

Technical Memorandum

To: Nick Tomczik, Administrator
Rice Creek Watershed District

Cc: Tom Schmidt
Ashlee Ricci

From: Adam Nies

Through: Chris Otterness, PE

Subject: RCD 4 Repair Report

Date: July 13, 2023

Project #: R005555-0327

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



Adam N. Nies

July 13, 2023

Reg. No. 53358

INTRODUCTION AND EXECUTIVE SUMMARY

The purpose of this memorandum is to provide the Rice Creek Watershed District (District) with an analysis and description of proposed repairs to portions of Ramsey County Ditch (RCD) 4, including a preliminary opinion of probable cost for the recommended repairs.

The primary issues identified for RCD 4 are a lack of accessibility for inspection and maintenance and bank erosion due to sparse ground cover. Both of these issues are directly related to heavy tree growth along and over the ditch, which forms a barrier to access and shields sunlight from lower-growth vegetation. Recommended repairs consist of tree removal between the channel banks and adjacent to one bank to facilitate maintenance access. Cost for these repairs is estimated at approximately \$235,000.

BACKGROUND

LOCATION OF THE PUBLIC DRAINAGE SYSTEM

The RCD 4 public drainage system is located within Sections 4, 9, 25, and 10 (of T 29N, R 23W) and Section 33 (of T30N, R23W), within the Cities of Roseville and Arden Hills, Ramsey County. RCD 4 previously consisted of a Main Trunk and one connecting lateral, however, the portion of the RCD 4 Main Trunk south of Terrace Drive and the entirety of Lateral 1 have been transferred to the City of Roseville. Although this transfer changed management authority over a portion of the ditch, it does not change the drainage area of RCD 4, or the lands benefitted by the system. The drainage area that contributes runoff to the public drainage system is approximately 1,700 acres and is in an entirely urban environment with land uses including residential, commercial, and industrial. The public

drainage system drains through Little Lake Johanna into Lake Johanna which in turn drains to Rice Creek. The terminus of the public drainage system is Lake Johanna. The system traverses through residential neighborhoods and the campus of Northwestern University. The location of RCD 4 is shown in **Figure 1**.

CURRENT CONDITION OF THE SYSTEM

Houston Engineering, Inc. (HEI) completed a ground survey of RCD 4 in 2011, 2013, and 2016 as part of an effort to determine the as-constructed and subsequently improved condition (ACSIC) and reestablish the public drainage system record. HEI completed a follow-up survey in fall 2022 on the portion of RCD 4 Main Trunk between station 18+22 and 38+67 to verify sediment accumulation and locate eroded portions of the bank. The 2022 survey indicated little accumulation of sediment in the channel. This is due in part to the relatively steep ditch grade allowing sediment to remain in suspension and flow downstream to settle out in Little Lake Johanna. Upon seeing very little change to the ditch profile during the first portion of the survey, HEI and RCWD staff concurred that further profile investigation was unnecessary, and the survey of the remaining portions of the ditch was discontinued. The existing ditch bottom profile depicted in the Plan and Profile drawings (**Figure 2**) are based on the 2016 survey and verified with partial ditch survey in 2022.

HEI and District staff completed a walk-through of the entire RCD 4 open channel in August 2022 from Oasis Pond to Little Lake Johanna. Conditions were documented via photographs, videos, and notes (see photos in **Appendix A**). Some of the open channel (particularly in downstream portions closer to Little Lake Johanna) has been lined with grouted riprap, which is generally in good condition. However, large vegetation, brush, and trees prevent access for maintenance. There are also deadfalls within the channel in many of the treed areas, which can lead to reduction in capacity of the drainage ditch. The tree canopy causes heavy shading of the banks resulting in scarcity of vegetation and ground cover, which can lead to bank erosion and excess sedimentation downstream.

In addition to the usual difficulty of tree clearing associated with repairing ditches that have not had regular maintenance, RCD 4 is also located in a developed area. As a result, there are multiple locations along the ditch where fences, retaining walls, and trails are located within the area required for maintenance access. At approximate station 40+50, a walking path begins on the eastern side of the ditch and continues downstream to Lydia Ave. There are multiple retaining walls located adjacent to the path that limit access to Lydia Ave. On the west bank of the ditch from Oasis Pond to Lydia Ave there is no direct access due to the proximity of residential yards to the ditch. Along the north side of Lydia Ave, there is limited access to the west bank due to the proximity of houses. However, on the east bank there is a maintenance road located near the University of Northwestern baseball field. This access road leads to a walking path along the east bank of the drainage ditch until the ditch reaches Little Johanna Lake.

PROPOSED REPAIR

The purpose of the proposed repair is to restore a maintenance corridor and reestablish stabilizing vegetation and ground cover along the banks of RCD 4 Main Trunk from Oasis Pond to Lake Johanna. The banks and ROW are densely vegetated with trees and brush which make access difficult, shade the banks, and prevent stabilizing vegetation from growing. Repairs in this reach would include removal of vegetation (trees/brush) within the channel, including deadfalls, and clearing of trees and brush along one side of the channel to provide maintenance access. Due to the lack of available space to dispose of wood chips on site, all cleared tree and vegetation debris must be hauled offsite. No significant sediment removal or spoiling of sediment is anticipated for this project. All areas disturbed by the clearing efforts will be stabilized and reseeded with shade tolerant vegetation as some canopy is expected to remain from the opposite bank from which clearing activities are occurring. Additional erosion control practices (e.g. blanketing) may be required in some areas adjacent to the project work limits as the site is cleared and scoured areas become more apparent.

Project work is recommended to occur on the east side of RCD 4 between Little Lake Johanna and Oasis Pond due to accessibility concerns discovered during the site walk through with District Staff. Project work is recommended to occur on the east side of RCD 4 between Lake Johanna and Little Lake Johanna. The “working side” of ditch is displayed on the preliminary construction plans provided in **Appendix B**. Removal of additional poor condition trees immediately adjacent to the work limits will be taken into consideration during construction. That being trees that are imminent for falling either into the ditch or at risk of damaging structures.

EFFECTS OF REPAIR

Drainage System Performance

The repairs will provide a more stable outlet for benefitting lands, particularly within the Main Trunk immediately downstream of Oasis Pond. This will be accomplished through the removal of several deadfalls and snags that cause flow to slow (dropping sediment) and swirl (causing bank erosion), and through the removal of trees and brush that prevent sunlight from reaching the channel banks. Reintroducing sunlight and planting deep rooted grasses will provide a stable bank that is less susceptible to erosion and failures while reducing the threat of future deadfalls. The removal of trees and large vegetation is also essential to the future performance of the ditch as it allows access for future inspection and maintenance activities.

Wetland Impacts

We reviewed the National Wetland Inventory (NWI) dataset and aerial photography to determine the extents of wetland resources within the vicinity of the drainage system channel. There are three (3)

wetland complexes along the corridor of the drainage system channel including Type 3 and Type 5 wetlands (**Figure 1**).

The proposed project falls under the definition of a “repair” under Minnesota Statute 103E. Per the US Army Corps of Engineers Regulatory Guidance Letter 07-02, this work is exempt from federal permitting requirements of the Clean Water Act (CWA). Under the Wetland Conservation Act (WCA), impacts to Type 3, 4 and 5 wetlands resulting from drainage system repair would require mitigation, should impacts occur from the repair. However, the proposed repair work does not result in dredging or replacement of fill therefore there will be no impacts to wetlands that require mitigation. Therefore, a loss of wetland quantity, quality or biological diversity is not expected due to the project.

