



List of Manhole

Route	Manhole No	Type of Manhole	Type of Manhole Cover	Main Sewer						Connection Pipe						GL (m)	Dimension (mm)					
				IN			OUT			Invert I ₃ (m)	Dia D ₃ (mm)	Degree Ø ₃	Invert I ₄ (m)	Dia D ₄ (mm)	Degree Ø ₄		H	h ₁	h ₂	h ₃	h ₄	h ₅
				Invert I ₁ (m)	Dia D ₁ (mm)	Degree Ø ₁	Invert I ₂ (m)	Dia D ₂ (mm)	Degree Ø ₂													
BM2 N1-1	M1	2-C-1	A				-0.486	1000	180	0.000	400	90	-0.400	400	270	1.230	2,300	2,000	300	1,450	284	500
	M2	2-D-1	A	-0.518	1000	0	-0.518	1000	180	0.000	400	90	-0.400	400	270	1.210	2,300	2,000	300	1,450	272	500
	M3	2-D-1	A	-0.547	1000	0	-0.547	1000	180	-0.100	400	90	-0.400	400	270	1.190	2,300	2,000	300	1,450	263	500
	M4	2-A	A	-0.575	1000	0	-0.575	1000	270							1.200	2,300	2,000	300	1,450	225	500
	M5	2-D-1	A	-0.604	1000	0	-0.604	1000	180	-0.050	400	90	-0.400	400	270	1.200	2,300	2,000	300	1,450	196	500
	M6	2-D-1	A	-0.632	1000	0	-0.632	1000	180	-0.050	400	90	-0.400	400	270	1.200	2,400	2,100	300	1,550	268	500
	M7	2-D-1	A	-0.660	1000	0	-0.660	1000	180	-0.050	400	90	-0.400	400	270	1.200	2,400	2,100	300	1,550	240	500
	M8	2-D-1	A	-0.700	1000	0	-0.700	1000	180	0.000	400	90	-0.400	400	270	1.230	2,500	2,200	300	1,650	270	500
	M9	2-D-1	A	-0.733	1000	0	-0.733	1000	180	0.000	400	90	-0.350	400	270	1.250	2,500	2,200	300	1,650	217	500
	M10	2-D-1	A	-0.771	1000	0	-0.771	1000	180	0.000	400	90	-0.550	600	270	1.260	2,600	2,300	300	1,750	269	500
	M11	2-D-1	A	-0.804	1000	0	-0.804	1000	180	0.000	400	90	-0.350	400	270	1.260	2,600	2,300	300	1,750	236	500
	M12	2-C-1	A	-0.840	1000	0	-0.840	1000	180				-0.350	400	270	1.260	2,600	2,300	300	1,750	200	500
	M13	2-D-1	A	-0.878	1000	0	-0.878	1000	180	0.000	400	90	-0.350	400	270	1.240	2,700	2,400	300	1,850	282	500
	M14	2-D-1	A	-0.917	1000	0	-0.917	1000	180	-0.100	400	90	-0.450	400	270	1.160	2,600	2,300	300	1,750	223	500
	M15	2-D-2	A	-0.955	1000	0	-0.955	1000	180	-0.955	1000	90	-0.700	600	270	1.110	2,600	2,300	300	1,750	235	500
	M16	2-D-1	A	-0.991	1000	0	-0.991	1000	180	-0.150	400	90	-0.500	400	270	1.080	2,600	2,300	300	1,750	229	500
	M17	2-D-1	A	-1.024	1000	0	-1.024	1000	180	-0.130	400	90	-0.500	400	270	1.120	2,700	2,400	300	1,850	256	500
	M18	2-D-1	A	-1.057	1000	0	-1.057	1000	180	-0.150	400	90	-0.500	400	270	1.090	2,700	2,400	300	1,850	253	500
	M19	2-A	A	-1.091	1000	0	-1.091	1000	180							1.020	2,700	2,400	300	1,850	289	500
BM2 N1-3	M20	3-D-2	A	-1.124	1000	0	-1.624	1500	180	-0.100	400	90	-0.924	800	270	1.150	3,400	2,600	800	2,000	276	500
	M21	3-D-1	A	-1.665	1500	0	-1.665	1500	180	-0.100	400	90	-0.450	400	270	1.140	3,400	2,600	800	2,000	245	500
