

## Riley Purgatory Bluff Creek Watershed District Permit Application Review

**Permit No:** 2021-085

**Considered at Board of Managers Meeting:** April 6, 2022

**Received complete:** March 18, 2022

**Applicant:** Lotus Holdings LLC, Mark Hedge

**Consultant:** Stark Engineering, LLC, Wayne Stark

**Project:** 7851 Park Drive Storage Expansion: Proposed addition of an approximately 8,100 SF outdoor gravel storage area and a one-way concrete drive entrance. Proposed stormwater feature includes an iron-enhanced filtration basin with elevated underdrain to promote infiltration to provide stormwater rate, volume, and quality control.

**Location:** 7851 Park Drive, Chanhassen, MN 55317

**Reviewer:** Leslie DellAngelo, P.E. and Scott Sobiech, P.E., Barr Engineering

### Proposed Board Action

Manager \_\_\_\_\_ moved and Manager \_\_\_\_\_ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the April 6, 2022 meeting of the managers:

Resolved that the application for Permit 2021-085 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-085 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, \_\_\_\_\_ [VOTE TALLY].

### Applicable Rule Conformance Summary

Rule	Issue	Conforms to RBPCWD Rules?	Comments
<b>C</b>	<b>Erosion Control Plan</b>	Yes	
<b>D</b>	<b>Wetland and Creek Buffers</b>	See comment.	See rule-specific permit condition D1-D3 related to recordation of buffer maintenance declaration, restoration with native vegetation, and signs in conformity with RPBCWD language.
<b>J</b>	<b>Stormwater Management</b>	Rate	Yes.
		Volume	See comment. See stipulation 4 related to verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate
		Water Quality	Yes.
		Low Floor Elev.	Yes.
		Maintenance	See comment. See rule-specific permit condition J1 related to recordation of stormwater facility maintenance declaration.
		Chloride Management	Yes. See stipulation 5 related to providing a chloride management plan prior to project close-out.
		Wetland Protection	Yes.
<b>L</b>	<b>Permit Fee</b>	Yes.	\$3,000 received November 23, 2021.
<b>M</b>	<b>Financial Assurance</b>	See comment.	The financial assurance is calculated at \$30,834

### Background

The applicant is proposing an additional of an approximately 8,100 SF outdoor gravel storage area with a one-way concrete drive entrance. The project will also consist of new fencing along the entire perimeter of the proposed storage area and planting of new trees along park drive and the southern edge of the proposed storage area. The applicant proposes construction of an iron-enhanced filtration basin with elevated underdrain to promote infiltration to provide stormwater rate, volume, and quality control.

There is a wetland along the southern edge of the property and adjacent to Riley Creek. The wetland is downgradient from the proposed land-disturbing activities.

The project site information is summarized below:

Project Site Information	Area (acres)
Total Site Area	4.17
Existing Site Impervious	1.1
Post Construction Site Impervious	1.28
New (Increase) in Site Impervious Area	0.18 (16%)
Disturbed Impervious Surface	0
Total Disturbed Area	0.45

The following materials were reviewed in support of the permit request:

1. Permit application dated November 11, 2021 (Notified applicant on November 24, 2021 that submittal was incomplete, revised materials completing the application received March 18, 2022)
2. Stormwater Management Plan dated November 10, 2021 (revised December 15, 2021, revised February 16, 2022, revised March 18, 2022)
3. Project Plan Set (6 sheets) received November 11, 2021 (revised December 15, 2021, revised February 16, 2022, revised March 18, 2022)
4. Site Narrative received November 11, 2021
5. Draft Maintenance Agreement dated November 11, 2021
6. Electronic HydroCAD models received December 15, 2021 (revised February 16, 2022)
7. Electronic MIDS models received December 15, 2021 (revised February 16, 2022, revised March 8, 2022)
8. Wetland Delineation Report dated October 28, 2020
9. MNRAM Report dated November 15, 2020
10. Draft Chloride Management Plan received December 15, 2021
11. Engineer's Opinion of Probable Construction Costs received December 15, 2021
12. Response to RPBCWD review comments received December 15, 2021
13. Response to RPBCWD review comments received February 16, 2022
14. Draft maintenance declaration received February 16, 2021
15. Regulated Areas Exhibit dated December 15, 2021
16. Wetland Buffer Exhibit dated December 15, 2021
17. Slope Stability Analysis dated February 11, 2022

### Rule C: Erosion and Sediment Control

Because the project will involve 0.45 acres of land-disturbing activity, the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1). The erosion control plan prepared by Quetica, LCC includes installation of double row of silt fence downgradient of the disturbance, a stabilized rock construction entrance, biolog perimeter protection, inlet protection, tree protection fencing, daily inspection, staging areas, placement of a minimum of 6 inches of topsoil (at 5% organic matter), decompaction of areas compacted during construction, and retention of native topsoil onsite to the greatest extent possible. The Erosion and Sediment Control plan sheet indicates that Jeff Searles, Lake Shore Equipment Company (952-474-3625) is responsible for erosion prevention and sediment control for the site.

