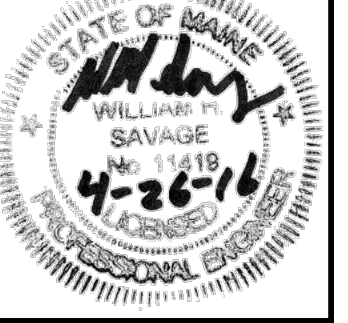


ISSUED FOR	BY
PRELIMINARY APP.	WHS
	4/25/14
REVISION	REV. DATE

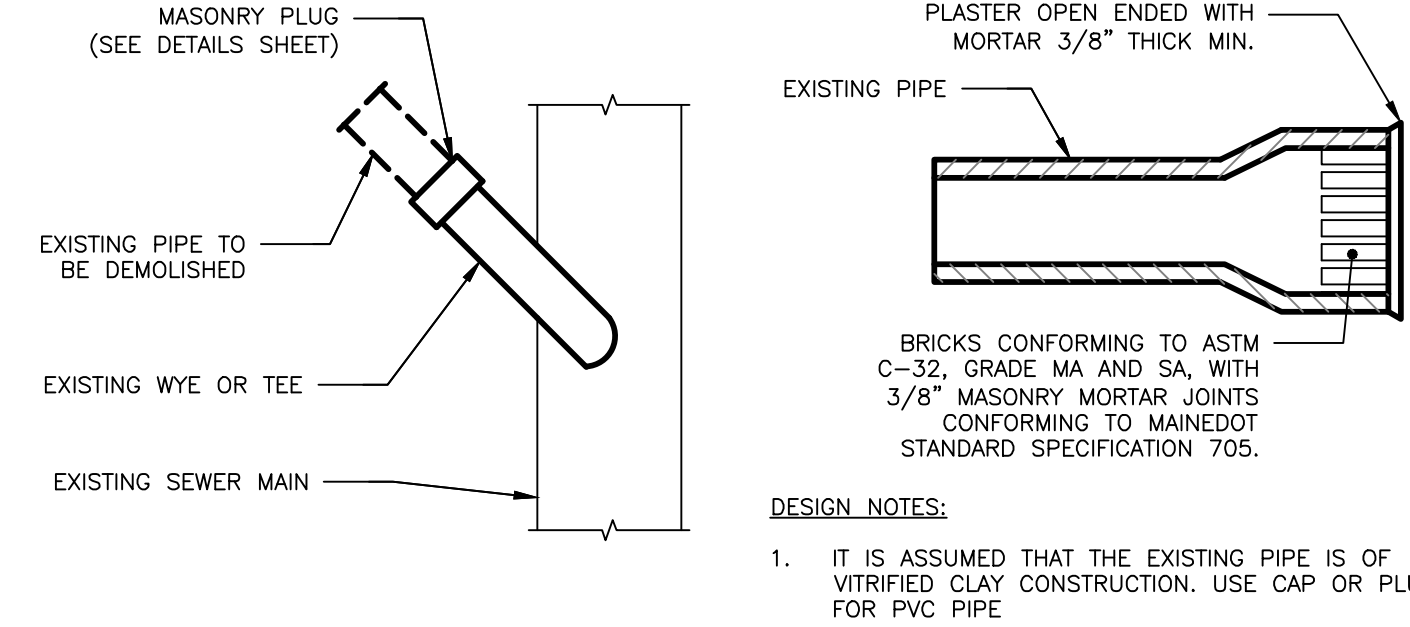
DRAINAGE DETAILS
 PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT
 CLIENT: REDFERN PROPERTIES, LLC
 P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.
 158 BANKFOOT ST. PORTLAND, MAINE 04102
 (207) 775-2655