	M22	3-D-1	A	-1.703	1500	0	-1.703	1500	180	-0.150	400	90	-0.500	400	270	1.100	3,400	2,600	800	2,000	247	500
	M23	3-D-1	A	-1.730	1500	0	-1.730	1500	180	-0.150	400	90	-0.500	400	270	1.100	3,500	2,600	900	2,000	320	500
	M24	3-D-1	A	-1.760	1500	0	-1.760	1500	180	-0.150	400	90	-0.700	600	270	1.100	3,500	2,600	900	2,000	290	500
	M25	3-C-1	A	-1.790	1500	0	-1.790	1500	180				-0.550	400	270	1.050	3,500	2,600	900	2,000	310	500
	M26	3-D-1	A	-1.830	1500	0	-1.830	1500	180	-0.200	400	90	-0.550	400	270	1.040	3,500	2,600	900	2,000	280	500
BM2 N1-5	M27	3-D-2	A	-1.860	1500	0	-1.860	1500	180	-0.200	400	90	-0.860	900	270	1.070	3,600	2,600	1000	2,000	320	500
	M28	3-D-1	A	-1.900	1500	0	-1.900	1500	180	-0.150	400	90	-0.700	600	270	1.100	3,600	2,600	1000	2,000	250	500
	M29	3-C-1	A	-1.950	1500	0	-1.950	1500	90				-0.500	400	270	1.100	3,700	2,600	1100	2,000	300	500
Nguyen Duy	M1	2-B	A				-0.425	1000	180	-0.400	400	90				1.230	2,200	1,900	300	1,350	245	500
BM2 S1-1	M2	2-C-1	A	-0.440	1000	0	-0.440	1000	150	-0.300	400	90				1.310	2,300	2,000	300	1,450	250	500
	M3	2-C-1	A	-0.451	1000	0	-0.451	1000	150	-0.250	400	90				1.360	2,400	2,100	300	1,550	289	500
	M4	2-C-1	A	-0.466	1000	0	-0.466	1000	180	-0.300	400	90				1.320	2,300	2,000	300	1,450	214	500
	M5	2-C-1	A	-0.482	1000	0	-0.482	1000	180	-0.300	400	90				1.290	2,300	2,000	300	1,450	228	500
	M6	2-C-1	A	-0.499	1000	0	-0.499	1000	180	-0.500	600	90				1.280	2,300	2,000	300	1,450	221	500
	M7	2-C-1	A	-0.516	1000	0	-0.516	1000	180	-0.300	400	90				1.270	2,300	2,000	300	1,450	214	500
	M8	2-C-1	A	-0.534	1000	0	-0.534	1000	180	-0.300	400	90				1.280	2,400	2,100	300	1,550	286	500
	M9	2-C-1	A	-0.551	1000	0	-0.551	1000	180	-0.300	400	90				1.290	2,400	2,100	300	1,550	259	500
	M10	2-D-2	A	-0.567	1000	0	-0.567	1000	180	-0.500	600	90	-0.567	1000	270	1.330	2,400	2,100	300	1,550	203	500
	M11	2-C-1	A	-0.584	1000	0	-0.584	1000	180	-0.300	400	90				1.310	2,400	2,100	300	1,550	206	500
	M12	2-C-1	A	-0.601	1000	0	-0.601	1000	180	-0.600	600	90				1.240	2,400	2,100	300	1,550	259	500
	M13	2-C-1	A	-0.615	1000	0	-0.615	1000	180	-0.550	600	90				1.270	2,400	2,100	300	1,550	215	500
	M14	2-C-1	A	-0.630	1000	0	-0.630	1000	180	-0.300	400	90				1.290	2,500	2,200	300	1,650	280	500
	M15	2-C-1	A	-0.645	1000	0	-0.645	1000	180	-0.350	400	90				1.270	2,500	2,200	300	1,650	285	500
	M16	2-C-1	A	-0.662	1000	0	-0.662	1000	180	-0.300	400	90				1.300	2,500	2,200	300	1,650	238	500
	M17	2-C-1	A	-0.680	1000	0	-0.680	1000	180	-0.300	400	90				1.320	2,500	2,200	300	1,650	200	500
BM2 S1-4	M18	3-C-2	A	-0.697	1000	0	-1.197	1500	180	-0.697	1000	90				1.330	3,100	2,600	500	2,000	223	500
