RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2024-056

Considered at Board of Managers Meeting: September 11, 2024

Received complete: July 24, 2024

Applicant: Hennepin County
Consultant: NA
Project: Hennepin County Regional Railroad Authority Culvert Relining Mntka 67–relining a failing 24-inch ductile iron pipe culvert under the Minnetonka Light Rail Transit Regional Trail.
Location: Between Tonkawood Road and County Road 101 in Minnetonka
Reviewer: Scott Sobiech, PE 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 September 11, 2024 meeting of the managers. Resolved that the application for Permit 2024-056 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 2024-056 to the applicant on behalf of RPBCWD.

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

Rule Conformance Summary

Rule	Issue	Conforms to RBPCWD Rules?	Comments
D	**Wetland and Creek Buffer**	NA	No land-disturbing activity upgradient from wetlands
G	**Waterbody Crossing and Structures**	See Comment	See Rule Specific Permit Condition G1 and G2 related to dates restricting wok in public waters and entering a maintenance agreement for the crossing.
L	**Permit Fee**	NA	Governmental Entity
M	**Financial Assurance**	NA	Governmental Entity

Project Background

Hennepin County proposes to reline a failing culvert that conveys a watercourse under the Minnetonka Light-Rail Transit Regional Trail between Tonkawood Road and County Road 101 in Minnetonka. The 24-inch ductile iron pipe (DIP) is proposed to be repaired by slip lining the existing culvert. The ultraviolet-cured liner will involve lining the culvert with a 6 mm liner. The water resources within the project site are identified in the following table. The table also provides a brief explanation of how each resource is implicated in the permit application review process.

Water resource impacted by proposed project

Water Resource	Projected resource impacts
Public Weland (27076400)	A public waters wetland that is located 40 feet north of the site. No land-disturbing activity is proposed in or upgradient from this wetland.
Watercourse	A watercourse conveys flow from wetland 27076400, through the culvert and on downstream

The project proposes no ground disturbance or new or reconstructed impervious surface, so the project does not trigger RPBCWD's stormwater-management rule (Rule J) . The project triggers Rule D – Wetland and Creek Buffers, but because no land-disturbing activity is proposed, 3.1(c) imposes no requirements on the project. The adjacent photograph illustrates the planned equipment that will be used to reach the end of the existing culvert with the lining materials from the existing trail, thus avoiding land-disturbing activities. (Note this is a location outside RPBCWD; provided for illustrative purposes only.)

The project site information is summarized below:

Description	Area (acres)
Total Site Area	11.37
Existing Site Impervious	1.34
Post Construction Site Impervious	1.34
New (Increase) in Site Impervious Area	0
Disturbed impervious surface	0
Total Disturbed Area	0

Exhibits:

1. Permit Application received July 24, 2024
2. Construction plan sheets dated July 3, 2024 (Sheet 3 revised August 1, 2024)

3. Project narrative received July 24, 2023
4. Hydraulic computation spreadsheet received July 24, 2024

Rule Specific Permit Conditions

Rule D: Wetland and Creek Buffers

Because the proposed work triggers a permit under RPBCWD Rule G for the crossing rehabilitation work, Rule D, Subsections 2.1a requires buffer adjacent to the watercourse. But because there is no land-disturbing activity in or upgradient of the wetland associated with the proposed slip-lining project and because no land-disturbing activity is proposed, subsection 3.1(c) imposes no requirements on the project.

Rule G: Waterbody Crossings and Structures

Because the project will improve a crossing in contact with the bed of a watercourse the applicant must submit a design and plans that show conformance with RPBCWD's Waterbody Crossings and Structures Rule (Rule G). Only the criteria in subsections 3.1, 3.2 and 3.7 impose requirements on the project.

This work represents a public benefit by repairing deteriorating culvert such as will maintain public use of the Minnetonka LRT Regional Trail and flow conveyance(Rule G, Subsection 3.1a)

The engineer concurs with the spreadsheet computations provided by the applicant demonstrating that the slight reduction in pipe diameter resulting from the slip lining (less than ¾ inch) is offset by the increase in the smoothness of the material to the degree that the flow capacity of the crossing is increased by less than 1 cubic feet per second . Because of the slight increase in flow capacity with the lined culvert, the upstream water surface elevations will not change, thus confirming the project will maintain the existing hydraulic capacity and not increase the flood stage of the existing waterbody conforming to Rule G, Subsection 3.2a.

This crossing location is not used for navigation, thus Rule G, Subsection 3.2b is not relevant to this project. The applicant provided modeling demonstrating the project will maintain flow velocities through the culvert, therefore will not adversely affect water quality or cause increased scour, erosion or sedimentation (Rule G, Subsection 3.2c.) Because this is a rehabilitation of the existing crossing in place, wildlife will continue to be able to use the crossing as under existing conditions, thus preserving wildlife passage consistent with Rule G, Subsection 3.2d.

The RPBCWD engineer concurs with the applicant's assertion that a no-build option would result in flows through the existing deteriorating culvert potentially leading to the failure of the crossing. The

feasibility efforts conducted by the applicant considered slip lining to rehabilitate the culvert in place or a full culvert replacement by open cutting the crossing. The open cut option was dismissed because it would necessarily involve extensive site disturbance. Because the rehabilitation option minimizes land-disturbing activities to maintain existing flow characteristic, it represents the minimal-impact approach to maintaining the culvert, consistent with Rule G, Subsection 3.2e.

A note is included on the plan sheet 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 (Rule G, Subsection 3.7c). Because no riprapping will occur with the project, Rule G subsection 3.7d does not impose requirements on the project.

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

G1. Permit applicant must provide a draft maintenance agreement for the waterbody crossing for RPBCWD approval, in accordance with Rule G, Section 5. As a public entity, Hennepin County may comply with this requirement by entering into a maintenance agreement with the RPBCWD.

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.

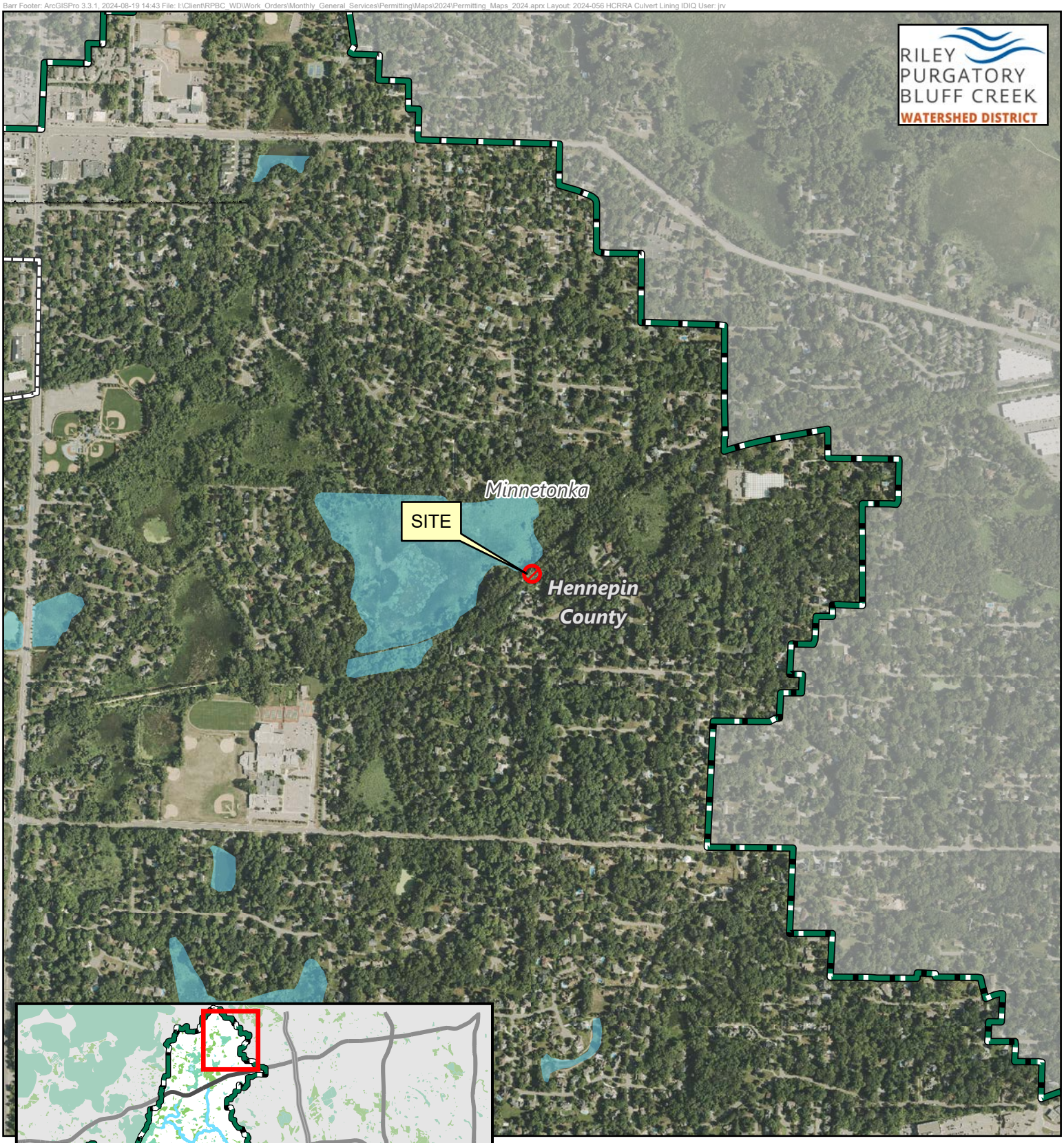
Findings

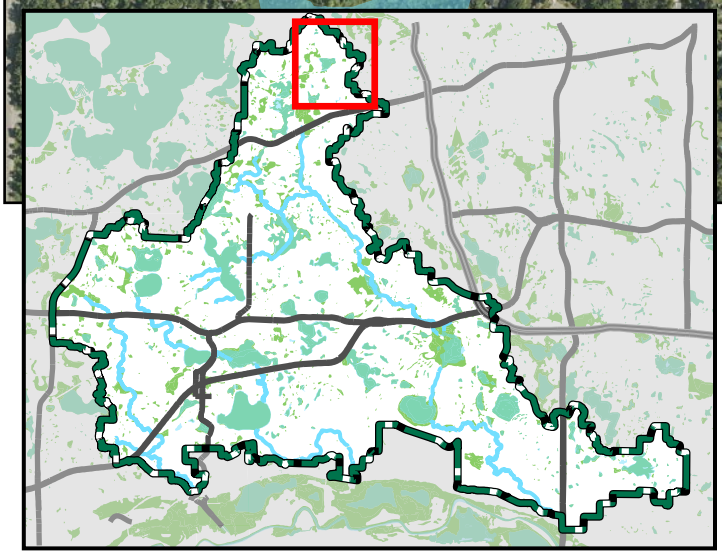
1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rule G if the conditions listed above are met.

