

20 - 30 GREYFRIARS ROAD, READING

CONDITION 6 TECHNICAL NOTE

ELDER DEVELOPMENTS (GREYFRIARS) LIMITED

Status: Information
Revision: 00

Project No.: 25001 WP01
Date: June 2026

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1.0 Introduction

This Drainage Technical Note has been produced to discharge the pre-commencement condition associated with the surface water drainage strategy, for the proposed co-living building (Sui Generis) at the site 20-30 Greyfriars Road, Reading.

Condition 6 states:

No development shall commence on site, excluding demolition, until a Sustainable Drainage Scheme, comprising a Sustainable Drainage Strategy and associated detailed design of surface water drainage for the site using SuDS methods, has been submitted to and approved in writing by the Local Planning Authority. The Scheme shall include: i. a timetable for its implementation, and ii. a management and annual maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

REASON: These details are required due to insufficient information being contained within this submission and in order to reduce the risk of flooding onsite or elsewhere in accordance with Policy EN18 of the Reading Borough Local Plan 2019.

1.1 Previously Approved Strategy

A Flood Risk Assessment & Drainage Strategy report was produced by Form Structural Design in November 2024. Within this document the surface water drainage proposals were specified for the proposed development.

The option of infiltrating was discounted due to a lack of space and high groundwater levels. Discharging to a watercourse was also discounted, due to none being located within the vicinity of the site.

The document stipulated that surface water would be attenuated and discharged at a maximum flow rate of 2l/s to the existing Thames Water surface water sewer. Pumping was specified as the method of discharge, due to the depth of the proposed external tanks inability to achieve a gravity connection to the public sewer.

1.2 Revised Drainage Proposals

The detailed drainage design has adhered to the approved strategy wherever possible, with minor alterations deemed necessary, as the design has developed.

Consistent with the Non-Statutory Technical Standards for Sustainable Drainage Systems, which considers pumping a last resort, the proposed attenuation on site has been relocated within the building, where a larger footprint will enable shallow attenuation over a larger area. This adjustment will allow for gravity connections to be achieved to the public sewer, where the previous tank depth specified at 1.5m deep, can be reduced to 0.8m deep.

Internal obstructions necessitate the tank being split in 2, each with a proposed connection to the Thames Water public sewer, along the same line, at different positions. The 2 tanks will have volumes of 30m³ and 68m³ respectively, and will each be controlled by 1l/s flow control chambers. New manholes are proposed along the line of the existing Thames Water sewer at the 2 respective connection points. The total outflow from these 2 outlets, 1l/s each, 2l/s total, matches the approved strategy produced by Form Structural Design, while omitting the need to pump.

The proposed drainage general arrangements are included in **Appendix A**.

The surface water drainage networks on site have been designed to cater for all events, up to and including, the 100-year storm, including a 40% allowance for climate change. Causeway Flow has been used to assist in the design of the drainage networks, and a copy of the calculations are included in **Appendix B**.

2.0 Maintenance Strategy

The following maintenance arrangements will be undertaken at the required periods to ensure efficient performance of the attenuation tanks:

Attenuation Tanks: Operation & Maintenance Requirements		
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter-remove and replace surface infiltration medium as necessary.	Annually
Occasional maintenance	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	System inspection after heavy storms	After every extreme storm event
	Repair/rehabilitate inlets, outlet, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Check outlet to ensure emptying is occurring	Annually

The following maintenance regime will be applied to the flow control devices to ensure effective performance:

Flow Control Chambers: Operation & Maintenance Requirements		
Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove sediment and debris from chamber and upstream catchpits.	Every three months
Remedial Actions	Clean if performance deteriorates or replace if failure occurs	As required
Monitoring	Check unit to ensure emptying is occurring	Every three months and after heavy storms

3.0 Conclusions

This Drainage Technical Note has been produced to discharge Condition 6, associated with surface water drainage, for the proposed co-living building (Sui Generis) at the site 20-30 Greyfriars Road, Reading.

