

Applicant: Carter Schulze; City of Eden Prairie  
Consultant: Miranda Etienne; Bolton and Menk, Inc.  
Project: Willow Creek Road Culvert Replacement  
Location: Between 7221 and 7240 Willow Creek Road, Eden Prairie  
Applicable Rule(s): 2, 3, 4, 5 and 7  
Reviewer(s): Louise Heffernan and Janna Kieffer; Barr Engineering Co.

### **General Background & Comments**

The City of Eden Prairie (City) is proposing the replacement of deteriorating corrugated metal culverts beneath Willow Creek Road along the South Fork of Nine Mile Creek, a Minnesota Department of Natural Resources (MDNR) Public Watercourse. The culverts serve as the outlet to Bryant Lake, MDNR Public Water #67P.

The project is a linear project, as defined by the NMCWD rules, because the proposed land-disturbing activities include reconstruction of a public improvement, and reconstruction of utilities in a linear corridor. The project limits – i.e., the site, for purposes of the NMCWD rules analysis – are along Willow Creek Road from approximately 700 feet west of Bryant Lake Drive to approximately 850 feet northwest of Bryant Lake Drive, between 7221 and 7240 Willow Creek Road in Eden Prairie.

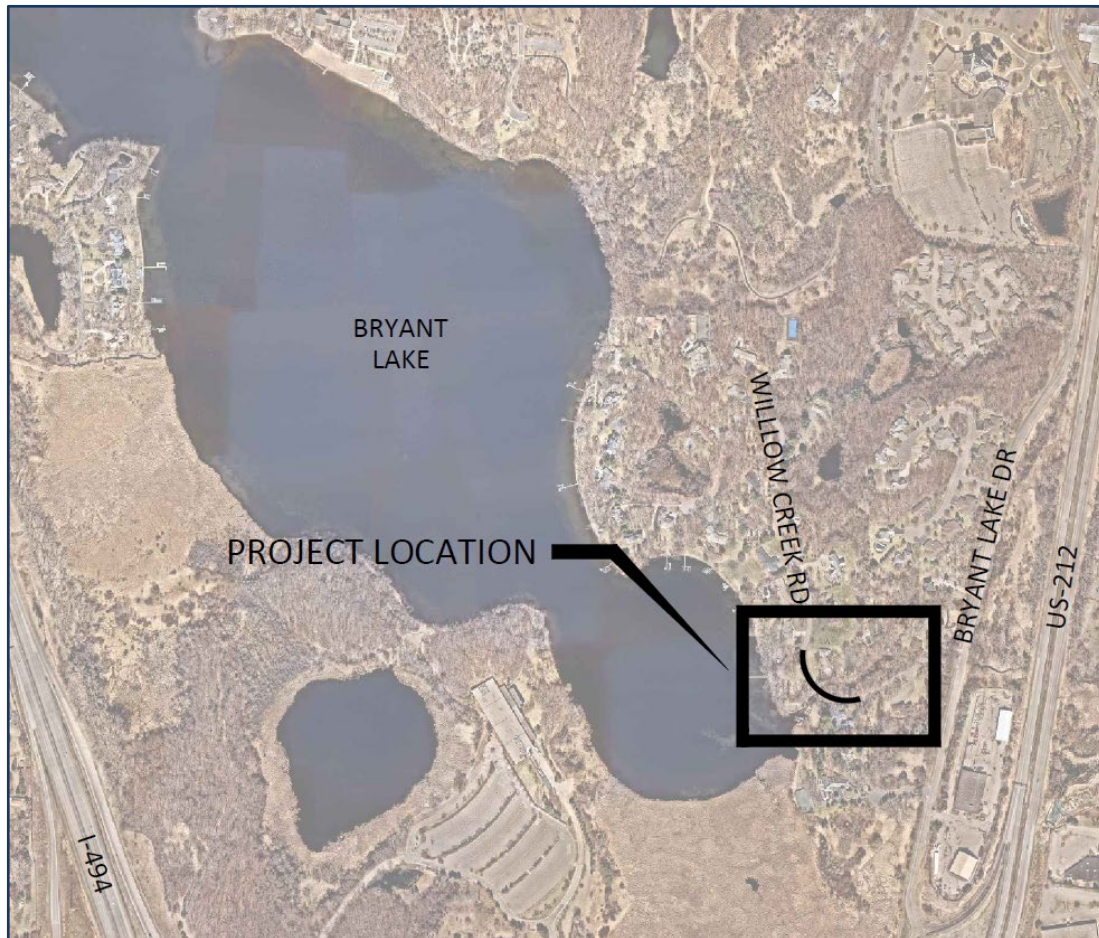
The project will include the following activities:

- Removal of the existing dual 29-inch by 42-inch corrugated metal arch culverts and installation of dual 43-inch by 26-inch reinforced concrete arch culverts.
- Installation of riprap, granular filter material and geotextile fabric with the new culverts.
- Removal and replacement of concrete and bituminous pavement along the project corridor for the purpose of utility reconstruction.
- Construction of a temporary access road, including placement of fill material below the 100-year flood elevation of the creek, upstream (west) of the roadway location, to allow residential access during the course of construction. The construction of the temporary access road results in temporary wetland impacts along the creek.
- Grading and retaining wall construction both upstream and downstream of the culverts to support the creek embankment adjacent to Willow Creek Road.

MDNR will exercise jurisdiction over the replacement of culverts because they function as the water-level control for Bryant Lake; Eden Prairie will need to obtain an individual permit from MDNR for the crossing. The application for this work under MDNR Permit #2022-3538 is currently under review. A NMCWD permit under Rule 6.0 Waterbody Crossings and Structures is not required for this portion of the work per subsection 6.2.1 of the NMCWD rules.

MDNR, however, has elected not to exercise jurisdiction over proposed streambank improvements that include reconstruction of a retaining wall and placement of riprap within the public waters. Under MDNR General Permit #1997-6112, NMCWD's approval of the work under NMCWD Rule 7.0 Streambank and Shoreline Improvements will constitute approval under the state Work in Waters rules.

**Figure 1.** The site.



**Exhibits Reviewed:**

1. Permit Application dated November 29, 2022, received December 20, 2022. Email correspondence dated December 28, 2022, January 19, 2023, February 1, 2023, February 7, 2023, February 22, 2023, outlining review comments and items required to complete the application. The application with the submittal items is complete.
2. Plans received December 20, 2022, January 7, 2023, January 9, 2023, January 19, 2023, and March 14, 2023 (dated February 16, 2023), prepared by Bolton and Menk, Inc.
3. Permit Narrative dated December 6, 2022 (received December 20, 2022), January 6, 2023 (received January 7, 2023 and February 1, 2023), March 14, 2023 (received March 14, 2023), prepared by Bolton and Menk, Inc.

