July 2013 version

ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:
http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.
Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project title: Vadnais Lake Area Water Management Organization (VLAWMO) Bacteria, Nutrient, and Sediment Reduction Project

Figure 1: A range of views along the ditch that flows out of Lambert Lake stormwater retention pond. This is a close-up view of part of the construction area that is the focus for the meander.

Figure 2: Schematic that shows the path of the meander with respect to the wetland area and Lambert Lake stormwater retention pond (at the top right).

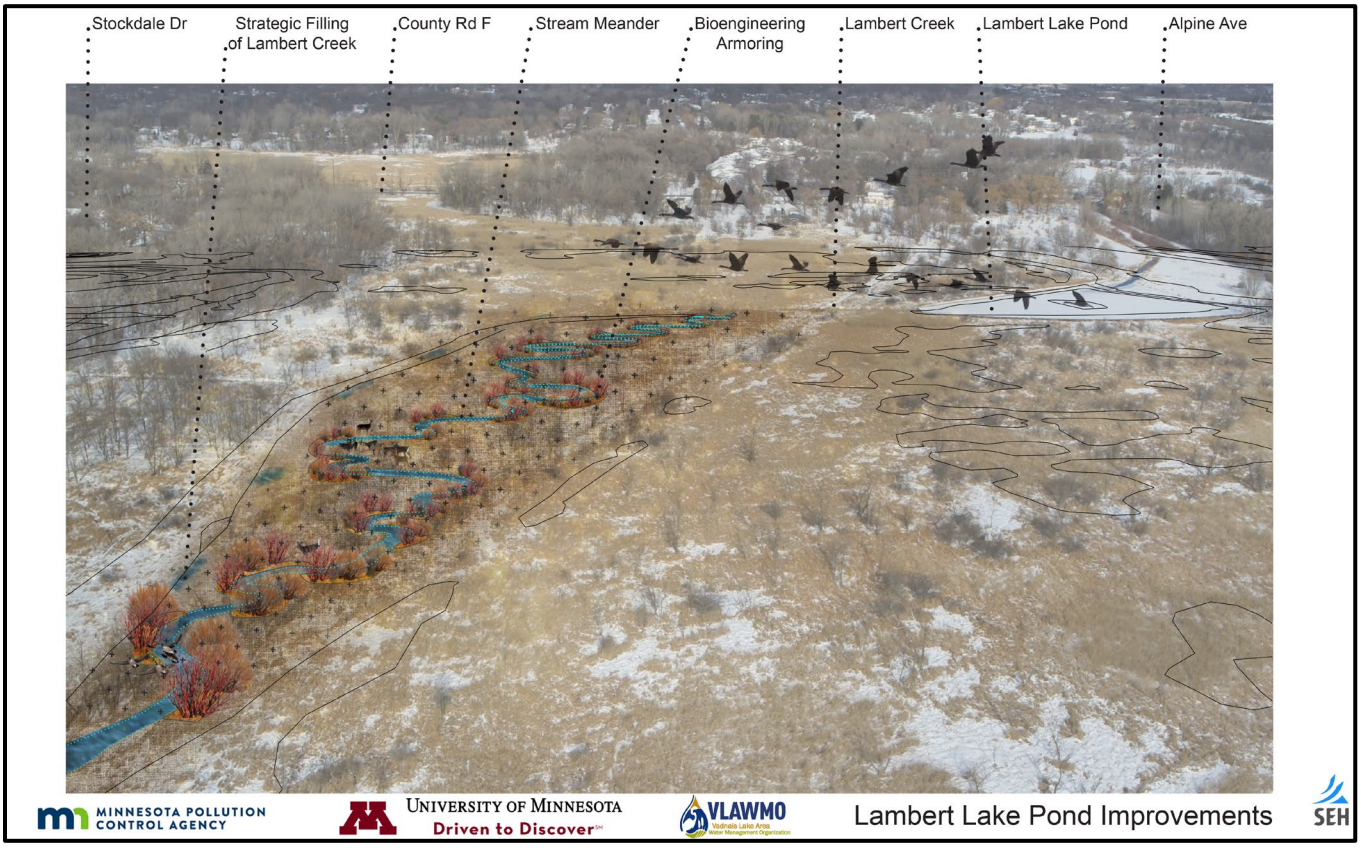
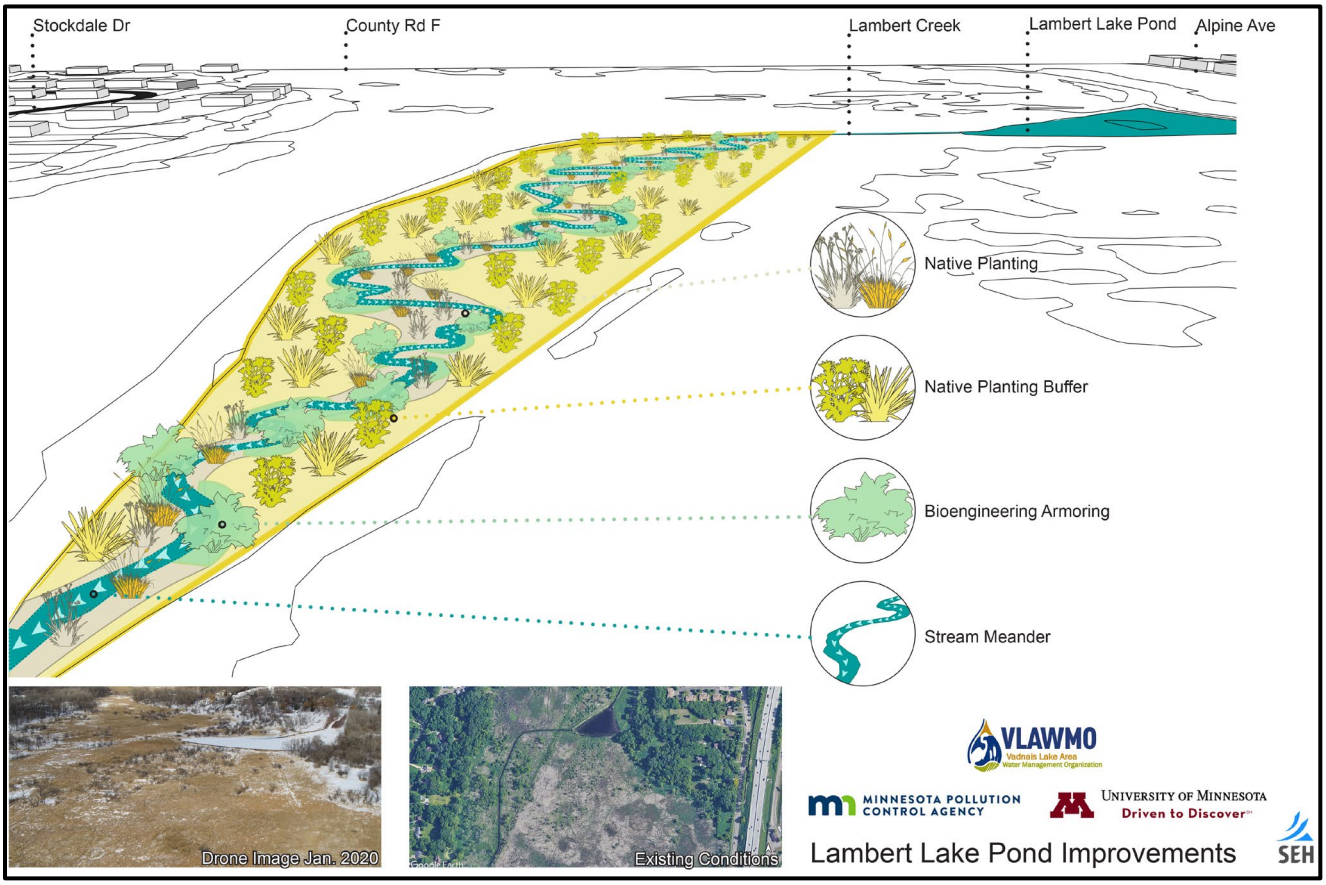


Figure 3: Schematic of new meander, simplified for easy viewing.



2. Proposer: VLAWMO	3. RGU: VLAWMO
Contact person: Dawn Tanner	Contact person: D. Tanner (VLAWMO)
Title: Program Development Coordinator	Title: Program Development Coordinator
Address:800 East County Road E	Address: 800 East County Road E
City, State, ZIP: Vadnais Heights, MN 55127	City, State, ZIP: Vadnais Heights, MN 55127
Phone: 651-204-6074	Phone: 651-204-6074
Fax: N/A	Fax: N/A
Email: dawn.tanner@vlawmo.org	Email: dawn.tanner@vlawmo.org

4. Reason for EAW Preparation: (check one)

Required:
- ☐ EIS Scoping
- **X Mandatory EAW**

Discretionary:
- ☐ Citizen petition
- ☐ RGU discretion
- ☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

EQB rule category: 4410.4300, subpart 26, Stream diversion

This Project reaches two thresholds requiring a mandatory Environmental Assessment Worksheet. In the Streams and ditches category (4410.4300, subpart 26), this project will divert or realign more than 500 feet of a natural watercourse with a total drainage area of 10 or more square miles. The project will also trigger a mandatory EAW in the next category, Wetlands and Protected Waters (4410.4300, subpart 27). The Project will change the course and cross section of one acre or more of a protected water (DNR 62-30P). While the purpose of the Project is to improve water quality, restore wetland functions lost when this wetland was ditched 90 years ago, reconnect the ditch to its floodplain, and address flooding issues adjacent to this urban wetland, VLAWMO holds itself to the same high standard that would be expected of any project proposer. No petitions by landowners or agencies have been filed.

5. Project Location:

County: Ramsey County
City/Township: Vadnais Heights
PLS Location (¼, ¼, Section, Township, Range): NW ¼, NW ¼, S: 28, T: 30, R: 22
Watershed (81 major watershed scale): HUC8: 07010206
GPS Coordinates: 45.0616895, -93.0626052
Tax Parcel Number: 283022230001

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project and site plans showing all significant project and natural features: Attachment #1;
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable): Attachment #2; and
- Pre-construction site plan and post-construction site plan/SEH 90% design: Attachment #3.

6. Project Description:

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

The Vadnais Lake Area Water Management Organization (VLAWMO) received MPCA funding for improvements along County Ditch #14 (Lambert Creek), which is a tributary of the St. Paul Regional Water Services' final impoundment reservoir, East Vadnais Lake. The Project includes sheetpile replacement, a meandered channel, and the addition of biochar treatment cells to address the bacteria impairment.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

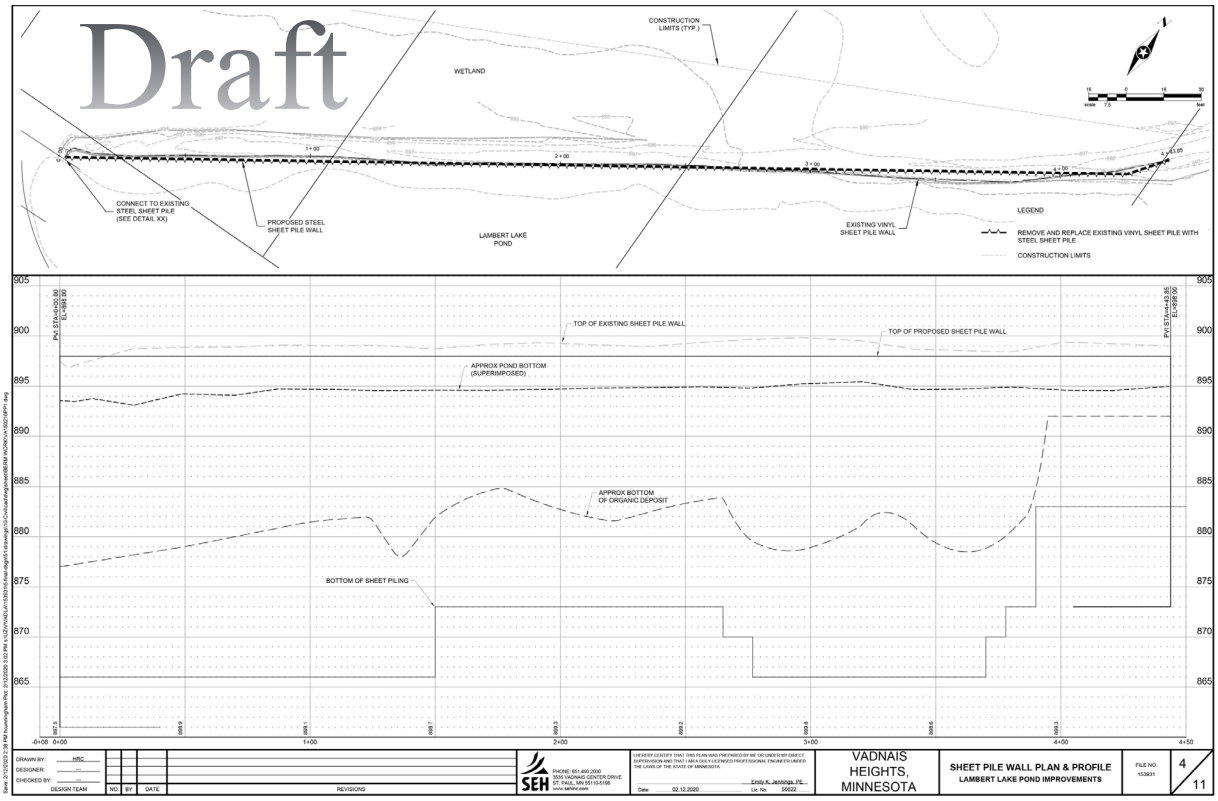
This Project is an amendment to a project that was completed at the same site in 2004. The earlier project included creating a new ditchline, attempting to install sheetflow across the wetland, building a stormwater retention basin that was reinforced with steel sheetpile on the south end and vinyl sheetpile on the north end, constructing an access berm on the north end of the pond, and building an access road on the eastern side of the site. These structures are in place now. Because of the previous work at the site, new infrastructure is not needed.

A tentative construction schedule is outlined here. This schedule depends upon timely completion of permitting (currently underway). Bidding for the project will be conducted in September. Fall installation of BMPs will begin as early as mid-September, 2020. Construction is planned for winter 2020-2021, and planned to be conducted from November 1-March 1. Initiation of construction will depend upon suitable weather conditions. Meander construction and sheetpile installation require frozen peat for equipment access to the site. Construction mats will be used if necessary to limit soil compaction and disturbance. Vegetation work will be completed April-July, 2021.

The steel sheetpile on the south end of the pond continues to function well and does not need updating. The vinyl sheetpile on the north end of the pond has exceeded its lifespan (~10-15 years) and has been heaved up from the natural freeze/thaw cycle because it was not anchored into solid substrate. At the time when the vinyl sheetpile was installed, resistivity imaging was not widely available, so it was not known that the sheetpile would need to be installed up to 32 feet to reach solid substrate. A resistivity study was conducted during summer 2019 and allowed mapping of the peat depth to sand and clay. The resistivity study informed design of replacement of the failing vinyl sheetpile with steel (Figure 4). The sheetpile replacement is a reconstruction project to an existing structure that is not of historical, cultural, architectural, archaeological, or recreational value. As such, by itself, the replacement would be exempt from the EAW process. However, it is included here because it is part of the overall footprint of the project, and construction to replace sheetpile and build the meander will happen at the same time during winter when the wetland is frozen and heavy equipment can safely access the site.

Replacement of the sheetpile on the north end of the pond is a flood control and maintenance issue. If the sheetpile was not replaced, it could fail and result directly in flooding to the area.

Figure 4: Replacement sheetpile depths across the length of the replacement area



The new meander is the primary focus of this EAW because it involves new construction between the original and previous ditch channels, fill incorporated into the old channel to mimic natural processes and restore the ditchline, and this will involve impacts to existing wetland area. The overall goal of the project is restoration of the site and increased resilience during flooding events. A multifaceted approach has been engaged so far including consultation with experts in: hydrology, vegetation restoration, species of concern, soils, and engineering. Views from these experts have been incorporated into the design and plan for the site.

Currently, the creek runs a straight path dug to the west side of the Lambert Lake wetland, as part of the prior Lambert Lake Project. Prior to the current alignment, the historic creek alignment ran through the middle of the Lambert Lake wetland area (realigned to a straighter ditch for rapid conveyance in 1916). The new creek alignment, spanning from the Lambert Lake Pond outlet to the convergence of the historic creek and the current creek path, is planned to meander throughout, restoring the creek to a more natural alignment and allowing the Lambert Lake area to benefit from vegetation restoration, habitat and ecological improvements, and improved water quality (Figure 5). The new planned meander follows guidelines for a Stream Type E, according to the Rosgen Stream Classification (Table 1).

The pre-altered stream alignment is unknown. Historical photography dating back as early as 1940 indicates a straightened channel. The meander design was based around the current Lambert

Lake wetland characteristics and landscape, as well as the overall drainage area and flow characteristics. The wetland area is low gradient and has a wide floodplain. The proposed meander will follow the low gradient wetland and will meet the entrenchment ratio, W/D ratio, and sinuosity of a stream type E. The historical photography does not show scarring or other indications of a historic braided channel pattern or other pattern.

