

Wetland Permit Application

2022 Street Improvements

City of Vadnais Heights

Ramsey County, Minnesota

VADNA 167175

| July 2022



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Wetland Permit Application


2022 Street Improvements
City of Vadnais Heights
Vadnais Heights, Minnesota

SEH No. VADNA 167175

July 2022

I hereby certify that this Wetland Permit Application was prepared by me. The procedures and field methods used to delineation wetlands within the area of interest constitute an official wetland delineation in accordance with the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and applicable *Regional Supplement*.

Prepared By:  Date: 7/14/2022
Luke Menden, Graduate Scientist

Reviewed By:  Date: 7/14/2022
Rebecca Beduhn, Sr. Scientist
Minnesota Certified Wetland Delineator No. 1243
Professional Wetland Scientist, No. 2758

Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110-3507
651.490.2000



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Joint Application Form for Activities Affecting Water Resources in Minnesota Certification Contents

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Wetland Permit Application

2022 Street Improvements

Prepared for the City of Vadnais Heights

1 Introduction

This wetland permit application has been prepared to describe the proposed road improvements to Oakcrest Dr, South Oak Dr and South Oak Ct in the City of Vadnais Heights. **This proposed project will permanently impact 0.017 acres (740 sq ft) and temporarily impact 25 sq ft of wetland. A 0.015 acre (651 sq ft) wet ditch will be permanently impacted. Additionally, 123 linear foot boardwalk is proposed to be constructed through a wetland.** This permit application is requesting approval for the following:

- **Concurrence that no PCN is required** under Section 404 of the Clean Water Act for a **Transportation Regional General Permit (Category II)**;
- Wetland Conservation Act (WCA) approval of a **Replacement Plan** for permanent impacts to wetlands; and,
- Wetland Conservation Act (WCA) approval of a **No-Loss (MN Rule 8420.0415)** for installation of the boardwalk.

Wetland impacts requiring mitigation total **0.017 acres**. Mitigation is proposed through withdrawal of credits from an established wetland back at a ration of 2:1, requiring the **withdrawal of 0.034 acres (credits)** of wetland mitigation (see **Section 5.0** for more detail). Portions of the project contains impacts to linear ditches that are not counted toward the impact threshold of the US Army Corps of Engineers (USACE) **Transportation Regional General Permit (2017-02361)**, Section D (4)b, as advised by the USACE.

The demonstration of wetland impact avoidance and minimization in this application follows the sequencing process of the Minnesota Wetland Conservation Act (WCA) of 1991 and the federal Clean Water Act. These procedures require that projects that may result in the draining or filling of wetland habitat should demonstrate avoidance and minimization of such impacts. Wetland impacts that cannot be feasibly avoided or minimized must be replaced by compensatory mitigation.

1.1 Project Location

The project is located in the City of Vadnais Heights, Ramsey County, Minnesota in Township 30 North, Range 22 West, Section 20 as shown in **Figure 1**. The project is located in an unknown DNR minor watershed, major watershed Mississippi River – Twin Cities, and Bank Service Area (BSA) #7. The project area is detailed in **Figure 2**.

2 Project Description

This project seeks to maintain and restore city drainage systems along approximately 3,500 feet of roadway. These improvements will provide better drainage of the storm sewer system currently in place and eliminate existing scouring. By cleaning out debris and placing rip rap at structure outlets, we will provide better access for the city to maintain and inspect the storm sewer system while also slowing water down at the outlet which will prevent any erosion of wetlands.

Two culverts being replaced will result in permanent wetland fill in wetland 2 due to the installation of rip rap on the downstream end. Wetland 1 was determined to be incidental by the WCA LGU Vadnais Lake Area WMO. It will be graded to prevent flooding. Two temporary impacts to the western edge of wetland 2 are proposed. These temporary impacts will be the result of tree removal equipment accessing the area. The trees themselves are located outside of the wetland but the heavy machinery may need to drive partially into the wetland in order to complete the tree removal. The temporary wetland impacts will be reseeded with seed mix 34-181. Reference plan sheets can be found in **Appendix A**.

South of the above activities resides Bear Park. A proposed 123-foot boardwalk would connect two existing bituminous paths through a wetland. This construction would take place during the winter months after the ground has frozen enough to support construction personnel.

2.1 Existing Conditions

The project area consists of 3,500 ft of asphalt roadways that are 25 ft in width. Road conditions and the accompanying stormwater culverts are deteriorating in condition. Residential housing is positioned along the north side of the roads while the south is bordered by a wetland on the western portion and the Vadnais Heights Commons on the eastern portion.

Current stormwater systems are not functioning as intended during rain events. Culverts are accumulating debris and experiencing scouring at the downstream ends. Stormwater is accumulating and pooling in areas rather than flowing as intended. No rip-rap is installed on the downstream ends of the culverts.

2.2 Purpose and Need

The project's purpose and need are to maintain and restore city drainage systems so that they function correctly. Current drainage systems within the project area are not functioning properly resulting in scouring along downstream culverts. If left unrepaired, scouring could expand and lead to undermining of the established roadway. This project seeks to eliminate the risk to the roadway, providing a long-term solution to what could become a public safety hazard.

3 Sequencing

Alternatives for the site were considered based on the practicability to avoid and minimize waterway impacts and achieve the project purpose and need. These alternatives considered the practicability and feasibility of location alternatives and engineering methodology alternatives to replace the existing trail.

3.1 Alternatives, Avoidance, and Minimization

A number of project alternatives were considered for the potential to avoid and minimize wetland impacts. These alternatives, as well as the no-build alternative, are described briefly herein.

3.1.1 Alternative 1 - No-build Alternative

A No-Build Alternative would consist of leaving the project area unaltered. This alternative, while resulting in no wetland impacts, was deemed not recommended as it did not address the stormwater issues. Culverts would continue to accumulate debris and scouring would intensify. As such, this alternative was not chosen as the preferred alternative.

3.1.2 Alternative 2 – Additional Storm sewers

A design alternative implementing additional storm sewers was considered in Alternative 2. This alternative explored installing additional storm sewers to divert some stormwater away from the current culverts. Alternative 2 would help reduce scouring by spreading stormwater across more culverts. However, the installation of these new culverts would require additional grading within the wetland and a resulting wetland impact greater than the preferred alternative.

3.1.3 Alternative 3 – Pedestrian Path

Alternative 3 sought the installation of a walking path along the southern edge of the project area roadway. This would have added to the appeal of the adjacent park and community commons area. Stormwater culverts would have been extended past the southern edge of the trail to outlet into wetland 2. The installation and grading for the walking path would have considerably increased wetland impacts through the addition of fill. Additionally, the rip rap around the extended culverts would add more fill in wetland habitat than the preferred alternative, resulting in greater permanent impacts. For these reasons, this alternative was not chosen.

3.1.4 Alternative 4 – Preferred Alternative

Alternative 4 was deemed the preferred alternative. Under the preferred alternative, the City will add rip rap to existing culverts, limiting the location of the riprap in wetland to the greatest extent practicable as only two of these rip rap installations will take place within the wetland. Temporary impacts are required but are isolated to small areas for tree removal.

4 Wetlands

4.1 Results

SEH completed a wetland delineation in October 2021. This delineation identified 2 wetland basins within the project area. The delineated wetland for the project is shown on **Figure 4-1**. The complete wetland delineation report is available upon request.

A wetland delineation was conducted Bear Park by Kjolhaug Environmental Services Company in May 2021. The wetland boundary determined during that delineation represents Wetland 3 (previously Wetland B in the delineation report) and is depicted in **Figure 4-2**.

Table 1 – Wetland Characteristics

Basin ID	Size (acres) ¹	Eggers & Reed Classification	Cowardin & Circular 39 Classification	Surficial Connectivity
1	0.015	Fresh (Wet) Meadow	Type 2 / PEMB	Isolated road ditch
2	1.84	Shallow Marsh	Type 3 / PEMC	Large wetland complex that extends outside the project limits to the south and east
3	0.69	Seasonally Flooded Basin	Type 1 / PFO1Ad	Unknown

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

4.2 Regulatory Jurisdiction

Wetlands in the project area are regulated by several agencies at the local, regional, state, and federal levels including the USACE and the EPA at the federal level; the Minnesota Board of Water and Soil Resources (BWSR) and the Minnesota Pollution Control Agency (MPCA) at the state level; and the Vadnais Lake Area WMO at the local level. The Vadnais Lake Area WMO has accepted the responsibility for the administration of the Minnesota Wetland Conservation Act (WCA) of 1991. The Minnesota Department of Natural Resources (MNDNR) regulates areas within the project that are identified as public waters or public waters wetlands.

5 Wetland and Aquatic Resource Impacts

The project will permanently impact a total of **0.017 acres (740 ft²)** of wetlands from the placement of rip rap along culverts. Additionally, the project will temporarily impact **25 ft²** of wetlands for equipment access. All impacts are illustrated in **Figure 5**

5.1 Wetland Impacts

A total of 0.017 acres of wetland impacts will require compensatory mitigation. A mitigation plan is described in **Section 5.1**, below Table 2.

Table 2 – Summary of Wetland and Aquatic Resource Impacts

Aquatic Resource ID	Aquatic Resource Type	Type of Impact	Duration of Impact	Size of Impact	Plant Community Type (Eggers and Reed)	County, Major Watershed #, and Bank Service Area #
1	Incidental Wetland	Fill	N/A	0.015 acre	Fresh (wet) Meadow	Ramsey, Mississippi River – Twin Cities #20, BSA #7
2	Wetland	Fill	P	0.017 acre	Shallow Marsh	
2	Wetland	Equipment access	T	25 sq ft	Shallow Marsh	
3	Wetland	Boardwalk installation	N/A		Seasonally Flooded Basin	

Mitigation is not required for all impacts associated with the project. Some wetlands have been determined incidental by the WCA (Section 5.1.1), while those resulting from the boardwalk do not require mitigation as they are considered no-loss (Section 5.1.2). A total of 0.017 acres of wetland impacts will require compensatory mitigation. A mitigation plan is described in **Section 5.4**.

5.1.1 Wet Ditch Impacts

The WCA only regulates those that are natural wetland and not considered incidental. Wet ditch impacts (all of those impacts to Wetland 1) are not under jurisdiction of the WCA, as Wetland 1 was determined to be incidental by VLAWMO.

In accordance with definitions provided by the USACE, a linear ditch is identified as a feature constructed adjacent to a linear transportation facility to convey runoff that is not a natural tributary, a relocated natural tributary, or a modified natural tributary. Impacts to linear ditches, provided the ditch is not constructed in a wetland, do not count toward the impact thresholds of the **Transportation Regional General Permit (2017-02361)**, Section D (4)b. All of the impacts to (wet) ditches along the roadway are considered linear ditches as defined by the USACE. **Table 3** outlines the wetlands that are considered linear ditches, the impact quantities, and the conditions of each feature.

Table 3 – Impacts to Linear (Wet) Ditches (Incidental)

Basin ID	Wet Ditch Impact Quantity	
	ft ²	Acres
Wetland 1	651	0.015

Basin ID	Wet Ditch Impact Quantity	
	ft ²	Acres
Total	0.015	651

5.1.2 No Loss

The proposed boardwalk located at Bear Park fall under WCA 8420.0415 No-Loss Criteria: A. an activity that will not impact a wetland. The construction work would begin once the ground has adequately frozen enough to support personnel and equipment. This will prevent disturbance to the wetland soils and will not impede the movement of water.

The boardwalk is proposing 14 (7 sets of 2) piles, each with a diameter of 6 inches. The installation of boardwalk piers will result in 395 square inches, or 2.74 square feet of fill impact within Wetland 3.

Table 4 – Impacts Qualifying under a No-loss

Basin ID	Impact Quantity	
	ft ²	in ²
Wetland 3	2.74	395
Total	2.74	395

5.2 Proposed Mitigation

Compensatory mitigation for permanent impacts to wetlands is proposed through debit of credits from an established wetland bank. All of the wetland banks were contacted within BSA #7 (the same BSA as the impact). Of those contacted, only two (bank #1762 and #1698) had sufficient credits available that were willing to sell. After the initial consultation, several attempts were made to contact wetland bank #1762, and the applicant was unable to procure a purchase agreement from the seller. The remaining bank, #1698 was responsive and provided a purchase agreement.

The City of Vadnais Heights proposes to debit credits from wetland bank #1762. This bank is located in BSA #7, Major Watershed #20 (Mississippi River – Twin Cities), and an unknown DNR minor watershed. The proposed mitigation ratio is 2:1 due to the credits being in place and in advance.

The selected bank meets the siting criteria in M.S. 103G.222, Subd. 3, (3). This statute requires applicants to pursue replacement in the following order: 1) in the minor watershed of the impacted wetland, 2) in the same watershed as impacted wetlands, 3) in the same wetland bank service area as the impacted wetlands; and, 4) in another wetland bank service area. No bank credits are available in the same minor watershed as the impacted wetlands, but bank #1698 is in the same major watershed (#20) as the project.

The Applicant proposes to purchase 0.034 credits (1,480 ft²) to satisfy the compensatory mitigation requirements of both the USACE and the WCA. A purchase agreement is included as Appendix B.

5.3 Permitting

Prior to impact, permits must be obtained from several local, state, and federal agencies. The following are summaries of the specific requests.

5.3.1 U.S. Army Corps of Engineers

All of the wetlands in the project area are under the jurisdiction of the U.S. Army Corps of Engineers. This permit application is requesting approval for a for **no PCN required** under the **Transportation Regional General Permit (Category II)**. Projects that propose to permanently impact less than 0.1 acre of wetland habitat and/or temporarily impact greater than 0.5 acres of wetland habitat are eligible for Category 2 – no PCN required. Because Wetland 1 is considered a roadside wet ditch, impacts to these basins do not count toward this threshold, the wetland impacts meet the requirements of the permit category for No-PCN required. A copy of the Joint Application Form for Activities Affecting Water Resources in Minnesota is included with this report.

5.3.2 Wetland Conservation Act – Vadnais Lake Area WMO

The Vadnais Lake Area WMO is responsible for administration of the WCA in the project area. This permit application is a request for a **Replacement Plan** under the rules of the Minnesota Wetland Conservation Act of 1991. A copy of the Joint Application Form for Activities Affecting Water Resources in Minnesota is included with this report.

