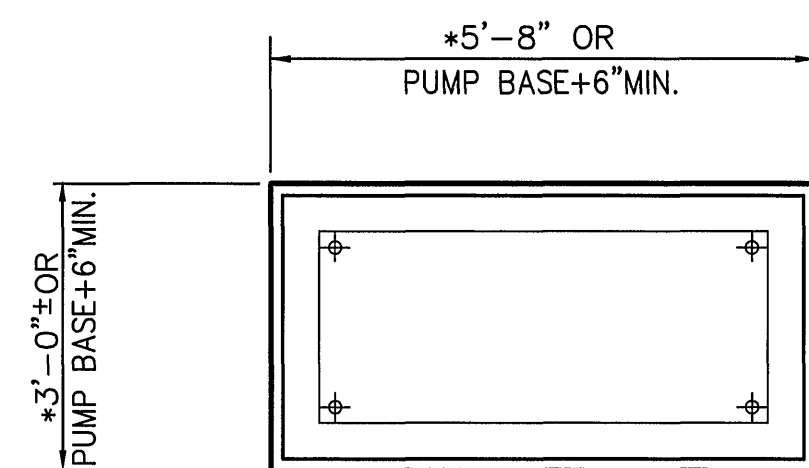
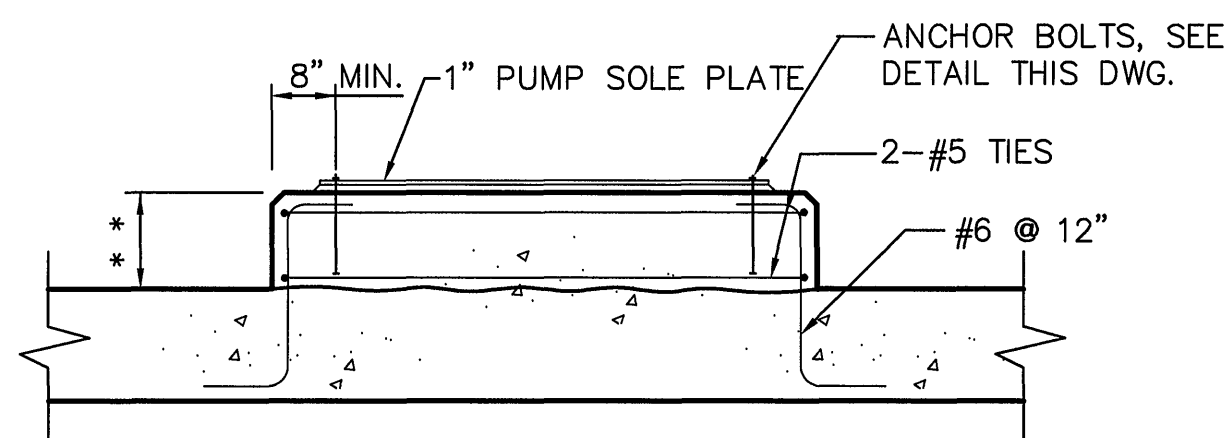