Figure 5: Diagram of new meander path compared to current ditchlines and project area

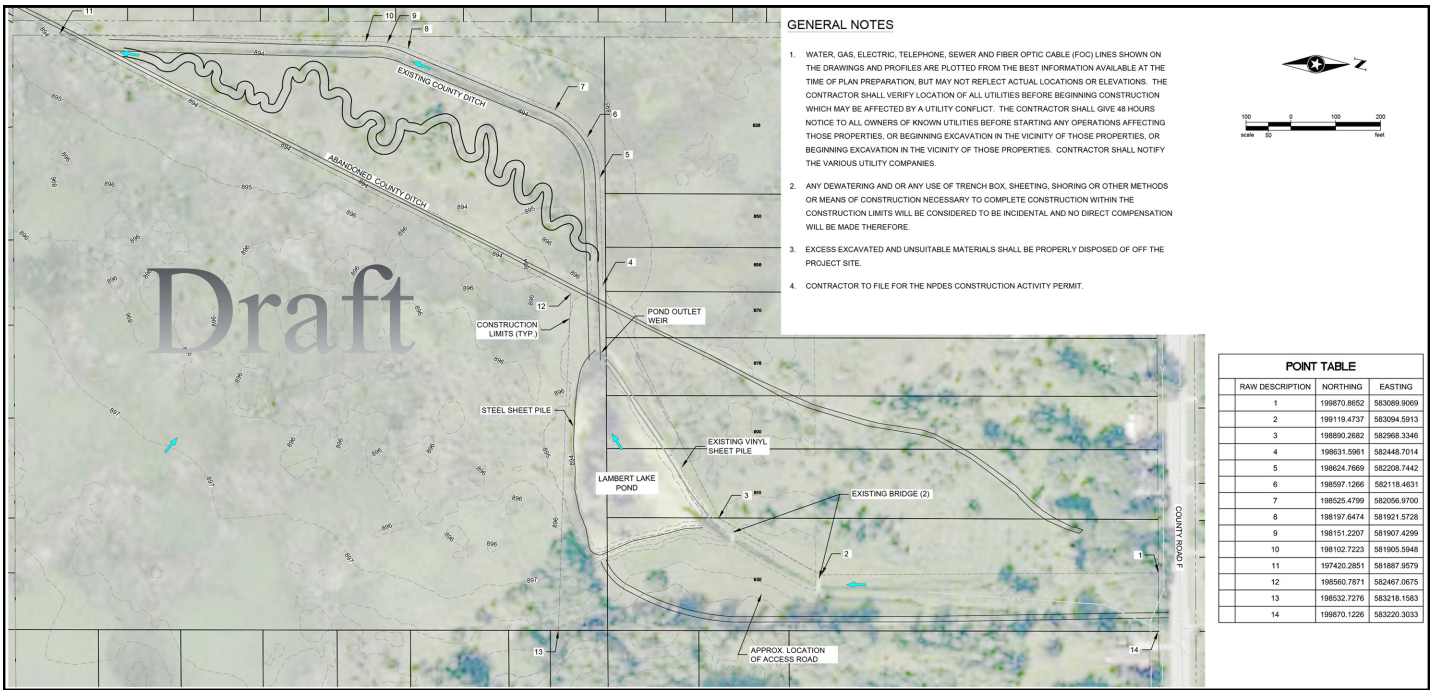


Table 1: New Creek Alignment Properties Compared to Stream Type E (Rosgen Classification)

Stream Type	Description	Entrenchment Ratio	W/D Ratio	Sinuosity	Slope	Soils/Features
E	Low gradient, meandering riffle/pool stream with low width/ depth ratio and little deposition. Efficient and stable. High meander width ratio.	>2.2	<12	>1.5	<0.02	Broad valley/meadows. Alluvial materials with floodplains. Highly sinuous with stable, well vegetated banks. Riffle/pool morphology and very low width/depth ratios.
Lambert Creek Meander (E)	Low gradient design with meandering stream through an extensive floodplain with gentle slopes. Low W/D ratio.	Flood Prone Width = 1000+ Bankfull Width = 15 Entrenchment Ratio = 66.67	Width = 15 ft Depth = 1.75 ft W/D = 8.57	Straight Line Dist. = 1250 ft Meander Dist. = 2020 ft K = 2020/1250 = 1.6	Up Inv. = 894 Down Inv. = 890.43 Length = 2020 ft Slope = 0.002 ft/ft	High sinuous design in a well-vegetated floodplain. Retention pond upstream; therefore, minimal bed load (sediment starved) so slightly oversized cross section. Stable channel capacity.

The current ditch section of the project area has an approximate bankfull carrying capacity of 80 cfs. Based on recent field visits, the creek segment just upstream of Lambert Lake Pond has an approximate bankfull carrying capacity of 42 cfs. The proposed meander will be designed to meet the carrying capacity of the upstream segment as to not cause any flooding or backwater concerns upstream. It will also reconnect the steam to its floodplain to create a more functional system with flood storage. Historically, the residential properties adjacent to the upstream segment have had structural flooding occurrences. The proposed section will have a great improvement in the interaction with the wetland areas adjacent to the creek without exacerbating flooding concerns upstream.

There are various data available for the Lambert Lake area watershed, including the watershed's XPSWMM model, the City of Vadnais Heights Surface Water Management Plan (SWMP), and available Streamstats and DNR data. Peak flow rates from the watershed XPSWMM Model and USGS Stream Stats information is summarized in Table 2, just downstream of the Lambert Lake Pond including Branch Ditch #3, for reference. The peak flow rates from the watershed's model are higher than those listed by Streamstats for more frequent events. The watershed's model flow rates are being used as the primary data for design as they represent the conveyance of the watershed as modelled, while the Streamstats information are based on regression equations, scaled to the watershed characteristics as defined by USGS. The Streamstats characteristics may not represent the latest development, storage areas, and exact conveyance characteristics of the Lambert Creek watershed.

Table 2: USGS Stream Stats Information, just downstream of the Lambert Lake Pond

Statistic	Peak Flow from Watershed XPSWMM Model (cfs)	Peak Flow from Streamstats (cfs)
1 Year Peak Flood	49.1	-
1.5 Year Peak Flood	-	23.1
2 Year Peak Flood	61.6	29.7
5 Year Peak Flood	74.5	47.8
10 Year Peak Flood	83.8	62.1
25 Year Peak Flood	94.5	81.6
50 Year Peak Flood	101.5	97.0
100 Year Peak Flood	109.2	114.0

To aid in design, a search for a reference reach with similar characteristics and landscape within the Vadnais Creek watershed was investigated; however, it was found that Lambert Creek has been subject to significant straitening over time. Due to this, the search was extended outwards from the Lambert Creek watershed. There were two reference reaches identified for the proposed project outside of the watershed area, including:

- Sunrise River and Unnamed Ditch tributaries AUID: 07030005-538 (Stacy/Chisago City, MN)
- Rice Creek from Unnamed Lk (02-0041-00) to Long Lk AUID: 07010206-583 (Indian Hills Lane, Circle Pines, MN)

These reference reaches have similar characteristics and landscape to Lambert Lake. A summary of the characteristics of reference reaches is included in Table 3.

Table 3: Reference reaches

Stream	Entrenchment Ratio	W/D Ratio	Sinuosity	Slope	Soils/Features
Rice Creek (Rice Creek Regional Trail to County Rd J) (E)	Flood Prone Width = 885 Bankfull Width = 40 Entrenchment Ratio = 22	Width = 40 ft Depth = 4 ft W/D = 10	Straight Line Dist. = 2900 ft Meander Dist. = 4900 ft K = 4900/2900 = 1.7	Up Inv. = 880 Down Inv. = 878 Length = 4900 ft Slope = 0.0004 ft/ft	Restoration project that addressed flooding concerns and nutrient impairments, reconnecting the creek to the adjacent wetlands and improving in-stream habitat (http://eml9g2kib3430igb0341sat1.wpengine.net dna-cdn.com/creek-meander.pdf)
Rice Creek (County Rd H to County Road I) (E)	Flood Prone Width = 700 Bankfull Width = 40 Entrenchment Ratio = 17.5	Width = 40 Depth = 4 W/D = 10	Straight Line Dist. = 4820 Meander Dist. = 9070 K = 9070/4820 = 1.9	Up Inv. = 876 Down Inv. = 874 Length = 9070 Slope = 0.0002	
Sunrise River, West Branch (From Falcon Ave N to Lyons St NE) (E)	Flood Prone Width = 350 Bankfull Width = 20 Entrenchment Ratio = 17.5	Width = 20 Depth = unknown W/D = unknown	Straight Line Dist. = 5280 Meander Dist. = 9020 K = 9020/5280 = 1.7	Up Inv. = 886 Down Inv. = 882 Length = 9020 Slope = 0.0004	The Sunrise River West Branch is just upstream of a series of shallow reservoirs associated with the Carlos Avery State Wildlife Management Area. All basins within the West Branch watershed are classified as shallow. The River is highly sinuous and appears to have stable, well vegetated banks and broad floodplain.

Meander construction and sheetpile installation will occur during the winter months to allow for access to the wetland areas. Winter construction will minimize damage to vegetation and wetland areas, with mats if necessary to limit soil compaction and disturbance. A staging area will be specified within the field, and the contractor will be allowed to only use the staging area for material and equipment storage. Fueling and equipment maintenance will not be allowed on-site. If stockpiling is needed on-site, the contractor must get approval from the engineer in the field. The sheetpile removal and installation will be staged such that removals will not precede installation such that a continuous barrier cannot be established within a 24-hour period. During construction, temporary sediment control devices will be utilized to control sediment at leaving the site and establish a clear perimeter of limits. Following disturbance, temporary erosion control devices will be in place to promote revegetation of any disturbed areas. These devices will be removed following revegetation. All erosion control materials will be limited to wildlife-friendly and plastic-free materials. Equipment will be cleaned and inspected to limit the spread of invasive species. Areas will be revegetated with appropriate BWSR-approved, noxious weed-free native seed mixes.

The proposed meander is designed to incorporate vegetation restoration and habitat and ecological improvements. The plant community of the Lambert Lake wetland area is currently dense Phragmites/cattail. Vegetation establishment following meander construction will be important to stand up to these aggressive species. A fast growing native planting species will be utilized in disturbed areas and bio-engineering armor through live stakes such as Willow or Red Osier Dogwood, for example, on strategic meander curves will be utilized through the meander length. The native plantings and bio-engineering armor will provide increased aquatic habitat for the otter population that has been observed in the Lambert Lake area. The vegetation will provide the otters a more accessible buffer from the creek to play, hunt, and build their dens. Otters build their dens by tunneling close to the water's edge to ultimately create a chamber for resting and protecting their young. The meander channel cross section coupled with the vegetation plan will provide ample locations for burrowing. Other use of logs or brush piles are being considered for increased den locations.

c. Project magnitude:

Total Project Acreage	~14 acres
Linear project length	2,020 feet
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – Wetland/natural area (in sq. feet)	~14 acres
Structure height(s)	N/A

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of this project is to repair and enhance failing infrastructure that otherwise poses a flooding risk and implement new BMPs to remove bacteria, increase storage, provide resilience, and improve ecosystem function on Lambert Creek, which is an impaired stream that flows into East Vadnais Lake, the a major reservoir for St. Paul's drinking water supply. This project will remove bacteria, nutrients, and possibly heavy metals from the system. It will also allow sediment deposition, through reconnection to the floodplain, and improve wetland function for filtering and storing water. The proposed section will improve interaction with the wetland areas adjacent to the creek without exacerbating flooding concerns upstream.

Information has been gathered on Lambert Creek beginning in the early 1980s. In 1991, Lambert Creek was the focus of an analysis of sediment stratigraphy, phosphorus cycling, sediment phosphorus, and phosphorus content of interstitial waters (Engstrom 1991). This work was conducted to better understand the consequences of decades of dumping of sewage sludge into Lambert Creek. The sewage sludge was deposited into Sobota Slough and Goose Lake. The waste traveled down the creek, collecting in wetland sediments. Additionally, the high bounce in the system is a result of extensive ditching that channelized flow and reduced residence times reducing the possible function of the wetland network in filtering out pollutants. These wetlands are sustained by diffuse nonpoint sources and exceed what could be retained by internal nutrient cycling. As part of this proposal, we are seeking to reverse detrimental modifications that were done in past decades to restore wetland function and improve water quality.

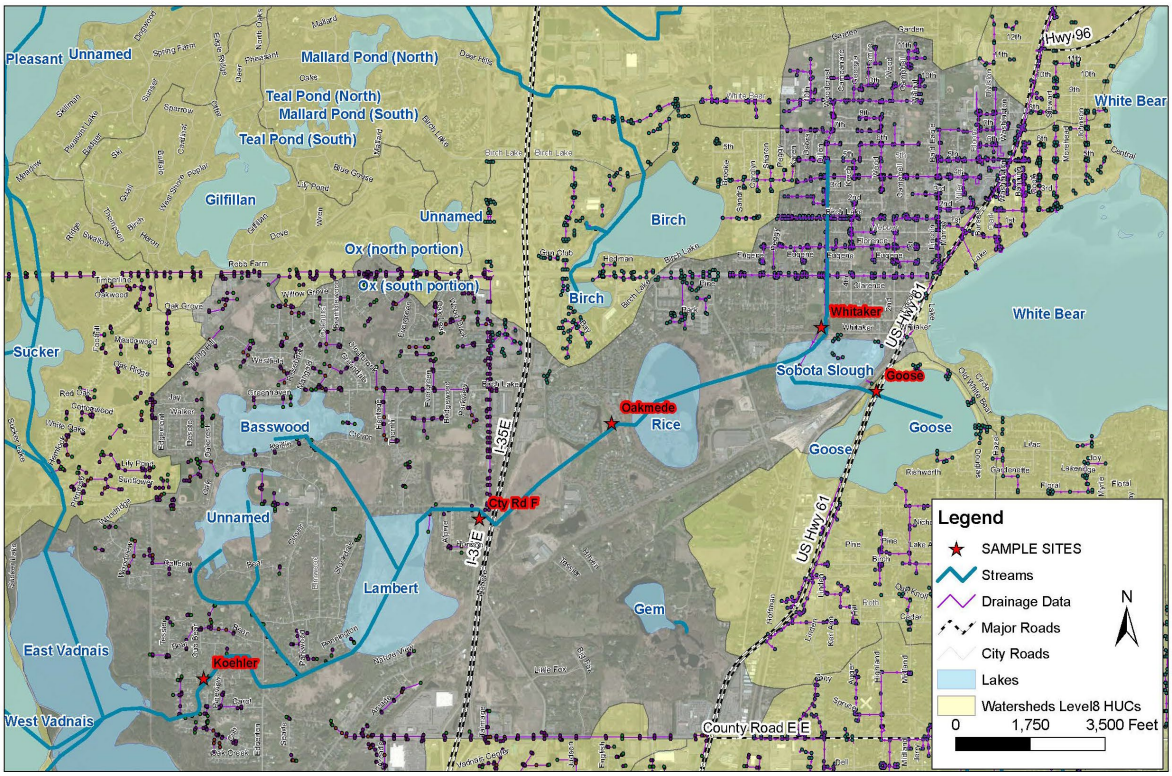
Bacteria loading to Lambert Creek is predominately from nonpoint urban stormwater with a small contribution to the load from wildlife and canine pet waste within the watershed. As part of the TMDL for Lambert Creek, recommendation for priority load reduction strategies included streambank restoration, infiltration basins, and researching the source of bacteria. The 107 BMP cost shares that have been added in the subwatershed since 2007 were prioritized to help meet the goals of reducing nonpoint stormwater delivery into the creek. Implemented cost shares with local citizen involvement include: pervious pavement, infiltration basins, and stream stabilization at Oakmede, Lower Lambert, and Koehler.

The most critical pollution sources come from stormwater from MS4s: Gem Lake City, MN DOT, Ramsey County, Vadnais Heights City, White Bear Lake City, and White Bear Township. These MS4s have been involved in building additional stormwater BMPs into their city designs and planning process. MN DOT reworked a major roadway in the Vadnais Lake Area Watershed to allow pretreatment of stormwater. Their efforts with VLAWMO resulted in delisting Gem Lake in

2018. Gem Lake is just south of Lambert Creek. The City of White Bear Lake is working diligently to enforce upgrades of BMPs citywide. Specifically, White Bear Lake is permitting and requiring a large landowner (car dealership) that has previously sent untreated stormwater from their large network of parking lots untreated into Goose Lake to fund a professional shoreline restoration, remove deltas built up in the lake from their snowplowing practices, and add iron-enhanced sand filters on-site. These additions will improve water quality in Goose Lake. Goose Lake outlets directly into Lambert Creek.

Extensive monitoring has been the focus of VLAWMO's efforts following establishment of the TMDL to build the research need regarding understanding source and concentration of bacteria loading. From 2008-2014, 5 locations on Lambert Creek were sampled twice per month from May through September. Samples were collected for nutrients and bacteria. From 2014-2018, continuous sampling was done in 4 subwatersheds upstream from Lambert Lake during wet and dry periods to identify bacterial sources (Figure 6). Bacterial sources were found to be primarily avian and are collected with stormwater runoff from streets and gutters throughout the subwatershed. Variation was found among samples, but results among sites were not significantly different. Bacteria is collected fairly uniformly in stormwater across the subwatershed (Burns & McDonnell 2014; final results and report pending).

Figure 6: Monitoring sites for bacteria study conducted by Burns & McDonnell and VLAWMO

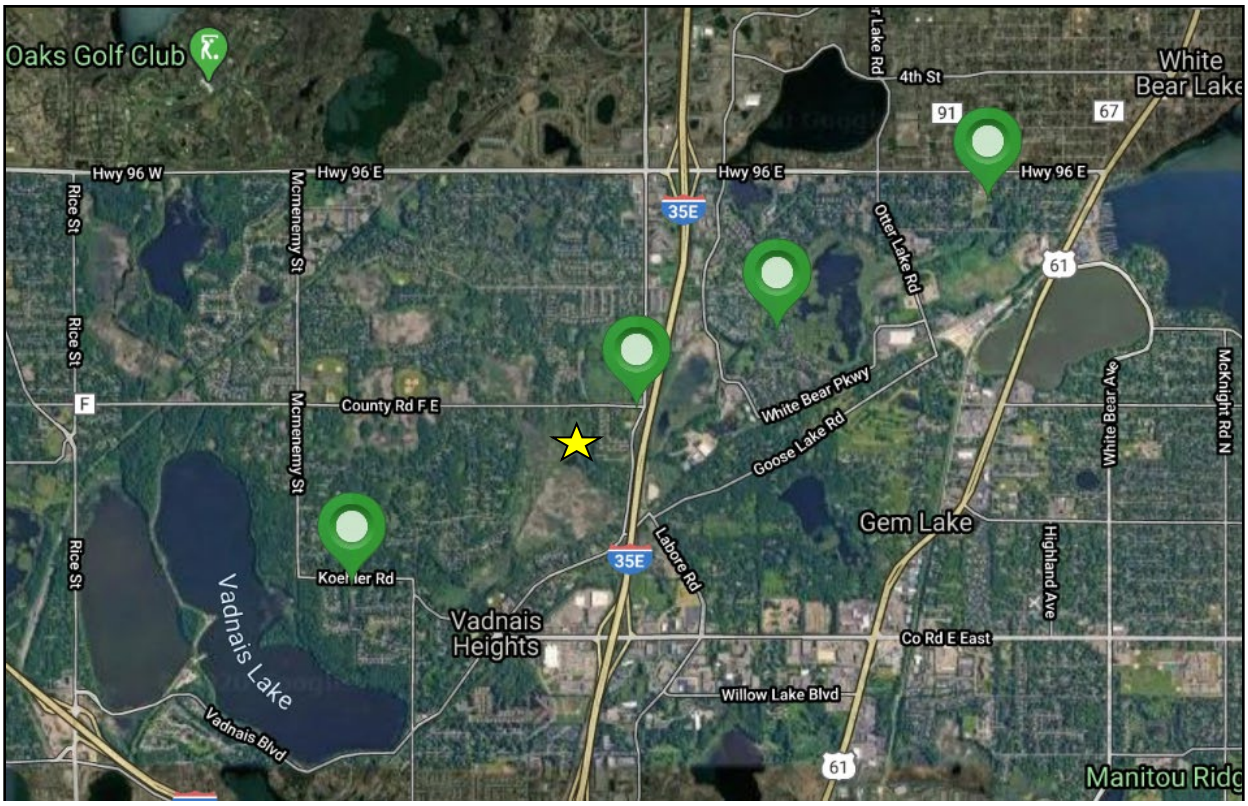


The Whitaker Treatment Wetlands is a large research project that was completed in 2018 with

support from LCCMR. The Whitaker Treatment Wetlands is a sub-surface treatment wetland project adjacent to Whitaker Pond in White Bear Township at the headwaters of Lambert Creek. Whitaker Pond captures drainage from a 640-acre area to the northeast in White Bear Township and White Bear Lake. The wetland cells receive stormwater in 3, 10x40-foot experimental cells. Each cell contains a different media to test their effectiveness at removing bacteria and nutrients. Results are being collected by researchers at the University of Minnesota and will be shared semi-annually with VLAWMO.

