

**Comparison of
ASTM C-76 Class Pipe
To
ASTM C-655 D-Load Pipe**

<u>D-Load Range</u>	<u>Class</u>
1 D to 800 D	Class 1
801 D to 1,000 D	Class 2
1,001 D to 1,350 D	Class 3
1,351 D to 2,000 D	Class 4
2,000 D to 3,000 D	Class 5
Above 3,000 D	No Equal Class Pipe



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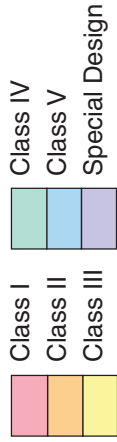
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16.2.2

FILL HEIGHT TABLE
TYPE 2 BEDDING: 1' - 14' FILL HEIGHT

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition -
this gives conservative results in comparison to trench conditions

D-Load (lb/ft/ft) for Type 2 Bedding



Pipe Size (in)	Fill Height in Feet													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12	1492	1322	880	727	694	705	741	788	704	781	858	934	1011	1087
15	1434	1272	851	707	676	688	724	771	691	843	841	915	990	1065
18	1358	1240	834	697	668	680	717	763	688	837	835	909	983	1056
21	1220	1218	824	692	665	678	715	762	689	839	836	909	983	1056
24	1202	1203	818	690	665	680	717	764	694	844	841	915	988	1062
27	1344	1205	819	694	668	684	721	768	696	846	842	915	989	1062
30	1471	1213	823	701	674	690	727	773	699	850	845	919	992	1065
33	1347	1168	805	693	669	688	727	773	704	855	850	923	996	1069
36	1244	1137	789	687	665	687	728	775	710	861	856	929	1003	1076
42	1084	1059	759	673	659	685	726	773	715	867	861	933	1006	1079
48	966	935	732	663	655	684	726	774	722	874	867	940	1013	1085
54	923	899	712	655	654	685	728	777	731	884	876	948	1021	1094
60	948	875	696	650	654	688	731	781	740	894	885	958	1031	1103
66	906	855	687	646	655	691	736	787	750	906	896	969	1041	1114
72	850	837	679	643	658	696	741	793	761	918	907	980	1053	1126
78	802	820	672	642	660	697	744	796	768	925	913	986	1059	1131
84	763	805	665	641	661	700	747	799	775	932	920	993	1065	1138
90	730	791	660	641	664	703	750	803	863	940	927	999	1072	1144
96	703	756	655	642	666	706	754	807	867	948	934	1006	1078	1151
102	679	734	662	649	674	714	761	814	875	1019	941	1013	1086	1158
108	660	723	668	657	681	721	769	822	882	1027	949	1021	1093	1165
114	643	729	675	665	689	729	776	830	890	1036	1016	1028	1100	1172
120	629	734	682	670	697	737	784	837	898	1044	1024	1036	1108	1180
126	617	740	689	678	705	744	792	845	905	1053	1032	1097	1115	1187
132	607	745	691	686	712	752	800	853	913	1061	1039	1105	1171	1195
138	599	751	686	694	720	760	808	861	921	1070	1047	1112	1178	1203
144	592	757	692	701	728	768	816	869	929	1079	1055	1120	1186	1253



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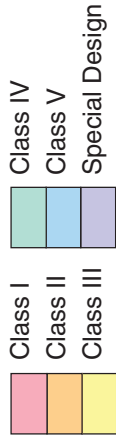
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FILL HEIGHT TABLE
TYPE 2 BEDDING: 15' - 28' FILL HEIGHT

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition - this gives conservative results in comparison to trench conditions

