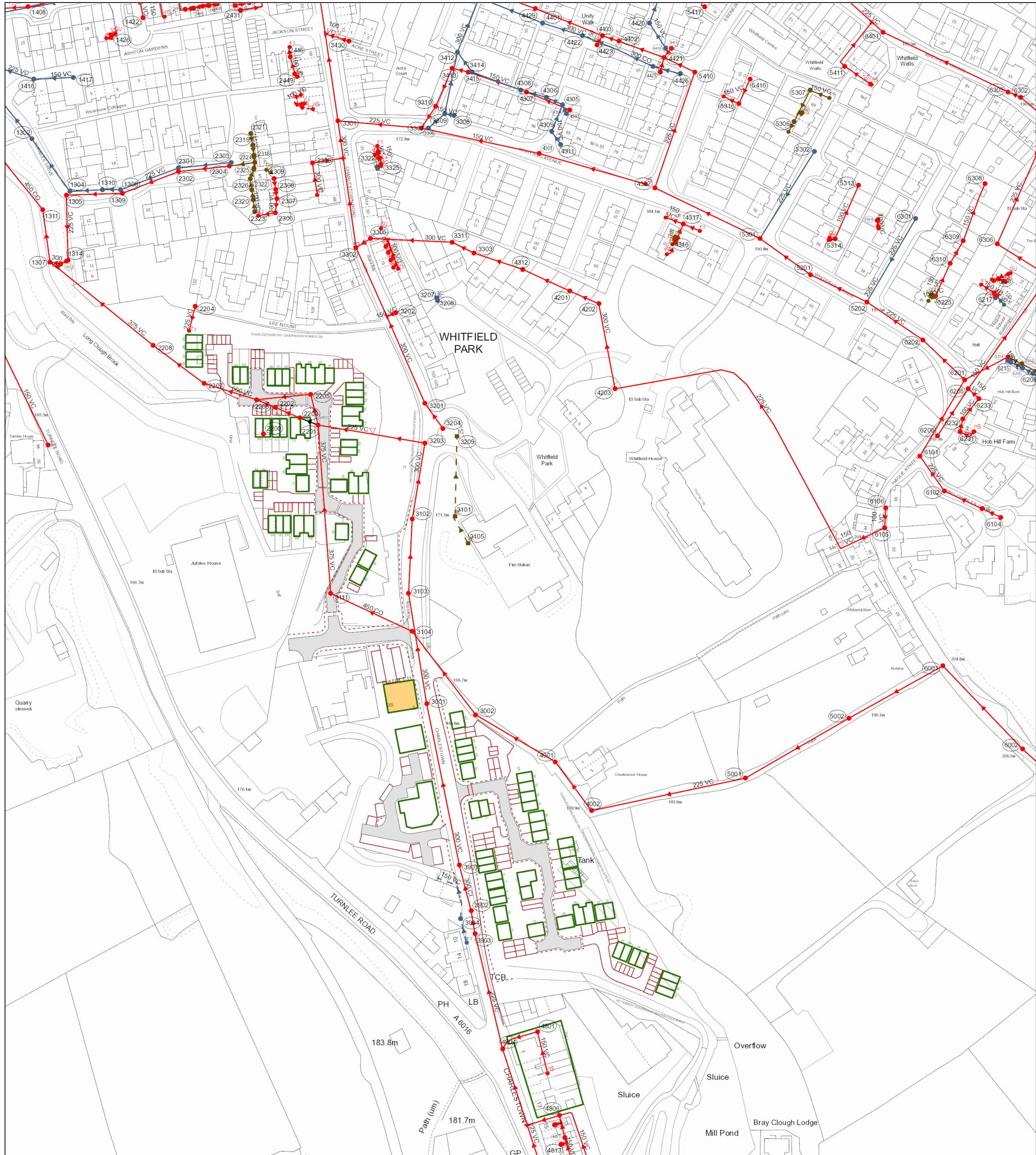
