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09/08/99

TIP PROJECT: U-3628

CONTRACT: C205042

VICINITY MAP (NTS)

T.I.P NO.	SHEET NO.
U-3628	UC-1

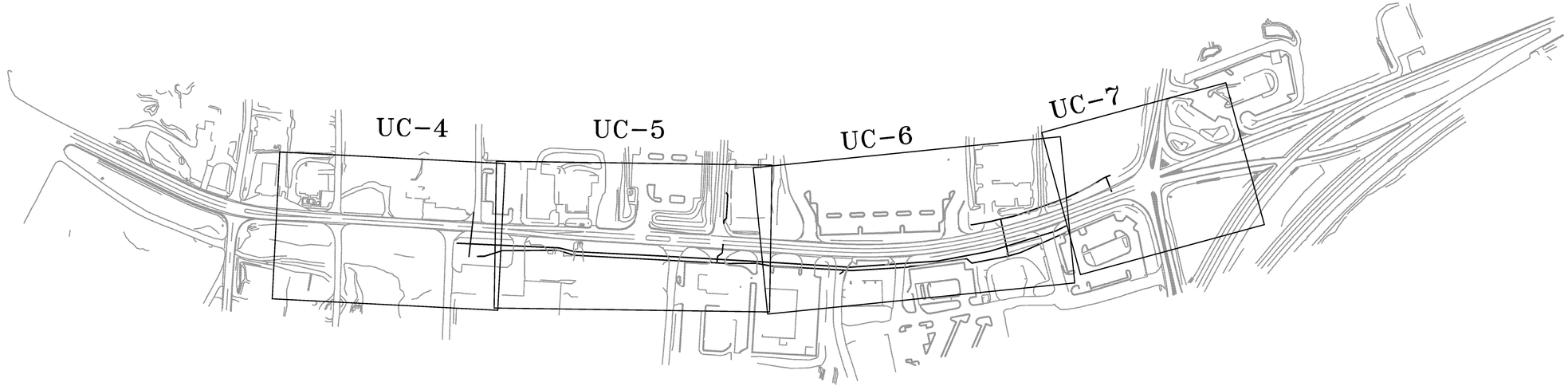
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION PLANS
MOORE COUNTY

LOCATION: NC 24/NC 27 FROM CLARK STREET TO GLENDON-CARTHAGE ROAD (SR-1006) IN CARTHAGE

TYPE OF WORK: WATER AND SEWER RELOCATION



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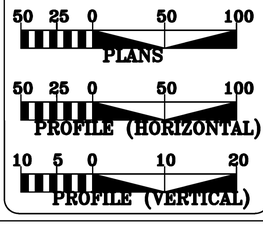

INDEX OF SHEETS

SHEET NUMBER:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	UTILITY CONSTRUCTION NOTES
UC-3A THRU UC-3C	SEWER DETAILS
UC-3D THRU UC-3E	MISC. DETAILS
UC-3F	NCDOT DETAILS
UC-4 THRU UC-7	PLAN SHEETS
UC-8 THUR UC-10	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) WATER: TOWN OF CARTHAGE
(B) SANITARY SEWER: TOWN OF CARTHAGE
Public Works: 910-947-5041
Water Dept.: 910-947-2701
Emergency: 910-947-2701

PLANS PREPARED BY:

LKC Engineering, pllc
140 Aqua Shed Court
Aberdeen, NC 28315
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lkcengineering.com
License No. P-1095

Engineering
Landscape Architecture
Surveying

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A LACY

Docusigned by: Mark A Lacy 7/3/2025

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

LKC Engineering
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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-2
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	7/3/2025

NORTH CAROLINA PROFESSIONAL SEAL 036288 ENGINEER MARK A. LACY

UTILITY CONSTRUCTION

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PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown)
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve (GV)
- Butterfly Valve (BV)
- Tapping Valve (TGV)
- Line Stop (LS)
- Line Stop with Bypass (LS/BP)
- Blow Off (BO)
- Fire Hydrant (PFH)
- Relocate Fire Hydrant (RFH)
- Remove Fire Hydrant (REM FH)
- Water Meter (PWM)
- Relocate Water Meter (RWM)
- Remove Water Meter (REM WM)
- Water Pump Station (PS(W))
- RPZ Backflow Preventer (PRPZ)
- DCV Backflow Preventer (PBFP)
- Relocate RPZ Backflow Preventer (RRPZ)
- Relocate DCV Backflow Preventer (RBFP)

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown)
- Force Main Sewer Line (Sized as Shown)
- Manhole (Sized per Note)
- Sewer Pump Station (PS(SS))

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal (TEL_PED)
- Utility Line by Others (Type as Shown)
- Trenchless Installation
- Encasement by Open Cut
- Encasement
- Thrust Block
- Air Release Valve (AR)
- Utility Vault (UV)
- Concrete Pier (CP)
- Steel Pier (SP)
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal (T)
- CATV Pedestal (C)
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.◉.I.

- *Underground Power Line
- *Underground Telephone Cable
- *Underground Telephone Conduit
- *Underground Fiber Optics Telephone Cable (FOC)
- *Underground TV Cable (CTV)
- *Underground Fiber Optics TV Cable (FOC)
- *Underground Gas Pipeline
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line (W)
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line
- Underground Unknown Utility Line
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown)
- Designated Utility Line (Type as Shown)

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LAST SAVED: 11/27/2024

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UTILITY CONSTRUCTION

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL CONTACT THE POWER CO., GAS CO., AND TELEPHONE CO. FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.

2. PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, OR 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING WATER SERVICE CONNECTIONS DURING CONSTRUCTION. ANY DAMAGE WHICH OCCURS AS A RESULT OF THE CONSTRUCTION SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER. IN THE EVENT OF A TEMPORARY SERVICE INTERRUPTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND BEGIN REPAIRS.

4. ALL PIPING FOR PRESSURE MAINS SHALL BE PRESSURE TESTED, GRAVITY LINES SHALL BE AIR TESTED, AND MANHOLES SHALL BE VACUUM TESTED, ALL IN ACCORDANCE WITH THE DETAILED SPECIFICATIONS AND SPECIAL PROVISIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS IN ADVANCE OF ALL SCHEDULED TESTING.

5. ALL WORK PERFORMED WITHIN NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RIGHTS-OF-WAY SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE NCDOT CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL OR UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THE WORK AND ADHERING TO THE RIGHT-OF-WAY ENCROACHMENT CONTRACT SPECIAL PROVISIONS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNER TO ACCURATELY DETERMINE THE LOCATION OF EXISTING WATER MAINS AND SEWER LINES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL TAKE ADDITIONAL CAUTION IN EXCAVATING AROUND THE SERVICE LINES AND MAINS WHILE WORKING WITHIN THIS PROJECT. ANY DAMAGE TO THE MAINS OR SERVICE LINES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. THE CONTRACTOR SHALL REMOVE AND REPLACE EXISTING CULVERTS AND DRAINAGE STRUCTURES AS NECESSARY DURING THE CONSTRUCTION OF THE UTILITY LINES. ANY DAMAGE TO THE CULVERTS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. SPECIAL CIRCUMSTANCES (I.E. UNREINFORCED CONCRETE PIPE) SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY IN ORDER TO RECEIVE ANY ADDITIONAL COMPENSATION.

8. THE CONTRACTOR IS INSTRUCTED TO CONTROL SEDIMENTATION RUNOFF BY METHODS APPROVED BY THE ENGINEERS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS REMINDED THAT ALL WORK SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE RULES AND REGULATIONS OF EROSION AND SEDIMENT CONTROL AS PUBLISHED BY THE DEPARTMENT OF NC ENVIRONMENTAL QUALITY.

9. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING THE ACTUAL AS-BUILT CONDITION OF THE PROJECT AT COMPLETION. AS-BUILTS WILL BE FURNISHED AT OR PRIOR TO FINAL INSPECTION BY THE ENGINEER. MARK-UP COPIES OF THE DRAWINGS INDICATING ALL DIMENSIONS AND ELEVATIONS ARE ACCEPTABLE AS AS-BUILT DRAWINGS. AS-BUILT MARKUPS SHALL BE MADE AVAILABLE FOR REVIEW AS PART OF THE MONTHLY PROGRESS PAYMENT PROCESS.

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2024.

2. THE EXISTING UTILITIES BELONG TO TOWN OF CARTHAGE. PUBLIC WORKS DEPARTMENT: (910)-947-5041. WATER/EMERGENCY DEPARTMENT: (910)-947-2701.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION, NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNER'S REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISITNG FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIAL SUBMITTALS AND RECORDS IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. ALL PROPOSED FORCE MAIN AND WATER LINE TO BE PVC C-900 DR18 UNLESS NOTED OTHERWISE ON PLANS. ALL DUCTILE IRON PIPE SHALL BE PC350. AND DUCTILE IRON FORCE MAIN SHALL HAVE AN EPOXY INTERIOR LINING.

2. WELL IN ADVANCE OF BEGINNING UTILITY WORK, SOFT DIGS SHALL BE PERFORMED BY CONTRACTOR TO VERIFY ACTUAL WATER LINE DEPTH AND MATERIAL AT PROPOSED TIE-IN LOCATIONS.

3. LAY PIPE STRAIGHT IN ALIGNMENT AND GRADIENT OR FOLLOW TRUE CURVES AS NEARLY AS POSSIBLE. DO NOT DEFLECT ANY JOINT MORE THAN THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.

4. LKC, TOWN OF CARTHAGE,, AND NCDOT TO REVIEW/ APPROVE RELEVANT SUBMITTALS.

5. ANY SERVICE INTERRUPTIONS SHALL BE SCHEDULED FOR MINIMAL IMPACT TO CUSTOMERS AND APPROVED BY THE TOWN OF CARTHAGE.

6. THE CONTRACTOR SHALL NOTIFY THE TOWN OF CARTHAGE IN ADVANCE OF THE FOLLOWING ACTIVITIES:
   a. START OF UTILITY CONSTRUCTION- 48 HOURS
   b. MAIN LINE SERVICE INTERRUPTIONS- 96 HOURS
   c. PRESSURE TESTING- 24 HOURS
   d. DISINFECTION- 24 HOURS

7. LKC, TOWN OF CARTHAGE, AND NCDOT HAVE RIGHT-OF-ENTRY TO THE PROJECT SITE.

8. THE PROPOSED PIPELINE SHALL BE INSTALLED AT THE DEPTHS SHOWN IN THE PROFILE TO AVOID HIGH POINTS THAT CAN TRAP AIR. ALL COST FOR INSTALLATION IN DEEPER CUTS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND SHOULD BE INCLUDED IN THE PRICE FOR FORCE MAIN AND WATER MAIN INSTALLATION.