The proposed project is in conformance with RPBCWD's Rule C.

### Rule D: Wetland and Creek Buffers

Because the proposed work triggers a permit under RPBCWD Rules B and J, Subsections 2.1 and 3.1 require buffer adjacent to Riley Creek, a public water course, with an average width of 50 feet and a minimum width of 30 feet from the thalweg of the watercourse (subsection 3.2.b.v). In addition, a wetland protected by the state Wetland Conservation Act (WCA) borders the creek and is downgradient from (but not disturbed by) the proposed construction activities, Rule D, Subsections 2.1a and 3.1 require buffer on the edges of the wetland that are downgradient from the land-disturbing activities. The Wetland Delineation Report and Minnesota Routine Assessment Method (MnRAM) analysis submitted indicate that the wetland onsite is medium value wetlands. Rule D, Subsection 3.1.b.iii requires wetland buffer with an average of 40 feet from the delineated edge of the wetland, minimum 20 feet for medium value wetlands.

The proposed buffers intersect steep slopes, as defined in the rule. Per Rule D, subsection 3.2b, the buffer must encompass all or part of a slope averaging 18% or greater. Because the buffer area extends to the top of slopes that average steeper than 18% the project conforms to Rule B, subsection 3.2b. The buffer widths are summarized in the table below. As shown in the table below, the provided buffer widths are greater than the required buffer width to conform to Rule D, subsection 3.2.b.iii and 3.2.b.v; thus the width requirements are met.

Resource	RPBCWD Wetland Value	Required Minimum Width (ft)	Required Average Width (ft)	Required Area (sq ft)	Provided Area (sq ft)	Provided Minimum Width (ft)	Provided Average Width (ft)
Riley Creek	NA	30	50	4,670	13,950	50	91.8
Wetland 1	Medium	20	40	18,728	36,836	52	N/A <sup>1</sup>

<sup>1</sup>Buffer area extends to the top of slopes that average steeper than 18% and results in a width greater than the required average, thus project conforms to Rule B, subsection 3.2b

The engineer's review of plan sheets shows that buffer markers will be placed per District criteria (subsection 3.4). A note is included on the plan sheet (C4-1) indicating the project will be constructed so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible conforming to Rule D, Subsection 3.6.

To conform to RPBCWD Rule D the following revisions are needed:

- D1. The Landscape Plan (C3-1) must be updated to indicate all disturbed areas within the buffer will be revegetated using a native seed mix conforming to Rule D, Subsection 3.3.
- D2. Buffer marker sign must be updated with text in material conformity with a design and text provided by the District. A sample buffer sign is available on RPBCWD permitting webpage ([https://rpbcwd.org/download\\_file/view/28/174](https://rpbcwd.org/download_file/view/28/174))
- D3. Buffer areas and maintenance requirements must be documented in a declaration recorded after review and approval by RPBCWD in accordance with Rule D, Subsection 3.5.

#### **Rule J: Stormwater Management**

Because the project will disturb 0.45 acres of land-surface area, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1).

The applicant is proposing construction of an iron-enhanced filtration basin with elevated underdrain to promote infiltration to provide rate control, volume abstraction and water quality management on the site.

#### **Rate Control**

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the disturbed site area are summarized in the table below. The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
South	4.3	3.8	7.9	7.4	16.5	15.4	4.8	1.9

### **Volume Abstraction**

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all new or disturbed impervious surface of the parcel. An abstraction volume of 742.5 cubic feet is required from the 8,100 square feet of new impervious area on the site for abstraction.

Four soil borings, performed by ITCO Allied Engineering Company, show that soils in the project area are typically lean clay. A gradation test was done on the sample from boring B-1, which was located at the iron-enhanced filtration basin with elevated underdrain to promote infiltration. The gradation test results were used by the applicant's geotechnical engineer to recommend a design infiltration rate of 0.06 inches/hour. The applicant indicated a plan to perform in-situ infiltration testing when soil thaw in the spring. Pending the infiltration testing results, the Engineer concurs that because of the expected low infiltration capacity of the soils, steep slope adjacent to the proposed work and the large wetland on the southern border, the site is considered restricted and stormwater runoff volume must be managed in accordance with Subsection 3.3 of Rule J.

For restricted sites, subsection 3.3 of Rule J requires rate control in accordance with subsection 3.1.a and that abstraction and water-quality protection be provided in accordance with the following sequence: (a) Abstraction of 0.55 inches of runoff from site impervious surface determined in accordance with paragraphs 2.3, 3.1 or 3.2, as applicable, and treatment of all runoff to the standard in paragraph 3.1c; or (b) Abstraction of runoff onsite to the maximum extent practicable and treatment of all runoff to the standard in paragraph 3.1c; or (c) Off-site abstraction and treatment in the watershed to the standards in paragraph 3.1b and 3.1c. The engineer concurs that the 396.7 cubic feet of abstraction provided by the applicant's proposed iron-enhanced filtration basin with elevated underdrain to promote infiltration is in accordance with subsection 3.3.a.