The detailed drainage design has been produced in accordance with the approved Flood Risk Assessment & Drainage Strategy report, produced by Form Structural Design in November 2024, with minor alterations.

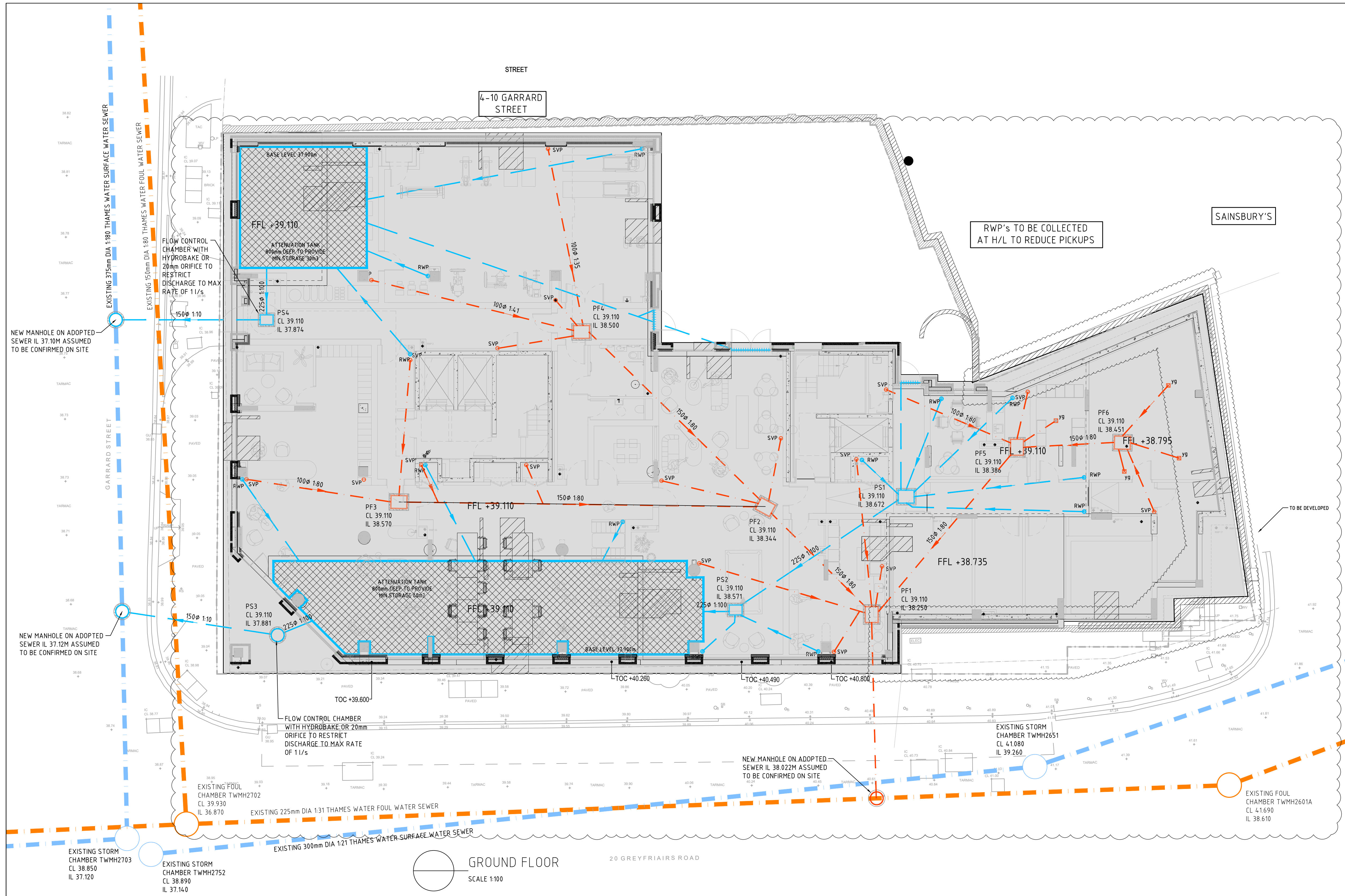
Surface water drainage, previously proposed as pumped and attenuated by one external tank, will now be brought internally, and drain via gravity. The attenuation will now be split in 2, with each tank served by a 1l/s flow control chamber and a 2l/s total discharge rate, equal to the maximum permissible rate previously stipulated.