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-3
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	7/3/2025

NORTH CAROLINA PROFESSIONAL SEAL 036286 Mark A Lacy ENGINEER MARK A. LACY

UTILITY CONSTRUCTION

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REVISIONS

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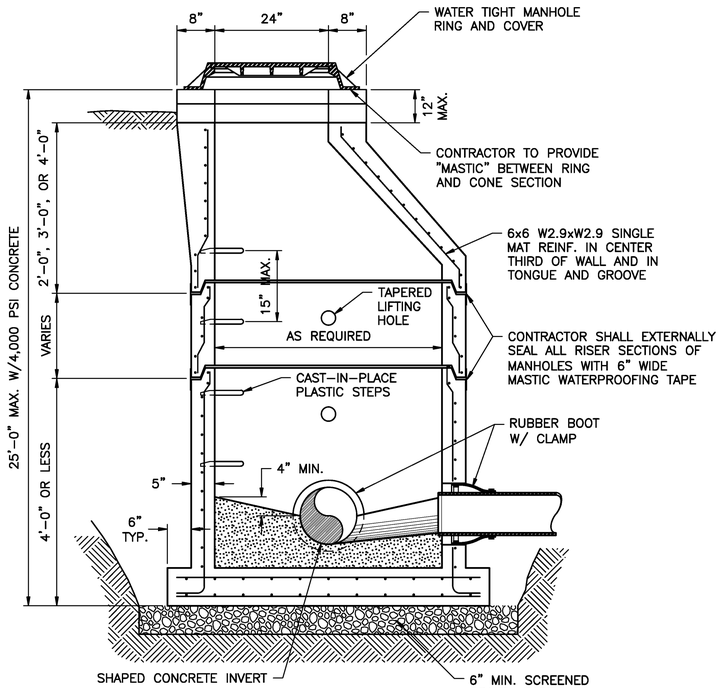

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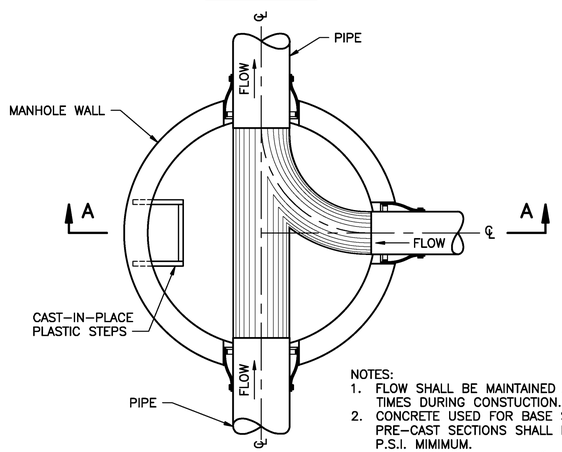


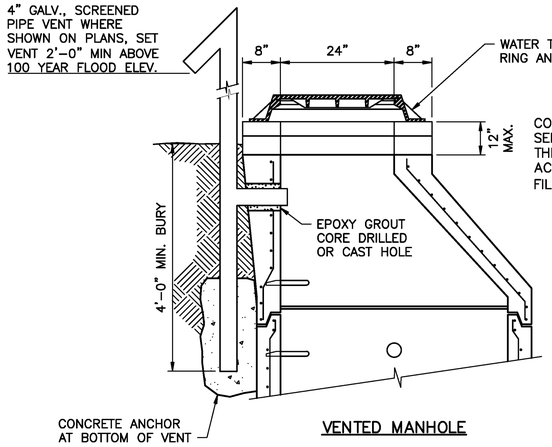
NOTE:
MAKE REQUIRED FLOW DIRECTION CHANGES IN MANHOLE BY SMOOTH TANGENTAL CURVE OF SHAPED MANHOLE INVERT.

NOTES:
1. FLOW SHALL BE MAINTAINED AT ALL TIMES DURING CONSTUCTION.
2. CONCRETE USED FOR BASE SLAB AND PRE-CAST SECTIONS SHALL BE 4000 P.S.I. MIMIMUM.
3. STONE BASE SHALL BE 6" MIMNIMUM.
4. EXISTING SANITARY SEWER MAIN SHALL BE SAW-CUT TO SPRING LINE AFTER BASE CONCRETE IS PLACED AND SET.

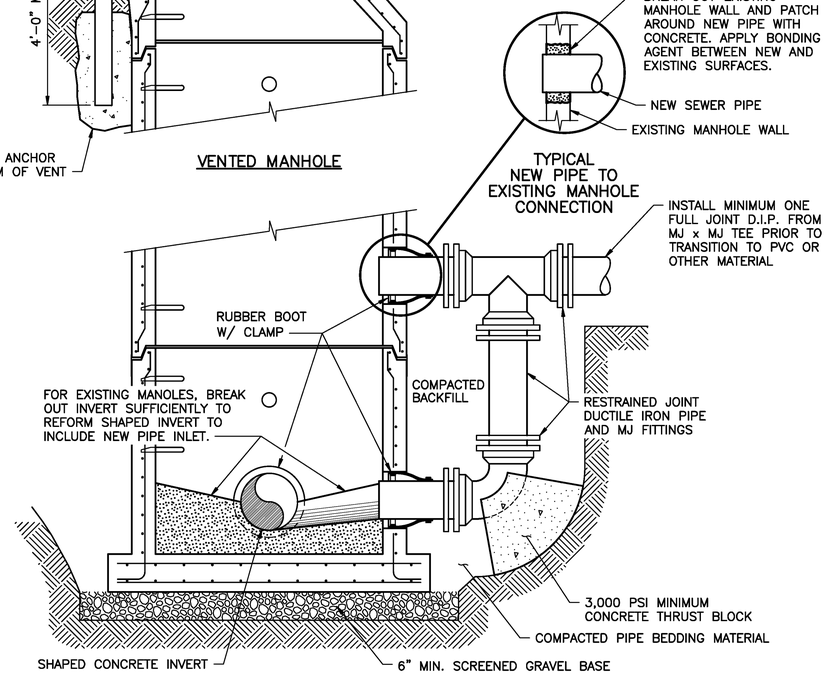
PLAN VIEW

PRECAST MANHOLE

NOT TO SCALE

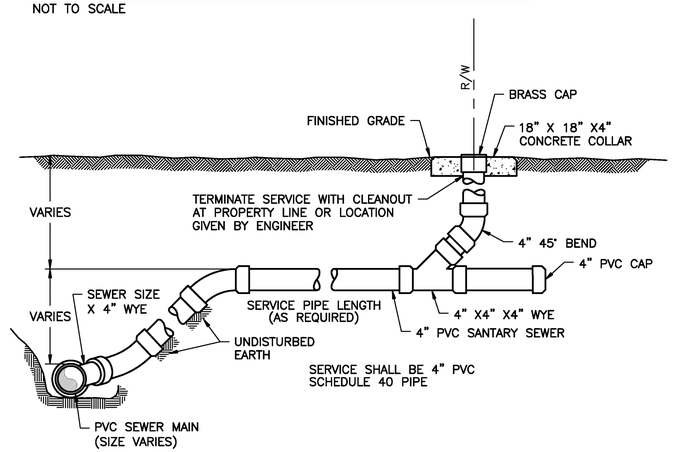


VENTED MANHOLE



NEW PRECAST CONCRETE MANHOLE OR EXISTING MANHOLE WITH NEW OUTSIDE DROP CONNECTION

NOT TO SCALE



TYPICAL SEWER CONNECTION

N.T.S.

GENERAL NOTE:

CONTRACTOR SHALL BACKFILL ALL TRENCHES, BORE PITS, AND OTHER EXCAVATIONS AT THE END OF EACH WORK DAY. NO TRENCHES, BORE PITS, OR OTHER EXCAVATION SHALL BE LEFT OPEN OVERNIGHT.

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REVISED: -	

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NORTH CAROLINA PROFESSIONAL SEAL 038286 ENGINEER MARK A. LACY
DocuSigned by: Mark A Lacy
7/24/2025

UTILITY CONSTRUCTION

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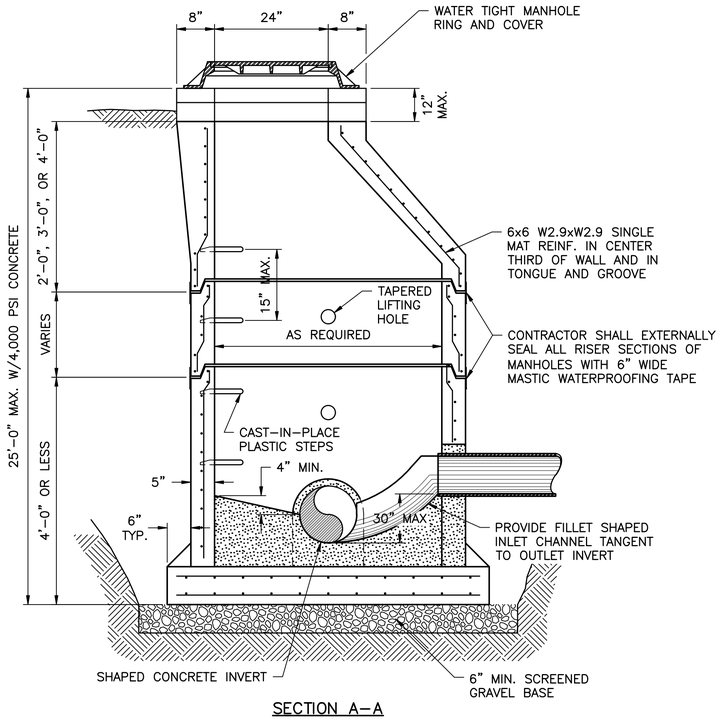
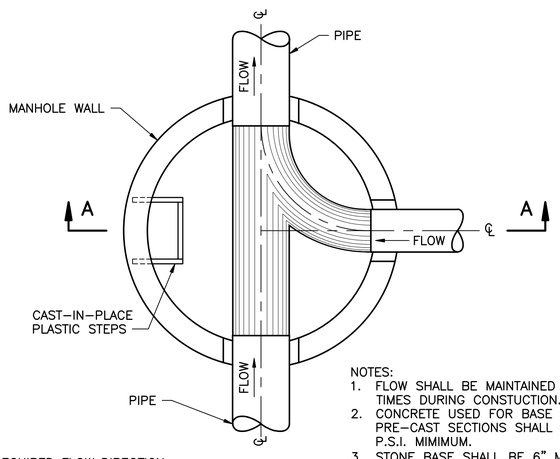


SECTION A–A



NOTE:
MAKE REQUIRED FLOW DIRECTION CHANGES IN MANHOLE BY SMOOTH TANGENTAL CURVE OF SHAPED MANHOLE INVERT.