Recommendation:

Approval of the permit contingent upon:

1. Continued compliance with General Requirements.
2. Permit applicant must provide a draft maintenance agreement and inspection plan for the waterbody crossing. Once approved by RPBCWD, the Hennepin County must enter an agreement with RPBCWD to maintain the project facilities in accordance with the plan.





N

Feet

0 1,000

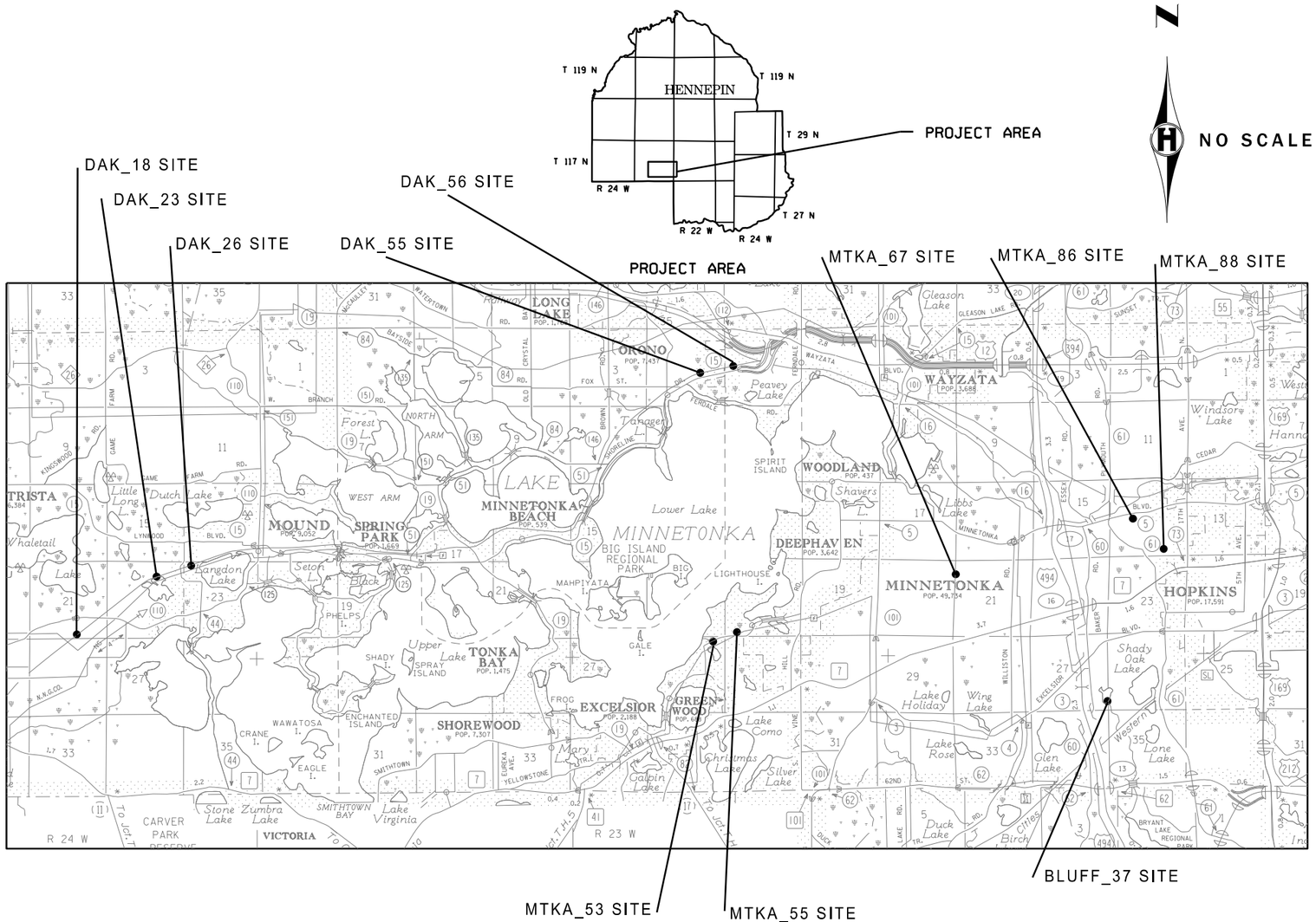
Permit Location Map

HCRRA CULVERT LINING IDIQ

Permit 2024-056

Riley Purgatory Bluff Creek
Watershed District

HENNEPIN COUNTY TRANSPORTATION DEPARTMENT
CONSTRUCTION PLAN FOR: HCRRA CULVERT LINING IDIQ



GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", AND ALL SUPPLEMENTS THERETO, SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO " MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

INDEX

THIS PLAN CONTAINS 17 SHEETS

CULVERT ID	LAT	LONG	
MTKA_53	44.919785	-93.546893	MCWD
MTKA_55	44.902824	-93.541508	MCWD
MTKA_67	44.932703	-93.488219	RPBCWD
MTKA_86	44.942493	-93.437571	MCWD
MTKA_88	44.938108	-93.430239	MCWD
BLUFF_37	44.907484	-93.442257	NMCWD
DAK_18	44.923057	-93.710979	MCWD
DAK_23	44.632076	-93.693606	MCWD
DAK_26	44.934057	-93.685188	MCWD
DAK_55	44.969176	-93.550217	MCWD
DAK_56	44.970504	-93.541244	MCWD

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".

HORIZONTAL CONTROL:
COORDINATES ARE IN HENNEPIN COUNTY GROUND FEET, BASED ON THE MINNESOTA COORDINATE SYSTEM, SOUTHERN ZONE, NAD83 1986 (NON-HARN VALUES).

VERTICAL DATUM NAVD 88.

Hennepin

90% PLAN

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CAD BY:	M KUCHAES
CHECKED BY:	A MCGOVERN
LAST REVISION:	

TITLE SHEET

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812

SHEET 1 / 17

NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	HCRRA CULVERT MTKA_53	HCRRA CULVERT MTKA_55	HCRRA CULVERT MTKA_67	HCRRA CULVERT MTKA_86	HCRRA CULVERT MTKA_88	HCRRA CULVERT BLUFF_37
					QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
(6)	2012.602	TRAFFIC CONTROL SPECIAL	EACH	6	1	1	1	1	1	1
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (18") SPECIAL	LIN FT	50	50					
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (24") SPECIAL	LIN FT	228		49	44	73	62	
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (28") SPECIAL	LIN FT							
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE ARCH (39") SPECIAL	LIN FT	97						97
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (48") SPECIAL	LIN FT							
(5)	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	240	40	40	40	40	40	40
(7)	2575.602	SITE RESTORATION	EACH	5	1	1	1	1	1	1

NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITY	HCRRA CULVERT DAK_18	HCRRA CULVERT DAK_23	HCRRA CULVERT DAK_26	HCRRA CULVERT DAK_55	HCRRA CULVERT DAK_56
					QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
(6)	2012.602	TRAFFIC CONTROL SPECIAL	EACH	5	1	1	1	1	1
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (18") SPECIAL	LIN FT	18				18	
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (24") SPECIAL	LIN FT	63	63				
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (28") SPECIAL	LIN FT	31					31
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE ARCH (39") SPECIAL	LIN FT	55			55		
(1) (2) (3) (4)	2507.603	LINING CULVERT PIPE (48") SPECIAL	LIN FT	50		50			
(5)	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	200	40	40	40	40	40
(7)	2575.602	SITE RESTORATION	EACH	5	1	1	1	1	1

(1) SEE SPECIAL PROVISIONS
(2) INCLUDES DEWATERING AND DAMMING AROUND CULVERT ENDS
(3) INCLUDES CULVERT CLEANING AND INTERIOR SURFACE PREPERATION
(4) UV CURE GRP CURED IN-PLACE PIPE
(5) TO BE PLACED AT THE DIRECTION OF THE ENGINEER
(6) TRAFFIC CONTROL SHALL CONSIST OF FLAGGER AND/OR TRAIL CLOSED AHEAD SIGNS AT THE DIRECTION OF THE ENGINEER
(7) DO NOT SEED IN OPEN WATER. WITHIN WETLAND BOUNDARIES USE MIX 33-261 AT A RATE OF 35 LBS/ACRE.

Hennepin

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STATEMENT OF ESTIMATED QUANTITIES

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 1 OF 1

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CULVERT LINING TABULATION

CULVERT ID	LATITUDE	LONGITUDE	EXISTING CULVERT							
			PIPE SIZE	PIPE TYPE	PIPE LENGTH	LINING CULVERT PIPE (18") SPECIAL	LINING CULVERT PIPE (24") SPECIAL	LINING CULVERT PIPE (28") SPECIAL	LINING CULVERT PIPE (36") SPECIAL	LINING CULVERT PIPE (48") SPECIAL
			INCHES		LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
MTKA_53	44.919785	-93.546893	18	DIP	50	50				
MTKA_55	44.902824	-93.541508	24	DIP	49		49			
MTKA_67	44.932703	-93.488219	24	DIP	44		44			
MTKA_86	44.942493	-93.437571	24	DIP	73		73			
MTKA_88	44.938108	-93.430239	24	DIP/CMP	62		62			
BLUFF_37	44.907484	-93.442257	39 ARCH	RCP	97				97	
DAK_18	44.923057	-93.710979	24	DIP	63		63			
DAK_23	44.632076	-93.693606	48	RCP	50					50
DAK_26	44.934057	-93.685188	39 ARCH	RCP	55				55	
DAK_55	44.969176	-93.550217	18	CMP	13	18				
DAK_56	44.970504	-93.541244	28	DIP	31			31		
					TOTAL	68	291	31	152	50

CONSTRUCTION NOTES:
PERPETUATE DRAINAGE ON AND THROUGH THE CONSTRUCTION SITE ON ALL AREAS DISTURBED BY CONSTRUCTION (INCIDENTAL).

ALL MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC. 2014.

