

Ref: C3388
29 September 2026

Re: Engineers Comments Regarding Surface Water Drainage- The Grange, Westergate Street, PO20 3SQ. Removal of mobile home and replacement with 1 No. self-build dwelling and associated works. This application is in CIL Zone 1 (Zero Rated)

Application reference: AL/52/26/PL

Reviewer Reference: ADC/EXT5/AF

Date of Review: 07/09/2026

Planning Officer: Hebe Smith

Dear Mrs Hebe Smith

I refer to the letter from the Arun District Council dated **07 September 2026** with regards to the above planning application.

The LPA has objected to the application, providing the detailed comments set out below. Our response in green is provided accordingly.

3. Extreme rainfall and flooding

3.1. The greenfield runoff calculations are missing from the report but the design peak flow rate of 0.1 litres per second is acceptable. The restriction size is very small at 8mm but the upstream flow is filtered through permeable paving and other upstream measures to remove detritus. The flow control product type incorporates blockage protection and a high level overflow weir.

3.2. A suitable downstream surcharge should be incorporated to reflect the anticipated top water level in the ditch during the design storm. This is not clear from the calculations and the system may not operate as demonstrated by the calculations if there is flood locking from the ordinary watercourse network during the design storm.

3.3. The design to manage extreme rainfall is not currently demonstrated to be in accordance with the requirements of NSfS Standard 3. Therefore, we object to the application.

CGS Civils Response:

With regard to LLFA Comment 3.2, the hydraulic calculations have been updated to incorporate a downstream surcharge level representing the anticipated water level within the receiving ditch during the 1 in 100-year storm event, including a 45% CC and 10% urban creep allowance.

A downstream surcharge level of 9.518 mAOD has been adopted at the proposed outfall. This represents a water level 300 mm above the proposed outfall headwall level of 9.218 mAOD, 498 mm above the approved desilted ditch bed level of 9.020 mAOD, and 162 mm below the lowest top-of-bank level identified within the development site boundary.

The updated hydraulic calculations therefore account for the potential for flood locking from the downstream ditch network during the design storm.

Although the landowner has confirmed that the ditch is dry for most of the year and that water drains away relatively quickly following rainfall events, a conservative downstream surcharge level has been adopted to ensure that the proposed drainage system is assessed under a potential downstream surcharge condition.

Please refer to the attached updated hydraulic calculations.

With regard to LLFA Comment 3.3, the exceedance flow routes have been specifically designed to follow the existing and proposed site topography, providing defined overland flow routes away from the proposed buildings and other vulnerable areas. Please refer to Drawing No. 201.

The exceedance routes generally follow the available site levels and are directed towards the public highway to the south, providing a defined route for surface water should the drainage system be exceeded during an extreme rainfall event.

In addition, a 25 mm BN kerb upstand has been incorporated at the driveway to provide positive guidance for overland flows and safely redirect them towards the public highway.



104425N

Proposed Bio Retention Planter Unit lined with impermeable geomembrane and designed with perforated pipe 1000 Dimensions: 1.200m x 6.700m x 0.450m CL 10.200 Out pipe 1000 IL: 9.760 Biorientation Base Level: 9.750 Depth 0.450m A storage volume of 3.618 m³ is provided to accommodate the 1-in-100-year storm event, including a 45% allowance for climate change and 10% urban creep.

For details see Proposed Typical Construction Details; drawing no: 301

Underground garden rainwater harvesting system tank.

Graf Platin Tank 3000 litre 2.450m x 2.100m x 1.050m CL: 10.150 IL of inlet: 9.670 IL of outlet: 9.590 BL 8.935 Subject to manufacturer details. Final location and size subject to clients' requirements.

Rainwater pipe positioned in close proximity to existing trees should be incorporated a Rainwater Filter Chamber to ensure that leaves do not obstruct the proposed drainage system.

Permeable Paving Area (PP1)
(area 200m²)
60mm Porous Blocks
50mm 2/6mm Laying Course
640mm Type 3 with 30% voids Sub Base laid flat Geotextile
Total storage required for 1 in 100 + 45% + 10% for urban creep allowance: **34.649m³**
CL: 10.200-10.150
FL: 9.400

Voided sub-base to be laid flat and enclosed with an impermeable membrane to the bottom and sides.

Permeable Paving Area (PP2)
(area 19m²)
60mm Porous Blocks
50mm 2/6mm Laying Course
490mm Type 3 with 30% voids Sub Base laid flat Geotextile
Total storage required for 1 in 100 + 45% + 10% for urban creep allowance: **2.56m³**
CL: min 10.000
FL: 9.400

Voided sub-base to be laid flat and enclosed with an impermeable membrane to the bottom and sides.