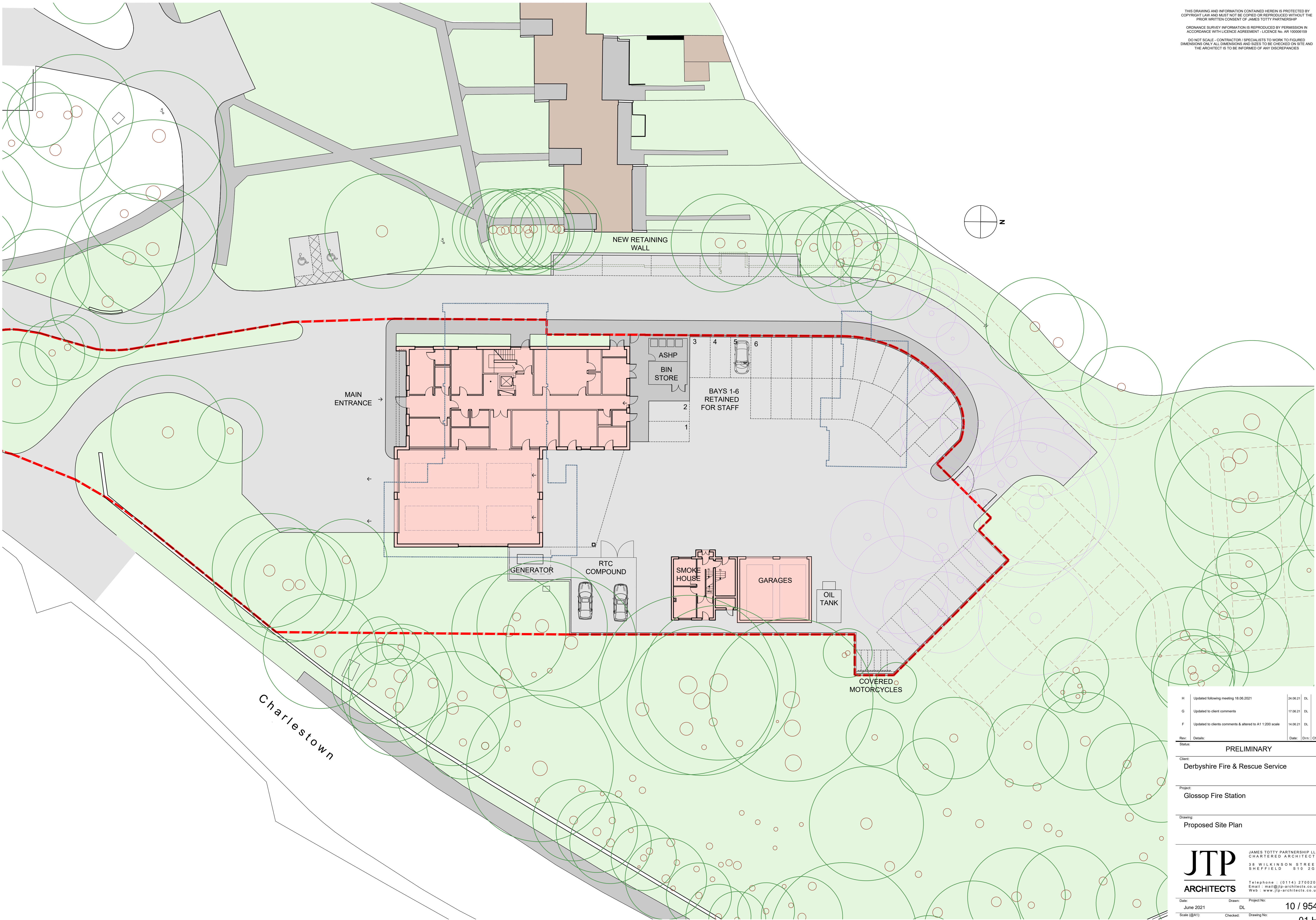




Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
1417	163.31	SW	162.05	150			VC	22.02271	
6103		CO	0	225			VC	22.83866	
2309		CO	0	100			VC	6.160254	
2208	157.63	CO	155.97	375			VC	73.24954	1 in 23
6210	200.22	SW	204.1	375			VC	7.310501	1 in 13
3415	173.61	CO	177.81	150			VC	9.219544	1 in 34
2430		CO	0	100			VC	4.529499	0
6106		CO	0	100			VC	11.08181	0
3321		CO	0	100			VC	3.819408	1 in 10
2303	165.95	SW	164.48	225			VC	29.15476	1 in 15
5307		FO					VC	19.34705	1 in 12
2301	163.7	SW	162.5	225			VC	34.17601	1 in 12
4307	176.16	CO	174.24	150			VC	33.83755	1 in 14
4301	164.9	CO	159.3	225			VC	34.4903	1 in 8
4303	178.09	CO	176.4	150			VC	28	1 in 12
1304	194.83	SW	197.48	225			VC	35.85053	1 in 16
1408	159.18	CO	153.93	450			CO	16.03122	1 in 5
3001	165.9	CO	163.24	300			VC	61.81424	1 in 199
4201		CO	0	300			VC	28.63664	0
5202	198	CO	194.31	225			VC	34.43855	1 in 26
3309	173.95	SW	173.95	300			VC	34.71311	1 in 14
1312	157.48	CO	153.32	300			VC	2.828427	1 in 295
6102		CO	0	225			VC	23.44584	0
4401	175.33	SW	173.35	300			VC	37.89616	1 in 14
4304	178.05	SW	176.44	150			VC	5.385165	1 in 7
3201	173.28	CO	171.4	300			VC	84.02206	1 in 43
4301	178.01	CO	175.93	150			VC	86.4956	1 in 14
3601	166.25	CO	163.69	300			VC	80.80158	1 in 202
1307	156.8	CO	152.76	450			CO	29.27456	1 in 46
1427		CO	0	150			VC	17.91753	0
6306	201.41	CO	199.84	225			VC	54.626	0
1201	163.28	CO	164.25	150			VC	151.1688	1 in 73
6002	200.22	CO	202.79	225			VC	63.65532	1 in 41
1305	156.77	CO	157.15	225			VC	31.08445	1 in 30
6206		CO	0	150			VC	22.59159	0
1312	157.48	CO	153.15	300			VC	32.24767	1 in 10
6232		CO	0	100			VC	14.43019	0
3304		SW		150			VC	30.74857	0
6201	205.54	CO	202.9	225			VC	31.82786	1 in 10
6231		CO	0	100			VC	7.202855	0
1302	156.87	SW	155.25	225			VC	27.01851	1 in 23
3602	166.83	CO	165.77	300			VC	26.12662	1 in 54
3111	162.89	CO	161.37	375			VC	93.26307	1 in 52
4311	178.62	CO	178.97	150			VC	8.603225	1 in 20
3306	173.08	CO	171.04	225			VC	46.17358	1 in 17
3203	172.81	CO	162.35	300			VC	29.42788	1 in 19
6305	194.38	CO	192.48	225			VC	76.48629	1 in 8
4317		CO	0	150			VC	10.43143	0
5411		CO	0	100			VC	31.5699	0
3301	170.77	CO	167.8	300			VC	68.73148	1 in 3
6215	205.68	SW	204	225			VC	1.13574	1 in 3
6215	205.68	SW	204	225			VC	3.244032	1 in 8
1314		CO	0	150			VC	4.472136	0
5306	159.28	FO	156.28	225			VC	6.399977	1 in 7
4411	189.89	CO	179.01	150			VC	6.403124	1 in 12
3310	173.82	CO	171.46	150			VC	14.4222	1 in 40
4424	180.53	SW	178.55	300			CO	21.0238	1 in 19
4420		CO	0	150			VC	17.68901	0
4804	170.59	CO	168.27	225			VC	65.34876	1 in 29
3302	172.11	CO	169.23	300			VC	49.92372	1 in 29
3603	167.19	CO	166.01	225			VC	12.86355	1 in 54
6238		CO	0	150			VC	1.202026	0
2305	163.39	CO	159	375			VC	30.14863	1 in 29
5002	194.98	CO	193.04	225			VC	65.86349	1 in 10
2305		CO	0	300			VC	17.25347	0
3102	171.43	CO	162.77	300			VC	42.57934	1 in 10
4002		CO	0	225			VC	33.60059	0
4309	178.02	SW	176.45	150			VC	16.15549	1 in 22
3412	173.25	SW	170.83	300			VC	32.10089	1 in 215
4312		CO	0	300			VC	28.4605	0
6213	206.12	FO	205	150			VC	8.528469	1 in 14
6208	207.53	SW	206	225			VC	6.337348	1 in 3
4426	181.93	SW	179.34	300			CO	15.52417	1 in 20
2446		CO	0	100			VC	6.012399	0
