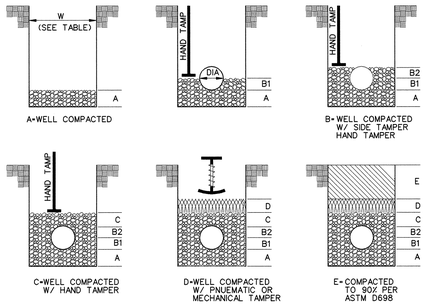
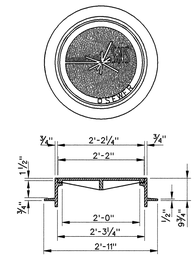


BEDDING AND BACKFILL FOR HDPE PIPE		
LAYER	DEPTH	MATERIAL
A	6"	NO. 57 CRUSHED STONE
B1	DIA/2	NO. 57 CRUSHED STONE
B2	DIA/2	NO. 57 CRUSHED STONE
C	12"	NO. 57 CRUSHED STONE
D	VARIES	SILT, SILTY CLAYS AND CLAYS, INCLUDING INORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS
E	VARIES	SILT, SILTY CLAYS AND CLAYS, INCLUDING INORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS

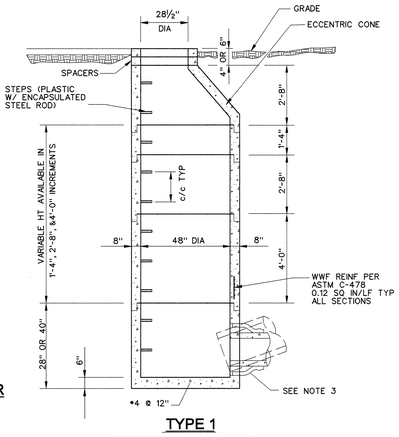
TRENCH WIDTH FOR HDPE AND CMP PIPE		
DIAMETER	OUTSIDE DIA (IN)	W (IN)
4"	4.72	21
6"	6.95	23
8"	9.16	25
10"	11.31	28
12"	14.45	31
15"	17.65	34
18"	21.10	39
24"	28.30	48
30"	36.10	66
36"	42.25	78
42"	47.00	83
48"	53.00	89

NOTE:
PIPES UNDER PAVED AREAS WHERE DEPTH OF COVER IS 6 FEET OR LESS SHALL BE BACKFILLED WITH NO 57 CRUSHED STONE TO PAVEMENT SUBGRADE.

1 TYP TRENCH, BEDDING & BACKFILL FOR HDPE PIPE
NTS



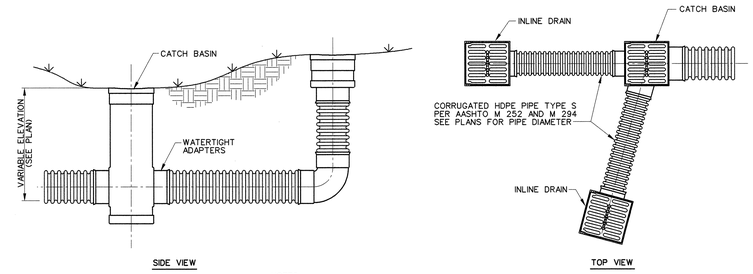
STANDARD FRAME & COVER



TYPE 1 ECCENTRIC MANHOLE

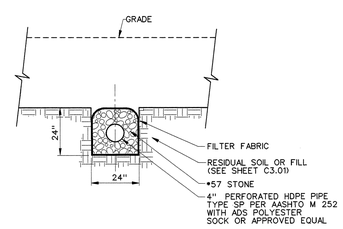
NOTES:
1. ALL ELEMENTS PRECAST TO MEET SPECIFICATION ASTM C-478 LATEST REVISION.
2. OPENINGS FOR PIPE ARE CAST TO PROVIDE REQUIRED SIZE AND LOCATION.
3. THE HOLE IS TO BE MANUFACTURED AS TO ALLOW FOR LATERAL AND VERTICAL MOVEMENT, AS WELL AS ANGULAR ADJUSTMENTS THRU 20°.
4. CM WILL PROVIDE SPECIFICATIONS AND CAST NUMBER FOR SNS MANHOLE COVER.

2 C3.49.02 JUNCTION BOX DETAIL
NTS

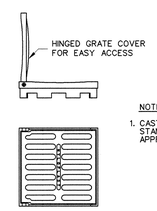


NOTES
1. USE 15" INLINE DRAINS AND 15" DRAIN BASINS UNLESS OTHERWISE SPECIFIED ON PLANS.

