

TABLE 16 DESIGN LOAD CALCULATION FOR DN 900mmES

DATA: Crushing strength = 95 kN/m; Unit weight of backfill = 19.6 kN/m³; Ext. dia. = 1050mm
 Ku' = 0.13; Ku = 0.19; r_{sd}p = 0.5; Traffic load = 112.5 kN; Factor of Safety = 1.25

Trench cover m	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor
0.6	147.69	1.94	147.69	1.94	147.69	1.94	147.69	1.94
0.7	132.93	1.75	132.93	1.75	132.93	1.75	132.93	1.75
0.8	123.41	1.62	123.41	1.62	123.41	1.62	123.41	1.62
0.9	95.51	1.26	95.53	1.26	95.53	1.26	95.53	1.26
1.0	111.32	1.46	111.74	1.47	111.74	1.47	111.74	1.47
1.1	107.56	1.42	108.42	1.43	108.42	1.43	108.42	1.43
1.2	104.81	1.38	106.15	1.40	106.15	1.40	106.15	1.40
1.3	102.96	1.35	104.83	1.38	104.83	1.38	104.83	1.38
1.4	101.70	1.34	104.14	1.37	104.14	1.37	104.14	1.37
1.5	100.82	1.33	103.73	1.36	103.86	1.37	103.86	1.37
1.6	100.31	1.32	103.42	1.36	104.01	1.37	104.01	1.37
1.7	100.09	1.32	103.38	1.36	104.47	1.37	104.47	1.37
1.8	100.14	1.32	103.62	1.36	105.25	1.38	105.25	1.38
1.9	100.25	1.32	103.93	1.37	106.13	1.40	106.13	1.40
2.0	100.54	1.32	104.41	1.37	107.22	1.41	107.22	1.41
2.1	101.01	1.33	105.06	1.38	108.52	1.43	108.52	1.43
2.2	101.43	1.33	105.67	1.39	109.83	1.45	109.83	1.45
2.3	102.03	1.34	106.46	1.40	110.89	1.46	111.34	1.46
2.4	102.60	1.35	107.21	1.41	111.83	1.47	112.85	1.48
2.5	103.29	1.36	108.08	1.42	112.89	1.49	114.52	1.51
2.6	103.94	1.37	108.92	1.43	113.91	1.50	116.19	1.53
2.7	104.72	1.38	109.88	1.45	115.06	1.51	118.02	1.55
2.8	105.47	1.39	110.81	1.46	116.17	1.53	119.84	1.58
2.9	106.34	1.40	111.86	1.47	117.40	1.54	121.83	1.60
3.0	107.18	1.41	112.88	1.49	118.61	1.56	123.81	1.63
3.1	108.04	1.42	113.92	1.50	119.83	1.58	125.75	1.65
3.2	108.87	1.43	114.93	1.51	121.01	1.59	127.12	1.67
3.3	109.77	1.44	116.01	1.53	122.28	1.61	128.56	1.69
3.4	110.65	1.46	117.06	1.54	123.51	1.63	129.97	1.71
3.5	111.60	1.47	118.19	1.56	124.81	1.64	131.45	1.73
3.6	112.52	1.48	119.29	1.57	126.08	1.66	132.90	1.75
3.7	113.46	1.49	120.40	1.58	127.38	1.68	134.37	1.77
3.8	114.38	1.50	121.49	1.60	128.64	1.69	135.82	1.79
3.9	115.37	1.52	122.66	1.61	129.98	1.71	137.33	1.81
4.0	116.34	1.53	123.80	1.63	131.29	1.73	138.82	1.83
4.1	117.49	1.55	125.12	1.65	132.79	1.75	140.49	1.85
4.2	118.64	1.56	126.44	1.66	134.27	1.77	142.15	1.87
4.3	119.78	1.58	127.74	1.68	135.75	1.79	143.80	1.89
4.4	120.92	1.59	129.05	1.70	137.22	1.81	145.44	1.91
4.5	121.16	1.59	129.45	1.70	137.80	1.81	146.19	1.92
4.6	122.30	1.61	130.76	1.72	139.27	1.83	147.83	1.95
4.7	123.44	1.62	132.06	1.74	140.74	1.85	149.46	1.97
4.8	124.56	1.64	133.35	1.75	142.19	1.87	151.08	1.99
4.9	125.67	1.65	134.62	1.77	143.62	1.89	152.68	2.01
5.0	125.99	1.66	135.10	1.78	144.27	1.90	153.49	2.02
5.1	127.10	1.67	136.36	1.79	145.70	1.92	155.09	2.04
Trench width,m	1.6		1.7		1.8		1.9	

