

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	—
11? Degree Bend	- +
22? Degree Bend	- +
45 Degree Bend	- + ^x
90 Degree Bend	- +
Plug	-
Tee	- +
Cross	- +
Reducer	- ▶
Gate Valve	-
Butterfly Valve	-
Tapping Valve	-
Line Stop	-
Line Stop with Bypass	-
Blow Off	-
Fire Hydrant	-
Relocate Fire Hydrant	-
Remove Fire Hydrant	-
Water Meter	-
Relocate Water Meter	-
Remove Water Meter	-
Water Pump Station	-
RPZ Backflow Preventer	-
DCV Backflow Preventer	-
Relocate RPZ Backflow Preventer	-
Relocate DCV Backflow Preventer	-

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	- ●
Telephone Pole	- ○
Joint Use Pole	- ○
Telephone Pedestal	-
Utility Line by Others (Type as Shown)	—
Trenchless Installation	—
Encasement by Open Cut	—
Encasement	—

Thrust Block	-
Air Release Valve	- ●
Utility Vault	-
Concrete Pier	-
Steel Pier	-
Plan Note	-
Pay Item Note	-

NOTE
PAY ITEM

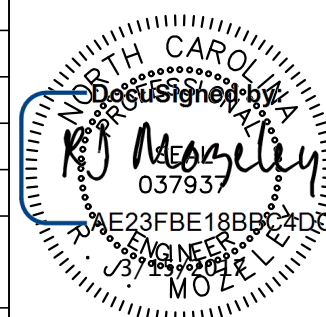
EXISTING UTILITIES SYMBOLS

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	—
*Underground Telephone Cable	—
*Underground Telephone Conduit	—
*Underground Fiber Optics Telephone Cable	—
*Underground TV Cable	—
*Underground Fiber Optics TV Cable	—
*Underground Gas Pipeline	—
Aboveground Gas Pipeline	— A/G Gas
*Underground Water Line	—
Aboveground Water Line	— A/G Water
*Underground Gravity Sanitary Sewer Line	—
Aboveground Gravity Sanitary Sewer Line	— A/G Sanitary Sewer
*Underground SS Forced Main Line	—
Underground Unknown Utility Line	—
SUE Test Hole	- ●
Water Meter	- ○
Water Valve	- ●
Fire Hydrant	- ◆
Sanitary Sewer Cleanout	- ●

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown)
Designated Utility Line (Type as Shown)

UTILITY CONSTRUCTION

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-3
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	

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 CITY OF HICKORY.
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:

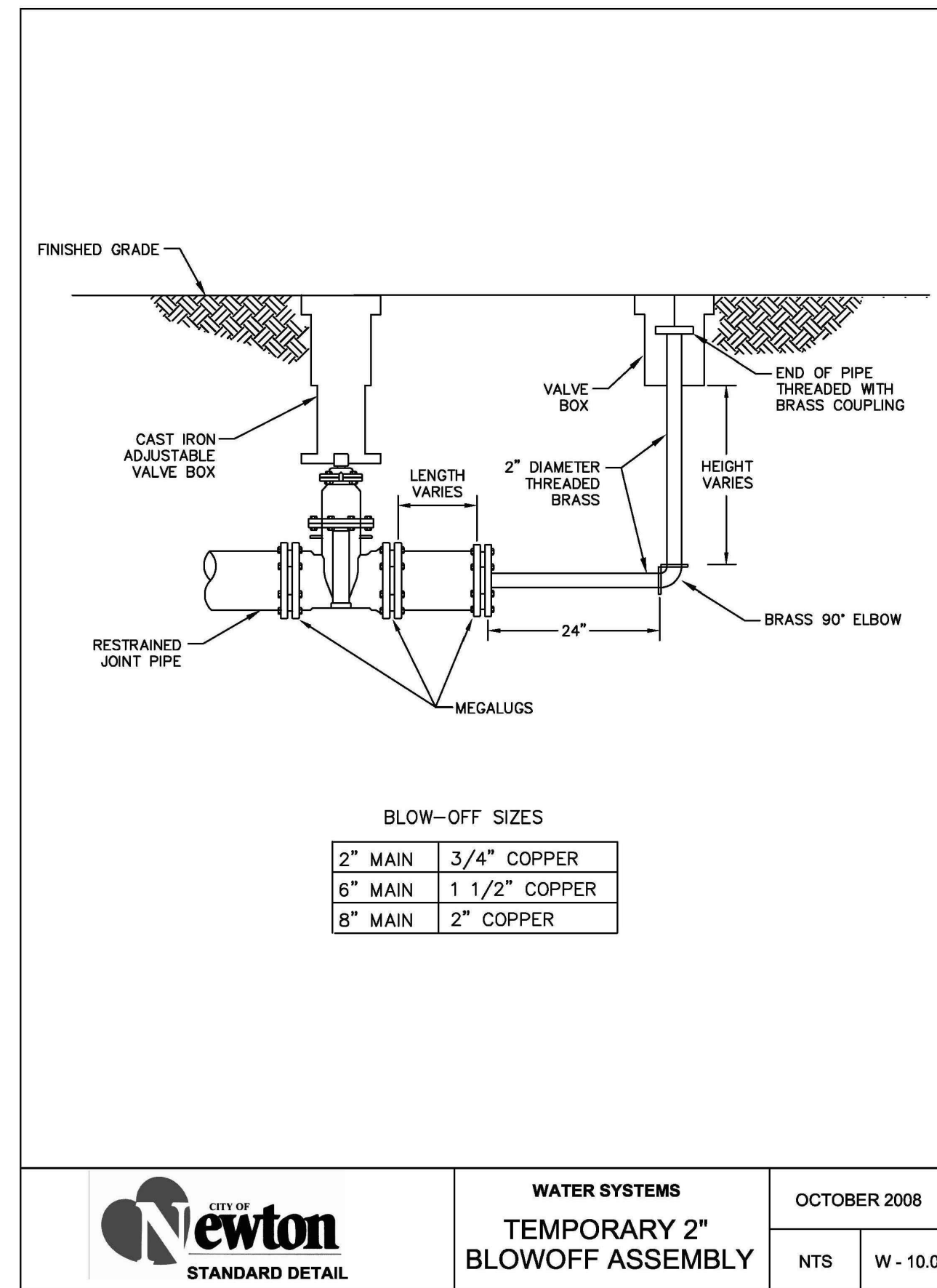
1. PROPOSED WATER LINE FROM -X- LINE STATION XX+XX TO -X- LINE STATION XX+XX SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE. (EXAMPLE)
2. NITRILE GASKETS SHALL BE USED FROM -X- LINE STATION XX+XX TO -X- LINE STATION XX+XX DUE TO PETROLEUM CONTAMINATED SOILS. (EXAMPLE)
3. CONTRACTOR'S ATTENTION 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.
4. 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.

7. (EXAMPLE) SPACE FOR EXTRA NOTES ON END OF COLUMN.

LIST OF STANDARD DRAWINGS

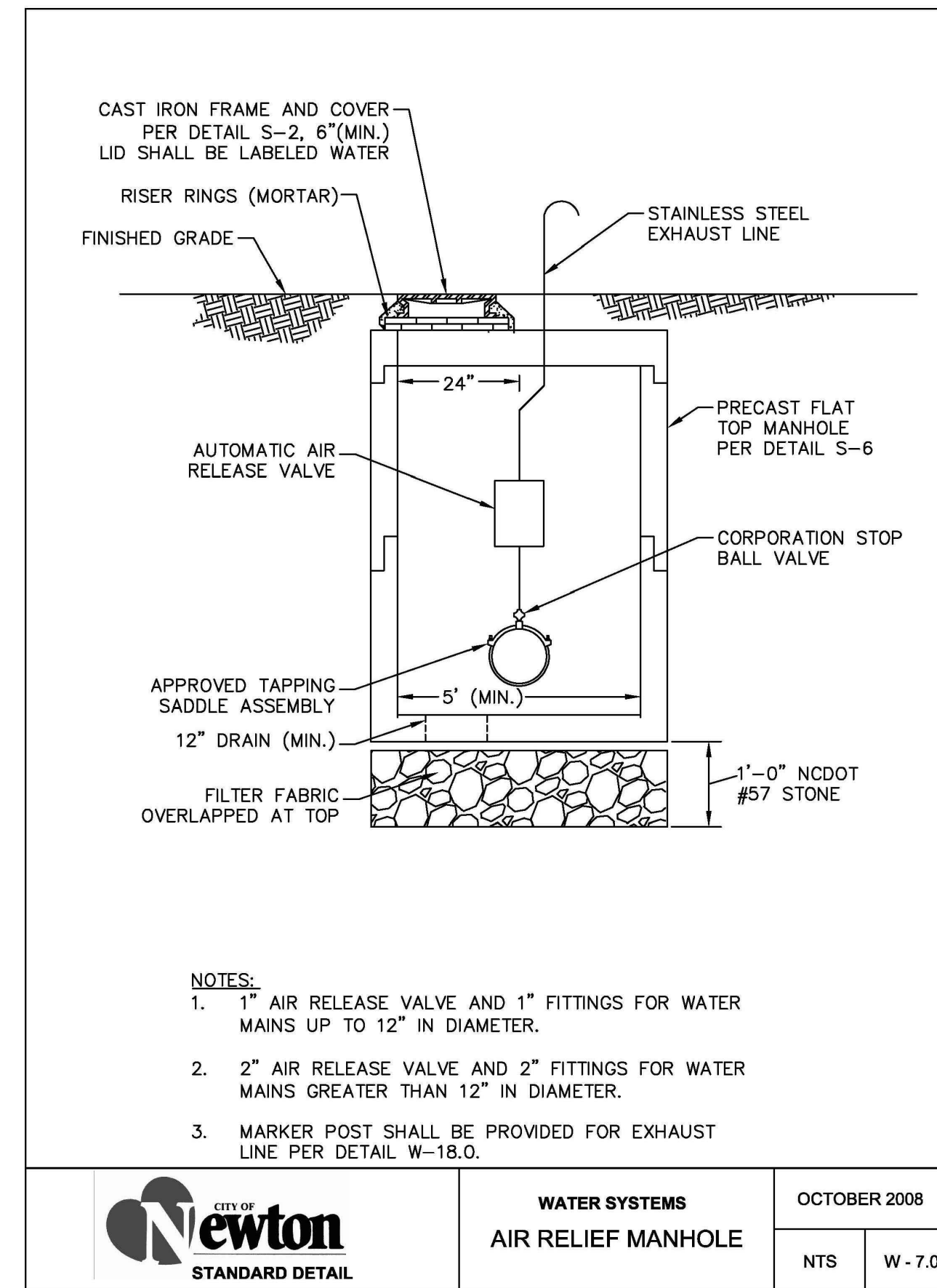
- 1515.01 WATER METER
- 1515.02 FIRE HYDRANT
- 1520.01 SEWER CLEAN OUT
- 1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

UTILITY CONSTRUCTION



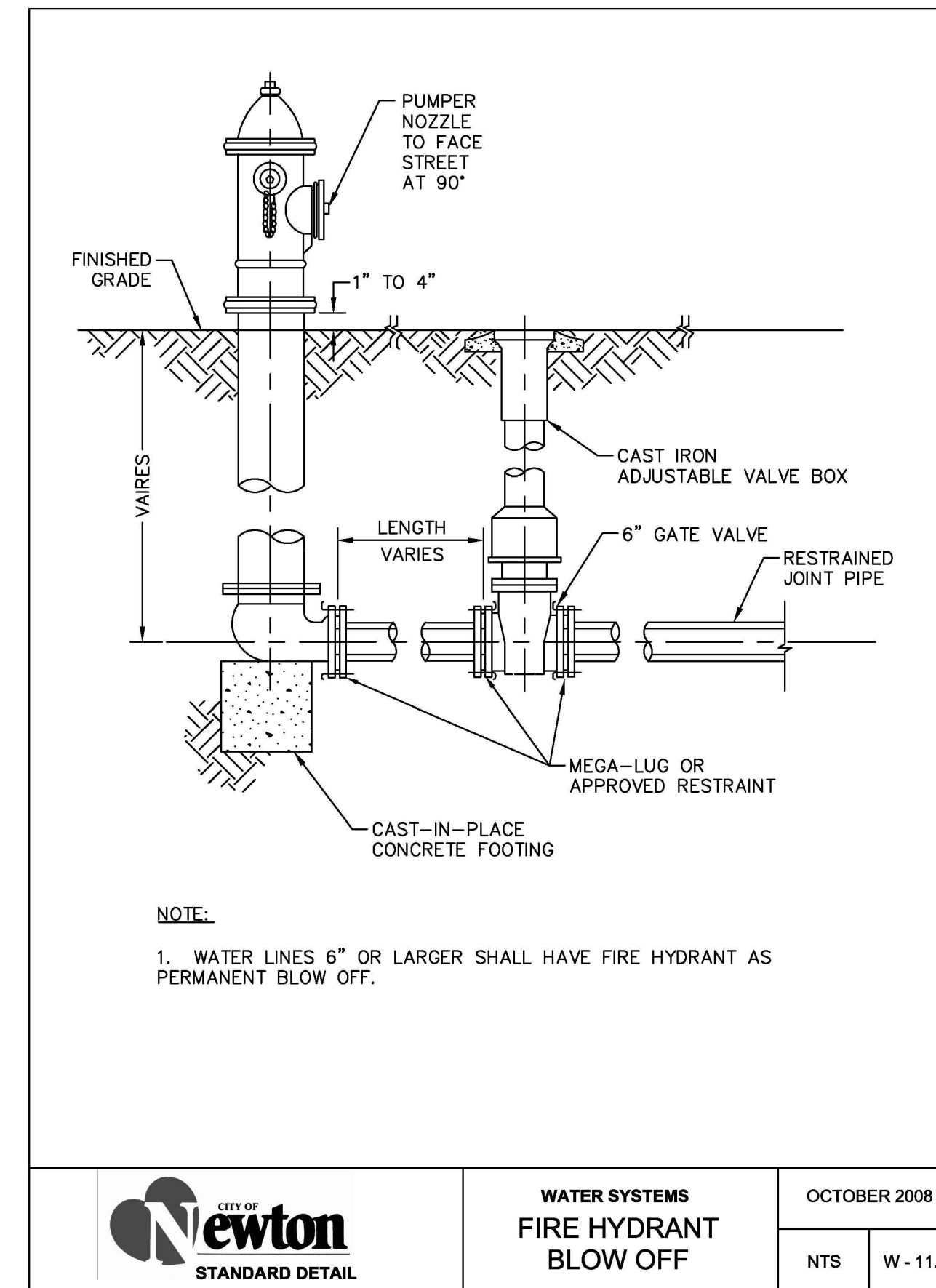
WATER SYSTEMS
TEMPORARY 2" BLOWOFF ASSEMBLY

