

CONSTRUCTION PLANS FOR SOUTH WASHINGTON WATERSHED DISTRICT BLUFF PARK STABILIZATION WASHINGTON COUNTY, MN MARCH 2024



GOVERNING STANDARDS:

MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION. THIS SPECIFICATION INCLUDES THE SHAPES, COLORS, AND FONTS USED IN ROAD MARKINGS AND SIGNS. ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO THESE STANDARDS.

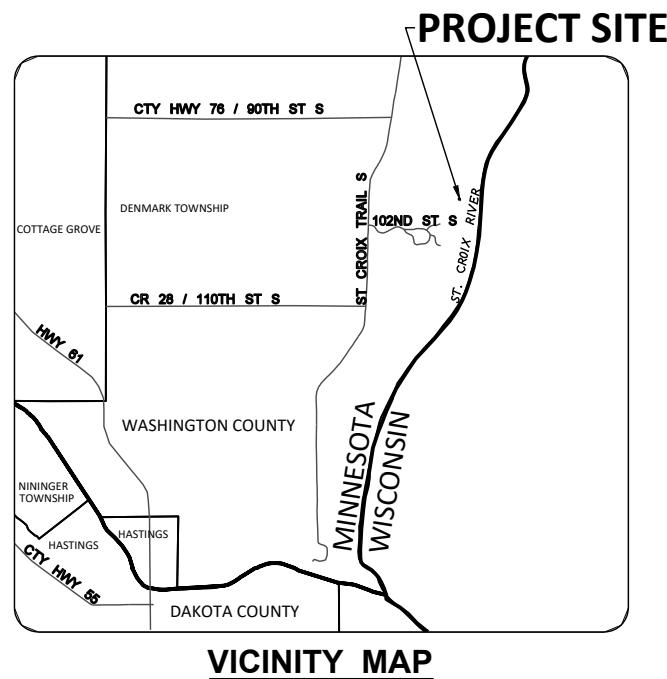
GOVERNING SPECIFICATIONS:

CONSTRUCTION SPECIFICATIONS FOR CONSTRUCTION ADOPTED BY THE MINNESOTA DEPARTMENT OF TRANSPORTATION (2020 EDITION), SHALL APPLY TO ALL STANDARD DRAWINGS CURRENTLY IN EFFECT AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN INDICATE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

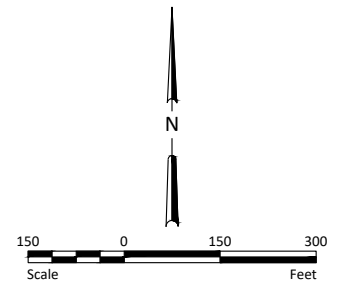
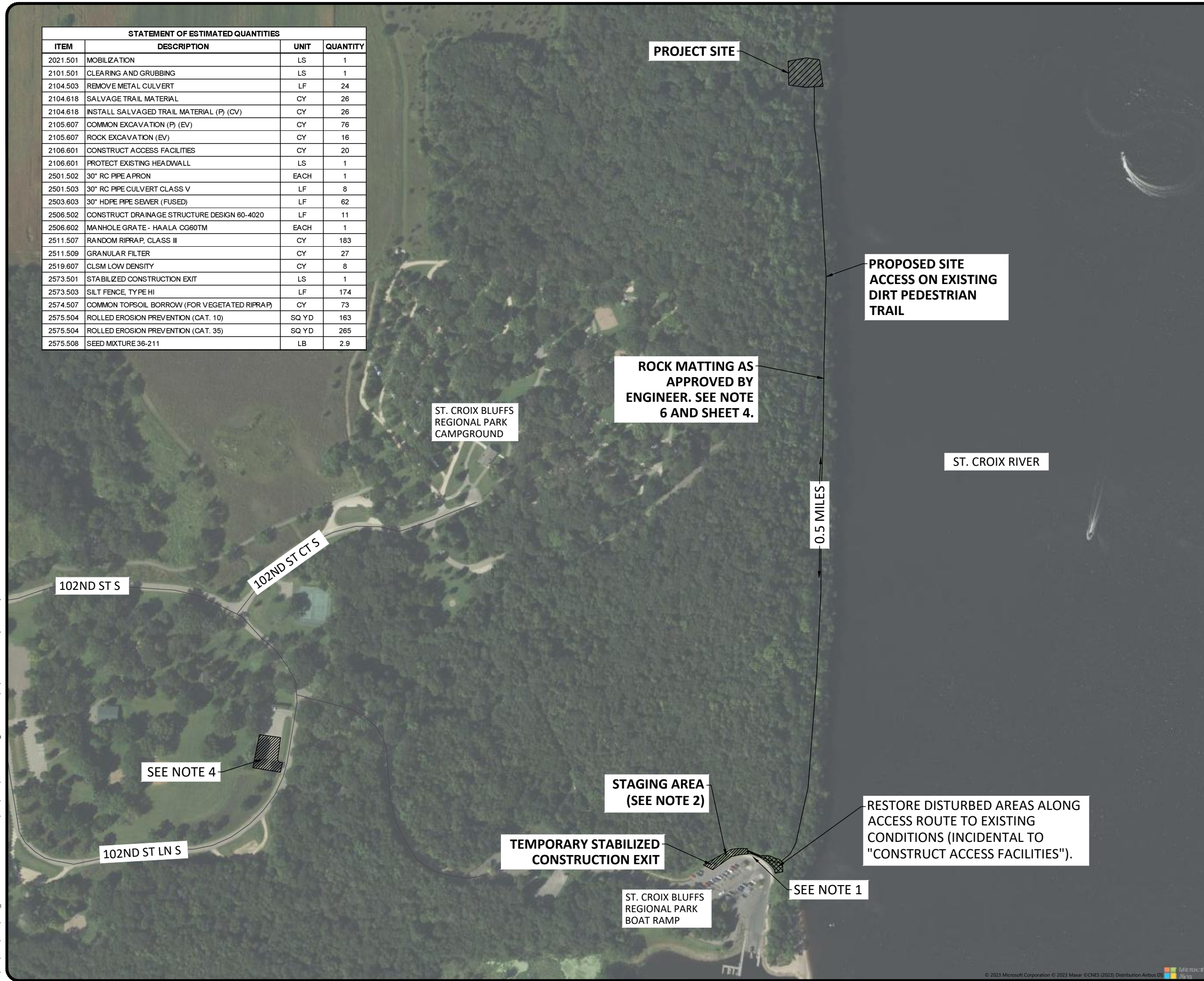
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| STATEMENT OF ESTIMATED QUANTITIES | | | |
|-----------------------------------|--|-------|----------|
| ITEM | DESCRIPTION | UNIT | QUANTITY |
| 2021.501 | MOBILIZATION | LS | 1 |
| 2101.501 | CLEARING AND GRUBBING | LS | 1 |
| 2104.503 | REMOVE METAL CULVERT | LF | 24 |
| 2104.618 | SALVAGE TRAIL MATERIAL | CY | 26 |
| 2104.618 | INSTALL SALVAGED TRAIL MATERIAL (P) (CV) | CY | 26 |
| 2105.607 | COMMON EXCAVATION (P) (EV) | CY | 76 |
| 2105.607 | ROCK EXCAVATION (EV) | CY | 16 |
| 2106.601 | CONSTRUCT ACCESS FACILITIES | CY | 20 |
| 2106.601 | PROTECT EXISTING HEADWALL | LS | 1 |
| 2501.502 | 30" RC PIPE APRON | EACH | 1 |
| 2501.503 | 30" RC PIPE CULVERT CLASS V | LF | 8 |
| 2503.603 | 30" HDPE PIPE SEWER (FUSED) | LF | 62 |
| 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020 | LF | 11 |
| 2506.602 | MANHOLE GRATE - HAALA CG60TM | EACH | 1 |
| 2511.507 | RANDOM RIPRAP, CLASS III | CY | 183 |
| 2511.509 | GRANULAR FILTER | CY | 27 |
| 2519.607 | CLSM LOW DENSITY | CY | 8 |
| 2573.501 | STABILIZED CONSTRUCTION EXIT | LS | 1 |
| 2573.503 | SILT FENCE, TYPE HI | LF | 174 |
| 2574.507 | COMMON TOPSOIL BORROW (FOR VEGETATED RIPRAP) | CY | 73 |
| 2575.504 | ROLLED EROSION PREVENTION (CAT. 10) | SQ YD | 163 |
| 2575.504 | ROLLED EROSION PREVENTION (CAT. 35) | SQ YD | 265 |
| 2575.508 | SEED MIXTURE 36-211 | LB | 2.9 |

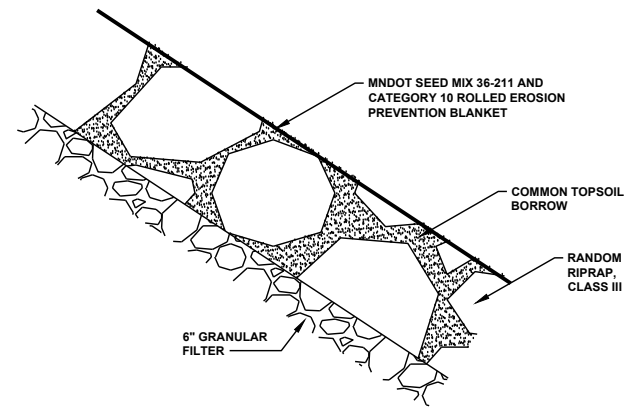
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1. MAINTAIN THE GRAVEL SURFACE ADJACENT TO THE PAVED PARKING LOT AND KEEP CLEAR AT ALL TIMES FOR USE BY EMERGENCY VEHICLES. NO MATERIAL STORAGE OR CONTRACTOR PARKING IS ALLOWED ON THE GRAVEL.
2. CONTRACTOR MAY USE UP TO FOUR NON-TRAILER PARKING SPOTS FOR STAGING/MATERIAL STORAGE AS SHOWN IN THE LABELED STAGING AREA.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT DAMAGE TO CURB/GUTTER AND PAVEMENT DURING THE COURSE OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR RESTORATION AND REPAIR IF DAMAGE OCCURS.
4. CONTRACTOR MAY REQUEST USE OF A PORTION OF THIS PARKING LOT FOR STAGING/MATERIAL STORAGE FROM COUNTY PARK STAFF IF NEEDED.
5. CONTRACTOR MUST REQUEST TREE TRIMMING TO BE DONE BY COUNTY PARK STAFF ALONG ACCESS PATH IF REQUIRED FOR CONSTRUCTION OPERATIONS. COORDINATE WITH PARK STAFF.
6. CONTRACTOR MAY ENCOUNTER GROUNDWATER SEEPAGES ALONG ACCESS PATH. PROVIDE AND INSTALL ROCK MATTING WHERE CONDITIONS ARE MUDDY TO PREVENT PATH EROSION. THIS WORK IS PAID UNDER THE CONSTRUCTION ACCESS FACILITIES BID ITEM.