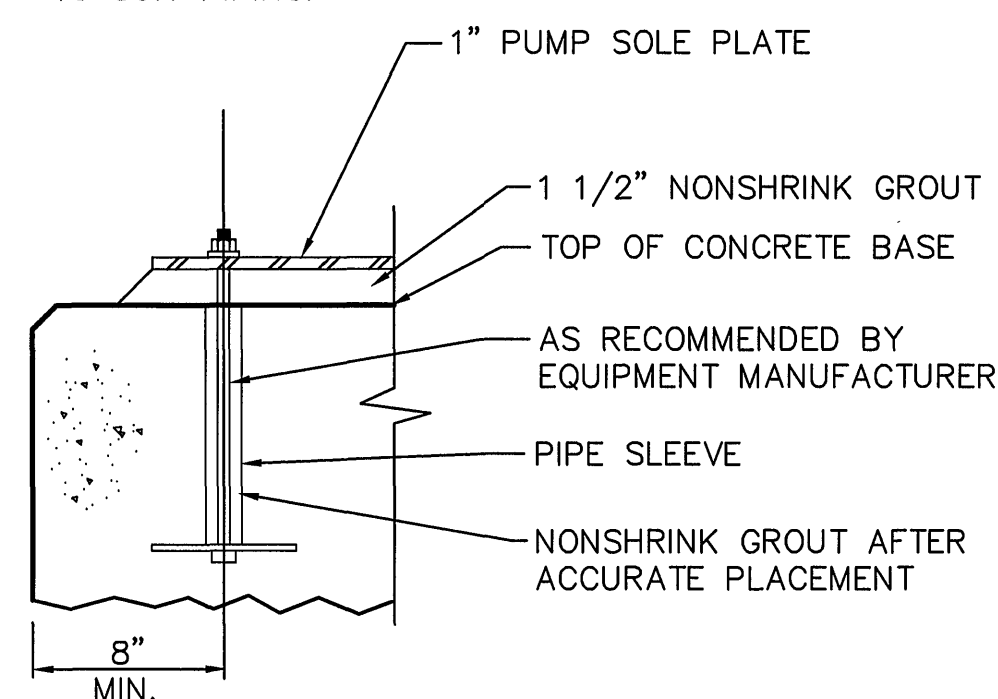


PLAN



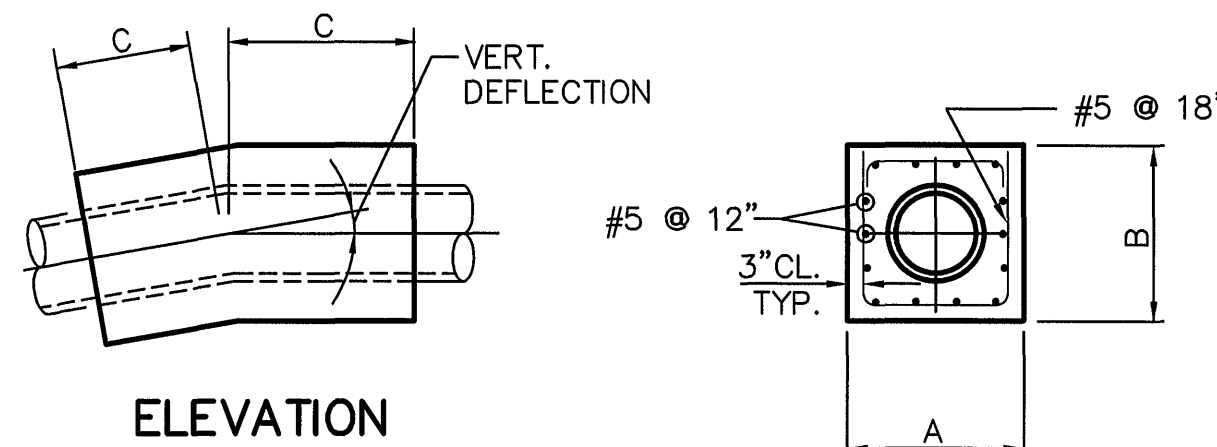
SECTION

- * AS RECOMMENDED BY PUMP MANUFACTURER AND AS REQUIRED FOR INSTALLATION.
- ** TO SUIT PIPING.



