

7 Appendices

7.1 Appendix A – Site Plan

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project

OLD PARK LODGE
SLAUGHAM LANE
WARNINGLID

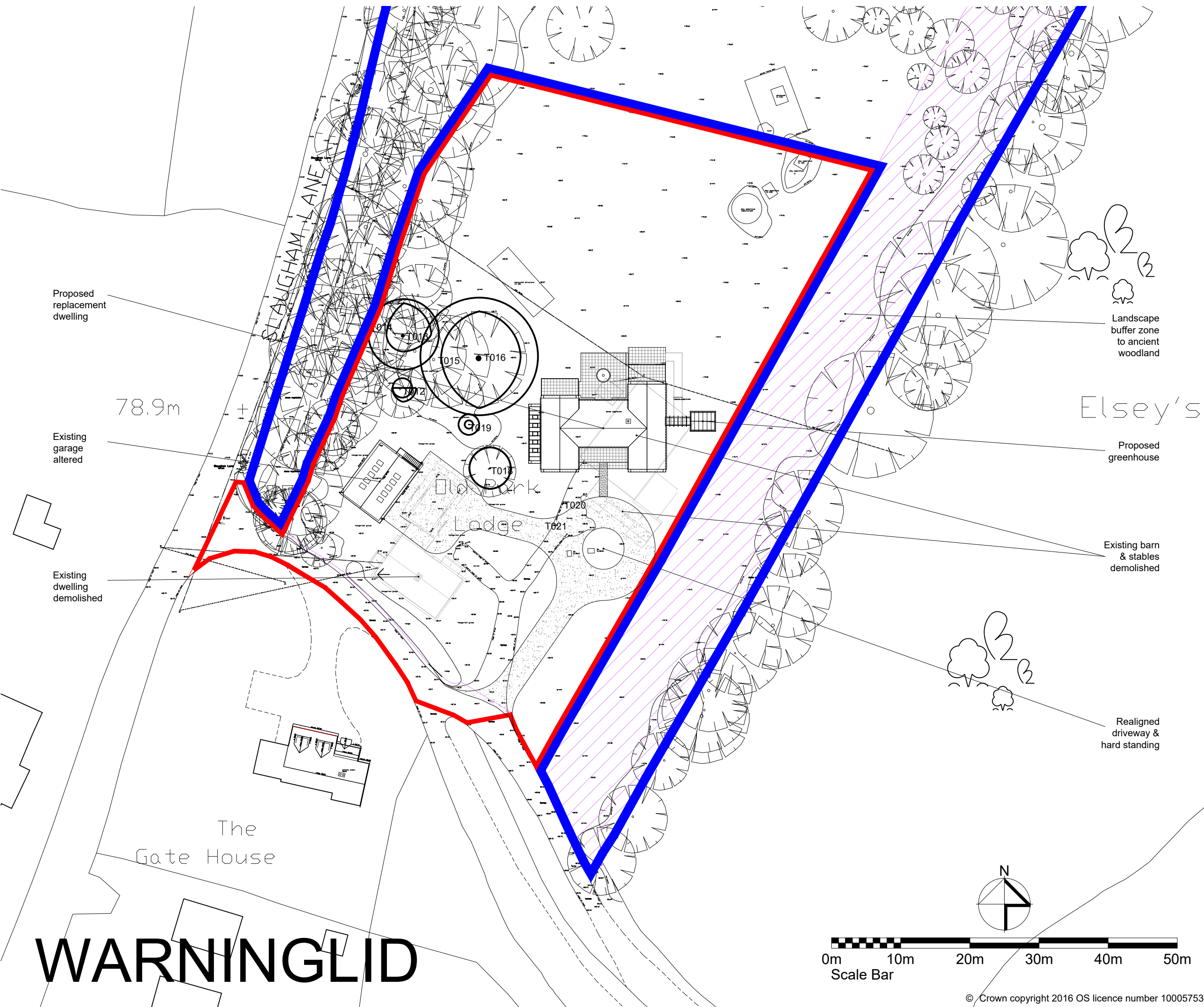
title

PROPOSED
SITE PLAN

drawn CAD/RNT	date 26.10.23
scale 1:500@A3	number 2315.100

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architecture + design

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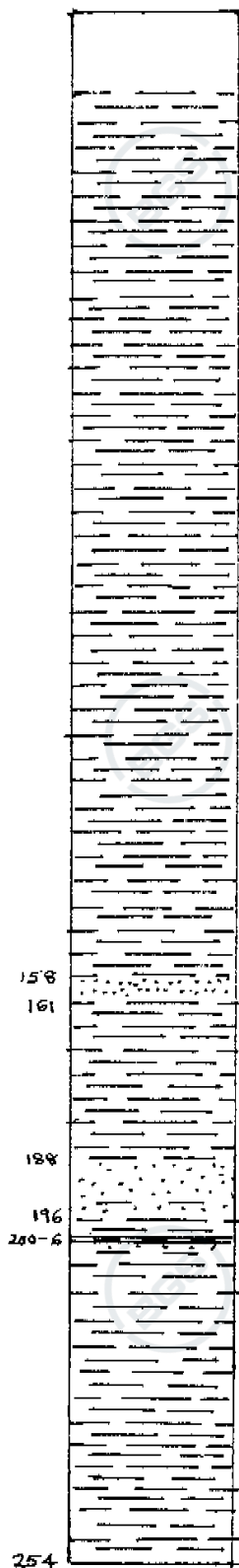
7.2 **Appendix B – Borehole Logs**

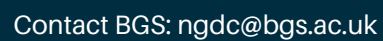


WARNINGEID NO 1.

Scale 40 ft to 1 in

TQ22NW1/1







GEOLOGICAL SURVEY OF GREAT BRITAIN
RECORD OF SHAFT OR BORE FOR MINERALS

Name of Shaft or Bore given by Geological Survey:

Warninglid No.1

Name and Number given by owner:

For whom made I.G.S.

Town or Village Slaugham (Warninglid) County E. Sussex

Exact site 600 yd W 10° S of Old Park and 1000 yd N 10° W of Inn at Warninglid (Attach a tracing from a map, or a sketch-map, if possible.)

Purpose for which made To prove age of Wealden clay present

Ground Level at shaft relative to O.D. c 300 (900 ft) If not ground level give O.D. of beginning of shaft bore

Made by I.G.S. (Contractors: D.P.I. Ltd.)

Date of sinking May 1966

Information from

Date received

Examined by R.G. Thurrell, R.D. Lake

(For Survey use only)

6-inch Map Registered No.

TQ 22 NW/1

Nat. Grid Reference

2488 2701

1" N.S. Map No.

302

1" O.S. Map No.

Confidential or not

NCT

SPECIMEN NUMBERS AND ADDITIONAL NOTES

Colours logged as wet unless indicated thus: - * (dry)

(For Survey use only) GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA	THICKNESS		DEPTH	
		FT	IN.	FT	IN.
	Rock bit in yellowish brown unctuous clay becoming stiff below	10	6	10	6
				(3.2 m)	
	Clay, slightly silty, medium bluish grey (5B5/1)* but mainly weathered to moderate olive brown (5Y4/4) stained by ferruginous percolation to moderate brown (5YR3/4), becoming fresher downward. Locally, paler fine silty bands are preserved (eg. 13 ft. 10)				
	Core much broken, some lost.	4	0	14	6
				(4.4 m)	
	Mudstone, slightly silty, dark grey (N5) to dark greenish grey (5GY4/1)				
	Core much broken, some lost	2	6	17	0
				(5.1 m)	
	Mudstone, silty, laminated - strongly in places, ? calcareous, medium light grey (N6)* locally pinkish. Fractures iron-stained. ? Ferruginous linear growth at 20 ft 3.				
	Core much broken to 18 ft.	5	0	22	0
				(6.7 m)	
	Mudstone, very silty, hard; well-bedded with worm burrows, dip 3°-5°.				

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Warninglid No. 1.

Brought Forward		22	0
Medium light grey (N6)	- 6	(6.71m)	6
Mudstone, laminated, silty, Medium dark grey (N4); 1 in. siltstone band at 24'3 with ostracods, ? fish fragments, various organic compressions. Ostracods continue to 25 ft. 6.	3 0	25	6
		(7.77m)	
Mudstone, silty, laminated ('striped') bedding, becoming more silty downward; moderate olive brown (5Y4/4) alternating with light olive brown (5Y5/6), ostracod bearing horizons present. (Colour indicates weathering by percolating water).	1 6	27	0
		(8.23m)	
Siltstone, dusky yellow (5Y6/4), with clayey silt and silty clay partings, and fine sandstone (ferruginous) moderate brown (5YR3/4). Plant bearing with ?rootlet/worm tubes.	- 7	27	7
		(8.41m)	
Mudstone, silty, laminated ('striped'), dark greenish grey with ferruginous staining (5GY4/1); becoming more clayey and greyer downward. ? Rootlet/worm tubes.	1 3	28	10
		(8.78m)	
Open hole (no core, no cuttings obtained)	6 2	35	0
		(10.67m)	
Mudstone, silty, medium grey (N4-N5), iron-stained dark yellowish orange (10YR6/6) to moderate brown (5YR3/4) on joints and in cavities. Local carbonaceous fragments at 35 ft. 6., striped light grey (N7*) c 36 ft. (where seen), bioturbated possibly c 38 ft. - core much reconstituted. 2/3 recovery condition fragmentary.	6 0	41	0
		(12.50m)	
Mudstone, silty, laminated becoming darker, more massive below and less silty. Dark greenish grey (5G4/1) to medium bluish grey (5B5/1). Shell bands ('small-Paludina') 41 ft. to 43 ft., (chitinous segment at 42 ft. 6), 44 ft. 10 (1/2 in.), 45 ft. 3 (fish), ? rootlet activity at 45 ft. 6, carbonaceous fragments 46 ft. 0-3. Ostracods throughout. ? Reconstituted, imbricate c. 43 ft.	5 3	46	3
		(14.10m)	
Mudstone, laminated locally by silty layers. Silt- stone beds in places to 1/2 in. Dark grey (N3) becoming shaly at 54 ft., olive black (5Y2/1) tending to dark greenish grey (5GY3/1), becoming dark greenish grey (5G4/1) at 57 ft. Ostracods 48 ft. to 49 ft. 6, carbonaceous fragments at 49 ft., 53 ft. 0-6. Bioturbate c. 47 ft., 50 ft. 3 - 51 ft., 54 ft. Core much broken 46 ft. 3 - 48 ft. and nearly all reconstituted.	11 3	57	6
		(12.53m)	
Mudstone very slightly silty, vaguely laminated. Ostracod rich band at 58 ft. (? 4" thick)	1 0	58	6
		(17.83m)	
Mudstone, silty, laminated, dark greenish grey (5G4/1)	1 6	60	0
		(18.29m)	
Mudstone, very slightly silty, vaguely laminated.	1 0	61	0
		(18.59m)	
Mudstone, very slightly silty, hard. Laminated in parts becoming bioturbate at 63 ft. - 64 ft. 7 but locally laminated still. Ostracod bands above thick laminations at 61 ft. 6. Greenish			

TQ 22 NW/1

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Warninglid No. 1.

