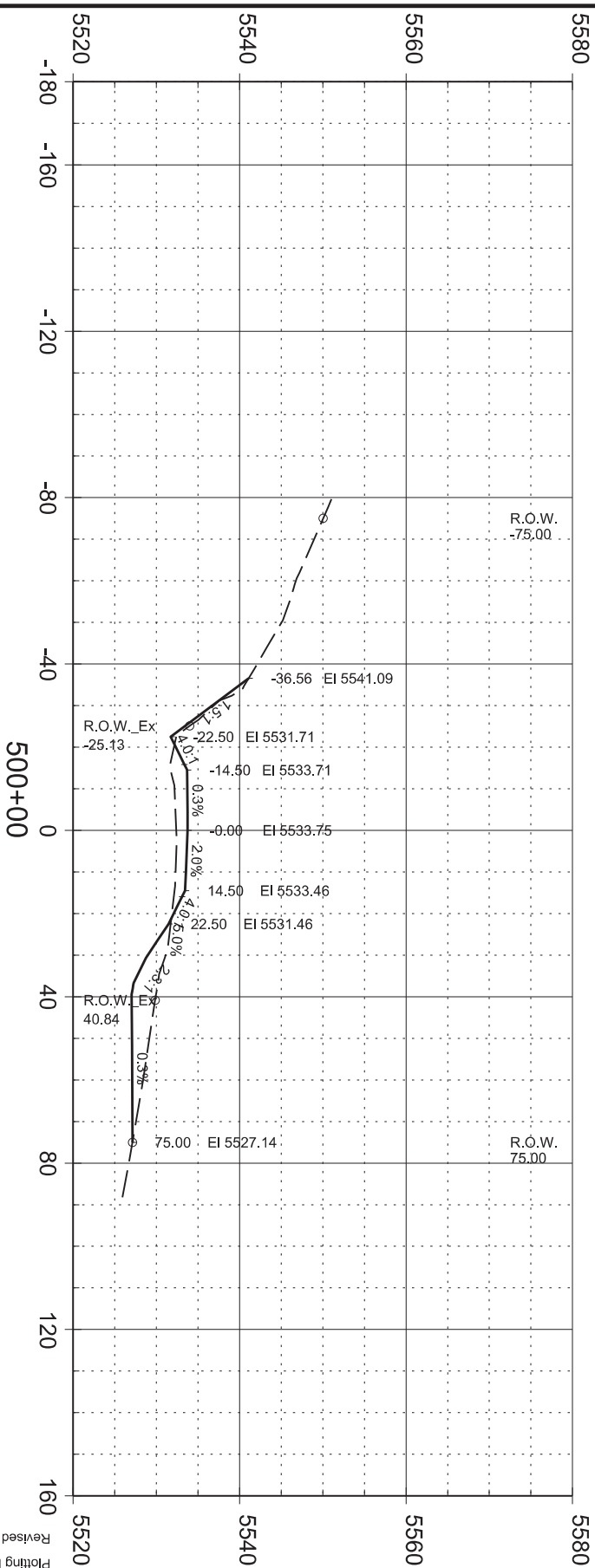
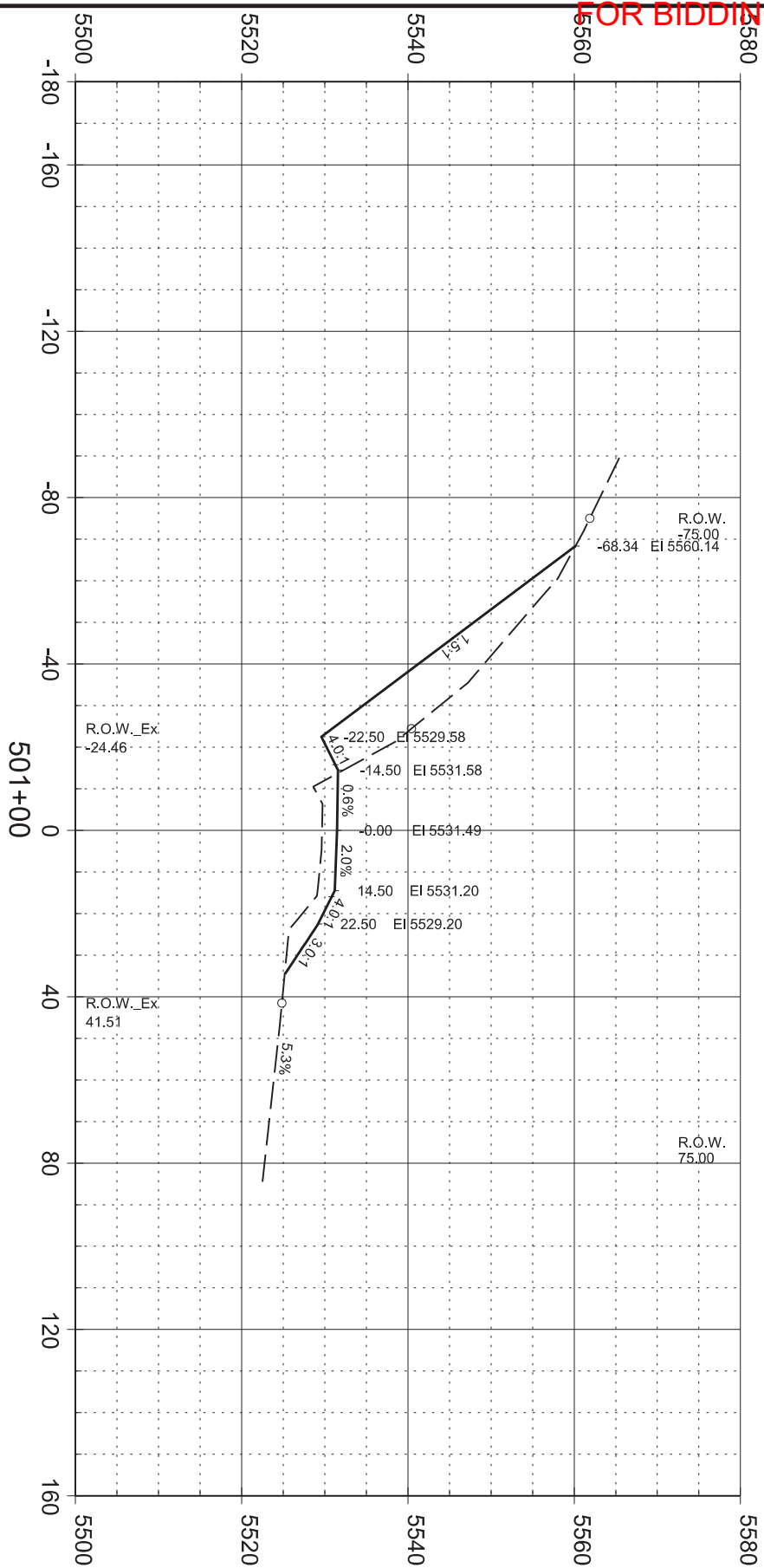


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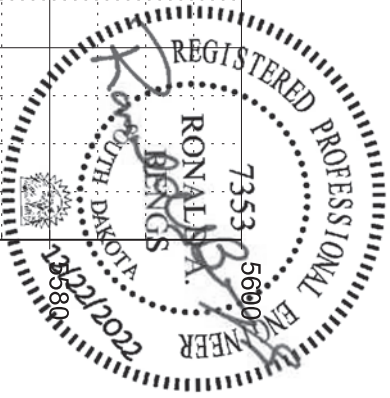


STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		297		333			

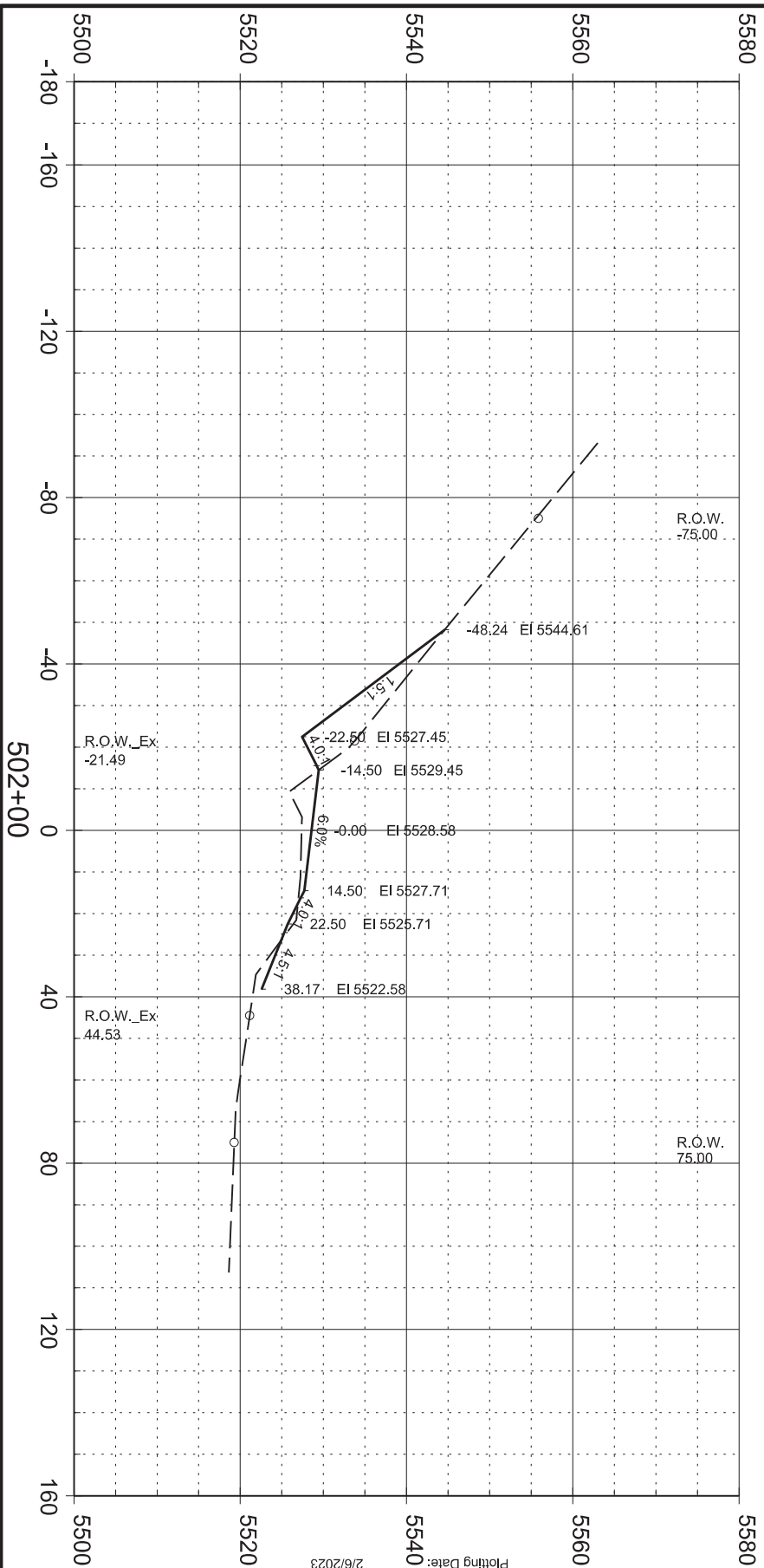
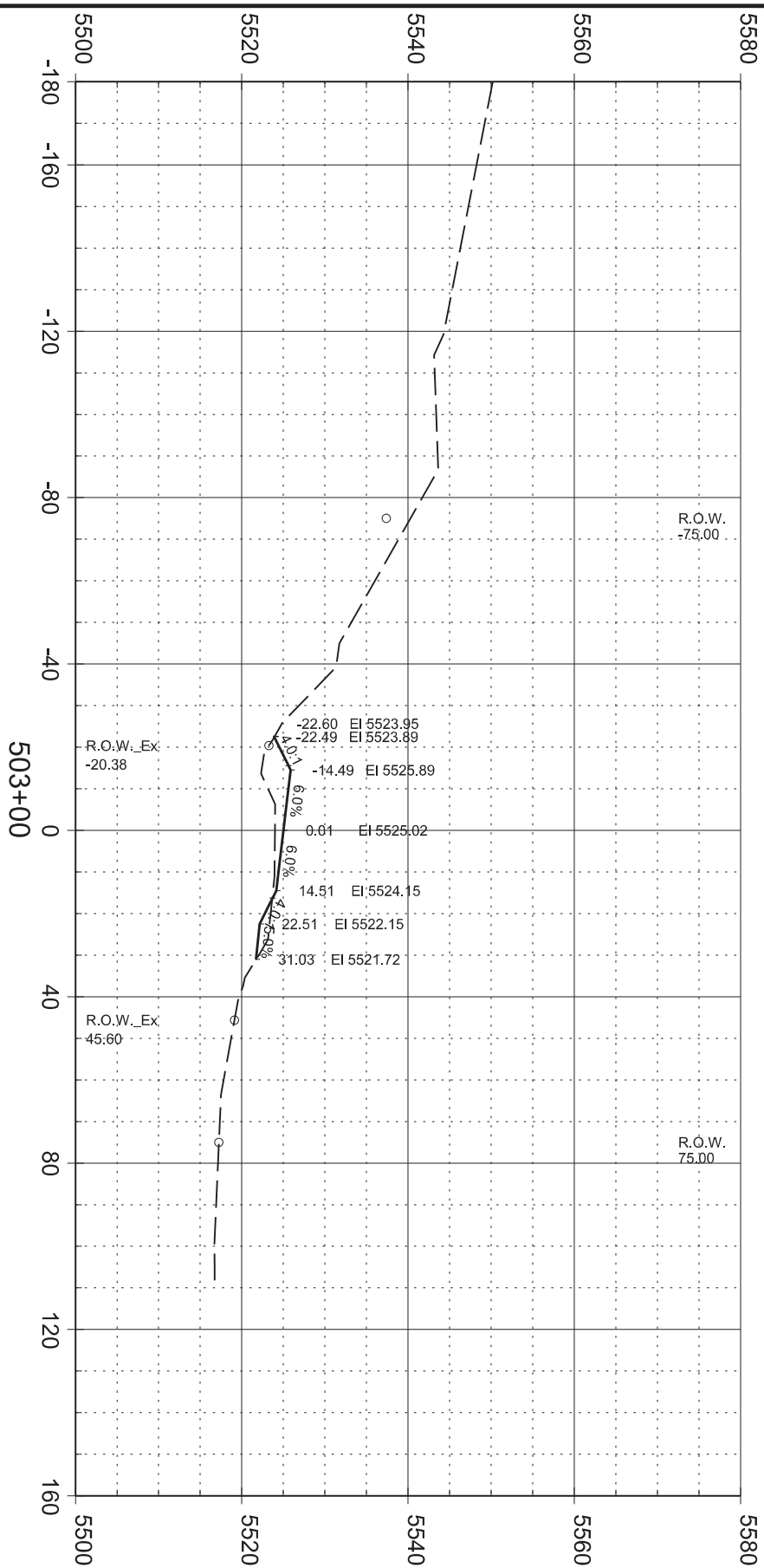
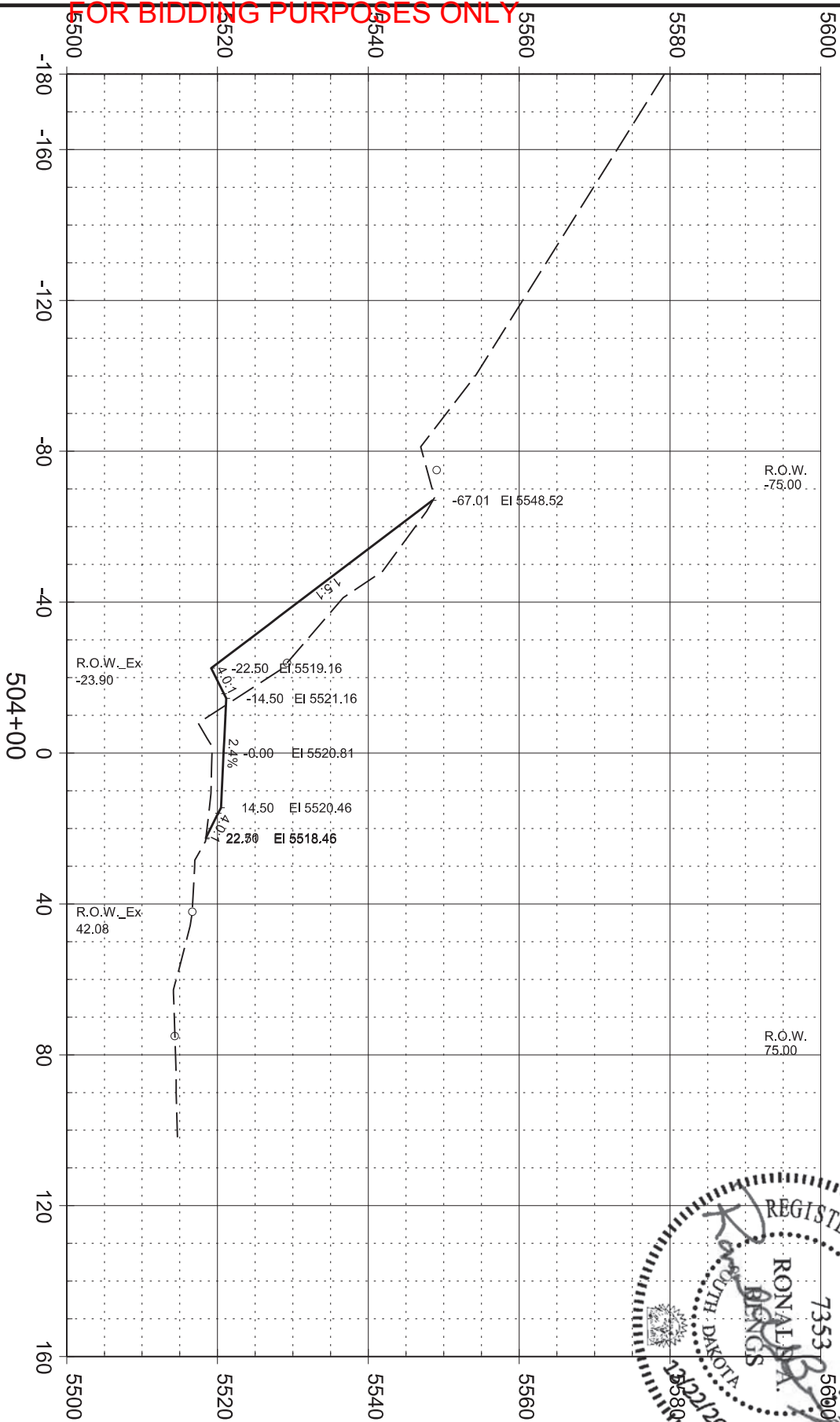
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STATE OF SOUTH DAKOTA	P 6403(10)		298	333
	PROJECT		SHEET	TOTAL SHEETS



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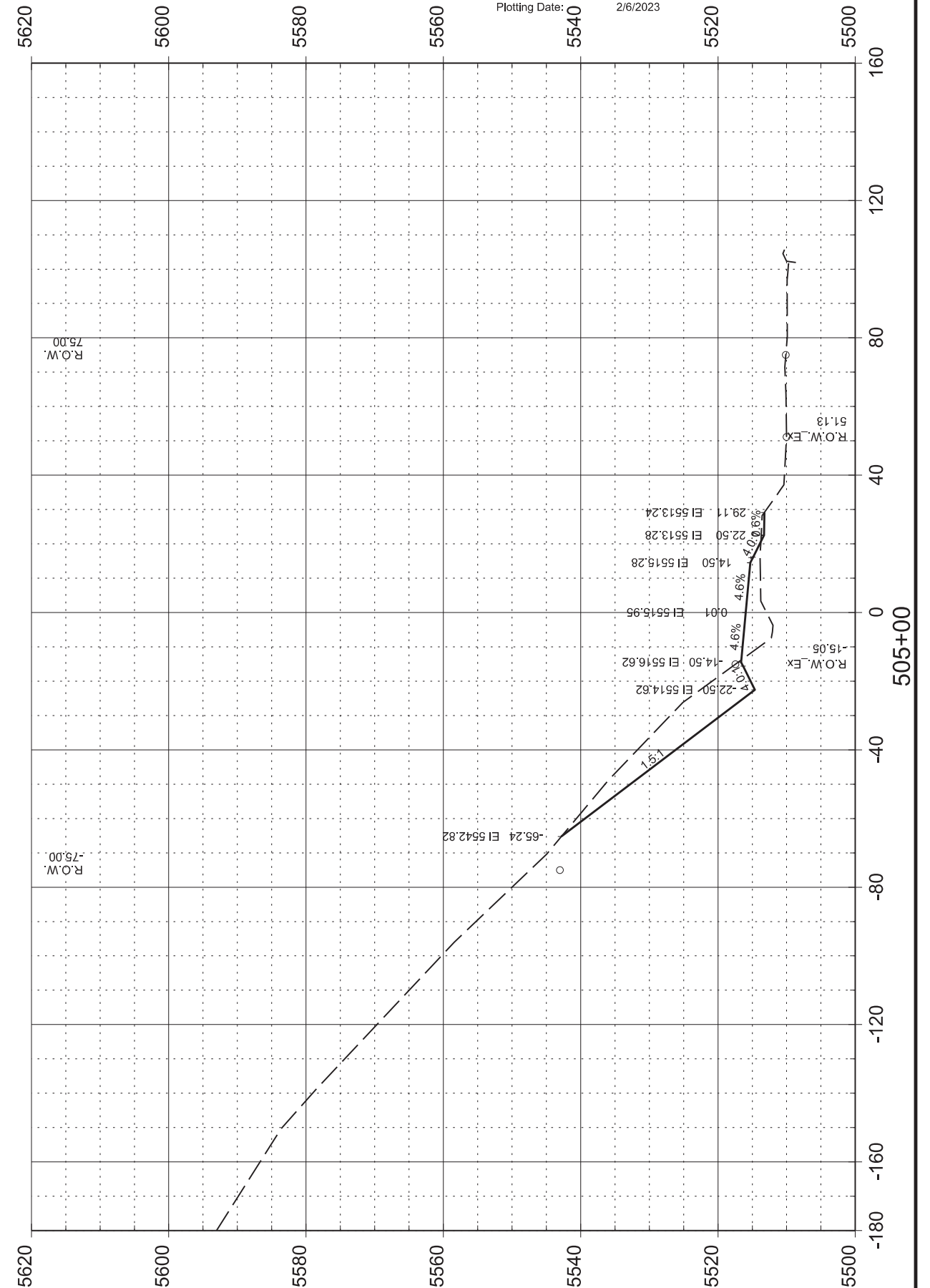


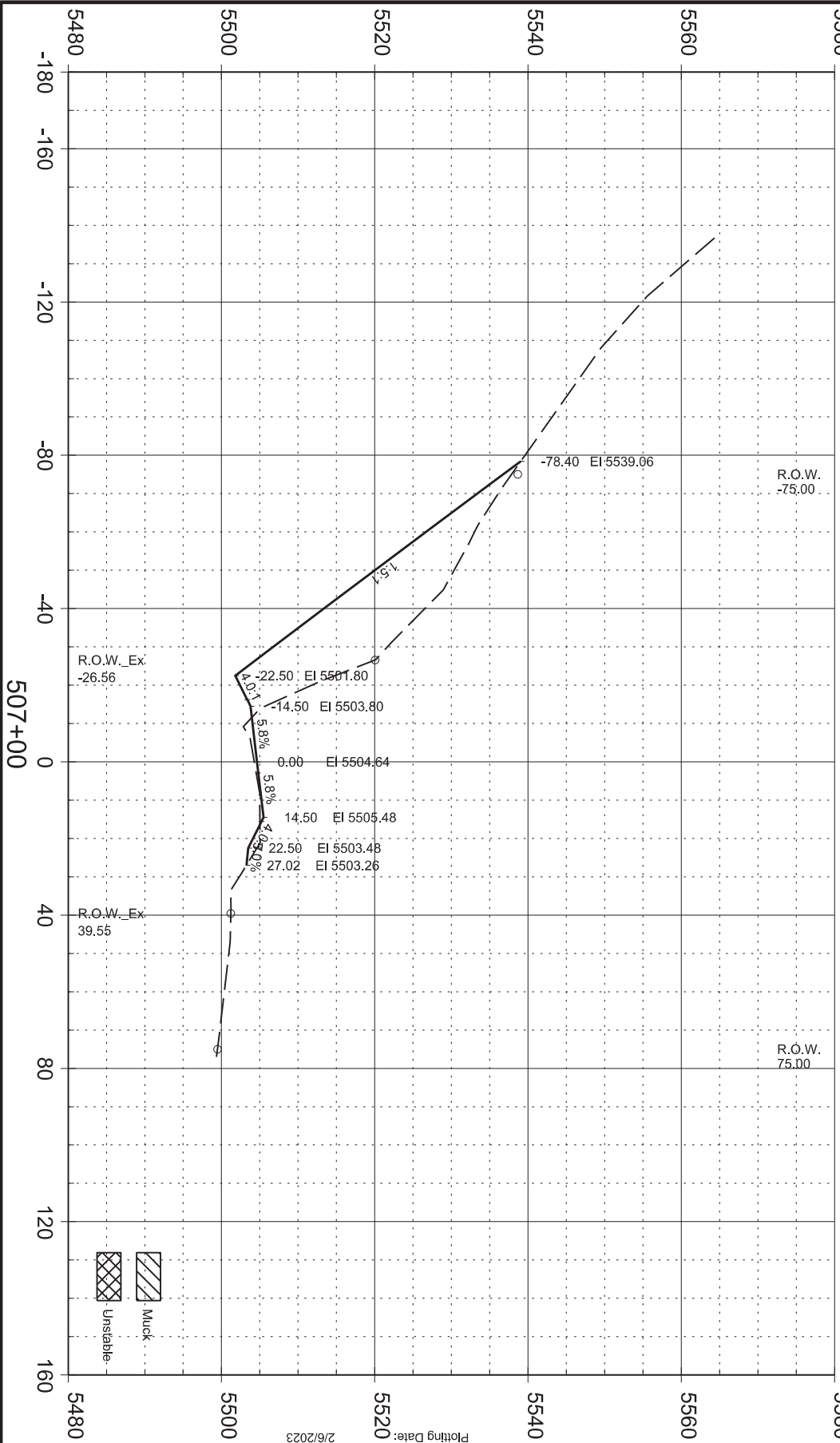
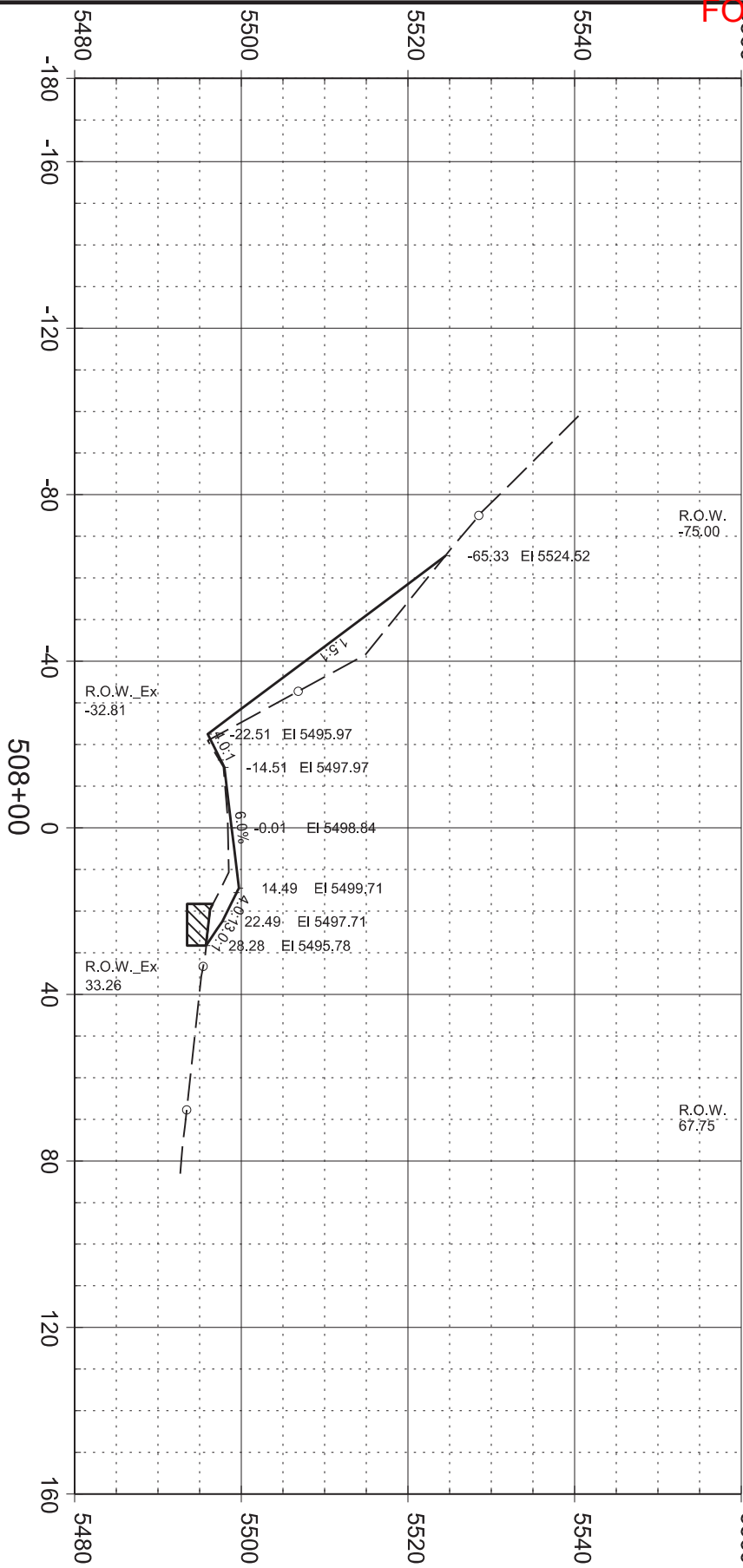
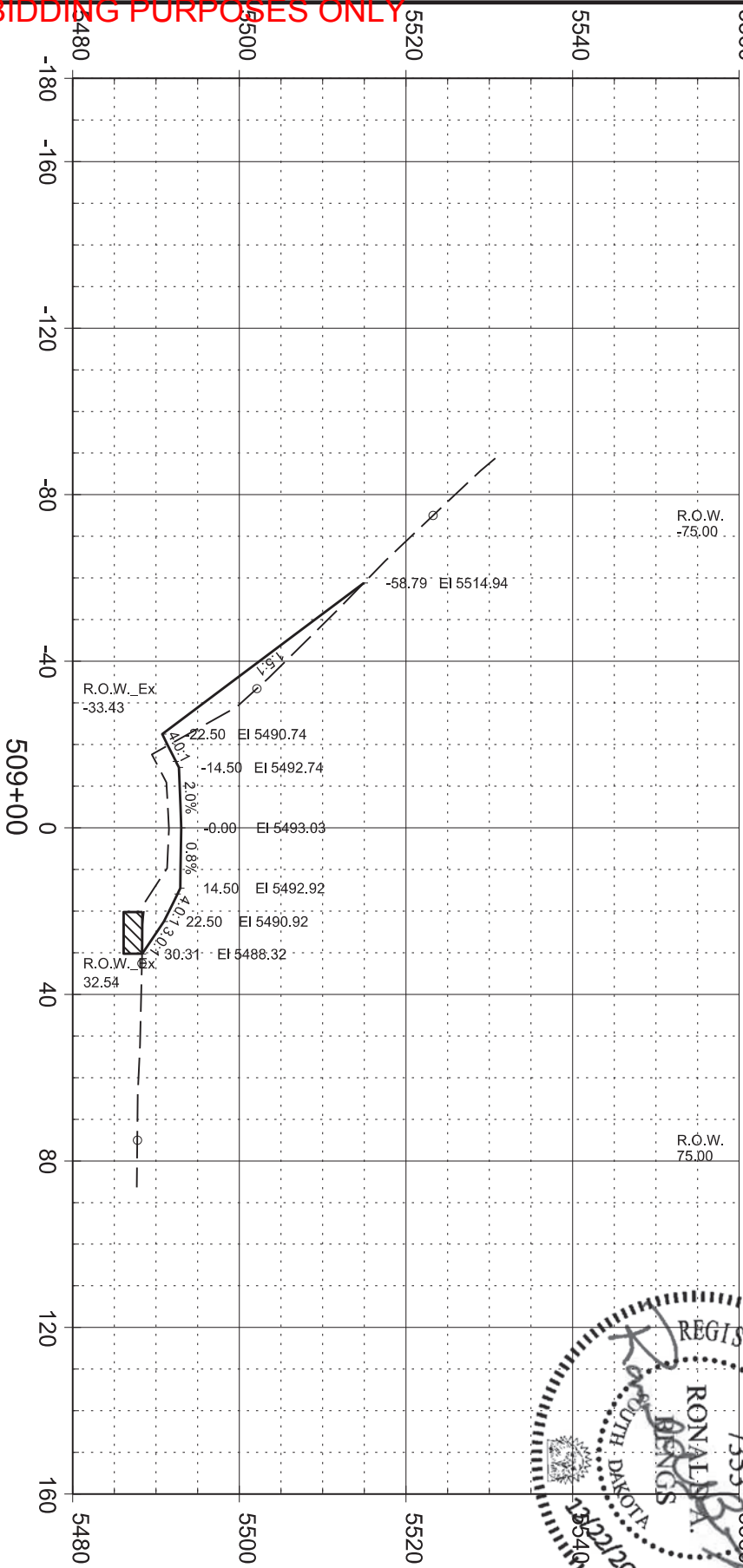
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		299		333		333	