NOTES:
1. FLOW SHALL BE MAINTAINED AT ALL TIMES DURING CONSTUCTION.
2. CONCRETE USED FOR BASE SLAB AND PRE–CAST SECTIONS SHALL BE 4000 P.S.I. MIMIMUM.
3. STONE BASE SHALL BE 6" MIMNIMUM.
4. EXISTING SANITARY SEWER MAIN SHALL BE SAW–CUT TO SPRING LINE AFTER BASE CONCRETE IS PLACED AND SET.

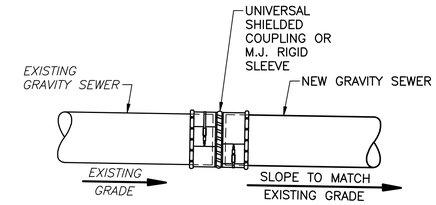
PLAN VIEW

PRECAST DOGHOUSE MANHOLE

NOT TO SCALE

UNIVERSAL SHIELDED COUPLING REQUIREMENTS:

UNIVERSAL SHIELDED COUPLINGS SHALL HAVE EPDM RUBBER ELASTOMER GASKETS THAT WITHSTAND TENSION & COMPRESSION, 304 STAINLESS STEEL SHEAR BAND WITH A MINIMUM THICKNESS OF .0315", 304 STAINLESS STEEL CLAMPS WITH ULTIMATE TORQUE OF 150 IN/LBS, HIGH IMPACT POLYAMIDE SECURING CAGE, AND EACH NOMINAL DIAMETER COUPLING MUST BE SUITABLE FOR MULTIPLE PIPE MATERIALS.



GRAVITY SEWER RECONNECTION

NOT TO SCALE

GENERAL NOTE:

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444DD0510CCC48F 7/30/2025

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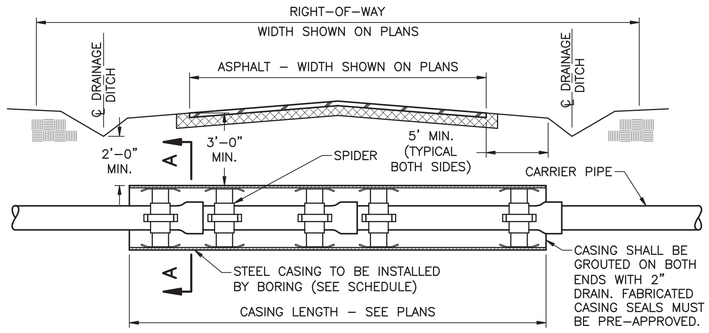
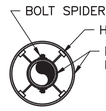
REVISIONS





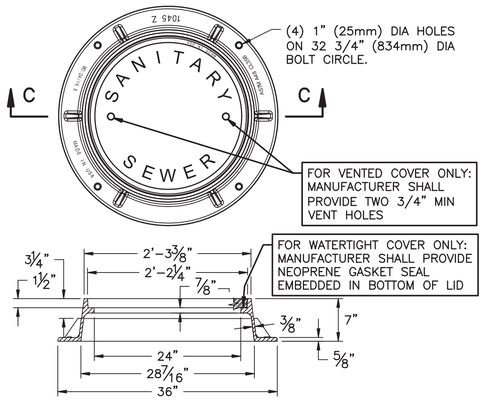
SECTION A–A

NOTE:
CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE "POLICIES AND PROCEDURES FOR ACCOMMODATING UTILITIES ON HIGHWAY RIGHTS-OF-WAY" AS PREPARED BY N.C.D.O.T.

A TYPICAL BORE CASING AND SPIDER
D-1 NOT TO SCALE

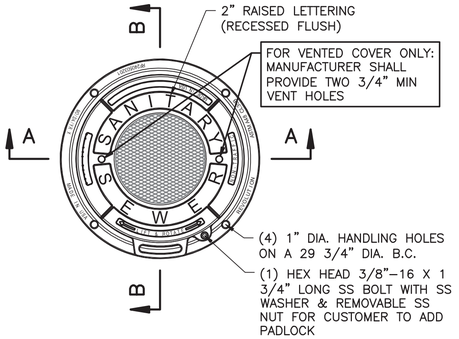
NOTES:
1. A PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER SPECIFICATION STANDARDS UPON COMPLETION OF INSTALLATION AND PRIOR TO PLACING HDPE IN SERVICE.
3. LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION, AND TIE-IN POINTS ARE TO BE APPROVED BY THE ENGINEER PRIOR TO ANY START OF WORK.
4. THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS, AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE.
5. THE BORE DEVELOPED FOR THE LEAD IN END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE LEAD IN END SHALL BE PULLED THROUGH WITHOUT THE M.J. FLANGE ATTACHED FOR LARGER THAN 6" PIPE INSTALLATIONS. THE M.J. FLANGE FOR SAID LEAD IN END SHALL BE INSTALLED AFTER THE PIPE INSTALLATION WITH THE USE OF A SPLIT M.J. FLANGE PER THE DETAIL ON THIS DRAWING.
6. TRACER WIRE SHALL BE TAPED TO PROPOSED PIPE EVERY 10'.

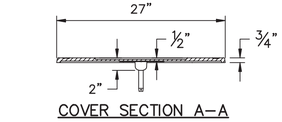
NOMINAL D.I. CARRIER PIPE DIA. (INCHES)	STEEL CASING MINIMUM O.D. (INCHES)	MIN. WALL THICKNESS FOR HIGHWAYS (INCHES)	MIN. WALL THICKNESS FOR RAILROADS (INCHES)
3	8.625	0.250	0.250
4	10.750	0.250	0.250
6	12.0	0.250	0.250
8	16.0	0.250	0.312
10	18.0	0.250	0.312
12	20.0	0.250	0.375
14	24.0	0.250	0.375
16	26.0	0.312	0.500
18	28.0	0.312	0.500
20	30.0	0.312	0.500
24	34.0	0.500	0.625



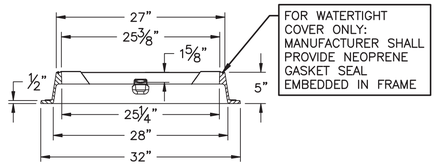
SECTION C–C

TRAFFIC RATED MANHOLE RING AND COVER FOR BOTH WATER TIGHT AND VENTED REQUIREMENTS
NOT TO SCALE

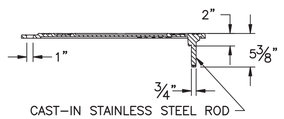




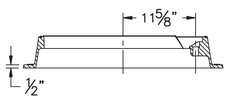
COVER SECTION A–A



FRAME SECTION A–A

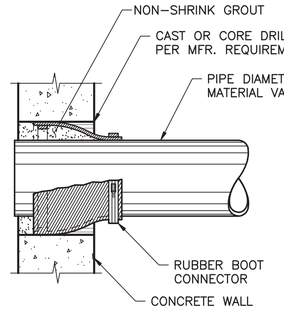


COVER SECTION B–B

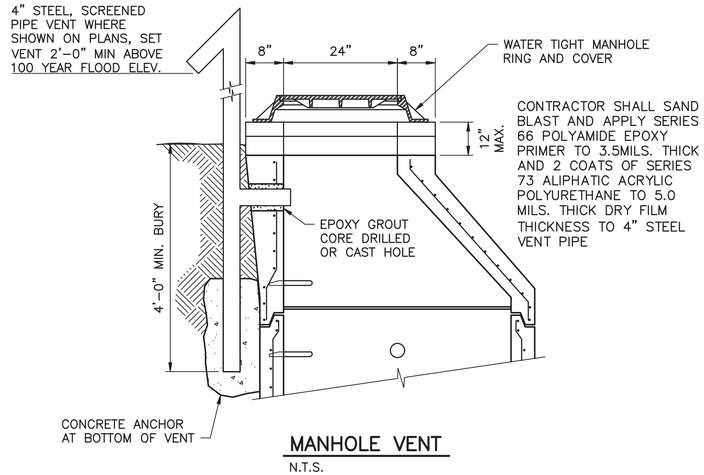


FRAME SECTION B–B

NON TRAFFIC RATED MANHOLE RING AND COVER FOR BOTH WATER TIGHT AND VENTED REQUIREMENTS
NOT TO SCALE



WALL PENETRATION
NOT TO SCALE



MANHOLE VENT
N.T.S.

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lkcengineering.com
License No. P-1095

PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-3C
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A. LACY
DocuSigned by: Mark A Lacy
7/24/2025

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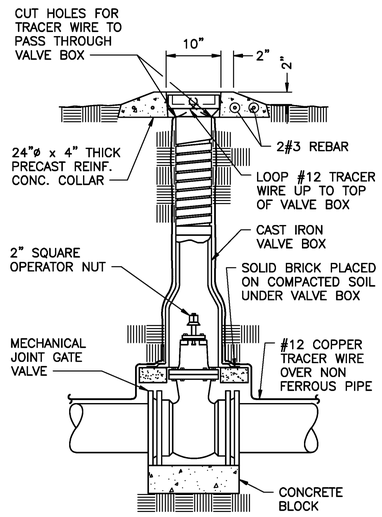
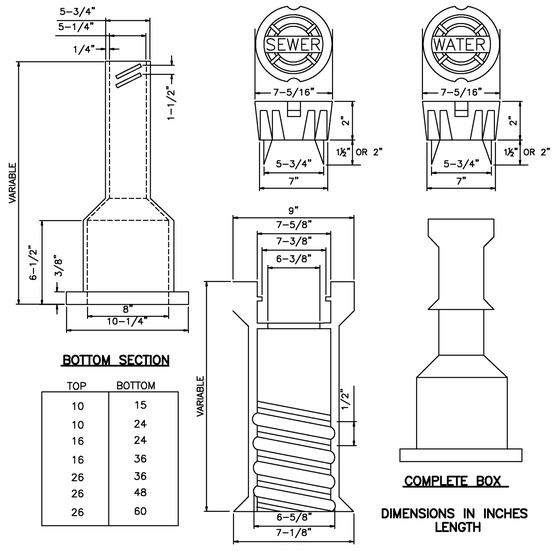


