



**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
WATER RESOURCES DIVISION  
PERMIT**

**Issued To:**

**Traver Lakes Community Maintenance Association  
Attn: Jerry Tarpley  
2255 Placid Way  
Ann Arbor, Michigan 48105**

**Permit No: WRP028549 v.1  
Submission No.: HNV-C7Y0-9YD91  
Site Name: 81-Traver Lakes-Ann Arbor  
Issued: June 3, 2021  
Revised:  
Expires: June 3, 2026**

**This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> <b>Part 301, Inland Lakes and Streams</b>                         | <input type="checkbox"/> <b>Part 323, Shorelands Protection and Management</b> |
| <input checked="" type="checkbox"/> <b>Part 303, Wetlands Protection</b>                              | <input type="checkbox"/> <b>Part 325, Great Lakes Submerged Lands</b>          |
| <input type="checkbox"/> <b>Part 315, Dam Safety</b>  | <input type="checkbox"/> <b>Part 353, Sand Dunes Protection and Management</b> |
| <input type="checkbox"/> <b>Part 31, Water Resources Protection (Floodplain Regulatory Authority)</b> |  |

**Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:**

**Authorized Activity:**

Install approximately 32 cubic yards of riprap in an unnamed tributary to Traver Creek to create six cross-vane structures. Install approximately 407 cubic yards of riprap in the stream to construct 1,110 linear feet of riffle and pool structures. Remove an existing concrete pad from the stream. Install approximately 32 cubic yards of riprap within the stream at multiple storm water outfalls. Remove an existing weir and footbridge from the stream. Install a 36 foot long, 6-foot-wide pedestrian bridge over the stream. Remove an existing wooden retaining wall from the stream bank. Install a manhole drop structure and 24 linear feet of 48-inch diameter culvert as an extension to the existing Tuebingen Parkway stream crossing. Install approximately 25 cubic yards of riprap in the stream at the outlet of the culvert. Install approximately 49 cubic yards of riprap within 0.11 acre of wetland to construct riffle and pool structures. Excavate approximately 15 cubic yards of material from 0.04 acre of wetland to restore a previously existing channel. Install approximately 90 cubic yards of riprap along 535 linear feet of shoreline in the ponds. Remove two existing 24-inch diameter concrete culverts from the eastern pond outlet. Install a 36-inch diameter outlet control structure with a stop log structure at the eastern pond outlet. Perform an annual 6-inch drawdown in the eastern pond. Reline the existing outlet pipes located in the western pond. Install approximately 15 cubic yards of riprap within the stream located at the downstream outlet of the western pond for erosion protection.

All work shall be completed in accordance with the approved plans and specifications of this permit.

**EGLE-WRD  
WRP028549 v1.0  
Approved  
Issued On:06/03/2021  
Expires On:06/03/2026**

Waterbody Affected: Unnamed tributary to Traver Creek, wetland, and ponds  
Property Location: Washtenaw County, City of Ann Arbor, Town 02S, Range 06E, Section 15,  
Property Tax No. 09-09-15-202-001, 09-09-15-201-001, 09-09-15-101-003,  
09-09-15-101-002

**Authority granted by this permit is subject to the following limitations:**

- A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
- C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of EGLE.
- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
- M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.

- Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.
- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.
  2. Prior to the initiation of any permitted construction activity, a sedimentation barrier shall be installed along the entire route of the disturbed wetland area and maintained in good working order until permanent stabilization and re-vegetation of all disturbed areas has occurred. The sedimentation barrier shall be removed after re-vegetation.
  3. Construction must be undertaken and completed during the dry period of the wetland, or when frozen.
  4. If the area does not dry out or freeze, construction shall be done on equipment mats to prevent compaction of the soil.
  5. Upon completion of the project, the disturbed wetland areas shall be restored to the original contour elevation, revegetated, and reseeded with species native to Michigan appropriate to the site, and mulched to prevent erosion.

6. During removal or repair of the existing structures or installation of new structures, every precaution shall be taken to prevent debris from entering any watercourse. Any debris reaching the watercourse during the removal and/or reconstruction of the structure shall be immediately retrieved from the water. All material shall be disposed of in an acceptable manner consistent with local, state, and federal regulations.
7. Prior to the removal or installation of structures, cofferdams of steel sheet piling, gravel bags, clean stone, coarse aggregate, concrete, or other acceptable barriers shall be installed to isolate all construction activity from the water. The barriers shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site.
8. All cofferdam and temporary steel sheet pile shall then be removed in its entirety, unless specifically shown to be left in place on the approved plans. Cofferdam and sheet pile that is left in place shall be cut off at the elevation shown on the plans and shall be a minimum of one foot below the stream bottom.
9. Dredged material, including organic and inorganic sediment, vegetation, and other material removed from bottomlands, shall not be placed in any wetland, floodplain, or critical dune, or below the ordinary high-water mark of any inland lake, Great Lake, or stream. Dredged material placed on upland shall be stabilized in such a manner to prevent erosion of any material into any waterbody, including wetlands, or floodplain.
10. All fill/backfill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be contained in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be stabilized with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.
11. All riprap shall be properly sized and graded based on wave action and velocity and shall consist of natural field stone or rock (free of paint, soil or other fines, asphalt, soluble chemicals, or organic material). Broken concrete is not allowed.
12. The placement of the new culvert and the initial placement of fill in the stream shall be done in the dry or in such a manner that all flow is immediately passed through the culvert. The major placement of fill shall be done in the dry or in still water where erosion and siltation will be minimized. The fill material used in this initial placement shall be washed gravel, coarse aggregate, or rock and shall be placed at both ends of the culvert above normal water level before backfill material is placed.
13. The culvert shall be installed to align with the center line of the existing stream at both the inlet and outlet ends and must be buried below the stream bed to provide a natural channel substrate through the structure as shown on the approved plans.
14. If the project, or any portion of the project, is stopped and lies incomplete for any length of time (other than that encountered in a normal work week) every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.

15. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.
16. No fill, excess soil, or other material shall be placed in the 100-year floodplain, any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.
17. The local unit of government in which this project site is located has a wetland ordinance. Authority granted by this permit does not waive permit requirements or the need to obtain a separate permit from the local unit of government.
18. Drawdown of the pond shall occur at a rate not to exceed 0.5 vertical feet of elevation per 24-hour period.
19. Drawdown activities shall be completed by October 1<sup>st</sup>. If the full drawdown is not completed prior to October 1<sup>st</sup>, further drawdown of the impoundment shall not recommence until after April 1<sup>st</sup> of the following year, to avoid impacts to dormant reptiles and amphibians.
20. During drawdown, the permittee shall monitor the pond for stranded organisms such as fish and mussels. Stranded organisms shall be relocated to an area with adequate depth.
21. During drawdown, the permittee shall monitor downstream of the pond for flooding, erosion, sedimentation, and other impairments that would negatively impact habitat or water quality. Adjustments of the drawdown rate, including temporary suspension if necessary, should be made to avoid negative impacts to the stream and downstream habitats.
22. **Stream Restoration Performance Standards:** The following performance standards will be used to evaluate the stream restoration project:
  - a. Construction has been completed in accordance with EGLE's approved plans and specifications included in the permit.
  - b. Restoration of the stream channel to a stable pattern, dimension, and profile based on reference stream parameters and the design plans. Maintenance of stable stream parameters for a minimum of two bankfull (or greater) stream flow events.
  - c. Any in-stream structures (i.e., root wads, cross-vanes, constructed riffles, etc.) shall perform as designed. The structures shall stay in place and there shall be no bank erosion, piping, undermining, or other indication of instability associated with the in-stream structures including no buoyancy issues with any large wood installations.
23. **Stream Restoration Monitoring:** The permittee shall monitor the stream restoration project for a minimum of five (5) years following grading, planting, and introduction of flow. A monitoring report, which compiles and summarizes all data collected during the monitoring period, shall be submitted annually by the permittee. Monitoring reports shall cover the period of January 1 through December 31 and be submitted to EGLE prior to January 31 of the following year. The permittee shall conduct the following activities and provide the information collected in the monitoring reports:
  - a. Provide annual photographic documentation of the development of the restored stream channel from permanent photo stations located within the restored stream channel and/or floodplain. At a minimum, photo stations shall be located to show three permanent channel cross-sections, each in-stream structure (i.e., constructed riffle, etc.), and any areas where problems are identified

- (significant erosion or deposition, unvegetated areas, potential headcuts, etc.). Photos should be taken from the same locations annually and must be labeled with the station/location, date photographed, and direction (i.e., facing upstream). Additional photos should be included as needed. A map featuring the locations of the photo stations should be provided.
- b. Document substrate characteristics and any areas of erosion and/or deposition within the stream channel.
  - c. Assess the stability and performance of each in-stream structure or large wood installation.
  - d. Provide a written summary of data from previous monitoring periods and a discussion of changes or trends based on all monitoring results. This summary shall include identification of all performance standards and whether each standard has been met. A table containing this information shall be included in each report.
  - e. Provide a written summary and map of all the problem areas that have been identified. Discuss if corrective measures are needed at each area based on channel stability and describe the corrective measures that will be implemented to address any problem areas where corrective action is needed.
  - f. Provide documentation that the channel has experienced two flow events equal to or greater than bankfull flows.
  - g. The permittee may request, in writing, EGLE waive years 4 and 5 of the stream restoration requirements provided the stream restoration performance standards are met.
24. Authority granted by this permit does not waive permit or program requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit [www.mi.gov/eglestormwater](http://www.mi.gov/eglestormwater) and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
25. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
26. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
27. The permit placard shall be kept posted at the work site in a prominent location at all times for the duration of the project or until permit expiration.
28. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

Upon signing by the permittee named herein, this permit must be returned to EGLE's Water Resources Division, Jackson District Office for final execution. This permit shall become effective on the date of the EGLE representative's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

X  5/25/21  
Permittee Date

X David R Steiner VP TLCMA  
Printed Name and Title of Permittee



Issued By: \_\_\_\_\_  
Melissa Letosky  
Jackson District Office  
Water Resources Division  
517-416-7001

cc: City of Ann Arbor Clerk  
Mr. Ryan Roggie, Spicer Group, Inc.  
Mr. Steven Roznowski, Spicer Group, Inc.

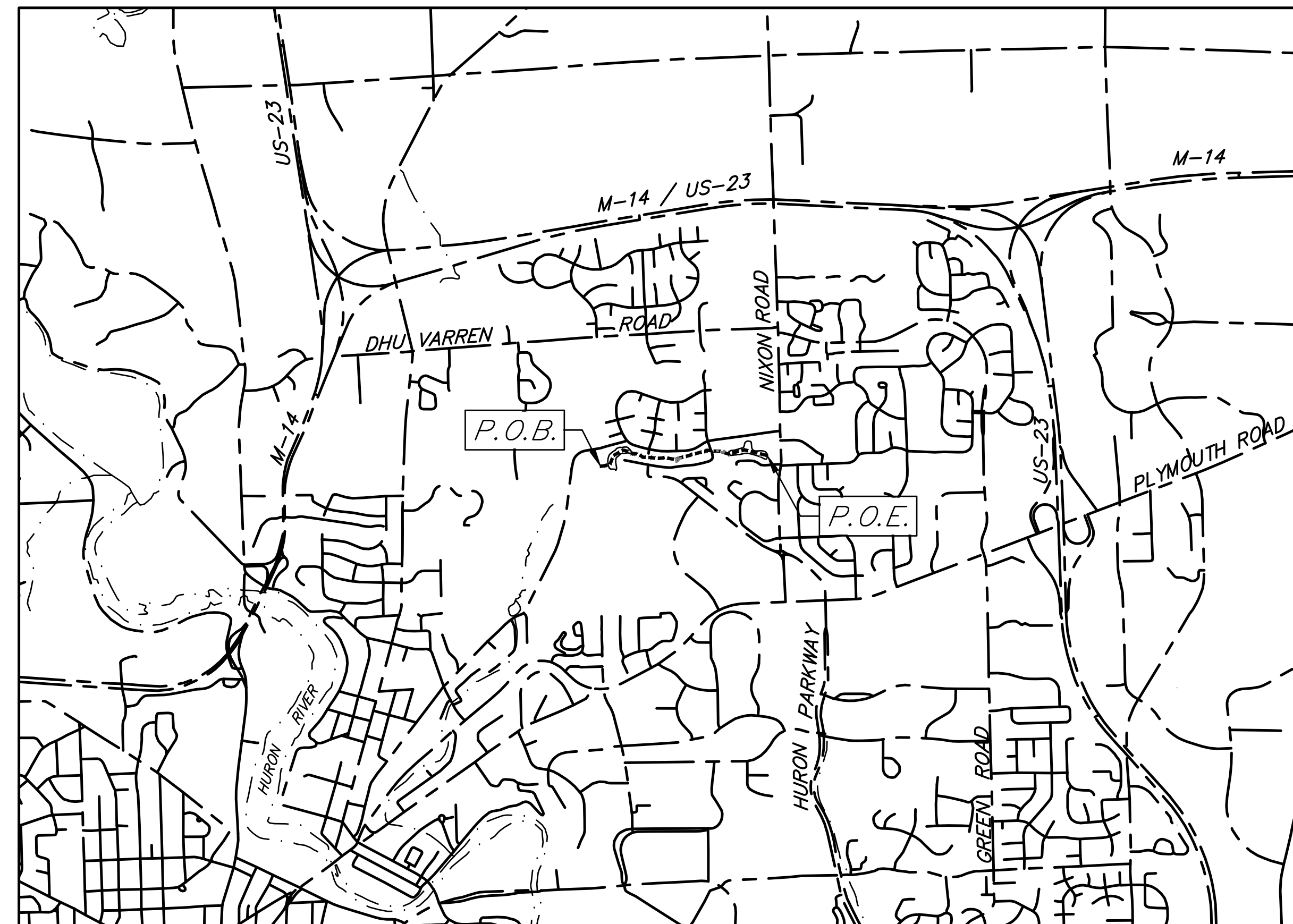
# TRAVER LAKES STABILIZATION

## TRAVER LAKES COMMUNITY MAINTENANCE ASSOCIATION

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**AREA MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE



SECTION 15  
T.2S.-R.6E.,  
CITY OF ANN ARBOR,  
WASHTENAW COUNTY, MICHIGAN

PRELIMINARY

06/23/2020

BY	MARK	REVISIONS	DATE
<small>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</small>			
CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> COVER SHEET			
		<small>DUNDEE OFFICE                  125 Helle Blvd., Suite 2                  Dundee, MI 48131                  Tel. 734-823-3308                  www.SpicerGroup.com</small>	
DE. BY: RJP DR. BY: JCB		CH. BY: SKP APP. BY: RAV	
		PROJECT NO. <b>126140SG2018</b>	
STDS.		SHEET <b>1</b> OF <b>13</b>	
DATE: JUNE 2020 SCALE: AS SHOWN		FILE NO. <b>DR-3712-01</b>	
		DR <b>1</b>	



**GENERAL NOTES**

NO WORK SHALL BE PERFORMED BEFORE 7:00 AM OR AFTER 7:00 PM MONDAY THROUGH SATURDAY. NO WORK SHALL HAPPEN ON SUNDAYS OR HOLIDAYS, UNLESS AUTHORIZED BY THE OWNER.

CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO START OF CONSTRUCTION, CONSTRUCTION STAKING REQUEST AND REQUIRED INSPECTION.

CONTRACTOR SHALL MAINTAIN ACCESS FOR MAIL DELIVERY AND GARBAGE PICKUP AT ALL PARCELS. IF THESE SERVICES CANNOT BE PERFORMED, CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY MEASURES TO CARRY THEM OUT.

COORDINATE DRIVE CLOSURES AND MAIL BOX RELOCATION WITH LANDOWNERS A MINIMUM OF ONE DAY IN ADVANCE.

CONTRACTOR TO PROVIDE DUST CONTROL AND SWEEP PAVED ROADS DAILY.

ALL EXCAVATED MATERIAL NOT TO BE REUSED OR DISPOSED OF ON SITE SHALL BE REMOVED FROM SITE. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF MATERIALS ACCORDING TO LOCAL AND STATE REQUIREMENTS.

**UNDERGROUND UTILITIES/MISS DIG**

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 OR 811 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE EXISTING UTILITIES ON THESE DRAWINGS HAVE BEEN SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION AND SHALL NOTIFY THE ENGINEER AS TO WHERE POSSIBLE CONFLICT EXISTS.

ALL CONSTRUCTION UNDER EXISTING UTILITIES, INCLUDING HOUSE SERVICES, SHALL BE COMPLETELY BACKFILLED WITH SAND, IN 12" LAYERS, AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY UNIT WEIGHT.

ANY UTILITIES ENCOUNTERED DURING CONSTRUCTION SHALL BE SUPPORTED, PER THE SPECIFICATIONS OF THE INDIVIDUAL UTILITY COMPANY CLAIMING OWNERSHIP OF THE UTILITY.

**SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODABLE SLOPES, AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOD OR SEED AND MULCH OR MULCH BLANKET, AS DIRECTED BY THE ENGINEER.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE AND MAINTAINED UNTIL THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED. MEASURES SHALL ONLY BE PAID FOR ONCE.

ALL CATCHBASINS AND SEDIMENTATION TRAPS/BASINS SHALL BE CLEANED OUT UPON COMPLETION OF THE PROJECT.

CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994.

**PROPERTY OWNERS**

PROPERTY OWNERS' NAMES, WHERE SHOWN, ARE FOR INFORMATION ONLY, AND THEIR ACCURACY IS NOT GUARANTEED.

**ADJUSTING MONUMENT BOXES**

ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED, WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES, AS REQUIRED.

**TRAFFIC**

THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES. SIGNAGE MUST BE IN ACCORDANCE WITH THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND SHALL BE COORDINATED WITH THE ENGINEER AND GOVERNING ROAD AGENCY. PERMITS MAY BE REQUIRED.

**PERMITS**

PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED BY THE APPROPRIATE AGENCIES.

CONSTRUCTION PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF THE APPROPRIATE AGENCIES.

**CONTACTS**

TRAVER LAKES HOA - OWNER  
ATTN: JERRY TARPLEY - TREASURER  
2255 PLACID WAY  
ANN ARBOR, MI 48105  
(734) 675-8943

SPICER GROUP  
ATTN: KRIS KOKO - DESIGN ENGINEER  
125 HELLE BLVD  
SUITE 2  
DUNDEE, MI 48131  
(989) 798-7251

EGLE WATER RESOURCE DIVISION  
ATTN: MELISSA LETOSKY  
301 E. LOUIS GLICK HWY.  
JACKSON, MI 49201  
(517) 416-7001

CITY OF ANN ARBOR  
ATTN: ANDY GOSSIAUX  
301 E. HURON  
ANN ARBOR, MI 48108  
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ANN ARBOR TOWNSHIP  
ATTN: RICH JUDKINS  
3792 PONTIAC TRAIL  
ANN ARBOR, MI 48105  
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AT&T  
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PERRYSBURG, OH 43551  
(419) 874-9262

DETROIT EDISON  
ATTN: SARA KIPP  
ONE ENGERY PLAZA  
518 SB  
DETROIT, MI 48226  
(313) 235-5632

INTERNATIONAL TRANSMISSION COMPANY  
ATTN: DWAYNE BARNES  
27175 ENERGY WAY  
NOVA, MI 48377  
(248) 946-3322

LEVEL 3 COMM/CENTURY LINK  
ATTN: JUDY HENRY  
1025 ELDORADO BLVD.  
BROOMFIELD, CO 80021  
(720) 888-2061

DTE GAS  
ATTN: MICHAEL HARRISON  
ONE ENGERY PLAZA  
DETROIT, MI 48226  
(313) 235-5511

**GENERAL NOTES CONT.**

ALL WORK SHALL BE WITHIN LIMITS SHOWN ON THE PLANS. WORK OUTSIDE THE LIMITS SHOWN ON THE PLANS MUST BE AGREED UPON BY LANDOWNER AND ENGINEER WITH A SIGNED LANDOWNER AGREEMENT PRIOR TO WORK ON THAT PROPERTY.

RESTORE ALL LAWN AREAS WITH 4" OF TOPSOIL AND SEED AND MULCH.

CONTRACTOR TO RESTORE INCIDENTAL DAMAGES ON THE PROJECT AS DIRECTED BY OWNER AND ENGINEER.

ALL DRAIN SIDE SLOPES SHALL BE 2H:1V OR FLATTER, UNLESS SPECIFIED OTHERWISE.

THE WORDS "RIGHT SIDE" OR "LEFT SIDE" IMPLY A REFERENCE TO THE DRAIN FACING UPSTREAM.

CLEAR AND GRUB TREES AS INDICATED FOR CONSTRUCTION WITHIN THE CHANNEL. REMOVE ALL TREES, STUMPS AND DEBRIS FROM SITE.

REMOVE EXISTING FENCES, LANDSCAPING, AND OTHER STRUCTURES AS NEEDED FOR CONSTRUCTION. REINSTALLATION OF FENCES MUST BE COORDINATED WITH THE LAND OWNER. COST TO BE INCLUDED IN SITE CLEARING.

CONTRACTOR SHALL COORDINATE RELOCATION/REMOVAL OF ALL TREES WITHIN THE LIMITS OF CONSTRUCTION WITH THE PROPERTY OWNER AND ENGINEER.

TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE AS TOPSOIL SURFACE AS DIRECTED BY THE ENGINEER.

ALL SPRINKLER SYSTEMS DAMAGED SHALL BE REPAIRED BY CONTRACTOR. COST TO BE INCLUDED IN OTHER WORK ITEMS OF THE PROJECT.

CONTRACTOR TO CLEAR TREES WITHIN THE CHANNEL, AS NECESSARY FOR CONSTRUCTION AND LEVELING SPOILS AS SHOWN IN DETAILS. COORDINATE REMOVALS WITH THE ENGINEER/LANDOWNER

**ROADS, DRIVEWAYS AND SIDEWALKS**

ALL JOINTS AT INTERSECTION APPROACHES AND DRIVEWAYS SHALL BE SAW-CUT WITH BUTT-JOINTS. COST TO BE INCLUDED IN UNIT PRICE FOR ROAD AND DRIVEWAY REPAIR.

FOR OPEN CUT PAVEMENT REMOVAL CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT FULL DEPTH PRIOR TO REMOVAL.

ALL DRIVING SURFACES ARE TO BE RESTORED TO IN KIND DEPTH AND MATERIAL UNLESS OTHERWISE SPECIFIED ON THE PLANS. COST TO BE INCLUDED IN THE BID PRICE FOR WORK PERTAINING TO EACH CROSSING.