Groundwater was not observed at the soil borings under the proposed filtration/infiltration swale (B-1). The subsurface investigation information summarized below shows that groundwater is at least 3 feet below the bottom of the proposed underground infiltration system (Rule J, Subsection 3.1.b.2.a).

**Groundwater Separation Analysis**

<b>Proposed BMP</b>	<b>Nearest Subsurface Investigation</b>	<b>Boring is within footprint?</b>	<b>Groundwater Elevation (feet)</b>	<b>BMP Bottom Elevation (feet)</b>	<b>Separation (feet)</b>
Filtration/infiltration Swale	B-1	Yes	No groundwater observed at boring bottom (approx. el 920.1)	930.6	10.5

The engineer concurs with the applicant's design infiltration rates of 0.06 inches per hour for clayey sand and sandy lean clay based on the guidelines provided in the Mn Stormwater Manual. Based on the design infiltration rate, the engineer concurs that the swale will draw down within 48 hours (Rule J, subsection 3.1b.3). Per Rule J, Subsection 3.1.b.2.c measured infiltration capacity of the soils at the

bottom of the infiltration systems must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

The table below summarizes the volume abstraction for the site based on the design infiltration capacity of the filtration/infiltration swale. With the conditions noted above regarding verification of subsurface conditions, the engineer concurs with the submitted information and finds that the proposed project will conform with Rule J, Subsection 3.3.a.

Volume Abstraction Summary			
Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
0.55	371.25	0.59	396.7

### ***Water Quality Management***

Subsection 3.1.c of Rule J requires the Applicant provide at least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. The applicant is proposing to use an iron-enhanced filtration basin with elevated underdrain to promote infiltration to achieve the required TP and TSS removals and submitted a MIDS model to estimate the TP and TSS removals. The results of this modeling are summarized in tables below showing the annual TSS and TP removal requirements are achieved and that there is no net increase in TSS and TP leaving the site. The engineer concurs with the modeling and finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Annual TSS and TP removal summary			
Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	79.3	71.4 (90%)	74.6 (94%)
Total Phosphorus (TP)	0.44	0.26 (60%)	0.36 (83)%

**Summary of net change in TSS and TP leaving the site**

Pollutant of Interest	Existing Site Loading (lbs/yr)	Proposed Site Load after Treatment (lbs/yr)	Change (lbs/yr)
Total Suspended Solids (TSS)	468	393.4	-74.6
Total Phosphorus (TP)	2.58	2.22	-0.26

***Low floor Elevation***

Because the proposed activities do not involve the construction or reconstruction of a buildings, subsection 3.6a does not impose requirements on the applicant. A stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement, according to Rule J, Subsection 3.6b. The following table summarizes the low floor analysis for the existing habitable structures adjacent to the proposed stormwater facilities. Because the provided freeboard is greater than 2 feet, the elevation and location of the proposed stormwater facility meets the existing habitable structure requirement in Rule J, Subsection 3.6.b.

Adjacent Habitable Structure	Low Floor Elevation of Building (feet)	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard (feet)
Existing Structure	938.6	933.42	5.18

***Maintenance***

Subsection 3.7 of Rule J requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. Maintenance of the iron enhanced sand facility must be documented in the declaration recorded after review and approval by RPBCWD. To conform to the RPBCWD Rule J the following revisions are needed:

- J1. Permit applicant must provide a maintenance and inspection declaration as required by Rule J, Subsection 3.7. A maintenance declaration template is available on the permits page of the RPBCWD website (<http://www.rpbcwd.org/permits/>). A draft declaration must be provided for District approval prior to recordation as a condition of issuance of the permit.

***Chloride Management***

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. To close out the permit and release the financial assurance held for the purpose of chloride management, the permit applicant must provide a chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan at the site.



### ***Wetland Protection***

Because the proposed activities discharge to a protected wetland on the site and alter the discharge the wetland receives from the site, the proposed activities must conform to RPBCWD wetland protection criteria (Rule J, subsection 3.10). The wetland on the southern border of the site is in the medium value category. Because the applicant's HydroCAD model results demonstrate, and the engineer concurs, that the proposed flow rate and volumes flowing towards the wetlands are less than the under existing conditions, the bounce and inundation will not increase, thus the project meets the Bounce and Inundation criterion.

Rule J, Subsection 3.10b requires that treatment of runoff to medium value wetlands meet the water quality treatment criteria in Rule J, subsection 3.1c. Because the proposed an iron-enhanced filtration basin with elevated underdrain to promote infiltration provides the water quality treatment required in accordance with 3.1c.ii, the engineer finds that the proposed project is in conformance with Rule J, Subsection 3.10b.