PLUG VALVE ASSEMBLY



BOTTOM SECTION

TOP	BOTTOM
10	15
10	24
16	24
16	36
26	36
26	48
26	60

TOP SECTION

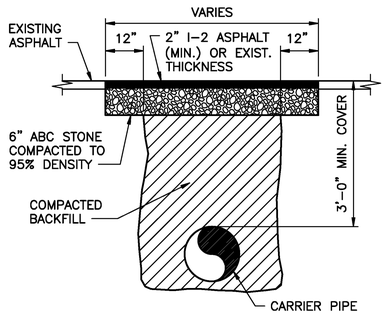
COMPLETE BOX

DIMENSIONS IN INCHES
LENGTH

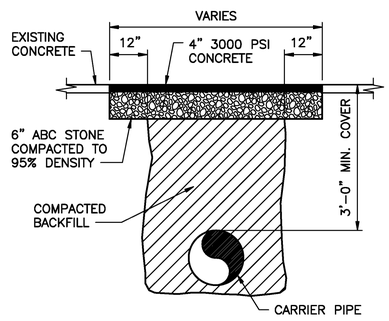
NOTES:

1. VALVE BOX SHALL HAVE RAISED LETTERS "SEWER" CAST INTO COVER.
2. VALVE BOX ACCOMMODATES 4" THRU 12" VALVES.
3. VALVE BOX SHALL HAVE $\frac{25}{64}$" HOLE DRILLED IN TOP SECTION THRU WHICH A ¼" X 1½" GALVANIZED BOLT SHALL BE USED TO SECURE A 12GA. THHN TRACER WIRE FOR NON-FERROUS PIPE. A ½" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
4. SCREW TYPE VALVE BOXES ARE REQUIRED.
5. DIMENSIONS SHOWN MAY VARY DEPENDING UPON THE MANUFACTURER.

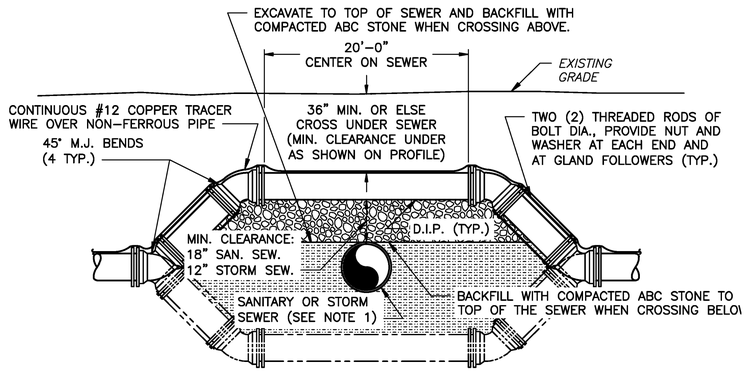
SCREW TYPE VALVE BOX DETAIL



ASPHALT DRIVEWAY OPEN CUT AND PATCH



CONCRETE DRIVEWAY OPEN CUT AND PATCH



NOTES:

1. WHEN IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
2. ALLOWABLE PIPE AND/OR JOINT DEFLECTIONS MAY BE USED IN LIEU OF BENDS TO ACHIEVE REQUIRED CLEARANCE OVER OR UNDER SEWER.

SANITARY AND STORM SEWER CROSSING DETAIL

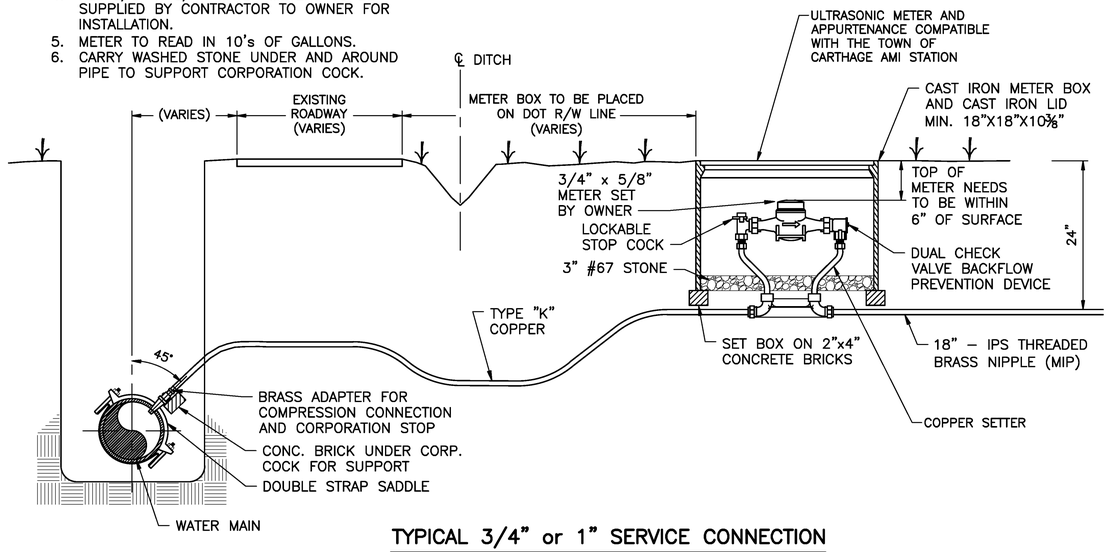
N.T.S.

GENERAL NOTE:

CONTRACTOR SHALL BACKFILL ALL TRENCHES, BORE PITS, AND OTHER EXCAVATIONS AT THE END OF EACH WORK DAY. NO TRENCHES, BORE PITS, OR OTHER EXCAVATION SHALL BE LEFT OPEN OVERNIGHT.

NOTES:

1. MAXIMUM DIRECT TAP SIZES ARE INDICATED IN SPECIFICATIONS.
2. METER BOX TO BE LOCATED ON R/W.
3. ALL FITTINGS TO BE FLARED. COMPRESSION FITTINGS ARE NOT ALLOWED.
4. ALL 5/8" X 3/4" WATER METERS TO BE SUPPLIED BY CONTRACTOR TO OWNER FOR INSTALLATION.
5. METER TO READ IN 10's OF GALLONS.
6. CARRY WASHED STONE UNDER AND AROUND PIPE TO SUPPORT CORPORATION COCK.



TYPICAL 3/4" or 1" SERVICE CONNECTION

N.T.S.

REVISIONS

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DESIGNED BY: MAL	
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NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A. LACY

Docusigned by: Mark A Lacy 444DD0510CCC48F 7/24/2025

UTILITY CONSTRUCTION

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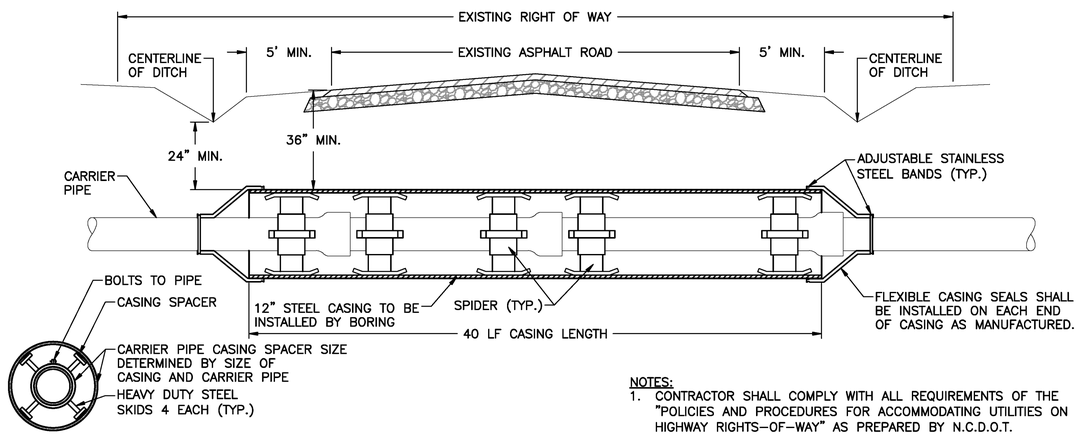

NOTES:
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NOMINAL D.I. CARRIER PIPE DIA. (INCHES)	STEEL CASING MINIMUM O.D. (INCHES)	MIN. WALL THICKNESS FOR HIGHWAYS (INCHES)	MIN. WALL THICKNESS FOR RAILROADS (INCHES)
3	8.625	0.250	0.250
4	10.750	0.250	0.250
6	14.0	0.250	0.250
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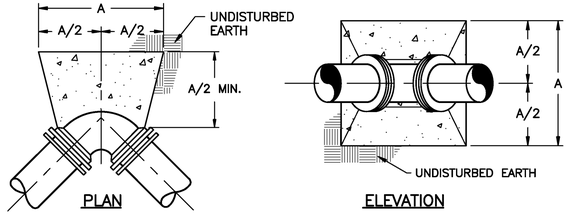
10	18.0	0.250	0.312
12	20.0	0.250	0.375
14	24.0	0.250	0.375
16	26.0	0.312	0.500
18	28.0	0.312	0.500
20	30.0	0.312	0.500
24	34.0	0.500	0.625

TYPICAL BORING AND SPIDER
N.T.S.

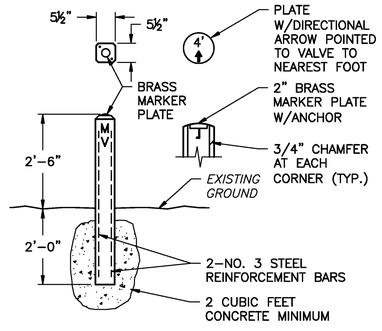


NOTES:
1. THRUST BLOCKS SHALL BE CONSTRUCTED OF 2500 P.S.I. CONCRETE.
2. INSTALL TAR PAPER AROUND BEND OR FITTING TO PREVENT CONCRETE BONDING.

