OTSEGO LAKE DRAIN, DAM ID# 897 OUTLET CONTROL STRUCTURE REMOVAL AND REPLACEMENT

OTSEGO COUNTY, MICHIGAN



UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENTS THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOE NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

GENERAL NOTES

1.) EXISTING TOPOGRAPHIC MAPPING OF THE OTSEGO LAKE OUTLET CONTROL STRUCTURE WAS PREPARED BY WADE TRIM BASED ON A FIELD TOPOGRAPHIC SURVEY COMPLETED ON MAY 18, 2021.

PROJECT CONTACTS

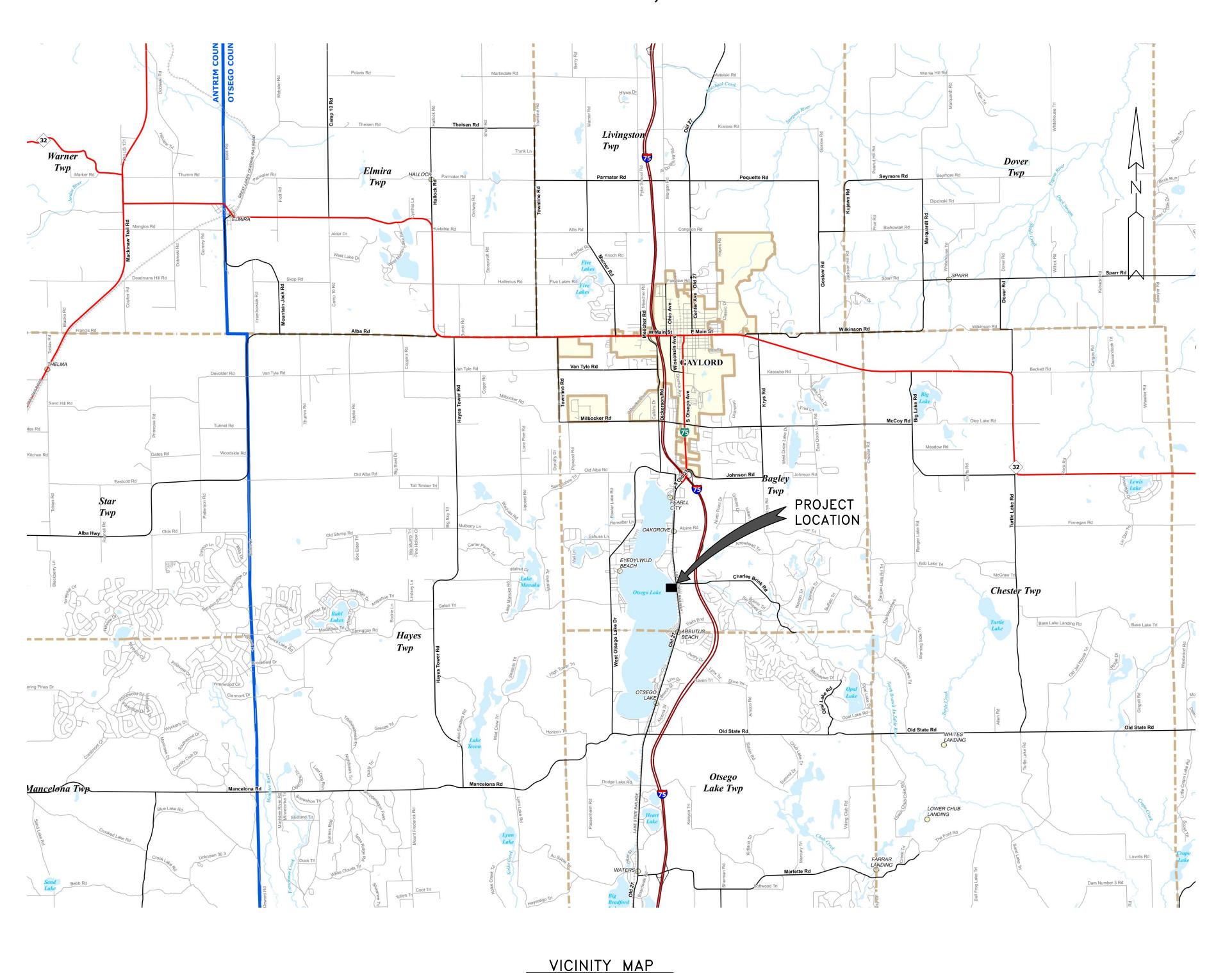
Phone: (989) 731-7515

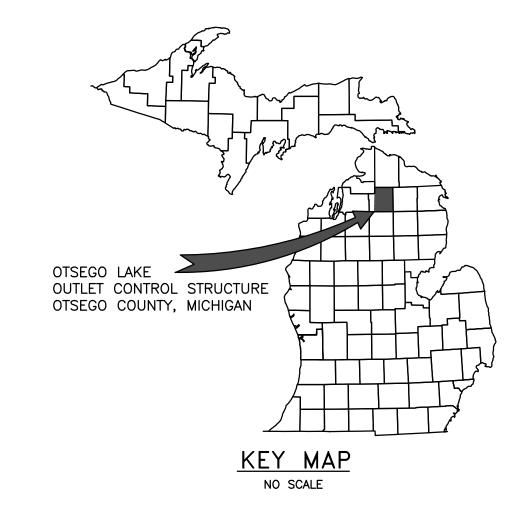
Phone: (989) 732-5202

THOMAS MARQUARD, DIRECTOR OF PLANNING/ZONING OTSEGO COUNTY 225 W Main Street, Suite 203 Gaylord, MI

