Technical Memorandum

To: Buffalo Creek Watershed District Board of Managers
From: Lisa Odens PE, CFM
Houston Engineering, Inc.
Subject: Glencoe Central and East Basic Water Management Project, Central Ditch Component, Engineer's Report
Date: August 11, 2025
Project: 6234-0030

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am duly Licensed Professional Engineer under the laws of the State of Minnesota.

8-11-2025

Lisa Odens Date
License. No. 51685

INTRODUCTION

The Buffalo Creek Watershed District (BCWD), on petition from the City of Glencoe (City), has initiated the Glencoe Central and East Basic Water Management Project. The Project is intended to address stormwater management and water quality issues originating within the sub-watershed areas lying north of the City and discharging through the City's stormwater system to Buffalo Creek. The Project seeks to address landowner and City of Glencoe goals related to maintenance, regional planning, sediment reduction and water quality improvements within the sub-watersheds. The project component described in this report, Central Ditch, was developed as part of multi-phased project development process now pending implementation as part of the Glencoe East and Central Basic Water Management Project.

BACKGROUND

The Central Ditch and East Ditch are privately modified watercourses that carry runoff from north and east of the City of Glencoe, through the City to Buffalo Creek. The Central Ditch uses portions of the City's stormwater system as its outlet. These watercourses serve as the outlet for runoff from several square miles of agricultural land in Glencoe and Helen Townships and urban neighborhoods in the City. These watercourses were privately modified and improved; therefore, they are not managed by a public agency, which creates challenges in maintaining and equitably managing the system. Equally challenging, the watercourses are not subject to any cooperative agreement between landowners making systematic or coordinated maintenance or implementation of best management practices difficult.

The Central Ditch outlets to the North Central Ponds, which have a gate structure operated by the City. This gate structure outlets to the City Central Stormsewer System, which in turn outlets to Buffalo Creek.

In 2013 and 2014 the area experienced two large rainfall events. These events occurred when the ground in the watershed was already relatively saturated due to previous storms. These events caused significant flooding, damages and heightened awareness of flooding and flood risk to the

community. The City's engineering consultant, SEH, Inc. prepared reports entitled "North Central Ponds Watershed Review" and "North Central Ponds Watershed Review Update" The reports identified specific conveyance improvements to reduce future flooding for each City along with associated approximate opinions of cost. These reports recommended three options: 1) an emergency overflow from the North Central Pond to the school wetland, 2) a bypass or diversion ditch from the Central Ditch watershed to the East Ditch Watershed, and 3) upstream detention outside of City limits.

Subsequent coordination between the City, the Buffalo Creek Watershed District (District) and local stakeholders made apparent the need for comprehensive water management planning in the Central and East Ditch subwatersheds. On July 19th, 2016, the City of Glencoe petitioned the BCWD to undertake a Basic Water Management Project per M.S. 103D.605 in the East and Central water corridors through the City. This plan is intended to develop a comprehensive stormwater management plan addressing recurring flooding issues.

The Glencoe Central and East Basic Water Management Plan was developed in 2017-2020 and included feedback on problems and solutions to resolve flooding, water quality, and conveyance issues within the Central and East Ditch watersheds. In 2019 the Board of Water and Soil Resources approved a plan amendment establishing a Water Management District and basis of Water Management District Charges as one of several mechanisms for funding project components. Several solutions to resolve downstream flooding issues have been constructed; however, project components to resolve water management and quality issues along the Central Ditch north of Glencoe were largely left unresolved.

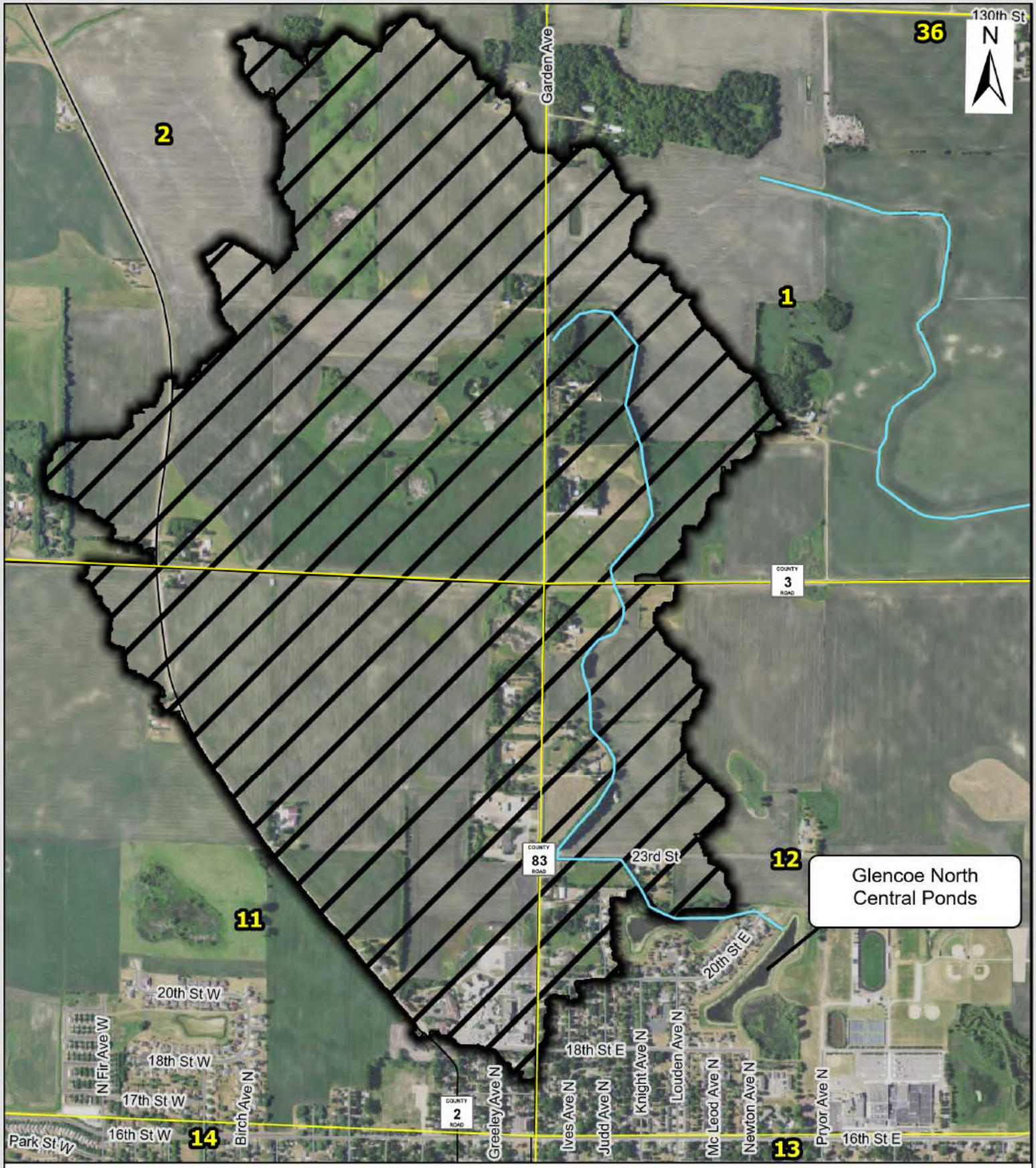
Large rainfalls in spring and summer of 2024 resulted in landowners approaching the BCWD board during regularly scheduled meetings to advocate for additional solutions.

The purpose of this memorandum is to discuss the findings and recommendations that relate to a proposed project component along the Central Ditch north of Glencoe.

EXISTING CONDITION

The Central Ditch north of Glencoe, shown in **Figure 1,** consists of 1.5 miles of an existing open channel private ditch. The Central Ditch is located north of the City of Glencoe in Sections 1, 2, and 12 of Glencoe Township (T115N, R28W). The Central Ditch currently discharges into a City of Glencoe stormwater pond prior to entering a portion of the City's stormwater system before its ultimate discharge to Buffalo Creek.

Field survey was collected on July 9, 2024, by HEI. The survey data established the existing conditions and elevations of the Central Ditch. All survey data and other elevations provided herein are referenced to the North American Vertical Datum 1988 (NAVD88). The Central Ditch has areas of significant sedimentation, tree growth, obstruction, and deadfall.



Open Channel Ditch

Project Drainage Area

0 500 1,000 US Feet

Figure 1: Location Map and Drainage Area

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SCOPE OF PROPOSED PROJECT

BCWD held a landowner informational meeting on August 27, 2024, to provide landowners background information on historic regional planning efforts, confirm landowner and city goals, present draft plans to landowners, and request landowner feedback on the project goals and draft plans. HEI presented preliminary plans to landowners, which included clearing of trees and deadfalls from the ditch channel; removal of accumulated and discharging sediment; bank stabilization; establishment of vegetative buffer adjacent to disturbed portions of the ditch and acquisition of easements as required to enable future inspection and maintenance of the project. An HEI memorandum dated September 18, 2024 summarized feedback provided by landowners and the board, discussed the project benefits, discussed potential funding mechanisms, and formulated a recommendation to the BCWD Board of Managers. These results were presented to the Board.

HEI provided a revised memorandum (dated November 8th, 2024), which considered additional alternatives. From landowner feedback, HEI prepared three alternatives from the preliminary plans that were presented to the Board at the November Board Meeting.

- Alternative 1 included the preliminary plans, but proposed a tile to replace open ditch between 23rd Street and Warneke shed.
- Alternative 2 consisted of the preliminary plans except for a tile portion running east-west adjacent to 23rd Street.
- Alternative 3 included the preliminary plans and the addition of tree clearing and established vegetated buffer adjacent to the ditch channel.

At the November meeting, the Board reviewed the memorandum and elected to proceed with Alternative 3. The Board further expressed the need for a recommendation of cost allocation between Water Management District Charges and ad valorem taxes.

The selected project is shown in **Attachment A**.

