CITY COUNCIL MEETING STAFF REPORT

To: City Council Members and Mayor
From: Jerry Plein
Meeting Date: February 13, 2023
Agenda Item Number: 10.A.

TitleConsider Motion to Approve Actions Relating to the Neal Street Ravine Stabilization Project.
As part of the City of Red Wing Surface Water Management Plan, SEH developed a design to stabilize the Neal Street Ravine. The ravine has been experiencing severe erosion that has become significantly more extensive over the past few years. Sediment is discharged directly to the downstream storm sewer system, which discharges into Hay Creek. The 2022 CIP includes $850,000 for the repair of the ravine. Staff is requesting authorization to advertise for bids for the stabilization project as well as authorization to apply for a grant for up to $10,000 from Zumbro Watershed Alliance.

1. Accept Plans for the Neal Street Ravine Stabilization Project.
2. Authorize Staff to Advertise for Bidders for the Project.
3. Authorize Staff to Apply for Grant Funding from the Zumbro Watershed Alliance for up to $10,000.

Purpose

Motion to Approve Actions Relating to the Neal Street Ravine Stabilization Project.

Recommended Action Consider Motion to Approve Actions Relating to the Neal Street Ravine Stabilization Project.
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Attachments
1. 02-08-2023 PLANS

Strategic Plan Alignment
This project is in alignment with strategy #49 to maintain, upgrade, and rehab current storm water ponds and #51to fix erosion problems in large ravines.

Background
Hay Creek is a MnDNR designated trout stream that runs south to north to the Mississippi River. The stream runs through the City limits, west of the downtown area. The Neal Street ravine is a tributary to Hay Creek. This approximate 2,000-foot ravine runs parallel to Siewert Street on the West and extends from Neal Street to Featherstone Road. The drainage from the ravine is conveyed to Hay Creek by the storm sewer under Featherstone Road.

The ravine has been experiencing severe erosion that has become significantly more extensive over the past few years. Sediment is discharged directly to the downstream storm sewer system, which discharges to Hay Creek. Several options have been investigated in the past; however, nothing has been implemented.

In March 2022, Staff entered into a professional services agreement with SEH for $64,900 to perform the engineering analysis, design and construction administration services for the project. The plans are complete, and staff is requesting Council to accept the plans.

On October 24, 2022, Council approved the purchase of parcels 55.590.0960 and 55.590.0990 from Siewert Construction to facilitate the needed repairs to the Neal Street Ravine.

Discussion
Staff have been aware of some erosion problems on the property between the Woodland Hills addition and Kull addition. The naturally forested ravine conveys stormwater runoff from a large residential area, and the steep banks have significantly eroded. This project has been identified in the Surface Water Management Plan (SWMP) which was completed in 2014 as well as the SWMP amendment which was adopted by Council in June of 2022. The eroding area drains a large sediment load directly into Hay Creek, making the repairs a priority for Public Works. Hay Creek is a freshwater trout stream that drains into the Mississippi River, which is listed as an impaired water for turbidity.

Preliminary survey data was collected to capture the existing ravine profile and cross-sectional data. This survey data was used to create a digital elevation model (DEM) and the ravine area of the Hay Creek model was converted from 1D to 2D within the model to get a better idea of how water flows within the ravine. This also allowed the visualization of flow depths and localized high velocity zones.

A site visit was performed on July 23, 2021, to evaluate erosion areas in the ravine. Significant erosion was observed within the ravine. The erosion has resulted in nearly vertical channel banks ranging from three feet to twelve feet high. Near the bottom where the grade significantly flattens out, a sediment delta has formed.

Staff is requesting Council approval to advertise for bidders for the project. When bids are

received, staff will return to Council to present the results and request direction on how to proceed. Engineers' estimates are typically conservative, so staff is hopeful that the bids will be favorable for the overall budget. The successful bidder will have options on how to construct the project.

The major requirement is the building of the pond at the bottom of the ravine, which will need to be constructed first to enable a settling area for any material that may erode during construction. They will be required to clean out the debris to the designed standard when finished. The anticipated construction sequence would be working from the bottom of the ravine towards the top end of the ravine. Soil corrections will take place as they work up the ravine and it is expected that there will no need to haul in extra fill or remove additional fill. If this is required, the city has excess fill available for the project. Once the soil corrections have taken place and the access road has been constructed, the contractor will work back down the newly graded ravine with geotextile fabric and rip rap while tying in drainage from residents as they go, as well as repairing some damaged storm drains that dump into the ravine. Once finished, the base of the ravine will be rip rap from the top down with an access road for future repairs located next to it. There will be a shallow pond/settling area at the bottom that will have access points for the city to clean out as needed in the future.

Other than noise during the construction, the neighboring properties will not be affected by the project. The main benefit to affected properties will be that the erosion of their property into the ravine will be corrected. If we are successful in securing the grant for the rain barrels, this will further help contain run-off from the residential houses on the project. Staff has been in contact with the Watershed Alliance for the Greater Zumbro River (WAGZ) as a possible funding source for Rain Barrel acquisition for the affected neighbors. This funding is made available through the One Watershed, One Plan program that supports local partnerships for watershed actions, which includes the Hay Creek Watershed in Red Wing. The workplan includes actions to support a cost share project for residential stormwater management practices. We anticipate doing some educational training with a master gardener and offering that advice and expertise to the affected properties along with the rain barrels to eliminate or greatly reduce the amount of run-off from each residence. If the grant is successful, we anticipate holding a neighborhood meeting with the affected residents and offering the rain barrels and general education on how to utilize the barrels to reduce runoff into the ravine.

This project has been in discussion for a considerable period of time with multiple conversations on whether the owners of the parcels within the project should be responsible for the repairs. With much discussion and previous City Council approval, it was determined that the drainage area is quite large and beyond what is just received from the adjacent properties. The city collects a large portion of the drainage area in the pond on the corner of Seiwert and Neal Streets to slow down the discharge into this ravine. That pond has worked well but it does not correct the downstream issues from the discharge point of the pond.

Financial Plan and Impact The Stormwater Fund has allocated $850,000 in the 2023 CIP. Utility and Finance staff have been working with SEH to secure outside funding sources for this project and have found no alternative funding available. Staff has been in contact with the Watershed Alliance for the Greater Zumbro River (WAGZ) for possible funding for Rain Barrel acquisition for affected neighbors of the project. This funding is made available through the One Watershed, One Plan program that supports local partnerships for watershed actions,

which includes the Hay Creek Watershed in Red Wing with $10,000 allocated for 2023. Not included in this project estimate is the purchase of the 2 parcels that are needed for construction. The Council previously approved the purchase of 2 parcels for $45,702 which can be partially or fully funded out of the 652-stormwater operations budget.

Item Description	Total Cost
Construction Activities	$185,180
Materials	$424,310
Soil Stabilization	$ 58,131
Sub-total	**$667,621**
Design (SEH)	$64,900
Construction Inspection and oversight	$66,762
Contingency - 10%	$66,762
Total	**$866,045**

Alternatives

1. Accept Plans for the Neal Street Ravine Stabilization Project.
2. Authorize Staff to Advertise for Bidders for the Project.
3. Authorize Staff to Apply for Grant Funding from the Zumbro Watershed Alliance for up to $10,000.
4. Reject Staff recommendation and direct staff to consider other options.

Recommended Action Consider Motion to Approve Actions Relating to the Neal Street Ravine Stabilization Project.

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EXISTING

- RIGHT OF WAY
- PERMANENT EASEMENT
- PROPERTY LINE
- HORIZONTAL CONTROL POINT
- BENCHMARK
- SURVEY MARKER
- SOIL BORING
- SANITARY SEWER AND MANHOLE
- FORCE MAIN AND LIFT STATION
- SANITARY SEWER SERVICE & CLEANOUT
- WATER MAIN, HYDRANT, VALVE AND MANHOLE
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- GAS MAIN, VALVE, VENT AND METER
- HANDHOLE
- BURIED FIBER OPTIC CABLE AND MANHOLE
- BURIED PHONE CABLE, PEDESTAL AND MANHOLE
- BURIED TV CABLE, PEDESTAL AND MANHOLE
- BURIED ELECTRIC CABLE, PEDESTAL, MANHOLE, TRANSFORMER AND METER
- OVERHEAD WIRE, POLE AND GUY WIRE
- LIGHT POLE
- TRAFFIC SIGNAL
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RAILROAD TRACKS
- DECIDUOUS AND CONIFEROUS TREE
- BUSH / SHRUB AND STUMP
- EDGE OF WOODED AREA
- WETLAND
- BUILDING
- FENCE (UNIDENTIFIED)
- BARBED WIRE FENCE
- CHAIN LINK FENCE
- ELECTRIC WIRE FENCE
- WOOD FENCE
- WOVEN WIRE FENCE
- PLATE BEAM GUARDRAIL
- CABLE GUARDRAIL
- POST / BOLLARD
- RETAINING WALL

PROPOSED

- STREET CENTERLINE
- RIGHT-OF-WAY
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- CONSTRUCTION LIMITS
- SANITARY SEWER, BULKHEAD AND MANHOLE
- FORCE MAIN
- SANITARY SERVICE AND CLEANOUT
- WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE
- WATER VALVE MANHOLE, REDUCER, BEND AND CROSS
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- DRAIN TILE
- DITCH / SWALE
- RIPRAP
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RETAINING WALL

CITY OF
RED WING, MINNESOTA

CONSTRUCTION PLANS FOR

GRADING, TURF ESTABLISHMENT AND EROSION CONTROL

NEAL STREET RAVINE STABILIZATION

NOTE:
THE SUBSURFACE UTILITY QUALITY INFORMATION IN THIS PLAN IS LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE CONTRACTOR SHALL CALL THE GOPHER STATE ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.

811 Know what's below. Call before you dig.

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS

INDEX

THIS PLAN CONTAINS 28 SHEETS.

PROJECT LOCATION

APPROVED

CITY ENGINEER OF ______ DATE ______

RED WING, MINNESOTA

SEH
PHONE: 651.490.2000
3535 VADNAIS CENTER DRIVE
ST. PAUL, MN 55110-5196
www.sehinc.com

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LICENSE PROFESSIONAL UNDER THE LAWS OF THE STATE OF MINNESOTA

Signature: JEREMY WALGRAVE, PE

Date: 2/6/2023 Lic. No. 43131

PROJECT NO. 167247

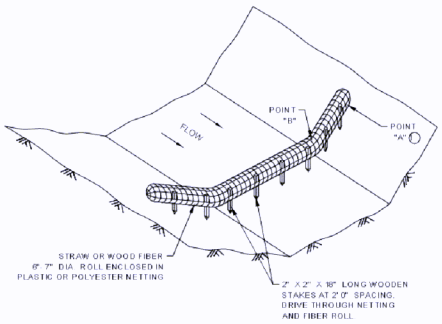
STATEMENT OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
2021.501	MOBILIZATION	LS	1
2101.505	CLEARING	ACRE	2.45
2101.505	GRUBBING	ACRE	2.45
2105.504	GEOTEXTILE FABRIC TYPE 4	SY	6,203
2106.507	EXCAVATION - COMMON (CV)	CY	4,026
2106.507	COMMON EMBANKMENT (CV)	CY	4,019
2501.502	15" RC PIPE APRON	EACH	1
2503.503	15" RC PIPE SEWER DESIGN 3006	LF	8
2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1
2511.507	RANDOM RIPRAP CL III	CY	6
2511.507	RANDOM RIPRAP CL IV	CY	4,659
2573.501	STABILIZED CONSTRUCTION EXIT	LS	1
2573.503	SILT FENCE, TYPE MS	LF	5,121
2573.503	SEDIMENT CONTORL LOG TYPE ROCK	LF	160
2574.508	FERTILIZER TYPE 4	LB	80
2575.507	MULCH MATERIAL TYPE 6	CY	364
2575.508	SEED MIXTURE 36-711	LB	56
2575.604	ROLLED EROSION PREVENTION CATEGORY 20	SY	277

CONSTRUCTION NOTES:

1. PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AT ALL ACCESS POINTS. TRAFFIC CONTROL SHALL INCIDENTAL TO THE PROJECT.
2. CONTRACTOR SHALL SUBMIT STAGING AND ACCESS PLANS AND A PROJECT SCHEDULE TO THE ENGINEER FOR REVIEW.
3. TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
4. MINIMIZE THE AMOUNT OF DISTURBED AREA OPEN AT ANY GIVEN TIME TO THE EXTENT PRACTICABLE. AT NO TIME SHALL DISTURBED AREAS NOT ACTIVELY BEING WORKED, BE LEFT UNSTABILIZED FOR MORE THAN 24 HOURS.
5. AREAS THAT ARE COMPLETE SHALL HAVE PERMANENT SEEDING AND STABILIZATION WITHIN 24 HOURS OF COMPLETION.
6. CONTRACTOR SHALL MONITOR PRECIPITATION FORECASTS AND SHALL PLAN ACCORDINGLY TO MINIMIZE EROSION AND SEDIMENTATION CAUSED BY PRECIPITATION EVENTS.
7. CONTRACTOR IS ENCOURAGED TO FIELD FIT AREAS IN ORDER TO MINIMIZE GRADING AND DISTURBANCE. CONTRACTOR SHALL DISCUSS FIELD FIT AREAS WITH THE ENGINEER.
8. ALL FILL MATERIALS SHALL BE FREE OF WOODY DEBRIS.
9. BURNING IS NOT ALLOWED ON SITE.
10. ALL ACCESS ROUTES AND STAGING AREAS SHALL BE RESTORED TO THE ORIGINAL CONDITION.
11. THE POND SHALL BE ROUGH GRADED AT THE BEGINNING OF THE PROJECT TO SERVE AS A TEMPORARY SEDIMENT TRAP. TRAPPED SEDIMENT SHALL BE PERIODICALY REMOVED FROM THE POND DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE PROJECT.
12. CONTRACTOR SHALL CLEAN STREETS ON A DAILY BASIS UNLESS OTHERWISE DIRECTED BY THE ENGINEER (INCIDENTAL).
13. STOCKPILES SHALL BE APPROVED BY THE ENGINEER AND SHALL BE FULLY SURROUNDED BY PERIMETER CONTROL (INCIDENTAL).

EARTHWORK SUMMARY

CUT		FILL	
EXCAVATION	4026 CY	EMBANKMENT	3495 CY
TOTAL EXCAVATION - COMMON (CV)	4026 CY	15% SHRINKAGE	524 CY
		TOTAL COMMON EMBANKMENT (CV)	4019 CY
		WASTE MATERIAL	7 CY

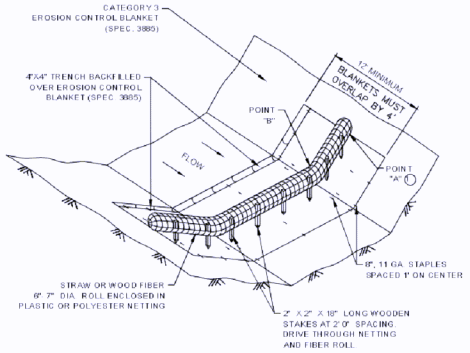


① POINT "A" SHALL BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

NTS

BIOROLL DITCH CHECK

Revised: Oct. 2011
SEH Plate No. ERO-05

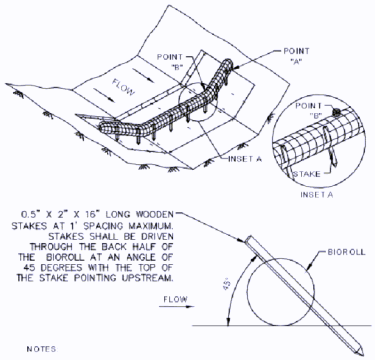


① POINT "A" SHALL BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

NTS

BIOROLL BLANKET SYSTEM

Revised: Oct. 2011
SEH Plate No. ERO-06



NOTES

SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{SPACING (FT)} = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\text{\% CHANNEL SLOPE}}$$

POINT "A" LABELED ON DETAILS SHALL BE A MIN. OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

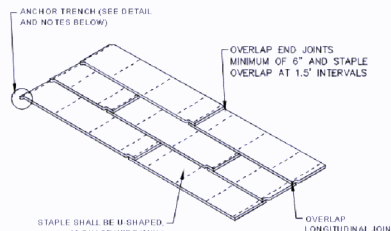
CHECK DAMS AND DIKES SHOULD BE LIMITED IN USE FOR DRAINAGE AREAS OF LESS THAN FIVE ACRES AND IN CHANNELS OF LESS THAN TEN PERCENT SLOPE.

IF IN SERIES, THE TOP OF THE DOWNSTREAM DAM OR DIKE SHOULD ALIGN WITH THE BOTTOM OF THE UPSTREAM.

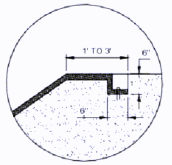
NTS

BIOROLL STAKING

Revised: Oct. 2011
SEH Plate No. ERO-07



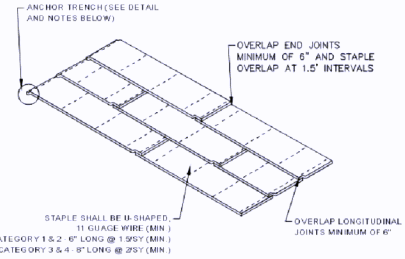
ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



NTS

EROSION CONTROL BLANKET INSTALLATION

Revised: Oct. 2011
SEH Plate No. ERO-11



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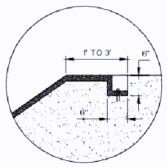
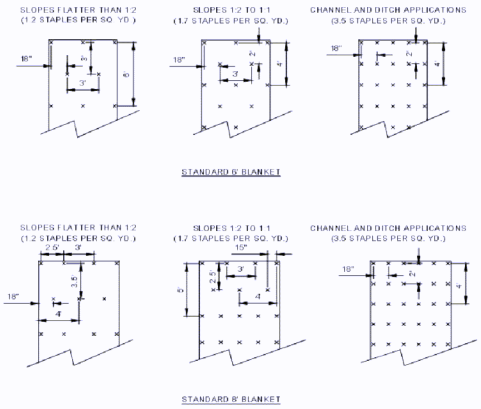


NTS

BLANKET STAPLING PATTERN (PLATE 1 OF 2)

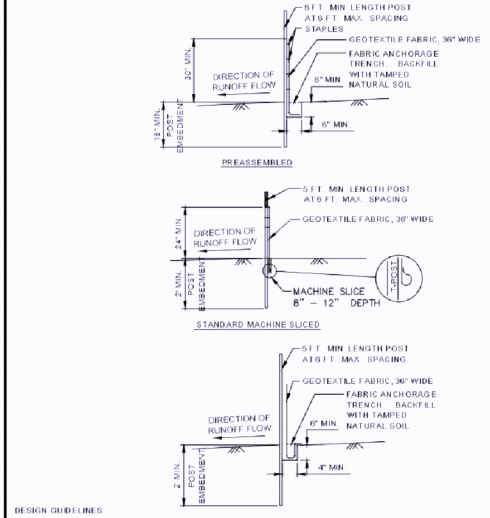
Revised: Oct. 2011
SEH Plate No. ERO-12



NTS

BLANKET STAPLING PATTERN (PLATE 2 OF 2)

Revised: Oct. 2011
SEH Plate No. ERO-12

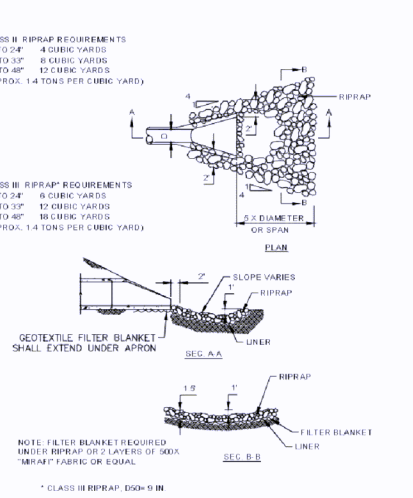


DESIGN GUIDELINES (SEE MNDOT SPEC. 2573.3C AND 3886)

NTS

SILT FENCE

Revised: Jan. 2013
SEH Plate No. ERO-15



* CLASS III RIPRAP, D50= 9 IN.

NTS

CLASS II AND III RIPRAP AT OUTLETS

Revised: Oct. 2011
SEH Plate No. ERO-23

SEH Project	167247
Drawn By	KP
Designed By	HS
Checked By	JW

Revision Issue

Rev.#	Description	Date

Revision Issue

Rev.#	Description	Date

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LICENSE PROFESSIONAL UNDER THE LAWS OF THE STATE OF MINNESOTA.

JEREMY WAID, PE
DATE: 2/6/2023 LICENSE NO. 43131

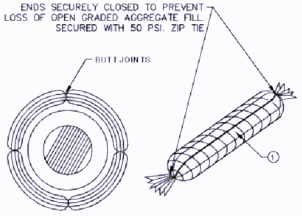
NEAL STREET RAVINE STABILIZATION

RED WING, MINNESOTA

DETAILS

3 of 28

Save: 2/7/2023 9:48 PM spederson Plot: 2/8/2023 10:10 AM X:\PTR\Wells\167247\5-final-design\1-drawings\10-Civil\sheets\sheet RV\167247DT.dwg

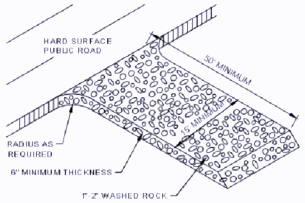


① GEOTEXTILE SOCK BETWEEN 4–10 FT. LONG AND 4–6 INCH DIAMETER. SEAM JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR HEAT BONDED (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137–1; CA–3 GRADATION.