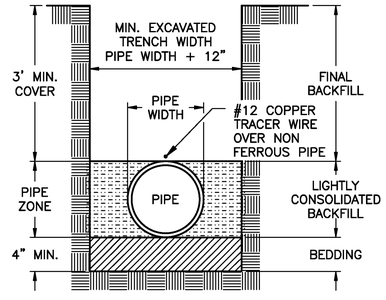
DIMENSION A (FEET)									
BEND / FITING	PIPE SIZE (NOM. DIA. IN INCHES)								
	4	6	8	10	12	16	18	20	24
90° BEND	1.4	2.0	2.7	3.4	4.0	5.4	6.0	6.7	8.0
45° BEND	1.0	1.5	2.0	2.5	3.0	4.0	4.5	5.0	5.9
22.5° BEND	0.8	1.1	1.5	1.8	2.2	2.9	3.2	3.6	4.3
11.25° BEND	0.5	0.8	1.0	1.3	1.5	2.0	2.3	2.5	3.0
TEE BRANCH/DEAD END	1.2	1.7	2.3	2.9	3.4	4.5	5.1	5.7	6.8

CONCRETE THRUST BLOCK DETAIL FOR WATER MAIN HORIZONTAL BENDS AND TEES
N.T.S.

NOTES:
1. INSTALL MARKER POSTS ON EDGE OF THE DOT R/W LINE.
2. PROVIDE MARKER POSTS AT ALL LINE VALVES.
3. ABBREVIATIONS STAMPED ON POST AS FOLLOWS: MV = MAIN VALVE; BO = BLOW OFF VALVE.



VALVE MARKER POST DETAIL



NOTES:
1. BEDDING SHALL BE 4" MINIMUM ABC STONE, AND SHALL PROVIDE UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.
2. BACKFILL PER NCDOT STANDARDS.

TRENCH DETAIL LAYING CONDITIONS
N.T.S.

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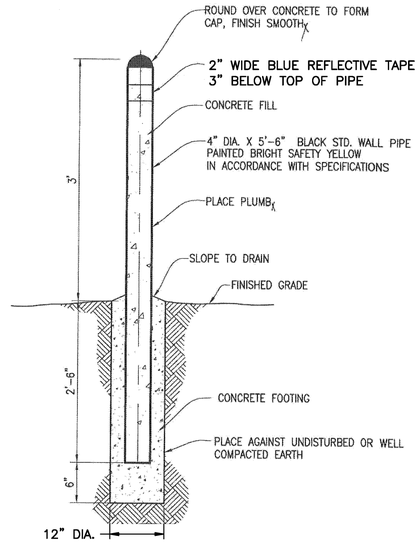
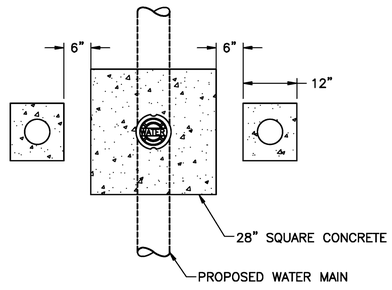


NOTE:
LOCATION SHALL BE SHOWN ON PLAN VIEW, OR AS DIRECTED IN THE FIELD BY THE OWNER AND/OR ENGINEER.



DIRECTIONAL BORE VALVE MARKER

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Landscape Architecture
Surveying
LKC Engineering, pllc
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Aberdeen, NC 28315
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F: 910.637.0096
lkcengineering.com
License No. P-1095

PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-3F
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	7/3/2025

NORTH CAROLINA PROFESSIONAL SEAL 036285 ENGINEER MARK A. LACY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-4
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A LACY

7/3/2025

UTILITY CONSTRUCTION

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LAST SAVED: 08/17/99

REVISIONS	REVISIONS

L:\Cort-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_psh.dwg; Last Saved By: RGARZO, 7/1/2025 9:00:42 AM; Layout1; Plotted By: Robert Garzo, 07/01/25 09:15:18 AM
XREFs: U-3628_nc24-27_psh.dwg, U-3628_nc24-27_den-B-U-3628_nc24-27_den-B-U-3628_nc24-27_den-B-

Docusign Envelope ID: 5FF7DB6F-B4AE-4804-BBD4-81A653063A88

L:\Cart-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_psh.dwg; Last Saved By: RGARZO, 7/1/2025 8:56:58 AM; Layout1; Plotted By: Robert Garzo, 07/01/25 09:16:56 AM
XREFs: U-3628 proposed-existing utilities=..\..\..\U-3628 Utility Conflicts\U-3628 proposed-existing utilities.dwg, U-3628_nc24-27_psh.dwg, U-3628_nc24-27_dsn-9-U-3628_nc24-27_dsn=..\..\6.28.24\U-362..[+more]; IMAGE: No Images

REVISIONS

LAST SAVED: 08/17/99

-L- PI Sta. 52+33.14

N 86°53'02" W 124.21' EIP

S 87°31'57" E 253.55'

15 RIDDLE GROUP, LLC DB 2194 PG 506 PB 10 PG 236

DUMP

GR DR

GRASS

INV=559.01' 10" PLASTIC END UNK

CONC 1SBLK BUS

CONC

140

142

17 NEZZIE M SMITH & JAMES E PUGH, SR. DB 2103 PG 263

1SBK & STONE BUS

GR PARKING

N 00°49'49" E 220.62'

S 02°24'45" W 225.46'

1SBLK BUS

PAVED PARKING

C&G

PAVED DR

50+00

EXISTING R/W

EIP

286.10 LF 12" SANITARY GRAVITY SEWER LINE S-1

4' DIA. UTILITY MANHOLE 1.85 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #2 STA 2+86.10 S-1 RIM ELEV. 556.22'

TOP = 561.5 INV=558.5

ABANDON SEWER MANHOLE – 1

4' DIA. UTILITY MANHOLE 0.33 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #3 STA 3+29.16 S-1 RIM ELEV. 554.84'

ABANDON 3" UTILITY PIPE – 800 LF – SEE NCDOT SPECIFICATION SECTION 1530-3 FOR REQUIREMENTS

RELOCATE WATER METER – 1

1-1/2" WATER SERVICE LINE – 92 LF

CONC DR

CONC WALK

BK PLANTER

BLK COLUMN

BK FOUNTAIN

BK STEPS

R/W-REB S 02°24'53" 5.66'

REMOVE

INV=556.38' CB TOP=559.16' INV=556.64' 15" RCP

GRASS

INV=555.16'

PAVED DR

TOP=555.7 INV=553.0

INV=553.75

INV=553.03

TOP=556.2

INV=552.42'

LINE S-1 SEE PROFILE – SHEET UC-8

4+00

5+00

6+00

7+00

8+00

9+00

2+00

3+00

STA 0+73 W-1 1- 6" 22.5' BEND

STA 2+30 W-1 1- 6" 22.5' BEND

3/4" WATER SERVICE LINE – 6 LF

STA 2+74 W-1 1- 6" 11.25' BEND

800 LF 6" WATER LINE LINE W-1

245.57 LF 12" SANITARY GRAVITY SEWER LINE S-1

43.06 LF 12" SANITARY GRAVITY SEWER LINE S-1

ABANDON 6" UTILITY PIPE – 815 LF

RELOCATE WATER METER – 1

18 NEHEMIAH ALTON MOORE

19 SAM C RIDDLE JR. DB 384 PG 384

FALLOW

N 87°07'31" W 126.97'

N 87°07'31" W 149.53'

45 HNISE JOY CADDELL RIDDLE

ANTENN

LINE W-1 SEE PROFILE SHEET UC-9

1.5' CONC C&G

15" RCP W/FEES

TOP=563.97' INV=559.02'

6"X6" WYE

6" 45° BEND

6" GV

PAVED PARKING

1-6"X6" WYE CONNECT TO EXISTING WATER MAIN

20 DOLGENCORP, LLC DB 4687 PG 154

RIP RAP

146

SIMPSON STREET PAVED ROAD

CONC DR

PAVED PARKING

1SBK BUS

NC CURB

6" VALVE – 1 GATE TYPE

1-6" 45° BEND

22 LIANG ZHANG DB 2423 PG 98

ABANDON 6" UTILITY PIPE – 49 LF

6" WATER LINE – 88 LF

2-6" 45° BEND

CONNECT TO EXISTING HYDRANT TEE

GRASS

148

286.36 LF 12" SANITARY GRAVITY SEWER LINE S-1

NC 24-27 MONROE STREET PAVED ROADWAY

4' DIA. UTILITY MANHOLE 2.68 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #5 STA 8+61.09 S-1 RIM ELEV. 558.46'

ABANDON SEWER MANHOLE – 1

ABANDON 12" UTILITY PIPE – 800 LF

4' DIA. UTILITY MANHOLE MANHOLE #4 STA 5+74.73 S-1 RIM ELEV. 554.94'

ABANDON SEWER MANHOLE – 1

CONNECT TO EXISTING GATE VALVE

2-6" 45° BEND

3/4" WATER SERVICE LINE – 6 LF

2" WATER SERVICE LINE – 6 LF

6" VALVE – 1 GATE TYPE

6"X6" TEE

STA 8+24 W-1 1- 6" 11.25' BEND

STA 7+83 W-1 1- 6" 11.25' BEND

RELOCATE WATER METER – 2

RELOCATE WATER METER – 3

21 REFUEL OPERATING COMPANY, LLC DB 5717 PG 346 PB 6 PG 94

CARTHAGE LLC 346 PG 375

PAVED PARKING

CONC

2' CONC C&G

1.5' CONC C&G

1SBLK BUS

6" PVC END UNK

CONC DR THRU

PETE KELLY ROAD PAVED ROADWAY

RIDDLE EQUIPMENT CO INC DB 2399 PG 482 PB 1 PG 115

1. THE PROPOSED PROJECT INCLUDES THE INSTALLATION OF NEW WATER AND SEWER MAINS TO REPLACE EXISTING SYSTEM COMPONENTS. THE EXISTING SYSTEM COMPONENTS MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF THE PROPOSED PROJECT WITH MINIMAL SERVICE INTERRUPTIONS DURING COMMISSIONING THE NEW WORK. THE SEQUENCE OF UTILITY INSTALLATION CAN BE AT THE CONTRACTORS DISCRETION, BUT SHOULD BE COMPLETED TO MINIMIZE CONFLICTS WITH ACTIVE UTILITIES. THE CONTRACTOR MUST SUBMIT A PROPOSED CONSTRUCTION SEQUENCE PRIOR TO MOBILIZING TO THE SITE.
2. THE EXISTING SEWER SERVICE FOR PARCEL 21 IS LOCATED AT APPROXIMATELY STA 6+50 WITH AN APPROXIMATE ELEVATION OF 550.5'. THE CONTRACTOR SHALL FIELD VERIFY SERVICE LOCATION AND ELEVATION TO ENSURE PROPOSED GRAVITY IS INSTALLED TO ALLOW THE EXISTING SEWER SERVICE TO BE RECONNECTED TO THE NEW SEWER MAIN.
3. THE CONTRACTOR SHALL COORDINATE ALL RECONNECTIONS TO THE EXISTING SYSTEM TO MINIMIZE SERVICE INTERRUPTIONS, AND SHALL NOTIFY THE OWNER AT LEAST FIVE WORKING DAYS IN ADVANCE PRIOR TO ANY RECONNECTION OR SERVICE INTERRUPTIONS.
4. ALL PROPOSED UTILITIES MUST BE TESTED, ACCEPTED, AND CERTIFIED PRIOR TO PLACING THEM INTO SERVICE. THE CONTRACTORS PROPOSED CONSTRUCTION SEQUENCE SHOULD INDICATE PARTIAL CERTIFICATIONS THAT WOULD BE NEEDED.
5. IF DI SEWER PIPING IS NEEDED TO COMPLY WITH NCDEQ OR OTHER REQUIREMENTS, ALL PIPING MUST BE EPOXY LINES AND COMPLY WITH THE REQUIREMENTS NOTED IN THE SPECIAL PROVISIONS.