PROTECT ALL BITUMINOUS ROADS NOT SPECIFIED TO BE REMOVED DURING CONSTRUCTION. REPAIR ANY UNAUTHORIZED DAMAGE AT CONTRACTOR'S EXPENSE.

BROKEN CONCRETE AND DEBRIS SHALL BE CONSIDERED WASTE AND SHALL BE DISPOSED OF BY THE CONTRACTOR OFF SITE. COST SHALL BE INCLUDED IN THE OTHER PAY ITEMS OF THE PROJECT.

MATCH EXISTING TYPE FOR CONCRETE CURB AND GUTTER RESTORATION.

CONTRACTOR SHALL REMOVE AND REPLACE ALL STREET AND TRAFFIC SIGNAGE AS NECESSARY FOR CONSTRUCTION. ALL COSTS TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR SITE CLEARING.

CONTRACTOR SHALL COORDINATE LOCATION OF ANY ACCESS ROADS WITH THE LANDOWNER AND THE ENGINEER. ANY ACCESS ROAD SHALL BE REPAIRED TO THE OWNER'S APPROVAL.

ALL WORK WITHIN THE ROAD RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION.

**MAIL BOXES**

CONTRACTOR SHALL REMOVE AND TEMPORARILY RELOCATE ALL EXISTING MAIL BOXES AS NEEDED FOR CONSTRUCTION. COSTS TO BE INCLUDED IN THE UNIT PRICE BID FOR SITE CLEARING.

CONTRACTOR COORDINATE MAIL BOX RELOCATION WITH LANDOWNERS A MINIMUM OF ONE DAY IN ADVANCE.

ALL TEMPORARILY RELOCATED MAIL BOXES, STREET AND TRAFFIC SIGNS TO BE REINSTALLED TO ORIGINAL LOCATIONS AS CONSTRUCTION ALLOWS. COSTS TO BE INCLUDED IN THE UNIT PRICE BID FOR CLEANUP AND RESTORATION.

**UTILITIES**

WHEN RELOCATING UTILITIES AS REQUIRED FOR CONSTRUCTION OF IMPROVEMENTS, A MINIMUM CLEARANCE OF 36" BELOW THE BOTTOM OF PROPOSED CROSSING MUST BE ACHIEVED, UNLESS OTHERWISE APPROVED BY UTILITY COMPANY AND ROAD AGENCY.

ALL WATER VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADE. COST SHALL BE INCLUDED IN THE PAY ITEM BEING INSTALLED.

ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

ALL MANHOLE RIMS IN ROADWAYS AND DRIVES SHALL BE ADJUSTED PRIOR TO FINAL PAVING TO BE FLUSH WITH FINISHED GRADE.

GRADING AROUND MANHOLES/CATCHBASINS, FLARED END SECTIONS, AND OTHER INLETS DETERMINED BY THE ENGINEER SHALL BE SMOOTH AND SHAPED TO PROVIDE POSITIVE DRAINAGE INTO THE INLETS.

ALL MANHOLE TO PLASTIC PIPE CONNECTIONS SHALL BE MADE WITH KOR-N-SEAL BOOT OR ENGINEER APPROVED EQUAL.

ALL STORM SEWER TO BE PREMIUM JOINT UNLESS OTHERWISE SPECIFIED.

ALL FLARED END SECTIONS TO HAVE FACTORY SUPPLIED ANIMAL GUARD.

DEMOLISH EXISTING STRUCTURE(S) AND DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. COST TO BE INCLUDED WITH THE ITEM BEING INSTALLED AS DIRECTED BY OWNER/ENGINEER.

CONTRACTOR SHALL CONNECT ANY AND ALL FIELD TILE OUTLETS AND OTHER STORM LEADS TO PROPOSED STORM SEWER WITH PREMANUFACTURED TEES, WYES, GASKETS, SEALS, COUPLERS, BOOTS, ETC. COST TO BE INCLUDED IN LIN. FT. PRICE FOR STORM SEWER INSTALLATION.

**SOIL EROSION SEDIMENT CONTROL**

GROUNDWATER SEEPAGE IS ANTICIPATED TO BE A FACTOR DURING CONSTRUCTION. DEWATERING METHODS MAY BE NECESSARY. ALL DEWATERING REQUIRED IS THE CONTRACTOR'S RESPONSIBILITY AND COST SHALL BE INCLUDED IN THE PAY ITEM BEING INSTALLED. THE METHOD FOR DEWATERING SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

ALL RIPRAP SHALL BE CRUSHED ANGULAR LIMESTONE TYPE MATERIAL AS APPROVED BY THE ENGINEER UNLESS OTHERWISE DIRECTED. SUBMIT LIMESTONE SAMPLES TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. OWNER AND ENGINEER RESERVES THE RIGHT TO REJECT ANY AND ALL RIPRAP.

CONTRACTORS SHALL FINISH GRADE, SEED, FERTILIZE, AND MULCH DAILY ON ALL DISTURBED AREAS, AS DESCRIBED IN THE SPECIFICATIONS.

HAND SEED, FERTILIZE, AND MULCH BANKS AND SPOILS DAILY.

ALL DISTURBED WETLAND AREA SHALL BE SEEDDED WITH NATIVE WETLAND SEED AS SPECIFIED.

**ABBREVIATIONS**

- BC = BACK OF CURB
BM = BENCH MARK
C/C = CENTER TO CENTER
CB = CATCH BASIN
CL = CENTERLINE
CJ = CONSTRUCTION JOINT
CMP = CORRUGATED METAL PIPE
CSP = CORRUGATED STEEL PIPE
CONC = CONCRETE
DI = DUCTILE IRON PIPE
EF = EACH FACE
ELEC = ELECTRIC
EL OR ELEV = ELEVATION
EOM = EDGE OF METAL
EOP = EDGE OF PAVEMENT
EQ/SP = EQUALLY SPACED
ESMT = EASEMENT
EW = EACH WAY
EX OR EXIST = EXISTING
FF = FINISH FLOOR
FL = FLOW LINE
FS = FINISH SURFACE
FG = FINISH GROUND
GALV = GALVANIZED
G = GUTTER
HDC = HOT DIP GALVANIZED
HDPE = HIGH DENSITY POLYETHYLENE
HP = HIGH POINT
HMA = HOT MIX ASPHALT
HYD = HYDRANT
INV = INVERT
LP = LOW POINT
OC = ON CENTER
OH = OVERHEAD
MH = MANHOLE
MIN = MINIMUM
MON = MONUMENT
NFL = NOT FIELD LOCATED
NTS = NOT TO SCALE
PROP = PROPOSED
PVC = POLYVINYL CHLORIDE
RCP = REINFORCED CONCRETE PIPE
ROW = RIGHT OF WAY
SAN = SANITARY
SB = SOIL BORING
SS = STAINLESS STEEL
STA = STATION
STM = STORM
SWR = SEWER
T/B = TOP AND BOTTOM
TC = TOP OF CURB
TOB = TOP OF BANK
TOS = TOE OF SLOPE
TELE = TELEPHONE
TRW = TOP OF RETAINING WALL
TW = TOP OF WALK
UNO = UNLESS NOTED OTHERWISE
WM = WATER MAIN
WS = WATER SURFACE ELEVATION

**LINE TYPE LEGEND**

- EXISTING ROAD CENTERLINE
EXISTING WATER MAIN
EXISTING SANITARY SEWER OR FORCEMAIN
EXISTING STORM SEWER
EXISTING TELEPHONE CABLE
EXISTING GAS MAIN
EXISTING ELECTRIC
PROPOSED UTILITY
EXISTING CURB & GUTTER
PROPOSED CURB & GUTTER
FENCE LINE
OVERHEAD UTILITY
RAILROAD TRACKS
STATION LINE
LIMITS OF RIGHT OF WAY
EASEMENT
SILT FENCE
REVERSE PAN CURB & GUTTER
TREE LINE
EXISTING CONTOURS
PROPOSED CONTOURS

**SYMBOL LEGEND**

**EXISTING SYMBOLS**

- MANHOLE
CATCH BASIN
CURB CATCH BASIN
FIRE HYDRANT
GAS VALVE
WATER VALVE
TELEPHONE PEDESTAL
POWER POLE
TELEPHONE POLE
POWER AND TELEPHONE POLE
LIGHT POLE
GUY ANCHOR AND POLE
MAIL BOX
WATER METER
TELEPHONE MANHOLE
ELECTRIC MANHOLE
MONITORING WELL
HAND HOLE
TRANSFORMER
ELECTRICAL PEDESTAL
BARRIER FREE PARKING
SPRINKLER
RAILROAD SIGNAL
ANTENNA
SATELLITE DISH
AIR CONDITIONING UNIT
SOIL BORING
BENCH MARK
FOUND SURVEY CORNER
SET 1/2" IRON ROD
1/4 SECTION CORNER
BREAK IN LINE
EXISTING SIGN-1 POST
EXISTING SIGN-2 POST
STUMP
WETLANDS
PINE
BUSH
TREE

**PROPOSED SYMBOLS**

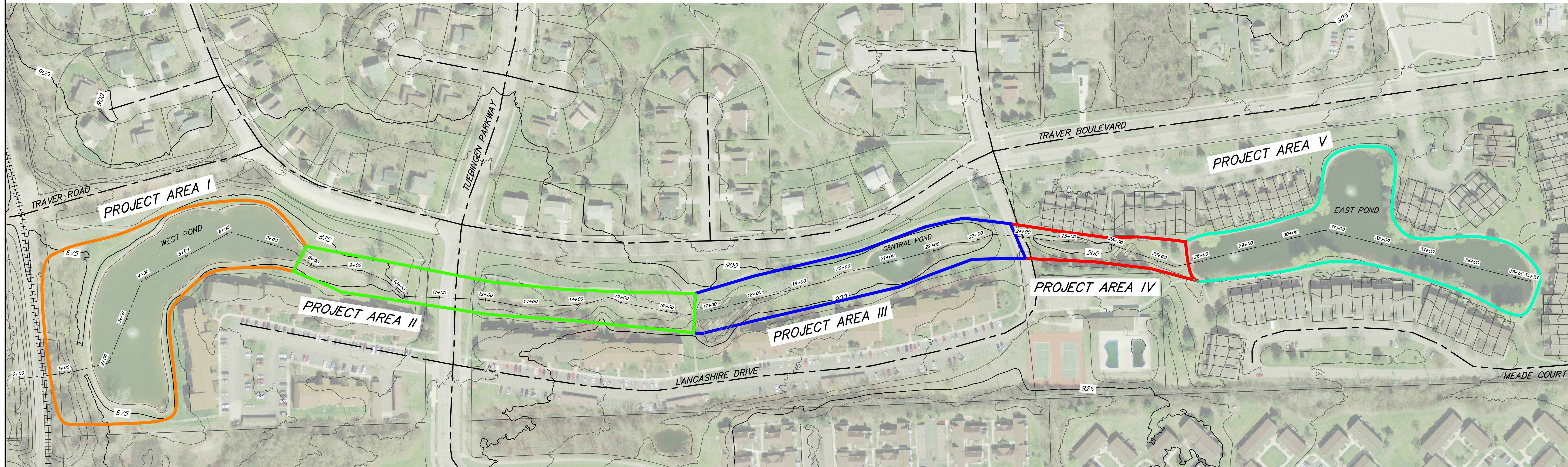
- MANHOLE
CATCHBASIN
FIRE HYDRANT
WATER VALVE
BARRIER FREE PARKING
LIGHT POLES
DRAINAGE FLOW
SPOT ELEVATION LABELS
GUTTER
WALK
TOP OF CURB
FINISH SURFACE

PRELIMINARY

06/23/2020

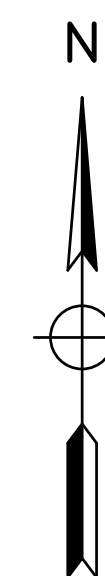
Table with columns: BY, MARK, REVISIONS, DATE. Includes project title 'TRAVER LAKES STABILIZATION STANDARD NOTES', logos for Spicer Group and Dundee Office, and project details: DE. BY: RJP, CH. BY: SKP, DR. BY: JCB, APP. BY: RAV, PROJECT NO. 126140SG2018, SHEET 2 OF 13, DATE JUNE 2020, SCALE AS SHOWN, FILE NO. DR-3712-02, DR 2.





**LEGEND**

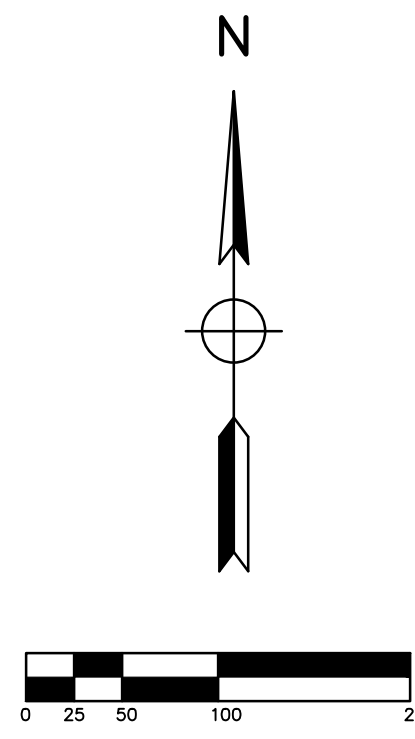
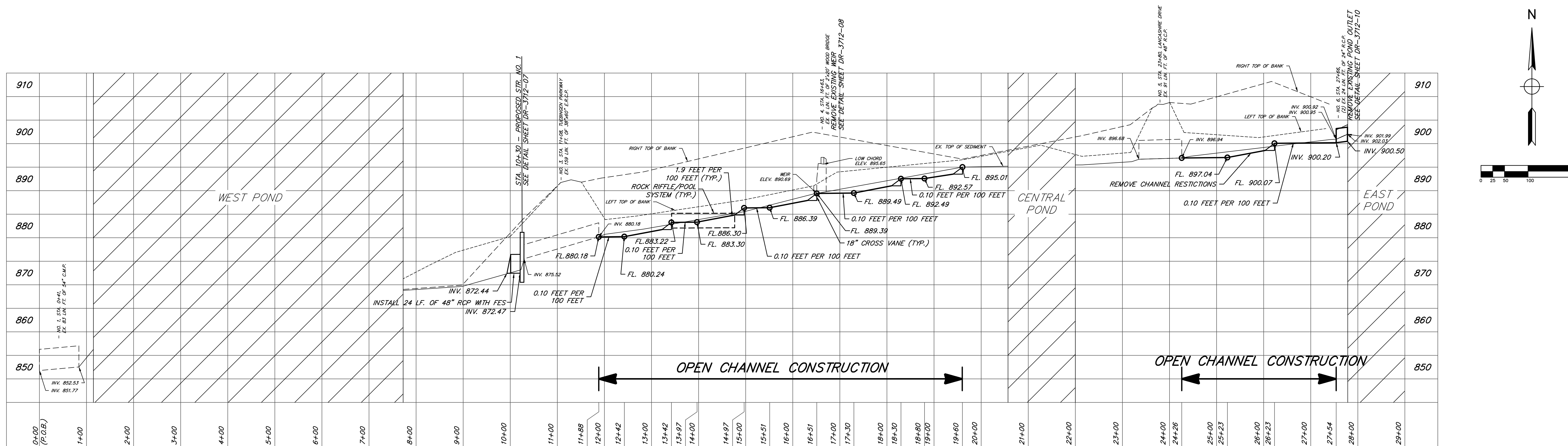
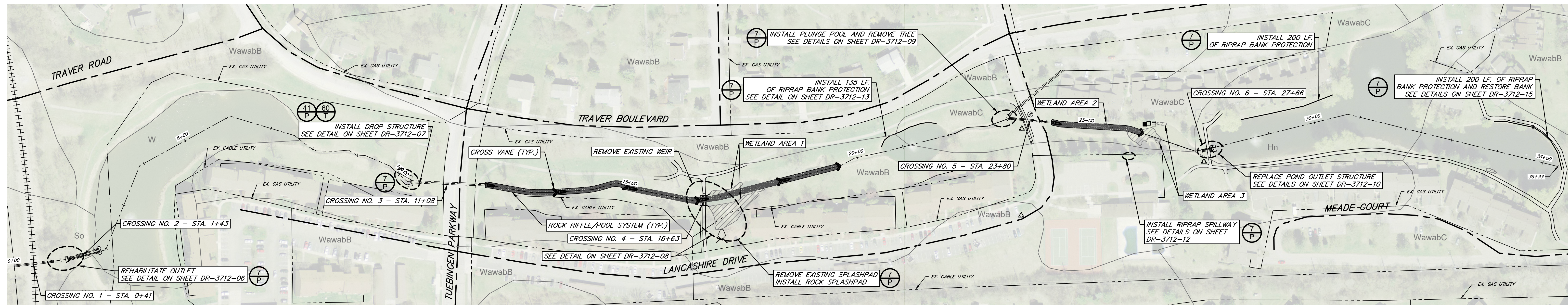
- 25' EXISTING CONTOURS
- 5' EXISTING CONTOURS
- CONTOUR ELEVATION LABEL
- STATION LABEL/DRAIN CENTERLINE
- PARCEL LINE
- PROJECT AREA I
- PROJECT AREA II
- PROJECT AREA III
- PROJECT AREA IV
- PROJECT AREA V
- WETLAND AREAS



**PRELIMINARY**

06/23/2020

BY	MARK	REVISIONS	DATE
<small>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</small>			
CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> SITE LOCATION MAP			
		<small>DUNDEE OFFICE            125 Helle Blvd., Suite 2            Dundee, MI 48131            Tel: 734-823-3308            www.SpicerGroup.com</small>	
DE. BY: <i>RJR</i>	CH. BY: <i>SKP</i>	PROJECT NO. <b>126140SG2018</b>	
DR. BY: <i>JCB</i>	APP. BY: <i>RAY</i>	SHEETS <b>4 OF 13</b>	
STDS.	DATE <i>FEBRUARY 2020</i>	FILE NO. <b>DR-3712-04</b>	DR <b>4</b>
SCALE <i>1"=100'</i>			



**CROSSING NOTES**

- NO. 1 - STA. 0+41, EX. 83 LIN. FT. OF 54" C.M.P.
- NO. 2 - STA. 1+43, (2) EX. 70 LIN. FT. OF 36" C.M.P.
- NO. 3 - STA. 11+08, TUEBINGEN PARKWAY EX. 159 LIN. FT. OF 38"x60" E.R.C.P.
- NO. 4 - STA. 16+63, REMOVE EXISTING AND INSTALL 36' WOODEN FOOTBRIDGE
- NO. 5 - STA. 23+80, LANCASHIRE DRIVE EX. 91 LIN. FT. OF 48" R.C.P.
- NO. 6 - STA. 27+66, REMOVE EXISTING AND INSTALL 24 LIN. FT. OF 36" R.C.P.

**EROSION CONTROL TABLE**

KEY*	DESCRIPTION	LOCATION
1 P	SEEDING	ALL GRASS AREAS DISTURBED DURING CONSTRUCTION
2 T	MULCH	ALL GRASS AREAS DISTURBED DURING CONSTRUCTION
7 P	RIPRAP	AS SHOWN
26 T	DUST CONTROL	ALL DISTURBED AREAS
41 P	CATCH BASIN	AS SHOWN
60 T	STORM DRAIN INLET PROTECTION	ALL CATCH BASINS AND MANHOLES AFFECTED BY PROJECT, BOTH EXISTING AND PROPOSED

NOTE: COORDINATE INSTALLATION OF EROSION CONTROL STRUCTURES WITH OWNER OR ENGINEER PRIOR TO CONSTRUCTION. LOCATIONS, QUANTITIES, OR TYPES MAY VARY BASED ON FIELD DECISIONS.

**WETLAND IMPACTS**

LOCATION	PERMANENT
AREA 1	0.10 AC
AREA 2	0.01 AC
AREA 3	0.04 AC
TOTAL	0.15 AC

**CONSTRUCTION NOTES**

- STATIONING ON PROFILE FOLLOWS DRAIN CENTERLINE.
- CONTRACTOR TO COORDINATE INSTALLATION OF ALL SOIL EROSION CONTROL MEASURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATION, QUANTITY AND TYPE MAY VARY BASED ON FIELD CONDITIONS.
- CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
- ALL SPOILS, TREES, AND DEBRIS ARE TO BE HAULED OFF SITE BY CONTRACTOR.
- ALL PROPOSED CULVERTS BEING INSTALLED ON THE PROJECT ARE TO BE RECESSED INTO DRAIN BOTTOM AS SHOWN ON DRAIN CROSSING DETAIL.
- OPEN CHANNEL EXCAVATION DOES NOT INCLUDE THE LENGTHS OF CULVERTS. CULVERT INSTALLATION, CLEANOUT AND CLEAN THROUGH TO BE PAID PER UNIT BID PRICE.
- RIFLE/POOL SYSTEM CONSISTS OF 100' LONG REACH WITH A POOL (DETAIL SHEET 12) AT THE DOWNSTREAM END OF A ROCK RIFLE. UPSTREAM END IS AN 18" HEAVY RIPRAP CROSS-VANE (DETAIL SHEET 13). REMAINING OPEN CHANNEL CONSTRUCTION TO BE PAID AS OPEN CHANNEL EXCAVATION.