Figures

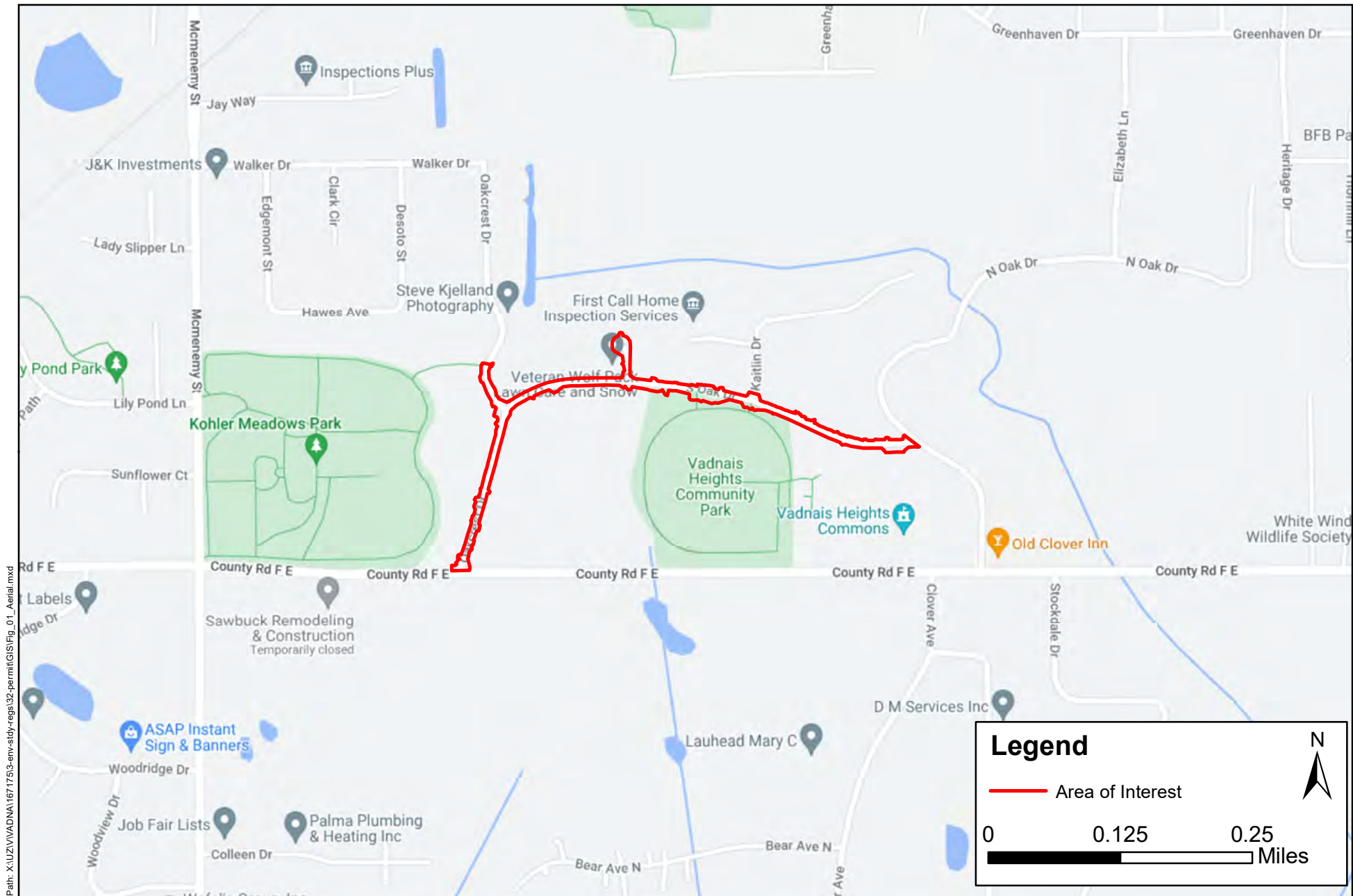
Figure 1 – Site Location Map

Figure 2 – Project Overview Map

Figure 3 – Minnesota Department of Natural Resources Public Waters Inventory Map

Figure 4 – Wetland Delineation Results Map

Figure 5 – Wetland Impacts Map



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3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (651) 490-2150
WATTS: 800-325-2055
www.sehinc.com

Project: VADNA 167175
Print Date: 6/29/2022

Map by: Imenden
Projection: UTM NAD 83 Zone 15N
Source: Google, SEH, ESRI, USDA,
NRCS, USGS, MnDNR, MnGeo

Site Location

2022 Street Improvements

Vadnais Heights, Ramsey County, Minnesota

Figure
1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

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ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (651) 490-2150
WATTS: 800-325-2055
www.sehinc.com

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Print Date: 7/18/2022

Map by: Imenden
Projection: UTM NAD 83 Zone 15N
Source: Google, SEH, ESRI, USDA, NRCS, USGS, MnDNR, MnGeo

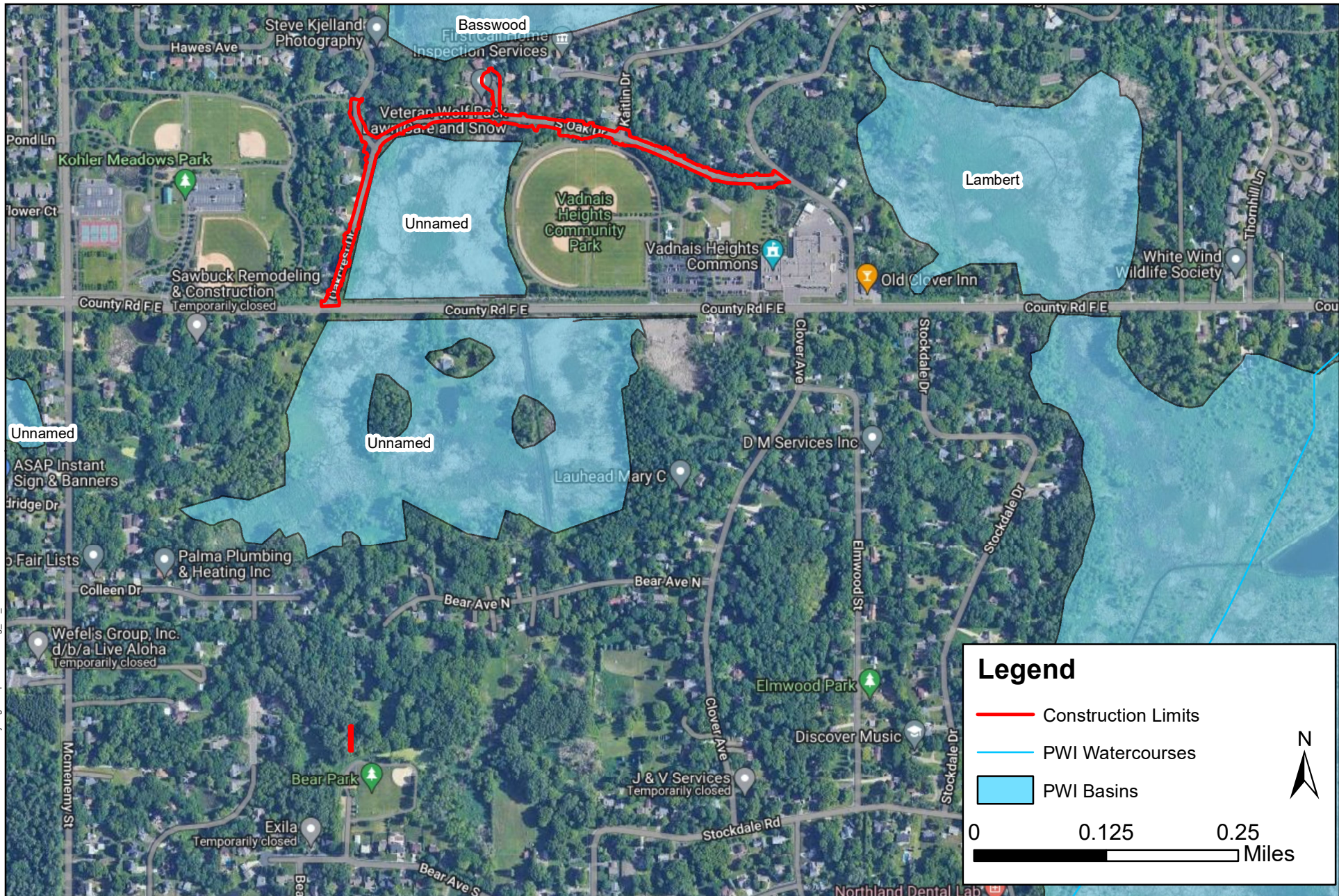
Project Overview

2022 Street Improvements

Vadnais Heights, Ramsey County, Minnesota

Figure
2

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ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (651) 490-2150
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Print Date: 7/18/2022

Map by: Imenden
Projection: UTM NAD 83 Zone 15N
Source: Google, SEH, ESRI, USDA,
NRCS, USGS, MnDNR, MnGeo

Public Waters Inventory (PWI)

2022 Street Improvements

Vadnais Heights, Ramsey County, Minnesota

Figure
3

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 ST. PAUL, MN 55110
 PHONE: (651) 490-2000
 FAX: (651) 490-2150
 WATTS: 800-325-2055
 www.sehinc.com

Project: VADNA 167175
 Print Date: 7/14/2022

Map by: Imenden
 Projection: UTM NAD 83 Zone 15N
 Source: Google, SEH, ESRI, USDA,
 NRCS, USGS, MnDNR, MnGeo

Wetland Delineation Results

2022 Street Improvements

Vadnais Heights, Ramsey County, Minnesota

Figure
4-1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.



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Wetland Delineation Results
2022 Street Improvements
Vadnais Heights, Ramsey County, Minnesota

Figure
4-2

Appendix A

Project Plan Sheets

CITY OF VADNAIS HEIGHTS, MINNESOTA CONSTRUCTION PLANS FOR

BITUMINOUS RECLAMATION AND PAVING, CURB AND GUTTER REPAIRS,
RIBBON CURB INSTALLATION, CONCRETE PEDESTRIAN RAMPS,
MULTI-USE PATH, UTILITY REPAIRS AND IMPROVEMENTS

2022 STREET IMPROVEMENTS

CITY PROJECT NO. 2022-01

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.

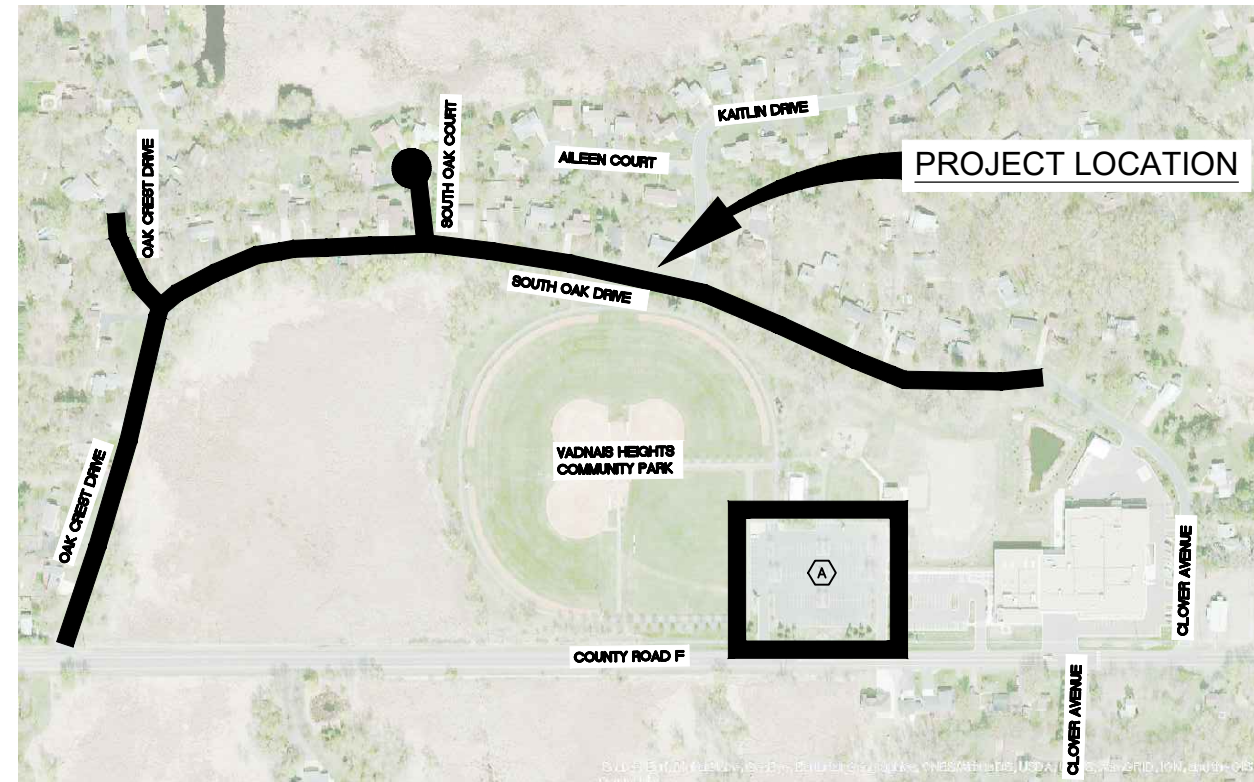
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

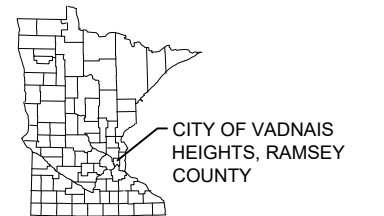
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	GENERAL NOTES & TYPICAL SECTIONS
4-6	STRUCTURE SCHEDULES & TABULATIONS
7-20	DETAILS
21-26	CONSTRUCTION PLAN
27	STORM SEWER PROFILES
28-29	INTERSECTION DETAILS
30-31	COMMUNITY PARK PARKING LOT PLAN
32-34	EROSION CONTROL & TURF ESTABLISHMENT AND SIGNING & STRIPING PLAN
35-36	OAK CREST DRIVE CROSS SECTIONS

THIS PLAN CONTAINS 36 SHEETS.

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



PROJECT LOCATION



APPROVED:

CITY ENGINEER _____ DATE _____

VADNAIS HEIGHTS, MINNESOTA

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.

Signature: SCOTT D. HAUPT, PE
Date: 06/21/2022 Lic. No. 46603

FILE NO.

VADNA167175

1

of 36

ADDITIONAL PROJECT AREAS:
A VADNAIS HEIGHTS COMMUNITY PARK PARKING LOT IMPROVEMENTS

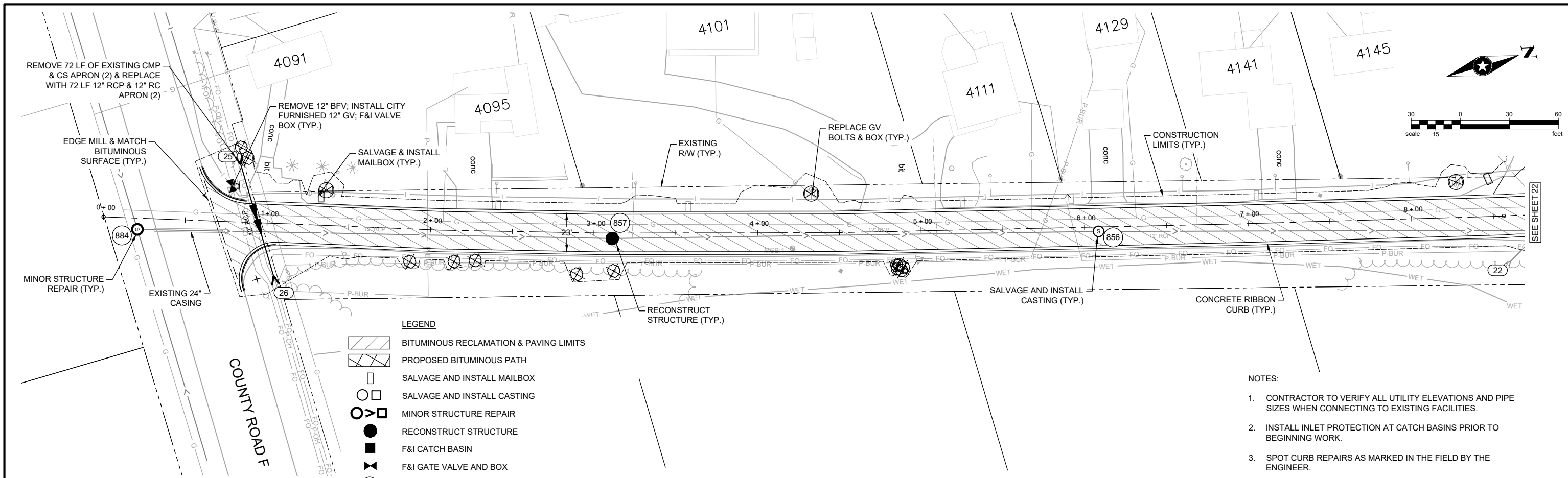
NOTE:
THE SUBSURFACE UTILITY QUALITY INFORMATION IN THIS PLAN IS LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE CONTRACTOR SHALL CALL THE GOPHER STATE ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.



Know what's below.
Call before you dig.

Save: 7/15/2022 12:03 AM hunningham Plot: 7/7/2022 2:37 AM x:\ZV\ADNA\16717515-final-dsgn\51-drawings\10-Civil\cdwg\sheet\Alignment - S Oak Court.dwg

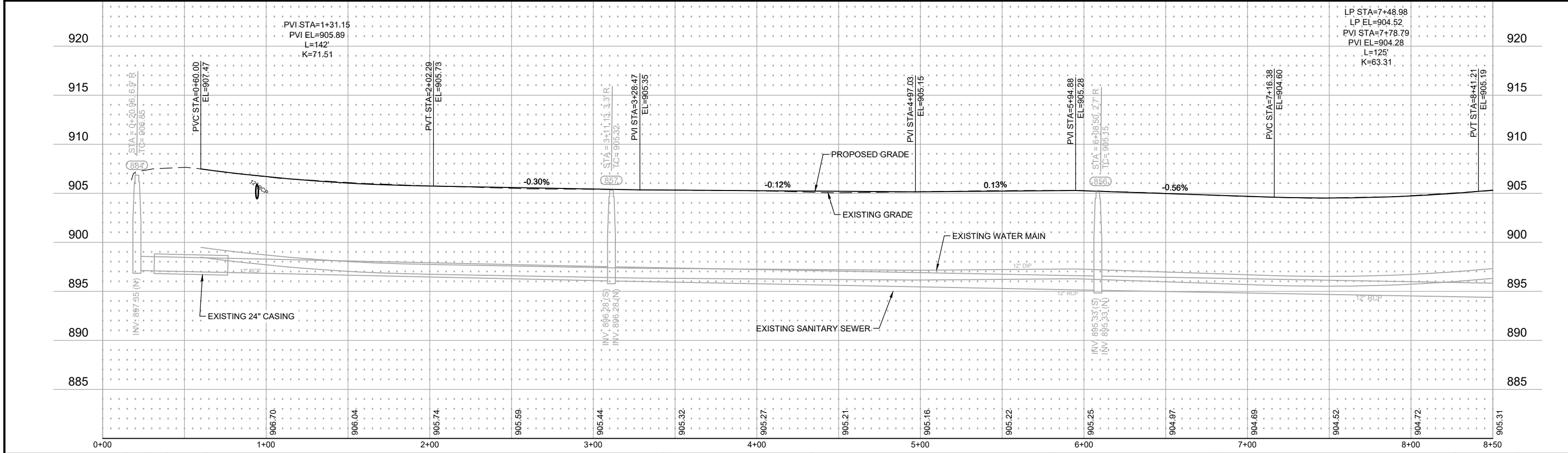


OAK CREST DRIVE

BENCHMARK EL. 909.00
TNH SW CORNER OAKCREST DR. AND COUNTY RD. F

BENCHMARK EL. 908.52
STA. 04+32.88 OFFSET 26.47 L

- NOTES:**
- CONTRACTOR TO VERIFY ALL UTILITY ELEVATIONS AND PIPE SIZES WHEN CONNECTING TO EXISTING FACILITIES.
 - INSTALL INLET PROTECTION AT CATCH BASINS PRIOR TO BEGINNING WORK.
 - SPOT CURB REPAIRS AS MARKED IN THE FIELD BY THE ENGINEER.



