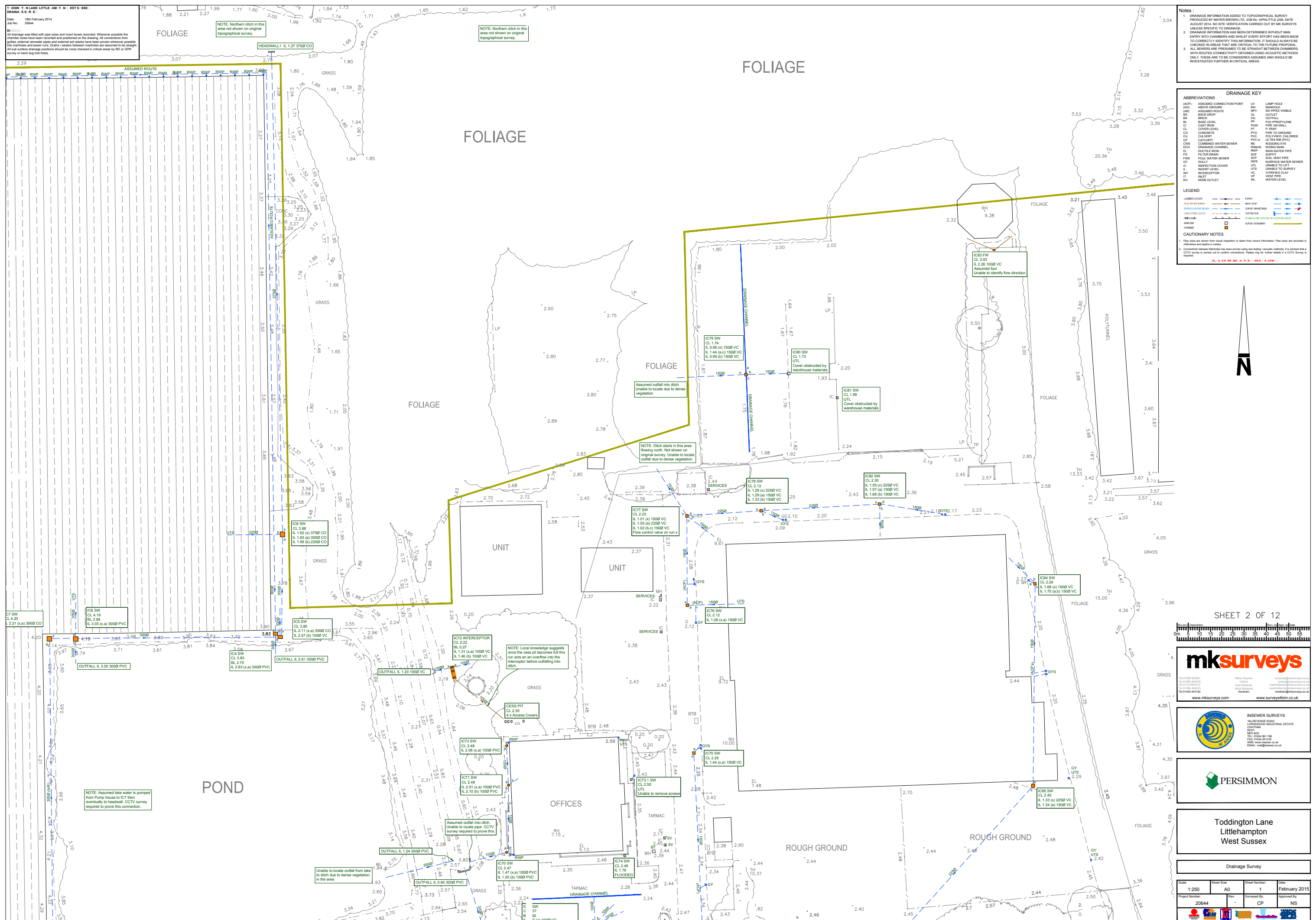
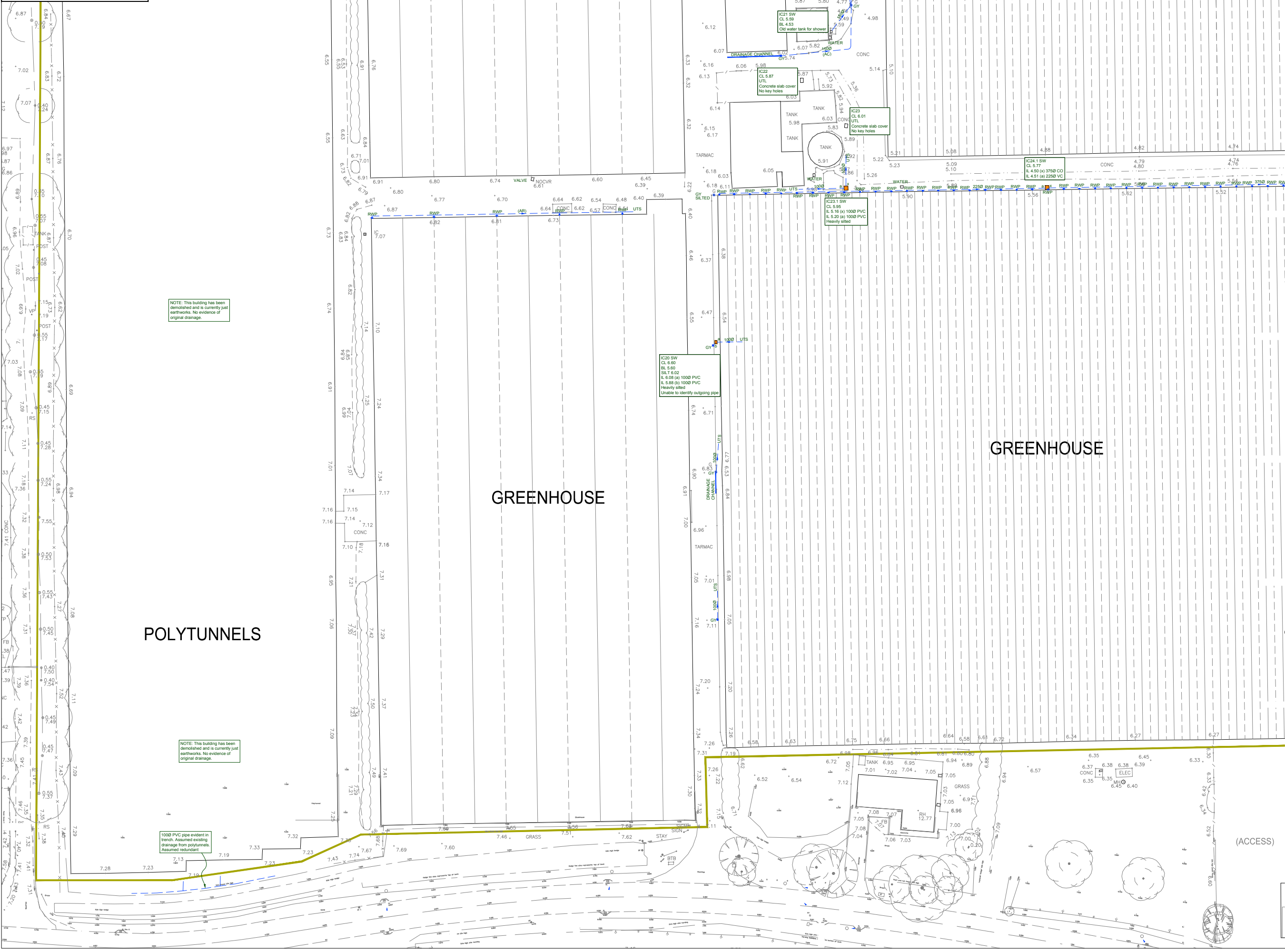




T. DON T. N. LANE LITTLE AM T. N. EST S. SE
DRAINAGE
Date: 18th February 2014
Job No: 20644
Dr: [Redacted]
All drainage was lifted with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external sewer pipes and external wet stacks have been proven wherever possible into manholes and sewer runs. Drains / sewers between manholes are assumed to be straight. All sub surface drainage positions should be cross checked in critical areas by RQ or CPM survey or hand dug trial holes.



NOTE: This building has been demolished and is currently just earthworks. No evidence of original drainage.

NOTE: This building has been demolished and is currently just earthworks. No evidence of original drainage.

1000 PVC pipe evident in trench. Assumed existing drainage from polytunnels. Assumed redundant.

GREENHOUSE

GREENHOUSE

GREENHOUSE

POLYTUNNELS

Notes:

1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYHEW BROWN LTD. JOB NO. APM/LITTLE 200. DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTES / CONNECTIVITY OBTAINED USING ACUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS

ABBREVIATIONS	ASSUMED CONNECTION POINT	LH	LAMP HOLE
ADP	ABOVE GROUND	MH	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OU	OUTLET
BR	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CL	CAST IRON	PTD	PIPE ON WALL
CU	CULVERT	FT	F-TAP
CO	CONCRETE	PG	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	PVC-U	ULTRA RISE (PVC)
CWS	COMBINED WATER SEWER	RE	ROOFING EYE
DCH	DRAINAGE CHANNEL	REMAN	REINFORCED MAN
DI	DUCTILE IRON	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFT
FWS	FULL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SWS	SURFACE WATER SEWER
IC	INSPECTION COVER	UTL	UNABLE TO LEFT
INT	INTERCEPTOR	UTL	UNABLE TO SURVEY
INT	INTERCEPTOR	VC	VENT PIPE
MD	MANHOLE	WL	WATER LEVEL

LEGEND

COMBINED SEWER	IC20P	IC20P
SURFACE WATER SEWER	SURFACE WATER SEWER	SURFACE WATER SEWER
INSPECTION COVER	INSPECTION COVER	INSPECTION COVER
MANHOLE	MANHOLE	MANHOLE
CHAMBER	CHAMBER	CHAMBER

CAUTIONARY NOTES

1. Pipe sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
2. Connectivity between manholes has been proven using dye testing / acoustic methods. It is advised that a CCTV survey is carried out to confirm connections. Please refer to further details if a CCTV survey is required.