KIRK HARRIER, MANAGING DIRECTOR OTSEGO COUNTY ROAD COMMISSION 669 McCoy Road Gaylord, MI 49735

PAUL REPASKY, P.E. WADE TRIM, INC. 4241 Old US 27 South, Suite 1 Gaylord, MI 49734 Phone: (989) 732-3584





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Thomas Marquard — Director of Planning and Zoning DATE

Rachel Frisch — County Administrator DATE

PROJECT DESCRIPTION: REMOVAL OF EXISTING STANDPIRE CONTROL STRUCTURE AND

APPROVALS

PROJECT DESCRIPTION: REMOVAL OF EXISTING STANDPIPE CONTROL STRUCTURE AND PIPING, CONSTRUCTION OF NEW SINGLE BAY CONCRETE CONTROL STRUCTURE AND 48-INCH DIA. OUTLET PIPING, SOIL EROSION CONTROL MEASURES AND SITE RESTORATION, IMPROVEMENTS TO EXISTING SLUICE GATE VAULT INCLUDING SAFETY LADDER WITH LOCKING MECHANISM, ALUMINUM SAFETY RAILING, AND ACCESS HATCH.

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PREPARED UNDER THE SUPERVISION OF:

OCCUPATION OF:

OCCUPATION

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GENERAL NOTES EXCEPT AS OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION

STANDARD SPECIFICATIONS & DETAILS CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CONTRACT DOCUMENTS ISSUED IN CONJUNCTION WITH THE PROJECT PLANS. ANY DEVIATIONS FROM THE APPROVED PLANS WILL NOT BE PERMITTED, UNLESS APPROVED BY ENGINEER.

MISS DIG UTILITY ALERT THREE (3) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO CONTACT MISS DIG UTILITY PROTECTION SERVICE (1-800-482-7171) TO VERIFY THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION. UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS.

SUBSURFACE SOIL CONDITIONS PRIOR TO BIDDING CONTRACTOR SHALL MAKE A PERSONAL INVESTIGATION OF THE SITE. CONTRACTOR IS RESPONSIBLE TO ACQUAINT THEM-SELF WITH CONDITIONS OF THE WORK AREA. CONTRACTOR IS ADVISED TO DETERMINE THE SUBSURFACE SOIL AND GROUND WATER CONDITIONS.

SOIL EROSION CONTROL, PART 91 OF P.A. 451 OF 1994 CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF PART 91, ACT 451 OF P.A. 1994, FOR SOIL EROSION AND SEDIMENTATION CONTROL, AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE UNTIL THE FINAL ACCEPTANCE OF THE PERMANENT CONTROL MEASURES BY

CONSTRUCTION OBSERVATION CONSTRUCTION SHALL BE PERFORMED UNDER THE OBSERVATION OF OWNER'S CONSTRUCTION OBSERVER OR AUTHORIZED AGENT. IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OBSERVER THREE (3) WORKING DAYS PRIOR TO STARTING CONSTRUCTION TO ARRANGE FOR ON-SITE OBSERVATION AND TESTING.

MIOSHA SAFETY REQUIREMENTS WORK PRACTICES AND MATERIALS SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SAFETY GUIDELINES, OCCUPATION, HEALTH AND ENVIRONMENTAL REGULATIONS, AND ALSO NFPA AND ANSI CODES AS APPLICABLE. WORK INSIDE A CONFINED SPACE, SUCH AS MANHOLES OR OTHER UNDERGROUND STRUCTURES. SHALL BE COORDINATED WITH THE UTILITY OWNER, AND WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. CONTRACTOR SHALL HAVE ITS SAFETY PLAN ON FILE WITH OWNER AND ONE (1) COPY ON SITE AT ALL TIMES.

THE STRUCTURAL MEMBERS ARE BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES.

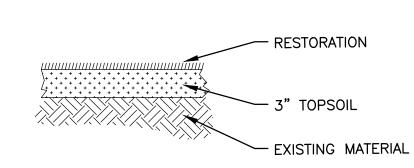
f'c= 3,500 psi Concrete, Grade S2 Steel Reinforcement fy= 60,000 psi

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE SHALL BE BEVELED WITH ₹ INCH TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS, PROVIDE MINIMUM CONCRETE CLEAR COVER FOR THE REINFORCEMENT ACCORDING TO THE FOLLOWING: Concrete cast against earth: 3 inch

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03 J. OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT IS

SURFACE RESTORATION DISTURBED AREAS SHALL BE RESTORED IN COMPLIANCE WITH THE SOIL EROSION AND SEDIMENTATION SPECIFICATIONS AND TO THE SATISFACTION OF OWNER. AREAS DISTURBED DURING CONSTRUCTION SHALL RECEIVE A 3-INCH APPLICATION OF TOPSOIL, SEED AND MULCH. EXCESS MATERIALS, DEBRIS. AND SIMILAR ITEMS SHALL BE REMOVED FROM THE PROJECT AREA BY CONTRACTOR AND DISPOSED OF PROPERLY. GROUND SURFACES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER PRIOR TO FINAL APPROVAL.



RESTORATION SPECIFICATION RESTORATION ITEMS SHALL CONFORM TO SECTION 32 9219 SEEDING OF THE CONTRACT DOCUMENTS.

SURFACE RESTORATION DETAIL NOT TO SCALE

TRENCH BACKFILL

NO SCALE

PROTECTION OF HAZARDOUS AREAS EXCAVATION AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES, SAFETY FENCE, OR OTHER APPROPRIATE MEANS. BARRICADES LEFT IN PLACE AFTER DARK SHALL BE LIGHTED.

