

## Riley Purgatory Bluff Creek Watershed District Permit Application Review

**Permit No:** 2022-079

**Considered at Board of Managers Meeting:** April 12, 2023

**Received complete:** February 28, 2023

**Applicant:** Hennepin County

**Consultant:** NA

**Project:** County State Aid Highway 4 Culvert Rehabilitation– The proposed project includes relining the existing steel culvert along Riley Creek under the CSAH 4 (aka Spring Road).

**Location:** 9955 Spring Rd, Eden Prairie, MN

**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 April 12, 2023 meeting of the managers. Resolved that the application for Permit 2022-079 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 2022-079 to the applicant on behalf of RPBCWD.

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

### Rule Conformance Summary

Rule	Issue	Conforms to RPBCWD Rules?	Comments
C	Erosion Control Plan	NA	No land-disturbing activity
D	Wetland and Creek Buffer	NA	No land-disturbing activity upgradient from creek
G	Waterbody Crossing and Structures	See Comment	See Rule Specific Permit Condition G1.
L	Permit Fee	NA	Governmental Entity
M	Financial Assurance	NA	Governmental Entity

## **Project Background**

The existing culvert, which conveys Riley Creek flows under County State Aid Highway 4 (aka Spring Road), is a 68-foot long, 60-inch steel pipe. There is joint separation that is causing granular material under the pavement section to be lost and therefore causing depression in the pavement above the existing culvert.

The project proposes to repair and slip line the failing culvert. The ultraviolet-cured liner will involve lining the existing steel pipe with a 10.8 mm liner; the entire process will take 4-6 hours. The project proposes no ground disturbance or new or reconstructed impervious surface, so RPBCWD's Wetland and creek buffers (Rule D) and stormwater-management (Rule J) do not impose requirements on this project. The following photograph illustrates the planned equipment that will be used to reach the end of the existing culvert with the lining materials from the roadway, thus avoiding land-disturbing activities. (Note this is a location outside RPBCWD for illustrative purposes only)



The project site information is summarized below:

Description	Area (acres)
Total Site Area	0.06
Existing Site Impervious	0.03
Post Construction Site Impervious	0.03
New (Increase) in Site Impervious Area	0
Disturbed impervious surface	0
Total Disturbed Area	0

Exhibits:

1. Permit Application received December 14, 2022 (The applicant was notified on January 4, 2023 that the submittal was incomplete because no information was provided to demonstrate compliance with the applicable criteria of RPBCWD’s Rule G, Waterbody Crossings and Structures; information completing the application was received on February 28, 2023)
2. Hydraulic modeling results summary spreadsheet received December 14, 2022
3. 60% Design plan sheets received December 14, 2022
4. 90% Design plan sheets received February 28, 2023
5. SWMM Models received January 9, 2023
6. Response email dated February 28, 2023 to RPBCWD’s incomplete notice and comments

**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 and Riley Creek is a public waters watercourse, Rule D, Subsections 2.1a requires buffer adjacent to this watercourse. But because there is no land-disturbing activity upgradient of the creek associated with proposed with the slip-lining project, Rule D does not impose requirements on the project.

**Rule G: Waterbody Crossings and Structures**

Because the project will rehabilitate the existing culvert and install an ultraviolet-cured liner inside existing steel pipe along Riley Creek, a public watercourse, (i.e., improve a crossing in contact with the bed of a public watercourse) the project requires 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. The proposed work falls within the scope of Minnesota Department of Natural Resources General Permit #2015-1192.

This work represents a public benefit by repairing a deteriorating culvert such as will maintain public-use CSAH 4 (Rule G, Subsection 3.1a)

The proposed crossing was modeled in SWMM by the applicant. The analysis shows that the proposed 100-year frequency flood stage depth upstream of the crossing (9.7 feet) matches the existing flood stage depth 9.7 feet and the downstream flood stage depth will lower than existing conditions by 0.02 feet, 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 portion of Riley Creek is not used for navigation, thus the requirement of Rule G, Subsection 3.2b does not apply to this project. The applicant provided modeling demonstrating the project will maintain similar flow velocities through the culvert and downstream creek section, 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 Riley Creek as it is used under existing conditions, thus preserving wildlife passage consistent with Rule G, Subsection 3.2d.

A no-build option would result in flows through the existing deteriorating arch culvert continuing to cause erosion along the culvert. 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 of the extensive site disturbance. Because the rehabilitation option minimizes eliminated land-disturbing activities to maintain existing flow characteristic, this option has the minimal impact to the area and the creek system which is consistent with Rule G, Subsection 3.2e.

The plans include a note directing the contractor that no work affecting the creek bed shall occur between March 15 and June 15 which aligns with watercourse requirement in Rule G, Subsection 3.7a. 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 land-disturbing activities will occur with the project, Rule G subsections 3.7b and 3.7d do 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 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.

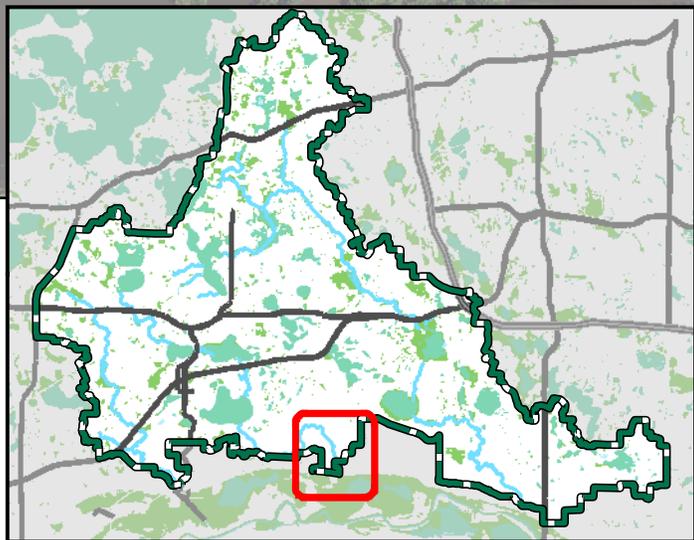
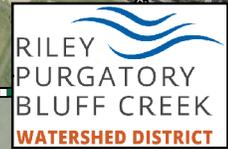
### **Findings**

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.
3. Under Minnesota Department of Natural Resources General Permit 2015-1192 (attached to this report), approval of work under RPBCWD rule(s) G constitutes approval under applicable DNR work in waters rules. Compliance with conditions on approval and payment of applicable fees, if any, are necessary to benefit from general permit approval and the responsibility of the applicants.

### **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 crossings and buffer areas. Once approved by RPBCWD, the Hennepin County must enter an agreement with RPBCWD to maintain the project facilities in accordance with the plan.



Feet



Permit Location Map

CSAH4 CULVERT LINING

**Permit 2022-079**

Riley Purgatory Bluff Creek  
Watershed District

# HENNEPIN COUNTY TRANSPORTATION DEPARTMENT

CONSTRUCTION PLAN FOR: CULVERT LINING AND JOINT REPAIR IDIQ

## COUNTY STATE AID HIGHWAY 4, 11, & 92

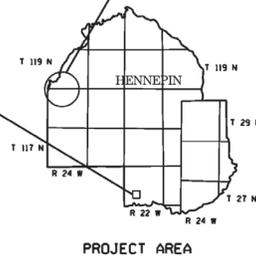
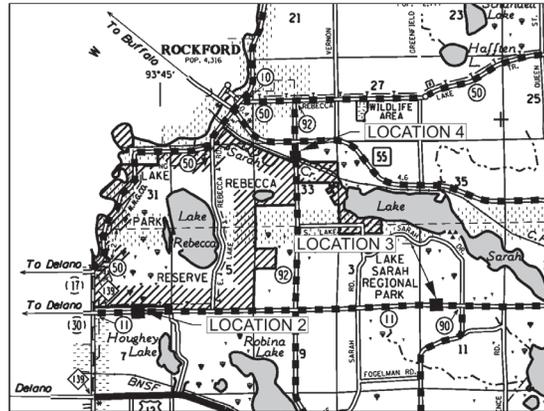
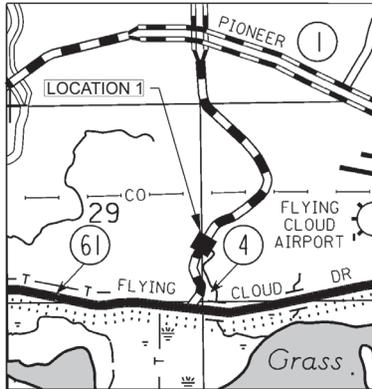


CULVERT LOCATION 1  
CUL 4000020

CULVERT LOCATION 2  
CUL 11000070

CULVERT LOCATION 3  
CUL 11000895

CULVERT LOCATION 4  
CUL 92000593



CP 2183329 TASK ORDER # 1

- CULVERT LOCATION 1 - CSAH 4 FROM 1800 FT NORTH OF CSAH 61 TO 1750 FT SOUTH OF PROSPECT RD
- CULVERT LOCATION 2 - CSAH 11 FROM 2600 FT EAST OF COUNTY LINE RD TO 2300 FT WEST OF LAKE HAUGHEY RD
- CULVERT LOCATION 3 - CSAH 11 FROM 5360 FT EAST OF LAKE SARAH RD TO 1200 FT WEST OF CSAH 90
- CULVERT LOCATION 4 - CSAH 92 FROM 1100 FT SOUTH OF HWY 55 TO 120 FT NORTH OF RR

**GOVERNING SPECIFICATIONS**  
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", AND THE "SUPPLEMENTAL SPECIFICATIONS" DATED SEPTEMBER 2022 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".

SHEET NO.	INDEX DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	CULVERT TABULATIONS, STANDARD PLANS, PLATES & BASIS OF ESTIMATED QUANTITIES
4-9	STANDARD PLAN SHEETS
10-13	CONSTRUCTION PLANS & DRAINAGE PROFILES
14-19	TRAFFIC CONTROL

THIS PLAN CONTAINS 19 SHEETS

APPROVED ..... HENNEPIN COUNTY: COUNTY HIGHWAY ENGINEER ..... DATE .....

RECOMMENDED FOR APPROVAL ..... HENNEPIN COUNTY: ASSET MANAGEMENT DIVISION ENGINEER ..... DATE .....