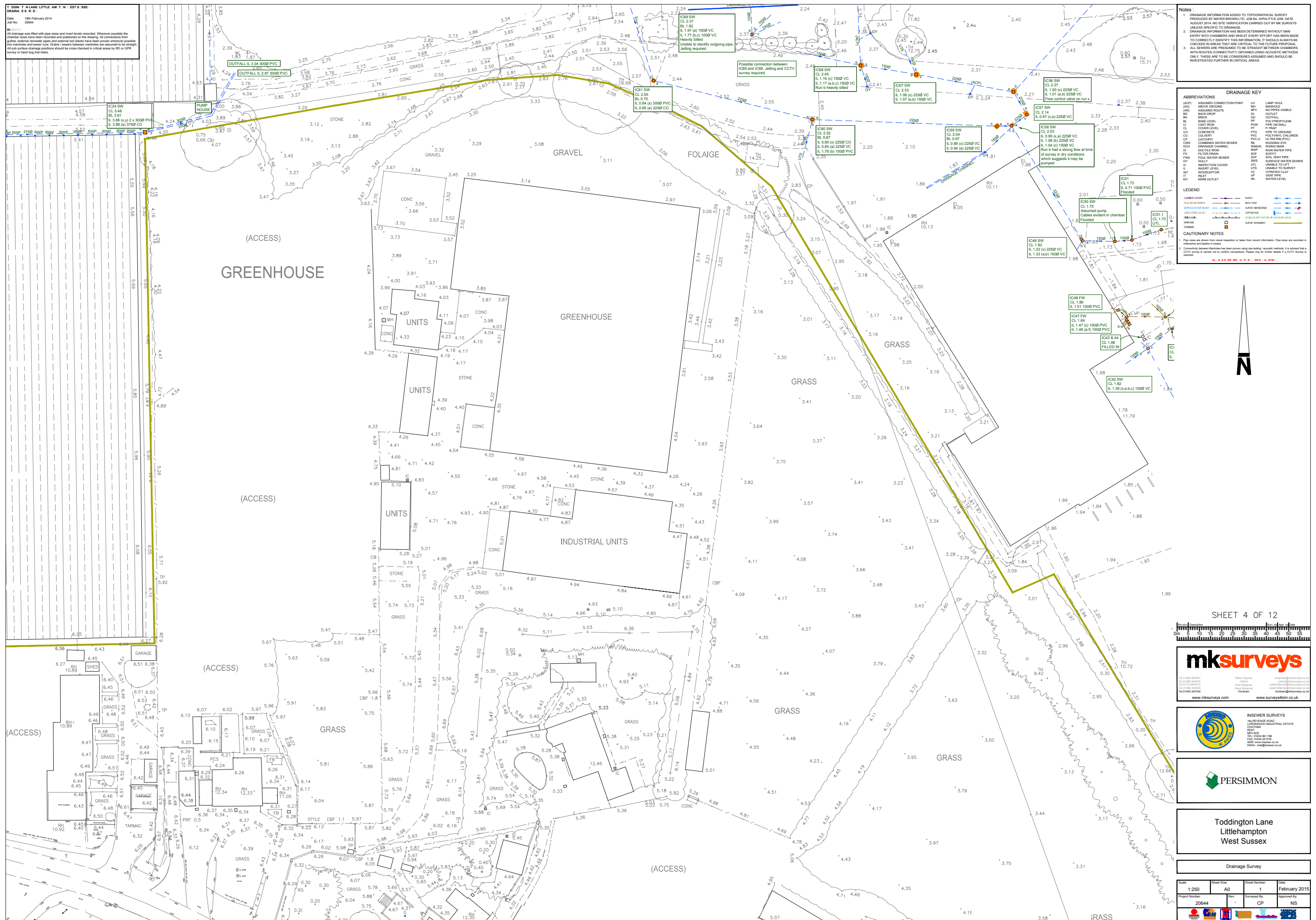
AL A SE SE SE A T N EN A ATN

SHEET 3 OF 12

0m 5 10 15 20 25 30 35 40 45 50 55

mk surveys

011000 000001
011000 000002
011000 000003
011000 000004
011000 000005
011000 000006
011000 000007
011000 000008
011000 000009
011000 000010
011000 000011
011000 000012
011000 000013
011000 000014
011000 000015
011000 000016
011000 000017
011000 000018
011000 000019
011000 000020
011000 000021
011000 000022
011000 000023
011000 000024
011000 000025
011000 000026
011000 000027
011000 000028
011000 000029
011000 000030
011000 000031
011000 000032
011000 000033
011000 000034
011000 000035
011000 000036
011000 000037
011000 000038
011000 000039
011000 000040
011000 000041
011000 000042
011000 000043
011000 000044
011000 000045
011000 000046
011000 000047
011000 000048
011000 000049
011000 000050
011000 000051
011000 000052
011000 000053
011000 000054
011000 000055
011000 000056
011000 000057
011000 000058
011000 000059
011000 000060
011000 000061
011000 000062
011000 000063
011000 000064
011000 000065
011000 000066
011000 000067
011000 000068
011000 000069
011000 000070
011000 000071
011000 000072
011000 000073
011000 000074
011000 000075
011000 000076
011000 000077
011000 000078
011000 000079
011000 000080
011000 000081
011000 000082
011000 000083
011000 000084
011000 000085
011000 000086
011000 000087
011000 000088
011000 000089
011000 000090
011000 000091
011000 000092
011000 000093
011000 000094
011000 000095
011000 000096
011000 000097
011000 000098
011000 000099
011000 000100
011000 000101
011000 000102
011000 000103
011000 000104
011000 000105
011000 000106
011000 000107
011000 000108
011000 000109
011000 000110
011000 000111
011000 000112
011000 000113
011000 000114
011000 000115
011000 000116
011000 000117
011000 000118
011000 000119
011000 000120
011000 000121
011000 000122
011000 000123
011000 000124
011000 000125
011000 000126
011000 000127
011000 000128
011000 000129
011000 000130
011000 000131
011000 000132
011000 000133
011000 000134
011000 000135
011000 000136
011000 000137
011000 000138
011000 000139
011000 000140
011000 000141
011000 000142
011000 000143
011000 000144
011000 000145
011000 000146
011000 000147
011000 000148
011000 000149
011000 000150
011000 000151
011000 000152
011000 000153
011000 000154
011000 000155
011000 000156
011000 000157
011000 000158
011000 000159
011000 000160
011000 000161
011000 000162
011000 000163
011000 000164
011000 000165
011000 000166
011000 000167
011000 000168
011000 000169
011000 000170
011000 000171
011000 000172
011000 000173
011000 000174
011000 000175
011000 000176
011000 000177
011000 000178
011000 000179
011000 000180
011000 000181
011000 000182
011000 000183
011000 000184
011000 000185
011000 000186
011000 000187
011000 000188
011000 000189
011000 000190
011000 000191
011000 000192
011000 000193
011000 000194
011000 000195
011000 000196
011000 000197
011000 000198
011000 000199
011000 000200
011000 000201
011000 000202
011000 000203
011000 000204
011000 000205
011000 000206
011000 000207
011000 000208
011000 000209
011000 000210
011000 000211
011000 000212
011000 000213
011000 000214
011000 000215
011000 000216
011000 000217
011000 000218
011000 000219
011000 000220
011000 000221
011000 000222
011000 000223
011000 000224
011000 000225
011000 000226
011000 000227
011000 000228
011000 000229
011000 000230
011000 000231
011000 000232
011000 000233
011000 000234
011000 000235
011000 000236
011000 000237
011000 000238
011000 000239
011000 000240
011000 000241
011000 000242
011000 000243
011000 000244
011000 000245
011000 000246
011000 000247
011000 000248
011000 000249
011000 000250
011000 000251
011000 000252
011000 000253
011000 000254
011000 000255
011000 000256
011000 000257
011000 000258
011000 000259
011000 000260
011000 000261
011000 000262
011000 000263
011000 000264
011000 000265
011000 000266
011000 000267
011000 000268
011000 000269
011000 000270
011000 000271
011000 000272
011000 000273
011000 000274
011000 000275
011000 000276
011000 000277
011000 000278
011000 000279
011000 000280
011000 000281
011000 000282
011000 000283
011000 000284
011000 000285
011000 000286
011000 000287
011000 000288
011000 000289
011000 000290
011000 000291
011000 000292
011000 000293
011000 000294
011000 000295
011000 000296
011000 000297
011000 000298
011000 000299
011000 000300
011000 000301
011000 000302
011000 000303
011000 000304
011000 000305
011000 000306
011000 000307
011000 000308
011000 000309
011000 000310
011000 000311
011000 000312
011000 000313
011000 000314
011000 000315
011000 000316
011000 000317
011000 000318
011000 000319
011000 000320
011000 000321
011000 000322
011000 000323
011000 000324
011000 000325
011000 000326
011000 000327
011000 000328
011000 000329
011000 000330
011000 000331
011000 000332
011000 000333
011000 000334
011000 000335
011000 000336
011000 000337
011000 000338
011000 000339
011000 000340
011000 000341
011000 000342
011000 000343
011000 000344
011000 000345
011000 000346
011000 000347
011000 000348
011000 000349
011000 000350
011000 000351
011000 000352
011000 000353
011000 000354
011000 000355
011000 000356
011000 000357
011000 000358
011000 000359
011000 000360
011000 000361
011000 000362
011000 000363
011000 000364
011000 000365
011000 000366
011000 000367
011000 000368
011000 000369
011000 000370
011000 000371
011000 000372
011000 000373
011000 000374
011000 000375
011000 000376
011000 000377
011000 000378
011000 000379
011000 000380
011000 000381
011000 000382
011000 000383
011000 000384
011000 000385
011000 000386
011000 000387
011000 000388
011000 000389
011000 000390
011000 000391
011000 000392
011000 000393
011000 000394
011000 000395
011000 000396
011000 000397
011000 000398
011000 000399
011000 000400
011000 000401
011000 000402
011000 000403
011000 000404
011000 000405
011000 000406
011000 000407
011000 000408
011000 000409
011000 000410
011000 000411
011000 000412
011000 000413
011000 000414
011000 000415
011000 000416
011000 000417
011000 000418
011000 000419
011000 000420
011000 000421
011000 000422
011000 000423
011000 000424
011000 000425
011000 000426
011000 000427
011000 000428
011000 000429
011000 000430
011000 000431
011000 000432
011000 000433
011000 000434
011000 000435
011000 000436
011000 000437
011000 000438
011000 000439
011000 000440
011000 000441
011000 000442
011000 000443
011000 000444
011000 000445
011000 000446
011000 000447
011000 000448
011000 000449
011000 000450
011000 000451
011000 000452
011000 000453
011000 000454
011000 000455
011000 000456
011000 000457
011000 000458
011000 000459
011000 000460
011000 000461
011000 000462
011000 000463
011000 000464
011000 000465
011000 000466
011000 000467
011000 000468
011000 000469
011000 000470
011000 000471
011000 000472
011000 000473
011000 000474
011000 000475
011000 000476
011000 000477
011000 000478
011000 000479
011000 000480
011000 000481
011000 000482
011000 000483
011000 000484
011000 000485
011000 000486
011000 000487
011000 000488
011000 000489
011000 000490
011000 000491
011000 000492
011000 000493
011000 000494
011000 000495
011000 000496
011000 000497
011000 000498
011000 000499
011000 000500
011000 000501
011000 000502
011000 000503
011000 000504
011000 000505
011000 000506
011000 000507
011000 000508
011000 000509
011000 000510
011000 000511
011000 000512
011000 000513
011000 000514
011000 000515
011000 000516
011000 000517
011000 000518
011000 000519
011000 000520
011000 000521
011000 000522
011000 000523
011000 000524
011000 000525
011000 000526
011000 000527
011000 000528
011000 000529
011000 000530
011000 000531
011000 000532
011000 000533
011000 000534
011000 000535
011000 000536
011000 000537
011000 000538
011000 000539
011000 000540
011000 000541
011000 000542
011000 000543
011000 000544
011000 000545
011000 000546
011000 000547
011000 000548
011000 000549
011000 000550
011000 000551
011000 000552
011000 000553
011000 000554
011000 000555
011000 000556
011000 000557
011000 000558
011000 000559
011000 000560
011000 000561
011000 000562
011000 000563
011000 000564
011000 000565
011000 000566
011000 000567
011000 000568
011000 000569
011000 000570
011000 000571
011000 000572
011000 000573
011000 000574
011000 000575
011000 000576
011000 000577
011000 000578
011000 000579
011000 000580
011000 000581
011000 000582
011000 000583
011000 000584
011000 000585
011000 000586
011000 000587
011000 000588
011000 000589
011000 000590
011000 000591
011000 000592
011000 000593
011000 000594
011000 000595
011000 000596
011000 000597
011000 000598
011000 000599
011000 000600
011000 000601
011000 000602
011000 000603
011000 000604
011000 000605
011000 000606
011000 000607
011000 000608
011000 000609
011000 000610
011000 000611
011000 000612
011000 000613
011000 000614
011000 000615
011000 000616
011000 000617
011000 000618
011000 000619
011000 000620
011000 000621
011000 000622
011000 000623
011000 000624
011000 000625
011000 000626
011000 000627
011000 000628
011000 000629
011000 000630
011000 000631
011000 000632
011000 000633
011000 000634
011000 000635
011000 000636
011000 000637
011000 000638
011000 000639
011000 000640
011000 000641
011000 000642
011000 000643
011000 000644
011000 000645
011000 000646
011000 000647
011000 000648
011000 000649
011000 000650
011000 000651
011000 000652
011000 000653
011000 000654
011000 000655
011000 000656
011000 000657
011000 000658
011000 000659
011000 000660
011000 000661
011000 000662
011000 000663
011000 000664
011000 000665
011000 000666
011000 000667
011000 000668
011000 000669
011000 000670
011000 000671
011000 000672
011000 000673
011000 000674
011000 000675
011000 000676
011000 000677
011000 000678
011000 000679
011000 000680
011000 000681
011000 000682
011000 000683
011000 000684
011000 000685
011000 000686
011000 000687
011000 000688
011000 000689
011000 000690



T. DON T. N. LANE LITTLE AM T. N. EST S. SSE
DRAINAGE T. S. R. E.
Date: 18th February 2014
Job No: 20644
Dr: [Redacted]
All drainage was fitted with pipe sizes and invert levels recorded. Wherever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external sewer pipes and external soil stacks have been proven wherever possible into manholes and sewer runs. Drains / sewers between manholes are assumed to be straight. All sub-surface drainage positions should be cross checked in critical areas by RD or CPN survey or hand dug trial holes.



Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYHEW BROWN LTD. JOB NO. APL/17/19/DOC. DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTES / CONNECTIVITY OBTAINED USING ACOUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS

ACDP	ASSUMED CONNECTION POINT	LH	LAMP HOLE
AGD	ABOVE GROUND	MM	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BR	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CL	CAST IRON	POW	PIPE ON WALL
CL	CONCRETE	PT	P-T JUMP
CO	CONCRETE	PTD	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	RE	REINFORCED
CWS	COMBINED WATER SEWER	RE	REINFORCED
DCH	DRAINAGE CHANNEL	RHS	RISING MAIN
DI	DRAIN	RS	RISING MAIN
FD	FILTER DRAIN	SOF	SOFT
FWS	FULL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SW	SURFACE WATER SEWER
IC	INSPECTION COVER	UL	UNABLE TO LIFT
INT	INTERCEPTOR	ULS	UNABLE TO SURVEY
IO	INLET	VC	VENT PIPE
IO	INLET	WL	WATER LEVEL

LEGEND

CONCRETE	---	ACDP	---
CAST IRON	---	BD	---
CL	---	CL	---
CO	---	CO	---
CU	---	CU	---
CP	---	CP	---
CWS	---	CWS	---
DCH	---	DCH	---
DI	---	DI	---
FD	---	FD	---
FWS	---	FWS	---
GY	---	GY	---
IC	---	IC	---
INT	---	INT	---
IO	---	IO	---

CAUTIONARY NOTES

- Pipe sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
- Connectivity between Manholes has been proven using gas testing / acoustic methods. It is advised that a CCTV survey is carried out to confirm connections. Please ring for further details if a CCTV Survey is required.

AL A. S. E. DR. SE. A. T. N. EN. E. A. T. N.