DRAINAGE LEGEND

EXISTING FEATURES

- Ex FWD - Existing foul water sewer/drain and manhole (information as taken from the site)
- Foul water drainage network as per application AL/92/23/PL

PROPOSED FEATURES

- FWD - Foul Drainage
- SWD - Surface Water Drainage
- Pipe crossing (thickening denotes pipe above)
- Storm water catchpit chamber (4500)
- Storm water orifice flow control chamber (5000)
- Rainwater pipe- assumed location, tbc
- Storm water rodding eye
- Extent of permeable paving with porous sub-base lined with impermeable membrane
- Proposed Biorientation Planter lined with an impermeable geomembrane
- Raintaina Filter Chamber
- Distribution tank
- Foul water access chamber (3000)
- Foul water inspection chamber (4500)
- Existing ditch flow direction
- Existing ditch desilting area
- Existing level
- Proposed surface level (indicative only for drainage purposes- tbc)
- Proposed ditch bed levels after de-silting
- Finished floor level (assumed and tbc- indicative only for drainage purposes)

ABBREVIATIONS

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

Borehole locations (as taken from Groundwater Monitoring and Soakage Test report by Ground Management Ltd, dated 02.05.2025)

Site Specific Notes

- Proposed drainage designed based on desktop study, a groundwater monitoring and soakage test report, and all information provided from the site.
- All storage volumes is designed to the critical 1 in 100 year storm event + 45% of climate change allowance + 10% for urban creep.
- Due to peak recorded groundwater levels reaching within the 1m unsaturated zone, surface water runoff from roof and driveway areas will be collected within the voided sub-base of the permeable paving and discharged into the existing ditch at a restricted flow rate of 0.1 L/s.
- The biorientation planter is introduced to capture runoff at source, allowing for temporary storage.
- Paving construction to Client's and manufacturer specification.
- Proposed SW connection into the existing ditch is subject to OWC approval.
- Foul water drainage is to be discharged into the existing foul water manhole located within the proposed site boundary, and then discharged into the Southern Water public sewer. This connection is to be agreed under S106 Application.

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

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

STANDARD DRAINAGE NOTES

- DO NOT SCALE FROM THIS DRAWING. REFER TO FIGURED DIMENSIONS ONLY. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
- ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
- BEFORE COMMENCING CONSTRUCTION THE CONTRACTOR MUST CHECK THE INVERT LEVELS OF EXISTING SEWERS TO WHICH CONNECTIONS ARE MADE. IN ADDITION THE CONTRACTOR MUST LOCATE AND DETERMINE INVERT LEVELS OF THE EXISTING SPURS TO WHICH CONNECTIONS ARE PROPOSED. ANY DISCREPANCIES ARE TO BE NOTIFIED TO THE ENGINEER IMMEDIATELY, PRIOR TO CONSTRUCTION.
- ALL DRAINAGE WORKS SHOULD COMMENCE AT THE PROPOSED DOWNSTREAM CONNECTION POINT. THE WORKS CONTINUING UPSTREAM FOLLOWING CONFIRMATION OF THE TIE-IN INVERT LEVELS TO THE ENGINEER. CONNECTIONS TO MANHOLES OR LARGER SIZED PIPES ETC. SHOULD BE SOFFIT TO SOFFIT UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER, IF THIS IS NOT POSSIBLE INFORM THE ENGINEER IMMEDIATELY.
- COVER LEVELS SHOWN ARE APPROXIMATE. COVERS AND FRAMES SHALL BE SET TO FINISHED GROUND LEVELS AND FALLS.
- ALL UN-REFERENCED PIPES ARE TO BE 150mm DIA.
- ALL PIPES TO BE ADOPTED, OR CONNECTING TO ADOPTED SEWERS, TO BE VITRIFIED CLAY TO BS EN 295 AND BS65 (SWS ONLY), OR CONCRETE PIPES TO BE EN 1916 AND BS5911-PART 1.
- ROAD GULLY OUTLET PIPES ARE TO BE 150mm DIA. WITH CONCRETE SURROUND AND FLEXIBLE JOINTS. ALL GULLIES SHALL BE FITTED WITH GRADE D400 GRATINGS AND FRAMES TO BS EN124, UNLESS OTHERWISE STATED.
- ALL ADOPTABLE SEWERS SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATION LAID DOWN IN SEWERS FOR ADOPTION 6th EDITION, WITH A VIEW TO ADOPTION UPON COMPLETION OF WORKS.
- ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT PART-H, AND TO THE SATISFACTION OF THE BUILDING CONTROL INSPECTOR.
- THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
- STUB CONNECTIONS TO ADOPTABLE MANHOLES SHALL BE MADE FROM VITRIFIED CLAY AND CONSIST OF TWO ROCKER PIPES LAID AT THE SAME GRADIENT AS THE UP OR DOWNSTREAM PIPE.
- IF ANY SUB SOIL DRAINAGE SYSTEMS ARE UNCOVERED DURING THE WORKS CONTACT THE ENGINEER FOR INSTRUCTIONS. SUB SOIL DRAINS ARE TO BE DIVERTED AROUND NEW WORKS AND CONNECTED INTO THE SURFACE WATER.
- NO PRIVATE AREAS ARE TO DRAIN ONTO ADOPTABLE AREAS AND VICE VERSA.
- ALL EXISTING MANHOLE COVERS, GULLIES, ETC. ARE TO BE RAISED/LOWERED TO SUIT NEW LEVELS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE LOCATION AND DEPTH OF ALL EXISTING SERVICES AND UTILITIES THAT MAY BE PRESENT.
- UPON COMPLETION BUT PRIOR TO HANDOVER, CONTRACTOR TO CARRY OUT FULL CCTV SURVEY OF DRAINAGE SYSTEM WHICH IS TO BE REVIEWED BY ENGINEER TO ENSURE SATISFACTORY INSTALLATION.
- PROPRIETARY PRODUCTS TO BE INSTALLED IN FULL ACCORDANCE WITH MANUFACTURER'S GUIDANCE.
- MANHOLE AND CHAMBER COVER GRADES:
 - 'A15' IN ALL LANDSCAPED AREAS AND ON FOOTPATHS
 - 'B125' IN ALL DRIVEWAYS
 - 'C250' IN PRIVATE PARKING AREAS
 - 'D400' IN CARRIAGEWAY/ACCESS ROAD