NTS

SEDIMENT CONTROL LOG TYPE ROCK

Revised: Oct. 2011
SEH Plate No: ERO-29

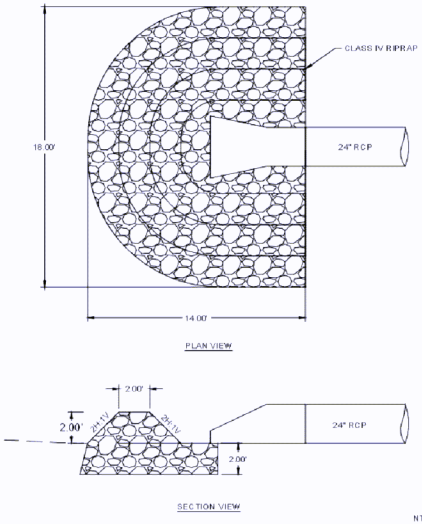


NOTE:
TO PREVENT TRACKING OF MUD ONTO PAVED ROADS, INSTALL ADDITIONAL ROCK OR REMOVE AND REPLACE THE PAD AS REQUIRED

NTS

STABILIZED CONSTRUCTION EXIT

Revised: Oct. 2011
SEH Plate No: ERO-35



NTS

PERMANENT CULVERT INLET PROTECTION

SEH Project	167247	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	KP						
Designed By	HS						
Checked By	JW						

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JEREMY WAID, PE
DATE: 2/6/2023 LICENSE NO. 43131

NEAL STREET RAVINE STABILIZATION

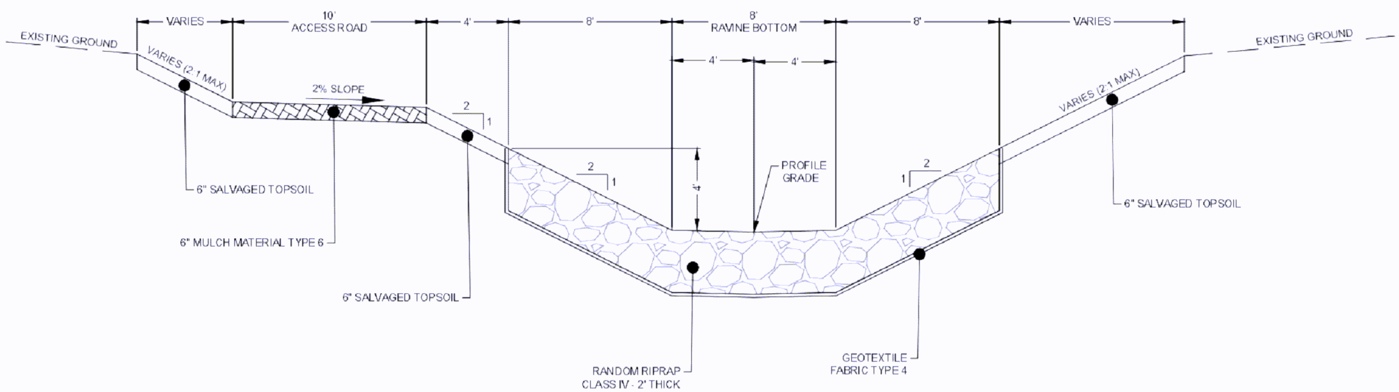
RED WING, MINNESOTA

DETAILS

4 of 28

NEAL STREET RAVINE TYPICAL SECTION

STA 12+00 TO STA 30+00



SEH Project	167247	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	KP						
Designed By	HS						
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SEH

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JEREMY WALGRAVE, PE

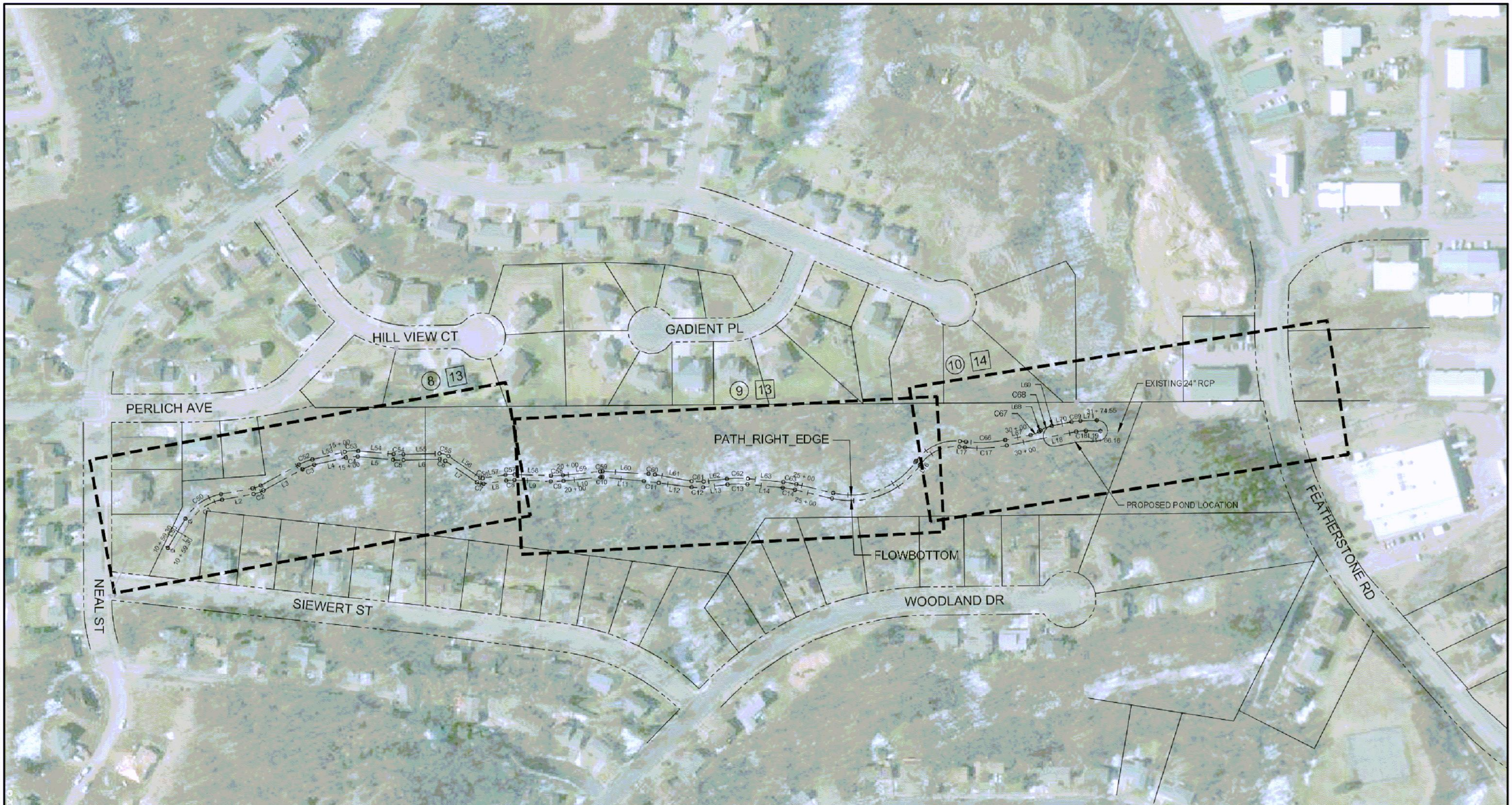
DATE 2/6/2023 LICENSE NO. 43131

NEAL STREET RAVINE STABILIZATION

RED WING, MINNESOTA

TYPICAL SECTION

Save: 2/7/2023 4:21 PM kpederson Plot: 2/8/2023 10:11 AM



COORDINATES:
HORIZONTAL: GOODHUE COUNTY, US FOOT
VERTICAL: NAD83

CONTROL:
N = 235614.1590
E = 652554.9300
ELEV = 678.30
DES: GPS:RW_2_2010_NAD83(96)_NAV88_GOODHUE_CO

LEGEND

(X)	GRADING PLAN AND PROFILE
[XX]	EROSION CONTROL

N

100 0 100 200
scale 50 feet

SEH Project	167247	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	KP						
Designed By	HS						
Checked By	JW						

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LICENSE PROFESSIONAL UNDER THE LAWS OF THE STATE OF MINNESOTA.

JEREMY WALGRAVE, PE
DATE 2/6/2023 LICENSE NO. 43131

NEAL STREET RAVINE STABILIZATION

RED WING, MINNESOTA

GENERAL LAYOUT AND ALIGNMENT PLAN

ALIGNMENT TABULATION - FLOWBOTTOM

POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING
L1	POB	10+59.30				72.13	229590.4917	650432.0680	N 58° 57' 14" W
C1	PC	11+31.43	048° 42' 15"	100.00	45.26	85.00	229627.6907	650370.2709	
L2	PT	12+16.43				68.12	229695.5722	650323.4395	N 10° 14' 59" W
C2	PC	12+84.55	018° 13' 37"	70.00	11.23	22.27	229762.6007	650311.3191	
L3	PT	13+06.82				94.31	229783.5211	650303.9670	N 28° 28' 36" W
C3	PC	14+01.12	015° 28' 56"	100.00	13.59	27.02	229866.4171	650259.0019	
L4	PT	14+28.15				69.50	229891.6115	650249.4639	N 12° 59' 40" W
C4	PC	14+97.65	017° 59' 54"	80.00	12.67	25.13	229959.3364	650233.8353	
L5	PT	15+22.78				75.39	229984.3028	650232.0916	N 05° 00' 14" E
C5	PC	15+98.17	006° 23' 41"	200.00	11.17	22.32	230059.4063	650238.6675	
L6	PT	16+20.49				77.14	230081.7050	650239.3709	N 01° 23' 26" W
C6	PC	16+97.63	035° 28' 58"	20.00	6.40	12.39	230158.8182	650237.4988	
L7	PT	17+10.01				81.37	230170.5140	650240.9301	N 34° 05' 31" E
C7	PC	17+91.39	042° 09' 24"	20.00	7.71	14.72	230237.9021	650286.5416	
L8	PT	18+06.10				48.99	230251.9184	650289.7810	N 08° 03' 53" W
C8	PC	18+55.09	009° 59' 24"	100.00	8.74	17.44	230300.4204	650282.9087	
L9	PT	18+72.53				77.35	230317.8091	650281.9761	N 01° 55' 31" E
C9	PC	19+49.88	007° 46' 12"	200.00	13.58	27.12	230395.1193	650284.5749	
L10	PT	19+77.00				79.47	230422.2050	650283.6481	N 05° 50' 41" W
C10	PC	20+56.47	011° 29' 07"	20.00	2.01	4.01	230501.2585	650275.5558	

ALIGNMENT TABULATION - FLOWBOTTOM

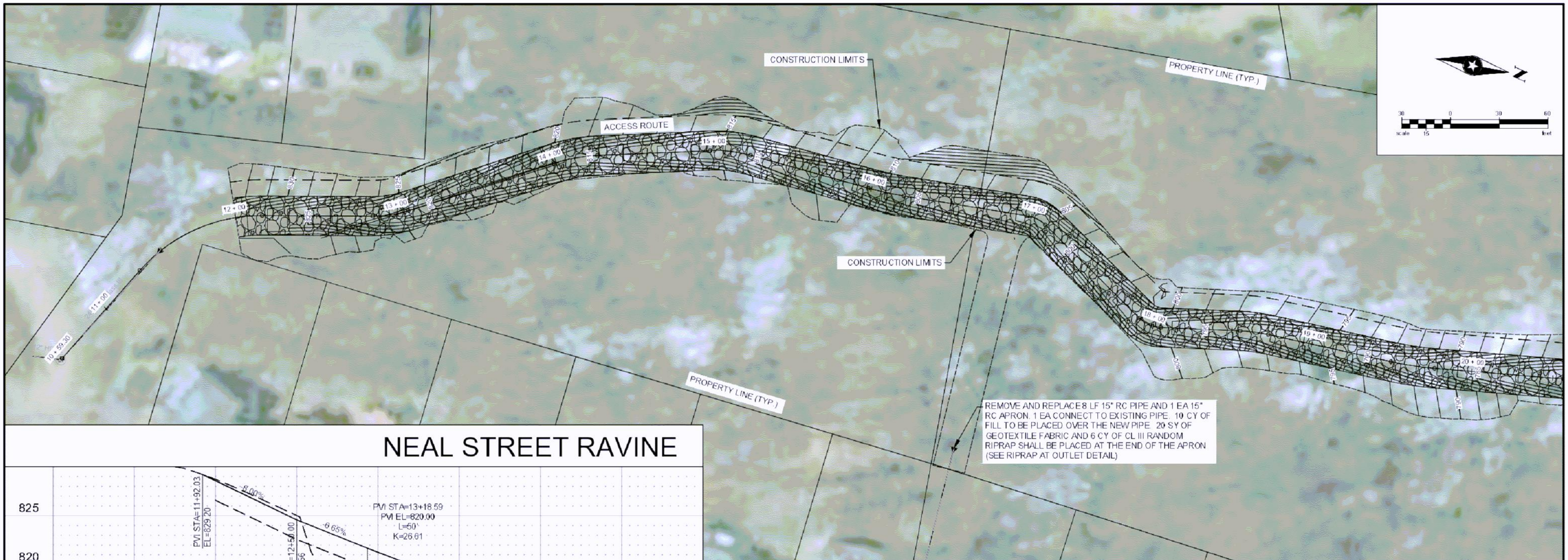
POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING
L11	PT	20+60.48				88.44	230505.2609	650275.5487	N 05° 38' 26" E
C11	PC	21+48.92	001° 49' 25"	1000.00	15.91	31.83	230593.2705	650284.2412	
L12	PT	21+80.74				70.59	230624.8874	650287.8728	N 07° 27' 51" E
C12	PC	22+51.34	014° 03' 12"	100.00	12.33	24.53	230694.8840	650297.0436	
L13	PT	22+75.86				52.17	230719.3494	650297.2304	N 06° 35' 21" W
C13	PC	23+28.04	012° 10' 39"	200.00	21.33	42.51	230771.1791	650291.2436	
L14	PT	23+70.55				75.53	230813.6955	650290.8731	N 05° 35' 19" E
C14	PC	24+46.07	007° 31' 34"	200.00	13.15	26.27	230888.7753	650298.2285	
L16	PT	27+64.68				3.56	231180.3131	650250.9678	N 54° 09' 26" W
L17	PT	28+62.51				12.00	231264.5340	650211.2485	N 05° 51' 10" E
C17	PC	28+74.50	017° 03' 07"	300.00	44.97	89.28	231276.4669	650212.4717	
L18	PT	29+63.78				150.55	231365.3241	650208.3229	N 11° 11' 57" W
C18	PC	31+14.33	012° 08' 26"	100.00	10.63	21.19	231513.0054	650179.0835	
L19	PT	31+35.52				30.64	231534.0703	650177.1928	N 00° 56' 29" E

ALIGNMENT TABULATION - PATH_RIGHT_EDGE

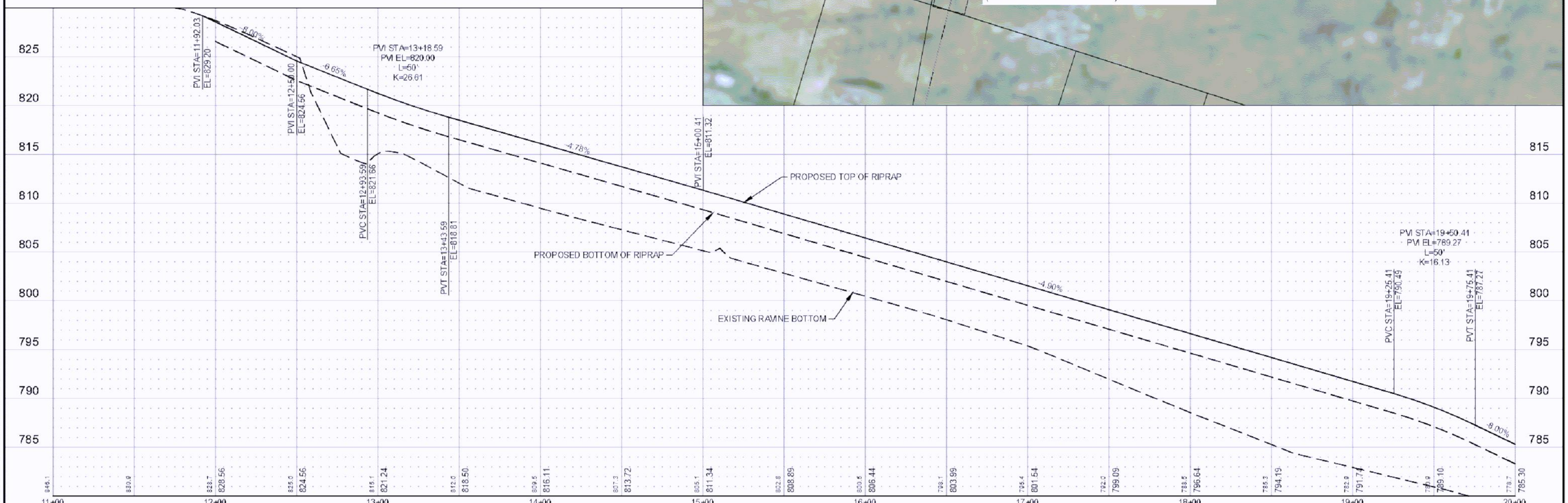
POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING
L50		10+59.30				72.13	229580.2106	650425.8793	N 58° 57' 14" W
C50		11+31.43	048° 42' 15"	112.00	50.69	95.21	229617.4097	650364.0822	
C52		14+06.04	015° 40' 17"	112.00	15.41	30.63	229859.2642	650248.8860	
L53		14+36.68				70.64	229887.8070	650238.0265	N 12° 59' 40" W
C53		15+07.32	017° 59' 54"	92.00	14.57	28.90	229956.6381	650222.1426	
L54		15+36.22				75.39	229985.3495	650220.1373	N 05° 00' 14" E
C54		16+11.61	006° 23' 41"	188.00	10.50	20.98	230060.4529	650226.7132	
L55		16+32.59				77.14	230081.4138	650227.3744	N 01° 23' 26" W
C55		17+09.73	035° 28' 58"	32.00	10.24	19.82	230158.5269	650225.5023	
L56		17+29.54				81.37	230177.2403	650230.9925	N 34° 05' 31" E
C56		18+10.92	042° 09' 24"	8.00	3.08	5.89	230244.6284	650276.6039	
L57		18+16.80				48.99	230250.2349	650277.8997	N 08° 03' 53" W
C57		18+65.79	009° 59' 24"	112.00	9.79	19.53	230298.7369	650271.0273	
L58		18+85.32				77.35	230318.2123	650269.9829	N 01° 55' 31" E
C58		19+62.67	007° 46' 12"	188.00	12.77	25.49	230395.5224	650272.5817	
L59		19+88.17				79.92	230420.9830	650271.7105	N 05° 50' 41" W
C59		20+68.09	008° 54' 59"	32.00	2.49	4.98	230500.4861	650263.5722	
L60		20+73.07				97.75	230505.4595	650263.4518	N 03° 04' 18" E
C60		21+70.81	007° 04' 54"	112.00	6.93	13.84	230603.0658	650268.6896	
L61		21+84.65				79.17	230616.8081	650270.2827	N 10° 09' 12" E
C61		22+63.82	016° 44' 33"	88.00	12.95	25.71	230694.7357	650284.2386	

ALIGNMENT TABULATION - PATH_RIGHT_EDGE

POINT ID	POINT	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING	BEARING
L62		22+89.54				49.78	230720.3464	650285.0355	N 06° 35' 21" W
C62		23+39.32	012° 10' 39"	212.00	22.61	45.06	230769.8021	650279.3228	
L63		23+84.38				75.53	230814.7741	650278.9302	N 05° 35' 19" E
C63		24+59.91	007° 31' 34"	212.00	13.94	27.85	230889.9439	650286.2855	
C66		28+89.19	016° 43' 45"	288.05	42.35	84.11	231278.4864	650290.6158	
L67		29+73.30				55.05	231362.2018	650196.7070	N 11° 11' 52" W
C67		30+28.35	022° 32' 02"	50.00	9.96	19.66	231416.2049	650186.0161	
L68		30+48.01				3.65	231434.2602	650178.5503	N 33° 43' 54" W
C68		30+51.66	022° 12' 23"	67.35	13.22	26.10	231437.2919	650176.5260	
L69		30+77.76				2.60	231461.2354	650166.5453	N 11° 31' 31" W
L70		30+80.36				40.16	231463.7809	650166.0263	N 19° 55' 19" W
C69		31+20.52	008° 37' 19"	125.30	9.45	18.86	231503.2116	650158.4173	
L71		31+39.37				35.18	231521.9244	650156.2485	N 02° 18' 01" W



NEAL STREET RAVINE



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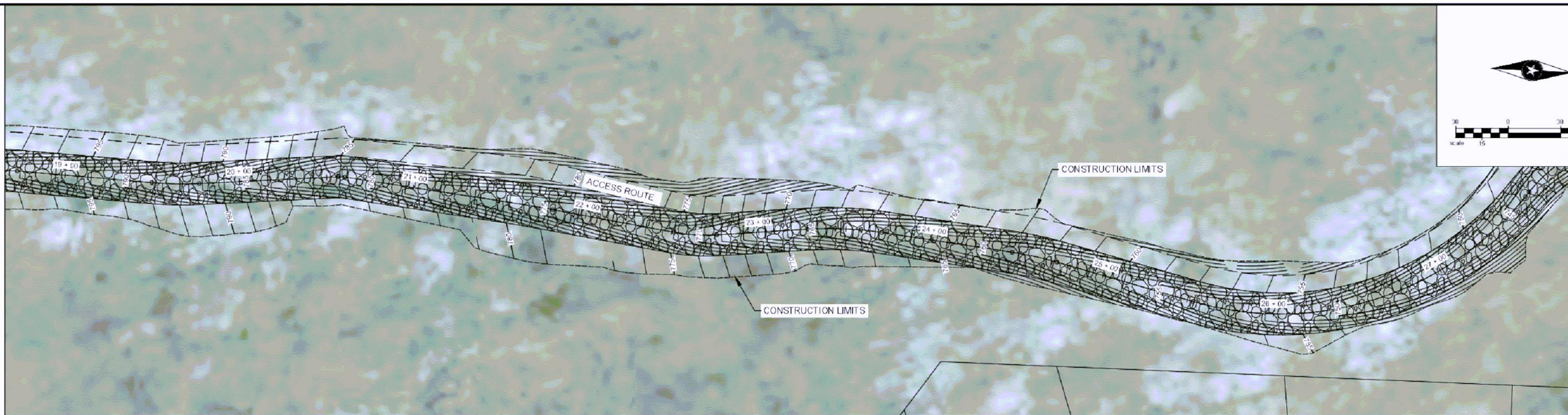
JEREMY WALGRAVE, PE

