

MOWBRAY MOUNTAIN WATER STORAGE - PHASE II

FOR NORTH WEST UTILITY DISTRICT

SODDY-DAISY, TN

PROJECT SUMMARY

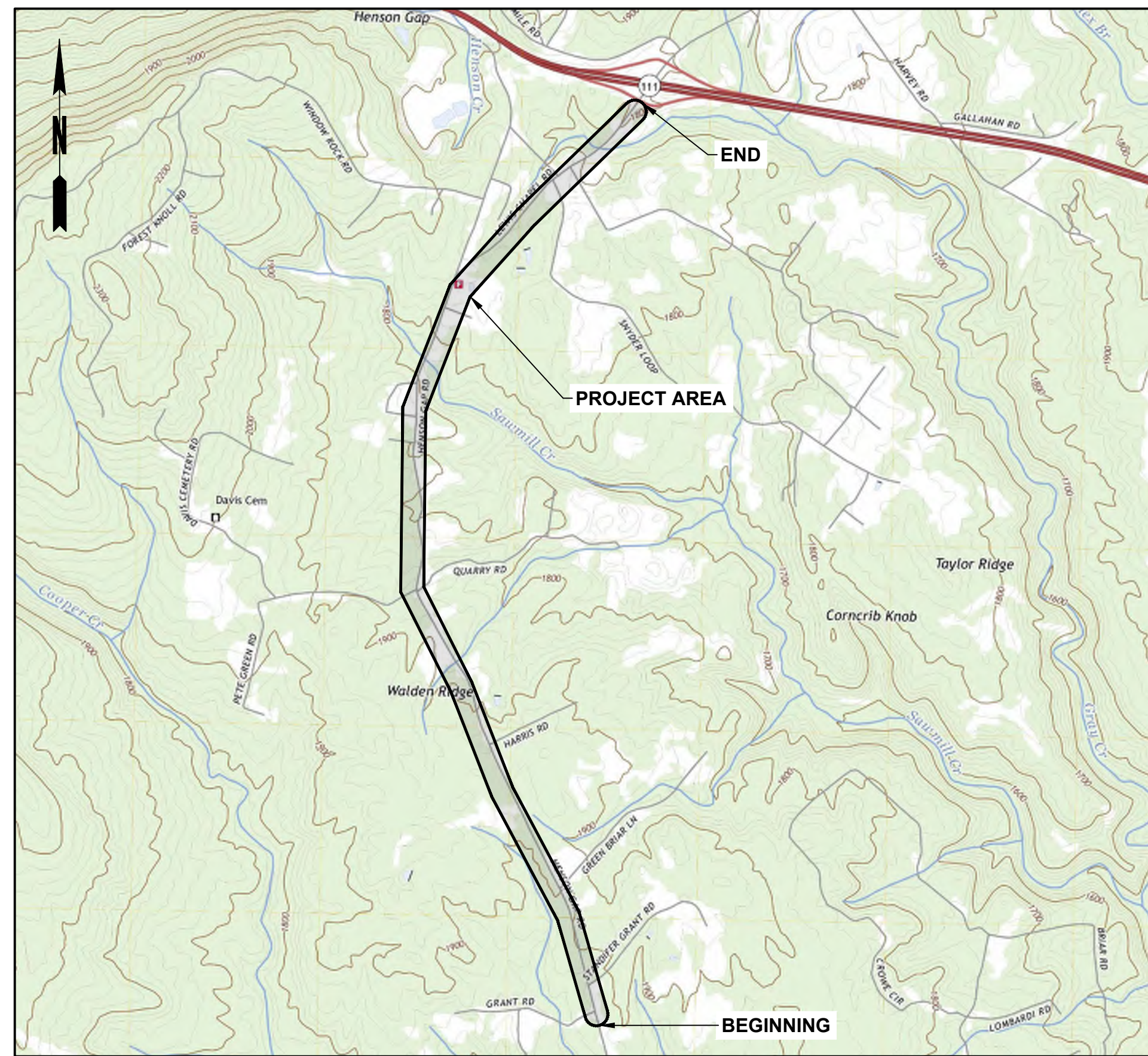
THIS PROJECT CONSISTS OF INSTALLING APPROXIMATELY 14,600 LF OF NEW 8" DIP WATER LINE HENSON GAP ROAD FROM THE INTERSECTION AT GRANT ROAD TO BEFORE HIGHWAY 111.

FEMA MAP

National Flood Hazard Layer FIRMette

FEMA STATEMENT

THIS PROPERTY IS NOT LOCATED WITHIN A 100 YEAR FLOOD HAZARD AREA BASED ON THE FLOOD INSURANCE RATE MAP FOR THIS AREA. THE MAP NUMBER FOR THIS PROJECT AREA IS 47153C0200C AND THE DATE OF SAID MAP IS 06/04/2010.



SOURCE: USGS – HENSON GAP, TN
DATE: 2022
LOCATION MAP 1" = 2000'

THE PROPERTY SHOWN HEREON LIES WITHIN FLOOD ZONE "X", AS SHOWN ON THE FEDERAL INSURANCE RATE MAP 47153C0200C, DATE 06/04/2010, BUT IS NOT PRINTED



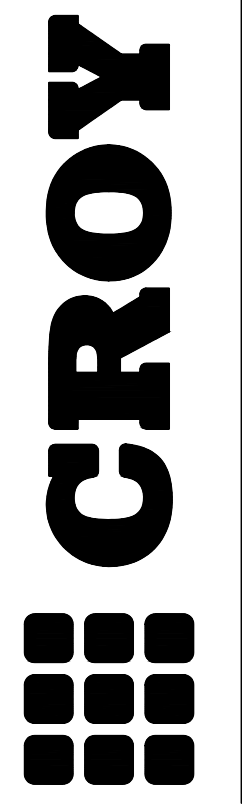
ENGINEER/PREPARER:
CROY ENGINEERING, LLC
MELANIE D. BRUEGGEMANN, P.E.
TEL: (470)648-6033

OWNER/DEVELOPER:
NORTH WEST UTILITY DISTRICT
9905 DAYTON PIKE
SODDY-DAISY, TN 37379
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SHEET LIST TABLE	
Sheet Number	Sheet Title
C-000	COVER
C-001	GENERAL NOTES & LEGEND
C-100	OVERALL SITE PLAN
C-200	WATER LINE LAYOUT
C-201	WATER LINE LAYOUT
C-202	WATER LINE LAYOUT
C-203	WATER LINE LAYOUT
C-204	WATER LINE LAYOUT
C-205	WATER LINE LAYOUT
C-206	WATER LINE LAYOUT
C-500	STREAM CROSSING DETAILS
C-900	DETAILS
C-901	DETAILS
EC-000	SWPPP COVER
EC-001	SWPPP NOTES
EC-002	OUTFALL MAP
EC-100	SWPPP INITIAL & FINAL PHASE
EC-101	SWPPP INITIAL & FINAL PHASE
EC-102	SWPPP INITIAL & FINAL PHASE
EC-103	SWPPP INITIAL & FINAL PHASE
EC-104	SWPPP INITIAL & FINAL PHASE
EC-105	SWPPP INITIAL & FINAL PHASE
EC-106	SWPPP INITIAL & FINAL PHASE
EC-900	EROSION CONTROL DETAILS
EC-901	EROSION CONTROL DETAILS

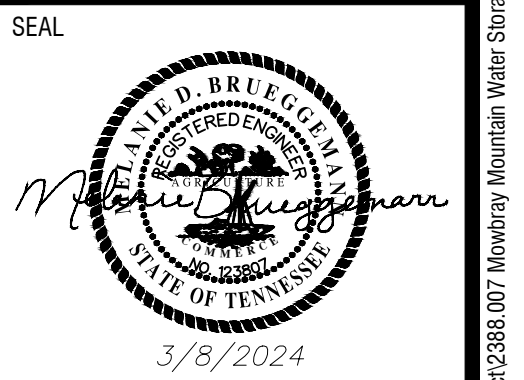
TDEC APPROVAL STAMP



1270 MARKET STREET
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**MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II**
 NORTH WEST UTILITY DISTRICT
 SODDY-DAISY, TN

NO.	REVISION REFERENCE	DATE



SHEET TITLE COVER	
DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024
PROJECT NUMBER 2388.007	
DRAWING NUMBER C-000	

Drawing Location: Y:\01-Chat\Projects\Chatanooga\2388 North West Utility District\2388.007 Mowbray Mountain Water Storage - Bledsoe County AEP\Engineering\Design\2388.007_COVER.dwg

GENERAL NOTES

- 1. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL AND LOCAL CODES.
- 2. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH CLEVELAND UTILITIES STANDARDS AND THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION AS APPLICABLE.
- 3. DEVIATION FROM THESE PLANS AND SPECIFICATIONS WITHOUT THE PRIOR WRITTEN CONSENT OF THE ENGINEER MAY CAUSE THE WORK TO BE DEEMED UNACCEPTABLE.
- 4. THE CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN A COPY OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK, AND NORTH WEST UTILITY DISTRICT DESIGN STANDARDS AND DETAILS (LATEST EDITION) AND BECOME FAMILIAR WITH THE CONTENTS PRIOR TO COMMENCING WORK.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL.
- 6. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. FURTHERMORE, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
- 7. IF CONTRACTOR DAMAGES ANY EXISTING UTILITIES DURING CONSTRUCTION, HE SHALL, AT HIS OWN EXPENSE, REPLACE OR REPAIR THE UTILITIES TO ORIGINAL CONDITION AND QUALITY, AS APPROVED BY THE ENGINEER AND REPRESENTATIVE OF THE APPROPRIATE UTILITY COMPANY.
- 8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION.
- 9. CONSTRUCTION EQUIPMENT SHALL NOT BE PARKED IN AREAS OF TRAFFIC THOROUGHFARE AND MUST BE STORED WITHIN SITE.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND BONDS IF REQUIRED PRIOR TO CONSTRUCTION.
- 11. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
- 12. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER.
- 13. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED.

PAVING, GRADING AND DRAINAGE NOTES

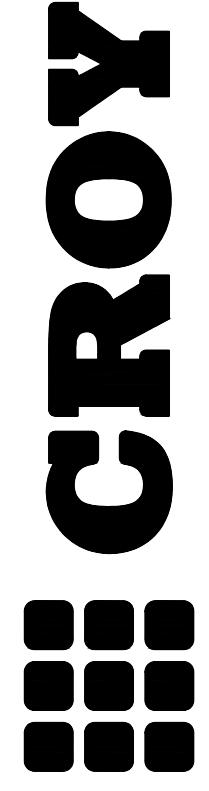
- 1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH TDOT SPECIFICATIONS AND STANDARDS (LATEST EDITION) IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
- 2. ALL UNPAVED AREAS DISTURBED BY CONSTRUCTION SHALL BE REGRADED AND SODDED.
- 3. TRAFFIC CONTROL ON ALL TDOT, LOCAL AND COUNTY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
- 4. ALL OPEN AREAS WITHIN THE PROJECT SITE SHALL BE STABILIZED WITH PERMANENT VEGETATION.
- 5. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS.
- 6. THE CONTRACTOR SHALL INSTALL FILTER FABRIC OVER ALL DRAINAGE STRUCTURES FOR THE DURATION OF CONSTRUCTION AND UNTIL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL DRAINAGE STRUCTURES SHALL BE CLEANED OF DEBRIS AS REQUIRED DURING AND AT THE END OF CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE FLOWS.
- 7. IF DEWATERING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE REQUIRED PERMITS. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THE DESIGN ENGINEER PRIOR TO ANY EXCAVATION.
- 8. FIELD DENSITY TESTS SHALL BE TAKEN AT INTERVALS IN ACCORDANCE WITH THE LOCAL JURISDICTIONAL AGENCY OR TO TDOT STANDARDS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
- 9. ALL TRENCHES SHALL BE CLOSED OR PLACED AT THE END OF EACH DAY TO ALLOW FOR TWO-WAY TRAFFIC. TRENCHES SHALL BE PATCHED WITH HOT MIX ASPHALT OR COVERED WITH STEEL PLATE. ROADWAY SHALL NOT BE OPEN TO TRAFFIC ON A CRUSHED STONE SURFACE.
- 10. THE CONTRACTOR SHALL MAINTAIN THE PAVEMENT BROOM CLEAN AT ALL TIMES.
- 11. THE CONTRACTOR SHALL KEEP DRIVEWAY ACCESS OR TEMPORARY ACCESS TO RESIDENTS AT ALL TIMES.

EROSION CONTROL NOTES

- 1. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AS DEEMED NECESSARY BY THE ON-SITE INSPECTOR(S).
- 2. SEE EROSION CONTROL PLAN SHEET FOR INITIAL BMP'S THAT MUST BE INSTALLED PRIOR TO COMMENCING DEMOLITION OR SITE WORK.
- 3. CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
- 5. THE CONTRACTOR SHALL TAKE ALL REQUIRED MEASURES TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE BARRIERS.
- 6. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
- 7. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
- 8. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
- 9. ON-SITE & OFF SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE EROSION CONTROL PLAN AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
- 10. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACK FILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.
- 11. ALL MEASURES STATED ON THE EROSION, SEDIMENT AND POLLUTION CONTROL PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT.

WATER UTILITY NOTES

- 1. THE CONTRACTOR SHALL CONSTRUCT DOMESTIC WATER AND FIRE PROTECTION SYSTEM AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS, EQUIPMENT, MACHINERY, TOOLS, MEANS OF TRANSPORTATION AND LABOR NECESSARY TO COMPLETE THE WORK IN FULL AND COMPLETE ACCORDANCE WITH THE SHOWN, DESCRIBED AND REASONABLY INTENDED REQUIREMENTS OF THE CONTRACT DOCUMENTS AND JURISDICTIONAL AGENCY REQUIREMENTS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
- 2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED VEGETATION IN KIND, UNLESS SHOWN OTHERWISE.
- 3. DEFLECTION OF PIPE JOINTS AND CURVATURE OF PIPE SHALL NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS. SECURELY CLOSE ALL OPEN ENDS OF PIPE AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. THE INTERIOR OF ALL PIPES SHALL BE CLEAN AND JOINT SURFACES WIPED CLEAN AND DRY AFTER THE PIPE HAS BEEN LOWERED INTO THE TRENCH. VALVES SHALL BE PLUMB AND LOCATED ACCORDING TO THE PLANS.
- 4. ALL PHASES OF INSTALLATION, INCLUDING UNLOADING, TRENCHING, LAYING AND BACK FILLING, SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER. ALL PIPE AND FITTINGS SHALL BE CAREFULLY STORED FOLLOWING MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE COATING OR LINING IN ANY D.J. PIPE FITTINGS. ANY PIPE OR FITTING WHICH IS DAMAGED OR WHICH HAS FLAWS OR IMPERFECTIONS WHICH, IN THE OPINION OF THE ENGINEER OR OWNER, RENDERS IT UNFIT FOR USE, SHALL NOT BE USED. ANY PIPE NOT SATISFACTORY FOR USE SHALL BE CLEARLY MARKED AND IMMEDIATELY REMOVED FROM THE JOB SITE, AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- 5. ALL UTILITY AND STORM DRAIN TRENCHES LOCATED UNDER AREAS TO RECEIVE PAVING SHALL BE COMPLETELY BACK FILLED IN ACCORDANCE WITH THE GOVERNING JURISDICTIONAL AGENCY'S SPECIFICATIONS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
- 6. ALL WORK WILL BE CONDUCTED IN CLOSE COORDINATION WITH THE NORTH WEST UTILITY DISTRICT PERSONNEL.
- 7. NOTIFY NWUD INSPECTOR NOT LESS THAN 48 HOURS PRIOR TO START OF CONSTRUCTION.
- 8. NO WATER LINE WILL BE REMOVED FROM SERVICE WITHOUT A MINIMUM OF 48 HOUR NOTICE TO ALL AFFECTED USERS.
- 9. NEW WATER LINE TO BE INSTALLED WITH A MIN. OF 30 INCHES COVER.
- 10. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF WATER AND SEWER LINE IS 10'. THE MINIMUM VERTICAL SEPARATION BETWEEN THE CLOSEST TWO POINTS OF THE WATER AND SEWER LINES IS 18".
- 11. ALL WATER LINE TIE-INS ARE TO BE DETAILED IN A CONTRACTOR'S SUBMITTED "PLAN OF ACTION".
- 12. ALL EXISTING FEATURES SHOWN ON THIS DRAWING, INCLUDING CONTOURS, ELEVATIONS, ETC., ARE BASED ON LIDAR MAPPING PROVIDED BY SETD AND SUPPLEMENTED BY CROY FIELD RECONNAISSANCE.
- 13. ELEVATIONS ARE BASED ON MEAN SEA LEVEL.
- 14. CONTOUR INTERVAL SHOWN IS TWO FEET AND IS FROM LIDAR MAPPING PROVIDED BY SETD.
- 15. BOUNDARY INFORMATION SHOWN ON THESE DRAWINGS IS SHOWN FOR THE CONTRACTOR'S ORIENTATION. BOUNDARY INFORMATION IS FROM TENNESSEE PROPERTY VIEWER PARCEL DATA.
- 16. THE CONTRACTOR SHALL VERIFY THE DEPTH AND LOCATION OF BOTH THE INITIAL FACILITIES AND THE TIE-IN FACILITY PRIOR TO ANY CONSTRUCTION.
- 17. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OR OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL IMPLEMENT SUPPORT SYSTEMS, SLOPING, BENCHING, & OTHER MEANS OF PROTECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, ACCESS & EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH PERFORMANCE CRITERIA FOR OSHA.
- 18. CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS, AND IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- 19. CONTRACTOR'S WORK, PRODUCTS, AND INSTALLATION SHALL CONFORM TO NWUD STANDARD SPECIFICATIONS, LATEST EDITION, APPROVED BY TDEC.