ANCHOR BOLT DETAIL

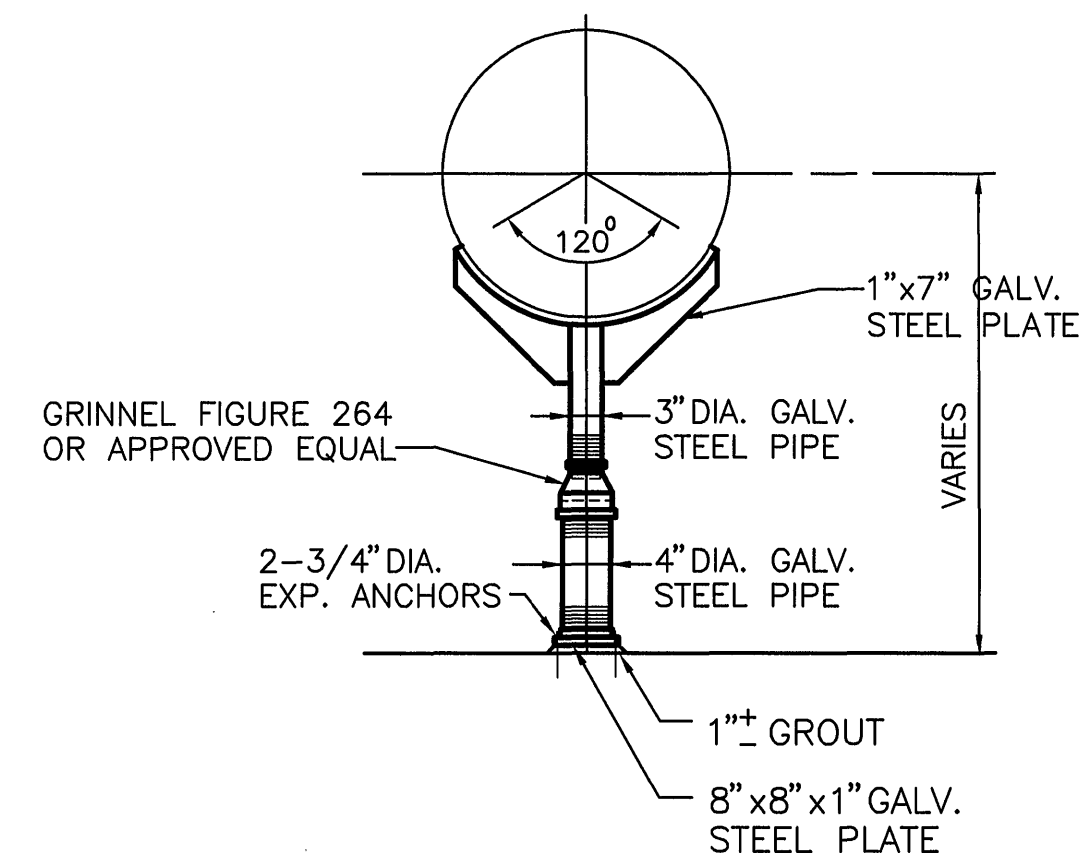
TYPICAL PUMP BASE DETAILS



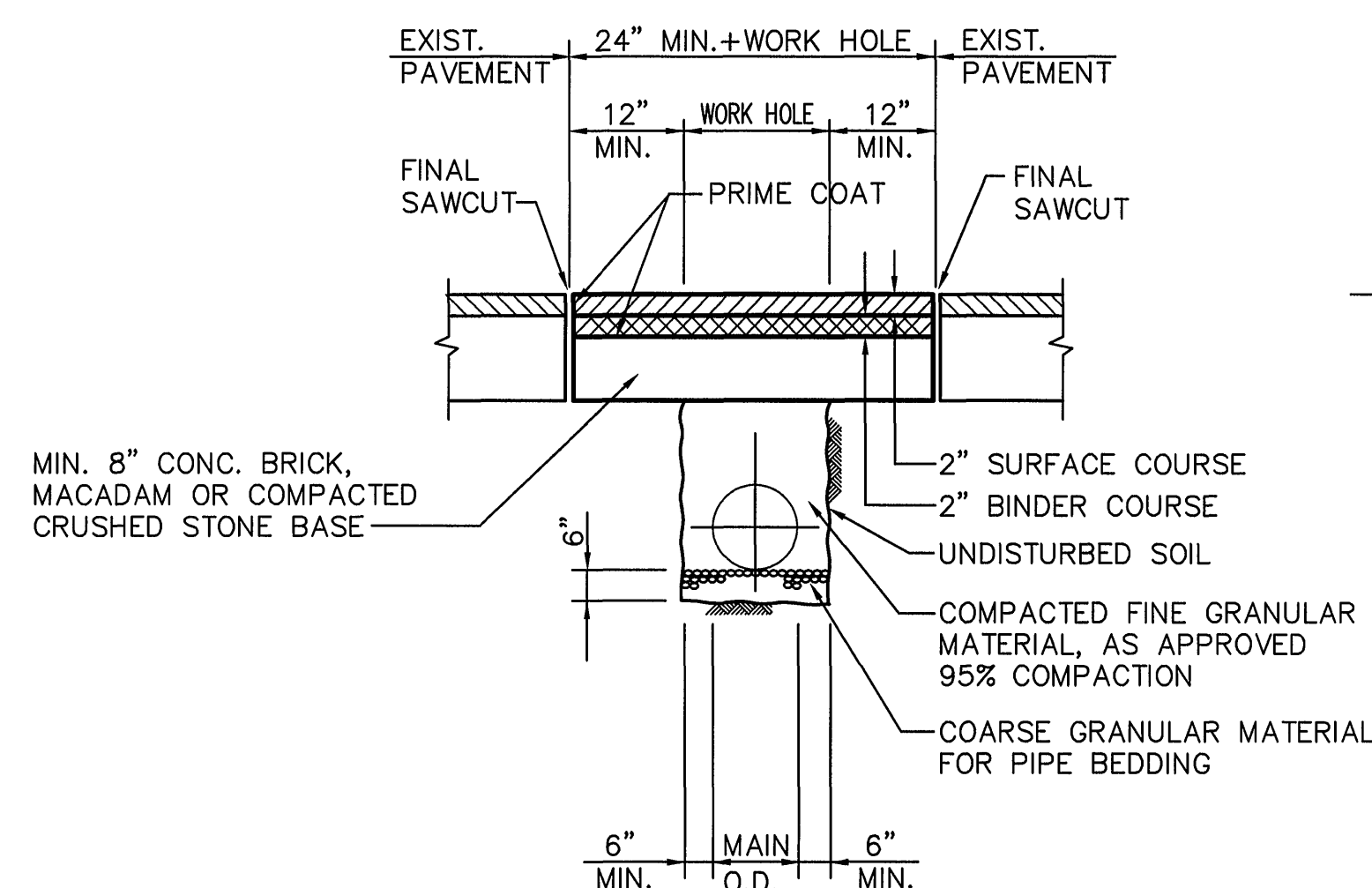
CONCRETE COUNTER-WEIGHT FOR VERTICAL BENDS IN PIPE LINE

PIPE SIZE * VERT. DEFLECTION	16"			24"			36"		
	A	B	C	A	B	C	A	B	C
45°	3'	3'	4'	4'	4'	4'	5'	5'	8'
22 1/2°	3'	3'	3'	4'	4'	3'-6"	5'	5'	6'
11 1/4°	2'	2'	2'	4'	4'	3'	5'	5'	5'

