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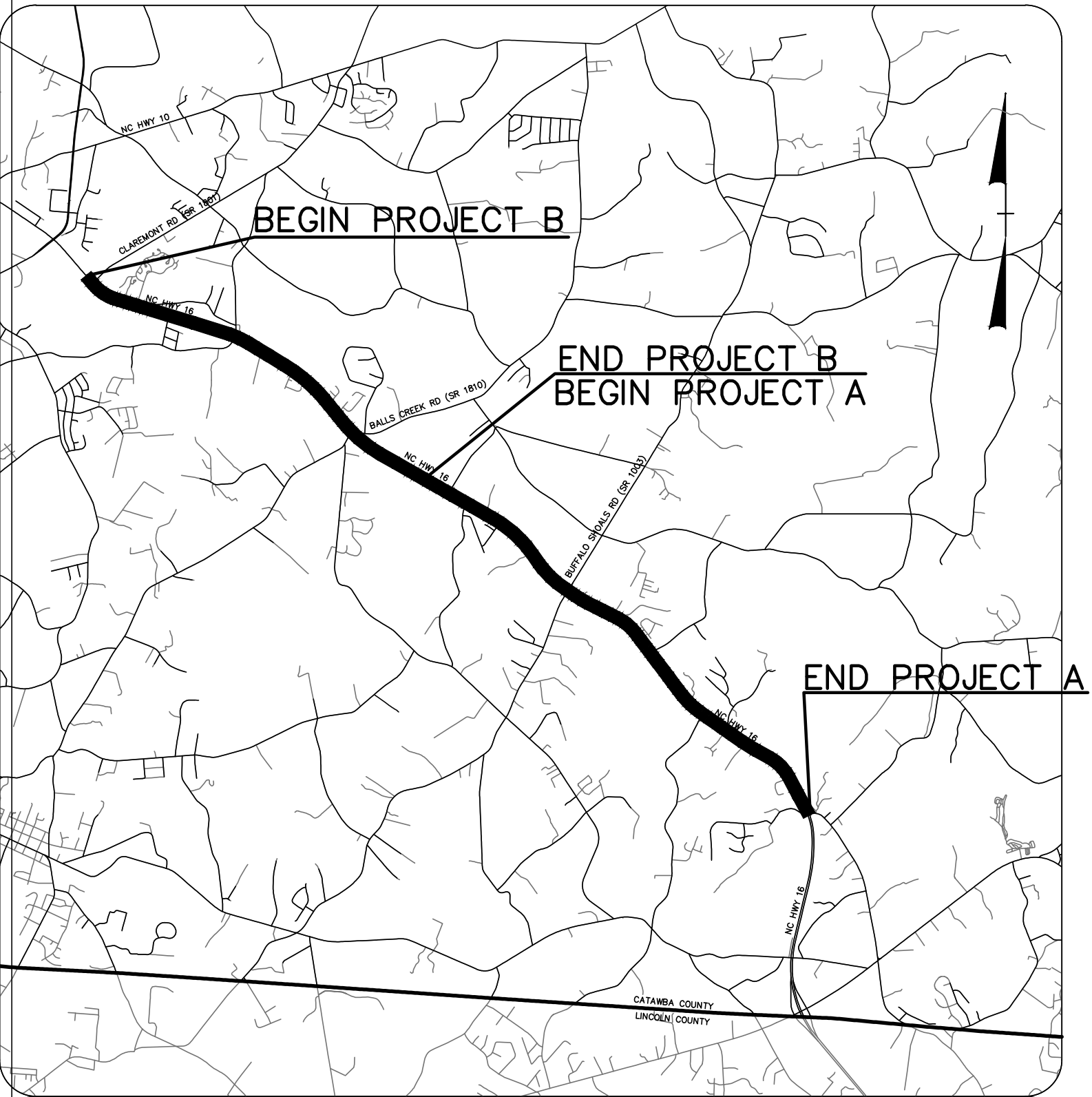
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09/08/99

TIP PROJECT: R-3100A

| | |
|-----------------------|-------------------|
| T.I.P. NO. R-3100A | SHEET NO. UC-1 |
|-----------------------|-------------------|



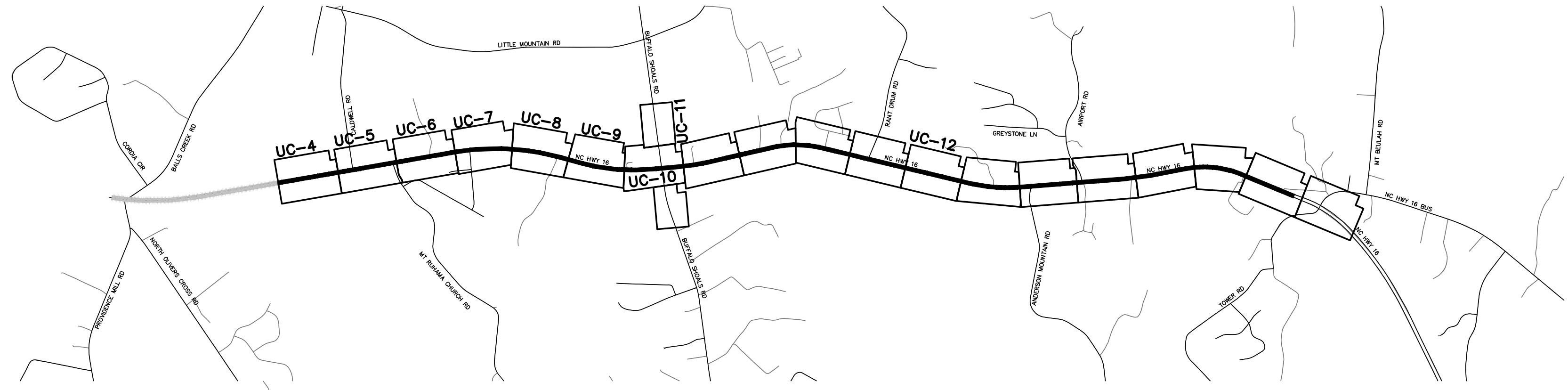
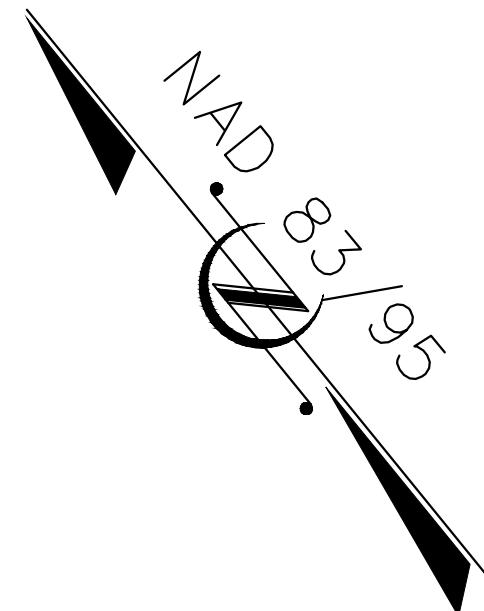
VICINITY MAP

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS CATAWBA COUNTY

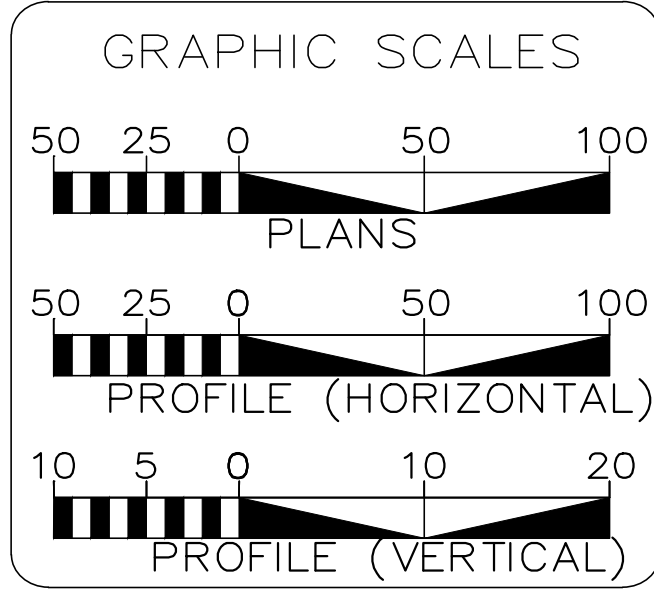
LOCATION: NC 16 FROM NORTH OF SR 1814 (CALDWELL ROAD) TO
SR 1895 (TOWER ROAD)

TYPE OF WORK: WATER CONSTRUCTION & SANITARY SEWER ENCASEMENT



NOTE: UTILITY CONSTRUCTION FOR SANITARY SEWER IS LIMITED TO THE INSTALLATION OF 24" ENCASEMENT PIPE ONLY. NO CARRIER PIPE OR MANHOLE CONSTRUCTION IS INCLUDED IN THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED



| SHEET NO.: | DESCRIPTION: |
|------------------|-----------------------------|
| UC-1 | TITLE SHEET |
| UC-2 | UTILITY SYMBOLOGY |
| UC-3 | NOTES |
| UC-3A THRU UC-3B | DETAILS |
| UC-4 THRU UC-12 | UTILITY CONSTRUCTION SHEETS |

WATER AND SEWER
ENCASEMENT
OWNERS ON PROJECT

(A) WATER, CITY OF NEWTON
(B) SANITARY SEWER ENCASEMENT,
CATAWBA COUNTY

PREPARED IN THE OFFICE OF

McGILL ASSOCIATES, P.A.
1240 19TH STREET LANE NW
HICKORY, NC 28601
(828) 328-2024
FIRM LICENSE #C-0459

McGill
ASSOCIATES
ENGINEERING-PLANNING-FINANCE

R.J. MOZELEY, PE CONSULTANT CONTACT #1
DOUG CHAPMAN, PE CONSULTANT CONTACT #2
ANDY LOVINGOOD, PE CONSULTANT CONTACT #3

SEAL

UTILITY CONSTRUCTION
PLANS ONLY

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

Carl Barclay, PE UTILITIES REGIONAL ENGINEER
James E. Swinson UTILITIES ENGINEER
Amy Dupree UTILITIES AREA COORDINATOR
Steve Trexler UTILITIES COORDINATOR

CUSTOMER SERVICE: 1-800-368-6868
 WWW.DOT.ORG
 1-800-368-6868

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 | — X — |
| Butterfly Valve | — BV — |
| Tapping Valve | — TGV — |
| Line Stop | — — |
| Line Stop with Bypass | — LS/BP — |
| Blow Off | — BO — |
| Fire Hydrant | — PFH — |
| Relocate Fire Hydrant | — RFH — |
| Remove Fire Hydrant | — REM FH — |
| Water Meter | — PWM — |
| Relocate Water Meter | — RWM — |
| Remove Water Meter | — REM WM — |
| Water Pump Station | — PS(W) — |
| RPZ Backflow Preventer | — PRPZ — |
| DCV Backflow Preventer | — PBFP — |
| Relocate RPZ Backflow Preventer | — RRPZ — |
| Relocate DCV Backflow Preventer | — RBFP — |

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

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

| | |
|-------------------|--------------|
| Thrust Block | — — |
| Air Release Valve | — AR — |
| Utility Vault | — UV — |
| Concrete Pier | — CP — |
| Steel Pier | — SP — |
| Plan Note | — NOTE — |
| Pay Item Note | — PAY ITEM — |

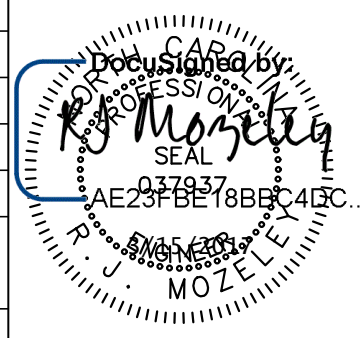
EXISTING UTILITIES SYMBOLS

| | |
|--|------------|
| Power Pole | — ● — |
| Telephone Pole | — ● — |
| Joint Use Pole | — ● — |
| Utility Pole | — ● — |
| Utility Pole with Base | — □ — |
| H-Frame Pole | — ● — |
| Power Transmission Line Tower | — T — |
| 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-3100A | 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. 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

UTILITY CONSTRUCTION

\$\$\$ SYSTEMS ENGINEERING, INC. \$\$\$
\$\$\$ 1000 W. HICKORY ST. \$\$\$
\$\$\$ HICKORY, NC 27260 \$\$\$
\$\$\$ PHONE: (919) 250-4151 \$\$\$
\$\$\$ FAX: (919) 250-4151 \$\$\$

