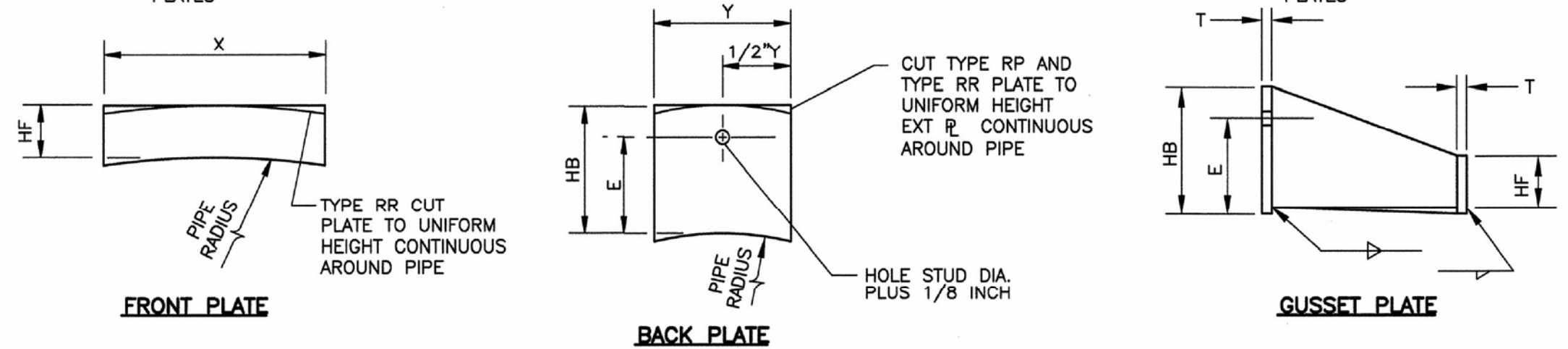
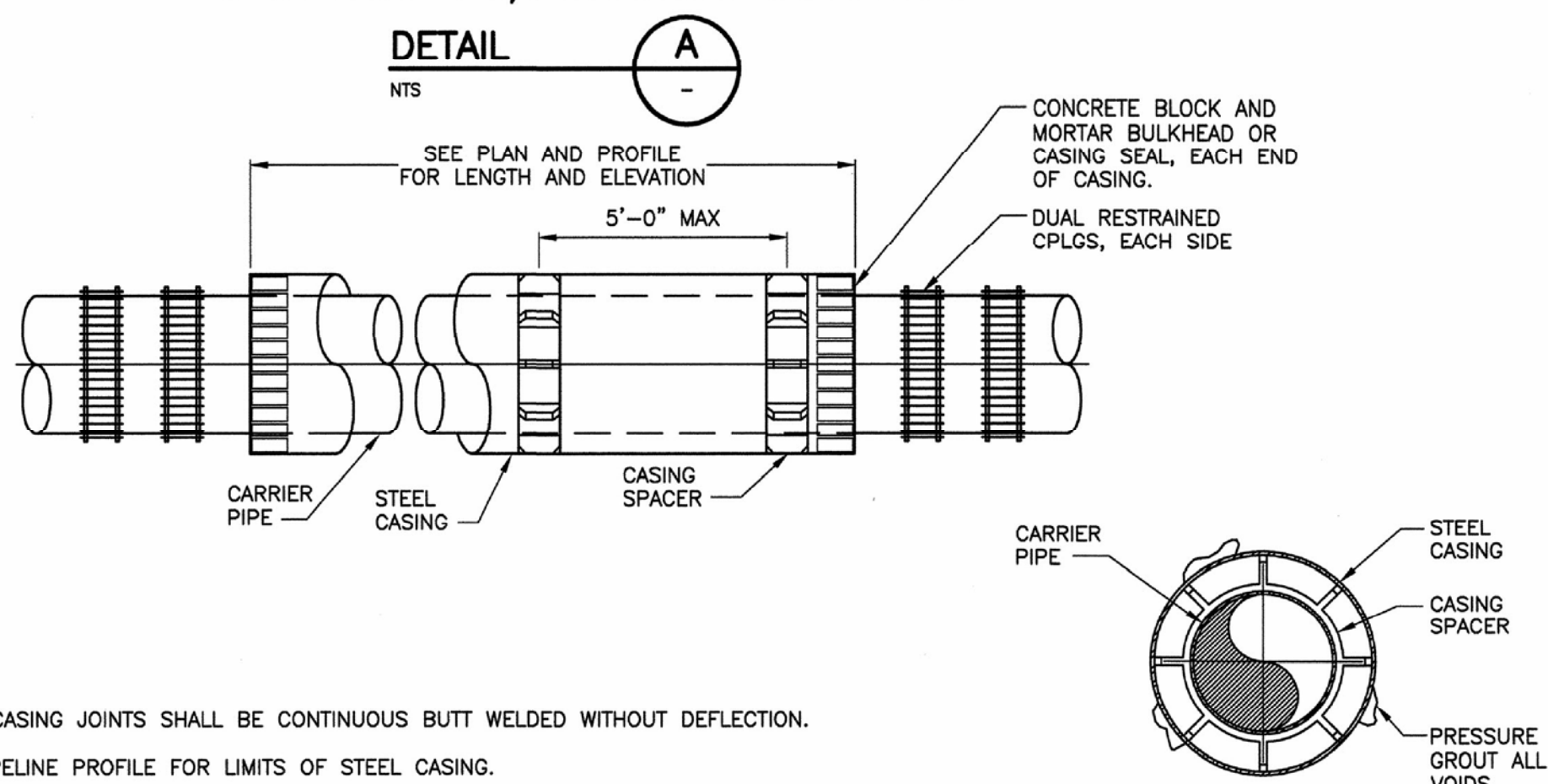