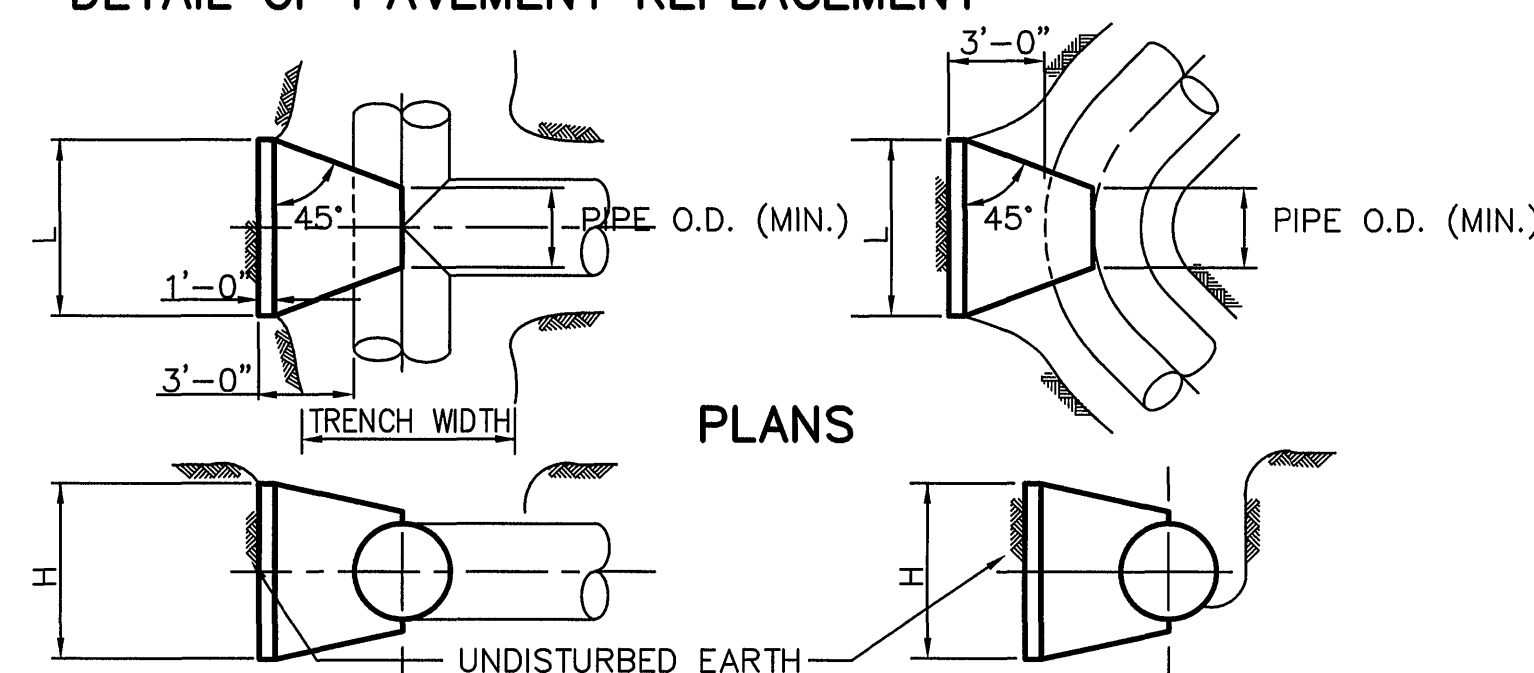
*FOR WASHWATER DISCHARGE AND RAW WATER LINES