DRAWN BY:	HRC, DSJ
DESIGNER:	HRC
CHECKED BY:	SDH
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

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.

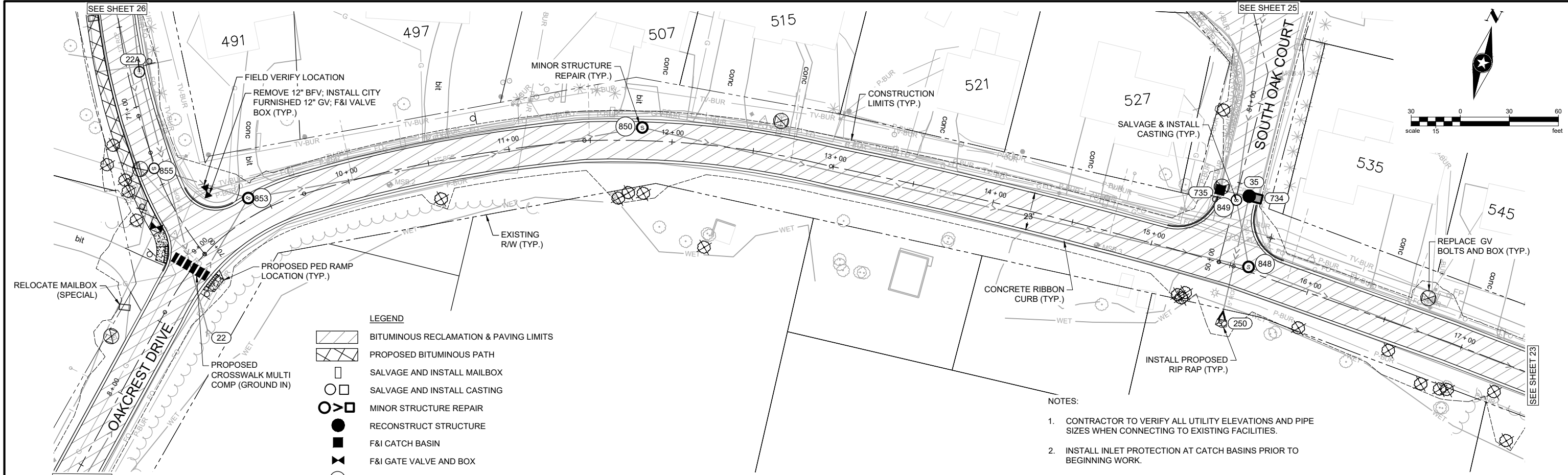
Date: 6/21/2022
SCOTT D. HAUPT, PE
Lic. No. 46603

**VADNAIS HEIGHTS
MINNESOTA**

**OAK CREST DRIVE CONSTRUCTION
PLAN
2022 STREET IMPROVEMENTS**

FILE NO.
VADNA 167175

21
36



LEGEND

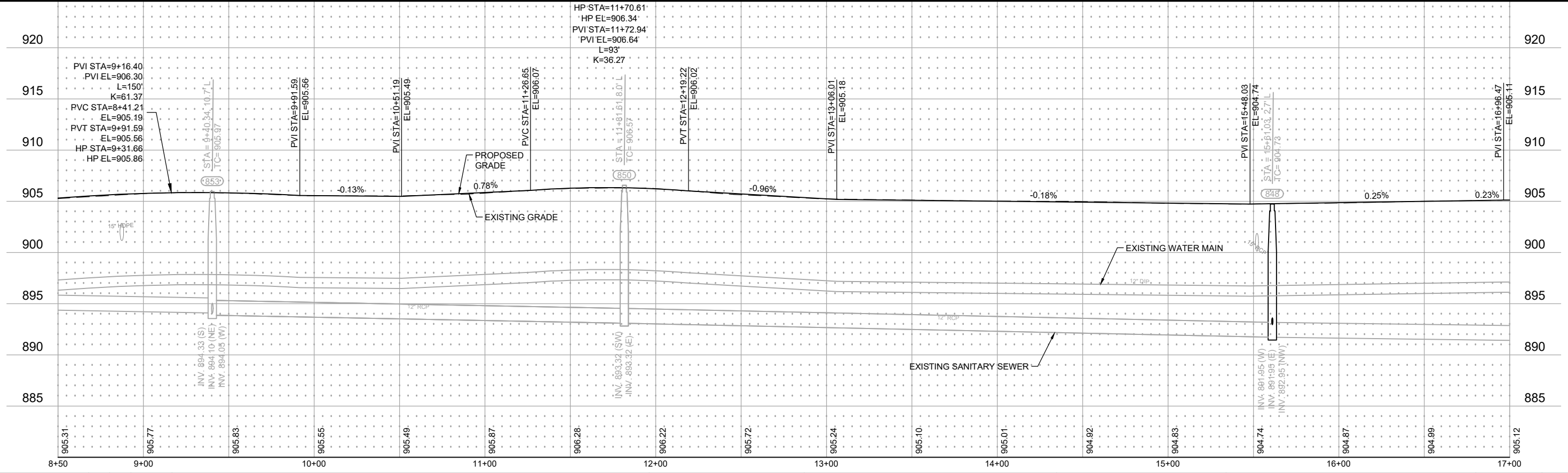
	BITUMINOUS RECLAMATION & PAVING LIMITS
	PROPOSED BITUMINOUS PATH
	SALVAGE AND INSTALL MAILBOX
	SALVAGE AND INSTALL CASTING
	MINOR STRUCTURE REPAIR
	RECONSTRUCT STRUCTURE
	F&I CATCH BASIN
	F&I GATE VALVE AND BOX
	REPLACE GATE VALVE BOLTS AND BOX
	REMOVE TREE

- NOTES:**
- CONTRACTOR TO VERIFY ALL UTILITY ELEVATIONS AND PIPE SIZES WHEN CONNECTING TO EXISTING FACILITIES.
 - INSTALL INLET PROTECTION AT CATCH BASINS PRIOR TO BEGINNING WORK.
 - SPOT CURB REPAIRS AS MARKED IN THE FIELD BY THE ENGINEER.

SOUTH OAK DRIVE

BENCHMARK EL. 908.28
STA. 08+28.05 OFFSET 19.63 L

BENCHMARK EL. 908.02
STA. 16+70.94 OFFSET 18.61 L



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DRAWN BY: HRC, DSJ				
DESIGNER: HRC				
CHECKED BY: SDH				
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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**VADNAIS HEIGHTS
MINNESOTA**

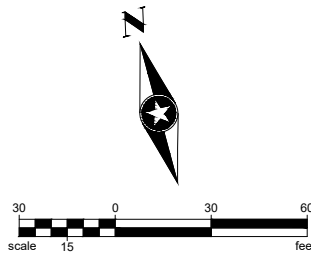
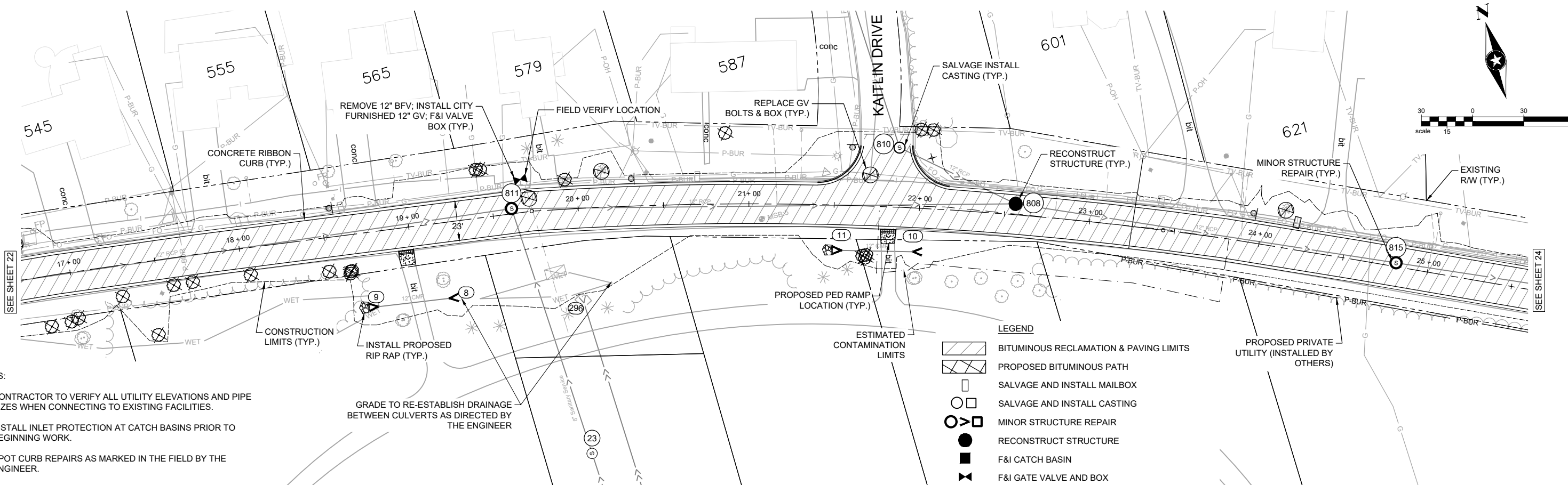
**SOUTH OAK DRIVE
CONSTRUCTION PLAN
2022 STREET IMPROVEMENTS**

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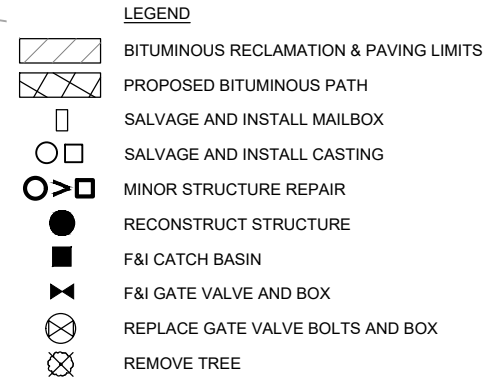
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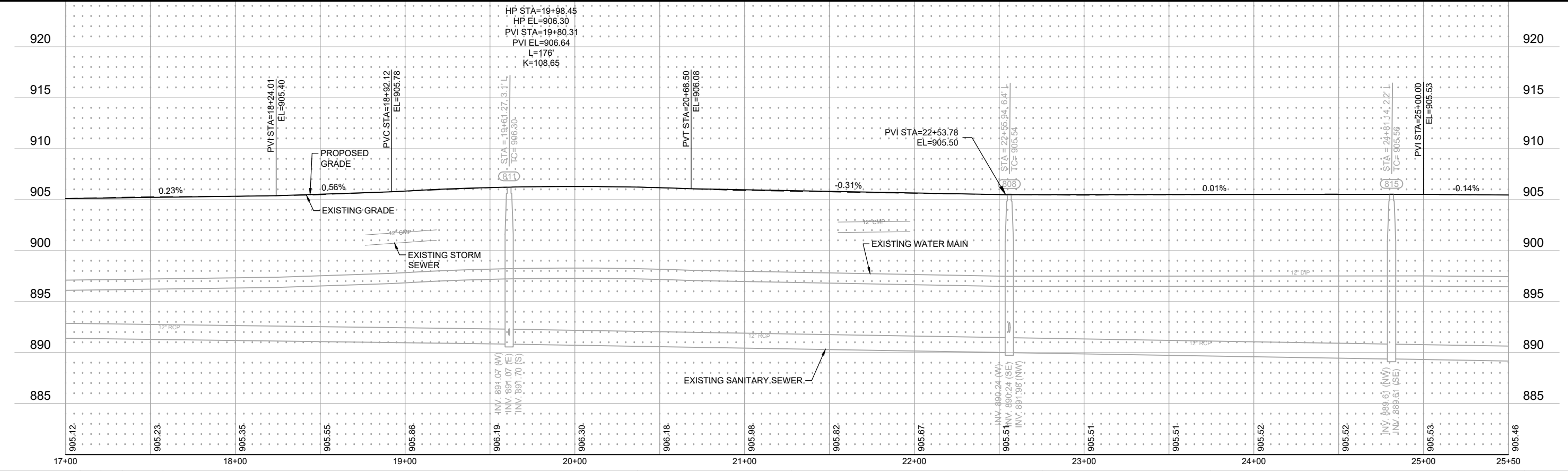
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BENCHMARK EL. 908.02
STA. 16+70.94 OFFSET 18.61 L

BENCHMARK EL. 908.00
STA. 24+12.72 OFFSET 24.47 L

SOUTH OAK DRIVE



DRAWN BY:	HRC, DSJ
DESIGNER:	HRC
CHECKED BY:	SDH
DESIGN TEAM	

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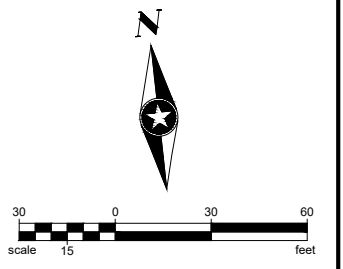
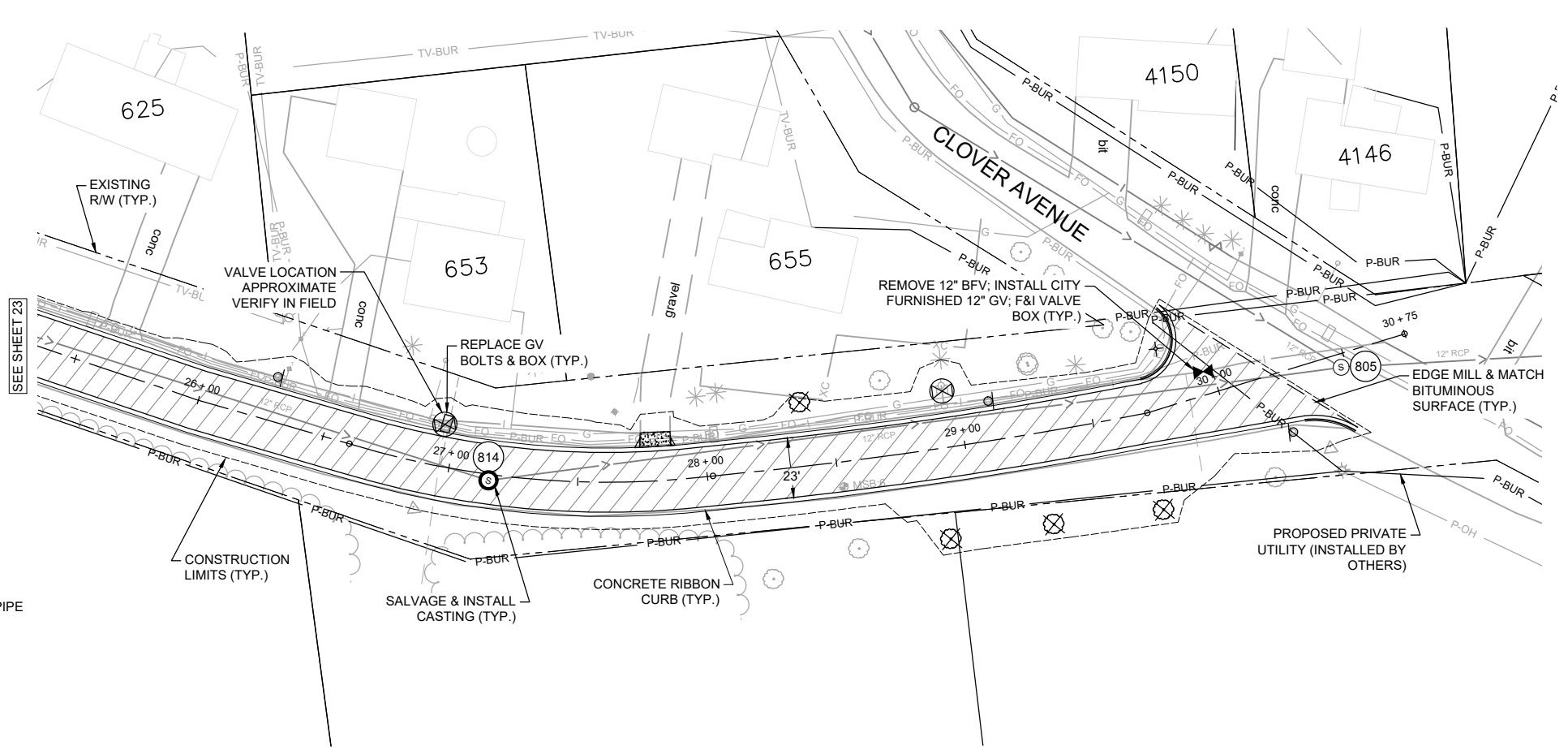
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**VADNAIS HEIGHTS
MINNESOTA**