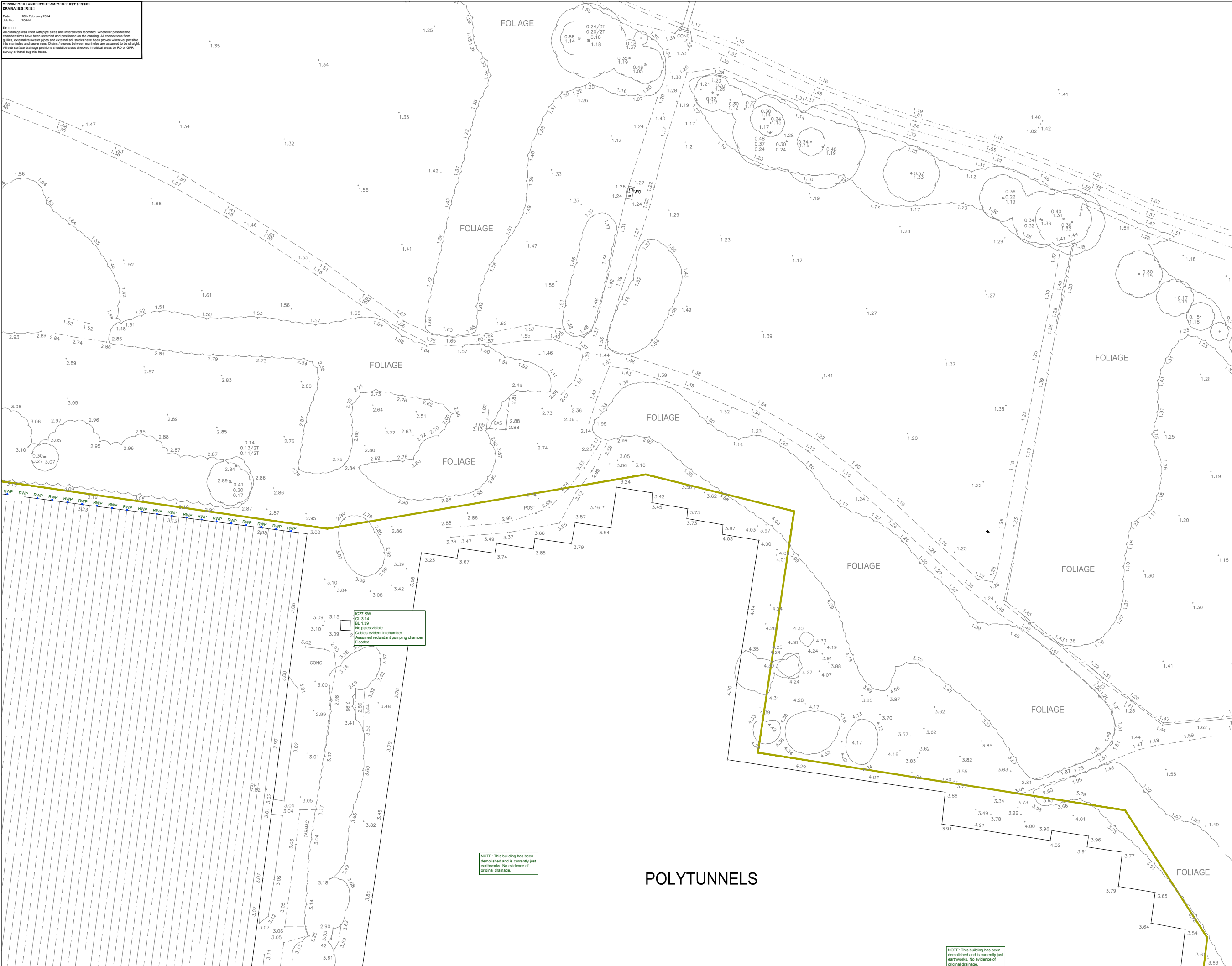
SHEET 5 OF 12

0m 5 10 15 20 25 30 35 40 45 50 55

mk surveys

10000 000001
10000 000002
10000 000003
10000 000004
10000 000005
10000 000006
10000 000007
10000 000008
10000 000009
10000 000010
10000 000011
10000 000012
10000 000013
10000 000014
10000 000015
10000 000016
10000 000017
10000 000018
10000 000019
10000 000020
10000 000021
10000 000022
10000 000023
10000 000024
10000 000025
10000 000026
10000 000027
10000 000028
10000 000029
10000 000030
10000 000031
10000 000032
10000 000033
10000 000034
10000 000035
10000 000036
10000 000037
10000 000038
10000 000039
10000 000040
10000 000041
10000 000042
10000 000043
10000 000044
10000 000045
10000 000046
10000 000047
10000 000048
10000 000049
10000 000050
10000 000051
10000 000052
10000 000053
10000 000054
10000 000055
10000 000056
10000 000057
10000 000058
10000 000059
10000 000060
10000 000061
10000 000062
10000 000063
10000 000064
10000 000065
10000 000066
10000 000067
10000 000068
10000 000069
10000 000070
10000 000071
10000 000072
10000 000073
10000 000074
10000 000075
10000 000076
10000 000077
10000 000078
10000 000079
10000 000080
10000 000081
10000 000082
10000 000083
10000 000084
10000 000085
10000 000086
10000 000087
10000 000088
10000 000089
10000 000090
10000 000091
10000 000092
10000 000093
10000 000094
10000 000095
10000 000096
10000 000097
10000 000098
10000 000099
10000 000100
10000 000101
10000 000102
10000 000103
10000 000104
10000 000105
10000 000106
10000 000107
10000 000108
10000 000109
10000 000110
10000 000111
10000 000112
10000 000113
10000 000114
10000 000115
10000 000116
10000 000117
10000 000118
10000 000119
10000 000120
10000 000121
10000 000122
10000 000123
10000 000124
10000 000125
10000 000126
10000 000127
10000 000128
10000 000129
10000 000130
10000 000131
10000 000132
10000 000133
10000 000134
10000 000135
10000 000136
10000 000137
10000 000138
10000 000139
10000 000140
10000 000141
10000 000142
10000 000143
10000 000144
10000 000145
10000 000146
10000 000147
10000 000148
10000 000149
10000 000150
10000 000151
10000 000152
10000 000153
10000 000154
10000 000155
10000 000156
10000 000157
10000 000158
10000 000159
10000 000160
10000 000161
10000 000162
10000 000163
10000 000164
10000 000165
10000 000166
10000 000167
10000 000168
10000 000169
10000 000170
10000 000171
10000 000172
10000 000173
10000 000174
10000 000175
10000 000176
10000 000177
10000 000178
10000 000179
10000 000180
10000 000181
10000 000182
10000 000183
10000 000184
10000 000185
10000 000186
10000 000187
10000 000188
10000 000189
10000 000190
10000 000191
10000 000192
10000 000193
10000 000194
10000 000195
10000 000196
10000 000197
10000 000198
10000 000199
10000 000200
10000 000201
10000 000202
10000 000203
10000 000204
10000 000205
10000 000206
10000 000207
10000 000208
10000 000209
10000 000210
10000 000211
10000 000212
10000 000213
10000 000214
10000 000215
10000 000216
10000 000217
10000 000218
10000 000219
10000 000220
10000 000221
10000 000222
10000 000223
10000 000224
10000 000225
10000 000226
10000 000227
10000 000228
10000 000229
10000 000230
10000 000231
10000 000232
10000 000233
10000 000234
10000 000235
10000 000236
10000 000237
10000 000238
10000 000239
10000 000240
10000 000241
10000 000242
10000 000243
10000 000244
10000 000245
10000 000246
10000 000247
10000 000248
10000 000249
10000 000250
10000 000251
10000 000252
10000 000253
10000 000254
10000 000255
10000 000256
10000 000257
10000 000258
10000 000259
10000 000260
10000 000261
10000 000262
10000 000263
10000 000264
10000 000265
10000 000266
10000 000267
10000 000268
10000 000269
10000 000270
10000 000271
10000 000272
10000 000273
10000 000274
10000 000275
10000 000276
10000 000277
10000 000278
10000 000279
10000 000280
10000 000281
10000 000282
10000 000283
10000 000284
10000 000285
10000 000286
10000 000287
10000 000288
10000 000289
10000 000290
10000 000291
10000 000292
10000 000293
10000 000294
10000 000295
10000 000296
10000 000297
10000 000298
10000 000299
10000 000300
10000 000301
10000 000302
10000 000303
10000 000304
10000 000305
10000 000306
10000 000307
10000 000308
10000 000309
10000 000310
10000 000311
10000 000312
10000 000313
10000 000314
10000 000315
10000 000316
10000 000317
10000 000318
10000 000319
10000 000320
10000 000321
10000 000322
10000 000323
10000 000324
10000 000325
10000 000326
10000 000327
10000 000328
10000 000329
10000 000330
10000 000331
10000 000332
10000 000333
10000 000334
10000 000335
10000 000336
10000 000337
10000 000338
10000 000339
10000 000340
10000 000341
10000 000342
10000 000343
10000 000344
10000 000345
10000 000346
10000 000347
10000 000348
10000 000349
10000 000350
10000 000351
10000 000352
10000 000353
10000 000354
10000 000355
10000 000356
10000 000357
10000 000358
10000 000359
10000 000360
10000 000361
10000 000362
10000 000363
10000 000364
10000 000365
10000 000366
10000 000367
10000 000368
10000 000369
10000 000370
10000 000371
10000 000372
10000 000373
10000 000374
10000 000375
10000 000376
10000 000377
10000 000378
10000 000379
10000 000380
10000 000381
10000 000382
10000 000383
10000 000384
10000 000385
10000 000386
10000 000387
10000 000388
10000 000389
10000 000390
10000 000391
10000 000392
10000 000393
10000 000394
10000 000395
10000 000396
10000 000397
10000 000398
10000 000399
10000 000400
10000 000401
10000 000402
10000 000403
10000 000404
10000 000405
10000 000406
10000 000407
10000 000408
10000 000409
10000 000410
10000 000411
10000 000412
10000 000413
10000 000414
10000 000415
10000 000416
10000 000417
10000 000418
10000 000419
10000 000420
10000 000421
10000 000422
10000 000423
10000 000424
10000 000425
10000 000426
10000 000427
10000 000428
10000 000429
10000 000430
10000 000431
10000 000432
10000 000433
10000 000434
10000 000435
10000 000436
10000 000437
10000 000438
10000 000439
10000 000440
10000 000441
10000 000442
10000 000443
10000 000444
10000 000445
10000 000446
10000 000447
10000 000448
10000 000449
10000 000450
10000 000451
10000 000452
10000 000453
10000 000454
10000 000455
10000 000456
10000 000457
10000 000458
10000 000459
10000 000460
10000 000461
10000 000462
10000 000463
10000 000464
10000 000465
10000 000466
10000 000467
10000 000468
10000 000469
10000 000470
10000 000471
10000 000472
10000 000473
10000 000474
10000 000475
10000 000476
10000 000477
10000 000478
10000 000479
10000 000480
10000 000481
10000 000482
10000 000483
10000 000484
10000 000485
10000 000486
10000 000487
10000 000488
10000 000489
10000 000490
10000 000491
10000 000492
10000 000493
10000 000494
10000 000495
10000 000496
10000 000497
10000 000498
10000 000499
10000 000500
10000 000501
10000 000502
10000 000503
10000 000504
10000 000505
10000 000506
10000 000507
10000 000508
10000 000509
10000 000510
10000 000511
10000 000512
10000 000513
10000 000514
10000 000515
10000 000516
10000 000517
10000 000518
10000 000519
10000 000520
10000 000521
10000 000522
10000 000523
10000 000524
10000 000525
10000 000526
10000 000527
10000 000528
10000 000529
10000 000530
10000 000531
10000 000532
10000 000533
10000 000534
10000 000535
10000 000536
10000 000537
10000 000538
10000 000539
10000 000540
10000 000541
10000 000542
10000 000543
10000 000544
10000 000545
10000 000546
10000 000547
10000 000548
10000 000549
10000 000550
10000 000551
10000 000552
10000 000553
10000 000554
10000 000555
10000 000556
10000 000557
10000 000558
10000 000559
10000 000560
10000 000561
10000 000562
10000 000563
10000 000564
10000 000565
10000 000566
10000 000567
10000 000568
10000 000569
10000 000570
10000 000571
10000 000572
10000 000573
10000 000574
10000 000575
10000 000576
10000 000577
10000 000578
10000 000579
10000 000580
10000 000581
10000 000582
10000 000583
10000 000584
10000 000585
10000 000586
10000 000587
10000 000588
10000 000589
10000 000590
10000 000591
10000 000592
10000 000593
10000 000594
10000 000595
10000 000596
10000 000597
10000 000598
10000 000599
10000 000600
10000 000601
10000 000602
10000 000603
10000 000604
10000 000605
10000 000606
10000 000607
10000 000608
10000 000609
10000 000610
10000 000611
10000 000612
10000 000613
10000 000614
10000 000615
10000 000616
10000 000617
10000 000618
10000 000619
10000 000620
10000 000621
10000 000622
10000 000623
10000 000624
10000 000625
10000 000626
10000 000627
10000 000628
10000 000629
10000 000630
10000 000631
10000 000632
10000 000633
10000 000634
10000 000635
10000 000636
10000 000637
10000 000638
10000 000639
10000 000640
10000 000641
10000 000642
10000 000643
10000 000644
10000 000645
10000 000646
10000 000647
10000 000648
10000 000649
10000 000650
10000 000651
10000 000652
10000 000653
10000 000654
10000 000655
10000 000656
10000 000657
10000 000658
10000 000659
10000 000660
10000 000661
10000 000662
10000 000663
10000 000664
10000 000665
10000 000666
10000 000667
10000 000668
10000 000669
10000 000670
10000 000671
10000 000672
10000 000673
10000 000674
10000 000675
10000 000676
10000 000677
10000 000678
10000 000679
10000 000680
10000 000681
10000 000682
10000 000683
10000 000684
10000 000685
10000 000686
10000 000687
10000 000688
10000 000689
10000 000690
10000 000691
10000 000692
10000 000693
10000 000694
10000 000695
10000 000696
10000 000697
10000 000698
10000 000699
10000 000700
10000 000701
10000 000702
10000 000703
10000 000704
10000 000705
10000 000706
10000 000707
10000 000708
10000 000709
10000 000710
10000 000711
10000 000712
10000 000713
10000 000714
10000 000715
10000 000716
10000 000717
10000 000718
10000 000719
10000 000720
10000 000721
10000 000722
10000 000723
10000 000724
10000 000725
10000 000726
10000 000727
10000 000728
10000 000729
10000 000730
10000 000731
10000 000732
10000 000733
10000 000734
10000 000735
10000 000736
10000 000737
10000 000738
10000 000739
10000 000740
10000 000741
10000 000742
10

T. DON T. N. LANE LITTLE AM T. N. EST S. SE
DRAINAGE S. S. E.
Date: 18th February 2014
Job No: 20644
Dr: [Signature]
All drainage was fitted with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external sewer pipes and external soil stacks have been proven wherever possible into manholes and sewer runs. Drains / sewers between manholes are assumed to be straight. All sub-surface drainage positions should be cross checked in critical areas by RQ or CPM survey or hand dug trial holes.



Notes:

1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYHEW BROWN LTD. JOB NO. APM/LITTLE 200. DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTES / CONNECTIVITY OBTAINED USING ACOUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS

ACDP	ASSUMED CONNECTION POINT	LH	LAMP HOLE
AGD	ABOVE GROUND	MM	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BR	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CL	CAST IRON	POW	PIPE ON WALL
CU	CULVERT	PT	P-T JUNCTION
CO	CONCRETE	PTD	PIPE TO GROUND
CS	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHMENT	PVC-U	ULTRA RISE (PVC)
CWS	COMBINED WATER SEWER	RE	ROOFING EYE
DCH	DRAINAGE CHANNEL	RMAN	REINFORCED MAN
DI	DUCTILE IRON	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFT
FWS	FOLI WATER SEWER	SVP	SOIL VENT PIPE
G	GULLY	SW	SURFACE WATER SEWER
IC	INSPECTION COVER	UNL	UNABLE TO LIFT
INT	INTERCEPTOR	UTL	UNABLE TO SURVEY
IO	INLET	VC	VENT PIPE
MD	MANHOLE	VP	VENT PIPE
		WL	WATER LEVEL

LEGEND

CONCRETE	---	ACDP	---
DUCTILE IRON	---	AGD	---
SURFACE WATER SEWER	---	AR	---
CAST IRON	---	BD	---
INSPECTION COVER	---	BR	---
WATER	---	BL	---
WATER	---	CL	---
WATER	---	CU	---
WATER	---	CO	---
WATER	---	CS	---
WATER	---	CP	---
WATER	---	CWS	---
WATER	---	DCH	---
WATER	---	DI	---
WATER	---	FD	---
WATER	---	FWS	---
WATER	---	G	---
WATER	---	IC	---
WATER	---	INT	---
WATER	---	IO	---
WATER	---	MD	---

CAUTIONARY NOTES

1. Pipe sizes and depths from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
2. Connectivity between Manholes has been proven using gas testing / acoustic methods. It is advised that a CCTV survey is carried out to confirm connections. Please ring for further details if a CCTV survey is required.

AL A SE DR SE A T N EN A ATN

SHEET 6 OF 12

0m 5 10 15 20 25 30 35 40 45 50 55

mk surveys

10000 060001
10000 060002
10000 060003
10000 060004
10000 060005
10000 060006
10000 060007
10000 060008
10000 060009
10000 060010
10000 060011
10000 060012
10000 060013
10000 060014
10000 060015
10000 060016
10000 060017
10000 060018
10000 060019
10000 060020
10000 060021
10000 060022
10000 060023
10000 060024
10000 060025
10000 060026
10000 060027
10000 060028
10000 060029
10000 060030
10000 060031
10000 060032
10000 060033
10000 060034
10000 060035
10000 060036
10000 060037
10000 060038
10000 060039
10000 060040
10000 060041
10000 060042
10000 060043
10000 060044
10000 060045
10000 060046
10000 060047
10000 060048
10000 060049
10000 060050
10000 060051
10000 060052
10000 060053
10000 060054
10000 060055
10000 060056
10000 060057
10000 060058
10000 060059
10000 060060
10000 060061
10000 060062
10000 060063
10000 060064
10000 060065
10000 060066
10000 060067
10000 060068
10000 060069
10000 060070
10000 060071
10000 060072
10000 060073
10000 060074
10000 060075
10000 060076
10000 060077
10000 060078
10000 060079
10000 060080
10000 060081
10000 060082
10000 060083
10000 060084
10000 060085
10000 060086
10000 060087
10000 060088
10000 060089
10000 060090
10000 060091
10000 060092
10000 060093
10000 060094
10000 060095
10000 060096
10000 060097
10000 060098
10000 060099
10000 060100
10000 060101
10000 060102
10000 060103
10000 060104
10000 060105
10000 060106
10000 060107
10000 060108
10000 060109
10000 060110
10000 060111
10000 060112
10000 060113
10000 060114
10000 060115
10000 060116
10000 060117
10000 060118
10000 060119
10000 060120
10000 060121
10000 060122
10000 060123
10000 060124
10000 060125
10000 060126
10000 060127
10000 060128
10000 060129
10000 060130
10000 060131
10000 060132
10000 060133
10000 060134
10000 060135
10000 060136
10000 060137
10000 060138
10000 060139
10000 060140
10000 060141
10000 060142
10000 060143
10000 060144
10000 060145
10000 060146
10000 060147
10000 060148
10000 060149
10000 060150
10000 060151
10000 060152
10000 060153
10000 060154
10000 060155
10000 060156
10000 060157
10000 060158
10000 060159
10000 060160
10000 060161
10000 060162
10000 060163
10000 060164
10000 060165
10000 060166
10000 060167
10000 060168
10000 060169
10000 060170
10000 060171
10000 060172
10000 060173
10000 060174
10000 060175
10000 060176
10000 060177
10000 060178
10000 060179
10000 060180
10000 060181
10000 060182
10000 060183
10000 060184
10000 060185
10000 060186
10000 060187
10000 060188
10000 060189
10000 060190
10000 060191
10000 060192
10000 060193
10000 060194
10000 060195
10000 060196
10000 060197
10000 060198
10000 060199
10000 060200
10000 060201
10000 060202
10000 060203
10000 060204
10000 060205
10000 060206
10000 060207
10000 060208
10000 060209
10000 060210
10000 060211
10000 060212
10000 060213
10000 060214
10000 060215
10000 060216
10000 060217
10000 060218
10000 060219
10000 060220
10000 060221
10000 060222
10000 060223
10000 060224
10000 060225
10000 060226
10000 060227
10000 060228
10000 060229
10000 060230
10000 060231
10000 060232
10000 060233
10000 060234
10000 060235
10000 060236
10000 060237
10000 060238
10000 060239
10000 060240
10000 060241
10000 060242
10000 060243
10000 060244
10000 060245
10000 060246
10000 060247
10000 060248
10000 060249
10000 060250
10000 060251
10000 060252
10000 060253
10000 060254
10000 060255
10000 060256
10000 060257
10000 060258
10000 060259
10000 060260
10000 060261
10000 060262
10000 060263
10000 060264
10000 060265
10000 060266
10000 060267
10000 060268
10000 060269
10000 060270
10000 060271
10000 060272
10000 060273
10000 060274
10000 060275
10000 060276
10000 060277
10000 060278
10000 060279
10000 060280
10000 060281
10000 060282
10000 060283
10000 060284
10000 060285
10000 060286
10000 060287
10000 060288
10000 060289
10000 060290
10000 060291
10000 060292
10000 060293
10000 060294
10000 060295
10000 060296
10000 060297
10000 060298
10000 060299
10000 060300
10000 060301
10000 060302
10000 060303
10000 060304
10000 060305
10000 060306
10000 060307
10000 060308
10000 060309
10000 060310
10000 060311
10000 060312
10000 060313
10000 060314
10000 060315
10000 060316
10000 060317
10000 060318
10000 060319
10000 060320
10000 060321
10000 060322
10000 060323
10000 060324
10000 060325
10000 060326
10000 060327
10000 060328
10000 060329
10000 060330
10000 060331
10000 060332
10000 060333
10000 060334
10000 060335
10000 060336
10000 060337
10000 060338
10000 060339
10000 060340
10000 060341
10000 060342
10000 060343
10000 060344
10000 060345
10000 060346
10000 060347
10000 060348
10000 060349
10000 060350
10000 060351
10000 060352
10000 060353
10000 060354
10000 060355
10000 060356
10000 060357
10000 060358
10000 060359
10000 060360
10000 060361
10000 060362
10000 060363
10000 060364
10000 060365
10000 060366
10000 060367
10000 060368
10000 060369
10000 060370
10000 060371
10000 060372
10000 060373
10000 060374
10000 060375
10000 060376
10000 060377
10000 060378
10000 060379
10000 060380
10000 060381
10000 060382
10000 060383
10000 060384
10000 060385
10000 060386
10000 060387
10000 060388
10000 060389
10000 060390
10000 060391
10000 060392
10000 060393
10000 060394
10000 060395
10000 060396
10000 060397
10000 060398
10000 060399
10000 060400
10000 060401
10000 060402
10000 060403
10000 060404
10000 060405
10000 060406
10000 060407
10000 060408
10000 060409
10000 060410
10000 060411
10000 060412
10000 060413
10000 060414
10000 060415
10000 060416
10000 060417
10000 060418
10000 060419
10000 060420
10000 060421
10000 060422
10000 060423
10000 060424
10000 060425
10000 060426
10000 060427
10000 060428
10000 060429
10000 060430
10000 060431
10000 060432
10000 060433
10000 060434
10000 060435
10000 060436
10000 060437
10000 060438
10000 060439
10000 060440
10000 060441
10000 060442
10000 060443
10000 060444
10000 060445
10000 060446
10000 060447
10000 060448
10000 060449
10000 060450
10000 060451
10000 060452
10000 060453
10000 060454
10000 060455
10000 060456
10000 060457
10000 060458
10000 060459
10000 060460
10000 060461
10000 060462
10000 060463
10000 060464
10000 060465
10000 060466
10000 060467
10000 060468
10000 060469
10000 060470
10000 060471
10000 060472
10000 060473
10000 060474
10000 060475
10000 060476
10000 060477
10000 060478
10000 060479
10000 060480
10000 060481
10000 060482
10000 060483
10000 060484
10000 060485
10000 060486
10000 060487
10000 060488
10000 060489
10000 060490
10000 060491
10000 060492
10000 060493
10000 060494
10000 060495
10000 060496
10000 060497
10000 060498
10000 060499
10000 060500
10000 060501
10000 060502
10000 060503
10000 060504
10000 060505
10000 060506
10000 060507
10000 060508
10000 060509
10000 060510
10000 060511
10000 060512
10000 060513
10000 060514
10000 060515
10000 060516
10000 060517
10000 060518
10000 060519
10000 060520
10000 060521
10000 060522
10000 060523
10000 060524
10000 060525
10000 060526
10000 060527
10000 060528
10000 060529
10000 060530
10000 060531
10000 060532
10000 060533
10000 060534
10000 060535
10000 060536
10000 060537
10000 060538
10000 060539
10000 060540
10000 060541
10000 060542
10000 060543
10000 060544
10000 060545
10000 060546
10000 060547
10000 060548
10000 060549
10000 060550
10000 060551
10000 060552
10000 060553
10000 060554
10000 060555
10000 060556
10000 060557
10000 060558
10000 060559
10000 060560
10000 060561
10000 060562
10000 060563
10000 060564
10000 060565
10000 060566
10000 060567
10000 060568
10000 060569
10000 060570
10000 060571
10000 060572
10000 060573
10000 060574
10000 060575
10000 060576
10000 060577
10000 060578
10000 060579
10000 060580
10000 060581
10000 060582
10000 060583
10000 060584
10000 060585
10000 060586
10000 060587
10000 060588
10000 060589
10000 060590
10000 060591
10000 060592
10000 060593
10000 060594
10000 060595
10000 060596
10000 060597
10000 060598
10000 060599
10000 060600
10000 060601
10000 060602
10000 060603
10000 060604
10000 060605
10000 060606
10000 060607
10000 060608
10000 060609
10000 060610
10000 060611
10000 060612
10000 060613
10000 060614
10000 060615
10000 060616
10000 060617
10000 060618
10000 060619
10000 060620
10000 060621
10000 060622
10000 060623
10000 060624
10000 060625
10000 060626
10000 060627
10000 060628
10000 060629
10000 060630
10000 060631
10000 060632
10000 060633
10000 060634
10000 060635
10000 060636
10000 060637
10000 060638
10000 060639
10000 060640
10000 060641
10000 060642
10000 060643
10000 060644
10000 060645
10000 060646
10000 060647
10000 060648
10000 060649
10000 060650
10000 060651
10000 060652
10000 060653
10000 060654
10000 060655
10000 060656
10000 060657
10000 060658
10000 060659
10000 060660
10000 060661
10000 060662
10000 060663
10000 060664
10000 060665
10000 060666
10000 060667
10000 060668
10000 060669
10000 060670
10000 060671
10000 060672
10000 060673
10000 060674
10000 060675
10000 060676
10000 060677
10000 060678
10000 060679
10000 060680
10000 060681
10000 060682
10000 060683
10000 060684
10000 060685
10000 060686
10000 060687
10000 060688
10000 060689
10000 060690
10000 060691
10000 060692
10000 060693
10000 060694
10000 060695
10000 060696
10000 060697
10000 060698
10000 060699
10000 060700
10000 060701
10000 060702
10000 060703
10000 060704
10000 060705
10000 060706
10000 060707
10000 060708
10000 060709
10000 060710
10000 060711
10000 060712
10000 060713
10000 060714
10000 060715
10000 060716
10000 060717
10000 060718
10000 060719
10000 060720
10000 060721
10000 060722
10000 060723
10000 060724
10000 060725
10000 060726
10000 060727
10000 060728
10000 060729
10000 060730
10000 060731
10000 060732
10000 060733
10000 060734
10000 060735
10000 060736
10000 060737

T. DON T. N. LANE LITTLE AM T. N. EST S. SBE
DRAINAGE T. S. R. E.
Date: 18th February 2014
Job No: 20644
Dr: [Signature]
All drainage was filled with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external sewer pipes and external wet stacks have been proven wherever possible into manholes and sewer runs. Drains / sewers between manholes are assumed to be straight. All sub surface drainage positions should be cross checked in critical areas by RDI or CCTV survey or hand dug trial holes.

