TO: PROSPECTIVE BIDDERS HOLDING PLANS AND SPECIFICATIONS FOR
TOWN OF LEWISVILLE, TIP NO. U-6154 LEWISVILLE-VIENNA/ROBINHOOD ROAD PROJECT

RE: U-6154: TOWN OF LEWISVILLE, LEWISVILLE-VIENNA/ROBINHOOD ROAD PROJECT
ADDENDUM NO. 1

The following changes and clarifications are applicable to the referenced project and are now a part of its contract documents. Where any article, division, or subparagraph of the original contract documents or other addenda is supplemented herein, the provisions of the original documents shall remain in effect. All the supplemental provisions shall be considered as added thereto. Where any such article, division, or subparagraphs are amended, voided, or superseded thereby, the provisions of such article, division, or subparagraph not so specifically amended, voided, or superseded shall remain in effect.

The attention of each contractor is called to the following clarifications, additions to, and changes in the plans sealed August 14, 2025, and specifications sealed August 28, 2025, on the above project. It will be the responsibility of each contractor to call such clarifications, additions, and changes in plans and specifications to the attention of subcontractors concerned. The Town in no way assumes any responsibility for notifying any subcontractor, material dealers, or others not having received the original contract documents.

Bidder must acknowledge receipt of Addendum No. 1 by signing appropriately on each of the revised Itemized Proposal and submitting them with other bid documents. Original Pages with strikethroughs will not be accepted.

Item 1: Plan Sheet 1A Revision (Revised Index of Sheets)
Replace Plan Sheet 1A with Addendum No. 1 Page 1A

Item 2: Utility Construction Plan Revision
Add Utility Construction Plans UC-1 through UC-11, following Plan Sheet SIG.3.1 with Addendum No. 1 Pages UC-1 through UC-11.

Item 3: Bid Form Revision (Revised line items)
Replace Bid Form Pages F-27 through F-30 with Addendum No. 1 Pages F-27 through F-30. Added multiple line items.

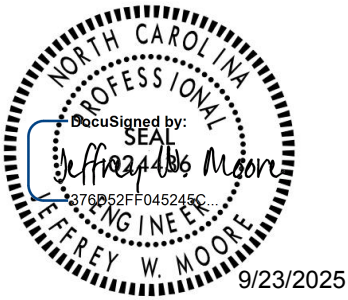
Item 4: Appendix and Table of Contents Revision
Add a new title “Appendix” to the Table of Contents provided in Addendum No. 1 Page 4. Add Appendix cover page, and “NCDOT Wet Utility Encroachment Agreement” Addendum No.1 Pages 1 through 33 following Page 191 of the project specifications.

ATTACHMENTS:

- Pre-Bid Meeting Minutes
- Pre-Bid Questions 09/18/2025
- Pre-Bid Questions following the meeting up to Tuesday September 23rd at 12pm
- Addendum No. 1 – Sheet 1A, Utility Construction Plans, Table of Contents, Bid Form, and NCDOT Wet Utility Encroachment Agreement

ALL OTHER CONDITIONS REMAIN THE SAME.

By: Jeffrey W. Moore, P.E.
Kimley-Horn and Associates, Inc.



END OF ADDENDA #1

TOWN OF LEWISVILLE

U-6154 – LEWISVILLE-VIENNA/ROBINHOOD ROAD PROJECT
Non-Mandatory Pre-Bid Meeting

The following persons attended the above referenced non-mandatory virtual pre-bid meeting on Thursday, September 18, 2025, at 2:00 PM via Microsoft Teams or by call-in.

NAME	REPRESENTING	PHONE	EMAIL
Stacy Tolbert	Town of Lewisville	336-945-1023	stolbert@lewisville.net
Jeff Moore	Kimley-Horn	919-677-2175	Jeff.moore@kimley-horn.com
Spencer Stringfellow	Kimley-Horn	984-777-5603	Spencer.stringfellow@kimley-horn.com
Stephanie Bass	Triangle Grading & Paving, Inc	336-584-1745	sbass@tgandp.com
Clint Bowman	Mountaineer Contractors, Inc	304-329-2129	clint.bowman@mciwv.com
Hani Kattan	Atlantic Contracting Co Inc	336-931-3109	Hani@atlanticcontractinginc.com
Nick Rodenberg	Sharpe Brothers	336-266-1291	nick.rodenberg@sharpebrosvg.com
Blair Willard	BW Infrastructure LLC	336-403-6311	Blair@bw-inf.com
Luke Graham	Thompson Arthur Division APAC Atlantic, Inc.	336-669-4561	lgraham@wvpaving.com

The following items represent items and topics discussed:

- Sign-In/Attendance

- Project Description
  - The Town of Lewisville proposes to convert the signalized intersection of SR-1308 (Lewisville-Vienna Road) and SR 1348 (Robinhood Road) into a single lane roundabout.

- Bid Information
  - Bid Opening/Letting: Bids are due at **2:00 PM** on **Thursday, October 9, 2025**
    - Packages can be hand delivered if bidders coordinate with the Town in advance. Bidders shall not physically enter the building. Please call the Town Hall at 336-945-5558 to coordinate drop off prior to the bid opening between the hours of 8:30 AM and 5:00 PM Mon thru Fri.
    - Package can be delivered by mail to the address listed below on or before the bid opening date/time.

TOWN OF LEWISVILLE
Attn: Stacy Tolbert
P.O. Box 547
6510 Shallowford Road
Lewisville, NC 27023
336-945-1023

- Questions will only be received in written form by email to stolbert@lewisvillenc.net. The deadline to submit written questions is **Thursday, October 2, 2025, at 5:00 PM**. Responses to questions will be posted in an Addendum and will be made available by **5:00 PM** on **October 3, 2025**.
- DBE Goal is 5%
  - The Town expects that the bidders will provide a good faith effort to achieve the DBE participation goal. The DBE contractors must be certified with the NCDOT.
  - Need to have a Letter of Intent by 5 calendar days after the opening of bids from all subcontractors.

- Electronic files – Schedule of Prices
  - Schedule of Prices can be provided in excel format as part of the Addendum for the Contractor to use for calculations if needed. Contractor shall submit hard copy of Schedule of Prices with their Bids and sign each sheet at the bottom.

- Contract Duration
  - Date of Availability: Issued date of NTP
  - Completion Date: 364 days from NTP
  - Liquidated Damages:
    - Contract Time – $1,600 per day will be assessed for each calendar day of delay, until work is completed.
    - ICT No.1 - $500 per hour for roadway restrictions
    - ICT No. 2 - $500 per hour for roadway restrictions on or during holiday weekends, special events, or when traffic is unusually heavy.

- Coordination with Town
  - Stacy Tolbert, Town Manager, will serve as the Town contact for this project. Her phone number is 336-945-1023.
  - Town, via Volkert, will provide full-time inspection for the project. CEI consultant will be under contract and in attendance for the Pre-Construction Meeting.
  - Town, Volkert, will provide materials testing for project.
  - Contractor will need to provide survey/staking on project (including As-Builts).

- Traffic Management
  - Phases
    1. Perform waterline installation, widening, construct curb and gutter, shoulder, sidewalk, and install associated drainage and paving and wedging up to but not including the final asphalt surface course.
    2. Install temporary signal, perform widening, construct curb and gutter, sidewalk, and install associated drainage and paving and wedging up to but not including the final asphalt surface course.
    3. Remove temporary signal, construct roundabout, median and monolithic islands. Install final asphalt surface course, install final pavement markings and markers, remove all traffic control devices and open all lanes to traffic.

- Water/Sanitary Sewer
  - Bid on and constructed with this overall roadway construction project
  - Contractor to minimize impacts to force mains by only relocating portion necessary for utility conflict resolution and storm drain installation as shown on the UC plans

- Erosion Control
  - Recommended temporary construction entrance and stockpile/staging area north of Lewisville-Vienna/Robinhood Road intersection on Town property in the NW corner.

- Right-of-way Acquisitions
  - All Right-of-Way and Easements have been acquired

- Permit Status – Complete/Acquired

- Coordination with Adjacent Developments and Businesses
  - None at this time
  - Town would like to stress the importance of maintaining adjacent property access throughout construction as shown on the plans

- Utility Coordination

  - Utility Contact Information:
    - Utility: Duke Energy Progress (Power)
      - Contact Person:
        - James Carlton
        - James.Carlton@duke-energy.com
        - 919-368-8765
    - Utility: Duke Energy Progress (Lighting)
      - Contact Person:
        - Peter Berrios
        - Peter.Berrios@duke-energy.com
        - 336-914-4788
    - Utility: Windstream
      - Contact Person:
        - Charlie McClelland
        - Charlie.McClelland@byers.com
        - 980-285-3036
    - Utility: Charter Spectrum
      - Contact Person:
        - David Hardy
        - david.hardy1@charter.com
        - 336-451-6818
    - Utility: Yadtel/Zirrus Telecom
      - Contact Person:
        - Patrick Gray
        - Patrick.gray@zirrus.com
        - 336-463-5037

- Utility: Lumos
  - Contact Person:
    - Burke Wall
    - burke.wall@lumosfiber.com
    - 336-821-8813
  - There will be some level of utility coordination required during construction for the roadway contractor. A special provision has been added to the bid documents outlining more details regarding the same.

- Questions
  - Open for Bidder questions – clarifications and Q/A from this Pre-Bid will be included in Addendum
  - Submit written questions to: Stacy Tolbert stolbert@lewisvillenc.net
    cc. Jeff Moore jeff.moore@kimley-horn.com

Pre-Bid Questions 09/18/2025

Question: Can the Schedule of Prices Excel sheet be provided sooner than the addendum?

Answer: Yes, the Excel file will be provided as soon as it is available.

Question: What is the projected starting date for the work?

Answer: The Town prefers to get approval from NCDOT before the final council meeting ahead of the newly elected council on November 13th. January 5th is anticipated to be the earliest date of availability.

Question: Does the Town have a budget for this project they are willing to provide?

Answer: The Town is not willing to provide their budget to the bidders prior to the bid opening/let date.

Pre-Bid Questions following the meeting up to Tuesday September 23rd at 12pm

Question: It appears that the plans that are downloaded from the town site does not include Utility construction plans sheets UC-1 to UC-8. Can you provide these plans?

Answer: Yes, they are provided with Addendum 1.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6154	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040438 JEFFREY W. MOORE
Docusigned by: Jeffrey W. Moore
9/22/2025

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U-6154
FORSYTH COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS SHEET
2A-1 THRU 2A-3	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2B-1	CONSTRUCTION DETAILS
2B-2	ROUNDABOUT ALIGNMENT
2B-3	ROUNDABOUT DETAIL
2C-1	MINIMUM DEPTH FOR CONCRETE CATCH BASIN
2C-2	MINIMUM DEPTH FOR BRICK CATCH BASIN
3B-1	EARTHWORK SUMMARY
3D-1 TO 3D-2	DRAINAGE SUMMARIES
4 THRU 8	PLAN SHEETS
9 THRU 13	PROFILE SHEETS
TMP-1 THRU TMP-18	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-7	PAVEMENT MARKING PLANS
EC-1A THRU EC-17	EROSION CONTROL PLANS
L1.0 THRU L2.0	LANDSCAPING PLANS
SIGN-1 THRU SIGN-7	SIGNING PLANS
SIG.1.0 THRU SIG.3.1	SIGNAL PLANS
UC-1 THRU UC-11	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-6	UTILITIES BY OTHERS PLANS
X-1 THRU X-20	CROSS-SECTIONS

2024 SPECIFICATIONS

EFFECTIVE: 01-01-24

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE ACAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE :

WINDSTREAM COMMUNICATIONS
DUKE ENERGY
FORSYTH COUNTY UTILITIES
CHARTER SPECTRUM
YADTEL TELECOM
ZIRRUS

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD 848.06.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N. C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N. C., DATED JANUARY, 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
200.03	METHOD OF CLEARING - METHOD III
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
300.01	METHOD OF PIPE INSTALLATION
654.01	PAVEMENT REPAIRS
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01	BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN - 12" THRU 54" PIPE
840.03	FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN
840.14	CONCRETE DROP INLET - 12" THRU 30" PIPE
840.15	BRICK DROP INLET - 12" THRU 30" PIPE
840.16	DROP INLET FRAME AND GRATES - FOR USE WITH STD. DWG 840.14 AND 840.15
840.17	CONCRETE GRATED DROP INLET TYPE 'A' - 12" THRU 72" PIPE
840.18	CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.19	CONCRETE GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE
840.24	FRAMES AND NARROW SLOT SAG GRATES
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.26	BRICK GRATED DROP INLET TYPE 'A' - 12" THRU 72" PIPE
840.27	BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.28	BRICK GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE
840.29	FRAMES AND NARROW SLOT SAG GRATES
840.66	DRAINAGE STRUCTURE STEPS
840.72	PIPE COLLAR
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
848.01	CONCRETE SIDEWALK
848.02	DRIVEWAY TURNOUT - RADIUS TYPE
848.04	STREET TURNOUT
848.06	CURB RAMP
852.01	CONCRETE ISLANDS
852.04	METHOD FOR PLACEMENT OF DROP INLETS IN GRASSED MEDIAN - USING 1'-6" CURB & GUTTER
852.05	MEDIAN CURB FOR CATCH BASIN - FOR USE WITH 1'-6" CURB AND GUTTER
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS
876.04	DRAINAGE DITCHED WITH CLASS 'B' RIP RAP

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09/08/99

TIP PROJECT: U-6154

T.I.P. NO.	SHEET NO.
U-6154	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

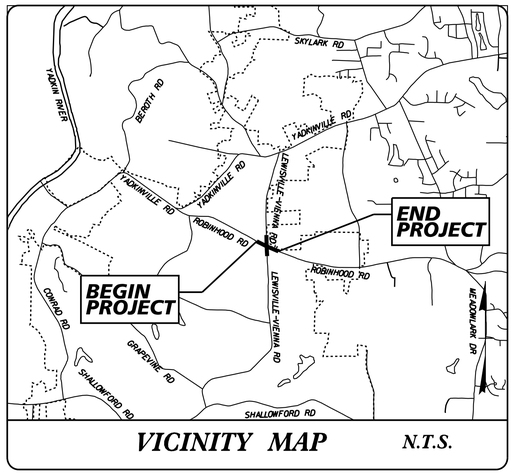
UTILITY CONSTRUCTION PLANS
FORSYTH COUNTY

UC PLANS

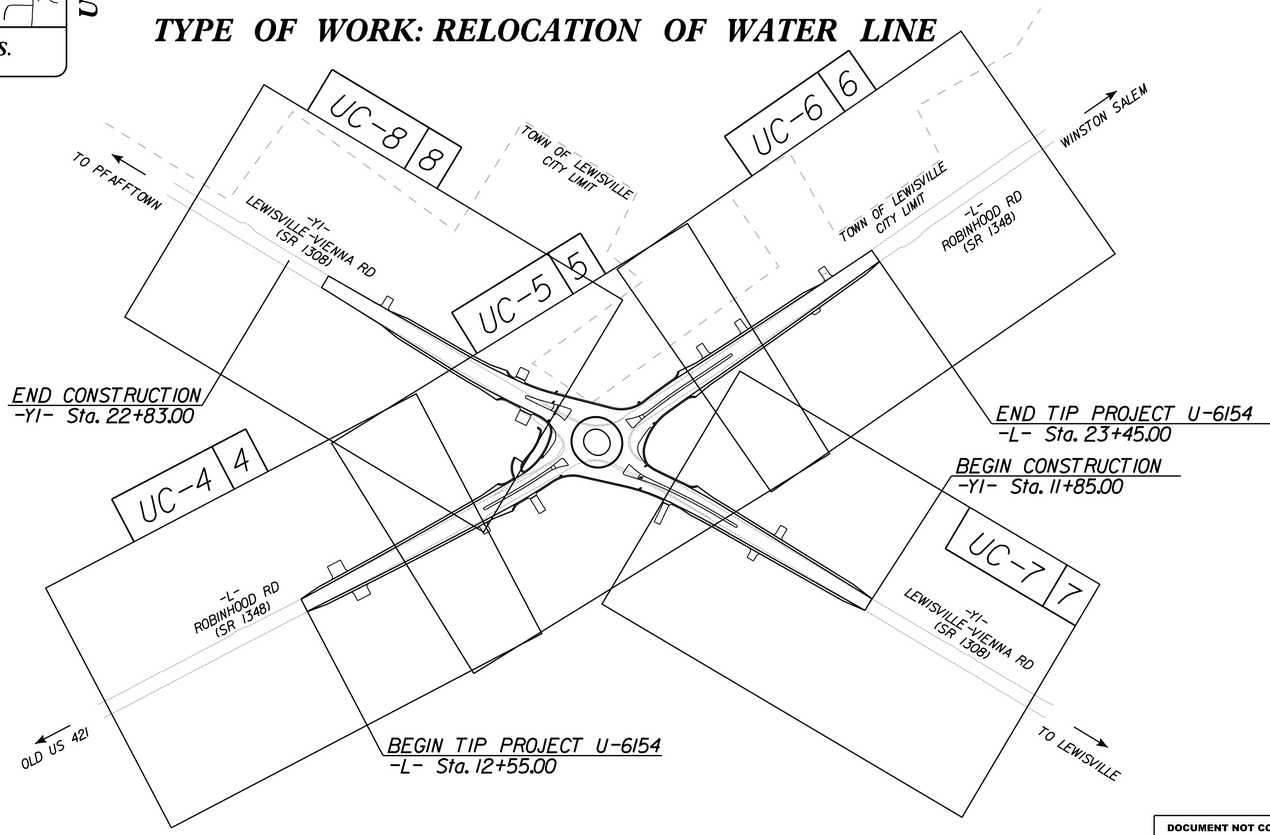
LOCATION: INTERSECTION OF SR 1308 (LEWISVILLE-VIENNA ROAD) AND SR 1348 (ROBINHOOD ROAD)

NAD 83/NA 2011
NC GRID

TYPE OF WORK: RELOCATION OF WATER LINE



VICINITY MAP *N.T.S.*



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GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

2 1 0 2 4
PROFILE (VERTICAL)

INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - WINSTON-SALEM FORSYTH COUNTY PUBLIC UTILITES

PREPARED IN THE OFFICE OF

Kimley»Horn © 2024

NC LICENSE #F-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

Nate Harvey, P.E. — *CONSULTANT CONTACT #1*
Jack Bajerski, E.I. — *CONSULTANT CONTACT #2*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L HARVEY
2/20/2025

DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Amy D. York — *CENTRAL UTILITES MANAGER*
R. David Trantham — *UTILITIES ENGINEER*
Ali Koucheki, P.E. — *REGIONAL UTILITIES ENGINEER*
C. Dayton Martin, III — *REGIONAL UTILITIES COORDINATOR*

12/17/2024

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 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 — REH
- 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) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- 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) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" 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
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

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

12/17/2024

5/14/99

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 CITY OF WINSTON-SALEM FORSYTH COUNTY PUBLIC UTILITIES.

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 THE 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 ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO 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 OWNERS' 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 EXISTING 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 MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

12/17/2024

PROJECT SPECIFIC NOTES:

1. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT ITS EXPENSE, UNLESS PREVIOUSLY OBTAINED BY THE OWNER AND PROVIDED AT THE PRECONSTRUCTION CONFERENCE.

2. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR WRITTEN CONSENT OF THE UTILITY OWNER OR THEIR REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE UTILITY OWNER PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL HOLD AN ON-SITE PRECONSTRUCTION MEETING WITH THE OWNER AND NCDOT AND SHALL DETAIL ITS PROPOSED INSTALLATION, CLEANING, TESTING, AND CONNECTION PLAN. OWNER WILL PROVIDE CONTACT INFORMATION FOR INSPECTIONS. PRECONSTRUCTION MEETING SHALL BE SCHEDULED TO TAKE PLACE AT LEAST 7 DAYS PRIOR TO COMMENCING UTILITY CONSTRUCTION WORK.

5. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AND TENANTS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION THAT UTILITY CONSTRUCTION ACTIVITY WILL TAKE PLACE IN THEIR AREA.

6. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS FOR ALL UTILITY CONSTRUCTION PRIOR TO PLACING THE PIPELINE(S) IN SERVICE (SEE UC SPECIAL PROVISIONS).

7. PIPE ALIGNMENT SHOWN IS BASED ON STANDARD DUCTILE IRON MECHANICAL JOINT FITTINGS. JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION. CONTRACTOR SHALL ADJUST PIPELINE ALIGNMENT AND DEFLECT JOINTS AS NECESSARY TO ACCOMMODATE THE STANDARD BENDS SHOWN.

8. MINIMUM PIPE COVER FOR DISTRIBUTION WATER MAINS SHALL BE 3 FEET.

9. ALL PRESSURIZED FITTINGS SHALL BE DUCTILE IRON RESTRAINED MECHANICAL JOINT WITH PRESSURE RATING EQUAL TO OR HIGHER THAN HOST PIPE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

10. ALL MECHANICAL JOINTS SHALL BE FITTED WITH WEDGE-TYPE MECHANICAL RESTRAINT ACCESSORY KITS DESIGNED FOR THE INTENDED USE AND MATERIAL, AS APPROVED BY UTILITY OWNER.

11. ALL WORK SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE CITY OF WINSTON-SALEM DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION'S TECHNICAL SPECIFICATIONS AND DETAIL DRAWINGS FOR WATER LINE AND SANITARY SEWER LINE CONSTRUCTION.

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

Docusigned by: NATHANIEL L. HARVEY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045249
8/20/2025

UTILITY CONSTRUCTION

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3A

DESIGNED BY:	NLH
DRAWN BY:	JNB
CHECKED BY:	NLH
APPROVED BY:	NLH
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
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NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 9/20/2025

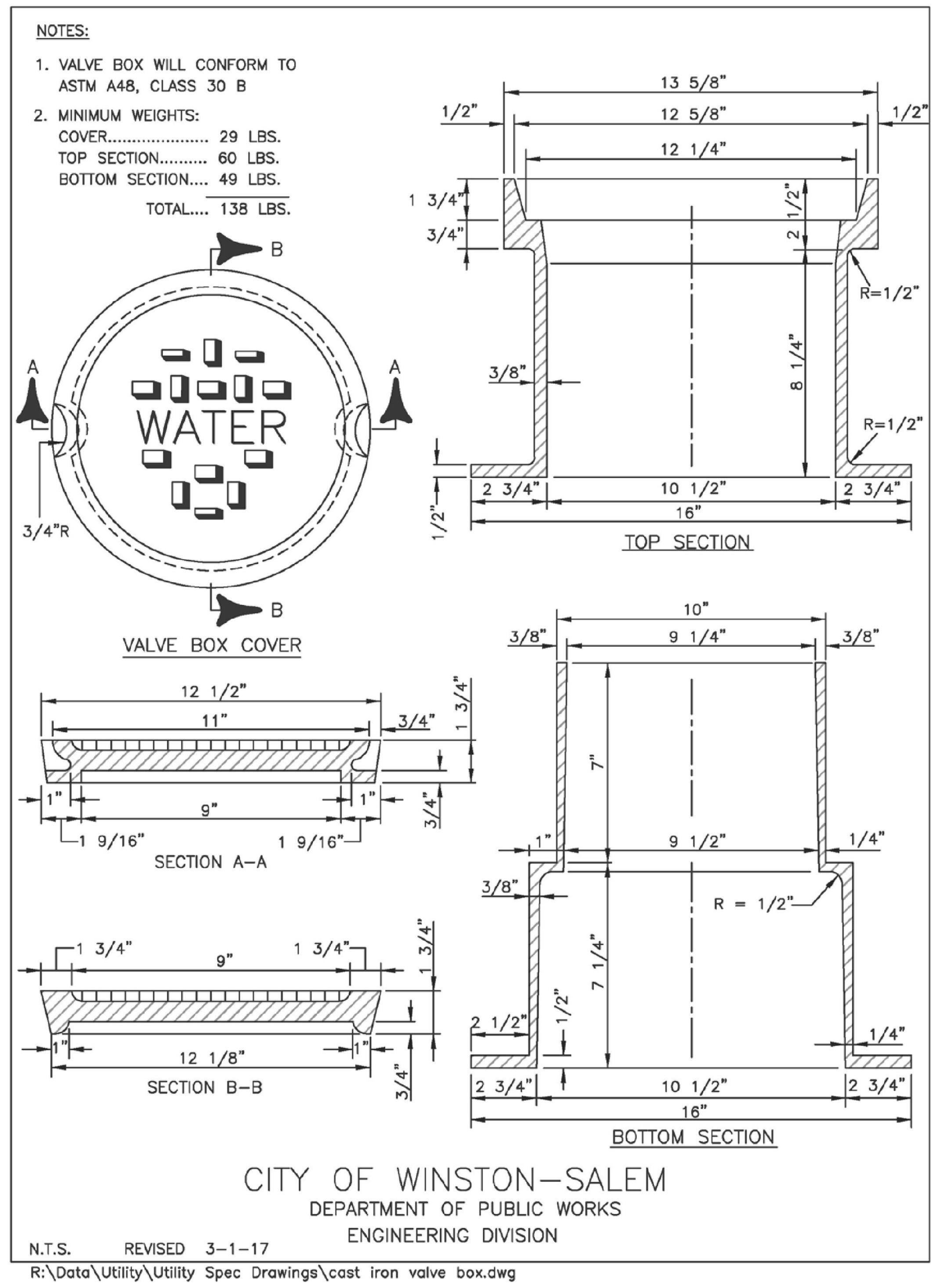
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO

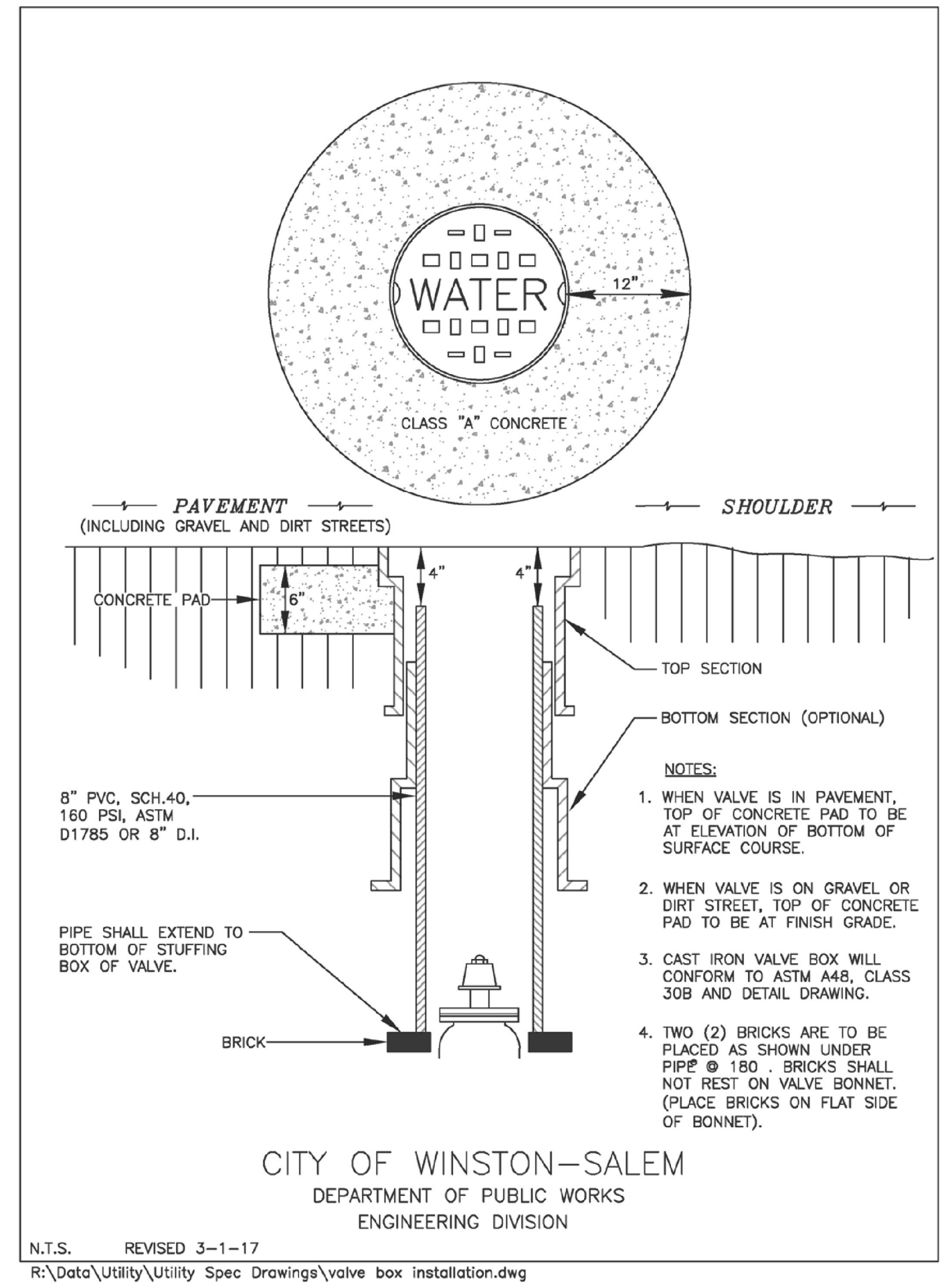
5/14/99

Cast Iron Valve Box



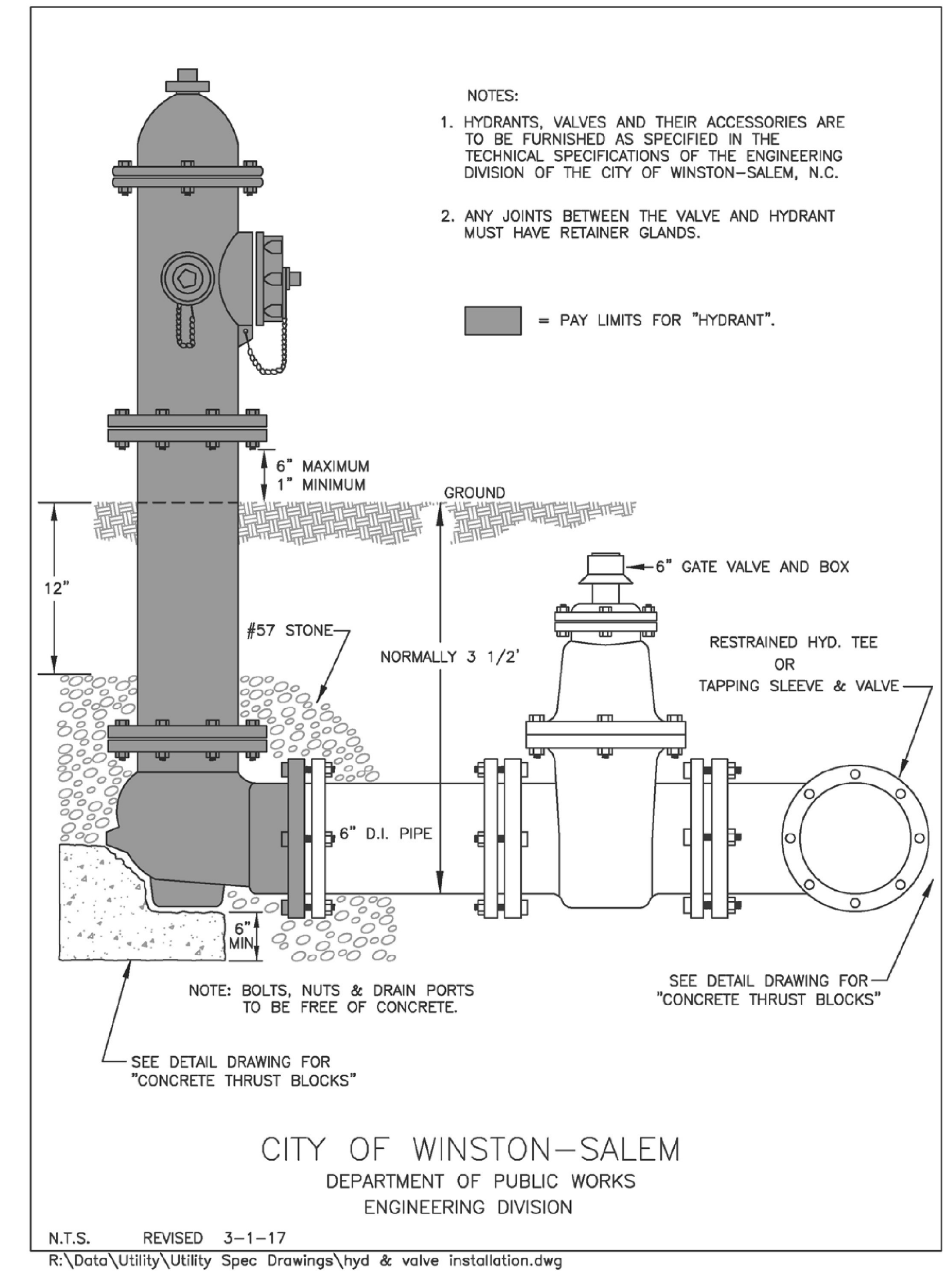
C-39

Valve Box Installation



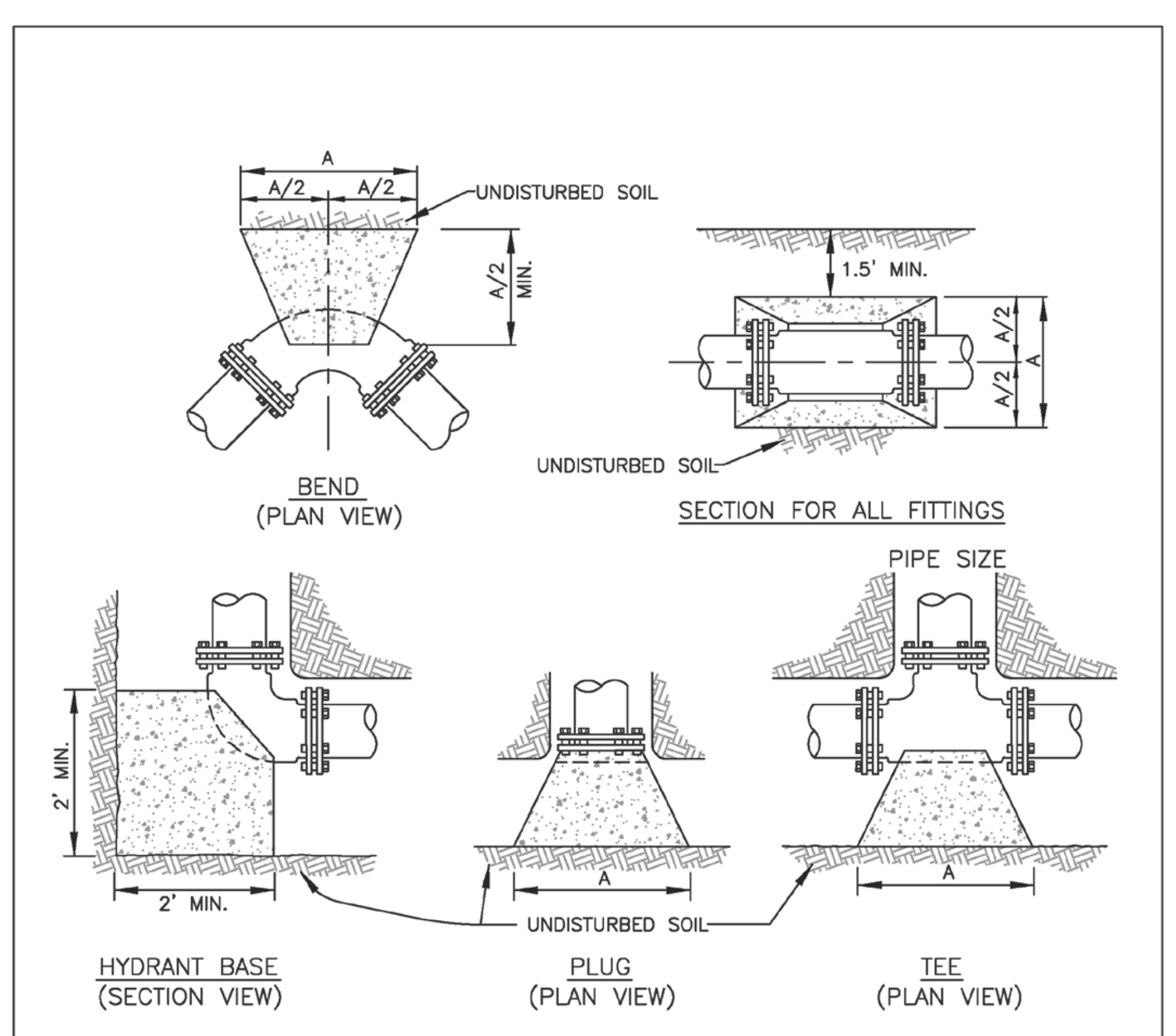
C-40

Hydrant and Valve Installation



C-41

Concrete Thrust Blocks for Horizontal Bends



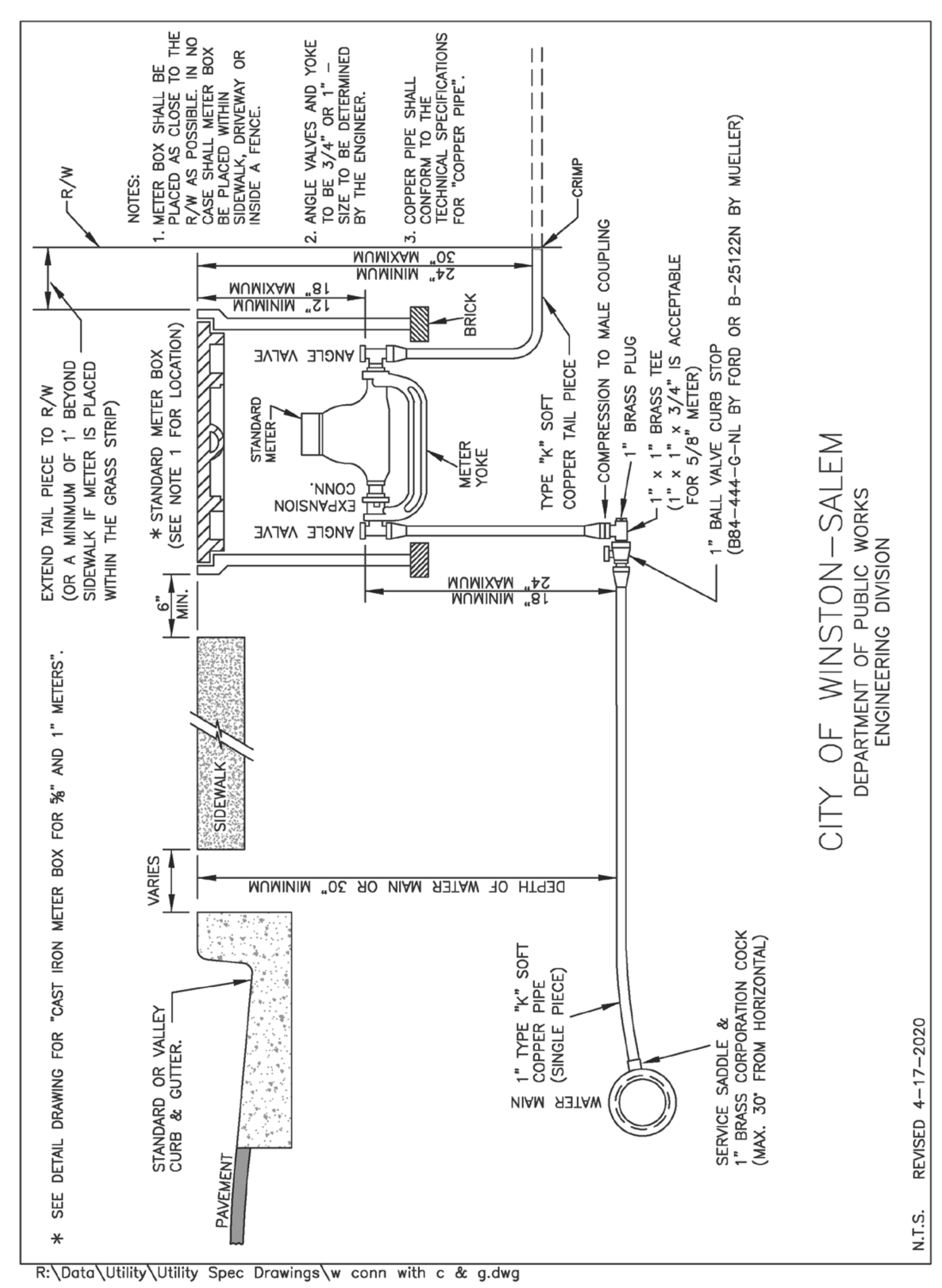
FITTING	MINIMUM "A" DIMENSION (FEET) PIPE SIZE (INCHES)									
	2	4	6	8	12	16	20	24	30	36
90° BEND	1.0	2.0	2.5	3.5	5.0	6.5	8.0	10.0	12.0	14.5
45° BEND	1.0	1.5	2.0	2.5	4.0	5.0	6.0	7.0	9.0	10.5
22 1/2° BEND	0.5	1.0	1.5	2.0	3.0	3.5	4.5	5.0	6.5	7.5
11 1/4° BEND	0.5	1.0	1.0	1.5	2.0	2.5	3.0	4.0	4.5	5.5
PLUG/TEE	1.0	1.5	2.5	3.0	4.5	5.5	7.0	8.0	10.0	12.0

NOTE: ABOVE DIMENSIONS BASED ON THE FOLLOWING: 250 PSI WATER PRESSURE AND 2000 LB/SQ FT SOIL BEARING CAPACITY (SOFT CLAY)

CITY OF WINSTON–SALEM
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
N.T.S. REVISED 3–1–17
R:\Data\Utility\Utility Spec Drawings\concrete thrust block horizontal.dwg

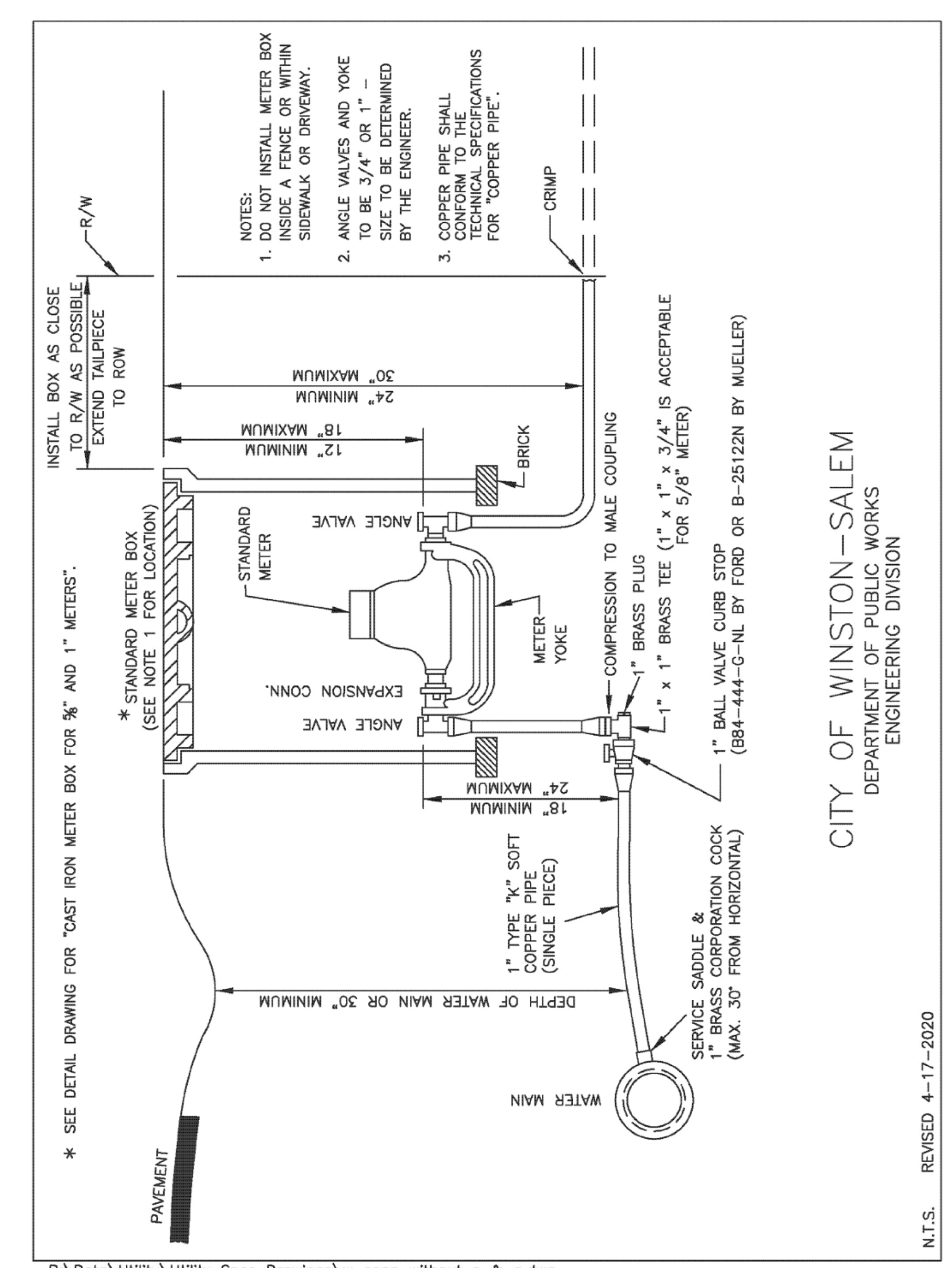
C-43

1" Water Connection (With Curb & Gutter)



C-46

1" Water Connection (Without Curb & Gutter)



C-47

12/17/2024

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3B

DESIGNED BY: NLH
DRAWN BY: JNB
CHECKED BY: NLH
APPROVED BY: NLH
REVISED:

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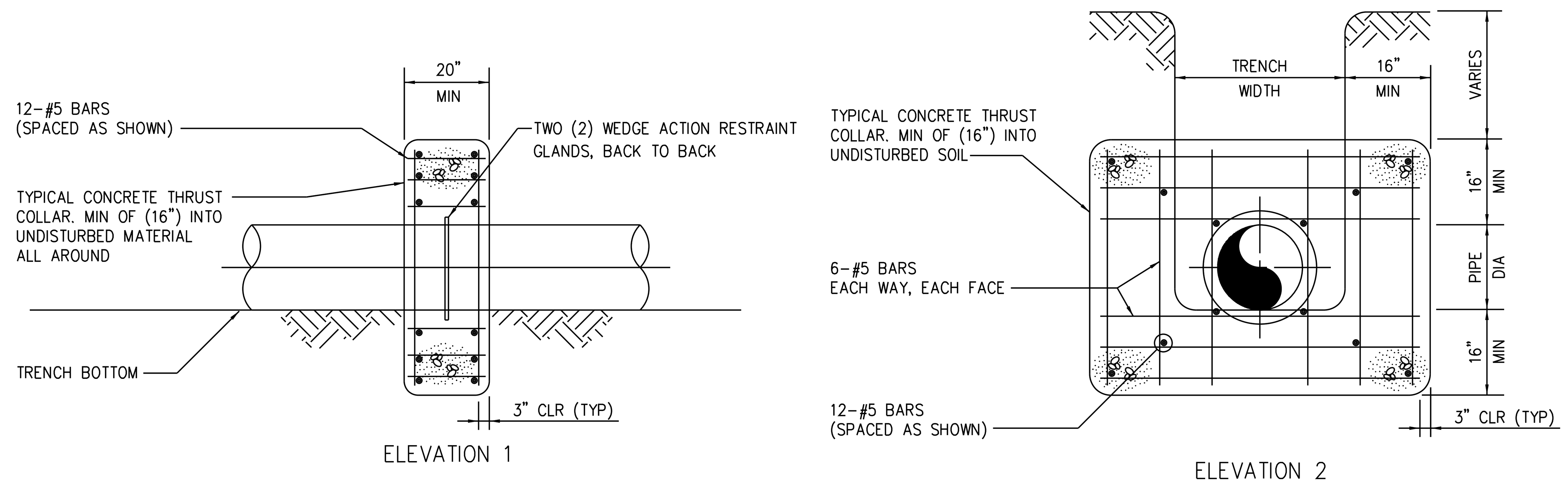
FAX:(919)250-4151

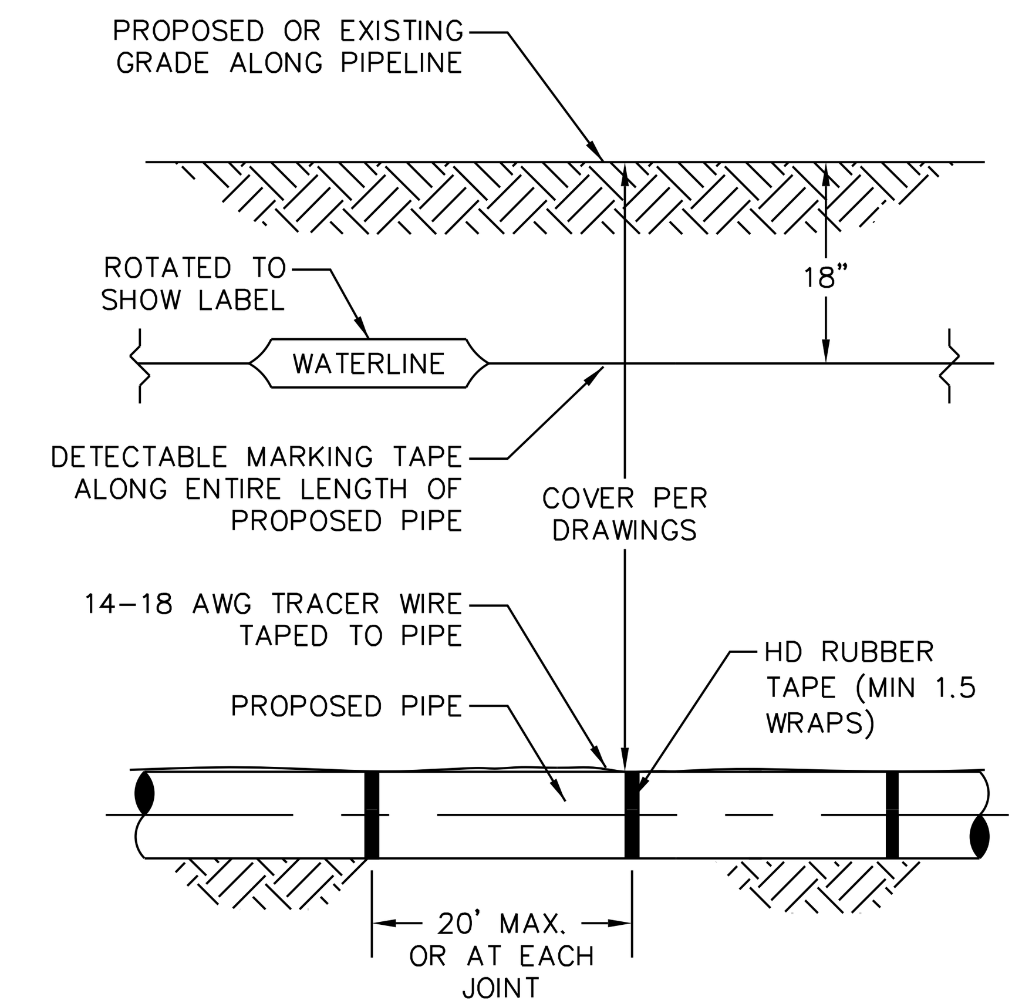
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 6/20/2025

UTILITY CONSTRUCTION PLANS ONLY

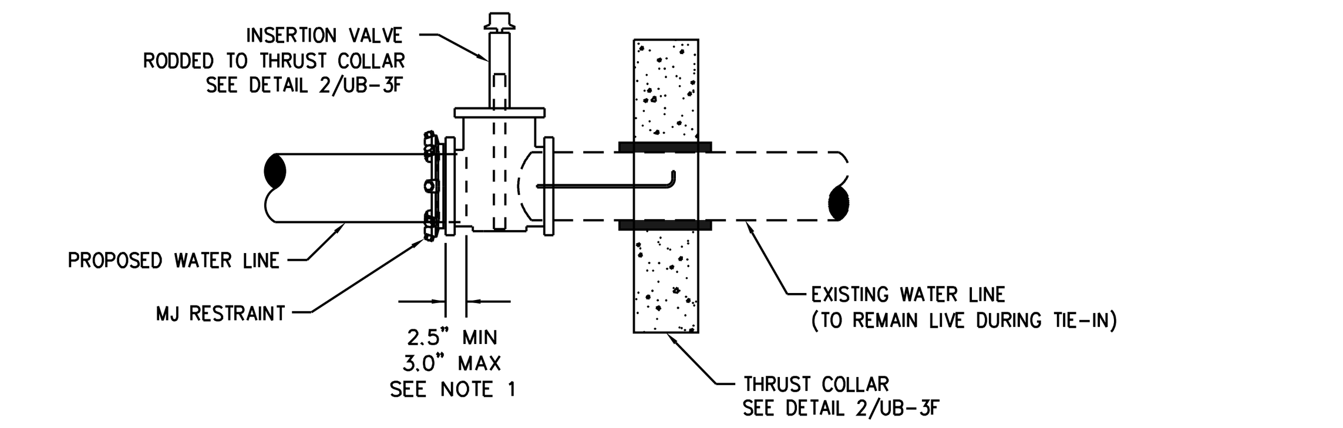
UTILITY CONSTRUCTION



1	THRUST COLLAR
UC-3B	SCALE: N.T.S.

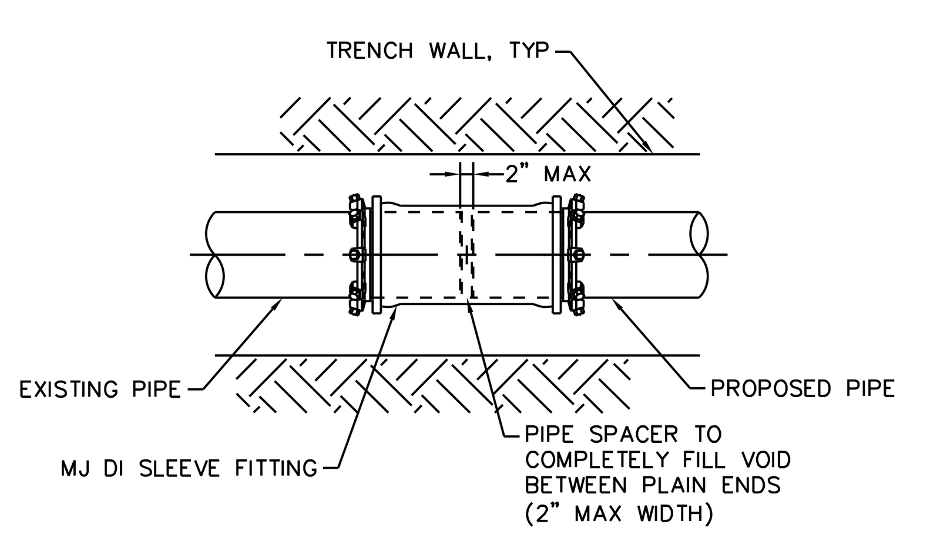


2	DETECTABLE MARKING TAPE AND WIRE
UC-3B	SCALE: N.T.S.



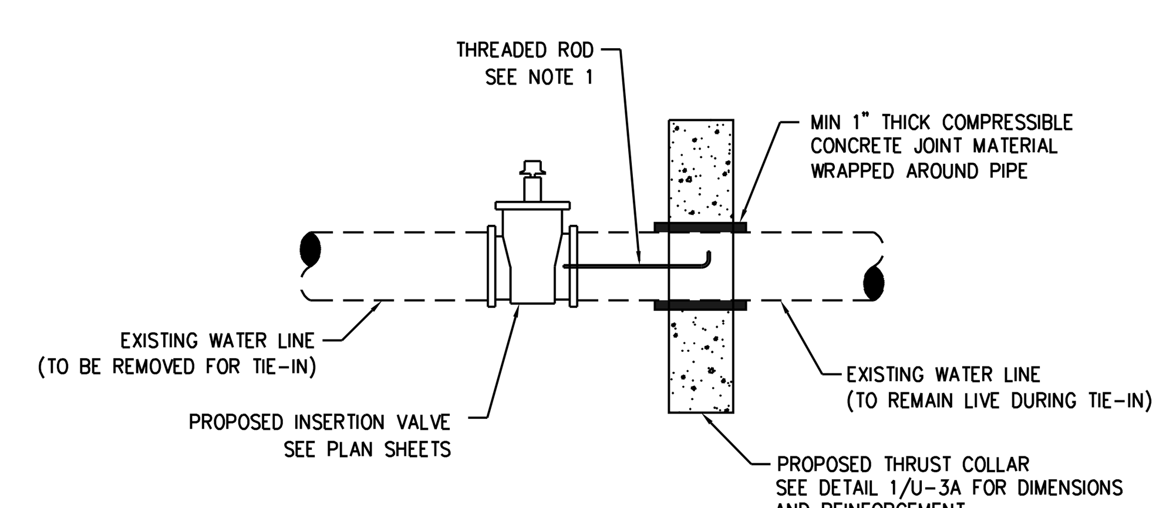
NOTES:
1. CONNECT PROPOSED PIPING TO INSERTION VALVE BY INSERTING PROPOSED PIPE PLAIN END A MINIMUM OF 2.5" AND A MAXIMUM OF 3" BEYOND THE FACE OF THE VALVE'S MJ OPENING AND SECURING IN PLACE WITH A WEDGE RESTRAINING GLAND AND MJ SEAL. PROPOSED PIPE SHALL NOT INTERFERE WITH VALVE OPERATION.

3	PROPOSED PIPE TO INSERTION VALVE CONNECTION
UC-3B	SCALE: N.T.S.



NOTES:
1. SLEEVES SHALL BE DUCTILE IRON MECHANICAL JOINT (DI MJ) OF THE SAME OR HIGHER PRESSURE RATING AS THE HOST PIPE.
2. RESTRAINT GLANDS SHALL BE DESIGNED FOR THE INTENDED USE AND SHALL CONSIST OF MULTIPLE GRIPPING WEDGES INCORPORATED INTO A FOLLOWER GLAND AND BOLT-ACTUATED BY TORQUE-LIMITING TWIST OFF NUTS.

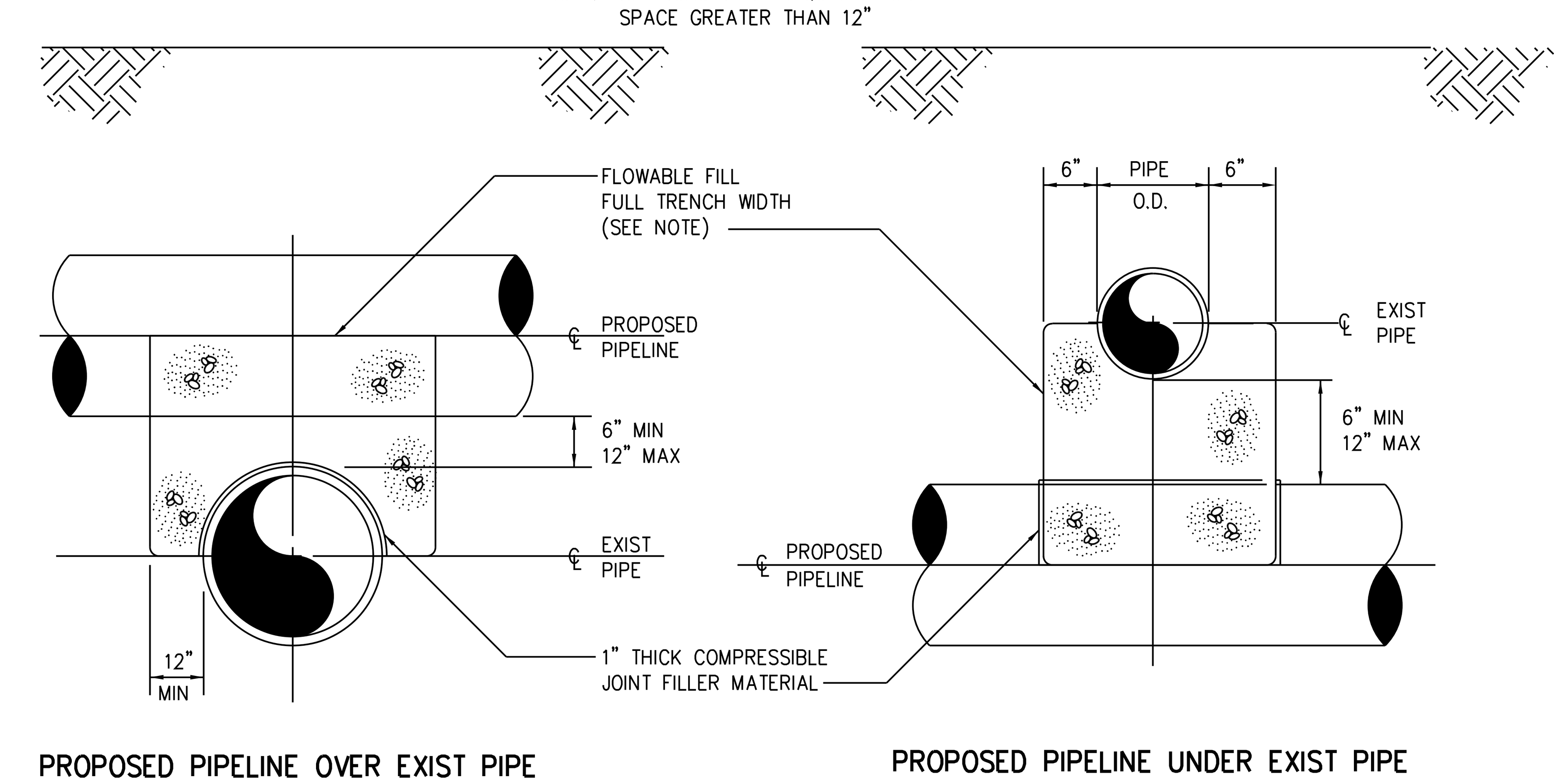
4	RESTRAINED MJ SOLID SLEEVE
UC-3B	SCALE: N.T.S.



NOTES:
1. MECHANICALLY FASTEN TWO 3/4" STAINLESS STEEL OR HOT DIPPED GALVANIZED STEEL THREADED RODS TO REBAR WITHIN THRUST COLLAR AND TO PROPOSED VALVE.
2. THE THRUST COLLAR SHALL BE ALLOWED TO CURE A MINIMUM OF 3 DAYS BEFORE GATE VALVE IS CLOSED.
3. AFTER THRUST COLLAR HAS CURED, VALVE MAY BE CLOSED, PIPE TO BE ABANDONED CUT AND REMOVED, AND NEW PIPE INSTALLED, PER DETAIL 3/UC-3A

5	INSERTION VALVE WITH THRUST COLLAR
UC-3B	SCALE: N.T.S.

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 12"



6	PROPOSED PIPELINE OVER/UNDER EXIST PIPE
UC-3B	SCALE: N.T.S.

Docusign Envelope ID: 187CCCAE-A11C-45DC-944F-2027611642C3

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-4

PREPARED BY: Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY:	NLH
DRAWN BY:	JNB
CHECKED BY:	NLH
APPROVED BY:	NLH
REVISED:	

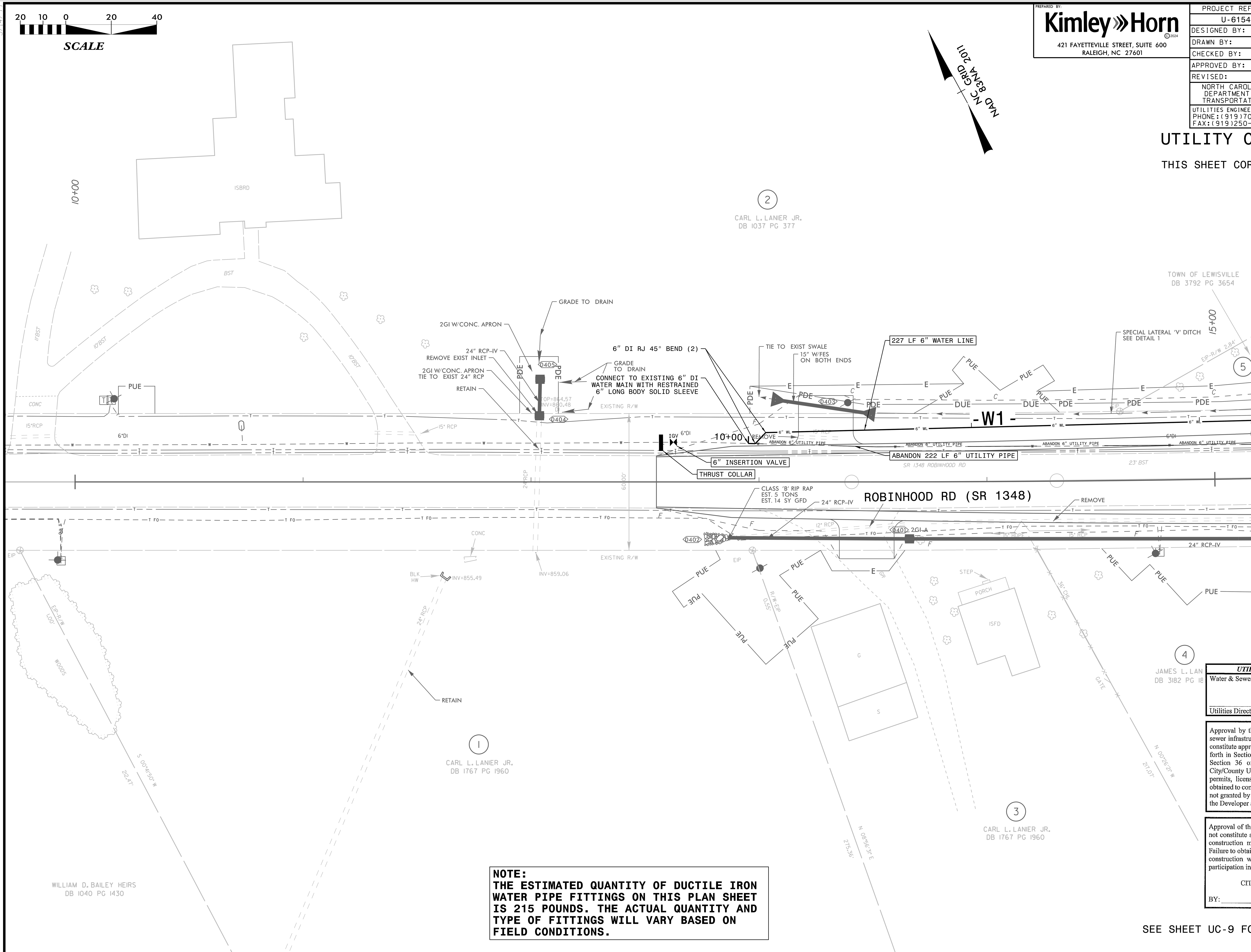
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 6/20/2025

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-4



CITY OF WINSTON-SALEM PERMIT NUMBER
WATER:
SEWER:
DATE:

UTILITY DESIGN APPROVED

Water & Sewer

Utilities Director Date

Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.

