SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	1	60

Plotting Date: 1/26/2026

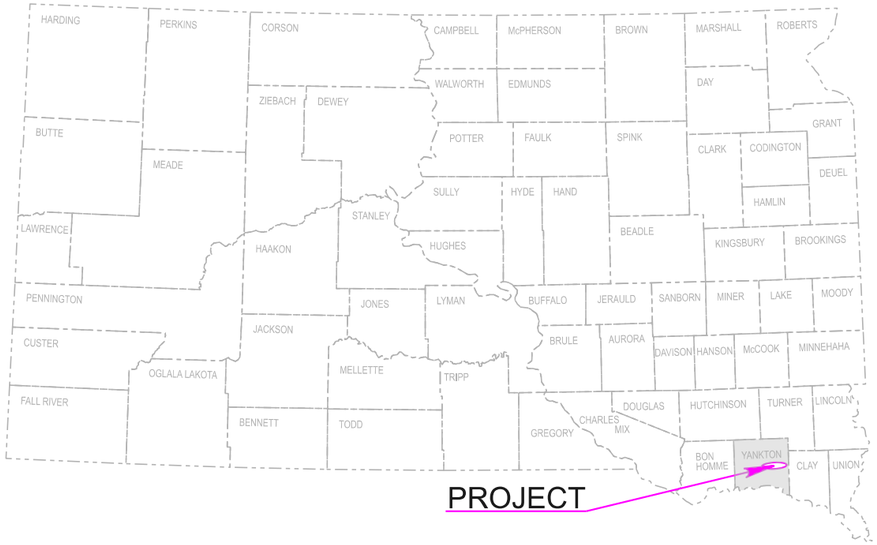
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT P 0046(92)339
S.D. HIGHWAY 46
YANKTON COUNTY

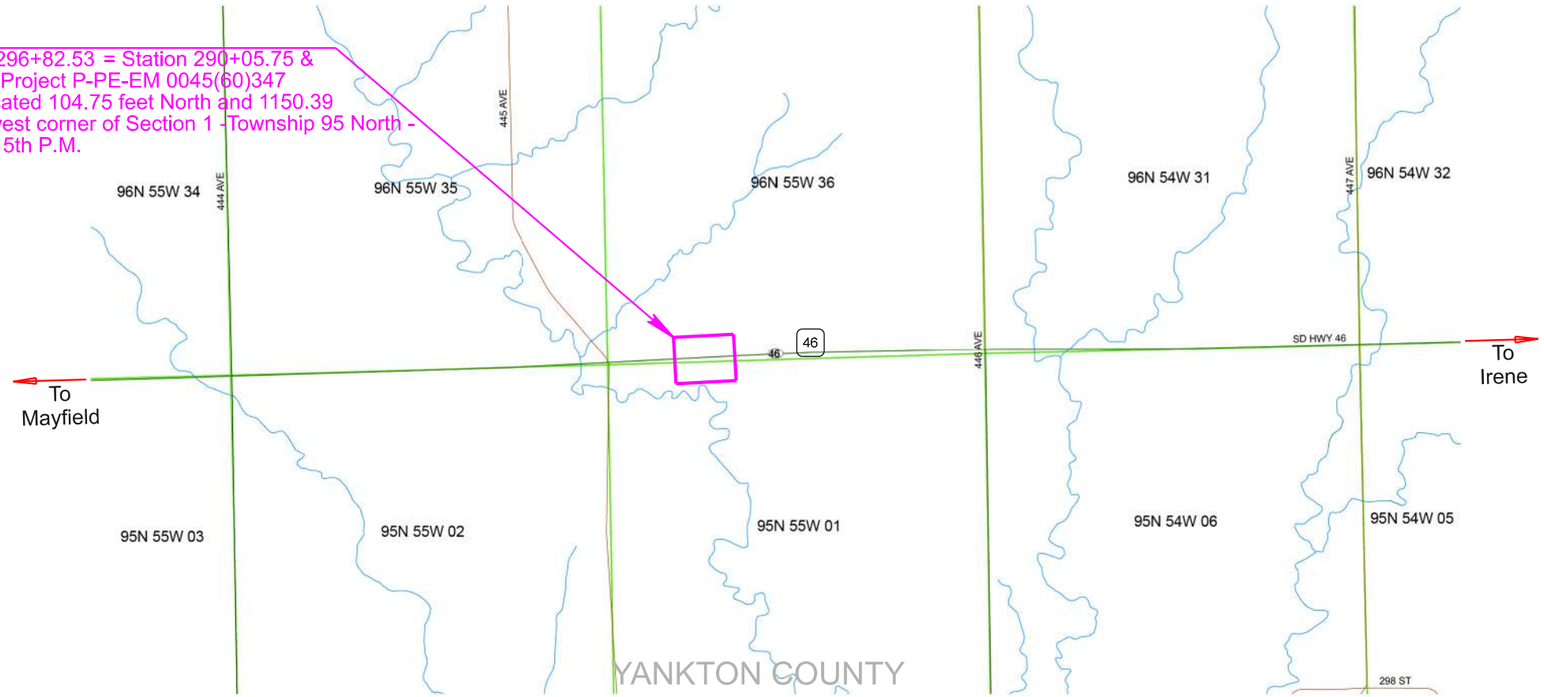
SLIDE REPAIR

PCN 0A9N

INDEX OF SHEETS



P 0046(92)339
Station 290+05.75 to 296+82.53 = Station 290+05.75 & Station 296+82.53 on Project P-PE-EM 0045(60)347
Begining of project located 104.75 feet North and 1150.39 feet East of theNorthwest corner of Section 1 - Township 95 North - Range 55 West of the 5th P.M.



DESIGN DESIGNATION

ADT (2024)	1437
ADT (2049)	2342
DHV	270
D	51.0%
T DHV	16.5%
T ADT	7.5%
V	65 mph

STORM WATER PERMIT

Major Receiving Body of Water:	Clay Creek
Area Disturbed:	4.90 Acres
Total Project Area:	6.70 Acres
Approx. Begin Lat,Long:	43.0778N;97.2945W

Gross Length	676.780 Feet	0.128 Miles
Length of Exceptions	000.000 Feet	0.000 Miles
Net Length	676.780 Feet	0.128 Miles

8

April 15, 2026

Non-Section Method

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	23	Each
009E3225	Reestablish Public Land Survey System Corner	2	Each
009E3260	Miscellaneous Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4100	Construction Schedule, Category I	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	1,468	Ft
110E1690	Remove Sediment	19.7	CuYd
110E1700	Remove Silt Fence	480	Ft
120E0010	Unclassified Excavation	23,820	CuYd
120E0600	Contractor Furnished Borrow Excavation	12,803	CuYd
120E6100	Water for Embankment	321.3	MGal
230E0010	Placing Topsoil	3,669	CuYd
230E0050	Topsoil Amendment	26,020	Lb
250E0020	Incidental Work, Grading	Lump Sum	LS
450E4788	36" CMP 14 Gauge, Furnish	162	Ft
450E4790	36" CMP, Install	162	Ft
450E5025	36" CMP Elbow, Furnish	2	Each
450E5026	36" CMP Elbow, Install	2	Each
450E5223	36" CMP Flared End, Furnish	2	Each
450E5224	36" CMP Flared End, Install	2	Each
600E0200	Type II Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	890	Ft
620E0515	Type 1A Temporary Fence	1,310	Ft
620E1020	2 Post Panel	15	Each
620E1030	3 Post Panel	2	Each
634E0010	Flagging	200.0	Hour
634E0020	Pilot Car	100.0	Hour
634E0110	Traffic Control Signs	187.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
680E0324	4" Dual Wall HDPE Pipe	30	Ft
680E0440	4" Slotted Corrugated Polyethylene Drainage Tubing	678	Ft
680E2000	Concrete Headwall for Underdrain	1	Each
680E2500	Porous Backfill	288.0	Ton
700E0210	Class B Riprap	1,832.0	Ton
730E0100	Cover Crop Seeding	6.0	Bu
730E0251	Special Permanent Seed Mixture 1	195	Lb
731E0200	Fertilizing	3.30	Ton
734E0044	Soil Stabilizer	4.7	Acre
734E0103	Type 3 Erosion Control Blanket	20,995	SqYd
734E0104	Type 4 Erosion Control Blanket	400	SqYd
734E0154	12" Diameter Erosion Control Wattle	8,580	Ft
734E0165	Remove and Reset Erosion Control Wattle	2,145	Ft
734E0325	Surface Roughening	4.7	Acre
734E0602	Low Flow Silt Fence	1,750	Ft
734E0604	High Flow Silt Fence	168	Ft
734E0610	Mucking Silt Fence	133	CuYd
734E0620	Repair Silt Fence	480	Ft
831E0110	Type B Drainage Fabric	2,225	SqYd
900E1320	Construction Entrance	1	Each

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/doing-business/environmental/about-environmental/>

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: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.10 acres of wetlands (includes temporary and permanent) becoming impacted.

Table of Impacted Wetlands

Wetland No.	Station	Permanent Impact (Acres)	Temporary Impact (Acres)	Total Impact (Acres)
1	290+00 to 295+00 R	0.07	0.03	0.10

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement of 0.07 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

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 the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.18 of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.15 acre(s) of stream (includes temporary and permanent) becoming impacted. Refer the plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Permanent Impact (Acres)	Temporary Impact (Acres)	Total Impact (Acres)
Clay Creek	290+00 to 295+00 R	0.08	0.07	0.15

Action Taken/Required:

It has been determined that project impacts do not require mitigation. Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the finished ground under the bridge will be shaped to match the upstream channel and flood plain and the existing low water channel will be maintained as near as practical to the existing location.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any stream. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any streams beyond the work limits and easements shown in the plans.

COMMITMENT C: WATER SOURCE

If a Contractor needs access to state waters for extraction, the Contractor must obtain a water right, through the application of a Temporary Permit to Use Public Waters before work begins.

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 (SDDANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Temporary permit to use public waters for highway construction purposes application can be found on the SDDANR website:
https://danr.sd.gov/OfficeOfWater/WaterRights/PermitForms/default.aspx

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 >

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Clay Creek is classified as warmwater, marginal fishery with a total suspended solids standard of less than 150 mg/L 30-day average, less than 263 mg/L daily maximum.

Clay Creek is classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

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 Activities 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 coldwater permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as coldwater 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 Project Engineer using the following SDDOT Dewatering Info CDX form:

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

The Contractor will contact the local Tribal Office to obtain any required dewatering permits when working within Indian Reservation Land.

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 Authorization 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_CGPAppendixCCA2023Fillable.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 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 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 150 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 J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures must be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

Excavation will not occur below the ordinary high-water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting. The natural streambed will not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high-water elevations. Any structure work over or within the waterway will be constructed according to Section 7.18 C of the Specifications.

All dredged or excavated materials will be placed at a site above the ordinary high-water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high-water elevation will be allowed if all material placed below the ordinary high-water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms will be removed with minimal disturbance to the streambed. Proper construction practices will be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, stream diversions, grading, etc. will be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractor's construction operations will be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

All temporary works in waterways of the US are required to be covered in the Corp of Engineers 404 Permit. At the time of the preconstruction meeting, the Contractor will submit documentation for all temporary works for the purpose of complying with the 404 Permit requirements in accordance with Section 423.3 A of the Specifications.

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
290+00 to 295+00 R	Clay Creek	1371.5' – Top of Channel

Stream channel excavation within "Waters of the US" is subject to USACE regulatory jurisdiction. Stream channel excavation cannot exceed the permitted quantities and/or surface area. The 404 Permit is included in the Special Provisions.

The Contractor will take all precautions necessary to prevent any incidental discharges associated with the excavation and hauling of material from the stream channel. This pertains to any excavation operations such as, foundation, pier, or abutment excavation, channel cleanout, excavation for riprap protection, and removal of any temporary fill associated with construction activities.

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.

MACHINE CONTROL GRADING & MODEL INFORMATION

Electronic design files are made available by the SDDOT Bid Letting Office through the SDDOT's SharePoint Directory for Contractors. The roadway subgrade model xml file provided for this project includes embankment and channel realignment.

These files are provided for informational purposes only. The information shown in the plans will govern over the provided electronic information. The Contractor assumes the risk of error if the information is used for any purposes for which the information was not intended. The Contractor assumes all risk of any assumptions or manipulations made of the electronic information.

GRADING OPERATIONS

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

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 construction area different than the typical sections 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.

TYPE II FIELD LABORATORY

The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type II Field Laboratory".

SHRINKAGE FACTOR: Embankment +35%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)
290+05	296+82	19,331	12,803	32,134
	Totals:	19,331	12,803	32,134

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

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	19,331
Topsoil	3,669
Creek Temporary Excavation	820
Total:	23,820

LANDSLIDE MITIGATION

Mitigate the slope stability issues at this site by excavating saturated and unstable materials, installing underdrains, and constructing a berm right of mainline.

Excavate unstable material from the existing drainage channel and backfill as shown on the cross sections. Install toe drain.

Construct the mainline inslope and berm from Station 291+00± to Station 295+00± utilizing a 4:1 berm slope, 20:1 bench slope, and a 4:1 mainline inslope as shown on the cross sections. Install upper drain at toe of mainline inslope. Install lateral drain and connect to upper and toe drains (see underdrain notes).

Provide a channel for runoff at toe of the proposed berm. Realign Clay Creek and armor berm slope as needed.

The existing slopes are marginally stable. Construction must be sequenced to prevent destabilizing mainline and adjoining embankments. Deep benching will be utilized to excavate and redistribute displaced and unstable landslide debris. Benching will begin at the base of the slope, working upward while simultaneously constructing the counterberm. The depth and length of benches will be adjusted during construction as needed to maintain stability of the slope. The toe drain must be installed prior to beginning construction of the berm.

INCIDENTAL WORK, GRADING

Station		L/R	Remarks
294+95	to	R	Take-Out 36"-172' CMP pipe
296+66			
280+11-324'		R	Dispose of Tree Pile
285+90-348'		R	Dispose of Tree Pile
290+50-315'		R	Dispose of Tree Pile

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

Plan quantities will be used for payment. The Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

WASTE EXCAVATION

Any material that is unsuitable, that is muck excavation or excess excavation material will be disposed of at a Contractor furnished site acceptable to the Engineer. All costs to waste material will be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a varied depth. The estimated quantity of 9590 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable will be excavated and replaced into the berm area or treated as waste at the engineer's discretion.

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)	Quantity (CuYd)
291+00		294+50	R	Varied	8810
292+88		294+54	R	Varied	780
				Total:	9590

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow Excavation" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

LANDSLIDE DEBRIS EXCAVATION

Deep benching will be required to excavate unstable landslide debris as shown on the cross sections. It is anticipated that most of the excavated landslide debris can be used in the construction of embankment. The Landslide Debris Excavation limits will not exceed those shown on the cross sections unless directed by the Engineer. Steep temporary backslopes are required to excavate the Landslide Debris and reconstruct the inslopes. The temporary slopes will be unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary backslopes are left exposed and unsupported. Regular monitoring of temporary slopes is required during construction. If temporary slopes become unstable, excavation will cease, and the slope will be evaluated by the Engineer. Landslide Debris Excavation is included in the Unstable will be paid for as Unclassified Excavation.

UNSTABLE EXCAVATION- DRAINAGE CHANNEL

Prior to embankment construction Unstable Excavation will be required within the drainage channel to excavate displaced or weak compressible soils and other organic materials. A variable 2 - 5 ft. depth of compressible material is anticipated to be removed from the drainage area prior to construction of the embankment as shown on the cross sections. The depth of unstable excavation may be adjusted by the Engineer to ensure a solid foundation free of organic, soft, unstable material is prepared. Unstable and/or highly organic material shall be stockpiled for use as topsoil or wasted at a site approved by the Engineer.

UNDERDRAIN

Underdrains will be required to capture water from local springs and improve embankment foundation conditions. The underdrain system will consist of 3 segments; toe drain, lateral drain, and upper drain.

After unstable material has been excavated from the drainage area at the toe of the slope and then backfilled, install the toe drain from Station 292+20±, 410’ Rt. to Station 294+50±, 280’ Rt. After the berm has been constructed, install the upper drain from Station 291+00±, 150’ Rt. to Station 294+50±, 190’ Rt. Connect the upper drain to the toe drain by installing a lateral drain on the berm slope from Station 294+50±, 190’ Rt. to Station 294+50±, 280’ Rt.

Each underdrain segment will consist of 4-inch Slotted Corrugated Polyethylene Tubing placed in a 2-foot wide by 5-foot-deep trench backfilled with 3 feet of Porous Backfill. The underdrain system will outlet through 30 feet of 4” Dual Wall HDPE Pipe placed in a 2-foot-wide trench of variable depth backfilled with soil. The underdrain outlet pipe will daylight at an Outlet Headwall placed at the toe of the berm slope at approximately Station 292+20±, 410’ Rt. as directed by the Engineer.

The estimated quantities for the underdrain system are as follows:

4” Slotted Corrugated Polyethylene Tubing	678	Ft
4” Dual Wall HDPE Pipe	30	Ft
4” Polyethylene Tee Connector	1	Each (NABI)
4” Polyethylene Bend	1	Each (NABI)
Porous Backfill	288	Ton
Concrete Headwall for Underdrain (See Standard Plate 680.01)	1	Each
Excavation	206	CuYd (NABI)

UNDERDRAIN CONSTRUCTION

Dual Wall HDPE Pipe will conform to the requirements of ASTM D3350 and AASHTO M252, Type S.

All labor, tools, equipment, and incidentals necessary for the installation of underdrain pipe will be incidental to the contract unit price per foot for each pipe type.

Care will be taken to ensure that the underdrain tubing and outlet pipe are not damaged during construction. Sufficient cover material is to be placed over the pipe before compaction equipment is allowed over the drain system. Damaged pipe will be replaced by the Contractor at no additional cost to the Department.

The underdrain locations given are based on the best information available to the Geotechnical Engineering Activity. Actual field conditions may require that adjustments be made by the Engineer during construction to capture flow from springs and provide for sufficient drainage. The Geotechnical Engineering Activity will be available for onsite assistance if necessary.

Underdrain trenches will be graded to maintain a minimum of .01ft/ft. or 1% drop from beginning to outlet. The Contractor will ensure all segments of outlet pipe are positively connected and remain soil tight during installation of the drain system. The outlet headwall shall be placed to blend in with the surrounding topography with the outlet pipe placed above the bottom of the drainage to permit proper flow from the outlet.

Outlet headwalls will be cleared of topsoil, straw, or other debris after seeding operations have been completed. The as built headwall location will be recorded and submitted to the Engineer. Each headwall location will be identified by GPS coordinates and station and offset. The headwall locations will be cataloged in the Yankton Area office for reference in post construction maintenance.

EMBANKMENT CONSTRUCTION

Embankment construction will not begin until all unstable compressible materials have been excavated from the embankment footprint to the satisfaction of the Engineer. A suitable embankment foundation consists of compacted soil which does not pump, rut, or otherwise displace when traveled over with construction equipment.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-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 gauge of the corrugated metal elbows and ends will match the thickest gauge of corrugated metal pipe it is connected to.

Areas within the project have soils that are highly corrosive to steel. Corrugated metal pipe in these areas will be polymer coated 14 gauge steel as specified in the Pipe For Downspouts Table. Any required connection bands, elbows, tees, crosses, wyes, reducers, and transitions will also be polymer coated. The connection bands will be 24 inches wide. All polymer coated corrugated metal pipe and components will be in conformance with AASHTO M245. Riveted pipe will not be allowed.

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 DOWNSPOUTS

The substitution of Class 2 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe, or steel reinforced polyethylene pipe for corrugated metal downspout pipes is not allowed.

Station	L/R	Circular 36” 14 Ga. Ft	Flared End ea	Elbows 12.5° ea
295+08 to 296+64	R	162	2	2
	Total	162	2	2

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station		L/R	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
290+80 295+07	to	R	1832	2225
		Totals:	1832	2225

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

TABLE OF TEMPORARY FENCE

Station	L/R	Fence Type	Fence Quantity (Ft)
288+95 to 296+92	R	1A	1310
		Total	1310

TABLE OF PERMANENT FENCE

Station	L/R	Fence Type	Fence Quantity (Ft)
288+95 to 296+92	R	2	890
		Total	890

TABLE OF FENCE REMOVAL

Station	L/R	Fence Quantity (Ft)
289+00 to 296+80	R	1468
	Total:	1468

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 is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify public land survey system (PLSS) corners, right of way (ROW) corners, and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 2 PLSS corners and 23 ROW and property corners will be set, reestablished, or verified for this project. The Contractor's Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

<https://dot.sd.gov/doing-business/engineering-design-services/surveyors/>

The SDDOT Region Land Surveyor will furnish the ROW corner caps, property corner caps, and guard posts for ROW corners in rural areas. All costs associated with furnishing and installing rebar, PLSS corner caps, and all other materials associated with setting, reestablishing, or verifying PLSS corners, ROW corners, and property corners in accordance with the SDDOT Survey Manual will be incidental to the contract unit price per each for "Reestablish Right-of-Way and Property Corner".

TEMPORARY EXCAVATION FOR RIPRAP PLACEMENT

Clay Creek is a flowing stream that will be realigned by the proposed work. The flowline of the existing channel is approximately elevation 1367. Excavation of the existing creek channel will be required to place riprap down to elevation 1363. Dewatering will be required.

Steep temporary 2:1 excavation slopes will be required to complete riprap placement within the creek channel. The temporary slopes will be unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary backslopes are left exposed and unsupported. Regular monitoring of temporary slopes is required during construction. If temporary slopes become unstable, excavation will cease, and the slope will be evaluated by the Engineer.

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.

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.

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.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 1 MILE	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			187.0

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)
209+00 to		296+67	3,669
		Total:	**3,669**

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding, fertilizing, topsoil amendment, and mulching applications.

All areas that receive Surface Roughening are to be properly tilled, disked, ripped, or otherwise loosened before permanent seeding, to avoid over-compaction, which hinders critical root development.

Refer to Standard Plate 734.25 for details.

TABLE OF SURFACE ROUGHENING

Station	Location	Area (Acre)
290+00 to 296+67 R	Disturbed area	4.7
	Total:	**4.7**

TOPSOIL AMENDMENT

Topsoil amendment will be applied at the rate of 4,000 pounds per acre.

Topsoil amendment will be done at the areas noted in the Table of Topsoil Amendment.

All costs for furnishing and applying the topsoil amendment including hauling, materials, equipment, labor, and incidentals necessary will be paid for at the contract unit price per pound for “Topsoil Amendment”.

The Topsoil Amendment provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF TOPSOIL AMENDMENT

Station	Location	Quantity (Lbs)
290+00 to 296+67 R	Disturbed area	26,020
	Total:	**26,020**

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 a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All Special Permanent Seed Mixture 1 Seeds 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 provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

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.

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 1,000 pounds per acre in accordance with the manufacturer’s recommended method of application.

The fertilizer provided will be from the approved products list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

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.

