



DRAINAGE IMPACT & FLOOD RISK ASSESSMENT

for

Proposed replacement dwelling at
107 Vale Road
Northfleet
Gravesend
Kent DA11 8DB

on behalf of

Frankham Projects Limited

Document Control Sheet

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Gravesend, Kent DA11 8DB.

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1.0 STATUS

- 1.1 This Report is prepared for the sole use of Frankham Projects Ltd and their agents in connection with the proposed forthcoming planning application. No responsibility can be assumed for the Report if used by others.
- 1.2 For the purposes of the Contracts (Rights of Third Parties) Act 1999, nothing in this Report shall confer on any third party any right to enforce or benefit from any terms of this Report.

2.0 INTRODUCTION

Background

- 2.1 Tridax Ltd have been commissioned by Frankham Projects Limited and requested to prepare a Drainage Impact Assessment and Flood Risk Statement for the proposed replacement dwelling at 107 Vale Road, Northfleet, Kent DA11 8DB.
- 2.2 This Report is in accordance with the Technical Guidance to the National Planning Policy Framework (NPPF), and Local Flood Risk Management Strategy ~ Guidance on Consultation.
- 2.3 The Report details the observations, calculates the probable flows that may be generated by the development and makes recommendations for the disposal of the foul and surface water drainage and identifies any special mitigation measures required to reduce the risks of flooding.

Site Location

- 2.4 The development site is located approximately 1.9 miles from Gravesend Town Centre to the northern end of Vale Road, approximately 180m south of the junction with Thames Way and 130m north of the junction with Colyer Road/Park Avenue. The site is approximately 150m east of Northfleet Technology College, as indicated in Frame 1 below.



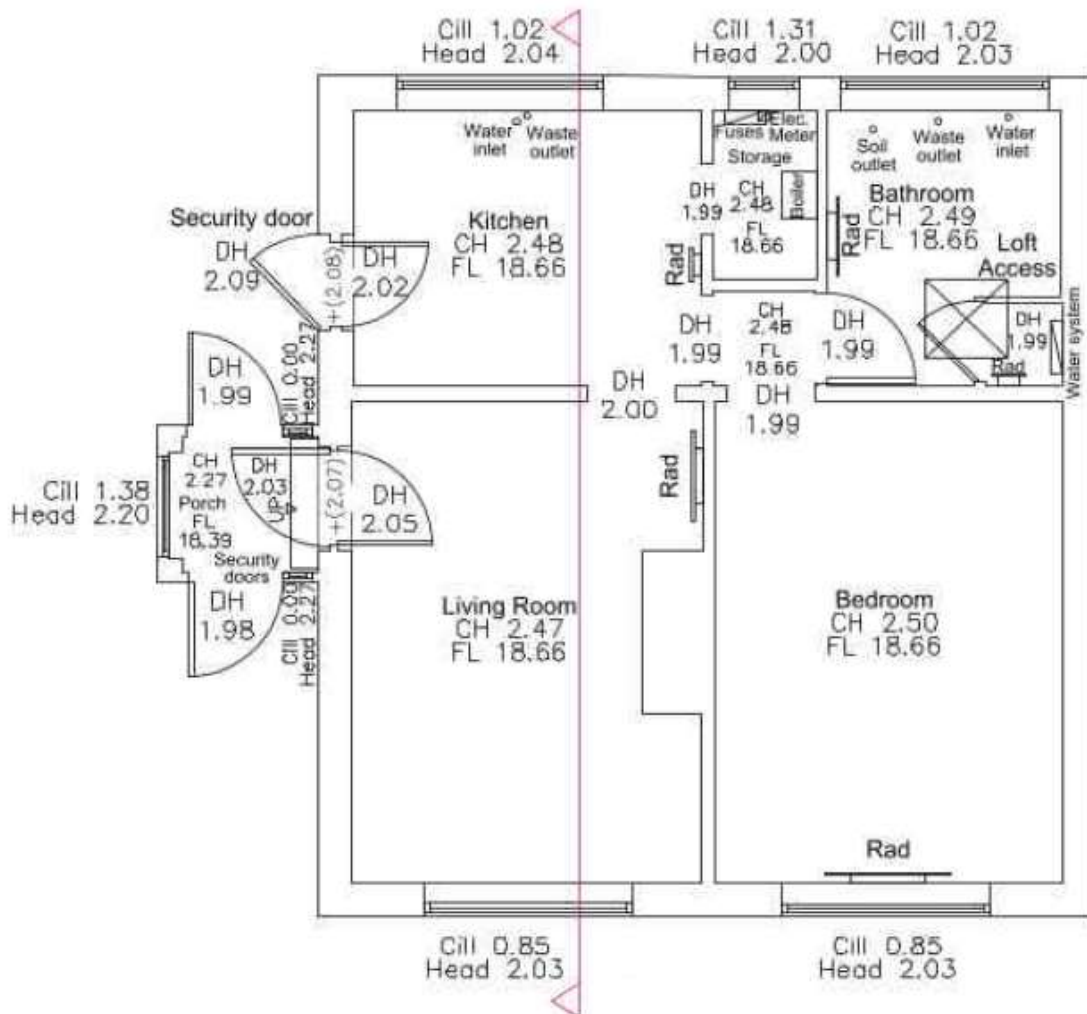
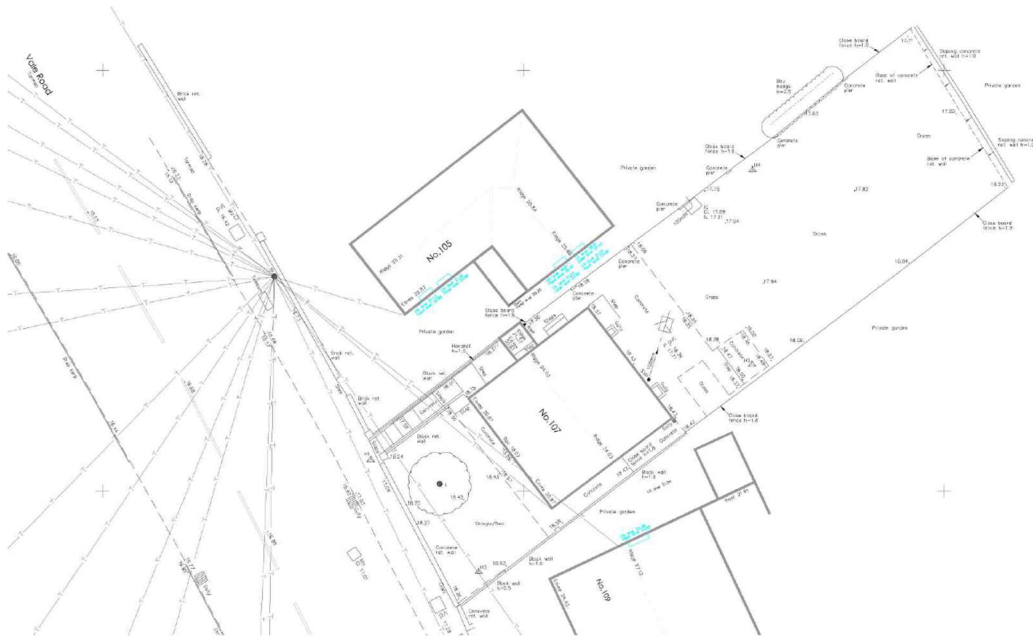
Frame 1 – Site Location Plan Extract

Existing Site Layout

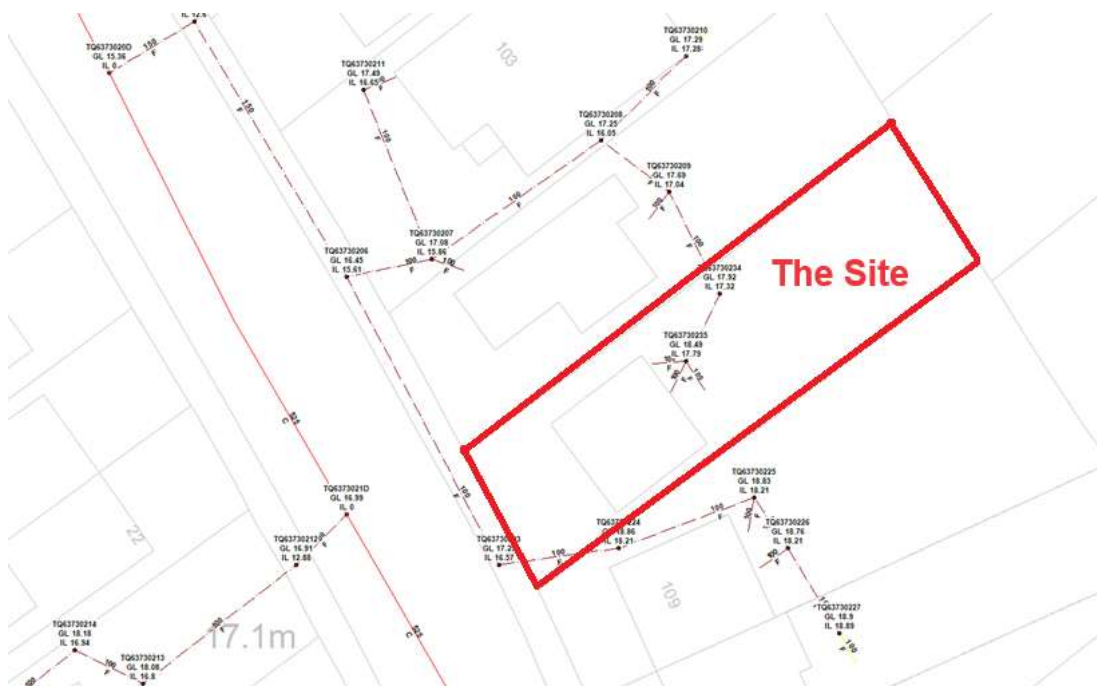
- 2.5 107 Vale Road is a derelict detached single bedroom bungalow, constructed circa 1920 situated on a relatively level plot elevated above Vale Road. The property has front and rear gardens mainly laid to lawn although there are shingle and concrete patio finishes. Vehicle parking is on the street with no provision made within the site. A photo of the front of the property (street scene) is shown in Frame 2 below. A topographical survey has been undertaken which identifies the site to be relatively flat. Levels in the front garden are identified to be in the region of 18.43m, elevated above footpath levels identified as 17.05m. The properties ground floor level is shown as 18.62m. To the rear the patio adjacent the rear elevation is shown as 18.39m with garden levels 17.94m. A topographical survey of the site together with a measured survey of the existing survey are included in Appendix A and extracted in Frames 3 and 4 below. The total site area is approximately 295m² (0.03ha) with approximately 107m² of impermeable finishes. The site is centred at Ordnance Survey reference TQ63051,73249 (563051mE, 173249mN).



Frame 2 – Front Elevation (Street Scene)



- 2.6 Inspection of the public sewer records indicates that there is a public foul sewer 100mmØ approximately 0.7m deep identified in the rear garden to the property. It is questionable if this is public as it appears to serve only 107 Vale Road. A sewer survey will be required to confirm this pipework receives flows from any other property. There is a public foul sewer 100mmØ approximately 0.7m deep identified in the footpath adjacent the western site boundary. A public combined sewer 525mmØ is identified in the carriageway of Vale Road adjacent the western site boundary. There is a public foul sewer 100mmØ approximately 0.6m deep identified crossing the southern boundary front garden which appears to serve 109 Vale Road. to the property There are no public surface water sewers identified at this location. A walk-over survey has confirmed that existing property discharges both foul and surface water drainage into the public sewer to the rear of the property at manhole ref 0235. Refer to the public sewer record information extracted in Frame 5 below.



Frame 5 – Extract of Public Sewer Records

- 2.7 A study of the British Geological Survey Map indicates the site to be underlain by a bedrock of **Thanet Formation - Sand**. There are no superficial deposits recorded. Infiltration techniques are unlikely to be acceptable for surface water disposal at this site although this will require confirmation. No intrusive site

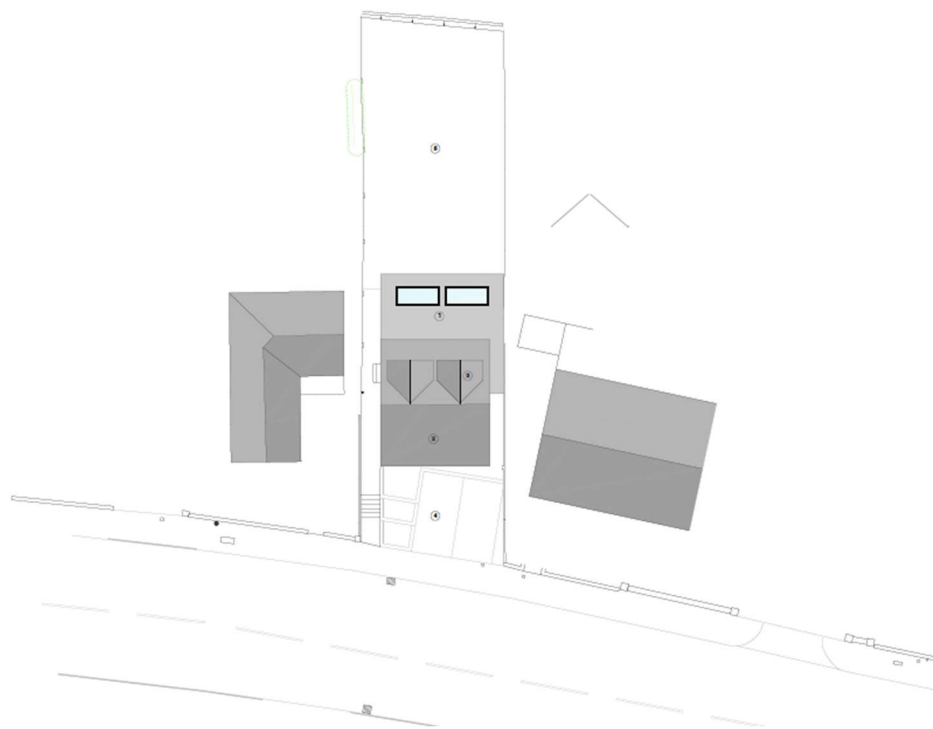
investigation has been undertaken on site yet but will be once planning has been granted. An extract of the Geological Map of Great Britain is shown in Frame 6 below.



