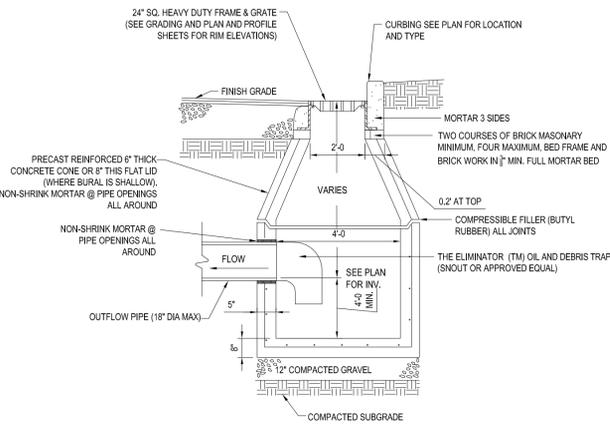


RECOMMENDED MIN. TRENCH WIDTH	
PIPE DIA.	MIN. TRENCH WIDTH
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	45"
30"	55"
36"	64"
48"	80"
60"	96"

- NOTES:
1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS" LATEST EDITION.
 2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL WHEN REQUIRED.
 3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
 4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
 5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
 6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE. MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

HDPE STORM DRAINAGE TRENCH DETAIL

N.T.S.



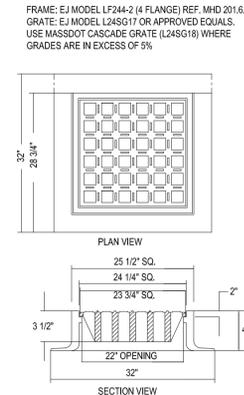
- NOTES:
1. ALL STRUCTURES SHALL BE SUITABLE FOR H-20 LOADING AND SHALL MEET THE REQUIREMENTS OF ASTM C48.
 2. USE PRECAST FLAT SLAB TOP FOR SHALLOW INVERT APPLICATIONS. SEE DETAIL.

STANDARD PRECAST CONCRETE DEEP SUMP CATCH BASIN DETAIL

N.T.S.

TYP. CATCH BASIN SINGLE GRATE

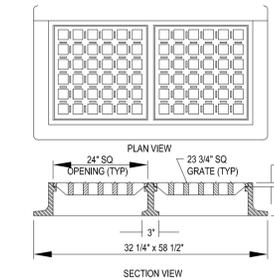
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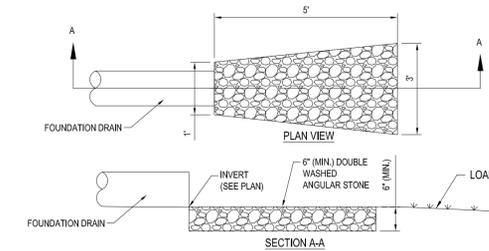
- NOTES:
1. FULLY MACHINED AND INTERCHANGABLE FRAMES AND COVERS. HIGH QUALITY MATERIALS AND WORKMANSHIP. COAL TAR EPOXY PAINTED. NO ROCK COVERS. H-20 LOADING RATE WEIGHT OF GRATE: 215 LBS. WEIGHT OF FRAME: 4 FLANGES - 205 LBS. REFERENCE MASSDOT STANDARD DETAIL 201.6.0.

TYP. CATCH BASIN DOUBLE GRATE

N.T.S.

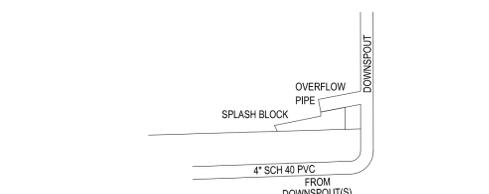


- NOTES:
1. FULLY MACHINED AND INTERCHANGABLE FRAMES AND COVERS. HIGH QUALITY MATERIALS AND WORKMANSHIP. COAL TAR EPOXY PAINTED. NO ROCK COVERS. H-20 LOADING RATE 3 FLANGE FRAMES TO BE USED WITH CURB INLET.