Approval of these water & sanitary sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.

CITY OF WINSTON-SALEM

BY: ____________

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 215 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -W1- PROFILE

5/14/99

12/17/2024

5/14/99

20 10 0 20 40
SCALE

PREPARED BY:
Kimley»Horn © 2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-5
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L HARVEY
07/30/2025

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO

NAD 83 NC GRID 2011

MATCHLINE (SEE SHEET UC-8)
-Y1- STA 19+00
-W1- STA 15+57

MATCHLINE (SEE SHEET UC-4)
-L- STA 15+20
-W1- STA 12+26

MATCHLINE (SEE SHEET UC-6)
-L- STA 20+80
-W3- STA 13+87

MATCHLINE (SEE SHEET UC-7)
-Y1- STA 15+00
-W2- STA 13+20

LEWISVILLE-VIENNA RD (SR-1308)

ROBINHOOD RD (SR 1348)

SPECIAL LATERAL 'V' DITCH SEE DETAIL 2
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
REMOVE
RELOCATE WATER METER
63 LF WATER SERVICE LINE
SPECIAL MIN. DEPTH CB-F SEE DETAIL 2C-1
SPECIAL MIN. DEPTH DI SEE DETAIL 2C-2
SPECIAL MIN. DEPTH CB-G SEE DETAIL 2C-1
159 LF 8" WATER LINE
RECONNECT WATER METER
7 LF WATER SERVICE LINE
ABANDON 399 LF 8" UTILITY PIPE
ABANDON 577 LF 6" UTILITY PIPE
SPECIAL LATERAL 'V' DITCH SEE DETAIL 1
8" DI RJ 45° BEND (3)
8" VALVE
8" DI RJ TEE
8"x6" DI RJ REDUCER
6" VALVE
6" DI RJ 45° BEND (2)
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
15'X15' RECEIVING PIT
172 LF 6" WATER LINE
8" VALVE
52 LF BORE AND JACK OF 16"
52 LF 16" ENCASEMENT PIPE
6" DI RJ 90° BEND (AWWA C110 LONG BODY)
47 LF BORE AND JACK OF 14"
47 LF 14" ENCASEMENT PIPE
RELOCATE WATER METER
55 LF WATER SERVICE LINE
35'X15' BORE PIT
8" DI RJ 45° BEND (2)
8" DI RJ 45° BEND
320 LF 8" WATER LINE
6" DI RJ 22.5° BEND
6" VALVE
8" VALVE
RECEIVING PIT
8"X6" DI RJ TEE
8" VALVE
FIRE HYDRANT
6" VALVE
6 LF FIRE HYDRANT LEG
8"X6" DI RJ TEE
REMOVE FIRE HYDRANT
6" DI RJ 45° BEND (2)
6" DI RJ 22.5° BEND
REMOVE
SPECIAL 'V' DITCH SEE DETAIL 3
CLASS 'B' RIP RAP EST. 10 TONS EST. 20 SY GFD
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
SPECIAL LATERAL 'V' DITCH SEE DETAIL 2
BORE PIT
6" DI RJ 45° BEND (2)
48 LF BORE AND JACK OF 16"
48 LF 14" ENCASEMENT PIPE
388 LF 6" WATER LINE
SPECIAL LATERAL 'V' DITCH SEE DETAIL 1
BORE PIT
15'X15' RECEIVING PIT

13 RANDY DUGGINS DB 3196 PG 2369
7 REBECCA L. FORREST, TIM FORREST, DANIEL FORREST DB 3568 PG 2481 DB 1950 PG 3018 DB 1460 PG 423
5 TOWN OF LEWISVILLE DB 3792 PG 3654
6 CMC FAMILY ENTERPRISES LLC DB 3615 PG 1887
4 JAMES L. LANIER DB 3182 PG 1800
12 BENNIE C. STONE DB 3361 PG 3437
8 DRSP PROPERTIES LLC DB 2353 PG 2988

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,050 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -W1- PROFILE
SEE SHEET UC-10 FOR -W2- PROFILE
SEE SHEET UC-10 AND UC-11 FOR -W3- PROFILE

12/17/2024

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-6

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY: NLH
DRAWN BY: JNB
CHECKED BY: NLH
APPROVED BY: NLH
REVISED:

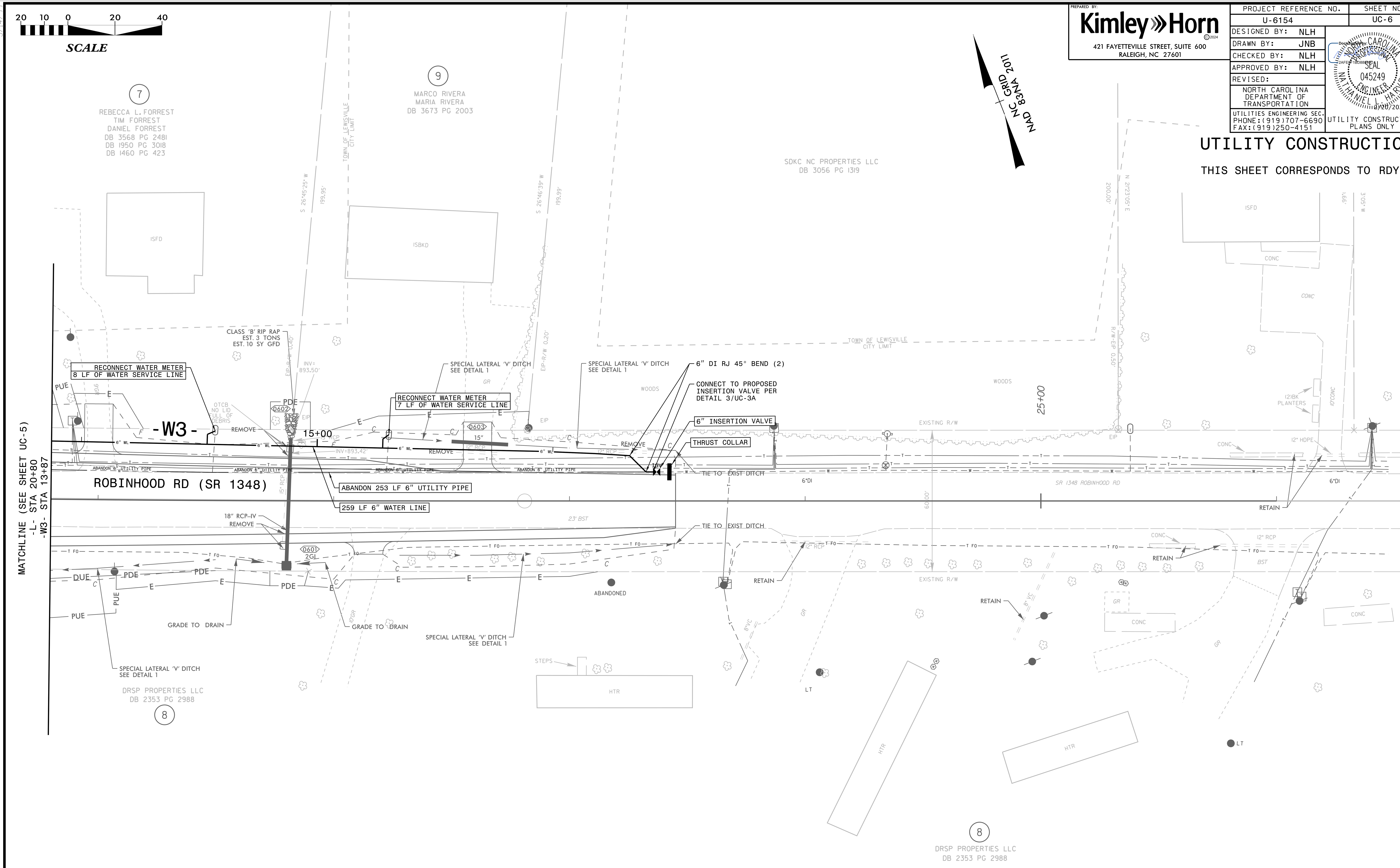
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-6


20 10 0 20 40
SCALE
NC GRID NAD 83/NA 2011
7
REBECCA L. FORREST
TIM FORREST
DANIEL FORREST
DB 3568 PG 2481
DB 1950 PG 3018
DB 1460 PG 423
9
MARCO RIVERA
MARIA RIVERA
DB 3673 PG 2003
SDKC NC PROPERTIES LLC
DB 3056 PG 1319
TOWN OF LEWISVILLE CITY LIMIT
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY GFD
RECONNECT WATER METER
8 LF OF WATER SERVICE LINE
RECONNECT WATER METER
7 LF OF WATER SERVICE LINE
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 1
6" DI RJ 45° BEND (2)
CONNECT TO PROPOSED
INSERTION VALVE PER
DETAIL 3/UC-3A
6" INSERTION VALVE
THRUST COLLAR
TIE TO EXIST DITCH
-W3-
15+00
25+00
ROBINHOOD RD (SR 1348)
ABANDON 253 LF 6" UTILITY PIPE
259 LF 6" WATER LINE
18" RCP-IV
REMOVE
GRADE TO DRAIN
RETAIN
ABANDONED
SR 1348 ROBINHOOD RD
EXISTING R/W
WOODS
MATCHLINE (SEE SHEET UC-5)
-L- STA 20+80
-W3- STA 13+87
8
DRSP PROPERTIES LLC
DB 2353 PG 2988
HTR
STEPS
CONC
ISFD
ISBKD

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 150 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-11 FOR -W3- PROFILE

5/14/99
12/17/2024

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-7

PREPARED BY: Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY: NLH
DRAWN BY: JNB
CHECKED BY: NLH
APPROVED BY: NLH
REVISED:

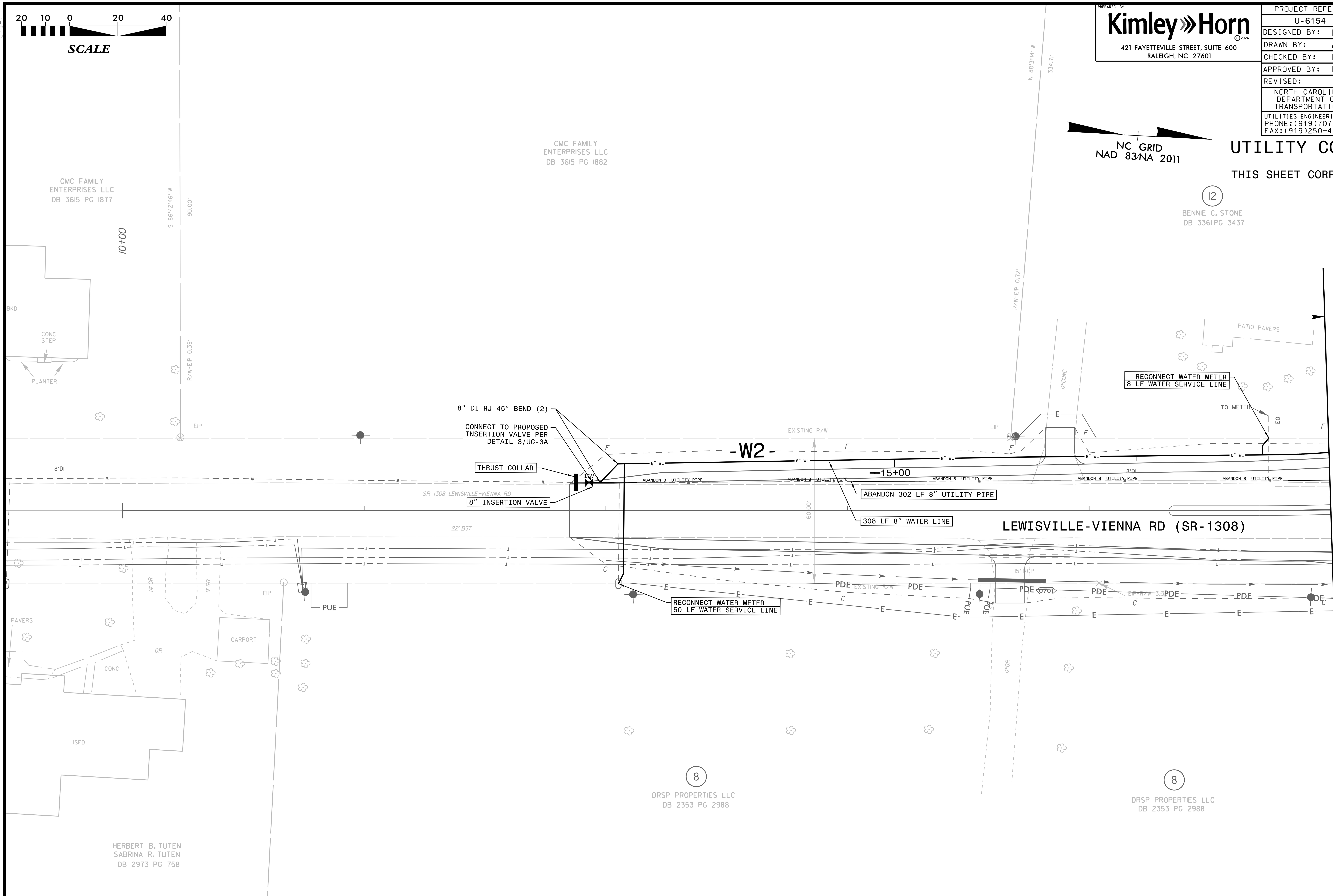
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 6/20/2025

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-7



20 10 0 20 40
SCALE
NC GRID
NAD 83/NA 2011
CMC FAMILY ENTERPRISES LLC DB 3615 PG 1877
CMC FAMILY ENTERPRISES LLC DB 3615 PG 1882
12
BENNIE C. STONE DB 3361 PG 3437
10+00
BKD
CONC STEP
PLANTER
8" DI RJ 45° BEND (2)
CONNECT TO PROPOSED INSERTION VALVE PER DETAIL 3/UC-3A
THRUST COLLAR
8" INSERTION VALVE
-W2-
EXISTING R/W
15+00
ABANDON 302 LF 8" UTILITY PIPE
308 LF 8" WATER LINE
ABANDON 8" UTILITY PIPE
SR 1308 LEWISVILLE-VIENNA RD
22' BST
LEWISVILLE-VIENNA RD (SR-1308)
RECONNECT WATER METER
8 LF WATER SERVICE LINE
TO METER
PATIO PAVERS
12" CONC
RECONNECT WATER METER
50 LF WATER SERVICE LINE
PUE
PDE
15" RCP
PAVERS
CARPORT
CONC
GR
1SFD
12" CR
MATCHLINE (SEE SHEET UC-5)
-Y1- STA 15+00
-W2- STA 13+20
8
DRSP PROPERTIES LLC DB 2353 PG 2988
8
DRSP PROPERTIES LLC DB 2353 PG 2988
HERBERT B. TUTEN
SABRINA R. TUTEN
DB 2973 PG 758

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 220 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-10 FOR -W2- PROFILE

5/14/99

12/17/2024

5/14/99

NOTES:
1. METER TO BE RELOCATED AS CLOSE TO RIGHT OF WAY AS POSSIBLE WHILE REMAINING OUT OF DITCH.

20 10 0 20 40
SCALE

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

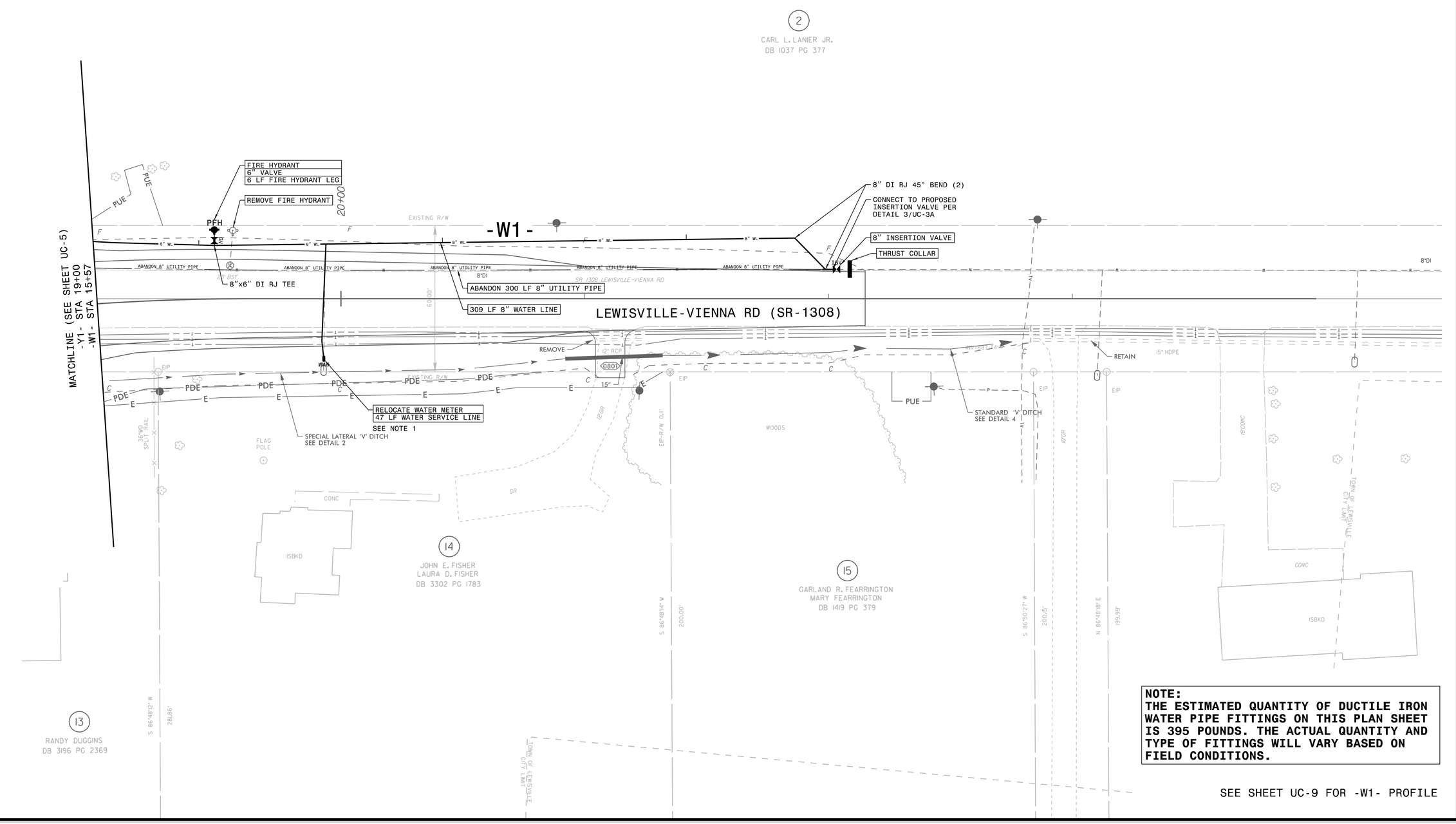
PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-8
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
12/17/2025

NC GRID
NAD 83/NA 2011

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-8



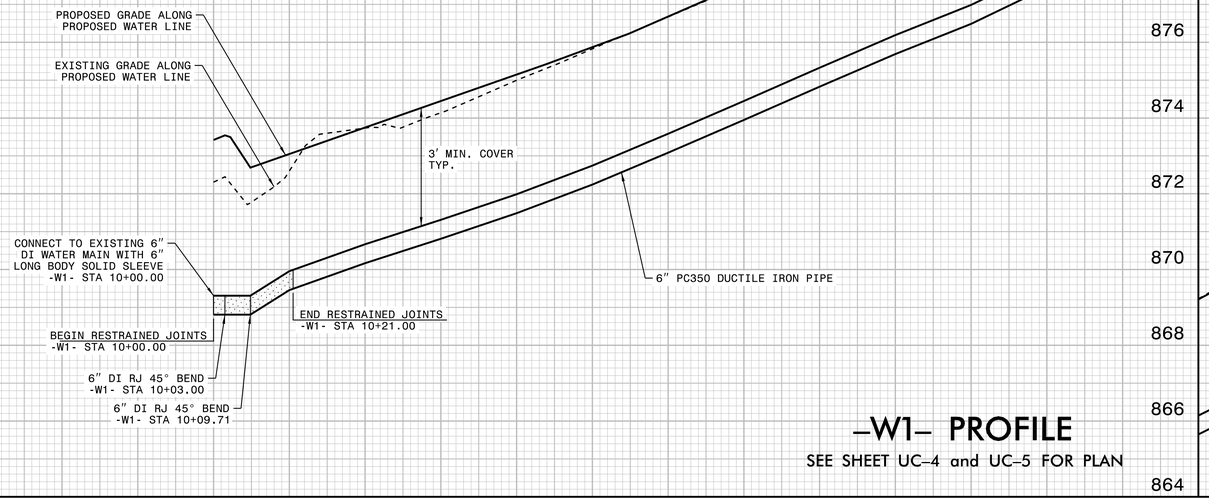
NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 395 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -W1- PROFILE

12/17/2024

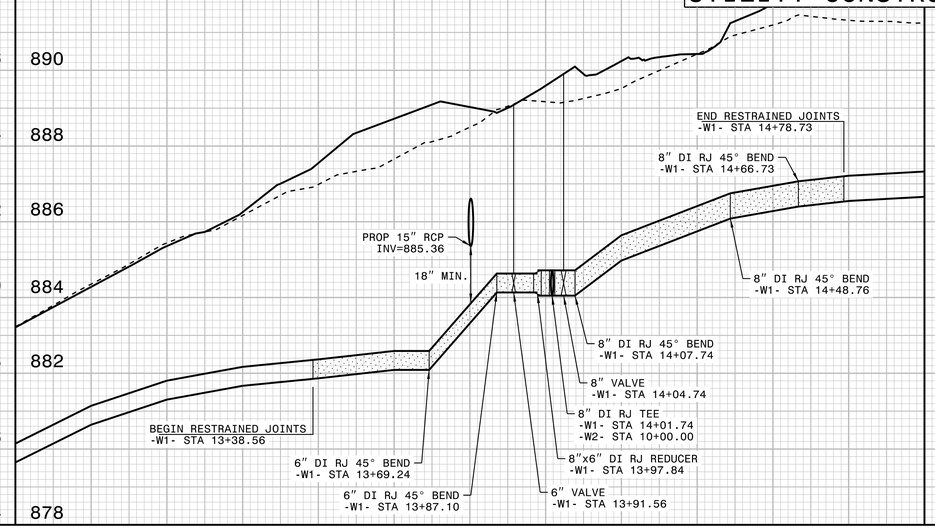
5/14/99

PROFILE (HORIZONTAL)
20 10 0 20 40
PROFILE (VERTICAL)
2 1 0 2 4
SCALE



-W1- PROFILE

SEE SHEET UC-4 and UC-5 FOR PLAN

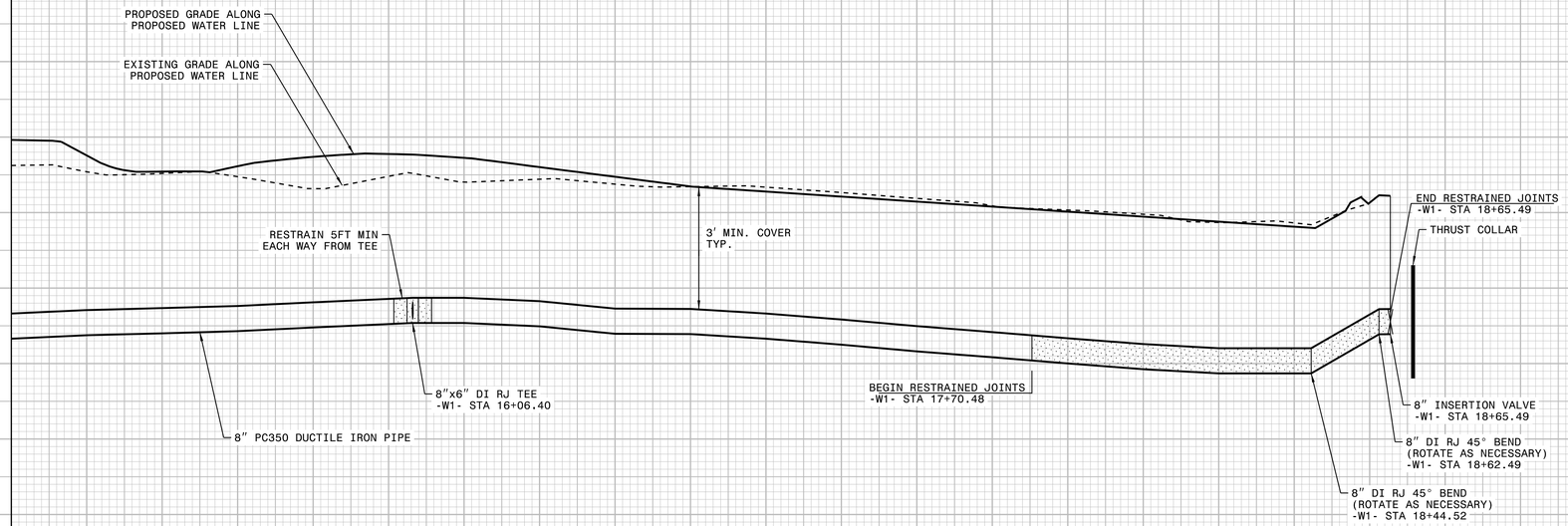


PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-9
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
2/20/2025
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



-W1- PROFILE

SEE SHEET UC-5 AND UC-8 FOR PLAN

12/17/2024

5/14/99

PROFILE (HORIZONTAL)
20 10 0 20 40

PROFILE (VERTICAL)
2 1 0 2 4

SCALE

PREPARED BY:
Kimley»Horn
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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-10
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
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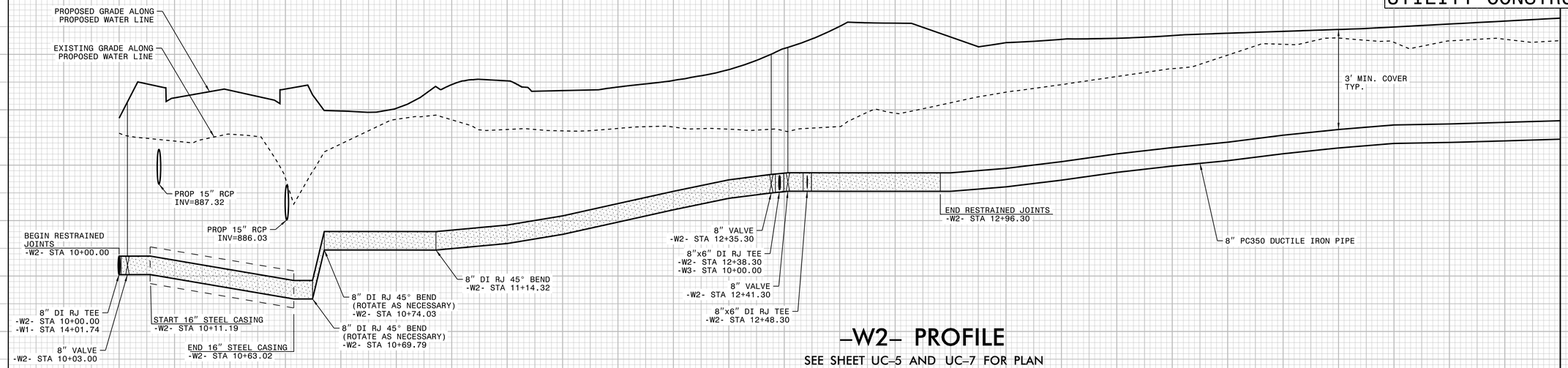
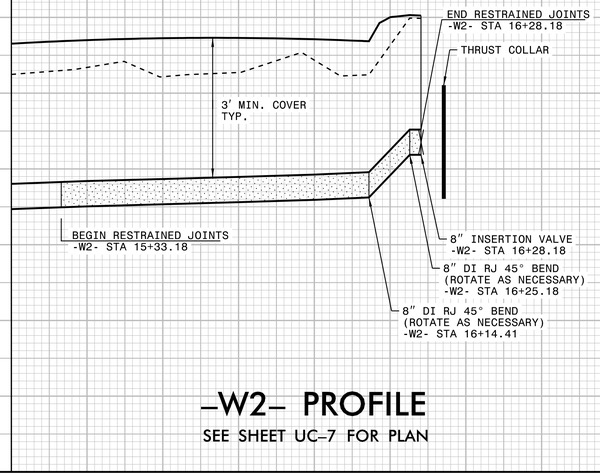
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
2/20/2025
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



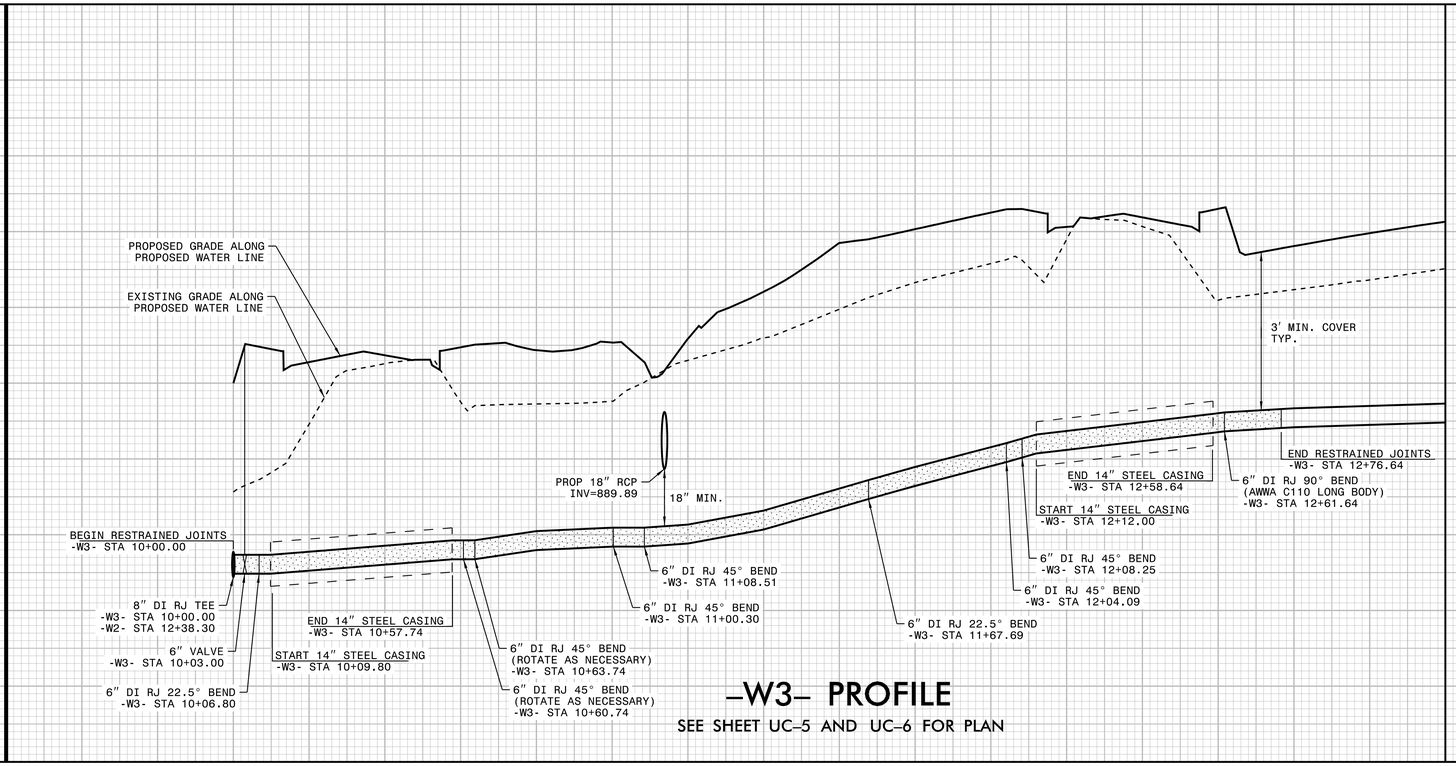
–W2– PROFILE

SEE SHEET UC–5 AND UC–7 FOR PLAN



–W2– PROFILE

SEE SHEET UC–7 FOR PLAN



–W3– PROFILE

SEE SHEET UC–5 AND UC–6 FOR PLAN

12/17/2024


5/14/99
PREPARED BY:
Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
PROJECT REFERENCE NO.
U-6154
SHEET NO.
UC-11
DESIGNED BY: NLH
DRAWN BY: JNB
CHECKED BY: NLH
APPROVED BY: NLH
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
2/20/2025
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
20 10 0 20 40
PROFILE (HORIZONTAL)
2 1 0 2 4
PROFILE (VERTICAL)
SCALE
902
900
898
896
894
892
890
888
886
884
END RESTRAINED JOINTS -W3- STA 16+45.45
THRUST COLLAR
3' MIN. COVER TYP.
PROP 18" RCP INV=893.62
18" MIN.
BEGIN RESTRAINED JOINTS -W3- STA 15+71.43
6" INSERTION VALVE -W3- STA 16+45.45
6" DI RJ 45° BEND (ROTATE AS NECESSARY) -W3- STA 16+42.45
6" DI RJ 45° BEND (ROTATE AS NECESSARY) -W3- STA 16+32.66
6" PC350 DUCTILE IRON PIPE
-W3- PROFILE
SEE SHEET UC-5 AND UC-6 FOR PLAN
14
15
16
17
12/17/2024

TOWN OF LEWISVILLE
BID FORM

TIP No: U-6154 **Date:**

County: Forsyth

Description: Transition the signaled intersection of SR 1308 (Lewisville-Vienna Road) and SR 1348 (Robinhood Road) into a single lane roundabout in Lewisville, NC.