Four automated samplers have been added to Lambert Creek to provide continuous discharge data. Samplers were installed during 2019 and have been running continuously since installation (Figure 7).

Figure 7: Locations of automated samplers on Lambert Creek
(The Project is west of 35E and slightly south of the sampler located closest to 35E. The project area is marked with a yellow star.)



The suite of BMPs implemented so far have helped reduce untreated stormwater delivered to the creek. Research has been conducted to better understand nonpoint sources of bacteria in the subwatershed. Adding BMPs to Lambert Lake including adding a meander to the stream and installing biochar cells will remove bacteria and nutrients and slow water to allow sediment deposition, improving storage and resilience. The repair and enhancement of existing BMPs is required to maintain the system, prevent a system failure, and support function of the new, proposed BMPs.

Project beneficiaries include residents living along Lambert Creek, especially south of the project area, residents of St. Paul who receive drinking water from SPRWS, and residents of Vadnais Heights who have a desire for flooding protection, improved habitat quality, and resilience in local wetlands. Project beneficiaries also include wildlife such as: pollinators, migrating and resident birds, and mammals including otters that use the project site.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐ Yes **X No**
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. Is this project a subsequent stage of an earlier project? **X Yes** ☐ No
If yes, briefly describe the past development, timeline and any past environmental review.

The Project is an amendment to a project that was completed at the same site in 2004 (as described above). The earlier project included creating a new ditch line, attempting to install sheetflow across the wetland, building a stormwater retention basin that was reinforced with steel sheetpile on the south end and vinyl sheetpile on the north end, constructing an access berm on the north end of the pond, and building an access road on the eastern side of the site.

An EAW was completed for the earlier project in Oct. 2003. VLAWMO was the proposer and Responsible Government Unit for review of that project. The decision that resulted from the previous EAW was a determination that the Lambert Creek Water Quality Improvement Project would not result in significant environmental impact, and that the project did not require the preparation of an environmental impact statement.

Permits acquired for the earlier project included:

- City of Vadnais Heights: Construction and grading permit
- Department of Natural Resources: Public Water Work Permit
- US Army Corps of Engineers: GP/LOP-98-MN Stream & Wetland Restoration Activity

These permits remain relevant to the current project. For purposes of permitting, the MN DNR Public Water Work Permit and US Army Corps of Engineers Stream & Wetland Restoration Activity Permit remain attached to the site. The current project permitting will be handled as amendments to the original permits.

Other Approvals in place from the earlier project:

Easements were acquired from seven private property owners and the City of Vadnais Heights.
A Memo of Understanding between Ramsey County, VLAWMO and the St. Paul Regional Water Service was completed to secure the Centerville Road stormwater treatment funding.
A management plan was approved for the restored wetland area and the overflow channel between the City of Vadnais Heights, VLAWMO and the St. Paul Regional Water Service.

7. **Cover types:** Estimate the acreage of the site with each of the following cover types before and after development:

*** There is no net change in wetland/ecological habitat due to lengthening of stream.**

	Before	After		Before	After
Wetlands	11.1	10.8	Lawn/landscaping	-	-
Deep water/streams	0.6	0.9	Impervious surface	-	-
Wooded/forest	-		Stormwater Pond	2	2
Brush/Grassland	0.3	0.3	Other (describe)	-	-
Cropland	-	-			
			***TOTAL**	**14**	**14**

The Lambert wetland area is mixture of type 2, fresh meadow; type 3, shallow fresh marsh, and type 6, shrub-scrub swamp. There are small pockets of type 7, forested wetland that lie along the edges of the basin.

The large watershed basin of about 250 acres could be considered in three sections. North Lambert is north of County Road F and will not be impacted by this project. The central basin of Lambert is about 150 acres and contains the project site. The central basin narrows in the southwest corner, then broadens to the final stretch of wetland: Lower Lambert. Lambert Creek or county ditch #14 enters the central basin in the northeast corner from a 48" concrete pipe and travels southwest through the central and lower basins to a culvert under Edgerton Ave.

Cover types in the central basin impact are characterized as follows: 60% type 3, cattail dominated; 25% type 2, Reed canary grass dominated; 15% shrub-scrub with about 2% type 7 forested. The center of the basin is dominated by the cattail and native Phragmites population with the exception of ridge of shrub-scrub and reed canary grass paralleling the ditch about 100 ft to the east. The edges of the basin are mainly shrub-scrub, Phragmites, and reed canary grass. Along the north and west side, several yards extend into the wetland area with intermittent maintenance, possibly depending on saturation level. There is an excavated open water area in the southwest corner. The northwest area has forested wetland to the west of the cattail-covered channel that accommodates flow from north Lambert.

From the earlier project in 2004, approximately 2 acres of type 3/2 (cattail and Reed canary grass dominated) wetland were excavated to create a dispersion pond (type 4 wetland), which increased the diversity of wetland types in the basin.

As in the previous project, wetland type should not change significantly in this area. Vegetation diversity and habitat quality will be improved.

8. **Permits and approvals required:** List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

Unit of government	Type of application	Status
City of Vadnais Heights	Construction and grading permit	Pending approval of DNR permit
Department of Natural Resources	Public Water Work Permit	In process to be completed after EAW. Current permit will be an amendment to the previous permit for work in 2004. Previous permit #: 2004-3102
US Army Corps of Engineers	GP/LOP-98-MN Stream & Wetland Restoration Activity	In process to be completed concurrent with DNR amendment. Current permit will be an amendment to the previous permit for work in 2004. Previous permit #: MVP 2004-02114. New # established: MVP 2019-02143-EJW
DNR Water Appropriation Permit	Note: If there is dewatering of surface water, stormwater, or groundwater, in volumes that exceed 10,000 gallons/day, or 1 million gallons/year, that would need to be approved. This includes pumping water to allow the placing of culverts, water mains, sanitary sewers, grading, and storm sewer, etc.	Will apply if needed; not currently planned

9. **Land use:**
   a. Describe:
      i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.
      ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.
      iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

   b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

Land use on the construction site has not change significantly since the early years of the 20th century. Prior to this Lambert Lake was an open water lake or possibly a Type IV wetland. Sometime during the initial decade of the 20th century, the wetland was ditched along with three upstream wetlands, Sobota Slough, Rice Lake, and Grass Lake, to form County Ditch #14. Since that time little change has occurred within the wetland in terms of land use. Development has occurred adjacent to the wetland, as it has in the contributing watershed, and a sanitary sewer line was installed near the western portion of the wetland. The proposed project is a wetland restoration. Restoration of the wetland to original conditions is not feasible due to constraints. Improved hydrologic function, stream flow, pollutant reduction, plant community and habitat quality, and resilience are part of this restoration project.

10. Geology, soils and topography/land forms:

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

A geophysical investigation was conducted to determine the depth of organic deposits and soft clays along the alignment of the replacement sheetpile wall. Organic deposits and soft clay were encountered to depths of 12 to 20 feet.

The soils on the site consist primarily of Seelyeville muck, which is known for moderately rapid permeability and very slow runoff. The proposed project involves very limited use of contaminants (primarily fuel for construction vehicles) and thus there is limited potential for soil and ground water contamination. If a spill were to occur during construction, appropriate

remediation procedures would be performed in accordance with MPCA guidelines and regulations.

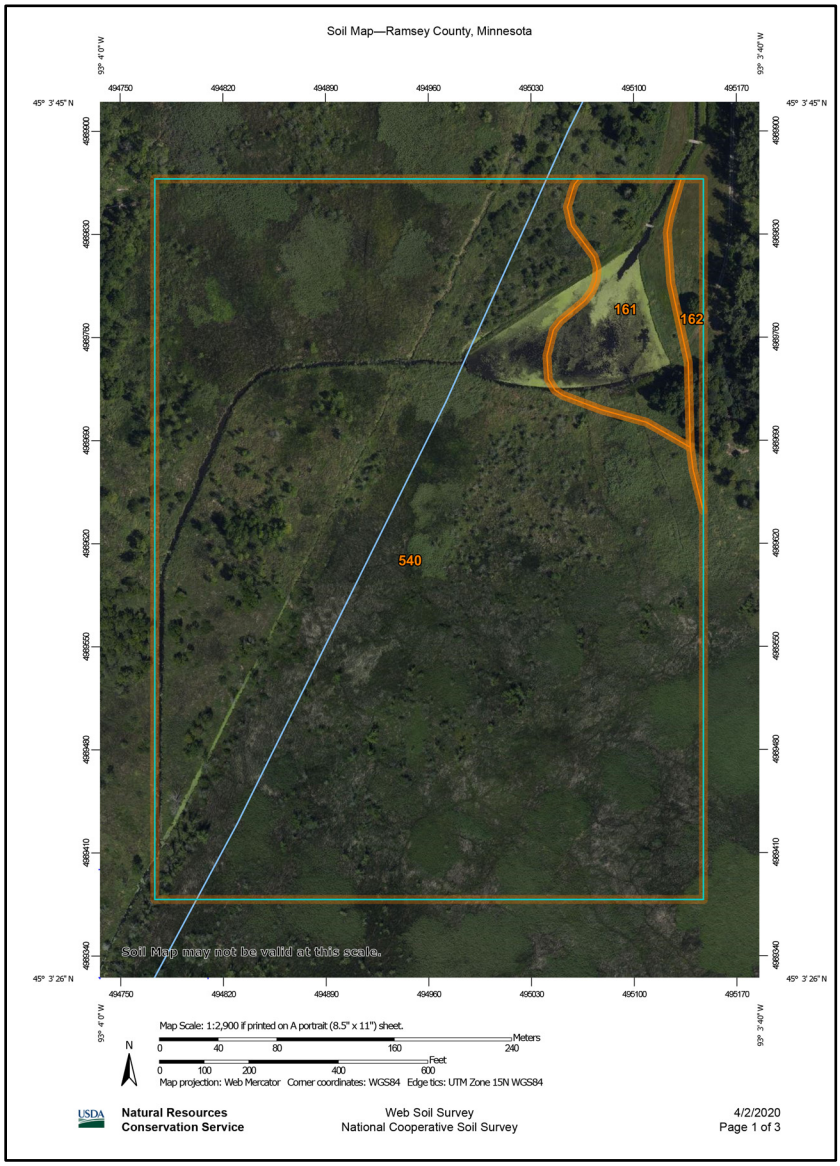
Thermal imaging was conducted with a drone at the site during winter 2020 to identify possible shallow aquifer and upwelling locations. No locations were identified that would pose a problem with upwelling to the project.

A USDA soil map was created using Web Soil Survey. A larger study area was included that encompasses the immediate surroundings of the project site (Figure 8).

Table 4: USDA Soil Map results for Lambert Lake

Map Unit Symbol	Name	Acres	Percentage
161	Isanti loamy fine sand, depressional	3.0	6.6%
162	Lino loamy fine sand	0.8	1.7%
540	Seelyeville muck	45.4	91.7%
Totals for Area of Interest		49.2	100%

Figure 8: USDA Soil Map: Area of interest encompasses the project and surrounding area. The project area itself is 14 acres within this 49.2-acre project area.



11. Water resources:

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Lambert Lake pond—the existing stormwater retention ponding site, realignment of Ramsey County Ditch 14 (Lambert Creek), Branch Ditches 3 and 4 connection, and the proposed stream meander site lie within Minnesota DNR Public Water Basin 62-0030-00, known collectively as Lambert Lake. Lambert Lake is a large wetland complex that was historically a shallow lake that was drained in the early 20th century by construction of drainage ditches for agricultural development. Lambert Lake does not have any special designated outstanding resources, besides being classified as a MN DNR public water. Lambert Creek/County Ditch 14 is currently listed under the MPCA 303d IWL for fecal coliform impairment for recreation, first listed in 2008. Downstream, East Vadnais Lake (62-0038-01), is impaired for mercury in fish tissue for aquatic consumption.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

As the majority of the project is taking place within a wetland, depth to groundwater is limited, as much as <1 feet in some areas, but varying. As mentioned above, thermal imaging was conducted via a drone in winter 2020 to identify upwelling or shallow aquifer exchange, though no such potentially problematic areas were identified. The project lies within the St. Paul Regional Water Services wellhead protection area (MDH ID: 114101). There are numerous domestic wells within the area. Within 2,000 feet of the project center point, there are 22 domestic wells. Within 1,000 feet of the project center point, there is 1 well (ID #531834). This well relates to the construction of a nearby townhome development from the 1990s, and it appears to be an abandoned wellhead. The nearest municipal well to the site is the City of Vadnais Heights Well #2 (ID #127265), and is 0.99 miles to the north of the project area.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

No wastewater discharge, production, or municipal wastewater infrastructure expansion or connection is anticipated, as part of the project.

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

No wastewater discharge will be routed to a SSTS, as part of the project.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

No wastewater will be discharged to surface waters and there will be no resulting effect on surface or groundwater, as a result.

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

Prior to construction of the Project, the site acts a public stormwater conveyance system, routing stormwater downstream via an open ditch that pools in a stormwater retention basin, and then overtops sheet piling to exit via open ditch again. The site directly receives, conveys, and treats upstream stormwater from Lambert Creek (RC Ditch 14), with immediate downstream conveyance of Lambert Creek. The final and major receiving water is East Vadnais Lake, roughly 1.6 miles downstream from the Project location. The proposed Project will fill the current ditch line, and replace and redirect flow through a newly-meandered stream, south of the retention basin. The project itself is a BMP to improve stormwater treatment by permanently slowing stormwater flow, reducing streambank erosion, and improving habitat for aquatic life, to environmentally-improve the site from its current state while not increasing flood risk. A SWPPP and ESC plan is included with the 90% plans. Post-construction, the project will be stabilized and restored with native vegetation and natural netting erosion control mat armoring for vegetation and natural armoring to establish.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Dewatering is not planned for the project. If dewatering occurs, it would be incidental. The contractor plan to accomplish this will be submitted to SEH prior to construction to ensure sufficient environmental controls will be used.

Well (ID #531834) is roughly 500 feet away from the proposed project work area was drilled as part of the nearby townhome development construction in 1993. It is not known if the well has been sealed or capped, but is not considered to be active. The Project will not be connecting to a municipal water supply, expanding municipal water infrastructure, or affecting or utilizing domestic wells.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

700 linear feet of existing Ramsey County Ditch 14, 400 linear feet of abandoned County Ditch 14 will be filled, and 2,020 linear feet of the new stream meander will be excavated within the limits of the Lambert MN DNR Public Water Basin 62-0030-00. The existed ditch fill area is being performed to block and re-route water flow through the constructed stream meander. Filled areas will be properly revegetated and stabilized with native vegetation seeding and planting, along with the new meander streambanks (see more detail in plans included in Attachment #3). Direct impacts are decreased flow velocity and bank erosion, and naturalized sediment deposition in the stream meander once the project is completed. Wildlife friendly erosion control products will be used whenever erosion control is required. Due to entanglement issues with small animals, use of erosion control blanket will be limited to 'bio-netting' or 'natural netting' types, and specifically not products containing plastic mesh netting or other plastic components. These are Category 3N or 4N in the 2016 & 2018 MnDOT Standards Specifications for Construction.

The project will have direct and indirect increased environmental effects within the watershed, as part of the project. Improved native vegetation and aquatic species habitat will result in increased biodiversity, stormwater treatment, and reduced localized flooding issues, as the site currently exists. Alternative measures to avoid impacts to the project were explored for impact and mitigation, as the project is working in coordination with oversight agencies to ensure the proper procedures and plans are followed for beneficial restoration of the meander site, and for lowest site impact and maximum improvement of the site. Wetland-impact mitigation is described in the rare species section.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The project will also be replacing 470 linear feet of fiberglass sheetpile with steel sheetpile on the northwest bank of the preexisting stormwater retention BMP basin. This is classified as maintenance work and will not result in wetland impact nor direct or indirect environmental impacts to the watershed. All proper temporary and permanent erosion and sediment control BMPs will be utilized for any area disturbed by the project, including silt fence, bio logs, and permanent native plant revegetation. The project will not change watercraft recreation activities in the area, as none currently take place.

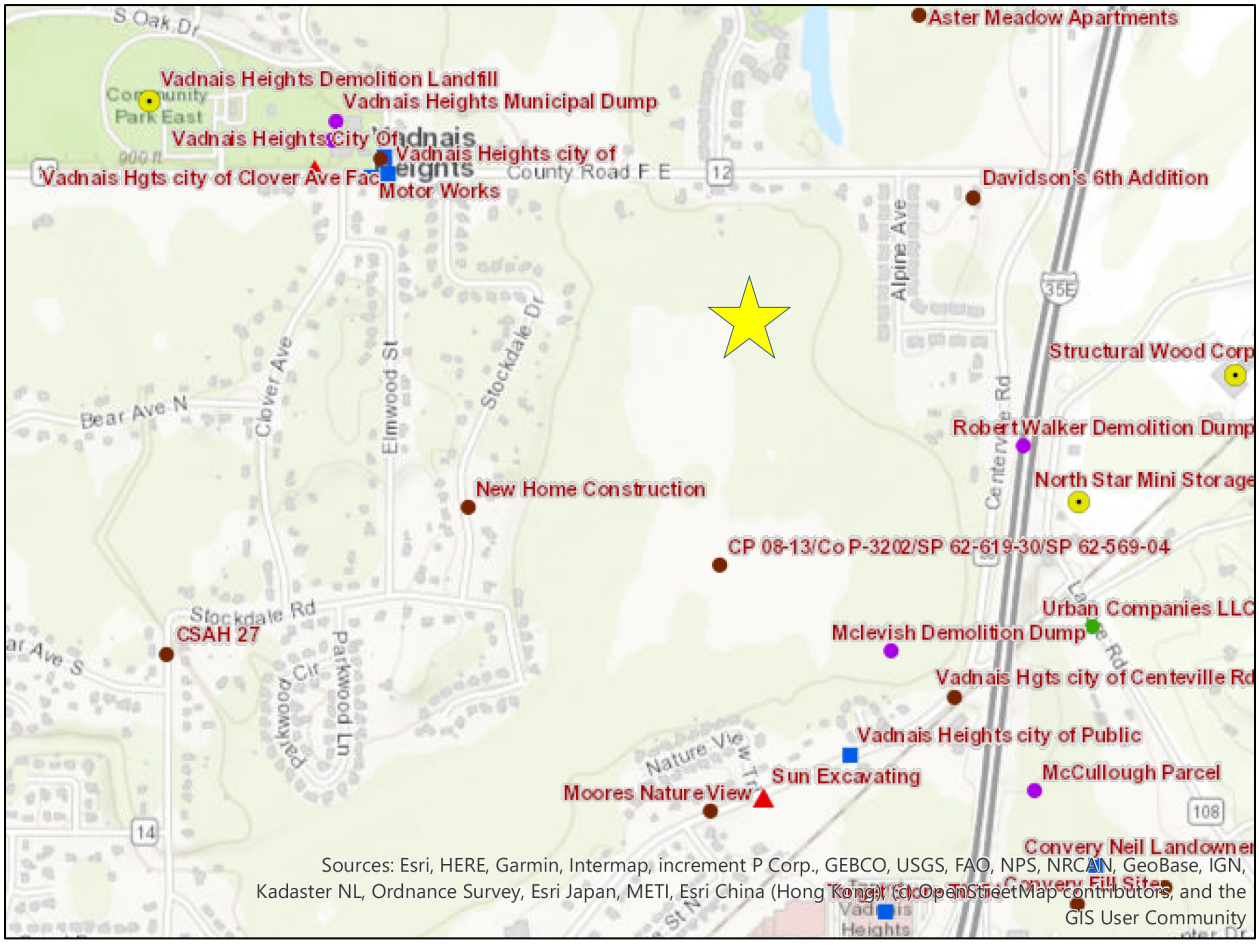
12. Contamination/Hazardous Materials/Wastes:

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The MPCA's What's in My Neighborhood and Environmental Protection Agency's Cleanups in My Community databases were reviewed to determine if sites with regulatory listings for contamination such as dumps, landfills, storage tanks, or hazardous liquids are located within or adjacent to the proposed Project area. No potential contamination sites were identified within the proposed Project area.