OCTOBER 2008
 NTS W - 10.0



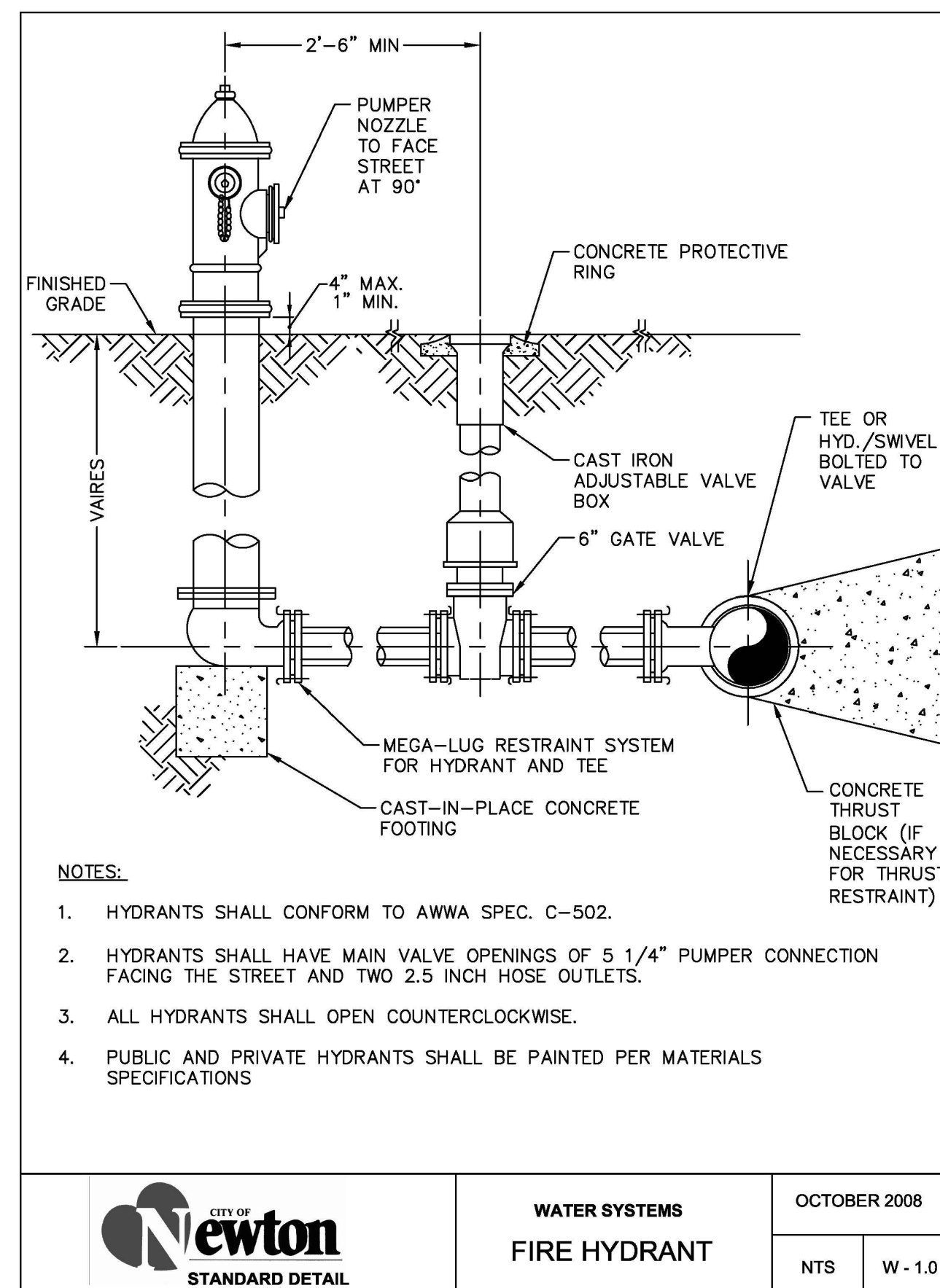
WATER SYSTEMS
AIR RELIEF MANHOLE

OCTOBER 2008
 NTS W - 7.0



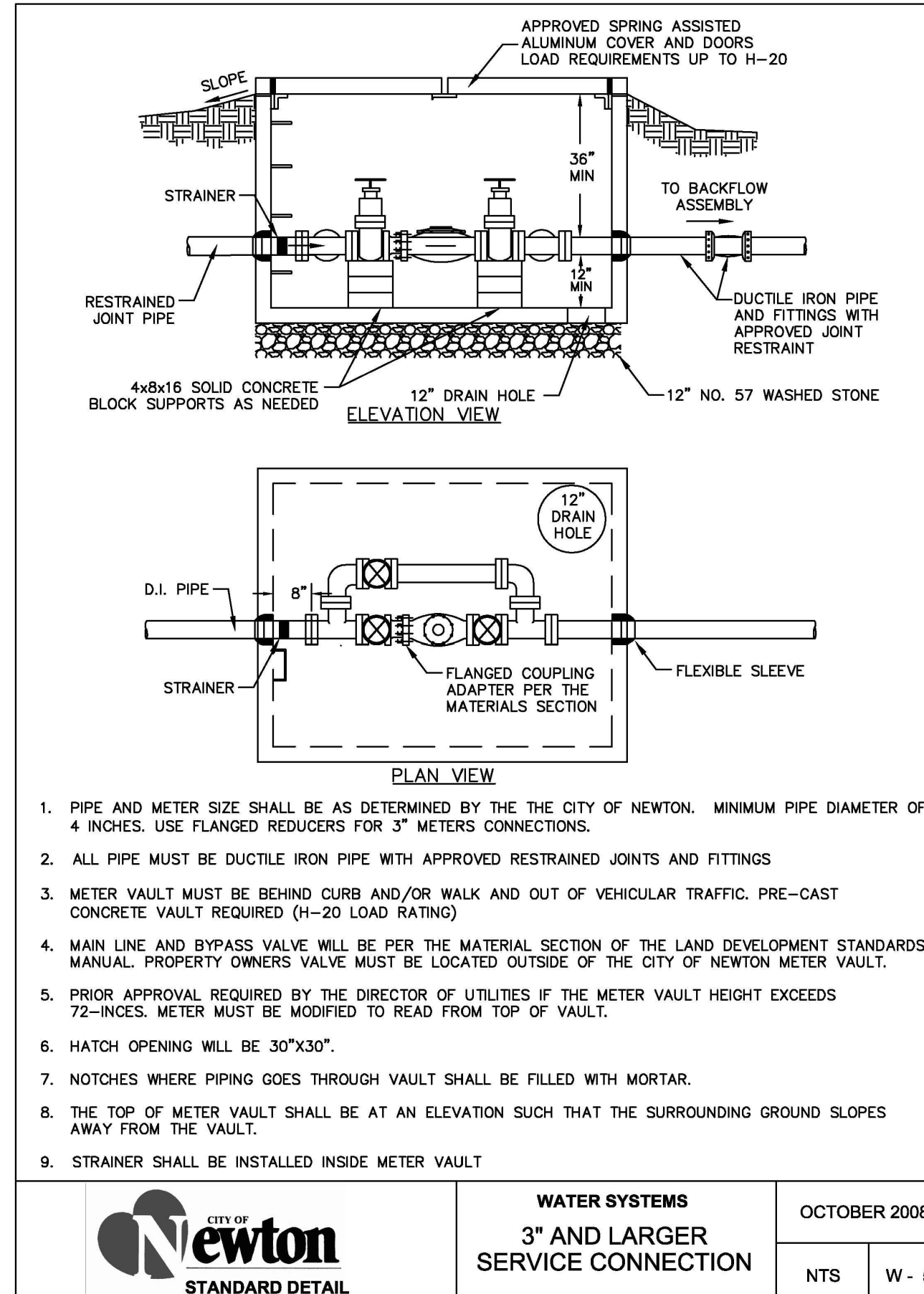
WATER SYSTEMS
FIRE HYDRANT BLOW OFF

OCTOBER 2008
 NTS W - 11.0



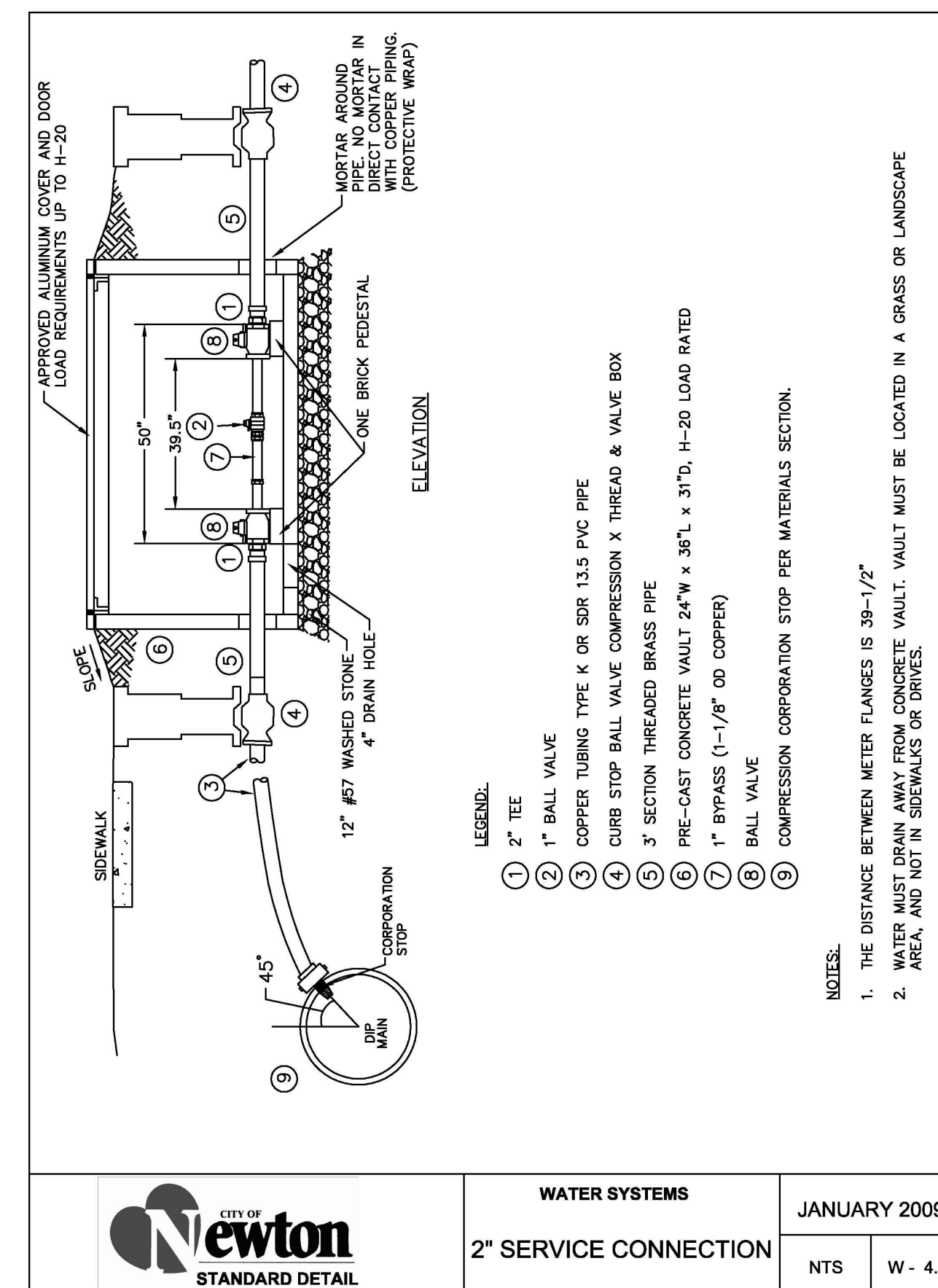
WATER SYSTEMS
FIRE HYDRANT

OCTOBER 2008
 NTS W - 1.0



WATER SYSTEMS
3" AND LARGER SERVICE CONNECTION

OCTOBER 2008
 NTS W - 5.0



WATER SYSTEMS
2" SERVICE CONNECTION

JANUARY 2009
 NTS W - 4.0

NOT CONSIDERED FINAL
SIGNATURES COMPLETE

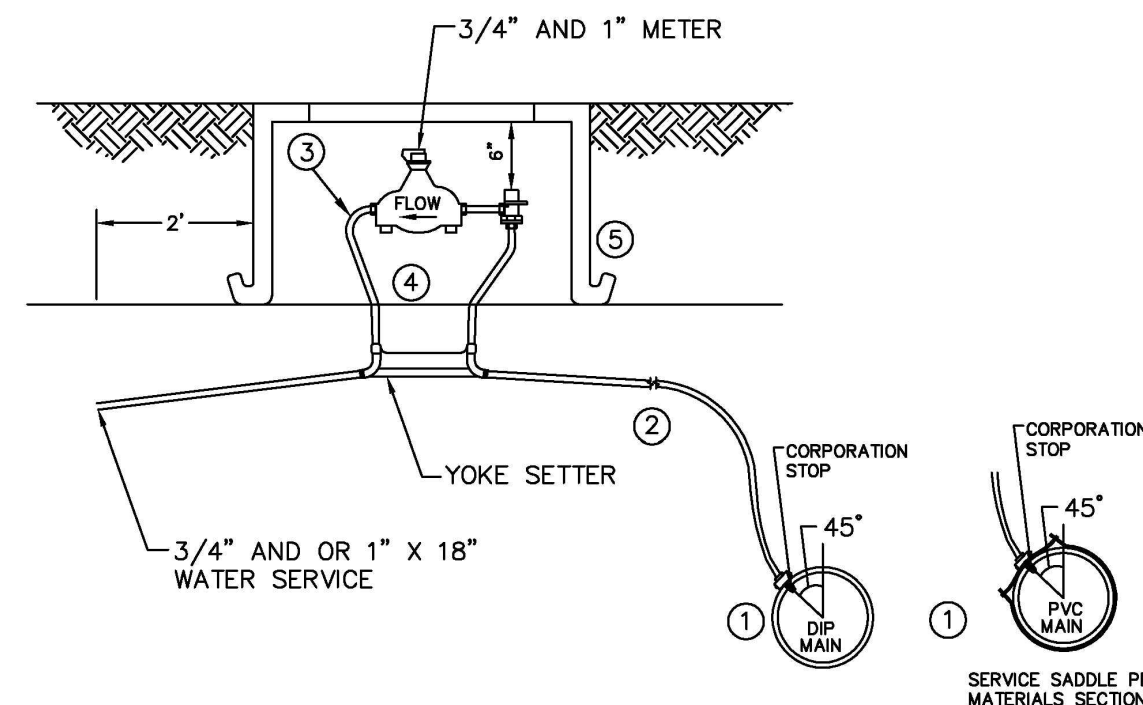
PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-3A
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION
 Prepared by



NOTES:

- METER TO BE FURNISHED AND INSTALLED BY CITY OF NEWTON.
- WATER METER IN ACCORDANCE WITH THE STANDING SPECIFICATIONS PER WATER DISTRIBUTIONS. ALL FITTINGS TO BE COMPRESSION JOINT TYPE AS APPROVED BY THE DIRECTOR OF UTILITIES.
- MINIMUM TAP SPACING SHALL BE 8" O.C.
- DIRECT TAPS 3/4-INCH AND 1-INCH CAN BE MADE TO 6-INCH OR LARGER DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL OTHER APPLICATIONS SHALL INCORPORATE A SERVICE SADDLE.



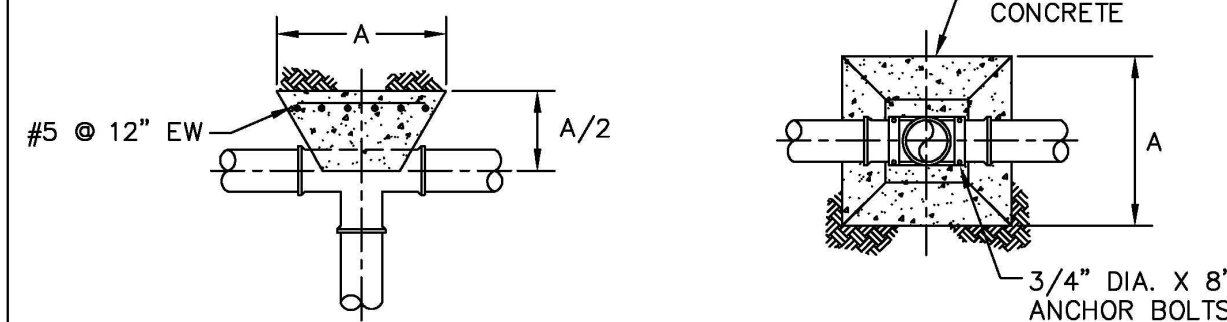
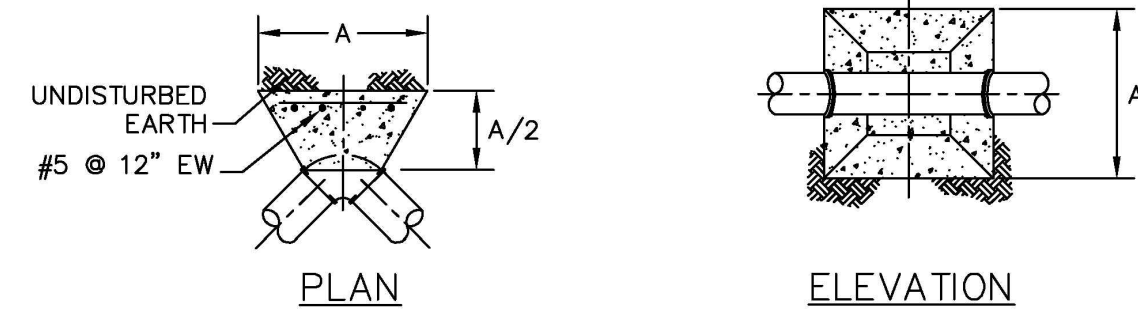
LEGEND:

- ① COMPRESSION CORPORATION STOP PER MATERIALS SECTION.
- ② COPPER TUBING, TYPE K, WITH COMPRESSION JOINTS AND/OR 3/4" TYPE K SOFT COPPER PIPE OR 200 PSI POLY TUBING CTS PARR PE - 3408 OR EQUAL
- ③ COMPRESSION YOKE 90° ANGLE BALL VALVE, WITH LOCK OUT WING, PER MATERIALS SECTION.
- ④ COPPER SETTER OUTLET PIECE GROOVED FOR WASHER, 90° OUTLET PER MATERIALS SECTION.
- ⑤ BLACK POLYETHYLENE OR CAST IRON METER BOX PER THE MATERIALS SECTION.