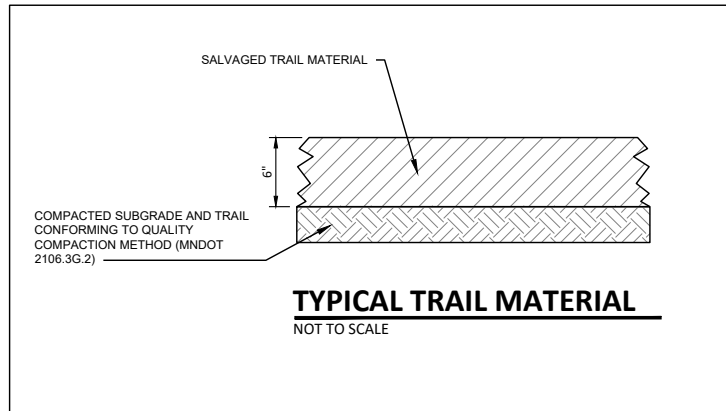
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| | By |
| | Date |
| | Revision |
| | No. |
| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN SITE ACCESS | |
|  Houston Engineering, Inc. | |
| Drawn By NJD | |
| Checked By AJS | |
| Date 3-18-2024 | |
| Scale As Shown | |
| Project No. 4876-0053 | |
| SHEET | |
| 2 | |

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 Alexander J. Schmidt, License No. 53741, Date 3-18-2024



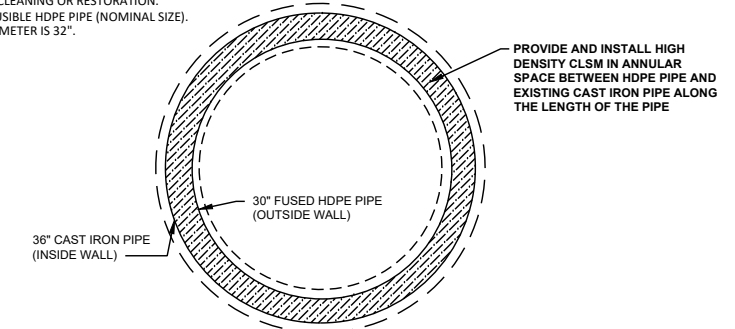
- NOTE:
1. ENSURE TOPSOIL FILLS ALL VOID SPACE BETWEEN RIPRAP PIECES. PLACE TOPSOIL CONCURRENTLY WITH RIPRAP PLACEMENT.
 2. ENSURE EROSION CONTROL BLANKET IS TIGHTLY SECURED TO THE SURFACE OF THE VEGETATED RIPRAP.
 3. DO NOT USE FERTILIZER.

VEGETATED RIPRAP DETAIL
NOT TO SCALE

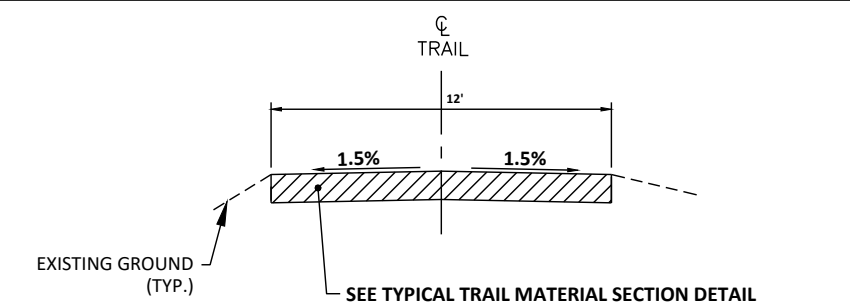


TYPICAL TRAIL MATERIAL
NOT TO SCALE

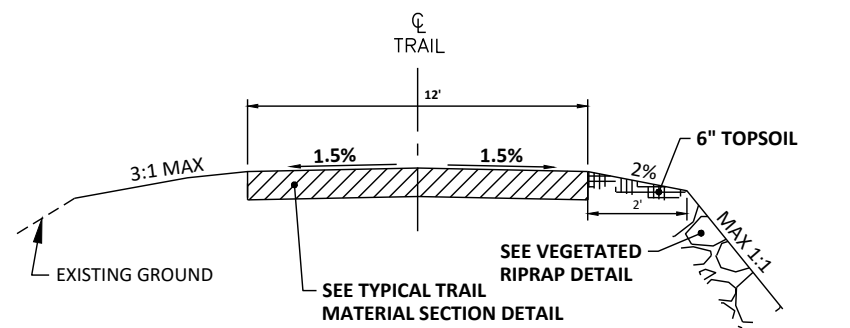
- NOTES:
1. ENSURE CAST IRON HOST PIPE IS CLEAN AND FREE OF DEBRIS BEFORE INSTALLING SLIPLINE PIPE OR CLSM HIGH DENSITY (FLOWABLE FILL).
 2. PREVENT CLSM FROM COLLECTING ON THE FRONT FACE OF THE EXISTING DOWNSTREAM HEADWALL. IF CLSM DOES ACCUMULATE ON THE HEADWALL, CONTRACTOR IS RESPONSIBLE FOR CLEANING OR RESTORATION.
 3. SLIPLINE WITH 30" FUSIBLE HDPE PIPE (NOMINAL SIZE). AVERAGE OUTER DIAMETER IS 32".



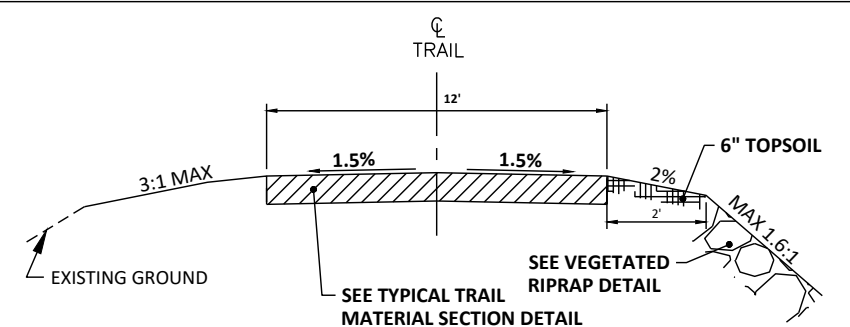
SLIPLINE PIPE DETAIL
NOT TO SCALE



TYPICAL TRAIL SECTION - NO RIPRAP STABILIZATION
STA 90+00 TO END

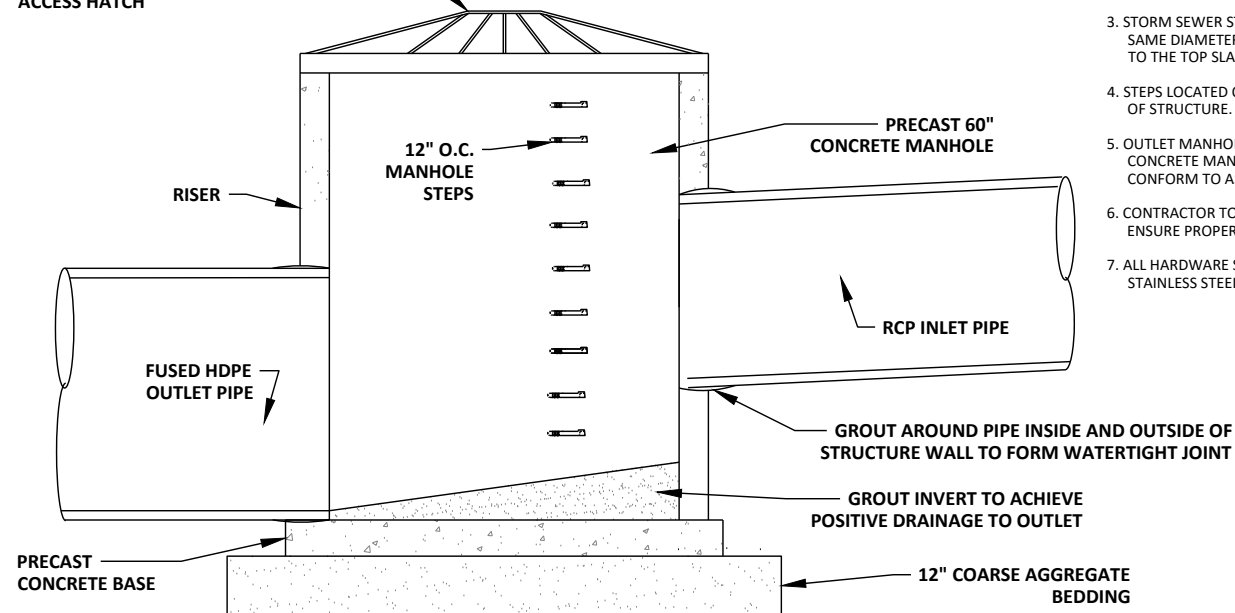


TYPICAL TRAIL SECTION
STA 0+00 TO 0+40 AND STA 0+54 TO 90+00



TYPICAL TRAIL SECTION
STA 0+40 TO 0+54

TRASH RACK - CG60TM
MANUFACTURED BY HAALA INDUSTRIES
OR APPROVED EQUAL WITH LOCKABLE
ACCESS HATCH

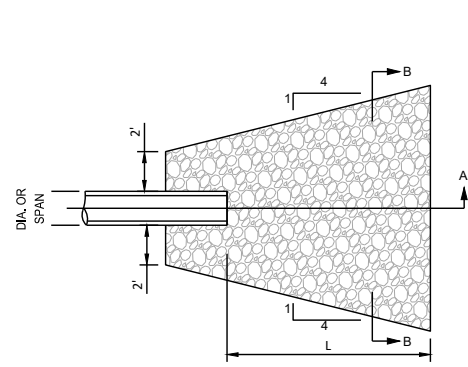


60" MANHOLE SECTION VIEW
SCALE: N.T.S.