Brought Forward

grey (5Y5/1) tending to light olive grey (5Y4/1)* in parts. Shelly band at 62 ft. 9 below bioturbate bed.	3	7	61	0	(18.59m)
Mudstone, laminated to massive greenish black (5Y2/1) to olive black (5Y2/1) rapidly becoming light olive grey (5Y6/1*).	2	5	64	7	(19.69m)
Mudstone, slightly silty, bioturbate (bioturbation shown by irregular red patches), hard, blocky as between 67 ft. 3 and 69 ft. Dark greenish grey (5Y3/1). Plant remains and ? worm tubes at 68 ft. 6.	2	6	67	0	(20.42m)
Mudstone, silty, well banded locally but bioturbate with vague dark and pale alternations in dark greenish grey (5Y4/1) and medium grey (N5) tending to greenish grey (5Y6/1) alternating with more clayey dark greenish grey (5Y4/1). No fossils seen. Current lineations at 70 ft. Bioturbation occurs throughout (within bands in laminated beds). Lamination becomes less distinct 77 ft. 6 to 79 ft. 6, 89 ft. 0 in. to 92 ft., 94 ft. 6 to 96 ft. Core reconstituted 77 ft. to 78 ft. 6, 83 ft. 6 to 84 ft. 6, 90 ft. to 96 ft. Jointing random. Dip < 5°.	29	6	69	6	(21.18m)
Mudstone, slightly silty, medium/dark greenish grey (5Y5/1*) (sudden colour change here). Sporadically laminated. Ostracods. Core reconstituted in parts. Tends to be less green, more bioturbate (trails etc.) at 99 ft. 6, striping developed ca 101 ft. Core reconstituted 102 ft. to 104 ft. 6.	6	0	99	0	(30.18m)
Mudstone, slightly silty, homogeneous medium grey (N5)* locally olive tinged tending to light grey (N6)*. Shelly band at 105 ft. 3. Ostracods scattered throughout.	2	5	105	0	(32.00m)
Siltstone, light olive grey (5Y6/1)* 1" thick associated with ostracod bed above.	0	1	107	5	(32.74m)
Mudstone as above becoming bioturbate at 109 ft., olive tinged at 109 ft. 9, reverting to medium light grey (N6)* at 110 ft. 2, sporadically thinly striped. At 111 ft. 6 becomes bioturbate with reduction 'shadows', olive tinged. Carbonaceous fragments 114 ft. to 116 ft. Ostracods at 116 ft.	10	9	107	6	(32.77m)
Mudstone as above, but striped, the lamination decreasing in intensity below 119 ft. 4. Carbonaceous fragments 119 ft. 4 to 121 ft. esp 119 ft. 6 - ? rootlets.	2	9	118	3	(36.04m)
Mudstone, medium light grey (N6)*, homogeneous, massive with plant fragments. Locally olive tinged.	2	0	121	0	(36.96m)
(Core diameter reduced to 3") Mudstone, dark greenish grey (5Y4/1)*, homogeneous, silty becoming medium dark grey (N4) at 123 ft. 5 with ostracod-bearing laminae and shell 'nests'.	2	0	123	0	(37.57m)

TQ 22 NW/1

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Warninglid No. 1.

Brought Forward			123	0	(37.49m)
At 125 ft. 6 becomes medium grey (N5)* with olive tinge locally. Core almost completely reconstituted.	4	0	127	0	(38.71m)
Mudstone, medium grey (N5)* tending to light grey (N7)*, silty, bioturbate with occasional bands of striped variety, esp. 129 ft. 3 to 131 ft. 6 becoming massive with carbonaceous fragments to 133 ft., laminated 'striped' at 135 ft. 6, then massive bioturbate to 137 ft. 6 where vaguely bedded, increasingly massive, less bioturbate. Core reconstituted 135 ft. 10 - 136 ft. 4.	12	10	139	10	(42.62m)
Mudstone, hard, dark greenish grey with $\frac{1}{2}$ " siltstone, greenish grey (56Y6/1) at base. 56Y6/1	-	9 $\frac{1}{2}$	140	7 $\frac{1}{2}$	(42.95m)
Mudstone, silty, bioturbate with local laminations, greenish grey becoming dark grey below, striped from 143 ft. 11 to 144 ft. 3, massive light grey (N6)* with darker wisps giving vague lamination becoming increasingly bioturbate to 145 ft. 7, striped from 146 ft. 0 - 4, increasingly bioturbate to 146 ft. 10, striped to 147 ft., homogeneous, fossiliferous with occasional trail markings to 149 ft. 4. Ostracods at 148 ft. 10. Jointing random, sporadic. Reconstituted 145 ft. to 146 ft.	8	8 $\frac{1}{2}$	149	4	(45.52m)
Slickensided zone of above lithology consisting of upper shatter zone and lower subvertical slickenside zone.	0	8	150	0	(45.72m)
Mudstone, silty, 'striped' initially becoming bioturbate from 150 ft. 3 to 151 ft. 6, then homogeneous, massive, only slightly bioturbed, medium light grey (N5)* (olive tinged at 153 ft. downward) becoming laminated (not colour distinct) with rough mottled bedding surfaces to 156 ft. 2. Slickenside at 157 ft. 4, 152 ft. 9.	6	2	156	2	(47.60m)
Mudstone silty, 'striped' individual laminae being bioturbed, medium light grey (N6)*, becoming well bedded homogeneous from 157 ft. tending to very silty, well laminated to base.	1	6	157	8	(48.06m)
Mudstone, with silty and sandy laminations, the latter being irregularly shaped.	-	4	158	0	(48.16m)
Sandstone, greenish grey (56Y6/1) to pale olive grey (5Y6/1), fine-grained, compact, calcareous, locally well laminated with occasional silt/mudstone lenses. Micaceous, lignite particles present. Becomes greyer silty 160 ft. 0 to 160 ft. 4.	3	1	161	1	(49.10m)
Siltstone, alternating with silty mudstone becoming less silty.	1	11	163	0	(49.68m)
Mudstone, hard, silty laminated to 164 ft. 6, then massive with many carbonaceous fragments and occasional bands of greenish wisps tending to be more argillaceous to base. Core reconstituted 164 ft.-165 ft.	4	0	167	0	(50.90m)

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Warninglid No. 1.

Brought Forward

			167	0
			(50.90m)	
Mudstone, light grey (N7)* homogeneous, well bedded with ostracod bed above and at 167 ft. 9, rapidly becoming bioturbate below. Slickensides at 167 ft. 4: Mudstone roughly fractured below this.	1	8	168	8
			(51.41m)	
Mudstone, silty, evenly laminated, well bedded, medium grey (N5)* with sharp contact above. Contains occasional 'stringers' of organic debris becoming olive grey, laminated at 171 ft. 7, reverting to medium light grey (N6)* colour laminated at 171 ft. 7, reverting to medium light grey (N6)* colour laminated at 173 ft., becoming medium grey (N5)* olive tinged at 174 ft., bioturbate 177 ft. to 178 ft., striped to 178 ft. 7, homogeneous with slight colour lamination, lost by overall oxidation to 180 ft. Continues to 183 ft. 10 as fairly homogeneous with occasional green/black wisps (bioturbation small) becoming striped at 183 ft. 10, reverting to homogeneous, slightly bioturbate at 184 ft. 8. Medium light grey (N6)*, homogeneous with occasional carbonaceous fragments to base. Lystic surfaces at 168 ft. 9, 184 ft. 9. Core reconstituted 175 ft. - 177 ft., 186 ft. 0-186 ft. 8, 184 ft. 9 to 185 ft. 9.	17	6	186	2
			(56.74m)	
Mudstone, silty, bioturbate, less blue than above with sharp contact above. Rapidly becomes non-bioturbate, locally 'striped'; colour laminated with flat fracture to base.	1	1	187	3
			(57.07m)	
Silty, mudstone and sandy mudstone, calcareous becoming sandier downward. Sandy lenticles slickensided against clayey lenticles, bedding disturbed. Red ox. variation picks out silty mudstone grade lenticles (pink).	0	11	188	2
			(57.35m)	
Sandstone, hard, calcareous with occasional clayey partings containing lignite fragments. Rootlet activity evident in more calcareous bands e.g. 189 ft. 8. Most contacts are deformed by differential compaction. Local high dips (20°) in sandier beds due to slumping? e.g. 188 ft. 7. The bedding is apparently rhythmic & mudstone grading to siltstone upwards capped by a more calcareous sandstone. The core is sheared between 190 ft. 6 and 191 ft. 3.	3	0	191	2
			(58.27m)	
Sandstone, hard, fine grained, calcareous with ripple marked tops to seams, separated by mudstones with silty wisps. The sandstones are locally cross bedded. The thicker sandstone units contain lignite laminae and mud flake conglomerates e.g. 192 ft. 8 and grade downward to siltstone e.g. 193 ft. Mud flake conglomerate at 193 ft. 9 contains a piece of bone causing bedding disturbance around it. Slumping is picked out by the lignite laminae.	3	1	194	3
			(59.21m)	
Mudstone, silty greenish grey with 1/2 in. sandy partings as above but becoming predominantly				

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Warninglid No. 1.