WATER SYSTEMS
3/4" & 1"
SERVICE CONNECTION

OCTOBER 2008
NTS W - 3.0



NOTES:

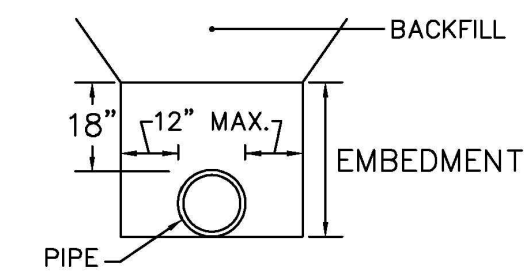
- ALL FACES OF THE BLOCK SHALL REST AGAINST UNDISTURBED SOIL.
- PIPE JOINTS, BOLTS, NUTS, RETAINER GLANDS ARE NOT TO BE ENCASED IN CONCRETE.
- DIMENSIONS BASED ON 150 PSI TEST PRESSURE 1,000 PSF BEARING CAPACITY.
- THRUST BLOCKS ARE ALLOWED ONLY WHEN THERE IS NOT ENOUGH PIPE LENGTH TO PROVIDE SUFFICIENT THRUST RESTRAIN VIA RESTRAINED JOINT PIPE, OR WHEN CONNECTING TO AN EXISTING PIPE THAT IS NOT A RESTRAINED JOINT.

FITTING	DIMENSION "A"			
	PIPE SIZE			
	4"	6"	8"	12"
11 1/4" BEND	1'-6"	1'-6"	1'-6"	2'-0"
22 1/2" BEND	1'-6"	1'-6"	2'-0"	2'-8"
45° BEND	1'-6"	2'-0"	2'-6"	3'-8"
90° BEND	1'-8"	2'-6"	3'-4"	5'-0"
TEE	1'-8"	2'-6"	3'-4"	5'-0"

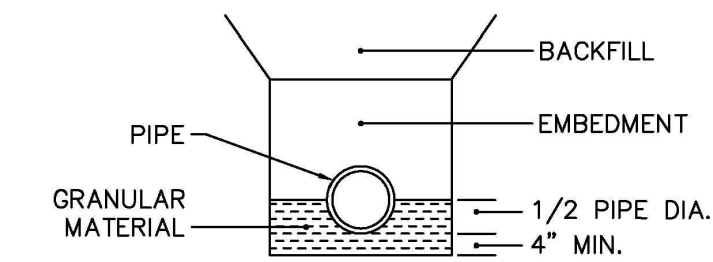


WATER SYSTEMS
THRUST BLOCK

OCTOBER 2008
NTS W - 6.0



ORDINARY PIPE BEDDING



TYPE "A" BEDDING

BEDDING	LIMITING INVERT DEPTHS			
	PIPE DIAMETER			
	6"	8"	10"	12"
ORDINARY	4'-20'	4'-15'	4'-10'	4'-10'
TYPE "A"	-	15'-20'	10'-20'	10'-20'

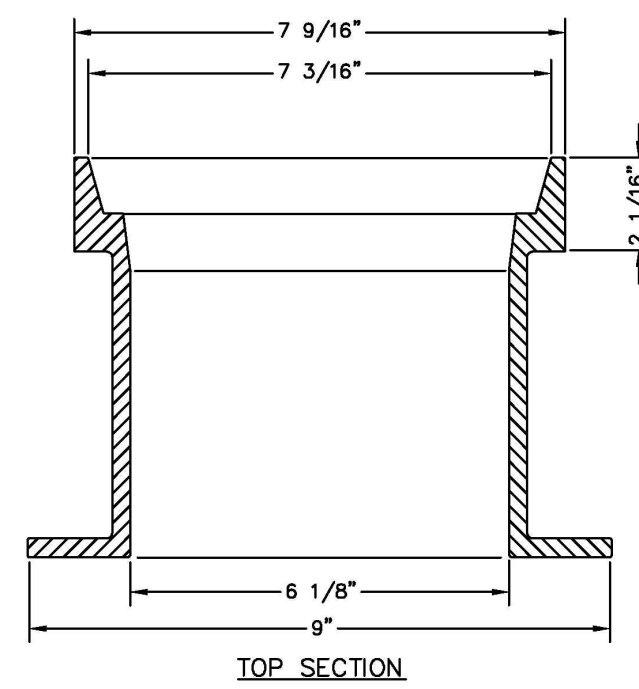
NOTES:

- PIPES AT DEPTHS GREATER THAN 12' MUST BE APPROVED BY THE DIRECTOR OF UTILITIES.
- PIPE BEDDING SHALL BE DESIGNED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, DUCTILE IRON PIPE RESEARCH ASSOCIATION OR OTHER APPLICABLE DESIGN STANDARDS.
- PIPE EMBEDMENT SHALL BE PLACED IN A MAXIMUM OF 6" LAYERS & COMPACTED TO 95% OF THE MAXIMUM LABORATORY DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD.
- PIPE EMBEDMENT SHALL EXTEND TO FINISHED GRADE FOR PIPELINES WITHIN ROAD RIGHT-OF-WAY.

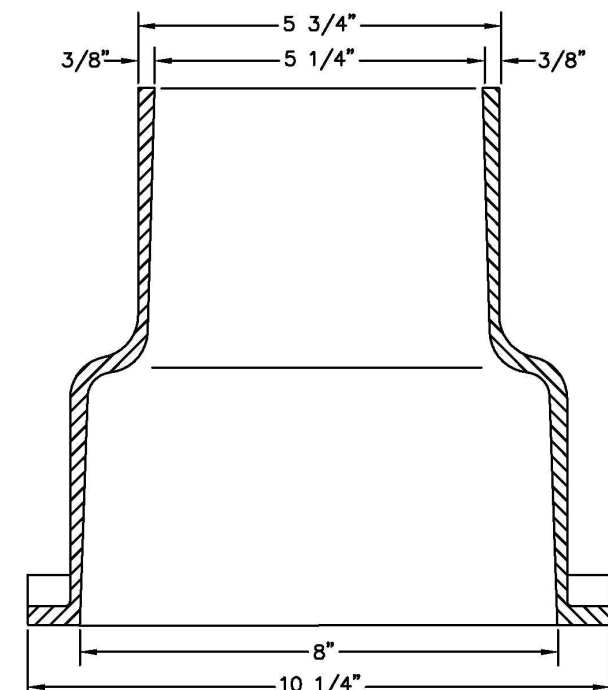


WATER SYSTEMS
DUCTILE IRON PIPE
TRENCHING & BACKFILLING
(UP TO 20' DEEP)

APRIL 2008
NTS W - 8.0



TOP SECTION



BOTTOM SECTION

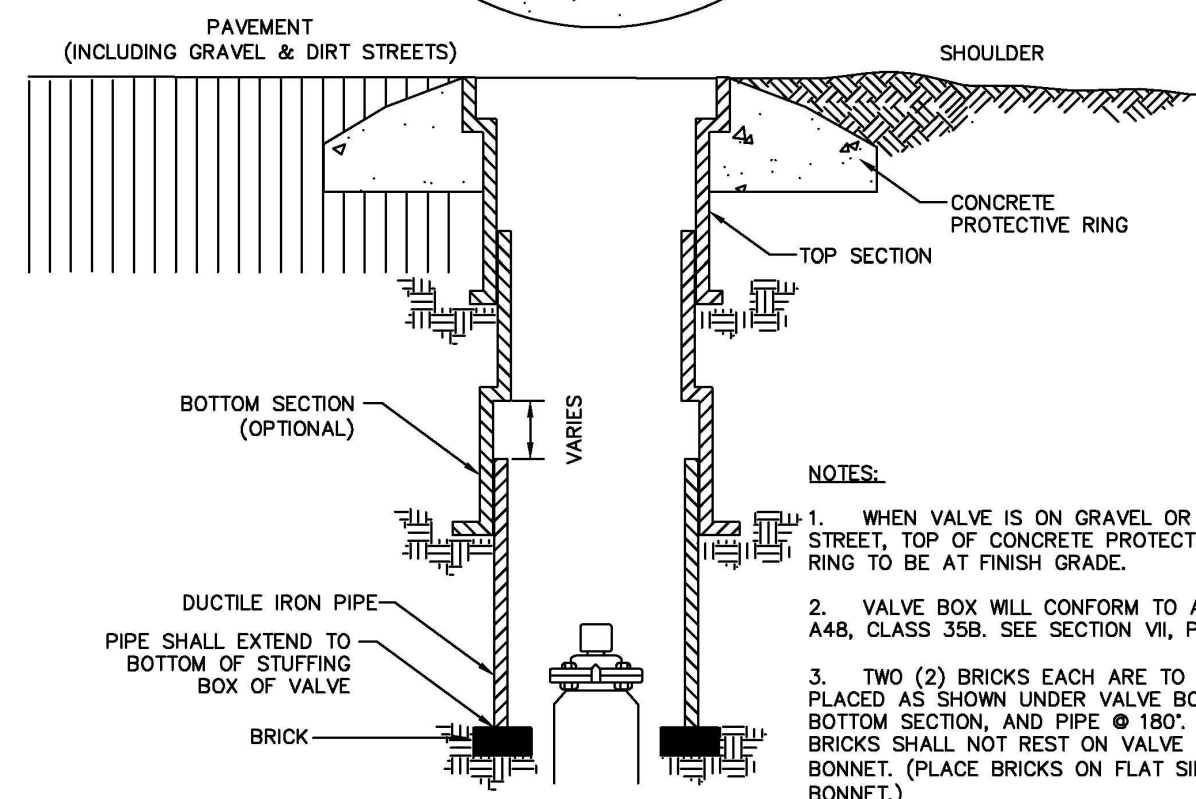
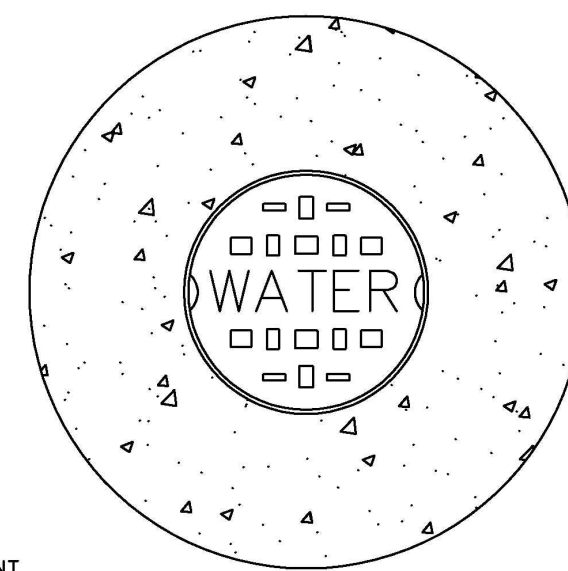
NOTES:

- VALVE BOX WILL CONFORM TO ASTM A48, CLASS 35 B.
- MINIMUM WEIGHTS:
COVER.....13 LBS
TOP SECTION.....60 LBS
BOTTOM SECTION.....49 LBS
TOTAL.....122 LBS
- COVERS LOCATED IN CONCRETE OR PAVEMENT SHALL HAVE SKIRTS MIN. 4" DEEP AND COVERS SHALL WEIGH MIN. OF 24 LBS.



WATER SYSTEMS
CAST IRON
VALVE BOX

APRIL 2008
NTS W - 13.0



NOTES:

- WHEN VALVE IS ON GRAVEL OR DIRT STREET, TOP OF CONCRETE PROTECTIVE RING TO BE AT FINISH GRADE.
- VALVE BOX WILL CONFORM TO ASTM A48, CLASS 35B. SEE SECTION VI, PG. 33.
- TWO (2) BRICKS EACH ARE TO BE PLACED AS SHOWN UNDER VALVE BOX, BOTTOM SECTION, AND PIPE @ 180°. BRICKS SHALL NOT REST ON VALVE BONNET. (PLACE BRICKS ON FLAT SIDE OF BONNET.)



WATER SYSTEMS
ROUND TOP VALVE
BOX INSTALLATION

APRIL 2008
NTS W - 14.0

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-3B
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
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

Prepared by



DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

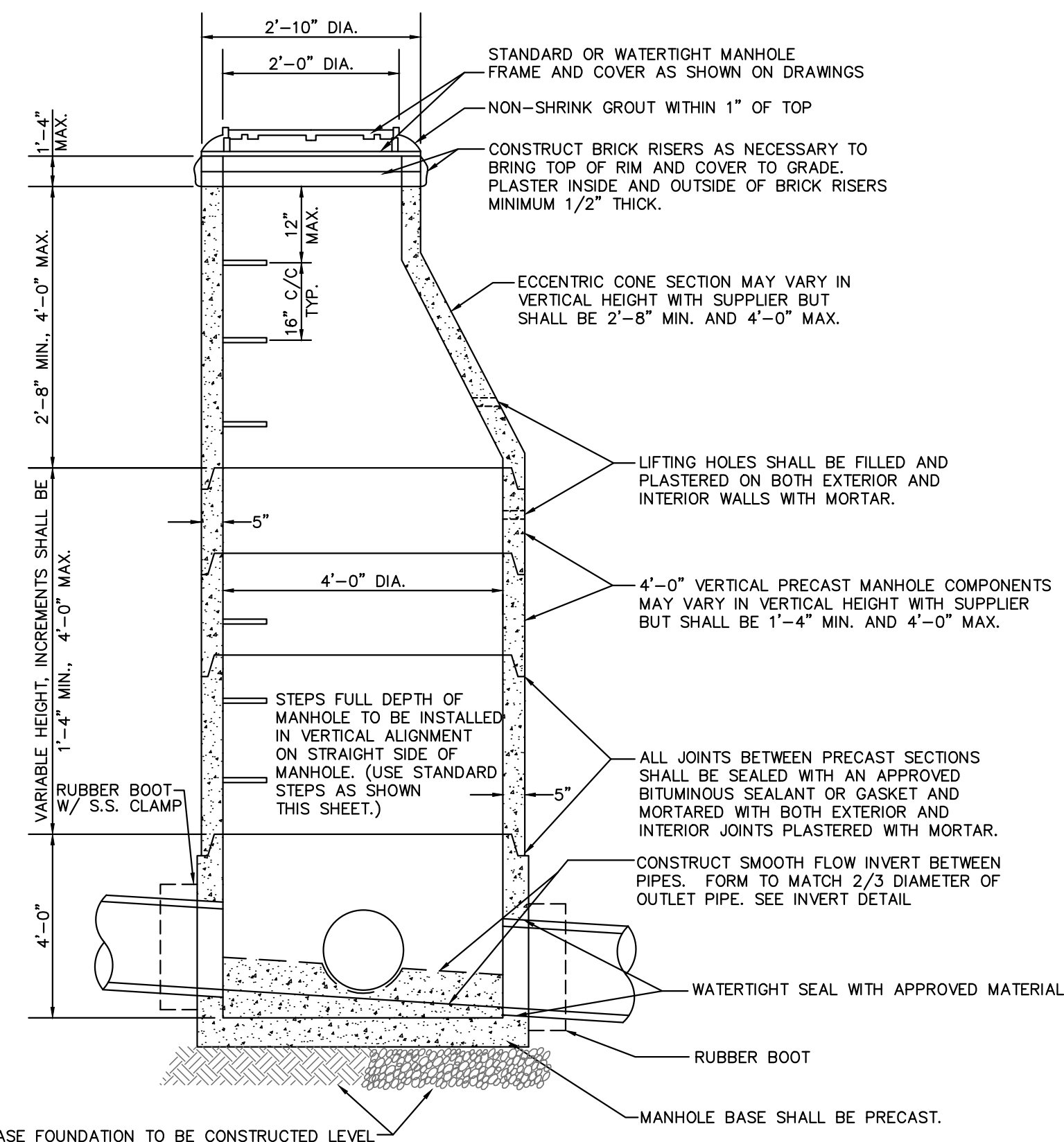
PROJECT REFERENCE NO.	SHEET NO.
R-3100B	UC-3C
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