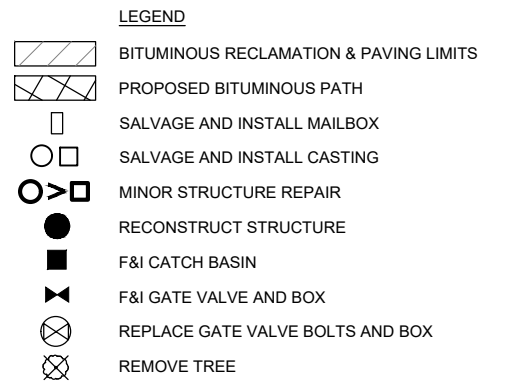
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2022 STREET IMPROVEMENTS**

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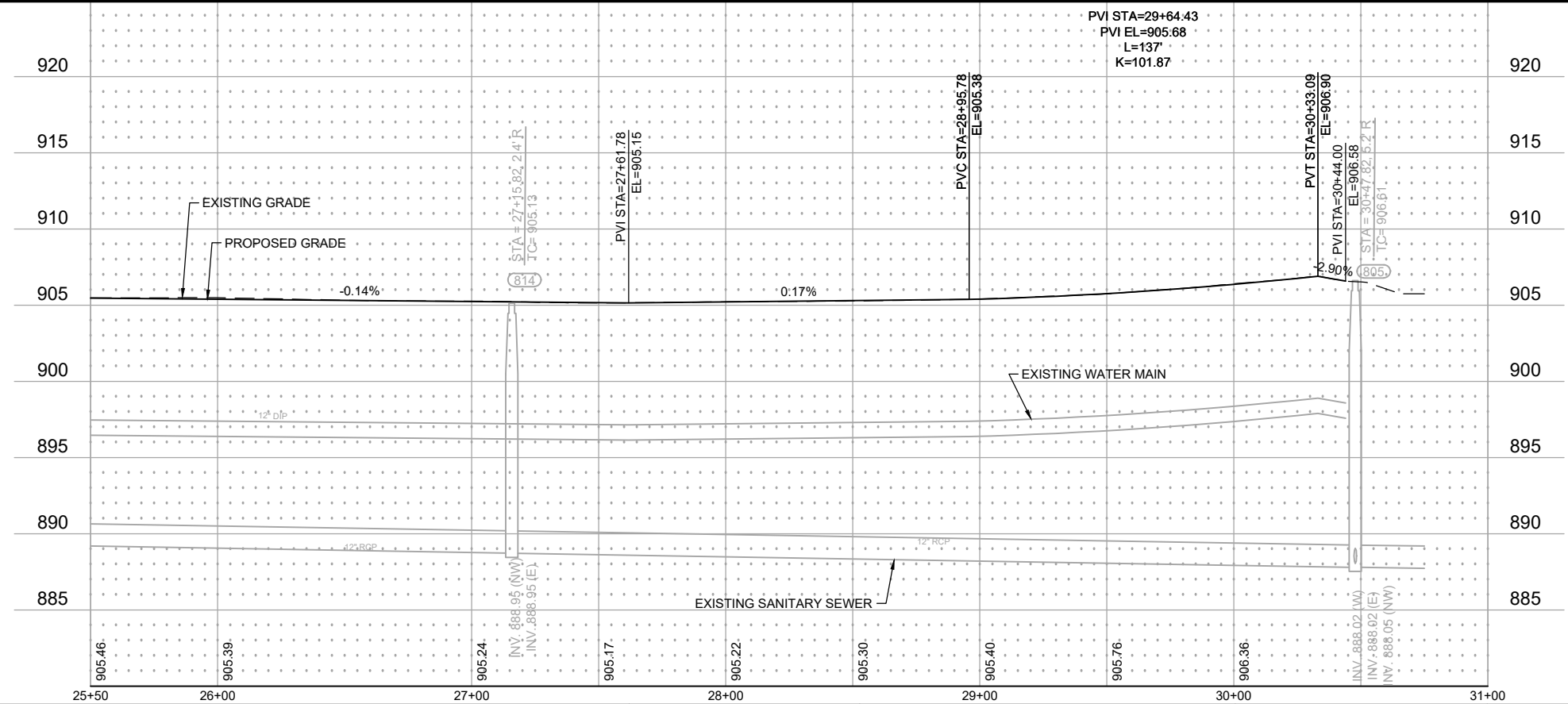
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BENCHMARK EL. 908.00
STA. 24+12.72 OFFSET 24.47 L

BENCHMARK EL. 907.52
TNH NW CORNER S. OAK DR. AND CLOVER AVE.

SOUTH OAK DRIVE



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MINNESOTA**

**SOUTH OAK DRIVE
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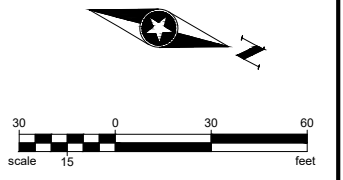
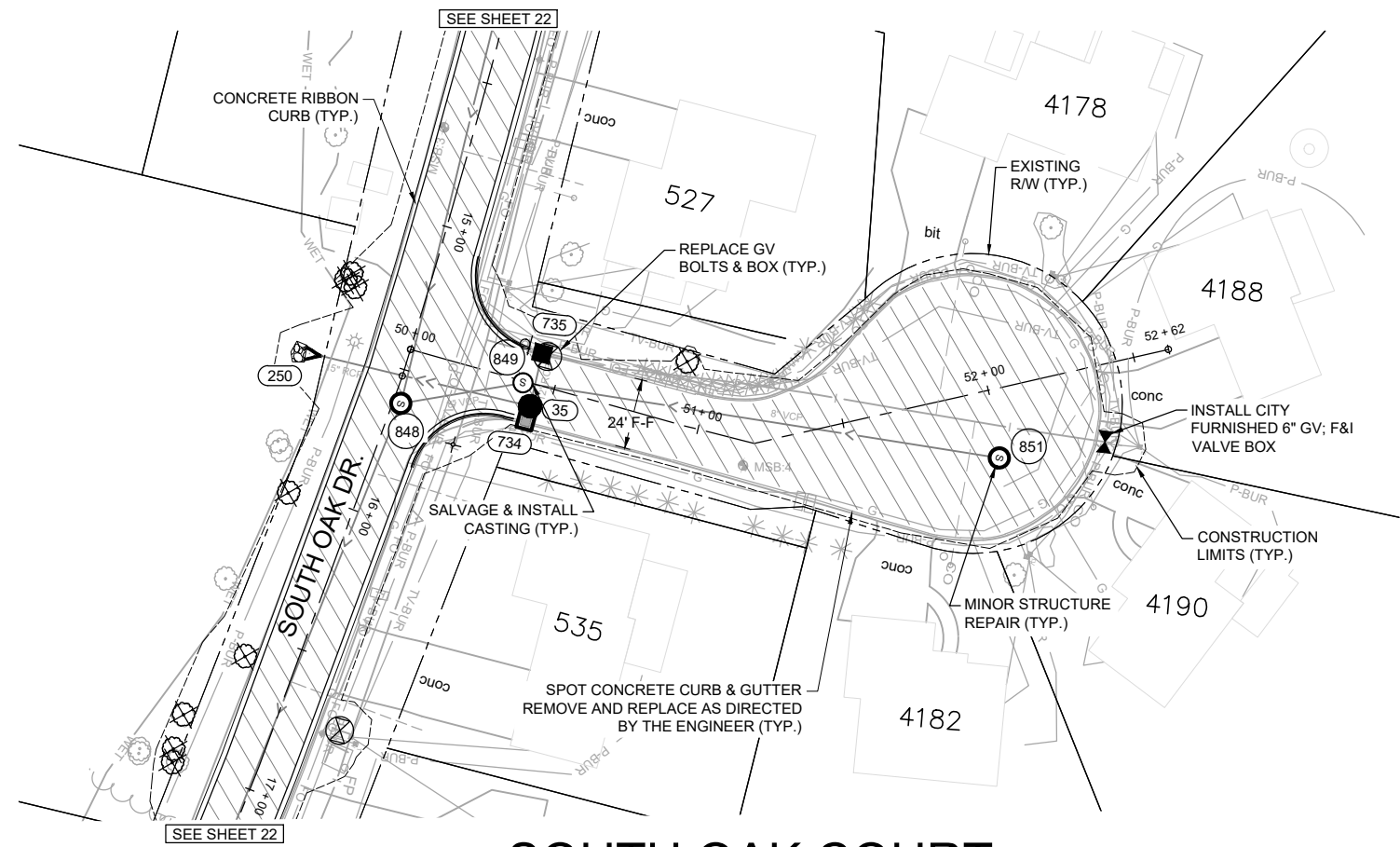
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LEGEND

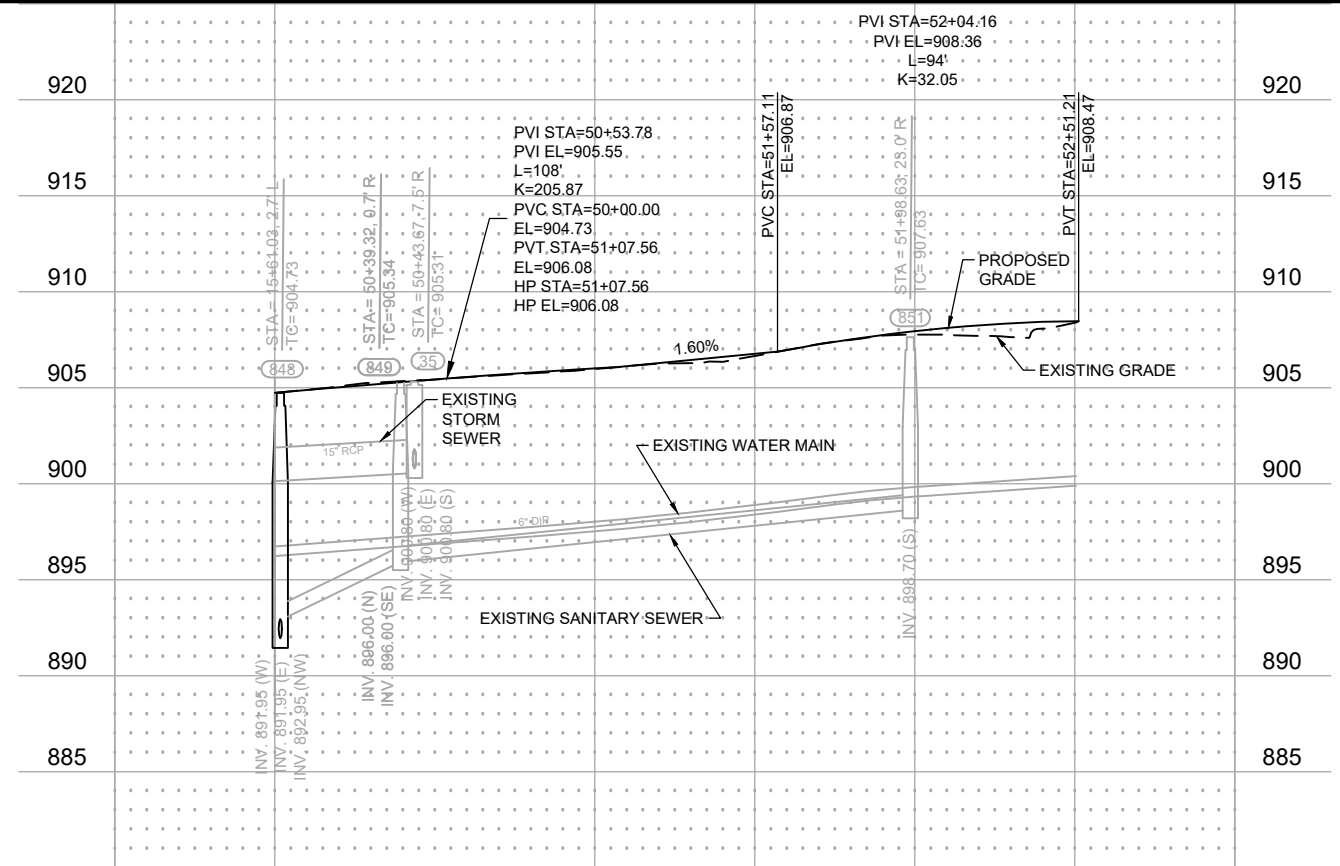
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- PROPOSED BITUMINOUS PATH
- SALVAGE AND INSTALL MAILBOX
- SALVAGE AND INSTALL CASTING
- MINOR STRUCTURE REPAIR
- RECONSTRUCT STRUCTURE
- F&I CATCH BASIN
- F&I GATE VALVE AND BOX
- REPLACE GATE VALVE BOLTS AND BOX
- REMOVE TREE



SOUTH OAK COURT

BENCHMARK EL. 908.02
STA. 16+70.94 OFFSET 18.61 L

BENCHMARK EL. 910.23
TNH N END OF S. OAK CT



Save: 7/5/2022 12:03 AM hunningham Plot: 7/7/2022 2:40 AM x:\UZV\ADNA\167175\5-final-dsgn\51-drawings\10-Civil\cdwg\sheet\Alignment - S Oak Court.dwg

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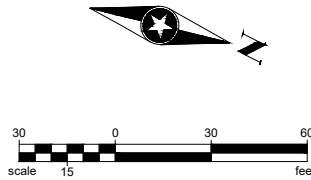
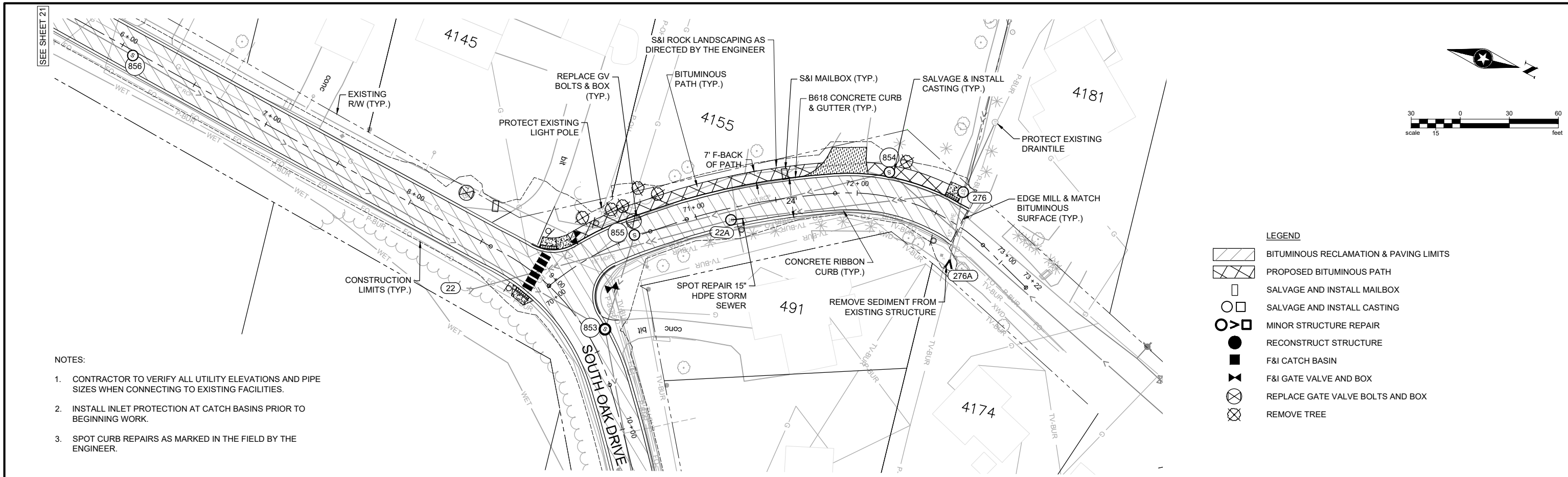
VADNAIS HEIGHTS
MINNESOTA

