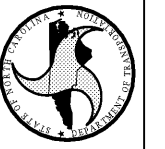




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DRAWING TITLE / DESCRIPTION:
UTILITY/LANDSCAPING DETAILS

PROJECT TITLE:
LUMBERTON EQUIPMENT SHOP
NC DOT HIGHWAY DIVISION 16

STATE CONSTRUCTION
ID# 16-12916-01A

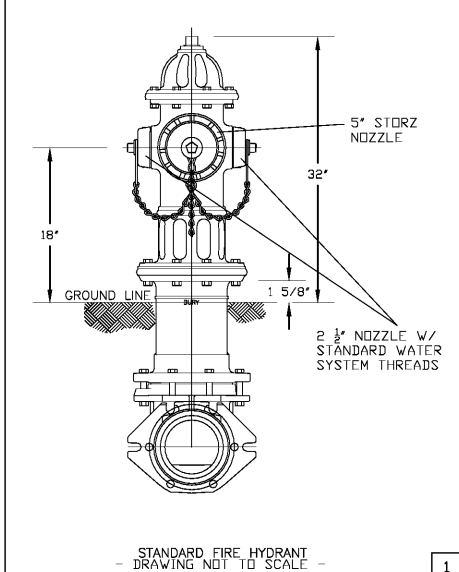
ASSET NUMBER:
78-06-00

REVISIONS
NO. DATE

DATE ISSUED: 1/26/2018
DRAWN BY: AF
CHECKED BY: RJB

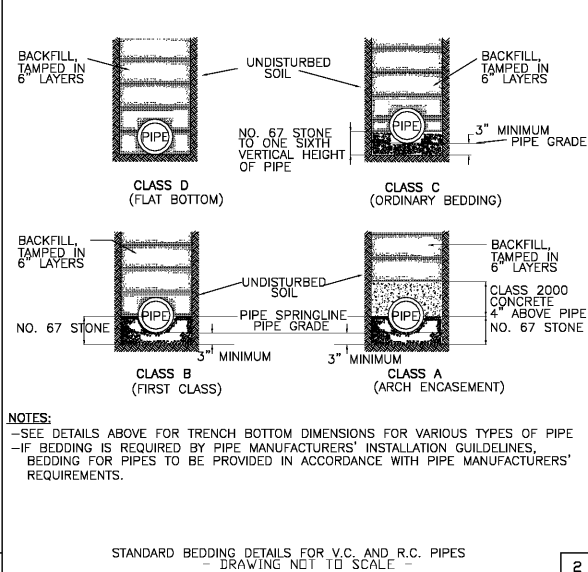
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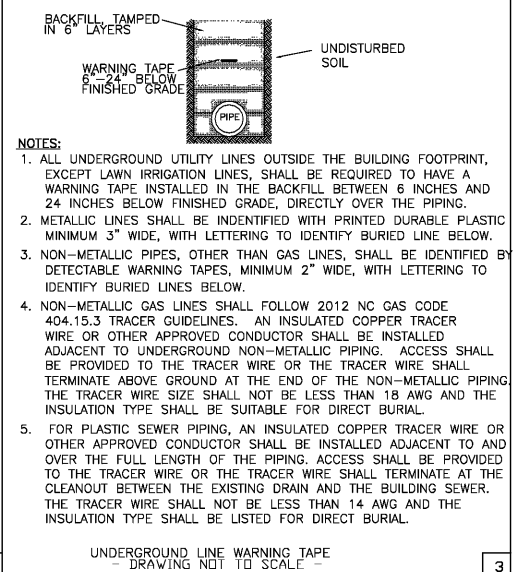
STANDARD FIRE HYDRANT
- DRAWING NOT TO SCALE -

