Draincare

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Inspection Report

Date :	Job number :	Weather :	Operator :	Section number :	PLR :
21/06/2019	**Whc**	**no rain or snow**	**Draincare**	**36**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Grade:
no rain or snow				**no**	

1:162 Position		Code	Observation	Photo	Grade
20.08		RM	Roots, mass 50 % cross-sectional area loss	37_37_303_A.jpg	(Serv) 5
20.08	**F1**	RM	Roots, mass 30 % cross-sectional area loss F1		(Serv) 5
20.08	**F2**	DES	Settled deposits, fine 30 % cross-sectional area loss F2		(Serv) 4
20.10		SA	Survey abandoned - unable to continue due to roots (to be HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
4	**170**	**28.56**	**574**	**5**	**5**	**25**	**11.89**	**239**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn Garden city	**Campus West Car park**	**21/06/2019**	**36**	**X**

Photo: 37_37_297_A.jpg, 00:00:34
3.48m, Roots, mass 30 % cross-sectional area loss S1

Photo: 37_37_298_A.jpg, 00:00:56
9.04m, Settled deposits, fine 30 % cross-sectional area loss S2

Photo: 37_37_303_A.jpg, 00:01:59
20.08m, Roots, mass 50 % cross-sectional area loss

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
21/06/2019	**Whc**	**no rain or snow**	**Draincare**	**37**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

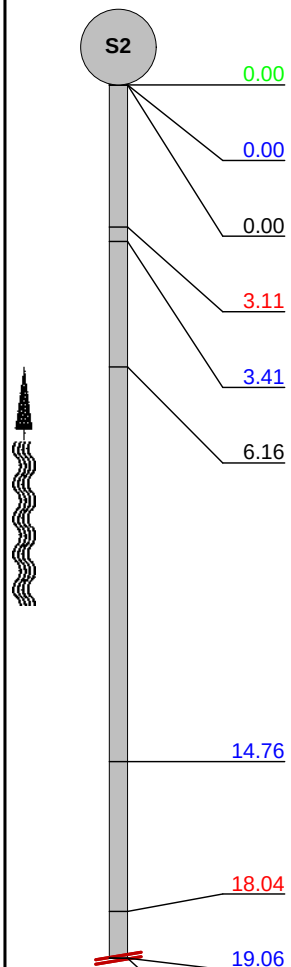
Place :	**Welwyn Garden city**	Location details:		U/S MH :	**SF**
Road :	**Campus West Car park**	Catchment:		U/S Depth :	**1**
Location	**Verge**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.22**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Routine inspection of condition**	Pipe material :	**Vitrified clay**
Total length :	**19.06 m**	Lining :	

Comment :

1:165 **Position** **Code** **Observation** **Photo** **Grade**

Depth: 1.22



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 50 % of the vertical dimension		(Serv) 0
0.00		CUW	Loss of vision, camera under water		(Misc) 0
3.11	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	38_38_310_A.jpg	(Struct) 4
3.41		WL	Water level 20 % of the vertical dimension		(Serv) 0
6.16		CUW	Loss of vision, camera under water		(Misc) 0
14.76		WL	Water level 10 % of the vertical dimension		(Serv) 0
18.04	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
19.06		RM	Roots, mass 95 % cross-sectional area loss	38_38_317_A.jpg	(Serv) 5
19.06		SA	Survey abandoned - unable to continue due to roots (to be further HP Jetted & re-surveyed)		(Misc) 0

Structural Defects | **Constructional Features**
Service Defects | **Miscellaneous Features**

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
2	**160**	**66.74**	**1272**	**4**	**1**	**20**	**1.05**	**20**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn Garden city	**Campus West Car park**	**21/06/2019**	**37**	**X**

Photo: 38_38_310_A.jpg, 00:00:14
3.11m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 38_38_317_A.jpg, 00:02:23
19.06m, Roots, mass 95 % cross-sectional area loss

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
21/06/2019	**Whc**	**no rain or snow**	**Draincare**	**38**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

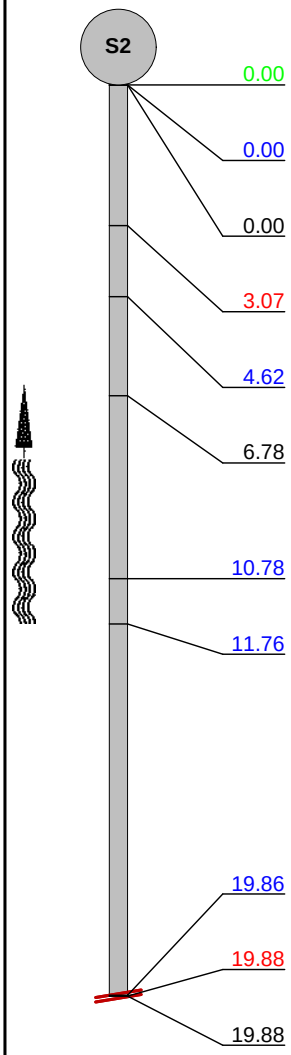
Place :	**Welwyn Garden city**	Location details:		U/S MH :	**SF**
Road :	**Campus West Car park**	Catchment:		U/S Depth :	**1**
Location	**Verge**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.22**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Routine inspection of condition**	Pipe material :	**Vitrified clay**
Total length :	**20.00 m**	Lining :	

Comment :

1:165 **Position** **Code** **Observation** **Photo** **Grade**

Depth: 1.22



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 50 % of the vertical dimension		(Serv) 0
0.00		CUW	Loss of vision, camera under water		(Misc) 0
3.07	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	39_39_322_A.jpg	(Struct) 4
4.62		RM	Roots, mass 30 % cross-sectional area loss loose	39_39_323_A.jpg	(Serv) 5
6.78		CUW	Loss of vision, camera under water		(Misc) 0
10.78		WL	Water level, 10% of the vertical dimension		(Serv) 0
11.76		WL	Water level 5 % of the vertical dimension		(Serv) 0
19.86		RM	Roots, mass 95 % cross-sectional area loss	39_39_327_A.jpg	(Serv) 5
19.88	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
19.88		SA	Survey abandoned - unable to contiune due to roots (to be further HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	**80**	**68**	**1360**	**4**	**2**	**20**	**1.5**	**30**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn Garden city	**Campus West Car park**	**21/06/2019**	**38**	**X**

Photo: 39_39_322_A.jpg, 00:00:16
3.07m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 39_39_323_A.jpg, 00:00:24
4.62m, Roots, mass 30 % cross-sectional area loss loose

Photo: 39_39_327_A.jpg, 00:01:34
19.86m, Roots, mass 95 % cross-sectional area loss

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Inspection report

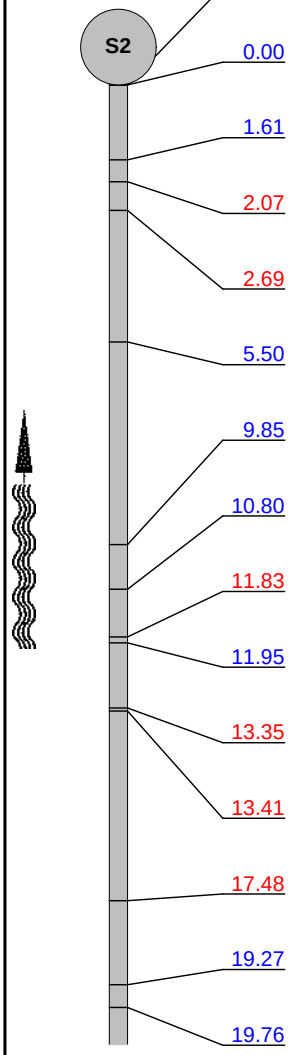
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
16/07/2019	**WHC**	**no rain or snow**	**Draincare**	**39**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

Place :	**Welwyn GC**	Location details:		U/S MH :	**SF**
Road :	**Campus west**	Catchment:		U/S Depth :	**1**
Location	**Woodland**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.2**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**21.31 m**	Lining :	

Comment :

1:162 **Depth: 1.2**



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
1.61		WL	Water level 5 % of the vertical dimension		(Serv) 0
2.07		FL	Fracture, longitudinal from 12 O'Clock		(Struct) 3
2.69	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	41_41_334_A.jpg	(Struct) 4
5.50		WL	Water level 10 % of the vertical dimension		(Serv) 0
9.85		DES	Settled deposits, fine 10 % cross-sectional area loss		(Serv) 3
10.80		WL	Water level, 5% of the vertical dimension		(Serv) 0
11.83		H	Hole in drain/sewer from 6 O'Clock to 7 O'Clock	41_41_338_A.jpg	(Struct) 4
11.95		WL	Water level, 0% of the vertical dimension		(Serv) 0
13.35		D	Deformed sewer/drain, 5%	41_41_526_A.jpg	(Struct) 2
13.41		B	Broken pipe from 3 O'Clock to 5 O'Clock	41_41_340_A.jpg	(Struct) 4
17.48	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
19.27		DES	Settled deposits, fine 5 % cross-sectional area loss		(Serv) 2
19.76		RM	Roots, mass 30 % cross-sectional area loss	41_41_342_A.jpg	(Serv) 5

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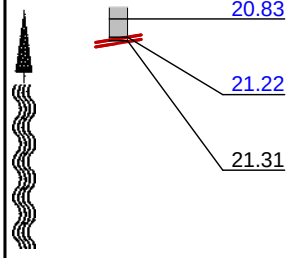
Inspection Report

Date :	Job number :	Weather :	Operator :	Section number :	PLR :
16/07/2019	**WHC**	**no rain or snow**	**Draincare**	**39**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Grade:
no rain or snow				**yes**	



1:162 Position	Code	Observation	Photo	Grade
20.83	RM	Roots, mass 20 % cross-sectional area loss		(Serv) 3
21.22	RM	Roots, mass, 35% cross-sectional area loss	41_41_528_A.jpg	(Serv) 5
21.31	SA	Survey abandoned root mass - unable to continue due to roots (to be further HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
5	**160**	**65.88**	**1404**	**4**	**5**	**10**	**1.27**	**27**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**16/07/2019**	**39**	**X**

Photo: 41_41_334_A.jpg, 00:00:28
2.69m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 41_41_338_A.jpg, 00:01:36
11.83m, Hole in drain/sewer from 6 O'Clock to 7 O'Clock

Photo: 41_41_526_A.jpg, 00:01:59
13.35m, Deformed sewer/drain, 5%

Photo: 41_41_340_A.jpg, 00:02:14
13.41m, Broken pipe from 3 O'Clock to 5 O'Clock

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**16/07/2019**	**39**	**X**

Photo: 41_41_342_A.jpg, 00:02:59
19.76m, Roots, mass 30 % cross-sectional area loss

Photo: 41_41_528_A.jpg, 00:03:35
21.22m, Roots, mass, 35% cross-sectional area loss

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Inspection report

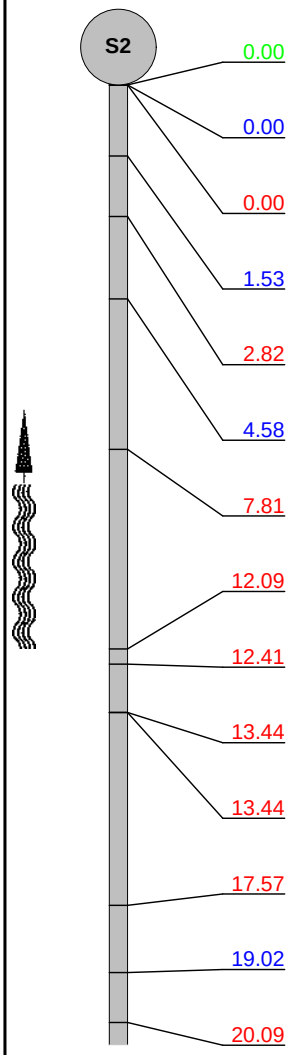
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
16/07/2019	**WHC**	**no rain or snow**	**Draincare**	**40**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

Place :	**Welwyn GC**	Location details:		U/S MH :	**SF**
Road :	**Campus west**	Catchment:		U/S Depth :	**1**
Location	**Woodland**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.2**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**28.21 m**	Lining :	

Comment :

1:162 **Depth: 1.2**



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
0.00		FL	Fracture, longitudinal, at 8 o'clock		(Struct) 3
1.53		DES	Settled deposits, fine 20 % cross-sectional area loss		(Serv) 3
2.82	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start		(Struct) 4
4.58		DES	Settled deposits, fine 20 % cross-sectional area loss		(Serv) 3
7.81		B	Broken pipe from 3 O'Clock to 6 O'Clock	42_42_354_A.jpg	(Struct) 4
12.09		H	Hole in drain/sewer, at 7 o'clock	42_42_534_A.jpg	(Struct) 4
12.41		H	Hole in drain/sewer, at 6 o'clock	42_42_535_A.jpg	(Struct) 4
13.44		B	Broken pipe, from 12 to 2 o'clock	42_42_358_A.jpg	(Struct) 4
13.44		D	Deformed sewer/drain, 5%		(Struct) 2
17.57	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
19.02		DES	Settled deposits, fine 10 % cross-sectional area loss		(Serv) 3
20.09	**S2**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	42_42_363_A.jpg	(Struct) 4

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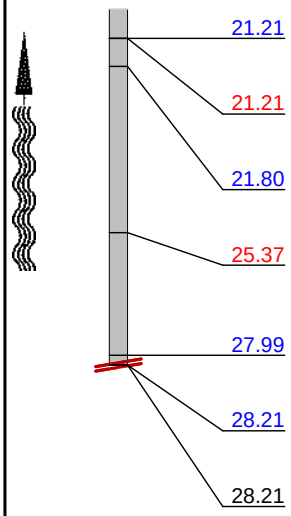
Inspection Report

Date :	Job number :	Weather :	Operator :	Section number :	PLR :
16/07/2019	**WHC**	**no rain or snow**	**Draincare**	**40**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Grade:
no rain or snow				**yes**	



1:162 Position		Code	Observation	Photo	Grade
21.21		RM	Roots, mass 30 % cross-sectional area loss	42_42_364_A.jpg	(Serv) 5
21.21		B	Broken pipe from 9 O'Clock to 12 O'Clock	42_42_365_A.jpg	(Struct) 4
21.80		RM	Roots, mass 20 % cross-sectional area loss		(Serv) 3
25.37	**F2**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
27.99		DEX	Settled deposits, other 30 % cross-sectional area loss Debris	42_42_368_A.jpg	(Serv) 4
28.21		RM	Roots, mass 10 % cross-sectional area loss		(Serv) 3
28.21		SA	Survey abandoned - unable to continue due to debris (to be further HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
9	**180**	**73.02**	**2060**	**5**	**7**	**10**	**1.03**	**29**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**16/07/2019**	**40**	**X**

Photo: 42_42_354_A.jpg, 00:01:12
7.81m, Broken pipe from 3 O'Clock to 6 O'Clock

Photo: 42_42_534_A.jpg, 00:01:44
12.09m, Hole in drain/sewer, at 7 o'clock

Photo: 42_42_535_A.jpg, 00:01:46
12.41m, Hole in drain/sewer, at 6 o'clock

Photo: 42_42_358_A.jpg, 00:02:07
13.44m, Broken pipe, from 12 to 2 o'clock

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**16/07/2019**	**40**	**X**

Photo: 42_42_363_A.jpg, 00:03:12
20.09m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 42_42_364_A.jpg, 00:03:28
21.21m, Roots, mass 30 % cross-sectional area loss

Photo: 42_42_365_A.jpg, 00:03:31
21.21m, Broken pipe from 9 O'Clock to 12 O'Clock

Photo: 42_42_368_A.jpg, 00:04:27
27.99m, Settled deposits, other 30 % cross-sectional area loss Debris

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Inspection report

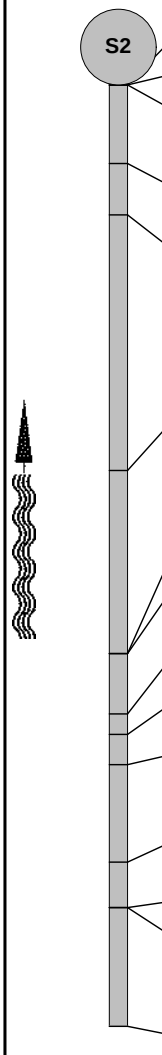
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
17/07/2019	**WHC**	**no rain or snow**	**Draincare**	**41**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

Place :	**Welwyn GC**	Location details:		U/S MH :	**SF**
Road :	**Campus west**	Catchment:		U/S Depth :	**1**
Location	**Woodland**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.2**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**29.84 m**	Lining :	

Comment :

1:234 **Depth: 1.2**



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
0.00		FL	Fracture, longitudinal, at 8 o'clock		(Struct) 3
2.44	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	43_43_540_A.jpg	(Struct) 4
4.02	**S2**	B	Broken pipe, from 12 to 12 o'clock, Start	43_43_542_A.jpg	(Struct) 4
11.93		D	Deformed sewer/drain 5 %	43_43_375_A.jpg	(Struct) 2
17.60	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
17.60	**F2**	B	Broken pipe, from 12 to 12 o'clock, End		(Struct) 4
19.47	**S3**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	43_43_545_A.jpg	(Struct) 4
20.10	**S4**	B	Broken pipe, from 12 to 12 o'clock, Start	43_43_546_A.jpg	(Struct) 4
21.04	**S5**	RM	Roots, mass, 20% cross-sectional area loss, Start	43_43_376_A.jpg	(Serv) 3
24.06	**F5**	RM	Roots, mass, 20% cross-sectional area loss, End		(Serv) 3
25.47	**F3**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
25.47	**F4**	B	Broken pipe, from 12 to 12 o'clock, End		(Struct) 4
29.13		CM	Cracks, multiple, from 12 to 12 o'clock		(Struct) 3

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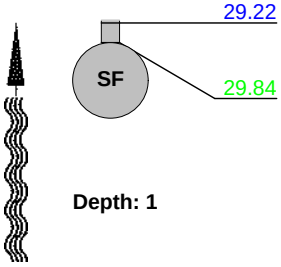
Inspection Report

Date :	Job number :	Weather :	Operator :	Section number :	PLR :
17/07/2019	**WHC**	**no rain or snow**	**Draincare**	**41**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Grade:
no rain or snow				**yes**	

1:234	Position	Code	Observation	Photo	Grade
	29.22	RT	Roots, tap	43_43_378_A.jpg	(Serv) 4
	29.84	MHF	Finish node type, manhole reference number: SF (to be further HP Jetted & re-surveyed)		(Constr) 0

Depth: 1

Structural Defects					Constructional Features				
Service Defects					**Miscellaneous Features**				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
8	**180**	**110.89**	**3309**	**5**	**2**	**5**	**0.57**	**17**	**4**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**17/07/2019**	**41**	**X**

Photo: 43_43_540_A.jpg, 00:00:20
2.44m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 43_43_542_A.jpg, 00:00:30
4.02m, Broken pipe, from 12 to 12 o'clock, Start

Photo: 43_43_375_A.jpg, 00:01:15
11.93m, Deformed sewer/drain 5 %

Photo: 43_43_545_A.jpg, 00:01:53
19.47m, Fracture, multiple, from 12 to 12 o'clock, Start

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**17/07/2019**	**41**	**X**

Photo: 43_43_546_A.jpg, 00:01:59
20.1m, Broken pipe, from 12 to 12 o'clock, Start

Photo: 43_43_376_A.jpg, 00:02:07
21.04m, Roots, mass, 20% cross-sectional area loss, Start

Photo: 43_43_378_A.jpg, 00:02:58
29.22m, Roots, tap

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Inspection report

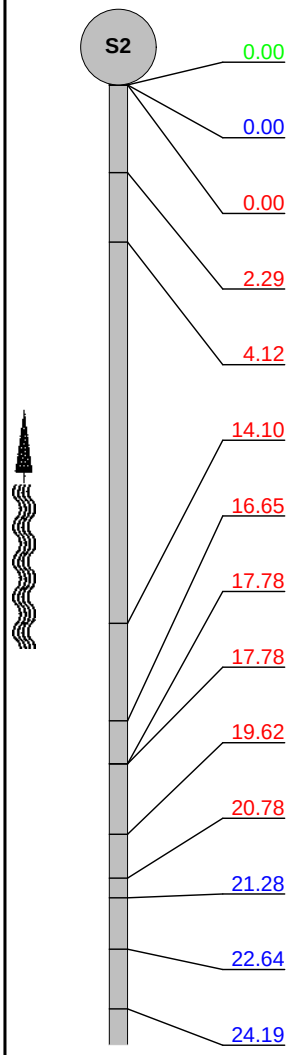
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
17/07/2019	**WHC**	**no rain or snow**	**Draincare**	**42**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Draincare**

Place :	**Welwyn GC**	Location details:		U/S MH :	**SF**
Road :	**Campus west**	Catchment:		U/S Depth :	**1**
Location	**Woodland**	Tape number :		D/S MH :	**S2**
Inspection	**S2 (U/S) SF**	Pipe Length		D/S Depth :	**1.2**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**29.55 m**	Lining :	

Comment :

1:198 **Depth: 1.2**



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S2		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
0.00		FC	Fracture, circumferential from 6 O'Clock to 12 O'Clock		(Struct) 3
2.29	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock	44_44_553_A.jpg	(Struct) 4
4.12	**S2**	B	Broken pipe, from 12 to 12 o'clock, Start	44_44_555_A.jpg	(Struct) 4
14.10		D	Deformed sewer/drain, 5%		(Struct) 2
16.65		H	Hole in drain/sewer, at 11 o'clock	44_44_556_A.jpg	(Struct) 4
17.78	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
17.78	**F2**	B	Broken pipe, from 12 to 12 o'clock, End		(Struct) 4
19.62	**S3**	FM	Fracture, multiple, from 12 to 12 o'clock, Start		(Struct) 4
20.78	**S4**	B	Broken pipe, from 12 to 12 o'clock, Start		(Struct) 4
21.28		RT	Roots, tap	44_44_564_A.jpg	(Serv) 4
22.64		RT	Roots, tap	44_44_386_A.jpg	(Serv) 4
24.19		RF	Roots, fine		(Serv) 2

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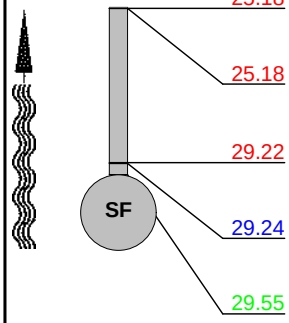
Inspection Report

Date :	Job number :	Weather :	Operator :	Section number :	PLR :
17/07/2019	**WHC**	**no rain or snow**	**Draincare**	**42**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Grade:
no rain or snow				**yes**	



1:198 Position		Code	Observation	Photo	Grade
25.18	**F3**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
25.18	**F4**	B	Broken pipe, from 12 to 12 o'clock, End		(Struct) 4
29.22		CM	Cracks, multiple, from 12 to 12 o'clock		(Struct) 3
29.24		RF	Roots, fine		(Serv) 2
29.55		MHF	Finish node type, manhole reference number: SF		(Constr) 0

Depth: 1

Structural Defects					Constructional Features				
Service Defects					**Miscellaneous Features**				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
10	**240**	**111.74**	**3302**	**5**	**2**	**5**	**0.34**	**10**	**4**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**17/07/2019**	**42**	**X**

Photo: 44_44_553_A.jpg, 00:00:32
2.29m, Fracture, multiple, from 12 to 12 o'clock

Photo: 44_44_555_A.jpg, 00:00:41
4.12m, Broken pipe, from 12 to 12 o'clock, Start

Photo: 44_44_556_A.jpg, 00:02:06
16.65m, Hole in drain/sewer, at 11 o'clock

Photo: 44_44_564_A.jpg, 00:02:38
21.28m, Roots, tap

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Welwyn GC	**Campus west**	**17/07/2019**	**42**	**X**

Photo: 44_44_386_A.jpg, 00:03:04
22.64m, Roots, tap

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
19/07/2019	**WHC**	**rain**	**Draincare**	**43**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
rain				**no**	**Draincare**

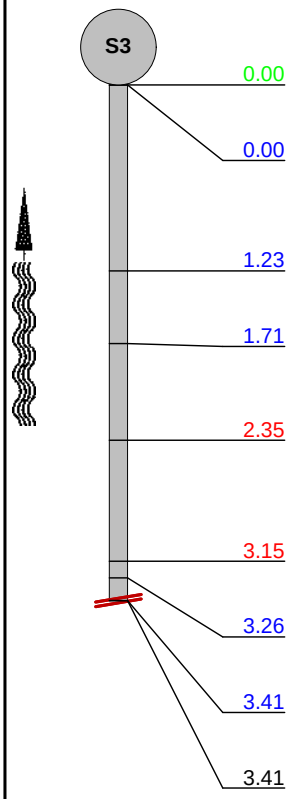
Place :	**WGC**	Location details:		U/S MH :	**S2**
Road :	**Campus west**	Catchment:		U/S Depth :	**1.2**
Location	**Woodland**	Tape number :		D/S MH :	**S3**
Inspection	**S3 (U/S) S2**	Pipe Length		D/S Depth :	**1.4**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**3.41 m**	Lining :	

Comment :

1:50 **Position** **Code** **Observation** **Photo** **Grade**

Depth: 1.4



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S3		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
1.23	**S1**	RM	Roots, mass 5 % cross-sectional area loss S1		(Serv) 3
1.71		DEX	Settled deposits, other 5 % cross-sectional area loss (ladies sanitary product)		(Serv) 2
2.35		FL	Fracture, longitudinal from 12 O'Clock		(Struct) 3
3.15		FM	Fracture, multiple, from 9 to 3 o'clock	45_45_397_A.jpg	(Struct) 4
3.26	**F1**	RM	Roots, mass 5 % cross-sectional area loss F1		(Serv) 3
3.41		RM	Roots, mass 80 % cross-sectional area loss	45_45_399_A.jpg	(Serv) 5
3.41		SA	Survey abandoned - unable to continue due to roots (to be HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
2	**120**	**35.19**	**120**	**4**	**3**	**20**	**7.33**	**25**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
WGC	**Campus west**	**19/07/2019**	**43**	**X**

Photo: 45_45_397_A.jpg, 00:00:29
3.15m, Fracture, multiple, from 9 to 3 o'clock

Photo: 45_45_399_A.jpg, 00:00:34
3.41m, Roots, mass 80 % cross-sectional area loss

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Inspection report

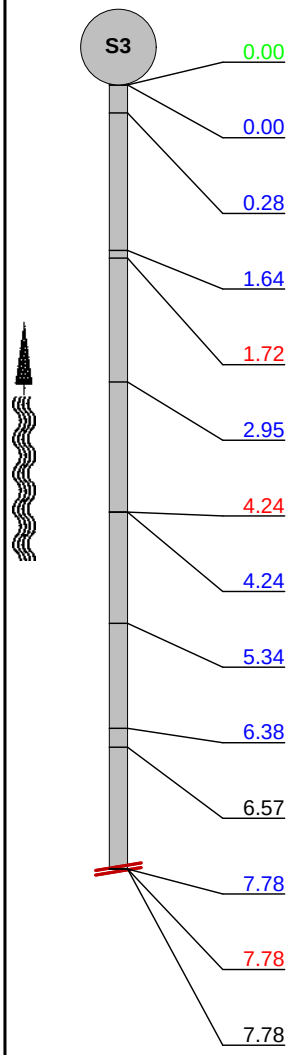
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
19/07/2019	**WHC**	**rain**	**Draincare**	**44**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
rain				**no**	**Draincare**

Place :	**WGC**	Location details:		U/S MH :	**S2**
Road :	**Campus west**	Catchment:		U/S Depth :	**1.2**
Location	**Woodland**	Tape number :		D/S MH :	**S3**
Inspection	**S3 (U/S) S2**	Pipe Length		D/S Depth :	**1.4**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**7.78 m**	Lining :	

Comment :

1:75 **Depth: 1.4**



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S3		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
0.28		DEX	Settled deposits, other 20 % cross-sectional area loss (stones/debris)		(Serv) 3
1.64		WL	Water level 20 % of the vertical dimension		(Serv) 0
1.72	**S1**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	46_46_405_A.jpg	(Struct) 4
2.95		RF	Roots, fine		(Serv) 2
4.24		B	Broken pipe from 9 O'Clock to 12 O'Clock	46_46_407_A.jpg	(Struct) 4
4.24		RM	Roots, mass 30 % cross-sectional area loss	46_46_408_A.jpg	(Serv) 5
5.34		RM	Roots, mass 50 % cross-sectional area loss	46_46_409_A.jpg	(Serv) 5
6.38		WL	Water level 30 % of the vertical dimension		(Serv) 0
6.57		CUW	Loss of vision, camera under water		(Misc) 0
7.78		RM	Roots, mass 80 % cross-sectional area loss	46_46_413_A.jpg	(Serv) 5
7.78	**F1**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
7.78		SA	Survey abandoned - unable to continue due to roots (to be further HP Jetted & re-surveyed)		(Misc) 0

Structural Defects					Constructional Features				
Service Defects					Miscellaneous Features				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
3	**160**	**72.11**	**561**	**4**	**4**	**20**	**5.4**	**42**	**5**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
WGC	**Campus west**	**19/07/2019**	**44**	**X**

Photo: 46_46_405_A.jpg, 00:00:17
1.72m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 46_46_407_A.jpg, 00:00:30
4.24m, Broken pipe from 9 O'Clock to 12 O'Clock

Photo: 46_46_408_A.jpg, 00:00:32
4.24m, Roots, mass 30 % cross-sectional area loss

Photo: 46_46_409_A.jpg, 00:00:38
5.34m, Roots, mass 50 % cross-sectional area loss

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
WGC	**Campus west**	**19/07/2019**	**44**	**X**

Photo: 46_46_413_A.jpg, 00:01:03
7.78m, Roots, mass 80 % cross-sectional area loss

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
19/07/2019	**WHC**	**rain**	**Draincare**	**45**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
rain				**no**	**Draincare**

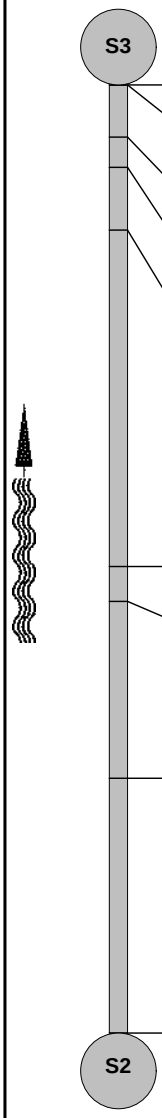
Place :	**WGC**	Location details:		U/S MH :	**S2**
Road :	**Campus west**	Catchment:		U/S Depth :	**1.2**
Location	**Woodland**	Tape number :		D/S MH :	**S3**
Inspection	**S3 (U/S) S2**	Pipe Length		D/S Depth :	**1.4**

Use:	**Surface water**	Pipe shape :	**Circular**
Year laid :		Pipe size :	**225 mm**
Purpose :	**Investigation of known defects**	Pipe material :	**Vitrified clay**
Total length :	**26.34 m**	Lining :	

Comment :

1:210

Depth: 1.4



Position		Code	Observation	Photo	Grade
0.00		MH	Start node type, manhole reference number: S3		(Constr) 0
0.00		WL	Water level 0 % of the vertical dimension		(Serv) 0
1.45	**S01**	FM	Fracture, multiple, from 12 to 12 o'clock, Start	47_47_578_A.jpg	(Struct) 4
2.29	**S02**	B	Broken pipe, from 12 to 12 o'clock, Start	47_47_579_A.jpg	(Struct) 4
4.03		D	Deformed sewer/drain, 10%	47_47_580_A.jpg	(Struct) 4
13.38	**F02**	B	Broken pipe, from 12 to 12 o'clock, End		(Struct) 4
14.34		FL	Fracture, longitudinal from 2 O'Clock		(Struct) 3
19.25	**F01**	FM	Fracture, multiple, from 12 to 12 o'clock, End		(Struct) 4
26.34		MHF	Finish node type, manhole reference number: S2		(Constr) 0

Depth: 1.2

Structural Defects | **Constructional Features**
Service Defects | **Miscellaneous Features**

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
4	**240**	**92.33**	**2432**	**5**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
WGC	**Campus west**	**19/07/2019**	**45**	**X**

Photo: 47_47_578_A.jpg, 00:00:12
1.45m, Fracture, multiple, from 12 to 12 o'clock, Start

Photo: 47_47_579_A.jpg, 00:00:30
2.29m, Broken pipe, from 12 to 12 o'clock, Start

Photo: 47_47_580_A.jpg, 00:00:39
4.03m, Deformed sewer/drain, 10%

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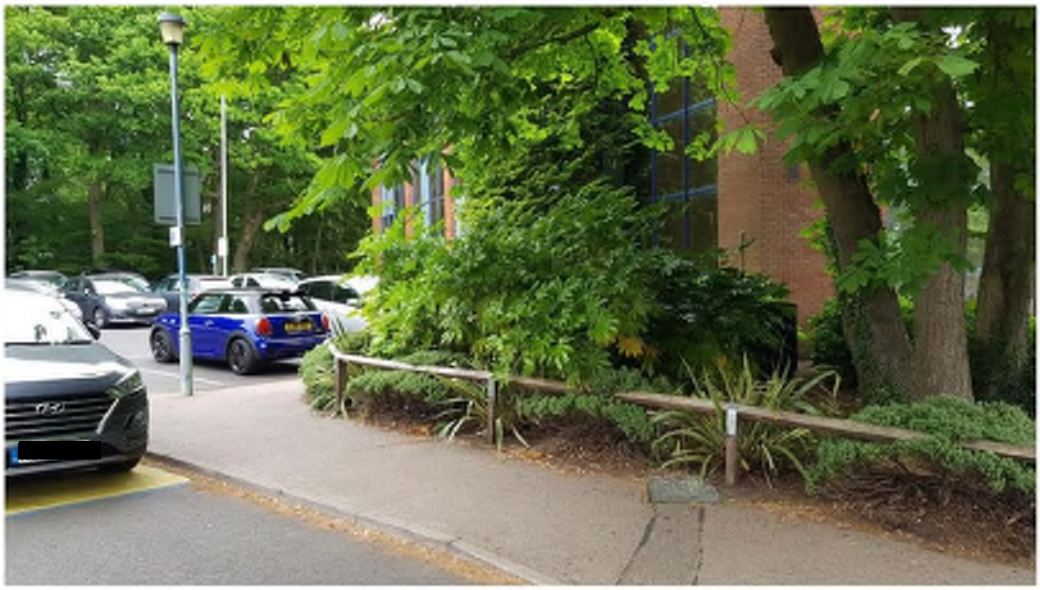
Date:	Job # : **WHC**	Weather : **rain**	Operator : **Draincare**	Section # : **45**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **no**	Rate : **0**

Street 1 : **Campus west**	City : **WGC**	Section type : **unknown**
Street 2 :	Map # 1 :	Map # 2 :
VCR # :	Media # :	US MH : **S2**
DS MH : **S3**	Section length : **26.34 m**	Joint length :
Remark :		



View of bushed area containing green kiosk and believed to be where rod / spike has been found intruding through pipework between Manholes S6 & S1

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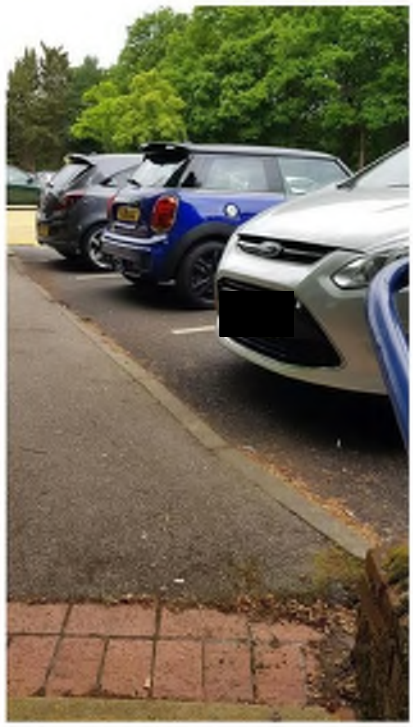
Date:	Job # : **WHC**	Weather : **rain**	Operator : **Draincare**	Section # : **45**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **no**	Rate : **0**

Street 1 : **Campus west**	City : **WGC**	Section type : **unknown**
Street 2 :	Map # 1 :	Map # 2 :
VCR # :	Media # :	US MH : **S2**
DS MH : **S3**	Section length : **26.34 m**	Joint length :
Remark :		



View of dropped kerb in front of steps down to low level Fire Exit with Low Level Aco, which has allowed water to flood inside Roller City during very heavy rain. Car park noted to slope towards dropped kerb, possibly allowing water to run off car park & down steps

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Date:	Job # : **WHC**	Weather : **rain**	Operator : **Draincare**	Section # : **45**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **no**	Rate : **0**

Street 1 : **Campus west**	City : **WGC**	Section type : **unknown**
Street 2 :	Map # 1 :	Map # 2 :
VCR # :	Media # :	US MH : **S2**
DS MH : **S3**	Section length : **26.34 m**	Joint length :
Remark :		

View of rear low level Fire Exit with Rear Lower Level Aco connecting into Gully2, which has allowed water to flood inside Roller City during very heavy rain

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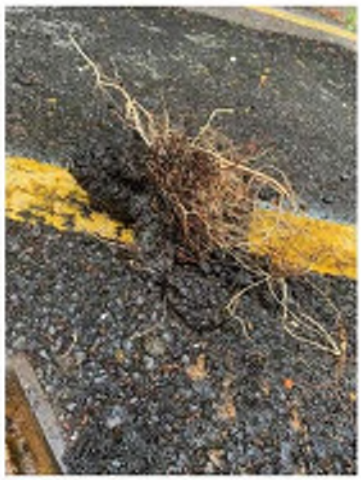
Date:	Job # : **WHC**	Weather : **rain**	Operator : **Draincare**	Section # : **45**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **no**	Rate : **0**

Street 1 : **Campus west**	City : **WGC**	Section type : **unknown**
Street 2 :	Map # 1 :	Map # 2 :
VCR # :	Media # :	US MH : **S2**
DS MH : **S3**	Section length : **26.34 m**	Joint length :
Remark :		

View of examples of debris / roots removed from SW drainage system



Grade 1 & 2 structural and service/operational defects should not be detrimental to the effectiveness of the drainage.

Grade 3, 4 & 5 structural and service/operational defects may be detrimental to the effectiveness of the drainage, and may require remedial treatment.
Pipework grading is based on the Sewerage Rehabilitating Manual (SRM) grading from the Water Research Centre (WRC).

The pipe materials as described should be recognized as the survey engineer's best judgment only.

The information provided in this report is given without obligation and the accuracy cannot be guaranteed without verification. No liability of any kind whatsoever is accepted by Draincare Ltd, their agents, or servants for any error or omission. The actual position of pipelines/services faults must be verified and established on the site before any mechanical plant is used or excavations/repairs attempted.

The survey is recorded on DVD or Hard Drive, which is enclosed with the report.
Please note that DVD or Hard Drive references and survey run titles are correct in the written report. Survey run titles on DVD or Hard Drive should be referred to the written report.

If the pipework material within your survey is noted as **Pitch Fibre or Asbestos Cement** please note that any works which may disturb the pipe structure must be undertaken in accordance with the Approved Code of Practice "Managing and Working With Asbestos – Control of Asbestos Regulations 2012"

Any quotation provided in this report for remedial measures affecting **Pitch Fibre Pipes** may exclude any additional costs associated with the presence of Asbestos and specialist support services.

The Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 became effective from 1st October 2011. As a result your responsibility for drainage may cease at your property boundary or you may only be responsible for the pipework before it connects to a communal drain serving your property.

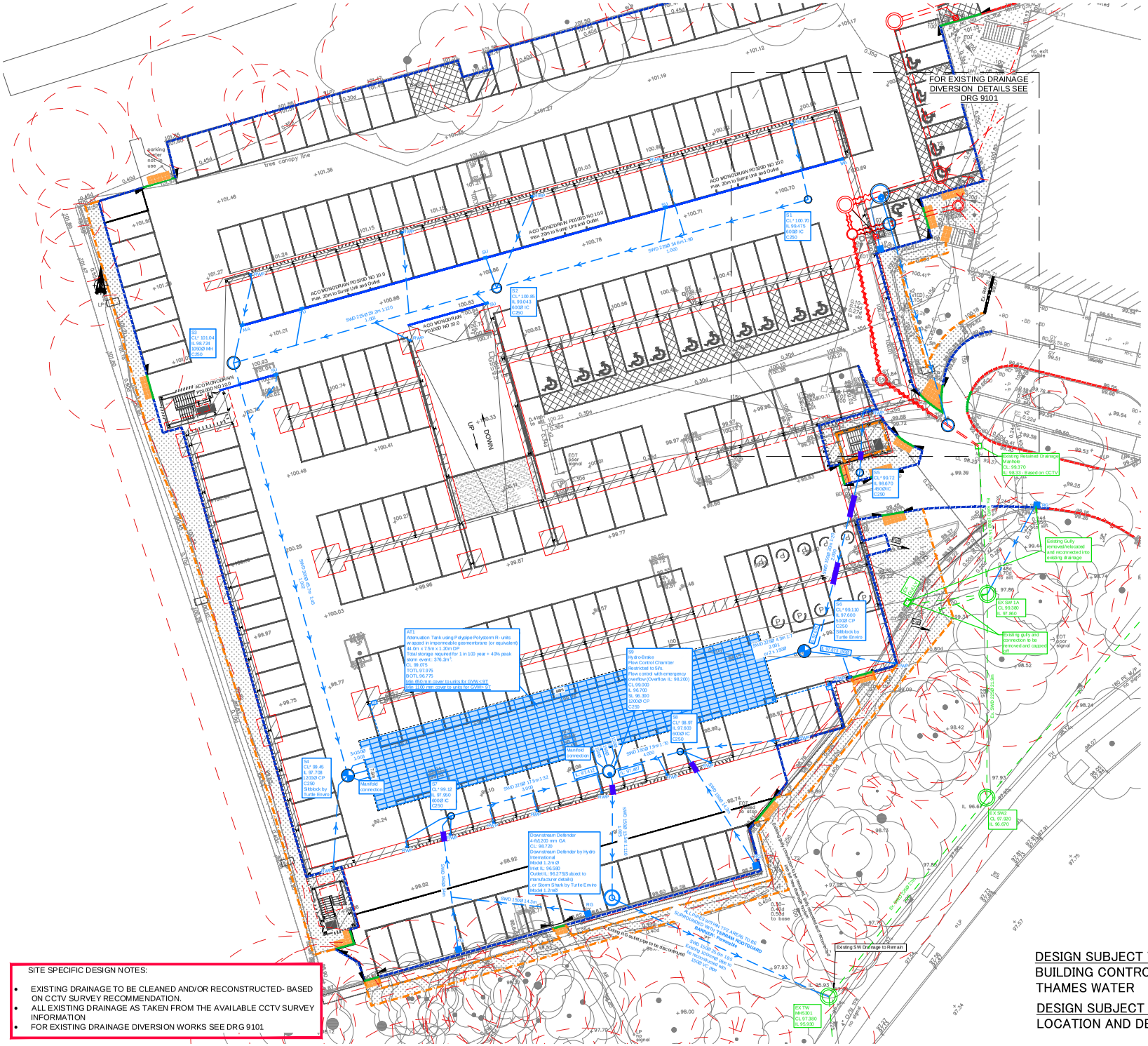
We recommend that the responsibility is determined before work to the drainage system is undertaken.

Appendix B

Proposed Surface Water Drainage Plan

Typical Construction Details

Surface Water Drainage Calculations



DRAINAGE LEGEND (1:200)

EXISTING FEATURES

- Ex FWD — Existing foul water sewer/drain and manhole
- Existing foul/surface water sewer/drain and manhole to be abandoned
- Ex SWD — Existing surface water sewer/drain and manhole

PROPOSED FEATURES

- SWD — Storm water sewer/drain
- SWD — Proposed SW pipe sleeved through the foundation
- RWP — Rainwater pipe (as taken from Bourne Parking Site Plan 'General Arrangement - Level 0 (Whole Site)' ref: WAHC-BFL-XX-XX-DR-X-002; Revision T2, dated 01.04.2020
- Storm water inspection chamber (450Ø)
- Storm water manhole
- Storm water vortex flow control chamber
- Storm water catchpit
- Proposed downstream defendor
- ACO Monodrain Channel
- 13.242 ★ Existing surface level
- 100Ø 4.5m 1:100 Pipe info - diameter, length, gradient

ABBREVIATIONS

MH	- MANHOLE
IC	- INSPECTION CHAMBER
AC	- ACCESS CHAMBER
CP	- CATCHPIT
BC	- BRAKE CHAMBER
RE	- RODDING EYE
IL	- INVERT LEVEL
SL	- SUMP LEVEL
CL	- COVER LEVEL
PIC	- PROPOSED MANHOLE TO EXISTING SW DRAINAGE
SU	- SUMP UNIT
MA	- CHANNEL MAINTENANCE ACCESS
CL*	- PROPOSED DRAINAGE MANHOLE COVER LEVELS SUBJECT TO EXTERNAL LEVELS FINAL DESIGN

- Proposed Foundation as taken from structural design.

EXTERNAL WORKS LEGEND (1:200)

- HB2 — HB2 kerb line. Kerb with 100mm upstand
- Ex. HB2 — Existing HB2 kerb line to remain
- 6mm — BN Kerb 6mm Upstand (Pedestrian crossings)
- PCC Edging laid flush with surface
- CS Kerb laid flush with surface
- Proposed dropper kerb
- Existing retaining wall to remain

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GENERAL NOTES

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3. Connections to Public sewers to be agreed and inspected by Water Authority.
4. Invert level, size and cover levels to existing manholes and sewers to be checked prior to any construction. Any discrepancies to be reported immediately.
5. Invert to base of soil stack bends to be 450mm below lowest branch connection for up to 3 storeys buildings. For buildings up to 5 storeys the invert to base of soil stack bends should be not less than 750mm.
6. All RWP and Foul Water drain point setting out is to be confirmed by Architect.
7. All RWP & SVP sizes & setting out by Architect / M&E Engineer. All below ground connections to match above ground outlet size, Min 100/110mm diameter.
8. Foul drains to project 100mm above finished floor level.
9. All internal Manholes and Inspection Chambers to have double sealed recessed covers to suit floor finishes by Architect.
10. All external covers in footpaths and roads in non tarmac areas to have recessed trays to suit the paving material.
11. Refer to drainage specification for pipe materials.
12. All pipework to be 100/110Ø UNO. Refer to note 7 connection sizes.
13. All foul and surface water drainage stacks to have above ground rodding access, refer to above ground drainage layout by others.
14. This drawing has been produced in colour and should be reproduced in colour for clarity.
15. A CCTV Survey and report in WINCAN format for all new drainage will be required before the "As Built" drawings will be issued.

SITE SPECIFIC DESIGN NOTES:

- EXISTING DRAINAGE TO BE CLEANED AND/OR RECONSTRUCTED- BASED ON CCTV SURVEY RECOMMENDATION.
- ALL EXISTING DRAINAGE AS TAKEN FROM THE AVAILABLE CCTV SURVEY INFORMATION
- FOR EXISTING DRAINAGE DIVERSION WORKS SEE DRG 9101

DESIGN SUBJECT TO THE APPROVAL OF:
BUILDING CONTROL
THAMES WATER

DESIGN SUBJECT TO THE CONFIRMATION OF:
LOCATION AND DEPTH OF EXISTING UTILITIES

Rev.	Amendment	Drn	Chkd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION — Suitability: A1

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e-mail: southampton@aksward.com
web: www.aksward.com
London
Hitchin
Oxford
Southampton

Client: Bourne Parking Limited

Project: Welwyn Campus
Welwyn Garden City

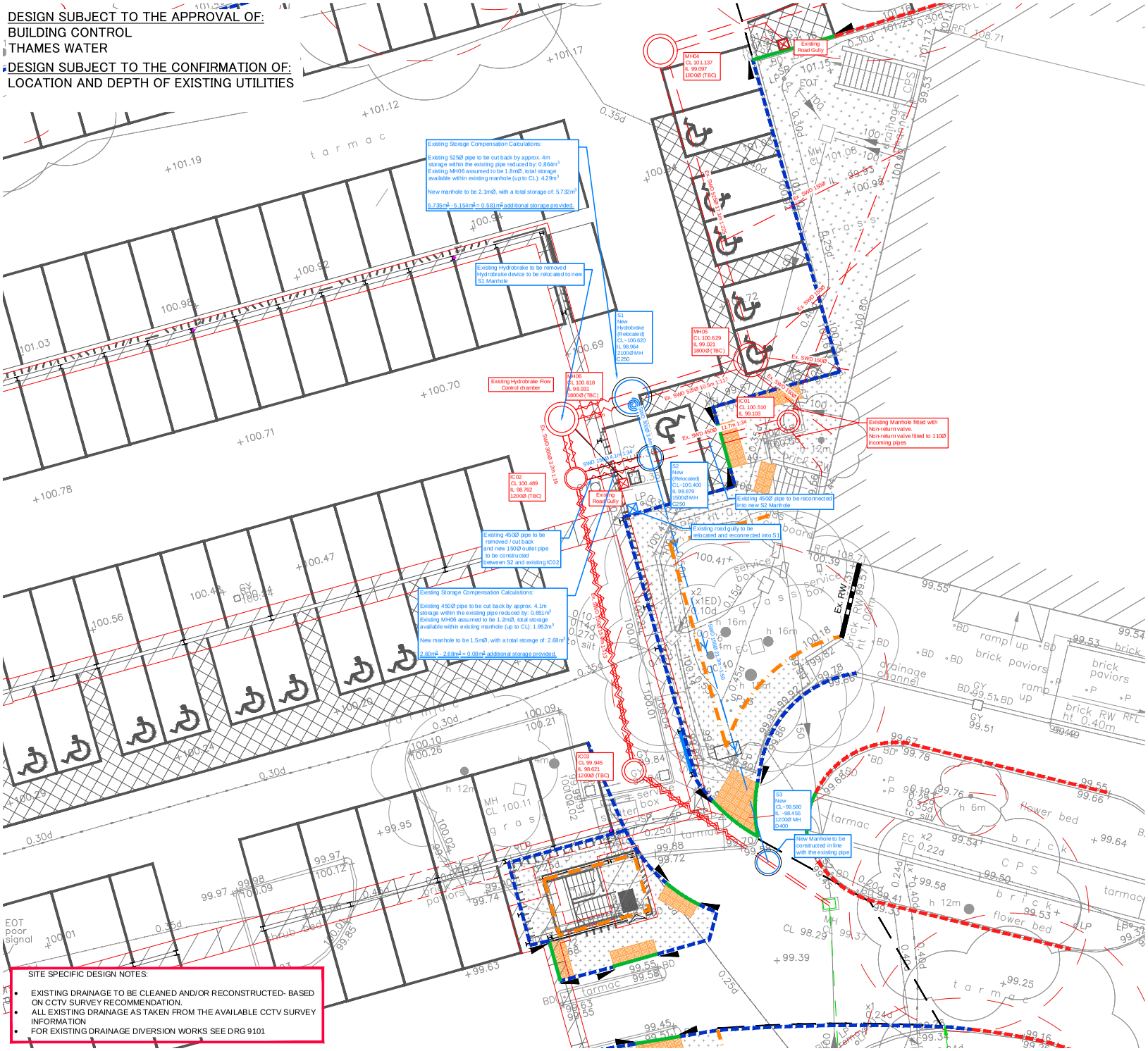
Title: Proposed Drainage Plan
Sheet 1 of 2

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:200	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9100	C01

DESIGN SUBJECT TO THE APPROVAL OF:
BUILDING CONTROL
THAMES WATER

DESIGN SUBJECT TO THE CONFIRMATION OF:
LOCATION AND DEPTH OF EXISTING UTILITIES



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- Storm water catchpit
- Proposed downstream defendor
- ACO Monodrain Channel
- 12.20 — Existing surface level
- 100Ø 4.5m 1:100 — Pipe info - diameter, length, gradient

ABBREVIATIONS

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Rev.	Amendment	Drn	Ch'kd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION — Suitability: A1

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London
Hitchin
Oxford
Southampton

Client: Bourne Parking Limited

Project: Welwyn Campus
Welwyn Garden City

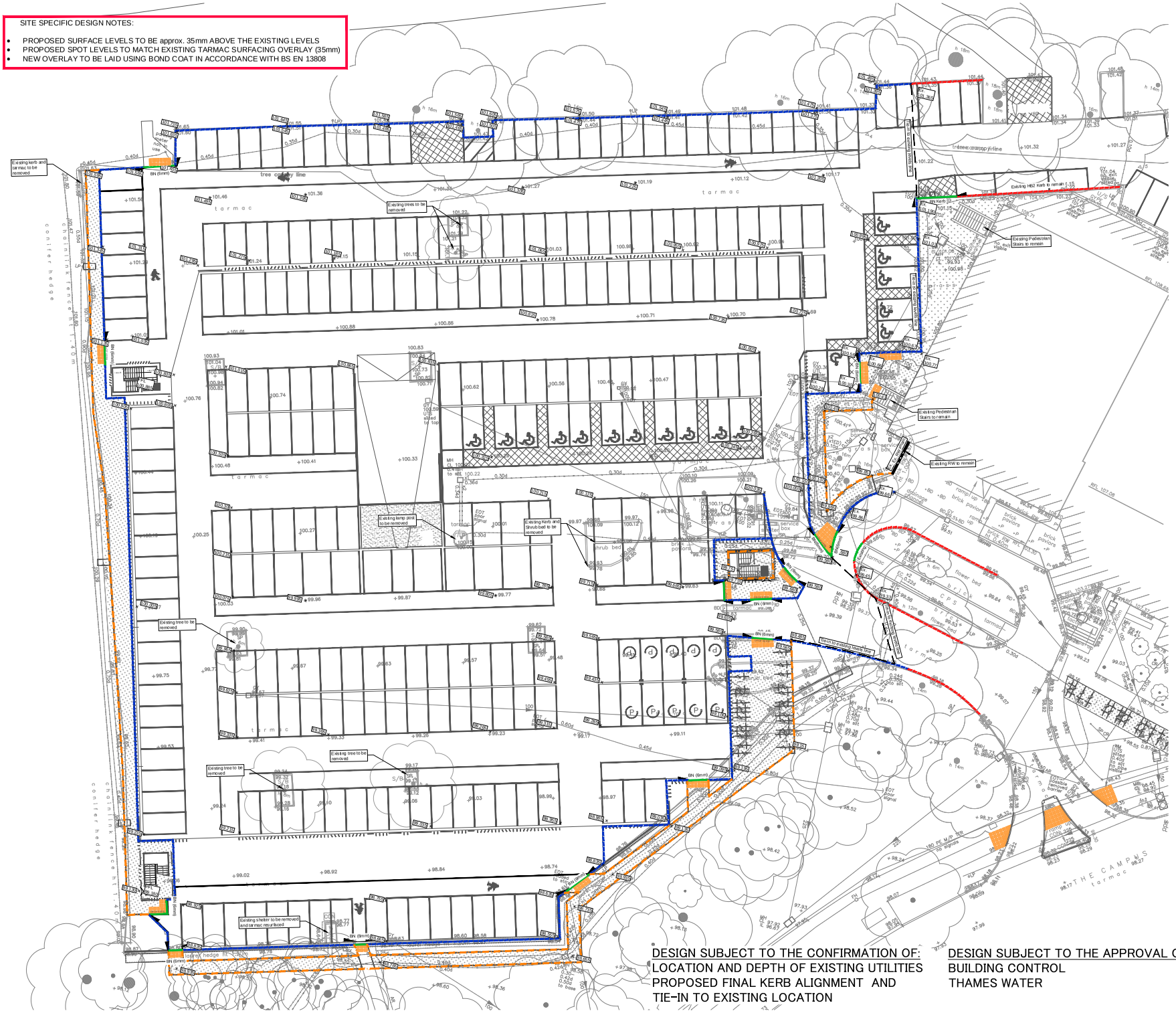
Title: Proposed Drainage Plan
Sheet 2 of 2

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:200	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9101	C01

SITE SPECIFIC DESIGN NOTES:

- PROPOSED SURFACE LEVELS TO BE approx. 35mm ABOVE THE EXISTING LEVELS
- PROPOSED SPOT LEVELS TO MATCH EXISTING TARMAC SURFACING OVERLAY (35mm)
- NEW OVERLAY TO BE LAID USING BOND COAT IN ACCORDANCE WITH BS EN 13808



DESIGN SUBJECT TO THE CONFIRMATION OF:
LOCATION AND DEPTH OF EXISTING UTILITIES
PROPOSED FINAL KERB ALIGNMENT AND
TIE-IN TO EXISTING LOCATION

DESIGN SUBJECT TO THE APPROVAL OF:
BUILDING CONTROL
THAMES WATER

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6mm	BN Kerb 0mm Upstand (Pedestrian crossing)
	PCC Edging laid flush with surface
	CS Kerb laid flush with surface
99.99 x	Proposed surface levels - proposed levels set 35mm above the existing ground levels. Existing surface to be overlaid with 35mm tarmac to provide smooth surfacing
99.99 x	Proposed tie-in location / existing levels.
	Proposed dropper kerb
	Existing retaining wall to remian
	Proposed new tactile paving

Rev.	Amendment	Drn	Chkd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION Suitability: A1

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e-mail: southampton@aksward.com
web: www.aksward.com
London
Hitchin
Oxford
Southampton

Client: Bourne Parking Limited

Project: Welwyn Campus
Welwyn Garden City

Title: Proposed Kerbing and Spot Levels Plan

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:200	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9150	C01

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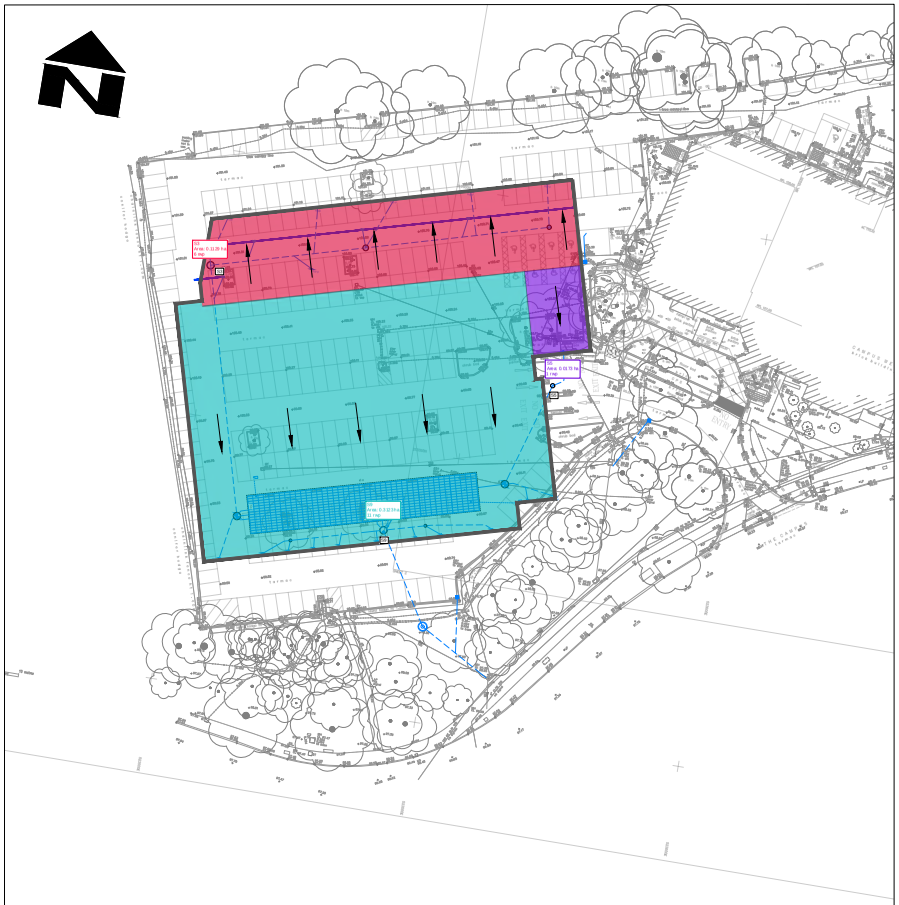
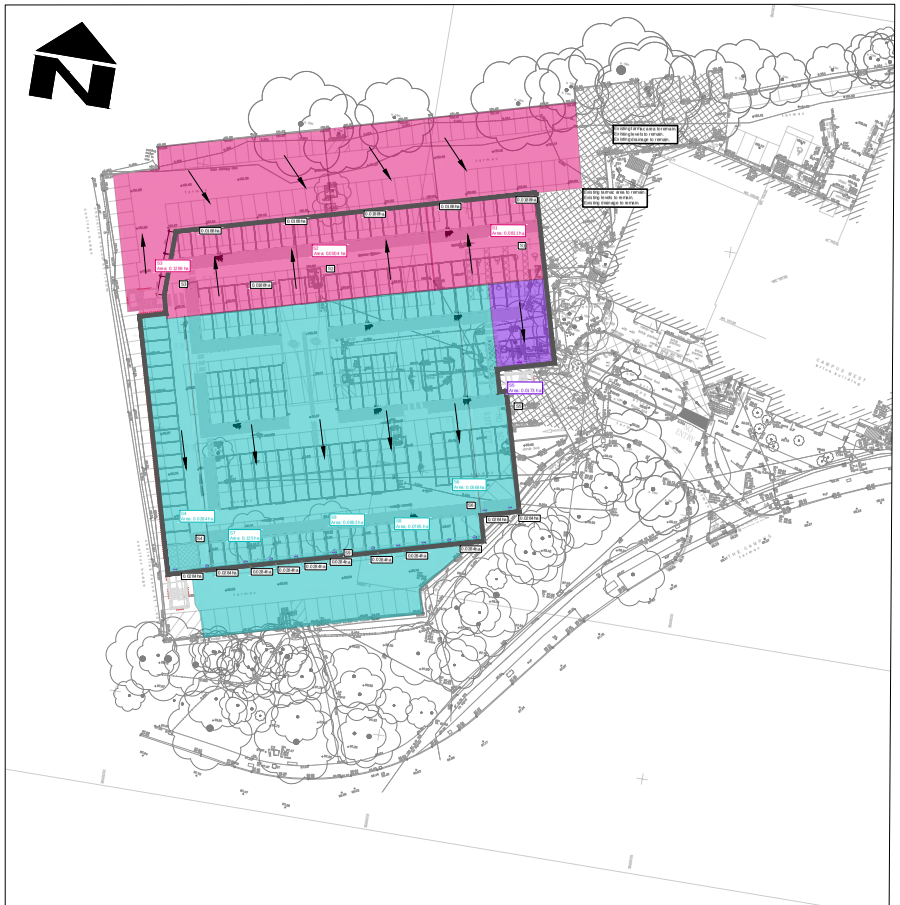


Contributing Areas - Top Deck - LEVEL 1

6 RWPs available / Total contributing area: 0.1129
Each RWP contributing area: 0.0188ha

11 RWPs available / Total contributing area: 0.3123
Each RWP contributing area: 0.0284ha

1 RWPs available / Total contributing area: 0.173Ha
Each RWP contributing area: 0.0173ha



Impermeable drained areas including ground and top decking areas.

Total drainage contributing areas:
0.649 ha

Surface Water runoff from the existing tarmac area to discharge reusing the existing drainage.
Area not included within drainage contributing area

Line indicating proposed car park top decking area.

Rev.	Amendment	Drn	Chkd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION — Suitability: A1

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☐ London
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Client: Bourne Parking Limited

Project: Welwyn Campus
Welwyn Garden City

Title: SW Contributing Area Plan

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:500	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9200	C01

DESIGN SUBJECT TO THE APPROVAL OF:
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THAMES WATER

DESIGN SUBJECT TO THE CONFIRMATION OF:
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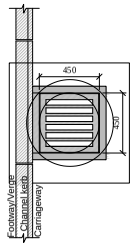
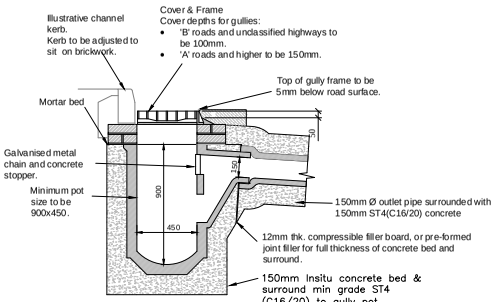
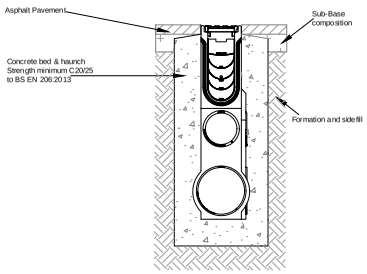


PLAN

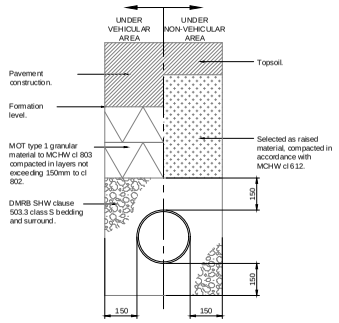


SECTION

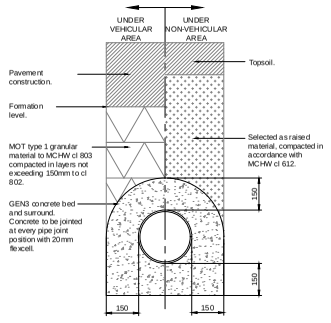
Proposed Typical Precast Concrete Gully



Aco MonoDrain
Asphalt construction
Sump Unit

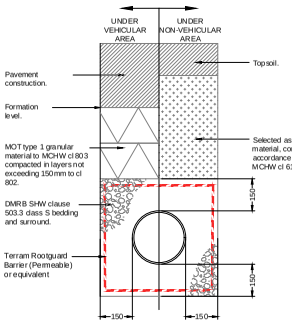


Class S granular pipe bed and surround
To be used for plastic, vitrified and concrete pipework where cover to crown is greater than 900mm.

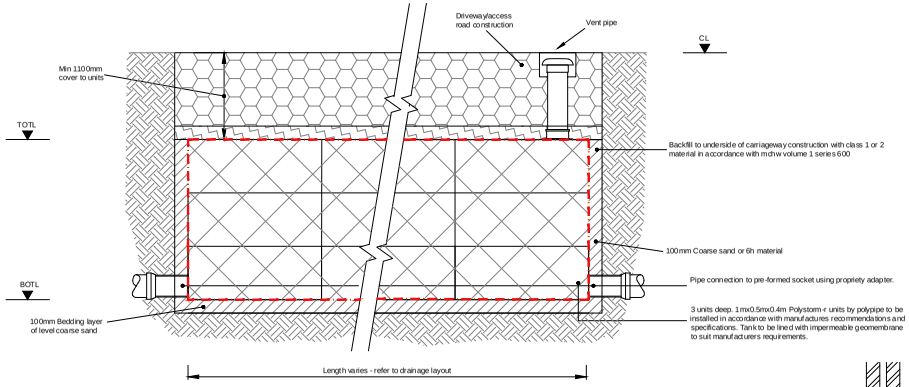


Class Z granular pipe bed and surround
To be used for plastic, vitrified and concrete pipework where cover to crown is less than 900mm.

Pipe Bedding Details

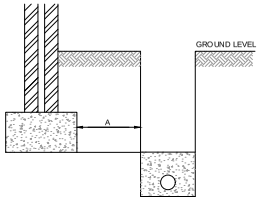


TREE ROOT BARRIER
PIPE BEDDING



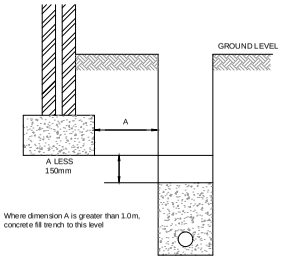
Attenuation tank using polystorm-r geomodular units trafficked areas
1.2m deep

All storage tank drainage works shall be carried out in accordance with the specifications, method statements and recommendations of polypipe



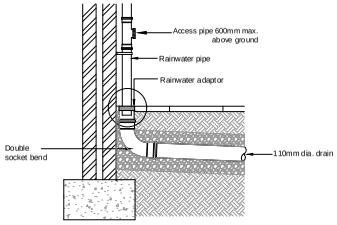
Where dimension A is less than 1.0m, concrete fill trench to level of underside of foundations.

Pipes near buildings

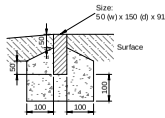


Where dimension A is greater than 1.0m, concrete fill trench to this level

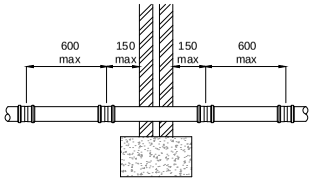
Pipes near buildings



Rainwater pipe connection

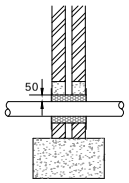


Edging
type EF flat top
(1:10)



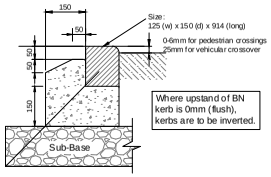
A. Short length of pipe bedded in wall with joints formed within 150mm of each wall face. Adjacent rocker pipes of 600mm max. length with flexible joints.

Pipes through wall detail

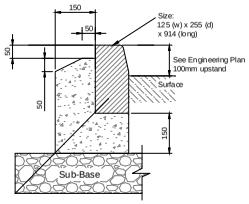


B. Arch or lintelled opening to give min 50mm space all round the pipe. Mask opening on both sides of the wall with rigid sheet material to prevent entry of fill or vermin. Important: Fill void with compressible material to prevent entry of gas.

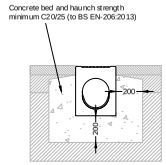
Pipes through wall with lintel detail



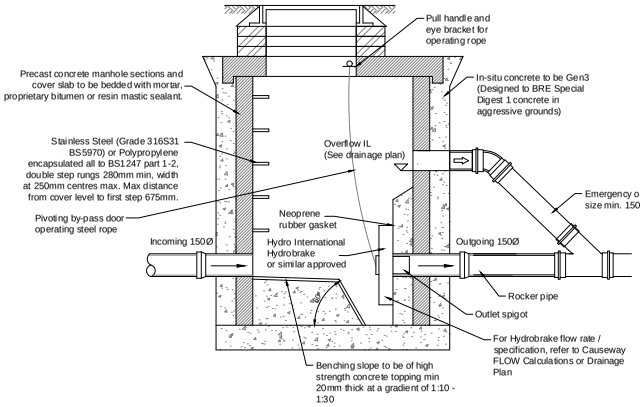
DROP KERB
TYPE BN
(1:10)



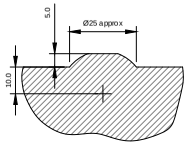
Full height kerb
type HB2
(1:10)



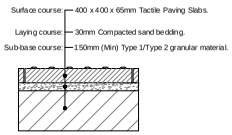
Aco Monodrain Construction
Detail in Asphalt
(To be read in conjunction with Aco installation specification)



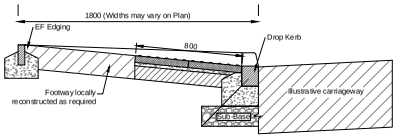
Typical Hydrobrake Manhole detail
Chamber is to be constructed to flow control manufacturers specific requirements



Tactile slab
dome section
(1:10)



Laying method
(1:10)



Tactile Crossing
Typical Detail
(Adjacent Carriageway)

TABLE 11 MIN. DIMENSIONS FOR ACCESS FITTINGS AND INSPECTION CHAMBERS

TYPE	DEPTH TO INVERT FROM COVER LEVEL (m)	INTERNAL SIZES		COVER SIZES	
		RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER	RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER
Rodding Eye		As drain but min 100			Same size as pipework (3)
Access Fittings small 150 dia 150x100 large 225x100	0.6 or less, except where situated in a chamber	150x100 225x100	150 225	150x100 (3) 225x100 (1)	Same size as access fitting
Inspection Chamber Shallow Deep	0.6 or less 1.2 or less >1.2 but <3.0	225x100 450x450 450x450	190 (1) 450 450	- Min 430x430 max 300x300 (3)	190 (3) 430 Access restricted to max 350 (1)

Notes:
(1) The clear opening may be reduced by 20mm in order to provide proper support for the cover and frame.
(2) Drains upto 150mm.
(3) A larger clear opening may be used in conjunction with a restricted access. The size is restricted for health and safety reasons to deter entry.

Rev.	Amendment	Drn	Ch'kd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION — Suitability: A1

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Client: Bourne Parking Limited

Project: Welwyn Campus
Welwyn Garden City

Title: Typical Construction Details
Sheet 1 of 2

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:20/As Shown	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9500	C01

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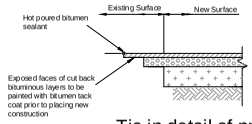
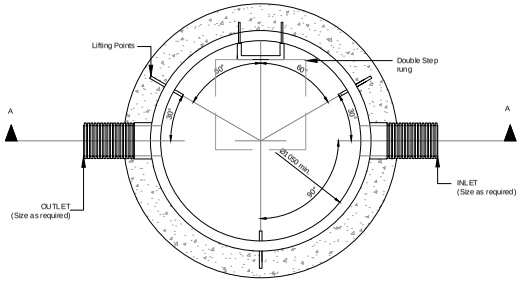
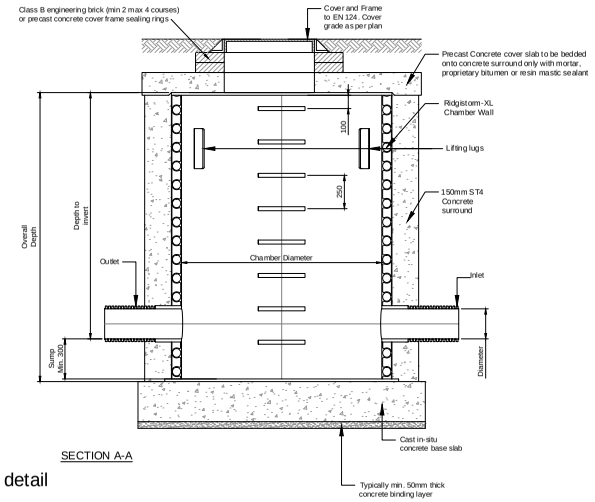
GENERAL NOTES



Tie in detail of proposed footway to existing



PLAN



SECTION A-A

Typical Silt trap manhole detail
Polypipe

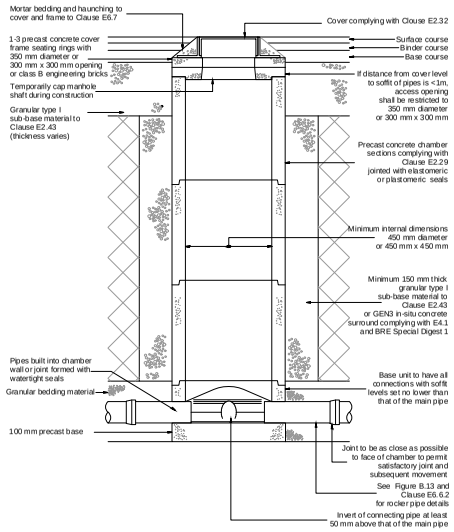
Table 1) Typical Chamber Specification

Chamber diameter (Ømm)	750	900	1050	1200	1500	1800	2100	2400	2700	3000
Step Rungs / Ladder	û	û	✓ 2)	✓	✓	✓	✓	✓	✓	✓
Lifting Lugs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connections (Refer to Manhole sheet)	Connections available from 100mm - 3000mm - Dependant on Technical Approval									

1. Step rungs are only available to a depth of 3m, once this depth is exceeded ladders are typically required.
2. Ladders cannot be used in chamber diameters smaller than Ø1200mm
3. Lifting points are available in standard, extended and heavy duty forms, the correct lifting points will be chosen dependant on weight and diameter.
4. Catchpits between Ø450mm - Ø600mm will be made from Ridgidrain and cannot contain steps / ladders or lifting lugs.

FIGURE B 20
TYPICAL INSPECTION CHAMBER DETAIL - TYPE D

Depth from cover level to soffit of pipe up to 2 m
Rigid material construction for use in areas subject to subject to vehicle loading

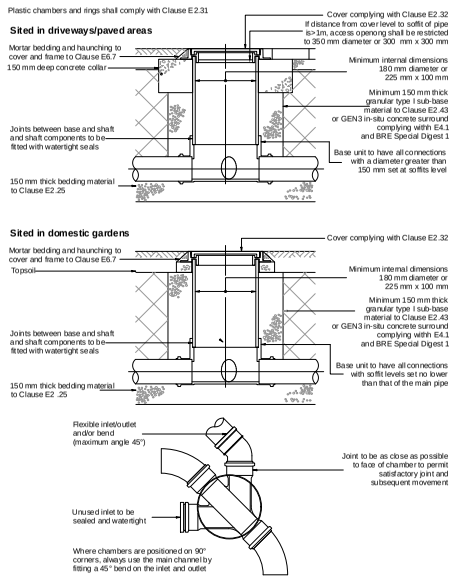


Note: Where the access chamber is in the highway (including any footway) ,the highway Authority can have specific requirements

Not to scale

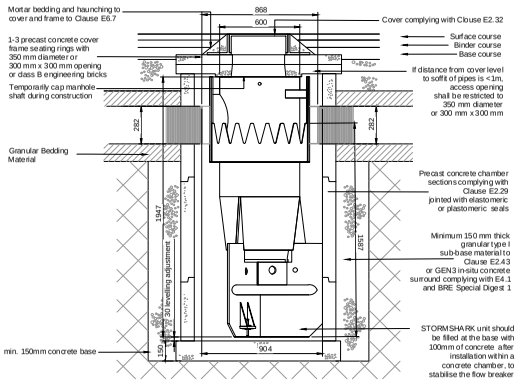
FIGURE B 23
TYPICAL INSPECTION CHAMBER DETAIL - TYPE E

Depth from cover level to soffit of pipe up to 2 m
Flexible material construction



Note: Where the access chamber is in the highway (including any footway) the highway Authority can have specific requirements

Not to scale

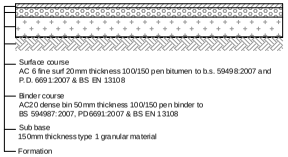


Models: SSK1200M - SSK3000M should be installed with PCC chambers.

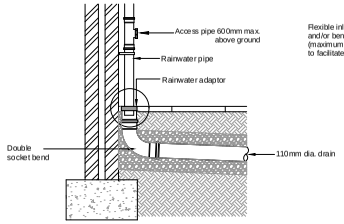
Models: SSK750M - SSK1000M may be installed using polyethylene twinwall chambers.

STORM SHARK ADVANCED HYDRODYNAMIC VORTEX SEPARATOR
Typical Construction Detail

(Detail to be read in conjunction with Manufacturer Specification)

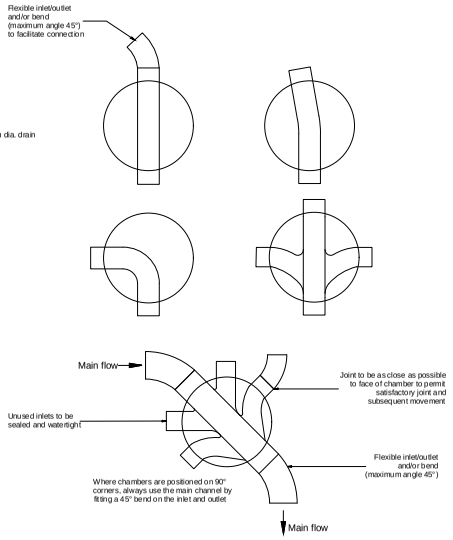


Flexible footway construction



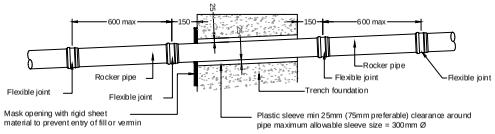
Rainwater pipe connection

FIGURE B 22
TYPICAL BASE LAYOUTS FOR TYPE D CHAMBERS



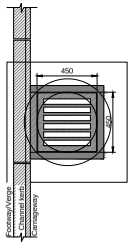
Note: Where a bend is used immediately outside the manhole, this may be used as the rocker pipe

Not to scale

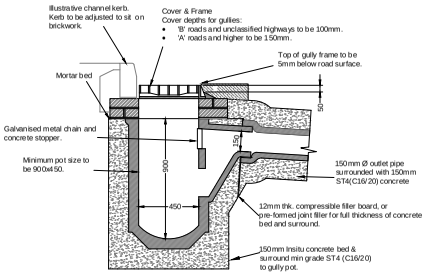


Pipes Passing Through Foundations

Scale 1:20



GULLY A
TYPE: PRECAST CONCRETE
PLAN



GULLY A
TYPE: PRECAST CONCRETE
SECTION

C01 Construction Issue TZ CS 14.02.22

Rev.	Amendment	Drn	Ch'kd	Date

Drg. Status CONSTRUCTION Suitability A1

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Project Welwyn Campus
Welwyn Garden City

Title Typical Construction Details
Sheet 2 of 2

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:20/ As Shown	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9501	C01

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

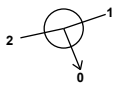
Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
AT1			99.075	450	523536.195	213339.614	2.300
DD			98.500	1200	523543.435	213323.751	1.919
S1	0.081	4.00	100.700	600	523559.540	213395.558	1.225
S2	0.050	4.00	100.850	600	523526.287	213386.094	1.807
S3	0.129	4.00	101.040	1050	523498.103	213378.107	2.316
S4	0.028	4.00	99.450	1200	523510.397	213334.051	1.776
S5	0.017	4.00	99.720	450	523566.096	213366.407	1.050
S6	0.057	4.00	99.110	500	523559.136	213347.347	1.510
S9	0.085	4.00	99.000	1200	523538.273	213334.504	2.300
S7	0.125	4.00	99.120	600	523521.516	213329.357	1.170
S8	0.077	4.00	98.970	450	523545.891	213336.675	1.370

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)
1.000	1.463	58.2	11.0	1.000	1.582	0.081	0.0	66
1.001	1.192	47.4	17.8	1.582	2.016	0.131	0.0	95
1.002	2.350	166.1	35.2	2.016	1.442	0.260	0.0	93
2.000	2.240	39.6	2.3	0.900	1.285	0.017	0.0	24
4.000	1.202	21.2	10.4	1.220	1.363	0.077	0.0	74
1.003	8.663	612.4	39.0	1.476	2.000	0.288	0.0	51
1.004	3.056	216.0	49.1	2.000	2.000	0.362	0.0	97
3.000	2.300	91.4	16.9	0.945	1.363	0.125	0.0	65
1.005	1.005	17.8	0.0	2.150	1.769	0.649	0.0	0
2.001	2.000	79.5	10.0	1.285	1.350	0.074	0.0	54

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
AT1	523536.195	213339.614	99.075	2.300	450		1	2.001	97.500	225
							2	1.003	96.775	300
							0	1.004	96.775	300

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
DD	523543.435	213323.751	98.500	1.919	1200		1	1.005	96.581	150
S1	523559.540	213395.558	100.700	1.225	600					
							0	1.000	99.475	225
S2	523526.287	213386.094	100.850	1.807	600		1	1.000	99.043	225
							0	1.001	99.043	225
S3	523498.103	213378.107	101.040	2.316	1050		1	1.001	98.799	225
							0	1.002	98.724	300
S4	523510.397	213334.051	99.450	1.776	1200		1	1.002	97.708	300
							0	1.003	97.674	300
S5	523566.096	213366.407	99.720	1.050	450					
							0	2.000	98.670	150
S6	523559.136	213347.347	99.110	1.510	500		1	2.000	97.675	150
							0	2.001	97.600	225
S9	523538.273	213334.504	99.000	2.300	1200		1	4.000	97.487	150
							2	3.000	97.412	225
							3	1.004	96.700	300
							0	1.005	96.700	150
S7	523521.516	213329.357	99.120	1.170	600					
							0	3.000	97.950	225
S8	523545.891	213336.675	98.970	1.370	450					
							0	4.000	97.600	150

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

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

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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
10	0	0	0
30	0	0	0
100	40	0	0

Node S9 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	96.700	Product Number	CTL-SHE-0101-5000-1300-5000
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node AT1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	96.775	Depth (m)	1.200
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	44.000	Number Required	1
Porosity	0.95	Pit Length (m)	7.500		

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m^3)	
Full Bore Velocity	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	109.521	30.991	1 year 240 minute winter	12.274	4.882
1 year 15 minute winter	76.857	30.991	1 year 360 minute summer	14.169	3.646
1 year 30 minute summer	71.439	20.215	1 year 360 minute winter	9.210	3.646
1 year 30 minute winter	50.133	20.215	1 year 480 minute summer	11.185	2.956
1 year 60 minute summer	48.435	12.800	1 year 480 minute winter	7.431	2.956
1 year 60 minute winter	32.179	12.800	1 year 600 minute summer	9.182	2.511
1 year 120 minute summer	30.053	7.942	1 year 600 minute winter	6.274	2.511
1 year 120 minute winter	19.966	7.942	1 year 720 minute summer	8.203	2.199
1 year 180 minute summer	23.233	5.979	1 year 720 minute winter	5.513	2.199
1 year 180 minute winter	15.102	5.979	1 year 960 minute summer	6.768	1.782
1 year 240 minute summer	18.475	4.882	1 year 960 minute winter	4.483	1.782

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Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 1440 minute summer	4.949	1.326
1 year 1440 minute winter	3.326	1.326
10 year 15 minute summer	211.819	59.937
10 year 15 minute winter	148.645	59.937
10 year 30 minute summer	136.831	38.718
10 year 30 minute winter	96.022	38.718
10 year 60 minute summer	90.826	24.003
10 year 60 minute winter	60.342	24.003
10 year 120 minute summer	54.899	14.508
10 year 120 minute winter	36.474	14.508
10 year 180 minute summer	41.666	10.722
10 year 180 minute winter	27.084	10.722
10 year 240 minute summer	32.645	8.627
10 year 240 minute winter	21.689	8.627
10 year 360 minute summer	24.632	6.339
10 year 360 minute winter	16.012	6.339
10 year 480 minute summer	19.260	5.090
10 year 480 minute winter	12.796	5.090
10 year 600 minute summer	15.690	4.291
10 year 600 minute winter	10.720	4.291
10 year 720 minute summer	13.925	3.732
10 year 720 minute winter	9.358	3.732
10 year 960 minute summer	11.365	2.993
10 year 960 minute winter	7.528	2.993
10 year 1440 minute summer	8.174	2.191
10 year 1440 minute winter	5.493	2.191
30 year 15 minute summer	268.706	76.035
30 year 15 minute winter	188.566	76.035
30 year 30 minute summer	174.929	49.499
30 year 30 minute winter	122.757	49.499
30 year 60 minute summer	116.589	30.811
30 year 60 minute winter	77.459	30.811
30 year 120 minute summer	70.438	18.615
30 year 120 minute winter	46.797	18.615
30 year 180 minute summer	53.298	13.715
30 year 180 minute winter	34.645	13.715
30 year 240 minute summer	41.604	10.995
30 year 240 minute winter	27.641	10.995
30 year 360 minute summer	31.221	8.034
30 year 360 minute winter	20.295	8.034
30 year 480 minute summer	24.324	6.428
30 year 480 minute winter	16.160	6.428
30 year 600 minute summer	19.756	5.404
30 year 600 minute winter	13.498	5.404
30 year 720 minute summer	17.490	4.687
30 year 720 minute winter	11.754	4.687
30 year 960 minute summer	14.215	3.743
30 year 960 minute winter	9.416	3.743
30 year 1440 minute summer	10.161	2.723
30 year 1440 minute winter	6.829	2.723
100 year +40% CC 15 minute summer	488.233	138.153
100 year +40% CC 15 minute winter	342.620	138.153
100 year +40% CC 30 minute summer	320.551	90.705
100 year +40% CC 30 minute winter	224.948	90.705
100 year +40% CC 60 minute summer	214.603	56.713
100 year +40% CC 60 minute winter	142.577	56.713
100 year +40% CC 120 minute summer	129.587	34.246
100 year +40% CC 120 minute winter	86.094	34.246
100 year +40% CC 180 minute summer	97.729	25.149
100 year +40% CC 180 minute winter	63.526	25.149
100 year +40% CC 240 minute summer	75.977	20.078
100 year +40% CC 240 minute winter	50.477	20.078
100 year +40% CC 360 minute summer	56.677	14.585
100 year +40% CC 360 minute winter	36.841	14.585
100 year +40% CC 480 minute summer	43.979	11.622
100 year +40% CC 480 minute winter	29.219	11.622
100 year +40% CC 600 minute summer	35.604	9.738
100 year +40% CC 600 minute winter	24.327	9.738
100 year +40% CC 720 minute summer	31.433	8.424
100 year +40% CC 720 minute winter	21.125	8.424
100 year +40% CC 960 minute summer	25.432	6.697
100 year +40% CC 960 minute winter	16.847	6.697
100 year +40% CC 1440 minute summer	18.055	4.839
100 year +40% CC 1440 minute winter	12.134	4.839