4. Cut and Fill Report dated December 20, 2022 (received December 20, 2022, and January 7, 2023), prepared by Bolton and Menk, Inc.
5. XP-SWMM Model files provided on January 11, 2023, and March 14, 2023, prepared by Bolton and Menk, Inc.
6. Cut and Fill Diagram received January 27, 2023, prepared by Bolton and Menk, Inc.
7. Comment Response Memorandum received March 14, 2023, prepared by Bolton and Menk, Inc.
8. Flood Risk Assessment received March 14, 2023, and March 31, 2023, prepared by Bolton and Menk, Inc.
9. Joint Application Form for Activities Affecting Water Resources submitted on December 28, 2022, requesting a no-loss determination approval, prepared by Bolton and Menk, Inc.
10. Joint Application Form for Activities Affecting Water Resources submitted on September 2, 2021, requesting wetland boundary and type approval, prepared by Bolton and Menk, Inc.
11. E-mail received on March 31, 2023, from the MDNR stating the streambank improvements including retaining wall construction and placement of riprap along the public waters would be reviewed by NMCWD for compliance and in accordance with criteria General Permit #1997-6112. Written confirmation received on March 31, 2023, stating the MDNR will exercise its jurisdiction over the replacement of the crossing in contact with Bryant Lake and the creek.
12. Written correspondence received on January 24, 2023, from the MDNR waiving jurisdiction for the impacts in the wetlands below the OHWL to NMCWD.

## **2.0 Floodplain Management and Drainage Alterations**

Because the project will involve land-altering activities below the 100-year frequency flood elevation of the creek (854.7 M.S.L.), the project must conform to the requirements of NMCWD's Floodplain Management and Drainage Alterations Rule 2.0 in accordance with Rule 2.2.1. Proposed earth work and grading for utility improvements, placement of riprap, and construction of the temporary access road will be located below the 854.7 M.S.L. 100-year frequency flood elevation of the creek.

Under subsection 2.2.1a of the rule, riprap installation is exempt from the requirements set forth by NMCWD's Floodplain Management and Drainage Alterations Rule 2.0 because:

- The riprap will be installed to provide an energy dissipation measure to prevent scour by reducing the erosive force of concentrated stormwater.
- The riprap design and materials are consistent with the standards in the NMCWD Shoreline and Streambank Improvements Rule 7.0. See Section 7.0 *Shoreline and Streambank Improvements* of this report for Rule 7.0 conformance analysis.

Rule 2 criteria for floodplain and drainage alterations includes the following:

*2.3.1: The low floor elevation of all new and reconstructed buildings, bridges and boardwalks must be constructed in accordance with the NMCWD Stormwater Rule, subsection 4.3.3*

The project does not include new or reconstructed buildings, bridges or boardwalks that impose implications for the project.

*2.3.2: Placement of fill below the 100-year flood elevation is prohibited unless fully compensatory flood storage is provided within the floodplain and:*

- a. at the same elevation +/- 1 foot for fill in the floodplain; or*
- b. at or below the same elevation for fill in the floodplain of a water basin or constructed stormwater facility.*

The project will result in approximately 175 cubic yards of fill material placed below the 100-year flood management elevation of the creek, elevation 854.7 M.S.L. Rule 2.3.2 requires compensatory storage to be provided at the same elevation or +/- 1 foot for filling in the floodplain. The required 175 cubic yards of compensatory storage is proposed to be provided at elevations ranging from 850.5-854.7 M.S.L. complying with rule 2.3.2. The supporting materials demonstrate and the NMCWD engineer finds that the permanent impacts below the 100-year flood elevation are in conformance with Rule 2.3.2 criteria.

The project will result in approximately 162 cubic yards of temporary granular fill material placed below the creek's 100-year flood management elevation for a temporary access road during construction. Upon completion of the project, the fill will be removed. Creation of floodplain storage capacity to offset the temporary fill (approximately 162 cubic yards) will occur within the original permit term. The proposed project conforms to Rule 2.3.2 criteria.

*2.3.3. The District will issue a permit to alter surface flows only if it finds that the alteration is not reasonably likely to have a significant adverse impact on any upstream or downstream landowner and is not reasonably likely to have a significant adverse effect on flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.*

Because proposed grading activities, utility improvements, and construction of the temporary access road will alter surface flows, the applicant must demonstrate that the proposed alterations are not reasonably likely to have a significant adverse impact on any upstream or downstream landowner(s), flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat.

To demonstrate project activities are not reasonably likely to have significant adverse impacts on flow and basin/channel stability, peak discharges for the 2-, 10- and 100-year, 24-hour events were evaluated. The engineer finds that the proposed changes in the peak discharge rates, summarized in the table below, are not reasonably likely to have significant adverse impacts.

Location (XP-SWMM Node)	Peak Discharge Rates (c.f.s.) 100-year, 24-hour Event	
	Existing	Proposed
Project Area (EPCrk14_a)	56	56
Downstream (EPCrk15a)	55	56
Downstream (EPCrk15g.1)	55	56

The existing and proposed XP-SWMM models were used to evaluate pre-project and post-project flood elevations for determining impacts to upstream and downstream properties. A summary of this information is provided in the following table.

Location (XP-SWMM Node)	100-Year High Water Level (M.S.L.)		
	Existing	Proposed	Change
Upstream: Bryant Lake (EPCrk14_a)	854.7	854.7	0.0
Downstream (EPCrk15a)	854.1	854.2	0.1
Downstream (EPCrk15g.1)	852.8	852.9	0.1

The applicant proposes to replace the existing deteriorating dual 29-inch by 42-inch corrugated metal arch culverts with dual 26-inch by 43-inch reinforced concrete arch culverts to achieve in-kind hydraulic performance. The replacement with concrete arch pipes increases longevity and durability of the system. The change in the pipe material along with slight outlet characteristic modifications proposed will result in a culvert cross-sectional open area increase from 6.4 square feet to 6.5 square feet in proposed conditions. These changes result in a 0.1-foot increase in the flood elevation of the creek downstream from the project site.

To demonstrate that the 0.1-foot increase in the flood elevation is not reasonably likely to have significant adverse flood risk impacts, the applicant evaluated potentially impacted structures. Approximate elevations of structures (primarily single-family homes) adjacent to the creek were identified by intersecting building footprints with the 2011 MDNR LiDAR elevation data. Based on the modeling results, LiDAR data, and approximate structure locations, the materials demonstrate, and the engineer finds that no structures are impacted by the **existing** 100-year frequency flood elevation. Additionally, the **proposed** 0.1-foot increase in the 100-year flood elevation downstream from the project area will not result in structure impacts. The low floor elevation analysis demonstrates that the existing freeboard from the 100-year frequency flood elevation to the approximated low floor elevation of the structures ranges from approximately 2.5 to 23.0 feet in existing conditions, and 2.4 to 22.9 feet in proposed conditions. Because no additional structures are impacted as a result of the project, and the proposed freeboard reduction (0.1 feet) does not result in less than two feet of freeboard from the 100-year high water elevation for

existing structures (bridges, boardwalks or buildings), the applicant's materials demonstrate and the NMCWD engineer finds that the project is not likely to significantly adversely impact flood risk in conformance with subsection 2.3.3 criteria.