**SOUTH OAK COURT
CONSTRUCTION PLAN**
2022 STREET IMPROVEMENTS

FILE NO.
VADNA 167175

25
36

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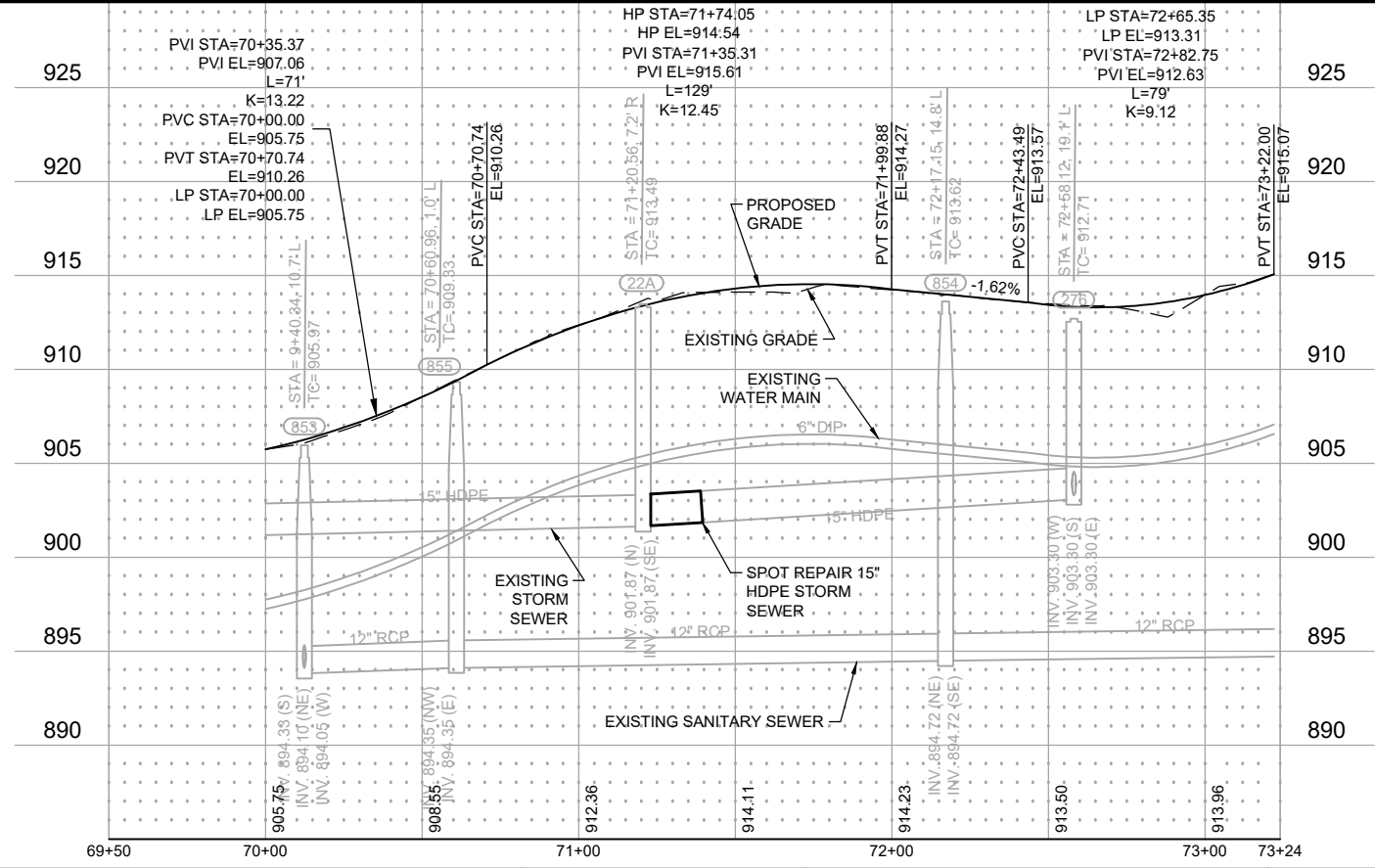
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BENCHMARK EL. 908.28
STA. 8+28.05 OFFSET 19.63 L

BENCHMARK EL. 908.98
STA. 12+63.47 OFFSET 23.88 L

OAK CREST DRIVE



DRAWN BY: HRC, DSJ				
DESIGNER: HRC				
CHECKED BY: SDH				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

SEH
 PHONE: 651.490.2000
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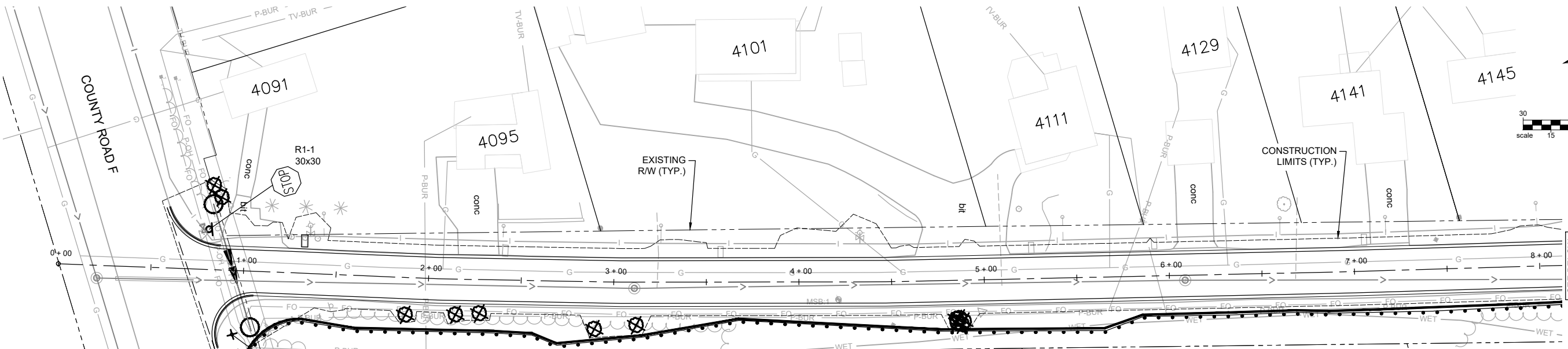
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**VADNAIS HEIGHTS
MINNESOTA**

**OAK CREST DRIVE
CONSTRUCTION PLAN
2022 STREET IMPROVEMENTS**

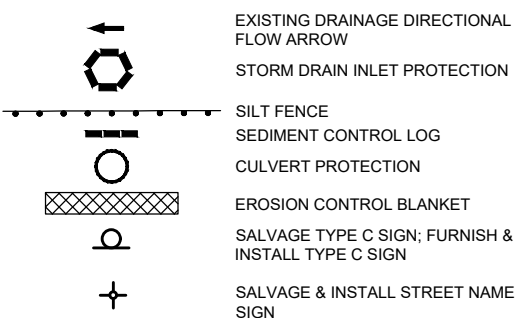
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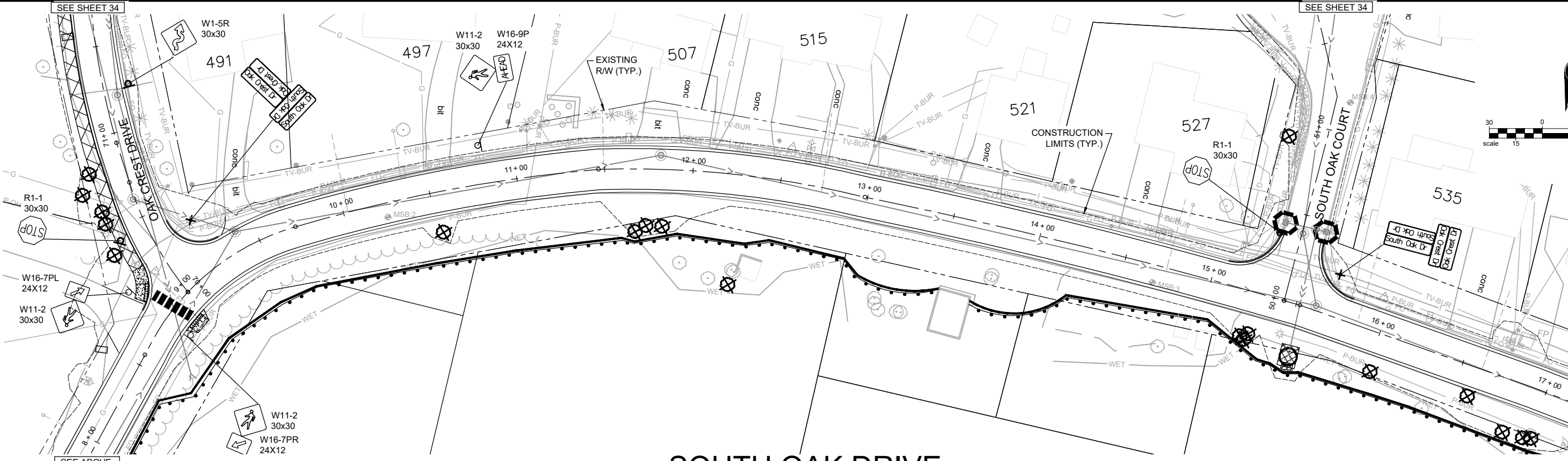
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 2. SIGN SIZES ARE IN INCHES.
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LEGEND



- SEEDING-EROSION CONTROL NOTES:**
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 6. CONTRACTOR SHALL MAINTAIN ACCESS AT CONNECTING STREETS THROUGHOUT THE PROJECT AREA BY UTILIZING A DRIVABLE CLASS 5 AGGREGATE SURFACE.

OAKCREST DRIVE



SOUTH OAK DRIVE

DRAWN BY:	HRC, DSJ
DESIGNER:	HRC
CHECKED BY:	SDH
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

PHONE: 651.490.2000
3535 VADNAIS CENTER DRIVE
ST. PAUL, MN 55110-5196
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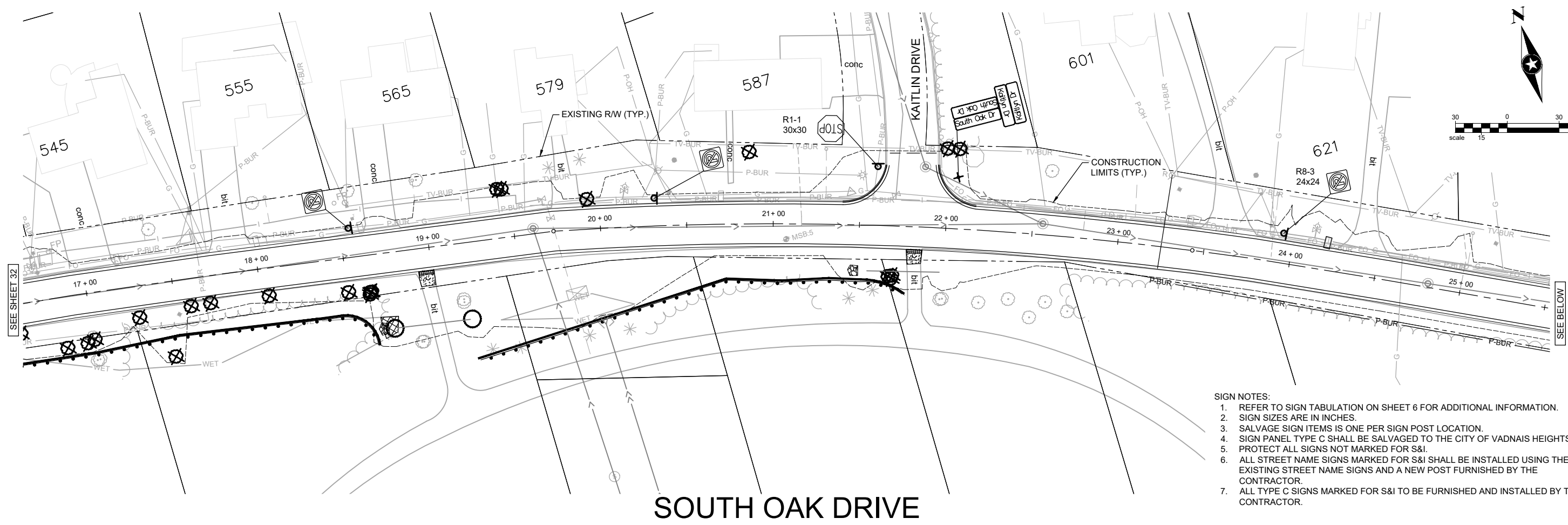
**VADNAIS HEIGHTS
MINNESOTA**

**EROSION CONTROL & SIGNING PLAN
2022 STREET IMPROVEMENTS**

FILE NO.
VADNA 167175

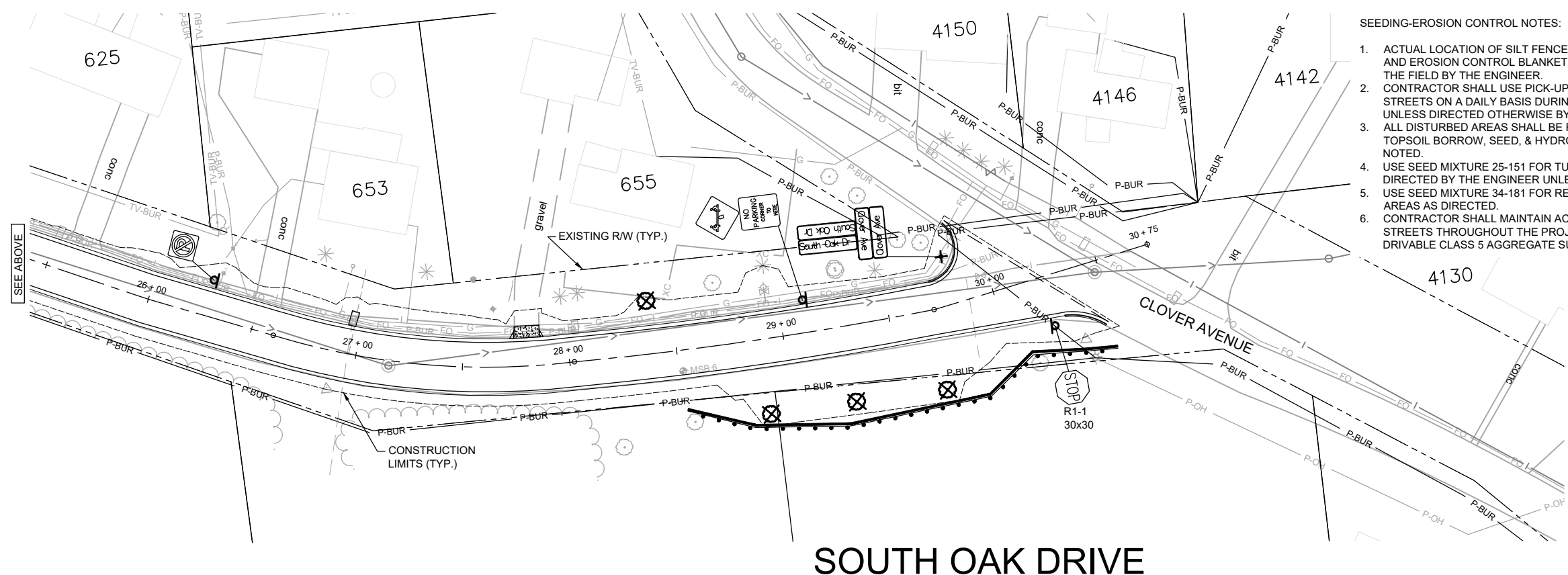
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SOUTH OAK DRIVE

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SOUTH OAK DRIVE

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- LEGEND**
- EXISTING DRAINAGE DIRECTIONAL FLOW ARROW
 - STORM DRAIN INLET PROTECTION
 - SILT FENCE
 - SEDIMENT CONTROL LOG
 - CULVERT PROTECTION
 - EROSION CONTROL BLANKET
 - SALVAGE TYPE C SIGN; FURNISH & INSTALL TYPE C SIGN
 - SALVAGE & INSTALL STREET NAME SIGN