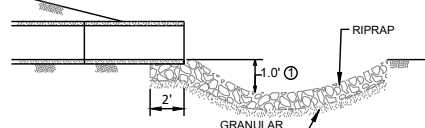
- NOTES:
1. GALVANIZED TRASH RACK - CGSM60 MANUFACTURED BY HAALA INDUSTRIES OR APPROVED EQUAL. GRATE SHALL INCLUDE LOCKABLE ACCESS HATCH LOCATED OVER STEPS. FASTEN GRATE PER MANUFACTURERS SPECIFICATIONS.
 2. ALL JOINTS AND LIFTING HOLES TO BE MORTARED.
 3. STORM SEWER STRUCTURE SHALL BE THE SAME DIAMETER FROM THE BASE SLAB TO THE TOP SLAB.
 4. STEPS LOCATED ON DOWNSTREAM SIDE OF STRUCTURE.
 5. OUTLET MANHOLE SHALL BE A PRECAST CONCRETE MANHOLE AND SHALL CONFORM TO ASTM C478.
 6. CONTRACTOR TO GROUT BOTTOM TO ENSURE PROPER DRAINAGE.
 7. ALL HARDWARE SHALL BE #304 STAINLESS STEEL.

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 Alexander J. Schmidt
 License No. 53741
 Date 3-18-2024

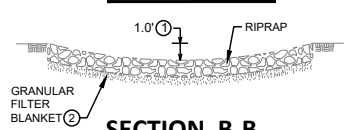
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| By | |
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| DETAILS | |
| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN | |
| Drawn By | NJD |
| Checked By | AJS |
| Date | 3-18-2024 |
| Scale | As Shown |
| Project No. | 4876-0053 |
| SHEET | 3 |



PLAN VIEW



SECTION A-A



SECTION B-B

RIPRAP AT CULVERT ENDS

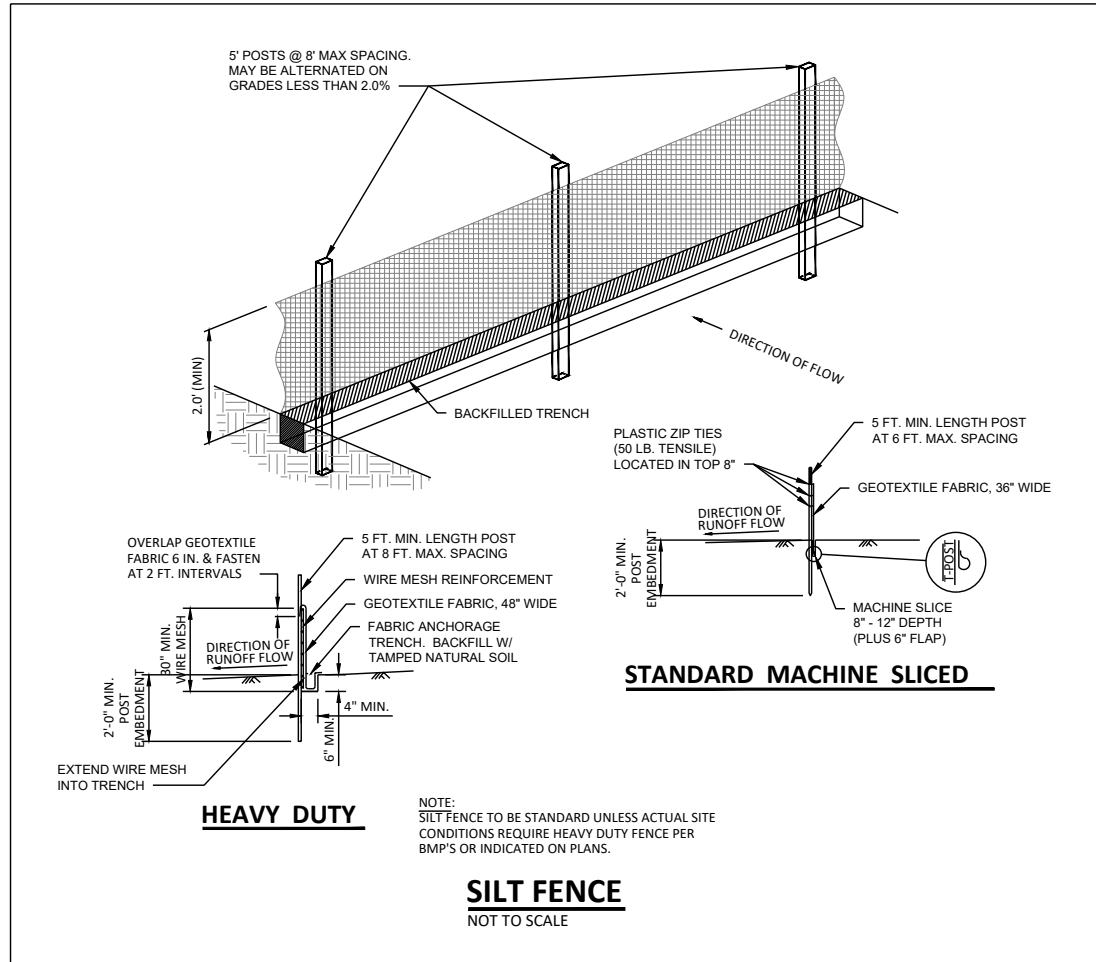
NOT TO SCALE

**TABLE OF QUANTITIES
RIPRAP AT RCP OUTLETS**

| DIA. OF ROUND PIPE (IN.) | L (FT.) | CLASS II d ₅₀ = 6" | | CLASS III d ₅₀ = 9" | | CLASS IV d ₅₀ = 12" | |
|--------------------------|---------|----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|--------------------------------------|
| | | 12" DEPTH RIPRAP (CU. YDS.) | 6" DEPTH GRANULAR FILTER (CU. YDS.) | 18" DEPTH RIPRAP (CU. YDS.) | 9" DEPTH GRANULAR FILTER (CU. YDS.) | 24" DEPTH RIPRAP (CU. YDS.) | 12" DEPTH GRANULAR FILTER (CU. YDS.) |
| 12 | 8 | 2.8 | 1.4 | 4.1 | 2.1 | 5.5 | 2.8 |
| 15 | 8 | 2.9 | 1.5 | 4.4 | 2.2 | 5.8 | 2.9 |
| 18 | 10 | 3.9 | 2.0 | 5.9 | 3.0 | 7.8 | 3.9 |
| 21 | 10 | 4.2 | 2.1 | 6.3 | 3.2 | 8.4 | 4.2 |
| 24 | 12 | 5.5 | 2.8 | 8.3 | 4.2 | 11.0 | 5.5 |
| 27 | 12 | 5.8 | 2.9 | 8.7 | 4.4 | 11.6 | 5.8 |
| 30 | 14 | 7.3 | 3.7 | 10.9 | 5.5 | 14.5 | 7.3 |
| 36 | 16 | 9.2 | 4.6 | 13.8 | 6.9 | 18.3 | 9.2 |
| 42 | 18 | 10.9 | 5.5 | 16.3 | 8.2 | 21.7 | 10.9 |
| 48 | 20 | 12.9 | 6.5 | 19.4 | 9.7 | 25.8 | 12.9 |

NOTES:

- FOR PIPES GREATER THAN OR EQUAL TO 30", USE 1.5'.
- THE CONTRACTOR, AT HIS OPTION, MAY SUBSTITUTE A GEOTEXTILE FABRIC FOR THE GRANULAR FILTER BLANKET UNLESS OTHERWISE SPECIFIED IN THE PLANS. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE APRON 3 FT.