### **Rule L: Permit Fee Deposit:**

The RPBCWD permit fee schedule adopted in February 2020 requires permit applicants to deposit \$3,000 to be held in escrow and applied to cover the \$10 permit-processing fee and reimburse RPBCWD for permit review and inspection-related costs and when a permit application is approved, the deposit must be replenished to the applicable deposit amount by the applicant before the permit will be issued to cover actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules. A permit fee deposit of \$3,000 was received on November 23, 2021.

### **Rule M: Financial Assurance:**

	Unit	Unit Cost	# of Units	Total
Rules C: Silt Fence	LF	\$2.50	900	\$2,250
Construction Entrance	EA	\$250	1	\$250
Rules D: Wetland and Creek Buffer	LS	\$5,000	1	\$5,000
Rules J: Stormwater Management Filtration/infiltration Swale: 125% of engineer's opinion of cost (\$12,425)	EA	125% OPC	1	\$15,531
Chloride Management Plan	EA	\$5,000	1	\$5,000
Contingency (10%)		10%		\$2,803
<b>Total Financial Assurance</b>				<b>\$30,834</b>

### **Applicable General Requirements:**

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed above and on the permit. The granting of the permit does

not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.

3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
4. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
5. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
6. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
7. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

### **Findings**

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project conforms to Rules C.
3. The proposed project will conform to Rules D and J if the Rule Specific Permit Conditions listed above are met.

### **Recommendation:**

Approval of the permit issuance contingent upon:

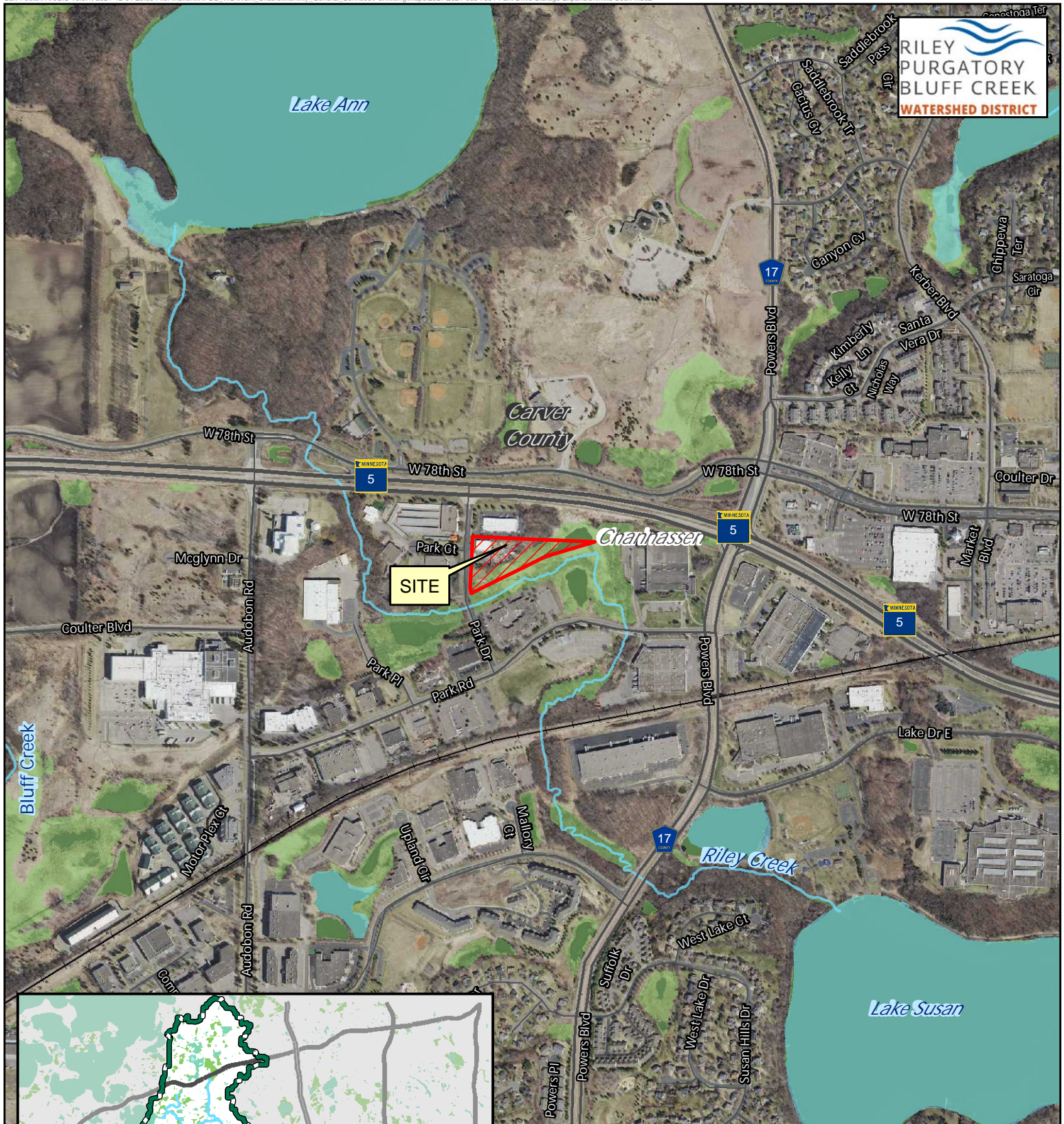
1. Financial Assurance in the amount of \$30,834.
2. Receipt of an update Landscape Plan (C3-1) to indicate all disturbed areas within the buffer will be revegetated using a native seed mix conforming to Rule D, Subsection 3.3.
3. Receipt of updated plans showing the buffer marker sign with text in material conformity with a design and text provided by the District. A sample buffer sign is available on RPBCWD permitting webpage ([https://rpbcwd.org/download\\_file/view/28/174](https://rpbcwd.org/download_file/view/28/174))
4. Receipt in recordation a maintenance declaration for the stormwater management facilities and buffers. Drafts of any and all documents to be recorded must be approved by the District prior to recordation. Permit applicant must provide a proof of recordation as a condition of issuance of the permit.