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



# 90%

DESIGN BY: J BELISLE  
CAD BY: J BELISLE  
CHECKED BY: M WOLFF  
LAST REVISION: / /

TITLE SHEET  
HENNEPIN COUNTY PROJECT 2183329

SHEET  
1  
19

NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	PROJECT	CULVERT 1 4000020	CULVERT 2 11000070	CULVERT 3 11000895	CULVERT 4 92000593
				QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
1,4	2012.602	TRAFFIC CONTROL SPECIAL	EACH	2	1			1
1,3	2012.602	TRAFFIC CONTROL TYPE 5	EACH	2		1	1	
	2104.503	REMOVE PIPE CULVERTS	LF	72		72		
1	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HR	4	1	1	1	1
9	2501.502	INSTALL CULVERT MARKER	EACH	8	2	2	2	2
1,5,7	2501.602	REPAIR CULVERT JOINT	EACH	12				12
1	2501.606	CHEMICAL GROUT	GAL	200				200
1,5,7,11	2507.603	LINING CULVERT PIPE (18") SPECIAL	LF	250		162	88	
1,5,7,11	2507.603	LINING CULVERT PIPE (60") SPECIAL	LF	68	68			
	2511.504	GEOTEXTILE FILTER TYPE 4	SY	26		26		
8	2511.507	RANDOM RIPRAP CLASS III	CY	7		7		
	2511.507	GRANULAR FILTER	CY	1		1		
1	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UDAY	32	16			16
	2573.503	SILT FENCE; TYPE HI	LF	274		274		
	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LF	421		421		
10	2574.507	COMMON TOPSOIL BORROW	CY	10		10		
	2575.523	RAPID STABILIZATION METHOD 3	MGAL	1		1		
1,2,6	2575.602	SITE RESTORATION	EACH	1		1		

SEQ NOTES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>(1) SEE SPECIAL PROVISIONS.</li> <li>(2) ON ROADSIDE USE WITH SEED MIXTURE 25-141 AT A RATE OF 59 LBS/ACRE. USE SEED MIX 34-171 WITHIN WETLAND BOUNDARIES. APPLY FERTILIZERS AT A RATE OF 200 LBS/ACRE (10-10-10 NPK)</li> <li>(3) TYPE 5 - FLAGGING OPERATIONS</li> <li>(4) SPECIAL - DETOUR OPERATIONS</li> <li>(5) INCLUDES DEWATERING AND DAMMING AROUND CULVERT ENDS</li> <li>(6) THIS WORK CONSISTS OF SITE GRADING, PLACING SEED AND FERTILIZER</li> <li>(7) INCLUDES CULVERT CLEANING</li> </ul> | <ul style="list-style-type: none"> <li>(8) RANDOM RIPRAP SHALL BE LIMESTONE</li> <li>(9) CULVERT MARKERS TO BE SUPPLIED BY HENNEPIN COUNTY</li> <li>(10) CONTRACTOR SHALL SALVAGE AND REUSE EXISTING TOPSOIL. BORROW ITEM TO BE USED IF INPLACE TOPSOIL IS UNSUITABLE FOR ADEQUATE SITE RESTORATION</li> <li>(11) UV CURE GRP CURED-IN-PLACE PIPE</li> </ul> |
|---|--|



90%

DESIGN BY: J BELISLE  
 CAD BY: J BELISLE  
 CHECKED BY: M WOLFF  
 LAST REVISION:     

STATEMENT OF ESTIMATED QUANTITIES  
 HENNEPIN COUNTY PROJECT 2183329

SHEET  
 2  
 19

**CULVERT LINING TABULATION**

	CULVERT ID NUMBER	LATITUDE	LONGITUDE	EXISTING CULVERT															
				PIPE SIZE	PIPE TYPE	PIPE LENGTH	REMOVE PIPE CULVERTS	REPAIR CULVERT JOINT	LINING CULVERT PIPE (18") SPECIAL	LINING CULVERT PIPE (60") SPECIAL	SITE RESTORATION	GEOTEXTILE FILTER TYPE 3	RANDOM RIPRAP CLASS III	GRANULAR FILTER	CHEMICAL GROUT	TRAFFIC CONTROL SPECIAL	TRAFFIC CONTROL TYPE 5		
				INCHES		LIN FT	LIN FT	EACH	LIN FT	LIN FT	EACH	SY	CY	CY	GALLON	EACH	EACH		
CULVERT 1	4000020	44.823008	-93.480130	60	STEEL	68						68						1	
CULVERT 2	11000070	45.050186	-93.756603	18	RCP	162	72		162		1		26	7	1				1
CULVERT 3	11000895	45.051172	-93.681375	18	RCP	88			88										1
CULVERT 4	92000593	45.076686	-93.717244	48	RCP	106		12								200		1	
<b>TOTAL</b>						<b>72</b>	<b>12</b>	<b>250</b>	<b>68</b>	<b>1</b>	<b>26</b>	<b>7</b>	<b>1</b>	<b>200</b>	<b>2</b>	<b>2</b>			

**GENERAL NOTES**

- ALL UTILITY WORK SHOWN ON THESE SHEETS SHALL BE DONE BY OTHERS UNLESS NOTED.
- ALL RELOCATES AND ADJUSTMENTS SUBJECT TO HC RIGHT OF WAY.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE , CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
- THE "LEAVE AS IS", "ADJUST", AND "RELOCATE" COLUMNS ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE CONSTRUCTION OPERATIONS TO ALLOW FOR THE ADJUSTMENT OF THE UTILITIES AS INDICATED.
- ALL OVERHEAD LINES ARE DISTRIBUTION UNLESS NOTED OTHERWISE.

GOPHER STATE ONE CALL  
 651-454-0002  
 800-252-1166  
 www.gopherstateonecall.org

**STANDARD PLATES**

PLATE NO.	DESCRIPTION
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
8000K	CHANNELIZERS

**STANDARD PLANS**

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

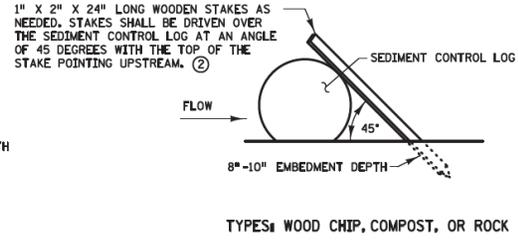
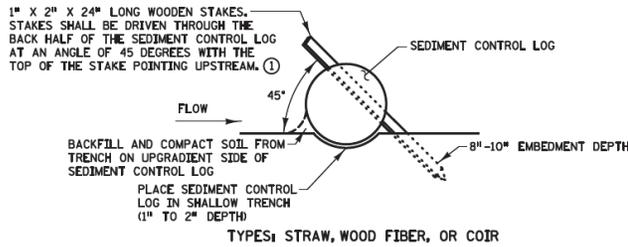


**90%**

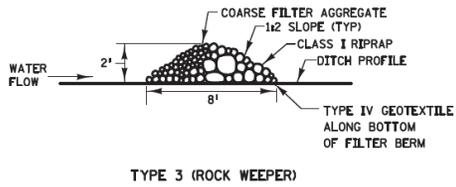
DESIGN BY: J BELISLE  
 CAD BY: J BELISLE  
 CHECKED BY: M WOLFF  
 LAST REVISION:     /    /    

CULVERT TABS, STANDARD PLANS & PLATES  
 HENNEPIN COUNTY PROJECT 2183329

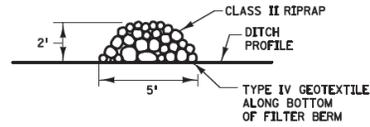
SHEET  
 3  
 19



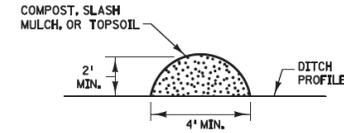
SEDIMENT CONTROL LOGS



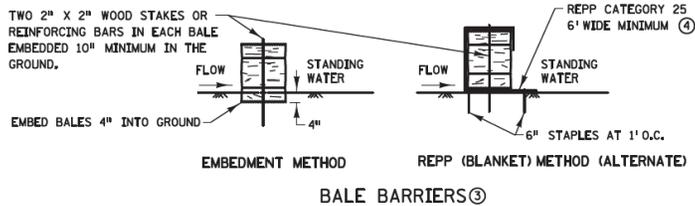
TYPE 3 (ROCK WEEPER)



TYPE 5 (ROCK)  
FILTER BERMS



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)



BALE BARRIERS<sup>③</sup>

NOTES:

- REPP = ROLLED EROSION PREVENTION PRODUCT.
- SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.
- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS, STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6\"/>

REVISION:
APPROVED: JANUARY 8, 2020
<i>Wendy Karonick</i>
WENDY KARONICK
CHIEF ENVIRONMENTAL OFFICER

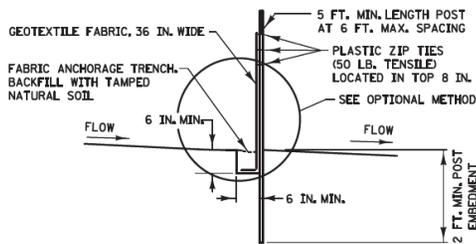


STANDARD PLAN 5-297.405	2 OF 8
APPROVED: 1-8-2020	REVISOR:
<i>Tom Tybecki</i>	THOMAS TYBECKI
STATE DESIGN ENGINEER	

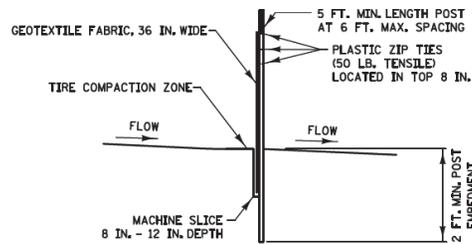
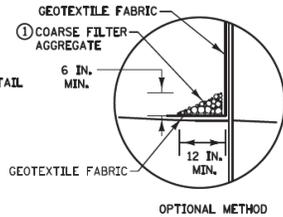
TEMPORARY SEDIMENT CONTROL	
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS	
STATE PROJ. NO.	(T.H. ) SHEET NO. 4 OF 19 SHEETS

PLOTTED/REVISED: 4-APR-2018

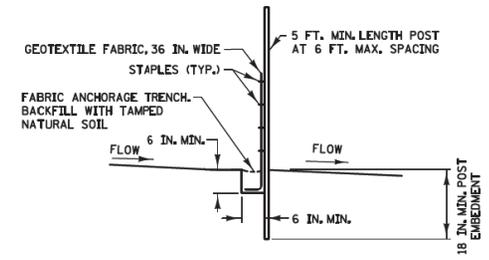
PILOT NAME: s405.6.spp  
PATH & FILENAME: C:\Users\jstansards\Development\New Border\400\_Series\405.6.spp.dgn



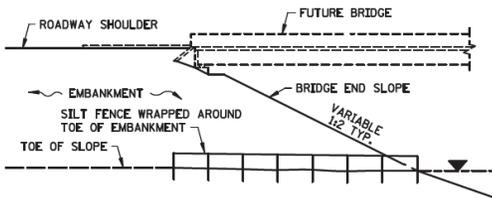
SILT FENCE TYPE HI ②  
(HAND INSTALLED)



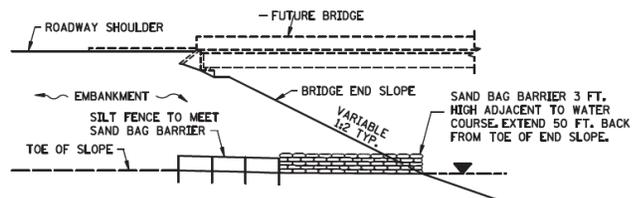
SILT FENCE TYPE MS ②  
(MACHINE SLICED)



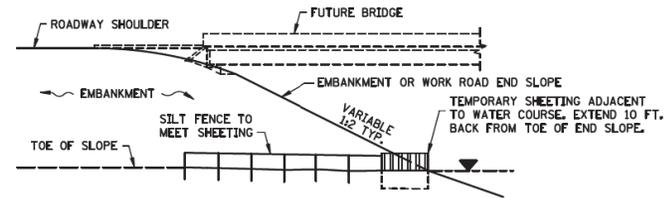
SILT FENCE TYPE PA ③  
(PREASSEMBLED)