DATE 2/6/2023 LICENSE NO. 43131

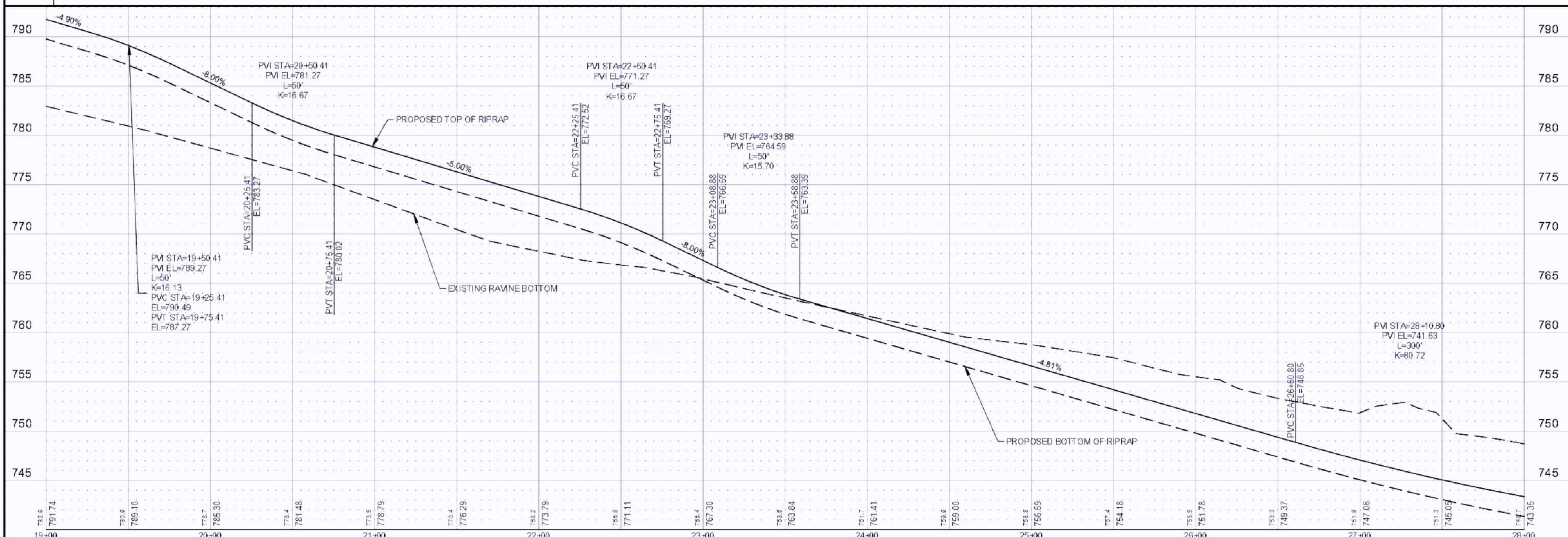
NEAL STREET RAVINE STABILIZATION

RED WING, MINNESOTA

GRADING PLAN AND PROFILE



NEAL STREET RAVINE



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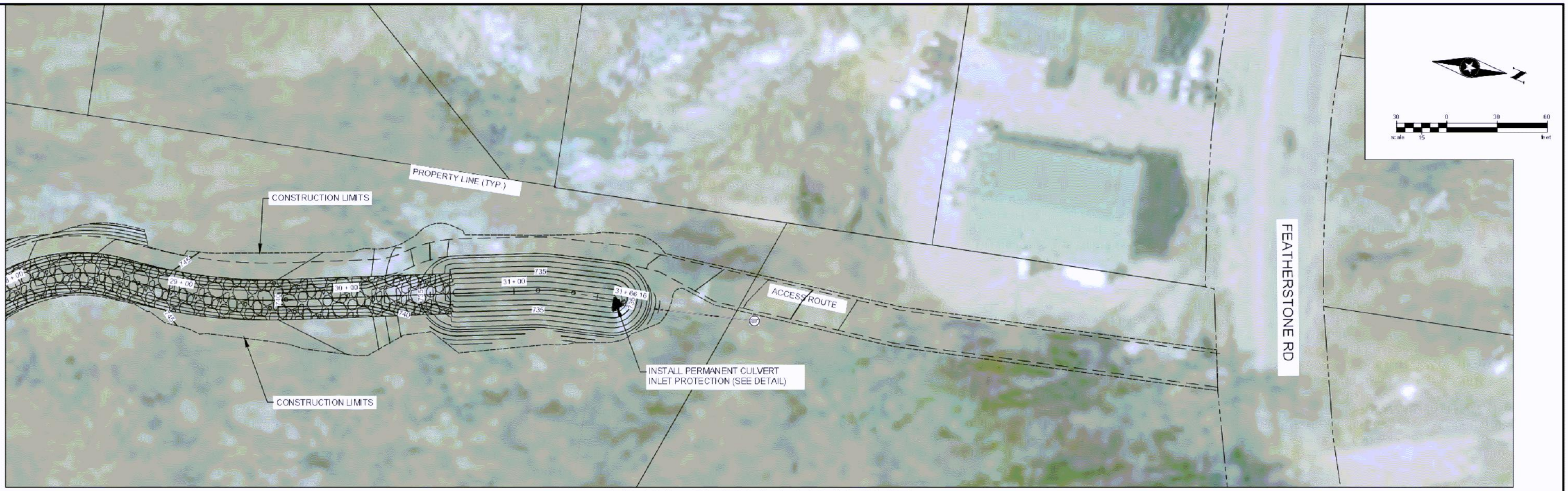
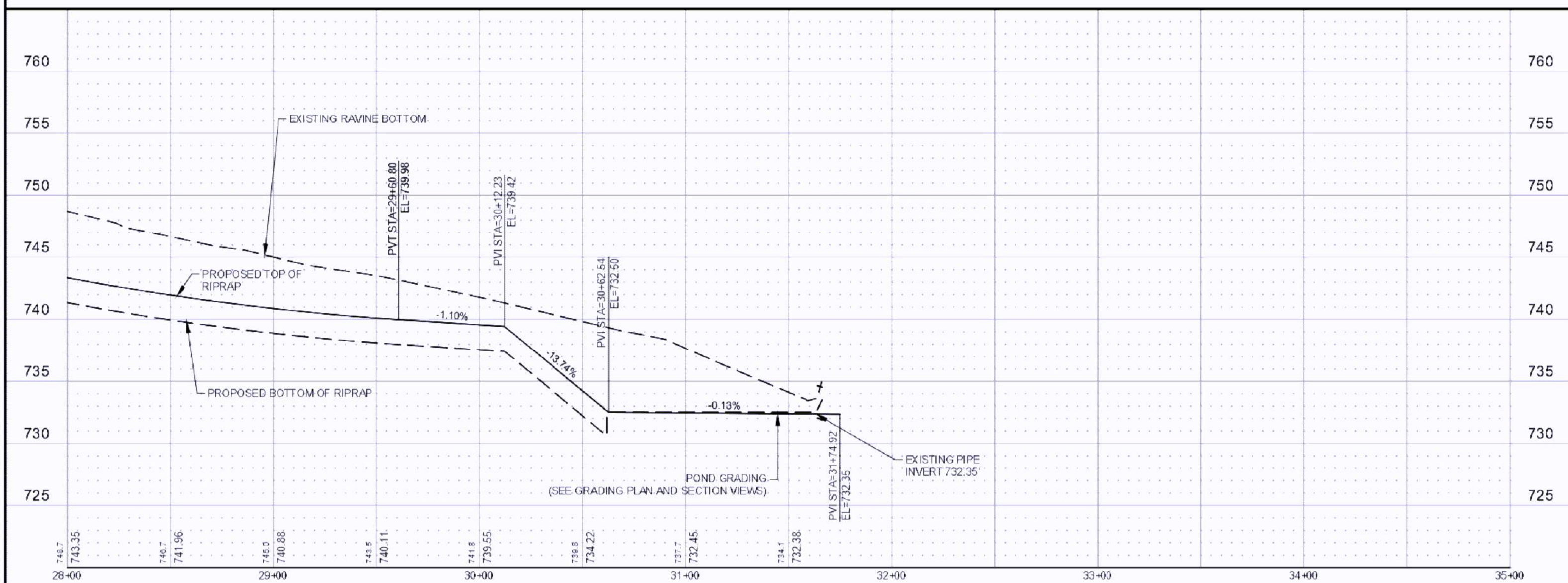
RED WING, MINNESOTA

GRADING PLAN AND PROFILE



NEAL STREET RAVINE



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NEAL STREET RAVINE STABILIZATION
RED WING, MINNESOTA

GRADING PLAN AND PROFILE

SWPPP SUMMARY/OVERVIEW:
THIS STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED TO ADDRESS THE REQUIREMENTS OF NPDES PERMIT MN R100001. THIS SWPPP INCLUDES A COMBINATION OF NARRATIVE AND PLAN SHEETS THAT DESCRIBE THE TEMPORARY AND PERMANENT STORM WATER MANAGEMENT PLAN FOR THE PROJECT.

PROJECT INFORMATION:

LOCATION:	RED WING, MINNESOTA
LATITUDE/LONGITUDE:	44.5507 / -92.5571
PROJECT DESCRIPTION:	RAVINE STABILIZATION
SOIL DISTURBING ACTIVITIES:	GRADING

CONTACTS:

OWNER:	CITY OF RED WING
CONTACT:	KELSEY VAN DEUSEN
ADDRESS:	1020 EAST 5TH STREET RED WING, MN 55066
PHONE:	605.385.5143
EMAIL:	KELSEY.VAN DEUSEN@CI.RED.WING.MN.US

ENGINEER:	SHORT ELLIOTT HENDRICKSON INC. (SEH)
CONTACT:	JEREMY WALGRAVE, PE
PHONE:	605.330.7018
EMAIL:	JWALGRAVE@SEHINC.COM
PROJECT NO.:	167247

KNOWLEDGEABLE PERSON/CHAIN OF RESPONSIBILITY:
THE CONTRACTOR SHALL IDENTIFY A PERSON KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS WHO WILL COORDINATE WITH ALL CONTRACTORS, SUBCONTRACTORS, AND OPERATORS ON-SITE TO OVERSEE THE IMPLEMENTATION OF THE SWPPP.

CONTRACTOR	TBD
CONTACT	TBD
PHONE	TBD
EMAIL	TBD

THE CONTRACTOR SHALL ESTABLISH A CHAIN OF RESPONSIBILITY FOR ALL CONTRACTORS AND SUB-CONTRACTORS ON SITE TO ENSURE THE SWPPP IS BEING PROPERLY IMPLEMENTED AND MAINTAINED. THE CONTRACTOR SHALL PROVIDE THE CHAIN OF RESPONSIBILITY TO THE OWNER AND ATTACH TO THE SWPPP PRIOR TO ANY CONSTRUCTION ACTIVITY.

GENERAL SWPPP RESPONSIBILITIES:
THE CONTRACTOR SHALL KEEP THE SWPPP, INCLUDING ALL AMENDMENTS AND INSPECTION AND MAINTENANCE RECORDS ON SITE DURING CONSTRUCTION.

THE SWPPP WILL BE AMENDED AS NEEDED AND/OR AS REQUIRED BY PROVISIONS OF THE PERMIT. PERMITTEES MUST AMEND THE SWPPP TO INCLUDE ADDITIONAL OR MODIFIED BMPS AS NECESSARY TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS HAVING A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER. AMENDMENTS WILL BE APPROVED BY BOTH THE OWNER AND CONTRACTOR AND WILL BE ATTACHED OR OTHERWISE INCLUDED WITH THE SWPPP DOCUMENTS. THE SWPPP AMENDMENTS SHALL BE INITIATED, FACILITATED, AND PROCESSED BY THE CONTRACTOR.

ALL SWPPP CHANGES MUST BE DONE BY AN INDIVIDUAL TRAINED IN ACCORDANCE WITH SECTION 21.2. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP MUST INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.

BOTH THE OWNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER TERMINATION AND/OR TRANSFER OF THE PERMIT.

LONG TERM OPERATION AND MAINTENANCE:
THE OWNER WILL BE RESPONSIBLE OR WILL OTHERWISE IDENTIFY WHO WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM(S).

THE OWNER WILL PREPARE AND IMPLEMENT A PERMANENT STORMWATER TREATMENT SYSTEM(S) MAINTENANCE PLAN.

IMPLEMENTATION SEQUENCE:
THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING SEQUENCE.
THE ENGINEER MAY APPROVE ADJUSTMENTS TO THE SEQUENCE AS NEEDED.

1.	INSTALL ROCK CONSTRUCTION ENTRANCE(S)
2.	INSTALL PERIMETER CONTROL AND STABILIZE DOWN GRADIENT BOUNDARIES
3.	INSTALL INLET PROTECTION ON EXISTING CATCH BASINS
4.	COMPLETE SITE GRADING
5.	INSTALL UTILITIES, STORM SEWER, INLET PROTECTION, CURB & GUTTER, PAVING
6.	COMPLETE FINAL GRADING AND STABILIZE DISTURBED AREAS
7.	AFTER CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, REMOVE ACCUMULATED SEDIMENT, REMOVE BMPS, AND RE-STABILIZE ANY AREAS DISTURBED BY THEIR REMOVAL.
8.	INSTALL FILTRATION MEDIA

TRAINING DOCUMENTATION:

PREPARER/DESIGNER OF SWPPP:	KELSEY WALTZ, PE
EMPLOYER:	SEH
DATE OBTAINED / REFRESHED:	2022
INSTRUCTOR(S)/ENTITY PROVIDING TRAINING:	UNIVERSITY OF MINNESOTA / DWAYNE STENLUND

CONTENT OF TRAINING AVAILABLE UPON REQUEST.

THE CONTRACTOR (OPERATOR) SHALL ADD TO THE SWPPP TRAINING RECORDS FOR THE FOLLOWING PERSONNEL:

- INDIVIDUALS OVERSEEING THE IMPLEMENTATION OF, REVISING, AND AMENDING THE SWPPP
- INDIVIDUALS PERFORMING INSPECTIONS
- INDIVIDUALS PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPS

TRAINING MUST RELATE TO THE INDIVIDUAL'S JOB DUTIES AND RESPONSIBILITIES AND SHALL INCLUDE:

1) DATES OF TRAINING
2) NAME OF INSTRUCTORS
3) CONTENT AND ENTITY PROVIDING TRAINING

THE CONTRACTOR SHALL ENSURE THAT THE INDIVIDUALS ARE TRAINED BY LOCAL, STATE, FEDERAL AGENCIES, PROFESSIONAL ORGANIZATIONS, OR OTHER ENTITIES WITH EXPERTISE IN EROSION PREVENTION, SEDIMENT CONTROL, PERMANENT STORMWATER MANAGEMENT AND THE MINNESOTA NPDES/SDS CONSTRUCTION STORMWATER PERMIT.

PROJECT SUMMARY:

TOTAL DISTURBED AREA:	2.45 AC
PRE-CONSTRUCTION IMPERVIOUS AREA:	0 AC
POST-CONSTRUCTION IMPERVIOUS AREA:	0 AC
IMPERVIOUS AREA ADDED:	0 AC

RECEIVING WATER(S) WITHIN ONE MILE FROM PROJECT BOUNDARIES:
(http://pca-gis02.pca.state.mn.us/CSW/index.html)

ID	NAME	TYPE	SPECIAL WATER?	IMPAIRED WATER?	CONSTRUCTION RELATED IMPAIRMENT OR SPECIAL WATER CLASSIFICATION	TMDL
M-046-000.5	NA	STREAM	Y	N	TROUT	NA
M-046	HAY CREEK	STREAM	Y	N	TROUT	NA
ADDITIONAL BMPS AND/OR ACTIONS REQUIRED:						
23.9: Permittees must immediately initiate stabilization of exposed soil areas, as described in item 8.4, and complete the stabilization within seven (7) calendar days after the construction activity in that portion of the site temporarily or permanently ceases. 23.10: Permittees must provide a temporary sediment basin as described in Section 14 for common drainage locations that serve an area with five (5) or more acres disturbed at one time. 23.11: Permittees must include an undisturbed buffer zone of not less than 100 linear feet from a special water (not including tributaries) and must maintain this buffer zone at all times, both during construction and as a permanent feature post construction, except where a water crossing or other encroachment is necessary to complete the project. Permittees must fully document the circumstance and reasons the buffer encroachment is necessary in the SWPPP and include restoration activities. This permit allows replacement of existing impervious surface within the buffer. Permittees must minimize all potential water quality, scenic and other environmental impacts of these exceptions by the use of additional or redundant BMPs and must document this in the SWPPP for the project. 23.12: Permittees must design the permanent stormwater treatment system so the discharge from the project minimizes any increase in the temperature of trout streams resulting from the one (1) and two (2) year 24-hour precipitation events.						
SEE SECTION 23 OF THE PERMIT AND APPLICABLE TMDL WLA'S						

WATERBODY	NO WORK DURING
LAKES	APRIL 1 - JUNE 30
NON-TROUT STREAMS	MARCH 15 - JUNE 15
TROUT STREAMS	SEPTEMBER 1 - APRIL 1

SITE SOIL INFORMATION: (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)
(SOIL INFORMATION PROVIDED IS FOR NPDES PERMIT INFORMATION ONLY. SOIL INFORMATION WAS OBTAINED FROM THE USGS WEBSITE. THE CONTRACTOR SHALL NOT RELY ON THIS SOIL INFORMATION FOR CONSTRUCTION PURPOSES.)

SOIL NAME:	HYDROLOGIC CLASSIFICATION:
N609E-HAWICK SANDY LOAM, 18%-45% SLOPES	A
ANTICIPATED RANGE OF PARTICLE SIZES	X

THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE SWPPP:
PLAN AND PROFILE PLAN SHEETS:
EROSION AND SEDIMENT CONTROL PLAN SHEETS:
TURF ESTABLISHMENT PLAN SHEETS:
STORM SEWER PLAN & PROFILE PLAN SHEETS:
GRADING PLAN SHEETS:
DETAIL PLAN SHEETS:
SWPPP NOTE AND DETAIL SHEETS:
PROJECT SPECIFICATIONS
PROJECT BID FORM

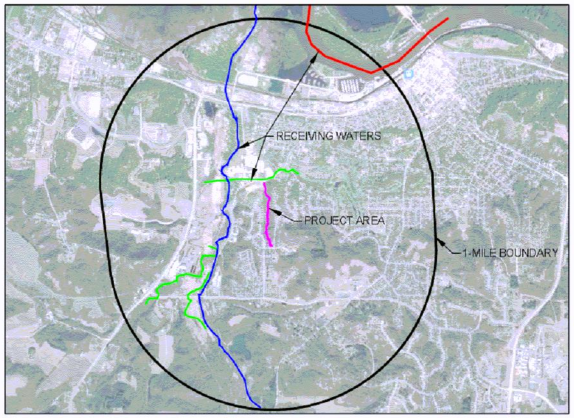
TEMPORARY BMP DESIGN FACTORS:
EROSION PREVENTION AND SEDIMENT CONTROL BMP'S MUST BE DESIGNED TO ACCOUNT FOR:

THE EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION OF PRECIPITATION.

THE NATURE OF STORMWATER RUNOFF AND RON-ON AT THE SITE, INCLUDING FACTORS SUCH AS EXPECTED FLOW FROM IMPERVIOUS SURFACES, SLOPES, AND SITE DRAINAGE FEATURES.

THE STORMWATER VOLUME, VELOCITY, AND PEAK FLOW RATES TO MINIMIZE DISCHARGE OF POLLUTANTS IN STORMWATER AND TO MINIMIZE CHANNEL AND STREAMBANK EROSION AND SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS.

THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT.



EROSION PREVENTION MEASURES AND TIMING:
THE CONTRACTOR IS RESPONSIBLE FOR ALL EROSION PREVENTION MEASURES FOR THE PROJECT.

EROSION PREVENTION MEASURES SHOWN ON PLANS ARE THE ABSOLUTE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL EROSION PREVENTION MEASURES AS NECESSARY TO PROPERLY MANAGE THE PROJECT AREA.

THE CONTRACTOR SHALL PLAN AND IMPLEMENT APPROPRIATE CONSTRUCTION PRACTICES AND CONSTRUCTION PHASING TO MINIMIZE EROSION AND RETAIN VEGETATION WHENEVER POSSIBLE.

THE PERMITTEE SHALL DELINEATE AREAS NOT TO BE DISTURBED. PERMITTEE(S) MUST MINIMIZE THE NEED FOR DISTURBANCE OF PORTIONS OF THE PROJECT WITH STEEP SLOPES. WHEN STEEP SLOPES MUST BE DISTURBED, PERMITTEES MUST USE TECHNIQUES SUCH AS PHASING AND STABILIZATION PRACTICES DESIGNED FOR STEEP SLOPES.

THE CONTRACTOR SHALL STABILIZE OF ALL EXPOSED SOILS IMMEDIATELY TO LIMIT SOIL EROSION. IN NO CASE SHALL ANY EXPOSED AREAS, INCLUDING STOCK PILES, HAVE EXPOSED SOILS FOR MORE THAN 14 DAYS WITHOUT PROVIDING TEMPORARY OR PERMANENT STABILIZATION. STABILIZATION MUST BE COMPLETED WITHIN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT CLAY, SILT, OR ORGANIC COMPONENTS DO NOT REQUIRE STABILIZATION.

DRAINAGE PATHS, DITCHES, AND/OR SWALES SHALL HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER OR 24 HOURS AFTER CONSTRUCTION ACTIVITY IN THE DITCH/SWALE HAS TEMPORARILY OR PERMANENTLY CEASED.

THE CONTRACTOR SHALL COMPLETE THE STABILIZATION OF ALL EXPOSED SOILS WITHIN 24 HOURS THAT LIE WITHIN 200 FEET OF PUBLIC WATERS PROMULGATED "WORK IN WATER RESTRICTIONS" BY THE MN DNR DURING SPECIFIED FISH SPAWNING TIMES.

THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL BMPS AND VELOCITY DISSIPATION DEVICES ALONG CONSTRUCTED STORMWATER CONVEYANCE CHANNELS AND OUTLETS.

THE CONTRACTOR SHALL STABILIZE TEMPORARY AND/OR PERMANENT DRAINAGE DITCHES OR SWALES WITHIN 200 LINEAL FEET FROM PROPERTY EDGE, OR DISCHARGE POINT(S) WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.

TEMPORARY OR PERMANENT DITCHES OR SWALES USED AS A SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM.

THE CONTRACTOR SHALL NOT UTILIZE HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES AS A FORM OF STABILIZATION FOR TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALE SECTION WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.

THE CONTRACTOR SHALL ENSURE PIPE OUTLETS HAVE TEMPORARY OR PERMANENT ENERGY DISSIPATION WITH IN 24 HOURS OF CONNECTION TO A SURFACE WATER.