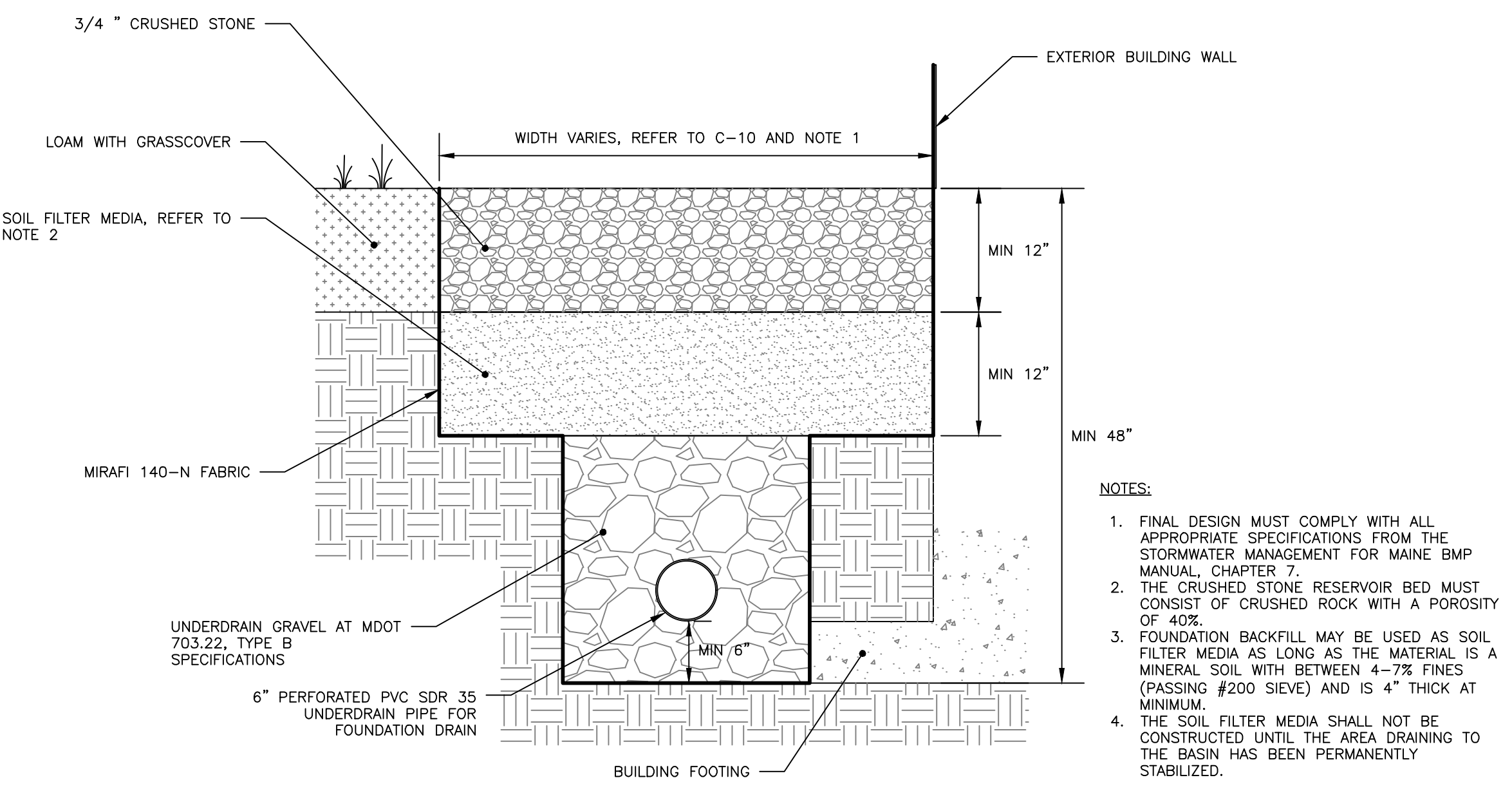
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 SCALE: NTS
 DESIGNED BY: WHS
 DRAWN BY: OJD
 CHECKED BY: WHS