Frame 6 – Extract of British Geological Map

Proposed Development

- 2.8 The proposals are to construct a replacement dwelling following the demolition of an existing bungalow. The new property will be two storey with sleeping accommodation provided in the roof level. At ground floor level the property will provide a Kitchen, Lounge, Dining, Utility, Front reception room and WC. The first-floor level will be laid out with three bedrooms, one with an ensuite, family bathroom and storage room. The second floor level will provide a further bedroom and an office area. The footprint of the replacement dwelling will be 84m². Off road parking is shown on the architects drawing by cutting into the raised front garden and including steps and ramp up to the property. Due to the low level of the parking together with the steep ramps this area may require constructing in permeable paving subject to satisfactory ground conditions. The parking area is 42m² but currently discounted from the sites total impermeable area. The total impermeable area created by the replacement dwelling, footpaths, parking area and patio will be in the region of 128m² (0.013ha) representing an increase of approximately 21m² to the current impermeable areas of 107m². Refer to the Architects drawings included in Appendix A of this report and the extracted detail in Frame 7 below.



Frame 7 –Site Plan (Ground Floor)

3.0 FOUL WATER DRAINAGE

Existing Discharge

- 3.1 The site is considered a 'Brownfield' development with foul water currently being discharge to the public system. A conservative existing peak discharge is estimated to be in the order of 1.1 litres/second ($Q=(0.5)kDU\sqrt{(\sum(DU))}$).

Peak Flow Rates
to BS EN 752: Part 4

kDU

frequency factor (0.5 for dwellings)

	Sanitary Appliance	No of Features	DU	$\sum DU$
Existing	WC's	1	1.20	1.2
	Washbasin	1	0.30	0.3
	Kitchen Sink	1	0.80	0.8
	Washing Machine	1	1.50	1.5
	Dish washer	1	0.8	0.8
	Shower	1	0.3	0.3
				4.9

$(Q=(0.5)kDU\sqrt{(\sum(DU))})$

Q= 1.1l/s

- 3.2 The peak foul discharge to the public system is assumed to be in the region of **1.1 litres/second**.
- 3.3 If designed in accordance with 'sewers for adoption' the design flow from the existing bungalow is assumed to be **0.046 litres/second** as below.

$$6DWF = \frac{4,000 \text{ litres/dwelling/day} \times 1 \text{ No Dwellings}}{24 \text{ hours}} = 0.046 \text{ l/s}$$

Proposed Discharge

- 3.4 The design flow from the proposed development using 'sewers for adoption' 7th Edition is calculated as **0.046 litres/second** as below.

$$6DWF = \frac{4,000 \text{ litres/dwelling/day} \times 1 \text{ No Dwellings}}{24 \text{ hours}} = 0.046 \text{ l/s}$$

- 3.5 The proposed development will not increase the design flow discharging from this site into the public foul sewer.
- 3.6 Southern Water has introduced a new charging arrangement for all new homes that connect to the public sewer. A copy of the charging arrangements are included in Appendix C but it is assumed that as this is a replacement dwelling these charges will not be applicable.
- 3.7 Included within Appendix A are drawings T-2024-079-01A and -02A indicating the proposed foul and surface water drainage strategy together with typical construction details.

Consents

- 3.8 As the proposal are for a replacement dwelling a Section 106 Water Industry Act application (connect to the public sewer) will not require submitting to Southern Water Services for approval if reusing the existing connection point as shown on drawing T-2024-079-01A. However, if following a final drainage design a new connection point is necessary then a S106 submission will be required. The detailed drainage design will need to comply with the Building Regulations.
- 3.9 It should be noted that as the proposed development is within 3m of a public foul sewer, approval will be required from Southern Water Authority for a 'Build Over/Near to a public sewer agreement'.

4.0 SURFACE WATER DRAINAGE

Existing Discharge

4.1 The requirement of NPPF is that the run-off from the development proposals replicates the natural drainage characteristics of the pre-developed site. In the case of ‘Brownfield’ development, the drainage proposal will be measured against the existing performance of the site, although it is preferable for solutions to provide characteristics similar to ‘Greenfield’ development wherever possible.

4.2 The existing site characteristics are summarised as below.

Total Site Area	295m ² (0.03 ha)
Current Site Condition	Brownfield
Existing Impermeable Area	107m ² (0.01 ha)
Proposed Impermeable Area	128m ² (0.013 ha)
Existing Surface Water Discharge Method	combines with the properties foul drainage to public foul sewer

4.3 Included within Appendix B are MicroDrainage Network & Simulation results to calculate the existing ‘Brownfield’ run-off rate from the site that enters the Public Foul Water Sewer, the results are summarized below as Frame 8.

<u>Pre-Development Discharge</u>	<u>Pre-Development Parameters</u>
2 Year Return ~ 2.6l/s	'Brownfield' Development
30 Year Return ~ 5.0l/s	Site Area ~ 295m ²
100 Year Return ~ 6.5l/s	Impermeable Area ~ 107m ² (36%)

Frame 8 – Pre-Development Discharge Rates

Sustainable Urban Drainage Systems (SUDS)

4.4 The proposed surface water system will cater for approximately 170m² of impermeable area. In certain developments SUDS can potentially be utilised such that they not only attenuate run-off but also provide a level of improvement to the quality of the water passed on to watercourses or into the groundwater. This is known as source control and is a fundamental part of the SUDS philosophy. There

will be an opportunity to introduce permeable areas and/or SUD's features to reduce surface water runoff.

- 4.5 A range of typical SUDS components that can potentially be used following the hierarchy of sustainability, as established by the Environment Agency and included in the Environment Agency publication: *SUDS – A Practical Guide*, are listed below in Frame 9 with the relative benefits of each feature and the appropriateness for the subject site.

SUDS Feature	Environ- mental Benefit	Water Quality Improved	Suitability for low permeability Soil	Ground water Recharge	Site specific restrictions	Appropriate for the Site?
Wetlands	✓	✓	x	x	Limited Site Area	No
Retention Ponds	✓	✓	✓	x	Limited Site Area	No
Soakaways	x	✓	x	✓	Infiltration rate to be confirmed – location problems to comply with B Regs.	TBC
Swales	✓	✓	✓	✓	Limited Site Area	No
Underground Storage	x	x	✓	x	Limited Site Area	Yes
Permeable Paving	x	✓	x	✓	Infiltration rate to be confirmed	TBC
Green Roofs	✓	✓	✓	x	Steep roofs	No
Water Butts	✓	x	✓	x	None	Yes
Rainwater Harvesting	x	x	✓	x	Limited catchment areas	No

Frame 9 – Typical SUD's Components

- 4.6 From the table above it can be seen that there are potentially a few SUDS elements that may be suitable for this site. In reaching this conclusion the following has been taken into account.

- Underlying Thanet Formation – Sand. A ground investigation is to be undertaken to confirm infiltration test results. If favourable then soakaways may be utilised subject to satisfactory compliance with Building Regulations for locating soakaways.

- Constraints due to the overall density of this development and the limited available space within the site.
- Proximity of the public combined drainage system and no separate surface water sewer at this location. Due to storage requirements and the depth of the public system to the rear of the property this may restrict the possible connection at the current position.
- Location within a Source Protection Zone 2

Pollution Protection

- 4.7 Inspection of the Groundwater Protection Zone map indicates that the site is located inside a Zone 2 –Outer Protection Zone. Refer to Frame 10 below.



Frame 10 - EA Source Protection Zones

- 4.8 Reference to Frame 11 below, Table 4.3 of Chapter 4 of the Ciria's SUDS design manual indicates that a simple index approach for the site would be appropriate with a Low Pollution Hazard Level. Due to the anticipated ground geology, Thanet Formation, it is considered that infiltration techniques may be considered suitable for incorporating into the design of the surface water drainage system at this development site if discharging into a gravel strata.

TABLE 4.3 Minimum water quality management requirements for discharges to receiving surface waters and groundwater			
Land use	Pollution hazard level	Requirements for discharge to surface waters, including coasts and estuaries²	Requirements for discharge to groundwater
Residential roofs	Very low	Removal of gross solids and sediments only	
Individual property driveways, roofs (excluding residential), residential car parks, low traffic roads (eg cul de sacs, home zones, general access roads), non-residential car parking with infrequent change (eg schools, offices)	Low	Simple index approach ² <i>Note: extra measures may be required for discharges to protected resources¹</i>	
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	Simple index approach ² <i>Note: extra measures may be required for discharges to protected resources¹</i>	Simple index approach ² <i>Note: extra measures may be required for discharges to protected resources¹</i> In England and Wales, Risk Screening ⁴ must be undertaken first to determine whether consultation with the environmental regulator is required. In Northern Ireland, the need for risk screening should be agreed with the environmental regulator.
Trunk roads and motorways	High	Follow the guidance and risk assessment process set out in HA (2009)	
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured, industrial sites	High	Discharges may require an environmental licence or permit ² . Obtain pre-permitting advice from the environmental regulator. Risk assessment is likely to be required ⁵ .	

Notes

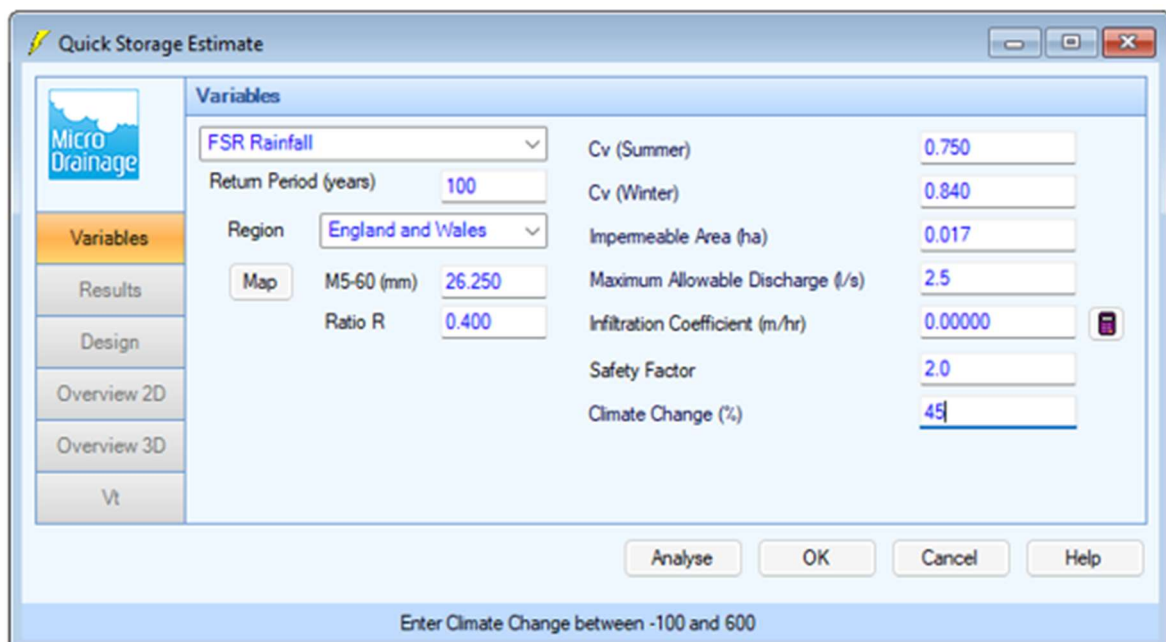
The minimum water quality management requirements for discharges to receiving surface waters and groundwater are presented here. (For Northern Ireland, this guidance should be considered as interim until such time as Northern Ireland publishes its own legislation/policy/guidance.)

- These are not required in Scotland and Northern Ireland. For England and Wales, see Step 3 of the simple index approach (Section 26.7.1).
Protected surface water resources will include those designated for drinking water abstraction or for other environmental protection reasons. Protected groundwater resources are represented by SPZs in England and Wales.
- In Scotland, the Water Environment (Controlled Activities) (Scotland) Regulations (CAR) 2011 General Binding Rules, Rule 10 (d) (iv) effectively provides an exemption from requiring SuDS for coastal discharges. However, control of any contaminants likely to be present in surface water runoff is still required, but can be delivered using alternative methods such as proprietary treatment products. As the term 'SuDS' in this manual includes proprietary treatment products, this exemption is not valid in this context.
- The application of the simple index approach should follow the approach outlined in Section 26.7.1 (or equivalent approved).
- Risk screening is an assessment to identify high risk scenarios where the Environment Agency or Natural Resources Wales (NRW) would wish to be consulted regarding infiltration of water from surface runoff in order to agree the proposed design approach. The risk screening method is provided in Section 26.7.2.
- The risk assessment should determine the appropriate design approach to mitigate risk to acceptable levels following the guidance outlined in Section 26.7.3. This assessment should be approved by the environmental regulator.

Frame 11 – Ciria Sud's Manual Table 4.3

Proposed Discharge

- 4.9 The surface water drainage strategy is shown on Tridax drawings T-2024-079-01A with typical construction details included on T-2024-079-and are enclosed in Appendix A. There may be an opportunity to introduce a SUD's scheme into the development site, however, due to the limited space available, the elevated nature of the site together with relatively shallow depths of the public sewers adjacent the site and anticipated ground conditions, soakaways are unlikely to be acceptable although a controlled discharge to the public system should be achievable. The drainage strategy is shown on drawing T-2024-079-01A.
- 4.10 The intention is to control the surface water discharge from the site to 50% reduction of the existing 'Brownfield' run-off rate for the peak 30year return period to meet with the aspirations of NPPF.
- 4.10 Quick storage estimates indicate that between 80m³ and 109m³ storage will be required as shown in Frames 12 and 13 below. Using a moderately efficient flow control it is anticipated that the attenuation tank will require 6m³ capacity.