NOTE: This building has been demolished and is currently just earthworks. No evidence of original drainage.

POLYTUNNELS

NOTE: This building has been demolished and is currently just earthworks. No evidence of original drainage.

- Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYHEW BROWN LTD. JOB NO. APM/LITTLE 2008. DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
 2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
 3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTES / CONNECTIVITY OBTAINED USING ACQUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

DRAINAGE KEY			
ABBREVIATIONS		LAMP HOLE	
ADP	ASSUMED CONNECTION POINT	LM	MANHOLE
AGD	ABOVE GROUND	NPV	NO PIPES VISIBLE
AR	ASSUMED ROUTE	OL	OUTLET
BD	BACK DROP	OU	OUTFALL
BK	BRICK	PP	POLYPROPYLENE
BL	BASE LEVEL	PT	PIPE ON WALL
CL	CAST IRON	PTD	PIPE TO GROUND
CO	CONCRETE	PPV	POLYVINYL CHLORIDE
CU	CULVERT	RE	REINFORCED
CP	CATCHMENT	RV	ROOFING VENT
CWS	COMBINED WATER SEWER	RW	RAIN WATER PIPE
DI	DRAINAGE CHANNEL	SW	SOFT
FD	FILTER DRAIN	SWP	SOFT WATER PIPE
FWS	FULL WATER SEWER	UTL	UNABLE TO LOCATE
GY	GULLY	UTL	UNABLE TO SURVEY
I	INVERT	VC	VENT PIPE
INT	INTERCEPTOR	WL	WATER LEVEL
MD	MANHOLE		

LEGEND	
CONCRETE	ADP
CAST IRON	AGD
CAST IRON	AR
CAST IRON	BD
CAST IRON	BK
CAST IRON	BL
CAST IRON	CL
CAST IRON	CO
CAST IRON	CU
CAST IRON	CP
CAST IRON	CWS
CAST IRON	DI
CAST IRON	FD
CAST IRON	FWS
CAST IRON	GY
CAST IRON	I
CAST IRON	INT
CAST IRON	MD

CAUTIONARY NOTES

1. Pipe sizes and depths from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
2. Connectivity between Manholes has been proven using dye testing / acoustic methods. It is advised that a CCTV survey is carried out to confirm connections. Please refer to further details if a CCTV survey is required.

AL A. S. E. R. E. A. T. N. E. A. T. N.