D-Load (lb/ft/ft) for Type 2 Bedding



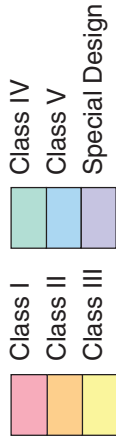
Pipe Size (in)	Fill Height in Feet																											
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	15	16	17	18	19	20	21	22	23	24	25	26	27	28
12	1164	1240	1317	1393	1470	1547	1623	1700	1776	1853	1929	2006	2083	2159	1164	1240	1317	1393	1470	1547	1623	1700	1776	1853	1929	2006	2083	2159
15	1139	1214	1289	1363	1438	1513	1587	1662	1737	1811	1886	1961	2035	2110	1139	1214	1289	1363	1438	1513	1587	1662	1737	1811	1886	1961	2035	2110
18	1130	1204	1278	1351	1425	1499	1573	1647	1720	1794	1868	1942	2015	2089	1130	1204	1278	1351	1425	1499	1573	1647	1720	1794	1868	1942	2015	2089
21	1130	1203	1277	1350	1424	1497	1570	1644	1717	1791	1864	1938	2011	2085	1130	1203	1277	1350	1424	1497	1570	1644	1717	1791	1864	1938	2011	2085
24	1135	1209	1282	1356	1429	1503	1576	1650	1723	1797	1870	1944	2017	2091	1135	1209	1282	1356	1429	1503	1576	1650	1723	1797	1870	1944	2017	2091
27	1135	1208	1282	1355	1428	1501	1574	1648	1721	1794	1867	1940	2014	2087	1135	1208	1282	1355	1428	1501	1574	1648	1721	1794	1867	1940	2014	2087
30	1138	1211	1284	1357	1430	1503	1576	1649	1722	1796	1869	1942	2015	2088	1138	1211	1284	1357	1430	1503	1576	1649	1722	1796	1869	1942	2015	2088
33	1143	1216	1289	1362	1435	1508	1581	1654	1727	1800	1874	1947	2020	2093	1143	1216	1289	1362	1435	1508	1581	1654	1727	1800	1874	1947	2020	2093
36	1149	1222	1295	1369	1442	1515	1588	1662	1735	1808	1881	1954	2028	2101	1149	1222	1295	1369	1442	1515	1588	1662	1735	1808	1881	1954	2028	2101
42	1152	1225	1298	1370	1443	1516	1589	1662	1735	1807	1880	1953	2026	2099	1152	1225	1298	1370	1443	1516	1589	1662	1735	1807	1880	1953	2026	2099
48	1158	1231	1303	1376	1449	1521	1594	1667	1739	1812	1885	1957	2030	2102	1158	1231	1303	1376	1449	1521	1594	1667	1739	1812	1885	1957	2030	2102
54	1166	1239	1311	1384	1457	1529	1602	1674	1747	1820	1892	1965	2037	2110	1166	1239	1311	1384	1457	1529	1602	1674	1747	1820	1892	1965	2037	2110
60	1176	1249	1321	1394	1467	1539	1612	1684	1757	1830	1902	1975	2048	2120	1176	1249	1321	1394	1467	1539	1612	1684	1757	1830	1902	1975	2048	2120
66	1187	1260	1332	1405	1478	1551	1623	1696	1769	1842	1914	1987	2060	2133	1187	1260	1332	1405	1478	1551	1623	1696	1769	1842	1914	1987	2060	2133
72	1199	1272	1345	1418	1490	1563	1636	1709	1782	1855	1928	2001	2074	2147	1199	1272	1345	1418	1490	1563	1636	1709	1782	1855	1928	2001	2074	2147
78	1204	1277	1350	1422	1495	1568	1640	1713	1786	1858	1931	2004	2076	2149	1204	1277	1350	1422	1495	1568	1640	1713	1786	1858	1931	2004	2076	2149
84	1210	1283	1355	1428	1500	1573	1645	1718	1790	1863	1935	2008	2080	2153	1210	1283	1355	1428	1500	1573	1645	1718	1790	1863	1935	2008	2080	2153
90	1216	1289	1361	1433	1506	1578	1650	1723	1795	1867	1940	2012	2084	2157	1216	1289	1361	1433	1506	1578	1650	1723	1795	1867	1940	2012	2084	2157
96	1223	1295	1367	1439	1512	1584	1656	1728	1800	1873	1945	2017	2089	2161	1223	1295	1367	1439	1512	1584	1656	1728	1800	1873	1945	2017	2089	2161
102	1230	1302	1374	1446	1518	1590	1662	1734	1806	1878	1950	2022	2094	2166	1230	1302	1374	1446	1518	1590	1662	1734	1806	1878	1950	2022	2094	2166
108	1237	1309	1381	1453	1524	1596	1668	1740	1812	1884	1956	2028	2100	2172	1237	1309	1381	1453	1524	1596	1668	1740	1812	1884	1956	2028	2100	2172
114	1244	1316	1388	1459	1531	1603	1675	1747	1819	1890	1962	2034	2106	2178	1244	1316	1388	1459	1531	1603	1675	1747	1819	1890	1962	2034	2106	2178
120	1251	1323	1395	1467	1538	1610	1682	1754	1825	1897	1969	2041	2112	2184	1251	1323	1395	1467	1538	1610	1682	1754	1825	1897	1969	2041	2112	2184
126	1259	1330	1402	1474	1545	1617	1689	1760	1832	1904	1975	2047	2119	2190	1259	1330	1402	1474	1545	1617	1689	1760	1832	1904	1975	2047	2119	2190
132	1266	1338	1410	1481	1553	1624	1696	1768	1839	1911	1982	2054	2125	2197	1266	1338	1410	1481	1553	1624	1696	1768	1839	1911	1982	2054	2125	2197
138	1274	1346	1417	1489	1560	1632	1703	1775	1846	1918	1989	2061	2132	2204	1274	1346	1417	1489	1560	1632	1703	1775	1846	1918	1989	2061	2132	2204
144	1282	1353	1425	1496	1568	1639	1711	1782	1854	1925	1996	2068	2139	2211	1282	1353	1425	1496	1568	1639	1711	1782	1854	1925	1996	2068	2139	2211



Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition - this gives conservative results in comparison to trench conditions

D-Load (lb/ft/ft) for Type 2 Bedding



Pipe Size (in)	Fill Height in Feet													
	29	30	31	32	33	34	35	36	37	38	39	40	41	42
12	2236	2312	2389	2465	2542	2618	2695	2772	2848	2925	3001	3078	3154	3231
15	2185	2259	2334	2409	2483	2558	2633	2707	2782	2857	2931	3006	3081	3155
18	2163	2237	2310	2384	2458	2532	2605	2679	2753	2827	2900	2974	3048	3122
21	2158	2231	2305	2378	2452	2525	2599	2672	2745	2819	2892	2966	3039	3113
24	2164	2238	2311	2385	2458	2532	2605	2679	2752	2826	2899	2973	3046	3120
27	2160	2233	2306	2380	2453	2526	2599	2672	2746	2819	2892	2965	3038	3112
30	2161	2234	2307	2380	2453	2526	2599	2673	2746	2819	2892	2965	3038	3111
33	2166	2239	2312	2385	2458	2531	2605	2678	2751	2824	2897	2970	3043	3116
36	2174	2247	2320	2394	2467	2540	2613	2687	2760	2833	2906	2979	3053	3126
42	2172	2244	2317	2390	2463	2536	2609	2681	2754	2827	2900	2973	3046	3118
48	2175	2248	2320	2393	2466	2538	2611	2684	2756	2829	2902	2974	3047	3119
54	2183	2255	2328	2400	2473	2546	2618	2691	2763	2836	2908	2981	3054	3126
60	2193	2266	2338	2411	2483	2556	2629	2701	2774	2847	2919	2992	3065	3137
66	2205	2278	2351	2424	2496	2569	2642	2715	2787	2860	2933	3006	3078	3151
72	2220	2293	2365	2438	2511	2584	2657	2730	2803	2876	2949	3022	3095	3168
78	2222	2295	2367	2440	2513	2585	2658	2731	2803	2876	2949	3021	3094	3167
84	2225	2298	2370	2443	2515	2588	2660	2733	2805	2878	2950	3023	3095	3168
90	2229	2301	2374	2446	2518	2591	2663	2735	2808	2880	2952	3025	3097	3169
96	2233	2306	2378	2450	2522	2594	2667	2739	2811	2883	2955	3028	3100	3172
102	2238	2311	2383	2455	2527	2599	2671	2743	2815	2887	2959	3031	3103	3175
108	2244	2316	2388	2460	2532	2604	2676	2748	2819	2891	2963	3035	3107	3179
114	2250	2322	2393	2465	2537	2609	2681	2753	2824	2896	2968	3040	3112	3184
120	2256	2328	2399	2471	2543	2615	2686	2758	2830	2902	2973	3045	3117	3189
126	2262	2334	2405	2477	2549	2620	2692	2764	2835	2907	2979	3050	3122	3194
132	2269	2340	2412	2483	2555	2627	2698	2770	2841	2913	2985	3056	3128	3199
138	2275	2347	2418	2490	2562	2633	2705	2776	2848	2919	2991	3062	3134	3205
144	2282	2354	2425	2497	2568	2640	2711	2783	2854	2925	2997	3068	3140	3211