The grading and utility improvements are not likely to deter wildlife (such as waterfowl, amphibians, reptiles) from using the area, if currently used. Revegetation plans provided by the applicant propose native vegetation for the riparian areas along the waterbodies to enhance ecological benefit, and native plantings upland for stabilization. Because wildlife native to the area will be able to continue using the native vegetated area along the project corridor, the NMCWD engineer finds that the proposed project is in compliance with subsection 2.3.3 criteria.

Erosion prevention and sediment control measures will be installed to prevent erosion from the disturbed surfaces and capture sediment onsite to maintain the water quality of the watercourse. With the erosion control measures including perimeter controls, stabilized construction entrances, storm drain inlet protection, native seed mixtures for final stabilization, and turbidity barriers, the grading and utility improvements are not reasonably likely to have a significant adverse impact on water quality in accordance with Rule 2.3.3 criteria. Additionally, riprap materials are consistent with the standards in the NMCWD Shoreline and Streambank Improvements Rule 7.0 and will be provided to dissipate energy and prevent erosive flows. The materials demonstrate and the engineer finds that the grading and utility improvements are in compliance with subsection 2.3.3 criteria.

Groundwater hydrology will not be changed and/or altered because of grading and utility improvements. The project does not propose permanent creek alterations (e.g., physical characteristic changes such as depth of water or bed permeability) that would result in surface water inflow to groundwater interaction changes or restriction of seepage out of the bottom of the creek. The NMCWD engineer finds that the grading and utility improvements are not reasonably likely to have significant adverse impacts in conformance with Rule 2.3.3 criteria.

Because the construction of the temporary access road will temporarily alter surface flows, the applicant must demonstrate that the proposed alterations are not reasonably likely to have a significant adverse impact on any upstream or downstream landowner(s), flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat. Based on discussions with the City (on January 19, 2022, and March 1, 2023), it is the City's desire to incorporate flexibility in the construction documents related to the contractor's means and methods for managing flows during construction, including while the proposed temporary construction access road remains in place. Prior to the issuance of a NMCWD permit and the commencement of construction, the applicant must demonstrate compliance with subsection 2.3.3 criteria for the temporary access road construction. The NMCWD engineer will review conformance with the floodplain management requirements of Rule 2.0 with the submission of materials in support of the rule specific conditions listed in the recommendations section.

*2.3.4 No structure may be placed, constructed, or reconstructed and no surface may be paved within 50 feet of the centerline of any water course, except that this provision does not apply to:*

*a. Bridges, culverts, and other structures and associated impervious surface regulated under Rule 6.0;*

*b. Trails 10 feet wide or less, designed primarily for nonmotorized use.*

No structure is proposed to be placed, constructed, or reconstructed as part of the project.

### **3.0 Wetlands Management**

NMCWD's Wetlands Management Rule 3.0 applies to the project because land-disturbing activities are proposed within wetlands along the creek above the MDNR-established OHWL (e.g., the bank of the creek), that requires a NMCWD permit under Rules 2.0, 4.0 and 7.0 (Rule 3.4). NMCWD is the Local Government Unit administering the requirements of the Wetland Conservation Act (WCA) in Eden Prairie. The applicant identified delineated wetlands above and below the OHWL. The MDNR provided a January 24, 2023, email waiving jurisdiction for the impacts in the wetlands below the OHWL to NMCWD, the LGU administering WCA in Eden Prairie.

A wetland delineation report and request for wetland boundary and type approval for the wetlands within the project limits was submitted by the applicant to NMCWD. A WCA Notice of Decision approving the wetland boundary and type determination was issued on October 8, 2021. Additionally, a request for WCA no-loss exemption was submitted to NMCWD for the impacts proposed as part of the utility improvements and construction of the temporary access road. The wetland areas disturbed or altered by the project are to be restored to pre-project conditions. A WCA Notice of Decision approving the no-loss determination was issued by the NMCWD on January 26, 2023. Subsection 3.2.2a of the NMCWD's Rules indicates that the provisions of Rule 3.4 Wetland Buffers and Rule 3.5 Stormwater Treatment do not apply to wetlands that are disturbed by utility improvements or repairs that are the subject of a no-loss determination from the LGU.

### **4.0 Stormwater Management**

NMCWD's Stormwater Management Rule 4.0 applies to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b. The project qualifies as a linear project as defined for purposes of the NMCWD rule, and subsection 4.2.4 determines applicability of NMCWD's stormwater-management requirements. For linear projects creating less than one (1) acre of new or additional impervious area (0.03 acres of net new impervious area is proposed to be created), the stormwater requirements of Rules 4.3.1 or 4.3.2 do not apply.

### **5.0 Erosion and Sediment Control**

NMCWD's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 5.2.1a and b.

The erosion control plan prepared by Bolton and Menk, Inc. includes installation of perimeter control (silt fence and sediment control logs), a stabilized rock construction entrance and exit, storm sewer inlet protection, and a turbidity barrier within the creek downstream of the construction activities. Temporary and permanent stabilization methods include seeding and erosion control blanket.

The City must designate a contact who will remain liable to the NMCWD for performance under the NMCWD Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

### **6.0 Waterbody Crossings**

While the proposed culvert replacement involves construction, improvement, repair and removal of a waterbody crossing in contact with the bed and bank of the south fork of Nine Mile Creek, a public waters watercourse, triggering Rule 6.0 Waterbody Crossings and Structures, because the crossing will be the subject of a MDNR individual permit, the project is exempt from review under the NMCWD rule (6.2.1).

### **7.0 Shoreline and Streambank Improvements**

Because the utility improvements involve placement of riprap and granular filter material within a public watercourse, and retaining wall construction below the top of the bank of a public watercourse, the requirements of NMCWD Rule 7.0 Shoreline and Streambank Improvements apply to the project.

The proposed work will involve placement of riprap above and below the creek's OHWL. The MDNR has elected not to exercise jurisdiction over the streambank improvements that include construction of the retaining wall and placement of riprap within the public waters. The riprap and retaining wall design must conform to the requirements of Rule 7.0, as discussed in the following sections.

Rule 7.3.1 states, *An applicant for a shoreline alteration permit must demonstrate a need to prevent shoreline erosion or restore eroded shoreline and placement of riprap for cosmetic purposes is prohibited.*

The flow velocity within the creek for the 10-year, 24-hour storm event is typically evaluated to identify erosive velocities in accordance MPCA guidance (Minnesota Stormwater Manual). The applicant provided the proposed XP-SWMM modeling demonstrating that the 10-year, 24-hour storm event peak velocity at the crossing is 3.3 feet per second and asserts that restoration of the creek banks with vegetation (bioengineering) will not effectively stabilize the receiving water areas, based on the flow velocity. The NMCWD engineer reviewed the modeling and agrees with the supporting materials demonstrating a velocity of 3.3 feet per second. The NMCWD engineer concurs that the riprap is not for cosmetic purposes but for the dissipation of energy and for the stabilization of the banks. The project conforms to Rule 7.3.1 criteria.