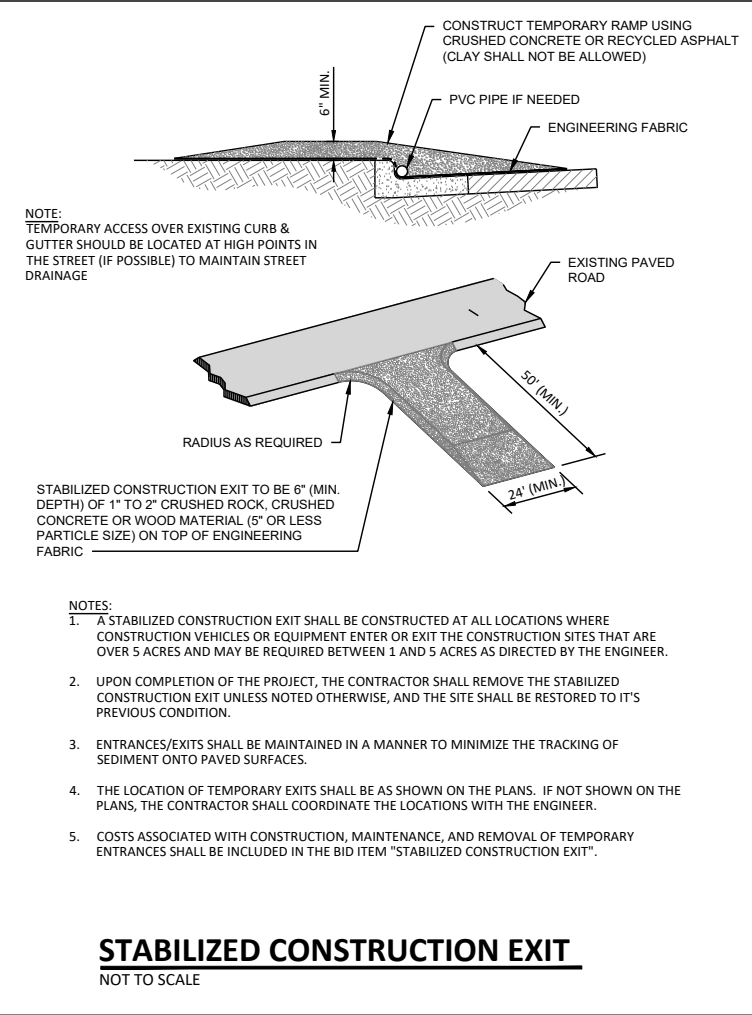


HEAVY DUTY

STANDARD MACHINE SLICED

SILT FENCE

NOT TO SCALE



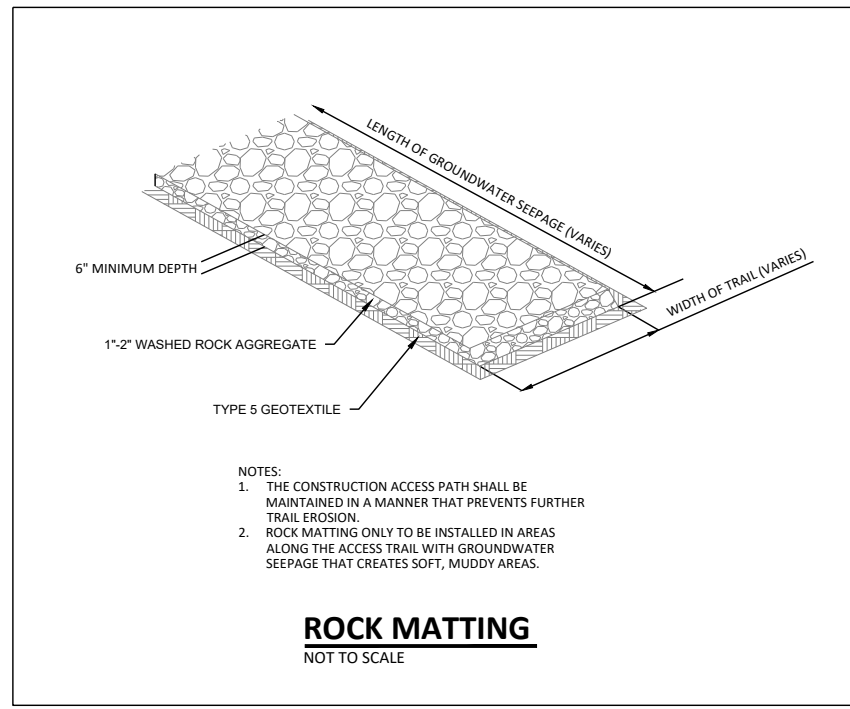
STABILIZED CONSTRUCTION EXIT

NOT TO SCALE

NOTE:
TEMPORARY ACCESS OVER EXISTING CURB & GUTTER SHOULD BE LOCATED AT HIGH POINTS IN THE STREET (IF POSSIBLE) TO MAINTAIN STREET DRAINAGE

STABILIZED CONSTRUCTION EXIT TO BE 6" (MIN. DEPTH) OF 1" TO 2" CRUSHED ROCK, CRUSHED CONCRETE OR WOOD MATERIAL (5" OR LESS PARTICLE SIZE) ON TOP OF ENGINEERING FABRIC

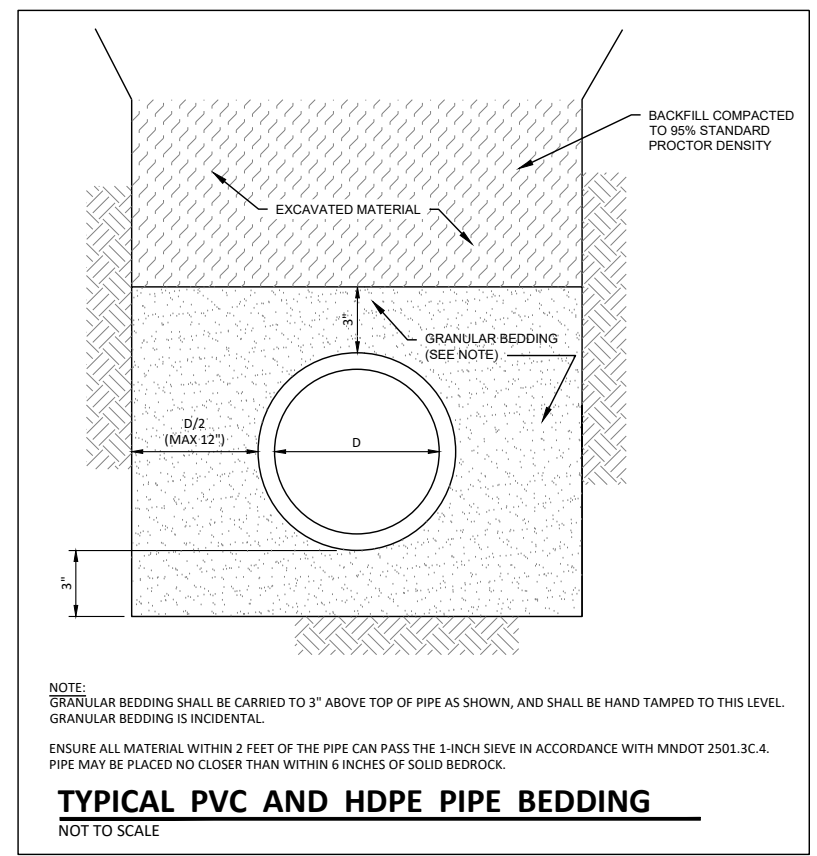
- NOTES:**
- A STABILIZED CONSTRUCTION EXIT SHALL BE CONSTRUCTED AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES OR EQUIPMENT ENTER OR EXIT THE CONSTRUCTION SITES THAT ARE OVER 5 ACRES AND MAY BE REQUIRED BETWEEN 1 AND 5 ACRES AS DIRECTED BY THE ENGINEER.
 - UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE THE STABILIZED CONSTRUCTION EXIT UNLESS NOTED OTHERWISE, AND THE SITE SHALL BE RESTORED TO IT'S PREVIOUS CONDITION.
 - ENTRANCES/EXITS SHALL BE MAINTAINED IN A MANNER TO MINIMIZE THE TRACKING OF SEDIMENT ONTO PAVED SURFACES.
 - THE LOCATION OF TEMPORARY EXITS SHALL BE AS SHOWN ON THE PLANS. IF NOT SHOWN ON THE PLANS, THE CONTRACTOR SHALL COORDINATE THE LOCATIONS WITH THE ENGINEER.
 - COSTS ASSOCIATED WITH CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ENTRANCES SHALL BE INCLUDED IN THE BID ITEM "STABILIZED CONSTRUCTION EXIT".



ROCK MATTING

NOT TO SCALE

- NOTES:**
- THE CONSTRUCTION ACCESS PATH SHALL BE MAINTAINED IN A MANNER THAT PREVENTS FURTHER TRAIL EROSION.
 - ROCK MATTING ONLY TO BE INSTALLED IN AREAS ALONG THE ACCESS TRAIL WITH GROUNDWATER SEEPAGE THAT CREATES SOFT, MUDDY AREAS.



NOTE:
GRANULAR BEDDING SHALL BE CARRIED TO 3" ABOVE TOP OF PIPE AS SHOWN, AND SHALL BE HAND TAMPED TO THIS LEVEL. GRANULAR BEDDING IS INCIDENTAL.

ENSURE ALL MATERIAL WITHIN 2 FEET OF THE PIPE CAN PASS THE 1-INCH SIEVE IN ACCORDANCE WITH MNDOT 2501.3C.4. PIPE MAY BE PLACED NO CLOSER THAN WITHIN 6 INCHES OF SOLID BEDROCK.

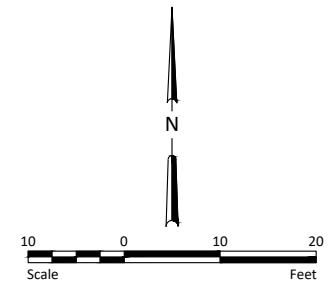
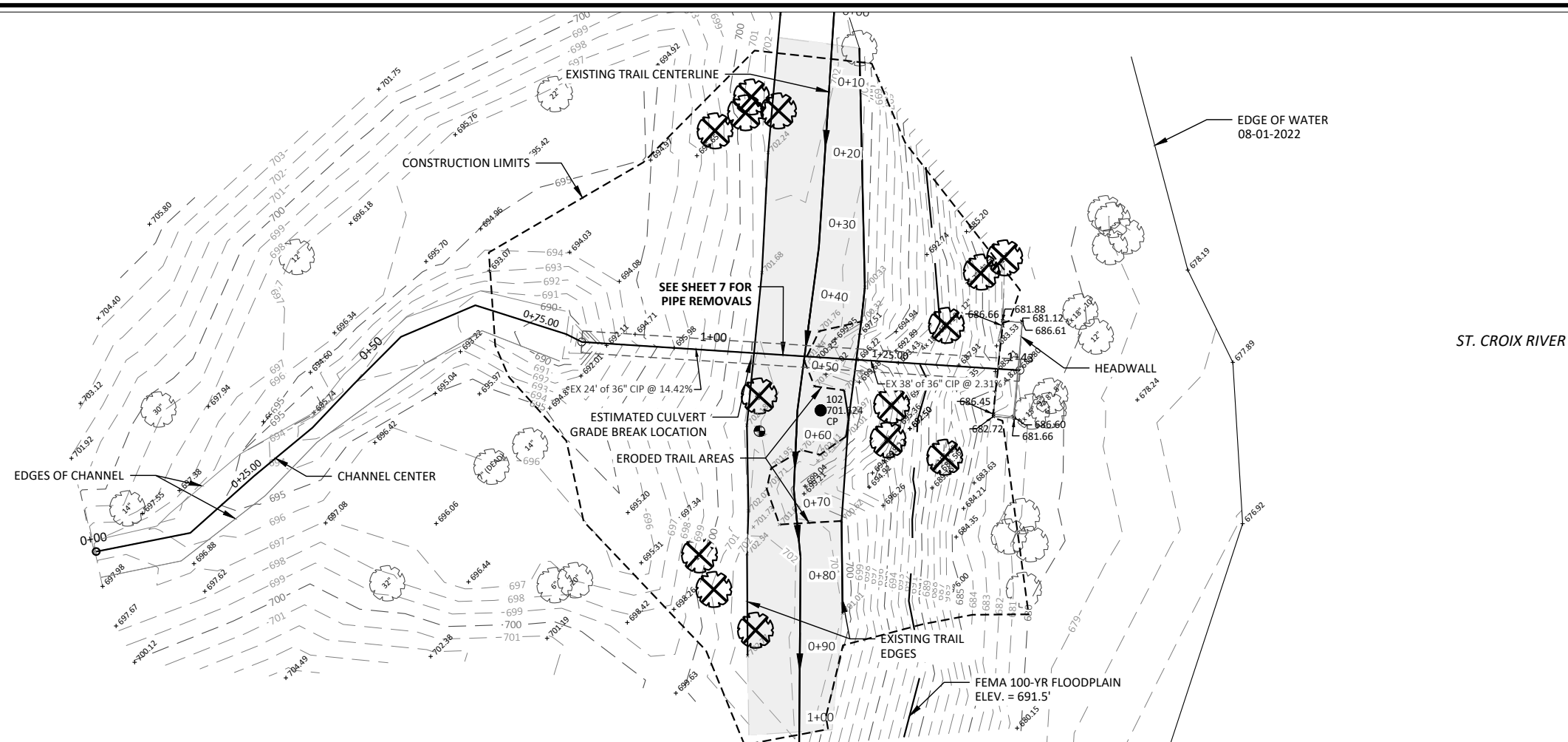
TYPICAL PVC AND HDPE PIPE BEDDING