Prefix to drawing numbers shall signify the following:-

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- C = CONSTRUCTION - These are the only drawings that shall be used for construction purposes
- R = RECORD - Record of actual completed work

P5	29.08.26	UPDATED TO ADC COMMENTS	MR	CS	CS
P4	08.06.26	UPDATED TO LDSC ADC COMMENTS	MR	CS	CS
P3	22.03.26	UPDATED TO ADC COMMENTS	MR	CS	CS
P2	10.11.25	RED LINE SITE BOUNDARY UPDATED	MR	CS	CS
P1	06.11.25	UPDATED TO ADC REQUIREMENTS	MR	CS	CS
P-	10.06.25	PRELIMINARY ISSUE	MR	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

cgs
civils
Consulting Civil Engineers

CLIENT
DEBORAH AND CHRISTOPHER BLOWS

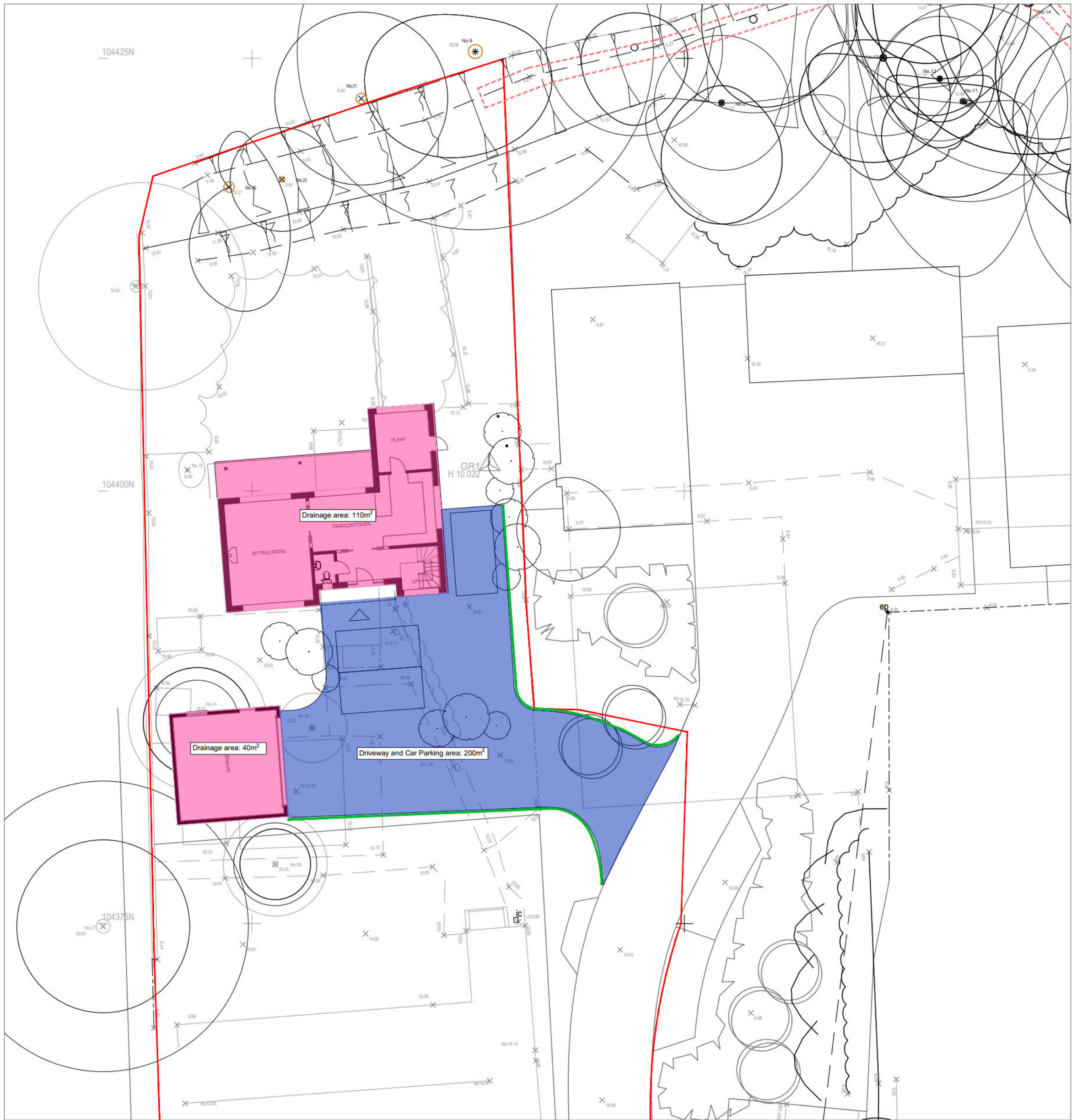
ARCHITECT
SMITH SIMMONS & PARTNERS

JOB TITLE
LAND NORTH OF THE GRANGE,
WESTERGATE, PO20 3SQ

DRAWING TITLE
PROPOSED DRAINAGE STRATEGY

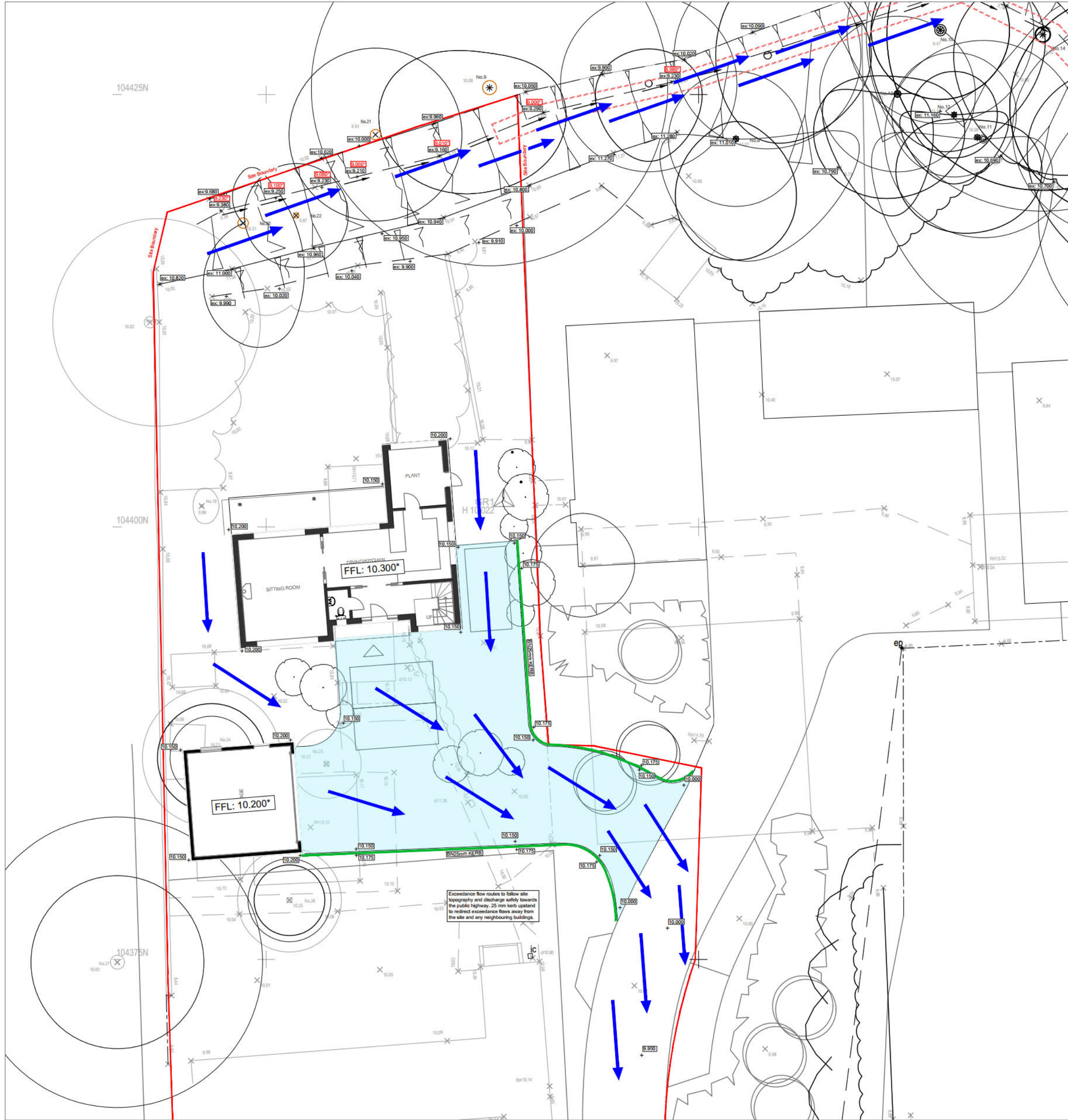
DRAWN	MR	ENGINEER	CS	CHECKED	CS	APPROVED	CS
DATE	JUNE 2025	SCALE	@ A1	1:100			
JOB No.	C3388	STATUS	PL	DRAWING No.	101	REV.	P5

FOR PLANNING ONLY



CONTRIBUTING AREA PLAN (scale 1:200)

Proposed Catchment	Drainage Area (ha)
Roof Area	0.0150 ha
Driveway and Parking Space	0.0200 ha
Total catchment areas included in the proposed calculations	0.0350 ha



EXCEEDANCE FLOW ROUTES (scale 1:200)

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

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



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P3	08.06.26	UPDATED TO LDBC ADC COMMENTS	MR	CS	CS
P2	22.03.26	UPDATED TO ADC COMMENTS	MR	CS	CS
P1	06.11.25	UPDATED TO ADC REQUIREMENTS	MR	CS	CS
P-	10.06.25	PRELIMINARY ISSUE	MR	CS	CS
REV	DATE	DESCRIPTION	BY	CHK	APP

 Consulting Civil Engineers				
CLIENT DEBORAH AND CHRISTOPHER BLOWS				
ARCHITECT SMITH SIMMONS & PARTNERS				
JOB TITLE LAND NORTH OF THE GRANGE, WESTERGATE, PO20 3SQ				
DRAWING TITLE CONTRIBUTING AREA PLAN & EXCEEDANCE FLOW ROUTES				
DRAWN MR	ENGINEER CS	CHECKED CS	APPROVED CS	
DATE JUNE 2025		SCALE @ A1 1:200		
JOB No. C3388	STATUS PL	DRAWING No. 201		REV. P4

FOR PLANNING ONLY

Design Settings

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

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
PP	0.022	4.00	10.150	450	104364.194	494023.354	0.750
S2			10.175	500	104363.011	494030.537	0.829
Exisitng Ditch			10.000	450	104350.463	494044.185	0.782
RE2	0.003	4.00	10.200	150	104360.418	494030.704	0.450
BP	0.006	4.00	10.200	150	104349.154	494021.552	0.450
S1	0.002	4.00	10.200	450	104351.876	494014.203	0.555
RE1	0.002	4.00	10.200	150	104352.456	494007.262	0.430
S3			10.000	450	104351.658	494037.900	0.737