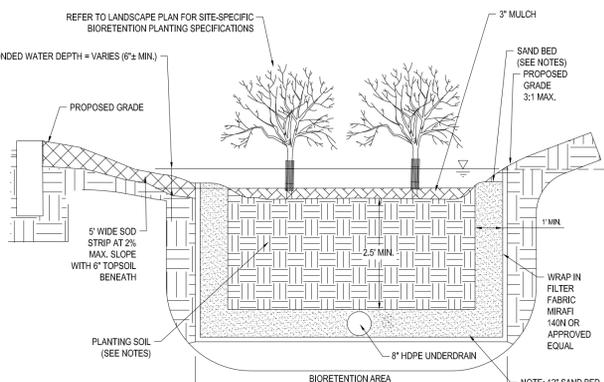
OUTLET PROTECTION DETAIL

N.T.S.



DOWNSPOUT DETAIL

N.T.S.



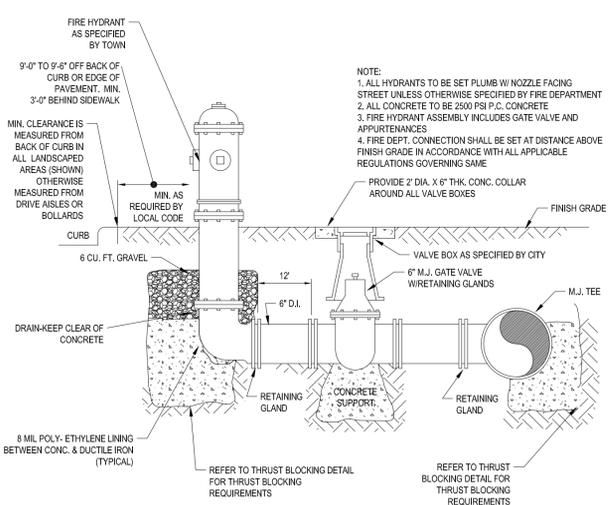
1. PLANTING SOIL MIX SHALL CONSIST OF A MIXTURE OF SAND, COMPOST AND TOPSOIL.
 2. PLANTING SOIL MIX SHALL BE UNIFORM AND FREE FROM STONES, ROOTS, STUMPS OR ANY FOREIGN OBJECTS LARGER THAN 2" MAX. SIZE.
 3. CLAY CONTENT SHALL NOT EXCEED 5%.
 4. SODS SHALL RANGE BETWEEN 15" x 45" x 5" TO 18" x 45" x 5".
 5. SOILS SHALL CONSIST OF 1.5% - 3% ORGANIC CONTENT AND A MAXIMUM OF 500 ppm SOLUBLE SALTS.
 6. SAND SHALL BE GRAVELLY SAND THAT MEETS ASTM #422.
 7. TOPSOIL SHALL BE A SANDY LOAM, LOWLY SAND OR LOAM TEXTURE.
 8. COMPOST SHALL BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH GUIDELINES ISSUED FROM MADEP AND SHALL NOT CONTAIN BIOSOLIDS.
- | SEIVE SIZE | PERCENT PASSING |
|--------------|-----------------|
| 2" NCH | 100 |
| 3/4" | 70-100 |
| 1/4" | 50-80 |
| U.S. NO. 40 | 15-40 |
| U.S. NO. 200 | 0-3 |

BIORETENTION CELL

N.T.S.

TYPICAL WATER PIPE CONNECTION WITH TAPPING SLEEVE AND GATE VALVE DETAIL

N.T.S.



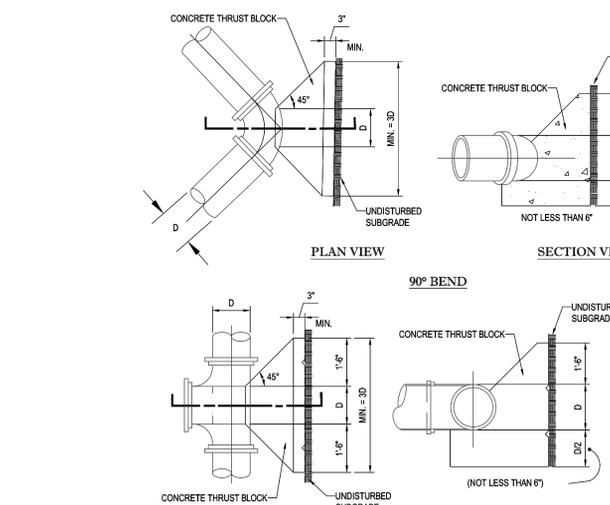
- NOTE:
1. ALL HYDRANTS TO BE SET PLUMB W/ NOZZLE FACING STREET UNLESS OTHERWISE SPECIFIED BY FIRE DEPARTMENT.
 2. ALL CONCRETE TO BE 2500 PSI P.C. CONCRETE.
 3. FIRE HYDRANT ASSEMBLY INCLUDES GATE VALVE AND APPURTENANCES.
 4. FIRE DEPT. CONNECTION SHALL BE SET AT DISTANCE ABOVE FINISH GRADE IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS GOVERNING SAME.