BITUMINOUS SURFACING, CONCRETE STRUCTURES, ABANDONED UTILITY ITEMS, RAILROAD TIES OR ANY OTHER MATERIAL WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, MUST BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH SPEC. 2014 (INCIDENTAL).

THE CONTRACTOR'S ACTIVITIES SHALL NOT EXCEED CONSTRUCTION LIMITS IN WETLAND AREAS. THIS INCLUDES STAGING EQUIPMENT, PLACING OR STOCKPILING MATERIALS, OR IMPACTING THE WETLANDS IN ANY OTHER WAY.

ANY DAMAGE TO THE TRAIL OUTSIDE OF THE CONSTRUCTION LIMITS RESULTING FROM THE CONTRACTOR'S USE OF THE TRAIL IN ANY WAY SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

DURING THE PROGRESS OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL TRACKED DIRT MATERIAL FROM THE LENGTH OF THE TRAIL WITHIN 24 HRS OF DISCOVERY, BEFORE FINAL COMPLETION, THE CONTRACTOR SHALL REMOVE ALL TRACKED DIRT MATERIAL FROM THE LENGTH OF THE TRAIL AND LEAVE THE TRAIL IN THE SAME CLEAN AND USABLE CONDITION FOR TRAIL TRAFFIC AS PRE-CONSTRUCTION CONDITIONS.

SURVEY AND RIGHT OF WAY:

THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL AND HORIZONTAL CONTROLS, AND RIGHT OF WAY MONUMENTS OUTSIDE OF THE CONSTRUCTION LIMITS. THE CONTRACTOR SHALL ESTABLISH THEIR OWN CONTROL POINTS OUTSIDE OF CONSTRUCTION LIMITS TO REPLACE THOSE EXISTING WITHIN CONSTRUCTION LIMITS DESTROYED DURING CONSTRUCTION.

TEMPORARY STABILIZATION:

RESPONSIBILITY FOR CONTROLLING EROSION IS SET FORTH IN MN/DOT SPECIFICATIONS 1717, 1803, 2101, 2105, 2573, 2575, AND AS AMENDED BY THE SPECIAL PROVISIONS.

THE FOLLOWING STANDARD PLANS, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

STANDARD PLANS

PLAN NO.	DESCRIPTION
5-297.404	PERMANENT EROSION CONTROL (3 SHEETS)
5-297.405	TEMPORARY SEDIMENT CONTROL (3 SHEETS)

EROSION CONTROL NOTES

a. Natural topography and soil conditions must be protected, including retention onsite of native topsoil to the greatest extent possible.
b. Additional measures, such as hydraulic mulching and other practices as specified by the District must be used on slopes of 3:1 (H:V) or steeper to provide adequate stabilization.
c. Final site stabilization measures must specify that at least six inches of topsoil or organic matter be spread and incorporated into the underlying soil during final site treatment wherever topsoil has been removed.
d. Construction site waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste must be properly managed.
e. All temporary erosion and sediment control BMPs must be maintained until completion of construction and vegetation is established sufficiently to ensure stability of the site, as determined by the District.
f. All temporary erosion and sediment control BMPs must be removed upon final stabilization.
g. Soil surfaces compacted during construction and remaining pervious upon completion of construction must be decompacted to achieve a soil compaction testing pressure of less than 1,400 kilopascals or 200 pounds per square inch in the upper 12 inches of the soil profile while taking care to protect utilities, tree roots, and other existing vegetation.
h. All disturbed areas must be stabilized within 7 calendar days after land-disturbing work has temporarily or permanently ceased on a property that drains to an impaired water, within 14 days elsewhere.
i. The permittee must, at a minimum, inspect, maintain and repair all disturbed surfaces and all erosion and sediment control facilities and soil stabilization measures every day work is performed on the site and at least weekly until land-disturbing activity has ceased. Thereafter, the permittee must perform these responsibilities at least weekly until vegetative cover is established. The permittee will maintain a log of activities under this section for inspection by the District on request.

Activities must be conducted so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible.

No activity affecting the bed or banks of a protected water may be conducted between March 15 and June 15 to minimize impacts on fish spawning and migration.

Hennepin

100% PLAN

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LAST REVISION:	

STANDARD PLANS, TAB SHEET, AND CONSTRUCTION NOTES

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812

SHEET 3 / 17

BLUFF_37

MTKA_67

MTKA_88, 86

MTKA_55-53

Hennepin

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SITE ACCESS

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 1 OF 3

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DAK_18, 23, 26

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SITE ACCESS

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 2 OF 3

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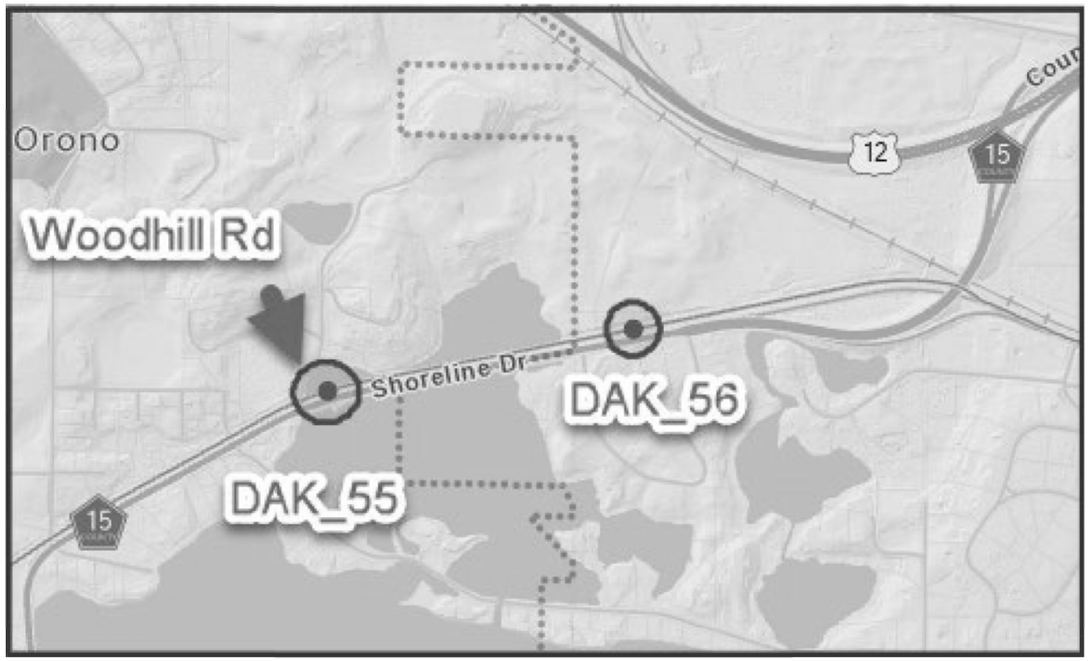
DAK_55, 56



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SITE ACCESS

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
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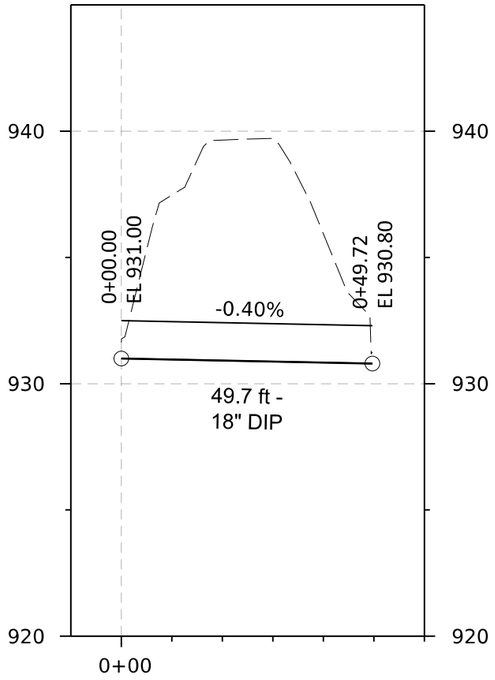