1



STANDARD BEDDING DETAILS FOR V.C. AND R.C. PIPES
- DRAWING NOT TO SCALE -

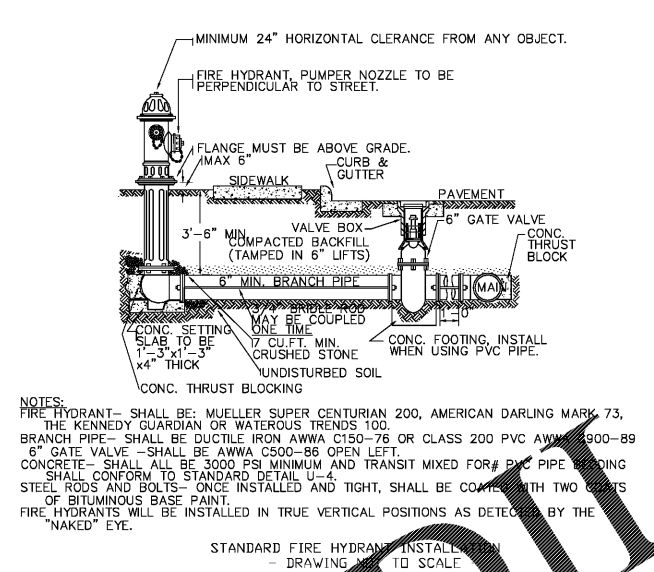
2



NOTES:
1. ALL UNDERGROUND UTILITY LINES OUTSIDE THE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES AND 24 INCHES BELOW FINISHED GRADE, DIRECTLY OVER THE PIPING.
2. METALLIC LINES SHALL BE IDENTIFIED WITH PRINTED DURABLE PLASTIC MINIMUM 3" WIDE, WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
3. NON-METALLIC LINES, OTHER THAN GAS LINES, SHALL BE IDENTIFIED BY DETECTABLE WARNING TAPES, MINIMUM 2" WIDE, WITH LETTERING TO IDENTIFY BURIED LINES BELOW.
4. NON-METALLIC GAS LINES SHALL FOLLOW 2012 NC GAS CODE 404.15.3 TRACER GUIDELINES. AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO UNDERGROUND NON-METALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT THE END OF THE NON-METALLIC PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL.
5. FOR PLASTIC SEWER PIPING, AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO AND OVER THE FULL LENGTH OF THE PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE AT THE CLEANOUT BETWEEN THE EXISTING DRAIN AND THE BUILDING SEWER. THE TRACER WIRE SHALL NOT BE LESS THAN 14 AWG AND THE INSULATION TYPE SHALL BE LISTED FOR DIRECT BURIAL.

UNDERGROUND LINE WARNING TAPE
- DRAWING NOT TO SCALE -

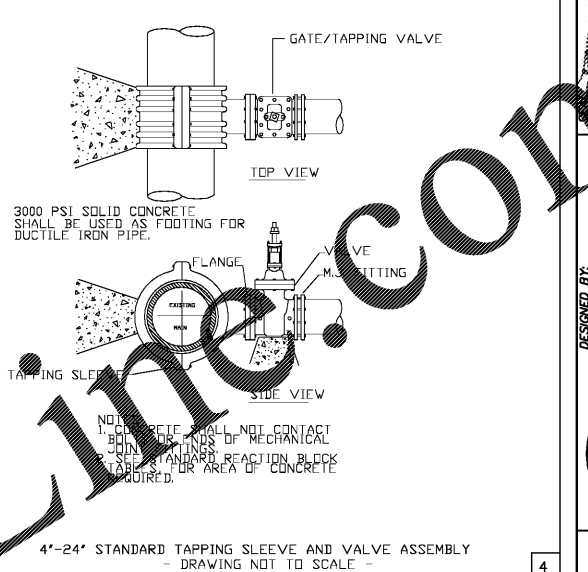
3



NOTES:
FIRE HYDRANT- SHALL BE: MUELLER SUPER CENTURIAN 200, AMERICAN DARLING MARK 73, THE KENNEDY GUARDIAN OR WATERIOUS TRENDS 100.
BRANCH PIPE- SHALL BE DUCTILE IRON AWWA C150-76 OR CLASS 200 PVC AWWA C900-89
6" GATE VALVE- SHALL BE AWWA C500-86 OPEN LEFT.
CONCRETE- SHALL ALL BE 3000 PSI MINIMUM AND TRANSIT MIXED FOR # 2" PIPE BEDDING SHALL CONFORM TO STANDARD DETAIL U-4.
STEEL RODS AND BOLTS- ONCE INSTALLED AND TIGHT, SHALL BE COVERED WITH TWO COATS OF BITUMINOUS BASE PAINT.
FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITIONS AS DETECTED BY THE "NAKED" EYE.