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DRAWN BY:	HRC, DSJ
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CHECKED BY:	SDH
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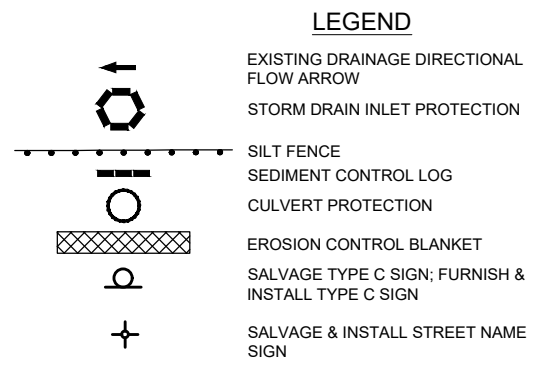
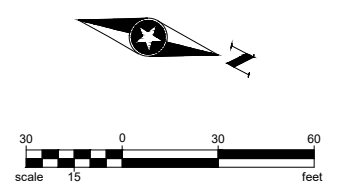
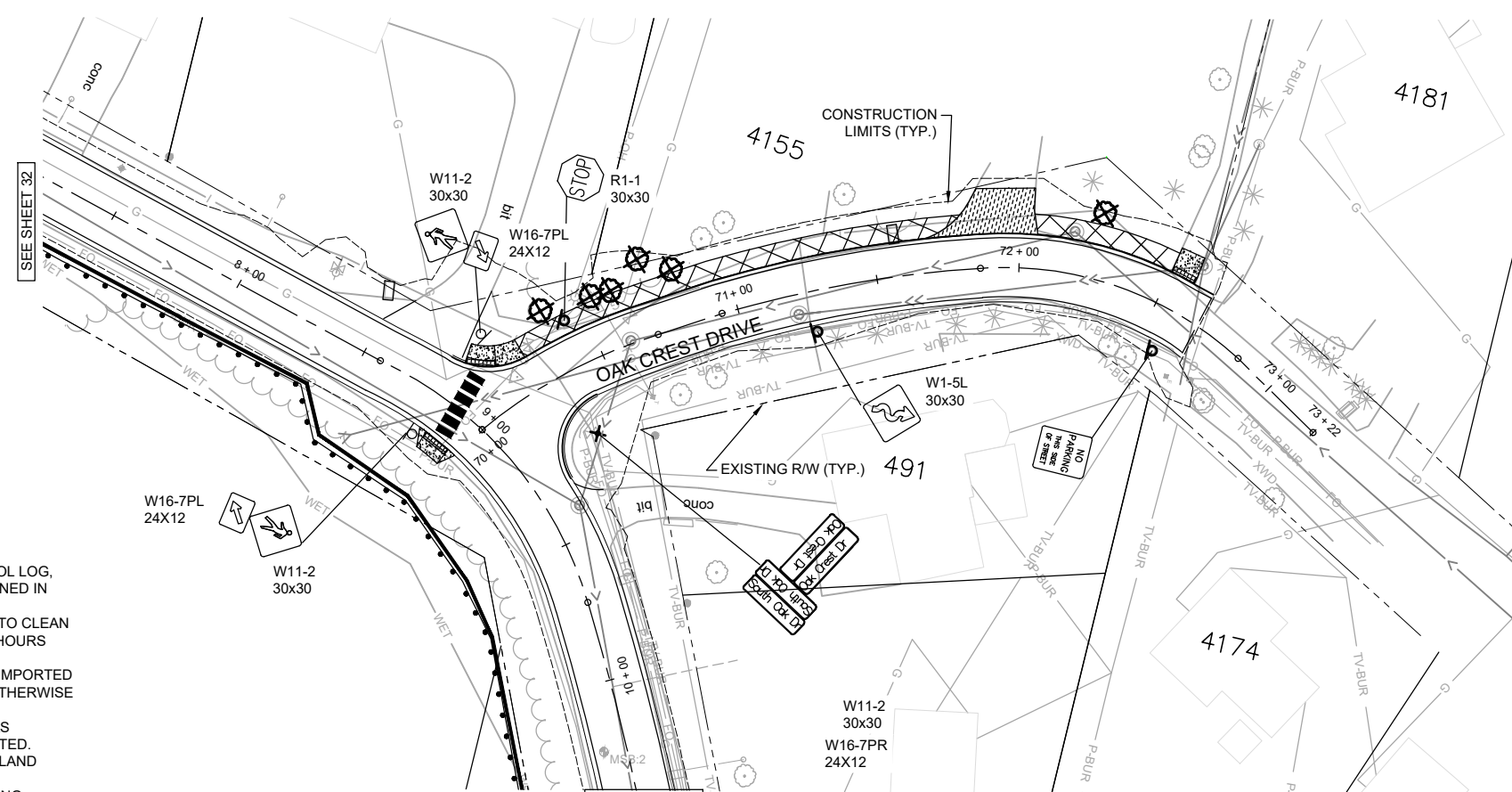
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**VADNAIS HEIGHTS
MINNESOTA**

**EROSION CONTROL & SIGNING PLAN
2022 STREET IMPROVEMENTS**

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VADNA 167175

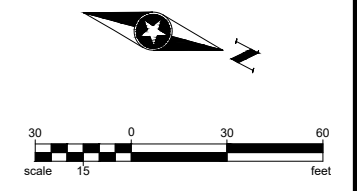
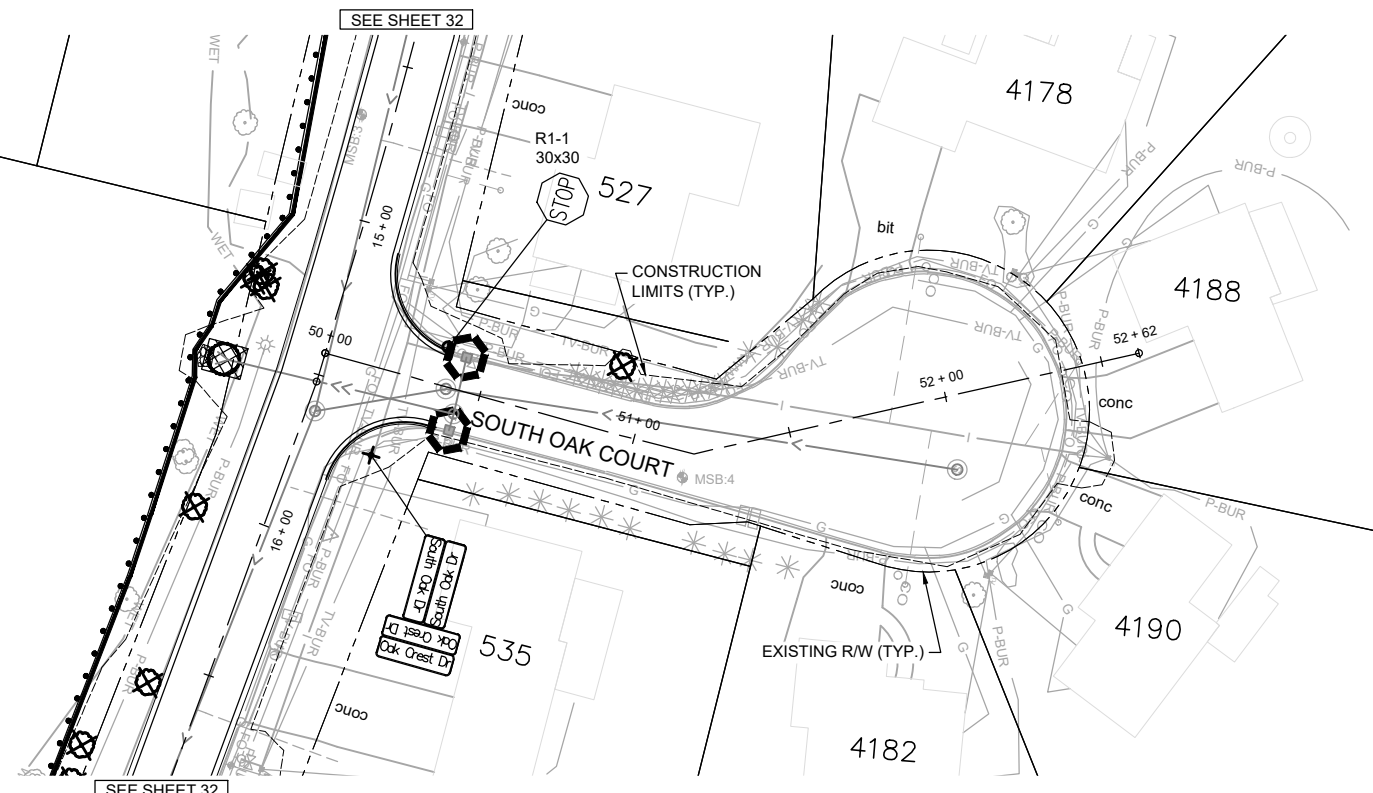
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OAK CREST DRIVE

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SOUTH OAK COURT

DRAWN BY:	HRC, DSJ
DESIGNER:	HRC
CHECKED BY:	SDH
DESIGN TEAM	

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 MINNESOTA**

**EROSION CONTROL & SIGNING PLAN
 2022 STREET IMPROVEMENTS**

FILE NO.
 VADNA 167175

34
 36

CITY OF VADNAIS HEIGHTS, MINNESOTA CONSTRUCTION

PLANS FOR BITUMINOUS RECLAMATION AND PAVING, CURB AND GUTTER REPAIRS, RIBBON CURB INSTALLATION, CONCRETE PEDESTRIAN RAMPS, MULTI-USE PATH, TIMBER BOARDWALK, UTILITY REPAIRS AND IMPROVEMENTS

2022 STREET IMPROVEMENTS

CITY PROJECT NO. 2022-01

GOVERNING SPECIFICATIONS
THE 2020 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

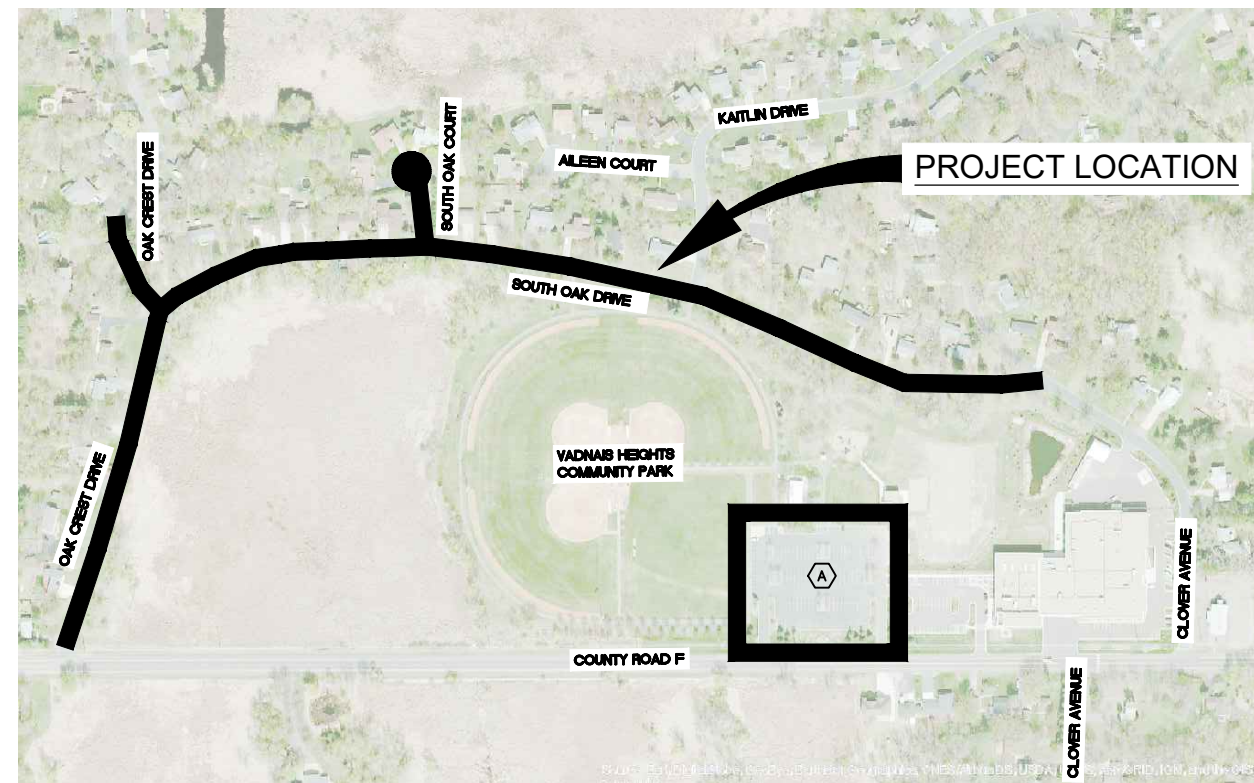
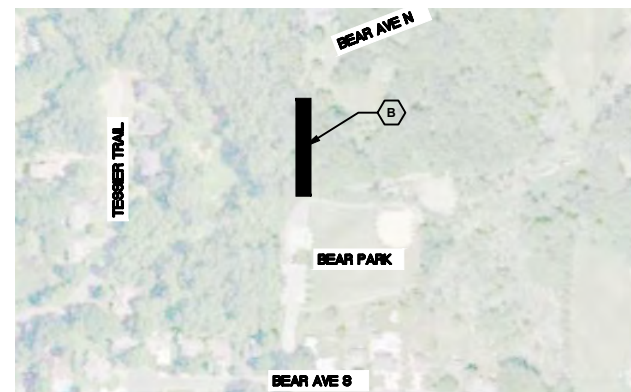
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1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	GENERAL NOTES & TYPICAL SECTIONS
4-6	STRUCTURE SCHEDULES & TABULATIONS
7-20	DETAILS
21-26	CONSTRUCTION PLAN
27	STORM SEWER PROFILES
28-29	INTERSECTION DETAILS
30-31	COMMUNITY PARK PARKING LOT PLAN
32-34	EROSION CONTROL & TURF ESTABLISHMENT AND SIGNING & STRIPING PLAN
35-36	OAK CREST DRIVE CROSS SECTIONS

BID ALTERNATE A

37	BEAR PARK TRAIL PLAN & PROFILE
38	BEAR PARK TRAIL CROSS SECTIONS
B1	BOARDWALK PLAN & PROFILE
B2	BOARDWALK LAYOUT & QUANTITIES
B3	GENERAL DETAILS & TYPICAL SECTIONS
B4	APPROACH, ABUTMENT & SUBSTRUCTURE

THIS PLAN CONTAINS 42 SHEETS.

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



PROJECT LOCATION



ADDITIONAL PROJECT AREAS:

- (A) VADNAIS HEIGHTS COMMUNITY PARK PARKING LOT IMPROVEMENTS
- (B) BID ALTERNATE A - BEAR PARK TRAIL & BOARDWALK IMPROVEMENTS

NOTE:
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 GOPHER STATE ONE CALL SYSTEM AT
811 BEFORE COMMENCING EXCAVATION.



Know what's below.
Call before you dig.