	M19	3-D-3	A	-1.220	1500	0	-1.220	1500	180	-0.500	600	90	-1.220	1500	270	1.310	3,200	2,600	600	2,000	320	500
	M20	3-C-1	A	-1.235	1500	0	-1.235	1500	180	-0.300	400	90				1.330	3,200	2,600	600	2,000	285	500
	M21	3-C-1	A	-1.250	1500	0	-1.250	1500	180	-0.250	400	90				1.350	3,200	2,600	600	2,000	250	500
	M22	3-C-1	A	-1.265	1500	0	-1.265	1500	180	-0.450	600	90				1.380	3,300	2,600	700	2,000	305	500
	M23	3-C-1	A	-1.279	1500	0	-1.279	1500	180	-0.450	600	90				1.380	3,300	2,600	700	2,000	291	500
	M24	3-C-1	A	-1.292	1500	0	-1.292	1500	180	-0.500	600	90				1.320	3,200	2,600	600	2,000	238	500
	M25	3-C-1	A	-1.308	1500	0	-1.308	1500	180	-0.300	400	90				1.280	3,200	2,600	600	2,000	262	500
BM2 S1-6	M26	4-C-2	A	-1.323	1500	0	-1.623	1800	180	-0.623	800	90				1.280	3,600	3,100	500	2,500	347	500
	M27	4-C-1	A	-1.639	1800	0	-1.639	1800	180	-0.300	400	90				1.290	3,600	3,100	500	2,500	321	500
	M28	4-C-1	A	-1.650	1800	0	-1.656	1800	180	-0.450	600	90				1.340	3,600	3,100	500	2,500	254	500
	M29	4-C-1	A	-1.671	1800	0	-1.671	1800	180	-0.250	400	90				1.350	3,700	3,100	600	2,500	329	500
	M30	4-D-4	A	-1.685	1800	0	-1.685	1800	180	-0.250	400	90	-1.685	1800	270	1.360	3,700	3,100	600	2,500	305	500
	M31	4-C-3	A	-1.700	1800	0	-1.900	2000	270	-1.400	1500	180				1.370	3,900	3,100	800	2,500	280	500

NO.	DATE	DESCRIPTIONS	BY	APRO.
REVISIONS				
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT				
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM				
PACKAGE B PUMP DRAINAGE IMPROVEMENT BEN ME COC (2) AREA DIMENSION OF MANHOLE IN BEN ME COC (2) AREA (1)				
SCALE :				
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)				
 PACIFIC CONSULTANTS INTERNATIONAL				
DESIGNED		CHECKED		
DATE :		DWG. No. PB - PDI - BMC2 - 243		

List of Manhole

Route	Manhole No	Type of Manhole	Type of Manhole Cover	Main Sewer						Connection Pipe						GL (m)	Dimension (mm)					
				IN			OUT										H	h ₁	h ₂	h ₃	h ₄	h ₅
				Invert	Dia	Degree	Invert	Dia	Degree	Invert	Dia	Degree	Invert	Dia	Degree							
I ₁ (m)	D ₁ (mm)	Ø ₁	I ₂ (m)	D ₂ (mm)	Ø ₂	I ₃ (m)	D ₃ (mm)	Ø ₃	I ₄ (m)	D ₄ (mm)	Ø ₄											
Nguyen Duy	M1	2-B	A				-0.460	1000	180				0.150	400	270	1.740	2,700	2,400	300	1,850	200	500
BM2 S2-1	M2	2-C-1	A	-0.487	1000	0	-0.487	1000	180				0.000	400	270	1.590	2,600	2,300	300	1,750	223	500
	M3	2-C-1	A	-0.514	1000	0	-0.514	1000	180				0.000	400	270	1.570	2,600	2,300	300	1,750	216	500
	M4	2-C-1	A	-0.541	1000	0	-0.541	1000	180				0.000	600	270	1.550	2,600	2,300	300	1,750	209	500
	M5	2-C-1	A	-0.568	1000	0	-0.568	1000	180				-0.100	400	270	1.520	2,600	2,300	300	1,750	212	500