Rule 7.3.2 states, *An applicant must first consider maintenance or restoration of a shoreline using bioengineering. If bioengineering cannot provide stabilization, a combination of riprap and bioengineering may be used to restore or maintain shoreline. If a combination of riprap and bioengineering cannot provide stabilization within a reasonable period, riprap may be used to restore or maintain shoreline. A retaining wall may not extend below the OHWL, except where there is a demonstrable need for a retaining wall in a public improvement project, and the design of the retaining wall has been certified by a licensed professional engineer.*



As previously stated, at the location of proposed riprap, bioengineering and plantings would not be sufficient, for stabilization of the areas altered within the creek at the locations subject to Rule 7.0 criteria. The installation of the riprap as proposed conforms to Rule 7.3.2 criteria.

The retaining wall construction both upstream and downstream of the culvert to support the embankment adjacent to Willow Creek Road extends below the OHWL of the creek. The applicant has asserted that the existing failing culverts generate a public safety concern related to the roadway and embankment and existing retaining walls, as further deterioration may potentially result in a failure of public infrastructure. The applicant asserts that replacement of the existing retaining walls is necessary to support the existing embankment and roadway based on the traffic loading and existing right-of-way constraints, and to eliminate the need for fill in the floodplain. The applicant submitted slope geometry to support the need for retaining wall replacement. XP-SWMM modeling demonstrating the peak velocities and flows for the 2-, 10-, and 100-year storm events was also submitted for the project. The existing roadway embankments are approximately 2:1 to 1.5:1 along either side of the roadway. The proposed shoreline grading parallel to the public waters at the locating tying into the retaining wall is 2:1. Without a retaining wall to stabilize the embankment, slopes greater than 2:1 would be required adjacent to the culverts, requiring floodplain fill for adequate stabilization. Based on the 2-, 10- and 100-year peak outflows at the culverts (24.0, 42.0 and 55.7 c.f.s., respectively), a slope greater than 2:1 for the fill in the floodplain that would be required to construct a gradual embankment without a retaining wall is reasonably likely to promote erosion and potential destabilization of the banks. The NMCWD has reviewed the slope geometry and modeling submitted, and finds that the materials submitted support a demonstrable need for the replacement of the retaining walls. The retaining wall design was completed by a licensed professional engineer, Ryan Evans, in conformance with Rule 7.3.2 criteria. The project is in conformance with subsection 7.3.2 criteria.

*Rule 7.3.3a states, Riprap to be used in shoreline erosion protection must be sized appropriately in relation to the erosion potential of the wave or current action of the particular water body, but in no case shall the riprap rock average less than six inches in diameter or more than 30 inches in diameter. Riprap shall be durable, natural stone and of a gradation that will result in a stable shoreline embankment. Stone, granular filter and geotextile material shall conform to standard Minnesota Department of Transportation specifications, except that neither limestone nor dolomite shall be used for shoreline or stream bank riprap, but may be used at stormwater outfalls. All materials used must be free from organic material, soil, clay, debris, trash or any other material that may cause siltation or pollution:*

The project proposes the use of Class III riprap sized less than 30-inches in diameter with granular filter material placed below the riprap in accordance with Rule 7.3.3 criteria.

*Rule 7.3.3b states, Riprap must be placed to conform to the natural alignment of the shoreline.*

The cross-section detail and plan view show the location and work proposed will conform to the existing alignment of the watercourse in conformance with Rule 7.3.3b criteria.

*Rule 7.3.3c states, A transitional layer consisting of graded gravel, at least six inches deep, and where appropriate, geotextile filter fabric shall be placed between the existing shoreline and any riprap. The thickness of riprap layers should be at least 1.25 times the maximum stone diameter. Toe boulders, if used, must be at least 50 percent buried.*

Consistent with the requirements in Rule 7.3.3c, a filter fabric conforming to Minnesota Department of Transportation (MnDOT) specification 3733 and six (6) inches of granular fill conforming to MnDOT specification 3601.B will be provided as a transitional layer between the existing watercourse and the riprap. Geotextile filter fabric will be placed in conformance with Rule 7.3.3c criteria. Toe boulders are not proposed to be installed. The materials demonstrate and the engineer finds that the project is in conformance with subsection 7.3.3c criteria.

Rule 7.3.3d states, *Riprap must not cover emergent vegetation unless authorized by a Department of Natural Resources permit.*

The plans show that no riprap will be installed in a manner that will cover emergent vegetation.

Rule 7.3.3e states, *Riprap may extend no higher than the top of bank or two feet above the 100-year high water elevation, whichever is lower.*

NMCWD's Atlas 14 100-year high water elevation along the creek at the project location is 854.7 M.S.L., approximately the top of the bank. The riprap will extend to approximately elevation 856.0 M.S.L., in conformance with subsection 7.3.3e criteria.

Rule 7.3.4a states, *The finished slope of any shoreline shall not be steeper than 3:1 (horizontal to vertical).*

Because the proposed slope shown on the design plan is 3:1 (horizontal to vertical) or flatter waterward of the OHWL, the project conforms to Rule 7.3.3a criteria.

Rule 7.3.3b states, *Horizontal encroachment from a shoreline shall be the minimal amount necessary to permanently stabilize the shoreline and shall not unduly interfere with water flow or navigation. No riprap or filter material shall be placed more than six feet waterward of the OHWL. Streambank riprap shall not reduce the cross-sectional area of the channel or result in a stage increase of more than 0.01 feet at or upstream of the treatment.*

The plans show the proposed stabilization will follow the configuration of the existing creek bank and will not encroach horizontally from the existing bank location. The design plan indicates that the riprap at the streambank will not be placed more than six (6) feet waterward of the OHWL of the creek. The project conforms to Rule 7.3.3b criteria.

Rule 7.3.3c states, *The design of any shoreline erosion protection shall reflect the engineering properties of the underlying soils and any soil corrections or reinforcements necessary. The design shall conform to engineering principles for dispersion of wave energy and resistance to deformation from ice pressures and movement, considering prevailing winds, fetch and other factors that induce wave energy.*

Because the location does not proposed placement of riprap along a lake's shoreline, subsection 7.3.3c criteria does not impose implications for the project.

## **11.0 Fees**

Because the applicant is a public entity, no fees are charged.

Rules 2.0, 4.0, 5.0 and 6.0

\$0

## **12.0 Financial Assurances**

Because the applicant is a public entity, the NMCWD's financial assurance requirements do not apply.

Sureties for the project are:

\$0

## **Findings**

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to the remaining criteria of Rules 2.0 and 5.0 with the fulfillment of the conditions identified below.
3. MDNR will exercise jurisdiction over the replacement of the crossing in contact with the creek because the culverts function as the water-level control for Bryant Lake. The application for this work under MDNR Permit #2022-3538 is currently under review. A NMCWD permit under Rule 6.0 Waterbody Crossings and Structures is not required for this portion of the work per subsection 6.2.1 of the NMCWD rules.
4. MDNR has elected not to exercise jurisdiction over the streambank improvements that include retaining wall construction and placement of riprap within the public waters. Under MDNR General Permit #1997-6112, NMCWD's approval of the relevant work as meeting NMCWD Rule 7.0 Streambank and Shoreline Improvements will constitute approval under the state Work in Waters rules.
5. MDNR provided a written waiver of jurisdiction received on January 24, 2023, for the impacts in the wetlands below the OHWL to NMCWD.