Threatened and Endangered Species

Public drainage systems 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.

Based on the MnDNR’s Natural Heritage Information System (NHIS) data (LA-944) as **Appendix D**, the District Engineer is aware of three state-listed threatened species that have been observed within one mile of the RCD 4 project site:

- Jumping Spider (*Paradamoetas fontanus*)
- Caddis Fly (*Oecetis ditissa*)
- Kinnickinnick Dewberry (*Rubus multiflorus*)

The District Engineer will use impact avoidance strategies including strategic construction timing, best management practices and species awareness to avoid an incidental taking of state-listed threatened species at the time of construction.

PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST

A Preliminary Opinion of Probable Construction Cost (POPCC) was developed for the recommended repairs and is included as **Appendix C**. Our cost estimate is approximately \$235,000 including a 20% construction contingency, 30% Engineering fee and \$10,000 Legal/Administrative fees. Major work line items include tree clearing, mobilization, traffic control & public safety for the recreational trail usage, and seeding & mulch. The cost estimate also includes protection of existing features, such as lateral connections, retaining walls and gravel trails.

The District’s Watershed Management Plan describes the apportionment of public drainage system repair project costs to roadway authorities, landowners draining to the system (via a Water

Management District charge), and to the District's general (ad valorem) levy. These cost allocations will be detailed in a future report that will be considered during a public hearing.

Conclusion/Recommendation

To restore the function of the RCD 4 public drainage system to the ACSIC, we recommend the District complete repair of the Main Trunk from Oasis Pond to Lake Johanna focused on reestablishing the access corridor including clearing and management of trees and brush along the channel. We conclude that the proposed repairs are necessary to meet the current and future stormwater management needs, and that the repairs are in the best interest of the property owners. The recommended repairs are believed to balance the need to provide serviceable drainage and stormwater management with the desire to minimize environmental impacts while implementing the best value alternative.

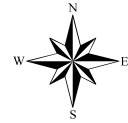
With consideration of Minnesota Statute 103E.015, subd. 2, the project as recommended will conserve soil, water, wetlands, wild animals, and related natural resources to the maximum extent practicable while restoring and protecting the future function of the public drainage system. The drainage system serves as an outlet for commercial, industrial, residential, and municipal waters and is therefore essential to promoting public utility, benefit, and welfare.








To assist the Board of Managers, concept-level design and cost information are provided in this memorandum. Detailed construction plans, bid documents, and specifications will need to be prepared subsequent to the Board establishing and ordering a project. We also recommend the Board of Managers engage landowners adjacent to the project area regarding the Reasonable and Necessary Area to complete repairs. All work for the project will be completed within the defined right of way limits of RCD 4.

The Board of Managers retains the decision whether to accept, reject, or modify the Engineer's Recommendation. The repairs recommended by the Engineer are consistent with the objectives and policies identified with the current Watershed Management Plan.




LIST OF ATTACHMENTS

- Figure 1: Project Location & Wetlands
- Appendix A: Pictures from RCD 4 Walk Through
- Appendix B: Proposed Repair Plan and Profiles
- Appendix C: Preliminary Opinion of Probable Construction Cost
- Appendix D: DNR Natural Heritage Review



-  RCD 4 Current Alignment
-  Interstate
-  State Highway
-  City
-  Township/Range
-  County Boundary
-  RCWD Boundary

NWI Circular 39 Class

-  1 - Seasonally Flooded Basin or Flat
-  3 - Shallow Marsh
-  5 - Shallow Open Water

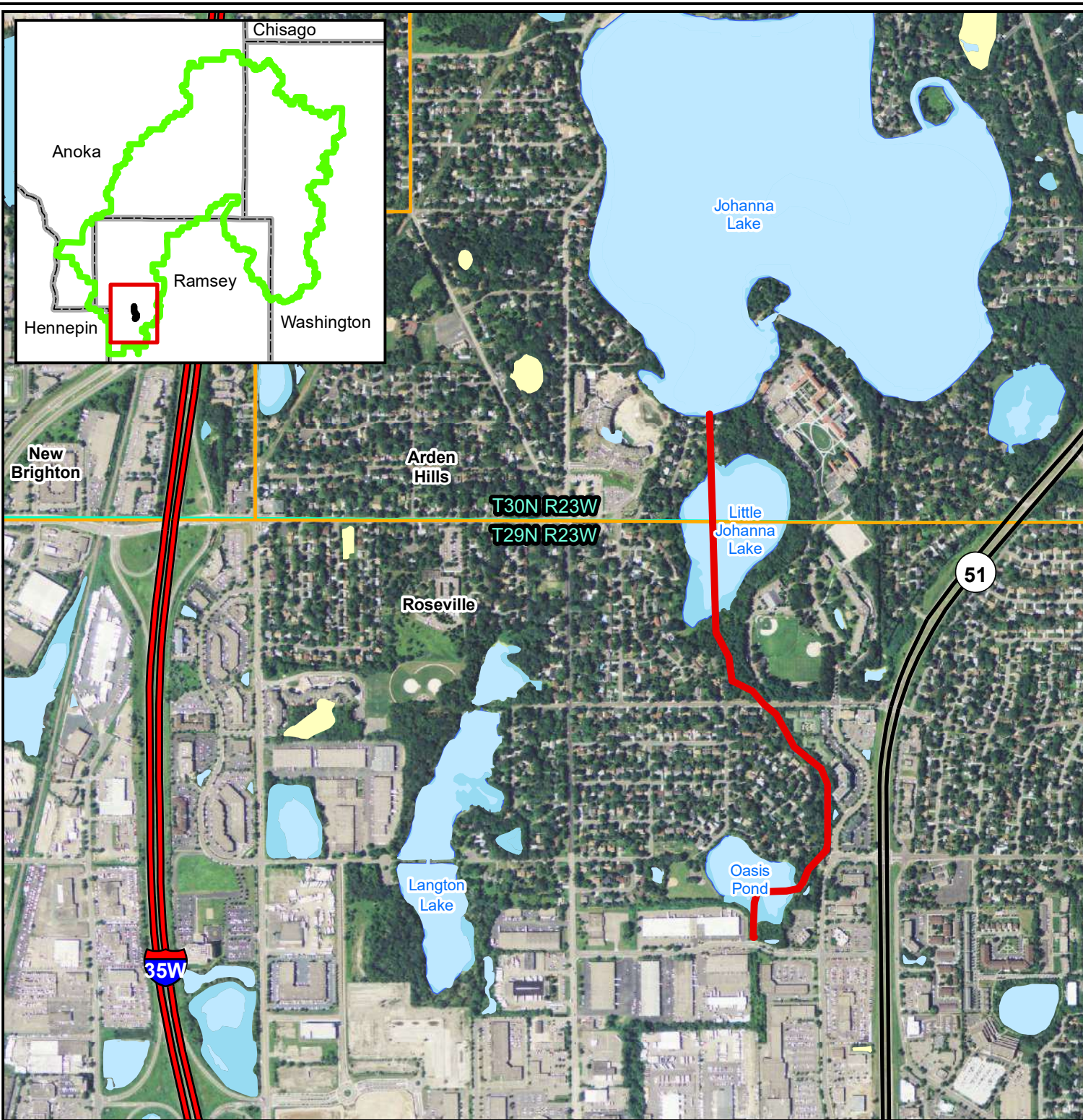
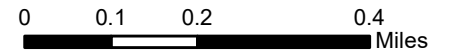


