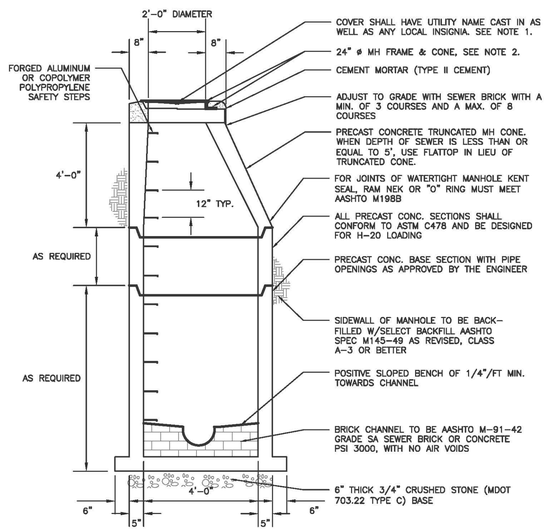
NOTES:

1. 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

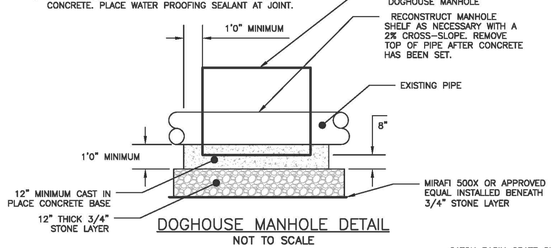


STANDARD PRECAST MANHOLE

NOT TO SCALE

NOTES:

1. DOGHOUSE MANHOLE MAY BE SET ON 8"X8"X16" CONCRETE BLOCKS DURING CONCRETE CURING PROCESS.
2. UNLESS OTHERWISE SPECIFIED, CONCRETE SHALL BE 4000 PSI @28 DAYS.
3. RECONSTRUCT INTERIOR MANHOLE INVERT AS NECESSARY TO ACCOMMODATE NEW PIPE.
4. FILL DOGHOUSE OPENING WITH 3000 PSI @28 DAYS CONCRETE. PLACE WATER PROOFING SEALANT AT JOINT.

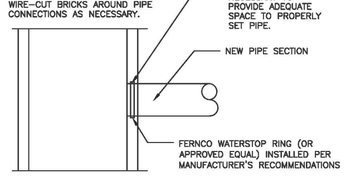


DOGHOUSE MANHOLE DETAIL

NOT TO SCALE

NOTES:

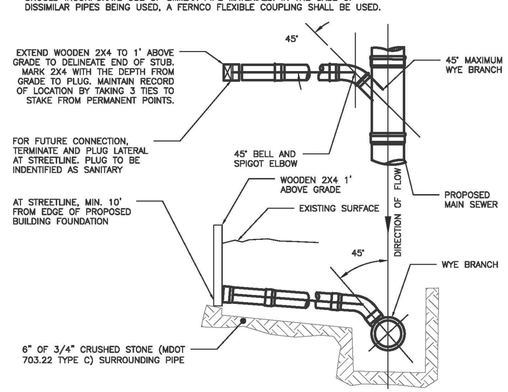
1. RECONSTRUCT INTERIOR MANHOLE INVERT AS NECESSARY TO ACCOMMODATE NEW PIPE.
2. PLACE NON–SHRINK GROUT AND WIRE–CUT BRICKS AROUND PIPE CONNECTIONS AS NECESSARY.



NEW PIPE TO EXISTING STRUCTURE

NOT TO SCALE

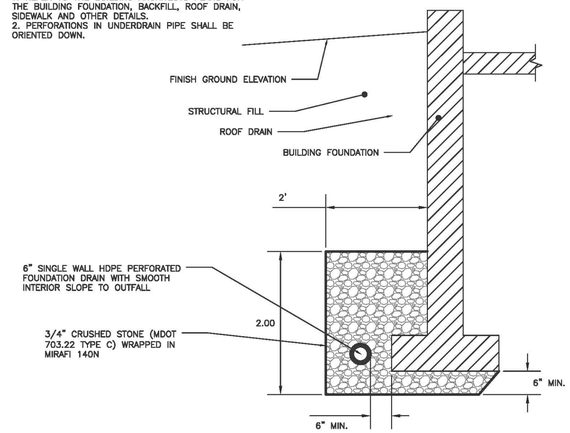
NOTES:
1) LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
2) SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO HOUSEHOLD PLUMBING WITH ARCHITECTURAL CONTRACTOR
3) CONNECTION OF PROPOSED SEWER LATERAL TO HOUSEHOLD PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.