UTILITY CONSTRUCTION

Prepared by

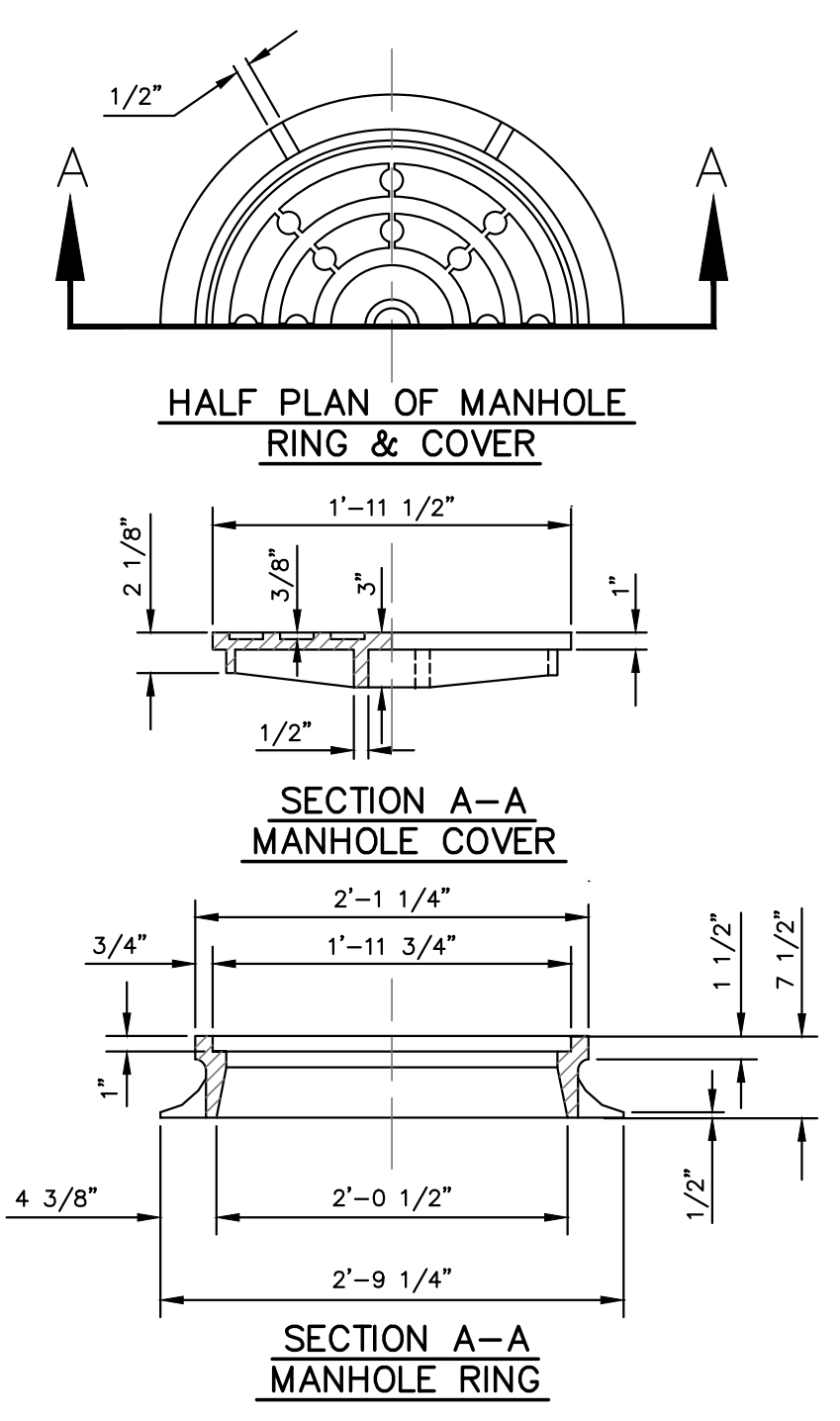
McGill ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-0459



ELEVATION VIEW

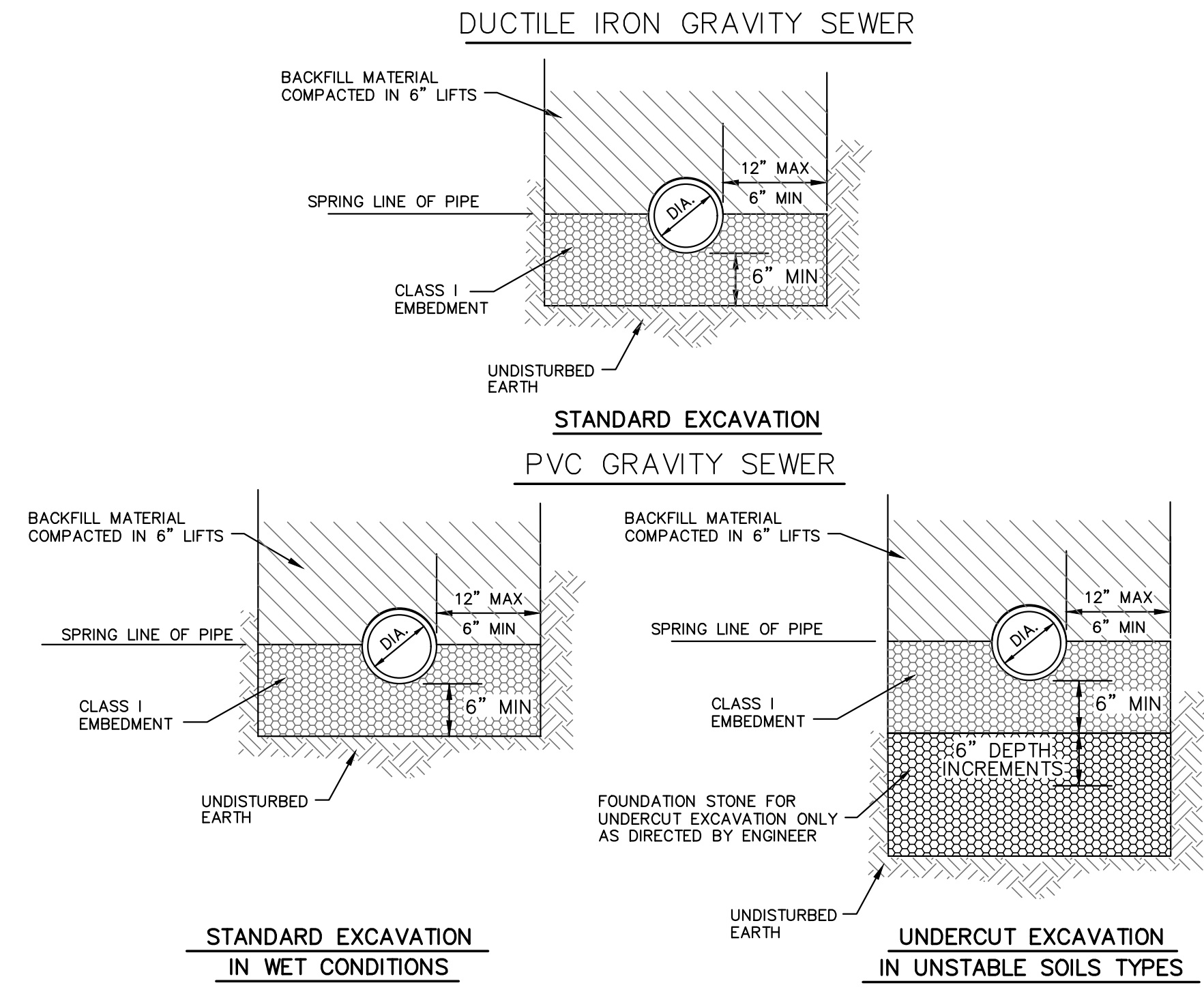
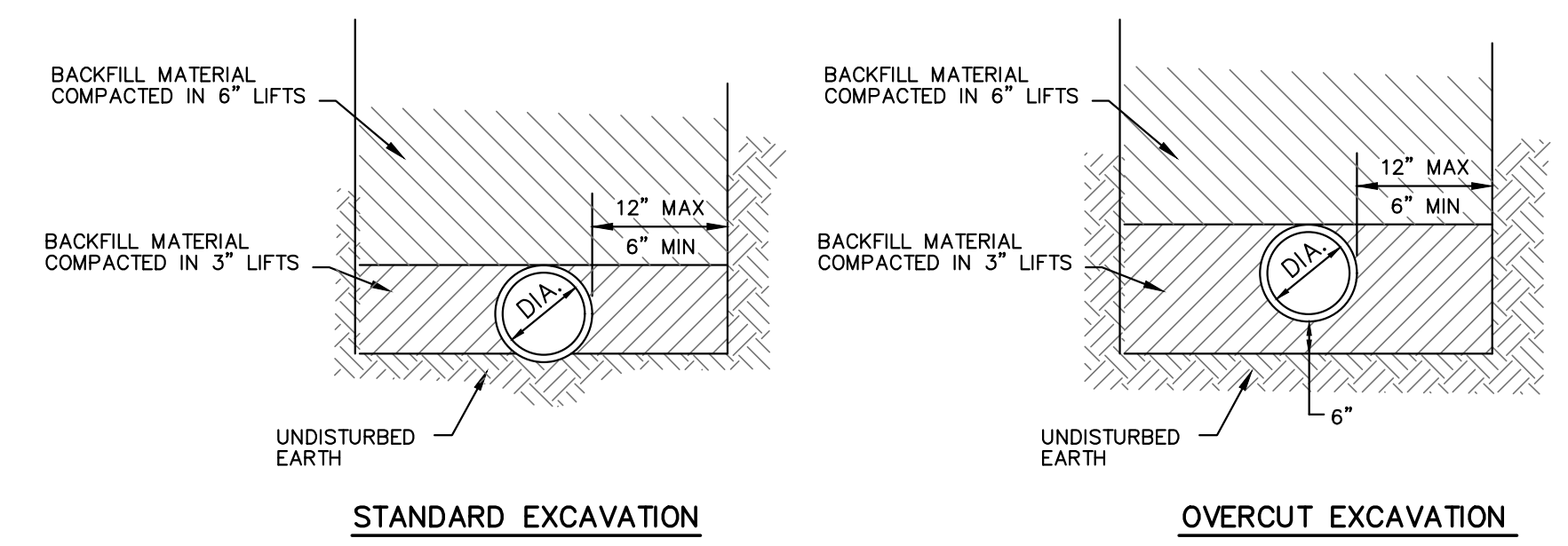
- PRECAST MANHOLE NOTES:**
1. ALL PRECAST MANHOLE COMPONENTS SHALL MEET REQUIREMENTS OF ASTM C-478, LATEST REVISION.
 2. ALL MANHOLES SHALL BE CONSTRUCTED PLUMB
 3. ALL MANHOLE GRADES SHOWN ON THE PLANS ARE FOR THE INVERT OF THE MANHOLE CENTER.
 4. IF MANHOLE IS SET IN LOCATION OF HIGH WATER TABLE OR UNDERGROUND WATER IS ENCOUNTERED, THE CONTRACTOR SHALL INSTALL UNDERDRAINS AND STONE AS DIRECTED IN THE FIELD BY THE ENGINEER.
 5. STEPS SHALL BE INSTALLED ON STRAIGHT SIDE OF MANHOLE.

PRECAST CONCRETE MANHOLE



NOTE: TRAFFIC BEARING RING AND COVER. MINIMUM WEIGHT 315 POUNDS

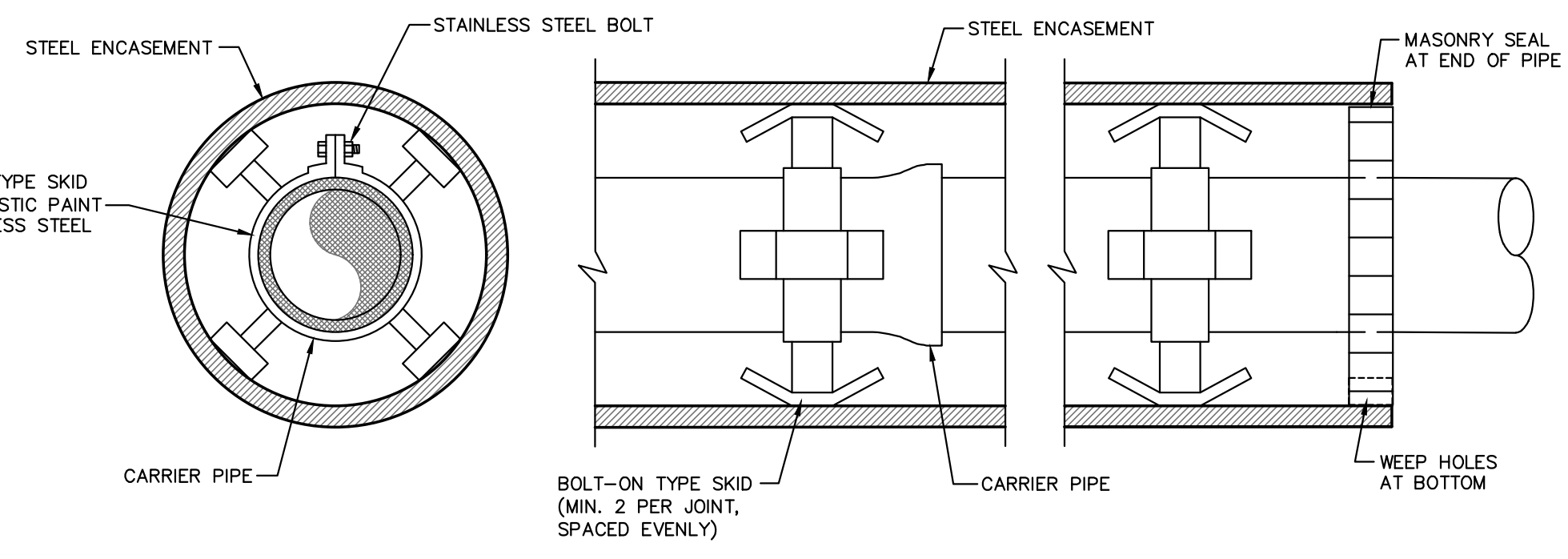
MANHOLE RING & COVER



PIPE IN WET OR UNSTABLE CONDITIONS
ALL PIPE TYPES
(AS DIRECTED BY ENGINEER)

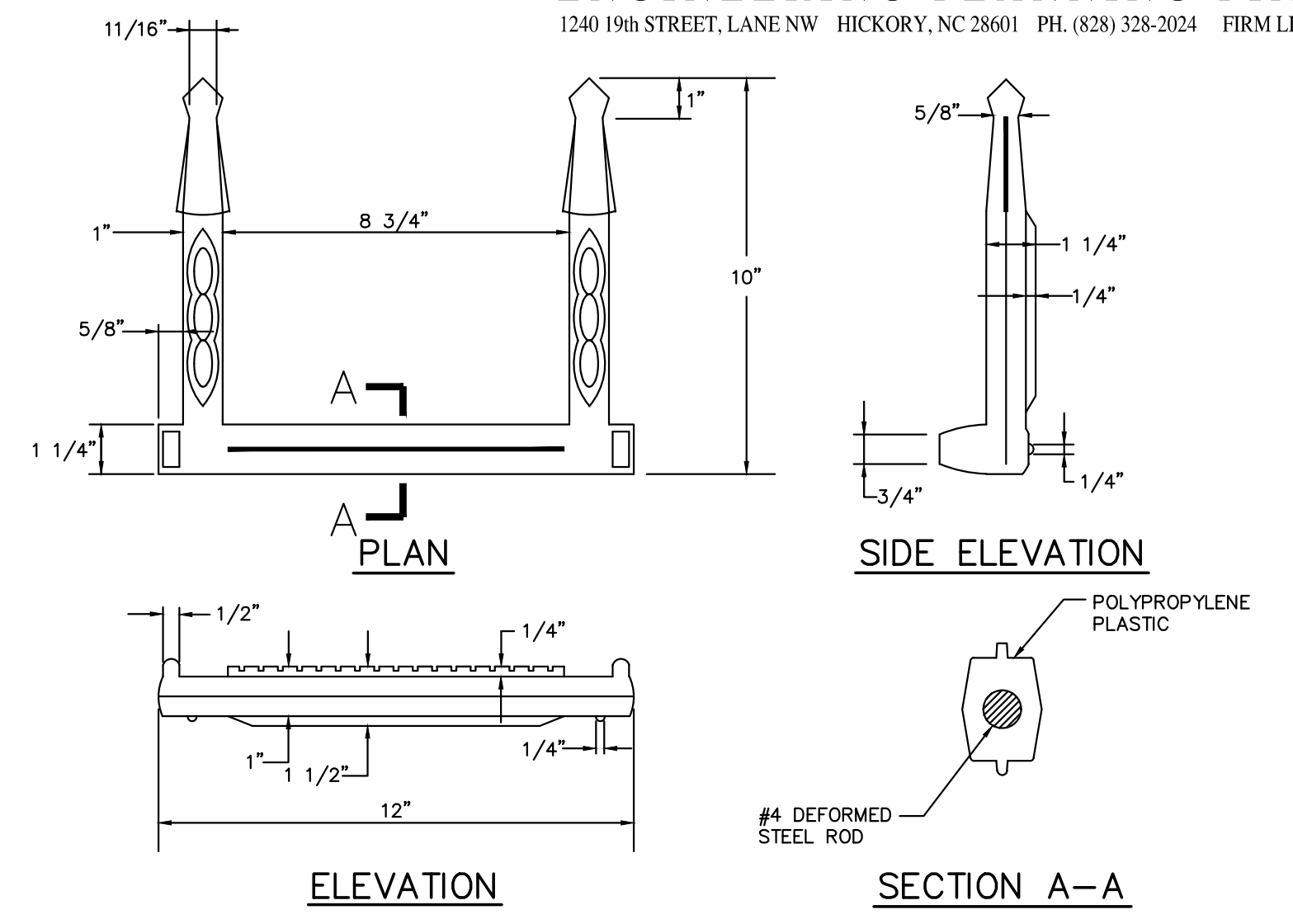
- NOTE:
1. CONSTRUCTION OF TRENCHES SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY AND HEALTH REGULATIONS WHICH HAVE JURISDICTION AT THE PROJECT SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE APPLICABLE REGULATIONS AND FOLLOW THEM ACCORDINGLY.
 2. FOR UNIT PRICE CONTRACTS ONLY, PAYMENT FOR ROCK EXCAVATION AND SELECT BACKFILL IN TRENCH SHALL BE FOR ACTUAL QUANTITIES AND SHALL NOT EXCEED THE WIDTH OF TRENCH SHOWN ON THIS DETAIL.
 3. FOR UNIT PRICE CONTRACTS ONLY, PAYMENT FOR FOUNDATION STONE UNDERCUT SHALL BE FOR THE LENGTH OF THE TRENCH REQUIRING UNDERCUT X 6" DEPTH INCREMENTS TO THE DEPTH REQUIRED.
 4. CLASS I EMBEDMENT SHALL BE NCDOT STANDARD # 67 STONE OR APPROVED EQUAL. FOUNDATION STONE SHALL BE NCDOT STANDARD # 57 OR # 67 STONE OR APPROVED EQUAL.