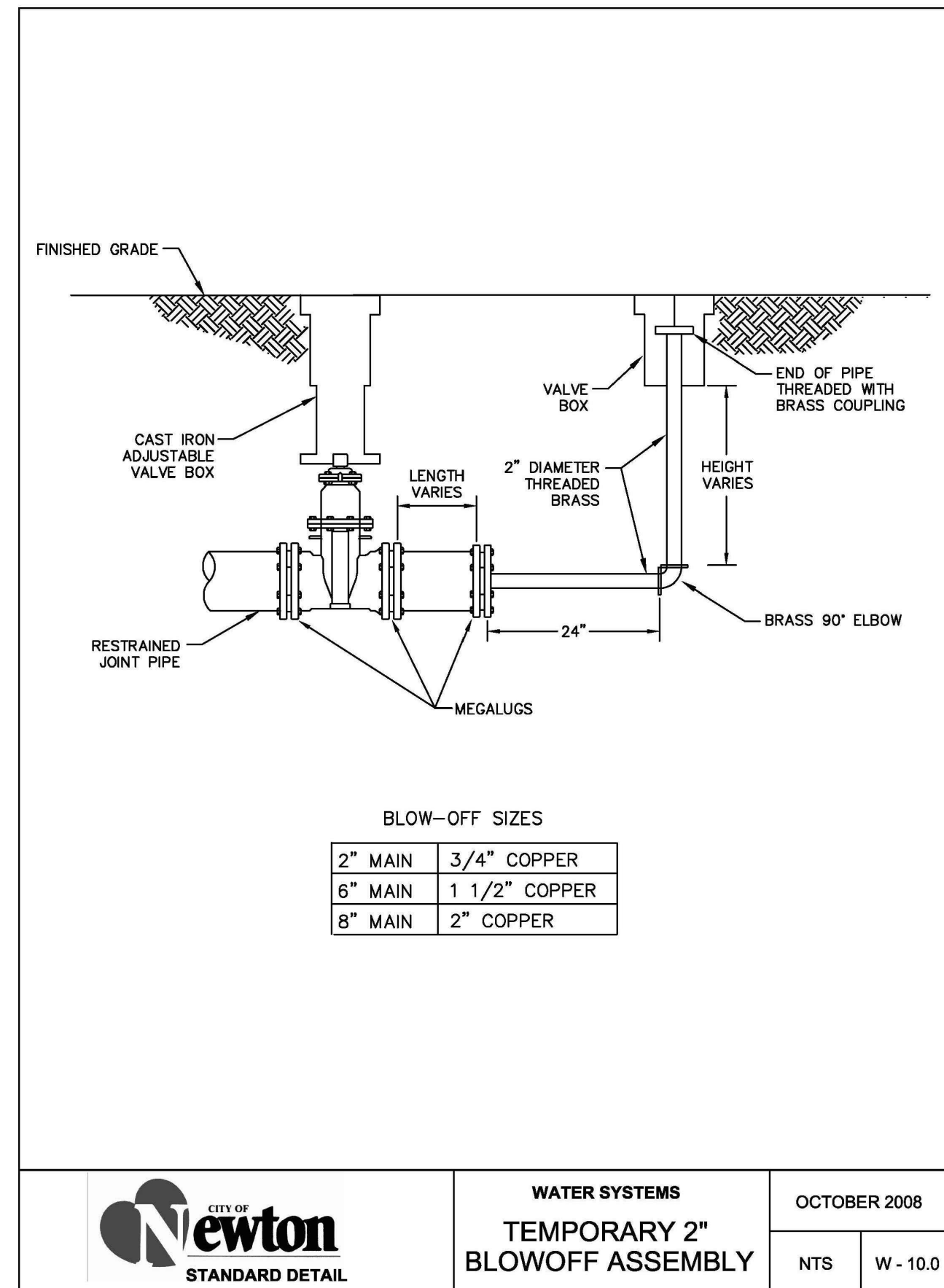
| | |
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| PROJECT REFERENCE NO. | SHEET NO. |
| R-3100A | UC-3A |
| DESIGNED BY: RJM | |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE: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

UTILITY CONSTRUCTION

Prepared by

McGill ASSOCIATES
ENGINEERING · PLANNING · FINANCE
1240 19th STREET, LANE NW HICKORY, NC 28601 PH. (828) 328-2024 FIRM LICENSE # C-4059

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BLOW-OFF SIZES

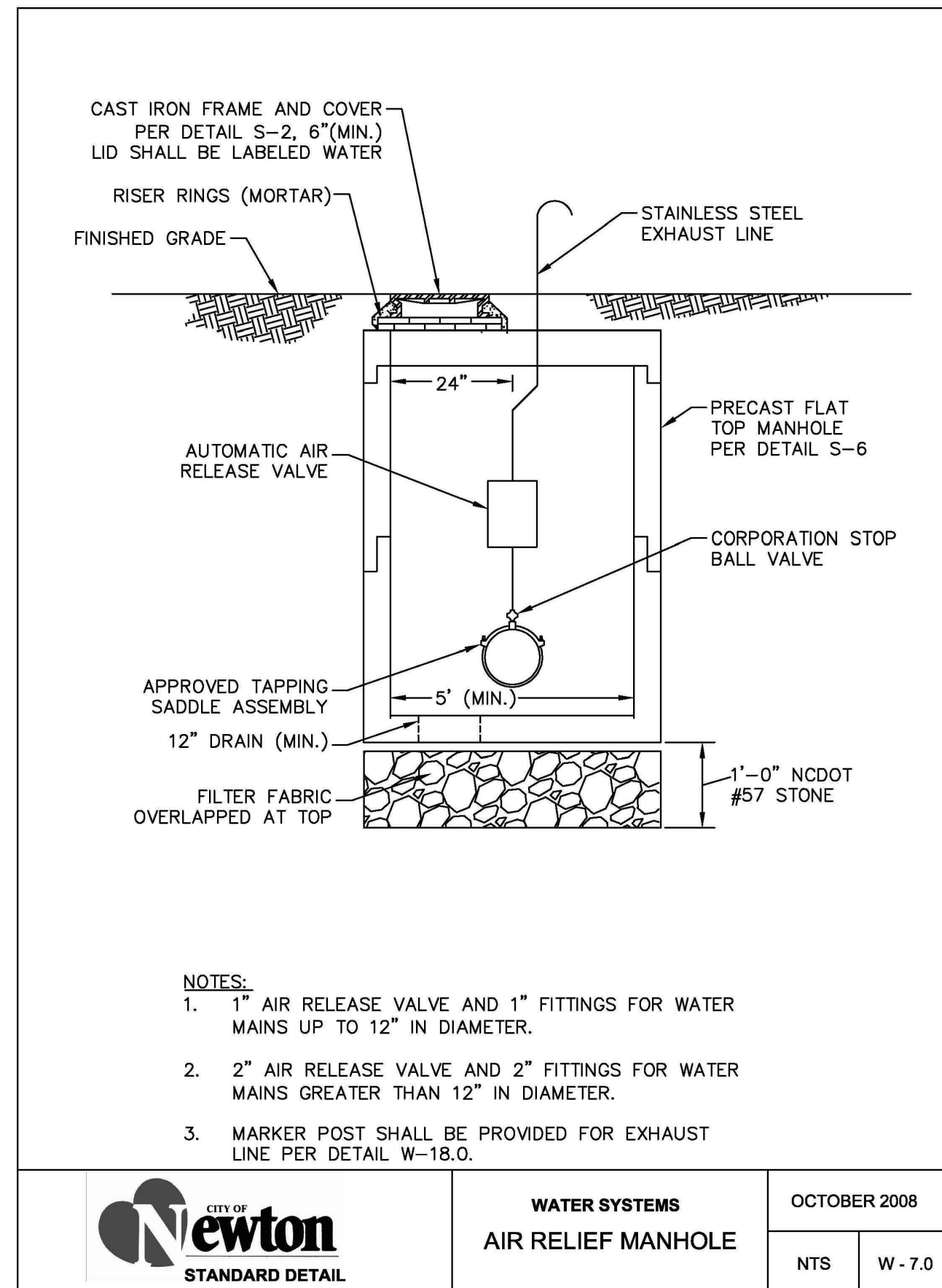
| | |
|---------|---------------|
| 2" MAIN | 3/4" COPPER |
| 6" MAIN | 1 1/2" COPPER |
| 8" MAIN | 2" COPPER |

CITY OF Newton STANDARD DETAIL

WATER SYSTEMS
TEMPORARY 2" BLOWOFF ASSEMBLY

OCTOBER 2008

NTS W - 10.0



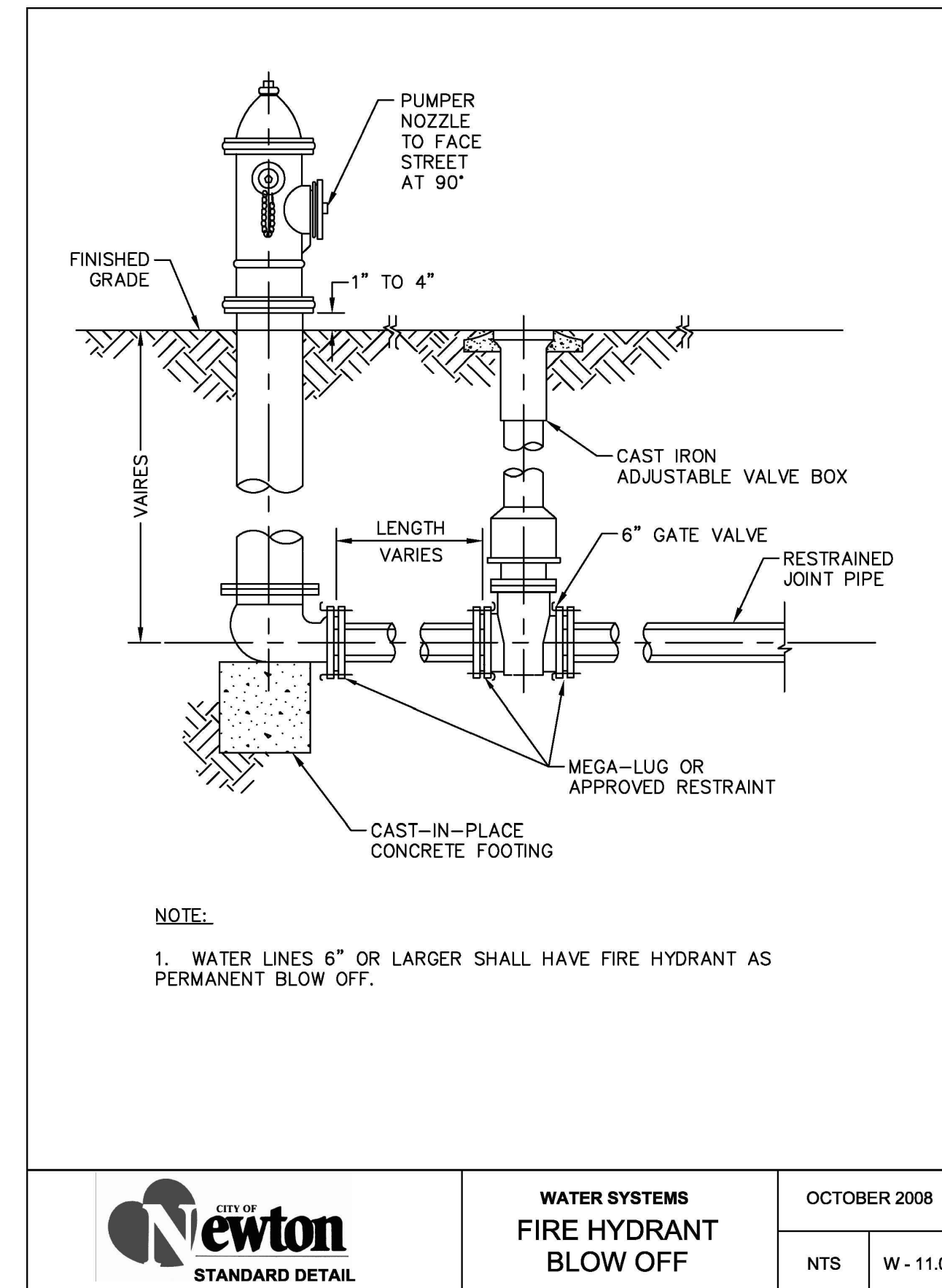
- NOTES:
- 1" AIR RELEASE VALVE AND 1" FITTINGS FOR WATER MAINS UP TO 12" IN DIAMETER.
 - 2" AIR RELEASE VALVE AND 2" FITTINGS FOR WATER MAINS GREATER THAN 12" IN DIAMETER.
 - MARKER POST SHALL BE PROVIDED FOR EXHAUST LINE PER DETAIL W-18.0.