DRAWING NO. C-43

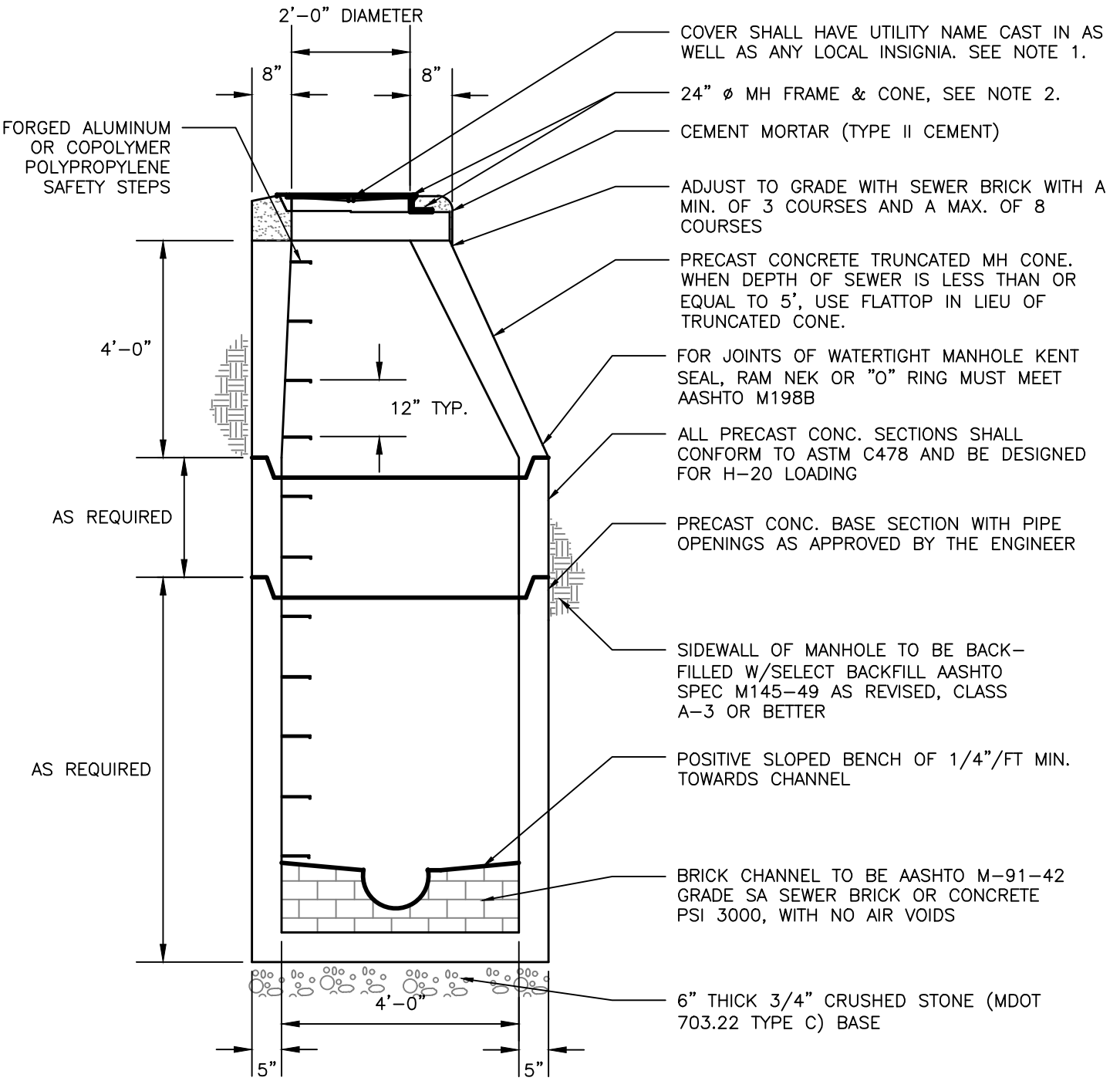


MASONRY PLUG DETAIL
 NOT TO SCALE

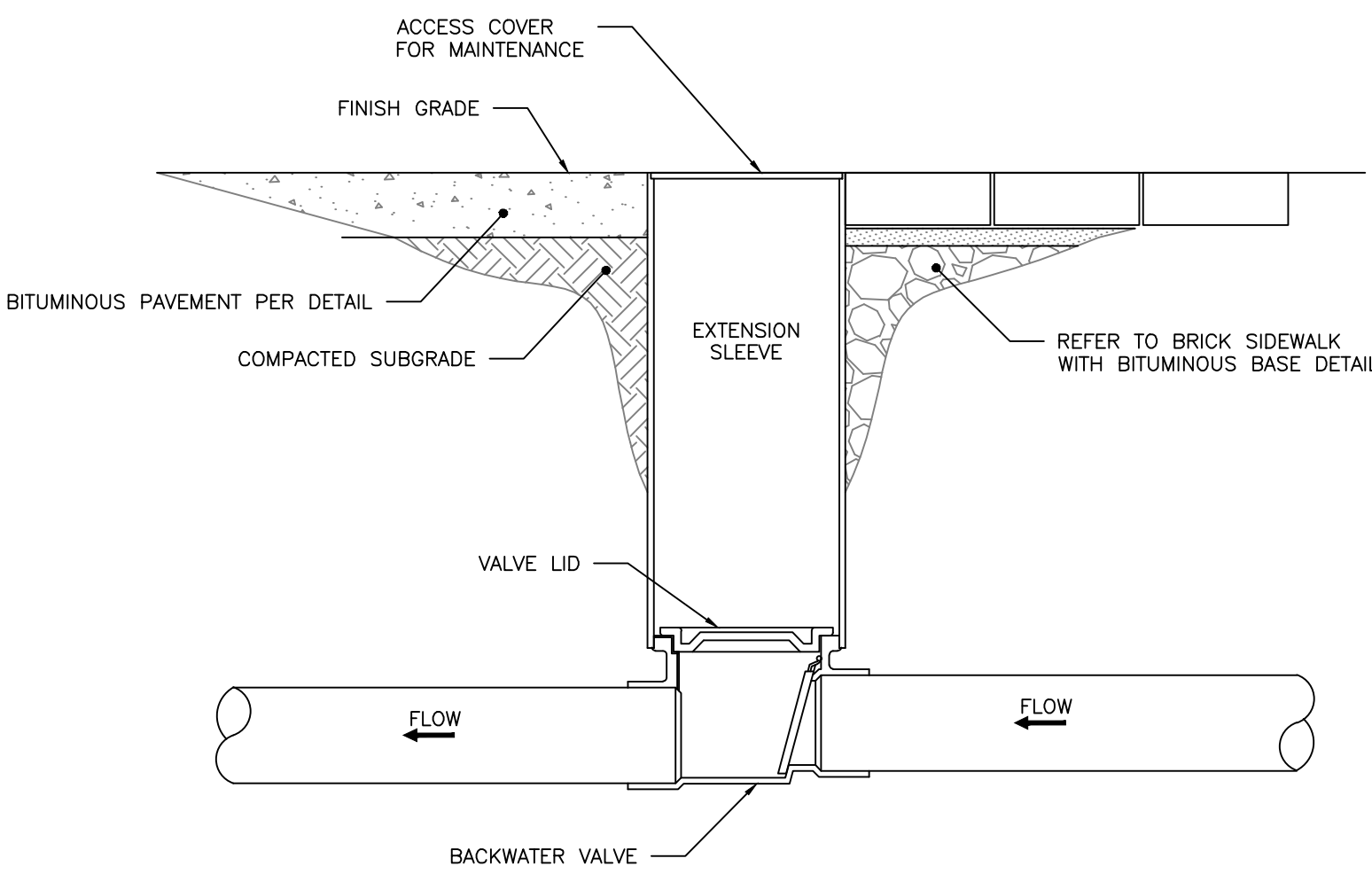


ROOF DRIPLINE FILTRATION DETAIL
 NOT TO SCALE

- NOTES:
1. MANHOLE COVER FOR SEWER MANHOLE SHALL BE ENGRAVED "SEWER", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960002 AS MANUFACTURED BY NEENAH FOUNDRY. MANHOLE COVER FOR STORM SEWER SHALL BE ENGRAVED "DRAIN", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960003 AS MANUFACTURED BY NEENAH FOUNDRY.
 2. MANHOLE FRAME SHALL BE EITHER ITEM # 14960001, AS MANUFACTURED BY NEENAH FOUNDRY, OR ITEM # 1960Z, AS MANUFACTURED BY EAST JORDAN CO.
 3. WITHIN CITY OF PORTLAND ROW, STORM DRAIN MANHOLE SHALL CONFORM WITH "STANDARD PRECAST SEWER MANHOLE DETAIL", WITH THE EXCEPTION THAT THE COVER SHALL BE MARKED AS "DRAIN". REFER TO CITY OF PORTLAND TECHNICAL MANUAL, SECTION 2 - SANITARY SEWER AND STORM DRAIN, FIGURE II-1
 4. SUBMITTAL REQUIRED FOR MANHOLES, MANHOLE FRAMES & MANHOLE COVERS