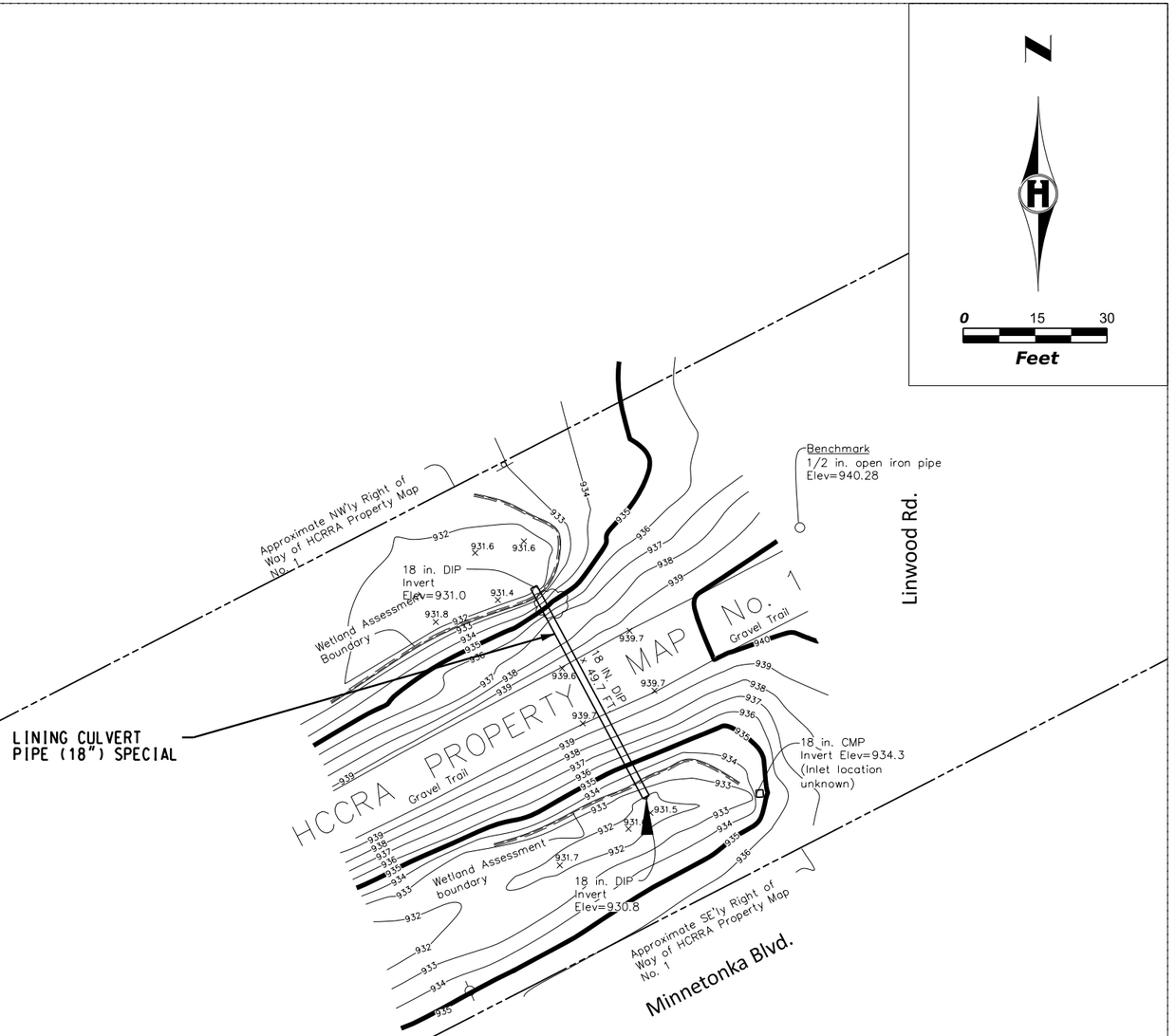

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CULVERT MTKA_53

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 1 OF 11

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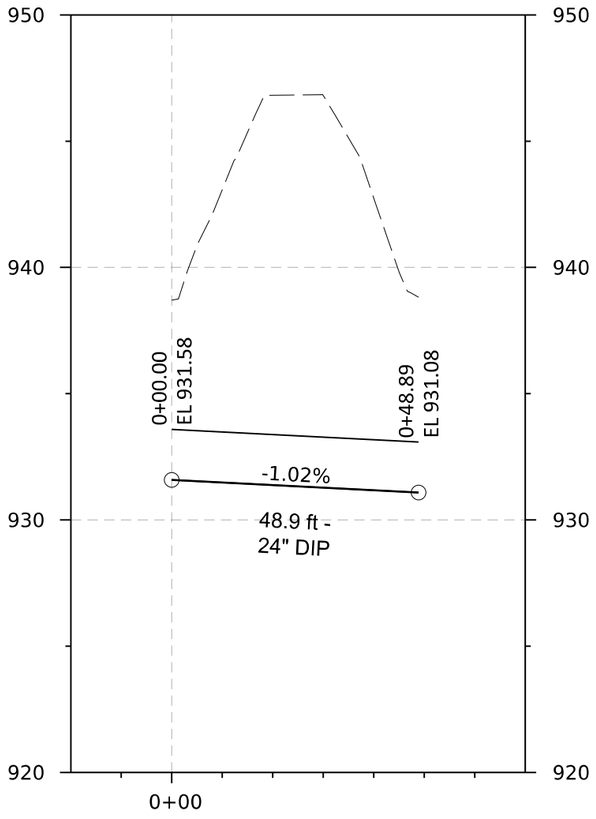

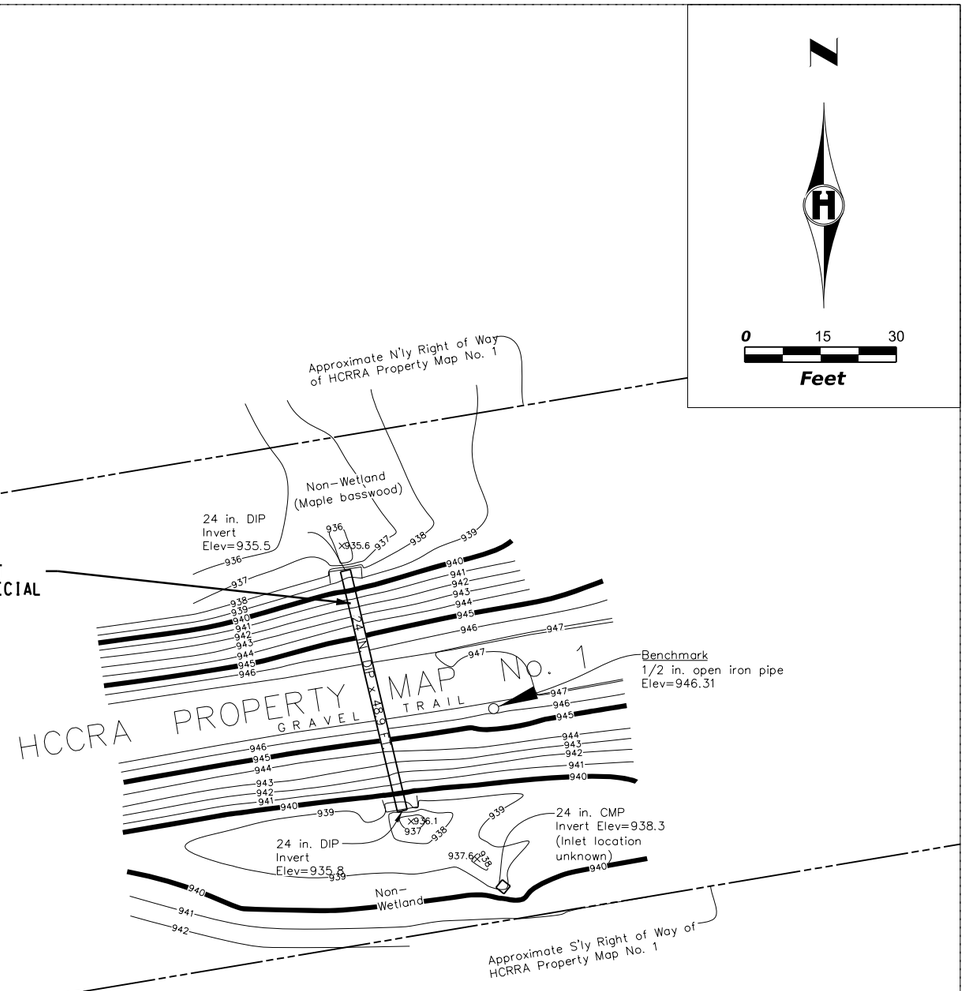

ACCESS VIA TRAIL - MINNETONKA BLVD
IN SOUTH TRAIL DITCH 100FT WEST OF SITE.

Hennepin

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LAST REVISION:	

CULVERT MTKA_55

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 2 OF 11

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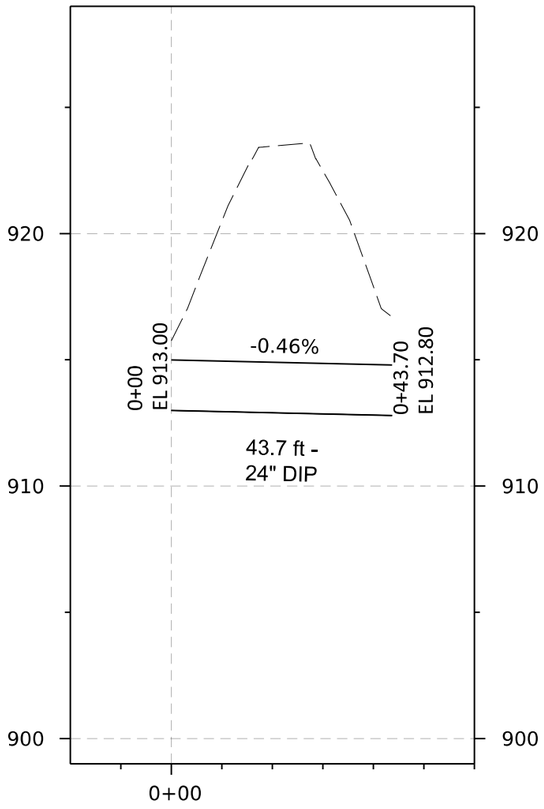
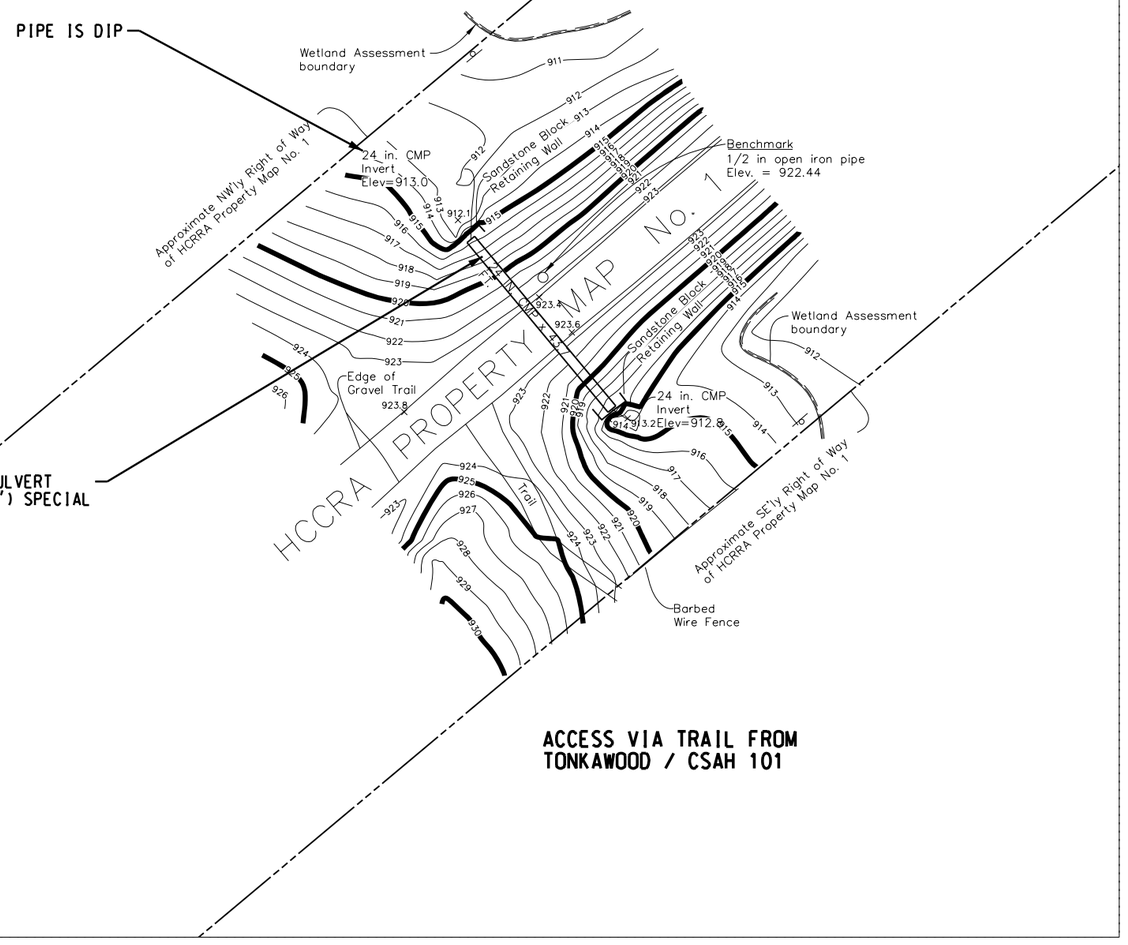
SHEET_002 PW6631 7/3/2024 C:\Users\pw6631\Hennepin County\Hennepin County Transportation Design - HC_Projects\Z_HCRRA\2024_Culverts_1010812\Design\Plans\1010812_cp.dgn