Figure 1: Ramsey County Ditch 4
Current Alignment

Scale: AS SHOWN	Drawn by: IRR	Checked by: ANN	Project No.: 5555-327	Date: 3/29/2023
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Maple Grove
P: 763.493.4522
F: 763.493.5572

APPENDIX A: FIELD WALK THROUGH PHOTOS



Photo #1: Grouted Weir,
STA: 45+15



Photo #2: Gravel Path and Retaining wall on
east side of ditch, STA: 36+00



Photo #3: Swale on west side of ditch, STA:
42+00



Photo #4: Gravel Path and Retaining wall on
east side of ditch, STA: 30+00



Photo #5: Chain link fence on west side of ditch,
STA: 29+00



Photo #6: Leakage from retaining wall on east
side of ditch, STA: 27+00

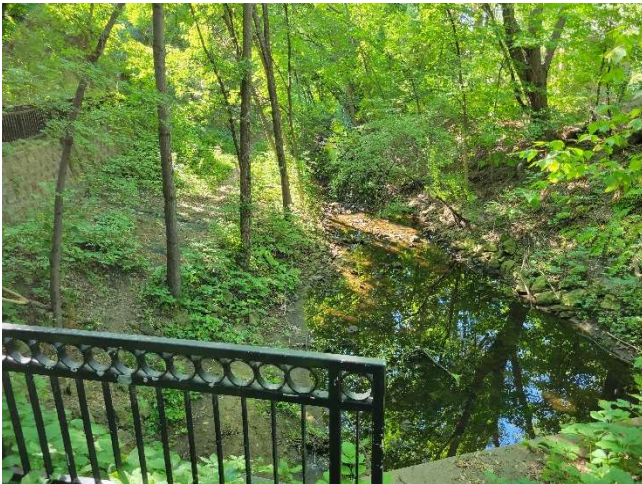


Photo #7: Lydia Ave STA: 27+00, looking
upstream.



Photo #8: Large open area on Lydia Ave,
STA: 26+00

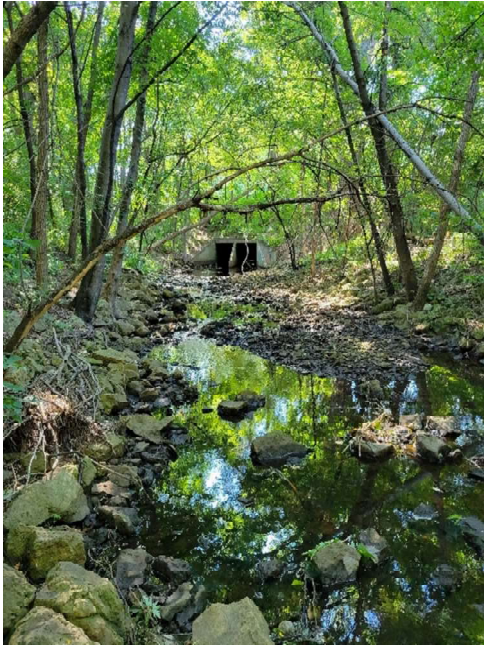


Photo #9: Riprap in channel
STA: 20+00



Photo #10: Access from Northwest Maintenance
Road, STA: 24+00

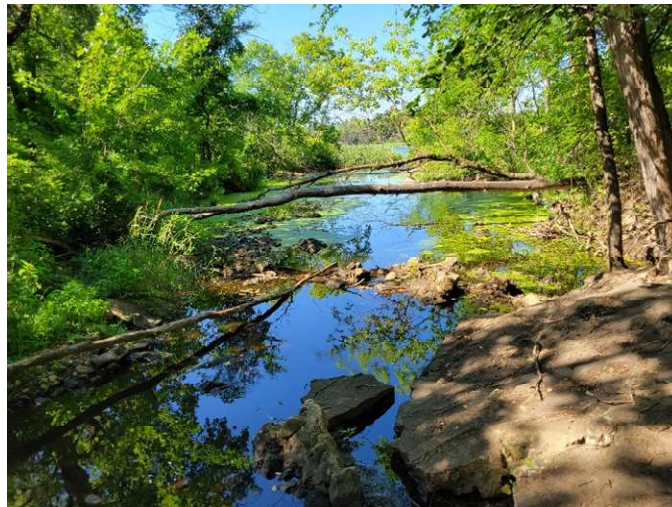
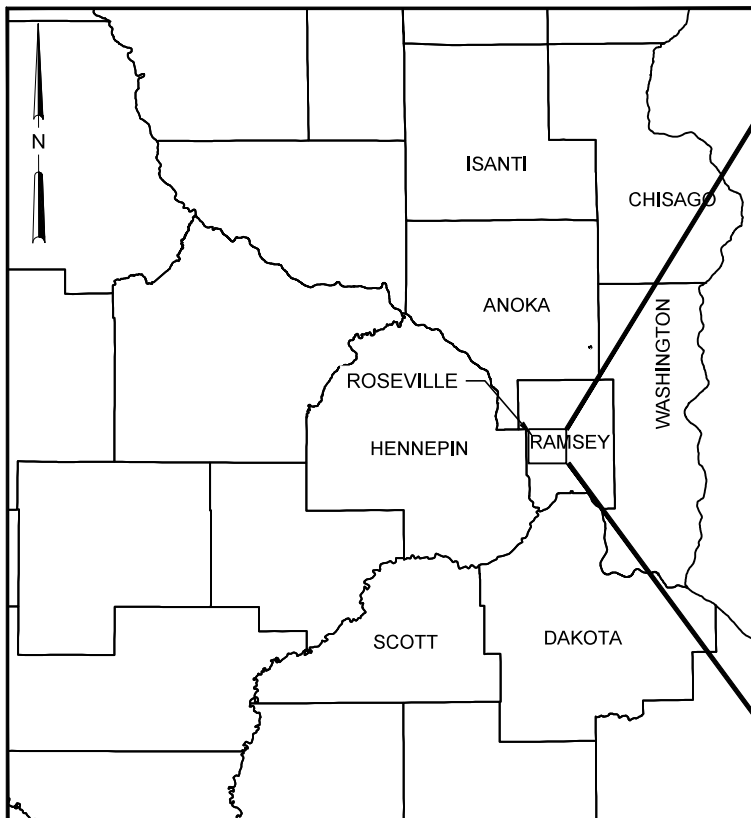


Photo #11: Outlet to Little Johanna Lake,
STA: 17+00

APPENDIX B: PROPOSED REPAIR PLAN AND PROFILE

**RAMSEY COUNTY
DITCH 4
MAIN TRUNK REPAIR
RICE CREEK WATERSHED DISTRICT
CITY OF ROSEVILLE
MAY 2023**

DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
2	RCD 4 MAIN TRUNK PLAN & PROFILE
3	RCD 4 MAIN TRUNK PLAN & PROFILE
4	DETAILS
5	SWPPP
6	SWPPP



NOTES:

