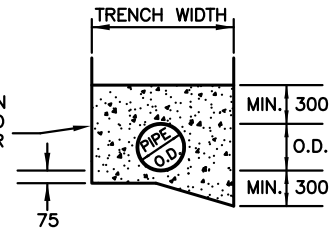


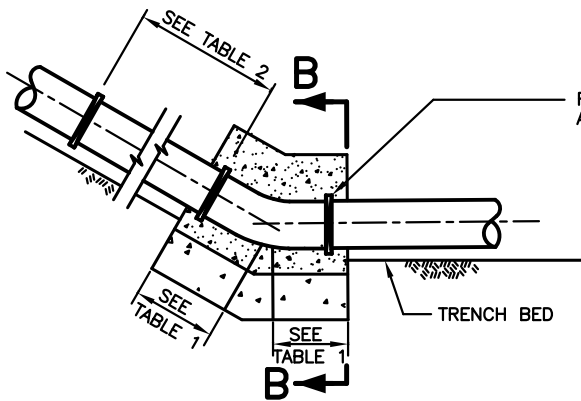
RESTRAINED JOINT DETAIL
AS PER S-200.060

19 mm CRUSHER RUN
LIMESTONE COMPACTED
TO 98 % OF PROCTOR
DENSITY.



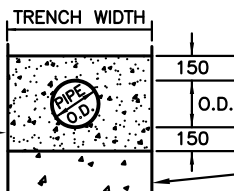
SECTION A-A

HORIZONTAL DEFLECTION



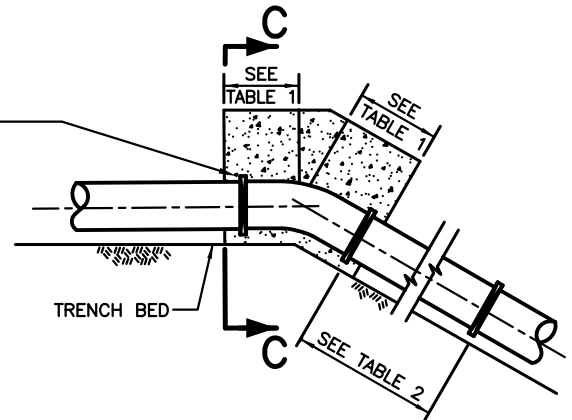
RESTRAINED JOINT DETAIL
AS PER S-200.060

19 mm CRUSHER RUN
LIMESTONE COMPACTED
TO 98 % OF PROCTOR
DENSITY

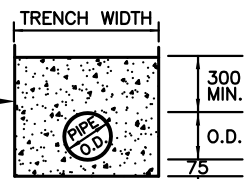


SECTION B-B
DOWNWARD THRUST

CLEAR STONE FOUNDATION
AS REQUIRED
SEE NOTE 3



19 mm CRUSHER RUN
LIMESTONE COMPACTED
TO 98 % OF
PROCTOR DENSITY



SECTION C-C
UPWARD THRUST

VERTICAL DEFLECTION

NOTES

- ALL JOINTS ENCOUNTERED WITHIN THE SPECIFIED RESTRAINING LENGTH "L" SHALL BE RESTRAINED ON EACH SIDE OF THE FITTING.
- GRANULAR THRUST BLOCKS SHALL BE FULLY EXTENDED AND COMPACTED AGAINST TRENCH WALLS.
- IF THE BEARING CAPACITY OF TRENCH BED RESISTING DOWNWARD THRUST IS LESS THAN 100 KN/m², CLEAR STONE FOUNDATION SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
- WHEN FITTINGS ARE PARTIALLY OR FULLY EXPOSED UNDER PRESSURE, ALL JOINTS MUST BE RESTRAINED.
- ALL FITTING JOINTS SHALL BE RESTRAINED IN EARTH FILL APPLICATIONS. JOINT RESTRAINTS ARE NOT REQUIRED FOR STRAIGHT RUNS IN ENGINEERED FILL APPLICATIONS.
- CATHODIC PROTECTION, BONDING CABLE AND TRACER WIRE SHALL BE AS PER S-201.030, S-201.031.

TABLE NO. 1

DEFL. ANGLE	MINIMUM DIMENSION FOR GRANULAR THRUST BLOCKS			
	PIPE DIAMETER (mm)			
	100&150	200	300	400
11.25°	400	500	600	700
22.5°	400	500	600	700
45°	450	550	650	750
90°	600	700	850	950

TABLE NO. 2

PIPE DIA. (mm)	"L" MINIMUM RESTRAINING LENGTH (m) * ON EACH SIDE OF FITTING									
	VERTICAL DEFLECTION						HORIZONTAL DEFLECTION			
	DOWNWARD THRUST			UPWARD THRUST						
	11.25°	22.5°	45°	11.25°	22.5°	45°	11.25°	22.5°	45°	90°
100&150	1.5	2.8	4.9	4.9	7.5	10.1	1.5	2.8	4.9	8.1
200	2.0	3.7	6.3	6.3	9.6	13.1	2.0	3.7	6.3	10.5
300	2.8	5.2	9.0	8.8	13.4	18.3	2.8	5.2	9.0	14.9
400	3.6	6.7	11.6	11.2	17.2	23.7	3.6	6.7	11.6	19.3

ALL DIMENSIONS IN MILLIMETRES EXCEPT WHERE NOTED



WORKS DEPARTMENT

JOINT RESTRAINING LENGTH

(IN COMBINATION WITH GRANULAR THRUST BLOCK)

DWG. DATE: 1991 11
REVISION NO.: 7
REV. DATE: 2018 05
SCALE: N.T.S.

S-200.050