SEWER TEE/WYE CONNECTION DETAIL

NOT TO SCALE

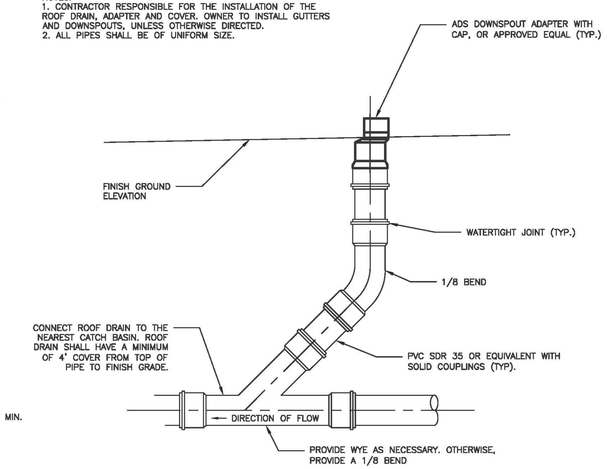
NOTES:
1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.



FOUNDATION DRAIN DETAIL

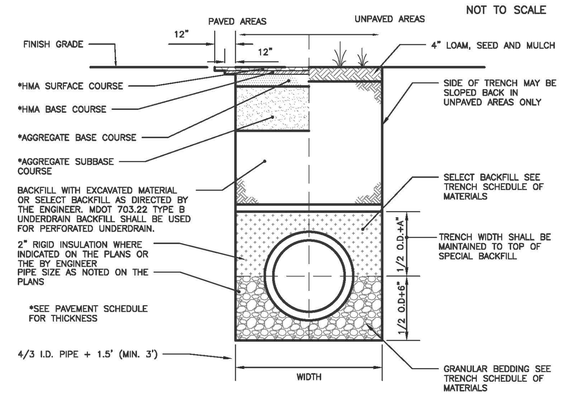
NOT TO SCALE

NOTES:
1. CONTRACTOR RESPONSIBLE FOR THE INSTALLATION OF THE ROOF DRAIN, ADAPTER AND COVER. OWNER TO INSTALL GUTTERS AND DOWNSPOUTS, UNLESS OTHERWISE DIRECTED.
2. ALL PIPES SHALL BE OF UNIFORM SIZE.



ROOF DRAIN DETAIL

NOT TO SCALE

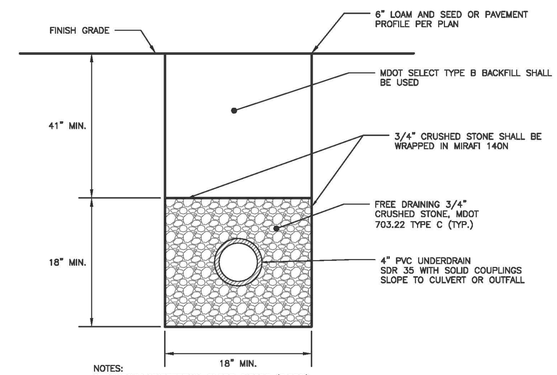


SCHEDULE OF MATERIALS		
TYPE OF PIPE	GRANULAR BEDDING	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC/HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
CMP	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

NOTE:
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.
3. INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES AT THE TOP OF SUBGRADE.
4. MINIMUM COVER
   4.1. 2'–0" – STORM DRAIN
   4.2. 5'–6" – WATER
   4.3. 5'–0" – SEWER
5. NO TREES SHALL BE PLANTED WITHIN 5' OF A SEWER PIPE OR SERVICE

