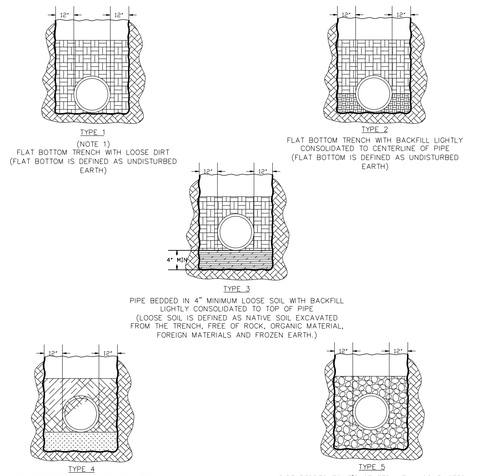
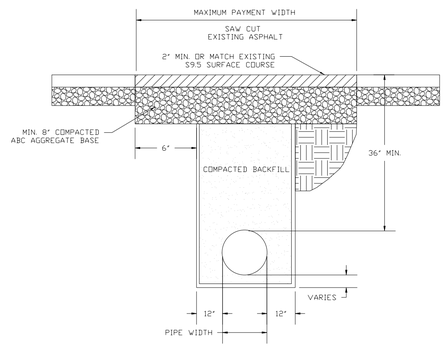
# PROJECT TYPICAL DETAILS




NOTES:

1. FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
2. CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCE BY FACTORS OTHER THAN PIPE STRENGTH. FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

## WATER MAIN EMBEDMENT DETAILS

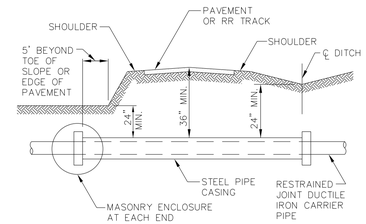



NOTES:

1. THE PAVEMENT SHALL BE DEFINED BY A STRAIGHT EDGE, PREFERABLY A MACHINED SAW CUT.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH DRY SOIL OR ABC STONE TO THE BOTTOM OF THE PROPOSED SUBGRADE. THE BACKFILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3. WITHIN ROADS MAINTAINED BY NCDOT, THE TRENCH SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH NCDOT STANDARDS.
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 2" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY TO ACHIEVE A SMOOTH LEVEL PATCH.

REVISION: 1) REVISED NOTES 2 & 3 REGARDING BACKFILLING AND NCDOT REQUIREMENTS, AND DELETED ORIGINAL NOTE 4 – 03/14/2012

## STANDARD PAVEMENT CUT AND PATCH DETAILS




TYPICAL PIPE CROSSING

ENCASEMENTS SHALL EXTEND FROM DITCH LINE TO DITCH LINE IN CUT SECTIONS, FIVE (5) FEET BEYOND THE TOE OF SLOPES IN FILL SECTIONS.

NOTES:

1. STEEL ENCASEMENT PIPE SHALL CONFORM TO THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
2. CARRIER PIPE SHALL BE ADEQUATELY SUPPORTED THE ENTIRE LENGTH WITHIN THE CASING BY USING "SPIDER" STEEL SUPPORTS AT A MAXIMUM OF 9 FOOT CENTERS (ONE AT EACH JOINT AND ONE INTERMEDIATE). OTHER METHODS MUST MEET APPROVAL OF THE ENGINEER.

REVISION: 1) REVISED NOTE 1 REGARDING STEEL ENCASEMENT PIPE – 03/14/2012

## PIPE ENCASEMENT


PREPARED IN THE OFFICE OF:

THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115


VERTICAL SCALE 5' 0 5' 10'
HORIZONTAL SCALE 25' 0 25' 50'

ONLY WATER LINE CONSTRUCTION SHOWN ON THIS SHEET

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| R-2514C | UC-3A |

DESIGNED BY: BJPO
DRAWN BY: TK
CHECKED BY: BJPO
APPROVED BY: MDS
REVISED:

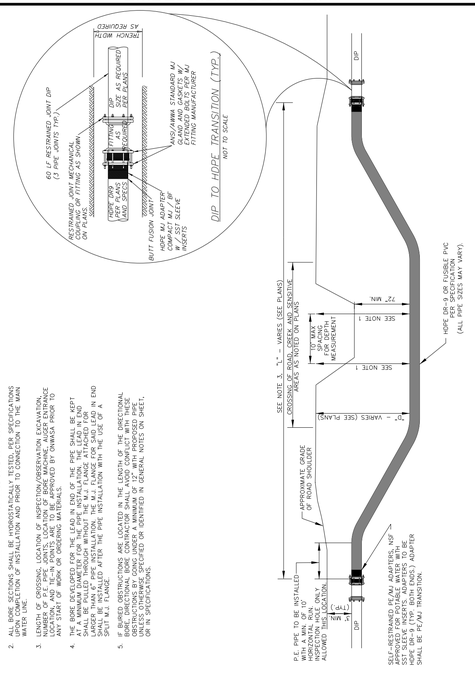
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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