5. Replenish the permit fee deposit to the original amount.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Continued compliance with General Requirements.
2. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, all stormwater management facilities conform to design specifications and function as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:
  - a) the surveyed bottom elevations, water levels, and general topography of all facilities;
  - b) the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
  - c) the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
  - d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
  - e) photographic evidence of buffer marker locations indicated by permanent, free-standing markers in accordance with Rule D, Subsection 3.4 criteria.
3. Providing the following additional close-out materials:
  - a) Documentation that the constructed stormwater facility performs as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD
  - b) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
4. Per Rule J, Subsection 3.1.b.ii measured infiltration capacity of the soils at the bottom of the filtration/infiltration swale must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. In addition, subsurface soil investigation is needed to verify adequate separation to groundwater (Rule J subsection 3.1.b.2). If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).
5. To close out the permit and release the financial assurance held for the purpose of the chloride management, the permit applicant must provide a chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan at the site.





RILEY  
PURGATORY  
BLUFF CREEK  
WATERSHED DISTRICT

Permit Location Map

7851 PARK DRIVE  
STORAGE EXPANSION

Permit 2021-085  
Riley Purgatory Bluff Creek  
Watershed District



Feet

0 1,000





SHEET INDEX

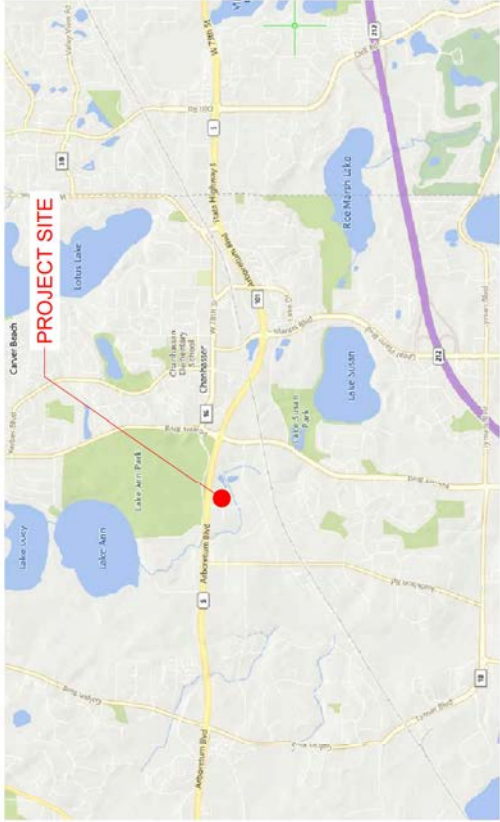
- CO-1 COVER SHEET
- C1-1 REMOVALS & EROSION CONTROL PLAN
- C2-1 SITE AND GRADING PLAN
- C3-1 EROSION CONTROL PLAN
- C4-1 NOTES
- C5-1 DETAILS

# 7851 Park Drive

## Chanhausen

### Minnesota

CIVIL ENGINEERING PLANS FOR  
SITE DEMOLITION, SITE PLAN, GRADING, EROSION CONTROL AND UTILITIES



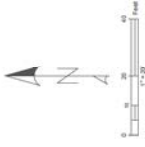
**WARNING:**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING AND LOCATING OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.  
THE CONTRACTOR SHALL CONTACT Gopher State One Call At 651-454-6862 AT LEAST 48 HOURS BEFORE ANY EXCAVATION OR OTHER WORK THAT MAY DAMAGE CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER ABOVE GROUND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

**EXTREME CAUTION MUST BE EXERCISED BEFORE AN EXCAVATION TAKES PLACE ON OR NEAR THIS SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING AND LOCATING OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.**

DESIGN CONSULTANT

CIVIL ENGINEER  
QUETICA, LLC  
Wayne Stark, PE  
3800 American Blvd. W.  
Suite 1500  
Bloomington, MN 55431  
TEL: 320-249-2611  
woynes@starkengineer.com

EXTREME CAUTION MUST BE EXERCISED BEFORE AN EXCAVATION TAKES PLACE ON OR NEAR THIS SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.



