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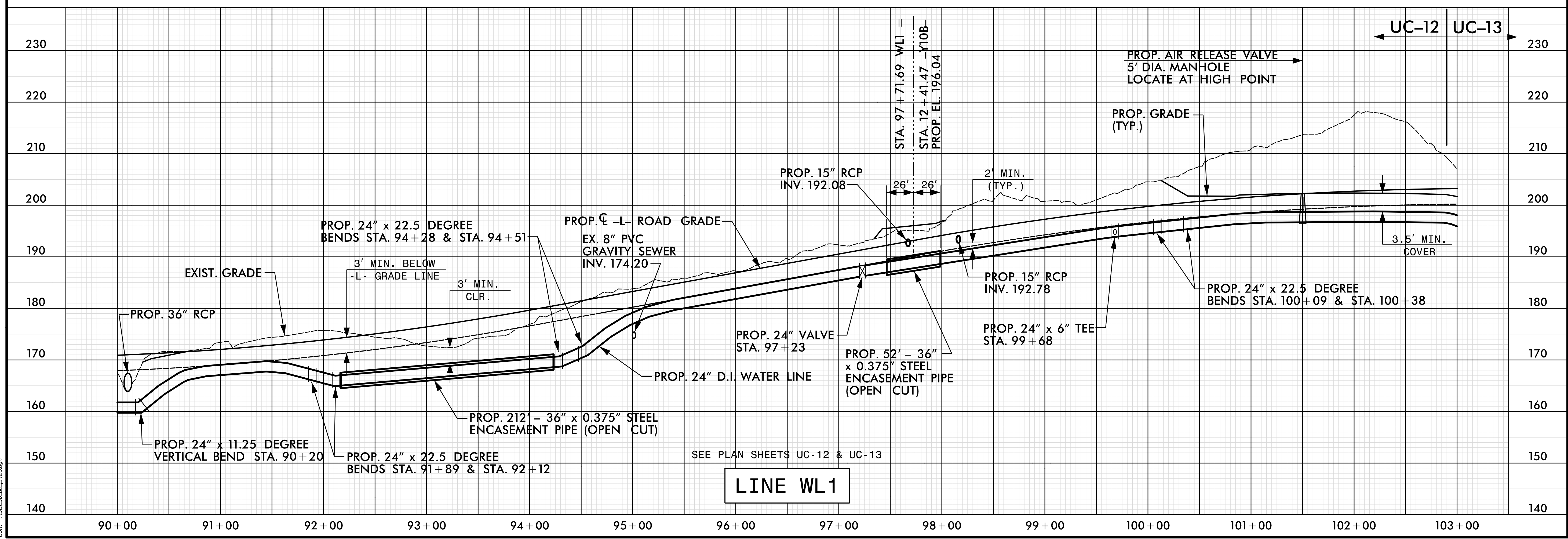
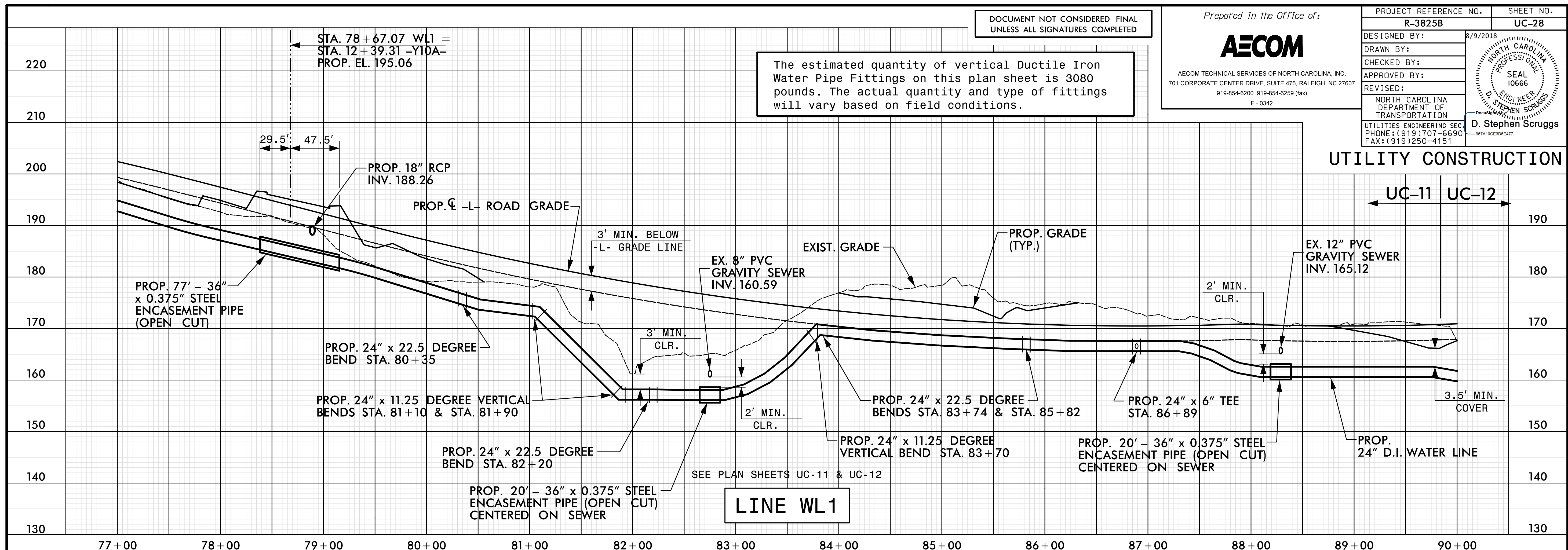


AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F - 0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-28</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
D. Stephen Scruggs	

The estimated quantity of vertical Ductile Iron Water Pipe Fittings on this plan sheet is 3080 pounds. The actual quantity and type of fittings will vary based on field conditions.

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 3:53:02 PM  
DWG: R3825B\_UC-28.dwg

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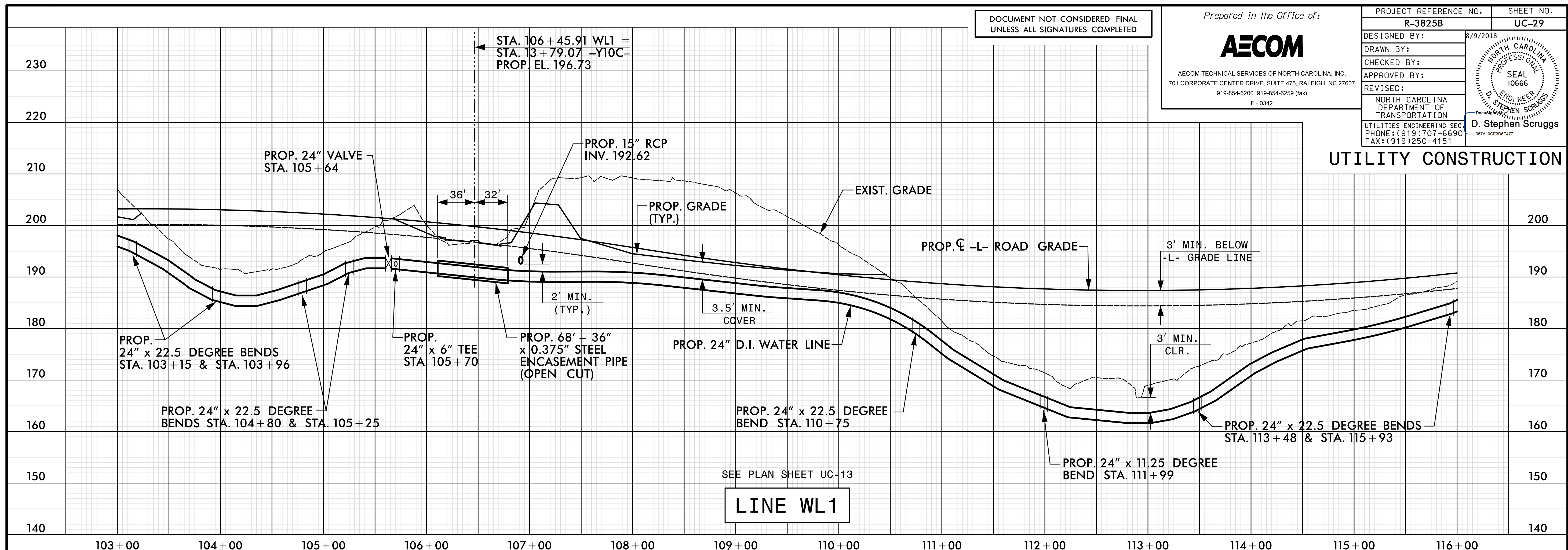
Prepared in the Office of:



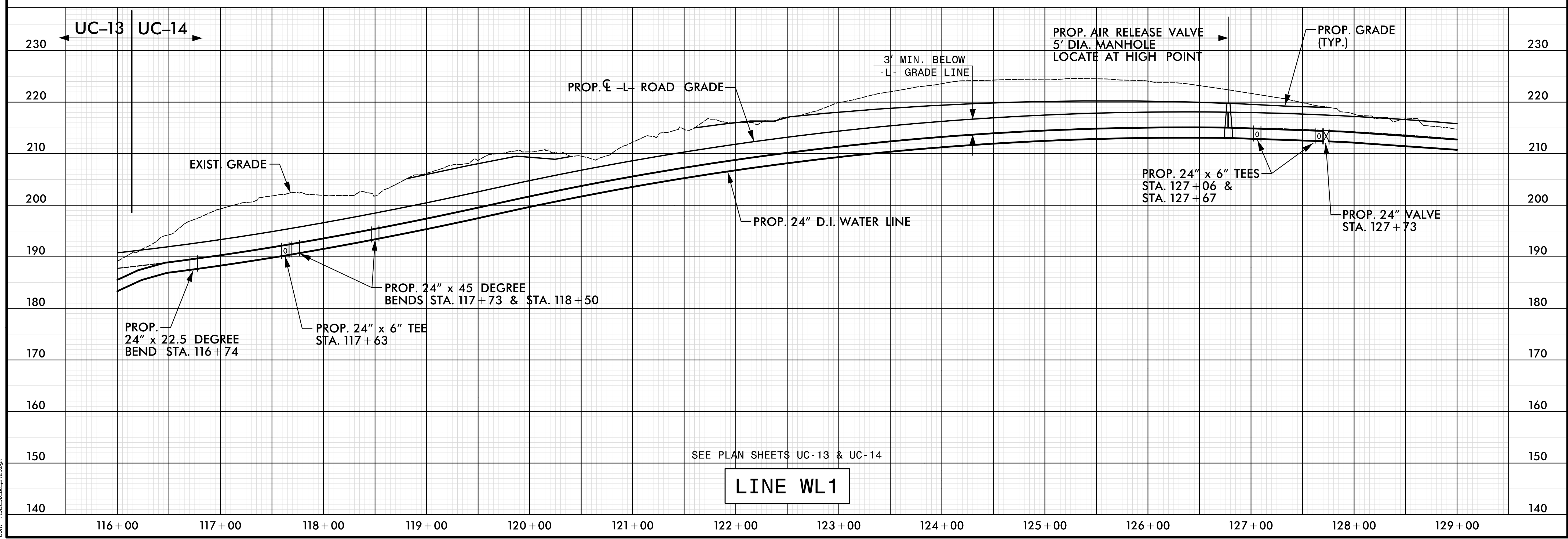
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F - 0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-29</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

### UTILITY CONSTRUCTION



**LINE WL1**



**LINE WL1**

DATE: 8/9/2018  
TIME: 3:53:22 PM  
DWG: R3825B\_UC-29.dgn

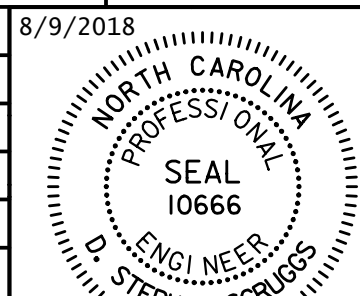
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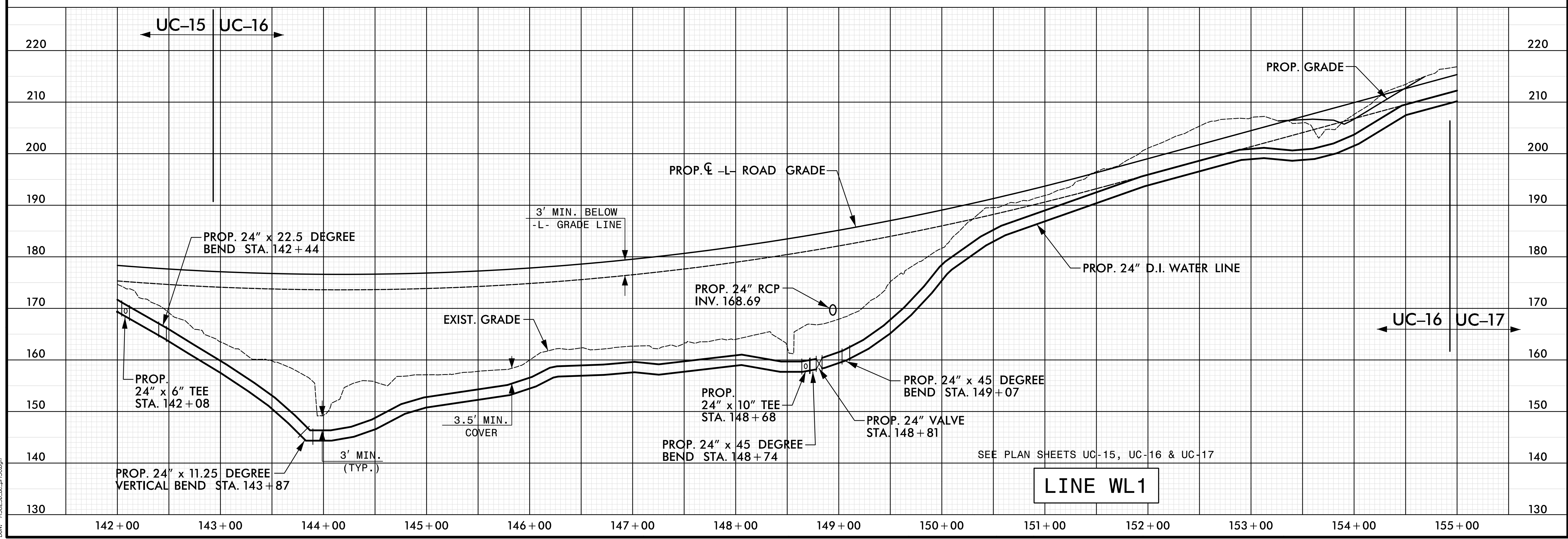
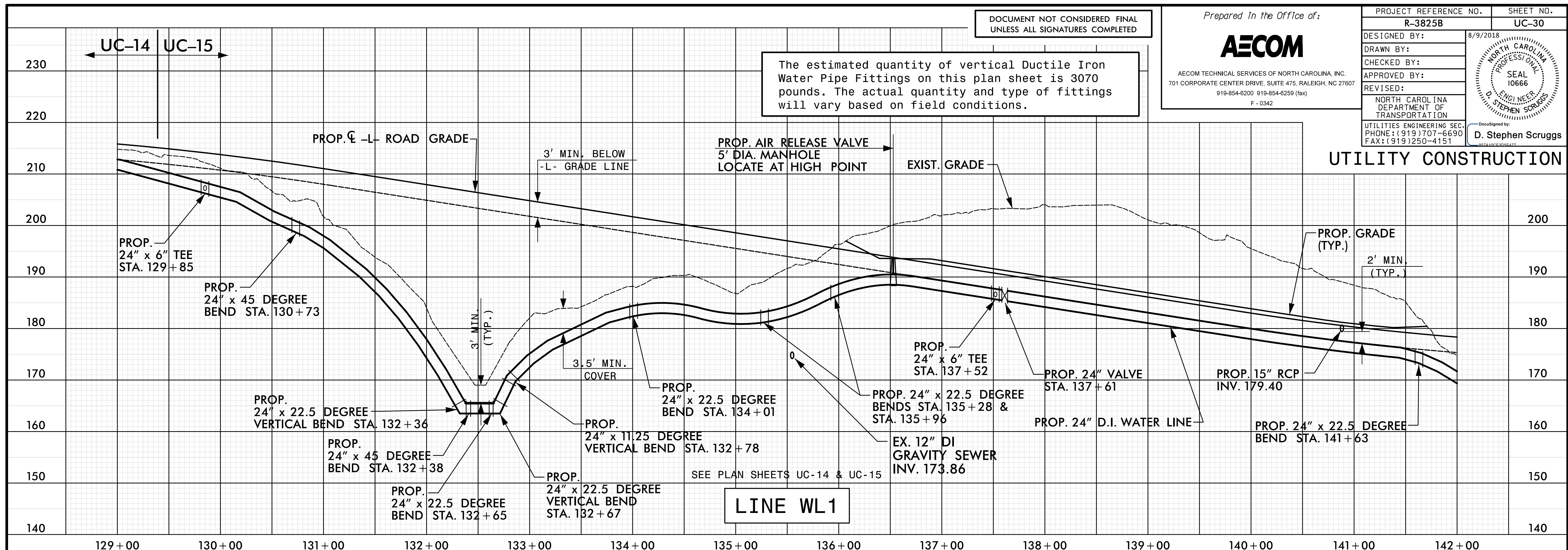
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701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-30</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
DocuSigned by: <b>D. Stephen Scruggs</b> 05/21/2018 10:47:47	



The estimated quantity of vertical Ductile Iron Water Pipe Fittings on this plan sheet is 3070 pounds. The actual quantity and type of fittings will vary based on field conditions.

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 5:46:39 PM  
DWG: R3825B\_UC-30.dwg

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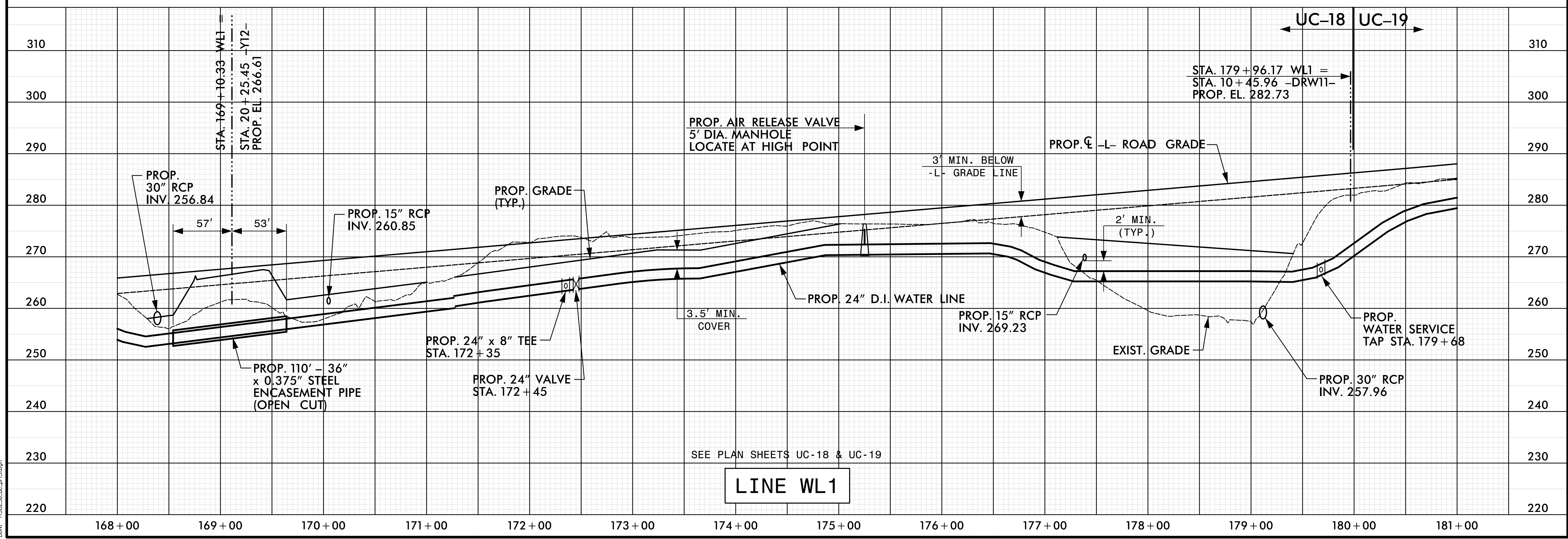
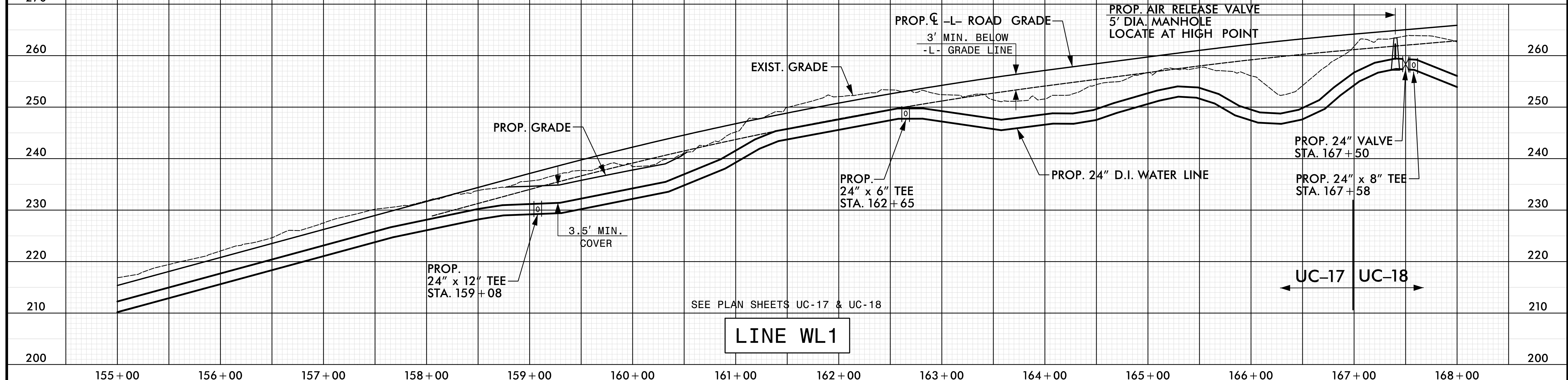
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PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-31</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
DocuSigned by: <b>D. Stephen Scruggs</b> SEAL 10666 NORTH CAROLINA PROFESSIONAL ENGINEER STEPHEN SCRUGGS	

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 5:43:00 PM  
DWG: R3825B-UC-31.dgn

DOCUMENT NOT CONSIDERED FINAL  
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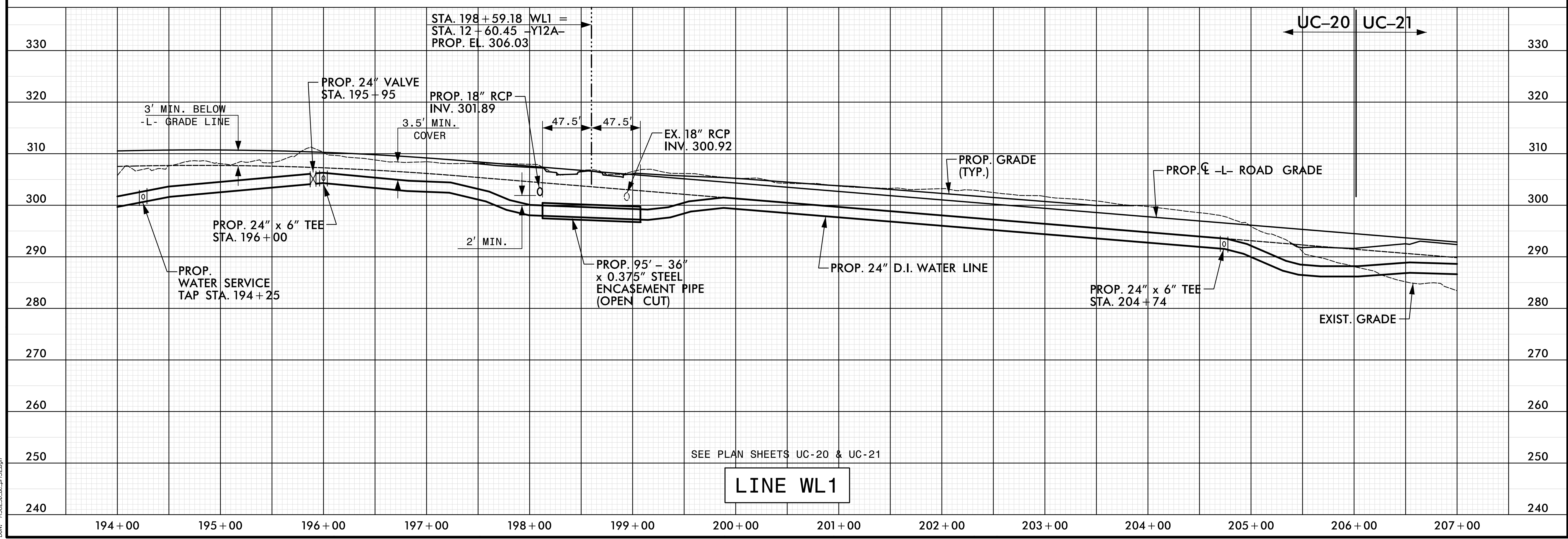
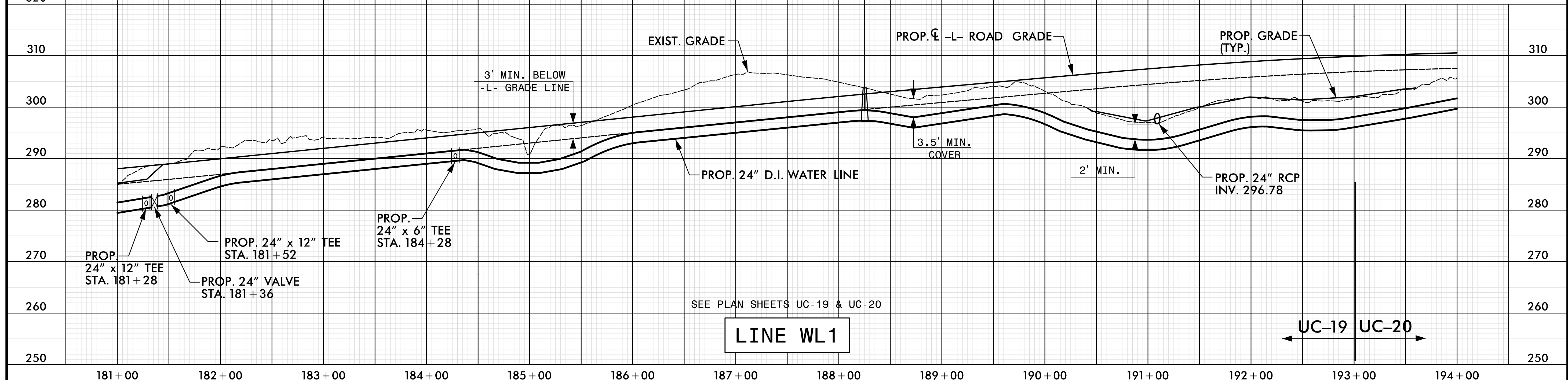
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PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-32</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 3:54:24 PM  
DWG: R3825B\_UC.J132.dgn

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UNLESS ALL SIGNATURES COMPLETED

Prepared In the Office of:

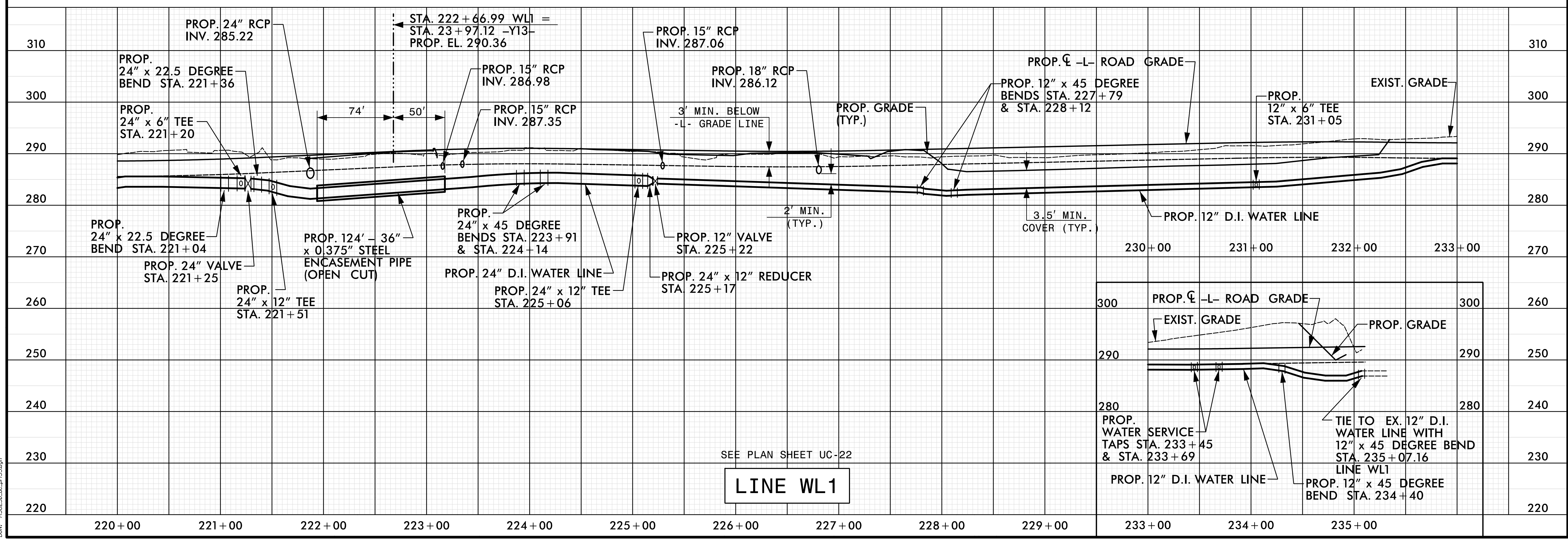
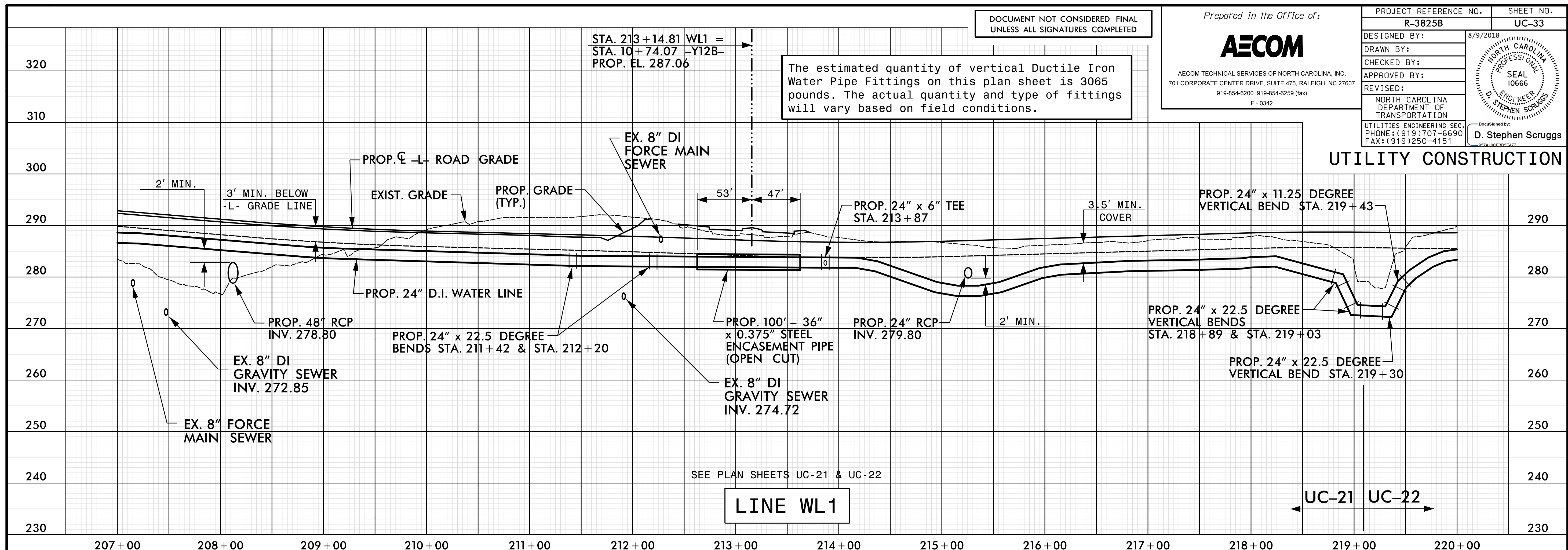


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PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-33</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
DocuSigned by: <b>D. Stephen Scruggs</b> SEAL 10666	

The estimated quantity of vertical Ductile Iron Water Pipe Fittings on this plan sheet is 3065 pounds. The actual quantity and type of fittings will vary based on field conditions.