CITY OF Newton STANDARD DETAIL

WATER SYSTEMS
AIR RELIEF MANHOLE

OCTOBER 2008

NTS W - 7.0



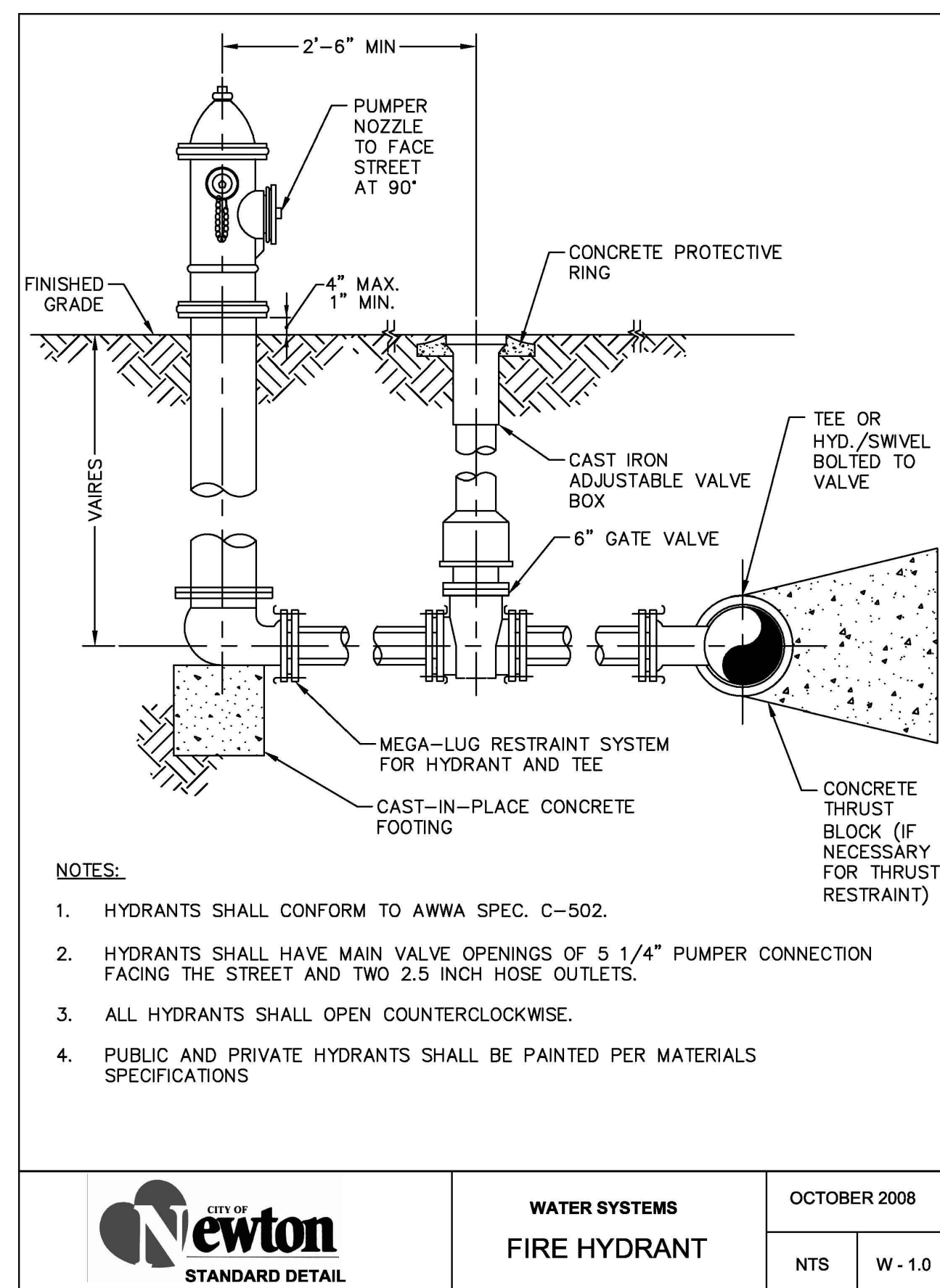
- NOTE:
1. WATER LINES 6" OR LARGER SHALL HAVE FIRE HYDRANT AS PERMANENT BLOW OFF.

CITY OF Newton STANDARD DETAIL

WATER SYSTEMS
FIRE HYDRANT BLOW OFF

OCTOBER 2008

NTS W - 11.0



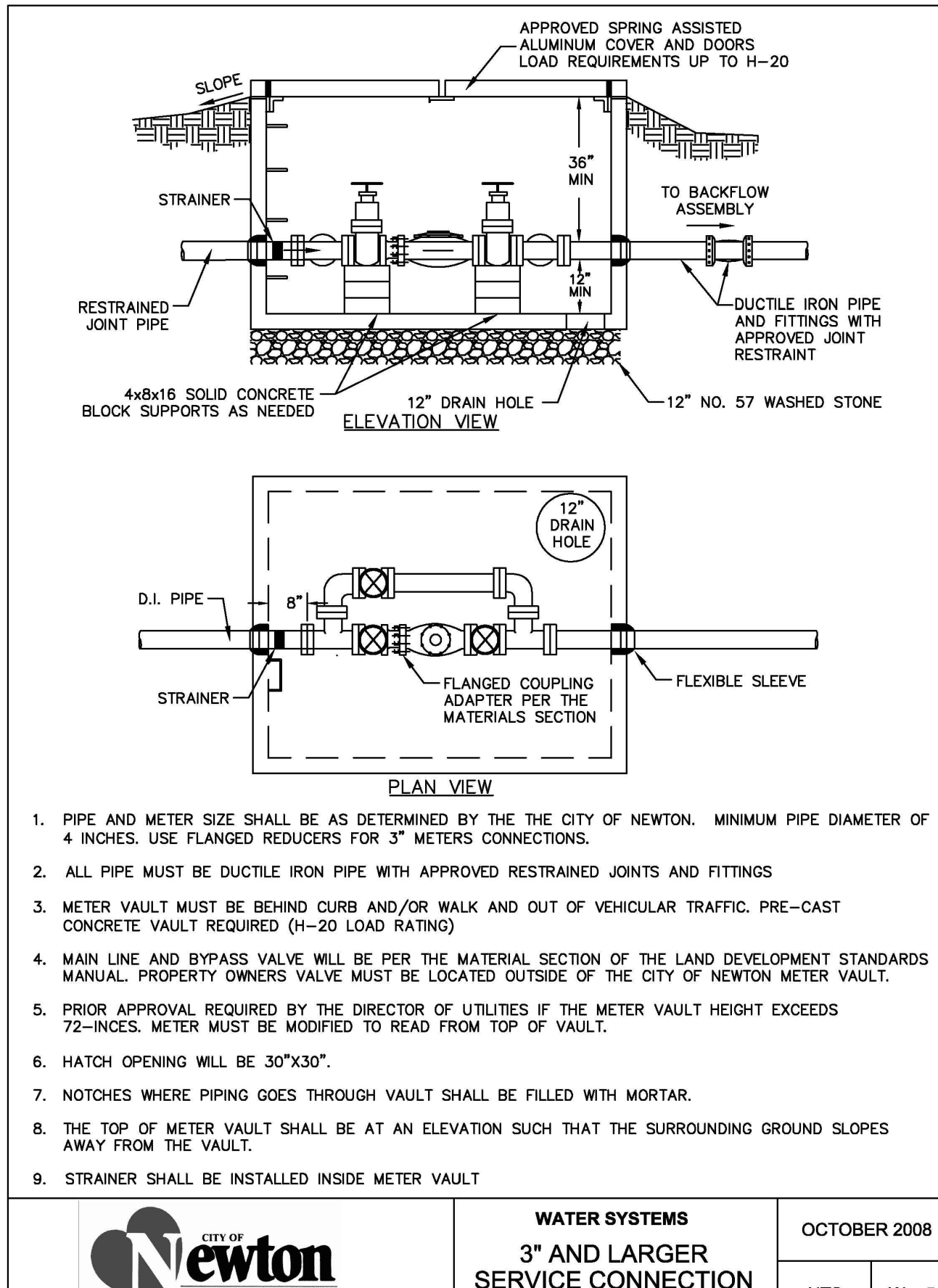
- NOTES:
- HYDRANTS SHALL CONFORM TO AWWA SPEC. C-502.
 - HYDRANTS SHALL HAVE MAIN VALVE OPENINGS OF 5 1/4" PUMPER CONNECTION FACING THE STREET AND TWO 2.5 INCH HOSE OUTLETS.
 - ALL HYDRANTS SHALL OPEN COUNTERCLOCKWISE.
 - PUBLIC AND PRIVATE HYDRANTS SHALL BE PAINTED PER MATERIALS SPECIFICATIONS

CITY OF Newton STANDARD DETAIL

WATER SYSTEMS
FIRE HYDRANT

OCTOBER 2008

NTS W - 1.0



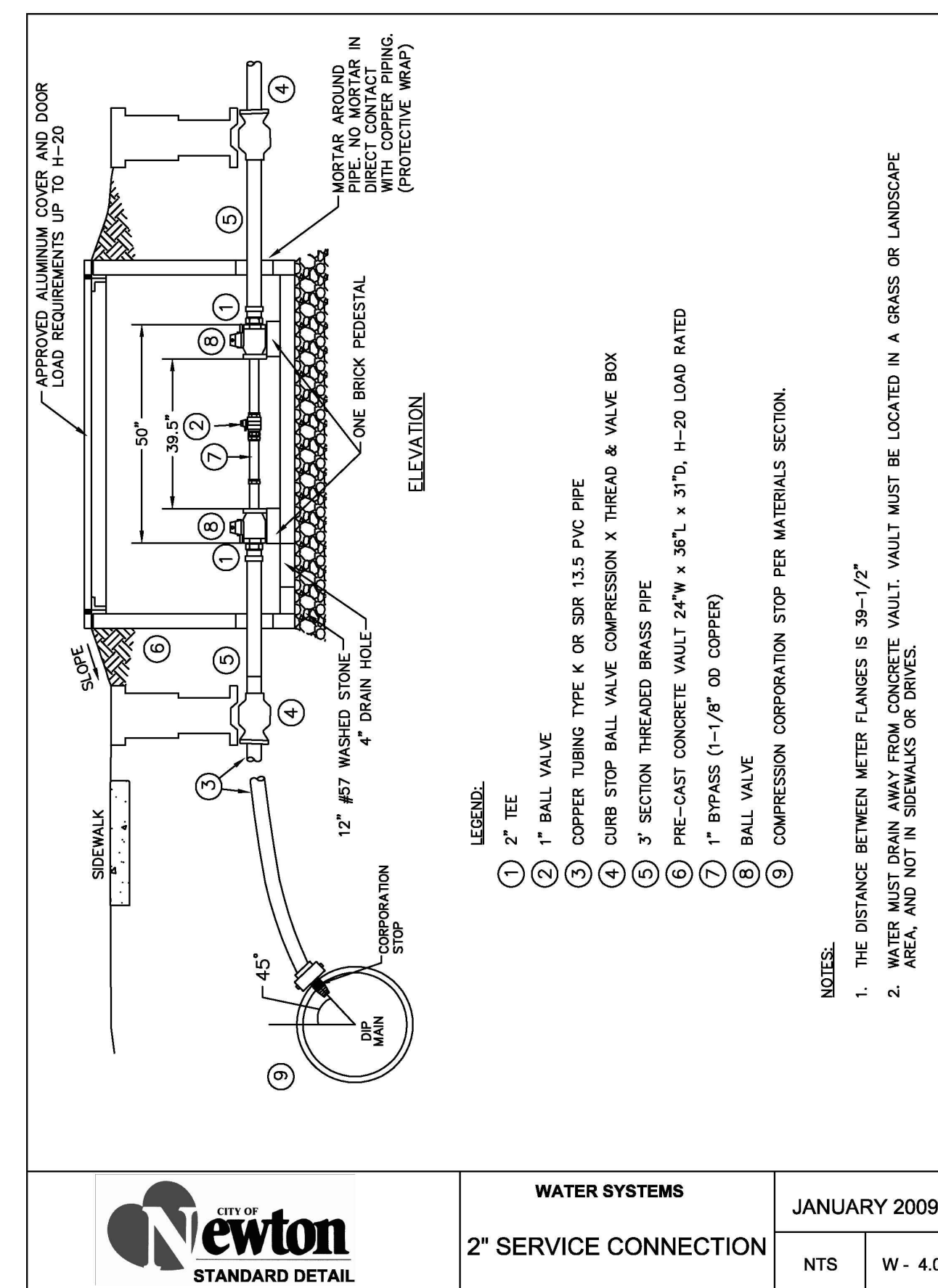
- PIPE AND METER SIZE SHALL BE AS DETERMINED BY THE THE CITY OF NEWTON. MINIMUM PIPE DIAMETER OF 4 INCHES. USE FLANGED REDUCERS FOR 3" METERS CONNECTIONS.
- ALL PIPE MUST BE DUCTILE IRON PIPE WITH APPROVED RESTRAINED JOINTS AND FITTINGS
- METER VAULT MUST BE BEHIND CURB AND/OR WALK AND OUT OF VEHICULAR TRAFFIC. PRE-CAST CONCRETE VAULT REQUIRED (H-20 LOAD RATING)
- MAIN LINE AND BYPASS VALVE WILL BE PER THE MATERIAL SECTION OF THE LAND DEVELOPMENT STANDARDS MANUAL. PROPERTY OWNERS VALVE MUST BE LOCATED OUTSIDE OF THE CITY OF NEWTON METER VAULT.
- PRIOR APPROVAL REQUIRED BY THE DIRECTOR OF UTILITIES IF THE METER VAULT HEIGHT EXCEEDS 72-INCHES. METER MUST BE MODIFIED TO READ FROM TOP OF VAULT.
- HATCH OPENING WILL BE 30"x30".
- NOTCHES WHERE PIPING GOES THROUGH VAULT SHALL BE FILLED WITH MORTAR.
- THE TOP OF METER VAULT SHALL BE AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT.
- STRAINER SHALL BE INSTALLED INSIDE METER VAULT

CITY OF Newton STANDARD DETAIL

WATER SYSTEMS
3" AND LARGER SERVICE CONNECTION

OCTOBER 2008

NTS W - 5.0



- LEGEND:
- 2" TEE
 - 1" BALL VALVE
 - COPPER TUBING TYPE K OR SDR 13.5 PVC PIPE
 - CURB STOP BALL VALVE COMPRESSION X THREAD & VALVE BOX
 - 3" SECTION THREADED BRASS PIPE
 - PRE-CAST CONCRETE VAULT 24"W x 36"L x 31"H, H-20 LOAD RATED
 - 1" BYPASS (1-1/8" OD COPPER)
 - BALL VALVE
 - COMPRESSION CORPORATION STOP PER MATERIALS SECTION.