NON-STOPPAGE CLAUSE CONTRACTOR SHALL BE REQUIRED TO COMPLETE ALL WORK IN AN EXPEDITIOUS MANNER AND SHALL NOT STOP CONSTRUCTION FOR EXTENDED PERIODS (GREATER THAN 1 WEEK) ONCE CONSTRUCTION HAS BEGUN WITHOUT APPROVAL OF OWNER.

DISPOSAL OF EXCESS EXCAVATED MATERIAL EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF BY CONTRACTOR, WITH ALL PERMITS, PERMISSIONS, AND LOCATIONS PROVIDED BY CONTRACTOR. ADJACENT PROPERTY OWNERS SHALL BE GIVEN PREFERENCE FOR DISPOSAL SITES, BUT WRITTEN PERMISSION FOR DISPOSAL ON ADJACENT PROPERTY OWNERS SHALL BE PROVIDED TO OWNER PRIOR TO FINAL DISPOSAL.

CONSTRUCTION SHALL BEGIN AND BE COMPLETED BETWEEN JUNE 15 AND SEPTEMBER 1 WHEN THE ALLOWABLE DISCHARGE FROM OTSEGO LAKE IS 0 CFS.

THE REMOVAL OF THE EXISTING CMP AND CONSTRUCTION OF THE NEW OUTLET PIPE SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR MAY UTILIZE A TEMPORARY COFFERDAM, SAND BAGS OR OTHER MEANS AS APPROVED BY THE ENGINEER TO ACCOMPLISH THIS WORK IN THE DRY.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, PREVENTATIVE MEASURES MUST BE EFFECTIVE.

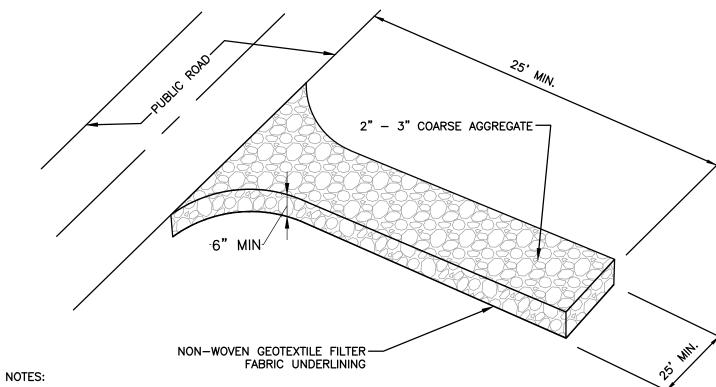
THE RIPRAP, PLAIN (ANGULAR) QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED.

PAYMENT FOR CHANNEL EXCAVATION WILL BE BASED ON PLAN QUANTITY.

PAYMENT FOR BACKFILL, FDN WILL BE BASED ON PLAN QUANTITY.

SLOPE RESTORATION SHALL INCLUDE: A MINIMUM OF 3 INCHES OF TOPSOIL: SEED MIX SHALL MET THE REQUIREMENTS FOR MINERAL SOILS (CRITICAL AREA/VERY POOR SOIL, e.g. GRAYLING SAND); MULCH ANCHORING MATERIAL AND MULCH. NO FERTILIZER SHALL BE APPLIED. NO NETTING MATERIAL OF ANY KIND SHALL BE USED.

ALL EQUIPMENT ENTERING THE LAKE SHALL USE BIODEGRADABLE HYDRAULIC FLUID AND POWER WASHED PRIOR TO ENTERING THE SITE.



CONSTRUCTION

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBTRUSIVE MATERIAL AND GRADE TO HAVE A SMOOTH, EVEN SURFACE 2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS. AND SMOOTH IT.

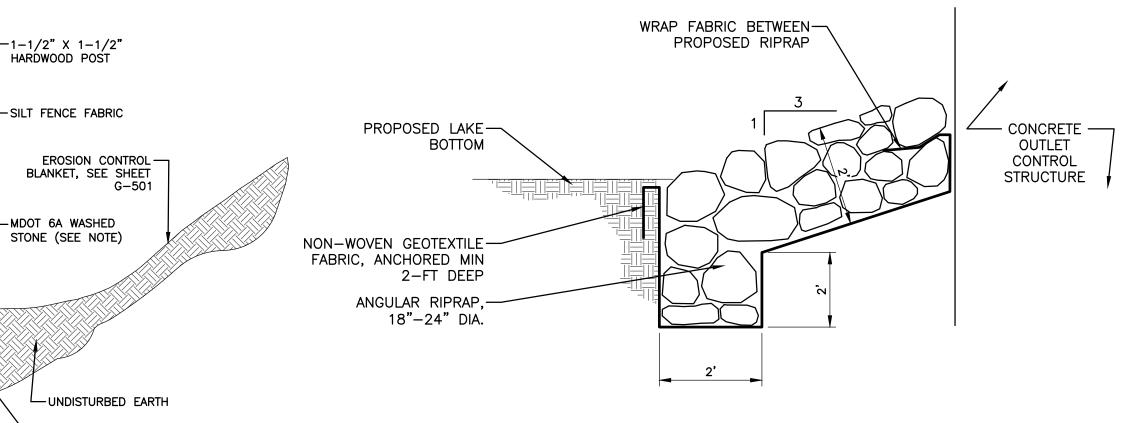
PROVIDE POSITIVE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET. 4. USE GEOTEXTILE FILTER FABRIC PER 01 57 13 TO IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE

MAINTENANCE

MAINTAIN THE CONSTRUCTION ENTRANCE IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC

SEE SOIL EROSION CONTROL PLAN FOR ACTUAL OVERALL DIMENSION OF EACH CONSTRUCTION ACCESS DRIVE. MINIMUM SIZES SHOWN IN THIS DETAIL APPLY WHEN NO DIMENSIONS ARE SHOWN ON PLAN.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



ANGULAR RIPRAP OVER NON-WOVEN GEOTEXTILE FABRIC

NOTES: POST SPACING: 6-FOOT MAX

FREINFORCED CONCRETE PIPE, CL A

WITH WATER TIGHT JOINTS, O-RING

GASKETS AND WRAPPED JOINTS

-PIPE SUPPORT, MIN 6" HEIGHT

CONCRETE SUPPORT BLOCK.