EVALUATION OF PROJECT

Hydraulic Impacts

The Central Ditch has significant vegetation, sedimentation, deadfalls and other obstructions within its channel. Current conditions create flood risk and water quality (nutrient and sediment delivery) concerns. The proposed project component will stabilize and protect the ditch channel and restore hydraulic efficiency – reducing both flood and pollutant discharge risks. The proposed project will reduce peak water levels for smaller rain events, but it is not expected to significantly impact peak water levels for the 100-yr flood event.

Adequate Outlet

The outlet of the project is the Glencoe North Central Ponds, which in turn outlet to the City of Glencoe's Central Storm Sewer via a gate operated and maintained by City of Glencoe Public Works

staff. The Central Storm Sewer drains to Buffalo Creek. The gate is closed if the Central Storm Sewer is surcharging into adjacent streets and opened after floodwaters have receded. City staff indicate that since improvements to the Central Storm Sewer in 2017, the gates have rarely been closed.

During project development, the size and elevation of existing culverts along the Central Ditch were reviewed. All were found to be at an appropriate elevation and capacity and are not being modified. Thus, there will be no change in water surface elevations on the North Central Ponds and no change in discharge through the Central Storm Sewer and no change in discharge to Buffalo Creek. There are no impacts affecting the downstream adequacy of outlet.

Regulatory Considerations

Wetlands

There are three regulatory programs that are frequently triggered by projects similar to the Central Ditch project component. These include: 1) the Minnesota Department of Natural Resources (MnDNR) Public Waters Permitting Program; 2) the federal Clean Water Act (CWA), as implemented by the US Army Corps of Engineers (USACE); and 3) the state Wetland Conservation Act (WCA), as implemented by the Local Government Unit, which in this case is McLeod County.

The Central Ditch is not itself a Public Watercourse and does not intersect any state-listed Public Waters, Public Water Wetlands, or Public Watercourses. The Central Ditch does not intersect wetlands identified in the National Wetland Inventory (NWI). As such, none of the state or federal wetland regulatory programs are triggered by the project.

Threatened and Endangered Species

Work in watercourses, stormwater conveyances and ditches may encounter situations where Minnesota's Endangered Species Statute (MS 84.0895) and the associated Rules apply. The endangered species program regulates activities that take, import, transport, or sell any portion of an endangered or threatened species where these acts may be allowed by permit issued by the DNR. The statutes exempt the accidental, unknowing destruction of designated plants. However, it is the responsibility of the Engineer when preparing a final report to complete due diligence to avoid impacts to threatened and endangered species.

Under License Agreement LA-944, Houston Engineering, Inc. reviewed the MnDNR's Natural Heritage Information System (NHIS) data. No state-listed threatened or endangered species are identified in the database within a 1-mile radius of the Central Ditch.

PROJECT EASEMENTS/ PROJECT RIGHT OF WAY

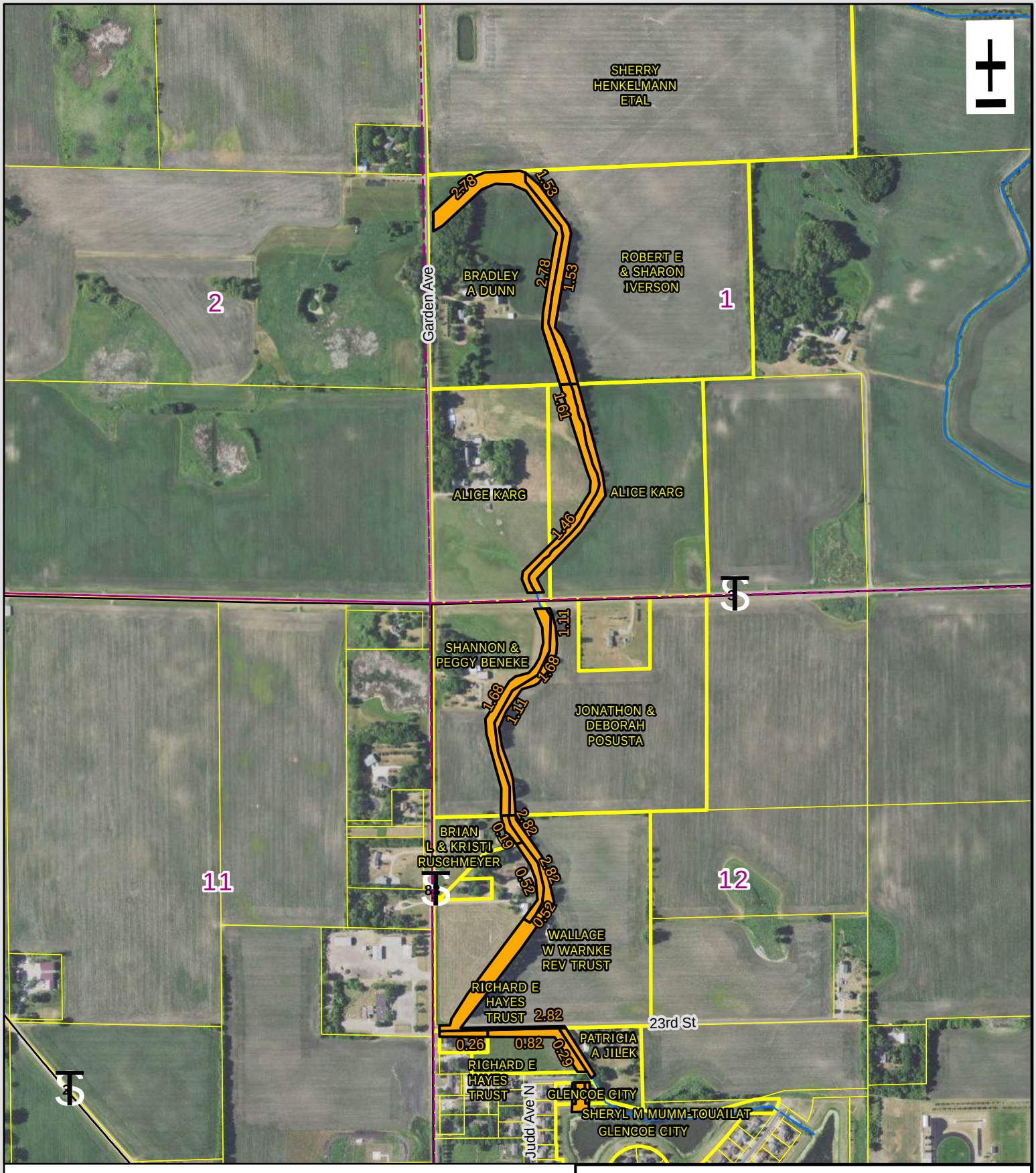
Table 1 provides the required project easement and project right of ways. The project easements are shown in **Figure 2**

Table 1: Project Easement Summary

Landowner Name	Area of Required Easement (acres)	PID	Quarter-Quarters in T115N R28W
Warnke Brothers, LLC	2.815	040120800	Section 12, SW ¼ of the NW ¼
Todd F. Trippel & Troy D. Trippel	0.263	221190010	Section 12, in the SW ¼
Jonathon I. & Deborah M. Posusta	1.105	040120520	Section 12, N ½ of the NW ¼
Neubarth Contracting, LLC	1.606	040011100	Section 1, S ½ of the SW ¼
Jodi Michaelis & Tobin Iddings	0.056	221130080	Section 12, in the SW ¼
David McCartney & Cynthia McCartney	0.817	221190030	Section 12, in the SW ¼
Alice J. Karg	1.465	040011150	Section 1, ½ of the SW ¼
Patricia A. Jilek	0.286	040120200	Section 12, in the SW ¼
Sharon L. Iverson	1.525	040010850	Section 1, NW ¼ of the SW ¼
Michael L. Hoftiezer Living Trust	0.520	040120100	Section 12, SW ¼ of the NW ¼
Brody L. Edwards & Amy C. Edwards	0.195	040120850	Section 12, SW ¼ of the NW ¼
Bradley A. Dunn & Sarah M. AHLFS-Dunn	2.782	04010800	Section 1, NW ¼ of the SW ¼
City of Glencoe Out lot F	0.081	221110060	Section 12, in the SW ¼
City of Glencoe Out lot B	0.300	221110020	Section 12, in the SW ¼
Shannon R. Beneke	1.679	040120575	Section 12, N ½ of the NW ¼

PROBABLE CONSTUCTION COST AND FUNDING

Table 2 provides an updated probable project cost estimate for the Central Ditch project component, which includes costs incurred to date and estimated, future costs of project implementation.



Open Channel Ditch
County Roads
Other Roads
Sections
Easements

0 500 1,000 Feet

Figure 2: Project Easements

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Table 2: Opinion of Probable Cost - Glencoe Central Ditch - Alternative 3

		Percent			Cost		
Project Feature	**Total Cost**	**Ad Valorem**	**City of Glencoe**	**WMD***	**Ad Valorem**	**City of Glencoe**	**WMD***
Engineering and Legal (Costs through 2021)	$92,860.95	50%	50%	0%	$46,430.48	$46,430.48	$-
Tree Clearing 23rd St. North	$80,000.00	0%	0%	100%	$-	$-	$80,000.00
Tree Clearing 23rd St. South	$15,000.00	0%	0%	100%	$-	$-	$15,000.00
Top of Bank Cleanup	$16,300.00	0%	0%	100%	$-	$-	$16,300.00
Ditch Cleaning 23rd St North	$22,000.00	0%	0%	100%	$-	$-	$22,000.00
Ditch Cleaning 23rd St. South	$5,000.00	0%	0%	100%	$-	$-	$5,000.00
Side Slope Hydro Seed	$6,500.00	50%	0%	50%	$3,250.00	$-	$3,250.00
Engineering and Legal (2023-2024)	$50,542.07	26%	0%	74%	$13,130.51	$-	$37,411.56
Proceeding Costs, Easement Descriptions, and Construction Management	$50,000.00	26%	0%	74%	$12,989.69	$-	$37,010.31
Contingency	$30,000.00	26%	0%	74%	$7,793.81	$-	$22,206.19
Total	**$368,203.02**	**23%**	**13%**	**65%**	**$83,594.48**	**$46,430.48**	**$238,178.06**

CONCLUSIONS

HEI concludes that proposed Alternative 3 is feasible and is in the best interest of the City, landowners affected by the Central Ditch and the public as a whole. This project alternative:

- Restores capacity to the Central Ditch in order to reduce flooding potential
- Enables maintenance to continue to occur into the future
- Established a buffer along the ditch which helps maintain topsoil in the field and reduces deposition into the ditch
- Reduces problematic scour and sediment delivery downstream to the Central Ponds
- has the lowest cost and provides the most flexibility for implementation of future projects;
- Supports the City's comprehensive plan;
- maintains and protects existing beneficial uses; and
- is the simplest to evaluate regional impacts because it retains existing hydraulic controls (culverts).