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 5:43:20 PM  
DWG: R3825B\_UC-33.dgn

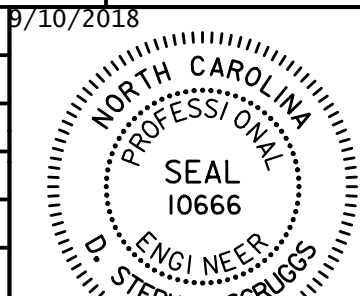
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:



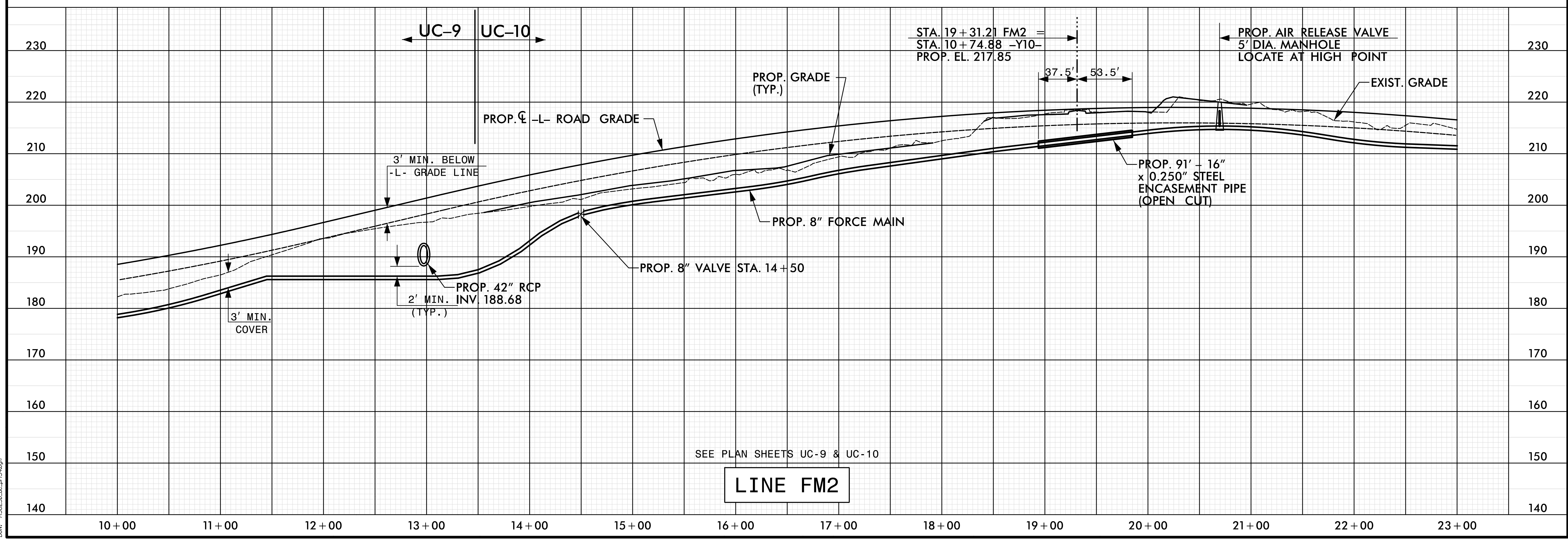
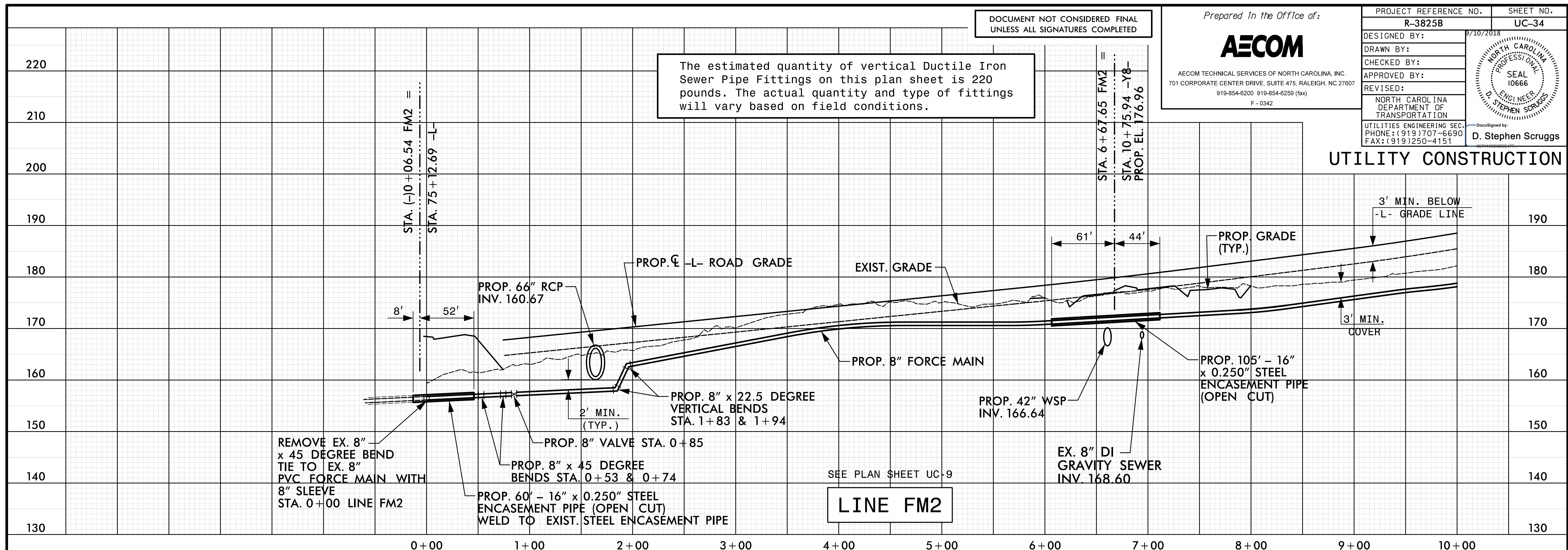
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-34</b>
DESIGNED BY:	9/10/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
DocuSigned by: <b>D. Stephen Scruggs</b>	



### UTILITY CONSTRUCTION

The estimated quantity of vertical Ductile Iron Sewer Pipe Fittings on this plan sheet is 220 pounds. The actual quantity and type of fittings will vary based on field conditions.



DATE: 9/7/2018  
TIME: 3:54:43 PM  
DWG: R3825B-UC-34.dgn



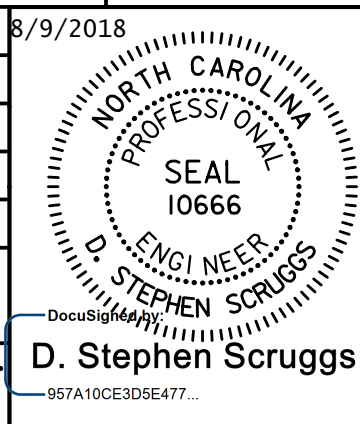
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:



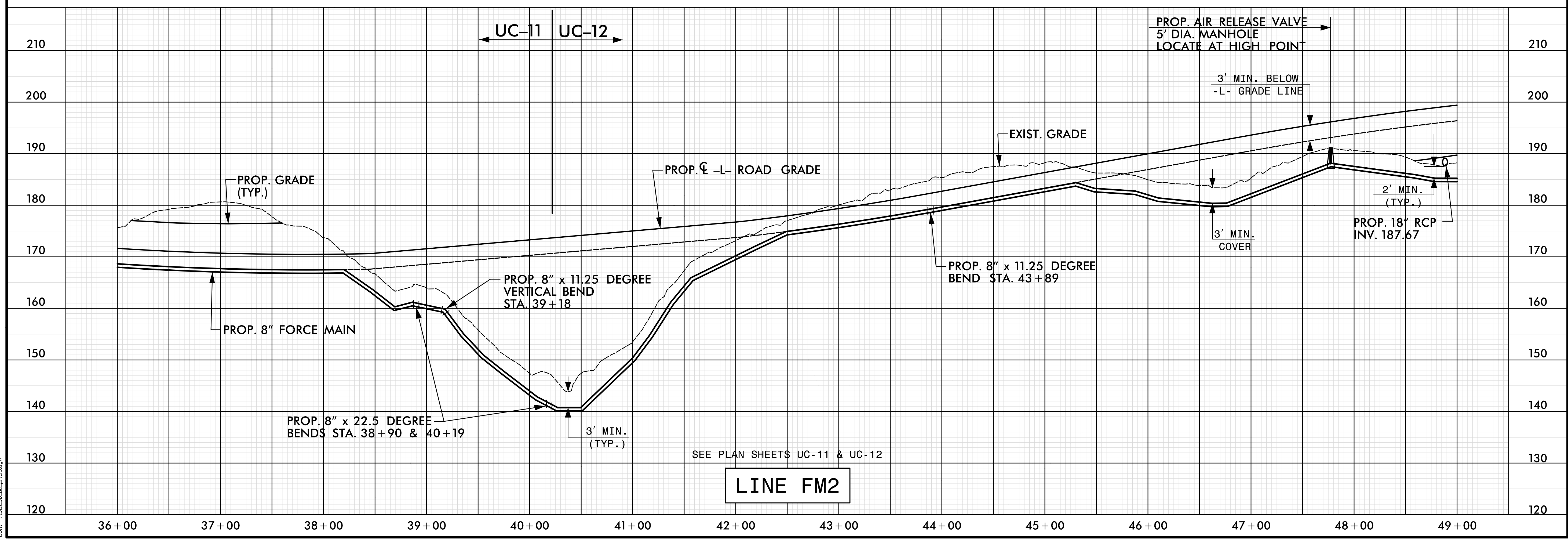
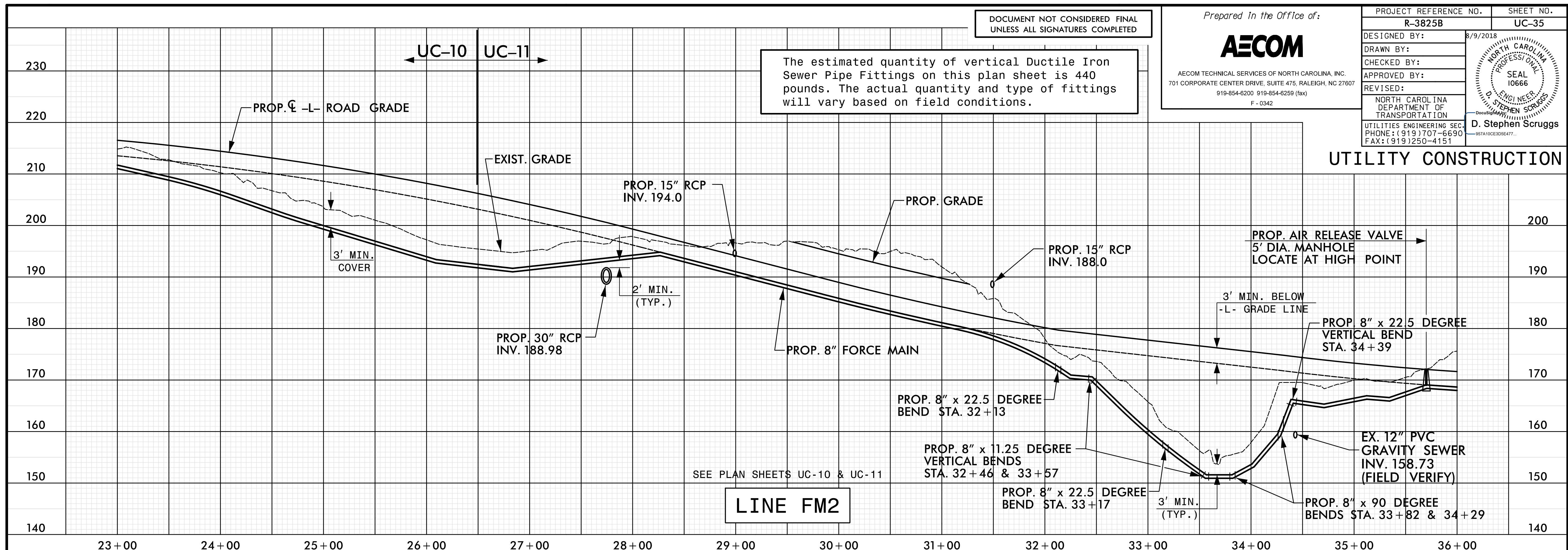
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-35
DESIGNED BY:	8/9/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	



The estimated quantity of vertical Ductile Iron Sewer Pipe Fittings on this plan sheet is 440 pounds. The actual quantity and type of fittings will vary based on field conditions.

### UTILITY CONSTRUCTION



DATE: 8/9/2018  
TIME: 3:55:26 PM  
DWG: R3825B\_UC-35.dgn

DOCUMENT NOT CONSIDERED FINAL  
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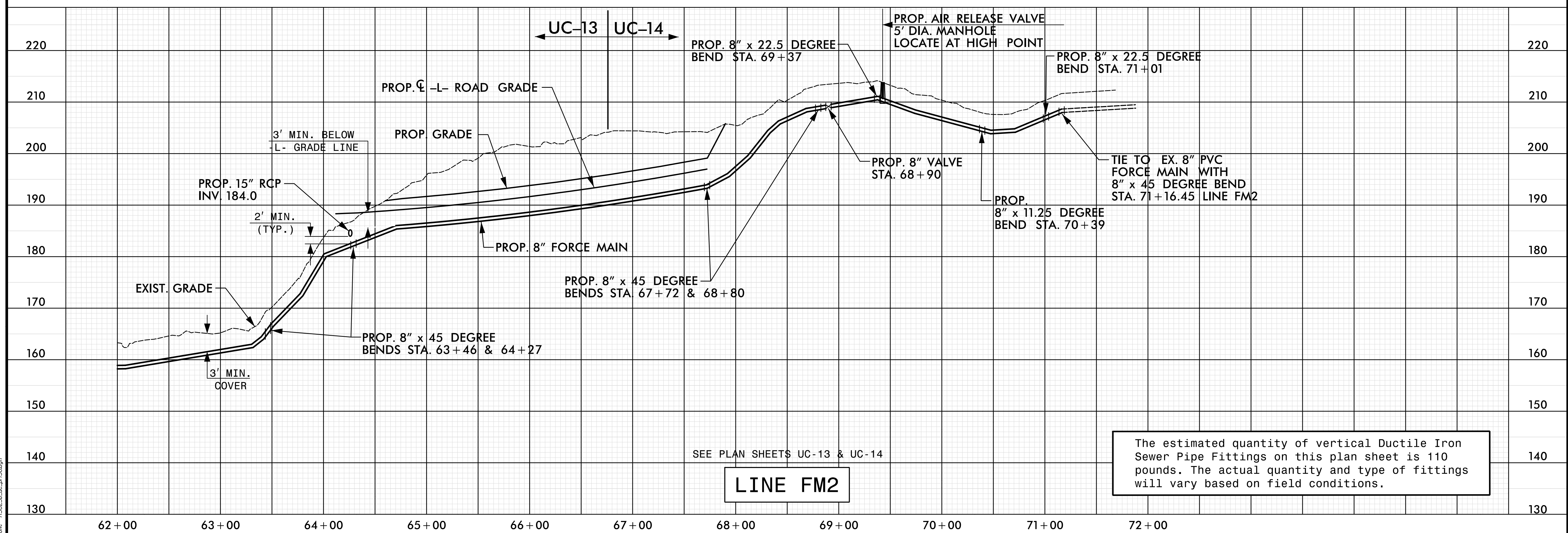
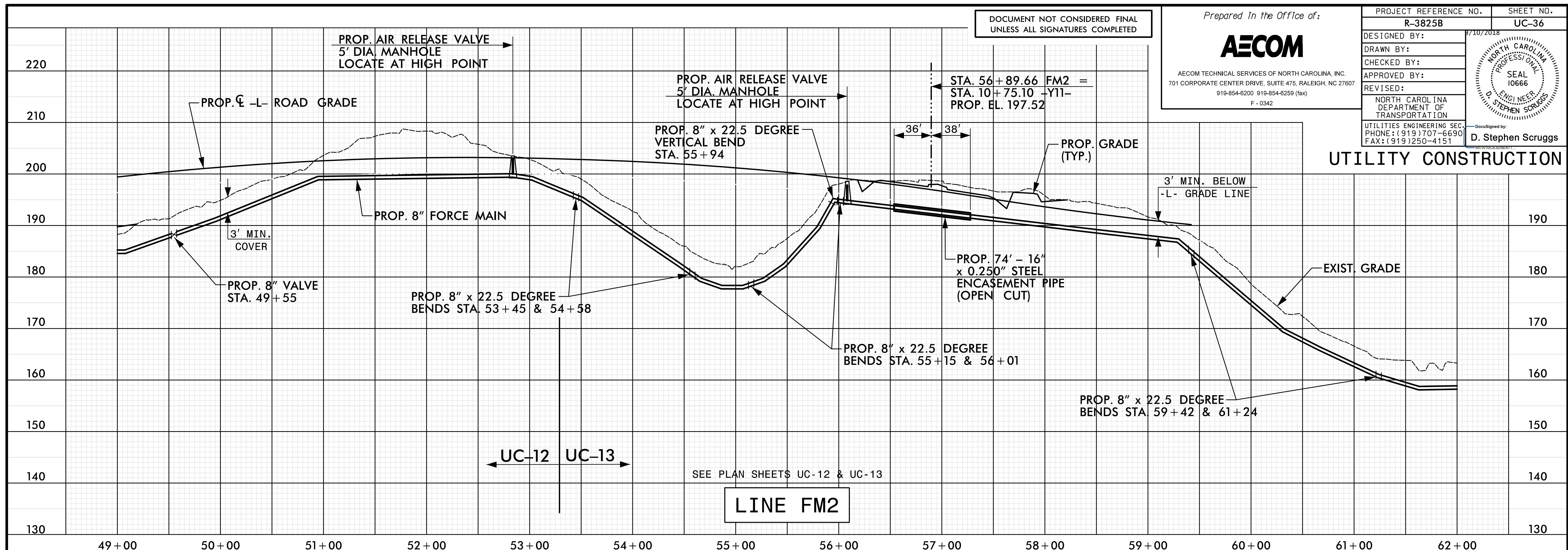
Prepared in the Office of:



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701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-36</b>
DESIGNED BY:	9/7/2018
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10666 D. Stephen Scruggs	

### UTILITY CONSTRUCTION



The estimated quantity of vertical Ductile Iron Sewer Pipe Fittings on this plan sheet is 110 pounds. The actual quantity and type of fittings will vary based on field conditions.

DATE: 9/7/2018  
TIME: 3:56:06 PM  
DWG: R3825B\_UC-36.dgn

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

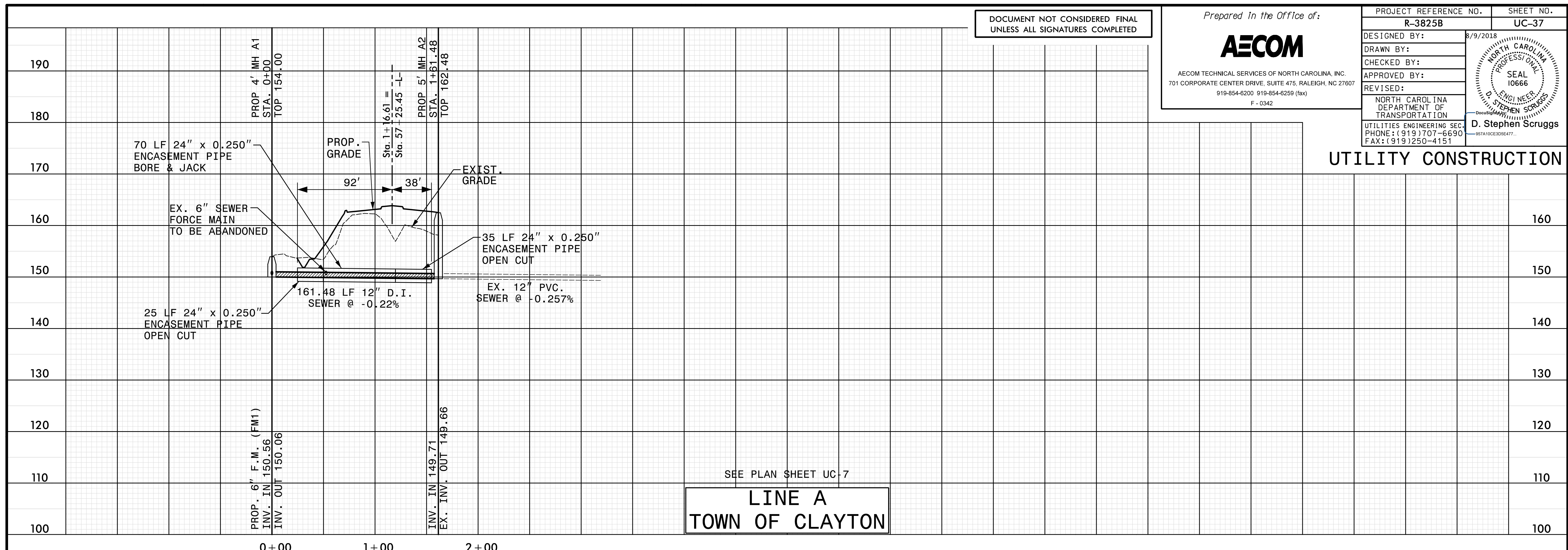
Prepared in the Office of:



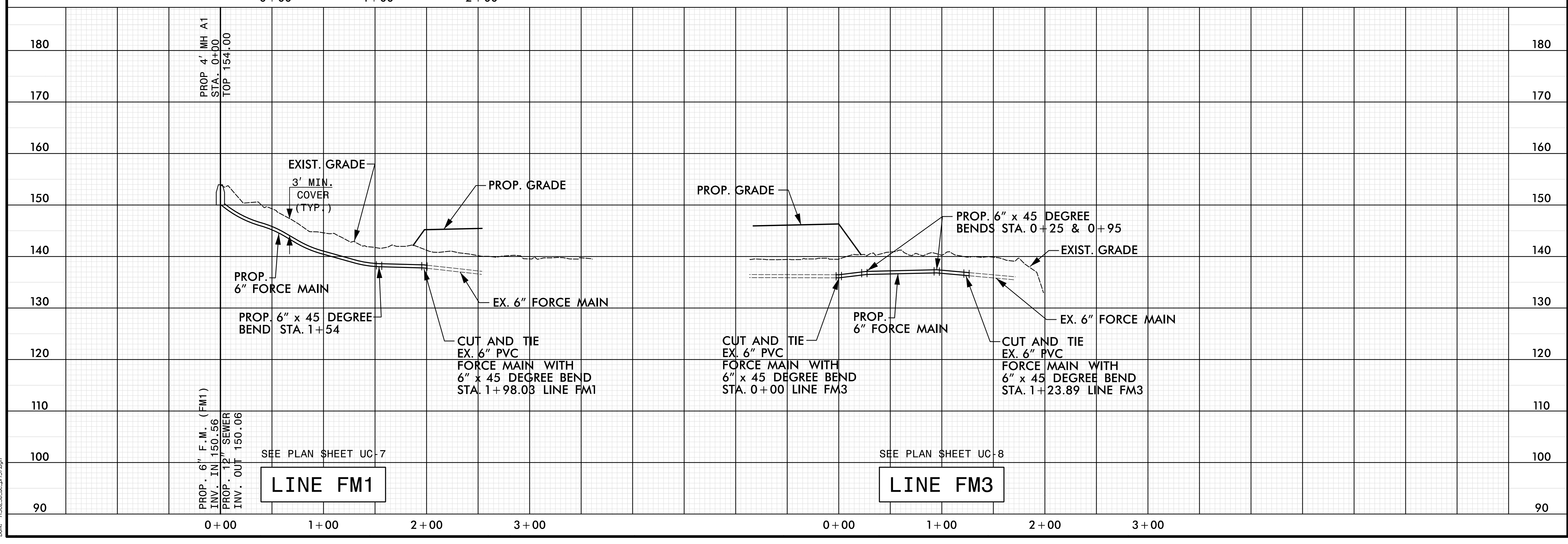
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.  
701 CORPORATE CENTER DRIVE, SUITE 475, RALEIGH, NC 27607  
919-854-6200 919-854-6259 (fax)  
F-0342

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-37</b>
DESIGNED BY:	8/9/2018
DRAWN BY:	
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APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