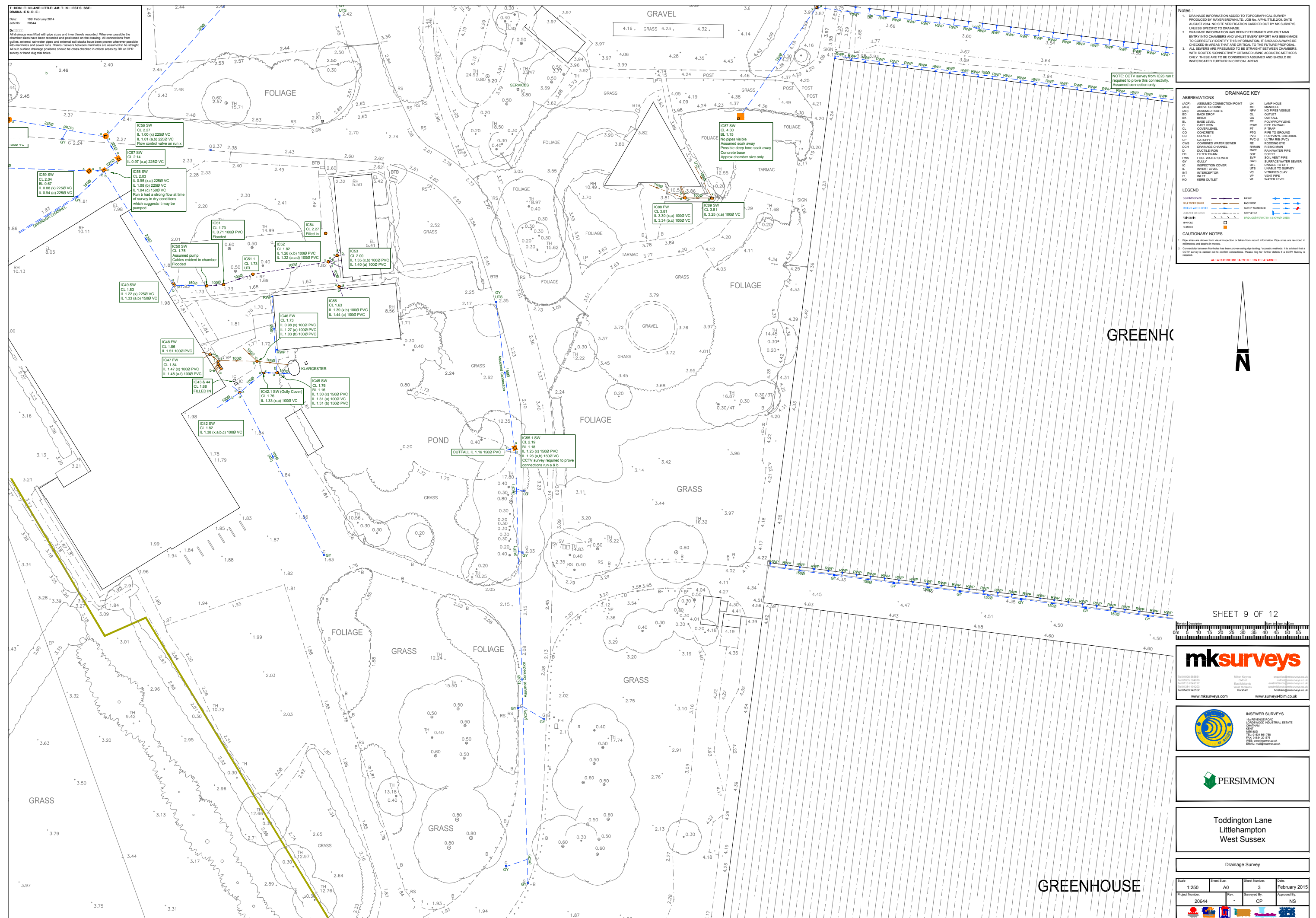


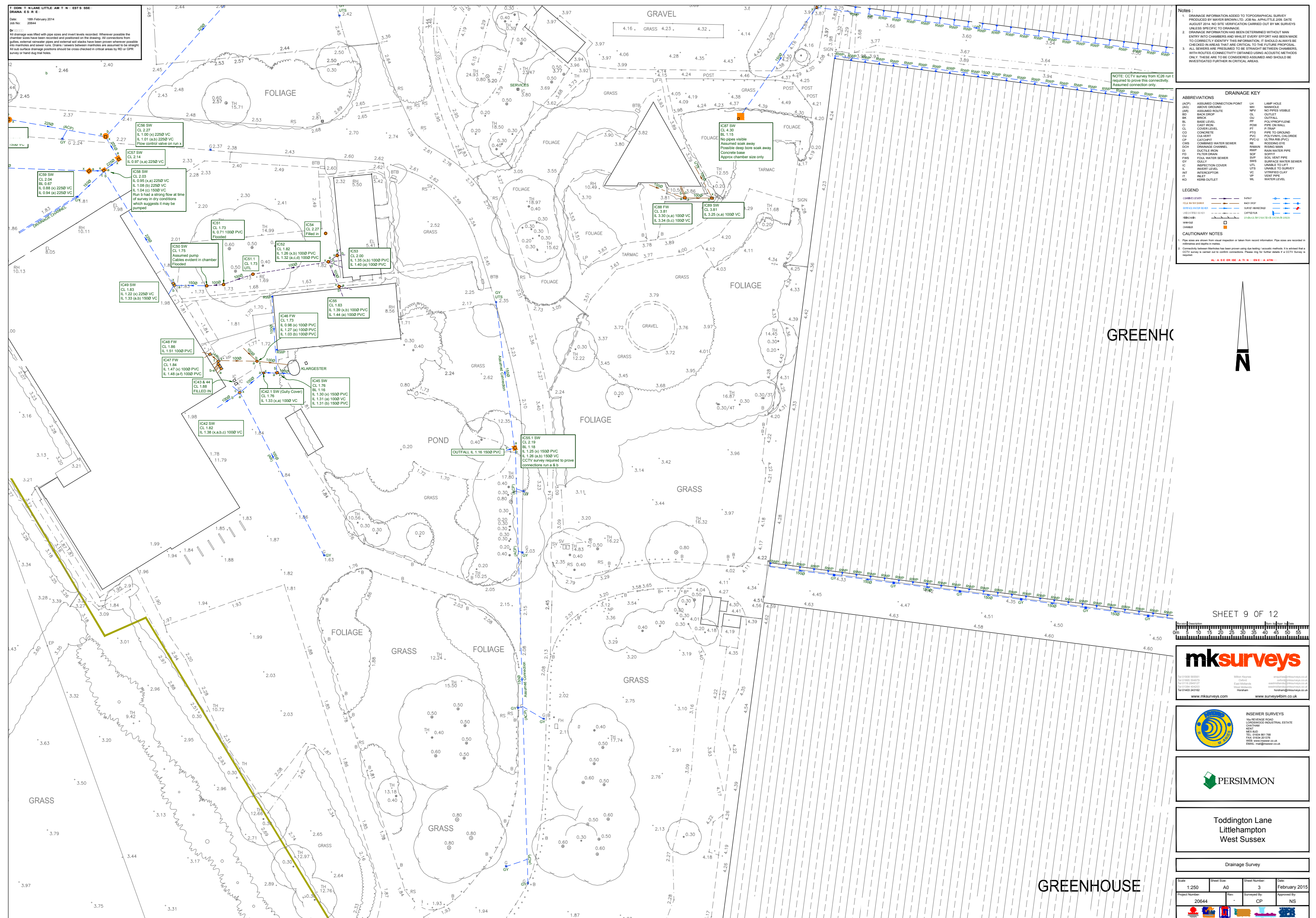
RESERVOIR

SHEET 8 OF 12

mk surveys

100 RIVERVIEW ROAD
LONDONWOOD INDUSTRIAL ESTATE
COVENTRY
CV5 9EF
TEL: 01203 606001
TEL: 01203 606002
TEL: 01203 606003
TEL: 01203 606004
TEL: 01203 606005
TEL: 01203 606006
TEL: 01203 606007
TEL: 01203 606008
TEL: 01203 606009
TEL: 01203 606010
TEL: 01203 606011
TEL: 01203 606012
TEL: 01203 606013
TEL: 01203 606014
TEL: 01203 606015
TEL: 01203 606016
TEL: 01203 606017
TEL: 01203 606018
TEL: 01203 606019
TEL: 01203 606020
TEL: 01203 606021
TEL: 01203 606022
TEL: 01203 606023
TEL: 01203 606024
TEL: 01203 606025
TEL: 01203 606026
TEL: 01203 606027
TEL: 01203 606028
TEL: 01203 606029
TEL: 01203 606030
TEL: 01203 606031
TEL: 01203 606032
TEL: 01203 606033
TEL: 01203 606034
TEL: 01203 606035
TEL: 01203 606036
TEL: 01203 606037
TEL: 01203 606038
TEL: 01203 606039
TEL: 01203 606040
TEL: 01203 606041
TEL: 01203 606042
TEL: 01203 606043
TEL: 01203 606044
TEL: 01203 606045
TEL: 01203 606046
TEL: 01203 606047
TEL: 01203 606048
TEL: 01203 606049
TEL: 01203 606050
TEL: 01203 606051
TEL: 01203 606052
TEL: 01203 606053
TEL: 01203 606054
TEL: 01203 606055
TEL: 01203 606056
TEL: 01203 606057
TEL: 01203 606058
TEL: 01203 606059
TEL: 01203 606060
TEL: 01203 606061
TEL: 01203 606062
TEL: 01203 606063
TEL: 01203 606064
TEL: 01203 606065
TEL: 01203 606066
TEL: 01203 606067
TEL: 01203 606068
TEL: 01203 606069
TEL: 01203 606070
TEL: 01203 606071
TEL: 01203 606072
TEL: 01203 606073
TEL: 01203 606074
TEL: 01203 606075
TEL: 01203 606076
TEL: 01203 606077
TEL: 01203 606078
TEL: 01203 606079
TEL: 01203 606080
TEL: 01203 606081
TEL: 01203 606082
TEL: 01203 606083
TEL: 01203 606084
TEL: 01203 606085
TEL: 01203 606086
TEL: 01203 606087
TEL: 01203 606088
TEL: 01203 606089
TEL: 01203 606090
TEL: 01203 606091
TEL: 01203 606092
TEL: 01203 606093
TEL: 01203 606094
TEL: 01203 606095
TEL: 01203 606096
TEL: 01203 606097
TEL: 01203 606098
TEL: 01203 606099
TEL: 01203 606100
TEL: 01203 606101
TEL: 01203 606102
TEL: 01203 606103
TEL: 01203 606104
TEL: 01203 606105
TEL: 01203 606106
TEL: 01203 606107
TEL: 01203 606108
TEL: 01203 606109
TEL: 01203 606110
TEL: 01203 606111
TEL: 01203 606112
TEL: 01203 606113
TEL: 01203 606114
TEL: 01203 606115
TEL: 01203 606116
TEL: 01203 606117
TEL: 01203 606118
TEL: 01203 606119
TEL: 01203 606120
TEL: 01203 606121
TEL: 01203 606122
TEL: 01203 606123
TEL: 01203 606124
TEL: 01203 606125
TEL: 01203 606126
TEL: 01203 606127
TEL: 01203 606128
TEL: 01203 606129
TEL: 01203 606130
TEL: 01203 606131
TEL: 01203 606132
TEL: 01203 606133
TEL: 01203 606134
TEL: 01203 606135
TEL: 01203 606136
TEL: 01203 606137
TEL: 01203 606138
TEL: 01203 606139
TEL: 01203 606140
TEL: 01203 606141
TEL: 01203 606142
TEL: 01203 606143
TEL: 01203 606144
TEL: 01203 606145
TEL: 01203 606146
TEL: 01203 606147
TEL: 01203 606148
TEL: 01203 606149
TEL: 01203 606150
TEL: 01203 606151
TEL: 01203 606152
TEL: 01203 606153
TEL: 01203 606154
TEL: 01203 606155
TEL: 01203 606156
TEL: 01203 606157
TEL: 01203 606158
TEL: 01203 606159
TEL: 01203 606160
TEL: 01203 606161
TEL: 01203 606162
TEL: 01203 606163
TEL: 01203 606164
TEL: 01203 606165
TEL: 01203 606166
TEL: 01203 606167
TEL: 01203 606168
TEL: 01203 606169
TEL: 01203 606170
TEL: 01203 606171
TEL: 01203 606172
TEL: 01203 606173
TEL: 01203 606174
TEL: 01203 606175
TEL: 01203 606176
TEL: 01203 606177
TEL: 01203 606178
TEL: 01203 606179
TEL: 01203 606180
TEL: 01203 606181
TEL: 01203 606182
TEL: 01203 606183
TEL: 01203 606184
TEL: 01203 606185
TEL: 01203 606186
TEL: 01203 606187
TEL: 01203 606188
TEL: 01203 606189
TEL: 01203 606190
TEL: 01203 606191
TEL: 01203 606192
TEL: 01203 606193
TEL: 01203 606194
TEL: 01203 606195
TEL: 01203 606196
TEL: 01203 606197
TEL: 01203 606198
TEL: 01203 606199
TEL: 01203 606200
TEL: 01203 606201
TEL: 01203 606202
TEL: 01203 606203
TEL: 01203 606204
TEL: 01203 606205
TEL: 01203 606206
TEL: 01203 606207
TEL: 01203 606208
TEL: 01203 606209
TEL: 01203 606210
TEL: 01203 606211
TEL: 01203 606212
TEL: 01203 606213
TEL: 01203 606214
TEL: 01203 606215
TEL: 01203 606216
TEL: 01203 606217
TEL: 01203 606218
TEL: 01203 606219
TEL: 01203 606220
TEL: 01203 606221
TEL: 01203 606222
TEL: 01203 606223
TEL: 01203 606224
TEL: 01203 606225
TEL: 01203 606226
TEL: 01203 606227
TEL: 01203 606228
TEL: 01203 606229
TEL: 01203 606230
TEL: 01203 606231
TEL: 01203 606232
TEL: 01203 606233
TEL: 01203 606234
TEL: 01203 606235
TEL: 01203 606236
TEL: 01203 606237
TEL: 01203 606238
TEL: 01203 606239
TEL: 01203 606240
TEL: 01203 606241
TEL: 01203 606242
TEL: 01203 606243
TEL: 01203 606244
TEL: 01203 606245
TEL: 01203 606246
TEL: 01203 606247
TEL: 01203 606248
TEL: 01203 606249
TEL: 01203 606250
TEL: 01203 606251
TEL: 01203 606252
TEL: 01203 606253
TEL: 01203 606254
TEL: 01203 606255
TEL: 01203 606256
TEL: 01203 606257
TEL: 01203 606258
TEL: 01203 606259
TEL: 01203 606260
TEL: 01203 606261
TEL: 01203 606262
TEL: 01203 606263
TEL: 01203 606264
TEL: 01203 606265
TEL: 01203 606266
TEL: 01203 606267
TEL: 01203 606268
TEL: 01203 606269
TEL: 01203 606270
TEL: 01203 606271
TEL: 01203 606272
TEL: 01203 606273
TEL: 01203 606274
TEL: 01203 606275
TEL: 01203 606276
TEL: 01203 606277
TEL: 01203 606278
TEL: 01203 606279
TEL: 01203 606280
TEL: 01203 606281
TEL: 01203 606282
TEL: 01203 606283
TEL: 01203 606284
TEL: 01203 606285
TEL: 01203 606286
TEL: 01203 606287
TEL: 01203 606288
TEL: 01203 606289
TEL: 01203 606290
TEL: 01203 606291
TEL: 01203 606292
TEL: 01203 606293
TEL: 01203 606294
TEL: 01203 606295
TEL: 01203 606296
TEL: 01203 606297
TEL: 01203 606298
TEL: 01203 606299
TEL: 01203 606300
TEL: 01203 606301
TEL: 01203 606302
TEL: 01203 606303
TEL: 01203 606304
TEL: 01203 606305
TEL: 01203 606306
TEL: 01203 606307
TEL: 01203 606308
TEL: 01203 606309
TEL: 01203 606310
TEL: 01203 606311
TEL: 01203 606312
TEL: 01203 606313
TEL: 01203 606314
TEL: 01203 606315
TEL: 01203 606316
TEL: 01203 606317
TEL: 01203 606318
TEL: 01203 606319
TEL: 01203 606320
TEL: 01203 606321
TEL: 01203 606322
TEL: 01203 606323
TEL: 01203 606324
TEL: 01203 606325
TEL: 01203 606326
TEL: 01203 606327
TEL: 01203 606328
TEL: 01203 606329
TEL: 01203 606330
TEL: 01203 606331
TEL: 01203 606332
TEL: 01203 606333
TEL: 01203 606334
TEL: 01203 606335
TEL: 01203 606336
TEL: 01203 606337
TEL: 01203 606338
TEL: 01203 606339
TEL: 01203 606340
TEL: 01203 606341
TEL: 01203 606342
TEL: 01203 606343
TEL: 01203 606344
TEL: 01203 606345
TEL: 01203 606346
TEL: 01203 606347
TEL: 01203 606348
TEL: 01203 606349
TEL: 01203 606350
TEL: 01203 606351
TEL: 01203 606352
TEL: 01203 606353
TEL: 01203 606354
TEL: 01203 606355
TEL: 01203 606356
TEL: 01203 606357
TEL: 01203 606358
TEL: 01203 606359
TEL: 01203 606360
TEL: 01203 606361
TEL: 01203 606362
TEL: 01203 606363
TEL: 01203 606364
TEL: 01203 606365
TEL: 01203 606366
TEL: 01203 606367
TEL: 01203 606368
TEL: 01203 606369
TEL: 01203 606370
TEL: 01203 606371
TEL: 01203 606372
TEL: 01203 606373
TEL: 01203 606374
TEL: 01203 606375
TEL: 01203 606376
TEL: 01203 606377
TEL: 01203 606378
TEL: 01203 606379
TEL: 01203 606380
TEL: 01203 606381
TEL: 01203 606382
TEL: 01203 606383
TEL: 01203 606384
TEL: 01203 606385
TEL: 01203 606386
TEL: 01203 606387
TEL: 01203 606388
TEL: 01203 606389
TEL: 01203 606390
TEL: 01203 606391
TEL: 01203 606392
TEL: 01203 606393
TEL: 01203 606394
TEL: 01203 606395
TEL: 01203 606396
TEL: 01203 606397
TEL: 01203 606398
TEL: 01203 606399
TEL: 01203 606400
TEL: 01203 606401
TEL: 01203 606402
TEL: 01203 606403
TEL: 01203 606404
TEL: 01203 606405
TEL: 01203 606406
TEL: 01203 606407
TEL: 01203 606408
TEL: 01203 606409
TEL: 01203 606410
TEL: 01203 606411
TEL: 01203 606412
TEL: 01203 606413
TEL: 01203 606414
TEL: 01203 606415
TEL: 01203 606416
TEL: 01203 606417
TEL: 01203 606418
TEL: 01203 606419
TEL: 01203 606420
TEL: 01203 606421
TEL: 01203 606422
TEL: 01203 606423
TEL: 01203 606424
TEL: 01203 606425
TEL: 01203 606426
TEL: 01203 606427
TEL: 01203 606428
TEL: 01203 606429
TEL: 01203 606430
TEL: 01203 606431
TEL: 01203 606432
TEL: 01203 606433
TEL: 01203 606434
TEL: 01203 606435
TEL: 01203 606436
TEL: 01203 606437
TEL: 01203 606438
TEL: 01203 606439
TEL: 01203 606440
TEL: 01203 606441
TEL: 01203 606442
TEL: 01203 606443
TEL: 01203 606444
TEL: 01203 606445
TEL: 01203 606446
TEL: 01203 606447
TEL: 01203 606448
TEL: 01203 606449
TEL: 01203 606450
TEL: 01203 606451
TEL: 01203 606452
TEL: 01203 606453
TEL: 01203 606454
TEL: 01203 606455
TEL: 01203 606456
TEL: 01203 606457
TEL: 01203 606458
TEL: 01203 606459
TEL: 01203 606460
TEL: 01203 606461
TEL: 01203 606462
TEL: 01203 606463
TEL: 01203 606464
TEL: 01203 606465
TEL: 01203 606466
TEL: 01203 606467
TEL: 01203 606468
TEL: 01203 606469
TEL: 01203 606470
TEL: 01203 606471
TEL: 01203 606472
TEL: 01203 606473
TEL: 01203 606474
TEL: 01203 606475
TEL: 01203 606476
TEL: 01203 606477
TEL: 01203 606478
TEL: 01203 606479
TEL: 01203 606480
TEL: 01203 606481
TEL: 01203 606482
TEL: 01203 606483
TEL: 01203 606484
TEL: 01203 606485
TEL: 01203 606486
TEL: 01203 606487
TEL: 01203 606488
TEL: 01203 606489
TEL: 01203 606490
TEL: 01203 606491
TEL: 01203 606492
TEL: 01203 606493
TEL: 01203 606494
TEL: 01203 606495
TEL: 01203 606496
TEL: 01203 606497
TEL: 01203 606498
TEL: 01203 606499
TEL: 01203 606500
TEL: 01203 606501
TEL: 01203 606502
TEL: 01203 606503
TEL: 01203 606504
TEL: 01203 606505
TEL: 01203 606506
TEL: 01203 606507
TEL: 01203 606508
TEL: 01203 606509
TEL: 01203 606510
TEL: 01203 606511
TEL: 01203 606512
TEL: 01203 606513
TEL: 01203 606514
TEL: 01203 606515
TEL: 01203 606516
TEL: 01203 606517
TEL: 01203 606518
TEL: 01203 606519
TEL: 01203 606520
TEL: 01203 606521
TEL: 01203 606522
TEL: 01203 606523
TEL: 01203 606524
TEL: 01203 606525
TEL: 01203 606526
TEL: 01203 606527
TEL: 01203 606528
TEL: 01203 606529
TEL: 01203 606530
TEL: 01203 606531
TEL: 01203 606532
TEL: 01203 606533
TEL: 01203 606534
TEL: 01203 606535
TEL: 01203 606536
TEL: 01203 606537
TEL: 01203 606538
TEL: 01203 606539
TEL: 01203 606540
TEL: 01203 606541
TEL: 01203 606542
TEL: 01203 606543
TEL: 01203 606544
TEL: 01203 606545
TEL: 01203 606546
TEL: 01203 606547
TEL: 01203 606548
TEL: 01203 606549
TEL: 01203 606550
TEL: 01203 606551
TEL: 01203 606552
TEL: 01203 606553
TEL: 01203 606554
TEL: 01203 606555
TEL: 01203 606556
TEL: 01203 606557
TEL: 01203 606558
TEL: 01203 606559
TEL: 01203 606560
TEL: 01203 606561
TEL: 01203 606562
TEL: 01203 606563
TEL: 01203 606564
TEL: 01203 606565
TEL: 01203 606566
TEL: 01203 606567
TEL: 01203 606568
TEL: 01203 606569
TEL: 01203 606570
TEL: 01203 606571
TEL: 01203 606572
TEL: 01203 606573
TEL: 01203 606574
TEL: 01203 606575
TEL: 01203 606576
TEL: 01203 606577
TEL: 01203 606578
TEL: 01203 606579
TEL: 01203 606580
TEL: 01203 606581
TEL: 01203 606582
TEL: 01203 606583
TEL: 01203 606584
TEL: 01203 606585
TEL: 01203 606586
TEL: 01203 606587
TEL: 01203 606588
TEL: 01203 606589
TEL: 01203 606590
TEL: 01203 606591
TEL: 01203 606592
TEL: 01203 606593
TEL: 01203 606594
TEL: 01203 606595
TEL: 01203 606596
TEL: 01203 606597
TEL: 01203 606598
TEL: 01203 606599
TEL: 01203 606600
TEL: 01203 606601
TEL: 01203 606602
TEL: 01203 606603
TEL: 01203 606604
TEL:





T. DON T. N. LANE LITTLE AM T. N. EST S. SE
DRAINAGE T. S. R. E.
Date: 18th February 2014
Job No: 20644
Dr: [redacted]
All drainage was filled with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external downpipes and external soil stacks have been proven wherever possible into manholes and sewer runs. Drains / sewers between manholes are assumed to be straight. All sub-surface drainage positions should be cross checked in critical areas by R2 or GPR survey or hand dug trial holes.



Notes:

1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYHEW BROWN LTD. JOB NO. AP/18/12/2014. DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT MAN ENTRY INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL.
3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTES CONNECTIVITY OBTAINED USING ACUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS

ADP	ASSUMED CONNECTION POINT	LH	LAMP HOLE
AGD	ABOVE GROUND	MM	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CI	CAST IRON	POW	PIPE ON WALL
CL	CONCRETE	PT	P-T JUMP
CO	CONCRETE	PTD	PIPE TO DRAIN
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHMENT	PVC-U	ULTRA RISE (PVC)
CWS	COMBINED WATER SEWER	RE	ROOFING EYE
DCH	DRAINAGE CHANNEL	RM	REINFORCED MAN
DI	DUCTILE IRON	RWP	RAN WATER PIPE
FD	FILTER DRAIN	SOP	SOFT
FWS	FULL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SW	SURFACE WATER SEWER
HC	INSPECTION COVER	UTL	UNABLE TO LIFT
INT	INTERCEPTOR	UTS	UNABLE TO SURVEY
MD	MANHOLE	VC	VENT PIPE
ND	NO PIPE OUTLET	WL	WATER LEVEL

LEGEND

COMBINED SEWER	---	ADP	---	NPV	---
SURFACE WATER SEWER	---	AGD	---	MM	---
UNABLE TO SURVEY	---	AR	---	OL	---
UNABLE TO SURVEY	---	BD	---	OU	---
UNABLE TO SURVEY	---	BL	---	PP	---
UNABLE TO SURVEY	---	CI	---	POW	---
UNABLE TO SURVEY	---	CL	---	PT	---
UNABLE TO SURVEY	---	CO	---	PTD	---
UNABLE TO SURVEY	---	CU	---	PVC	---
UNABLE TO SURVEY	---	CP	---	PVC-U	---
UNABLE TO SURVEY	---	CWS	---	RE	---
UNABLE TO SURVEY	---	DCH	---	RM	---
UNABLE TO SURVEY	---	DI	---	RWP	---
UNABLE TO SURVEY	---	FD	---	SOP	---
UNABLE TO SURVEY	---	FWS	---	SVP	---
UNABLE TO SURVEY	---	GY	---	SW	---
UNABLE TO SURVEY	---	HC	---	UTL	---
UNABLE TO SURVEY	---	INT	---	UTS	---
UNABLE TO SURVEY	---	MD	---	VC	---
UNABLE TO SURVEY	---	ND	---	WL	---

CAUTIONARY NOTES

1. Pipe sizes and depths from visual inspection or taken from record information. Pipe sizes are recorded in millimetres and depths in metres.
2. Connectivity between Manholes has been proven using gas testing / locusts methods. It is advised that a CCTV survey is carried out to confirm connections. Please only for further details if a CCTV Survey is required.