Quick Storage Estimate

Micro Drainage

Variables

FSR Rainfall

Return Period (years) 100

Region England and Wales

Map M5-60 (mm) 26.250

Ratio R 0.400

Cv (Summer) 0.750

Cv (Winter) 0.840

Impermeable Area (ha) 0.017

Maximum Allowable Discharge (l/s) 2.5

Infiltration Coefficient (m/hr) 0.00000

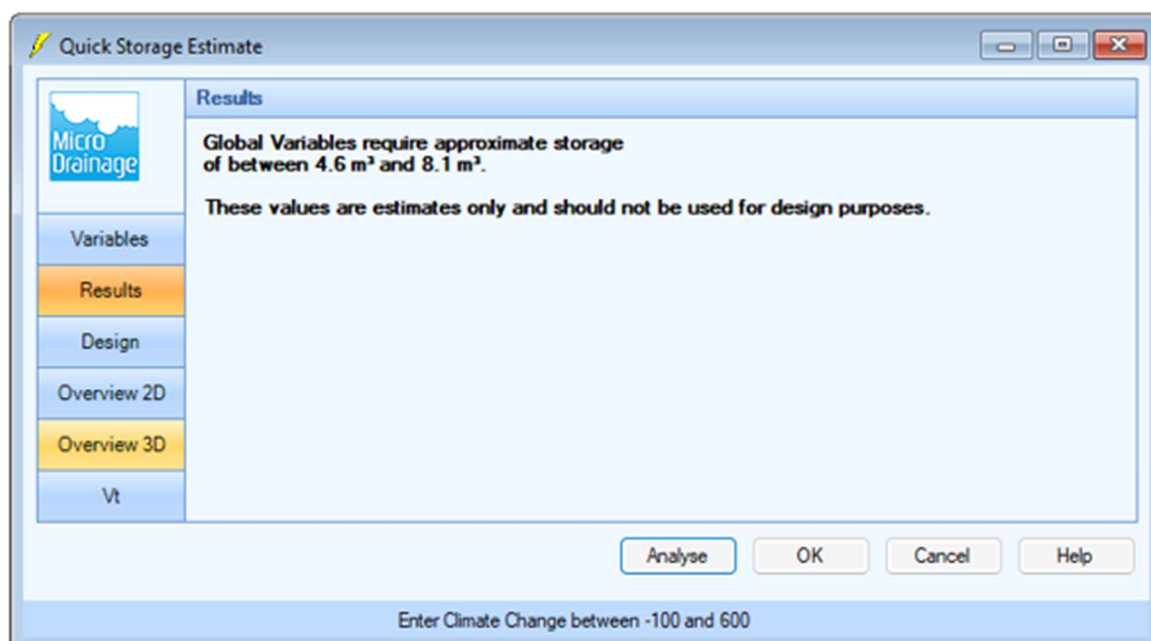
Safety Factor 2.0

Climate Change (%) 45

Analyse OK Cancel Help

Enter Climate Change between -100 and 600

Frame 12 – Micro Drainage Quick Storage Variables



Frame 13 – Micro Drainage Quick Storage Estimate

Consents

- 4.10 As the proposal are for a replacement dwelling a Section 106 Water Industry Act application (connect to the public sewer) will not require submitting to Southern Water Services for approval if reusing the existing connection point as shown on drawing T-2024-079-01A. However, if following a final drainage design a new connection point is necessary then a S106 submission will be required. The detailed drainage design will need to comply with the Building Regulations.
- 4.11 To meet the requirements of the Flood and Water Management Act, the responsibility of the management and maintenance will remain with the property owners.

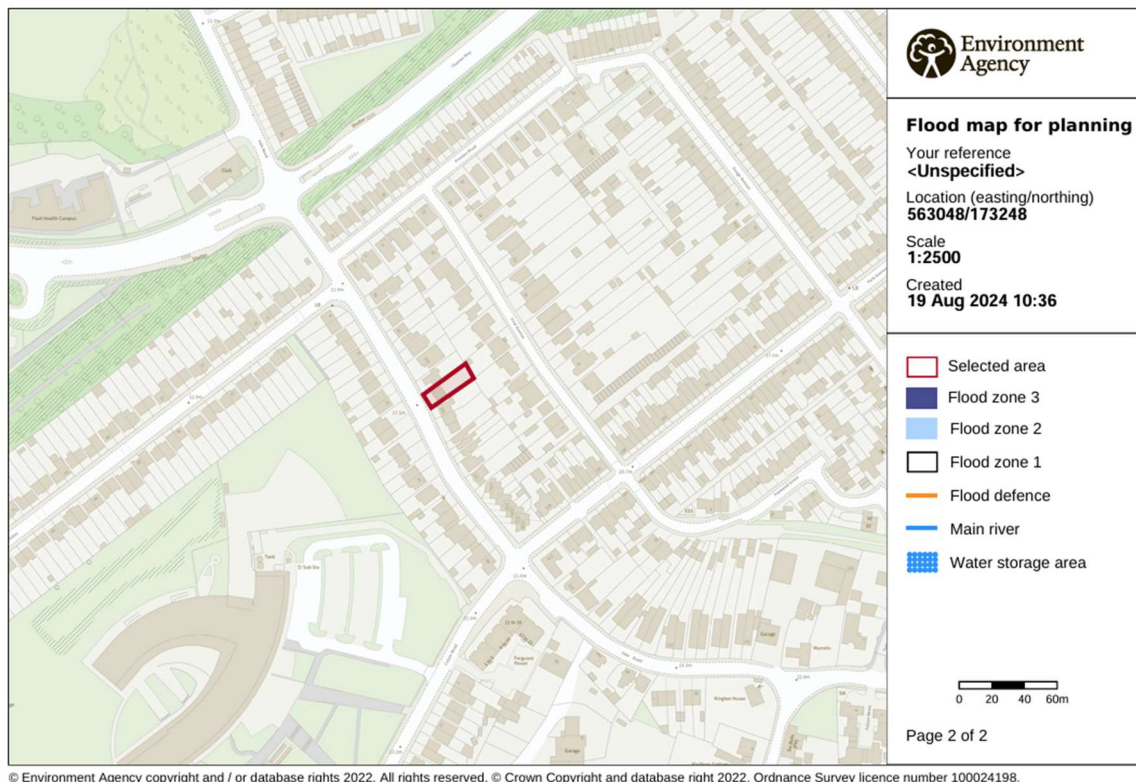
5.0 FLOOD RISK

Requirement for Flood Risk Assessment

- 5.1 Flood risk is primarily regulated through planning policy. Key requirements with respect to flooding are outlined in the National Planning Policy Framework (NPPF) which was published in March 2012, revised in July 2018, February 2019 and July 2021. The current update was issued in December 2023.
- 5.2 The NPPF requires that an FRA should be submitted with planning applications for all sites over one ha in area and all smaller sites within Flood Zones 2 and 3 to determine the risks of flooding at a development site (from all sources including rivers, the sea, sewers, and groundwater). An FRA is therefore an essential element in the overall acceptability of the proposed development in planning terms.
- 5.3 Guidance on the content of FRAs is contained in Technical Guidance to the National Planning Policy Framework which has been used to inform the scope and content of this FRA.
- 5.4 The primary resource for reviewing fluvial and tidal flood risks is via the Environment Agency (EA) indicative floodplain maps. These classify risks as follows:
- Flood Zone 1 (Low Probability): annual probability of flooding less than 1 in 1,000 (<0.1%);
 - Flood Zone 2 (Medium Probability): annual probability of flooding more than 1 in 1,000 (0.1%) but less than 1 in 100 (1%) for fluvial flooding or 1 in 200 (0.5%) for tidal flooding; and
 - Flood Zone 3 (High Probability): annual probability of flooding more than 1 in 100 (1%) for fluvial flooding or 1 in 200 (0.5%) for tidal flooding.

Consultation

- 5.5 Inspection of the Environment Agency Website indicates the site to lie within a Flood Zone 1 (Low Probability), and as the site is less than one hectare in area, an FRA will not be required by the Planning Authority.
- 5.6 No Consultation with the Environment Agency has been carried apart from inspection of their website. A copy of the Environment Agency details are included in Appendix B.



Frame 14 – Extract of Environment Agency Flood Maps

NATIONAL PLANNING POLICY FRAMEWORK CONTEXT

- 5.7 Inspection of the Environment Agency Website identifies the proposed site to be within the extent of the Flood Zone 1. This zone comprises land assessed as having a (Low Probability): annual probability of flooding less than 1 in 1,000 (<0.1%). The mapping does not distinguish between high-risk areas and the functional floodplains, i.e. Flood Zones 3a and 3b.
- 5.8 The functional floodplain is defined by NPPF as land where water has to flow or be stored in times of flood during events that have a probability of occurrence of 1 in 20 (5%) or greater in any one year. The Practice Guide to NPPF goes on to further clarify this by adding the following definitions.
- (a) Areas which would naturally flood with an annual exceedance probability of 1 in 20 (5%) or greater, but which are prevented from doing so by existing infrastructure or solid buildings will not normally be defined as functional floodplain.
 - (b) Developed areas are also not generally considered to comprise functional floodplains, however, areas such as car parks that have been designed to provide flood storage and conveyance function may be.
 - (c) The functional floodplain may also include areas intended to provide transmission and storage of water from other sources of flooding (e.g. surface water)
- 5.9 The SFRA is at the core of the NPPF approach. It provides essential information on flood risk, taking climate change into account, thereby allowing the LPA to understand risk across its district so that the Sequential Test can be properly applied. The need for LPAs to consider flood risk when preparing Local Development Documents (LDD) and to produce SFRA is highlighted in the NPPF paragraphs 93 – 108 *‘Meeting the challenge of climate change, flooding and coastal change’*

- 5.10.1 **Flood Zones 1** – Low probability of flooding – This zone is assessed as having less than a 1 in 1000 annual probability of river or sea flooding in any one year. *If the site is less than 1 hectare then a site-specific FRA will only be required if it lies within an area defined by either the Critical Drainage Zone or the Overtopping Hazard Zone, or if it is identified by the Council as being a site with specific critical drainage problems or is located within 20m of a main river.*
- 5.10.2 **Flood Zone 2** – Medium probability of flooding – This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding or between 1 in 200 and 1 in 1000 annual probability of sea flooding in any one year. *A site-specific FRA will be required.*
- 5.10.3 **Flood Zone 3** – High probability of flooding - This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding or 1 in 200 or greater annual probability of sea flooding in any one year. *A site-specific FRA will be required.*

Flooding from Surface Water Runoff and Overland Flow

- 5.11 Overland flooding typically occurs in natural valley bottoms as normally dry areas become covered in flowing water and in low spots where water may pond. This flooding mechanism can occur almost anywhere but is likely to be of particular concern in any topographical low spot, or where the pathway for runoff is restricted by terrain or man-made obstructions.
- 5.12 Parts of the District have very steep topography and are heavily urbanised. In addition, in many places surface water is discharged into the streams that flow through these towns. These streams flow predominantly in culverts through these densely populated urban areas and historically these have become surcharged during extreme rainfall events. This has resulted in surface water flows in streets, which has caused flooding to properties in the past.

Impact of Climate Change on the SFRA Study Area

- 5.13 The Environment Agency Flood Zone maps are based on current day sea levels and climate conditions; however, in order to gain an understanding of the impact of rising sea levels, the Flood Zone maps have been re-produced using the 2115 predicted extremes.
- 5.14 There are generally three significant policies in relation to flood risk which are:-
- 5.14.1 All development will be controlled so as not to give rise to flooding or surface, groundwater or aquifer pollution. Surface water should be disposed of as close to source as possible or attenuated before discharge to a watercourse or surface water sewer. Surface water should not be allowed to enter the foul system.
- 5.14.2 Areas within Zones 2 and 3 at risk from fluvial flooding are identified on the Environment Agency Flood Map. Planning applications for development on sites of more than 1 hectare within these areas must be accompanied by a flood risk assessment appropriate to the scale of and nature of the development, the level of flood risk, and the protection afforded by the existing defences. Development in undeveloped areas at risk from fluvial flooding will only be permitted in exceptional circumstance. In developed areas at risk from fluvial flooding, development will only be permitted where appropriate flood defence measures are taken, and it can be demonstrated that there is no increased risk of flooding to other sites.
- 5.14.3 Generally the Local Authority will, in consultation with the Environment Agency, ensure that new developments safeguard existing tidal and fluvial defences. Where works are being carried out in proximity to a tidal or fluvial flood defence the Council will seek to safeguard and where possible extend public access to the waterfront and protect and enhance existing ecological features, the existing flood defences and access to flood defence facilities for operational maintenance purposes.
- 5.15 Planning permission will be refused for residential development in areas at risk of fluvial or tidal flooding, as identified by the Environment Agency, unless it can be shown that the site is defended to an appropriate standard. Where a site is

protected to an appropriate standard the development will be required to show appropriate measures to ensure the safety of the occupiers of the accommodation from flooding.

5.16 Generally, development will only be permitted where the District Planning Authority is satisfied that suitable sustainable urban drainage methods, or an alternative method as agreed with the drainage authority designed to mitigate any adverse effects of surface water run-off, are included as an integral part of the development and measures are proposed to ensure the future maintenance of such schemes.

5.17 Reference to Frame 15 below (Table 1 of the Technical Guidance to NPPF), confirms that the proposed use of land is appropriate in this zone.