TYPICAL GRAVITY SEWER TRENCHING DETAILS



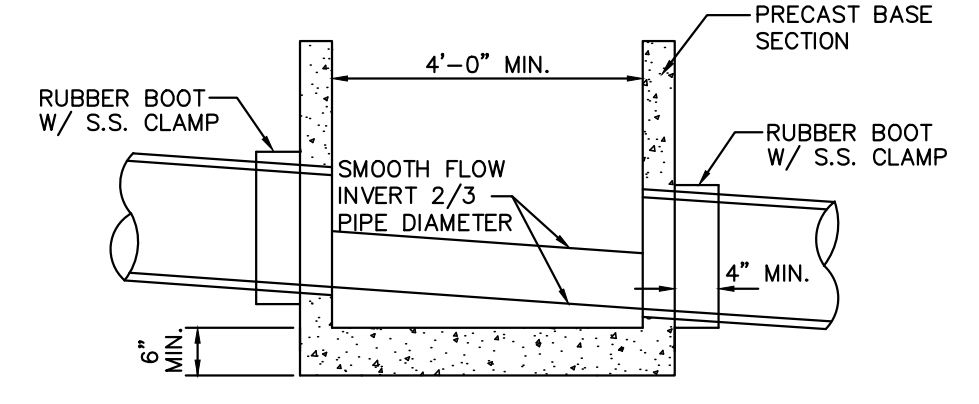
ENCASEMENT DETAIL
REVISION DATE - NOVEMBER 3, 2008

NOTE: FOR PRESSURE CARRIER PIPES, IF SUITABLE UNDISTURBED EARTH IS NOT AVAILABLE FOR THRUST BLOCKS DUE TO EXCAVATION, CONTRACTOR SHALL ATTACH THREADED RODS AS SPECIFIED IN THRUST BLOCK DETAILS TO THE ENCASEMENT AND ROD FITTINGS DIRECTLY TO THE ENCASEMENT PIPE. ATTACHMENT OF THE RODS SHALL BE BY WELDING DIRECTLY TO THE ENCASEMENT PIPE OR BY WELDING EYE BOLTS TO THE ENCASEMENT FOR ATTACHMENT OF THREADED RODS WITH NUTS. MINIMUM OF THREE RODS REQUIRED PER FITTING.

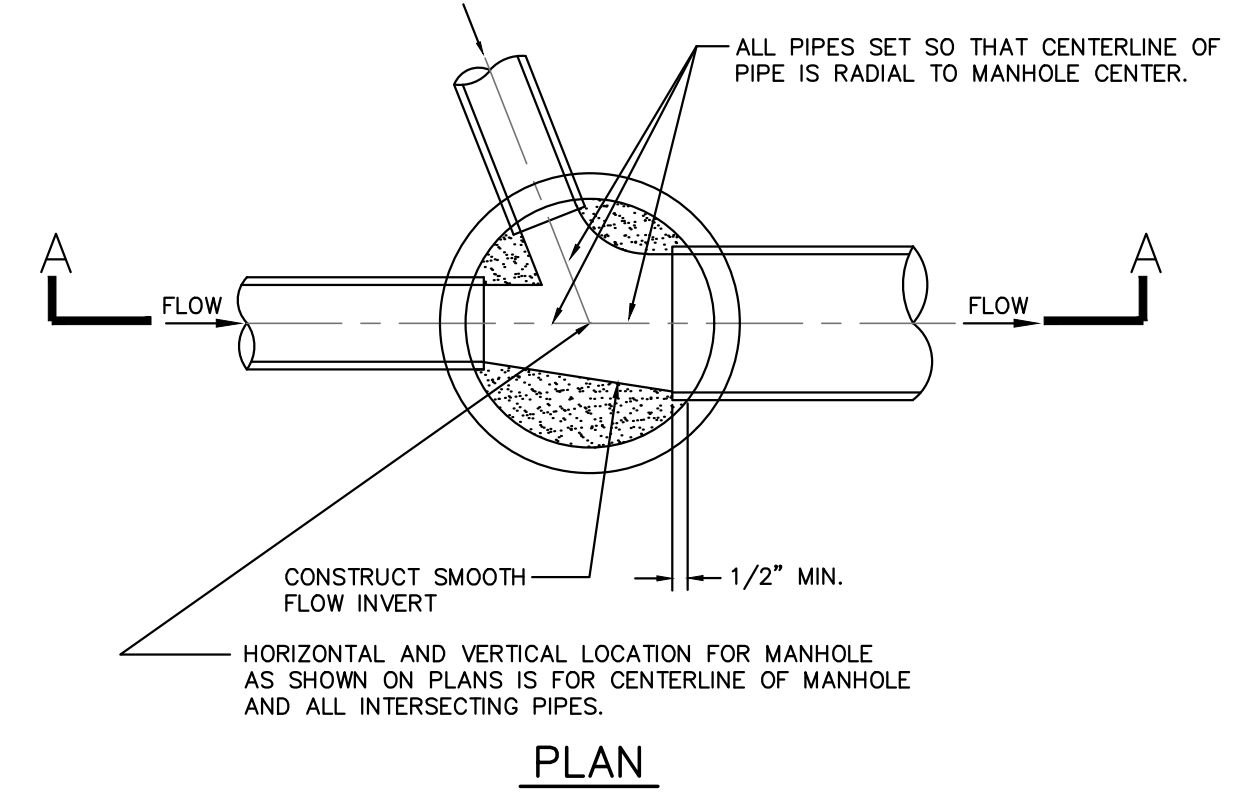


- CONSTRUCTION NOTES**
1. ALL STEPS SHALL PROTRUDE A MINIMUM OF 5" AND A MAXIMUM OF 7" FROM INSIDE FACE OF STRUCTURE WALL.
 2. STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED PRIOR WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SAID STEPS.

MANHOLE STEPS



SECTION A-A



NOTE: MANHOLES ON PLANS NOTED AS HIGH VELOCITY MANHOLES SHALL RECEIVE TWO COATS OF SIKAGARD 62, HIGH-BUILD, EPOXY RESIN COATING OR APPROVED EQUAL ON INVERT CHANNEL.

MANHOLE INVERTS

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-5
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

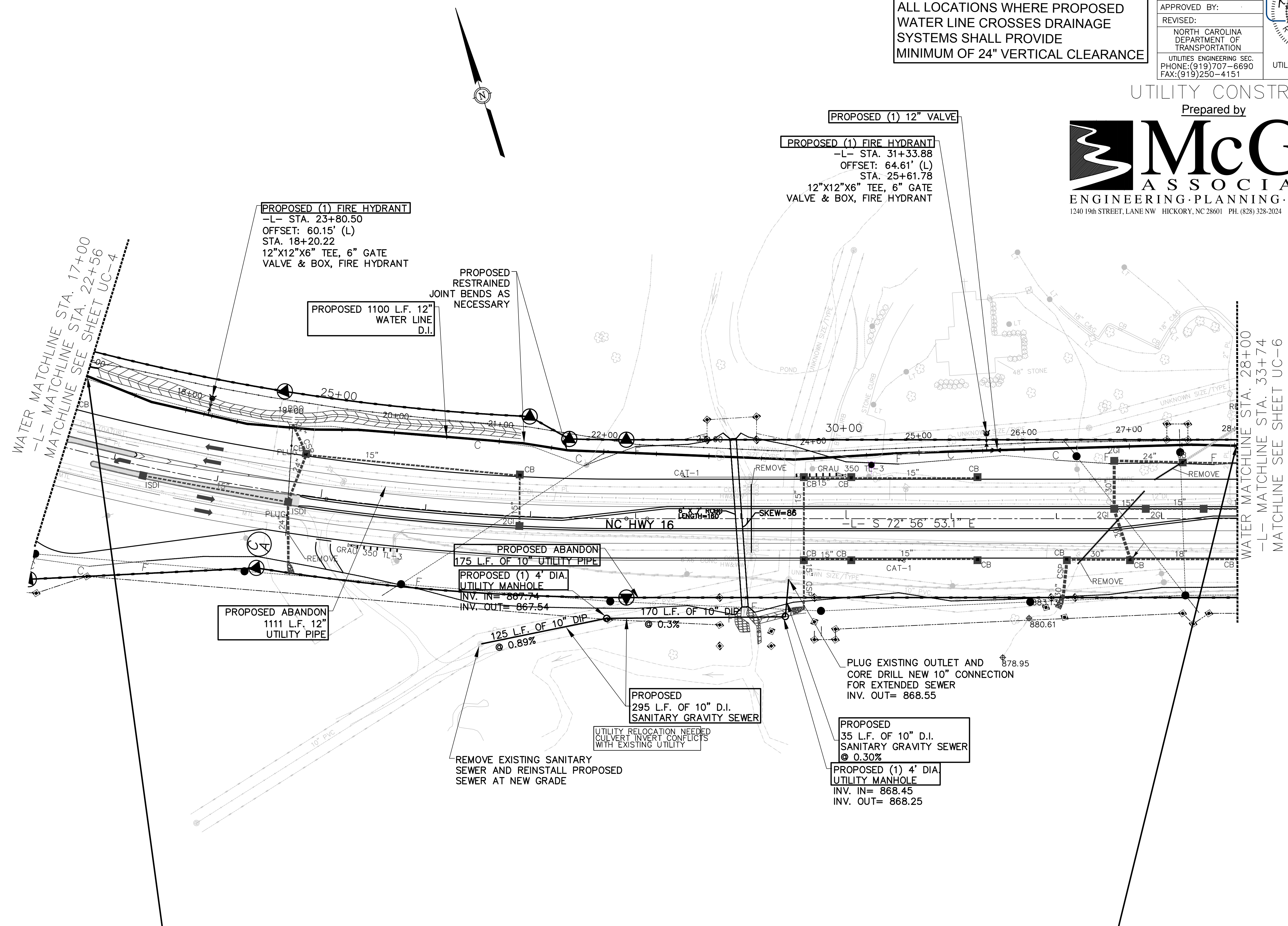
DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by

McGill ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-0459



WATER MATCHLINE STA. 17+00
-L- MATCHLINE STA. 22+56
MATCHLINE SEE SHEET UC-4

WATER MATCHLINE STA. 28+00
-L- MATCHLINE STA. 33+74
MATCHLINE SEE SHEET UC-6

- PAY ITEMS ON UC-5**
- PROPOSED 1100 L.F. OF 12" WATER LINE
 - PROPOSED ABANDON 1111 L.F. OF 12" UTILITY PIPE
 - PROPOSED (1) 12" VALVE
 - PROPOSED (2) FIRE HYDRANTS
 - PROPOSED (2) 4' DIA. UTILITY MANHOLE
 - PROPOSED 330 L.F. 10" SANITARY GRAVITY SEWER
 - PROPOSED ABANDON 175 L.F. 10" UTILITY PIPE

NO. ON SYSTEMS

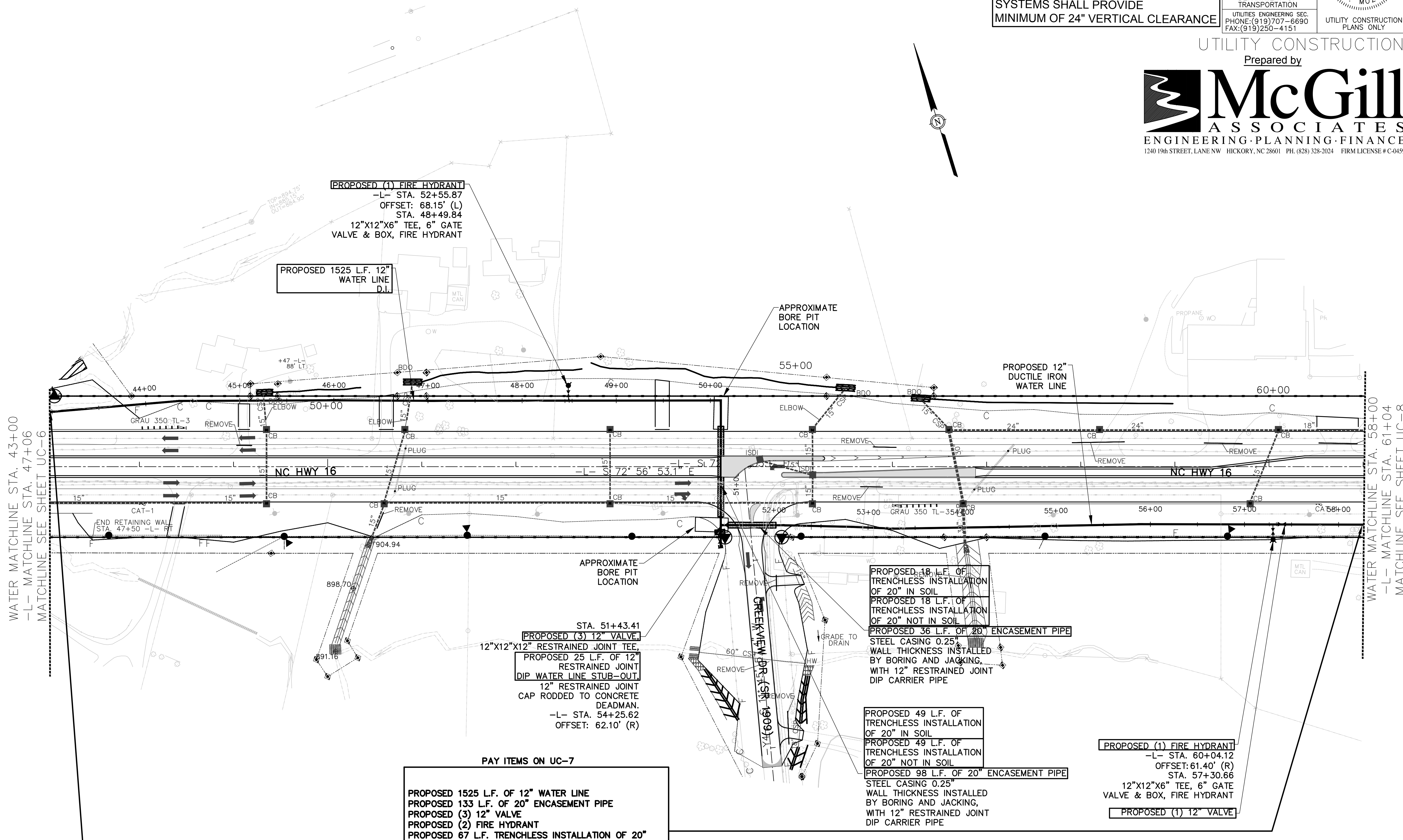
PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-7
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by



PROPOSED (1) FIRE HYDRANT
 -L- STA. 52+55.87
 OFFSET: 68.15' (L)
 STA. 48+49.84
 12"X12"X6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PROPOSED 1525 L.F. 12" WATER LINE D.I.