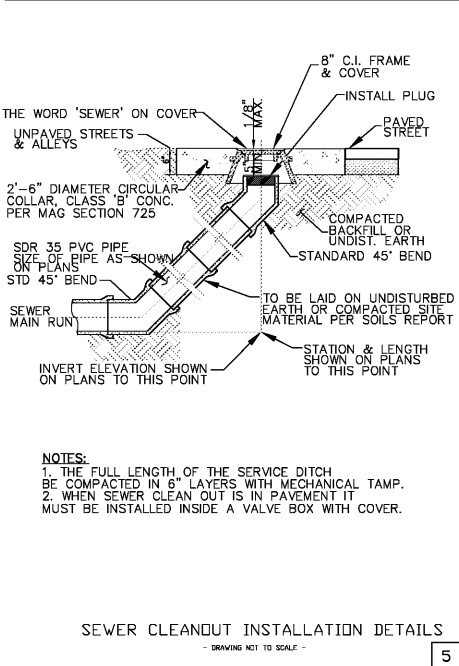
STANDARD FIRE HYDRANT INSTALLATION
- DRAWING NOT TO SCALE -

4



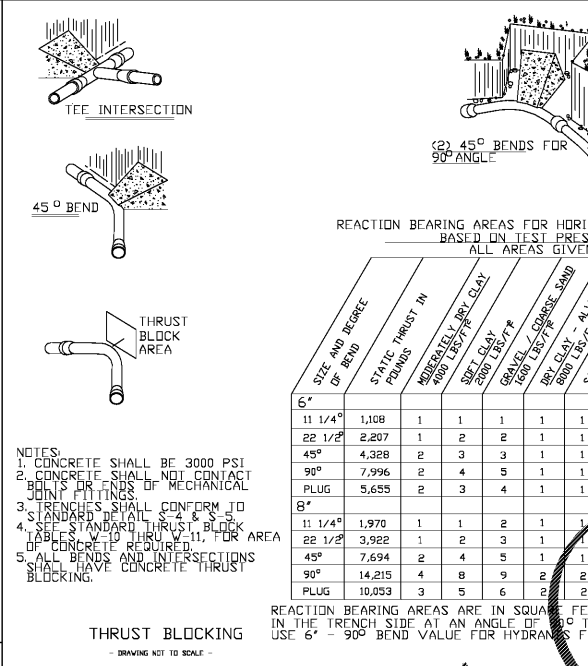
4"-24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY
- DRAWING NOT TO SCALE -