IF NECESSARY

FABRIC: 36 INCHES IN WIDTH, MUST MEET ASTM D6461, 4 FT MINIMUM OVERLAP AT JOINTS (ENDS).

STONE: IF SILT FENCE IS DESIGNED AND UTILIZED AS A DIVERSION, PLACE MDOT 6A WASHED STONE 12 INCHES DEEP AT SILT FENCE AS SHOWN.

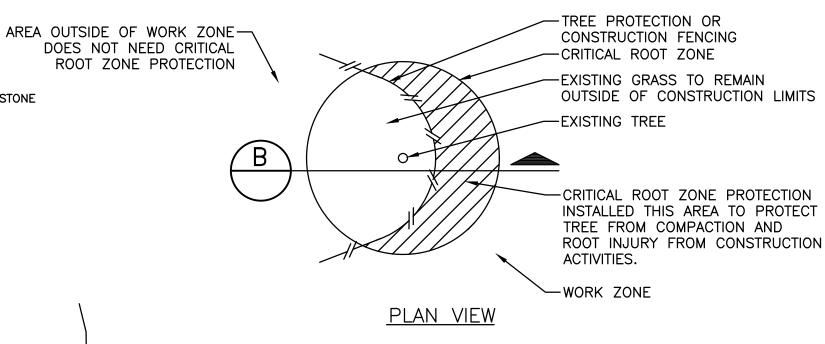
-BACKFILL TRENCH WITH IN SITU SOIL, COMPACTED

TO 90% MODIFIED PROCTOR

-SILT FENCE FABRIC

CURL EACH END OF THE SILT FENCE UPHILL IN A "J" PATTERN TO PREVENT RELEASE OF UNTREATED STORM FLOWS.

> SILT FENCE DETAIL NOT TO SCALE



OTSE OTSE LAKE STRUCT TREE PROTECTION OR WORK LIMIT FENCING LIMITS OF TREE PROTECTION OR CONSTRUCTION FENCE CRITICAL ROOT ZONE -CRITICAL ROOT -PLYWOOD BOARDS OR ZONE PROTECTION SCAFFOLD BOARD -MATCH TOP OF MULCI TO EXISTING GROUND LEVEL -HARDWOOD CHIP MULCH OR GRADED AGGREGATE 6' MAX. POST -GEOTEXTILE SPACING SEPARATOR FABRIC SECTION E

1. DETAIL APPLIES ONLY FOR TREES IN AREAS WHERE CRITICAL ROOT ZONE IS WITHIN WORK LIMITS.

2. CRITICAL ROOT ZONE IS 1.5 X TREE DIAMETER FROM EDGE OF TREE.

CRITICAL ROOT ZONE PROTECTION WITHIN WORK ZONE DETAIL

CRITICAL ROOT ZONE PROTECTION DETAIL

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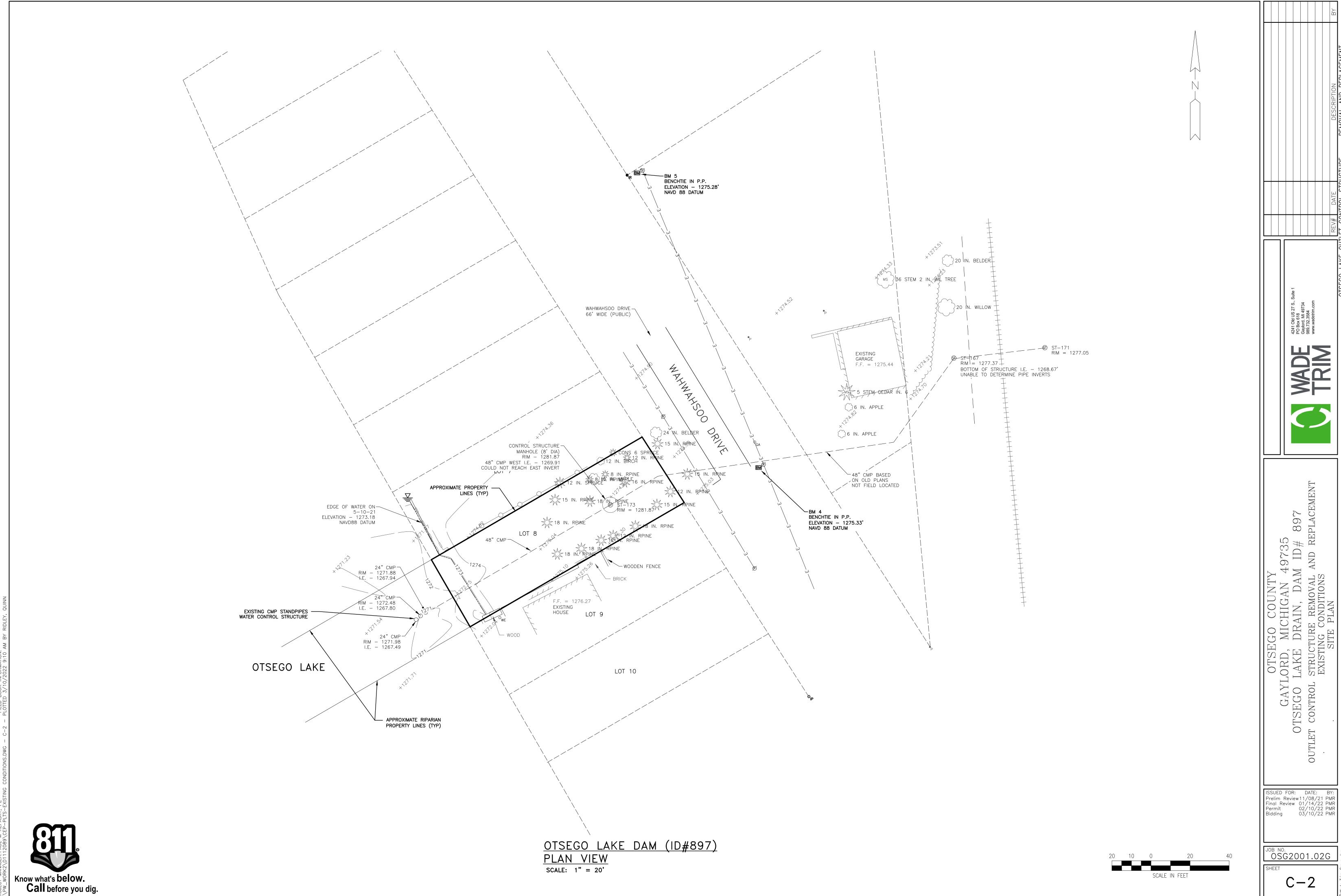
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UNDISTURBED COMPACTED SOIL PIPE BEDDING DETAIL PIPE BEDDING NOTES