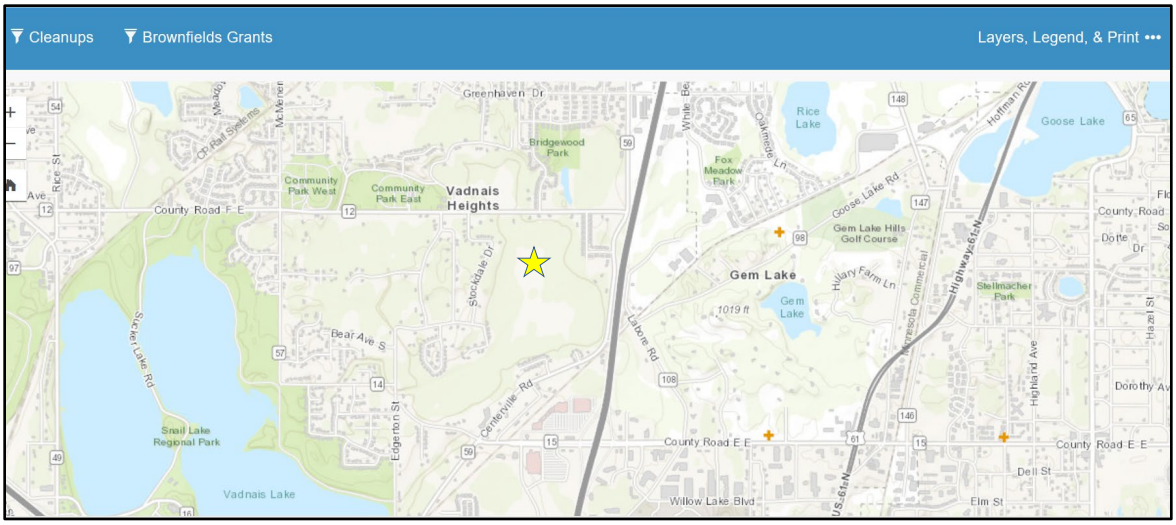
One site is identified within the study area (Figure 9). Site ID CP 08-13/COP-3202 is no longer an active construction site. The Mclevish Demolition Dump is located to the southeast of the project area. It is also inactive, according to Site Assessment SA008369.

Figure 9: MPCA What's in My Neighborhood Results (Note: Project area identified with a yellow star)



The EPA Cleanups in My Community database showed 2 sites, both to the east of 35E (Figure 10). One of those sites is located at 1522 Whitaker St. at a previous site used by the City of White Bear Lake for sewage disposal. An assessment was completed, and the site has been slated for redevelopment. The other site is Gem Lake-Hoffman Corners Property ID: 173701. An assessment was completed for this brownfield site in 2014. No clean-up was initiated.

Figure 10: EPA Cleanups in My Community (Note: Project area identified with a yellow star)



b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

Construction of the proposed Project is not anticipated to generate any hazardous wastes or introduce new hazardous materials to the proposed Project area. Any unexpected hazardous waste encountered during project construction would be removed from the site and transported to an appropriate disposal facility upon evaluation.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

Fish monitoring has not been conducted at the Project site. However, the retention pond has a high amount of accumulated sediment, turbidity, and algae during summer months. Common carp are frequently observed in the pond. Curly-leaf pondweed is abundant in early summer months and present throughout the growing season. Macroinvertebrate monitoring is being initiated during summer 2020. Macroinvertebrate diversity is expected to be low.

Vegetation shows low diversity and is primarily dominated by native Phragmites (verified by J. Bohnen during a site visit in 2018), Reed canary grass, and cattails. Along the easement access road, there is abundant Buckthorn, Red-osier dogwood, and Willow spp. Reseeding with native prairie plants was conducted as part of the prior project in 2004. That work included seeding of the access berm on the north end of the retention pond and to the east side of the pond and creek in the staging area. The berm has some Monarda and Rudbeckia that has survived. It also has a high coverage of Reed canary grass, native Phragmites, and invasive Leafy spurge. A native grass mix was used at the staging area site. After the 2004 project was completed, the parcel that includes the access road and staging area was sold. The new home/landowner mowed the area including the buffer adjacent to the creek. During summer 2019, the landowner was contacted by the City of Vadnais Heights and told that they were not supposed to be mowing the area. Mowing ceased, and native grasses grew and produced seed. Big bluestem and Indian grass are the dominant grasses with very few forbs.

VLAWMO conducted call monitoring of frogs and toads in the watershed during 2019. Continued monitoring is planned for 2020. Two locations on Lambert Lake were included in this monitoring protocol (Figure 11). In the watershed overall, 8 frog and toad species were documented. Four species were heard at the project site: Wood frogs, Boreal chorus frogs, Gray treefrogs, and American toads. Few individuals were heard in the project area itself. A small mitigation site that is a wooded wetland along the easement access road to the east of the pond was the location of the strongest choruses and most species. At the sampling location to the east of the project site, only Boreal chorus frogs and Gray treefrogs were heard.

Figure 11: Frog and toad monitoring sites at the Lambert Lake Project site.

Remote cameras were also used to monitor mammal activity at Lambert Lake from April 2, 2019-June 12, 2019 for a total of 71 trapnights. Two locations were monitored at the Project site. A camera was placed at an active otter latrine site on the north end of the project site for the bulk of the monitoring. A second site was set for a few days at the west end of the berm at the outlet of the pond into the creek. Cameras recorded 5 mammal species: White-tailed deer, Mink, Racoon, River otter, Coyote, and Virginia opossum. Wild turkeys and Canada geese were also photographed frequently. The project staging area and native grasses previously mentioned is used as a Wild turkey lekking site. River otters frequently visit and use the latrine site. River otter mating was observed at this location, and interactions between coyotes and otter were also observed. Although the site itself consists of low-quality habitat, the connection via the creek to Vadnais-Sucker Park appears to provide a valuable corridor for wildlife. The level of activity documented with remote cameras was surprising and supports the idea that improving habitat quality at this site and along the meander will be useful in supporting local wildlife including River otters.

Figure 12: Selected remote camera photos from the Project site (White-tailed deer, Coyotes, and River otter)

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB _____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

VLAWMO has a license agreement (LA-975) with the MN DNR for access to the Natural Heritage Information System (NHIS) database, which was queried in April of 2020 to determine if any rare species could potentially be affected by the proposed Project. The NHIS database indicates that 5 state-endangered, threatened, special concern, or watchlist species have been documented near but not within the proposed Project area (Table 5).

Concurrence was sought with MN DNR with regard to species of concern. That was obtained 4/30/2020, ERDB #20200248. The letter of concurrence is included as Attachment #4.

Table 5: Rare Species Documented within 1.5 Miles of Proposed Project Area According to MDNR NHIS

Common Name	Scientific Name	Federal Status	State Status	Habitat[1]
Blanding's turtle	*Emydoidea blandingii*	None	Threatened	Wetland complexes adjacen to sandy uplands; calm shall waters, including wetlands associated with rivers and streams.
Red-shouldered hawk	*Buteo lineatus*	None	Special Concern	Large tracts of mature deciduous forest with scattered wetland openings.
Rusty patched bumble bee	*Bombus affinis*	Endangered	Watchlist	Open areas with abundant flowering plants and undisturbed soils for overwintering.
Western foxsnake	*Pantherophis ramspott*	None	Watchlist	Agricultural fields, farms, grasslands, and riparian woodlands.
Tubercled rein orchid	*Platanthera flava*	None	Threatened	Moist/wet meadows, sunny swales in savannas, and at the margins of shallow marshy lakes, especially where there is a turf of low-growing native grasses or sedges

1: Habitat information obtained from MDNR Rare Species Guide: https://www.dnr.state.mn.us/rsg/index.html

There are many reports of Blanding's turtles in the general area but not including the Project site. Because of this, close consultation was sought with MN DNR to determine what mitigation steps would be appropriate and necessary to protect turtles.

Rusty patched bumble bees have been reported in the watershed but not in the Project site. The Rusty patched bumble bee is a federally listed species, so additional consultation was undertaken with USFWS and USACE.

Red-shouldered hawks have been reported near the project area. There are no known nesting areas for Red-shouldered hawks at Lambert Lake. There is a Red-tailed hawk nest at the site, near the retention pond.

The Tubercled rein orchid is located near the Project site but not in the wetland complex that is part of the Project site. Tubercled rein orchids would not be expected at the Project site because of the Phragmites/cattails and overall degraded condition of the wetland.

Besides Rusty patched bumble bee, the Northern long-eared bat is the other federally listed species that is documented near the Vadnais Lake Area watershed. This species is not recorded in VLA. The Northern long-eared bat inhabits caves, mines, and forests. Suitable forest habitat is not located at the proposed Project area. According to the MN DNR, the nearest hibernacula is south of West Vadnais Lake (West Vadnais lake is southwest of the Project area). No maternity roost trees have been identified within the vicinity of the proposed Project area. There will be no tree clearing as part of this project. There is also a single report of Tri-colored bats in the watershed, listed as rare in MN. This report was north of the Project area.

No Minnesota Biological Survey (MBS) native plant communities, Sites of Biodiversity Significance (SBS), or MN DNR Scientific and Natural Areas (SNAs) are present within the proposed Project area.

There are no karst nor calcareous fen features located in the Project area, nor are there Regionally Significant Ecological Areas.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

The Project site has a high colonization of invasive species including: Reed canary grass, Leafy spurge, and Buckthorn. Buckthorn is found along the easement access road (not in the wetland area of the Project). Earlier efforts at the site including a low-diversity seed mix with highly aggressive warm season grasses (e.g., Big bluestem and Indian grass). The creek has invasive Curly-leaf pondweed and Common carp. Native vegetation diversity at the site currently is low and dominated by a few aggressive species especially in the Project staging area. The wetland area has high density native Phragmites and cattails, which is also aggressive and limited the effectiveness of earlier sheetflow designs through the wetland.

Spread of invasive species will be minimized by utilizing temporary construction erosion and sediment control at the site during construction and by cleaning and inspecting equipment. Construction will be phased to protect Blanding's turtles (described in the next section). A phased approach will also optimize native species planting on freshly exposed soil. Maintenance of these areas will prevent recolonization by Reed canary grass.

The proposed Project may have minor temporary adverse effects on terrestrial wildlife in the vicinity of the Project area. Temporary impacts to terrestrial wildlife may include increased noise and human activity during construction activities. Many species, even those accustomed to human proximity, could temporarily abandon habitats near the proposed Project area until the work is completed. These temporary impacts are not expected to irreparably harm terrestrial wildlife individuals or populations.

Fish and other aquatic organisms inhabiting the vicinity of the active construction area may be temporarily impacted during construction; however, it is anticipated that mobile aquatic organisms would generally relocate to adjacent aquatic habitats during construction activities.

Blanding's turtles may be present in the vicinity of the Project and could potentially be directly impacted by the proposed Project during construction should they be present in the immediate construction area. The most pronounced threat to known threatened and endangered species is digging the new channel during winter, when the wetland is accessible to large equipment and when

Blanding's turtles could be hibernating in the creek and nearby muddy areas. Through consultation with MN DNR, it was determined that the ditch is not suitable habitat for Blanding's turtles to use for hibernation. The ditch is too shallow, likely to be anoxic in the winter, and does not provide suitable banks/substrate for turtles. Mitigation will include installing silt fence and possibly additional snow fence to prevent possible entry to the site by Blanding's turtles, contacting Erica Hoaglund if turtles are encountered during construction and revegetating, and educating workers at the site so that they can identify and alert VLAWMO if Blanding's turtles are encountered. The potential for impacts to wetlands along the meander are planned to improve Blanding's turtle habitat.

From consultation with Erica Hoaglund, Nongame Wildlife Specialist Sr., regarding Blanding's turtles:

Potential Overwintering Habitat

The site has very shallow water with abundant aquatic vegetation and algae. There is some flow that maintain the channel that will be filled as liquid during the winter months but very shallow water and lots of decaying algae and curly-leaf mean that oxygen levels in the water are likely pretty low in the winter. What these factors mean is that the site is not excellent overwintering habitat for the state listed Blanding's turtle. While it is possible that naïve individuals might stray in and attempt to over winter this can be easily remedied by installing a silt fence (or similar) in the fall before construction to keep any turtles out. Since none of the aquatic veg are big floating mats there is actually not that much free water out there, it looks like mostly very wet wetland vegetation.

Potential Summer/Breeding Habitat

The most likely use of this wetland by Blanding's turtles is during the summer, likely early summer as individuals are moving around to and from the various larger bodies of water in the area. I did not see any suitable nesting habitat nor did Dawn describe any so I don't have concerns for turtles cruising the emergent vegetation and trying to nest in it. Avoidance can be easily achieved during active season activities by providing information and education to on-site staff about what to do if they encounter a Blanding's turtle.

It is my conclusion that take of Blanding's turtles during this project is unlikely and can be minimized via silt fence installation in the fall and on site staff education for any hand work in the active season. I would recommend that construction occur after about Oct. 15 and before May 1.

With the exception of Blanding's turtles, habitat is not present within the proposed Project area for any of the federally or state-listed species discussed above. As such, impacts to these species are not anticipated from the proposed Project.

No MBS native plant communities, SBS, or MDNR SNAs are present within the proposed Project area, therefore impacts to these resources are not anticipated. Contractors will comply with Minnesota regulations regarding the spread of invasive species.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Given the known presence Blanding's turtles in the area, steps were taken to protect turtles. The plan detailed below identifies measures that will be executed to avoid take and minimize potential

impacts to Blanding's turtles. The Rare Species Guide, Blanding's turtle fact sheet, Blanding's turtle flyer, and wildlife friendly erosion control were consulted in developing this plan.

Potential impacts to aquatic organisms during construction will be minimized by implementing BMPs to avoid potential impacts to water quality.

Measures to avoid or minimize disturbance include:

- Avoidance of suitable habitat and appropriate timing of construction: For Blanding's turtles, MN DNR recommends fall installation of silt fencing, winter construction with a single mobilization, and spring vegetation work. Construction of the new meandered channel will take place in the winter with mats if needed. Erosion control measures including natural fiber fencing will be used at the site. Silt fencing will be set up to keep turtles out of construction areas during spring efforts. Silt fencing be removed after the area has been revegetated.

  MN DNR also recommends erosion mesh that is natural fiber instead of plastic or photodegradable products. This has been incorporated into the construction plan. No rip rap is planned for the Project.

  The Landscaping and Vegetation Management section of the Blanding's turtle Fact Sheet (http://files.dnr.state.mn.us/natural_resources/animals/reptiles_amphibians/turtles/blandings_turtle/factsheet.pdf) will be implemented following meander construction. Specifically, terrain will be restored to natural contours, and areas will be revegetated with native grasses and forbs,

- Training for construction crew: A flyer with an illustration of and information about Blanding's turtles will be given to all contractors working in the area. Homeowners will also be informed of the presence of Blanding's turtles in the area. Blanding's turtles are unlikely to be observed during winter construction because it is during the time of hibernation. During channel abandonment in the spring, all contractors working in the area will be instructed to move, by hand, any turtles observed that are in imminent danger. Contractors will be instructed to contact VLAWMO staff so that turtles can be moved to a separate location on the creek, where they are out of the way of construction. Turtles which are not in imminent danger will be left undisturbed.

A list of suitable native forbs and flowering shrubs known to be favored by Rusty patched bumble bees was compiled using the USFWS species list (https://www.fws.gov/midwest/endangered/insects/rpbb/plants.html). The native plants selected area found in wetlands and adjacent to streams. They are native to our specific area in the State, and provide blooms throughout the growing season. That list was used to build the vegetation plan. Recommended species are shown below (Table 6). The majority of these species are deer resistant, which will be important in the Project area where White-tailed deer are abundant.