4



SEWER CLEANOUT INSTALLATION DETAILS
- DRAWING NOT TO SCALE -

5



THRUST BLOCKING
- DRAWING NOT TO SCALE -

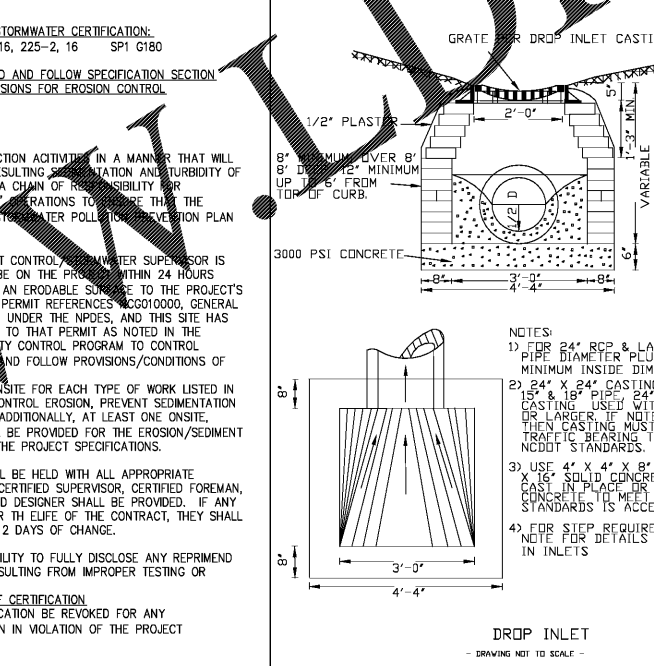
6

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS BASED ON TEST PRESSURE OF 200 P.S.I. ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND BEGREE OF BEND	STATIC THRUST IN POUNDS	MIDRANGE LIGHT CLAY 400 LB/FT ³	SOFT CLAY 1200 LB/FT ³	GRAVEL 1400 LB/FT ³	DRY CLAY 1400 LB/FT ³	SAND 1600 LB/FT ³	COMPACT FIRM SAND 1800 LB/FT ³	CLEAN GRV. 1800 LB/FT ³	QUICKSAND 2000 LB/FT ³	VERY POOR ROCK 2000 LB/FT ³
6"										
11 1/4"	1,108	1	1	1	1	1	1	2	1	1
22 1/2"	2,207	1	2	2	1	1	1	3	1	1
45°	4,328	2	3	3	1	1	2	5	1	1
90°	7,996	2	4	5	1	1	2	8	1	1
PLUG	5,655	2	3	4	1	1	2	6	1	1
8"										
11 1/4"	1,970	1	1	2	1	1	1	2	1	1
22 1/2"	3,922	1	2	3	1	1	1	4	1	1
45°	7,694	2	4	5	1	1	2	8	1	1
90°	14,215	4	8	9	2	2	4	16	1	1
PLUG	10,053	3	5	6	2	2	3	11	1	1

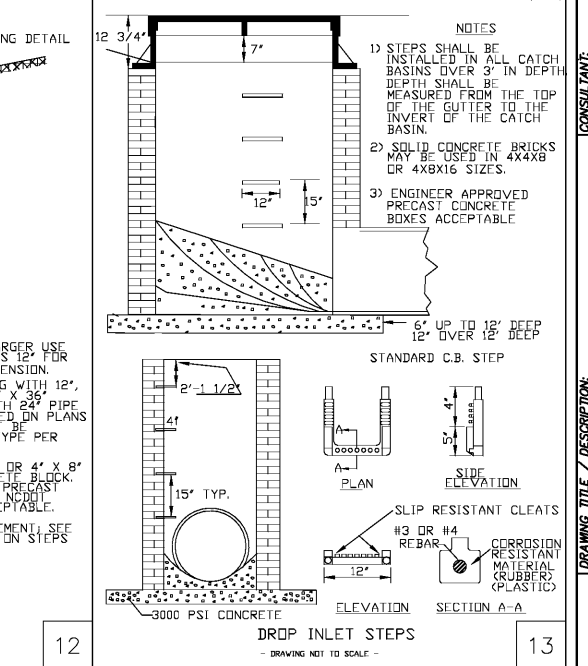
REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE TRENCH SECTION. USE 6" - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

6



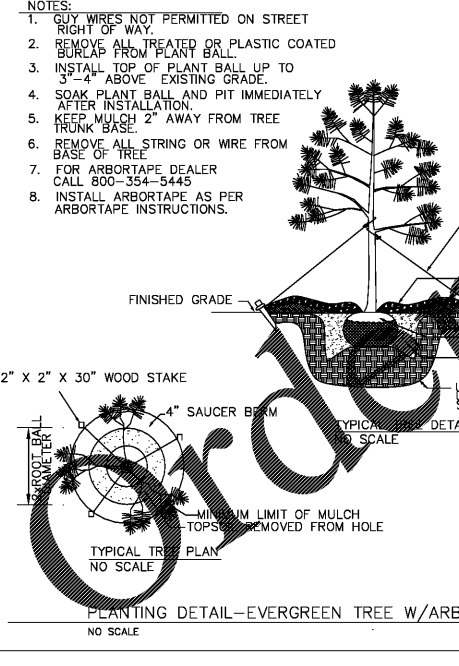
DROP INLET
- DRAWING NOT TO SCALE -

12



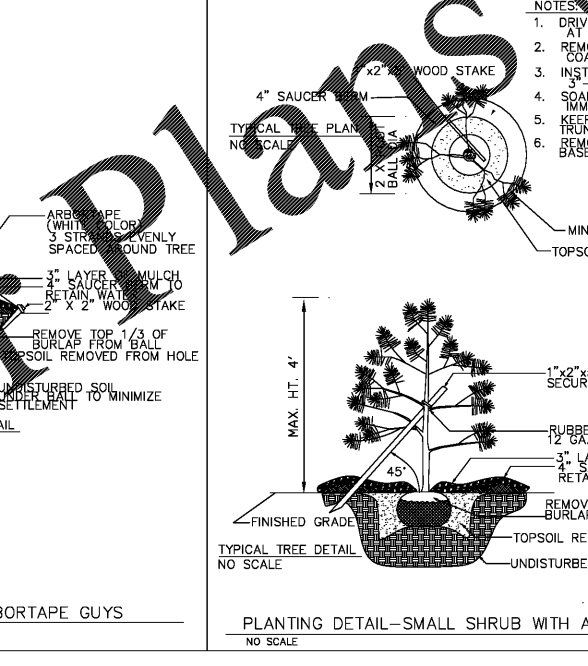
DROP INLET STEPS
- DRAWING NOT TO SCALE -