APPROXIMATE
BORE PIT
LOCATION

PROPOSED 12" DUCTILE IRON WATER LINE

WATER MATCHLINE STA. 43+00
 -L- MATCHLINE STA. 47+06
 MATCHLINE SEE SHEET UC-6

WATER MATCHLINE STA. 58+00
 -L- MATCHLINE STA. 61+04
 MATCHLINE SEE SHEET UC-8

STA. 51+43.41
PROPOSED (3) 12" VALVE
 12"X12"X12" RESTRAINED JOINT TEE,
 PROPOSED 25 L.F. OF 12" RESTRAINED JOINT DIP WATER LINE STUB-OUT
 12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
 -L- STA. 54+25.62
 OFFSET: 62.10' (R)

PROPOSED 18 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 18 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 36 L.F. OF 20" ENCASEMENT PIPE STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

PROPOSED 49 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 49 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 98 L.F. OF 20" ENCASEMENT PIPE STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

PROPOSED (1) FIRE HYDRANT
 -L- STA. 60+04.12
 OFFSET: 61.40' (R)
 STA. 57+30.66
 12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT
PROPOSED (1) 12" VALVE

PAY ITEMS ON UC-7
 PROPOSED 1525 L.F. OF 12" WATER LINE
 PROPOSED 133 L.F. OF 20" ENCASEMENT PIPE
 PROPOSED (3) 12" VALVE
 PROPOSED (2) FIRE HYDRANT
 PROPOSED 67 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE IN SOIL
 PROPOSED 67 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE NOT IN SOIL

SYSTEMS
 SENSITIVE
 INFORMATION

PROJECT REFERENCE NO.	SHEET NO.
R-3100B	UC-9
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES COMPLETE

NOTE: ALL LOCATIONS WHERE PROPOSED WATER LINE CROSSES DRAINAGE SYSTEMS SHALL PROVIDE MINIMUM OF 24" VERTICAL CLEARANCE

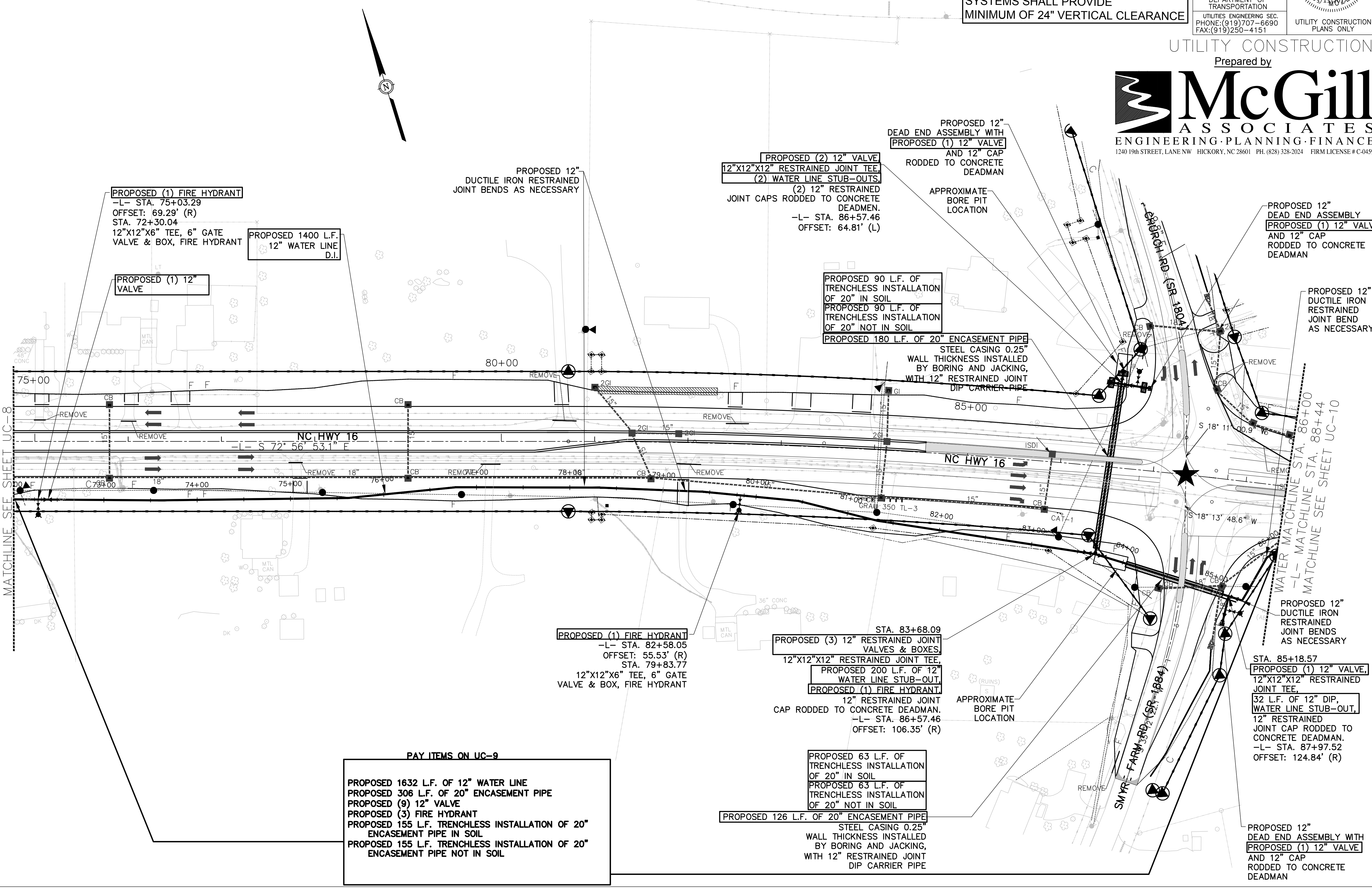
UTILITY CONSTRUCTION

Prepared by

McGill ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-0459

WATER MATCHLINE STA. 72+00
-L- MATCHLINE STA. 74+74
MATCHLINE SEE SHEET UC-8

WATER MATCHLINE STA. 86+00
-L- MATCHLINE STA. 88+44
MATCHLINE SEE SHEET UC-10



PROPOSED (1) FIRE HYDRANT
-L- STA. 75+03.29
OFFSET: 69.29' (R)
STA. 72+30.04
12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

PROPOSED 1400 L.F. 12" WATER LINE D.I.

PROPOSED (1) 12" VALVE

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PROPOSED (2) 12" VALVE 12"X12"X12" RESTRAINED JOINT TEE, (2) WATER LINE STUB-OUTS, (2) 12" RESTRAINED JOINT CAPS RODDED TO CONCRETE DEADMEN.
-L- STA. 86+57.46
OFFSET: 64.81' (L)

PROPOSED 12" DEAD END ASSEMBLY WITH PROPOSED (1) 12" VALVE AND 12" CAP RODDED TO CONCRETE DEADMAN

APPROXIMATE BORE PIT LOCATION

PROPOSED 90 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 90 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 180 L.F. OF 20" ENCASEMENT PIPE STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

PROPOSED 12" DEAD END ASSEMBLY WITH PROPOSED (1) 12" VALVE AND 12" CAP RODDED TO CONCRETE DEADMAN

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BEND AS NECESSARY

PROPOSED (1) FIRE HYDRANT
-L- STA. 82+58.05
OFFSET: 55.53' (R)
STA. 79+83.77
12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

STA. 83+68.09
PROPOSED (3) 12" RESTRAINED JOINT VALVES & BOXES
12"X12"X12" RESTRAINED JOINT TEE, PROPOSED 200 L.F. OF 12" WATER LINE STUB-OUT, PROPOSED (1) FIRE HYDRANT
12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
-L- STA. 86+57.46
OFFSET: 106.35' (R)

APPROXIMATE BORE PIT LOCATION

STA. 85+18.57
PROPOSED (1) 12" VALVE, 12"X12"X12" RESTRAINED JOINT TEE, 32 L.F. OF 12" DIP, WATER LINE STUB-OUT, 12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
-L- STA. 87+97.52
OFFSET: 124.84' (R)

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PAY ITEMS ON UC-9

PROPOSED 1632 L.F. OF 12" WATER LINE
PROPOSED 306 L.F. OF 20" ENCASEMENT PIPE
PROPOSED (9) 12" VALVE
PROPOSED (3) FIRE HYDRANT
PROPOSED 155 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE IN SOIL
PROPOSED 155 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE NOT IN SOIL

PROPOSED 63 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 63 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 126 L.F. OF 20" ENCASEMENT PIPE STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

PROPOSED 12" DEAD END ASSEMBLY WITH PROPOSED (1) 12" VALVE AND 12" CAP RODDED TO CONCRETE DEADMAN

***** SYSTEMS *****
***** SUBSISTANCE *****

5/14/99

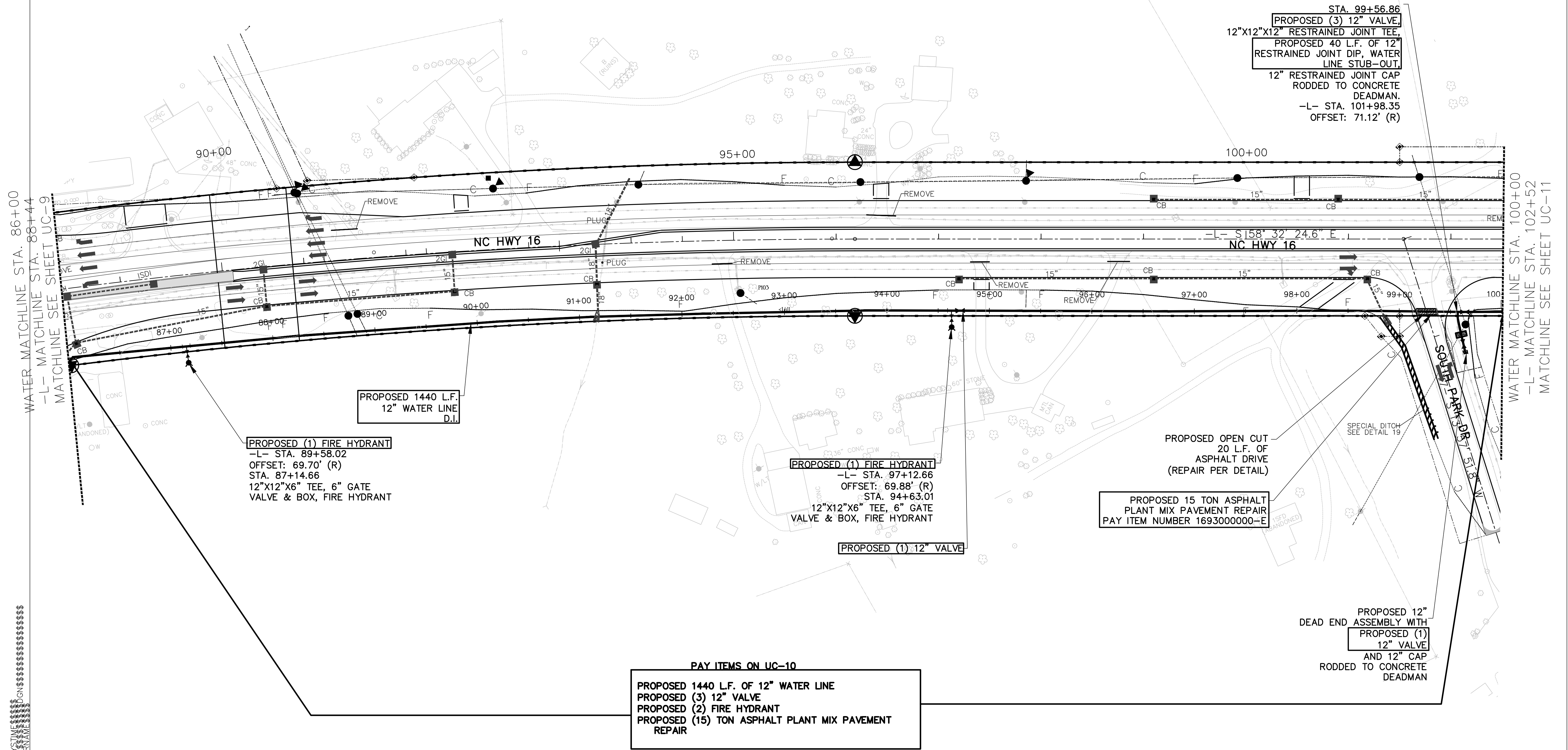
PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-10
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by



STA. 99+56.86
 PROPOSED (3) 12" VALVE,
 12"x12"x12" RESTRAINED JOINT TEE,
 PROPOSED 40 L.F. OF 12"
 RESTRAINED JOINT DIP, WATER
 LINE STUB-OUT
 12" RESTRAINED JOINT CAP
 RODDED TO CONCRETE
 DEADMAN.
 -L- STA. 101+98.35
 OFFSET: 71.12' (R)

PROPOSED (1) FIRE HYDRANT
 -L- STA. 89+58.02
 OFFSET: 69.70' (R)
 STA. 87+14.66
 12"x12"x6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PROPOSED (1) FIRE HYDRANT
 -L- STA. 97+12.66
 OFFSET: 69.88' (R)
 STA. 94+63.01
 12"x12"x6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PROPOSED (1) 12" VALVE

PROPOSED 15 TON ASPHALT
 PLANT MIX PAVEMENT REPAIR
 PAY ITEM NUMBER 1693000000-E

PROPOSED OPEN CUT
 20 L.F. OF
 ASPHALT DRIVE
 (REPAIR PER DETAIL)

PROPOSED 12"
 DEAD END ASSEMBLY WITH
 PROPOSED (1)
 12" VALVE
 AND 12" CAP
 RODDED TO CONCRETE
 DEADMAN

PAY ITEMS ON UC-10
 PROPOSED 1440 L.F. OF 12" WATER LINE
 PROPOSED (3) 12" VALVE
 PROPOSED (2) FIRE HYDRANT
 PROPOSED (15) TON ASPHALT PLANT MIX PAVEMENT
 REPAIR

WATER MATCHLINE STA. 86+00
 -L- MATCHLINE STA. 88+44
 MATCHLINE SEE SHEET UC-9

WATER MATCHLINE STA. 100+00
 -L- MATCHLINE STA. 102+52
 MATCHLINE SEE SHEET UC-11

SYSTEMS
 ON
 SUBSEPARATE

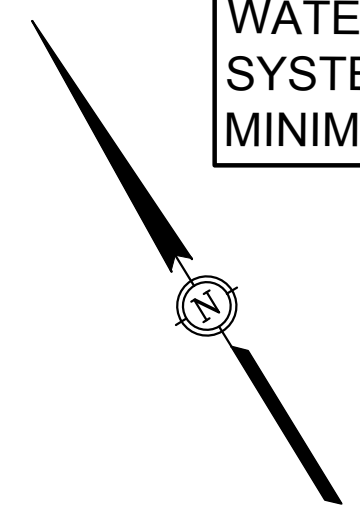
5/14/99

08
RAC

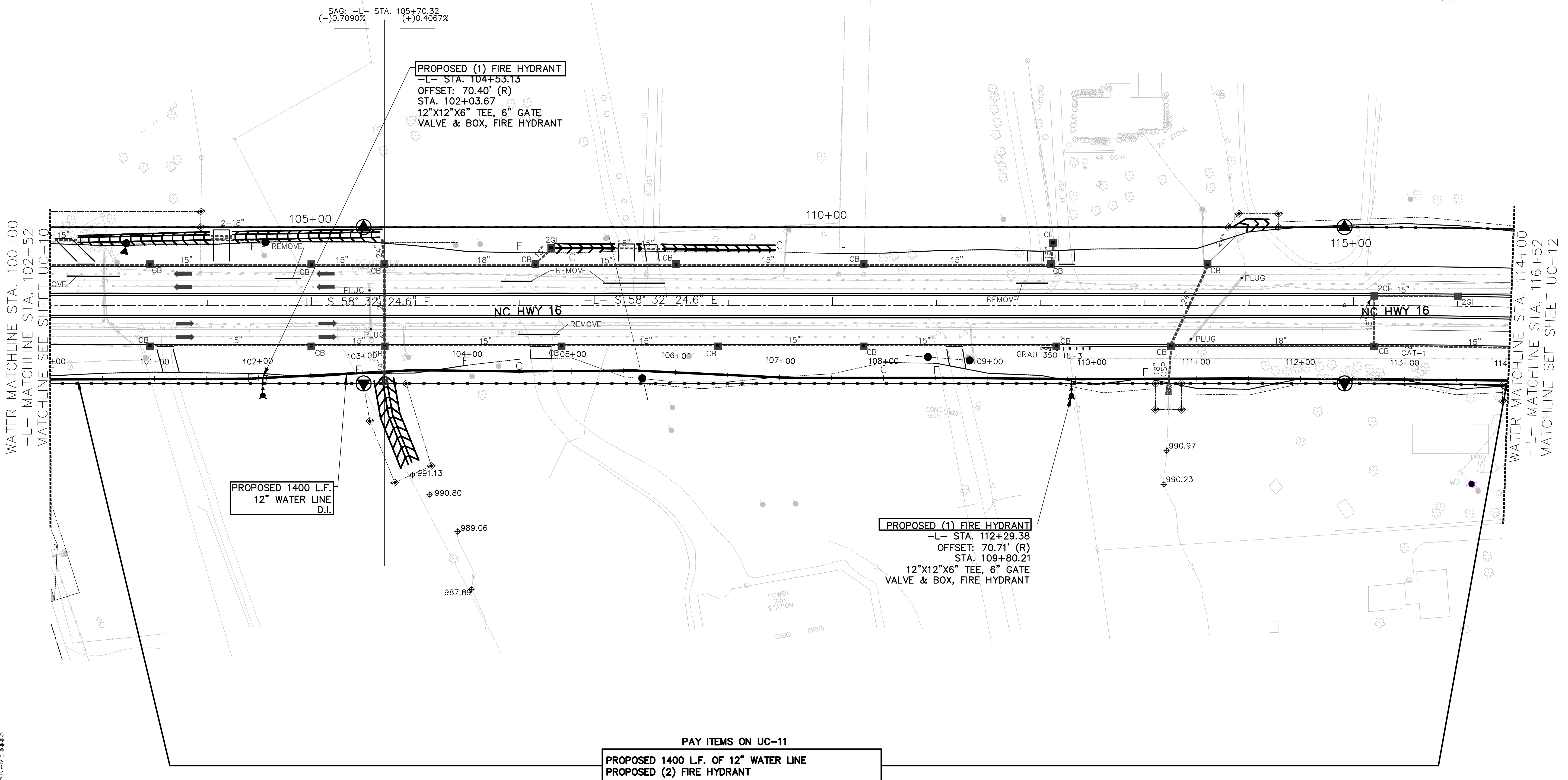
PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-11
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE



UTILITY CONSTRUCTION
Prepared by



PROPOSED (1) FIRE HYDRANT
 -L- STA. 104+53.13
 OFFSET: 70.40' (R)
 STA. 102+03.67
 12"X12"X6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

**PROPOSED 1400 L.F.
 12" WATER LINE
 D.I.**

PROPOSED (1) FIRE HYDRANT
 -L- STA. 112+29.38
 OFFSET: 70.71' (R)
 STA. 109+80.21
 12"X12"X6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PAY ITEMS ON UC-11
PROPOSED 1400 L.F. OF 12" WATER LINE
PROPOSED (2) FIRE HYDRANT

WATER MATCHLINE STA. 100+00
 -L- MATCHLINE STA. 102+52
 MATCHLINE SEE SHEET UC-10

WATER MATCHLINE STA. 114+00
 -L- MATCHLINE STA. 116+52
 MATCHLINE SEE SHEET UC-12

SYSTEMS
 SUBSYSTEMS
 SUBSYSTEMS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3100B	UC-12
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

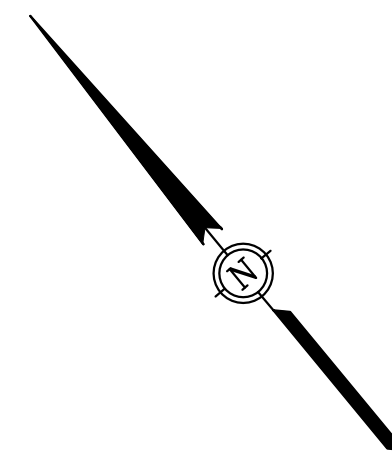
NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by

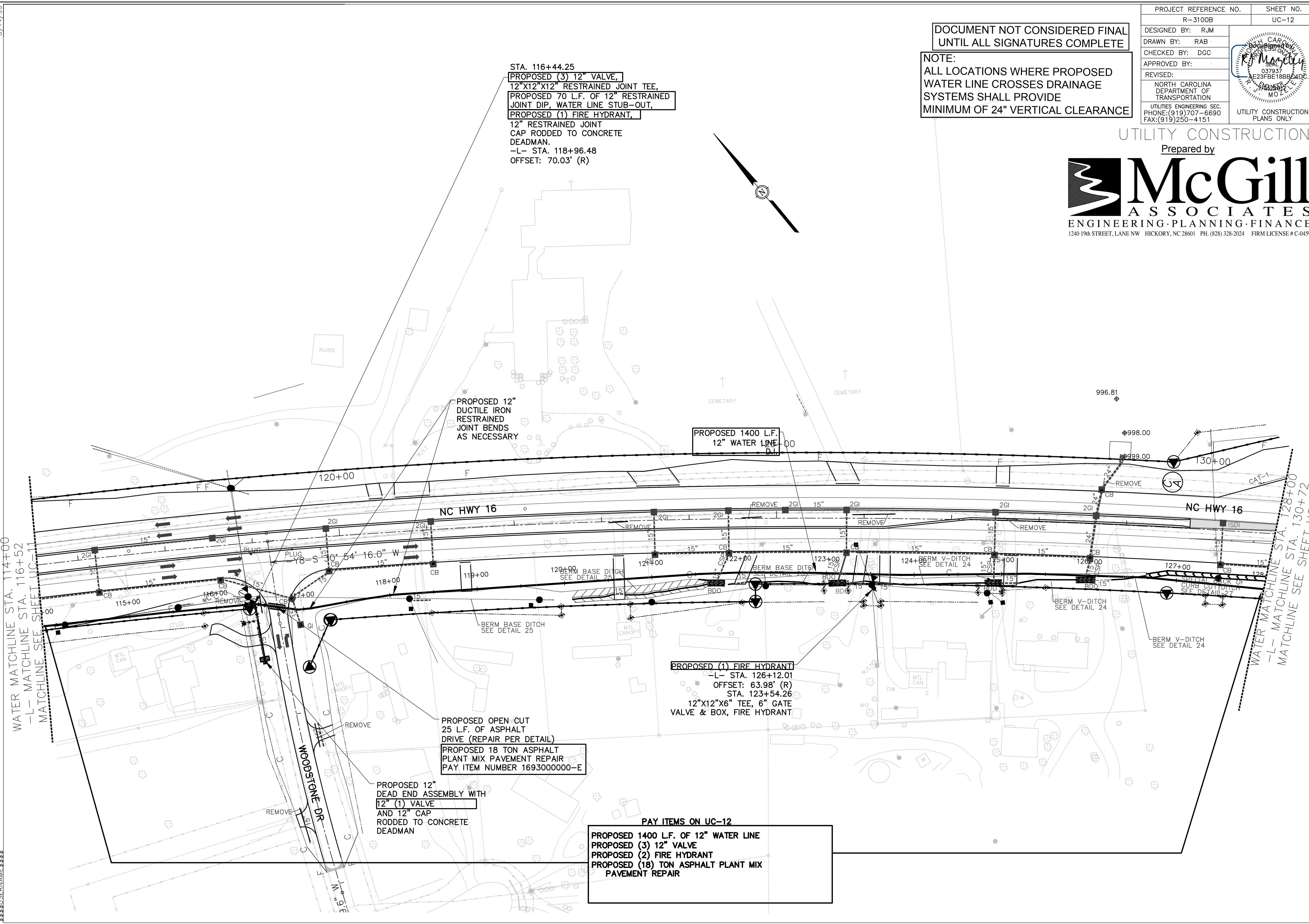
McGill
ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-0459

STA. 116+44.25
PROPOSED (3) 12" VALVE,
12"X12"X12" RESTRAINED JOINT TEE,
PROPOSED 70 L.F. OF 12" RESTRAINED
JOINT DIP, WATER LINE STUB-OUT,
PROPOSED (1) FIRE HYDRANT,
 12" RESTRAINED JOINT
 CAP RODDED TO CONCRETE
 DEADMAN.
 -L- STA. 118+96.48
 OFFSET: 70.03' (R)



WATER MATCHLINE STA. 114+00
 -L- MATCHLINE STA. 116+52
 MATCHLINE SEE SHEET UC-11

WATER MATCHLINE STA. 128+00
 -L- MATCHLINE STA. 130+72
 MATCHLINE SEE SHEET UC-13



PROPOSED (1) FIRE HYDRANT
 -L- STA. 126+12.01
 OFFSET: 63.98' (R)
 STA. 123+54.26
 12"X12"X6" TEE, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PROPOSED OPEN CUT
 25 L.F. OF ASPHALT
 DRIVE (REPAIR PER DETAIL)
PROPOSED 18 TON ASPHALT
 PLANT MIX PAVEMENT REPAIR
 PAY ITEM NUMBER 1693000000-E

PROPOSED 12" DEAD END ASSEMBLY WITH
12" (1) VALVE
 AND 12" CAP
 RODDED TO CONCRETE
 DEADMAN

PAY ITEMS ON UC-12
 PROPOSED 1400 L.F. OF 12" WATER LINE
 PROPOSED (3) 12" VALVE
 PROPOSED (2) FIRE HYDRANT
 PROPOSED (18) TON ASPHALT PLANT MIX
 PAVEMENT REPAIR

PROJECT REFERENCE NO.	SHEET NO.
R-3100B	UC-13
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES COMPLETE

NOTE: ALL LOCATIONS WHERE PROPOSED WATER LINE CROSSES DRAINAGE SYSTEMS SHALL PROVIDE MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

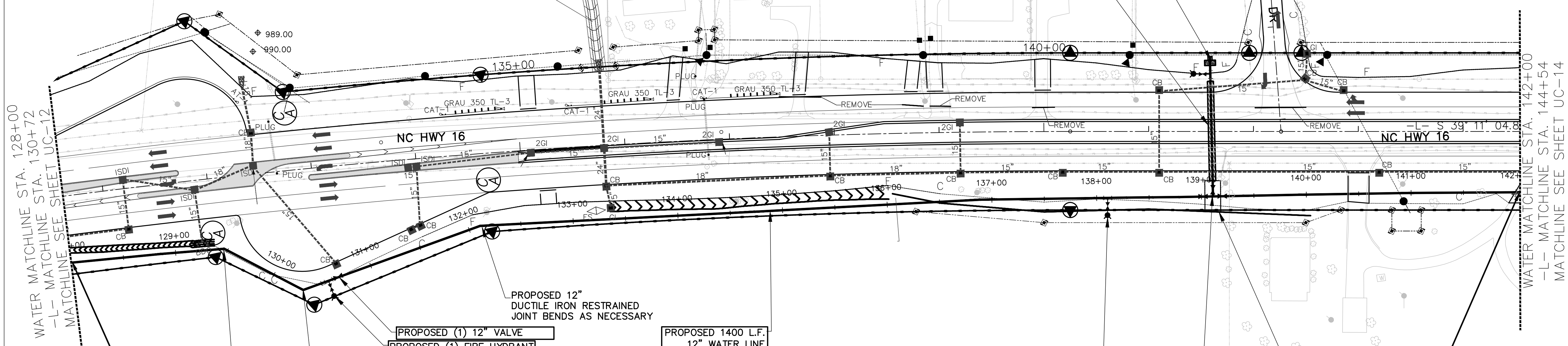
Prepared by

McGill ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-0459

PROPOSED 12" DEAD END ASSEMBLY
 PROPOSED (1) 12" VALVE,
 PROPOSED (1) 6" VALVE,
 PROPOSED (1) FIRE HYDRANT
 12" CAP RODDED TO CONCRETE DEADMAN

PROPOSED 50 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
 PROPOSED 50 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL

PROPOSED 100 L.F. OF 20" ENCASEMENT PIPE
 STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE



WATER MATCHLINE STA. 128+00
 -L- MATCHLINE STA. 130+72
 MATCHLINE SEE SHEET UC-12

WATER MATCHLINE STA. 142+00
 -L- MATCHLINE STA. 144+54
 MATCHLINE SEE SHEET UC-14

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PROPOSED (1) 12" VALVE
 PROPOSED (1) FIRE HYDRANT
 -L- STA. 133+05.90
 OFFSET: 108.01' (R)
 STA. 130+57.55
 12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PROPOSED 1400 L.F. 12" WATER LINE D.I.

PROPOSED (1) FIRE HYDRANT
 -L- STA. 140+60.89
 OFFSET: 63.81' (R)
 STA. 138+10.52
 12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

STA. 139+11.46
 PROPOSED (3) 12" VALVE,
 12"X12"X12" RESTRAINED JOINT TEE,
 120 L.F. OF 12" RESTRAINED JOINT DIP,
 WATER LINE STUB-OUT,
 12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
 -L- STA. 141+53.98
 OFFSET: 61.76' (R)

PAY ITEMS ON UC-13

PROPOSED 1520 L.F. OF 12" WATER LINE
 PROPOSED 120 L.F. OF 12" RESTRAINED JOINT WATER LINE
 PROPOSED 100 L.F. OF 20" ENCASEMENT PIPE
 PROPOSED (4) 12" VALVE
 PROPOSED (3) FIRE HYDRANT
 PROPOSED 50 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE IN SOIL
 PROPOSED 50 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE NOT IN SOIL

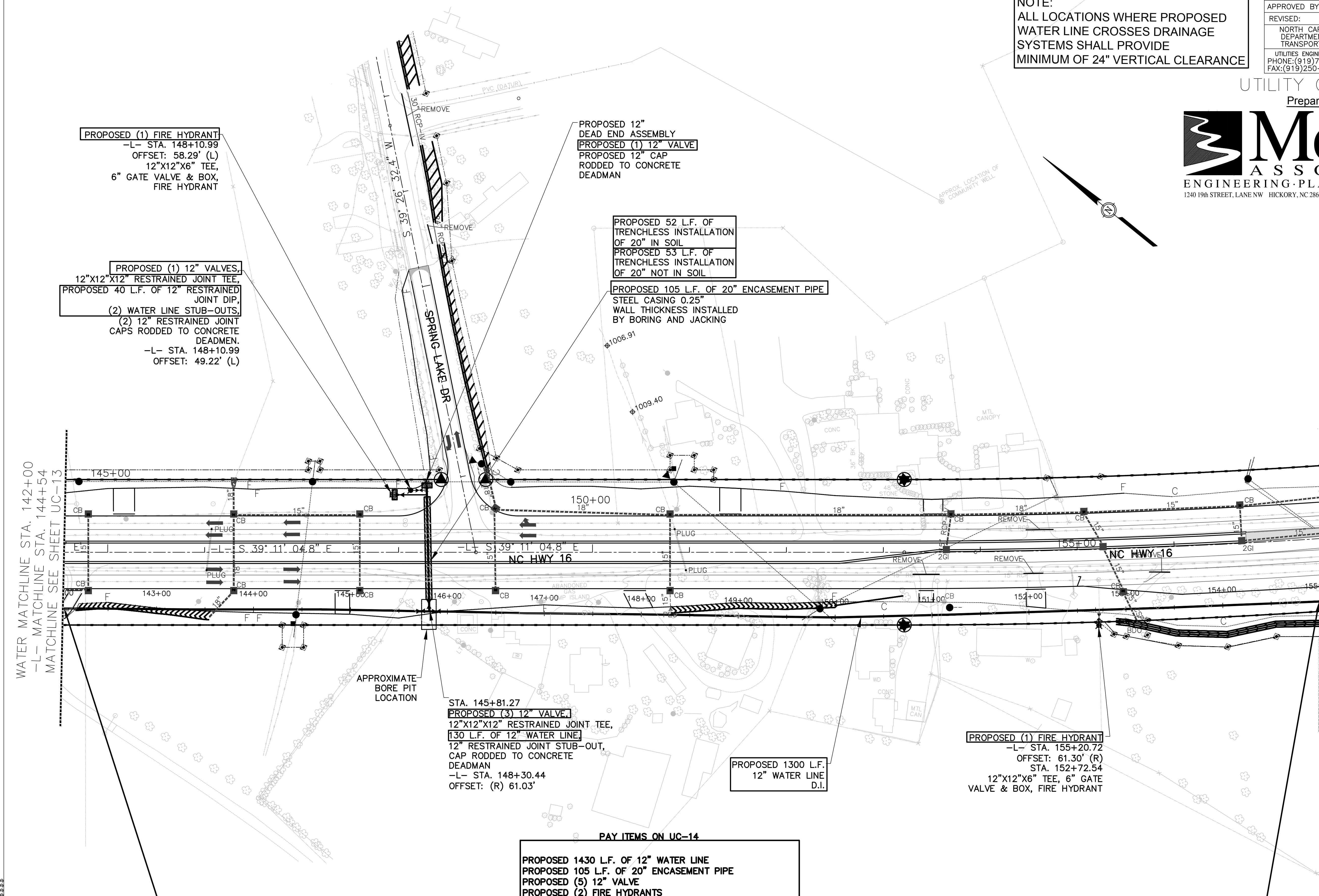
NO SYSTEMS SHALL BE DISRUPTED

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-14
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION
Prepared by



PROPOSED (1) FIRE HYDRANT
-L- STA. 148+10.99
OFFSET: 58.29' (L)
12"X12"X6" TEE,
6" GATE VALVE & BOX,
FIRE HYDRANT

PROPOSED (1) 12" VALVES,
12"X12"X12" RESTRAINED JOINT TEE,
PROPOSED 40 L.F. OF 12" RESTRAINED
JOINT DIP,
(2) WATER LINE STUB-OUTS,
(2) 12" RESTRAINED JOINT
CAPS RODDED TO CONCRETE
DEADMEN.
-L- STA. 148+10.99
OFFSET: 49.22' (L)

PROPOSED 12"
DEAD END ASSEMBLY
PROPOSED (1) 12" VALVE
PROPOSED 12" CAP
RODED TO CONCRETE
DEADMAN

PROPOSED 52 L.F. OF
TRENCHLESS INSTALLATION
OF 20" IN SOIL
PROPOSED 53 L.F. OF
TRENCHLESS INSTALLATION
OF 20" NOT IN SOIL

PROPOSED 105 L.F. OF 20" ENCASEMENT PIPE
STEEL CASING 0.25"
WALL THICKNESS INSTALLED
BY BORING AND JACKING

STA. 145+81.27
PROPOSED (3) 12" VALVE,
12"X12"X12" RESTRAINED JOINT TEE,
130 L.F. OF 12" WATER LINE,
12" RESTRAINED JOINT STUB-OUT,
CAP RODDED TO CONCRETE
DEADMAN
-L- STA. 148+30.44
OFFSET: (R) 61.03'

PROPOSED 1300 L.F.
12" WATER LINE
D.I.