### UTILITY CONSTRUCTION



SEE PLAN SHEET UC-7  
**LINE A  
TOWN OF CLAYTON**



SEE PLAN SHEET UC-7  
**LINE FM1**

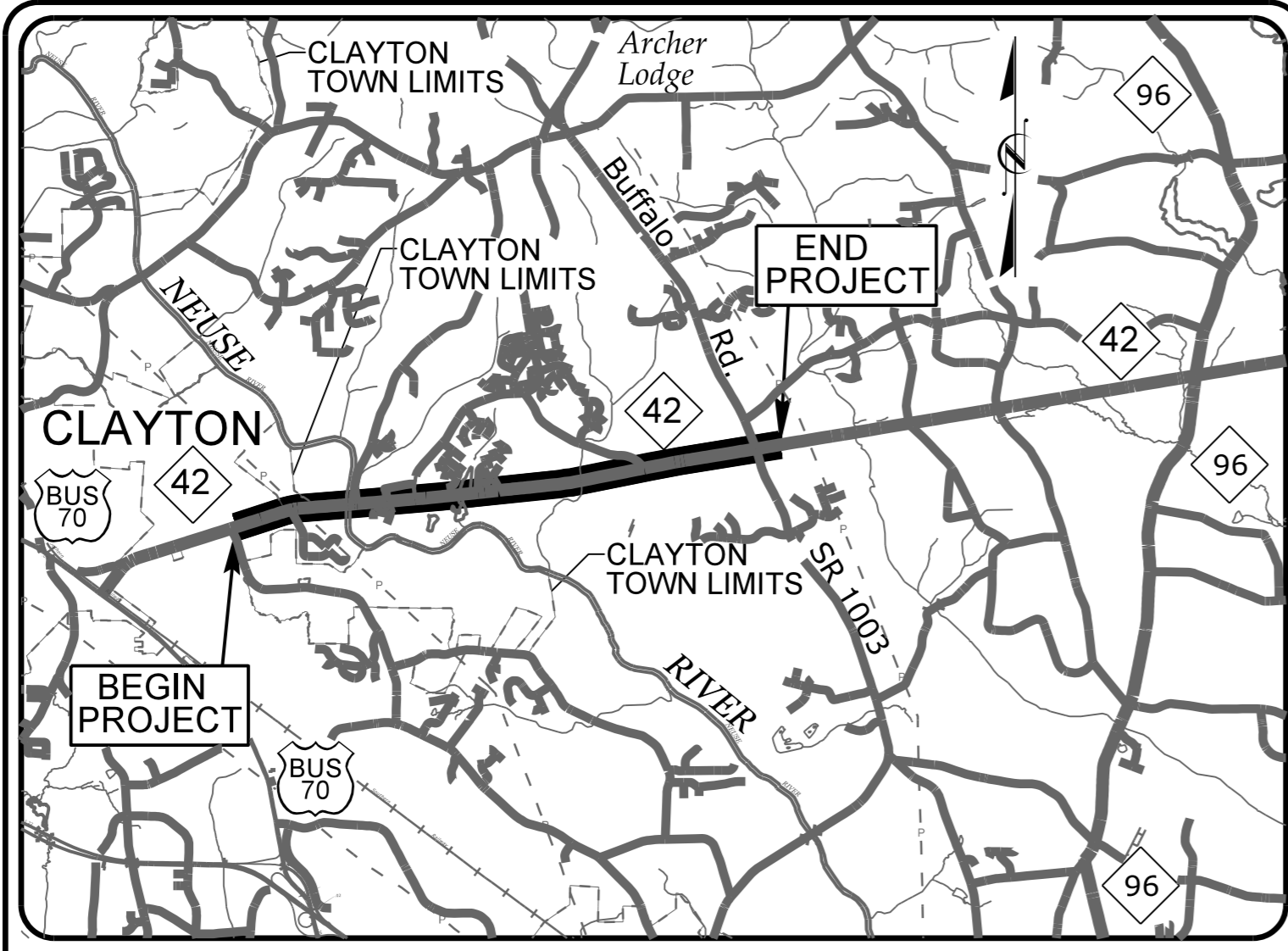
SEE PLAN SHEET UC-8  
**LINE FM3**

DATE: 8/9/2018  
TIME: 3:56:01 PM  
DWG: R3825B\_UC-37.dwg

09/08/18

TIP PROJECT: R-3825B

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols



VICINITY MAP  
NOT TO SCALE

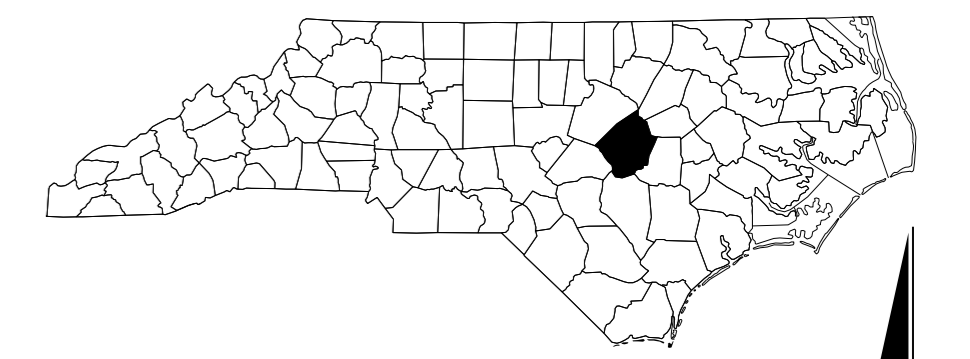
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS  
JOHNSTON COUNTY

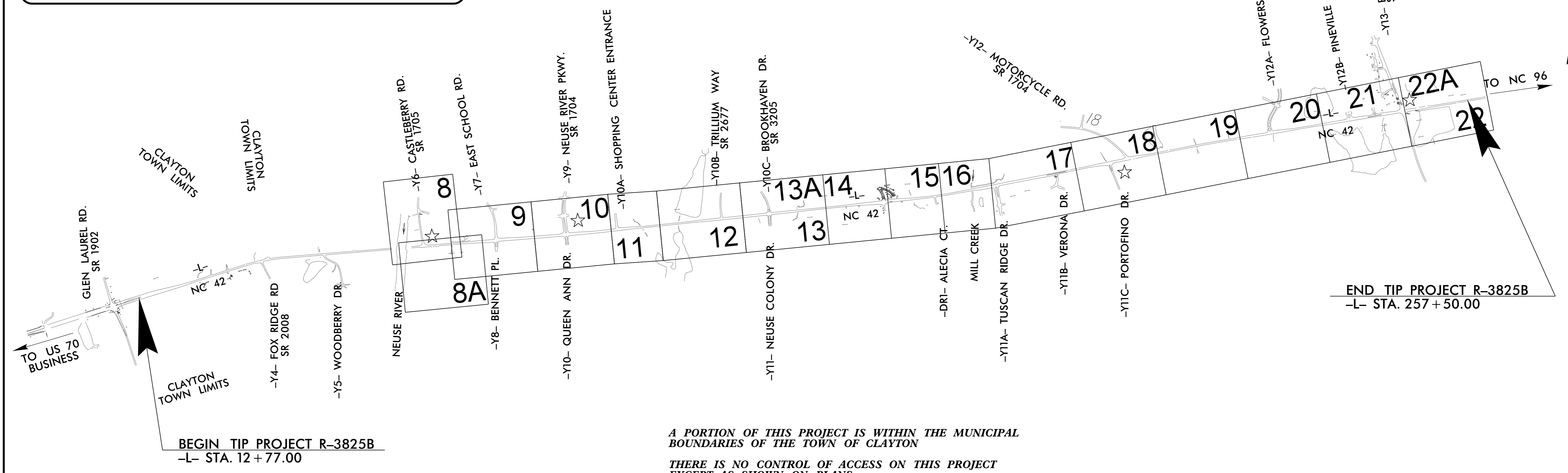
LOCATION: NC 42 FROM SR 1902 (GLENN LAUREL RD)  
TO SR 1003 (BUFFALO RD)

TYPE OF WORK: WATER AND SEWER LINE RELOCATION

T.I.P. NO.	SHEET NO.
R-3825B	UC-1Q



NAD 83/2011

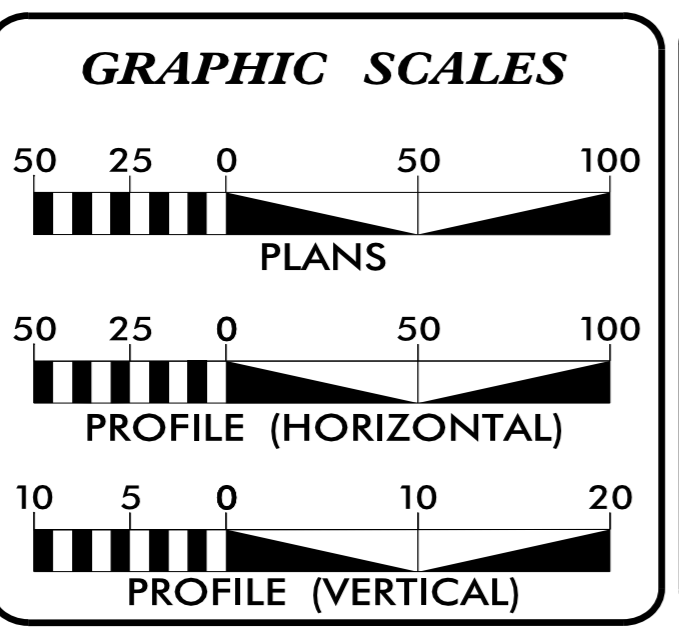


A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF CLAYTON

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT EXCEPT AS SHOWN ON PLANS

A DESIGN EXCEPTION IS REQUIRED FOR MAXIMUM GRADE.

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



SHEET NO.:	DESCRIPTION:
UC-1Q	TITLE SHEET
UC-2Q	UTILITY SYMBOLOGY
UC-3Q	NOTES
UC-3A THRU UC-3DQ	DETAILS
UC-8Q THRU UC-22Q	UTILITY CONSTRUCTION SHEETS AND PROFILES

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER AQUA NC  
(B) SANITARY SEWER AQUA NC

PREPARED IN THE OFFICE OF

**CONSULTANT INFO**

**Dewberry** 2610 WYCLIFF ROAD, SUITE 410  
RALEIGH, NC 27607  
919.881.9939  
NCBELS: NO. F-0929

LARRY MITCHELL, P.E. CONSULTANT CONTACT #1  
TIMOTHY RITTACO, P.E. CONSULTANT CONTACT #2  
DUSTIN JAMES CONSULTANT CONTACT #3

SEAL

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

NABIL HAMDAN UTILITIES REGIONAL ENGINEER  
ASHLEY B. COX, JR, LG UTILITIES ENGINEER  
KYLE PLEASANT UTILITIES AREA COORDINATOR  
DAYTON MARTIN UTILITIES COORDINATOR

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale \*S.U.E. = Subsurface Utility Engineering

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	---WLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☠☠
Potential Contamination Area: Soil	☠☠
Known Contamination Area: Water	☠☠
Potential Contamination Area: Water	☠☠
Contaminated Site: Known or Potential	☠☠

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
Small Mine	✂
Foundation	▭
Area Outline	▭
Cemetery	⊕
Building	▭
School	▭
Church	▭
Dam	▭

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	---
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	①
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite R/W Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Drainage / Utility Easement	---DUE---
Proposed Permanent Utility Easement	---PUE---
Proposed Temporary Utility Easement	---TUE---
Proposed Aerial Utility Easement	---AUE---
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	---CR---
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	▨

### VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼☼☼☼
Vineyard	▭ Vineyard

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭ CONC
Bridge Wing Wall, Head Wall and End Wall	---CONC WW---
MINOR:	
Head and End Wall	---CONC HW---
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	---S---

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	-----
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	---P---
U/G Power Line LOS C (S.U.E.*)	---P---
U/G Power Line LOS D (S.U.E.*)	---P---

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	---T---
U/G Telephone Cable LOS C (S.U.E.*)	---T---
U/G Telephone Cable LOS D (S.U.E.*)	---T---
U/G Telephone Conduit LOS B (S.U.E.*)	---TC---
U/G Telephone Conduit LOS C (S.U.E.*)	---TC---
U/G Telephone Conduit LOS D (S.U.E.*)	---TC---
U/G Fiber Optics Cable LOS B (S.U.E.*)	---TF0---
U/G Fiber Optics Cable LOS C (S.U.E.*)	---TF0---
U/G Fiber Optics Cable LOS D (S.U.E.*)	---TF0---

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	---W---
U/G Water Line LOS C (S.U.E.*)	---W---
U/G Water Line LOS D (S.U.E.*)	---W---
Above Ground Water Line	---A/G Water---

### TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	---TV---
U/G TV Cable LOS C (S.U.E.*)	---TV---
U/G TV Cable LOS D (S.U.E.*)	---TV---
U/G Fiber Optic Cable LOS B (S.U.E.*)	---TF0---
U/G Fiber Optic Cable LOS C (S.U.E.*)	---TF0---
U/G Fiber Optic Cable LOS D (S.U.E.*)	---TF0---

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	---G---
U/G Gas Line LOS C (S.U.E.*)	---G---
U/G Gas Line LOS D (S.U.E.*)	---G---
Above Ground Gas Line	---A/G Gas---

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	---SS---
Above Ground Sanitary Sewer	---A/G Sanitary Sewer---
SS Forced Main Line LOS B (S.U.E.*)	---FSS---
SS Forced Main Line LOS C (S.U.E.*)	---FSS---
SS Forced Main Line LOS D (S.U.E.*)	---FSS---

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊕
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	---UTL---
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

5/14/19

# UTILITY CONSTRUCTION

## 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 2012.
2. THE EXISTING UTILITIES BELONG TO AQUA NC, CONTACT PERSON IS MICHAEL MELTON (704) 483-8126.
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.

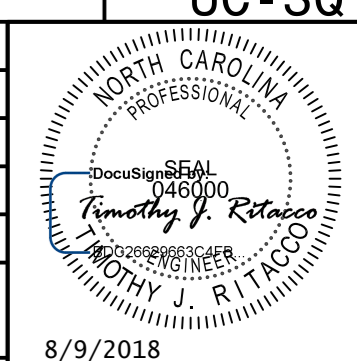
6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING 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.

## PROJECT SPECIFIC NOTES:

1. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.
2. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

## LIST OF STANDARD DRAWINGS

- |         |   |
|---------|---|
| 1515.01 | WATER METER   |
| 1515.02 | FIRE HYDRANT  |
| 1520.01 | SEWER CLEAN OUT   |
| 1525.06 | PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM |

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-3Q</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION

5/14/19

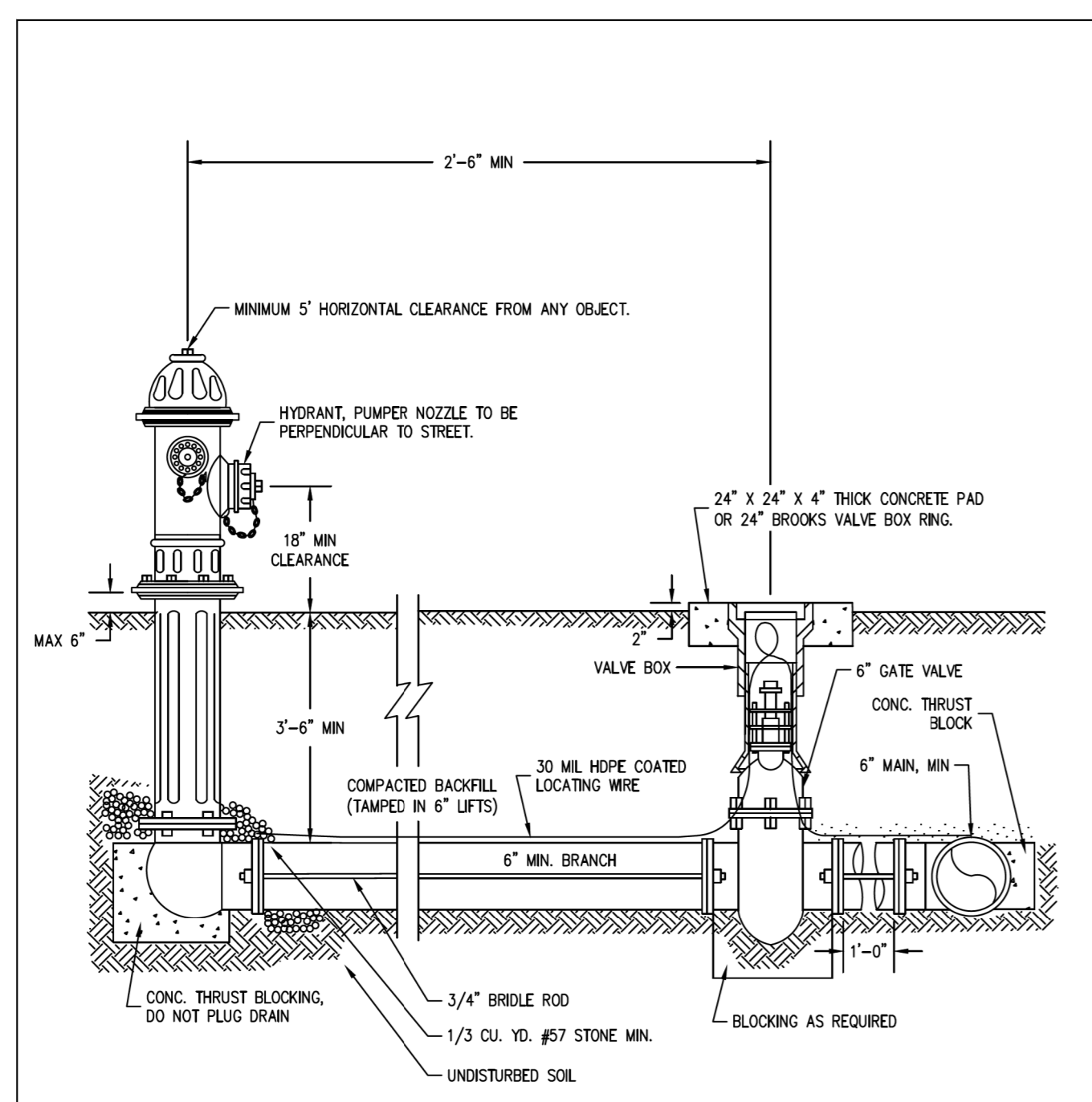
# PROJECT TYPICAL DETAILS



REGISTERED PROFESSIONAL ENGINEER  
STATE OF NORTH CAROLINA  
NO. 46900  
TIMOTHY J. RITICO  
PHYSICIAN  
8/9/2018

PROJECT REFERENCE NO. R-3825B  
SHEET NO. UC-3A0

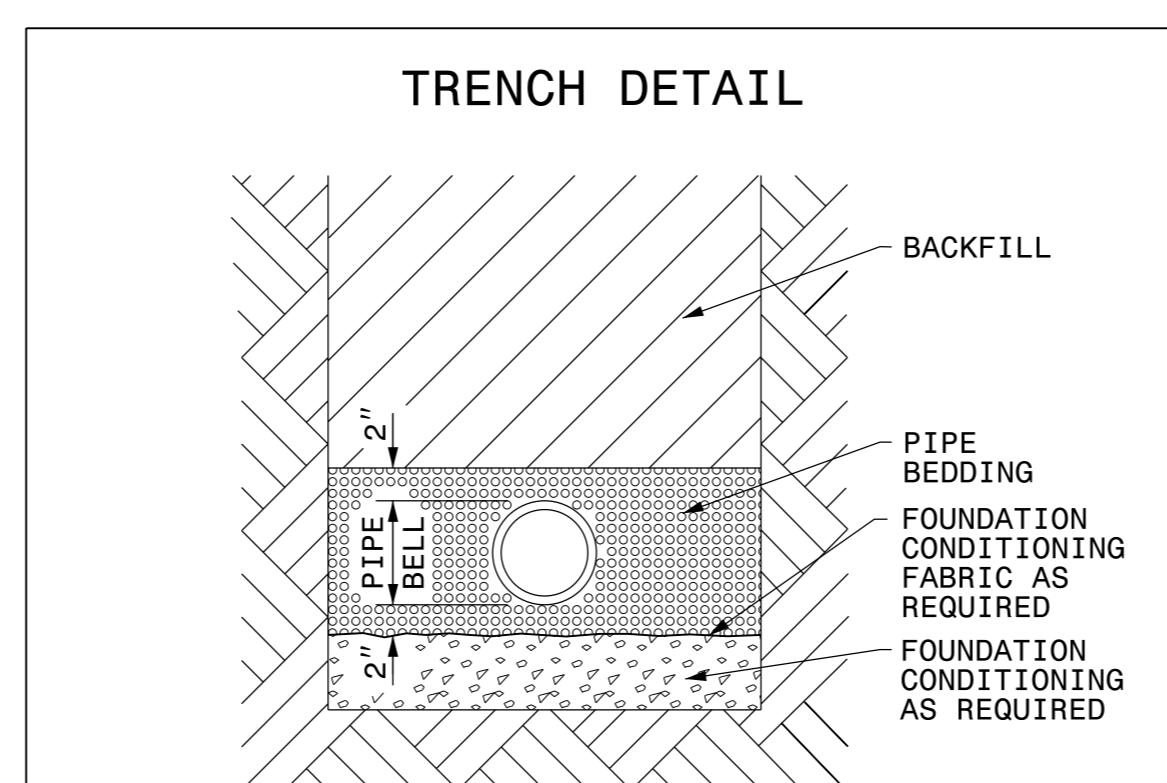
DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
APPROVED BY:  
REVISED:  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
UTILITY ENGINEERING SECTION  
PHONE: (919) 707-6690  
FAX: (919) 250-4151  
UTILITY CONSTRUCTION PLANS ONLY



- NOTES:**
1. ALL HYDRANTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AWWA STANDARD C503-82.
  2. HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITIONS.
  3. ALL BENDS, TEES, VALVES AND BLOW-OFFS SHALL BE BLOCKED IN ACCORDANCE WITH AWWA STANDARDS.
  4. HYDRANTS SHALL HAVE NATIONAL STANDARD THREADS.

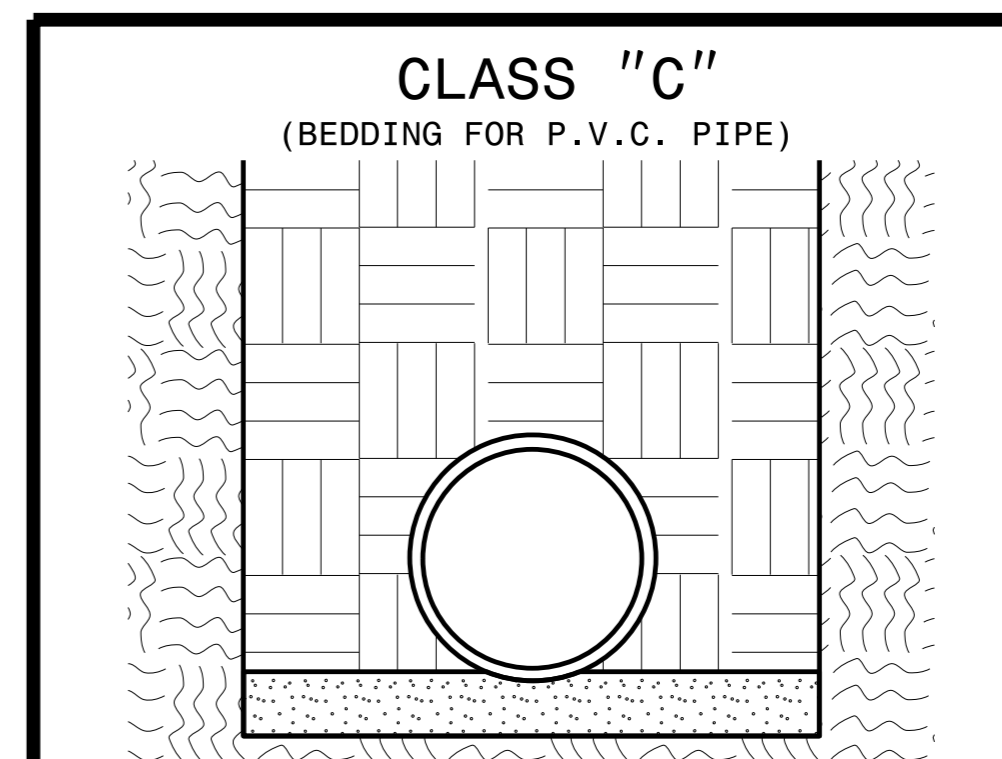
DRAWING NO. 11  
REVISION DATE 01/2017  
HYDRANT DETAIL  
**AQUA**  
Aqua North Carolina, Inc.

WATER



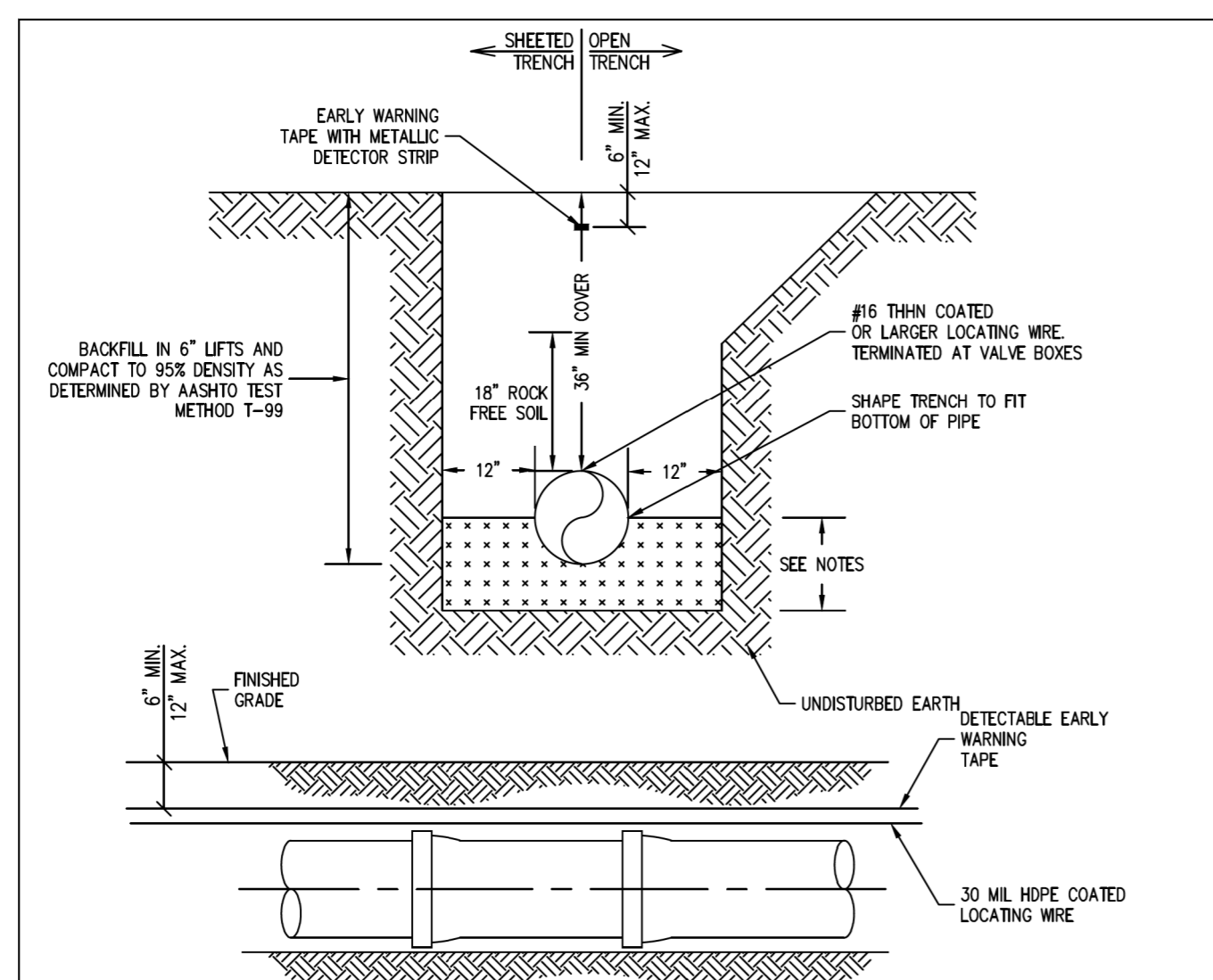
PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

WATER & SEWER



PIPE BEDDED IN LOOSE MATERIAL, LIGHTLY TAMPED WITH A MINIMUM OF 6" UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

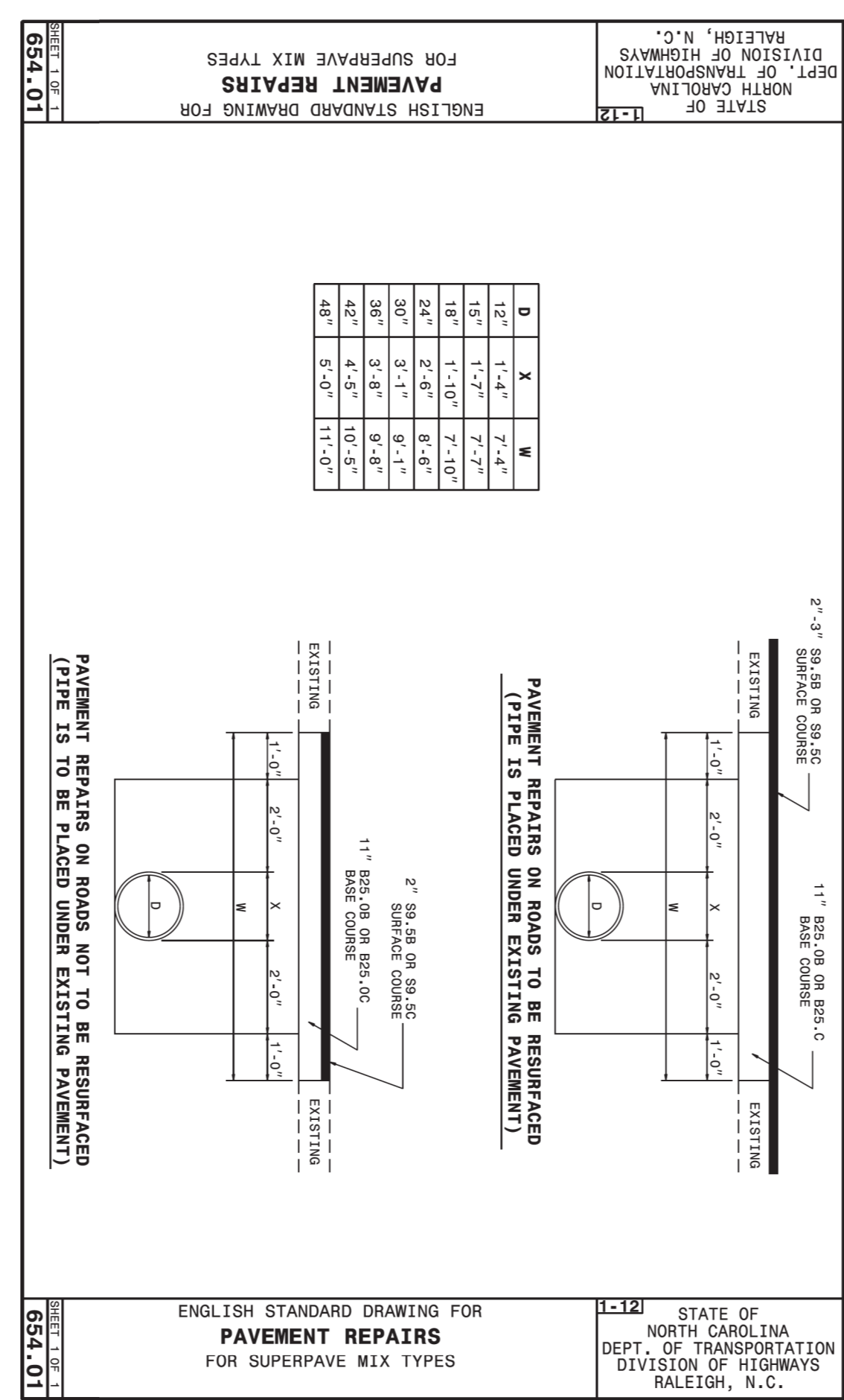
WATER & SEWER



- NOTES:**
1. WHERE ROCK OR NON-CUSHIONING MATERIAL IS ENCOUNTERED IN TRENCH, USE #5 STONE FOR A DEPTH OF 8" UNDER PIPE.
  2. WHERE UNSUITABLE SOIL OR MUCK IS ENCOUNTERED, EXCAVATE THE SOIL AND BACKFILL WITH #5 STONE TO FORM A PIPE BED.
  3. PVC AND DUCTILE IRON MAINS SHALL MEET ALL STANDARDS AS CALLED OUT IN THE SPECIFICATIONS (DIVISION 5, SECTION 1.3.3).
  4. ALL WATER MAINS SHALL HAVE A DETECTABLE "EARLY WARNING" PROTECTION TAPE AND HDPE LOCATING WIRE INSTALLED CONTINUOUSLY ALONG THE ALIGNMENT. THE PROTECTION TAPE AND WIRE SHALL BE INSTALLED DURING BACKFILL 6"-12" INCHES BELOW FINISHED GRADE DIRECTLY OVER THE PIPE AND BE CONTINUOUSLY MARKED "CAUTION, WATER MAIN BURIED BELOW." THE TAPE SHALL HAVE A METALLIC DETECTABLE STRIP INCLUDED AND BE GREEN IN COLOR. ALL PROTECTION TAPE SHALL BE AS TERRA-TAPE OR EQUAL.
  5. ALL P.V.C. WATER MAINS SHALL BE EITHER A SOLID BLUE COLOR OR WHITE BLUE LETTERING. ALL LETTERING SHALL APPEAR ON THREE SIDES OF THE PIPE AND SHALL RUN THE ENTIRE LENGTH OF THE PIPE AND SHALL BE A MINIMUM 3/4 INCH IN HEIGHT WITH THE APPROPRIATE WORDING APPEARING ONE OR MORE TIMES EVERY 21 INCHES ALONG THE LENGTH OF THE PIPE. THE LETTERING MUST BE PERMANENTLY STENCILED TO THE PIPE SURFACE. LETTERING SHALL READ AS IS ACCEPTABLE FOR THE INTENDED USE. ALL LETTERING SHALL BE APPLIED BY THE PIPE MANUFACTURER DURING PRODUCTION.
  6. ALL DUCTILE IRON WATER MAINS SHALL BE MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE 90° OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM 2-INCHES IN WIDTH AND SHALL BE BLUE IN COLOR. BACKFILL SHALL NOT BE PLACED FOR 30 MINUTES FOLLOWING PAINT APPLICATION.
  7. ALL P.V.C. PIPE SHALL BEAR THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER PIPE.