- 1. GEODETIC CONTROL**
HORIZONTAL: NAD83 MINNESOTA STATE PLANE, SOUTH ZONE, US FOOT
VERTICAL: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
BENCH MARK: DQ8733 SW QUARTER, SECTION 29, TOWNSHIP 29N, RANGE 23W
 IN ROSEVILLE, AT THE JUNCTION OF TRUNK HIGHWAY 51 (SNELLING AVENUE) AND COUNTY ROAD C2 IN ROSEVILLE, AT TRUNK HIGHWAY 51 MILEPOINT 8.85, 91.0 FEET EAST OF NORTHBOUND TRUNK HIGHWAY 51, 80.2 FEET SOUTH OF EASTBOUND COUNTY ROAD C2, 38.5 FEET EAST OF SNELLING DRIVE, 1.5 FEET NORTH 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 C/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	MIDCONTINENT COMMUNICATIONS
COMMUNICATION	ZAYO BANDWIDTH
ELECTRIC	CONNEXUS ENERGY
ENERGY	XCEL ENERGY
ENERGY	MINNESOTA ENERGY RESOURCES
GAS	CENTER POINT ENERGY
PETROLEUM	MAGELLAN MIDSTREAM PARTNERS
- 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**

PRELIMINARY
NOT FOR CONSTRUCTION

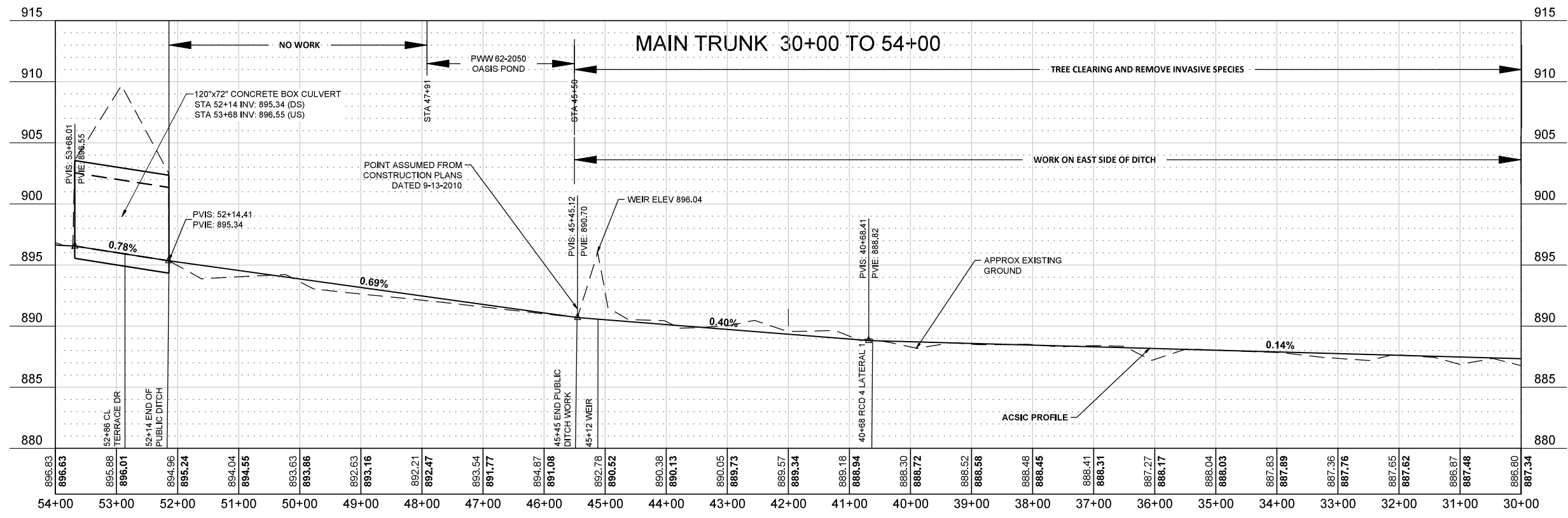
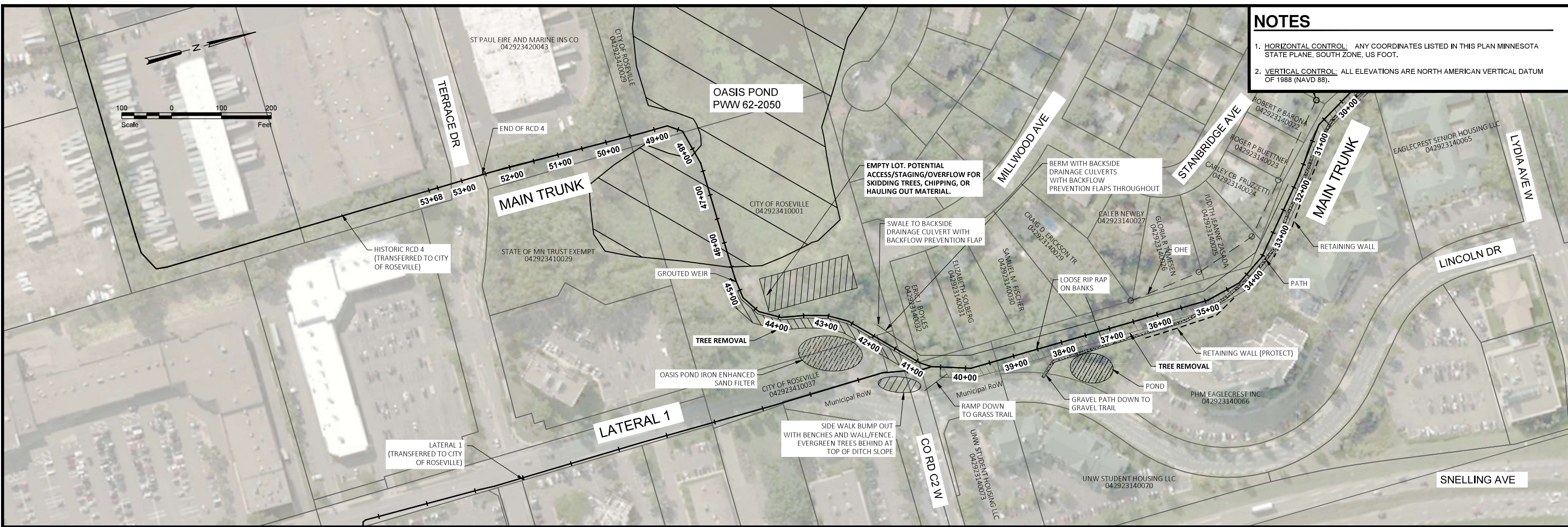
PREPARED BY:



**Houston
Engineering Inc.**

MAPLE GROVE, MINNESOTA

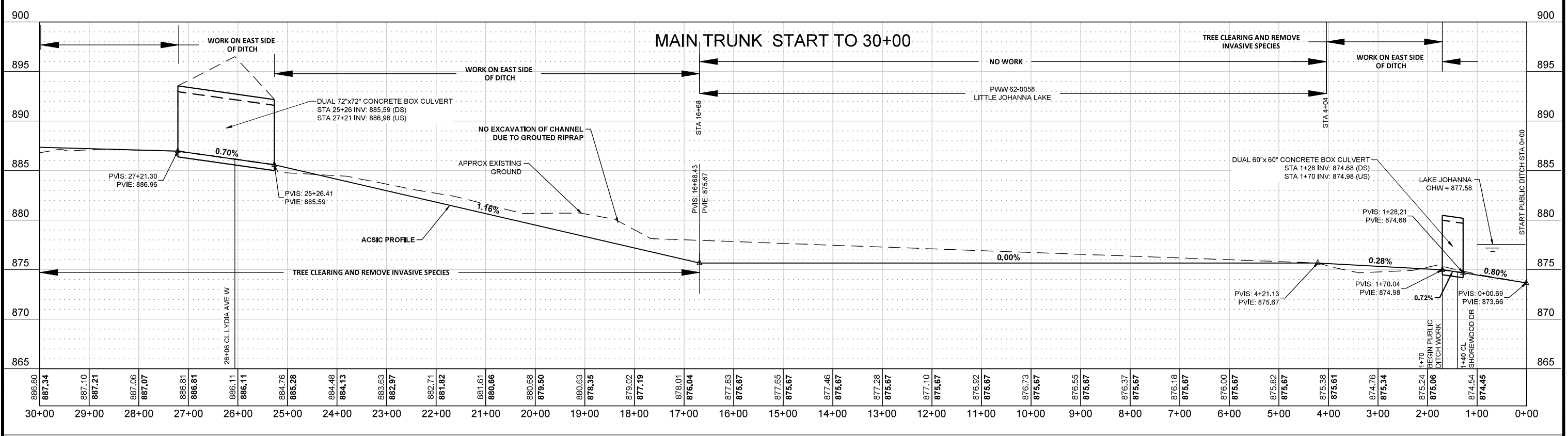
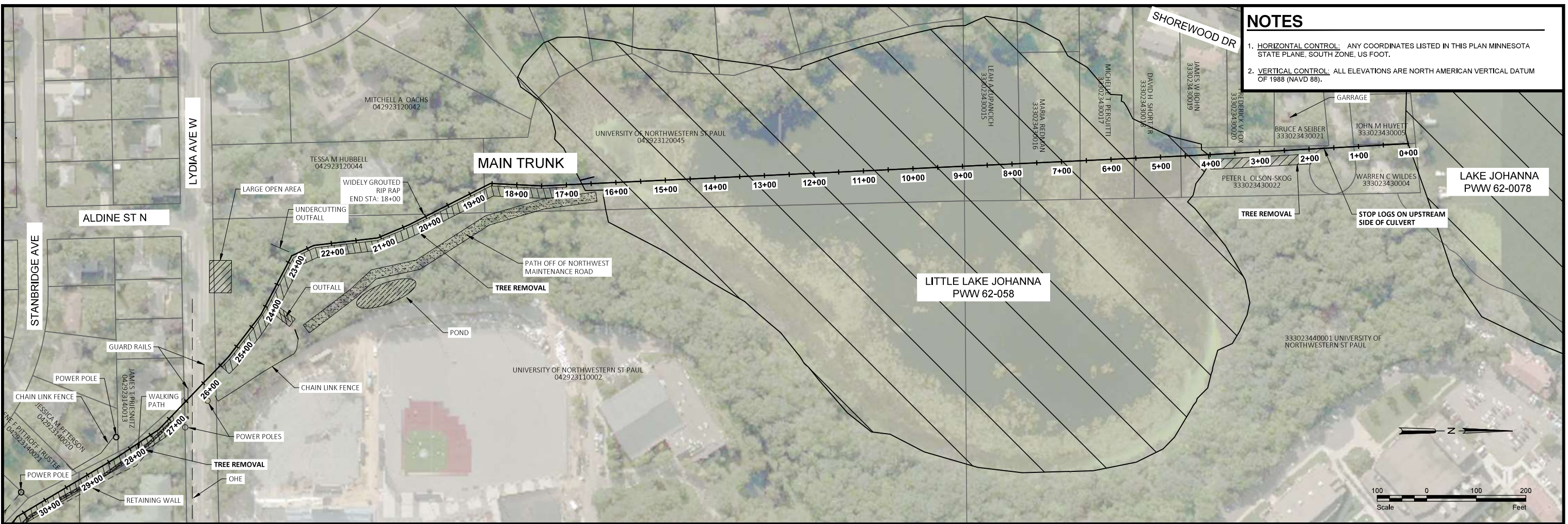
- NOTES**
- HORIZONTAL CONTROL:** ANY COORDINATES LISTED IN THIS PLAN MINNESOTA STATE PLANE, SOUTH ZONE, US FOOT.
 - VERTICAL CONTROL:** ALL ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).



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<p>PRELIMINARY NOT FOR CONSTRUCTION</p>			Maple Grove	Drawn by	Date	RAMSEY COUNTY DITCH 4 REPAIR RICE CREEK WATERSHED DISTRICT	PLAN AND PROFILE MAIN TRUNK PROJECT NO. 5555-0327	SHEET 3
			P: 763.493.4522 F: 763.493.5572	IRR	5/9/2023			
No.	Revision	Date	By	Checked by	Scale			
				ANN	AS SHOWN			

- NOTES**
- HORIZONTAL CONTROL:** ANY COORDINATES LISTED IN THIS PLAN MINNESOTA STATE PLANE, SOUTH ZONE, US FOOT.
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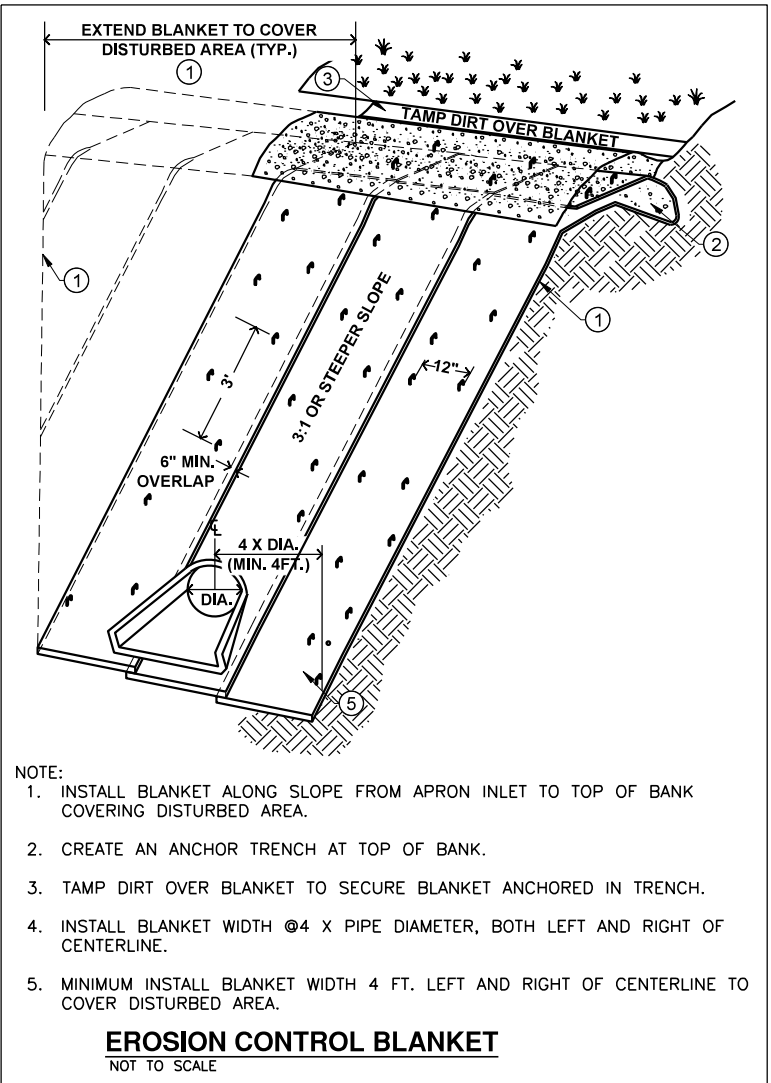
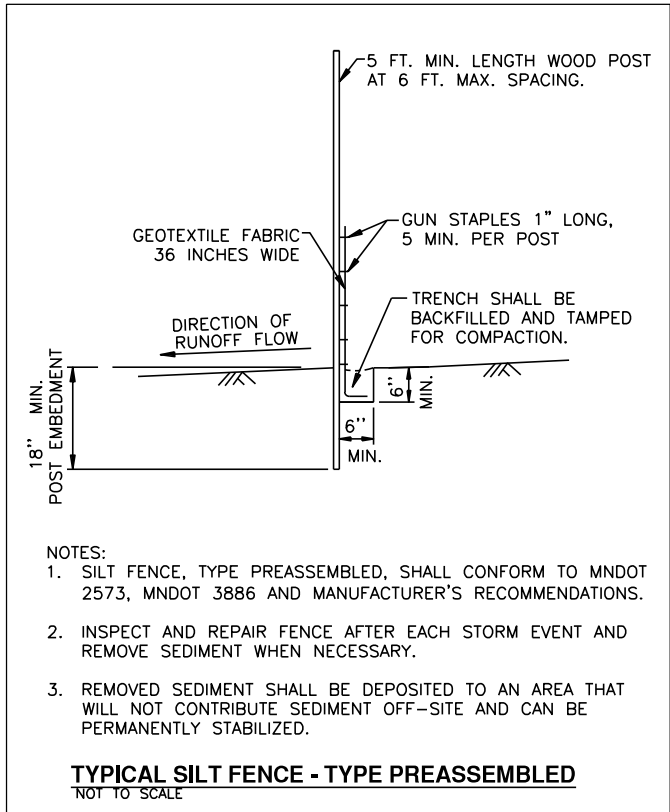
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RAMSEY COUNTY DITCH 4 REPAIR
 RICE CREEK WATERSHED DISTRICT