PLACE SILT FENCE AROUND  
PERIMETER OF DISTURBED AREA  
ROW BOUNDARY  
PROPERTY LINE  
CONSTRUCTION LIMITS

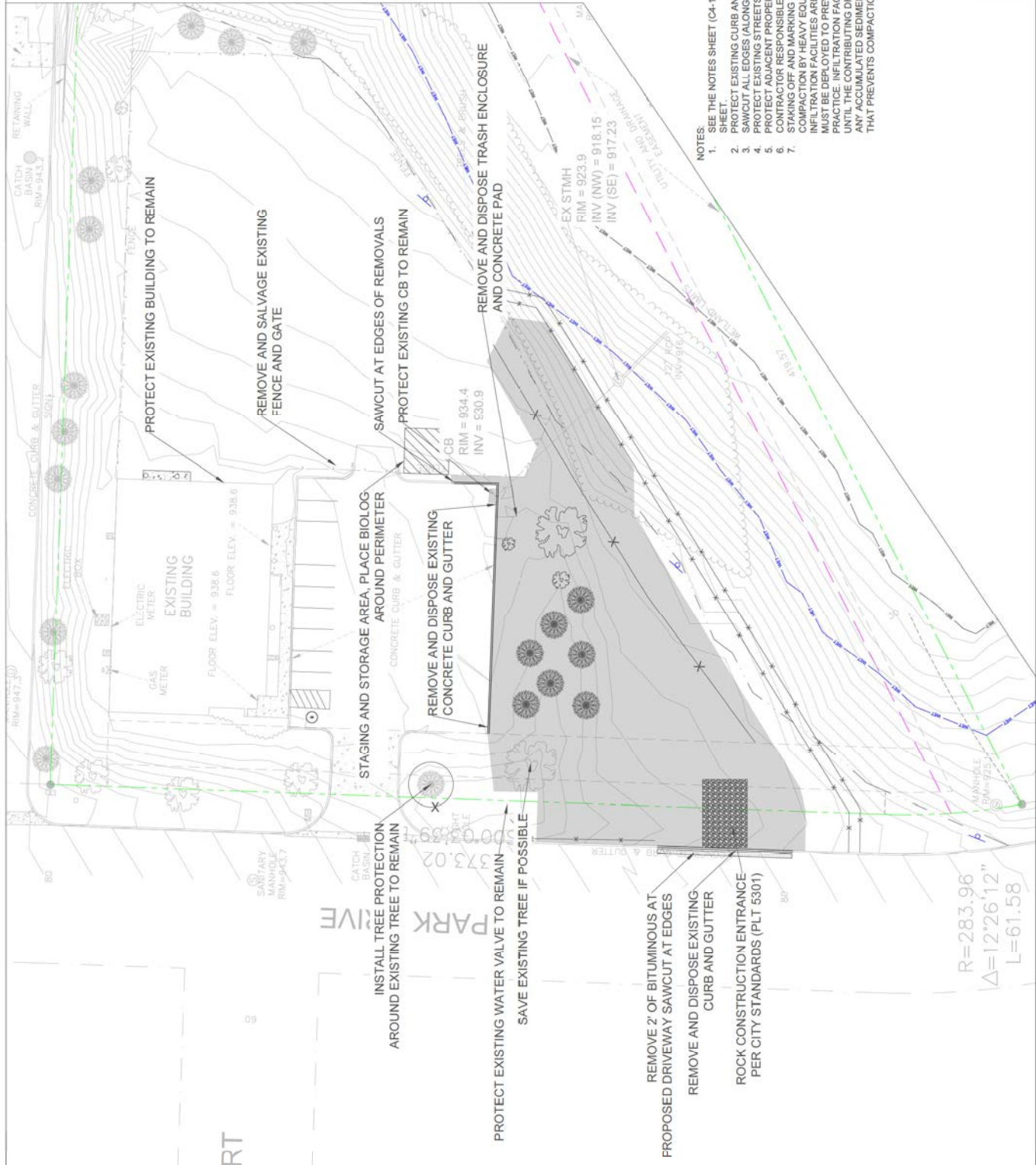
REMOVE AND DISPOSE ALL SURFACE FEATURES INCLUDING, BUT NOT NECESSARILY LIMITED TO, BRUSH, DEBRIS, CURB AND GUTTER, PAVEMENT SIGNS, BUILDINGS, LANDSCAPING, ETC. EXCEPT WHERE NOTED STOCK PILE TOPSOIL ON SITE.