Special Permanent Seed Mixture 1 will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	6
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	4
Little Bluestem	Itasca, Badlands	4
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	4
Oats or Spring Wheat: April through May; Winter Wheat: August through November		12
	Total:	**30**

SOIL STABILIZER

Soil stabilizer will be applied on the areas listed in the table and any other areas deemed necessary by the Engineer. The soil stabilizer limits will be adjusted as necessary by the Engineer during construction.

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 Acre for "Soil Stabilizer".

The Soil Stabilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF SOIL STABILIZER

Station	Location	Quantity (Acre)
290+00 to 296+67 R	Disturbed area	4.7
	Total:	**4.7**

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.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL WATTLE

Station	Location	Quantity (Ft)
290+93 to 292+07 R	Toe of slope/Top of rip rap	275
290+00 to 296+67 R	Inslope (installed on slope contours every 5')	7,770
291+10 to 291+95 R	Backslope (installed on contours every 5')	285
	Additional Quantity:	250
	Total:	**8,580**

LOW FLOW SILT FENCE

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

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

Low flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of Low Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF LOW FLOW SILT FENCE

Station	Location	Quantity (Ft)
294+80 to 296+80 R	Perimeter control (J-Hooks)	1,250
	Additional Quantity:	500
	Total:	**1,750**

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:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

High flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
296+67 R	Inlet end of pipe	18
	Additional Quantity:	150
	Total:	**168**

EROSION CONTROL BLANKET

Erosion control blanket will be installed 16 feet wide at the locations noted in the table and 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:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE TYPE 3 OF EROSION CONTROL BLANKET

Station	Location	Quantity (SqYd)
290+00 to 296+67 R	Inslope	20,995
	Total Type 3 Erosion Control Blanket:	**20,995**

TABLE TYPE 4 OF EROSION CONTROL BLANKET

Station	Location	Quantity (SqYd)
291+10 to 291+95 R	Backslope	400
	Total Type 4 Erosion Control Blanket:	**400**

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.

The Dewatering and Sediment Control products provided will be from the from the approved products list. The approved products list may be viewed on the Dewatering and Sediment Collection Standard Plate, or at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

Separate payment will not be made for any Dewatering and Sediment Collection efforts. All costs involved with necessary Dewatering and Sediment Collection efforts will be incidental to other contract items

CONSTRUCTION ENTRANCE

The Contractor will install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor will install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance will be routinely inspected, and the Contractor will repair or replace material as deemed necessary by the Engineer.

The Construction Entrance provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals will be included in the contract unit price per each for "Construction Entrance".

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor will install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material will be obtained from a granular source and will conform to the following gradation:

Sieve Size	Percent Passing
6"	100%
#4	0-60%
#200	0-20%

The pit run material will be compacted to the satisfaction of the Engineer.

The aggregate for the granular material will conform to the following gradation requirements:

Sieve Size	Percent Passing
3"	100%
2 ½"	90-100%
1 ½"	25-60%
¾"	0-10%
½"	0-5%

The granular material will be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

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** 6.7 Acres
- **5.3 (3b): Total Area to be Disturbed** 4.9 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time**
- **5.3 (3d): Existing Vegetative Cover** 65%
- **5.3 (3d): Description of Vegetative Cover** Native roadside vegetation
- **5.3 (3e): Soil Properties:** Silty Clay Loam, Loam
- **5.3 (3f): Name of Receiving Water Body/Bodies** Clay Creek
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements (**see Section C).

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 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
☐ Natural Buffers (within 50 ft of Waters of State)	
☒ Silt Fence	
☐ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☐ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

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

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐ Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ 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
☐ Vegetation Buffer Strips	
☒ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☐ Mulching (Grass Hay or Straw)	
☐ Fiber Mulching (Wood Fiber Mulch)	
☒ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☒ Fiber Reinforced Matrix	
☒ Erosion Control Blankets	
☒ Surface Roughening (e.g. tracking)	
☐ 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 ½ 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.
- 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.

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.

_____

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**

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.

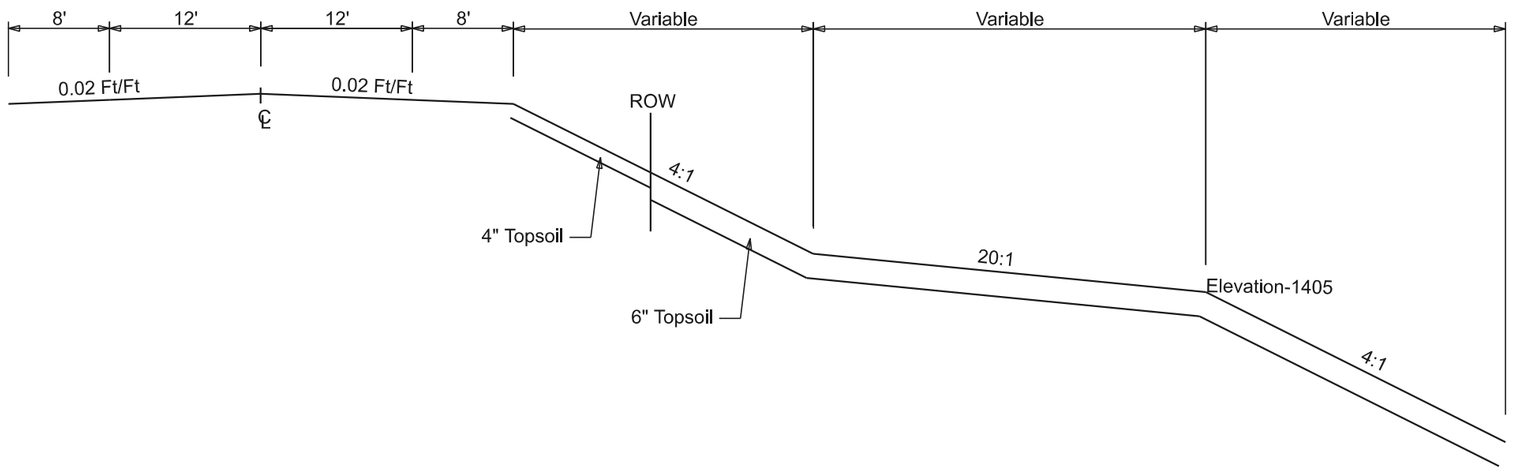
TYPICAL GRADING SECTION

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	17	60

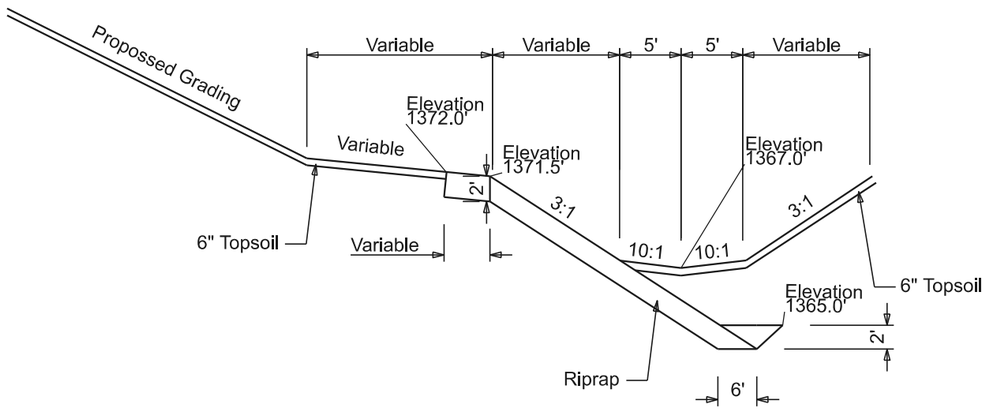
Plotting Date: 1/26/2026

Berm Slope

290+81.50 to 295+02.00

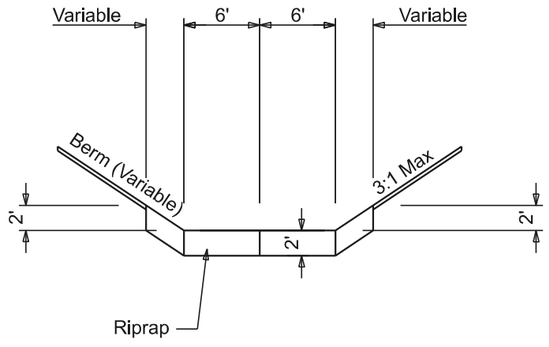


Proposed Clay Creek Cross Section



Channel At Berm Toe

Sta. 292+52-426' R to 294+57-280' R

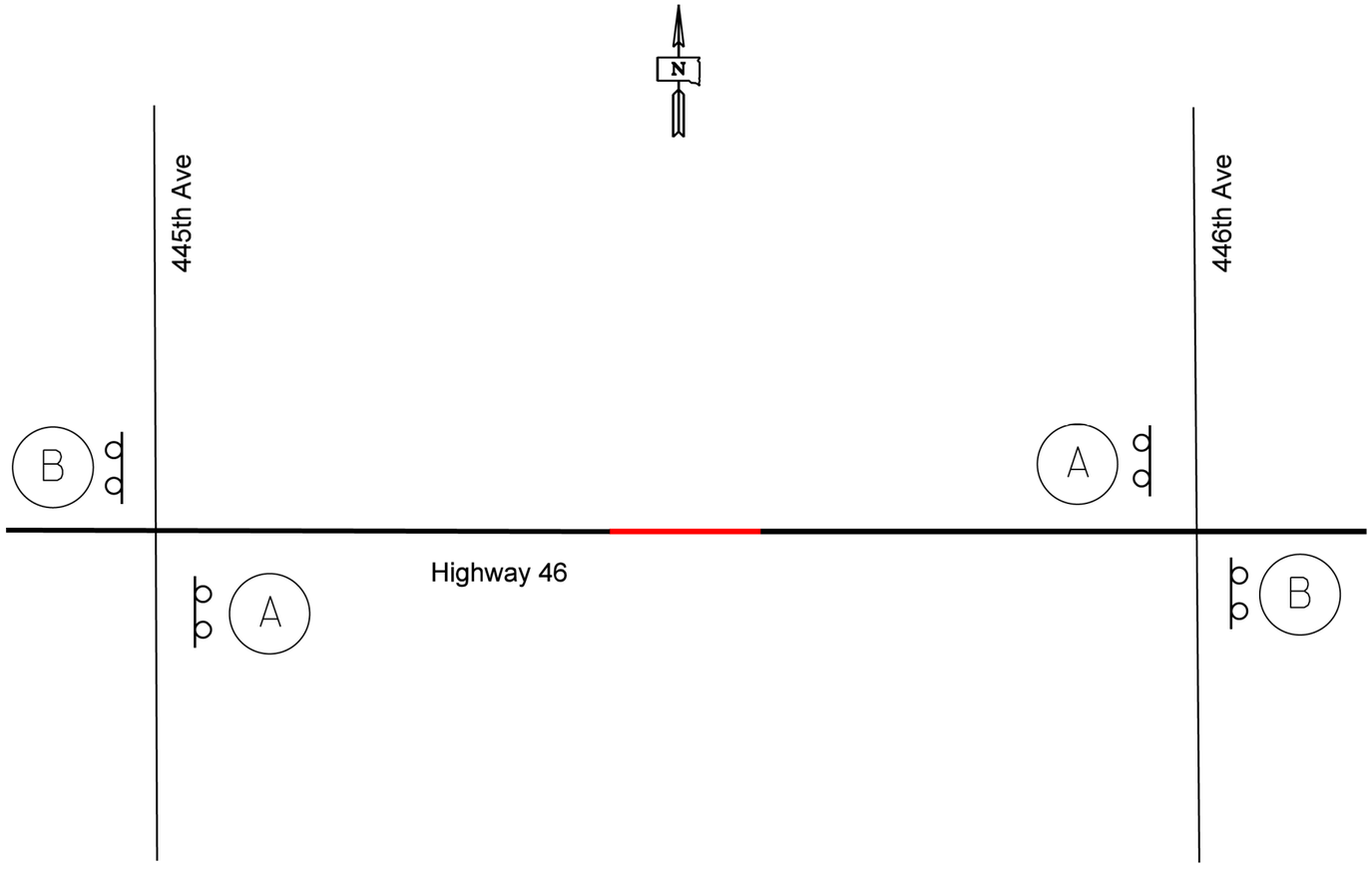


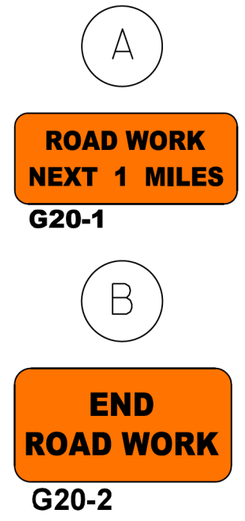
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	18	60

Plotting Date: 1/26/2026

FIXED LOCATION SIGNS
GROUND MOUNTED, BREAKAWAY SUPPORTS

(TYPICAL)





Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (*)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

NOTES:

All fixed location signs will remain in place until pavement marking is complete.

Signs will be placed 50' to 150' from Intersection. Exact location to be approved by the Engineer.

Construction signs will not obscure existing signs and must be located a minimum of 100' from an existing sign.

W20-1 signs are also to be used per the applicable standard plate(s).

Project Location

EROSION AND SEDIMENT CONTROL LEGEND

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	19	60

Plotting Date: 1/26/2026

- Silt Fence J-Hooks
- Low Flow Silt Fence
- High Flow Silt Fence
- High Flow Silt Fence at Pipe
- Sediment Control at Inlet After Placement of Surfacing
- Sediment Control at Inlet Before Placement of Surfacing
- Temporary Sediment Barrier
- Temporary Water Barrier
- Floating Silt Curtain
- Sediment Filter Bags
- Triangular Silt Barriers
- Erosion Control Wattles on Slopes
- Erosion Control Wattles at Inlets
- Erosion Control Wattles in Ditches
- Erosion Bales
- Surfacing Roughening
- Temporary Grass Hay or Straw Mulch/ Soil Stabilizer
- Cut Interceptor Ditch
- Temporary Slope Drain
- Bonded Fiber Matrix/ Fiber Reinforced Matrix
- Rock Check Dam
- 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
- Transition Mat
- Articulated Concrete Matress
- Silt Trap (See Standard Plate 734.04)

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are split into three categories and are to be used throughout construction.

INITIAL PHASE

BMPs from the Legend shown as Orange Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Initial Phase prior to earth disturbing activitles and remain in place for the Intermediate Phase for temporary stabilization and in the Final Phase to achieve final stabilization.

INTERMEDIATE PHASE

BMPs from the Legend shown as Blue Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Intermediate Phase for temporary stabilization and remain in place in the Final Phase to achieve final stabilization.

FINAL PHASE

BMPs from the Legend shown as Green Symbols on the Erosion and Sediment Control Plan Sheets are to be installed in the Final Phase to achieve final stabilization.

If these items are applicable they are to be shown in the updated SWPPP using the Symbols given.

- TS — Topsoil Stockpile
- M — On-Site Construction Material Storage Area
- B — Borrow Area
- SK — Spill Kit
- CE — Stabilized Construction Entrance
- WP — Work Platform
- VB — Vegetated Buffer Strip
- CC — Cover Crop Seeding
- CW — Concrete Washout
- PT — Portable Toilet
- AP — Asphalt Plant Site
- CP — Concrete Plant Site
- V — Vehicle and Equipment Parking Area, Fueling Area, or Maintenance Area
- D — Dumpster or other Trash and Debris Containers

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	20	60

Plotting Date: 1/26/2026

Install Low Flow Silt Fence at the following locations:
294+80 to 296+80 R Perimeter control (J-Hooks) 1,250 Ft

Install High Flow Silt Fence at the following locations:
296+67 R Inlet end of pipe 18 Ft

Install 12" Diameter Erosion Control Wattles
at the following locations:
290+93 to 292+07 R Toe of slope/Top of rip rap 275 Ft

Apply Soil Stabilizer during active construction before
topsoil placement, permanent seeding, and mulching can
be completed on disturbed areas at the following locations:
290+00 to 296+67 R Disturbed area 4.7 Acres

Utilize Surface Roughening at the following locations:
290+00 to 296+67 R Disturbed area 4.7 Acres

Install Type 3 Erosion Control Blanket
at the following locations:
290+00 to 296+67 R Inslope 20,995 SqYd

Install Type 4 Erosion Control Blanket
at the following locations:
291+10 to 291+95 R Backslope 400 SqYd

Install 12" Diameter Erosion Control Wattles
at the following locations:
290+00 to 296+67 R Inslope (installed on slope contours every 5') 7,770 Ft
291+10 to 291+95 R Backslope (installed on slope contours every 5') 285 Ft

BEGIN P 0046(92)339
Station 290+50.00

END P 0046(92)339
Station 296+67.00

285+00
290+00
295+00
300+00

Clay Creek

Berm top

Plotted From - trsf12141 File - ...\yank0A9N\dgn\0A9N_Erosion.dgn

OPTIONS FOR DEWATERING AND SEDIMENT COLLECTING

OPTIONS ARE NOT LIMITED TO WHAT IS SHOWN ON THIS SHEET

NO MATTER THE SYSTEM OR METHOD USED, THE CONTRACTOR MUST MEET THE TERMS OF THE TEMPORARY DISCHARGE PERMIT AND THE STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES.

Various systems, devices, and products are shown on this sheet to give the Contractor ideas of what may be used for water treatment. Other systems, devices, and products are available and can be used with approval from the Engineer.

The Contractor may elect to block a portion of storm sewer near the outfall with sand bags and pump the water out to be treated with a flocculent or allow the water to set in a lined dumpster until sediment to falls out of suspension before discharging the water. Drop inlet protection devices could also be used as part of a treatment train. The Contractor may pump dirty water into a hydroseeder and mix it with a flocculent, and spray the mixture back onto a sediment pond.

PURPOSE

The purpose of a dewatering and sediment collection system is to collect turbid storm water on the project, treat it with flocculents as needed, and capture the sediment that falls out of suspension before the water is discharged into “Waters of the US” or “Waters of the State”. Refer to the Environmental Commitments for the specific requirements for each body of water on this project.

The Contractor will need to create a Pollution Prevention Plan (PPP) for dewatering and sediment collection if the Contractor choses to discharge the water into "Waters of the US" or "Waters of the State" instead of disposing of the water off-site, using it for irrigation, or using it for hydroseeding. The Contractor will also need to obtain a Temporary Discharge Permit from the South Dakota Department of Agriculture & Natural Resources (DANR) on all projects outside of Indian Reservation boundaries.

Suggestions for dewatering and sediment collection may be shown on the plan sheets. It is the Contractor's responsibility to dewater and collect sediment. The Contractor will have to intercept and treat the stormwater before storm sewer outfalls into "Waters of the US" or "Waters of the State". The Contractor may need more than one dewatering and sediment collection system to capture and treat stormwater at multiple outfalls and/or locations simultaneously during each phase of the project.

PAYMENT

No additional payment will be made for Dewatering and Sediment Collecting. Dewatering and Sediment Collecting will be incidental to other items on the project.

DEWATERING BAGS AND SOCKS capture sediment and should be placed on pavement, vegetated areas, or gravel.

Dandy Dewatering Bag
Dandy Products, Inc.
Powell, OH
Phone: 1.800.591.2284
www.dandyproducts.com

Non-woven Sediment Filter Bags
Indian Valley Industries, Inc.
Johnson City, NY
Phone: 1.800.659.5111
www.iviindustries.com

Taurus Dewatering Bags/Socks
SolHuTec Group, Inc.
Sebastian, FL
Phone: 1.888.703.9889
www.solhutec.com

Ultra-Dewatering Bag
UltraTech International, Inc
Jacksonville, FL
Phone: 1.800.764.9563
www.spillcontainment.com

Heavy Duty Dirtbag 55
ACF Environmental
Richmond, VA
Phone: 1.800.223.9021
www.acfenvironmental.com

Pump-It Tube
Flo-Water, LLC
West Des Moines, IA
Phone: 1.515.577.6763
www.flo-water.net

FLOCCULENTS listed below are considered to be safe for the environment, if used as directed:

APS 700 Series Floc Logs
Applied Polymer Systems, Inc.
Woodstock, GA
Phone: 1.866.200.9868
http://www.siltstop.com

Floc, Floc Soc, Floc Bag
Innovative Turf Solutions Products
Cincinnati, OH
Phone: 1.513.317.8311
http://www.innovativeturfsolutions.com

Biostar CH
Hild & Associates, Inc.
Stillwater, MN
Phone: 1.715.426.5131
www.biostar-ch.com

Terra-Tubes
ACF Environmental
Buffalo Grove, IL
Phone: 1.800.366.1180
www.terratubes.com

FI-3500 Tablets
JRM Chemical, Inc.
Cleveland, OH
Phone: 1.216.475.8488
http://www.soilmoist.com

Tigerfloc
Floc Systems Inc.
Surrey, British Columbia
Phone: 1.604.343.2046
www.flocsystems.com

PORTABLE FLOCCULENT SYSTEMS

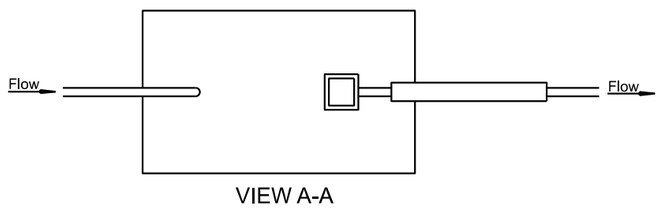
Eco Pond Rescue Water Wagon
Eco Pond Rescue LLC
Seminole, Florida
Phone: 1.727.412.4323
www.ecopondrescue.com

WTS2000 Portable Sediment Tank
Aqualete Industries, LLC
Ocean, New Jersey
Phone: 1.732.695.6336
http://aqualeteindustries.com

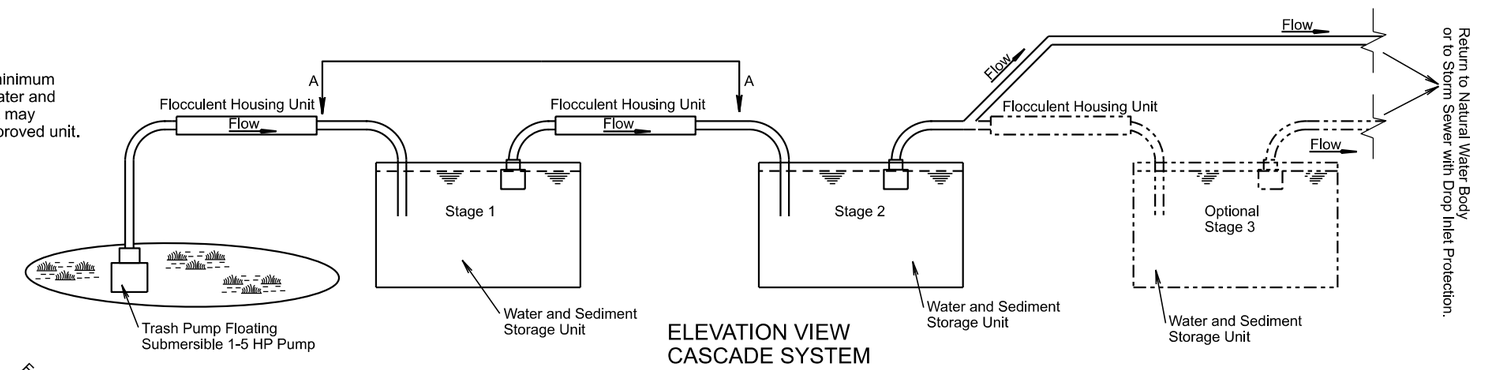
Dry Flocculent Mixing System
Innovative Equipment Solutions
Hot Springs, Arkansas
Phone: 1.501.525.8484
http://www.neptunewash.com

THE CASCADE SYSTEM

The cascade system is shown below and to the right for conceptual purposes only; however, the cascade system will at a minimum incorporate the use of 2 flocculent housing units and 2 water and sediment storage units. Design and construction of the water and sediment storage units are project site specific and will be the Contractor's responsibility. A water and sediment storage unit may consist of a storage bin lined with plastic, the bed of a dump truck lined with plastic, a sediment basin, or other Engineer approved unit. The treatment flocculent bag may be from the list or an approved equal.