	M6	2-C-1	A	-0.595	1000	0	-0.595	1000	180				-0.100	400	270	1.510	2,600	2,300	300	1,750	195	500
	M7	2-C-1	A	-0.622	1000	0	-0.622	1000	180				-0.100	400	270	1.500	2,700	2,400	300	1,850	278	500
	M8	2-C-1	A	-0.649	1000	0	-0.649	1000	180				-0.100	400	270	1.500	2,700	2,400	300	1,850	251	500
	M9	2-C-1	A	-0.676	1000	0	-0.676	1000	180				-0.100	400	270	1.490	2,700	2,400	300	1,850	234	500
	M10	2-C-1	A	-0.703	1000	0	-0.703	1000	180				-0.150	400	270	1.470	2,700	2,400	300	1,850	227	500
	M11	2-D-2	A	-0.730	1000	0	-0.730	1000	180	-0.730	1000	90	-0.150	400	270	1.440	2,700	2,400	300	1,850	230	500
	BM2 S2-2	M12	3-C-1	A	-0.757	1000	0	-1.257	1500	180				-0.200	400	270	1.400	3,300	2,600	700	2,000	293
M13		3-C-1	A	-1.287	1500	0	-1.287	1500	180				-0.200	400	270	1.390	3,300	2,600	700	2,000	273	500
M14		3-C-1	A	-1.315	1500	0	-1.315	1500	180				-0.250	400	270	1.380	3,300	2,600	700	2,000	255	500
M15		3-C-1	A	-1.343	1500	0	-1.343	1500	180				-0.250	400	270	1.360	3,300	2,600	700	2,000	247	500
M16		3-C-1	A	-1.372	1500	0	-1.372	1500	180				-0.250	400	270	1.360	3,400	2,600	800	2,000	318	500
BM2 N2-1	M1	2-B	A				-0.387	900	180	0.150	400	90				1.780	2,700	2,400	300	1,850	233	450
	M2	2-C-1	A	-0.427	900	0	-0.427	900	180	-0.100	400	90				1.530	2,500	2,200	300	1,650	243	450
	M3	2-C-1	A	-0.469	900	0	-0.469	900	180	-0.150	400	90				1.460	2,500	2,200	300	1,650	271	450
	M4	2-C-1	A	-0.491	900	0	-0.491	900	180	-0.350	600	90				1.450	2,500	2,200	300	1,650	259	450
	M5	2-C-1	A	-0.530	900	0	-0.530	900	180	-0.150	400	90				1.430	2,500	2,200	300	1,650	240	450
	M6	2-C-1	A	-0.567	900	0	-0.567	900	180	-0.200	400	90				1.410	2,500	2,200	300	1,650	223	450
	M7	2-D-2	A	-0.604	900	0	-0.604	900	180	-0.400	400	90	-0.604	900	270	1.400	2,500	2,200	300	1,650	196	450
	M8	2-C-1	A	-0.643	900	0	-0.643	900	180	-0.200	400	90				1.410	2,600	2,300	300	1,750	247	450
	M9	2-C-1	A	-0.680	900	0	-0.680	900	210	-0.200	400	90				1.420	2,600	2,300	300	1,750	200	450
	M10	2-C-1	A	-0.714	900	0	-0.714	900	150	-0.200	400	90				1.440	2,700	2,400	300	1,850	246	450
	BM2 N2-2	M11	3-C-1	A	-0.765	900	0	-1.065	1200	135	-0.200	400	90				1.560	3,200	2,600	600	2,000	225
M12		3-D-1	A	-1.089	1200	0	-1.089	1200	135	-0.100	400	45	-0.300	400	225	1.510	3,200	2,600	600	2,000	251	500
M13		3-D-1	A	-1.126	1200	0	-1.126	1200	180	-0.120	400	90	-0.300	400	270	1.480	3,200	2,600	600	2,000	244	500
M14		3-D-1	A	-1.165	1200	0	-1.165	1200	180	-0.250	400	90	-0.450	400	270	1.360	3,100	2,600	500	2,000	225	500
M15		3-D-1	A	-1.200	1200	0	-1.200	1200	180	-0.250	400	90	-0.450	400	270	1.380	3,200	2,600	600	2,000	270	500