THE CONTRACTOR SHALL DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION. VELOCITY DISSIPATION DEVICES MUST BE USED TO PREVENT EROSION WHEN DIRECTING STORMWATER TO VEGETATED AREAS.

SEDIMENT CONTROL MEASURES AND TIMING:
THE CONTRACTOR IS RESPONSIBLE FOR ALL SEDIMENT CONTROL MEASURES FOR THE PROJECT.

SEDIMENT CONTROL MEASURES SHOWN ON PLANS ARE THE ABSOLUTE MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL SEDIMENT CONTROL MEASURES AS NECESSARY TO PROPERLY MANAGE THE PROJECT AREA.

THE CONTRACTOR SHALL ENSURE SEDIMENT CONTROL MEASURES ARE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE MEASURES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

A FLOATING SILT CURTAIN PLACED IN THE WATER IS NOT A SEDIMENT CONTROL BMP EXCEPT WHEN WORKING ON A SHORELINE OR BELOW THE WATERLINE. IMMEDIATELY AFTER THE SHORT TERM CONSTRUCTION ACTIVITY IS COMPLETE, PERMITTEE(S) MUST INSTALL AN UPLAND PERIMETER CONTROL PRACTICE IF EXPOSED SOILS STILL DRAIN TO A SURFACE WATER.

THE CONTRACTOR SHALL ENSURE SEDIMENT CONTROL PRACTICES REMOVED OR ADJUSTED FOR SHORT-TERM ACTIVITIES BE RE-INSTALLED IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED. SEDIMENT CONTROL PRACTICES MUST BE REINSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.

THE CONTRACTOR SHALL ENSURE STORM DRAIN INLETS ARE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED.

THE CONTRACTOR SHALL PROVIDE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROL AT THE BASE OF THE STOCKPILES.

THE CONTRACTOR SHALL INSTALL PERIMETER CONTROL AROUND ALL STAGING AREAS, BORROW PITS, AND AREAS CONSIDERED ENVIRONMENTALLY SENSITIVE.

THE CONTRACTOR SHALL ENSURE VEHICLE TRACKING BE MINIMIZED WITH EFFECTIVE BMPS. WHERE THE BMPS FAIL TO PREVENT SEDIMENT FROM TRACKING ONTO STREETS THE CONTRACTOR SHALL CONDUCT STREET SWEEPING TO REMOVE ALL TRACKED SEDIMENT.

THE CONTRACTOR SHALL IMPLEMENT CONSTRUCTION PRACTICES TO MINIMIZE SOIL COMPACTION.

THE CONTRACTOR SHALL ENSURE ALL CONSTRUCTION ACTIVITY REMAIN WITHIN PROJECT LIMITS AND THAT ALL IDENTIFIED RECEIVING WATER BUFFERS ARE MAINTAINED.

RECEIVING WATER	NATURAL BUFFER	IS THE BUFFER BEING ENCROACHED ON?	REASON FOR BUFFER ENCROACHMENT
M046-000.5 TROUT STREAM	50 FT	NO	NA
M046 TROUT STREAM	100 FT	NO	NA

A 50 FOOT NATURAL BUFFER MUST BE PRESERVED OR PROVIDE REDUNDANT (DOUBLE) PERIMETER SEDIMENT CONTROLS IF NATURAL BUFFER IS INFEASIBLE.

THE CONTRACTOR SHALL NOT UTILIZE SEDIMENT CONTROL CHEMICALS ON SITE.

INSPECTION AND MAINTENANCE:
ALL INSPECTIONS, MAINTENANCE, REPAIRS, REPLACEMENTS, AND REMOVAL OF BMPS IS TO BE CONSIDERED INCIDENTAL TO THE BMP BID ITEMS.

THE PERMITTEE(S) IS RESPONSIBLE FOR COMPLETING SITE INSPECTIONS, AND BMP MAINTENANCE TO ENSURE COMPLIANCE WITH THE PERMIT REQUIREMENTS.

THE PERMITTEE(S) SHALL INSPECT THE CONSTRUCTION SITE ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

THE PERMITTEE(S) SHALL DOCUMENT A WRITTEN SUMMARY OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES CONDUCTED WITHIN 24 HOURS OF OCCURRENCE. RECORDS OF EACH ACTIVITY SHALL INCLUDE THE FOLLOWING:

-DATE AND TIME OF INSPECTIONS;
-NAME OF PERSON(S) CONDUCTING INSPECTION;
-FINDINGS AND RECOMMENDATIONS FOR CORRECTIVE ACTIONS IF NECESSARY;
-CORRECTIVE ACTIONS TAKEN;
-DATE AND AMOUNT OF RAINFALL EVENTS;
-POINTS OF DISCHARGE OBSERVED DURING INSPECTION AND DESCRIPTION OF THE DISCHARGE
-AMENDMENTS MADE TO THE SWPPP.

THE PERMITTEE(S) SHALL SUBMIT A COPY OF THE WRITTEN INSPECTIONS TO THE ENGINEER AND OWNER ON A MONTHLY BASIS. IF MONTHLY INSPECTION REPORTS ARE NOT SUBMITTED, MONTHLY PAYMENTS MAY BE HELD.

THE CONTRACTOR SHALL DOCUMENT AMENDMENTS TO THE SWPPP AS A RESULT OF INSPECTION(S) WITHIN 7 DAYS.

THE CONTRACTOR SHALL KEEP THE SWPPP, ALL INSPECTION REPORTS, AND AMENDMENTS ONSITE. THE CONTRACTOR SHALL DESIGNATE A SPECIFIC ONSITE LOCATION TO KEEP THE RECORDS

THE CONTRACTOR IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY BMP'S, AS WELL AS EROSION AND SEDIMENT CONTROL BMP'S.

THE CONTRACTOR SHALL INSPECT EROSION PREVENTION AND SEDIMENTATION CONTROL BMPS TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPS SHALL BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS WITHIN 24 HOURS OF FINDING. THE CONTRACTOR SHALL INVESTIGATE AND COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS:

PERIMETER CONTROL DEVICES, INCLUDING SILT FENCE SHALL BE REPAIRED, OR REPLACED, WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE DEVICE HEIGHT. THESE REPAIRS SHALL BE MADE WITHIN 24 HOURS OF DISCOVERY.

TEMPORARY AND PERMANENT SEDIMENT BASINS SHALL BE DRAINED AND THE SEDIMENT REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME. DRAINAGE AND REMOVAL MUST BE COMPLETED WITHIN 72 HOURS OF DISCOVERY.

SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. THE CONTRACTOR SHALL REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. THE CONTRACTOR SHALL RE-STABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN 7 DAYS OF DISCOVERY, UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL CONSTRAINTS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AUTHORITIES AND OBTAIN ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK IN SURFACE WATERS.

CONSTRUCTION SITE VEHICLE EXIT LOCATIONS SHALL BE INSPECTED DAILY FOR EVIDENCE OF SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES WITHIN 24 HOURS OF DISCOVERY.

IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED IN A MANOR AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS.

EROSION PREVENTION BMP SUMMARY:
SEE EROSION AND SEDIMENT CONTROL PLAN SHEET AND BID FORM FOR TYPE, LOCATION, AND QUANTITY OF EROSION PREVENTION BMPS.

SEDIMENT CONTROL BMP SUMMARY:
SEE EROSION AND SEDIMENT CONTROL PLAN SHEETS AND BID FORM FOR TYPE, LOCATION, AND QUANTITY OF SEDIMENT CONTROL BMPS.

POLLUTION PREVENTION MANAGEMENT MEASURES:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POLLUTION PREVENTION MANAGEMENT MEASURES.

ALL POLLUTION PREVENTION MEASURES ARE CONSIDERED INCIDENTAL TO THE MOBILIZATION BID ITEM, UNLESS OTHERWISE NOTED.

THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL, IN COMPLIANCE WITH MPCA DISPOSAL REQUIREMENTS, OF ALL HAZARDOUS MATERIALS, SOLID WASTE, AND PRODUCTS ON-SITE.

THE CONTRACTOR SHALL ENSURE BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEAK POLLUTANTS ARE KEPT UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS.

THE CONTRACTOR SHALL ENSURE PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS ARE COVERED TO PREVENT THE DISCHARGE OF POLLUTANTS.

THE CONTRACTOR SHALL ENSURE HAZARDOUS MATERIALS AND TOXIC WASTE IS PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR HAZARDOUS MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

THE CONTRACTOR SHALL ENSURE ASPHALT SUBSTANCES USED ON-SITE SHALL ARE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

THE CONTRACTOR SHALL ENSURE PAINT CONTAINERS AND CURING COMPOUNDS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT AND/OR CURING COMPOUNDS SHALL NOT BE DISCHARGED INTO THE STORM SEWER SYSTEM AND SHALL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURE'S INSTRUCTION.

THE CONTRACTOR SHALL ENSURE SOLID WASTE BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN. R. CH. 7035.

THE CONTRACTOR SHALL ENSURE POTABLE TOILETS ARE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R, CH. 7041.

THE CONTRACTOR SHALL MONITOR ALL VEHICLES ON-SITE FOR LEAKS AND RECEIVE REGULAR PREVENTION MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.

THE CONTRACTOR SHALL ENSURE WASHOUT WASTE MUST CONTACT THE GROUND AND BE PROPERLY DISPOSED OF IN COMPLIANCE WITH MPCA RULES.

THE CONTRACTOR SHALL INCLUDE SPILL KITS WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES. SECONDARY CONTAINMENT MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.

THE CONTRACTOR SHALL ENSURE SPILLS ARE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM WATER CONVEYANCE SYSTEM SHALL BE REPORTED TO THE MINNESOTA DUTY OFFICER AT 1.800.422.0798.

PERMIT TERMINATION CONDITIONS:
THE CONTRACTOR IS RESPONSIBLE FOR ENSURING FINAL STABILIZATION OF THE ENTIRE SITE. PERMIT TERMINATION CONDITIONS INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

ALL SOIL DISTURBING ACTIVITIES HAVE BEEN COMPLETED.

ALL EXPOSED SOILS HAVE BEEN UNIFORMLY STABILIZED WITH AT LEAST 70% VEGETATION COVERAGE.

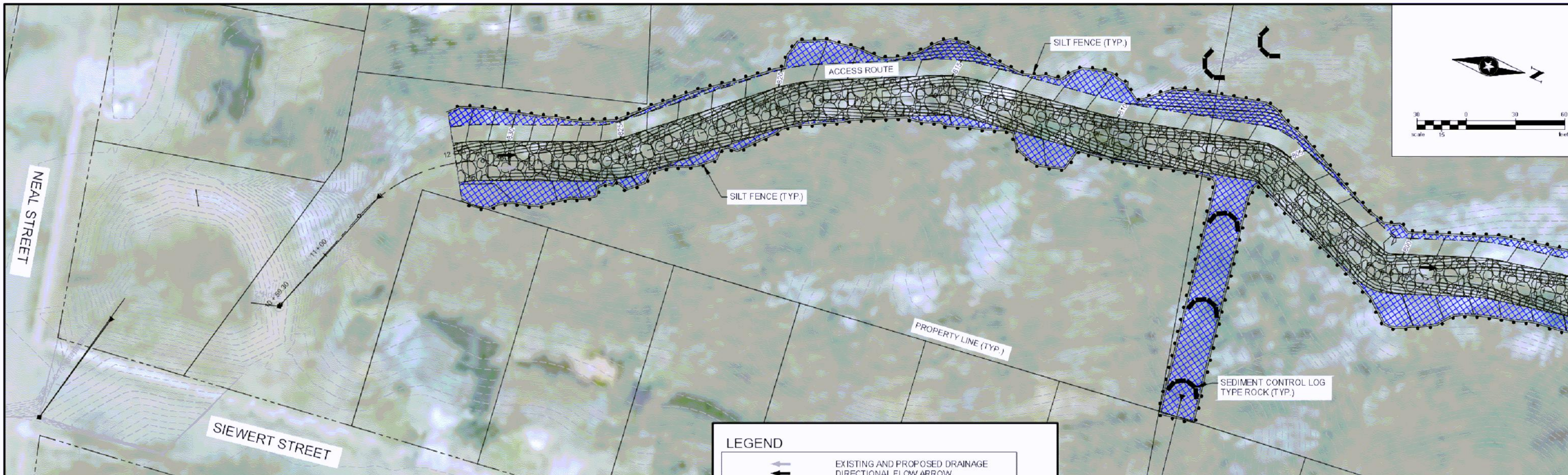
PERMANENT STORM WATER MANAGEMENT SYSTEM(S) ARE CONSTRUCTED AND ARE OPERATING AS DESIGNED.

ALL DRAINAGE DITCHES, PONDS, AND ALL STORM WATER CONVEYANCE SYSTEMS HAVE BEEN CLEARED OF SEDIMENT AND STABILIZED WITH PERMANENT COVER TO PRECLUDE EROSION.

ALL TEMPORARY SYNTHETIC BMPS HAVE BEEN REMOVED AND PROPERLY DISPOSED OF.

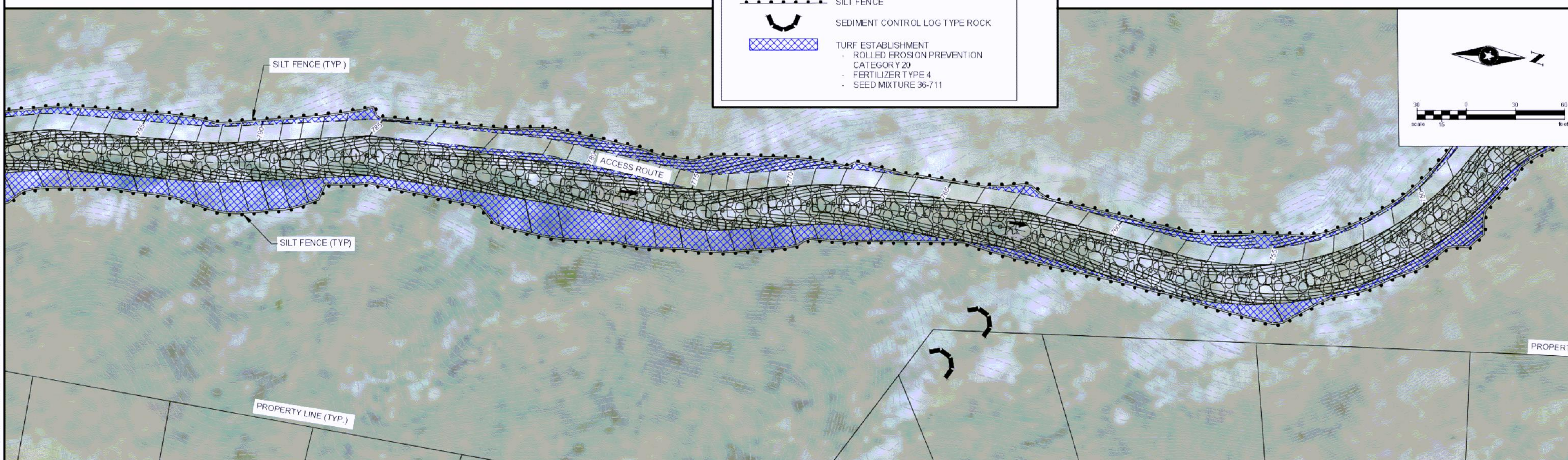
IN RESIDENTIAL CONSTRUCTION, INDIVIDUAL LOTS ARE CONSIDERED FINALLY STABILIZED IF THE STRUCTURE(S) ARE FINISHED AND TEMPORARY EROSION PROTECTION AND DOWNGRADIENT PERIMETER CONTROL HAS BEEN COMPLETED, THE RESIDENCE HAS BEEN SOLD TO THE HOMEOWNER, AND THE HOMEOWNER HAS BEEN PROVIDED A "HOMEOWNER FACT SHEET" BY THE CONTRACTOR.

AGRICULTURAL LAND DISTURBED HAS BEEN RETURNED TO ITS PRECONSTRUCTION AGRICULTURAL USE.



LEGEND

	EXISTING AND PROPOSED DRAINAGE DIRECTIONAL FLOW ARROW
	STABILIZED CONSTRUCTION EXIT
	SILT FENCE
	SEDIMENT CONTROL LOG TYPE ROCK
	TURF ESTABLISHMENT - ROLLED EROSION PREVENTION CATEGORY 20 - FERTILIZER TYPE 4 - SEED MIXTURE 36-711



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SEH Project	167247
Drawn By	KP
Designed By	HS
Checked By	JW

Rev.#	Revision Issue Description	Date

Rev.#	Revision Issue Description	Date

SEH

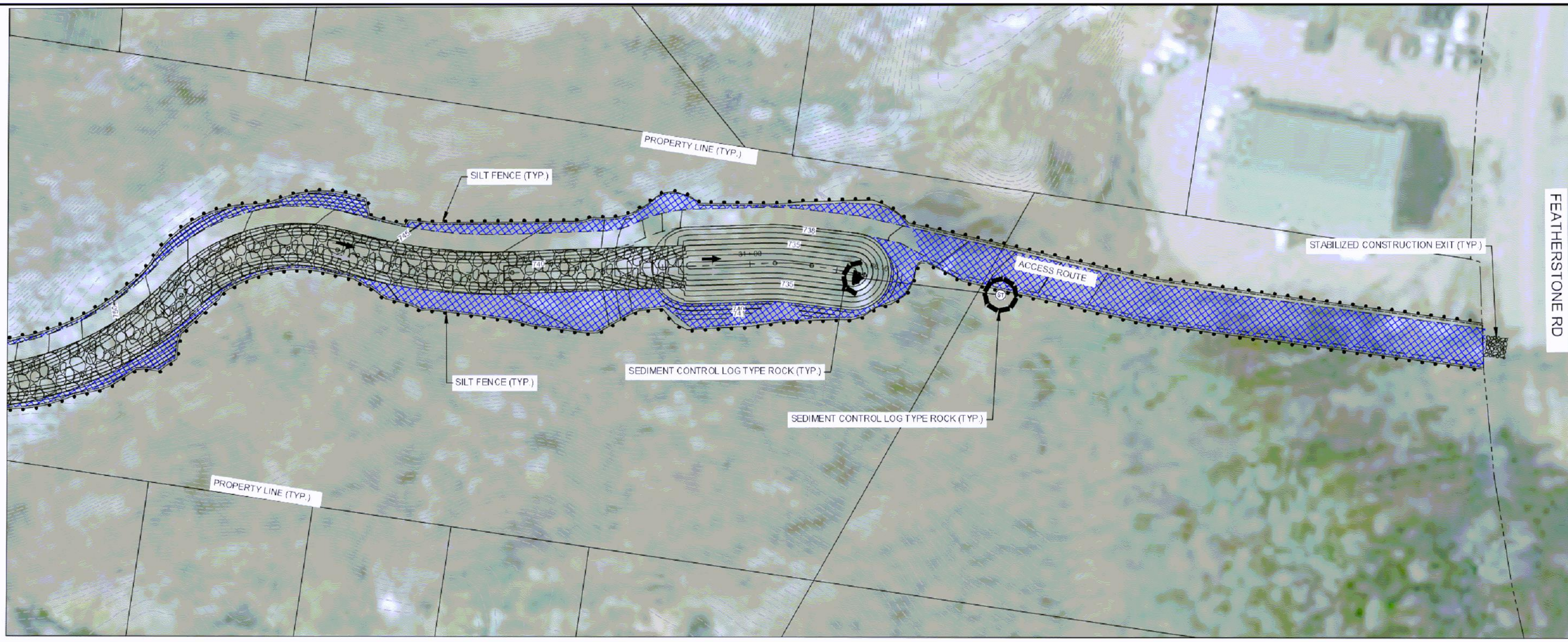
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LICENSE PROFESSIONAL UNDER THE LAWS OF THE STATE OF MINNESOTA.