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**MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II**

**NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN**

NO.	REVISION REFERENCE	DATE

SEAL

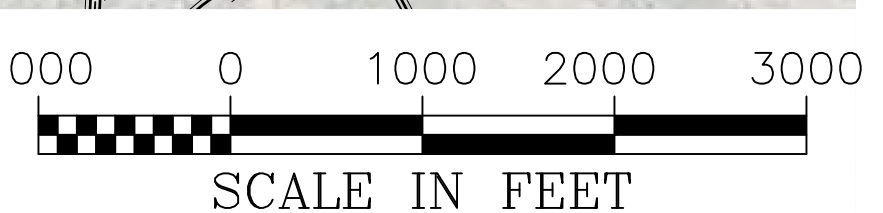
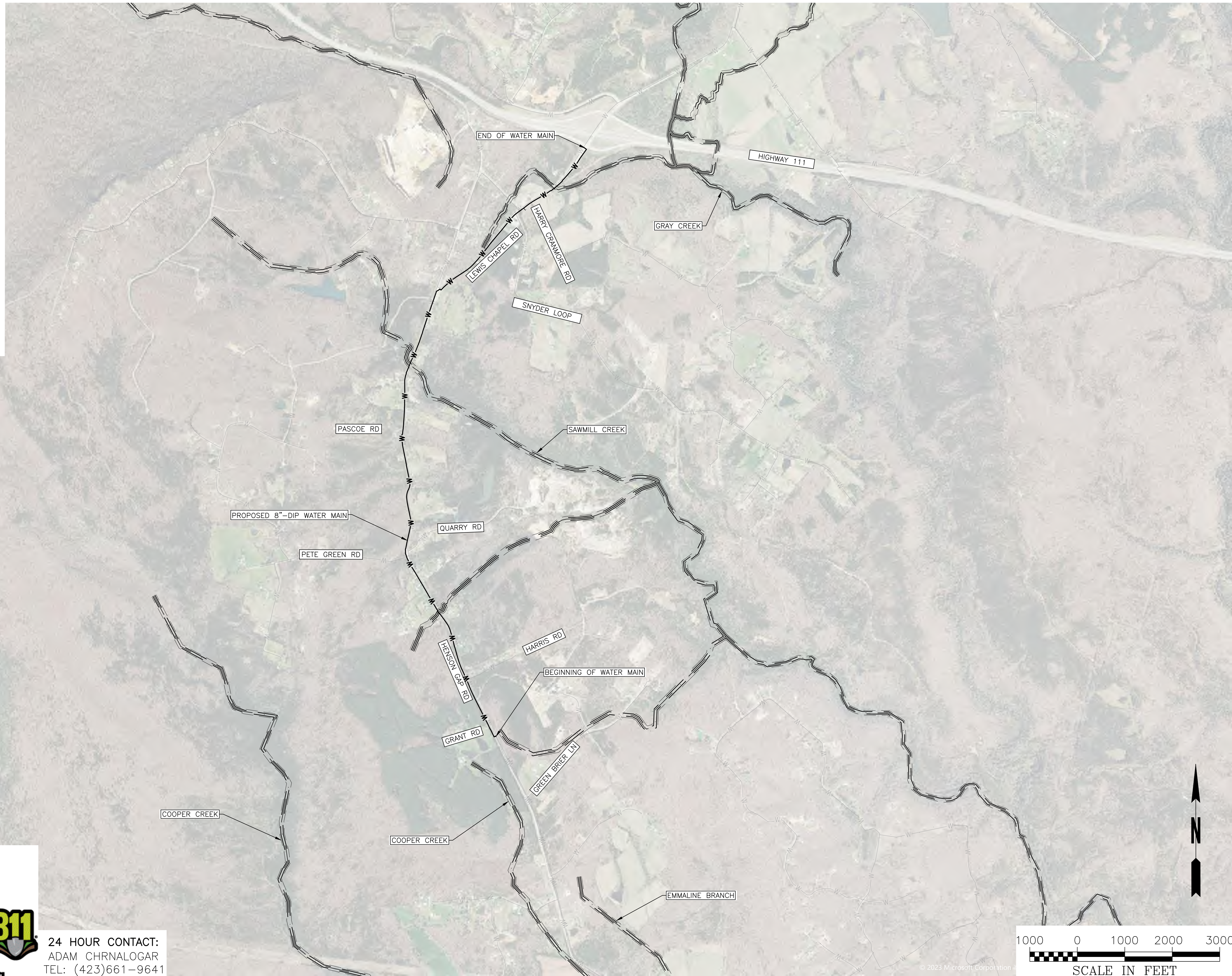
SHEET TITLE
GENERAL NOTES & LEGEND

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DRAWING NUMBER C-001	

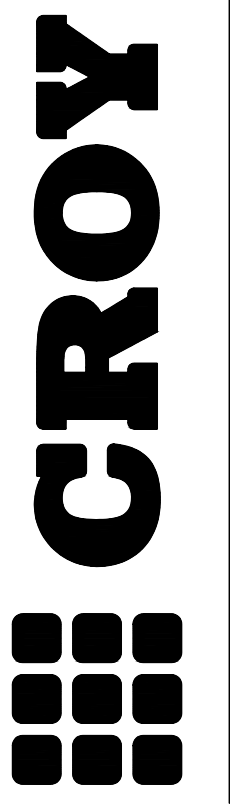
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LEGEND

- EX. WATERLINE
- PROP. WATERLINE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- WATER REDUCER
- WATER TEE
- WATER FITTING
- WATER CAP
- WATER CROSS
- EX. SAN. SEWER LINE
- SAN. SEWER MANHOLE
- CLEAN OUT
- EX. STORM SEWER LINE
- JUNCTION BOX
- SINGLE WING C.B.
- DOUBLE WING C.B.
- DROP INLET
- EX. OVER HEAD ELECTRIC LINE
- EX. GAS LINE
- GAS VALVE
- POWER POLE
- EX. EOP
- EX. ROW
- TEMP. EASEMENT
- PERM. EASEMENT
- CREEK BANK
- C/L OF CREEK
- 30' BUFFER
- 60' BUFFER
- LOD
- SILT FENCE (TYPE-C)



24 HOUR CONTACT:
 ADAM CHRNALOGAR
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 WATER STORAGE - PHASE II**
 NORTH WEST UTILITY DISTRICT
 SODDY-DAISY, TN

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SEAL

SHEET TITLE
OVERALL SITE PLAN

DRAWN BY QM	CHECKED BY MDB
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DRAWING NUMBER C-100	

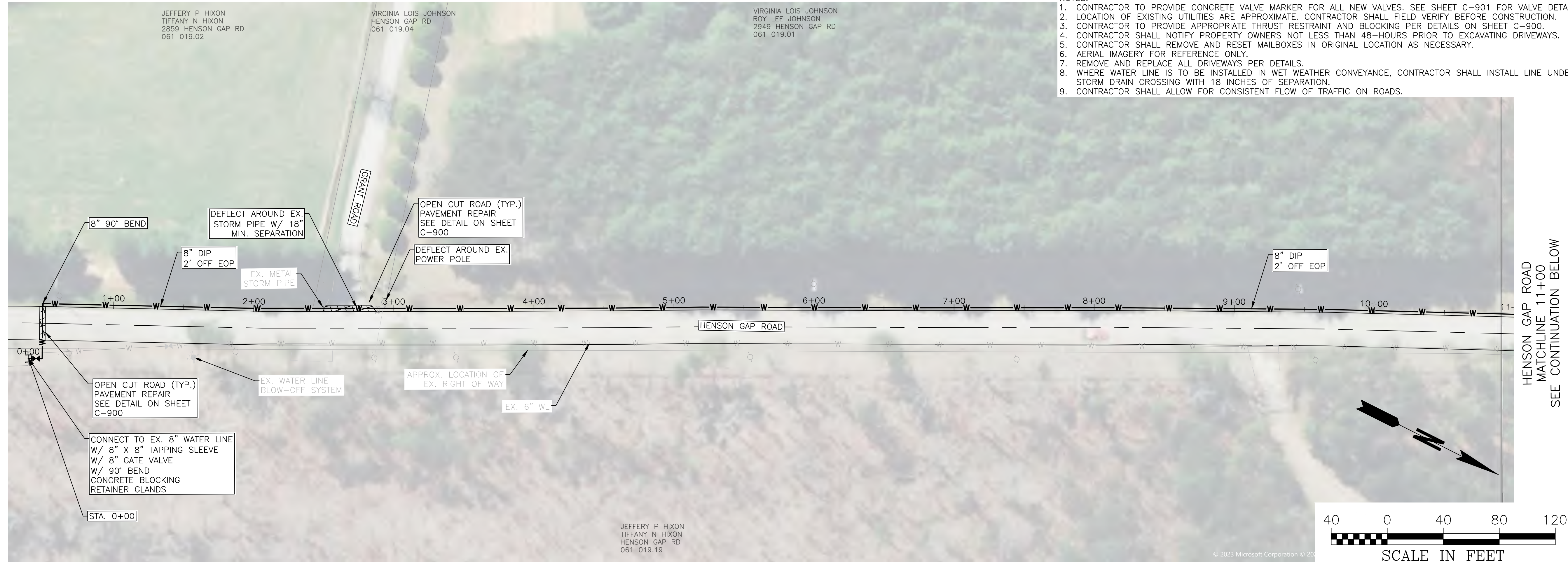
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 Plot Scale: 1" = 1000'
 Plot Size: Design.ctb, Plotted By: Kristin Jolley on 4/22/2024, 9:51 AM

JEFFERY P HIXON
TIFFANY N HIXON
2859 HENSON GAP RD
061 019.02

VIRGINIA LOIS JOHNSON
HENSON GAP RD
061 019.04

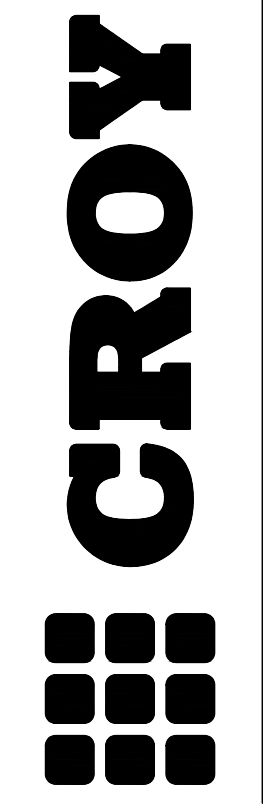
VIRGINIA LOIS JOHNSON
ROY LEE JOHNSON
2949 HENSON GAP RD
061 019.01

- NOTES:
1. CONTRACTOR TO PROVIDE CONCRETE VALVE MARKER FOR ALL NEW VALVES. SEE SHEET C-901 FOR VALVE DETAIL.
 2. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY BEFORE CONSTRUCTION.
 3. CONTRACTOR TO PROVIDE APPROPRIATE THRUST RESTRAINT AND BLOCKING PER DETAILS ON SHEET C-900.
 4. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS NOT LESS THAN 48-HOURS PRIOR TO EXCAVATING DRIVEWAYS.
 5. CONTRACTOR SHALL REMOVE AND RESET MAILBOXES IN ORIGINAL LOCATION AS NECESSARY.
 6. AERIAL IMAGERY FOR REFERENCE ONLY.
 7. REMOVE AND REPLACE ALL DRIVEWAYS PER DETAILS.
 8. WHERE WATER LINE IS TO BE INSTALLED IN WET WEATHER CONVEYANCE, CONTRACTOR SHALL INSTALL LINE UNDER STORM DRAIN CROSSING WITH 18 INCHES OF SEPARATION.
 9. CONTRACTOR SHALL ALLOW FOR CONSISTENT FLOW OF TRAFFIC ON ROADS.



JEFFERY P HIXON
TIFFANY N HIXON
HENSON GAP RD
061 019.19

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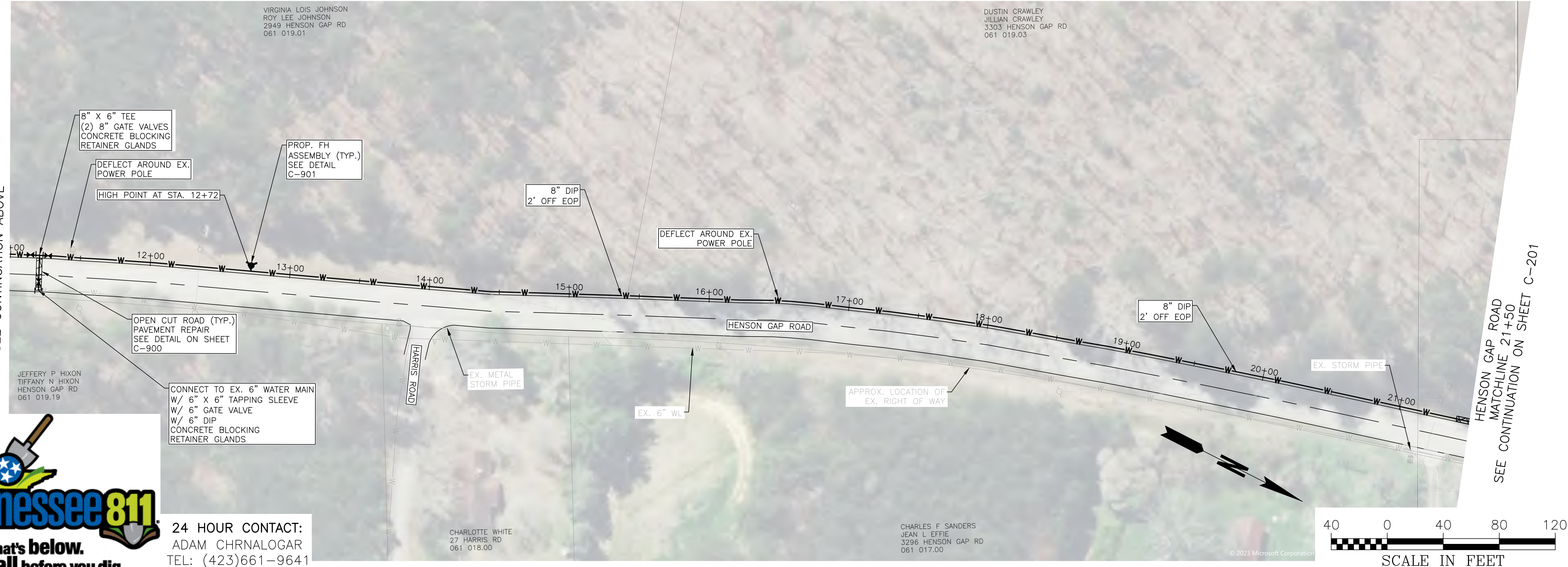
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NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN



VIRGINIA LOIS JOHNSON
ROY LEE JOHNSON
2949 HENSON GAP RD
061 019.01

DUSTIN CRAWLEY
JILLIAN CRAWLEY
3303 HENSON GAP RD
061 019.03

JEFFERY P HIXON
TIFFANY N HIXON
HENSON GAP RD
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CHARLOTTE WHITE
27 HARRIS RD
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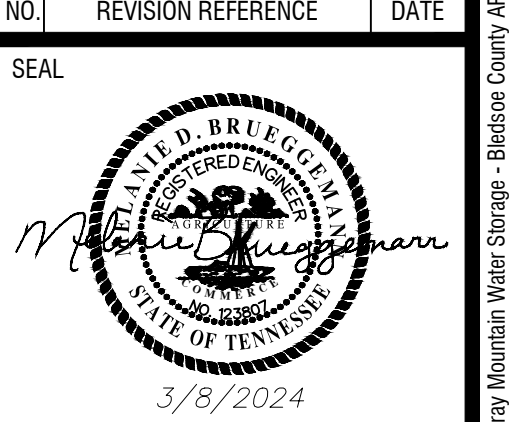
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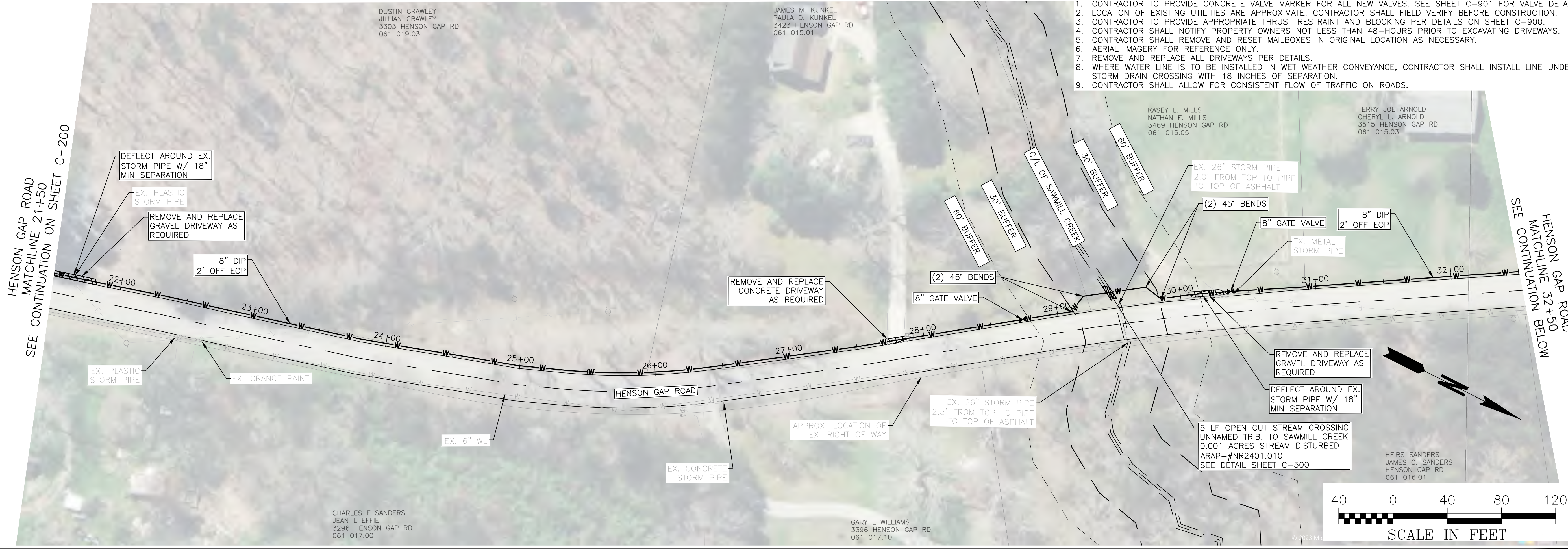
SHEET TITLE
WATER LINE LAYOUT

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024

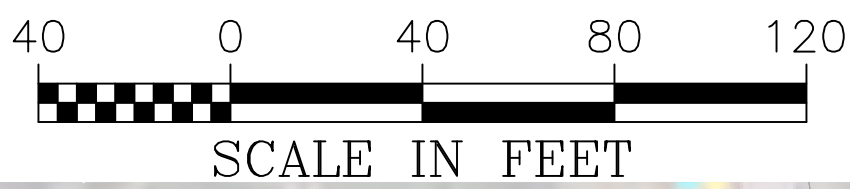
PROJECT NUMBER
2388.007

DRAWING NUMBER
C-200

Drawing Location: F:\Chattnooga\2388 North West Utility District\2388.007 Mowbray Mountain Water Storage - Beissee County, ARPEngineering\Design\2388.007_DESIGN.dwg