AL A SE DR SE A T N EN E A T N

SHEET 12 OF 12

mk surveys

1011000 060001
1011000 060002
1011000 060003
1011000 060004
1011000 060005
1011000 060006
1011000 060007
1011000 060008
1011000 060009
1011000 060010
1011000 060011
1011000 060012
1011000 060013
1011000 060014
1011000 060015
1011000 060016
1011000 060017
1011000 060018
1011000 060019
1011000 060020
1011000 060021
1011000 060022
1011000 060023
1011000 060024
1011000 060025
1011000 060026
1011000 060027
1011000 060028
1011000 060029
1011000 060030
1011000 060031
1011000 060032
1011000 060033
1011000 060034
1011000 060035
1011000 060036
1011000 060037
1011000 060038
1011000 060039
1011000 060040
1011000 060041
1011000 060042
1011000 060043
1011000 060044
1011000 060045
1011000 060046
1011000 060047
1011000 060048
1011000 060049
1011000 060050
1011000 060051
1011000 060052
1011000 060053
1011000 060054
1011000 060055
1011000 060056
1011000 060057
1011000 060058
1011000 060059
1011000 060060
1011000 060061
1011000 060062
1011000 060063
1011000 060064
1011000 060065
1011000 060066
1011000 060067
1011000 060068
1011000 060069
1011000 060070
1011000 060071
1011000 060072
1011000 060073
1011000 060074
1011000 060075
1011000 060076
1011000 060077
1011000 060078
1011000 060079
1011000 060080
1011000 060081
1011000 060082
1011000 060083
1011000 060084
1011000 060085
1011000 060086
1011000 060087
1011000 060088
1011000 060089
1011000 060090
1011000 060091
1011000 060092
1011000 060093
1011000 060094
1011000 060095
1011000 060096
1011000 060097
1011000 060098
1011000 060099
1011000 060100
1011000 060101
1011000 060102
1011000 060103
1011000 060104
1011000 060105
1011000 060106
1011000 060107
1011000 060108
1011000 060109
1011000 060110
1011000 060111
1011000 060112
1011000 060113
1011000 060114
1011000 060115
1011000 060116
1011000 060117
1011000 060118
1011000 060119
1011000 060120
1011000 060121
1011000 060122
1011000 060123
1011000 060124
1011000 060125
1011000 060126
1011000 060127
1011000 060128
1011000 060129
1011000 060130
1011000 060131
1011000 060132
1011000 060133
1011000 060134
1011000 060135
1011000 060136
1011000 060137
1011000 060138
1011000 060139
1011000 060140
1011000 060141
1011000 060142
1011000 060143
1011000 060144
1011000 060145
1011000 060146
1011000 060147
1011000 060148
1011000 060149
1011000 060150
1011000 060151
1011000 060152
1011000 060153
1011000 060154
1011000 060155
1011000 060156
1011000 060157
1011000 060158
1011000 060159
1011000 060160
1011000 060161
1011000 060162
1011000 060163
1011000 060164
1011000 060165
1011000 060166
1011000 060167
1011000 060168
1011000 060169
1011000 060170
1011000 060171
1011000 060172
1011000 060173
1011000 060174
1011000 060175
1011000 060176
1011000 060177
1011000 060178
1011000 060179
1011000 060180
1011000 060181
1011000 060182
1011000 060183
1011000 060184
1011000 060185
1011000 060186
1011000 060187
1011000 060188
1011000 060189
1011000 060190
1011000 060191
1011000 060192
1011000 060193
1011000 060194
1011000 060195
1011000 060196
1011000 060197
1011000 060198
1011000 060199
1011000 060200
1011000 060201
1011000 060202
1011000 060203
1011000 060204
1011000 060205
1011000 060206
1011000 060207
1011000 060208
1011000 060209
1011000 060210
1011000 060211
1011000 060212
1011000 060213
1011000 060214
1011000 060215
1011000 060216
1011000 060217
1011000 060218
1011000 060219
1011000 060220
1011000 060221
1011000 060222
1011000 060223
1011000 060224
1011000 060225
1011000 060226
1011000 060227
1011000 060228
1011000 060229
1011000 060230
1011000 060231
1011000 060232
1011000 060233
1011000 060234
1011000 060235
1011000 060236
1011000 060237
1011000 060238
1011000 060239
1011000 060240
1011000 060241
1011000 060242
1011000 060243
1011000 060244
1011000 060245
1011000 060246
1011000 060247
1011000 060248
1011000 060249
1011000 060250
1011000 060251
1011000 060252
1011000 060253
1011000 060254
1011000 060255
1011000 060256
1011000 060257
1011000 060258
1011000 060259
1011000 060260
1011000 060261
1011000 060262
1011000 060263
1011000 060264
1011000 060265
1011000 060266
1011000 060267
1011000 060268
1011000 060269
1011000 060270
1011000 060271
1011000 060272
1011000 060273
1011000 060274
1011000 060275
1011000 060276
1011000 060277
1011000 060278
1011000 060279
1011000 060280
1011000 060281
1011000 060282
1011000 060283
1011000 060284
1011000 060285
1011000 060286
1011000 060287
1011000 060288
1011000 060289
1011000 060290
1011000 060291
1011000 060292
1011000 060293
1011000 060294
1011000 060295
1011000 060296
1011000 060297
1011000 060298
1011000 060299
1011000 060300
1011000 060301
1011000 060302
1011000 060303
1011000 060304
1011000 060305
1011000 060306
1011000 060307
1011000 060308
1011000 060309
1011000 060310
1011000 060311
1011000 060312
1011000 060313
1011000 060314
1011000 060315
1011000 060316
1011000 060317
1011000 060318
1011000 060319
1011000 060320
1011000 060321
1011000 060322
1011000 060323
1011000 060324
1011000 060325
1011000 060326
1011000 060327
1011000 060328
1011000 060329
1011000 060330
1011000 060331
1011000 060332
1011000 060333
1011000 060334
1011000 060335
1011000 060336
1011000 060337
1011000 060338
1011000 060339
1011000 060340
1011000 060341
1011000 060342
1011000 060343
1011000 060344
1011000 060345
1011000 060346
1011000 060347
1011000 060348
1011000 060349
1011000 060350
1011000 060351
1011000 060352
1011000 060353
1011000 060354
1011000 060355
1011000 060356
1011000 060357
1011000 060358
1011000 060359
1011000 060360
1011000 060361
1011000 060362
1011000 060363
1011000 060364
1011000 060365
1011000 060366
1011000 060367
1011000 060368
1011000 060369
1011000 060370
1011000 060371
1011000 060372
1011000 060373
1011000 060374
1011000 060375
1011000 060376
1011000 060377
1011000 060378
1011000 060379
1011000 060380
1011000 060381
1011000 060382
1011000 060383
1011000 060384
1011000 060385
1011000 060386
1011000 060387
1011000 060388
1011000 060389
1011000 060390
1011000 060391
1011000 060392
1011000 060393
1011000 060394
1011000 060395
1011000 060396
1011000 060397
1011000 060398
1011000 060399
1011000 060400
1011000 060401
1011000 060402
1011000 060403
1011000 060404
1011000 060405
1011000 060406
1011000 060407
1011000 060408
1011000 060409
1011000 060410
1011000 060411
1011000 060412
1011000 060413
1011000 060414
1011000 060415
1011000 060416
1011000 060417
1011000 060418
1011000 060419
1011000 060420
1011000 060421
1011000 060422
1011000 060423
1011000 060424
1011000 060425
1011000 060426
1011000 060427
1011000 060428
1011000 060429
1011000 060430
1011000 060431
1011000 060432
1011000 060433
1011000 060434
1011000 060435
1011000 060436
1011000 060437
1011000 060438
1011000 060439
1011000 060440
1011000 060441
1011000 060442
1011000 060443
1011000 060444
1011000 060445
1011000 060446
1011000 060447
1011000 060448
1011000 060449
1011000 060450
1011000 060451
1011000 060452
1011000 060453
1011000 060454
1011000 060455
1011000 060456
1011000 060457
1011000 060458
1011000 060459
1011000 060460
1011000 060461
1011000 060462
1011000 060463
1011000 060464
1011000 060465
1011000 060466
1011000 060467
1011000 060468
1011000 060469
1011000 060470
1011000 060471
1011000 060472
1011000 060473
1011000 060474
1011000 060475
1011000 060476
1011000 060477
1011000 060478
1011000 060479
1011000 060480
1011000 060481
1011000 060482
1011000 060483
1011000 060484
1011000 060485
1011000 060486
1011000 060487
1011000 060488
1011000 060489
1011000 060490
1011000 060491
1011000 060492
1011000 060493
1011000 060494
1011000 060495
1011000 060496
1011000 060497
1011000 060498
1011000 060499
1011000 060500
1011000 060501
1011000 060502
1011000 060503
1011000 060504
1011000 060505
1011000 060506
1011000 060507
1011000 060508
1011000 060509
1011000 060510
1011000 060511
1011000 060512
1011000 060513
1011000 060514
1011000 060515
1011000 060516
1011000 060517
1011000 060518
1011000 060519
1011000 060520
1011000 060521
1011000 060522
1011000 060523
1011000 060524
1011000 060525
1011000 060526
1011000 060527
1011000 060528
1011000 060529
1011000 060530
1011000 060531
1011000 060532
1011000 060533
1011000 060534
1011000 060535
1011000 060536
1011000 060537
1011000 060538
1011000 060539
1011000 060540
1011000 060541
1011000 060542
1011000 060543
1011000 060544
1011000 060545
1011000 060546
1011000 060547
1011000 060548
1011000 060549
1011000 060550
1011000 060551
1011000 060552
1011000 060553
1011000 060554
1011000 060555
1011000 060556
1011000 060557
1011000 060558
1011000 060559
1011000 060560
1011000 060561
1011000 060562
1011000 060563
1011000 060564
1011000 060565
1011000 060566
1011000 060567
1011000 060568
1011000 060569
1011000 060570
1011000 060571
1011000 060572
1011000 060573
1011000 060574
1011000 060575
1011000 060576
1011000 060577
1011000 060578
1011000 060579
1011000 060580
1011000 060581
1011000 060582
1011000 060583
1011000 060584
1011000 060585
1011000 060586
1011000 060587
1011000 060588
1011000 060589
1011000 060590
1011000 060591
1011000 060592
1011000 060593
1011000 060594
1011000 060595
1011000 060596
1011000 060597
1011000 060598
1011000 060599
1011000 060600
1011000 060601
1011000 060602
1011000 060603
1011000 060604
1011000 060605
1011000 060606
1011000 060607
1011000 060608
1011000 060609
1011000 060610
1011000 060611
1011000 060612
1011000 060613
1011000 060614
1011000 060615
1011000 060616
1011000 060617
1011000 060618
1011000 060619
1011000 060620
1011000 060621
1011000 060622
1011000 060623
1011000 060624
1011000 060625
1011000 060626
1011000 060627
1011000 060628
1011000 060

Appendix G
Greenfield Runoff Calculation

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 15:20 File	Designed by jokelly Checked by	
Micro Drainage Source Control 2015.1		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 1 Soil 0.500 Area (ha) 1.000 Urban 0.750 SAAR (mm) 739 Region Number Region 7 Results 1/s QBAR Rural 5.9 QBAR Urban 15.0 Q1 year 12.7 Q1 year 12.7 Q30 years 26.0 Q100 years 30.4		
©1982-2015 XP Solutions		

Appendix H
Existing Discharge Rates

Appendix L

Windes Calculations Existing Rates

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:13 File OUTFALL 1.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	10.000	0.050	200.0	0.500	4.00	0.0	0.600	oo	41	
1.001	20.000	0.500	40.0	0.000	0.00	0.0	0.600	oo	41	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.15	3.050	0.500	0.0	0.0	0.0	1.11	156.0	0.0
1.001	0.00	4.28	3.000	0.500	0.0	0.0	0.0	2.49	351.0	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:13 File OUTFALL 1.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%	30/15 Summer				3.210
1.001	2	15 Winter	1	+0%					3.092

PN	US/MH Name	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap. (l/s)	Pipe Flow (l/s)	Level Exceeded	Status
1.000	1	-0.140	0.000	0.54	65.4	OK	
1.001	2	-0.208	0.000	0.22	66.2	OK	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:15 File OUTFALL 2.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	85.000	0.570	149.1	0.800	4.00	0.0	0.600	o	150	
1.001	20.000	0.780	25.6	0.000	0.00	0.0	0.600	o	150	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	5.73	3.050	0.800	0.0	0.0	0.0	0.82	14.5	0.0
1.001	0.00	5.89	2.480	0.800	0.0	0.0	0.0	2.00	35.3	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:15 File OUTFALL 2.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	30 Winter	1	+0%	1/15 Summer	2/30 Winter			4.211
1.001	2	30 Winter	1	+0%					2.574

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	1.011	0.000	1.66		23.7	FLOOD RISK	58
1.001	2	-0.056	0.000	0.71		23.7	OK	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:12 File OUTFALL 3.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	40.000	0.660	60.6	2.500	4.00	0.0	0.600	∞	41	
2.000	40.000	0.610	65.6	3.300	4.00	0.0	0.600	∞	41	
1.001	20.000	0.760	26.3	0.000	0.00	0.0	0.600	o	300	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.33	3.800	2.500	0.0	0.0	0.0	2.02	284.8	0.0
2.000	0.00	4.34	2.610	3.300	0.0	0.0	0.0	1.94	273.7	0.0
1.001	0.00	4.45	2.000	5.800	0.0	0.0	0.0	3.08	217.5	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:12 File OUTFALL 3.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales Cv (Summer)			0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status			OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%	1/15 Summer	30/15 Winter			4.151
2.000	2	15 Winter	1	+0%	1/15 Summer	2/15 Winter			3.531
1.001	3	15 Winter	1	+0%	1/15 Summer	99/15 Winter			3.454

PN	US/MH Name	Depth (m)	Surcharged Volume (m³)	Flooded Flow / Cap. (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.051	0.000	1.04	275.5	SURCHARGED	15
2.000	2	0.621	0.000	0.87	220.8	FLOOD RISK	46
1.001	3	1.154	0.000	1.59	301.4	SURCHARGED	16

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:16 File OUTFALL 4.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	36.000	0.210	171.4	1.230	4.00	0.0	0.600	o	225	
1.001	23.000	0.040	575.0	0.000	0.00	0.0	0.600	o	300	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.60	0.850	1.230	0.0	0.0	0.0	1.00	39.6	0.0
1.001	0.00	5.19	0.640	1.230	0.0	0.0	0.0	0.65	45.8	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:16 File OUTFALL 4.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%	1/15 Summer	30/15 Summer			1.763
1.001	2	15 Winter	1	+0%	1/15 Summer				1.006

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.688	0.000	1.89		70.6	SURCHARGED	32
1.001	2	0.066	0.000	1.94		70.4	SURCHARGED	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:17 File OUTFALL 5.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	160.000	0.640	250.0	1.700	4.00	0.0	0.600	o	225	
1.001	12.000	0.100	120.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	7.24	3.240	1.700	0.0	0.0	0.0	0.82	32.7	0.0
1.001	0.00	7.41	2.600	1.700	0.0	0.0	0.0	1.19	47.4	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:17 File OUTFALL 5.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales Cv (Summer)	0.750		
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep	Fine	Inertia Status	ON
DTS Status	OFF		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	60 Winter	1	+0%	1/15 Summer	2/15 Winter			4.071
1.001	2	60 Winter	1	+0%	1/30 Summer				2.834

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.606	0.000	1.38		44.6	FLOOD RISK	69
1.001	2	0.009	0.000	1.10		44.5	SURCHARGED	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:19 File OUTFALL 6.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	162.000	0.820	197.6	2.220	4.00	0.0	0.600	o	225	
1.001	12.000	0.100	120.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	6.91	3.270	2.220	0.0	0.0	0.0	0.93	36.8	0.0
1.001	0.00	7.08	2.450	2.220	0.0	0.0	0.0	1.19	47.4	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:19 File OUTFALL 6.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	60 Winter	1	+0%	1/15 Summer	2/15 Winter			4.368
1.001	2	60 Winter	1	+0%	1/15 Summer				2.724

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.873	0.000	1.41		51.3	FLOOD RISK	73
1.001	2	0.049	0.000	1.26		51.2	SURCHARGED	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:20 File OUTFALL 7.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	55.500	0.060	925.0	3.720	4.00	0.0	0.600	o	225	
1.001	12.000	0.100	120.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	6.19	2.230	3.720	0.0	0.0	0.0	0.42	16.8	0.0
1.001	0.00	6.36	2.170	3.720	0.0	0.0	0.0	1.19	47.4	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:20 File OUTFALL 7.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	60 Winter	1	+0%	1/15 Summer	1/30 Winter			3.619
1.001	2	60 Winter	1	+0%	1/15 Summer				2.563

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	1.164	39.094	4.19		67.8	FLOOD	92
1.001	2	0.168	0.000	1.67		67.8	SURCHARGED	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:21 File OUTFALL 8.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	80.000	0.600	133.3	1.800	4.00	0.0	0.600	o	225	
1.001	12.000	0.100	120.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	Base Flow (l/s)	Foul Flow (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	5.18	3.300	1.800	0.0	0.0	0.0	1.13	45.0	0.0
1.001	0.00	5.35	2.700	1.800	0.0	0.0	0.0	1.19	47.4	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:21 File OUTFALL 8.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	60 Winter	1	+0%	1/15 Summer	2/15 Winter			3.861
1.001	2	60 Winter	1	+0%	1/15 Summer				3.140

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.336	0.000	1.09		47.9	FLOOD RISK	69
1.001	2	0.215	0.000	1.18		47.9	SURCHARGED	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:22 File OUTFALL 9.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	50.000	0.200	250.0	1.380	4.00	0.0	0.600	o	300	
1.001	10.000	0.100	100.0	0.000	0.00	0.0	0.600	o	300	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.84	3.600	1.380	0.0	0.0	0.0	0.99	70.0	0.0
1.001	0.00	4.95	3.400	1.380	0.0	0.0	0.0	1.57	111.1	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:22 File OUTFALL 9.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	30 Winter	1	+0%	1/15 Summer	2/30 Winter			4.134
1.001	2	15 Winter	1	+0%	1/15 Summer	100/15 Winter			3.927

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.234	0.000	1.05		69.0	FLOOD RISK	43
1.001	2	0.227	0.000	0.74		58.7	FLOOD RISK	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:23 File OUTFALL 10.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	43.000	0.540	79.6	0.350	4.00	0.0	0.600	o	225	
1.001	10.000	0.100	100.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.49	1.550	0.350	0.0	0.0	0.0	1.47	58.3	0.0
1.001	0.00	4.62	1.010	0.350	0.0	0.0	0.0	1.31	52.0	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:23 File OUTFALL 10.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	30 Winter	1	+0%	1/15 Summer	30/15 Summer			2.126
1.001	2	30 Winter	1	+0%	1/15 Summer				2.052

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.351	0.000	0.37		20.3	FLOOD RISK	33
1.001	2	0.817	0.000	0.47		20.3	FLOOD RISK	

©1982-2015 XP Solutions

Glanville Consultants		Page 1
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:24 File OUTFALL 11.MDX	Designed by jokelly Checked by	
Micro Drainage Network 2015.1		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Add Flow / Climate Change (%)	0
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	0.200
Ratio R	0.350	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	0	Min Design Depth for Optimisation (m)	1.200
Maximum Time of Concentration (mins)	30	Min Vel for Auto Design only (m/s)	1.00
Foul Sewage (l/s/ha)	0.000	Min Slope for Optimisation (1:X)	500
Volumetric Runoff Coeff.	0.750		

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Auto Design
1.000	24.000	0.610	39.3	0.065	4.00	0.0	0.600	o	100	
1.001	10.000	0.100	100.0	0.000	0.00	0.0	0.600	o	225	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	I.Area (ha)	Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	4.32	2.080	0.065	0.0	0.0	0.0	1.23	9.7	0.0
1.001	0.00	4.45	1.345	0.065	0.0	0.0	0.0	1.31	52.0	0.0

©1982-2015 XP Solutions

Glanville Consultants		Page 2
Cornerstone Court 62 Foxhall Road Didcot OX11 7AD		
Date 31/03/2015 10:24 File OUTFALL 11.MDX		
Designed by jokelly Checked by		
Micro Drainage		Network 2015.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	5.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.350
Region England and Wales	Cv (Summer)		0.750
M5-60 (mm)	19.300	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	ON
Analysis Timestep		Fine Inertia Status	ON
DTS Status		OFF	

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 2, 30, 99, 100
Climate Change (%)	0, 0, 0, 0, 30

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%	1/15 Summer	30/15 Summer			2.204
1.001	2	15 Summer	1	+0%	1/15 Summer				2.016

PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	1	0.024	0.000	0.56		5.3	FLOOD RISK	19
1.001	2	0.446	0.000	0.12		5.2	FLOOD RISK	