3 C3.49.01 C3.49.02 CATCH BASIN AND INLINE DRAIN STORM SEWER SYSTEM
NTS

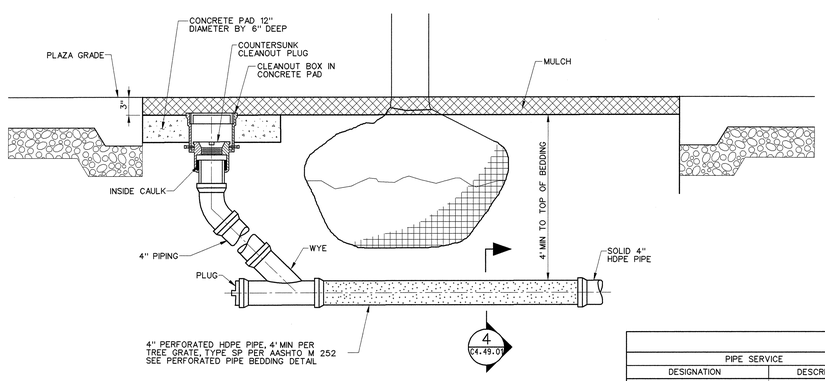


4 C4.49.01 PERFORATED PIPE BEDDING DETAIL
NTS

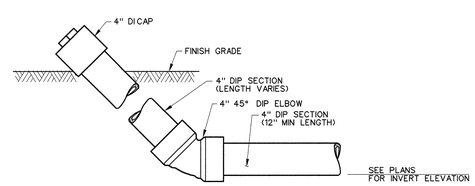


NOTES:
1. CASTING SHALL BE NYOPLAST 15" STANDARD (H-25) RATED GRATE OR APPROVED EQUAL

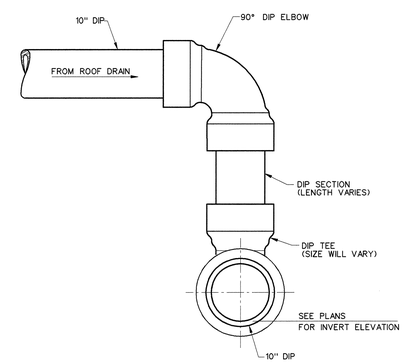
7 C3.49.01 C3.49.02 15" STANDARD GRATE
NTS



7 C3.49.01 C3.49.02 SUBGRADE DRAIN & CLEANOUT DETAIL
NTS



A C3.49.01 C3.49.02 ROOF DRAIN LATERAL CLEANOUT SECTION
NTS



B C3.49.02 ROOF DRAIN CONNECTION SECTION
NTS

PIPE MATERIAL SCHEDULE			
PIPE SERVICE		MATERIAL	REFERENCE SPEC. SECTION
DESIGNATION	DESCRIPTION		
ROOF DRAIN COLLECTOR (RD)	BELOW GRADE	DUCTILE IRON, AWWA C151, PRESSURE CLASS 350, PUSH-ON JOINT	02721
FOUNDATION DRAIN LINE (FDL)	BELOW GRADE	PERFORATED CORRUGATED HIGH DENSITY POLYETHYLENE, TYPE SP, AASHTO M252	02721

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NUMBER OF SECTION OR DETAIL
DRAWING ON WHICH SECTION OR DETAIL IS SHOWN OR TAKEN
SECTION AND DETAIL KEY

THIS DOCUMENT CONTROLLED BY
CHANGE CONTROL SYSTEM _____
ENGINEERING PROCEDURE _____

REV	CHANGE TYPE	CHANGE CONTROL SYSTEM	CHANGE REQ. NUMBER	DESCRIPTION	DSN	CHK	DEPT	DATE	PE	DATE	PJ	DATE	REQ	DATE	UTB	DATE	RPE	RPE NO	DATE	ST	CV	EC	EE	EM	IE	M	PD	SE	AR
0				CERTIFIED FOR CONSTRUCTION - 12/9/2002	BCN	JHB											BCN	104112	12/9	RZ	AW	BWJ	AK	IM	DM	–	BWJ	–	TW

REVISION OR ISSUE PURPOSE — REVISION APPROVALS — SQUAD CHECK

RPE: BENJAMIN C. NEMEC, REGISTERED ENGINEER, STATE OF TENNESSEE, LIC. 104112
REV. 0 DATE 12/9/02

DSGN	B. NEMEC	12/09/02
DRW	K. LYNCH	12/09/02
CHKR	J. BALLARD	12/09/02
SECT		
DEPT		
PE		12/9/02
PJ		12/9/02
REQ		12/9/02
UTB		

DRAWING APPROVALS

ORNL DRAWING NUMBER:

KnightVacuole Joint Venture
701 Scarboro Road, MS 8253
Oak Ridge, TN 37830
865-241-9433
fax 865-241-3400

BWSC Barge Waggoner Sumner & Cannon, Inc.
ENGINEERS ARCHITECTS PLANNERS LANDSCAPE ARCHITECTS AND SURVEYORS
800 Commerce Park Drive Suite 100,Oak Ridge, Tennessee 37830
Phone (865) 482-9496 Fax (865) 482-5696

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PROJECT NAME:
CENTER FOR NANOPHASE MATERIALS SCIENCES
GRADING & DRAINAGE SECTIONS AND DETAILS

1	48	49	50	PLANT	BLDG	FL	SH.	OF	TYPE	CLASS
3	C	X	X	8	8610	X	1	1	S	U
51		52		53	DRAWING NUMBER					REV
NC		NA		IN	A/E DRAWING NUMBER: C4.49.01					0

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