FILL HEIGHT TABLE
TYPE 2 BEDDING: 29' - 42' FILL HEIGHT

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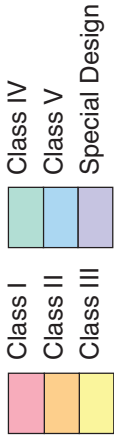
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FILL HEIGHT TABLE
TYPE 3 BEDDING: 1' - 14' FILL HEIGHT

D-Load (lb/ft/ft) for Type 3 Bedding

- Fill Height Tables are based on:**
1. $\gamma_s = 120$ pcf
 2. AASHTO HL-93 live load
 3. Positive Projecting Embankment Condition - this gives conservative results in comparison to trench conditions



Fill Height in Feet

Pipe Size (in)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12	1518	1369	947	817	805	838	896	964	902	1000	1098	1196	1294	1392
15	1459	1318	916	794	783	815	872	939	880	975	1070	1165	1260	1355
18	1384	1285	897	781	772	804	860	926	870	963	1057	1150	1243	1337
21	1247	1263	886	775	767	799	855	921	867	959	1051	1144	1236	1329
24	1229	1248	879	772	765	798	854	920	868	960	1051	1143	1235	1327
27	1372	1251	881	778	770	804	860	925	872	963	1055	1147	1238	1330
30	1500	1260	887	786	777	812	868	933	878	970	1061	1153	1245	1337
33	1378	1218	871	780	775	813	871	936	886	978	1070	1162	1254	1345
36	1276	1189	857	776	774	815	875	941	895	987	1079	1172	1264	1356
42	1119	1113	829	765	770	815	875	942	903	995	1087	1179	1271	1363
48	1004	992	808	758	770	817	879	946	913	1005	1097	1189	1281	1373
54	963	958	791	753	771	822	884	953	926	1018	1109	1201	1293	1385
60	991	937	778	751	775	828	891	961	939	1031	1123	1216	1308	1400
66	952	920	772	751	779	835	900	970	954	1046	1138	1231	1323	1416
72	898	905	768	751	786	843	909	981	969	1062	1154	1247	1340	1433
78	853	890	762	752	790	847	913	985	977	1070	1162	1255	1348	1440
84	816	878	758	754	794	852	918	991	986	1079	1171	1263	1355	1448
90	786	866	755	756	798	857	924	996	1076	1088	1180	1272	1364	1456
96	760	833	753	759	803	862	930	1003	1083	1097	1189	1281	1373	1464
102	739	814	761	769	813	872	939	1012	1092	1174	1198	1290	1382	1473
108	722	805	770	778	822	882	949	1022	1102	1184	1208	1299	1391	1482
114	708	813	779	788	832	892	959	1032	1112	1194	1277	1309	1400	1492
120	696	821	788	796	842	902	969	1042	1121	1203	1287	1319	1410	1501
126	687	829	798	806	852	912	979	1052	1131	1213	1297	1382	1420	1511
132	679	837	802	816	863	922	989	1062	1141	1223	1307	1391	1477	1521
138	673	845	800	826	873	932	999	1072	1152	1233	1317	1401	1487	1531
144	669	853	808	837	883	943	1010	1082	1162	1244	1327	1411	1497	1583