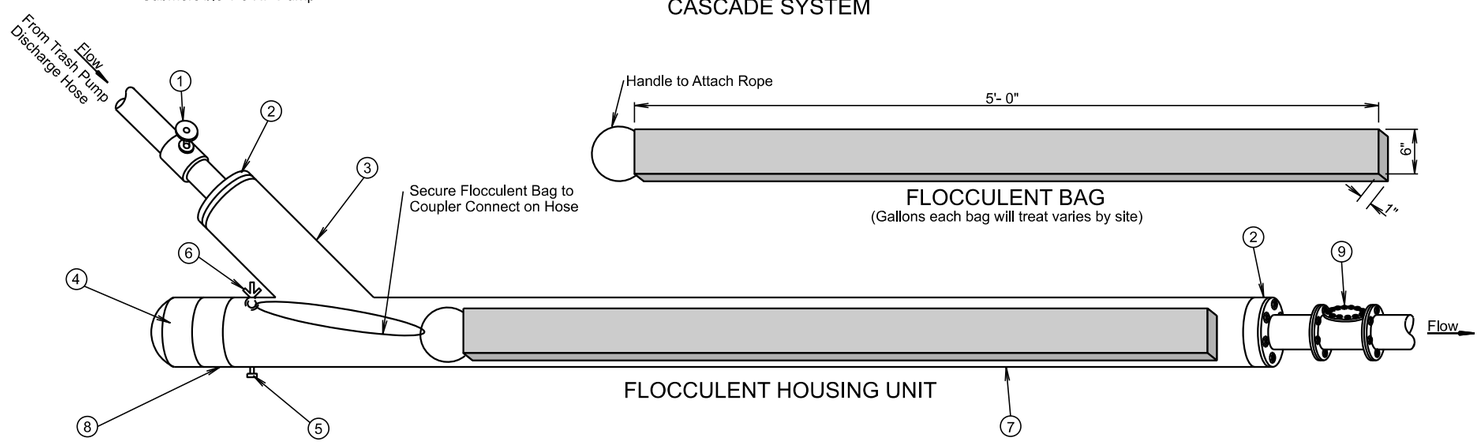
VIEW A-A



ELEVATION VIEW
CASCADE SYSTEM

FLOCCULENT HOUSING UNIT (estimated quantities for information only)			
NO.	DESCRIPTION	QUANTITY	UNIT
1	4" or 6" Dia. Sch. 40 Gate Valve	1	Each
2	4" X 6" or 6" X 8" Sch. 40 PVC Bushing	2	Each
3	6" or 8" Dia. Sch. 40 PVC "Y"	1	Each
4	6" or 8" Dia. Sch. 40 PVC Female Threaded Cap	1	Each
5	1" Dia. Sch. 80 PVC Drain Valve	1	Each
6	1/2" Eye Bolt with Wing Nut and Rubber Gromets	1	Each
7	6" or 8" Dia. Sch. 40 PVC Pipe	10	Ft.
8	6" or 8" Dia. Sch. 40 PVC Male Adapter	1	Each
9	4" or 6" Dia. Sch. 40 PVC Swing Check Valve	1	Each

FLOW RATE ESTIMATE	
Pump Type	Flow Rate (gpm)
2"	50-250
3" Gas	250-350
4" Diesel	500-750
6" Diesel	750-1000



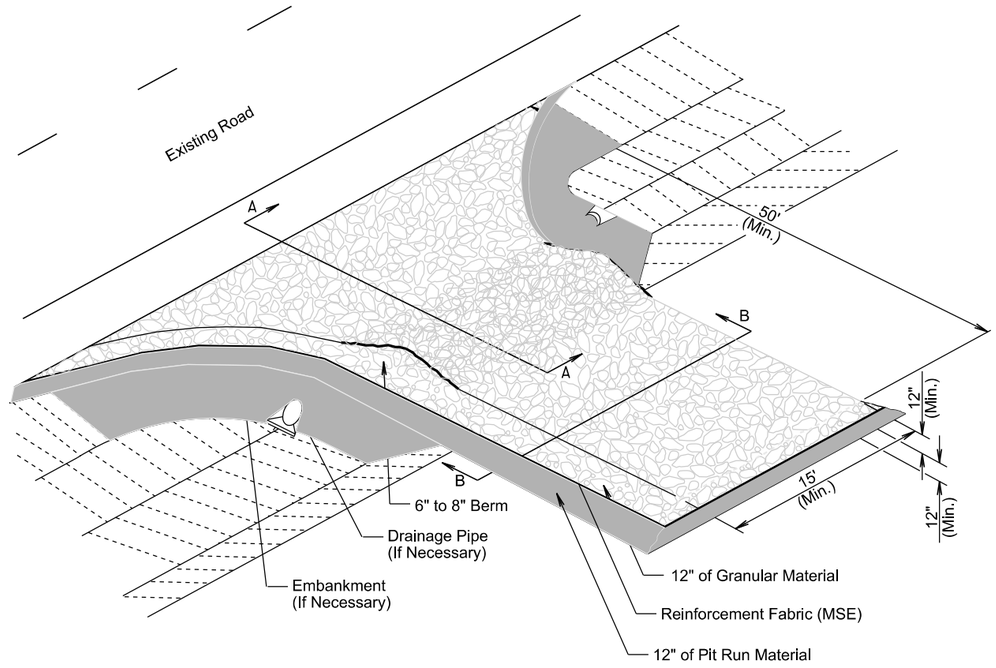
FLOCCULENT HOUSING UNIT

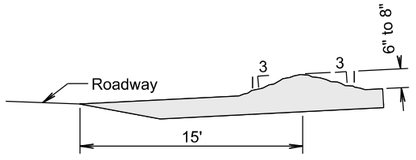
FLOCCULENT BAG
(Gallons each bag will treat varies by site)

SDDOT CONSTRUCTION ENTRANCE

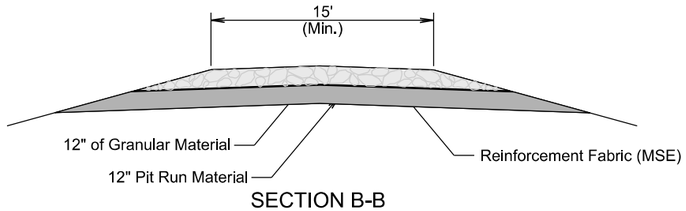
PROJECT	SHEET	TOTAL SHEETS
P 0046(92)339	22	60

Plotting Date: 1/26/2026





SECTION A-A



SECTION B-B

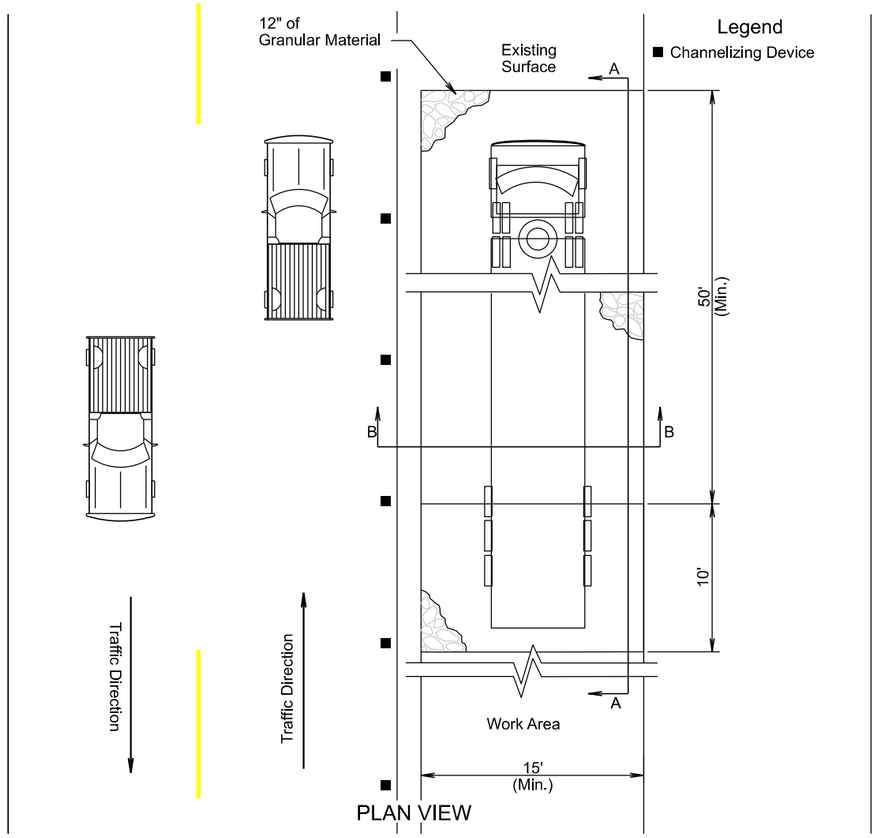
GENERAL NOTES:

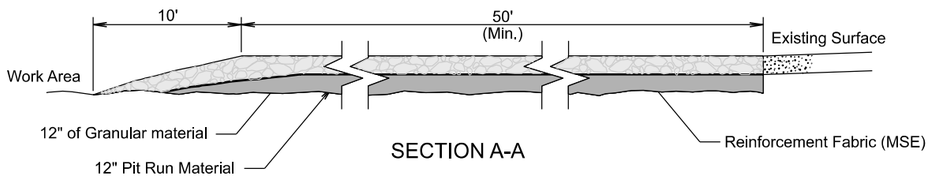
If the grade of the entrance slopes down to the roadway, a berm of extra rock will be used to prevent sediment or mud from being deposited on the roadway. See SECTION A-A.

If a drainage pipe is necessary the size and type will be determined by the Contractor to meet field conditions. All cost will be incidental to the various contract items.

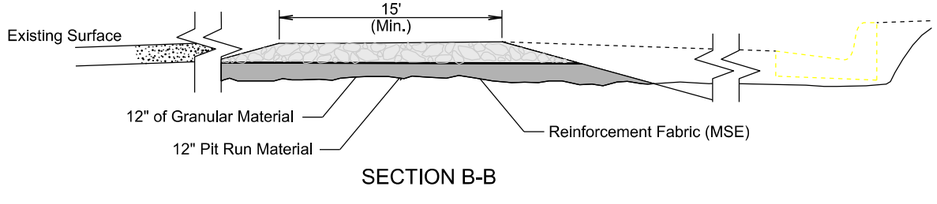
If embankment is necessary it will be pit run material.

TRANSVERSE TO ROADWAY





SECTION A-A



SECTION B-B

PARALLEL TO ROADWAY

HORIZONTAL ALIGNMENT DATA

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	23	60

Plotting Date: 1/26/2026

Mainline

Type	Station			Northing	Easting
POB	27412.553			287907.818	2778660.351
		TL= 39.156	N86.763°E		
PI	27451.709			287910.028	2778699.444
		TL= 1446.569	N86.200°E		
PI	28898.278			288005.910	2780142.832
		TL= 204.836	N86.064°E		
PI	29103.114			288019.972	2780347.185
		TL= 643.201	N85.956°E		
PC	29746.315			288065.334	2780988.784
PI	30360.407	R = 26398.046	Delta = 2.665 R	288113.192	2781601.009
PCC	30974.279			288132.530	2782214.797
PI	32036.328	R = 402539.611	Delta = 0.302 R	288171.306	2783276.139
PCC	33098.373			288204.482	2784337.670
PI	33279.162	R = 19931.730	Delta = 1.039 R	288211.272	2784518.332
PT	33459.942			288214.784	2784699.088
		TL= 480.287	N88.694°E		
PI	33940.229			288225.727	2785179.250
		TL= 244.011	N89.053°E		
POE	34184.239			288229.758	2785423.227

Creek

Type	Station			Northing	Easting
POB	0.000			287526.424	2780376.843
		TL= 44.991	N0.734°E		
PC	44.991			287571.411	2780377.419
PI	251.432	R = 47.870	Delta = 153.889 R	287777.833	2780380.176
PT	173.565			287591.264	2780468.548
		TL= 30.006	S25.324°E		
POE	203.571			287564.141	2780481.383

Toe Alignment

Type	Station			Northing	Easting
POB	0.000			287605.750	2780525.487
		TL= 103.607	N69.248°E		
PI	103.607			287642.461	2780622.372
		TL= 4.784	N53.737°E		
PI	108.391			287645.290	2780626.229
		TL= 148.166	N38.226°E		
PI	256.557			287761.686	2780717.909
		TL= 3.868	N31.840°E		
POE	260.425			287764.972	2780719.950

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 18; CSF = 0.999888182; U.S. Survey Feet

CONTROL DATA

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	24	60

Plotting Date: 1/26/2026

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP06	278+29	92' L	Rebar & Cap Stamped "SDDOT CONTROL POINT" - 85' North on 445 Ave in field entrance by corner post	288026.876	2779070.205	1395.068
CP07	331+54	309' L	Rebar & Cap Stamped "SDDOT CONTROL POINT" - 300' North on 446 Ave in Northwest corner of the Seed Building parking lot	288515.708	2784382.246	1483.748

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00
Geoid 18; SF = 0.999888182
The elevations shown on this sheet are based on NAVD 88.

LEGEND

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	25	60

Plotting Date: 1/26/2026

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Control Point
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Sixty-Fourth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Salvage Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

291+00.00- 150' R to
292+50.00-150' R
Install 2'x5' upper underdrain
with 4" slotted PE Tubing -153'

290+50-315' R
Dispose of Dead Tree Pile
(Incidental Work, Grading)

292+50.00- 150' R to
294+50.05-190' R
Install 2'x5' upper underdrain
with 4" slotted PE Tubing -204'

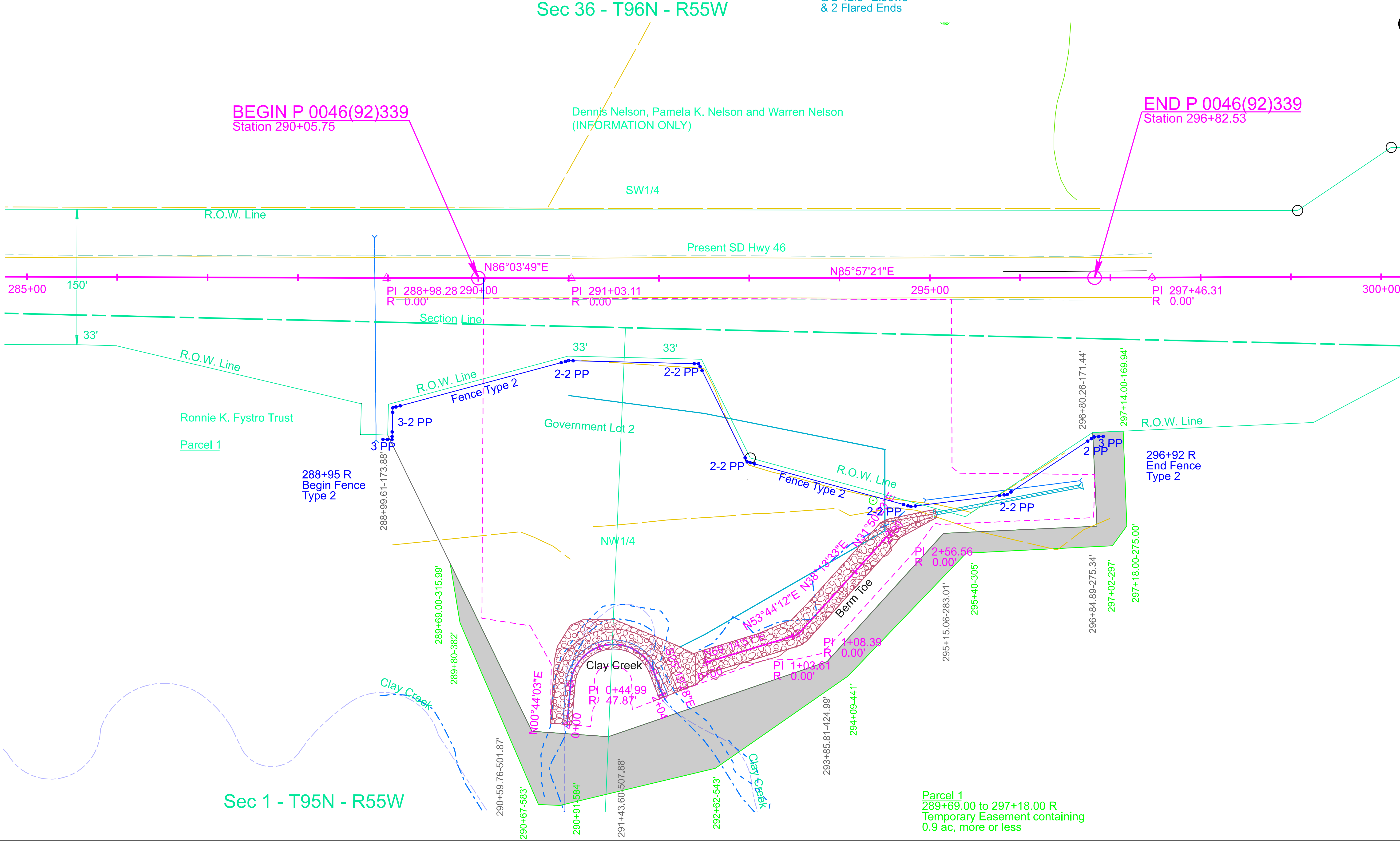
294+50.05-190' R to
294+50.03- 280' R
Install 2'x5' Lateral underdrain
with 4" slotted PE tubing -90'

294+50.03-280' R to
292+50.03-395' R
Install 2'x5' Lower underdrain
with 4" slotted PE tubing- 231'

294+50.03-395' R to
292+22.86-408.6' R
Install 30'-4" Dual Wall HDPE Pipe
with underdrain headwall (680.01)

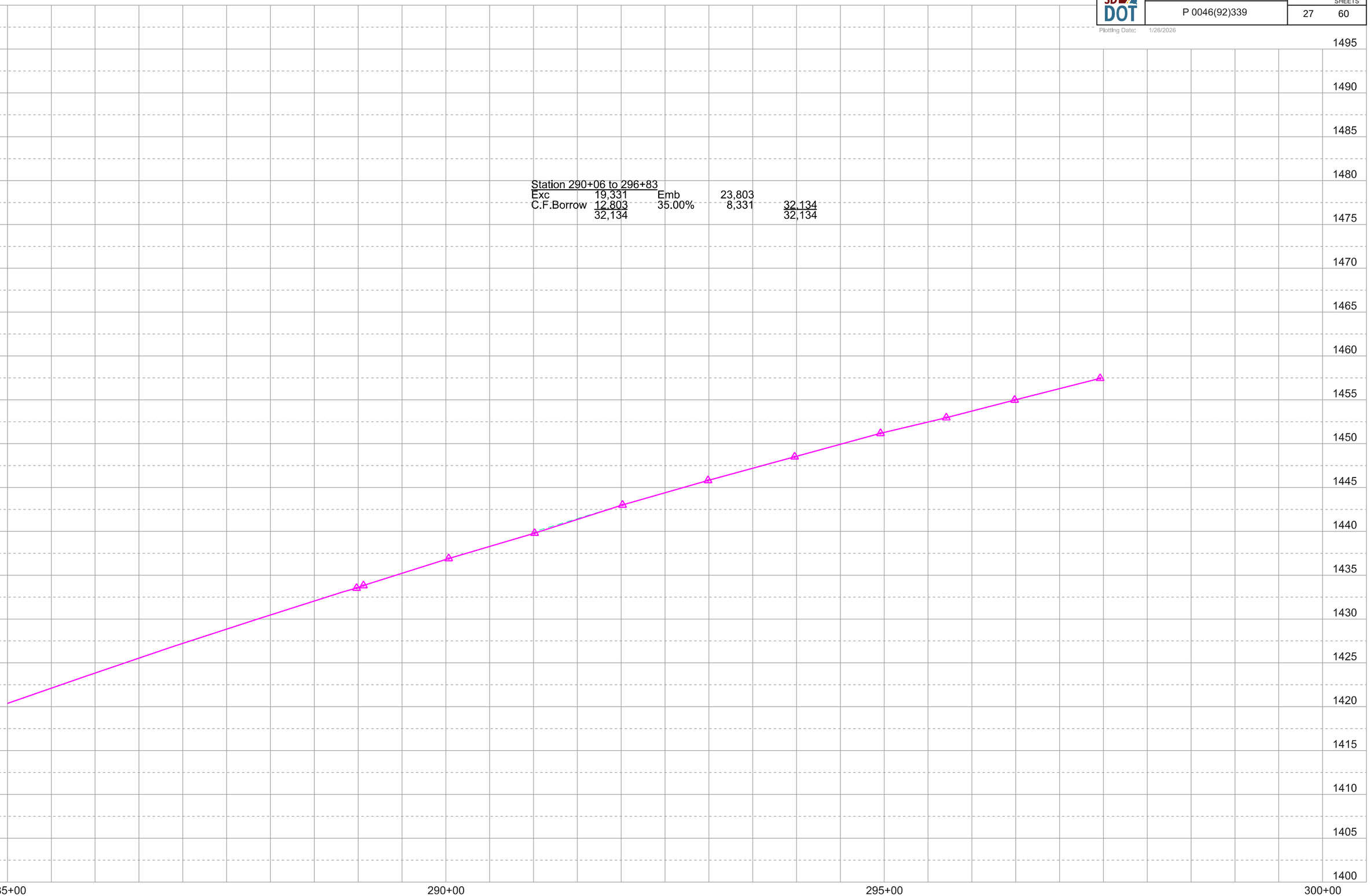
294+95.6-246.19' R to
296+65.88-224.93' R
Remove 36"-172' CMP Downspout
(Incidental Work, Grading)

295+08.46-260.74' R to
296+64.89-231.32' R
Install 36"- 162' CMP Downspout (14 Ga)
& 2-12.5° Elbows
& 2 Flared Ends