## **Recommendation**

*Approval, contingent upon:*

1. Compliance with the General Provisions (attached).
2. The applicant provides a name and contact information for the individual responsible for the erosion and sediment control at the site. NMCWD must be notified if the responsible individual changes during the permit term.
3. Prior to the issuance of a NMCWD permit, the applicant must demonstrate compliance with the NMCWD floodplain management and drainage alterations criteria for the work including the installation of the temporary access road construction. Demonstration that the construction of the temporary access road will not have a significant adverse impact on any upstream or downstream landowners and is not reasonably likely to have a significant adverse effect on flood risk, basin or channel stability, groundwater hydrology, stream base-flow, water quality or aquatic or riparian habitat must be provided. The following, at a minimum, must be provided:
  - a. Identification of the construction timeline, including a sequencing and staging plan for construction activities and the control of water within the work area. The duration of bypassing creek flow due to culvert replacement should be minimized.

- b. Documentation regarding how baseflow (variable, approximately 4.0 c.f.s.) will be maintained throughout the duration of construction.
- c. Documentation that the existing 100-year frequency hydraulic capacity at the Willow Creek Road crossing will be maintained throughout the duration of construction and that the 100-year flood risk in Bryant Lake or in the downstream creek system will not be increased.
- d. The proposed construction has the potential to cumulatively result in volume increases and associated increases in water level upstream of the temporary bypass, pumping or conveyance system, following smaller, more frequent storm events. Documentation must be submitted showing that the water management plan is not reasonably likely to have significant adverse impacts on the upstream flood risk for the 100-year storm event. The documentation must include triggers for supplemental action(s) in response to increasing lake elevations and must show long duration stage increases will be prevented.
- e. If water levels and flow volumes are controlled in the work area by pumping, the pump capacity and equipment model must be provided.
- f. If the temporary access road, as shown on the preliminary plans, is designed to be overtopped to pass creek flows during extreme events, the controlling overflow elevation of the temporary access road must be identified.
- g. Documentation regarding how temporary water management measures will not be reasonably likely to have a significant adverse impact on water quality in Bryant Lake, must include but not limited to:
  - i. Documentation regarding how temporary water management measures will be conducted or constructed to minimize sediment transport downstream.
  - ii. Documentation that the plan for water management is not reasonably likely to have a significant adverse impact on basin or channel stability. Pumping which promotes bankfull flow conditions for long durations of time should be avoided. Bankfull flow is the flow rate that corresponds to the stream stage at which the floodplain begins to be inundated (approximately 22 c.f.s.), which usually occurs every 1-2 years depending on watershed conditions. As discussed in the Minnesota Department of Natural Resources Watershed Health Assessment Framework, bankfull flow produces the most sediment transport over time and scour of fine sediment is most predominant at bankfull flow.
  - iii. During the course of construction, documentation that pumping or bypass conditions will not significantly increase turbidity within the creek, as demonstrated by downstream monitoring. The creek was recently delisted as impaired for turbidity by the MPCA. The water management plan must specify pumping operation response procedures following exceedance of established turbidity standards.

- h. Documentation that the plan for water management is not reasonably likely to have a significant adverse impact on groundwater hydrology, stream base-flow, or aquatic or riparian habitat.

*By accepting the permit, if issued, the applicant agrees to the following stipulations for closeout of the permit and release of the financial assurance after the project:*

1. An as-built drawing of the floodplain areas and culvert improvements conforming to the design specifications as approved by the NMCWD.
2. The work for the Willow Creek Road Improvements project under the terms of Permit #2022-159, if issued, must have an impervious surface area and stormwater infrastructure consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of the total impervious area or floodplain storage volume) will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.



NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY 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."

RESOURCE LIST

CITY OF EDEN PRAIRIE

City Hall  
8080 Mitchell Road  
Eden Prairie, MN 55344

City Manager:  
Rick Getschow

Mayor: Ron Case

City Council Members:  
Mark Freiberg  
PG Narayanan  
Kathy Nelson  
Lisa Toomey

City Engineer:  
Rod Rue, P.E

Assistant City Engineer:  
Carter Schulze, P.E.

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Paul Schackmuth  
612-216-8075

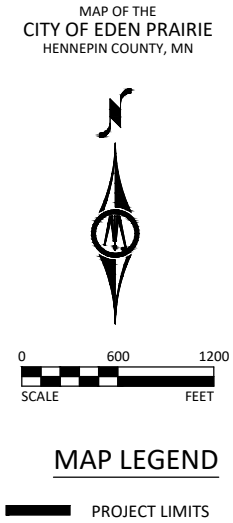
BRIDGE DEMOLITION, CULVERT INSTALLATION, BITUMINOUS ROADWAY, CONCRETE CURB & GUTTER AND WING WALL CONSTRUCTION

FEBRUARY, 2023

# CITY OF EDEN PRAIRIE

## CONSTRUCTION PLANS FOR

# WILLOW CREEK ROAD IMPROVEMENTS



SHEET NUMBER	SHEET TITLE
GENERAL	
1-3	TITLE SHEET, LEGEND, GENERAL NOTES
4	STATEMENT OF ESTIMATED QUANTITIES
5-6	DETAILS, TYPICAL SECTIONS
7-9	SWPPP
CIVIL	
10	EXISTING CONDITIONS & REMOVALS PLAN
11	EROSION CONTROL & RESTORATION PLAN
12	SANITARY SEWER PLAN & PROFILE
13	STORM SEWER PLAN & PROFILE
14	STREET PLAN & PROFILE
15-16	TEMP. ROAD ACCESS PLAN & PROFILE, TRAFFIC CONTROL PLAN
17-18	CROSS SECTIONS
19-34	CULVERT PLAN
THIS PLAN SET CONTAINS 34 SHEETS.	

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*Sarah E. Lloyd*  
Sarah E. Lloyd  
LIC. NO. 46636 DATE 02/16/2023