Line Item	Item No.	Sec No.	Pay Item	Total	Unit	Unit Price	Amount Bid
1	0000100000-N	800	MOBILIZATION	1	LS	$	$
2	0000400000-N	801	CONSTRUCTION SURVEYING	1	LS	$	$
3	0001000000-E	200	CLEARING & GRUBBING (0.25 ACRE)	1	LS	$	$
4	0022000000-E	225	UNCLASSIFIED EXCAVATION	1,370	CY	$	$
5	0036000000-E	225	UNDERCUT EXCAVATION	100	CY	$	$
6	0106000000-E	230	BORROW EXCAVATION	1,280	CY	$	$
7	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	620	SY	$	$
8	0195000000-E	265	SELECT GRANULAR MATERIAL	200	CY	$	$
9	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	100	SY	$	$
10	0343000000-E	310	15" SIDE DRAIN PIPE	128	LF	$	$
11	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	664	LF	$	$
12	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	116	LF	$	$
13	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	588	LF	$	$
14	0995000000-E	340	PIPE REMOVAL	481	LF	$	$
15	1011000000-N	500	FINE GRADING	1	LS	$	$
16	1099500000-E	505	SHALLOW UNDERCUT	100	CY	$	$
17	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	200	TON	$	$
18	1112000000-E	505	GEOTEXTILE FOR SUBGRADE STABILIZATION	300	SY	$	$
19	1220000000-E	545	INCIDENTAL STONE BASE	140	TON	$	$
20	1308000000-E	607	MILLING ASPHALT PAVEMENT, 0" TO 1.5"	2,235	SY	$	$
21	1330000000-E	607	INCIDENTAL MILLING	700	SY	$	$
22	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	1,510	TON	$	$
23	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	1,100	TON	$	$
24	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1,420	TON	$	$
25	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	230	TON	$	$
26	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	50	TON	$	$
27	1869000000-E	SP	8" COLORED CONCRETE VEHICULAR APRON (WITHOUT DOWELS)	400	SY	$	$
28	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	28	EA	$	$
29	2352000000-N	840	FRAME WITH GRATE, STD 840.16	2	EA	$	$
30	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	3	EA	$	$
31	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	3	EA	$	$
32	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE E	5	EA	$	$
33	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE F	8	EA	$	$
34	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE G	7	EA	$	$
35	2440000000-N	852	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN	2	EA	$	$
36	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	4	EA	$	$
37	2535000000-E	846	8" X 12" CONCRETE CURB	140	LF	$	$

Line Item	Item No.	Sec No.	Pay Item	Total	Unit	Unit Price	Amount Bid
38	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	255	LF	$	$
39	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	1105	LF	$	$
40	2591000000-E	848	4" CONCRETE SIDEWALK	240	SY	$	$
41	2605000000-N	848	CONCRETE CURB RAMPS	12	EA	$	$
42	2612000000-E	848	6" CONCRETE DRIVEWAY	490	SY	$	$
43	2766000000-N	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED-IN)	394	SY	$	$
44	2738000000-E	852	8" MONOLITHIC CONCRETE MEDIAN	77	SY	$	$
45	3649000000-E	876	RIP RAP, CLASS B	25	TON	$	$
46	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	75	SY	$	$
47	4025000000-E	901	CONTRACTOR FURNISHED, TYPE E SIGN	142	SF	$	$
48	4102000000-N	904	SIGN ERECTION, TYPE E	44	EA	$	$
49	4116100000-N	904	SIGN ERECTION, RELOCATE TYPE E (GROUND MOUNTED)	5	EA	$	$
50	4186000000-N	907	STOCKPILE SUPPORT, U-CHANNEL	2	EA	$	$
51	4192000000-N	907	DISPOSAL OF SUPPORT, U-CHANNEL	1	EA	$	$
52	4237000000-N	907	STOCKPILE SIGN, D, E OR F	9	EA	$	$
53	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	14	EA	$	$
54	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	96	SF	$	$
55	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	96	SF	$	$
56	4430000000-N	1130	DRUMS	80	EA	$	$
57	4455000000-N	1150	FLAGGER	900	DAY	$	$
58	4516000000-N	1180	SKINNY DRUM	90	EA	$	$
59	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	9,400	LF	$	$
60	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	790	LF	$	$
61	4709000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS)	200	LF	$	$
62	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)	32	EA	$	$
63	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	17,890	LF	$	$
64	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	1,165	LF	$	$
65	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	125	LF	$	$
66	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	4	EA	$	$
67	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	7,903	LF	$	$
68	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	64	LF	$	$
69	5325600000-E	1510	6" WATER LINE	1,046	LF	$	$
70	5325800000-E	1510	8" WATER LINE	1097	LF	$	$
71	5329000000-E	1510	DUCTILE IRON WATER PIPE FITTINGS	3,100	LB	$	$
72	5540000000-E	1515	6" VALVE	4	EA	$	$
73	5546000000-E	1515	8" VALVE	4	EA	$	$
74	5562000000-E	1515	6" INSERTION VALVE	2	EA	$	$
75	5562000000-E	1515	8" INSERTION VALVE	2	EA	$	$
76	5648000000-N	1515	RELOCATE WATER METER	3	EA	$	$
77	5649000000-N	1515	RECONNECT WATER METER	5	EA	$	$
78	5666000000-N	1515	FIRE HYDRANT	2	EA	$	$
79	5673000000-E	1515	FIRE HYDRANT LEG	12	LF	$	$
80	5686500000-E	1515	WATER SERVICE LINE	245	LF	$	$
81	5689000000-E	1515	GENERIC UTILITY ITEM (THRUST COLLAR)	4	EA	$	$
82	5800000000-E	1530	ABANDON 6" UTILITY PIPE	1,052	LF	$	$
83	5801000000-E	1530	ABANDON 8" UTILITY PIPE	1,001	LF	$	$

Line Item	Item No.	Sec No.	Pay Item	Total	Unit	Unit Price	Amount Bid
84	5815500000-N	1530	REMOVE FIRE HYDRANT	2	EA	$	$
85	5835000000-E	1540	14" ENCASEMENT PIPE	95	LF	$	$
86	5835700000-E	1540	16" ENCASEMENT PIPE	52	LF		
87	5872500000-E	1550	BORE AND JACK OF 14"	95	LF		
88	5872500000-E	1550	BORE AND JACK OF 16"	52	LF		
89	6000000000-E	1605	TEMPORARY SILT FENCE	2,100	LF		
90	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	50	TON		
91	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	300	TON		
92	6012000000-E	1610	SEDIMENT CONTROL STONE	150	TON		
93	6015000000-E	1615	TEMPORARY MULCHING	6	ACR		
94	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	310	LB		
95	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	1	TON		
96	6042000000-E	1632	1/4" HARDWARE CLOTH	580	LF		
97	6071012000-E	1642	COIR FIBER WATTLE	42	LF		
98	6087000000-E	1660	MOWING	2.8	ACR		
99	6117000000-N	1675	RESPONSE FOR EROSION CONTROL	40	EA		
100	6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	5	EA		
101	6645000000-N	SP	GENERIC PLANTING ITEM - JUNIPERUS HORIZONTALIS 'YOUNGSTOWN'	15	EA		
102	6645000000-N	SP	GENERIC PLANTING ITEM - MULHENBERGIA CAPILLARIS 'PINK CLOUD'	55	EA		
103	6645000000-N	SP	GENERIC PLANTING ITEM - SCHIZACHYRIUM SCOPARIUM 'PRAIRIE BLUES'	193	EA	$	$
104	6675000000-E	SP	HYDROSEED - FESTUCA ARUNDINACEA 'ELITE'	5530	SY	$	$
105	6680000000-E	SP	MULCH FOR PLANTING (DOUBLE-SHREDDED HARDWOOD)	14	CY	$	$
106	6680000000-E	SP	GENERIC PLANTING ITEM - TOPSOIL	52	CY	$	$
107	6680000000-E	SP	GENERIC PLANTING ITEM - SOIL AMENDMENTS	448	CY	$	$
108	6680000000-E	SP	PRE-EMERGENT HERBICIDE	2	ACR	$	$
109	7060000000-E	1705	SIGNAL CABLE	1010	LF	$	$
110	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	10	EA	$	$
111	7264000000-E	1710	MESSENGER CABLE (3/8")	480	LF	$	$
112	7360000000-N	1720	WOOD POLE	4	EA	$	$
113	7372000000-N	1721	GUY ASSEMBLY	8	EA	$	$
114	7420000000-E	1722	2" RISER WITH WEATHERHEAD	4	EA	$	$
115	7481000000-N	SP	SITE SURVEY	2	EA	$	$
116	7481200000-N	SP	LUMINAIRE ARM FOR VIDEO SYSTEM	4	EA	$	$
117	7481240000-N	SP	CAMERA WITHOUT INTERNAL LOOP EMULATOR PROCESSING UNIT	4	EA	$	$
118	7481260000-N	SP	EXTERNAL LOOP EMULATOR PROCESSING UNIT	4	EA	$	$
119	7696000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070LX, POLE MOUNTED)	1	EA	$	$
			Total Amount Bid			$	

Bidder_____

(Print)

NOTE: PROPOSAL SIGNATURE REQUIRED ON EXECUTION OF BID, PAGES F-30 TO F-35.
ALL PROPOSALS MUST BE PROPERLY EXECUTED TO BE CONSIDERED A VALID BID.

APPENDIX

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

August 28, 2025

Forsyth County: SR 1308 – Lewisville-Vienna Road; SR 1348 – Robinhood Road.

Subject: Right of Way Encroachment Contract – R/W16.6 – Job Number - E092-034-25-00157 – Installation of 6" and 8" water line, along with associated appurtenances, by jack and bore Method.

Ms. Stacy Tolbert
Town of Lewisville
6510 Shallowford Road
Lewisville, NC 27102

Dear Ms. Tolbert:

Attached, for your file, is a copy of the above referenced Right of Way Encroachment Contract, properly executed. This contract covers the following:

Installation of +/- 1,100 LF of 6" water line and +/ 1,100 LF of 8" water line, along with associated appurtenances, by jack and bore method, along SR 1308 – Lewisville-Vienna Road and SR 1348 – Robinhood Road, as shown on attached plans.

APPROVED SUBJECT TO: Attached Special Provisions

ENVIRONMENTAL ISSUES AGREEMENT
The encroaching party shall comply with all applicable state and federal environmental regulations, and shall obtain all necessary state, federal and local environmental permits, including but not limited to, those related to sediment control, storm water, wetlands, streams, endangered species, and historical sites.

Sincerely,

DocuSigned by:
Kevin Hedrick
66D2B4A78B4C453...

Kevin R. Hedrick, PE, CPM
DISTRICT ENGINEER

KRH/CCC
cc: Kevin Neal, P.E • Forsyth County Maintenance Engineer
Todd Lewis • Forsyth County Utilities Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION NINE / DISTRICT TWO
SILAS CREEK PARKWAY
WINSTON-SALEM, NC 27127

Telephone: (336) 747-7900
Fax: (336) 761-2004
Customer Service: 1-877-368-4968

Website: ncdot.gov

Location:
375 SILAS CREEK PARKWAY
WINSTON-SALEM, NC 27127

1. Approval may be rescinded upon failure to follow any of the provisions in this permit and may be considered a violation of the encroachment agreement.

2. The Encroaching party or their contractor shall provide the following notices prior to construction activity within the NCDOT Right of Way:
    a. Three (3) business days advance phone call at telephone (336) 896-2350 to the Forsyth County Maintenance office

   Failure to provide these notifications prior to beginning construction is subject to the Division Engineer's discretion to cease construction activity for this encroachment. NCDOT reserves the right to cease any construction or maintenance work associated with this installation by the encroaching party until the construction or maintenance meets the satisfaction of the Division Engineer or their representative.

3. Prior to beginning work, it is the requirement of the Encroaching Party to contact the appropriate Utility Companies involved and make arrangements to adjust or relocate any utilities that conflict with the proposed work.

4. It shall be the responsibility of the encroaching party to determine the location of utilities within the encroachment area. NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act requires underground utilities to be located by calling 811 prior to construction. The encroaching party shall be responsible for notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and maintain access to them.

5. At the discretion of the District Engineer, the encroaching party (not the utility contractor) shall make arrangements to have a qualified inspector, under the supervision of a Professional Engineer registered in North Carolina, on site at all times during construction. The registered Professional Engineer shall be required to submit a signed and PE sealed certification that the utility was installed in accordance with the encroachment agreement.

6. This approval and associated plans and supporting documents shall not be interpreted to allow any design change or change in the intent of the design by the Owner, Design Engineer, or any of their representatives. Any revisions or changes to these approved plans or intent for construction must be obtained in writing from the Division Engineer's office or their representative prior to construction or during construction, if an issue arises during construction to warrant changes.

7. NCDOT does not guarantee the right of way on this road, nor will it be responsible for any claim for damages brought about by any property owner by reason of this installation. It is the responsibility of the encroaching party to verify the right of way.

8. Encroaching party shall be responsible for obtaining all necessary permanent and/or temporary construction, drainage, utility and/or sight distance easements.

9. All Right of Way and easements necessary for construction and maintenance shall be dedicated to NCDOT with proof of dedication furnished to the District Engineer prior to beginning work.

10. Traffic control shall be coordinated with the Forsyth County Maintenance Office at telephone (336) 896-2350, prior to construction.

11. WORK ZONE TRAFFIC CONTROL QUALIFICATIONS AND TRAINING PROGRAM

    All personnel performing any activity inside the highway right of way are required to be familiar with the NCDOT Maintenance / Utility Traffic Control Guidelines (MUTCG). No specific training course or test is required for qualification in the Maintenance /Utility Traffic Control Guidelines (MUTCG).

    All flagging, spotting, or operating Automated Flagger Assist Devices (AFAD) inside the highway right of way requires qualified and trained Work Zone Flaggers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

    All personnel involved with the installation of Work Zone Traffic Control devices inside the highway right of way are required to be qualified and trained Work Zone Installers. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

    All personnel in charge of overseeing work zone Temporary Traffic Control operations and installations inside the highway right of way are required to be qualified and trained Work Zone Supervisors. Training for this certification is provided by NCDOT approved training resources and by private entities that have been pre-approved to train themselves.

    For questions and/or additional information regarding this training program please refer to https://connect.ncdot.gov/projects/WZTC/Pages/Training.aspx or call the NCDOT Work Zone Traffic Control Section (919) 814-5000.

12. The party of the second part shall employ traffic control measures that are in accordance with the prevailing federal, state, local, and NCDOT policies, standards, and procedures. These policies, standards, and procedures include, but are not limited to the following:

    a. Manual on Uniform Traffic Control Devices (MUTCD) – North Carolina has adopted the MUTCD to provide basic principles and guidelines for traffic control device design, application, installation, and maintenance. North Carolina uses the MUTCD as a minimum requirement where higher supplemental standards specific to North Carolina are not established. Use fundamental principles and best practices of MUTCD (Part 6, Temporary Traffic Control).
    b. NCDOT Maintenance / Utility Traffic Control Guidelines – This document enhances the fundamental principles and best practices established in MUTCD Part 6, Temporary Traffic Control, incorporating NCDOT-specific standards and details. It also covers important safety knowledge for a wide range of work zone job responsibilities.

13. If the Traffic Control Supervisor determines that portable concrete barrier (PCB) is required to shield a hazard within the clear zone, then PCB shall be designed and sealed by a licensed North Carolina Professional Engineer. PCB plans and design calculations shall be submitted to the District Engineer for review and approval prior to installation.

14. Ingress and egress shall be maintained to all businesses and dwellings affected by the project. Special attention shall be paid to police, EMS and fire stations, fire hydrants, secondary schools, and hospitals.

15. Traffic shall be maintained at all times. All lanes of traffic are to be open during the hours of 7:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 6:00 P.M. Monday through Friday, during any time of inclement weather, **or as directed by the County Maintenance Engineer**. Any violation of these hours will result in ceasing any further construction by the Encroaching Party or their contractor.

16. Nighttime and weekend operations will NOT be allowed unless written approval is received from the District Engineer. If nighttime or weekend work is allowed or required, all signs must be retro-reflective, and a work zone lighting plan must be submitted for approval prior to construction.

17. Two-way traffic shall be maintained at all times unless designated by the County Maintenance Engineer. Traffic shall not be rerouted or detoured without prior written approval from the County Maintenance Engineer. No utility work will be allowed on state holidays from 7:00 PM the night before through 9:00 AM the day prior to, following or during local events without prior approval from the County Maintenance Engineer. If the construction is within 1000 feet of a school location or on a designated bus route, the construction shall be coordinated with the school start and end times to avoid traffic delays.

18. Work requiring lane or shoulder closures shall not be performed on both sides of the road simultaneously within the same area.

19. Any work requiring equipment or personnel within 5 feet of the edge of any travel lane of an undivided facility and within 10 feet of the edge of any travel lane of a divided facility shall require a lane closure with appropriate tapers per current *NCDOT Roadway Standard Drawings or MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES*.

20. At the discretion of the District Engineer, a traffic control plan shall be developed and submitted under the seal and signature of a Licensed North Carolina Professional Engineer prior to construction. The plan shall be specific to the site and adequately detailed. Issues such as the close proximity to intersections shall be addressed.

21. Any pavement markings that are damaged or obliterated shall be restored by the encroaching party at no expense to NCDOT.

22. Sidewalk closures shall be installed as necessary. Pedestrian traffic shall be detoured around these closures and shall be signed appropriately and in accordance with The American with Disabilities Act Accessibility Guidelines. The encroaching party must adhere to the guidelines for accommodating pedestrians in encroachment work zones as described in the NCDOT Pedestrian Work Zone Accommodations Training found at https://www.youtube.com/watch?v=AOuYa5IW3dg&feature=youtu.be

23. The encroaching party shall comply with all applicable Federal, State and local environmental regulations and shall obtain all necessary Federal, State and local environmental permits, including but not limited to, those related to sediment control, stormwater, wetland, streams, endangered species and historical sites. Additional information can be obtained by contacting the NCDOT Roadside Environmental Engineer regarding the North Carolina Natural Heritage Program or the United States Fish and Wildlife Services. Contact the Division Roadside Environmental Engineer's Office at 336-896-2380.

24. All erosion control devices and measures shall be constructed, installed, maintained, and removed by the Encroacher in accordance with all applicable Federal, State, and Local laws, regulations, ordinances, and policies. Permanent vegetation shall be established on all disturbed areas in accordance with the recommendations of the Division Roadside Environmental Engineer. All areas disturbed (shoulders, ditches, removed accesses, etc.) shall be graded and seeded in accordance with the latest *NCDOT Standards Specifications for Roads and Structures* and within 15 calendar days with an approved NCDOT seed mixture (all lawn type areas shall be maintained and reseeded as such). Seeding rates per acre shall be applied according to the Division Roadside Environmental Engineer. Any plant or vegetation in the NCDOT planted sites that is destroyed or damaged as a result of this encroachment shall be replaced with plants of like kind or similar shape.

25. No trees within NCDOT shall be cut without authorization from the Division Roadside Environmental Engineer. An inventory of trees measuring greater than 4 caliper inches (measured 6" above the ground) is required when trees within C/A right of way will be impacted by the encroachment installation. Mitigation is required and will be determined by the Division Roadside Environmental Engineer's Office.

26. The contractor shall not begin the construction until after the traffic control and erosion control devices have been installed to the satisfaction of the County Maintenance Engineer or their agent.

27. The contractor shall perform all monitoring and record keeping and any required maintenance of erosion and sediment control measures to maintain compliance with stormwater regulations.

28. An executed copy of the encroachment agreement, provisions and approved plans shall be present at the construction site at all times. If safety or traffic conditions warrant such an action, NCDOT reserves the right to further limit, restrict or suspend operations within the right of way.

29. The Encroaching Party and/or their Contractor shall comply with all OSHA requirements. If OSHA visits the work area associated with this encroachment, the District Office shall be notified by the encroaching party immediately if any violations are cited.

30. All disturbed areas are to be fully restored to current NCDOT minimum roadway standards or as directed by the Division Engineer or their representative. Disturbed areas within NCDOT Right-of-Way include, but not limited to, any excavation areas, pavement removal, drainage or other features.

31. All pavement cuts for the installation of these utilities shall be repaired in by open cut repair method "Option A" or "Option D", as directed by the County Maintenance Engineer.

32. The encroaching party shall notify the County Maintenance Engineer or their representative immediately in the event any drainage structure is blocked, disturbed or damaged. All drainage structures disturbed, damaged or blocked shall be restored to their original condition as directed by the Division Engineer or their representative.

33. A minimum of 5 feet clearance is required for utility installations beneath or near drainage pipes, headwalls, and a minimum of two-foot clearance below the flowline of streams. If directional drilling, a minimum ten-foot clearance distance is required from drainage structures and a minimum of 5 feet below flowline of streams.

34. At points where the utility is placed under existing storm drainage, the trench will be backfilled with excavatable flowable fill up to the outside diameter of the existing pipe.

35. Unless specified otherwise, during non-working hours, equipment shall be located away from the job site or parked as close to the right of way line as possible and be properly barricaded in order not to have any equipment obstruction within the Clear Recovery Area. Also, during non-working hours, no parking or material storage shall be allowed along the shoulders of any state-maintained roadway.

36. Right of Way monuments disturbed during construction shall be referenced by a registered Land Surveyor and reset after construction.

37. All Traffic signs moved during construction shall be reinstalled as soon as possible to the satisfaction of the Division Engineer or their representative.

38. Any utility markers, cabinets, pedestals, meter bases and services for meter reading required shall be as close to the Right of Way line as possible. If it is not feasible to install at or near the Right of Way line, then written approval shall be obtained from NCDOT prior to installation.

39. Detection tape, where required by NCGS § 87-115 through § 87-130 of the Underground Utility Safety and Damage Prevention Act, shall be buried in the trench approximately 1 foot above the installed facility. Where conduit is installed in the right of way and is not of ferrous material, locating tape or detection wire shall be installed with the conduit.

40. All driveways disturbed during construction shall be returned to a state comparable with the condition of the driveways prior to construction.

41. If the approved method of construction is unsuccessful and other means are required, prior approval must be obtained through the District Engineer before construction may continue.

42. All traffic control, asphalt mixes, structures, construction, workmanship and construction methods, and materials shall be in compliance with the most-recent versions of the following resources: *ASTM Standards*, *Manual on Uniform Traffic Control Devices, NCDOT Utilities Accommodations Manual, NCDOT Standard Specifications for Roads and Structures, NCDOT Roadway Standard Drawings,* NCDOT *Asphalt Quality Management System* manual, and the approved plans.

43. All utility access points, such as manholes, vaults, handholes, splice boxes and junction boxes shall be located as close to the right of way line as possible and shall not be placed in the ditch line, side slopes of the ditches or in the pavement. All manholes, handholes, splice boxes, junction boxes and vaults and covers shall be flush with the ground when located within the vehicle clear zone. Slack loops for telecommunications in industry standard housing units shall be buried a minimum of 18 inches when buried or meet minimum NCDOT vertical and horizontal clearances when installed aerially.

44. Excavation material shall not be placed on pavement.

45. It is the responsibility of the encroaching party or their contractor to prevent any mud/dirt from tracking onto the roadway. Any dirt which may collect on the roadway pavement from equipment and/or truck traffic on site shall be immediately removed to avoid any unsafe traffic conditions.

46. The utility shall be installed within 5 feet of the right of way line and outside the 5-foot minimum from travel lane plus theoretical 2:1 slope from the edge of pavement to the bottom of the nearest excavation wall for temporary shoring. If the 2:1 slope plus 5 feet requirement above is met for traffic, then temporary shoring is typically only necessary to protect roadways from damage when a theoretical 1:1 slope from the edge of pavement intersects the nearest excavation wall. This rule of thumb should be used with caution and does not apply to all subsurface conditions, surcharge loadings and excavation geometries. Situations where this 1:1 slope is not recommended include groundwater depth is above bottom of excavation or excavation is deeper than 10 feet or in Type B or C soils as defined by OSHA Technical Manual. Temporary shoring may be avoided by locating trenches, bore pits, and other excavations far enough away from the open travel lane, edge of pavement and any existing structure, support, utility, property, etc. to be protected. Temporary shoring is required when a theoretical 2:1 slope from the bottom of excavation will intersect the existing ground line less than 5 feet from the outside edge of an open travel lane as shown in the figure below or when a theoretical 2:1 slope from the bottom of excavation will intersect any existing structure, support, utility, property, etc. to be protected.

    Temporary shoring shall be designed and constructed in accordance with current NCDOT Standard Temporary Shoring provisions (refer to https://connect.ncdot.gov/resources/Specifications/Pages/2018-Specifications-and-Special-Provisions.aspx and see SP11 R002).

    a. Temporary excavation shoring, such as sheet piling, shall be installed. The design of the shoring shall include the effects of traffic loads. The shoring system shall be designed and sealed by a licensed North Carolina Professional Engineer. Shoring plans and design calculations shall be submitted to the Division Engineer for review and approval prior to construction. (See NCDOT *Utilities Accommodations Manual* for more information on requirements for shoring plans and design calculations.) **Trench boxes shall not be accepted as temporary shoring and will not be approved for use in instances where shoring is required to protect the highway, drainage structure, and/or supporting pavement or structure foundation**.
    b. All trench excavation inside the limits of the theoretical one-to-one slope, as defined by the policy, shall be completely backfilled and compacted at the end of each construction day. No portion of the trench shall be left open overnight. Any excavation that is not backfilled by the end of the workday must address any safety and traveling public concerns including accommodations for bicycles, pedestrians and persons with disabilities.
    c. The trench backfill material shall meet the Statewide Borrow Criteria. The trench shall be backfilled in accordance with Section 300-7 of the latest *NCDOT Standard Specifications for Roads and Structures,* which basically requires the backfill material to be placed in layers not to exceed 6 inches loose and compacted to at least 95% of the density obtained by compacting a sample in accordance with AASHTO T99 as modified by DOT.
    d. At the discretion of the Division Engineer, a qualified NCDOT inspector shall be on the site at all times during construction. The encroaching party shall reimburse NCDOT for the cost of providing the inspector. If NCDOT cannot supply an inspector, the encroaching party (not the utility contractor) should make arrangements to have a qualified inspector, under the supervision of a licensed North Carolina Professional Engineer, on the site at all times. The Professional Registered Engineer shall certify that the utility was installed in accordance with the encroachment agreement and that the backfill material meets the Statewide Borrow Criteria.

e. The length of parallel excavation shall be limited to the length necessary to install and backfill one joint of pipe at a time, not to exceed twenty-five (25) feet.

47. Any pavement damaged because of settlement of the pavement or damaged by equipment used to perform encroachment work, shall be re-surfaced to the satisfaction of the District Engineer. This may include the removal of pavement and a 50' mechanical overlay. All pavement work and pavement markings (temporary and final) are the responsibility of the Encroaching Party.

48. The Encroaching party shall notify the County Maintenance Engineer's office within 2 business days after construction is complete. The County Maintenance Engineer may perform a construction inspection. Any deficiencies may be noted and reported to the encroaching party to make immediate repairs or resolve any issues to restore the right-of-way to a similar condition prior to construction, including pavement, signage, traffic signals, pavement markings, drainage, structures/pipes, or other highway design features.

49. If the actual construction differs from the approved plans associated with this encroachment, a copy of "as-built" plans shall be submitted to the District Engineer's office in a PDF format and in a current ESRI GIS format within 4 weeks of construction.

ROUTE SR-1348, SR-1308 PROJECT U-6154 COUNTY OF Forsyth STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

-AND-

Town of Lewisville

6510 Shallowford Rd, Lewisville, NC 27023

-AND-

Winston-Salem/Forsyth County Utilities

P.O. Box 2511, Winston-Salem, NC 27102

THREE PARTY RIGHT OF WAY ENCROACHMENT AGREEMENT ON PRIMARY AND SECONDARY SYSTEM

REVIEWED
By Carolina Carbajal at 8:07 am, Aug 28, 2025

THIS AGREEMENT, made and entered into this the 28th day of August, 20 25, by and between the Department of Transportation, party of the first part; and Town of Lewisville party of the second part; and Winston-Salem/Forsyth County Utilities party of the third part,

W I T N E S S E T H

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) SR-1348 (Robinhood Rd), SR-1308 (Lewisville-Vienna Rd), located from the intersection of Robinhood Rd and Lewsiville-Vienna Rd, 500 feet west to 550 feet east along Robinhood Rd, and 500 feet north to 500 feet south along Lewisville-Vienna Rd.

with the construction and/or erection of: 1100 LF of 6" water line and 1100 LF of 8" water line, along with miscellaneous water service connections and fire hydrants. Roadway crossings will be by jack & bore with installation outside the roadway via open trenching.

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the installation, operation, and maintenance of the above described facility will be accomplished in accordance with the party of the first part's latest UTILITIES ACCOMMODATIONS MANUAL, and such revisions and amendments thereto as may be in effect at the date of this agreement. Information as to these policies and procedures may be obtained from the Division Engineer or State Utilities Manager of the party of the first part.