APPROVED:

CITY ENGINEER

07/08/2022
DATE

VADNAIS HEIGHTS, MINNESOTA

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

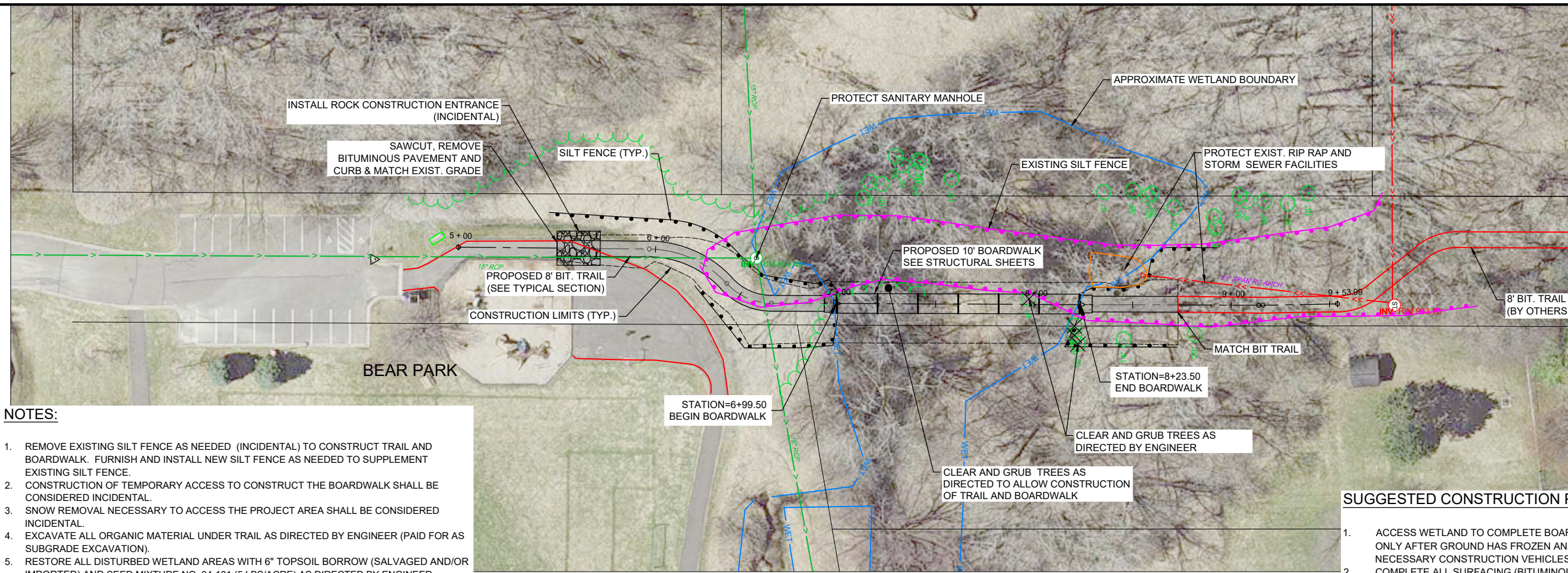
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SCOTT D. HAUPT, PE
Signature

Date: 06/21/2022 Lic. No. 46603

FILE NO.
VADNA167175

1
of 42



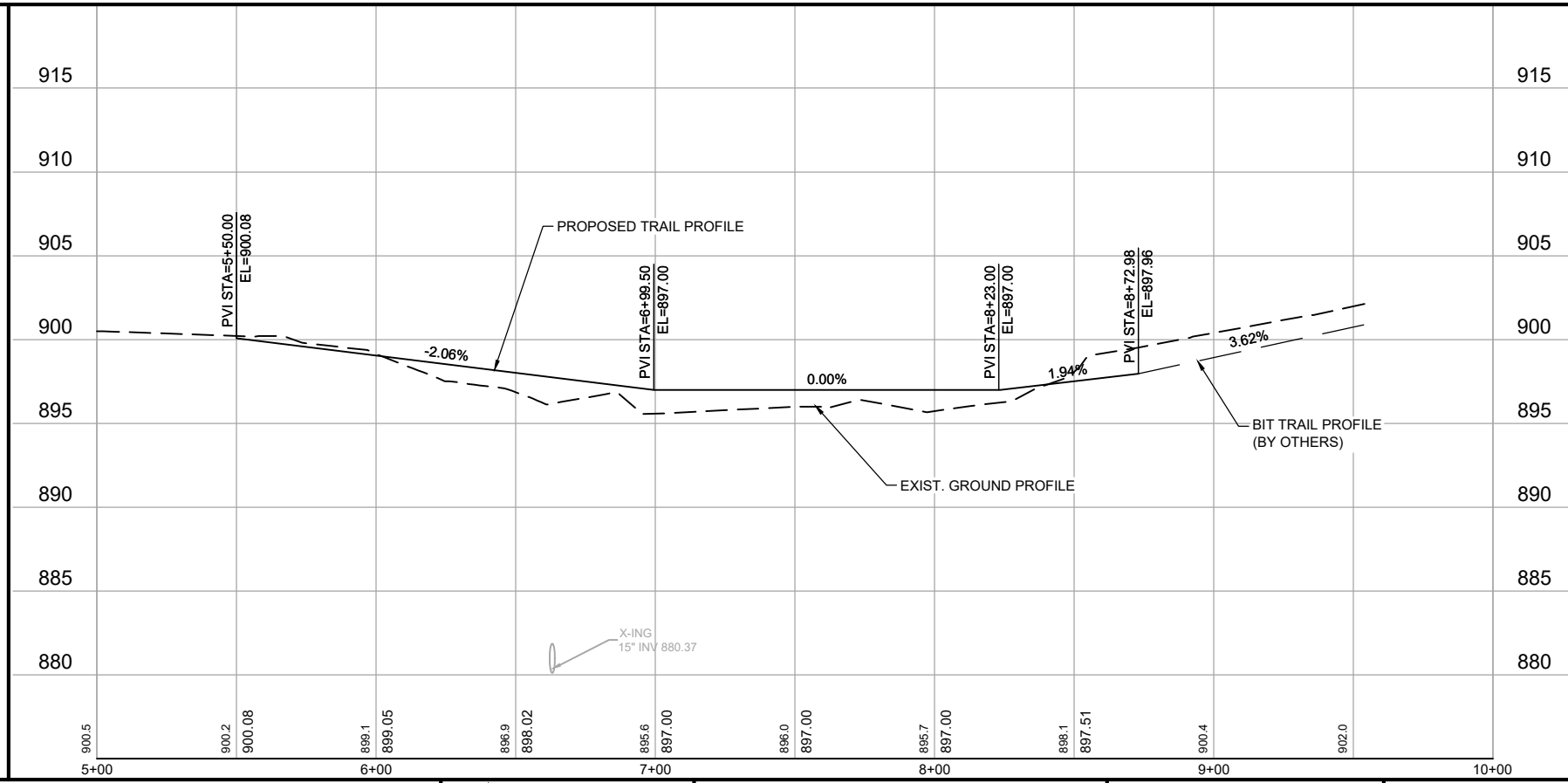
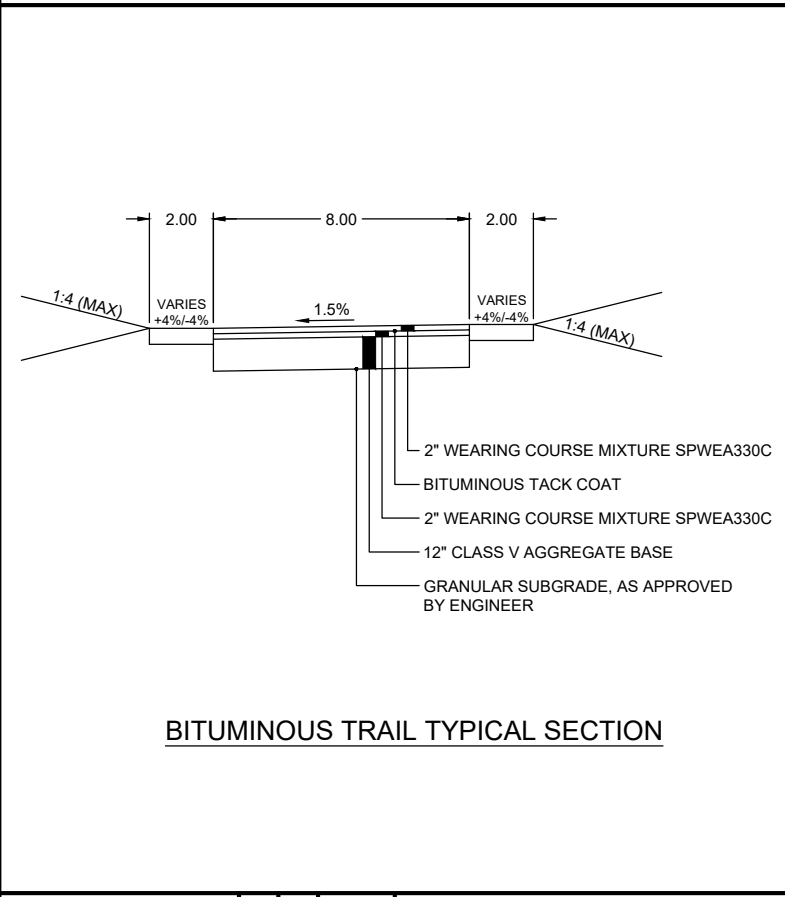
NOTES:

1. REMOVE EXISTING SILT FENCE AS NEEDED (INCIDENTAL) TO CONSTRUCT TRAIL AND BOARDWALK. FURNISH AND INSTALL NEW SILT FENCE AS NEEDED TO SUPPLEMENT EXISTING SILT FENCE.
2. CONSTRUCTION OF TEMPORARY ACCESS TO CONSTRUCT THE BOARDWALK SHALL BE CONSIDERED INCIDENTAL.
3. SNOW REMOVAL NECESSARY TO ACCESS THE PROJECT AREA SHALL BE CONSIDERED INCIDENTAL.
4. EXCAVATE ALL ORGANIC MATERIAL UNDER TRAIL AS DIRECTED BY ENGINEER (PAID FOR AS SUBGRADE EXCAVATION).
5. RESTORE ALL DISTURBED WETLAND AREAS WITH 6" TOPSOIL BORROW (SALVAGED AND/OR IMPORTED) AND SEED MIXTURE NO. 34-181 (5 LBS/ACRE) AS DIRECTED BY ENGINEER.
6. RESTORE ALL NON-WETLAND AREAS WITH 6" TOPSOIL BORROW (SALVAGED AND/OR IMPORTED), SEED MIXTURE 25-131 (220 LBS/ACRE), FERTILIZER TYPE 3, AND HYDRAULIC BONDED FIBER MATRIX (ALL PAID FOR UNDER HYDROSEEDING (BEAR PARK) BID ITEM).

SUGGESTED CONSTRUCTION PHASING

1. ACCESS WETLAND TO COMPLETE BOARDWALK DURING WINTER MONTHS, AND ONLY AFTER GROUND HAS FROZEN AND CAN CAREFULLY SUPPORT NECESSARY CONSTRUCTION VEHICLES AND PERSONNEL.
2. COMPLETE ALL SURFACING (BITUMINOUS TRAIL, CONCRETE APPROACH SLABS) IN SPRING 2023 ONCE THERE ARE NO FREEZE/THAW CYCLES PREDICTED IN THE WEATHER FORECAST.

BID ALTERNATE A - BEAR PARK TRAIL



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DRAWN BY:	HRC_DSJ
DESIGNER:	HRC
CHECKED BY:	SDH
DESIGN TEAM	

NO.	BY	DATE	ADDED BID ALTERNATE A
1	AJB	7/14/2022	

NO.	BY	DATE	REVISIONS

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.

Scott D. Haupt
SCOTT D. HAUPT, PE
Date: 07/14/2022 Lic. No. 46603

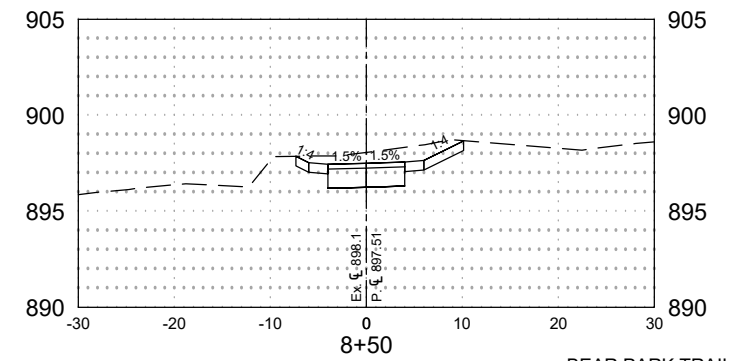
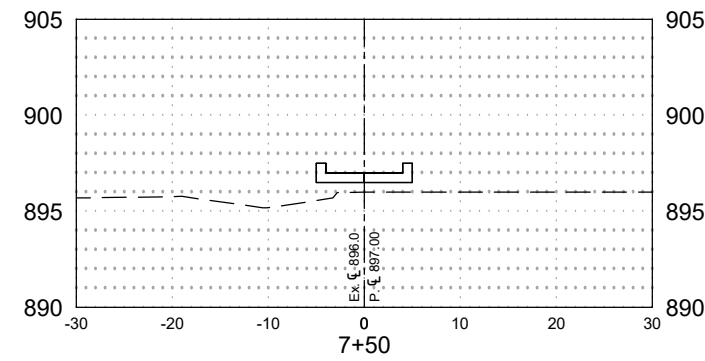
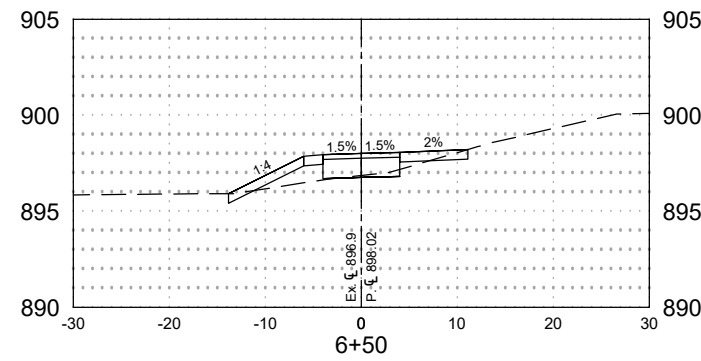
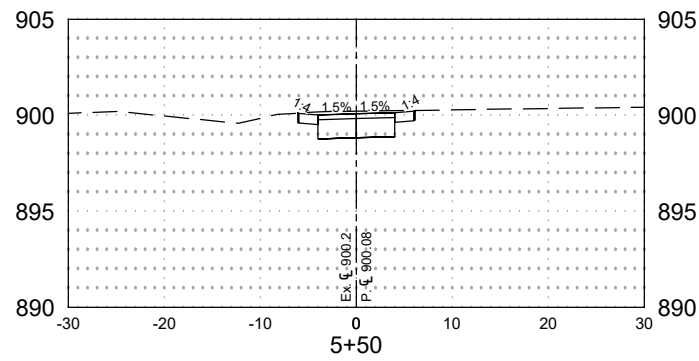
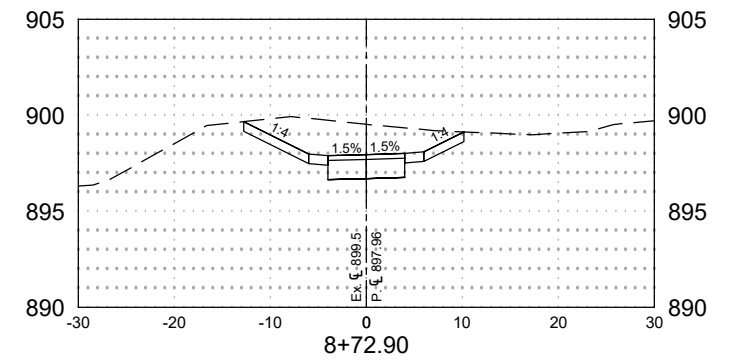
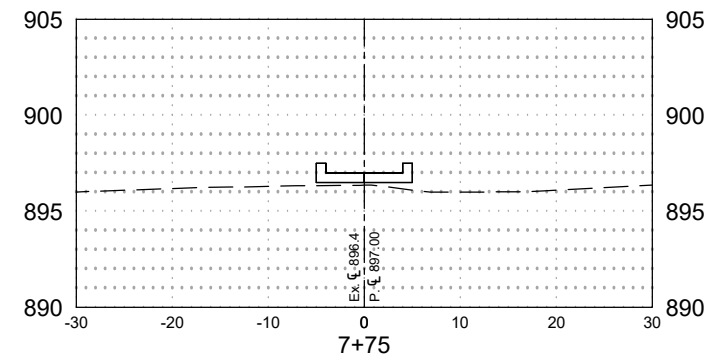
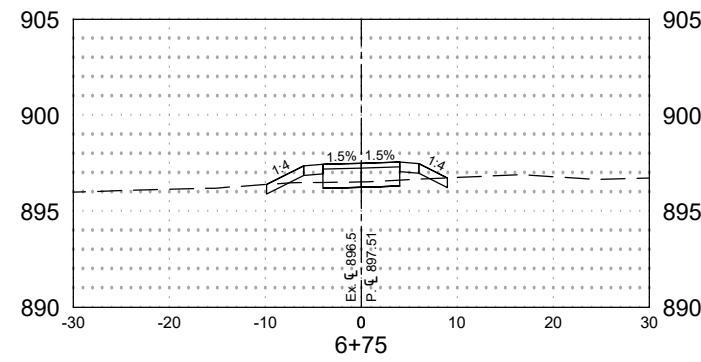
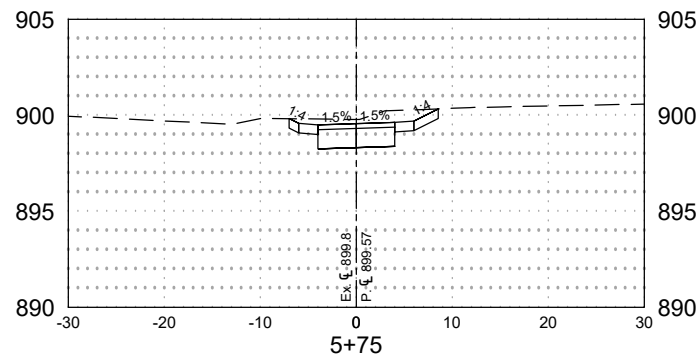
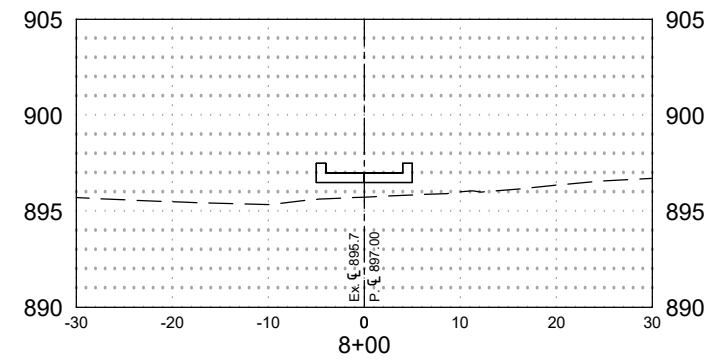
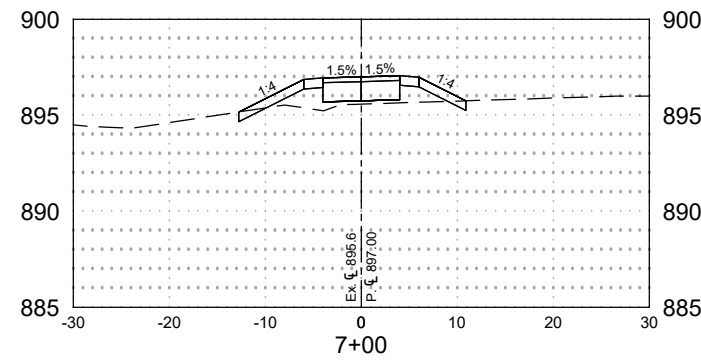
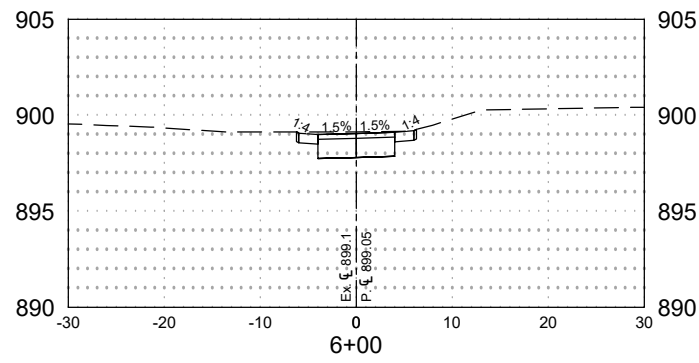
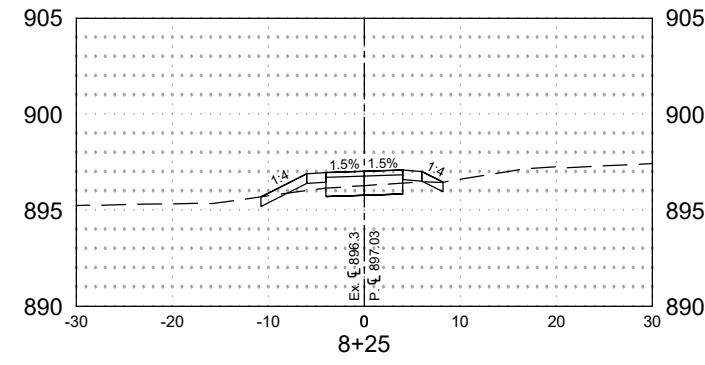
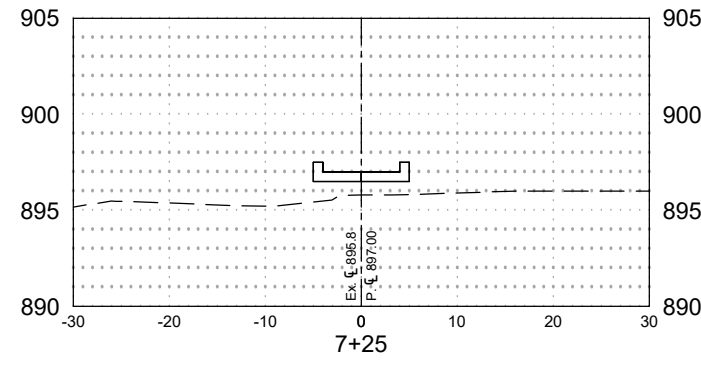
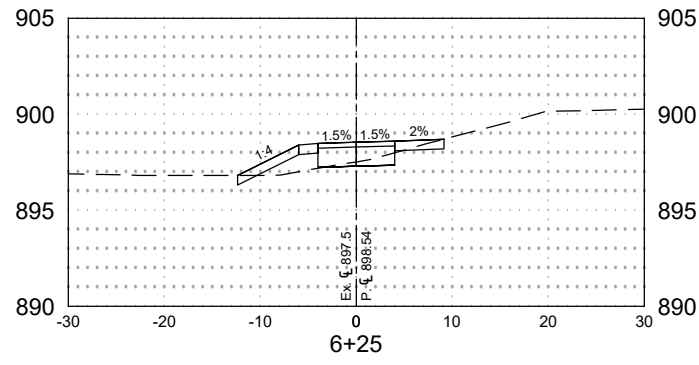
**VADNAIS HEIGHTS
MINNESOTA**