Sec 36 - T96N - R55W
BEGIN P 0046(92)339
Station 290+05.75
Dennis Nelson, Pamela K. Nelson and Warren Nelson
(INFORMATION ONLY)
END P 0046(92)339
Station 296+82.53
SW1/4
R.O.W. Line
Present SD Hwy 46
N86°03'49"E
N85°57'21"E
285+00
150'
PI 288+98.28 290+00
R 0.00'
PI 291+03.11
R 0.00'
295+00
PI 297+46.31
R 0.00'
300+00
Section Line
33'
R.O.W. Line
33'
33'
R.O.W. Line
Fence Type 2
2-2 PP
2-2 PP
3-2 PP
3 PP
Ronnie K. Fystro Trust
Parcel 1
Government Lot 2
288+95 R
Begin Fence
Type 2
288+99.61-173.88'
2-2 PP
R.O.W. Line
Fence Type 2
2-2 PP
2-2 PP
R.O.W. Line
2 PP
3 PP
296+92 R
End Fence
Type 2
296+80.26-171.44'
297+14.00-169.94'
NW1/4
PI 2+56.56
R 0.00'
295+40-305'
295+15.06-283.01'
296+84.89-275.34'
297+02-297'
297+18.00-275.00'
N53°44'12"E
N38°13'23"E
N31°50'
Berm Toe
PI 1+08.39
R 0.00'
PI 1+03.61
R 0.00'
Clay Creek
PI 0+44.99
R 47.87'
N00°44'03"E
289+69.00-315.99'
289+80-382'
Clay Creek
290+59.76-501.87'
290+67-583'
290+91-584'
291+43.60-507.88'
292+62-543'
293+85.81-424.99'
294+09-441'
Clay Creek
Sec 1 - T95N - R55W
Parcel 1
289+69.00 to 297+18.00 R
Temporary Easement containing
0.9 ac, more or less

Station 290+06 to 296+83

Exc	19,331	Emb		23,803	
C.F.Borrow	12,803	35.00%		8,331	32,134
	32,134				32,134



FINAL CONTOURS

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	28	60

Plotting Date: 1/26/2026

Sec 36 - T96N - R55W

BEGIN P 0046(92)339
Station 290+05.75

Dennis Nelson, Pamela K. Nelson and Warren Nelson
(INFORMATION ONLY)

END P 0046(92)339
Station 296+82.53

SW1/4

R.O.W. Line

Present SD Hwy 46

285+00

150'

290+00

295+00

300+00

Section Line

33'

33'

33'

R.O.W. Line

R.O.W. Line

Ronnie K. Fystro Trust

Parcel 1

Government Lot 2

4:1

20:1

R.O.W. Line

R.O.W. Line

NW1/4

4:1

Berm Toe

Clay Creek

0+00

Clay Creek

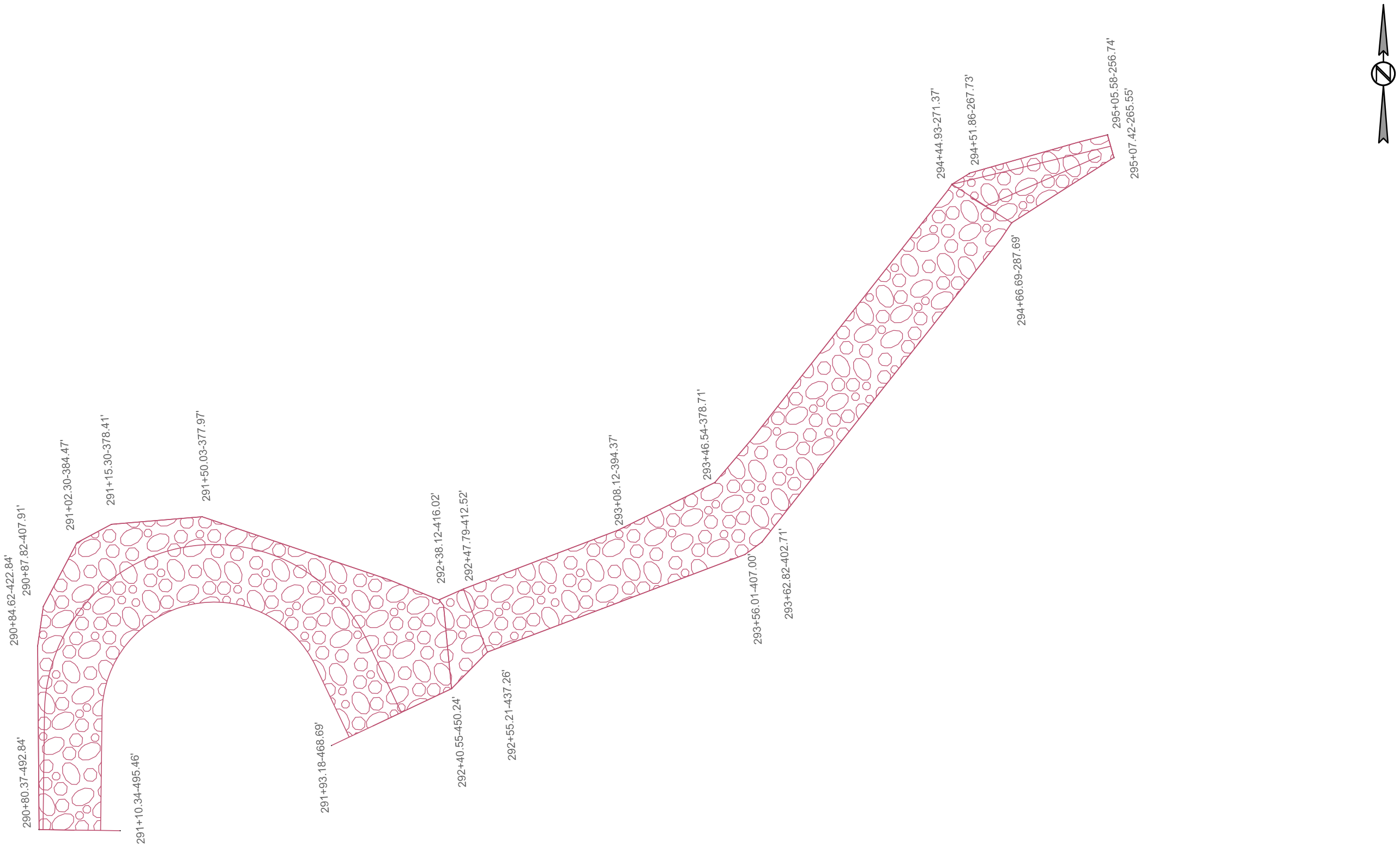
Clay Creek

Sec 1 - T95N - R55W

RIPRAP LAYOUT

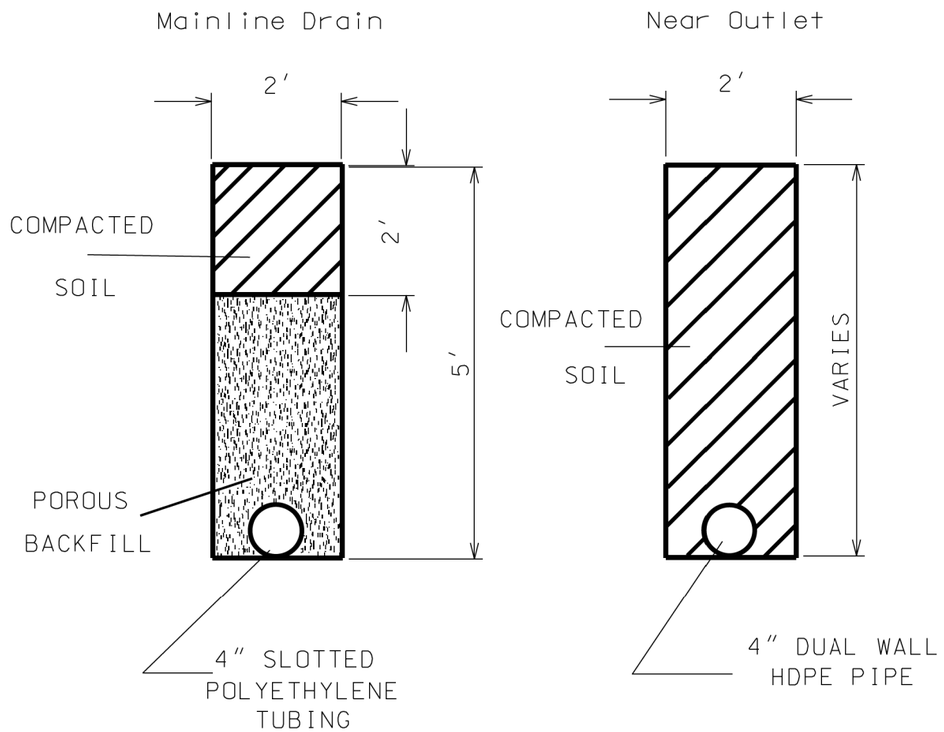
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	29	60

Plotting Date: 1/26/2026

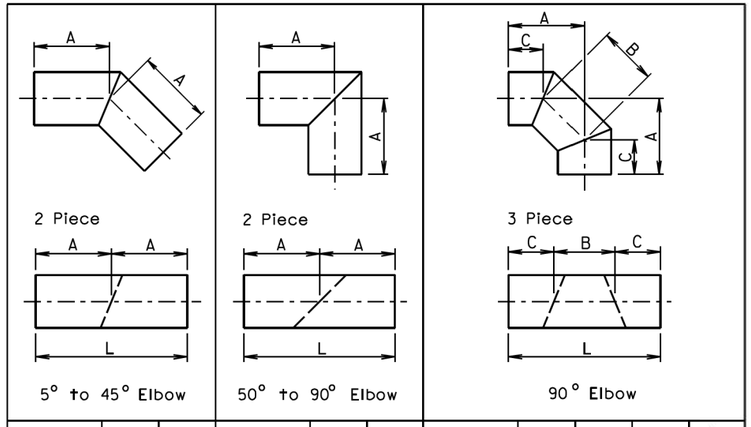


TYPICAL UNDERDRAIN INSTALLATION

YANK 0A9N - LANDSLIDE REPAIR



UNDERDRAINS WILL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 680 OF THE SPECIFICATIONS



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

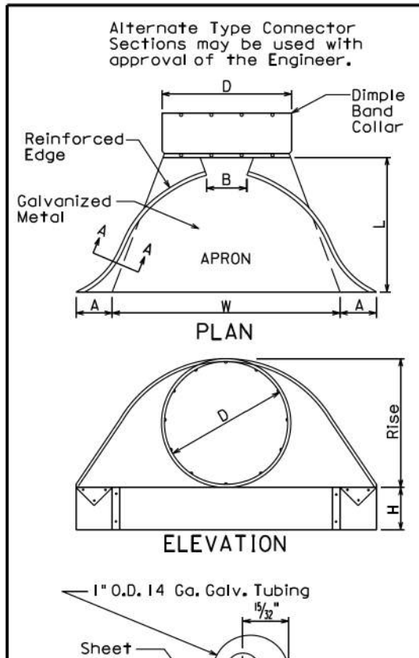
GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

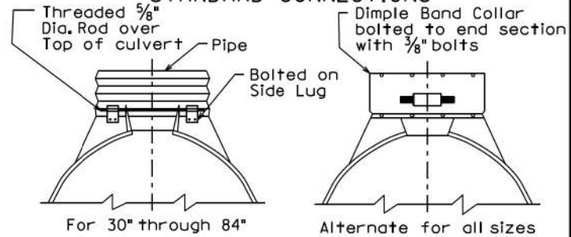
June 26, 2001

Published Date: 2026	SDDOT	**C.M.P. FABRICATED LENGTHS FOR ELBOWS**	PLATE NUMBER 450.32 Sheet 1 of 1

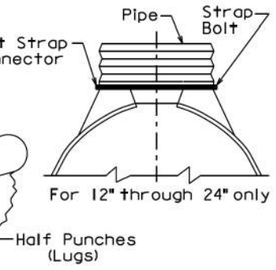


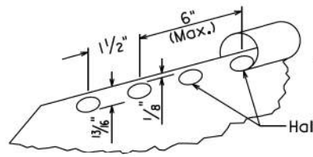
Dia. D (in.)	Ga.	DIMENSIONS (in.) A	B	H	L	W	Approx. Slope	Body
12	16	6	6	6	21	24	2½:1	1 Pc.
15	16	7	8	6	26	30	2½:1	1 Pc.
18	16	8	10	6	31	36	2½:1	1 Pc.
21	16	9	12	6	36	42	2½:1	1 Pc.
24	16	10	13	6	41	48	2½:1	1 Pc.
30	14	12	16	8	46	60	2½:1	1 Pc.
36	14	14	19	9	51	72	2½:1	2 Pc.
42	12	16	22	11	60	84	2½:1	2 Pc.
48	12	18	27	12	69	90	2¼:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1¾:1	3 Pc.
66	12	18	36	12	87	120	1½:1	3 Pc.
72	12	18	39	12	87	126	1⅓:1	3 Pc.
78	12	18	42	12	87	132	1¼:1	3 Pc.
84	12	18	45	12	87	138	1⅙:1	3 Pc.

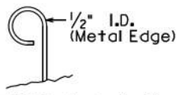
STANDARD CONNECTIONS



NOTE:
Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.







GENERAL NOTES:

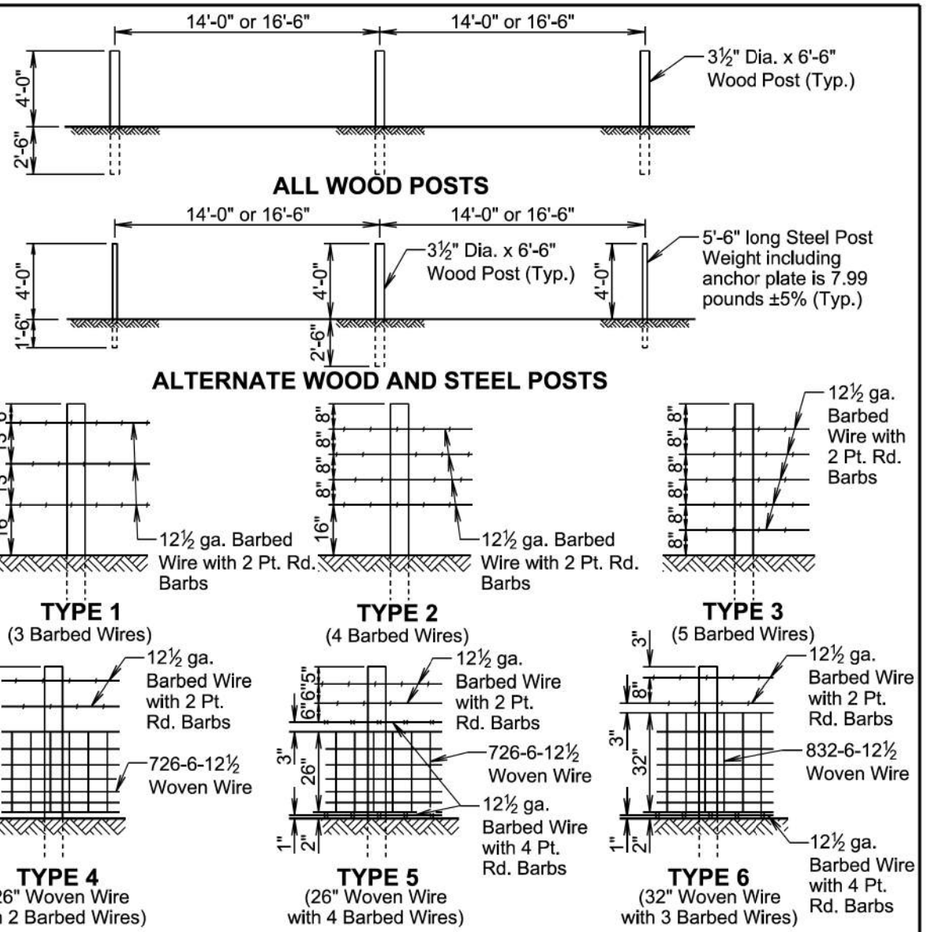
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by ⅜" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x ¼" for 60" through 72" diameters and 2½" x 2½" x¼" for 78" and 84" diameters. The angles shall be attached by ⅜" diameter galvanized nuts and bolts.

Rivets and Bolts shall be ⅜" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

Published Date: 2026	SDDOT	**C.M.P. FLARED ENDS**	PLATE NUMBER 450.35 Sheet 1 of 1



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All radius of curvature stated for fence are at centerline of roadway.

April 8, 2025

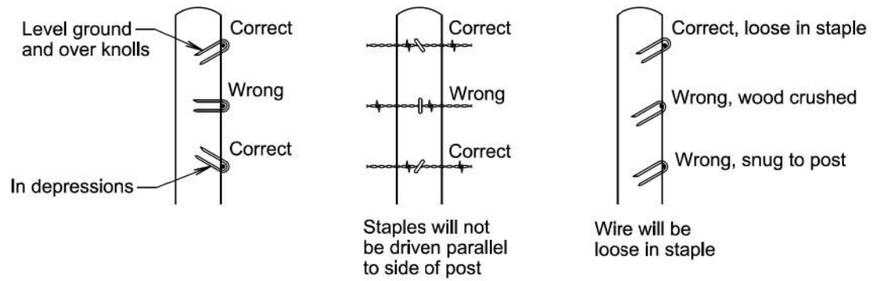
Published Date: 2026

SDDOT

RIGHT-OF-WAY FENCE

PLATE NUMBER 620.01

Sheet 1 of 1



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

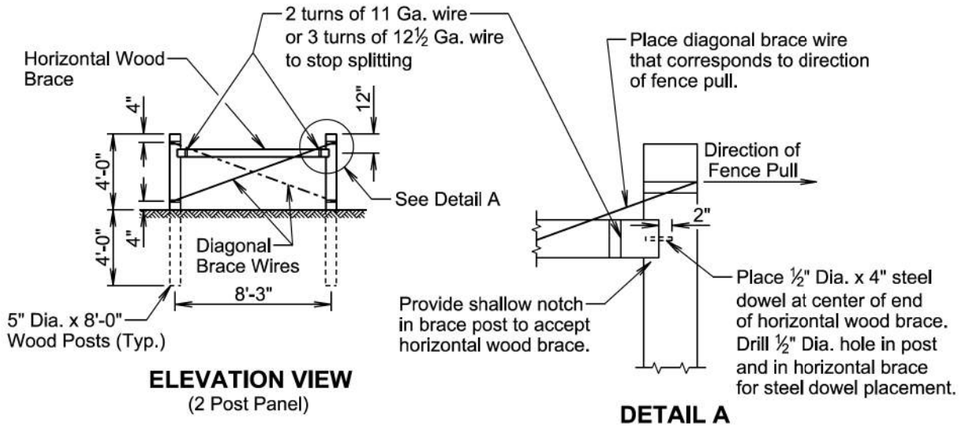
Published Date: 2026

SDDOT

STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES

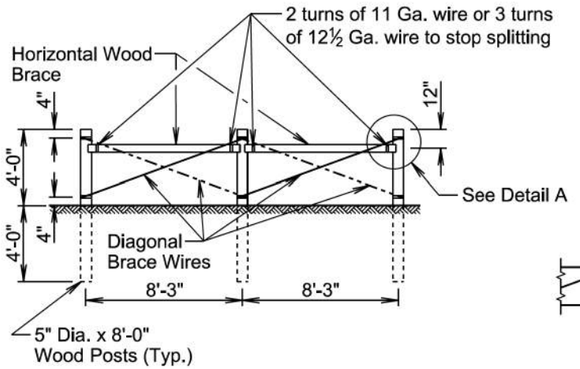
PLATE NUMBER 620.02

Sheet 1 of 1

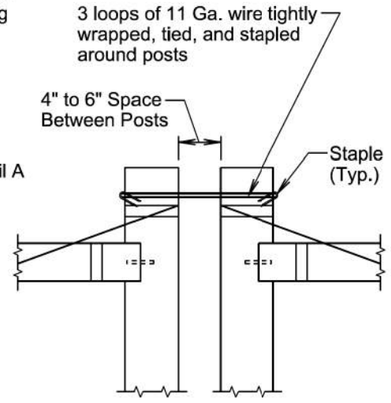


ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

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.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

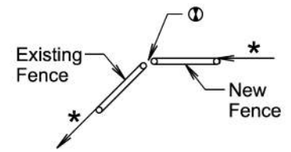
① See Detail B on Sheet 1 of 3.

GENERAL NOTE:

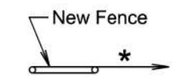
All radius of curvature stated for fence are at centerline of roadway.

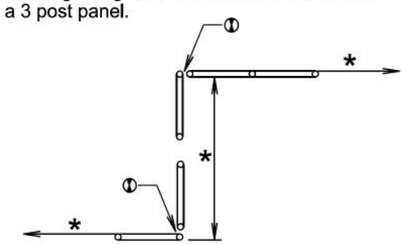
If fence length is less than 600' to next corner use a 2 post panel.

* If fence length is greater than 600' to next corner use a 3 post panel.

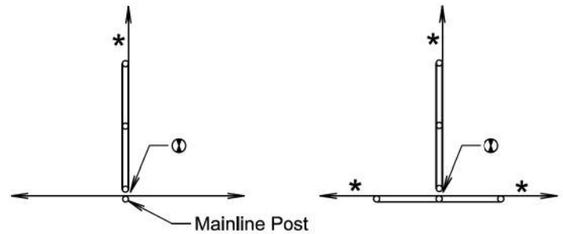


BEGIN OR END FENCE
(Where new fence ties into existing fence)

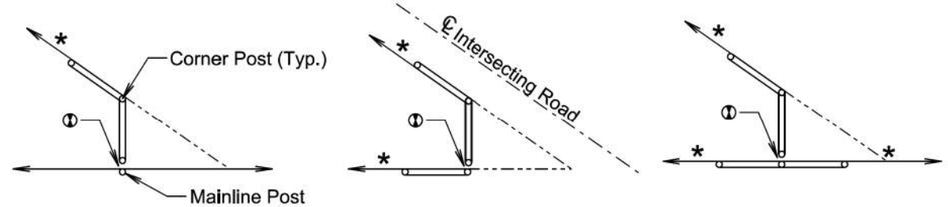




SHORT JOGS IN FENCE



CROSS FENCE



SHARP ANGLES IN CROSS FENCE

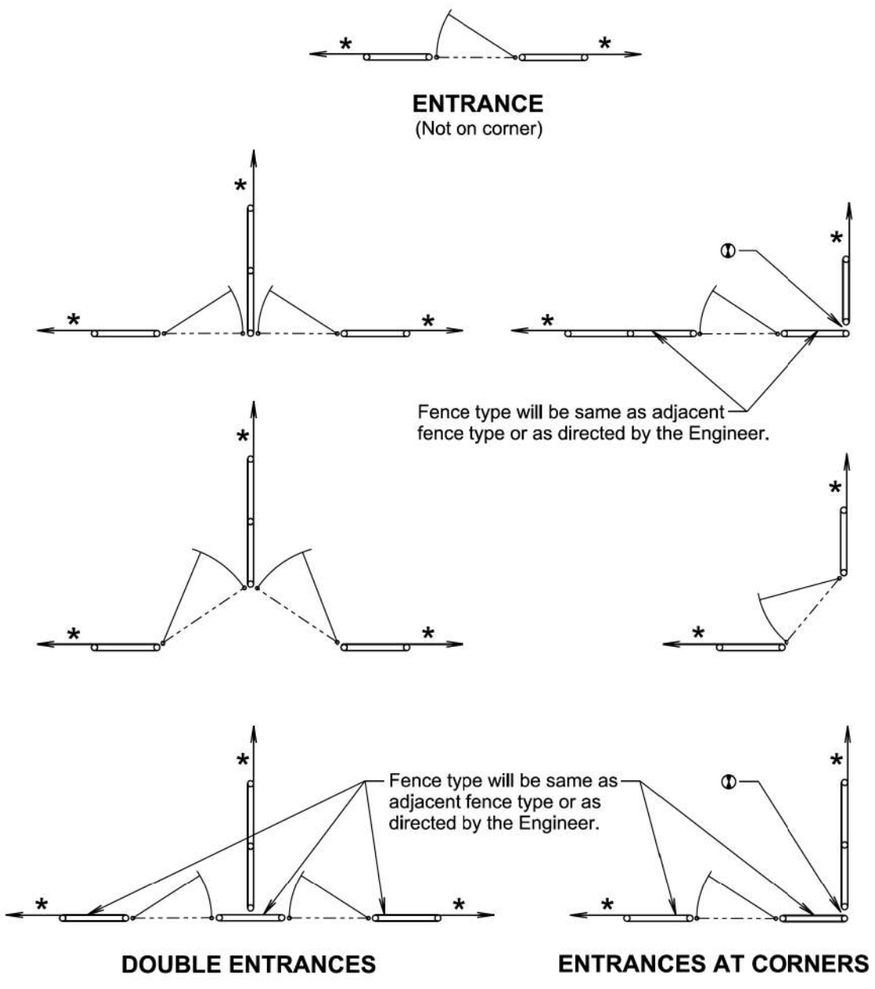
Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



* 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.