**BENCH MARKS**

- BM #101 - N: 295937.9880 E: 13300247.6320'  
5/8" CIR ±50 FT. EAST OF NW CORNER OF TENNIS COURT, 3 FT. NORTH OF EDGE OF BIT OF LANCASHIRE DRIVE.  
ELEV. 919.96
- BM #102 - N: 296122.347 E: 13300248.750  
5/8" CIR ±35 FT. SW. OF CATCHBASIN IN LANCASHIRE DRIVE ±180 FT. S. OF TRAVER BOULEVARD, 30 FT. WEST OF CENTERLINE OF LANCASHIRE DRIVE.  
ELEV. 902.23
- BM #103 - N: 296052.391 E: 13300635.623  
5/8" CIR ±30 FT. SW. OF EASTERN POND OUTLET STRUCTURE, 7 FT. N. OF SOUTHERN SIDEWALK.  
ELEV. 905.32

**PRELIMINARY**

08/25/2020

RJR	EGLE PERMIT SUBMITTAL	8/2020
BY	MARK	REVISIONS DATE

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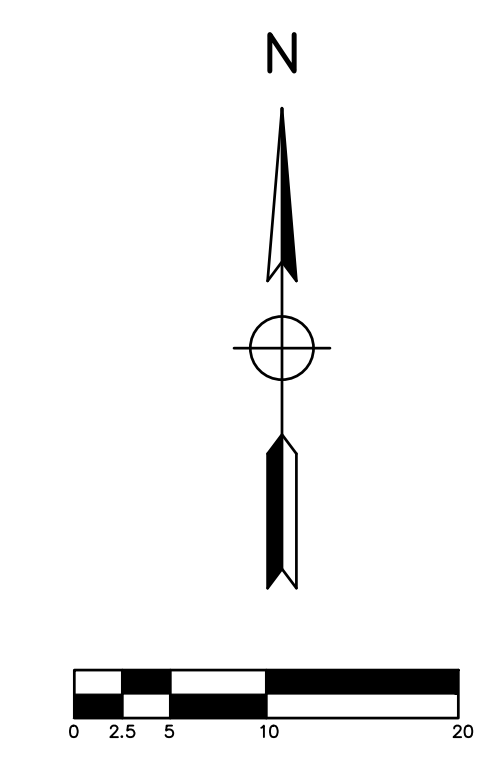
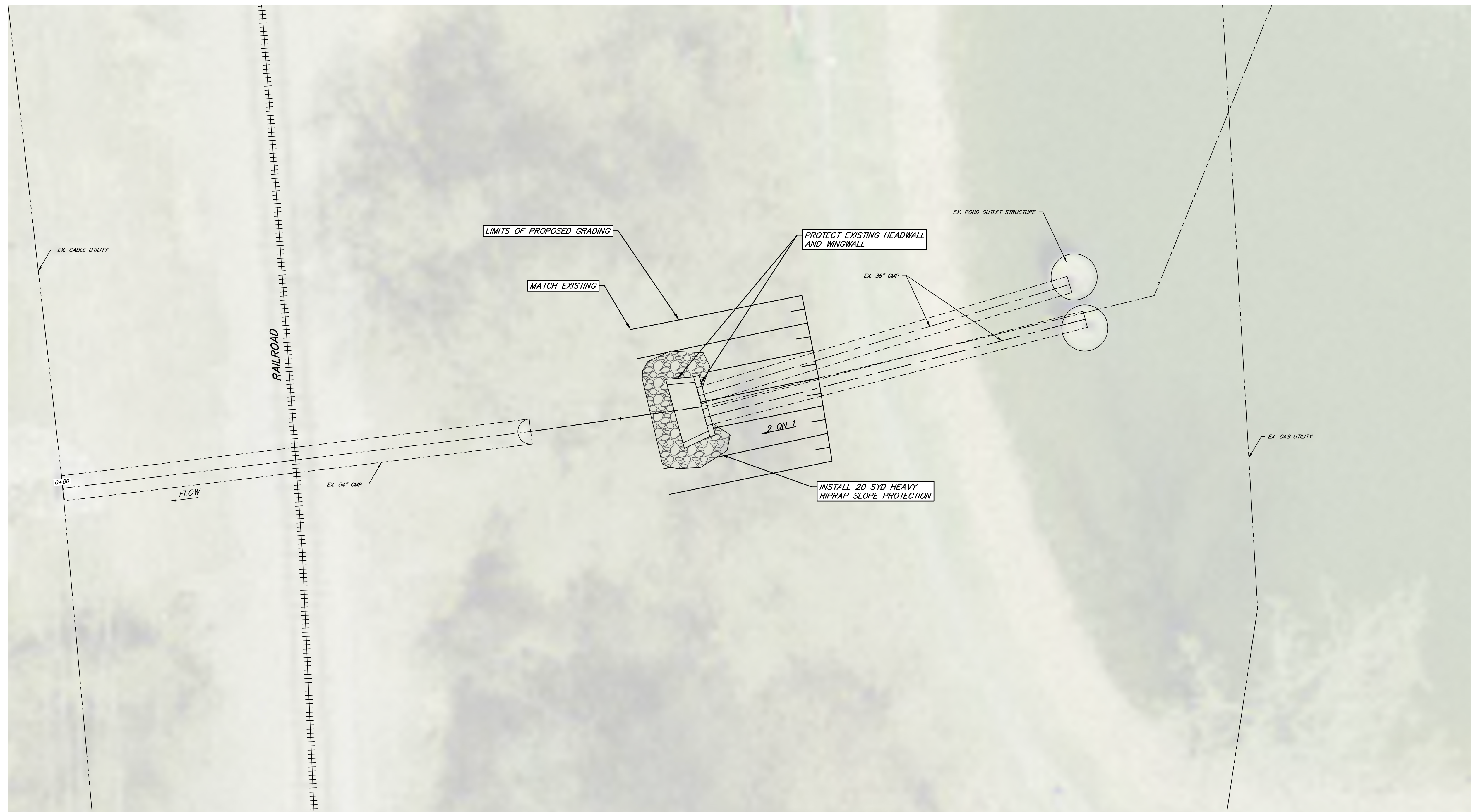
CITY OF ANN ARBOR  
WASHTENAW COUNTY, MICHIGAN

**TRAVER LAKES STABILIZATION  
PLAN & PROFILE**  
STA. 0+00 (P.O.B.) TO STA. 35+33

DUNDEE OFFICE  
125 Helle Blvd, Suite 2  
Dundee, MI 48131  
Tel. 734-823-3308  
www.SpicerGroup.com

DE. BY: RJR CH. BY: SKP PROJECT NO. 126140SG2018  
DR. BY: JCB APP. BY: RAV

STDS. SHEET 5 OF 13 DR 5  
DATE AUGUST 2020 FILE NO. DR-3712-05  
SCALE: 1"=100' V: 1"=10'



**OUTLET REHABILITATION DETAIL**


SCALE: 1" = 10'

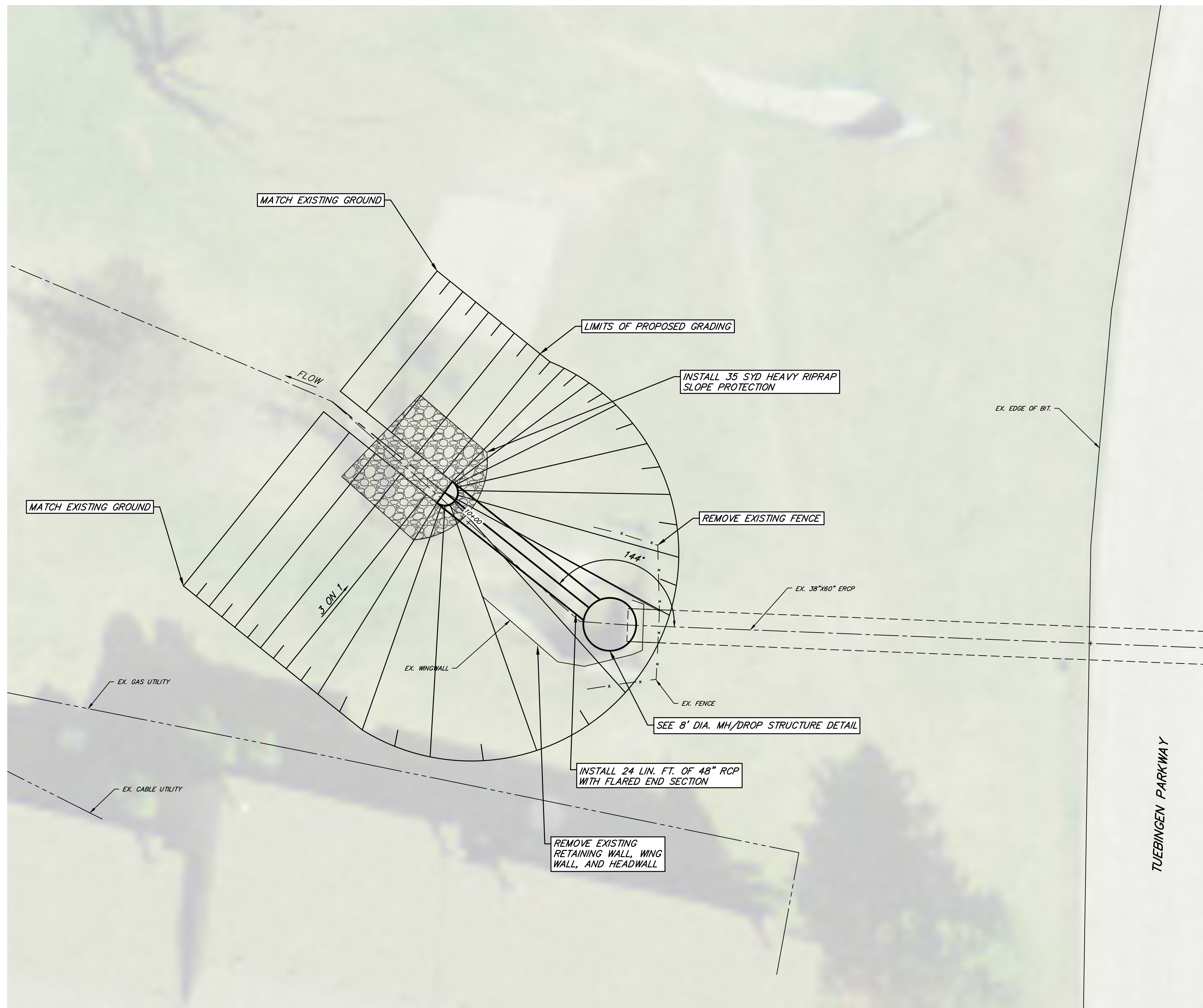
**CONSTRUCTION NOTES**

1. STATIONING ON PROFILE FOLLOWS DRAIN CENTERLINE.
2. CONTRACTOR TO COORDINATE INSTALLATION OF ALL SOIL EROSION CONTROL MEASURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATION, QUANTITY AND TYPE MAY VARY BASED ON FIELD CONDITIONS.
3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
4. ALL SPOILS, TREES, AND DEBRIS ARE TO BE HAULED OFF SITE BY CONTRACTOR.

**PRELIMINARY**

06/23/2020

BY	MARK	REVISIONS	DATE
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CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> OUTLET REHABILITATION STA. 1+43			
		<small>DUNDEE OFFICE            125 Helle Blvd., Suite 2            Dundee, MI 48131            Tel: 734-823-3308            www.SpicerGroup.com</small>	
DE. BY: <i>KRK</i>	CH. BY: <i>SKP</i>	PROJECT NO. <b>126140SG2018</b>	
DR. BY: <i>JCB</i>	APP. BY: <i>RAV</i>		
STDS.	SHEET <b>6</b> OF <b>13</b>	<b>DR</b> <b>6</b>	
DATE JUNE 2020	FILE NO. <b>DR-3712-06</b>		
SCALE AS SHOWN			

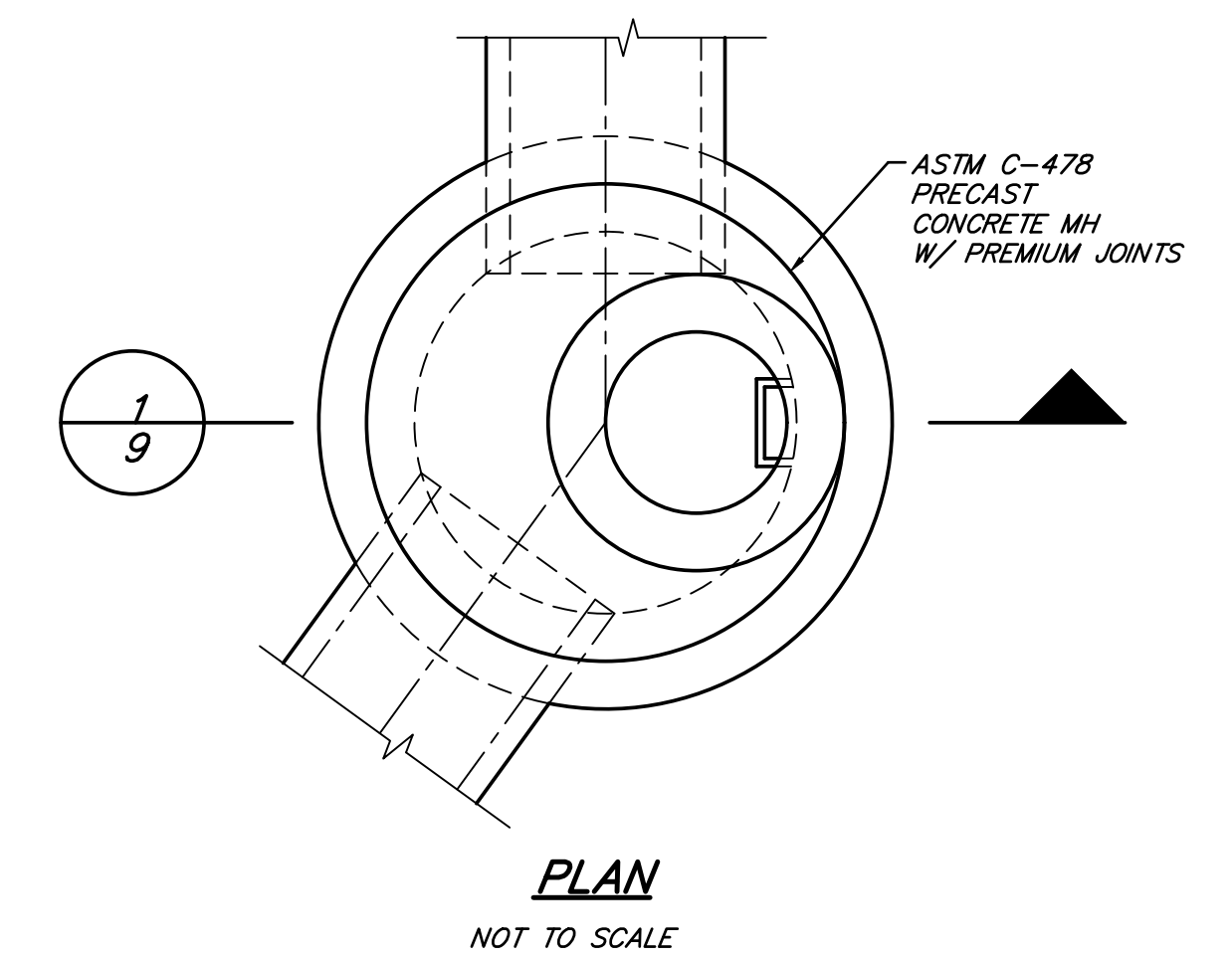


**DROP STRUCTURE DETAIL**

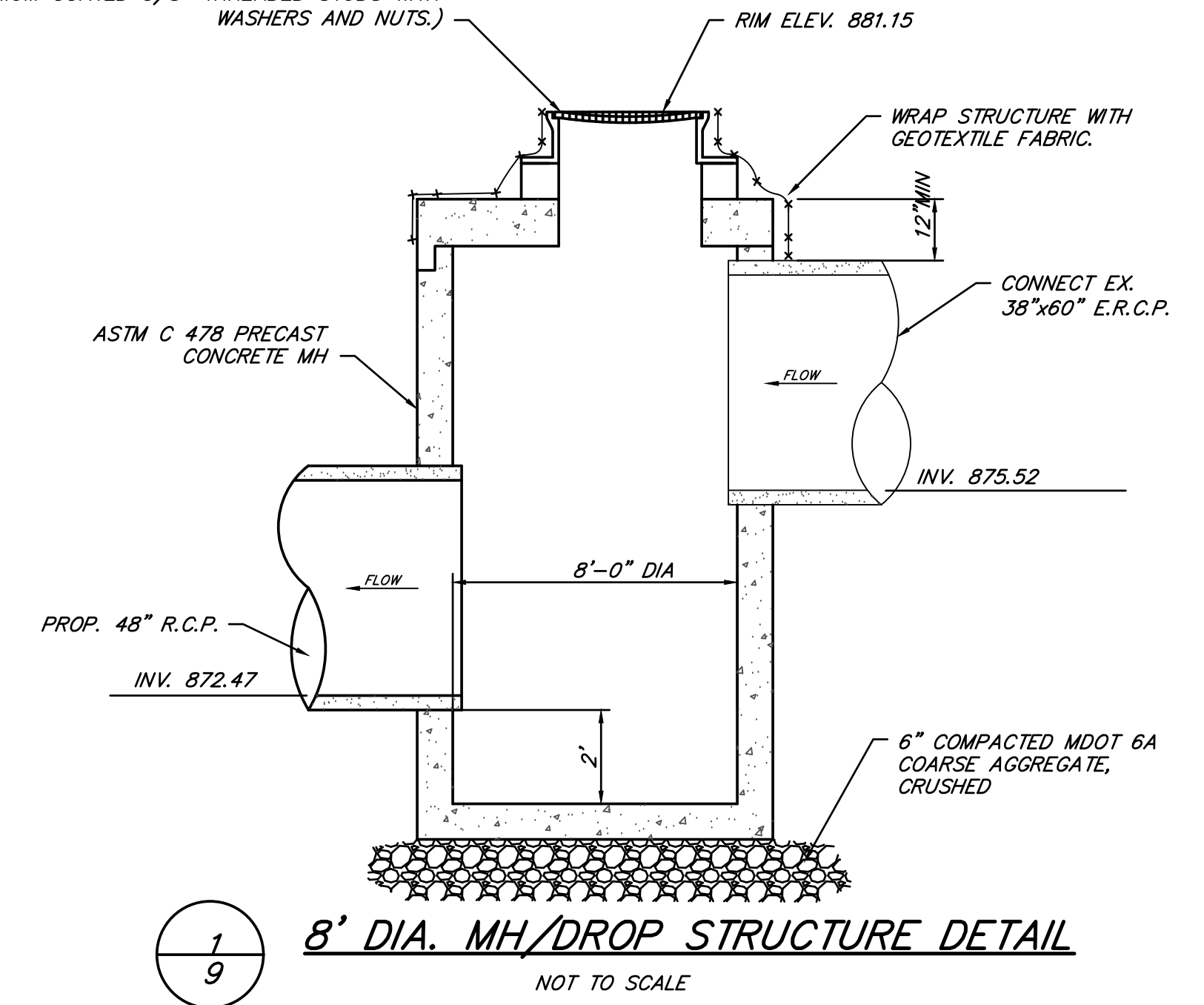
SCALE: 1" = 10'

**CONSTRUCTION NOTES**

1. STATIONING ON PROFILE FOLLOWS DRAIN CENTERLINE.
2. CONTRACTOR TO COORDINATE INSTALLATION OF ALL SOIL EROSION CONTROL MEASURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATION, QUANTITY AND TYPE MAY VARY BASED ON FIELD CONDITIONS.
3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
4. ALL SPOILS, TREES, AND DEBRIS ARE TO BE HAULED OFF SITE BY CONTRACTOR.
5. ALL PROPOSED CULVERTS BEING INSTALLED ON THE PROJECT ARE TO BE RECESSED INTO DRAIN BOTTOM AS SHOWN ON DRAIN CROSSING DETAIL.
6. OPEN CHANNEL EXCAVATION AND OPEN CHANNEL CLEANOUT DO NOT INCLUDE THE LENGTHS OF CULVERTS. CULVERT INSTALLATION, CLEANOUT AND CLEAN THROUGH TO BE PAID PER UNIT BID PRICE.



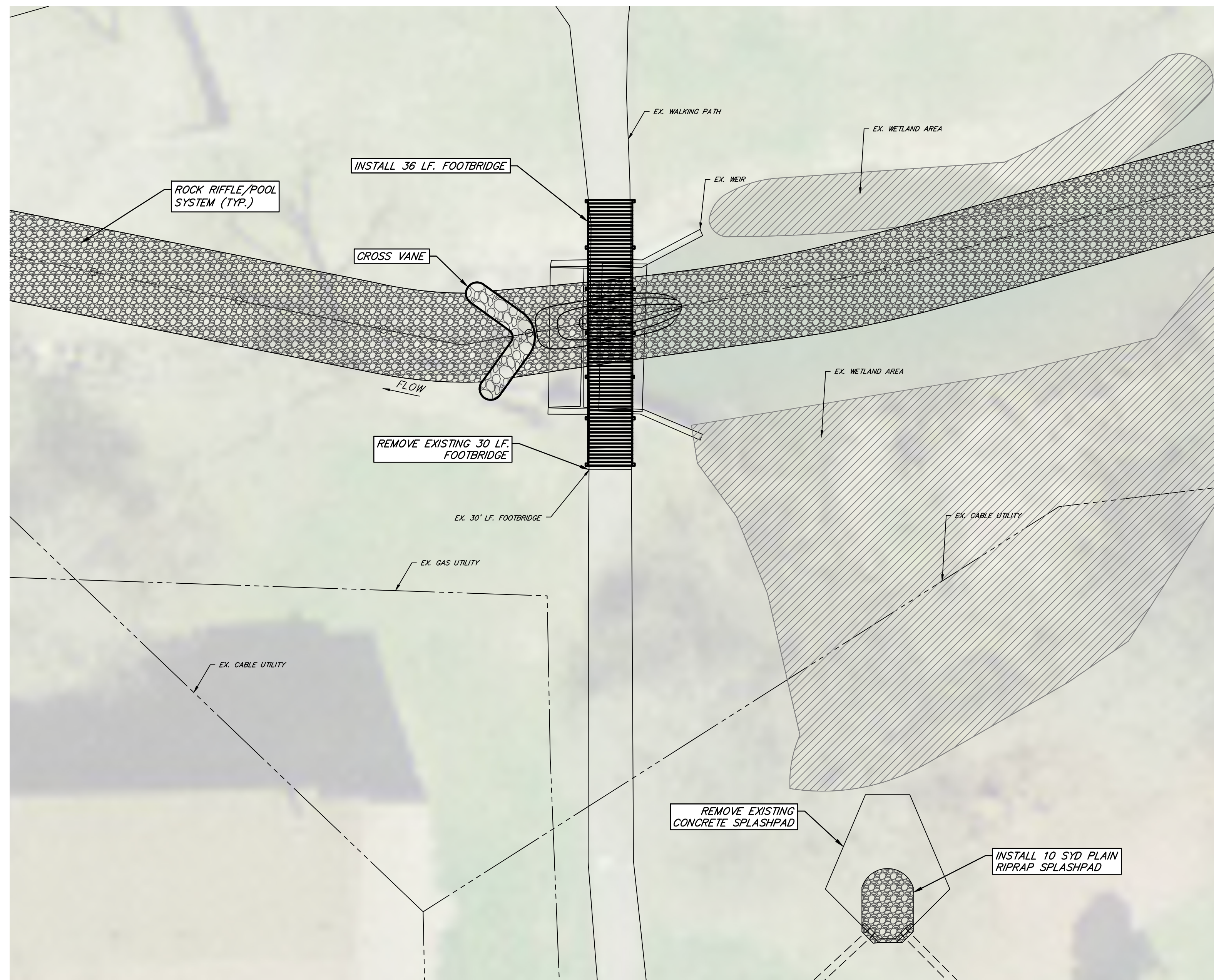
PLACE E.J.L.W. #1060 FRAME W/ VENTED COVER. (THE TOP OF THE STRUCTURE SHALL BE CLEANED, DAMPENED, AND A MINIMUM OF 1/2" BEAD OF NON-SHRINK MORTAR SHALL BE PLACED BETWEEN THE STRUCTURE, CASTING, AND GRADE RINGS OR CONCRETE BRICK. SEE PLAN SHEETS FOR RIM ELEVATIONS. BOLT CASTING TO MH WITH 4-4" CADMIUM COATED 5/8" THREADED STUDS WITH WASHERS AND NUTS.)