Plotting Date: 2/6/2023

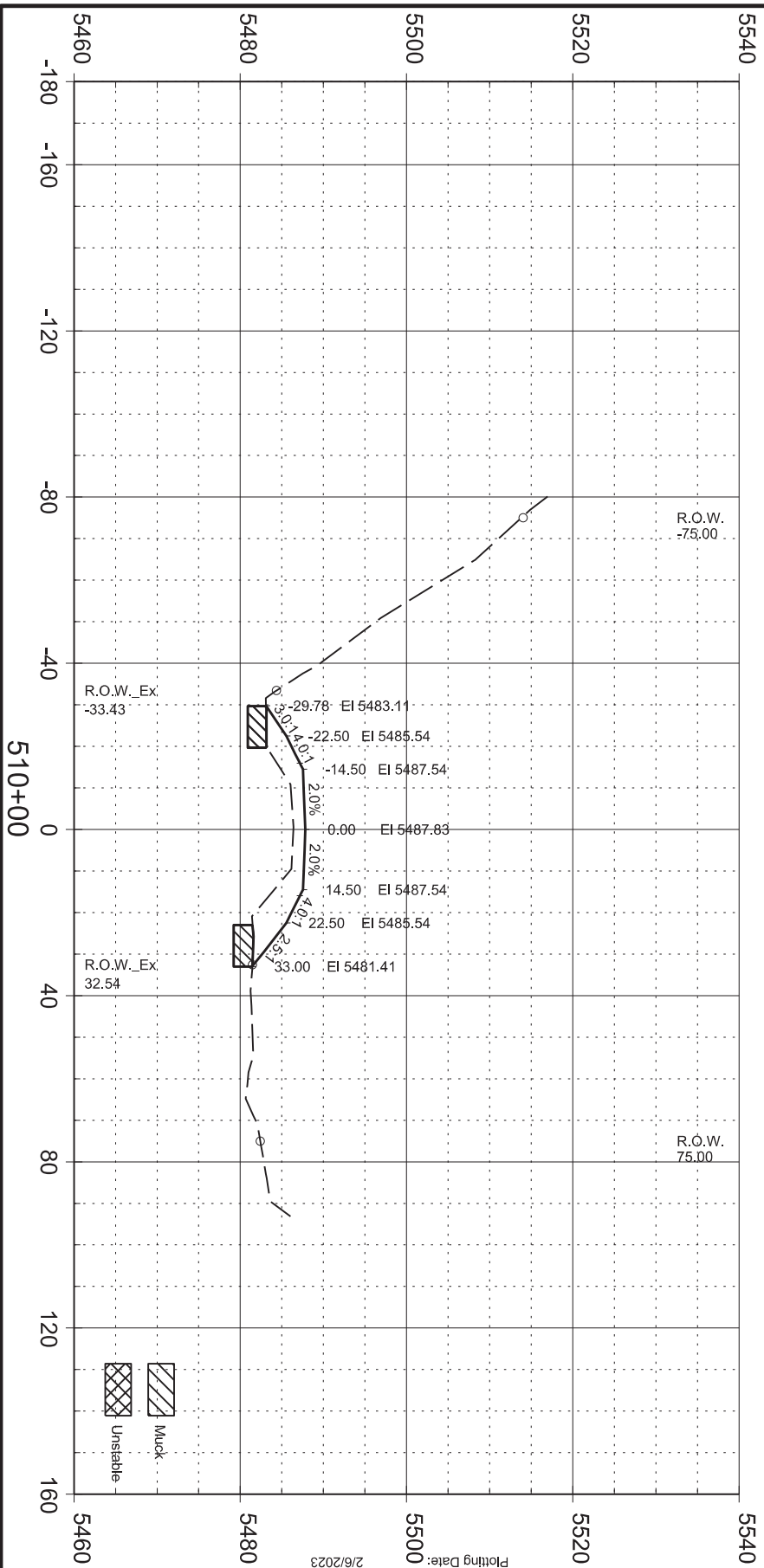
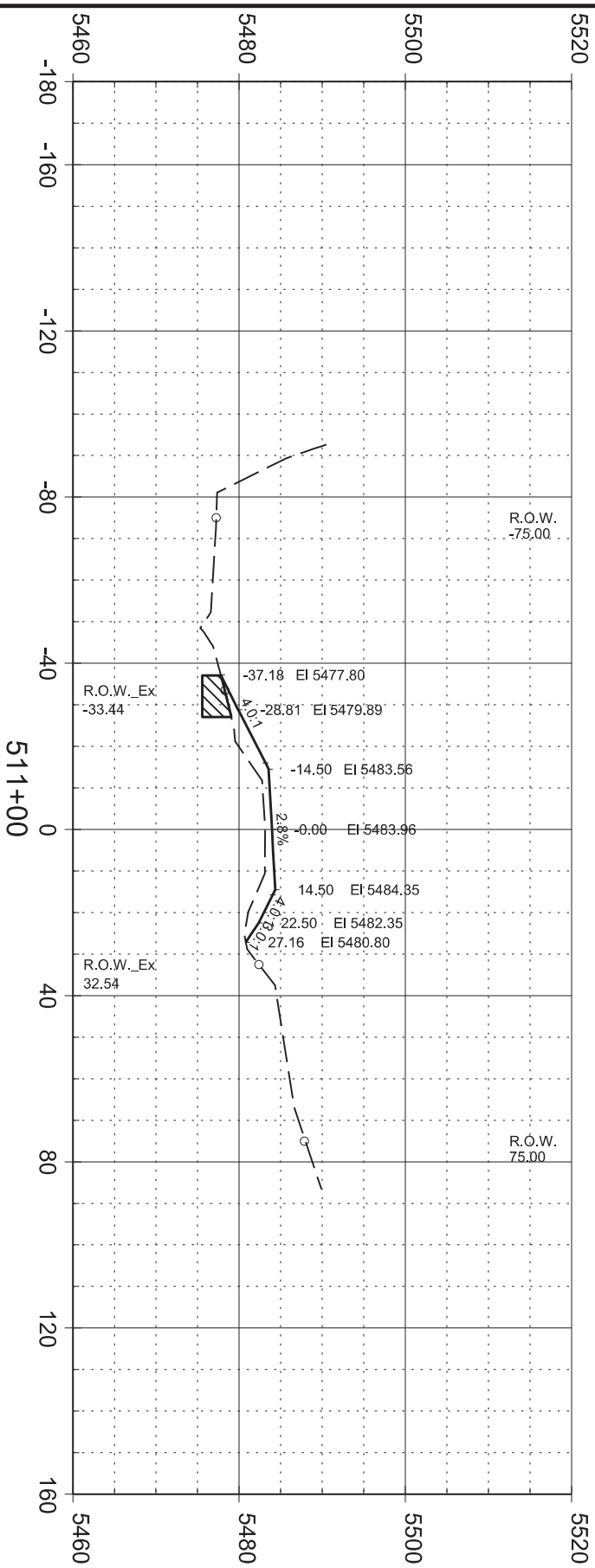
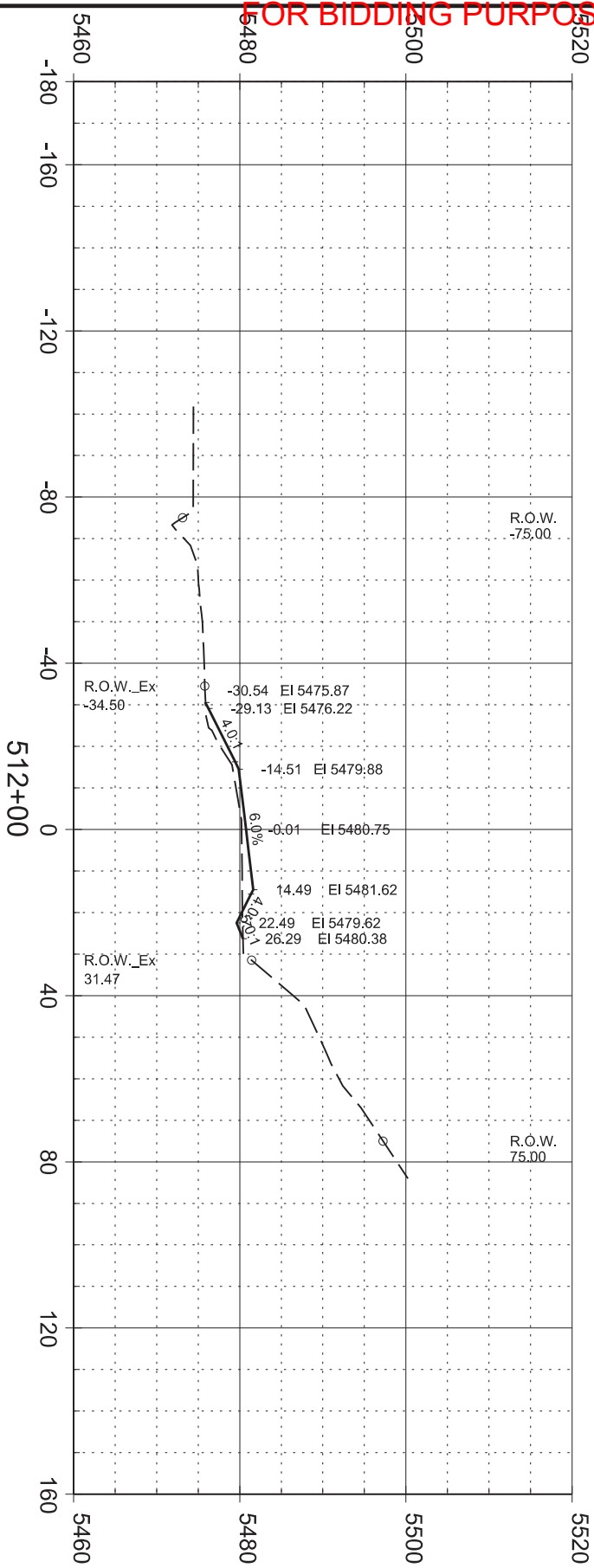


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	300	333





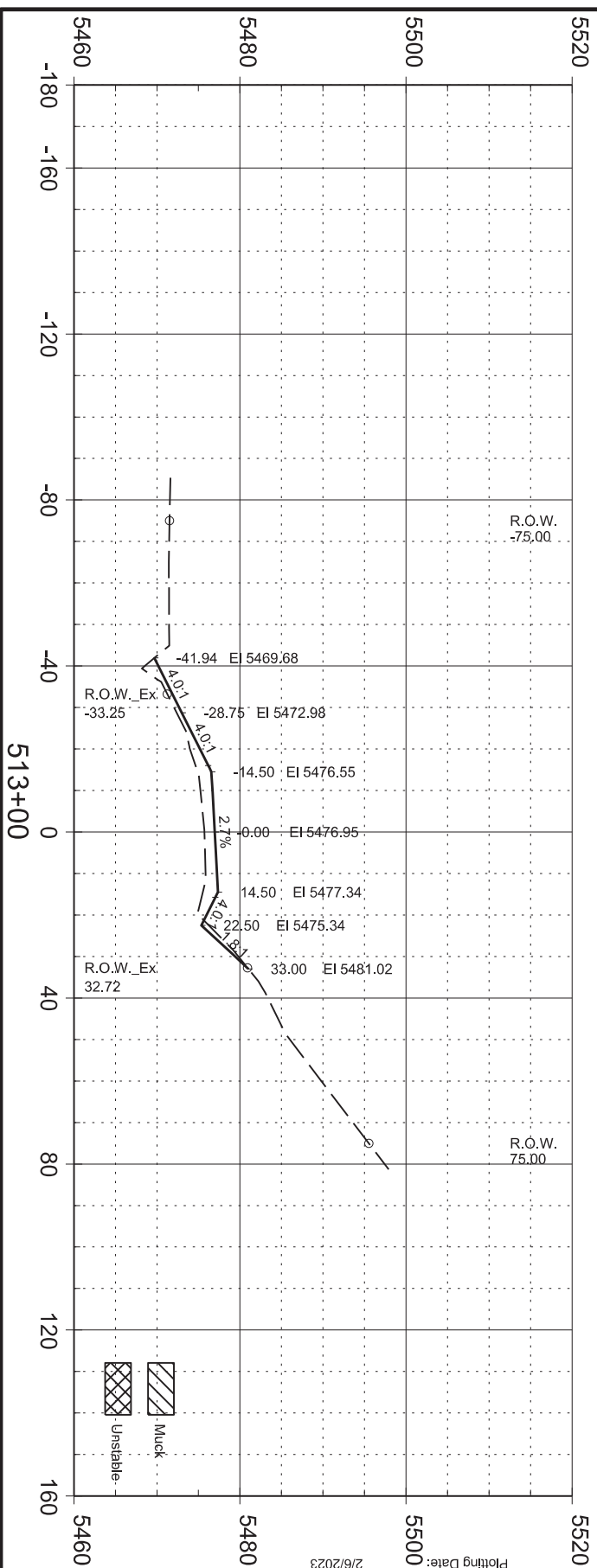
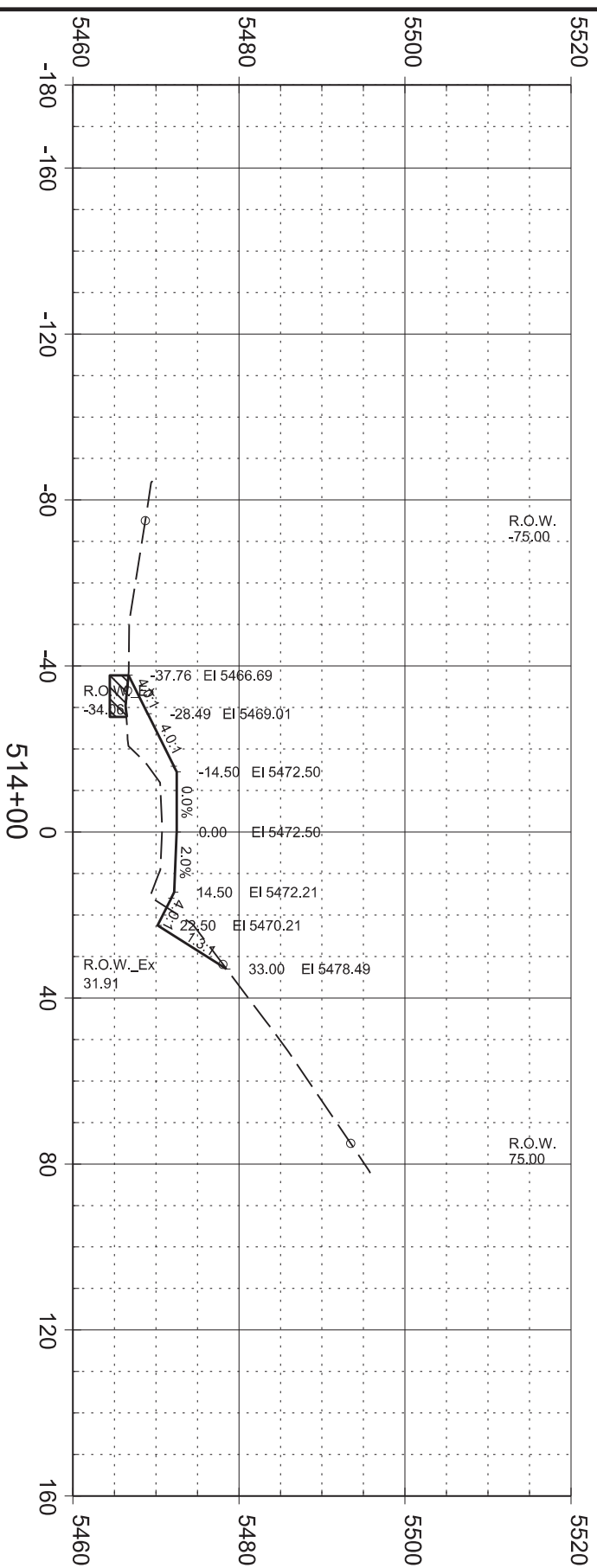
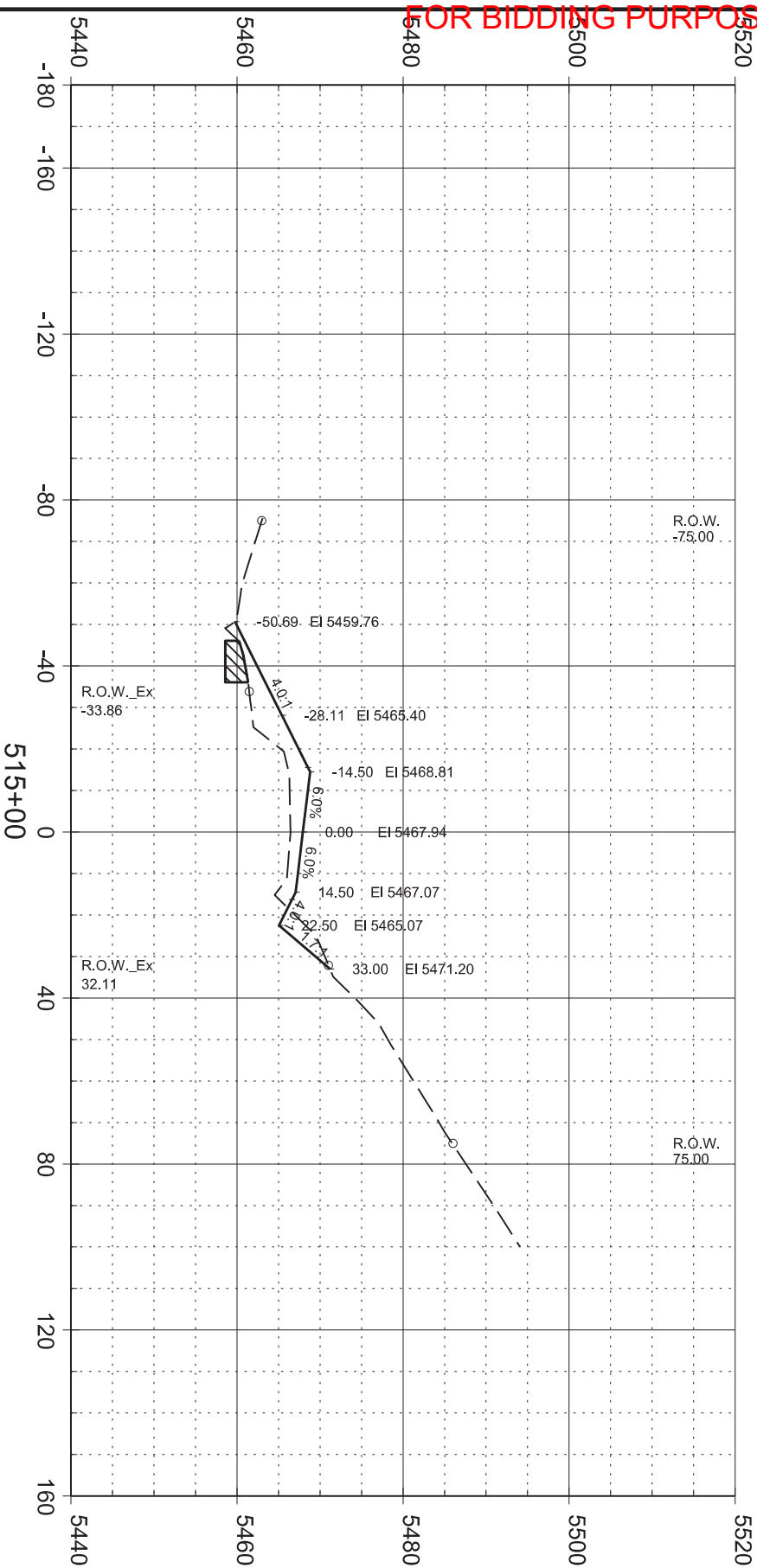
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		301		333		333	
Plotting Date: 2/6/2023		301		333		333	







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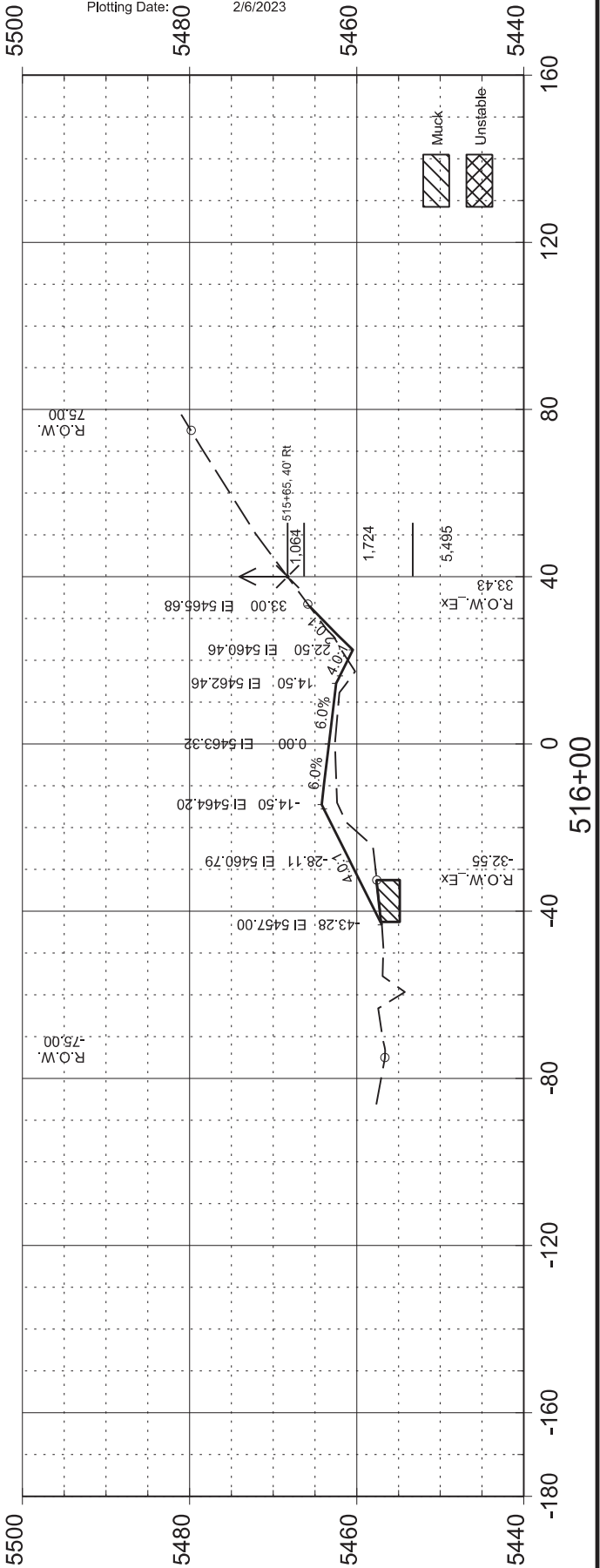
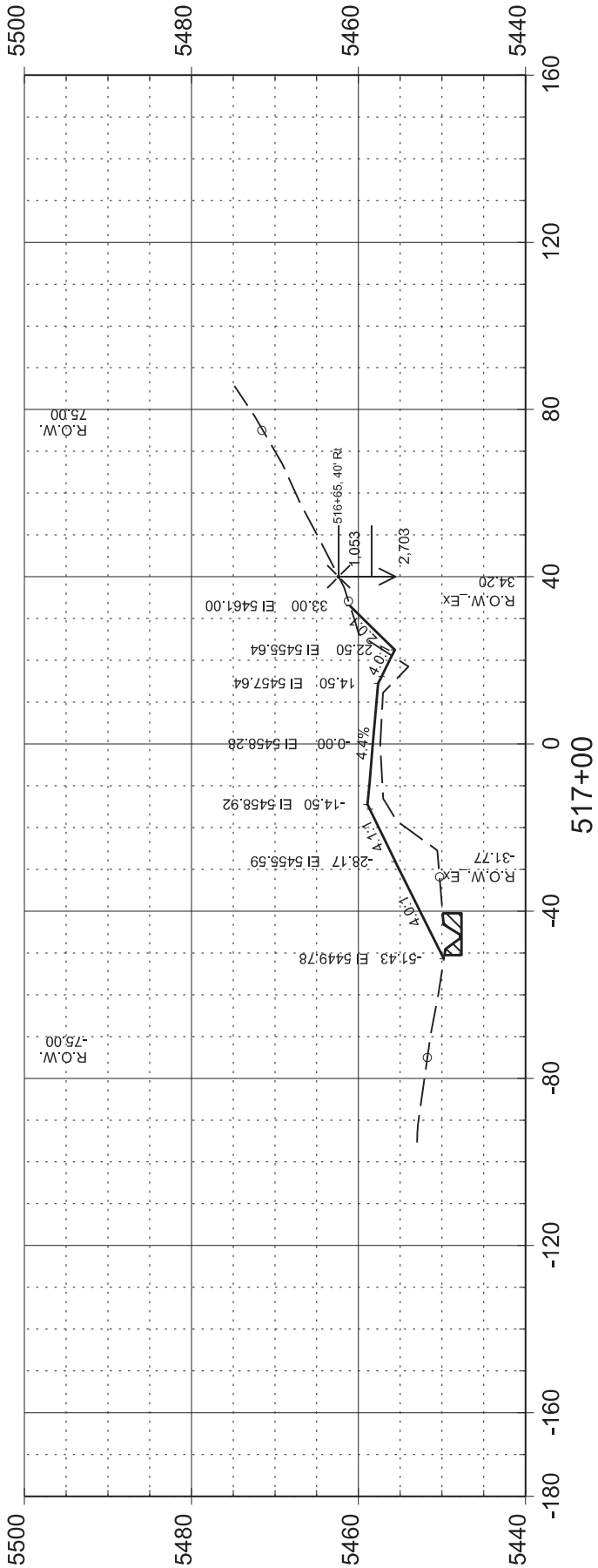
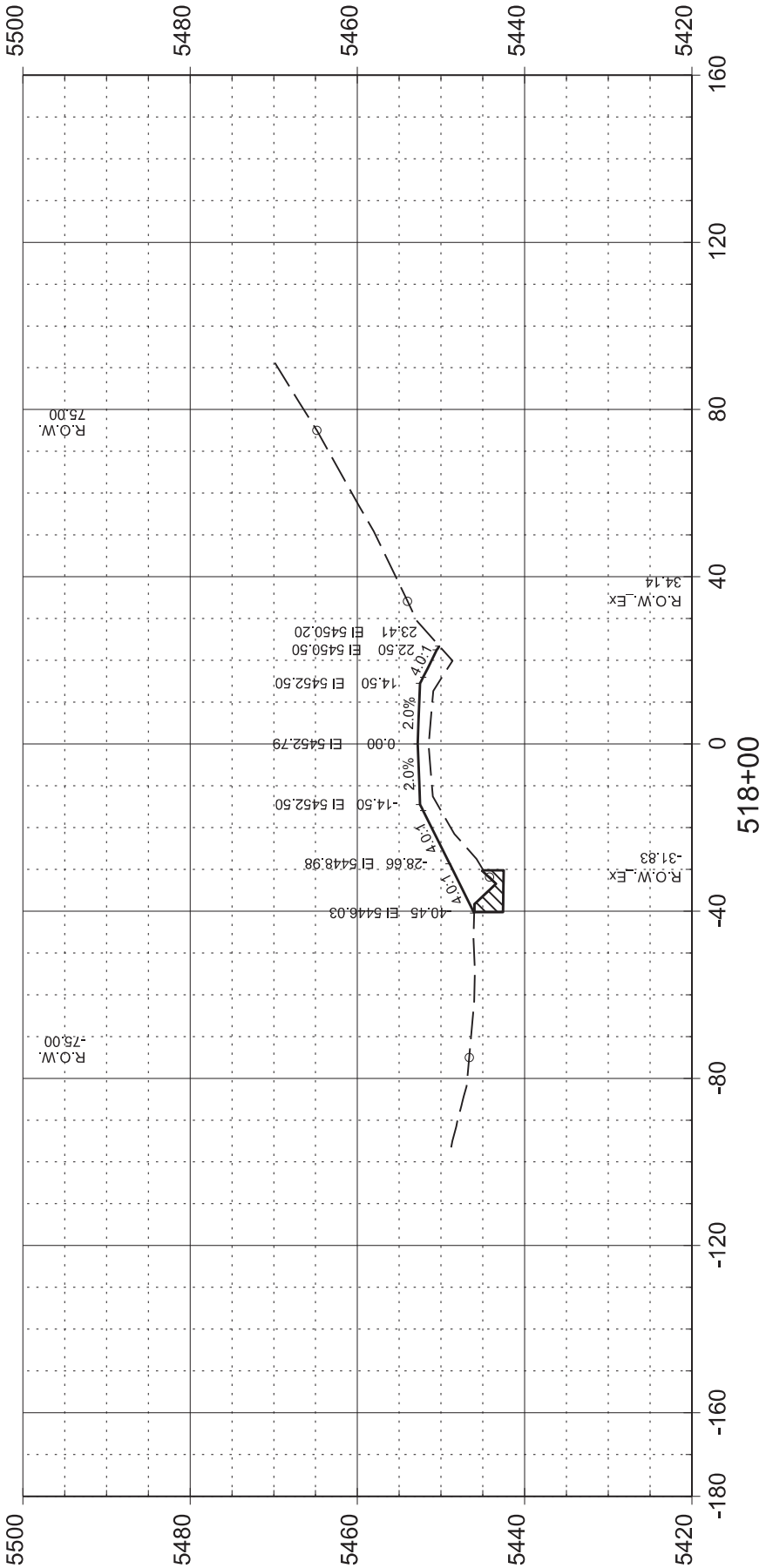
STATE OF SOUTH DAKOTA		PROJECT		SHEET		TOTAL SHEETS	
P 6403(10)		303		333		333	
Plotting Date: 2/6/2023		303		333		333	



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	304	333

Plotting Date: 2/6/2023

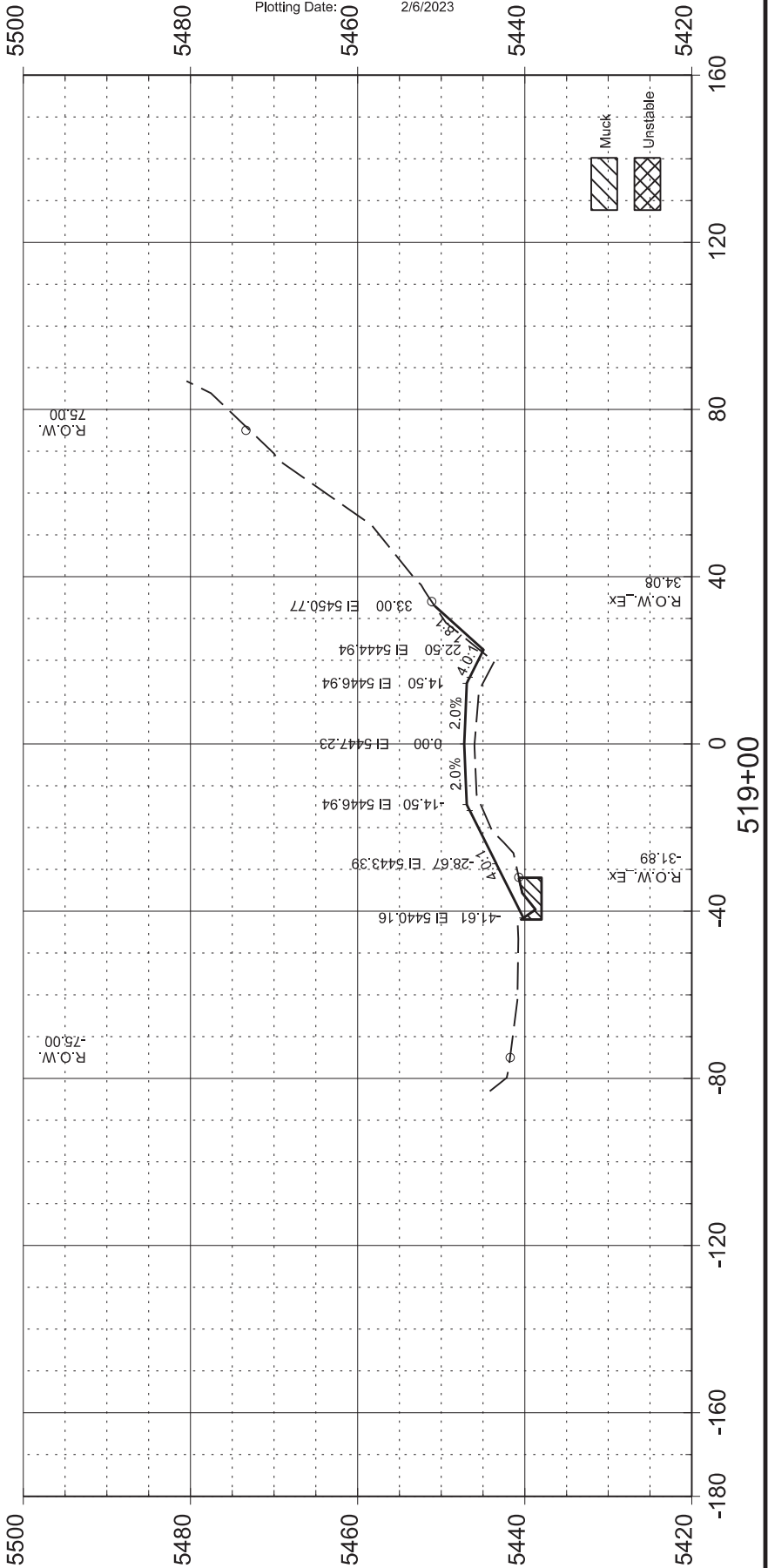
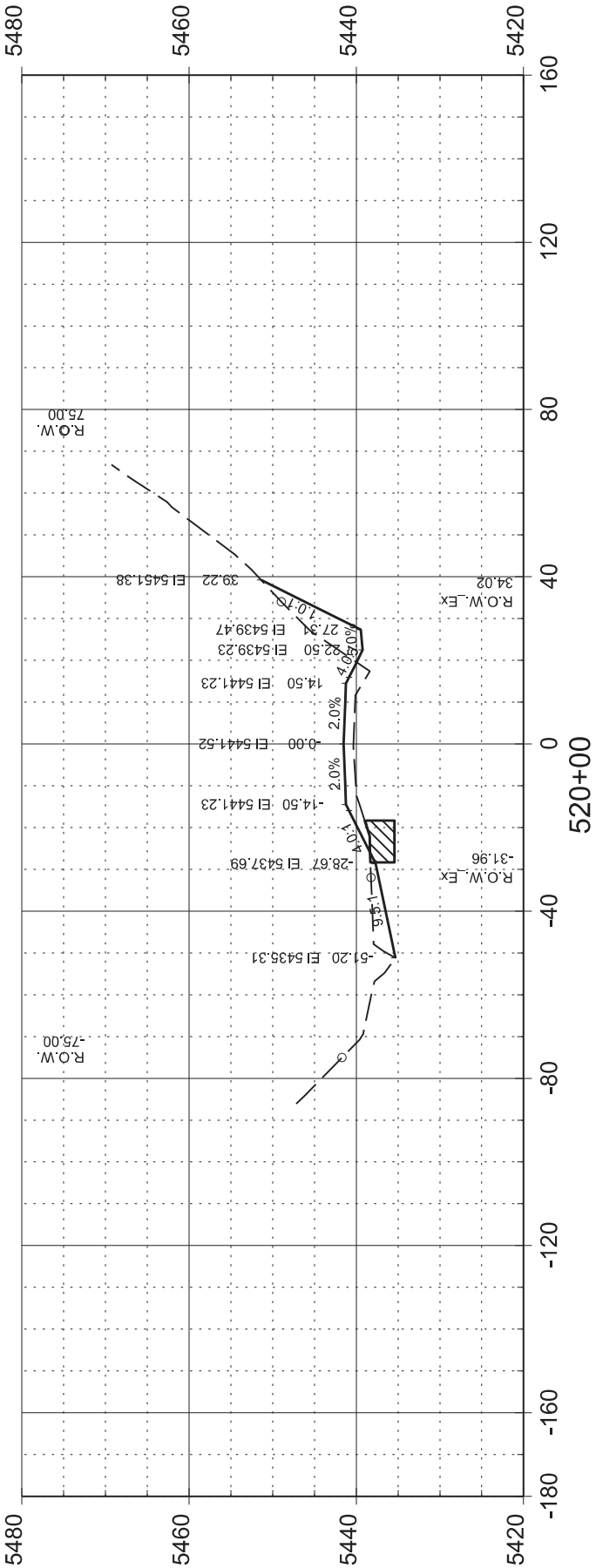
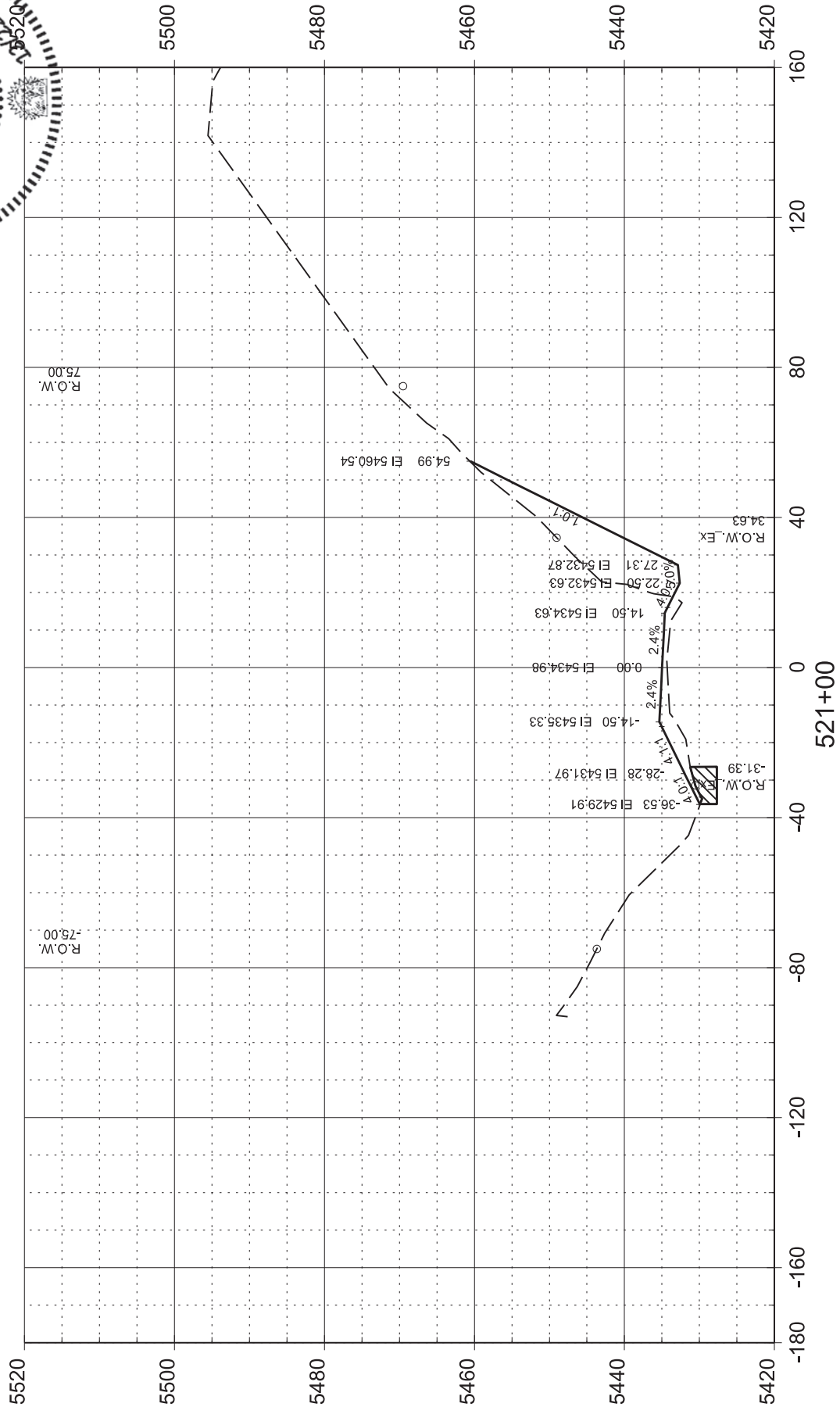


FOR BIDDING PURPOSES ONLY

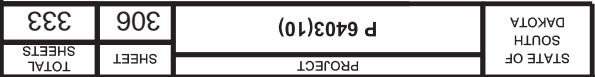
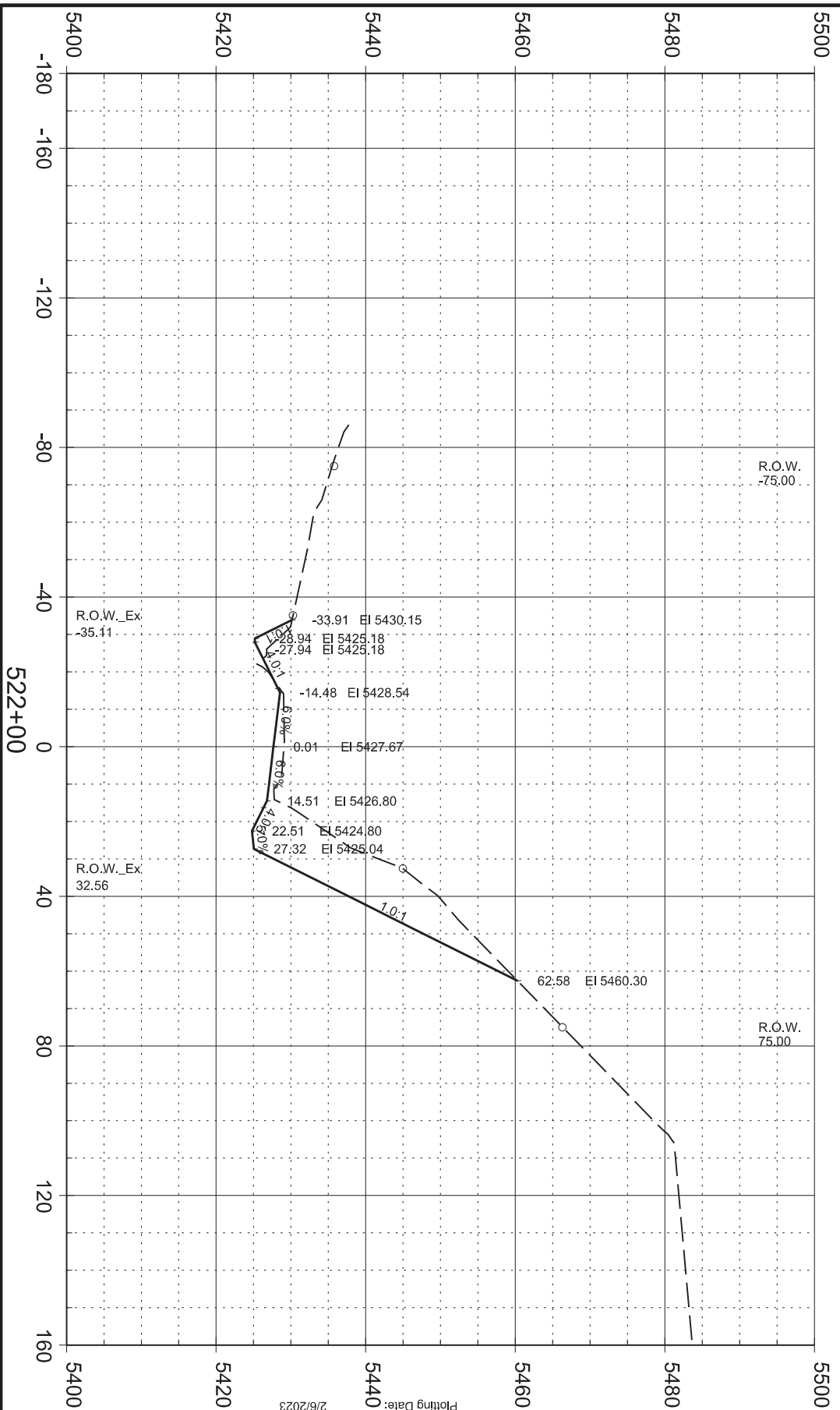