STORM DRAIN, SEWER AND WATER TYPICAL TRENCH SECTION

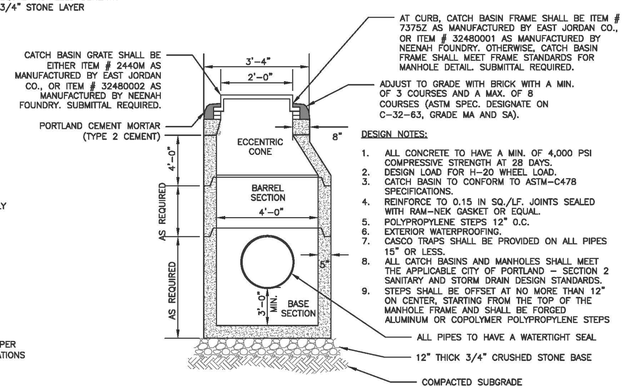
NOT TO SCALE



NOTES:
1. MINIMUM UNDERDRAIN SLOPE 0.0025 (0.25%)
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.

UNDERDRAIN DETAIL

NOT TO SCALE



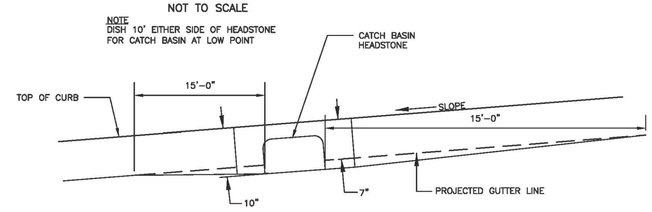
DESIGN NOTES:

1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H–20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM–C478 SPECIFICATIONS.
4. REINFORCE TO 0.15 IN SQ./LF. JOINTS SEALED WITH RAM–NEK GASKET OR EQUAL.
5. POLYPROPYLENE STEPS 12" O.C.
6. EXTERIOR WATERPROOFING.
7. CASCO TRAPS SHALL BE PROVIDED ON ALL PIPES 15" OR LESS.
8. ALL CATCH BASINS AND MANHOLES SHALL MEET THE APPLICABLE CITY OF PORTLAND – SECTION 2 SANITARY AND STORM DRAIN DESIGN STANDARDS.
9. STEPS SHALL BE OFFSET AT NO MORE THAN 12" ON CENTER, STARTING FROM THE TOP OF THE MANHOLE FRAME AND SHALL BE FORGED ALUMINUM OR COPOLYMER POLYPROPYLENE STEPS

4'–0" DIAMETER PRECAST CATCH BASIN

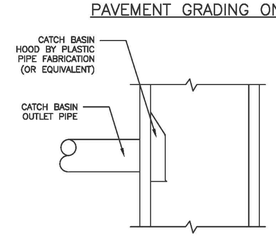
NOT TO SCALE

NOTE
DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT



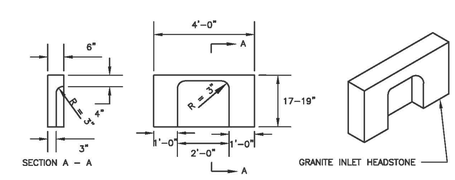
PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLET

NOT TO SCALE



4' GRANITE HEADSTONE FOR CATCH BASIN INLET

NOT TO SCALE



4' GRANITE HEADSTONE FOR CATCH BASIN INLET

NOT TO SCALE

ISSUED FOR PRE–APP

ISSUED FOR	BY / DATE
PRELIMINARY SUB	WHS / 7/14/15

REVISION	REV. / DATE

DRAWING NAME: DRAINAGE DETAILS

PROJECT NAME: EAST BAYSIDE LOFTS

CLIENT: REDFERN MUNJOY, LLC.
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.

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ACORN ENGINEERING, INC.
158 DANFORTH STREET, PORTLAND, MAINE 04102
(207) 775–2555

FILE:	1053_DETAILS
DATE:	12/5/2014
JN:	1053
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	MAG
CHECKED BY:	WHS

DRAWING NO.
C-43