SILT FENCE ONLY ④

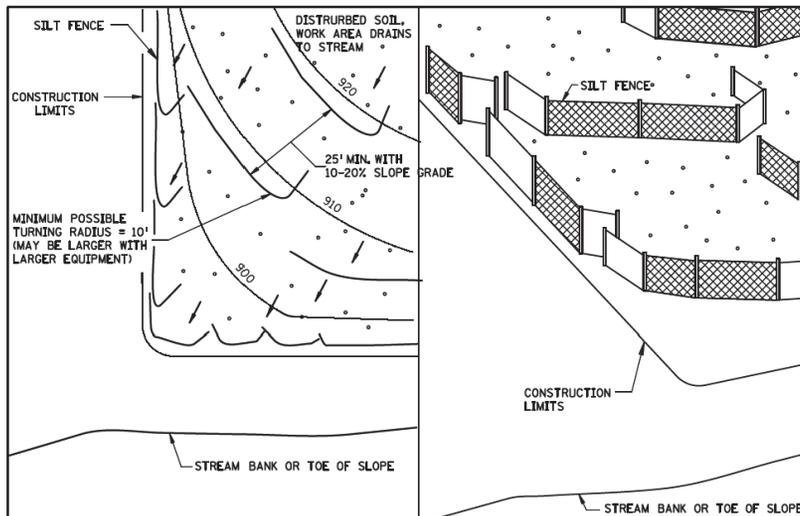


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

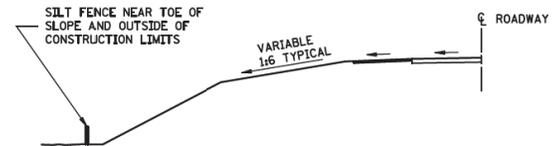
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING, CONTRIBUTING SLOPE AREA: 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:
APPROVED: 2-28-2017
<i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER



STANDARD PLAN 5-297.405 6 OF 8

*[Signature]*  
STATE DESIGN ENGINEER

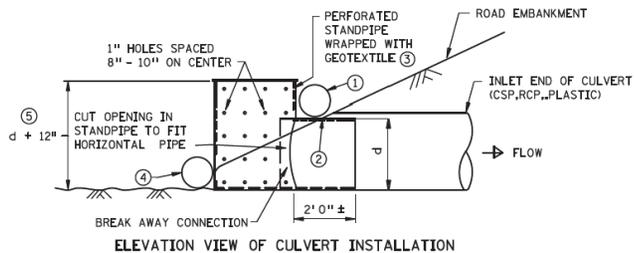
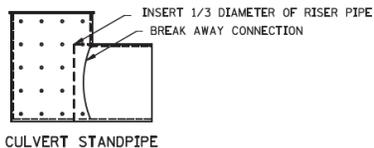
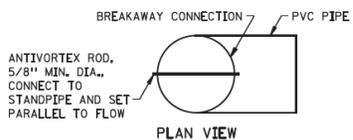
APPROVED: 2-28-2017  
REVISED:  
STATE PROJ. NO.

TEMPORARY SEDIMENT CONTROL  
SILT FENCE

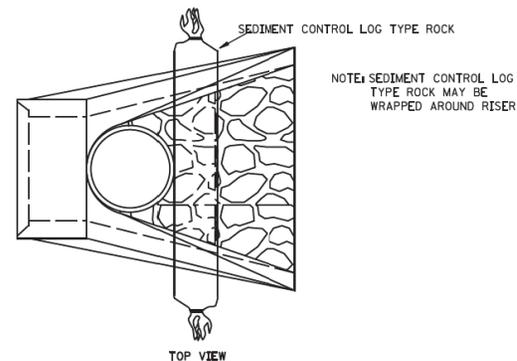
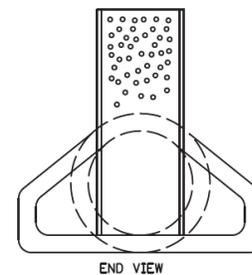
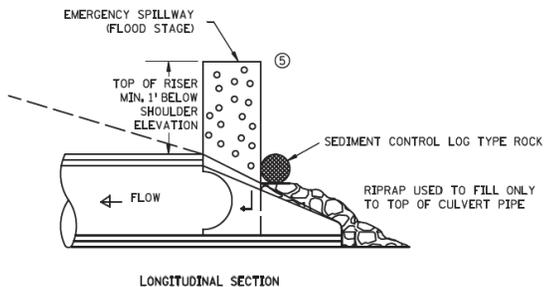
(T.H. ) SHEET NO. 5 OF 19 SHEETS

PLOTTED/REVISED: 4-APR-2018

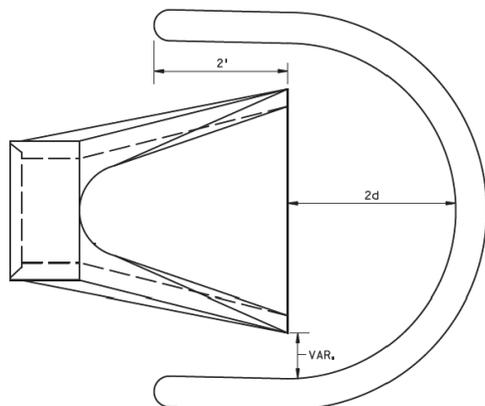
PILOT NAME: s405\_B.spp  
PATH & FILENAME: C:\S\DesignStandards\Development\New Border\400\_Series\s405\_B.spr\dgn



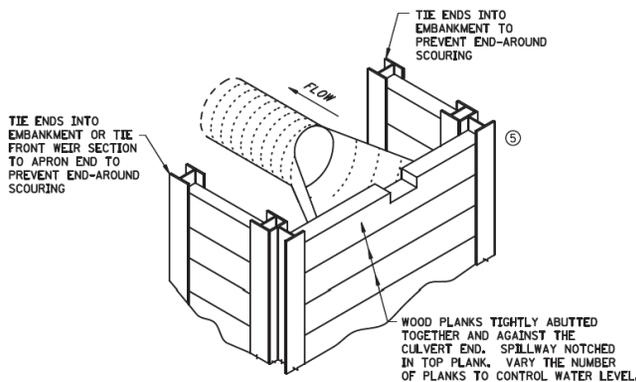
CULVERT STANDPIPE INSERT (D-RISER)  
d = CULVERT SIZE: 12" - 36"



CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR  
(COMPOST, WOOD CHIP, OR ROCK)  
d = CULVERT SIZE: 12" - 36"



WOOD PLANK WEIR

NOTES:

- SEE SPECS. 2573, 3891 & 3893.
- FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.
- MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.
- ① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.
- ② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.
- ③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.
- ④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.
- ⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

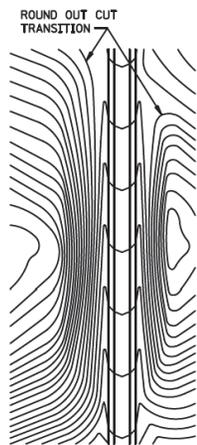
REVISION:
APPROVED: 2-28-2017
<i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER

	STANDARD PLAN 5-297.405	8 OF 8
		APPROVED: 2-28-2017 REVISED:
DEPARTMENT OF TRANSPORTATION	STATE DESIGN ENGINEER	STATE PROJ. NO.

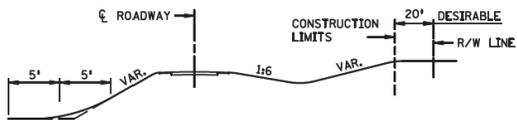
TEMPORARY SEDIMENT CONTROL  
CULVERT END CONTROLS

PLOTTED/REVISED: 4-APR-2018

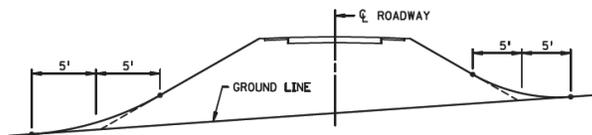
I/PILOT NAME: s404-L.spm  
PATH & FILENAME: C:\S\DesignStandards\Development\New Border\400-Series\s404-L.spr.dgn



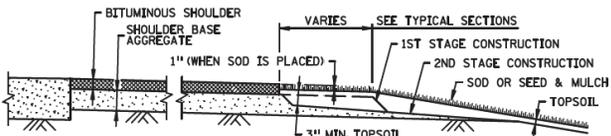
CONTOURING ROAD CUTS



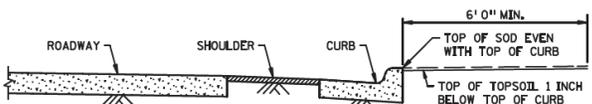
ROUNDING SHOULDERS AND BACKSLOPES



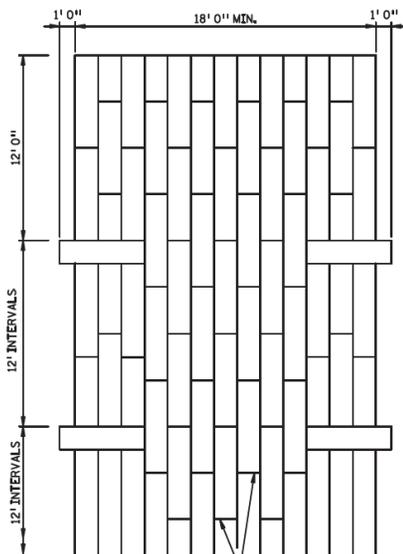
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



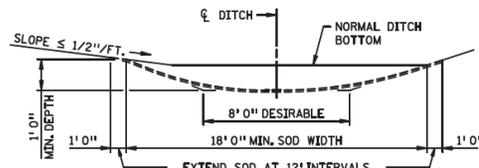
SHAPING AND TOPSOILING INSLOPES



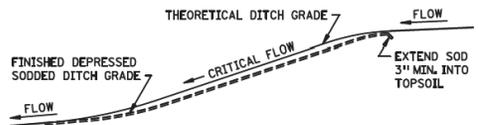
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



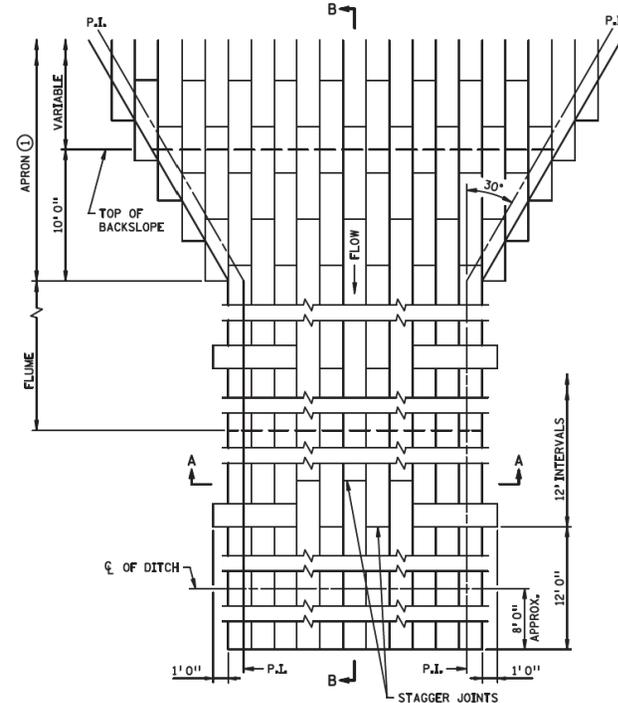
PLAN VIEW



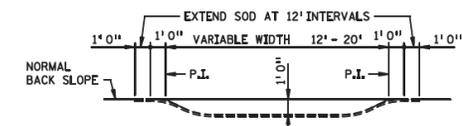
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),  
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