**PRELIMINARY**

06/23/2020

BY	MARK	REVISIONS	DATE
THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.			
CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> DROP STRUCTURE DETAIL STA 10+00			
		DUNDEE OFFICE 125 Helle Blvd, Suite 2 Dundee, MI 48131 Tel: 734-823-3308 www.SpicerGroup.com	
DE. BY: <i>KRK</i>	CH. BY: <i>SKP</i>	PROJECT NO. <b>126140SG2018</b>	
DR. BY: <i>JCB</i>	APP. BY: <i>RAY</i>		
STDS.	SHEET <b>7</b> OF <b>15</b>	<b>DR</b>	
DATE JUNE 2020	FILE NO. <b>DR-3712-07</b>	<b>7</b>	
SCALE AS SHOWN			



**WEIR REMOVAL AND FOOTBRIDGE DETAIL**  
SCALE: 1" = 10'

- CONSTRUCTION NOTES**
- STATIONING ON PROFILE FOLLOWS DRAIN CENTERLINE.
  - CONTRACTOR TO COORDINATE INSTALLATION OF ALL SOIL EROSION CONTROL MEASURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATION, QUANTITY AND TYPE MAY VARY BASED ON FIELD CONDITIONS.
  - CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
  - ALL SPOILS, TREES, AND DEBRIS ARE TO BE HAULED OFF SITE BY CONTRACTOR.
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  - OPEN CHANNEL EXCAVATION AND OPEN CHANNEL CLEANOUT DO NOT INCLUDE THE LENGTHS OF CULVERTS. CULVERT INSTALLATION, CLEANOUT AND CLEAN THROUGH TO BE PAID PER UNIT BID PRICE.

**FOOTBRIDGE CONSTRUCTION NOTES**

ALL TIMBER FOR THE FOOT BRIDGE AND HANDRAIL SYSTEM SHALL BE #1 SOUTHERN YELLOW PINE. MOISTURE CONTENT SHALL NOT EXCEED 19 PERCENT. ALL SUBSTRUCTURE 6" X 6" TIMBER SHALL BE PRESSURE TREATED WITH TO A MINIMUM PENETRATION OF 0.60. AND ALL OTHER TIMBER PRESSURE TREATED TO A MINIMUM PENETRATION OF 0.40. ALL TIMBER FOR SHALL BE TREATED IN ACCORDANCE WITH AWPA U1 (SPECIFICATIONS A OR F). AREAS OF TIMBER THAT ARE FIELD CUT, DRILLED OR MACHINED SHALL RECEIVE TWO COATS OF APPROVED BRUSH ON PRESERVATIVE. SIX MONTHS AFTER FOOT BRIDGE COMPLETION THE CONTRACTOR SHALL APPLY ONE COAT OF AN APPROVED WOOD SEALER.

PRE DRILL HOLES IN TIMBER FOR LAG SCREWS AS NECESSARY.

ALL LAG AND TURN BOLTS SHALL BE HOT DIPPED GALVANIZED.

ALL DECK SCREWS SHALL BE STAINLESS STEEL.

ALL ANCHOR BOLTS SHALL BE STAINLESS STEEL.

DECK BOARDS SHALL SPAN PERPENDICULAR TO THE DIRECTION OF THE TRAVELED WAY AND BE CONTINUOUS WITH NO SPLICES ALLOWED. DECK BOARDS SHALL BE ATTACHED WITH 3 DECK SCREWS AT EACH POINT OF CONTACT.

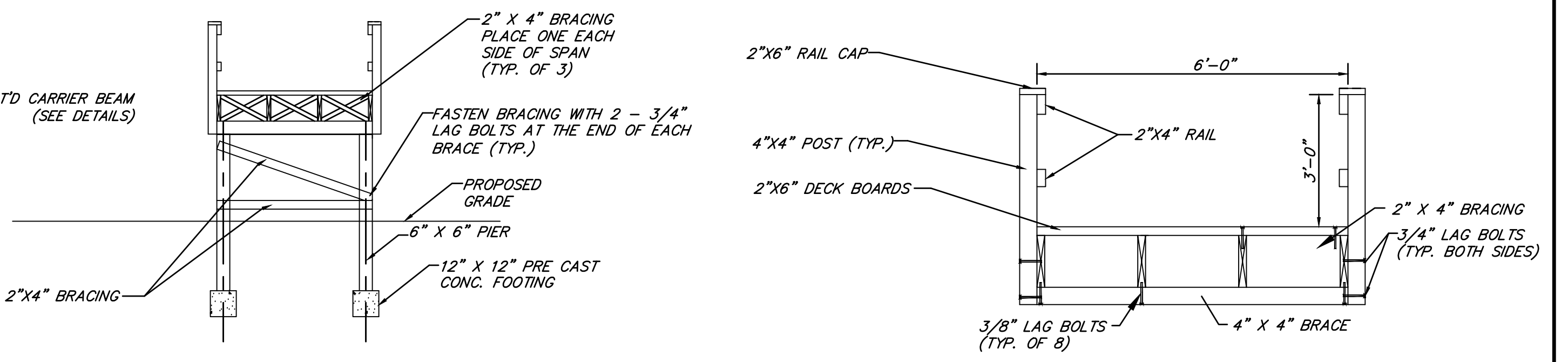
HANDRAIL RAILS SHALL ONLY BE SPLICED AT A VERTICAL POST LOCATION AND SHALL BE STAGGERED.

CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS ON BRIDGE SYSTEM TO ENGINEER FOR REVIEW.

CONTRACTOR TO FIELD VERIFY FOOTBRIDGE DIMENSION SCHEDULE WITH ENGINEER PRIOR TO FABRICATION OF FOOTBRIDGES.

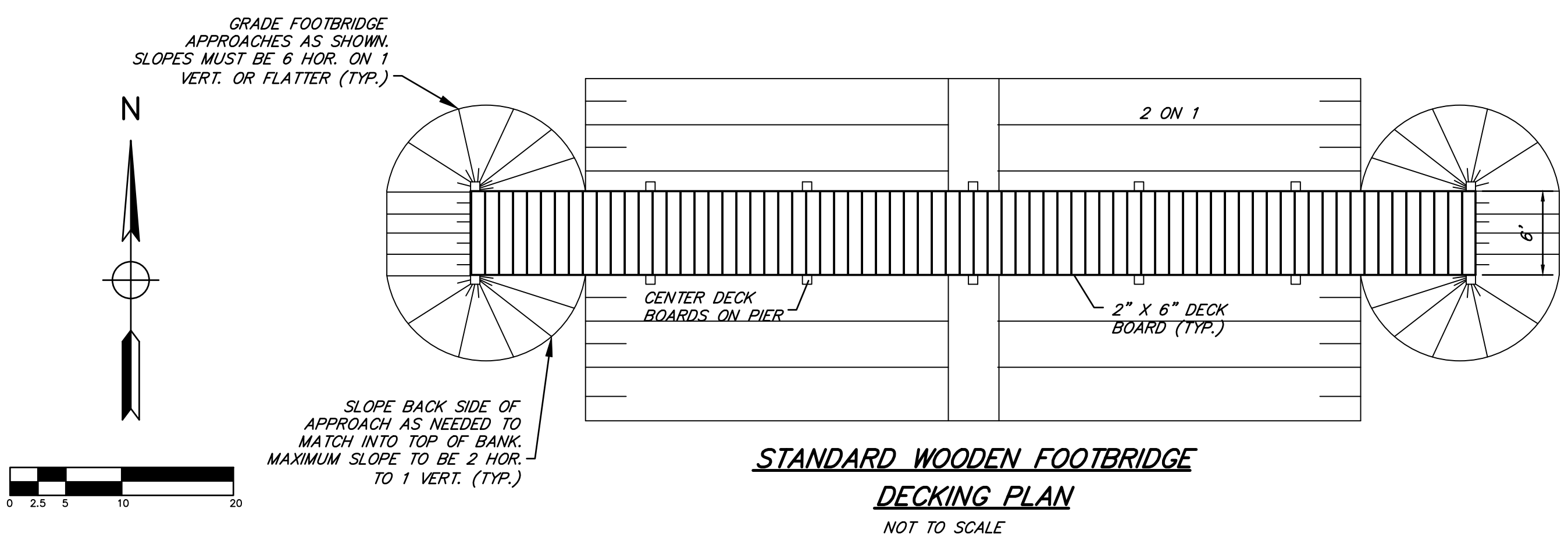
FOOTBRIDGE LOW CHORD IS TO MATCH HIGHEST TOP OF BANK. GRADE OPPOSITE BANK AS NEEDED TO MATCH THE HIGH TOP OF BANK ELEVATION.

FOOTBRIDGE HAS BEEN DESIGNED FOR PEDESTRIAN LOADING WITH A UNIFORM LIVE LOAD OF 85 PSF. CONTRACTOR SHALL FIELD VERIFY MINIMUM SOIL BEARING CAPACITY OF 1500 PSF.

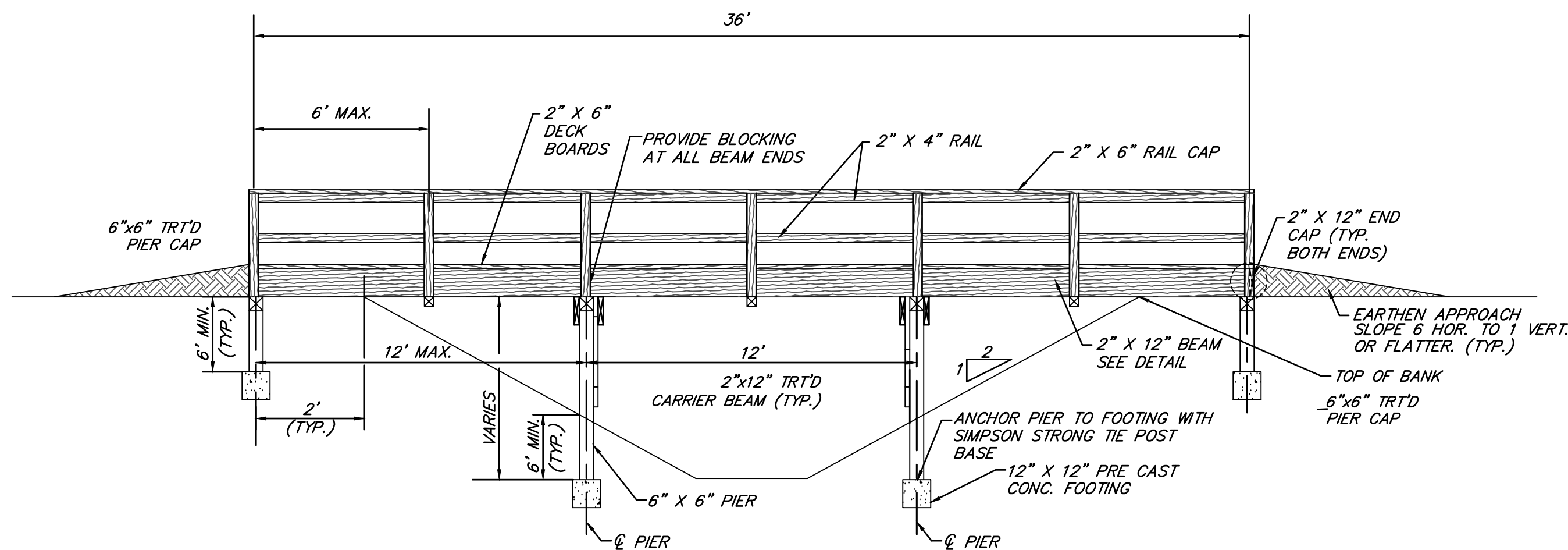


**PIER ELEVATION**  
NOT TO SCALE

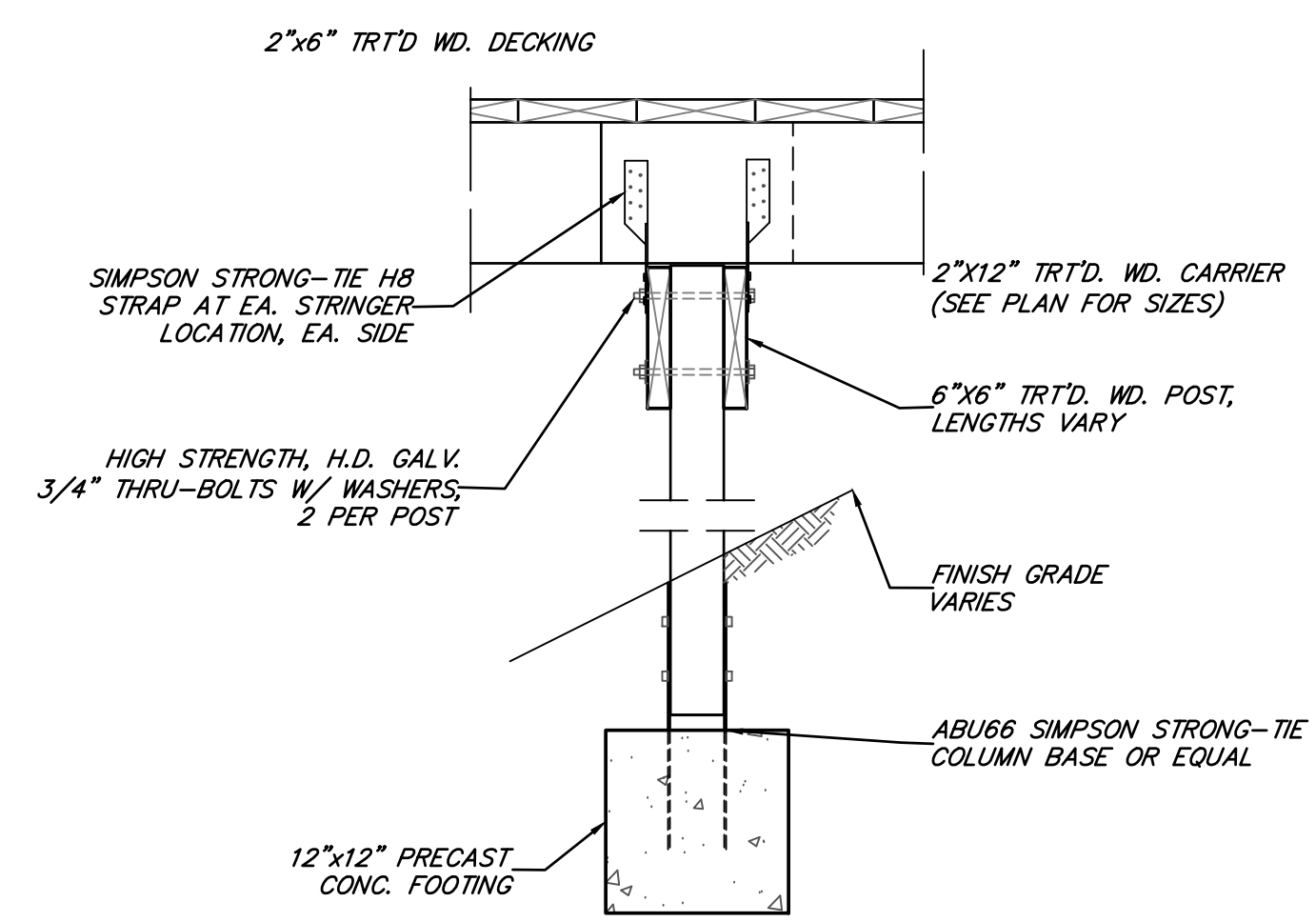
**RAILING DETAIL**  
NOT TO SCALE



**STANDARD WOODEN FOOTBRIDGE DECKING PLAN**  
NOT TO SCALE



**STANDARD WOODEN FOOTBRIDGE ELEVATION**  
NOT TO SCALE

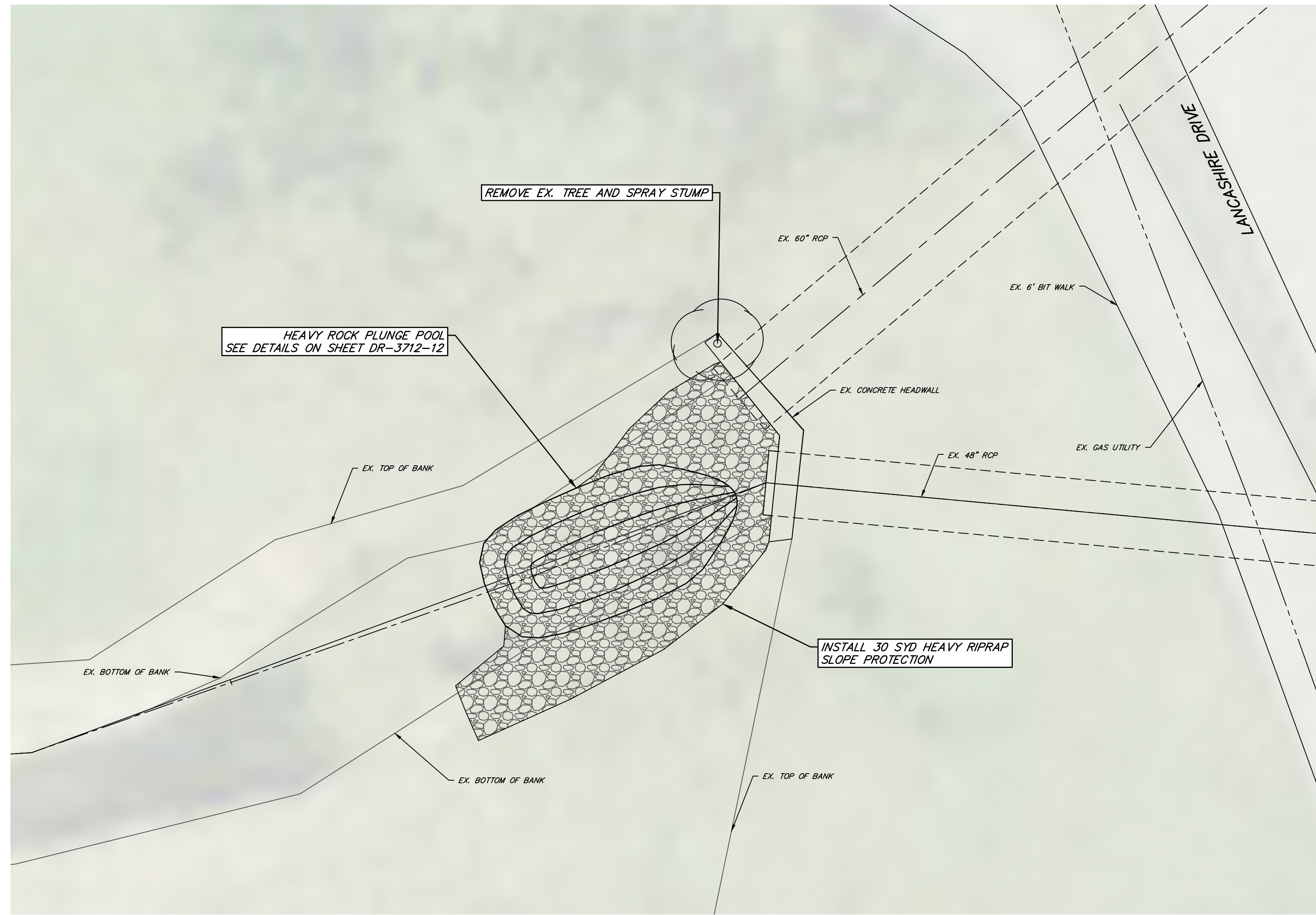


**TYP. POST & BEAM DETAIL AT PIERS**  
NOT TO SCALE

**PRELIMINARY**

06/23/2020

BY	MARK	REVISIONS	DATE
<p>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</p>			
<p>CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN</p>			
<p><b>TRAVER LAKES STABILIZATION</b> WEIR REMOVAL AND FOOTBRIDGE DETAIL STA 16+63</p>			
		<p>DUNDEE OFFICE 125 Helle Blvd, Suite 2 Dundee, MI 48131 Tel: 734-928-3308 www.SpicerGroup.com</p>	
DE. BY: RJR	CH. BY: SKR	PROJECT NO.	
DR. BY: JCB	APP. BY: RAV	126140SG2018	
STDS.	SHEET 8 OF 13	DR	
DATE	JUNE 2020	FILE NO.	8
SCALE	AS SHOWN	DR-3712-08	



**PLUNGE POOL DETAIL**

SCALE: 1" = 10'