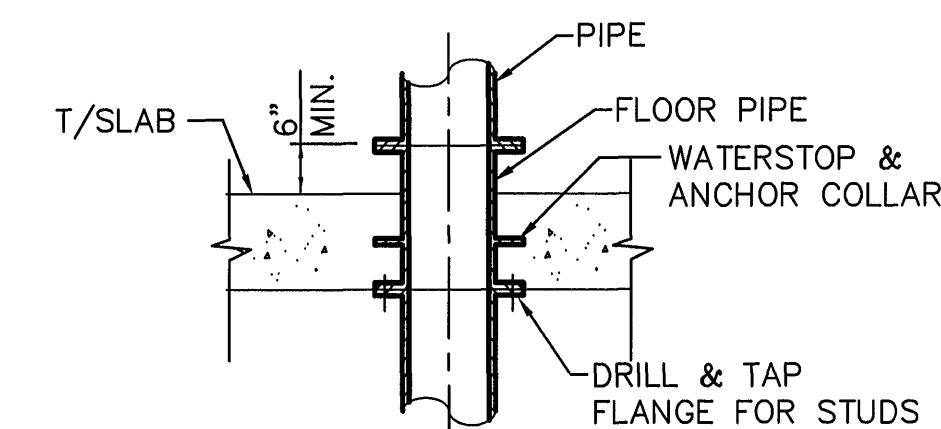
TYPICAL BUTTERFLY VALVE & PIPE SUPPORT



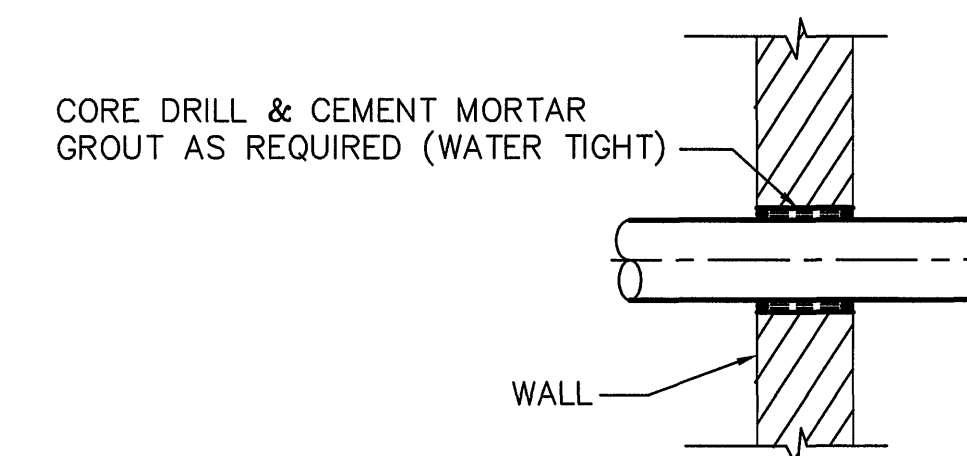
DETAIL OF PAVEMENT REPLACEMENT



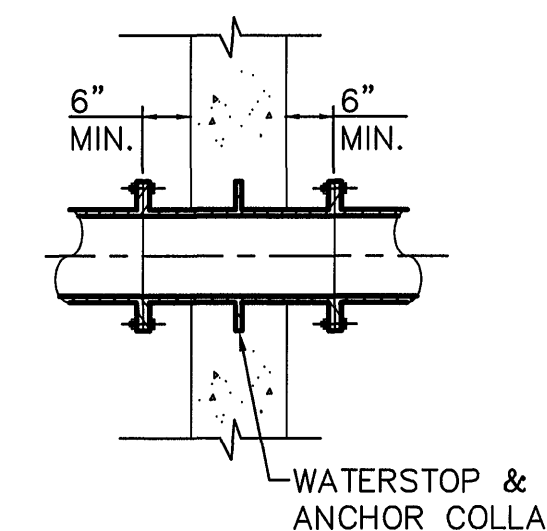
PIPE SIZE * TYPE OF BEND	16"			24"			36"		
	RESTRAINT METHOD	BLOCK	RESTRAINT LENGTH-E.W.	RESTRAINT METHOD	BLOCK	RESTRAINT LENGTH-E.W.	RESTRAINT METHOD	BLOCK	RESTRAINT LENGTH-E.W.
90°		6' 2'	60'		6' 4'	80'		12' 5'	80'
45°		3' 2'	40'		5' 3'	60'		8' 4'	60'
22 1/2°		2' 1.5'	20'		4' 2'	40'		5' 3'	40'
11 1/4°		2' 1.5'	20'		2' 2'	20'		3' 3'	20'
PLUG OR TEE		4' 2'	80'		6' 3'	120'		8' 5'	120'



