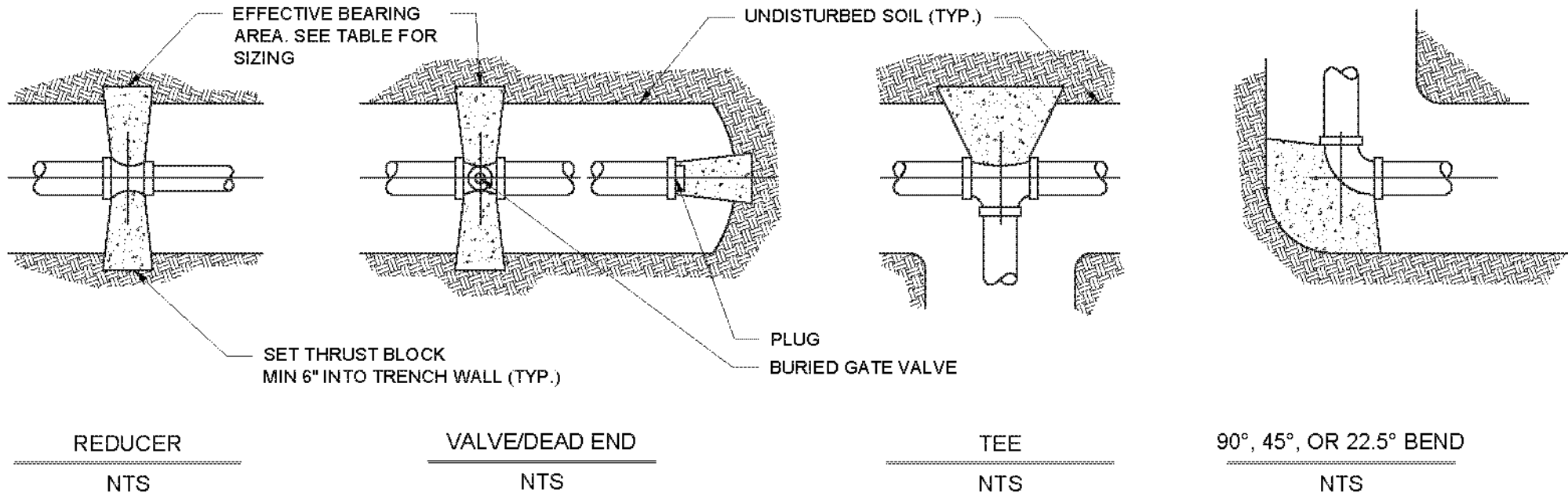




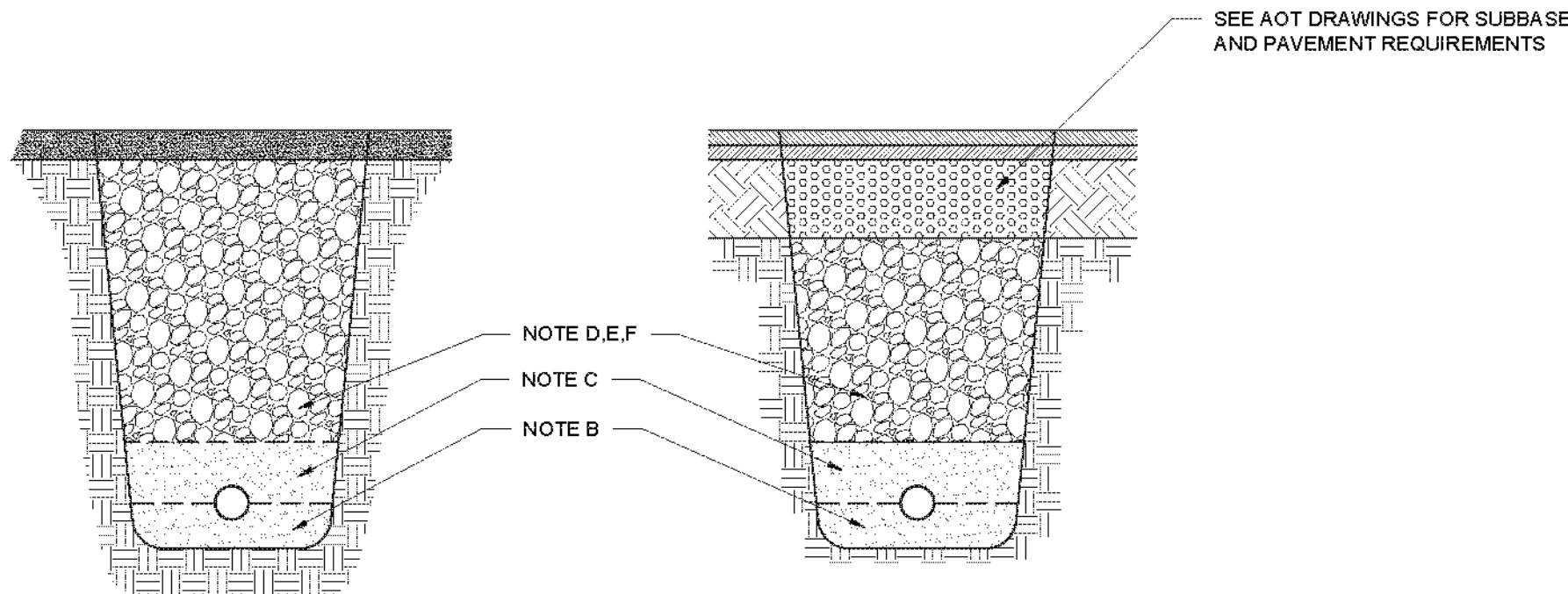
MINIMUM BEARING SURFACE AREA OF CONCRETE THRUST BLOCKS (IN SQUARE FEET)