- NOTES:
- THE DISTANCE BETWEEN METER FLANGES IS 39-1/2"
 - WATER MUST DRAIN AWAY FROM CONCRETE VAULT. VAULT MUST BE LOCATED IN A GRASS OR LANDSCAPE AREA, AND NOT IN SIDEWALKS OR DRIVES.

CITY OF Newton STANDARD DETAIL

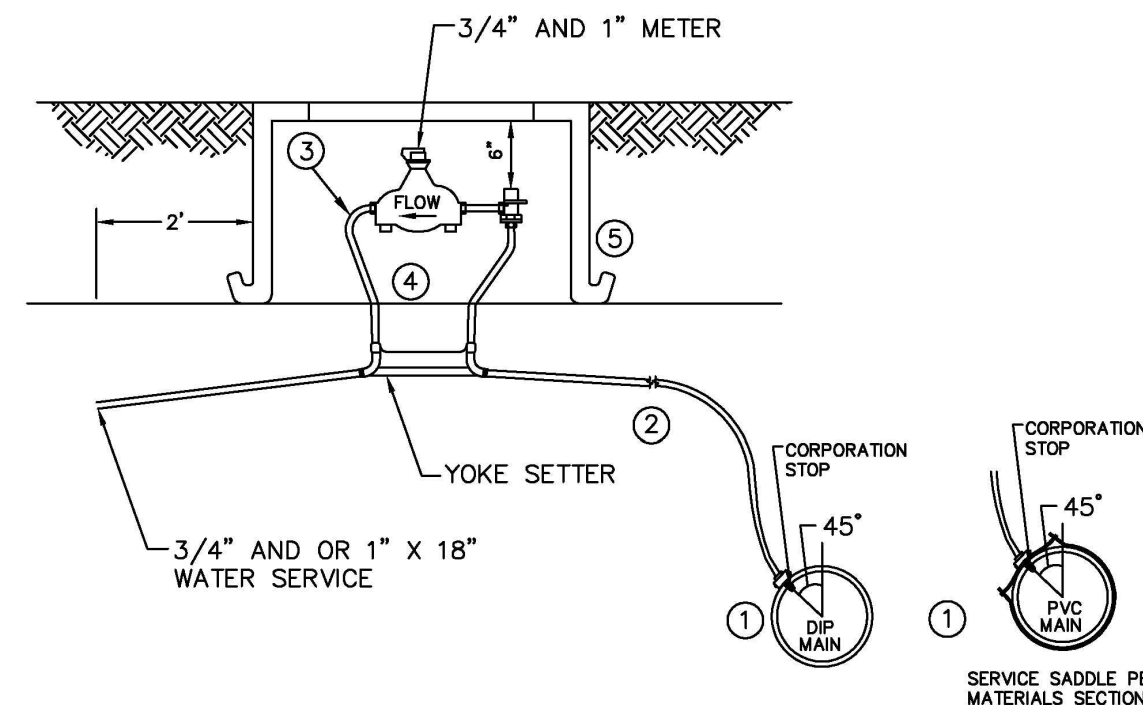
WATER SYSTEMS
2" SERVICE CONNECTION

JANUARY 2009

NTS W - 4.0

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.



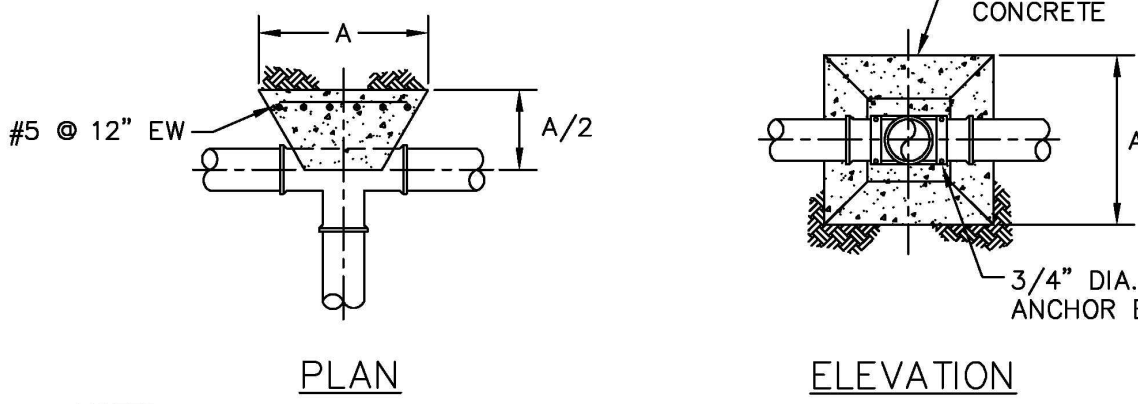
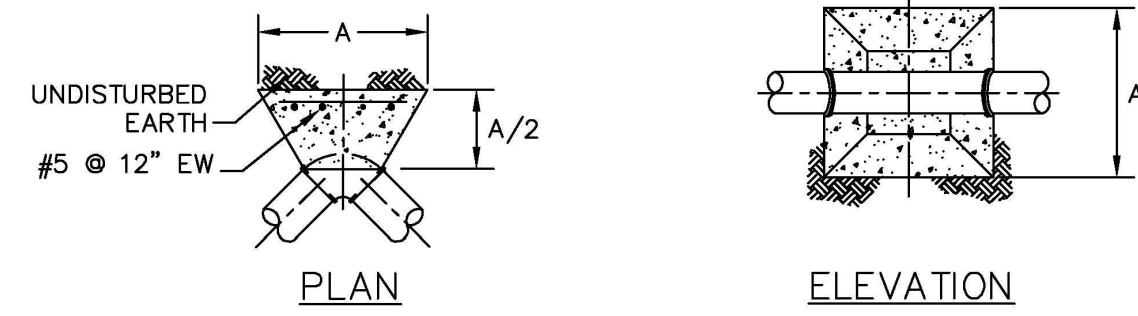
LEGEND:

- COMPRESSION CORPORATION STOP PER MATERIALS SECTION.
- 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
- COMPRESSION YOKE 90° ANGLE BALL VALVE, WITH LOCK OUT WING, PER MATERIALS SECTION.
- COPPER SETTER OUTLET PIECE GROOVED FOR WASHER, 90° OUTLET PER MATERIALS SECTION.
- 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:

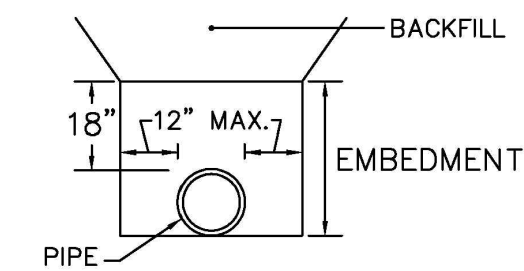
- ALL FACES OF THE BLOCK SHALL REST AGAINST UNDISTURBED SOIL.
- PIPE JOINTS, BOLTS, NUTS, RETAINER GLANDS ARE NOT TO BE ENCASED IN CONCRETE.
- DIMENSIONS BASED ON 150 PSI TEST PRESSURE 1,000 PSF BEARING CAPACITY.
- THRUST BLOCKS ARE ALLOWED ONLY WHEN THERE IS NOT ENOUGH PIPE LENGTH TO PROVIDE SUFFICIENT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

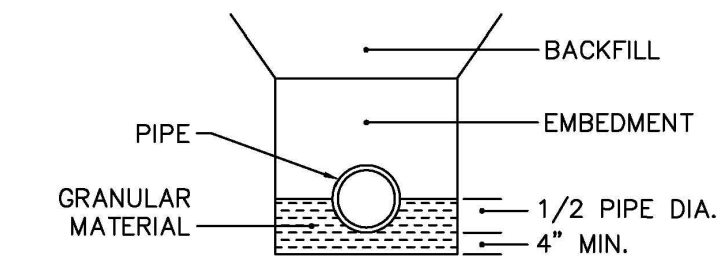


WATER SYSTEMS
THRUST BLOCK

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' |

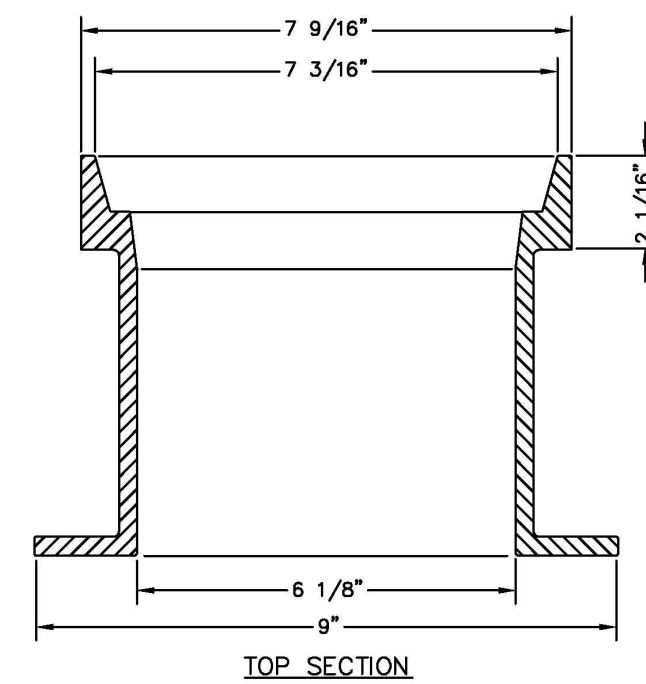
NOTES:

- 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.