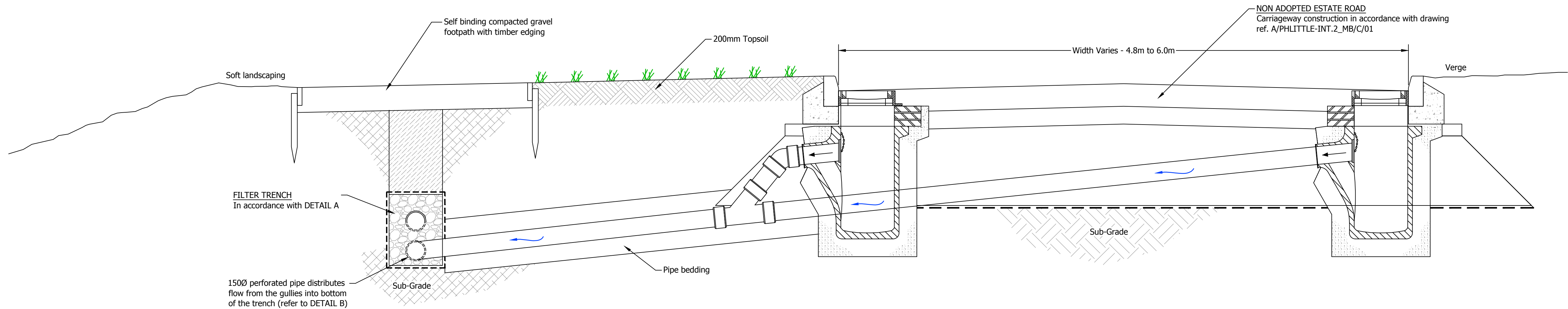
©1982-2015 XP Solutions

APPENDIX L: Drainage Strategy, West of Wetlands

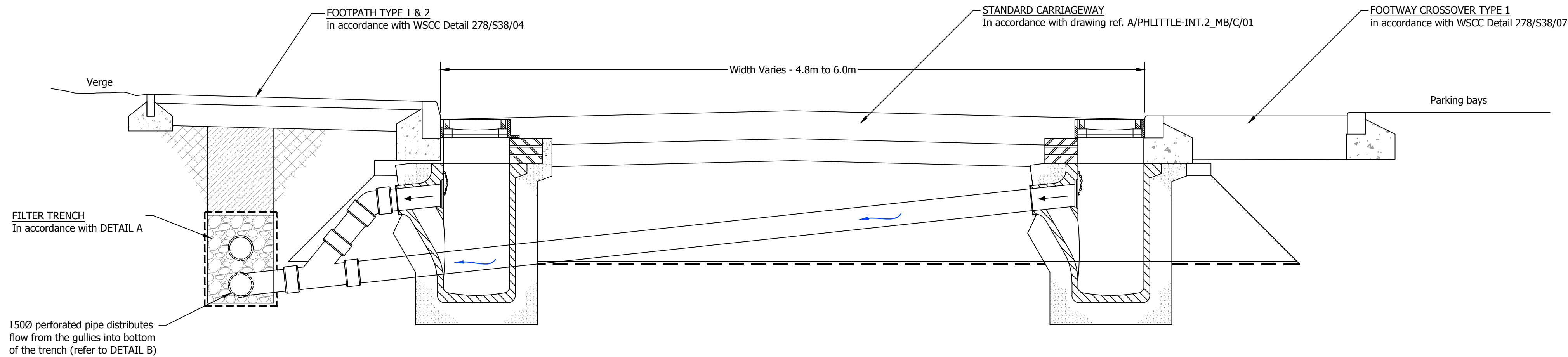
APPENDIX M: Permeable Sub-base Road & Filter Trenches

NOTES

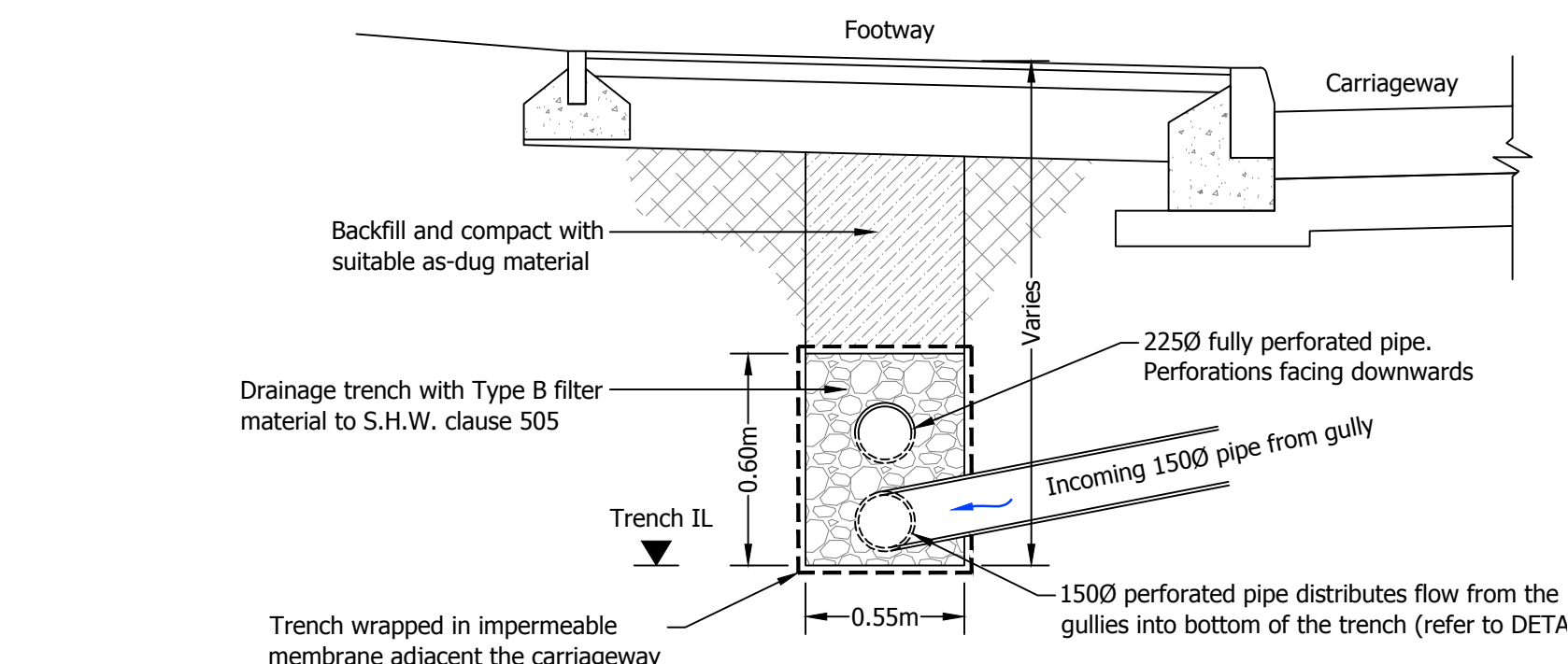
- This drawing is not to be scaled.
- To be read in conjunction with:
Drainage General Arrangement drawing reference
A/PHLITTLE-INT.1/112-1, -/2;
Construction Treatments drawing reference
A/PHLITTLE-INT.1/111-1, -/2;
Adopted & Non Adopted Roads Construction Details drawing
reference A/PHLITTLE-INT.2_MB/C/01.



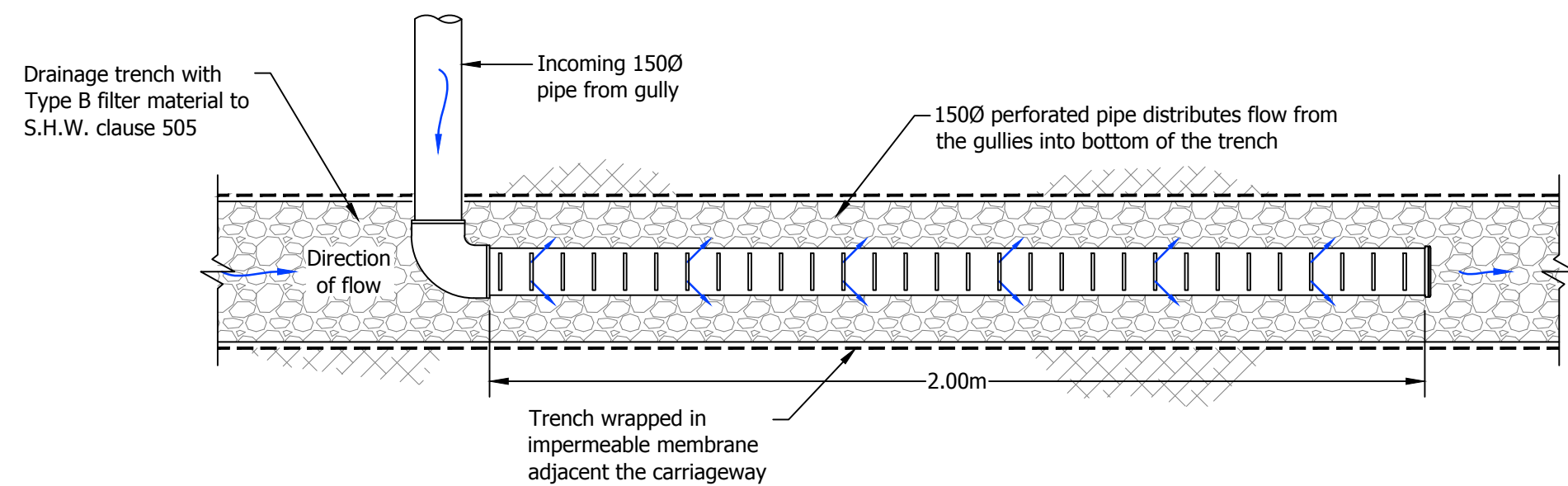
TYPICAL CROSS SECTION THROUGH FILTER TRENCH AND ESTATE ROAD



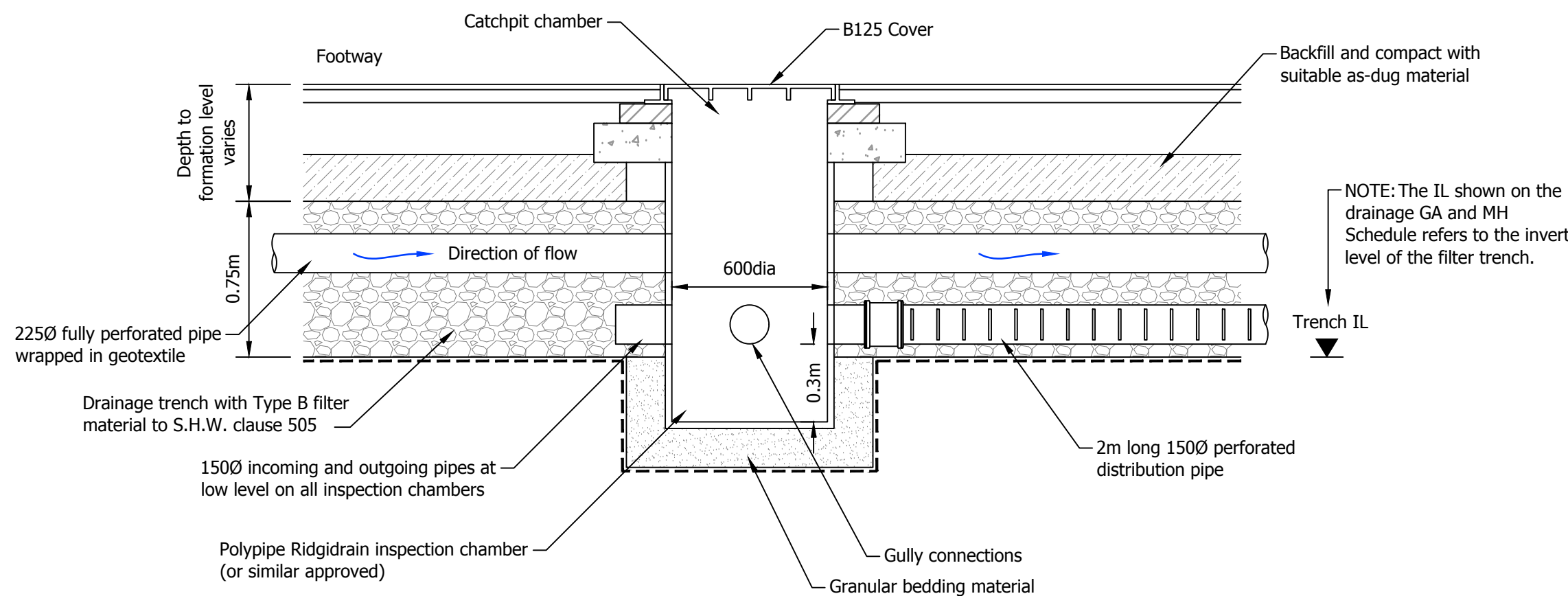
TYPICAL CROSS SECTION THROUGH FILTER TRENCH AND ROAD 6



DETAIL A: FILTER TRENCH CROSS SECTION



DETAIL B: DISTRIBUTION PIPE PLAN VIEW



DETAIL C: LONG SECTION THROUGH FILTER TRENCH AND INSPECTION CHAMBER

FOR CONSTRUCTION

C1	Initial construction issue. (IC)	SF	20/02/2018
----	----------------------------------	----	------------

rev.	amendment	checked	date
------	-----------	---------	------

mb
mayer brown

Mayer Brown Limited
Lion House, Oriental Road, Woking, Surrey GU22 8AR
Telephone 01483 750 508 Fax 01483 750 437
wokingoffice@mayerbrown.co.uk www.mayerbrown.co.uk

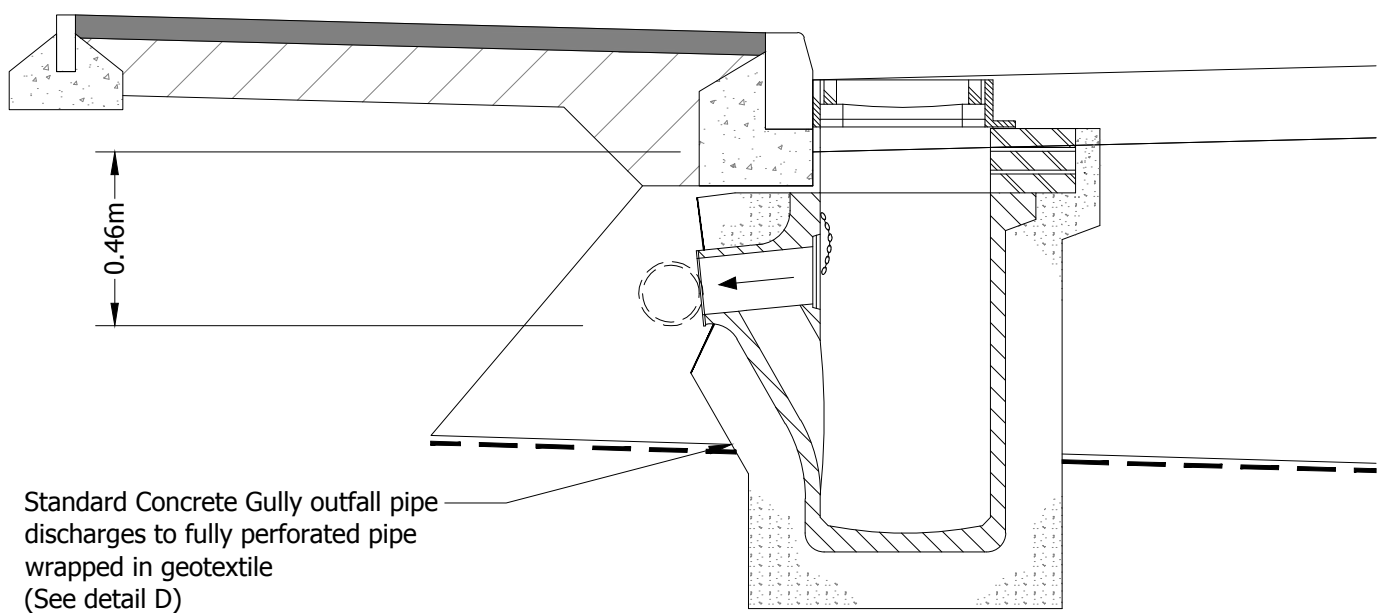
client	PERSIMMON HOMES THAMES VALLEY		
project	NORTH LITTLEHAMPTON PHASE 2 PARCEL C1 AND PART PARCELS B2, B4 AND C2		
scale	1:20	drawn by	IC checked by SF
date	FEBRUARY 2018	cad file	MBC01.DWG
title	FILTER TRENCH CONSTRUCTION DETAIL		
drawing number	A/PHLITTLE-INT.2_MB/F/03		rev. C1

A1 ORIGINAL

© Crown copyright, all rights reserved. 2019. Licence number 100002189.

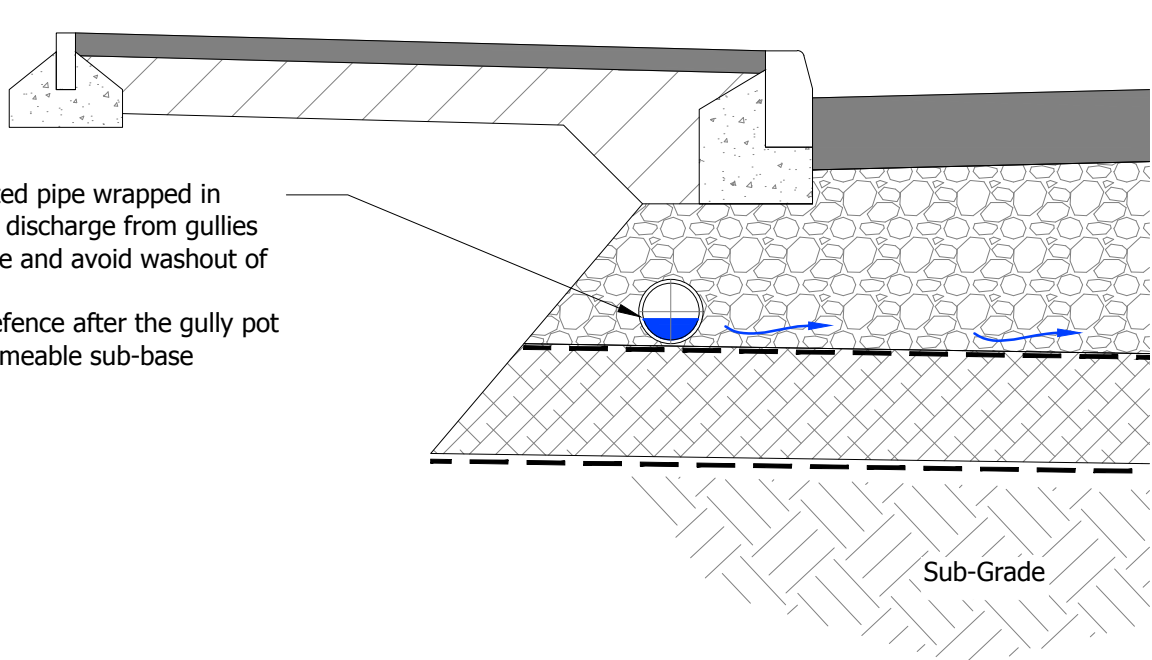
NOTES

- Carriageway sub-base and capping layer thicknesses are to be determined in accordance with the WSCC detail numbered S278/38/21, unless otherwise agreed.
- The CBR of the subgrade been assumed to be 2%. The Contractor is responsible for determining the subgrade CBR values prior to commencement of the works via long term laboratory testing. The CBR test locations, values and hence the road foundation thicknesses shall be agreed in writing with the Highway Authority prior to constructing these elements.
- No material within 450mm of the carriageway surface shall be frost susceptible.
- Where directed by the Engineer the Contractor shall carry out additional testing in order to prove the CBR value of the sub-grade material.
- All works and materials shall comply with the Highways Agency Manual of Contract Documents for Highway Works (MCHW) and West Sussex County Council Standard details.