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FILL HEIGHT TABLE
TYPE 3 BEDDING: 15' - 28' FILL HEIGHT

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition -
this gives conservative results in comparison to trench conditions

D-Load (lb/ft/ft) for Type 3 Bedding



Pipe Size (in)	Fill Height in Feet													
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
12	1490	1588	1686	1784	1882	1980	2078	2176	2274	2372	2470	2568	2666	2764
15	1450	1545	1640	1735	1830	1925	2020	2115	2210	2305	2401	2496	2591	2686
18	1430	1523	1617	1710	1803	1897	1990	2083	2177	2270	2363	2457	2550	2643
21	1421	1513	1606	1698	1790	1883	1975	2068	2160	2252	2345	2437	2529	2622
24	1419	1511	1603	1695	1786	1878	1970	2062	2154	2246	2338	2430	2521	2613
27	1422	1514	1605	1697	1789	1880	1972	2064	2155	2247	2339	2431	2522	2614
30	1428	1520	1612	1704	1795	1887	1979	2071	2162	2254	2346	2437	2529	2621
33	1437	1529	1621	1713	1805	1897	1989	2081	2173	2265	2357	2449	2541	2633
36	1449	1541	1633	1726	1818	1910	2003	2095	2187	2280	2372	2464	2557	2649
42	1455	1547	1639	1731	1823	1915	2007	2098	2190	2282	2374	2466	2558	2650
48	1465	1556	1648	1740	1832	1924	2016	2108	2200	2291	2383	2475	2567	2659
54	1477	1569	1661	1753	1845	1937	2029	2121	2213	2305	2397	2489	2581	2673
60	1492	1584	1676	1768	1861	1953	2045	2137	2229	2321	2413	2506	2598	2690
66	1508	1601	1693	1786	1878	1970	2063	2155	2248	2340	2433	2525	2617	2710
72	1526	1619	1711	1804	1897	1990	2083	2175	2268	2361	2454	2547	2639	2732
78	1533	1625	1718	1810	1903	1995	2088	2180	2273	2365	2458	2550	2643	2735
84	1540	1632	1725	1817	1909	2001	2094	2186	2278	2370	2463	2555	2647	2740
90	1548	1640	1732	1824	1916	2008	2100	2192	2284	2377	2469	2561	2653	2745
96	1556	1648	1740	1832	1924	2016	2108	2199	2291	2383	2475	2567	2659	2751
102	1565	1657	1748	1840	1932	2024	2115	2207	2299	2390	2482	2574	2666	2757
108	1574	1666	1757	1849	1940	2032	2123	2215	2307	2398	2490	2581	2673	2764
114	1583	1675	1766	1857	1949	2040	2132	2223	2315	2406	2498	2589	2680	2772
120	1593	1684	1775	1866	1958	2049	2140	2232	2323	2414	2506	2597	2688	2780
126	1602	1693	1785	1876	1967	2058	2149	2241	2332	2423	2514	2605	2697	2788
132	1612	1703	1794	1885	1976	2067	2158	2250	2341	2432	2523	2614	2705	2796
138	1622	1713	1804	1895	1986	2077	2168	2259	2350	2441	2532	2623	2714	2805
144	1632	1722	1813	1904	1995	2086	2177	2268	2359	2450	2541	2632	2723	2814



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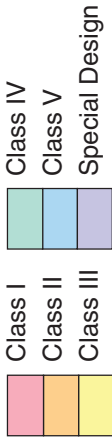
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FILL HEIGHT TABLE
TYPE 3 BEDDING: 29' - 35' FILL HEIGHT

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition -
this gives conservative results in comparison to trench conditions