That the said party of the second part binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse the party of the first part for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to installation and existence of the facilities of the party of the second part, and if at any time the party of the first part shall require the removal of or changes in the location of the said facilities, that the said party of the second part binds himself, his successors and assigns, to promptly remove or alter the said facilities, in order to conform to the said requirement, without any cost to the party of the first part.

That the party of the second part agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

That the party of the second part agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division Engineer of the party of the first part.

That the party of the second part agrees to have available at the construction site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

During the performance of this contract, the second party, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor"), agrees as follows:

a. Compliance with Regulations: The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the U. S. Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

b. Nondiscrimination: The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

c. Solicitations for Subcontracts, including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

d. Information and Reports: The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

e. Sanctions for Noncompliance: In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to,

(1) withholding of payments to the contractor under the contract until the contractor complies, and/or
(2) cancellation, termination or suspension of the contract, in whole or in part.

f. Incorporation of Provisions: The contractor shall include the provisions of paragraphs "a" through "f" in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Department of Transportation to enter into such litigation to protect the interests of the State, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

That when title to the subject that constitutes the aforesaid encroachment passes from the party of the second part and vests in the party of the third part, the party of the third part agrees to assume all responsibilities and rights and to perform all obligations as agreed to herein by the party of the second part.

R/W (166) : Party of the Second Part certifies that this agreement is true and accurate copy of the form R/W (166) incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

DEPARTMENT OF TRANSPORTATION

BY: Kevin Hedrick (DocuSigned by: 66D2B4A78B4C453...)

DISTRICT ENGINEER

WITNESS:

Signed by: Dora Moore (34EAF9A3E979418...)

Dora Moore — Town Clerk

Town of Lewisville
6510 Shallowford Rd
Lewisville, NC 27023

Signed by: Stacy Tolbert (A1A7A7307AB6456...)

Stacy Tolbert — Town Manager

Town of Lewisville
6510 Shallowford Rd
Lewisville, NC 27023

Second Party

WITNESS:

Todd Lewis

Senior Civil Engineer- COWS

J. Charles Hendrick

Charles Hendrick

Acting City Engineer- COWS

Third Party

09/08/99

TIP PROJECT: U-6154

T.I.P. NO.	SHEET NO.
U-6154	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

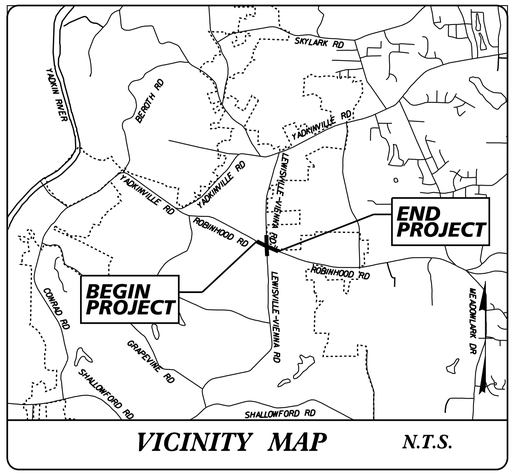
UTILITY CONSTRUCTION PLANS
FORSYTH COUNTY

UC PLANS

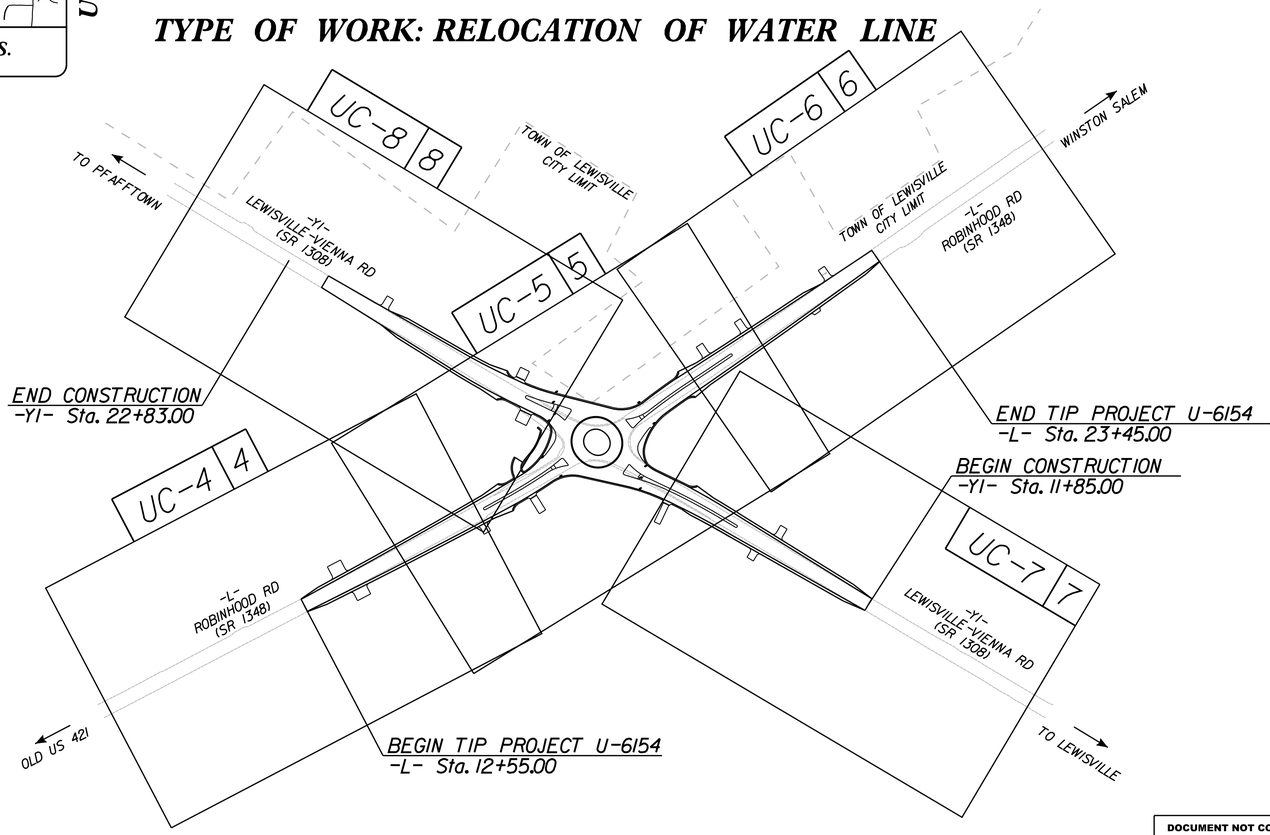
LOCATION: INTERSECTION OF SR 1308 (LEWISVILLE-VIENNA ROAD) AND SR 1348 (ROBINHOOD ROAD)

NAD 83/NA 2011
NC GRID

TYPE OF WORK: RELOCATION OF WATER LINE



VICINITY MAP *N.T.S.*



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

2 1 0 2 4
PROFILE (VERTICAL)

INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - WINSTON-SALEM FORSYTH COUNTY PUBLIC UTILITES

PREPARED IN THE OFFICE OF

Kimley»Horn © 2024

NC LICENSE #F-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

Nate Harvey, P.E. — *CONSULTANT CONTACT #1*
Jack Bajerski, E.I. — *CONSULTANT CONTACT #2*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L HARVEY
2/20/2025

DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Amy D. York — *CENTRAL UTILITES MANAGER*
R. David Trantham — *UTILITIES ENGINEER*
Ali Koucheki, P.E. — *REGIONAL UTILITIES ENGINEER*
C. Dayton Martin, III — *REGIONAL UTILITIES COORDINATOR*

12/17/2024

K:\DUR_Utilities_Roadway Utilities Projects\0138.3003 - U-6154 Lewisville Roundabout\UC\Proj\u6154_uf_uc01_tshdgn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 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 — REH
- 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) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- 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) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" 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
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

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

12/17/2024

5/14/99

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 CITY OF WINSTON-SALEM FORSYTH COUNTY PUBLIC UTILITIES.

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 THE 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 ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO 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 OWNERS' 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 EXISTING 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 MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

12/17/2024

PROJECT SPECIFIC NOTES:

1. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT ITS EXPENSE, UNLESS PREVIOUSLY OBTAINED BY THE OWNER AND PROVIDED AT THE PRECONSTRUCTION CONFERENCE.

2. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR WRITTEN CONSENT OF THE UTILITY OWNER OR THEIR REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE UTILITY OWNER PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL HOLD AN ON-SITE PRECONSTRUCTION MEETING WITH THE OWNER AND NCDOT AND SHALL DETAIL ITS PROPOSED INSTALLATION, CLEANING, TESTING, AND CONNECTION PLAN. OWNER WILL PROVIDE CONTACT INFORMATION FOR INSPECTIONS. PRECONSTRUCTION MEETING SHALL BE SCHEDULED TO TAKE PLACE AT LEAST 7 DAYS PRIOR TO COMMENCING UTILITY CONSTRUCTION WORK.

5. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AND TENANTS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION THAT UTILITY CONSTRUCTION ACTIVITY WILL TAKE PLACE IN THEIR AREA.

6. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS FOR ALL UTILITY CONSTRUCTION PRIOR TO PLACING THE PIPELINE(S) IN SERVICE (SEE UC SPECIAL PROVISIONS).

7. PIPE ALIGNMENT SHOWN IS BASED ON STANDARD DUCTILE IRON MECHANICAL JOINT FITTINGS. JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION. CONTRACTOR SHALL ADJUST PIPELINE ALIGNMENT AND DEFLECT JOINTS AS NECESSARY TO ACCOMMODATE THE STANDARD BENDS SHOWN.

8. MINIMUM PIPE COVER FOR DISTRIBUTION WATER MAINS SHALL BE 3 FEET.

9. ALL PRESSURIZED FITTINGS SHALL BE DUCTILE IRON RESTRAINED MECHANICAL JOINT WITH PRESSURE RATING EQUAL TO OR HIGHER THAN HOST PIPE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

10. ALL MECHANICAL JOINTS SHALL BE FITTED WITH WEDGE-TYPE MECHANICAL RESTRAINT ACCESSORY KITS DESIGNED FOR THE INTENDED USE AND MATERIAL, AS APPROVED BY UTILITY OWNER.

11. ALL WORK SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE CITY OF WINSTON-SALEM DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION'S TECHNICAL SPECIFICATIONS AND DETAIL DRAWINGS FOR WATER LINE AND SANITARY SEWER LINE CONSTRUCTION.

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

Docusigned by: NATHANIEL L. HARVEY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045249
8/20/2025

UTILITY CONSTRUCTION

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3A

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY:	NLH
DRAWN BY:	JNB
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APPROVED BY:	NLH
REVISED:	

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DEPARTMENT OF
TRANSPORTATION

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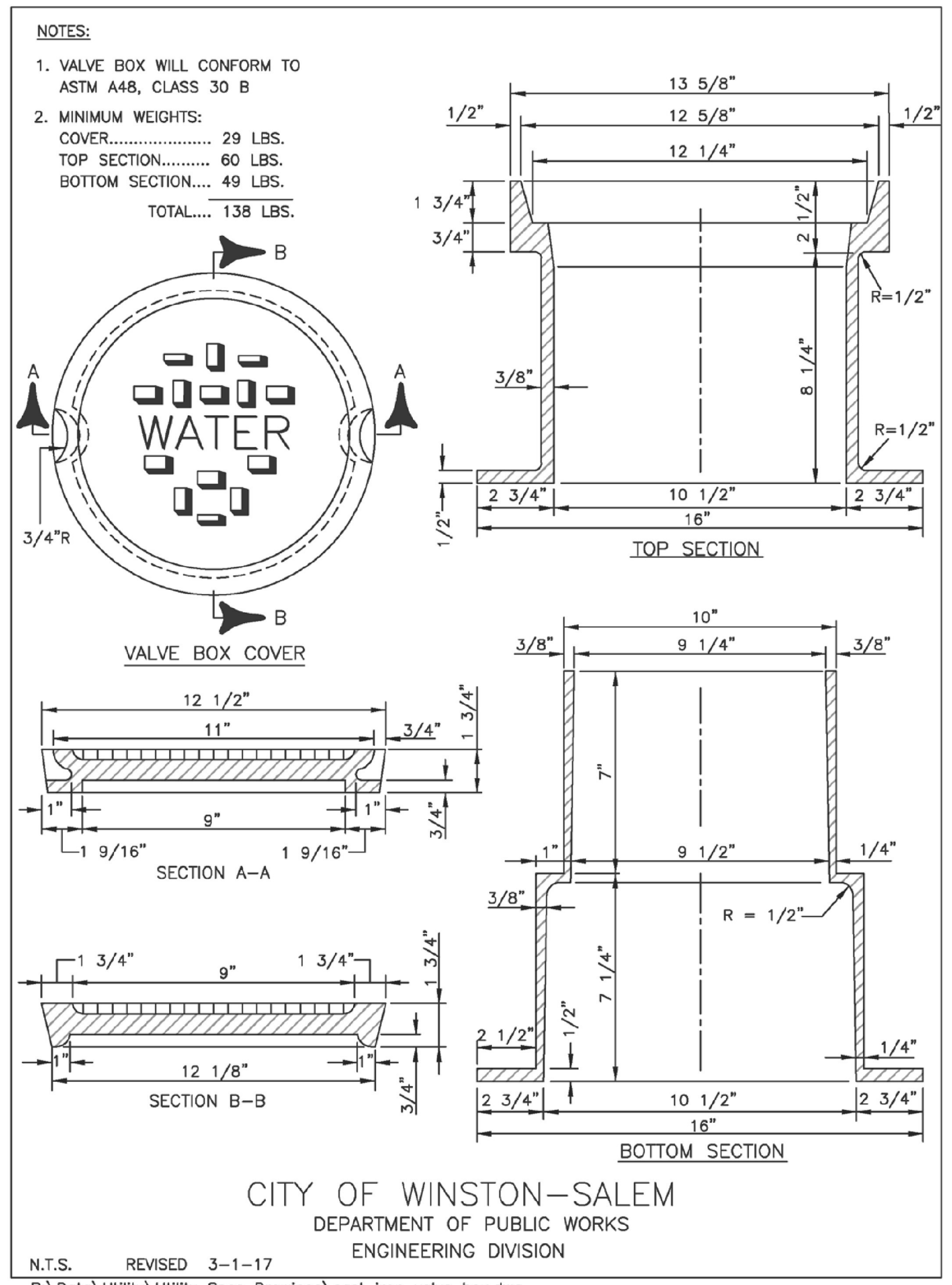
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 9/20/2025

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO

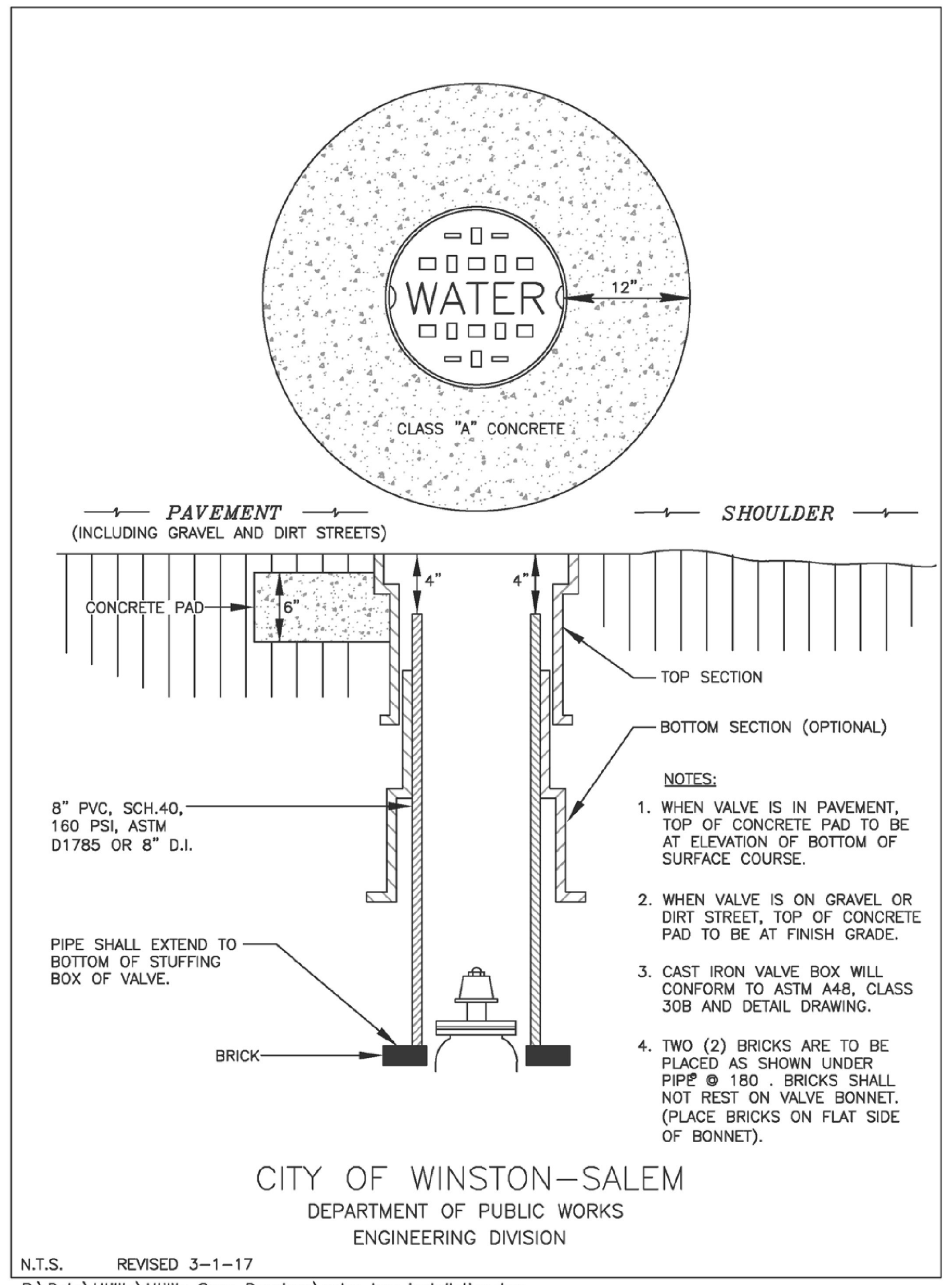
Cast Iron Valve Box



R:\Data\Utility\Utility Spec Drawings\cast iron valve box.dwg

C-39

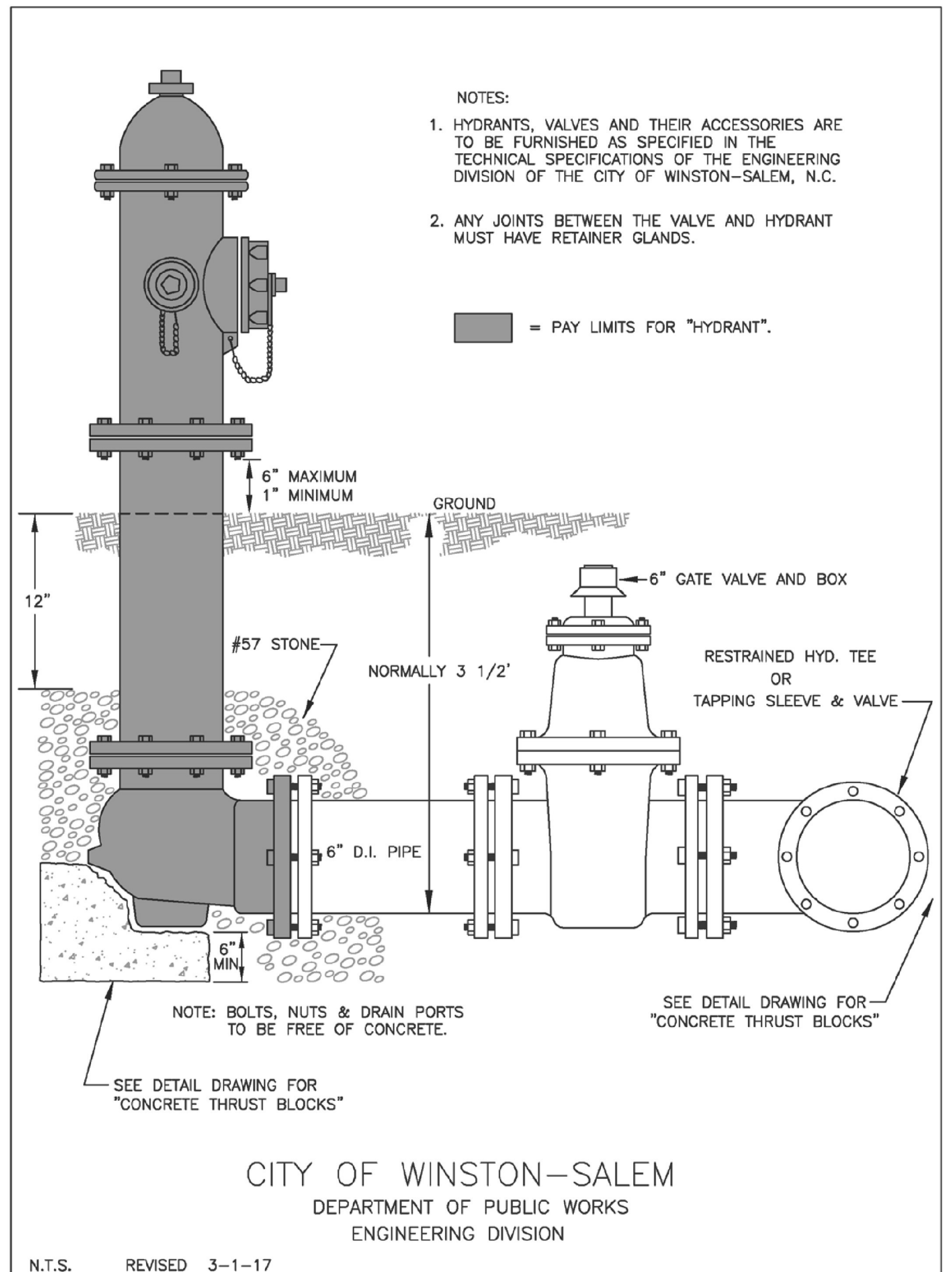
Valve Box Installation



R:\Data\Utility\Utility Spec Drawings\valve box installation.dwg

C-40

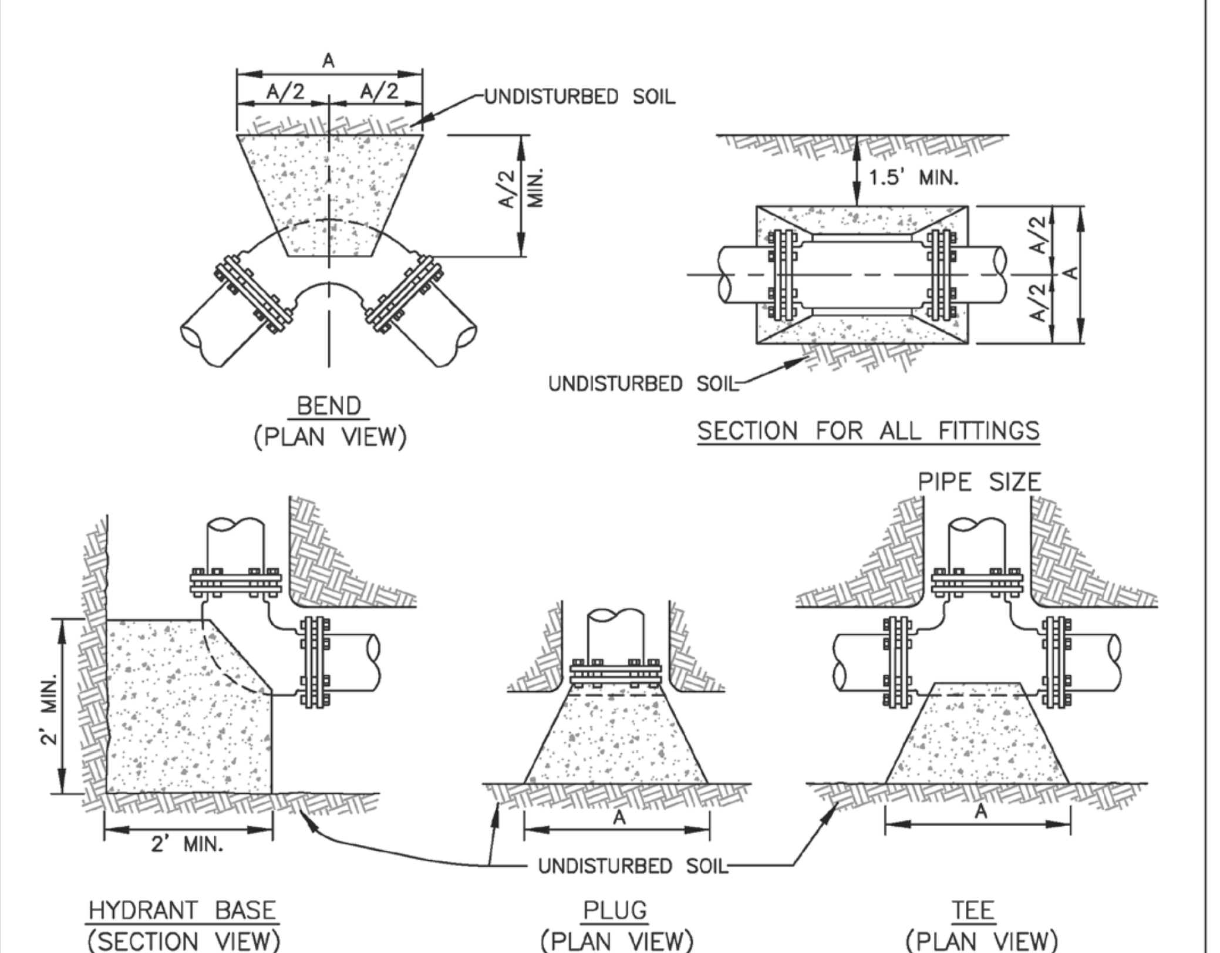
Hydrant and Valve Installation



R:\Data\Utility\Utility Spec Drawings\hyd & valve installation.dwg

C-41

Concrete Thrust Blocks for Horizontal Bends



MINIMUM "A" DIMENSION (FEET)										
FITTING	PIPE SIZE (INCHES)									
	2	4	6	8	12	16	20	24	30	36
90° BEND	1.0	2.0	2.5	3.5	5.0	6.5	8.0	10.0	12.0	14.5
45° BEND	1.0	1.5	2.0	2.5	4.0	5.0	6.0	7.0	9.0	10.5
22 1/2° BEND	0.5	1.0	1.5	2.0	3.0	3.5	4.5	5.0	6.5	7.5
11 1/4° BEND	0.5	1.0	1.0	1.5	2.0	2.5	3.0	4.0	4.5	5.5
PLUG/TEE	1.0	1.5	2.5	3.0	4.5	5.5	7.0	8.0	10.0	12.0

NOTE: ABOVE DIMENSIONS BASED ON THE FOLLOWING: 250 PSI WATER PRESSURE AND 2000 LB/SQ FT SOIL BEARING CAPACITY (SOFT CLAY)

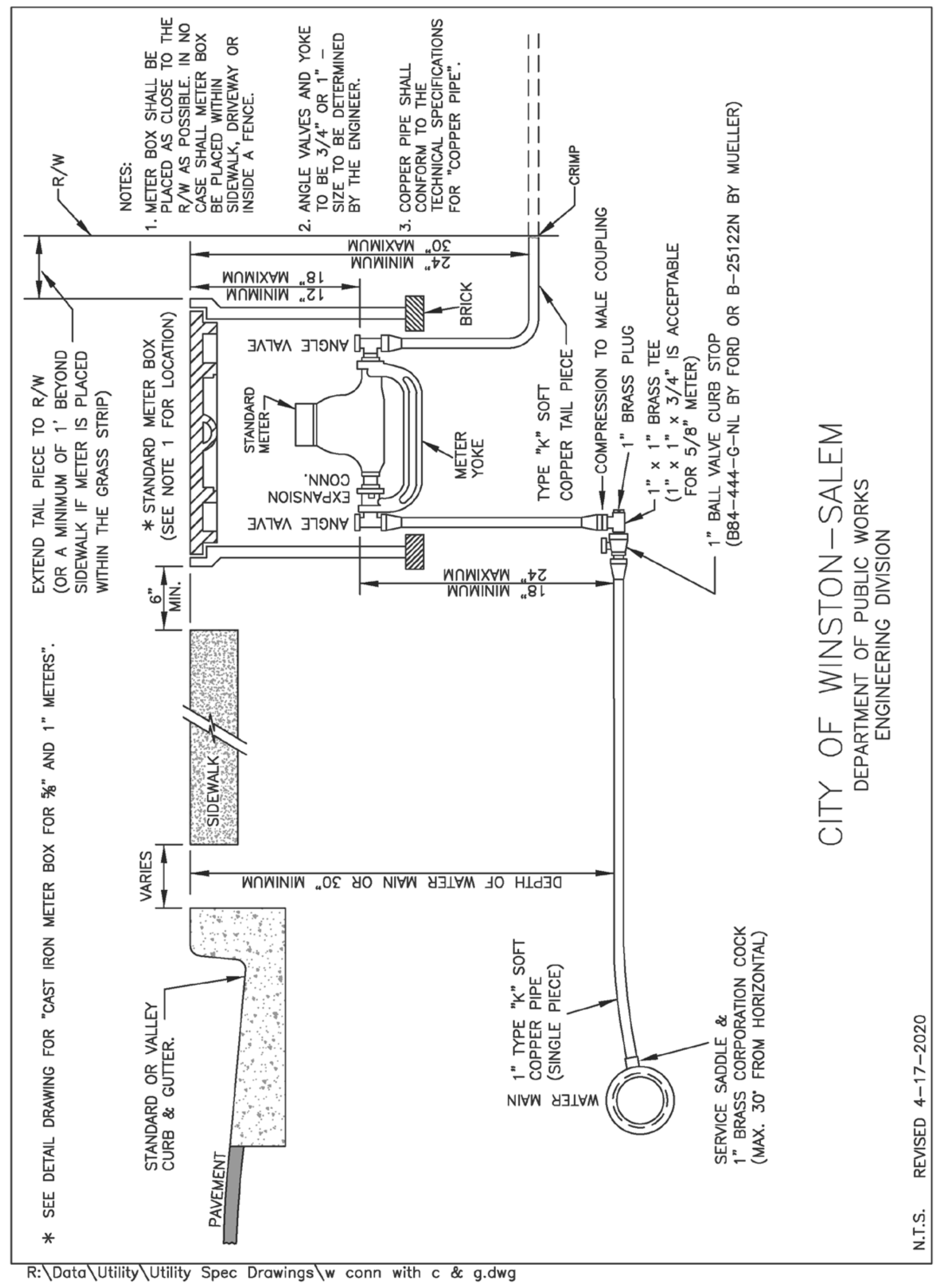
CITY OF WINSTON-SALEM
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