- NOTES:
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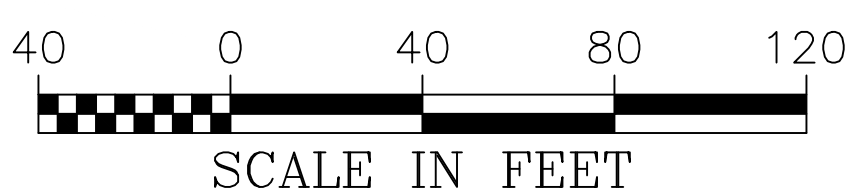
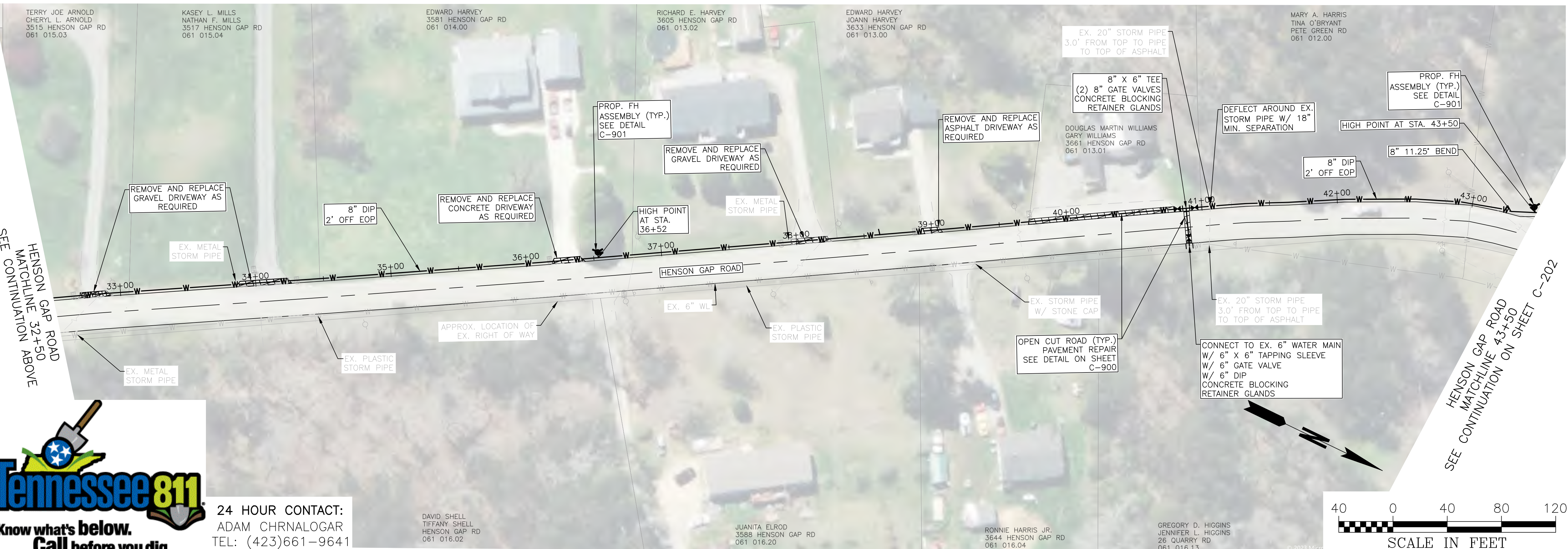
1270 MARKET STREET
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Plot Size: 11" x 17" Plot Style: Design.ctb. Plotted By: Kristian Jolley on 4/22/2024, 9:52 AM

**MOBRAWY MOUNTAIN
WATER STORAGE - PHASE II**

NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN



NO.	REVISION	REFERENCE	DATE

SEAL

3/8/2024

SHEET TITLE
WATER LINE LAYOUT

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024
PROJECT NUMBER 2388.007	
DRAWING NUMBER C-201	

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TEL: (423)661-9641

DAVID SHELL
TIFFANY SHELL
HENSON GAP RD
061 016.02

JUANITA ELROD
3588 HENSON GAP RD
061 016.20

RONNIE HARRIS JR.
3644 HENSON GAP RD
061 016.04

GREGORY D. HIGGINS
JENNIFER L. HIGGINS
26 QUARRY RD
061 016.13

CHARLES F SANDERS
JEAN L EFFIE
3296 HENSON GAP RD
061 017.00

GARY L WILLIAMS
3396 HENSON GAP RD
061 017.10

DUSTIN CRAWLEY
JILLIAN CRAWLEY
3303 HENSON GAP RD
061 019.03

JAMES M. KUNKEL
PAULA D. KUNKEL
3423 HENSON GAP RD
061 015.01

KASEY L. MILLS
NATHAN F. MILLS
3469 HENSON GAP RD
061 015.05

TERRY JOE ARNOLD
CHERYL L. ARNOLD
3515 HENSON GAP RD
061 015.03

EDWARD HARVEY
JOANN HARVEY
3581 HENSON GAP RD
061 014.00

RICHARD E. HARVEY
3605 HENSON GAP RD
061 013.02

EDWARD HARVEY
JOANN HARVEY
3633 HENSON GAP RD
061 013.00

MARY A. HARRIS
TINA O'BRYAN
PETE GREEN RD
061 012.00

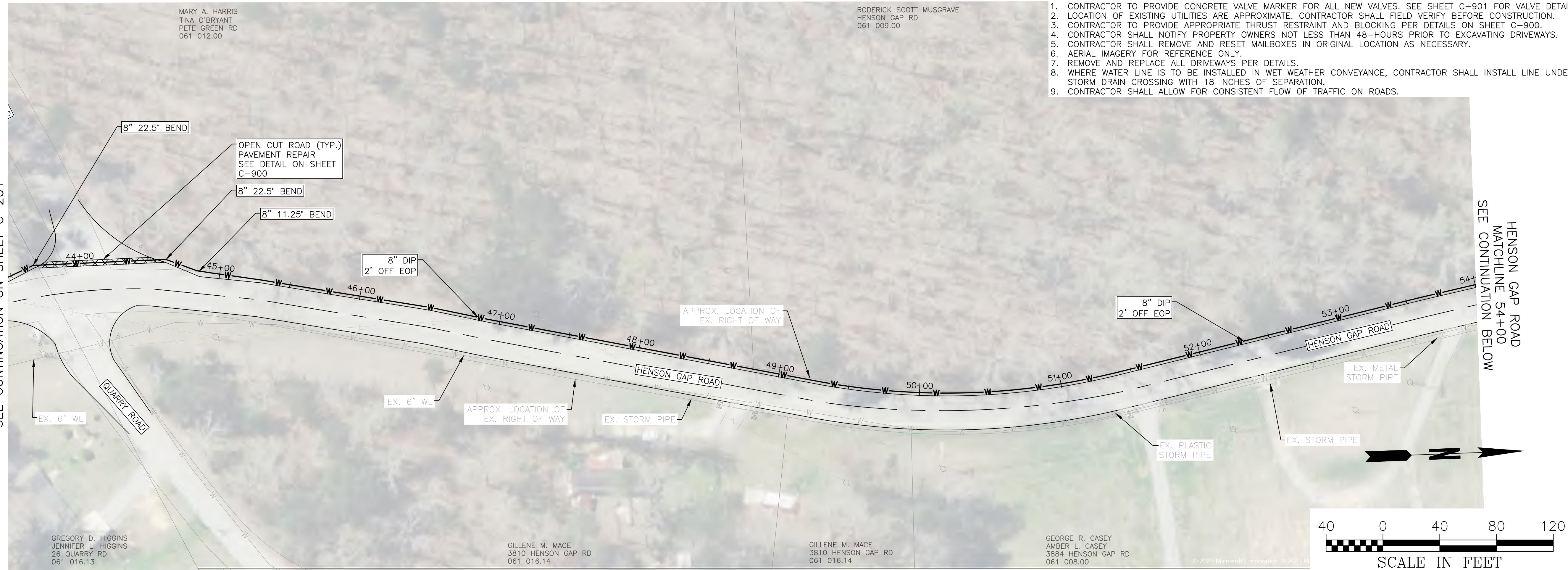
DOUGLAS MARTIN WILLIAMS
GARY WILLIAMS
3661 HENSON GAP RD
061 013.01

MARY A. HARRIS
TINA O'BRYAN
PETE GREEN RD
061 012.00

RODERICK SCOTT MUSGRAVE
HENSON GAP RD
061 009.00

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 9. CONTRACTOR SHALL ALLOW FOR CONSISTENT FLOW OF TRAFFIC ON ROADS.

HENSON GAP ROAD
MATCHLINE 43+50
SEE CONTINUATION ON SHEET C-201

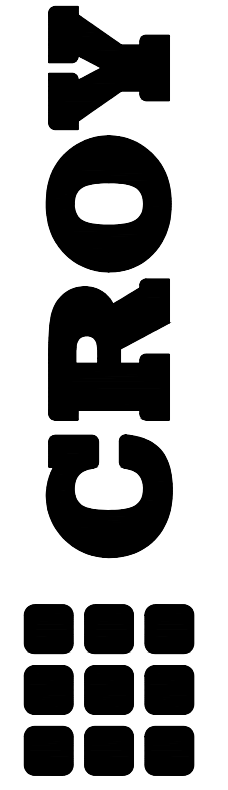
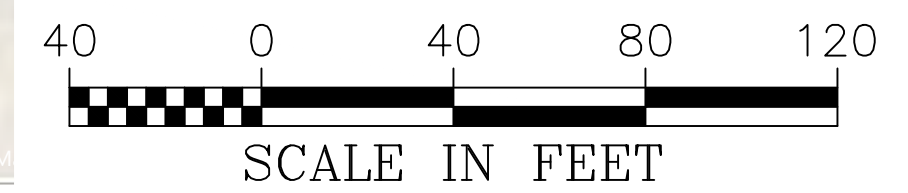


GREGORY D. HIGGINS
JENNIFER L. HIGGINS
26 QUARRY RD
061 016.13

GILLENE M. MACE
3810 HENSON GAP RD
061 016.14

GILLENE M. MACE
3810 HENSON GAP RD
061 016.14

GEORGE R. CASEY
AMBER L. CASEY
3884 HENSON GAP RD
061 008.00



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PHONE: (423) 708-5658

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**MOBRAWY MOUNTAIN
WATER STORAGE - PHASE II**
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

HENSON GAP ROAD
MATCHLINE 54+00
SEE CONTINUATION ABOVE

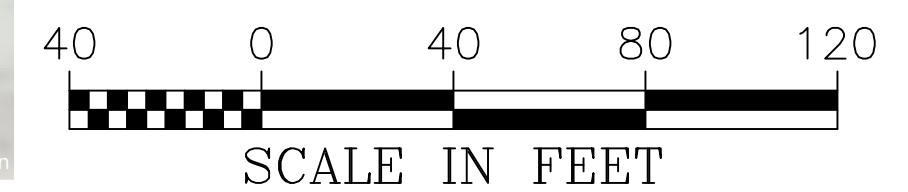
RODERICK SCOTT MUSGRAVE
HENSON GAP RD
061 009.00



GEORGE R. CASEY
AMBER L. CASEY
3884 HENSON GAP RD
061 008.00

GERALD DAVIS
DEBORAH A. DAVIS
4004 HENSON GAP RD
061 008.01

DANNY L. LOVELADY
HENSON GAP RD
061 004.01

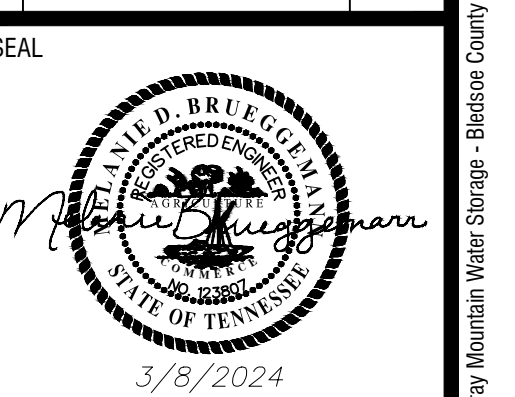


HENSON GAP ROAD
MATCHLINE 65+00
SEE CONTINUATION ON SHEET C-203



24 HOUR CONTACT:
ADAM CHRNALOGAR
TEL: (423)661-9641

NO.	REVISION REFERENCE	DATE



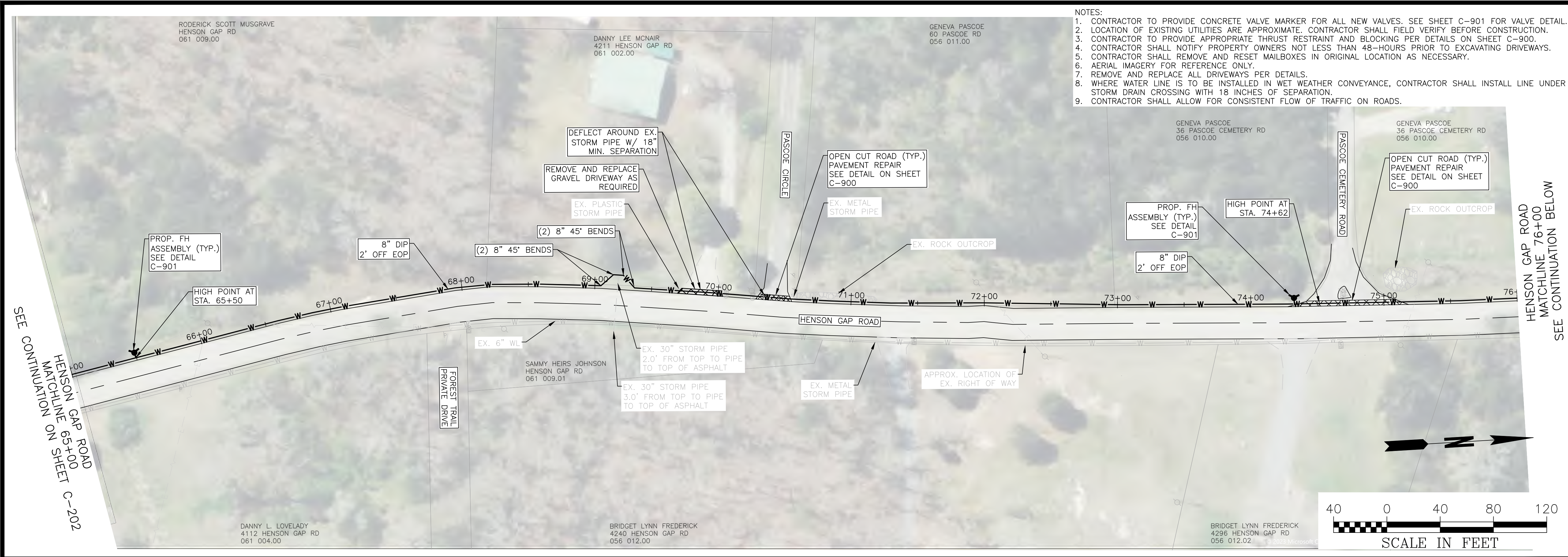
SHEET TITLE
WATER LINE LAYOUT

DRAWN BY: QM
CHECKED BY: MDB
SCALE: AS SHOWN
ISSUE DATE: 3/8/2024

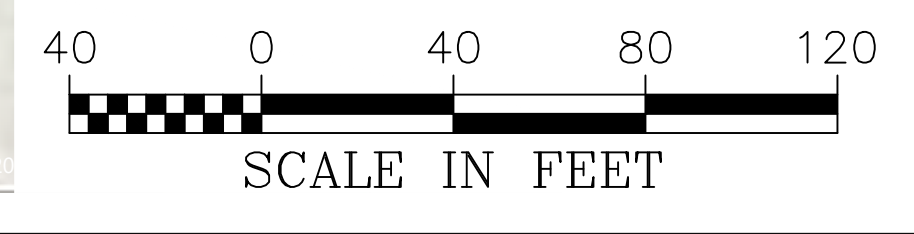
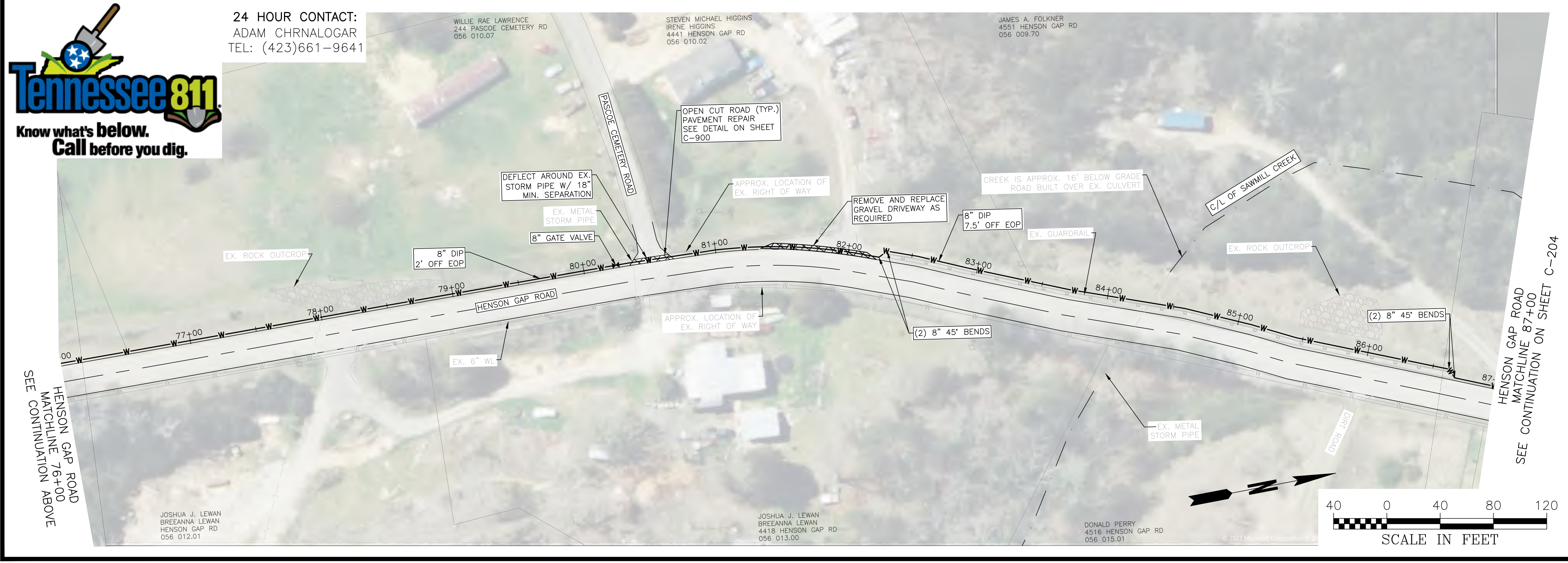
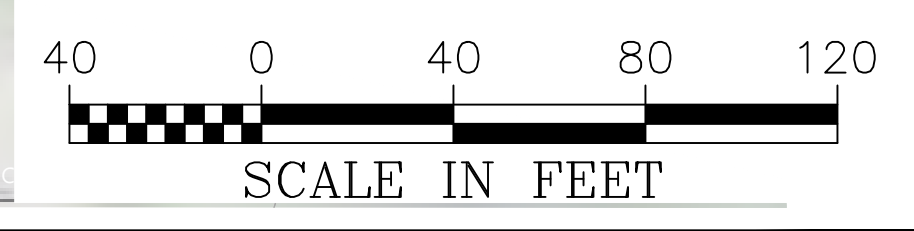
PROJECT NUMBER
2388.007

DRAWING NUMBER
C-202

Drawing Location: F:\Chatanooga\2388 North West Utility District\2388.007 Mobraway Mountain Water Storage - Bessemer County, AR\PE\Engineering\Design\2388.007_DESIGN.dwg



- NOTES:
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**MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II**
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