**TREE REMOVALS** (See landscaping for replacements)  
Total Conifers: 7  
Total Overstory Deciduous: 3

Total Overstory Deciduous: 3

- NOTES:
- SEE THE NOTES SHEET (CA-1) FOR FULL REMOVALS NOTES, WHICH ARE INTEGRAL TO THIS PLAN SHEET.
1. PROTECT EXISTING CURB AND GUTTER ALONG STREET'S AND OTHERWISE, EXCEPT AS NOTED
  2. SAWCUT ALL EDGES (ALONG REMOVAL AREAS) OF PAVEMENT & CURB/GUTTER
  3. PROTECT EXISTING STREETS AND ALLEY.
  4. CONTRACTOR RESPONSIBLE FOR CLEANING DEBRIS TRACKED OFF SITE
  5. STAKING OFF AND MARKING OF PROPOSED INFILTRATION FACILITIES, TO PREVENT SOIL COMPACTION BY HEAVY EQUIPMENT, STOCKPILING OF MATERIALS, AND TRAFFIC IF INFILTRATION FACILITIES ARE IN PLACE DURING CONSTRUCTION ACTIVITIES. BEST PRACTICES MUST BE DEPLOYED TO PREVENT SEDIMENT AND OTHER MATERIAL FROM ENTERING THE PRACTICE INFILTRATION FACILITIES MUST NOT BE EXCAVATED TO WITHIN 3 FEET FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED
  6. ANY ACCUMULATED SEDIMENT IN AN INFILTRATION FACILITY MUST BE REMOVED IN MANNER THAT PREVENTS COMPACTION OF THE FACILITY BOTTOM.

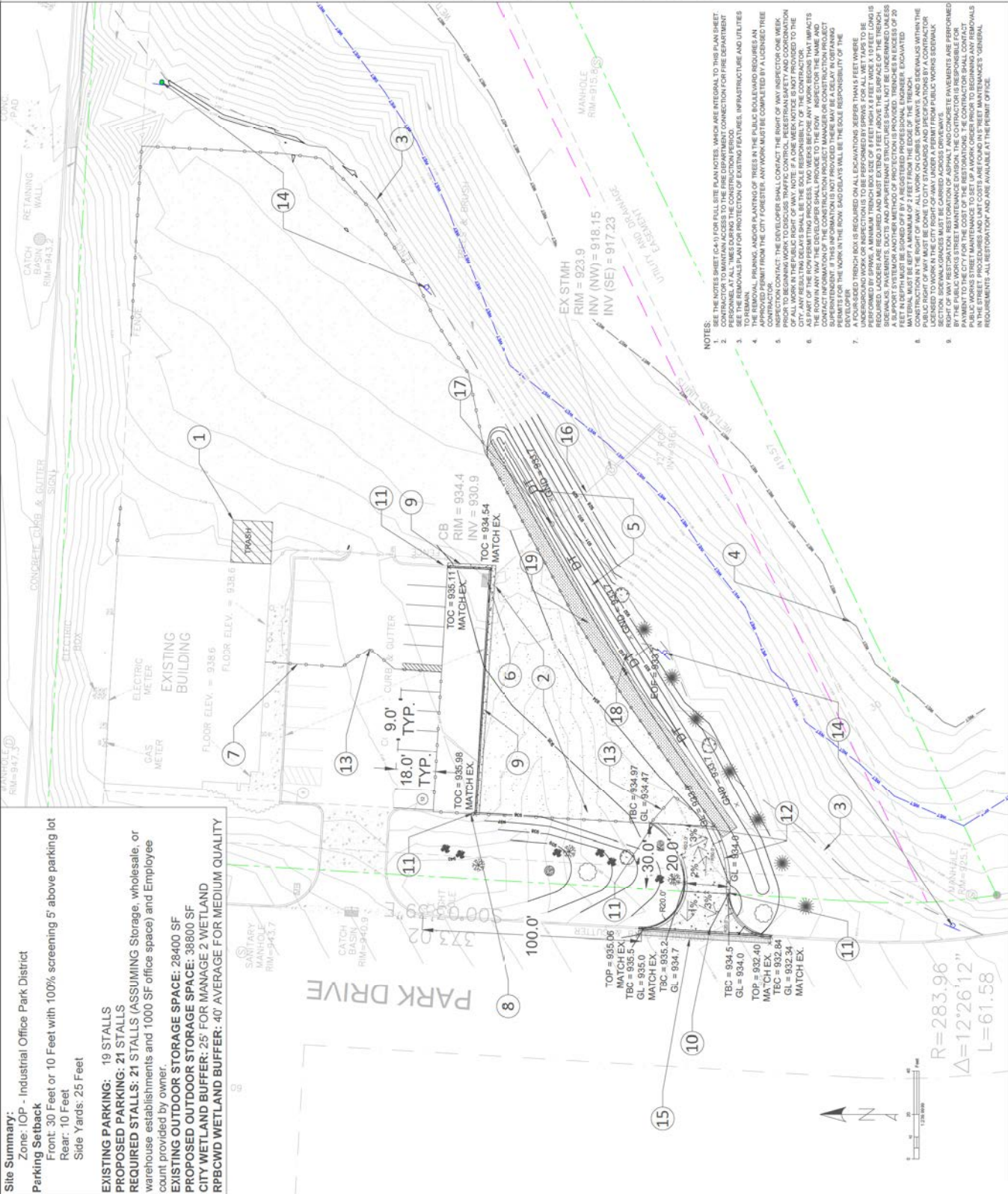
THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATION OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES AND OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.