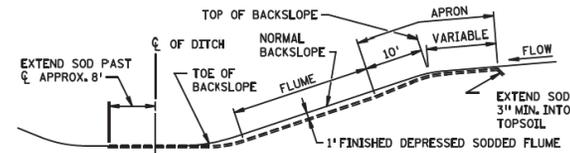
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B  
SODDED FLUME DETAILS

NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISIONS
APPROVED: 2-28-2017
<i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER

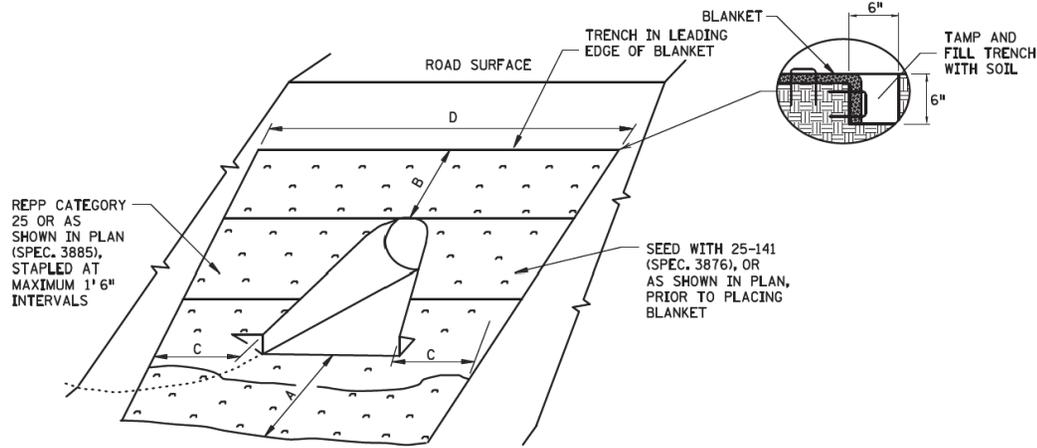
	STANDARD PLAN 5-297.404	1 OF 3
	APPROVED: 2-28-2017 REVISOR: <i>[Signature]</i>	STATE PROJ. NO.

PERMANENT EROSION CONTROL  
ALONG ROADWAYS, DITCHES AND FLUMES

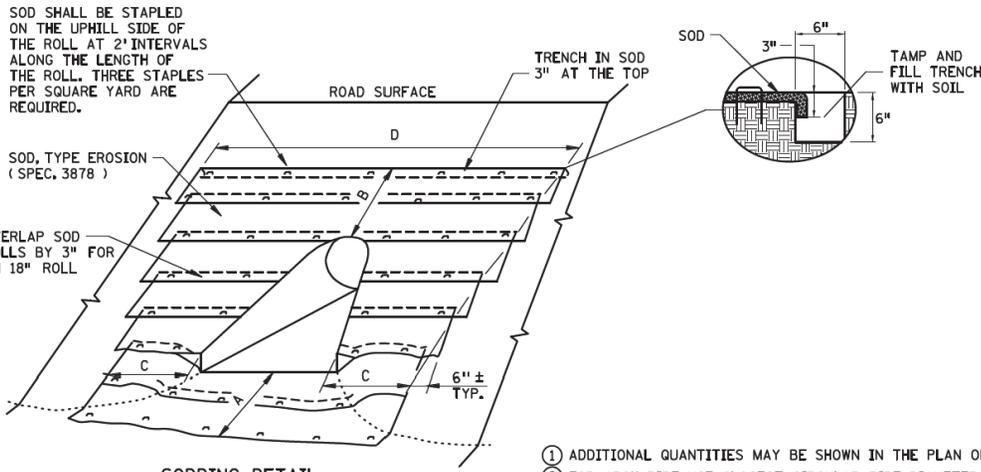
(T.H. ) SHEET NO. 7 OF 19 SHEETS

PLOTTED/REVISED: 24-JAN-2020

PLOT NAME: e404-2.spp  
 PATH & FILENAME: C:\Users\standards\Development\Standards\Files\DEVELOPMENT\404-2.spp.dgn



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



SODDING DETAIL

- ① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
- ② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

CULVERT DIAMETER ②	CULVERT INLET APRON ①						'A'	'B'	'C'	'D'
	SOD OR REPP (SQ. YDS.)									
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	6'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT DIAMETER ②	CULVERT OUTLET APRON ①						'A'	'B'	'C'	'D'
	SOD OR REPP (SQ. YDS.)									
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

REVISION:  
 APPROVED: JANUARY 8, 2020  
*Marie Karonowski*  
 MARIE KARONOWSKI  
 CHIEF ENVIRONMENTAL OFFICER



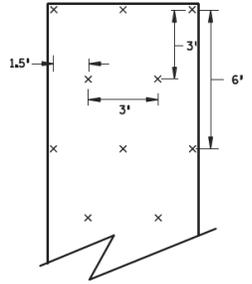
STANDARD PLAN 5-297.404 2 OF 3  
 APPROVED: 1-8-2020  
 REVISED:  
*Tom S...  
 THOMAS...  
 STATE DESIGN ENGINEER*

PERMANENT EROSION CONTROL  
 TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

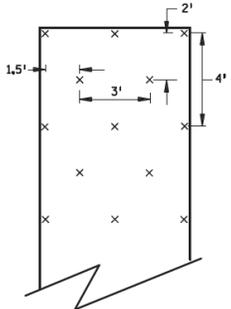
STATE PROJ. NO.

(T.H. ) SHEET NO. 8 OF 19 SHEETS

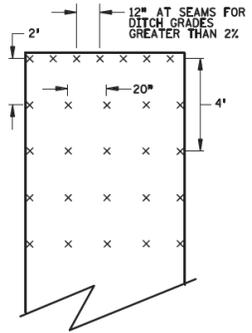
PLOT NAME: s404\_3.spp  
 PATH & FILENAME: C:\Users\Standard\Development\Standard\Plans\DE\1400\_Series\s404\_3.spp.dgn  
 PLOTTED/REVISED: 24-JAN-2020



SLOPES FLATTER THAN 1:2  
120 STAPLES PER 100 SQ YD

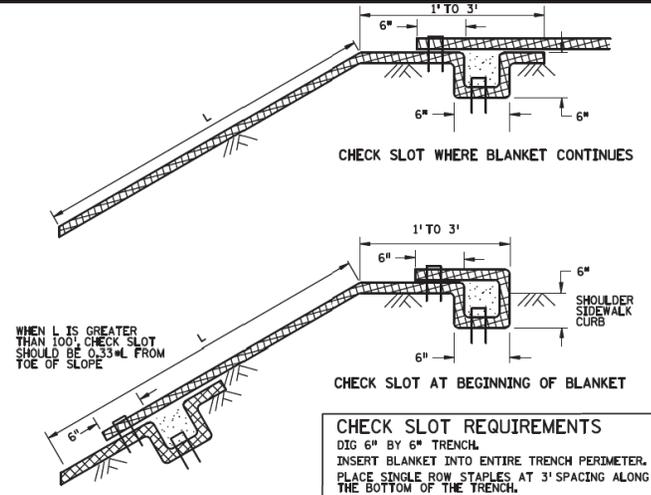


SLOPES 1:2 TO 1:1  
170 STAPLES PER 100 SQ YD

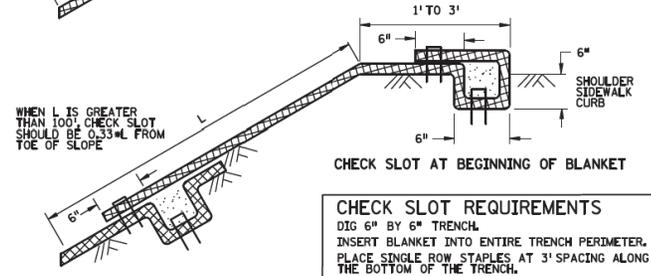


CHANNEL AND DITCH APPLICATIONS  
350 STAPLES PER 100 SQ YD

**BLANKET STAPLE PATTERN**

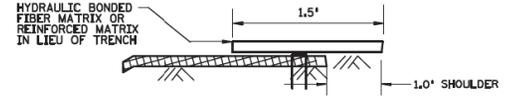


CHECK SLOT WHERE BLANKET CONTINUES



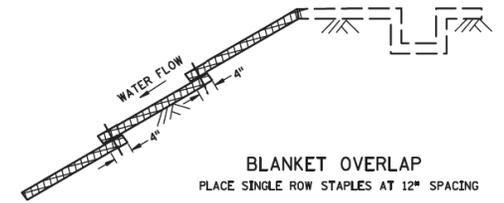
CHECK SLOT AT BEGINNING OF BLANKET

**CHECK SLOT REQUIREMENTS**  
 DIG 6" BY 6" TRENCH.  
 INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.  
 PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.  
 BACKFILL TRENCH WITH SOIL AND TAMP.  
 PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



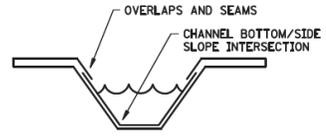
CHECK SLOT ALTERNATIVE  
PLACE SINGLE ROW STAPLES AT 12" SPACING

**CHECK SLOT DETAILS**



BLANKET OVERLAP  
PLACE SINGLE ROW STAPLES AT 12" SPACING

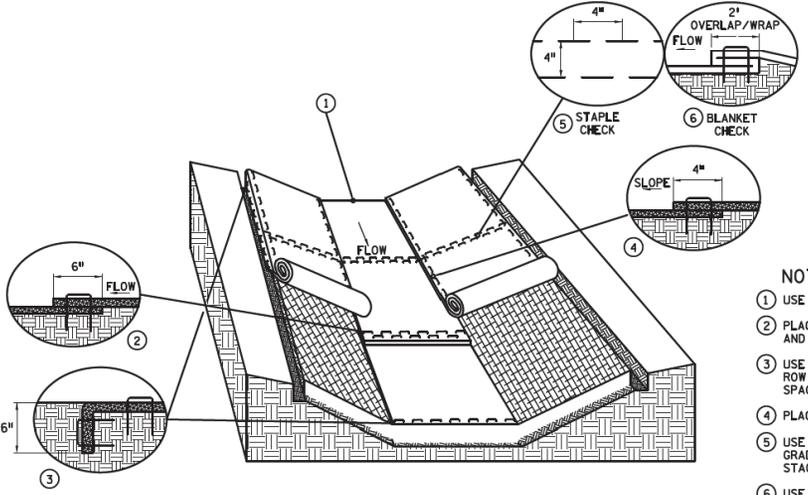
**GENERAL BLANKET INSTALLATION REQUIREMENTS**  
 REPP = ROLLED EROSION PREVENTION PRODUCT.  
 PREPARE SOIL AS PER SPECIFICATION 2574.  
 LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.  
 OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".  
 OVERLAP BLANKET 6" (MINIMUM) AT EACH END, OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.  
 THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/2 FROM THE BOTTOM OF THE SLOPE.