The recommended cost split between the City of Glencoe, ad valorem taxes and the WMD balances the benefits of the project. The November 8, 2024, memorandum described the project benefit in relation to several distinct groups of individuals that receive benefit from the project:

1. The City of Glencoe benefits from reduced sedimentation in its stormwater infrastructure;
2. Landowners outside of the City who rely on the Central Ditch as primary conveyance for stormwater runoff (Rural Contributing Acreage); and
3. The entire watershed district and entire State (District-Wide/State-Wide) receive benefit from cleaner water downstream.

It is recommended that the board proceeds with an allocation similar to the above (**Table 2**) breakdown of costs.

ATTACHMENTS

Attachment A: Final Construction Drawings

CONSTRUCTION PLANS FOR

BUFFALO CREEK WATERSHED DISTRICT

CENTRAL DITCH PROJECT

GLENCOE TOWNSHIP

AUGUST 2025

HOUSTON engineering, inc.

7550 MERIDIAN CIR N
SUITE 120
MAPLE GROVE, MN 55369
P: 763.493.4522
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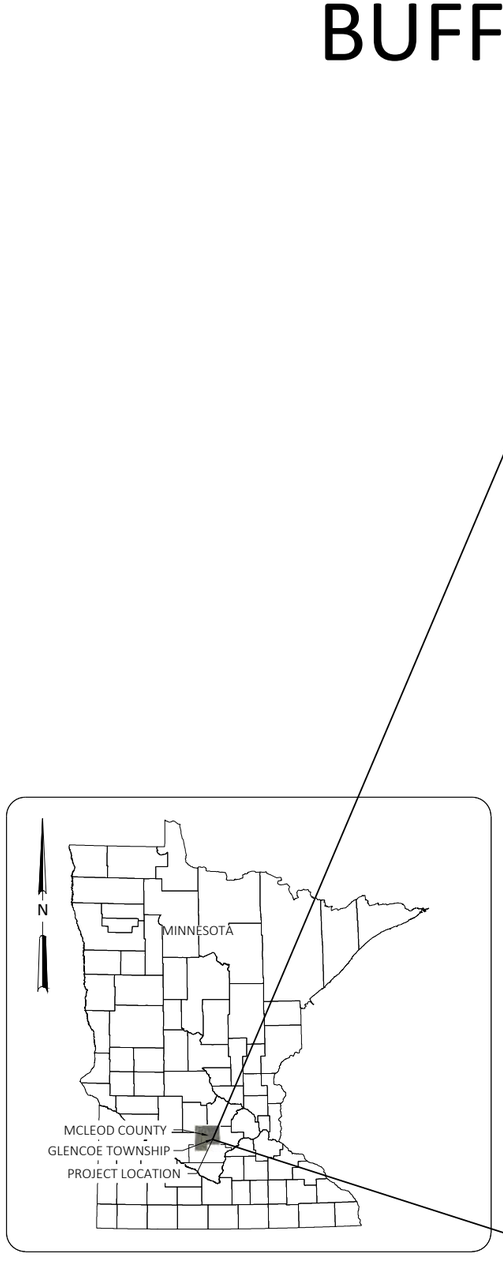
DRAWING INDEX	
SHEET #	SHEET TITLE
1	COVER
2-4	PLAN & PROFILE
5-6	CROSS SECTIONS
7-8	DETAILS
9-10	SWPPP



VICINITY MAP

LOCATION MAP

NOTES:

1. **GEODETIC CONTROL**

   HORIZONTAL: NAD83(2011) GEODETIC POSITION, US FOOT

   VERTICAL: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

   BENCH MARK: BARBER MNDT RESET, NW QUARTER, SECTION 1, TOWNSHIP 115N, RANGE 28W

   1.5 MILES NORTH OF GLENCOE, 0.2 MILE NORTH ALONG TRUNK HIGHWAY 22 (HENNEPIN AVENUE) FROM THE JUNCTION OF TRUNK HIGHWAY 22 (HENNEPIN AVENUE) AND 10TH STREET IN GLENCOE, THEN CONTINUE 1.25 MILES NORTH ON HENNEPIN AVENUE, THEN CONTINUE 0.55 MILE NORTH ON GARDEN AVENUE, 27.0 FEET EAST OF GARDEN AVENUE, 25.8 FEET SOUTH OF A POWER POLE, 11.0 FEET NORTH OF A FIELD ENTRANCE, 7.5 FEET SOUTH OF A WITNESS POST

2. **UTILITY**

   PRIOR TO ANY EXCAVATION WORK, THE CONTRACTOR IS RESPONSIBLE UNDER MINNESOTA STATE STATUTE 216D AND MINNESOTA RULES CHAPTER 7560 TO CONTACT GOPHER STATE ONE CALL FOR THE LOCATION OF UNDERGROUND UTILITY FACILITIES IN PROXIMITY TO THE EXCAVATION SITE.

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

3. **UTILITY TABULATION**

DESCRIPTION	OWNER
COMMUNICATION	CENTURY LINK
COMMUNICATION	FRONTIER COMMUNICATIONS
ENERGY	XCEL ENERGY

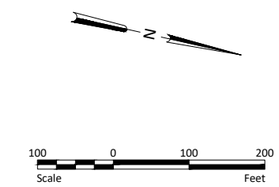
4. CONTACT "GOPHER STATE ONE CALL" FOR LOCATIONS OF BURIED UTILITIES. CALL (651) 454-0002 OR (800) 252-1166. ALSO CONTACT AT www.gopherstateonecall.org

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Lisa D. Odens
License No. 51685

8-5-2025
Date

Project No. 6234-0030



LEGEND

- PARCEL LINE
- SECTION LINE
- WORK LIMITS
- PROPOSED PROFILE
- EXISTING PROFILE
- LIDAR PROFILE

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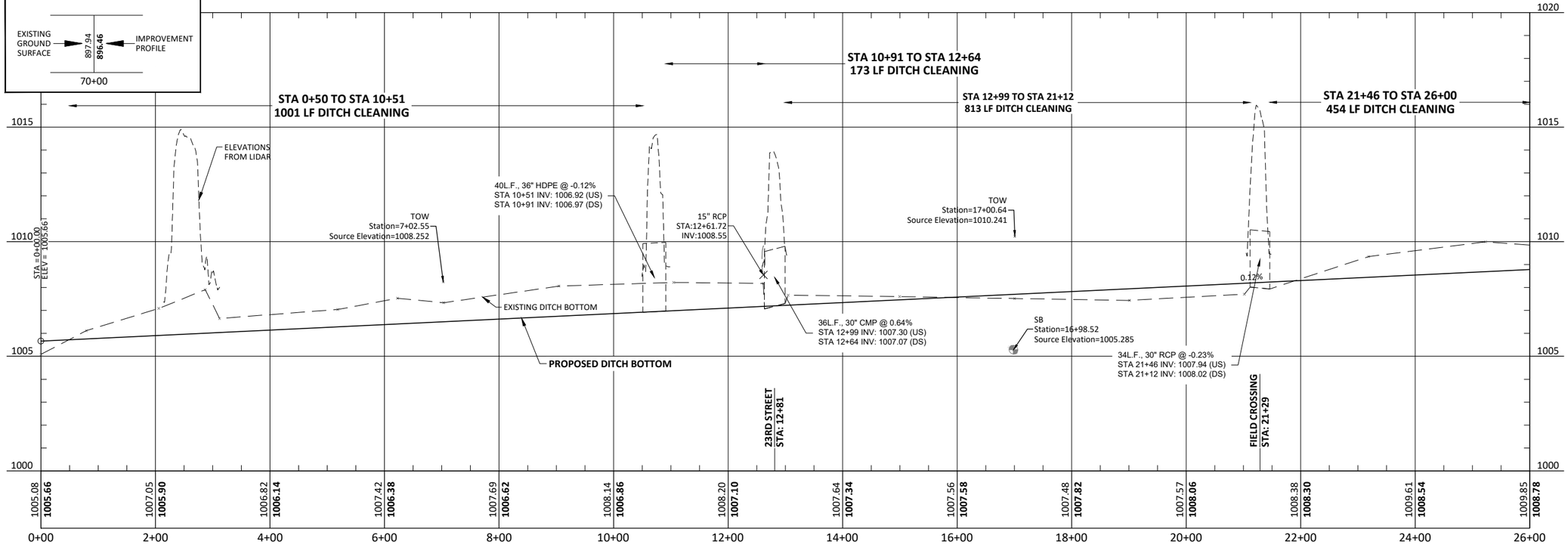

No.	Revision	Date	By

CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
GLENCOE TOWNSHIP

PLAN & PROFILE

HOUSTON engineering, Inc.