THE ESTIMATED QUANTITY OF SANITARY SEWER CLEAN-OUTS ON THIS PLAN SHEET IS 7, AND THE ESTIMATED QUANTITY OF SEWER SERVICE LINE IS 140 LF FOR THIS SHEET. THE EXACT LOCATION OF SEWER CONNECTIONS IS TO BE DETERMINED BY THE CONTRACTOR.

REPLACEMENT QUANTITIES NOTE: ROAD AND DRIVEWAY REPLACEMENT QUANTITIES FOR WATER AND SEWER LINES THAT INTERSECT PRIVATE DRIVES AND LOCAL ROADS. (THIS SHEET)

ASPHALT PLANT MIX, PAVEMENT REPAIR (FULL DEPTH ROAD) – 25 TONS

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,200 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SCALE IN FEET 15 0 30

MATCH LINE -L- 50+00 SEE SHEET UC-4

MATCH LINE -L- 58+00 SEE SHEET UC-6

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-5
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

NORTH CAROLINA PROFESSIONAL SEAL 036286 MARK A LACY ENGINEER MARK A. LACY

7/3/2025

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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L:\Cart-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_psh.dwg; Last Saved By: RGARZO, 6/25/2025 3:12:32 PM; Layout1; Plotted By: Robert Garzo, 07/01/25 09:18:31 AM
XREFs: U-3628_proposed-existing utilities=..\..\..\U-3628 Utility Conflicts\U-3628 proposed-existing utilities.dwg, U-3628_nc24-27_dsn-10-U-3628_nc24-27_wi-U-3628_nc24-27_wi, Duke Alternate Alignment=..\..\5-20-22\Duke Alternate Alignment.dwg, LKC-NCDOT-g00bx01=..\..\..\810 Design Drawings\02...[+more]; IMAGE: No Images

L:\Cart-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_psh.dwg; LAST SAVED: 08/17/99; TAB: LAYOUT1

REVISIONS

1. THE PROPOSED PROJECT INCLUDES THE INSTALLATION OF NEW WATER AND SEWER MAINS TO REPLACE EXISTING SYSTEM COMPONENTS. THE EXISTING SYSTEM COMPONENTS MUST REMAIN IN SERVICE THROUGHOUT THE DURATION OF THE PROPOSED PROJECT WITH MINIMAL SERVICE INTERRUPTIONS DURING COMMISSIONING THE NEW WORK. THE SEQUENCE OF UTILITY INSTALLATION CAN BE AT THE CONTRACTORS DISCRETION, BUT SHOULD BE COMPLETED TO MINIMIZE CONFLICTS WITH ACTIVE UTILITIES. THE CONTRACTOR MUST SUBMIT A PROPOSED CONSTRUCTION SEQUENCE PRIOR TO MOBILIZING TO THE SITE.
2. THE EXISTING SEWER SERVICE FOR PARCEL 21 IS LOCATED AT APPROXIMATELY STA 6+50 WITH AN APPROXIMATE ELEVATION OF 550.5'. THE CONTRACTOR SHALL FIELD VERIFY SERVICE LOCATION AND ELEVATION TO ENSURE PROPOSED GRAVITY IS INSTALLED TO ALLOW THE EXISTING SEWER SERVICE TO BE RECONNECTED TO THE NEW SEWER MAIN.
3. THE CONTRACTOR SHALL COORDINATE ALL RECONNECTIONS TO THE EXISTING SYSTEM TO MINIMIZE SERVICE INTERRUPTIONS, AND SHALL NOTIFY THE OWNER AT LEAST FIVE WORKING DAYS IN ADVANCE PRIOR TO ANY RECONNECTION OR SERVICE INTERRUPTIONS.
4. ALL PROPOSED UTILITIES MUST BE TESTED, ACCEPTED, AND CERTIFIED PRIOR TO PLACING THEM INTO SERVICE. THE CONTRACTORS PROPOSED CONSTRUCTION SEQUENCE SHOULD INDICATE PARTIAL CERTIFICATIONS THAT WOULD BE NEEDED.
5. IF DI SEWER PIPING IS NEEDED TO COMPLY WITH NCDEQ OR OTHER REQUIREMENTS, ALL PIPING MUST BE EPOXY LINES AND COMPLY WITH THE REQUIREMENTS NOTED IN THE SPECIAL PROVISIONS.

THE ESTIMATED QUANTITY OF SANITARY SEWER CLEAN-OUTS ON THIS PLAN SHEET IS 7, AND THE ESTIMATED QUANTITY OF SEWER SERVICE LINE IS 140 LF FOR THIS SHEET. THE EXACT LOCATION OF SEWER CONNECTIONS IS TO BE DETERMINED BY THE CONTRACTOR.

DETAIL B
STANDARD BASE DITCH
(Not to Scale)

LINE -L- 58+00
SEE PROFILE SHEET UC-5

-L- PCC Sta. 65+66.76

LINE S-1
SEE PROFILE SHEET UC-8

LINE W-1
SEE PROFILE SHEET UC-9

LINE W-2 AND W-3
SEE PROFILE SHEET UC-10

MATCH LINE -L- 58+00 SEE SHEET UC-5

MATCH LINE -L- 65+00 SEE SHEET UC-7

238.16 LF 12" SEWER LINE LINE S-1

ABANDON 12" UTILITY PIPE – 785 LF

ABANDON SEWER MANHOLE – 1

4' DIA. UTILITY MANHOLE 2.44 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #6 STA 10+99.24 S-1 RIM ELEV. 558.80'

STA 10+28 W-1
1– 6"X6" TEE
2– 6" 45° BEND

246.81 LF 12" SEWER LINE LINE S-1

4' DIA. UTILITY MANHOLE 2.19 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #7 STA 13+46.05 S-1 RIM ELEV. 559.14'

146.76 LF 12" SEWER LINE LINE S-1

4' DIA. UTILITY MANHOLE 2.16 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #8 STA 14+92.81 S-1 RIM ELEV. 561.80'

4' DIA. UTILITY MANHOLE 5.74 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #10 STA 17+18.11 S-1 RIM ELEV. 566.94'

4' DIA. UTILITY MANHOLE 5.85 LF UTILITY MANHOLE WALL 4' DIA. MANHOLE #9 STA 16+84.15 S-1 RIM ELEV. 566.79'

191.34 LF 12" SEWER LINE LINE S-1

33.96 LF 12" SEWER LINE LINE S-1

REMOVE SEWER MANHOLE – 1

CONNECT TO EXISTING WATER MAIN

626 LF 6" WATER LINE LINE W-1

468 LF 6" WATER LINE LINE W-2

86 LF 6" WATER LINE LINE W-3

172 LF 2" WATER LINE LINE W-1

3/4" WATER SERVICE LINE – 6 LF

2" WATER SERVICE LINE – 6 LF

5' MINIMUM BETWEEN SERVICE LINES

STA 2+83 W-2
1– 6" 11.25° BEND

STA 2+05 W-2
1– 6"X6" TEE

STA 1+06 W-2
STA 0+85 W-3
1– 6"X6" TEE

STA 0+00 W-3
1– 6"X6" TEE
1– 6" PLUG

STA 15+02 W-1
1– 6" PLUG TAPPED FOR 2" NPT

STA 14+97 W-1
STA 0+00 W-2
1– 6"X6" TEE

STA 16+68 W-1
1– 2" PLUG

STA 10+38 W-1
1– 6" 11.25° BEND

STA 10+55 W-1
1– 6" 11.25° BEND

STA 13+75 W-1
1– 6" 45° BEND

STA 13+93 W-1
1– 6" 45° BEND

6" VALVE – 1 GATE TYPE

2" VALVE – 1 GATE TYPE

RELOCATE WATER METER – 1

RELOCATE WATER METER – 2

FIRE HYDRANT – 1
FIRE HYDRANT LEG – 10 LF

REMOVE FIRE HYDRANT – 1

RECONNECT WATER METER – 1

CUT INTO EXISTING WATER MAIN

EXISTING WATER MAIN TO BE ABANDONED – PLUG WITH FLOWABLE FILL

ABANDON 6" UTILITY PIPE – 794 LF

ABANDON SEWER MANHOLE – 1

BORE AND JACK OF 12" STEEL CASING – 81 LF

12" ENCASEMENT PIPE – 81 LF

REMOVE 6" PVC

REMOVE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,390 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REPLACEMENT QUANTITIES NOTE:
ROAD AND DRIVEWAY REPLACEMENT QUANTITIES FOR WATER AND SEWER LINES THAT INTERSECT PRIVATE DRIVES AND LOCAL ROADS. (THIS SHEET)

ASPHALT PLANT MIX, PAVEMENT REPAIR (FULL DEPTH ROAD) – 65 TONS

23 LINCOLN CARTHAGE LLC DB 2946 PG 375

24 CSRA GROCERY PORTFOLIO II, DST DB 4538 PG 138

25 EMMET J [illegible] DB 5729 PG 250

26 PHYLLIS C CAMPBELL DB 1998E PG 304

27 [illegible] LEASING, LLC DB 2562 PG 40[illegible]

28 AUTOZONE DEVELOPMENT, LLC DB 4768 PG 337

29 COUNTY OF MOORE DB 1755 PG 417 PB 8 PG 425

29 COUNTY OF MOORE DB 2835 PG 20

30

44

1SBLK BUS

3 TONS CL B RIP RAP
10 SY GEOTEXTILE

SCALE IN FEET 15 0 30

LKC Engineering Landscape Architecture Surveying

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-6
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A. LACY

7/3/2025

UTILITY CONSTRUCTION

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LKC Engineering Landscape Architecture Surveying

PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-7
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A LACY
7/3/2025

UTILITY CONSTRUCTION

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LAST SAVED: 08/17/99

REVISIONS

MATCH LINE -L- 66+00
SEE SHEET UC-6

-L- Pl Sta 70+55.79
D = 1° 07' 14.6" (LT)
D = 0° 06' 52.5"
L = 978.02'
T = 489.03'
R = 50,000.00'

LINE W-2
SEE PROFILE
SHEET UC-10

RECONNECT WATER METER – 4
175 LF 6" WATER LINE LINE W-2
STA 3+27 W-2
1– 6" 11.25° BEND
6" VALVE – 1 GATE TYPE
STA 4+23 W-2
1– 6"X6" TEE
1– 6" PLUG
6" VALVE – 1 GATE TYPE
STA 4+68 W-2
1– 6" 90° BEND
1– 6" PLUG
CUT INTO EXISTING MAIN
EXISTING WATER MAIN TO BE ABANDONED – PLUG WITH FLOWABLE FILL
ABANDON 6" UTILITY PIPE – 124 LF
CONTRACTOR TO VERIFY SIZE

NOTE:
6" UTILITY PIPE TO BE ABANDONED AFTER NEW WATER LINE W-2 COMPLETED, TESTED AND CERTIFIED.