N.T.S. REVISED 3-1-17

R:\Data\Utility\Utility Spec Drawings\concrete thrust block horizontal.dwg

C-43

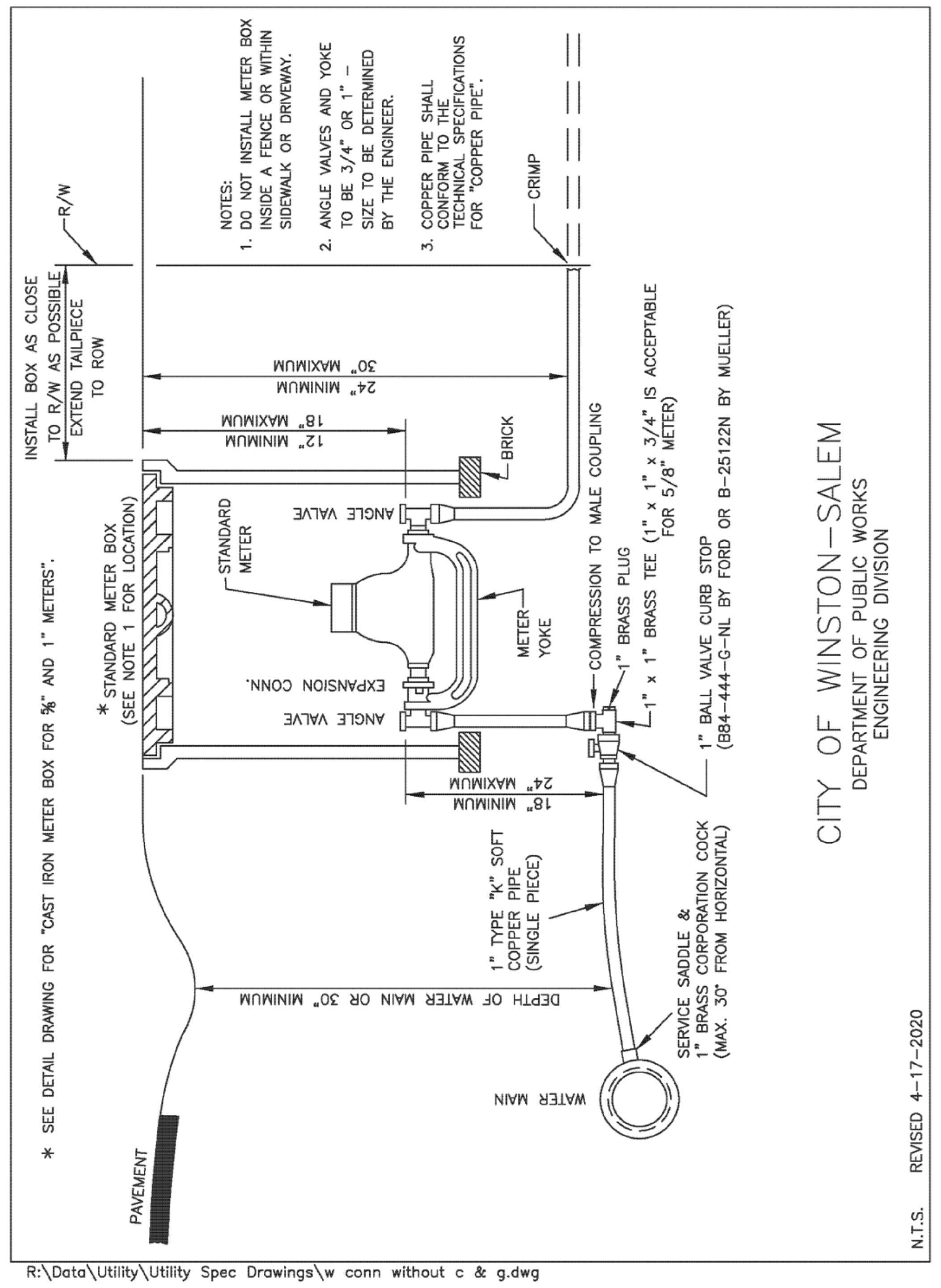
1" Water Connection (With Curb & Gutter)



R:\Data\Utility\Utility Spec Drawings\w conn with c & g.dwg

C-46

1" Water Connection (Without Curb & Gutter)



R:\Data\Utility\Utility Spec Drawings\w conn without c & g.dwg

C-47

12/17/2024

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-3B

DESIGNED BY:	NLH
DRAWN BY:	JNB
CHECKED BY:	NLH
APPROVED BY:	NLH
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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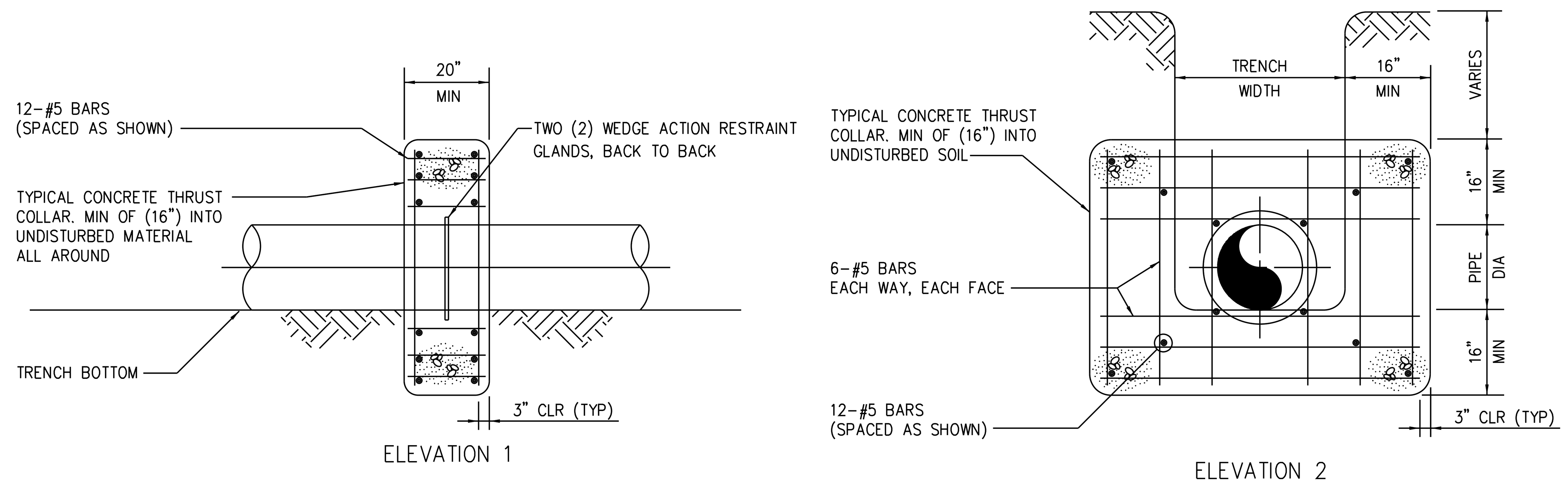
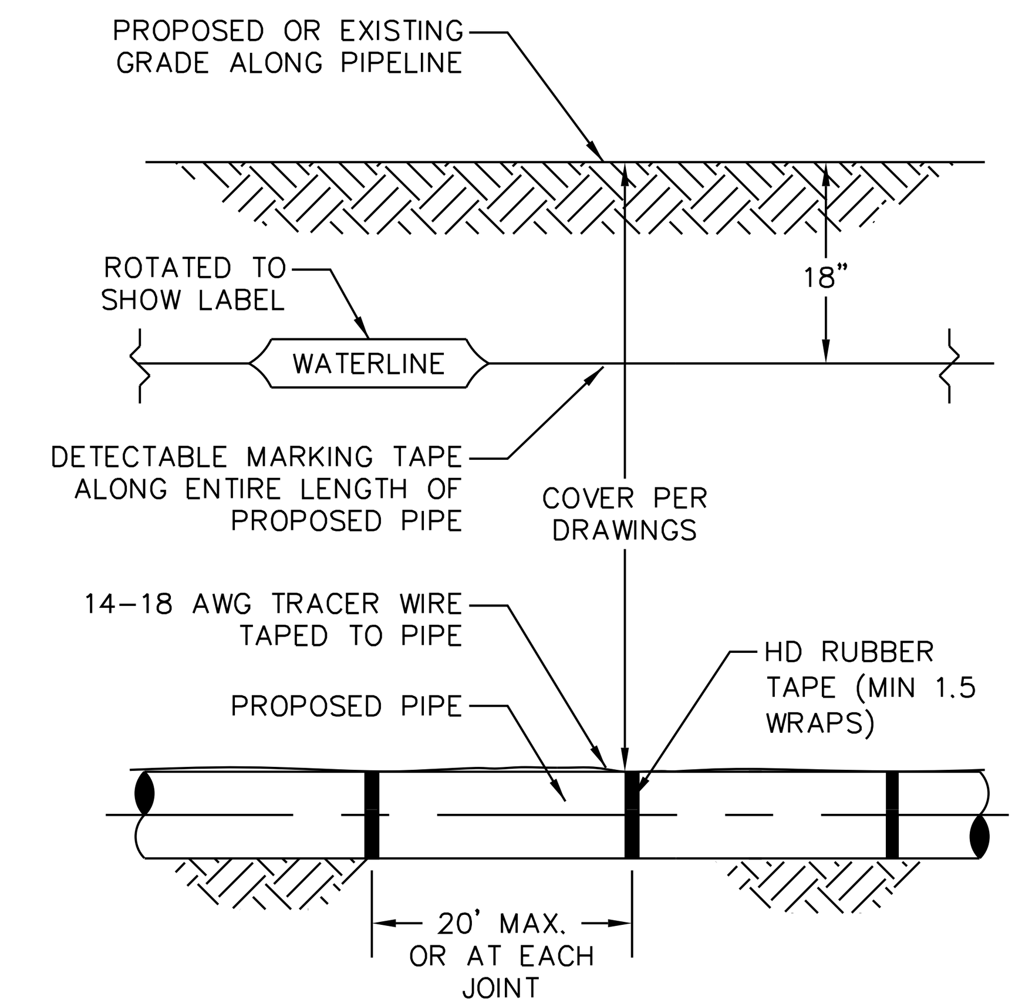
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 8/20/2025

UTILITY CONSTRUCTION PLANS ONLY

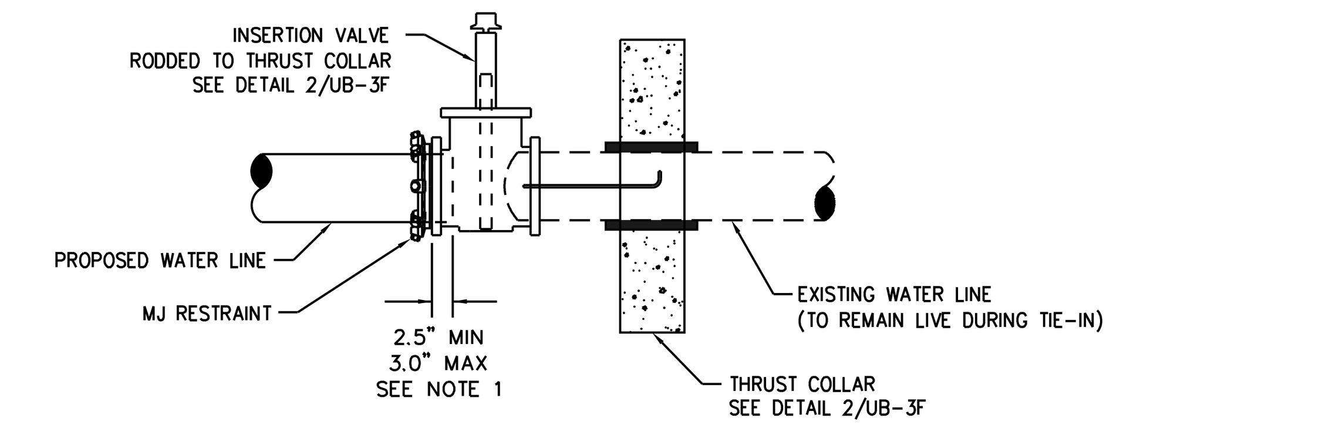
UTILITY CONSTRUCTION



1	THRUST COLLAR
UC-3B	SCALE: N.T.S.

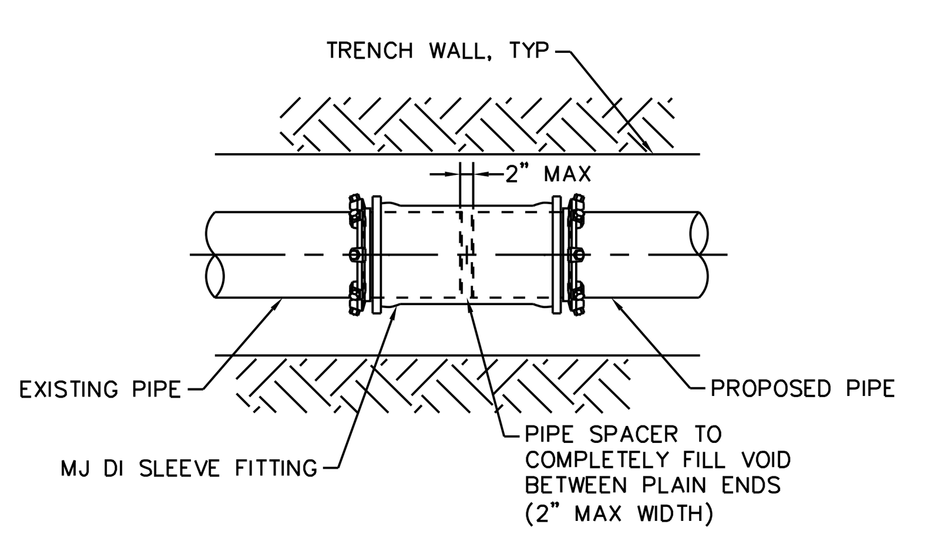


2	DETECTABLE MARKING TAPE AND WIRE
UC-3B	SCALE: N.T.S.



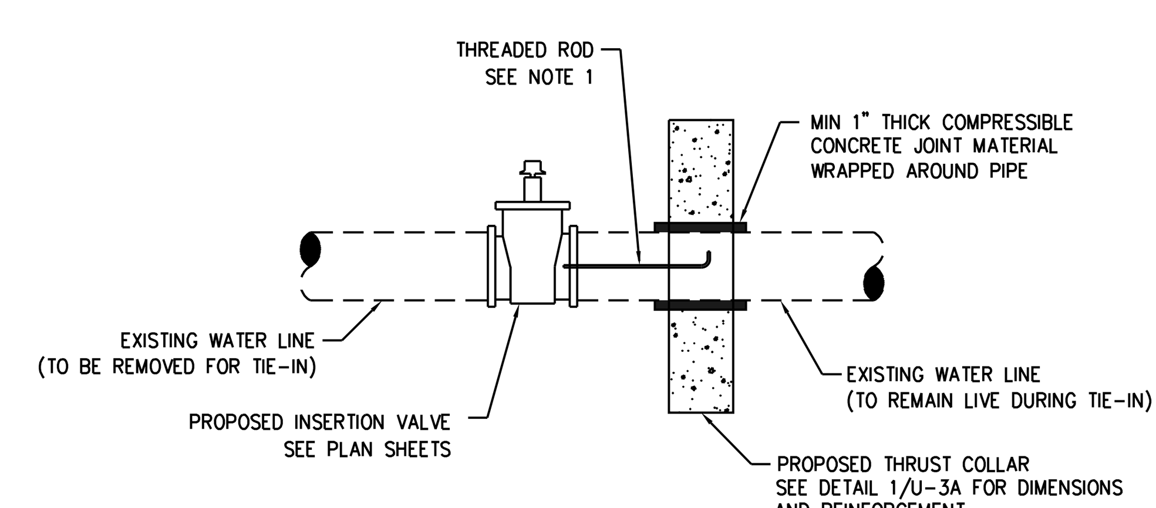
NOTES:
1. CONNECT PROPOSED PIPING TO INSERTION VALVE BY INSERTING PROPOSED PIPE PLAIN END A MINIMUM OF 2.5" AND A MAXIMUM OF 3" BEYOND THE FACE OF THE VALVE'S MJ OPENING AND SECURING IN PLACE WITH A WEDGE RESTRAINING GLAND AND MJ SEAL. PROPOSED PIPE SHALL NOT INTERFERE WITH VALVE OPERATION.

3	PROPOSED PIPE TO INSERTION VALVE CONNECTION
UC-3B	SCALE: N.T.S.



NOTES:
1. SLEEVES SHALL BE DUCTILE IRON MECHANICAL JOINT (DI MJ) OF THE SAME OR HIGHER PRESSURE RATING AS THE HOST PIPE.
2. RESTRAINT GLANDS SHALL BE DESIGNED FOR THE INTENDED USE AND SHALL CONSIST OF MULTIPLE GRIPPING WEDGES INCORPORATED INTO A FOLLOWER GLAND AND BOLT-ACTUATED BY TORQUE-LIMITING TWIST OFF NUTS.

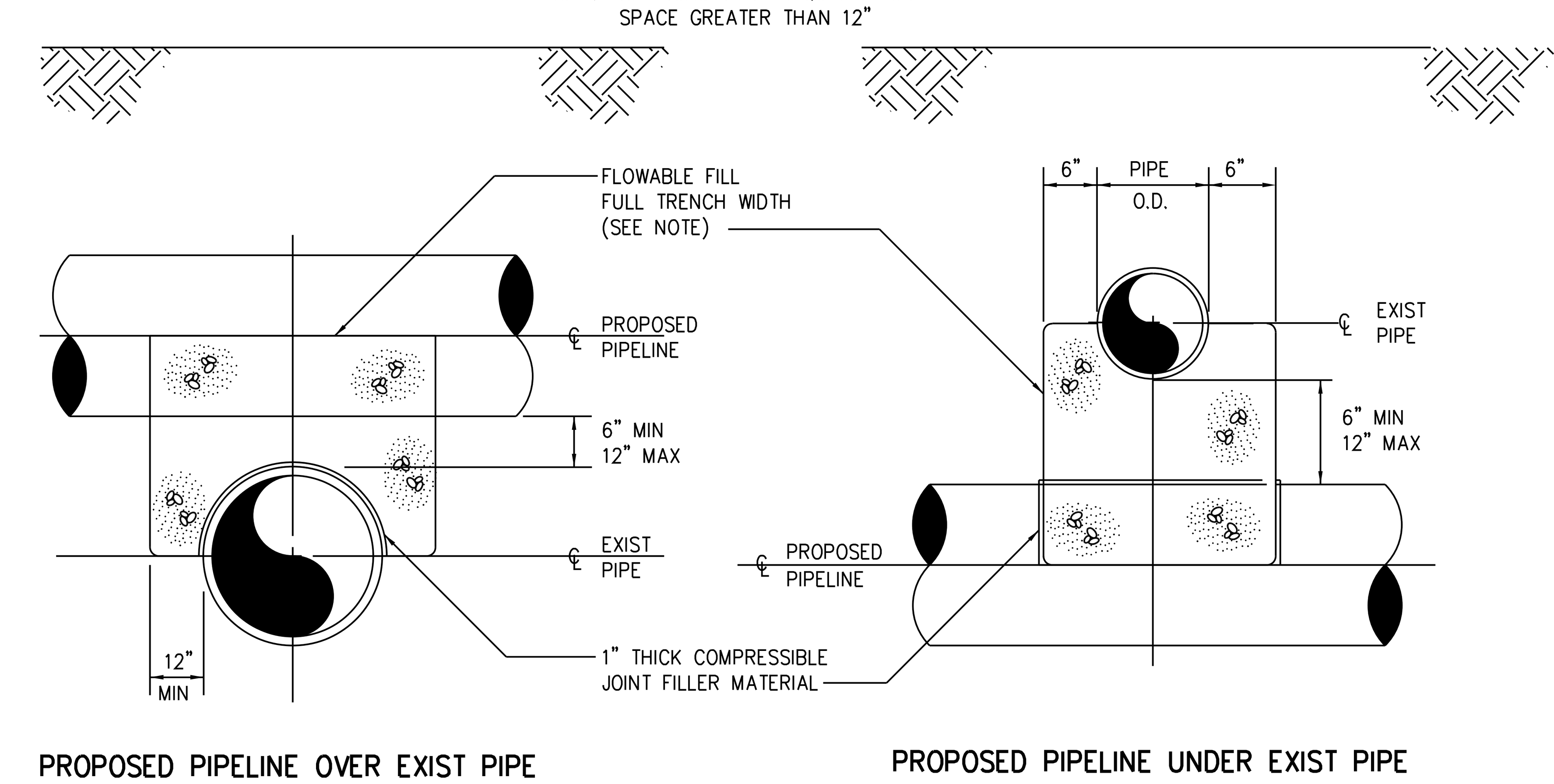
4	RESTRAINED MJ SOLID SLEEVE
UC-3B	SCALE: N.T.S.



NOTES:
1. MECHANICALLY FASTEN TWO 3/4" STAINLESS STEEL OR HOT DIPPED GALVANIZED STEEL THREADED RODS TO REBAR WITHIN THRUST COLLAR AND TO PROPOSED VALVE.
2. THE THRUST COLLAR SHALL BE ALLOWED TO CURE A MINIMUM OF 3 DAYS BEFORE GATE VALVE IS CLOSED.
3. AFTER THRUST COLLAR HAS CURED, VALVE MAY BE CLOSED, PIPE TO BE ABANDONED CUT AND REMOVED, AND NEW PIPE INSTALLED, PER DETAIL 3/UC-3A

5	INSERTION VALVE WITH THRUST COLLAR
UC-3B	SCALE: N.T.S.

NOTE: NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 12"



6	PROPOSED PIPELINE OVER/UNDER EXIST PIPE
UC-3B	SCALE: N.T.S.

5/14/99
$DATE$

PREPARED BY: Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-4

DESIGNED BY: NLH
DRAWN BY: JNB
CHECKED BY: NLH
APPROVED BY: NLH
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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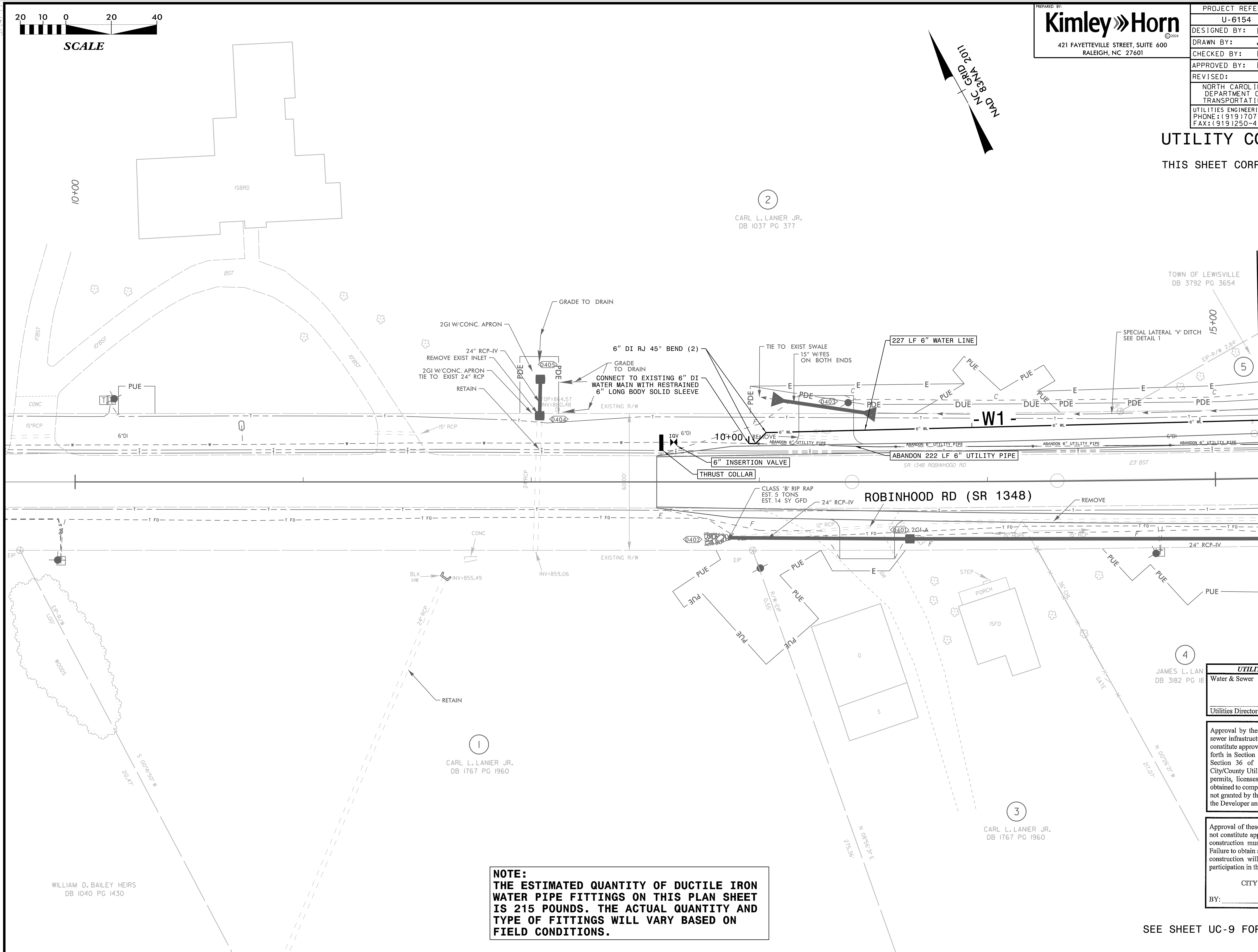
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 1/20/2025

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-4



NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 215 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

CITY OF WINSTON-SALEM
PERMIT NUMBER
WATER:__________
SEWER:__________
DATE:__________

UTILITY DESIGN APPROVED
Water & Sewer

Utilities Director ____ Date ____

Approval by the Utilities Director of the water and sewer infrastructure depicted in these plans does not constitute approval for any other purpose than that set forth in Section 64 of the Water System Policy and Section 36 of the Sewer System Policy of the City/County Utility Commission. To the extent other permits, licenses, permissions or the like must be obtained to complete this project, such are specifically not granted by this approval and must be obtained by the Developer and/or his designee.

Approval of these water & sanitary sewer plans does not constitute approval for construction. Approval of construction must be in formal written agreement. Failure to obtain such agreement prior to beginning of construction will relieve the City of any financial participation in this project whatsoever.

CITY OF WINSTON-SALEM

BY: __________

SEE SHEET UC-9 FOR -W1- PROFILE

5/14/99
12/17/2024

5/14/99

20 10 0 20 40
SCALE

PREPARED BY:
Kimley»Horn © 2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-5
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L HARVEY
07/30/2025

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO

NAD 83 NC GRID 2011

MATCHLINE (SEE SHEET UC-8)
-Y1- STA 19+00
-W1- STA 15+57

MATCHLINE (SEE SHEET UC-4)
-L- STA 15+20
-W1- STA 12+26

MATCHLINE (SEE SHEET UC-6)
-L- STA 20+80
-W3- STA 13+87

MATCHLINE (SEE SHEET UC-7)
-Y1- STA 15+00
-W2- STA 13+20

LEWISVILLE-VIENNA RD (SR-1308)

ROBINHOOD RD (SR 1348)

SPECIAL LATERAL 'V' DITCH SEE DETAIL 2
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
REMOVE
RELOCATE WATER METER
63 LF WATER SERVICE LINE
SPECIAL MIN. DEPTH CB-F SEE DETAIL 2C-1
SPECIAL MIN. DEPTH DI SEE DETAIL 2C-2
SPECIAL MIN. DEPTH CB-G SEE DETAIL 2C-1
159 LF 8" WATER LINE
RECONNECT WATER METER
7 LF WATER SERVICE LINE
ABANDON 399 LF 8" UTILITY PIPE
ABANDON 577 LF 6" UTILITY PIPE
SPECIAL LATERAL 'V' DITCH SEE DETAIL 1
8" DI RJ 45° BEND (3)
8" VALVE
8" DI RJ TEE
8"x6" DI RJ REDUCER
6" VALVE
6" DI RJ 45° BEND (2)
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
15'X15' RECEIVING PIT
172 LF 6" WATER LINE
8" VALVE
52 LF BORE AND JACK OF 16"
52 LF 16" ENCASEMENT PIPE
6" DI RJ 90° BEND (AWWA C110 LONG BODY)
47 LF BORE AND JACK OF 14"
47 LF 14" ENCASEMENT PIPE
RELOCATE WATER METER
55 LF WATER SERVICE LINE
35'X15' BORE PIT
8" DI RJ 45° BEND (2)
8" DI RJ 45° BEND
320 LF 8" WATER LINE
6" DI RJ 22.5° BEND
6" VALVE
8" VALVE
RECEIVING PIT
8"X6" DI RJ TEE
8" VALVE
FIRE HYDRANT
6" VALVE
6 LF FIRE HYDRANT LEG
8"X6" DI RJ TEE
REMOVE FIRE HYDRANT
6" DI RJ 45° BEND (2)
6" DI RJ 22.5° BEND
REMOVE
SPECIAL 'V' DITCH SEE DETAIL 3
CLASS 'B' RIP RAP EST. 10 TONS EST. 20 SY GFD
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GFD
SPECIAL LATERAL 'V' DITCH SEE DETAIL 2
BORE PIT
6" DI RJ 45° BEND (2)
48 LF BORE AND JACK OF 16"
48 LF 14" ENCASEMENT PIPE
388 LF 6" WATER LINE
SPECIAL LATERAL 'V' DITCH SEE DETAIL 1
BORE PIT
15'X15' RECEIVING PIT

13 RANDY DUGGINS DB 3196 PG 2369
7 REBECCA L. FORREST, TIM FORREST, DANIEL FORREST DB 3568 PG 2481 DB 1950 PG 3018 DB 1460 PG 423
5 TOWN OF LEWISVILLE DB 3792 PG 3654
6 CMC FAMILY ENTERPRISES LLC DB 3615 PG 1887
4 JAMES L. LANIER DB 3182 PG 1800
12 BENNIE C. STONE DB 3361 PG 3437
8 DRSP PROPERTIES LLC DB 2353 PG 2988

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,050 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -W1- PROFILE
SEE SHEET UC-10 FOR -W2- PROFILE
SEE SHEET UC-10 AND UC-11 FOR -W3- PROFILE

12/17/2024

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-6

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY:	NLH
DRAWN BY:	JNB
CHECKED BY:	NLH
APPROVED BY:	NLH
REVISED:	

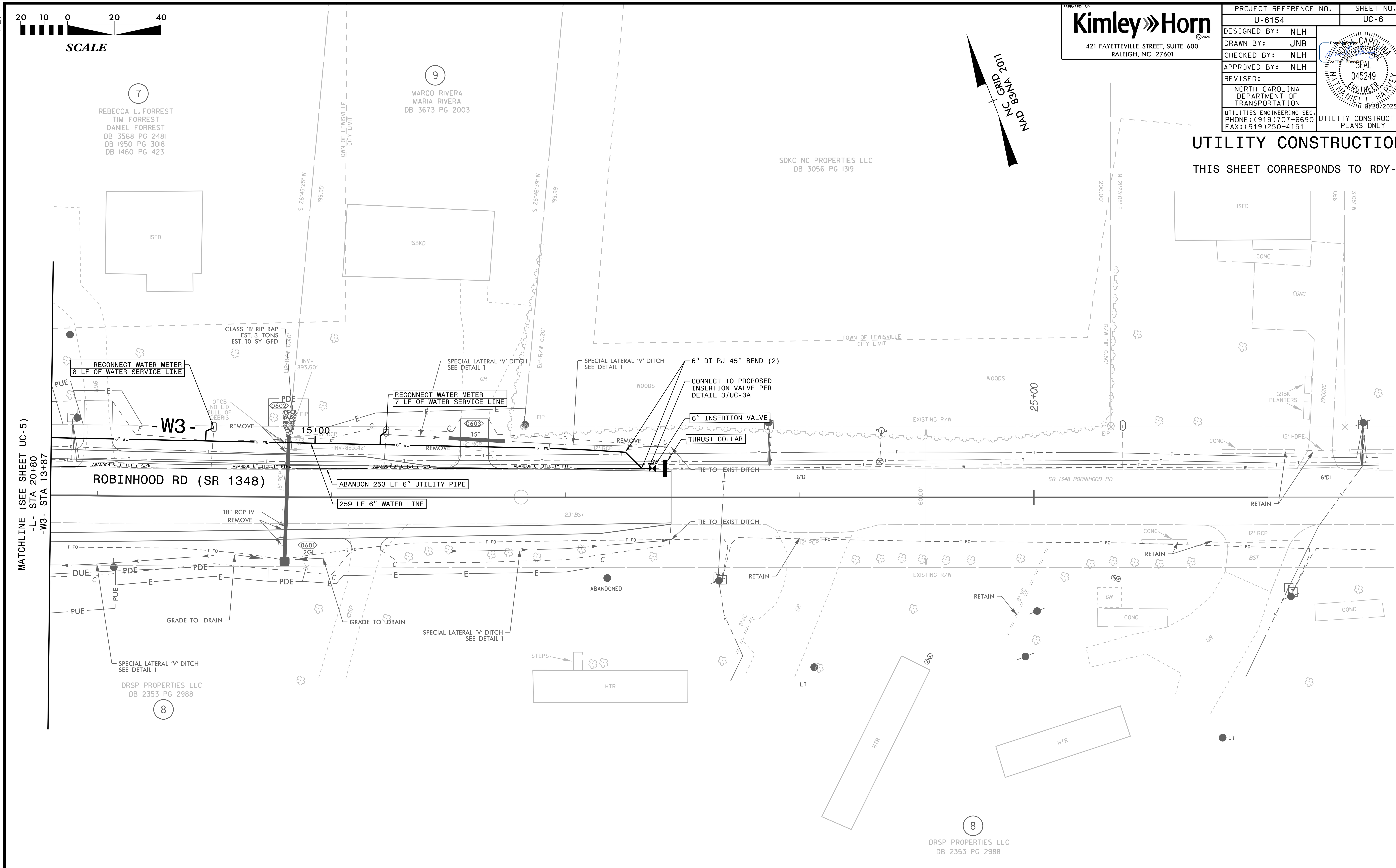
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 8/20/2025