Drawn By	JEN
Checked By	LDO
Date	8/5/2025
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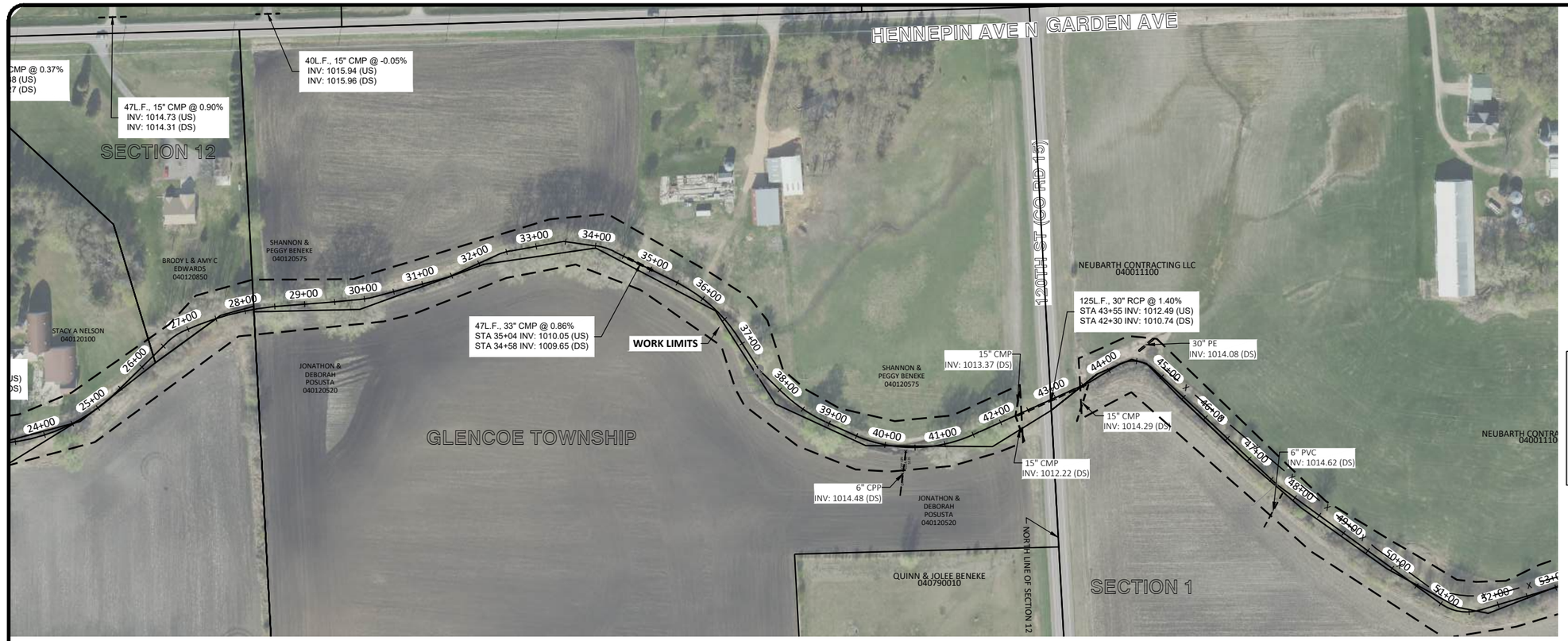

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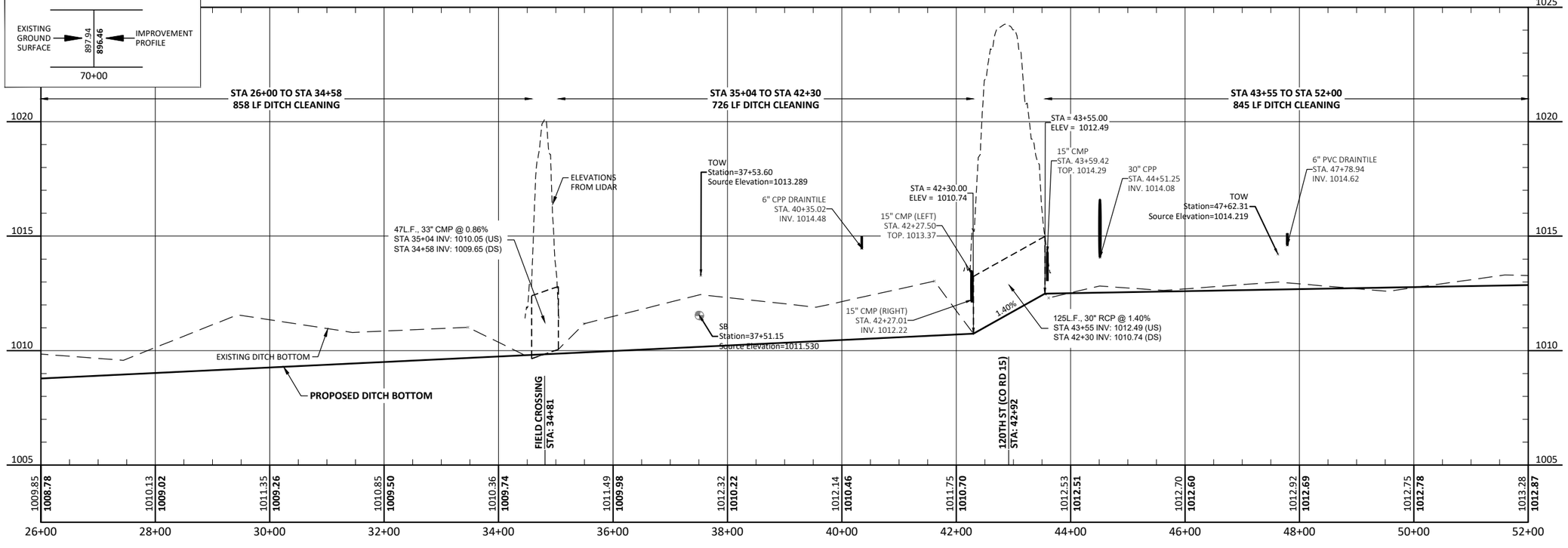
LEGEND FOR PROFILE ELEVATIONS

EXISTING GROUND SURFACE — 897.94 / 896.46 — IMPROVEMENT PROFILE

70+00



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BUFFALO CREEK WATERSHED DISTRICT
GLENCOE TOWNSHIP

PLAN & PROFILE

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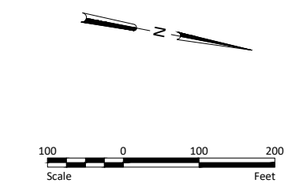

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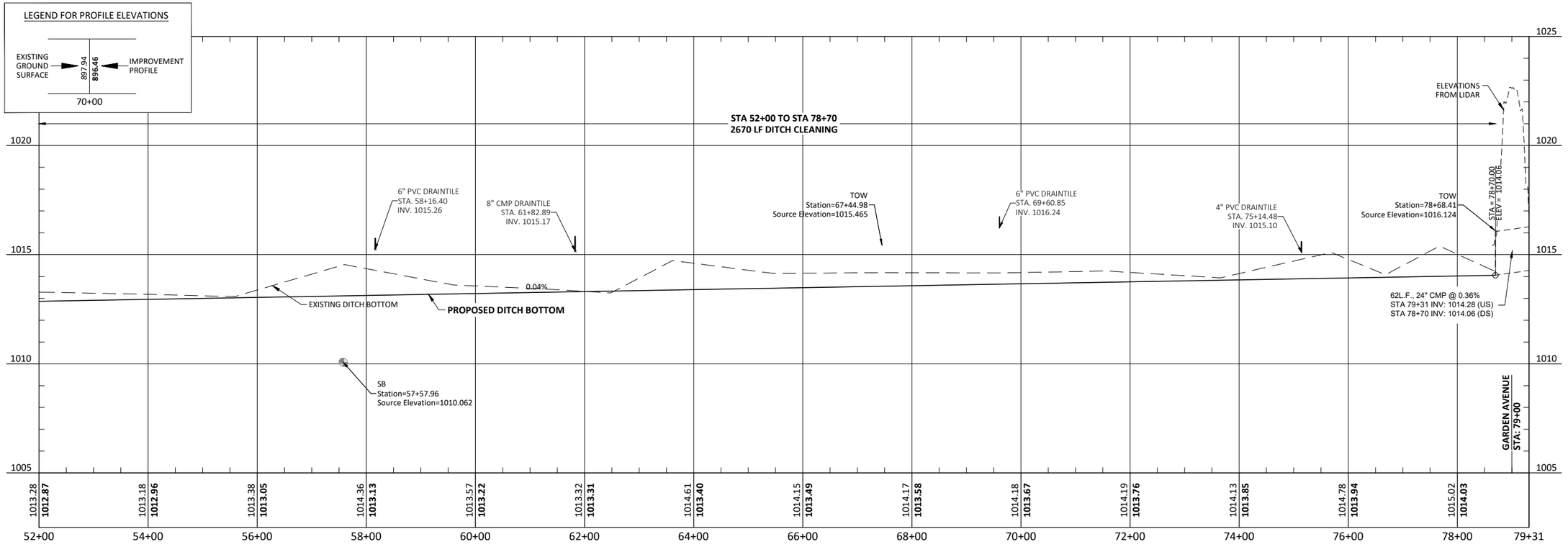

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CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
GLENCOE TOWNSHIP

PLAN & PROFILE

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Date	8/5/2025
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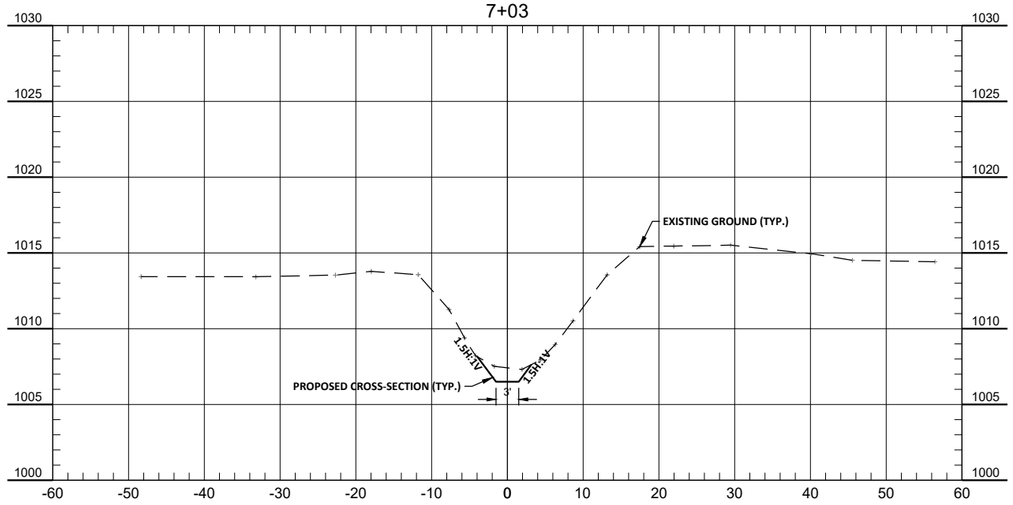