Narrow trench load

Wide trench load

DESIGN LOAD CALCULATION FOR DN 900mmES

Trench cover m	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor
5.2	128.20	1.69	137.62	1.81	147.11	1.94	156.66	2.06
5.3	129.28	1.70	138.86	1.83	148.51	1.95	158.23	2.08
5.4	130.34	1.72	140.08	1.84	149.89	1.97	159.77	2.10
5.5	130.68	1.72	140.57	1.85	150.54	1.98	160.58	2.11
5.6	131.74	1.73	141.78	1.87	151.91	2.00	162.11	2.13
5.7	132.79	1.75	142.98	1.88	153.26	2.02	163.62	2.15
5.8	133.82	1.76	144.16	1.90	154.60	2.03	165.11	2.17
5.9	134.84	1.77	145.34	1.91	155.92	2.05	166.60	2.19
6.0	135.29	1.78	145.93	1.92	156.67	2.06	167.50	2.20
6.1	136.20	1.79	146.99	1.93	157.88	2.08	168.87	2.22
6.2	137.09	1.80	148.03	1.95	159.07	2.09	170.21	2.24
6.3	137.96	1.82	149.05	1.96	160.24	2.11	171.53	2.26
6.4	138.82	1.83	150.05	1.97	161.39	2.12	172.83	2.27
6.5	139.66	1.84	151.03	1.99	162.51	2.14	174.11	2.29
6.6	140.52	1.85	152.03	2.00	163.66	2.15	175.41	2.31
6.7	141.36	1.86	153.01	2.01	164.79	2.17	176.69	2.32
6.8	142.20	1.87	153.99	2.03	165.91	2.18	177.95	2.34
6.9	143.01	1.88	154.94	2.04	167.01	2.20	179.19	2.36
7.0	143.80	1.89	155.87	2.05	168.08	2.21	180.41	2.37
7.1	144.61	1.90	156.81	2.06	169.16	2.23	181.64	2.39
7.2	145.44	1.91	157.78	2.08	170.27	2.24	182.89	2.41
7.3	146.24	1.92	158.71	2.09	171.34	2.25	184.11	2.42
7.4	147.02	1.93	159.63	2.10	172.39	2.27	185.30	2.44
7.5	147.79	1.94	160.53	2.11	173.43	2.28	186.48	2.45
7.6	148.53	1.95	161.40	2.12	174.44	2.30	187.62	2.47
7.7	149.27	1.96	162.26	2.14	175.44	2.31	188.76	2.48
7.8	149.99	1.97	163.12	2.15	176.42	2.32	189.88	2.50
7.9	150.70	1.98	163.95	2.16	177.39	2.33	190.99	2.51
8.0	151.39	1.99	164.77	2.17	178.34	2.35	192.07	2.53
8.1	152.11	2.00	165.62	2.18	179.32	2.36	193.19	2.54
8.2	152.83	2.01	166.46	2.19	180.29	2.37	194.29	2.56
8.3	153.53	2.02	167.28	2.20	181.23	2.38	195.37	2.57
8.4	154.22	2.03	168.09	2.21	182.17	2.40	196.44	2.58
8.5	154.89	2.04	168.88	2.22	183.09	2.41	197.49	2.60
8.6	155.54	2.05	169.65	2.23	183.99	2.42	198.52	2.61
8.7	156.20	2.06	170.43	2.24	184.88	2.43	199.54	2.63
8.8	156.83	2.06	171.17	2.25	185.75	2.44	200.54	2.64
8.9	157.46	2.07	171.92	2.26	186.62	2.46	201.53	2.65
9.0	158.06	2.08	172.64	2.27	187.46	2.47	202.50	2.66
9.1	158.69	2.09	173.38	2.28	188.32	2.48	203.49	2.68
9.2	159.31	2.10	174.12	2.29	189.18	2.49	204.47	2.69
9.3	159.92	2.10	174.84	2.30	190.01	2.50	205.42	2.70
9.4	160.52	2.11	175.55	2.31	190.84	2.51	206.38	2.72
9.5	161.10	2.12	176.24	2.32	191.65	2.52	207.30	2.73
9.6	161.67	2.13	176.92	2.33	192.44	2.53	208.22	2.74
9.7	162.24	2.13	177.60	2.34	193.24	2.54	209.13	2.75
9.8	162.79	2.14	178.25	2.35	194.00	2.55	210.01	2.76
9.9	163.34	2.15	178.91	2.35	194.77	2.56	210.90	2.77
10.0	163.86	2.16	179.54	2.36	195.51	2.57	211.76	2.79
Trench width,m	1.6		1.7		1.8		1.9	

Narrow trench load

Wide trench load