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.001	PP	S2	6.500	0.600	9.400	9.346	0.054	120.0	150	4.35	56.6
1.002	S2	S3	10.000	0.600	9.346	9.263	0.083	120.5	150	4.53	0.0
1.000	RE2	PP	15.900	0.600	9.750	9.400	0.350	45.4	100	4.23	56.6
3.000	BP	S1	5.700	0.600	9.750	9.695	0.055	103.6	100	4.13	56.6
2.000	RE1	S1	7.400	0.600	9.770	9.695	0.075	98.7	100	4.16	56.6
2.001	S1	PP	4.900	0.600	9.645	9.400	0.245	20.0	150	4.20	56.6
1.003	S3	Exisitng Ditch	5.600	0.600	9.263	9.218	0.045	124.4	150	4.64	0.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.001	0.916	16.2	6.6	0.600	0.679	0.033	0.0	67	0.872
1.002	0.914	16.2	0.0	0.679	0.587	0.033	0.0	0	0.000
1.000	1.146	9.0	0.5	0.350	0.650	0.003	0.0	16	0.610
3.000	0.755	5.9	1.1	0.350	0.405	0.006	0.0	29	0.577
2.000	0.774	6.1	0.3	0.330	0.405	0.002	0.0	15	0.397
2.001	2.262	40.0	1.7	0.405	0.600	0.009	0.0	21	1.136
1.003	0.899	15.9	0.0	0.587	0.632	0.033	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.001	6.500	120.0	150	Circular	10.150	9.400	0.600	10.175	9.346	0.679
1.002	10.000	120.5	150	Circular	10.175	9.346	0.679	10.000	9.263	0.587
1.000	15.900	45.4	100	Circular	10.200	9.750	0.350	10.150	9.400	0.650
3.000	5.700	103.6	100	Circular	10.200	9.750	0.350	10.200	9.695	0.405

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.001	PP	450	Manhole	Adoptable	S2	500	Manhole	Adoptable
1.002	S2	500	Manhole	Adoptable	S3	450	Manhole	Adoptable
1.000	RE2	150	Manhole	Adoptable	PP	450	Manhole	Adoptable
3.000	BP	150	Manhole	Adoptable	S1	450	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
2.000	7.400	98.7	100	Circular	10.200	9.770	0.330	10.200	9.695	0.405
2.001	4.900	20.0	150	Circular	10.200	9.645	0.405	10.150	9.400	0.600
1.003	5.600	124.4	150	Circular	10.000	9.263	0.587	10.000	9.218	0.632

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.000	RE1	150	Manhole	Adoptable	S1	450	Manhole	Adoptable
2.001	S1	450	Manhole	Adoptable	PP	450	Manhole	Adoptable
1.003	S3	450	Manhole	Adoptable	Exisitng Ditch	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
PP	104364.194	494023.354	10.150	0.750	450		1	2.001	9.400	150
							2	1.000	9.400	100
							0	1.001	9.400	150
S2	104363.011	494030.537	10.175	0.829	500		1	1.001	9.346	150
							0	1.002	9.346	150
Exisitng Ditch	104350.463	494044.185	10.000	0.782	450		1	1.003	9.218	150
RE2	104360.418	494030.704	10.200	0.450	150		0	1.000	9.750	100
BP	104349.154	494021.552	10.200	0.450	150		0	3.000	9.750	100
S1	104351.876	494014.203	10.200	0.555	450		1	3.000	9.695	100
							2	2.000	9.695	100
							0	2.001	9.645	150
RE1	104352.456	494007.262	10.200	0.430	150		0	2.000	9.770	100
S3	104351.658	494037.900	10.000	0.737	450		1	1.002	9.263	150
							0	1.003	9.263	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	9.450
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

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 %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	30	40	0	0
2	0	0	0	100	0	0	0
10	0	0	0	100	45	10	0
30	0	0	0				

Node S2 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.400	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	0.1		
Invert Level (m)	9.346	Diameter (m)	0.008		

Node PP Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	9.400	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.640
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node BP Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	9.750
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	8.0	0.0	0.100	8.0	0.0	0.200	8.0	0.0	0.300	8.0	0.0	0.400	8.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 97.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	PP	690	9.555	0.155	0.4	8.1194	0.0000	SURCHARGED
720 minute winter	S2	690	9.555	0.209	0.0	0.0409	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.0	0.0000	0.0000	OK
15 minute winter	RE2	11	9.763	0.013	0.3	0.0002	0.0000	OK
15 minute summer	BP	10	9.775	0.025	0.8	0.0596	0.0000	OK
15 minute summer	S1	10	9.662	0.017	1.1	0.0028	0.0000	OK
15 minute winter	RE1	11	9.783	0.013	0.2	0.0002	0.0000	OK
180 minute winter	S3	188	9.518	0.255	0.0	0.0406	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)
720 minute winter	PP	1.001	S2	0.0	0.003	0.002	0.1144	
720 minute winter	S2	1.002	S3	0.0	0.001	0.002	0.1760	
15 minute winter	RE2	1.000	PP	0.3	0.116	0.033	0.0528	
15 minute summer	BP	3.000	S1	0.7	0.504	0.124	0.0083	
15 minute summer	S1	2.001	PP	1.1	0.292	0.028	0.0228	
15 minute winter	RE1	2.000	S1	0.2	0.354	0.033	0.0042	
180 minute winter	S3	1.003	Exisitng Ditch	0.0	0.001	0.001	0.0986	0.1

Results for 2 year Critical Storm Duration. Lowest mass balance: 97.71%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	PP	915	9.586	0.186	0.4	10.0121	0.0000	SURCHARGED
960 minute winter	S2	915	9.586	0.240	0.0	0.0471	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.0	0.0000	0.0000	OK
15 minute winter	RE2	10	9.766	0.016	0.5	0.0003	0.0000	OK
15 minute summer	BP	10	9.781	0.031	1.2	0.0753	0.0000	OK
15 minute summer	S1	10	9.666	0.021	1.7	0.0034	0.0000	OK
15 minute summer	RE1	11	9.785	0.015	0.3	0.0003	0.0000	OK
240 minute summer	S3	176	9.518	0.255	0.0	0.0406	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)
960 minute winter	PP	1.001	S2	0.0	0.002	0.002	0.1144	
960 minute winter	S2	1.002	S3	0.0	0.002	0.002	0.1760	
15 minute winter	RE2	1.000	PP	0.5	0.156	0.055	0.0612	
15 minute summer	BP	3.000	S1	1.1	0.570	0.194	0.0115	
15 minute summer	S1	2.001	PP	1.7	0.374	0.044	0.0284	
15 minute summer	RE1	2.000	S1	0.3	0.400	0.049	0.0056	
240 minute summer	S3	1.003	Exisitng Ditch	0.0	0.002	0.002	0.0986	0.5

Results for 10 year Critical Storm Duration. Lowest mass balance: 97.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute summer	PP	1350	9.666	0.266	0.7	14.7972	0.0000	SURCHARGED
1440 minute summer	S2	1350	9.666	0.320	0.1	0.0627	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.0	0.0000	0.0000	OK
15 minute summer	RE2	10	9.773	0.023	1.0	0.0004	0.0000	OK
15 minute summer	BP	10	9.794	0.044	2.2	0.1068	0.0000	OK
15 minute summer	S1	10	9.674	0.029	3.4	0.0047	0.0000	OK
15 minute summer	RE1	10	9.792	0.022	0.6	0.0004	0.0000	OK
360 minute summer	S3	200	9.518	0.255	0.0	0.0406	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)
1440 minute summer	PP	1.001	S2	0.1	0.003	0.003	0.1144	
1440 minute summer	S2	1.002	S3	0.1	0.003	0.003	0.1760	
15 minute summer	RE2	1.000	PP	1.0	0.236	0.111	0.0715	
15 minute summer	BP	3.000	S1	2.2	0.672	0.363	0.0183	
15 minute summer	S1	2.001	PP	3.3	0.523	0.084	0.0409	
15 minute summer	RE1	2.000	S1	0.6	0.488	0.099	0.0091	
360 minute summer	S3	1.003	Exisitng Ditch	0.1	0.003	0.003	0.0986	1.2

Results for 30 year Critical Storm Duration. Lowest mass balance: 97.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	PP	585	9.723	0.323	1.4	18.2580	0.0000	SURCHARGED
600 minute winter	S2	585	9.723	0.377	0.1	0.0740	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.0	0.0000	0.0000	OK
15 minute summer	RE2	10	9.776	0.026	1.3	0.0005	0.0000	OK
15 minute summer	BP	10	9.802	0.052	2.9	0.1263	0.0000	OK
600 minute winter	S1	585	9.723	0.078	0.4	0.0125	0.0000	OK
15 minute summer	RE1	10	9.795	0.025	0.8	0.0005	0.0000	OK
120 minute summer	S3	94	9.518	0.255	0.1	0.0406	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)
600 minute winter	PP	1.001	S2	0.1	0.004	0.004	0.1144	
600 minute winter	S2	1.002	S3	0.1	0.003	0.004	0.1760	
15 minute summer	RE2	1.000	PP	1.3	0.271	0.144	0.0749	
15 minute summer	BP	3.000	S1	2.9	0.719	0.481	0.0226	
600 minute winter	S1	2.001	PP	0.4	0.043	0.010	0.0660	
15 minute summer	RE1	2.000	S1	0.8	0.529	0.132	0.0112	
120 minute summer	S3	1.003	Exisitng Ditch	0.1	0.004	0.005	0.0986	0.8

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 97.62%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	PP	945	9.849	0.449	1.4	25.8080	0.0000	SURCHARGED
960 minute winter	S2	945	9.849	0.503	0.1	0.0986	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.1	0.0000	0.0000	OK
960 minute winter	RE2	945	9.849	0.099	0.1	0.0018	0.0000	OK
960 minute winter	BP	945	9.849	0.099	0.2	0.2394	0.0000	OK
960 minute winter	S1	945	9.849	0.204	0.4	0.0324	0.0000	SURCHARGED
960 minute winter	RE1	945	9.849	0.079	0.1	0.0014	0.0000	OK
60 minute summer	S3	64	9.518	0.255	0.1	0.0406	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)
960 minute winter	PP	1.001	S2	0.1	0.005	0.005	0.1144	
960 minute winter	S2	1.002	S3	0.1	0.004	0.005	0.1760	
960 minute winter	RE2	1.000	PP	0.1	0.021	0.011	0.1243	
960 minute winter	BP	3.000	S1	0.2	0.348	0.034	0.0446	
960 minute winter	S1	2.001	PP	0.4	0.037	0.010	0.0863	
960 minute winter	RE1	2.000	S1	0.1	0.289	0.016	0.0536	
60 minute summer	S3	1.003	Exisitng Ditch	0.1	0.005	0.006	0.0986	0.8

Results for 100 year Critical Storm Duration. Lowest mass balance: 97.72%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	PP	585	9.808	0.408	1.7	23.3198	0.0000	SURCHARGED
600 minute winter	S2	585	9.808	0.462	0.1	0.0905	0.0000	SURCHARGED
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.1	0.0000	0.0000	OK
600 minute winter	RE2	585	9.808	0.058	0.1	0.0010	0.0000	OK
15 minute summer	BP	10	9.810	0.060	3.6	0.1452	0.0000	OK
600 minute winter	S1	585	9.808	0.163	0.5	0.0258	0.0000	SURCHARGED
600 minute winter	RE1	585	9.808	0.038	0.1	0.0007	0.0000	OK
120 minute winter	S3	86	9.518	0.255	0.1	0.0406	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)
600 minute winter	PP	1.001	S2	0.1	0.005	0.005	0.1144	
600 minute winter	S2	1.002	S3	0.1	0.004	0.004	0.1760	
600 minute winter	RE2	1.000	PP	0.1	0.022	0.011	0.0993	
15 minute summer	BP	3.000	S1	3.5	0.756	0.598	0.0267	
600 minute winter	S1	2.001	PP	0.5	0.046	0.013	0.0863	
600 minute winter	RE1	2.000	S1	0.1	0.289	0.016	0.0389	
120 minute winter	S3	1.003	Exisitng Ditch	0.1	0.005	0.005	0.0986	1.0

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 96.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	PP	1410	10.038	0.638	1.4	37.1699	0.0000	FLOOD RISK
1440 minute winter	S2	1410	10.038	0.692	0.1	0.1356	0.0000	FLOOD RISK
15 minute summer	Exisitng Ditch	1	9.518	0.300	0.1	0.0000	0.0000	OK
1440 minute winter	RE2	1380	10.038	0.288	0.1	0.0052	0.0000	FLOOD RISK
1440 minute winter	BP	1380	10.038	0.288	0.2	0.6956	0.0000	FLOOD RISK
1440 minute winter	S1	1410	10.038	0.393	0.4	0.0624	0.0000	FLOOD RISK
1440 minute winter	RE1	1410	10.038	0.268	0.1	0.0048	0.0000	FLOOD RISK
120 minute summer	S3	76	9.518	0.255	0.1	0.0406	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)
1440 minute winter	PP	1.001	S2	0.1	0.006	0.006	0.1144	
1440 minute winter	S2	1.002	S3	0.1	0.005	0.006	0.1760	
1440 minute winter	RE2	1.000	PP	0.1	0.021	0.011	0.1244	
1440 minute winter	BP	3.000	S1	0.2	0.348	0.034	0.0446	
1440 minute winter	S1	2.001	PP	0.4	0.037	0.010	0.0863	
1440 minute winter	RE1	2.000	S1	0.1	0.289	0.016	0.0579	
120 minute summer	S3	1.003	Exisitng Ditch	0.1	0.006	0.007	0.0986	1.3