Table 6: Native wetland plants appropriate for streamside restoration recommended to support Rusty patched bumble bees provided in the Minnesota State Seed Mix 34-261 Riparian South and West Mix

Species name	Common name	Deer resistant	Bloom time						**Habitat**
			May	**June**	**July**	**Aug**	**Sept**	**Oct**	
Asclepias incarnata	Marsh milkweed	X	X	X	X	X			moist to damp soil, in full sun to partial shade, typically found growing near edges of ponds, lakes, streams, ditches and in low areas
Eupatorium perfoliatum	Common boneset	X			X	X	X		swamps, bogs, wet meadows
Eutrochium maculatum	Spotted joe pye weed	X			X	X	X		moist soil along shores
Helenium autumnale	Autumn sneezeweed	X				X	X	X	full sun in wet to moist areas such as wet prairies, meadows, stream banks, pond perimeters and roadsides
Helianthus giganteus	Giant sunflower	X			X	X	X		grows best in sunny, moist, or disturbed areas
Impatiens capensis	Jewel weed (Spotted touch-me-not)	X			X	X	X		along shores
Lobelia siphilitica	Great lobelia	X			X	X	X	X	soggy meadows near rivers, low areas along rivers and ponds, swamps, floodplain and bottomland woodlands
Mimulus ringens	Blue monkey flower	X		X	X	X	X		typical of wetlands and consistently moist soils
Pycnanthemum virginianum	Virginia mountain mint	X		X	X	X	X		part shade, sun; fields, prairies, thickets, fens
Rudbeckia laciniata	Tall coneflower	X			X	X	X	X	part shade, sun; moist fields, woodland edges, along shores, floodplains, swamps, wet ditches

14. Historic properties:

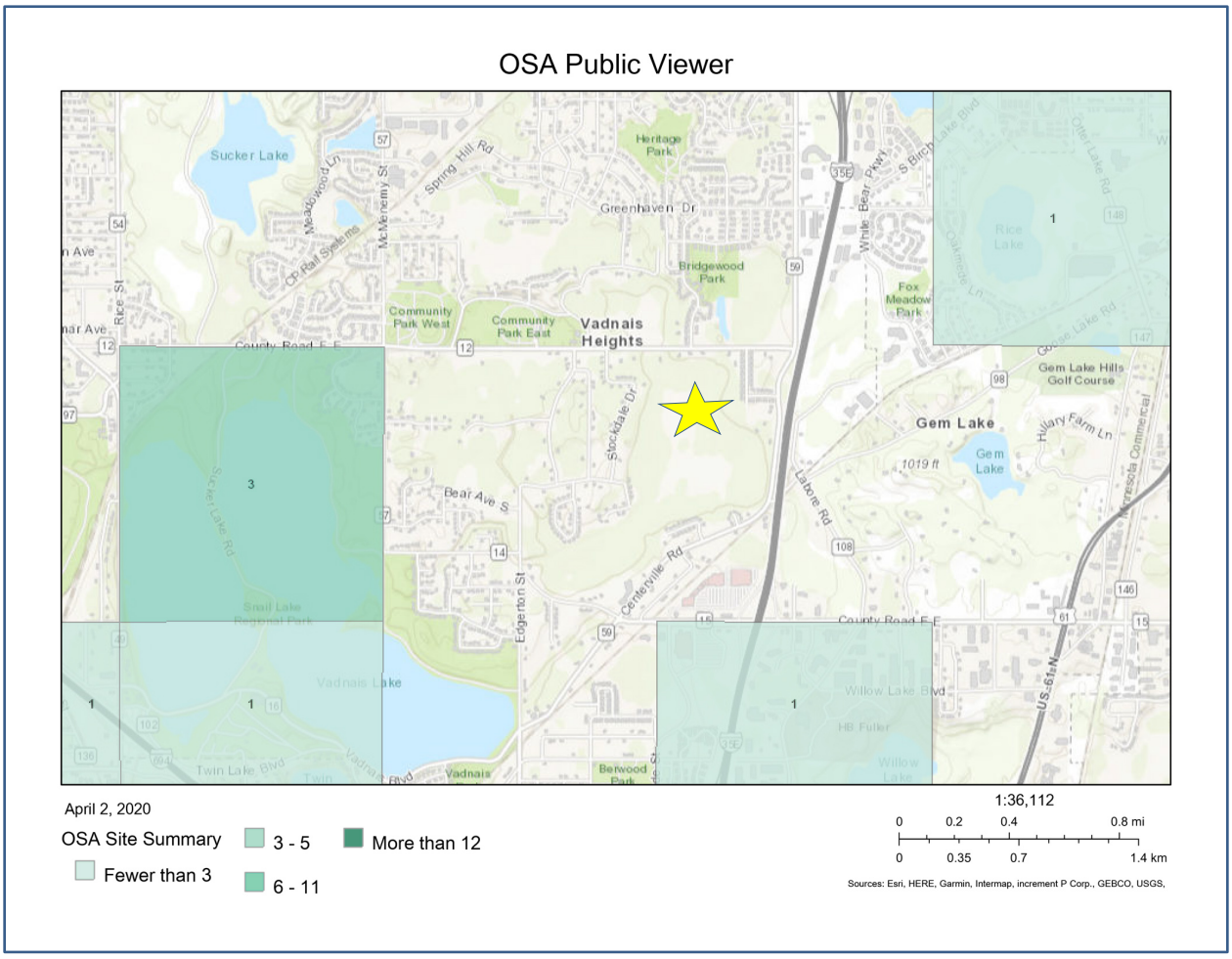
Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

Lambert Lake lies just west of Interstate 35E and south of County Road F in Vadnais Heights. Historically, this area was farmland. Most of the area is now single family residential with some townhomes. Nineteenth century maps show an even larger wetland basin prior to ditch construction. No known archaeological, historical, or architectural resources are known or likely in the area.

A trail along Centerville Road runs along the east side of Lambert Lake. This is part of a larger trail system and has the opportunity for a wetland educational effort. The trail connects to Vadnais Elementary school along the southeast shores of the main basin. This provides opportunity to dovetail with school curricula and public education efforts.

The Minnesota State Historic Preservation Office (SHPO) was contacted on April 2, 2020 to request a summary of all archeological sites and historic structures located within one mile of the proposed Project (Figure 13). The Office of the State Archaeologist (OSA) WebPortal was also reviewed. According to the data provided, there are no archaeological sites or historic structures search of our historic structures and archaeological sites databases. The SHPO responded on April 6, 2020. Their search confirmed that there are no archaeological records for the area.

Figure 13: Office of the State Archeologist Web Portal Viewer for Lambert Lake (Project area marked with a yellow star)



15. Visual:

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The project will not create visual effects, as described above, at the site.

16. Air:

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment.

Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

Not Applicable

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

The project will require construction equipment, which will have vehicle-related emissions, which is a temporary condition. The project will not generate any new permanent vehicle-related emissions.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

As in the prior project conducted at this site in 2004, the proposed Project should not generate odors during construction. The Project is anticipated to be constructed during the winter months; therefore, minimal dust control is anticipated. Any dust generated during construction would be due primarily to the tracking of material from the site onto adjacent roadways which would be minimized utilizing standard measures such as a rock construction entrance and frequent street sweeping. After construction is completed, dust levels should be minimal and return to that of preconstruction levels for the site.

17. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Noise due to construction would be expected as a result of this Project, most notably installation of sheetpile. Construction noise will be limited to daytime hours, in accordance with City ordinances. Construction equipment will be equipped with standard mufflers to reduce noise levels during the construction process. After construction is complete, noise levels will return to that of preconstruction levels for the site.

18. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip

generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

Not Applicable

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance.

Not Applicable

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

Not Applicable

19. Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The proposed Project will improve habitat quality and increased ecosystem function including a more natural stream that is reconnected to its floodplain. The reconnected floodplain will increase resilience in the system especially during flooding events. Biochar treatment cells will remove bacteria and nutrients and improve overall quality of the creek below the Project site. Future assessments will show if the improvements are sufficient to remove the creek from the Impaired Waters List (MPCA). The goal of the project is delisting.

Construction of the project is expected to take 6 months from start to finish. Construction will begin during the winter months, once the peat is frozen to allow equipment to work safely. This will be followed by spring vegetation restoration. Vegetation will be monitored over years to follow to determine success of the newly planted vegetation. Sites with low recruitment and survival of native vegetation will be supplemented with additional plantings. Additional detail about construction time is included in Attachment #3.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

VLAWMO does not have additional projects planned at this location. However, the City of Vadnais Heights has expressed interest in utilizing similar meander designs for maintenance of branch ditches. VLAWMO will continue to monitor the creek and may conduct maintenance as needed as has been done in the past. Maintenance efforts have included clearing of log jams,

incorporation of habitat elements, stream stabilization efforts, and removal of invasive shrubby vegetation (including but not limited to buckthorn).

Monitoring of the creek is conducted bi-weekly by VLAWMO during the season (May-Sept). Monitoring will be ongoing following completion of the project. In addition to bi-weekly monitoring, 4 automated samplers measure and report discharge real-time. These samplers upload data to the Monitor My Watershed website where they are publicly available (https://monitormywatershed.org/). This sampling effort will continue into the foreseeable future.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

The cumulative effects analysis for the proposed Project assesses both negative and beneficial potential environmental effects.

Negative Effects

In general, the potential for negative effects from the proposed Project would be short-term, lasting only for the duration of proposed Project work activities. As such, these effects are discussed in detail in the resource-specific sections above. Mitigation is needed to reduce possible impact to Blanding's turtles that may hibernate in the project site. Mitigation efforts have been described above and will be implemented to reduce possible impact to this species.

Beneficial Effects

As summarized above, the primary purpose of the proposed Project is to restore a functional stream ecosystem, reconnect the creek to its floodplain, improve water quality to downstream water resources, perform maintenance to important flood control infrastructure, and increase water storage in the area. It is also to improve habitat quality by building a more diverse plant community with habitat components to support rare species including but not limited to Blanding's turtles and Rusty-patched bumble bees. River otters are also known to use the site. Habitat elements have been incorporated into the plan to improve habitat quality for this species as well. Radio telemetry of River otters is planned to begin prior to construction at the site. Data that results pre/post construction will demonstrate habitat improvements for this species in particular.

Biochar treatment cells will be used to remove bacteria with a specified goal of delisting Lambert Creek for its bacteria impairment. Pre/post monitoring will show results with respect to this goal.

20. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

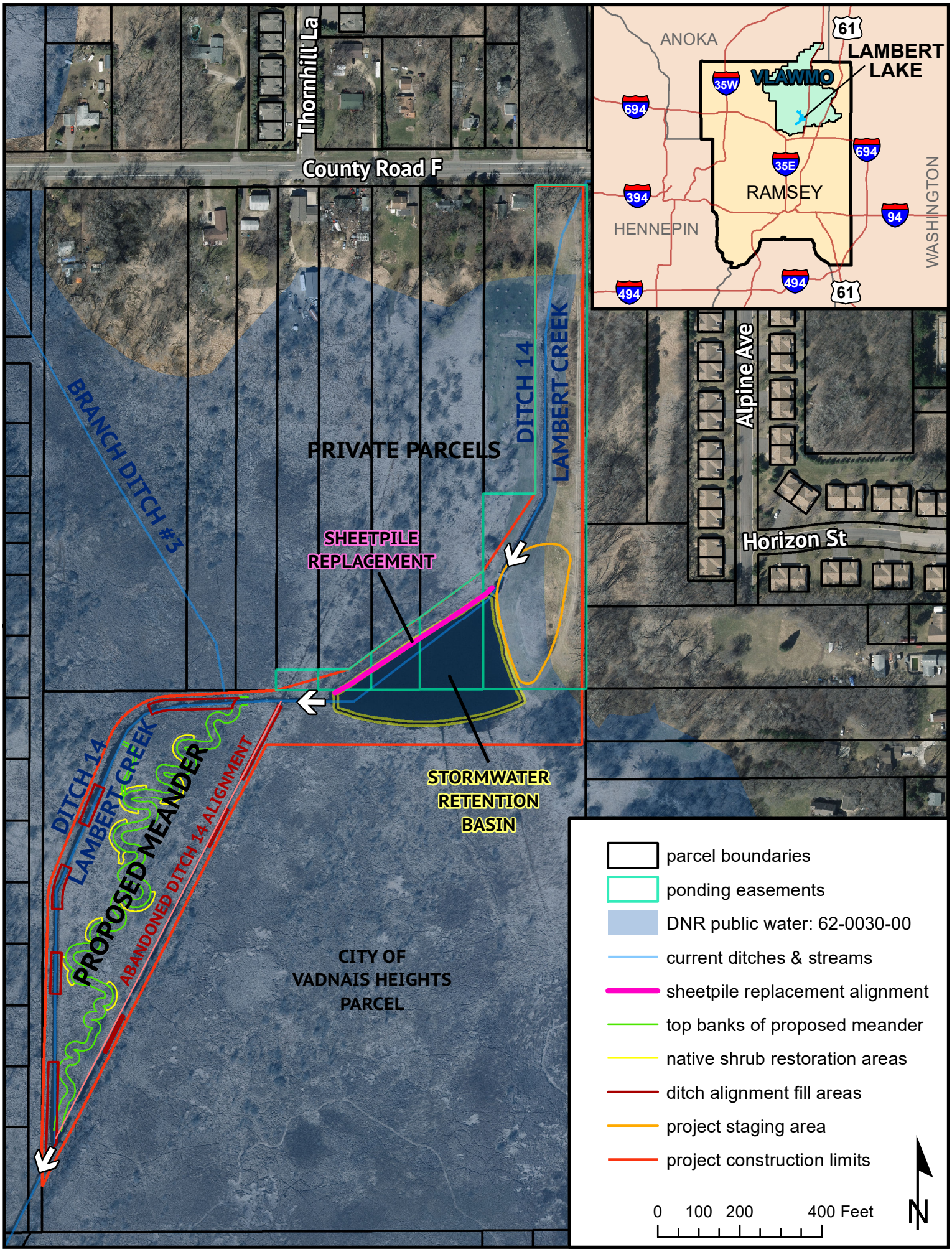
RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Dawn Tanner Date 5/11/2020

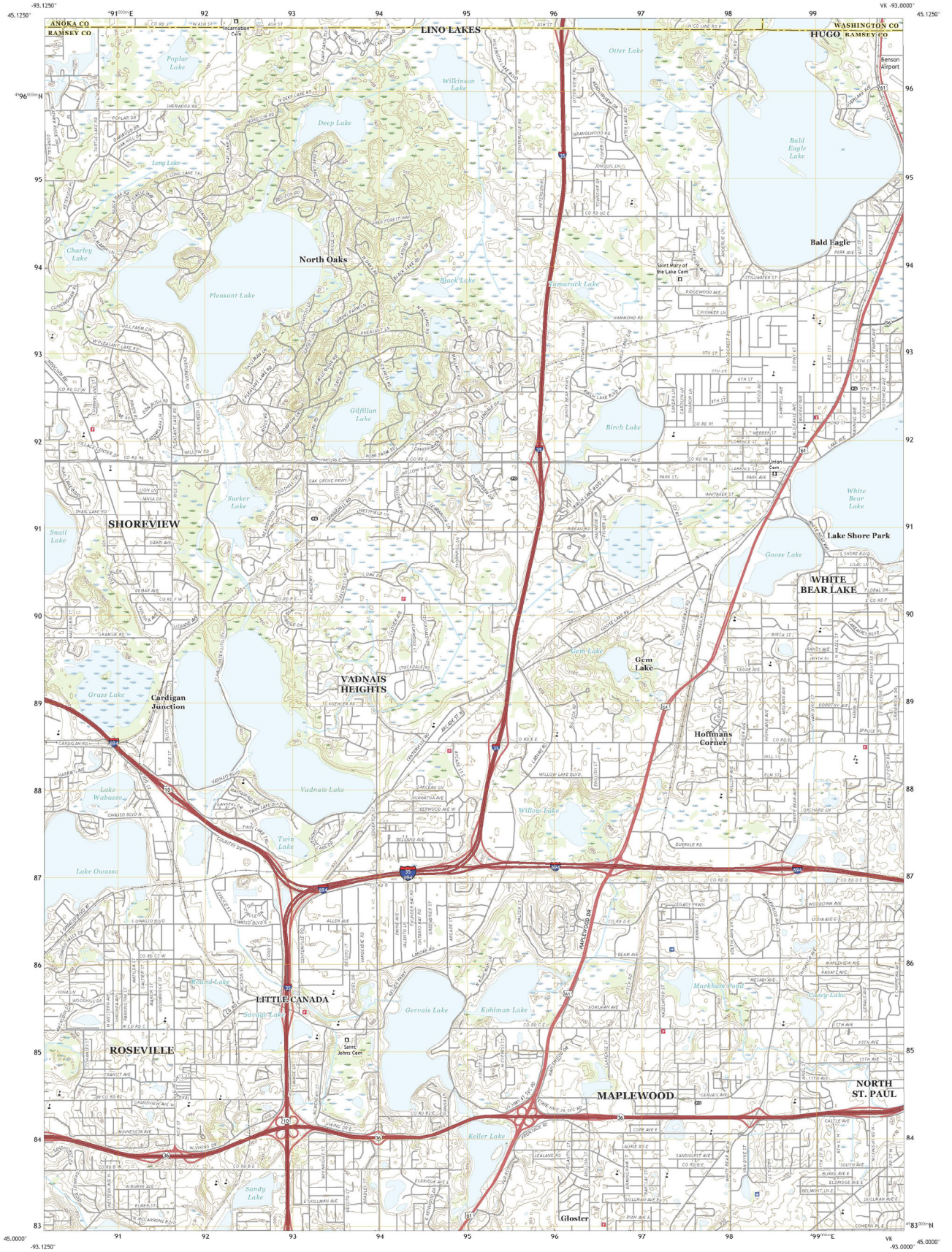
Title Program Development Coordinator


Thornhill La
County Road F
BRANCH DITCH #3
PRIVATE PARCELS
DITCH 14
LAMBERT CREEK
SHEETPILE REPLACEMENT
STORMWATER RETENTION BASIN
DITCH 14
LAMBERT CREEK
PROPOSED MEANDER
ABANDONED DITCH 14 ALIGNMENT
CITY OF VADNAIS HEIGHTS PARCEL
Alpine Ave
Horizon St
ANOKA
LAMBERT LAKE
VLAWMO
RAMSEY
HENNEPIN
WASHINGTON
61
35W
694
35E
394
94
494
parcel boundaries
ponding easements
DNR public water: 62-0030-00
current ditches & streams
sheetpile replacement alignment
top banks of proposed meander
native shrub restoration areas
ditch alignment fill areas
project staging area
project construction limits
0 100 200 400 Feet
N

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WHITE BEAR LAKE WEST QUADRANGLE
MINNESOTA
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 15T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, October 2017 - November 2017
Roads.....U.S. Census Bureau, 2016
Names.....GNIS, 1980 - 2019
Hydrography.....National Hydrography Dataset, 2001 - 2018
Contours.....National Elevation Dataset, 2016
Boundaries.....Multiple sources; see metadata file 2017 - 2018
Public Land Survey System.....BLM, 2017
Wetlands.....FWS National Wetlands Inventory 2010

UTM GRID AND 2018 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
VK
Grid Zone Designation
15T

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

MINNESOTA
QUADRANGLE LOCATION

1 Circle Pines
2 Centerville
3 Hugo
4 New Brighton
5 White Bear Lake East
6 Saint Paul West
7 Saint Paul East
8 Lake Elmo
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

WHITE BEAR LAKE WEST, MN
2019

NSN REF NO. USGS24X46024

VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION

CITY OF
VADNAIS HEIGHTS, MN

LAMBERT LAKE IMPROVEMENTS

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

N

N.T.S.

NOTES:
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 ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.

ELEVATIONS SHOWN ARE IN NAVD88

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

GOVERNING SPECIFICATIONS

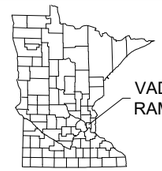
THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.

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 10 SHEETS.