NOTES:

- DIMENSIONS OF JOINT HARNESS TIES, BOLTS, AND LUGS SHALL COMPLY WITH TABLE 13-5, 2004 FOURTH EDITION OF AWWA M-11.
- ALTERNATIVE COUPLING DESIGN SUCH AS DEPEND-O-LOK WILL REQUIRE DESIGN SUBMITTAL BY MANUFACTURER AND ENGINEERING APPROVAL.

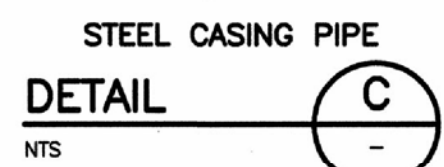


FLEXIBLE COUPLING W/THRUST HARNESS FOR STEEL PIPE

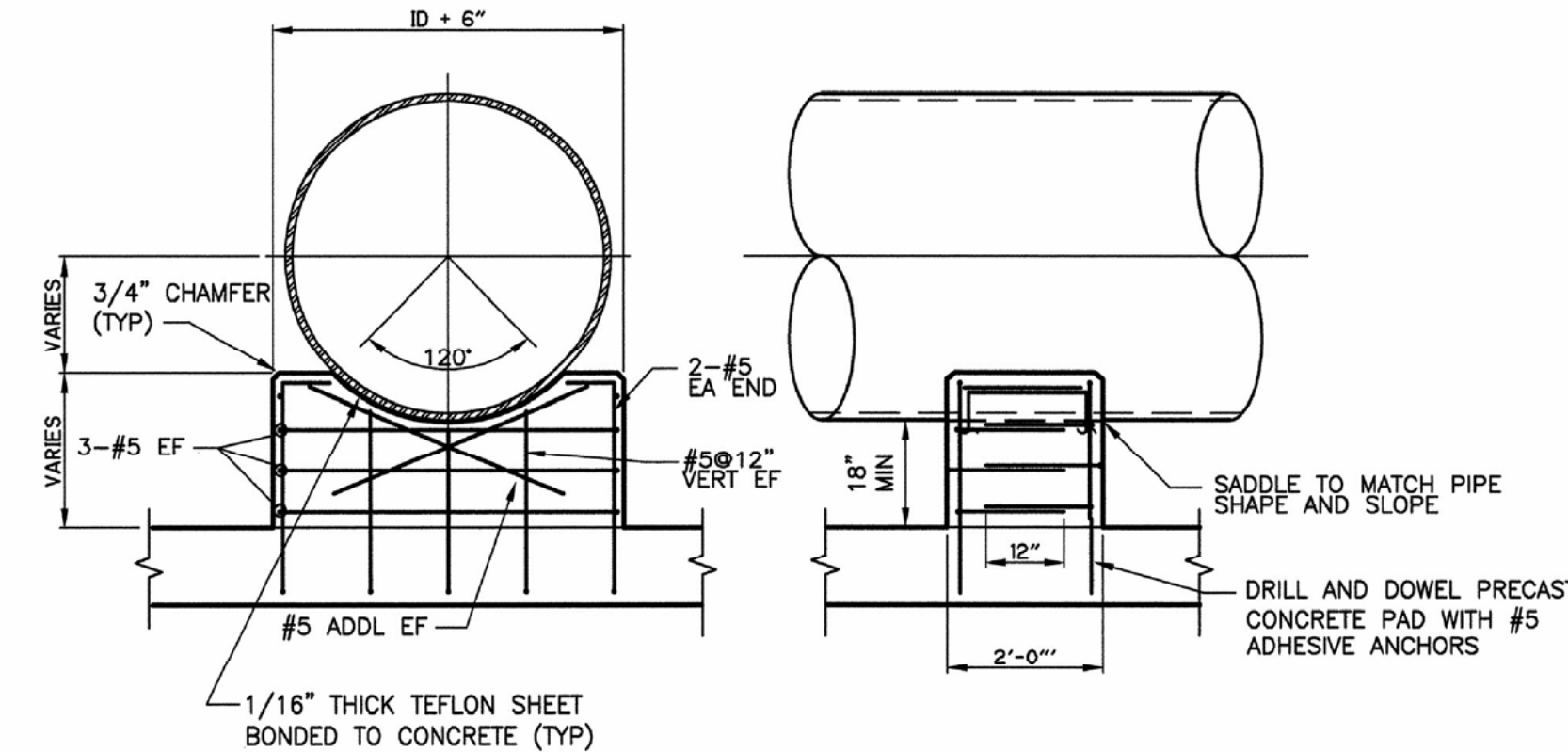


NOTES:

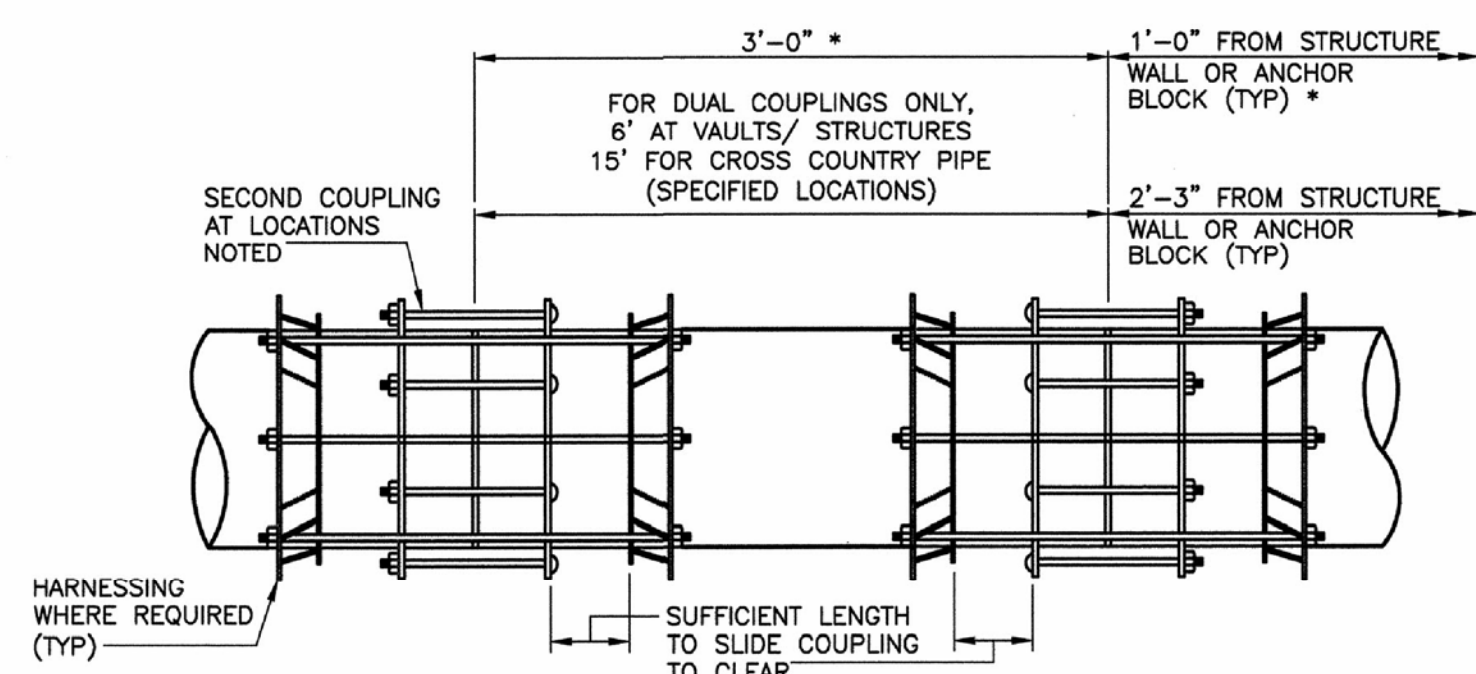
- STEEL CASING JOINTS SHALL BE CONTINUOUS BUTT WELDED WITHOUT DEFLECTION.
- SEE PIPELINE PROFILE FOR LIMITS OF STEEL CASING.
- SEE CONTRACT SPECIFICATIONS FOR OTHER DETAILS.
- VOID SPACES OUTSIDE INITIAL SUPPORT SHALL BE PRESSURE GROUTED PER SPECIFICATIONS.
- NOTICE AS REQUIRED, OF MIN 2 BUSINESS DAYS, SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION FOR INSPECTION OF INITIAL SUPPORT AND CARRIER PIPE INSTALLATION. THE AS-BUILT LOCATION AND GRADE OF INITIAL SUPPORT SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF THE CARRIER PIPE. DEPARTURES FROM PLANNED LOCATION OR GRADE OF THE INITIAL SUPPORT SHALL REQUIRE A FIELD SURVEY FOR CARRIER PIPE REDESIGN, IF FEASIBLE, OR ABANDONMENT IN FAVOR OF A NEW INSTALLATION.
- MAINTAIN ELECTRICAL ISOLATION BETWEEN STEEL CASING AND METALLIC CARRIER PIPELINE.
- SEE CONTRACT SPECIFICATIONS FOR STEEL CASING SIZES AND REQUIREMENTS.
- ANNULAR SPACE BETWEEN THE CARRIER PIPE AND INITIAL SUPPORT FILLED WITH SAND.
- CARRIER PIPE SHALL BE FULLY RESTRAINED.