March 31, 2024

Published Date: 2026

SDDOT

BRACE PANELS AND APPLICATIONS OF BRACE PANELS

PLATE NUMBER 620.03

Sheet 3 of 3

The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

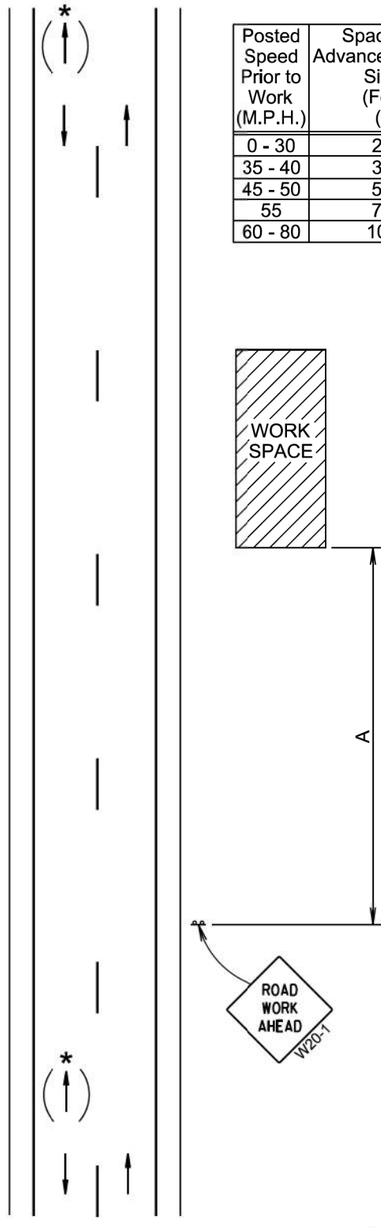
The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



January 22, 2021

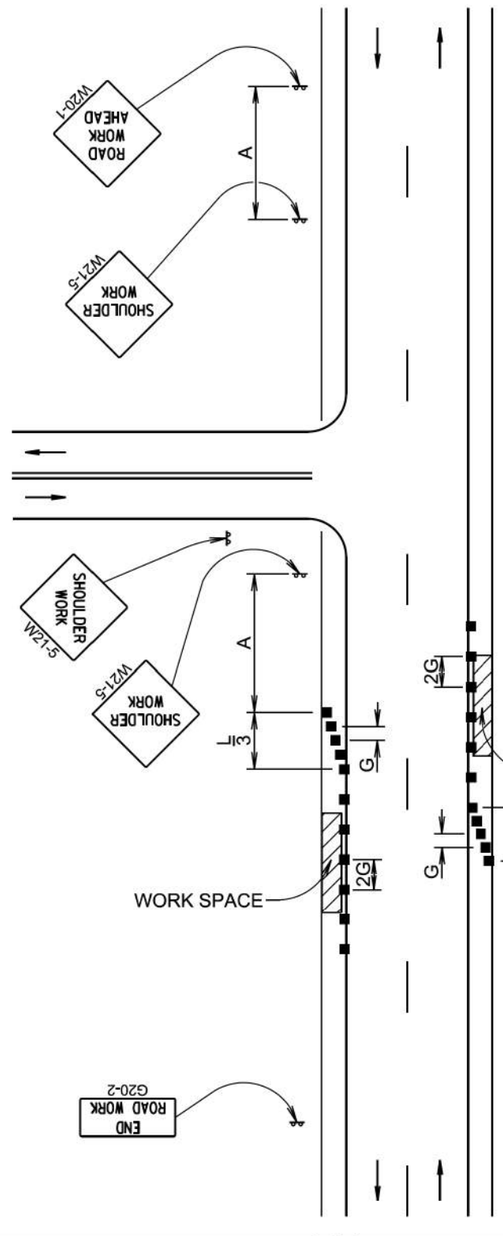
Published Date: 2026

SDDOT

WORK BEYOND THE SHOULDER

PLATE NUMBER 634.01

Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

END ROAD WORK
G20-2

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 2026	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03 Sheet 1 of 1

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.

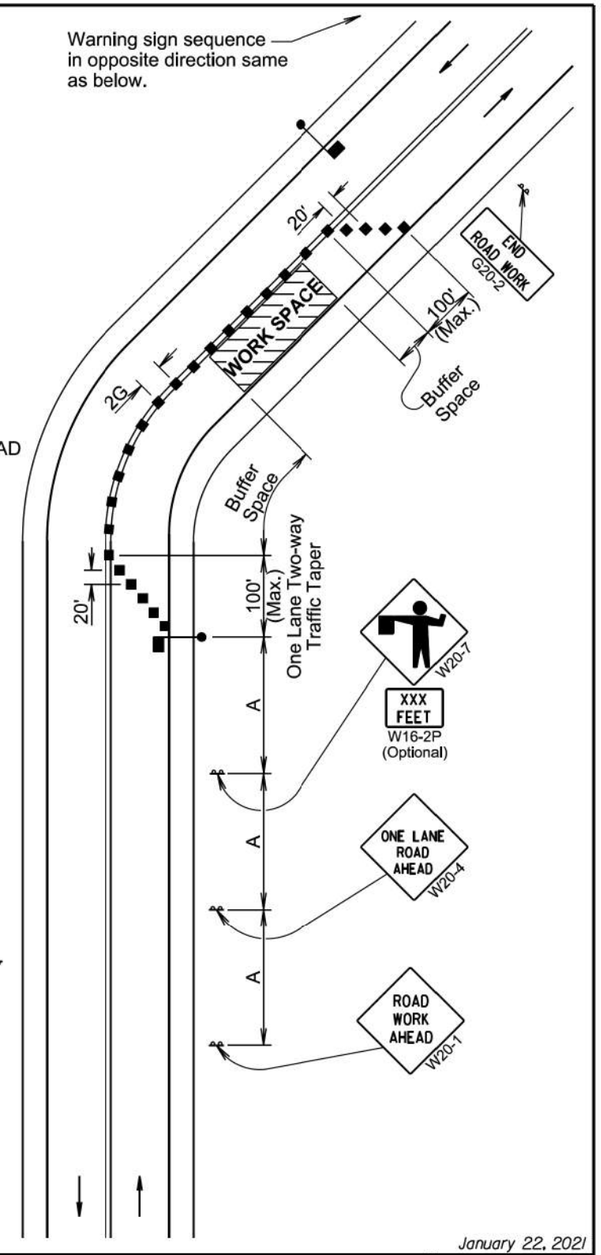
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

END ROAD WORK
G20-2

Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

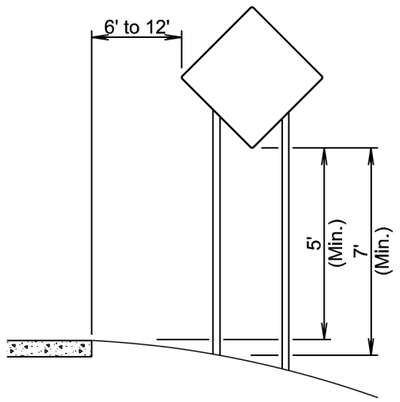
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

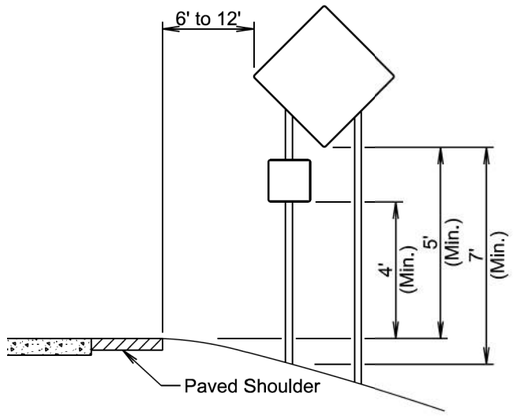


January 22, 2021

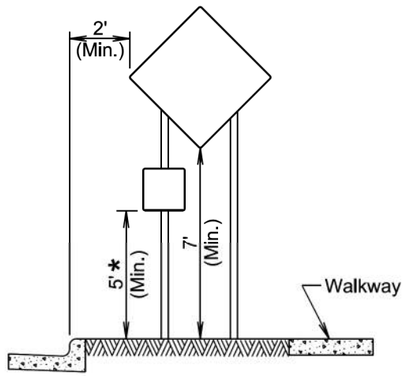
Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23 Sheet 1 of 1



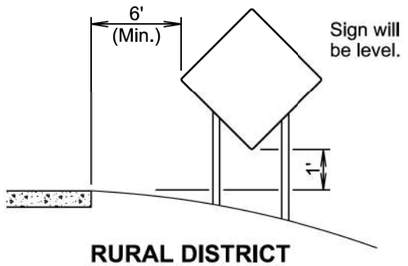
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

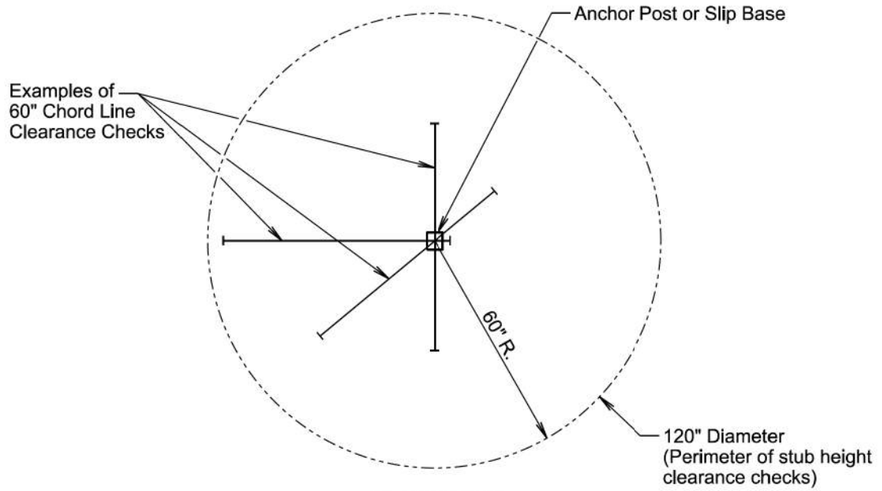


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

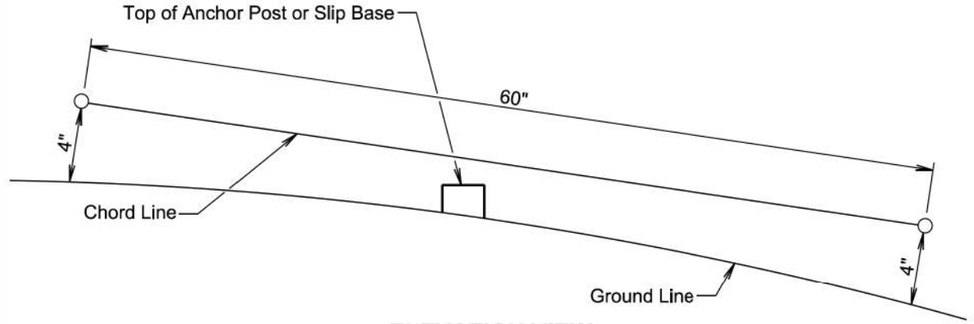
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85 Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

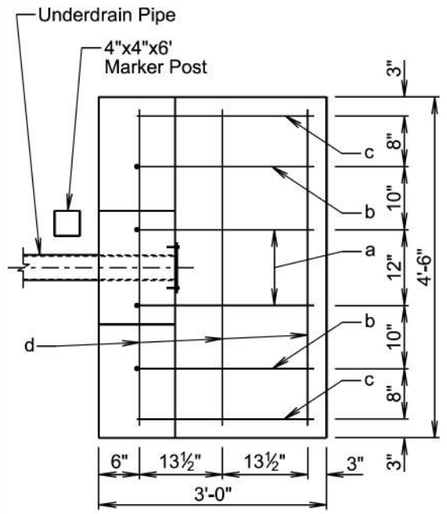
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

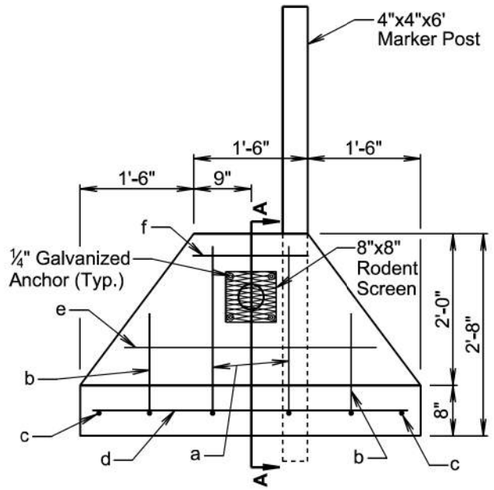
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99 Sheet 1 of 1



PLAN VIEW



ELEVATION VIEW

GENERAL NOTES:

The concrete will be Class M6. The concrete will conform to the requirements of Section 462 of the Specifications except the minimum curing time will be 72 hours. It is estimated that 0.55 cubic yards of concrete is required for each unit.

Four cast-in-place or drilled-in ¼" galvanized anchors will be placed in the headwall. Each galvanized anchor will be placed approximately 1" from the outside corner of the rodent screen. It is preferred that the anchor location be centered at an opening in the rodent screen.

All reinforcing steel will conform to ASTM A615, Grade 60. It is estimated that 25.7 pounds of reinforcing steel is required for each unit.

The underdrain pipe will be placed in the concrete headwall with the pipe end flush with the concrete surface adjacent to the rodent screen.

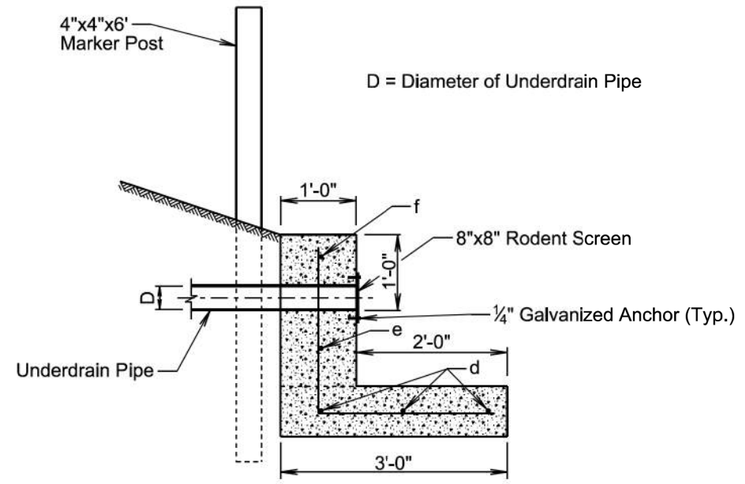
The 8"x8" rodent screen will be galvanized 13 Ga. steel with a diamond shaped flattened mesh pattern. The size will be ½". The size refers to the measurement across the smallest diamond shaped opening measured from the centers of the wires. The rodent screen will be centered about the hole in the headwall and fastened to the headwall with the appropriate bolts or nuts with washers.

A 4"x4"x6' marker post will be placed at the approximate location as depicted in the above drawings for each concrete headwall. The marker post will project 3'± above the ground line. The marker post will be cedar or treated with a wood preservative and will be painted with two coats of white paint.

All costs for furnishing and installing the concrete headwall including equipment, labor, and materials including concrete, reinforcing steel, rodent screen, anchors, and marker post will be incidental to the contract unit price per each for "Concrete Headwall for Underdrain".

December 23, 2019

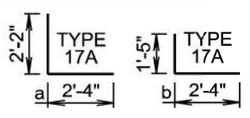
Published Date: 2026	SDDOT	CONCRETE HEADWALL FOR UNDERDRAIN	PLATE NUMBER 680.01
			Sheet 1 of 2



SECTION A-A

REINFORCING SCHEDULE

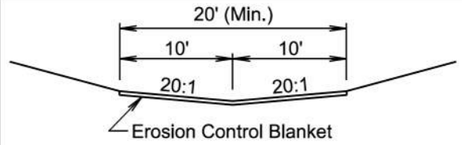
MK.	No.	Size	Length	Type	Bending Details
a	2	4	4'-6"	17A	
b	2	4	3'-9"	17A	
c	2	4	2'-4"	Str.	
d	3	4	4'-2"	Str.	
e	1	4	3'-4"	Str.	
f	1	4	1'-6"	Str.	



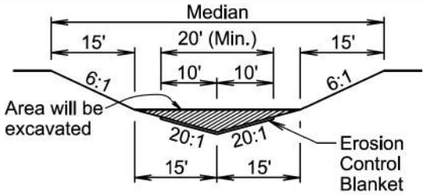
NOTE:
All dimensions are out to out of bars.

December 23, 2019

Published Date: 2026	SDDOT	CONCRETE HEADWALL FOR UNDERDRAIN	PLATE NUMBER 680.01
			Sheet 2 of 2

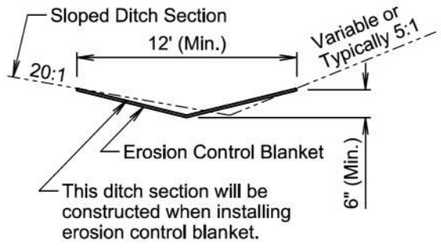


STANDARD DITCH SECTION

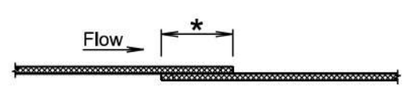


The median will be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



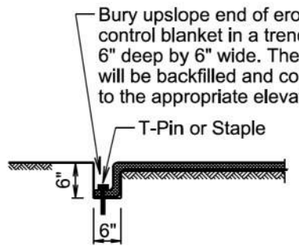
SLOPED DITCH SECTION



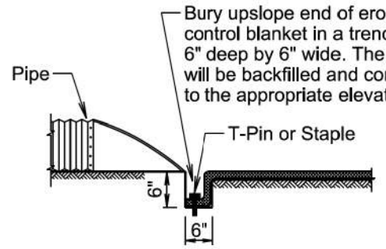
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

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.

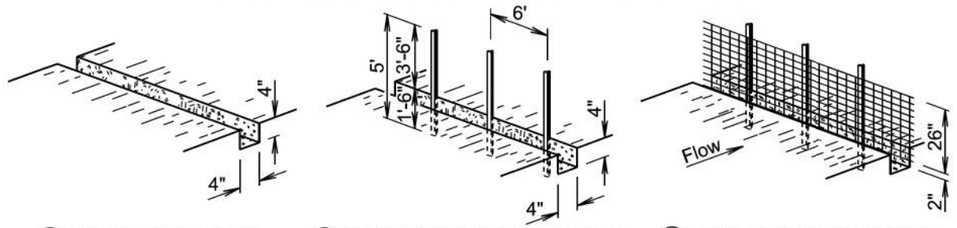
After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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".