M16		3-D-1	A	-1.231	1200	0	-1.231	1200	180	-0.250	400	90	-0.450	400	270	1.370	3,200	2,600	600	2,000	249	500
M17		3-D-1	A	-1.270	1200	0	-1.270	1200	180	-0.250	400	90	-0.450	400	270	1.350	3,200	2,600	600	2,000	230	500
M18		3-C-1	A	-1.300	1200	0	-1.300	1200	180	-0.300	400	90				1.300	3,200	2,600	600	2,000	250	500
M19		3-D-1	A	-1.330	1200	0	-1.330	1200	180	-0.350	400	90	-0.550	400	270	1.260	3,200	2,600	600	2,000	260	500
BM2 N2-3	M20	3-D-1	A	-1.360	1200	0	-1.360	1200	180	-0.300	400	90	-0.500	400	270	1.310	3,300	2,600	700	2,000	280	500
	M21	3-D-1	A	-1.391	1200	0	-1.391	1200	180	-0.300	400	90	-0.500	400	270	1.320	3,300	2,600	700	2,000	239	500
	M22	3-D-1	A	-1.421	1200	0	-1.421	1200	180	-0.450	400	90	-0.650	400	270	1.180	3,200	2,600	600	2,000	249	500
	M23	3-D-3	A	-1.454	1200	0	-1.754	1500	180	-0.450	400	90	-1.454	1200	270	1.180	3,600	2,600	1000	2,000	316	500
	M24	3-D-1	A	-1.798	1500	0	-1.798	1500	180	-0.500	400	90	-0.150	400	270	1.100	3,500	2,600	900	2,000	252	500
	M25	3-D-1	A	-1.826	1500	0	-1.826	1500	180	-0.500	400	90	-0.150	400	270	1.090	3,500	2,600	900	2,000	234	500
	M26	3-D-1	A	-1.865	1500	0	-1.865	1500	180	-0.500	400	90	-0.150	400	270	1.110	3,600	2,600	1000	2,000	275	500
	M27	3-D-1	A	-1.909	1500	0	-1.909	1500	180	-0.450	400	90	-0.100	400	270	1.140	3,700	2,600	1100	2,000	301	500
	M28	3-C-1	A	-1.950	1500	0	-1.950	1500	270	-0.500	400	90				1.120	3,700	2,600	1100	2,000	280	500
	M29	1-A	C				-0.250	400	180							1.350	2,100	-	1800	0	200	200
BM2 N1-2	M30	1-A	C	-0.300	400	0	-0.300	400	180						1.300	2,100	-	1800	0	200	200	
	M31	1-A	C	-0.350	400	0	-0.350	400	90						1.260	2,100	-	1800	0	190	200	
BM2 S1-5	M1	2-C-1	A				-0.630	800	180	-0.400	400	90	0.000	400	270	1.210	2,400	2,100	300	1,550	260	400
	M2	2-D-1	A	-0.670	800	0	-0.670	800	180	-0.400	400	90	0.000	400	270	1.190	2,400	2,100	300	1,550	240	400
	M3	2-C-1	A	-0.708	800	0	-0.708	800	240	-0.400	400	90				1.220	2,500	2,200	300	1,650	272	400
	M4	2-C-1	A	-0.753	800	0	-0.753	800	180	-0.400	400	135				1.230	2,500	2,200	300	1,650	217	400
	M5	2-D-1	A	-0.799	800	0	-0.799	800	180	-0.450	400	90	0.000	400	270	1.160	2,500	2,200	300	1,650	241	400
	M6	2-D-1	A	-0.837	800	0	-0.837	800	180	-0.700	600	90	-0.100	400	270	1.100	2,500	2,200	300	1,650	263	400
	M7	2-D-1	A	-0.882	800	0	-0.882	800	180	-0.600	400	90	-0.200	400	270	1.020	2,400	2,100	300	1,550	198	400
BM2 S1-3	M1	2-C-1	A				-0.419	800	180	0.100	400	90	-0.280	400	270	1.320	2,300	2,000	300	1,450	261	400
	M2	2-D-1	A	-0.464	800	0	-0.464	800	180	0.000	400	90	-0.300	400	270	1.270	2,300	2,000	300	1,450	266	400
	M3	2-D-1	A	-0.509	800	0	-0.509	800	180	-0.100	600	90	-0.300	400	270							