The surface water drainage has been designed to cater for all events up to and including the 100-year storm, including a 40% allowance for climate change. The omission of the proposed surface water pump will decrease the risk of the site flooding.

A maintenance schedule has been provided, and will be adhered to, by the development's maintenance company, to ensure effective drainage performance.

This document, and associated appendices provide the necessary information to discharge pre-commencement Condition 6 for the proposed development at 20-30 Greyfriars Road, Reading.

Appendix A – Surface Water Drainage Detailed Design Drawing



LEGEND

RISING MAIN

PRIVATE SURFACE WATER INSPECTION CHAMBER (TYPE Y)

PRIVATE STORM RWP

CHANNEL DRAIN

ROAD GULLY

PRIVATE COMBINED WATER INSPECTION CHAMBER (TYPE Y)

PRIVATE FOUL WATER INSPECTION CHAMBER (TYPE Y)

PRIVATE FOUL SVP

PRIVATE FOUL SS

PRIVATE FOUL YARD GULLY

LEGEND

EXISTING ADOPTED COMBINED MANHOLE AND SEWER

EXISTING ADOPTED STORM MANHOLE AND SEWER

EXISTING ADOPTED FOUL MANHOLE AND SEWER

EXISTING PRIVATE STORM MANHOLE AND SEWER

STORM WATER DRAINAGE SCHEDULE									
MH REF	COVER LEVEL	INVERT LEVEL	DEPTH (mm)	DESCRIPTION	DIMENSION (mm)	COVER TYPE	COMMENTS	EASTINGS	NORTHINGS
PS1	39.110	38.672	0.438	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		
PS2	39.110	38.571	0.539	TYPE Y	450 x 600	A150	RECESSED & DOUBLE SEALED		
PS3	39.110	37.881	1.229	TYPE Y	600Ø	A150	RECESSED & DOUBLE SEALED		
PS4	39.110	37.874	1.236	TYPE Y	450 x 600	A150	RECESSED & DOUBLE SEALED		

FOUL WATER DRAINAGE SCHEDULE									
MH REF	COVER LEVEL	INVERT LEVEL	DEPTH (mm)	DESCRIPTION	DIMENSION (mm)	COVER TYPE	COMMENTS	EASTINGS	NORTHINGS
PF1	39.110	38.250	0.860	TYPE Y	450 x 600	A150	RECESSED & DOUBLE SEALED		
PF2	39.110	38.344	0.766	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		
PF3	39.110	38.570	0.540	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		
PF4	39.110	38.500	0.610	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		
PF5	39.110	38.386	0.724	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		
PF6	39.110	38.451	0.659	TYPE Y	600 x 750	A150	RECESSED & DOUBLE SEALED		