PROJECT LOCATION



VADNAIS HEIGHTS
RAMSEY COUNTY

APPROVED:

XXXXX _____ DATE _____

VADNAIS HEIGHTS, MINNESOTA

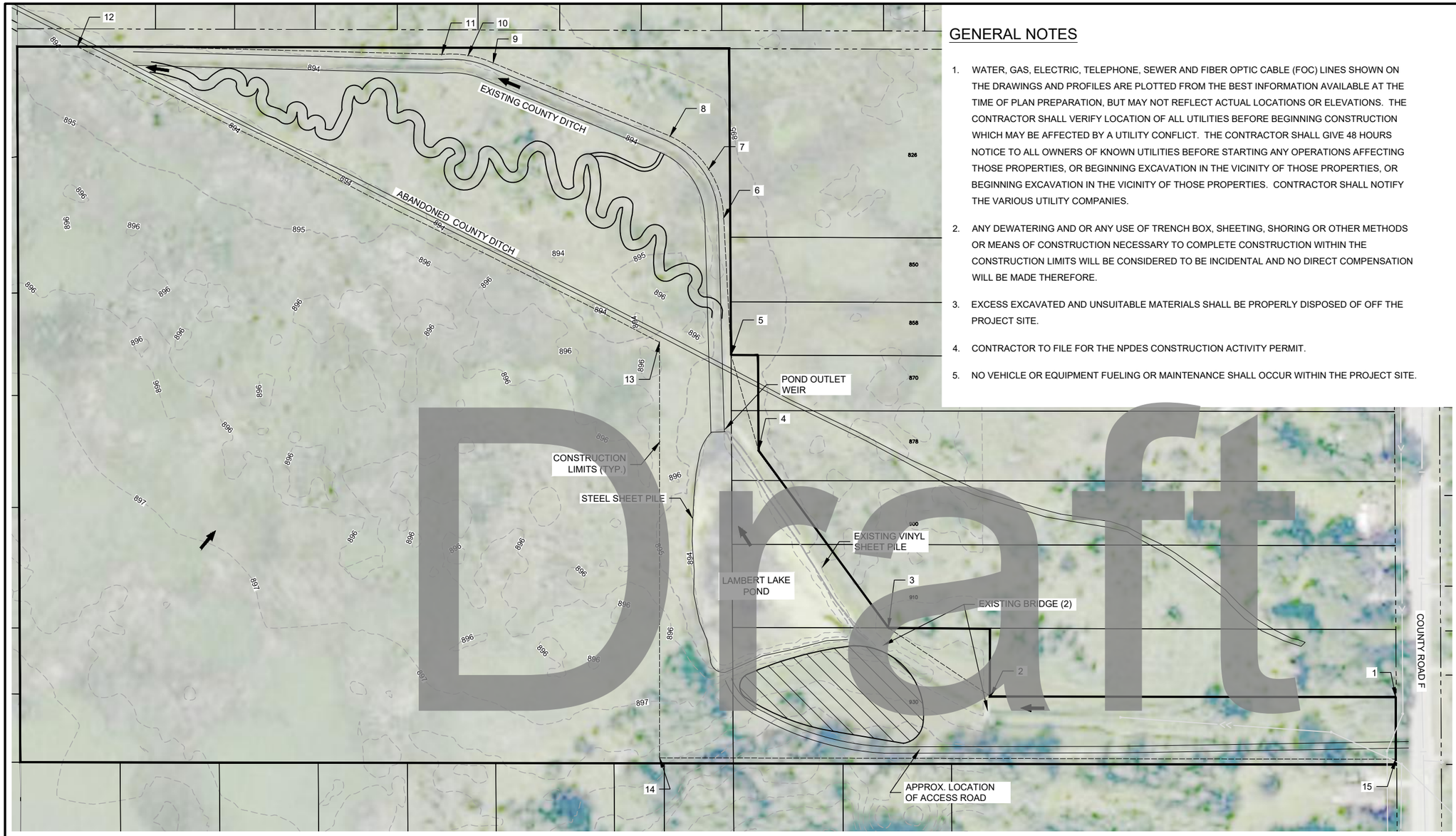
SEH
PHONE: 651.490.2000
3535 VADNAIS CENTER DRIVE
ST. PAUL, MN 55110-5196
www.sehinc.com

FILE NO. 153931

Emily Jennings, P.E.
Signature

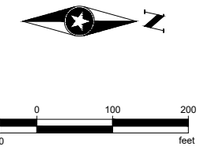
Date: 02.12.2020 Lic. No. 56622

1/10



GENERAL NOTES

1. WATER, GAS, ELECTRIC, TELEPHONE, SEWER AND FIBER OPTIC CABLE (FOC) LINES SHOWN ON THE DRAWINGS AND PROFILES ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION, BUT MAY NOT REFLECT ACTUAL LOCATIONS OR ELEVATIONS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCTION WHICH MAY BE AFFECTED BY A UTILITY CONFLICT. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO ALL OWNERS OF KNOWN UTILITIES BEFORE STARTING ANY OPERATIONS AFFECTING THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES. CONTRACTOR SHALL NOTIFY THE VARIOUS UTILITY COMPANIES.
2. ANY DEWATERING AND OR ANY USE OF TRENCH BOX, SHEETING, SHORING OR OTHER METHODS OR MEANS OF CONSTRUCTION NECESSARY TO COMPLETE CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.
3. EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE PROPERLY DISPOSED OF OFF THE PROJECT SITE.
4. CONTRACTOR TO FILE FOR THE NPDES CONSTRUCTION ACTIVITY PERMIT.
5. NO VEHICLE OR EQUIPMENT FUELING OR MAINTENANCE SHALL OCCUR WITHIN THE PROJECT SITE.



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	4	198689.3800	582638.9600
	5	198638.3730	582462.2939
	6	198624.7669	582208.7442
	7	198597.1266	582118.4631
	8	198525.4799	582056.9700
	9	198197.6474	581921.5728
	10	198151.2207	581907.4299
	11	198102.7223	581905.5948
	12	197427.2106	581891.3868
	13	198505.9986	582438.7211
	14	198505.9986	583208.1582
	15	199870.1421	583210.7953

NOTES:

1. ALL CONSTRUCTION MATERIALS AND EQUIPMENT SHALL BE KEPT IN THE STAGING AREA.
2. LOCATION OF MATERIAL STOCKPILES SHALL BE APPROVED BY THE ENGINEER.
3. CONTRACTOR SHALL SUBMIT STAGING AND ACCESS PLANS TO THE ENGINEER FOR REVIEW.

LEGEND

- STAGING AREA
- PARCEL BOUNDARIES
- EASEMENT LIMITS
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- EXISTING STORM SEWER STRUCTURE
- FLOW ARROW

DRAWN BY: HRC
DESIGNER: EKJ
CHECKED BY: EKJ
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

GENERAL SITE PLAN
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

2 / 10

NOTES:

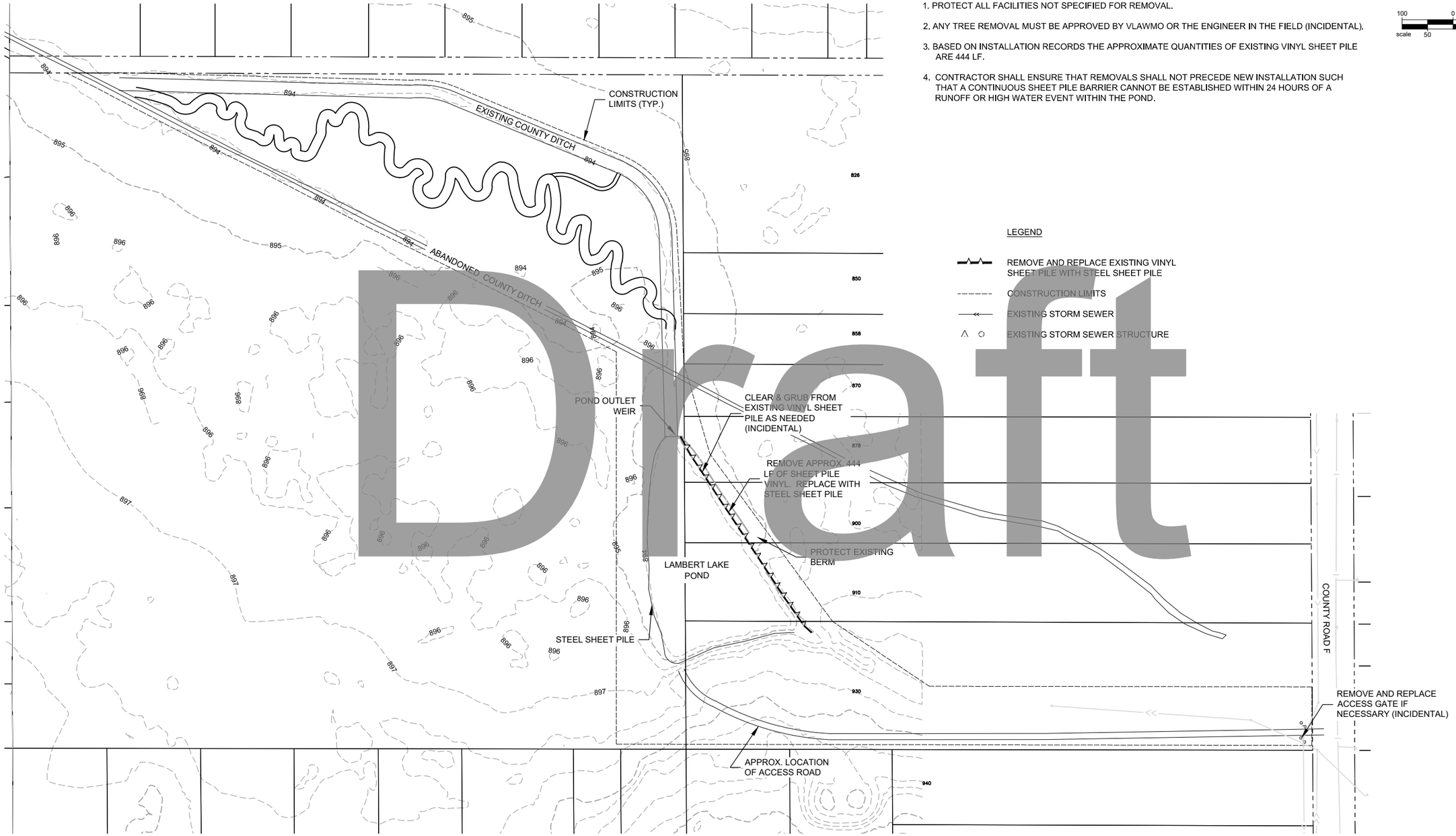
1. PROTECT ALL FACILITIES NOT SPECIFIED FOR REMOVAL.
2. ANY TREE REMOVAL MUST BE APPROVED BY VLAWMO OR THE ENGINEER IN THE FIELD (INCIDENTAL).
3. BASED ON INSTALLATION RECORDS THE APPROXIMATE QUANTITIES OF EXISTING VINYL SHEET PILE ARE 444 LF.
4. CONTRACTOR SHALL ENSURE THAT REMOVALS SHALL NOT PRECEDE NEW INSTALLATION SUCH THAT A CONTINUOUS SHEET PILE BARRIER CANNOT BE ESTABLISHED WITHIN 24 HOURS OF A RUNOFF OR HIGH WATER EVENT WITHIN THE POND.

N

100 0 100 200
scale 50 feet

LEGEND

- REMOVE AND REPLACE EXISTING VINYL SHEET PILE WITH STEEL SHEET PILE
- CONSTRUCTION LIMITS
- EXISTING STORM SEWER
- EXISTING STORM SEWER STRUCTURE



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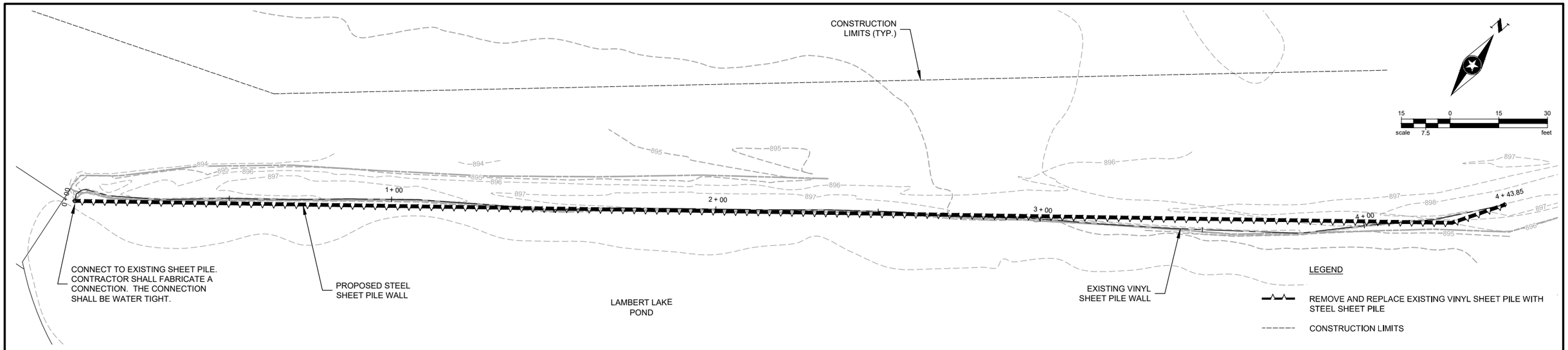
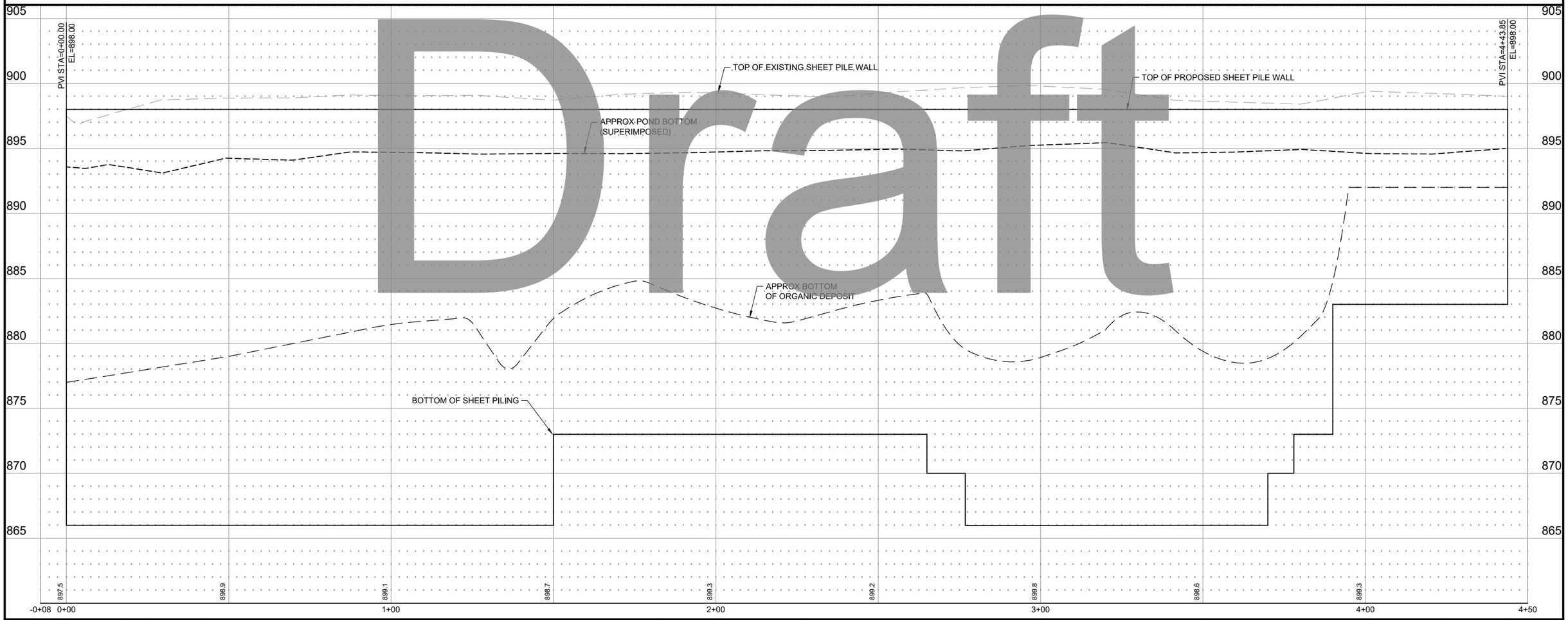
DRAWN BY: HRC DESIGNER: EKJ CHECKED BY: EKJ DESIGN TEAM	NO.	BY	DATE	REVISIONS	SEH PHONE: 651.490.2000 3535 VADNAIS CENTER DRIVE ST. PAUL, MN 55110-5196 www.sehinc.com	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Emily K. Jennings, PE Date: 04.15.2020 Lic. No. 56622	VADNAIS HEIGHTS, MINNESOTA	**REMOVAL PLAN** **LAMBERT LAKE POND IMPROVEMENTS**	FILE NO. 153931	3 / 10





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DRAWN BY: HRC				
DESIGNER: EKJ				
CHECKED BY: EKJ				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

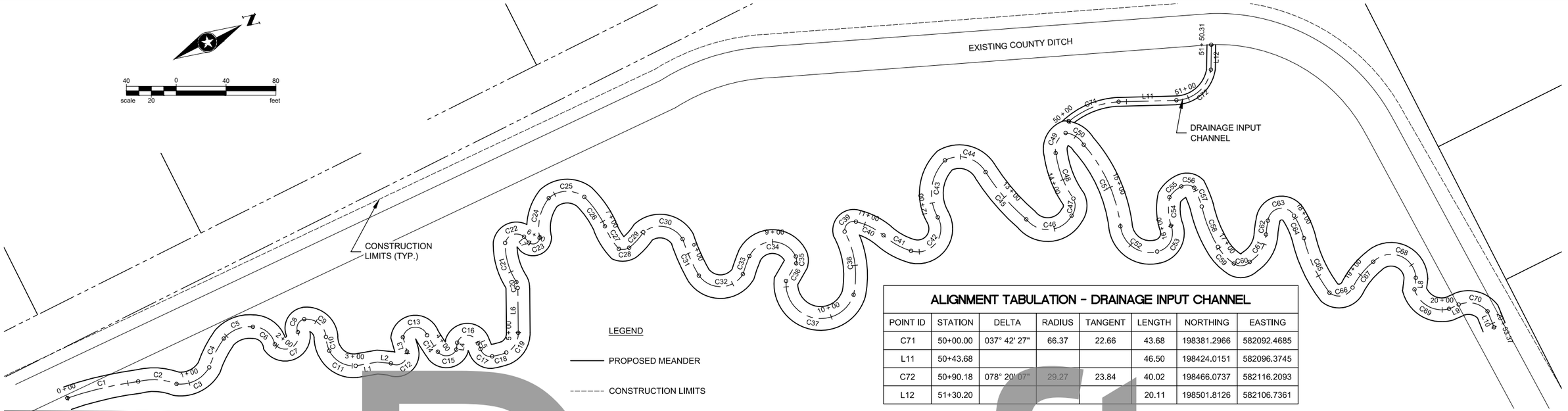
Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

SHEET PILE WALL PLAN & PROFILE
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

4/10



ALIGNMENT TABULATION - DRAINAGE INPUT CHANNEL

POINT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING
C71	50+00.00	037° 42' 27"	66.37	22.66	43.68	198381.2966	582092.4685
L11	50+43.68				46.50	198424.0151	582096.3745
C72	50+90.18	078° 20' 07"	29.27	23.84	40.02	198466.0737	582116.2093
L12	51+30.20				20.11	198501.8126	582106.7361