ACCESS VIA TRAIL FROM
TONKAWOOD / CSAH 101

90% PLAN

DESIGN BY:	M KUCHAES
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LAST REVISION:	

CULVERT MTKA_67

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 3 OF 11

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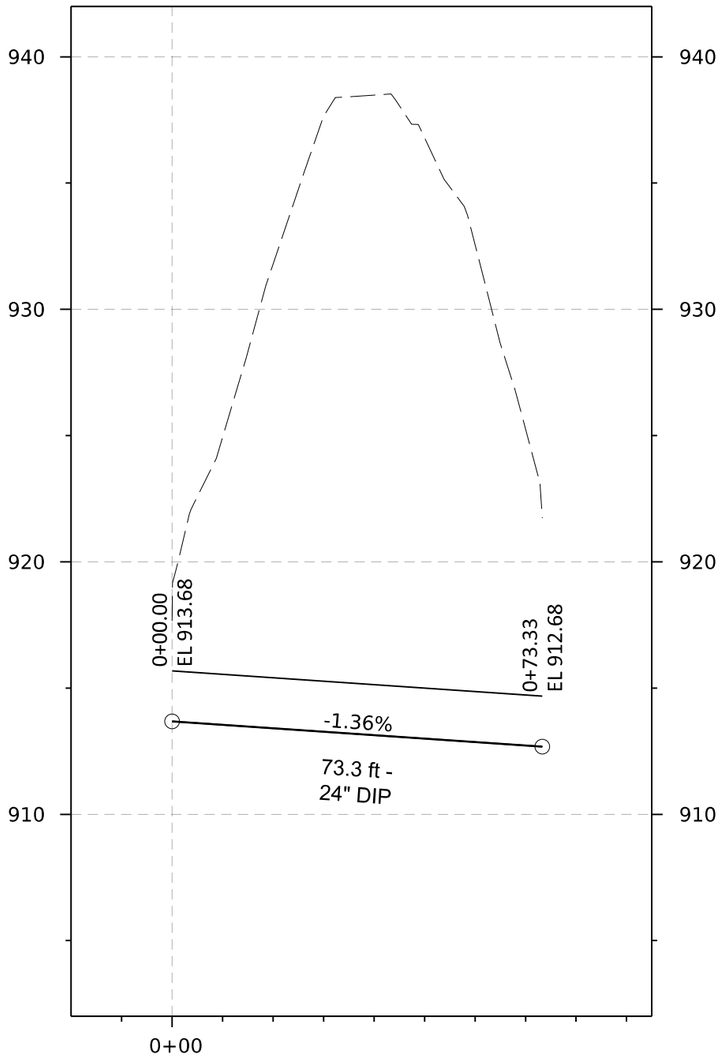

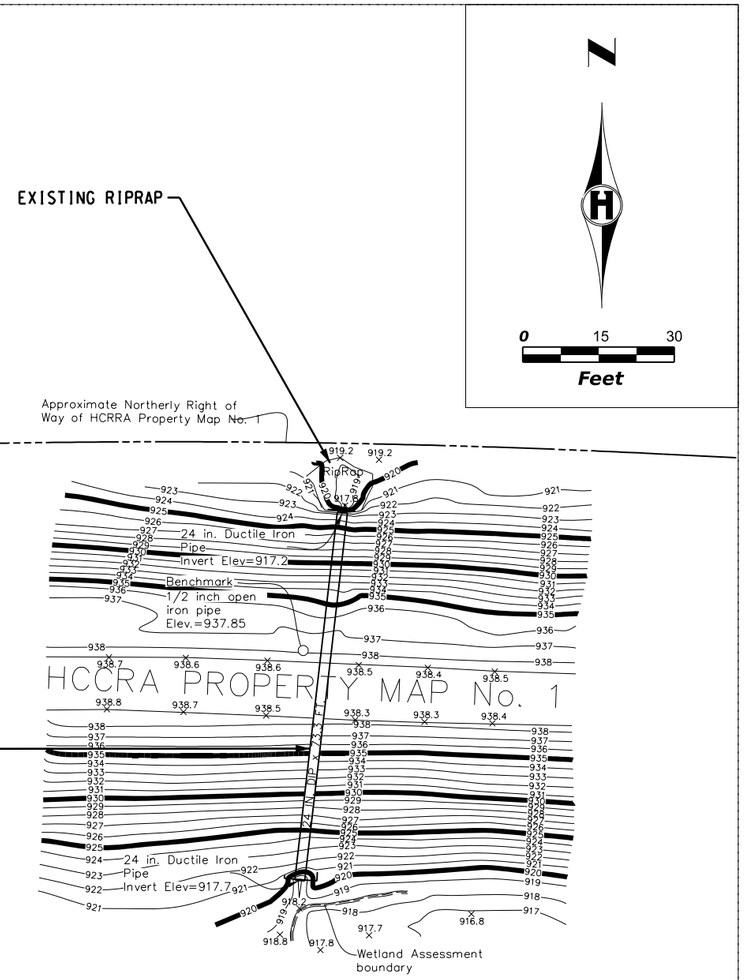

ACCESS VIA TRAIL FROM
MINNETONKA MILLS OR SHADY OAK RD

90% PLAN

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CHECKED BY:	A MCGOVERN
LAST REVISION:	

CULVERT MTKA_86

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 4 OF 11

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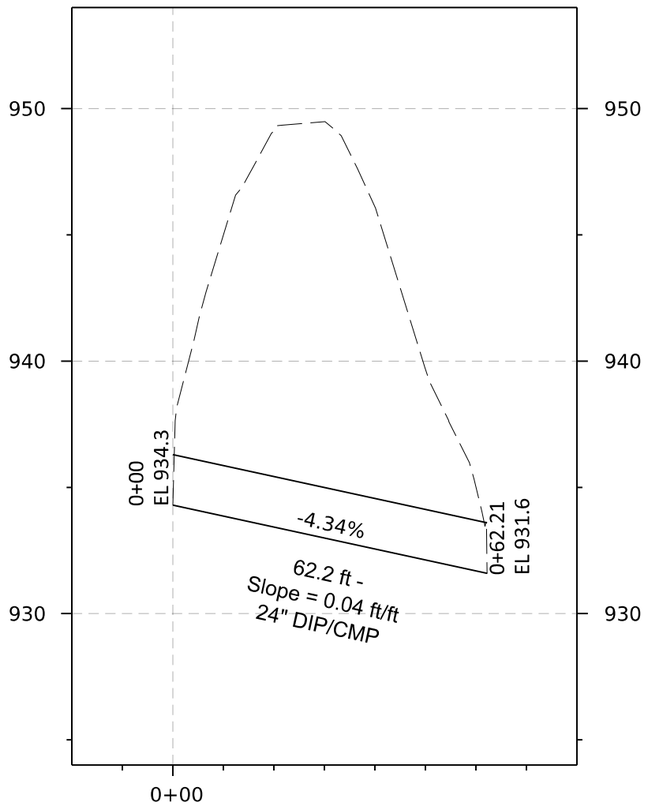
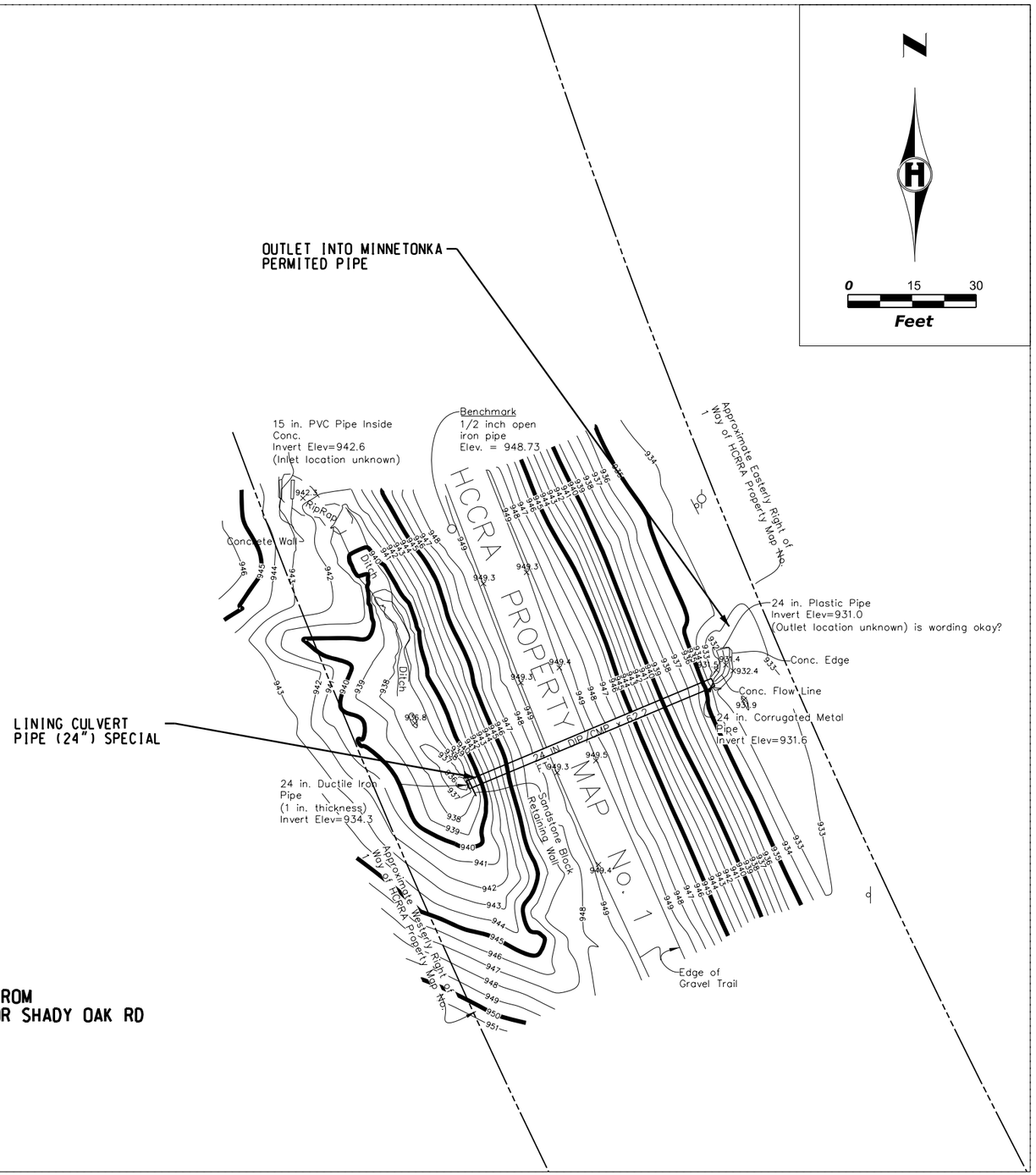
SHEET_004 PW6631 7/3/2024 C:\Users\pw6631\Hennepin County\Hennepin County Transportation Design - HC_Projects\Z_HCRRA\2024_Culverts_1010812\Design\Plans\1010812_cp.dgn