Brought Forward			194	3	(59.21m)
argillaceous especially after 196 ft. with only thin runs and lenses of sand.	5	11	200	2	(61.01m)
Mudstone with clay ironstone bands.	-	1	200	6	(61.11m)
Mudstone/sandstone as above neither seams exceeding 1 in. in thickness. The seams are rippled and lensed, the mudstone is locally bioturbate.	2	0	202	6	(61.72m)
Mudstone, silty and banded.	-	9	203	3	(61.95m)
Mudstone with sandy lenses to 205 ft., dark greenish grey. Incipient clay ironstones at 205 ft. 2 to 205 ft. 2 $\frac{1}{2}$, 205 ft. 3 to 205 ft. 4, 206 ft. 3 to 206 ft. 3 $\frac{1}{2}$	3	3	206	6	(62.94m)
Mudstone, silty, generally homogeneous (but locally slightly bioturbate) with carbonaceous fragments in places, occasionally vaguely laminated with quite clean fracture. Colour generally medium light grey (N6)* / medium dark grey (N4)* at 215 ft. 6' Dark greenish black compact band for 1 $\frac{1}{2}$ " to 210 ft. 9 $\frac{1}{2}$ " (chamositic?). Becomes bioturbate from 216 ft.	11	6	218	0	(66.45m)
Mudstone, silty, medium light grey, sometimes greenish, striped.	1	0	219	0	(66.75m)
As above but bioturbate	3	2	222	2	(67.72m)
As before but striped	-	4	222	6	(67.82m)
As before but bioturbate	1	6	224	0	(68.28m)
Mudstone, silty, colour as before, vaguely striped tending to homogeneous locally.	1	6	225	6	(68.73m)
Mudstone, silty, slightly bioturbate	1	6	227	0	(69.19m)
Mudstone, silty, striped slightly bioturbate at 228 ft. 0.	1	6	228	6	(69.65m)
Mudstone, silty, bioturbate	2	10	231	4	(70.51m)
Mudstone, as above, but locally striped	3	8	235	0	(71.63m)
Mudstone, silty, strongly striped.	1	2	236	2	(71.98m)
Mudstone, silty, bioturbate	1	10	238	0	(72.54m)
Mudstone, silty, striped	-	6	238	6	(72.76m)
Mudstone, silty, bioturbate	1	8	240	2	(73.20m)
Mudstone, silty, colour as before, strongly striped becoming siltier with less distinct lamination.	2	1	242	3	(73.84m)
Mudstone, bioturbate less silty than above.	2	10	245	1	(74.70m)
Mudstone, silty, strongly striped.	1	2	246	3	(75.06m)
Mudstone, silty, bioturbate	-	10	247	1	(75.31m)

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Warninglid No. 1.

Brought Forward

Mudstone, . silty, striped.
Mudstone, silty, bioturbate.
Mudstone, silty, striped.
Mudstone, silty, bioturbate
Mudstone, silty, striped, with olive tinge,
Lystic surfaces at 250 ft. 8.
Seen to base at

		247	1
		(75.31m)	
-	4	247	5
		(74.41m)	
-	7	248	0
		(75.59m)	
-	8	248	8
		(75.79m)	
-	4	249	0
		(75.90m)	
5	0	254	0
		(77.42m)	

I.C.S. EXPL. CORE

CONFIDENTIAL IN CONFIDENCE

302 TO 22/19 N.N.
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Warninglid No. 1 [TQ 2488 2701] Surface level c. + 300 O.D.

600 yd (549 m) W 10° S of Old Park and 1000 yd (914 m) W 10° W of the

Half Moon Inn at Warninglid.

4½-in (0.11 m) core to 123 ft (37.49 m). 3-in (0.08 m) core from 123 ft - 254 ft
(37.49 m - 77.42 m).

G.S.R. specimen numbers. By 9621-9968.

Colours logged as wet unless indicated thus:- * (dry)

WHALE
CLAY

	Thickness			Depth to base		
	ft	in	m	ft	in	m
Clay, yellowish brown, unctuous, becoming stiff below (rockbitted).	10	6	3.20	10	6	3.20
Clay, slightly silty, medium bluish grey (5B5/1)* but mainly weathered to moderate olive brown (5Y4/4) stained by ferruginous percolation to moderate brown (5YR3/4), becoming fresher downward. Locally, paler fine silty bands are preserved.	4	0	1.22	14	6	4.42
Mudstone, slightly silty, dark grey (N5) to dark greenish grey (5GY4/1).	2	6	0.76	17	0	5.18
Mudstone, silty, laminated - strongly in places, medium light grey (N6)* locally pinkish.	5	0	1.53	22	0	6.71
Mudstone, very silty, hard; well-bedded, with worm burrows, dip 3° - 5°. Medium light grey (N6).	-	6	0.15	22	6	6.86
Mudstone, silty, laminated. Medium dark grey (N4): 1 in (25.4 mm) siltstone band at 24 ft 3 in (7.39 m) with ostracods: Ostracods continue to 25 ft 6 in (7.77 m).	3	0	0.91	25	6	7.77
Mudstone, silty, laminated, becoming more silty downward; moderate olive brown (5Y4/4) alternating with light olive brown (5Y5/6); ostracod horizons present. (Colour indicates weathering by percolating water).	1	6	0.46	27	0	8.23
Siltstone, dusky yellow (5Y6/4), with clayey silt and silty clay partings, and fine sandstone (ferruginous) moderate brown (5YR5/4). Plant bearing with rootlet/worm tubes.	-	7	0.18	27	7	8.41

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	Thickness			Depth to base		
	ft	in	m	ft	in	m
Mudstone, silty, laminated dark greenish grey with ferruginous staining (5GY4/1); becoming more clayey and greyer downward. ?Rootlet/worm tubes.	1	3	0.38	28	10	8.79
<u>Open hole (no core, no cuttings obtained).</u>	6	2	1.88	35	0	10.67
Mudstone, silty, medium grey (N4-N5), iron-stained dark yellowish orange (10YR6/6) to moderate brown (5YR3/4) on joints and in cavities. Local carbonaceous fragments at 35 ft 6 in. (10.82 m), striped light grey (N7) c. 36 ft (10.97 m) (where seen).	6	0	1.83	41	0	12.50
Mudstone, silty, laminated becoming darker, more massive below and less silty. Dark greenish grey (5GY4/1) to medium bluish grey (5B5/1). Shell bands ('small-Paludina') 41 ft to 43 ft (12.50 to 13.11 m), (chitinous segment at 42 ft 6 in (12.95 m)), 44 ft 10 in (11 in) (13.67 m (12.7 mm)), 45 ft 3 in (13.79 m) (fish); Rootlets at 45 ft 6 in (13.87 m), carbonaceous fragments 46 ft 0-3 in (14.02 - 14.10 m). Ostracodes throughout.	5	3	1.60	46	3	14.10
Mudstone, with local silt partings. Siltstone beds in places to 1/2 in (12.7 mm). Dark grey (N5) becoming shaly at 54 ft (16.46 m), olive black (5Y2/1) tending to dark greenish grey (5GY3/1), becoming dark greenish grey, (5GY4/1) at 57 ft (17.37 m). Ostracodes 48 ft to 49 ft 6 in (14.63 to 15.09 m); carbonaceous fragments at 49 ft, 53 ft 0-6 in (14.94, 16.15-16.31 m). Bioturbated c. 47 ft, 50 ft 3 in - 51 ft, 54 ft (14.33, 15.32 - 15.54, 16.46 m).	11	3	3.43	57	6	17.53
Mudstone, very slightly silty, vaguely laminated. Ostracod rich band at 58 ft (17.68 m).	1	0	0.30	58	6	17.83
Mudstone, silty, laminated, dark greenish grey (5GY4/1).	1	6	0.46	60	0	18.29
Mudstone, very slightly silty, vaguely laminated.	1	0	0.30	61	0	18.59

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TQ22/19
depth

	Thickness			to base		
	ft	in	m	ft	in	m
Mudstone, very slightly silty, hard. Laminated in parts becoming bioturbated at 63 ft - 64 ft 7 in (19.20 - 19.69 m) but locally laminated still. Ostracod bands above thick laminations at 61 ft 6 in (18.75 m). Greenish grey (5GY5/1) tending to light olive grey (5Y4/1)* in parts. Shelly band at 62 ft 9 in (19.13 m) below bioturbated bed.	5	7	1.10	64	7	19.69
Mudstone, laminated to massive, greenish black (5GY2/1) to olive black (5Y2/1) rapidly becoming light olive grey (5Y6/1)*.	2	5	0.75	67	0	20.42
Mudstone, slightly silty, bioturbated (bioturbation shown by irregular red patches), hard, blocky as between 67 ft 3 in and 69 ft (20.50 and 21.03 m). Dark greenish grey (5GY3/1). Plant remains and worm tubes at 68 ft 6 in (20.88 m).	2	6	0.76	69	6	21.18
Mudstone, silty, well laminated locally but bioturbated, with vague dark and pale alternations in dark greenish grey (5GY4/1) alternating with more clayey dark greenish grey (5GY4/1). No fossils seen. Current lineations at 70 ft (21.34 m). Bioturbation occurs throughout (within bands in laminated beds). Lamination becomes less distinct 77 ft 6 in (23.62 m) to 79 ft 6 in (24.23 m), 89 ft 0 in to 92 ft (27.13 to 28.04 m), 94 ft 6 in to 96 ft (29.80 to 29.26 m). Dip less than 5°.	29	6	9.00	99	0	30.18
Mudstone, slightly silty, medium/dark greenish grey (5GY5/1)* (sudden colour change here). Sporadically laminated. Ostracods. Tends to be less green, more bioturbated (trails etc) at 99 ft 6 in (30.33 m); striping developed c. 101 ft (30.78 m).	6	0	1.82	105	0	32.00
Mudstone, slightly silty, homogeneous, medium grey (N5)* locally olive tinged tending to light grey (N6)*. Shelly band at 105 ft 3 in (32.08 m). Ostracods scattered throughout and at base.	2	5	0.74	107	5	32.74
Ostracods 14 ditto (5Y6/1)*	-	1	0.03			

and medium grey (N5) tending to greenish grey (5Y6/1)