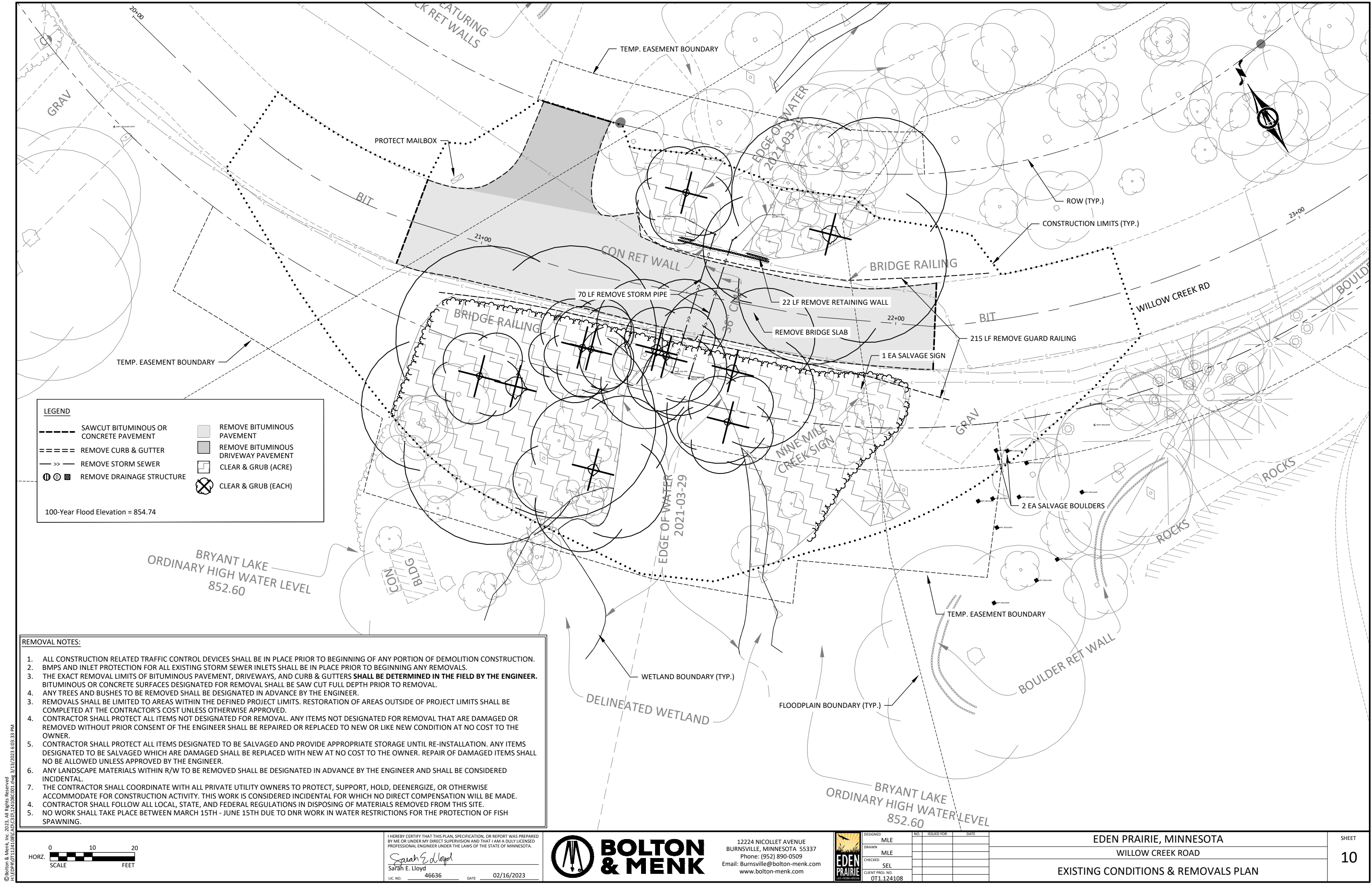
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REVIEWED & APPROVED _____		DATE: _____	
CITY ENGINEER _____			
⚡ BM=888.834 MnDOT Geodetic Station 2763A-1	PROJECT DATUM:		RECORD DRAWING INFORMATION
	HORIZONTAL: HENNEPIN COUNTY COORDINATE SYSTEM NAD83 (86 Adj.)		OBSERVER: _____
	VERTICAL: NAVD88		CONTRACTOR: _____
			DATE: _____
EDEN PRAIRIE, MINNESOTA			SHEET  1
WILLOW CREEK ROAD			
TITLE SHEET			





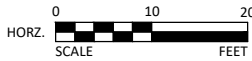
**LEGEND**

--- SAWCUT BITUMINOUS OR CONCRETE PAVEMENT	REMOVE BITUMINOUS PAVEMENT
==== REMOVE CURB & GUTTER	REMOVE BITUMINOUS DRIVEWAY PAVEMENT
->->- REMOVE STORM SEWER	CLEAR & GRUB (ACRE)
Ⓢ REMOVE DRAINAGE STRUCTURE	CLEAR & GRUB (EACH)

100-Year Flood Elevation = 854.74

- REMOVAL NOTES:**
- ALL CONSTRUCTION RELATED TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO BEGINNING OF ANY PORTION OF DEMOLITION CONSTRUCTION.
  - BMPS AND INLET PROTECTION FOR ALL EXISTING STORM SEWER INLETS SHALL BE IN PLACE PRIOR TO BEGINNING ANY REMOVALS.
  - THE EXACT REMOVAL LIMITS OF BITUMINOUS PAVEMENT, DRIVEWAYS, AND CURB & GUTTERS **SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.** BITUMINOUS OR CONCRETE SURFACES DESIGNATED FOR REMOVAL SHALL BE SAW CUT FULL DEPTH PRIOR TO REMOVAL.
  - ANY TREES AND BUSHES TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER.
  - REMOVALS SHALL BE LIMITED TO AREAS WITHIN THE DEFINED PROJECT LIMITS. RESTORATION OF AREAS OUTSIDE OF PROJECT LIMITS SHALL BE COMPLETED AT THE CONTRACTOR'S COST UNLESS OTHERWISE APPROVED.
  - CONTRACTOR SHALL PROTECT ALL ITEMS NOT DESIGNATED FOR REMOVAL. ANY ITEMS NOT DESIGNATED FOR REMOVAL THAT ARE DAMAGED OR REMOVED WITHOUT PRIOR CONSENT OF THE ENGINEER SHALL BE REPAIRED OR REPLACED TO NEW OR LIKE NEW CONDITION AT NO COST TO THE OWNER.
  - CONTRACTOR SHALL PROTECT ALL ITEMS DESIGNATED TO BE SALVAGED AND PROVIDE APPROPRIATE STORAGE UNTIL RE-INSTALLATION. ANY ITEMS DESIGNATED TO BE SALVAGED WHICH ARE DAMAGED SHALL BE REPLACED WITH NEW AT NO COST TO THE OWNER. REPAIR OF DAMAGED ITEMS SHALL NO BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
  - ANY LANDSCAPE MATERIALS WITHIN R/W TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER AND SHALL BE CONSIDERED INCIDENTAL.
  - THE CONTRACTOR SHALL COORDINATE WITH ALL PRIVATE UTILITY OWNERS TO PROTECT, SUPPORT, HOLD, DEENERGIZE, OR OTHERWISE ACCOMMODATE FOR CONSTRUCTION ACTIVITY. THIS WORK IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
  - CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS IN DISPOSING OF MATERIALS REMOVED FROM THIS SITE.
  - NO WORK SHALL TAKE PLACE BETWEEN MARCH 15TH - JUNE 15TH DUE TO DNR WORK IN WATER RESTRICTIONS FOR THE PROTECTION OF FISH SPAWNING.