DRAWING NO. 14  
REVISION DATE 01/2017  
TRENCH DETAIL  
**AQUA**  
Aqua North Carolina, Inc.

WATER



WATER & SEWER





5/14/2018

# PROJECT TYPICAL DETAILS

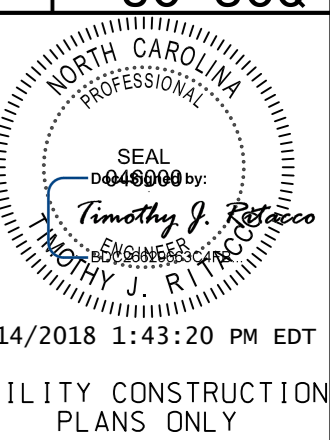


STATE A10  
REGISTERED PROFESSIONAL ENGINEER  
TIMOTHY J. REBECCO  
PHONE: 919.881.9939  
NC CON. NO. F-0209

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-300**

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
APPROVED BY:  
REVISED:  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
UTILITIES ENGINEERING SECTION  
PHONE: (919) 707-6690  
FAX: (919) 250-4151

8/14/2018 1:43:20 PM EDT  
UTILITY CONSTRUCTION PLANS ONLY



## UTILITY CONSTRUCTION

**WATER & SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 10  
REVISION DATE 05/2012

TYPICAL CONFLICT RESOLUTION DETAIL BY DEFLECTION

SIZE	END	A	B	C	D	E	F
4"	TEE & FLUG	21 (25)	18 (18)	18 (18)	18 (18)	18 (18)	18 (18)
6"	TEE & FLUG	27 (32)	24 (24)	24 (24)	24 (24)	24 (24)	24 (24)
8"	TEE & FLUG	33 (38)	30 (30)	30 (30)	30 (30)	30 (30)	30 (30)
10"	TEE & FLUG	39 (44)	36 (36)	36 (36)	36 (36)	36 (36)	36 (36)
12"	TEE & FLUG	45 (50)	42 (42)	42 (42)	42 (42)	42 (42)	42 (42)
14"	TEE & FLUG	51 (56)	48 (48)	48 (48)	48 (48)	48 (48)	48 (48)
16"	TEE & FLUG	57 (62)	54 (54)	54 (54)	54 (54)	54 (54)	54 (54)
18"	TEE & FLUG	63 (68)	60 (60)	60 (60)	60 (60)	60 (60)	60 (60)
20"	TEE & FLUG	69 (74)	66 (66)	66 (66)	66 (66)	66 (66)	66 (66)
24"	TEE & FLUG	81 (86)	78 (78)	78 (78)	78 (78)	78 (78)	78 (78)

**WATER & SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 11  
REVISION DATE 08/2018

RESTRAINED JOINT DETAIL

PIPE SIZE	TEES & DEAD ENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6

**WATER & SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 12  
REVISION DATE 08/2018

TYPICAL THRUST BLOCK

**WATER & SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 13  
REVISION DATE 05/2012

GATE VALVE AND EXTENSION

**SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 14  
REVISION DATE 08/2018

AIR RELEASE VALVE DETAIL

MH DEPTH	A	B	C	D	E	F
UP TO 12"	48"	8"	24.5"	15"	AS REQ'D	8"
12" TO 18"	60"	8"	24.5"	15"	AS REQ'D	10"
18" AND DEEPER	72"	8"	24.5"	15"	AS REQ'D	14"

**SEWER**

**AQUA**

Aqua North Carolina, Inc.

DRWING NO. 16  
REVISION DATE 05/2012

STANDARD MANHOLE DETAIL

05/14/2018

5/14/19

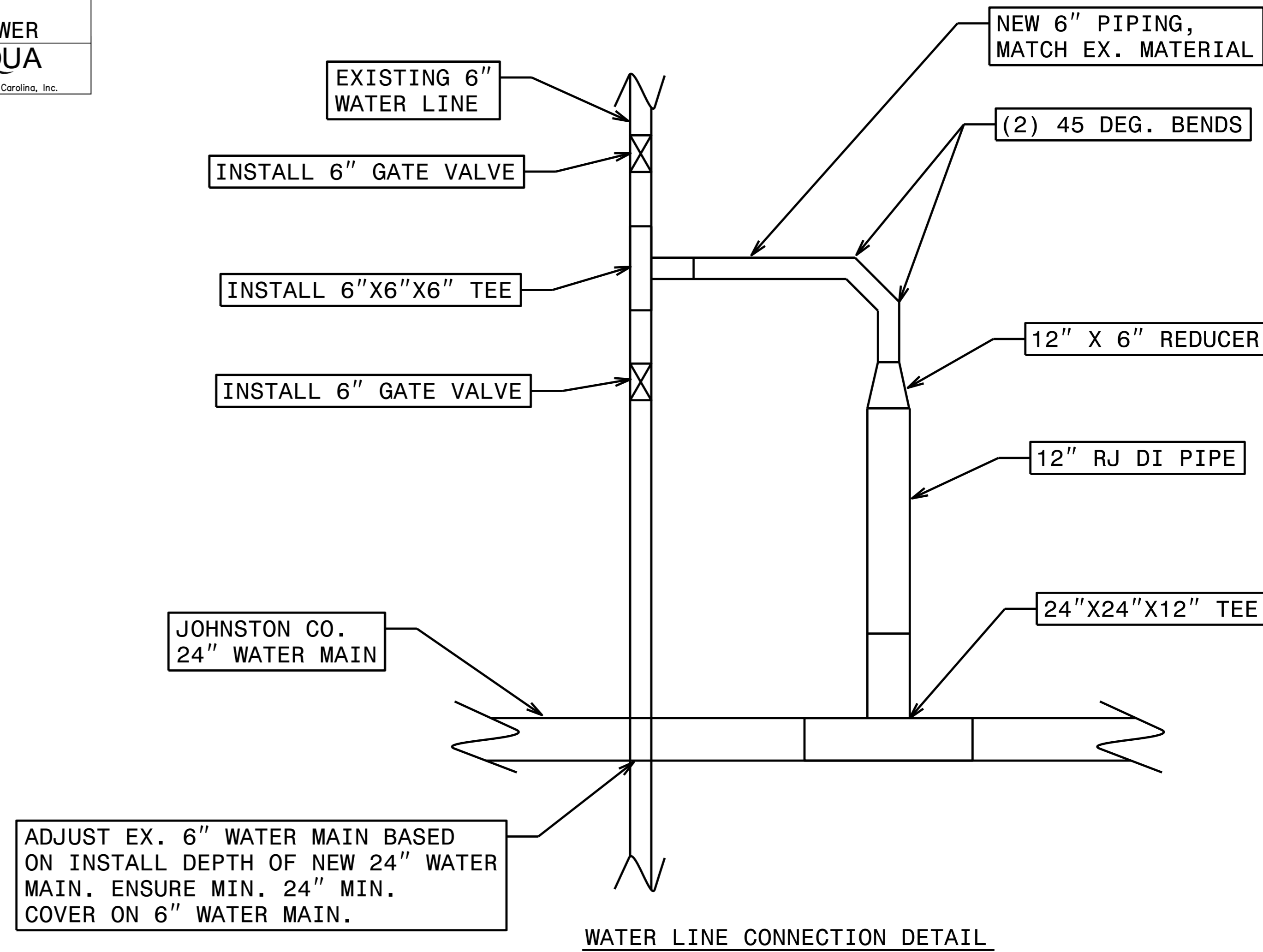
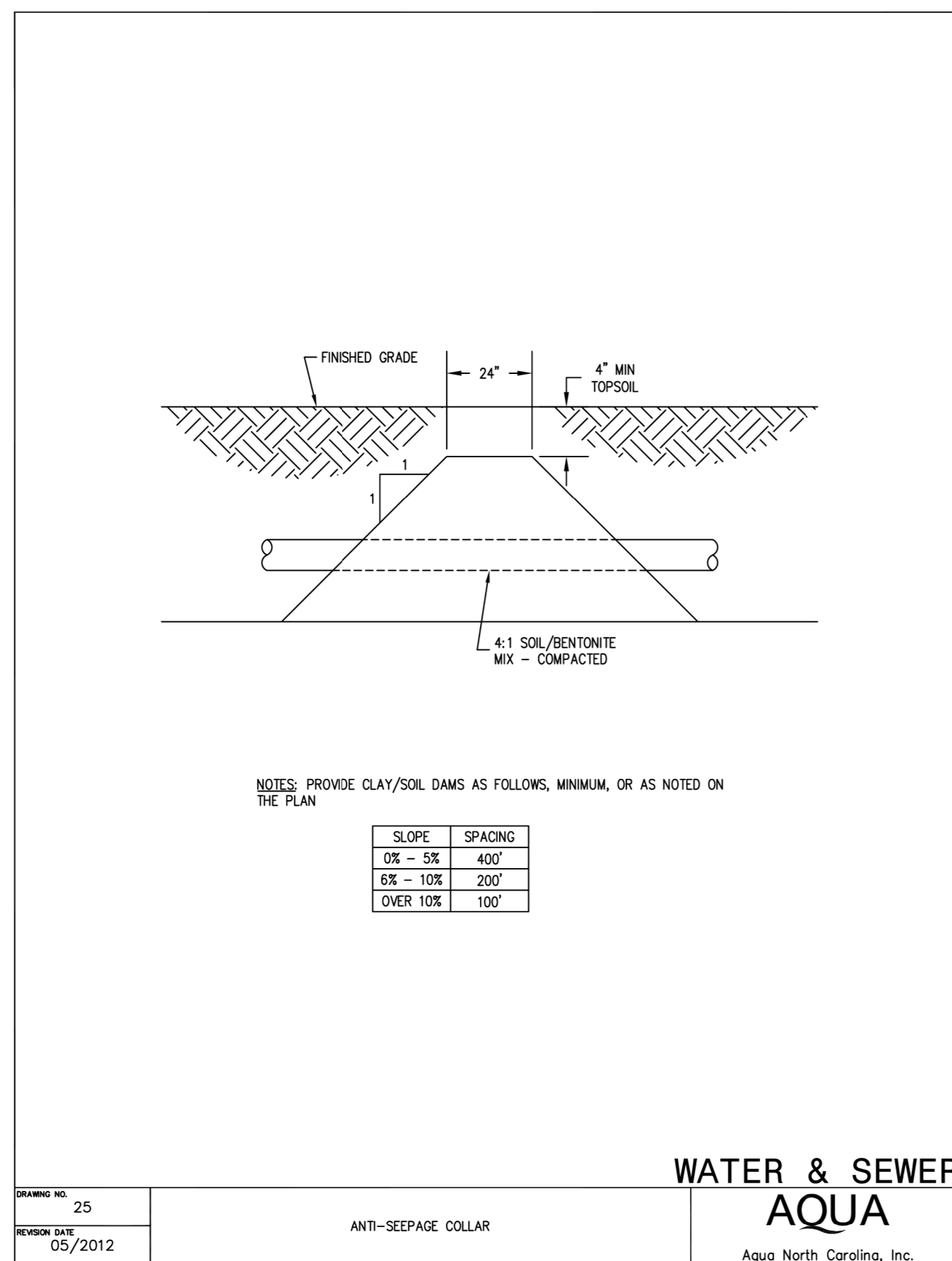
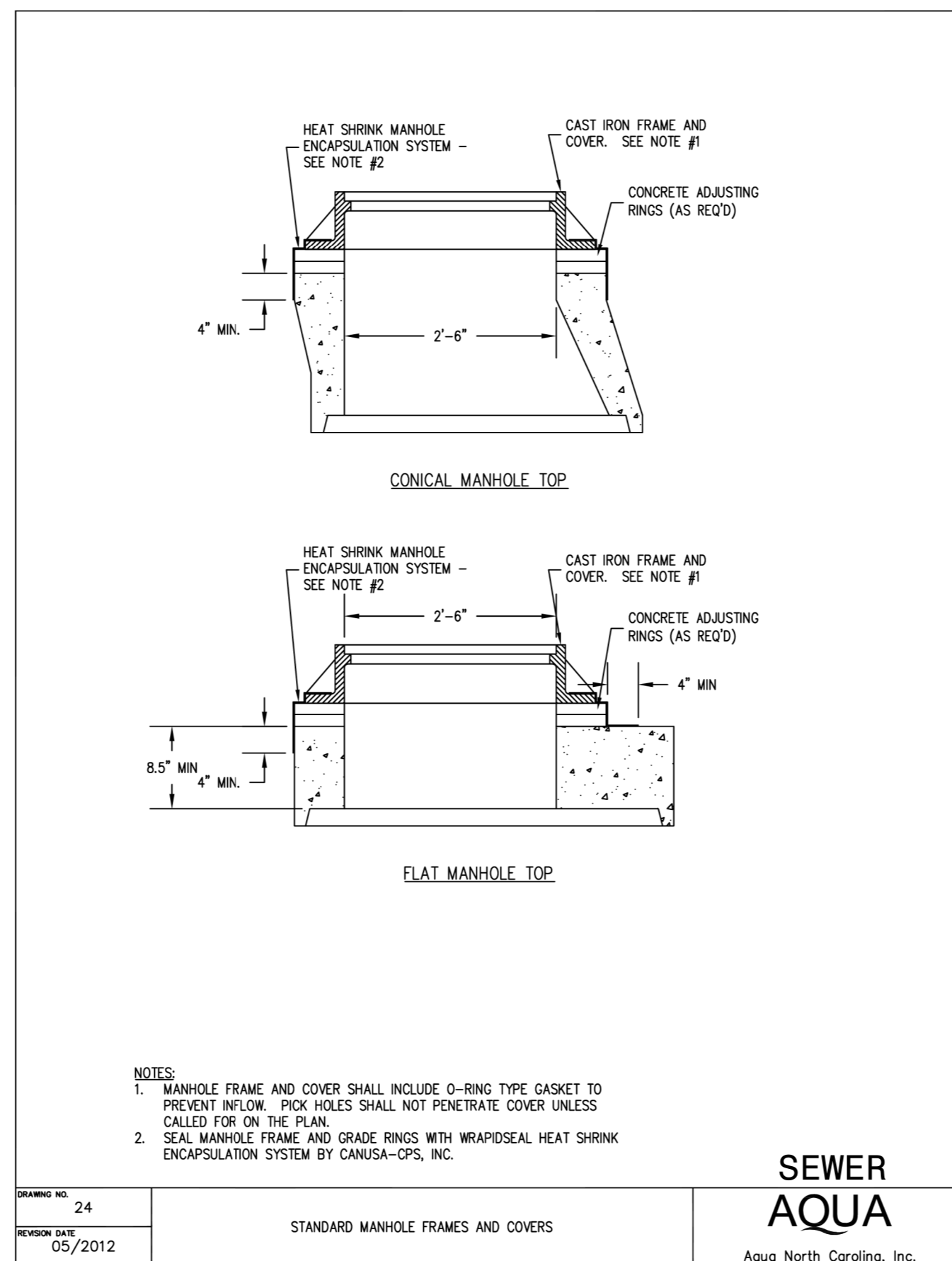
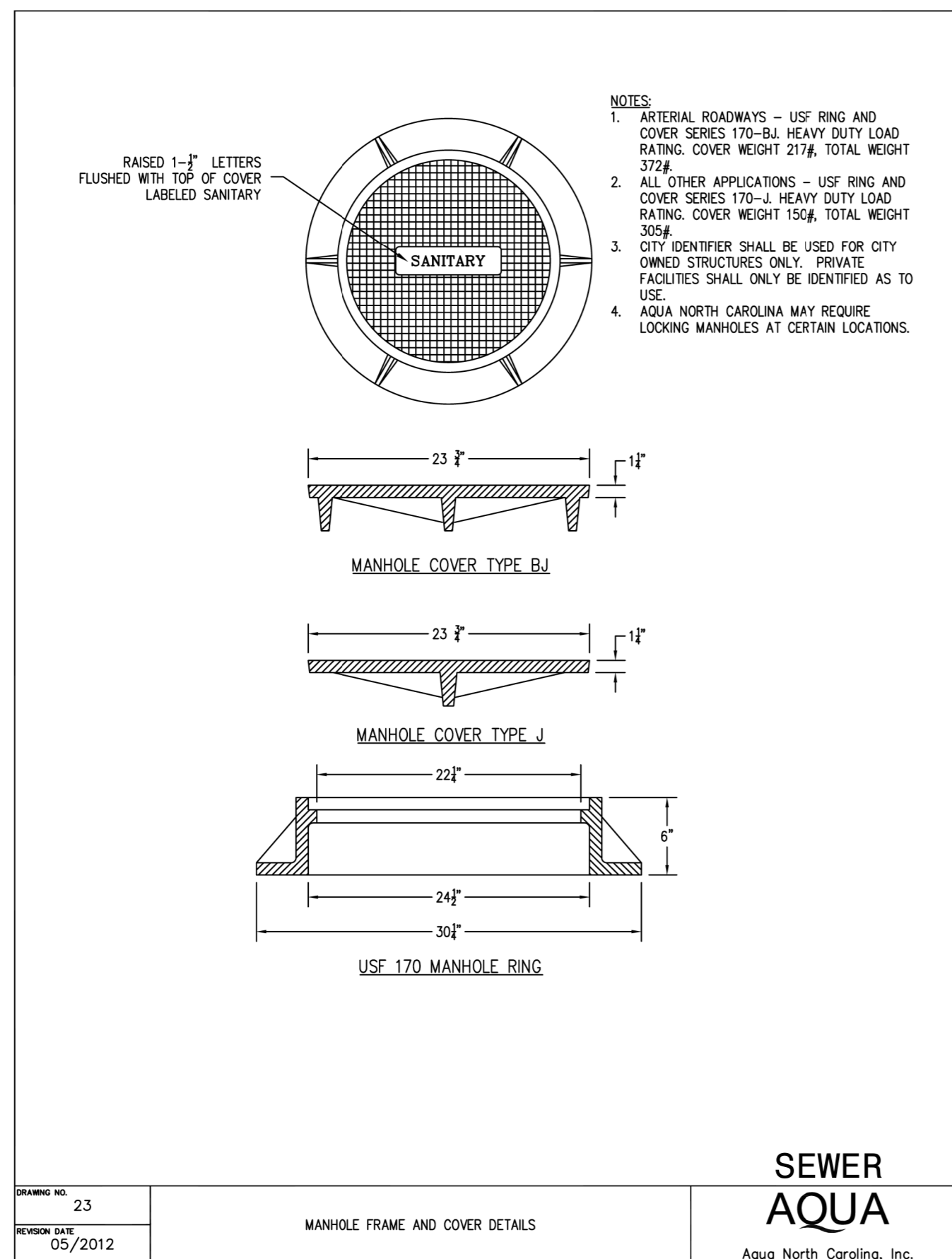
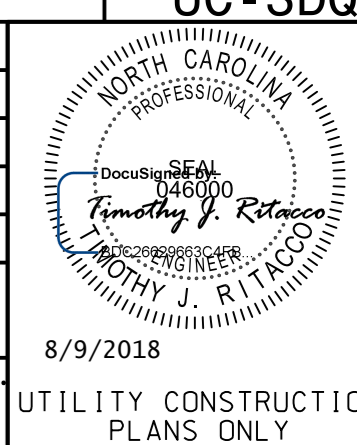
# PROJECT TYPICAL DETAILS



DEWBERRY PROJECT  
STATE A10  
PROJECT NO. 27947  
PHONE: 919.881.9939  
NC CORP. No. F0209

PROJECT REFERENCE NO. R-3825B SHEET NO. UC-3DQ

DESIGNED BY:  
DRAWN BY:  
CHECKED BY:  
APPROVED BY:  
REVISED:  
NORTH CAROLINA  
DEPARTMENT OF  
TRANSPORTATION  
8/9/2018  
UTILITIES ENGINEERING SEC.  
PHONE: (919) 707-6690  
FAX: (919) 250-4151  
UTILITY CONSTRUCTION  
PLANS ONLY



PROP. 707LF 12" FORCE MAIN SEWER

PROP. 185 LF BORE AND JACK OF 24"

MATCHLINE -L- RDY STA. 69+25.00 UC STA. 11+10.30  
SEE SHEET RDY-8 / UC-8AQ

PROP. 110LF 12" FORCE MAIN SEWER

(2) PROPOSED 12" PLUG VALVE

PROPOSED WYE & 45 DEG. BEND  
45 DEG. HORIZ. BEND  
+354.94 -L-  
145.94 RT

CONNECT TO EXISTING 12" SANITARY SEWER FORCEMAIN WITH WYE & 45 DEG. BEND AND CONC. THRUST BLOCKING

45 DEG. HORIZ. BEND  
+370.25 -L-  
110.74 RT

PROP. 325LF ABANDON 12" UTILITY PIPE

**Dewberry**

PROJECT REFERENCE NO. R-3825B SHEET NO. UC-8Q

RDY-8

DESIGNED BY: [Redacted]  
DRAWN BY: [Redacted]  
CHECKED BY: [Redacted]  
APPROVED BY: [Redacted]  
REVISED: [Redacted]

SEAL  
NORTH CAROLINA PROFESSIONAL ENGINEER  
TIMOTHY J. RILEY  
8/14/2018 1:43:20 PM EDT

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

UTILITY CONSTRUCTION PLANS ONLY

**UTILITY CONSTRUCTION**

GRAPHIC SCALE

50 25 0 50 100  
HORIZ.

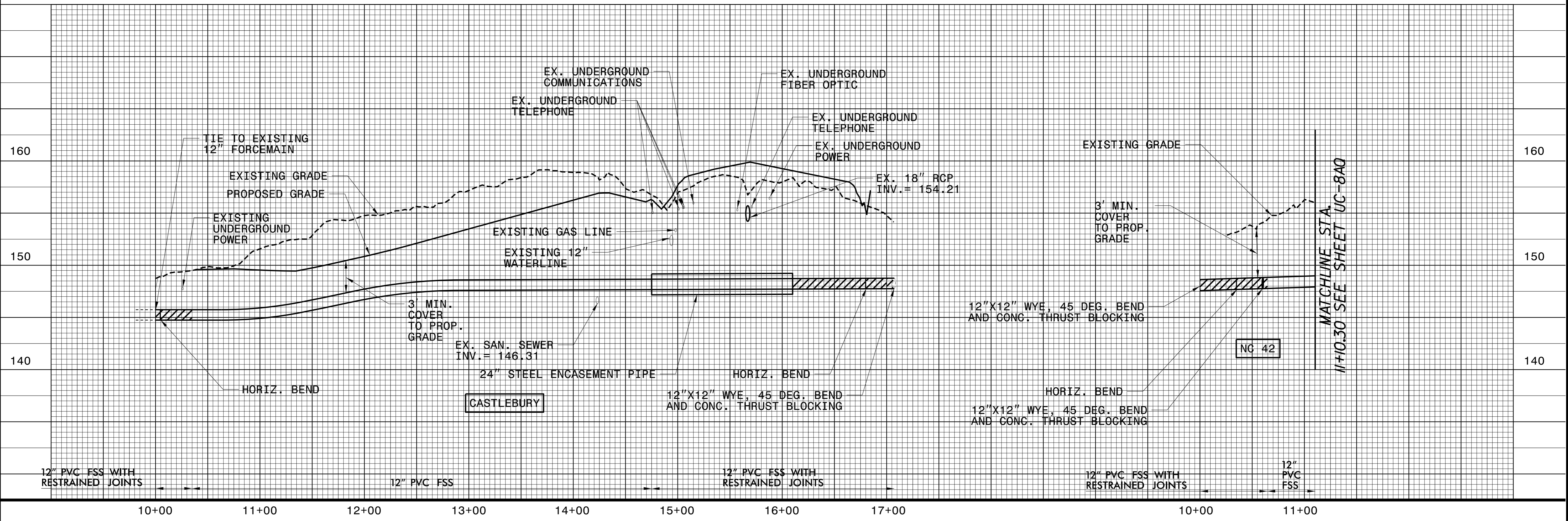
5 0 5 10  
VERT.