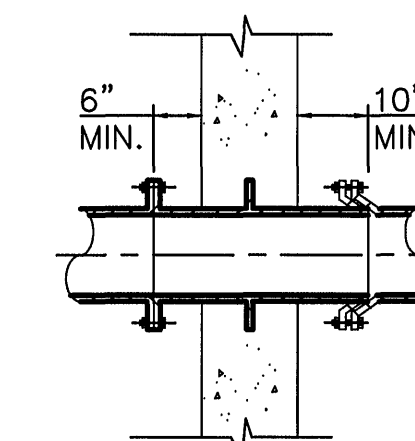
TYPICAL FLOOR PROCESS PIPE DETAIL



TYPICAL INSTALLATION OF PROCESS PIPE THROUGH WALL

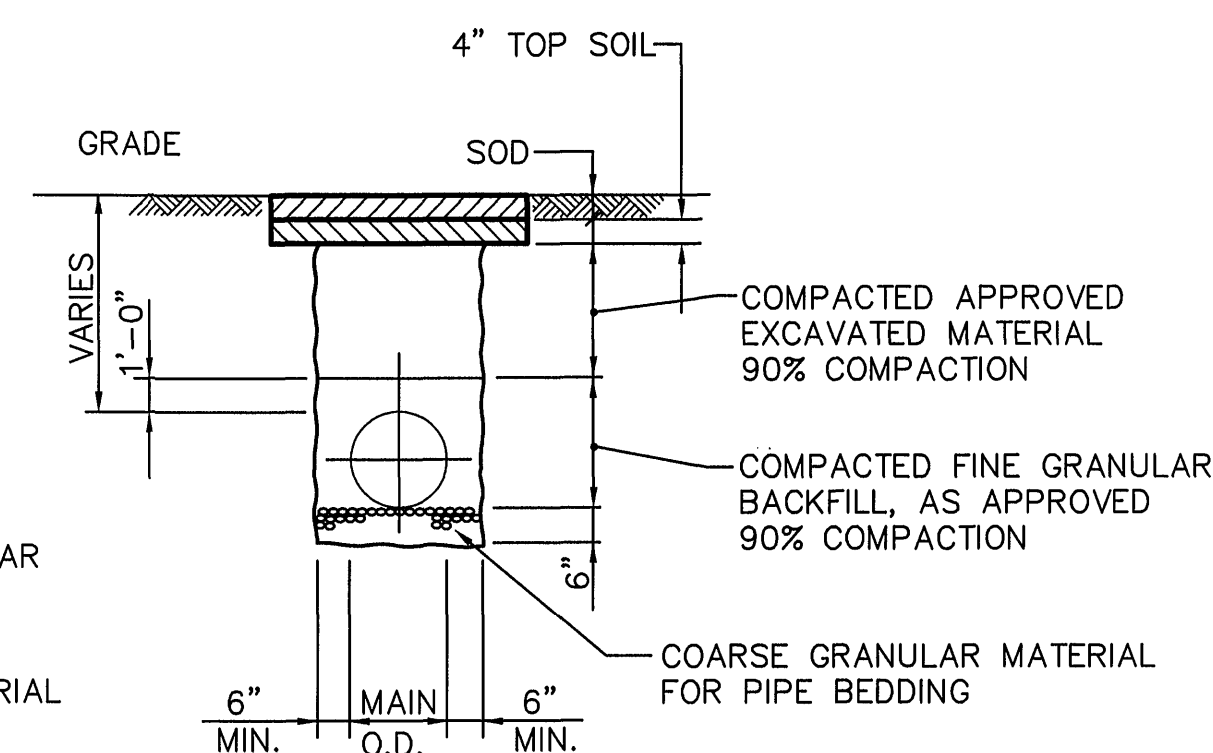


FLANGED JOINT

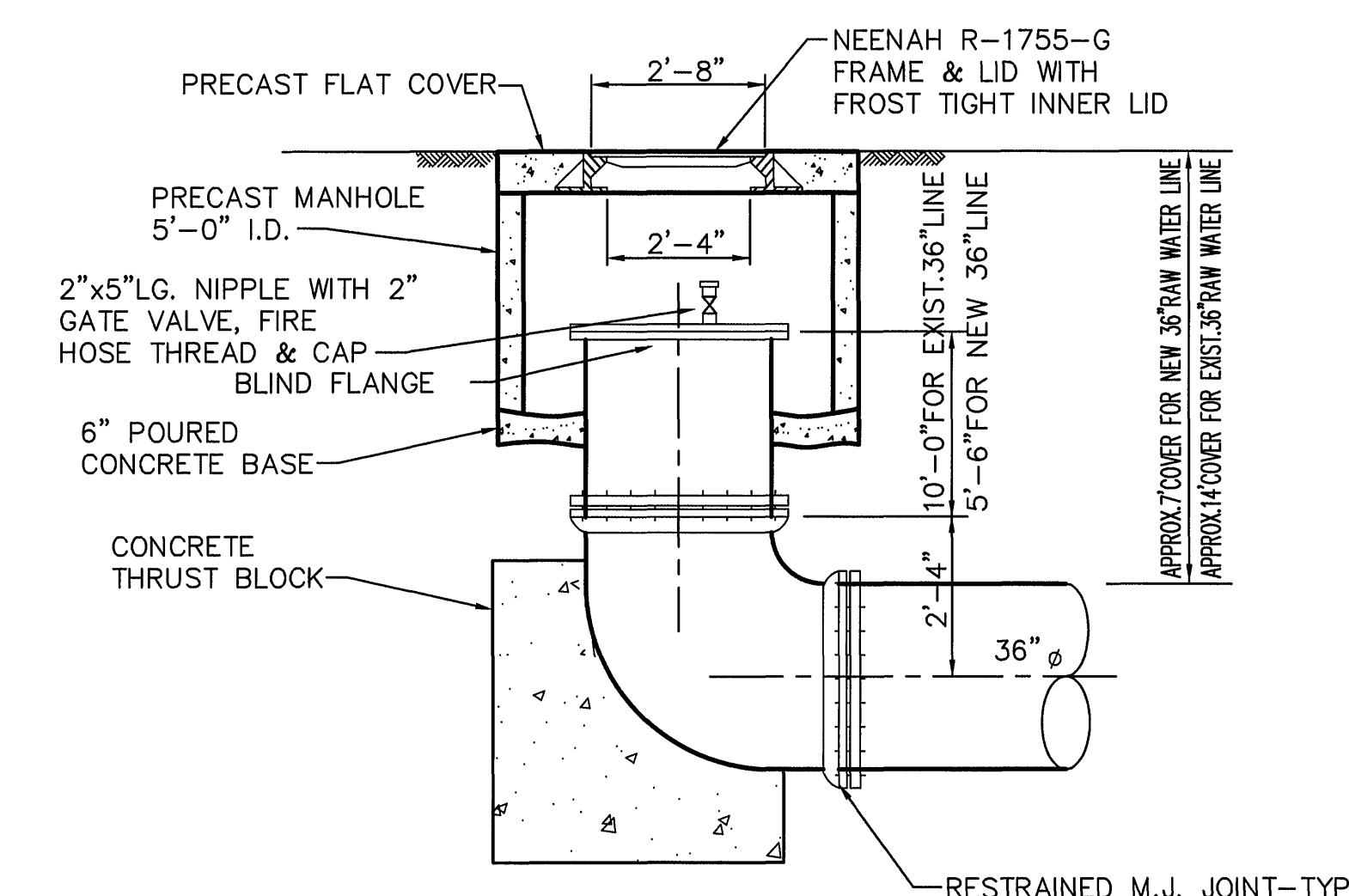


FLANGED & MECHANICAL JOINT

WALL PIPE DETAILS



TYPICAL TRENCH BACKFILL



PIG MANHOLE
SEE DWG. FP3 & EP5 FOR LOCATION

DRAWING OF RECORD
DATE: SEP 30 1997

DRAWING NOT TO SCALE

MATTERN & CRAIG CONSULTING ENGINEERS • SURVEYORS ROANOKE VIRGINIA	DESIGNED:		REV.	DATE	DESCRIPTION	BY	APP.	CARVINS COVE FILTER PLANT IMPROVEMENTS – PHASE I ROANOKE, VIRGINIA	DATE APRIL 1992
	DRAWN: R.T.								COMM. NO. 9130
	CHECKED:								SHEET EP16
ALVORD, BURDICK & HOWSON ENGINEERS CHICAGO			MISCELLANEOUS DETAILS – 1						