NO.	REVISION REFERENCE	DATE

SEAL

3/8/2024

SHEET TITLE
WATER LINE LAYOUT

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024

PROJECT NUMBER
2388.007

DRAWING NUMBER
C-203

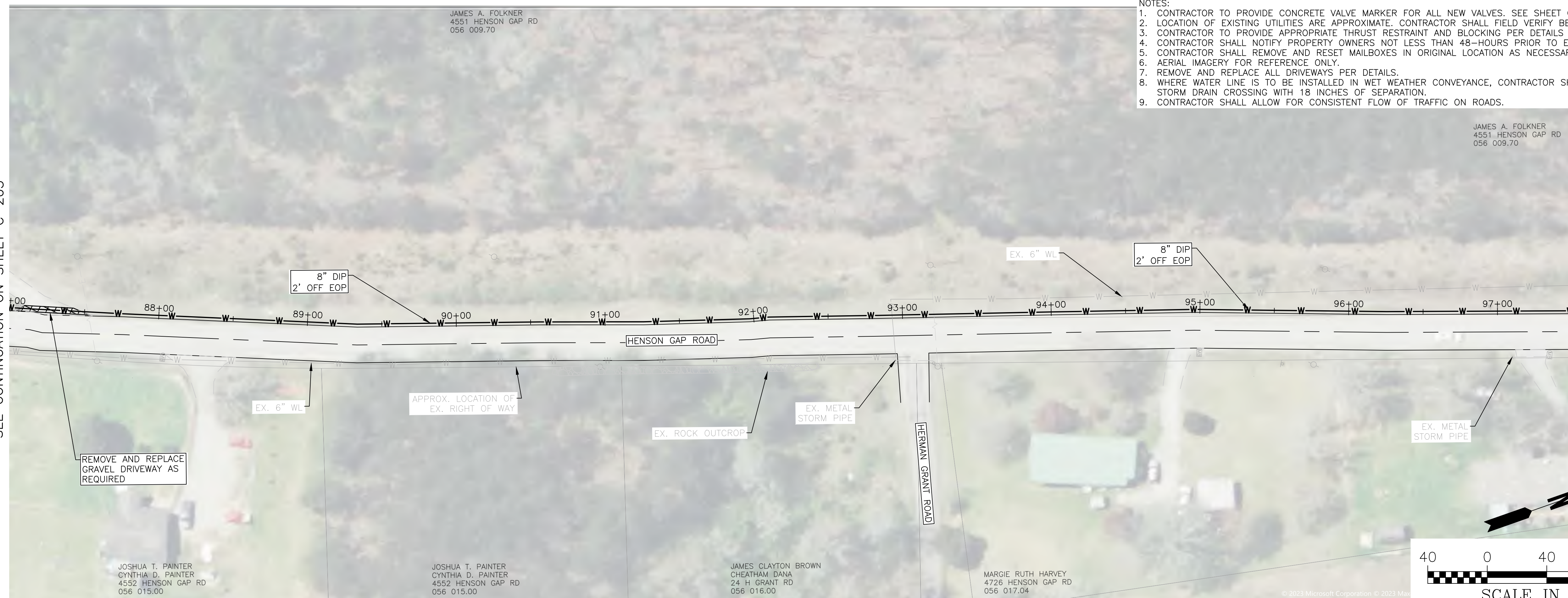
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JAMES A. FOLKNER
4551 HENSON GAP RD
056 009.70

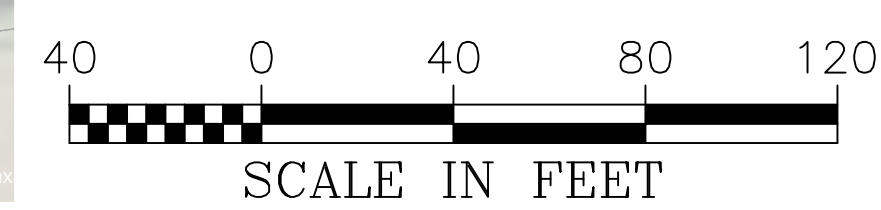
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JAMES A. FOLKNER
4551 HENSON GAP RD
056 009.70

HENSON GAP ROAD
MATCHLINE 87+00
SEE CONTINUATION ON SHEET C-203



HENSON GAP ROAD
MATCHLINE 97+50
SEE CONTINUATION BELOW



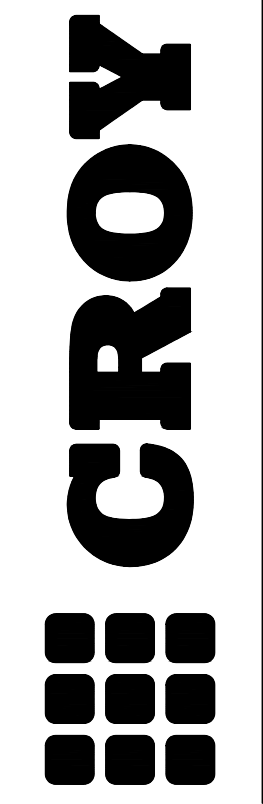
JOSHUA T. PAINTER
CYNTHIA D. PAINTER
4552 HENSON GAP RD
056 015.00

JOSHUA T. PAINTER
CYNTHIA D. PAINTER
4552 HENSON GAP RD
056 015.00

JAMES CLAYTON BROWN
CHEATHAM DANA
24 H GRANT RD
056 016.00

MARGIE RUTH HARVEY
4726 HENSON GAP RD
056 017.04

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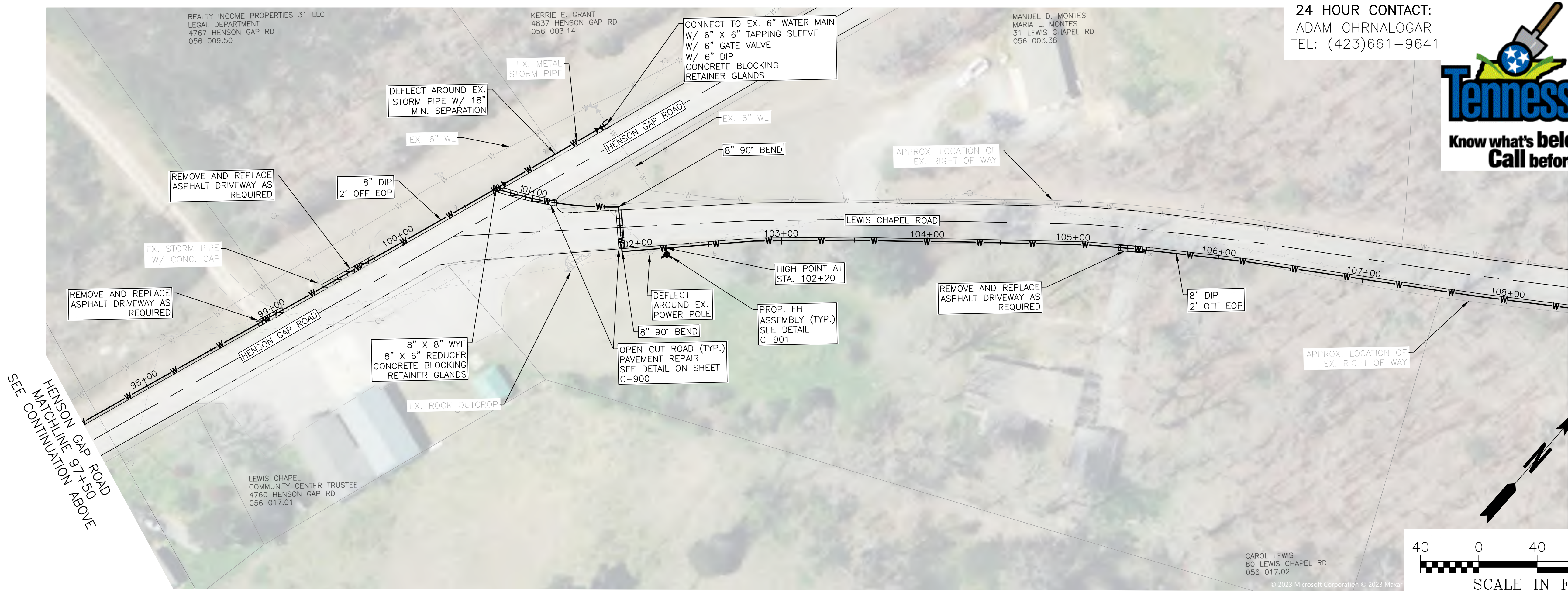


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CHATTANOOGA, TN 37402
PHONE: (423) 708-5658

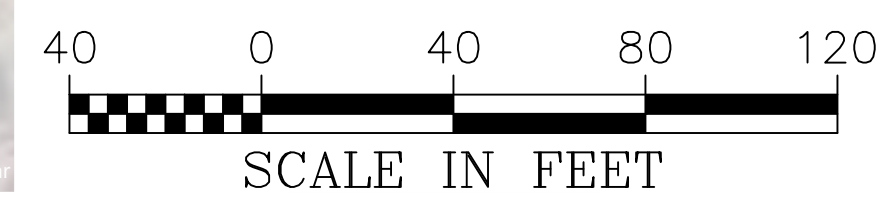
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Plot Style: Design.ctb. Plotted By: Kristin Jolley on 4/22/2024, 9:54 AM

**MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II**
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

24 HOUR CONTACT:
ADAM CHRNALOGAR
TEL: (423)661-9641



LEWIS CHAPEL ROAD
MATCHLINE 108+50
SEE CONTINUATION ON SHEET C-205



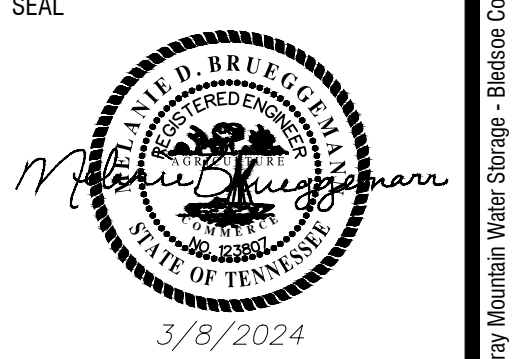
HENSON GAP ROAD
MATCHLINE 97+50
SEE CONTINUATION ABOVE

LEWIS CHAPEL
COMMUNITY CENTER TRUSTEE
4760 HENSON GAP RD
056 017.01

CAROL LEWIS
80 LEWIS CHAPEL RD
056 017.02

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NO.	REVISION REFERENCE	DATE



SHEET TITLE
WATER LINE LAYOUT

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024

PROJECT NUMBER
2388.007

DRAWING NUMBER
C-204

Plot Style: Design.ctb. Plotted By: Kristin Jolley on 4/22/2024, 9:54 AM

MARIO BECERRA
BLANCA JASMINE BECERRA
4970 HENSON GAP RD
056 003.37

LAWRENCE D. MCCLENDON
WENDY WAY RD
056 003.09

BRENDA KERNS
127 WENDY WAY RD
056 003.10

JAMES J. JURGENSEN
93 WENDY WAY RD
056 030.05

GARY WILLIAMS
441 LEWIS CHAPEL RD
056 018.02

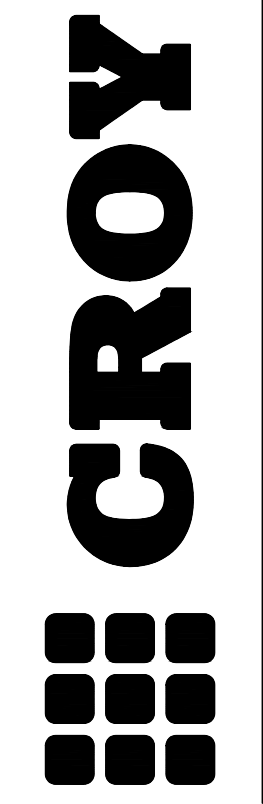
CHRISTY L. ALEXANDER
162 LEWIS CHAPEL RD
056 017.10

ROBERT JAMES DELANEY
205 LEWIS CHAPEL RD
056 018.05

JERREN J. COLEMAN
220 LEWIS CHAPEL RD
056 018.13

LEWIS CHAPEL CHURCH
LEWIS CHAPEL RD
056 019.01

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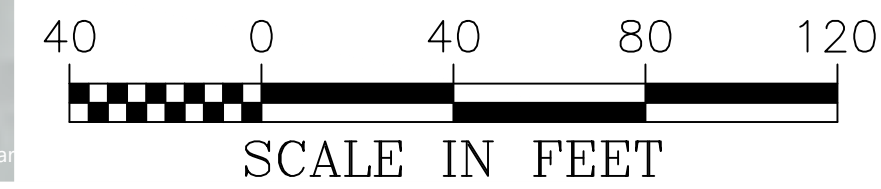
1270 MARKET STREET
CHATTANOOGA, TN 37402
PHONE: (423) 708-5658

MOWBRAY MOUNTAIN WATER STORAGE - PHASE II

NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

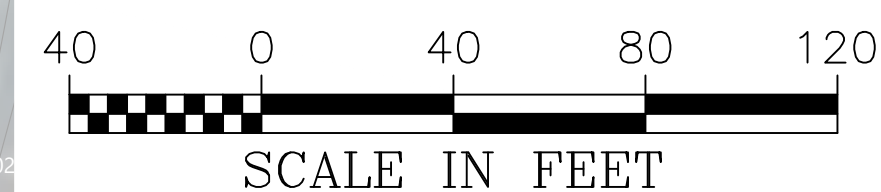
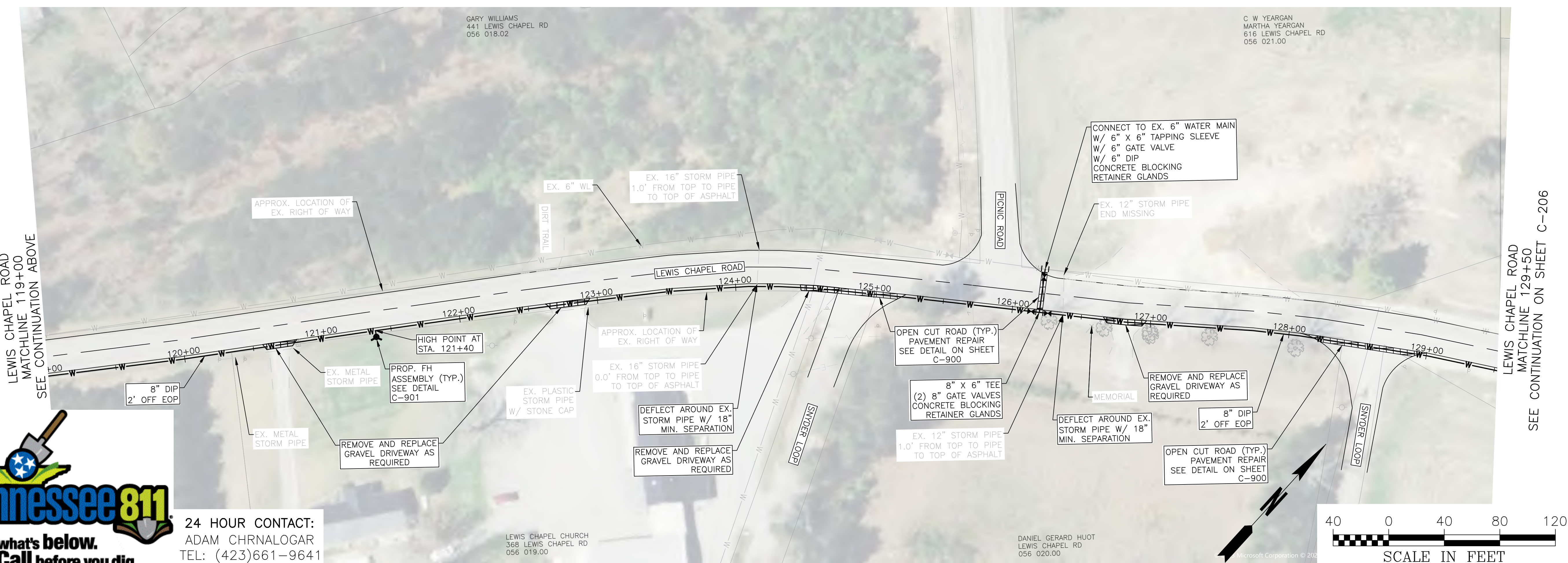
LEWIS CHAPEL ROAD
MATCHLINE 108+50
SEE CONTINUATION ON SHEET C-204

LEWIS CHAPEL ROAD
MATCHLINE 119+00
SEE CONTINUATION BELOW



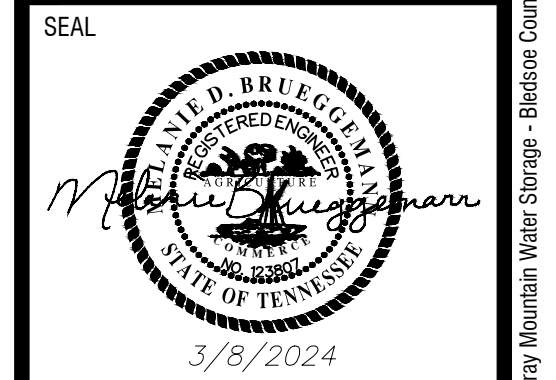
LEWIS CHAPEL ROAD
MATCHLINE 119+00
SEE CONTINUATION ABOVE

LEWIS CHAPEL ROAD
MATCHLINE 129+50
SEE CONTINUATION ON SHEET C-206



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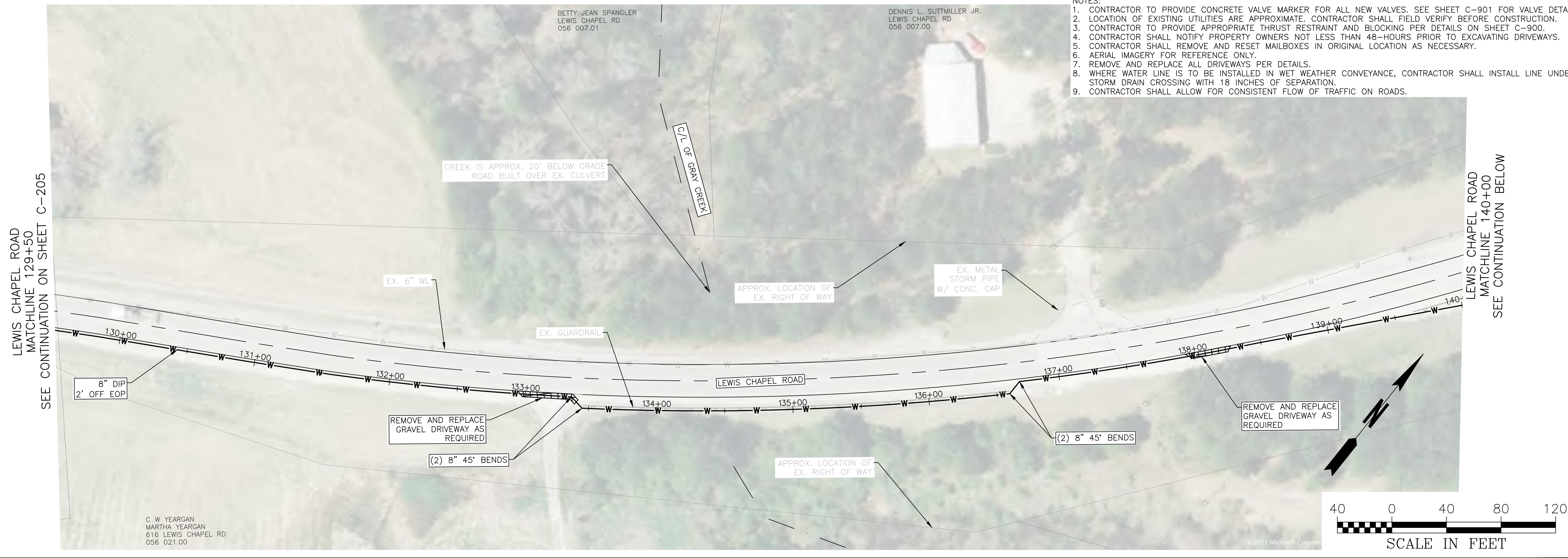
NO.	REVISION REFERENCE	DATE