NAD 83

**NOTE:**  
PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

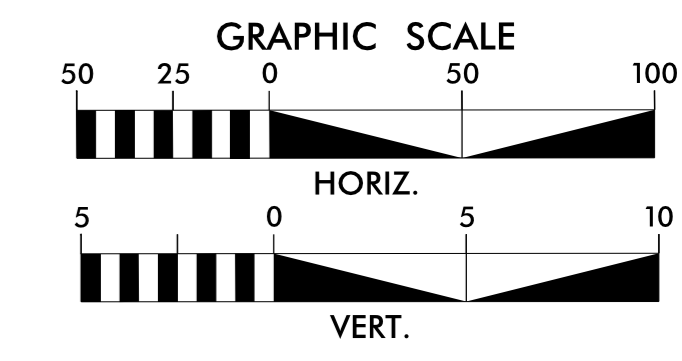
**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1600 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

REVISIONS

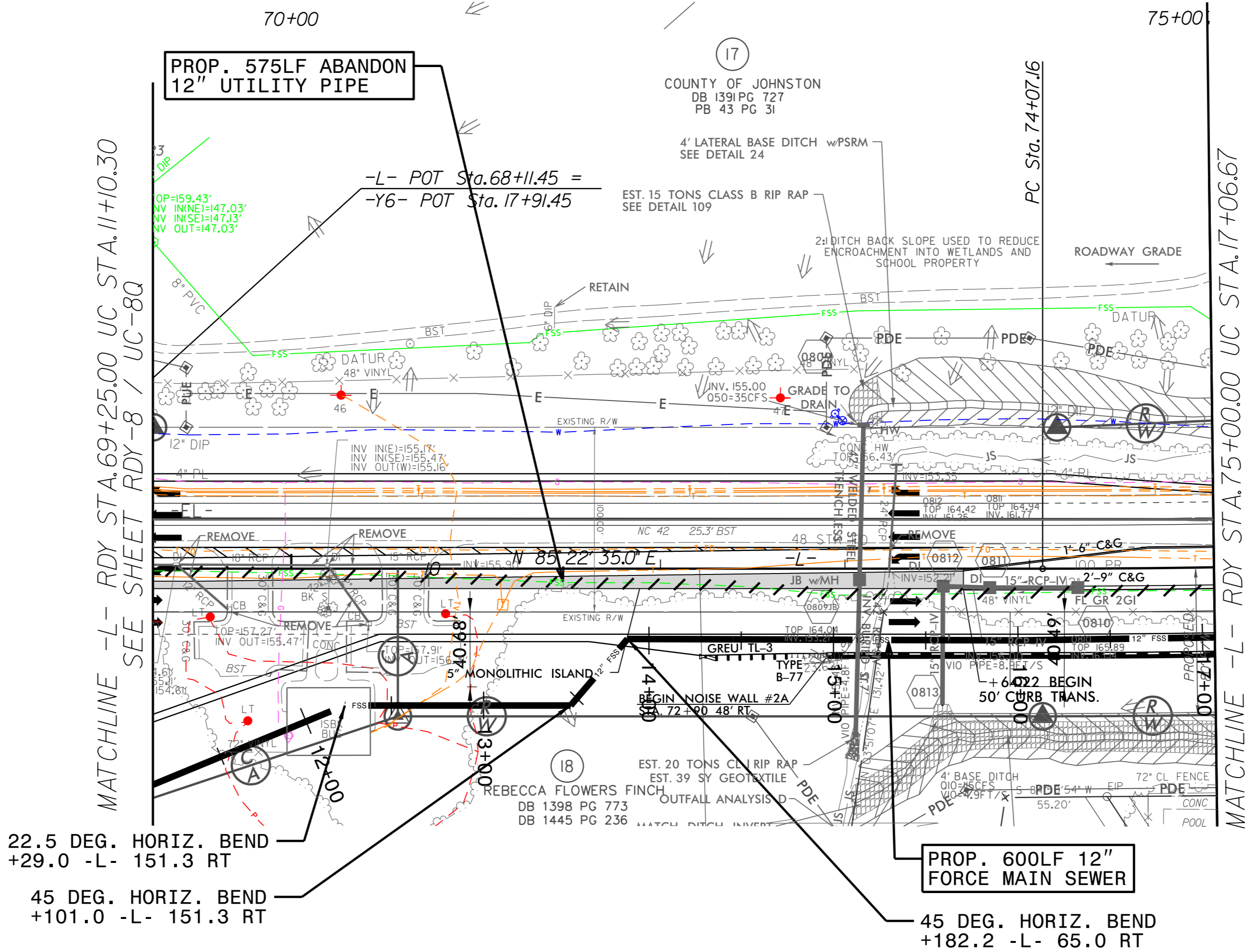


DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL TIMOTHY J. RETANCO REGISTERED PROFESSIONAL ENGINEER NO. 44900 EXPIRES 12/31/2020	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT UTILITY CONSTRUCTION PLANS ONLY	

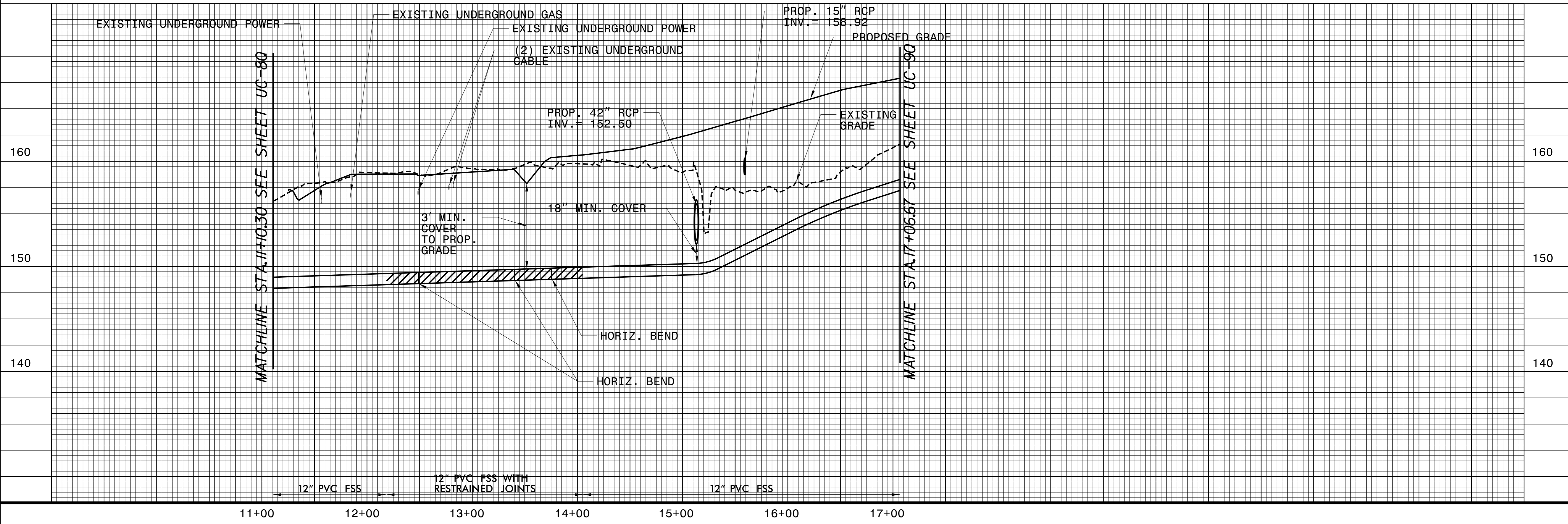
### UTILITY CONSTRUCTION



REVISIONS



**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 700 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



8/17/19

**Dewberry**

PROJECT REFERENCE NO. **R-3825B** SHEET NO. **UC-90**

DESIGNED BY: \_\_\_\_\_

DRAWN BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

REVISED: \_\_\_\_\_

NORTH CAROLINA PROFESSIONAL SEAL 046000

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

8/14/2018 2:35:03 PM EDT

UTILITY CONSTRUCTION PLANS ONLY

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

PROP. 2 EA 6" VALVE,  
PROP. 10LF 12" WATER LINE,  
PROP. 20LF 6" WATER LINE.

REFER TO DETAIL ON SHEET UC-3D FOR CONNECTION METHOD TO JOHNSTON CO. 24" WATER MAIN

POC Sta. 81+26.07 =  
POT Sta. 17+35.33

PROP. 28LF 8" SANITARY GRAVITY SEWER

CONNECT TO EX. SEWER  
INV. IN= 178.71

PROP. 52LF 8" SANITARY GRAVITY SEWER

NEW SSMH  
TOP= 188.15  
INV. IN= 180.83  
INV. OUT= 180.73

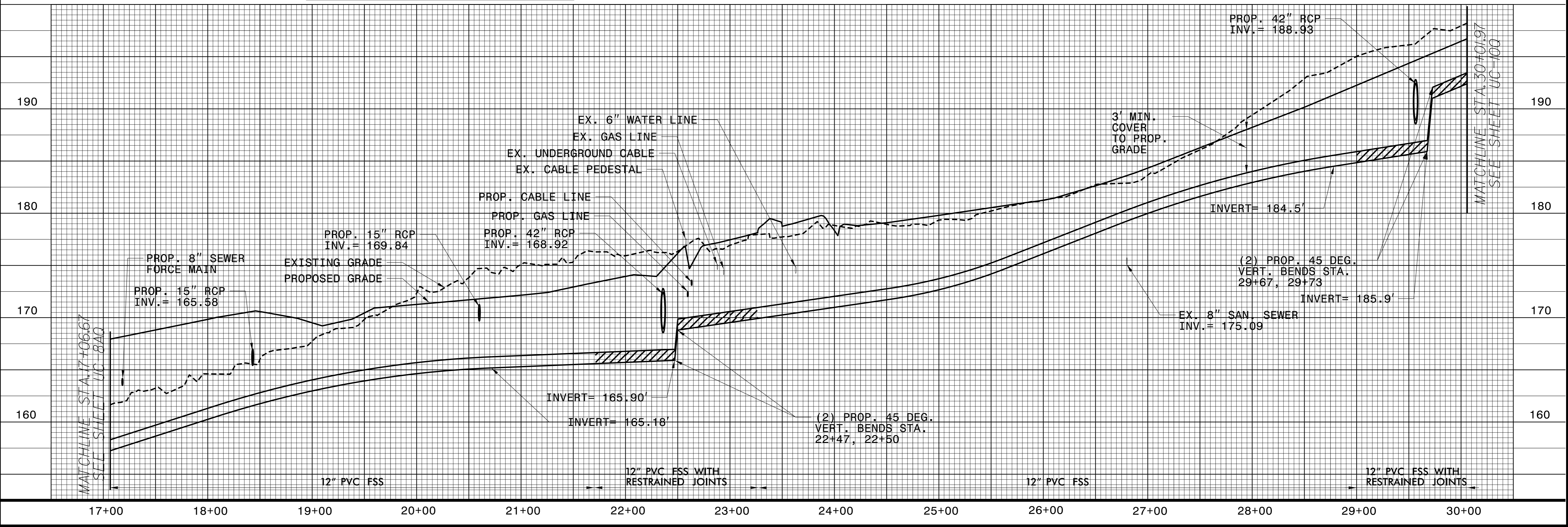
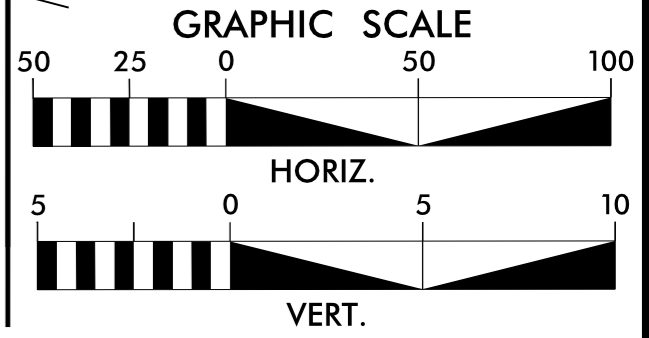
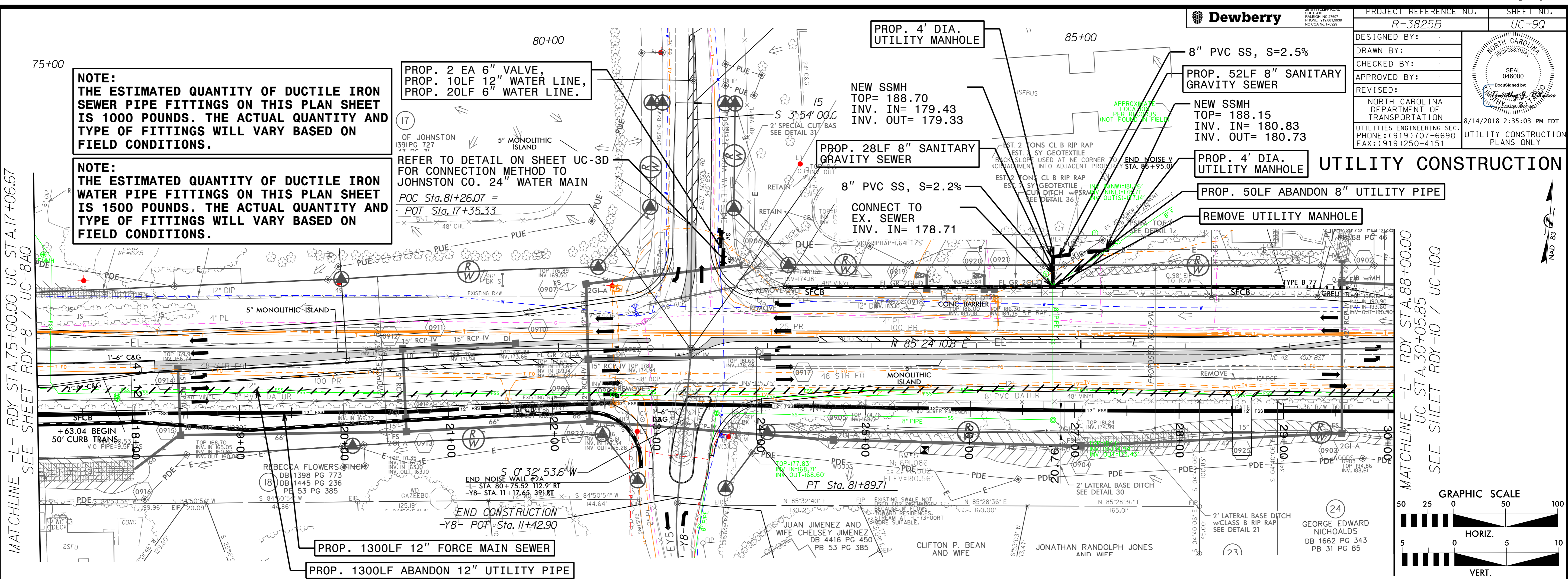
PROP. 4" DIA. UTILITY MANHOLE

PROP. 50LF ABANDON 8" UTILITY PIPE  
REMOVE UTILITY MANHOLE

**UTILITY CONSTRUCTION**

MATCHLINE -L- RDY STA. 75+00.00 UC STA. 17+06.67  
SEE SHEET RDY-8 / UC-8A

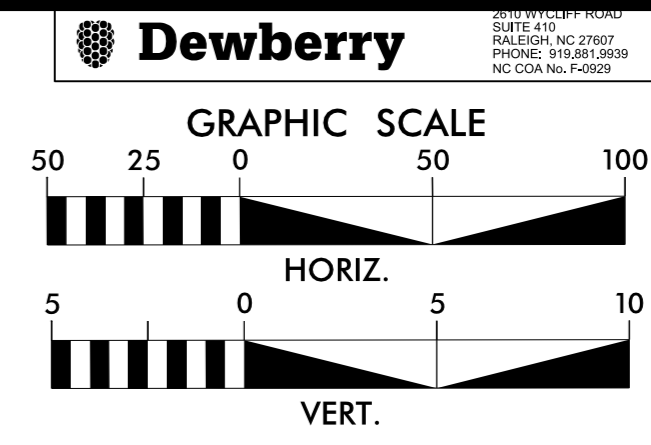
MATCHLINE -L- RDY STA. 88+00.00  
UC STA. 30+05.85  
SEE SHEET RDY-10 / UC-100



REVISIONS

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

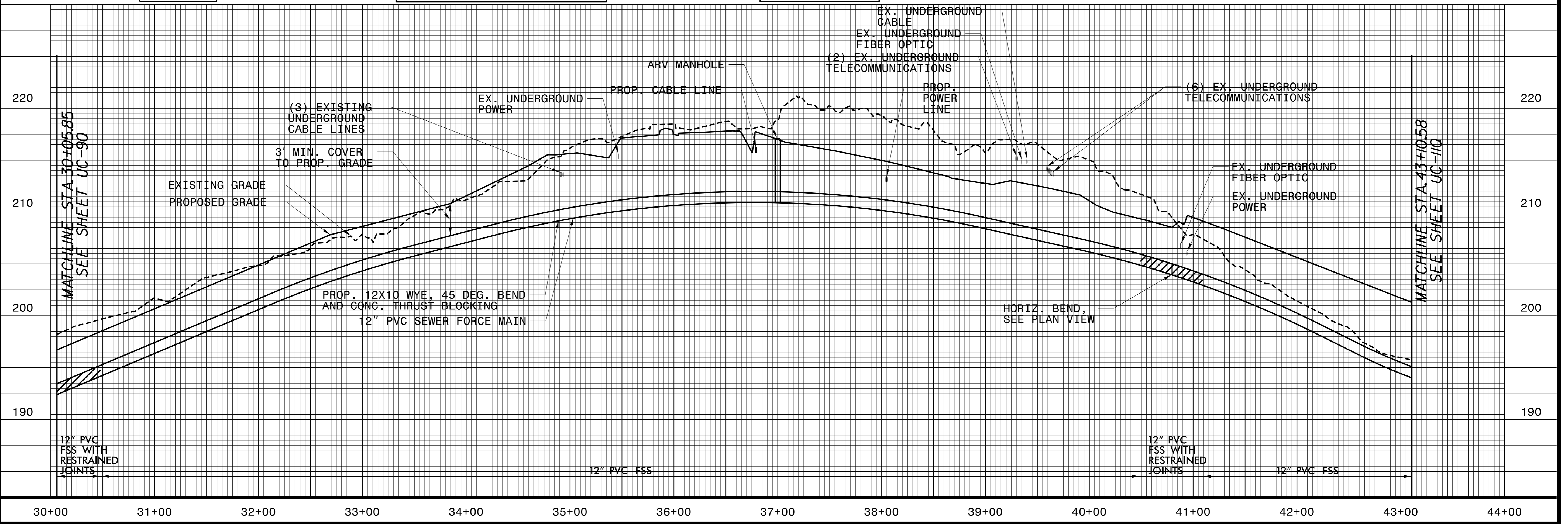
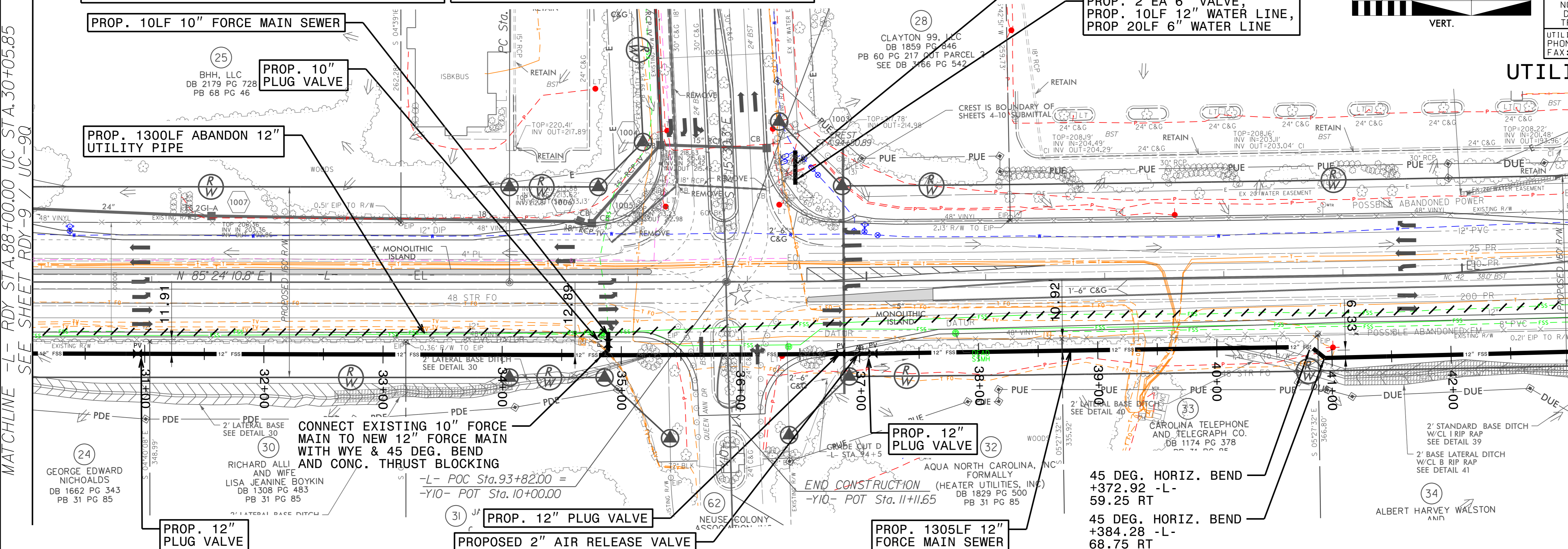


PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-10Q</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

**UTILITY CONSTRUCTION**

MATCHLINE -L- RDY STA. 88+00.00 UC STA. 30+05.85  
SEE SHEET RDY-9 / UC-90

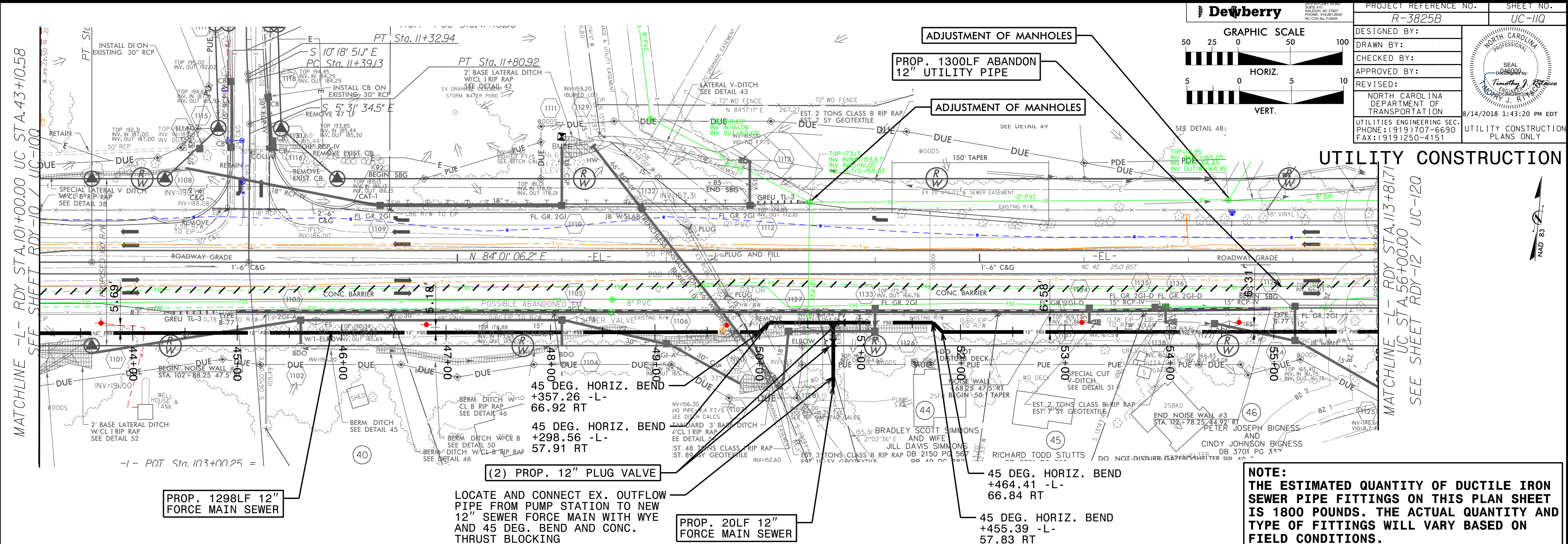
MATCHLINE -L- RDY STA. 101+00.00  
UC STA. 43+10.58  
SEE SHEET RDY-11 / UC-11Q



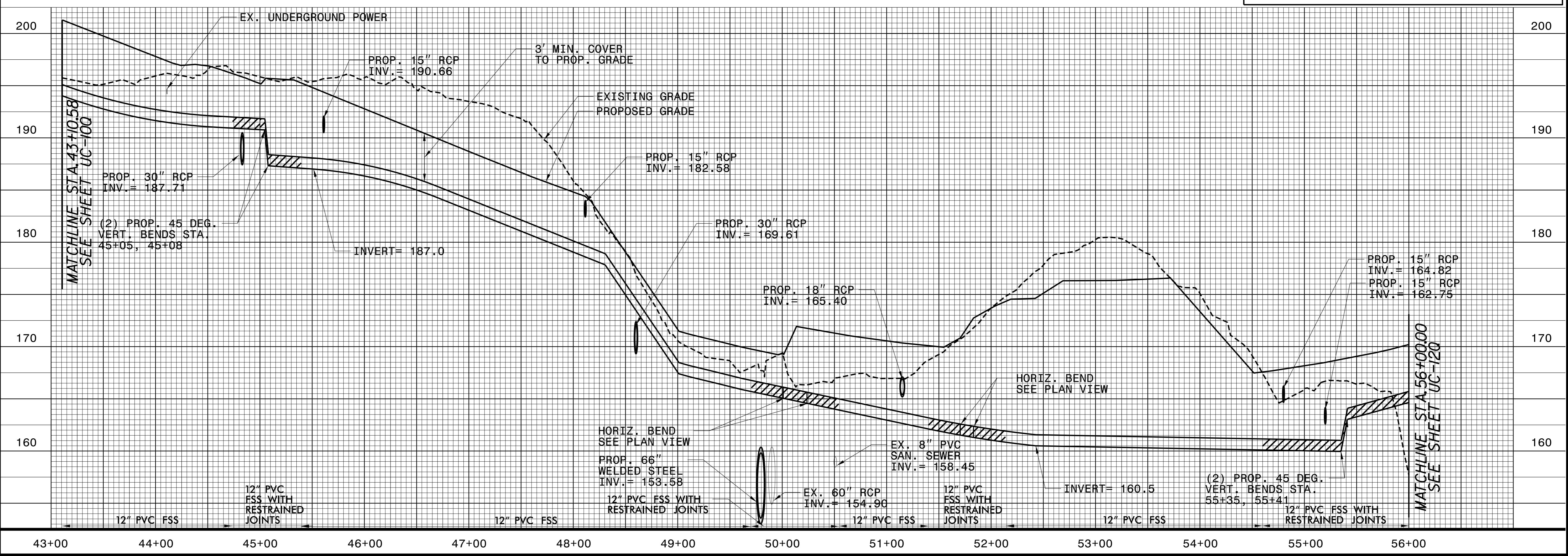
REVISIONS

**Deberry**  
 GRAPHIC SCALE  
 50 25 0 50 100  
 HORIZ. 5 0 5 10  
 VERT.

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-11Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	8/14/2018 1:43:20 PM EDT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

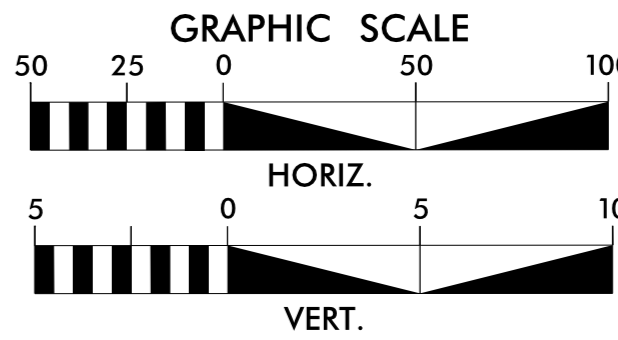


**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.





PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-120
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
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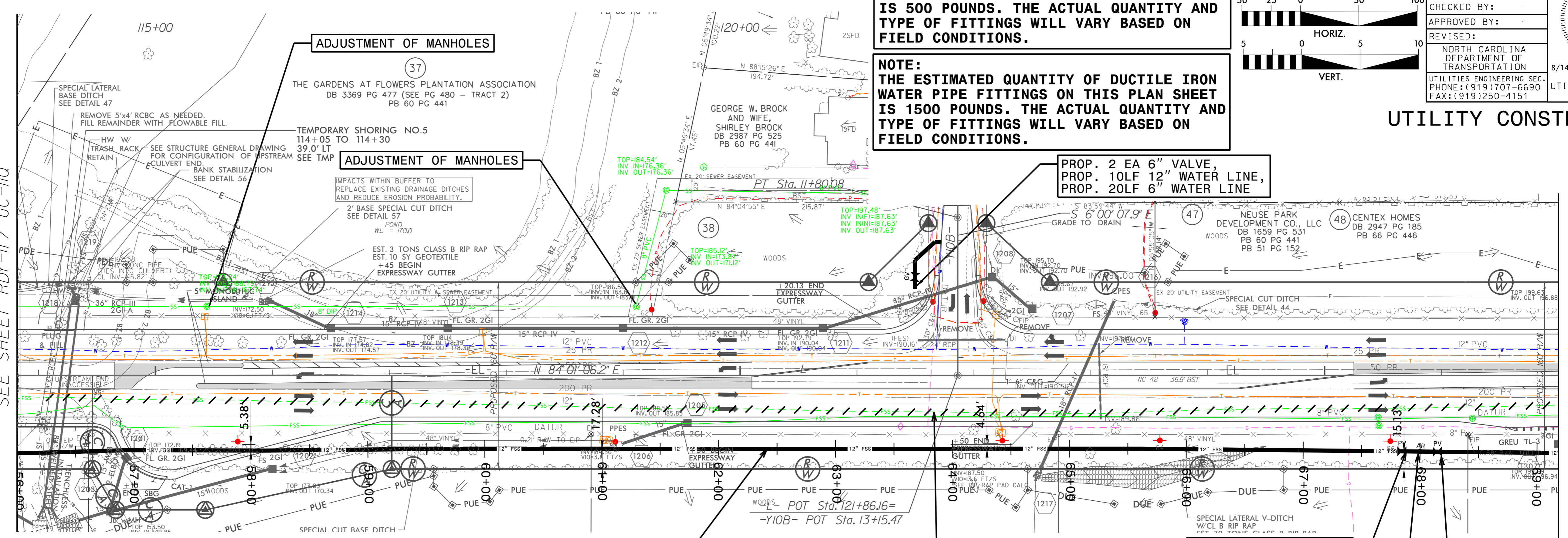
**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