FIRE HYDRANT ASSEMBLY DETAIL

N.T.S.

GATE VALVE DETAIL

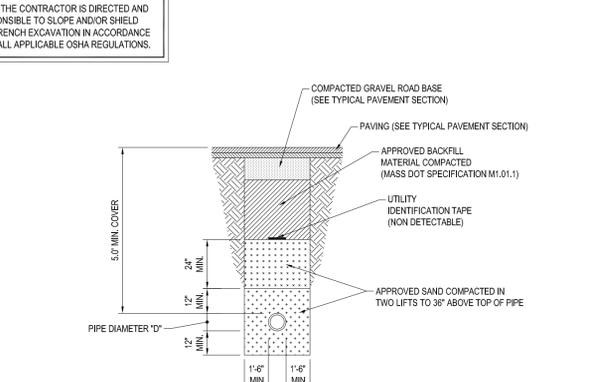
N.T.S.



- NOTE: THE CONTRACTOR IS DIRECTED AND RESPONSIBLE TO SLOPE AND/OR SHIELD THE TRENCH EXCAVATION IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS.

THRUST BLOCK DETAIL

N.T.S.

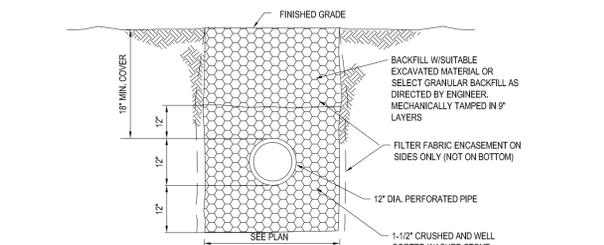


- NOTE: THE CONTRACTOR IS DIRECTED AND RESPONSIBLE TO SLOPE AND/OR SHIELD THE TRENCH EXCAVATION IN ACCORDANCE WITH ALL APPLICABLE OSHA REGULATIONS.

- NOTE:
1. DETAIL SHOWN FOR GRAPHICAL PURPOSES ONLY. PROVIDE WATER LINE TRENCH IN ACCORDANCE WITH UTILITY OWNER'S REQUIREMENTS.

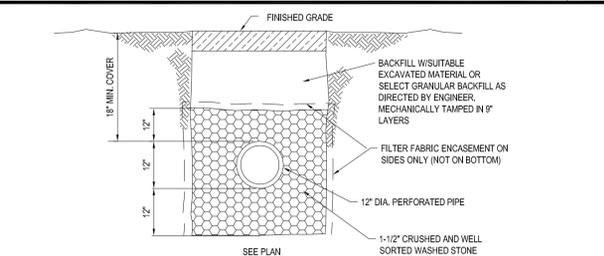
TYPICAL WATER TRENCH DETAIL

N.T.S.



PERIMETER DRAIN

N.T.S.



INFILTRATION TRENCH

N.T.S.

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PROJECT NO.: W131097
 DRAWN BY: KBS
 CHECKED BY: RMM
 DATE: 06/13/2017
 SCALE: AS NOTED
 CAD I.D.: W131097_S02_2_DETAILS

PRELIMINARY PLAN FOR COMPREHENSIVE PERMIT "THE ENCLAVE AT NORFOLK"

A SUBDIVISION IN NORFOLK, MASS.

OWNER: NORFOLK HOLDINGS, LLC

VILLAGE GREEN TOWN OF NORFOLK NORFOLK COUNTY, MASS. MAP #15, LOT 54-87

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J.G. SWERLING

PROFESSIONAL ENGINEER

MASSACHUSETTS LICENSE # 11896
 NEW ENGLAND PROFESSIONAL ENGINEERS ASSOCIATION
 MEMBER

CONNECTICUT LICENSE # 30785
 RHODE ISLAND LICENSE # 11425

SHEET TITLE: **DETAILS**

SHEET NUMBER: **C-31**

REV 0 - 06/13/2017