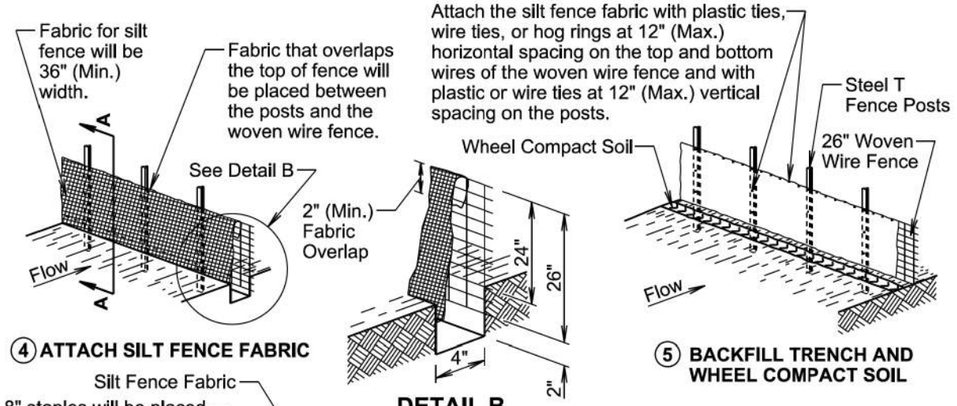
February 14, 2020

Published Date: 2026	SDDOT	*EROSION CONTROL BLANKET*	*PLATE NUMBER 734.01* *Sheet 1 of 1*

MANUAL LOW FLOW SILT FENCE INSTALLATION

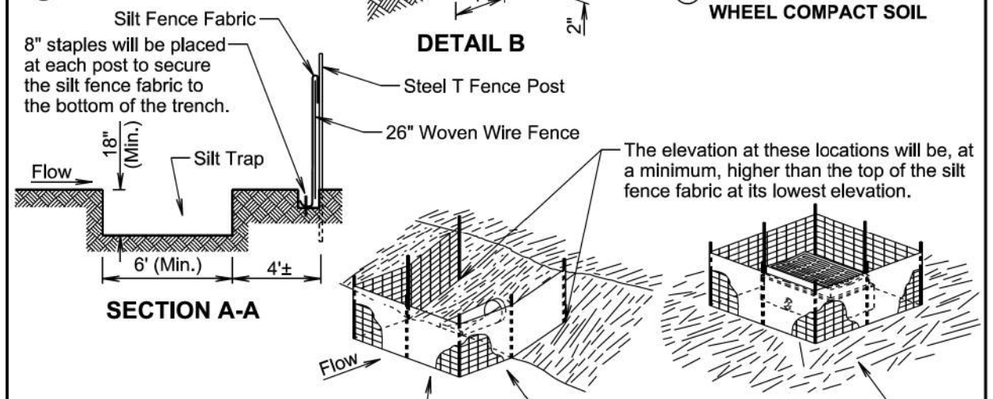


① EXCAVATE TRENCH ② DRIVE STEEL T FENCE POSTS ③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



④ ATTACH SILT FENCE FABRIC ⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL

DETAIL B

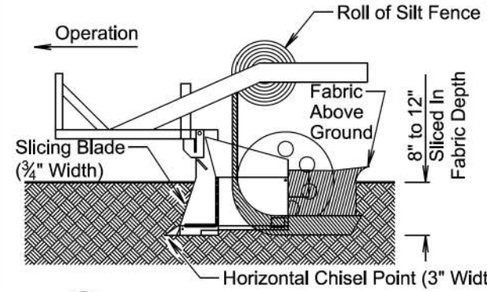


SECTION A-A

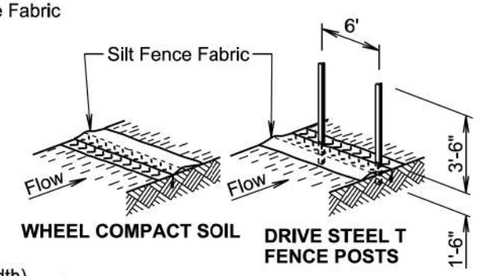
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

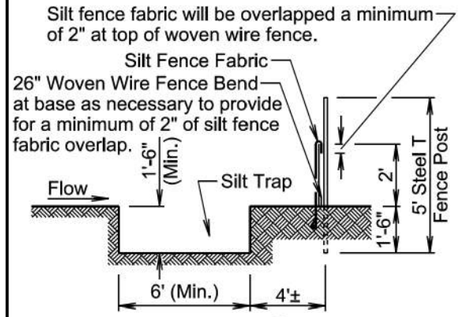


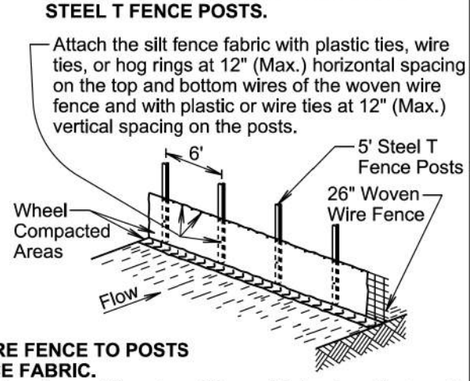
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



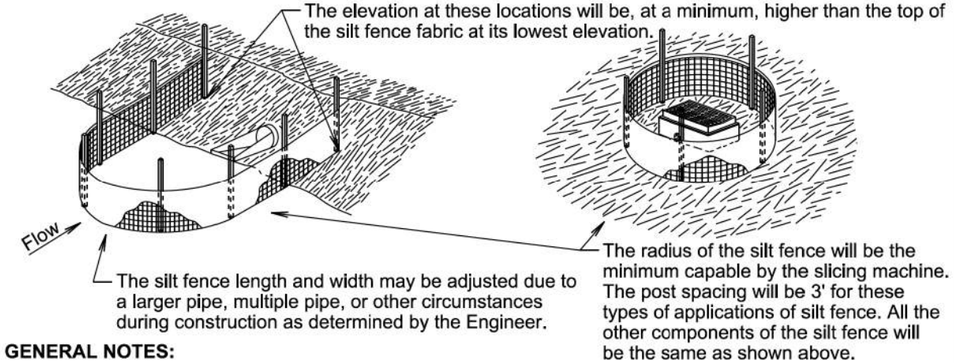
WHEEL COMPACT SOIL DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





③ ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



GENERAL NOTES:

A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

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.

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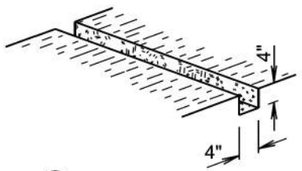
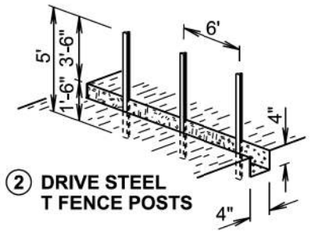
Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

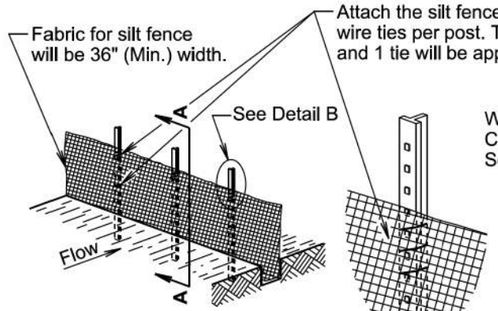
MANUAL HIGH FLOW SILT FENCE INSTALLATION



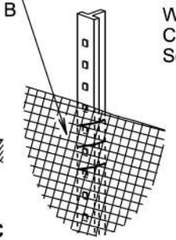
① EXCAVATE TRENCH



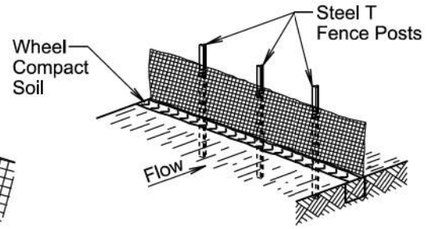
② DRIVE STEEL T FENCE POSTS



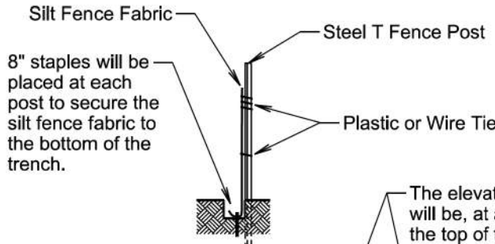
③ ATTACH SILT FENCE FABRIC



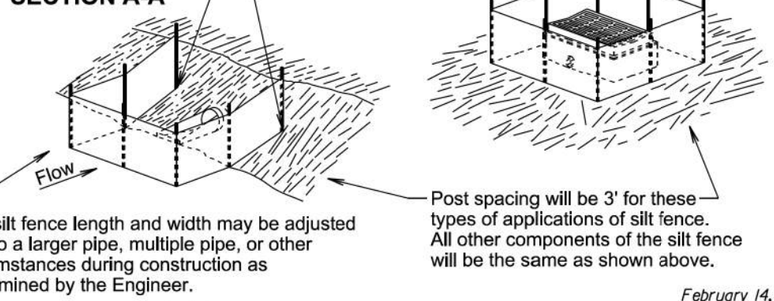
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



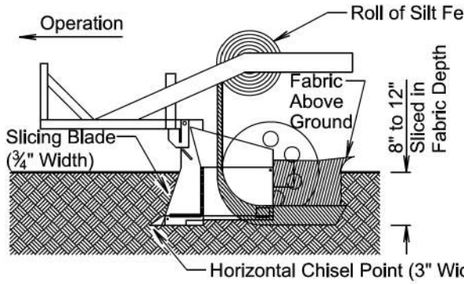
SECTION A-A



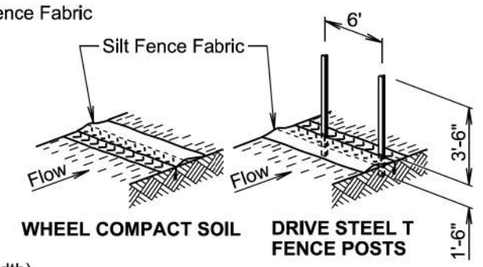
February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



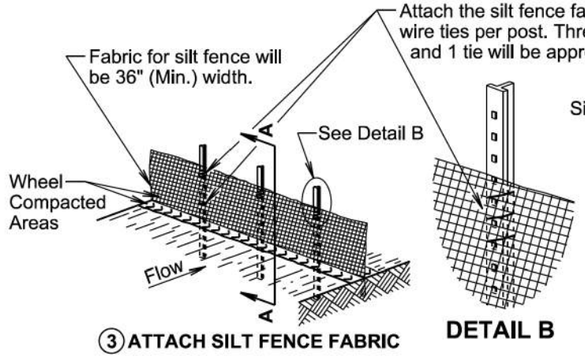
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



WHEEL COMPACT SOIL

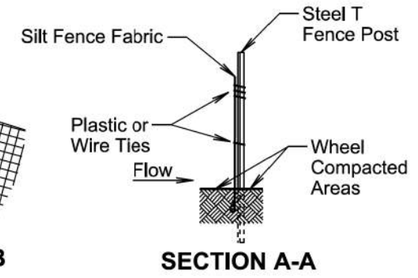
DRIVE STEEL T FENCE POSTS

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

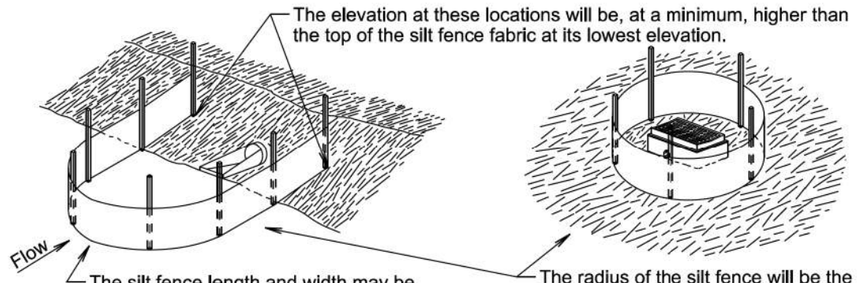


③ ATTACH SILT FENCE FABRIC

DETAIL B



SECTION A-A



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.

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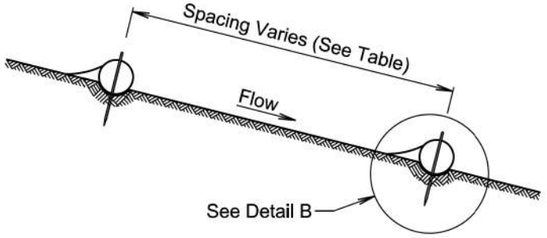
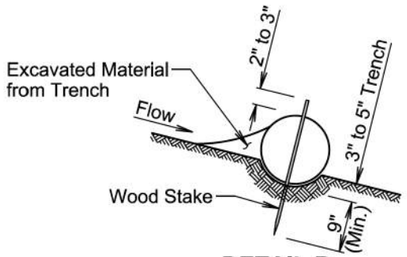
Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

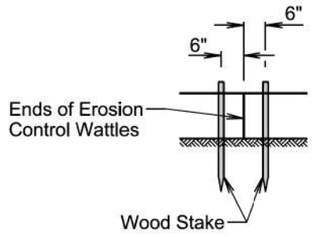


ELEVATION VIEW
(Cut or Fill Slope Installation)

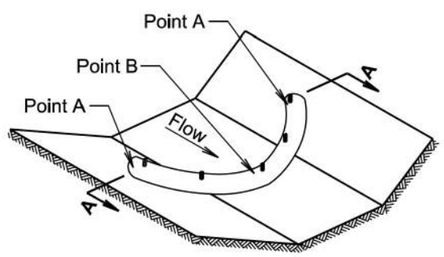
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



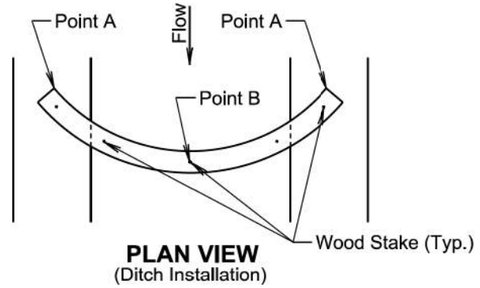
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

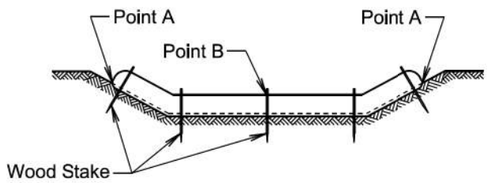


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

February 14, 2020

Published Date: 2026	SDDOT	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".

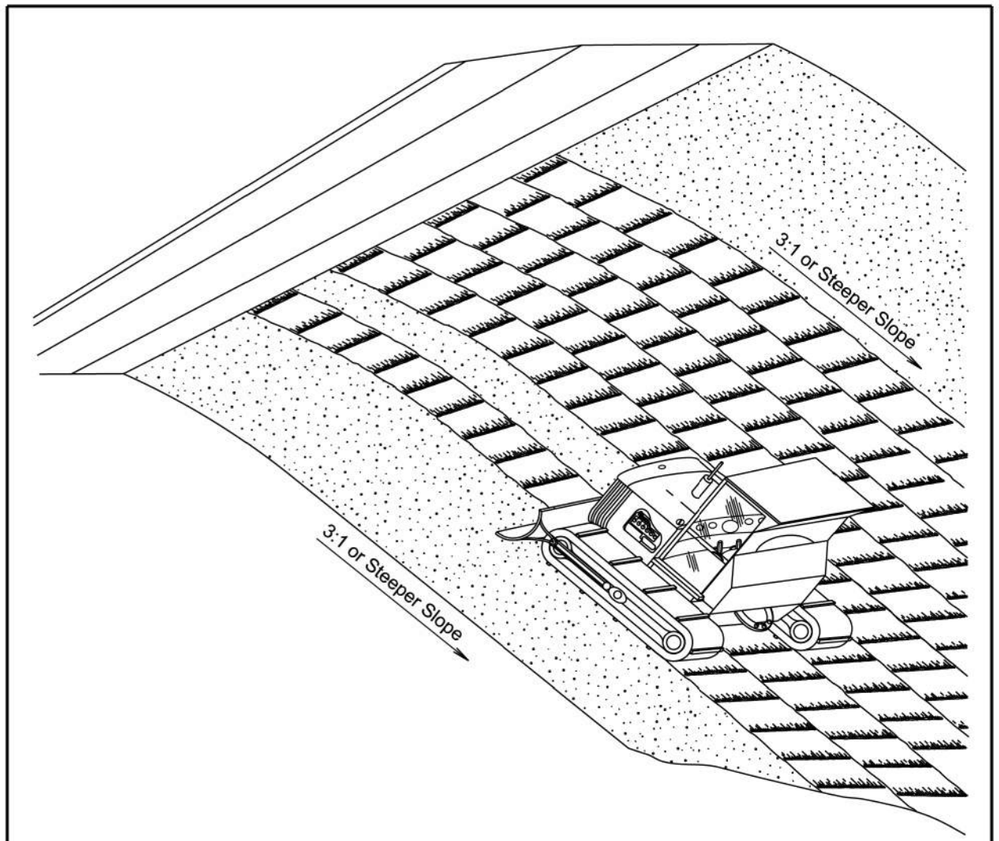
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

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: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

Plotting Date: 1/26/2026



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".

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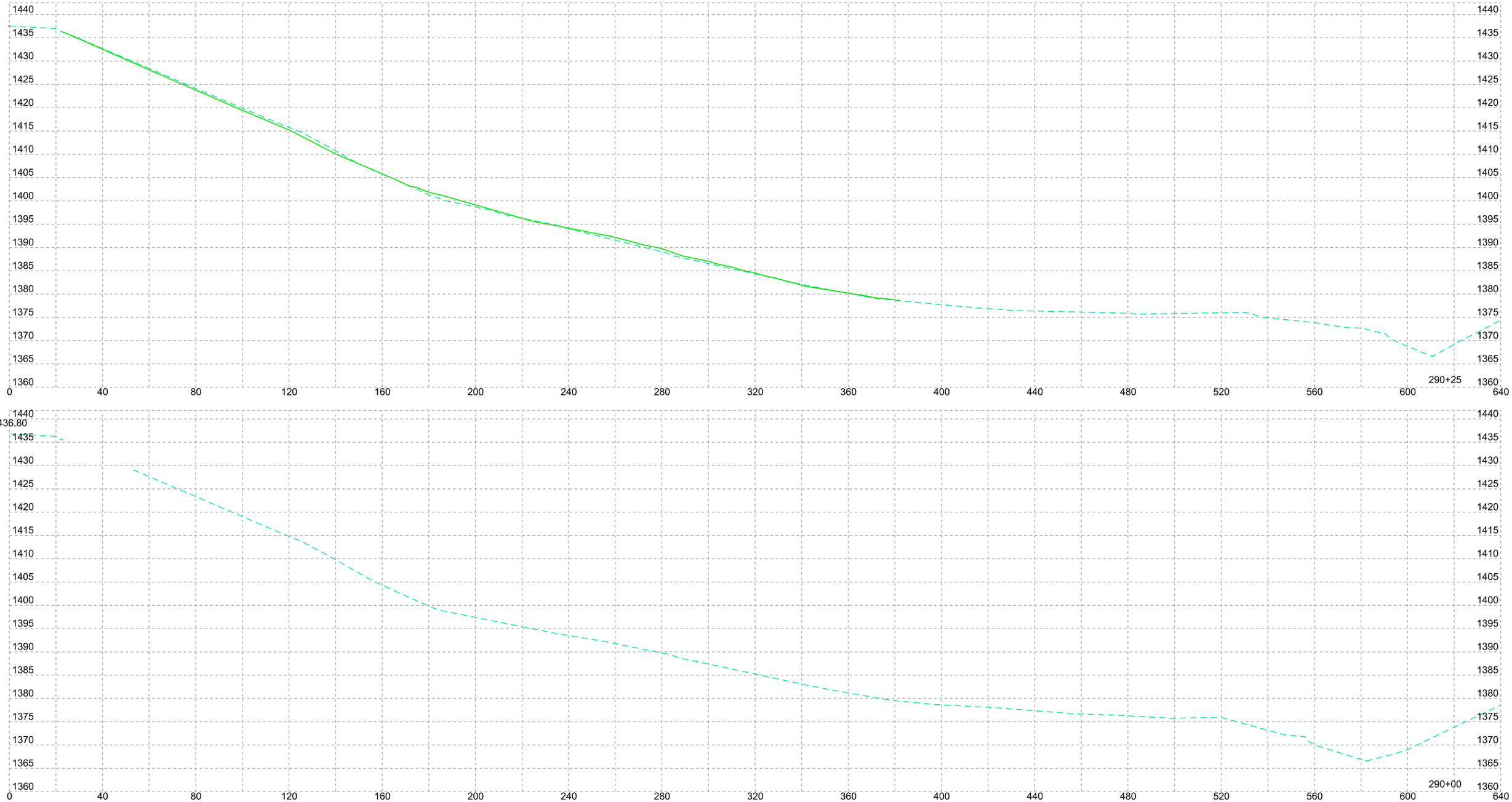
Published Date: 2026	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25 Sheet 1 of 1

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	43	60

Plotting Date: 1/26/2026

SD 46



SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	44	60

Plotting Date: 1/26/2026

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	45	60

Plotting Date: 1/26/2026

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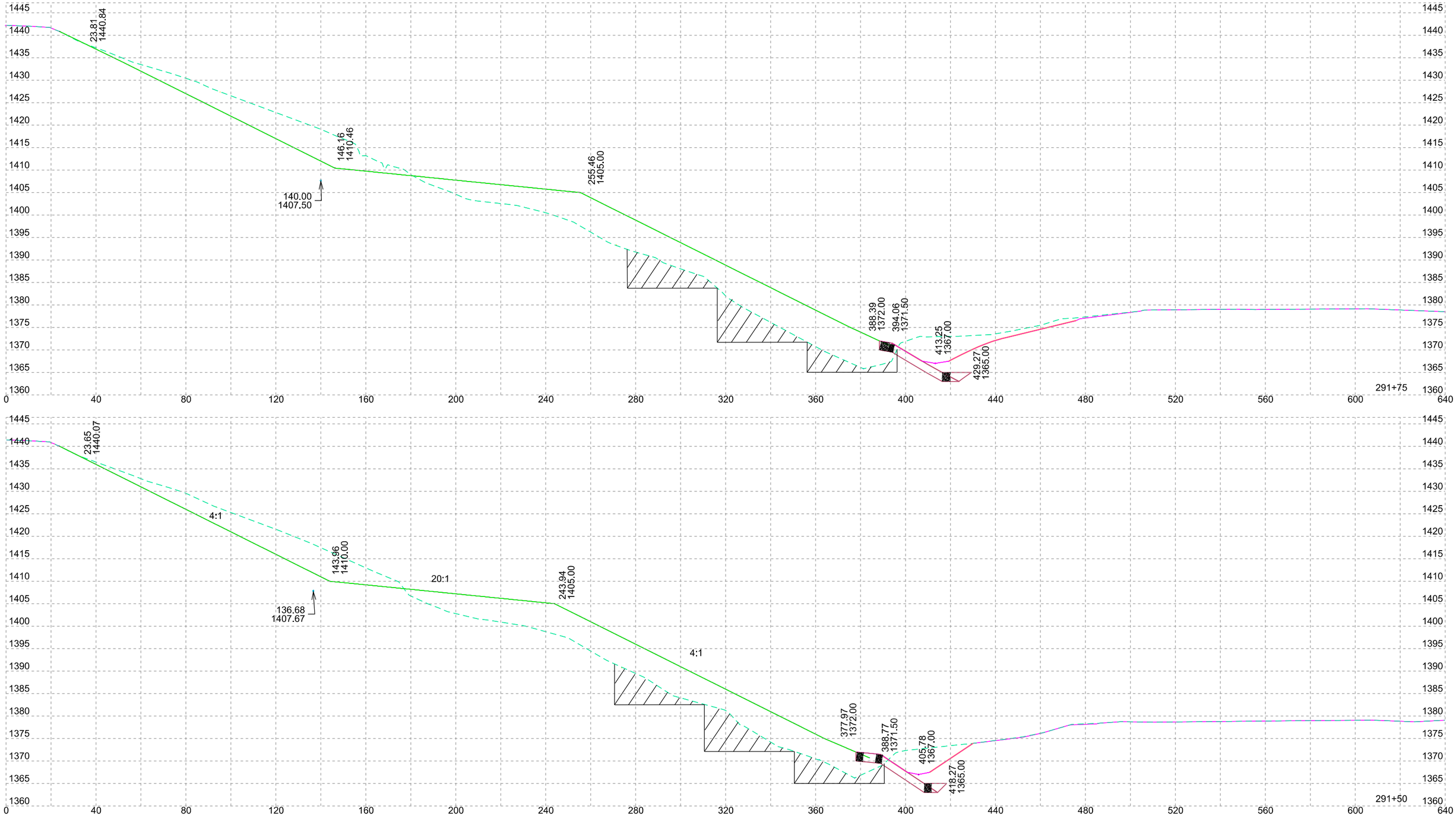
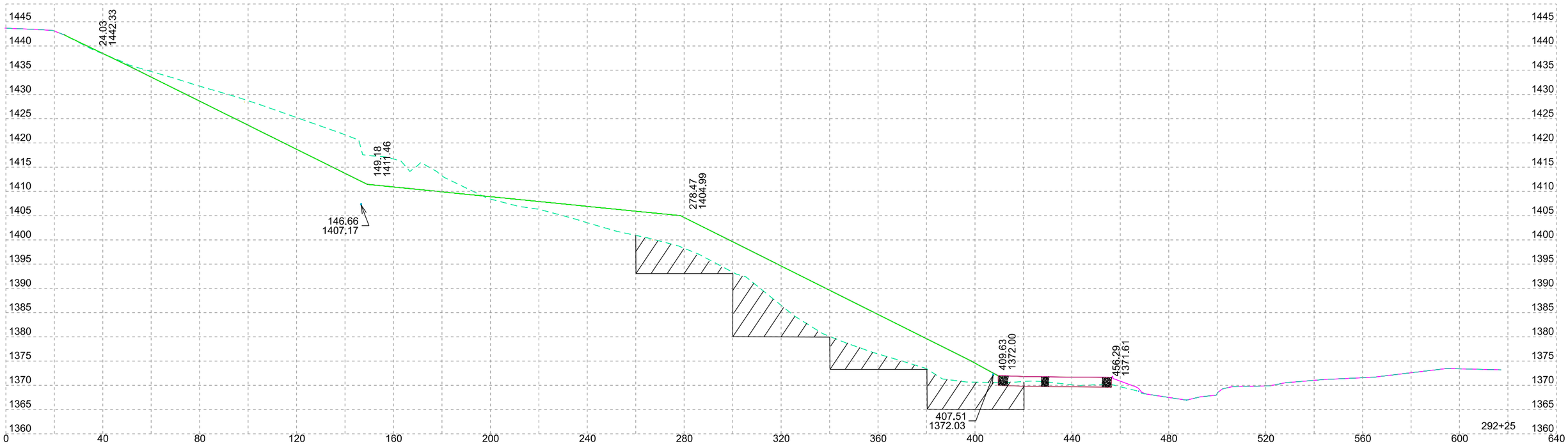
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	46	60