JEREMY WALGRAVE, PE
DATE 2/6/2023 LICENSE NO. 43131

NEAL STREET RAVINE STABILIZATION

RED WING, MINNESOTA

EROSION CONTROL



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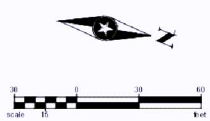

SEH Project	167247	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
Drawn By	KP						
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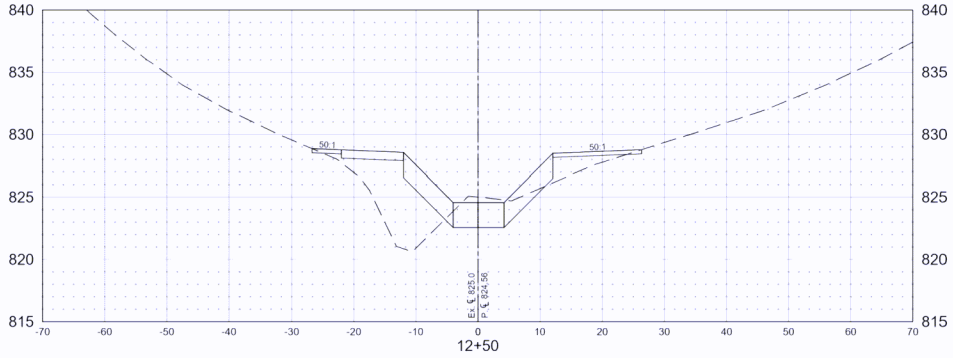
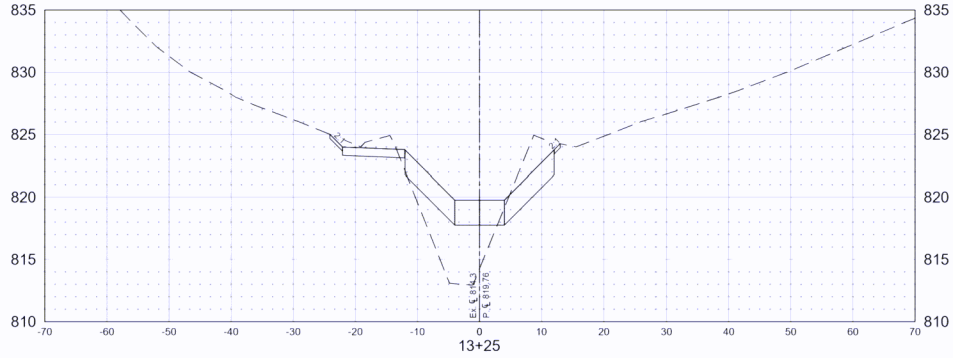
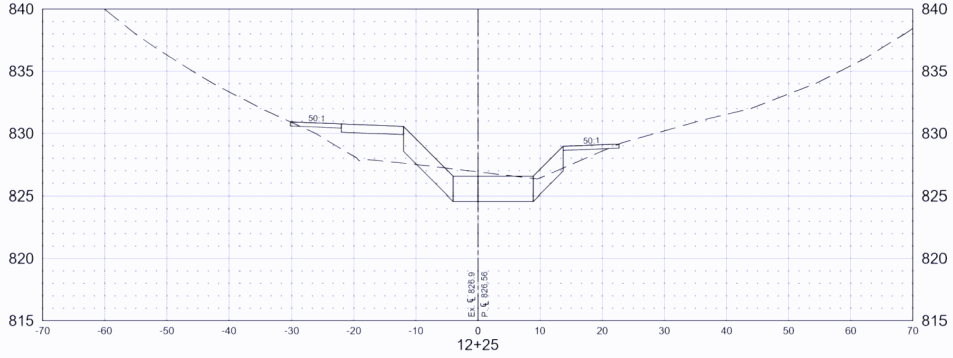
NEAL STREET RAVINE STABILIZATION

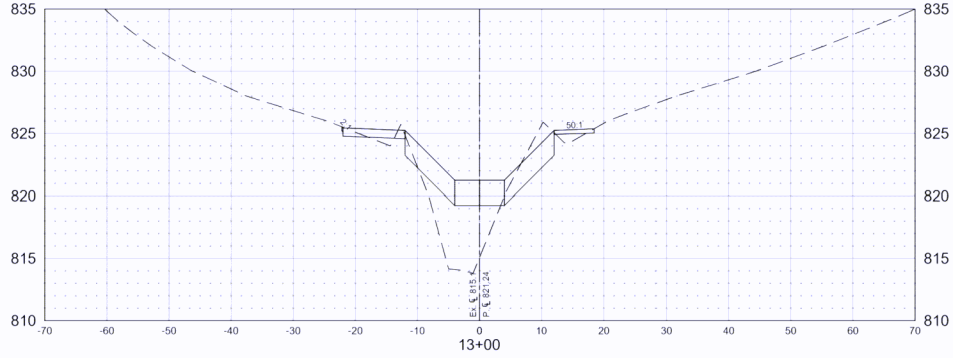
RED WING, MINNESOTA

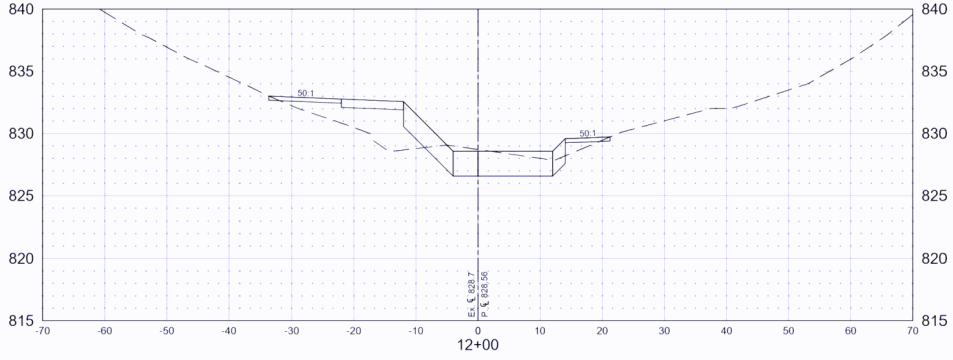
EROSION CONTROL

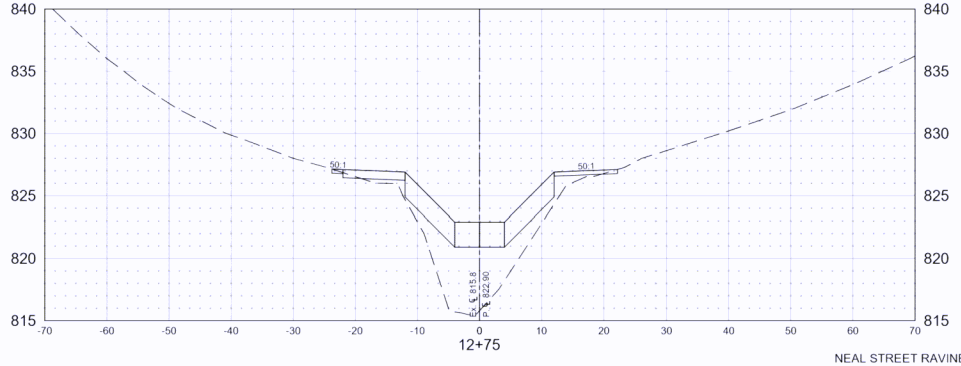






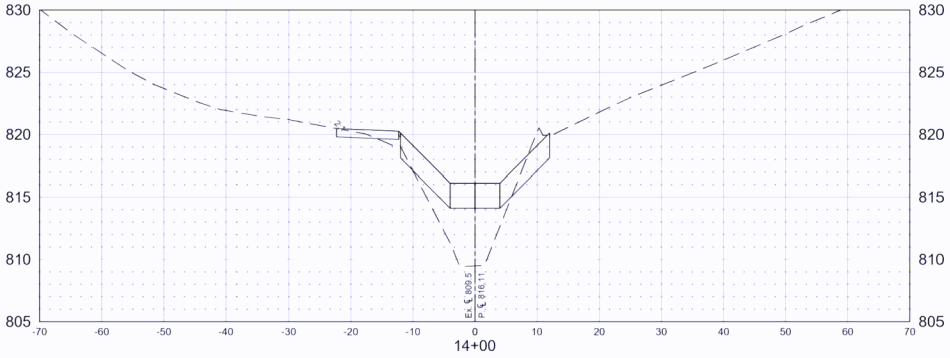


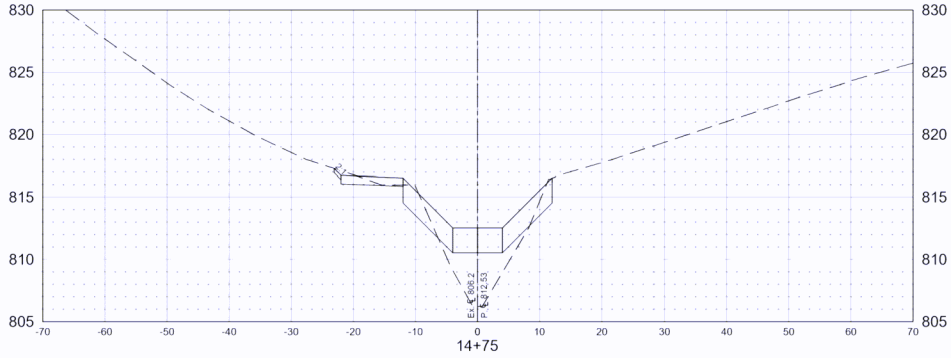


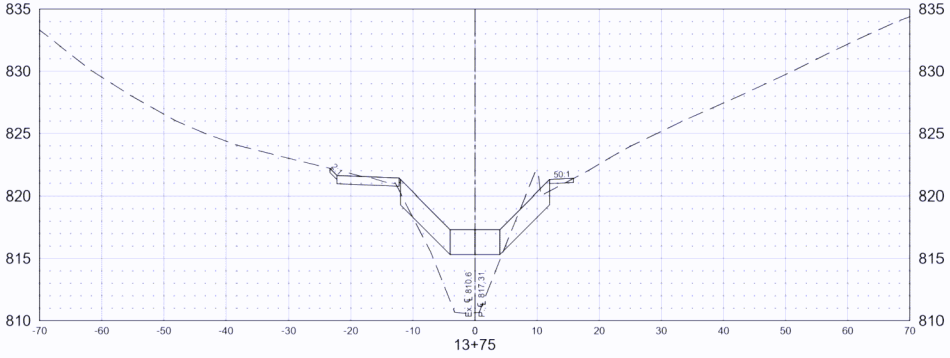


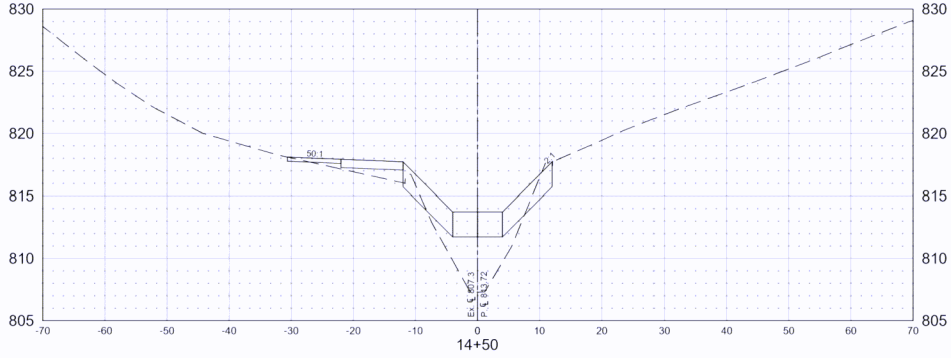
NEAL STREET RAVINE
STA. 12+00 - STA. 13+25

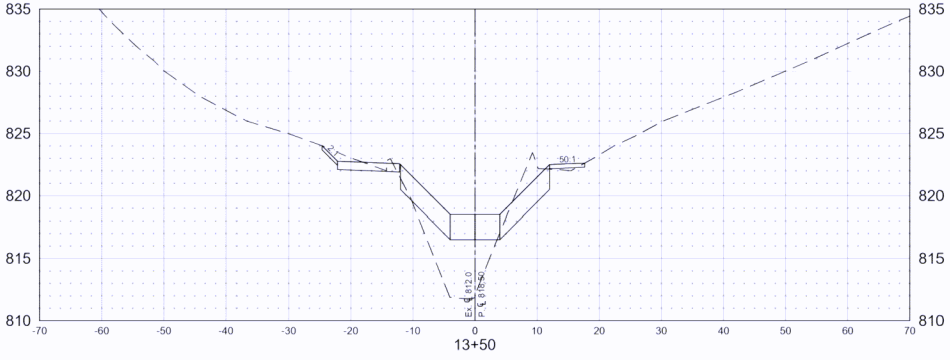
Sheet No. 15 Of 28 Sheets

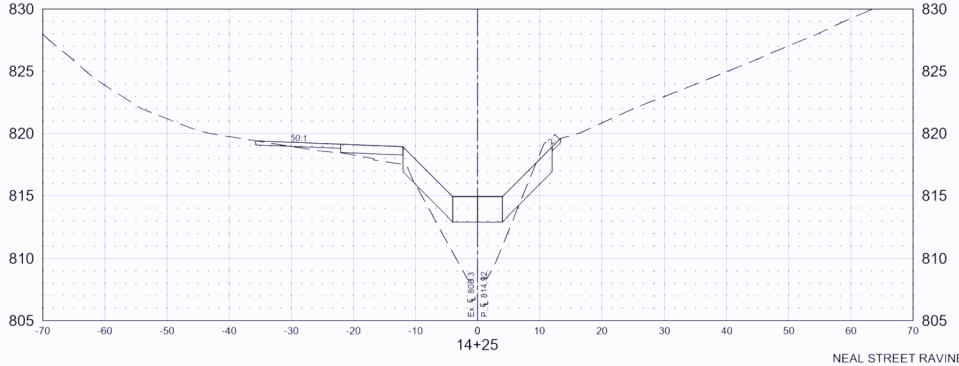












NEAL STREET RAVINE
STA. 13+50 - STA. 14+75

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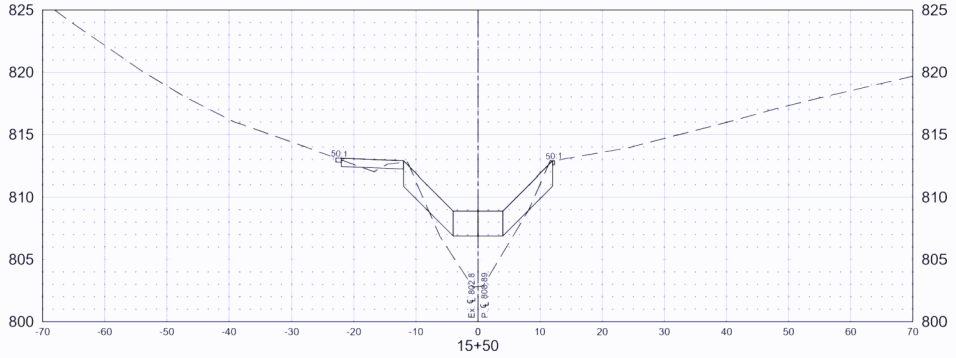

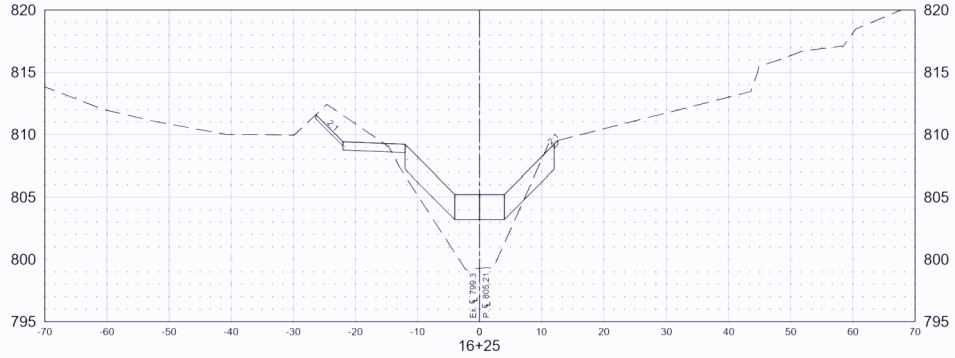

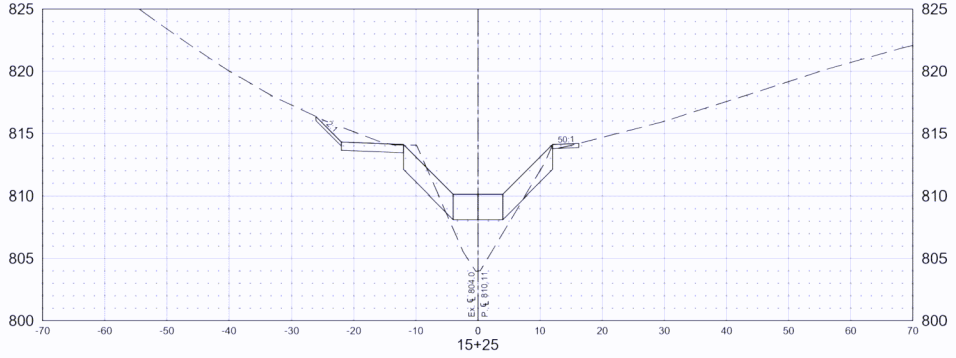

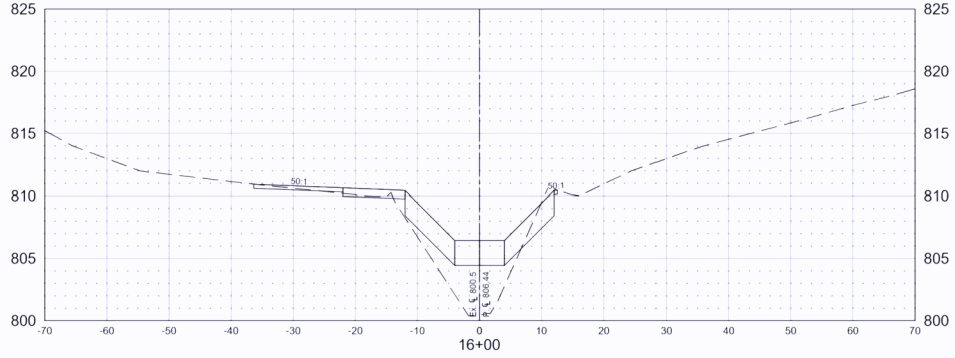

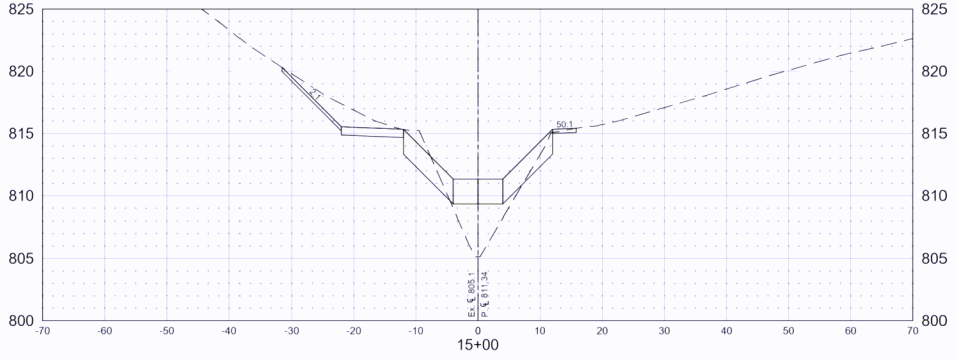

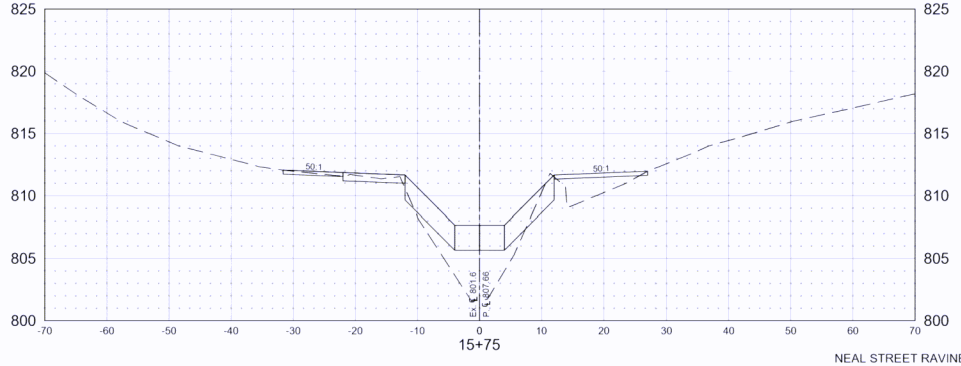

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STA. 15+00 - STA. 16+25

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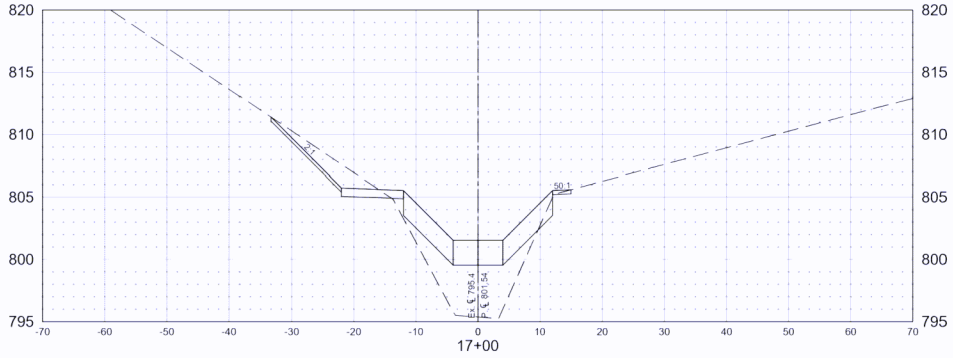

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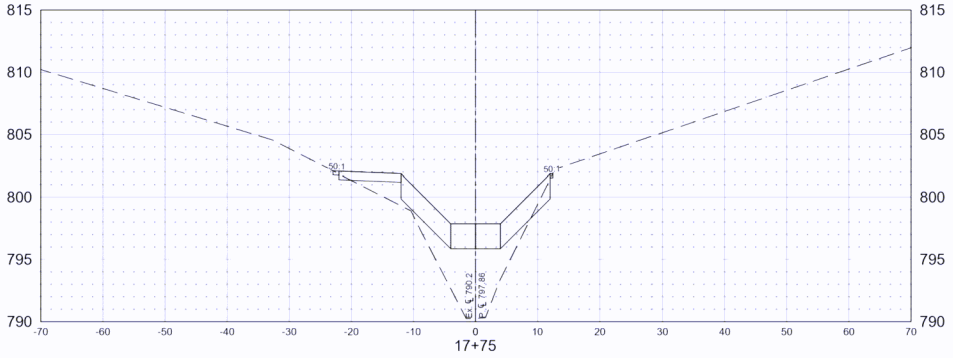

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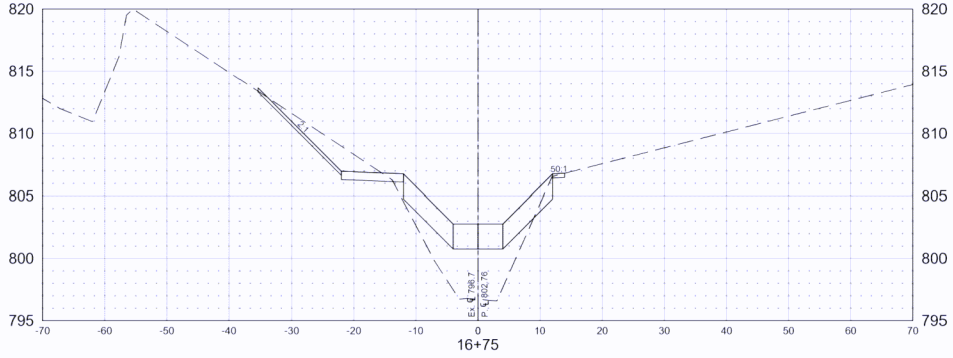

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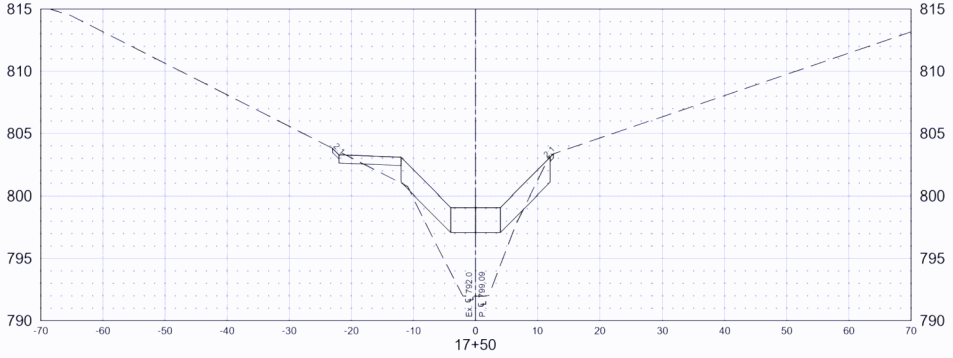