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	305	333

Plotting Date: 2/6/2023





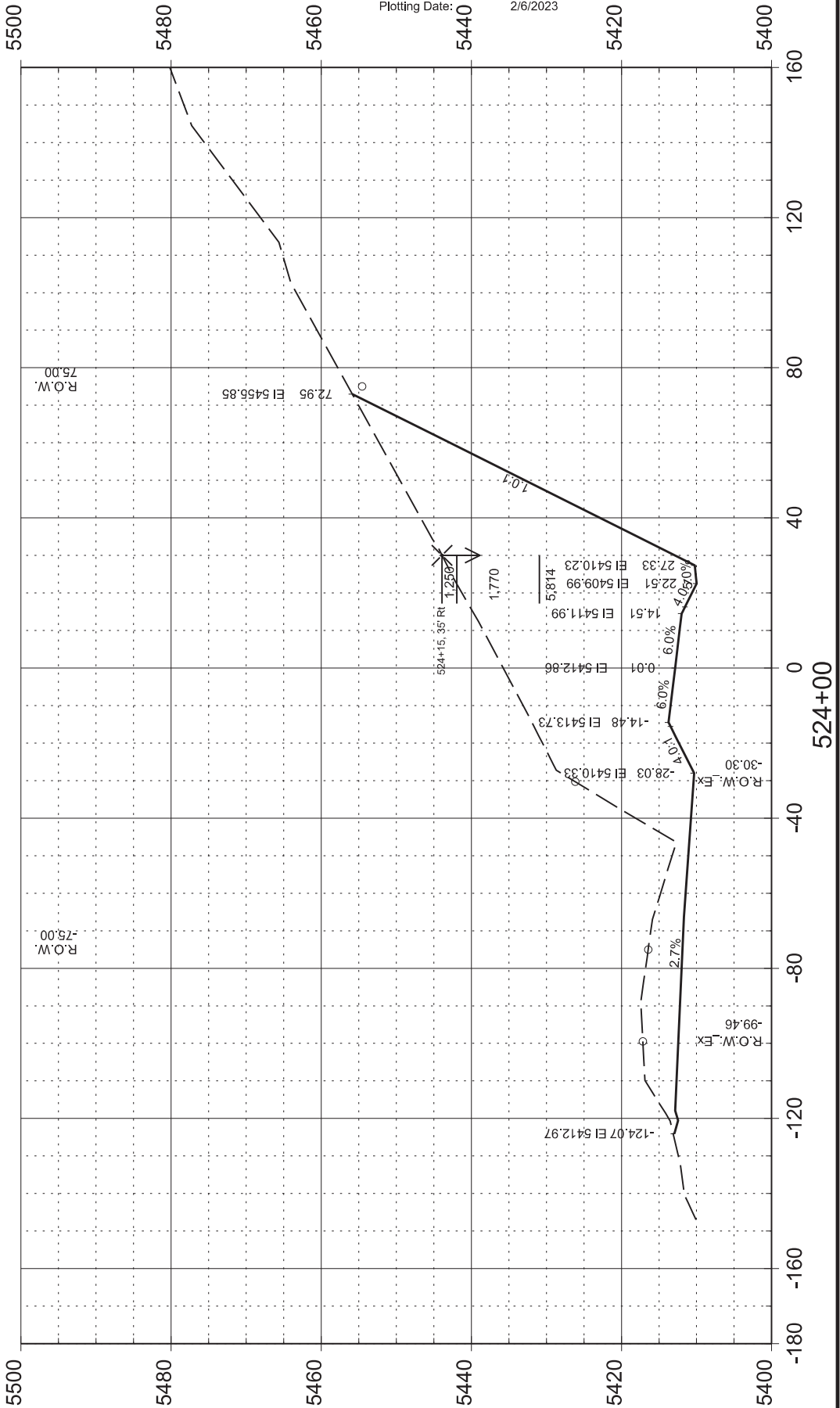
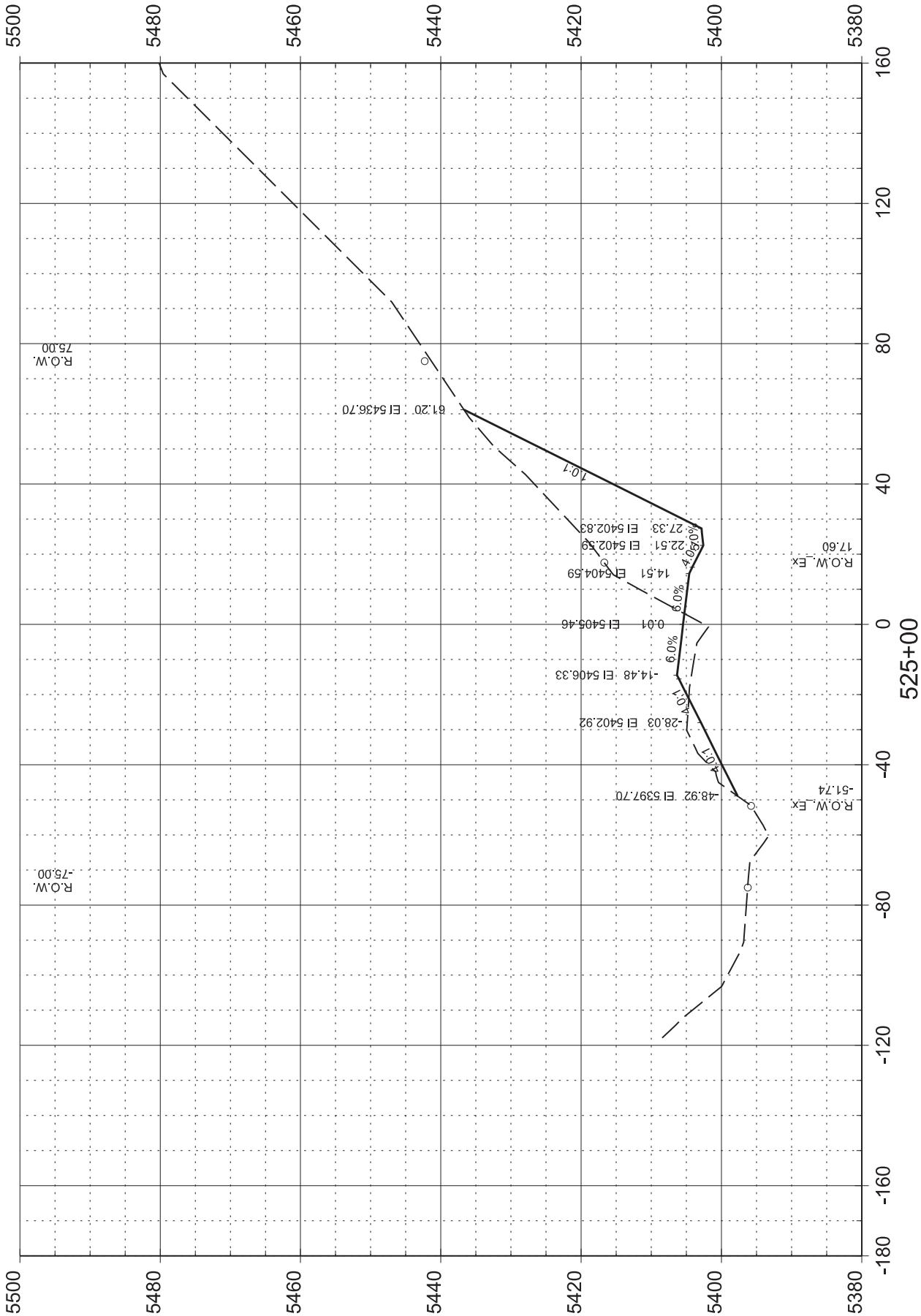




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	307	333

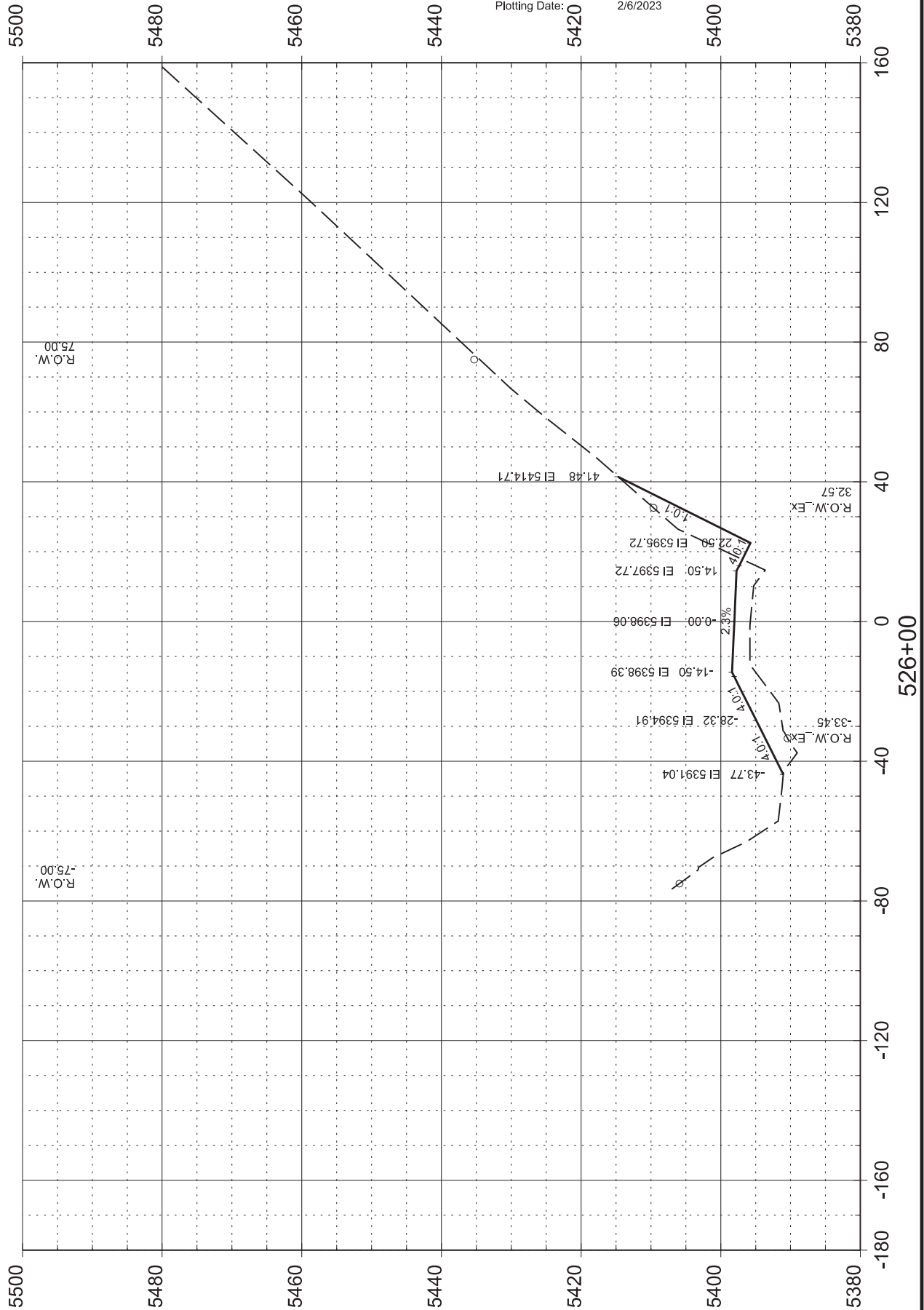
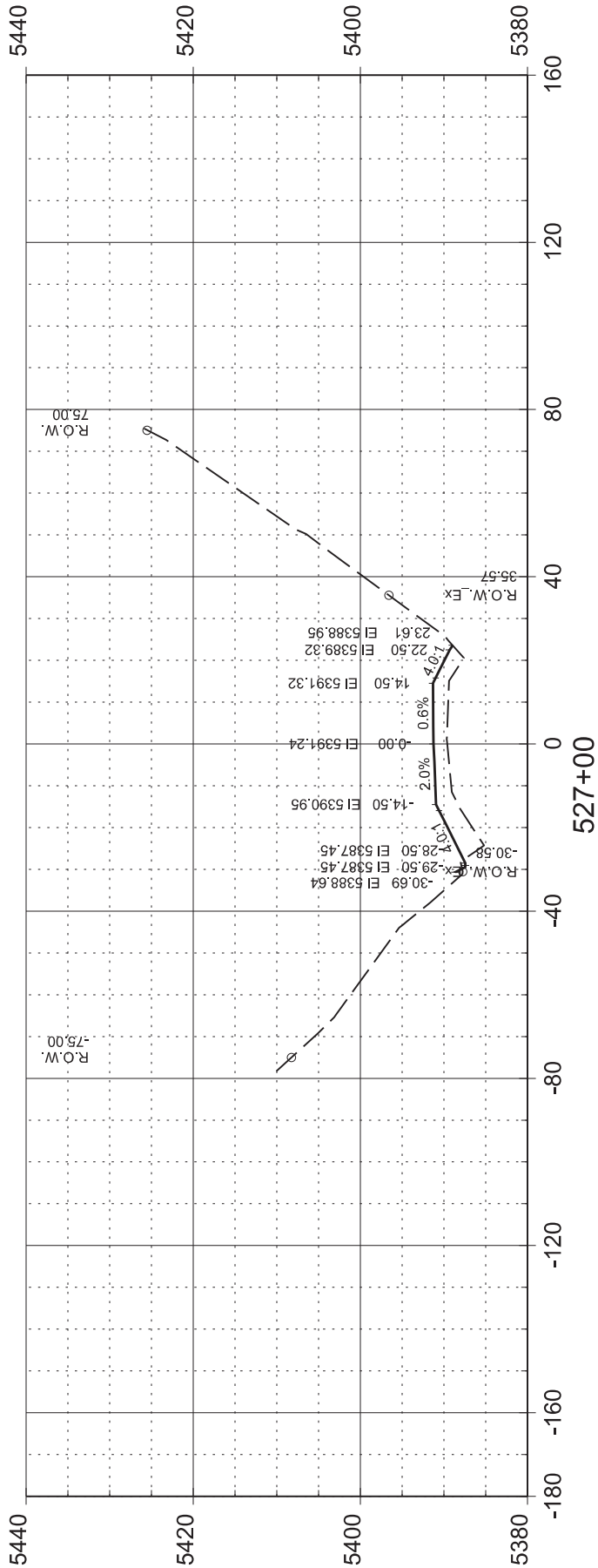
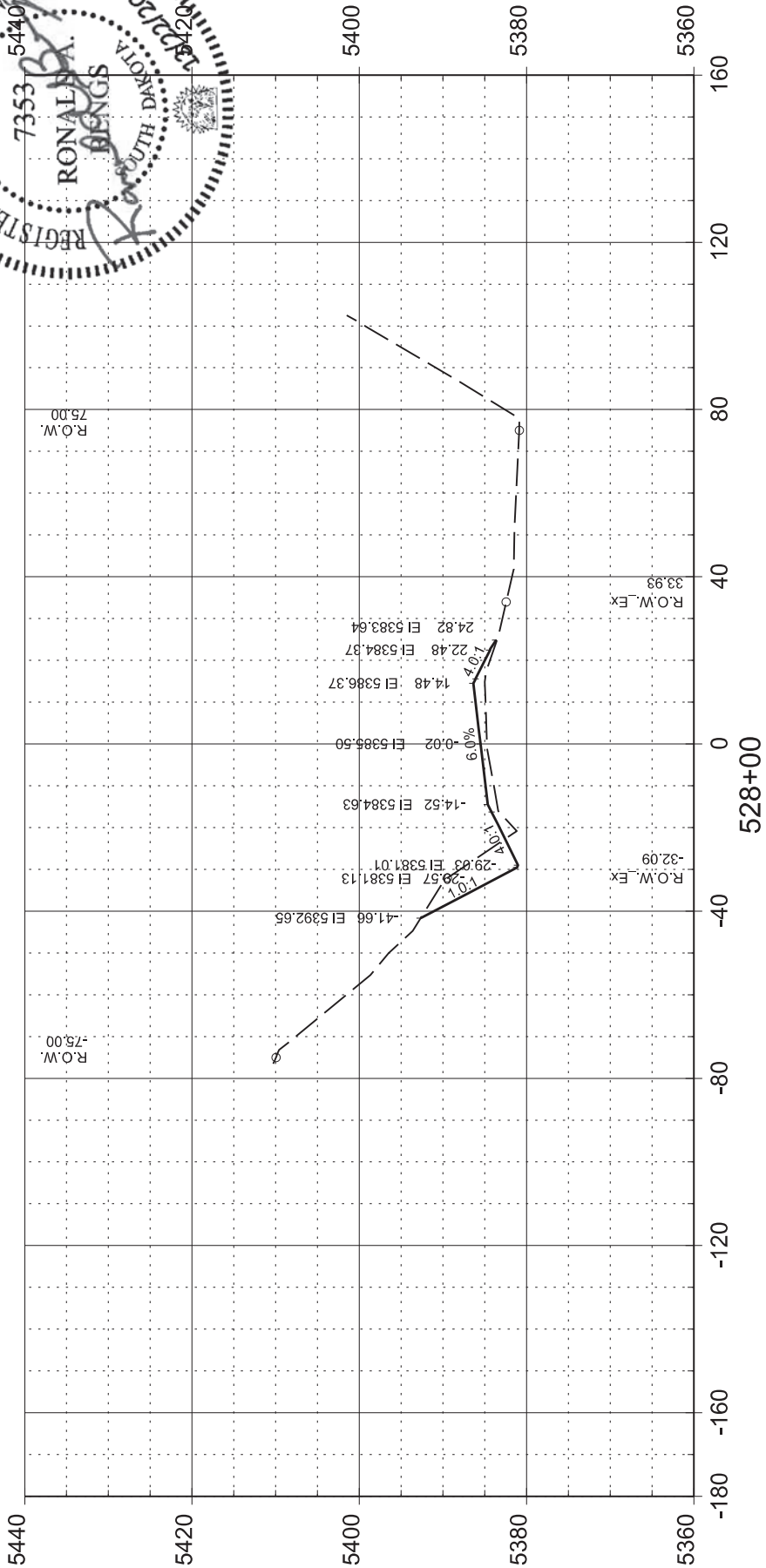
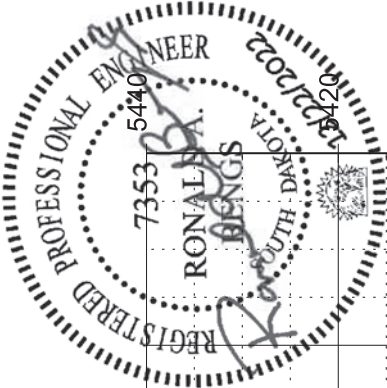
Plotting Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	308	333

Plotting Date: 2/6/2023

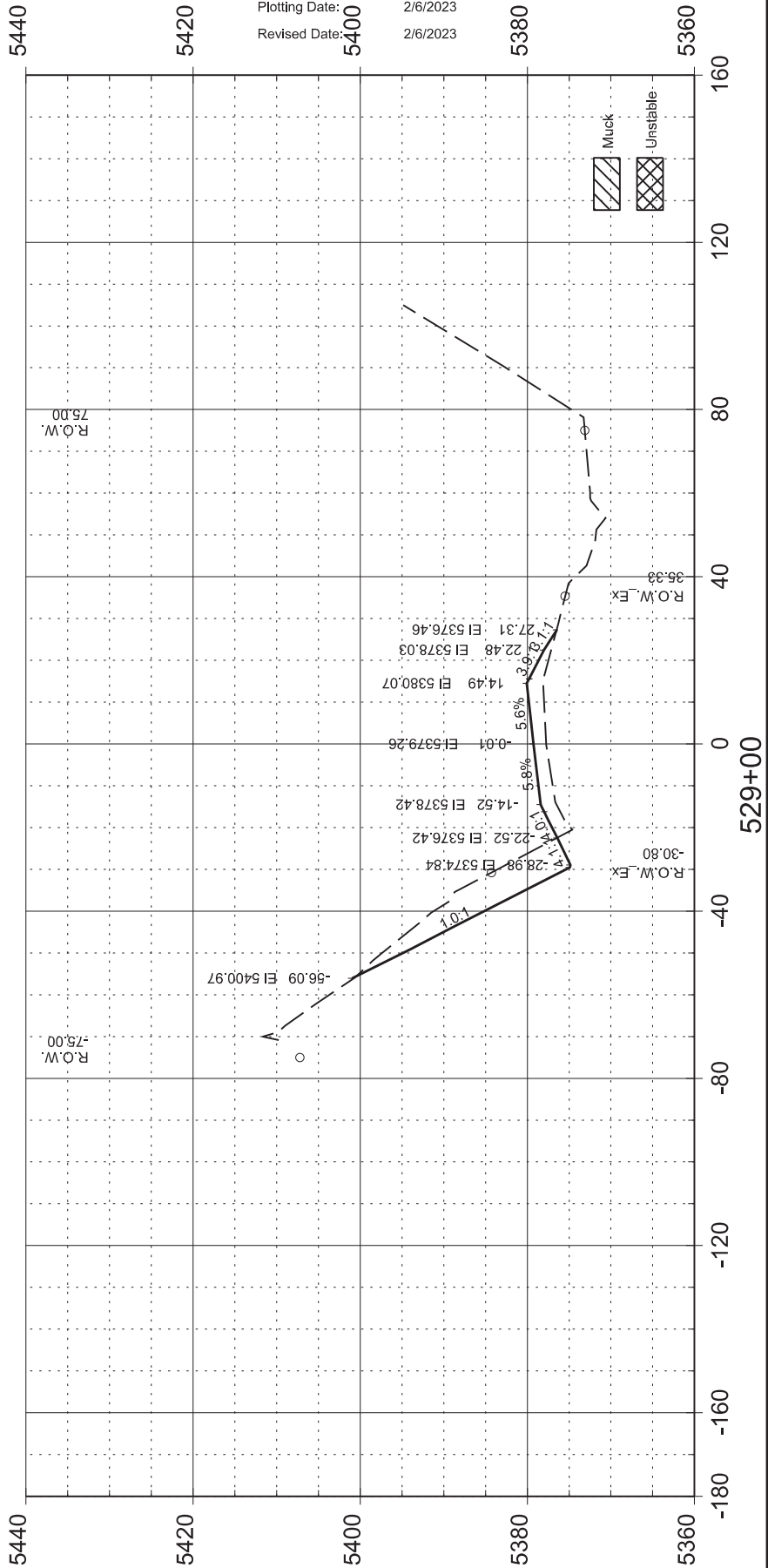
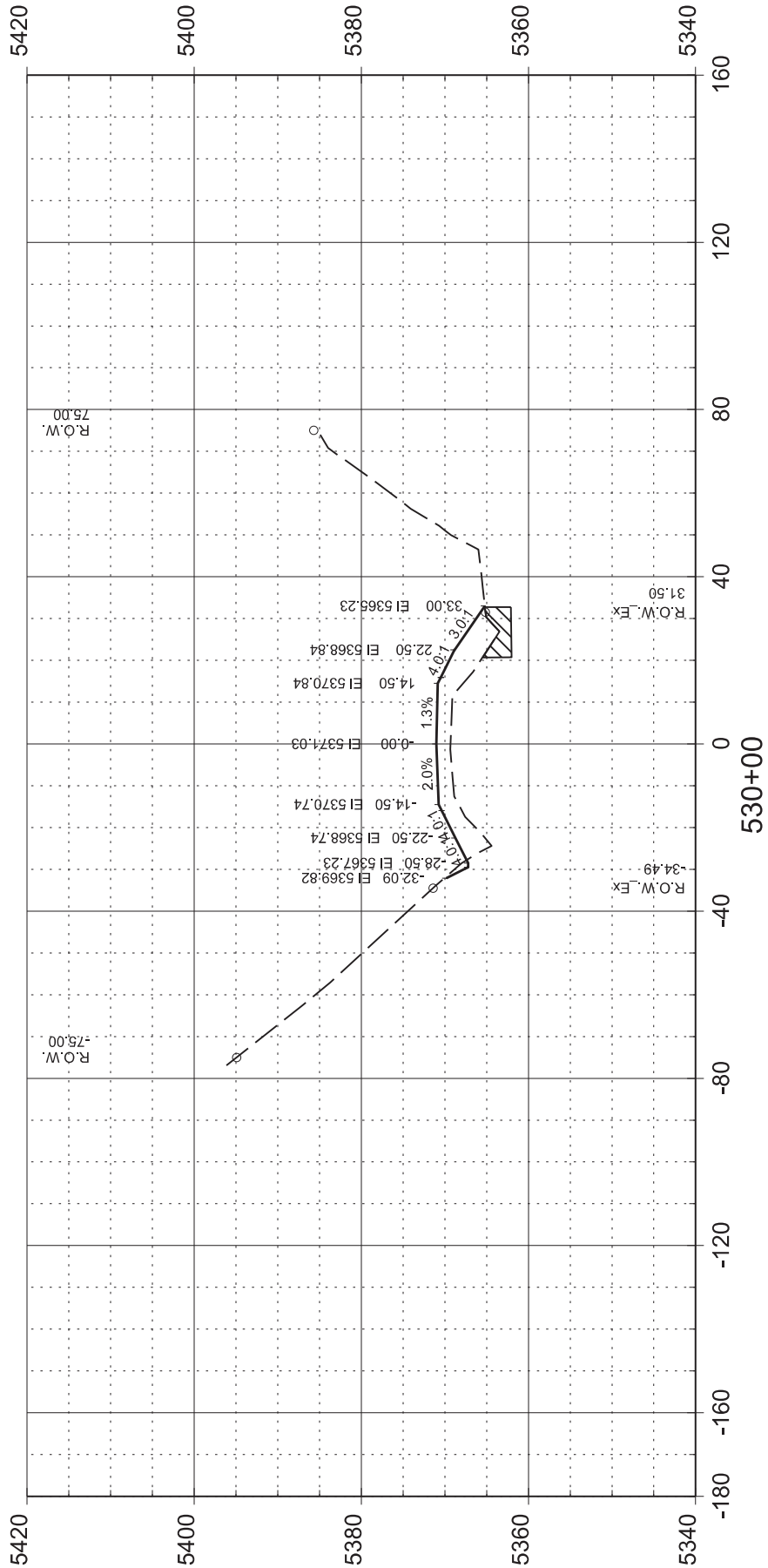
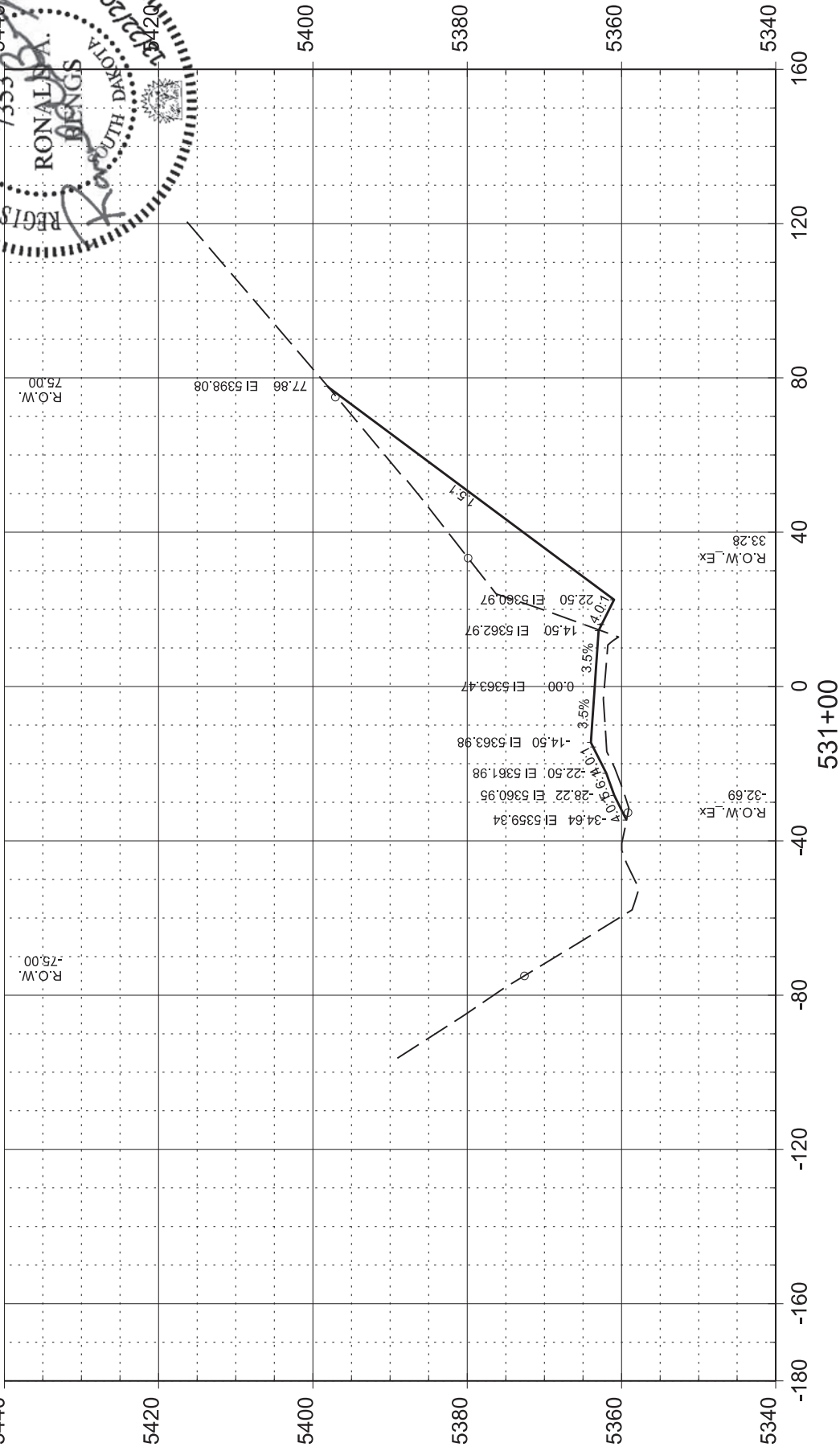
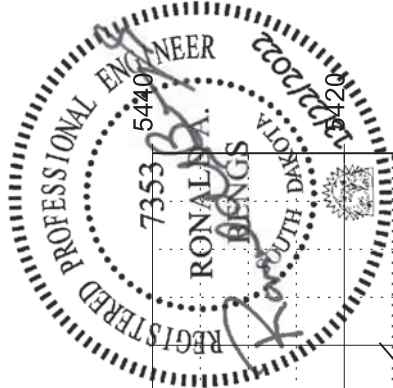




FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	309	333

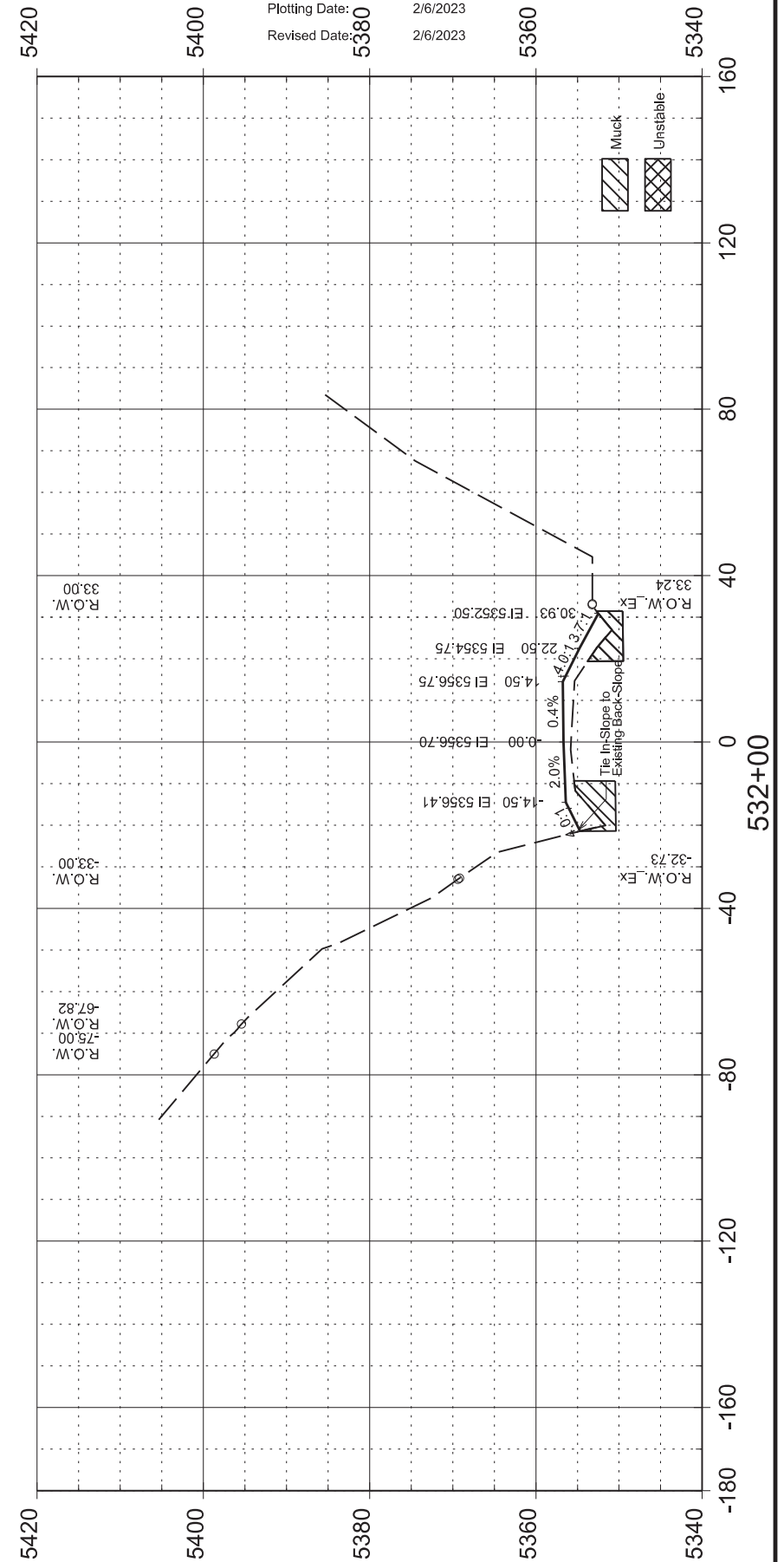
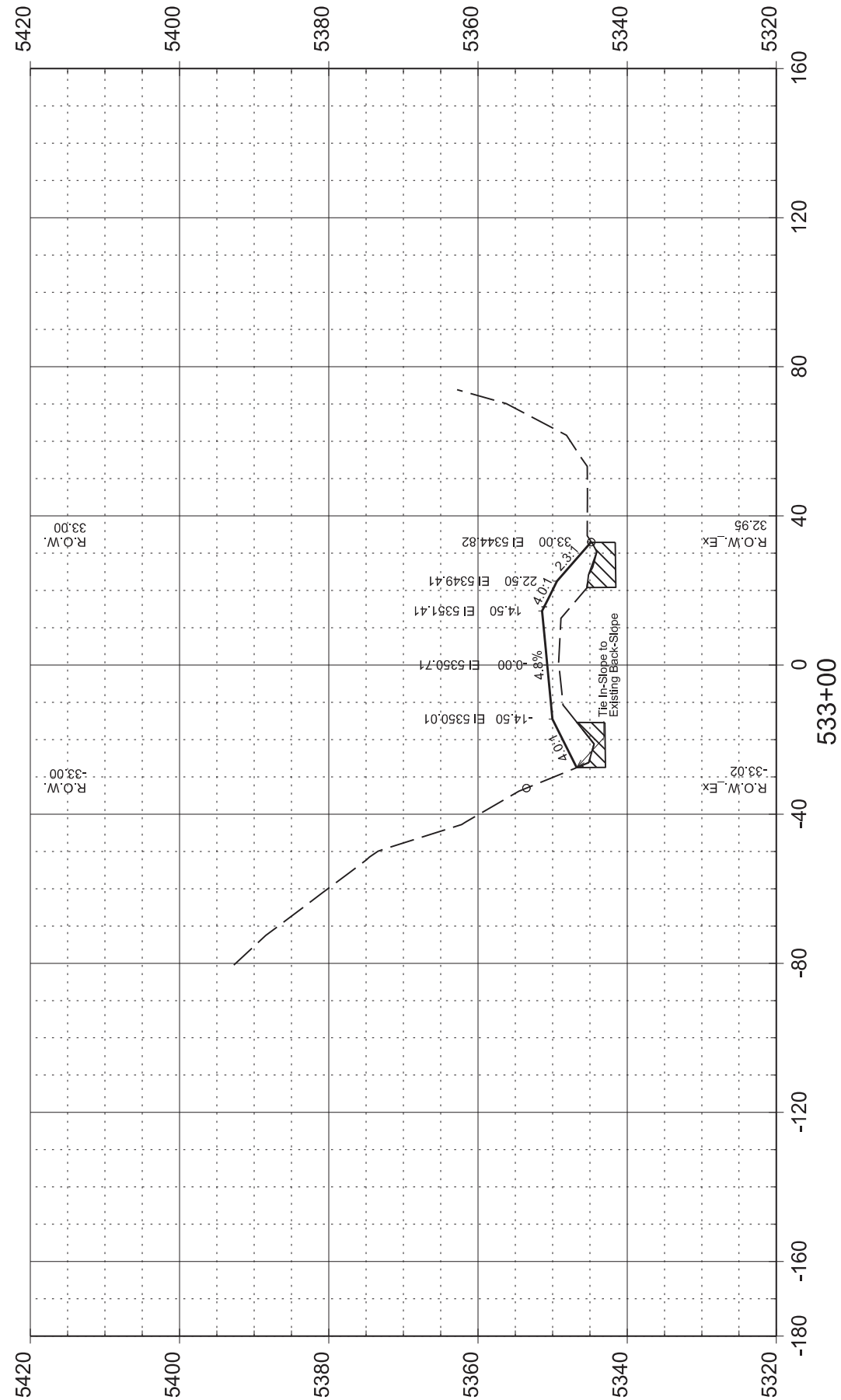
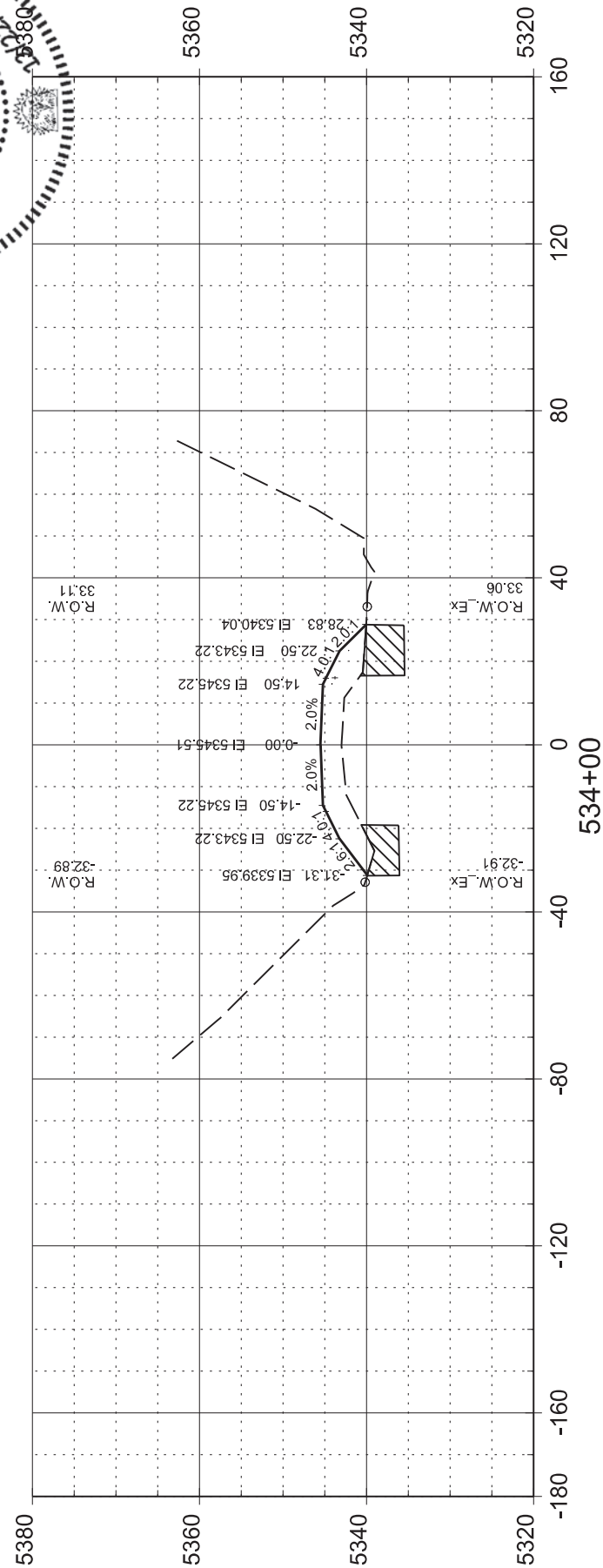
Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	310	333

Plotting Date: 2/6/2023  
Revised Date: 2/6/2023



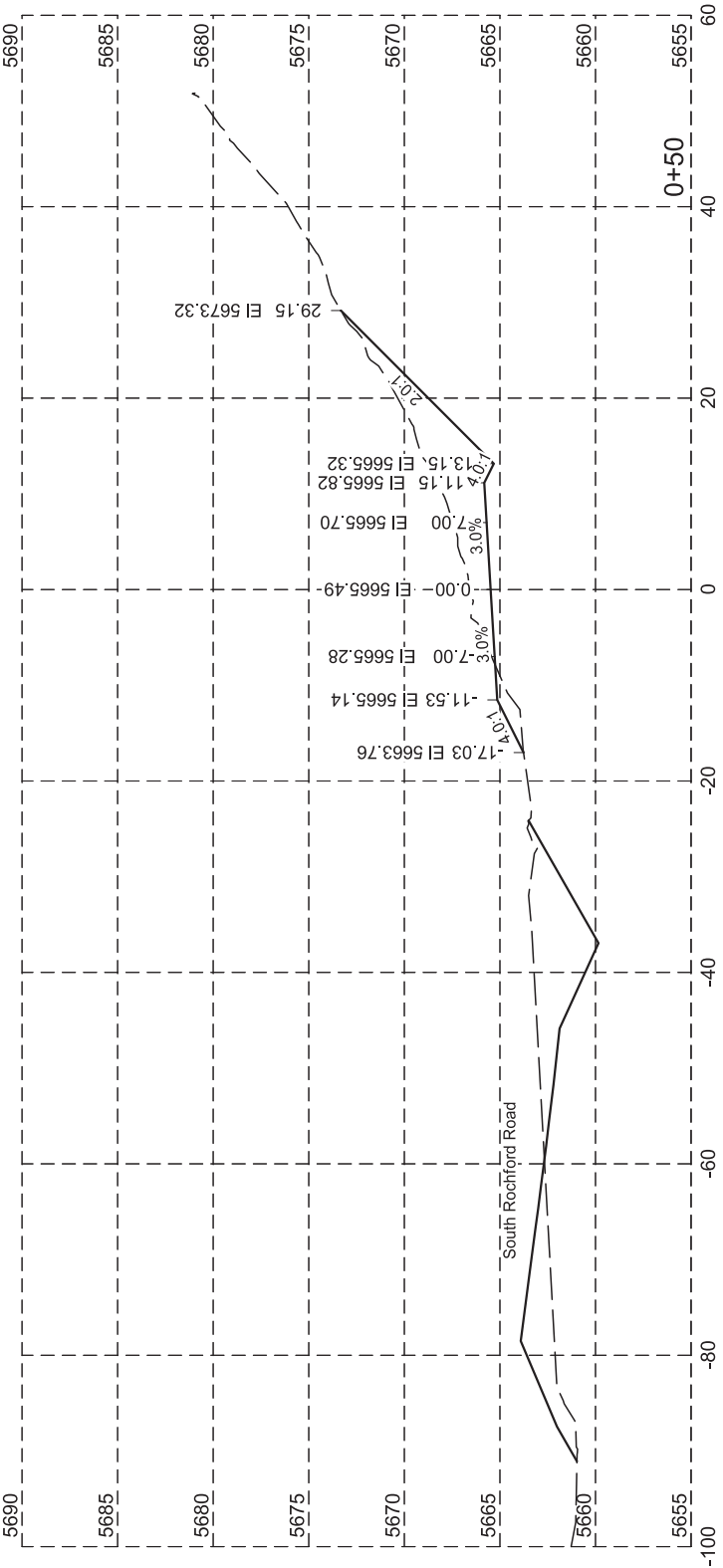
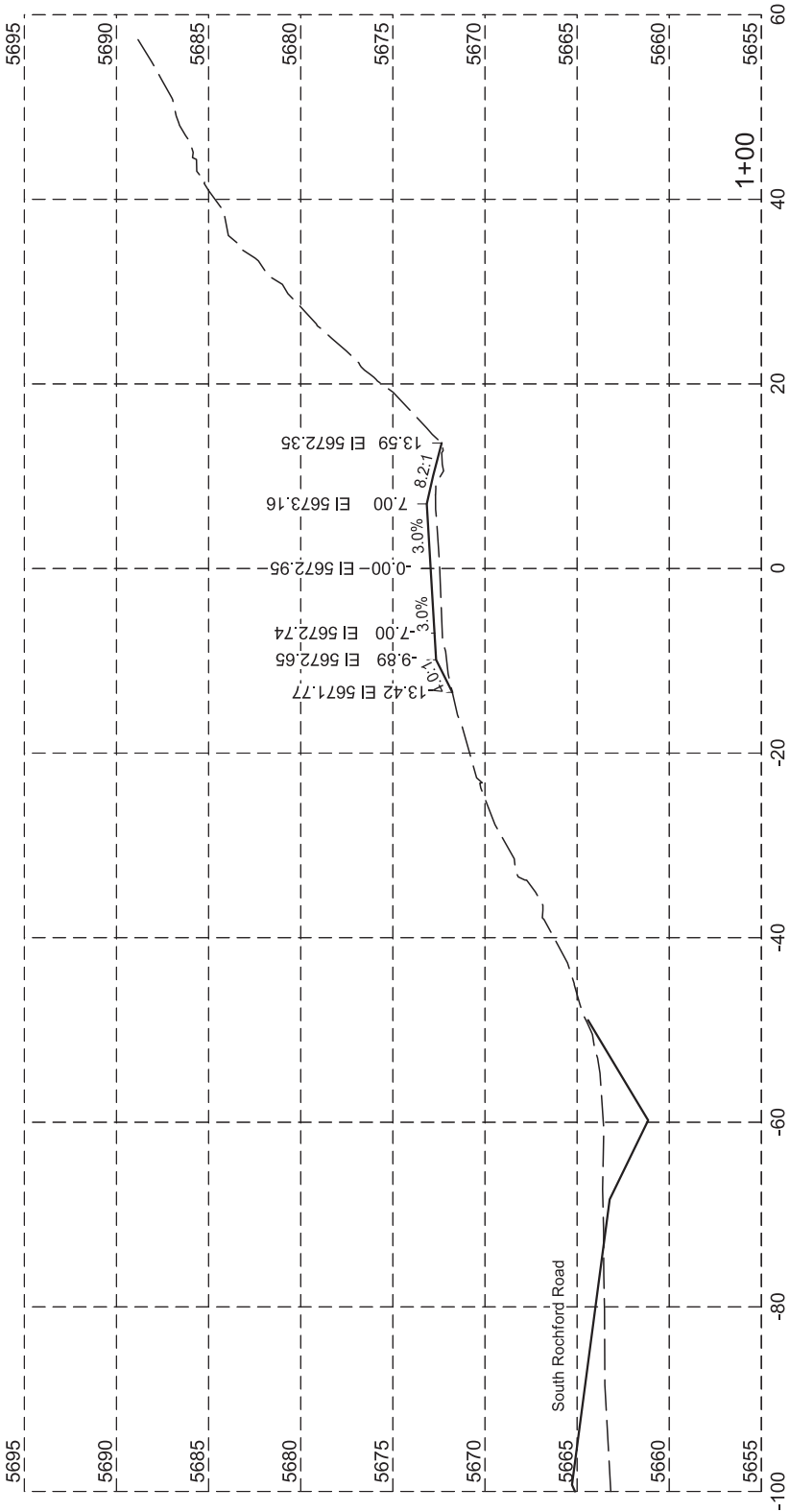
Musick Driveway Cross Sections



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	311	333

Plotting Date: 2/6/2023

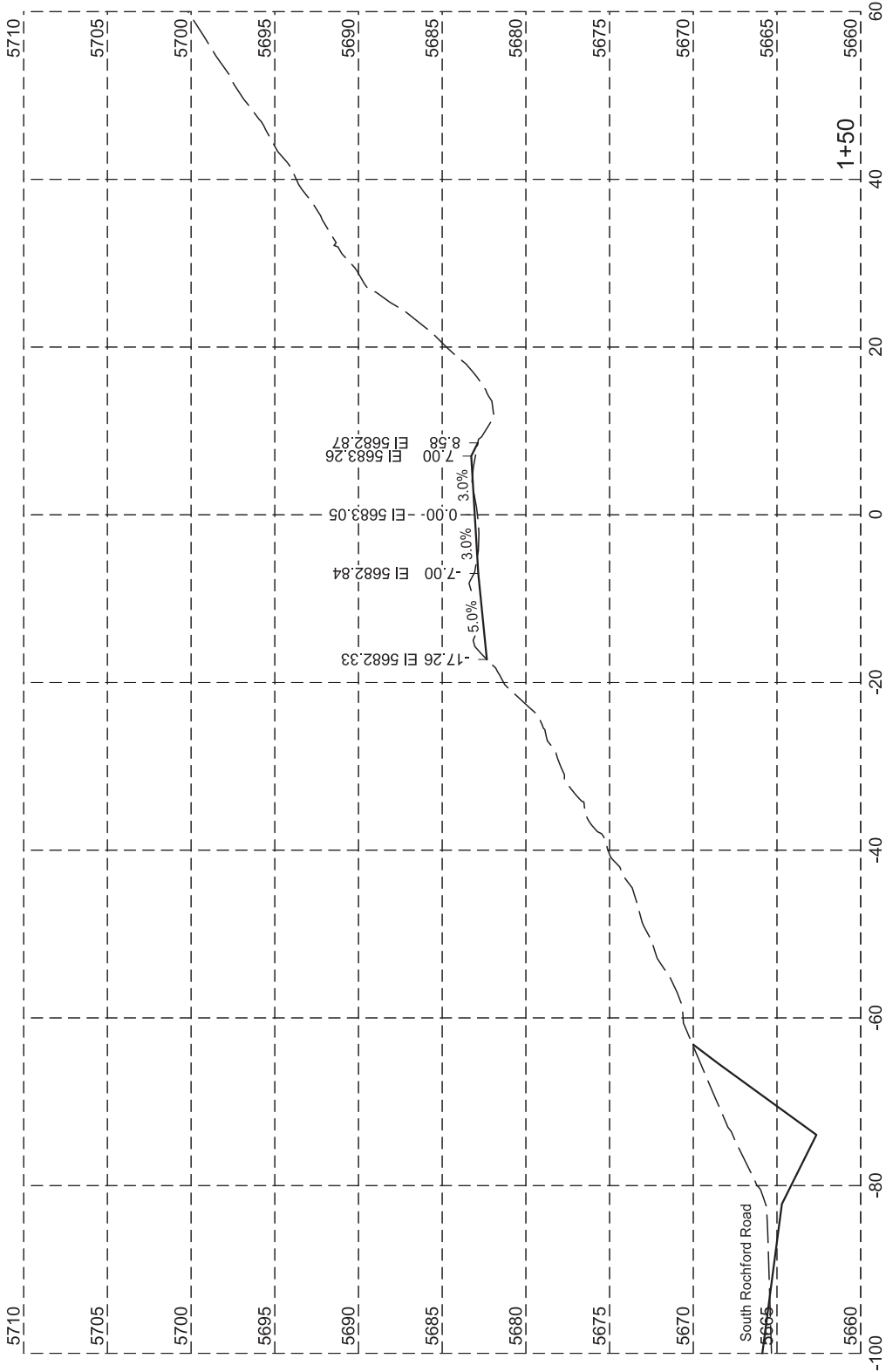
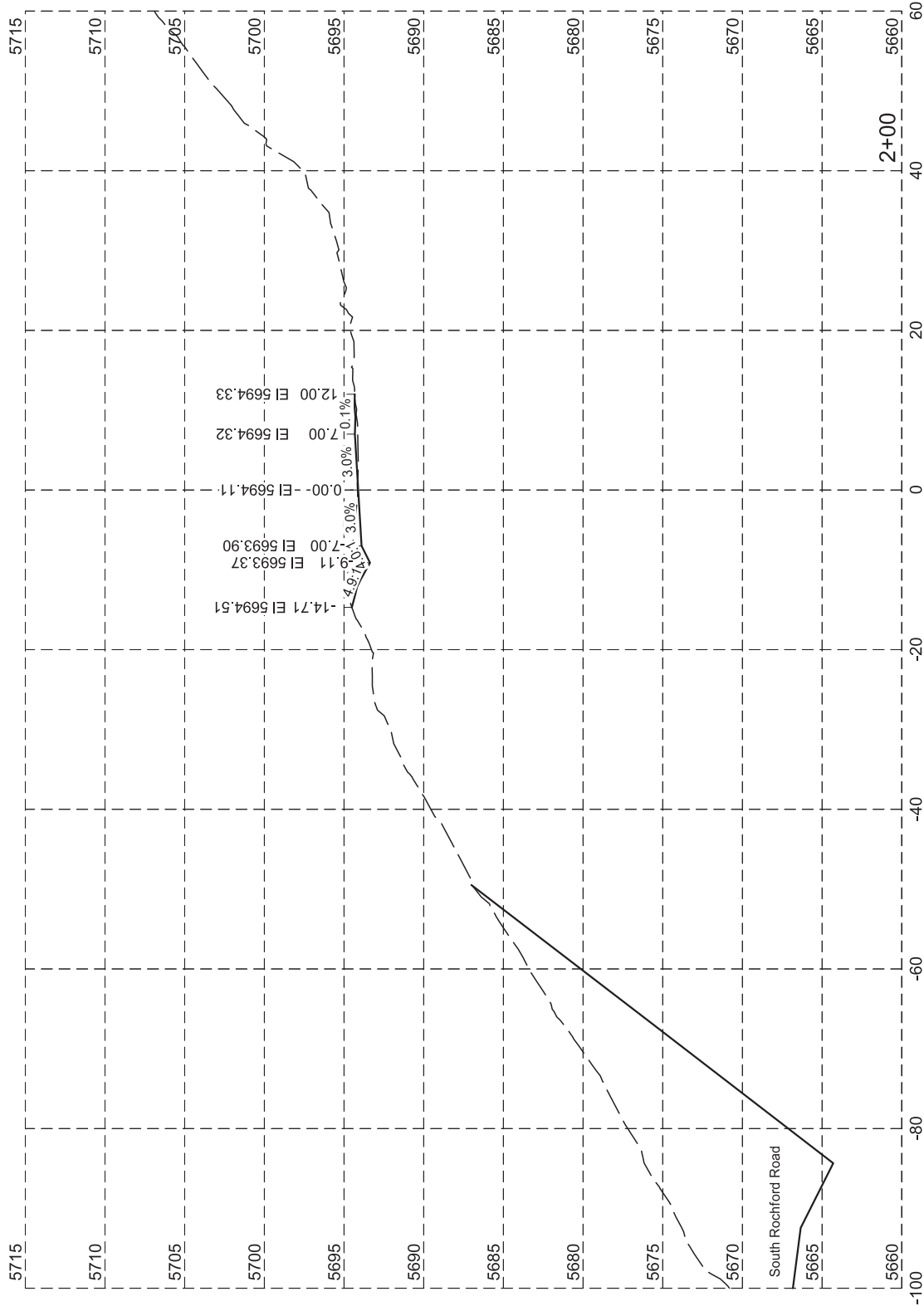




Musick Driveway Cross Sections



FOR BIDDING PURPOSES ONLY

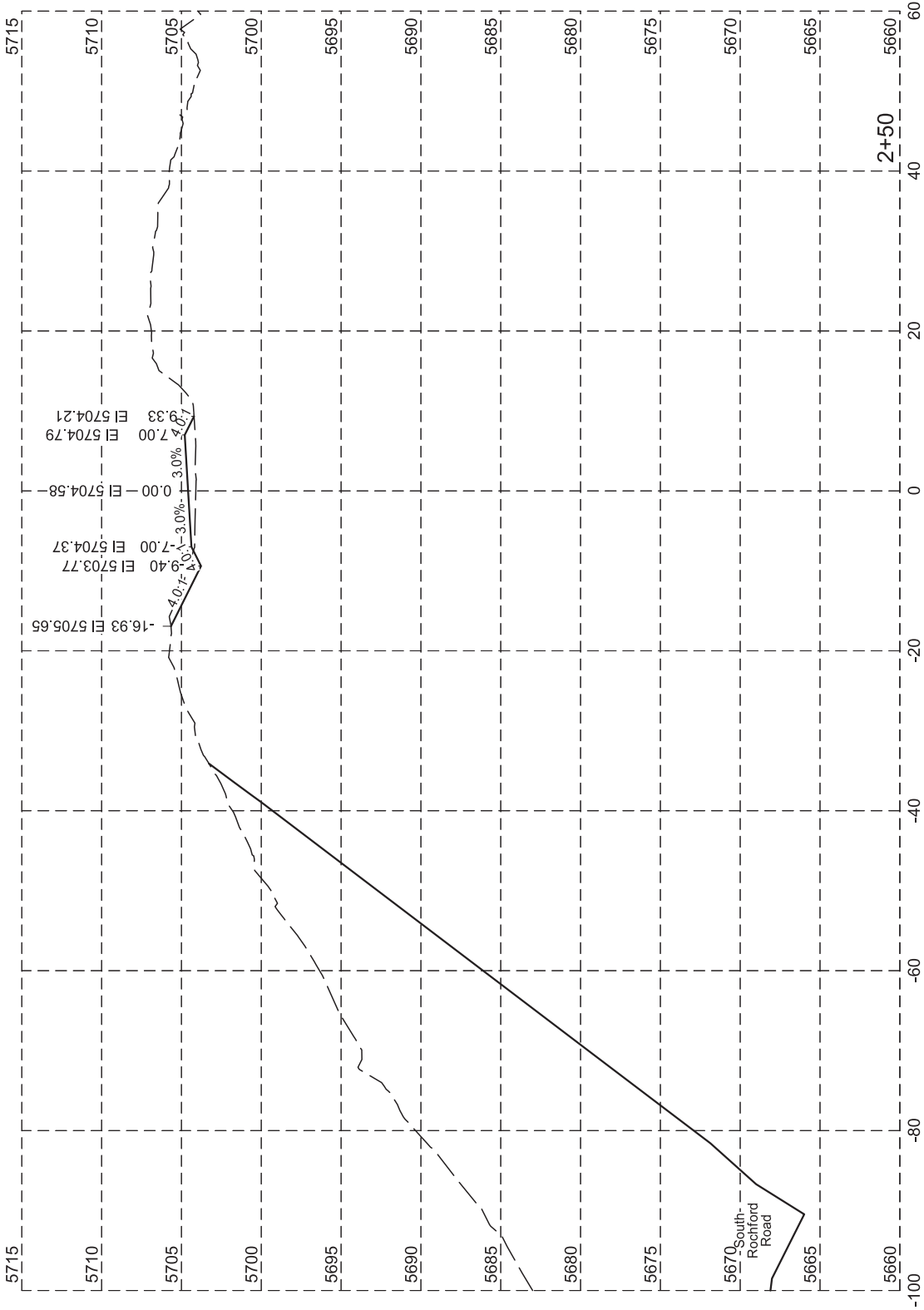
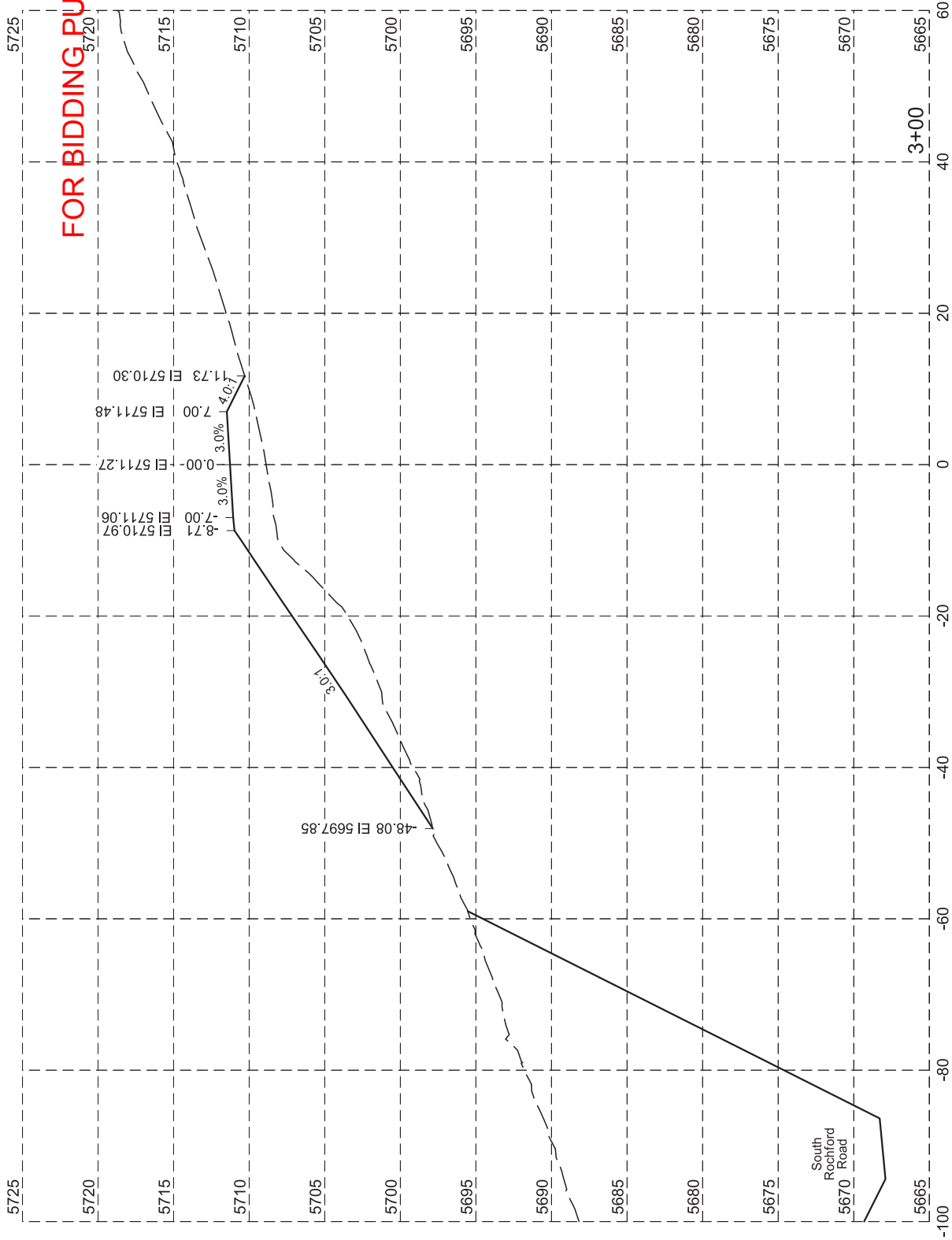


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	312	333
Plotting Date: 2/6/2023			

Musick Driveway Cross Sections



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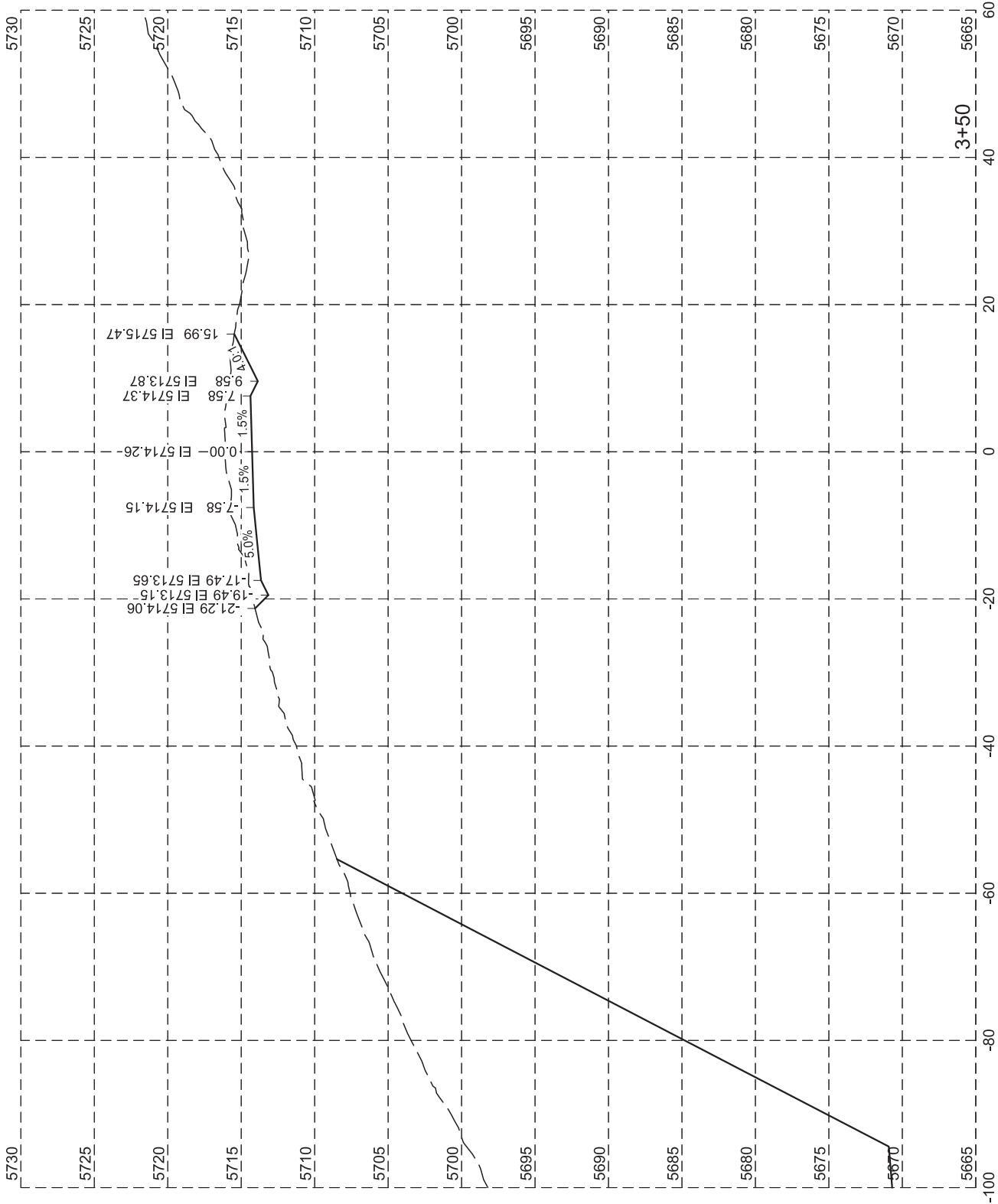
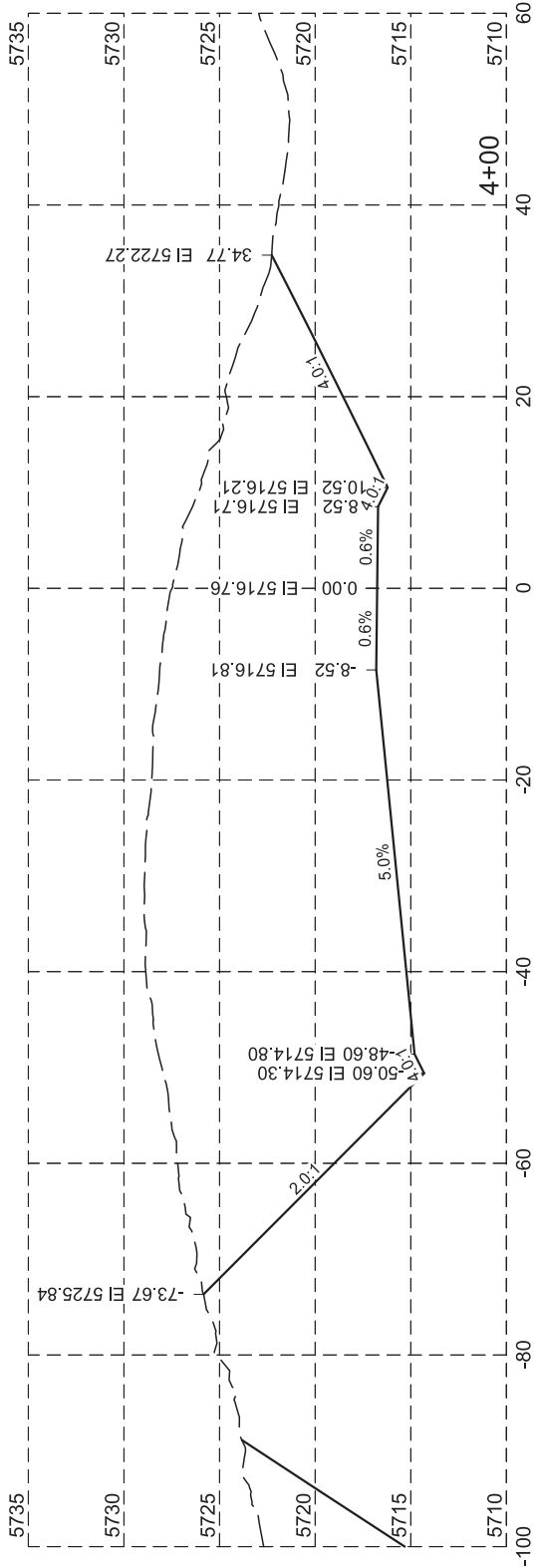
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	313	333

Plotting Date: 2/6/2023

Musick Driveway Cross Sections



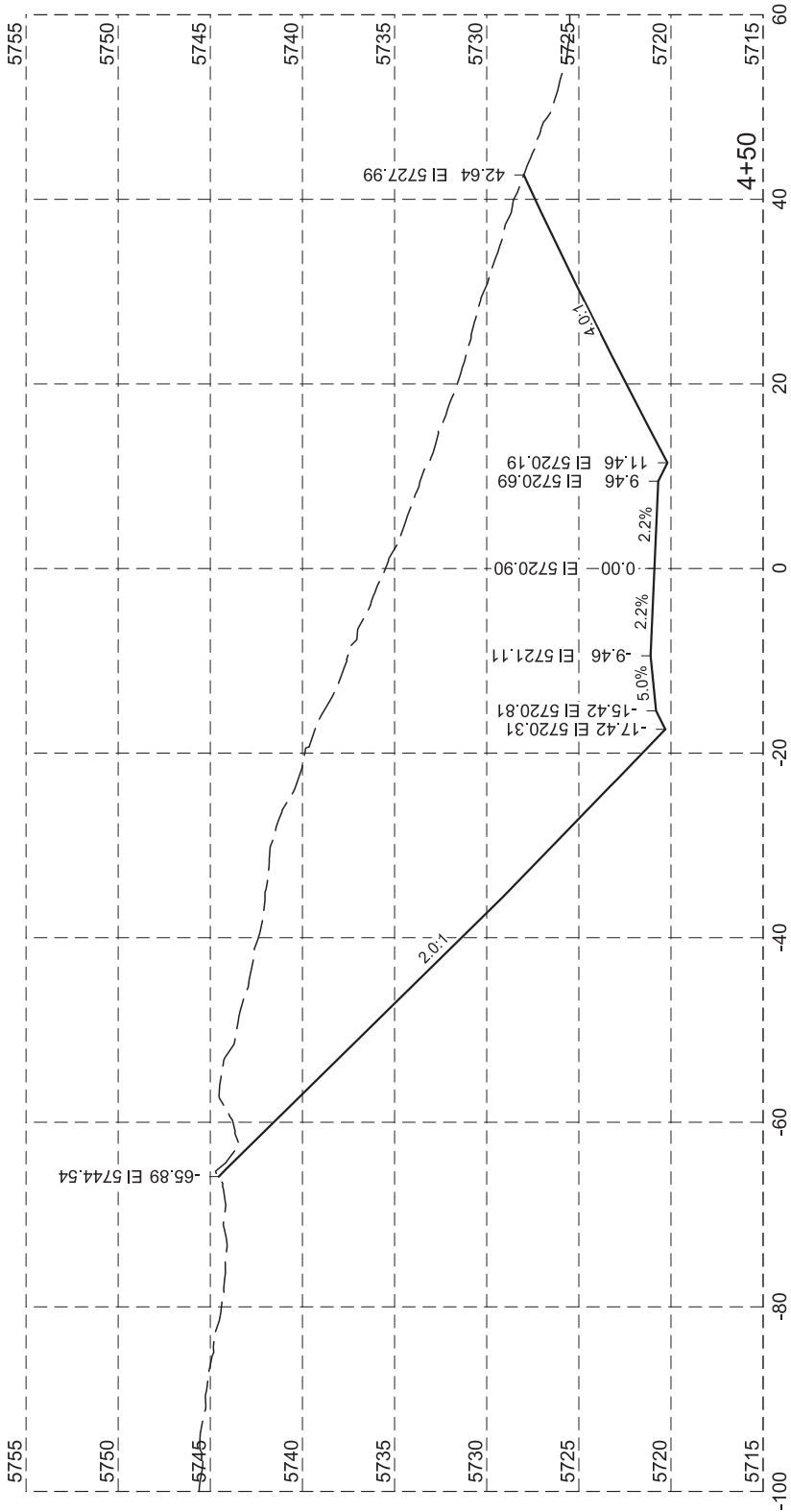
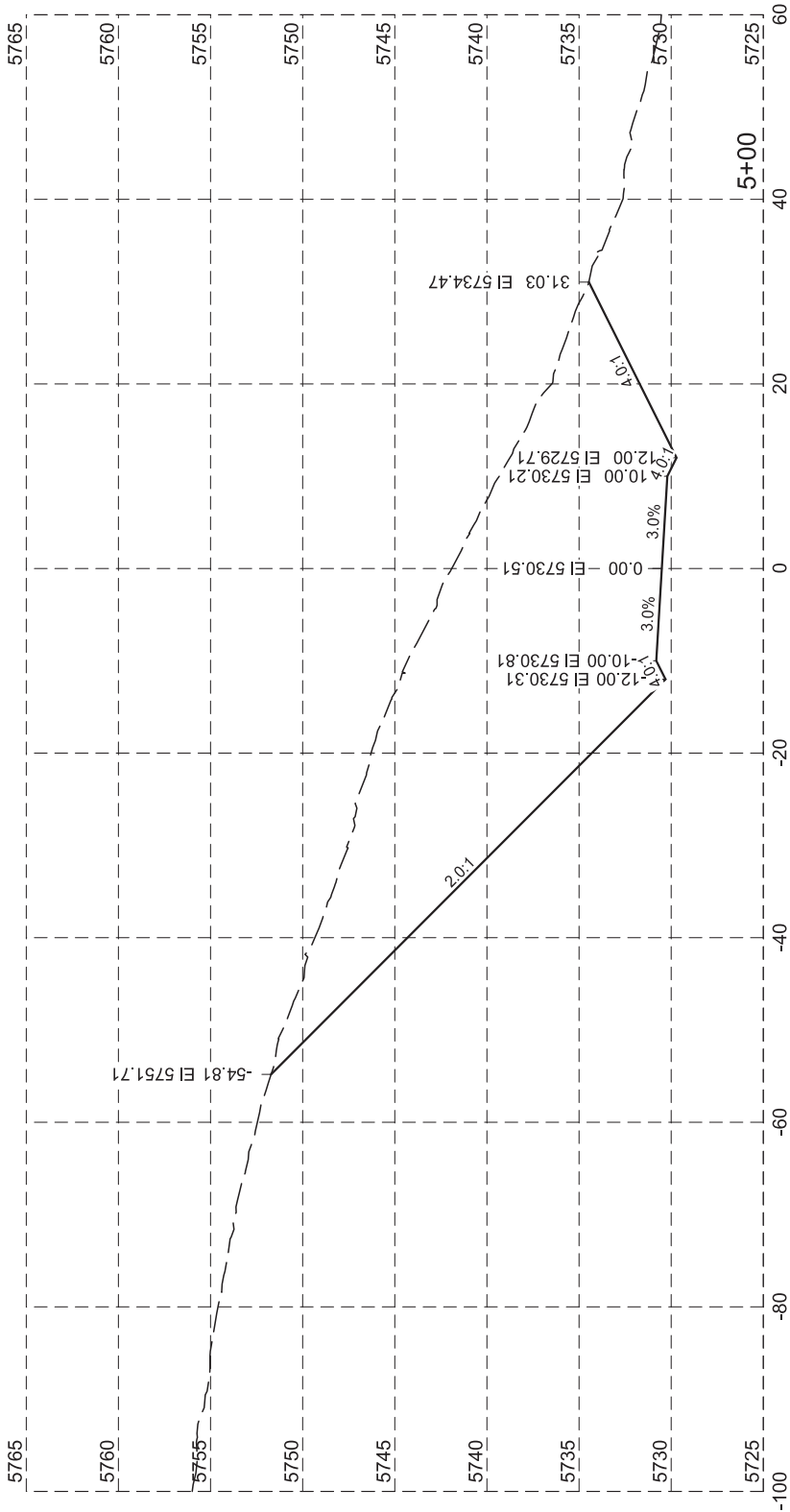
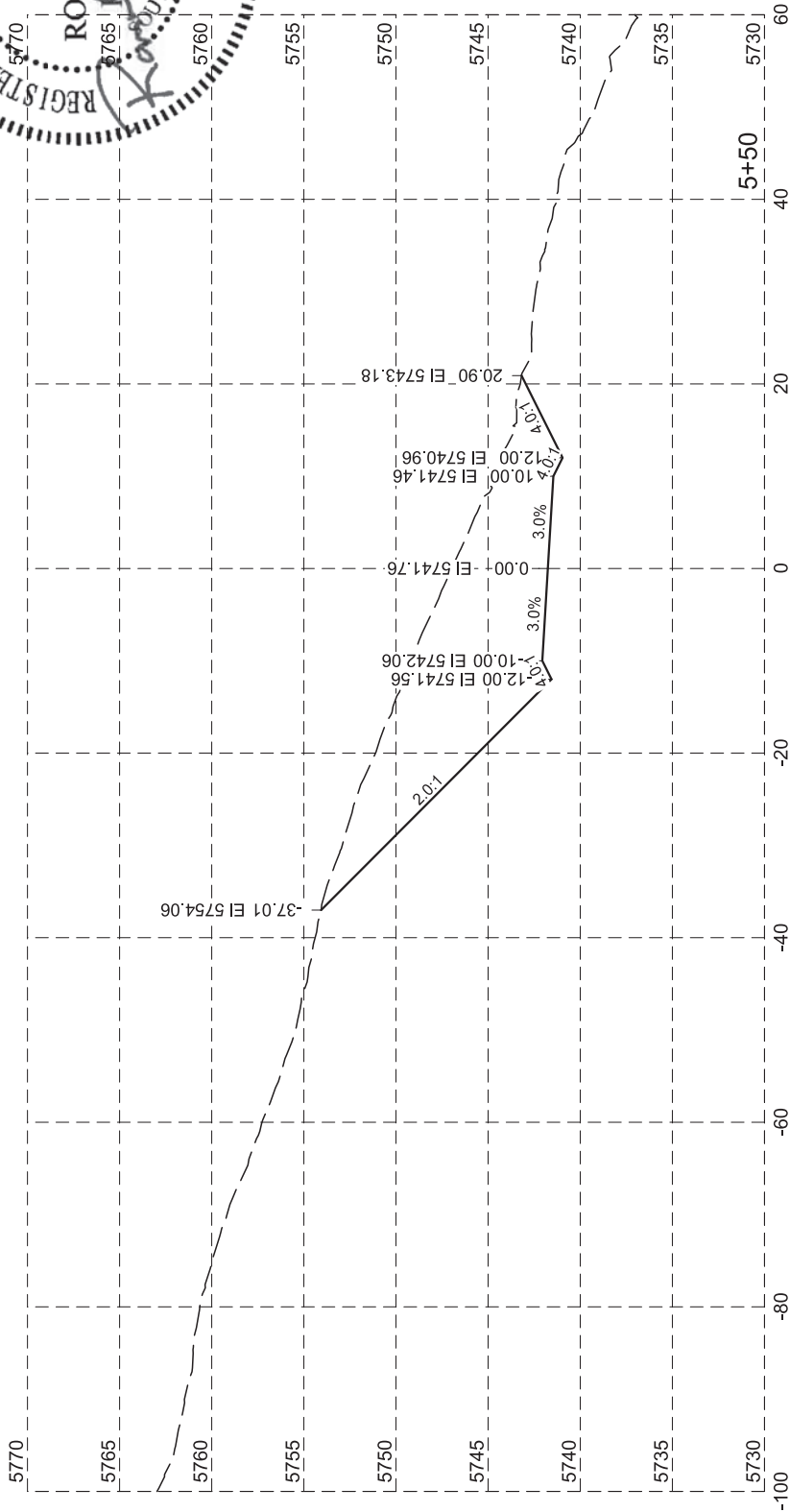
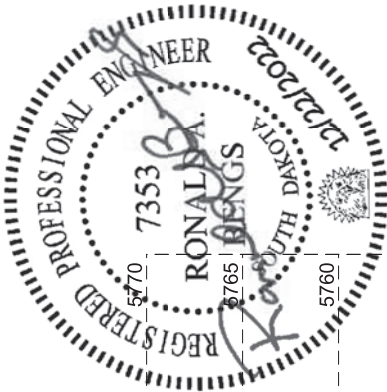
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	314	333
Plotting Date: 2/6/2023			