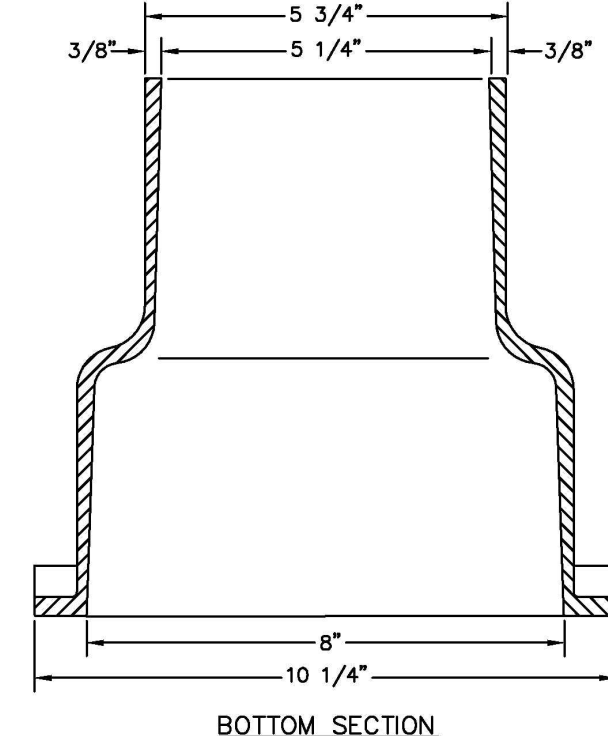


WATER SYSTEMS
DUCTILE IRON PIPE
TRENCHING & BACKFILLING
(UP TO 20' DEEP)

APRIL 2008
NTS W - 8.0



TOP SECTION



BOTTOM SECTION

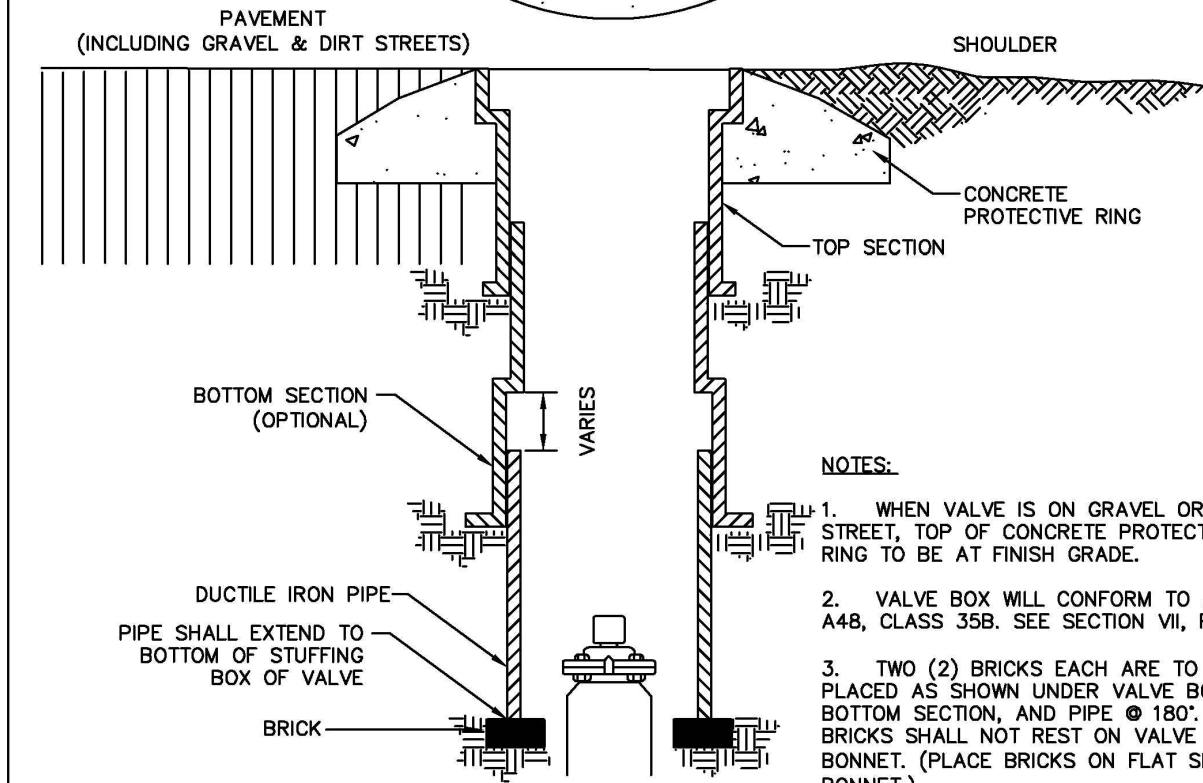
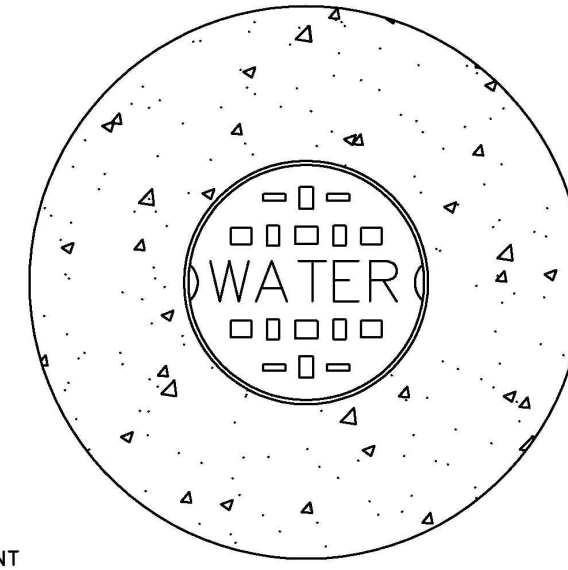
NOTES:

- VALVE BOX WILL CONFORM TO ASTM A48, CLASS 35 B.
- MINIMUM WEIGHTS:
COVER.....13 LBS
TOP SECTION.....60 LBS
BOTTOM SECTION.....69 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



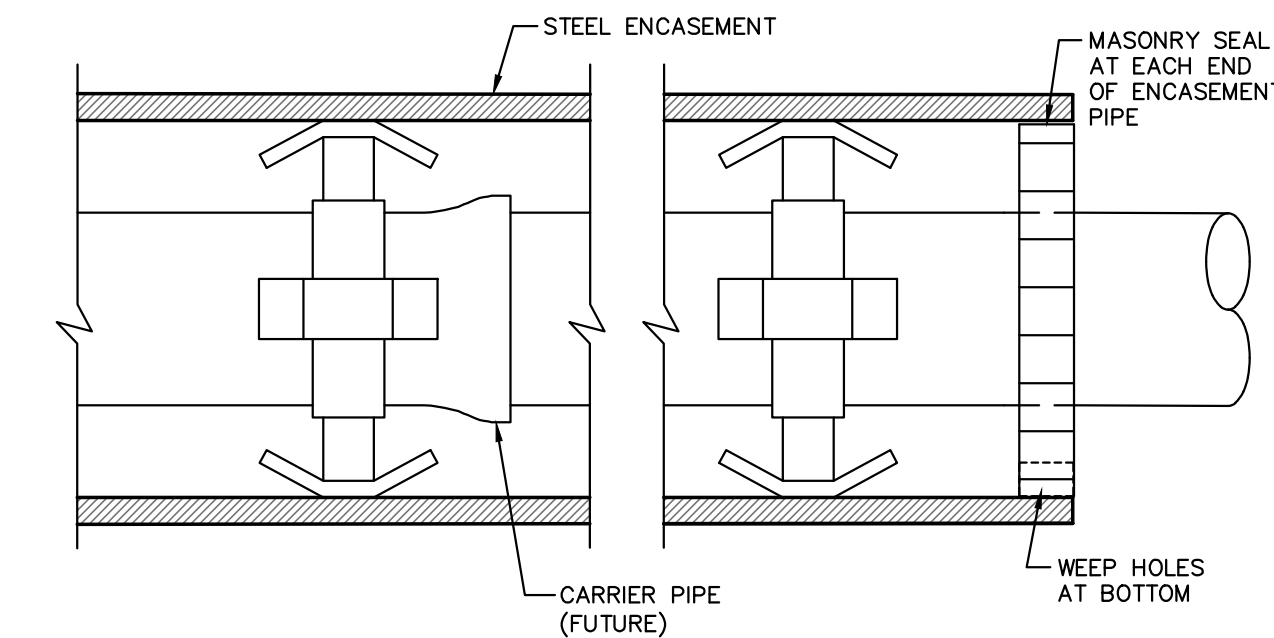
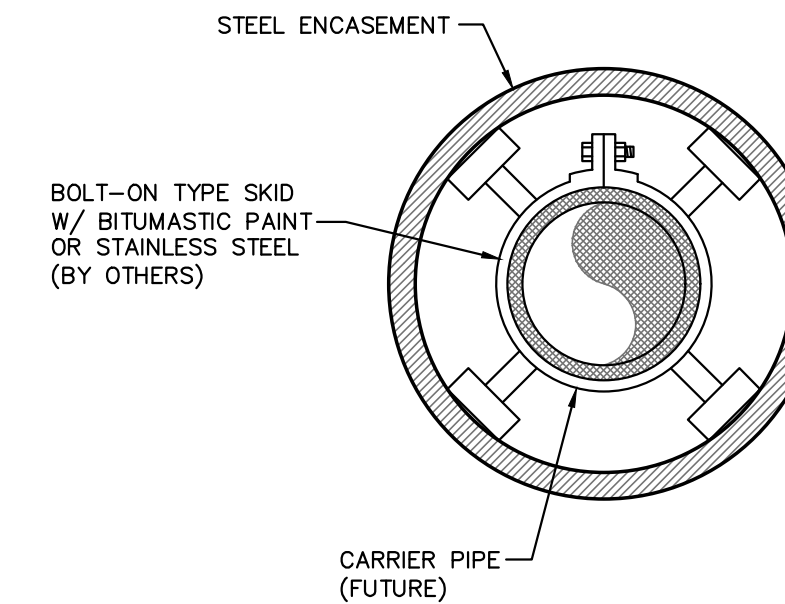
NOTES:

- 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 VII, PG. 33.
- TWO (2) BRICKS EACH ARE TO BE PLACED AS SHOWN UNDER VALVE BOX, BOTTOM SECTION, AND PIPE Ø 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



ENCASUREMENT DETAIL

REVISION DATE - NOVEMBER 3, 2008

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

UTILITY CONSTRUCTION

Prepared by



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UNTIL ALL SIGNATURES COMPLETE**

5/14/99

| | |
|---|-------------------|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-4 |
| 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 | |
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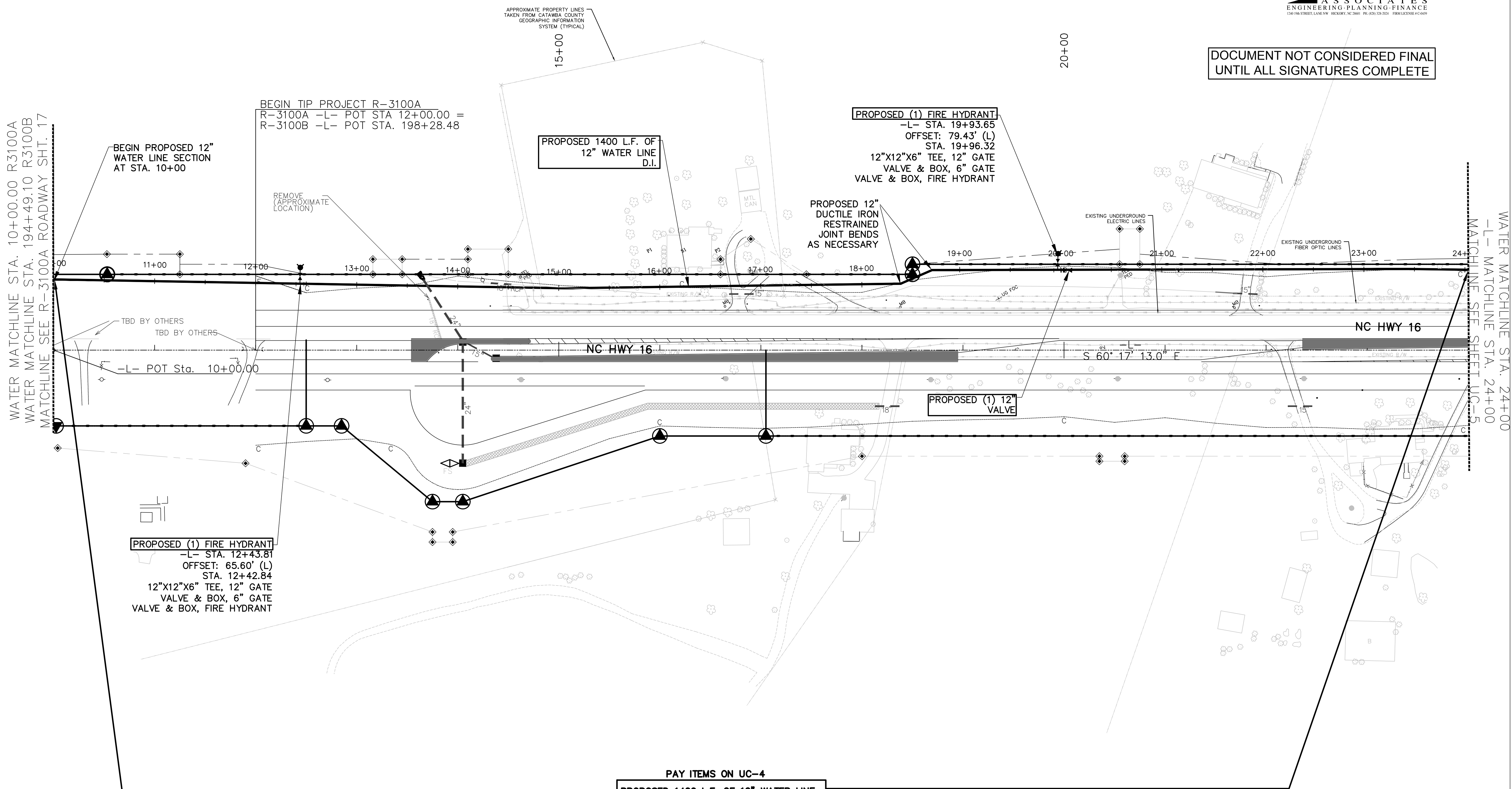
NOTE:
 ALL LOCATIONS WHERE PROPOSED
 WATER LINE CROSSES DRAINAGE
 SYSTEMS SHALL PROVIDE
 MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION

Prepared by



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 UNTIL ALL SIGNATURES COMPLETE



WATER MATCHLINE STA. 10+00.00 R3100A
 WATER MATCHLINE STA. 194+49.10 R3100B
 MATCHLINE SEE R-3100A ROADWAY SHT. 17

WATER MATCHLINE STA. 24+00.00
 -L- MATCHLINE STA. 24+00.00
 MATCHLINE SEE SHEET UC-5

PROPOSED (1) FIRE HYDRANT
 -L- STA. 12+43.81
 OFFSET: 65.60' (L)
 STA. 12+42.84
 12"X12"X6" TEE, 12" GATE
 VALVE & BOX, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PROPOSED (1) FIRE HYDRANT
 -L- STA. 19+93.65
 OFFSET: 79.43' (L)
 STA. 19+96.32
 12"X12"X6" TEE, 12" GATE
 VALVE & BOX, 6" GATE
 VALVE & BOX, FIRE HYDRANT

PAY ITEMS ON UC-4
 PROPOSED 1400 L.F. OF 12" WATER LINE
 DUCTILE IRON
 PROPOSED (1) 12" VALVE
 PROPOSED (2) FIRE HYDRANT

 SYSTEMS

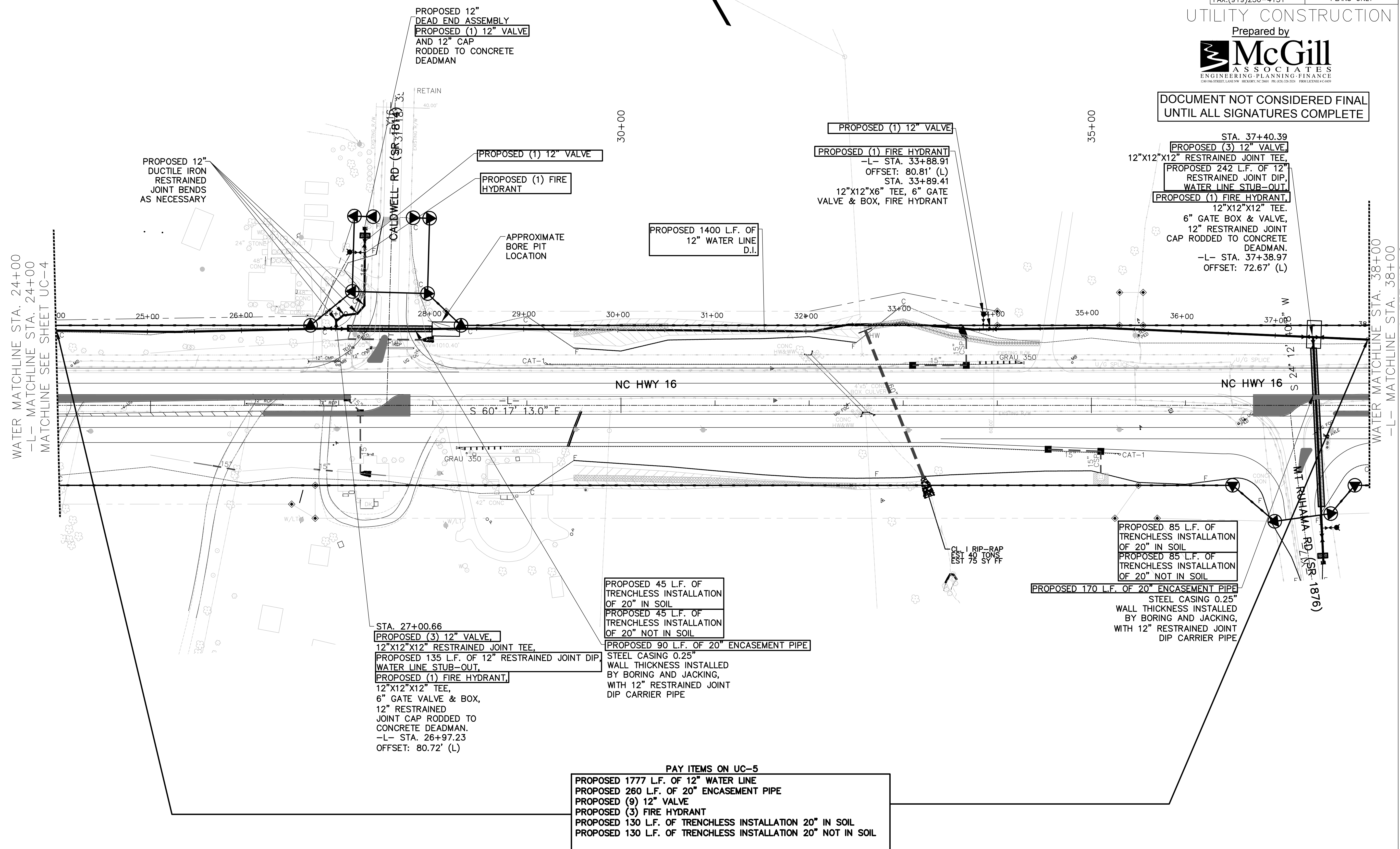
| | |
|---|-------------------|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-5 |
| DESIGNED BY: RJM | |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |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

NOTE:
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UTILITY CONSTRUCTION



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PROPOSED 12" DEAD END ASSEMBLY AND 12" CAP RODDED TO CONCRETE DEADMAN

PROPOSED (1) 12" VALVE
PROPOSED (1) FIRE HYDRANT

PROPOSED (1) 12" VALVE
PROPOSED (1) FIRE HYDRANT
-L- STA. 33+88.91
OFFSET: 80.81' (L)
STA. 33+89.41
12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

STA. 37+40.39
PROPOSED (3) 12" VALVE
12"X12"X12" RESTRAINED JOINT TEE,
PROPOSED 242 L.F. OF 12" RESTRAINED JOINT DIP, WATER LINE STUB-OUT
PROPOSED (1) FIRE HYDRANT,
12"X12"X12" TEE,
6" GATE BOX & VALVE,
12" RESTRAINED JOINT CAP RODDED TO CONCRETE DEADMAN.
-L- STA. 37+38.97
OFFSET: 72.67' (L)


STA. 27+00.66
PROPOSED (3) 12" VALVE,
12"X12"X12" RESTRAINED JOINT TEE,
PROPOSED 135 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. 26+97.23
OFFSET: 80.72' (L)

PROPOSED 45 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 45 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 90 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 85 L.F. OF TRENCHLESS INSTALLATION OF 20" IN SOIL
PROPOSED 85 L.F. OF TRENCHLESS INSTALLATION OF 20" NOT IN SOIL
PROPOSED 170 L.F. OF 20" ENCASEMENT PIPE
STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

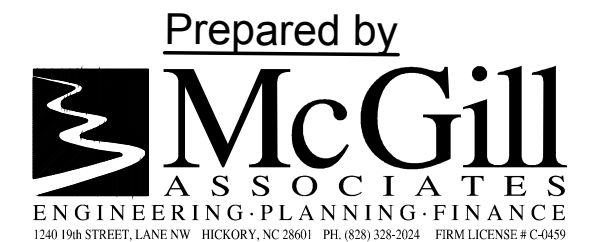
PAY ITEMS ON UC-5
PROPOSED 1777 L.F. OF 12" WATER LINE
PROPOSED 260 L.F. OF 20" ENCASEMENT PIPE
PROPOSED (9) 12" VALVE
PROPOSED (3) FIRE HYDRANT
PROPOSED 130 L.F. OF TRENCHLESS INSTALLATION 20" IN SOIL
PROPOSED 130 L.F. OF TRENCHLESS INSTALLATION 20" NOT IN SOIL

SYSTEMS
CONCRETE
REINFORCEMENT

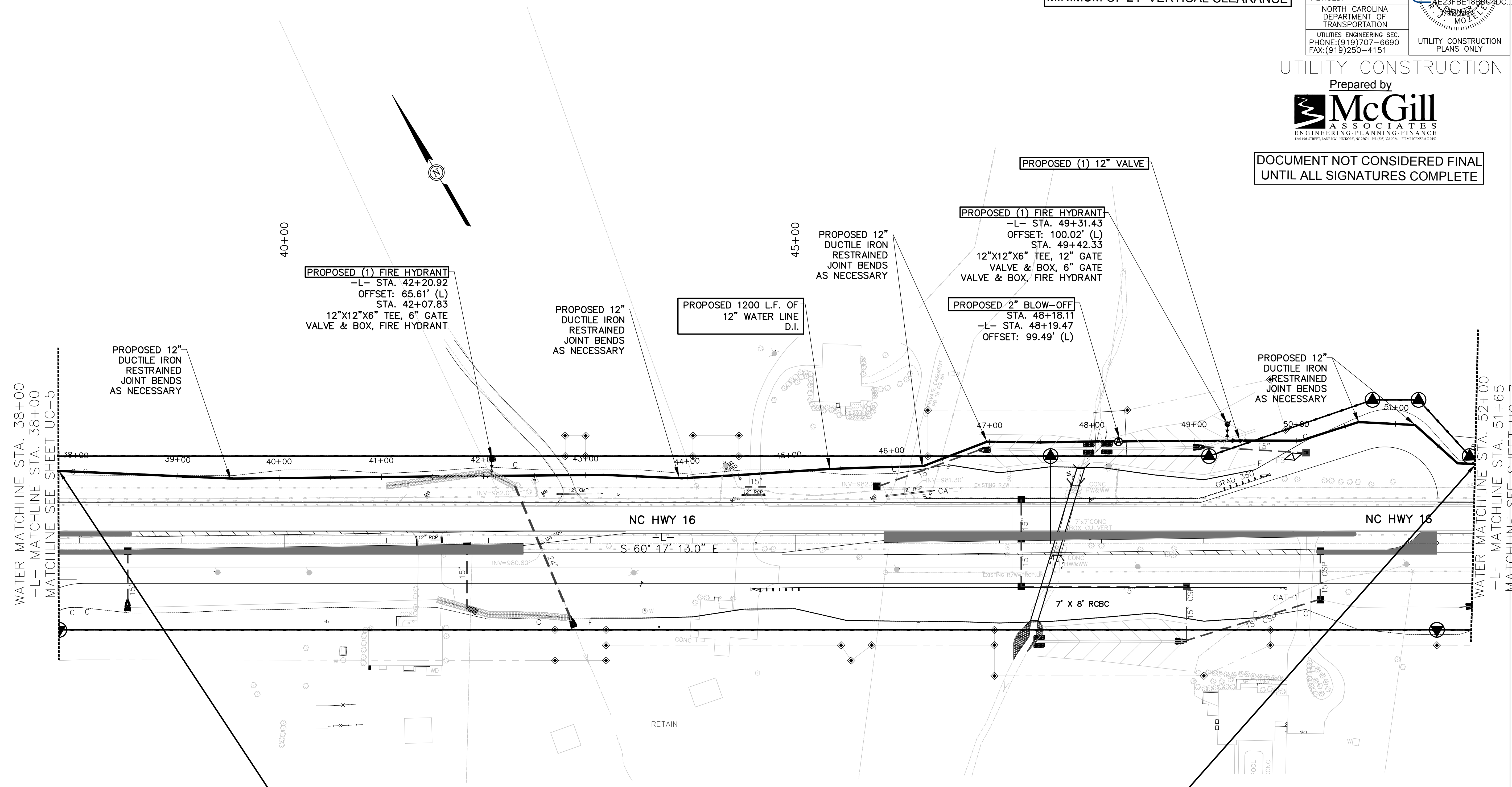
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|--|---|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-6 |
| DESIGNED BY: RJM |  |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | UTILITY CONSTRUCTION PLANS ONLY |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |

NOTE:
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WATER LINE CROSSES DRAINAGE
SYSTEMS SHALL PROVIDE
MINIMUM OF 24" VERTICAL CLEARANCE

UTILITY CONSTRUCTION



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UNTIL ALL SIGNATURES COMPLETE

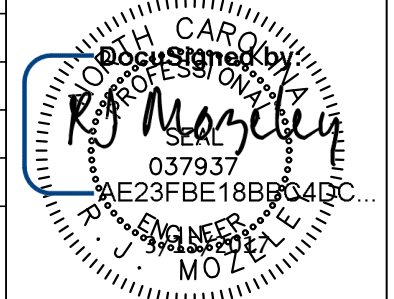


WATER MATCHLINE STA. 38+00
-L- MATCHLINE STA. 38+00
MATCHLINE SEE SHEET UC-5

WATER MATCHLINE STA. 52+00
-L- MATCHLINE STA. 51+65
MATCHLINE SEE SHEET UC-7

PAY ITEMS ON UC-6
 PROPOSED 1200 L.F. OF 12" DUCTILE IRON WATER LINE
 PROPOSED (1) 12" VALVE
 PROPOSED (1) 2" BLOWOFF
 PROPOSED (2) 12" FIRE HYDRANT