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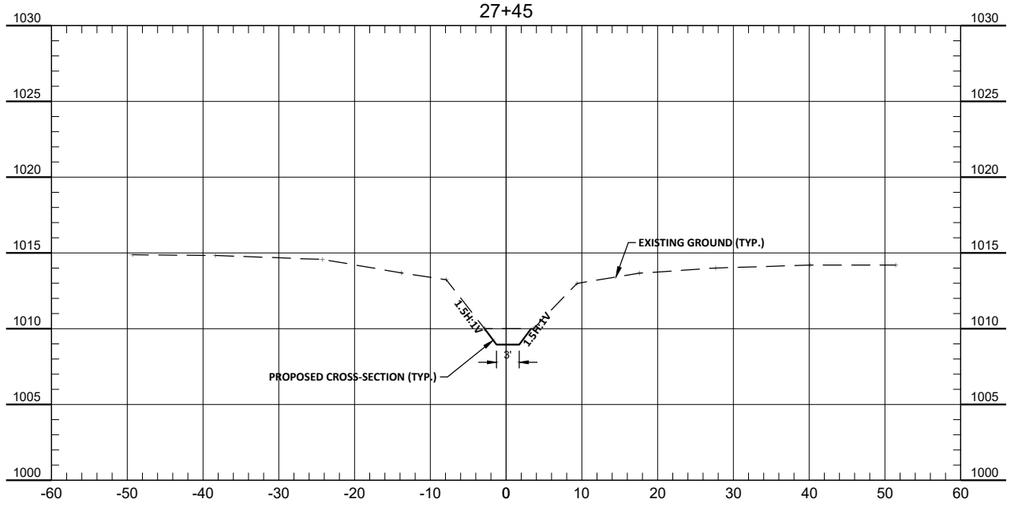

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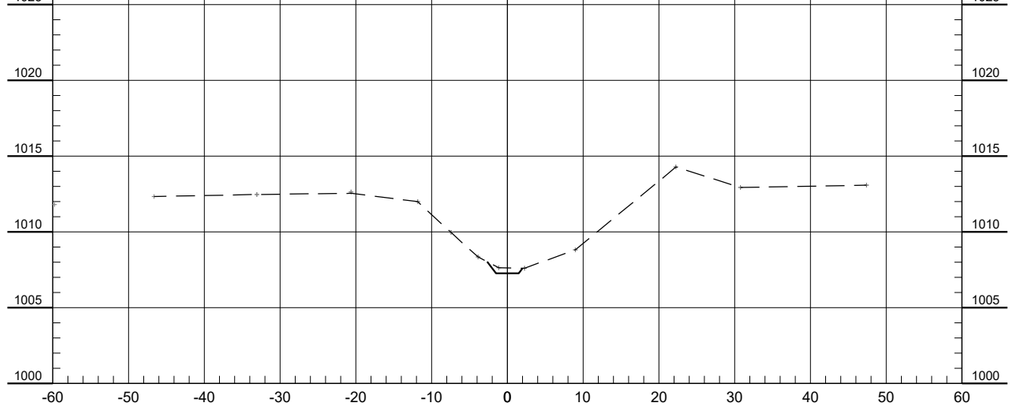

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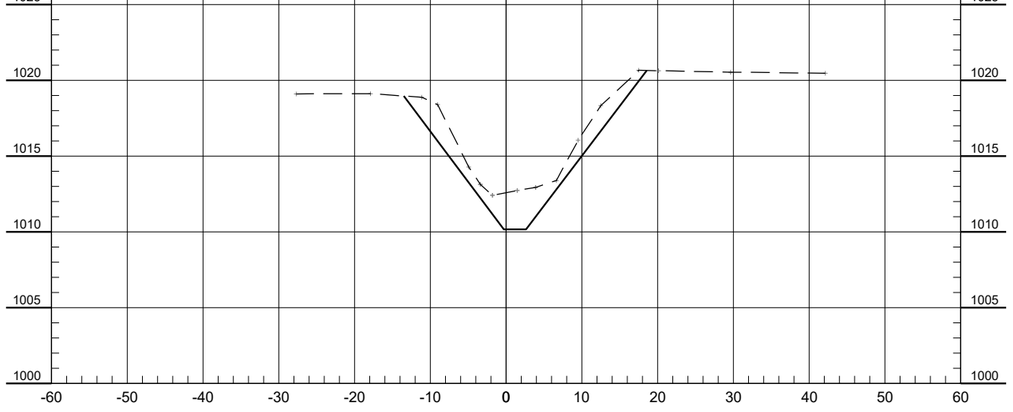

NOTE:
SEE DETAIL SHEET (DITCH COORIDOR WORK LIMITS).

No.	Revision	Date	By

CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
BERGEN AND RICH VALLEY TOWNSHIPS

CROSS SECTIONS

HOUSTON engineering, Inc.

Drawn By: JEN
Checked By: LDO
Date: 8/5/2025
Scale: As Shown
Project No.: 6234-0030
SHEET 5

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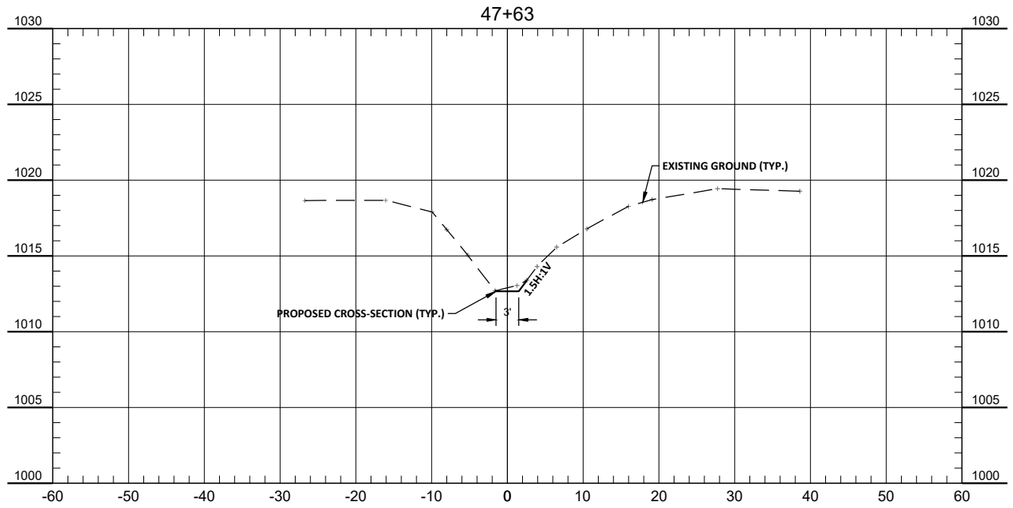

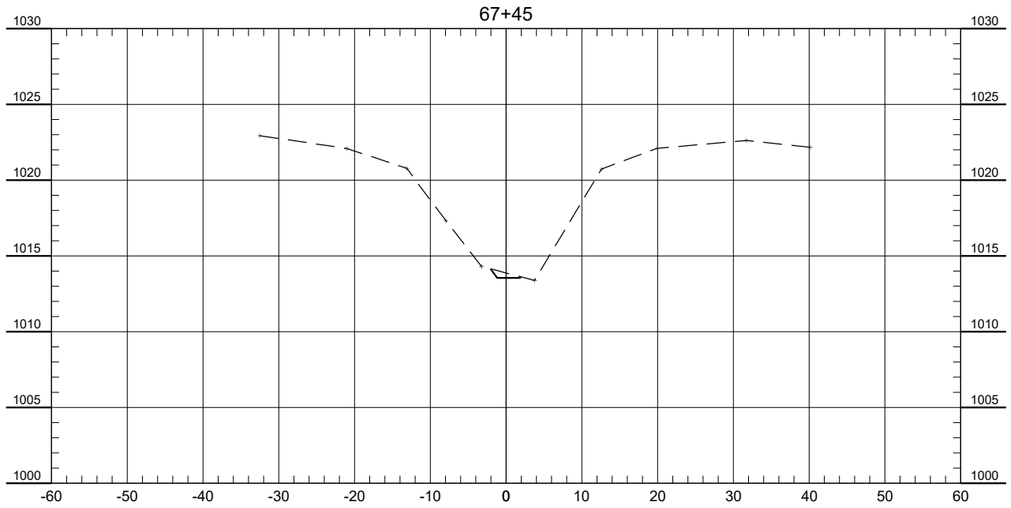

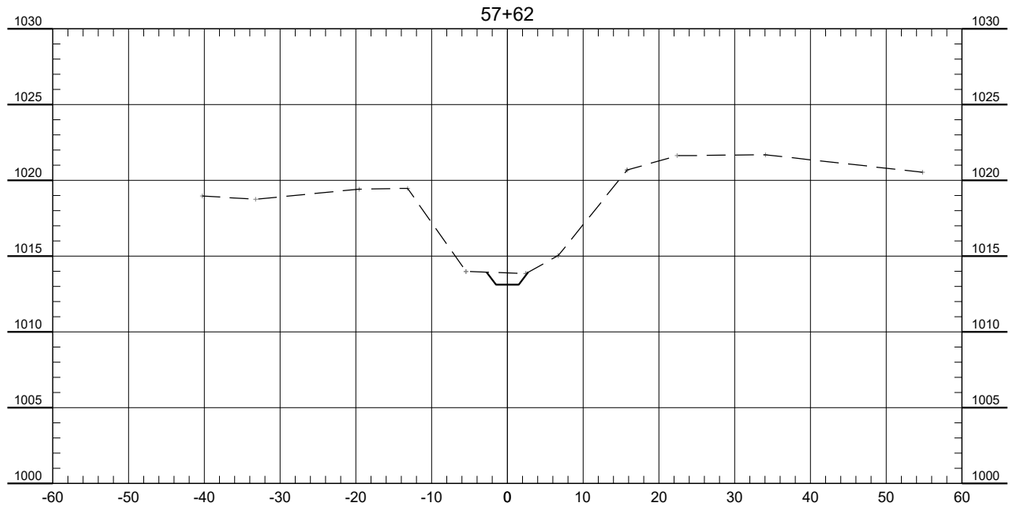

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BERGEN AND RICH VALLEY TOWNSHIPS

CROSS SECTIONS

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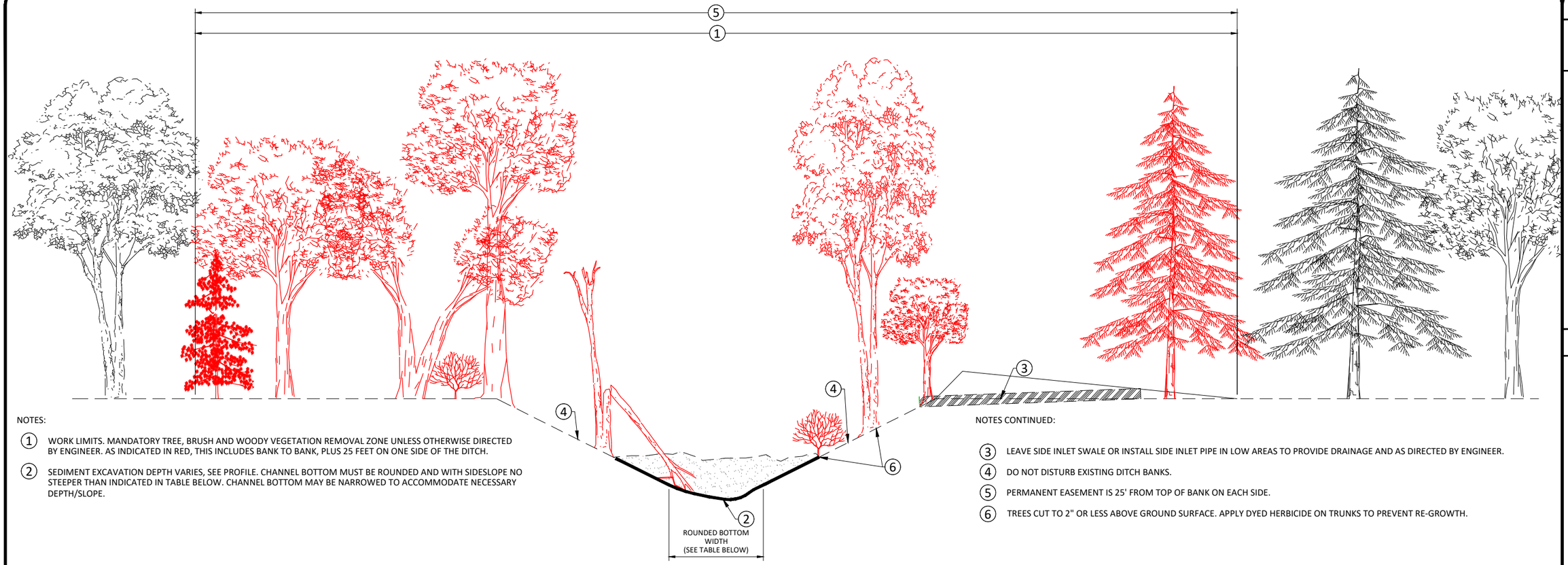


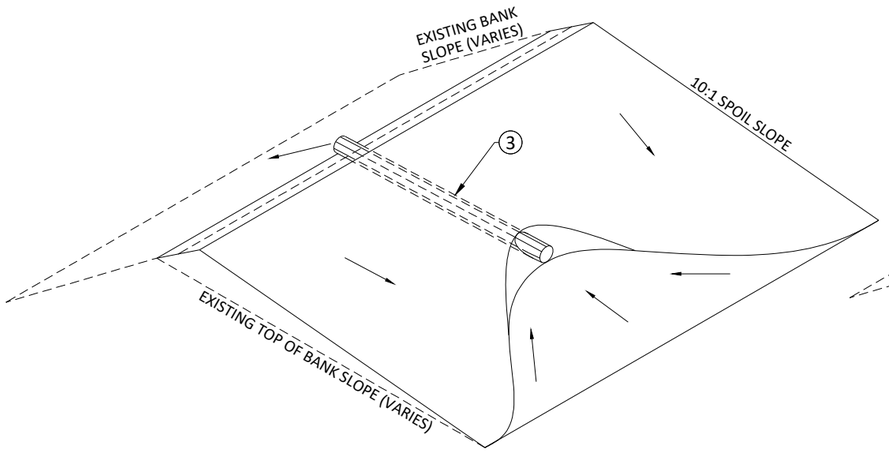
NOTES:

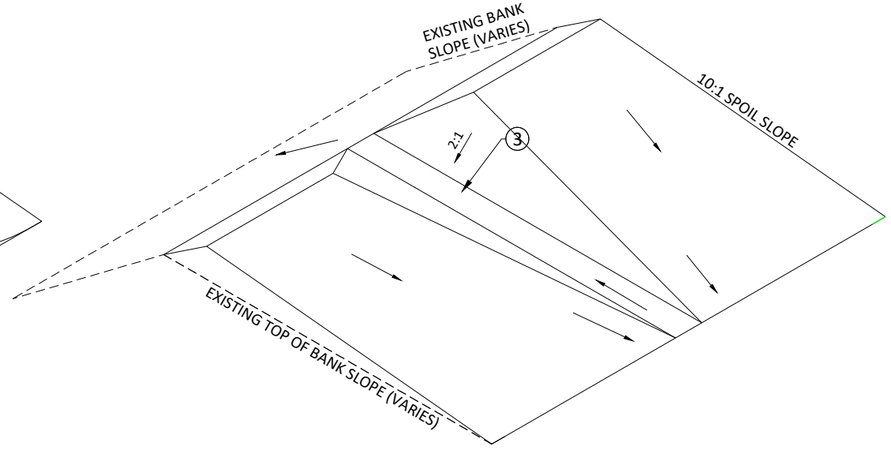
1. WORK LIMITS. MANDATORY TREE, BRUSH AND WOODY VEGETATION REMOVAL ZONE UNLESS OTHERWISE DIRECTED BY ENGINEER. AS INDICATED IN RED, THIS INCLUDES BANK TO BANK, PLUS 25 FEET ON ONE SIDE OF THE DITCH.
2. SEDIMENT EXCAVATION DEPTH VARIES, SEE PROFILE. CHANNEL BOTTOM MUST BE ROUNDED AND WITH SIDESLOPE NO STEEPER THAN INDICATED IN TABLE BELOW. CHANNEL BOTTOM MAY BE NARROWED TO ACCOMMODATE NECESSARY DEPTH/SLOPE.

NOTES CONTINUED:

3. LEAVE SIDE INLET SWALE OR INSTALL SIDE INLET PIPE IN LOW AREAS TO PROVIDE DRAINAGE AND AS DIRECTED BY ENGINEER.
4. DO NOT DISTURB EXISTING DITCH BANKS.
5. PERMANENT EASEMENT IS 25' FROM TOP OF BANK ON EACH SIDE.
6. TREES CUT TO 2" OR LESS ABOVE GROUND SURFACE. APPLY DYED HERBICIDE ON TRUNKS TO PREVENT RE-GROWTH.

CHANNEL DIMENSIONS TABLE			
START STA.	END STA.	BOTTOM WIDTH (FT)	SIDESLOPES
0+00	12+81	3.0	1.5H:1V
12+81	78+70	3.0	1.5H:1V





DITCH CORRIDOR "WORK LIMITS" BOTH SIDES

NOT TO SCALE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Lisa D. Owens
License No. 51685

8-5-2025
Date

No.	Revision	Date	By

CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
BERGEN AND RICH VALLEY TOWNSHIPS

DETAILS

HOUSTON engineering, Inc.

Drawn By: JEN
Checked By: LDO
Date: 8/5/2025
Scale: As Shown
Project No.: 6234-0030
SHEET 7

H:\BN\6200\6234\6234_0030 Glencoe Central Drainage\CAD\Plans\6234-0030_Details.dwg-7 DETAILS-8/11/2025 8:13 AM-(breeve)

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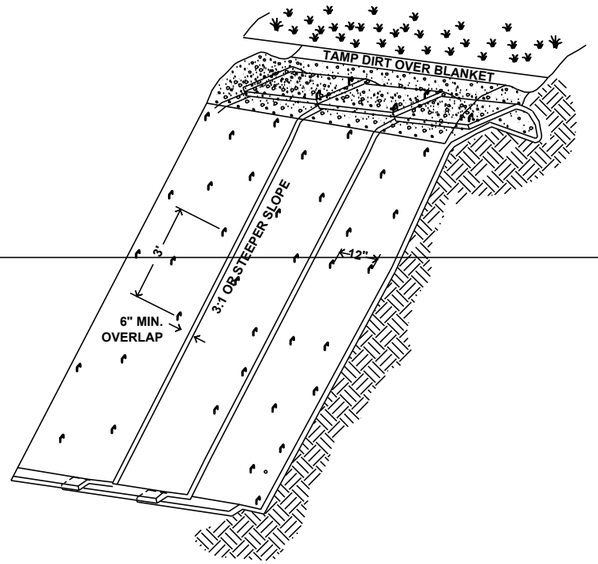
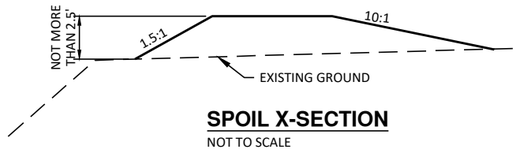


EROSION CONTROL BLANKET

NOT TO SCALE



SPOIL X-SECTION

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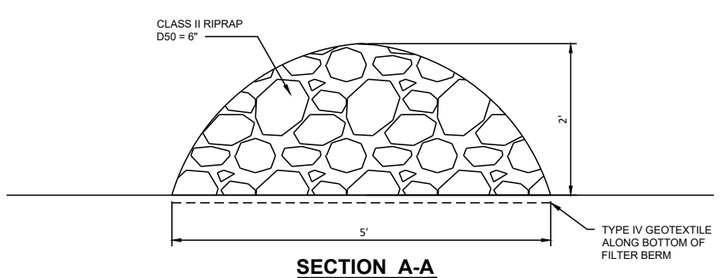
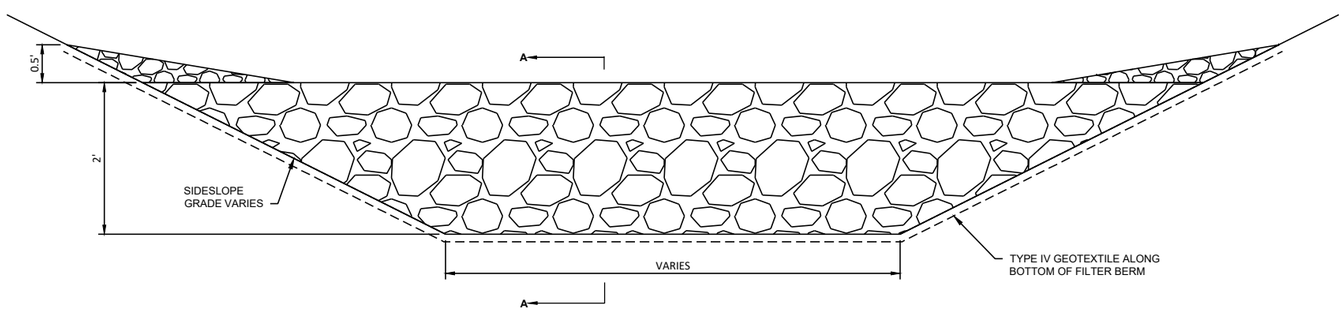


SECTION A-A



FILTER BERM (TYPE 5 ROCK)

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Lisa D. Odens
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Date

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CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
BERGEN AND RICH VALLEY TOWNSHIPS

DETAILS

HOUSTON engineering, Inc.

Drawn By: JEN
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SHEET 8

H:\JBN\6200\6234\6234_0030 Glencoe Central Drainage\CAD\Plans\6234-0030_Details.dwg-8 DETAILS-8/11/2025 8:13 AM- (lpreeve)

HEI NO. 6234-0030

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

THE MINNESOTA GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY ISSUED ON AUGUST 1, 2023 SHALL APPLY FOR THIS PROJECT.

GENERAL CONSTRUCTION ACTIVITY INFORMATION

PROJECT NAME: CENTRAL DITCH PROJECT

1. DESCRIBE PROJECT LOCATION:

CITY OR TOWNSHIP: GLENCOE TOWNSHIP
STATE: MN ZIP CODE: 55336 COUNTY: MCLEOD
LATITUDE/LONGITUDE OF APPROXIMATE CENTROID OF PROJECT
44.74599866047039/-94.1112384879897

2. DESCRIBE THE CONSTRUCTION ACTIVITY:

THE GLENCOE CENTRAL DITCH PROJECT WILL CONSIST OF THE EXCAVATION OF THE EXISTING DITCH AND LEVELING OF SPOILS WITHIN THE WORK LIMITS

PROJECT AREAS

3. TOTAL AREA TO BE DISTURBED (ACRES): 5.5

4. PRE-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 0.00

5. POST-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 0.00

TOTAL NEW IMPERVIOUS SURFACE (ACRES): 0.00

RECEIVING WATERS

SURFACE WATERS WITHIN ONE MILE OF PROJECT BOUNDARY (AERIAL RADIUS MEASUREMENT) THAT WILL RECEIVE STORMWATER FROM THE SITE OR DISCHARGE FROM PERMANENT STORMWATER MANAGEMENT SYSTEM:

WATER BODY ID	NAME OF WATER BODY	TYPE	SPECIAL WATER	IMPAIRED WATER
BUFFALO CREEK	BUFFALO CRREK	STREAM	NO	YES

CONTACT INFORMATION

PROJECT OWNER: BUFFALO CREEK WATERSHED DISTRICT
PO BOX 55
GLENCOE, MN 55336
PHONE:320-864-6250

CONTRACTOR: TO BE DETERMINED

DESIGN OF CONSTRUCTION SWPPP

DESIGN OF CONSTRUCTION SWPPP COMPLETED BY:
AARON M. ZIGAN
HOUSTON ENGINEERING, INC.
7550 MERIDIAN CIRCLE NORTH, SUITE 120
MAPLE GROVE, MINNESOTA 55369
PHONE: (763) 493-4522
FAX: (763) 493-5572
AZIGAN@HOUSTONENG.COM

PROJECT INFORMATION

1. CHAIN OF RESPONSIBILITY: OWNER AND CONTRACTOR ARE COPERMITEES FOR THE MINNESOTA GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE MINNESOTA GENERAL PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

2. TRAINING DOCUMENTATION: CONTRACTOR SHALL LIST PEOPLE REQUIRING TRAINING PER PART III.F.1, DATES OF TRAINING AND NAME OF INSTRUCTOR(S) AND ENTITY PROVIDING TRAINING, CONTENT OF TRAINING COURSE OR WORKSHOP INCLUDING THE NUMBER OF HOURS OF TRAINING. THE OWNER SHALL BE PROVIDED WITH A COPY OF THE TRAINING DOCUMENTATION BEFORE THE START OF CONSTRUCTION ON THE PROJECT.

PROJECT INFORMATION

1. ENVIRONMENTALLY SENSITIVE AREAS:

A. IMPAIRED WATERS: THERE IS ONE IMPAIRED WATER WITHIN ONE MILE OF THE DISCHARGE FOR GLENCOE CENTRAL DITCH PROJECT (BUFFALO CREEK). BUFFALO CREEK HAS AN IMPAIRMENT FOR FISHES BIOASSESSMENTS, BENTHIC MACROINVERTBRATES BIOASSESMENT, DISSOLVED OXYGEN AND FECAL COLIFORM.

B. SPECIAL WATERS: THERE ARE NO SPECIAL WATERS WITHIN ONE MILE OF THE DISCHARGE FOR GLENCOE CENTRAL DITCH PROJECT.

C. WETLANDS: THE WORK LIMITS DO NOT CROSS WETLANDS. WORK SHALL CONFORM TO STATE AND FEDERAL WETLAND LAWS.

D. KARST AREAS: THERE ARE NO KNOWN KARST AREAS WITHIN THE PROJECT BOUNDARY.

E. CALCAREOUS FENS: THERE ARE NO KNOWN CALCAREOUS FENS WITHIN THE PROJECT BOUNDARY.

F. ENDANGERED OR THREATENED SPECIES: NO STATE-LISTED THREATENED VERTEBRATE OR INVERTEBRATE WERE OBSERVED WITHIN A 1-MILE RADIUS OF THE CD1 SYSTEM.

G. HISTORIC PLACES OR ARCHEOLOGICAL SITES: THERE ARE NO KNOWN HISTORIC PLACES OR ARCHEOLOGICAL SITES WITHIN THE PROJECT BOUNDARY.

H. STEEP SLOPES: SLOPES 1:3 (V:H) OR STEEPER IN GRADE ARE CONFINED TO THE SLOPES OF THE PRIVATE DITCH SYSTEM.

2. SOIL TYPES.

THE SEDIMENT REMOVAL WILL GENERALLY CONSIST OF SILT LOAM, SILTY CLAY LOAM, AND MUCK. ESTIMATED PARTICLE SIZE RANGING FROM 0.0001 MM TO 0.5MM.

3. ORDER OF CONSTRUCTION ACTIVITIES:

A. INSTALL EROSION AND SEDIMENT CONTROL MEASURES.
B. PROCEED WITH DITCH CLEANING
C. STABILIZE AREAS DISTURBED WITH TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.
D. COMPLETE PERMANENT RESTORATION WITH EROSION AND SEDIMENT CONTROL MEASURES.

EROSION PREVENTION PRACTICES

1. STABILIZATION MUST BE INITIATED IMMEDIATELY AND NO LATER THAN 7 CALENDAR DAYS WHENEVER ANY CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. STABILIZATION MEANS THE EXPOSED GROUND SURFACE HAS BEEN COVERED BY APPROPRIATE MATERIALS SUCH AS MULCH, STAKED SOD, RIPRAP, EROSION CONTROL BLANKET, MATS OR OTHER MATERIAL THAT PREVENTS EROSION FROM OCCURRING. GRASS, AGRICULTURAL CROP OR OTHER SEEDING ALONE IS NOT STABILIZATION. MULCH MATERIALS MUST ACHIEVE APPROXIMATELY 90 PERCENT GROUND COVERAGE (TYPICALLY 2 TON/ACRE).

2. STABILIZATION OF THE NORMAL WETTED PERIMETER OF THE LAST 200 LINEAR FEET OF TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALES THAT DRAIN WATER FROM THE SITE MUST OCCUR WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.

3. STORMWATER CONVEYANCE CHANNELS MUST BE ROUTED AROUND UNSTABILIZED AREAS. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED ALONG THE LENGTH OF THE CONVEYANCE CHANNEL AND AT ANY OUTLET.

4. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

5. IF FEASIBLE, STORMWATER DISCHARGES FROM BMPS MUST BE DIRECTED TO VEGETATED AREAS. USE VELOCITY DISSIPATION DEVICES AT DISCHARGE POINT IF NECESSARY.

SEDIMENT CONTROL PRACTICES

1. SEDIMENT CONTROL PRACTICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS AND BE LOCATED UP GRADIENT OF ANY BUFFER ZONES. THE PERIMETER SEDIMENT CONTROL PRACTICE MUST BE IN PLACE BEFORE ANY UP GRADIENT LAND-DISTURBING ACTIVITIES BEGIN. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION.

2. RE-INSTALL ALL SEDIMENT CONTROL PRACTICES THAT HAVE BEEN ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES, IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED. COMPLETE ANY SHORT-TERM ACTIVITY THAT REQUIRES REMOVAL OF SEDIMENT CONTROL PRACTICES AS QUICKLY AS POSSIBLE. RE-INSTALL SEDIMENT CONTROL PRACTICES BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.

3. ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED BY THE PERMITTEE OR THE JURISDICTIONAL AUTHORITY. THE PERMITTEE MUST DOCUMENT THE NEED FOR REMOVAL AND RETAIN THE RECORD WITH THE SWPPP.

4. TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN ANY NATURAL BUFFERS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER.

5. WHERE VEHICLE TRAFFIC LEAVES ANY PART OF THE SITE (OR ONTO PAVED ROADS WITHIN THE SITE) A VEHICLE TRACKING BMP, APPROVED BY THE ENGINEER, MUST BE INSTALLED TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE. STREET SWEEPING MUST BE USED IF SUCH VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.

6. SOIL COMPACTION MUST BE MINIMIZED AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL. MINIMIZING SOIL COMPACTION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA OF THE SITE DICTATES THAT IT BE COMPACTED.

7. SOIL COMPACTION MUST BE MINIMIZED AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL. MINIMIZING SOIL COMPACTION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA OF THE SITE DICTATES THAT IT BE COMPACTED.

CONTROL OF WATER

1. WORK IN DRY CONDITIONS.

2. PUMPING, IF NECESSARY, SHALL BE PROVIDED AND CONDUCTED AT DISCHARGE RATES THAT DO NOT ERODE SOIL MATERIAL. DISSIPATION BMP'S SHALL BE IMPLEMENTED TO MITIGATE SOIL EROSION.

INSPECTIONS AND MAINTENANCE

1. THE CONTRACTOR SHALL IDENTIFY THE INDIVIDUAL(S) CERTIFIED AS A SITE MANAGER FOR OVERSEEING IMPLEMENTATION OF, REVISING, AND AMENDING THE SWPPP AND PERFORMING INSPECTIONS.

2. THE CONTRACTOR SHALL IDENTIFY THE INDIVIDUAL(S) CERTIFIED AS A BMP INSTALLER FOR PERFORMING OR SUPERVISING THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPS.

3. INSPECTIONS WILL BE CONDUCTED AT LEAST ONE TIME PER WEEK AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.50 INCH IN 24 HOURS.

4. WHERE PARTS OF THE CONSTRUCTION SITE HAVE UNDERGONE FINAL STABILIZATION, BUT WORK REMAINS ON OTHER PARTS OF THE SITE, INSPECTIONS OF THE STABILIZED AREAS MAY BE REDUCED TO ONCE PER MONTH.

5. WHERE WORK HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, THE REQUIRED INSPECTIONS AND MAINTENANCE SCHEDULE MUST BEGIN WITHIN 24 HOURS AFTER RUNOFF OCCURS AT THE SITE OR 24 HOURS PRIOR TO RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.

6. ALL PERIMETER CONTROL DEVICES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES ONE-HALF (1/2) OF THE HEIGHT OF THE DEVICE. THESE REPAIRS MUST BE MADE BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR THEREAFTER AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

7. SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION.

8. CONSTRUCTION SITE VEHICLE EXIT LOCATIONS MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY.

9. ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITY IS REACHING THE INFILTRATION AREA. ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE INFILTRATION AREA.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Lisa D. Odens
License No. 51685

8-5-2025
Date

No.	Revision	Date	By

CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
BERGEN AND RICH VALLEY TOWNSHIPS

7 SWPPP NARRATIVE (1 OF 2)

HOUSTON engineering, Inc.

Drawn By: KJL
Checked By: LDO
Date: 8/5/2025
Scale: As Shown
Project No.: 6234-0030
SHEET 9

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HEI NO. 6234-0030

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

POLLUTION PREVENTION MANAGEMENT MEASURES

THE FOLLOWING POLLUTION PREVENTION MANAGEMENT MEASURES SHALL BE IMPLEMENTED ON THE SITE AND SHALL BE A LUMP SUM PAYMENT:

1. BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS, PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY A SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

2. HAZARDOUS MATERIALS, TOXIC WASTE, (INCLUDING OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) MUST BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR HAZARDOUS MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH.7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

3. SOLID WASTE MUST BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN. R. CH.7035.

4. PORTABLE TOILETS MUST BE 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.

5. REASONABLE STEPS SHALL BE TAKEN TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE. FUELING MUST BE CONDUCTED IN A CONTAINED AREA UNLESS INFEASIBLE. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND AN APPROPRIATE DISPOSAL METHOD MUST BE AVAILABLE FOR RECOVERED SPILLED MATERIALS. REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINN. STAT. § 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE.

6. WASHING THE EXTERIOR OF VEHICLES OR EQUIPMENT ON THE PROJECT SITE MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF FROM THE WASHING AREA MUST BE CONTAINED IN A SEDIMENT BASIN OR OTHER SIMILARLY EFFECTIVE CONTROLS AND WASTE FROM THE WASHING ACTIVITY MUST BE PROPERLY DISPOSED OF. STORE AND PROPERLY USE THE SOAPS, DETERGENTS, OR SOLVENTS. NO ENGINE DEGREASING IS ALLOWED ON SITE.

7. EFFECTIVE CONTAINMENT SHALL BE PROVIDED FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS (CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS) RELATED TO THE CONSTRUCTION ACTIVITY. THE LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND, AND THE CONTAINMENT MUST BE DESIGNED SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA RULES. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES.

8. IN THE EVENT OF A SPILL, THE CONTRACTOR WILL MAKE THE APPROPRIATE NOTIFICATION(S) TO THE MPCA, CONSISTENT WITH THE FOLLOWING PROCEDURES:

   SPILLS OF PETROLEUM IN A QUANTITY GREATER THAN 5 GALLONS MUST BE REPORTED IMMEDIATELY TO THE MINNESOTA DUTY OFFICER.

   SPILLS OF ANY QUANTITY OF ALL OTHER CHEMICALS OR MATERIALS WHICH MAY CAUSE POLLUTION OF WATERS OF THE STATE MUST BE REPORTED IMMEDIATELY TO THE MINNESOTA DUTY OFFICER.

   REPORTABLE SPILLS SHOULD BE DIRECTED TO THE MINNESOTA DUTY OFFICER BY IMMEDIATELY CALLING THE FOLLOWING NUMBERS: (651) 649-5451 OR (800) 422-0798.

FINAL STABILIZATION

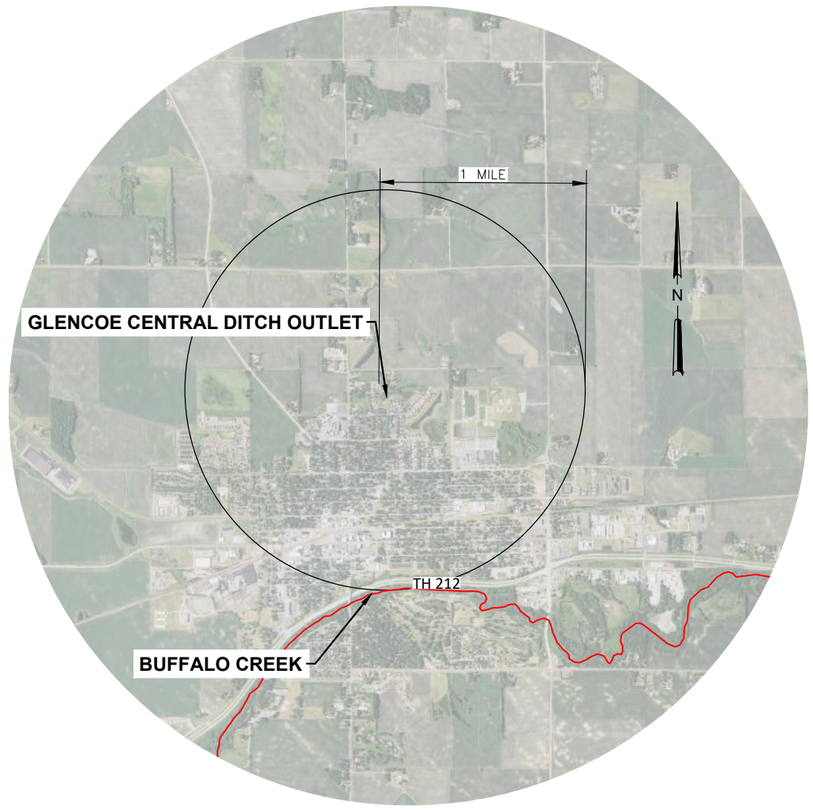
FINAL STABILIZATION IS NOT COMPLETE UNTIL ALL OF THE FOLLOWING REQUIREMENTS ARE COMPLETE:

1. ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH DENSITY OVER THE ENTIRE PERVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSIVE CONDITIONS.

2. ALL TEMPORARY SYNTHETIC AND STRUCTURAL EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SILT FENCE) HAVE BEEN REMOVED. BMPS DESIGNED TO DECOMPOSE ON SITE (SUCH AS SOME COMPOST LOGS) MAY BE LEFT IN PLACE.

3. FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND (E.G., PIPELINES ACROSS CROP, FIELD PASTURE OR RANGE LAND) THE DISTURBED LAND HAS BEEN RETURNED TO ITS PRECONSTRUCTION AGRICULTURAL USE.

AMENDMENTS



EROSION AND SEDIMENT CONTROL QUANTITY SUMMARY AND BMP SCHEDULE

DESCRIPTION	UNITS	QUANTITY
SEEDING & MULCH	ACRE	5.40
FILTER BERM (TYPE 5 ROCK)	EACH	1
EROSION CONTROL BLANKET*	SY	600

*EROSION CONTROL BLANKET TO BE INSTALLED AT LOCATIONS SPECIFIED BY ENGINEER

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Lisa D. Odens
License No. 51685

8-5-2025
Date

No.	Revision	Date	By

CENTRAL DITCH PROJECT
BUFFALO CREEK WATERSHED DISTRICT
BERGEN AND RICH VALLEY TOWNSHIPS

8 SWPPP NARRATIVE (2 OF 2)

HOUSTON engineering, Inc.

Drawn By: KJL
Checked By: LDO
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SHEET: 10

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HEI NO. 6234-0030