SHEET TITLE
WATER LINE LAYOUT

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024
PROJECT NUMBER 2388.007	
DRAWING NUMBER C-205	

Plot Scale: 1" = 40' Plot Style: Design.ctb. Plotted By: Kristan Jolley on 4/22/2024 9:55 AM

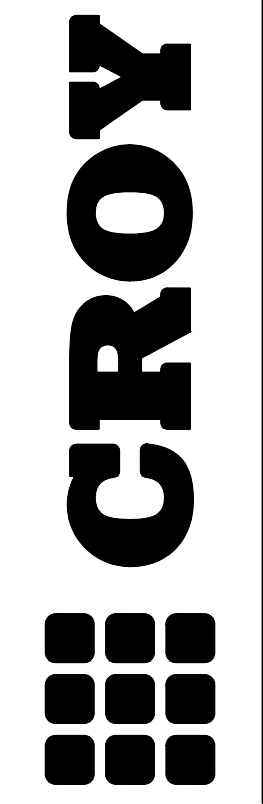


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LEWIS CHAPEL ROAD
MATCHLINE 129+50
SEE CONTINUATION ON SHEET C-205

LEWIS CHAPEL ROAD
MATCHLINE 140+00
SEE CONTINUATION BELOW

C. W. YEARGAN
MARSHA YEARGAN
616 LEWIS CHAPEL RD
056 021.00

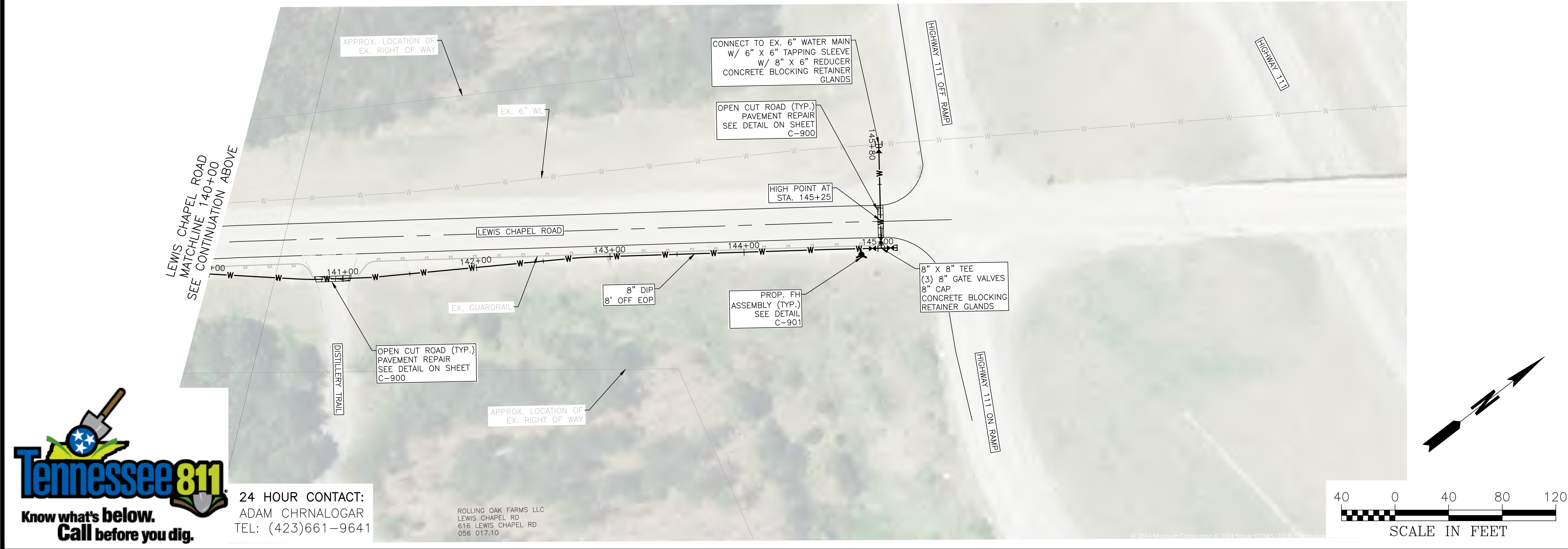
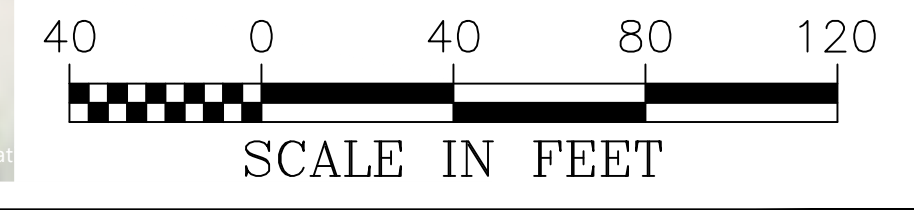


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CHATTAHOOGA, TN 37402
PHONE: (423) 708-5658

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Plot Style: Design.ctb - Plotted By: Kristen Jolley on 4/22/2024, 9:55 AM

MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN



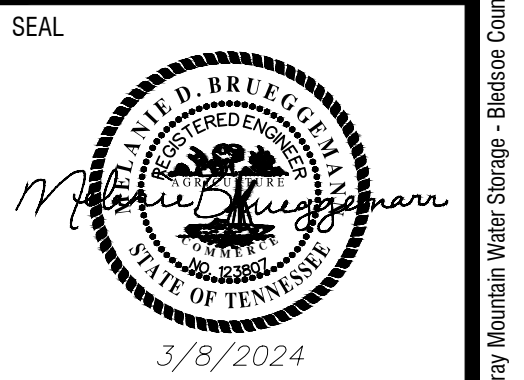
LEWIS CHAPEL ROAD
MATCHLINE 140+00
SEE CONTINUATION ABOVE

24 HOUR CONTACT:
ADAM CHRNALOGAR
TEL: (423)661-9641

ROLLING OAK FARMS LLC
LEWIS CHAPEL RD
616 LEWIS CHAPEL RD
056 017.10

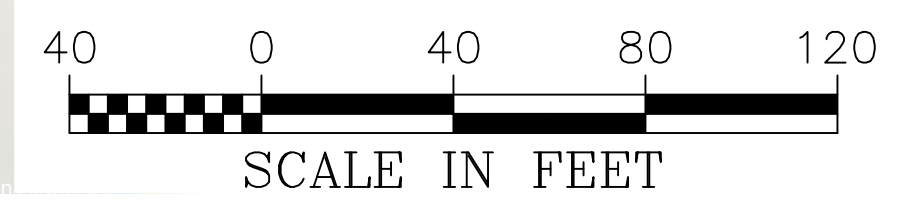


NO.	REVISION REFERENCE	DATE

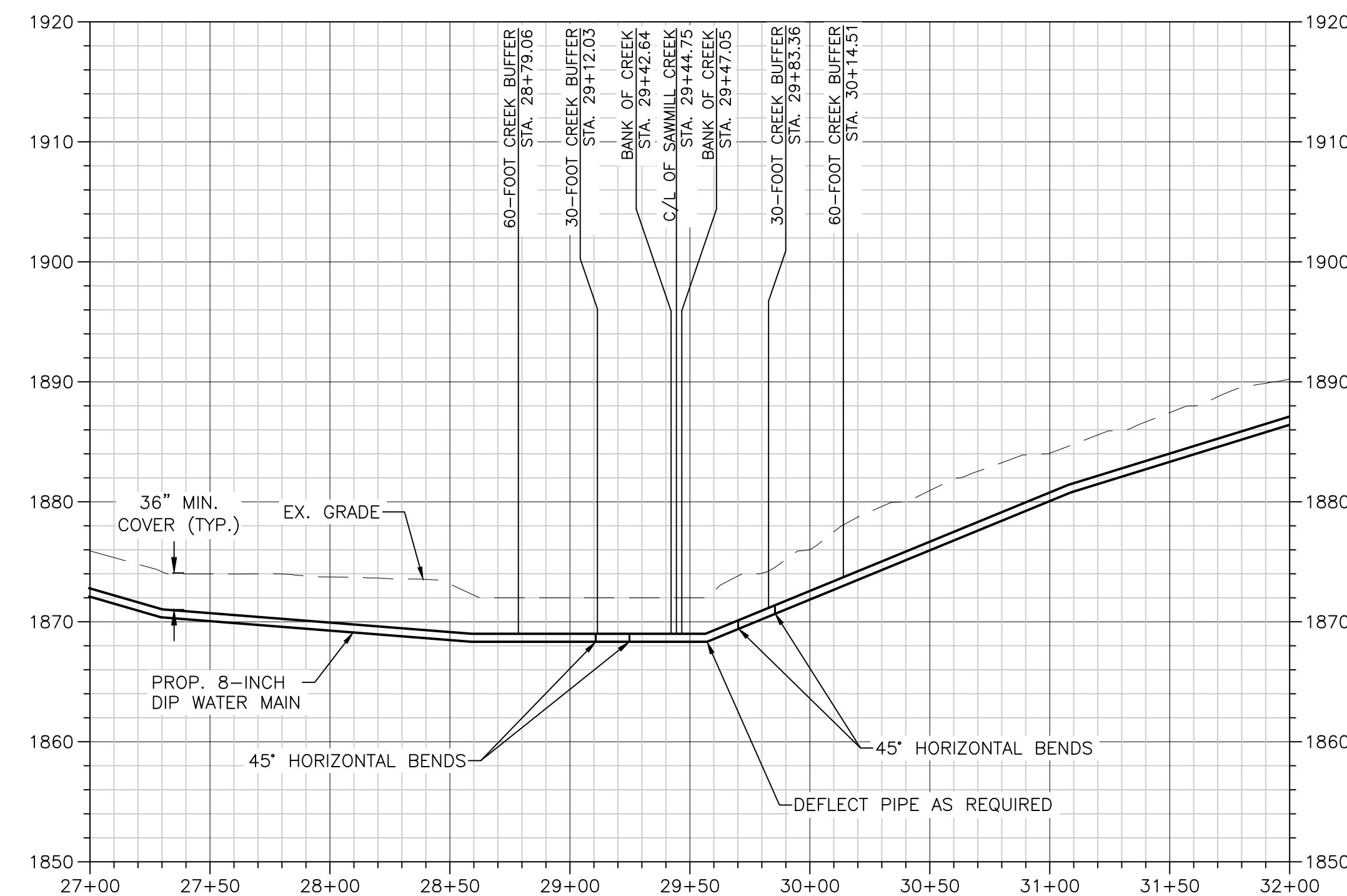
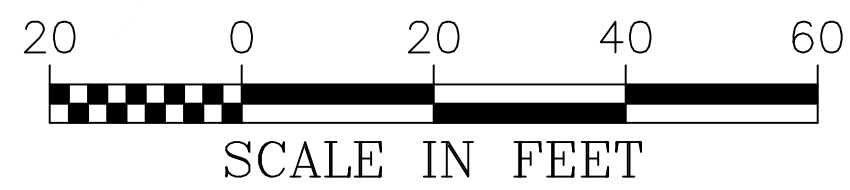
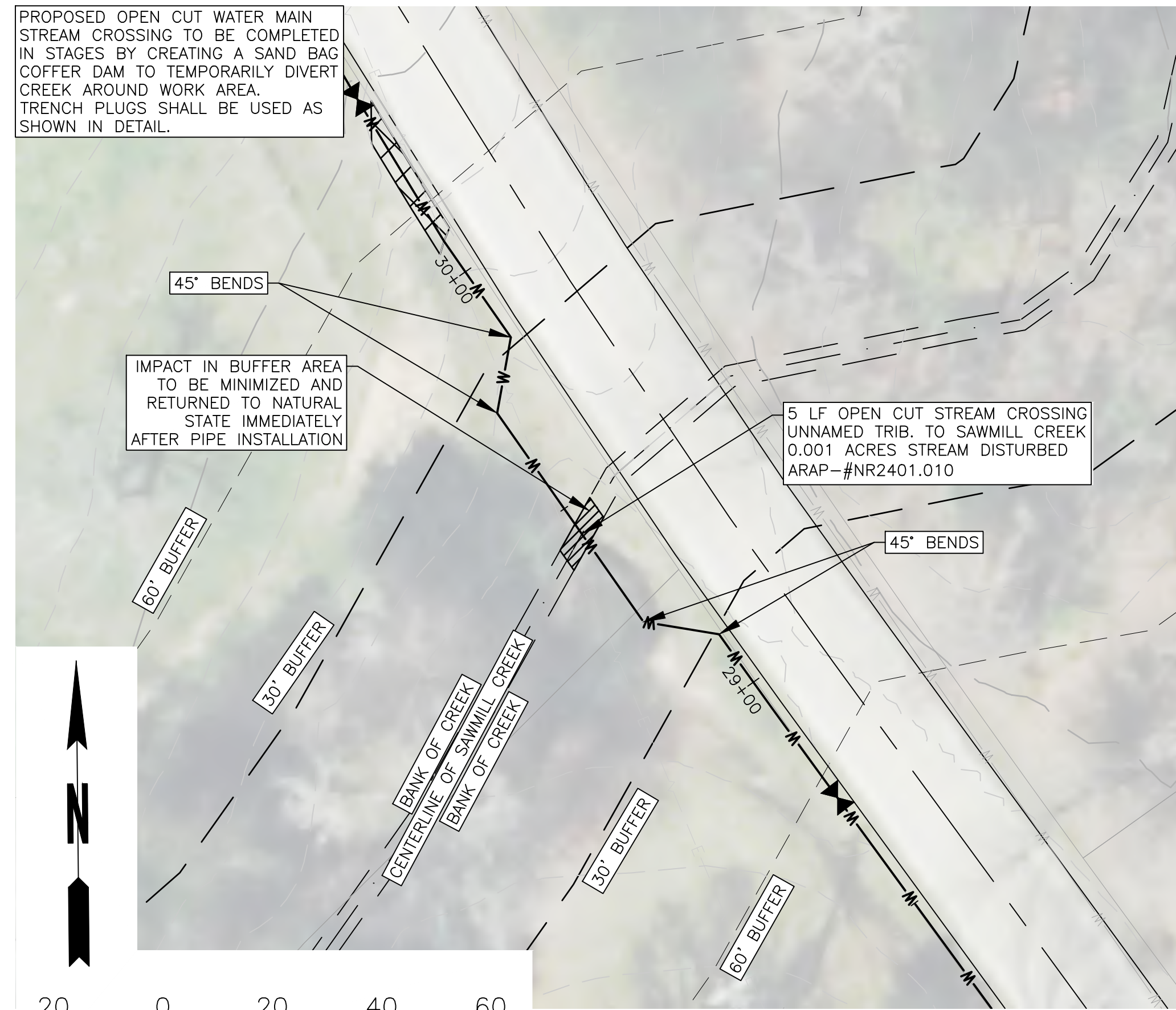


SHEET TITLE
WATER LINE LAYOUT

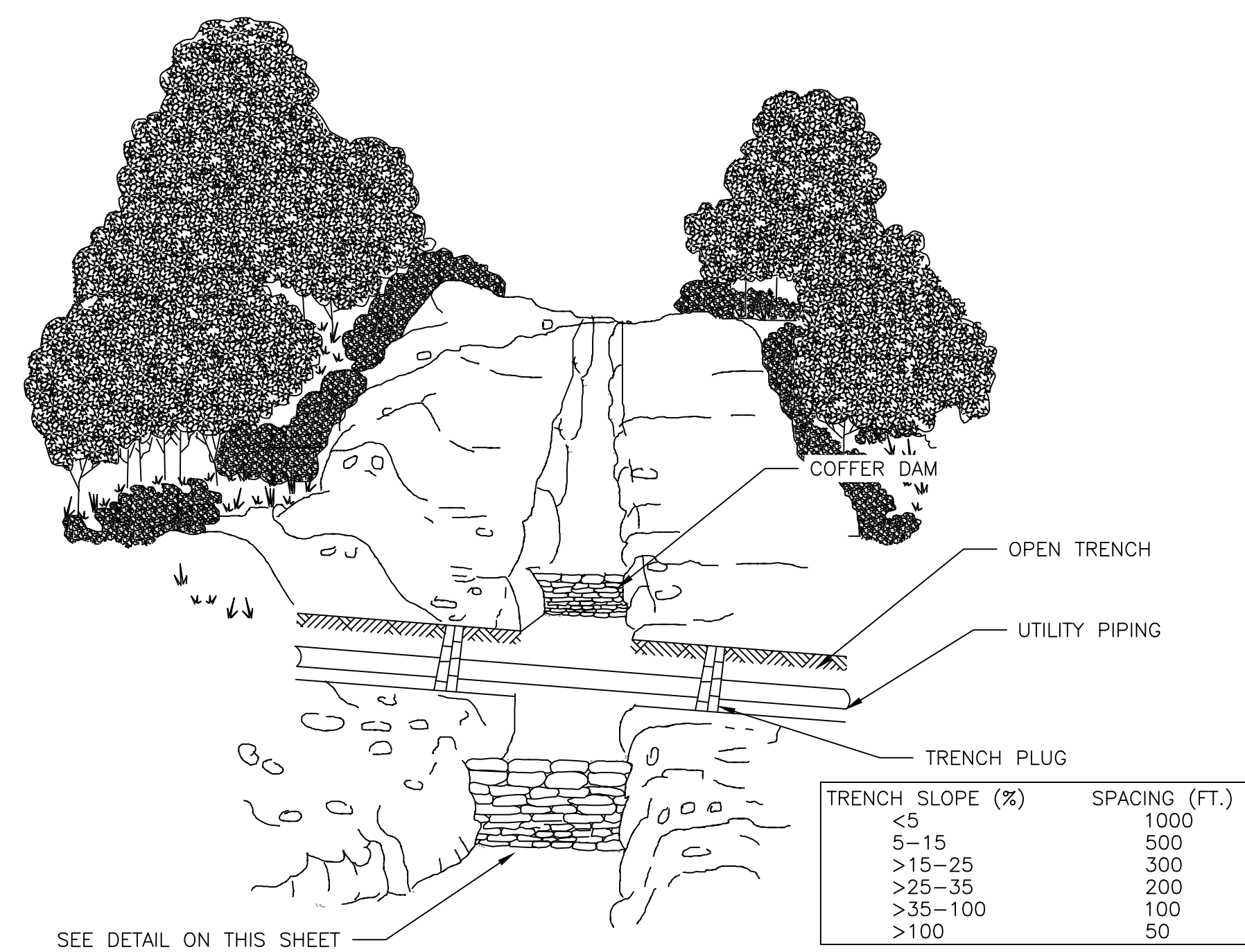
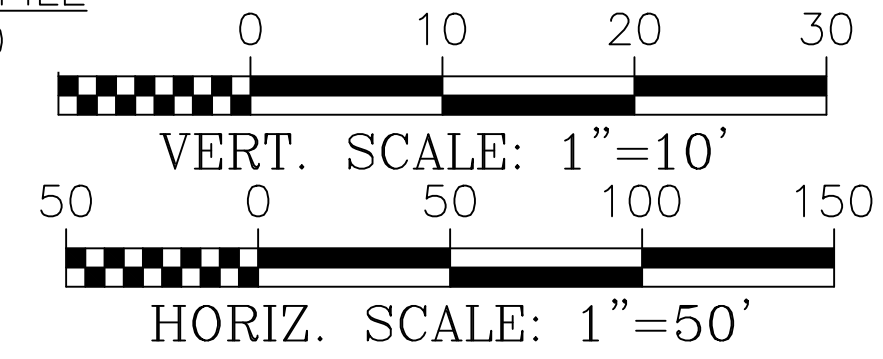
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SCALE AS SHOWN	ISSUE DATE 3/8/2024
PROJECT NUMBER 2388.007	
DRAWING NUMBER C-206	