Musick Driveway Cross Sections



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	315	333

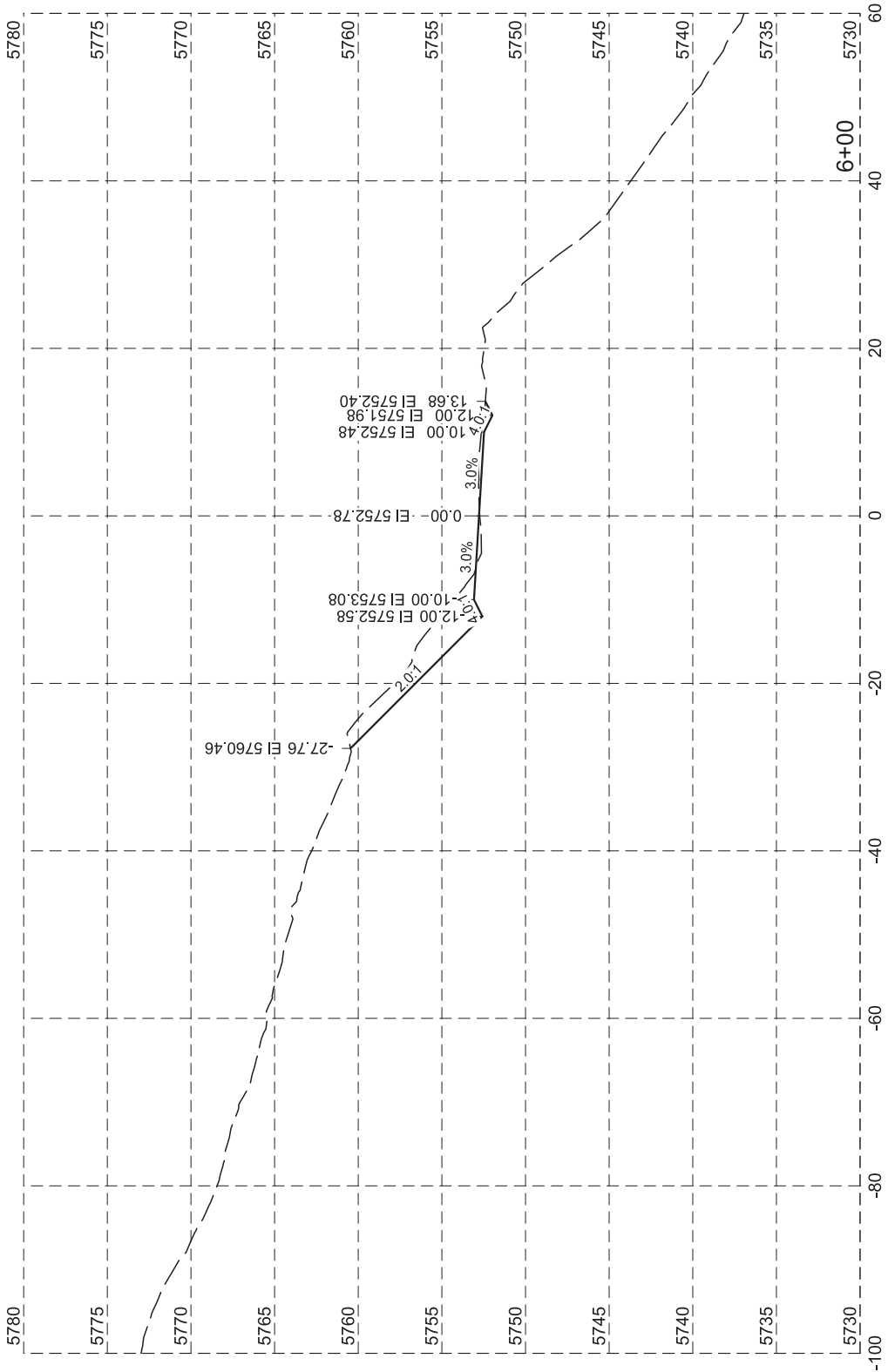
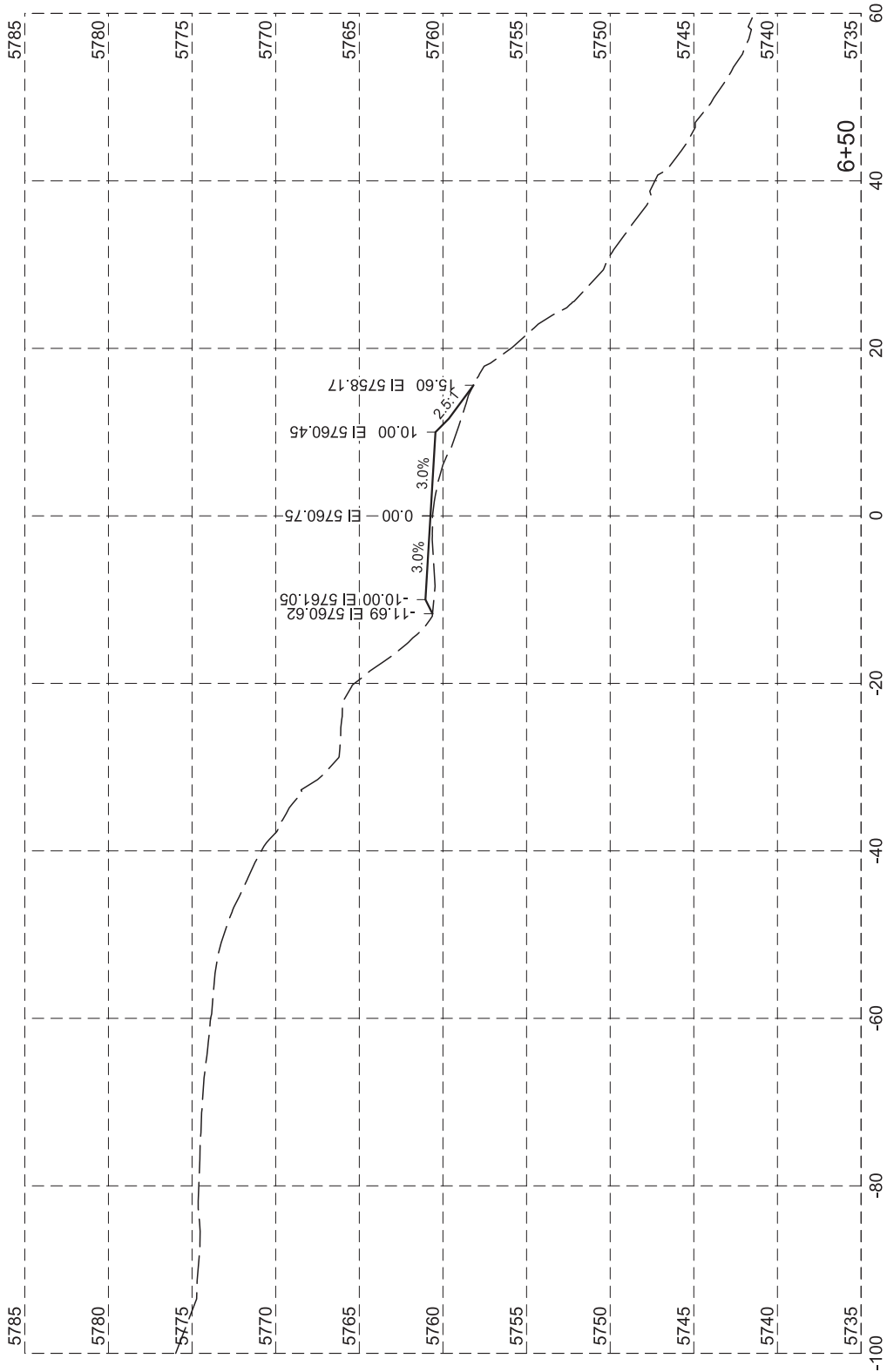
Plotting Date: 2/6/2023

Musick Driveway Cross Sections



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	316	333
Plotting Date: 2/6/2023			



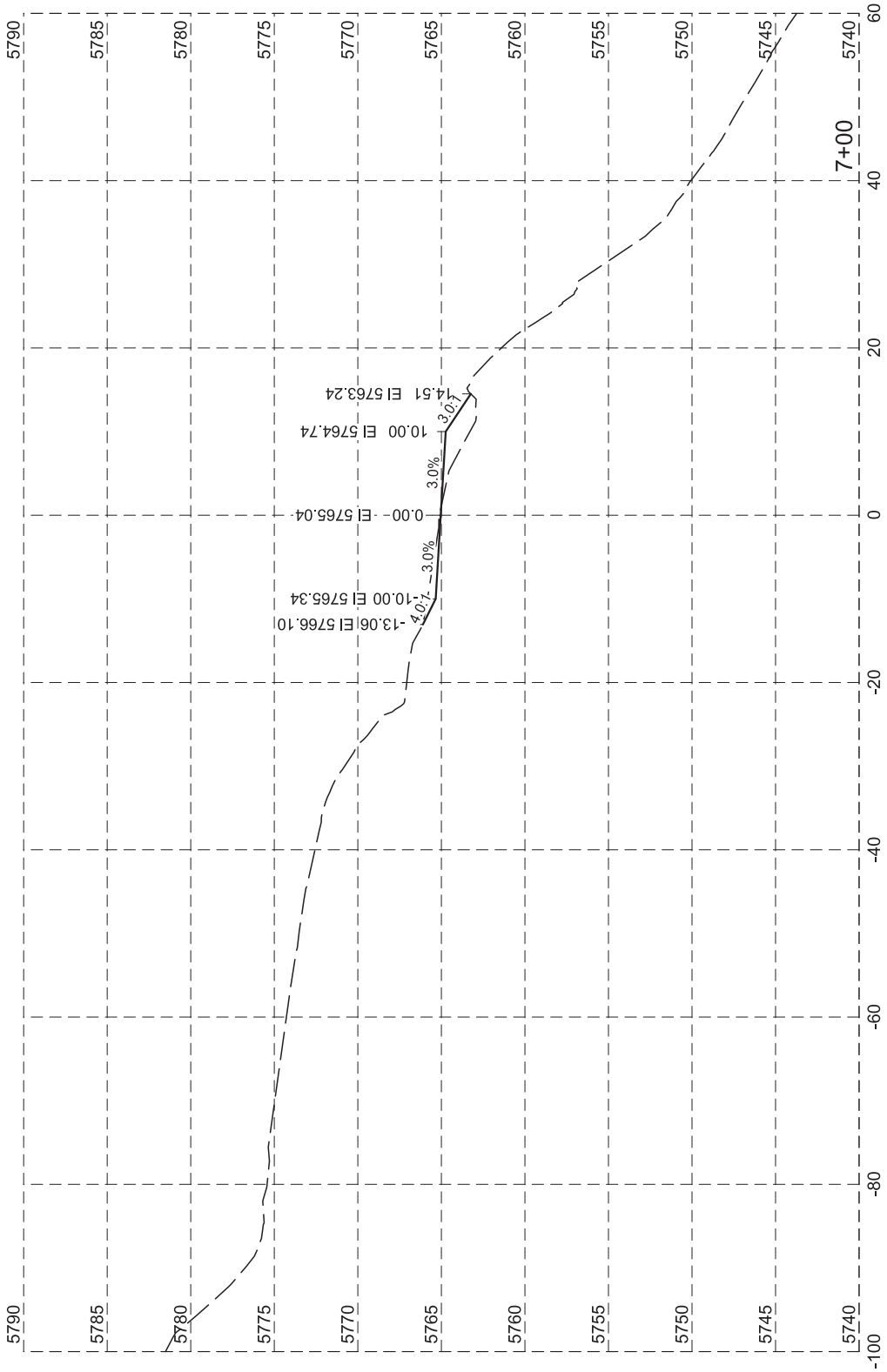
Musick Driveway Cross Sections



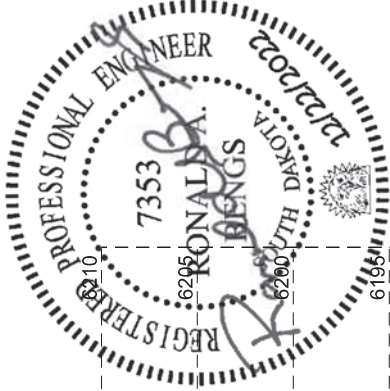
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	317	333

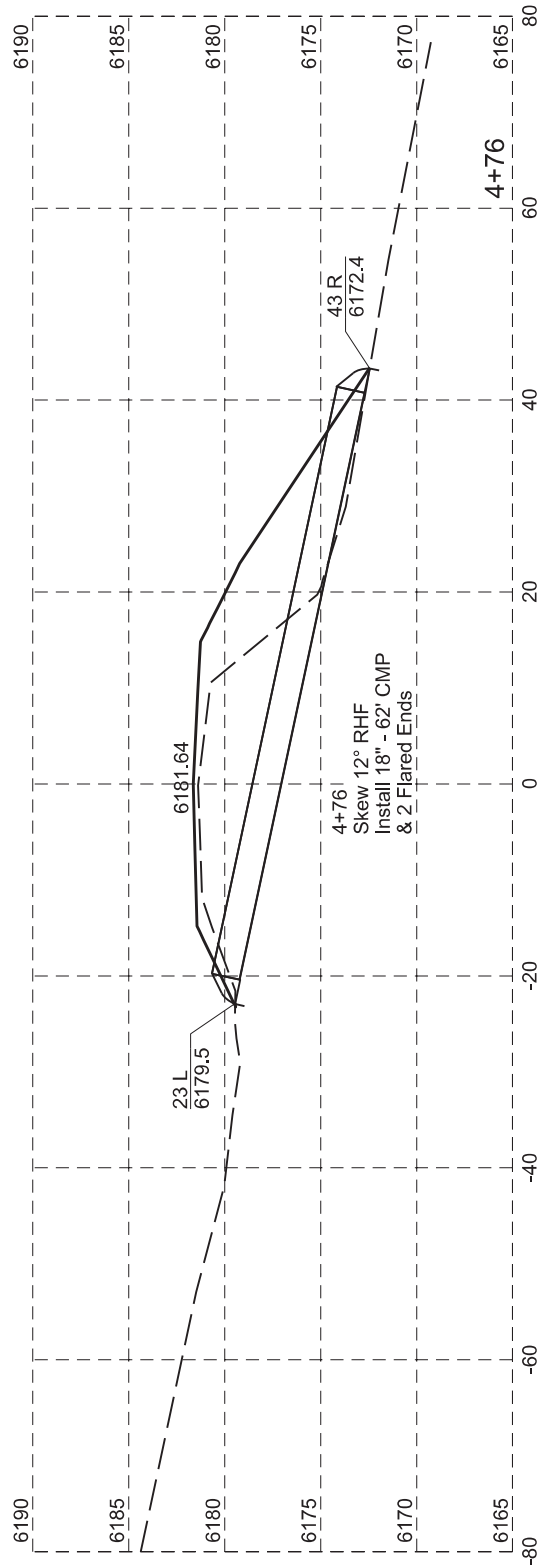
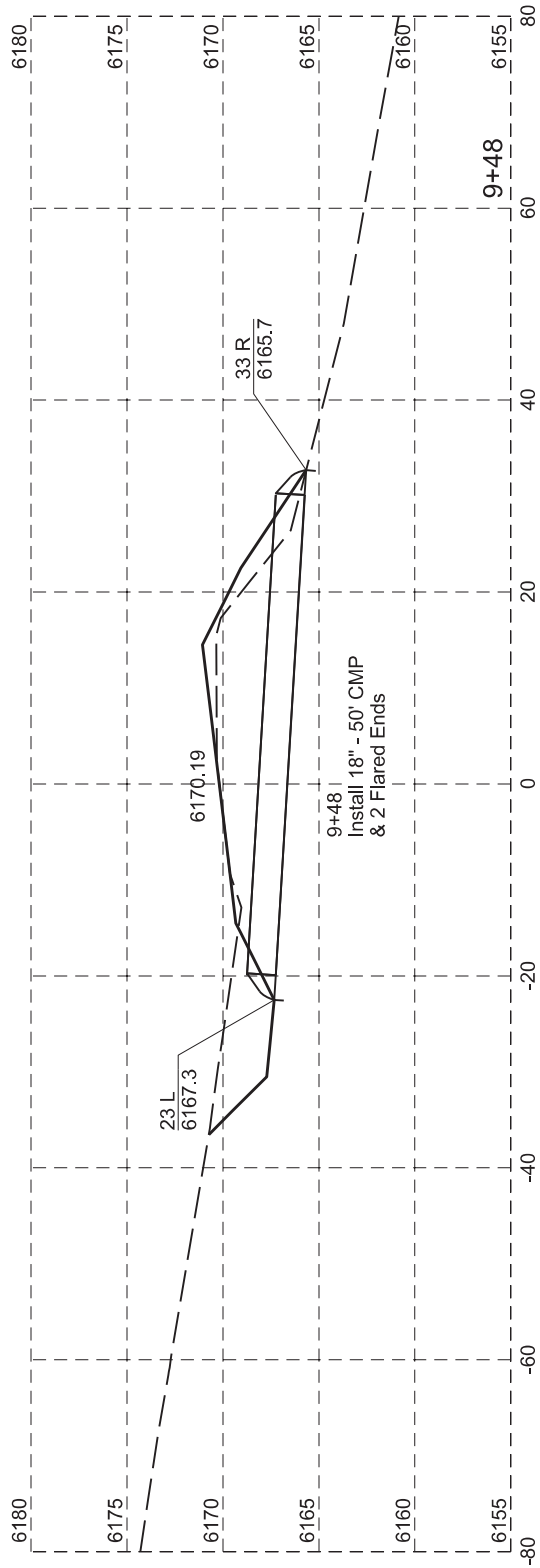
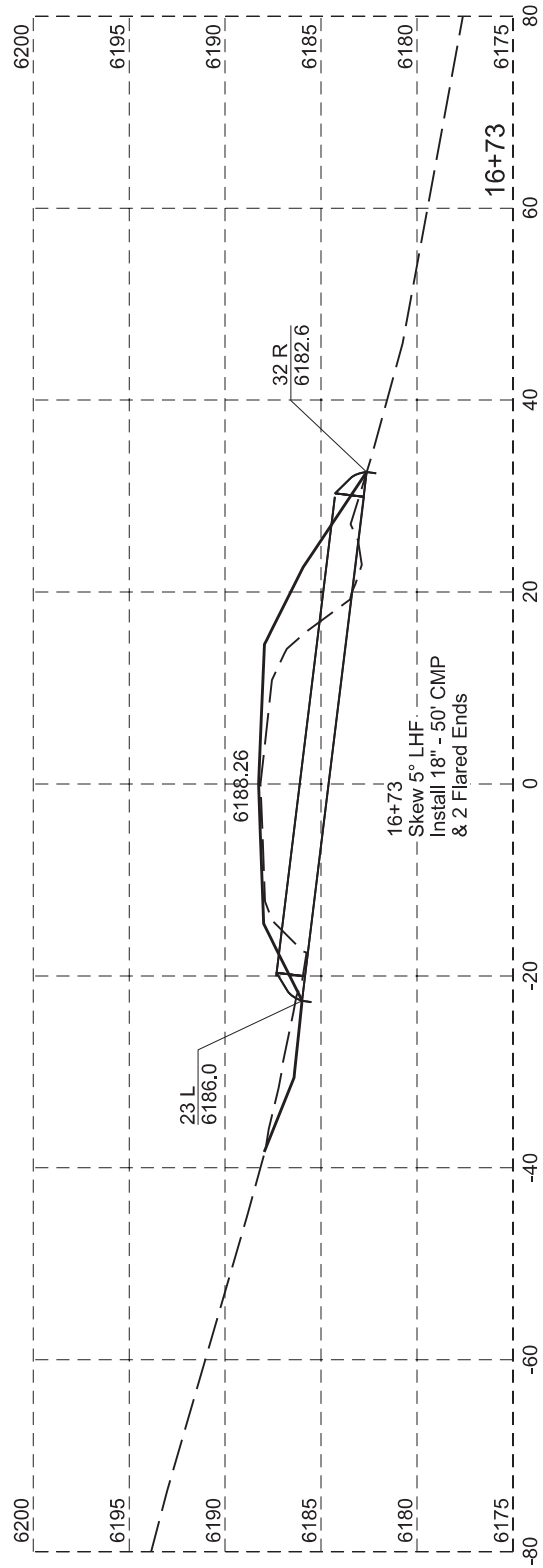
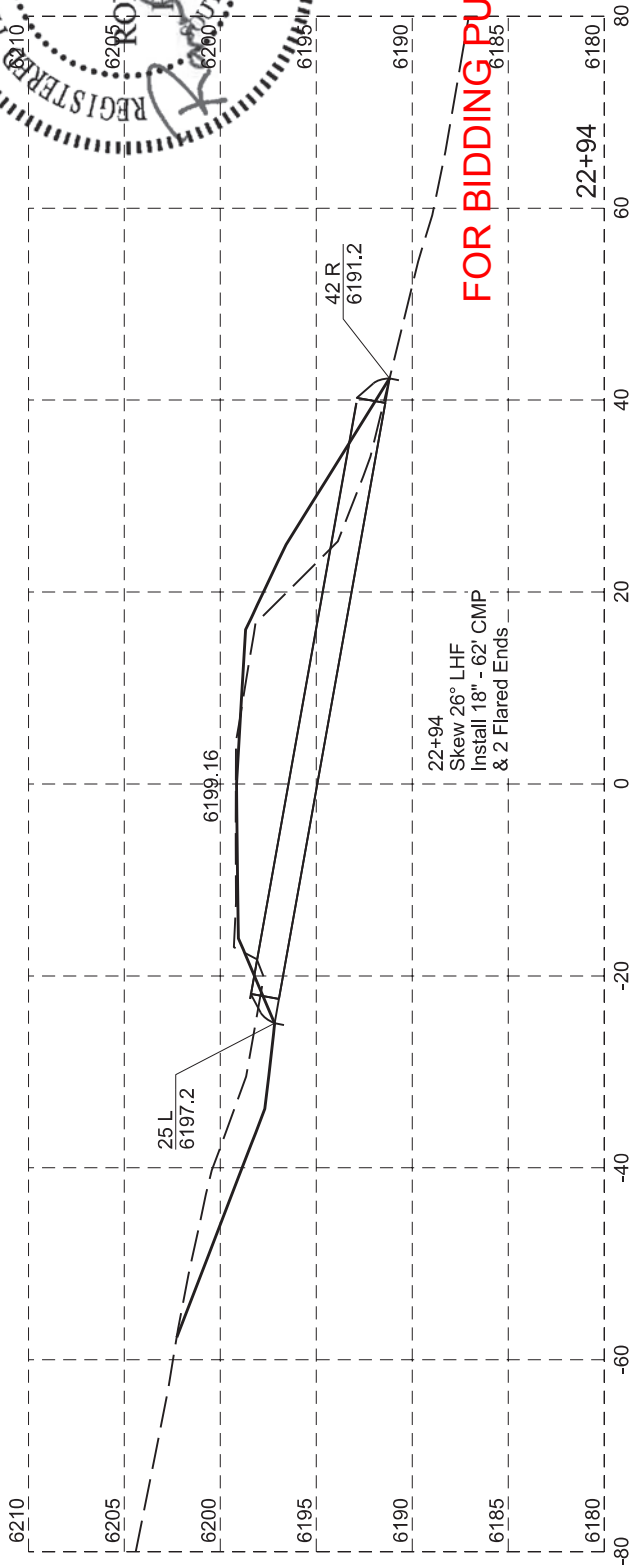
Plotting Date: 2/6/2023







FOR BIDDING PURPOSES ONLY

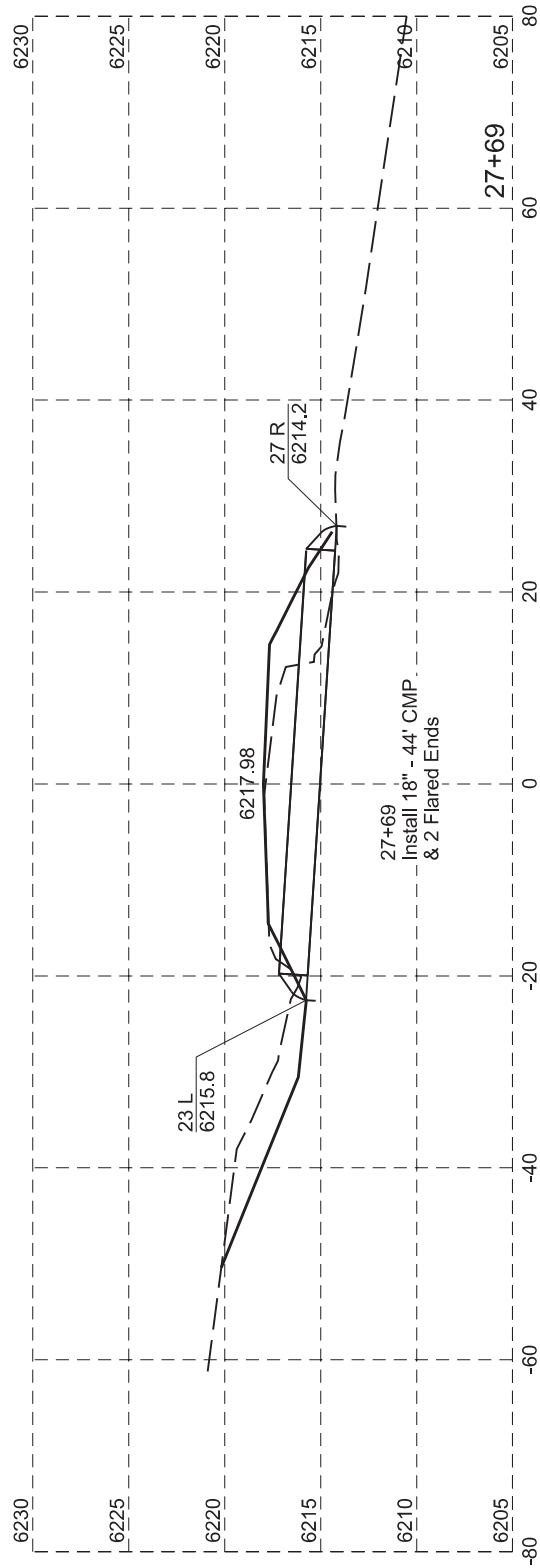
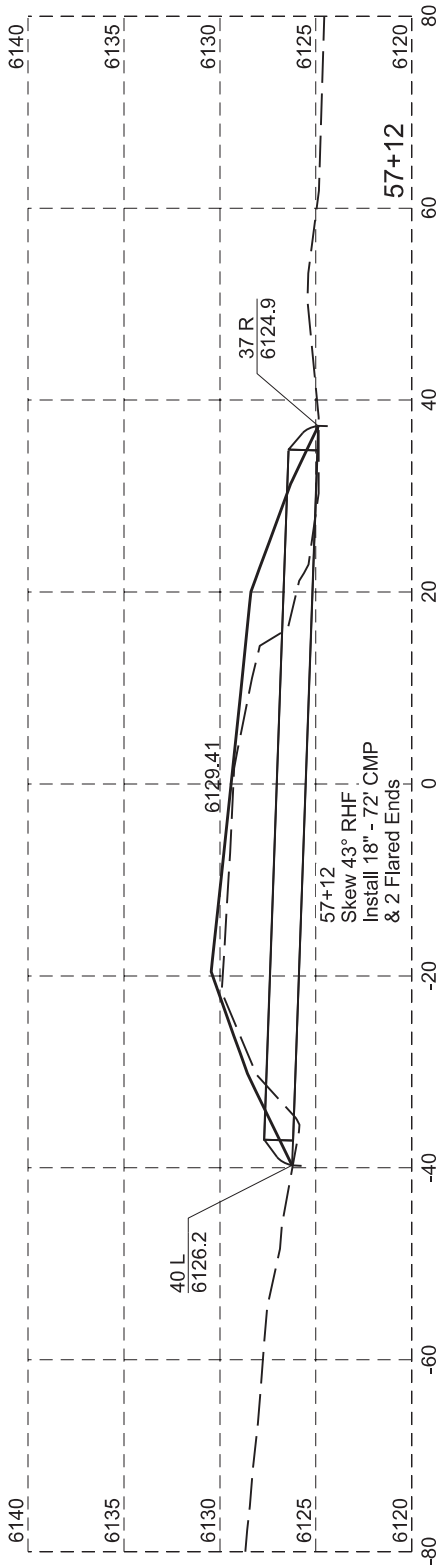
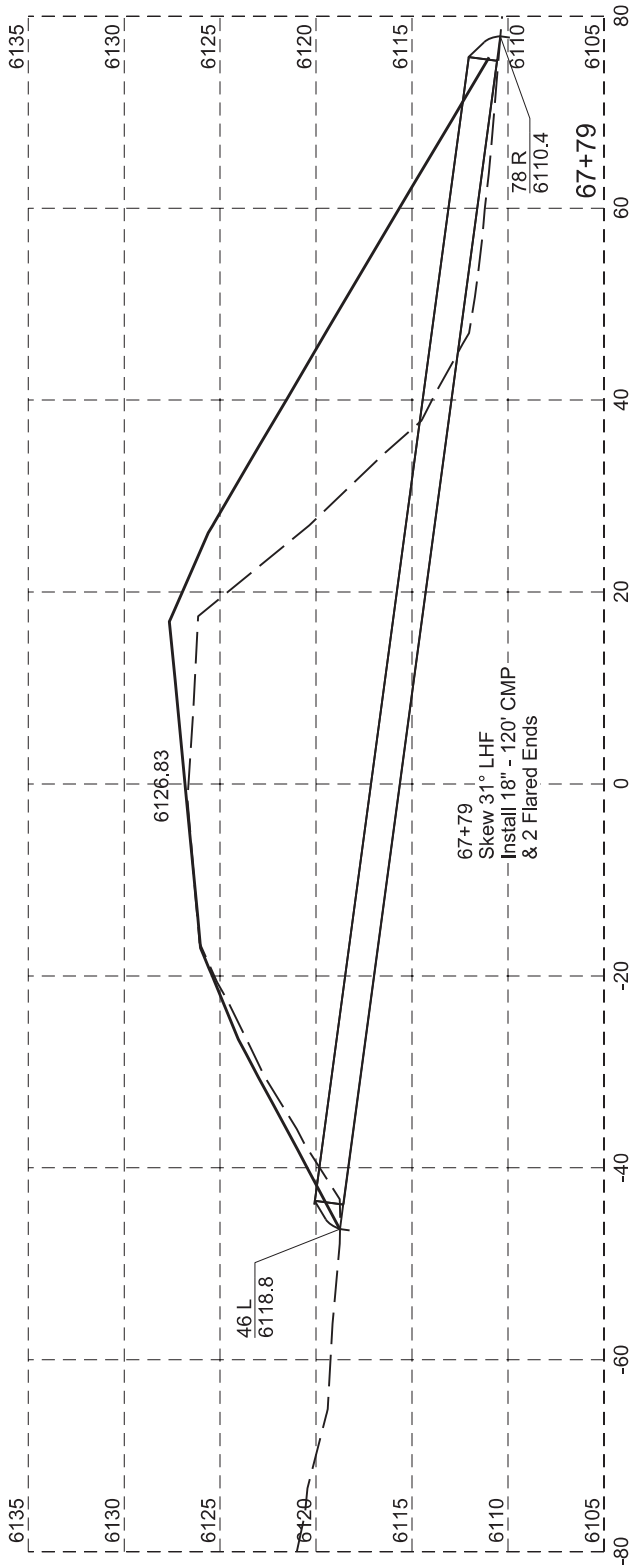