90% PLAN

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CAD BY:	M KUCHAES
CHECKED BY:	A MCGOVERN
LAST REVISION:	

CULVERT MTKA_88

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 5 OF 11

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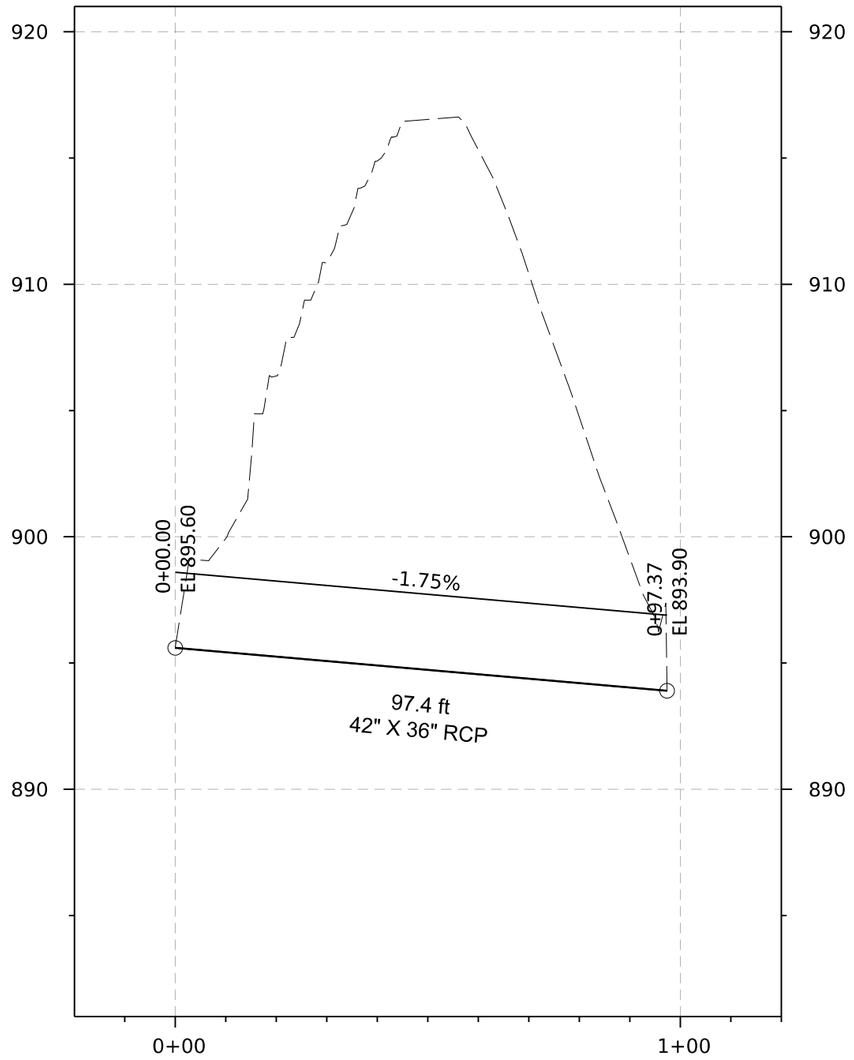

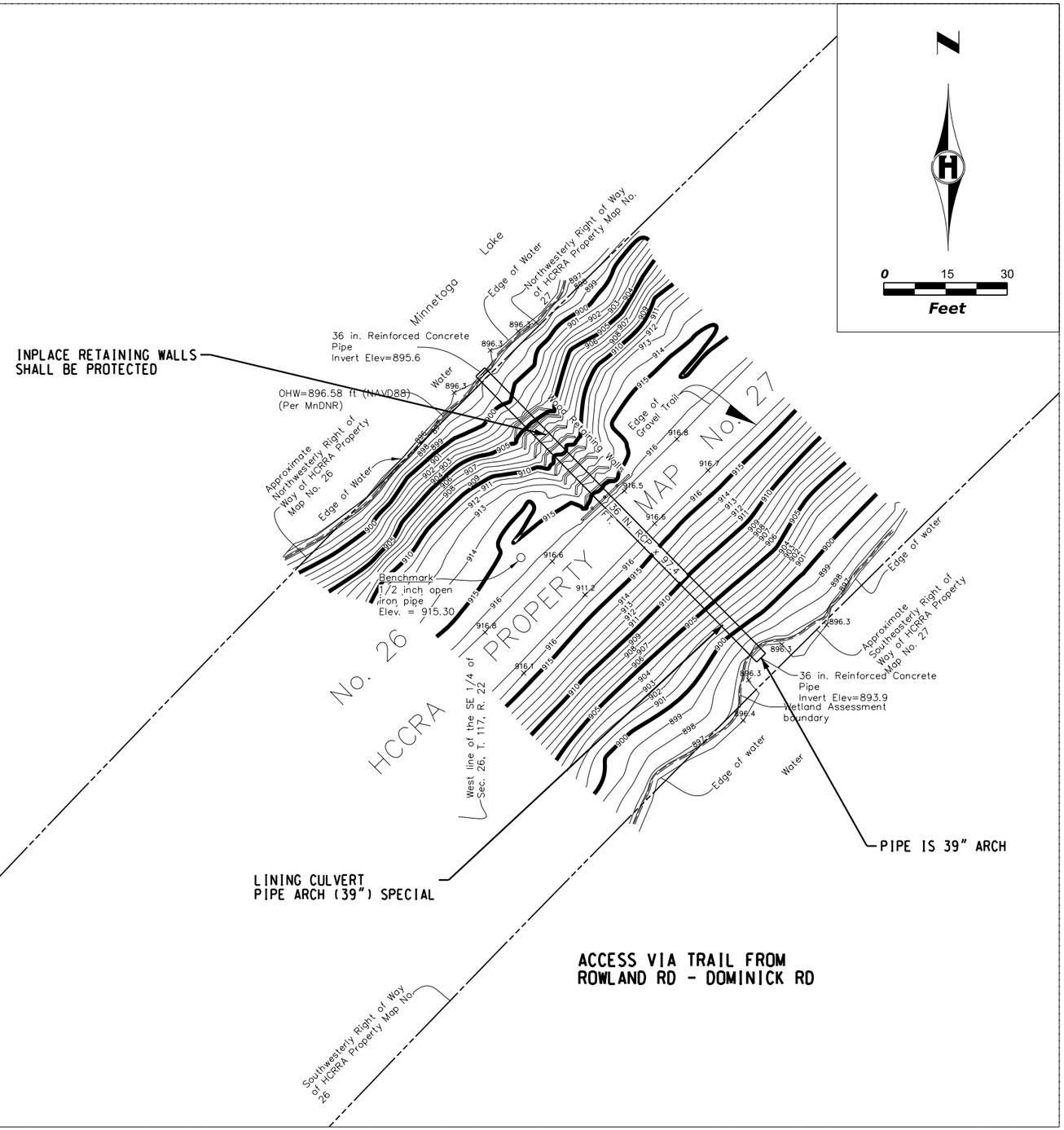

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CULVERT BLUFF_37

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 6 OF 11

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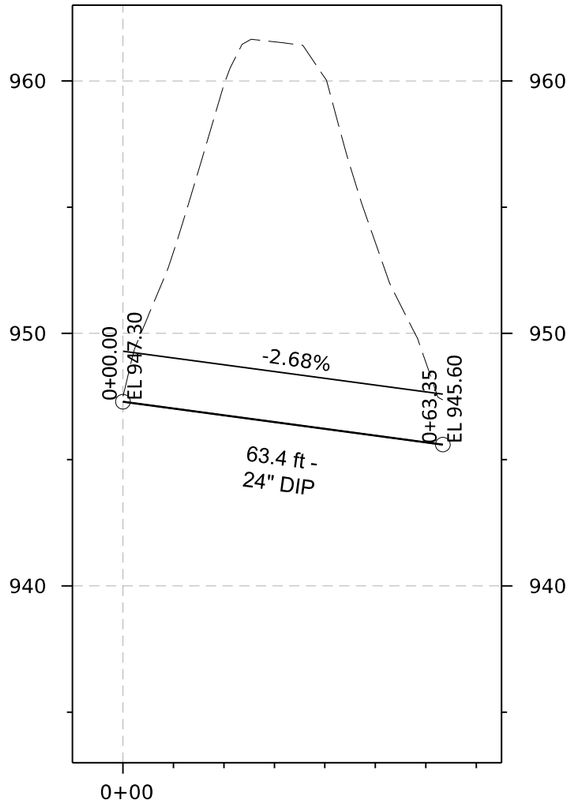