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	Thickness			Depth to base		
	ft	in	m	ft	in	m
Mudstone, as above, becoming bioturbated at 109 ft (33.22 m), olive tinged at 109 ft 9 in (33.45 m), reverting to medium light grey (M6)* at 110 ft 2 in (33.58 m), sporadically thinly striped. At 111 ft 6 in (33.99 m) becomes bioturbated. Carbonaceous fragments 114 ft to 116 ft (34.75 to 35.36 m). Ostracods at 116 ft (35.36 m).	10	9	3.27	110	3	36.04
Mudstone, as above, but striped, the lamination decreasing in intensity below 119 ft 4 in (36.37 m). Carbonaceous fragments 119 ft 4 in to 121 ft (36.37 to 36.88 m) esp. 119 ft 6 in (36.42 m) - Tractlets here.	2	9	0.84	121	0	36.88
Mudstone, medium light grey (M6)*, homogeneous, massive with plant fragments. Locally olive tinged.	2	0	0.61	123	0	37.49
(Core diameter reduced to 2" (0.08 m)).						
Mudstone, homogeneous, silty, dark greenish grey (5GY4/1)*, becoming medium dark grey (M4) at 123 ft 5 in (37.62 m) with ostracod-bearing laminae and shell pockets. At 125 ft 6 in (38.25 m) becomes medium grey (M5)* with olive tinge locally.	4	0	1.22	127	0	38.71
Mudstone, silty, medium grey (M5)* tending to light grey (M7)*, bioturbated with occasional bands of striped variety, esp. 129 ft 3 in to 131 ft 6 in (39.40 to 40.08 m) becoming massive with carbonaceous fragments to 133 ft (40.54 m), laminated at 135 ft 6 in (41.30 m) then massive bioturbated to 137 ft 6 in (41.91 m) where vaguely bedded, increasingly massive, less bioturbated.	12	10	3.91	139	10	42.62
Mudstone, hard, dark greenish grey with $\frac{1}{2}$ in (12.7 mm) siltstone, greenish grey (5GY6/1) at base.	-	9 $\frac{1}{2}$	0.24	140	7 $\frac{1}{2}$	42.86
Mudstone, silty, bioturbated with local laminations, greenish grey becoming dark grey below, striped from 143 ft 11 in to 144 ft 3 in (43.87 to 43.97 m) massive light grey (M6)* with darker wisps giving vague lamination becoming						

302/127

TQ22/19

	Thickness			Depth to base		
	ft	in	m	ft	in	m
increasingly bioturbated to 145 ft 7 in (44.37 m), striped from 146 ft 0-4 in (44.50 - 44.60 m), increasingly bioturbated to 146 ft 10 in (44.75 m), striped to 147 ft (44.81 m); homogeneous, fissile with occasional trail markings to 149 ft 4 in (45.52 m). Ostracods at 148 ft 10 in (45.36 m).	8	8½	2.66	149	4	45.52
Slacken-sided zone of above lithology consisting of upper shatter zone and lower sub-vertical slacken-side zone.	-	8	0.20	150	0	45.72
Mudstone, silty, striped initially becoming bioturbated from 150 ft 3 in to 151 ft 6 in (45.80 to 46.18m); then homogeneous, massive, only slightly bioturbated medium light grey (N5)* (olive tinged at 153 ft (46.63 m) downward) becoming laminated (not colour distinct) with rough mottled bedding surfaces to 156 ft 2 in (47.60 m). Slacken-sides at 151 ft 4 in (46.13 m), 152 ft 9 in (46.56 m).	6	2	1.88	156	2	47.60
Mudstone, silty, striped, laminae internally bioturbated, medium light grey (N6)*, becoming well-bedded homogeneous from 157 ft (47.85 m) tending to very silty, well laminated to base.	1	6	0.46	157	8	48.06
Mudstone, with silty and sandy partings, the latter being irregularly shaped.	-	4	0.10	158	0	48.16
Sandstone, greenish gray (5GY6/1) to pale olive gray (5Y6/1), fine-grained, compact, calcareous, locally well laminated with occasional silt/mudstone lenses. Micaceous, lignite particles present. Becomes greyer, silty 160 ft 0-4 in (48.77-48.87 m).	3	1	0.94	161	1	49.10
Siltstone, alternating with silty mudstone tending to clayey.	1	11	0.58	163	0	49.68
Mudstone, silty, hard, laminated to 164 ft 6 in (50.14 m), then massive with many carbonaceous fragments and occasional bands of greenish waxes tending to be more argillaceous to base.	4	0	1.22	167	0	50.90

HORSHAM
STONE
(upper
BED)

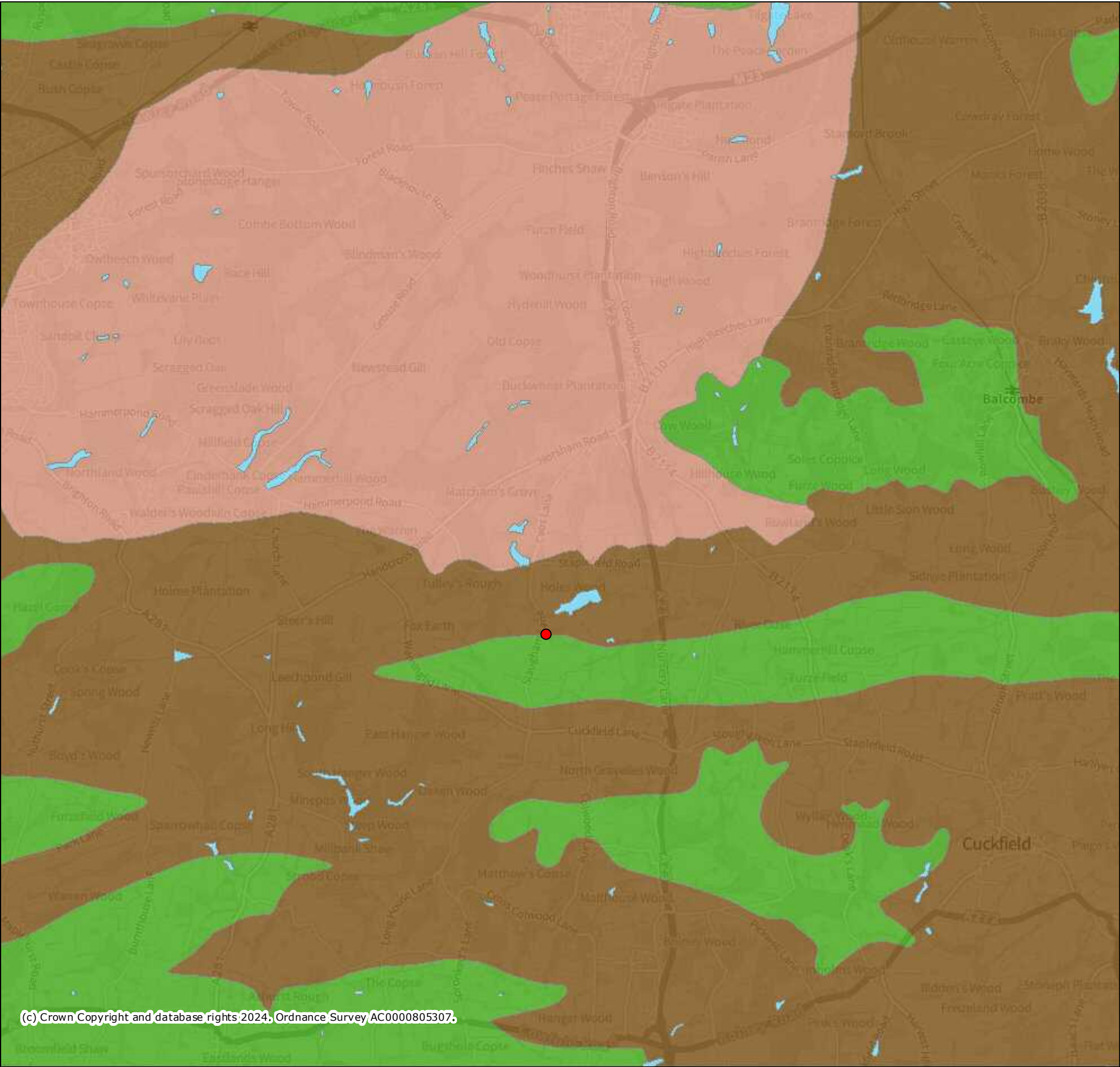
302/127

TQ22/19

	Thickness			Depth to base		
	ft	in	m	ft	in	m
Mudstone, light grey (W7)*, homogeneous, well bedded with ostracod partings at 167 ft 0 in (50.90 m) and at 167 ft 9 in (51.13 m), rapidly becoming bioturbated below 167 ft 9 in (51.13 m). Slickensides at 167 ft 4 in (51.00 m).	1	8	0.51	168	8	51.41
Mudstone, silty, evenly laminated, well-bedded, medium grey (W5)* with sharp contact above. Contains occasional 'stringers' of organic debris becoming olive grey, non-laminated at 171 ft 7 in (52.30 m), reverting to medium light grey (W6)* colour laminated at 173 ft (52.73 m), becoming medium grey (W5)* olive tinged at 174 ft (53.04 m), bioturbated 177 ft to 178 ft (53.95 to 54.25 m), striped to 178 ft 7 in (54.43 m), homogeneous with slight colour lamination to 179 ft 7 in (54.74 m): lamination lost by overall oxidation to 180 ft (54.86 m). Continues to 183 ft 10 (56.03 m) in as fairly homogeneous with occasional green/black wisps (bioturbated), becoming striped at 183 ft 10 in (56.03 m), reverting to homogeneous, slightly bioturbated at 184 ft 8 in (56.29 m). Medium light grey (W6)*, homogeneous with occasional carbonaceous fragments to base. Listric surfaces at 183 ft 9 in, 184 ft 9 in (51.43, 56.31 m).	17	6	5.33	186	2	56.74
Mudstone, silty, bioturbated, with sharp contact above. Rapidly becomes non-bioturbated, locally striped: colour laminated to base.	1	1	0.33	187	3	57.07
Mudstone, silty and sandy, calcareous becoming sandier downward. Sandy lentils slickensided against pinkish clayey lentils, bedding disturbed.	-	11	0.28	188	2	57.35
Sandstone, hard, calcareous with occasional clayey partings containing lignite fragments. Rootlets evident in more calcareous bands. Most contacts are deformed by differential compaction. Local high dips (20°) in sandier beds due to slumping? The bedding is apparently rhythmic: mudstone grading to siltstone upwards, capped by a more	2	0	0.07	194	2	59.07

HORSHAM
STONE
(LOWER
BED)

7.3 **Appendix C – Soilscape**



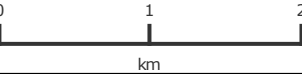
Legend

Soilscape (England)

- 1 - Saltmarsh soils
- 2 - Shallow very acid peaty soils over rock
- 3 - Shallow lime-rich soils over chalk or limestone
- 4 - Sand dune soils
- 5 - Freely draining lime-rich loamy soils
- 6 - Freely draining slightly acid loamy soils
- 7 - Freely draining slightly acid but base-rich soils
- 8 - Slightly acid loamy and clayey soils with impeded drainage
- 9 - Lime-rich loamy and clayey soils with impeded drainage
- 10 - Freely draining slightly acid sandy soils
- 11 - Freely draining sandy breckland soils
- 12 - Freely draining floodplain soils
- 13 - Freely draining acid loamy soils over rock
- 14 - Freely draining very acid sandy and loamy soils
- 15 - Naturally wet very acid sandy and loamy soils
- 16 - Very acid loamy upland soils with a wet peaty surface
- 17 - Slowly permeable seasonally wet acid loamy and clayey soils
- 18 - Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils
- 19 - Slowly permeable wet very acid upland soils with a peaty surface
- 20 - Loamy and clayey floodplain soils with naturally high groundwater
- 21 - Loamy and clayey soils of coastal flats with naturally high groundwater
- 22 - Loamy soils with naturally high groundwater
- 23 - Loamy and sandy soils with naturally high groundwater and a peaty surface
- 24 - Restored soils mostly from quarry and opencast spoil
- 25 - Blanket bog peat soils
- 26 - Raised bog peat soils
- 27 - Fen peat soils
- 28 - Sea
- 30 - UC
- 31 - Water

Projection = OSGB36

xmin = 512600
ymin = 121700
xmax = 538000
ymax = 135100



Map produced by MAGIC on 5 December, 2024.

