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 rainwater 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 GPR survey or hand dug trial holes.

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DRAINAGE KEY

ABBREVIATIONS

(ACP)	ASSUMED CONNECTION POINT	LH	LAMP HOLE
(AG)	ABOVE GROUND	MH	MANHOLE
(AR)	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CI	CAST IRON	POW	PIPE ON WALL
CL	COVER LEVEL	PT	P-TRAP
CO	CONCRETE	PTG	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	PVC-U	ULTRA RIB (PVC)
CWS	COMBINED WATER SEWER	RE	RODDING EYE
DCH	DRAINAGE CHANNEL	RMAIN	RISING MAIN
DI	DUCTILE IRON	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFFIT
FWS	FOUL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SWS	SURFACE WATER SEWER
IC	INSPECTION COVER	UTL	UNABLE TO LIFT
IL	INVERT LEVEL	UTS	UNABLE TO SURVEY
INT	INTERCEPTOR	VC	VITRIFIED CLAY
IT	INLET	VP	VENT PIPE
KO	KERB OUTLET	WL	WATER LEVEL

LEGEND

COMBINED SEWER
FOUL WATER SEWER
SURFACE WATER SEWER
RISING MAIN
MANHOLE
CHAMBER
BACK DROP
CAPPED RUN

CAUTIONARY NOTES

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INSEWER SURVEYS

PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:500	A0	2	February 2015

Project Number:	Rev:	Surveyed By:	Approved By:
20644	-	CP	NS

ARUN DISTRICT COUNCIL LU/17/19/DOC

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
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INSEWER SURVEYS

PERSIMMON

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West Sussex

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ARUN DISTRICT COUNCIL LU/17/19/DOC

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LEGEND

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CAUTIONARY NOTES

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Littlehampton
West Sussex

Drainage Survey

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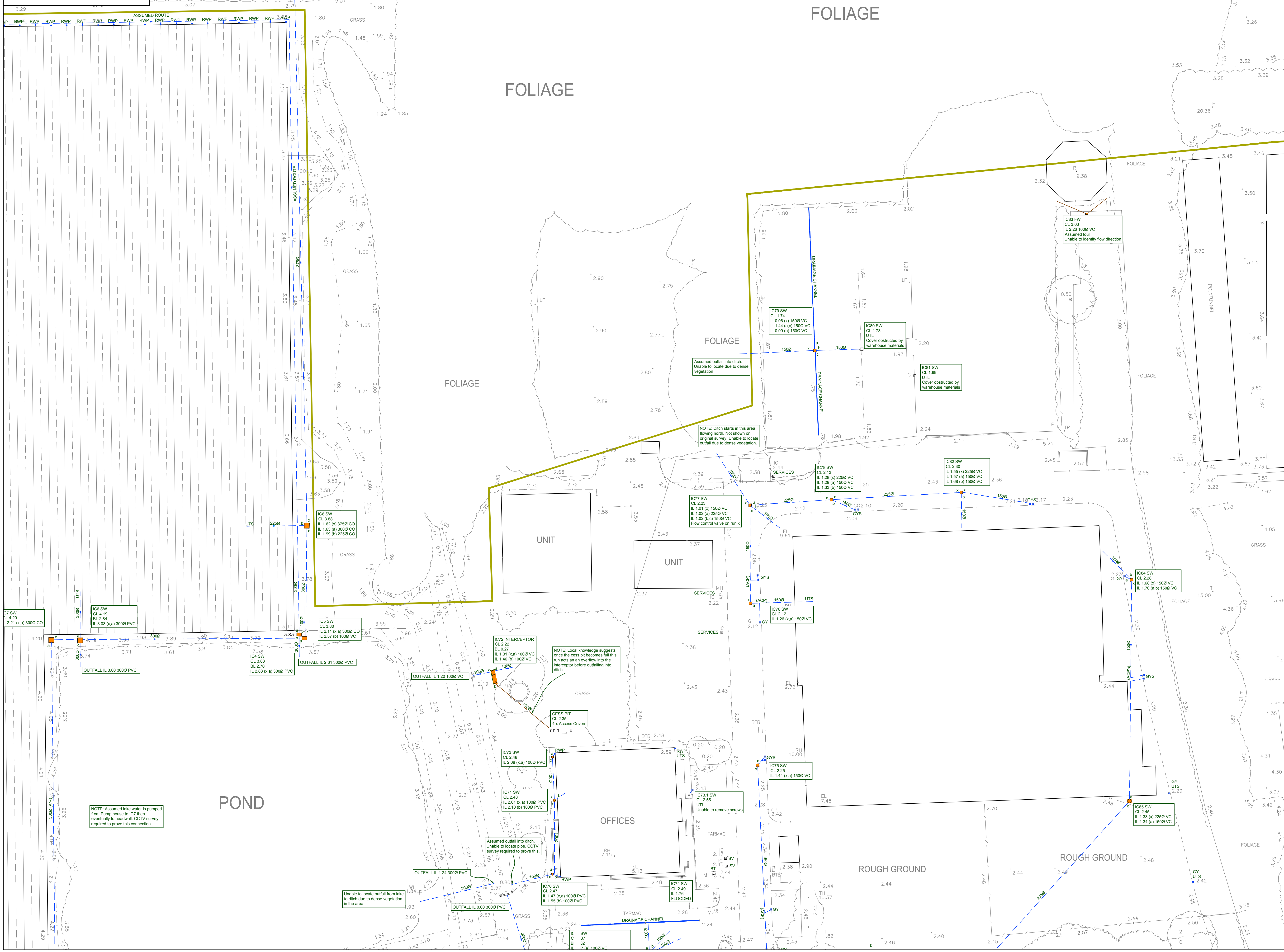

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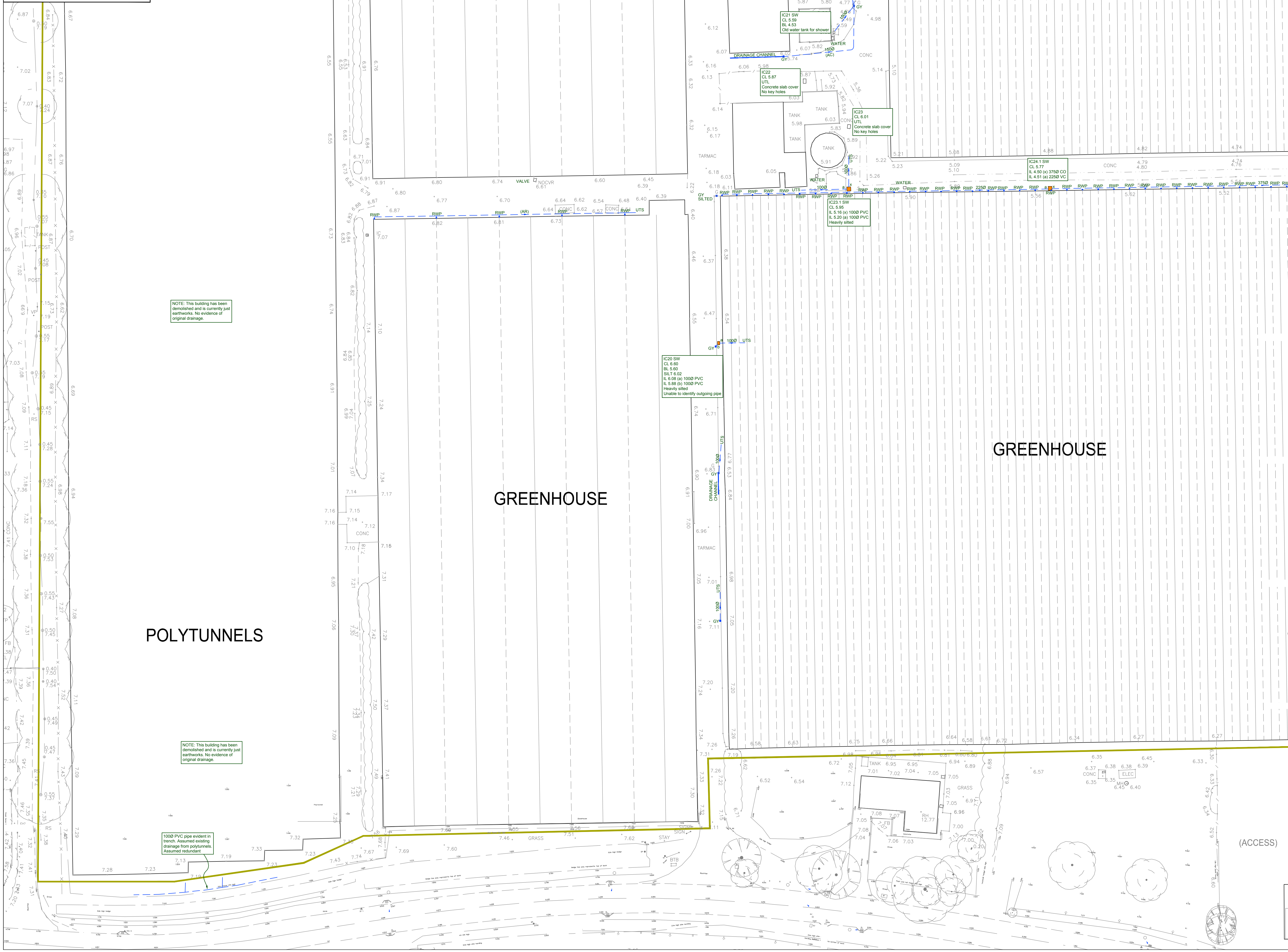

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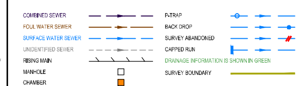

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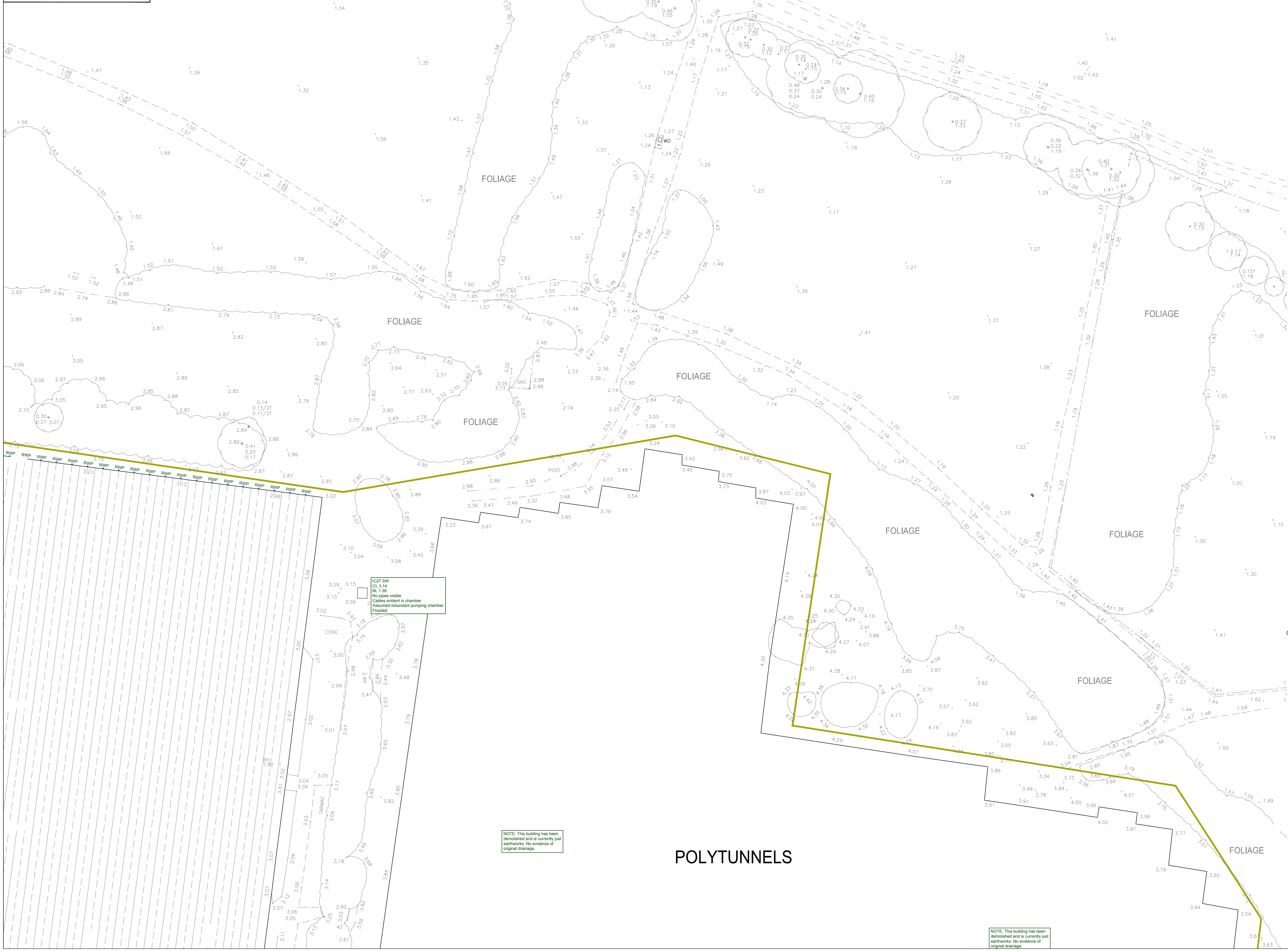

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DRAINAGE KEY

ABBREVIATIONS

(ACP)	ASSUMED CONNECTION POINT	LH	LAMP HOLE
(AG)	ABOVE GROUND	MH	MANHOLE
(AR)	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CI	CAST IRON	POW	PIPE ON WALL
CL	COVER LEVEL	PT	P-TRAP
CO	CONCRETE	PTG	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	PVC-U	ULTRA RIB (PVC)
CWS	COMBINED WATER SEWER	RE	RODDING EYE
DCH	DRAINAGE CHANNEL	R/MAIN	RISING MAIN
DI	DUCTILE IRON	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFFIT
FWS	FOUL WATER SEWER	SVP	SOIL VENT PIPE
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IC	INSPECTION COVER	UTL	UNABLE TO LIFT
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INT	INTERCEPTOR	VC	VITRIFIED CLAY
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LEGEND

COMBINED SEWER
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SURFACE WATER SEWER
UNIDENTIFIED SEWER
RISING MAIN
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CHAMBER
P-TRAP
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CAPPED RUN
DRAINAGE INFORMATION IS SHOWN IN GREEN

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SHEET 6 OF 12

Revision | Description | Surv. by | Appr. by | Date

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FAX: 01634 201376
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

ARUN DISTRICT COUNCIL LU/17/19/DOC

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY

Date: 18th February 2014
Job No: 20644

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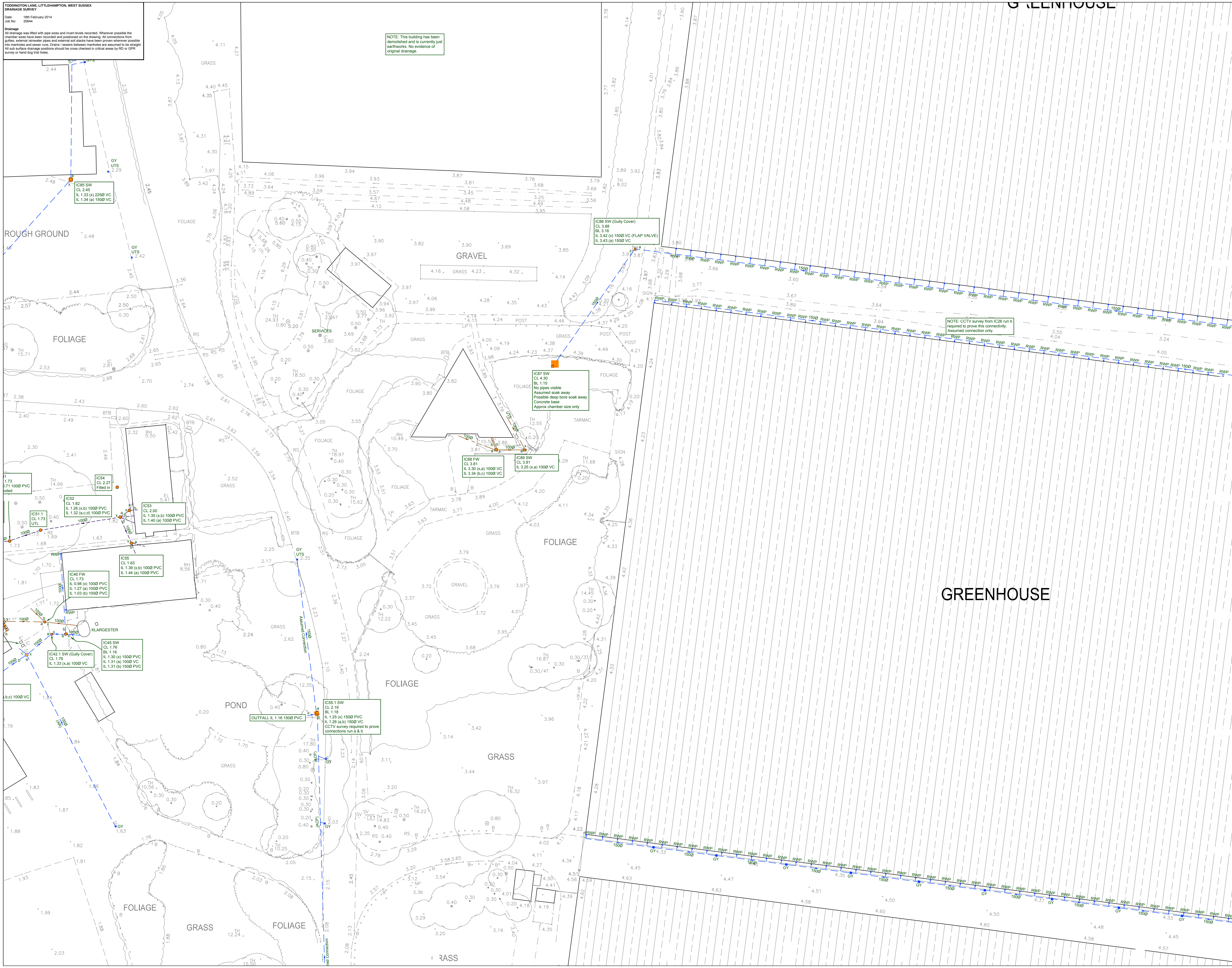

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INSEWER SURVEYS

PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey

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ARUN DISTRICT COUNCIL LU/17/19/DOC

TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
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LEGEND

COMBINED SEWER
FOUL WATER SEWER
SURFACE WATER SEWER
UNKNOWN SEWER
MANHOLE
CHAMBER
PATHS
BACK DROP
SURVEY ABANDONED
CAPPED/PLUG
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PERSIMMON

Toddington Lane
Littlehampton
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Drainage Survey

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ARUN DISTRICT COUNCIL LU/17/19/DOC

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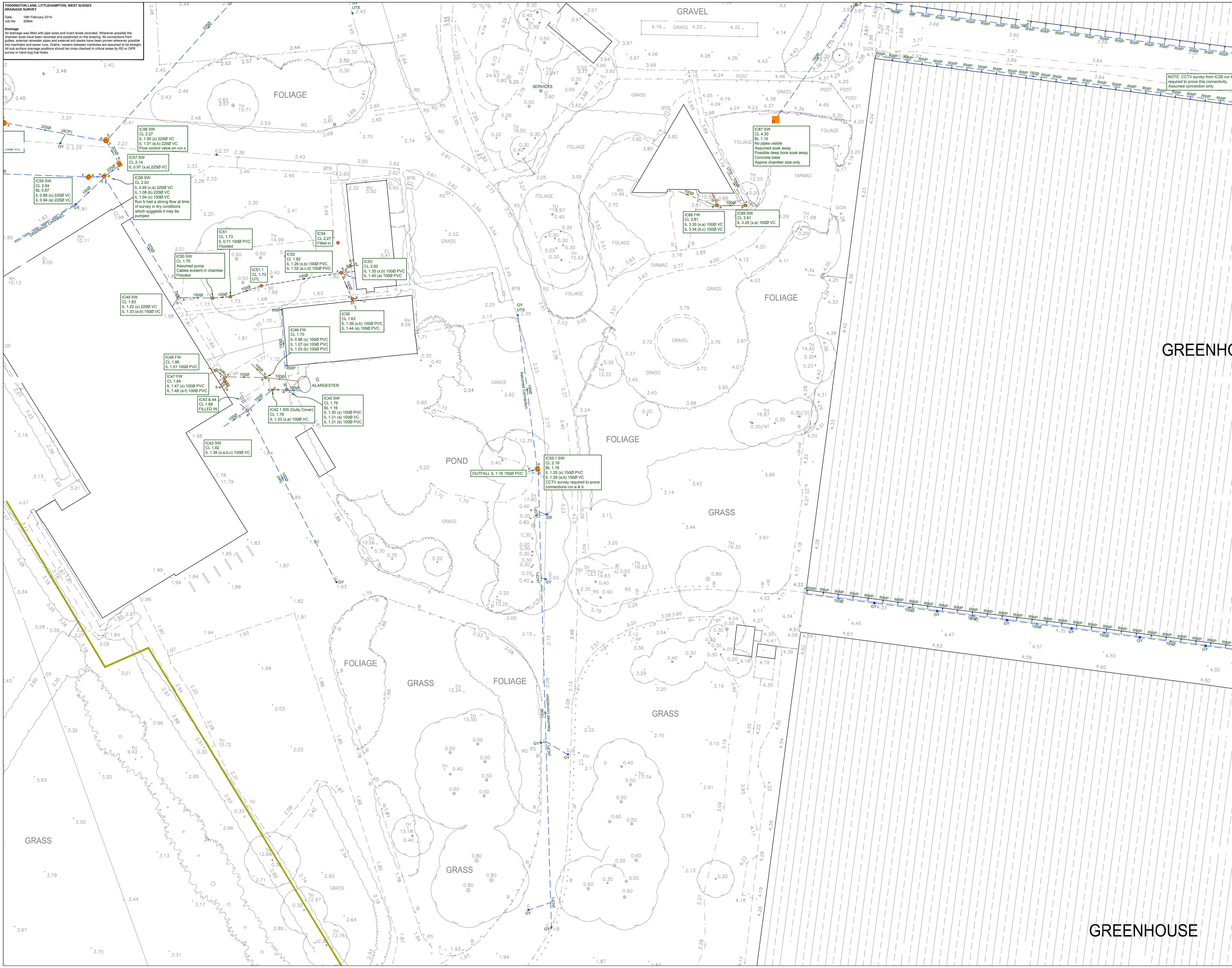

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LEGEND

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FOUL WATER SEWER
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INSEWER SURVEYS

PERSIMMON

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Drainage Survey

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ARUN DISTRICT COUNCIL LU/17/19/DOC

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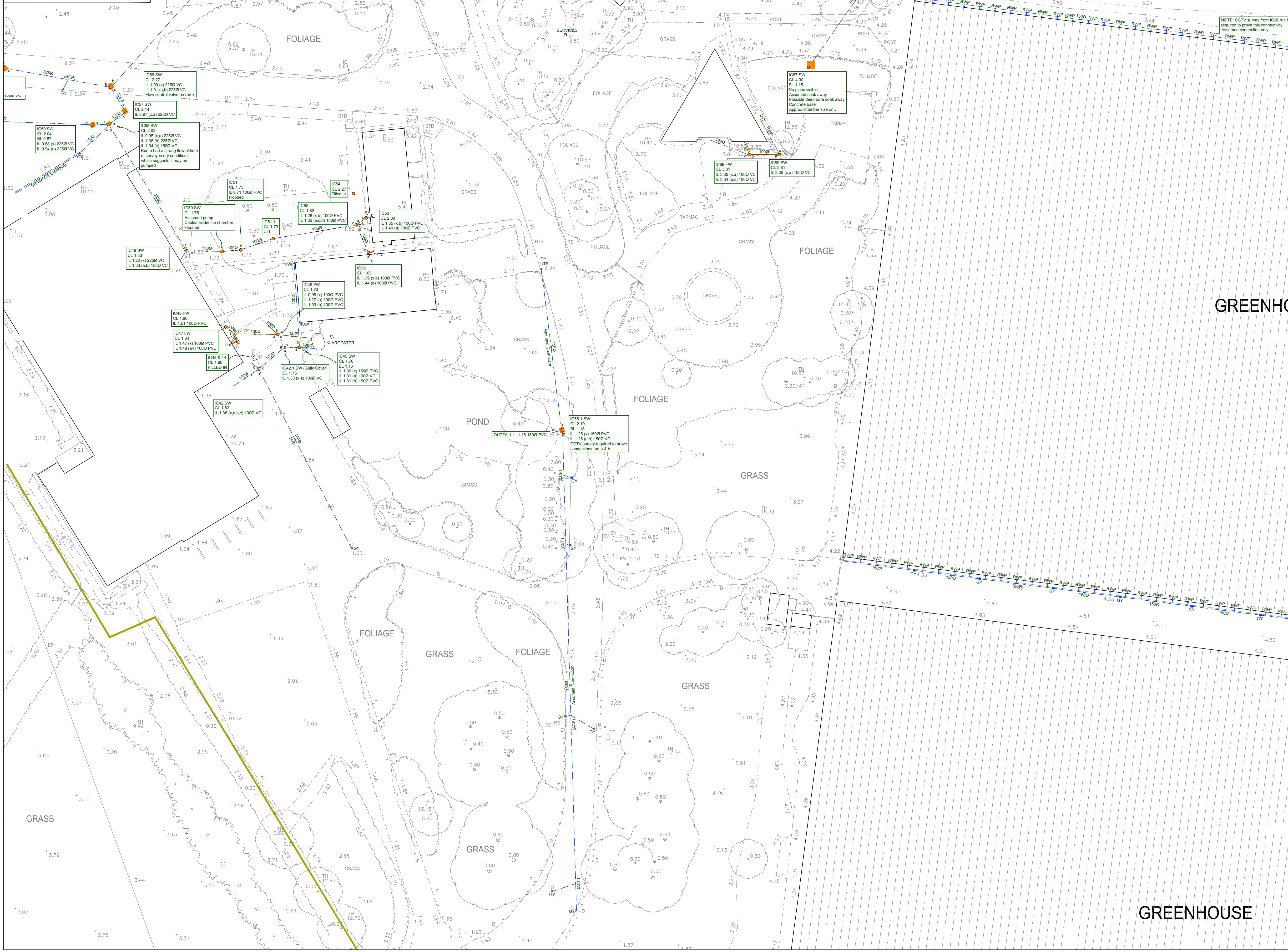

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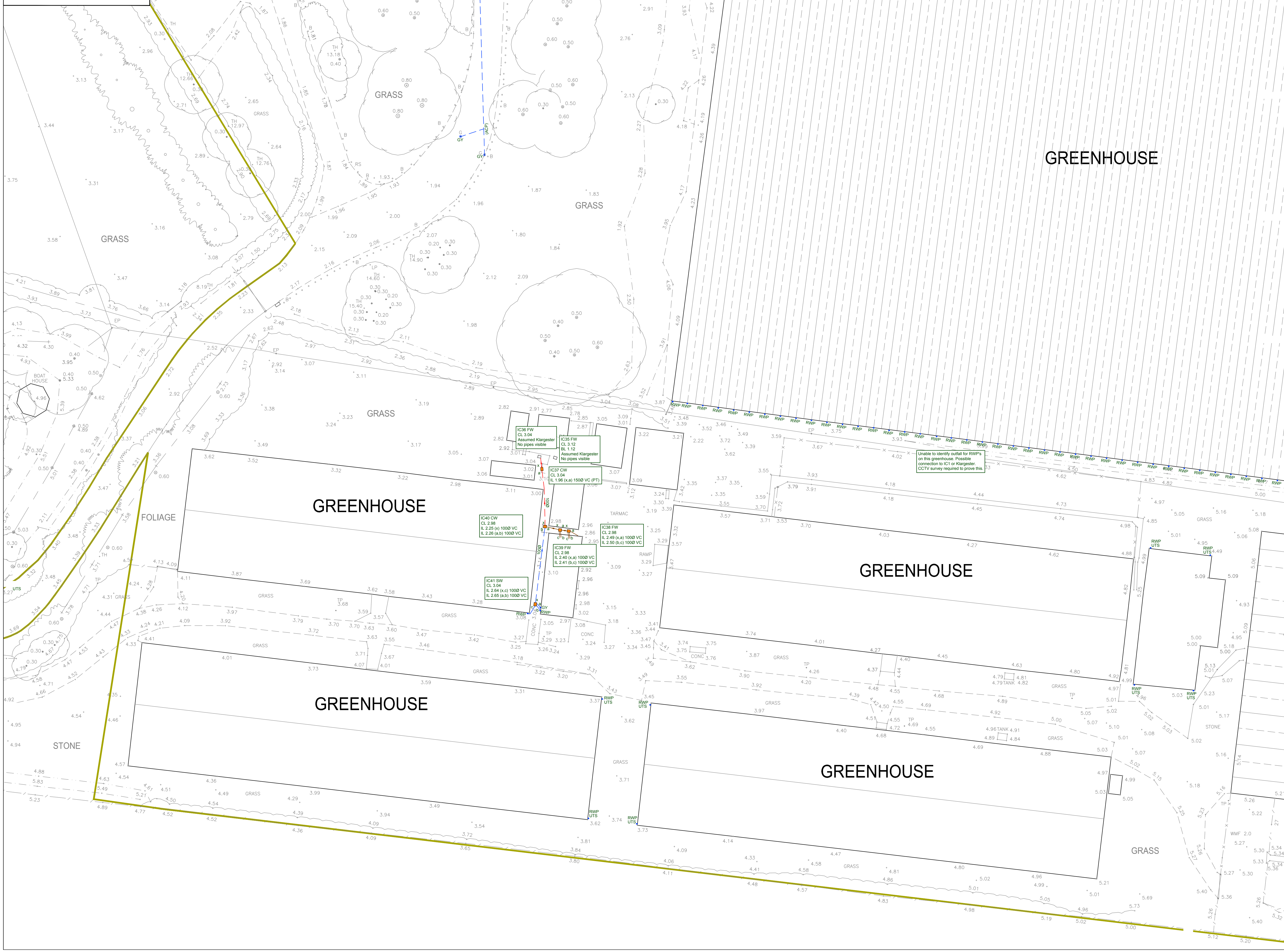

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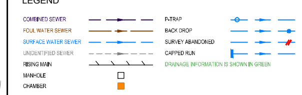

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INSEWER SURVEYS

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TODDINGTON LANE, LITTLEHAMPTON, WEST SUSSEX
DRAINAGE SURVEY

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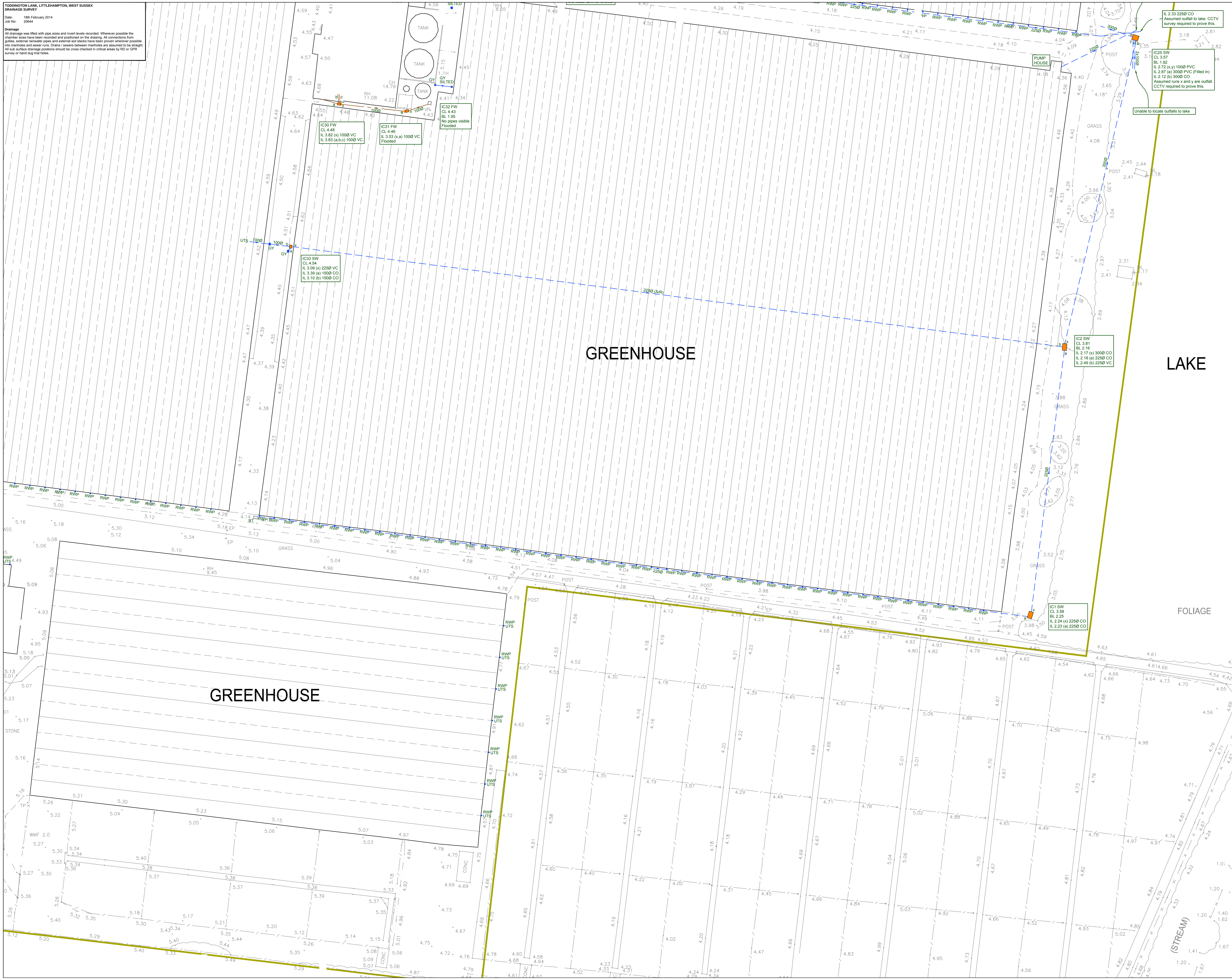

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DRAINAGE KEY

ABBREVIATIONS

(ACP)	ASSUMED CONNECTION POINT	LH	LAMP HOLE
(AG)	ABOVE GROUND	MH	MANHOLE
(AR)	ASSUMED ROUTE	NPV	NO PIPES VISIBLE
BD	BACK DROP	OL	OUTLET
BK	BRICK	OU	OUTFALL
BL	BASE LEVEL	PP	POLYPROPYLENE
CI	CAST IRON	POW	PIPE ON WALL
CL	COVER LEVEL	PT	P-TRAP
CO	CONCRETE	PTG	PIPE TO GROUND
CU	CULVERT	PVC	POLYVINYL CHLORIDE
CP	CATCHPIT	PVC-U	ULTRA RIB (PVC)
CWS	COMBINED WATER SEWER	RE	RODDING EYE
DCH	DRAINAGE CHANNEL	R/MAIN	RISING MAIN
DI	DUCTILE IRON	RWP	RAIN WATER PIPE
FD	FILTER DRAIN	SOF	SOFFIT
FWS	FOUL WATER SEWER	SVP	SOIL VENT PIPE
GY	GULLY	SWS	SURFACE WATER SEWER
IC	INSPECTION COVER	UTL	UNABLE TO LIFT
IL	INVERT LEVEL	UTS	UNABLE TO SURVEY
INT	INTERCEPTOR	VC	VITRIFIED CLAY
IT	INLET	VP	VENT PIPE
KO	KERB OUTLET	WL	WATER LEVEL

LEGEND

COMBINED SEWER
FOUL WATER SEWER
SURFACE WATER SEWER
UNIDENTIFIED SEWER
RISING MAIN
MANHOLE
CHAMBER
P-TRAP
BACK DROP
SURVEY ABANDONED
CAPPED RUN
DRAINAGE 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 12 OF 12

Revision	Description	Surv. by	Appr. by	Date

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

mksurveys

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Tel 01865 594979 Oxford oxford@mksurveys.co.uk
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HYDRO GROUP OF COMPANIES

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CHATHAM
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PERSIMMON

Toddington Lane
Littlehampton
West Sussex

Drainage Survey

Scale	Sheet Size:	Sheet Number:	Date:
1:250	A0	3	February 2015
Project Number:	**Rev:**	**Surveyed By:**	**Approved By:**
20644	-	CP	NS

ARUN DISTRICT COUNCIL LU/17/19/DOC

Appendix G

Greenfield Runoff Calculation

ARUN DISTRICT COUNCIL LU/17/19/DOC

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

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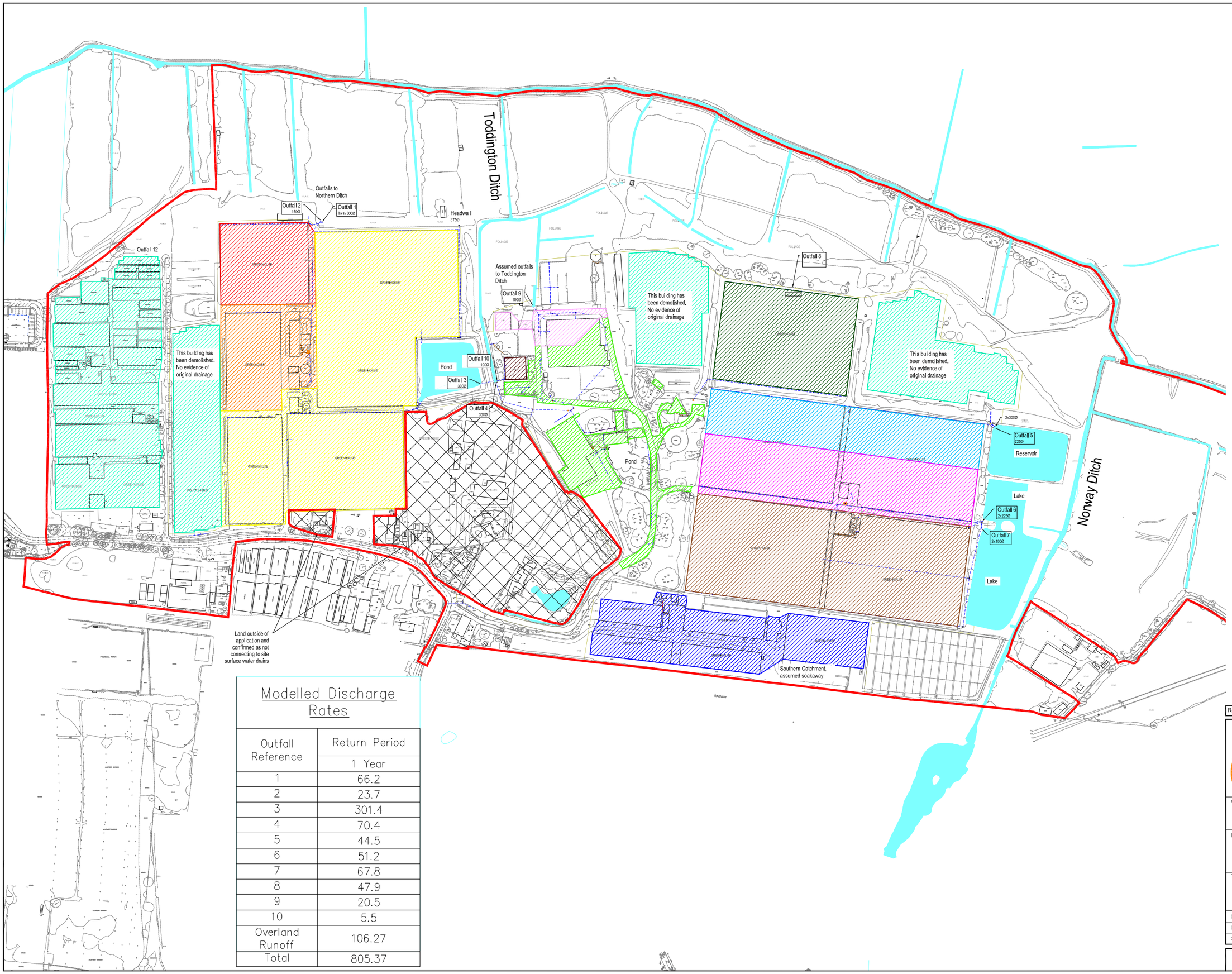
Appendix H

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

- Outfall 1
- Outfall 2
- Outfall 3
- Outfall 4
- Outfall 5
- Outfall 6
- Outfall 7
- Outfall 8
- Outfall 9
- Outfall 10
- Overland runoff
- Soakaway catchment
- Assumed flow direction
- Site Boundary
- 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

ARUN DISTRICT COUNCIL LU/178/06

Appendix L

Windes Calculations Existing Rates

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

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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 Coeffiecient 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%	30/15 Summer				3.210
1.001	2	15 Winter	1	+0%					3.092

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (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	

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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

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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 Coeffiecient 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	2/30 Winter			4.211
1.001	2	30 Winter	1	+0%					2.574

PN	US/MH Name	Surcharged Depth (m)	Flooded 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	

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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	oo	41	
2.000	40.000	0.610	65.6	3.300	4.00	0.0	0.600	oo	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

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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 Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

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

Synthetic Rainfall Details

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

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

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

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

PN	US/MH Name	Surcharged Depth (m)	Flooded 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

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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

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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 Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

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

Synthetic Rainfall Details

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

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

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

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

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

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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

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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 Coeffiecient 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	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	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	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	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	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	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	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	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	2/30 Winter			4.134
1.001	2	15 Winter	1	+0%	1/15 Summer	100/15 Winter			3.927

PN	US/MH Name	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	Surcharged Depth (m)	Flooded 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	

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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

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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 Coeffiecient 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	Surcharged Depth (m)	Flooded 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	

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APPENDIX I: Drainage Strategy, West of Wetlands