NOT TO SCALE

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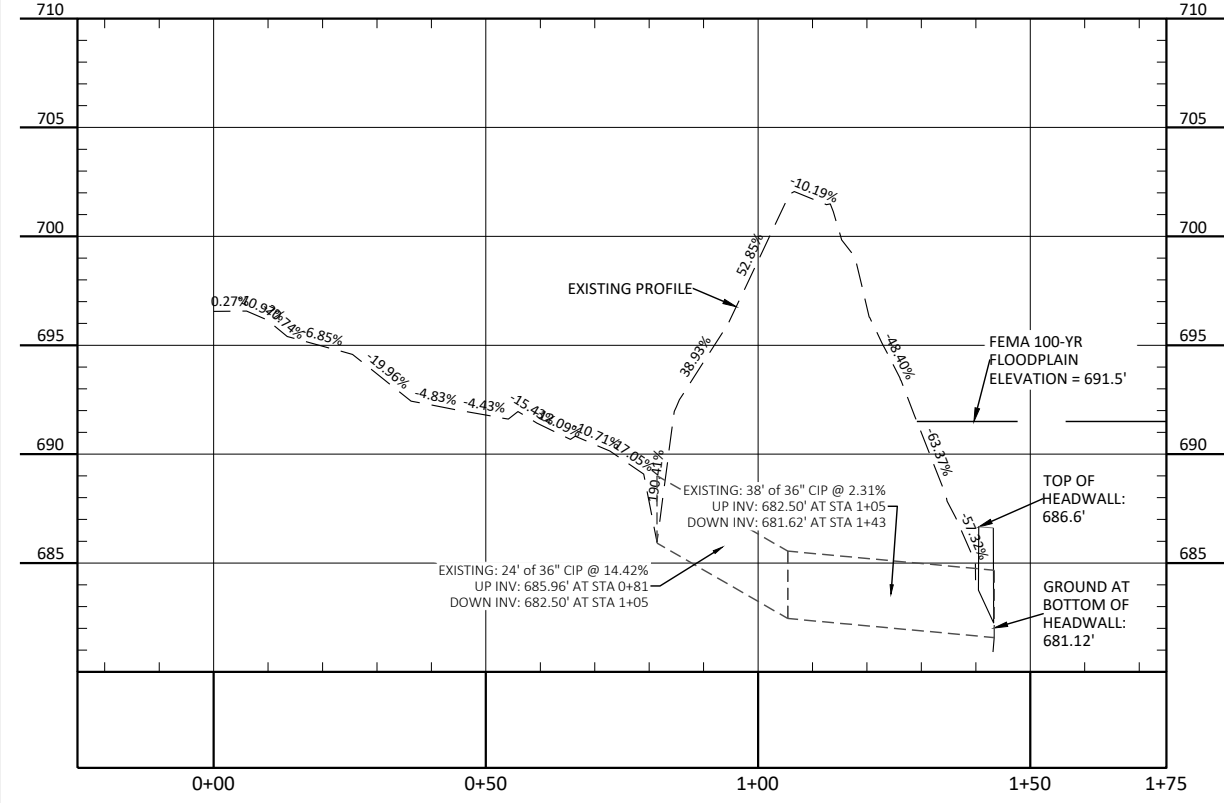
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| By | Date | Revision | No. |
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| DETAILS BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN | | | |
| Drawn By | NJD | Checked By | AJS |
| Date | 3-18-2024 | Scale | As Shown |
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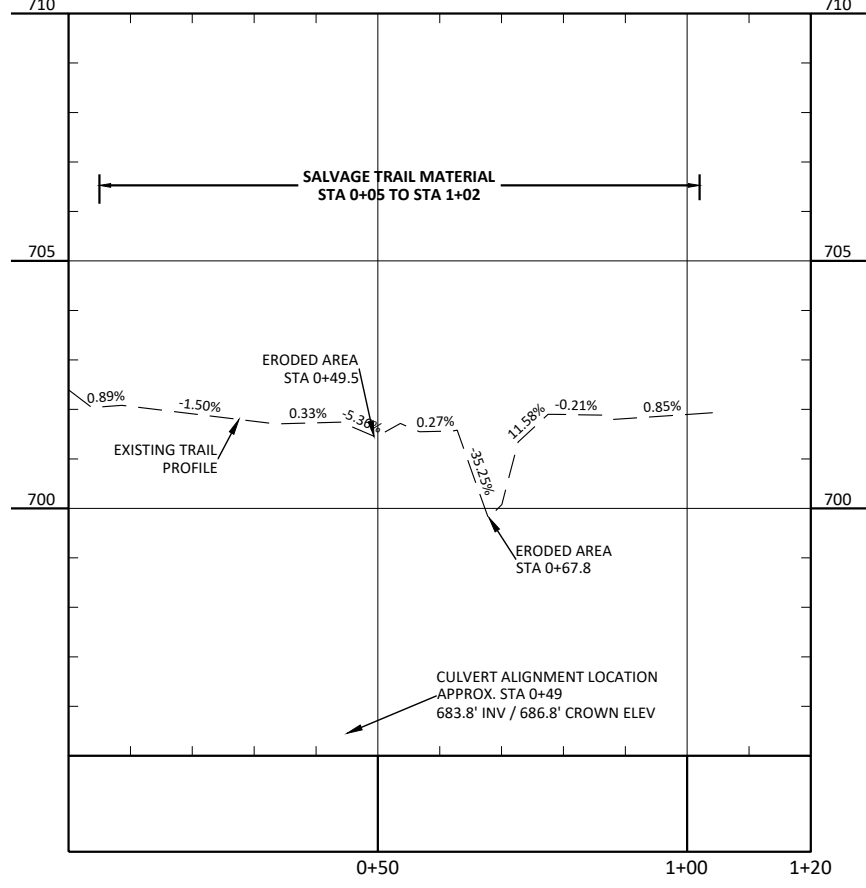
- LEGEND**
- ✕ DOWNED TREE, BY OTHERS (SEE NOTE 2)
 - SALVAGE TRAIL MATERIAL

- NOTE:**
1. PROTECT EXISTING DOWNSTREAM HEADWALL.
 2. COUNTY PARK MAINTENANCE WILL CUT DOWN TREES BY APRIL 1, 2024. STUMPS AND ROOTS ON THE EAST BANK WILL BE LEFT IN PLACE AND SHALL NOT BE DISTURBED.
 3. DISPOSE OF TREES AT WASHINGTON COUNTY MAINTENANCE PILE, LOCATED OFF OF THE ENTRANCE TO ST. CROIX BLUFFS REGIONAL PARK. COORDINATE ACCESS WITH PROJECT ENGINEER.