4403	175.9	CO	0	225			VC	39.92493	0
3104	167.75	CO	162.9	450			VC	49.55884	1 in 32
4410	180.57	SW	178.97	150			VC	16.64332	0
6101		CO	0	225			VC	48.87002	0
2308		CO	0	100			VC	5.083012	0
4202		CO	0	300			VC	17.46425	0
4202	195.28	CO	193.17	225			VC	7.415713	1 in 9
1308	161.2	SW	159.68	225			VC	10	1 in 11
5417		CO	0	150			VC	23.89788	0
4302	184.23	CO	182.05	225			VC	67.6757	1 in 40
1311	155.02	CO	152.12	450			CO	79.64699	1 in 52
2207	159.86	CO	157.09	375			VC	35	1 in 31
4001	175.2	CO	173.82	225			VC	51.10773	1 in 8
4402	177.1	CO	174.11	225			VC	9.468633	0
2304	165.91	CO	164.21	225			VC	28.16026	1 in 14
6301	195.15	SW	195.02	225			VC	53.33854	1 in 86
2438		CO	0	150			VC	20.91241	0
3430	176.25	CO	169.58	150			VC	6.324055	1 in 0
5302	189.54	SW	186.46	225			VC	56.60389	1 in 118
4422	178.25	SW	176.52	300			VC	33.08679	1 in 7
6105		CO	0	150			VC	26.98999	0
2436		CO	0	150			VC	5.173705	0
3306	173.99	SW	172.22	150			VC	5.09902	1 in 4
2431		CO	0	100			VC	18.41538	0
6001	204.79	CO	201.92	225			VC	59.5399	1 in 7
2302	163.67	CO	162.25	225			VC	33.24154	1 in 12
3307	173.26	SW	171.22	300			VC	12.94159	1 in 46
1310	160.19	SW	158.79	225			VC	18.92776	1 in 14
3103	169.18	CO	162.93	300			VC	41.04875	1 in 257
6202	201.81	CO	198.37	225			VC	37.44309	1 in 9
2202		CO	0	600			VC	11.39448	0
4305	177.75	SW	175.68	150			VC	9.848858	1 in 12
6214	205.98	CO	203.99	225			VC	27.00724	1 in 208
1309	181.24	CO	180.36	225			VC	31.01812	1 in 14
5410	182.19	CO	180.29	225			VC	18.78629	1 in 10
4306	177.24	SW	174.67	150			VC	14.56022	1 in 12
4203		CO	0	300			VC	47.85394	0
2203		CO	0	600			VC	14.55499	0
2449		CO	0	100			VC	9.699177	0
3204	173.51	CO	170.71	300			VC	17.20465	0
6233		CO	0	150			VC	7.821001	1 in 7
4425	180.97	CO	179.71	150			VC	8.246211	0
6309		CO	0	150			VC	33.81347	0
5001	188.01	CO	185.05	225			VC	86.88498	0
4423	177.69	CO	175.76	150			VC	5.830562	0
6310		CO	0	100			VC	14.35206	0
1416		SW	0	225			VC	28.4605	1 in 61
6205	205.78	CO	204.37	150			VC	70.21996	0
3303		CO	0	300			VC	13.41641	0
4429	174.77	CO	172.61	300			VC	38.27032	1 in 23
3413	173.31	CO	171.54	150			VC	22.84752	1 in 286
2206	162.68	CO	157.9	600			VC	30.36445	1 in 42
4308	175.9	SW	173.62	150			VC	28.76236	1 in 14
3311	175.22	CO	173.36	300			VC	45.04442	1 in 17
2201	160.29	CO	159.42	375			VC	17.46425	1 in 42
2437		CO	0	150			VC	4.517224	0
3414	173.73	SW	171.55	150			VC	13.60147	1 in 30
5301	191.09	CO	187.98	225			VC	64.40467	1 in 11
3202	173.32	CO	172.32	150			VC	5.385165	0
6401	184.94	CO	183.04	225			VC	53.81465	1 in 15
3305	172.1	CO	170.76	300			VC	9.433681	1 in 8
2307		CO	0	100			VC	7.753675	0
2428		CO	0	150			VC	3.660019	0
6304		CO	0	150			VC	1.016714	0
4421	180.59	CO	178.36	225			VC	26.57068	1 in 7
3002	189.11	CO	186.46	225			VC	57.80138	1 in 16
2306		CO	0	100			VC	9.73145	0
2204		CO	0	225			VC	13.91064	0
2303		CO	0	100			VC	6.636604	0
5316		CO	0	150			VC	9.395679	0
2322		FO	0	150			VC	6.174046	0
4806		CO	0	150			VC	18.55701	0
2219		FO	0	150			VC	5.573135	0
2305		FO	0	100			VC	5.657879	0
2321		FO	0	150			VC	6.489868	0
2304		FO	0	150			VC	14.20163	0
2330		FO	0	100			VC	5.530284	0
5416		CO	0	150			VC	15.02451	0
4811		CO	0	100			VC	3.807975	0
2325		FO	0	100			VC	3.762534	0
2318		CO	0						