PLAN AND PROFILE
 MAIN TRUNK
 PROJECT NO. 5555-0327

SHEET
 2

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RAMSEY COUNTY DITCH 4 REPAIR
RICE CREEK WATERSHED DISTRICT

DETAILS

PROJECT NO. 5555-0327

SHEET

4

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

THE MINNESOTA GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY ISSUED ON AUGUST 1, 2018 SHALL APPLY FOR THIS PROJECT.

GENERAL CONSTRUCTION ACTIVITY INFORMATION

PROJECT NAME: RAMSEY COUNTY DITCH 4 MAIN TRUNK REPAIR

1. PROJECT LOCATION:

CITY OR TOWNSHIP: CITY OF ROSEVILLE AND ARDEN HILLS
 STATE: MN ZIP CODE: 55112 COUNTY: RAMSEY
 LATITUDE/LONGITUDE OF APPROXIMATE CENTROID OF PROJECT: 45.0355,-93.1721

2. DESCRIBE THE CONSTRUCTION ACTIVITY:

THE RAMSEY COUNTY DITCH 4 MAIN TRUNK REPAIR WILL CONSIST CLEARING AND GRUBBING VEGETATION ALONG THE MAIN TRUNK.

PROJECT AREAS

- 1. TOTAL AREA TO BE DISTURBED (ACRES): 4.78
- 2. PRE-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 0.0
- 3. POST-CONSTRUCTION IMPERVIOUS SURFACE (ACRES): 0.0
- 4. TOTAL NEW IMPERVIOUS SURFACE (ACRES): 0.0

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
PWW 62-2050	OASIS POND	POND	NO	NO
PWW 62-058	LITTLE LAKE JOHANNA	LAKE	NO	YES
PWW 62-0078	LAKE JOHANNA	LAKE	NO	NO

CONTACT INFORMATION

PROJECT OWNER: RICE CREEK WATERSHED DISTRICT
 4325 PHEASANT RIDGE DR NE
 BLAINE, MN 55449

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 COPERMITTEES 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:** THE RCD 4 MAIN TRUNK DISCHARGES ARE WITHIN ONE MILE OF A WATER LISTED AS IMPAIRED. THIS WATER IS LAKE JOHANNA (RCD 4 MAIN TRUNK). THIS LAKE HAS AN EPA-APPROVED IMPAIRMENT FOR: NUTRIENTS; PFOS;
 - B. **WETLANDS:** SEGMENTS OF THE WORK LIMITS CROSS WETLANDS. WORK SHALL CONFORM TO STATE AND FEDERAL WETLAND LAWS.
 - C. **KARST AREAS:** THERE ARE NO KNOWN KARST AREAS WITHIN THE PROJECT BOUNDARY.
 - D. **CALCAREOUS FENS:** THERE ARE NO KNOWN CALCAREOUS FENS WITHIN THE PROJECT BOUNDARY.
 - E. **ENDANGERED OR THREATENED SPECIES:** JUMPING SPIDERS, CADDIS FLY AND KINNICKINNICK DEWBERRY MAY BE LOCATED WITHIN THE WORK LIMITS. SEE SPECIFICATIONS FOR FACT SHEETS AND GUIDANCE ON AVOIDANCE.
 - F. **HISTORIC PLACES OR ARCHEOLOGICAL SITES:** THERE ARE NO KNOWN HISTORIC PLACES OR ARCHEOLOGICAL SITES WITHIN THE PROJECT BOUNDARY.
 - G. **STEEP SLOPES:** SLOPES 1:3 (V:H) OR STEEPER IN GRADE ARE CONFINED TO THE SLOPES OF THE COUNTY DITCH SYSTEM.

2. SOIL TYPES.

THE SEDIMENT REMOVAL WILL GENERALLY CONSIST OF FINE SANDS AND LOAMS. ESTIMATED PARTICLE SIZE RANGING FROM 0.1 MM TO 7.5 CM.

3. ORDER OF CONSTRUCTION ACTIVITIES:

- A. INSTALL EROSION AND SEDIMENT CONTROL MEASURES.
- B. CLEAR AND GRUB VEGETATION NOTED IN PLANS
- 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 DAYS 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. 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.
- 3. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.
- 4. 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.

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.

H:\Maple Grove\RCWD\IBN\5555-0327 RCD 4 Repair Report\CAD\Plans\5555327_Plan and Profile.dwg-5 SWPPP-5/11/2023 2:40 PM-(brevet)

No.	Revision	Date	By

PRELIMINARY
NOT FOR CONSTRUCTION



Maple Grove	Drawn by IRR	Date 5/9/2023
P: 763.493.4522 F: 763.493.5572	Checked by ANN	Scale AS SHOWN