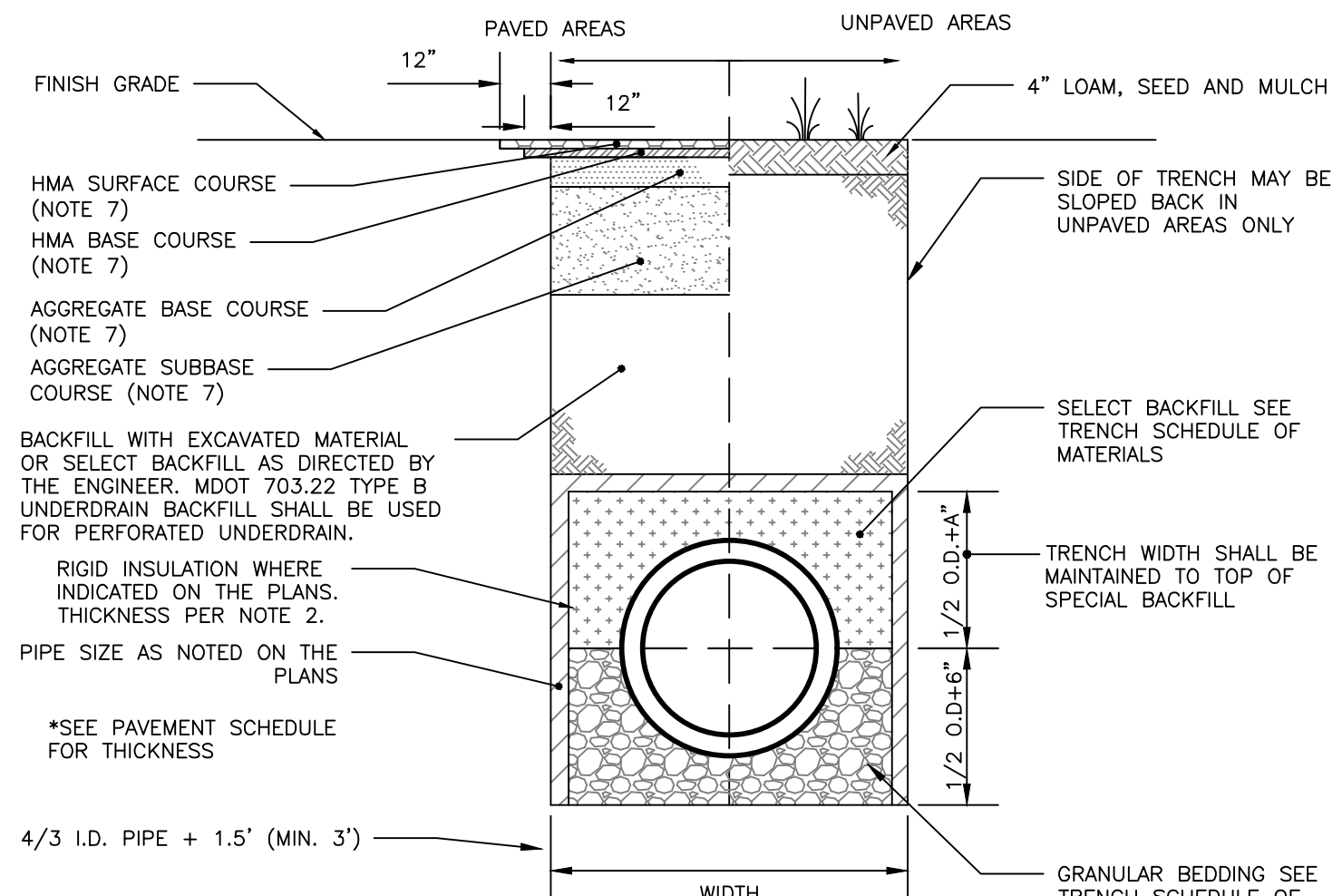


STANDARD PRECAST SEWER MANHOLE
 NOT TO SCALE



BACKWATER VALVE ASSEMBLY
 NOT TO SCALE

- NOTES:
1. BACKWATER VALVE TO BE PROVIDED BY AGRI DRAIN CORPORATION OR AN APPROVED EQUAL.
 2. VALVE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS AND COMPLY WITH RULES AND REGULATIONS AS OUTLINED IN SECTION 2 OF THE CITY OF PORTLAND TECHNICAL MANUAL.
 3. VALVE SHALL BE INSTALLED WITH A VALVE BOX AND COVER TO PROVIDE EASY ACCESS AND MAINTENANCE; VALVE COVER SHALL STATE "SEWER" ON LID FLUSH TO SURFACE.