PROPOSED (1) FIRE HYDRANT
-L- STA. 155+20.72
OFFSET: 61.30' (R)
STA. 152+72.54
12"X12"X6" TEE, 6" GATE
VALVE & BOX, FIRE HYDRANT

PAY ITEMS ON UC-14
PROPOSED 1430 L.F. OF 12" WATER LINE
PROPOSED 105 L.F. OF 20" ENCASEMENT PIPE
PROPOSED (5) 12" VALVE
PROPOSED (2) FIRE HYDRANTS
PROPOSED 52 L.F. TRENCHLESS INSTALLATION OF 20"
ENCASEMENT PIPE IN SOIL
PROPOSED 53 L.F. TRENCHLESS INSTALLATION OF 20"
ENCASEMENT PIPE NOT IN SOIL

WATER MATCHLINE STA. 142+00
-L- MATCHLINE STA. 144+54
MATCHLINE SEE SHEET UC-13

WATER MATCHLINE STA. 155+00
-L- MATCHLINE STA. 157+56
MATCHLINE SEE SHEET UC-15

NO SYSTEMS SHALL BE
REMOVED WITHOUT
APPROPRIATE
NOTICE

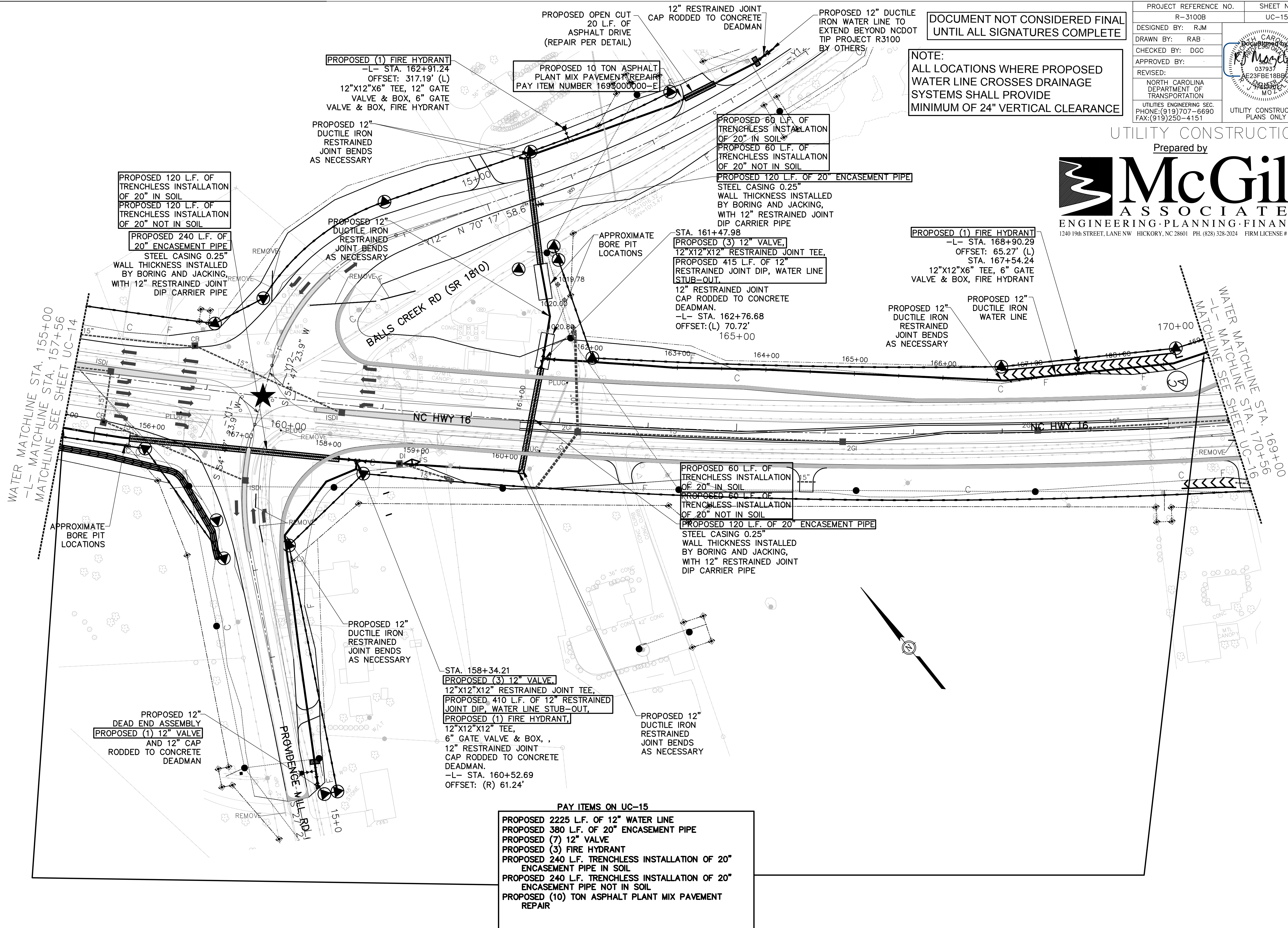
PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-15
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISIONS:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES COMPLETE

NOTE: ALL LOCATIONS WHERE PROPOSED WATER LINE CROSSES DRAINAGE SYSTEMS SHALL PROVIDE MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by



WATER MATCHLINE STA. 155+00
-L- MATCHLINE STA. 157+56
MATCHLINE SEE SHEET UC-14

WATER MATCHLINE STA. 170+00
-L- MATCHLINE SEE SHEET UC-16

APPROXIMATE BORE PIT LOCATIONS

APPROXIMATE BORE PIT LOCATIONS

PROPOSED 12" DEAD END ASSEMBLY
PROPOSED (1) 12" VALVE
AND 12" CAP
RODDED TO CONCRETE DEADMAN


PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

STA. 158+34.21
PROPOSED (3) 12" VALVE,
12"X12"X12" RESTRAINED JOINT TEE,
PROPOSED 410 L.F. OF 12" RESTRAINED JOINT DIP, WATER LINE STUB-OUT,
PROPOSED (1) FIRE HYDRANT,
12"X12"X12" TEE,
6" GATE VALVE & BOX, ,
12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
-L- STA. 160+52.69
OFFSET: (R) 61.24'

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PAY ITEMS ON UC-15
PROPOSED 2225 L.F. OF 12" WATER LINE
PROPOSED 380 L.F. OF 20" ENCASEMENT PIPE
PROPOSED (7) 12" VALVE
PROPOSED (3) FIRE HYDRANT
PROPOSED 240 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE IN SOIL
PROPOSED 240 L.F. TRENCHLESS INSTALLATION OF 20" ENCASEMENT PIPE NOT IN SOIL
PROPOSED (10) TON ASPHALT PLANT MIX PAVEMENT REPAIR

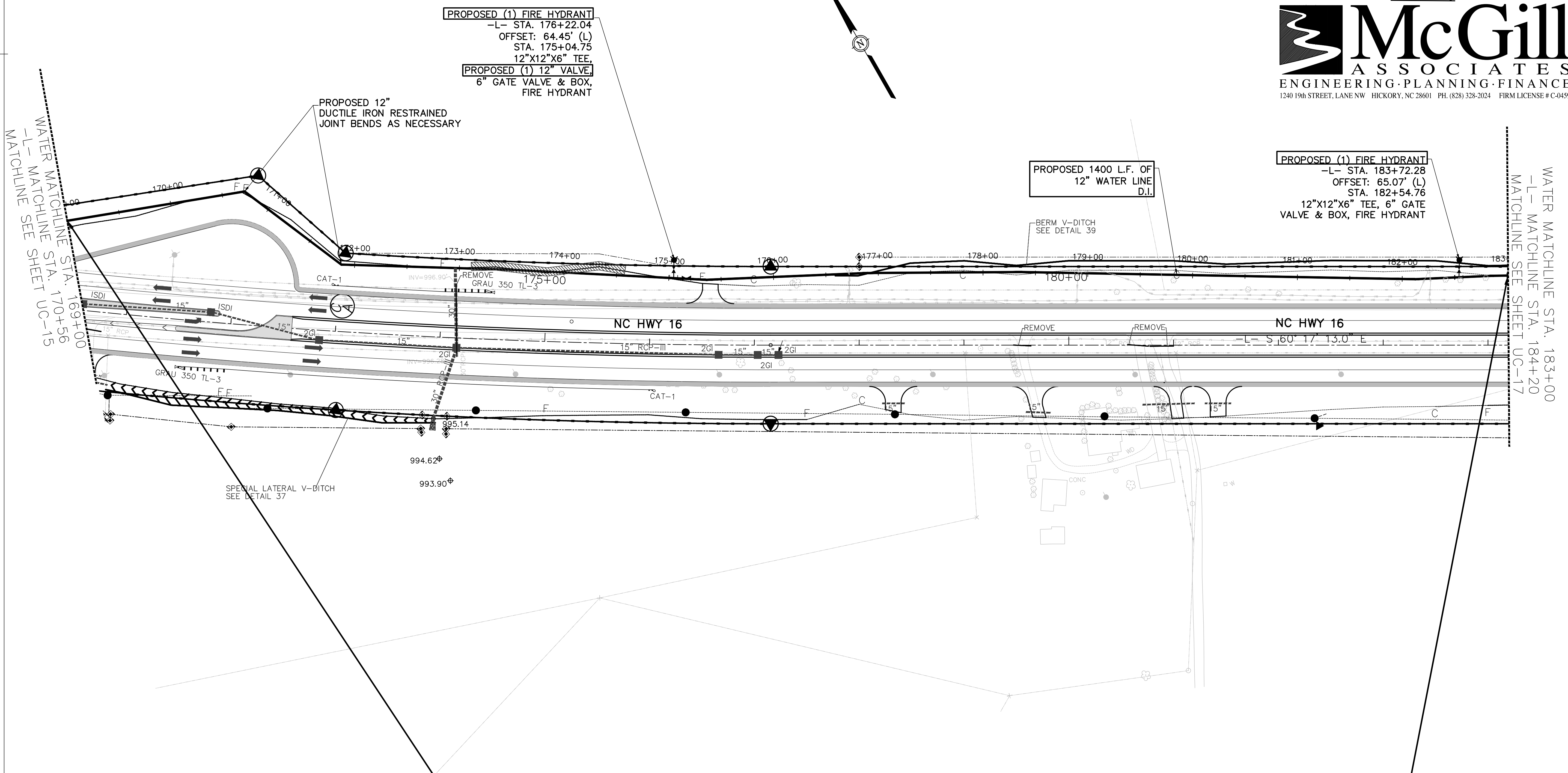
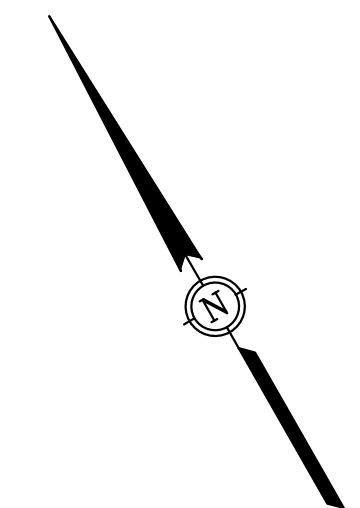
NO CONSTRUCTION SHALL BE PERMITTED WITHOUT THE SIGNATURE OF THE ENGINEER

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-16
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION
Prepared by



PROPOSED (1) FIRE HYDRANT
-L- STA. 176+22.04
OFFSET: 64.45' (L)
STA. 175+04.75
12"x12"x6" TEE,
6" GATE VALVE & BOX,
FIRE HYDRANT

PROPOSED 1400 L.F. OF
12" WATER LINE
D.I.

PROPOSED (1) FIRE HYDRANT
-L- STA. 183+72.28
OFFSET: 65.07' (L)
STA. 182+54.76
12"x12"x6" TEE, 6" GATE
VALVE & BOX, FIRE HYDRANT

PAY ITEMS FOR UC-16
PROPOSED 1400 L.F. OF 12" WATER LINE
PROPOSED (1) 12" VALVE
PROPOSED (2) FIRE HYDRANT

PROJECT REFERENCE NO. R-3100B	SHEET NO. UC-17
DESIGNED BY: RJM	
DRAWN BY: RAB	
CHECKED BY: DGC	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES COMPLETE

NOTE:
ALL LOCATIONS WHERE PROPOSED
WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION
Prepared by



PROPOSED (1) FIRE HYDRANT
-L- STA. 191+22.11
OFFSET: 69.63' (L)
STA. 190+04.06
12"x12"x6" TEE,
PROPOSED (1) 12" VALVE,
6" GATE VALVE & BOX,
FIRE HYDRANT

PROPOSED (2) 1" AIR
RELEASE VALVES
PER DETAIL

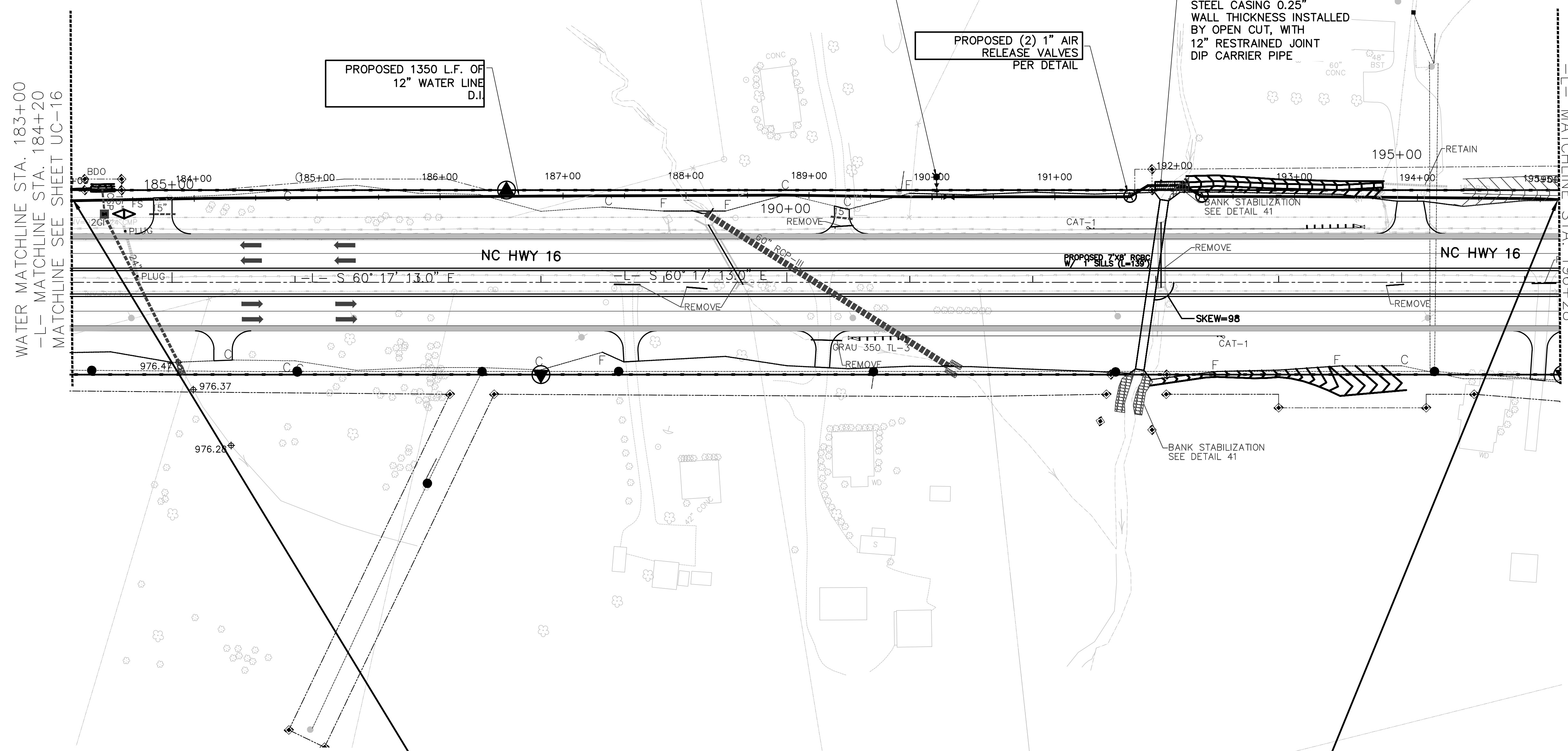
PROPOSED 12 L.F. OF
TRENCHLESS INSTALLATION
OF 20" IN SOIL
PROPOSED 13 L.F. OF
TRENCHLESS INSTALLATION
OF 20" NOT IN SOIL

PROPOSED 25 L.F. OF 20" ENCASEMENT PIPE
STEEL CASING 0.25"
WALL THICKNESS INSTALLED
BY OPEN CUT, WITH
12" RESTRAINED JOINT
DIP CARRIER PIPE

PROPOSED 1350 L.F. OF
12" WATER LINE
D.I.

WATER MATCHLINE STA. 183+00
-L- MATCHLINE STA. 184+20
MATCHLINE SEE SHEET UC-16

WATER MATCHLINE STA. 196+17.63 R3100B
WATER MATCHLINE STA. 10+00.00 R3100A
-L- MATCHLINE STA. 196+28



PAY ITEMS FOR UC-17
 PROPOSED 1350 L.F. OF 12" WATER LINE
 PROPOSED (1) 12" VALVE
 PROPOSED (1) FIRE HYDRANT
 PROPOSED (2) AIR RELEASE VALVE
 PROPOSED 12 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
 PROPOSED 13 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL