

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drawing No: 01
All drainage was filled with pipe sizes and invert levels recorded. Wherever possible the
drainage has been located and positioned on the drawing. All connections from
gullies, external rainwater pipes and external soil stacks have been shown wherever possible
and marked with invert levels. Drains / sewers between manholes are assumed to be straight.
All sub surface drainage positions should be cross checked in critical areas by RD or GPR
survey or hand digging holes.

- Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY
PRODUCED BY MAYER BROWN LTD. JOB NO. APH/17/19 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

ACPI	ASSUMED CONNECTION POINT	UH	LAMP HOLE
AG	ABOVE GROUND	NP	NO PIPES VISIBLE
AR	ASSUMED ROUTE	OP	OUTLET
BD	BACK DROP	OU	OUTLET
BL	BRICK	PP	POLYPROPYLENE
BL	BASE LEVEL	PPW	PIPE ON WALL
CL	CAST IRON	PT	PIPE TO GROUND
CL	COVER LEVEL	PTG	PIPE TO GROUND
CL	CONCRETE	PVC	POLYVINYL CHLORIDE
CU	CULVERT	PVCU	ULTRA RIB (PVC)
CP	CATCHPIT	R	ROOFING EYE
CWG	COMBINED WATER SEWER	RAN	RIBBON MAN
CH	DRAINAGE CHANNEL	RWP	RIBBON WATER PIPE
DI	DUCTILE IRON	SOP	SOFFIT
FD	FLAT TOP DRAIN	SPP	SOLID VENT PIPE
FWS	FULL WATER SEWER	SWS	SURFACE WATER SEWER
GT	GULLY	UL	UNABLE TO LIFT
IC	INVERT COVER	ULS	UNABLE TO SURVEY
IL	INVERT LEVEL	VC	VITRIFIED CLAY
IR	INTERCEPTOR	VP	VENT PIPE
IT	INLET	VE	VENTER LEVEL
KD	KEYS OUTLET		

LEGEND

LINEAR SURVEY

POINT SURVEY

DRAINAGE KEY

CAUTIONARY NOTES

1. Pipe sizes are shown from visual inspection or taken from existing information. Pipe sizes are recorded in
information and depths in meters.
2. Where depth between manholes has been proven using an existing or acoustic method it is advised that a
GPR survey is carried out to confirm connections. Please note the latter is not a GPR survey in a GPR survey is
required.

ALWAYS BEWARE CAUTION WHEN EXCAVATING.



Scale: 1:500

Sheet Size: A0

Sheet Number: 2

Date: February 2015

Project Number: 20644

Rev: -

Surveyed By: CP

Approved By: NS

mk surveys

16 REVENGE ROAD
LITTLEHAMPTON INDUSTRIAL ESTATE
CHICHESTER
WILT
TEL: 01243 861 718
FAX: 01243 861 719
WEB: www.mk-surveys.co.uk
EMAIL: info@mk-surveys.co.uk

INSURANCE

PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey

ARUN DISTRICT COUNCIL LU17/19/DOC

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
All drainage was traced with pipe size and invert levels recorded. Wherever possible the chamber locations have been recorded and positioned on the drawing. All connections from gullies, external rainwater pipes and external soil stacks have been proven wherever possible by inspection and/or camera. Drains / sewers between manholes are assumed to be straight. All sub surface drainage positions should be cross checked in critical areas by RD or GPR survey or hand dug trial holes.

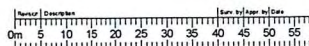
Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY WATER BROWN LTD. JOB NO. A/PH/LITTLE 268, DATE AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITHOUT WANT ENTERING INTO CHAMBERS AND WHILE EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROJECT.
3. ALL SEWERS ARE PRESUMED TO BE STRAIGHT BETWEEN CHAMBERS, WITH ROUTED CONNECTIVITY OBTAINED USING ACUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS		DRAINAGE KEY	
ACHP	ASSIGNED CONNECTION POINT	SH	LAMP HOLE
AGD	ABOVE GROUND	SHV	NO FREE VEGETATION
AR	ASSIGNED ROUTE	CL	OUTLET
BD	BACK DROP	CU	CUTFALL
BL	BRICK	PP	POLYPROPYLENE
BL	BASE LEVEL	PPH	PIPE TO WALL
CL	CAST IRON	PT	P-TRAP
CL	COVER LEVEL	PD	PIPE TO GROUND
CO	CONCRETE	PVC	POLYVINYL CHLORIDE
CU	CULVERT	RE	ROOFING EYE
CU	CATCHMENT	REH	ROOFING MAN
CWS	COVERED WATER SEWER	RWP	RAIN WATER PIPE
DCH	DRAINAGE CHANNEL	RWP	RAMP
D	DRAIN	SOP	SOFT
FD	FOUL DRAIN	SVP	SOIL VENT PIPE
PWS	FOUL WATER SEWER	SWS	SURFACE WATER SEWER
DY	DRAIN	UTL	UNABLE TO LIFT
IC	INSPECTION COVER	UTL	UNABLE TO SURVEY
R	RIVER LEVEL	VC	VERIFIED CLAY
RT	RILEY	VP	VENT PIPE
RO	ROOF OUTLET	VA	WATER LEVEL

LEGEND
1. Pipe sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in dimensions and depths in meters.
2. Connections between manholes have been proven using air 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.
ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



CAUTIONARY NOTES
1. Pipe sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in dimensions and depths in meters.
2. Connections between manholes have been proven using air 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.
ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



mk surveys
100 REVENUE ROAD
LITTLEHAMPTON INDUSTRIAL ESTATE
LITTLEHAMPTON, WEST SUSSEX BN16 9JL
TEL: 01323 861 788
FAX: 01323 861 789
EMAIL: info@mk-surveys.co.uk
www.mk-surveys.co.uk

INSURANCE
100 REVENUE ROAD
LITTLEHAMPTON INDUSTRIAL ESTATE
LITTLEHAMPTON, WEST SUSSEX BN16 9JL
TEL: 01323 861 788
FAX: 01323 861 789
EMAIL: info@mk-surveys.co.uk
www.mk-surveys.co.uk

PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey			
Scale	Sheet Size	Sheet Number	Date
1:500	A0	3	February 2015
Project Number:	Rev:	Surveyed By:	Approved By:
20644	-	CP	NS

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.

100Ø PVC pipe evident in trench. Assumed existing drainage from polytunnels. Assumed redundant

Notes:

1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYER BROWN LTD. JOB NO. A/FH/LITTLE 209. 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 WHILST EVERY EFFORT HAS BEEN MADE TO CORRECTLY IDENTIFY THIS INFORMATION, IT SHOULD ALWAYS BE CHECKED IN AREAS THAT ARE CRITICAL TO THE FUTURE PROPOSAL. 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		DRAINAGE KEY	
(ACP)	ASSUMED CONNECTION POINT	LH	LAMP HOUSE
(AG)	ARRESTOR	LN	MANHOLE
AS	ASBESTOS	NPV	NO PIPES VISIBLE
BS	BACK STOP	OUT	OUTLET
BK	BK	OUTF	OUTFALL
BCL	BACKFILL	PP	POLYPROPYLENE
CR	CARPON	POW	PIPE ON WALL
CB	CONCRETE	PT	P-TRAPEZ
CO	COVER LEVEL	PTG	PIPE TO GRADE
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHER	ULR	ULTRA RIGID
CWS	COMBINED WATER SEWER	RE	RE RODDING EYE
CH	CHANNEL	RM	REINFORCING MAN
DI	DUCTILE IRON	RWP	RUN PIPE WATER PIPE
DCH	DRAINAGE CHANNEL	SP	SPRINKLER
FWS	FLOW WATER SEWER	SVP	SOIL VENT PIPE
FL	FL	SW	SURFACE WATER SEWER
IC	INSPECTION COVER	U/L	UNABLE TO LIFT
INT	INTERCEPTOR	VS	VERIFIED TO SURVEY
INT	INTERCEPTOR	VP	VERTICAL PIPE
INL	INLET	WL	WATER LEVEL
KE	KERES OUTLET		

LEGEND

COMBINED SEWER		INLET	
POUR WATER SEWER		BACK STOP	
RUNOFF WATER SEWER		SURVEY ABANDONED	
UNIDENTIFIED SEWER		CAPPED RUN	
MANHOLE		ORANGE INFORMATION TO BE CHANGED	
IMPOUNDE		SURVEY BOUNDARY	

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 ring for further details if a CCTV Survey is required.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



GREENHOUSE

(ACCESS)

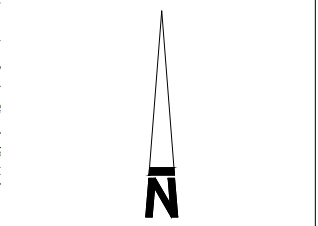
TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
All drainage was lifted with pipe sizes and invert levels recorded. Whenever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external sewer pipes and external 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 CPM survey or hand dug trial holes.



Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY
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
DRAINAGE KEY
LEGEND
CAUTIONARY NOTES

1. Pipe sizes are shown from visual inspection or taken from record information. Pipe sizes are recorded in
inches 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 only for further details if a CCTV survey is
required.
ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



SHEET 4 OF 12
0m 5 10 15 20 25 30 35 40 45 50 55

mk surveys
Tel: 01323 660001
Tel: 01323 660002
Tel: 01323 660003
Tel: 01323 660004
www.mk-surveys.com

INSURANCE
LONDON INDUSTRIAL ESTATE
KENT
ME16 8QD
Tel: 01843 841100
Fax: 01843 841101
Email: mail@insur.co.uk

PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey
Scale: 1:250
Sheet Size: A0
Sheet Number: 1
Date: February 2015
Project Number: 20644
Rev: CP
Approved By: NS

FOLIAGE

FOLIAGE

POLYTUNNELS

GREENHOUSE

Notes :

1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY MAYER BROWNLIE LTD. JOB NO. APH/11/12-309. DATE 2014 AUGUST 14. SITE VERIFICATION CARRIED OUT BY MK SURVEYS UNLESS SPECIFIC TO DRAINAGE.
2. DRAINAGE INFORMATION HAS BEEN DETERMINED WITH MAIN ENTRY INTO CHAMBERS AND WHILST 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. 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.

[illegible]

LEGEND

COMBINED SEWER		PIVOT	
POLE WATER SENSOR		BACK STOP	
SURFACE WATER SEWER		SURVEY BACKSLOPED	
UNIDENTIFIED SEWER		CAPPED RUN	
UNKNOWN			
MAN-PILE			

ORANGE INFORMATION IS SHOWN IN GREEN

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 ring for further details if a CCTV Survey is required.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



SHEET 5 OF 12



mksurveys

Tel 01908 565661
Tel 01865 594979
Tel 0116 294977
Tel 01394 404203
Tel 01403 243162

Milton Keynes
Oxford
East Midlands
West Midlands
Horsham

enquiries@mk-surveys.co.uk
oxford@mk-surveys.co.uk
eastmidlands@mk-surveys.co.uk
westmidlands@mk-surveys.co.uk
horsham@mk-surveys.co.uk

www.mk-surveys.com www.surveys4bim.co.uk



INSEWER SURVEYS
166 REVENUE ROAD
LORDSBROOK INDUSTRIAL ESTATE
CHATHAM
KENT
ME5 8UD
TEL: 01634 861 768
FAX: 01634 201376
WEB: www.insewer.co.uk
EMAIL: mail@insewer.co.uk

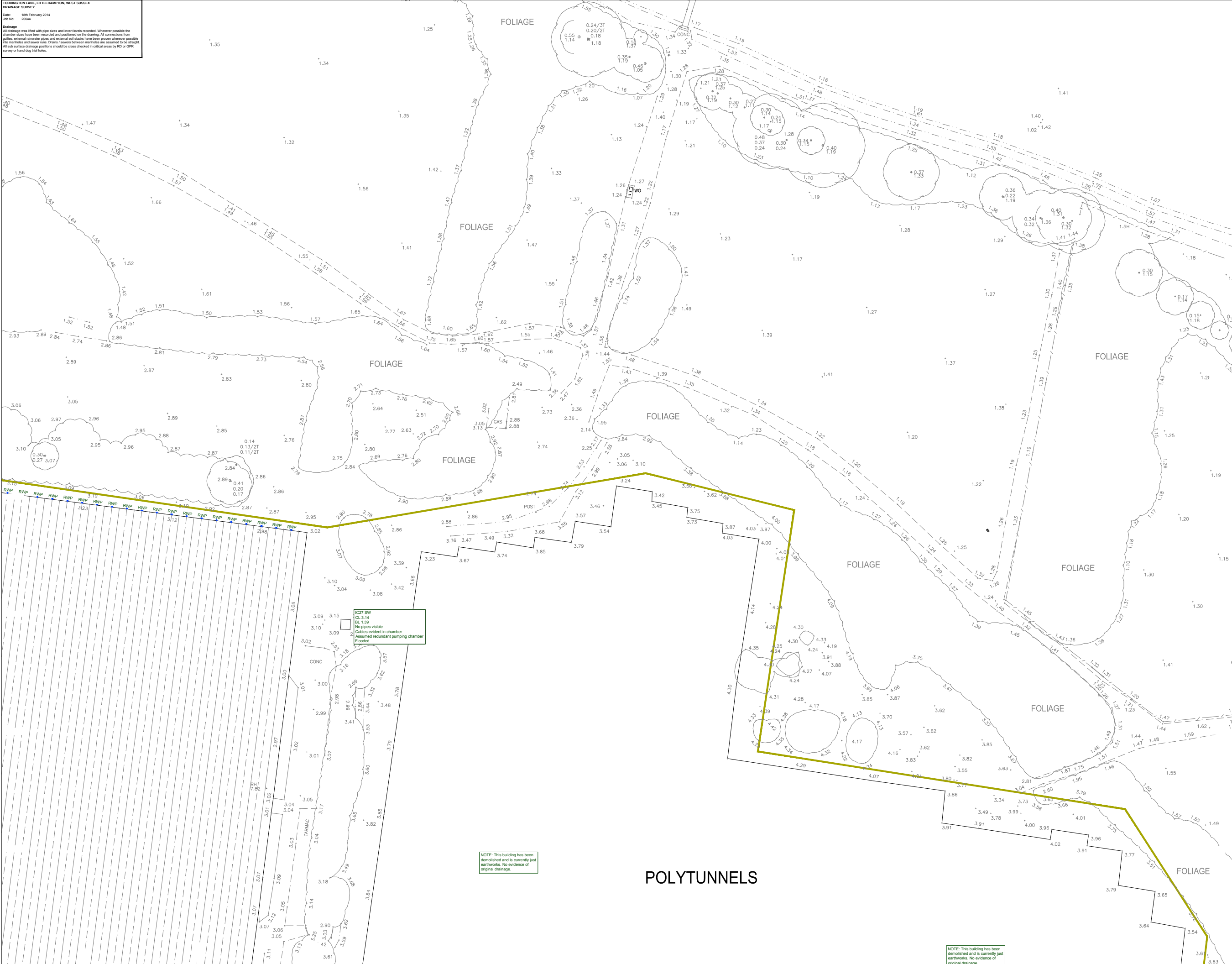


PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey			
Scale: 1:250	Sheet Size: A0	Sheet Number: 2	Date: February 2015
Project Number: 20644	Rev.: -	Surveyed By: CP	Approved By: NS
			

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
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-TJUMP
CO	CONCRETE	PTD	PIPE TO GROUND
CS	COBBLER LEVEL	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	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	SOF	SOFT
FWS	FOLI WATER SEWER	SVP	SOIL VENT PIPE
G	GULLY	SW	SURFACE WATER SEWER
IC	INSPECTION COVER	UNL	UNABLE TO LIFT
I	INVERT LEVEL	UTL	UNABLE TO SURVEY
INT	INTERCEPTOR	VC	VENT PIPE
IO	INLET	VP	VENT PIPE
MD	MANHOLE OUTLET	WL	WATER LEVEL

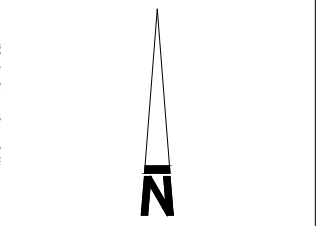
LEGEND

CONCRETE	ACDP	NPV	NPV
COBBLER LEVEL	BD	PP	PP
CAST IRON	BR	POW	POW
CULVERT	BL	PT	PT
CONCRETE	CU	PTD	PTD
COBBLER LEVEL	CS	PVC	PVC
CAST IRON	CP	PVC-U	PVC-U
COMBINED WATER SEWER	CWS	RE	RE
DRAINAGE CHANNEL	DCH	RM	RM
DUCTILE IRON	DI	RWP	RWP
FILTER DRAIN	FD	SOF	SOF
FOLI WATER SEWER	FWS	SVP	SVP
GULLY	G	SW	SW
INSPECTION COVER	IC	UNL	UNL
INVERT LEVEL	I	UTL	UTL
INTERCEPTOR	INT	VC	VC
INLET	IO	VP	VP
MANHOLE OUTLET	MD	WL	WL

CAUTIONARY NOTES

- Pipe sizes and depths 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.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



SHEET 6 OF 12

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

mk surveys

1000 Highways
Oxford
East Midlands
West Midlands
Yorkshire
www.mk-surveys.com

enquiries@mk-surveys.co.uk
mk-surveys@mk-surveys.co.uk
mk-surveys@mk-surveys.co.uk
mk-surveys@mk-surveys.co.uk
mk-surveys@mk-surveys.co.uk

INSEWER SURVEYS

100 RIVERVIEW ROAD
LONDONWOOD INDUSTRIAL ESTATE
CROTHAM
SUSSEX BN1 1AB
TEL: 01293 441176
FAX: 01293 441178
WEB: www.insewer.co.uk
EMAIL: mail@insewer.co.uk

PERSIMMON

**Toddington Lane
Littlehampton
West Sussex**

Drainage Survey

Scale	Sheet Size	Sheet Number	Date
1:250	A0	2	February 2015
Project Number	Rev	Surveyed By	Approved By
20644	-	CP	NS

1 2 3 4 5 6 7 8 9 10 11 12

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
All drainage was lifted 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 water pipes 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.

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 ACOUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED ASSUMED AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

DRAINAGE KEY			
ABBREVIATIONS		DRAINAGE KEY	
ACDP	ASSUMED CONNECTION POINT	LH	LAMP HOLE
AGD	ABOVE GROUND	MM	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OU	OUTLET
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CL	CAST IRON	PPW	PIPE ON WALL
CU	CULVERT	PT	P-T JUNCTION
CO	CONCRETE	PTD	PIPE TO DRAIN
CP	CATCHMENT	PVC	POLYVINYL CHLORIDE
DCH	COMBINED WATER SEWER	RE	REINFORCED
DI	DUCTILE IRON	RH	REINFORCED
FD	FILTER DRAIN	RS	REINFORCED
FWS	FLOOD WATER SEWER	SOF	SOFT
GY	GULLY	SVP	SOIL VENT PIPE
IC	INSPECTION COVER	SW	SURFACE WATER SEWER
INT	INTERCEPTOR	UTL	UNABLE TO SURVEY
MD	MANHOLE OUTLET	VC	VERTICAL CAST
		WL	WATER LEVEL

LEGEND	
COMBINED SEWER	ICDP
FLOOD WATER SEWER	MD
SURFACE WATER SEWER	PP
UNABLE TO SURVEY	PPW
UNABLE TO SURVEY	PT
UNABLE TO SURVEY	PTD
UNABLE TO SURVEY	PVC
UNABLE TO SURVEY	RE
UNABLE TO SURVEY	RH
UNABLE TO SURVEY	RS
UNABLE TO SURVEY	SOF
UNABLE TO SURVEY	SVP
UNABLE TO SURVEY	SW
UNABLE TO SURVEY	UTL
UNABLE TO SURVEY	VC
UNABLE TO SURVEY	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 / 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.
ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



SHEET 7 OF 12

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

mk surveys

101 0100 000001
101 0100 000002
101 0100 000003
101 0100 000004
101 0100 000005
101 0100 000006
101 0100 000007
101 0100 000008
101 0100 000009
101 0100 000010
101 0100 000011
101 0100 000012
101 0100 000013
101 0100 000014
101 0100 000015
101 0100 000016
101 0100 000017
101 0100 000018
101 0100 000019
101 0100 000020
101 0100 000021
101 0100 000022
101 0100 000023
101 0100 000024
101 0100 000025
101 0100 000026
101 0100 000027
101 0100 000028
101 0100 000029
101 0100 000030
101 0100 000031
101 0100 000032
101 0100 000033
101 0100 000034
101 0100 000035
101 0100 000036
101 0100 000037
101 0100 000038
101 0100 000039
101 0100 000040
101 0100 000041
101 0100 000042
101 0100 000043
101 0100 000044
101 0100 000045
101 0100 000046
101 0100 000047
101 0100 000048
101 0100 000049
101 0100 000050
101 0100 000051
101 0100 000052
101 0100 000053
101 0100 000054
101 0100 000055
101 0100 000056
101 0100 000057
101 0100 000058
101 0100 000059
101 0100 000060
101 0100 000061
101 0100 000062
101 0100 000063
101 0100 000064
101 0100 000065
101 0100 000066
101 0100 000067
101 0100 000068
101 0100 000069
101 0100 000070
101 0100 000071
101 0100 000072
101 0100 000073
101 0100 000074
101 0100 000075
101 0100 000076
101 0100 000077
101 0100 000078
101 0100 000079
101 0100 000080
101 0100 000081
101 0100 000082
101 0100 000083
101 0100 000084
101 0100 000085
101 0100 000086
101 0100 000087
101 0100 000088
101 0100 000089
101 0100 000090
101 0100 000091
101 0100 000092
101 0100 000093
101 0100 000094
101 0100 000095
101 0100 000096
101 0100 000097
101 0100 000098
101 0100 000099
101 0100 000100
101 0100 000101
101 0100 000102
101 0100 000103
101 0100 000104
101 0100 000105
101 0100 000106
101 0100 000107
101 0100 000108
101 0100 000109
101 0100 000110
101 0100 000111
101 0100 000112
101 0100 000113
101 0100 000114
101 0100 000115
101 0100 000116
101 0100 000117
101 0100 000118
101 0100 000119
101 0100 000120
101 0100 000121
101 0100 000122
101 0100 000123
101 0100 000124
101 0100 000125
101 0100 000126
101 0100 000127
101 0100 000128
101 0100 000129
101 0100 000130
101 0100 000131
101 0100 000132
101 0100 000133
101 0100 000134
101 0100 000135
101 0100 000136
101 0100 000137
101 0100 000138
101 0100 000139
101 0100 000140
101 0100 000141
101 0100 000142
101 0100 000143
101 0100 000144
101 0100 000145
101 0100 000146
101 0100 000147
101 0100 000148
101 0100 000149
101 0100 000150
101 0100 000151
101 0100 000152
101 0100 000153
101 0100 000154
101 0100 000155
101 0100 000156
101 0100 000157
101 0100 000158
101 0100 000159
101 0100 000160
101 0100 000161
101 0100 000162
101 0100 000163
101 0100 000164
101 0100 000165
101 0100 000166
101 0100 000167
101 0100 000168
101 0100 000169
101 0100 000170
101 0100 000171
101 0100 000172
101 0100 000173
101 0100 000174
101 0100 000175
101 0100 000176
101 0100 000177
101 0100 000178
101 0100 000179
101 0100 000180
101 0100 000181
101 0100 000182
101 0100 000183
101 0100 000184
101 0100 000185
101 0100 000186
101 0100 000187
101 0100 000188
101 0100 000189
101 0100 000190
101 0100 000191
101 0100 000192
101 0100 000193
101 0100 000194
101 0100 000195
101 0100 000196
101 0100 000197
101 0100 000198
101 0100 000199
101 0100 000200
101 0100 000201
101 0100 000202
101 0100 000203
101 0100 000204
101 0100 000205
101 0100 000206
101 0100 000207
101 0100 000208
101 0100 000209
101 0100 000210
101 0100 000211
101 0100 000212
101 0100 000213
101 0100 000214
101 0100 000215
101 0100 000216
101 0100 000217
101 0100 000218
101 0100 000219
101 0100 000220
101 0100 000221
101 0100 000222
101 0100 000223
101 0100 000224
101 0100 000225
101 0100 000226
101 0100 000227
101 0100 000228
101 0100 000229
101 0100 000230
101 0100 000231
101 0100 000232
101 0100 000233
101 0100 000234
101 0100 000235
101 0100 000236
101 0100 000237
101 0100 000238
101 0100 000239
101 0100 000240
101 0100 000241
101 0100 000242
101 0100 000243
101 0100 000244
101 0100 000245
101 0100 000246
101 0100 000247
101 0100 000248
101 0100 000249
101 0100 000250
101 0100 000251
101 0100 000252
101 0100 000253
101 0100 000254
101 0100 000255
101 0100 000256
101 0100 000257
101 0100 000258
101 0100 000259
101 0100 000260
101 0100 000261
101 0100 000262
101 0100 000263
101 0100 000264
101 0100 000265
101 0100 000266
101 0100 000267
101 0100 000268
101 0100 000269
101 0100 000270
101 0100 000271
101 0100 000272
101 0100 000273
101 0100 000274
101 0100 000275
101 0100 000276
101 0100 000277
101 0100 000278
101 0100 000279
101 0100 000280
101 0100 000281
101 0100 000282
101 0100 000283
101 0100 000284
101 0100 000285
101 0100 000286
101 0100 000287
101 0100 000288
101 0100 000289
101 0100 000290
101 0100 000291
101 0100 000292
101 0100 000293
101 0100 000294
101 0100 000295
101 0100 000296
101 0100 000297
101 0100 000298
101 0100 000299
101 0100 000300
101 0100 000301
101 0100 000302
101 0100 000303
101 0100 000304
101 0100 000305
101 0100 000306
101 0100 000307
101 0100 000308
101 0100 000309
101 0100 000310
101 0100 000311
101 0100 000312
101 0100 000313
101 0100 000314
101 0100 000315
101 0100 000316
101 0100 000317
101 0100 000318
101 0100 000319
101 0100 000320
101 0100 000321
101 0100 000322
101 0100 000323
101 0100 000324
101 0100 000325
101 0100 000326
101 0100 000327
101 0100 000328
101 0100 000329
101 0100 000330
101 0100 000331
101 0100 000332
101 0100 000333
101 0100 000334
101 0100 000335
101 0100 000336
101 0100 000337
101 0100 000338
101 0100 000339
101 0100 000340
101 0100 000341
101 0100 000342
101 0100 000343
101 0100 000344
101 0100 000345
101 0100 000346
101 0100 000347
101 0100 000348
101 0100 000349
101 0100 000350
101 0100 000351
101 0100 000352
101 0100 000353
101 0100 000354
101 0100 000355
101 0100 000356
101 0100 000357
101 0100 000358
101 0100 000359
101 0100 000360
101 0100 000361
101 0100 000362
101 0100 000363
101 0100 000364
101 0100 000365
101 0100 000366
101 0100 000367
101 0100 000368
101 0100 000369
101 0100 000370
101 0100 000371
101 0100 000372
101 0100 000373
101 0100 000374
101 0100 000375
101 0100 000376
101 0100 000377
101 0100 000378
101 0100 000379
101 0100 000380
101 0100 000381
101 0100 000382
101 0100 000383
101 0100 000384
101 0100 000385
101 0100 000386
101 0100 000387
101 0100 000388
101 0100 000389
101 0100 000390
101 0100 000391
101 0100 000392
101 0100 000393
101 0100 000394
101 0100 000395
101 0100 000396
101 0100 000397
101 0100 000398
101 0100 000399
101 0100 000400
101 0100 000401
101 0100 000402
101 0100 000403
101 0100 000404
101 0100 000405
101 0100 000406
101 0100 000407
101 0100 000408
101 0100 000409
101 0100 000410
101 0100 000411
101 0100 000412
101 0100 000413
101 0100 000414
101 0100 000415
101 0100 000416
101 0100 000417
101 0100 000418
101 0100 000419
101 0100 000420
101 0100 000421
101 0100 000422
101 0100 000423
101 0100 000424
101 0100 000425
101 0100 000426
101 0100 000427
101 0100 000428
101 0100 000429
101 0100 000430
101 0100 000431
101 0100 000432
101 0100 000433
101 0100 000434
101 0100 000435
101 0100 000436
101 0100 000437
101 0100 000438
101 0100 000439
101 0100 000440
101 0100 000441
101 0100 000442
101 0100 000443
101 0100 000444
101 0100 000445
101 0100 000446
101 0100 000447
101 0100 000448
101 0100 000449
101 0100 000450
101 0100 000451
101 0100 000452
101 0100 000453
101 0100 000454
101 0100 000455
101 0100 000456
101 0100 000457
101 0100 000458
101 0100 000459
101 0100 000460
101 0100 000461
101 0100 000462
101 0100 000463
101 0100 000464
101 0100 000465
101 0100 000466
101 0100 000467
101 0100 000468
101 0100 000469
101 0100 000470
101 0100 000471
101 0100 000472
101 0100 000473
101 0100 000474
101 0100 000475
101 0100 000476
101 0100 000477
101 0100 000478
101 0100 000479
101 0100 000480
101 0100 000481
101 0100 000482
101 0100 000483
101 0100 000484
101 0100 000485
101 0100 000486
101 0100 000487
101 0100 000488
101 0100 000489
101 0100 000490
101 0100 000491
101 0100 000492
101 0100 000493
101 0100 000494
101 0100 000495
101 0100 000496
101 0100 000497
101 0100 000498
101 0100 000499
101 0100 000500
101 0100 000501
101 0100 000502
101 0100 000503
101 0100 000504
101 0100 000505
101 0100 000506
101 0100 000507
101 0100 000508
101 0100 000509
101 0100 000510
101 0100 000511
101 0100 000512
101 0100 000513
101 0100 000514
101 0100 000515
101 0100 000516
101 0100 000517
101 0100 000518
101 0100 000519
101 0100 000520
101 0100 000521
101 0100 000522
101 0100 000523
101 0100 000524
101 0100 000525
101 0100 000526
101 0100 000527
101 0100 000528
101 0100 000529
101 0100 000530
101 0100 000531
101 0100 000532
101 0100 000533
101 0100 000534
101 0100 000535
101 0100 000536
101 0100 000537
101 0100 000538
101 0100 000539
101 0100 000540
101 0100 000541
101 0100 000542
101 0100 000543
101 0100 000544
101 0100 000545
101 0100 000546
101 0100 000547
101 0100 000548
101 0100 000549
101 0100 000550
101 0100 000551
101 0100 000552
101 0100 000553
101 0100 000554
101 0100 000555
101 0100 000556
101 0100 000557
101 0100 000558
101 0100 000559
101 0100 000560
101 0100 000561
101 0100 000562
101 0100 000563
101 0100 000564
101 0100 000565
101 0100 000566
101 0100 000567
101 0100 000568
101 0100 000569
101 0100 000570
101 0100 000571
101 0100 000572
101 0100 000573
101 0100 000574
101 0100 000575
101 0100 000576
101 0100 000577
101 0100 000578
101 0100 000579
101 0100 000580
101 0100 000581
101 0100 000582
101 0100 000583
101 0100 000584
101 0100 000585
101 0100 000586
101 0100 000587
101 0100 000588
101 0100 000589
101 0100 000590
101 0100 000591
101 0100 000592
101 0100 000593
101 0100 000594
101 0100 000595
101 0100 000596
101 0100 000597
101 0100 000598
101 0100 000599
101 0100 000600
101 0100 000601
101 0100 00

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
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 checks 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.

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. APL/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.

ABBREVIATIONS		DRAINAGE KEY	
ACDP	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
CL	CAST IRON	PPW	PIPE ON WALL
CL	COBLES LEVEL	PT	P-T JUMP
CO	CONCRETE	PTD	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHMENT	PVC-U	ULTRA RISE (PVC)
CWS	COMBINED WATER SEWER	RE	REISING EYE
DI	DRAINAGE CHANNEL	REMAN	REISING MAN
DCH	DRAINAGE CHANNEL	RFP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFT
FWS	FULL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SW	SURFACE WATER SEWER
I	INVERT	UL	UNABLE TO LIFT
INT	INTERCEPTOR	VC	VENT PIPE
MD	MANHOLE	VL	VENT LEVEL

LEGEND	
COMBINED SEWER	—
SOIL WATER SEWER	—
SURFACE WATER SEWER	—
INVERT LEVEL	—
MANHOLE	—
WHOLE	—
CHAMBER	—

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 construction. Please ring for further details if a CCTV survey is required.
ALWAYS EXERCISE CAUTION WHEN EXCAVATING.



RESERVOIR

GREENHOUSE

LAKE

SHEET 8 OF 12

mk surveys
Tel: 01305 565051
Tel: 01305 565052
Tel: 01305 565053
Tel: 01305 565054
Tel: 01305 565055
www.mk-surveys.com

Miller Rogers
Oxford
East Midlands
West Midlands
Hampshire

enquiries@mk-surveys.co.uk
sales@mk-surveys.co.uk
info@mk-surveys.co.uk
mk@mk-surveys.co.uk
mk@mk-surveys.co.uk

www.surveys4bm.co.uk

INSEWER SURVEYS
100 RICHMOND ROAD
LONDONWOOD INDUSTRIAL ESTATE
CROTHAM
KENT
ME5 8SD
Tel: 01843 841186
Fax: 01843 201276
Web: www.insewer.co.uk
Email: mail@insewer.co.uk

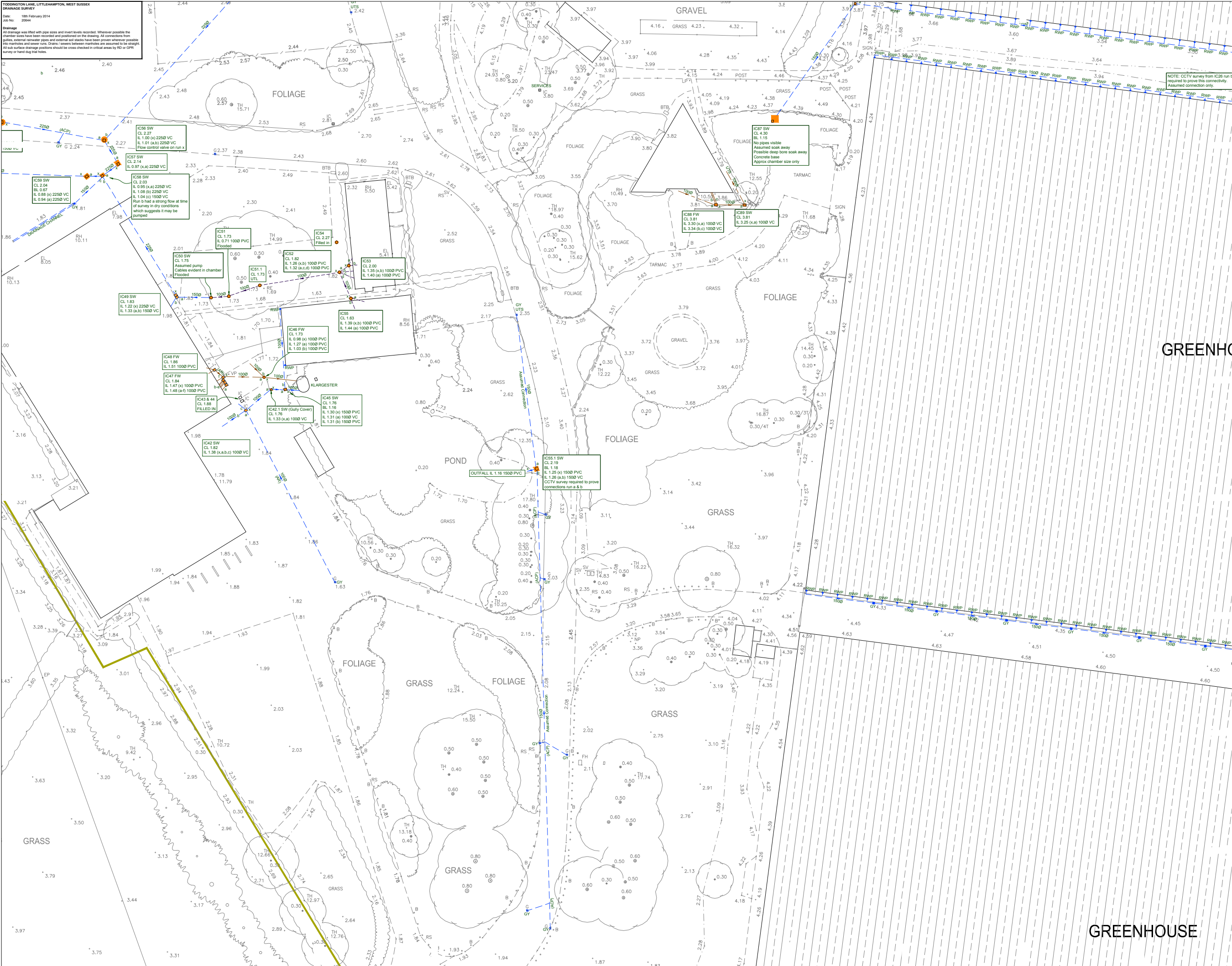
PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey

Scale	Sheet Size	Sheet Number	Date
1:250	A0	2	February 2015
Project Number	Rev	Surveyed By	Approved By
20644	-	CP	NS

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
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 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 CPQ survey or hand dug trial holes.



Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCE BY MRS MARY BROWN LTD. J2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS AUGUST 2014. NO SITE VERIFICATION CARRIED OUT BY MK SURVEYS AUGUST 2014.
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 AS APPROXIMATE 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	OU	OUTLET
BR	BRICK	PP	POLYPROPYLENE
BL	BASE LEVEL	POT	PIPE ON WALL
CL	CAST IRON	PTD	PIPE TO GROUND
CO	CONCRETE	PVC	POLYVINYL CHLORIDE
CU	CULVERT	PVC-U	ULTRA RIGID PVC
CP	CATCHPIT	RE	ROOFING EYE
CWS	COMBINED WATER SEWER	RHS	RAIN WATER PIPE
DCH	DUCTILE IRON	RSF	SOFT
FD	FILTER DRAIN	SVP	SOIL VENT PIPE
FWS	FULL WATER SEWER	SW	SURFACE WATER SEWER
GY	GULLY	UL	UNABLE TO LIFT
IC	INVERT LEVEL	VC	VERIFIED CLAY
INT	INTERCEPTOR	VP	VENT PIPE
LD	LEAKY OUTLET	WL	WATER LEVEL

LEGEND

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.

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.

LEGEND

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.

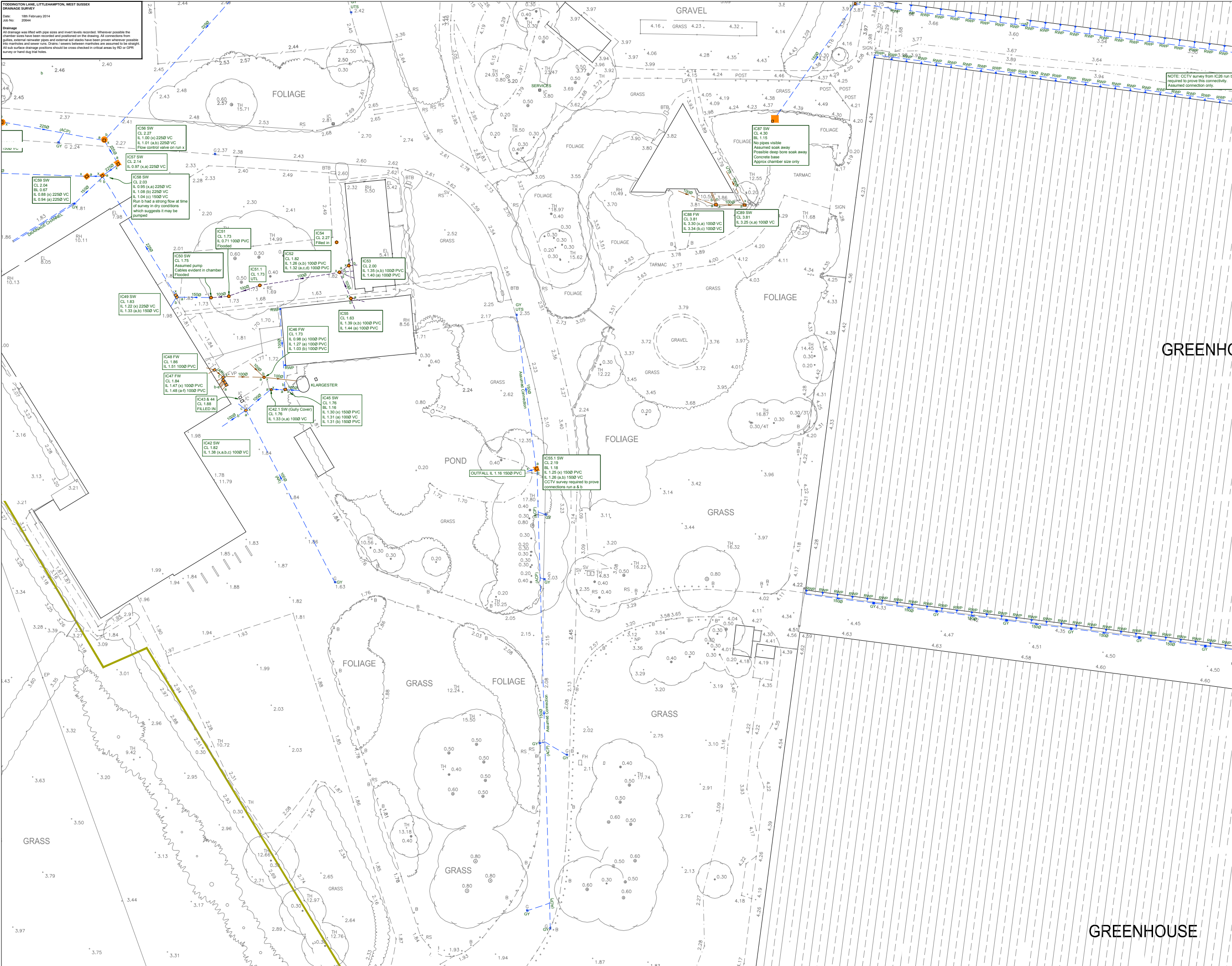
SHEET 9 OF 12

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

mk surveys

101 01500 060001
101 01500 060002
101 01500 060003
101 01500 060004
101 01500 060005
101 01500 060006
101 01500 060007
101 01500 060008
101 01500 060009
101 01500 060010
101 01500 060011
101 01500 060012
101 01500 060013
101 01500 060014
101 01500 060015
101 01500 060016
101 01500 060017
101 01500 060018
101 01500 060019
101 01500 060020
101 01500 060021
101 01500 060022
101 01500 060023
101 01500 060024
101 01500 060025
101 01500 060026
101 01500 060027
101 01500 060028
101 01500 060029
101 01500 060030
101 01500 060031
101 01500 060032
101 01500 060033
101 01500 060034
101 01500 060035
101 01500 060036
101 01500 060037
101 01500 060038
101 01500 060039
101 01500 060040
101 01500 060041
101 01500 060042
101 01500 060043
101 01500 060044
101 01500 060045
101 01500 060046
101 01500 060047
101 01500 060048
101 01500 060049
101 01500 060050
101 01500 060051
101 01500 060052
101 01500 060053
101 01500 060054
101 01500 060055
101 01500 060056
101 01500 060057
101 01500 060058
101 01500 060059
101 01500 060060
101 01500 060061
101 01500 060062
101 01500 060063
101 01500 060064
101 01500 060065
101 01500 060066
101 01500 060067
101 01500 060068
101 01500 060069
101 01500 060070
101 01500 060071
101 01500 060072
101 01500 060073
101 01500 060074
101 01500 060075
101 01500 060076
101 01500 060077
101 01500 060078
101 01500 060079
101 01500 060080
101 01500 060081
101 01500 060082
101 01500 060083
101 01500 060084
101 01500 060085
101 01500 060086
101 01500 060087
101 01500 060088
101 01500 060089
101 01500 060090
101 01500 060091
101 01500 060092
101 01500 060093
101 01500 060094
101 01500 060095
101 01500 060096
101 01500 060097
101 01500 060098
101 01500 060099
101 01500 060100
101 01500 060101
101 01500 060102
101 01500 060103
101 01500 060104
101 01500 060105
101 01500 060106
101 01500 060107
101 01500 060108
101 01500 060109
101 01500 060110
101 01500 060111
101 01500 060112
101 01500 060113
101 01500 060114
101 01500 060115
101 01500 060116
101 01500 060117
101 01500 060118
101 01500 060119
101 01500 060120
101 01500 060121
101 01500 060122
101 01500 060123
101 01500 060124
101 01500 060125
101 01500 060126
101 01500 060127
101 01500 060128
101 01500 060129
101 01500 060130
101 01500 060131
101 01500 060132
101 01500 060133
101 01500 060134
101 01500 060135
101 01500 060136
101 01500 060137
101 01500 060138
101 01500 060139
101 01500 060140
101 01500 060141
101 01500 060142
101 01500 060143
101 01500 060144
101 01500 060145
101 01500 060146
101 01500 060147
101 01500 060148
101 01500 060149
101 01500 060150
101 01500 060151
101 01500 060152
101 01500 060153
101 01500 060154
101 01500 060155
101 01500 060156
101 01500 060157
101 01500 060158
101 01500 060159
101 01500 060160
101 01500 060161
101 01500 060162
101 01500 060163
101 01500 060164
101 01500 060165
101 01500 060166
101 01500 060167
101 01500 060168
101 01500 060169
101 01500 060170
101 01500 060171
101 01500 060172
101 01500 060173
101 01500 060174
101 01500 060175
101 01500 060176
101 01500 060177
101 01500 060178
101 01500 060179
101 01500 060180
101 01500 060181
101 01500 060182
101 01500 060183
101 01500 060184
101 01500 060185
101 01500 060186
101 01500 060187
101 01500 060188
101 01500 060189
101 01500 060190
101 01500 060191
101 01500 060192
101 01500 060193
101 01500 060194
101 01500 060195
101 01500 060196
101 01500 060197
101 01500 060198
101 01500 060199
101 01500 060200
101 01500 060201
101 01500 060202
101 01500 060203
101 01500 060204
101 01500 060205
101 01500 060206
101 01500 060207
101 01500 060208
101 01500 060209
101 01500 060210
101 01500 060211
101 01500 060212
101 01500 060213
101 01500 060214
101 01500 060215
101 01500 060216
101 01500 060217
101 01500 060218
101 01500 060219
101 01500 060220
101 01500 060221
101 01500 060222
101 01500 060223
101 01500 060224
101 01500 060225
101 01500 060226
101 01500 060227
101 01500 060228
101 01500 060229
101 01500 060230
101 01500 060231
101 01500 060232
101 01500 060233
101 01500 060234
101 01500 060235
101 01500 060236
101 01500 060237
101 01500 060238
101 01500 060239
101 01500 060240
101 01500 060241
101 01500 060242
101 01500 060243
101 01500 060244
101 01500 060245
101 01500 060246
101 01500 060247
101 01500 060248
101 01500 060249
101 01500 060250
101 01500 060251
101 01500 060252
101 01500 060253
101 01500 060254
101 01500 060255
101 01500 060256
101 01500 060257
101 01500 060258
101 01500 060259
101 01500 060260
101 01500 060261
101 01500 060262
101 01500 060263
101 01500 060264
101 01500 060265
101 01500 060266
101 01500 060267
101 01500 060268
101 01500 060269
101 01500 060270
101 01500 060271
101 01500 060272
101 01500 060273
101 01500 060274
101 01500 060275
101 01500 060276
101 01500 060277
101 01500 060278
101 01500 060279
101 01500 060280
101 01500 060281
101 01500 060282
101 01500 060283
101 01500 060284
101 01500 060285
101 01500 060286
101 01500 060287
101 01500 060288
101 01500 060289
101 01500 060290
101 01500 060291
101 01500 060292
101 01500 060293
101 01500 060294
101 01500 060295
101 01500 060296
101 01500 060297
101 01500 060298
101 01500 060299
101 01500 060300
101 01500 060301
101 01500 060302
101 01500 060303
101 01500 060304
101 01500 060305
101 01500 060306
101 01500 060307
101 01500 060308
101 01500 060309
101 01500 060310
101 01500 060311
101 01500 060312
101 01500 060313
101 01500 060314
101 01500 060315
101 01500 060316
101 01500 060317
101 01500 060318
101 01500 060319
101 01500 060320
101 01500 060321
101 01500 060322
101 01500 060323
101 01500 060324
101 01500 060325
101 01500 060326
101 01500 060327
101 01500 060328
101 01500 060329
101 01500 060330
101 01500 060331
101 01500 060332
101 01500 060333
101 01500 060334
101 01500 060335
101 01500 060336
101 01500 060337
101 01500 060338
101 01500 060339
101 01500 060340
101 01500 060341
101 01500 060342
101 01500 060343
101 01500 060344
101 01500 060345
101 01500 060346
101 01500 060347
101 01500 060348
101 01500 060349
101 01500 060350
101 01500 060351
101 01500 060352
101 01500 060353
101 01500 060354
101 01500 060355
101 01500 060356
101 01500 060357
101 01500 060358
101 01500 060359
101 01500 060360
101 01500 060361
101 01500 060362
101 01500 060363
101 01500 060364
101 01500 060365
101 01500 060366
101 01500 060367
101 01500 060368
101 01500 060369
101 01500 060370
101 01500 060371
101 01500 060372
101 01500 060373
101 01500 060374
101 01500 060375
101 01500 060376
101 01500 060377
101 01500 060378
101 01500 060379
101 01500 060380
101 01500 060381
101 01500 060382
101 01500 060383
101 01500 060384
101 01500 060385
101 01500 060386
101 01500 060387
101 01500 060388
101 01500 060389
101 01500 060390
101 01500 060391
101 01500 060392
101 01500 060393
101 01500 060394
101 01500 060395
101 01500 060396
101 01500 060397
101 01500 060398
101 01500 060399
101 01500 060400
101 01500 060401
101 01500 060402
101 01500 060403
101 01500 060404
101 01500 060405
101 01500 060406
101 01500 060407
101 01500 060408
101 01500 060409
101 01500 060410
101 01500 060411
101 01500 060412
101 01500 060413
101 01500 060414
101 01500 060415
101 01500 060416
101 01500 060417
101 01500 060418
101 01500 060419
101 01500 060420
101 01500 060421
101 01500 060422
101 01500 060423
101 01500 060424
101 01500 060425
101 01500 060426
101 01500 060427
101 01500 060428
101 01500 060429
101 01500 060430
101 01500 060431
101 01500 060432
101 01500 060433
101 01500 060434
101 01500 060435
101 01500 060436
101 01500 060437
101 01500 060438
101 01500 060439
101 01500 060440
101 01500 060441
101 01500 060442
101 01500 060443
101 01500 060444
101 01500 060445
101 01500 060446
101 01500 060447
101 01500 060448
101 01500 060449
101 01500 060450
101 01500 060451
101 01500 060452
101 01500 060453
101 01500 060454
101 01500 060455
101 01500 060456
101 01500 060457
101 01500 060458
101 01500 060459
101 01500 060460
101 01500 060461
101 01500 060462
101 01500 060463
101 01500 060464
101 01500 060465
101 01500 060466
101 01500 060467
101 01500 060468
101 01500 060469
101 01500 060470
101 01500 060471
101 01500 060472
101 01500 060473
101 01500 060474
101 01500 060475
101 01500 060476
101 01500 060477
101 01500 060478
101 01500 060479
101 01500 060480
101 01500 060481
101 01500 060482
101 01500 060483
101 01500 060484
101 01500 060485
101 01500 060486
101 01500 060487
101 01500 060488
101 01500 060489
101 01500 060490
101 01500 060491
101 01500 060492
101 01500 060493
101 01500 060494
101 01500 060495
101 01500 060496
101 01500 060497
101 01500 060498
101 01500 060499
101 01500 060500
101 01500 060501
101 01500 060502
101 01500 060503
101 01500 060504
101 01500 060505
101 01500 060506
101 01500 060507
101 01500 060508
101 01500 060509
101 01500 060510
101 01500 060511
101 01500 060512
101 01500 060513
101 01500 060514
101 01500 060515
101 01500 060516
101 01500 060517
101 01500 060518
101 01500 060519
101 01500 060520
101 01500 060521
101 01500 060522
101 01500 060523
101 01500 060524
101 01500 060525
101 01500 060526
101 01500 060527
101 01500 060528
101 01500 060529
101 01500 060530
101 01500 060531
101 01500 060532
101 01500 060533
101 01500 060534
101 01500 060535
101 01500 060536
101 01500 060537
101 01500 060538
101 01500 060539
101 01500 060540
101 01500 060541
101 01500 060542
101 01500 060543
101 01500 060544
101 01500 060545
101 01500 060546
101 01500 060547
101 01500 060548
101 01500 060549
101 01500 060550
101 01500 060551
101 01500 060552
101 01500 060553
101 01500 060554
101 01500 060555
101 01500 060556
101 01500 060557
101 01500 060558
101 01500 060559
101 01500 060560
101 01500 060561
101 01500 060562
101 01500 060563
101 01500 060564
101 01500 060565
101 01500 060566
101 01500 060567
101 01500 060568
101 01500 060569
101 01500 060570
101 01500 060571
101 01500 060572
101 01500 060573
101 01500 060574
101 01500 060575
101 01500 060576
101 01500 060577
101 01500 060578
101 01500 060579
101 01500 060580
101 01500 060581
101 01500 060582
101 01500 060583
101 01500 060584
101 01500 060585
101 01500 060586
101 01500 060587
101 01500 060588
101 01500 060589
101 01500 060590
101 01500 060591
101 01500 060592
101 01500 060593
101 01500 060594
101 01500 060595
101 01500 060596
101 01500 060597
101 01500 060598
101 01500 060599
101

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
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 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 CPQ survey or hand dug trial holes.



Notes:
1. DRAINAGE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCE BY MAYER 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 ACUSTIC METHODS ONLY. THESE ARE TO BE CONSIDERED AS INDICATIVE AND SHOULD BE INVESTIGATED FURTHER IN CRITICAL AREAS.

ABBREVIATIONS

ACPP	ASSUMED CONNECTION POINT	LH	LAMP HOLE
AGD	ABOVE GROUND	MH	MANHOLE
AR	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OU	OUTLET
BR	BRICK	OT	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CL	CAST IRON	POW	PIPE ON WALL
CU	CULVERT	P-T	P-T JUNCTION
CO	CONCRETE	PTD	PIPE TO GROUND
CP	CATCHPIT	PVC	POLYVINYL CHLORIDE
CWS	COMBINED WATER SEWER	PVC-U	ULTRA RIGID PVC
DCH	DRAINAGE CHANNEL	RE	REINFORCED
DI	DUCTILE IRON	RE	REINFORCED
FD	FILTER DRAIN	RFP	RAIN WATER PIPE
FWS	FULL WATER SEWER	SOF	SOFT
GY	GULLY	SVP	SOIL VENT PIPE
IC	INVERT COVER	SW	SURFACE WATER SEWER
INT	INTERCEPTOR	UL	UNABLE TO LIFT
IT	INVERT	VC	VERIFIED CHAMBER
MD	MANHOLE	VP	VENT PIPE
		WL	WATER LEVEL

LEGEND

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 refer to further details if a CCTV survey is required.

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 refer to further details if a CCTV survey is required.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

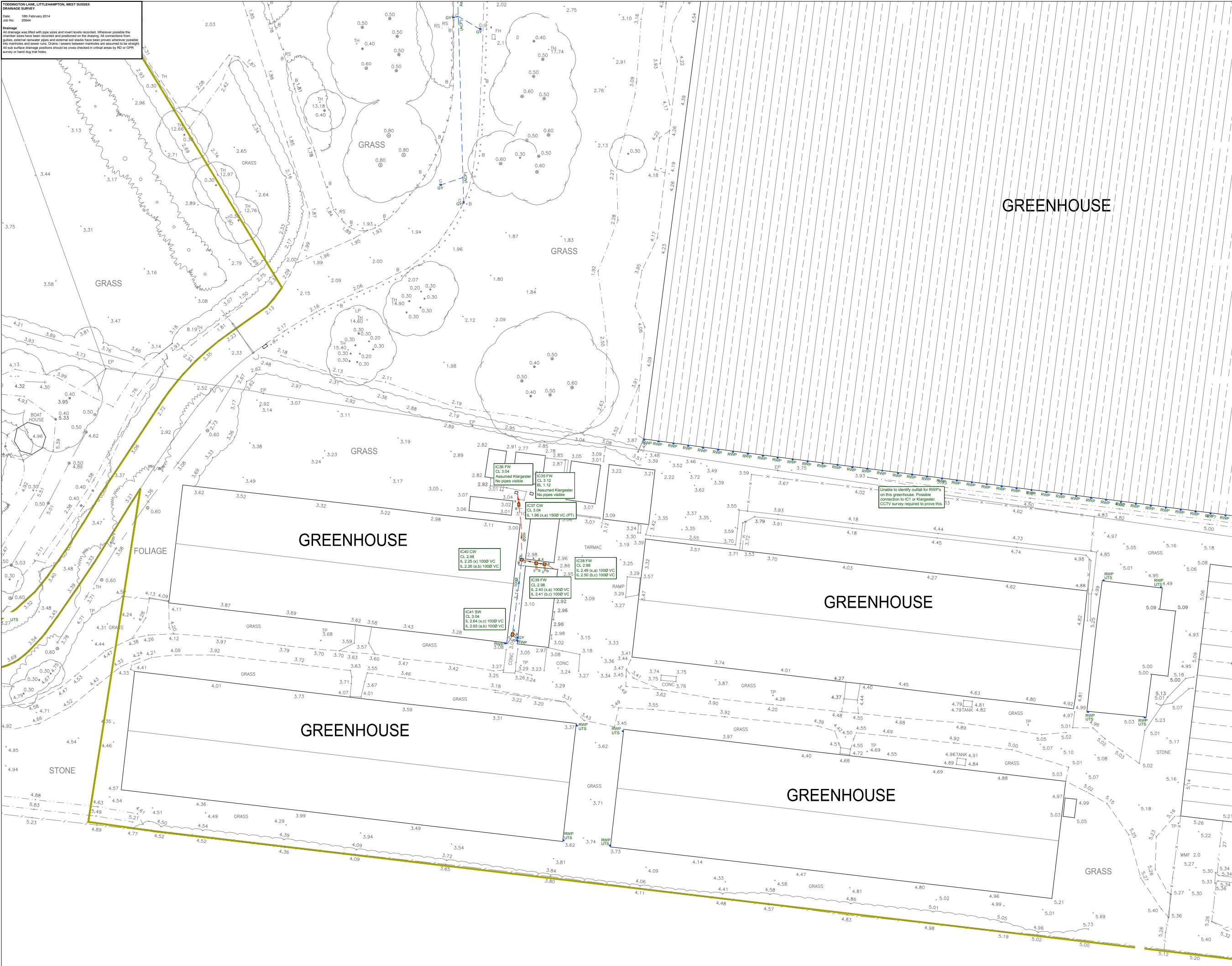
SHEET 9 OF 12

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

mk surveys

101 01500 060001
101 01500 060002
101 01500 060003
101 01500 060004
101 01500 060005
101 01500 060006
101 01500 060007
101 01500 060008
101 01500 060009
101 01500 060010
101 01500 060011
101 01500 060012
101 01500 060013
101 01500 060014
101 01500 060015
101 01500 060016
101 01500 060017
101 01500 060018
101 01500 060019
101 01500 060020
101 01500 060021
101 01500 060022
101 01500 060023
101 01500 060024
101 01500 060025
101 01500 060026
101 01500 060027
101 01500 060028
101 01500 060029
101 01500 060030
101 01500 060031
101 01500 060032
101 01500 060033
101 01500 060034
101 01500 060035
101 01500 060036
101 01500 060037
101 01500 060038
101 01500 060039
101 01500 060040
101 01500 060041
101 01500 060042
101 01500 060043
101 01500 060044
101 01500 060045
101 01500 060046
101 01500 060047
101 01500 060048
101 01500 060049
101 01500 060050
101 01500 060051
101 01500 060052
101 01500 060053
101 01500 060054
101 01500 060055
101 01500 060056
101 01500 060057
101 01500 060058
101 01500 060059
101 01500 060060
101 01500 060061
101 01500 060062
101 01500 060063
101 01500 060064
101 01500 060065
101 01500 060066
101 01500 060067
101 01500 060068
101 01500 060069
101 01500 060070
101 01500 060071
101 01500 060072
101 01500 060073
101 01500 060074
101 01500 060075
101 01500 060076
101 01500 060077
101 01500 060078
101 01500 060079
101 01500 060080
101 01500 060081
101 01500 060082
101 01500 060083
101 01500 060084
101 01500 060085
101 01500 060086
101 01500 060087
101 01500 060088
101 01500 060089
101 01500 060090
101 01500 060091
101 01500 060092
101 01500 060093
101 01500 060094
101 01500 060095
101 01500 060096
101 01500 060097
101 01500 060098
101 01500 060099
101 01500 060100
101 01500 060101
101 01500 060102
101 01500 060103
101 01500 060104
101 01500 060105
101 01500 060106
101 01500 060107
101 01500 060108
101 01500 060109
101 01500 060110
101 01500 060111
101 01500 060112
101 01500 060113
101 01500 060114
101 01500 060115
101 01500 060116
101 01500 060117
101 01500 060118
101 01500 060119
101 01500 060120
101 01500 060121
101 01500 060122
101 01500 060123
101 01500 060124
101 01500 060125
101 01500 060126
101 01500 060127
101 01500 060128
101 01500 060129
101 01500 060130
101 01500 060131
101 01500 060132
101 01500 060133
101 01500 060134
101 01500 060135
101 01500 060136
101 01500 060137
101 01500 060138
101 01500 060139
101 01500 060140
101 01500 060141
101 01500 060142
101 01500 060143
101 01500 060144
101 01500 060145
101 01500 060146
101 01500 060147
101 01500 060148
101 01500 060149
101 01500 060150
101 01500 060151
101 01500 060152
101 01500 060153
101 01500 060154
101 01500 060155
101 01500 060156
101 01500 060157
101 01500 060158
101 01500 060159
101 01500 060160
101 01500 060161
101 01500 060162
101 01500 060163
101 01500 060164
101 01500 060165
101 01500 060166
101 01500 060167
101 01500 060168
101 01500 060169
101 01500 060170
101 01500 060171
101 01500 060172
101 01500 060173
101 01500 060174
101 01500 060175
101 01500 060176
101 01500 060177
101 01500 060178
101 01500 060179
101 01500 060180
101 01500 060181
101 01500 060182
101 01500 060183
101 01500 060184
101 01500 060185
101 01500 060186
101 01500 060187
101 01500 060188
101 01500 060189
101 01500 060190
101 01500 060191
101 01500 060192
101 01500 060193
101 01500 060194
101 01500 060195
101 01500 060196
101 01500 060197
101 01500 060198
101 01500 060199
101 01500 060200
101 01500 060201
101 01500 060202
101 01500 060203
101 01500 060204
101 01500 060205
101 01500 060206
101 01500 060207
101 01500 060208
101 01500 060209
101 01500 060210
101 01500 060211
101 01500 060212
101 01500 060213
101 01500 060214
101 01500 060215
101 01500 060216
101 01500 060217
101 01500 060218
101 01500 060219
101 01500 060220
101 01500 060221
101 01500 060222
101 01500 060223
101 01500 060224
101 01500 060225
101 01500 060226
101 01500 060227
101 01500 060228
101 01500 060229
101 01500 060230
101 01500 060231
101 01500 060232
101 01500 060233
101 01500 060234
101 01500 060235
101 01500 060236
101 01500 060237
101 01500 060238
101 01500 060239
101 01500 060240
101 01500 060241
101 01500 060242
101 01500 060243
101 01500 060244
101 01500 060245
101 01500 060246
101 01500 060247
101 01500 060248
101 01500 060249
101 01500 060250
101 01500 060251
101 01500 060252
101 01500 060253
101 01500 060254
101 01500 060255
101 01500 060256
101 01500 060257
101 01500 060258
101 01500 060259
101 01500 060260
101 01500 060261
101 01500 060262
101 01500 060263
101 01500 060264
101 01500 060265
101 01500 060266
101 01500 060267
101 01500 060268
101 01500 060269
101 01500 060270
101 01500 060271
101 01500 060272
101 01500 060273
101 01500 060274
101 01500 060275
101 01500 060276
101 01500 060277
101 01500 060278
101 01500 060279
101 01500 060280
101 01500 060281
101 01500 060282
101 01500 060283
101 01500 060284
101 01500 060285
101 01500 060286
101 01500 060287
101 01500 060288
101 01500 060289
101 01500 060290
101 01500 060291
101 01500 060292
101 01500 060293
101 01500 060294
101 01500 060295
101 01500 060296
101 01500 060297
101 01500 060298
101 01500 060299
101 01500 060300
101 01500 060301
101 01500 060302
101 01500 060303
101 01500 060304
101 01500 060305
101 01500 060306
101 01500 060307
101 01500 060308
101 01500 060309
101 01500 060310
101 01500 060311
101 01500 060312
101 01500 060313
101 01500 060314
101 01500 060315
101 01500 060316
101 01500 060317
101 01500 060318
101 01500 060319
101 01500 060320
101 01500 060321
101 01500 060322
101 01500 060323
101 01500 060324
101 01500 060325
101 01500 060326
101 01500 060327
101 01500 060328
101 01500 060329
101 01500 060330
101 01500 060331
101 01500 060332
101 01500 060333
101 01500 060334
101 01500 060335
101 01500 060336
101 01500 060337
101 01500 060338
101 01500 060339
101 01500 060340
101 01500 060341
101 01500 060342
101 01500 060343
101 01500 060344
101 01500 060345
101 01500 060346
101 01500 060347
101 01500 060348
101 01500 060349
101 01500 060350
101 01500 060351
101 01500 060352
101 01500 060353
101 01500 060354
101 01500 060355
101 01500 060356
101 01500 060357
101 01500 060358
101 01500 060359
101 01500 060360
101 01500 060361
101 01500 060362
101 01500 060363
101 01500 060364
101 01500 060365
101 01500 060366
101 01500 060367
101 01500 060368
101 01500 060369
101 01500 060370
101 01500 060371
101 01500 060372
101 01500 060373
101 01500 060374
101 01500 060375
101 01500 060376
101 01500 060377
101 01500 060378
101 01500 060379
101 01500 060380
101 01500 060381
101 01500 060382
101 01500 060383
101 01500 060384
101 01500 060385
101 01500 060386
101 01500 060387
101 01500 060388
101 01500 060389
101 01500 060390
101 01500 060391
101 01500 060392
101 01500 060393
101 01500 060394
101 01500 060395
101 01500 060396
101 01500 060397
101 01500 060398
101 01500 060399
101 01500 060400
101 01500 060401
101 01500 060402
101 01500 060403
101 01500 060404
101 01500 060405
101 01500 060406
101 01500 060407
101 01500 060408
101 01500 060409
101 01500 060410
101 01500 060411
101 01500 060412
101 01500 060413
101 01500 060414
101 01500 060415
101 01500 060416
101 01500 060417
101 01500 060418
101 01500 060419
101 01500 060420
101 01500 060421
101 01500 060422
101 01500 060423
101 01500 060424
101 01500 060425
101 01500 060426
101 01500 060427
101 01500 060428
101 01500 060429
101 01500 060430
101 01500 060431
101 01500 060432
101 01500 060433
101 01500 060434
101 01500 060435
101 01500 060436
101 01500 060437
101 01500 060438
101 01500 060439
101 01500 060440
101 01500 060441
101 01500 060442
101 01500 060443
101 01500 060444
101 01500 060445
101 01500 060446
101 01500 060447
101 01500 060448
101 01500 060449
101 01500 060450
101 01500 060451
101 01500 060452
101 01500 060453
101 01500 060454
101 01500 060455
101 01500 060456
101 01500 060457
101 01500 060458
101 01500 060459
101 01500 060460
101 01500 060461
101 01500 060462
101 01500 060463
101 01500 060464
101 01500 060465
101 01500 060466
101 01500 060467
101 01500 060468
101 01500 060469
101 01500 060470
101 01500 060471
101 01500 060472
101 01500 060473
101 01500 060474
101 01500 060475
101 01500 060476
101 01500 060477
101 01500 060478
101 01500 060479
101 01500 060480
101 01500 060481
101 01500 060482
101 01500 060483
101 01500 060484
101 01500 060485
101 01500 060486
101 01500 060487
101 01500 060488
101 01500 060489
101 01500 060490
101 01500 060491
101 01500 060492
101 01500 060493
101 01500 060494
101 01500 060495
101 01500 060496
101 01500 060497
101 01500 060498
101 01500 060499
101 01500 060500
101 01500 060501
101 01500 060502
101 01500 060503
101 01500 060504
101 01500 060505
101 01500 060506
101 01500 060507
101 01500 060508
101 01500 060509
101 01500 060510
101 01500 060511
101 01500 060512
101 01500 060513
101 01500 060514
101 01500 060515
101 01500 060516
101 01500 060517
101 01500 060518
101 01500 060519
101 01500 060520
101 01500 060521
101 01500 060522
101 01500 060523
101 01500 060524
101 01500 060525
101 01500 060526
101 01500 060527
101 01500 060528
101 01500 060529
101 01500 060530
101 01500 060531
101 01500 060532
101 01500 060533
101 01500 060534
101 01500 060535
101 01500 060536
101 01500 060537
101 01500 060538
101 01500 060539
101 01500 060540
101 01500 060541
101 01500 060542
101 01500 060543
101 01500 060544
101 01500 060545
101 01500 060546
101 01500 060547
101 01500 060548
101 01500 060549
101 01500 060550
101 01500 060551
101 01500 060552
101 01500 060553
101 01500 060554
101 01500 060555
101 01500 060556
101 01500 060557
101 01500 060558
101 01500 060559
101 01500 060560
101 01500 060561
101 01500 060562
101 01500 060563
101 01500 060564
101 01500 060565
101 01500 060566
101 01500 060567
101 01500 060568
101 01500 060569
101 01500 060570
101 01500 060571
101 01500 060572
101 01500 060573
101 01500 060574
101 01500 060575
101 01500 060576
101 01500 060577
101 01500 060578
101 01500 060579
101 01500 060580
101 01500 060581
101 01500 060582
101 01500 060583
101 01500 060584
101 01500 060585
101 01500 060586
101 01500 060587
101 01500 060588
101 01500 060589
101 01500 0605

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
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 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 GPS survey or hand dug trial holes.



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.

ABBREVIATIONS

ACPP	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	PTD	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	PVC-U	ULTRA RISE (PVC)
CWS	COMBINED WATER SEWER	RE	ROOFING EYE
DI	DRAINAGE CHANNEL	REMAN	REINFORCED MAN
DCH	DRAINAGE CHANNEL	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFT
FWS	FULL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SW	SURFACE WATER SEWER
IC	INSPECTION COVER	UTL	UNABLE TO LIFT
INT	INTERCEPTOR	VC	UNABLE TO SURVEY
MD	MANHOLE	VP	VENT PIPE
MD	MANHOLE	WL	WATER LEVEL

LEGEND

COMBINED SEWER	—	ACPP	—	NPV
SURFACE WATER SEWER	—	AGD	—	NO PIPES
UNABLE TO SURVEY	—	AR	—	ASSUMED
UNABLE TO SURVEY	—	BD	—	BACK DROP
UNABLE TO SURVEY	—	BR	—	BRICK
UNABLE TO SURVEY	—	BL	—	BASE LEVEL
UNABLE TO SURVEY	—	CL	—	CAST IRON
UNABLE TO SURVEY	—	CL	—	CONCRETE
UNABLE TO SURVEY	—	CU	—	CULVERT
UNABLE TO SURVEY	—	CP	—	CATCHPIT
UNABLE TO SURVEY	—	CWS	—	COMBINED WATER SEWER
UNABLE TO SURVEY	—	DI	—	DRAINAGE CHANNEL
UNABLE TO SURVEY	—	DCH	—	DRAINAGE CHANNEL
UNABLE TO SURVEY	—	FD	—	FILTER DRAIN
UNABLE TO SURVEY	—	FWS	—	FULL WATER SEWER
UNABLE TO SURVEY	—	GY	—	GULLY
UNABLE TO SURVEY	—	IC	—	INSPECTION COVER
UNABLE TO SURVEY	—	INT	—	INTERCEPTOR
UNABLE TO SURVEY	—	MD	—	MANHOLE
UNABLE TO SURVEY	—	MD	—	MANHOLE

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 refer to further details if a CCTV survey is required.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

SHEET 11 OF 12

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

mk surveys

101 01500 060001
101 01500 060002
101 01500 060003
101 01500 060004
101 01500 060005
101 01500 060006
101 01500 060007
101 01500 060008
101 01500 060009
101 01500 060010
101 01500 060011
101 01500 060012
101 01500 060013
101 01500 060014
101 01500 060015
101 01500 060016
101 01500 060017
101 01500 060018
101 01500 060019
101 01500 060020
101 01500 060021
101 01500 060022
101 01500 060023
101 01500 060024
101 01500 060025
101 01500 060026
101 01500 060027
101 01500 060028
101 01500 060029
101 01500 060030
101 01500 060031
101 01500 060032
101 01500 060033
101 01500 060034
101 01500 060035
101 01500 060036
101 01500 060037
101 01500 060038
101 01500 060039
101 01500 060040
101 01500 060041
101 01500 060042
101 01500 060043
101 01500 060044
101 01500 060045
101 01500 060046
101 01500 060047
101 01500 060048
101 01500 060049
101 01500 060050
101 01500 060051
101 01500 060052
101 01500 060053
101 01500 060054
101 01500 060055
101 01500 060056
101 01500 060057
101 01500 060058
101 01500 060059
101 01500 060060
101 01500 060061
101 01500 060062
101 01500 060063
101 01500 060064
101 01500 060065
101 01500 060066
101 01500 060067
101 01500 060068
101 01500 060069
101 01500 060070
101 01500 060071
101 01500 060072
101 01500 060073
101 01500 060074
101 01500 060075
101 01500 060076
101 01500 060077
101 01500 060078
101 01500 060079
101 01500 060080
101 01500 060081
101 01500 060082
101 01500 060083
101 01500 060084
101 01500 060085
101 01500 060086
101 01500 060087
101 01500 060088
101 01500 060089
101 01500 060090
101 01500 060091
101 01500 060092
101 01500 060093
101 01500 060094
101 01500 060095
101 01500 060096
101 01500 060097
101 01500 060098
101 01500 060099
101 01500 060100
101 01500 060101
101 01500 060102
101 01500 060103
101 01500 060104
101 01500 060105
101 01500 060106
101 01500 060107
101 01500 060108
101 01500 060109
101 01500 060110
101 01500 060111
101 01500 060112
101 01500 060113
101 01500 060114
101 01500 060115
101 01500 060116
101 01500 060117
101 01500 060118
101 01500 060119
101 01500 060120
101 01500 060121
101 01500 060122
101 01500 060123
101 01500 060124
101 01500 060125
101 01500 060126
101 01500 060127
101 01500 060128
101 01500 060129
101 01500 060130
101 01500 060131
101 01500 060132
101 01500 060133
101 01500 060134
101 01500 060135
101 01500 060136
101 01500 060137
101 01500 060138
101 01500 060139
101 01500 060140
101 01500 060141
101 01500 060142
101 01500 060143
101 01500 060144
101 01500 060145
101 01500 060146
101 01500 060147
101 01500 060148
101 01500 060149
101 01500 060150
101 01500 060151
101 01500 060152
101 01500 060153
101 01500 060154
101 01500 060155
101 01500 060156
101 01500 060157
101 01500 060158
101 01500 060159
101 01500 060160
101 01500 060161
101 01500 060162
101 01500 060163
101 01500 060164
101 01500 060165
101 01500 060166
101 01500 060167
101 01500 060168
101 01500 060169
101 01500 060170
101 01500 060171
101 01500 060172
101 01500 060173
101 01500 060174
101 01500 060175
101 01500 060176
101 01500 060177
101 01500 060178
101 01500 060179
101 01500 060180
101 01500 060181
101 01500 060182
101 01500 060183
101 01500 060184
101 01500 060185
101 01500 060186
101 01500 060187
101 01500 060188
101 01500 060189
101 01500 060190
101 01500 060191
101 01500 060192
101 01500 060193
101 01500 060194
101 01500 060195
101 01500 060196
101 01500 060197
101 01500 060198
101 01500 060199
101 01500 060200
101 01500 060201
101 01500 060202
101 01500 060203
101 01500 060204
101 01500 060205
101 01500 060206
101 01500 060207
101 01500 060208
101 01500 060209
101 01500 060210
101 01500 060211
101 01500 060212
101 01500 060213
101 01500 060214
101 01500 060215
101 01500 060216
101 01500 060217
101 01500 060218
101 01500 060219
101 01500 060220
101 01500 060221
101 01500 060222
101 01500 060223
101 01500 060224
101 01500 060225
101 01500 060226
101 01500 060227
101 01500 060228
101 01500 060229
101 01500 060230
101 01500 060231
101 01500 060232
101 01500 060233
101 01500 060234
101 01500 060235
101 01500 060236
101 01500 060237
101 01500 060238
101 01500 060239
101 01500 060240
101 01500 060241
101 01500 060242
101 01500 060243
101 01500 060244
101 01500 060245
101 01500 060246
101 01500 060247
101 01500 060248
101 01500 060249
101 01500 060250
101 01500 060251
101 01500 060252
101 01500 060253
101 01500 060254
101 01500 060255
101 01500 060256
101 01500 060257
101 01500 060258
101 01500 060259
101 01500 060260
101 01500 060261
101 01500 060262
101 01500 060263
101 01500 060264
101 01500 060265
101 01500 060266
101 01500 060267
101 01500 060268
101 01500 060269
101 01500 060270
101 01500 060271
101 01500 060272
101 01500 060273
101 01500 060274
101 01500 060275
101 01500 060276
101 01500 060277
101 01500 060278
101 01500 060279
101 01500 060280
101 01500 060281
101 01500 060282
101 01500 060283
101 01500 060284
101 01500 060285
101 01500 060286
101 01500 060287
101 01500 060288
101 01500 060289
101 01500 060290
101 01500 060291
101 01500 060292
101 01500 060293
101 01500 060294
101 01500 060295
101 01500 060296
101 01500 060297
101 01500 060298
101 01500 060299
101 01500 060300
101 01500 060301
101 01500 060302
101 01500 060303
101 01500 060304
101 01500 060305
101 01500 060306
101 01500 060307
101 01500 060308
101 01500 060309
101 01500 060310
101 01500 060311
101 01500 060312
101 01500 060313
101 01500 060314
101 01500 060315
101 01500 060316
101 01500 060317
101 01500 060318
101 01500 060319
101 01500 060320
101 01500 060321
101 01500 060322
101 01500 060323
101 01500 060324
101 01500 060325
101 01500 060326
101 01500 060327
101 01500 060328
101 01500 060329
101 01500 060330
101 01500 060331
101 01500 060332
101 01500 060333
101 01500 060334
101 01500 060335
101 01500 060336
101 01500 060337
101 01500 060338
101 01500 060339
101 01500 060340
101 01500 060341
101 01500 060342
101 01500 060343
101 01500 060344
101 01500 060345
101 01500 060346
101 01500 060347
101 01500 060348
101 01500 060349
101 01500 060350
101 01500 060351
101 01500 060352
101 01500 060353
101 01500 060354
101 01500 060355
101 01500 060356
101 01500 060357
101 01500 060358
101 01500 060359
101 01500 060360
101 01500 060361
101 01500 060362
101 01500 060363
101 01500 060364
101 01500 060365
101 01500 060366
101 01500 060367
101 01500 060368
101 01500 060369
101 01500 060370
101 01500 060371
101 01500 060372
101 01500 060373
101 01500 060374
101 01500 060375
101 01500 060376
101 01500 060377
101 01500 060378
101 01500 060379
101 01500 060380
101 01500 060381
101 01500 060382
101 01500 060383
101 01500 060384
101 01500 060385
101 01500 060386
101 01500 060387
101 01500 060388
101 01500 060389
101 01500 060390
101 01500 060391
101 01500 060392
101 01500 060393
101 01500 060394
101 01500 060395
101 01500 060396
101 01500 060397
101 01500 060398
101 01500 060399
101 01500 060400
101 01500 060401
101 01500 060402
101 01500 060403
101 01500 060404
101 01500 060405
101 01500 060406
101 01500 060407
101 01500 060408
101 01500 060409
101 01500 060410
101 01500 060411
101 01500 060412
101 01500 060413
101 01500 060414
101 01500 060415
101 01500 060416
101 01500 060417
101 01500 060418
101 01500 060419
101 01500 060420
101 01500 060421
101 01500 060422
101 01500 060423
101 01500 060424
101 01500 060425
101 01500 060426
101 01500 060427
101 01500 060428
101 01500 060429
101 01500 060430
101 01500 060431
101 01500 060432
101 01500 060433
101 01500 060434
101 01500 060435
101 01500 060436
101 01500 060437
101 01500 060438
101 01500 060439
101 01500 060440
101 01500 060441
101 01500 060442
101 01500 060443
101 01500 060444
101 01500 060445
101 01500 060446
101 01500 060447
101 01500 060448
101 01500 060449
101 01500 060450
101 01500 060451
101 01500 060452
101 01500 060453
101 01500 060454
101 01500 060455
101 01500 060456
101 01500 060457
101 01500 060458
101 01500 060459
101 01500 060460
101 01500 060461
101 01500 060462
101 01500 060463
101 01500 060464
101 01500 060465
101 01500 060466
101 01500 060467
101 01500 060468
101 01500 060469
101 01500 060470
101 01500 060471
101 01500 060472
101 01500 060473
101 01500 060474
101 01500 060475
101 01500 060476
101 01500 060477
101 01500 060478
101 01500 060479
101 01500 060480
101 01500 060481
101 01500 060482
101 01500 060483
101 01500 060484
101 01500 060485
101 01500 060486
101 01500 060487
101 01500 060488
101 01500 060489
101 01500 060490
101 01500 060491
101 01500 060492
101 01500 060493
101 01500 060494
101 01500 060495
101 01500 060496
101 01500 060497
101 01500 060498
101 01500 060499
101 01500 060500
101 01500 060501
101 01500 060502
101 01500 060503
101 01500 060504
101 01500 060505
101 01500 060506
101 01500 060507
101 01500 060508
101 01500 060509
101 01500 060510
101 01500 060511
101 01500 060512
101 01500 060513
101 01500 060514
101 01500 060515
101 01500 060516
101 01500 060517
101 01500 060518
101 01500 060519
101 01500 060520
101 01500 060521
101 01500 060522
101 01500 060523
101 01500 060524
101 01500 060525
101 01500 060526
101 01500 060527
101 01500 060528
101 01500 060529
101 01500 060530
101 01500 060531
101 01500 060532
101 01500 060533
101 01500 060534
101 01500 060535
101 01500 060536
101 01500 060537
101 01500 060538
101 01500 060539
101 01500 060540
101 01500 060541
101 01500 060542
101 01500 060543
101 01500 060544
101 01500 060545
101 01500 060546
101 01500 060547
101 01500 060548
101 01500 060549
101 01500 060550
101 01500 060551
101 01500 060552
101 01500 060553
101 01500 060554
101 01500 060555
101 01500 060556
101 01500 060557
101 01500 060558
101 0150

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY
Date: 18th February 2014
Job No: 20644
Drainage
All drainage was lifted 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 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/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 ACUSTIC 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
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CI	CAST IRON	PPW	PIPE ON WALL
CL	CONCRETE	PT	P-TIE
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	RUN 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	UTL	UNABLE TO SURVEY
MD	MANHOLE	VC	VENT PIPE
ND	NO PIPE OUTLET	WL	WATER LEVEL

LEGEND

COMBINED SEWER	---	RWP	---
FULL WATER SEWER	---	RWP 250	---
SURFACE WATER SEWER	---	RWP 150	---
UNABLE TO LIFT	---	RWP 100	---
UNABLE TO SURVEY	---	UTL	---
VENT PIPE	---	VC	---
WATER LEVEL	---	WL	---

CAUTIONARY NOTES

- Pipe sizes and depths 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 refer to further details if a CCTV Survey is required.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

SHEET 12 OF 12

mk surveys

101 0100 000001
101 0100 000002
101 0100 000003
101 0100 000004
101 0100 000005
101 0100 000006
101 0100 000007
101 0100 000008
101 0100 000009
101 0100 000010
101 0100 000011
101 0100 000012
101 0100 000013
101 0100 000014
101 0100 000015
101 0100 000016
101 0100 000017
101 0100 000018
101 0100 000019
101 0100 000020
101 0100 000021
101 0100 000022
101 0100 000023
101 0100 000024
101 0100 000025
101 0100 000026
101 0100 000027
101 0100 000028
101 0100 000029
101 0100 000030
101 0100 000031
101 0100 000032
101 0100 000033
101 0100 000034
101 0100 000035
101 0100 000036
101 0100 000037
101 0100 000038
101 0100 000039
101 0100 000040
101 0100 000041
101 0100 000042
101 0100 000043
101 0100 000044
101 0100 000045
101 0100 000046
101 0100 000047
101 0100 000048
101 0100 000049
101 0100 000050
101 0100 000051
101 0100 000052
101 0100 000053
101 0100 000054
101 0100 000055
101 0100 000056
101 0100 000057
101 0100 000058
101 0100 000059
101 0100 000060
101 0100 000061
101 0100 000062
101 0100 000063
101 0100 000064
101 0100 000065
101 0100 000066
101 0100 000067
101 0100 000068
101 0100 000069
101 0100 000070
101 0100 000071
101 0100 000072
101 0100 000073
101 0100 000074
101 0100 000075
101 0100 000076
101 0100 000077
101 0100 000078
101 0100 000079
101 0100 000080
101 0100 000081
101 0100 000082
101 0100 000083
101 0100 000084
101 0100 000085
101 0100 000086
101 0100 000087
101 0100 000088
101 0100 000089
101 0100 000090
101 0100 000091
101 0100 000092
101 0100 000093
101 0100 000094
101 0100 000095
101 0100 000096
101 0100 000097
101 0100 000098
101 0100 000099
101 0100 000100
101 0100 000101
101 0100 000102
101 0100 000103
101 0100 000104
101 0100 000105
101 0100 000106
101 0100 000107
101 0100 000108
101 0100 000109
101 0100 000110
101 0100 000111
101 0100 000112
101 0100 000113
101 0100 000114
101 0100 000115
101 0100 000116
101 0100 000117
101 0100 000118
101 0100 000119
101 0100 000120
101 0100 000121
101 0100 000122
101 0100 000123
101 0100 000124
101 0100 000125
101 0100 000126
101 0100 000127
101 0100 000128
101 0100 000129
101 0100 000130
101 0100 000131
101 0100 000132
101 0100 000133
101 0100 000134
101 0100 000135
101 0100 000136
101 0100 000137
101 0100 000138
101 0100 000139
101 0100 000140
101 0100 000141
101 0100 000142
101 0100 000143
101 0100 000144
101 0100 000145
101 0100 000146
101 0100 000147
101 0100 000148
101 0100 000149
101 0100 000150
101 0100 000151
101 0100 000152
101 0100 000153
101 0100 000154
101 0100 000155
101 0100 000156
101 0100 000157
101 0100 000158
101 0100 000159
101 0100 000160
101 0100 000161
101 0100 000162
101 0100 000163
101 0100 000164
101 0100 000165
101 0100 000166
101 0100 000167
101 0100 000168
101 0100 000169
101 0100 000170
101 0100 000171
101 0100 000172
101 0100 000173
101 0100 000174
101 0100 000175
101 0100 000176
101 0100 000177
101 0100 000178
101 0100 000179
101 0100 000180
101 0100 000181
101 0100 000182
101 0100 000183
101 0100 000184
101 0100 000185
101 0100 000186
101 0100 000187
101 0100 000188
101 0100 000189
101 0100 000190
101 0100 000191
101 0100 000192
101 0100 000193
101 0100 000194
101 0100 000195
101 0100 000196
101 0100 000197
101 0100 000198
101 0100 000199
101 0100 000200
101 0100 000201
101 0100 000202
101 0100 000203
101 0100 000204
101 0100 000205
101 0100 000206
101 0100 000207
101 0100 000208
101 0100 000209
101 0100 000210
101 0100 000211
101 0100 000212
101 0100 000213
101 0100 000214
101 0100 000215
101 0100 000216
101 0100 000217
101 0100 000218
101 0100 000219
101 0100 000220
101 0100 000221
101 0100 000222
101 0100 000223
101 0100 000224
101 0100 000225
101 0100 000226
101 0100 000227
101 0100 000228
101 0100 000229
101 0100 000230
101 0100 000231
101 0100 000232
101 0100 000233
101 0100 000234
101 0100 000235
101 0100 000236
101 0100 000237
101 0100 000238
101 0100 000239
101 0100 000240
101 0100 000241
101 0100 000242
101 0100 000243
101 0100 000244
101 0100 000245
101 0100 000246
101 0100 000247
101 0100 000248
101 0100 000249
101 0100 000250
101 0100 000251
101 0100 000252
101 0100 000253
101 0100 000254
101 0100 000255
101 0100 000256
101 0100 000257
101 0100 000258
101 0100 000259
101 0100 000260
101 0100 000261
101 0100 000262
101 0100 000263
101 0100 000264
101 0100 000265
101 0100 000266
101 0100 000267
101 0100 000268
101 0100 000269
101 0100 000270
101 0100 000271
101 0100 000272
101 0100 000273
101 0100 000274
101 0100 000275
101 0100 000276
101 0100 000277
101 0100 000278
101 0100 000279
101 0100 000280
101 0100 000281
101 0100 000282
101 0100 000283
101 0100 000284
101 0100 000285
101 0100 000286
101 0100 000287
101 0100 000288
101 0100 000289
101 0100 000290
101 0100 000291
101 0100 000292
101 0100 000293
101 0100 000294
101 0100 000295
101 0100 000296
101 0100 000297
101 0100 000298
101 0100 000299
101 0100 000300
101 0100 000301
101 0100 000302
101 0100 000303
101 0100 000304
101 0100 000305
101 0100 000306
101 0100 000307
101 0100 000308
101 0100 000309
101 0100 000310
101 0100 000311
101 0100 000312
101 0100 000313
101 0100 000314
101 0100 000315
101 0100 000316
101 0100 000317
101 0100 000318
101 0100 000319
101 0100 000320
101 0100 000321
101 0100 000322
101 0100 000323
101 0100 000324
101 0100 000325
101 0100 000326
101 0100 000327
101 0100 000328
101 0100 000329
101 0100 000330
101 0100 000331
101 0100 000332
101 0100 000333
101 0100 000334
101 0100 000335
101 0100 000336
101 0100 000337
101 0100 000338
101 0100 000339
101 0100 000340
101 0100 000341
101 0100 000342
101 0100 000343
101 0100 000344
101 0100 000345
101 0100 000346
101 0100 000347
101 0100 000348
101 0100 000349
101 0100 000350
101 0100 000351
101 0100 000352
101 0100 000353
101 0100 000354
101 0100 000355
101 0100 000356
101 0100 000357
101 0100 000358
101 0100 000359
101 0100 000360
101 0100 000361
101 0100 000362
101 0100 000363
101 0100 000364
101 0100 000365
101 0100 000366
101 0100 000367
101 0100 000368
101 0100 000369
101 0100 000370
101 0100 000371
101 0100 000372
101 0100 000373
101 0100 000374
101 0100 000375
101 0100 000376
101 0100 000377
101 0100 000378
101 0100 000379
101 0100 000380
101 0100 000381
101 0100 000382
101 0100 000383
101 0100 000384
101 0100 000385
101 0100 000386
101 0100 000387
101 0100 000388
101 0100 000389
101 0100 000390
101 0100 000391
101 0100 000392
101 0100 000393
101 0100 000394
101 0100 000395
101 0100 000396
101 0100 000397
101 0100 000398
101 0100 000399
101 0100 000400
101 0100 000401
101 0100 000402
101 0100 000403
101 0100 000404
101 0100 000405
101 0100 000406
101 0100 000407
101 0100 000408
101 0100 000409
101 0100 000410
101 0100 000411
101 0100 000412
101 0100 000413
101 0100 000414
101 0100 000415
101 0100 000416
101 0100 000417
101 0100 000418
101 0100 000419
101 0100 000420
101 0100 000421
101 0100 000422
101 0100 000423
101 0100 000424
101 0100 000425
101 0100 000426
101 0100 000427
101 0100 000428
101 0100 000429
101 0100 000430
101 0100 000431
101 0100 000432
101 0100 000433
101 0100 000434
101 0100 000435
101 0100 000436
101 0100 000437
101 0100 000438
101 0100 000439
101 0100 000440
101 0100 000441
101 0100 000442
101 0100 000443
101 0100 000444
101 0100 000445
101 0100 000446
101 0100 000447
101 0100 000448
101 0100 000449
101 0100 000450
101 0100 000451
101 0100 000452
101 0100 000453
101 0100 000454
101 0100 000455
101 0100 000456
101 0100 000457
101 0100 000458
101 0100 000459
101 0100 000460
101 0100 000461
101 0100 000462
101 0100 000463
101 0100 000464
101 0100 000465
101 0100 000466
101 0100 000467
101 0100 000468
101 0100 000469
101 0100 000470
101 0100 000471
101 0100 000472
101 0100 000473
101 0100 000474
101 0100 000475
101 0100 000476
101 0100 000477
101 0100 000478
101 0100 000479
101 0100 000480
101 0100 000481
101 0100 000482
101 0100 000483
101 0100 000484
101 0100 000485
101 0100 000486
101 0100 000487
101 0100 000488
101 0100 000489
101 0100 000490
101 0100 000491
101 0100 000492
101 0100 000493
101 0100 000494
101 0100 000495
101 0100 000496
101 0100 000497
101 0100 000498
101 0100 000499
101 0100 000500
101 0100 000501
101 0100 000502
101 0100 000503
101 0100 000504
101 0100 000505
101 0100 000506
101 0100 000507
101 0100 000508
101 0100 000509
101 0100 000510
101 0100 000511
101 0100 000512
101 0100 000513
101 0100 000514
101 0100 000515
101 0100 000516
101 0100 000517
101 0100 000518
101 0100 000519
101 0100 000520
101 0100 000521
101 0100 000522
101 0100 000523
101 0100 000524
101 0100 000525
101 0100 000526
101 0100 000527
101 0100 000528
101 0100 000529
101 0100 000530
101 0100 000531
101 0100 000532
101 0100 000533
101 0100 000534
101 0100 000535
101 0100 000536
101 0100 000537
101 0100 000538
101 0100 000539
101 0100 000540
101 0100 000541
101 0100 000542
101 0100 000543
101 0100 000544
101 0100 000545
101 0100 000546
101 0100 000547
101 0100 000548
101 0100 000549
101 0100 000550
101 0100 000551
101 0100 000552
101 0100 000553
101 0100 000554
101 0100 000555
101 0100 000556
101 0100 000557
101 0100 000558
101 0100 000559
101 0100 000560
101 0100 000561
101 0100 000562
101 0100 000563
101 0100 000564
101 0100 000565
101 0100 000566
101 0100 000567
101 0100 000568
101 0100 000569
101 0100 000570
101 0100 000571
101 0100 000572
101 0100 000573
101 0100 000574
101 0100 000575
101 0100 000576
101 0100 000577
101 0100 000578
101 0100 000579
101 0100 000580
101 0100 000581
101 0100 000582
101 0100 000583
101 0100 000584
101 0100 000585
101 0100 000586
101 0100 000587
101 0100 000588
101 0100 000589
101 0100 000590
101 0100 000591
101 0100 000592
101 0100 000593
101 0100 000594
101 0100 000595
101 0100 000596
101 0100 000597
101 0100 000598
101 0100 000599
101 0100 000600
101 0100 000601
101 0100 000602
101 0100 000603
101 0100 000604
101 0100 000605
101 0100 000606
101 0100 000607
101 0100 000608
101 0100 000609
101 0100 000610
101 0100 000611
101 0100 000612
101 0100 000613
101 0100 000614
101 0100 000615
101 0100 000616
101 0100 000617
101 0100 000618
101 0100 000619
101 0100 000620
101 0100 000621
101 0100 000622
101 0100 000623
101 0100 000624
101 0100 0

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		

ICP SUDS Mean Annual Flood

Input

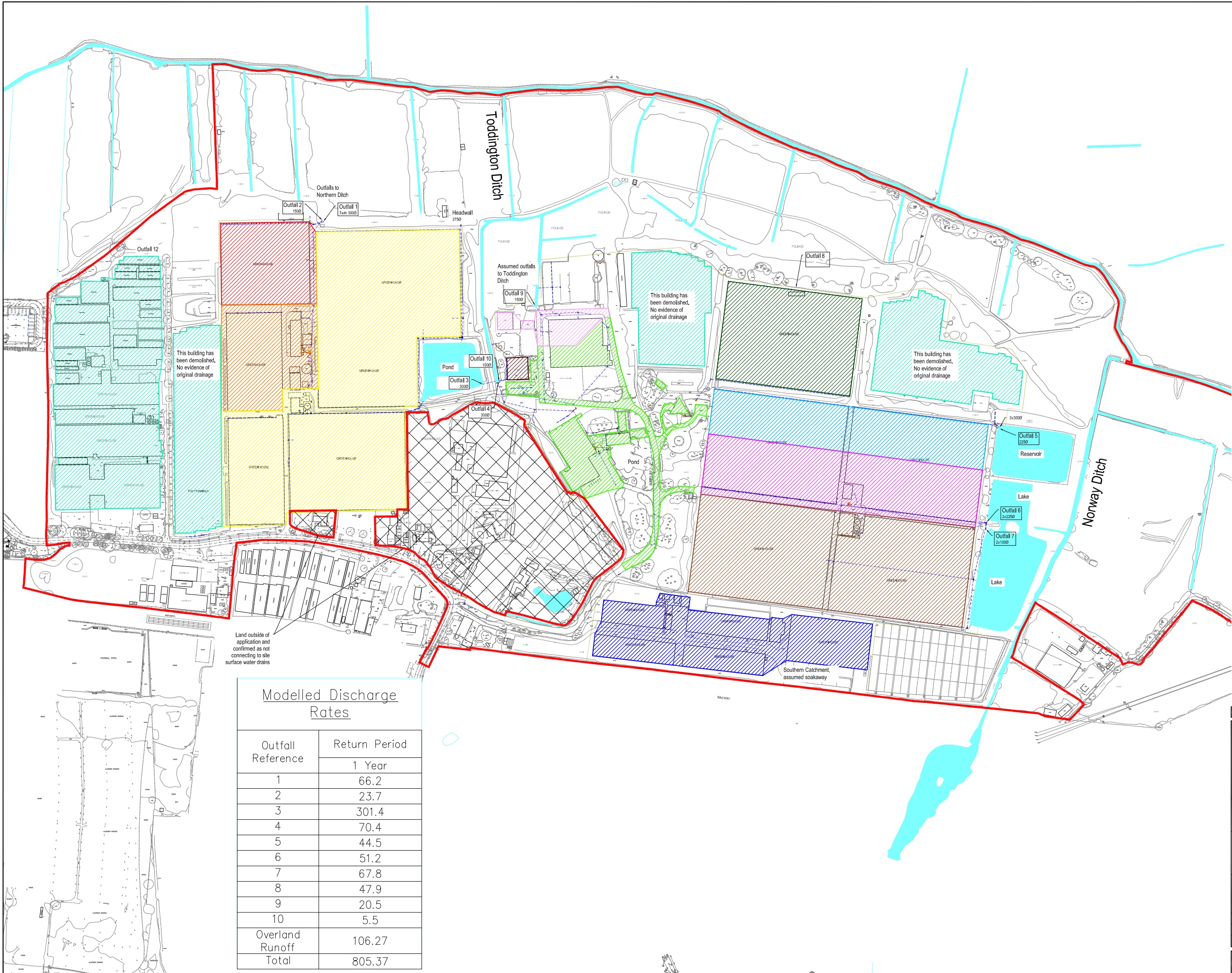
Return Period (years)	1	Soil	0.500
Area (ha)	1.000	Urban	0.750
SAAR (mm)	739	Region Number	Region 7

Results l/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



- NOTES
1. This drawing is to be read in conjunction with all other relevant documents and specifications.
 2. Dimensions not to be scaled.
 3. All drainage catchments are indicative only and based on the drainage survey drawing completed by mksurveys, job no. 20644.
 4. Simulation modelling using WinDes has been undertaken based on the existing network identified by mksurveys.
 5. Simulation modelling has included surcharged outfalls in accordance with the modelled flood levels provided by the Environment Agency.
 6. Overland runoff from areas where no positive drainage connection was identified has been undertaken.

KEY TO IMPERMEABLE AREAS

[Red hatched box]	Outfall 1
[Orange hatched box]	Outfall 2
[Yellow hatched box]	Outfall 3
[Light green hatched box]	Outfall 4
[Light blue hatched box]	Outfall 5
[Pink hatched box]	Outfall 6
[Brown hatched box]	Outfall 7
[Dark green hatched box]	Outfall 8
[Purple hatched box]	Outfall 9
[Dark brown hatched box]	Outfall 10
[Light blue hatched box]	Overland runoff
[Blue hatched box]	Soakaway catchment
[Dashed line]	Assumed flow direction
[Red line]	Site Boundary
[Blue line]	Existing ditches and ponds

Modelled Discharge Rates	
Outfall Reference	Return Period
	1 Year
1	66.2
2	23.7
3	301.4
4	70.4
5	44.5
6	51.2
7	67.8
8	47.9
9	20.5
10	5.5
Overland Runoff	106.27
Total	805.37

Rev.	Description	Date	Chkd
 Glanville Cornerstone House 62 Foxhall Road, Didcot Oxon, OX11 7AD Tel: (01235) 515550 Fax: (01235) 817799 postbox@glanvillegroup.com www.glanvillegroup.com			
Client :		Persimmon Homes	
Project :		North Littlehampton	
Title :		Existing Surface Water Drainage Rates	
Project Engineer :		S.Hudson	Scale : 1:2000 @ A1
Project Director :		K.Rayner	Date : February 2015
Status :		PRELIMINARY	
Drawing No.		8140927/121	Rev

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)	Status	Level
							Exceeded
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) Surge	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)	Volume (m³)	Flow / Cap.	Overflow (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

Surcharged Flooded				Pipe		Level
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Flow / (l/s)	Status
1.000	1	0.688	0.000	1.89	70.6	SURCHARGED
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)	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	6.19	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)	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	5.18	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)	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	4.32	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 I: Drainage Strategy, West of Wetlands