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-6


20 10 0 20 40
SCALE
NC GRID NAD 83/NA 2011
7
REBECCA L. FORREST
TIM FORREST
DANIEL FORREST
DB 3568 PG 2481
DB 1950 PG 3018
DB 1460 PG 423
9
MARCO RIVERA
MARIA RIVERA
DB 3673 PG 2003
SDKC NC PROPERTIES LLC
DB 3056 PG 1319
TOWN OF LEWISVILLE CITY LIMIT
CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY GFD
RECONNECT WATER METER
8 LF OF WATER SERVICE LINE
RECONNECT WATER METER
7 LF OF WATER SERVICE LINE
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 1
6" DI RJ 45° BEND (2)
CONNECT TO PROPOSED
INSERTION VALVE PER
DETAIL 3/UC-3A
6" INSERTION VALVE
THRUST COLLAR
-W3-
15+00
25+00
ROBINHOOD RD (SR 1348)
ABANDON 253 LF 6" UTILITY PIPE
259 LF 6" WATER LINE
18" RCP-IV
REMOVE
TIE TO EXIST DITCH
RETAIN
GRADE TO DRAIN
MATCHLINE (SEE SHEET UC-5)
-L- STA 20+80
-W3- STA 13+87
ABANDONED
DRSP PROPERTIES LLC
DB 2353 PG 2988
8
EXISTING R/W
WOODS
SR 1348 ROBINHOOD RD
HTR
CONC
LT

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 150 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-11 FOR -W3- PROFILE

5/14/99

12/17/2024

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-7

PREPARED BY: Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DESIGNED BY:	NLH
DRAWN BY:	JNB
CHECKED BY:	NLH
APPROVED BY:	NLH
REVISED:	

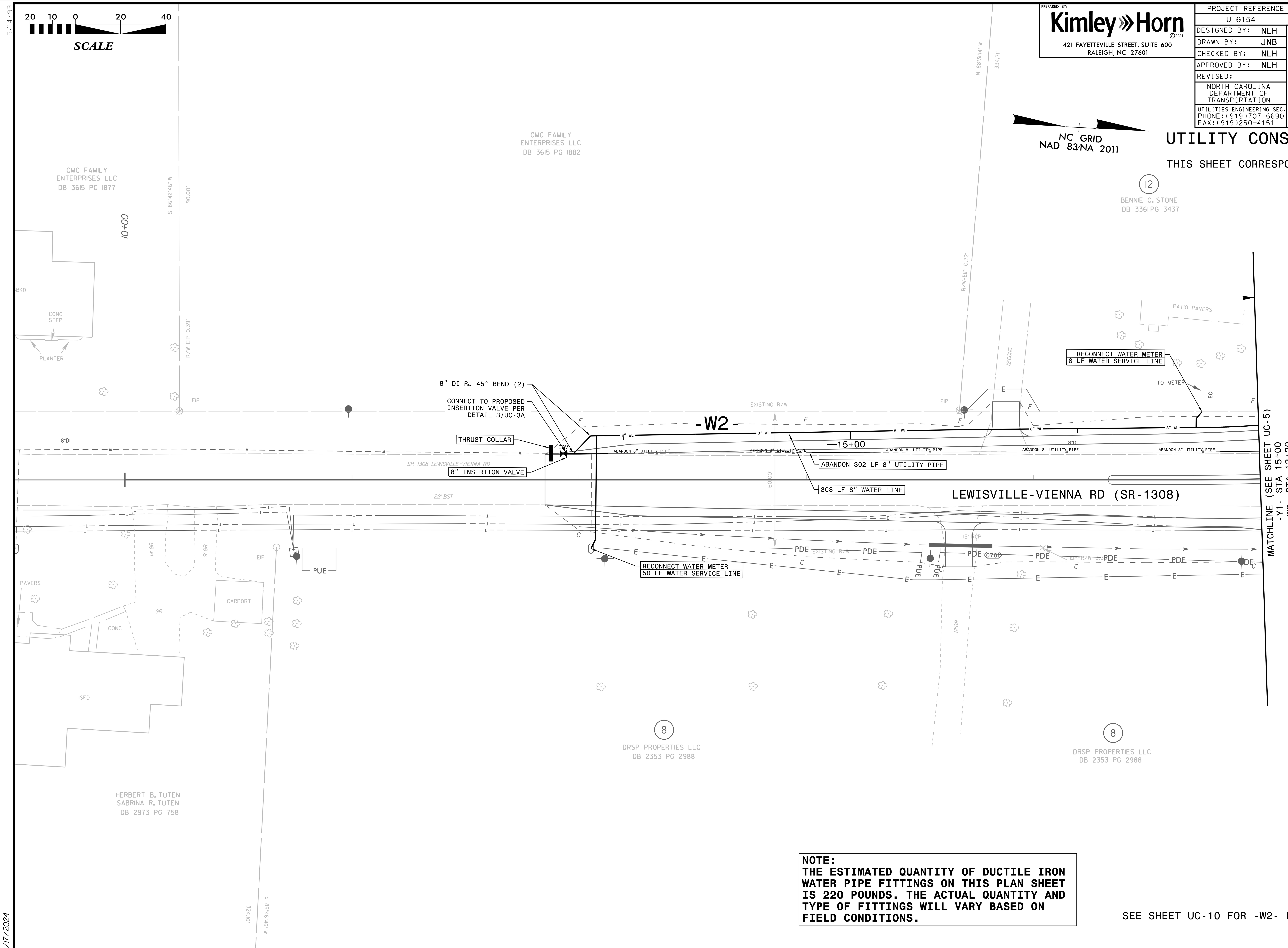
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY 1/20/2025

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-7



20 10 0 20 40
SCALE
NC GRID
NAD 83/NA 2011
5/14/99
CMC FAMILY ENTERPRISES LLC
DB 3615 PG 1877
CMC FAMILY ENTERPRISES LLC
DB 3615 PG 1882
12
BENNIE C. STONE
DB 3361 PG 3437
10+00
BKD
CONC STEP
PLANTER
PATIO PAVERS
RECONNECT WATER METER
8 LF WATER SERVICE LINE
TO METER
8" DI RJ 45° BEND (2)
CONNECT TO PROPOSED INSERTION VALVE PER DETAIL 3/UC-3A
THRUST COLLAR
8" INSERTION VALVE
EXISTING R/W
-W2-
-15+00
ABANDON 8" UTILITY PIPE
ABANDON 302 LF 8" UTILITY PIPE
308 LF 8" WATER LINE
SR 1308 LEWISVILLE-VIENNA RD
22' BST
LEWISVILLE-VIENNA RD (SR-1308)
MATCHLINE (SEE SHEET UC-5)
-Y1- STA 15+00
-W2- STA 13+20
PUE
PDE
RECONNECT WATER METER
50 LF WATER SERVICE LINE
PAVERS
CARPORT
CONC
ISFD
8
DRSP PROPERTIES LLC
DB 2353 PG 2988
8
DRSP PROPERTIES LLC
DB 2353 PG 2988
HERBERT B. TUTEN
SABRINA R. TUTEN
DB 2973 PG 758
12/17/2024

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 220 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-10 FOR -W2- PROFILE

5/14/99

NOTES:
1. METER TO BE RELOCATED AS CLOSE TO RIGHT OF WAY AS POSSIBLE WHILE REMAINING OUT OF DITCH.

20 10 0 20 40
SCALE

PREPARED BY:
Kimley»Horn ©2024
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

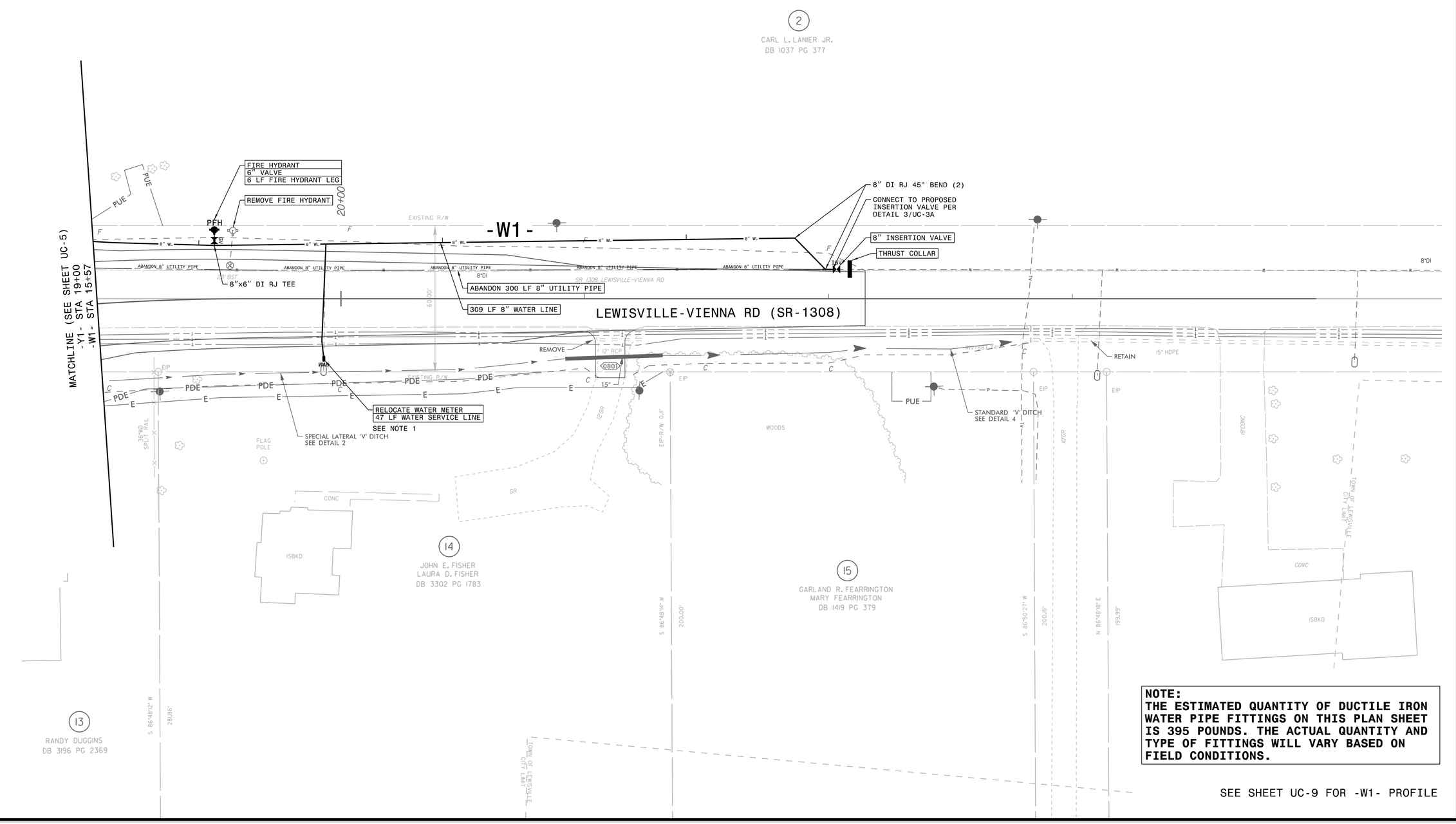
PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-8
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
12/17/2025

NC GRID
NAD 83/NA 2011

UTILITY CONSTRUCTION

THIS SHEET CORRESPONDS TO RDY-8



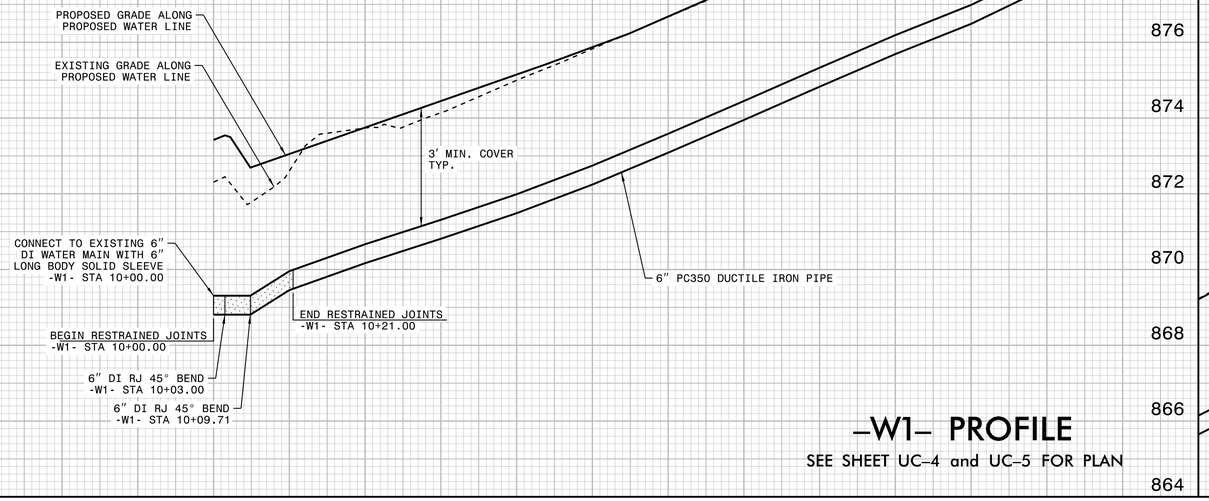
NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 395 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-9 FOR -W1- PROFILE

12/17/2024

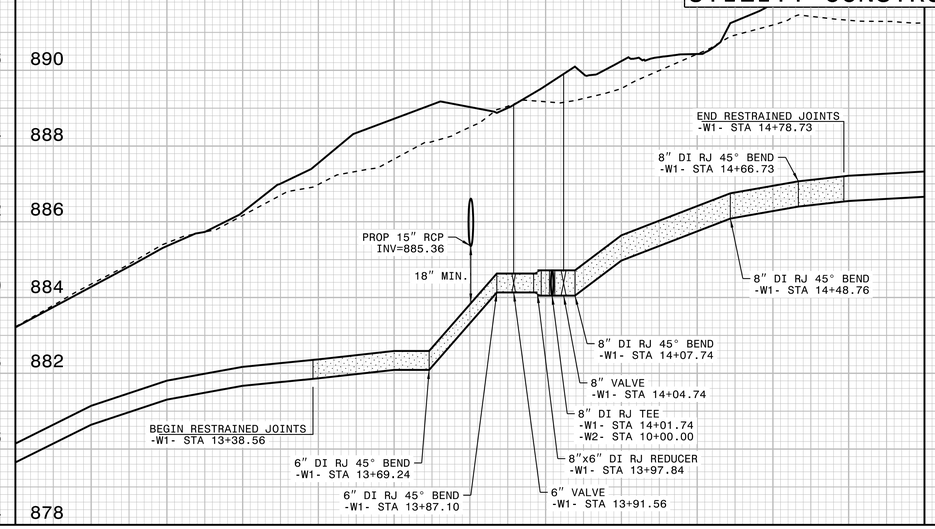
5/14/99

PROFILE (HORIZONTAL)
20 10 0 20 40
PROFILE (VERTICAL)
2 1 0 2 4
SCALE



-W1- PROFILE

SEE SHEET UC-4 and UC-5 FOR PLAN



PREPARED BY:
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PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-9
DESIGNED BY: NLH	
DRAWN BY: JNB	
CHECKED BY: NLH	
APPROVED BY: NLH	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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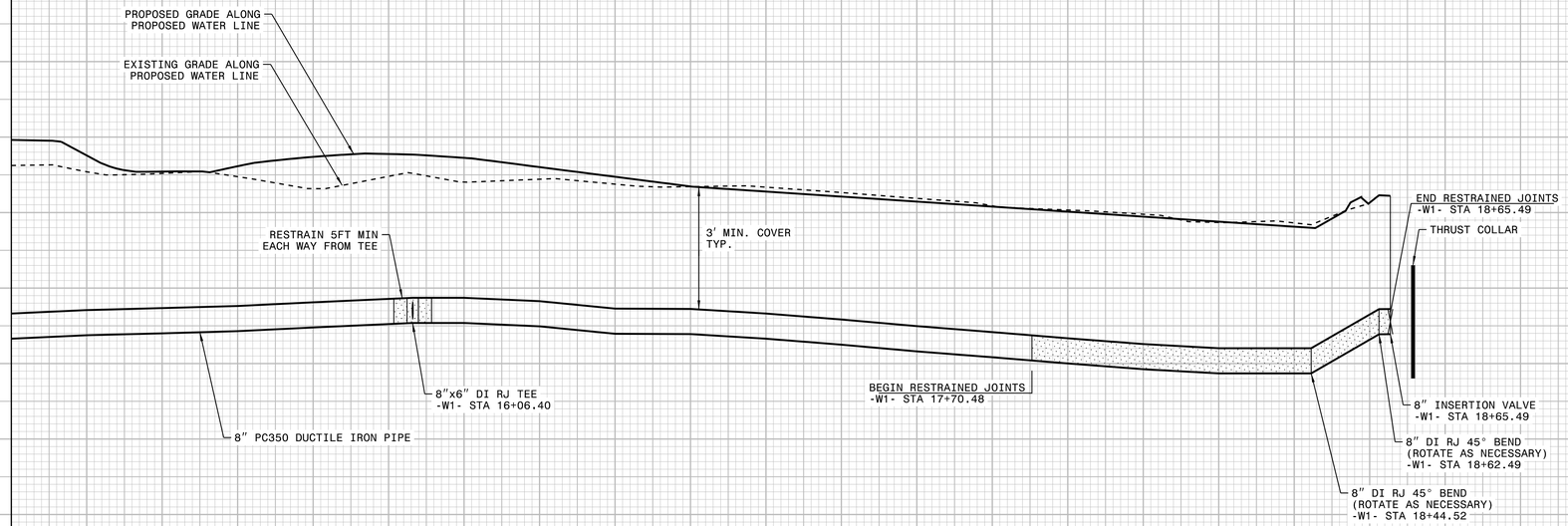
NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
2/20/2025
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



-W1- PROFILE

SEE SHEET UC-5 AND UC-8 FOR PLAN

12/17/2024

5/14/99

PROFILE (HORIZONTAL)
20 10 0 20 40

PROFILE (VERTICAL)
2 1 0 2 4

SCALE

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PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-10
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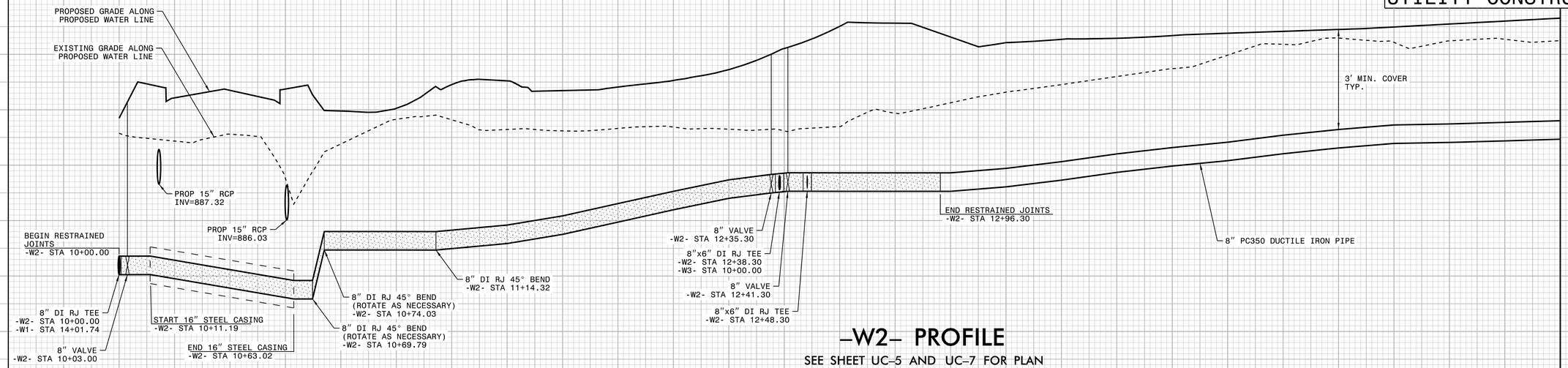
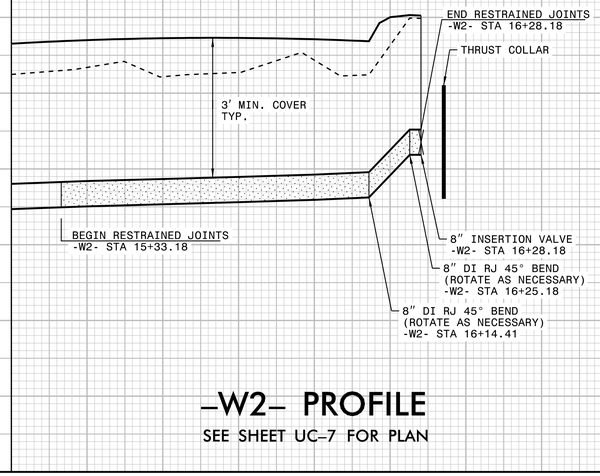


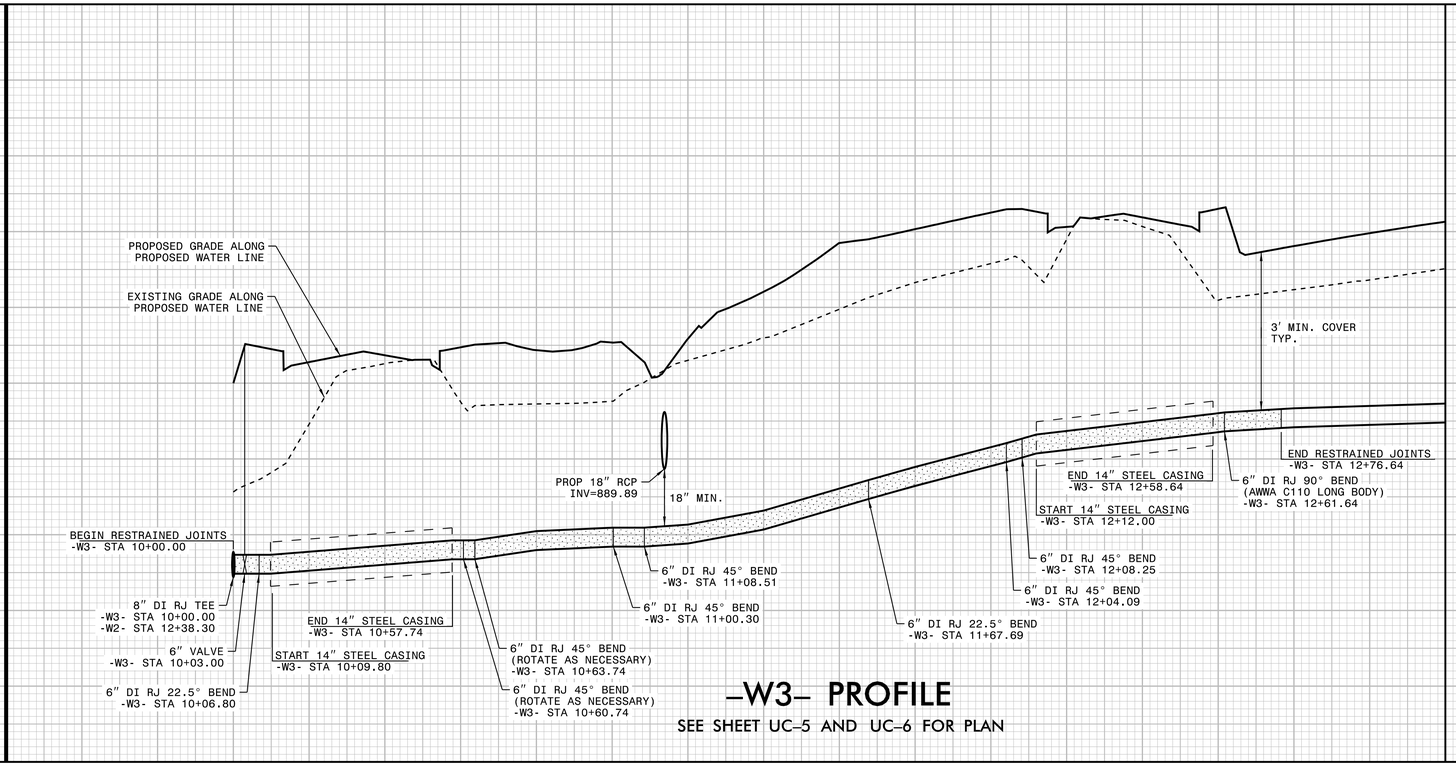
–W2– PROFILE

SEE SHEET UC–5 AND UC–7 FOR PLAN



–W2– PROFILE

SEE SHEET UC–7 FOR PLAN



–W3– PROFILE

SEE SHEET UC–5 AND UC–6 FOR PLAN

12/17/2024

5/14/99

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-6154	UC-11

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NORTH CAROLINA PROFESSIONAL SEAL 045249 ENGINEER NATHANIEL L. HARVEY
2/20/2025
UTILITY CONSTRUCTION PLANS ONLY

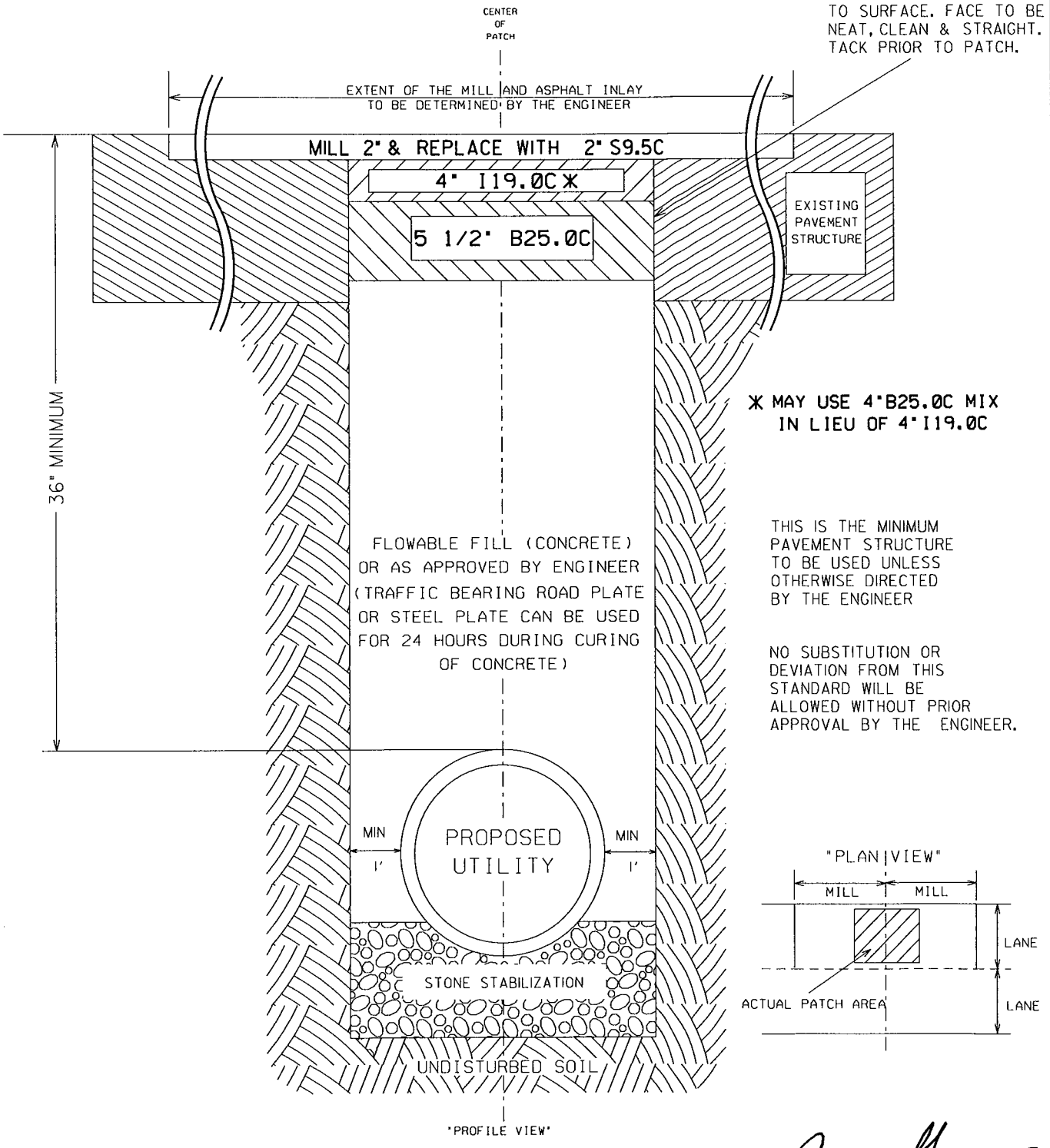
UTILITY CONSTRUCTION

20 10 0 20 40
PROFILE (HORIZONTAL)
2 1 0 2 4
PROFILE (VERTICAL)
SCALE

12/17/2024

MILL & PATCH METHOD

(OPTION A)



* MAY USE 4"B25.0C MIX IN LIEU OF 4"I19.0C

THIS IS THE MINIMUM PAVEMENT STRUCTURE TO BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER

NO SUBSTITUTION OR DEVIATION FROM THIS STANDARD WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE ENGINEER.

NOTE: IF ENGINEER APPROVED, THEN THE BACKFILL (AGGREGATE BASE COURSE OR SUITABLE SUBGRADE) SHALL BE MADE IN 6" LAYERS AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD DENSITY (AASHTO METHOD T-99). EACH LAYER MUST BE THOROUGHLY TAMPED BY A MECHANICAL TAMP BEFORE THE NEXT LAYER IS PLACED. ALL ASPHALT PAVEMENT REPLACED SHALL BE IN ACCORDANCE WITH THE MOST CURRENT N.C.D.O.T. STANDARD SPECIFICATIONS. BASE COURSE DENSITY SHALL BE 100%.

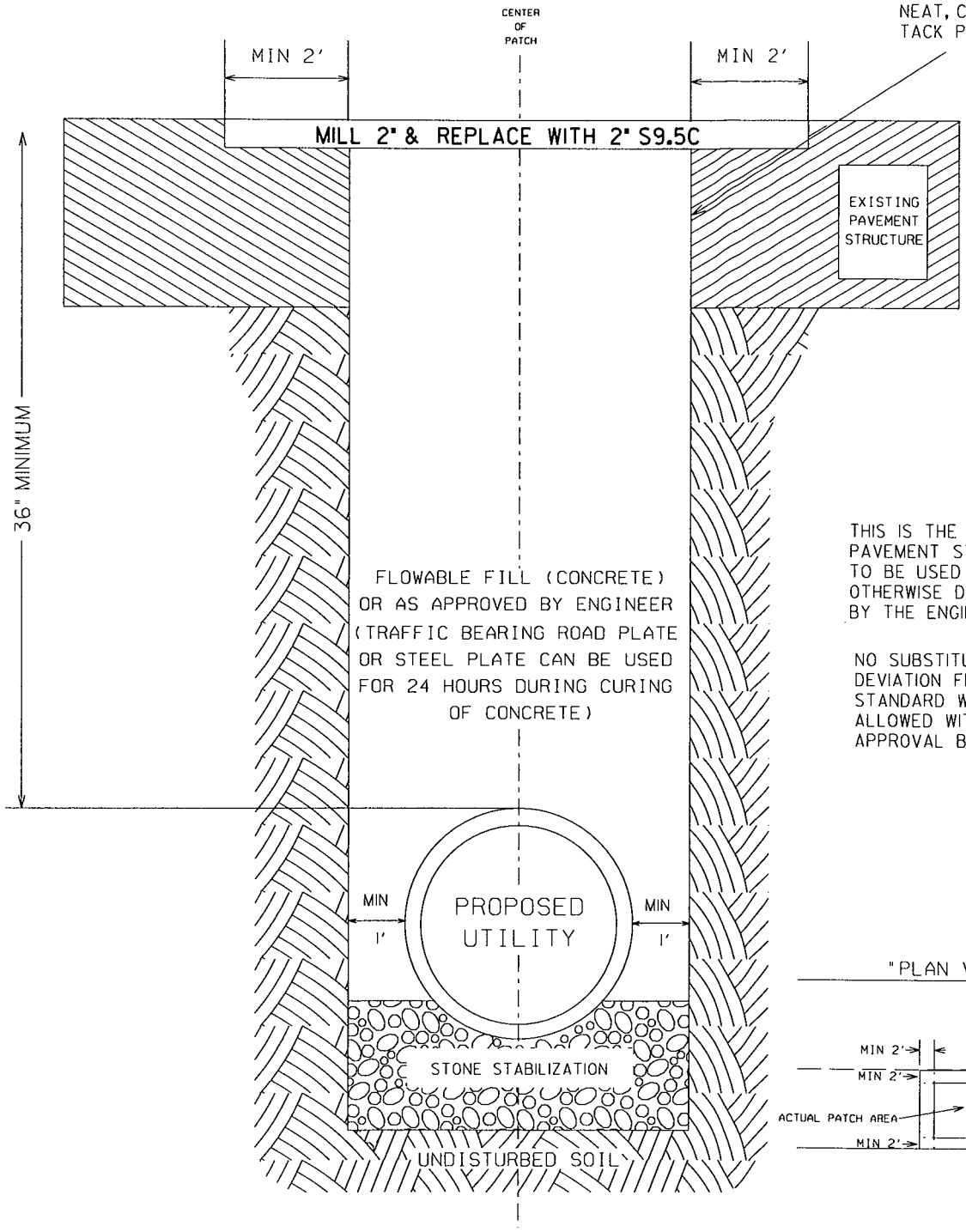
DISTRICT ENGINEER

EFFECTIVE 8-18-03
REVISED 02-23-18 BY GWG

MILL & PATCH METHOD

(OPTION D)

PAVEMENT TO BE SAW CUT PERPENDICULAR TO SURFACE. FACE TO BE NEAT, CLEAN & STRAIGHT. TACK PRIOR TO PATCH.