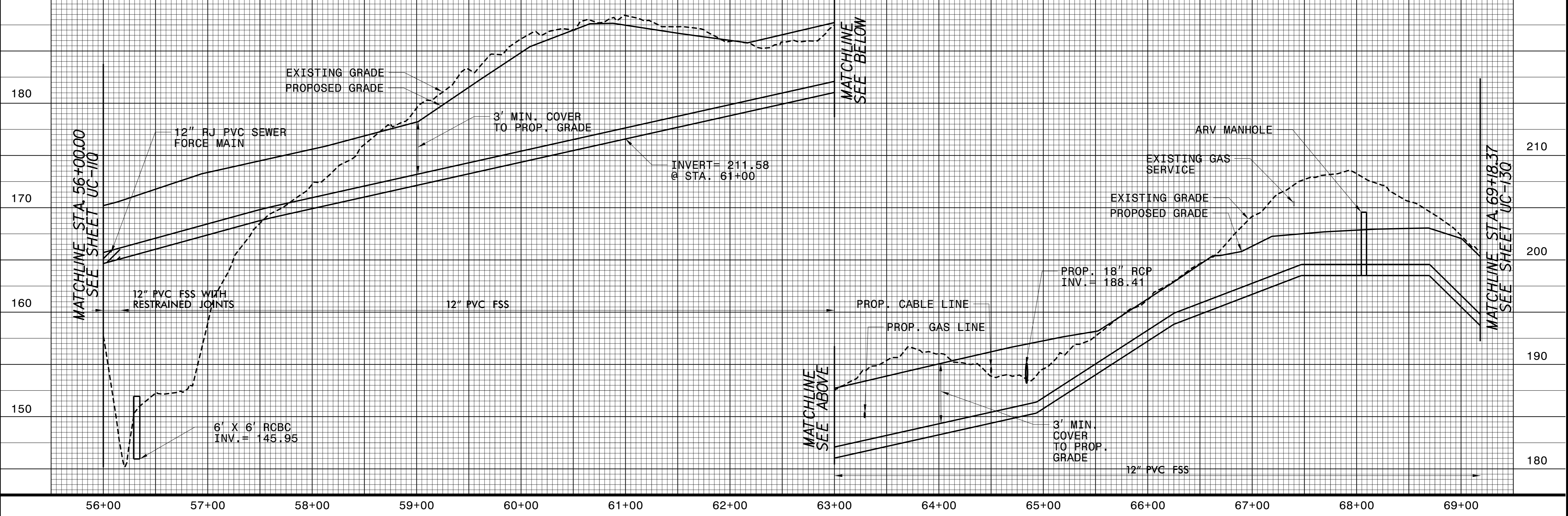
### UTILITY CONSTRUCTION

MATCHLINE -L- RDY STA. 113+81.71 UC STA. 56+00.00 SEE SHEET RDY-11 / UC-110

MATCHLINE -L- RDY STA. 127+00.00 UC STA. 69+18.37 SEE SHEET RDY-13 / UC-130



190



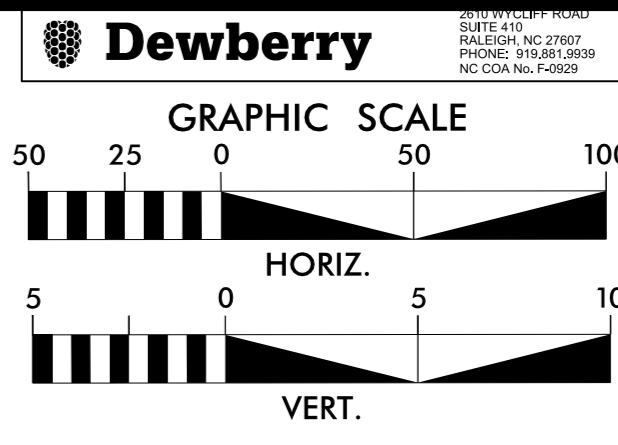
REVISIONS



8/17/19

REFER TO UC-13A FOR PLAN INFORMATION

NOTE: THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 2000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

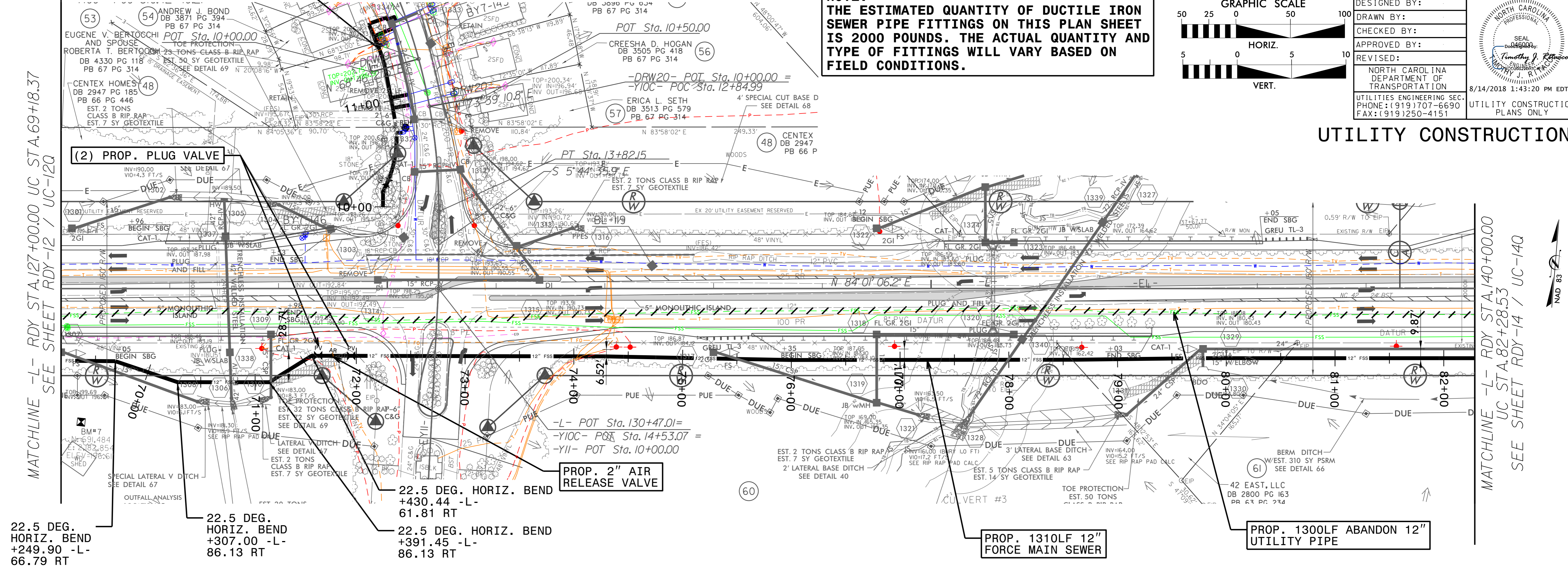


PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-130
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

### UTILITY CONSTRUCTION

MATCHLINE -L- RDY STA.127+00.00 UC STA.69+18.37  
SEE SHEET RDY-12 / UC-120

MATCHLINE -L- RDY STA.140+00.00  
UC STA.82+28.53  
SEE SHEET RDY-14 / UC-140



22.5 DEG. HORIZ. BEND  
+249.90 -L-  
66.79 RT

22.5 DEG. HORIZ. BEND  
+307.00 -L-  
86.13 RT

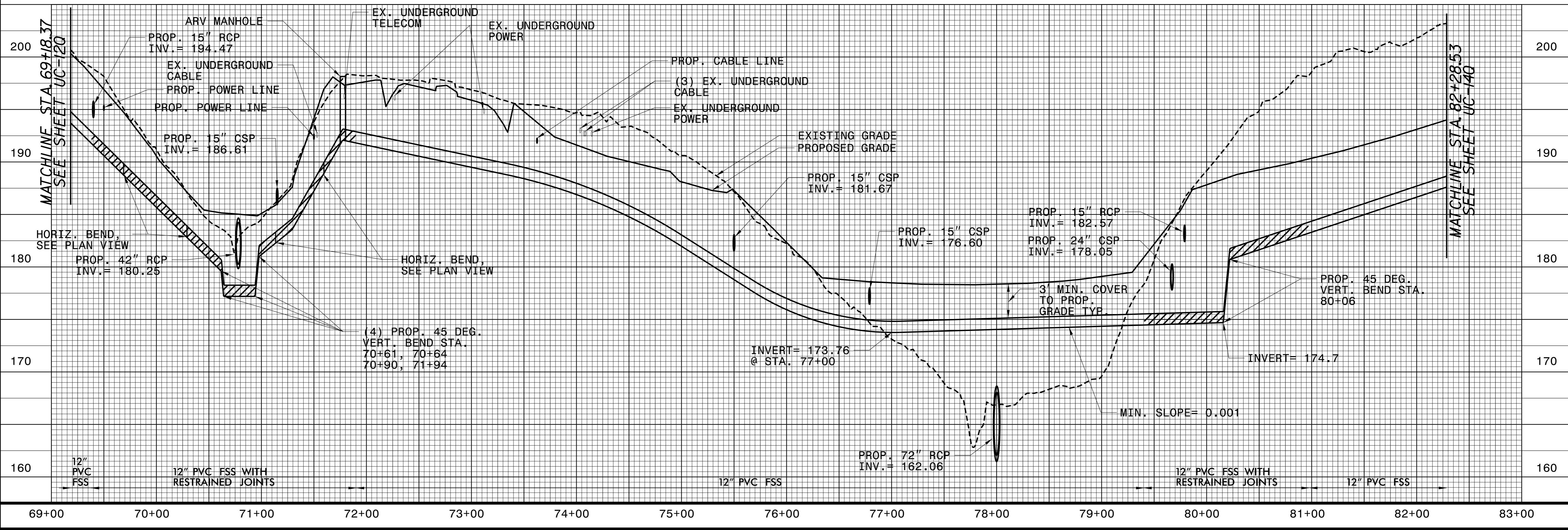
22.5 DEG. HORIZ. BEND  
+430.44 -L-  
61.81 RT

PROP. 2" AIR RELEASE VALVE

PROP. 1310LF 12" FORCE MAIN SEWER

PROP. 1300LF ABANDON 12" UTILITY PIPE

REVISIONS



MATCHLINE STA.69+18.37  
SEE SHEET UC-120

MATCHLINE STA.82+28.53  
SEE SHEET UC-140

HORIZ. BEND, SEE PLAN VIEW  
PROP. 42" RCP  
INV. = 180.25

HORIZ. BEND, SEE PLAN VIEW

(4) PROP. 45 DEG. VERT. BEND STA.  
70+61, 70+64  
70+90, 71+94

INVERT= 173.76 @ STA. 77+00

INVERT= 174.7

PROP. 15" CSP  
INV. = 176.60

PROP. 15" RCP  
INV. = 182.57

PROP. 24" CSP  
INV. = 178.05

3' MIN. COVER TO PROP. GRADE TYPE

PROP. 45 DEG. VERT. BEND STA. 80+06

PROP. 72" RCP  
INV. = 162.06

12" PVC FSS WITH RESTRAINED JOINTS

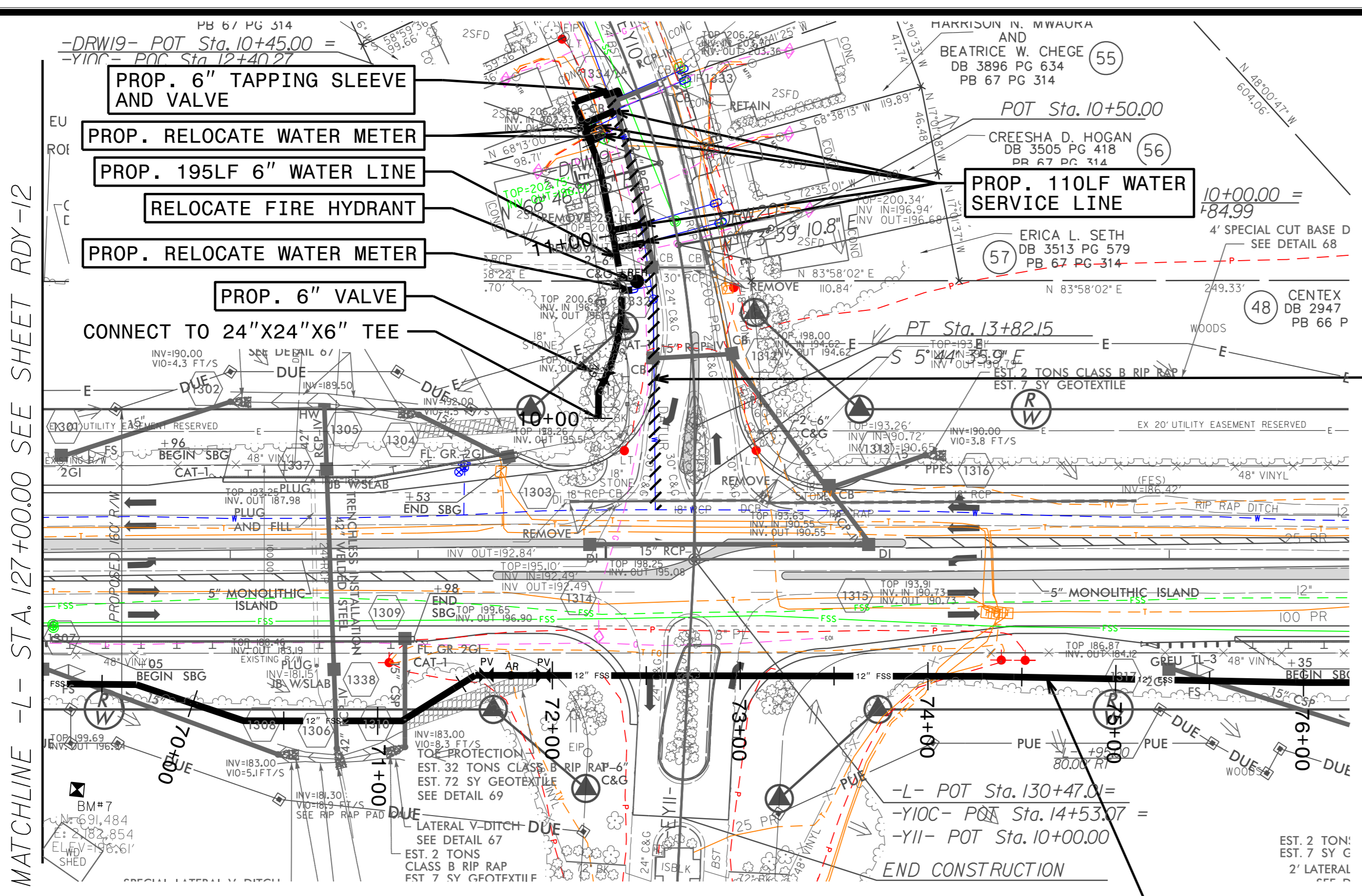
12" PVC FSS

12" PVC FSS

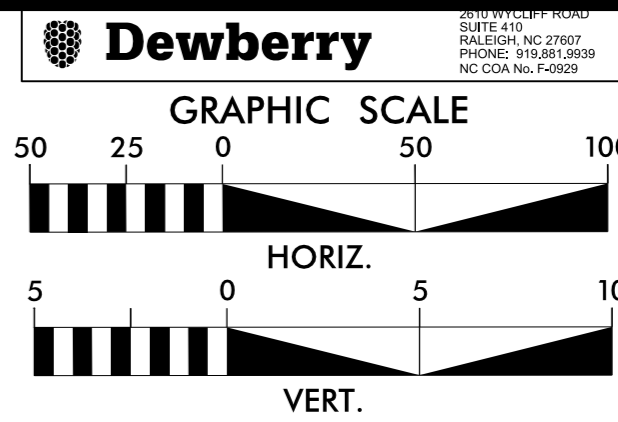
12" PVC FSS WITH RESTRAINED JOINTS

12" PVC FSS

69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00



**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1700 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

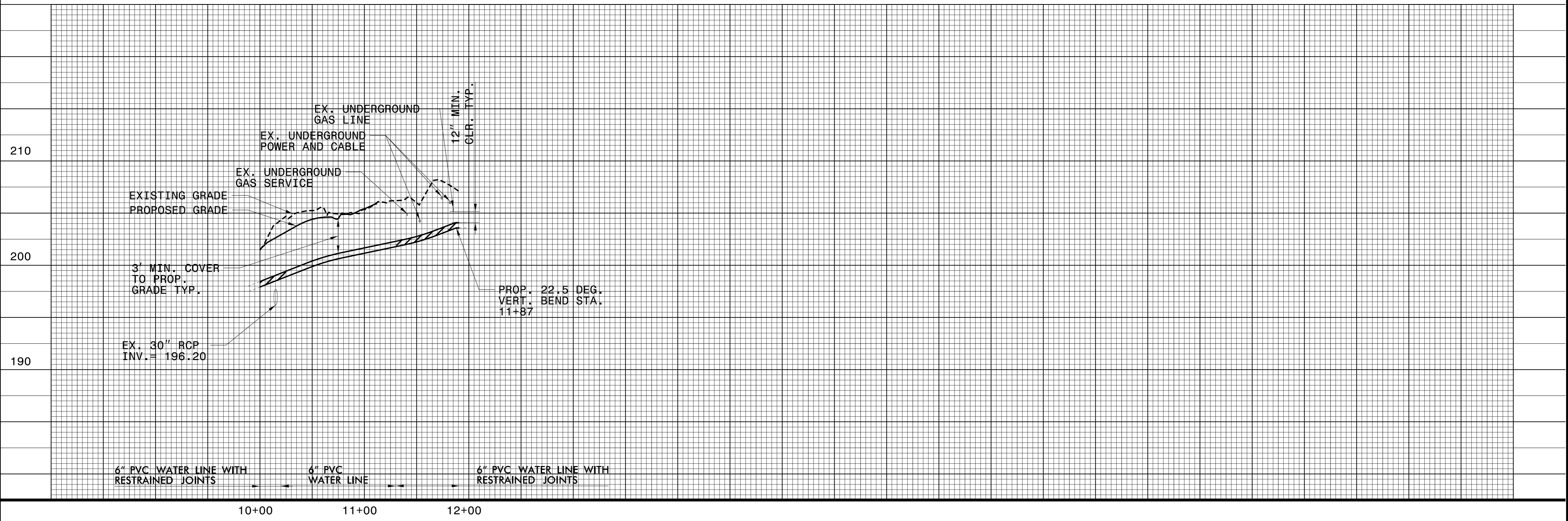


PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-13AQ
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

**UTILITY CONSTRUCTION**



REVISIONS



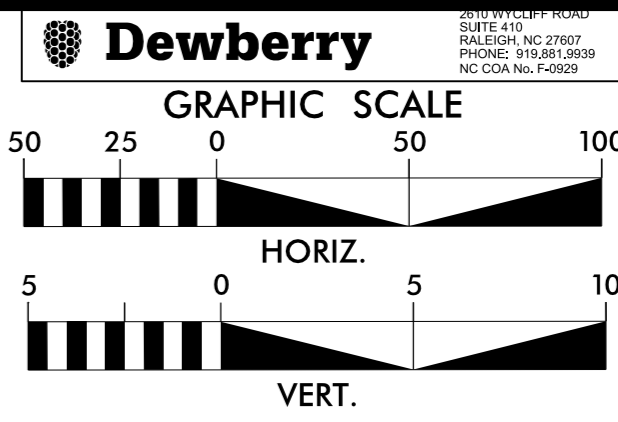
REFER TO SHEET UC13Q FOR SANITARY SEWER

8/17/19

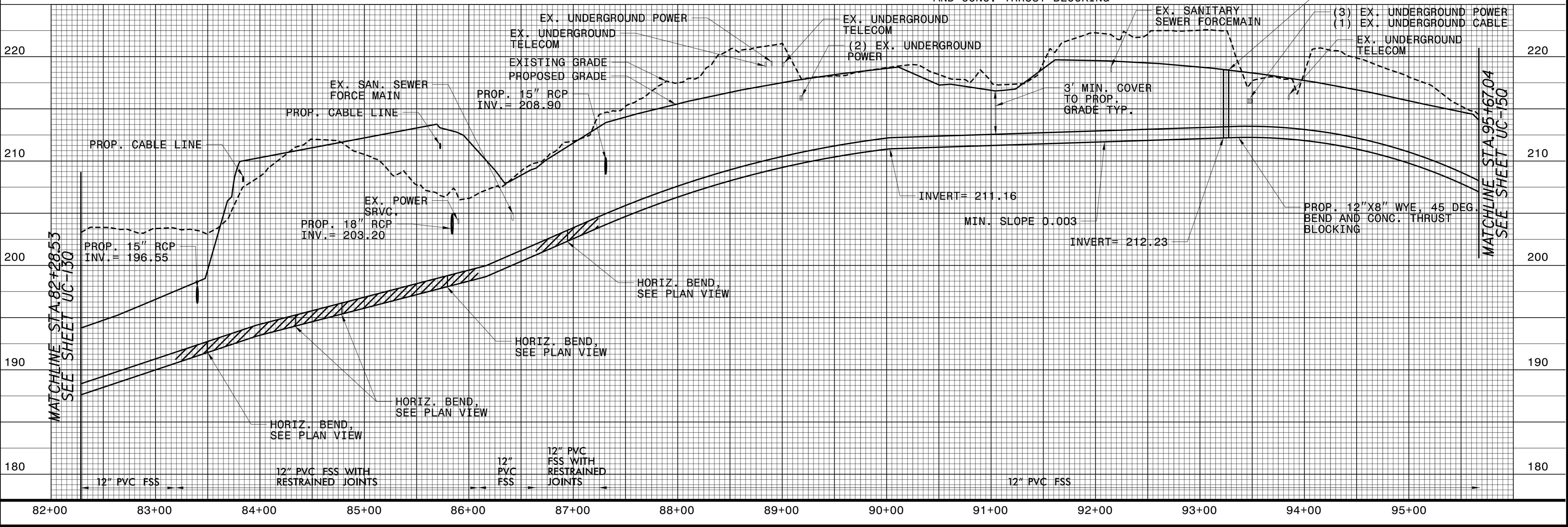
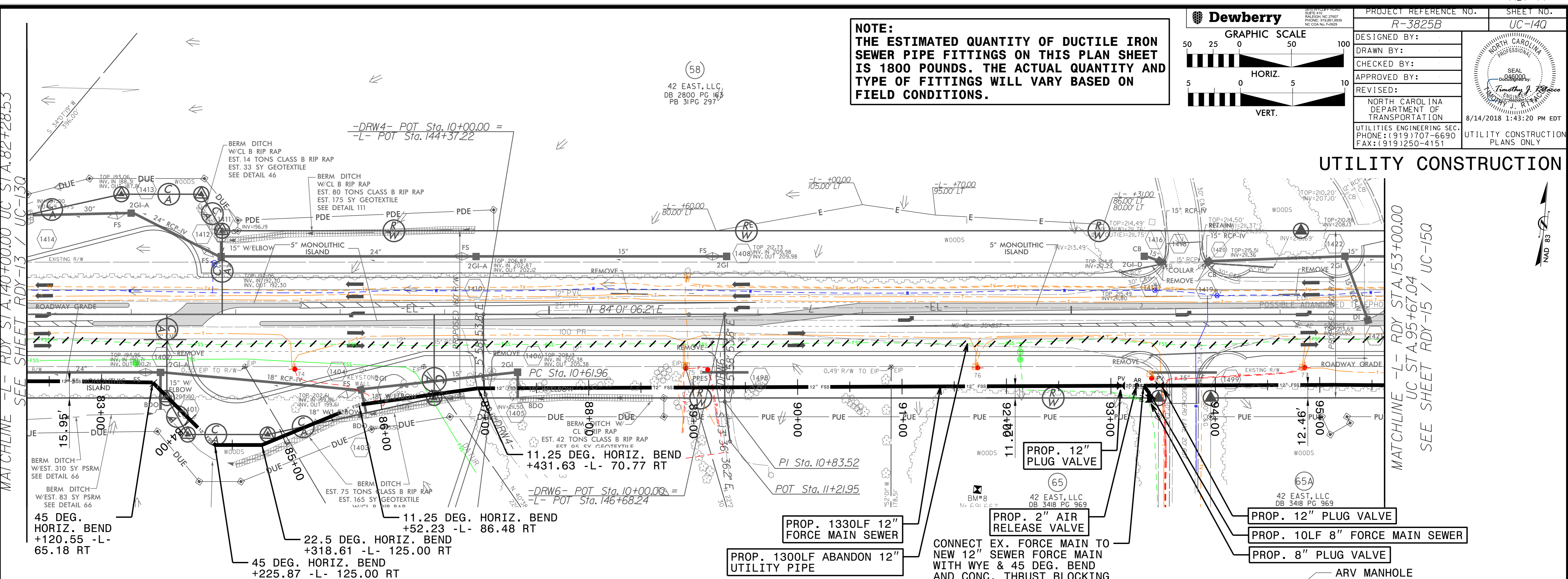
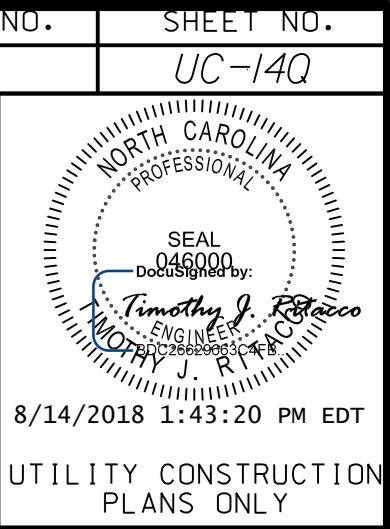
MATCHLINE -L- RDY STA. 140+00.00 UC STA. 82+28.53  
SEE SHEET RDY-13 / UC-130

REVISIONS

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PROJECT REFERENCE NO.	R-3825B
SHEET NO.	UC-14Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	



**UTILITY CONSTRUCTION**

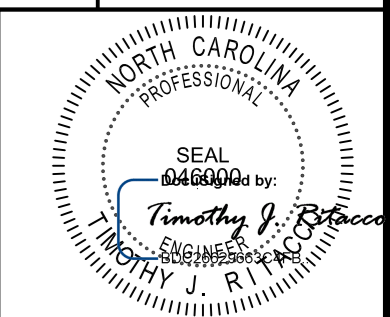
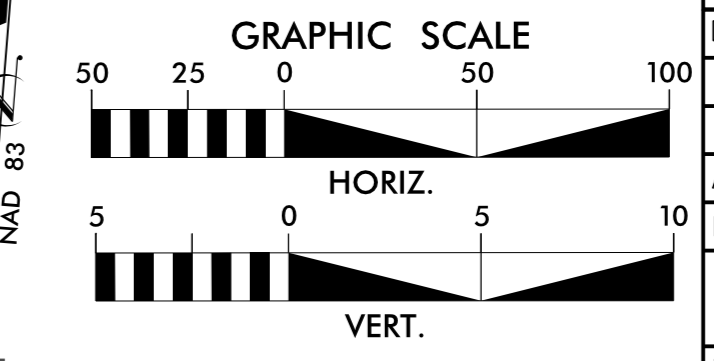
MATCHLINE -L- RDY STA. 153+00.00  
UC STA. 95+67.04  
SEE SHEET RDY-15 / UC-150

MATCHLINE STA. 95+67.04  
SEE SHEET UC-150

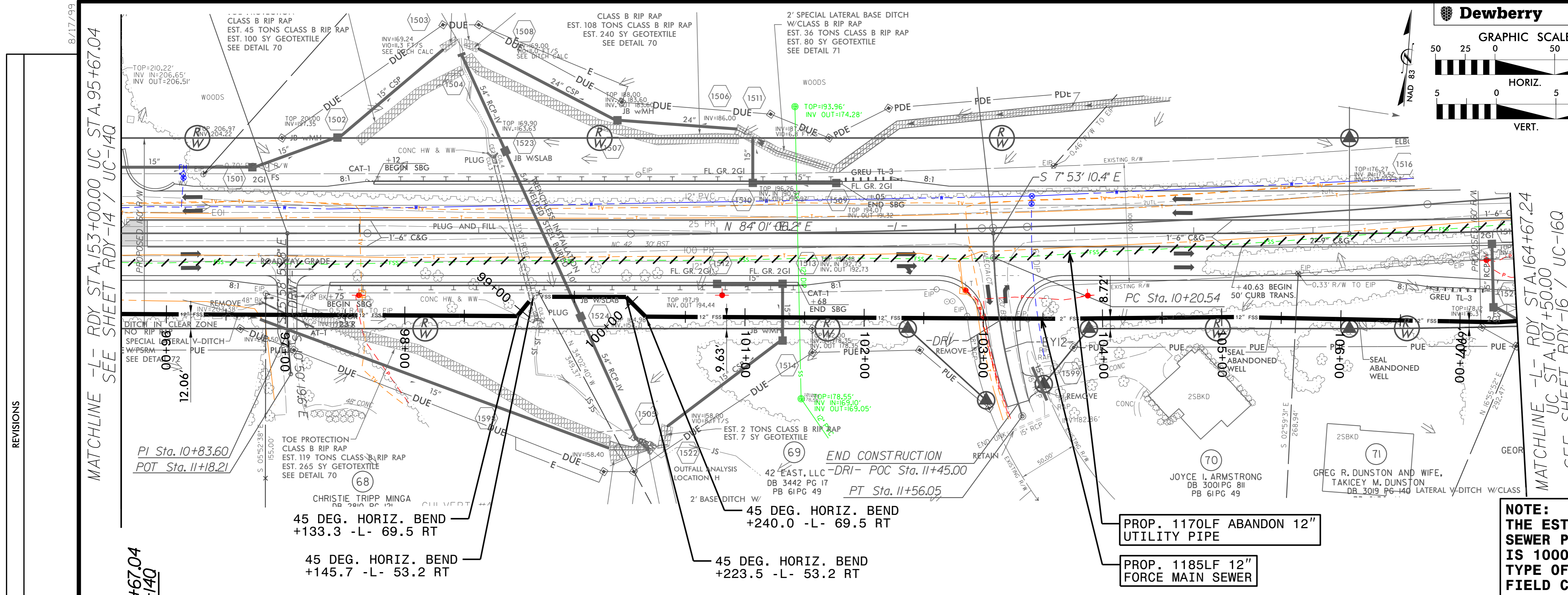


**Dewberry**

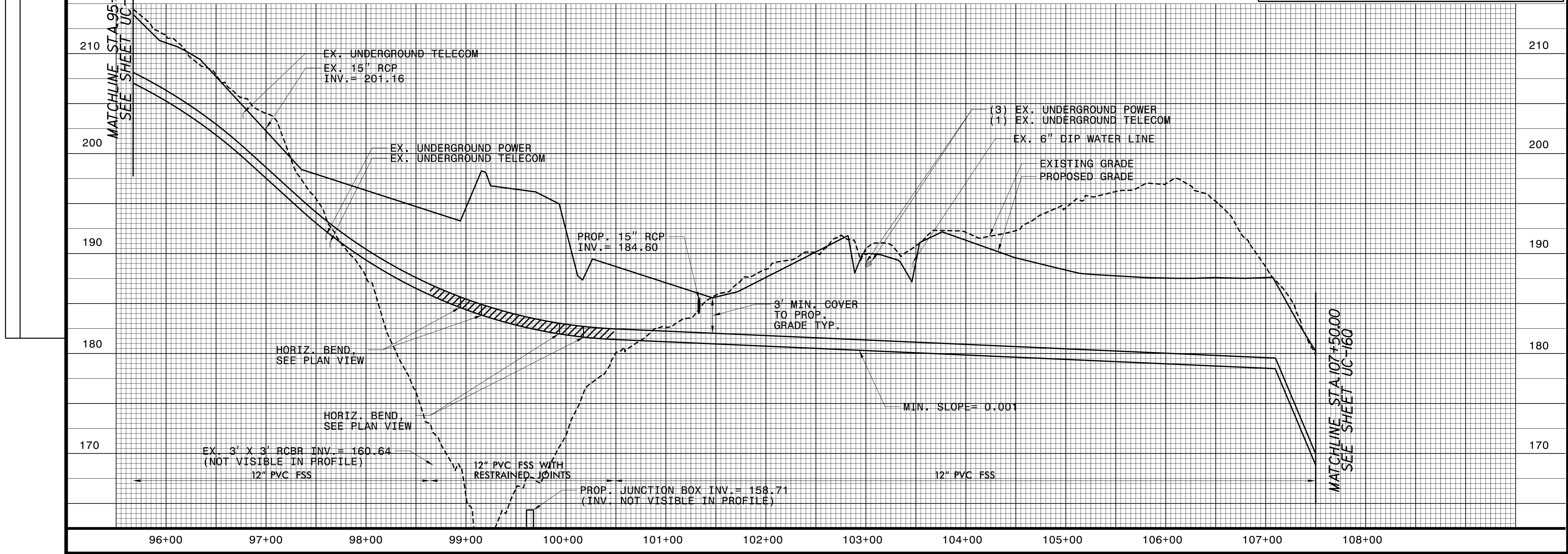
PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>UC-150</b>
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT UTILITY CONSTRUCTION PLANS ONLY	