**BID ALTERNATE A
BEAR PARK TRAIL PLAN & PROFILE
2022 STREET IMPROVEMENTS**

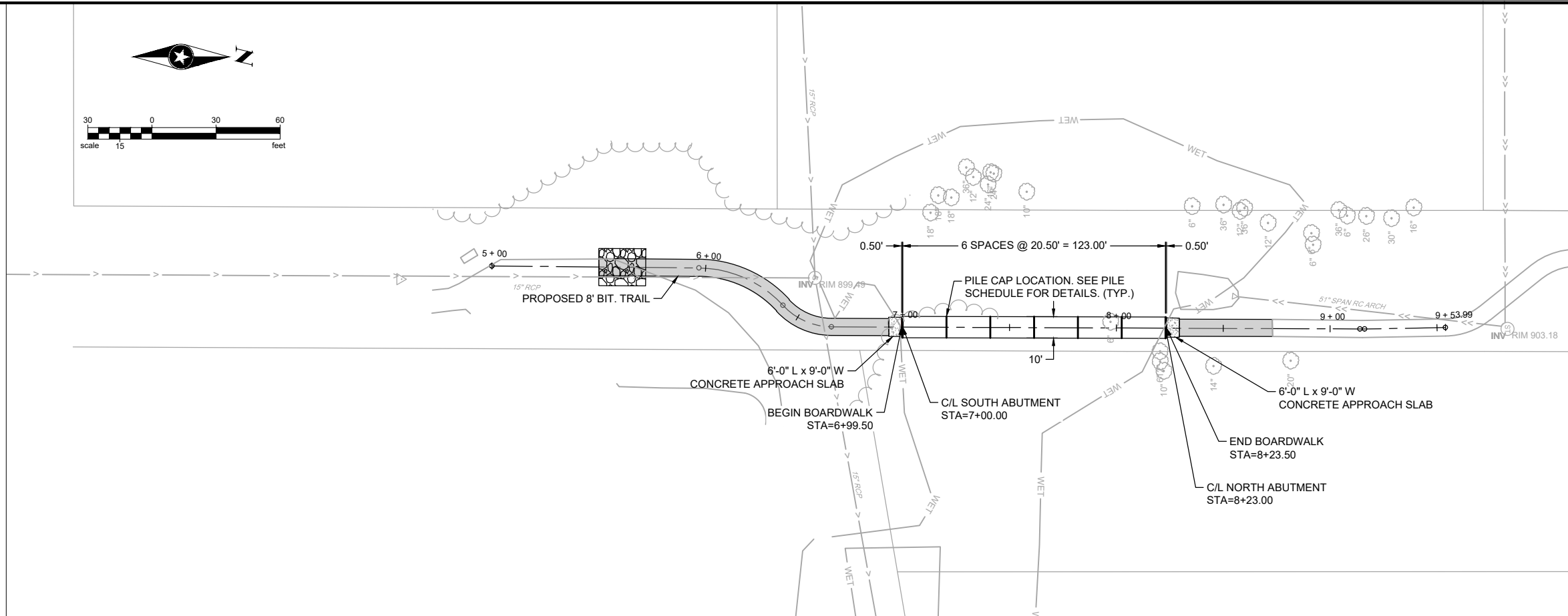
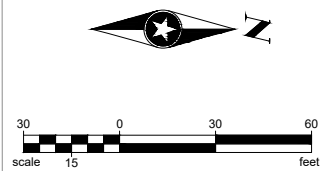
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VADNA 167175

42

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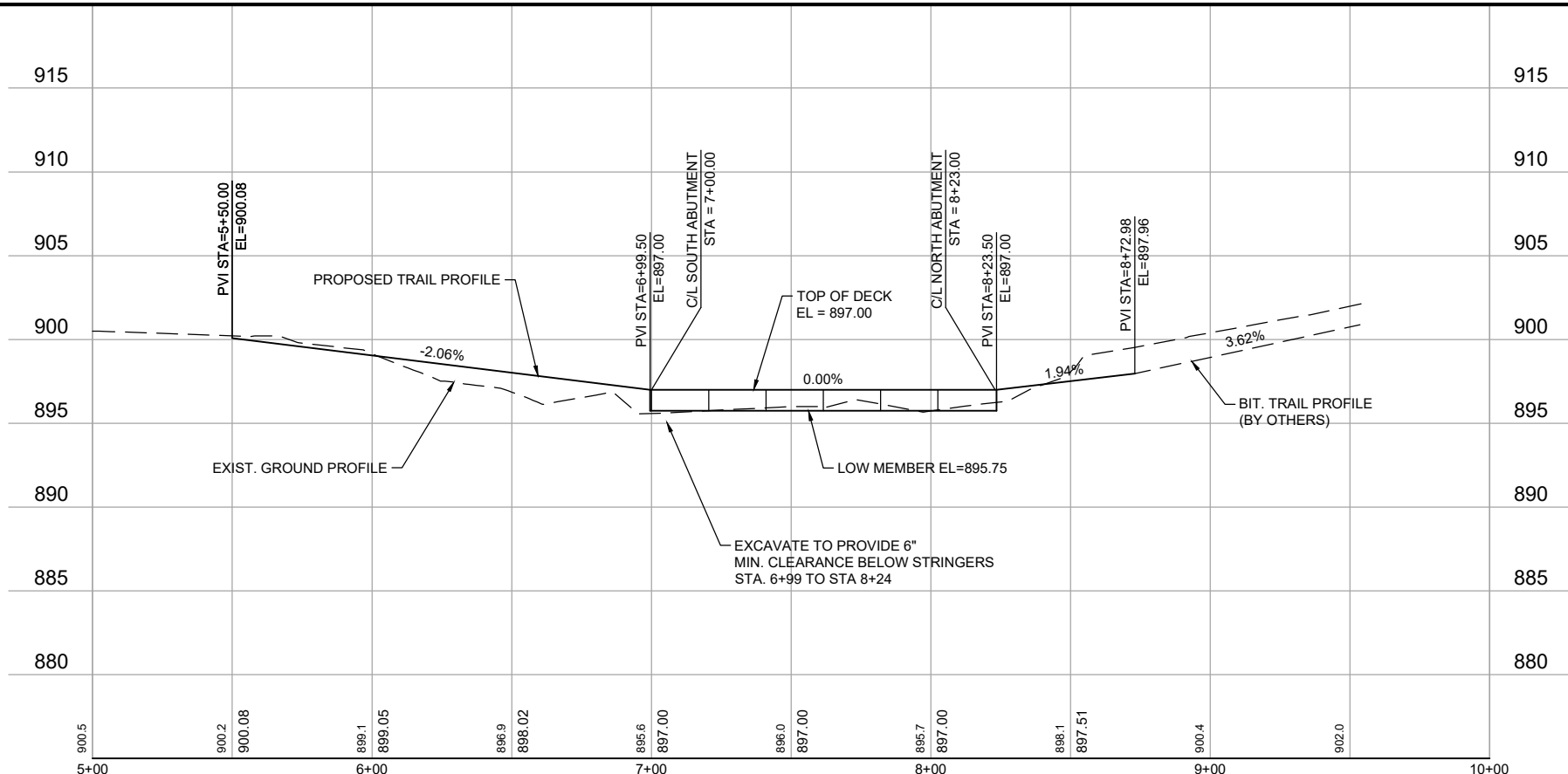


BEAR PARK TRAIL
5+50 - 8+72.90




BID ALTERNATE A - BEAR PARK BOARDWALK

DESIGN DATA	
2020 AND CURRENT INTERIM A.A.S.H.T.O. LRFD BRIDGE DESIGN SPECIFICATIONS AND 2009 LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES.	
LOAD AND RESISTANCE FACTOR DESIGN METHOD.	
BRIDGE HAS BEEN DESIGNED TO MEET A MAXIMUM UNIFORM LIVE LOAD OF THE GREATER OF 90 P.S.F. APPLIED TO THE ENTIRE DECK SURFACE, OR H-5 (10,000 LB) MAINTENANCE VEHICLE LOADING.	
APPROX. DECK AREA: BOARDWALK 1,240 SQ. FT.	
MATERIALS: STRUCTURAL STEEL SHALL BE MNDOT 3310 CONFORMING TO ASTM A709 GRD 50, HOT-DIP GALVANIZED IN ACCORDANCE WITH MNDOT 3394.	
CONCRETE SHALL BE MNDOT 3G52. REINFORCEMENT GRD 60 BLACK.	
TIMBER MATERIALS AND TREATMENT SHALL BE:	
ITEM	DESCRIPTION
STRINGERS, DIAPHRAGMS PILE CAP	DOUGLAS FIR, SELECT STR. ROUGH SAWN, Fb=1,500 PSI COPPER AZOLE (CA-C), AMMONIACAL COPPER ZINC ARSENATE (ACZA), ACQ OR MCA WITH RETENTION FOR USE CATEGORY - UC4C (GROUND CONTACT, CRITICAL STRUCTURAL COMPONENTS). DOUGLAS FIR SHALL BE INCISED.
DECK PLANKING & ABUTMENT BACKING PLANK	DOUGLAS FIR OR SOUTHERN YELLOW PINE, NO. 1 & BETTER, S4S Fb=1,200 PSI TREATMENT SAME AS ABOVE
CURB, SCUPPER BLOCK	SOUTHERN YELLOW PINE NO. 2 OR BETTER, S4S Fb=850 PSI ACQ OR MCA WITH RETENTION USE CATEGORY -UC3 (EXTERIOR ABOVE GROUND)



CONSTRUCTION NOTES
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION."

SHEET INDEX	
B1	BOARDWALK PLAN & PROFILE
B2	BOARDWALK LAYOUT & QUANTITIES
B3	GENERAL DETAILS & TYPICAL SECTIONS
B4	APPROACH, ABUTMENT & SUBSTRUCTURE

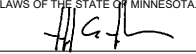

 DATE: 7/14/2022
 APPROVED: CITY OF VADNAIS HEIGHTS ENGINEER

BOARDWALK
 LOCATED IN VADNAIS HEIGHTS, NORTH OF BEAR PARK.
 TIMBER BEAMS, 20' SPANS, 9' WIDE TRAIL,
 0°00'00" SKEW,
 IDENTIFICATION NO. 301 & 701
GENERAL PLAN AND ELEVATION
 SEC. 29 T 30 N R 22 W
 CITY: VADNAIS HEIGHTS COUNTY: RAMSEY

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DRAWN BY: AJB	1	AJB	7/14/2022	ADDED BID ALTERNATE A
DESIGNER: JAJ				
CHECKED BY: JAJ				
DESIGN TEAM	NO.	BY	DATE	REVISIONS



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.

 Date: 07/14/2022
 JEFF A. JOHNSON, PE
 Lic. No. 17280

**VADNAIS HEIGHTS
MINNESOTA**

**BID ALTERNATE A
BEAR PARK BOARDWALK
PLAN & PROFILE
2022 STREET IMPROVEMENTS**

FILE NO. B1
 VADNA 167175
 B4

Appendix B

Wetland Banking Forms

Building a Better World for All of Us[®]

Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a company-wide commitment to act in the best interests of our clients and the world around us.

We're confident in our ability to balance these requirements.

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