REDUCERS			4-8"				10"				12"				SOIL CONDITION	SAFE BEARING LOAD (PSF)
8X6	10X8	12X8	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS		
3.0	5.0	6.0	4.0	6.0	3.0	2.0	6.0	8.0	5.0	2.0	8.0	12.0	6.0	3.0	SOUND SHALE	10000
3.0	5.0	6.0	4.5	6.5	3.5	2.0	8.0	11.0	6.0	3.0	10.0	14.0	7.5	4.0	CEMENTED GRAVEL AND SAND	4000
7.0	7.0	11.0	7.0	9.0	5.0	3.0	10.0	14.0	7.0	4.0	14.0	19.0	11.0	5.0	COARSE AND FINE COMPACT SAND	3000
8.0	9.0	14.0	15.0	20.0	10.0	5.0	21.0	31.0	15.0	8.0	30.0	40.0	20.0	10.0	MEDIUM CLAY (CAN BE SPADED)	2000
8.0	11.0	16.0	20.0	28.0	15.0	8.0	29.0	41.0	22.0	11.0	41.0	58.0	31.0	16.0	SOFT CLAY	1000
MAX WATER PRESSURE 300 PSI																

C1 TYPICAL CONCRETE THRUST BLOCK DETAIL

NTS

- NOTES:
- PLACE 3 MIL MINIMUM POLYETHYLENE SHEETING BETWEEN ALL CONCRETE THRUST BLOCKS AND PIPE AND/OR FITTINGS TO PREVENT BONDING