# UTILITY CONSTRUCTION



**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

MATCHLINE -L- RDY STA. 153+00.00 UC STA. 95+67.04  
SEE SHEET RDY-14 / UC-140

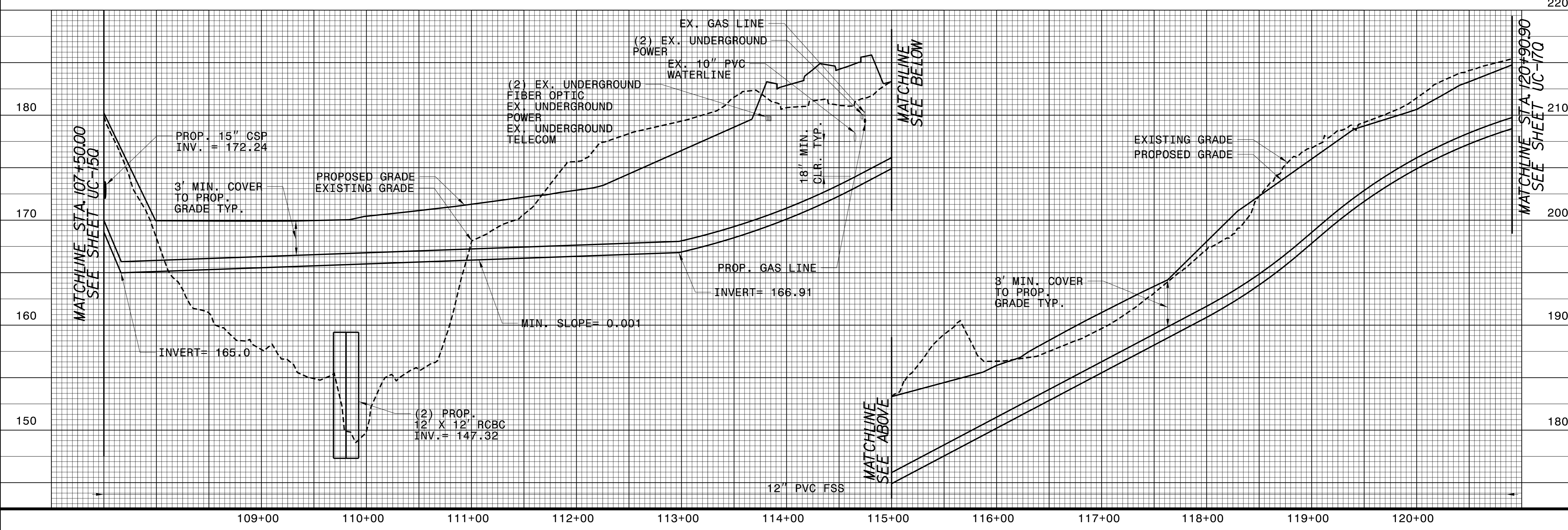
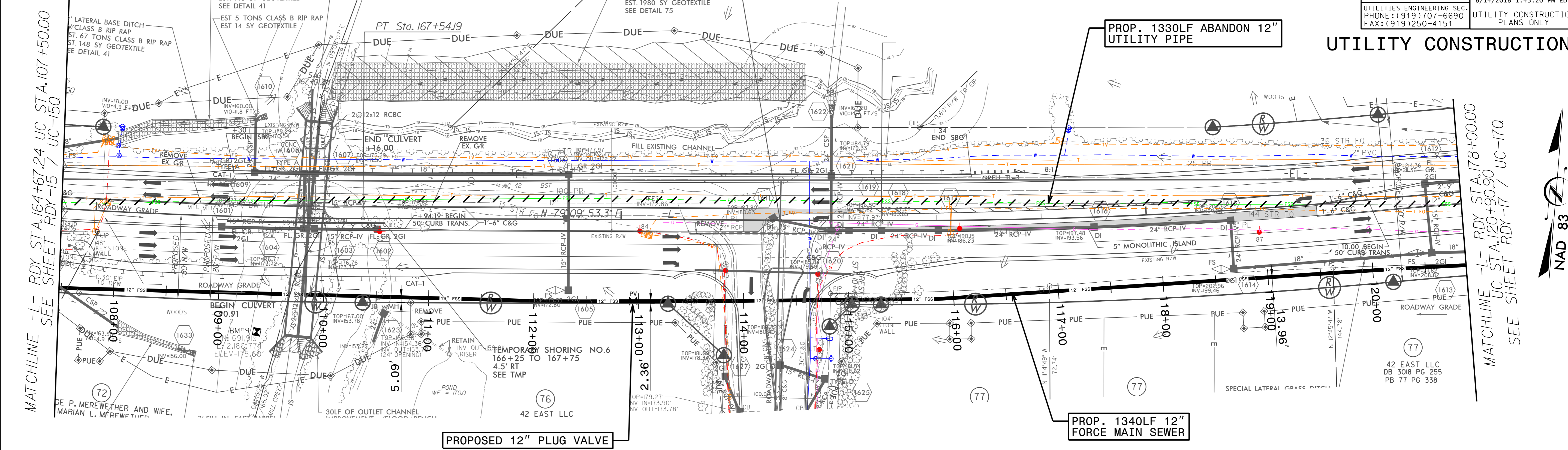
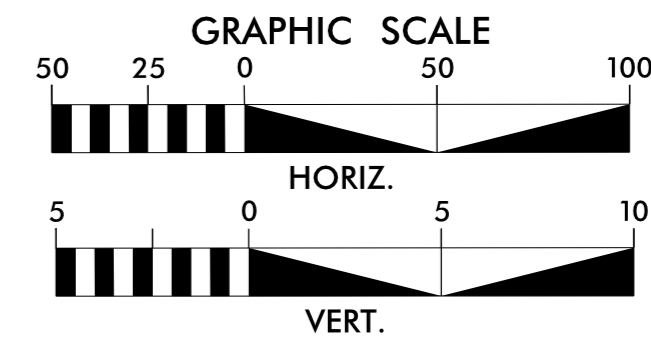
MATCHLINE -L- RDY STA. 164+67.24  
UC STA. 107+50.00  
SEE SHEET RDY-16 / UC-160

MATCHLINE STA. 95+67.04  
SEE SHEET UC-140

MATCHLINE STA. 107+50.00  
SEE SHEET UC-160

DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA PROFESSIONAL SEAL	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	

**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

220

180

190

200

210

220

NAD 83

RDY-16

UC-16Q

8/17/19

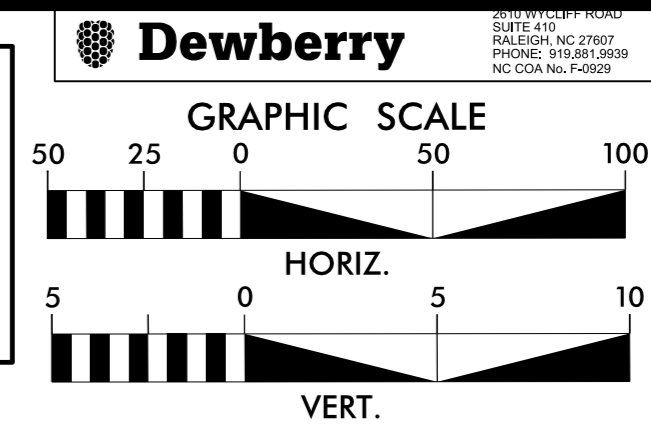
PROJECT REFERENCE NO. R-3825B

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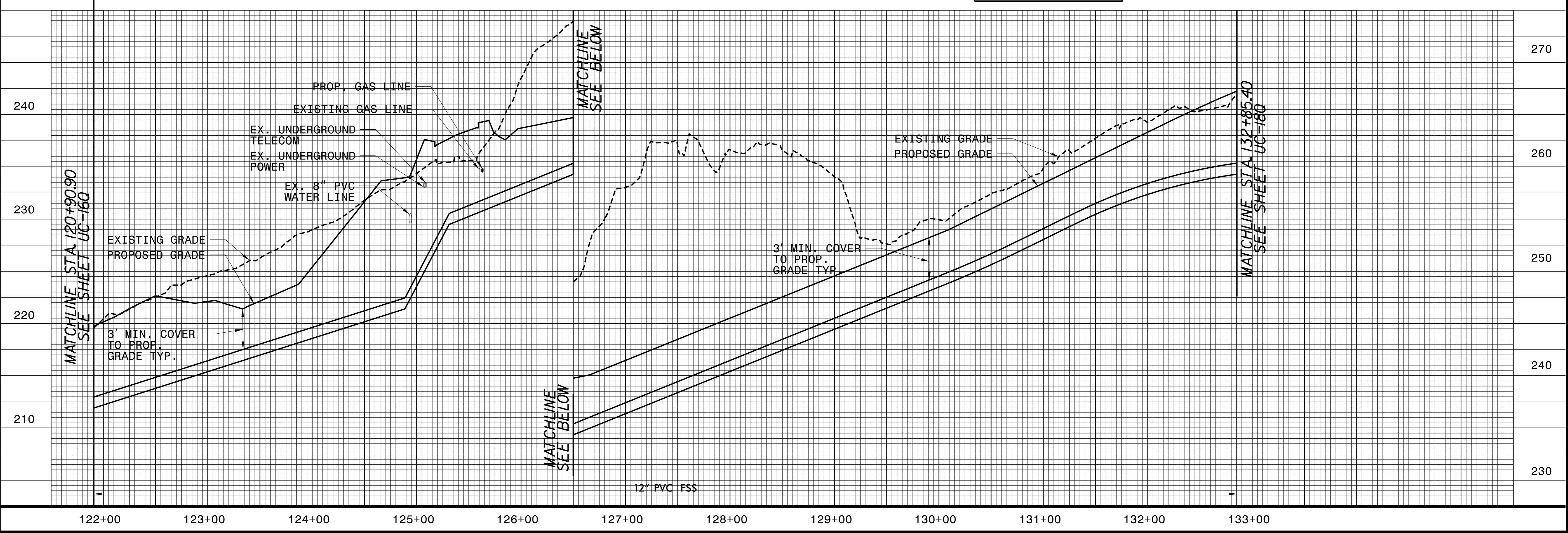
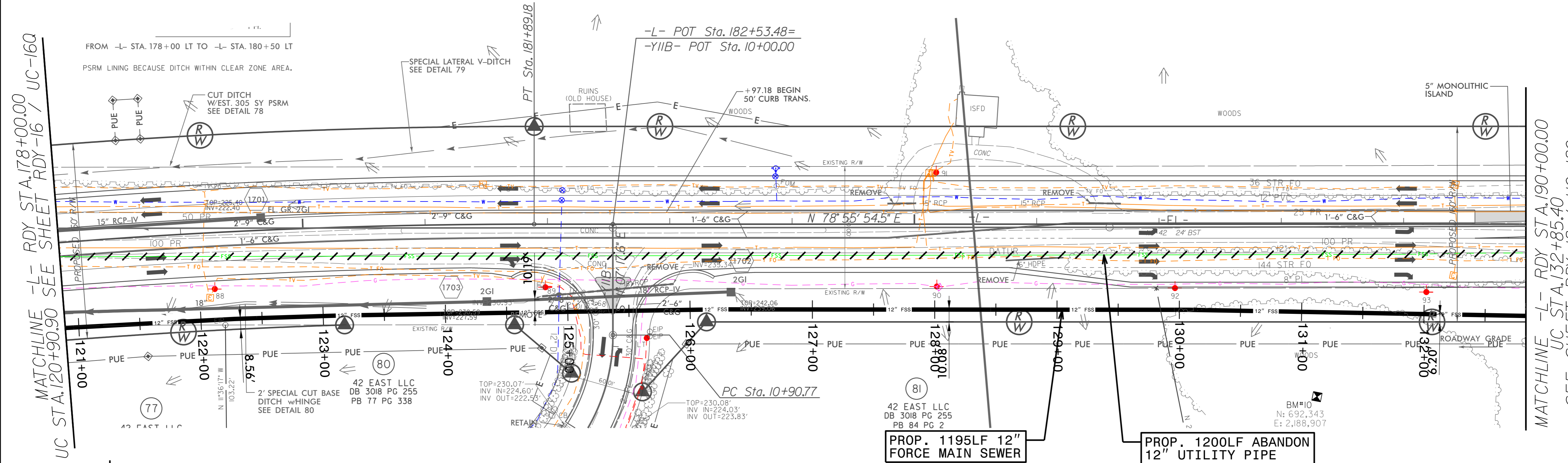
8/17/19

PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-17Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT UTILITY CONSTRUCTION PLANS ONLY	

**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



### UTILITY CONSTRUCTION



REVISIONS

MATCHLINE -L- RDY STA 128+00.00  
UC STA. 120+90.90 SEE SHEET RDY-16 / UC-16Q

MATCHLINE -L- RDY STA. 132+85.40  
UC STA. 132+85.40  
SEE SHEET RDY-18 / UC-18Q

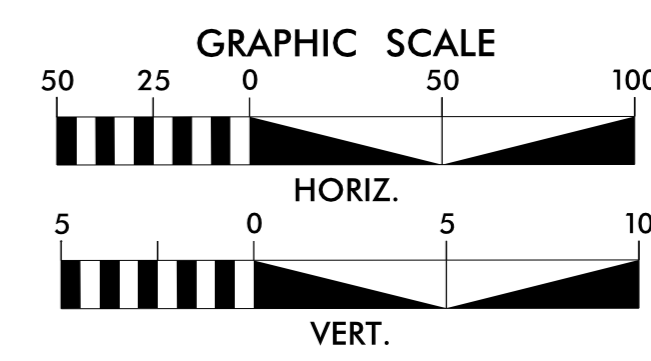
PROP. 1195LF 12" FORCE MAIN SEWER  
PROP. 1200LF ABANDON 12" UTILITY PIPE

8/17/19

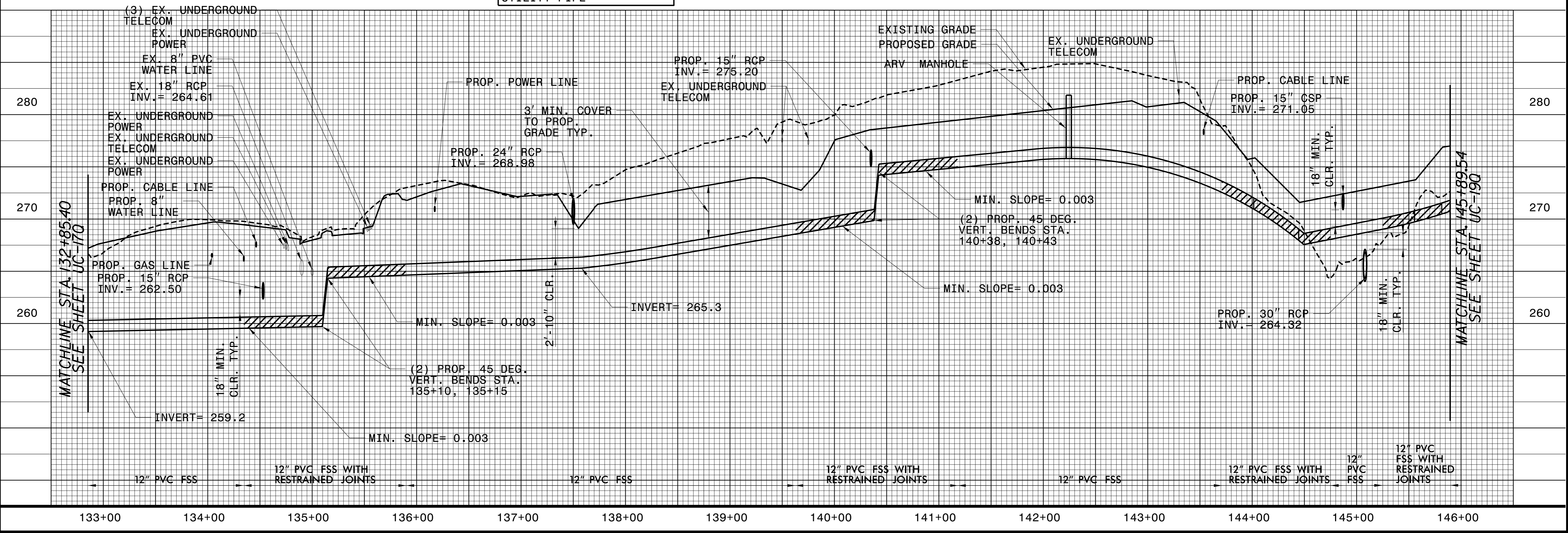
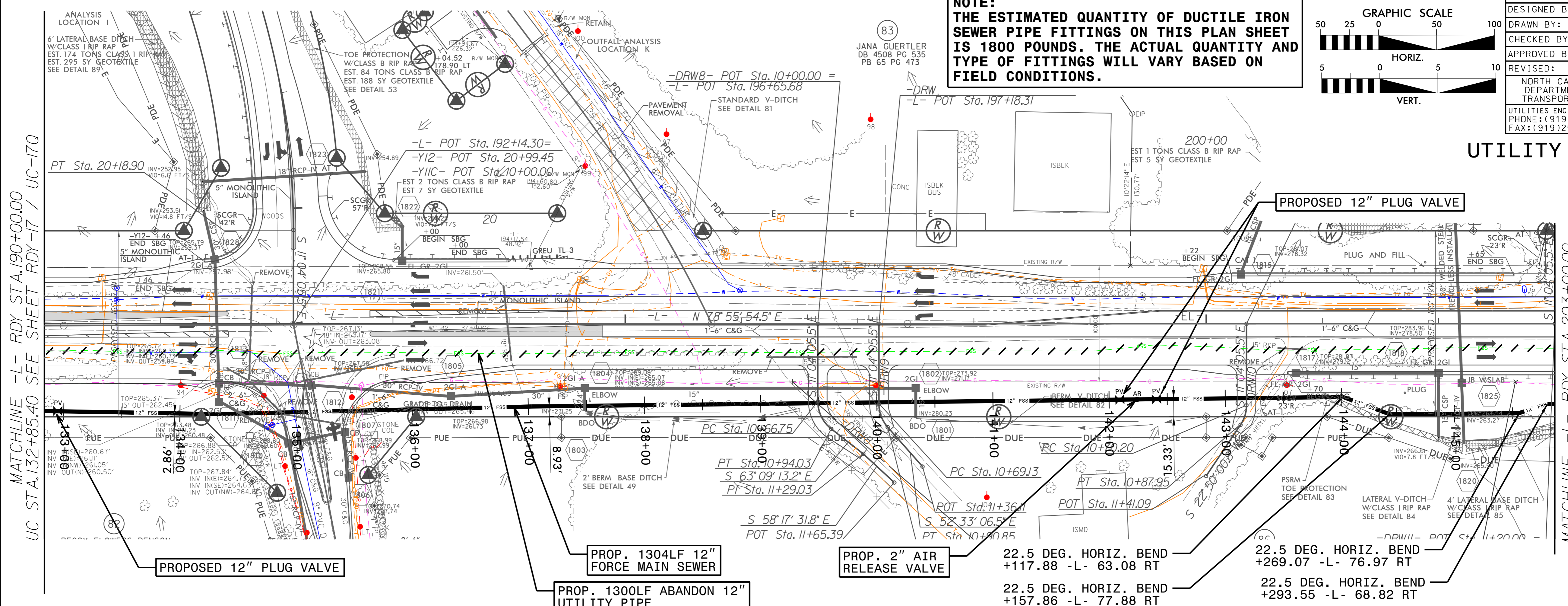


PROJECT REFERENCE NO.	R-3825B UC-18	SHEET NO.	UC-18Q
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
		8/14/2018 1:43:20 PM EDT	
		UTILITY CONSTRUCTION PLANS ONLY	

**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



**UTILITY CONSTRUCTION**



REVISIONS

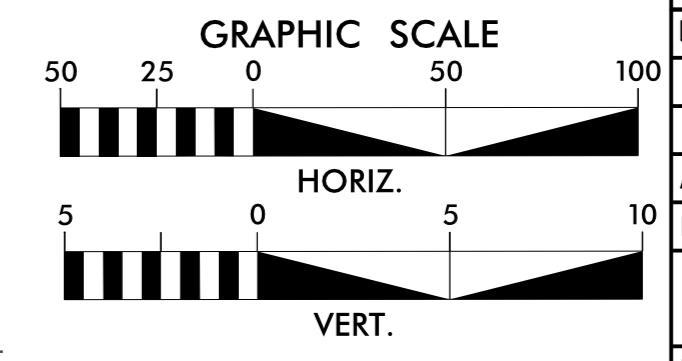
MATCHLINE -L- RDY STA.190+00.00  
 UC STA.132+85.40 SEE SHEET RDY-17 / UC-17Q

MATCHLINE -L- RDY STA.203+00.00  
 UC STA.145+89.54  
 SEE SHEET RDY-19 / UC-19Q

133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00

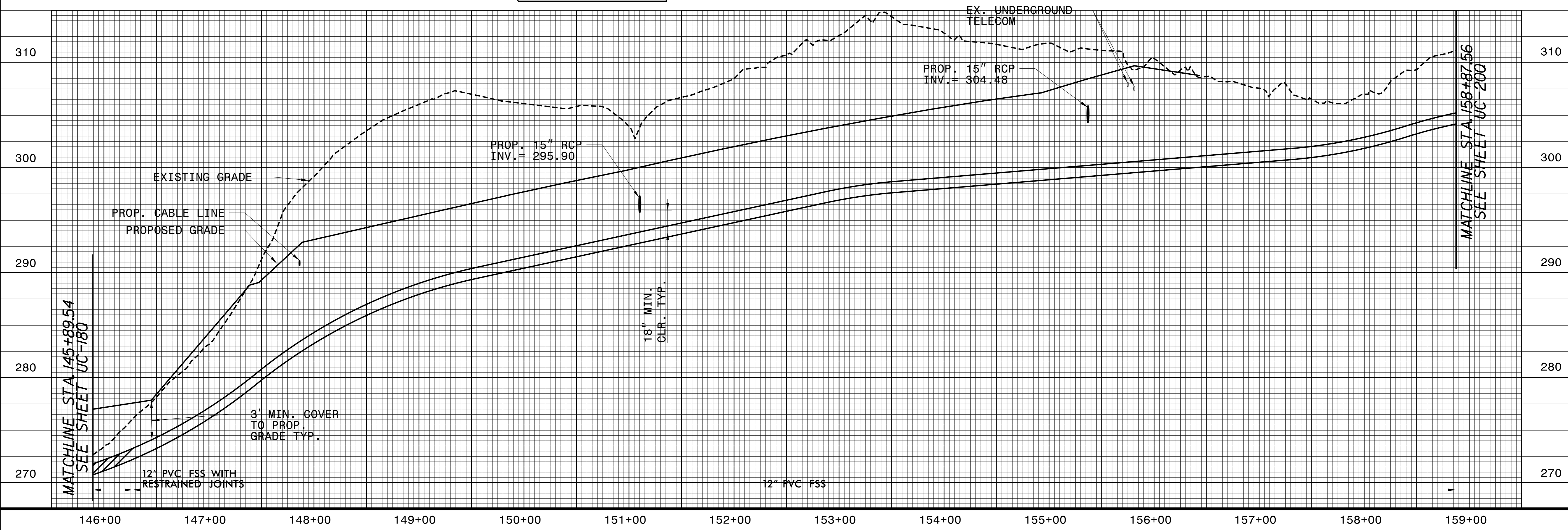
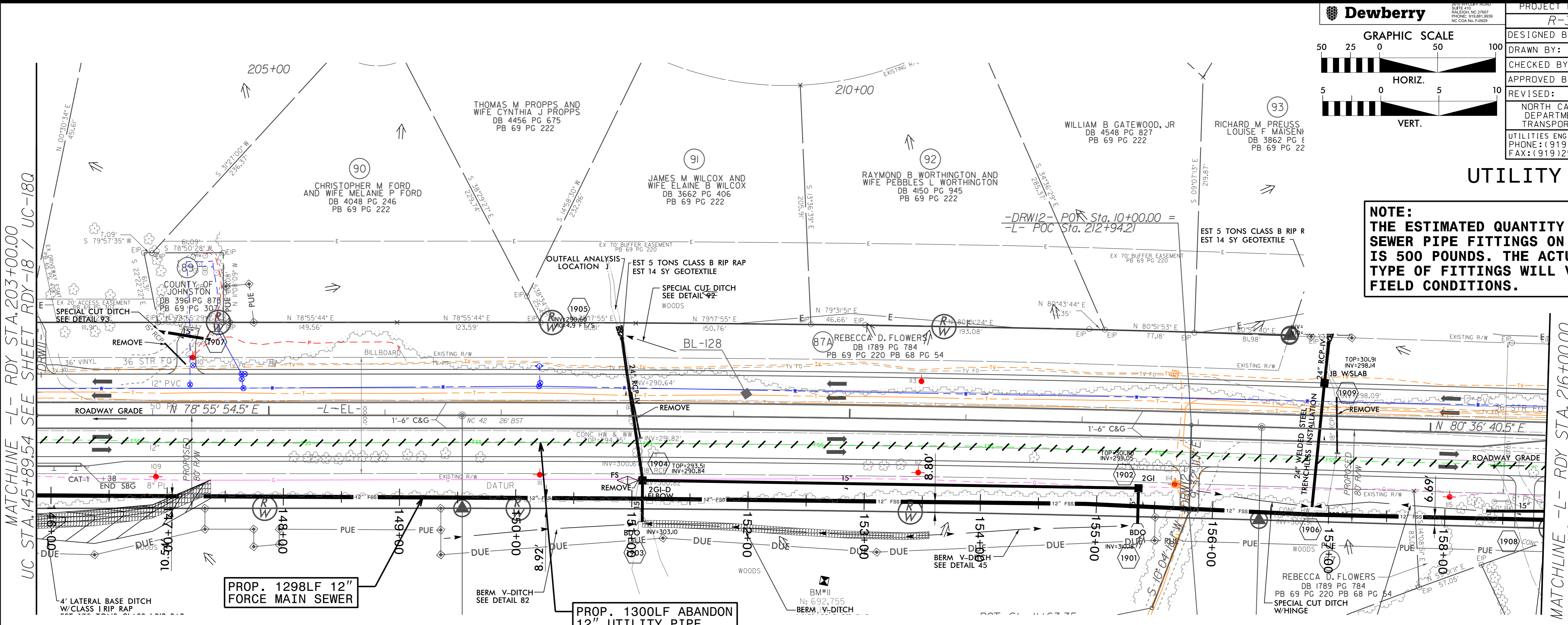


PROJECT REFERENCE NO.	R-3825B	SHEET NO.	UC-19Q
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			
APPROVED BY:			
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
		8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY			



# UTILITY CONSTRUCTION

**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



REVISIONS

8/17/19

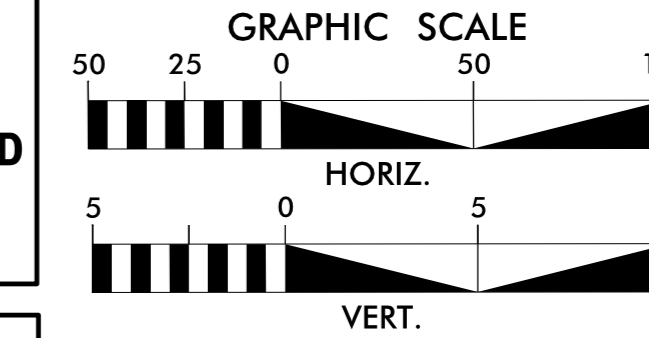
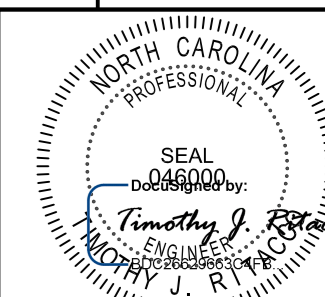
MATCHLINE -L- RDY STA. 203+00.00  
 UC STA. 145+89.54 SEE SHEET RDY-18 / UC-18Q