Zone 1 - low probability Definition This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%). Appropriate uses All uses of land are appropriate in this zone. Flood risk assessment requirements For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention. Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems.	Zone 3a - high probability Definition This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. Appropriate uses The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood. Flood risk assessment requirements All development proposals in this zone should be accompanied by a flood risk assessment. Policy aims In this zone, developers and local authorities should seek opportunities to: • reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems; • relocate existing development to land in zones with a lower probability of flooding; and • create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.	Zone 3b - the functional floodplain Definition This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain. Appropriate uses Only the water-compatible uses and the essential infrastructure listed in table 2 that has to be there should be permitted in this zone. It should be designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows; and • not increase flood risk elsewhere. Essential infrastructure in this zone should pass the Exception Test. Flood risk assessment requirements All development proposals in this zone should be accompanied by a flood risk assessment. Policy aims In this zone, developers and local authorities should seek opportunities to: • reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems; • relocate existing development to land with a lower probability of flooding.
Zone 2 - medium probability Definition This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year. Appropriate uses Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are only appropriate in this zone if the Exception Test is passed. Flood risk assessment requirements All development proposals in this zone should be accompanied by a flood risk assessment. Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.		

Frame 15- Extract of NPPF Table 1 – Flood Zones

5.18 Developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems.

5.19 According to Table 2 of the Technical Guidance to NPPF (see Frame 16 below), the site usage should be considered to be a 'More Vulnerable', (dwelling houses)

Essential Infrastructure	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substations.
Highly Vulnerable	- Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. - Emergency dispersal points. - Basement dwellings. - Caravans, mobile homes and park homes intended for permanent residential use. - Installations requiring hazardous substances consent.¹⁹
More Vulnerable	- Hospitals. - Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. - Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. - Non-residential uses for health services, nurseries and educational establishments. - Landfill and sites used for waste management facilities for hazardous waste.²⁰ - Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	- Buildings used for: shops; financial, professional and other services; restaurants and cafes; hot food takeaways; offices; general industry; storage and distribution; non-residential institutions not included in 'more vulnerable'; and assembly and leisure. - Land and buildings used for agriculture and forestry. - Waste treatment (except landfill and hazardous waste facilities). - Minerals working and processing (except for sand and gravel working). - Water treatment plants. - Sewage treatment plants (if adequate pollution control measures are in place).

Frame 16- Extract of NPPF Table 2 - Land Use Vulnerability

5.20 Reference to Frame 17 below, Table 3 of the Technical Guidance to NPPF, the 'More vulnerable' land use **does not** require the **exception test** performing for Flood Zone 1.

Table D.3²²: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	X	Exception Test required	✓
	Zone 3b 'Functional Floodplain'	Exception Test required	✓	X	X	X

Frame 17 - Extract of NPPF Table3

Sequential Test

5.21 Local Planning Authorities (LPA) are encouraged to take a risk-based approach to proposals for developments in or affecting flood risk areas through the application of the Sequential Test and the objectives of this test are to steer new development away from high-risk areas towards those at lower risk of flooding. However, in some areas where developable land is in short supply there can be an overriding need to build in areas that are at risk of flooding. In such circumstances, the application of the Sequential Test is used to ensure that the lower risk sites are developed before the higher risk ones. The Sequential Test can be considered adequately demonstrated if both of the following criteria are met:

- The Sequential Test has already been carried out for the site (for the same development type) at the strategic level (Local Plan)
- The development vulnerability is appropriate to the Flood Zone

5.22 Based on the information currently available from the Environment Agency and determined by this assessment, the following functional floodplain test is applied.

Do predicted flood levels show that the site will be affected by an event having a return period of 1 in 20 years or less? **X**

Is the site defended by flood defence infrastructure that prevents flooding for events having a return period of 1 in 20 years or greater? **✓**

Does the site provide a flood storage or floodwater conveyance function? **X**

Does the site contain areas that are 'intended' to provide transmission and storage of water from other sources? **X**

Is site within the functional floodplain (Zone 3b). **No**

This development site is **NOT** located in a functioning floodplain.

5.23 NPPF states that the Local Planning Authority should apply the sequential approach as part of the identification of land for development in areas at risk from flooding. The objective of the sequential test is to ensure that lower risk sites are developed before sites in higher risk areas. When applying the test it is extremely important to ensure that the subject site is only compared with sites that are available for development and are similar in size. This requires a comprehensive

knowledge of development sites within the Southwark District and is normally applied as part of the Local Development Framework process. However, when applying the test to sites that have not been assessed as part of the LDF it is often necessary to apply a site-specific test.

- 5.24 The second level of appraisal is through the application of the more detailed and refined flood risk information contained within the Strategic Flood Risk Assessments (SFRA). Such a document has been prepared for the Southwark District.
- 5.25 The most detailed stage at which the sequential approach can be applied is at site based level. Careful consideration can then be given to the sites topography and development uses can provide opportunities to locate more vulnerable buildings on higher parts of the site and allow less vulnerable items such as recreation areas or car parking to be placed in higher risk areas.

Exception Test

- 5.26 Reference to Frame 20 below (Table 3 of the Technical Guidance to NPPF), an Exception Test is **Not** required. The remainder of this report will assess and recommend appropriate flood mitigation measures, and assess the flood risk to and arising from the proposed development in order to ensure the following objectives have been met;
- Ascertain the impact of the proposed development on the flood risk in the surrounding area.
 - Recommend appropriate flood mitigation measures in line with the recommendations of current best practice.
 - Demonstrate that the development provides wider sustainability benefits to the community that outweigh flood risk.
 - The development should be on developable, defined by PPS3 as a site that is in a suitable location for housing, or previously developed land.

- A Flood Risk Assessment must demonstrate that the development will be safe, without increasing flood risk elsewhere and where possible, will reduce flood risk overall.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	x	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	x	x	x

Frame 18- Extract of NPPF Table 3 – Flood Zone compatibility

6.0 ENVIRONMENTAL CONDITIONS

Topography

- 6.1 107 Vale Road is a derelict detached single bedroom bungalow set on a relatively level plot elevated above Vale Road. The property has front and rear gardens mainly laid to lawn although there are shingle and concrete patio finishes. Vehicle parking is on the street with no provision currently within the site. A topographical survey has been undertaken which identifies levels in the front garden to be in the region of 18.43m, elevated above footpath levels identified as 17.05m. The properties ground floor level is shown as 18.62m. To the rear the patio adjacent the rear elevation is shown as 18.39m with garden levels 17.94m.. The floor levels are to be set a minimum of 150mm above the ground level.

Flood Defences

- 6.2 The site is identified on the Environment Agency Flood Map as being in a Flood Zone 1 (Low Risk). It should be noted that the flood map (flood zones) at this location have been derived using a generalised computer modelling study and would not necessary be aware of any localised walls or structures defending the site.

Flood Hazards

6.3 Technical Guidance to NPPF identifies six potential sources of flooding and requires that all potential sources that could affect the proposed development are considered;

- Flooding from rivers or fluvial flooding
- Flooding from the sea or tidal flooding
- Flooding from land
- Flooding from groundwater
- Flooding from sewers
- Flooding from reservoirs, canals, and other artificial sources

6.4 Flooding from rivers or fluvial flooding

The site is identified to lie within a Flood Zone 1 assessed as having less than a 1 in 1000 annual probability of river or sea flooding in any one year.

6.5 Flooding from the sea or tidal flooding

The site is identified to lie within a Flood Zone 1 assessed as having less than a 1 in 1000 annual probability of river or sea flooding in any one year.

6.6 Flooding from land

During times of extreme rainfall surface water flows along the streets potentially resulting in water collecting in this low-lying area. Under normal conditions this surface water is managed via the highway drains, however, during extreme conditions these may become overwhelmed and consequently water can pond in low areas. Reference to the GOV website identifies this site to be a Low Risk i.e. a chance of flooding of between 0.1% and 1% each year. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.



Frame 19- Extent of flooding from surface water

6.7 Flooding from groundwater

British Geology Surveys website, indicates that the site is likely to be underlain by **Thanet Formation - Sand**. The site is located within Zone 2 – Outer Protection Zone. Considering that the finished floor levels will be a minimum 150mm higher than the external ground level, it is unlikely that the site will be at risk from groundwater flooding.

6.8 Flooding from sewers

The public sewer records identify that there are only foul public sewers adjacent the property which is elevated approximately 1.5m above the highway. There are no surface water public sewers identified at this location, however, there is a public combined sewer identified in the highway adjacent the western site boundary. The risk of flooding from sewers is low.

6.9 Flooding from reservoirs, canals, and other artificial sources

Inspection of the Environment Agency website has not highlighted any reservoirs, canals and other artificial water sources as a flood risk.

Risk and Controls

6.10 Considering the hazards identified above, the following requires consideration and/or mitigation measures;

- Flooding of any new property (Considered)
- Emergency egress through flood water (Considered)
- Displacement of flood water (Considered)
- Health & financial implications of flooding (Considered)
- Loss of mitigation measures during building lifetime (Considered)
- Flood Warning (Considered)

6.11 Flooding of new property

The minimum ground floor level for the proposed residential development is recommended to be set no lower than 150mm above the finished ground level

6.12 Emergency egress through flood water

The site is within land above the 1% AEP level so therefore a dry escape route is available which could avoid the need for any specialist rescue by the Emergency Services or the need for wading through flood-water thus removing the risk.

6.13 Displacement of flood water

The proposed development site is located in a Flood Zone 1. There will be no significant reduction in the potential capacity of the storage zone.

6.14 Health & Financial Implications

The construction work will utilise flood resilient construction methods.

6.15 Loss of mitigation measures during the lifetime of the property

A copy of this report should be included with the 'New Home Owners Handbook' and any potential purchaser made aware of the mitigation measures included on the site and the long-term maintenance requirement.

6.16 Flood Warning

Whilst the probability of an event of sufficient magnitude to cause floodwaters to reach the levels discussed in this report is low, the risk of such an occurrence is always present. With the sophisticated techniques now employed by the Environment Agency to predict the onset of flood events the opportunity now exists for all residents within the flood risk area to receive flood warnings. This forewarning could be sufficient to either allow occupants to evacuate the area or prepare themselves and the property for a flood event. It is therefore recommended that the Environment Agency's Floodline Service is contacted to find out if it is possible to register for Floodline Warnings Direct, which is a free service that provides flood warnings direct by telephone, mobile, fax or pager.

Off Site Impact

- 6.17 There is no increased risk associated with this development and there should be no impact on any neighbouring properties. There is no increase in displaced flood water generated by this development site.

Residual Risk

- 6.18 With the site being located in a Flood Zone 1 and with the introduction of the controls discussed, the potential for harm to life or damage to property for this site is considered to be very low level.

7.0 OPERATION & MAINTENANCE STATEMENT

7.1 The surface water system as indicated on the design drawings is a private Sustainable Urban Drainage System which the owner of the property will be responsible for the inspection and maintenance of the system which will be set up on completion of the development.

7.2 It is recommended that the catch pits/sumps and drainage channels are inspected as part of the general planned inspection and maintenance regime for the development, but certainly at no greater intervals than once a year.

7.3 Annual Inspection to include.

- Lift covers/gratings to the catch pit/sumps and channel drains to check general condition.
- The drainage channels will have a 300mm deep sump for silt collection below the standing water that will need to be dipped and empty as required by a licensed carrier.
- Review quantities of silt removed and consider whether inspections should be increased or possibly reduced to every two years.
- Carry out works as identified from inspection.

7.4 Five-year Inspection / Five Year Anniversary

- Carry out jetting to all pipe work to ensure no blockages and free flow of water to the catch pits and to check overall integrity and remove any silt.
- Remove all silt and water from the catchpits and dispose off site by a licensed carrier.
- Carry out works as identified from inspection.

7.5 Implementation Programme

The developer will be responsible for the initial maintenance and will arrange for a joint handover inspection with the owner. A copy of this report is to be issued to the owner for them to become familiar with and understand the requirements.

8.0 CONCLUSION

- 8.1 Tridax Limited have been commissioned by Frankham Projects Limited and requested to prepare a Drainage Impact and Flood Risk Statement for the proposed redevelopment of 107 Vale Road to provide a single replacement dwelling.
- 8.2 The site is relatively flat and elevated above the public high situated adjacent the sites western boundary. A topographical survey has been undertaken which identifies the site levels in the front garden to be in the region of 18.43m, elevated above footpath level identified as 17.05m. The properties ground floor level is shown as 18.62m. To the rear the patio adjacent the rear elevation is shown as 18.39m with garden levels 17.94m.. The Geological map of Great Britain indicates the site to be underlain by a bedrock of Thanet Formation – Sand. There are no superficial deposits recorded. Infiltration techniques are unlikely to be acceptable at this site for surface water disposal although this will require confirmation via in-situ infiltration testing. No intrusive site investigation has been undertaken on site. Surface water runoff will be designed to discharge to the public foul water system located to the front and rear of the site subject to satisfactory invert levels. This sewer ultimately links with the combined public sewer located in Vale Road. There are no public surface water sewers at this location. The existing property currently discharges combined foul and surface water drainage to the public foul system located to the rear of the property.
- 8.3 The site is identified to be within the extent of the Flood Zone 1 (Low Probability). The development is classified in Table 2 of NPPF as being ‘more vulnerable’ but is appropriate within this flood zone. Ground floor levels should be set a minimum 150mm above the external ground.
- 8.4 In accordance with the requirements of the GOV.UK Guidance – Flood risk and coastal change, we conclude that the site can be adequately drained and is not at risk from flooding or increases the risk of flooding elsewhere.
- 8.5 The proposed development will NOT increase the design flow rate of foul drainage to the public foul sewer.