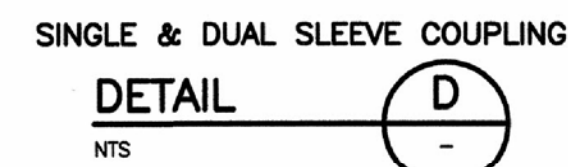
TEST PRESSURE (PSI)	NOMINAL PIPE DIA (IN)	HORIZONTAL OR VERTICAL UP BEND ANGLE (DEG)									VERTICAL DOWN BEND ANGLE (DEG)				DEAD END	NOMINAL REDUCER (IN)	
		10	20	30	40	50	60	70	80	90	10	20	30	40			
120	12	2	4	5	7	9	12	14	17	20	6	13	19	26	72	16x12	45
	14	2	4	6	8	11	13	16	19	23	7	14	22	30	82	24x12	119
	16	2	5	7	9	12	15	18	22	26	8	16	25	34	93	24x16	85
	24	3	6	10	13	17	21	25	30	36	12	23	36	48	133	30x24	65
	30	4	8	12	16	20	25	30	36	43	14	28	43	58	161	36x30	65
	36	4	9	13	18	23	29	35	42	50	16	33	50	68	188	42x36	63
	42	5	10	15	20	26	32	39	47	56	19	38	57	77	213	48x36	123
	48	5	11	17	23	29	36	43	52	62	21	42	64	86	237	60x48	104
	54	6	12	18	25	32	39	47	57	68	23	46	70	95	262	66x60	56
	60	6	13	19	26	33	41	50	60	71	24	49	74	100	276	-	-
	66	7	13	20	28	36	44	53	64	76	27	54	82	112	306	-	-



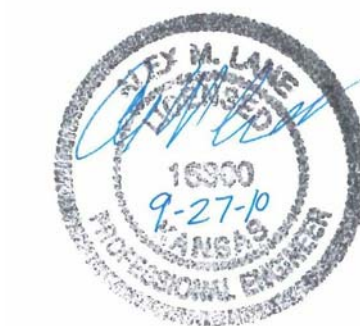
CONCRETE PIPE SADDLE



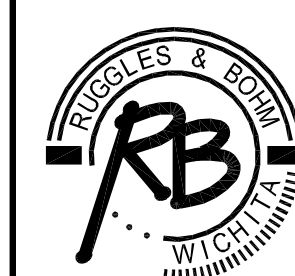
NOTE:
* DIMENSIONS REQUIREMENTS FOR ALTERNATE COUPLINGS, SUCH AS DEPEND-O-LOK.



STANDARD DETAILS SHOWN ON THIS SHEET SHALL BE USED AT ALL APPLICABLE LOCATIONS, UNLESS OTHERWISE NOTED. ALL STANDARD DETAILS SHOWN MAY NOT BE REQUIRED FOR THIS PROJECT.



**BENTLEY TIE IN
STANDARD DETAILS
WICHITA, KANSAS**



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DESIGN AML
DRAWN AML
REVIEW
UTILITY
DATE June 28, 2010
PROJECT NUMBER W-549
SHEET 3 OF 23