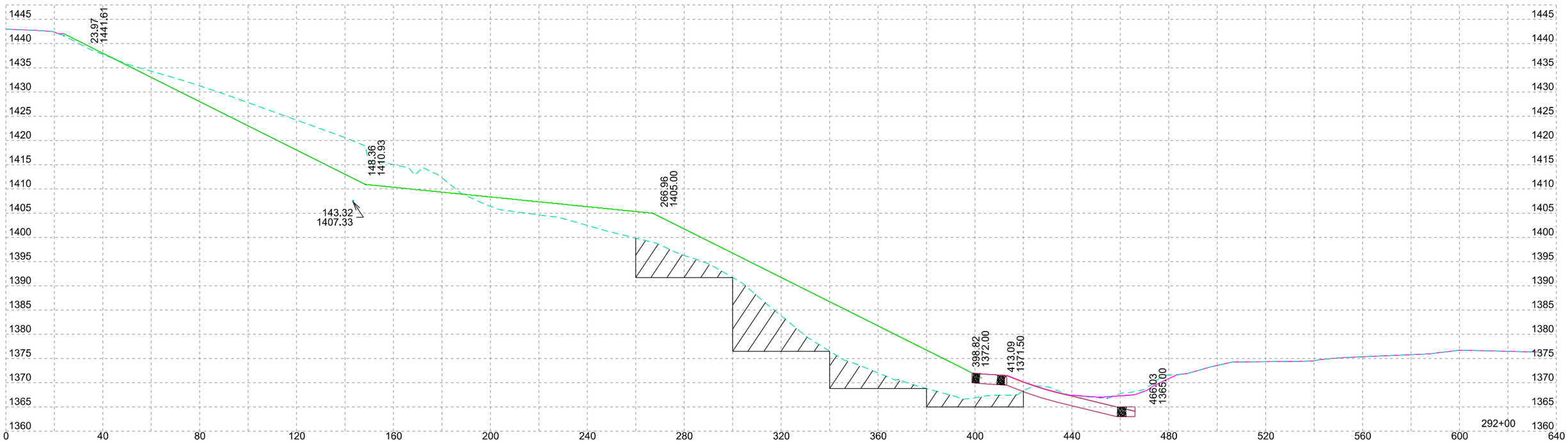
Plotting Date: 1/26/2026



SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	47	60

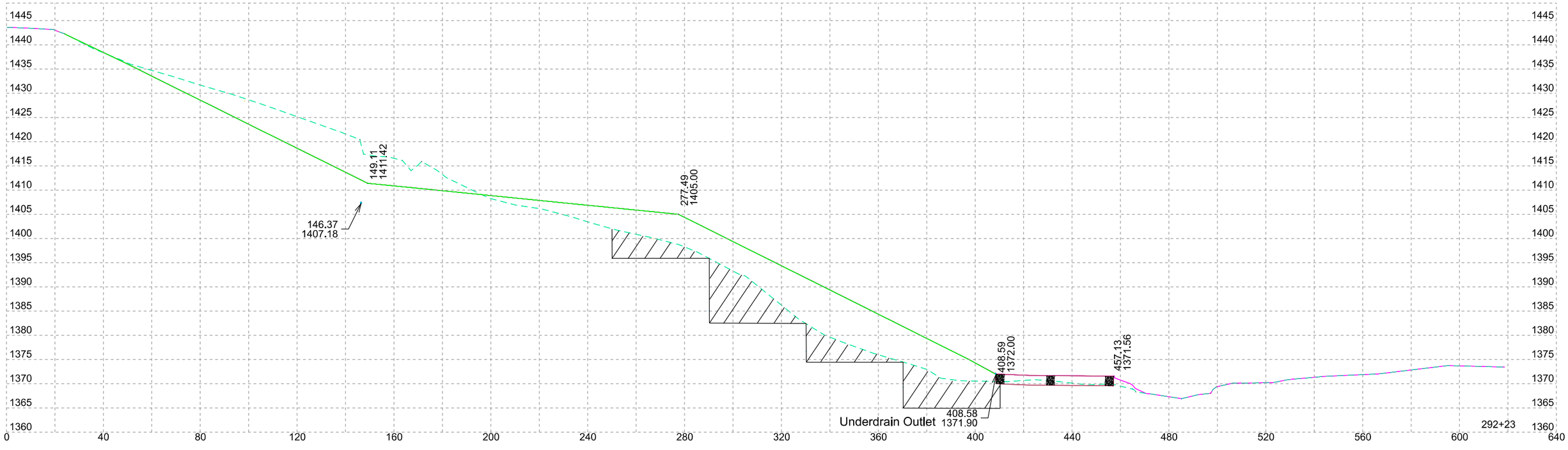
Plotting Date: 1/26/2026





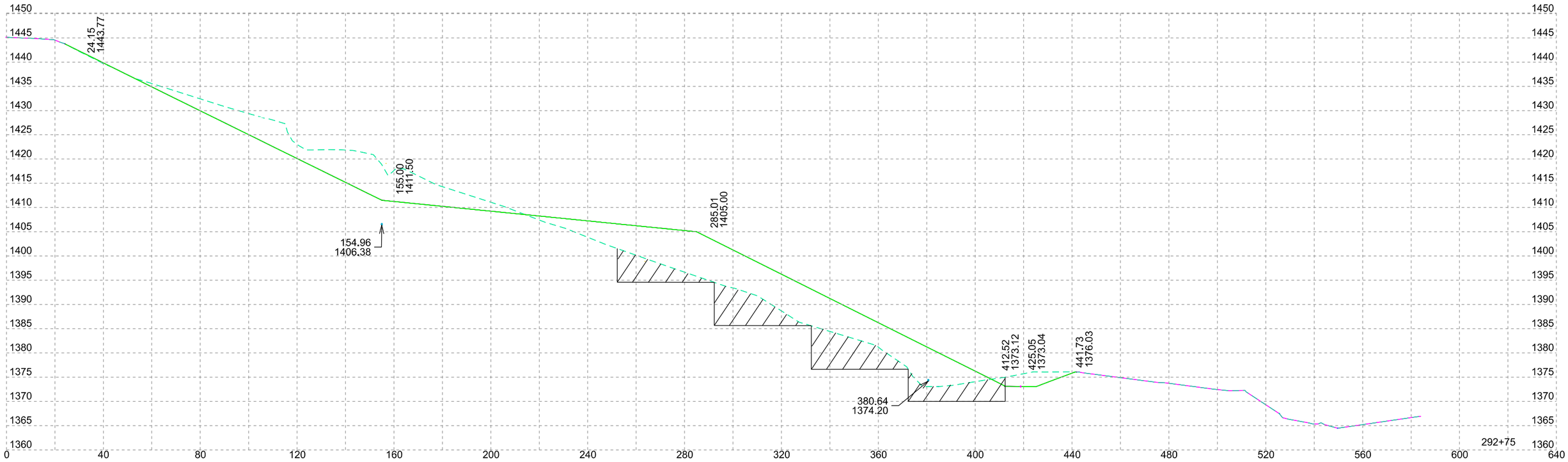
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	48	60

Plotting Date: 1/26/2026



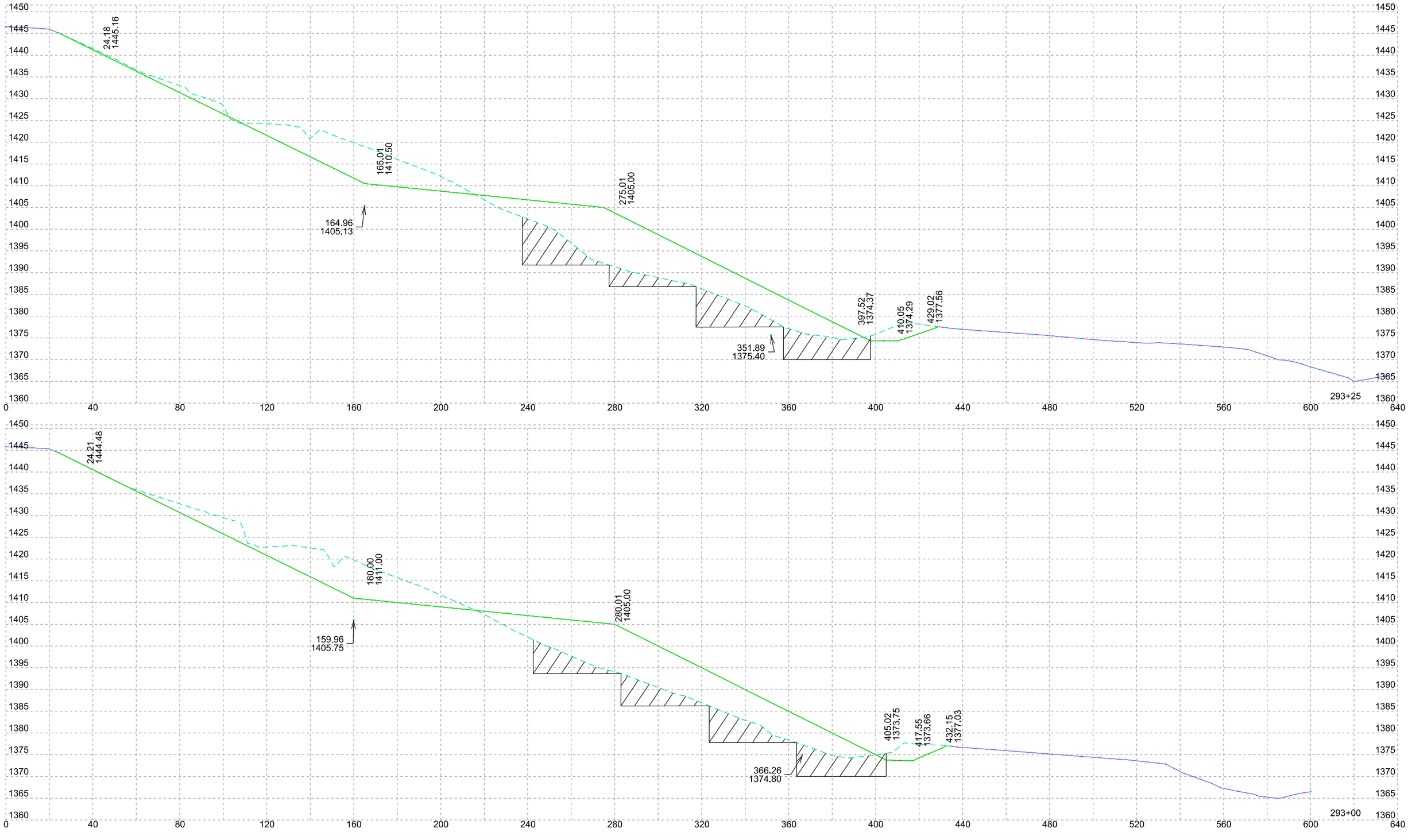
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	49	60

Plotting Date: 1/26/2026



SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	50	60

Plotting Date: 1/26/2026



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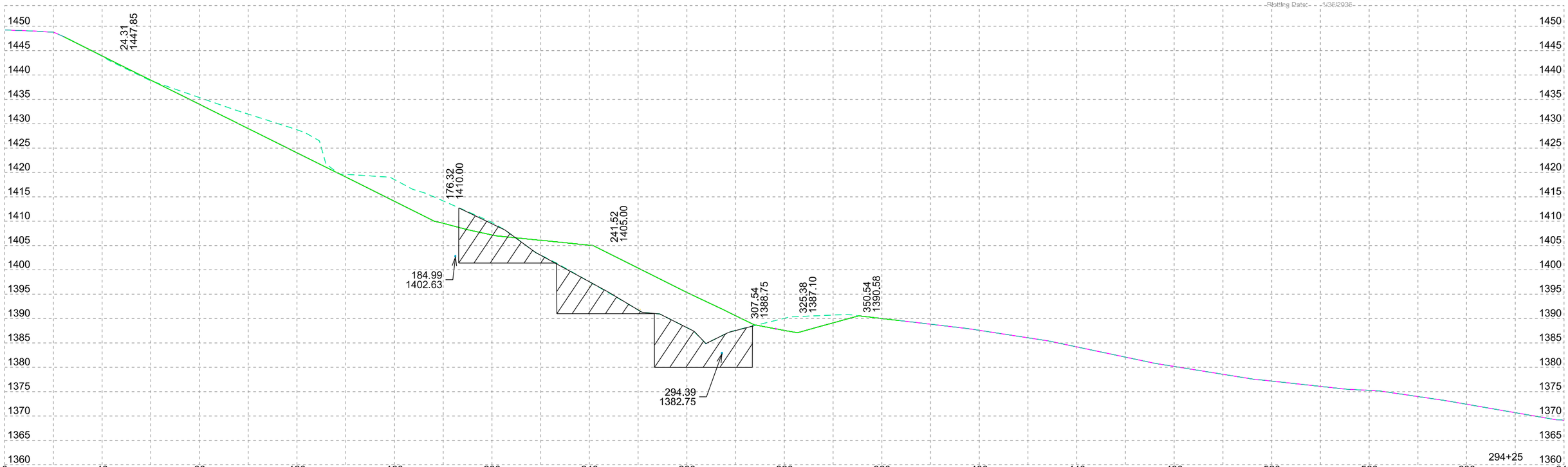
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	51	60

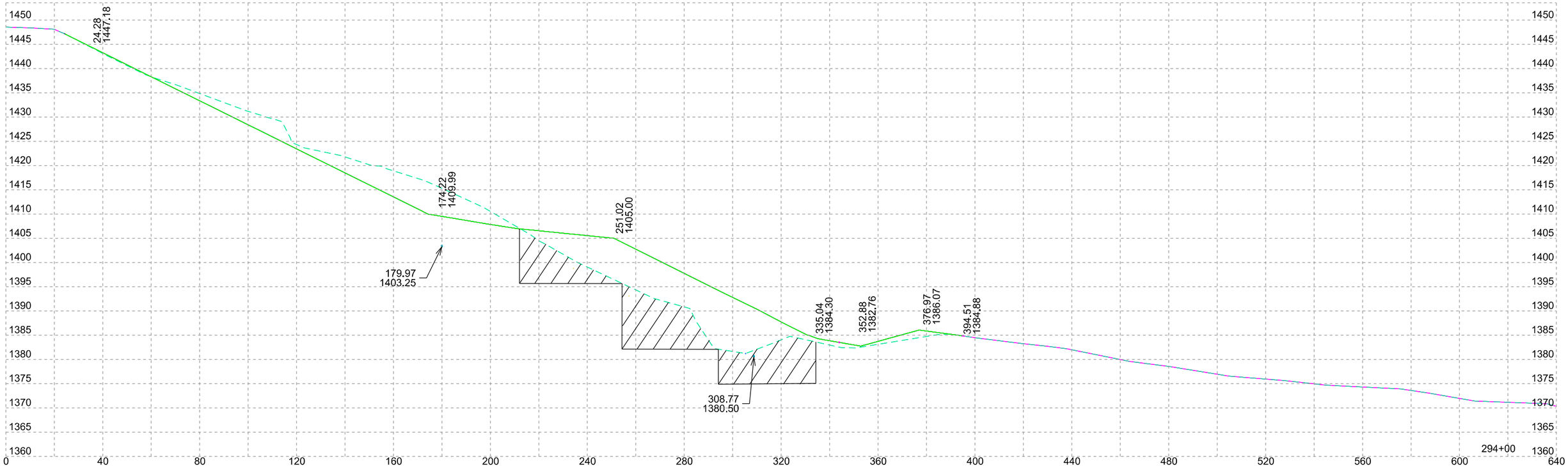
Plotting Date: 1/26/2026

Plotted From - trsf12141 File - ...\prj\yank0A9N\dgn\0A9N_XS.dgn

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	52	60

Plotting Date: 1/26/2026





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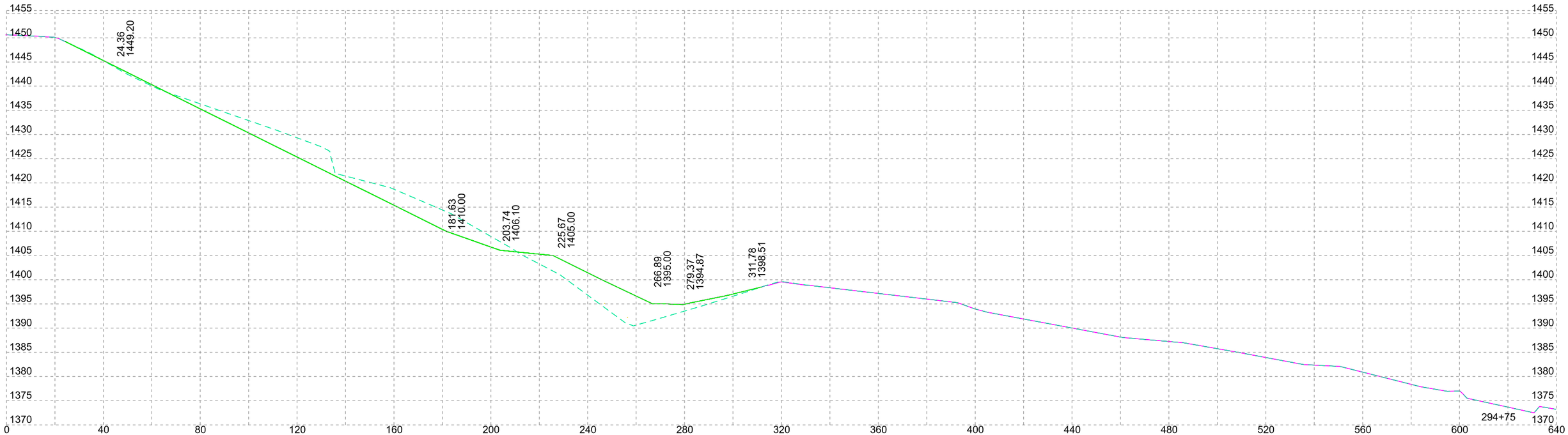
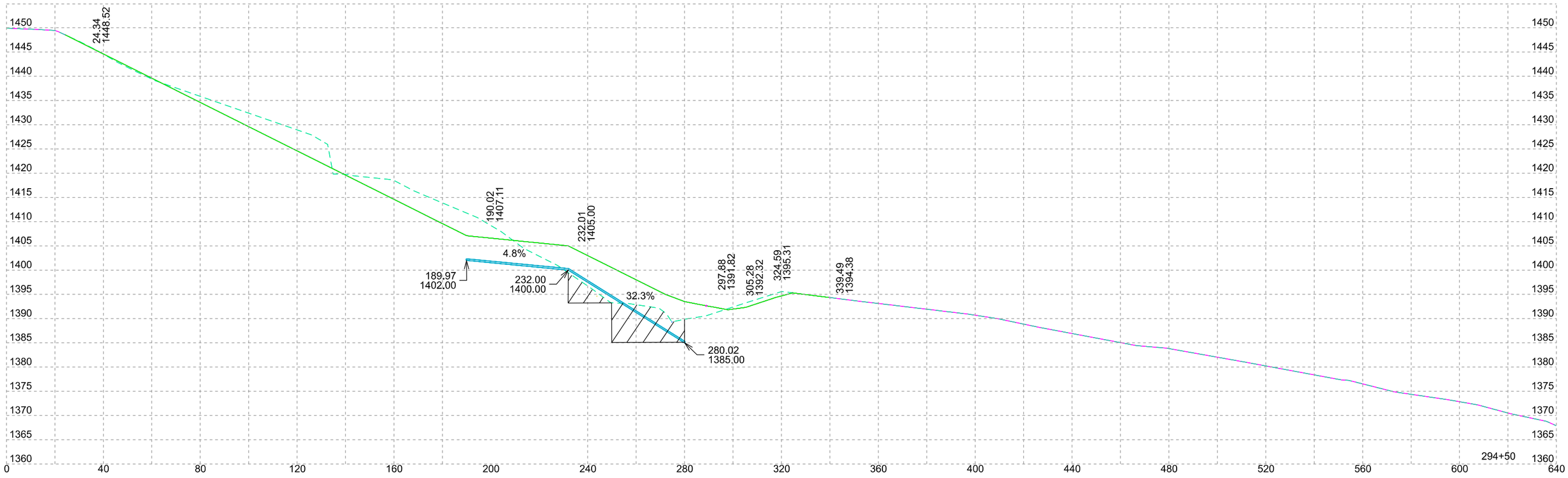
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	53	60