- 8.6 This is a brownfield development site where surface water runoff from the existing residential property discharges with the property's foul drainage.
- 8.7 The surface water drainage strategy is to discharge a controlled flow equal to 50% of the existing Brownfield Rate to the public foul sewer and create attenuation within the site which would result in a significant reduction in flows entering the public foul system and therefore increase capacity. Due to the level difference between the property and parking area it will be necessary to have two discharge points for surface water although the existing connection point at the rear of the site , manhole reference 0234 will be reused for foul and surface water.
- 8.8 The existing site is currently developed with a detached residential property that has a total impermeable surface finish area of 107m² that will generate surface water runoff. The proposed development looks to install a replacement residential development that will increase the total impermeable surface finishes to 170m². Approximately 128m² catchment area will fall to the rear where it will be attenuated and have a controlled discharge to existing manhole ref 0234. The remaining 42m² catchment area will be created by the installation of off-road parking, steps and ramps which will be attenuated and have a controlled discharge to existing manhole ref 0223 located adjacent the sites front (western) boundary. There will be an opportunity to introduce SUD's features into this development to reduce surface water runoff subject to compliance with Building Regulations requirements. MicroDrainage Quick storage calculations indicate that attenuation of 6m³ will be required although a final detailed design will be prepared upon planning approval.
- 8.9 An application under Section 106 Water Industry Act (connect to the public sewer) will not require to be submitted to Southern Water Services if no new connection points are required. However, if a new connection is required as shown on the strategy drawings to deal with surface water runoff from the parking area then a submission will be required. The detailed drainage designs will need to comply with the Building Regulations.
- 8.7 Drawings T-2024-079-01A and T-2024-079-02A included in Appendix A demonstrate the strategies for both foul and surface water disposal. A detailed foul

and surface water drainage design will need to be undertaken once planning approval has been granted.

- 8.8 In accordance with the requirements of the Technical Guidance to the National Planning Policy Framework (NPPF), we conclude that the site can be adequately drained, and is sustainable in terms of flood risk and that the proposals do not increase the risk to the neighbouring properties.

APPENDIX A

DRAWINGS

Tridax

T-2024-079-01A - Proposed Drainage Strategy

T-2024-079-02A - Proposed Construction Details

Architects

P-1327/110 Rev F – Proposed Site Roof Plan

P-1327/111 Rev J – Proposed Floor Plans

P-1327/210 Rev F – Proposed Elevations

Hook Survey

S23/9673/01 Rev A – Topographical Survey

S23/9673/02 Rev - – Property Survey



DRAWING LEGEND

Site boundary line

EXISTING PUBLIC SEWERS

Public combined sewer

Public combined manhole

EXISTING PRIVATE DRAINAGE

Private foul water drain

Private foul water manhole

Private drain to be abandoned / grubbed out

PROPOSED PRIVATE DRAINAGE

Private foul water drainage

Private foul water manhole

SVP

SS

Private surface water drainage

Private surface water manhole

SA

RWP

TD

Proposed private combined drainage

Proposed private combined manhole

IMPORTANT NOTE!

The invert level at the point of connection will require confirmation prior to any drainage work commencing on site. Any discrepancy is to be reported to the drainage engineer immediately.

All finished levels are to be confirmed by the Architect and any discrepancies reported to the drainage engineer.

CCTV survey of all existing drainage being retained / reused to be undertaken to confirm adequacy.

S106 Approval to connect to a public sewer is required from Southern Water.

DRAINAGE NOTES

- The location of any existing drains and sewers are to be accurately located and reported prior to any work commencing on site.
- All materials, workmanship and construction to be in accordance with the requirements of 'Sewers for Adoption - 7th Edition' and published addendum and corrigendum.
- Channel drains shown are only to collect surface water run-off from hard paved areas and door thresholds and are not intended to collect groundwater or run-off from gardens and landscaped areas.
- All abandoned pipework to be completely removed or grout filled unless stated otherwise.

NOTES

- The Contractor should check all dimensions on site.
- It is the Contractors responsibility to ensure compliance with building regulations and current codes of practice.
- Drawings cannot take into account any drains or underground works not locatable by visual survey of the site.
- Commencement of any building works prior to full building regulation approval is entirely at the clients risk.

A	First issue to client	19/08/2024
Rev	Description	Date
PROJECT		
Proposed replacement dwelling at: 107 Vale Road, Northfleet, Kent DA11 8DB		
CLIENT		
Frankham Projects		
DRAWING		
Proposed Drainage Strategy		
STATUS		
STRATEGY		
PROJECT		
SCALE	DATE	SHEET
1:100	15/08/2024	A1
T-2024-079-01		
A		

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Public Foul Manhole
Ref 0204
CL = 15.43m
IL = 12.60m
D = 2.83m

Public Foul Manhole
Ref 0207
CL = 17.08m
IL = 15.86m
D = 1.22m

Public Foul Manhole
Ref 0206
CL = 16.45m
IL = 15.61m
D = 0.84m

Public Foul Manhole
Ref 0209
CL = 17.69m
IL = 17.04m
D = 0.65m

Public Foul Manhole
Ref 0234
CL = 17.92m
IL = 17.32m
D = 0.60m

Public Foul Manhole
Ref 0235
CL = 18.39m
IL = 17.71m
D = 0.68m

Public Foul Manhole
Ref 0225
CL = 18.83m
IL = 18.21m
D = 0.62m

Public Foul Manhole
Ref 0226
CL = 18.78m
IL = 18.21m
D = 0.55m

Public Foul Manhole
Ref 0224
CL = 18.88m
IL = 18.21m
D = 0.65m

Public Foul Manhole
Ref 0223
CL = 17.29m
IL = 16.57m
D = 0.72m

MH
CL 17.01

Surface water catchment areas -
Attenuation Tank A

Main Dwelling = 84m2
Patio and path = 44m2
Total Impermeable Area = 128m2

Cellular attenuation tank constructed using
Wavin Aquacell blocks or similar approved
product. Aquacell block size is 1m x 0.5m x
0.4m deep

Tank structure dimensions:
Length: 7m (? Blocks)
Width: 7m (? Blocks)
Depth: 0.8m (2 layers)
Total number of blocks required = ?

Sewer records identify this as public. If
found to serve only a single property
will be private. To be investigated and
confirmed.

A drainage survey has been
undertaken and confirms that the
existing property discharges both foul
and surface water runoff to the public
system.

Perimeter channel drainage to
collect all rainwater downpipes.
(Due to limited depths of existing
manholes).

Assumed
FFL = 18.620m

All finished levels are to be confirmed
by the Architect and any discrepancies
reported to the drainage engineer.

Assumed
GL = 17.300m

Surface water catchment areas -
Attenuation Tank B

Parking Area/Steps/Ramp
Total Impermeable Area = 42m2

Cellular attenuation tank constructed using
Wavin Aquacell blocks or similar approved
product. Aquacell block size is 1m x 0.5m x
0.4m deep

Tank structure dimensions:
Length: 7m (? Blocks)
Width: 7m (? Blocks)
Depth: 0.4m (1 layers)
Total number of blocks required = ?

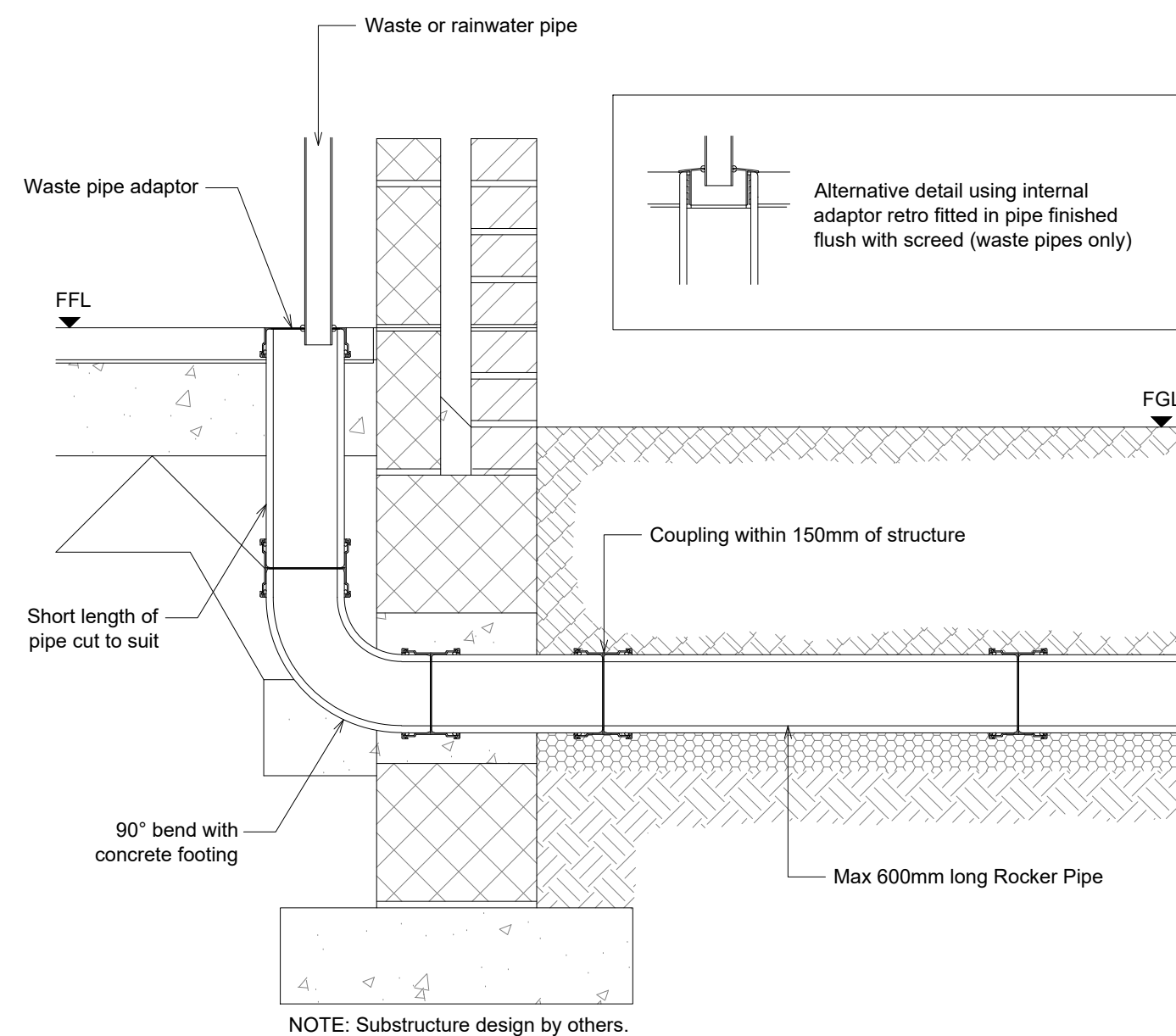
Post-Development Discharge	Post-Development Parameters
30 Year Return ~ 5.0l/s (50% reduction to 2.5l/s)	Site Area ~ 295m ² Impermeable Area ~ 170m ² (58%)

Pre-Development Discharge	Pre-Development Parameters
2 Year Return ~ 2.6l/s 30 Year Return ~ 5.0l/s 100 Year Return ~ 6.5l/s	'Brownfield' Development Site Area ~ 295m ² Impermeable Area ~ 107m ² (36%)