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7.4 **Appendix D – Infiltration test results report**

Ref: C3424

David Simpson & Phil Marshall

18th December 2024**Re: Old Park Lodge, Warninglid– Soakaway Testing – Infiltration Test Result Summary**

The following investigation was carried out at the above location in accordance with our quotation.

1. Site Works

The aim of this investigation is to provide soakaway test data in accordance with the guidance outlined in BRE Document 365 (Soakaway Design). The test was conducted at a location corresponding to the proposed locations for potential infiltration devices.

The accompanying drawing shows the location of the test pit. The BRE365 pit was excavated to a depth of 0.9m, consistent with the anticipated depth of a possible infiltration feature.

The testing commenced on 5th December 2024 with three tests being undertaken in accordance with BRE 365.

2. BRE 365 Soakaway Test Findings

The SAT 1 test, was conducted on subsoils identified as very thick clay, and yielded a BRE 365 design infiltration rate of 1.00×10^{-6} m/s. This was the slowest rate of among the three tests performed. The infiltration rate confirmed poor infiltration characteristics.

3. BRE 365 Soakaway Test Results

Test Pit No	Infiltration Rate (1-3 Tests)			Depth of Test	Soil Type
SAT1	1.78x10 ⁻⁶ m/s	1.57x10 ⁻⁶ m/s	1.00x10 ⁻⁶ m/s	0.9m	Very thick clay

Appendix A – Soakaway Test Location Plan





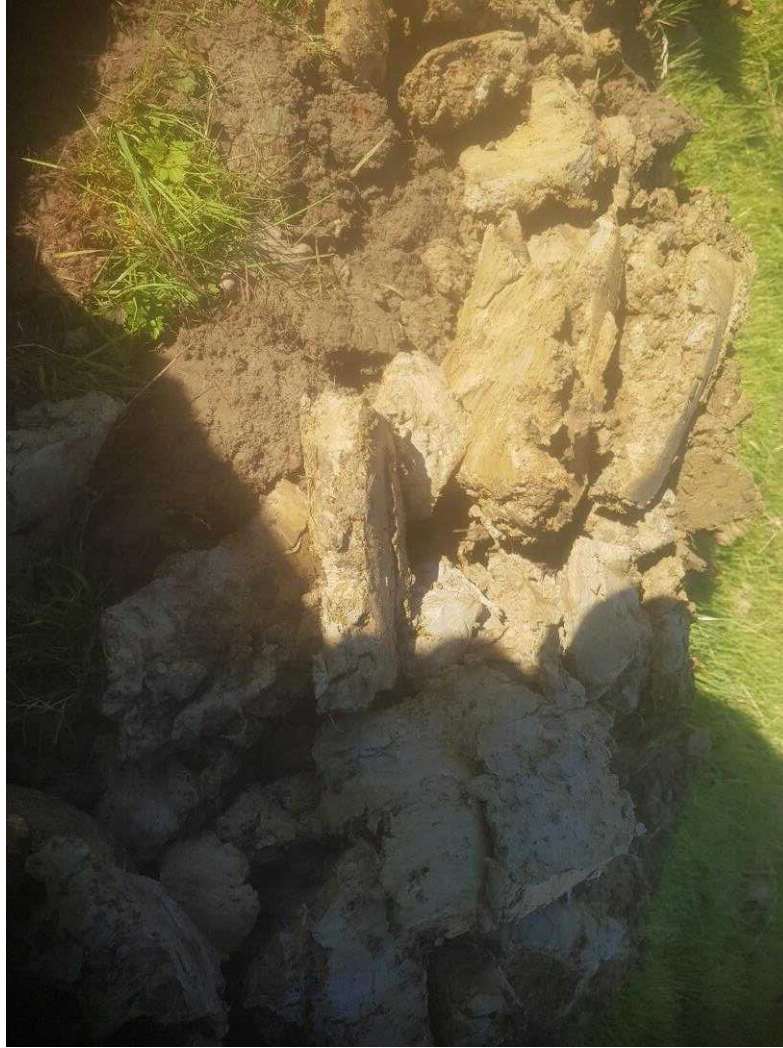
Consulting Civil Engineers

Appendix B – Site Photographs

Old Park Lodge, Warninglid- Infiltration Test Photographs



Old Park Lodge, Warninglid- Infiltration Test Photographs



Old Park Lodge, Warninglid- Infiltration Test Photographs





Consulting Civil Engineers

Appendix C – Soakaway Test Results

SAT1

Job: Old Park Lodge, Warringlid - Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

t_{p75-25} = 51650 seconds

V_{p75-25} = 0.135 m/cubed

F =

1.78E-06

Job: Old Park Lodge, Warringlid - Test 2

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

t_{p75-25} = 58650 seconds

V_{p75-25} = 0.135 m/cubed

F =

1.57E-06

Job: Old Park Lodge, Warringlid - Test 3

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	0.9
Trial pit length	=	1

a_{p50} = 1.47 m/squared

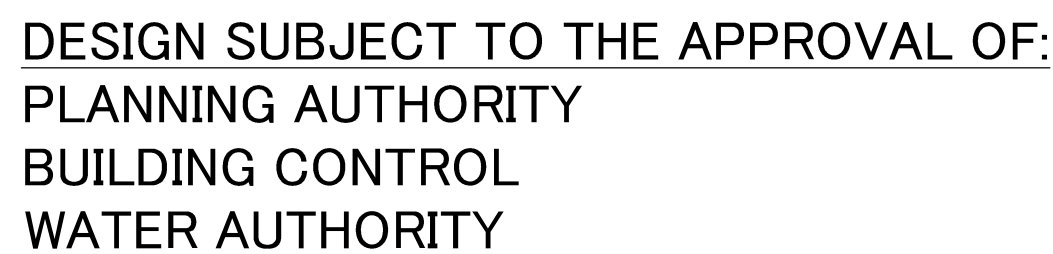
t_{p75-25} = 91700 seconds

V_{p75-25} = 0.135 m/cubed

F =

1E-06

7.5 **Appendix E – Existing Runoff, Proposed Drainage Strategy, Contributing Area Plan, Exceedance Flow Routes and Hydraulic Calculations**



DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS



- STANDARD DRAWING NOTES
1. DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
 2. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 3. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
 4. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
 5. BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST VERIFY AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
 6. ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS SHOULD PROCEED UPSTREAM AND PROVIDE JOINING OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
 7. COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
 8. ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
 9. ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS) 101, OR CONCRETE PIPES TO BE EN 1916 AND BS5911-PART 1.
 10. ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND PROTECTIVE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATING AND FRAMES TO BS EN 124, UNLESS OTHERWISE STATED.
 11. ALL ADAPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN IN SEWERS FOR ADOPTION 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
 12. ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS AND DRAINAGE DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
 13. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
 14. STUB CONNECTIONS TO ADAPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
 15. IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
 16. NO PRIVATE AREAS ARE TO DRAIN INTO ADAPTABLE AREAS AND VICE VERSA.
 17. ALL EXISTING MANHOLE COVERS, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
 18. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT
 19. UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION
 20. MANHOLE AND CHAMBER COVER GRADERS

- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefixed to drawing numbers shall signify the following:-

PL = PLANNING	Shall <u>not</u> be used for contract or construction purposes
P = PRELIMINARY	Shall <u>not</u> be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the <u>only</u> drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work



CLIENT
DAVID SIMPSON & PHIL MARSHALL

ARCHITECT
THORNTON ARCHITECTURE + DESIGN

JOB TITLE

OLD PARK LODGE,
WARNINGLID, RH17 5TJ

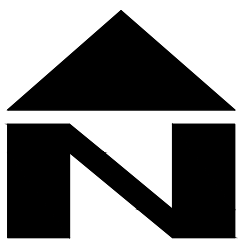
DRAWING TITLE

EXISTING RUNOFF

DATE	SCALE
DECEMBER 2024	A1 1:200

JOB No.	STATUS	DRAWING No.	REV.
C3424	PL	051	PL-

FOR PLANNING



DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS

DRAINAGE LEGEND

EXISTING FEATURES

- Ex SWD Existing surface water sewer/drain and manhole (as taken from CCTV survey)
- Ex FWD Existing foul water sewer/drain and manhole (as taken from CCTV survey)

PROPOSED FEATURES

- FWD Foul Drainage
- SWD Surface Water Drainage
- Pipe crossing (thickening denotes pipe above)
- Storm water orifice flow control chamber (500Ø)
- Storm water access chamber (300Ø)
- Storm water inspection chamber (450Ø)
- Storm water rodding eye
- Proposed permeable driveway-acting as self-draining area
- Proposed impermeable footpath and patio areas
- Foul water access chamber (300Ø)
- Foul water inspection chamber (450Ø)
- Proposed subbase concrete baffle. (See drainage 'Permeable Paving Calculations')
- Pipe info - diameter, length, gradient, bedding type
- Proposed surface and formation levels- indicative only for drainage purposes. Surface levels to be designed by others.
- Fall in surface and gradient
- Finished floor level (**assumed**)