RAMSEY COUNTY DITCH 4 REPAIR
RICE CREEK WATERSHED DISTRICT

SWPPP (1 OF 2)
PROJECT NO. 5555-0327

SHEET
5

APPENDIX C: PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST

**OPINION OF PROBABLE COST:
RCD #4
RAMSEY COUNTY DITCH 4**

RAMSEY COUNTY, MINNESOTA

May 11, 2023

Item	Item Description	Unit	Quantity	Unit Price	Total Price
1	Mobilization	Lump Sum	1	\$ 15,000.00	\$ 15,000.00
2	Traffic Control & Public Safety (Recreational Trail Usage)	Lump Sum	1	\$ 8,000.00	\$ 8,000.00
3	Seeding and Mulch	Acre	4.1	\$ 4,000.00	\$ 16,346.22
4	Tree Clearing and Removal	Acre	4.1	\$ 25,000.00	\$ 102,163.90
5	Silt Fence	Lin. Ft.	100	\$ 5.00	\$ 500.00
6	Excavator/Dozer Hours	Hours	4	\$ 225.00	\$ 900.00
7	Sediment Control Log	Lin. Ft.	100	\$ 4.00	\$ 400.00
8	Erosion Control Blanket	Sq. Yds	100	\$ 4.00	\$ 400.00
9	Protection of Existing Adjacent Features (Lateral Connections, Retianing Walls, Gravel Trails)	Lump Sum	1	\$ 2,500.00	\$ 2,500.00
10	Stormwater Permit and SWPPP Compliance	Lump Sum	1	\$ 4,000.00	\$ 4,000.00
	Construction Sub-total				\$ 150,210.12
	20% Construction Contingency				\$ 30,042.02
	Engineering				\$ 45,063.04
	Legal/Admin Fee				\$ 10,000.00
	TOTAL OPINION OF PROBABLE CONSTRUCTION COST				\$235,315.18

APPENDIX D: DNR NATURAL HERITAGE REVIEW



Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Ramsey County Ditch #4 Repair Project

Project Proposer: Houston Engineering Inc.

Project Type: Natural Resource Management, Water Resources

Project Type Activities: Tree Removal

TRS: T29 R23 S4, T30 R23 S33

County(s): Ramsey

DNR Admin Region(s): Central

Reason Requested: Other

Project Description: The project's scope includes removal of trees and vegetation within the right of way of Ramsey County Ditch #4, located within the city of Roseville and ...

Existing Land Uses: The existing landuse of the project is the same as proposed since it is a repair of an existing ditch.

Landcover / Habitat Impacted: Trees, shrubs and vegetation will be impacted from the ditch repair.

Waterbodies Affected: The ditch goes through three different public waters: Oasis Pond, Little Johanna Lake and Johanna Lake. There are no planned impacts that will take place to the public water basins.

Groundwater Resources Affected: There are no planned impacts to any ground water resources.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	No Comments	No Further Review Required
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	Needs Further Review	State-protected Species in Vicinity
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	Comments	RPBB High Potential Zone



March 31, 2023

Project Name: Ramsey County Ditch #4 Repair Project

Project Proposer: Houston Engineering Inc.

Project Type: Natural Resource Management, Water Resources

Project ID: MCE #2023-00267

AUTOMATED RESULTS: FURTHER REVIEW IS NEEDED

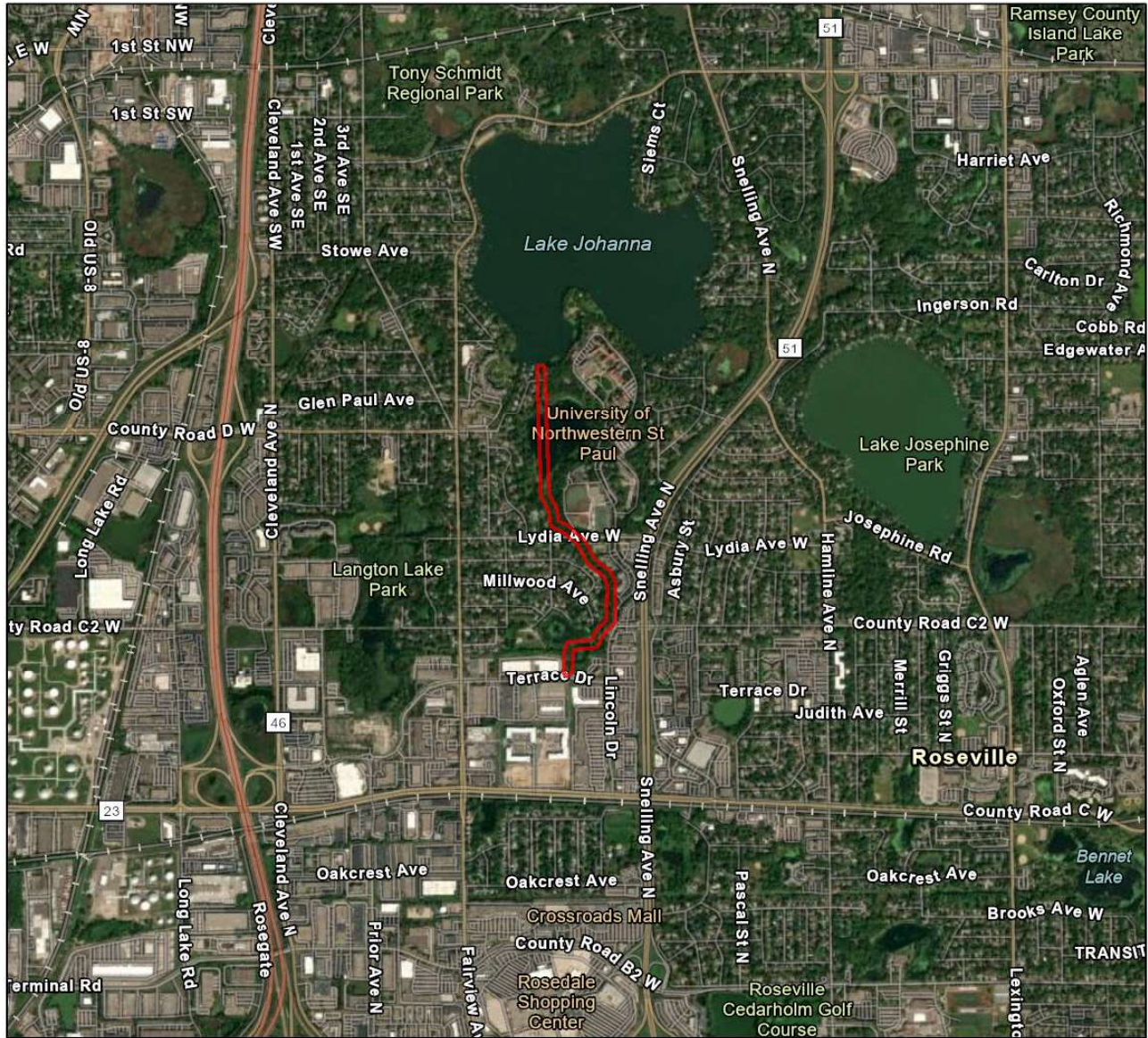
As requested, the above project has undergone an automated review for potential impacts to rare features. Based on this review, one or more rare features may be impacted by the proposed project and further review by the Natural Heritage Review Team is needed. You will receive a separate notification email when the review process is complete and the Natural Heritage Review letter has been posted.

Please refer to the table on the cover page of this report for a summary of potential impacts to rare features. For additional information or planning purposes, use the Explore Page in Minnesota Conservation Explorer to view the potentially impacted rare features or to create a Conservation Planning Report for the proposed project.

If you have additional information to help resolve the potential impacts listed in the summary results, please attach related project documentation in the Edit Details tab of the Project page. Relevant information includes, but is not limited to, additional project details, completed habitat assessments, or survey results. This additional information will be considered during the project review.