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Results for 1 year Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	AT1	144	96.962	0.187	18.1	58.6877	0.0000	OK
15 minute summer	DD	1	96.581	0.000	4.9	0.0000	0.0000	OK
15 minute winter	S1	10	99.544	0.069	12.1	0.1111	0.0000	OK
15 minute winter	S2	10	99.146	0.103	19.6	0.0863	0.0000	OK
15 minute winter	S3	10	98.824	0.100	38.4	0.1973	0.0000	OK
15 minute summer	S4	9	97.739	0.065	41.8	0.0940	0.0000	OK
15 minute winter	S5	10	98.696	0.026	2.5	0.0125	0.0000	OK
15 minute winter	S6	10	97.664	0.064	11.0	0.0604	0.0000	OK
15 minute summer	S9	8	96.997	0.297	42.8	0.5550	0.0000	SURCHARGED
15 minute winter	S7	10	98.022	0.072	18.6	0.1737	0.0000	OK
15 minute winter	S8	10	97.686	0.086	11.5	0.1106	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	AT1	1.004	S9	22.0	0.636	0.102	0.1115	
15 minute winter	S1	1.000	S2	12.1	0.880	0.208	0.4858	
15 minute winter	S2	1.001	S3	19.2	1.113	0.405	0.5058	
15 minute winter	S3	1.002	S4	37.9	1.893	0.228	0.9152	
15 minute summer	S4	1.003	AT1	41.9	4.836	0.068	0.0348	
15 minute winter	S5	2.000	S6	2.5	1.243	0.063	0.0408	
15 minute winter	S6	2.001	AT1	11.0	1.300	0.138	0.0364	
15 minute summer	S9	Hydro-Brake®	DD	4.9				35.5
15 minute winter	S7	3.000	S9	18.6	1.763	0.203	0.1850	
15 minute winter	S8	4.000	S9	11.5	1.162	0.541	0.0784	

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Results for 10 year Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	AT1	176	97.185	0.410	35.9	128.5929	0.0000	SURCHARGED
15 minute summer	DD	1	96.581	0.000	5.0	0.0000	0.0000	OK
15 minute winter	S1	10	99.574	0.099	23.4	0.1582	0.0000	OK
15 minute winter	S2	10	99.202	0.159	37.8	0.1327	0.0000	OK
15 minute winter	S3	10	98.869	0.145	74.4	0.2876	0.0000	OK
15 minute summer	S4	10	97.762	0.088	81.6	0.1279	0.0000	OK
15 minute winter	S5	10	98.706	0.036	4.9	0.0176	0.0000	OK
15 minute winter	S6	10	97.693	0.093	21.3	0.0887	0.0000	OK
180 minute winter	S9	176	97.185	0.485	18.2	0.9068	0.0000	SURCHARGED
15 minute winter	S7	10	98.055	0.105	36.1	0.2535	0.0000	OK
15 minute winter	S8	10	97.786	0.186	22.2	0.2382	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	AT1	1.004	S9	-13.0	-0.248	-0.060	0.1408	
15 minute winter	S1	1.000	S2	23.4	1.022	0.402	0.8065	
15 minute winter	S2	1.001	S3	37.2	1.290	0.786	0.8456	
15 minute winter	S3	1.002	S4	73.8	2.249	0.444	1.5007	
15 minute summer	S4	1.003	AT1	81.7	4.974	0.133	0.0833	
15 minute winter	S5	2.000	S6	4.9	1.509	0.124	0.0659	
15 minute winter	S6	2.001	AT1	21.3	1.524	0.268	0.0601	
180 minute winter	S9	Hydro-Brake®	DD	5.0				116.7
15 minute winter	S7	3.000	S9	36.1	2.086	0.395	0.3035	
15 minute winter	S8	4.000	S9	22.0	1.253	1.037	0.1354	

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Results for 30 year Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	AT1	232	97.340	0.565	36.7	177.3717	0.0000	SURCHARGED
15 minute summer	DD	1	96.581	0.000	5.0	0.0000	0.0000	OK
15 minute winter	S1	10	99.588	0.113	29.6	0.1810	0.0000	OK
15 minute winter	S2	10	99.240	0.197	47.9	0.1648	0.0000	OK
15 minute winter	S3	10	98.892	0.168	93.8	0.3323	0.0000	OK
15 minute summer	S4	10	97.774	0.100	103.0	0.1451	0.0000	OK
15 minute winter	S5	10	98.711	0.041	6.2	0.0198	0.0000	OK
15 minute winter	S6	10	97.708	0.108	27.1	0.1028	0.0000	OK
240 minute winter	S9	232	97.340	0.640	18.6	1.1976	0.0000	SURCHARGED
15 minute summer	S7	10	98.071	0.121	45.7	0.2936	0.0000	OK
15 minute winter	S8	10	97.900	0.300	28.2	0.3847	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
240 minute winter	AT1	1.004	S9	-13.4	-0.193	-0.062	0.1408	
15 minute winter	S1	1.000	S2	29.6	1.060	0.509	0.9818	
15 minute winter	S2	1.001	S3	46.6	1.330	0.983	1.0397	
15 minute winter	S3	1.002	S4	93.1	2.374	0.560	1.7933	
15 minute summer	S4	1.003	AT1	103.1	4.960	0.168	0.1054	
15 minute winter	S5	2.000	S6	6.2	1.612	0.157	0.0780	
15 minute winter	S6	2.001	AT1	27.1	1.611	0.341	0.0724	
240 minute winter	S9	Hydro-Brake®	DD	5.0				131.1
15 minute summer	S7	3.000	S9	45.7	2.202	0.500	0.3638	
15 minute winter	S8	4.000	S9	28.1	1.595	1.322	0.1380	

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.85%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	AT1	352	97.971	1.196	50.8	375.0626	0.0000	SURCHARGED
15 minute summer	DD	1	96.581	0.000	5.0	0.0000	0.0000	OK
15 minute winter	S1	10	100.198	0.723	53.9	1.1608	0.0000	SURCHARGED
15 minute winter	S2	10	99.827	0.784	82.5	0.6554	0.0000	SURCHARGED
15 minute winter	S3	10	98.991	0.267	166.3	0.5292	0.0000	OK
360 minute winter	S4	352	97.971	0.297	24.7	0.4292	0.0000	OK
15 minute summer	S5	10	98.725	0.055	11.3	0.0265	0.0000	OK
360 minute winter	S6	352	97.971	0.371	8.2	0.3526	0.0000	SURCHARGED
360 minute winter	S9	352	97.971	1.271	24.6	2.3762	0.0000	SURCHARGED
15 minute winter	S7	10	98.145	0.195	83.1	0.4720	0.0000	OK
15 minute winter	S8	10	98.490	0.890	51.2	1.1419	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	AT1	1.004	S9	-19.7	-0.280	-0.091	0.1408	
15 minute winter	S1	1.000	S2	50.2	1.262	0.862	1.3750	
15 minute winter	S2	1.001	S3	80.6	2.026	1.700	1.1533	
15 minute winter	S3	1.002	S4	163.1	2.610	0.982	3.1262	
360 minute winter	S4	1.003	AT1	35.7	3.023	0.058	0.2111	
15 minute summer	S5	2.000	S6	11.3	1.627	0.285	0.1653	
360 minute winter	S6	2.001	AT1	6.4	1.133	0.080	0.1710	
360 minute winter	S9	Hydro-Brake®	DD	5.0				162.2
15 minute winter	S7	3.000	S9	83.1	2.429	0.909	0.5969	
15 minute winter	S8	4.000	S9	50.1	2.843	2.356	0.1380	

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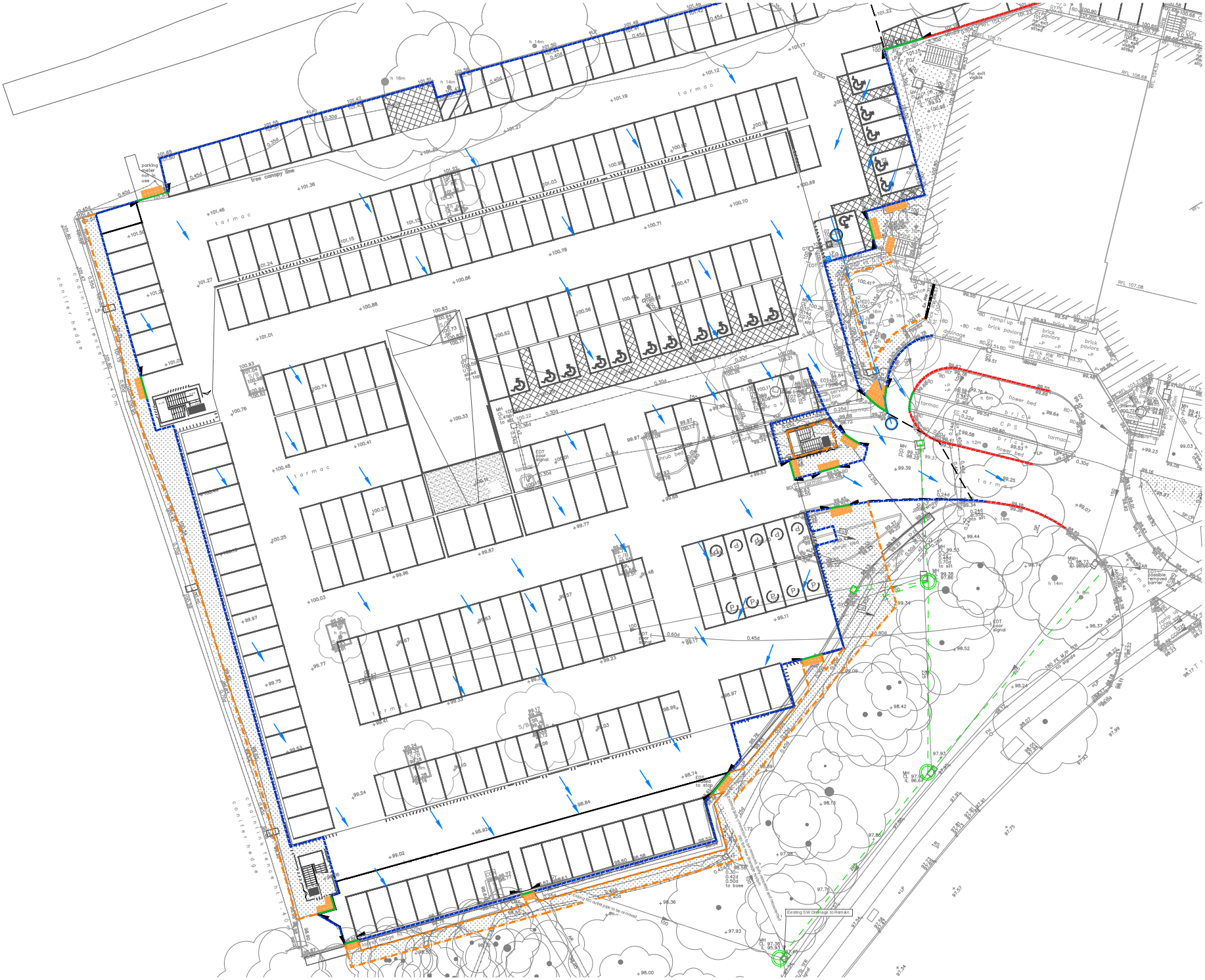
Appendix C

Exceedance Event Flow Plan



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GENERAL NOTES

Surface water runoff flow arrow. Arrow indicating direction of flow exceeding the critical 1 in 100 year + 40% storm.

Rev.	Amendment	Drn	Chkd	Date
C01	Construction Issue	TZ	CS	14.02.22

Drg. Status: CONSTRUCTION
Suitability: A1

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Project: Welwyn Campus
Welwyn Garden City

Title: Exceedance Event Plan

Reviewed Scheme	JD	Date	14.02.22
Reviewed Final	JD	Date	14.02.22
Scales at A1	1:200	Project No.	S208011

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
BWG	AKSW	XX	XX	DR	C	9110	C01