D-Load (lb/ft/ft) for Type 3 Bedding



Pipe Size (in)	Fill Height in Feet												
	29	30	31	32	33	34	35						
12	2862	2960	3058	3156	3254	3352	3450						
15	2781	2876	2971	3066	3161	3256	3351						
18	2737	2830	2923	3017	3110	3203	3297						
21	2714	2807	2899	2991	3084	3176	3268						
24	2705	2797	2889	2981	3073	3165	3256						
27	2706	2797	2889	2981	3072	3164	3256						
30	2713	2804	2896	2988	3080	3171	3263						
33	2725	2817	2909	3001	3093	3185	3277						
36	2741	2833	2926	3018	3110	3203	3295						
42	2742	2834	2926	3018	3110	3202	3294						
48	2751	2843	2935	3026	3118	3210	3302						
54	2765	2857	2948	3040	3132	3224	3316						
60	2782	2874	2966	3058	3151	3243	3335						
66	2802	2895	2987	3080	3172	3265	3357						
72	2825	2918	3011	3103	3196	3289	3382						
78	2828	2920	3013	3105	3198	3290	3383						
84	2832	2924	3016	3109	3201	3293	3385						
90	2837	2929	3021	3113	3205	3297	3389						
96	2843	2934	3026	3118	3210	3302	3394						
102	2849	2941	3032	3124	3216	3308	3399						
108	2856	2947	3039	3131	3222	3314	3405						
114	2863	2955	3046	3138	3229	3320	3412						
120	2871	2962	3054	3145	3236	3328	3419						
126	2879	2970	3061	3153	3244	3335	3426						
132	2887	2979	3070	3161	3252	3343	3434						
138	2896	2987	3078	3169	3260	3351	3442						
144	2905	2996	3087	3178	3269	3360	3450						



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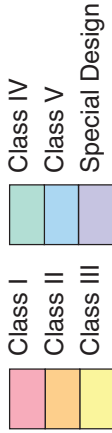
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FILL HEIGHT TABLE
TYPE 4 BEDDING: 1' - 14' FILL HEIGHT

D-Load (lb/ft/ft) for Type 4 Bedding

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition - this gives conservative results in comparison to trench conditions



Pipe Size (in)	Fill Height in Feet													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12	1579	1481	1111	1032	1071	1154	1264	1383	1372	1521	1671	1820	1969	2119
15	1519	1426	1073	998	1036	1116	1221	1336	1326	1616	1612	1756	1899	2042
18	1443	1391	1050	978	1015	1093	1195	1307	1297	1580	1576	1715	1854	1994
21	1306	1366	1035	966	1002	1079	1179	1288	1279	1557	1552	1688	1825	1961
24	1288	1349	1025	959	994	1070	1168	1276	1267	1541	1535	1670	1804	1938
27	1431	1352	1025	960	993	1068	1165	1271	1259	1531	1524	1657	1790	1922
30	1560	1360	1029	965	995	1070	1166	1270	1254	1524	1517	1648	1780	1911
33	1437	1316	1010	955	988	1064	1160	1264	1252	1520	1512	1642	1773	1903
36	1336	1285	993	947	982	1060	1157	1260	1251	1518	1509	1639	1768	1898
42	1181	1211	966	935	976	1057	1153	1256	1252	1518	1508	1636	1764	1892
48	1068	1090	941	927	973	1056	1152	1255	1257	1522	1511	1638	1765	1892
54	1029	1058	925	921	973	1058	1154	1257	1264	1529	1516	1642	1768	1894
60	1059	1038	912	918	975	1062	1158	1261	1273	1538	1523	1649	1774	1899
66	1021	1022	906	917	978	1066	1163	1266	1282	1548	1532	1657	1781	1906
72	969	1008	902	917	984	1072	1169	1272	1292	1559	1541	1666	1790	1914
78	927	996	899	920	990	1079	1176	1280	1303	1570	1551	1675	1799	1923
84	893	986	898	925	997	1086	1184	1288	1315	1582	1562	1686	1810	1933
90	866	978	898	931	1004	1094	1192	1296	1408	1595	1574	1697	1820	1944
96	844	948	899	936	1012	1102	1201	1305	1417	1608	1585	1708	1831	1955
102	826	932	911	949	1024	1115	1214	1318	1429	1685	1597	1720	1843	1966
108	812	927	923	962	1037	1128	1226	1330	1441	1698	1609	1732	1855	1978
114	801	938	935	975	1050	1141	1239	1343	1454	1712	1682	1745	1867	1990
120	793	949	947	986	1063	1154	1252	1356	1467	1726	1694	1757	1879	2002
126	786	960	959	999	1076	1167	1265	1369	1480	1740	1707	1823	1892	2014
132	782	971	967	1013	1090	1180	1278	1382	1493	1754	1720	1836	1952	2027
138	779	982	968	1026	1103	1194	1292	1395	1506	1769	1733	1848	1965	2040
144	778	994	980	1039	1116	1207	1305	1409	1519	1783	1746	1861	1978	2095