13



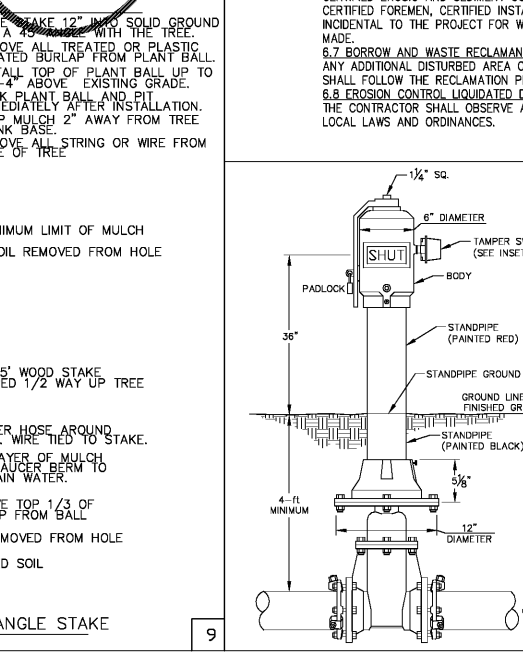
PLANTING DETAIL-EVERGREEN TREE W/ARBORTAPE GUYS
NO SCALE

7



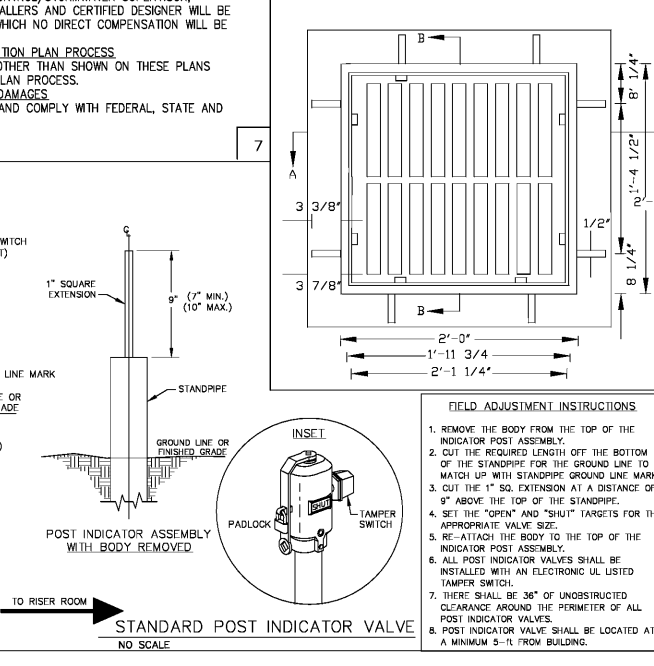
PLANTING DETAIL-SMALL SHRUB WITH ANGLE STAKE
NO SCALE

9



STANDARD POST INDICATOR VALVE
NO SCALE

15



FIELD ADJUSTMENT INSTRUCTIONS
1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE-ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL POST INDICATOR VALVES SHALL BE INSTALLED WITH AN ELECTRONIC UL LISTED TAMPER SWITCH.
7. THERE SHALL BE 36" OF UNOBSTRUCTED CLEARANCE AROUND THE PERIMETER OF ALL POST INDICATOR VALVES.
8. POST INDICATOR VALVE SHALL BE LOCATED AT A MINIMUM 9'-11" FROM BUILDING.

DETAIL NOTES
1. LAND DISTURBING AND EROSION CONTROL DETAILS SHALL ADHERE TO ALL APPLICABLE STATE CONSTRUCTION STANDARDS.
2. WATER SERVICES ON SITE ARE MANAGED BY NCDOT. WATER METERS AND MAINS ARE MANAGED BY THE CITY OF LUMBERTON, NORTH CAROLINA AND ARE TO ADHERE TO THEIR STANDARDS AND APPROVALS.
3. SEWER SERVICE IS MANAGED BY NCDOT ON SITE AND IS TO ADHERE TO THE STANDARDS AND APPROVALS AS SET BY ROBESON COUNTY SEWER DEPARTMENT.
4. ALL ROADWAY AND SITE WORK IS OWNED AND MAINTAINED BY NCDOT. ALL CONSTRUCTION FOR PUBLIC ACCESS ARE TO ADHERE TO NCDOT STANDARDS AND SPECIFICATIONS.

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