ABBREVIATIONS

- MH - MANHOLE
IC - INSPECTION CHAMBER
AC - ACCESS CHAMBER
CP - CATCHPIT
BC - BRAKE CHAMBER
RE - RODDING EYE
IL - INVERT LEVEL
SL - SUMP LEVEL
RA - RESTRICTED ACCESS COVER
CL - COVER LEVEL
TL - TOP OF CELLULAR SA
BL - BASE OF CELLULAR SA
FL - FORMATION LEVEL

Site Boundary
(as taken from Thornton Architecture + Design
'Proposed Site Plan' drawing no. 2315.100,
dated: 26.10.23)

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
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- ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT, THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
- COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
- ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
- ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911:PART 1.
- ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
- ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
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- IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
- NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
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- MANHOLE AND CHAMBER COVER GRADES:

- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

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- R = RECORD Record of actual completed work

P1	30.01.25	UPDATED TO CLIENT COMMENTS	MR	TZ	CS
P.	18.12.24	PRELIMINARY ISSUE	MR	TZ	CS
REV	DATE	DESCRIPTION	BY	CHK	APP



CLIENT
DAVID SIMPSON & PHIL MARSHALL

ARCHITECT
THORNTON ARCHITECTURE + DESIGN

JOB TITLE
**OLD PARK LODGE,
WARNINGLID, RH17 5TJ**

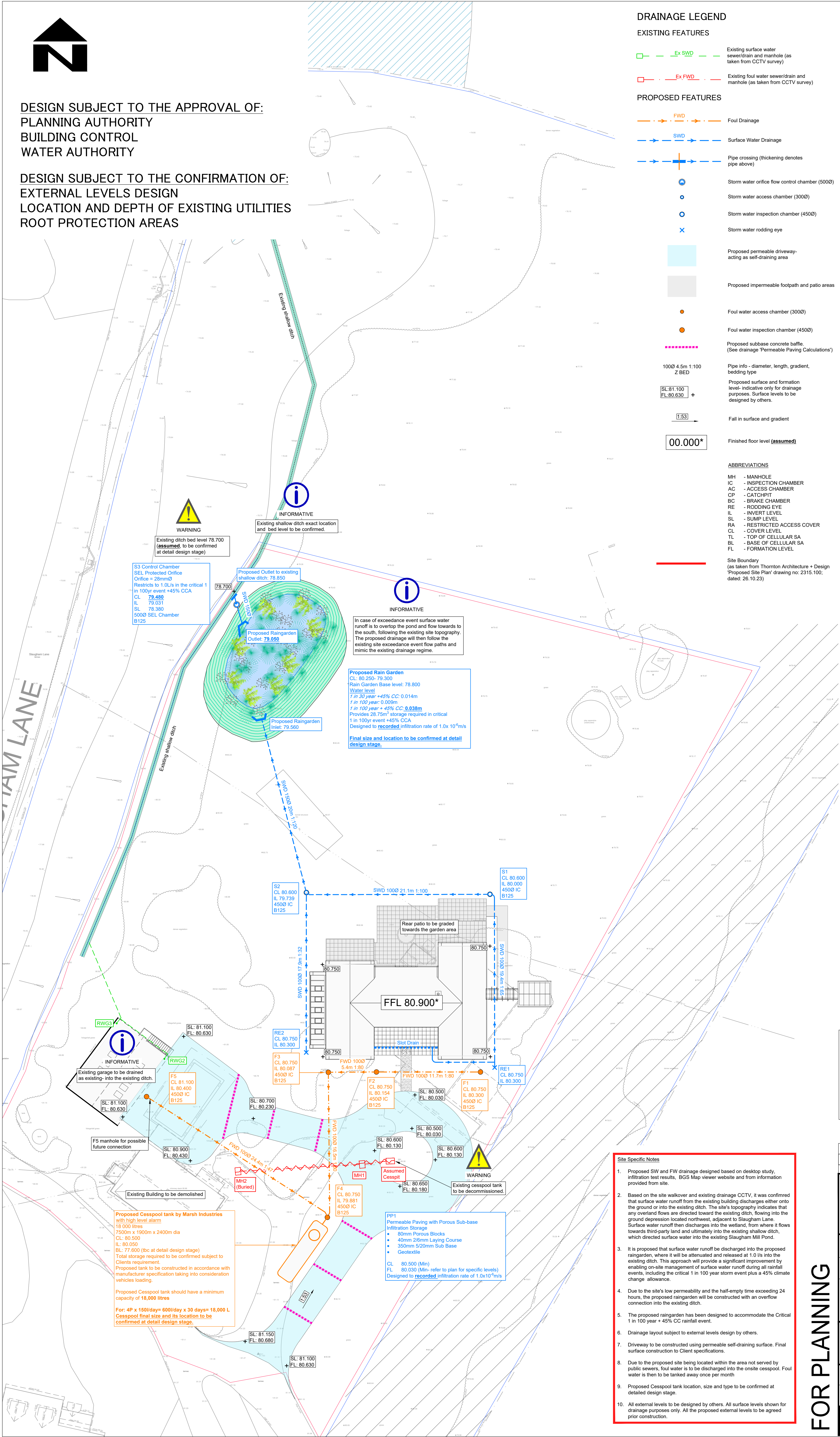
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**PROPOSED DRAINAGE STRATEGY
SHEET 1 OF 2**

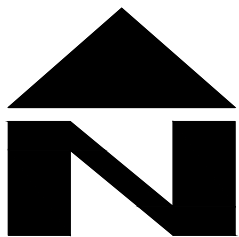
DRAWN MR	ENGINEER TZ	CHECKED TZ	APPROVED CS
DATE DECEMBER 2024	SCALE @ A1 1:200		
JOB NO. C3424	STATUS PL	DRAWING NO. 101	REV. P1

FOR PLANNING

Site Specific Notes

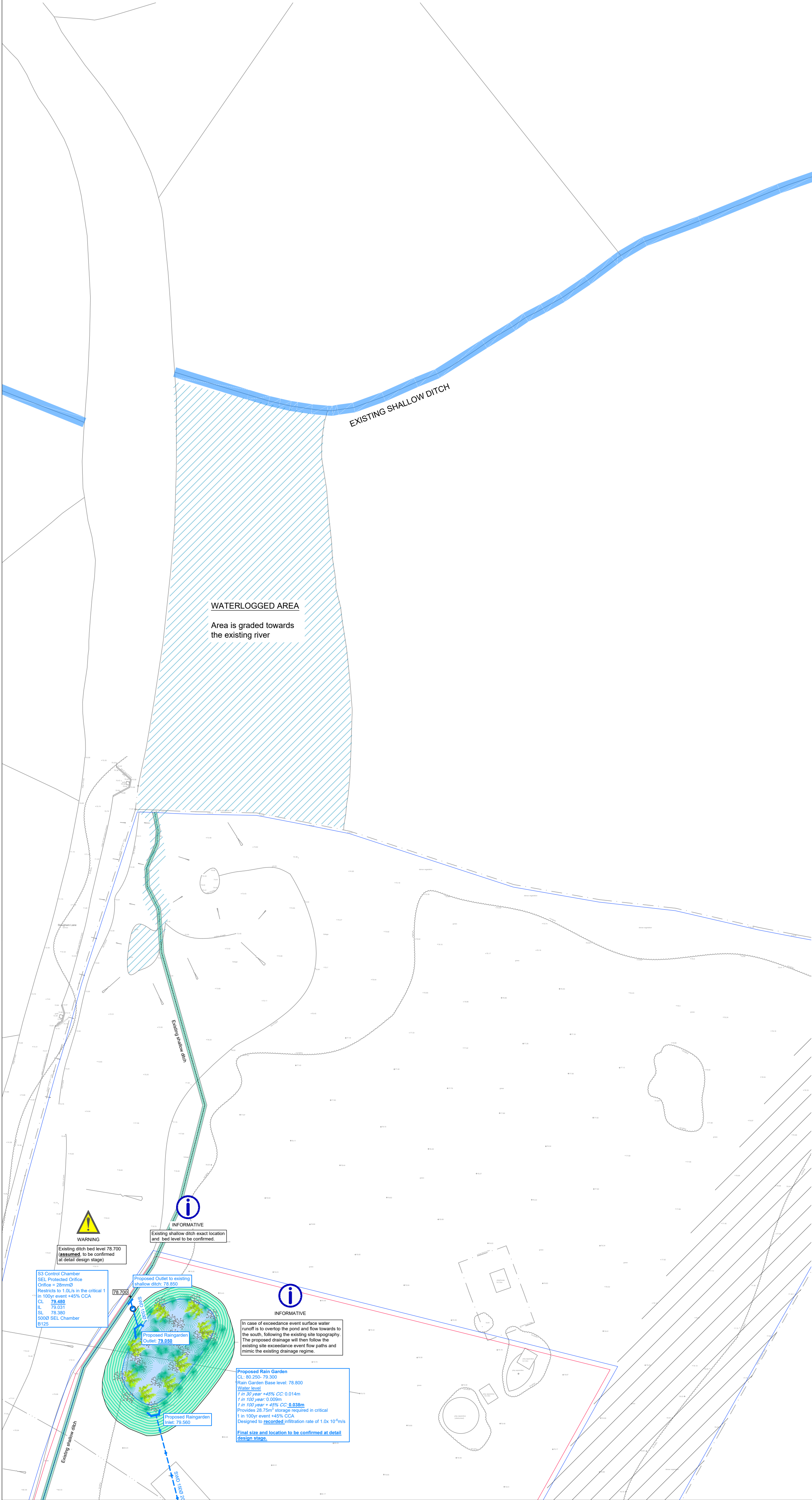
- Proposed SW and FW drainage designed based on desktop study, infiltration test results, BGS Map viewer website and from information provided from site.
- Based on the site walkover and existing drainage CCTV, it was confirmed that surface water runoff from the existing building discharges either onto the ground or into the existing ditch. The site's topography indicates that any overland flows are directed toward the existing ditch, flowing into the ground depression located northwest, adjacent to Slaugham Lane. Surface water runoff then discharges into the wetland, from where it flows towards third-party land and ultimately into the existing shallow ditch, which directed surface water into the existing Slaugham Mill Pond.
- It is proposed that surface water runoff be discharged into the proposed raingarden, where it will be attenuated and released at 1.0 l/s into the existing ditch. This approach will provide a significant improvement by enabling on-site management of surface water runoff during all rainfall events, including the critical 1 in 100 year storm event plus a 45% climate change allowance.
- Due to the site's low permeability and the half-empty time exceeding 24 hours, the proposed raingarden will be constructed with an overflow connection into the existing ditch.
- The proposed raingarden has been designed to accommodate the Critical 1 in 100 year + 45% CC rainfall event.
- Drainage layout subject to external levels design by others.
- Driveway to be constructed using permeable self-draining surface. Final surface construction to Client specifications.
- Due to the proposed site being located within the area not served by public sewers, foul water is to be discharged into the onsite cesspool. Foul water is then to be tanked away once per month.
- Proposed Cesspool tank location, size and type to be confirmed at detailed design stage.
- All external levels to be designed by others. All surface levels shown for drainage purposes only. All the proposed external levels to be agreed prior construction.





DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
WATER AUTHORITY

DESIGN SUBJECT TO THE CONFIRMATION OF:
EXTERNAL LEVELS DESIGN
LOCATION AND DEPTH OF EXISTING UTILITIES
ROOT PROTECTION AREAS



DRAINAGE LEGEND

EXISTING FEATURES

- Ex SWD Existing surface water sewer/drain and manhole (as taken from CCTV survey)
- Ex FWD Existing foul water sewer/drain and manhole (as taken from CCTV survey)

PROPOSED FEATURES

- FWD Foul Drainage
- SWD Surface Water Drainage
- Pipe crossing (thickening denotes pipe above)
- Storm water orifice flow control chamber (5000)
- Storm water access chamber (3000)
- Storm water inspection chamber (4500)
- Storm water rodding eye
- Proposed permeable driveway- acting as self-draining area
- Proposed impermeable footpath and patio areas
- Foul water access chamber (3000)
- Foul water inspection chamber (4500)
- 1000 4.5m 1:100 Z BED
- SL 81.100 FL 80.630 +
- 1:53 Fall in surface and gradient
- 00.000* Finished floor level (assumed)

ABBREVIATIONS

- MH - MANHOLE
- IC - INSPECTION CHAMBER
- AC - ACCESS CHAMBER
- CP - CATCHPIT
- BC - BRAKE CHAMBER
- RE - RODDING EYE
- IL - INVERT LEVEL
- SL - SUMP LEVEL
- RA - RESTRICTED ACCESS COVER
- CL - COVER LEVEL
- TL - TOP OF CELLULAR SA
- BL - BASE OF CELLULAR SA
- FL - FORMATION LEVEL

Site Boundary
(as taken from Thornton Architecture + Design
'Proposed Site Plan' drawing no: 2315.100;
dated: 26.10.23)

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
- ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
- ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
- COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
- ALL UN-REFERENCED PIPES ARE TO BE 100mm DIA
- ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911:PART 1.
- ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
- ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN DOWN IN 'SEWERS FOR ADOPTION' 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
- ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
- THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
- STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
- IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
- NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
- ALL EXISTING MANHOLE COVERS, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT
- UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION
- MANHOLE AND CHAMBER COVER GRADES:

- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefixed to drawing numbers shall signify the following:-

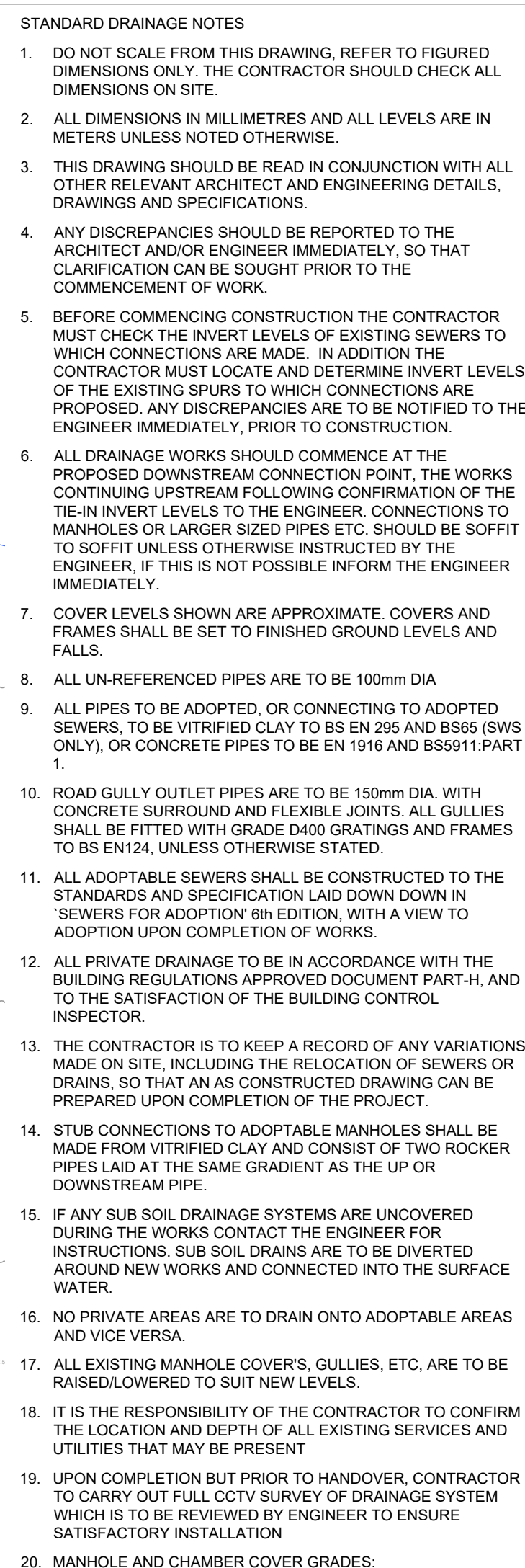
PL = PLANNING	Shall not be used for contract or construction purposes
P = PRELIMINARY	Shall not be used for contract or construction purposes
T = TENDER	Shall not be used for construction purposes
C = CONSTRUCTION	These are the only drawings that shall be used for construction purposes
R = RECORD	Record of actual completed work

Site Specific Notes

- Proposed SW and FW drainage designed based on desktop study, infiltration test results, BGS Map viewer website and from information provided from site.
- Based on the site walkover and existing drainage CCTV, it was confirmed that surface water runoff from the existing building discharges either onto the ground or into the existing ditch. The site's topography indicates that any overland flows are directed toward the existing ditch, flowing into the ground depression located northwest, adjacent to Slaughtam Lane. Surface water runoff then discharges into the wetland, from where it flows towards third-party land and ultimately into the existing shallow ditch, which directed surface water into the existing Slaughtam Mill Pond.
- It is proposed that surface water runoff be discharged into the proposed raingarden, where it will be attenuated and released at 1.0 l/s into the existing ditch. This approach will provide a significant improvement by enabling on-site management of surface water runoff during all rainfall events, including the critical 1 in 100 year storm event plus a 45% climate change allowance.
- Due to the site's low permeability and the half-empty time exceeding 24 hours, the proposed raingarden will be constructed with an overflow connection into the existing ditch.
- The proposed raingarden has been designed to accommodate the Critical 1 in 100 year + 45% CC rainfall event.
- Drainage layout subject to external levels design by others.
- Driveway to be constructed using permeable self-draining surface. Final surface construction to Client specifications.
- Due to the proposed site being located within the area not served by public sewers, foul water is to be discharged into the onsite cesspool. Foul water is then to be tanked away once per month
- Proposed Cesspool tank location, size and type to be confirmed at detailed design stage.
- All external levels to be designed by others. All surface levels shown for drainage purposes only. All the proposed external levels to be agreed prior construction.

FOR PLANNING

P-	18.12.24	PRELIMINARY ISSUE	MR	TZ	CS
REV	DATE	DESCRIPTION	BY	CHK	APP
CLIENT DAVID SIMPSON & PHIL MARSHALL					
ARCHITECT THORNTON ARCHITECTURE + DESIGN					
JOB TITLE OLD PARK LODGE, WARNINGLID, RH17 5TJ					
DRAWING TITLE PROPOSED DRAINAGE STRATEGY SHEET 2 OF 2					
DRAWN	MR	ENGINEER	TZ	CHECKED	TZ
DATE	DECEMBER 2024	SCALE @ A1	1:200	APPROVED	CS
JOB NO.	C3424	STATUS	PL	DRAWING NO.	102
REV.					PL-



- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefixed to drawing numbers shall signify the following:-

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R = RECORD	Record of actual completed work



ARCHITECT
THORNTON ARCHITECTURE + DESIGN

DRAWING TITLE

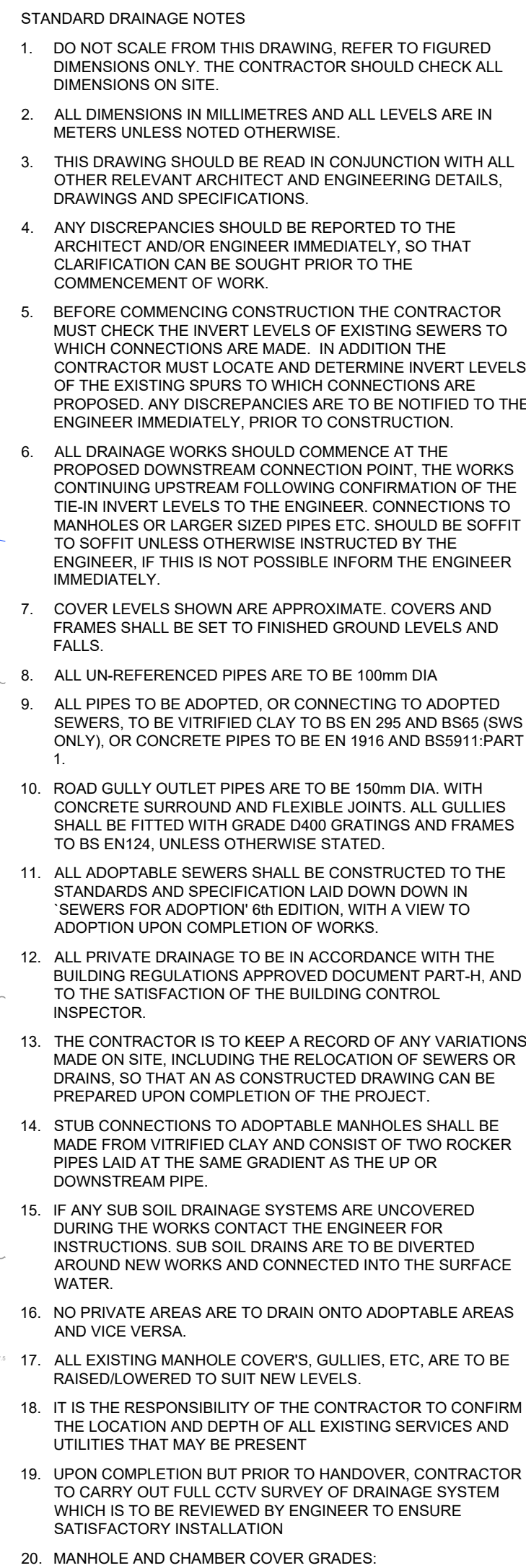
CONTRIBUTING AREA PLAN

DATE	SCALE @ A1
DECEMBER 2024	1:200

JOB No.	STATUS	DRAWING No.	REV.
C3424	PI	201	PI

Proposed Catchment Area	Area (ha)
Proposed Roof Area	0.0235 ha
Proposed Footpath and Patio Area	0.009 ha
Proposed Permeable Driveway (excluded from proposed raingarden drainage calculations- to be freely discharged into the ground)	0.0478 ha
Existing Garage Area (excluded from proposed raingarden drainage calculations- to be drained via existing drainage)	0.0153 ha
Total catchment area included in proposed raingarden drainage calculations	0.0325 ha