A P P E N D I X E: PROPOSED LAYOUT



H	Updated following meeting 18.06.2021	24.06.21	DL
G	Updated to client comments	17.06.21	DL
F	Updated to clients comments & altered to A1 1:200 scale	14.06.21	DL
Rev:	Details:	Date:	Dwn: Cbk:

Status: PRELIMINARY

Client: Derbyshire Fire & Rescue Service

Project: Glossop Fire Station

Drawing: Proposed Site Plan

JTP
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Date:	Project No:	Drawn:	10 / 954
June 2021	DL	DL	
Scale (@A1):	Checked:	Drawing No:	01 H
1 : 200			

**A P P E N D I X F: INDICATIVE GREENFIELD RUN-OFF RATE
CALCULATIONS**

OEC Consulting Engineers Ltd		Page 1
Clarke Hall Farm Aberford Road, Wakefield WF1 4AL		
Date 28/10/2021 13:45 File	Designed by Wayne Walker Checked by	
Innovyze	Source Control 2019.1	

**A P P E N D I X G: INDICATIVE SURFACE WATER DRAINAGE
CALCULATIONS**

OEC Consulting Engineers Ltd					Page 1	
Clarke Hall Farm Aberford Road, Wakefield WF1 4AL		Glossop Fire Station 100.094 30yr calcs				
Date 28/10/2021 13:53 File 100.094 - 30yr calcs.SRCX		Designed by W.Walker Checked by				
Innovyze		Source Control 2019.1				
<u>Summary of Results for 30 year Return Period</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	
15 min Summer	100.272	0.272	20.8	38.9	O K	
30 min Summer	100.329	0.329	20.9	47.1	O K	
60 min Summer	100.364	0.364	20.9	52.1	O K	
120 min Summer	100.352	0.352	20.9	50.3	O K	
180 min Summer	100.315	0.315	20.9	45.0	O K	
240 min Summer	100.277	0.277	20.8	39.6	O K	
360 min Summer	100.222	0.222	20.4	31.7	O K	
480 min Summer	100.193	0.193	18.8	27.5	O K	
600 min Summer	100.175	0.175	16.8	25.0	O K	
720 min Summer	100.161	0.161	15.1	23.1	O K	
960 min Summer	100.143	0.143	12.7	20.5	O K	
1440 min Summer	100.122	0.122	9.8	17.4	O K	
2160 min Summer	100.103	0.103	7.4	14.7	O K	
2880 min Summer	100.092	0.092	6.0	13.1	O K	
4320 min Summer	100.078	0.078	4.5	11.1	O K	
5760 min Summer	100.070	0.070	3.7	9.9	O K	
7200 min Summer	100.064	0.064	3.1	9.1	O K	
8640 min Summer	100.059	0.059	2.7	8.5	O K	
10080 min Summer	100.056	0.056	2.4	7.9	O K	
15 min Winter	100.272	0.272	20.8	38.9	O K	
30 min Winter	100.325	0.325	20.9	46.4	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
15 min Summer	65.844	0.0	49.1	15		
30 min Summer	44.669	0.0	66.7	24		
60 min Summer	29.080	0.0	87.1	42		
120 min Summer	18.374	0.0	110.1	76		
180 min Summer	13.873	0.0	124.7	108		
240 min Summer	11.298	0.0	135.4	138		
360 min Summer	8.462	0.0	152.2	196		
480 min Summer	6.882	0.0	165.0	254		
600 min Summer	5.859	0.0	175.6	314		
720 min Summer	5.135	0.0	184.7	374		
960 min Summer	4.166	0.0	199.8	492		
1440 min Summer	3.098	0.0	222.8	736		
2160 min Summer	2.300	0.0	248.3	1100		
2880 min Summer	1.860	0.0	267.7	1468		
4320 min Summer	1.377	0.0	297.1	2200		
5760 min Summer	1.112	0.0	320.3	2936		
7200 min Summer	0.943	0.0	339.5	3616		
8640 min Summer	0.824	0.0	356.0	4336		
10080 min Summer	0.736	0.0	370.5	5136		
15 min Winter	65.844	0.0	49.1	15		
30 min Winter	44.669	0.0	66.7	25		
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OEC Consulting Engineers Ltd					Page 2	
Clarke Hall Farm Aberford Road, Wakefield WF1 4AL		Glossop Fire Station 100.094 30yr calcs				
Date 28/10/2021 13:53 File 100.094 - 30yr calcs.SRCX		Designed by W.Walker Checked by				
Innovyze		Source Control 2019.1				
<u>Summary of Results for 30 year Return Period</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	
60 min Winter	100.346	0.346	20.9	49.5	O K	
120 min Winter	100.306	0.306	20.9	43.8	O K	
180 min Winter	100.251	0.251	20.6	36.0	O K	
240 min Winter	100.209	0.209	20.2	29.9	O K	
360 min Winter	100.172	0.172	16.5	24.6	O K	
480 min Winter	100.151	0.151	13.8	21.7	O K	
600 min Winter	100.137	0.137	11.9	19.7	O K	
720 min Winter	100.127	0.127	10.6	18.2	O K	
960 min Winter	100.113	0.113	8.6	16.1	O K	
1440 min Winter	100.096	0.096	6.5	13.7	O K	
2160 min Winter	100.081	0.081	4.8	11.6	O K	
2880 min Winter	100.072	0.072	3.9	10.3	O K	
4320 min Winter	100.062	0.062	2.9	8.8	O K	
5760 min Winter	100.055	0.055	2.4	7.9	O K	
7200 min Winter	100.051	0.051	2.0	7.2	O K	
8640 min Winter	100.047	0.047	1.8	6.7	O K	
10080 min Winter	100.044	0.044	1.5	6.3	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
60 min Winter	29.080	0.0	87.1	44		
120 min Winter	18.374	0.0	110.1	80		
180 min Winter	13.873	0.0	124.7	110		
240 min Winter	11.298	0.0	135.4	138		
360 min Winter	8.462	0.0	152.2	198		
480 min Winter	6.882	0.0	165.0	258		
600 min Winter	5.859	0.0	175.6	318		
720 min Winter	5.135	0.0	184.7	376		
960 min Winter	4.166	0.0	199.8	500		
1440 min Winter	3.098	0.0	222.8	736		
2160 min Winter	2.300	0.0	248.3	1100		
2880 min Winter	1.860	0.0	267.7	1468		
4320 min Winter	1.377	0.0	297.1	2192		
5760 min Winter	1.112	0.0	320.3	2912		
7200 min Winter	0.943	0.0	339.5	3640		
8640 min Winter	0.824	0.0	356.0	4312		
10080 min Winter	0.736	0.0	370.6	5136		
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OEC Consulting Engineers Ltd		Page 4
Clarke Hall Farm Aberford Road, Wakefield WF1 4AL	Glossop Fire Station 100.094 30yr calcs	
Date 28/10/2021 13:53 File 100.094 - 30yr calcs.SRCX	Designed by W.Walker Checked by	
Innovyze Source Control 2019.1		