REPLACEMENT QUANTITIES NOTE:
ROAD AND DRIVEWAY REPLACEMENT QUANTITIES FOR WATER AND SEWER LINES THAT INTERSECT PRIVATE DRIVES AND LOCAL ROADS. (THIS SHEET)

ASPHALT PLANT MIX, PAVEMENT REPAIR (FULL DEPTH ROAD) – 12 TONS

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 335 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

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2. THE EXISTING SEWER SERVICE FOR PARCEL 21 IS LOCATED AT APPROXIMATELY STA 6+50 WITH AN APPROXIMATE ELEVATION OF 550.5'. THE CONTRACTOR SHALL FIELD VERIFY SERVICE LOCATION AND ELEVATION TO ENSURE PROPOSED GRAVITY IS INSTALLED TO ALLOW THE EXISTING SEWER SERVICE TO BE RECONNECTED TO THE NEW SEWER MAIN.
3. THE CONTRACTOR SHALL COORDINATE ALL RECONNECTIONS TO THE EXISTING SYSTEM TO MINIMIZE SERVICE INTERRUPTIONS, AND SHALL NOTIFY THE OWNER AT LEAST FIVE WORKING DAYS IN ADVANCE PRIOR TO ANY RECONNECTION OR SERVICE INTERRUPTIONS.
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PTM, L.P. DB 6026 PG 430
PTM, L.P. DB 6026 PG 467
1 S BK BUS
31
1SBK BUS SFP, LLC DB 4904 PG 121
1S MASON BUS
30
BODDIE-NOELL ENTERPRISES, INC DB 3290 PG 232
GLENDON-CARTHAGE RD (SR 1006)
US 15-501 BYPASS PAVED ROADWAY
ACCESS ROAD
EXISTING R/W
TREES AND SHRUBS
MTL CANOPY
PAVED PARKING
FULL OF WATER
GRASS
PAVED
PAVED DR
CONC WALK
CONC DITCH
SIGNAL BOX
GUY
DUMP CONC
CB W/WEIR
PVC SERVICE
ASBESTOS CEMENT
UNK RCP W/FES
POSSIBLE END UNK
CONNECT BY SOUND
WATER LEVEL=546.44'
FES SUBMERGED IN RETENTION POND
N 69°36'08" E 332.64'
S 10°46'19" E 183.42'
S 73°51'27" W 221.64'
15 0 30
SCALE IN FEET

L:\Cart-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_dsn-11-U-3628_nc24-27_plsh.dwg; Last Saved By: RGARZO, 6/25/2025 4:48:25 PM; PSH-11 – Layout1; Plotted By: Robert Garzo, 07/01/25 08:20:09 AM
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L:\Cart-20.03 24-27 Water & Sewer Relocation U-3628\800 Drawings\Updated DGN's\10-22-21 DGN's\20211020_To LKC\U-3628_nc24-27_plsh.dwg; TAB: PSH-11 – LAYOUT1

$$$$USERNAME$$$$ $$$$DATE$$$$ $$$$SYSTEMDESIGN$$$$ $$$$SYSTEMDRAWN$$$$ $$$$SYSTEMCHECK$$$$

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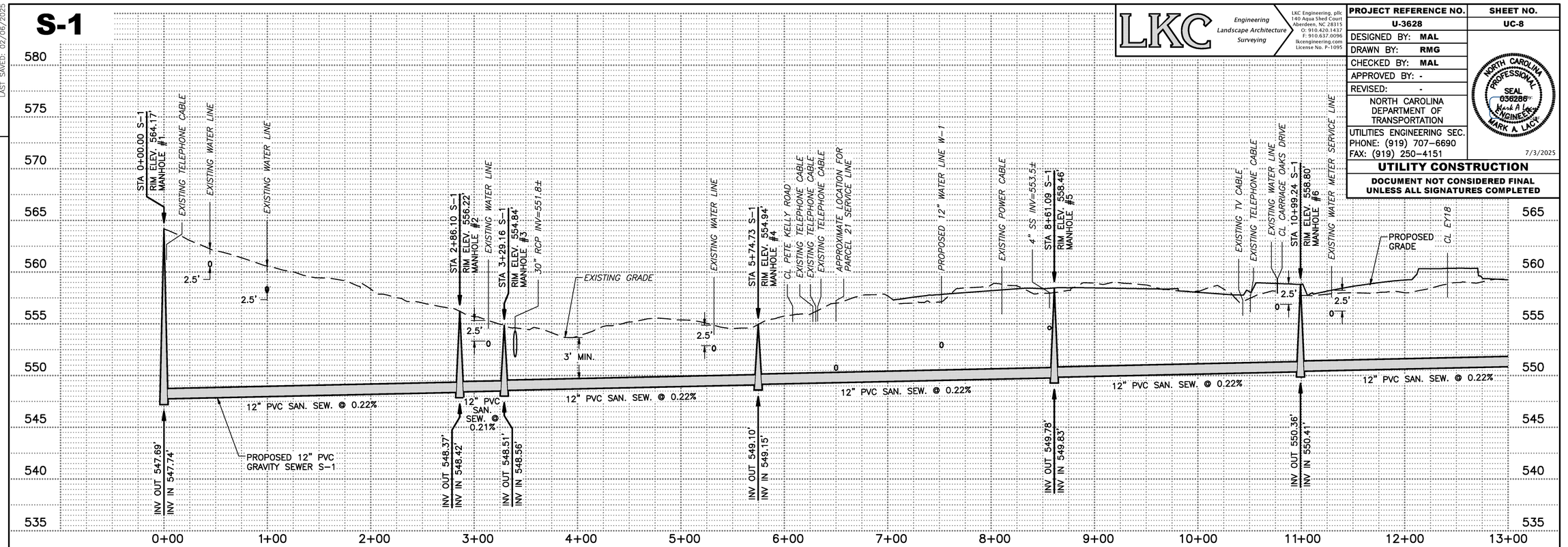
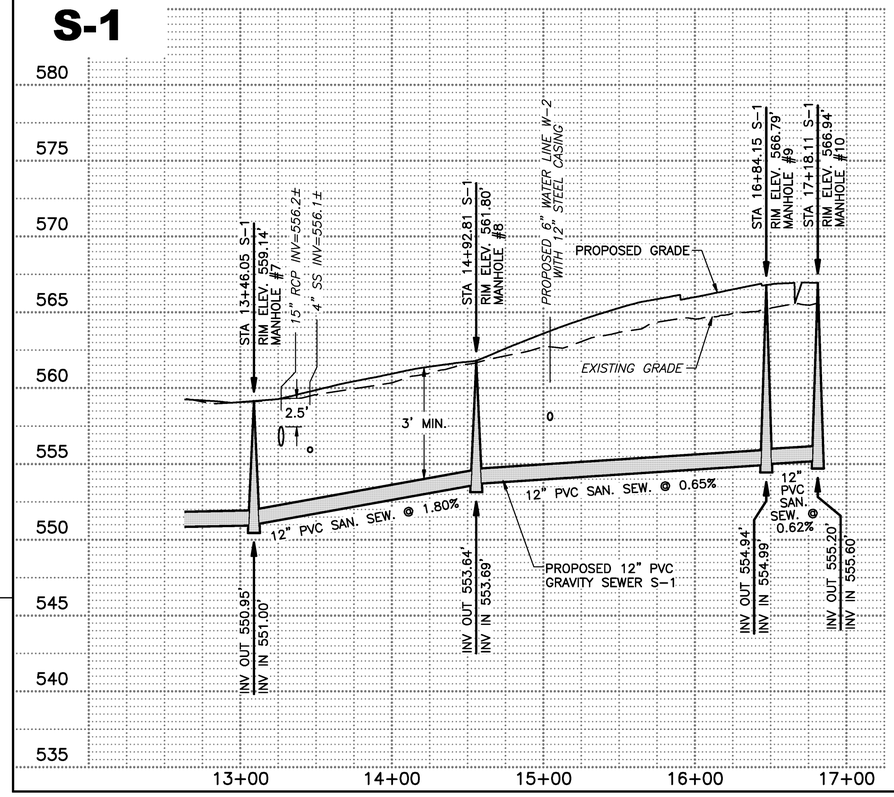
LAST SAVED: 02/06/2025





1. THE EXISTING SEWER SERVICE FOR PARCEL 21 IS LOCATED AT APPROXIMATE STA 6+50 WITH AN APPROXIMATE ELEVATION OF 550.5'.
2. CONTRACTOR SHALL FIELD VERIFY SERVICE LOCATION AND ELEVATION AND ENSURE PROPOSED GRAVITY SEWER IS INSTALLED TO ALLOW THE EXISTING SEWER SERVICE TO BE RECONNECTED TO THE NEW SEWER MAIN.
3. MANHOLES TO BE CAST WITH 0.05' FALL.