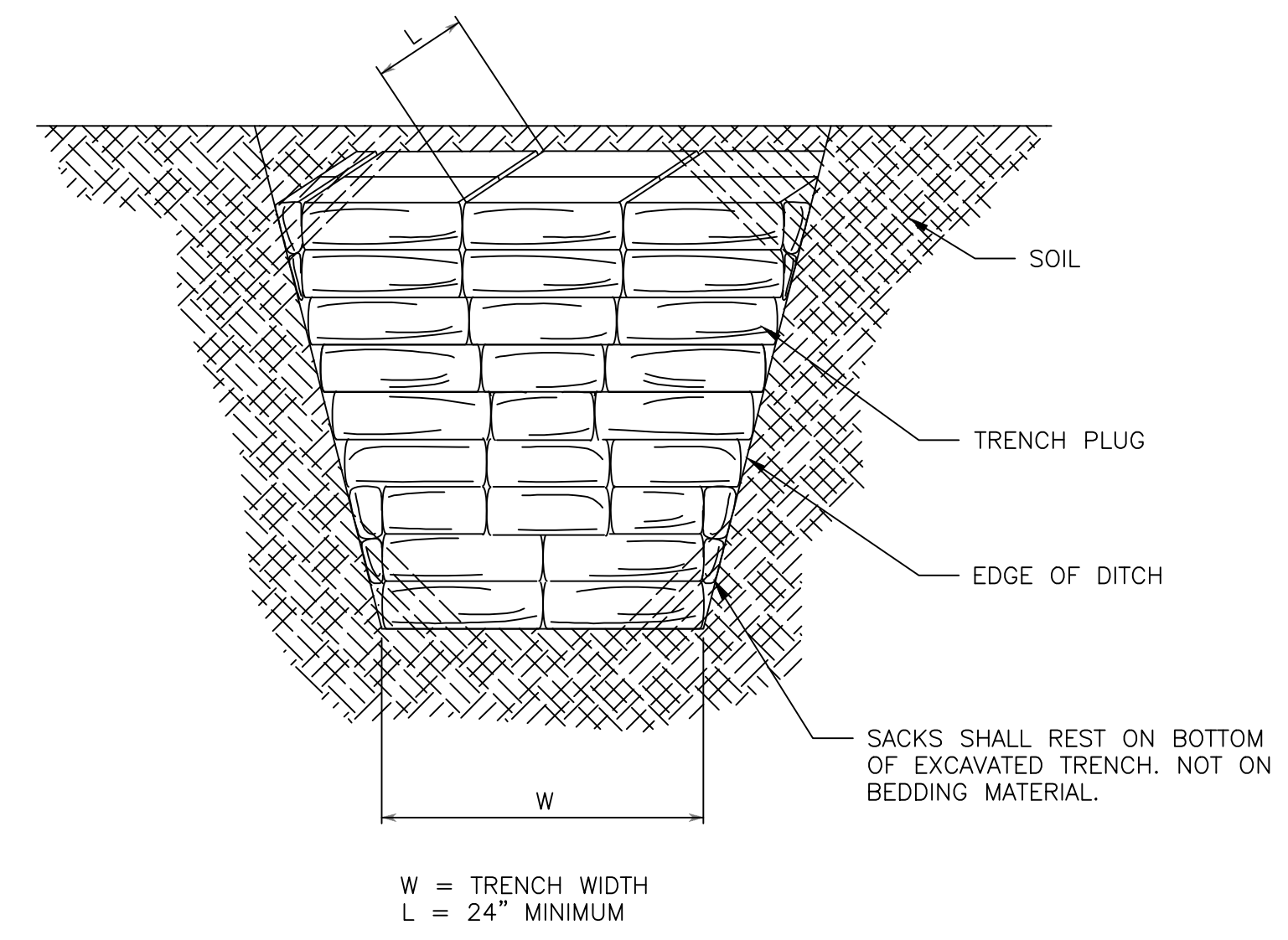
PROPOSED OPEN CUT WATER MAIN
STREAM CROSSING TO BE COMPLETED
IN STAGES BY CREATING A SAND BAG
COFFER DAM TO TEMPORARILY DIVERT
CREEK AROUND WORK AREA.
TRENCH PLUGS SHALL BE USED AS
SHOWN IN DETAIL.



SAWMILL CREEK CROSSING PROFILE
STA. 27+00 TO STA. 32+00



NOTE:
PLUG AND COFFERDAM MATERIAL SHALL CONSIST OF CLAY, BENTONITE, SYNTHETIC FOAM, OR CONCRETE FILLED SACKS, EXCEPT WHERE TRENCH SLOPE IS GREATER THAN 100%, CEMENT FILLED BAGS SHALL BE USED.
TOPSOIL SHALL NOT BE USED FOR FILL SACKS.
PERMANENT IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL WATER BODY AND WETLAND CROSSINGS, AS WELL AS UP SLOPE FROM ROADWAY AND RAILROAD CUT SLOPES. TRENCH PLUGS ARE USED TO DECREASE THE POSSIBILITY OF LONG-TERM IMPACTS TO WATER BODIES.
TEMPORARY COFFERDAMS ARE REQUIRED FOR REROUTING FLOW AROUND AREA OF WORK. ALL WATER BODIES SHALL BE RESTORED TO ORIGINAL CONDITION UPON COMPLETION AND COFFERDAMS SHALL BE REMOVED.

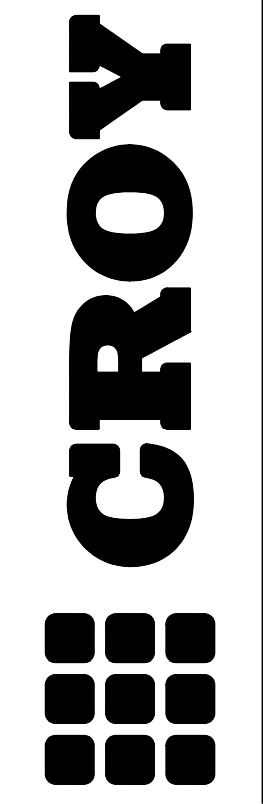


NOTE:
PLUG AND COFFERDAM MATERIAL SHALL CONSIST OF CLAY, BENTONITE, SYNTHETIC FOAM, OR CONCRETE FILLED SACKS, EXCEPT WHERE TRENCH SLOPE IS GREATER THAN 100%, CEMENT FILLED

24 HOUR CONTACT:
ADAM CHRNALOGAR
TEL: (423)661-9641

UTILITY CREEK CROSSING DETAIL

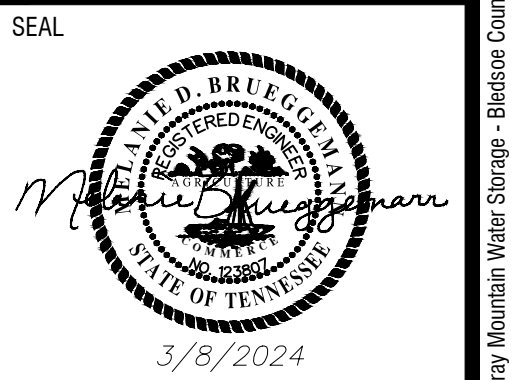
TRENCH PLUG/COFFER DAM DETAIL



1270 MARKET STREET
CHATANOOGA, TN 37402
PHONE: (423) 708-5658

MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

NO.	REVISION REFERENCE	DATE



SHEET TITLE
STREAM CROSSING
DETAILS

DRAWN BY QM	CHECKED BY MDB
SCALE AS SHOWN	ISSUE DATE 3/8/2024

PROJECT NUMBER
2388.007

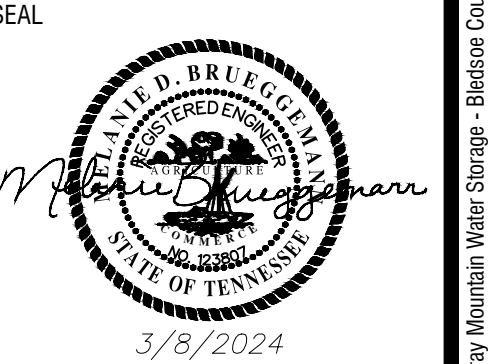
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C-500

Plot Scale: 1"=##', Plot Style: Design.ctb, Plotted By: Kristin Jolley on 4/22/2024, 9:56 AM

**MOVBRAV MOUNTAIN
 WATER STORAGE - PHASE II**

NORTH WEST UTILITY DISTRICT
 SODDY-DAISY, TN

NO.	REVISION REFERENCE	DATE



SHEET TITLE
DETAILS

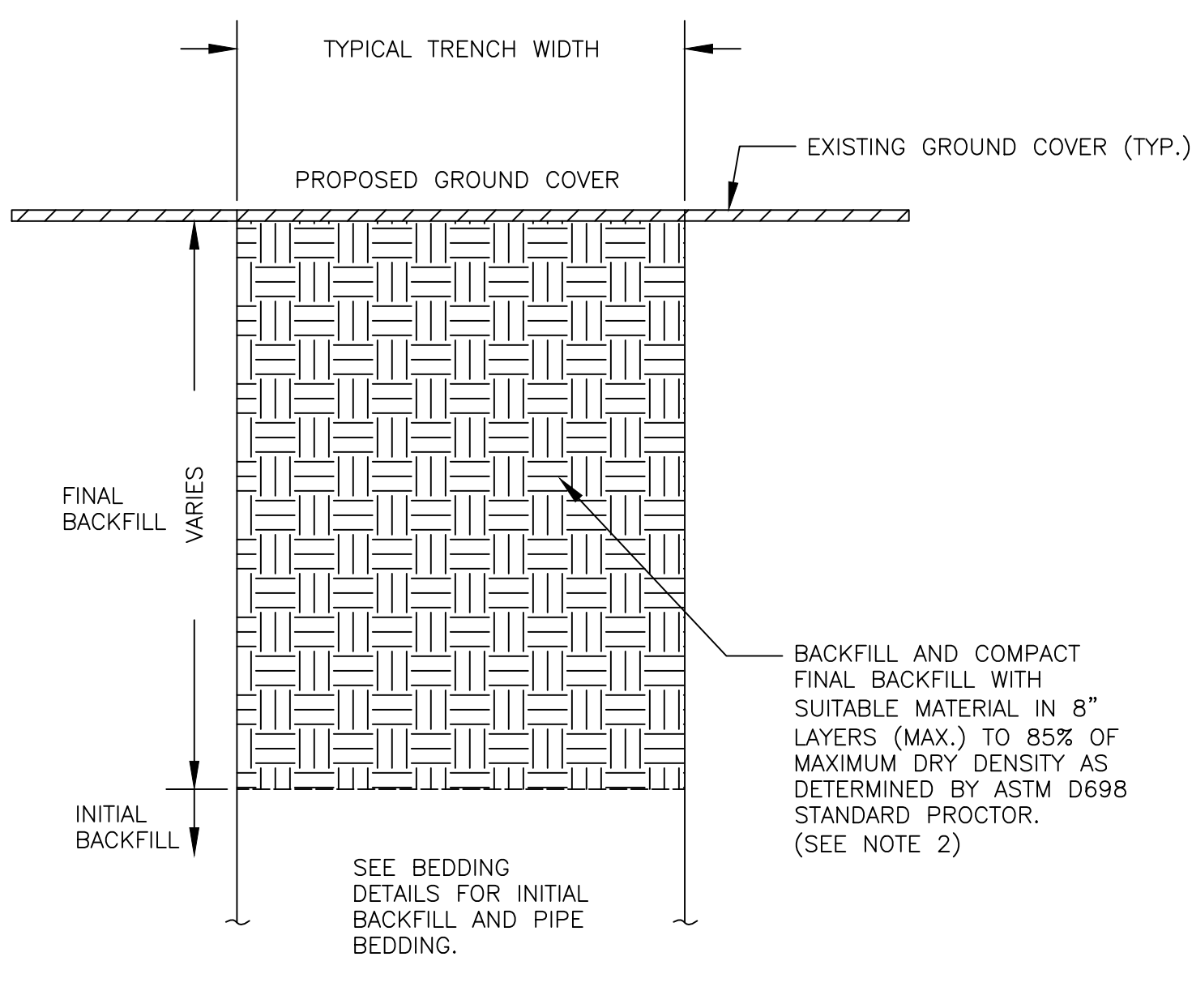
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SCALE AS SHOWN	ISSUE DATE 3/8/2024

PROJECT NUMBER
2388.007

DRAWING NUMBER

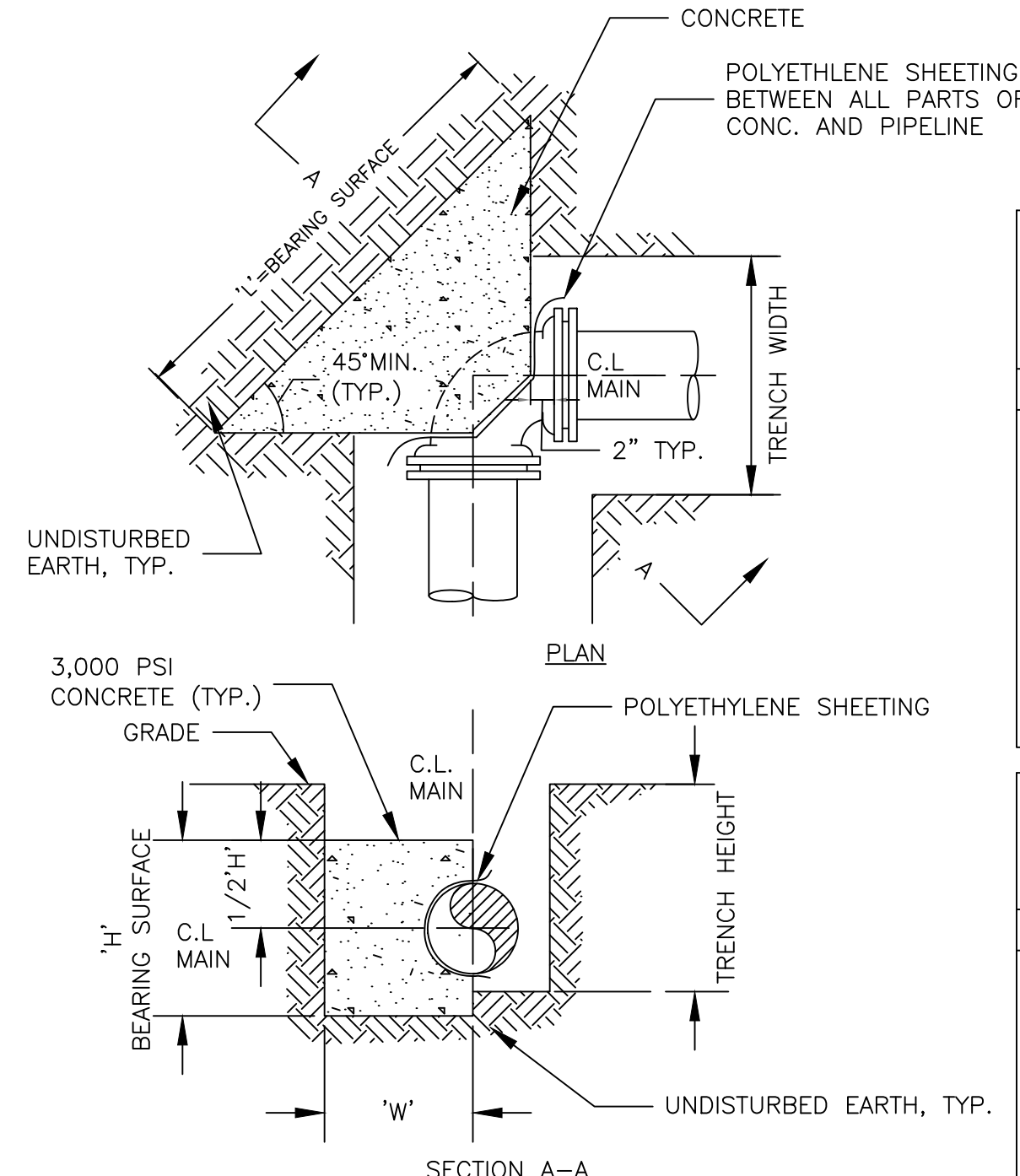
C-900

Plot Style: Design.ctb, Plotted By: Kristin Jolley on 4/22/2024, 9:56 AM



- NOTES:
1. ALL MATERIAL AND METHODS OF INSTALLATION SHALL COMPLY WITH THE TDOT "ROADWAY DESIGN GUIDELINES" LATEST REVISION.
 2. FINAL BACKFILL MATERIAL SHALL BE REUSED OR IMPORTED EARTH FREE OF CLODS, ORGANIC MATERIAL, RUBBISH, OR OTHER UNSUITABLE MATERIAL. STONES LARGER THAN 4" DIAMETER MUST BE PLACED TO THE SIDES OF THE TRENCH.

**OUTSIDE ROADWAY CUT-
 FINAL BACKFILL**
 NOT TO SCALE



- NOTES:
1. SOIL PREPARATION SHALL BE APPROVED BY NWUD PRIOR TO POURING CONCRETE.
 2. REFER TO TYPICAL HORIZONTAL THRUST RESTRAINT DRAWING FOR ADDITIONAL DETAILS.