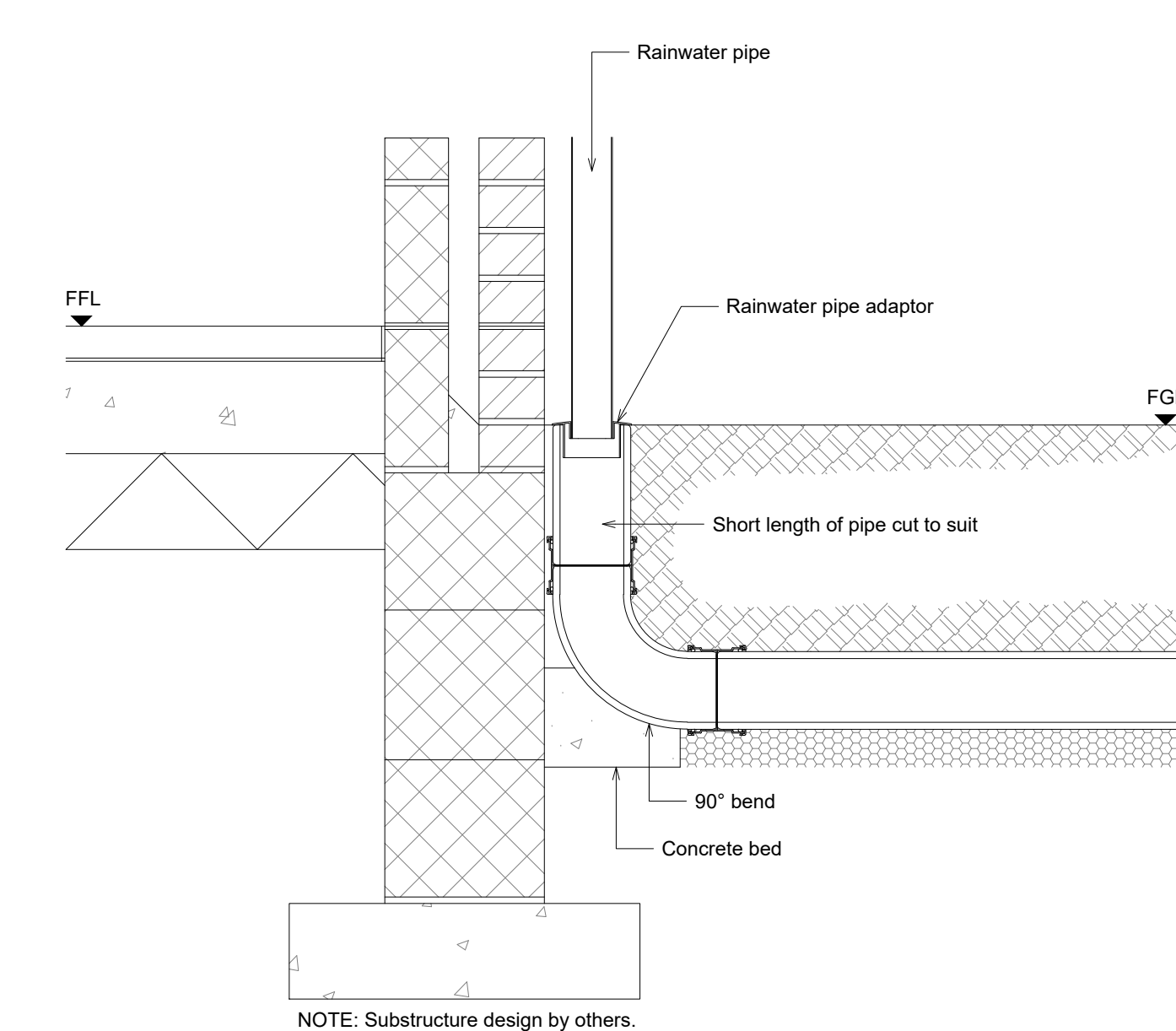
1:100 METRIC

0m 2m 4m 6m 8m 10m

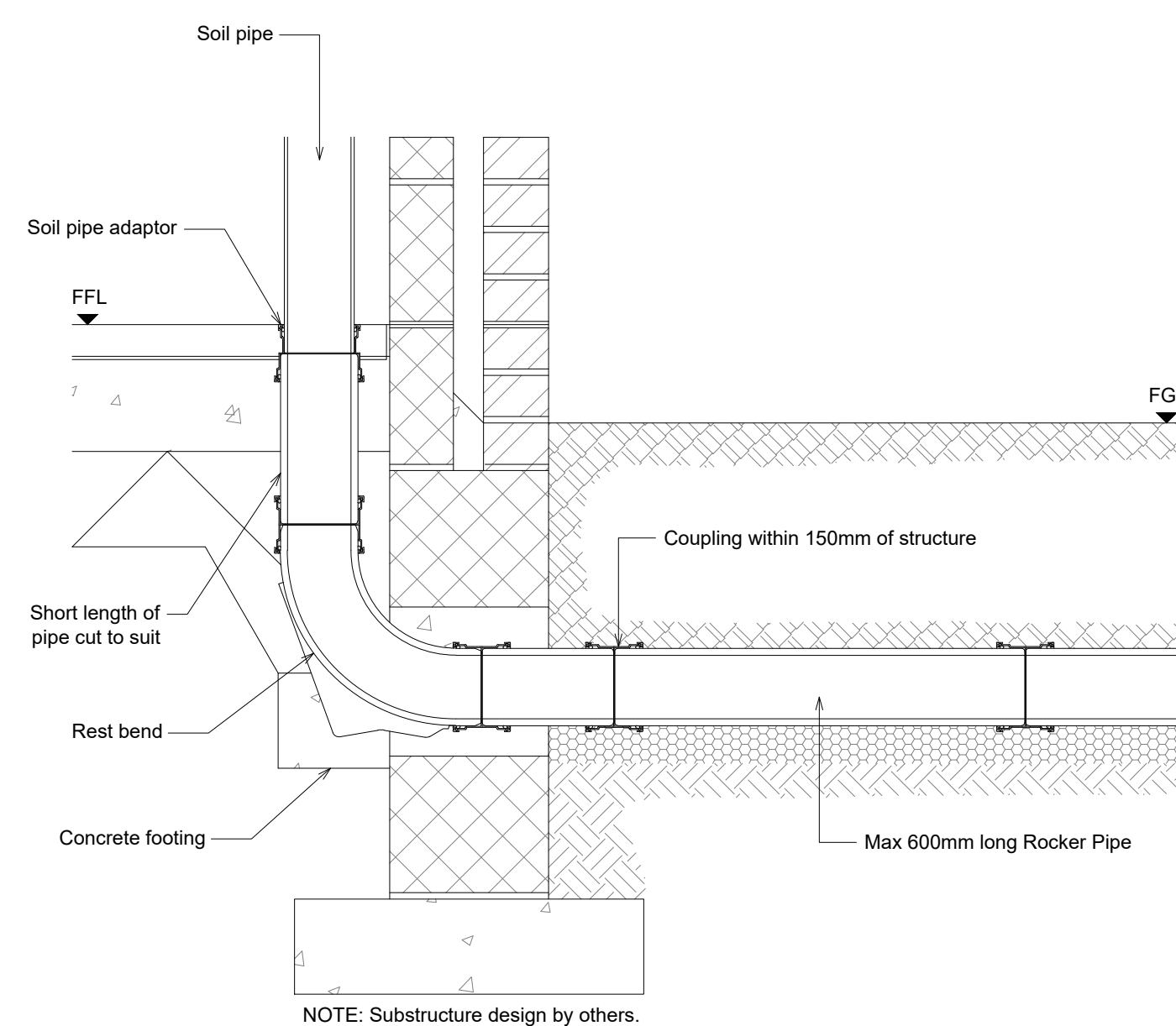
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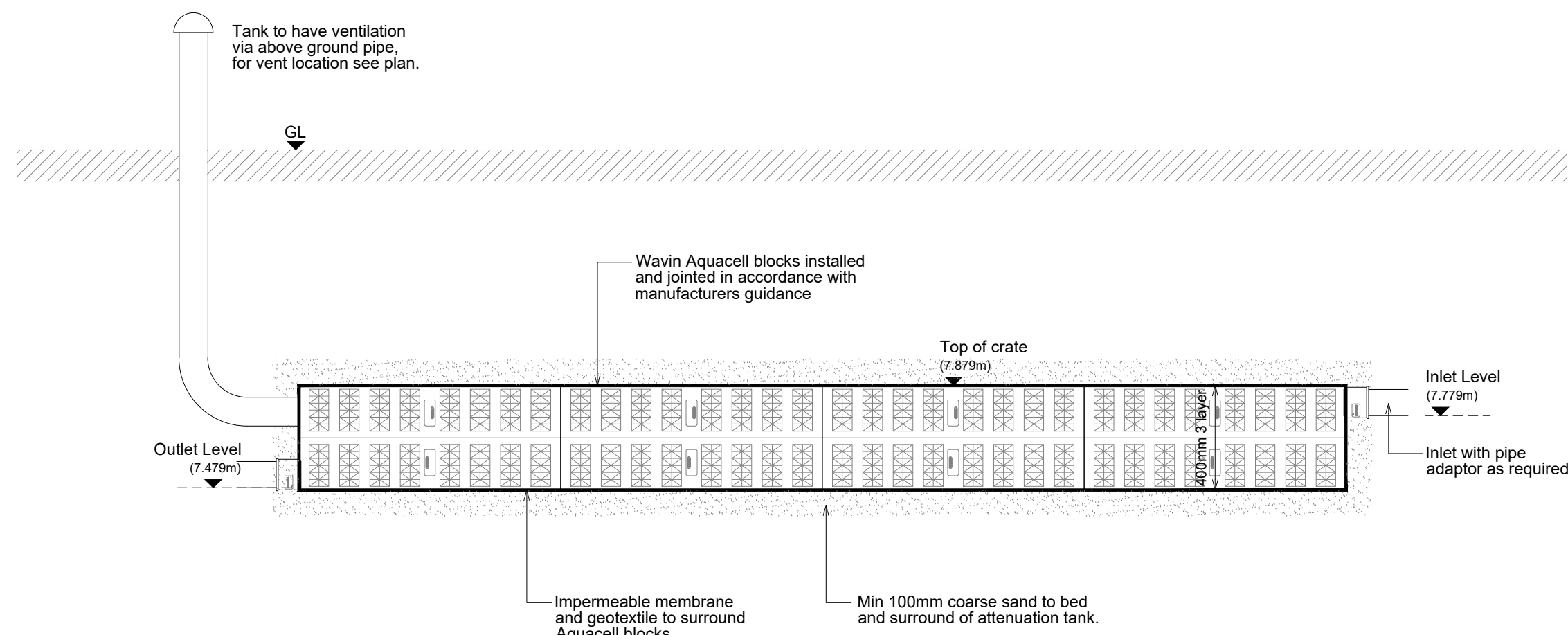
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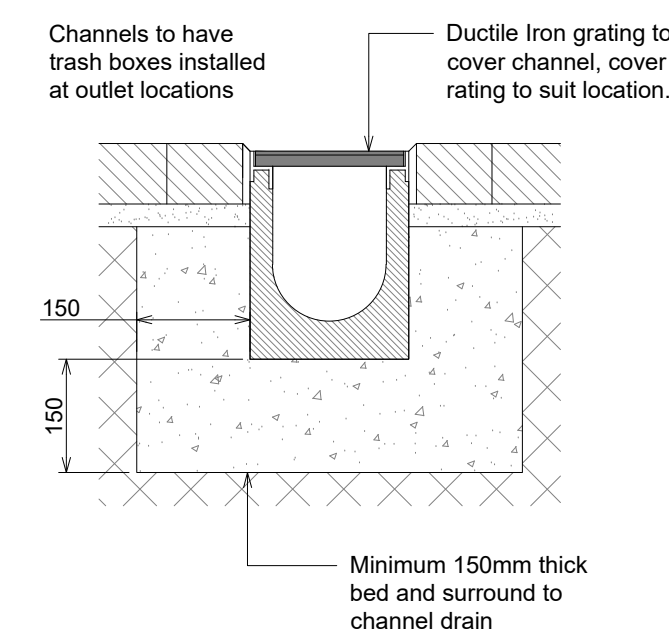
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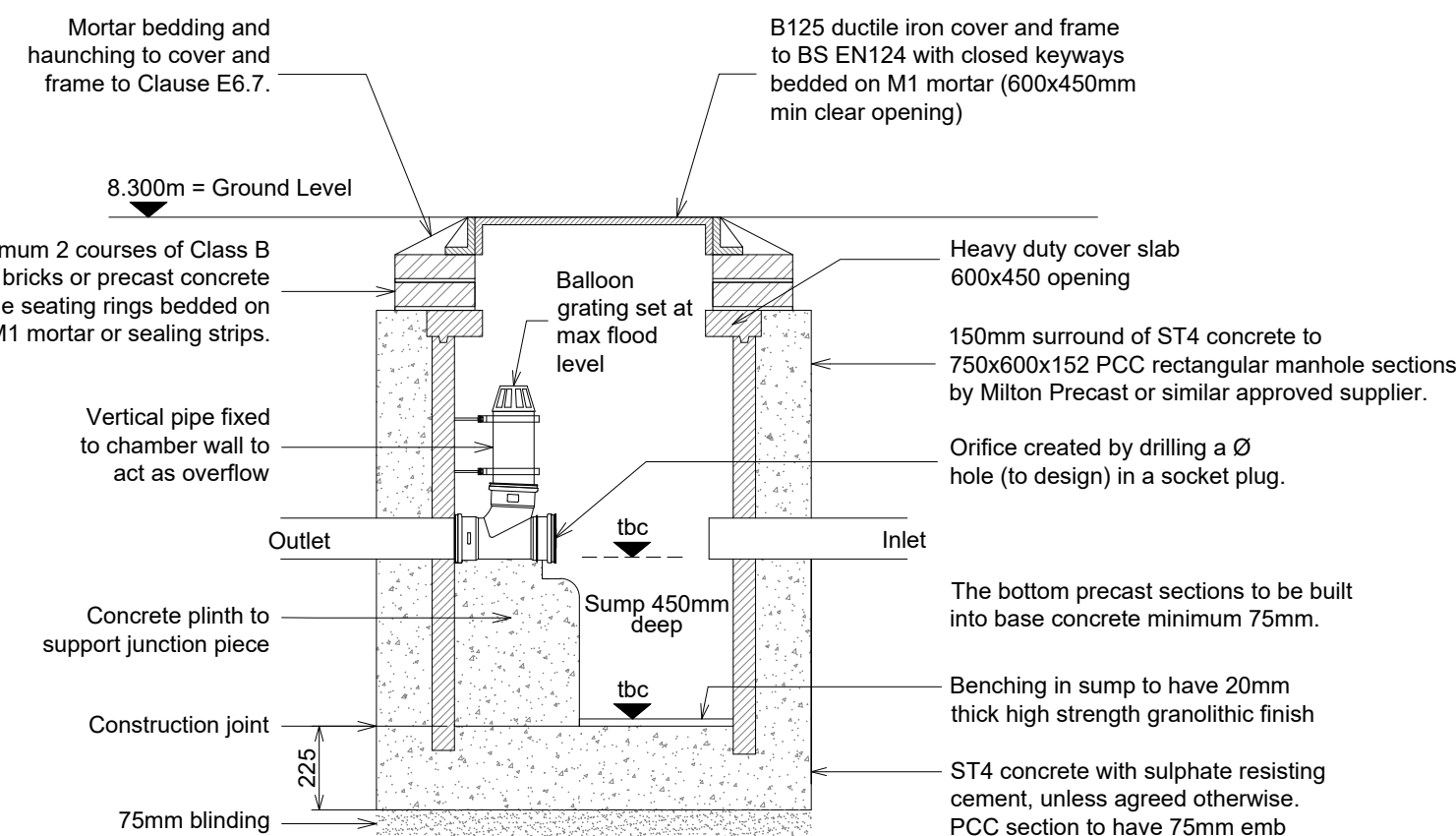
scale 1:20



scale 1:10



Scale 1:20



DRAINAGE NOTES

- The location of any existing drains and sewers are to be accurately located and reported prior to any work commencing on site.
- All materials, workmanship and construction to be in accordance with the requirements of 'Sewers for Adoption - 7th Edition' and published addendum and corrigendum.
- Channel drains shown are only to collect surface water run-off from hard paved areas and door thresholds and are not intended to collect groundwater or run-off from gardens and landscaped areas.
- All abandoned pipework to be completely removed or grout filled unless stated otherwise.

NOTES

- The Contractor should check all dimensions on site.
- It is the Contractors responsibility to ensure compliance with building regulations and current codes of practice.
- Drawings cannot take into account any drains or underground works not locatable by visual survey of the site.
- Commencement of any building works prior to full building regulation approval is entirely at the clients risk.