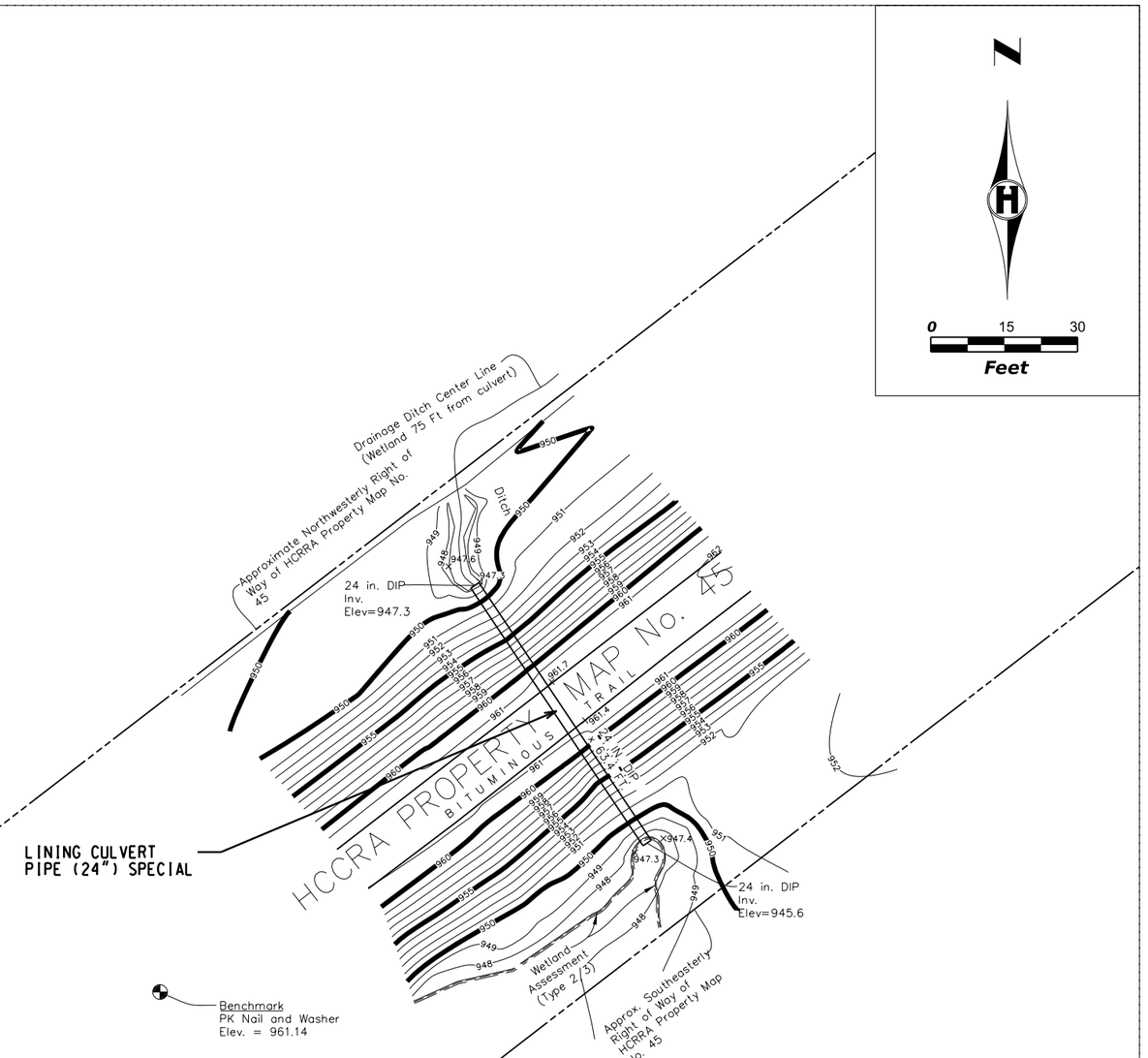

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CULVERT DAK_18

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 7 OF 11

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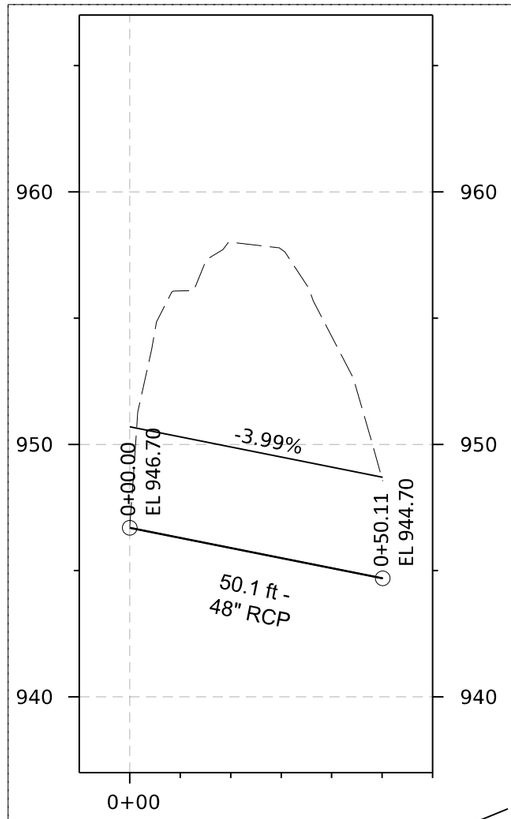
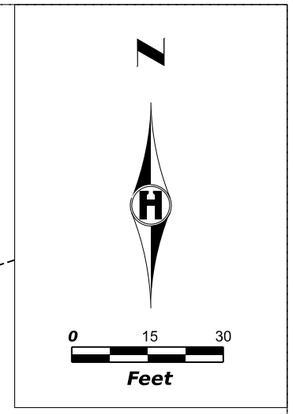
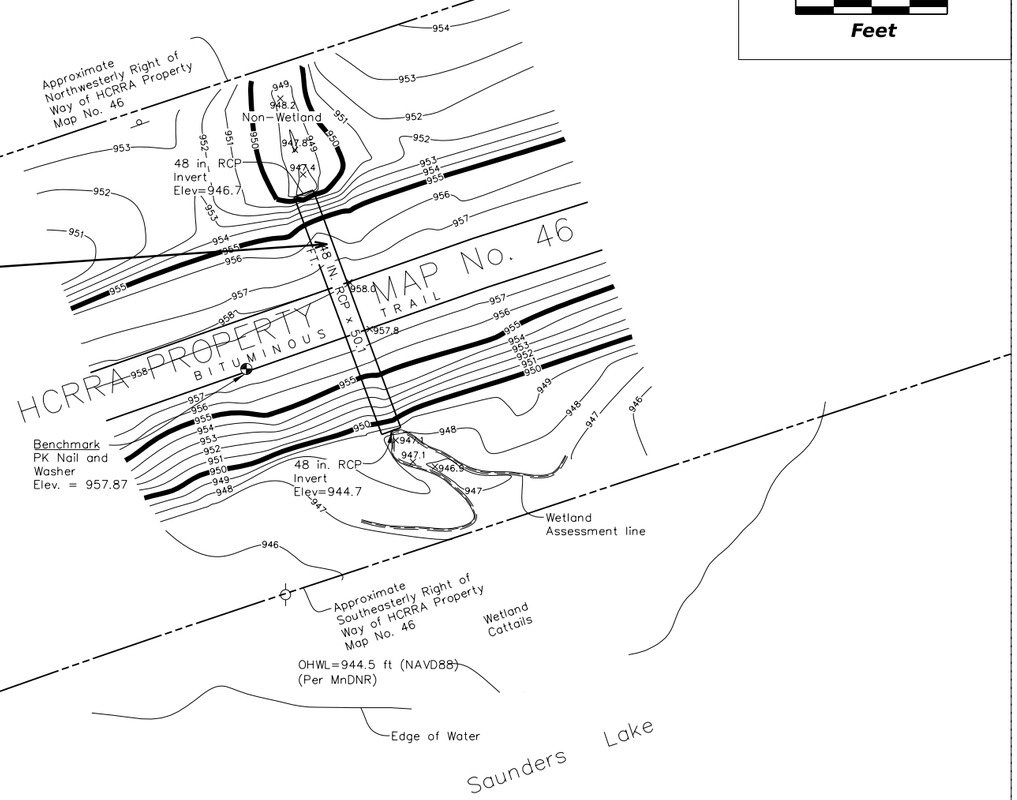




LINING CULVERT
PIPE (48") SPECIAL



ACCESS VIA TRAIL FROM
WESTEDGE BLVD ONLY

90% PLAN

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CULVERT DAK_23

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
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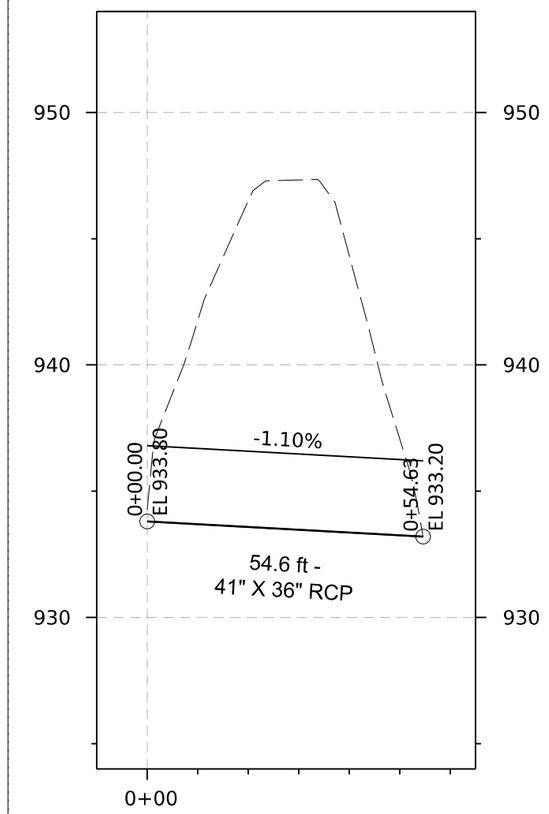