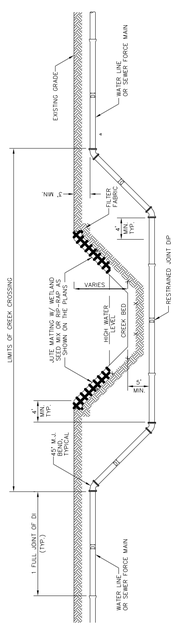
NORTH CAROLINA PROFESSIONAL SEAL 38689 ENGINEER BRIAN J. P. OSCHWALD
Digitally signed by Brian Oschwald
2/3/2015

UTILITY CONSTRUCTION PLANS ONLY

# UTILITY CONSTRUCTION



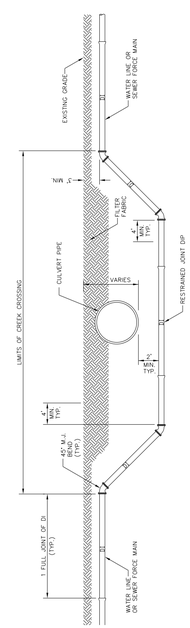

## HORIZONTAL DIRECTIONAL DRILL PROFILE (TYP.)




NOTES:

1. ONLY FULL 18' OR 20' JOINTS OF DUCTILE IRON PIPE SHALL BE USED ON EACH SIDE OF CREEK/DITCH. ON USE RESTRAINING BOLTS SHALL BE STAINLESS STEEL OR GALVANIZED.
2. ROAD WIDTH OF 20' ARE PER STRAIGHT RUN. ADJUST FOR CURVATURE AS NECESSARY.
3. DEPTH BETWEEN CAP AND CROWN STREAM OF UPPER BENDS, UNDER CREEK AND BETWEEN CREEK CLIMP OF CRADLES IS ONLY 2' MINIMUM.
4. CRADLE ANGLE PARALLEL TO CREEK SHOWN ON PLAN AND PROFILE

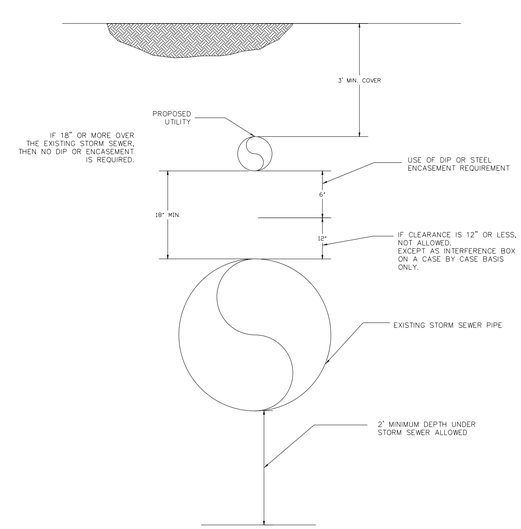
## CREEK/DITCH CROSSING




NOTES:

1. ONLY FULL 18' OR 20' JOINTS OF DUCTILE IRON PIPE SHALL BE USED ON EACH SIDE OF CULVERT. ON USE RESTRAINING BOLTS SHALL BE STAINLESS STEEL OR GALVANIZED.
2. ROAD WIDTH OF 20' ARE PER STRAIGHT RUN. ADJUST FOR CURVATURE AS NECESSARY.
3. DEPTH BETWEEN CAP AND CROWN STREAM OF UPPER BENDS, UNDER CREEK AND BETWEEN CREEK CLIMP OF CRADLES IS ONLY 2' MINIMUM.
4. CRADLE ANGLE PARALLEL TO CREEK SHOWN ON PLAN AND PROFILE, BLOCKING NOT REQUIRED ON GRAVITY SEWER LINE.

## CULVERT CROSSING




## PROPOSED UTILITY OVER EXISTING STORM SEWER


5/14/2018
$$$$$$$SYSTIME$$$$$$$
$$$$$$$USERNAME$$$$$$$
$$$$$$$DGN$$$$$$$