ALIGNMENT TABULATION - PROPOSED MEANDER

POINT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING
C1	0+00.00	011° 37' 40"	287.85	29.31	58.42	197563.1586	581929.3191
C2	0+58.42	035° 10' 49"	51.14	16.21	31.40	197619.8572	581942.9583
C3	0+89.82	067° 12' 14"	26.52	17.62	31.11	197646.5723	581958.5070
C4	1+20.93	016° 59' 42"	88.26	13.19	26.18	197675.9302	581958.4497
C5	1+47.11	055° 07' 21"	27.12	14.15	26.09	197696.8986	581942.9371
C6	1+73.20	078° 09' 39"	17.91	14.55	24.44	197721.8973	581945.1225
C7	1+97.63	157° 09' 50"	10.66	52.79	29.25	197731.3443	581965.6371
C8	2+26.88	106° 16' 58"	7.23	9.64	13.41	197752.2424	581965.2063
C9	2+40.29	091° 37' 37"	15.72	16.18	25.15	197761.4750	581958.2352
C10	2+65.44	026° 09' 39"	25.21	5.86	11.51	197770.7518	581978.7908
C11	2+76.95	069° 04' 37"	21.49	14.79	25.91	197768.1278	581989.8962
L1	3+02.86				17.65	197781.5879	582010.2097
L2	3+20.51				10.87	197798.4660	582015.3732
C12	3+31.37	131° 57' 42"	8.79	19.73	20.25	197807.6669	582021.1565
L3	3+51.62				11.86	197823.4994	582018.4723
C13	3+63.48	147° 56' 38"	10.16	35.37	26.24	197825.7512	582006.8308
C14	3+89.72	006° 12' 12"	145.89	7.91	15.80	197843.8731	582014.1232
C15	4+05.51	114° 31' 40"	8.91	13.86	17.81	197845.5642	582029.8205
L4	4+23.32				5.53	197859.6666	582034.9009
C16	4+28.86	146° 10' 10"	8.79	28.90	22.42	197862.6742	582030.2568
L5	4+51.28				4.99	197877.4358	582038.3169
C17	4+56.27	081° 35' 46"	8.43	7.28	12.01	197877.1171	582043.3004
C18	4+68.29	011° 18' 55"	60.13	5.96	11.87	197882.8187	582052.7331
C19	4+80.16	065° 06' 51"	17.26	11.02	19.61	197894.4252	582055.1491
L6	4+99.77				36.00	197910.1273	582045.2285
C20	5+35.77	034° 51' 01"	8.03	2.52	4.88	197925.9739	582012.9078
C21	5+40.65	034° 05' 23"	55.73	17.09	33.16	197927.0224	582008.2151
C22	5+73.81	119° 22' 58"	9.23	15.78	19.22	197933.1479	581976.1247

ALIGNMENT TABULATION - PROPOSED MEANDER

POINT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING
L7	5+93.03				6.08	197948.8920	581978.5566
C23	5+99.11	122° 52' 03"	5.39	9.91	11.57	197950.2868	581984.4760
C24	6+10.68	049° 43' 58"	38.84	18.00	33.72	197959.7562	581984.8134
C25	6+44.40	078° 44' 50"	22.50	18.46	30.92	197980.5877	581959.6481
C26	6+75.32	021° 01' 57"	78.97	14.66	28.99	198006.4532	581971.7230
C27	7+04.31	022° 20' 40"	54.86	10.83	21.39	198010.6910	582000.2361
C28	7+25.70	046° 55' 36"	10.51	4.56	8.61	198012.5503	582021.4129
C29	7+34.32	018° 36' 41"	52.00	8.52	16.89	198020.4060	582024.3103
C30	7+51.21	099° 11' 52"	21.00	24.67	36.36	198036.0985	582018.2662
C31	7+87.56	011° 16' 34"	163.71	16.16	32.22	198061.7709	582037.3443
C32	8+19.78	111° 40' 13"	21.39	31.51	41.69	198060.3000	582069.4770
C33	8+61.47	006° 50' 04"	129.36	7.72	15.43	198092.4018	582084.3855
C34	8+76.90	129° 04' 58"	20.66	43.40	46.55	198103.5321	582073.7124
C35	9+23.45	031° 22' 40"	10.12	2.84	5.54	198136.6973	582090.8086
C36	9+28.99	000° 35' 15"	1588.66	8.15	16.29	198134.4926	582095.8178
C37	9+45.28	166° 20' 39"	27.87	232.79	80.92	198120.8849	582104.7730
C38	10+26.21	040° 03' 34"	74.83	27.28	52.32	198164.3322	582139.0686
C39	10+78.52	112° 38' 59"	7.25	10.87	14.25	198180.7456	582090.5110
C40	10+92.77	026° 49' 33"	53.18	12.68	24.90	198192.4194	582087.4838
C41	11+17.67	025° 45' 07"	56.99	13.03	25.61	198207.2354	582107.2122
C42	11+43.28	136° 16' 34"	18.55	46.25	44.13	198221.3787	582128.3082
C43	11+87.41	075° 39' 53"	37.57	29.18	49.62	198252.7175	582114.0231
C44	12+37.03	089° 45' 39"	24.07	23.97	37.71	198278.3525	582075.7178
C45	12+74.75	016° 34' 48"	173.66	25.30	50.25	198303.2696	582098.8136
C46	13+25.00	111° 55' 57"	22.00	32.58	42.98	198315.4406	582147.3891
C47	13+67.98	066° 02' 48"	12.58	8.18	14.50	198349.2680	582161.0118
C48	13+82.48	027° 19' 11"	82.98	20.17	39.57	198356.7193	582149.5048
C49	14+22.05	078° 30' 38"	14.25	11.64	19.53	198360.4646	582110.4908

ALIGNMENT TABULATION - PROPOSED MEANDER

POINT ID	STATION	DELTA	RADIUS	TANGENT	LENGTH	NORTHING	EASTING
C50	14+41.58	055° 58' 03"	18.54	9.85	18.11	198374.8071	582099.5582
C51	14+59.69	034° 03' 57"	122.68	37.58	72.94	198383.5865	582114.5829
C52	15+32.63	097° 14' 04"	23.78	26.99	40.35	198380.4973	582186.3877
C53	15+72.98	102° 10' 53"	15.11	18.71	26.94	198397.6223	582217.6882
C54	15+99.92	028° 34' 35"	46.57	11.86	23.23	198416.8885	582204.2166
C55	16+23.15	033° 16' 04"	22.54	6.73	13.09	198426.1177	582183.1628
C56	16+36.24	072° 26' 38"	8.85	6.48	11.18	198438.5460	582179.6844
C57	16+47.42	008° 52' 35"	104.43	8.11	16.18	198447.2967	582185.4045
C58	16+63.60	019° 14' 49"	104.22	17.67	35.01	198445.9653	582201.5116
C59	16+98.61	026° 08' 40"	40.88	9.49	18.65	198442.9693	582236.2272
C60	17+17.26	083° 47' 13"	9.62	8.63	14.07	198448.3375	582253.9231
C61	17+31.33	053° 45' 08"	28.26	14.32	26.51	198460.3503	582258.4846
C62	17+57.84	009° 42' 18"	66.65	5.66	11.29	198481.8860	582244.7372
C63	17+69.13	147° 56' 28"	11.08	38.57	28.61	198488.3115	582235.4703
C64	17+97.75	016° 37' 53"	67.98	9.94	19.73	198508.7790	582241.3737
C65	18+17.48	024° 27' 47"	114.25	24.77	48.78	198507.7305	582261.0105
C66	18+66.26	102° 30' 51"	12.14	15.13	21.72	198506.4387	582309.4025
C67	18+87.98	024° 11' 10"	63.86	13.68	26.96	198524.7961	582314.0653
C68	19+14.94	132° 37' 39"	19.94	45.46	46.16	198549.1359	582302.9476
L8	19+61.10				9.39	198573.7538	582329.9268
C69	19+70.50	088° 20' 00"	22.79	22.14	35.13	198568.5802	582337.7673
L9	20+05.63				8.49	198586.3265	582364.1022
C70	20+14.12	072° 21' 02"	20.13	14.72	25.42	198594.8042	582364.5588
L10	20+39.54				13.83	198613.0699	582379.7634

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DRAWN BY:	HRC
DESIGNER:	EKJ
CHECKED BY:	EKJ
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

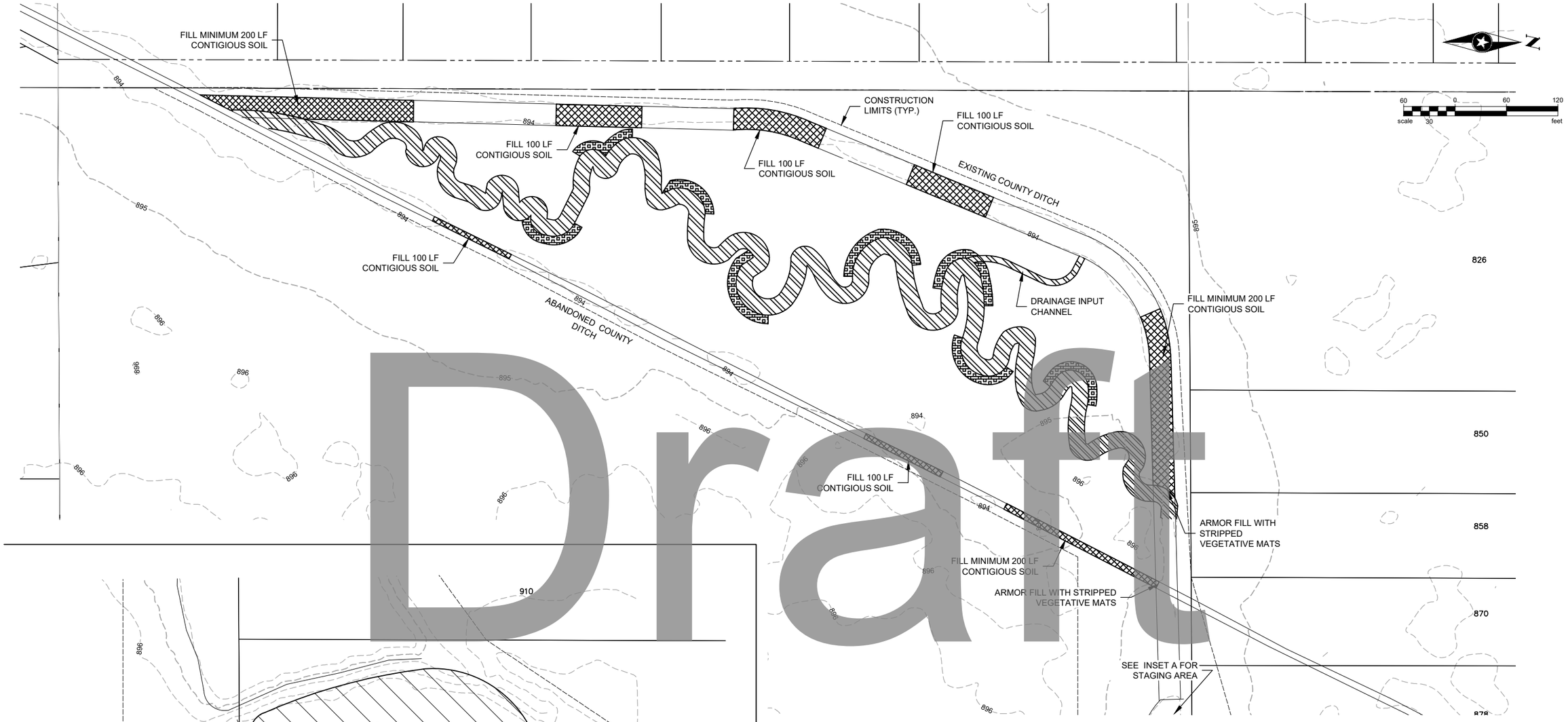
VADNAIS HEIGHTS, MINNESOTA

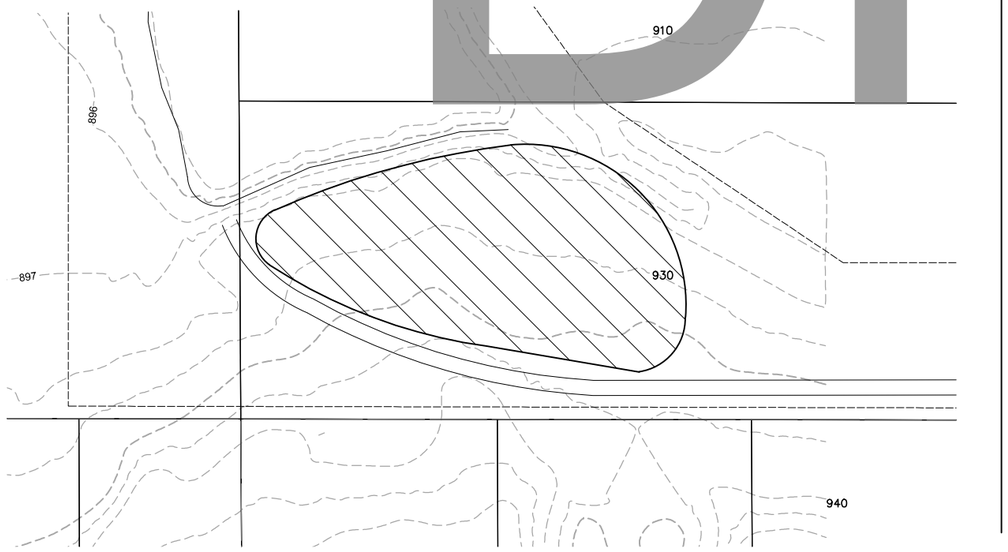
MEANDER PLAN

LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

5/10





INSET A- STAGING AREA

LEGEND

- PROPOSED FILL AREA OF EXISTING DITCHES RESTORE WITH MINNESOTA STATE SEED MIX 34-261
- MEANDERING CHANNEL RESTORE WITH MINNESOTA STATE SEED MIX 34-181
- SHRUB PLANTING AREA RESTORE WITH MINNESOTA STATE SEED MIX 34-261 AS BASE LAYER
- STAGING AREA RESTORE WITH MINNESOTA STATE SEED MIX 35-241, AS DIRECTED BY ENGINEER
- CONSTRUCTION LIMITS

NOTES:

1. FILL MATERIAL SHALL BE CONTIGIOUS AND FORM ONE SOLID MASS OF MATERIAL WITH ORGANIC SOILS ON TOP AND MINERAL SOILS IN BOTTOM (IF PRESENT).
2. FILL SHOULD BE FREE OF WOODY DEBRIS AND ROCKS.
3. BACKFILL SHALL BE PLACED IN 1 FOOT LIFTS AND BUCKET TAMPED OR COMPACTED WITH TRACKED EQUIPMENT TO MINIMIZE VOIDS.
4. NO FILL SHALL BE PLACED IN THE EXISTING COUNTY DITCH UNTIL THE PROPOSED MEANDER IS ON-LINE AND STABILIZED.
5. AVOID EXCESS COMPACTION IN RESTORATION AREAS.
6. ALL AREAS NOT SPECIFIED AND DISTURBED WITHIN THE WETLAND AREA SHALL BE RESTORED WITH MINNESOTA STATE SEED MIX 34-171.
7. ALL RESTORED AREAS SHALL BE STABILIZED WITH EROSION CONTROL BLANKET, CATEGORY 3N.
8. RESTORATION OF THE STAGING AREA IS REQUIRED TO RESTORE THE AREA BACK TO ITS ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE (INCIDENTAL).

DRAWN BY: HRC
DESIGNER: EKJ
CHECKED BY: EKJ
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

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Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

FILL & PERMANENT RESTORATION
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

6/10

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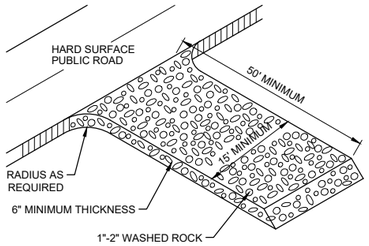
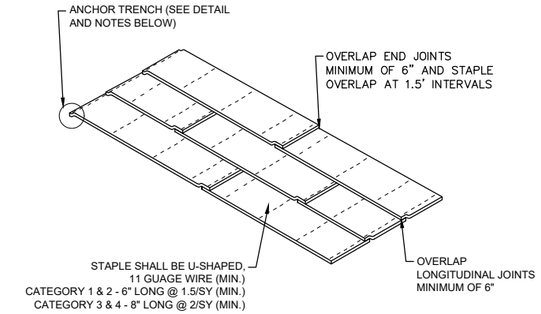


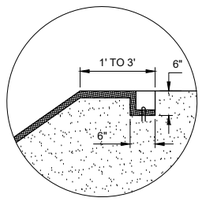
NOTE:
TO PREVENT TRACKING OF MUD ONTO PAVED ROADS, INSTALL ADDITIONAL ROCK OR REMOVE AND REPLACE THE PAD AS REQUIRED

NTS

SEH	ROCK CONSTRUCTION ENTRANCE	Revised: Oct. 2011	SEH Plate No. ERO-35

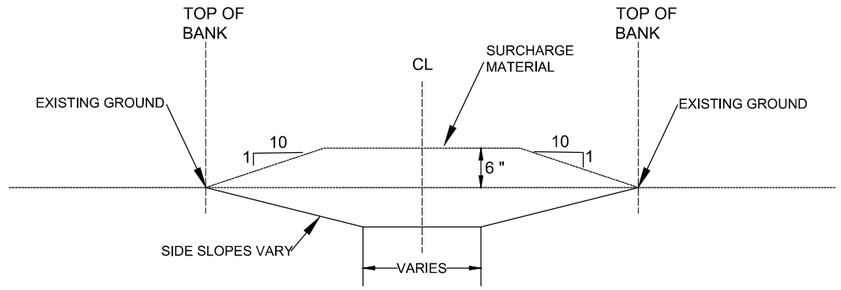


ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH

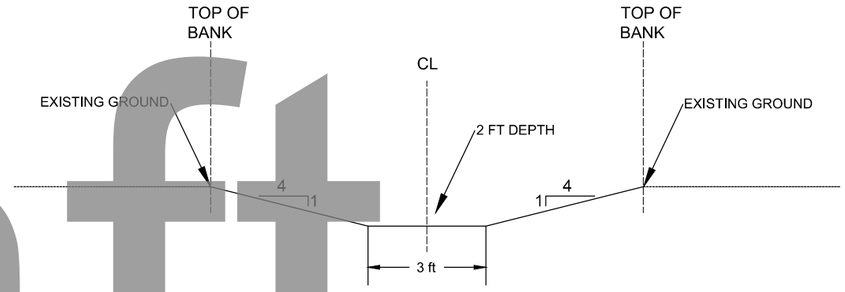


NTS

SEH	EROSION CONTROL BLANKET INSTALLATION	Revised: Oct. 2011	SEH Plate No. ERO-11

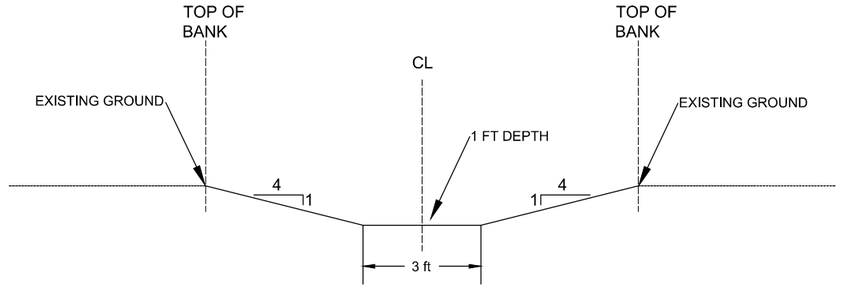


TYPICAL PROPOSED FILL CROSS SECTION FOR EXISTING COUNTY DITCH AND ABANDONED COUNTY DITCH



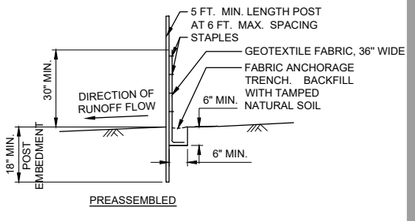
TYPICAL PROPOSED MEANDER CROSS SECTION

STA. 0+00 TO STA. 20+53.37

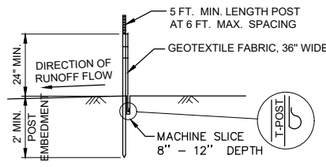


TYPICAL PROPOSED DRAINAGE INPUT CHANNEL CROSS SECTION

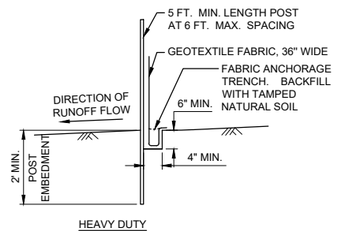
STA. 50+00 TO STA. 51+50.31



PREASSEMBLED



STANDARD MACHINE SLICED

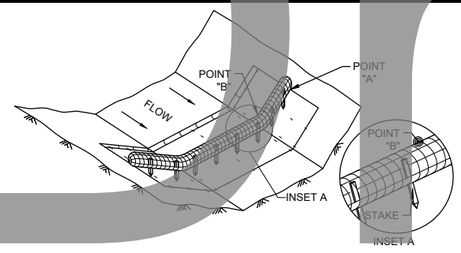


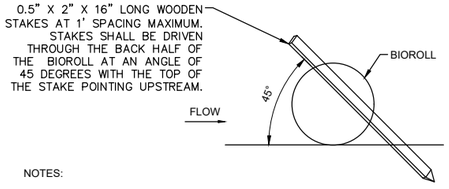
HEAVY DUTY

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

NTS

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





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 THAT TEN PERCENT SLOPE.