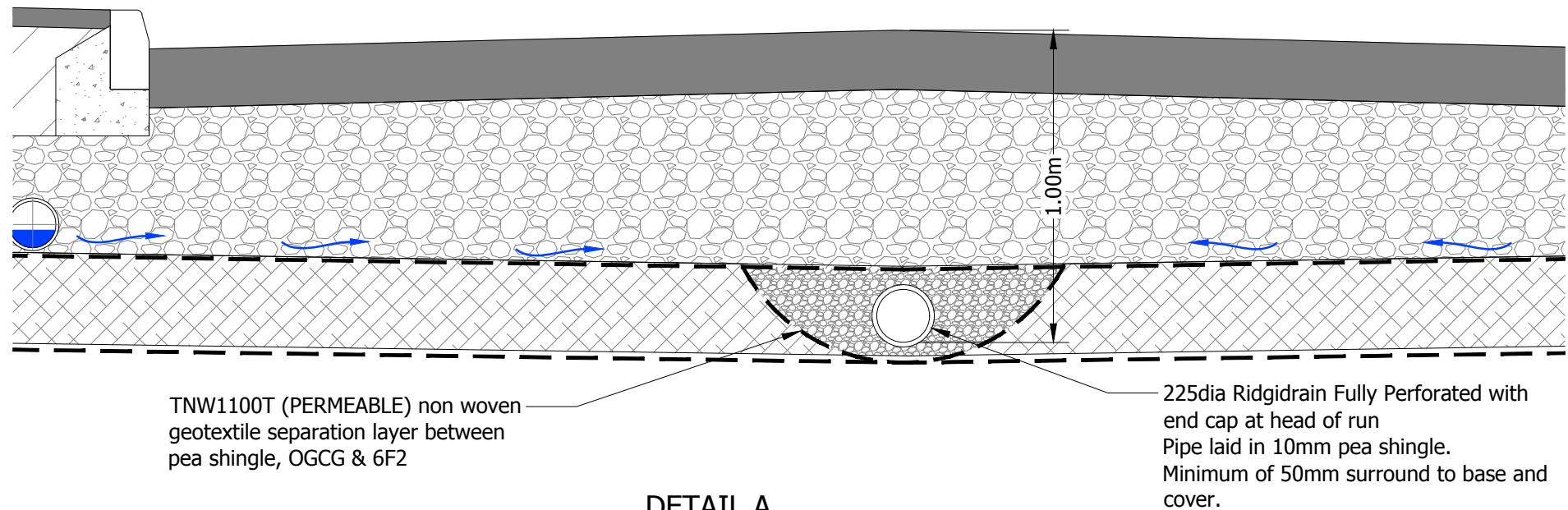


DETAIL C
GULLY CONNECTION INTO PERMEABLE SUB-BASE

2m long 150ø fully perforated pipe wrapped in geotextile to facilitate point discharge from gullies into the permeable sub-base and avoid washout of sub-base. Also acts as a secondary defence after the gully pot to stop silt entering the permeable sub-base

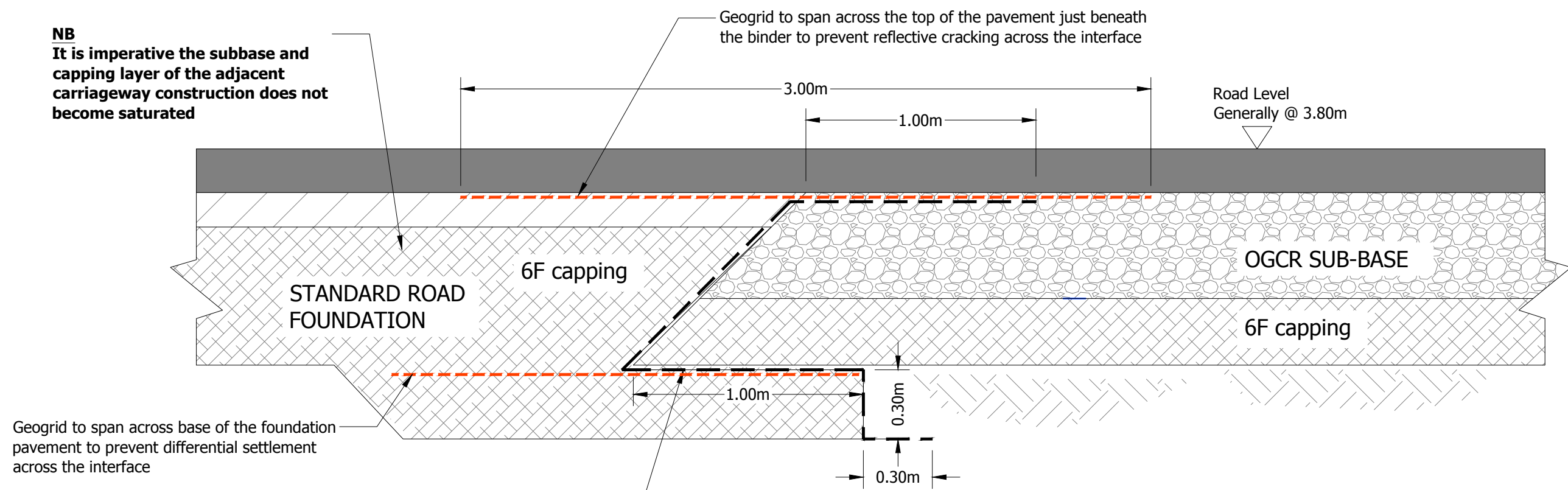


DETAIL B
PERFORATED DISPERSION PIPE WITHIN SUB-BASE

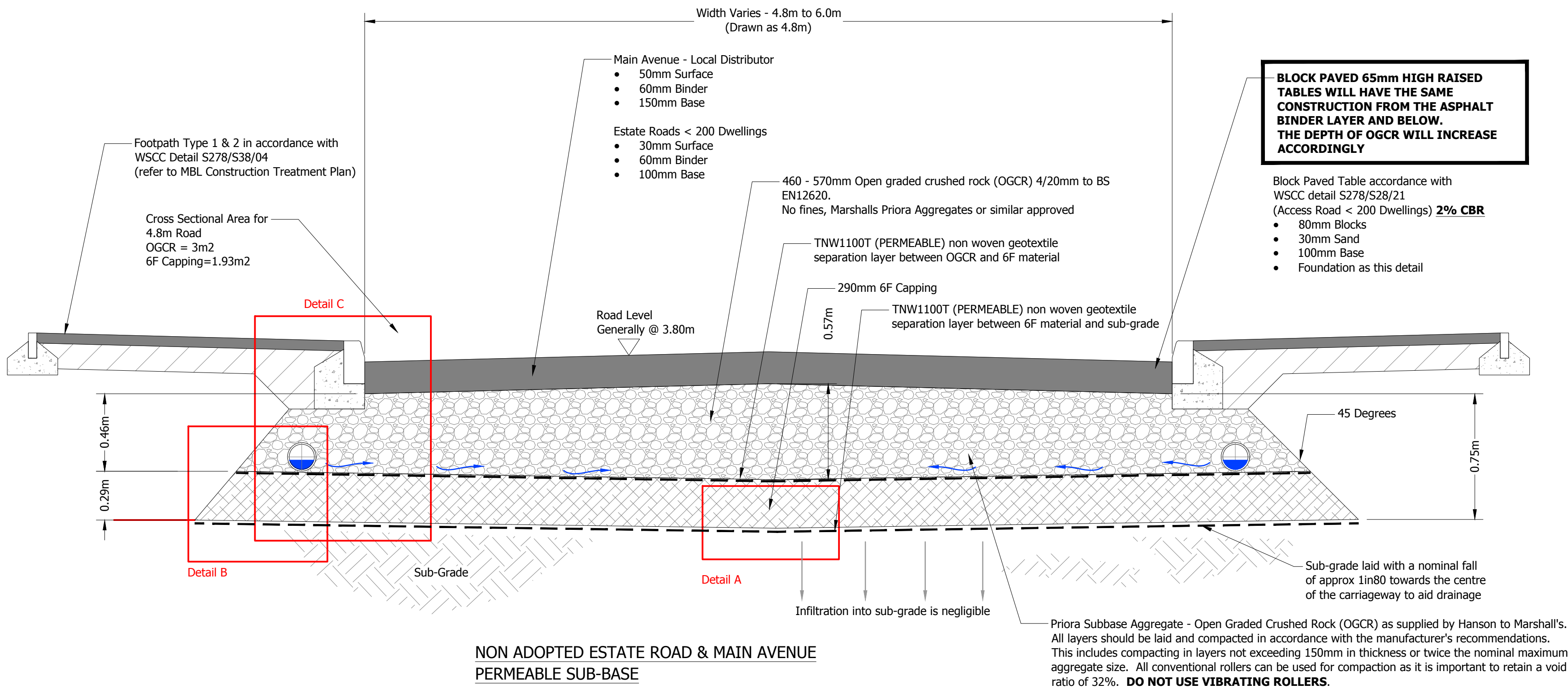


DETAIL A
COLLECTION PIPE TO DISCHARGE INTO SEWERS
FALLING IN OPPOSITE DIRECTION TO CARRIAGEWAY

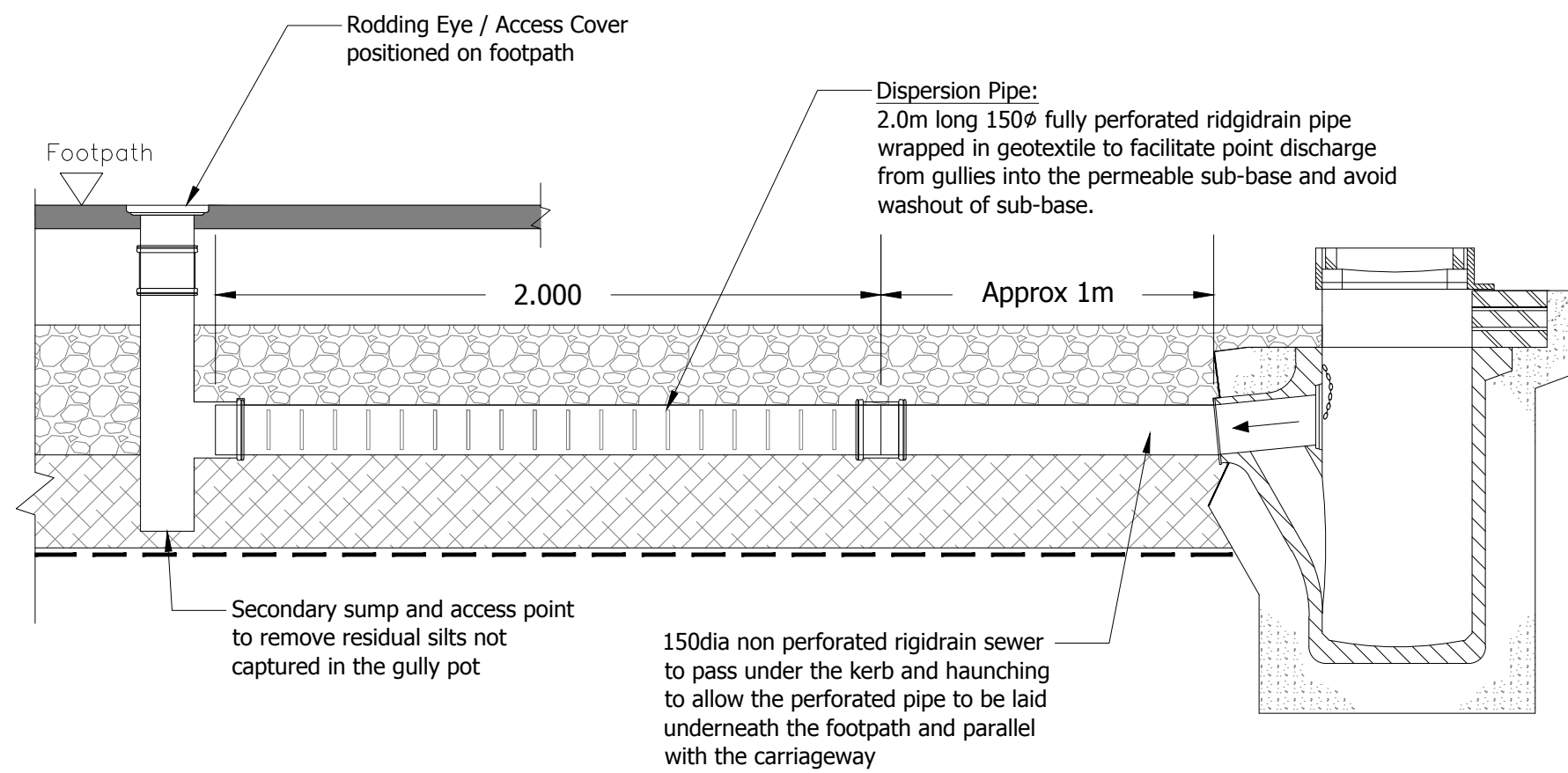
NB
It is imperative the subbase and capping layer of the adjacent carriageway construction does not become saturated



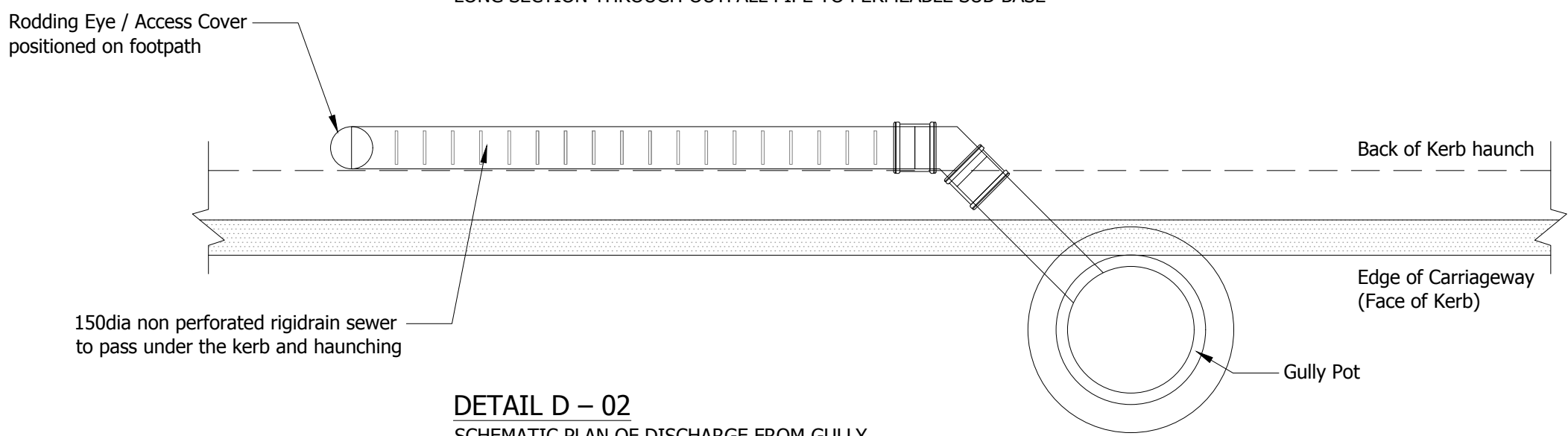
INTERFACE BETWEEN STANDARD BUILD-UP AND
PERMEABLE AND SUB-BASE



NON ADOPTED ESTATE ROAD & MAIN AVENUE
PERMEABLE SUB-BASE



DETAIL D - 01
LONG SECTION THROUGH OUTFALL PIPE TO PERMEABLE SUB-BASE



DETAIL D - 02
SCHEMATIC PLAN OF DISCHARGE FROM GULLY

FOR CONSTRUCTION

C2	References to flood levels on permeable sub-base roads removed. (OJN)	SF	10/01/2019
C1	Construction issue. (OJN)	SF	09/02/18
T1	Initial issue. (SF)	SF	08/02/18

rev.	amendment	checked	date
------	-----------	---------	------



Mayer Brown Limited
Lion House, Oriental Road, Woking, Surrey GU22 8AR
Telephone 01483 750 508 Fax 01483 750 437
wokingoffice@mayerbrown.co.uk www.mayerbrown.co.uk

client
PERSIMMON HOMES THAMES VALLEY

project
NORTH LITTLEHAMPTON PHASE 2
PARCEL C1 AND PART PARCEL B2, B4 AND C2

scale 1:20 drawn by SF checked by SF

date FEBRUARY 2018 cad file MBC01.DWG

title
PERMEABLE SUB-BASE ROAD
CONSTRUCTION DETAILS

drawing number
A/PHLITTLE-INT.2_MB/F/02
rev.
C2

APPENDIX N: Drawings, Parcel B4, C1, C2 & C4: Civil & Drainage (MJA)