FOR PLANNING



- 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
- 'B125' IN ALL DRIVEWAYS
- 'C250' IN PRIVATE PARKING AREAS
- 'D400' IN CARRIAGEWAY/ACCESS ROAD

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JOB TITLE

OLD PARK LODGE,
WARNINGLID, RH17 5TJ

DRAWING TITLE

EXCEEDANCE FLOW ROUTES

DRAWN		ENGINEER		TZ		CHECKED		TZ		APPROVED		CS	
DATE		DECEMBER 2024				SCALE @ A1		1:200					
JOB No.				STATUS		DRAWING No.						REV.	
C3424				PL		301						PL-	

FOR PLANNING

BLUE ARROWS SHOW ROUTE OF EXCEEDANCE FLOWS FROM PROJECTED POINTS OF EMERGENCE TOWARDS DIRECTION OF FALL.

ALL STRUCTURES DESIGNED TO ACCOMMODATE BELOW GROUND THE CRITICAL 1 IN 100 YEAR STORM EVENT PLUS 45% EXCEEDANCE WOULD ONLY OCCUR IN STORMS OF GREATER INTENSITY THAN THIS.



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Raingarden	0.033	4.00	79.300	1200	479567.551	231557.698	0.250
S3 Overflow			79.480	450	479563.950	231559.819	0.449

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Raingarden	S3 Overflow	2.000	0.600	79.050	79.031	0.019	105.3	150	4.03	54.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.979	17.3	6.4	0.100	0.299	0.033	0.0	64	0.909

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	2.000	105.3	150	Circular	79.300	79.050	0.100	79.480	79.031	0.299

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Raingarden	1200	Manhole	Adoptable	S3 Overflow	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
Raingarden	479567.551	231557.698	79.300	0.250	1200		0	1.000	79.050	150
S3 Overflow	479563.950	231559.819	79.480	0.449	450		1	1.000	79.031	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations											
15	30	60	120	180	240	360	480	600	720	960	1440
Return Period (years)	Climate Change (CC %)		Additional Area (A %)		Additional Flow (Q %)						
10	0		0		0						
30	0		0		0						
30	45		0		0						
100	0		0		0						
100	45		0		0						

Node S3 Overflow Online Orifice Control

Flap Valve	x	Design Depth (m)	0.100	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	79.031	Diameter (m)	0.041		

Node Raingarden Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Safety Factor	2.0	Invert Level (m)	78.800
Side Inf Coefficient (m/hr)	0.00360	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	90.0	90.0	0.200	111.3	111.3	0.400	134.9	134.9
0.100	100.4	100.4	0.300	122.8	122.8	0.500	147.5	147.5



Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Raingarden	1440	78.973	-0.077	0.9	17.1296	0.0000	OK
15 minute summer	S3 Overflow	1	79.031	0.000	0.0	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	Raingarden	1.000	S3 Overflow	0.0	0.000	0.000	0.0000	
1440 minute summer	Raingarden	Infiltration		0.1				
15 minute summer	S3 Overflow	Orifice		0.0				0.0



Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Raingarden	1440	79.008	-0.042	1.1	20.9500	0.0000	OK
15 minute summer	S3 Overflow	1	79.031	0.000	0.0	0.0000	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	Raingarden	1.000	S3 Overflow	0.0	0.000	0.000	0.0000	
1440 minute summer	Raingarden	Infiltration		0.1				
15 minute summer	S3 Overflow	Orifice		0.0				0.0



Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Raingarden	960	79.064	0.014	1.6	27.5143	0.0000	OK
1440 minute summer	S3 Overflow	960	79.062	0.031	0.3	0.0049	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	Raingarden	1.000	S3 Overflow	0.3	0.197	0.019	0.0034	
1440 minute summer	Raingarden	Infiltration		0.1				
1440 minute summer	S3 Overflow	Orifice		0.3				6.0



Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	Raingarden	1320	79.059	0.009	0.9	26.9280	0.0000	OK
1440 minute winter	S3 Overflow	1320	79.048	0.017	0.1	0.0026	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	Raingarden	1.000	S3 Overflow	0.1	0.177	0.008	0.0015	
1440 minute winter	Raingarden	Infiltration		0.1				
1440 minute winter	S3 Overflow	Orifice		0.1				1.9



Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	Raingarden	900	79.088	0.038	2.0	30.3522	0.0000	OK
1440 minute summer	S3 Overflow	930	79.091	0.060	1.1	0.0095	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute summer	Raingarden	1.000	S3 Overflow	1.1	0.285	0.062	0.0099	
1440 minute summer	Raingarden	Infiltration		0.1				
1440 minute summer	S3 Overflow	Orifice		0.7				15.7



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	75.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
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Permeable Paving	0.002	4.00	80.650	479567.551	231557.698	0.470
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Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0
30	0	0	0
30	45	0	0
100	0	0	0
100	45	0	0

Node S3 Overflow Online Orifice Control

Flap Valve	x	Design Depth (m)	0.100	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	1.0		
Invert Level (m)	0.000	Diameter (m)	0.041		

Node Permeable Paving Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00360	Invert Level (m)	80.180	Slope (1:X)	53.0
Side Inf Coefficient (m/hr)	0.00360	Time to half empty (mins)		Depth (m)	0.350
Safety Factor	2.0	Width (m)	3.600	Inf Depth (m)	
Porosity	0.30	Length (m)	5.800		

7.6 **Appendix F – Maintenance Schedule**

Maintenance Schedule

Old Park Lodge, Warninglid

For

David Simpson and Phil Marshall

Rev – PL-

Reference **C3424**

Date **16th December 2024**

Revision	Date of Issue	Comments	Prepared By	Checked By
P	16/12/2024	Initial Issue	MR	CS

Maintenance

1.1 Introduction

- 1.1.1 During construction, the Contractor will be responsible for maintaining the drainage and SuDS (Sustainable Drainage Systems). Upon handover, the occupier will take on the responsibility of these duties as laid out in this report.
- 1.1.2 The maintenance schedule for the proposed development will be split down into two separate categories; SuDS features and regular private drainage.

1.2 SuDS at Old Park Lodge, Warninglid

- 1.2.1 As listed above, in section 5.1.2, the SuDS features used on site will be **Permeable Pavement and Raingarden**.
- 1.2.2 The SuDS features have been designed for easy maintenance and comprise:
- Regular Day-to-Day care – litter collection, regular gardening to control vegetation growth and checking inlets where water enters the SuDS features
 - Occasional tasks – checking the SuDS features and removing any silt that builds up in the SuDS feature
 - Remedial work – repairing damage where necessary

1.3 SuDS Drainage Maintenance Specification

1.1.1 Raingarden

In order to maintain the functioning of the Infiltration Basin, the following maintenance requirements should be adhered to:

Table 21.3 Operation and maintenance requirements for Infiltration Basins		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter, debris, and trash	Monthly
	Cut the grass – for landscaped areas	Monthly (during growing season) or as required
	Cut the meadow grass in and around basin	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetations and remove nuisance plants (for the first 3 years)	Monthly (at start, then as required)
Occasional maintenance	Reseed areas of poor vegetation growth	Annually, or as required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realign the rip-rap	As required
	Repair / rehabilitate inlets, outlets and overflows	As required
	Rehabilitate infiltration surface using scarifying and spiking techniques if performance deteriorates	As required
	Relevel uneven surface and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages and clean if required	Monthly
	Inspect banksides, structure, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies	Half Yearly
	Inspect infiltration surface for compaction and ponding	Monthly

1.1.2 Permeable Paving

In order to maintain the functioning of the permeable paving, the following maintenance requirements should be adhered to:

Table 21.3 Operation and maintenance requirements for permeable paving		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rate and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

1.2 General Drainage Maintenance Specification

1.2.1 Inlet Structures and Inspection Chambers

- Inlet structures such as rainwater downpipes, road gullies and channel drains should be free from obstruction at all times to allow free flow through the SuDS
- Inspection Chambers and Rodding Eyes are used on bends or where pipes come together. They allow access and cleaning to the system if necessary.

Inlet Structures and Inspection Chambers	
Regular Maintenance	Frequency
Inlet Structures Inspect rainwater downpipes, channel drains and road gullies, removing obstructions and silt as necessary. Check that there is no physical damage. Strim vegetation 1m min surround to structures and keep area free from silt and debris	Monthly
Inspection Chambers and below ground control chambers. Remove cover and inspect, ensuring that the water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in Autumn	Annually
Occasional Maintenance Check topsoil levels are 20mm above edges of chambers to avoid mower damage.	As necessary
Remedial Work Repair physical damage if necessary	As required

1.2.2 Below ground drainage pipes

- Below ground drainage pipes convey water to the SuDS system. They should always be free from obstruction to allow free flow.

Below Ground Drainage Pipes	
Regular Maintenance	Frequency
Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months then annually
Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks.	Monthly or as required
Remedial Work	
Repair physical damage if necessary	As required
Monitoring	
Inspect all inlets, outlets and vents to ensure that they are in good conditions and operating as designed.	Annually
Survey inside of pipe runs for sediment build up and remove if necessary.	Every 5 years or as required