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	318	333

Plotting Date: 2/6/2023



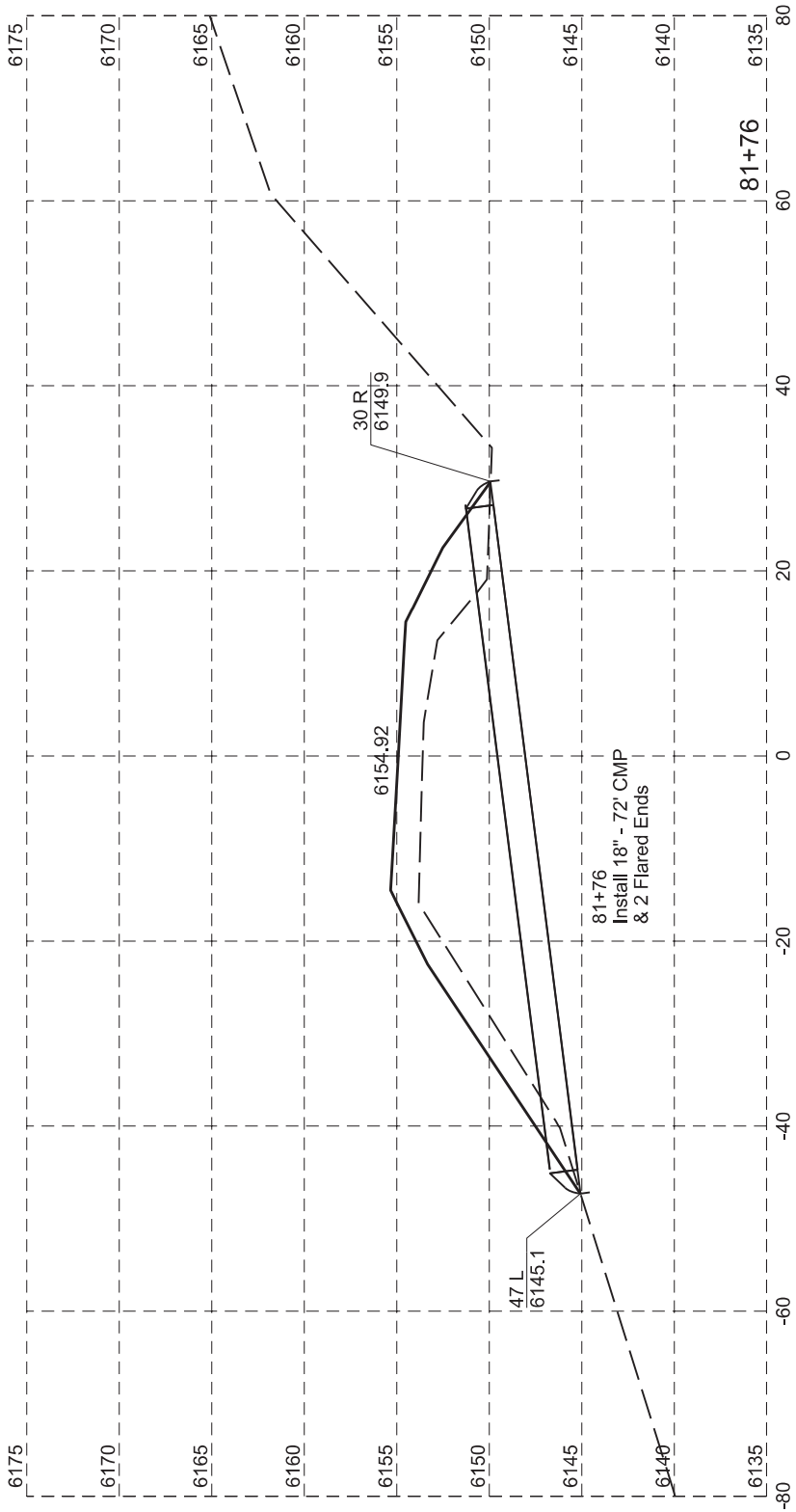
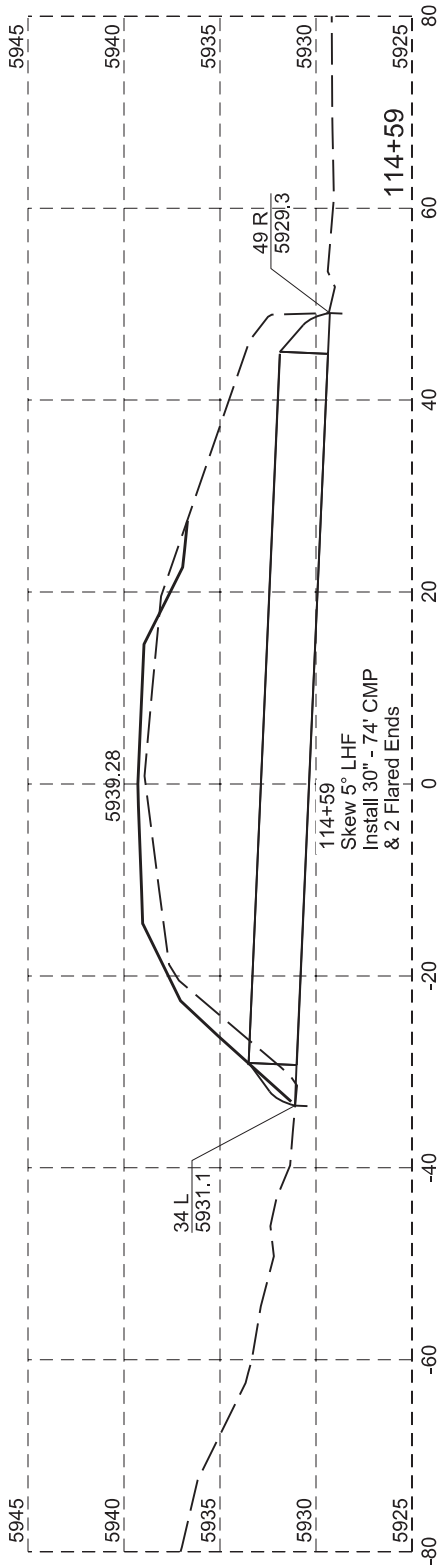
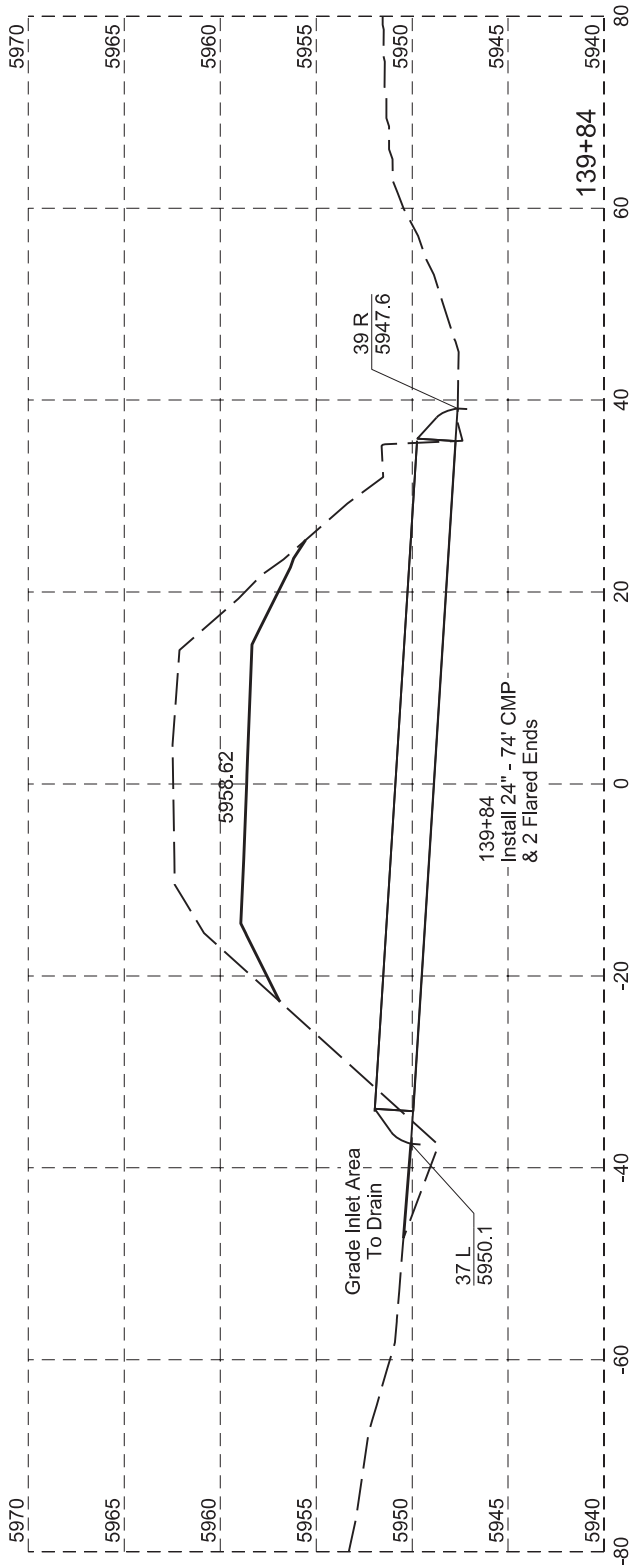
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)		
Plotting Date:	2/6/2023	319	333



FOR BIDDING PURPOSES ONLY

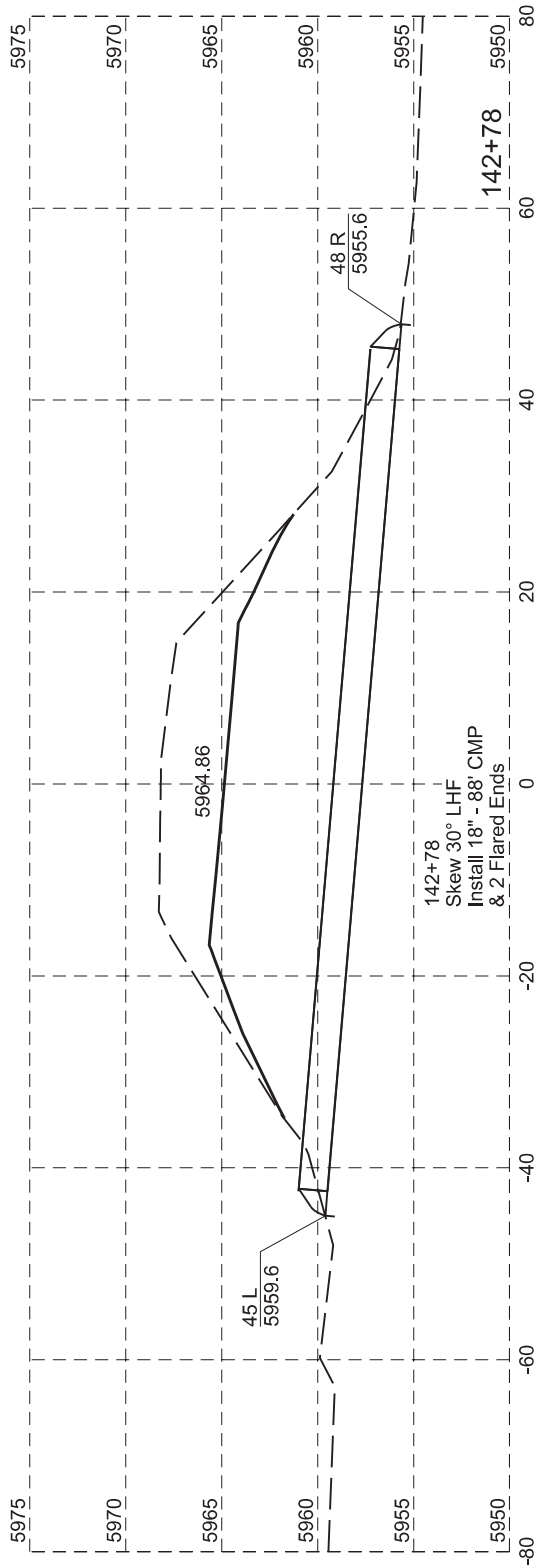
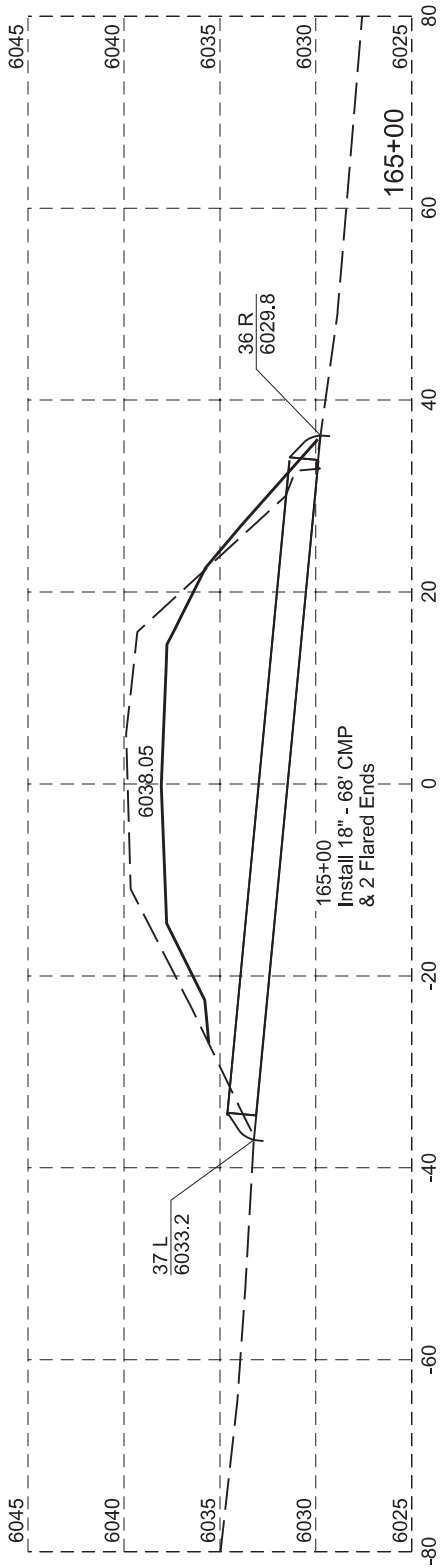
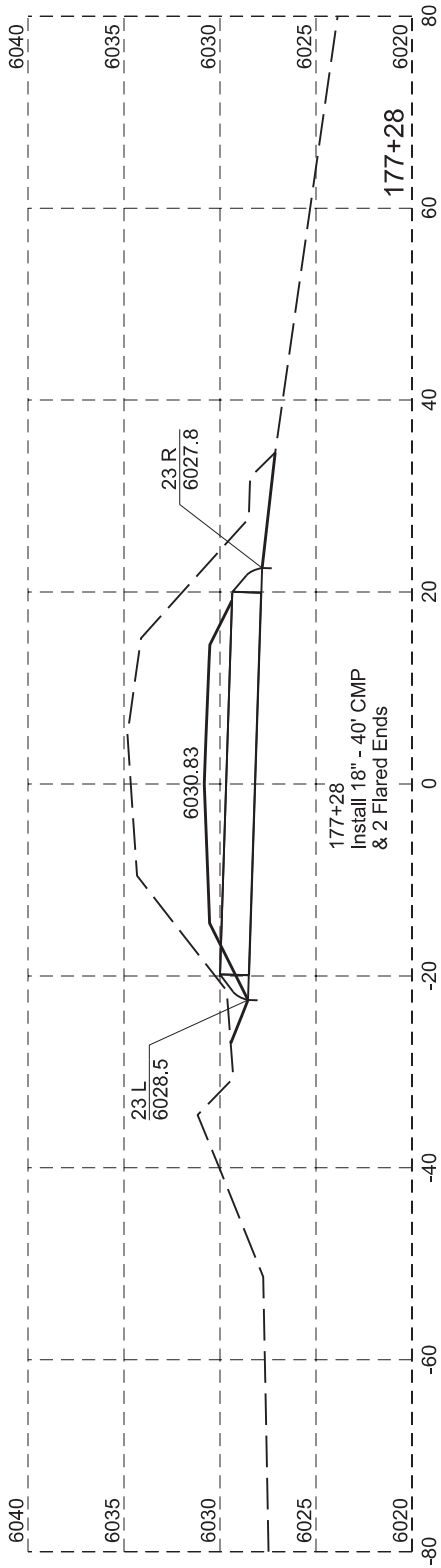
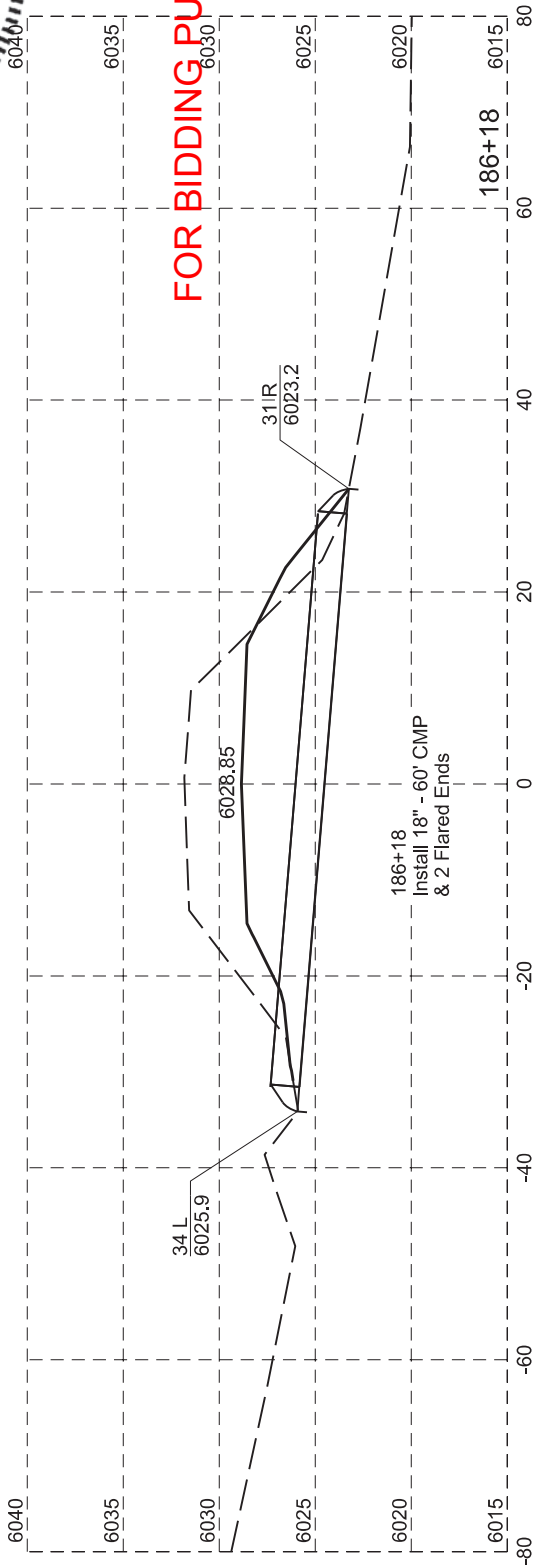


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	320	333
Plotting Date: 2/6/2023			





FOR BIDDING PURPOSES ONLY

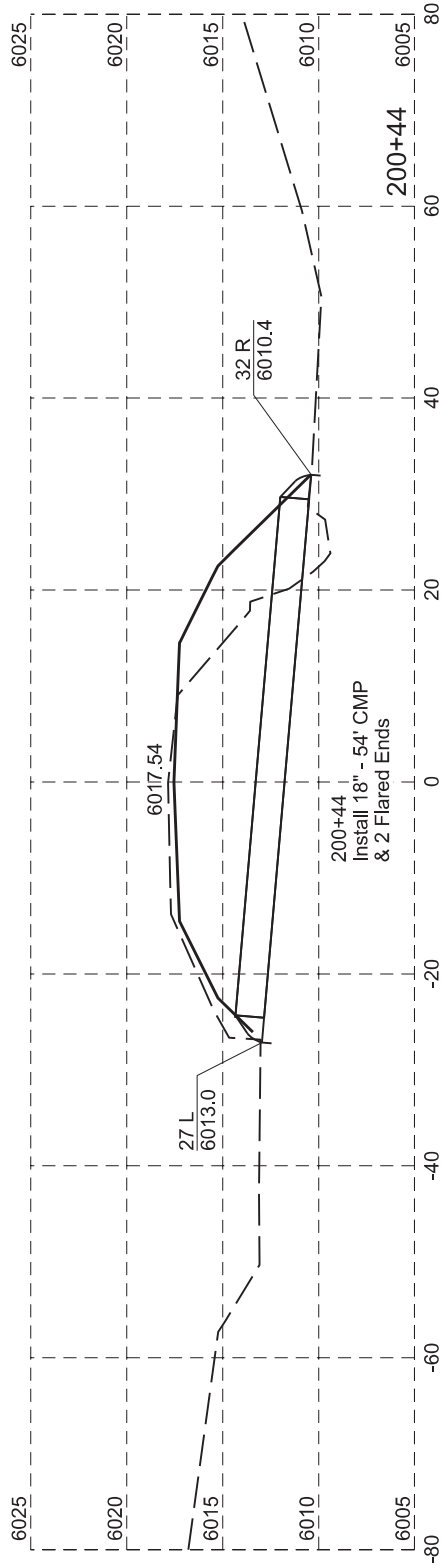
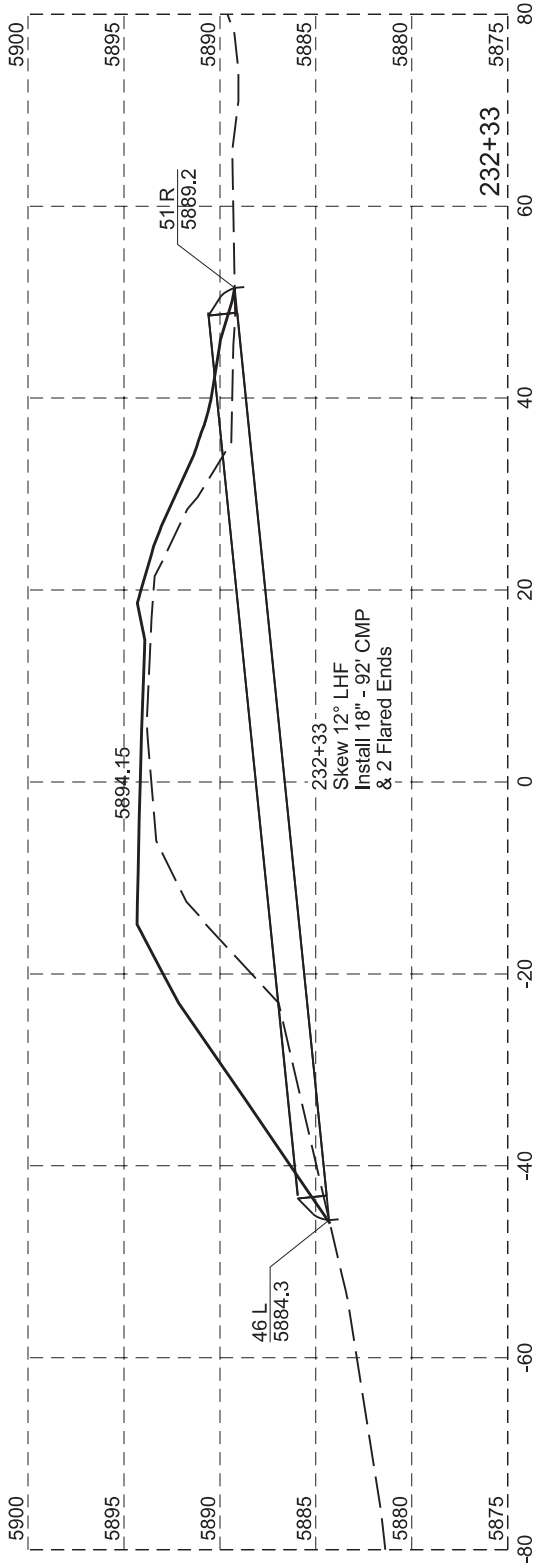
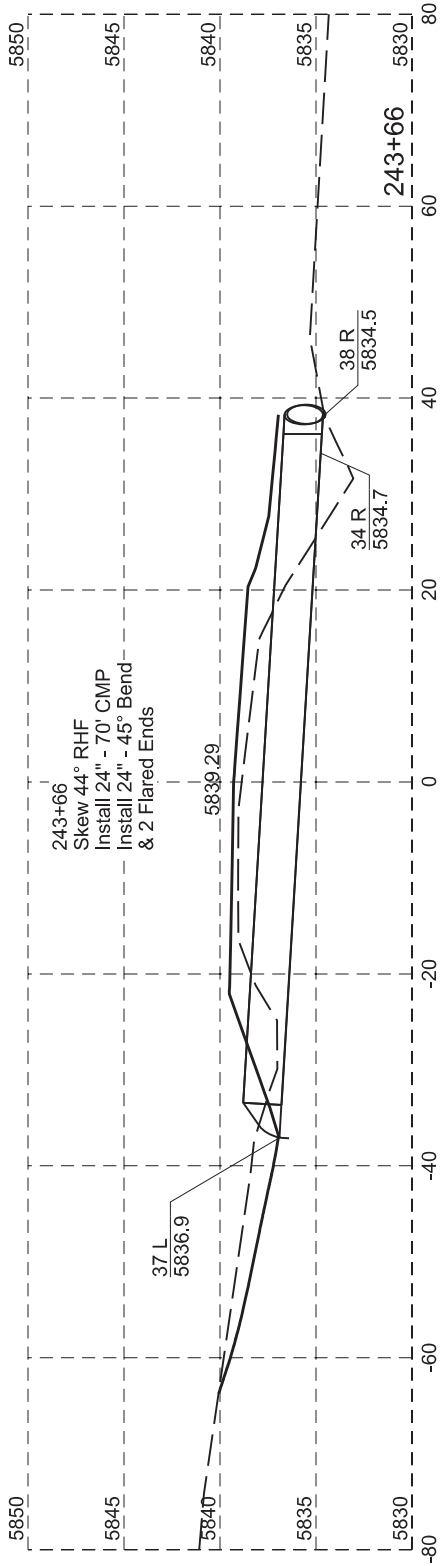
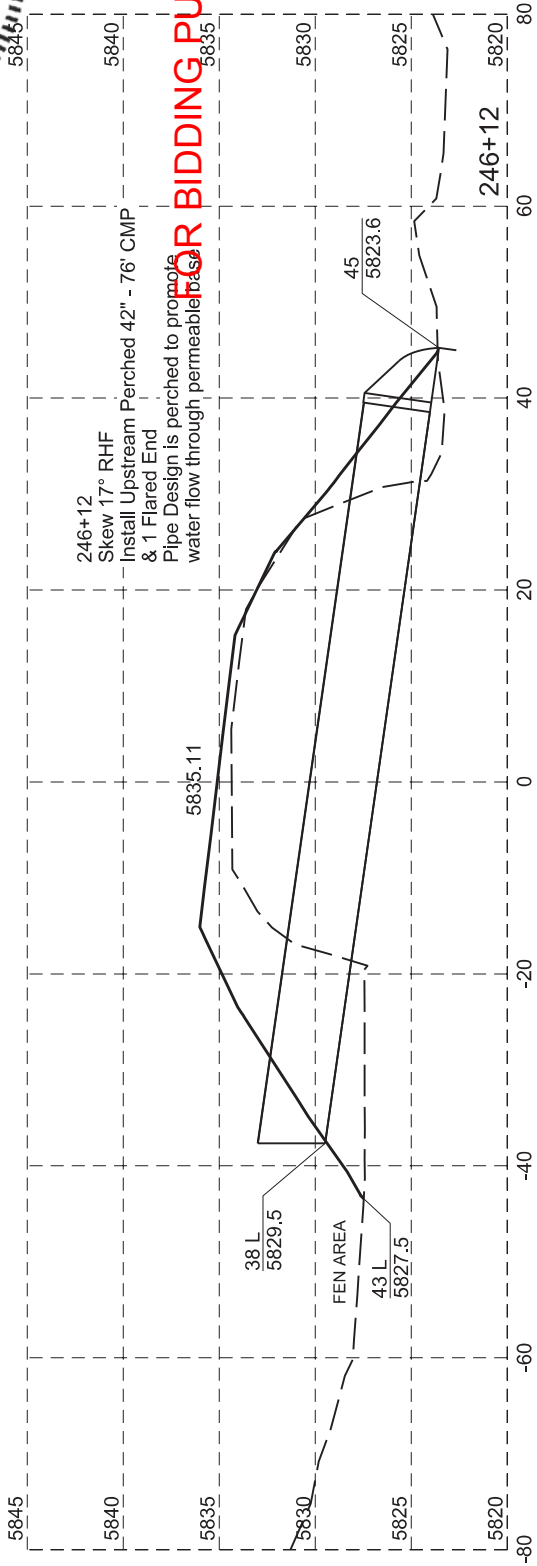


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	321	333

Plotting Date: 2/6/2023



FOR BIDDING PURPOSES ONLY

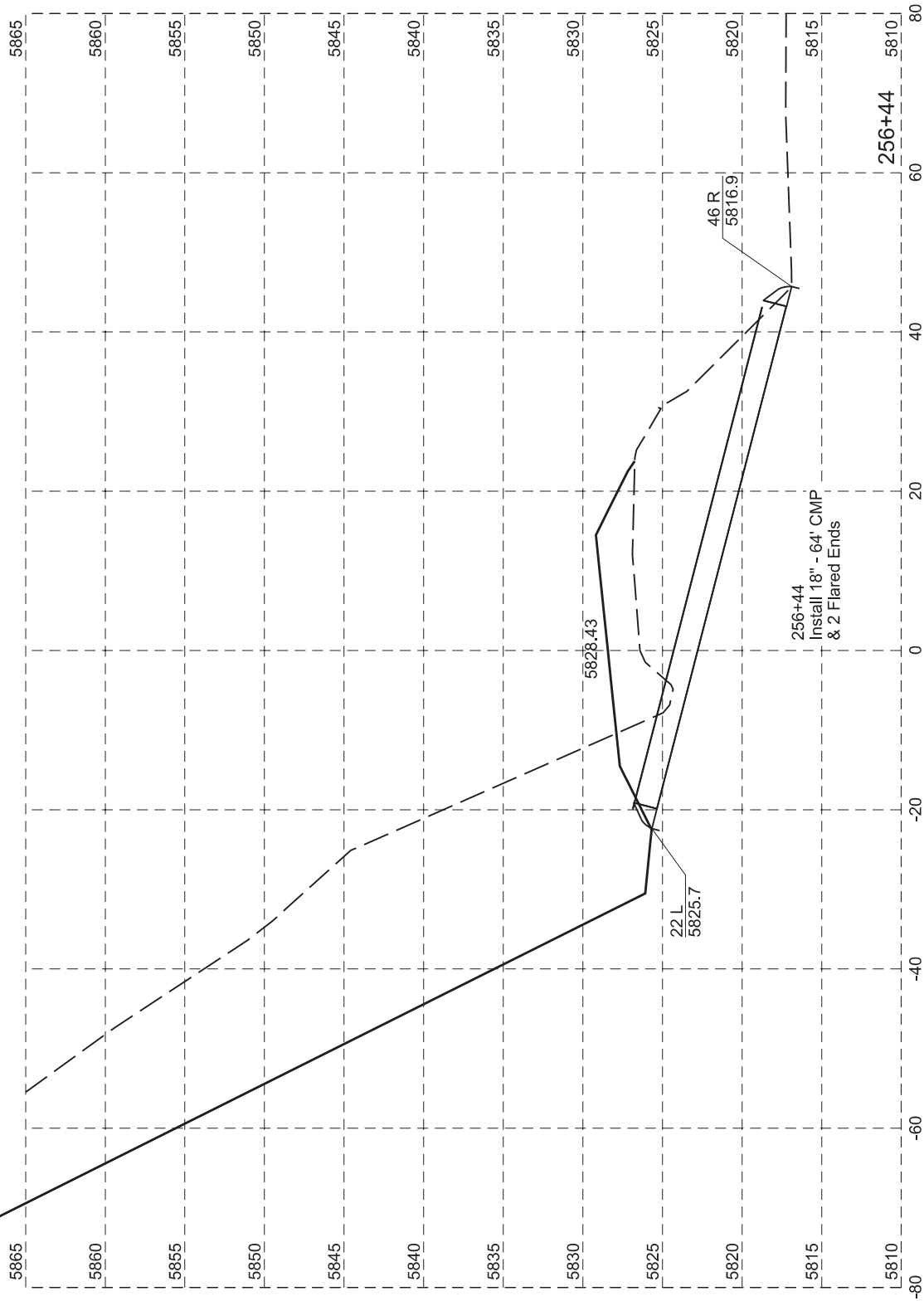
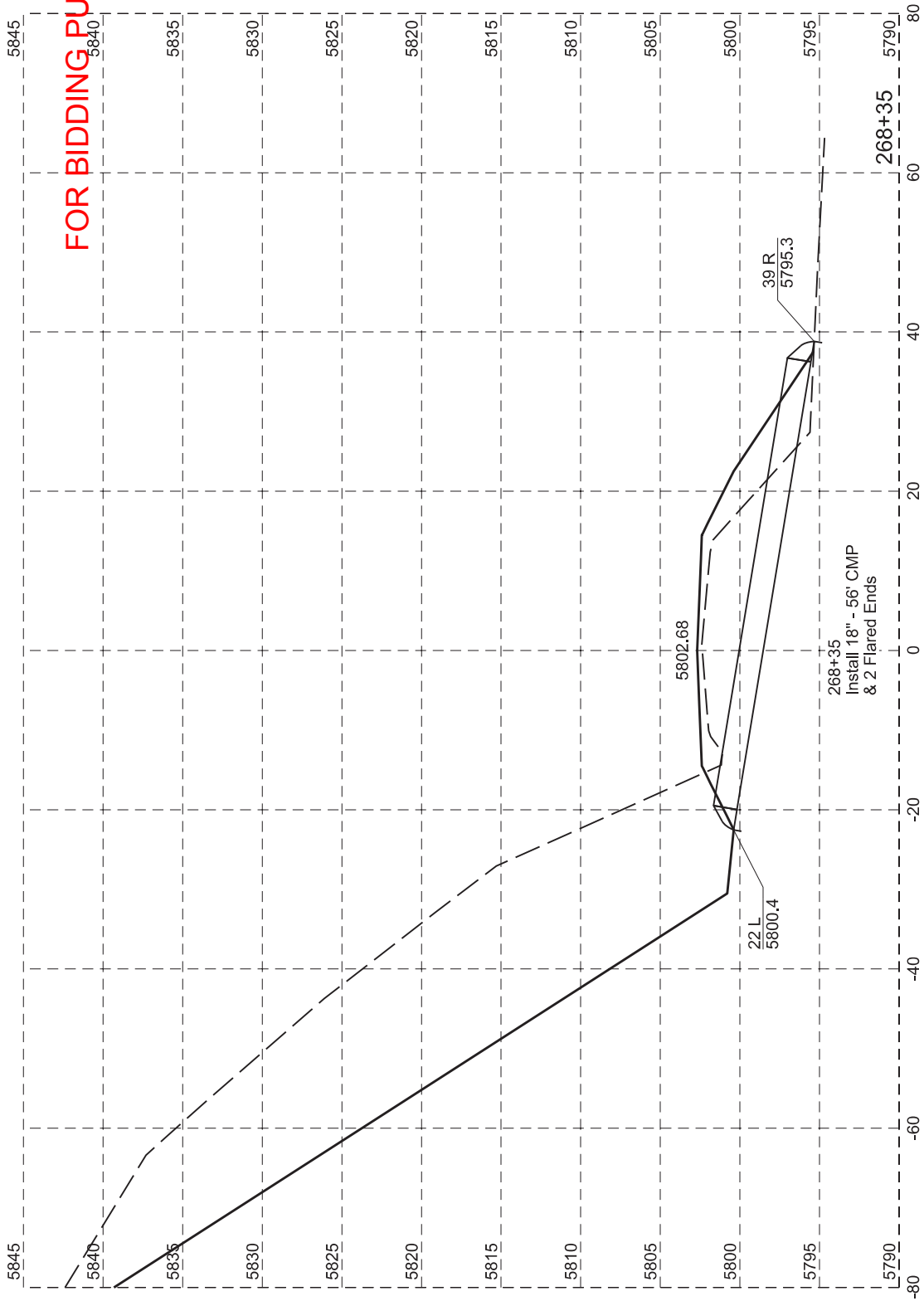