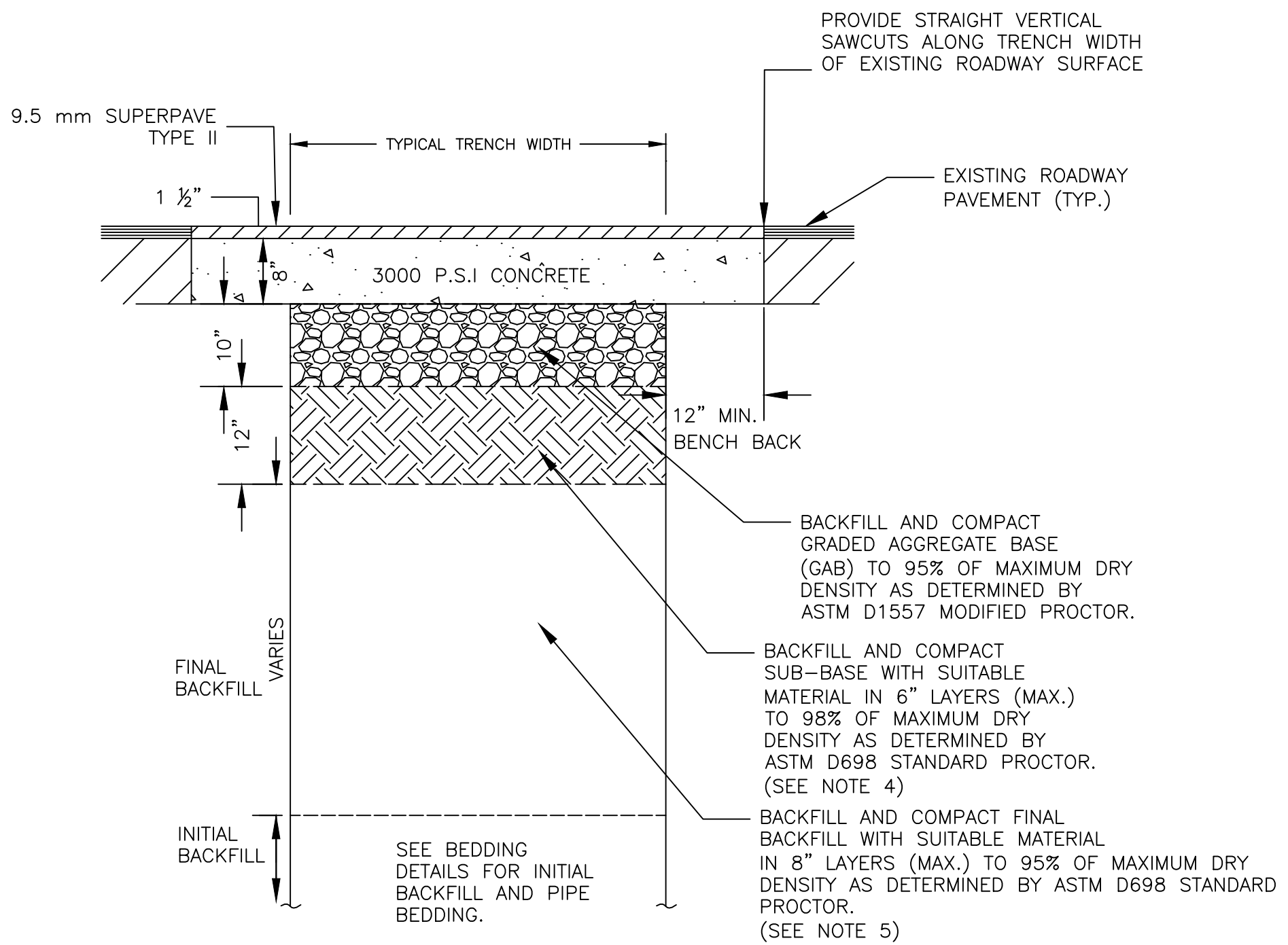
- DESIGN CRITERIA:
1. THRUST RESTRAINT DIMENSIONS ARE BASED ON PRESSURE CLASS DUCTILE IRON PIPE WITH BITUMASTIC EXTERIOR COATING, MINIMUM SOIL BEARING PRESSURE OF 2,000 PSF, A COHESIVE SOIL, TEST PRESSURE OF 250 PSI, WITH A SAFETY FACTOR OF 1.0.

**TYPICAL HORIZONTAL
 THRUST BLOCK**
 NOT TO SCALE

MAIN	DIMENSIONS (FT.)			CONC. VOLUME (C.Y.)	THRUST (LBS.)	
BEND	SIZE	'H'	'L'	'W'		
11 1/4"	4	1.00	1.00	1.67	0.05	887
	6	1.00	1.00	1.67	0.05	1,557
	8	1.00	1.50	1.67	0.07	2,814
	10	1.25	1.75	1.67	0.11	4,309
	12	1.67	2.00	1.67	0.17	6,150
16	2.00	2.75	1.67	0.28	10,761	

MAIN	DIMENSIONS (FT.)			CONC. VOLUME (C.Y.)	THRUST (LBS.)	
BEND	SIZE	'H'	'L'	'W'		
22 1/2"	4	1.00	1.00	1.67	0.05	1,765
	6	1.33	1.50	1.67	0.10	3,647
	8	1.67	2.00	1.67	0.15	6,275
	10	2.00	2.50	1.67	0.22	9,439
	12	2.50	2.75	2.00	0.37	13,349
16	3.00	4.00	2.00	0.39	23,195	

MAIN	DIMENSIONS (FT.)			CONC. VOLUME (C.Y.)	THRUST (LBS.)	
BEND	SIZE	'H'	'L'	'W'		
45"	4	1.00	1.75	1.67	0.07	3,462
	6	1.67	2.33	1.67	0.16	7,155
	8	2.50	2.50	1.67	0.26	12,308
	10	2.67	3.50	1.67	0.37	18,516
	12	3.33	4.00	2.00	0.64	26,185
16	4.00	5.75	2.50	1.29	45,499	



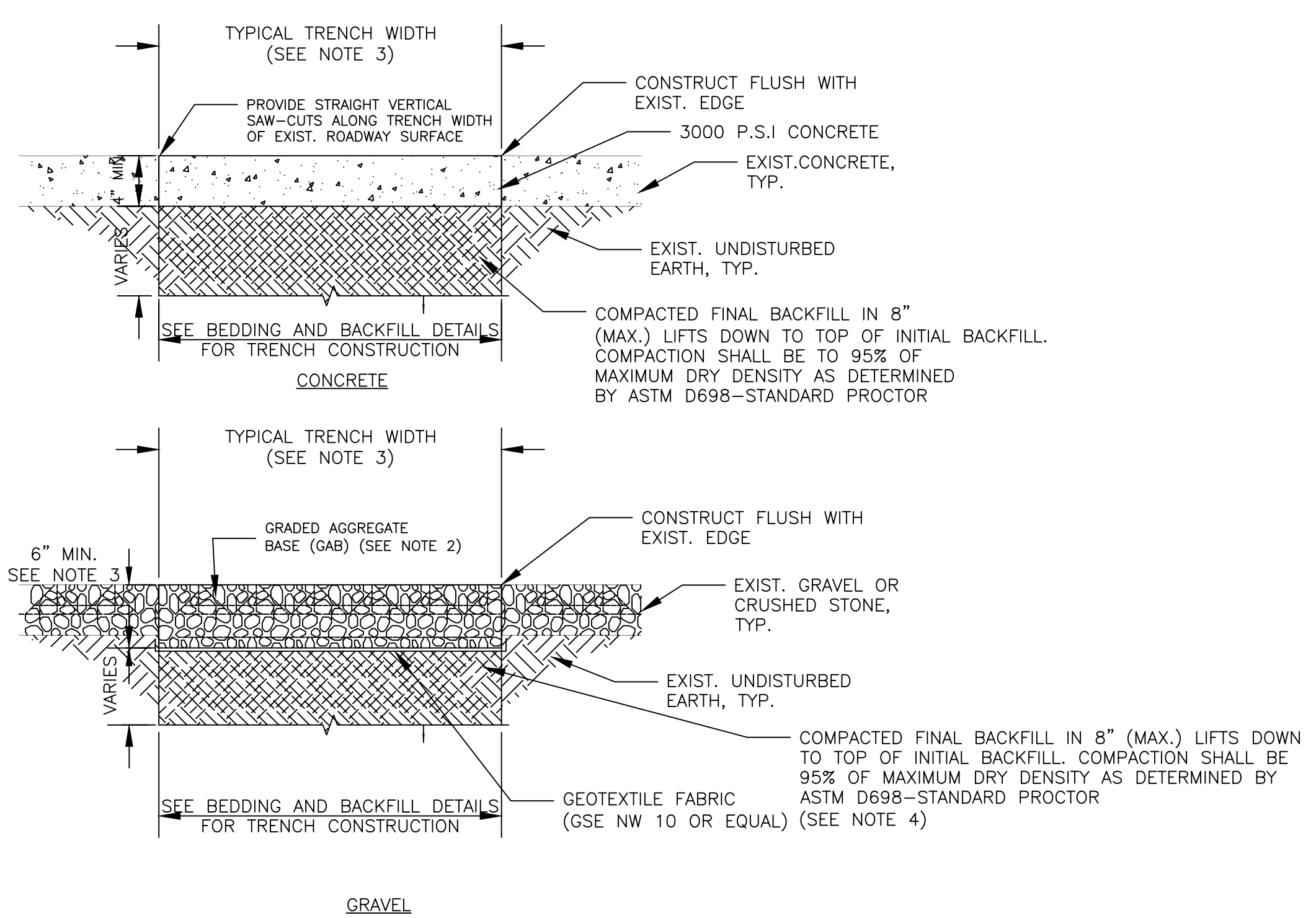
- NOTES:
1. ALL MATERIAL AND METHODS OF INSTALLATION SHALL COMPLY WITH THE TDOT "ROADWAY DESIGN GUIDELINES" LATEST REVISION.
 2. NEW ROADWAY PAVEMENT SHALL MATCH CROSS SLOPE AND GRADE OF EXISTING ROADWAY.
 3. SEE CONCRETE PAVEMENT AND GRAVEL REPAIR DETAIL.
 4. SUB-BASE MATERIAL SHALL BE RE-USED OR IMPORTED EARTH FREE OF CLODS, ORGANIC MATTER, RUBBISH STONES LARGER THAN 4" DIAMETER, OR OTHER UNSUITABLE MATERIAL.
 5. FINAL BACKFILL MATERIAL SHALL BE REUSED OR IMPORTED EARTH FREE OF CLODS, ORGANIC MATERIAL, RUBBISH, OR OTHER UNSUITABLE MATERIAL. STONES LARGER THAN 4" DIAMETER MUST BE PLACED TO THE SIDES OF THE TRENCH.

**PERPENDICULAR ROADWAY
 CUT-FINAL BACKFILL**
 NOT TO SCALE

MAIN	DIMENSIONS (FT.)			CONC. VOLUME (C.Y.)	THRUST (LBS.)	
BEND	SIZE	'H'	'L'	'W'		
90°	4	1.67	2.00	1.67	0.14	6,398
	6	2.25	3.00	1.67	0.27	13,220
	8	3.25	3.50	1.67	0.46	22,743
	10	3.33	5.25	2.00	0.81	34,213
	12	3.67	6.67	2.75	1.51	48,383
16	4.50	9.50	3.75	3.76	84,070	

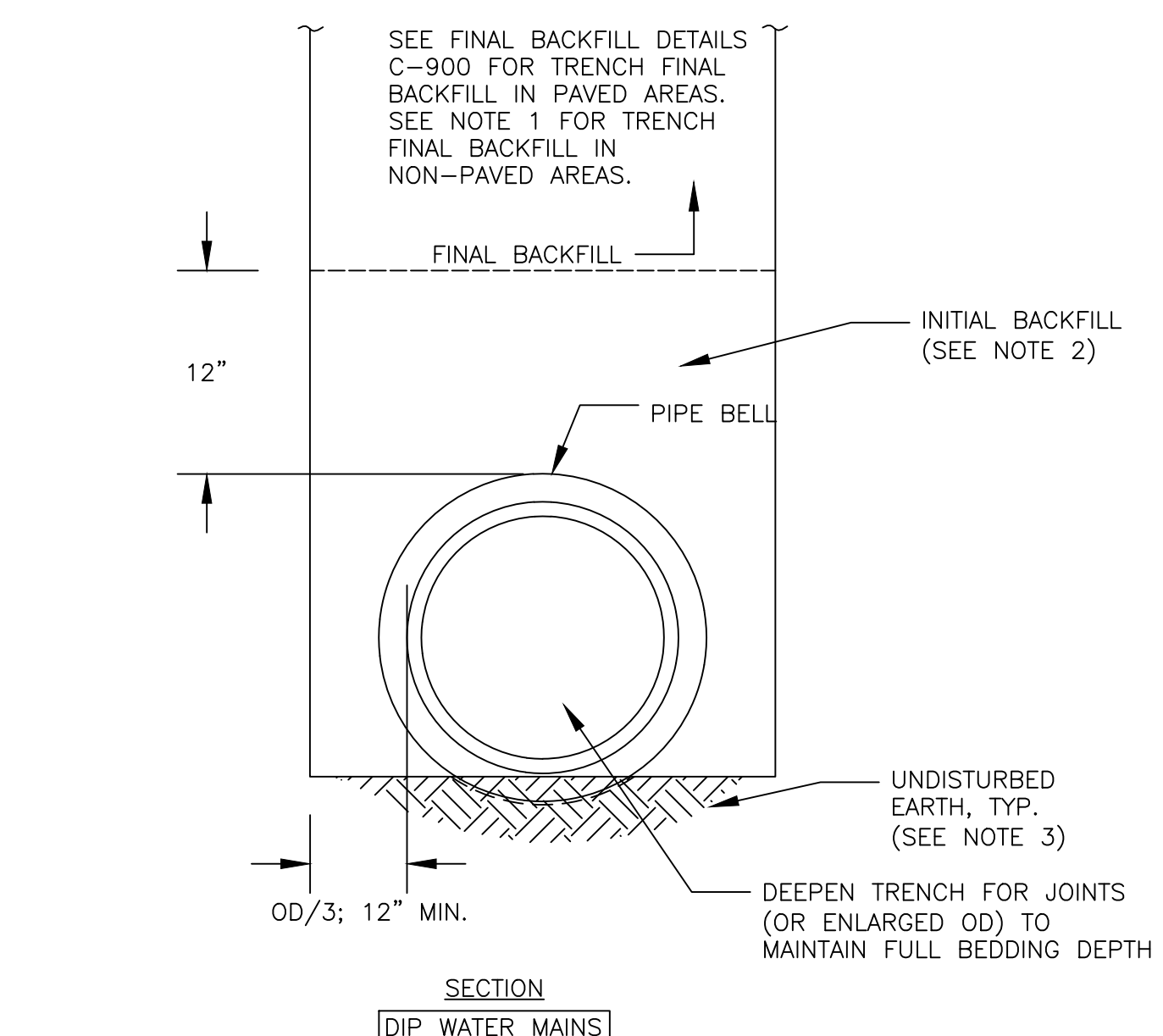
MAIN	DIMENSIONS (FT.)			CONC. VOLUME (C.Y.)	THRUST (LBS.)	
BEND	SIZE	'H'	'L'	'W'		
TEES & PLUGS	4	1.33	1.75	1.67	0.12	4,524
	6	2.00	2.50	1.67	0.24	9,348
	8	2.33	3.50	1.67	0.36	16,082
	10	2.67	4.67	1.67	0.54	24,192
	12	3.00	5.75	2.00	0.86	34,212
16	4.00	7.50	2.00	1.85	59,447	

NOTE: SIZE IN TABLE DENOTES NOMINAL PIPE SIZES IN INCHES



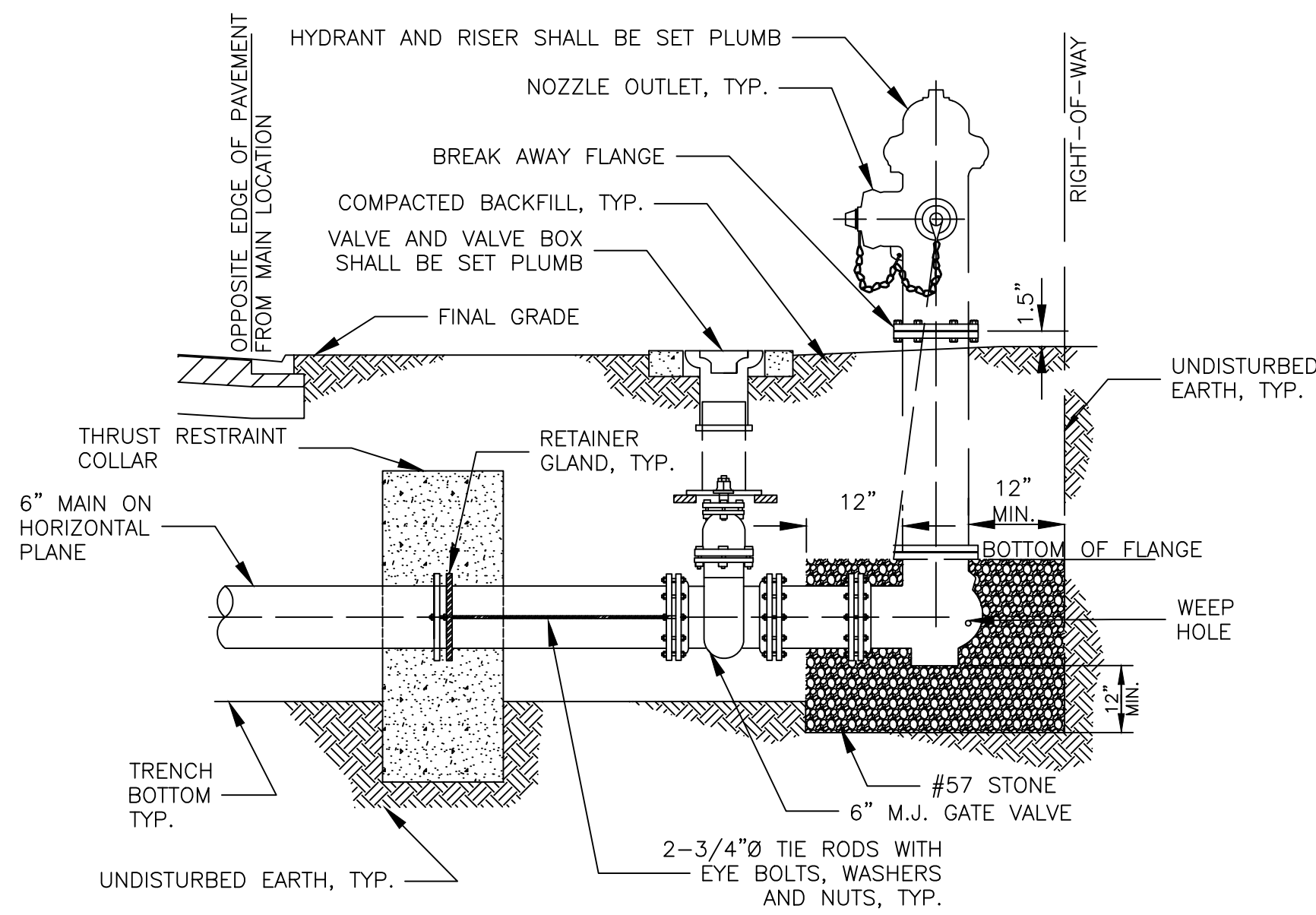
- NOTES:
1. ALL MATERIAL AND METHODS OF INSTALLATION SHALL COMPLY WITH THE TDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST REVISION.
 2. WHERE DEPTH OF EXISTING GRAVEL ROADWAY IS GREATER THEN 6" THEN NEW MAB STONE DEPTH SHALL MATCH EXISTING ROADWAY DEPTH.
 3. NEW ROADWAY PAVEMENT SHALL MATCH GROSS SLOPE AND GRADE OF EXISTING ROADWAY.
 4. CONCRETE OR GRAVEL FINAL BACKFILL SUB-BASE MATERIAL SHALL BE REUSED OR IMPORTED EARTH FREE OF STONES LARGER THAN 4" DIAMETER, CLODS, ORGANIC MATTER, RUBBISH, OR OTHER UNSUITABLE MATERIAL.