THE REMOVAL OF THE EXISTING CULVERT AND CONSTRUCTION OF THE NEW OUTLET PIPE SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR MAY UTILIZE A TEMPORARY COFFERDAM, SAND BAGS. DEWATERING OR OTHER MEANS AS APPROVED BY THE ENGINEER TO ACCOMPLISH THIS WORK IN THE DRY. CLEAN, LUBRICATE AND WRAP WITH NON-WOVEN GEOTEXTILE FABRIC ALL JOINTS.

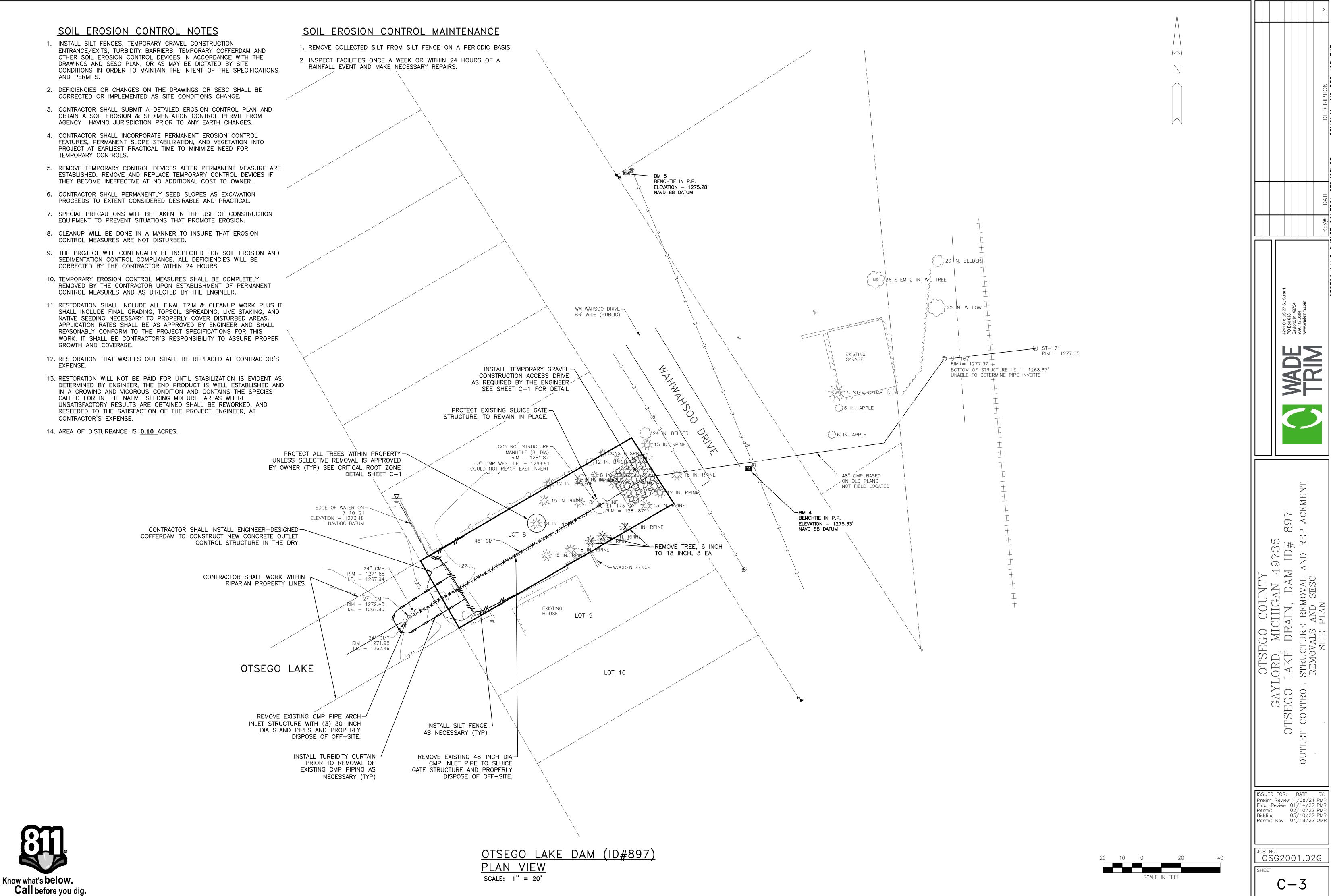
NOT TO SCALE



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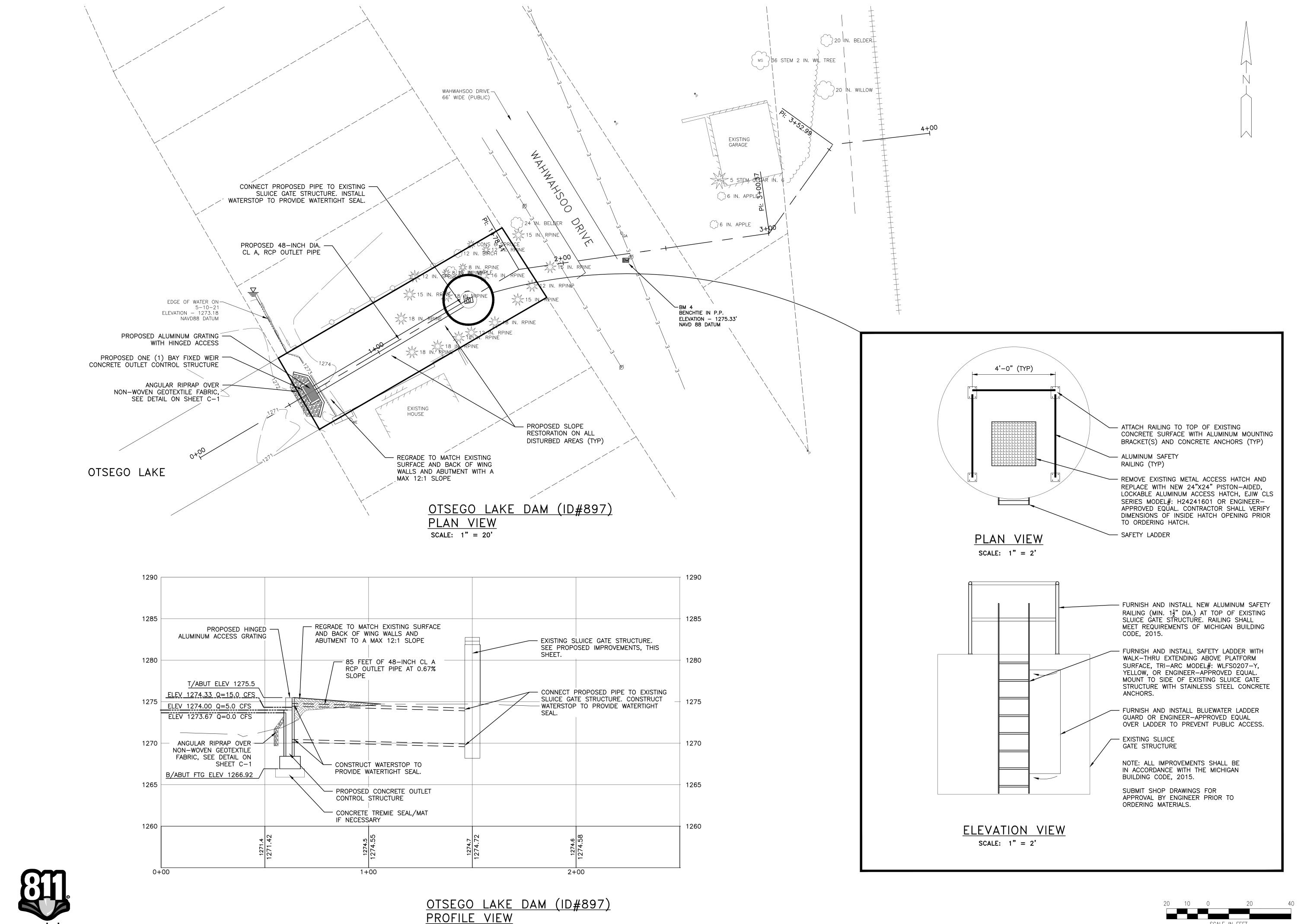
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C-3

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897 REPLACEMENT



SCALE: 1" = 20' (HORZ) 1" = 50' (VERT)