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	322	333

Plotting Date:      Å



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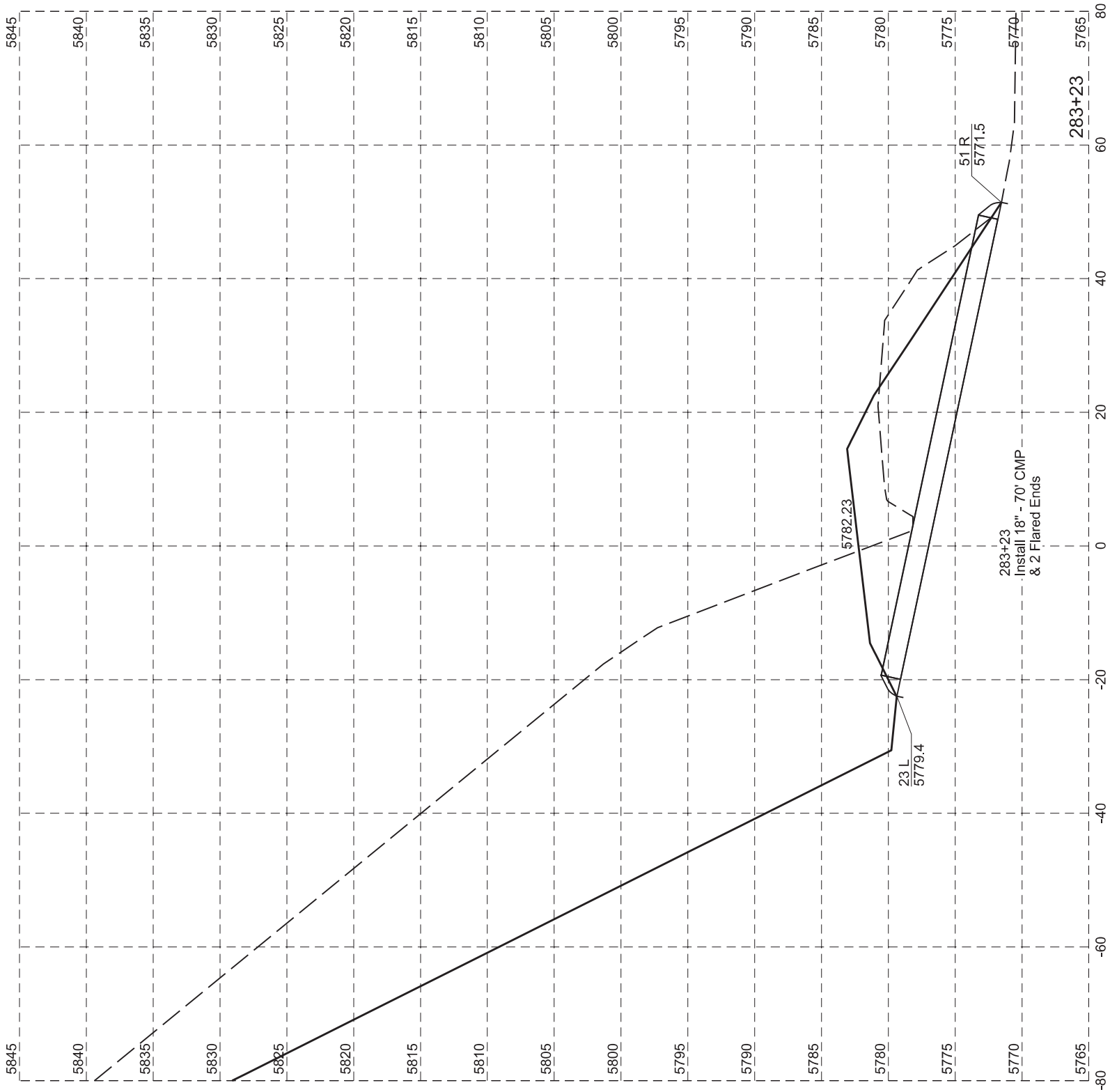
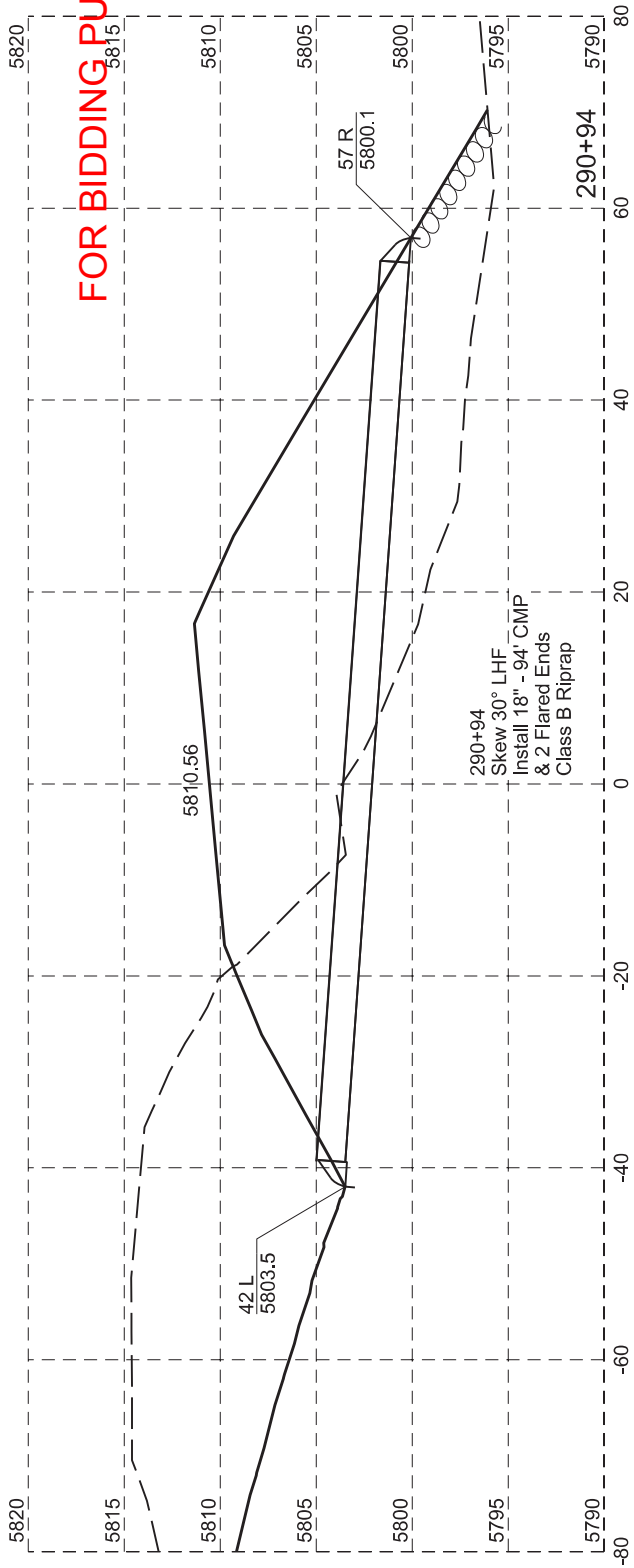
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	323	333

Plotting Date: 2/6/2023



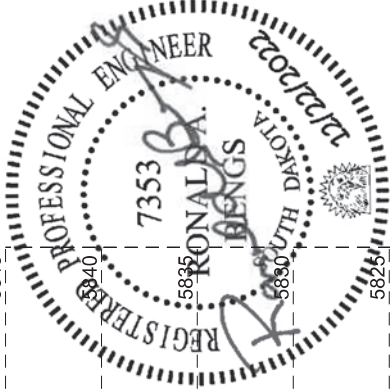


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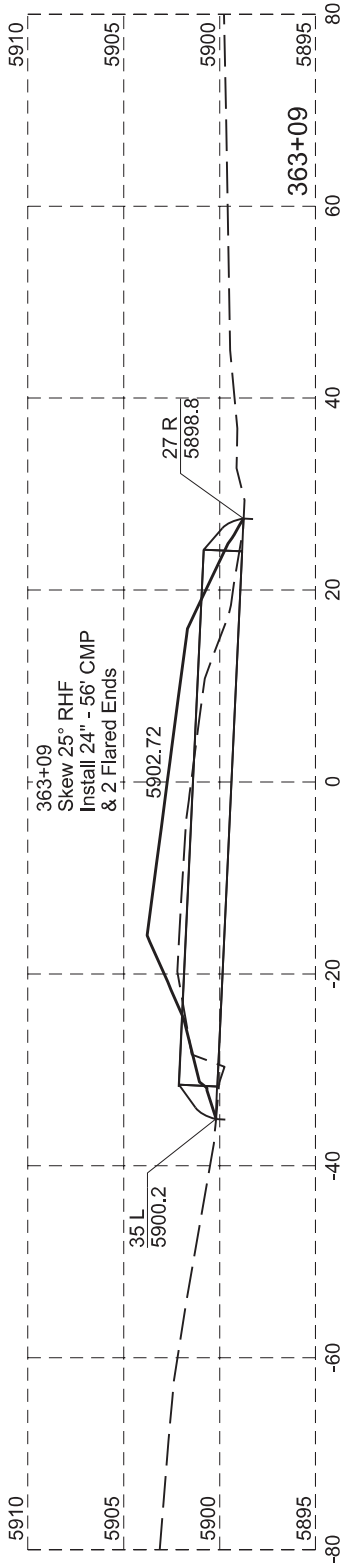
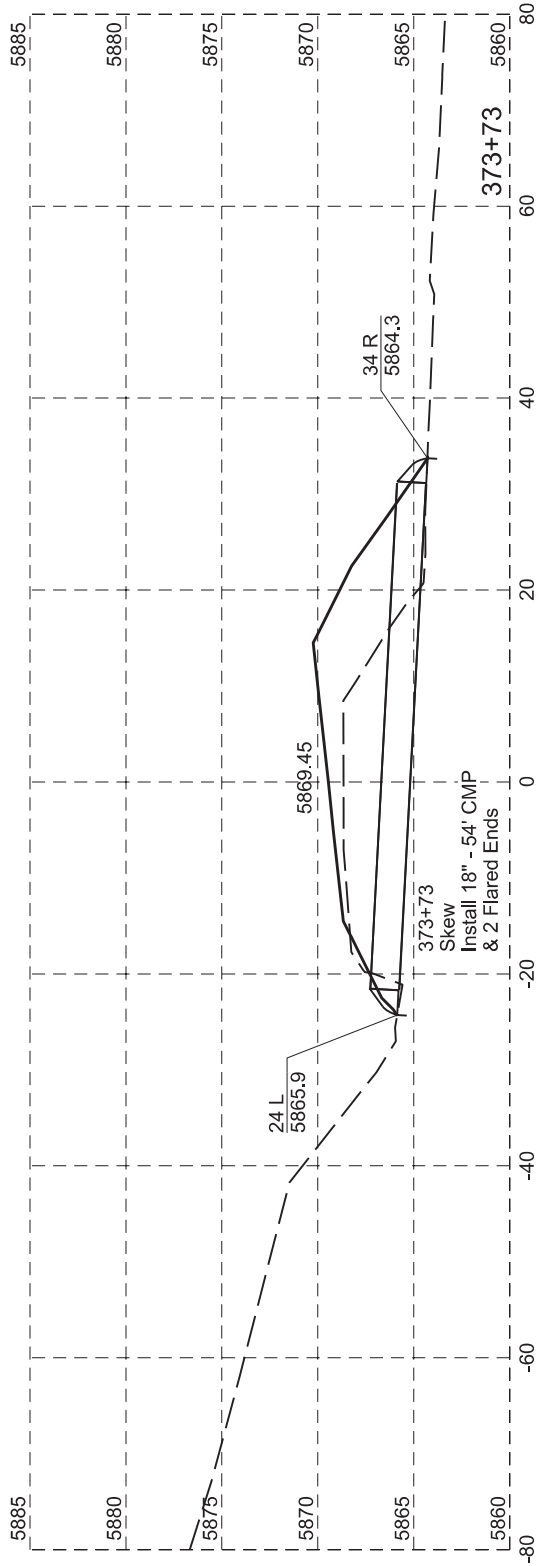
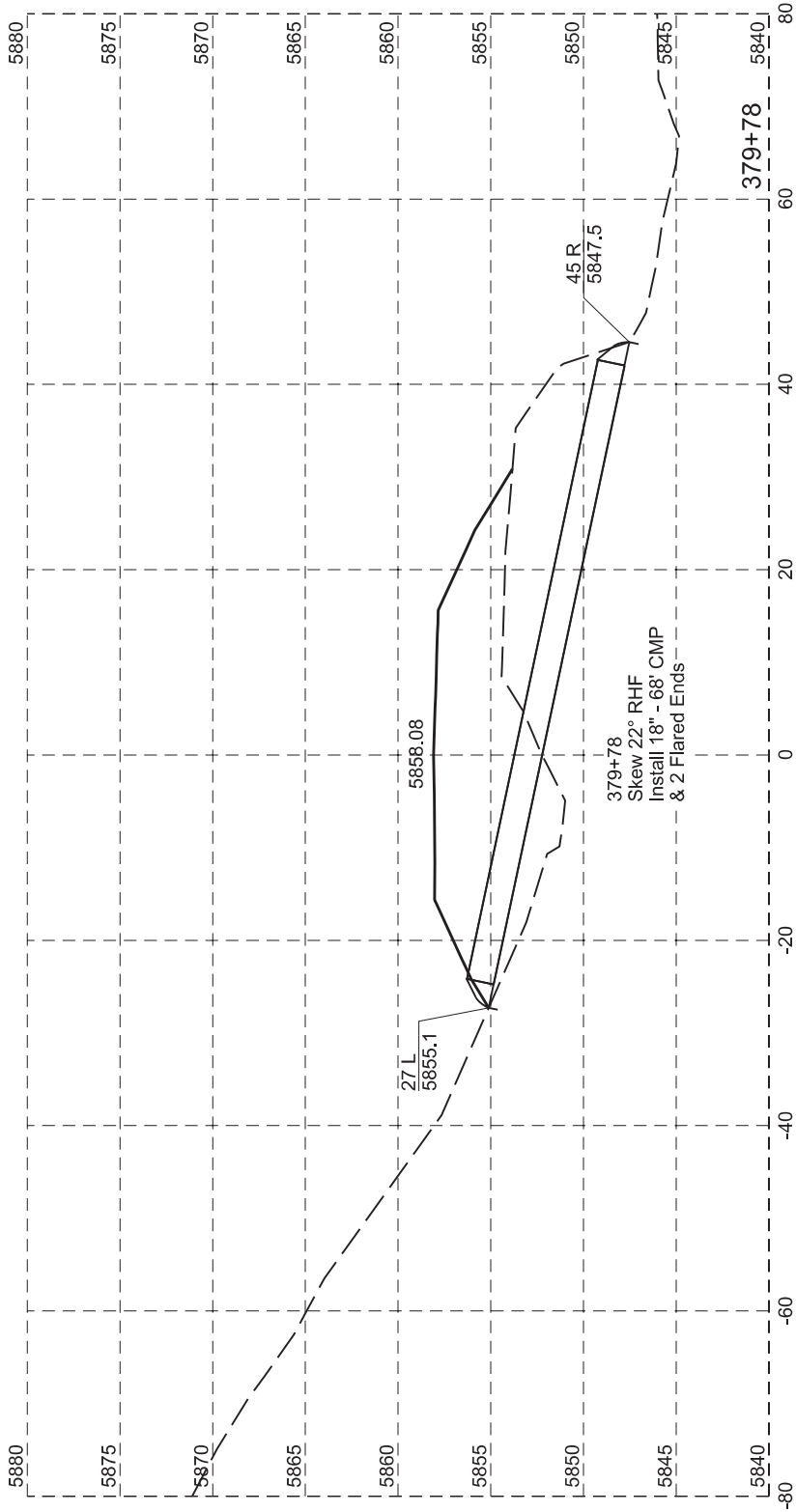
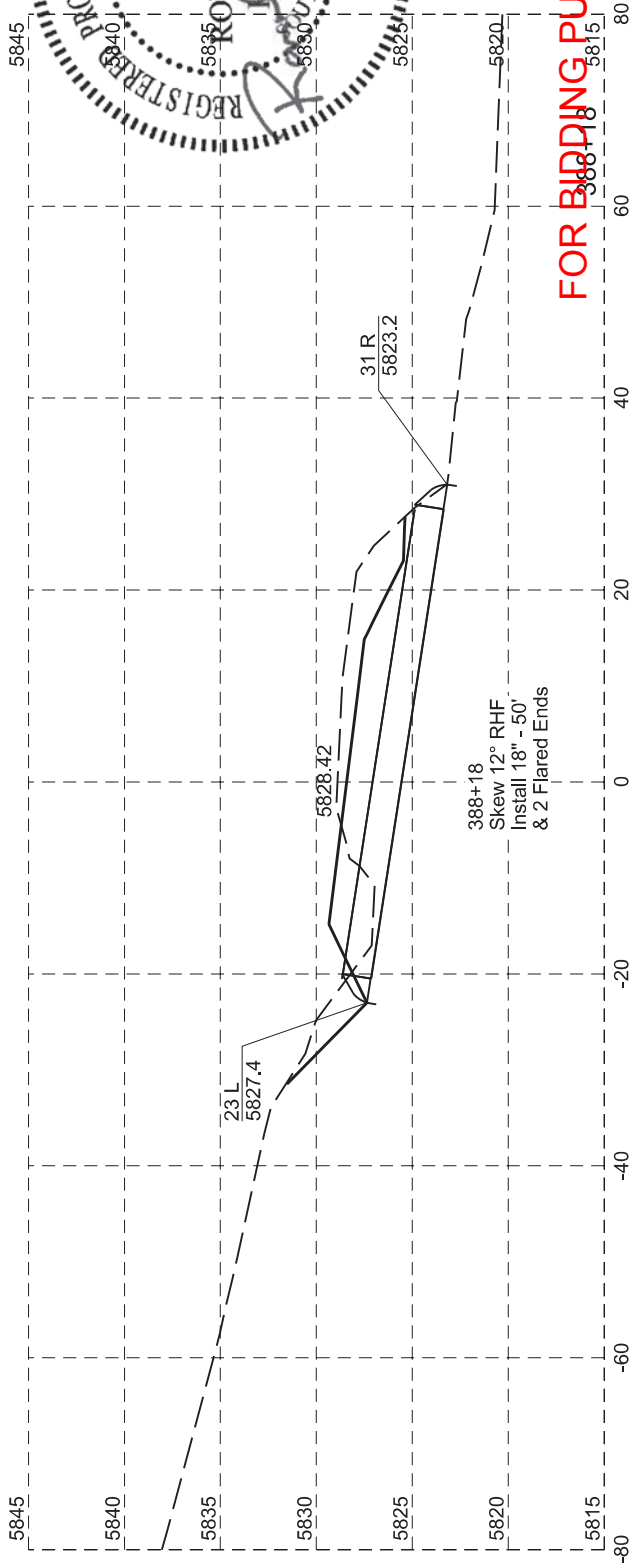


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	324	333

Plotting Date: 2/6/2023  
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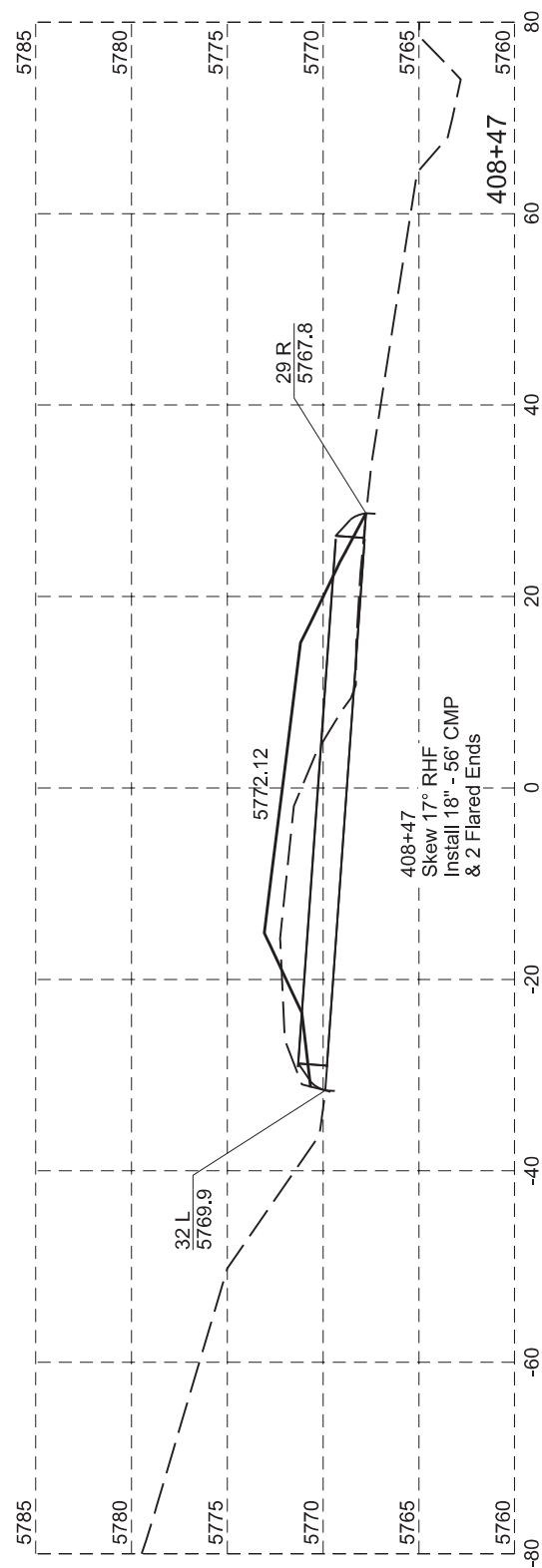


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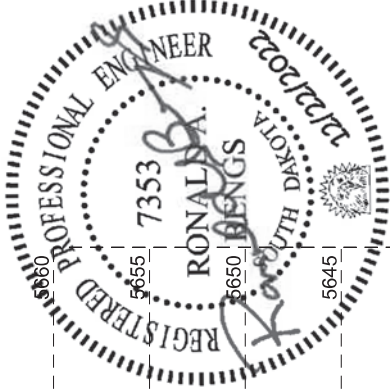


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	325	333

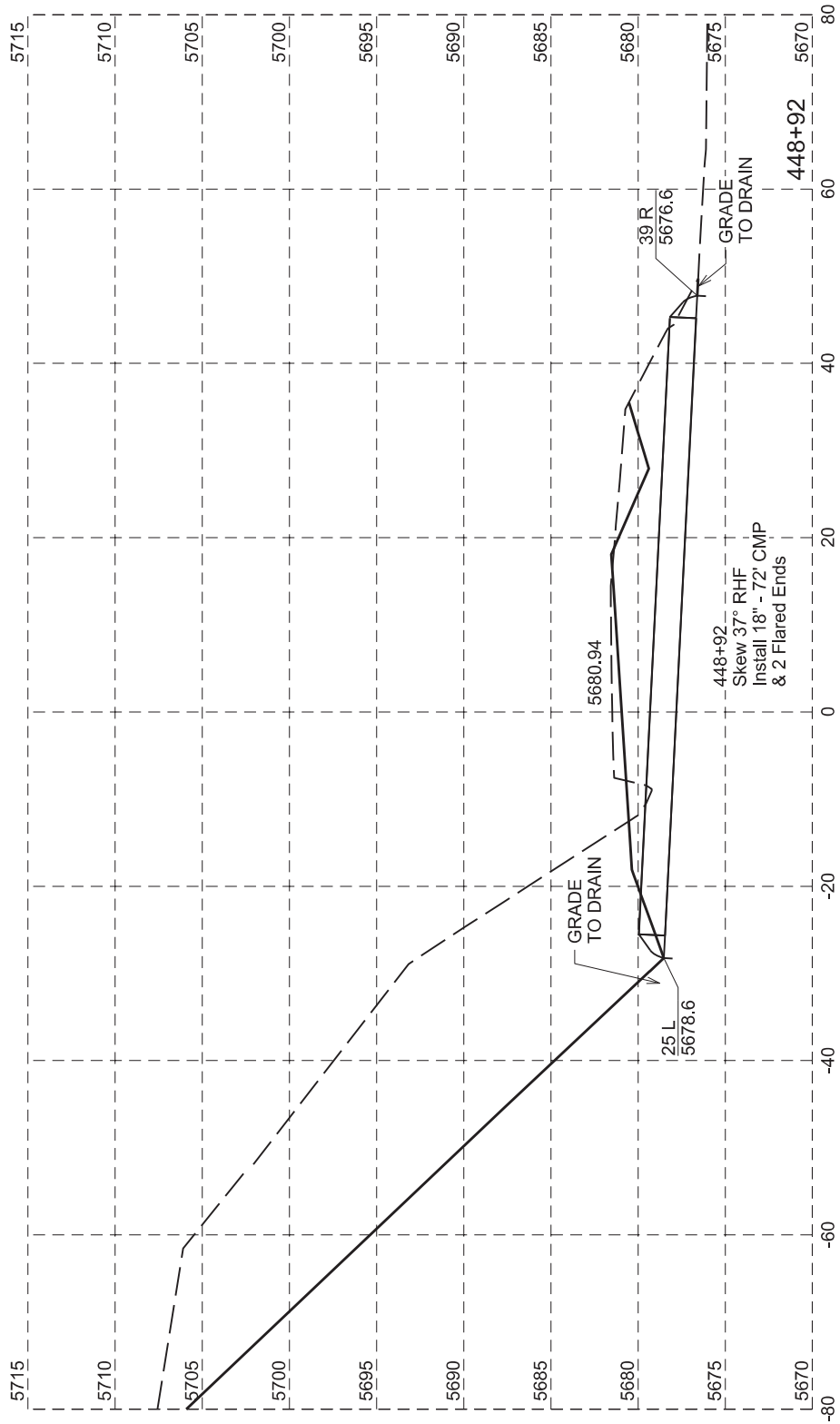
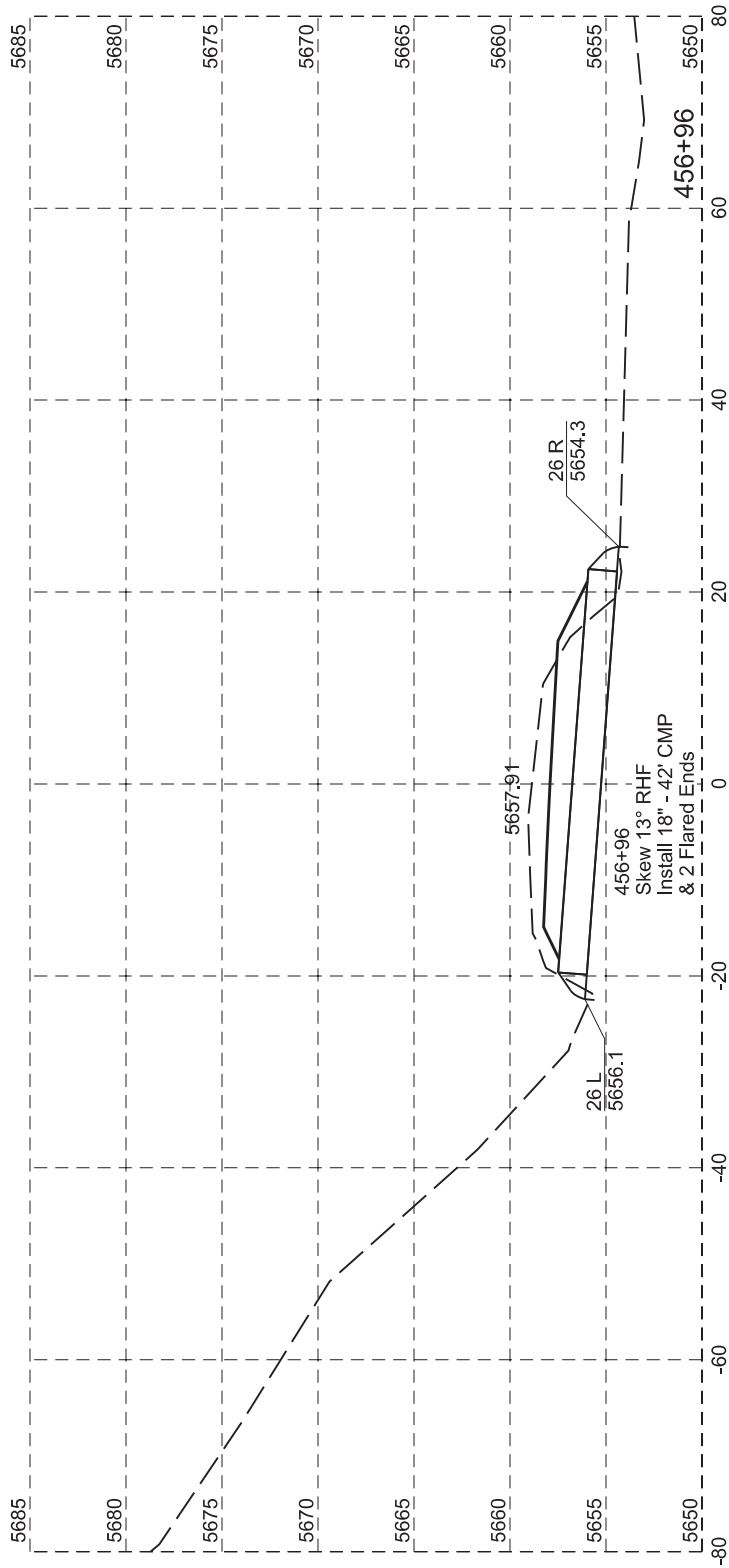
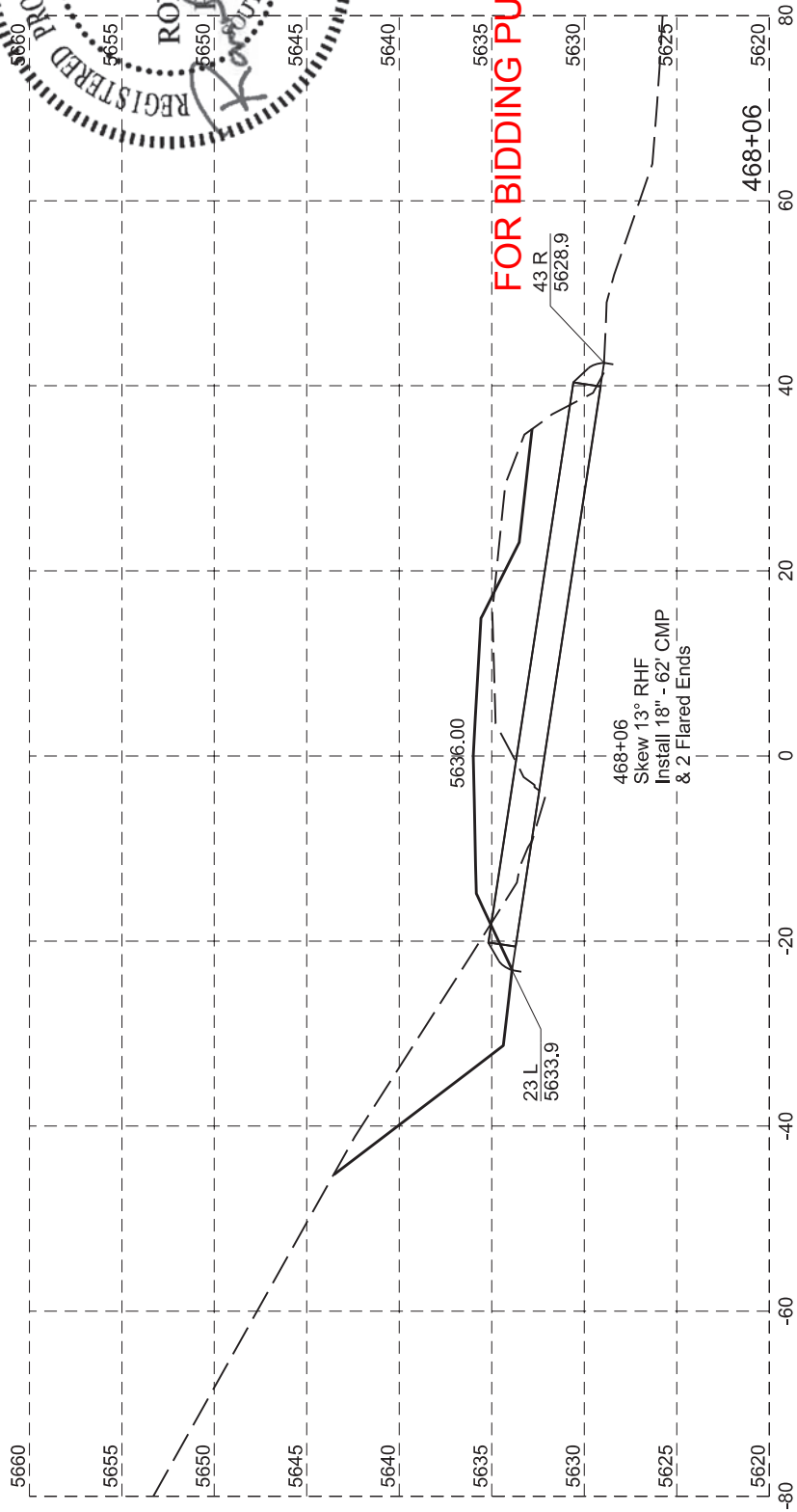
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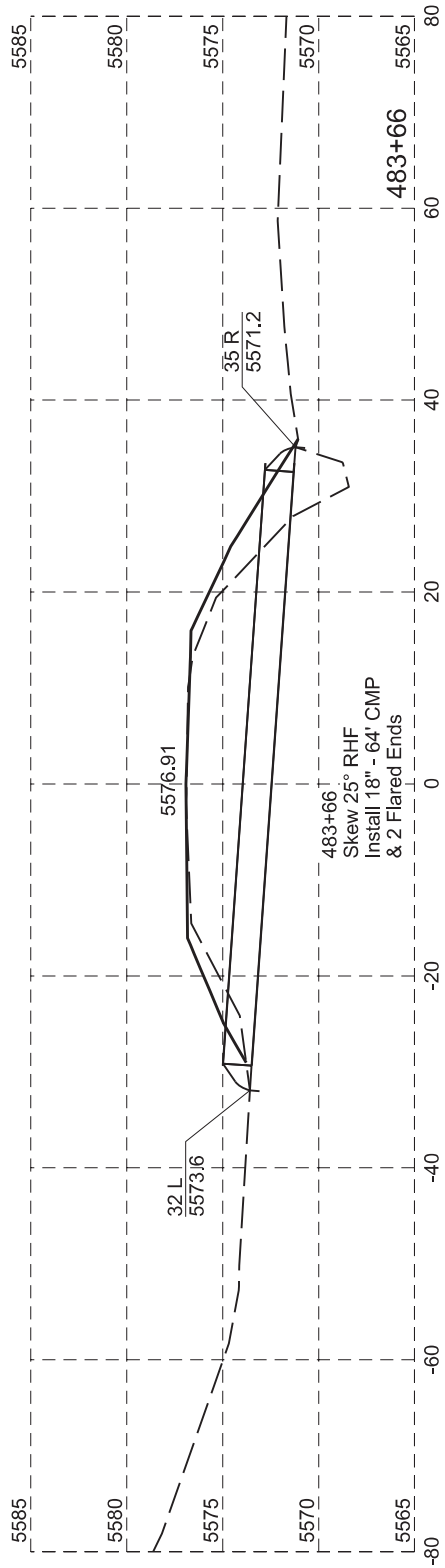
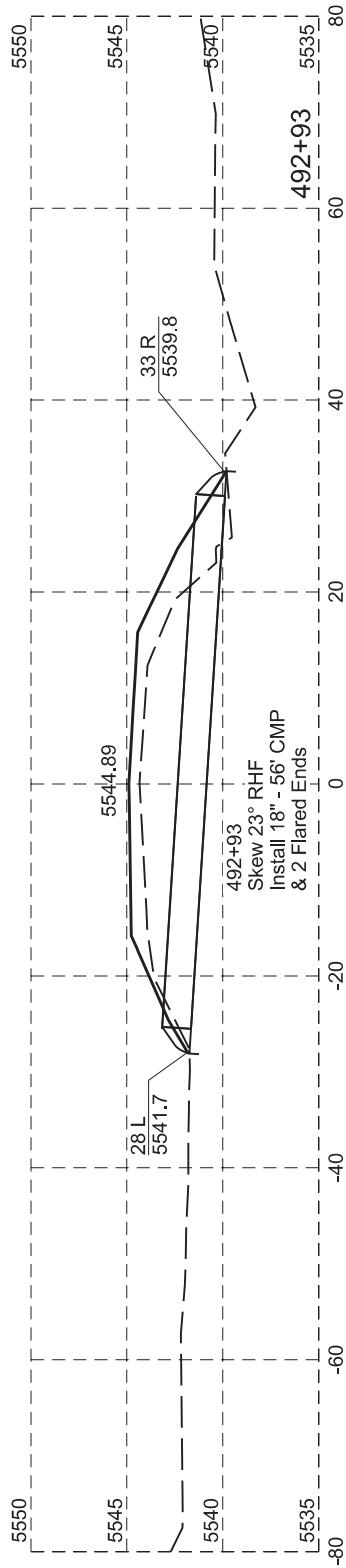
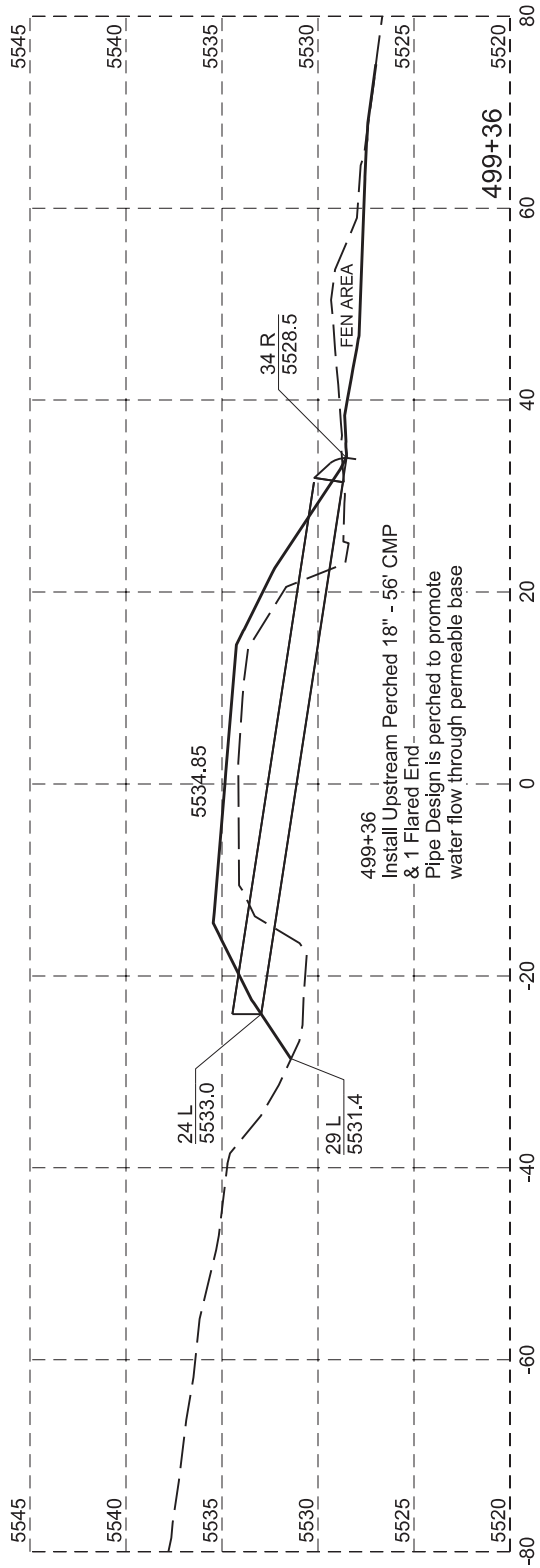
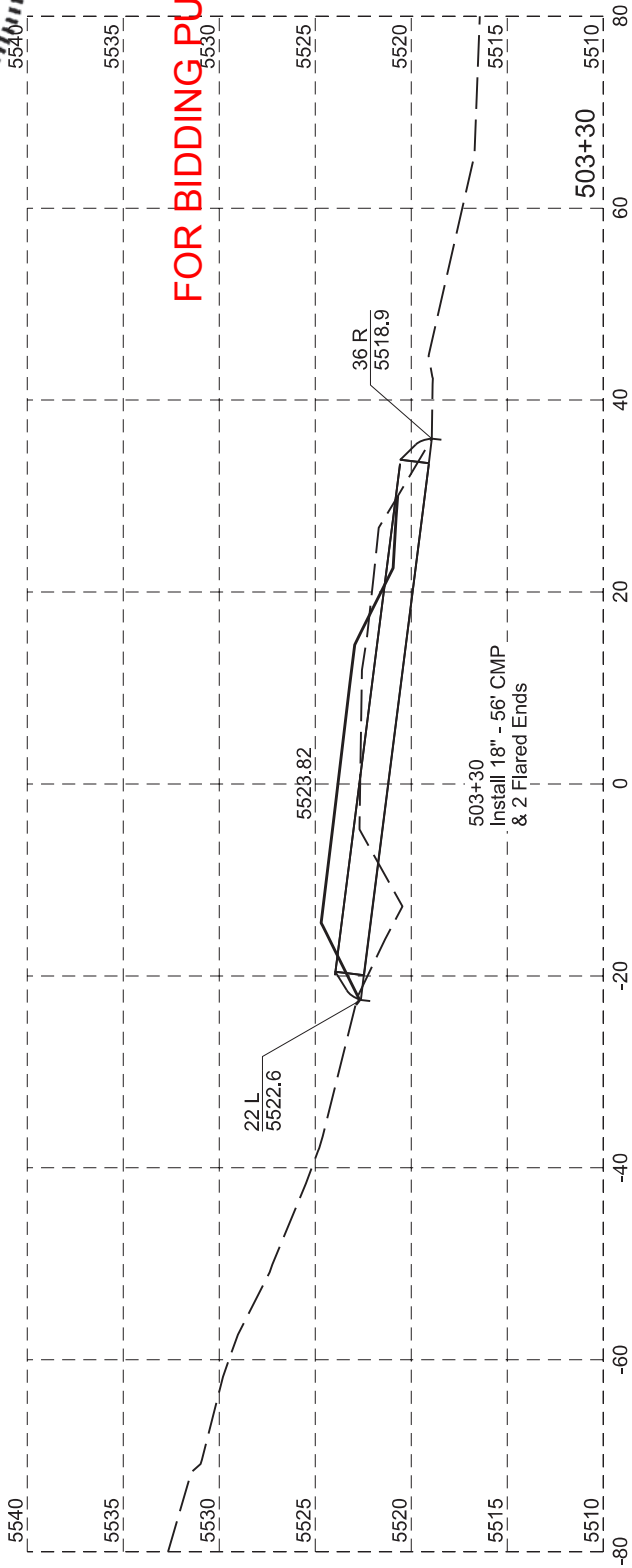