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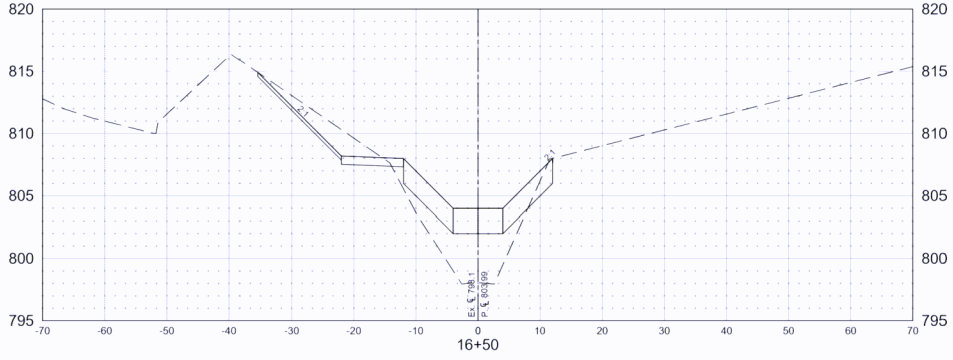

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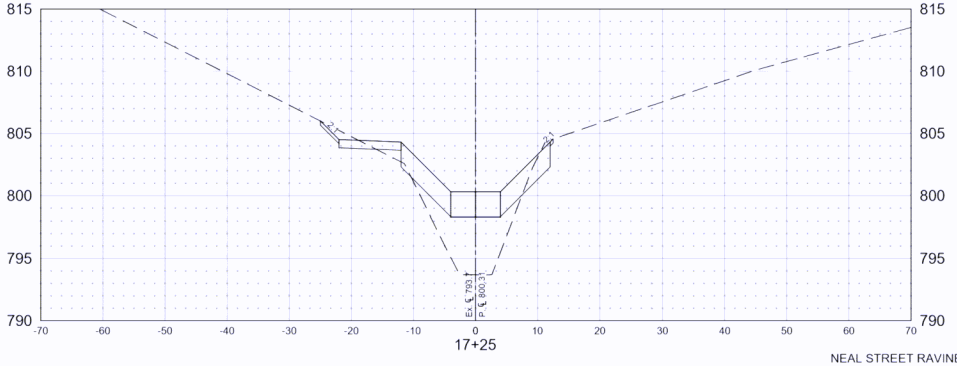

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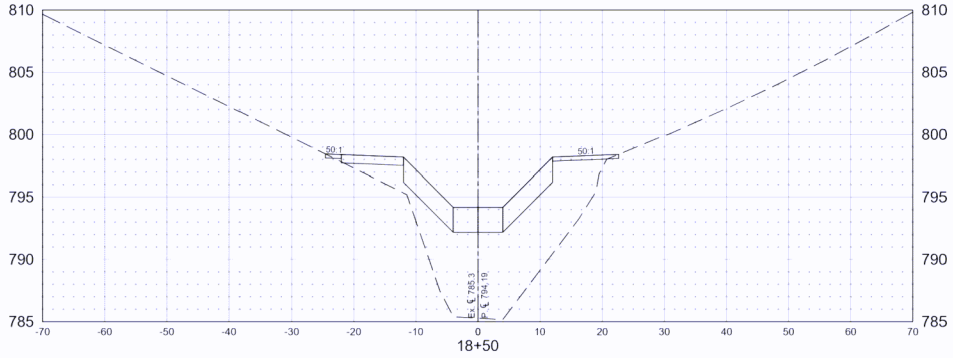
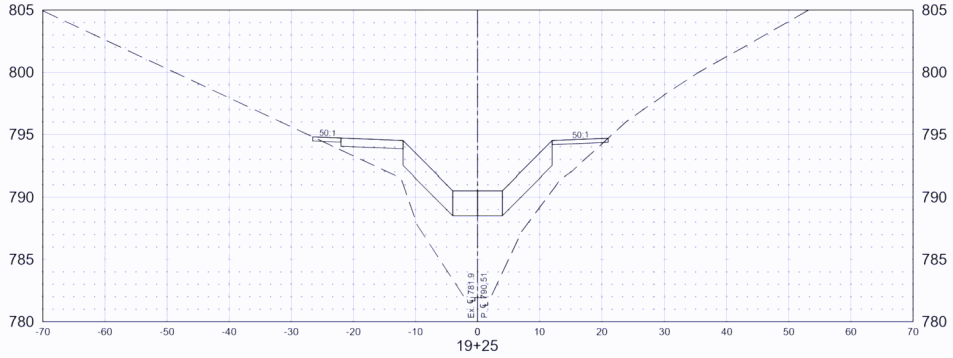
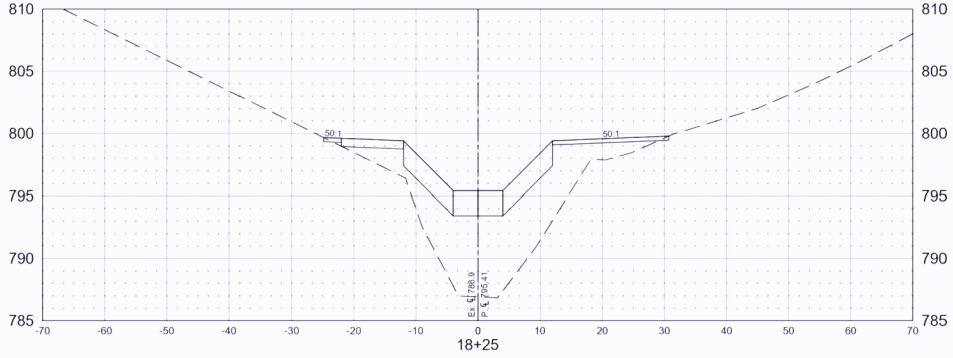
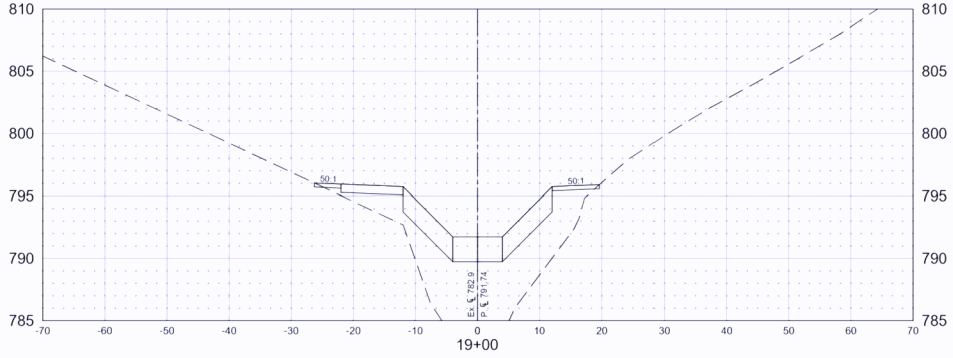
NEAL STREET RAVINE
STA. 16+50 - STA. 17+75

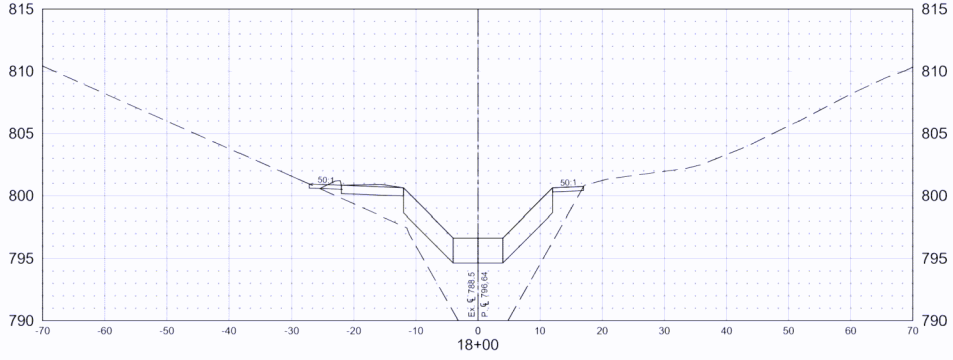
Sheet No. 18 Of 28 Sheets

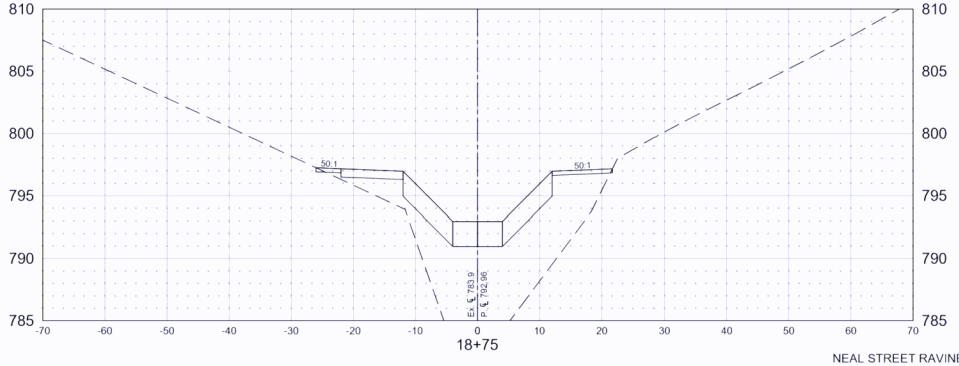






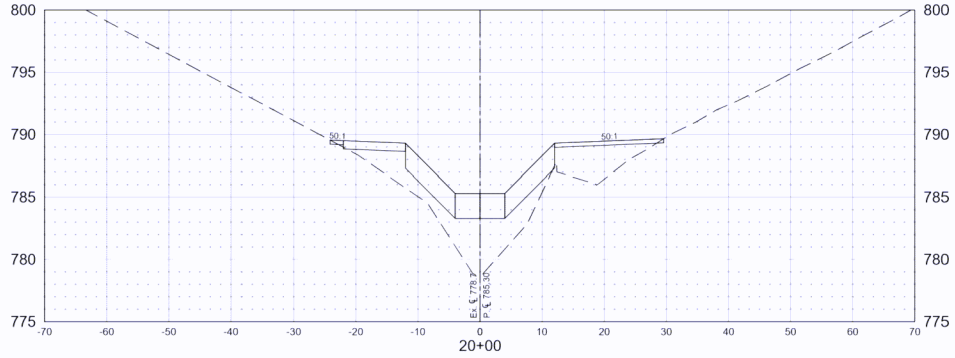






NEAL STREET RAVINE
STA. 18+00 - STA. 19+25

Sheet No. 19 Of 28 Sheets



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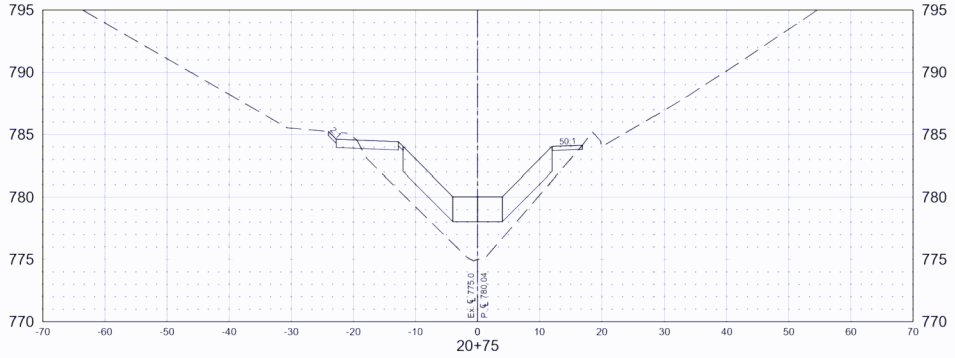

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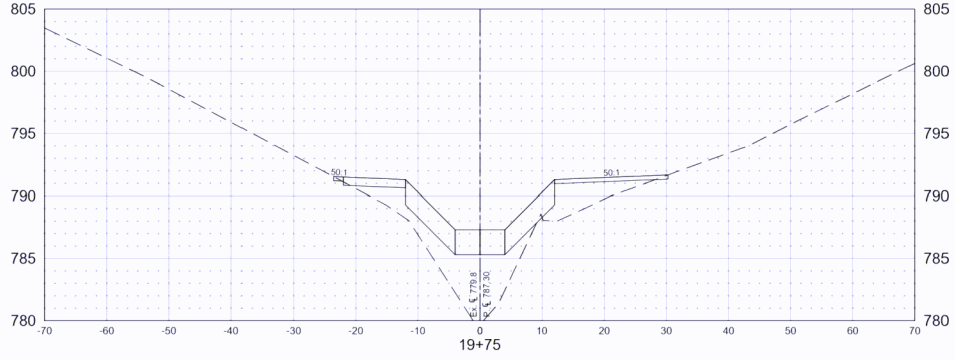

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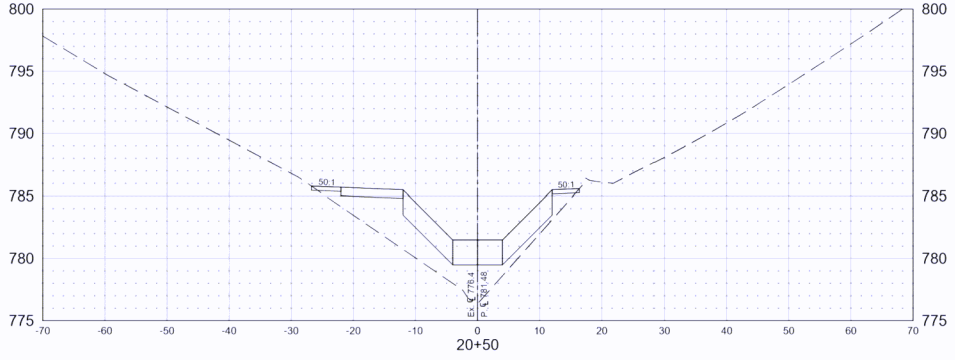

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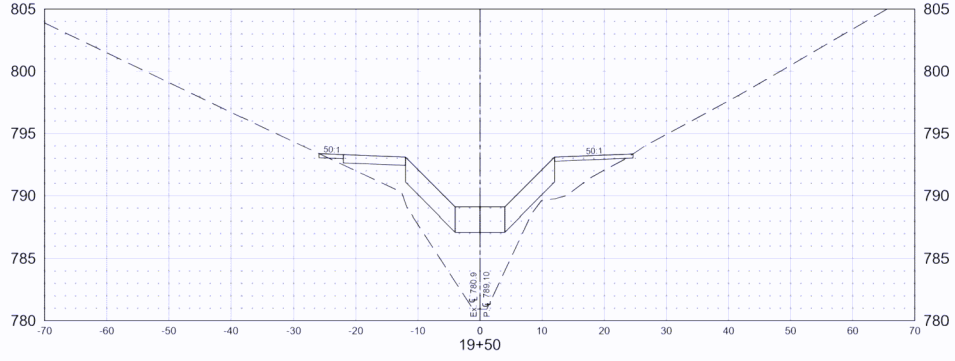

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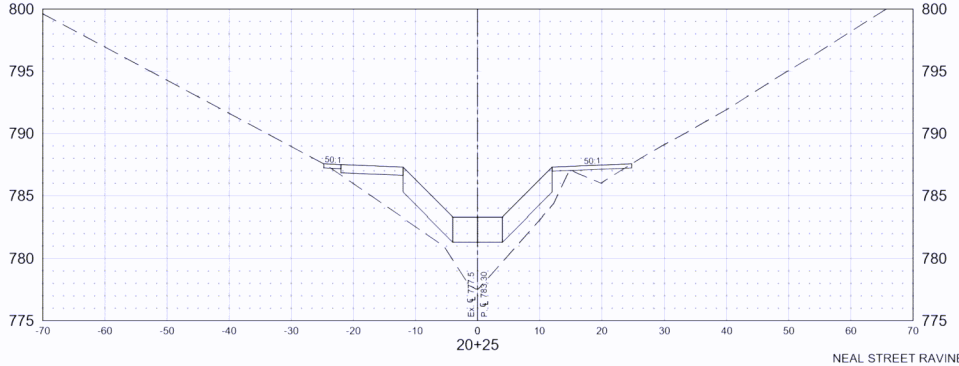

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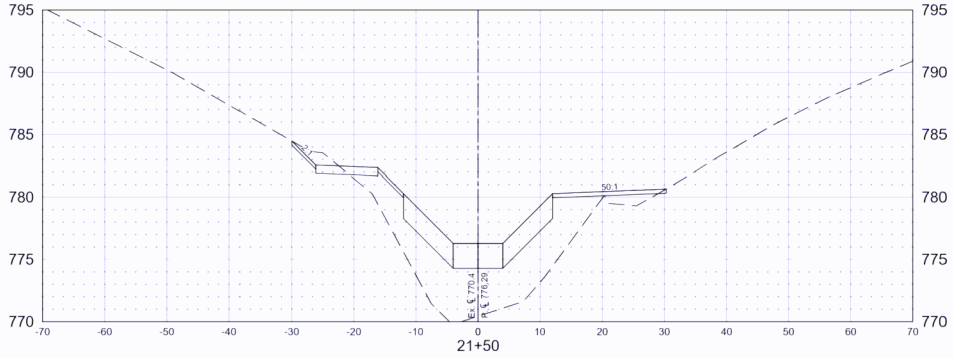
NEAL STREET RAVINE
STA. 19+50 - STA. 20+75

Sheet No. 20 Of 28 Sheets



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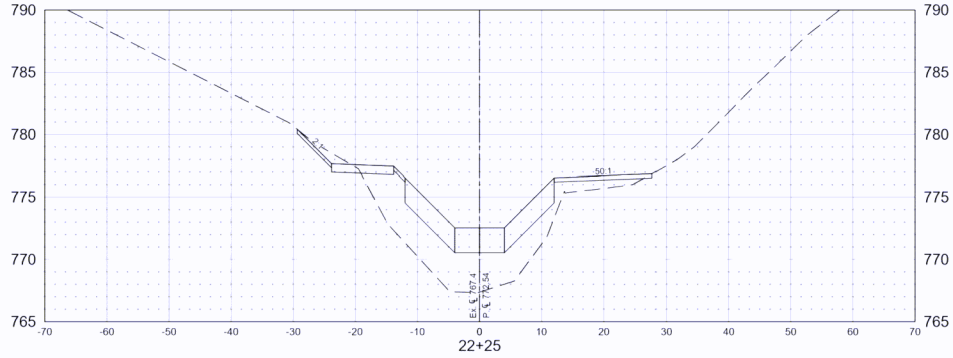

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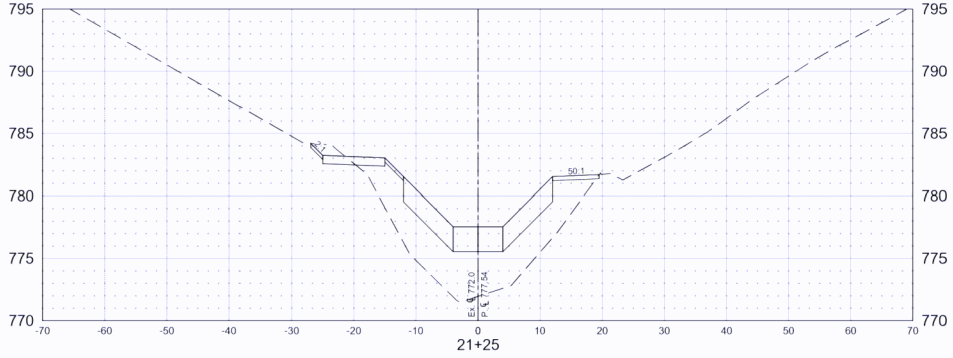

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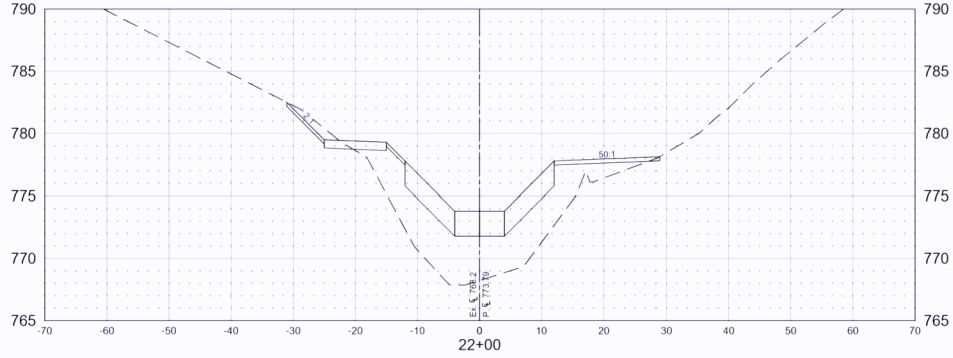

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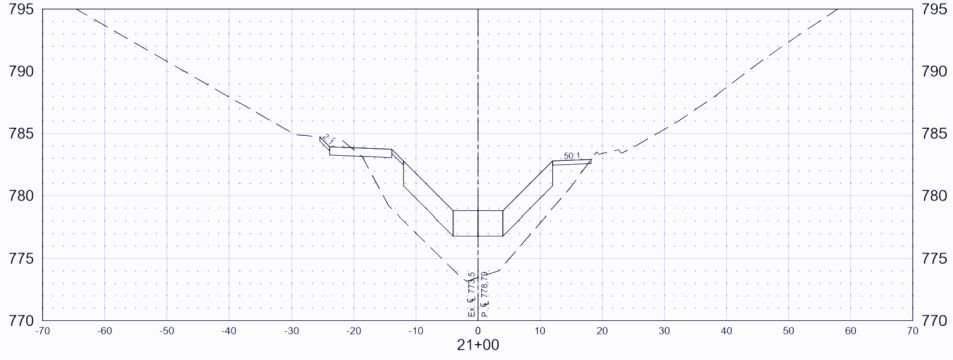