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*Sarah E. Lloyd*  
Sarah E. Lloyd  
LIC. NO. 46636 DATE 02/16/2023



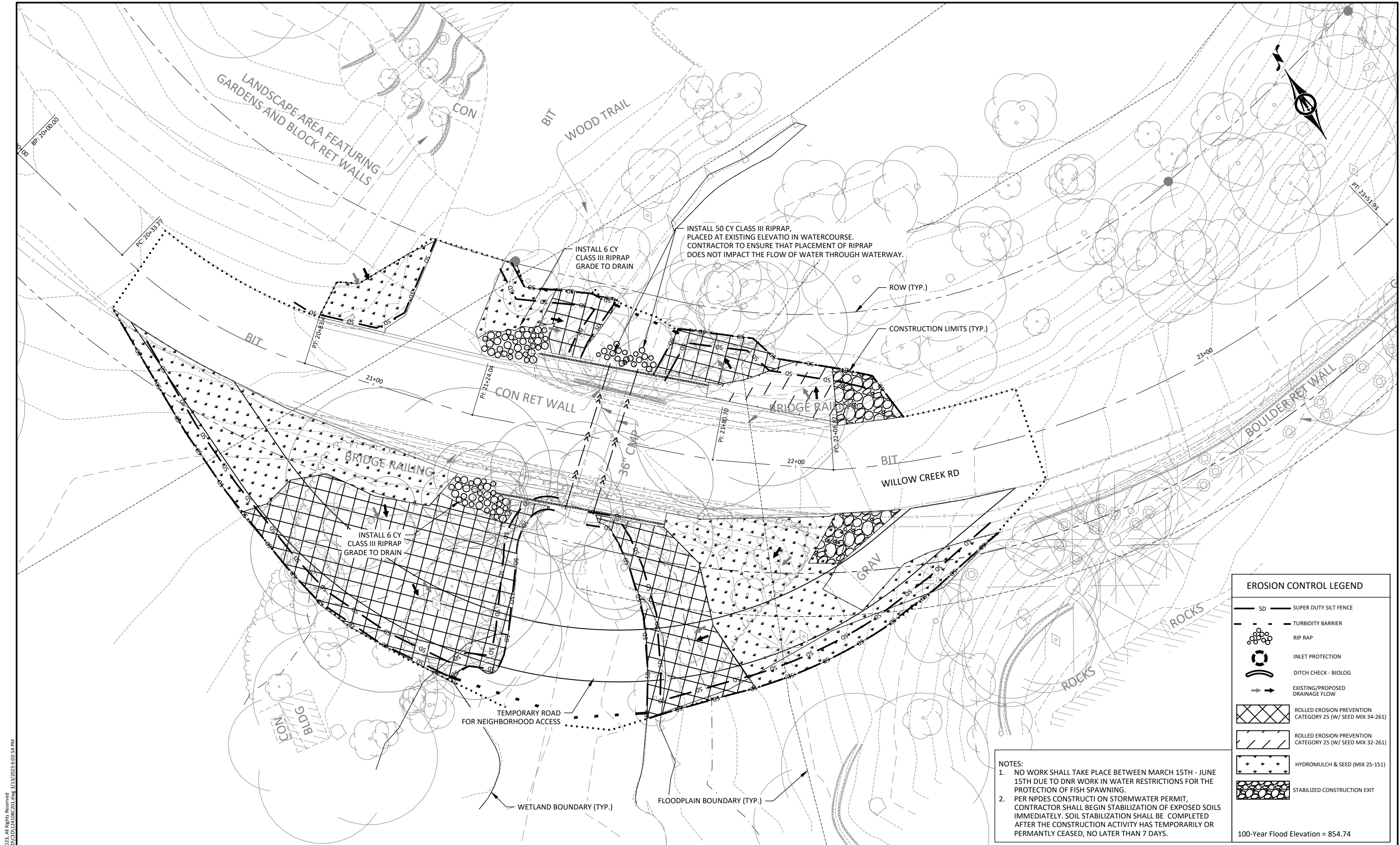
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EDEN PRAIRIE, MINNESOTA  
WILLOW CREEK ROAD  
EXISTING CONDITIONS & REMOVALS PLAN





EROSION CONTROL LEGEND

SD

TURBIDITY BARRIER

RIP RAP

INLET PROTECTION

DITCH CHECK - BIOLOG

EXISTING/PROPOSED DRAINAGE FLOW

ROLLED EROSION PREVENTION CATEGORY 25 (W/ SEED MIX 34-261)

ROLLED EROSION PREVENTION CATEGORY 25 (W/ SEED MIX 32-261)

HYDROMULCH & SEED (MIX 25-151)

STABILIZED CONSTRUCTION EXIT

SUPER DUTY SILT FENCE

RIP RAP

INLET PROTECTION

DITCH CHECK - BIOLOG

EXISTING/PROPOSED DRAINAGE FLOW

ROLLED EROSION PREVENTION CATEGORY 25 (W/ SEED MIX 34-261)

ROLLED EROSION PREVENTION CATEGORY 25 (W/ SEED MIX 32-261)

HYDROMULCH & SEED (MIX 25-151)

STABILIZED CONSTRUCTION EXIT

100-Year Flood Elevation = 854.74

- NOTES:
- NO WORK SHALL TAKE PLACE BETWEEN MARCH 15TH - JUNE 15TH DUE TO DNR WORK IN WATER RESTRICTIONS FOR THE PROTECTION OF FISH SPAWNING.
  - PER NPDES CONSTRUCTION ON STORMWATER PERMIT, CONTRACTOR SHALL BEGIN STABILIZATION OF EXPOSED SOILS IMMEDIATELY. SOIL STABILIZATION SHALL BE COMPLETED AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED, NO LATER THAN 7 DAYS.

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*Miranda Etienne*  
Miranda Etienne  
LIC. NO. 59561 DATE 02/16/2023