Ramsey County Ditch #4 Repair Project

Aerial Imagery With Locator Map



 Project Boundary

Project Type: Natural Resource Management, Water Resources

Project Size (acres): 14.44

County(s): Ramsey

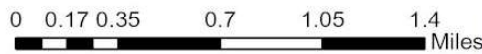
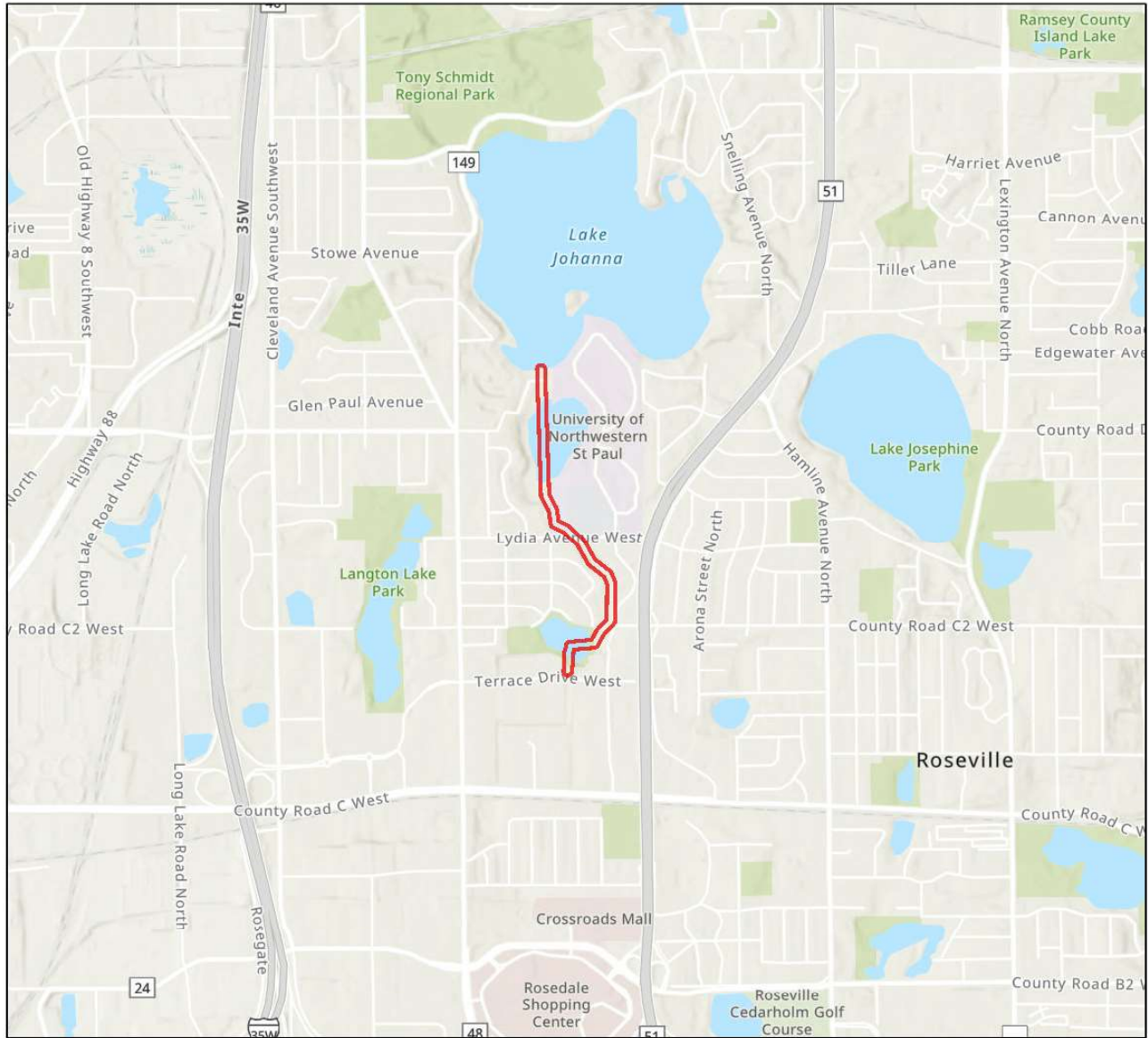
TRS: T29 R23 S4, T30 R23 S33

Earthstar Geographics
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA
Metropolitan Council, MetroGIS, Esri, HERE, Garmin, SafeGraph,



Ramsey County Ditch #4 Repair Project

USA Topo Basemap With Locator Map



 Project Boundary

Project Type: Natural Resource Management, Water Resources

Project Size (acres): 14.44

County(s): Ramsey

TRS: T29 R23 S4, T30 R23 S33

Esri, NASA, NGA, USGS, FEMA
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA
Metropolitan Council, MetroGIS, Esri, HERE, Garmin, SafeGraph,





Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

July 4, 2023

Correspondence # MCE 2023-00267

Isabella Reeve
Houston Engineering

RE: Natural Heritage Review of the proposed Ramsey County Ditch #4 Repair Project,
T29N R23W Section 4, T30N R23W Section 33; Ramsey County

Dear Isabella Reeve,

As requested, the Minnesota Natural Heritage Information System has been reviewed to determine if the proposed project has the potential to impact any rare species or other significant natural features. Based on the project details provided with the request, the following rare features may be impacted by the proposed project:

State-listed Species

- A rare caddisfly (*Oecetis ditissa*), state listed as threatened, and a jumping spider (*Paradamoetas fontanus*) have been documented nearby. The habitat use and current status of the caddisfly in Oasis Pond is unknown but juveniles are vulnerable to deterioration in water quality, especially increased siltation. The jumping spider is also not well understood but it occurs in bogs, marsh edges, and prairie. As such, effective erosion prevention and sediment control practices must be implemented and maintained near the river throughout the duration of the project and incorporated into any stormwater management plan.
- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed nearby, all seven of Minnesota's bats, including the federally endangered northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies

and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided from June 1 through August 15.

- Please visit the [DNR Rare Species Guide](#) for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. For further assistance with these species, please contact the appropriate [DNR Regional Nongame Specialist](#) or [Regional Ecologist](#).

Federally Protected Species

- The area of interest overlaps with a Rusty Patched Bumble Bee *High Potential Zone*. The rusty patched bumble bee (*Bombus affinis*) is federally listed as endangered and is likely to be present in suitable habitat within *High Potential Zones*. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. The [USFWS rusty patched bumble bee guidance](#) provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix. If applicable, the DNR also recommends reseeding disturbed soils with native species of grasses and forbs using [BWSR Seed Mixes](#) or [MnDOT Seed Mixes](#). Please visit the [USFWS Rusty Patched Bumble Bee Map](#) for the most current locations of *High Potential Zones*.
- To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online [Information for Planning and Consultation \(IPaC\) tool](#).

Environmental Review and Permitting

- Please include a copy of this letter and the MCE-generated Final Project Report in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If

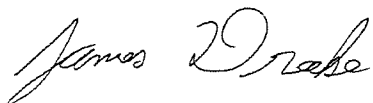
additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and project description provided with the request. If project details change or the project has not occurred within one year, please resubmit the project for review within one year of initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. Visit the [Natural Heritage Review website](#) for additional information regarding this process, survey guidance, and other related information. For information on the environmental review process or other natural resource concerns, you may contact your [DNR Regional Environmental Assessment Ecologist](#).

Thank you for consulting us on this matter and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

A handwritten signature in cursive script that reads "James Drake".

James Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Cc: Melissa Collins