**Site Summary:**  
 Zone: IOP - Industrial Office Park District  
**Parking Setback**  
 Front: 30 Feet or 10 Feet with 100% screening 5' above parking lot  
 Rear: 10 Feet  
 Side Yards: 25 Feet

**EXISTING PARKING:** 19 STALLS  
**PROPOSED PARKING:** 21 STALLS  
**REQUIRED STALLS:** 21 STALLS (ASSUMING Storage, wholesale, or warehouse establishments and 1000 SF office space) and Employee count provided by owner.  
**EXISTING OUTDOOR STORAGE SPACE:** 28400 SF  
**PROPOSED OUTDOOR STORAGE SPACE:** 38800 SF  
**CITY WETLAND BUFFER:** 25' FOR MANAGE 2 WETLAND  
**RPCWD WETLAND BUFFER:** 40' AVERAGE FOR MEDIUM QUALITY



<div> <div>ROW EASEMENT</div> <div>PROPERTY LINE</div> <div>WETLAND DELINEATION LIMIT</div> <div>WETLAND BUFFER LIMIT</div> </div>	<div> <div>EXISTING GRAVEL SURFACE</div> <div>PROPOSED GRAVEL SURFACE</div> <div>PROPOSED DITCH</div> </div>	<div> <div>1 PROPOSED TRASH CONTAINER AREA</div> <div>2 PROPOSED GRAVEL STORAGE AREA</div> <div>3 WETLAND BUFFER ZONE LIMIT - WATERSHED REQUIRES AVERAGE OF 40' MIN. 20' FOR MEDIUM QUALITY WETLAND PER RPCWD WATERSHED REQUIREMENT. AND MINIMUM DATED NOV. 15, 2020</div> <div>4 WETLAND DELINEATION LIMIT</div> <div>5 PROPOSED STORM WATER SWALE @ 1% WITH IRON ENRICHED SAND LAYER</div> <div>6 EXISTING CB CHANGE TO FLAT GRATE CASTING</div> <div>7 PROPOSED FENCE LOCATION PER MANUFACTURER SPECIFICATIONS</div> <div>8 8' FENCE ALONG PARK DRIVE SETBACK</div> <div>9 2" RIBBON CURB</div> <div>10 PROPOSED ONE WAY ENTRY DRIVEWAY (PER CITY STANDARDS)</div> <div>11 2" NOSE DOWN CURB</div> <div>12 1" CONCRETE RIBBON CURB</div> <div>13 PROPOSED SECURITY GATE</div> <div>14 WETLAND BUFFER MONUMENT PER CITY STANDARDS EVERY 200' MINIMUM</div> <div>15 PATCH BITUMINOUS PER CITY STANDARDS</div> <div>16 EXISTING 12" RCP PIPE</div> <div>17 12" HDPE PERFORATED RISER TEE INTO EXISTING 12" RCP PIPE RIM = 932.95 INV (E WL) = 930.2 INV (E) - (4" ORIFICE) = 932.25 INV (NW) = 924.44 INV (SE) = 924.27</div> <div>18 200' - 6" PERFORATED DRAIN TILE @ 5% INV = 931.2</div> <div>19 8' VEGETATED FILTER STRIP USE MN PF C21 Filter Strip (NATIVE) GRASS SEED OR APPROVED EQUAL</div> </div>



EASEMENT  
PROPERTY LINE  
WETLAND DELINEATION LIMIT  
WETLAND BUFFER LIMIT

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	QTY.	Type
	Ar	Acer rubrum	Red Maple	2.5"	B&B	3	Overstory
	Gi	Gleditsia inaequalis (ternis, spp)	Honeylocust	2.5"	B&B	2	Overstory
	Pg	Picea glauca	Spruce, White	8"	B&B	7	Overstory
	Lx	Lonicera xylosteum	Emerald Mound Honeysuckle #2	Potted		8	Shrub
	Mp	Malus 'Prairiewind'	Prairiewind Crabapple	2.5"	B&B	3	Understory
	Ms	Malus 'Spring Snow'	Spring Snow Crabapple	2.5"	B&B	2	Understory

PLANTING SCHEDULE

- LANDSCAPING NOTES:
- SEE C3-1 FOR LANDSCAPING DETAILS AND NOTES.
  - RESEED DISTURBED AREAS WITH TWIN CITY CITY SEED COMPANY 'TUFF TURF' SEED MIX (OR APPROVED EQUIVALENT) PER MNDOT SEEDING STANDARDS.
  - THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN TREES IN A PLUMB POSITION THROUGHOUT THE MAINTENANCE PERIOD.
  - RESEED TREATMENT SWALE AND FILTER STRIP WITH MNDOT 33-262 DRY SWALE/POND MIX 44LB/ACRE

THE CONTRACTOR SHALL CONTACT Gopher State ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATION OF ALL UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO UTILITIES. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