EXISTING RAVINE AND CULVERT PROFILE



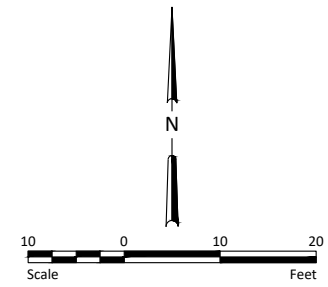
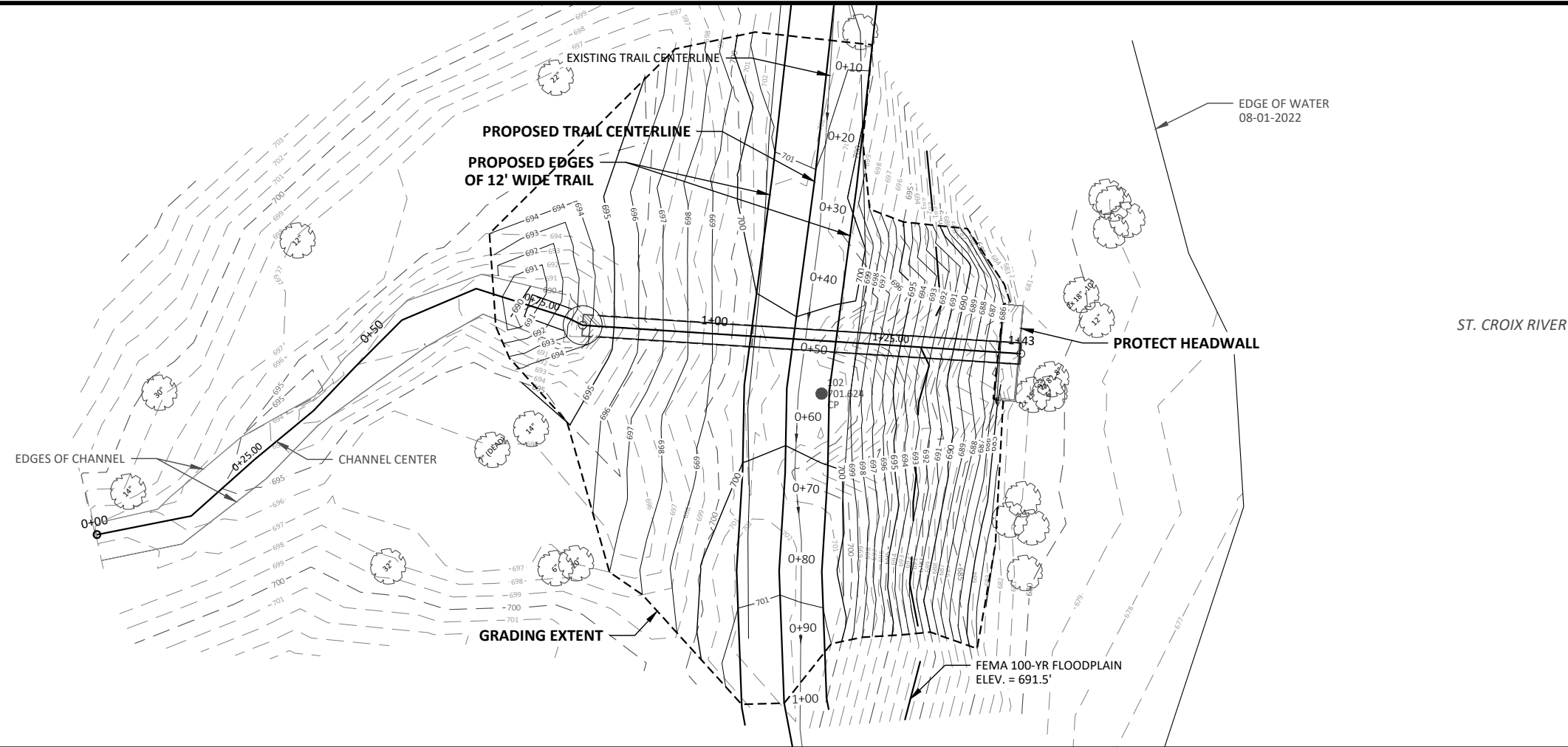
EXISTING TRAIL CENTERLINE PROFILE



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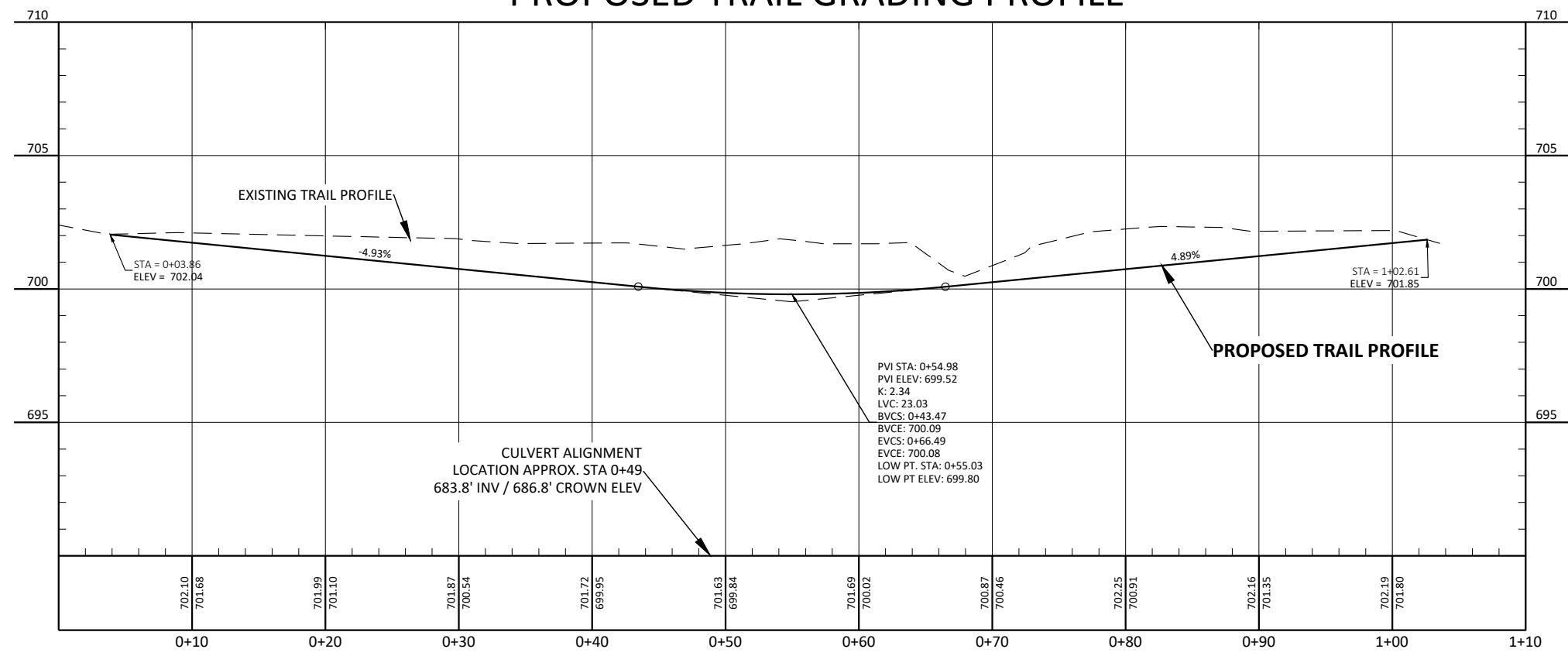
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 Alexander J. Schmidt
 License No. 53741
 Date 3-18-2024


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| | By |
| | Date |
| | Revision |
| | No. |
| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN EXISTING CONDITIONS AND REMOVALS | |
| | |
| Drawn By NJD | |
| Checked By AJS | |
| Date 3-18-2024 | |
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| Project No. 4876-0053 | |
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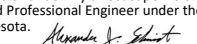
1. STRIP, STOCKPILE, AND RESPREAD TOPSOIL OVER ALL DISTURBED AREA.
2. DO NOT DISTURB TREE ROOTS ON THE EAST BANK TO THE MAXIMUM EXTENT PRACTICABLE.