DITCH BLANKET CRITICAL POINTS ⑦

**NOTES:**

- ① USE CHECK SLOT DETAIL (NO ALTERNATES).
- ② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
- ③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING, BACKFILL TRENCH WITH SOIL AND TAMP.
- ④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
- ⑤ USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
- ⑥ USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:  
 2.5%-3% 100' INTERVALS  
 3%-5% 50' INTERVALS  
 5%-7% 25' INTERVALS
- ⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



**DITCH BLANKET STAPLE DETAIL**

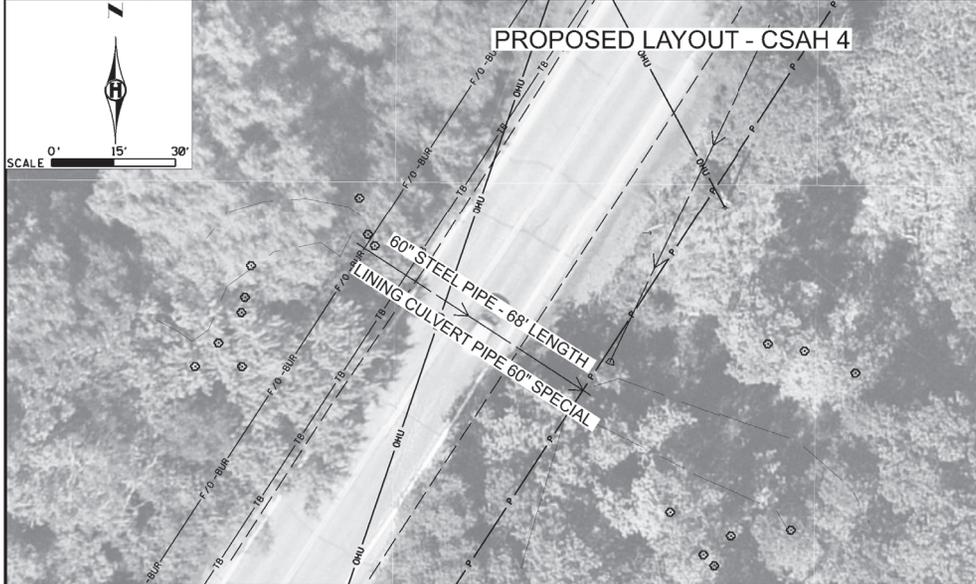
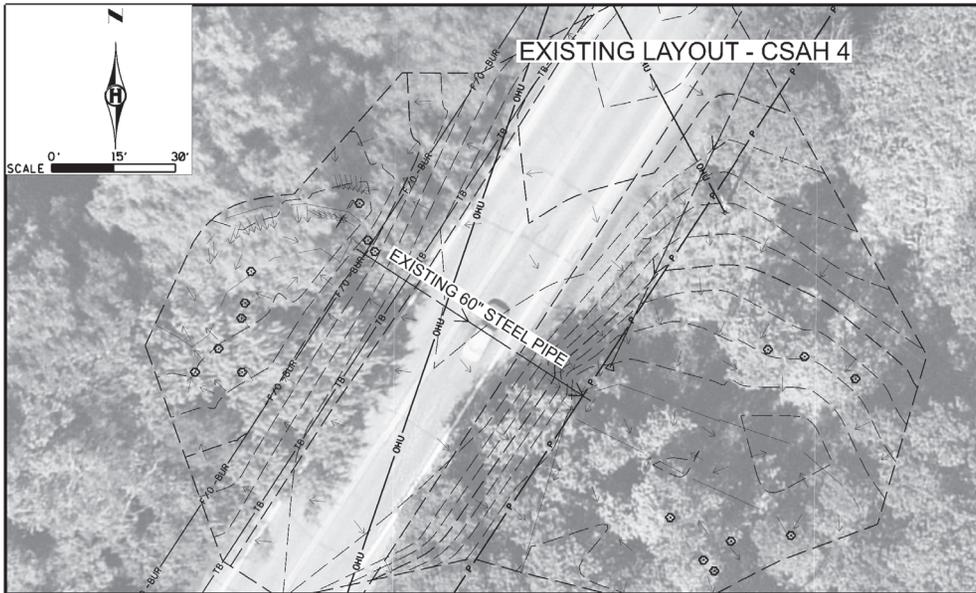
REVISIONS:  
 APPROVED: JANUARY 8, 2020  
*Walter Karnowski*  
 WALTER KARNOWSKI  
 CHIEF ENVIRONMENTAL OFFICER



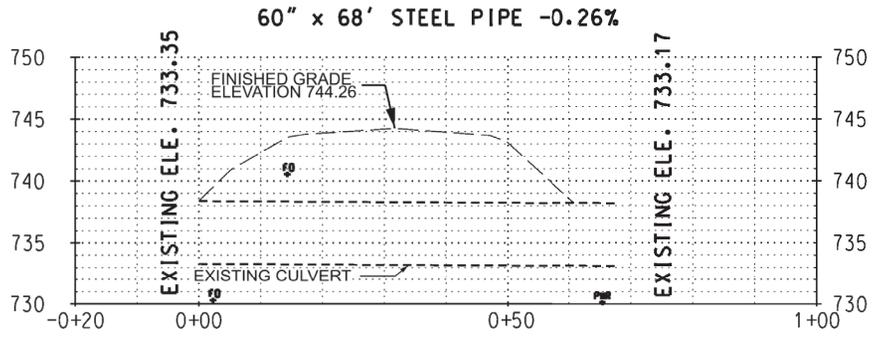
STANDARD PLAN 5-297.404  
 3 OF 3  
 APPROVED: 1-8-2020  
 REVISED:  
*Tom Stelmach*  
 THOMAS STELMACH  
 STATE DESIGN ENGINEER

STATE PROJ. NO.

**PERMANENT EROSION CONTROL**  
 REPP (BLANKET) STAPLE PATTERN FOR SLOPES  
 (T.H. ) SHEET NO. 9 OF 19 SHEETS



LEGEND	
	<b>BURIED FIBER</b>
	<b>OVERHEAD POWER</b>
	<b>EXISTING CULVERT</b>
	<b>BURIED POWER</b>
	<b>BURIED TELEPHONE</b>
	<b>POWER POLE</b>
	<b>EDGE OF PAVEMENT</b>
	<b>TREE</b>
	<b>FLOW ARROW</b>
	<b>CREEK</b>



- \* NO LAND DISTURBING ACTIVITY SHALL TAKE PLACE AT THIS LOCATION
- \* HOT WATER OR CHEMICAL CONTAINING PRECIPITATES (E.G. STYRENE OR CEMENT WASTE) SHALL NOT BE DISCHARGED INTO RECEIVING WATERS.
- \* LIQUID OR OTHER BY-PRODUCT WASTE RESULTING FROM CONSTRUCTION OR CURING PROCESSES OF LINER INSTALLATION SHALL NOT BE DISCHARGED INTO PUBLIC WATERS.
- \* THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G. ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) MUST BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE.
- \* NO WORK SHALL TAKE PLACE BETWEEN MARCH 15 TO JUNE 15 TO MINIMIZE IMPACTS ON FISH SPAWNING AND MIGRATION.

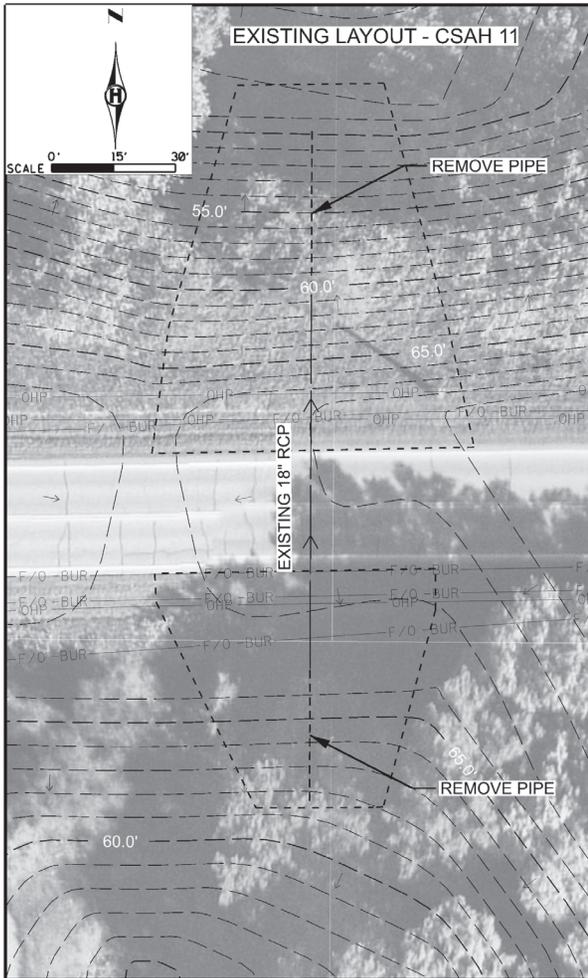


**90%**

DESIGN BY: J BELISLE  
 CAD BY: J BELISLE  
 CHECKED BY: M WOLFF  
 LAST REVISION:     

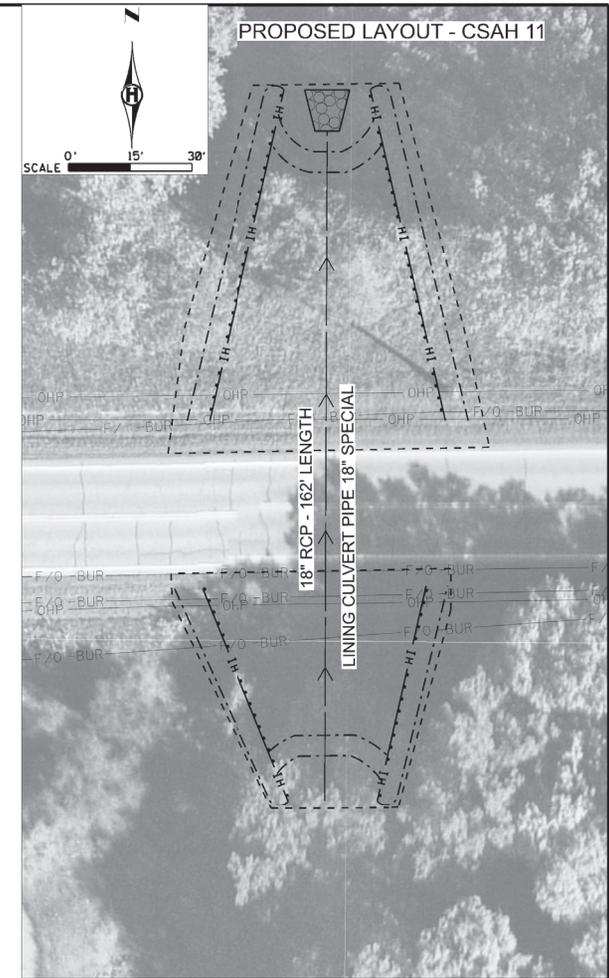
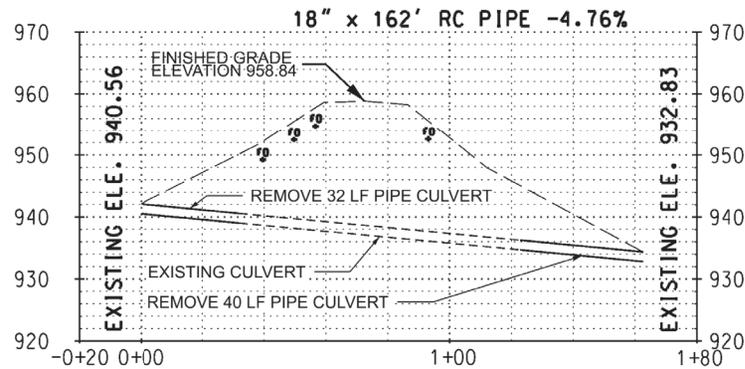
CONSTRUCTION PLAN  
 HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 1  
 CSAH 4 - CUL 4000020