Model Details

Storage is Online Cover Level (m) 105.000

Tank or Pond Structure

Invert Level (m) 100.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	143.0	0.700	143.0	1.400	143.0	2.100	143.0
0.100	143.0	0.800	143.0	1.500	143.0	2.200	143.0
0.200	143.0	0.900	143.0	1.600	143.0	2.300	143.0
0.300	143.0	1.000	143.0	1.700	143.0	2.400	143.0
0.400	143.0	1.100	143.0	1.800	143.0	2.500	143.0
0.500	143.0	1.200	143.0	1.900	143.0		
0.600	143.0	1.300	143.0	2.000	143.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0205-2090-0800-2090
Design Head (m)	0.800
Design Flow (l/s)	20.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	205
Invert Level (m)	100.000
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	20.9
Flush-Flo™	0.321	20.9
Kick-Flo®	0.608	18.4
Mean Flow over Head Range	-	17.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.0	1.200	25.4	3.000	39.4	7.000	59.4
0.200	19.6	1.400	27.3	3.500	42.4	7.500	61.4
0.300	20.9	1.600	29.1	4.000	45.3	8.000	63.4
0.400	20.7	1.800	30.8	4.500	47.9	8.500	64.9
0.500	20.1	2.000	32.4	5.000	50.4	9.000	66.8
0.600	18.6	2.200	33.9	5.500	52.8	9.500	68.7
0.800	20.9	2.400	35.4	6.000	55.1		
1.000	23.2	2.600	36.8	6.500	57.3		

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OEC Consulting Engineers Ltd					Page 1	
Clarke Hall Farm Aberford Road, Wakefield WF1 4AL		Glossop Fire Station 100.094 100yr + 40% calcs				
Date 28/10/2021 13:52 File 100.094 - 100yr + 40% c...		Designed by W.Walker Checked by				
Innovyze		Source Control 2019.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	
15 min Summer	100.532	0.532	20.9	76.1	O K	
30 min Summer	100.682	0.682	20.9	97.6	O K	
60 min Summer	100.773	0.773	20.9	110.6	O K	
120 min Summer	100.800	0.800	20.9	114.4	O K	
180 min Summer	100.766	0.766	20.9	109.6	O K	
240 min Summer	100.715	0.715	20.9	102.3	O K	
360 min Summer	100.608	0.608	20.9	86.9	O K	
480 min Summer	100.490	0.490	20.9	70.1	O K	
600 min Summer	100.398	0.398	20.9	56.9	O K	
720 min Summer	100.326	0.326	20.9	46.7	O K	
960 min Summer	100.235	0.235	20.5	33.6	O K	
1440 min Summer	100.178	0.178	17.2	25.4	O K	
2160 min Summer	100.145	0.145	12.9	20.7	O K	
2880 min Summer	100.126	0.126	10.4	18.1	O K	
4320 min Summer	100.105	0.105	7.7	15.0	O K	
5760 min Summer	100.093	0.093	6.1	13.2	O K	
7200 min Summer	100.084	0.084	5.2	12.0	O K	
8640 min Summer	100.078	0.078	4.5	11.2	O K	
10080 min Summer	100.073	0.073	4.0	10.5	O K	
15 min Winter	100.532	0.532	20.9	76.0	O K	
30 min Winter	100.681	0.681	20.9	97.4	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
15 min Summer	119.025	0.0	89.0	17		
30 min Summer	81.603	0.0	122.1	31		
60 min Summer	53.483	0.0	160.3	50		
120 min Summer	33.811	0.0	202.7	84		