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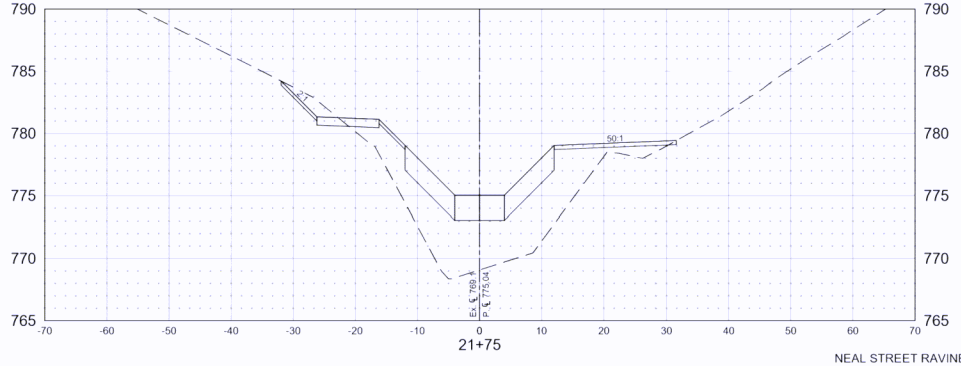

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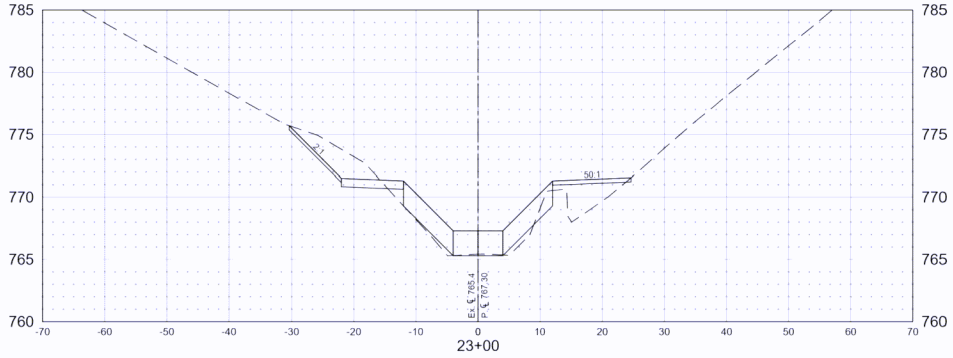
NEAL STREET RAVINE
STA: 21+00 - STA: 22+25

Sheet No. 21 Of 28 Sheets



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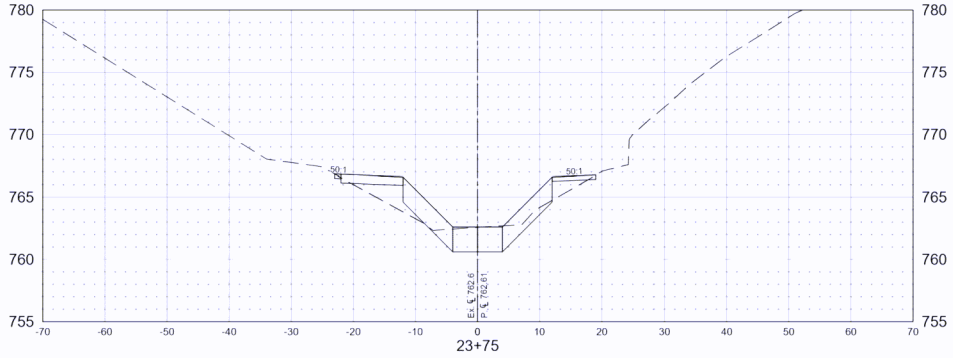

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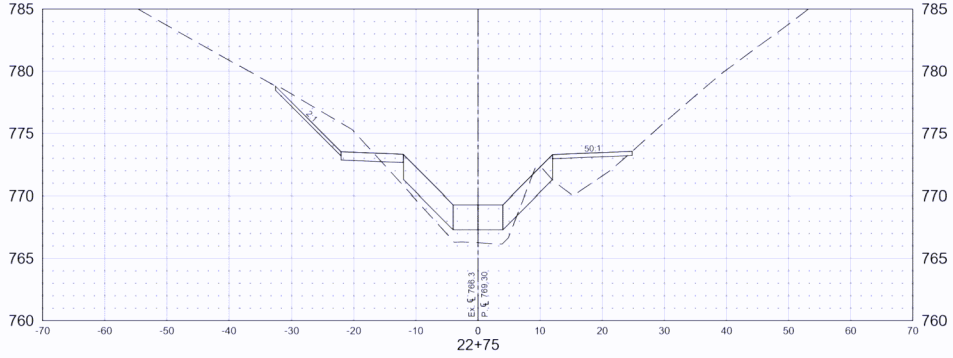

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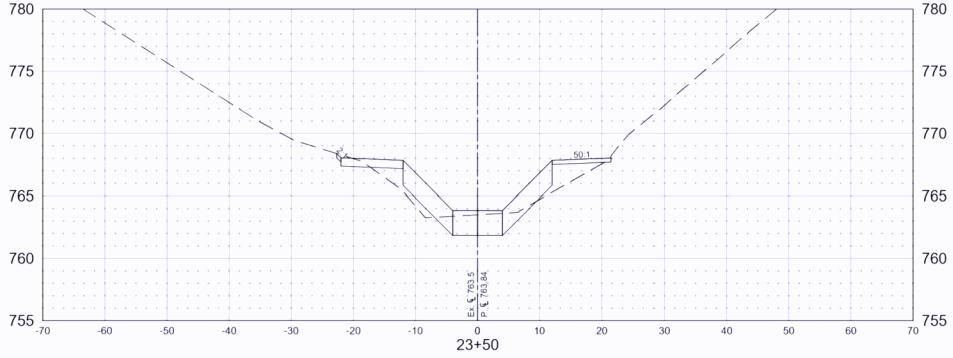

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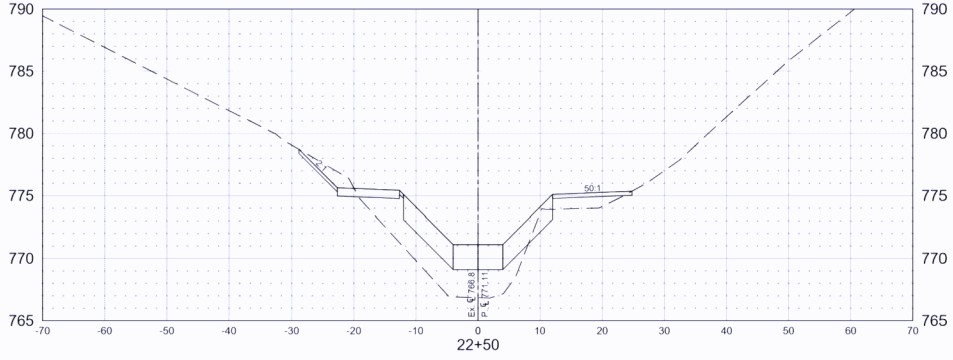

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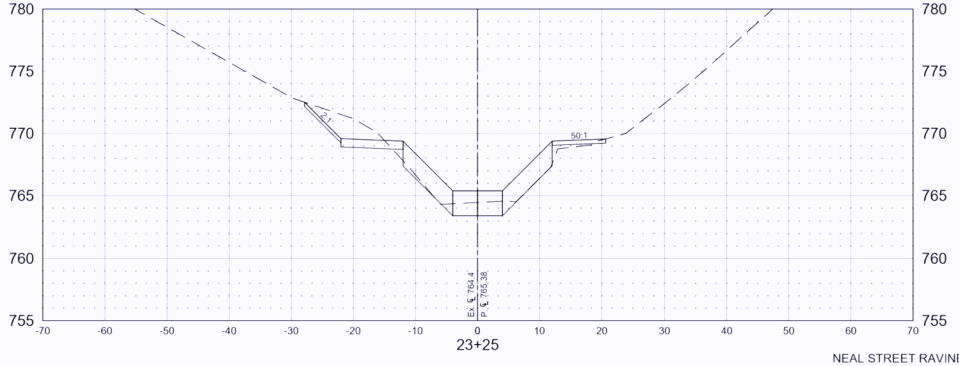

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NEAL STREET RAVINE
STA: 22+50 - STA: 23+75

Sheet No. 22 Of 28 Sheets

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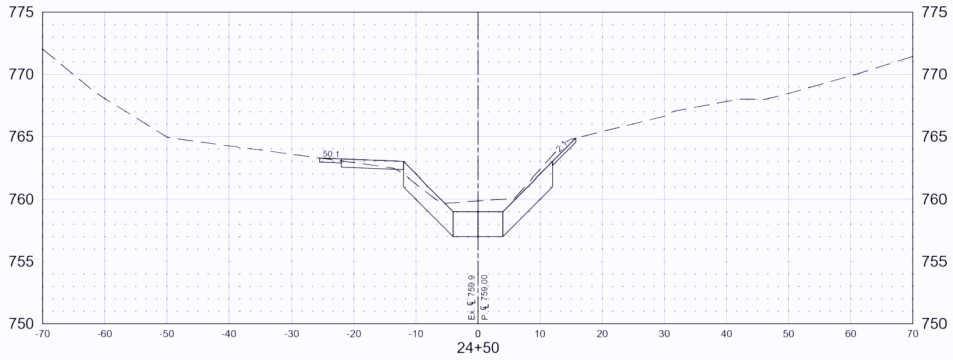

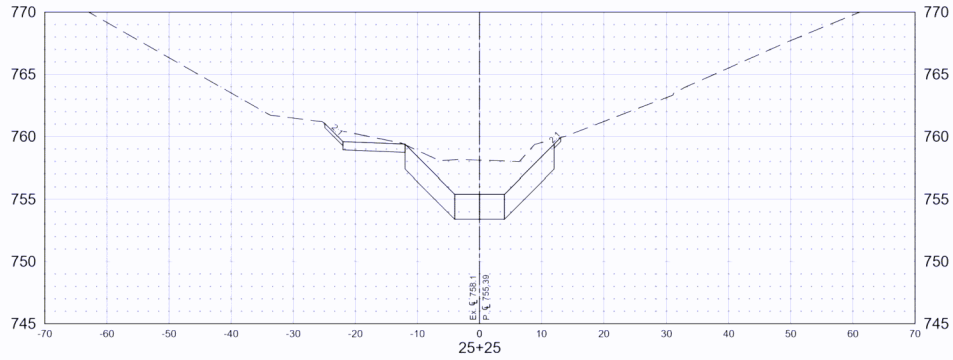

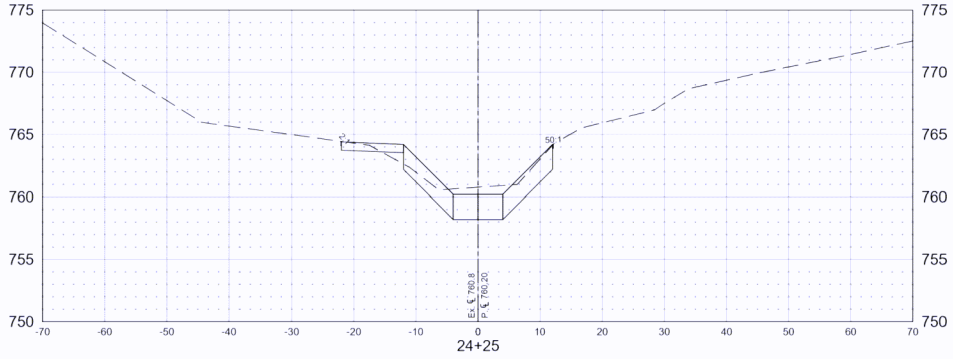

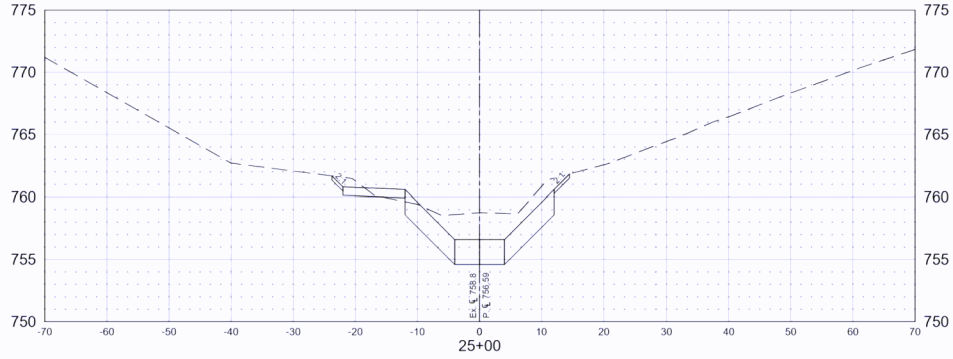

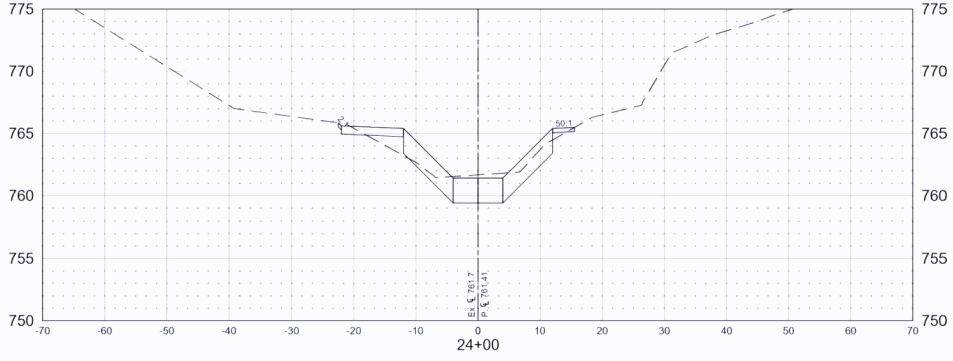

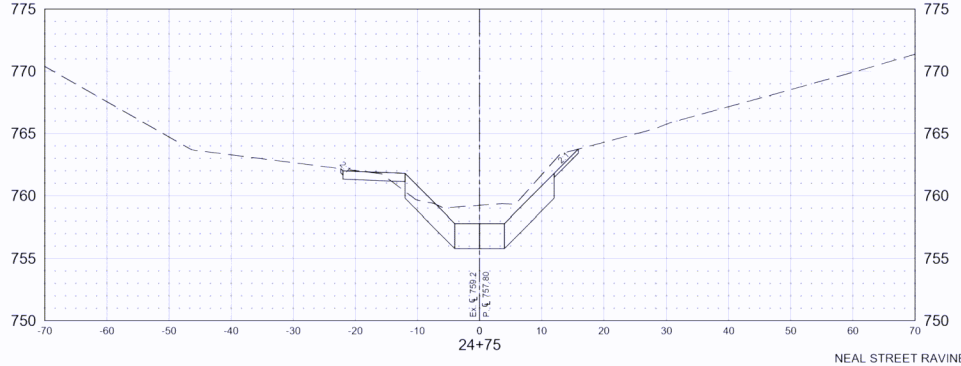

NEAL STREET RAVINE
STA: 24+00 - STA: 25+25

Sheet No. 23 Of 28 Sheets

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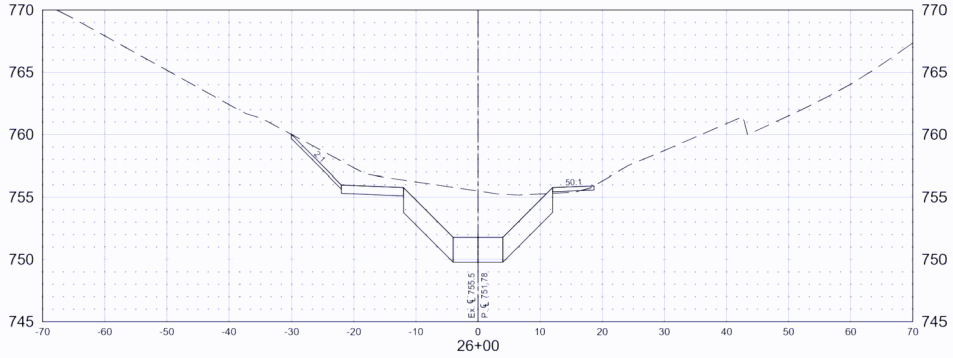