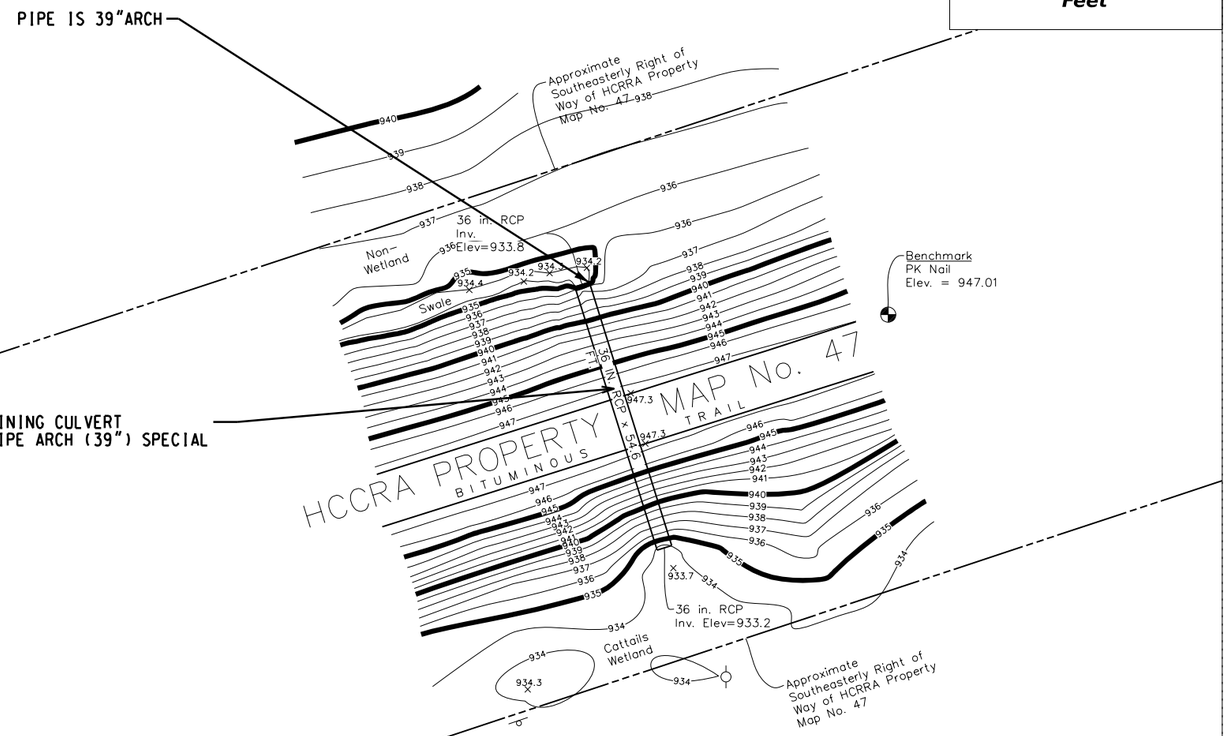

ACCESS VIA TRAIL FROM
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CULVERT DAK_26

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
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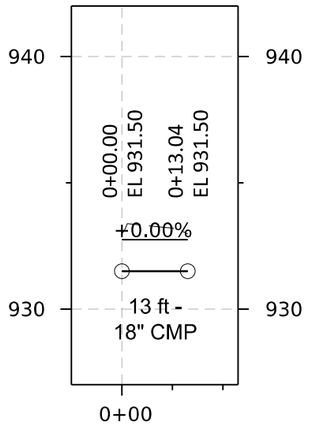
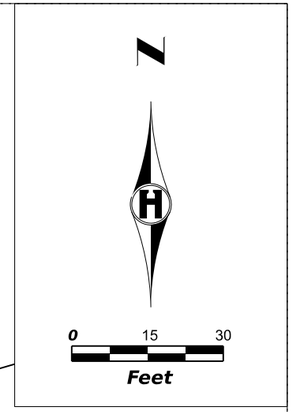
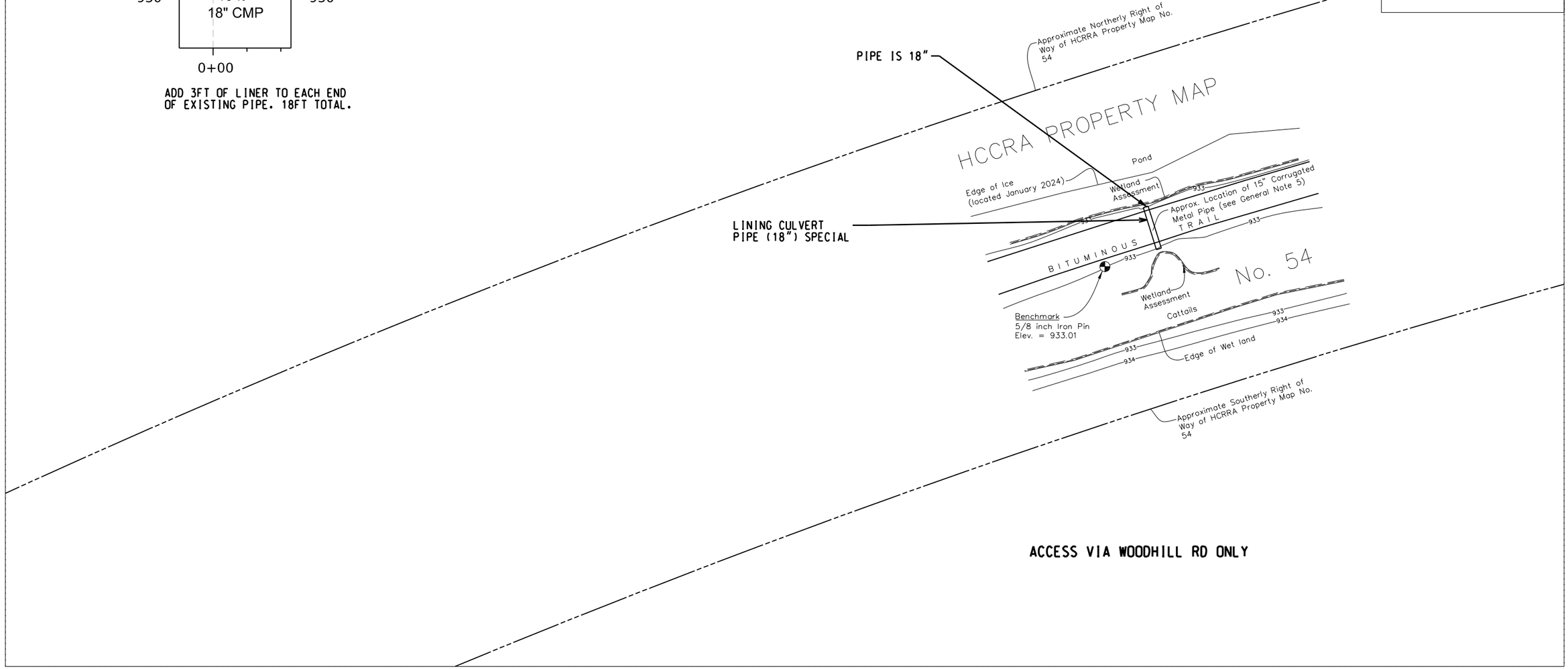


ADD 3FT OF LINER TO EACH END
OF EXISTING PIPE. 18FT TOTAL.





ACCESS VIA WOODHILL RD ONLY

Hennepin

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CULVERT DAK_55

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
SHEET 10 OF 11

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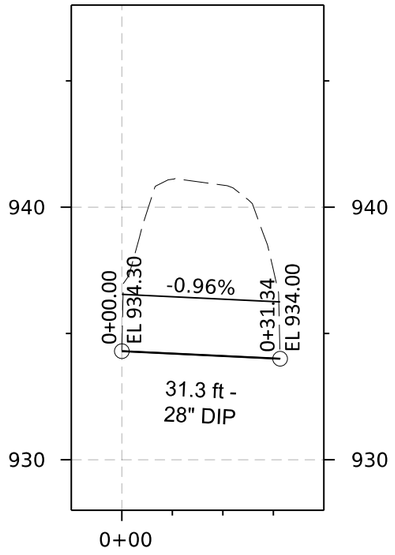

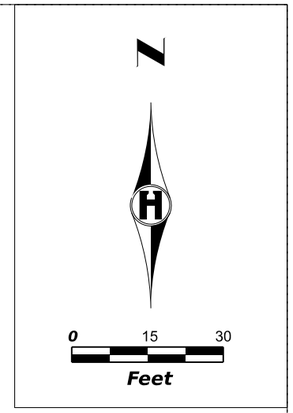

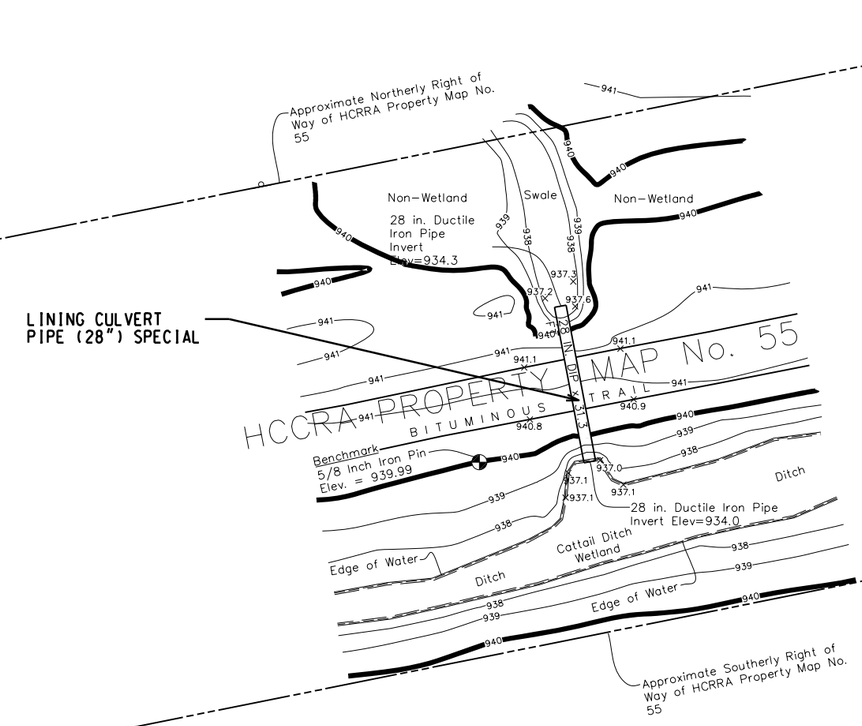

ACCESS VIA CSAH 15 SHOULDER / RW.

Hennepin

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LAST REVISION:	

CULVERT DAK_56

HCRRA CULVERT REPAIR
COUNTY PROJECT 1010812
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