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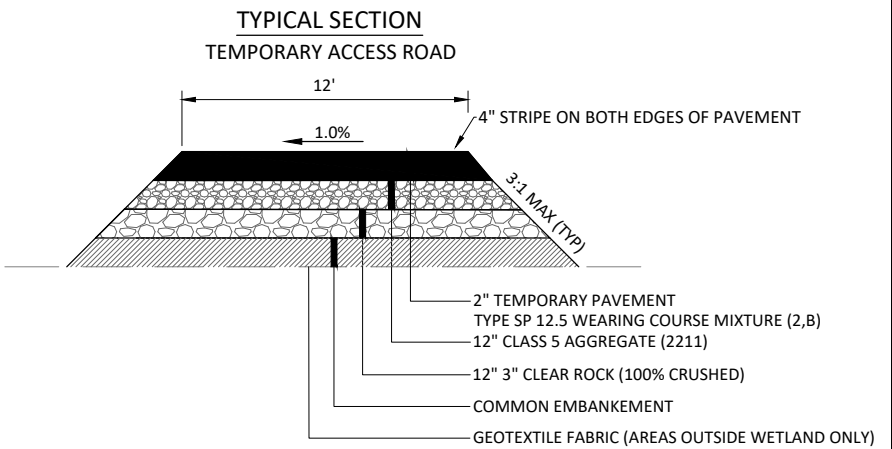
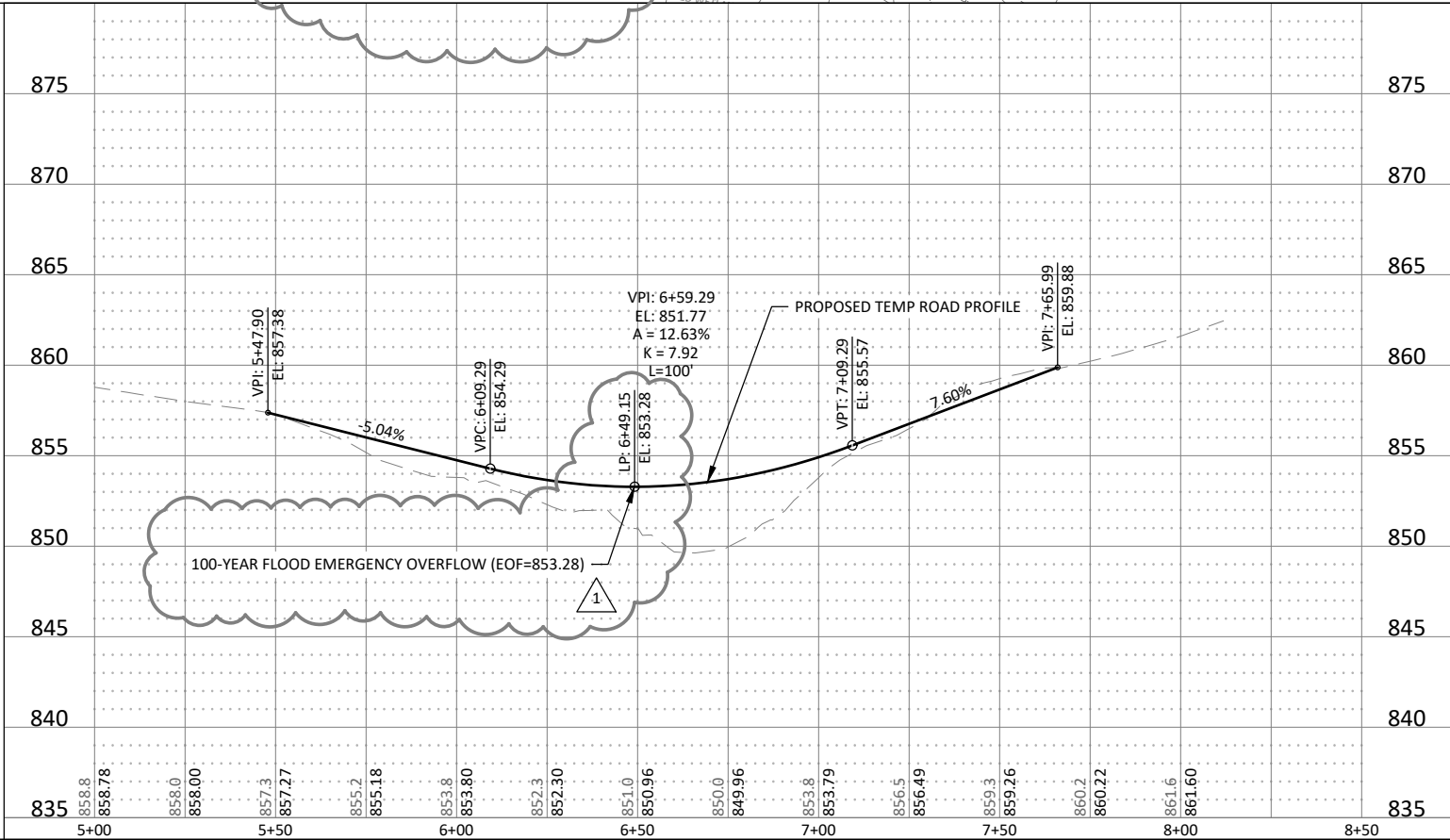
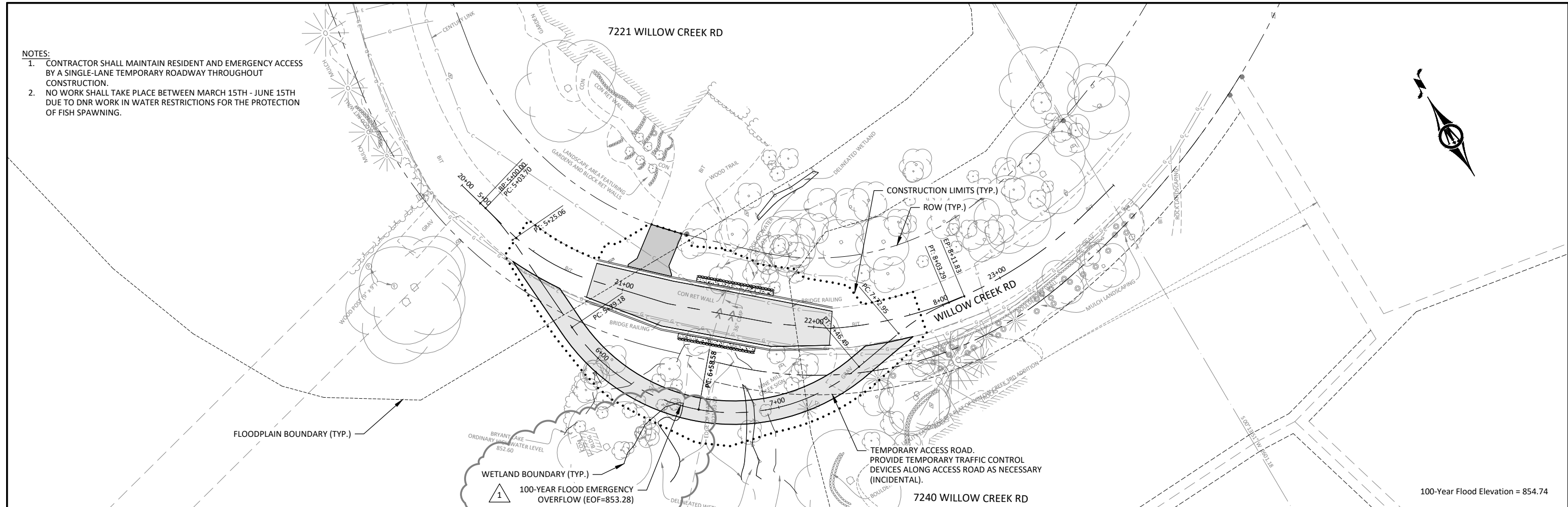
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EDEN PRAIRIE, MINNESOTA  
WILLOW CREEK ROAD  
EROSION CONTROL & RESTORATION PLAN





- NOTES:
1. CONTRACTOR SHALL MAINTAIN RESIDENT AND EMERGENCY ACCESS BY A SINGLE-LANE TEMPORARY ROADWAY THROUGHOUT CONSTRUCTION.
  2. NO WORK SHALL TAKE PLACE BETWEEN MARCH 15TH - JUNE 15TH DUE TO DNR WORK IN WATER RESTRICTIONS FOR THE PROTECTION OF FISH SPAWNING.



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*Sarah E. Lloyd*  
Sarah E. Lloyd  
LIC. NO. 46636 DATE 02/16/2023



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EDEN PRAIRIE, MINNESOTA  
WILLOW CREEK ROAD  
TEMPORARY ACCESS ROAD PLAN & PROFILE

SHEET  
15