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	327	333

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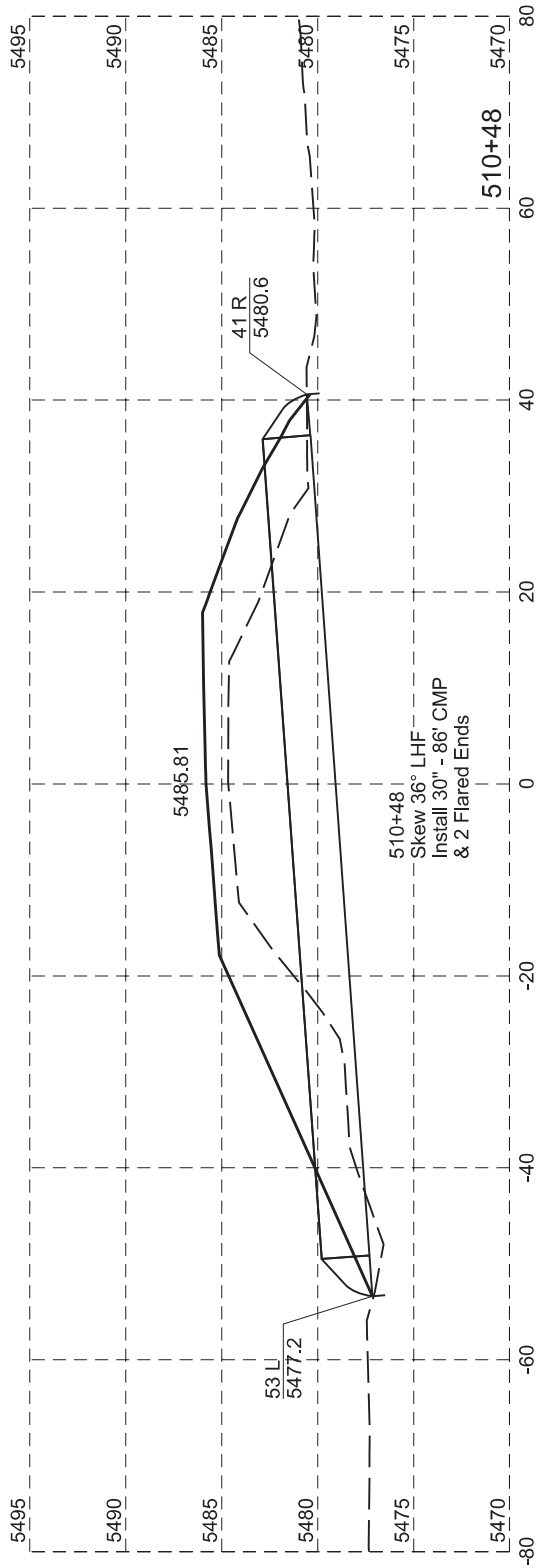
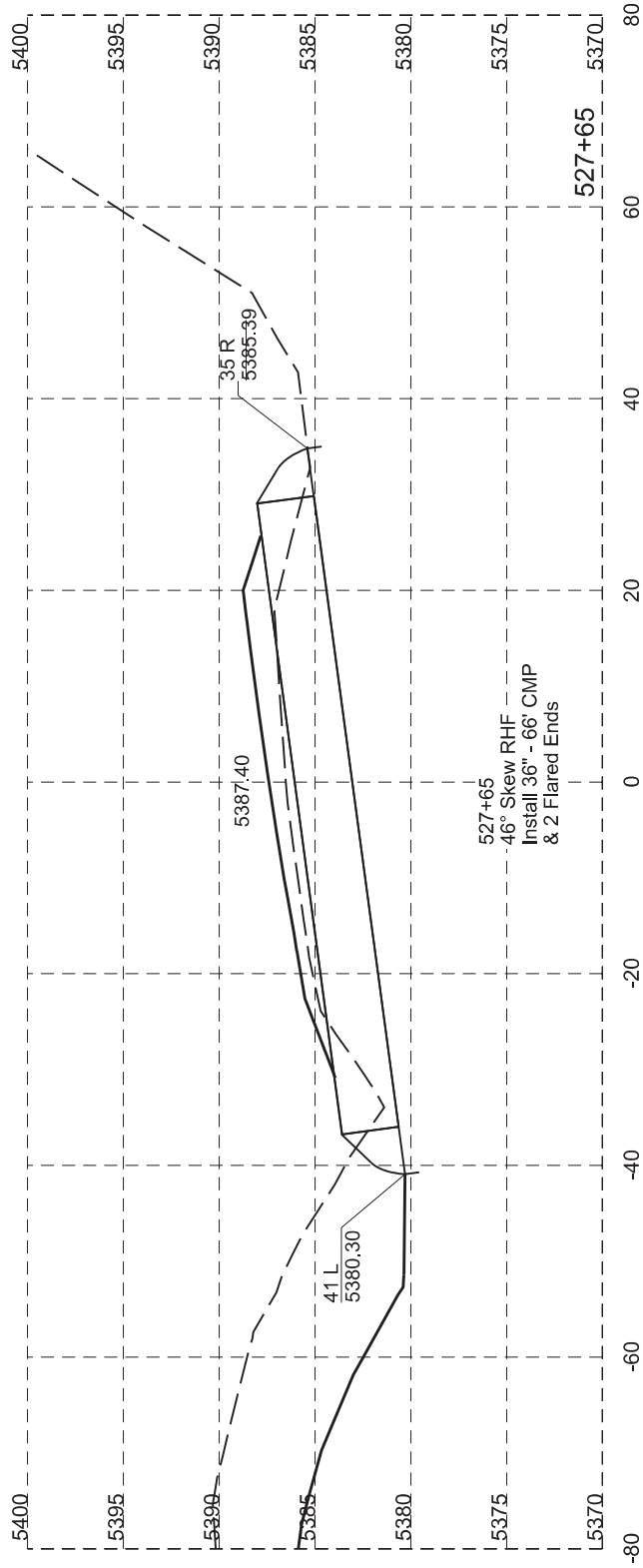
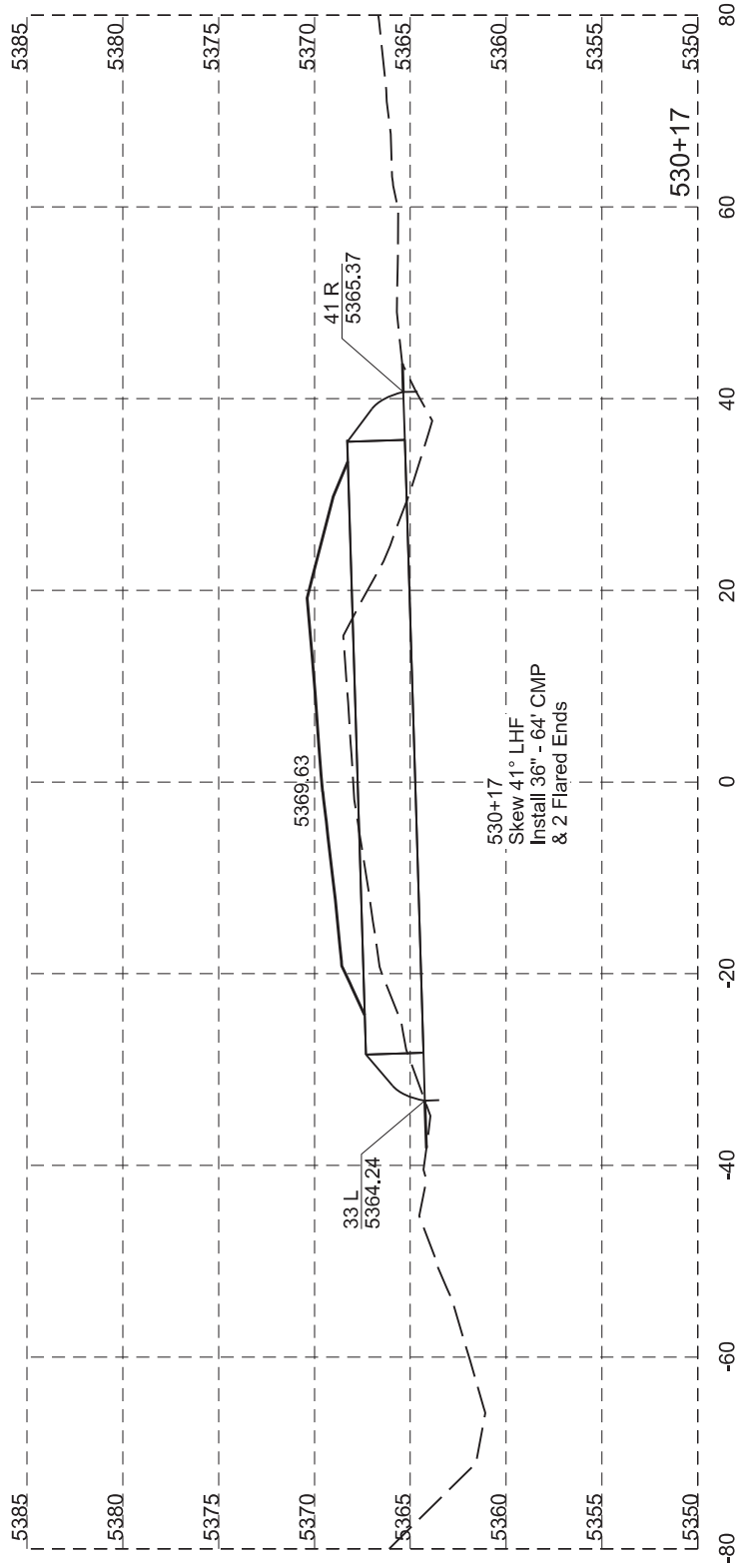


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	328	333

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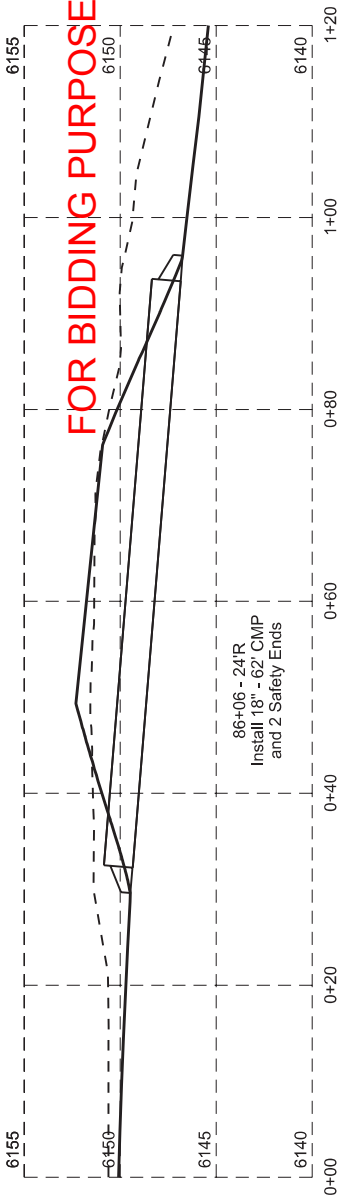
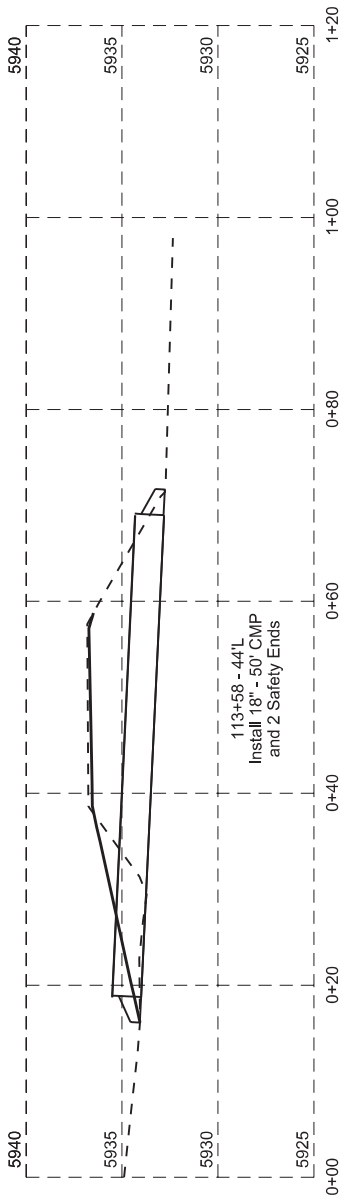


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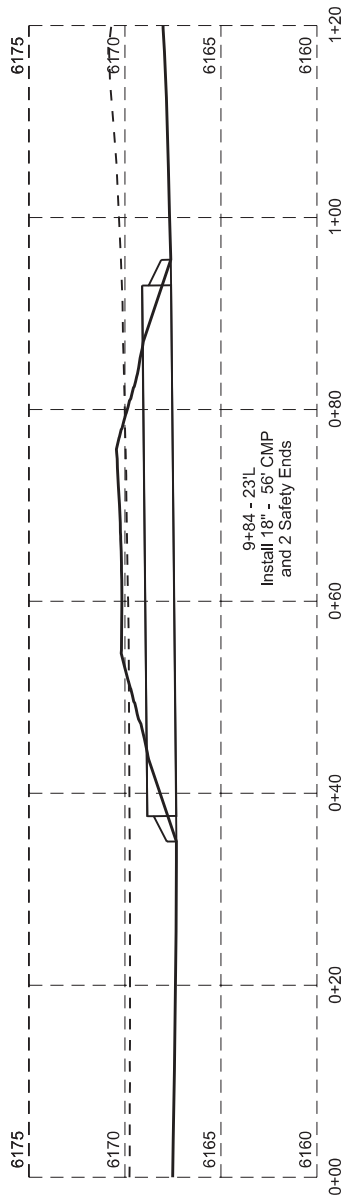
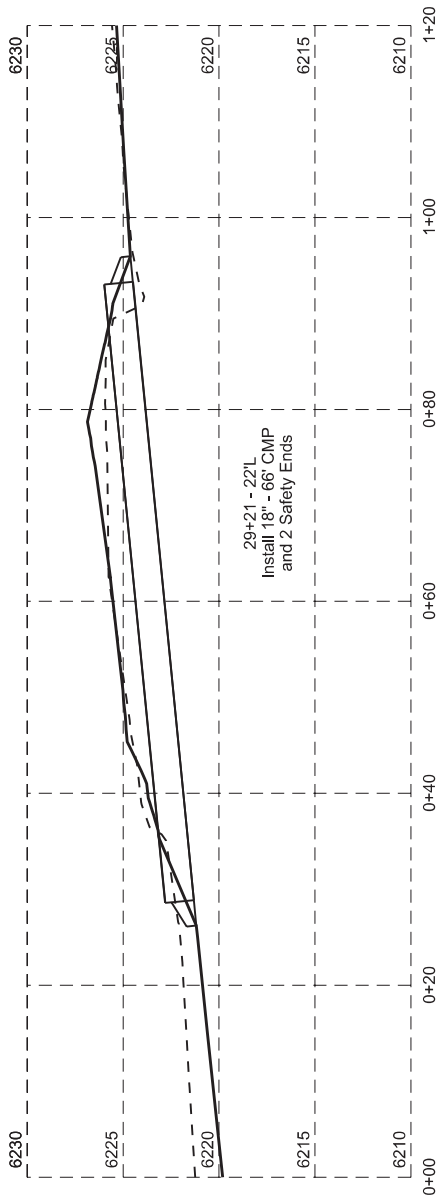
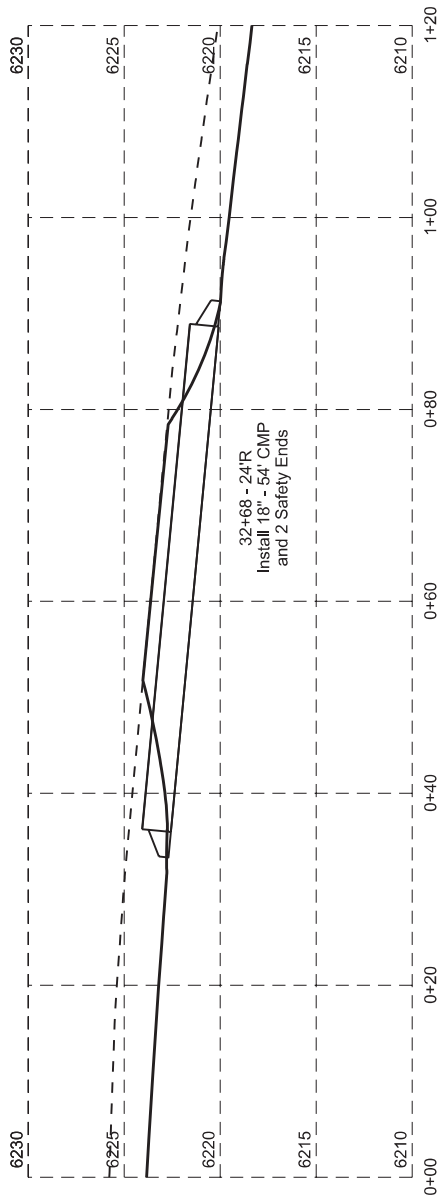
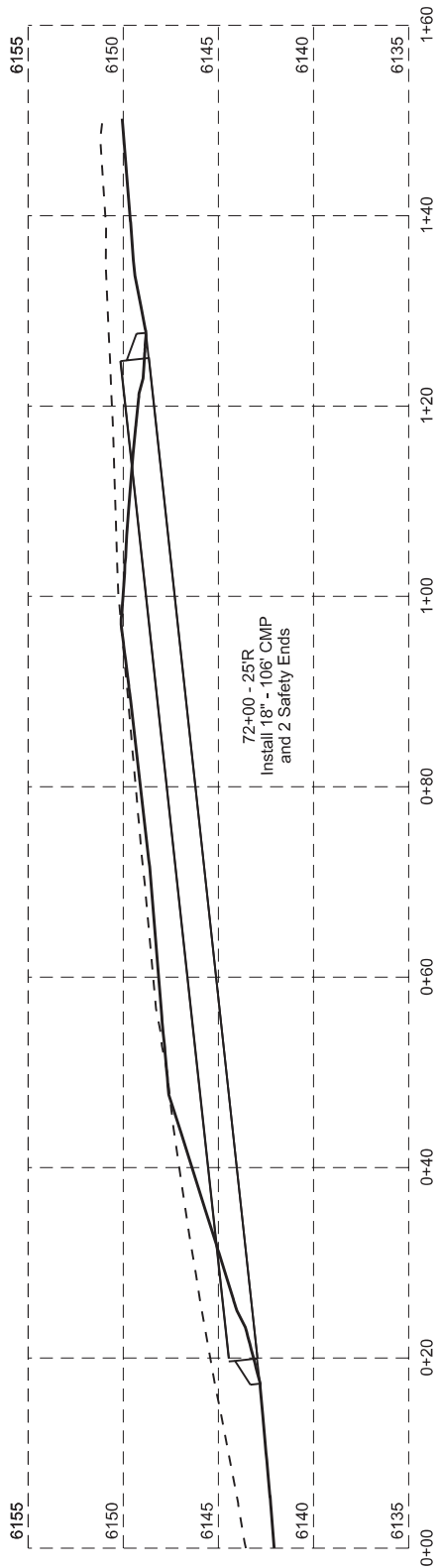


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)		
Plotting Date:	2/6/2023	329	333





FOR BIDDING PURPOSES ONLY

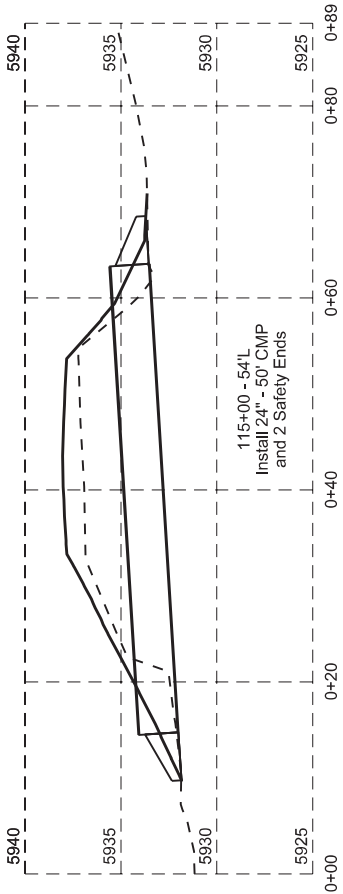
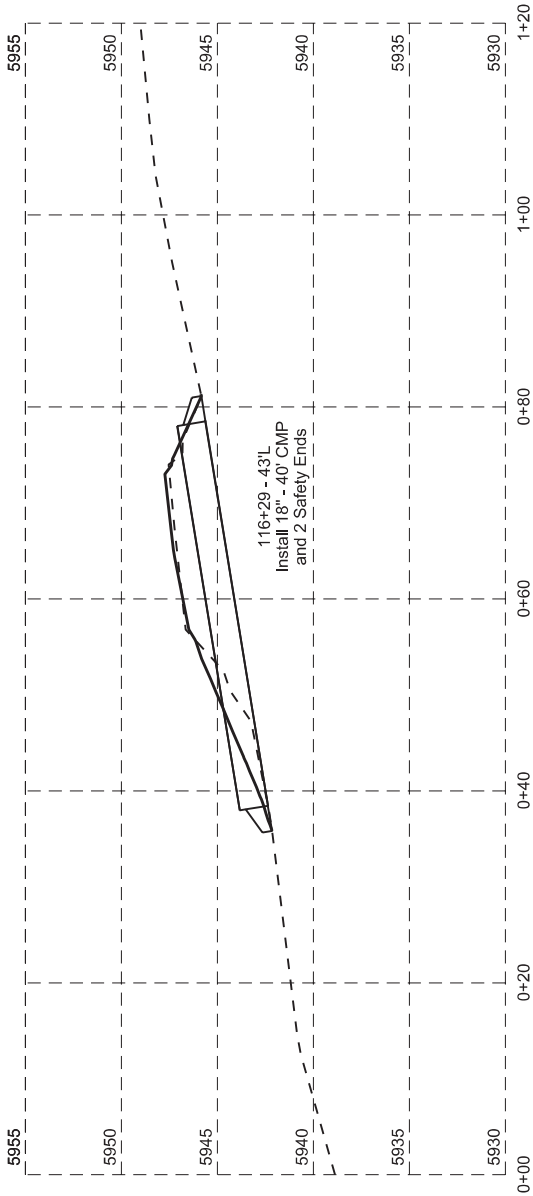
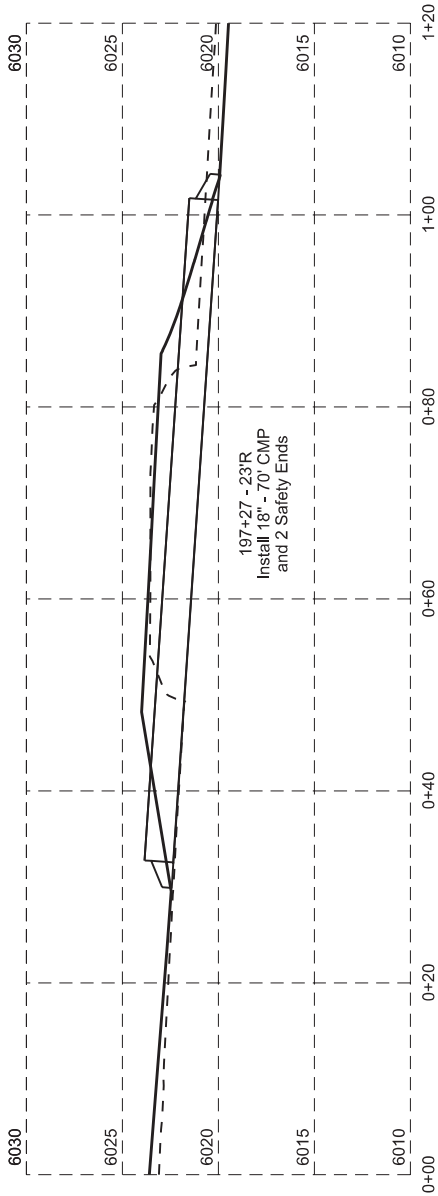
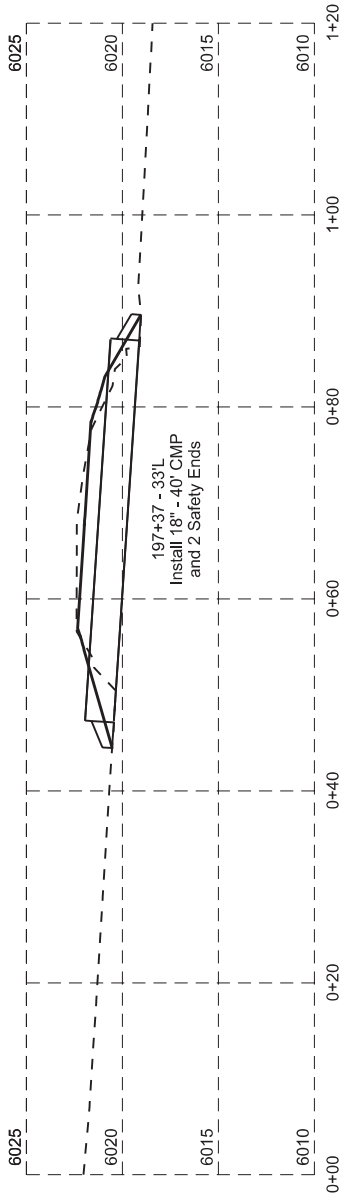
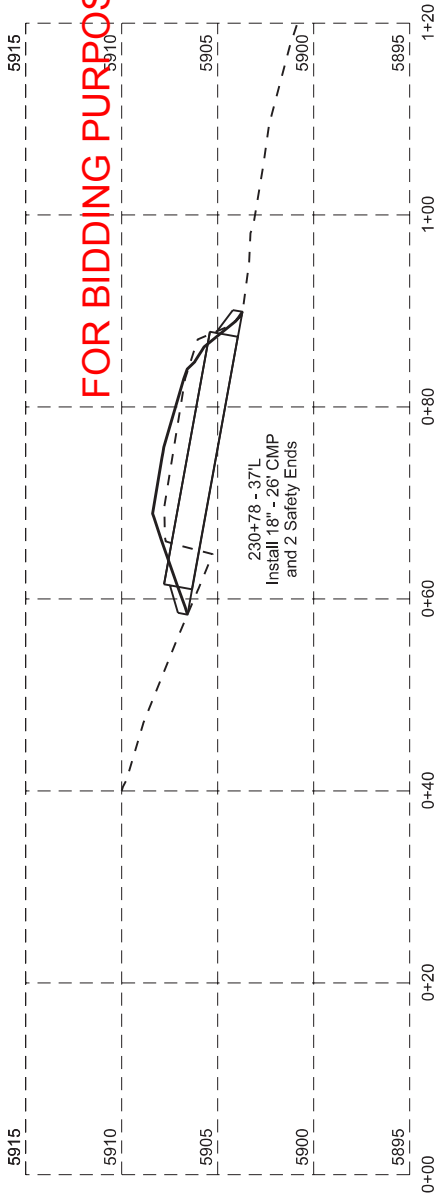


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 6403(10)	330	333

Plotting Date: 2/6/2023



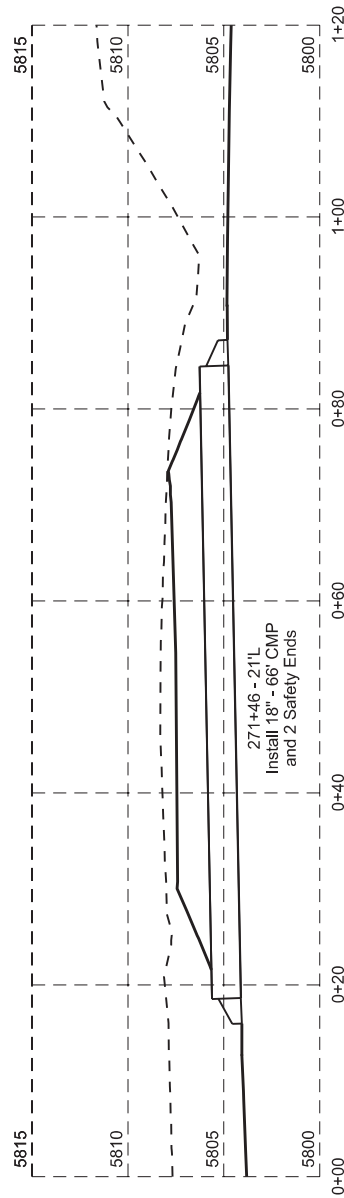
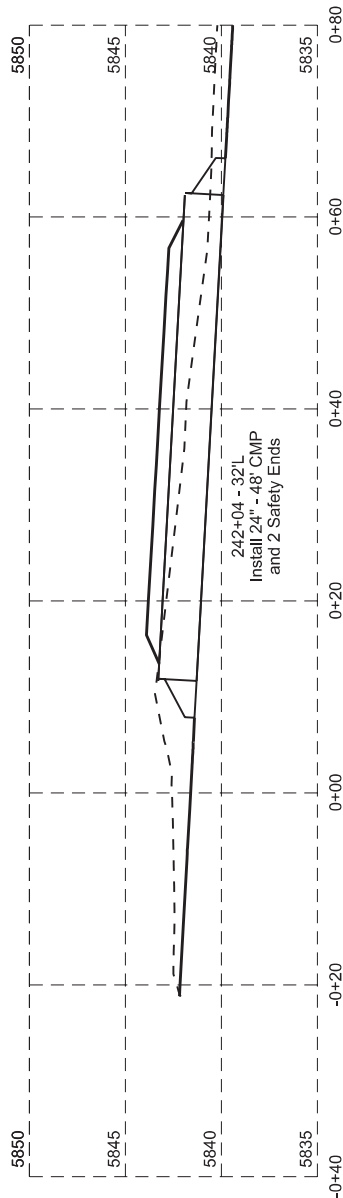
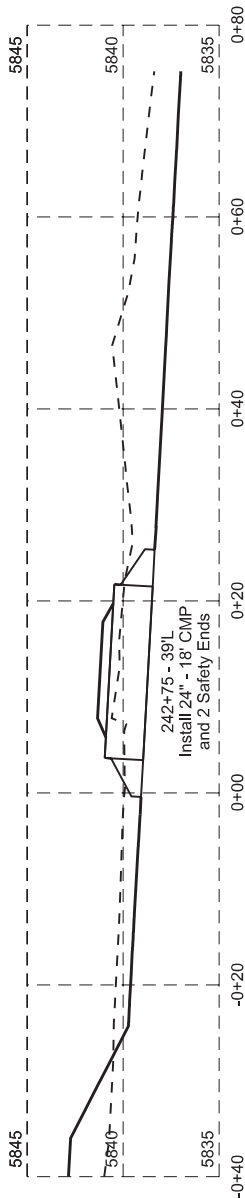
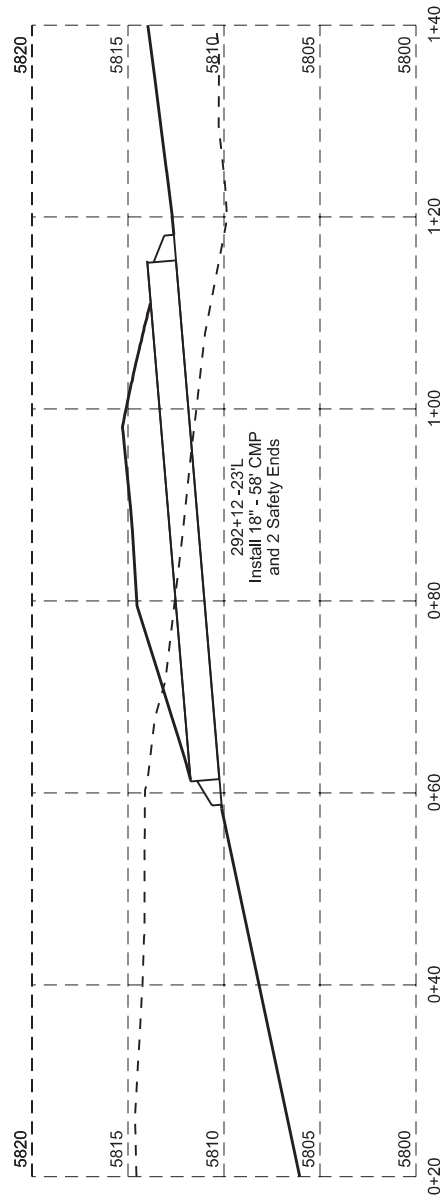
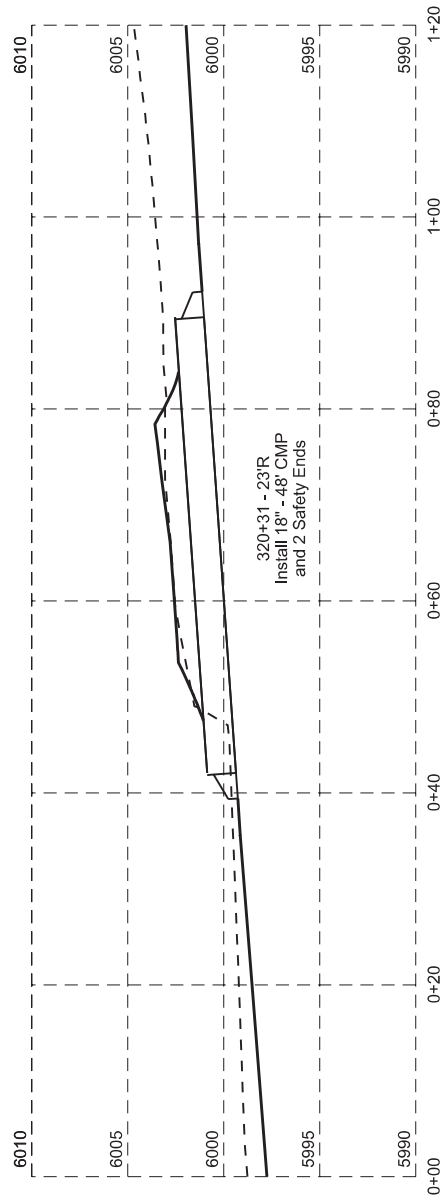
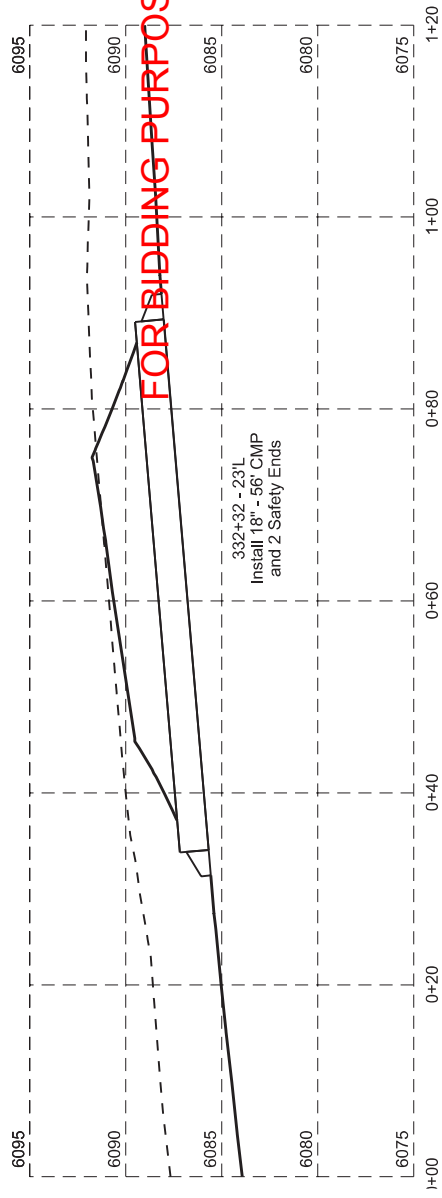
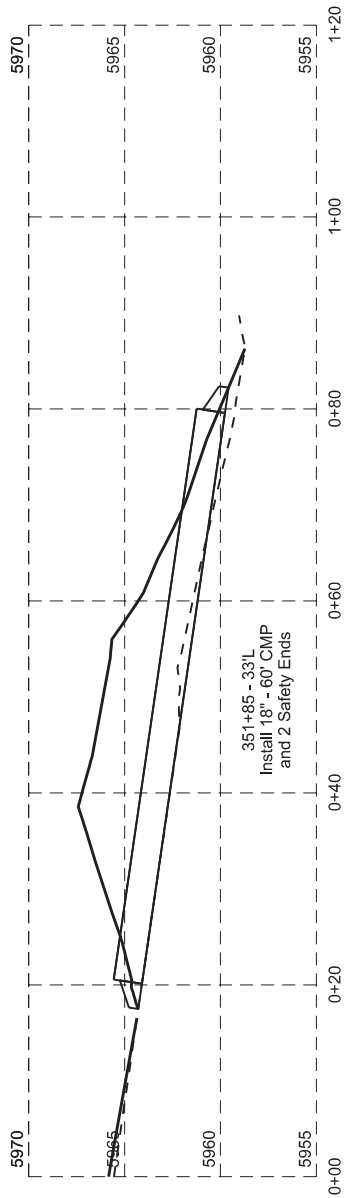
FOR BIDDING PURPOSES ONLY



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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