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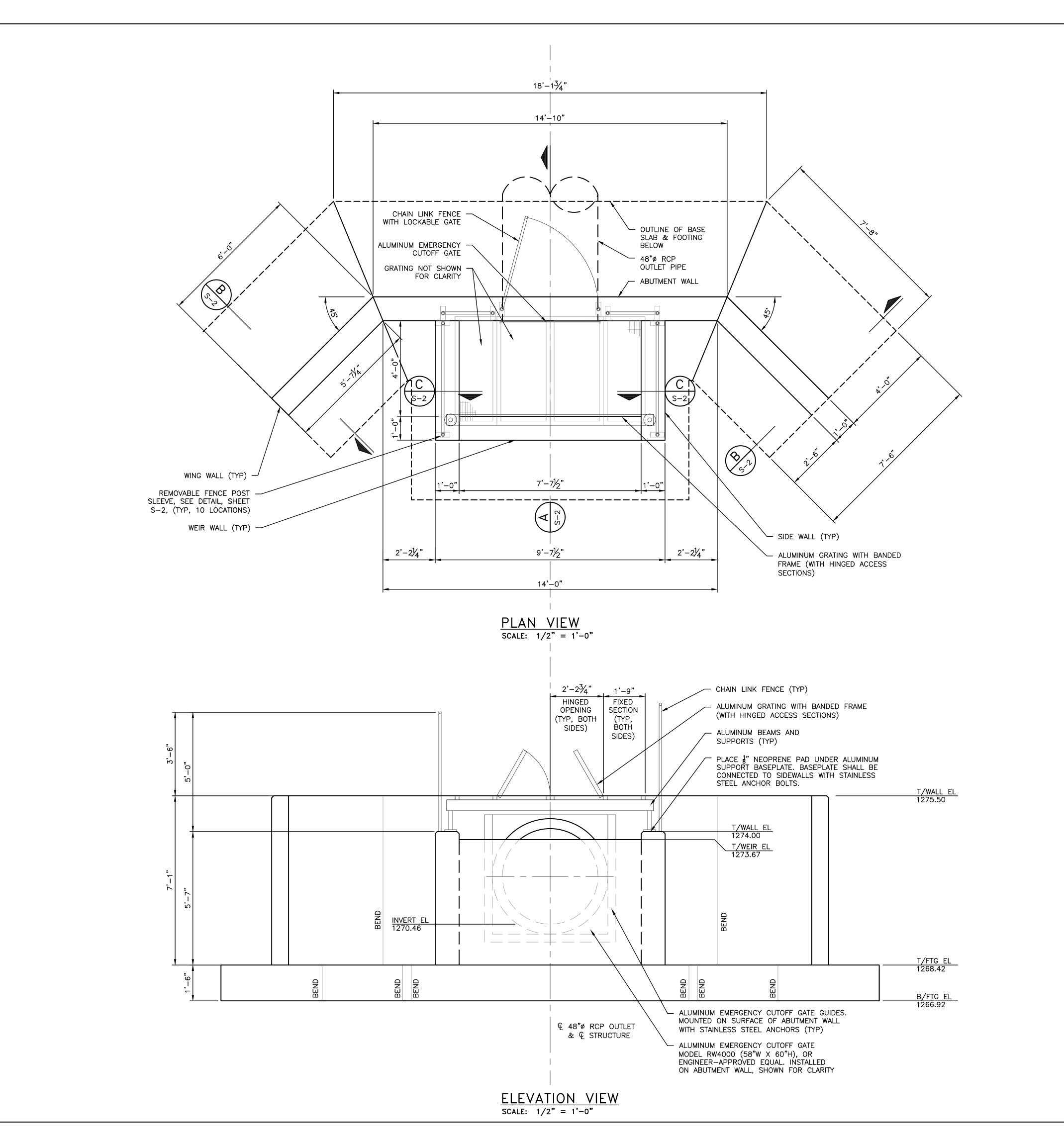
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OTSEGO COUNTY
GAYLORD, MICHIGAN 49735
OTSEGO LAKE DRAIN, DAM ID# 897
OUTLET CONTROL STRUCTURE REMOVAL AND REPLACEMENT
PROPOSED OUTLET CONTROL STRUCTURE
PLAN AND PROFILE VIEWS

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IF = INSIDE FACE

OF = OUTSIDE FACE

VEF = VERTICAL EACH FACE

T&B = TOP & BOTTOM

DWL = DOWEL

FTG = FOOTING

CTS = CENTER TO CENTER

EA = EACH

NOTES:

- 1. PROVIDE 2½" x 36" WELDED ALUMINUM GRATING AS MANUFACTURED BY MCNICHOLS ALUMINUM GRATING OR AMICO A GIBRALTAR INDUSTRIES, OR ENGINEER—APPROVED EQUAL. ALL CUT ENDS SHALL BE BANDED.
- 2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR FRAMES, GRATINGS, HINGES, BEAMS, SUPPORTS, AND MISCELLANEOUS METAL CONNECTIONS FOR FABRICATION. ALL MATERIALS MUST BE ALUMINUM OR COMPATIBLE WITH ALUMINUM. DRAWINGS AND CALCULATIONS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MICHIGAN. THESE SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
- 3. THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

 CONCRETE f'c = 3,500 PSI

 STEEL REINFORCEMENT fy = 60,000 PSI
- 4. ANY ALTERNATIVE REMOVABLE FENCE DESIGNS SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO FABRICATION.
- 5. REMOVABLE COMPONENTS OF CHAIN LINK FENCE SHALL BE INCLUDED IN THE PAY ITEM "Chain Link Fence with Gate"
- 6. ALL STEEL REINFORCEMENT SHALL BE EPOXY COATED.

OTSEGO COUNTY
GAYLORD, MICHIGAN 49735

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OTSEGO LAKE DRAIN, DAM ID# 897