DISCLAIMER NOTE

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- NOTES:**
- DO NOT SCALE THIS DRAWING
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWING ISSUES AND THE SPECIFICATION.
 - ALL ADOPTABLE HIGHWAY CONSTRUCTION WORKS SHALL BE CARRIED OUT TO THE STANDARD LAID DOWN IN SHEFFIELD CITY COUNCILS SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
 - ALL ADOPTABLE SEWERS AND SOAKAWAYS SHALL BE CONSTRUCTED TO THE STANDARDS LAID DOWN IN "SEWERS FOR ADOPTION" 7th EDITION, YORKSHIRE WATER'S AND SHEFFIELD CITY COUNCILS SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
 - ALL SEWERS WITH LESS THAN 1.2m OF COVER WHEN LAID BENEATH THE ROADS, OR 0.9m OF COVER IN OTHER AREAS, SHALL BE PROTECTED WITH CONCRETE IN ACCORDANCE WITH EITHER OF THE DETAILS SHOWN ON THE STANDARD DRAWING PROVIDED (FOR BEDDING TYPE LOCATIONS, REFER TO SEWER SECTIONS).
 - IN ORDER TO MAINTAIN THE SATISFACTORY FUNCTIONING OF DRAINAGE SYSTEM, ALL ROAD AND YARD GULLIES ARE TO BE "TRAPPED".
 - ALL NON ADOPTABLE LATERALS BENEATH THE HIGHWAY SHALL BE BACKFILLED WITH LEAN MIX CONCRETE UNLESS OTHERWISE AGREED WITH THE HIGHWAYS ENGINEER.
 - ALL PRIVATE SEWERS ARE TO BE 100mm DIA. UNLESS OTHERWISE STATED. THE PRIVATE DRAINAGE DESIGN ON THE PLAN HAS BEEN BASED ON THE PRINCIPLES OF A uPVC SYSTEM, IT CAN BE ADAPTED TO SUIT A STONWARE SYSTEM BUT REFERENCE SHOULD BE MADE TO THIS OFFICE BEFORE AMENDMENTS ARE MADE.
 - ALL PRIVATE DRAINAGE TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT "H" BS EN 752, AND TO THE SATISFACTION OF NHBC/LOCAL DISTRICT COUNCILS BUILDING CONTROL SECTION.
 - MANHOLES SITUATED WITHIN AREAS ACCESSIBLE TO MOTOR VEHICLES ARE TO BE FITTED WITH SUITABLE STRENGTH COVERS AND FRAMES.
 - WHERE DRAINS PASS THROUGH FOUNDATIONS, A FLEXIBLE JOINT SHOULD BE PROVIDED WITHIN 150mm OF THE FACE OF THE STRUCTURE, WHERE TYPE Z MANHOLES ARE EMPLOYED OR CONCRETE SURROUND IS ADDED TO OTHER MANHOLES A ROCKER PIPE OF MAX 600mm IN LENGTH SHALL BE PROVIDED EITHER SIDE OF THE MANHOLE, LAID AT A SLIGHTLY STEEPER GRADIENT TO ALLOW FOR SETTLEMENT.
 - STUB STACKS FITTED WITH AIR ADMITTANCE VALVES MAY BE USED INSTEAD OF SOIL AND VENT PIPES, SUBJECT TO THE ARCHITECTS APPROVAL (EXCEPT WHERE THE DRAINAGE CONNECTION EXCEEDS 10m BEFORE CONNECTING WITH ANOTHER VENTILATED DRAIN OR INSPECTION CHAMBER OR MANHOLE). HEAD OF DRAIN VENT PIPES MUST NOT BE FITTED WITH AIR ADMITTANCE VALVES.
 - SHALLOW PRIVATE DRAINS MAY REQUIRE PROTECTION USING CONCRETE SURROUND OR PAVING SLABS BRIDGING THE TRENCH SUBJECT TO THE BUILDING INSPECTOR'S REQUIREMENTS.
 - APPROPRIATE MEASURES (TO BE AGREED WITH THE DISTRICT COUNCIL'S BUILDING CONTROL SECTION, ARE TO BE TAKEN TO DISCOURAGE RODENT ENTRY INTO THE PROPERTIES.
 - WHERE DRAIN RUNS PASS CLOSE TO BUILDINGS OR THEIR INVERT LEVELS ARE BELOW FOUNDATION LEVEL, THEN THE TRENCHES ARE TO BE BACKFILLED IN ACCORDANCE WITH THE STANDARD DETAIL PROVIDED.
 - REFERENCE SHOULD BE MADE TO THE STRUCTURAL ENGINEERS DETAILS FOR ALL ASPECTS OF FOUNDATION DESIGN AND CONSTRUCTION.
 - 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.
 - THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
 - IT IS THE SUBCONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE WITH CURRENT BUILDING REGULATIONS AND CODES OF PRACTICE.
 - CONNECTIONS TO AND DIVERSIONS OF EXISTING DRAINAGE ARE TO BE CHECKED FOR LEVEL AND POSITION PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ON SITE. ANY SIGNIFICANT DIFFERENCES ARE TO BE REPORTED TO THIS OFFICE SO THAT DESIGNS MAY BE ADJUSTED ACCORDINGLY.
 - ADDITIONAL CONCRETE SURROUND TO MANHOLES REQUIRED IN ACCORDANCE WITH THE STANDARD DETAILS WHERE COVER ABOVE SEWER IS LESS THAN 900mm
 - COVER LEVELS SHOWN ARE APPROXIMATE AND ARE TO BE CONFIRMED WHEN PROPOSED FINISHED GROUND LEVEL INFORMATION IS MADE AVAILABLE FROM THE ARCHITECT

P4	12/06/26	ISSUE FOR PLANNING CONDITION 6	GC
P3	01/04/26	STAGE 4 COORDINATION	GC
P2	26/01/26	STAGE 3 ISSUE	GG
P1	28/11/25	STAGE 3 - COORDINATION ISSUE	GG
REV	DATE	DESCRIPTION	BY

DRG STATUS

STAGE 4

CLIENT

ELDER DEVELOPMENTS (GREYFRIARS) LIMITED

PROJECT

20 - 30 GREYFRIARS ROAD, READING

DRG TITLE

TECHNICAL LAYOUT

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CONSULTING ENGINEERS

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PROJECT NO

25001

SCALE

1:100

DRN

GG

DATE

NOV 25

REV

P4

DRG NO

MA-XX-XX-DR-C-01060

Appendix B – Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.800
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.040		39.100	600	6.421	62.121	1.200
2		5.00	39.100	1200	0.413	61.625	1.200
3			39.100	600	-21.155	60.784	1.300

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)
1.000	2	3	21.584	0.600	37.900	37.800	0.100	215.8	100	5.69	50.0

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)
1.000	0.519	4.1	0.0	1.100	1.200	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	21.584	215.8	100	39.100	37.900	1.100	39.100	37.800	1.200

Link	US Node	Dia (mm)	Node Type	DS Node	Dia (mm)	Node Type
1.000	2	1200	Manhole	3	600	Manhole

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	6.421	62.121	39.100	1.200	600	°			
2	0.413	61.625	39.100	1.200	1200	° ←			
3	-21.155	60.784	39.100	1.300	600	0 1 ⊙ →	0 1	37.900 37.800	100 100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	0.950	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0
30	0	0	0
30	25	0	0
100	0	0	0
100	40	0	0

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.000	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0049-1000-0800-1000
Invert Level (m)	37.900	Min Outlet Diameter (m)	0.075
Design Depth (m)	0.800	Min Node Diameter (mm)	1200
Design Flow (l/s)	1.0		

Node 2 Tank Storage Structure

Invert Level (m)	37.900	Time to half empty (mins)	248	Analyse flow through structure	x
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Inlets

1

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	37.0	0.800	37.0

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	1	132	38.157	0.257	5.0	0.0000	0.0000	OK
180 minute summer	2	132	38.152	0.252	3.0	9.5614	0.0000	SURCHARGED
120 minute summer	3	92	37.830	0.030	0.9	0.0000	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 summer	2	1.000	3	0.9	0.436	0.228	0.0461	14.9

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	1	140	38.251	0.351	6.5	0.0000	0.0000	OK
180 minute summer	2	140	38.246	0.346	3.8	13.0703	0.0000	SURCHARGED
60 minute winter	3	41	37.830	0.030	0.9	0.0000	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 summer	2	1.000	3	0.9	0.436	0.228	0.0461	19.2

Results for 30 year +25% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	176	38.373	0.473	5.6	0.0000	0.0000	OK
180 minute winter	2	176	38.367	0.467	3.3	17.6309	0.0000	SURCHARGED
30 minute summer	3	21	37.830	0.030	0.9	0.0000	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	2	1.000	3	0.9	0.436	0.228	0.0461	24.2