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-8
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
APPROVED BY: -	
REVISED: -	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	7/3/2025

NORTH CAROLINA PROFESSIONAL SEAL 036286 ENGINEER MARK A LACY

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REVISIONS

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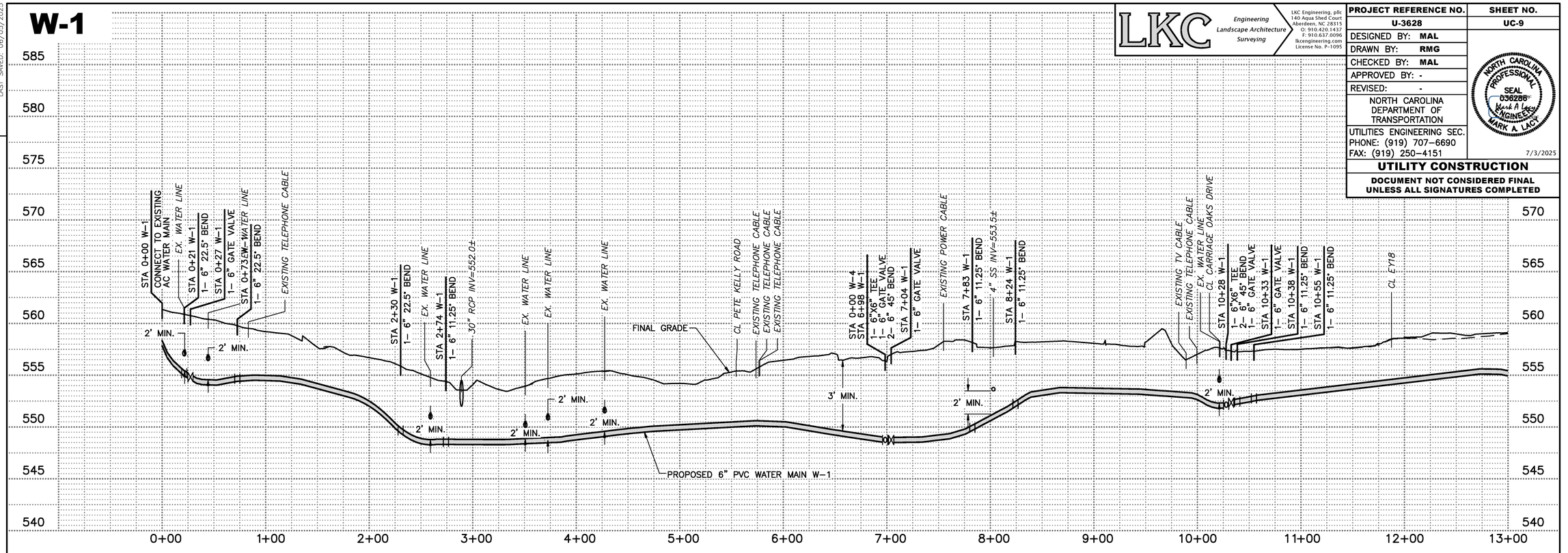

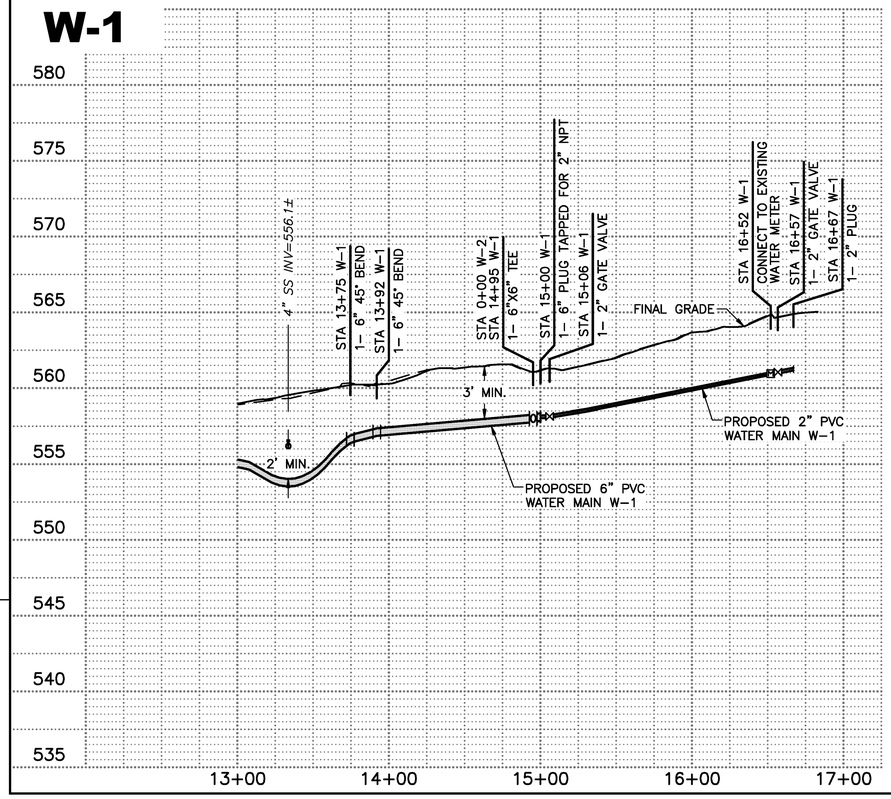

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-9
DESIGNED BY: MAL	
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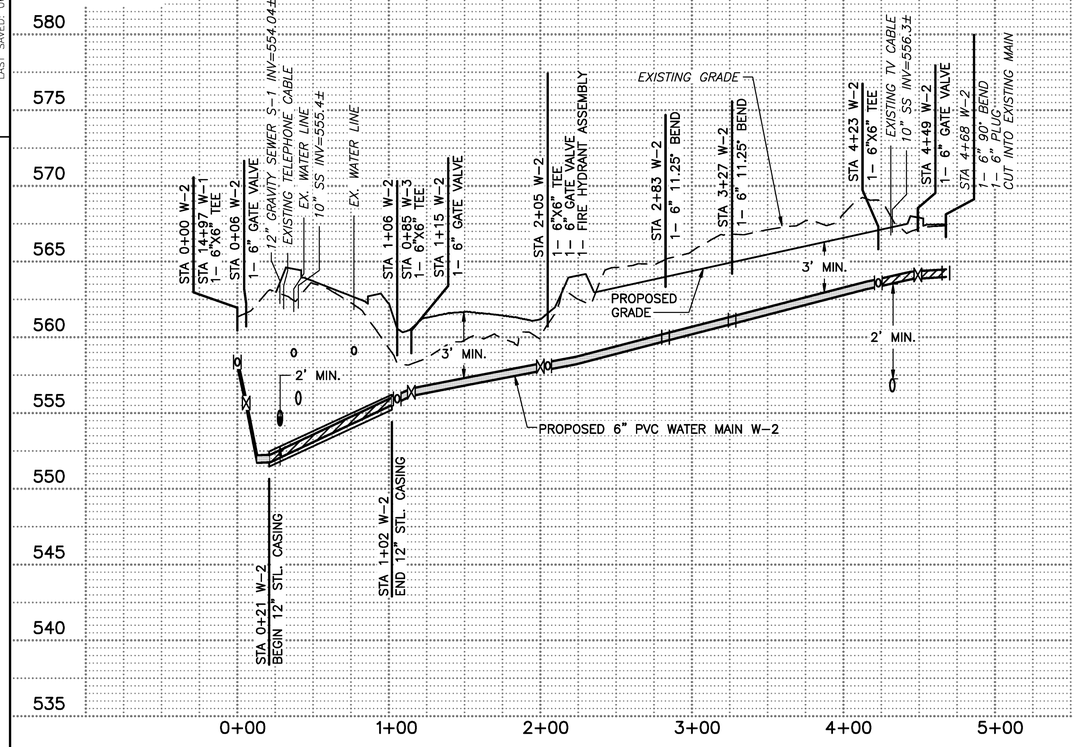
W-2



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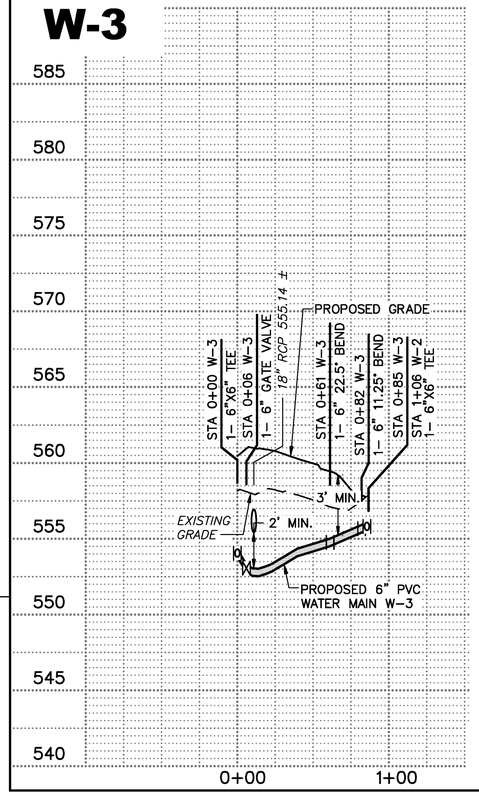

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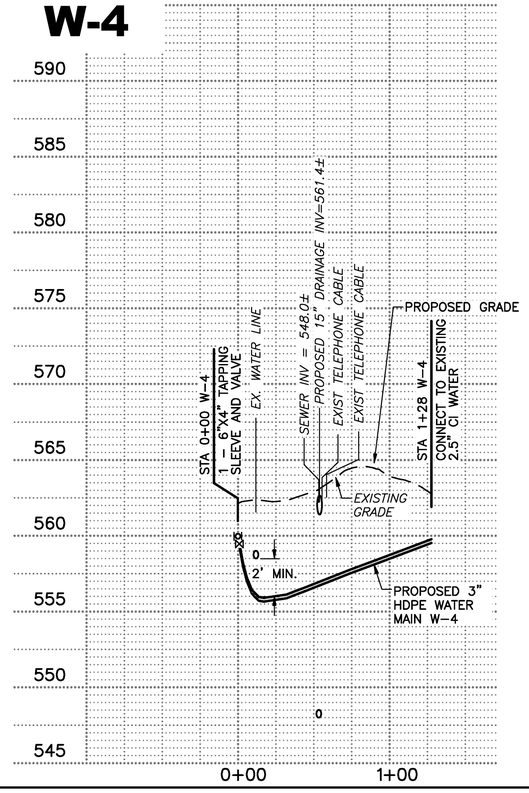

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-3628	UC-10
DESIGNED BY: MAL	
DRAWN BY: RMG	
CHECKED BY: MAL	
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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