**CONSTRUCTION NOTES**

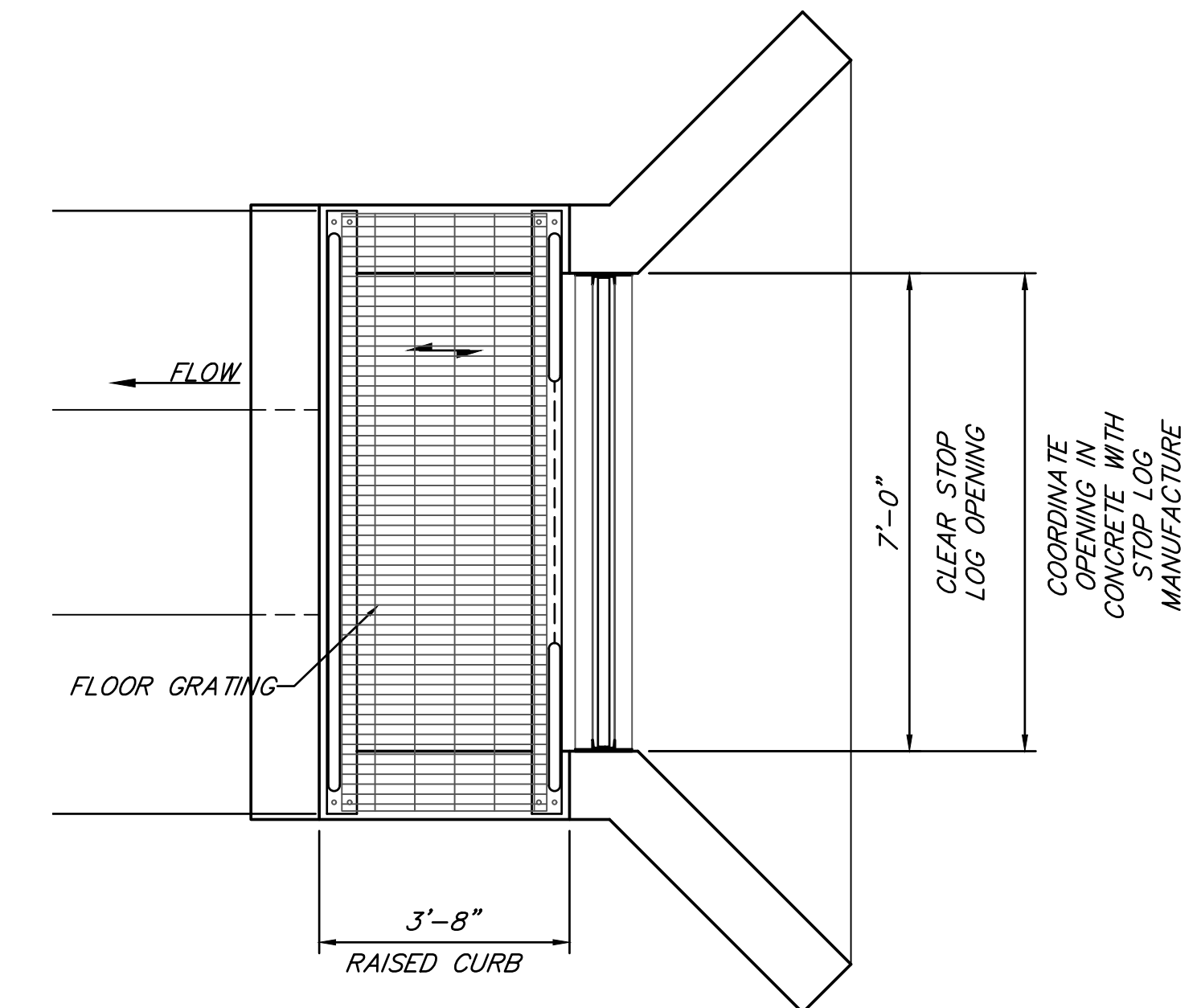
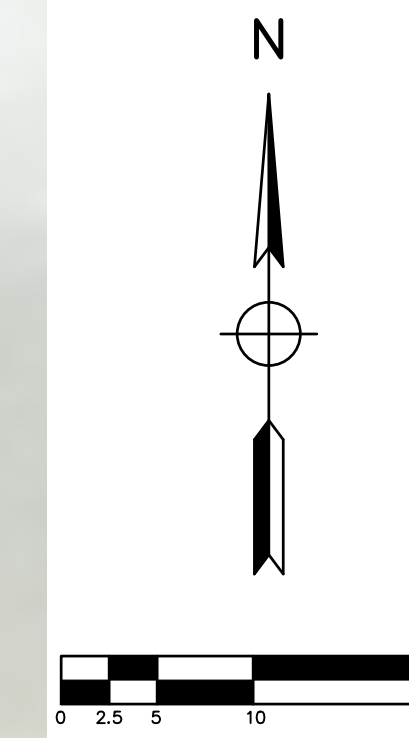
1. STATIONING ON PROFILE FOLLOWS DRAIN CENTERLINE.
2. CONTRACTOR TO COORDINATE INSTALLATION OF ALL SOIL EROSION CONTROL MEASURES WITH ENGINEER PRIOR TO CONSTRUCTION. LOCATION, QUANTITY AND TYPE MAY VARY BASED ON FIELD CONDITIONS.
3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
4. ALL SPOILS, TREES, AND DEBRIS ARE TO BE HAULED OFF SITE BY CONTRACTOR.
5. ALL PROPOSED CULVERTS BEING INSTALLED ON THE PROJECT ARE TO BE RECESSED INTO DRAIN BOTTOM AS SHOWN ON DRAIN CROSSING DETAIL.
6. OPEN CHANNEL EXCAVATION AND OPEN CHANNEL CLEANOUT DO NOT INCLUDE THE LENGTHS OF CULVERTS. CULVERT INSTALLATION, CLEANOUT AND CLEAN THROUGH TO BE PAID PER UNIT BID PRICE.

**PRELIMINARY**

06/23/2020

BY	MARK	REVISIONS	DATE
<small>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREIN IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</small>			
CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> PLUNGE POOL DETAIL STA 23+25			
		<small>DUNDEE OFFICE            125 Helle Blvd, Suite 2            Dundee, MI 48131            Tel: 734-829-3308            www.SpicerGroup.com</small>	
DE. BY: <i>RJR</i>	CH. BY: <i>SKR</i>	PROJECT NO. 126140SG2018	
DR. BY: <i>JCB</i>	APP. BY: <i>RAV</i>		
STDS.	SHEET 9 OF 13	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>DR</b>  <b>9</b> </div>	
DATE JUNE 2020	FILE NO. DR-3712-09		
SCALE AS SHOWN			

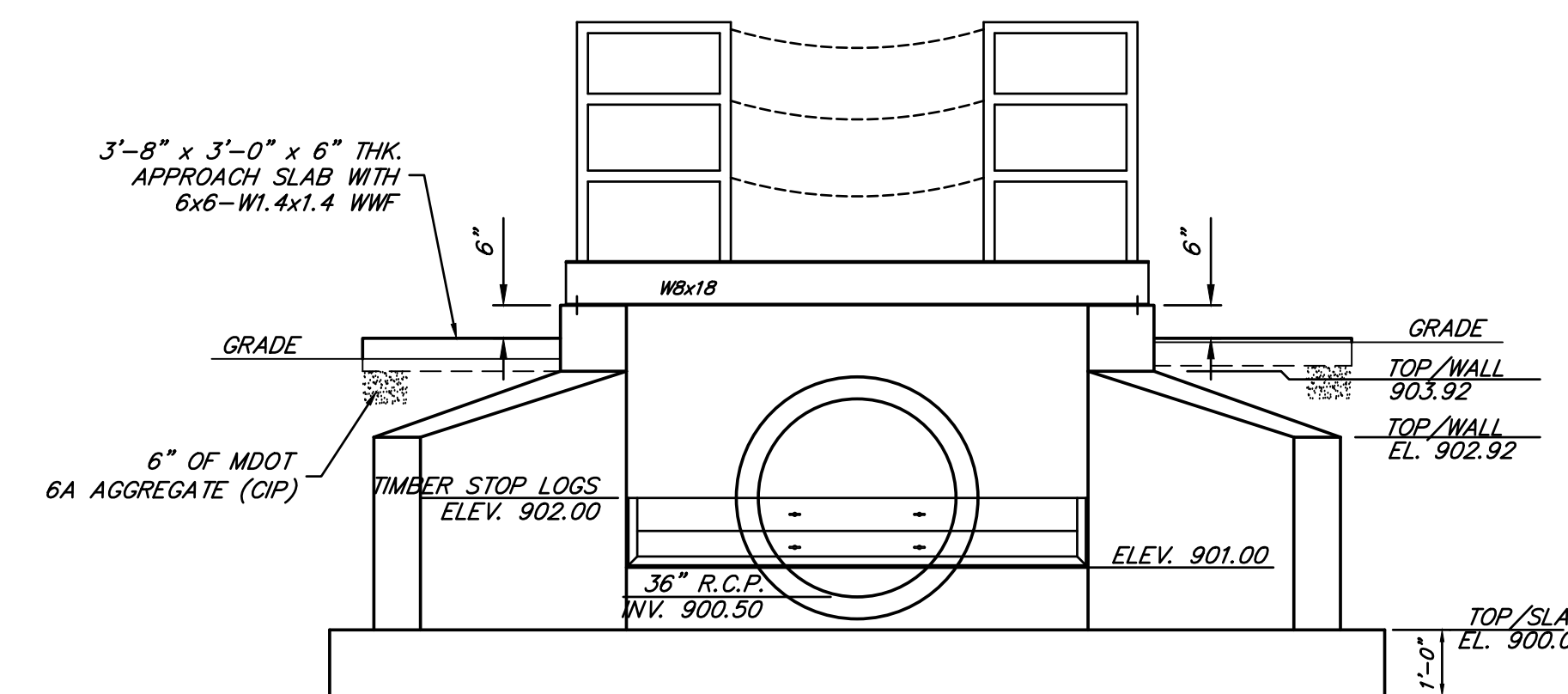
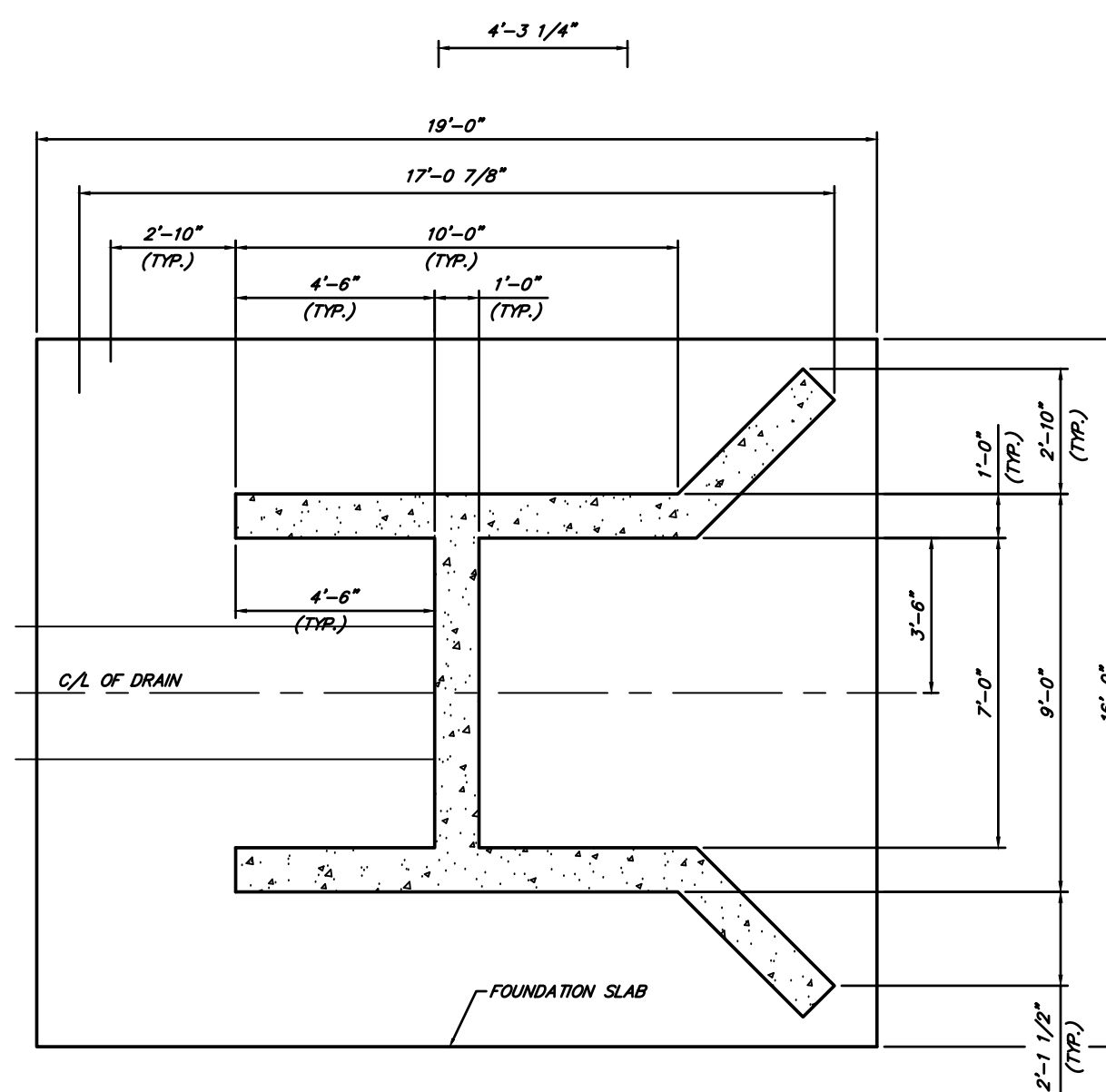




**OUTLET CONTROL STRUCTURE DETAIL**

SCALE: 1" = 10'

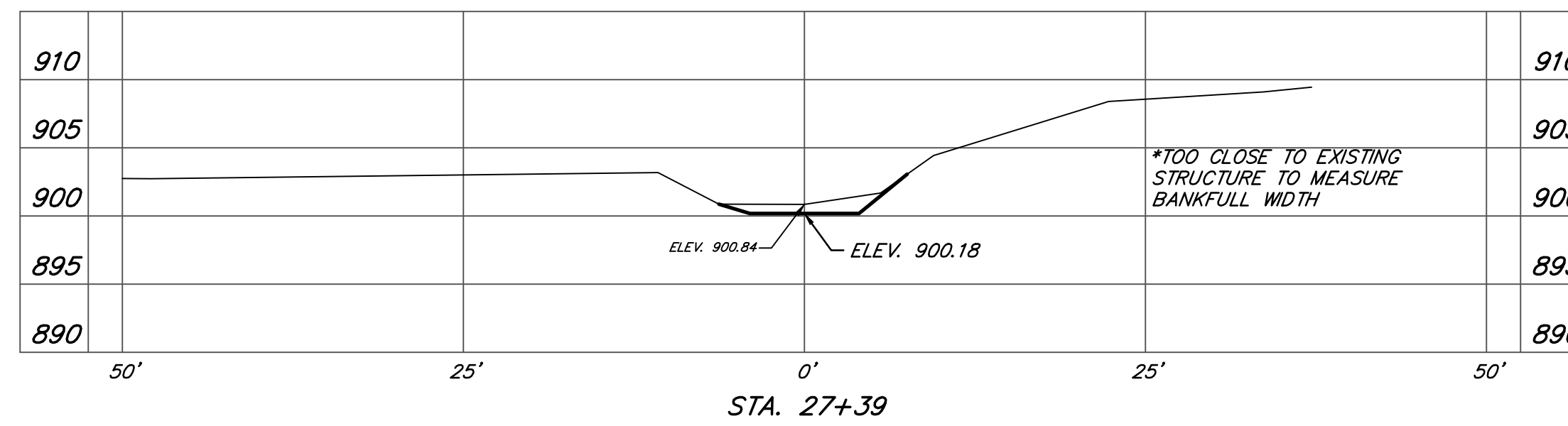
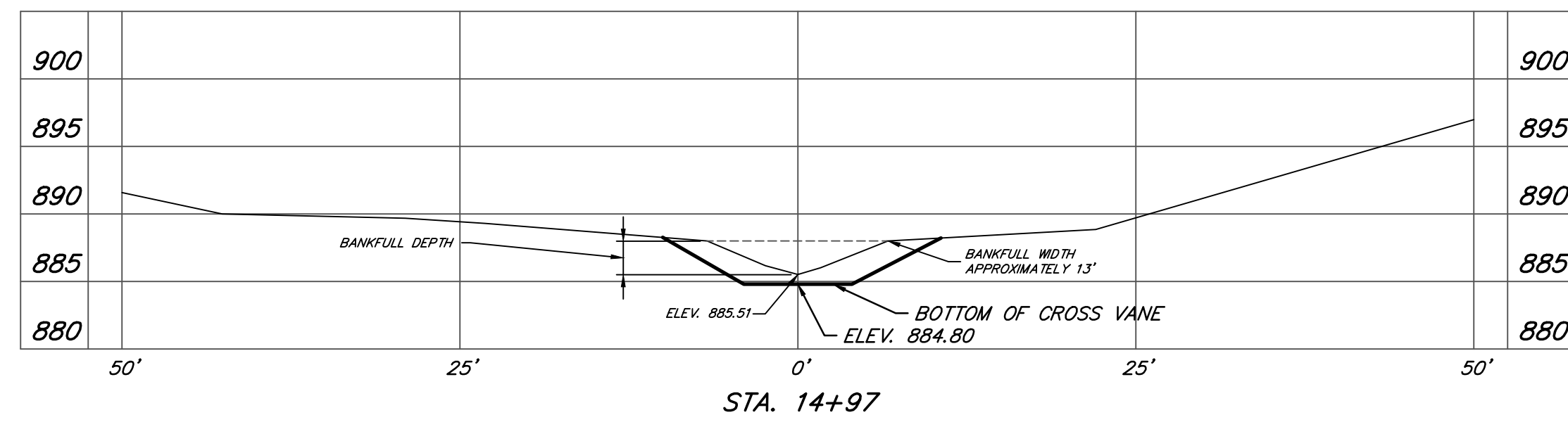
- CONSTRUCTION NOTES**
- COST FOR TEMPORARY COFFERDAM AND DEWATERING INCLUDED IN OUTLET CONTROL STRUCTURE COST.



**PRELIMINARY**

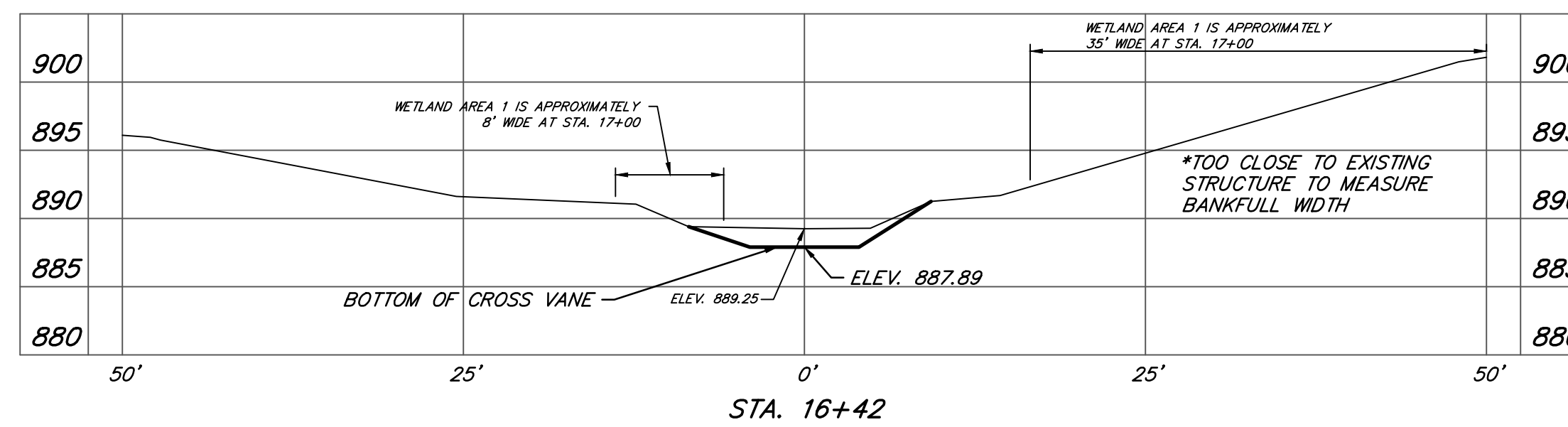
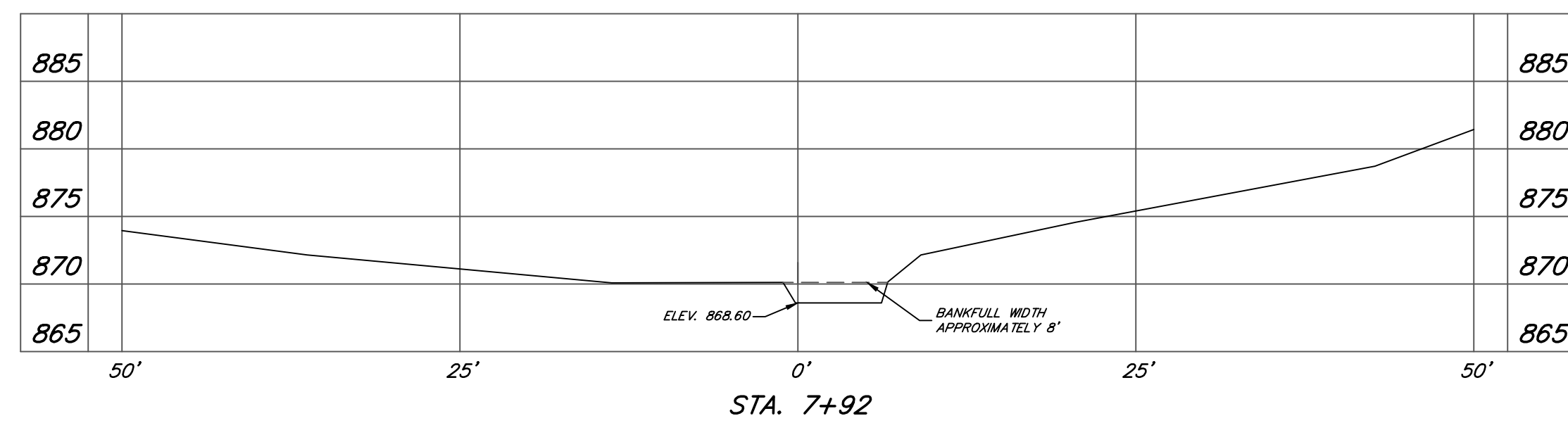
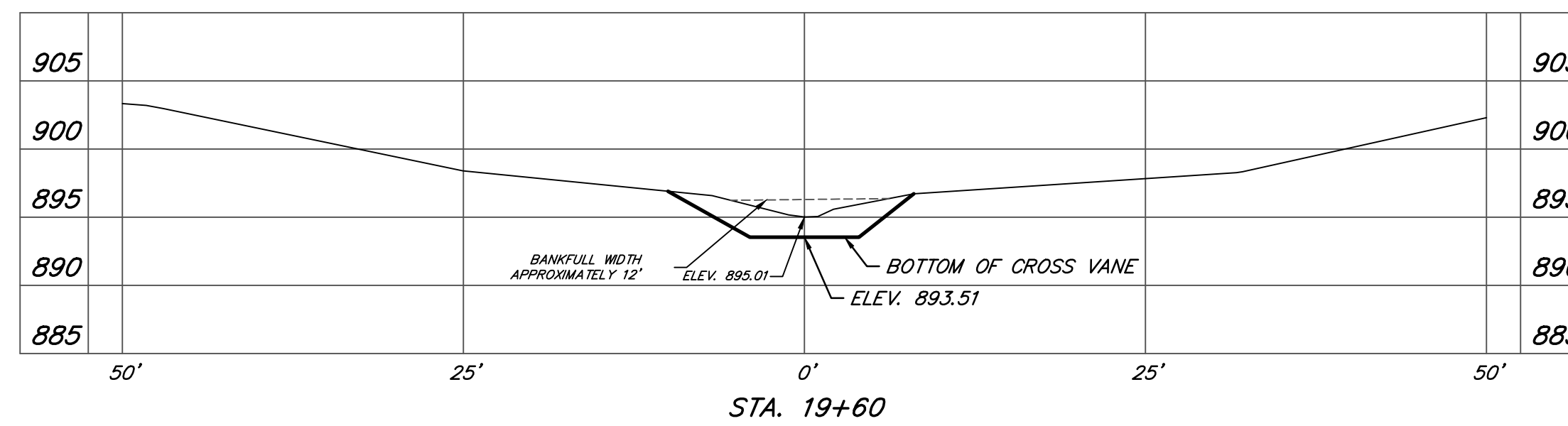
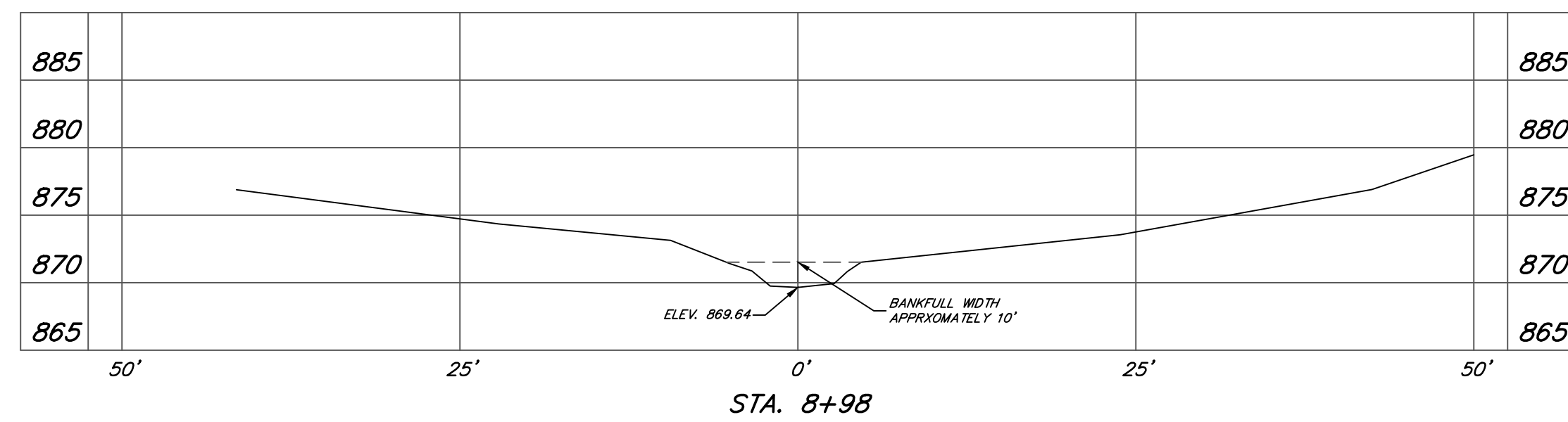
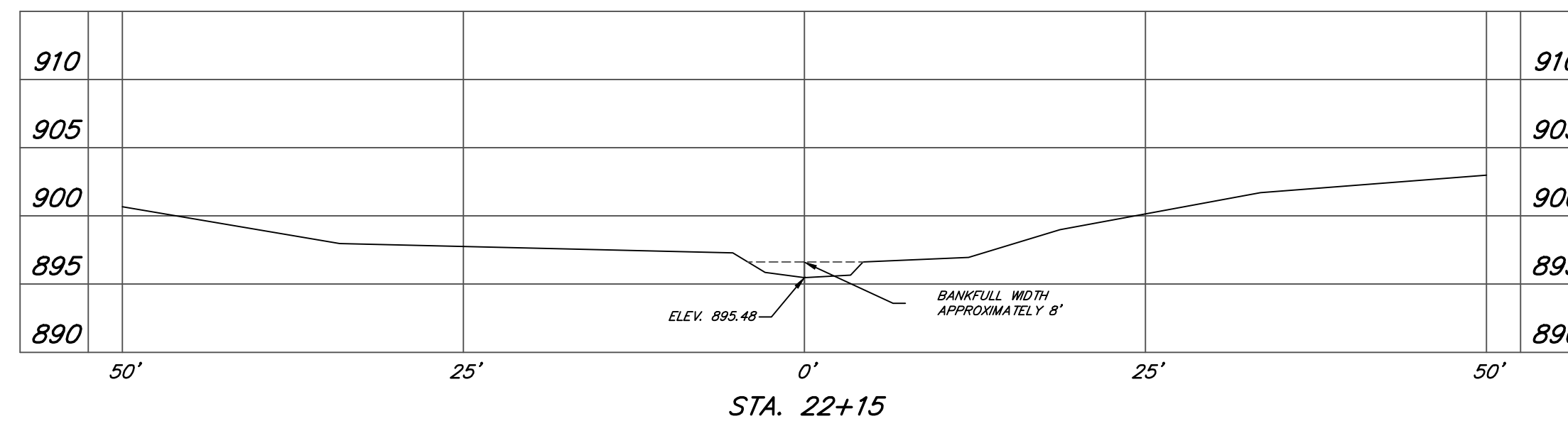
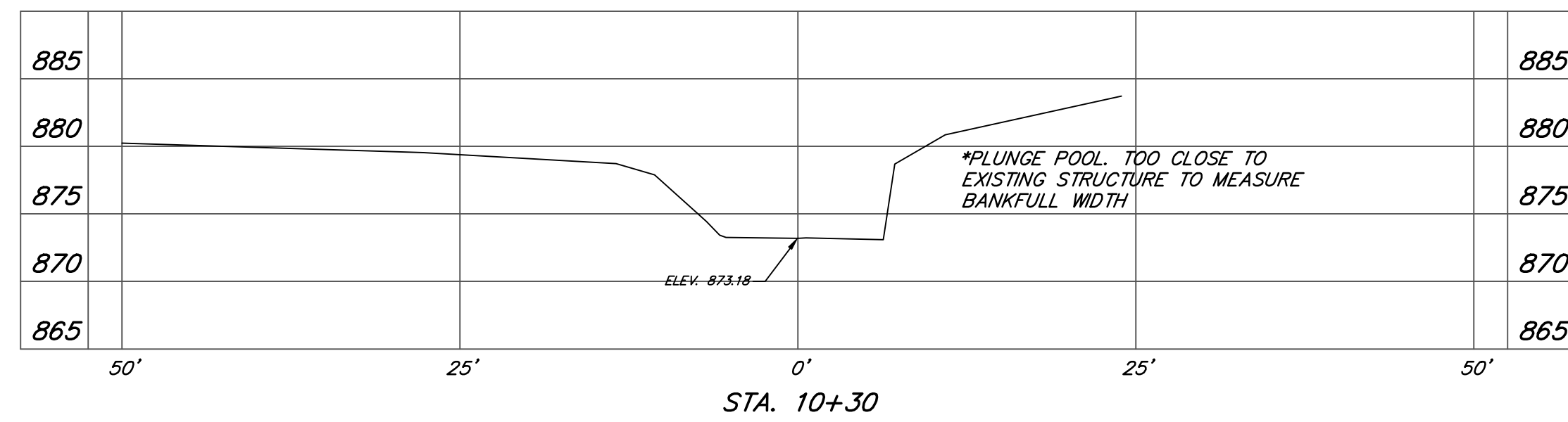
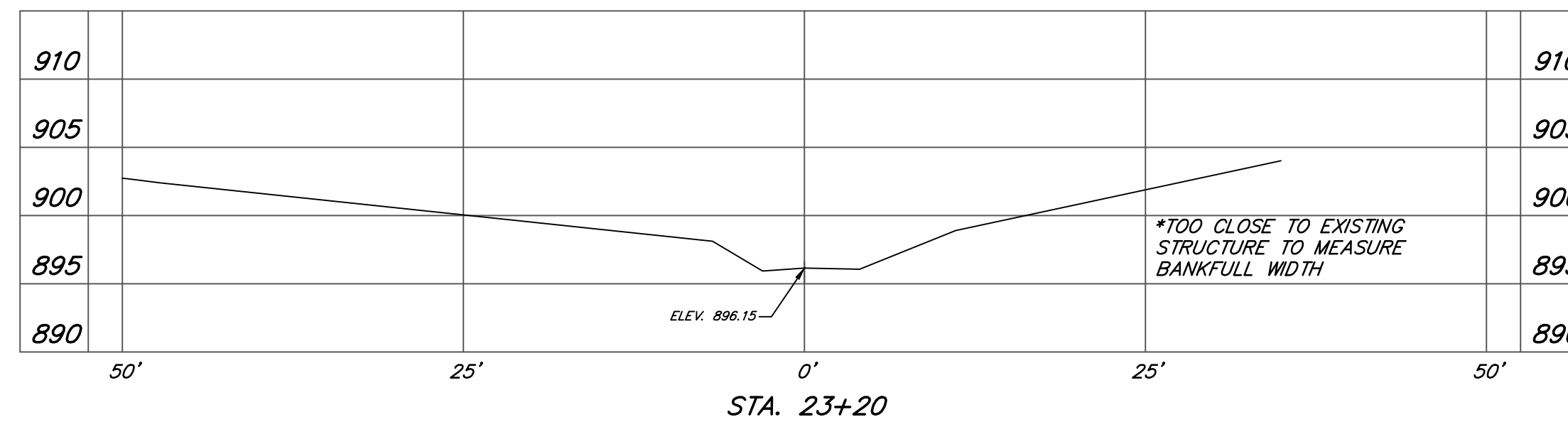
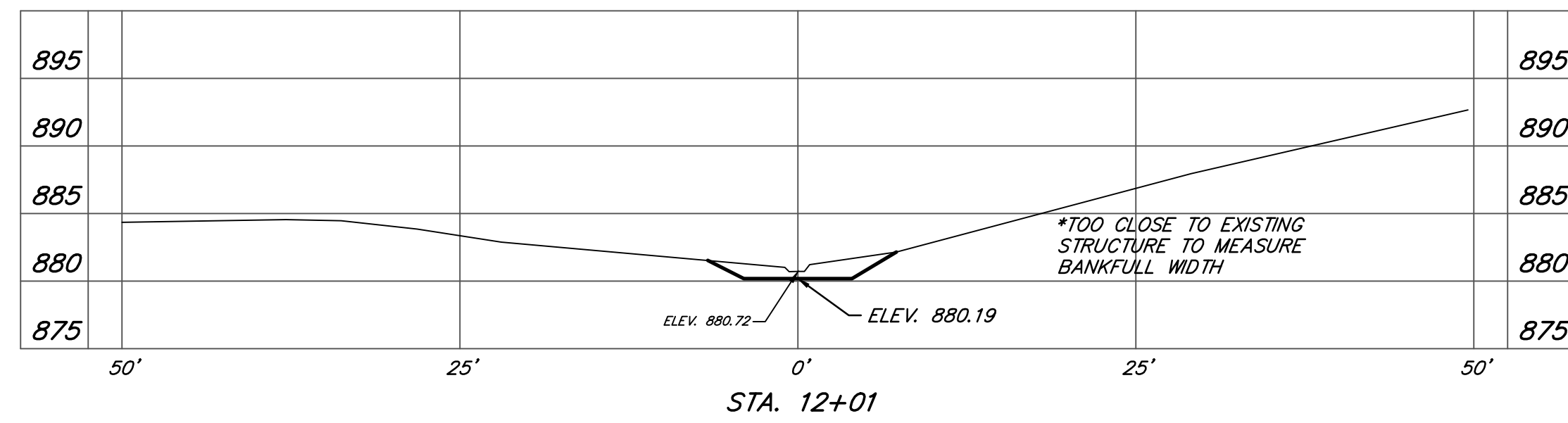
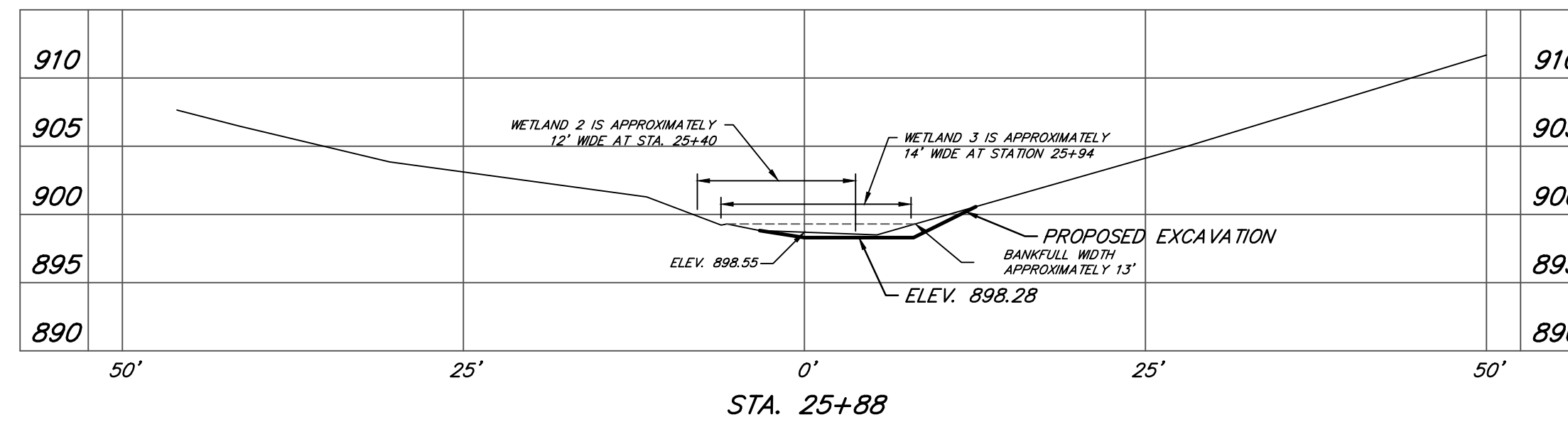
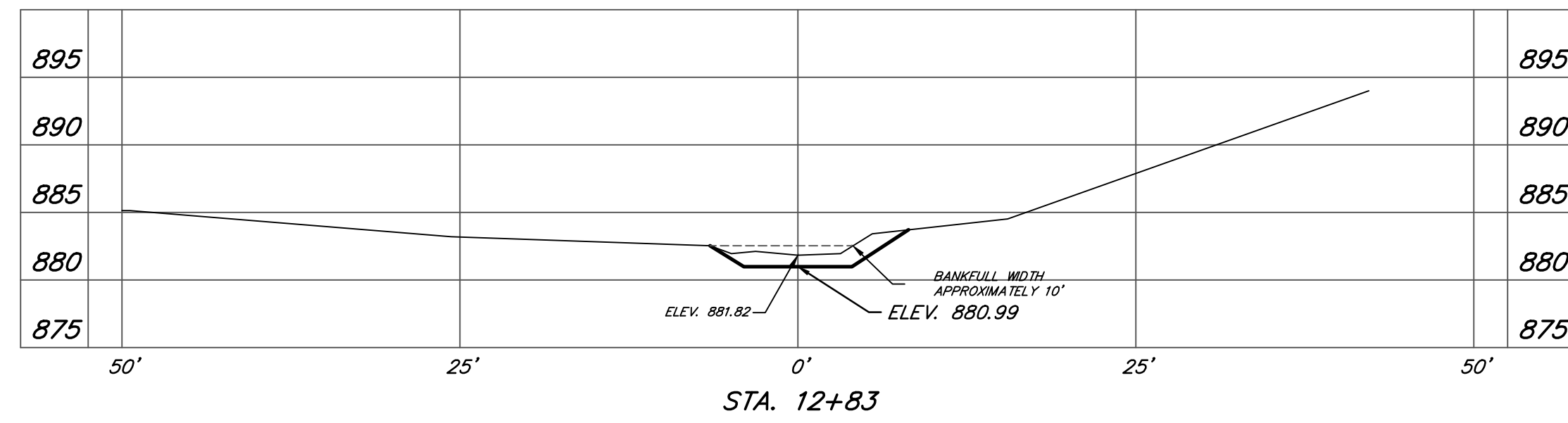
06/23/2020

BY	MARK	REVISIONS	DATE
<small>THE WORK REPRESENTED BY THIS DRAWING WAS DESIGNED BY THE ENGINEER FOR THIS SPECIFIC APPLICATION AND SPECIFIC LOCATION DESCRIBED HEREON IN ACCORDANCE WITH THE CONDITIONS PREVALENT AT THE TIME THE DESIGN WAS DONE. THE ENGINEER DOES NOT GUARANTEE AND WILL NOT BE LIABLE FOR ANY OTHER LOCATION, CONDITION, DESIGN OR PURPOSE.</small>			
CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN			
<b>TRAVER LAKES STABILIZATION</b> OUTLET CONTROL STRUCTURE DETAIL STA 27+75			
		<small>DUNDEE OFFICE                  125 Helle Blvd., Suite 2                  Dundee, MI 48131                  Tel: 734-823-3308                  www.SpicerGroup.com</small>	
DE. BY: <i>KRK</i>	CH. BY: <i>SKR</i>	PROJECT NO. <b>126140SG2018</b>	
DR. BY: <i>JCB</i>	APP. BY: <i>RAY</i>		
STDS.	SHEET <b>10</b> OF <b>13</b>	<b>DR</b> <b>10</b>	
DATE JUNE 2020	FILE NO. <b>DR-3712-10</b>		
SCALE AS SHOWN			



BANKFULL CROSS SECTIONAL AREA	
STATION	EXISTING
7+92	10.7 SFT
8+98	12.0 SFT
12+83	5.4 SFT
14+97*	18 SFT
19+60*	12.2 SFT
22+15	7.2 SFT
25+88	7.3 SFT

\*A CROSS VANE IS PROPOSED AT THIS LOCATION. CROSS VANE DETAIL IS SHOWN ON SHEET 12.



**PRELIMINARY**

10/5/2020

RJR	EGL PERMIT SUBMITTAL	10/2020
RJR	EGL PERMIT SUBMITTAL	8/2020
BY	MARK	REVISIONS DATE

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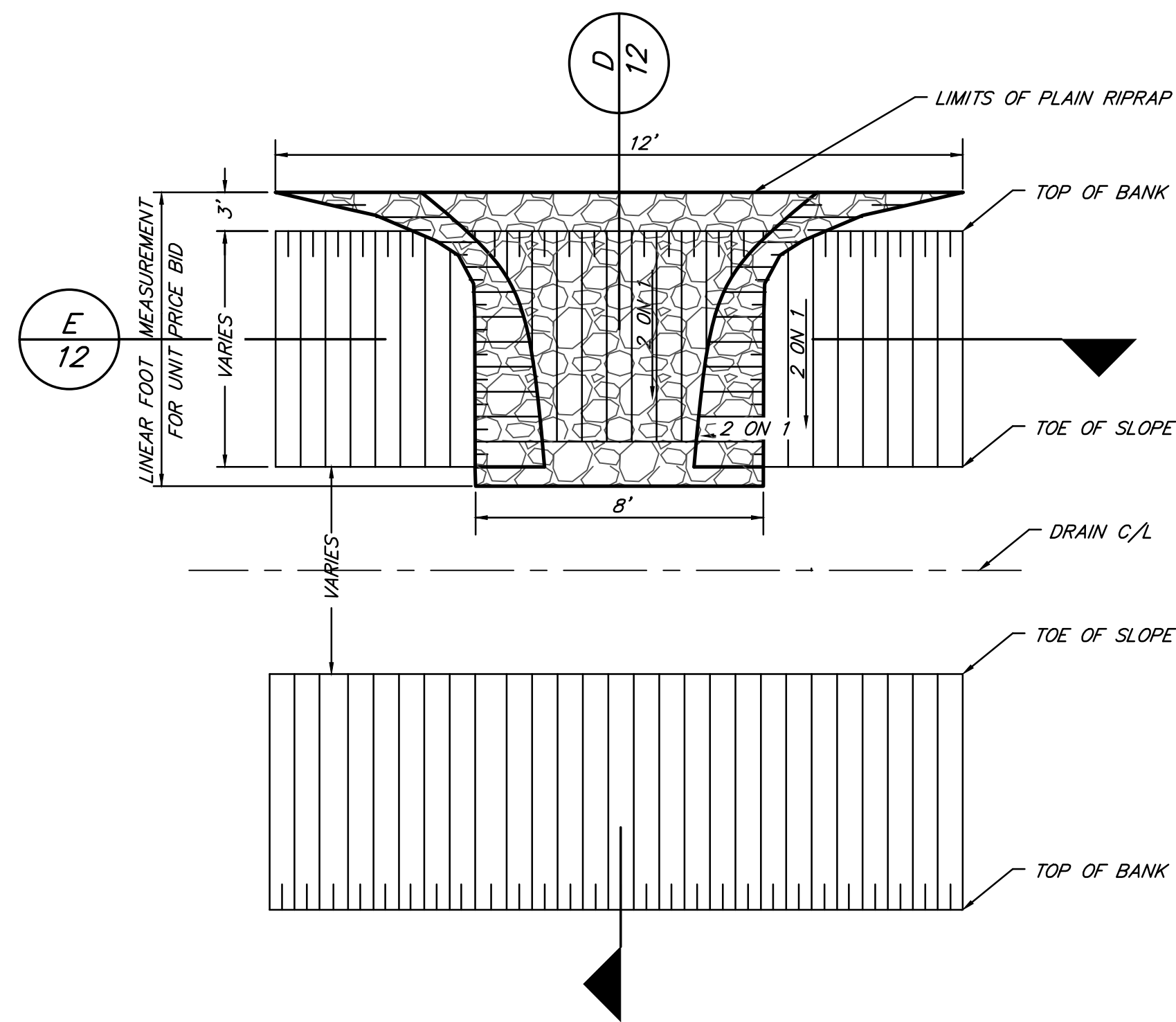
CITY OF ANN ARBOR  
WASHTENAW COUNTY, MICHIGAN

**TRAVER LAKES STABILIZATION  
CROSS SECTIONS  
STA. 7+92 TO STA. 27+39**

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Tel: 734-823-3308  
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DE. BY: KRK CH. BY: SKR PROJECT NO. 126140SG2018  
DR. BY: JCB APP. BY: RAV

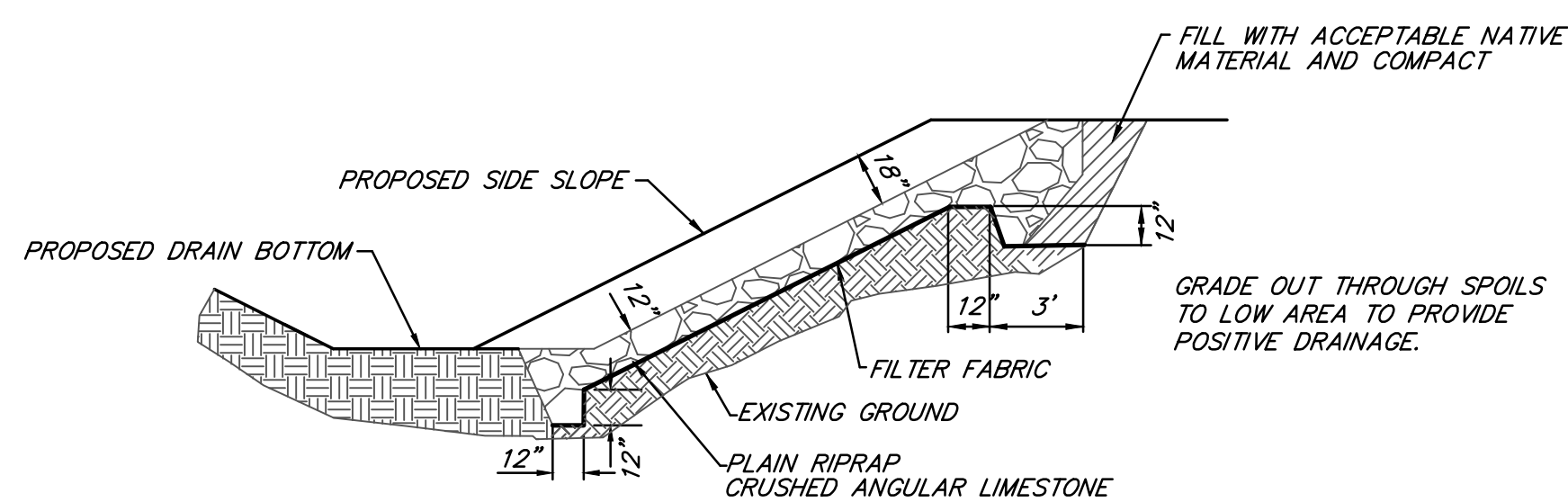
SHEETS: 11 OF 13 DR 11  
DATE: AUGUST 2020 FILE NO. DR-3712-11  
SCALE: 1"=100' V: 1"=10'



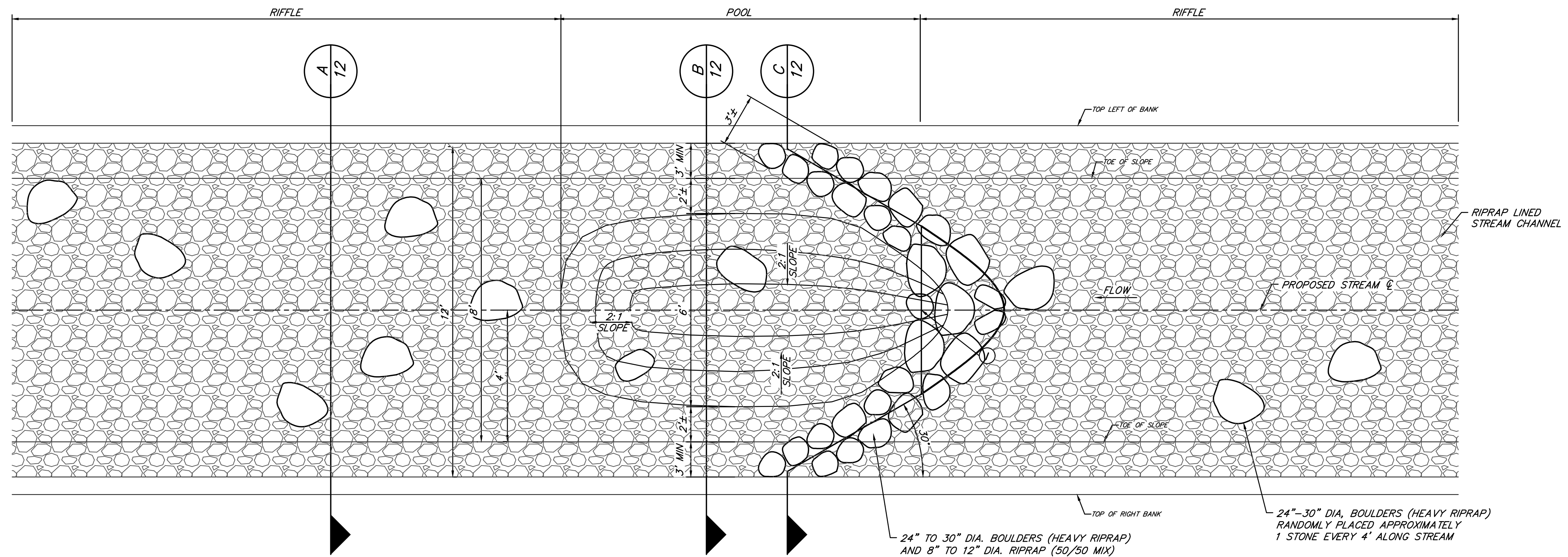
**PLAIN RIPRAP SPILLWAY  
PLAN VIEW**  
NOT TO SCALE



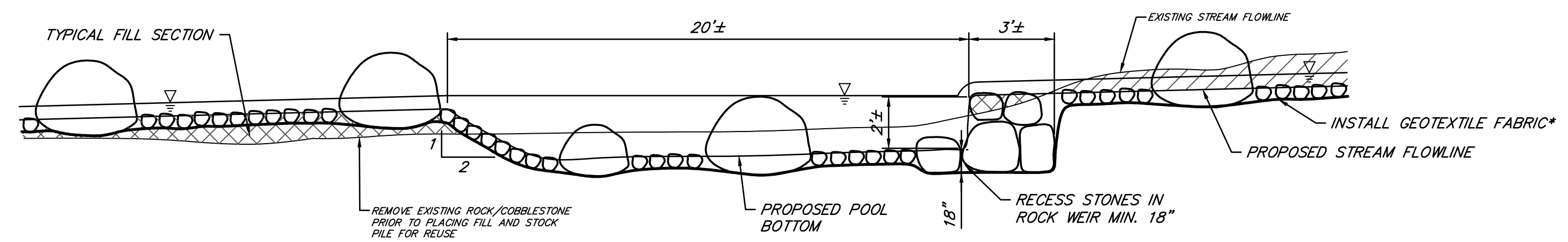
**PLAIN RIPRAP SPILLWAY  
CROSS SECTION**



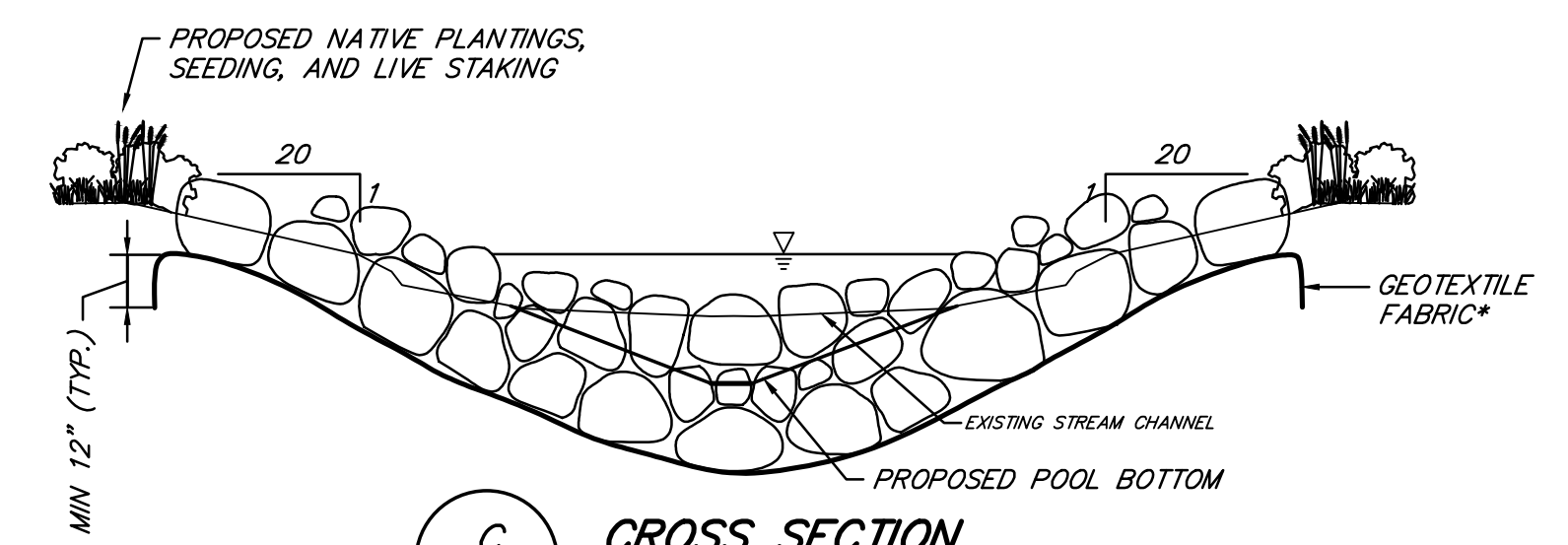
**PLAIN RIPRAP SPILLWAY  
CROSS SECTION**



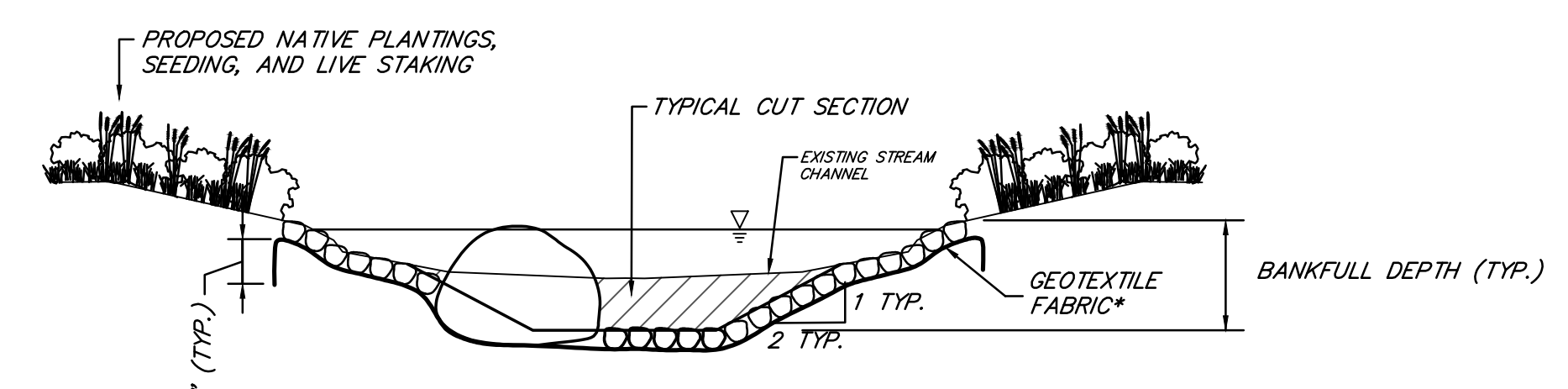
**RIFFLE/POOL TYPICAL PLAN**  
NOT TO SCALE



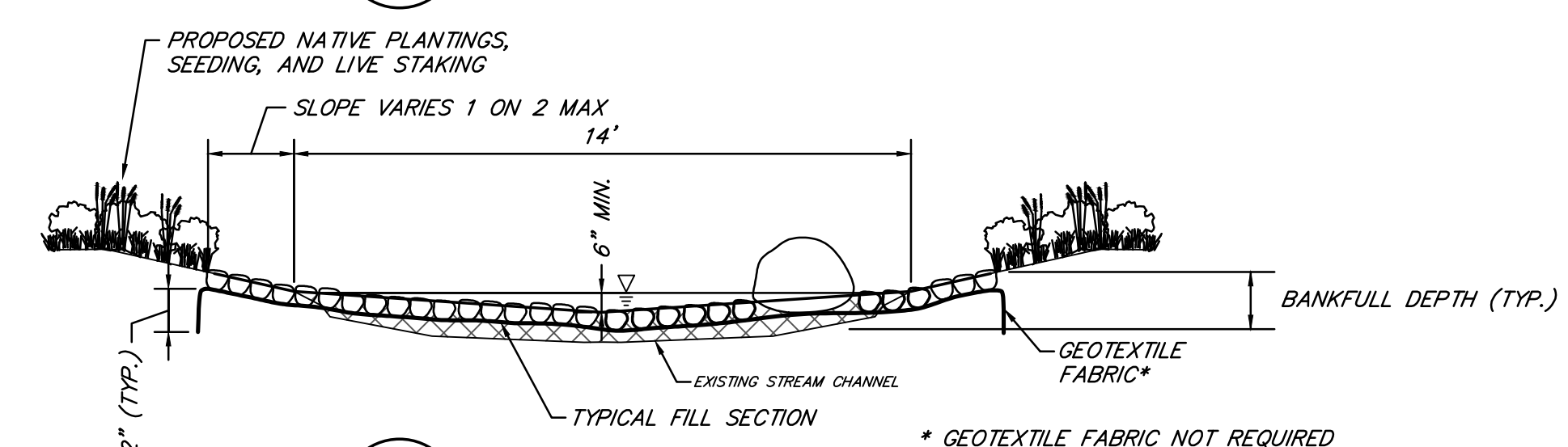
**RIFFLE/POOL PROFILE**  
NOT TO SCALE



**CROSS SECTION  
C**  
NOT TO SCALE



**CROSS SECTION  
B**  
NOT TO SCALE



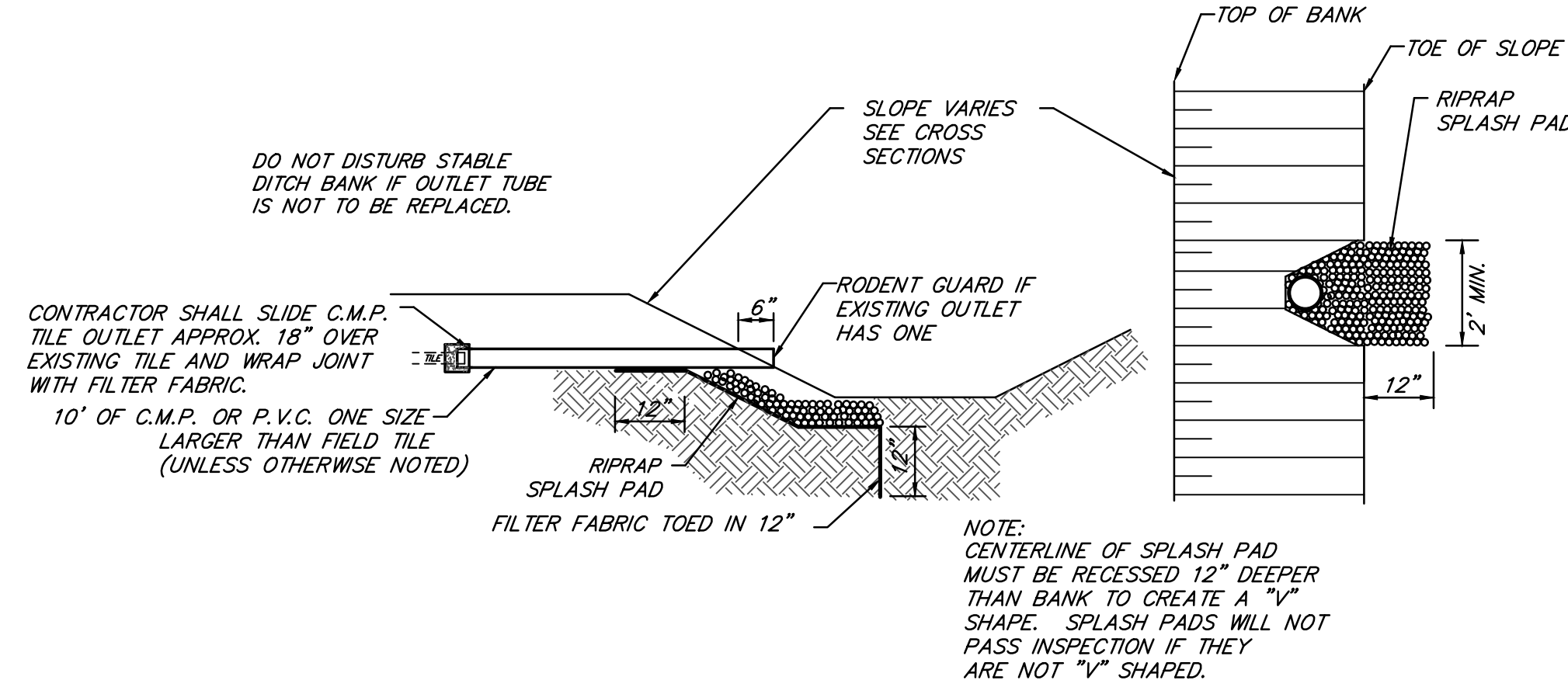
**CROSS SECTION  
A**  
NOT TO SCALE

\* GEOTEXTILE FABRIC NOT REQUIRED IF PROPOSED BOTTOM OF RIPRAP IS AT OR BELOW THE HISTORICAL ARMORED RIVER BOTTOM.

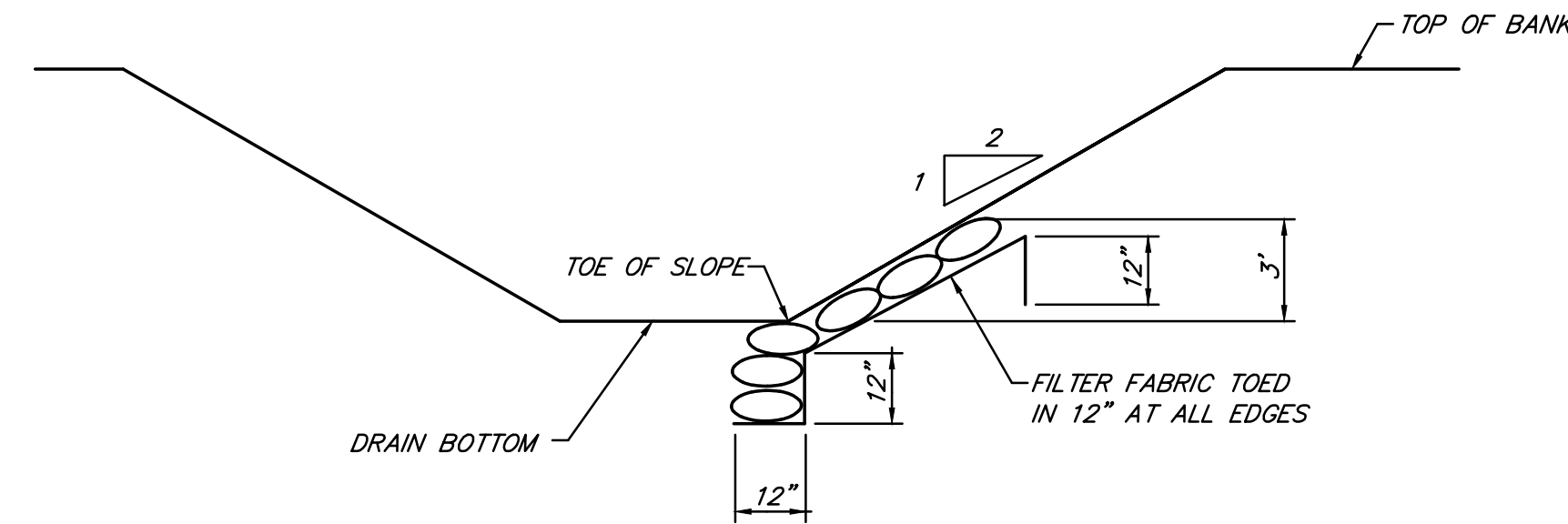
**PRELIMINARY**

08/25/2020

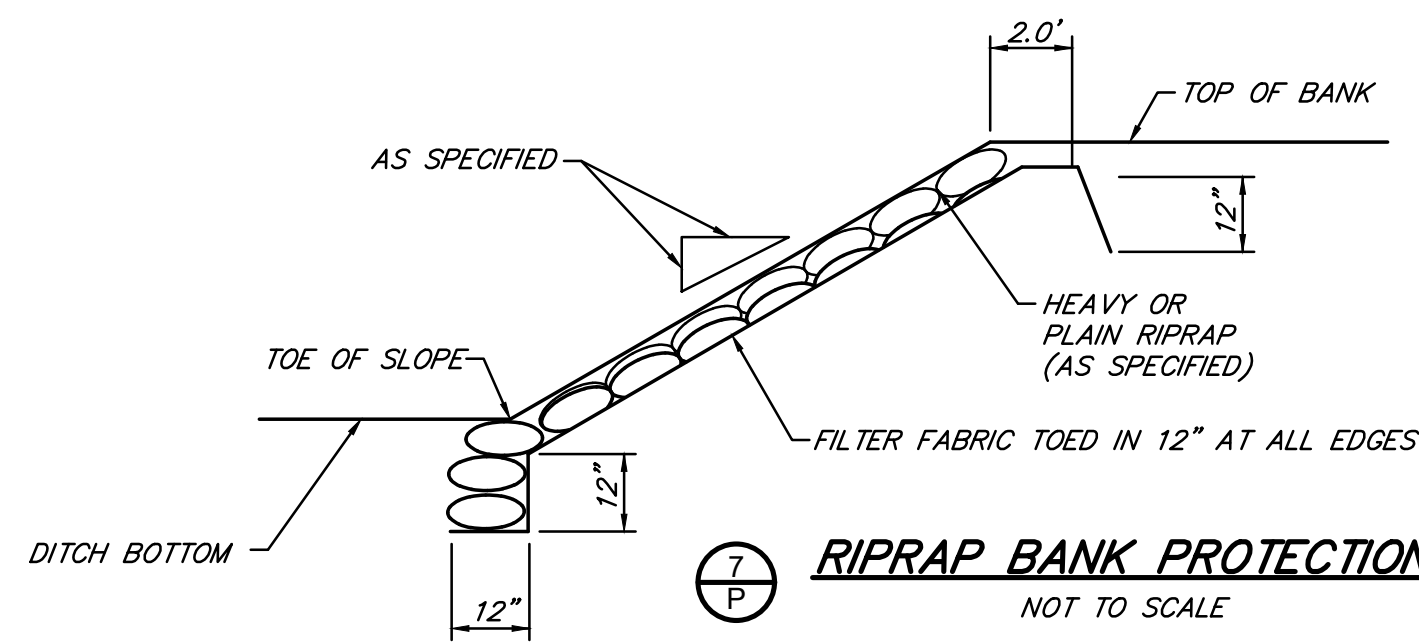
R/JF	EGLE PERMIT SUBMITTAL	8/2020
BY	MARK	REVISIONS
DATE		
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CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN		
<b>TRAVER LAKES STABILIZATION</b> STANDARD DETAILS		
		DUNDEE OFFICE 125 Helle Blvd, Suite 2 Dundee, MI 48131 Tel. 734-823-3308 www.SpicerGroup.com
DE. BY: KRK	CH. BY: SKR	PROJECT NO.
DR. BY: JCB	APP. BY: RAV	126140SG2018
STDS.	SHEET 12 OF 13	DR
DATE	FILE NO.	12
SCALE	AS SHOWN	DR-3712-12