PROPOSED TRAIL GRADING PROFILE



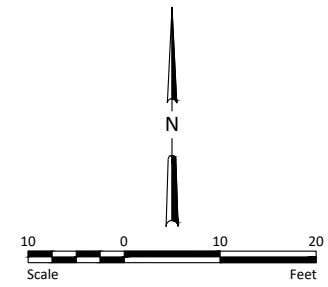
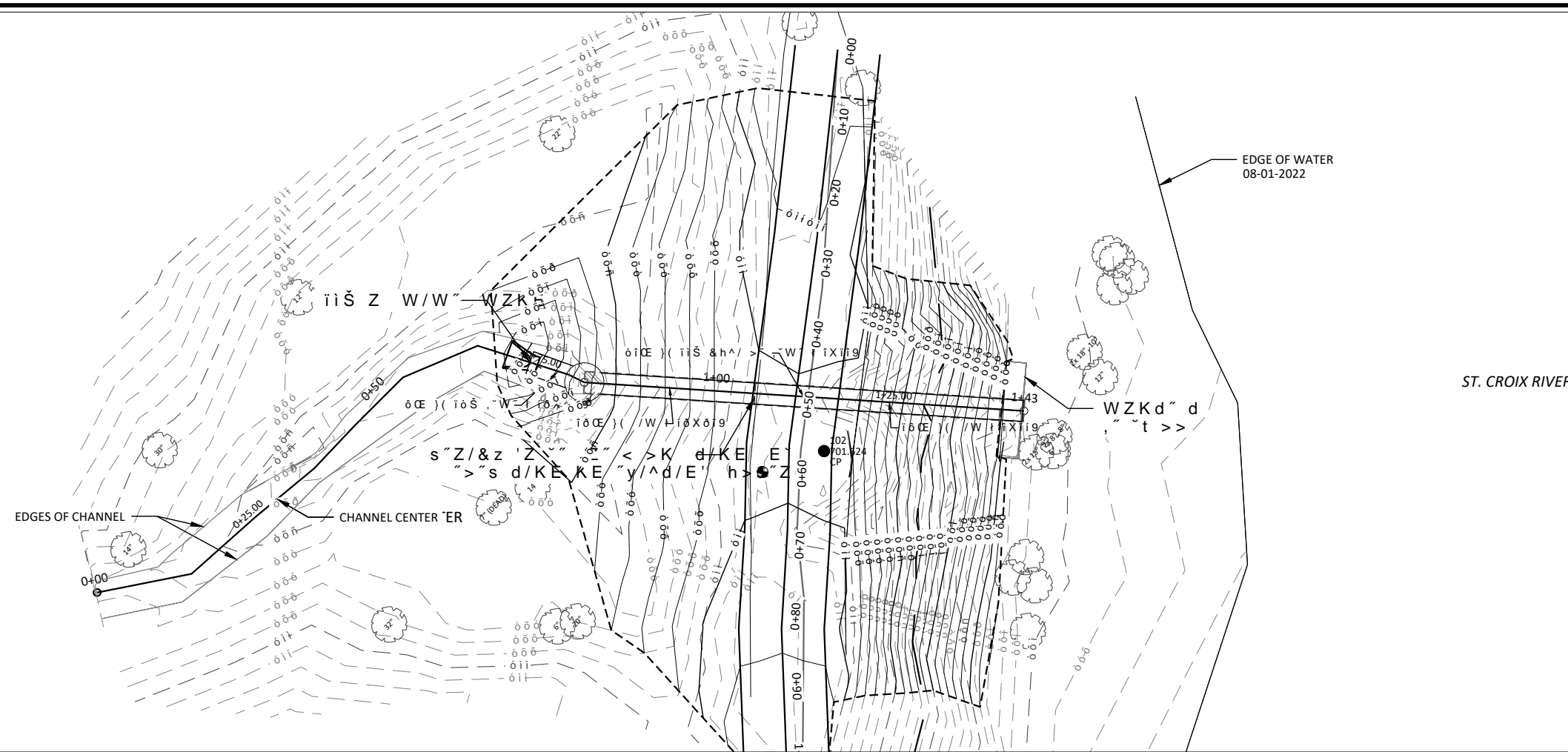
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| | By |
| | Date |
| | Revision |
| | No. |
| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT ST. CROIX BLUFFS REGIONAL PARK, WASHINGTON COUNTY GRADING PLAN | |
|  Houston Engineering, Inc. | |
| Drawn By NJD | |
| Checked By AJS | |
| Date 1-16-2024 | |
| Scale As Shown | |
| Project No. 4876-0053 | |
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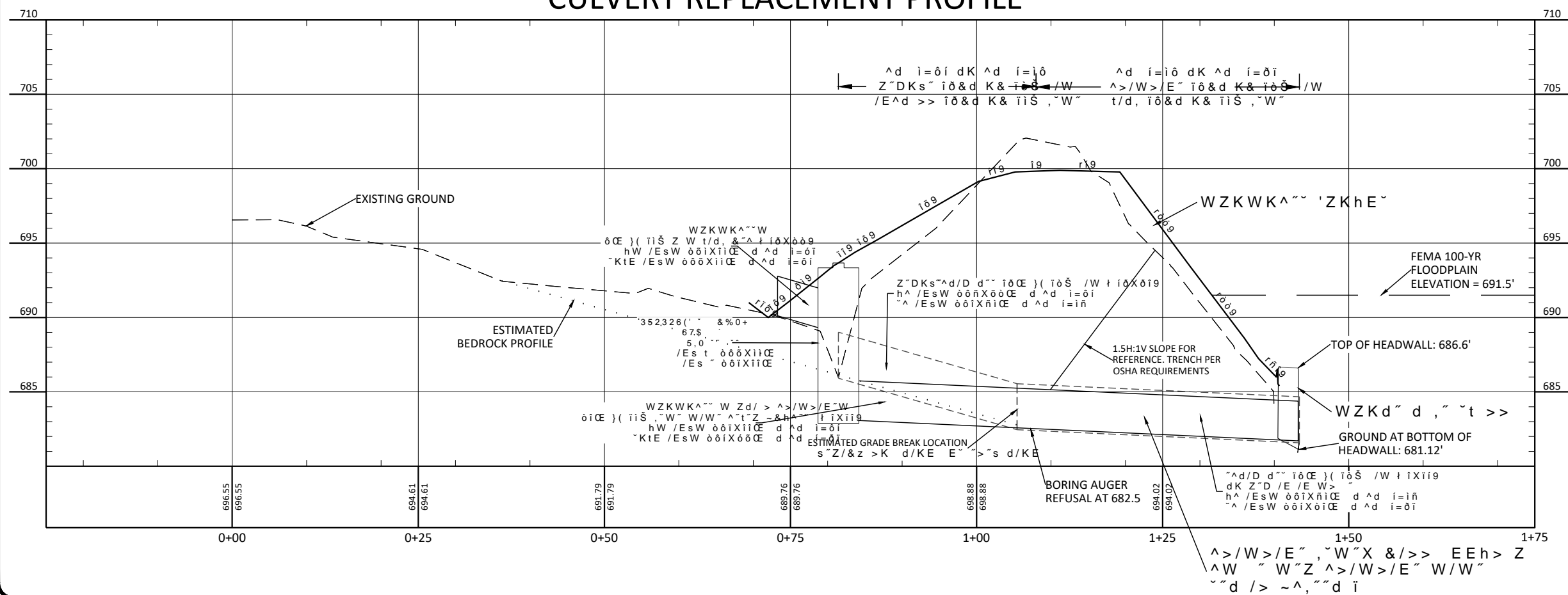

 Alexander J. Schmidt
 License No. 53741

Date
 3-18-2024

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CULVERT REPLACEMENT PROFILE



NOTES:

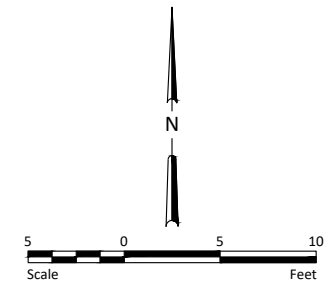
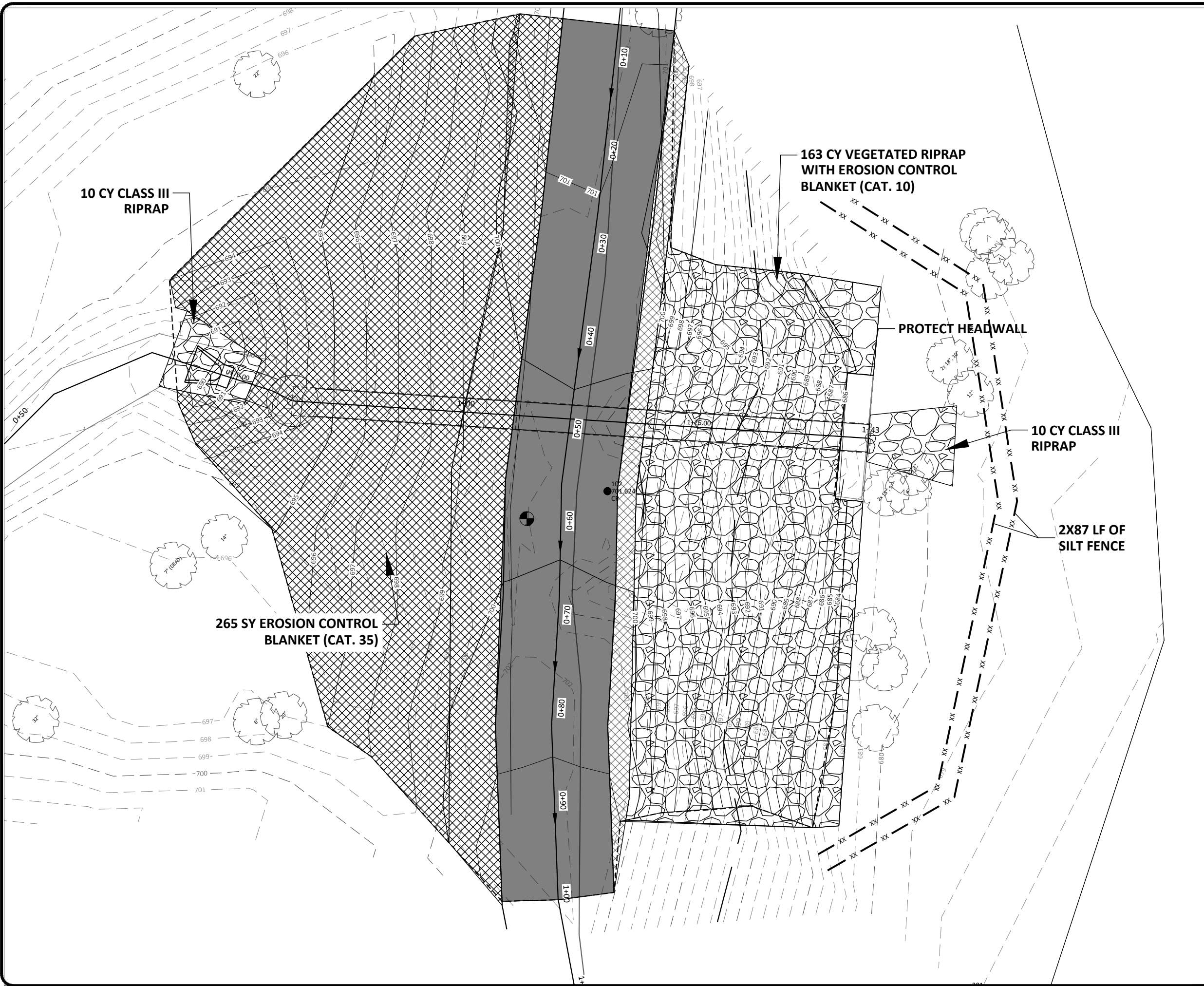
1. CONTRACTOR MUST FIELD VERIFY LOCATION AND ELEVATION OF GRADE BREAK IN EXISTING CULVERT. IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. ALL PROPOSED PIPE QUANTITIES ARE BASED ON ESTIMATED GRADE BREAK LOCATION.
3. CONTRACTOR MUST PROTECT DOWNSTREAM HEADWALL.
4. ESTIMATED BEDROCK EXCAVATION FOR PIPE AND CBMH PAID UNDER "ROCK EXCAVATION (EV)".