SYSTEMS
UNAVAILABLE

| | |
|--|---|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-7 |
| DESIGNED BY: RJM |  |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | UTILITY CONSTRUCTION PLANS ONLY |
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NOTE:
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UTILITY CONSTRUCTION



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PROPOSED (3) 12" VALVE
STA. 55+17.88
12"x12"x12" RESTRAINED JOINT TEE,
PROPOSED 125 L.F. OF 12"
WATER LINE
12" RESTRAINED JOINT STUB-OUT
CAP RODDED TO CONCRETE
DEADMAN.
-L- STA. 54+84.40
OFFSET: 77.01' (L)

APPROXIMATE
BORE PIT
LOCATION

PROPOSED (1) FIRE HYDRANT
-L- STA. 56+62.24
OFFSET: 76.08' (L)
STA. 56+95.79
12"x12"x6" TEE, 6" GATE
VALVE & BOX, FIRE HYDRANT

PROPOSED (1) FIRE HYDRANT
-L- STA. 64+00.85
OFFSET: 71.50' (L)
STA. 64+43.82
12"x12"x6" TEE, 6" GATE
VALVE & BOX, FIRE HYDRANT

PROPOSED (1) 12" VALVE

WATER MATCHLINE STA. 52+00
-L- MATCHLINE STA. 51+65
MATCHLINE SEE SHEET UC-6

WATER MATCHLINE STA. 66+00
-L- MATCHLINE STA. 65+43
MATCHLINE SEE SHEET UC-8

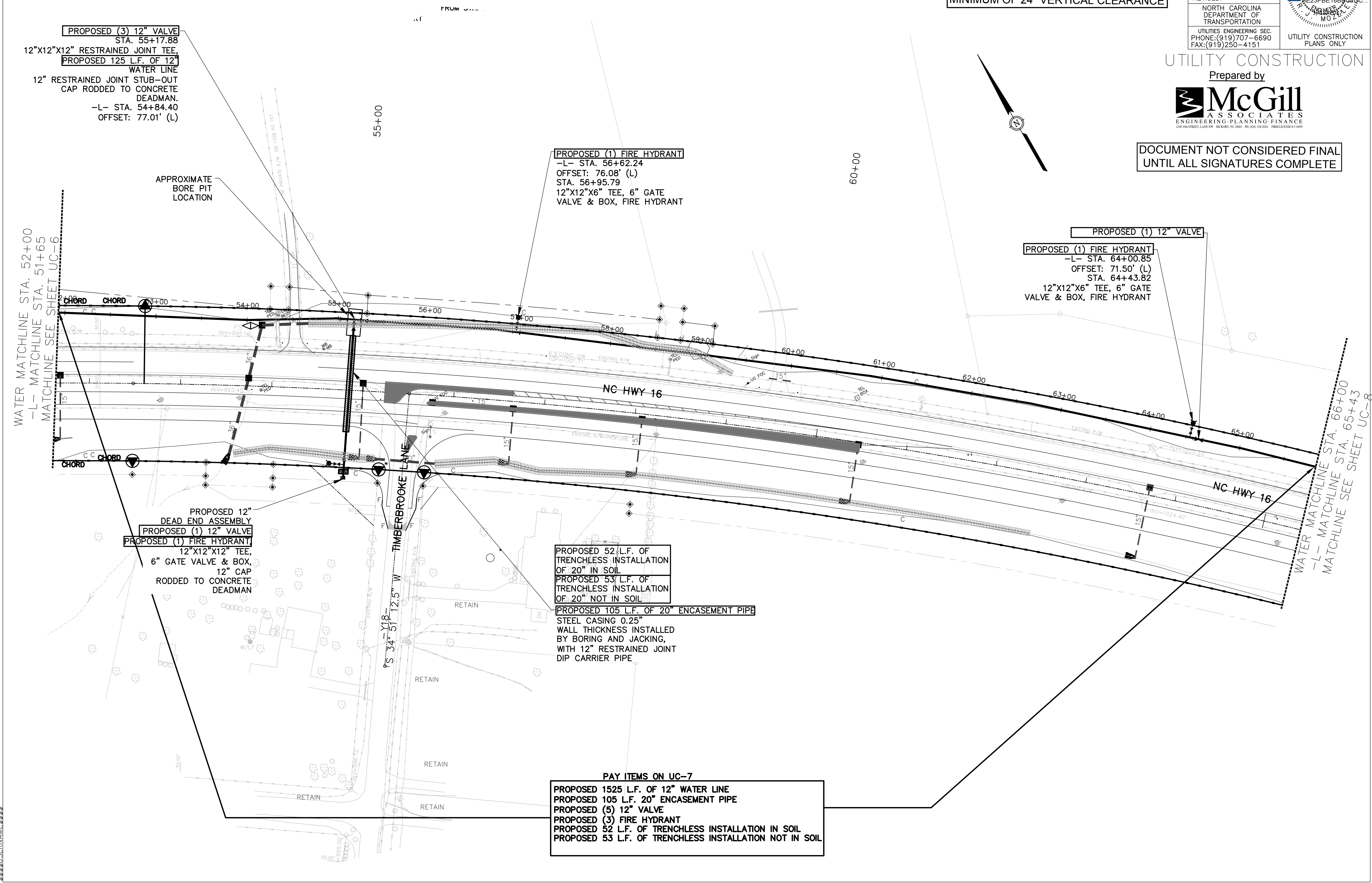
PROPOSED 12" DEAD END ASSEMBLY
PROPOSED (1) 12" VALVE
PROPOSED (1) FIRE HYDRANT
12"x12"x12" TEE,
6" GATE VALVE & BOX,
12" CAP
RODDED TO CONCRETE
DEADMAN

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, WITH 12" RESTRAINED JOINT DIP CARRIER PIPE

PAY ITEMS ON UC-7
PROPOSED 1525 L.F. OF 12" WATER LINE
PROPOSED 105 L.F. 20" ENCASEMENT PIPE
PROPOSED (5) 12" VALVE
PROPOSED (3) FIRE HYDRANT
PROPOSED 52 L.F. OF TRENCHLESS INSTALLATION IN SOIL
PROPOSED 53 L.F. OF TRENCHLESS INSTALLATION NOT IN SOIL

SYSTEMS ENGINEERING
CONSULTANTS
UNIVERSITY



5/14/99

| | |
|--|-------------------|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-8 |
| 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 | |

NOTE:
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UTILITY CONSTRUCTION

Prepared by



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PROPOSED (1) FIRE HYDRANT
-L- STA. 71+33.82
OFFSET: 61.99' (L)
STA. 71+86.24
12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

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

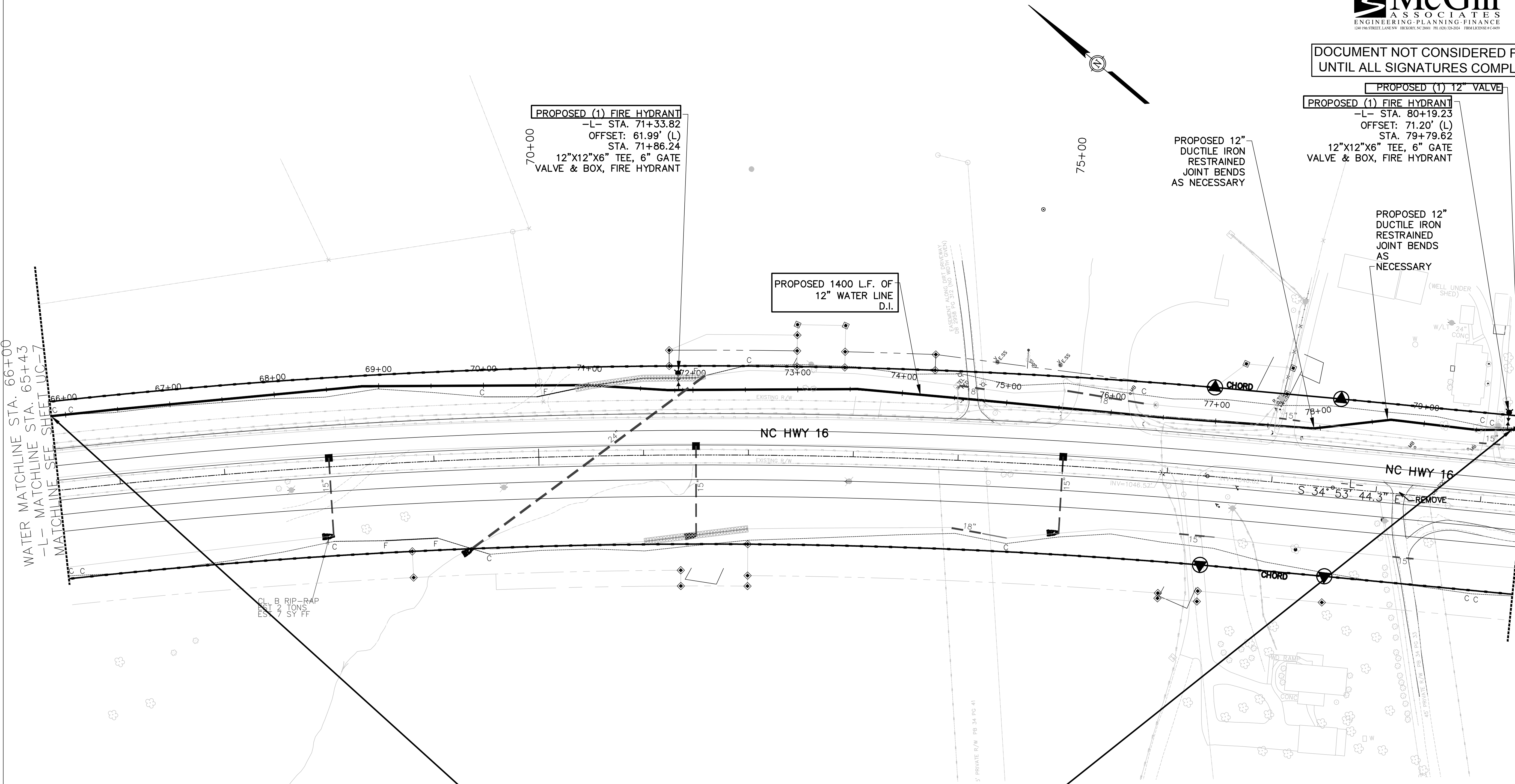
PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

PROPOSED (1) 12" VALVE
PROPOSED (1) FIRE HYDRANT
-L- STA. 80+19.23
OFFSET: 71.20' (L)
STA. 79+79.62
12"X12"X6" TEE, 6" GATE VALVE & BOX, FIRE HYDRANT