MATCHLINE -L- RDY STA. 216+00.00  
 UC STA. 158+87.56  
 SEE SHEET RDY-20 / UC-20Q

MATCHLINE STA. 158+87.56  
 SEE SHEET UC-20Q



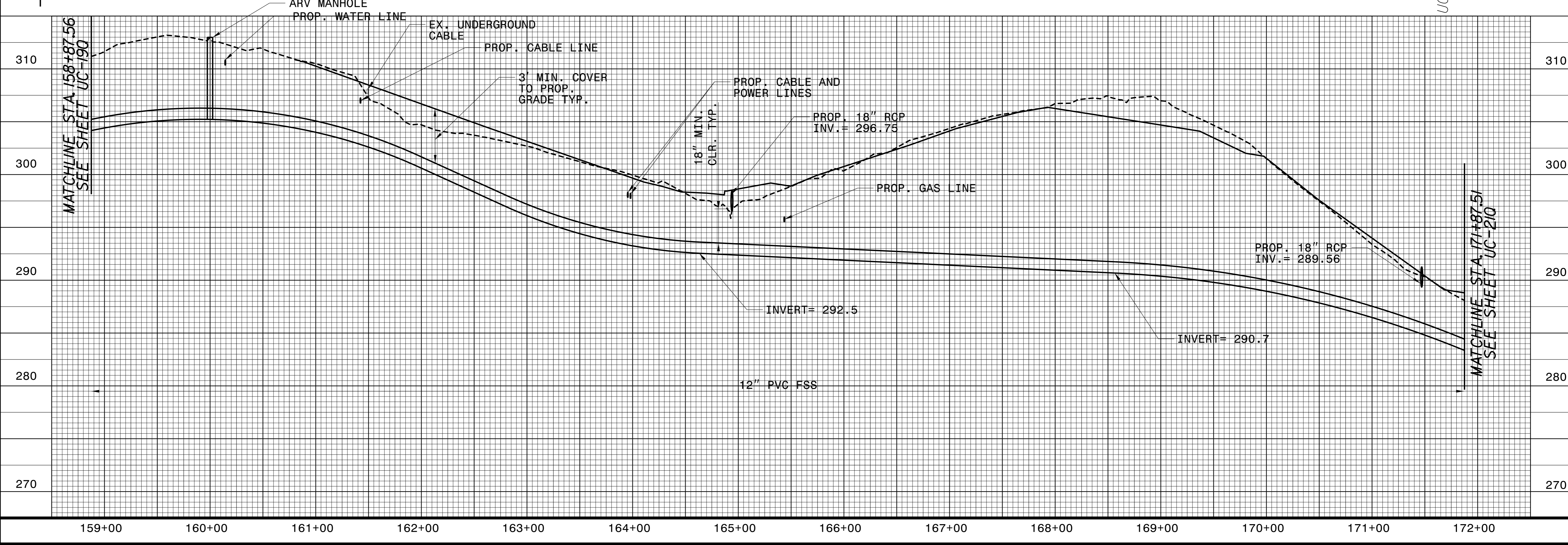
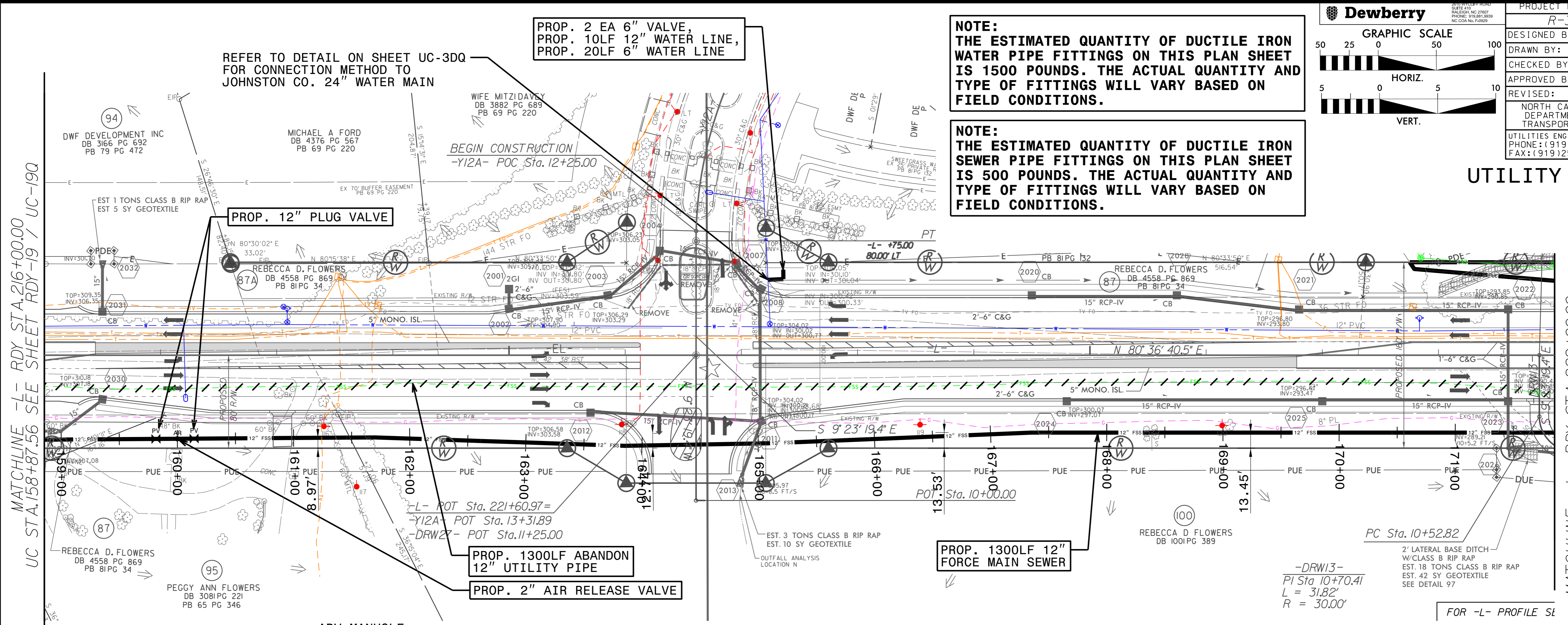
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
8/14/2018 1:43:20 PM EDT	
UTILITY CONSTRUCTION PLANS ONLY	



**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**UTILITY CONSTRUCTION**



REVISIONS

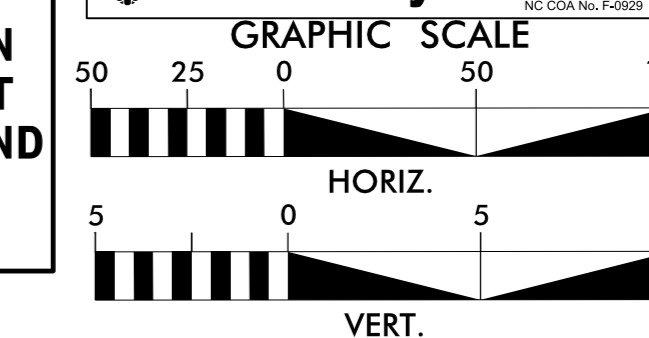
MATCHLINE -L- RDY STA. 216+00.00  
UC STA. 158+87.56 SEE SHEET RDY-19 / UC-190

MATCHLINE -L- RDY STA. 229+00.00  
UC STA. 171+87.51 SEE SHEET RDY-21 / UC-210



Dewberry

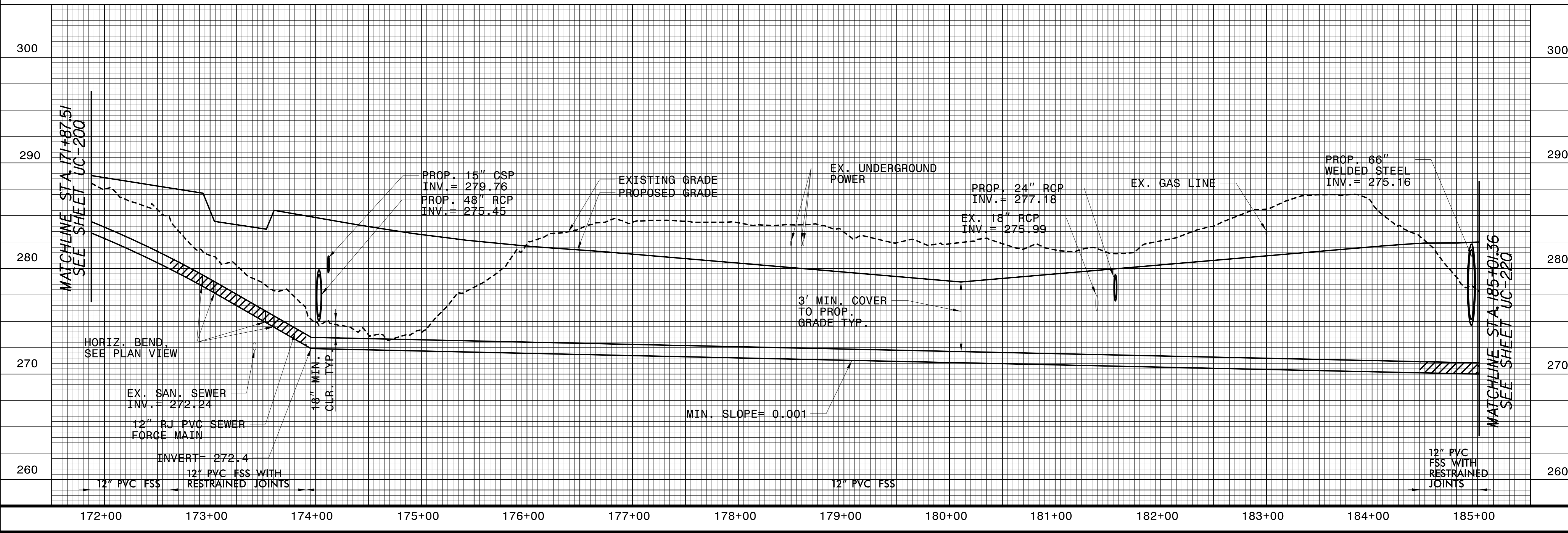
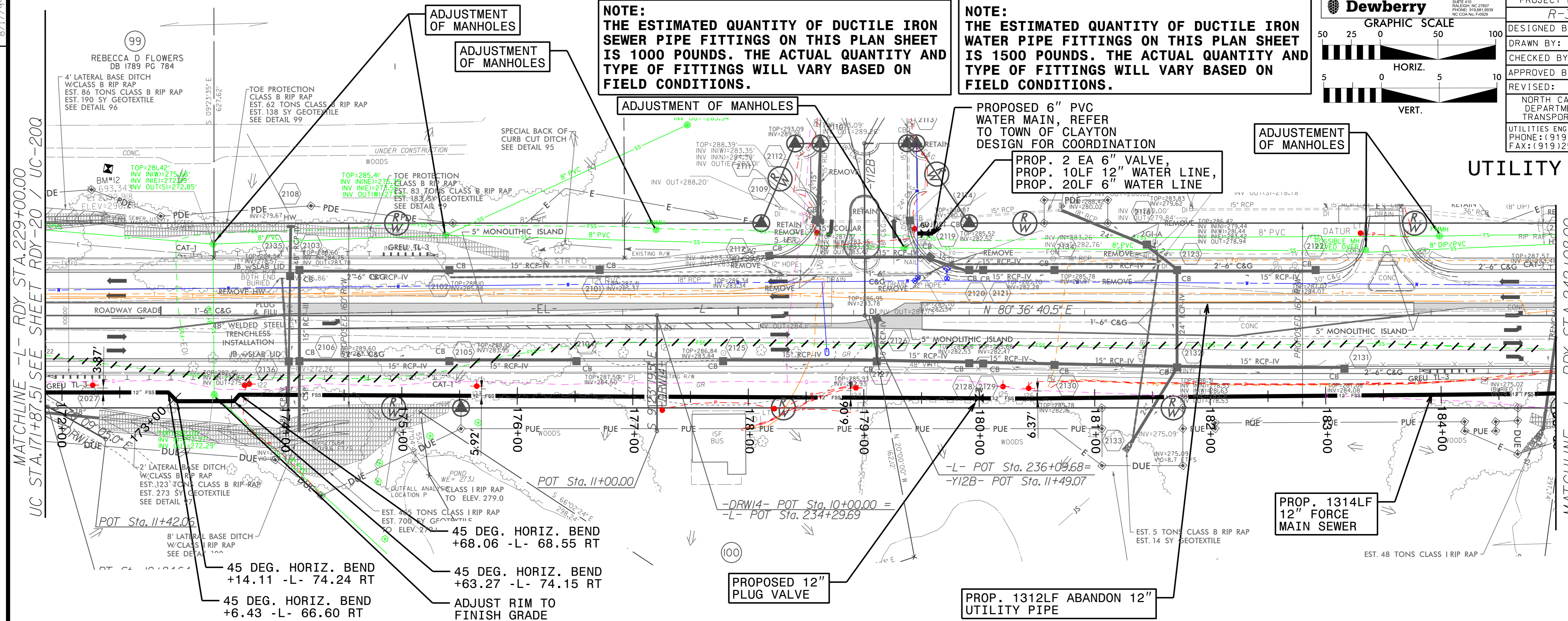
PROJECT REFERENCE NO.		SHEET NO.	
R-3825B		UC-21Q	
DESIGNED BY:		DRAWN BY:	
CHECKED BY:		APPROVED BY:	
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		8/14/2018 1:43:20 PM EDT UTILITY CONSTRUCTION PLANS ONLY	



**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1000 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

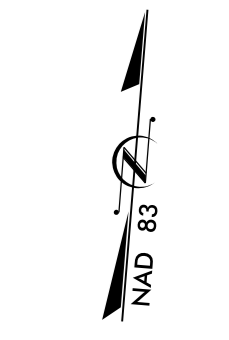
**UTILITY CONSTRUCTION**



REVISIONS

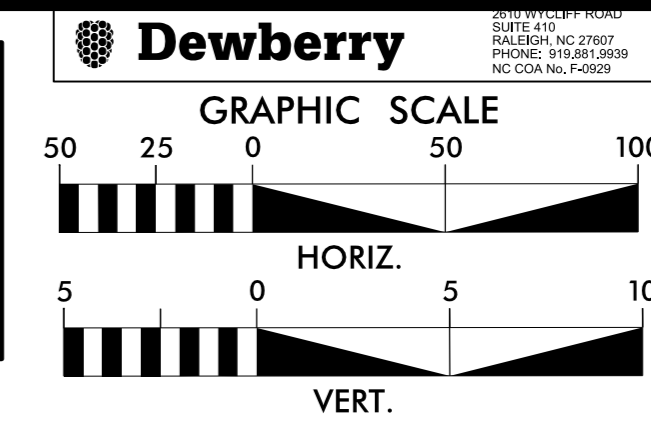
MATCHLINE -L- RDY STA. 229+00.00 UC STA. 171+87.51 SEE SHEET RDY-20 / UC-20Q

MATCHLINE -L- RDY STA. 242+08.00 UC STA. 185+01.36 SEE SHEET RDY-22 / UC-22Q



REFER TO SHEET UC-22AQ FOR PROFILE INFORMATION

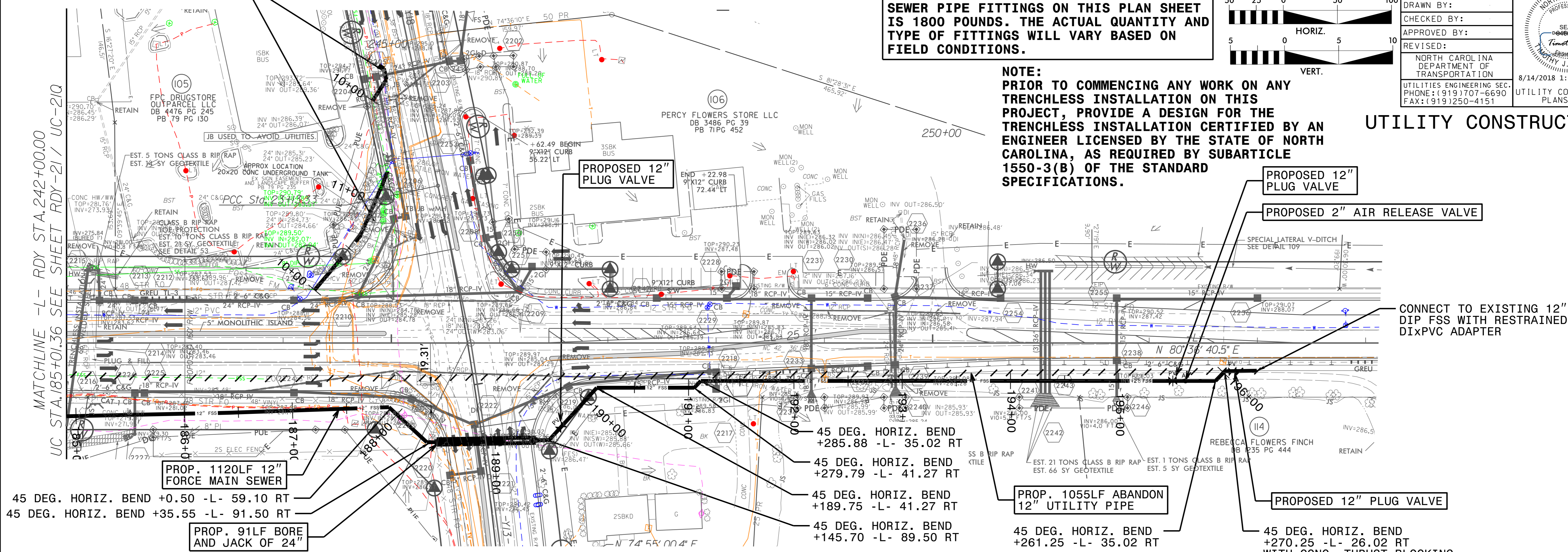
**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 1800 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-22Q
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	8/14/2018 1:43:20 PM EDT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

### UTILITY CONSTRUCTION

**NOTE:**  
PRIOR TO COMMENCING ANY WORK ON ANY TRENCHLESS INSTALLATION ON THIS PROJECT, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

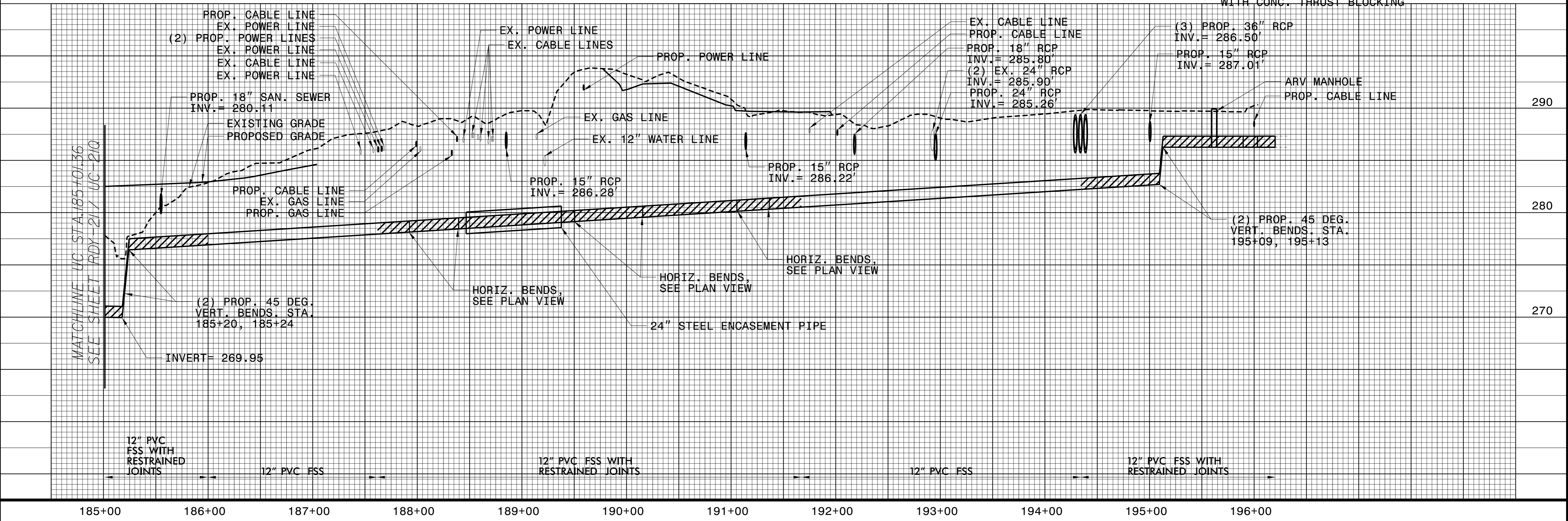


45 DEG. HORIZ. BEND +0.50 -L- 59.10 RT  
 45 DEG. HORIZ. BEND +35.55 -L- 91.50 RT  
 PROP. 1120LF 12" FORCE MAIN SEWER  
 PROP. 91LF BORE AND JACK OF 24"

45 DEG. HORIZ. BEND +285.88 -L- 35.02 RT  
 45 DEG. HORIZ. BEND +279.79 -L- 41.27 RT  
 45 DEG. HORIZ. BEND +189.75 -L- 41.27 RT  
 45 DEG. HORIZ. BEND +145.70 -L- 89.50 RT

PROP. 1055LF ABANDON 12" UTILITY PIPE  
 45 DEG. HORIZ. BEND +261.25 -L- 35.02 RT

PROP. 12" PLUG VALVE  
 45 DEG. HORIZ. BEND +270.25 -L- 26.02 RT WITH CONC. THRUST BLOCKING



185+00 186+00 187+00 188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00 196+00

REVISIONS

PROP. 38LF ABANDON 8" UTILITY PIPE

PROP. 56LF 8" FORCE MAIN SEWER

TIE TO EXISTING WITH 8" 45 DEG. BEND AND THRUST BLOCKING

11.25 DEG. HORIZ. BEND +312 -Y13- 115.5 LT

PROP. 125LF 8" FORCE MAIN SEWER

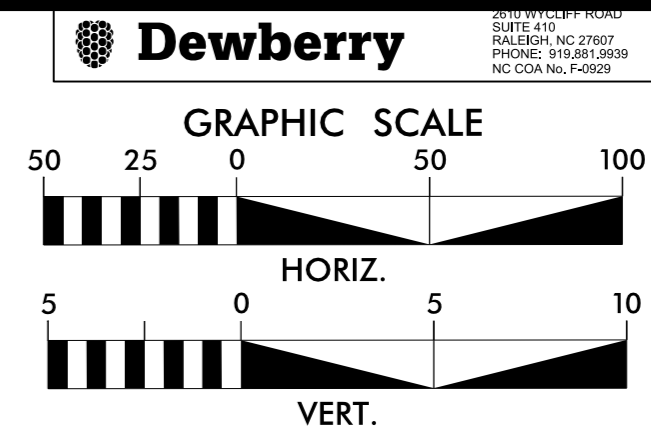
TIE TO EXISTING WITH 8" 45 DEG. BEND AND THRUST BLOCKING

TIE TO EXISTING WITH 8" 45 DEG. BEND AND THRUST BLOCKING

45 DEG. HORIZ. BEND +197 -Y13- 26.50 LT

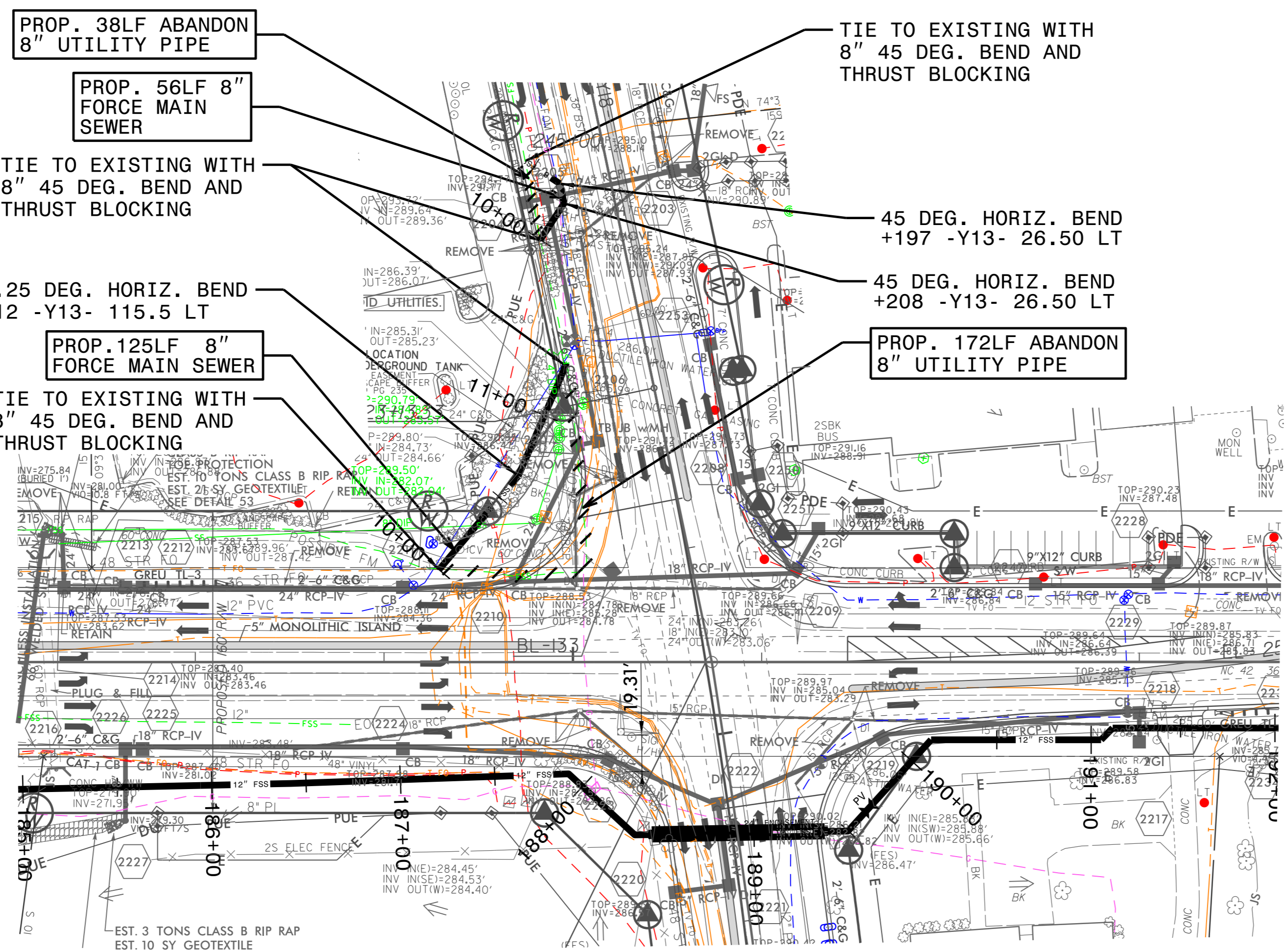
45 DEG. HORIZ. BEND +208 -Y13- 26.50 LT

PROP. 172LF ABANDON 8" UTILITY PIPE

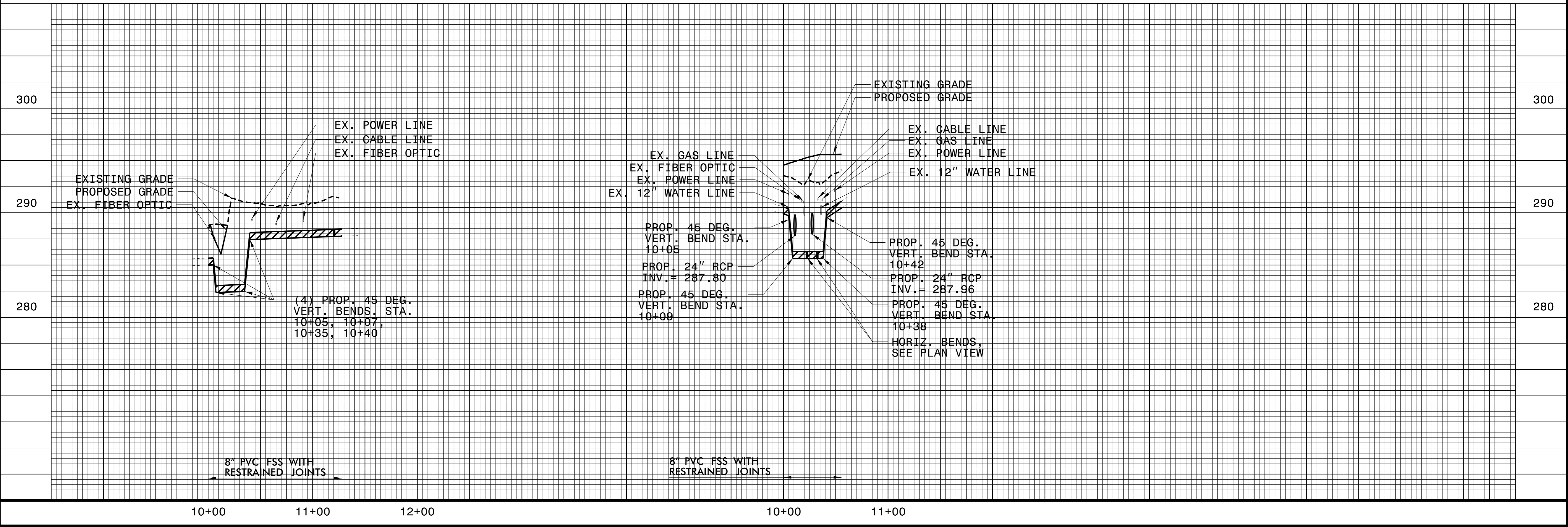


PROJECT REFERENCE NO. R-3825B	SHEET NO. UC-22AQ
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	8/14/2018 1:43:20 PM EDT
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**NOTE:**  
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 2500 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



10+00 11+00 12+00

10+00 11+00