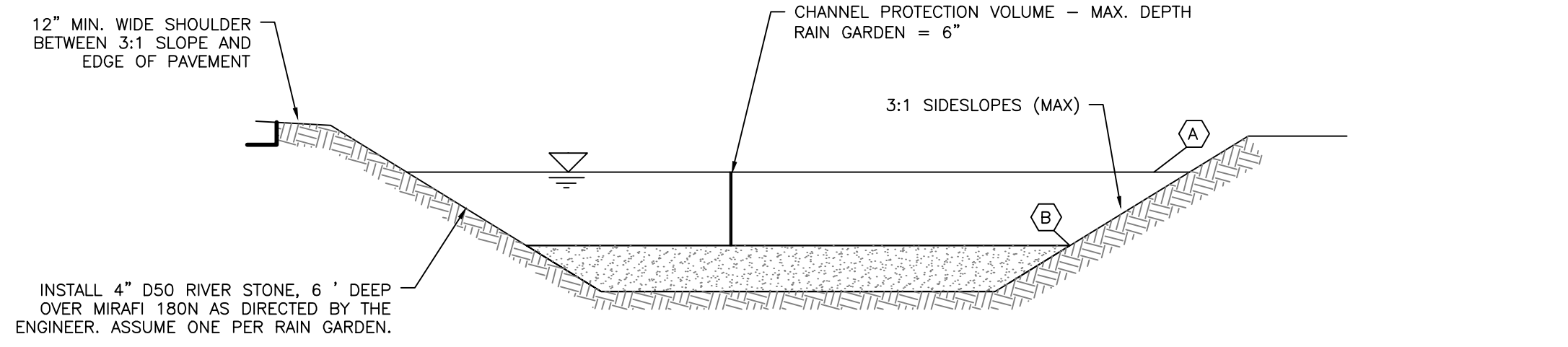


STORM DRAIN AND SEWER TYPICAL TRENCH SECTION
 NOT TO SCALE

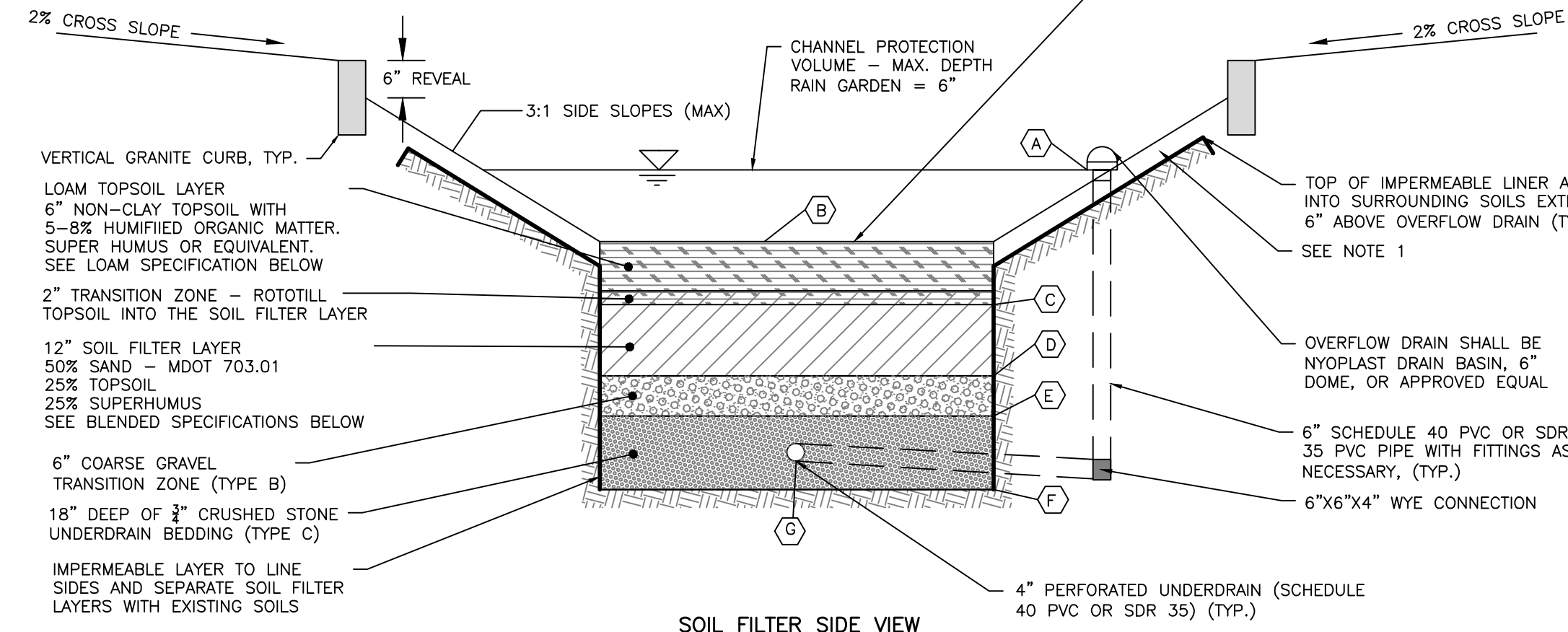
SCHEDULE OF MATERIALS		
TYPE OF PIPE	GRANULAR BEDDING	SELECT BACKFILL
HMA SURFACE COURSE (NOTE 7)		
HMA BASE COURSE (NOTE 7)		
AGGREGATE BASE COURSE (NOTE 7)		
AGGREGATE SUBBASE COURSE (NOTE 7)		
PVC/DUPE	MDOT 703.22 TYPE C 3/4\"/>	