PROPOSED 12" DUCTILE IRON RESTRAINED JOINT BENDS AS NECESSARY

WATER MATCHLINE STA. 66+00
-L- MATCHLINE STA. 65+43
MATCHLINE SEE SHEET UC-7

WATER MATCHLINE STA. 80+00
-L- STA. MATCHLINE 74+40
MATCHLINE SEE SHEET UC-9



PAY ITEMS ON UC-8
PROPOSED 1400 L.F. OF 12" WATER LINE
PROPOSED (1) 12" VALVE
PROPOSED (2) FIRE HYDRANT

SYSTEMS UNDESIGNABLE

5/14/99

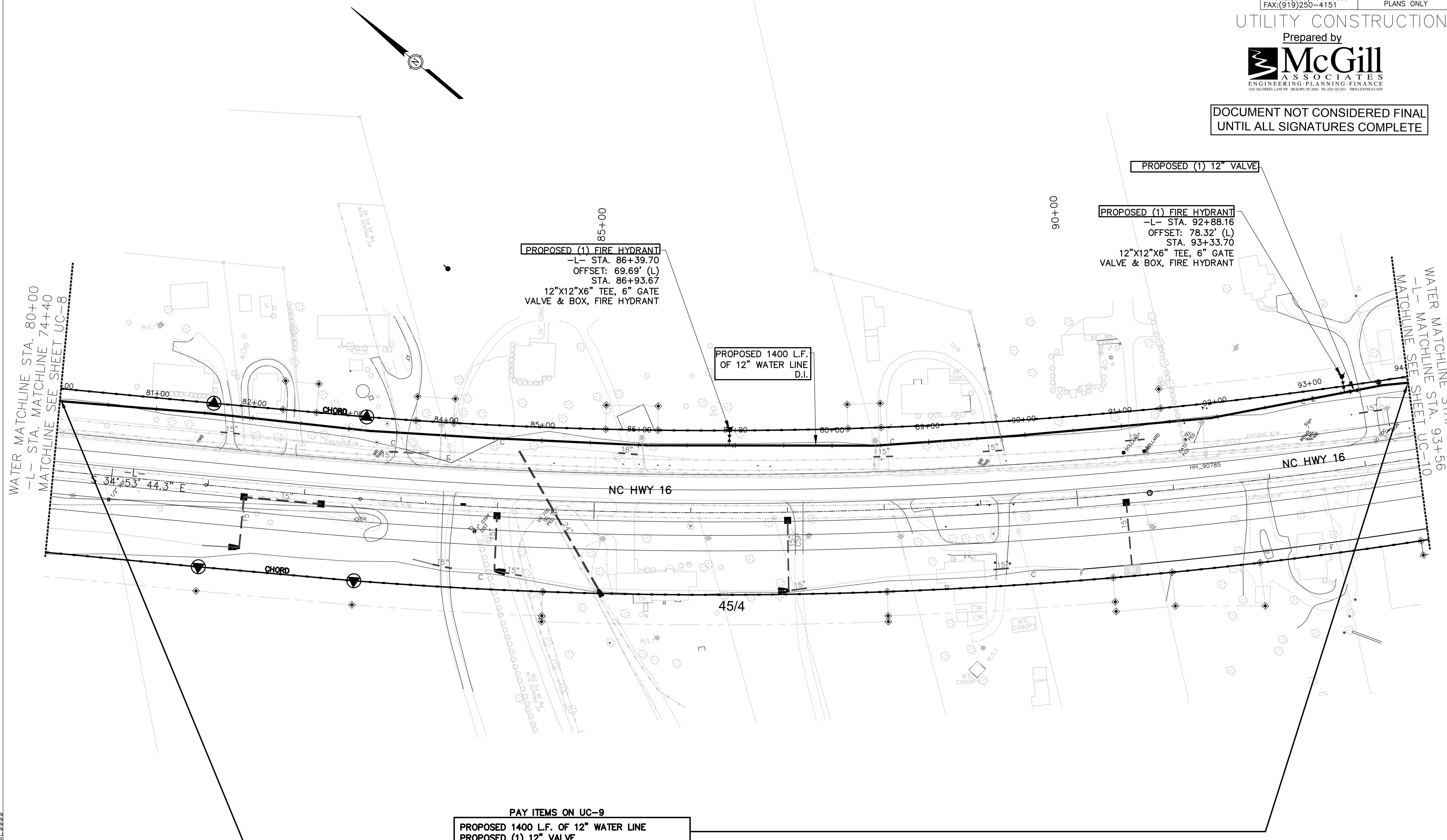
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|---|-------------------|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-9 |
| DESIGNED BY: RJM | |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |
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WATER MATCHLINE STA. 80+00
 -L- STA. MATCHLINE 74+40
 MATCHLINE SEE SHEET UC-8

WATER MATCHLINE STA. 94+00
 -L- MATCHLINE SEE SHEET UC-10
 MATCHLINE SEE SHEET UC-10

PAY ITEMS ON UC-9
 PROPOSED 1400 L.F. OF 12" WATER LINE
 PROPOSED (1) 12" VALVE
 PROPOSED (2) FIRE HYDRANT

SYSTEMS
 UNDESIRABLE

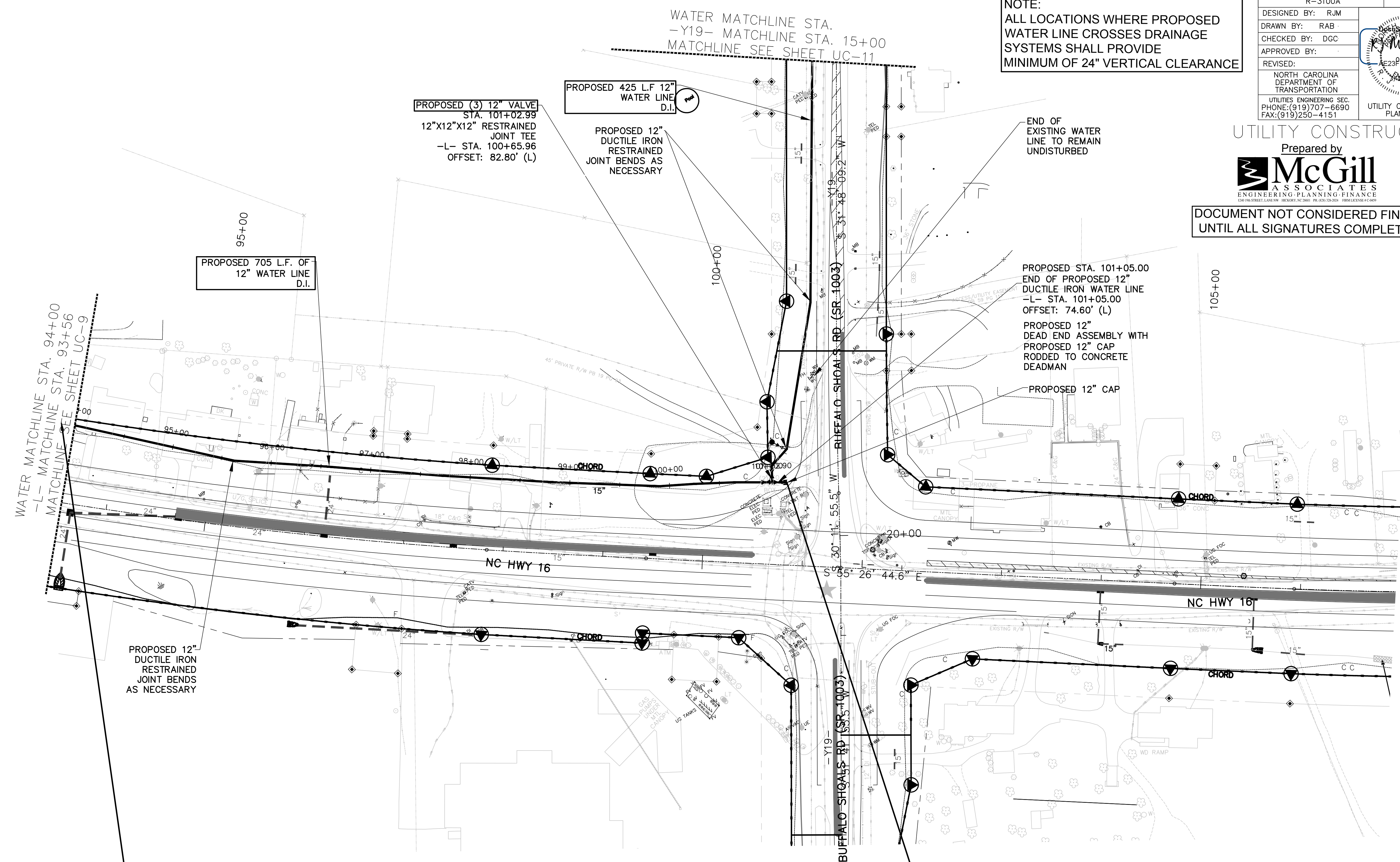
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| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-10 |
| DESIGNED BY: RJM | |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | REVISI: |
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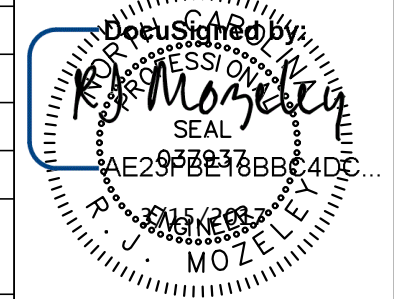
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PAY ITEMS ON UC-10
 PROPOSED 1130 L.F. OF 12" WATER LINE
 PROPOSED (3) 12" VALVE
 PROPOSED (1) FIRE HYDRANT

 SYSTEMS

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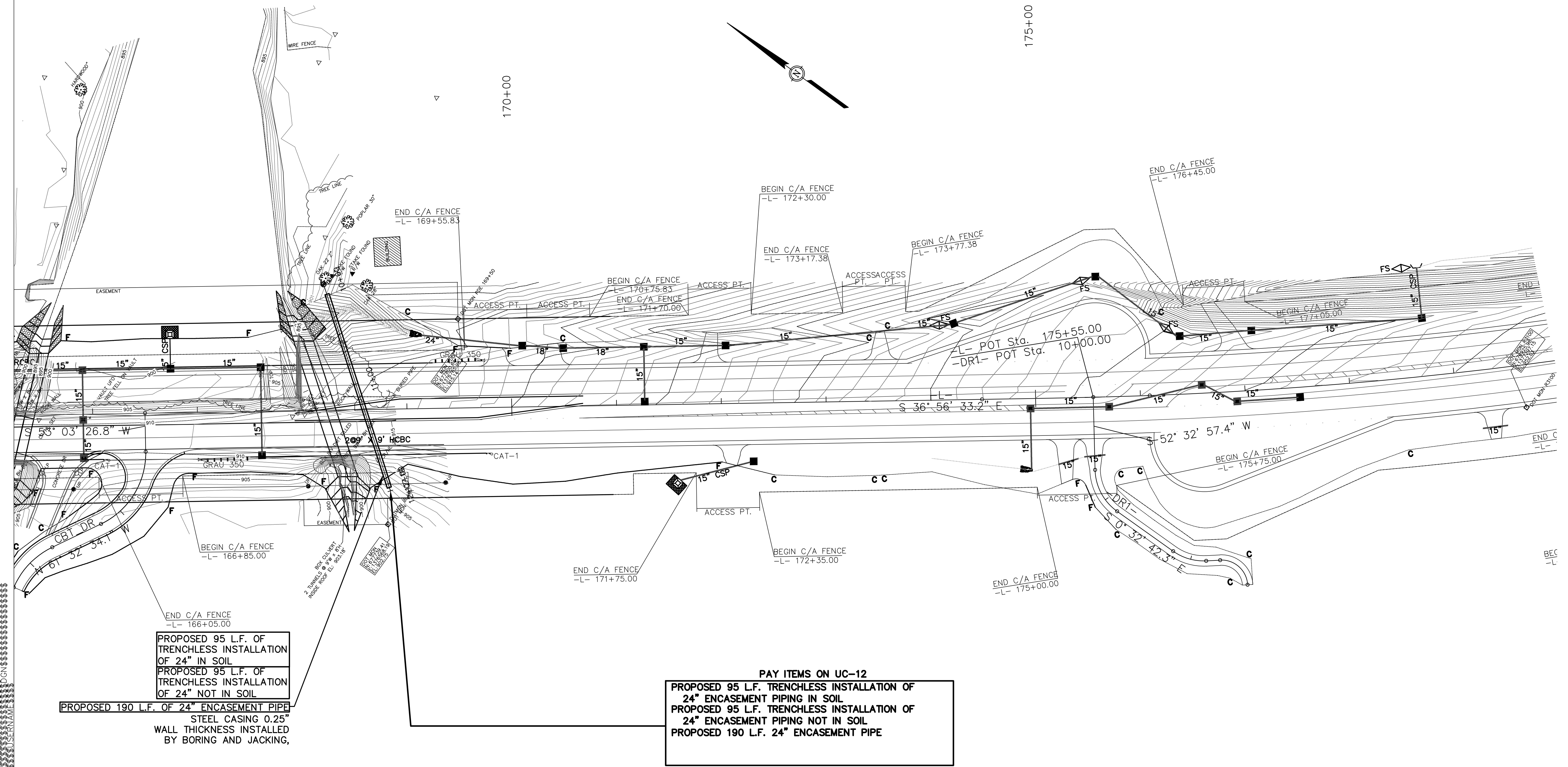
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|--|---|
| PROJECT REFERENCE NO. R-3100A | SHEET NO. UC-12 |
| DESIGNED BY: RJM |  |
| DRAWN BY: RAB | |
| CHECKED BY: DGC | |
| APPROVED BY: | |
| REVISED: | |
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UTILITY CONSTRUCTION

Prepared by

McGill
 ASSOCIATES
 ENGINEERING-PLANNING-FINANCE
1241 10th STREET, LANE 88, ROCKY MOUNT, NC 28581, P.O. BOX 123, 2834 FIRM LICENSE # 1-649



PROPOSED 95 L.F. OF TRENCHLESS INSTALLATION OF 24" IN SOIL
 PROPOSED 95 L.F. OF TRENCHLESS INSTALLATION OF 24" NOT IN SOIL
 PROPOSED 190 L.F. OF 24" ENCASEMENT PIPE
 STEEL CASING 0.25" WALL THICKNESS INSTALLED BY BORING AND JACKING,

PAY ITEMS ON UC-12
 PROPOSED 95 L.F. TRENCHLESS INSTALLATION OF 24" ENCASEMENT PIPING IN SOIL
 PROPOSED 95 L.F. TRENCHLESS INSTALLATION OF 24" ENCASEMENT PIPING NOT IN SOIL
 PROPOSED 190 L.F. 24" ENCASEMENT PIPE