**FIELD TILE OUTLET DETAIL &  
RIPRAP SPLASH PAD DETAIL**  
NOT TO SCALE



**RIPRAP TOE OF SLOPE PROTECTION**  
NOT TO SCALE

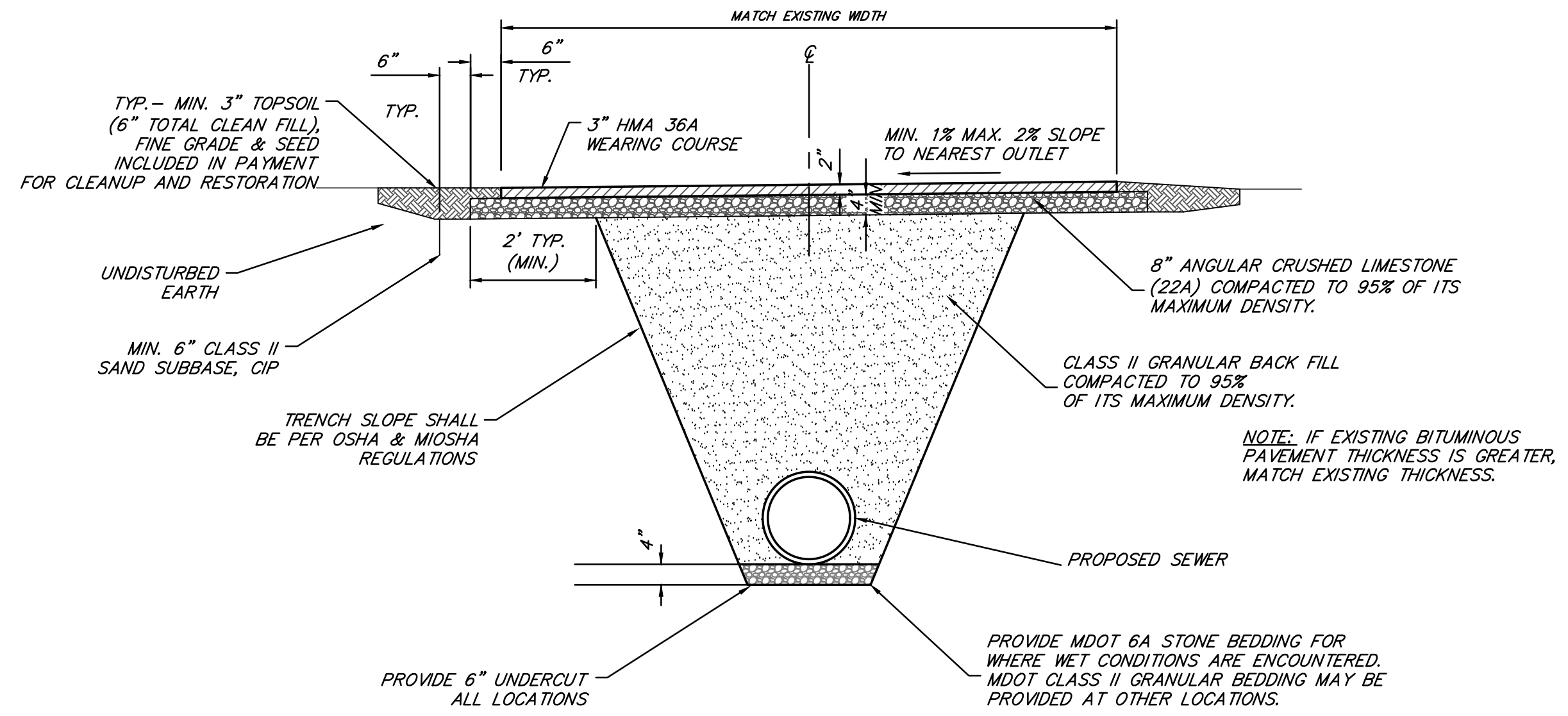


**RIPRAP BANK PROTECTION**  
NOT TO SCALE

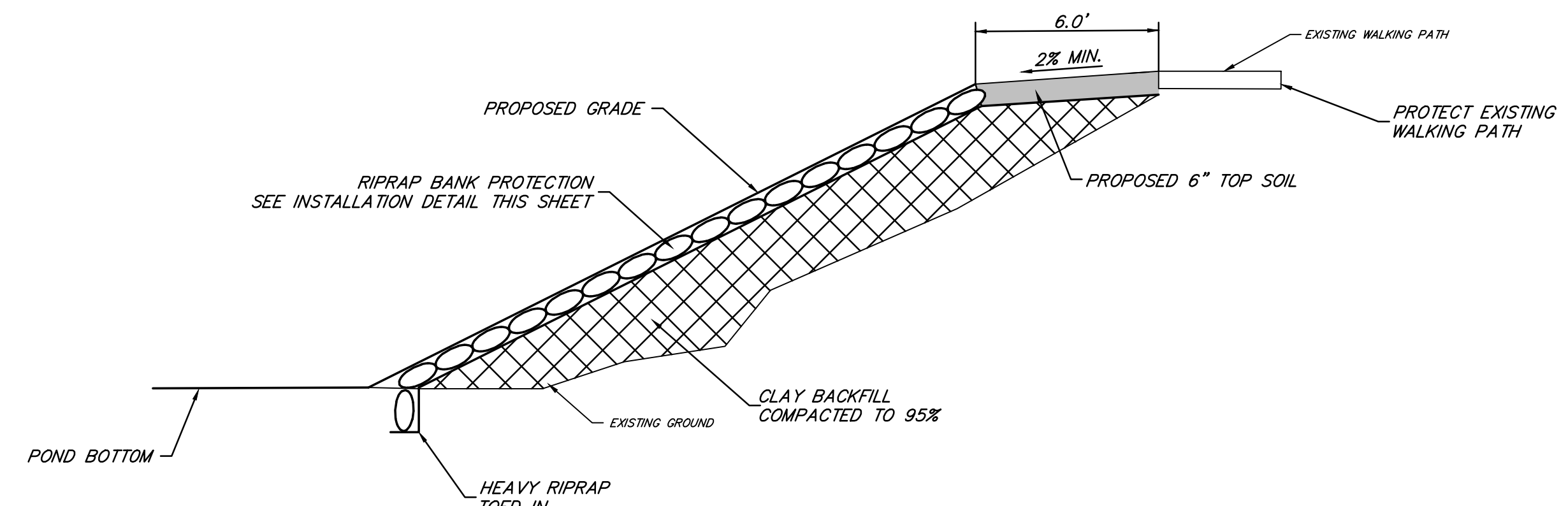
**TRENCH WIDTH CHART**

PIPE SIZE	MINIMUM	MAXIMUM
8" & 10"	24"	30"
12" & 15"	30"	36"
18"	34"	40"
21"	38"	42"
24"	42"	46"
27"	45"	49"
30"	49"	53"
36"	56"	60"
LARGER THAN 36"	I.D. +20"	I.D. +24"

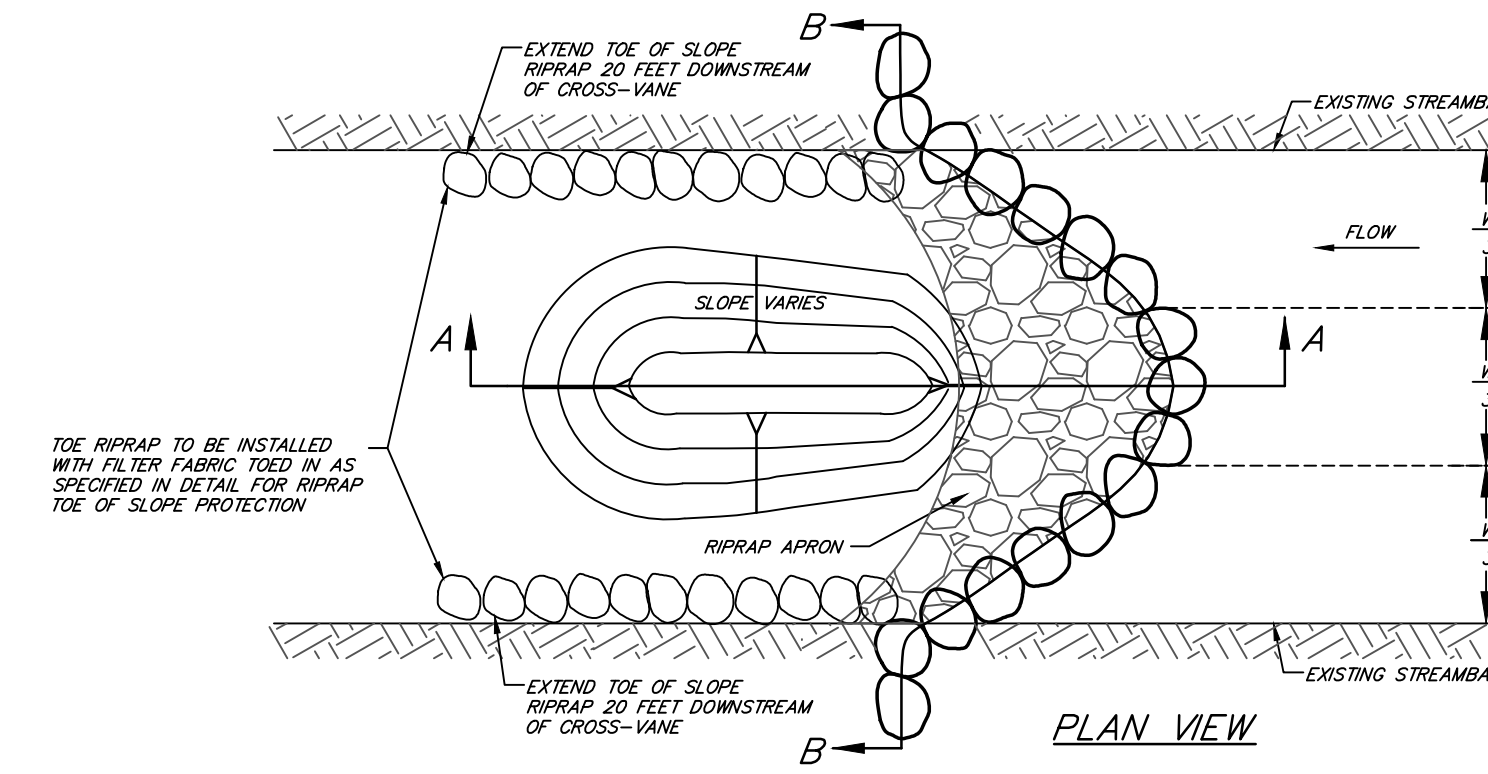
NOTE: UNLESS OTHERWISE SPECIFIED BY MANUFACTURER



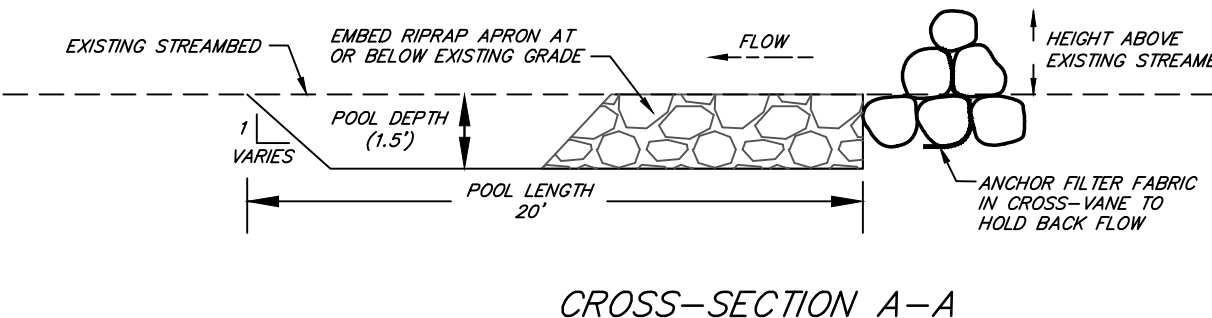
**TYP. RESTORED PATH CROSS SECTION**  
NOT TO SCALE



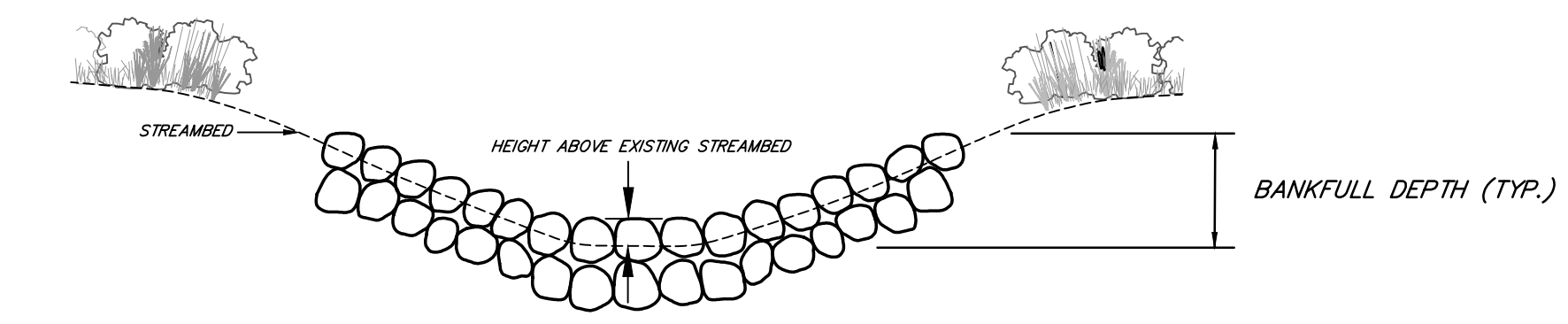
**BANK EROSION REPAIR DETAIL**  
NOT TO SCALE



**PLAN VIEW**



**CROSS-SECTION A-A**



**CROSS-SECTION B-B**

Source: Adapted from Rosgen, D. L., J Hook and Cross Vane, ASCE Wetland and Stream Restoration Conference 2001, Reno, NV

**CROSS-VANES STANDARD DETAIL**  
NOT TO SCALE

**PRELIMINARY**

08/25/2020

RJR	EGLE PERMIT SUBMITTAL	8/2020
BY	MARK	REVISIONS
DATE		

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CITY OF ANN ARBOR  
WASHTENAW COUNTY, MICHIGAN

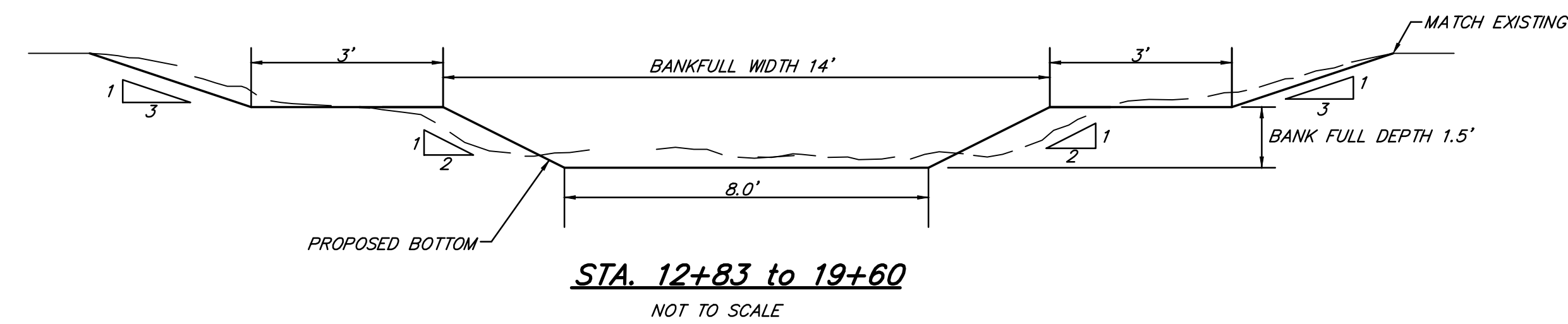
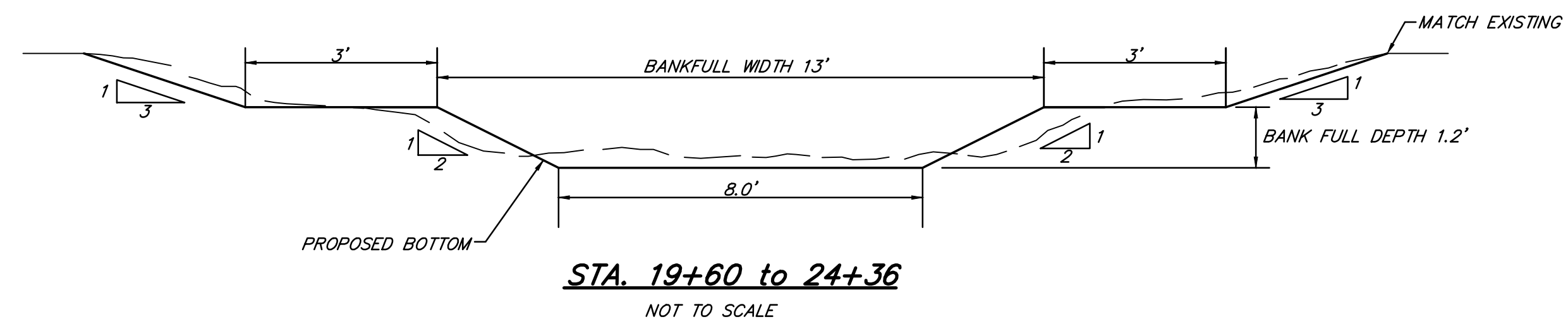
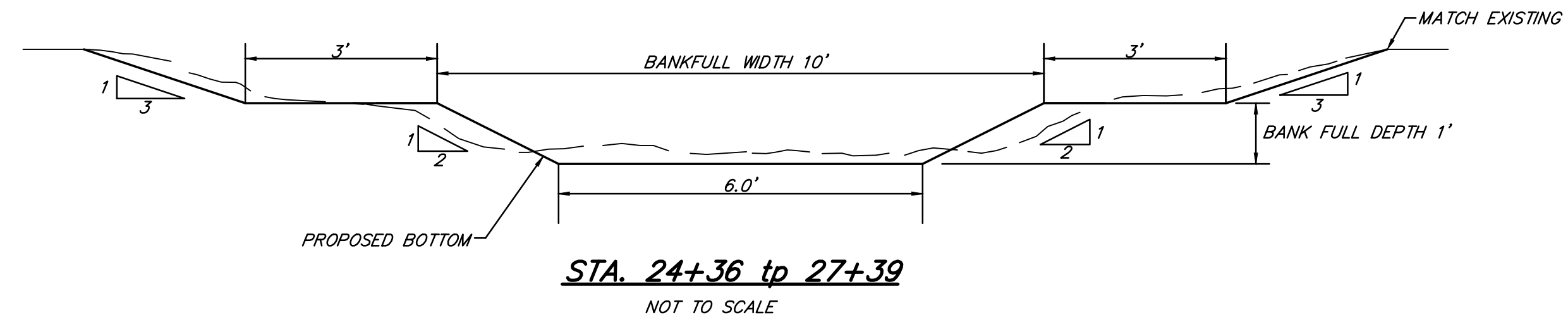
**TRAVER LAKES STABILIZATION  
STANDARD DETAILS**

**Spicer Group**  
DUNDEE OFFICE  
125 Helle Blvd, Suite 2  
Dundee, MI 48131  
Tel: 734-823-3308  
www.SpicerGroup.com

DE. BY: KJK	CH. BY: SKR	PROJECT NO.
DR. BY: JCB	APP. BY: RAV	126140SG2018

STDS.	SHEET 13 OF 13	DR
DATE: AUGUST 2020	FILE NO.	13
SCALE: AS SHOWN	DR-3712-13	

Approved  
Issued On: 06/03/2021  
Expires On: 06/03/2021



**PRELIMINARY**

02/12/2021

BY	MARK	REVISIONS	DATE

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CITY OF ANN ARBOR  
WASHTENAW COUNTY, MICHIGAN

**TRAVER LAKES STABILIZATION  
STANDARD DETAILS**

**Spicer Group**  
DUNDEE OFFICE  
125 Helle Blvd., Suite 2  
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Tel: 734-823-3308  
www.SpicerGroup.com

DE. BY: SKR CH. BY: SKR PROJECT NO. 126140SG2018  
DR. BY: RJR APP. BY: RAV

STDS. SHEET X OF X DR  
DATE FEBRUARY 2021 FILE NO. DR-3712  
SCALE AS SHOWN