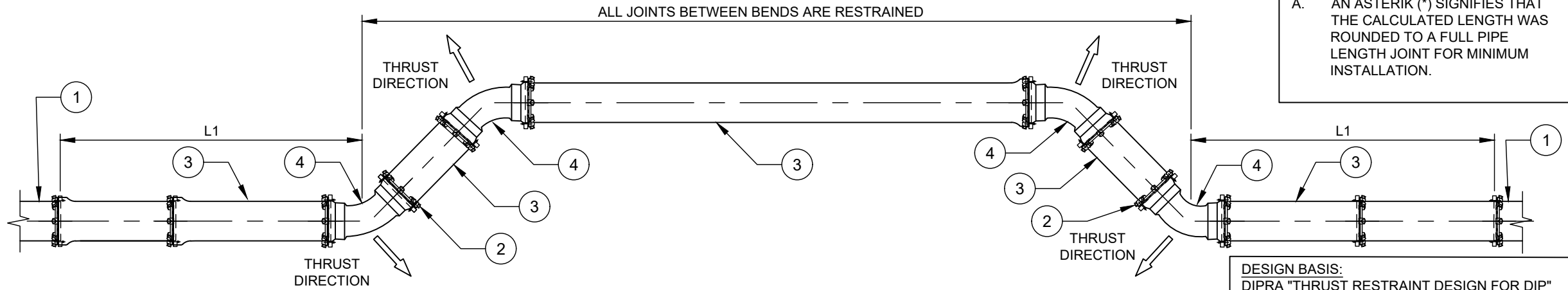


COMBINED VERTICAL OFFSET (OVER OBJECT) - L1 (FEET)							
DIP	BEND ANGLE	DIAMETER					
		6"	8"	10"	12"	16"	20"
	45	90	116	140	163	162	189
	22.5	54*	56	67	78	78	91
	11.25	36*	36*	36*	54*	54*	54*

COMBINED VERTICAL OFFSET (OVER OBJECT) - L1 (FEET)							
POLYWRAPPED DIP/PVC	BEND ANGLE	DIAMETER					
		6"	8"	10"	12"	16"	20"
	45	112	144	173	201	200	241
	22.5	54*	69	83	97	96	116
	11.25	36*	36*	54*	54*	48	55

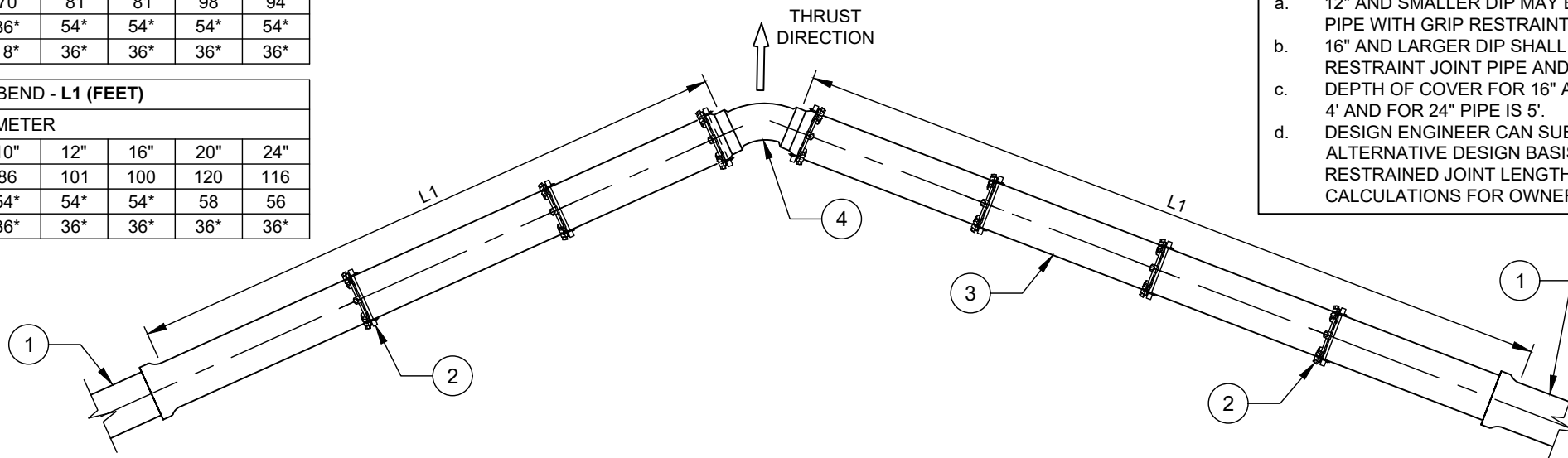
- NO. DESCRIPTION:
1. SLIP JOINT PIPE.
 2. RESTRAINED JOINT.
 3. RESTRAINED JOINT PIPE.
 4. RESTRAINED JOINT BEND.

NOTE:
A. AN ASTERIK (*) SIGNIFIES THAT THE CALCULATED LENGTH WAS ROUNDED TO A FULL PIPE LENGTH JOINT FOR MINIMUM INSTALLATION.



HORIZONTAL BEND - L1 (FEET)							
DIP	BEND ANGLE	DIAMETER					
		6"	8"	10"	12"	16"	20"
	45	54*	58	70	81	81	98
	22.5	36*	36*	36*	54*	54*	54*
	11.25	18*	18*	18*	36*	36*	36*

HORIZONTAL BEND - L1 (FEET)							
POLYWRAPPED DIP/PVC	BEND ANGLE	DIAMETER					
		6"	8"	10"	12"	16"	20"
	45	56	72	86	101	100	120
	22.5	36*	36*	54*	54*	54*	58
	11.25	18*	18*	36*	36*	36*	36*



DESIGN BASIS:
DIPRA "THRUST RESTRAINT DESIGN FOR DIP"
LAYING CONDITION: TYPE 2
SOIL DESIGNATION: SILT 1
DEPTH OF COVER: 3' MINIMUM (SEE NOTE c)
DESIGN PRESSURE: 200 PSI
SAFETY FACTOR: 2.0

NOTES:
a. 12" AND SMALLER DIP MAY BE SLIP JOINT PIPE WITH GRIP RESTRAINT GASKETS.
b. 16" AND LARGER DIP SHALL BE FACTORY RESTRAINT JOINT PIPE AND FITTINGS.
c. DEPTH OF COVER FOR 16" AND 20" PIPE IS 4' AND FOR 24" PIPE IS 5'.
d. DESIGN ENGINEER CAN SUBMIT ALTERNATIVE DESIGN BASIS FOR RESTRAINED JOINT LENGTH CALCULATIONS FOR OWNER REVIEW.