- NOTES:
1. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 2. STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION. OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.
 3. INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES AT THE TOP OF SUBGRADE.
 4. MINIMUM COVER:
 - 4.1. 2'-0" - STORM DRAIN
 - 4.2. 5'-0" - SEWER
 5. NO TREES SHALL BE PLANTED WITHIN 5' OF A SEWER PIPE OR SERVICE.
 6. THIS DETAIL SHALL BE APPLIED ONLY TO DRAINAGE PIPE TRENCHES OUTSIDE OF THE CITY OF PORTLAND ROW.
 7. THICKNESS AS NOTED BY SURFACE DETAILS.

PRELIMINARY
 NOT ISSUED FOR
 CONSTRUCTION



SOIL FILTER CROSS SECTION



SOIL FILTER SIDE VIEW

- NOTES:
1. WRAP ALL SIDES BETWEEN THE SOIL FILTER MATERIALS, IMPERMEABLE LINER AND EXISTING SOILS WITH MIRAFI 180N OR EQUIVALENT. THE SIDESLOPES SHALL BE STABILIZED WITH A MIN. OF 4" LOAM, EROSION CONTROL BLANKETS SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL AND A CONSERVATION SEED MIX.
 2. LIGHT COMPACTION SOIL FILTER AND PIPE BEDDING MATERIAL. (90 TO 92% STANDARD PROCTOR). TESTING SHALL BE PERFORMED BY A QUALIFIED MATERIAL TESTING FIRM.
 3. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.
 4. A SCHEDULE OF APPROPRIATE PLANTS FOR THE RAIN GARDENS AT THE SITE CONDITIONS IS LOCATED IN THE GRADING PLAN. LANDOWNER IS TO FINALIZE THE SCHEDULE.
 5. TESTING: SIEVE ANALYSIS INCLUDING HYDROMETER TESTING FOR CLAY CONTENT FOR EACH LAYER SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION. ALL TESTING AND SUBMITTALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE MAINE DEP - TECHNICAL DESIGN MANUAL SECTION 7.2.5 TESTING AND SUBMITTALS.
 6. ACORN ENGINEERING, INC., RECOMMENDS THE SOIL FILTER LAYER BE SUPPLIED BY JONES ASSOCIATES, INC., AUBURN, ME.

SCHEDULE		RG-1
(A)	PROPOSED OVERFLOW RIM	17.15'
(B)	TOP OF LOAM TOPSOIL LAYER	16.65'
(C)	TOP OF SOIL FILTER	16.15'
(D)	TOP OF GRAVEL	15.15'
(E)	TOP OF STONE	14.65'
(F)	BOTTOM OF STONE	13.15'
(G)	UNDERDRAIN INVERT	13.40'

SIEVE SIZE	% PASSING BY WEIGHT
#4	75-95
#10	60-90
#40	35-85
#200	20-70

SOIL FILTER BED - SUPERHUMUS OR EQUIV. SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
#200	0-5

12\"/>	
#10	85-100
#20	70-100
#60	15-40
#200	8-15

- * <10% CLAY PASSING THE #200 SIEVE ALLOWED PER EMAIL FROM MARIANNE HUBERT - MDEP TO WILL SAVAGE DATED 9/20/13

RAIN GARDEN DETAIL
 NOT TO SCALE

SOIL FILTER BED - TRANSITION ZONE (TYPE B)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	90-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

SOIL FILTER BED - UNDERDRAIN BEDDING (TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90-100
3/8"	0-75
#4	0-25
#10	0-5