OUTLET CONTROL STRUCTURE REMOVAL AND REPLACEM
CONTROL STRUCTURE

CONTROL STRUCTURE

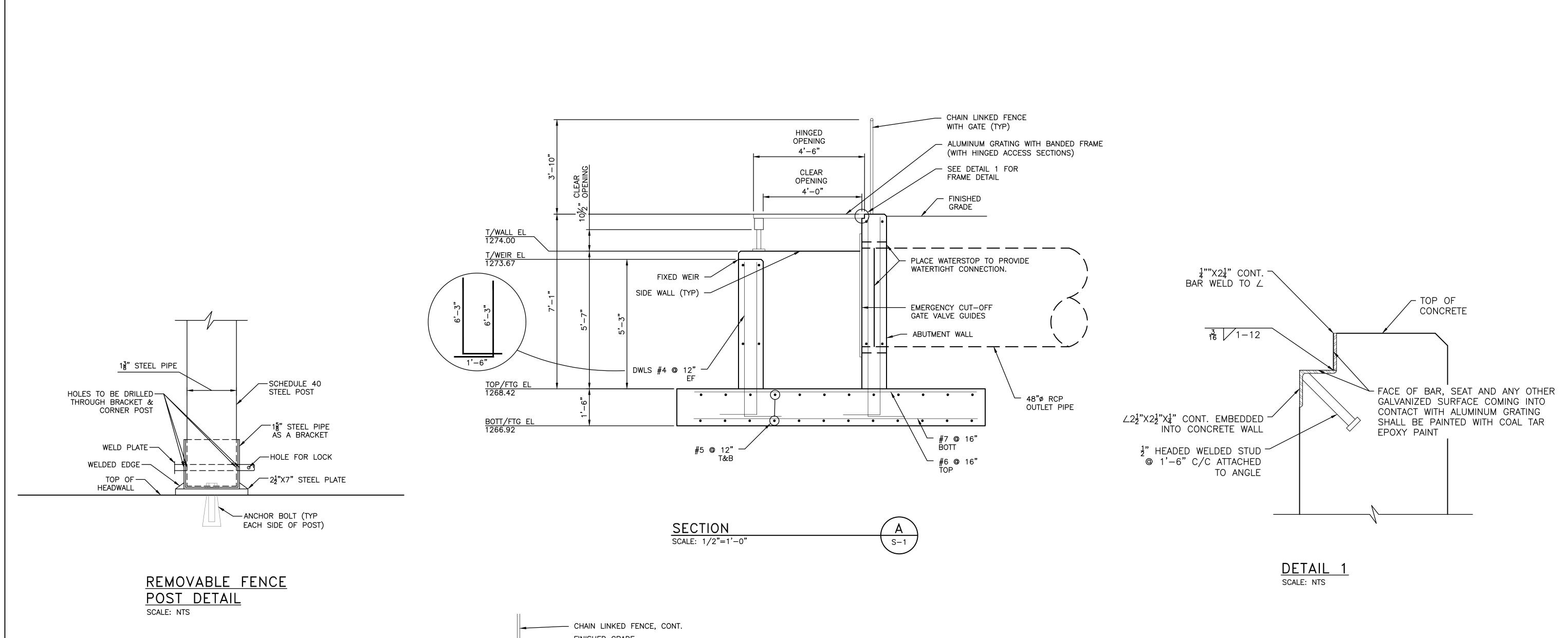
CONTROL STRUCTURE

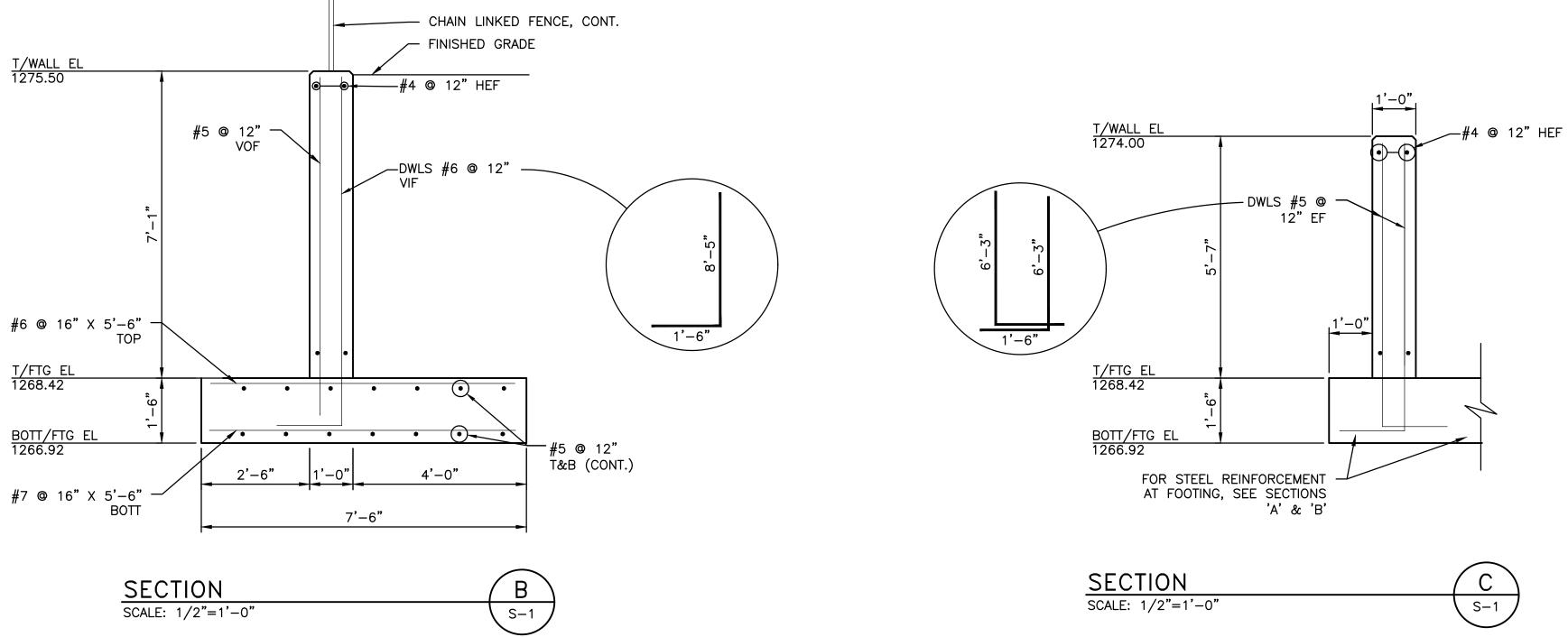
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SECTIONS AND PROFILE VIEWS

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