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	1	176	38.383	0.483	5.7	0.0000	0.0000	OK
180 minute winter	2	176	38.378	0.478	3.4	18.0109	0.0000	SURCHARGED
15 minute summer	3	15	37.830	0.030	0.9	0.0000	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	2	1.000	3	0.9	0.436	0.228	0.0461	24.6

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	232	38.626	0.726	6.5	0.0000	0.0000	OK
240 minute winter	2	232	38.620	0.720	3.8	27.1259	0.0000	SURCHARGED
240 minute winter	3	232	37.830	0.030	0.9	0.0000	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)
240 minute winter	2	1.000	3	0.9	0.436	0.229	0.0463	37.1

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.800
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.076		39.100	600	6.421	62.121	1.200
2		5.00	39.100	1200	0.413	61.625	1.200
3			39.100	600	-21.155	60.784	1.300

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)
1.000	2	3	21.584	0.600	37.900	37.800	0.100	215.8	100	5.69	50.0

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)
1.000	0.519	4.1	0.0	1.100	1.200	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	21.584	215.8	100	39.100	37.900	1.100	39.100	37.800	1.200

Link	US Node	Dia (mm)	Node Type	DS Node	Dia (mm)	Node Type
1.000	2	1200	Manhole	3	600	Manhole

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	6.421	62.121	39.100	1.200	600					
2	0.413	61.625	39.100	1.200	1200					
3	-21.155	60.784	39.100	1.300	600		0 1	1.000 1.000	37.900 37.800	100 100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.950	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	0.950	Additional Storage (m³/ha)	0.0		

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	0	0	0
30	0	0	0
30	25	0	0
100	0	0	0
100	40	0	0

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.000	Sump Available	✓
Replaces Downstream Link	x	Product Number	CTL-SHE-0049-1000-0800-1000
Invert Level (m)	37.900	Min Outlet Diameter (m)	0.075
Design Depth (m)	0.800	Min Node Diameter (mm)	1200
Design Flow (l/s)	1.0		

Node 2 Tank Storage Structure

Invert Level (m)	37.900	Time to half empty (mins)	560	Analyse flow through structure	x
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Inlets

1

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	85.0	0.800	85.0

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	1	200	38.169	0.269	8.1	0.0000	0.0000	OK
240 minute summer	2	200	38.164	0.264	4.5	22.6455	0.0000	SURCHARGED
180 minute summer	3	124	37.830	0.030	0.9	0.0000	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)
240 minute summer	2	1.000	3	0.9	0.436	0.228	0.0461	30.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	232	38.263	0.363	6.9	0.0000	0.0000	OK
240 minute winter	2	232	38.259	0.359	3.9	30.6682	0.0000	SURCHARGED
240 minute summer	3	132	37.830	0.030	0.9	0.0000	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)
240 minute winter	2	1.000	3	0.9	0.436	0.228	0.0461	39.4

Results for 30 year +25% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	1	360	38.384	0.484	9.7	0.0000	0.0000	OK
360 minute summer	2	360	38.380	0.480	5.3	40.9705	0.0000	SURCHARGED
120 minute summer	3	66	37.830	0.030	0.9	0.0000	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)
360 minute summer	2	1.000	3	0.9	0.436	0.228	0.0461	54.0

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	1	360	38.393	0.493	9.9	0.0000	0.0000	OK
360 minute winter	2	352	38.389	0.489	3.7	41.7235	0.0000	SURCHARGED
30 minute summer	3	23	37.830	0.030	0.9	0.0000	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)
360 minute winter	2	1.000	3	0.9	0.436	0.228	0.0461	54.8

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	352	38.633	0.733	9.0	0.0000	0.0000	OK
360 minute winter	2	352	38.628	0.728	5.0	62.0974	0.0000	SURCHARGED
360 minute winter	3	352	37.831	0.031	0.9	0.0000	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)
360 minute winter	2	1.000	3	0.9	0.437	0.230	0.0465	77.0