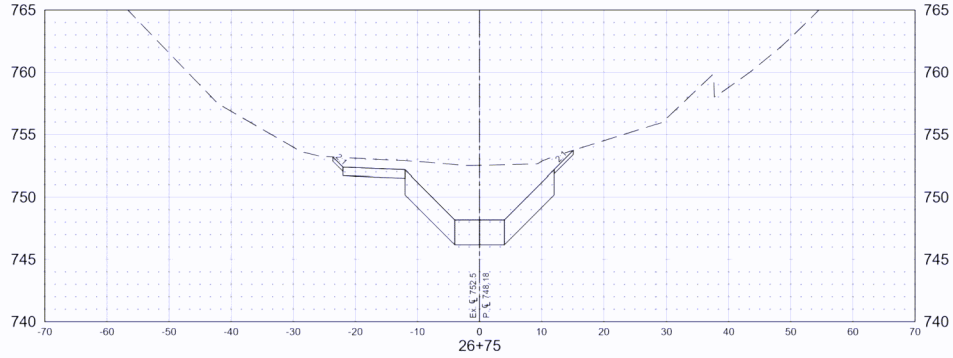

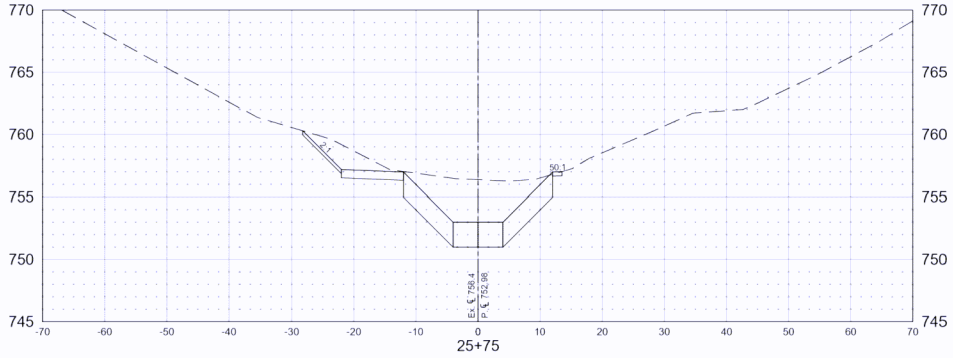

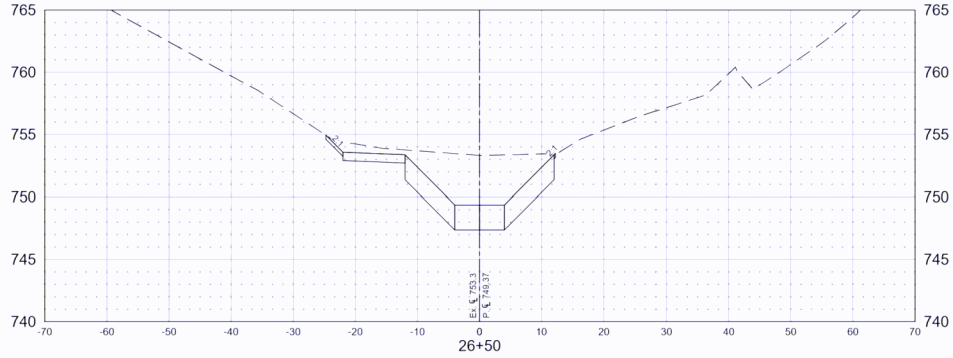

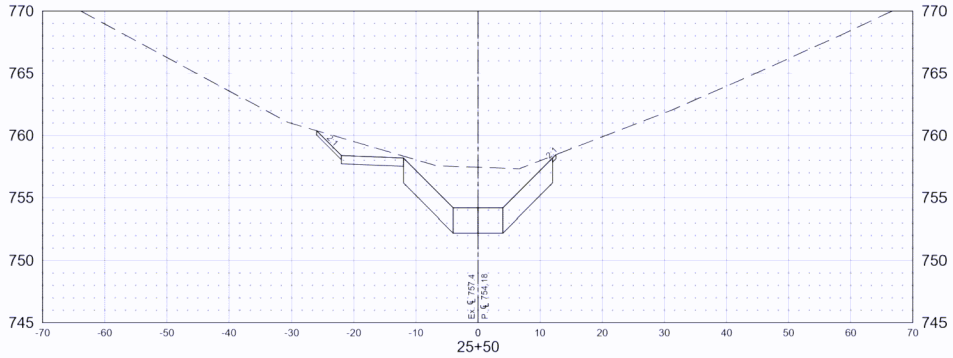

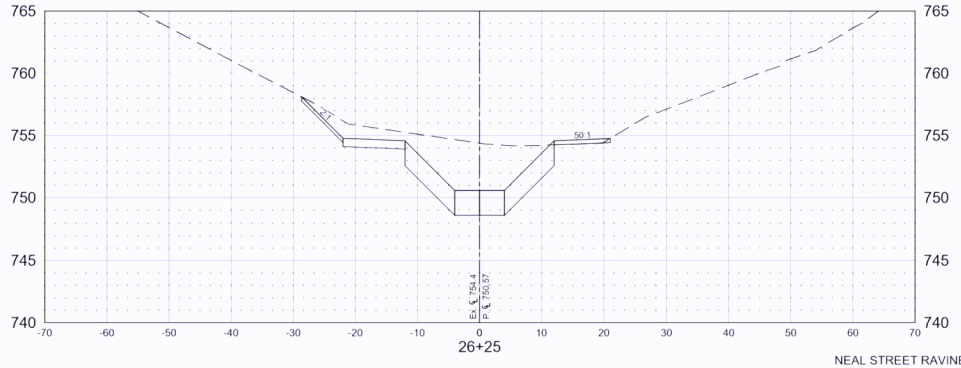

NEAL STREET RAVINE
STA: 25+50 - STA: 26+75

Sheet No. 24 Of 28 Sheets

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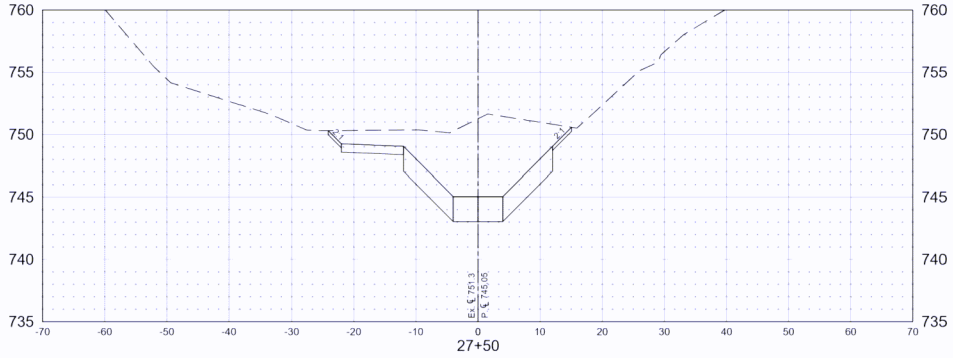
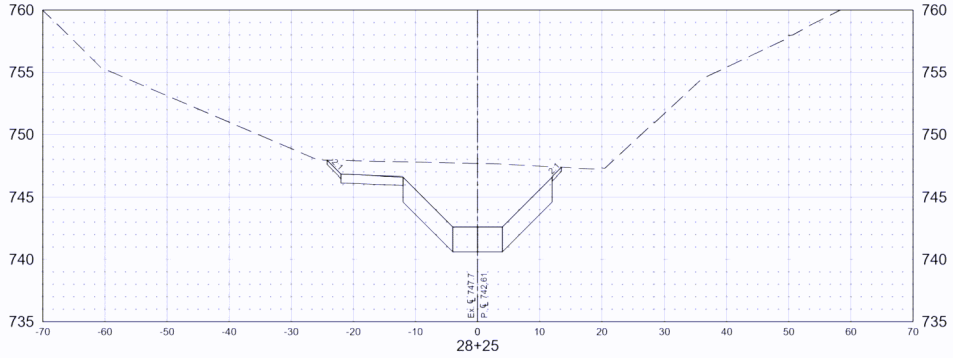
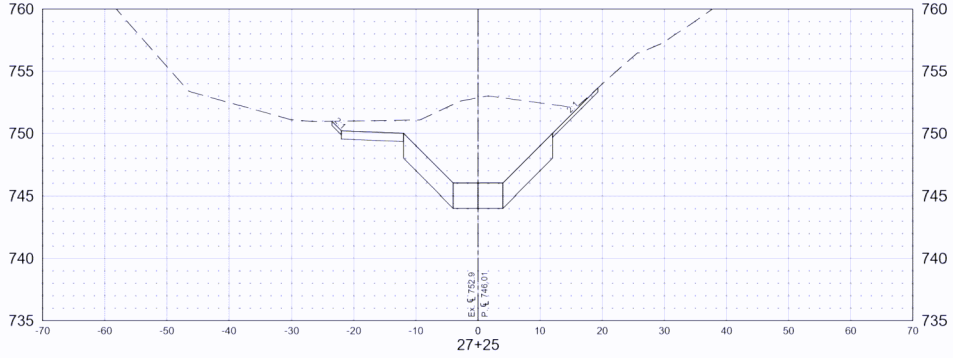
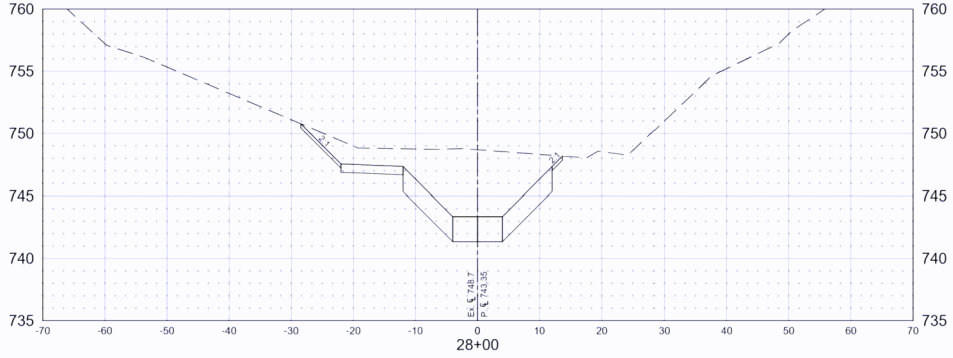
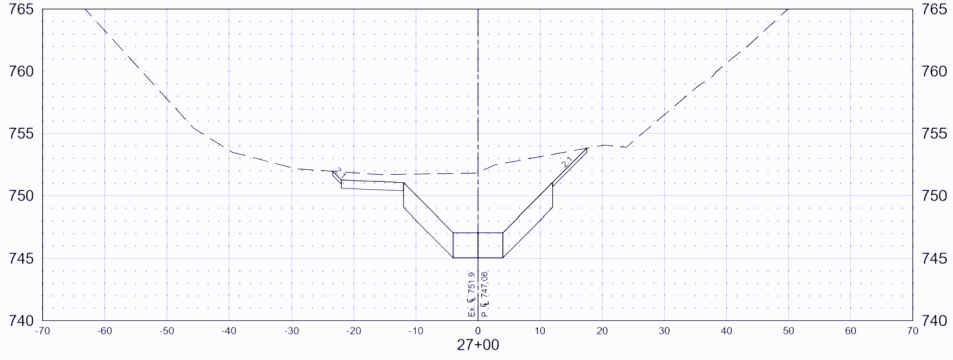
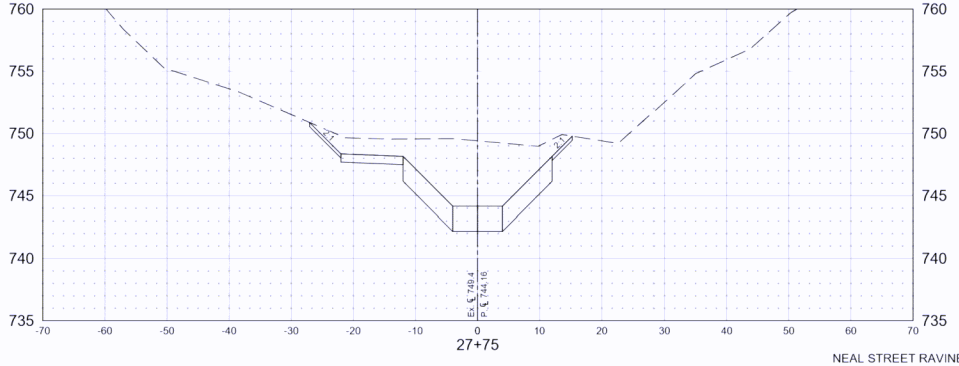






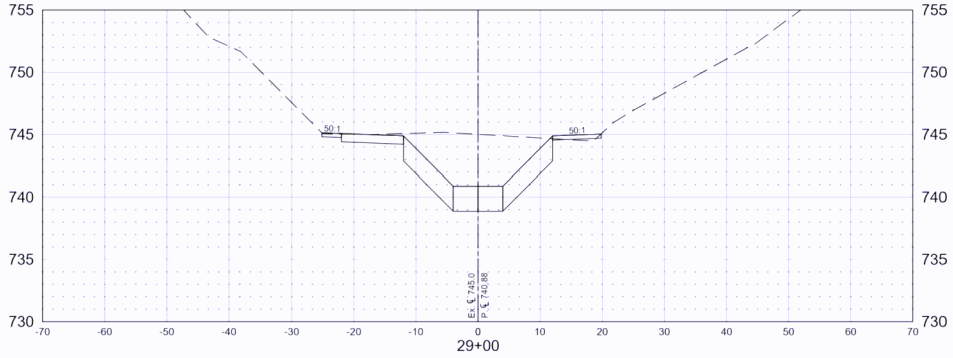






NEAL STREET RAVINE
STA: 27+00 - STA: 28+25

Sheet No. 25 Of 28 Sheets



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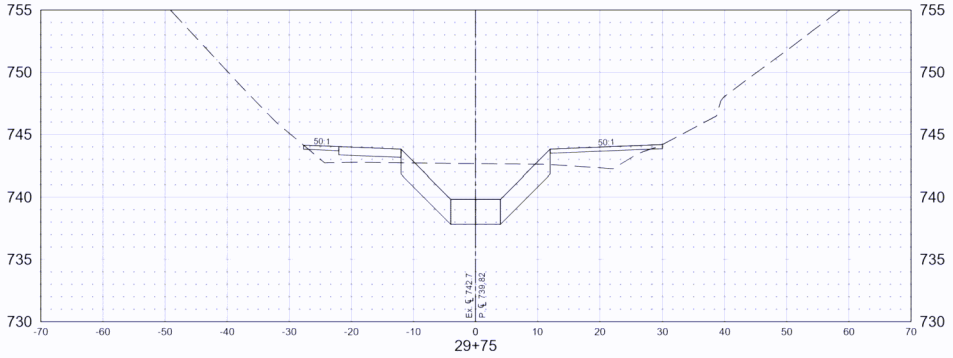

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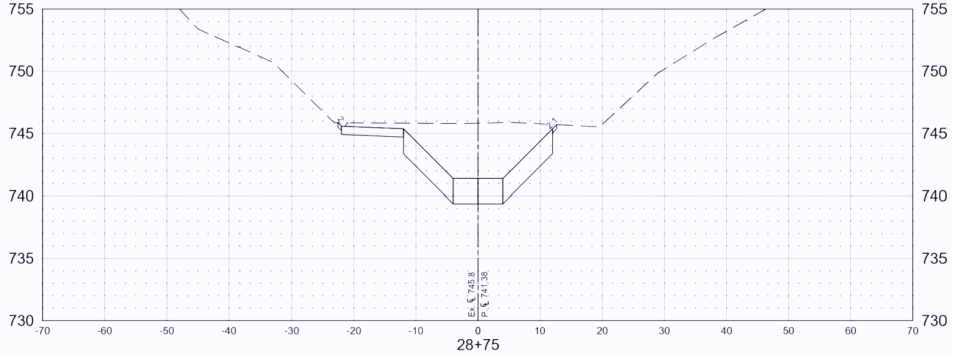

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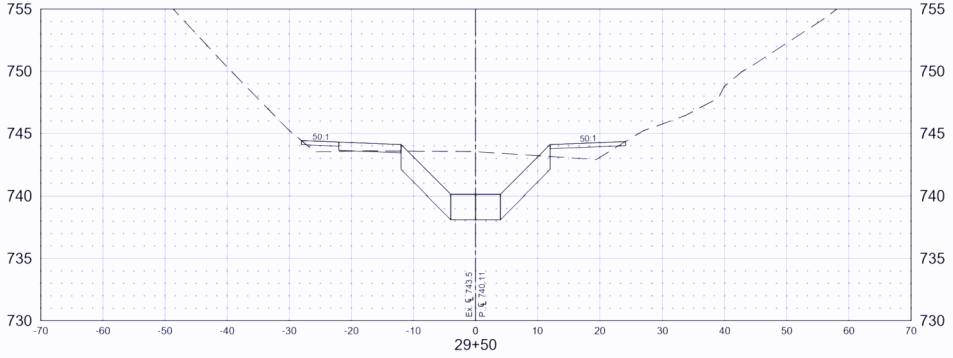

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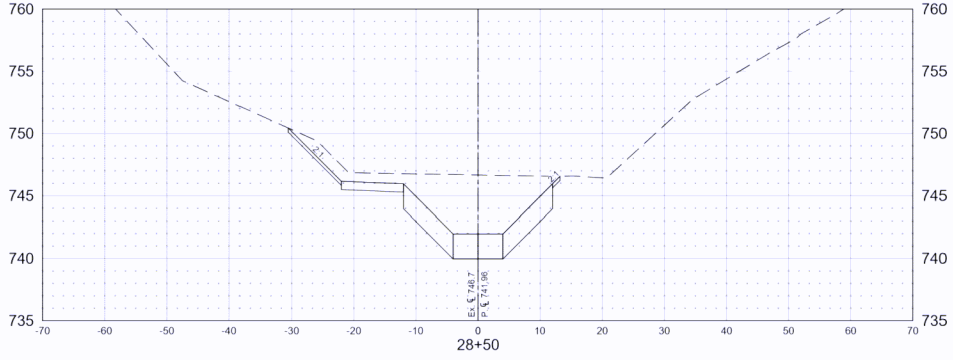

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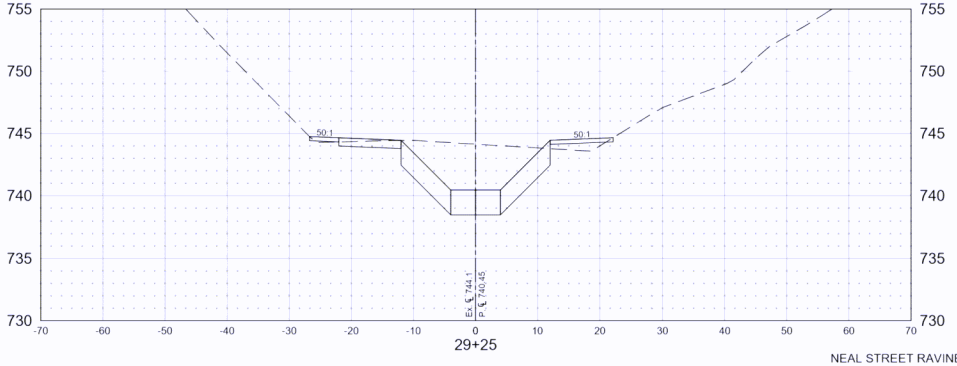

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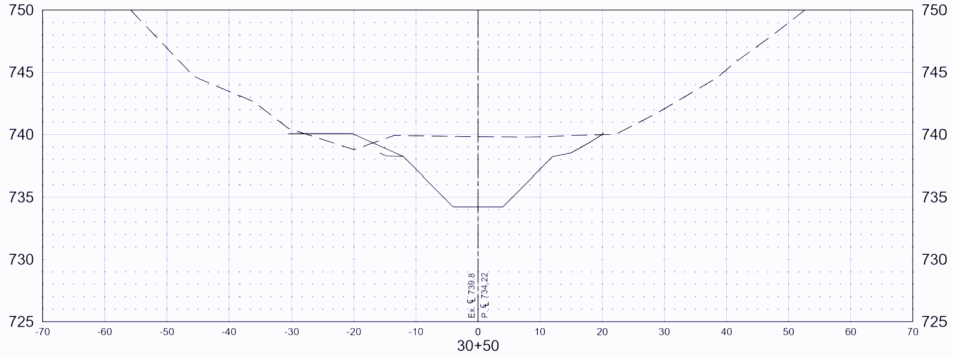
NEAL STREET RAVINE
STA: 28+50 - STA: 29+75

Sheet No. 26 Of 28 Sheets



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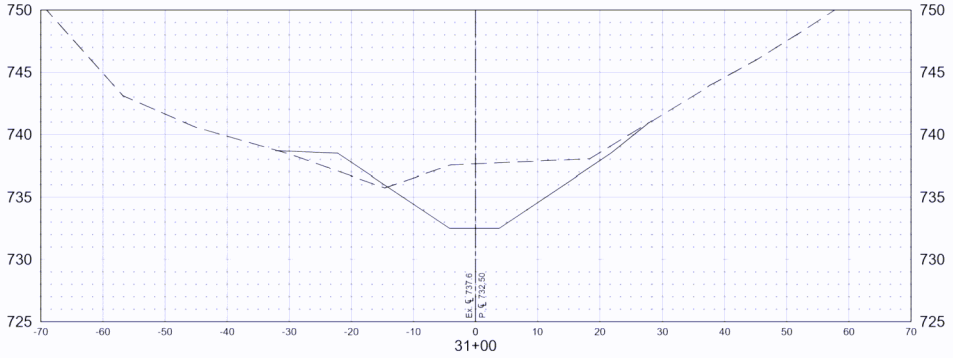

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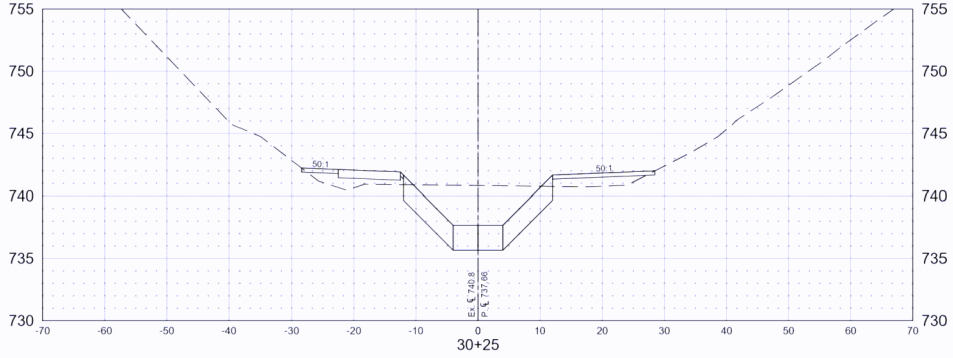

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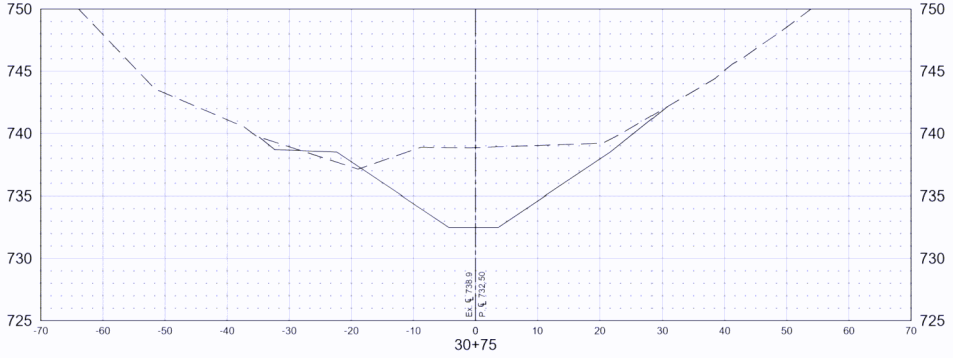

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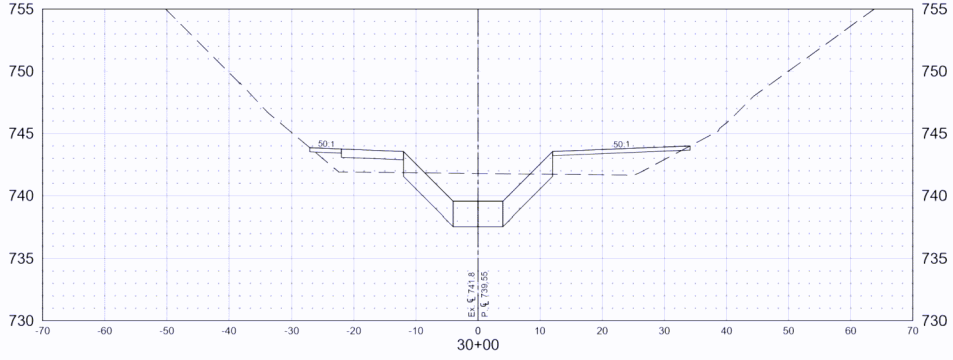

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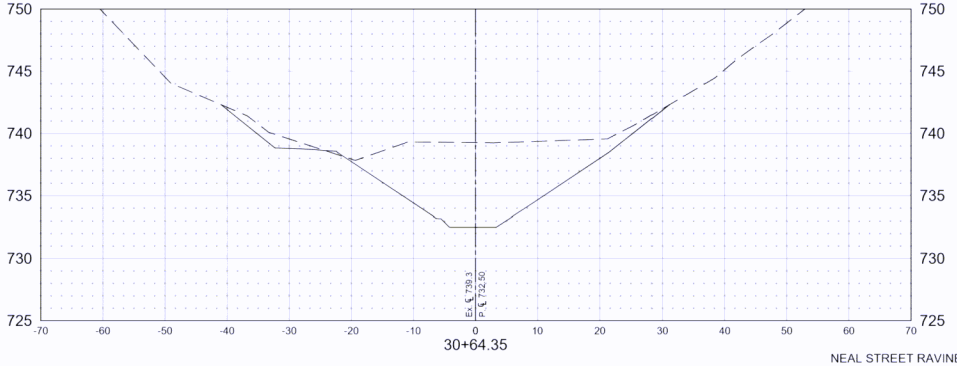

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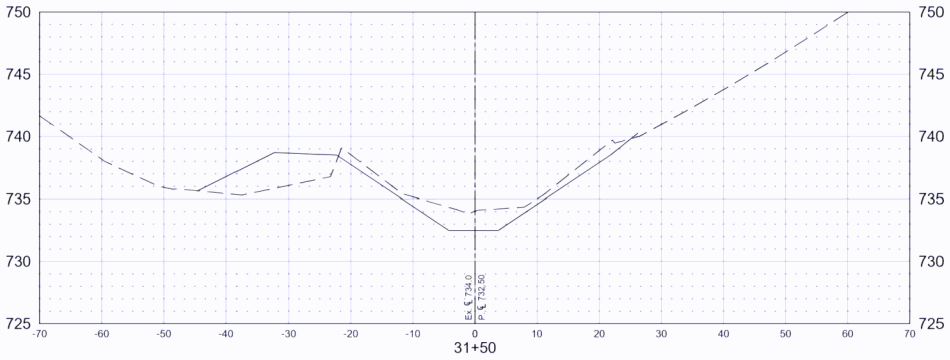
NEAL STREET RAVINE
STA: 30+00 - STA: 31+00

Sheet No. 27 Of 28 Sheets



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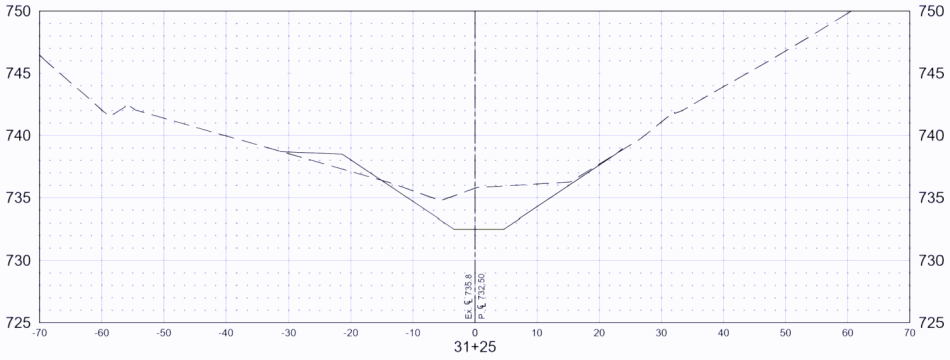

31+25

NEAL STREET RAVINE
STA: 31+25 - STA: 31+50

Sheet No. 28 Of 28 Sheets