A	First issue to client		22/06/2024
Rev	Description		Date
PROJECT			
Proposed replacement dwelling at: 107 Vale Road, Northfleet, Kent DA11 8DB			
CLIENT			
Framkhams Projects		 Studio 23, Tridax Business Park, Honeywood Parkway, Whitfield, Dover, Kent, CT16 3QX Tel: 01304 920777	
DRAWING		SCALES — DATE — SIZE — As Noted 22/08/2024 A1	
STRATUS		Dep. No. — REV — T-2024-079-02 A	
STRATEGY			

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ALL DIMENSIONS, LEVELS AND CLEARANCES TO BE CHECKED ON SITE PRIOR TO WORKS COMMENCING

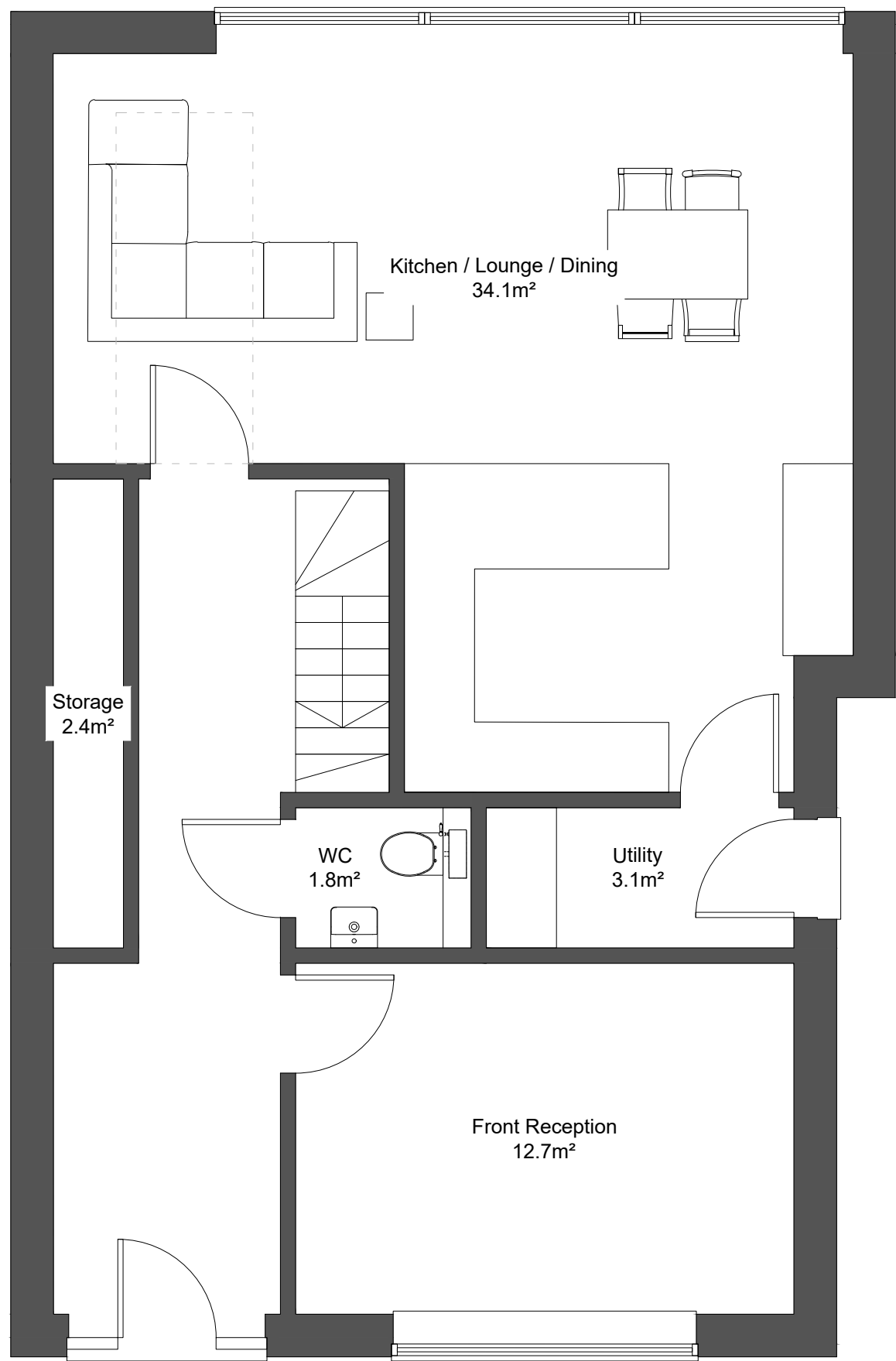
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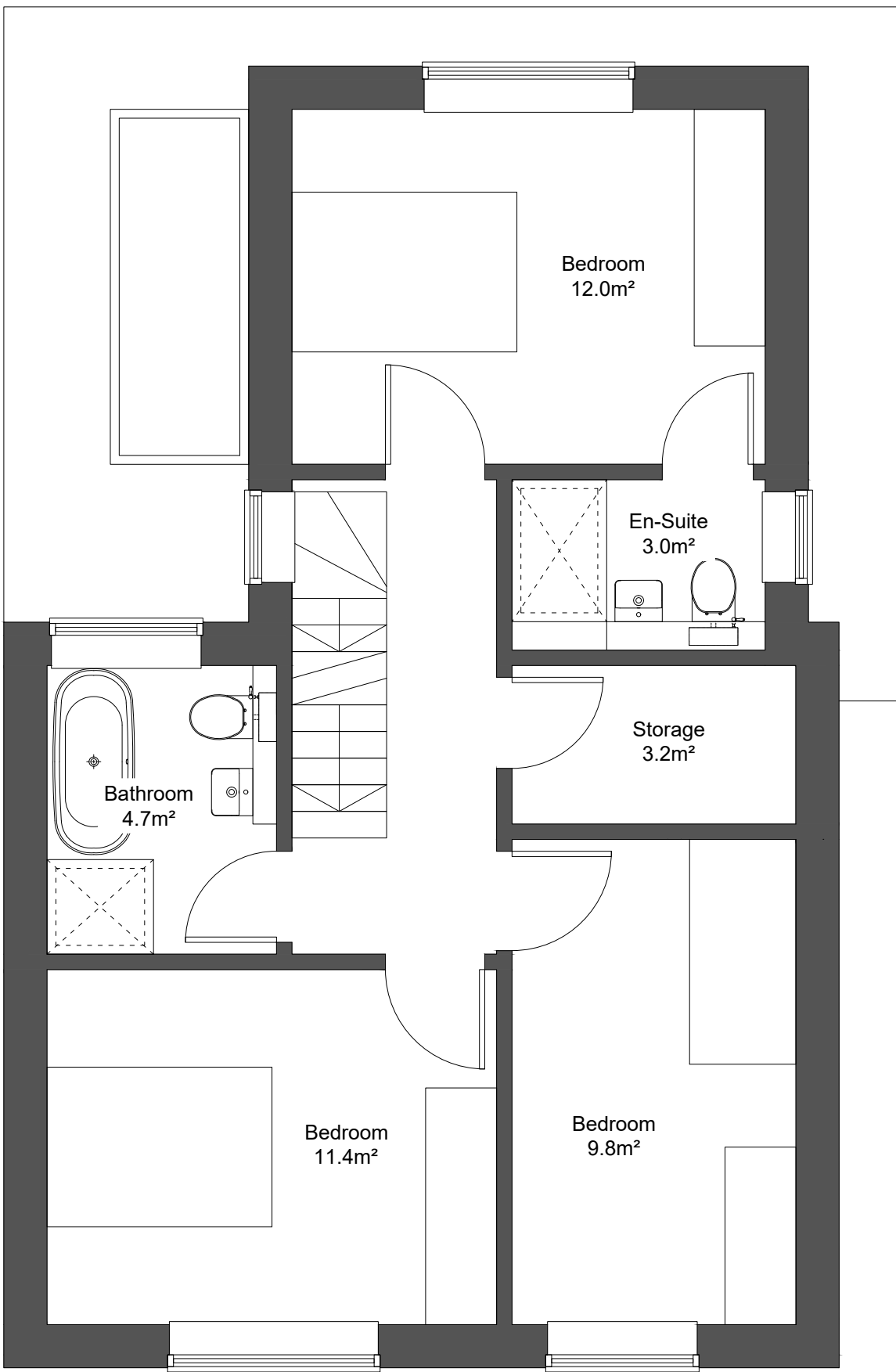
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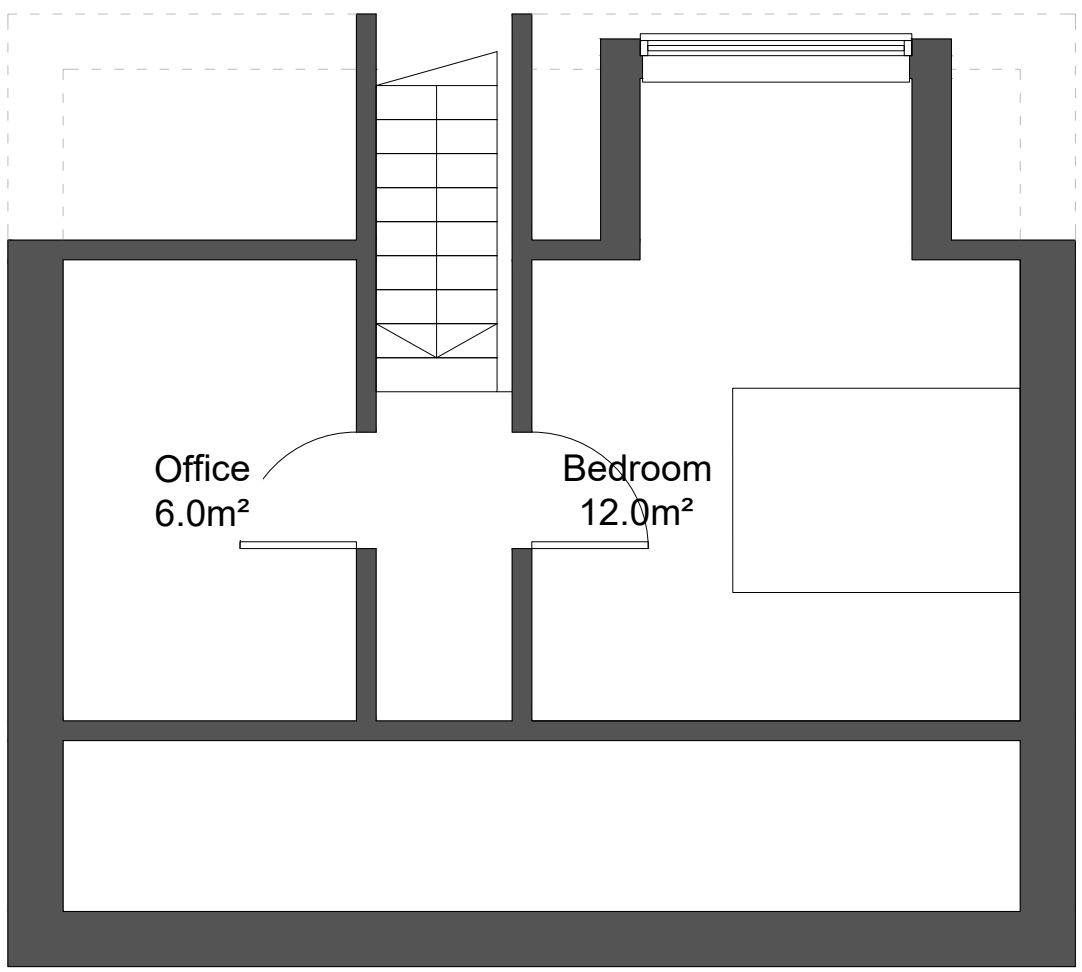
NOTES



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

[illegible]

J	01/08/24	TG	DB	OM	Draft Planning Issue
Rev	Date	By	Chk	Apr	Comment

BRINGING IDEAS TO LIFE	SID	LOM
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Project Title:

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Drawing Title:

Proposed Floor Plans

Status:

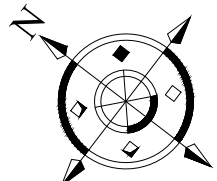
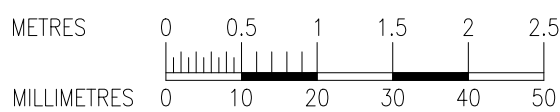
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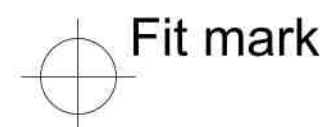
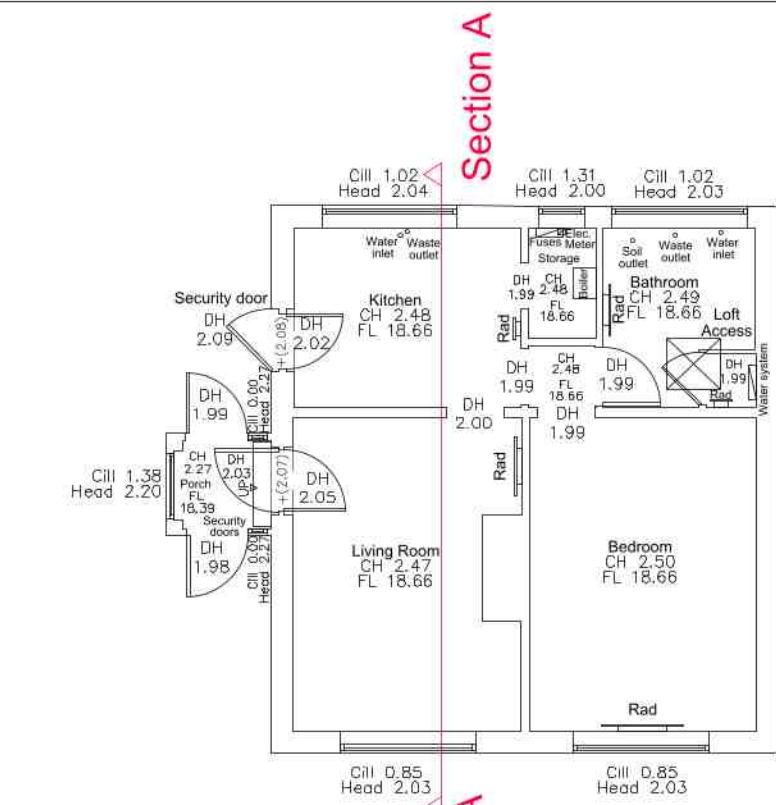
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Original Issue Date:	Scale @ A1:
30/08/2023	1:50