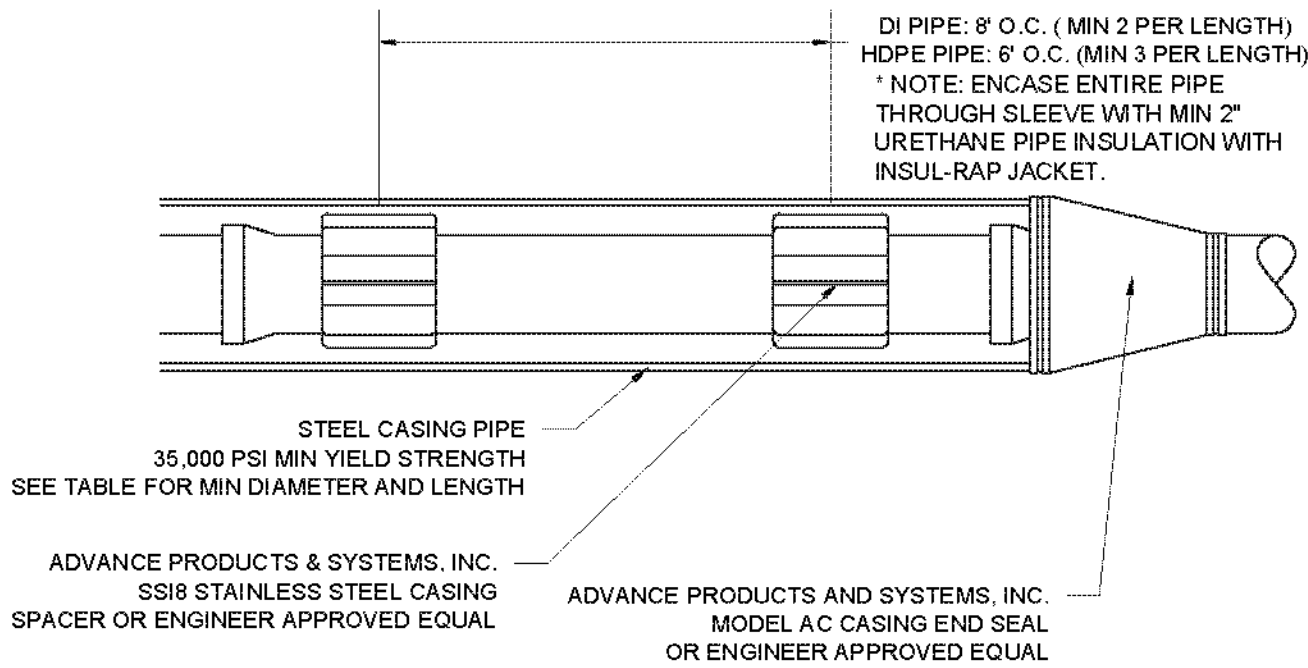


C2 TYPICAL TRENCH DETAIL

Scale: NTS

INSTALLATION SPECIFICATIONS

- A.** MINIMUM BURIAL DEPTH 5'-6" (4'-0" FOR SEWER) IF CONDITIONS PREVENT MINIMUM BURIAL DEPTH, ALL SECTIONS OF LINE LESS THAN MIN. DEPTH SHALL BE INSULATED WITH 1" THICKNESS RIGID FOAM INSULATION PER FOOT LESS THAN MINIMUM. (MIN. 2" thickness 250 psi)
- B.** BED PIPE IN 6" OF CRUSHED STONE (PASSING 1/2" BUT RETAINED ON #4 SIEVE. PIPE SHALL NOT BE LAID IN UNCOMPACTED SOIL OR IN WATER. IF IN LEDGE CONDITIONS, BED PIPE IN A MINIMUM OF 6" OF CLEAN SAND. DO NOT REST PIPE ON LEDGE ROCK.
- C.** BACKFILL OVER PIPE W/ 12" MINIMUM SAND, COMPACTED ENTIRE WIDTH OF TRENCH. BACKFILL WITH BEDDING STONE TO 12" DEPTH IF IN WATER.
- D.** REMAINDER OF BACKFILL TO BE SELECT EARTH OR BANK RUN GRAVEL NOT GREATER THAN 6" IN LARGEST DIMENSION. BACKFILL TO BE COMPACTED IN 6" LIFTS UNDER ROADS AND PAVED AREAS.
- E.** BACKFILL SHALL CONSIST OF SUITABLE MATERIAL REMOVED FROM EXCAVATION, AND SHALL BE FREE OF CLODS, DEBRIS, FROZEN CHUNKS, PAVEMENT PIECES, LARGE STONES, ORGANIC MATERIAL OR ANY OTHER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER.
- F.** BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY IN ALL TRENCH EXCAVATIONS. (95% OF LAWN/GRASS AREA)