180 min Summer	25.423	0.0	228.7	118		
240 min Summer	20.586	0.0	246.9	154		
360 min Summer	15.312	0.0	275.5	222		
480 min Summer	12.388	0.0	297.1	280		
600 min Summer	10.500	0.0	314.8	338		
720 min Summer	9.167	0.0	329.8	396		
960 min Summer	7.391	0.0	354.6	502		
1440 min Summer	5.444	0.0	391.7	736		
2160 min Summer	3.999	0.0	431.8	1100		
2880 min Summer	3.208	0.0	461.8	1468		
4320 min Summer	2.346	0.0	506.5	2192		
5760 min Summer	1.880	0.0	541.3	2896		
7200 min Summer	1.584	0.0	570.1	3672		
8640 min Summer	1.377	0.0	594.9	4368		
10080 min Summer	1.224	0.0	616.6	5072		
15 min Winter	119.025	0.0	89.0	17		
30 min Winter	81.603	0.0	122.1	30		
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Clarke Hall Farm Aberford Road, Wakefield WF1 4AL		Glossop Fire Station 100.094 100yr + 40% calcs				
Date 28/10/2021 13:52 File 100.094 - 100yr + 40% c...		Designed by W.Walker Checked by				
Innovyze		Source Control 2019.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	
60 min Winter	100.767	0.767	20.9	109.7	O K	
120 min Winter	100.773	0.773	20.9	110.5	O K	
180 min Winter	100.710	0.710	20.9	101.6	O K	
240 min Winter	100.623	0.623	20.9	89.0	O K	
360 min Winter	100.435	0.435	20.9	62.2	O K	
480 min Winter	100.301	0.301	20.9	43.1	O K	
600 min Winter	100.222	0.222	20.4	31.7	O K	
720 min Winter	100.192	0.192	18.7	27.4	O K	
960 min Winter	100.163	0.163	15.3	23.3	O K	
1440 min Winter	100.133	0.133	11.4	19.1	O K	
2160 min Winter	100.111	0.111	8.4	15.9	O K	
2880 min Winter	100.098	0.098	6.7	14.0	O K	
4320 min Winter	100.082	0.082	5.0	11.7	O K	
5760 min Winter	100.073	0.073	4.0	10.4	O K	
7200 min Winter	100.067	0.067	3.4	9.5	O K	
8640 min Winter	100.062	0.062	2.9	8.8	O K	
10080 min Winter	100.058	0.058	2.6	8.3	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)		
60 min Winter	53.483	0.0	160.3	52		
120 min Winter	33.811	0.0	202.7	90		
180 min Winter	25.423	0.0	228.7	128		
240 min Winter	20.586	0.0	246.9	166		
360 min Winter	15.312	0.0	275.5	226		
480 min Winter	12.388	0.0	297.1	280		
600 min Winter	10.500	0.0	314.8	328		
720 min Winter	9.167	0.0	329.8	380		
960 min Winter	7.391	0.0	354.6	498		
1440 min Winter	5.444	0.0	391.7	738		
2160 min Winter	3.999	0.0	431.8	1100		
2880 min Winter	3.208	0.0	461.8	1468		
4320 min Winter	2.346	0.0	506.5	2196		
5760 min Winter	1.880	0.0	541.3	2936		
7200 min Winter	1.584	0.0	570.1	3600		
8640 min Winter	1.377	0.0	594.9	4400		
10080 min Winter	1.224	0.0	616.7	5072		
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Clarke Hall Farm Aberford Road, Wakefield WF1 4AL	Glossop Fire Station 100.094 100yr + 40% calcs	
Date 28/10/2021 13:52 File 100.094 - 100yr + 40% c...	Designed by W.Walker Checked by	
Innovyze Source Control 2019.1		