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FILL HEIGHT TABLE
TYPE 4 BEDDING: 15' - 25' FILL HEIGHT

Fill Height Tables are based on:

1. $\gamma_s = 120$ pcf
2. AASHTO HL-93 live load
3. Positive Projecting Embankment Condition -
this gives conservative results in comparison to trench conditions

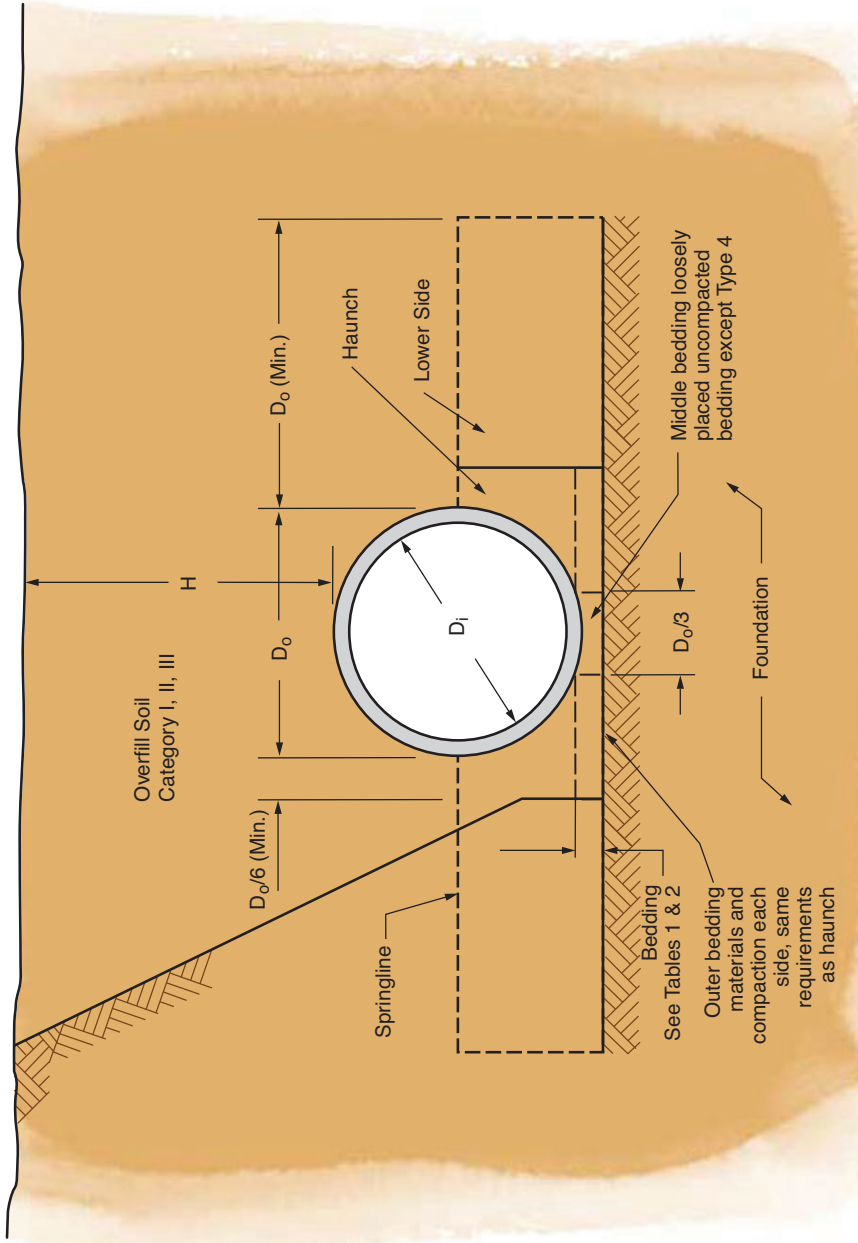
D-Load (lb/ft/ft) for Type 4 Bedding

	Class I		Class IV
	Class II		Class V
	Class III		Special Design

Pipe Size (in)	Fill Height in Feet														
	15	16	17	18	19	20	21	22	23	24	25				
12	2268	2417	2566	2716	2865	3014	3163	3313	3462	3611	3760				
15	2185	2329	2472	2615	2759	2902	3045	3189	3332	3475	3618				
18	2133	2272	2412	2551	2690	2830	2969	3108	3247	3387	3526				
21	2098	2234	2370	2507	2643	2780	2916	3053	3189	3326	3462				
24	2073	2207	2341	2476	2610	2744	2879	3013	3147	3282	3416				
27	2055	2188	2320	2453	2586	2718	2851	2984	3116	3249	3382				
30	2042	2174	2305	2436	2568	2699	2830	2962	3093	3225	3356				
33	2033	2164	2294	2424	2554	2685	2815	2945	3075	3206	3336				
36	2027	2156	2286	2415	2544	2674	2803	2932	3062	3191	3321				
42	2020	2148	2276	2404	2532	2660	2788	2916	3044	3171	3299				
48	2018	2145	2272	2399	2526	2653	2780	2907	3033	3160	3287				
54	2020	2146	2273	2399	2525	2651	2777	2903	3029	3155	3281				
60	2025	2150	2276	2401	2526	2652	2777	2903	3028	3153	3279				
66	2031	2156	2281	2406	2531	2655	2780	2905	3030	3155	3280				
72	2039	2163	2288	2412	2536	2661	2785	2909	3034	3158	3283				
78	2047	2171	2295	2419	2543	2667	2791	2915	3039	3163	3287				
84	2057	2181	2304	2428	2552	2675	2799	2923	3046	3170	3294				
90	2067	2190	2314	2437	2561	2684	2807	2931	3054	3178	3301				
96	2078	2201	2324	2447	2570	2693	2817	2940	3063	3186	3309				
102	2089	2212	2335	2458	2581	2704	2826	2949	3072	3195	3318				