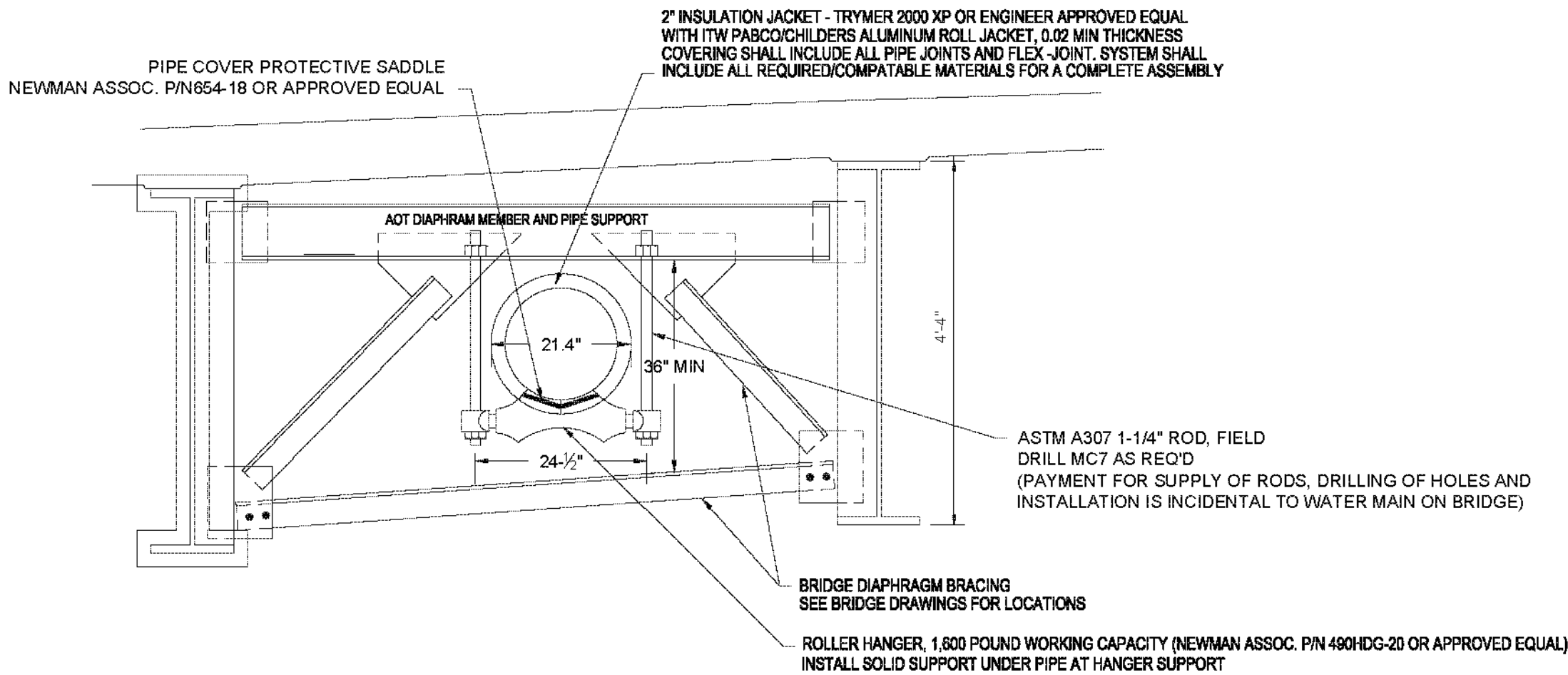
C3 SLEEVE PIPE DETAIL

Scale: NTS

SLEEVE PIPE SIZE AND THICKNESS		
CARRIER DIA	CASING DIAM/MTL	MIN THICKNESS
3/4"-2" K' CU	4" HDPE	N/A
4" DI	14" STEEL	0.312 inch
6" DI	16" STEEL	0.312 inch
8" DI	18" STEEL	0.312 inch
10" DI	20" STEEL	0.312 inch
12" DI	22" STEEL	0.312 inch
16" DI	28" STEEL	0.375 inch

NOTES:

- D17 HDPE PIPE MAY BE SUBSTITUTED FOR STEEL CASING WITH ENGINEER APPROVAL.



C4 HANGER SUPPORT DETAIL

Scale: NTS

NOTES:

- ENGINEER WILL PROVIDE BRIDGE FABRICATION DRAWINGS TO MSK ENGINEERING FOR FINAL COORDINATION OF PIPE SUPPORTS
- THE BRIDGE DIAPHRAGM BRACING WILL ALLOW CLEARANCE FOR A 24" OVERALL PIPE AND JACKET DIMENSION. COORDINATE THE FINAL LOCATION OF THE PIPE WITH THE BRIDGE DIAPHRAGM BRACING. REMOVE AND RE-INSTALL THE BOTTOM DIAPHRAGM MEMBER AS REQUIRED TO INSTALL THE PIPE.

MSK ENGINEERING AND DESIGN, INC.
P.O. BOX 396.46 CHURCH STREET
SHAFTSBURY, VT 05262
PH: (802) 447-1602 FAX: (802) 446-1291



REVISIONS

NO. DATE DESCRIPTION

ER BHF 010-1 (44)
VT ROUTE 9
WOODFORD, VT

DRAWINGS THIS SHEET

WATERLINE
DETAILS

NUMBER	DATE
DRAWN	08-01-12
CHECKED	
JMD	JRS

SHEET NUMBER

C-501