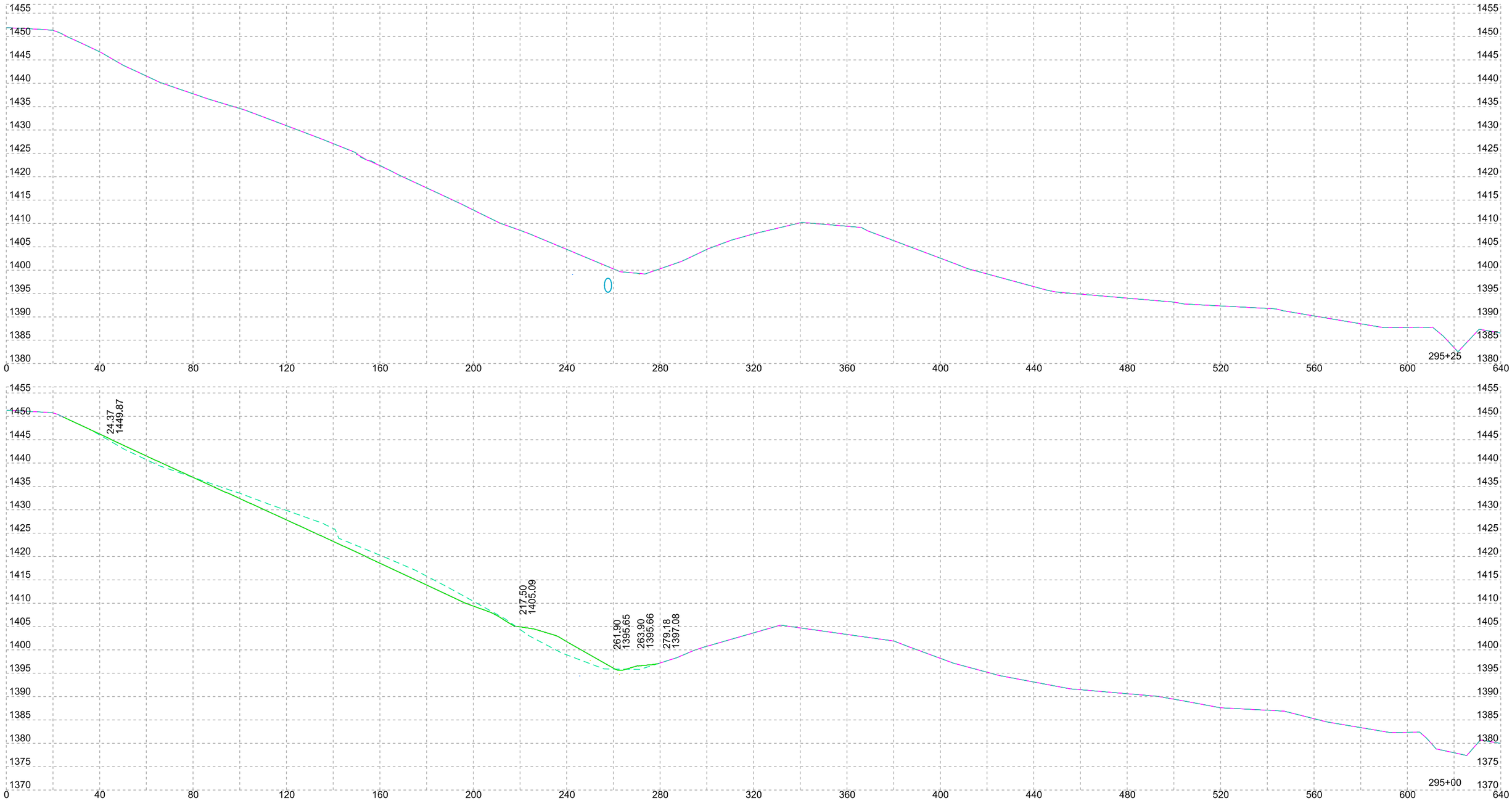
Plotting Date: 1/26/2026





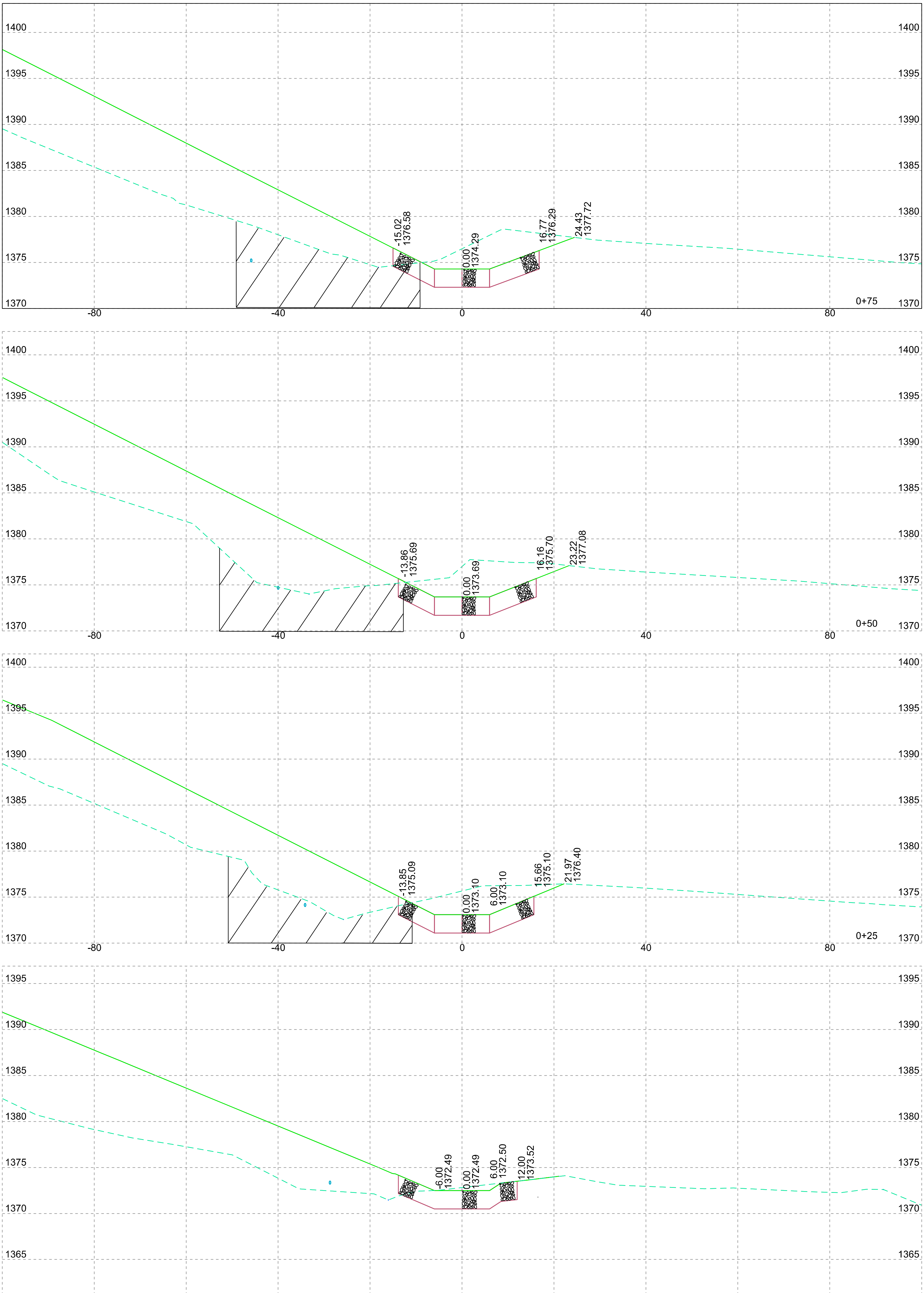
SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	54	60

Plotting Date: 1/26/2026

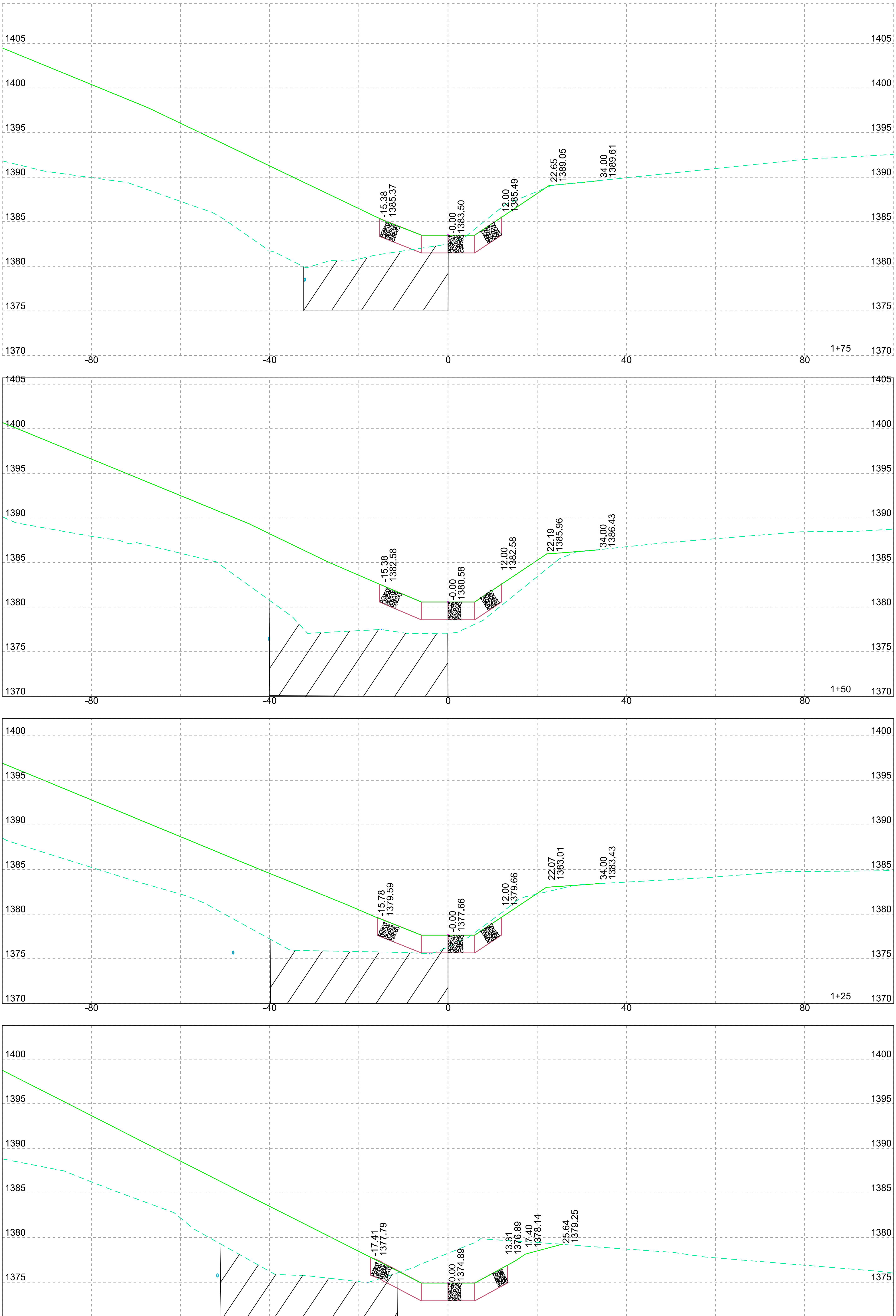


Plotted From - trsf12141 File - ...\prj\yank0A9N\dgn\0A9N_XS.dgn

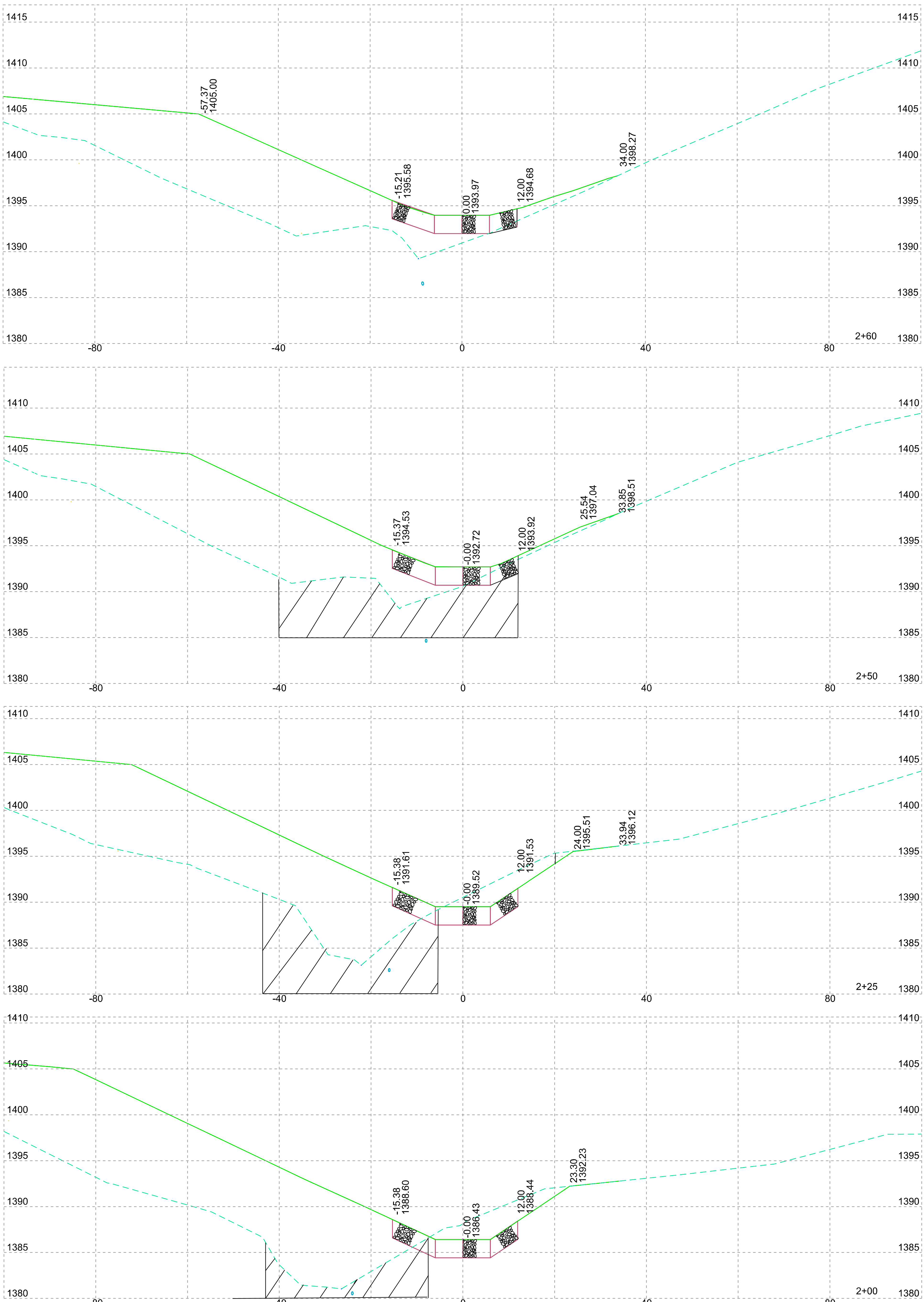
Channel At Berm Toe



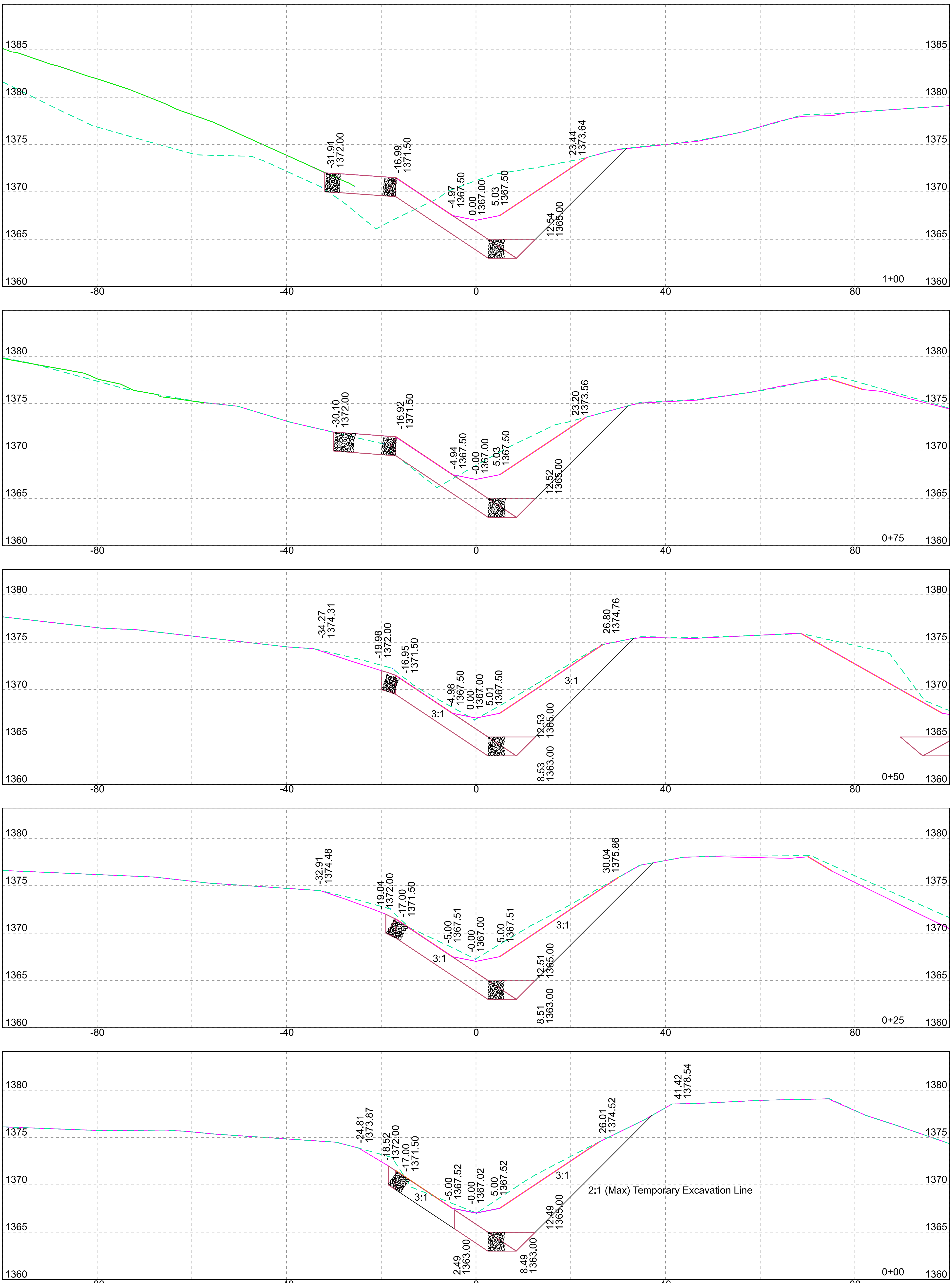
Channel At Berm Toe



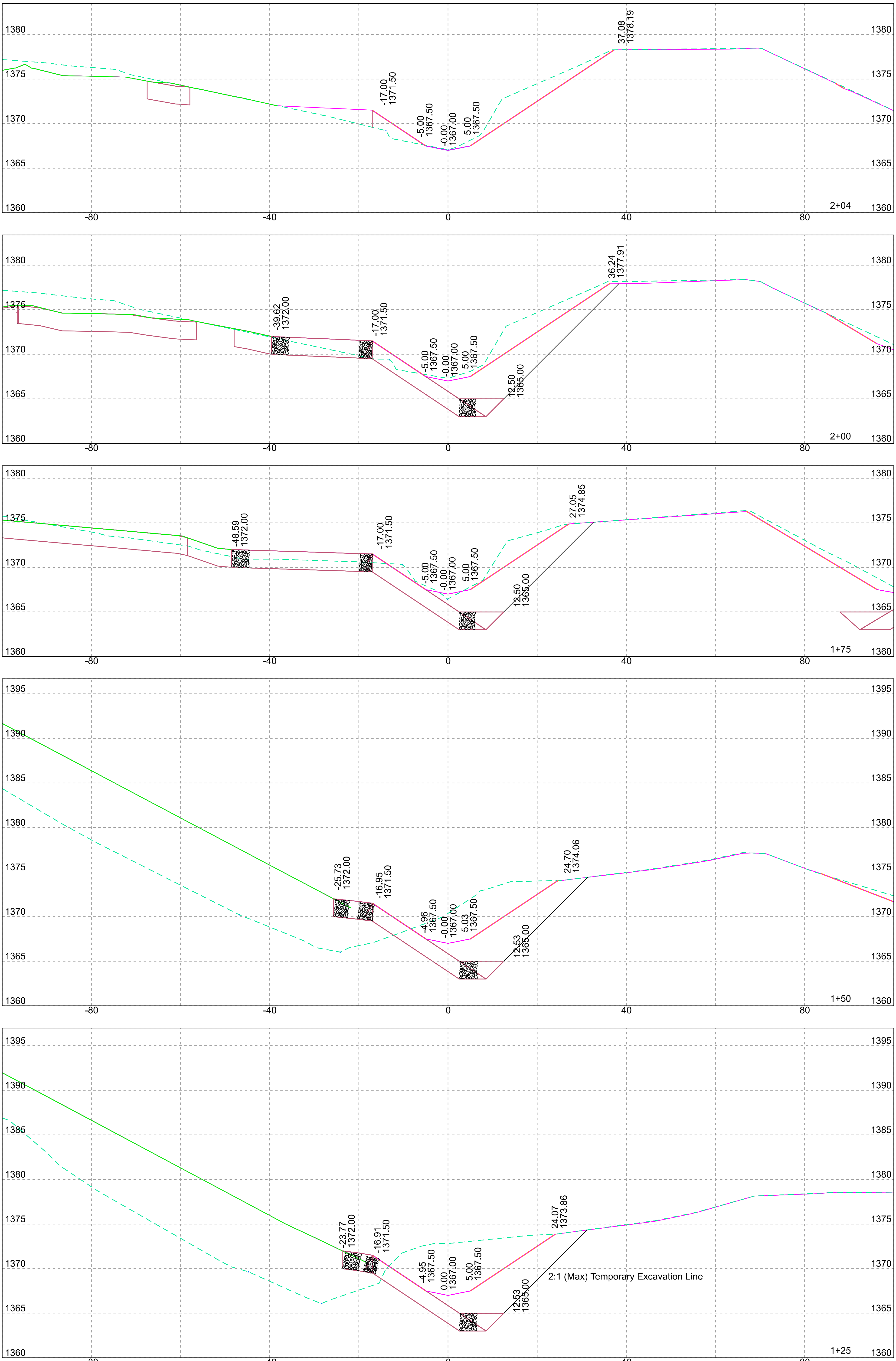
Channel At Berm Toe



Clay Creek Channel Alignment



Clay Creek Channel Alignment



2+04
-17.00 1371.50
-5.00 1367.50
-0.00 1367.00
5.00 1367.50
37.08 1378.19
2+00
-39.62 1372.00
-17.00 1371.50
-5.00 1367.50
-0.00 1367.00
5.00 1367.50
12.50 1365.00
36.24 1377.91
1+75
-48.59 1372.00
-17.00 1371.50
-5.00 1367.50
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5.00 1367.50
12.50 1365.00
27.05 1374.85
1+50
-25.73 1372.00
-16.95 1371.50
-4.96 1367.50
-0.00 1367.00
5.03 1367.50
12.53 1365.00
24.70 1374.06
1+25
-23.77 1372.00
-16.91 1371.50
-4.95 1367.50
0.00 1367.00
5.00 1367.50
12.53 1365.00
24.07 1373.86
2:1 (Max) Temporary Excavation Line

SD DOT	PROJECT	SHEET	TOTAL SHEETS
	P 0046(92)339	60	60

Plotting Date: 1/26/2026