Model Details

Storage is Online Cover Level (m) 105.000

Tank or Pond Structure

Invert Level (m) 100.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	143.0	0.700	143.0	1.400	143.0	2.100	143.0
0.100	143.0	0.800	143.0	1.500	143.0	2.200	143.0
0.200	143.0	0.900	143.0	1.600	143.0	2.300	143.0
0.300	143.0	1.000	143.0	1.700	143.0	2.400	143.0
0.400	143.0	1.100	143.0	1.800	143.0	2.500	143.0
0.500	143.0	1.200	143.0	1.900	143.0		
0.600	143.0	1.300	143.0	2.000	143.0		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0205-2090-0800-2090
Design Head (m)	0.800
Design Flow (l/s)	20.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	205
Invert Level (m)	100.000
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1500

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	20.9
Flush-Flo™	0.321	20.9
Kick-Flo®	0.608	18.4
Mean Flow over Head Range	-	17.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	7.0	1.200	25.4	3.000	39.4	7.000	59.4
0.200	19.6	1.400	27.3	3.500	42.4	7.500	61.4
0.300	20.9	1.600	29.1	4.000	45.3	8.000	63.4
0.400	20.7	1.800	30.8	4.500	47.9	8.500	64.9
0.500	20.1	2.000	32.4	5.000	50.4	9.000	66.8
0.600	18.6	2.200	33.9	5.500	52.8	9.500	68.7
0.800	20.9	2.400	35.4	6.000	55.1		
1.000	23.2	2.600	36.8	6.500	57.3		

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