**CONCRETE OR GRAVEL PAVEMENT
 CUT-FINAL BACKFILL**



- NOTES:
1. FINAL BACKFILL UNDER NON-PAVED AREAS WITHIN ROAD RIGHT-OF-WAY SHALL BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES IN THICKNESS AND COMPACTED TO 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698-STANDARD PROCTOR.
 2. PLACE INITIAL BACKFILL IN LAYERS NOT EXCEEDING SIX (6) INCHES IN THICKNESS AND CONSOLIDATE BY TAMPING ON BOTH SIDES OF THE PIPE. INITIAL BACKFILL MATERIAL SHALL BE REUSED OR IMPORTED EARTH FREE OF STONES LARGER THAN 4" DIAMETER, CLODS, ORGANIC MATTER, RUBBISH, OR OTHER UNSUITABLE MATERIAL.
 3. WHEN BOTTOM OF TRENCH IS INADVERTENTLY DISTURBED, COMPACT TRENCH BOTTOM TO 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 STANDARD PROCTOR.

**BEDDING AND INITIAL
 BACKFILL**

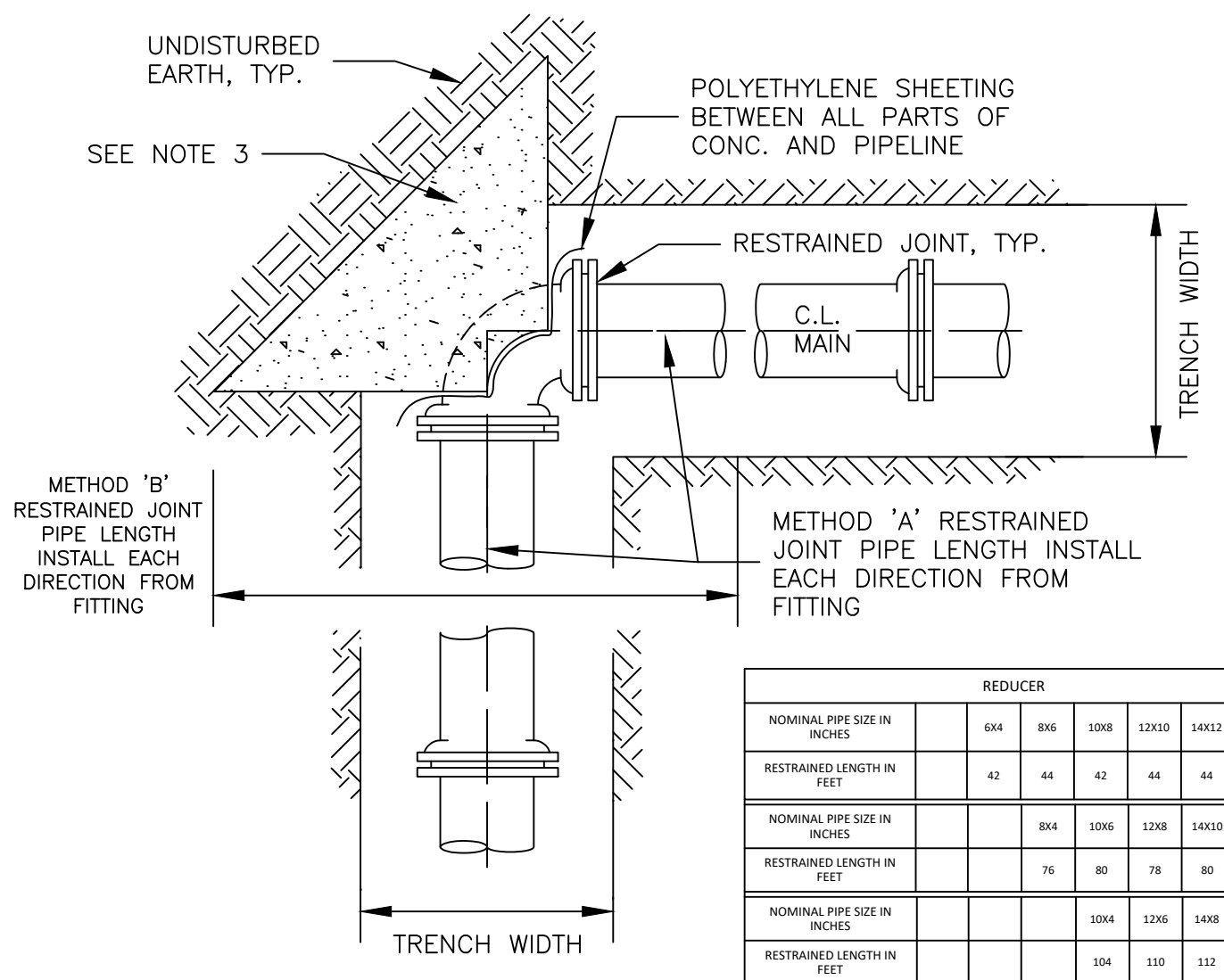


SECTION

NOTES:

1. REFER TO TYPICAL TIE-ROD THRUST RESTRAINT DRAWING FOR ADDITIONAL DETAILS.
2. REFER TO TYPICAL HORIZONTAL THRUST BLOCK DRAWINGS FOR ADDITIONAL DETAILS.
3. REFER TO TYPICAL VALVE BOX DRAWING FOR ADDITIONAL DETAILS.

TYPICAL FIRE HYDRANT INSTALLATION
NOT TO SCALE



REDUCER						
NOMINAL PIPE SIZE IN INCHES	604	806	1008	1210	1412	1614
RESTRAINED LENGTH IN FEET	42	48	62	66	84	84
NOMINAL PIPE SIZE IN INCHES	804	1006	1208	1410	1612	
RESTRAINED LENGTH IN FEET	76	80	76	80	82	
NOMINAL PIPE SIZE IN INCHES	1004	1206	1408	1610		
RESTRAINED LENGTH IN FEET	104	110	112	116		

TEE							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	54	76	100	120	140	160	180

DEAD END OR CLOSED VALVE							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	54	76	100	120	140	160	180

90 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	54	76	100	120	140	160	180

45 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	32	32	41	50	59	67	75

22 1/2 DEGREE BEND							
NOMINAL PIPE SIZE IN INCHES	4	6	8	10	12	14	16
RESTRAINED LENGTH IN FEET	11	15	20	24	28	32	36

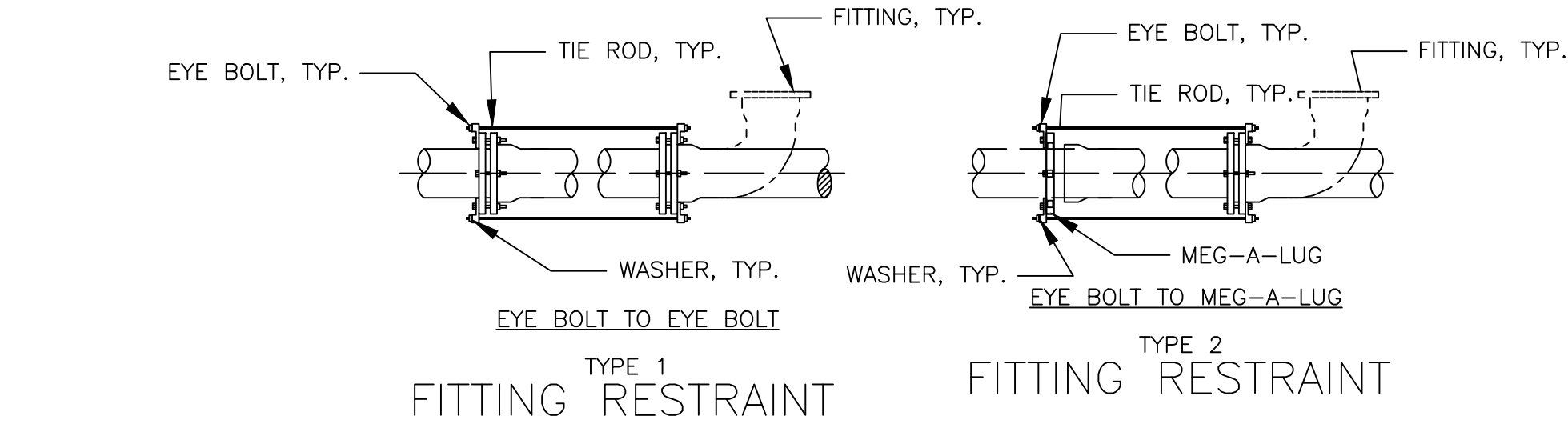
NOTES:

1. SOIL PREPARATION SHALL BE APPROVED PRIOR TO POURING CONCRETE.
2. REFER TO TYPICAL HORIZONTAL THRUST BLOCKING THIS SHEET FOR DETAILS.
3. INSTALL THRUST BLOCK ONLY WHEN METHOD PIPE RESTRAINT IS UTILIZED.
4. FOR PIPE SIZES LARGER THAN 16" THE DESIGN ENGINEER SHALL PROVIDE CALCULATIONS FOR RESTRAINED JOINT LENGTHS FOR REVIEW PRIOR TO INSTALLATION.
5. RESTRAINED JOINT METHOD A: RESTRAINT JOINT PIPE AND FITTINGS.
6. RESTRAINED JOINT METHOD B: ONE (1) OF THE FOLLOWING DUAL (2) INDEPENDENT RESTRAINTS:
A. MEGA-LUGS PLUS THRUST BLOCKING.
B. MEGA-LUGS PLUS RODDING.

DESIGN CRITERIA:

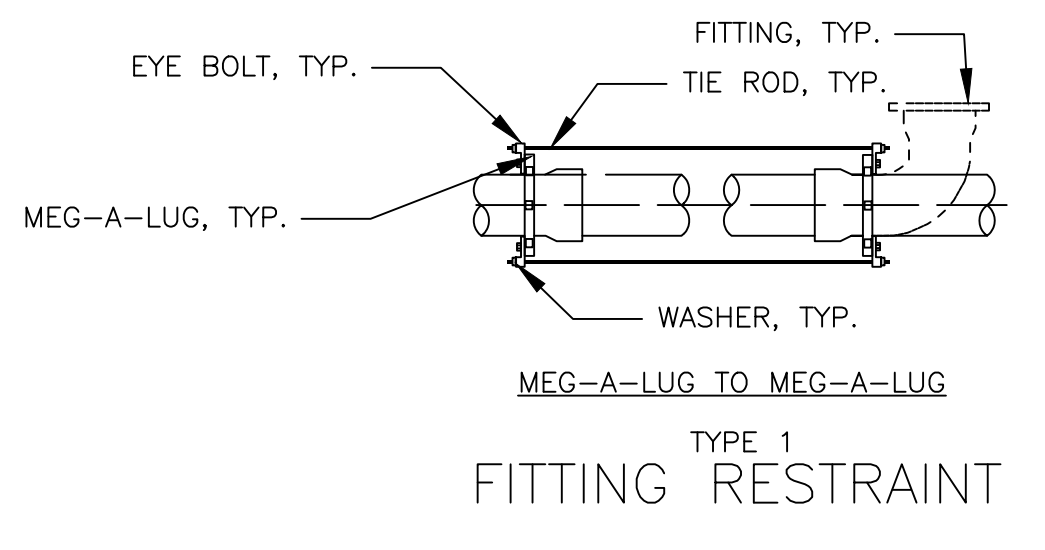
1. THRUST RESTRAINT DIMENSIONS ARE BASED ON PRESSURE CLASS DUCTILE IRON PIPE WITH BITUMASTIC EXTERIOR COATING (WITHOUT POLYWRAP), MINIMUM SOIL BEARING PRESSURE OF 2,000 PSF, SILTY SOIL, TEST PRESSURE OF 250 PSI, 4 FEET OF UNSATURATED SOIL COVER, WITH A SAFETY FACTOR OF 1.5.

TYPICAL HORIZONTAL THRUST RESTRAINT
NOT TO SCALE



TYPE 1 FITTING RESTRAINT

TYPE 2 FITTING RESTRAINT



TYPE 1 FITTING RESTRAINT

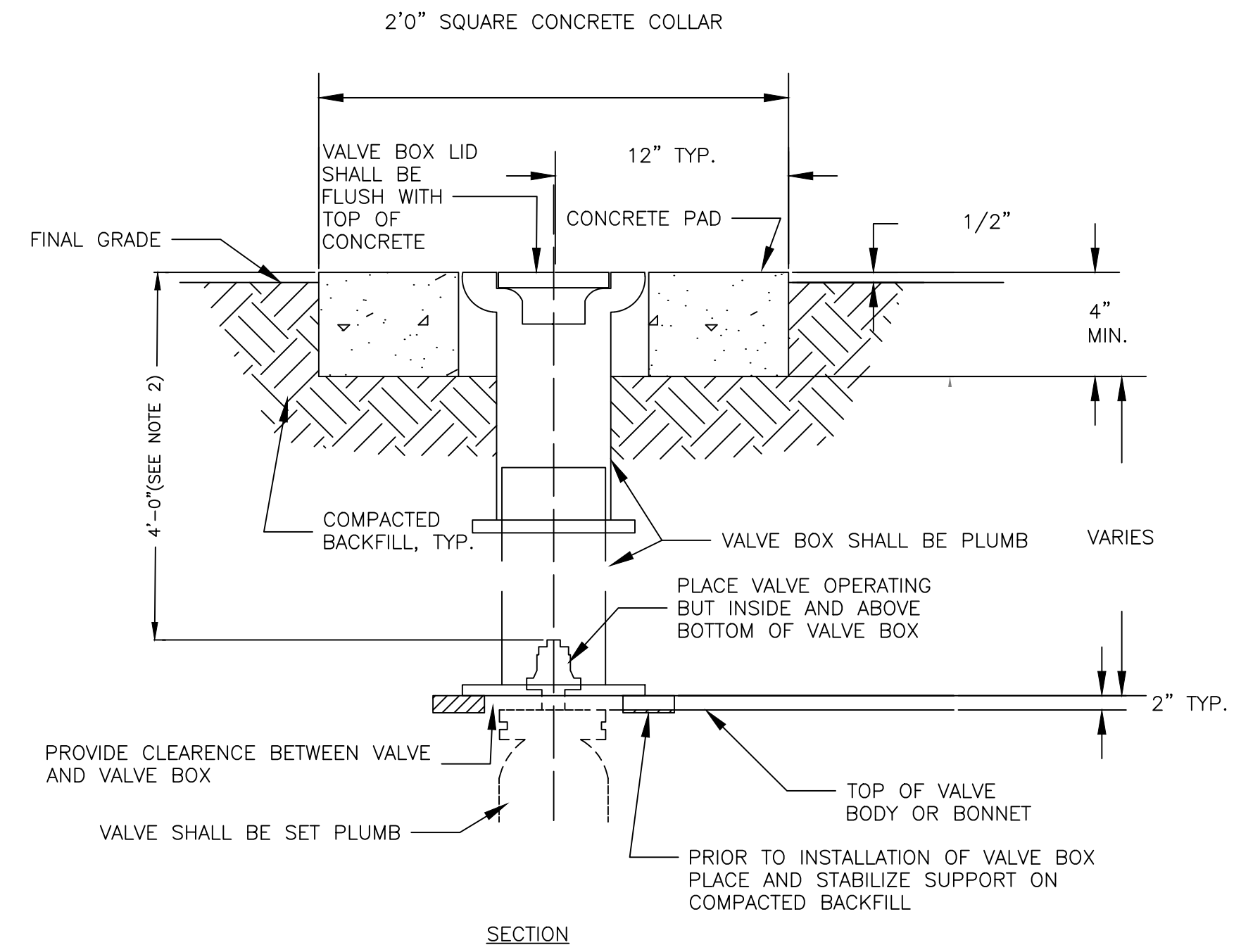
NOTES:

1. RODS SHALL BE MINIMUM 304 S.S. ALL THREAD RODS WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
2. USE LISTED NUMBER OF RODS AS SHOWN ON TIE ROD CHART (MINIMUM NUMBER SHOWN).
3. ALL STEEL MUST BE CLEANED AND COATED WITH ROYSTON ROSKOTE, KOPPERS SUPER SERVICE BLACK OR APPROVED EQUAL.
4. RODS MUST HAVE A MINIMUM OF 6" OF THREAD ON EACH END.
5. ALL NUTS USED ON TIES RODS MUST HAVE A WASHER.

DESIGN CRITERIA:

1. FITTING SHOWN IS REPRESENTATIVE FOR ALL FITTINGS, VALVES, DEAD ENDS, AND PLUGS.
2. FOR WATER MAINS AT A RATED TEST PRESSURE OF 250 PSI.

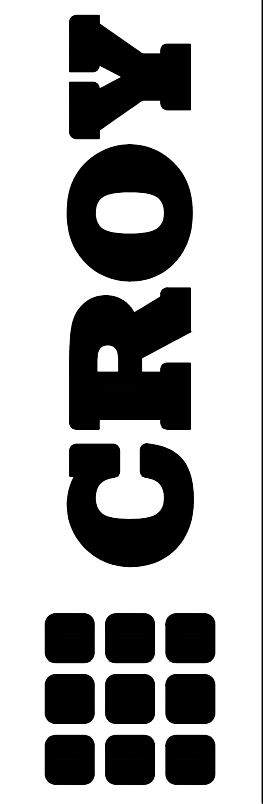
TYPICAL TIE ROD RESTRAINT INSTALLATION
NOT TO SCALE



SECTION

1. SLIP-TYPE VALVE BOXES ONLY (NO EXCEPTIONS).
2. WHERE DEPTH OF COVER IS MORE THAN 5 FEET, CONTRACTOR SHALL PROVIDE SUITABLE, PERMANENTLY INSTALLED VALVE STEM EXTENSION AND GUIDE AT NO EXTRA COST TO GCDWR.
3. USE 6" SDR 35 PVC FOR DEEP EXTENSIONS.

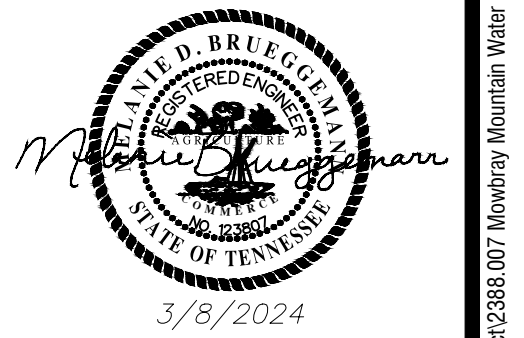
TYPICAL VALVE BOX INSTALLATION
NOT TO SCALE



1270 MARKET STREET
CHATTAHOOGA, TN 37402
PHONE: (423) 708-5658

MOWBRAY MOUNTAIN
WATER STORAGE - PHASE II
NORTH WEST UTILITY DISTRICT
SODDY-DAISY, TN

NO.	REVISION REFERENCE	DATE



SHEET TITLE
DETAILS

DRAWN BY QM	CHECKED BY MDB
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