SHEET  
 10  
 19



LEGEND	
	<b>SILT FENCE TYPE HI</b>
	<b>RIPRAP CLASS III</b>
	<b>SEDIMENT CONTROL LOG TYPE ROCK</b>
	<b>BURIED FIBER</b>
	<b>OVERHEAD POWER</b>
	<b>EXISTING CULVERT</b>
	<b>CONSTRUCTION LIMITS</b>
	<b>REMOVE PIPE</b>

- \* CONTRACTOR SHALL CLEAN ROAD SURFACE AFTER CONSTRUCTION ACTIVITIES IN LIEU OF CONSTRUCTION ENTRANCE.
- \* USE BASIC PERIMETER CONTROL MINIMUM MEASURES.
- \* PERMANENT COVER OVER EXPOSED SOIL MUST BE INITIATED IMMEDIATELY AND COMPLETED NO LATER THAN SEVEN DAYS AFTER AN AREA IS NO LONGER BEING WORKED.
- \* RAPID STABILIZATION REQUIRED TO BE IN PLACE IMMEDIATELY AND COMPLETED WITHIN 24 HOURS AFTER WORK HAS CEASED.

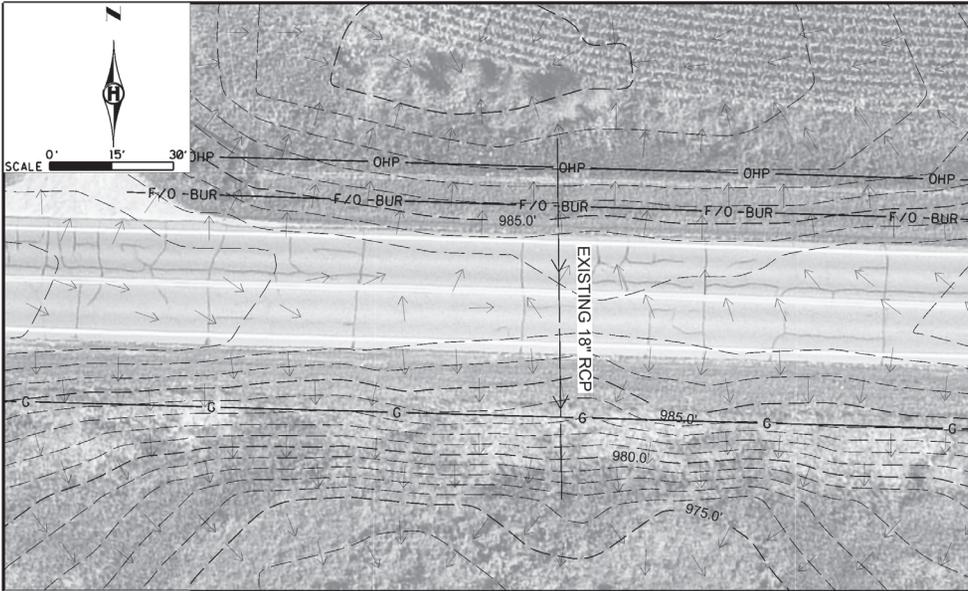


**90%**

DESIGN BY: J BELISLE  
 CAD BY: J BELISLE  
 CHECKED BY: M WOLFF  
 LAST REVISION:     

CONSTRUCTION PLAN  
 HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 2  
 CSAH 11 - CUL 11000070

SHEET  
 11 / 19



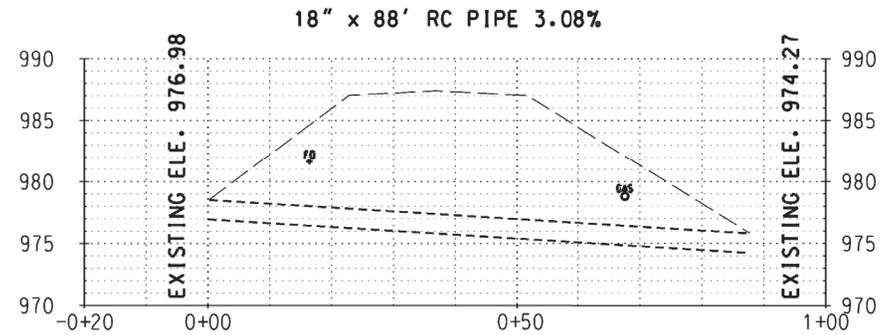
LEGEND	
	<b>BURIED FIBER</b>
	<b>GAS</b>
	<b>OVERHEAD POWER</b>
	<b>EXISTING CULVERT</b>

\* CONTRACTOR SHALL CLEAN ROAD SURFACE AFTER CONSTRUCTION ACTIVITIES IN LIEU OF CONSTRUCTION ENTRANCE.

\* USE BASIC PERIMETER CONTROL MINIMUM MEASURES.

\* PERMANENT COVER OVER EXPOSED SOIL MUST BE INITIATED IMMEDIATELY AND COMPLETED NO LATER THAN SEVEN DAYS AFTER AN AREA IS NO LONGER BEING WORKED.

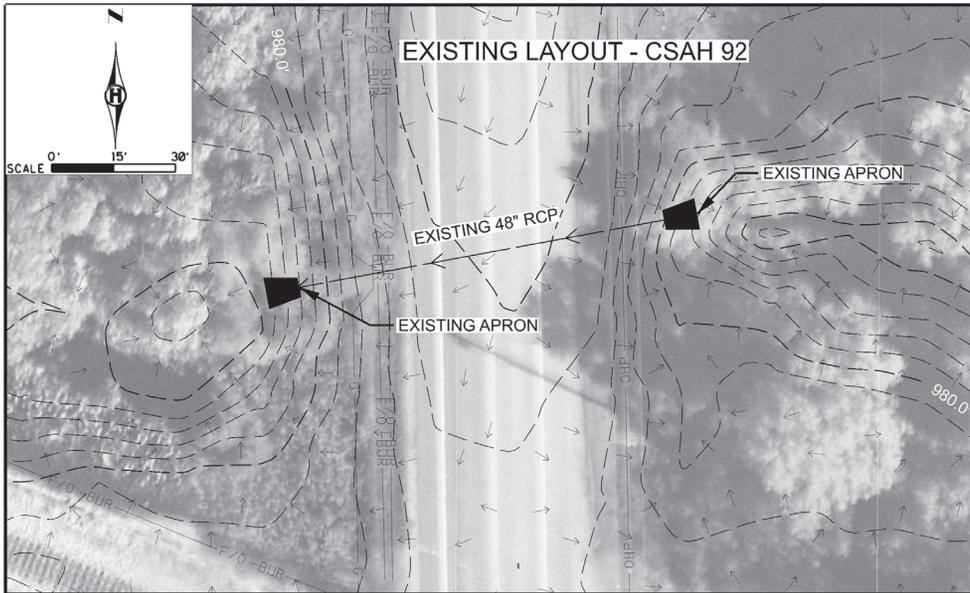
\* RAPID STABILIZATION REQUIRED TO BE IN PLACE IMMEDIATELY AND COMPLETED WITHIN 24 HOURS AFTER WORK HAS CEASED.



**90%**

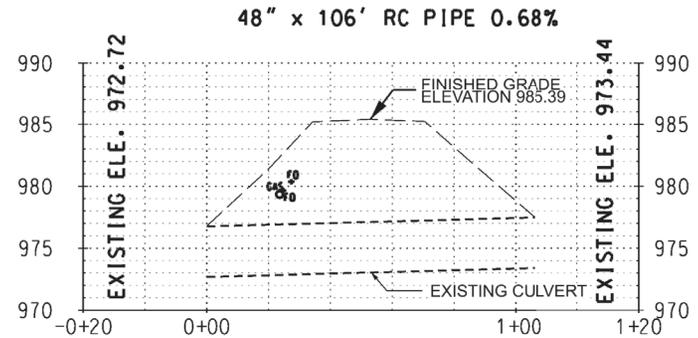
DESIGN BY: J BELISLE  
 CAD BY: J BELISLE  
 CHECKED BY: M WOLFF  
 LAST REVISION:     

CONSTRUCTION PLAN		SHEET
HENNEPIN COUNTY PROJECT 2183329		12
CULVERT 3		19
CSAH 11 - CUL 11000895		



LEGEND	
	<b>BURIED FIBER</b>
	<b>OVERHEAD POWER</b>
	<b>EXISTING CULVERT</b>
	<b>EXISTING APRON</b>

- \* CONTRACTOR SHALL CLEAN ROAD SURFACE AFTER CONSTRUCTION ACTIVITIES IN LIEU OF CONSTRUCTION ENTRANCE.
- \* USE BASIC PERIMETER CONTROL MINIMUM MEASURES.
- \* PERMANENT COVER OVER EXPOSED SOIL MUST BE INITIATED IMMEDIATELY AND COMPLETED NO LATER THAN SEVEN DAYS AFTER AN AREA IS NO LONGER BEING WORKED.
- \* RAPID STABILIZATION REQUIRED TO BE IN PLACE IMMEDIATELY AND COMPLETED WITHIN 24 HOURS AFTER WORK HAS CEASED.



	<b>90%</b>	<b>DESIGN BY:</b> J BELISLE <b>CAD BY:</b> J BELISLE <b>CHECKED BY:</b> M WOLFF <b>LAST REVISION:</b> / /	<b>CONSTRUCTION PLAN</b> HENNEPIN COUNTY PROJECT 2183329 CULVERT 4 CSAH 92 - CUL 92000593	<b>SHEET</b> 13 19
--	------------	--	--	--------------------------

TRAFFIC CONTROL TABULATION

ITEM NO.	ITEM DESCRIPTION	ITEM UNIT	ESTIMATED QUANTITY
2012.602	TRAFFIC CONTROL	LUMP SUM	1
2012.602	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	16

INDEX

SHEET NO.	DESCRIPTION
14	CSAH 4 TEMPORARY TRAFFIC CONTROL DETAIL SHEET
15	CSAH 4 TEMPORARY TRAFFIC CONTROL TABULATION SHEET
16	CSAH 4 TEMPORARY TRAFFIC CONTROL PLAN SHEET



90%

DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 4 TEMPORARY TRAFFIC CONTROL DETAIL SHEET

HENNEPIN COUNTY PROJECT 2183329

CULVERT 1

CSAH 4 - CUL 4000020

SHEET

14  
19

TRAFFIC CONTROL DEVICES AREA (1)

SIGN NO.	QUAN.	MOUNTING	SIGN PANEL SIZE (IN.)	CODE NO.	COLOR	PANEL LEGEND / DESCRIPTION (5)	SIGN NO.	QUAN.	MOUNTING	SIGN PANEL SIZE (IN.)	CODE NO.	COLOR	PANEL LEGEND / DESCRIPTION (5)	QUAN.	DESCRIPTION
1	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	10	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	16	FLASHING LIGHT
			24 X 12	M3-1	WHITE ON BLUE	NORTH				24 X 12	M3-3	WHITE ON BLUE	SOUTH	6	HIGH INTENSITY FLASHING LIGHT
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4	7	8' TYPE III BARRICADE LEFT
			21 X 15	M5-1L	WHITE ON BLUE	ADVANCE TURN ARROW 90° LEFT				21 X 15	M6-1R	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	1	8' TYPE III BARRICADE RIGHT
2	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	11	4	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR		
			24 X 12	M3-1	WHITE ON BLUE	NORTH				24 X 12	M3-3	WHITE ON BLUE	SOUTH		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4		
			21 X 15	M6-1L	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° LEFT				21 X 15	M6-3	WHITE ON BLUE	VERTICAL SINGLE HEAD ARROW UP		
3	4	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	12	1	(2)	24 X 18	M4-8A	BLACK ON ORANGE	END DETOUR		
			24 X 12	M3-1	WHITE ON BLUE	NORTH				24 X 12	M3-3	WHITE ON BLUE	SOUTH		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4		
			21 X 15	M6-3	WHITE ON BLUE	VERTICAL SINGLE HEAD UP									
4	1	(2)	24 X 18	M4-8A	BLACK ON ORANGE	END DETOUR	13	6	(3)	48 X 30	R11-2M	BLACK ON WHITE	ROAD CLOSED		
			24 X 12	M3-1	WHITE ON BLUE	NORTH				48 X 18	M4-10R	BLACK ON ORANGE	DETOUR RIGHT ARROW		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				48 X 30	R11-4	BLACK ON WHITE	ROAD CLOSED TO THRU TRAFFIC		
5	2	(2)	24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4	14	1	(3)	48 X 48	W20-3	BLACK ON ORANGE	ROAD CLOSED AHEAD (4)		
			48 X 48	W20-3	BLACK ON ORANGE	ROAD CLOSED AHEAD (4)				48 X 48	W20-2	BLACK ON ORANGE	DETOUR AHEAD (4)		
6	2	(2)	24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4	15	1	(2)	48 X 48	W20-3	BLACK ON ORANGE	ROAD CLOSED AHEAD (4)		
			48 X 48	W20-2	BLACK ON ORANGE	DETOUR AHEAD (4)				48 X 48	W20-2	BLACK ON ORANGE	DETOUR AHEAD (4)		
7	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	16	1	(3)	48 X 18	M4-10L	BLACK ON ORANGE	DETOUR LEFT ARROW		
			24 X 12	M3-3	WHITE ON BLUE	SOUTH				48 X 30	R11-3A	BLACK ON WHITE	ROAD CLOSED 1.3 MILES AHEAD		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4									
			21 X 15	M5-1L	WHITE ON BLUE	ADVANCE TURN ARROW 90° LEFT									
8	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	17	1	(3)	48 X 18	M4-10L	BLACK ON ORANGE	DETOUR LEFT ARROW		
			24 X 12	M3-3	WHITE ON BLUE	SOUTH				48 X 30	R11-3A	BLACK ON WHITE	ROAD CLOSED 1.3 MILES AHEAD		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4									
			21 X 15	M6-1L	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° LEFT									
9	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	18	2	----	----	----	----	----	PORTABLE CHANGEABLE MESSAGE SIGN (6)	
			24 X 12	M3-3	WHITE ON BLUE	SOUTH									
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4									
			21 X 15	M6-1L	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° LEFT									
10	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	19	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR		
			24 X 12	M3-3	WHITE ON BLUE	NORTH				24 X 12	M3-3	WHITE ON BLUE	NORTH		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4		
			21 X 15	M5-1R	WHITE ON BLUE	ADVANCE TURN ARROW 90° RIGHT				21 X 15	M5-1R	WHITE ON BLUE	ADVANCE TURN ARROW 90° RIGHT		
11	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR	20	1	(2)	24 X 12	M4-8	BLACK ON ORANGE	DETOUR		
			24 X 12	M3-3	WHITE ON BLUE	NORTH				24 X 12	M3-3	WHITE ON BLUE	NORTH		
			24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4				24 X 24	M1-6M	YELLOW/WHITE ON BLUE	HENNEPIN COUNTY 4		
			21 X 15	M6-1R	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT				21 X 15	M6-1R	WHITE ON BLUE	HORIZONTAL SINGLE HEAD ARROW 90° RIGHT		

- (1) THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY. ALL UNITS ARE EACH UNLESS SPECIFICALLY NOTED AND SHALL BE PAID FOR UNDER THE LUMP SUM PAY ITEM TRAFFIC CONTROL.
- (2) POSTS OR PORTABLE TUBULAR METAL FRAME.
- (3) SIGNS SHALL BE MOUNTED ON TYPE III BARRICADES.
- (4) INCLUDES ONE HIGH INTENSITY AMBER FLASHING LIGHT ON EACH SIGN.
- (5) ALL SIGNING SHALL USE DG3 SIGN SHEETING.
- (6) INSTALL A MINIMUM OF 7 DAYS IN ADVANCE OF ROAD CLOSURE. TO BE PAID FOR SEPARATELY AS PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT DAY.



90%

DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 4 TEMPORARY TRAFFIC CONTROL TABULATION SHEET

HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 1  
 CSAH 4 - CUL 4000020

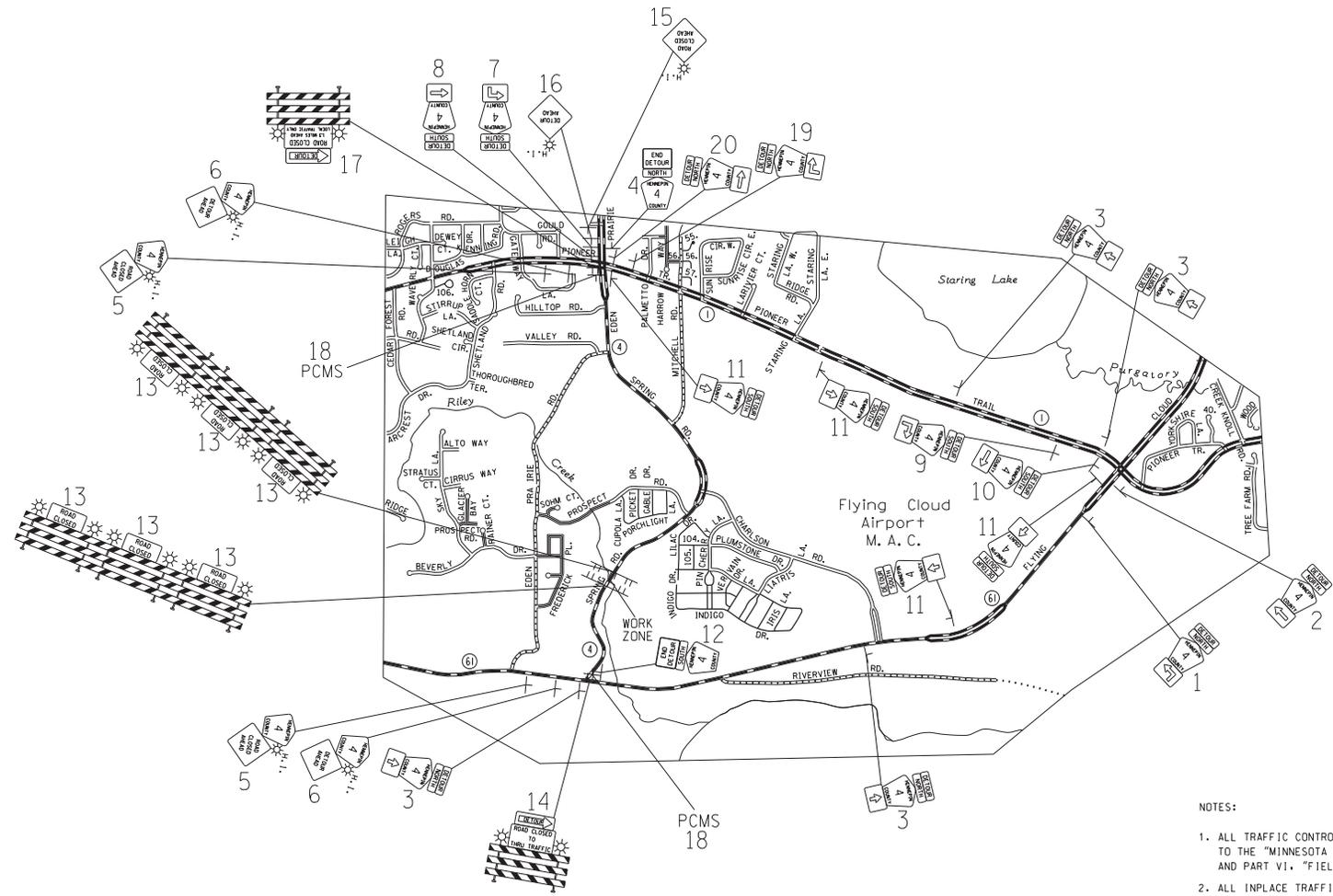
SHEET

15  
 19



NO SCALE

- TEMPORARY TRAFFIC CONTROL LEGEND
- APPROPRIATE SIGN AS INDICATED
  - ⊥ 8' - TYPE III BARRICADE WITH APPROPRIATE SIGN AS INDICATED
  - ⚡ FLASHING LIGHT
  - H.I. HIGH INTENSITY FLASHING LIGHT
  - PCMS PORTABLE CHANGEABLE MESSAGE SIGN



NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
2. ALL INPLACE TRAFFIC CONTROL DEVICES THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED, AS DIRECTED BY THE ENGINEER.
3. ALL TRAFFIC CONTROL DEVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. ANY NECESSARY REARRANGEMENT SHALL BE AS DIRECTED BY THE ENGINEER.
4. PROVIDE PORTABLE CHANGEABLE MESSAGE SIGN 7 DAYS PRIOR TO ROAD CLOSURE. MESSAGE DISPLAYED TO BE DETERMINED BY THE ENGINEER.