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

NTS

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

DRAWN BY: HRC	NO.	BY	DATE	REVISIONS
DESIGNER: EKJ				
CHECKED BY: EKJ				
DESIGN TEAM				

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

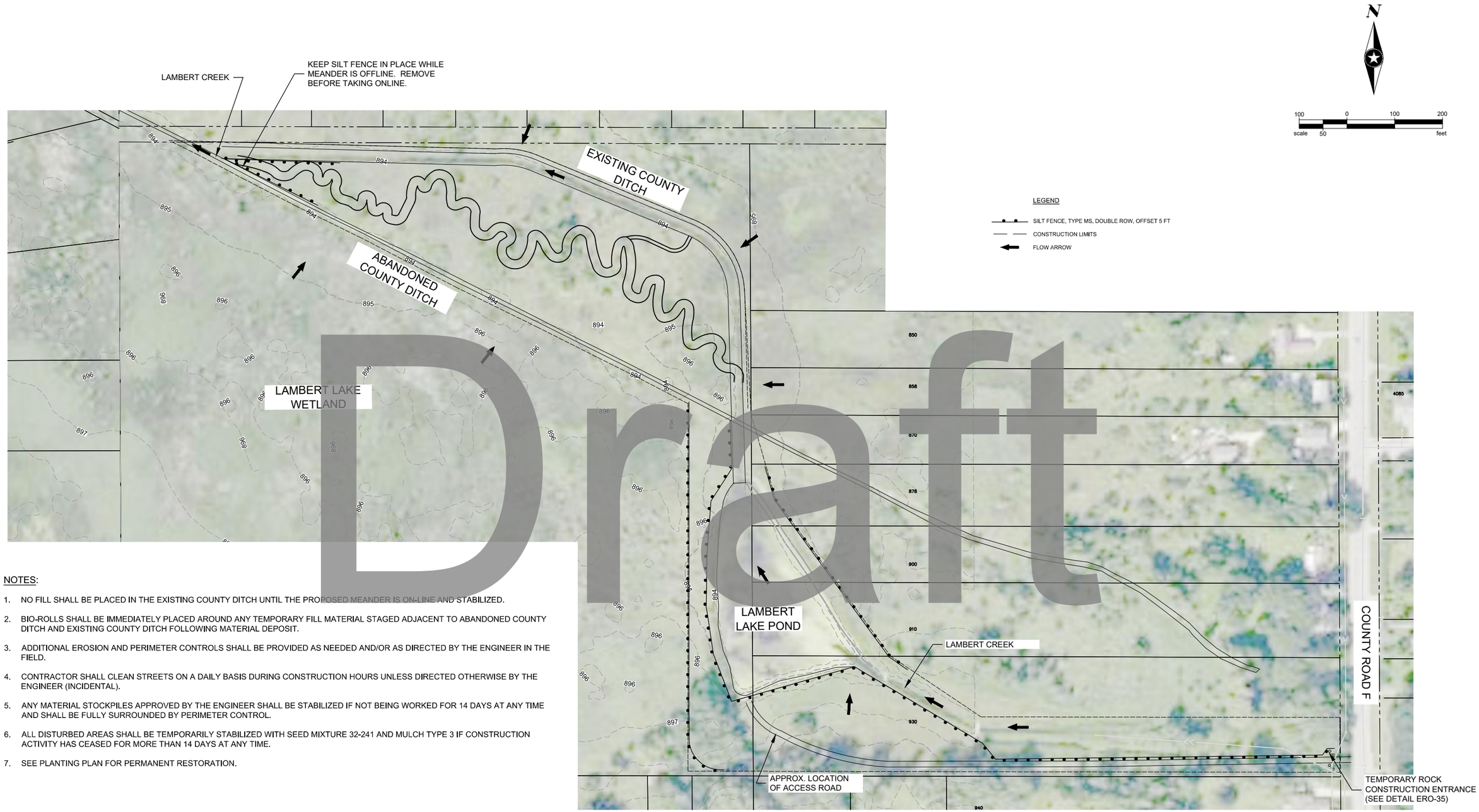
Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

DETAILS & TYP. SECTIONS
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

7 / 10



NOTES:

1. NO FILL SHALL BE PLACED IN THE EXISTING COUNTY DITCH UNTIL THE PROPOSED MEANDER IS ON-LINE AND STABILIZED.
2. BIO-ROLLS SHALL BE IMMEDIATELY PLACED AROUND ANY TEMPORARY FILL MATERIAL STAGED ADJACENT TO ABANDONED COUNTY DITCH AND EXISTING COUNTY DITCH FOLLOWING MATERIAL DEPOSIT.
3. ADDITIONAL EROSION AND PERIMETER CONTROLS SHALL BE PROVIDED AS NEEDED AND/OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
4. CONTRACTOR SHALL CLEAN STREETS ON A DAILY BASIS DURING CONSTRUCTION HOURS UNLESS DIRECTED OTHERWISE BY THE ENGINEER (INCIDENTAL).
5. ANY MATERIAL STOCKPILES APPROVED BY THE ENGINEER SHALL BE STABILIZED IF NOT BEING WORKED FOR 14 DAYS AT ANY TIME AND SHALL BE FULLY SURROUNDED BY PERIMETER CONTROL.
6. ALL DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED WITH SEED MIXTURE 32-241 AND MULCH TYPE 3 IF CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 14 DAYS AT ANY TIME.
7. SEE PLANTING PLAN FOR PERMANENT RESTORATION.

DRAWN BY: HRC
DESIGNER: EKJ
CHECKED BY: EKJ
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

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Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

EROSION & SEDIMENT CONTROL
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

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:	LAMBERT LAKE, SW OF THE INTERSECTION OF COUNTY ROAD F E AND CENTERVILLE ROAD
LATITUDE/LONGITUDE:	45.062119, -93.061986
PROJECT DESCRIPTION:	CREEK RESTORATION, SHEET PILE REPLACEMENT
SOIL DISTURBING ACTIVITIES:	EXCAVATION, FILL, GRADING, RESTORATION

CONTACTS:

OWNER:	CITY OF VADNAIS HEIGHTS
CONTACT:	JESSE FARRELL, PE
ADDRESS:	800 COUNTY RD E EAST, VADNAIS HEIGHTS, MN 55127
PHONE:	651-204-6050
EMAIL:	JESSE.FARRELL@CITYVADNAISHEIGHTS.COM

ENGINEER:	SHORT ELLIOTT HENDRICKSON INC. (SEH)
CONTACT:	EMILY JENNINGS, PE
PHONE:	651-302-7669
EMAIL:	EJENNINGS@SEHINC.COM
PROJECT NO.:	VADLA 153931

NOTE:
THIS PROJECT IS BEING FUNDED AND LED BY THE VADNAIS LAKE AREA WATER MANAGEMENT ORGANIZATION (VLAWMO). ADDITIONAL PROJECT CONTACT INCLUDES:

DAWN TANNER
PROGRAM DEVELOPMENT COORDINATOR
651-204-6074
DAWN.TANNER@VLAWMO.ORG

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	X
CONTACT	X
PHONE	X
EMAIL	X

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 21.4 OR 21.5, 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.

TRAINING DOCUMENTATION:

PREPARER/DESIGNER OF SWPPP:	EMILY JENNINGS, PE
EMPLOYER:	SHORT ELLIOTT HENDRICKSON INC. (SEH)
DATE OBTAINED / REFRESHED	REFRESHED APRIL 2020
INSTRUCTOR(S)/ENTITY PROVIDING TRAINING:	UNIVERSITY OF MINNESOTA EROSION AND STORMWATER MANAGEMENT DESIGN OF CONSTRUCTION SWPPP

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:	15.0 AC
PRE-CONSTRUCTION IMPERVIOUS AREA:	0.0 AC
POST-CONSTRUCTION IMPERVIOUS AREA:	0.0 AC
IMPERVIOUS AREA ADDED:	0.0 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
XX	LAMBERT	CREEK	NO	YES	NON-CONSTRUCTION RELATED	NON-CONSTRUCTION RELATED
XX	EAST VADNAIS	LAKE	NO	YES	NON-CONSTRUCTION RELATED	N/A
ADDITIONAL BMPS AND/OR ACTIONS REQUIRED:						
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:
MUCK	D
ANTICIPATED RANGE OF PARTICLE SIZES	LOAMY/FINE SILTS/SANDS

RELATED REVIEWS & PERMITS:
ENVIRONMENTAL, WETLAND, ENDANGERED OR THREATENED SPECIES, ARCHEOLOGICAL, LOCAL, STATE, AND/OF FEDERAL REVIEWS/PERMITS:

AGENCY:	TYPE OF PERMIT:
VLAWMO (LGU)	WCA
DNR PUBLIC WATERS WORK PERMIT	PUBLIC WATER WORKS PERMIT
USACE	SECTION 404 PERMIT

PROJECT SPECIFIC NOTES:
THE PROJECT INCLUDE RESTORING A PORTION OF LAMBERT CREEK TO A MEANDERING STREAM TO BETTER UTILIZE THE LAMBERT LAKE FLOODPLAIN AND IMPROVE WATER QUALITY, HABITAT, AND ECOLOGY. AN EAW WAS PREPARED AND SHOULD BE REVIEWED PRIOR TO CONSTRUCTION.

THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE SWPPP:
GENERAL SITE PLAN: 2
MEANDER PLAN: 5
FILL AND TEMPORARY RESTORATION: 6
DETAILS & TYPICAL SECTIONS: 7
EROSION & SEDIMENT CONTROL: 8
SWPPP NOTE AND DETAIL SHEETS: 9-10
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.

TEMPORARY SEDIMENT BASINS:
THE CONTRACTOR SHALL INSTALL TEMPORARY SEDIMENT BASIN(S) INDICATED ON PLANS AND REQUIRED BY THE NPDES CONSTRUCTION PERMIT.

THE TEMPORARY BASIN MUST PROVIDE LIVE STORAGE FOR A CALCULATED VOLUME OF RUNOFF FROM A TWO (2)-YEAR, 24-HOUR STORM FROM EACH ACRE DRAINED TO THE BASIN OR 1,800 CUBIC FEET OF LIVE STORAGE PER ACRE DRAINED, WHICHEVER IS GREATER.

TEMPORARY SEDIMENT BASIN OUTLETS SHALL BE CONSTRUCTED TO PREVENT SHORT-CIRCUITING AND PREVENT THE DISCHARGE OF FLOATING DEBRIS.

OUTLET STRUCTURES MUST BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE TO MINIMIZE THE DISCHARGE OF POLLUTANTS.

BASINS MUST INCLUDE A STABILIZED EMERGENCY OVERFLOW, WITHDRAW WATER FROM THE SURFACE, AND PROVIDE ENERGY DISSIPATION AT THE OUTLET.

TEMPORARY SEDIMENT BASINS SHALL BE PROVIDED WITH ENERGY DISSIPATION AT ANY BASIN OUTLET TO PREVENT SOIL EROSION.

SEDIMENT BASINS MUST BE SITUATED OUTSIDE OF SURFACE WATERS AND ANY BUFFER ZONES, AND MUST BE DESIGNED TO AVOID THE DRAINING WATER FROM WETLANDS.

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	ACCESS AND STAGING
4	EXCAVATE MEANDER OFFLINE OF EXISTING CONVEYANCE, PLACE FILL TEMPORARILY ADJACENT TO EXISTING DITCHES AND INSTALL PERIMETER CONTROL IMMEDIATELY FOLLOWING PLACEMENT
5	INITIATE RESTORATION AND FINAL STABILIZATION WITHIN MEANDER AREA
6	PLACE STRATEGIC FILL AND BRING MEANDER ONLINE
7	COMPLETE FINAL GRADING AND STABILIZE DISTURBED AREAS
8	AFTER CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, REMOVE ACCUMULATED SEDIMENT, REMOVE BMPS, AND RE-STABILIZE ANY AREAS DISTURBED BY THEIR REMOVAL.

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DRAWN BY: HRC
DESIGNER: EKJ
CHECKED BY: EKJ
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

SWPPP
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

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.

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.

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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.

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
LAMBERT CREEK	50 FT	YES	THE PROJECT INCLUDES RESTORING A PORTION OF THE CREEK.
EAST VADNAIS LAKE	50 FT	NO	N/A

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.

DEWATERING AND BASIN DRAINING ACTIVITIES:
THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL DEWATERING AND SURFACE DRAINAGE REGULATIONS.

WATER FROM DEWATERING ACTIVITIES SHALL DISCHARGE TO A TEMPORARY AND/OR PERMANENT SEDIMENT BASIN.

IF WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN, IT SHALL BE TREATED WITH OTHER APPROPRIATE BMPS, TO EFFECTIVELY REMOVE SEDIMENT.

DISCHARGE THAT CONTAINS OIL OR GREASE MUST BE TREATED WITH AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE PRIOR TO DISCHARGE.

WATER FROM DEWATERING SHALL BE DISCHARGED IN A MANNER THAN DOES NOT CAUSE NUISANCE CONDITIONS, EROSION, OR INUNDATION OF WETLANDS.

BACKWASH WATER USED FOR FILTERING SHALL BE HAULED AWAY FOR DISPOSAL, RETURNED TO THE BEGINNING OF TREATMENT PROCESS, OR INCORPORATED INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION. THE CONTRACTOR SHALL REPLACE AND CLEAN FILTER MEDIAS USED IN DEWATERING DEVICES WHEN REQUIRED TO MAINTAIN ADEQUATE FUNCTION.

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.

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.

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DRAWN BY: HRC
DESIGNER: EKJ
CHECKED BY: EKJ
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Emily K. Jennings, PE
Date: 04.15.2020 Lic. No. 56622

VADNAIS HEIGHTS, MINNESOTA

SWPPP
LAMBERT LAKE POND IMPROVEMENTS

FILE NO. 153931

10/10

VLAWMO
Vadnais Lake Area Water Management Organization

Dawn Tanner <dawn.tanner@vlawmo.org>

Requesting concurrence

Bump, Samantha (DNR) <samantha.bump@state.mn.us> Thu, Apr 30, 2020 at 9:23 AM
To: Dawn Tanner <dawn.tanner@vlawmo.org>
Cc: "Collins, Melissa (DNR)" <Melissa.Collins@state.mn.us>, "Parris, Leslie (DNR)" <leslie.parris@state.mn.us>, "Hoaglund, Erica (DNR)" <erica.hoaglund@state.mn.us>, "Joyal, Lisa (DNR)" <lisa.joyal@state.mn.us>

Hi Dawn,

I have reviewed the attached assessment of the potential for the VLAWMO Lambert Lake project to impact rare features. I concur with your assessment and have the additional comments:

- Do not include the proximity of the polygons or the location details of state-listed species as it is non-public information.
- Avoidance needs to include contacting the Regional Nongame Specialist, Erica Hoaglund, if turtles are encountered.
- Include a more specific timeline for construction phases, so it is more clear.
    - For example, *the construction of the new meandered channel will take place between [beginning/mid/end of the month] and [beginning/mid/end of the month].*

Thank you for consulting with Erica on the development of the project details and please continue that coordination. The reference number for this correspondence is ERDB #20200248. Let me know if you have any questions.

Have a great day,
Samantha Bump
NHIS Review Specialist | Ecological & Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155
Phone: 651-259-5091
Samantha.Bump@state.mn.us

DEPARTMENT OF NATURAL RESOURCES

From: Dawn Tanner <dawn.tanner@vlawmo.org>
Sent: Wednesday, April 8, 2020 1:17 PM
To: Bump, Samantha (DNR) <samantha.bump@state.mn.us>; Joyal, Lisa (DNR) <lisa.joyal@state.mn.us>; Hoaglund, Erica (DNR) <erica.hoaglund@state.mn.us>
Cc: Collins, Melissa (DNR) <Melissa.Collins@state.mn.us>; Parris, Leslie (DNR) <leslie.parris@state.mn.us>
Subject: Re: Requesting concurrence

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DAWN TANNER, PhD
Program Development Coordinator
651.204.6074 | www.vlawmo.org
800 E County Rd E, Vadnais Heights, MN 55127
Vadnais Lake Area Water Management Organization

3 attachments

Finalized EAW Lambert excerpt for species of concern.docx
5272K

Attachment #1_LambertMeander-inset.pdf
3285K

Attachment #2_USGS Lambert Lake 7.5 24K1.pdf
17109K