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| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN CULVERT REPLACEMENT PLANS | |
|  | |
| Drawn By NJD | |
| Checked By AJS | |
| Date 3-18-2024 | |
| Scale As Shown | |
| Project No. 4876-0053 | |
| SHEET 7 | |

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-  SALVAGED TRAIL MATERIAL
-  EROSION CONTROL BLANKET AND SEEDING
-  RIPRAP
-  SILT FENCE

NOTES:

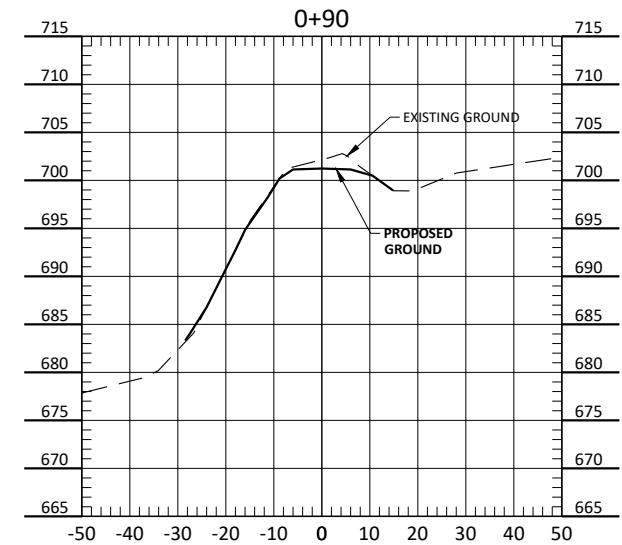
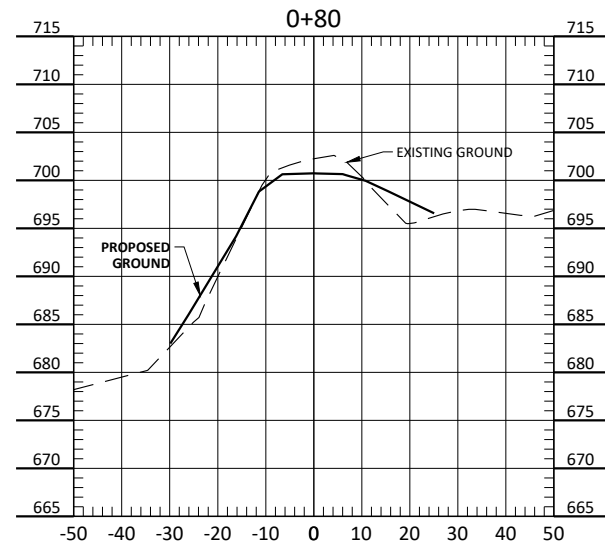
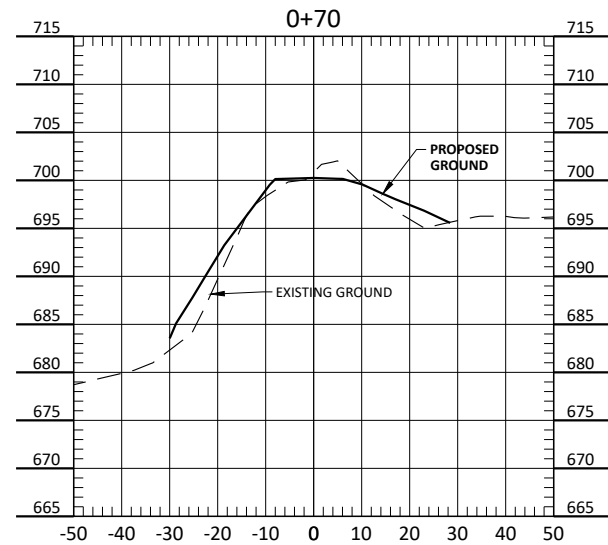
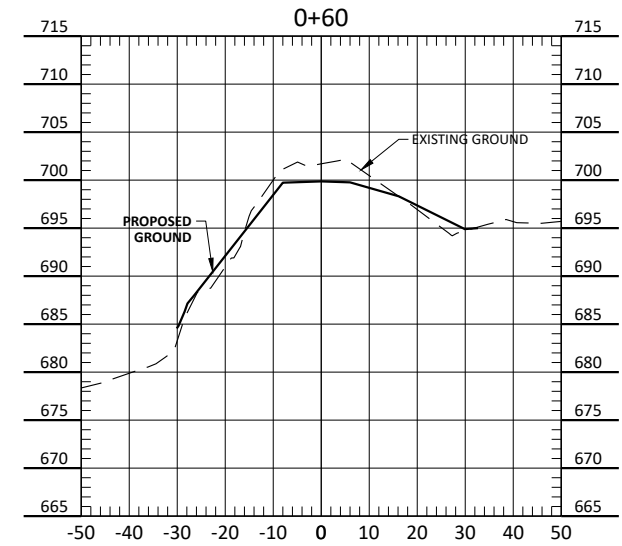
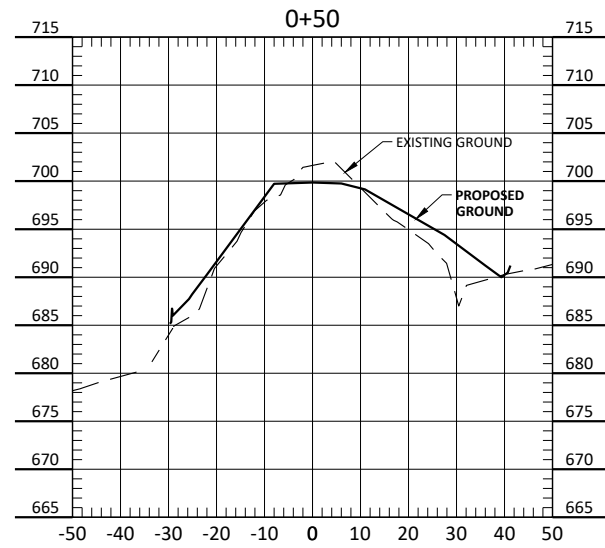
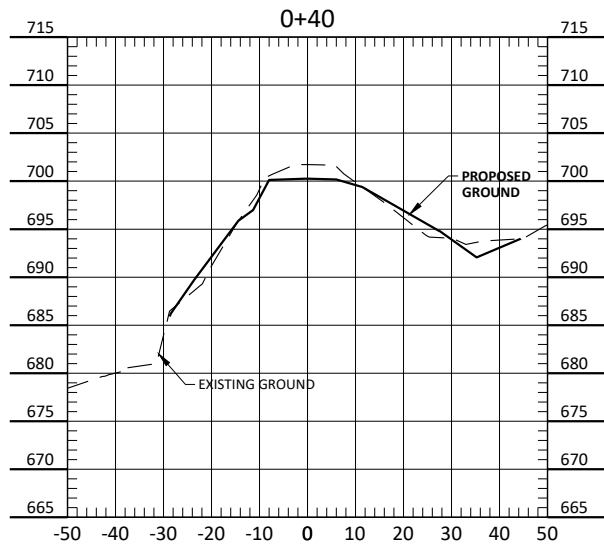
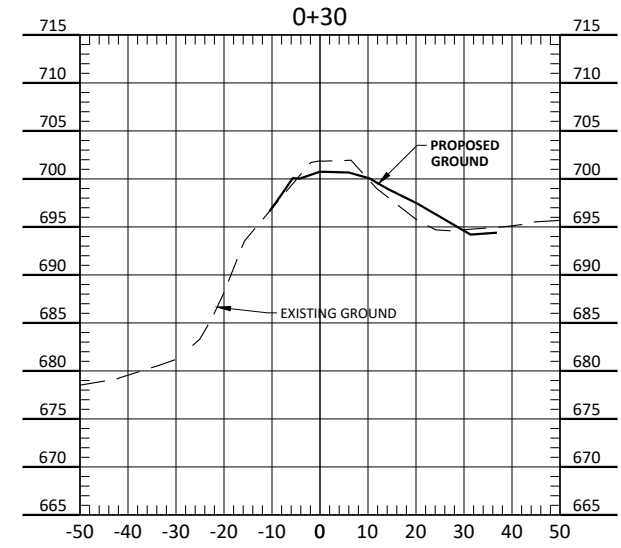
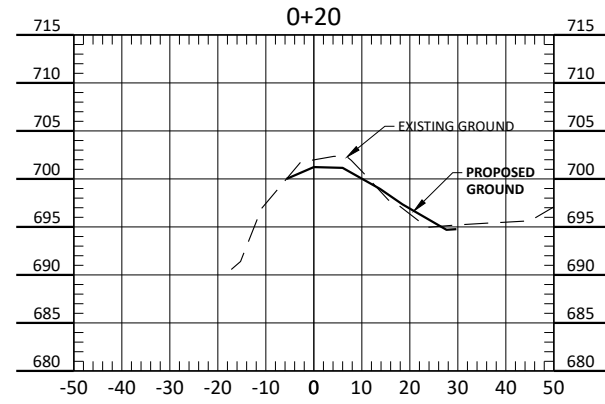
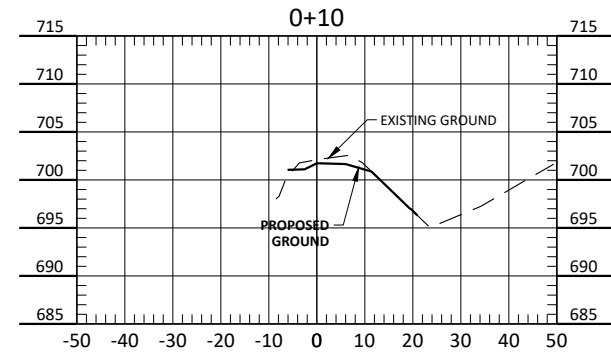
1. SEED ALL DISTURBED AREAS WITH MNDOT SEED MIX 36-211, EXCLUDING TRAIL.
2. PLACE RIPRAP OVER ROOT STRUCTURES THAT ARE LEFT IN PLACE.

I hereby certify that this plan, specification, or report 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.

Alexander J. Schmidt *Alexander J. Schmidt* 3-18-2024
 License No. 53741 Date

| | | | |
|---|--|------|--|
| By | | Date | |
| Revision | | No. | |
| BLUFF PARK STABILIZATION SOUTH WASHINGTON WATERSHED DISTRICT WASHINGTON COUNTY, MN RESTORATION PLANS | | | |
|  Drawn By NJD Checked By AJS Date 3-18-2024 Scale As Shown Project No. 4876-0053 SHEET 8 | | | |

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I hereby certify that this plan, specification, or report 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.
 Alexander J. Schmidt
 License No. 53741
 Date 3-18-2024

| No. | Revision | Date | By |
|-----|----------|------|----|
| | | | |

BLUFF PARK STABILIZATION
 SOUTH WASHINGTON WATERSHED DISTRICT
 WASHINGTON COUNTY, MN
 TRAIL CROSS SECTIONS



Drawn By
 NJD
 Checked By
 AJS
 Date
 3-18-2024
 Scale
 As Shown

Project No.
 4876-0053

SHEET
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