90%

DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 4 TEMPORARY TRAFFIC CONTROL PLAN SHEET  
 HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 1  
 CSAH 4 - CUL 4000020

SHEET  
 16  
 19

TRAFFIC CONTROL TABULATION

ITEM NO.	ITEM DESCRIPTION	ITEM UNIT	ESTIMATED QUANTITY
2012.602	TRAFFIC CONTROL	LUMP SUM	1
2012.602	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	16

INDEX

SHEET NO.	DESCRIPTION
17	CSAH 92 TEMPORARY TRAFFIC CONTROL DETAIL SHEET
18	CSAH 92 TEMPORARY TRAFFIC CONTROL TABULATION SHEET
19	CSAH 92 TEMPORARY TRAFFIC CONTROL PLAN SHEET



90%

DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 92 TEMPORARY TRAFFIC CONTROL DETAIL SHEET

HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 4  
 CSAH 92 - CUL 92000593

SHEET

17  
 19

TRAFFIC CONTROL DEVICES AREA (1)															
SIGN NO.	QUAN.	MOUNTING	SIGN PANEL SIZE (IN.)	CODE NO.	COLOR	PANEL LEGEND / DESCRIPTION (5)	SIGN NO.	QUAN.	MOUNTING	SIGN PANEL SIZE (IN.)	CODE NO.	COLOR	PANEL LEGEND / DESCRIPTION (5)	QUAN.	DESCRIPTION
1	2	----	----	----	----	PORTABLE CHANGEABLE MESSAGE BOARD (6)									
2	2	(2)	48 X 48	W20-3	BLACK ON ORANGE	ROAD CLOSED AHEAD (4)	14	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-1 M1-6M M6-1L	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR NORTH HENNEPIN COUNTY 92 HORIZONTAL SINGLE HEAD ARROW 90° LEFT	7	8' TYPE III BARRICADE LEFT
3	2	(2)	48 X 48	W20-2	BLACK ON ORANGE	DETOUR AHEAD (4)								1	8' TYPE III BARRICADE RIGHT
4	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-3 M1-6M M5-1L	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR SOUTH HENNEPIN COUNTY 92 ADVANCE TURN ARROW 90° LEFT	15	1	(2)	24 X 18 24 X 24 21 X 15	M4-8A M3-1 M1-6M	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE	END DETOUR NORTH HENNEPIN COUNTY 92	16	FLASHING LIGHT
5	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-3 M1-6M M6-1L	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR SOUTH HENNEPIN COUNTY 92 HORIZONTAL SINGLE HEAD ARROW 90° LEFT	16	1	(3)	48 X 18 60 X 30	M4-10L R11-4	BLACK ON ORANGE BLACK ON WHITE	DETOUR LEFT ARROW ROAD CLOSED TO THRU TRAFFIC	17	HIGH INTENSITY FLASHING LIGHT
6	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-3 M1-6M M5-1R	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR SOUTH HENNEPIN COUNTY 92 ADVANCE TURN ARROW 90° RIGHT	17	1	(3)	48 X 18 60 X 30	M4-10R R11-4	BLACK ON ORANGE BLACK ON WHITE	DETOUR RIGHT ARROW ROAD CLOSED TO THRU TRAFFIC	18	
7	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-3 M1-6M M6-1R	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR SOUTH HENNEPIN COUNTY 92 HORIZONTAL SINGLE HEAD ARROW 90° RIGHT	18	6	(3)	48 X 30	R11-2M	BLACK ON WHITE	ROAD CLOSED	19	
8	6	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-1 M1-6M M6-3	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR NORTH HENNEPIN COUNTY 92 VERTICAL SINGLE HEAD ARROW UP	19	4	(2)	48 X 48 24 X 24	---- M1-6M	BLACK ON ORANGE YELLOW/WHITE ON BLUE	ROAD CLOSED AHEAD (4) HENNEPIN COUNTY 92	20	
9	1	(2)	24 X 18 24 X 24 21 X 15	M4-8A M3-3 M1-6M	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE	END DETOUR SOUTH HENNEPIN COUNTY 92	20	4	(2)	48 X 48 24 X 24	W20-2 M1-6M	BLACK ON ORANGE YELLOW/WHITE ON BLUE	DETOUR AHEAD (4) HENNEPIN COUNTY 92		
10	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-1 M1-6M M5-1R	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR NORTH HENNEPIN COUNTY 92 ADVANCE TURN ARROW 90° RIGHT									
11	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-1 M1-6M M6-1R	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR NORTH HENNEPIN COUNTY 92 HORIZONTAL SINGLE HEAD ARROW 90° RIGHT									
12	6	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-3 M1-6M M6-3	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR SOUTH HENNEPIN COUNTY 92 VERTICAL SINGLE HEAD ARROW UP									
13	3	(2)	24 X 12 24 X 12 24 X 24 21 X 15	M4-8 M3-1 M1-6M M5-1L	BLACK ON ORANGE WHITE ON BLUE YELLOW/WHITE ON BLUE WHITE ON BLUE	DETOUR NORTH HENNEPIN COUNTY 92 ADVANCE TURN ARROW 90° LEFT									

- (1) THE QUANTITIES SHOWN WITHIN THIS TABULATION ARE FOR INFORMATION ONLY. ALL UNITS ARE EACH UNLESS SPECIFICALLY NOTED AND SHALL BE PAID FOR UNDER THE LUMP SUM PAY ITEM TRAFFIC CONTROL.
- (2) POSTS OR PORTABLE TUBULAR METAL FRAME.
- (3) SIGNS SHALL BE MOUNTED ON TYPE III BARRICADES.
- (4) INCLUDES ONE HIGH INTENSITY AMBER FLASHING LIGHT ON EACH SIGN.
- (5) ALL SIGNING SHALL USE DCS SIGN SHEETING.
- (6) INSTALL A MINIMUM OF 7 DAYS IN ADVANCE OF ROAD CLOSURE. PAID FOR SEPARATELY AS PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT DAY.



90%

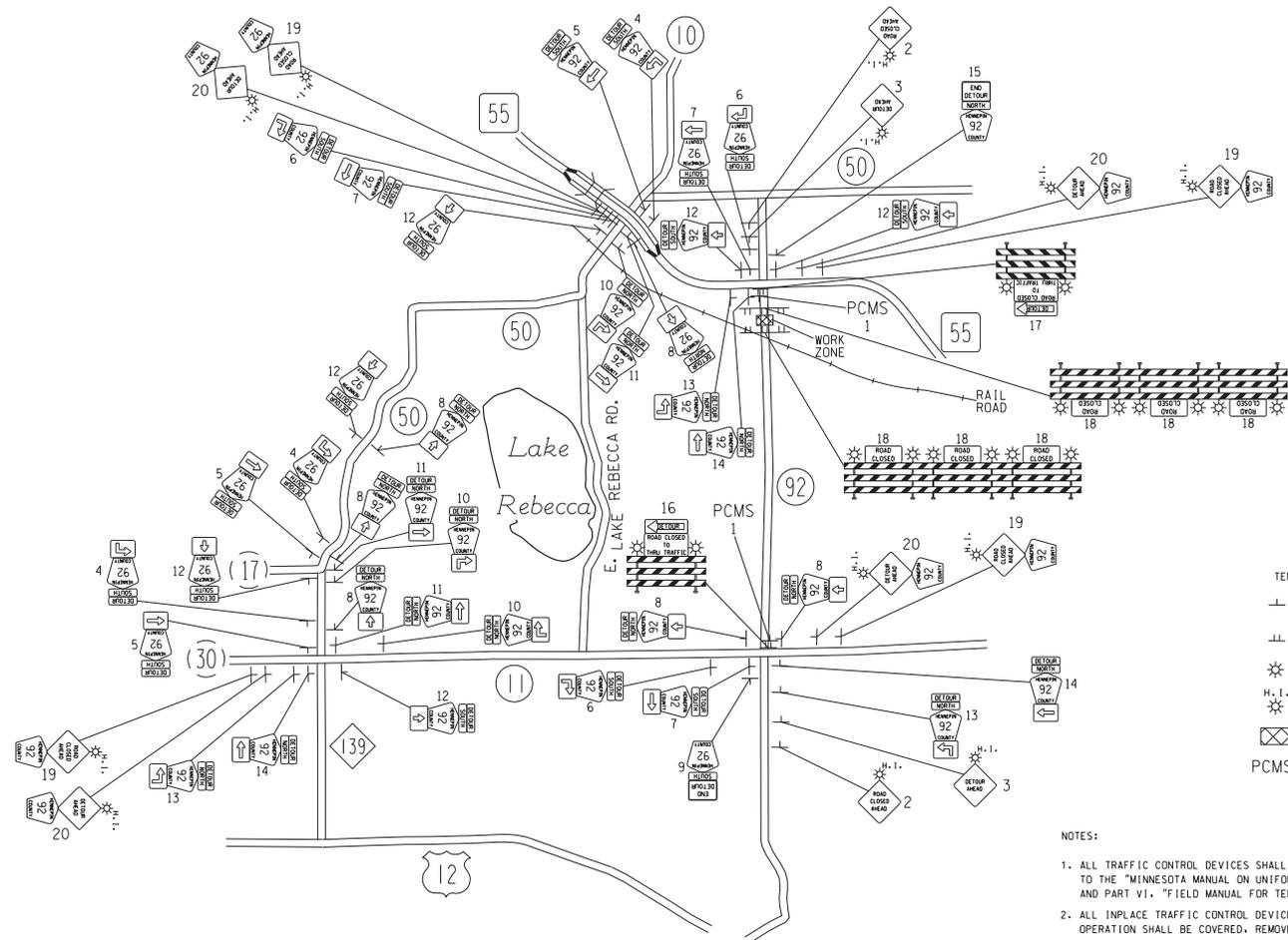
DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 92 TEMPORARY TRAFFIC CONTROL TABULATION SHEET

HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 4  
 CSAH 92 - CUL 92000593

SHEET

18  
19



- TEMPORARY TRAFFIC CONTROL LEGEND
- APPROPRIATE SIGN AS INDICATED
  - 8' - TYPE III BARRICADE WITH APPROPRIATE SIGN AS INDICATED
  - ⚡ FLASHING LIGHT
  - ⚡ H.I. HIGH INTENSITY FLASHING LIGHT
  - ⊠ WORK ZONE
  - PCMS PORTABLE CHANGEABLE MESSAGE SIGN

- NOTES:
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  2. ALL INPLACE TRAFFIC CONTROL DEVICES THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED, AS DIRECTED BY THE ENGINEER.
  3. ALL TRAFFIC CONTROL DEVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. ANY NECESSARY REARRANGEMENT SHALL BE AS DIRECTED BY THE ENGINEER.
  4. PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) SHALL BE PLACED 7 DAYS PRIOR TO CLOSING ROAD. MESSAGE DISPLAYED TO BE DETERMINED BY THE ENGINEER.



90%

DESIGN BY: R ALLERS  
 CAD BY: A CHALUPSKY  
 CHECKED BY: R ALLERS  
 LAST REVISION: \_\_\_\_\_

CSAH 92 TEMPORARY TRAFFIC CONTROL PLAN SHEET  
 HENNEPIN COUNTY PROJECT 2183329  
 CULVERT 4  
 CSAH 92 - CUL 92000593

SHEET  
 19  
 19