108	2100	2223	2346	2469	2591	2714	2837	2959	3082	3205	3328				
114	2112	2235	2357	2480	2602	2725	2848	2970	3093	3215	3338				
120	2124	2247	2369	2491	2614	2736	2859	2981	3103	3226	3348				
126	2137	2259	2381	2503	2626	2748	2870	2992	3115	3237	3359				
132	2149	2271	2393	2515	2638	2760	2882	3004	3126	3248	3370				
138	2162	2284	2406	2528	2650	2772	2894	3016	3138	3260	3382				
144	2174	2296	2418	2540	2662	2784	2906	3028	3150	3272	3393				

Standard Trench/Embankment Installation

Concrete pipe should be installed in accordance with the AASHTO LRFD Bridge Construction Specifications, Section 27 or ASTM C1479. Figure 1 shows the basic pipe and soil terminology.



There are four types of Standard Installations, each with its own soil and compaction requirements. Type 1 bedding provides the most support using highly compacted granular material, while Type 4 provides for less support allowing the use of silts and clay soils with little or no compaction. These four choices provide flexibility and versatility for the designer and contractor, as well as performance and economy for the owner that are not available with other types of pipe.

The soil and compaction requirements are provided in Table 1. Table 2 shows the equivalent soil designations per the Unified Soil Classification System (USCS) and AASHTO. To facilitate your selection of the proper reinforced concrete pipe using the most beneficial Standard Installation for the conditions at the site, fill height tables are provided on the following pages. The required 0.01 inch crack D-Loads in units of lbs per linear foot per foot of diameter are provided numerically and the class of pipe per ASTM C76 (AASHTO M 170) meeting this requirement is designated by color of the cell.