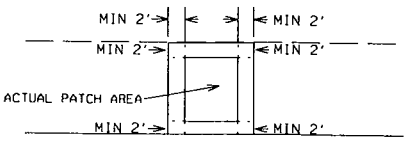


"PROFILE VIEW"

THIS IS THE MINIMUM PAVEMENT STRUCTURE TO BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER

NO SUBSTITUTION OR DEVIATION FROM THIS STANDARD WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY THE ENGINEER.

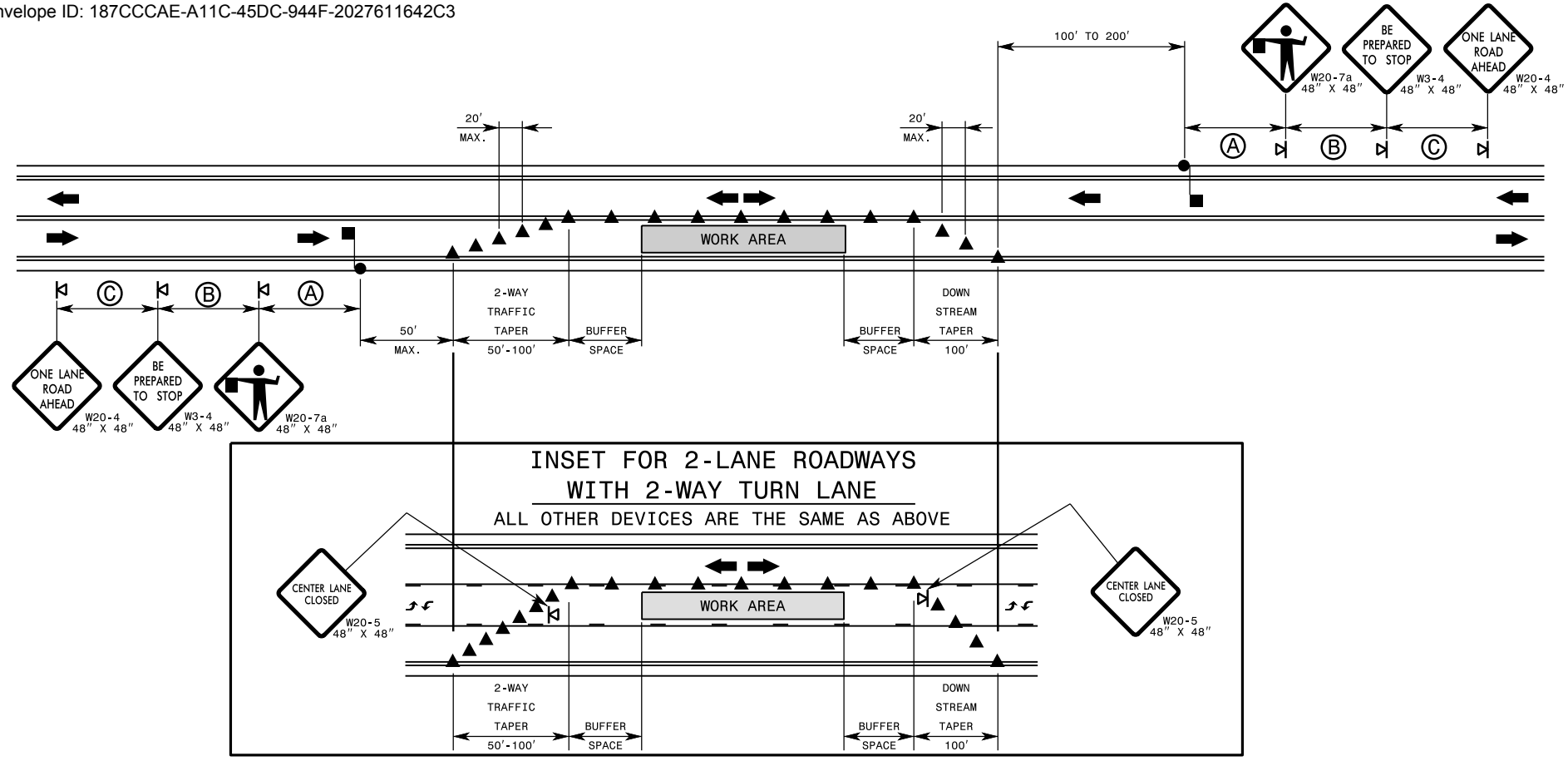
"PLAN VIEW"



NOTE: IF ENGINEER APPROVED. THEN THE BACKFILL (AGGREGATE BASE COURSE OR SUITABLE SUBGRADE) SHALL BE MADE IN 6" LAYERS AND SHALL BE COMPACTED TO AT LEAST 95% OF STANDARD DENSITY (AASHTO METHOD T-99). EACH LAYER MUST BE THOROUGHLY TAMPED BY A MECHANICAL TAMP BEFORE THE NEXT LAYER IS PLACED. ALL ASPHALT PAVEMENT REPLACED SHALL BE IN ACCORDANCE WITH THE MOST CURRENT N.C.D.O.T. STANDARD SPECIFICATIONS. BASE COURSE DENSITY SHALL BE 100%.

DISTRICT ENGINEER

EFFECTIVE 8-18-03
REVISED 02-23-18 BY GWG



GENERAL NOTES FOR FLAGGING OPERATIONS

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.

2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.

3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO RSD. 1101.11, SHEET 2).

6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.

7- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.

8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

9- REFER TO THE CURRENT MUTCD FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.

10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

11- IF VEHICLE QUEUES WILL REACH WITHIN 15′ OF EITHER SIDE OF ACTIVE RAILROAD TRACKS, PROVIDE A UNIFORMED LAW ENFORCEMENT OFFICER OR FLAGGER TO PREVENT VEHICLES FROM STOPPING WITHIN THE GRADE CROSSING. PROVIDE OFFICER OR FLAGGER EVEN IF AUTOMATIC WARNING MEASURES ALREADY EXIST.

GENERAL NOTES FOR PILOT CAR OPERATIONS

1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.

2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.

3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.

4- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.

5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND

- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

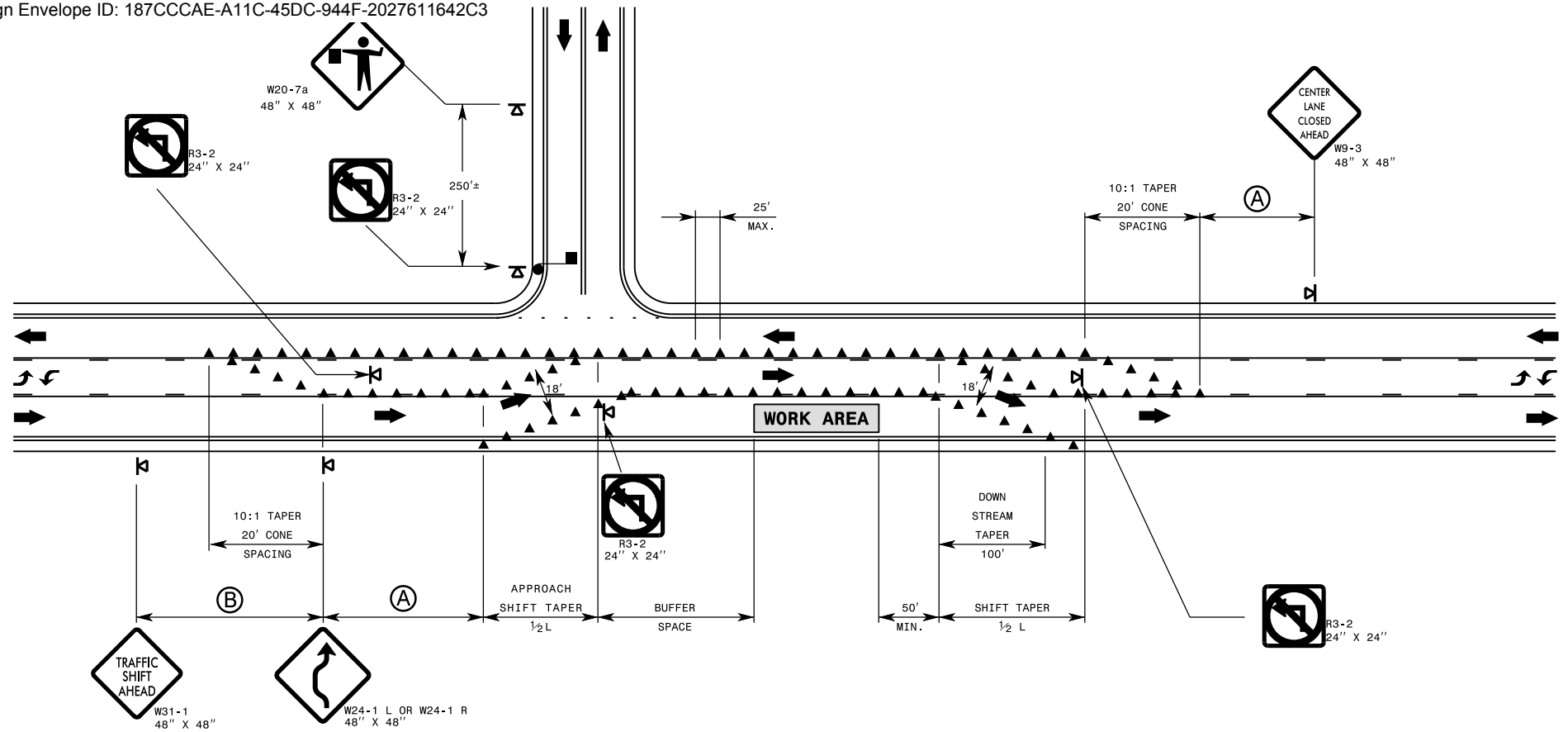
ROADWAY STANDARD DRAWING FOR

TEMPORARY LANE CLOSURES

2-LANE, 2-WAY ROADWAY-1 LANE CLOSED

SHEET 1 OF 14

1101.02



GENERAL NOTES

1- REFER TO RSD. 1101.11, SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.

2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

3- PLACE CONES ADJACENT TO THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT. PLACE CONES SEPARATING OPPOSING TRAFFIC AT THE MAXIMUM SPACING OF 25 FEET.

4- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE BEGINNING OF THE APPROACH SHIFT TAPER (REFER TO RSD. 1101.11, SHEET 2).

5- TMAs ARE REQUIRED WHEN ADEQUATE BUFFER SPACE CANNOT BE ATTAINED. POSITION TMAs TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.

6- DRUMS OR SKINNY DRUMS MAY BE USED IN LIEU OF CONES. REFER TO RSD. 1180.01 FOR SKINNY DRUM REQUIREMENTS.

7- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS, PLACE SIGNALS IN THE FLASH MODE AND USE LAW ENFORCEMENT.

LEGEND

- FLAGGER
- ▲ CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

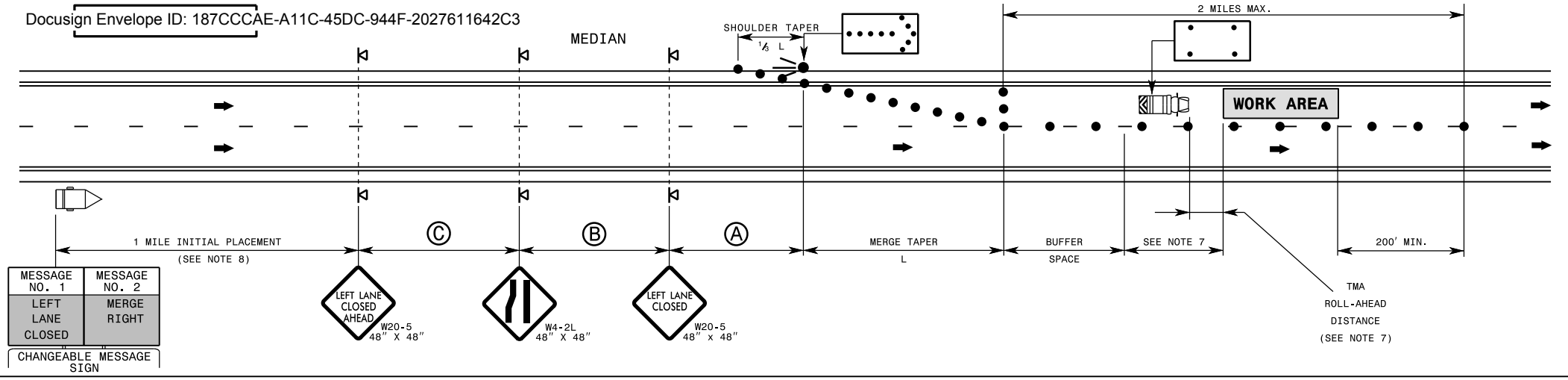
1-18

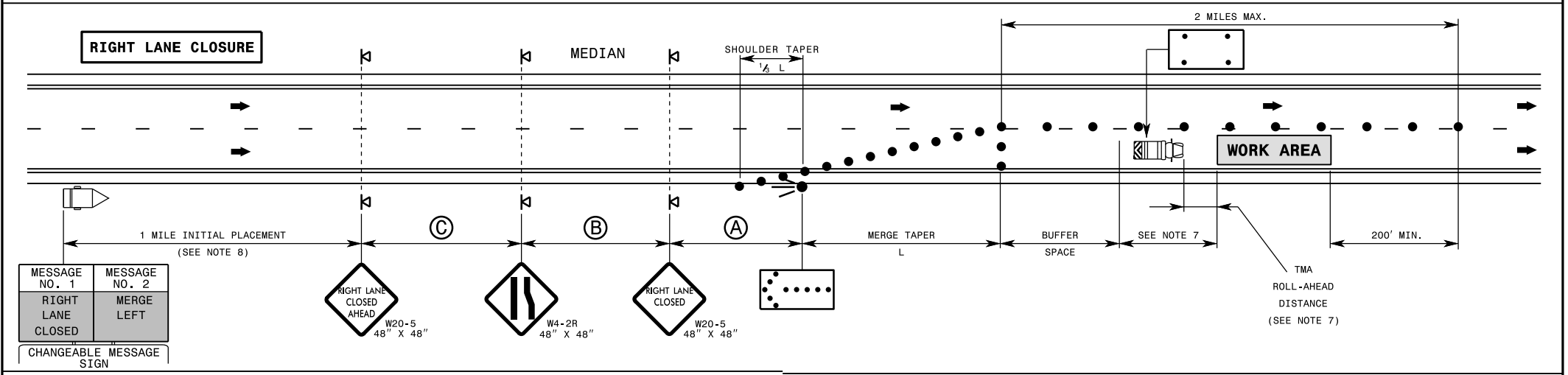
ROADWAY STANDARD DRAWING FOR

TEMPORARY LANE CLOSURES

2-LANE, 2-WAY ROADWAY WITH 2-WAY TURN LANE
1 THRU LANE CLOSED

1101.02





GENERAL NOTES

1- IF NECESSARY USE THIS RSD. FOR ONE-WAY CITY TYPE STREETS WHERE SIGNS MAY BE MOUNTED ON BOTH SIDES OF THE ROADWAY.

2- PLACE FLASHING ARROW BOARDS (FAB) ON THE SHOULDER (PAVED OR UNPAVED). PLACE FAB WITHIN THE TAPER IF SHOULDERS DO NOT EXIST. MEET THE REQUIREMENTS FOR STOPPING SIGHT DISTANCE AT THE FAB LOCATION. IF NEEDED, EXTEND LANE CLOSURES AT THE BUFFER SPACE, SUCH THAT STOPPING SIGHT DISTANCE TO THE FAB IS MET (SEE RSD. 1101.11, SHEET 2).

3- PLACE DRUMS IN TAPERS AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. PLACE DRUMS ALONG THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

4- REFER TO RSD. 1101.11, SHEETS 1, 2, & 4, FOR "L" DISTANCE, BUFFER SPACE, AND SIGN SPACING.

5- REFER TO RSD. 1101.02, SHEETS 9 & 10, FOR TREATMENT OF LANE CLOSURES THRU INTERCHANGES.

6- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

7- POSITION THE TMAs TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER AND CONTINUOUSLY ADVANCE TMAs AS WORK PROGRESSES.

8- PLACE CHANGEABLE MESSAGE SIGN (CMS) ON THE OUTSIDE OF THE TRAVELWAY, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. PLACE CMS APPROXIMATELY 1 MILE IN ADVANCE OF THE FIRST W20-5 SIGNS. IF TRAFFIC BACKS UP TO WHERE THE CMS IS INITIALLY PLACED, RELOCATE CMS 1/2 MILE IN ADVANCE OF ANTICIPATED BACKUP. MONITOR TRAFFIC, AND WHEN NECESSARY, MOVE CMS APPROXIMATELY 1/2 MILE IN ADVANCE OF ANTICIPATED BACKUP.

9- DO NOT EXCEED A 2 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

LEGEND

- FLASHING ARROW BOARD
- FLASHING ARROW BOARD (96"X48" MIN.), "CAUTION MODE"
- TRUCK MOUNTED ATTENUATOR(TMA)
- CHANGEABLE MESSAGE SIGN (CMS)
- DRUM
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

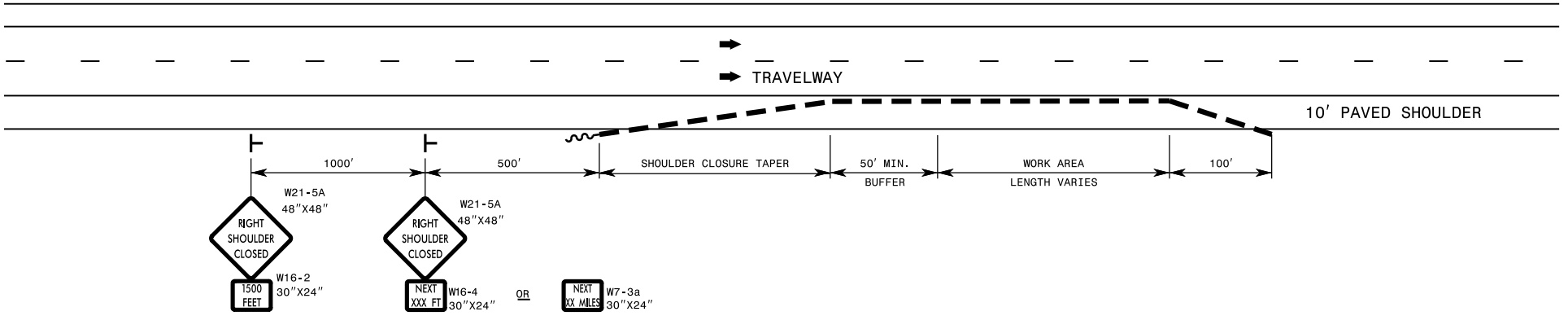
1-18

ROADWAY STANDARD DRAWING FOR

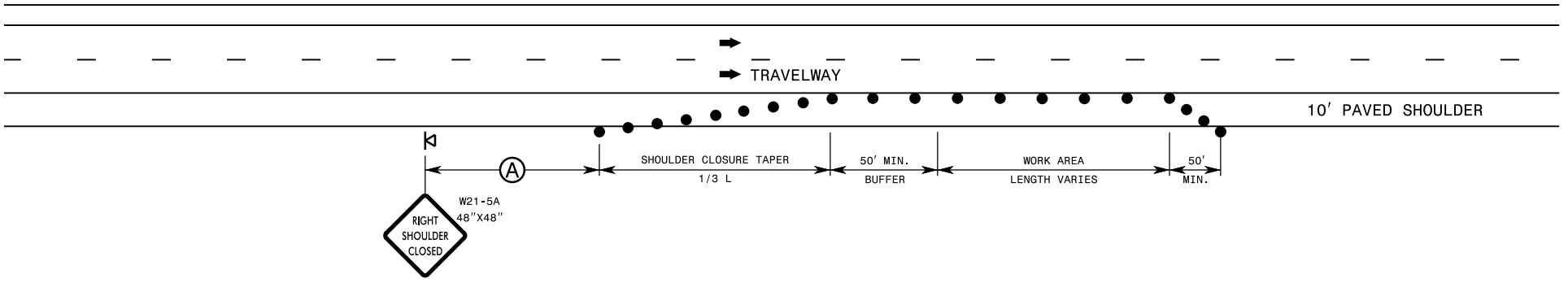
TEMPORARY LANE CLOSURES

DIVIDED MULTI-LANE ROADWAY-1 LANE CLOSED
(FOR ROADWAYS < 60 MPH)

SHOULDER CLOSURE ON CONTROLLED ACCESS FACILITIES



SHOULDER CLOSURE ON DIVIDED FACILITIES



GENERAL NOTES

1- PLACE SHOULDER CLOSURE SIGNS ON THE SAME SIDE AS THE SHOULDER THAT IS CLOSED.

2- PLACE DRUMS IN THE SHOULDER TAPER AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. THE MAXIMUM SPACING OF DRUMS ALONG THE WORK AREA IS EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.

3- USE STATIONARY SIGNS FOR OPERATIONS IN EFFECT LONGER THAN 3 DAYS.

4- REFER TO RSD. 1101.11, SHEETS 1, 3 & 4, FOR "L" DISTANCE, BARRIER FLARE RATES, AND SIGN SPACING.

LEGEND

- DRUM
- STATIONARY SIGN
- PORTABLE SIGN
- PORTABLE CONCRETE BARRIER
- DIRECTION OF TRAFFIC FLOW
- TEMPORARY CRASH CUSHION

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

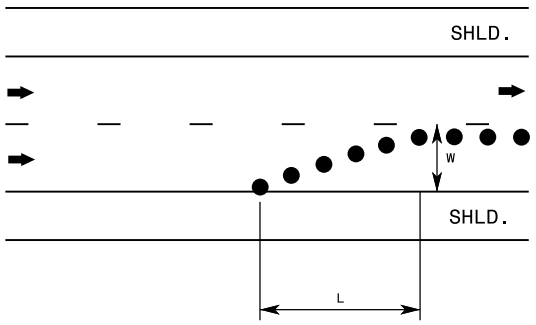
ROADWAY STANDARD DRAWING FOR

TEMPORARY SHOULDER CLOSURES

SHEET 1 OF 1

1101.04

EXAMPLE OF "L" & "W" DESIGNATIONS



TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES

TYPES OF TAPERS	TAPER LENGTH
UPSTREAM TAPER	
MERGING TAPER	L MINIMUM
SHIFTING TAPER	½ L MINIMUM
SHOULDER TAPER	⅓ L MINIMUM
TWO-WAY TRAFFIC TAPER	50 - 100 FEET MAXIMUM
DOWNSTREAM TAPER	100 FEET MAXIMUM

DO NOT INTRODUCE A MERGING OR SHIFTING TAPER WITHIN A CURVE OF THE ROADWAY

QUICK REFERENCE - "L" DISTANCE TABLE

MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES)

POSTED SPEED "S" (MPH)	LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

GENERAL NOTES

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE MUTCD. WHERE:

SPEED LIMIT	FORMULA
40 MPH OR LESS	$L_{MIN} = \frac{W \times S^2}{60}$
45 MPH OR GREATER	$L_{MIN} = W \times S$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)
S = POSTED SPEED LIMIT, OR OFF-PEAK 85 PERCENTILE SPEED IN MPH PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

STATE OF NORTH CAROLINA
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RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR

TRAFFIC CONTROL DESIGN TABLES

"L" DISTANCE AND CHANNELIZING DEVICE TAPER CRITERIA

SHEET 1 OF 4

1101.11

DESIGN SPEED (MPH)	MINIMUM SIGHT DISTANCE		MINIMUM LONGITUDINAL BUFFER SPACE (FEET)
	STOPPING SIGHT DISTANCE (FEET)	PASSING SIGHT DISTANCE (FEET)	
30	200	1090	85
35	250	1280	120
40	305	1470	155
45	360	1625	195
50	425	1835	240
55	495	1985	290
60	570	2135	345
65	645	2285	405
70	730	2480	470
75	820	2580	540
80	910	2680	615

GENERAL NOTES

1- TABLES ARE BASED ON THE AASHTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE AASHTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.

2- BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.

3- USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER. FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE MERGE TAPER, OR FLASHING ARROW BOARD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.

4- USE OF MINIMUM PASSING SIGHT DISTANCE TABLE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE REQUIREMENTS FOR PLACEMENT OF PAVEMENT MARKING PASSING/NO-PASSING ZONES FOR 2-LANE, 2-WAY ROADWAYS.

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STATE OF NORTH CAROLINA
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RALEIGH, N.C.

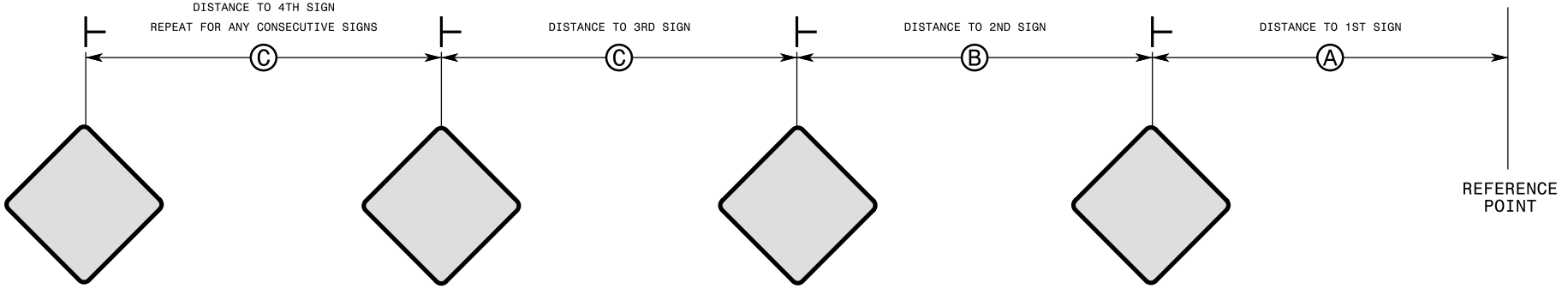
ROADWAY STANDARD DRAWING FOR

TRAFFIC CONTROL DESIGN TABLES

BUFFER SPACE & SIGHT DISTANCE

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET)±		
	Ⓐ	Ⓑ	Ⓒ
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

STATIONARY OR PORTABLE SIGNS



GENERAL NOTES

1- REFER TO 2009 MUTCD OR THE LATEST EDITION.

2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.

3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

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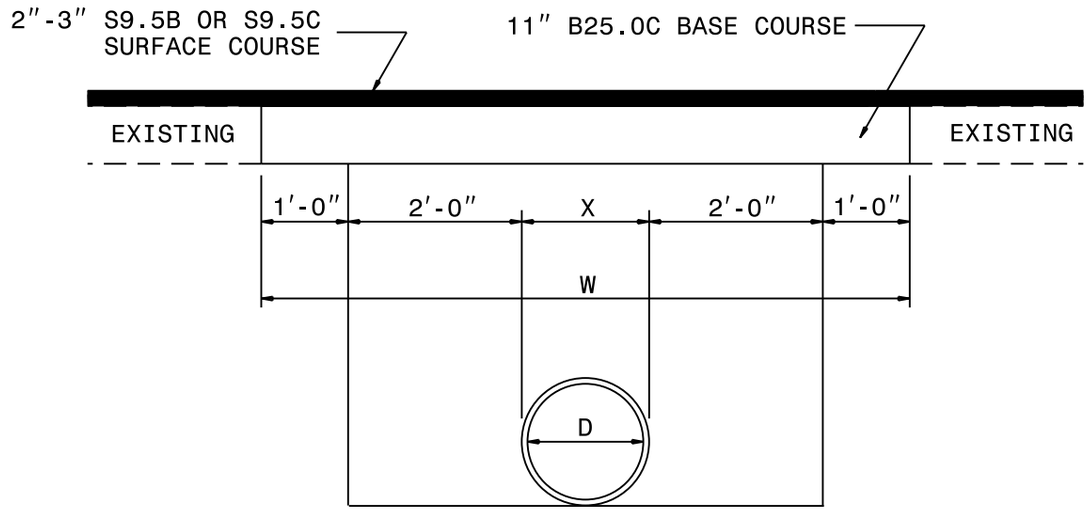
ROADWAY STANDARD DRAWING FOR

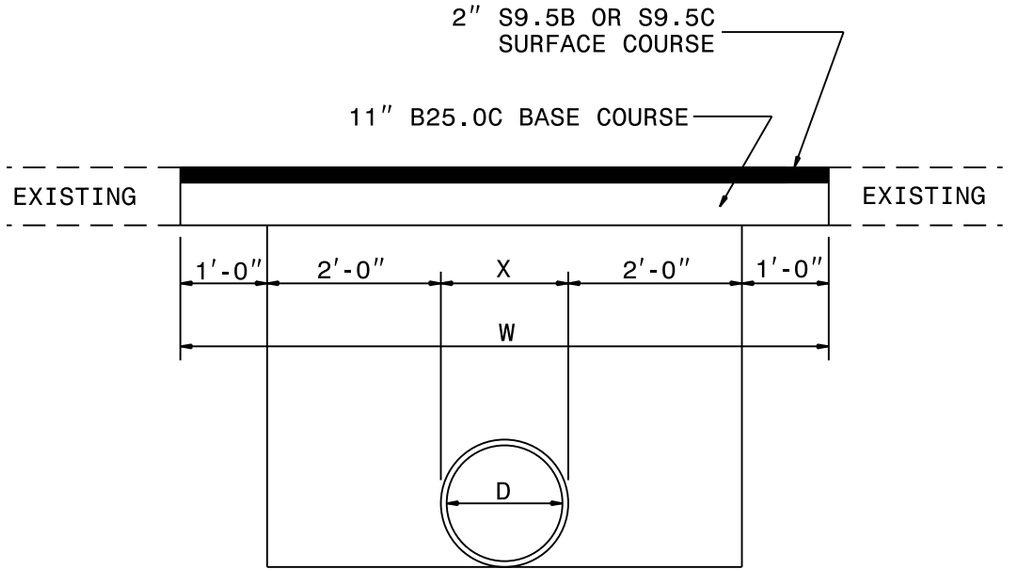
TRAFFIC CONTROL DESIGN TABLES

SPACING OF TEMPORARY SIGNS IN SERIES



PAVEMENT REPAIRS ON ROADS TO BE RESURFACED
(PIPE IS PLACED UNDER EXISTING PAVEMENT)

D	X	W
12″	1′-4″	7′-4″
15″	1′-7″	7′-7″
18″	1′-10″	7′-10″
24″	2′-6″	8′-6″
30″	3′-1″	9′-1″
36″	3′-8″	9′-8″
42″	4′-5″	10′-5″
48″	5′-0″	11′-0″



PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED
(PIPE IS TO BE PLACED UNDER EXISTING PAVEMENT)

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ROADWAY STANDARD DRAWING FOR

PAVEMENT REPAIRS

FOR SUPERPAVE MIX TYPES

SHEET 1 OF 1

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