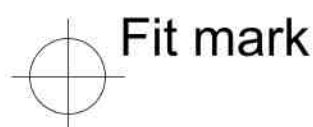
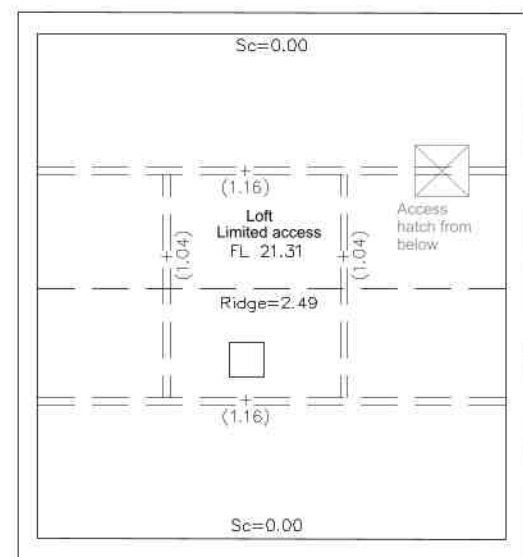
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Ground Floor



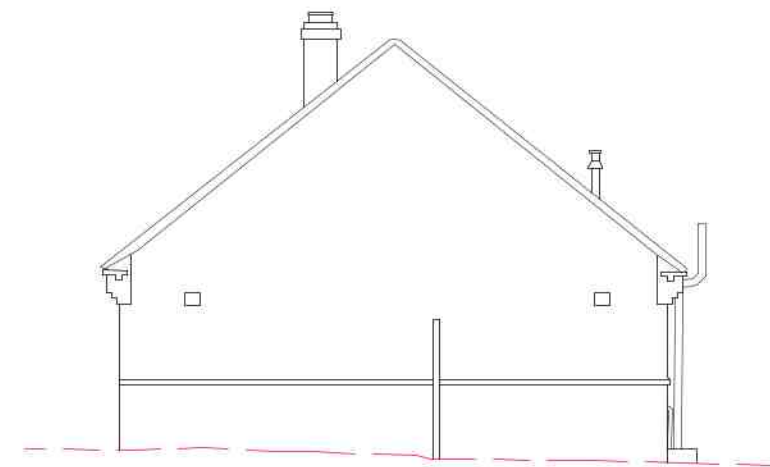
Loft Space



Front Elevation

Datum 15.000m

Datum 15.000m



Right Elevation

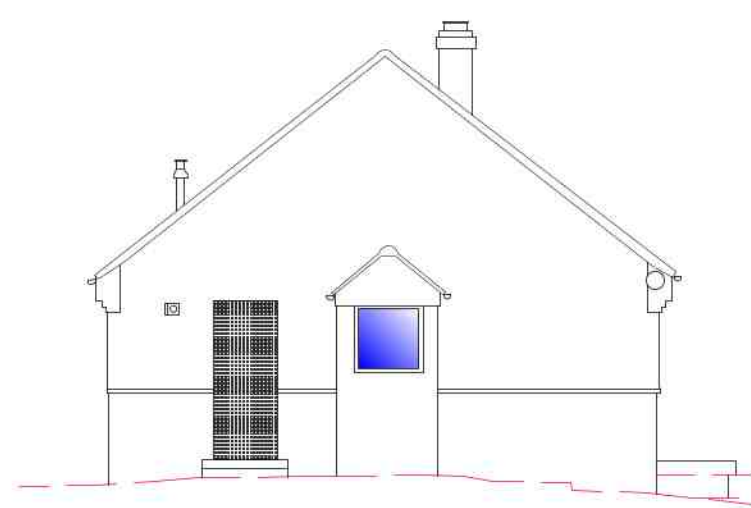
Datum 15.000m



Rear Elevation

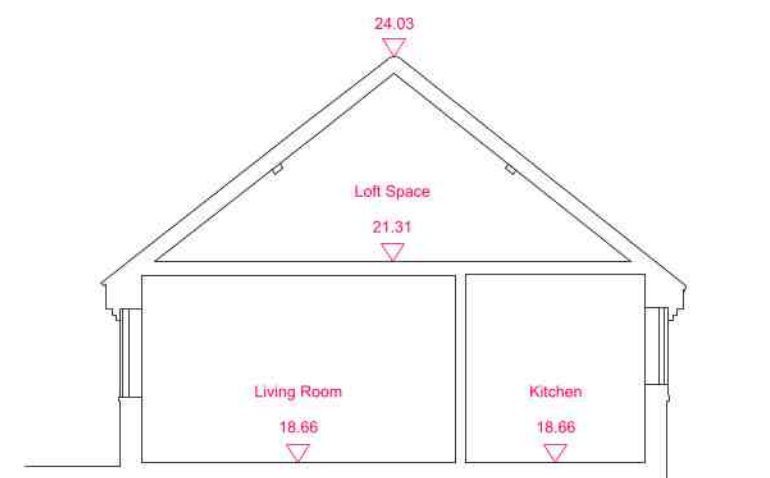
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Datum 15.000m



Left Elevation

Datum 15.000m



Section A

Datum 15.000m

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[DO NOT SCALE](#)

All critical dimensions must be checked on site prior to commencement of any works.

This is a CAD drawing - some layers may not be shown on this drawing

[Floor Plans Legend](#)

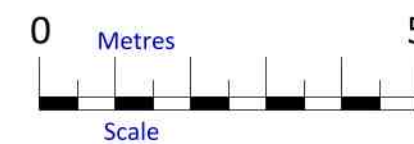
DH 2.10	Door head height
FL 96.62	Floor level
CH 2.71	Ceiling height (from floor)
FGH 2.55	False Ceiling height (from floor)
Cill 1.05	Window cill height (from floor)
Head 2.50	Window head height (from floor)
Sc ht=4.05	Height at change in ceiling slope
RAD	Radiator
+ (2.75)	Beam soffit height (from floor)

[Notes](#)

Beams and columns surveyed where accessible and visible, no allowance for lifting ceiling tiles, loft details only surveyed if safe access is provided, some details may be indicative only.

All measurements have been taken to existing wall, floor and ceiling finishes.

All Elevation details surveyed where accessible.



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Client :
Frankham Projects Limited

Drawing title :
Floor Plans, Elevations & Section

Job No. : S23/9673	Dwg No. : S23/9673/02	Revision : -
Scale : 1:100	Date : November 2023	Drawn by : R.G.

Grid & Levels related to :
Ordnance survey coordinate system using GPS related to the Leica Smartnet RTK network.

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APPENDIX B

Environment Agency Flood Map

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
563048/173248

Created
19 Aug 2024 10:36

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

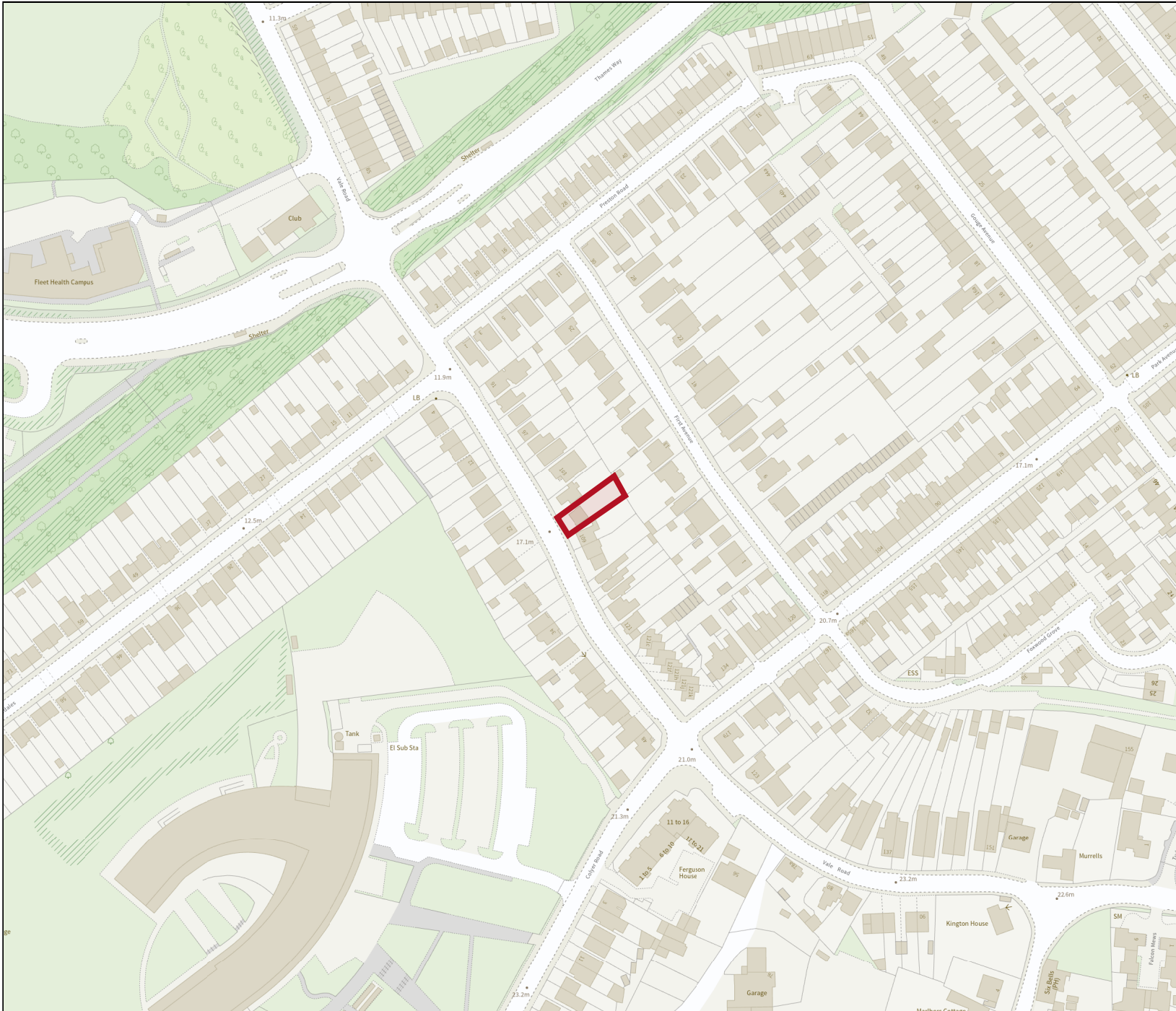
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
563048/173248

Scale
1:2500

Created
19 Aug 2024 10:36

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area


0 20 40 60m

APPENDIX C

Southern Water Infrastructure Charges

New Connections Services Charging Arrangements 2024-25

February 2024

Version 1



from
**Southern
Water** 

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Section 1: Introduction to our charges

This document sets out our charges for new connection services that apply from 1 April 2024 to 31 March 2025.

Connections services cover the work that is needed to connect new homes and businesses to the existing water and wastewater network. Charges for connection services are split into two broad categories:

Infrastructure charges - the charges for work that is needed on the existing water or sewer network to provide for new development-related growth. These will be recovered through our “Infrastructure Charges”, which are fixed for both water and wastewater connections.

Site Specific charges - the charges for all work carried out on the development site and the pipework required to connect the new homes to the existing water main or sewer at a defined point of connection. These charges cover the cost of Site Specific work to provide any new pipework or pumping facilities that are needed to connect the new houses to the nearest practical point on the existing network – **where the internal diameter of the new connecting pipework is no larger than the internal diameter of our existing network.** This category includes:

- New water service connections
- New water mains
- New drainage connections
- New sewers
- Diversions of existing water mains and sewers that need to be moved on a development site

In this document we publish fixed charges for most of the Site Specific activities that we carry out.

By publishing our charges upfront, our Developer Services customers should be able to confidently work out a reasonable estimate of the charges that will apply to their specific development project, at a much earlier stage, providing they know the parameters of the development. To support this, we also provide a New Connection Charging calculator to assist our customers in the generation of estimates for their developments. This will be on our website from 1st March 2024 alongside the New Connection Charging Arrangements.

There are a limited number of circumstances where the work needed is not fully covered by our published charges and this is made clear in this document. There may also be circumstances when charges will be estimated upfront and reassessed once the work is complete. Again, it will be made clear where this applies.

Our charges are developed in-line with a set of rules made by the water industry regulator, Ofwat that apply to all water companies operating in England. They allow us some flexibility to develop our charges, so they reflect our company circumstances and the region we operate within. They have been developed through consultation and engagement with our customers.

Key changes which were introduced for 2024/2025

Bill stability and price predictability remain key principles within our charging scheme. Therefore, we have sought to keep changes to our Charging Arrangements to a minimum. Equally, however, as an incumbent water company with competition law obligations, it is important that our prices reflect the fair market rate to promote fair competition with other service providers such as NAVs and SLPs. This year a number of factors have combined to create substantial upwards pressure on customer bills. We have worked hard to reduce the impact on customer bills while also ensuring that our services offer fair prices. We have developed handling strategies which balance the competing principles of price stability and fair, cost-reflective prices by freezing or reducing non-contestable charges where appropriate and tracking market rates on contestable main laying services.

These handling strategies include:

- The freezing of non-contestable application and admin fees for service connections
- Providing a higher income offset than originally proposed to counteract inflationary cost pressures on site-specific services
- Offering a new easily achievable wastewater incentive to reduce the impact of increases to the non-contestable gross infrastructure charge

Combined these handling strategies will limit price increases for developer customers and reduce the number of potential developments exceeding the 10% threshold.

Our area of operation

We are the water and wastewater supplier for large areas of the South East of the country. We are however a larger wastewater provider than a water provider. Within our wastewater area, various Water only Companies (WoC's) operate. It is important to note that you may need to pay charges to different Water Companies dependant on who the water and wastewater suppliers are for the area of your development. Each company will publish their respective charges within their Charging Arrangements document.

The map below details both the area that we operate and the different Water only Companies within the wider wastewater geographic area covered by us.

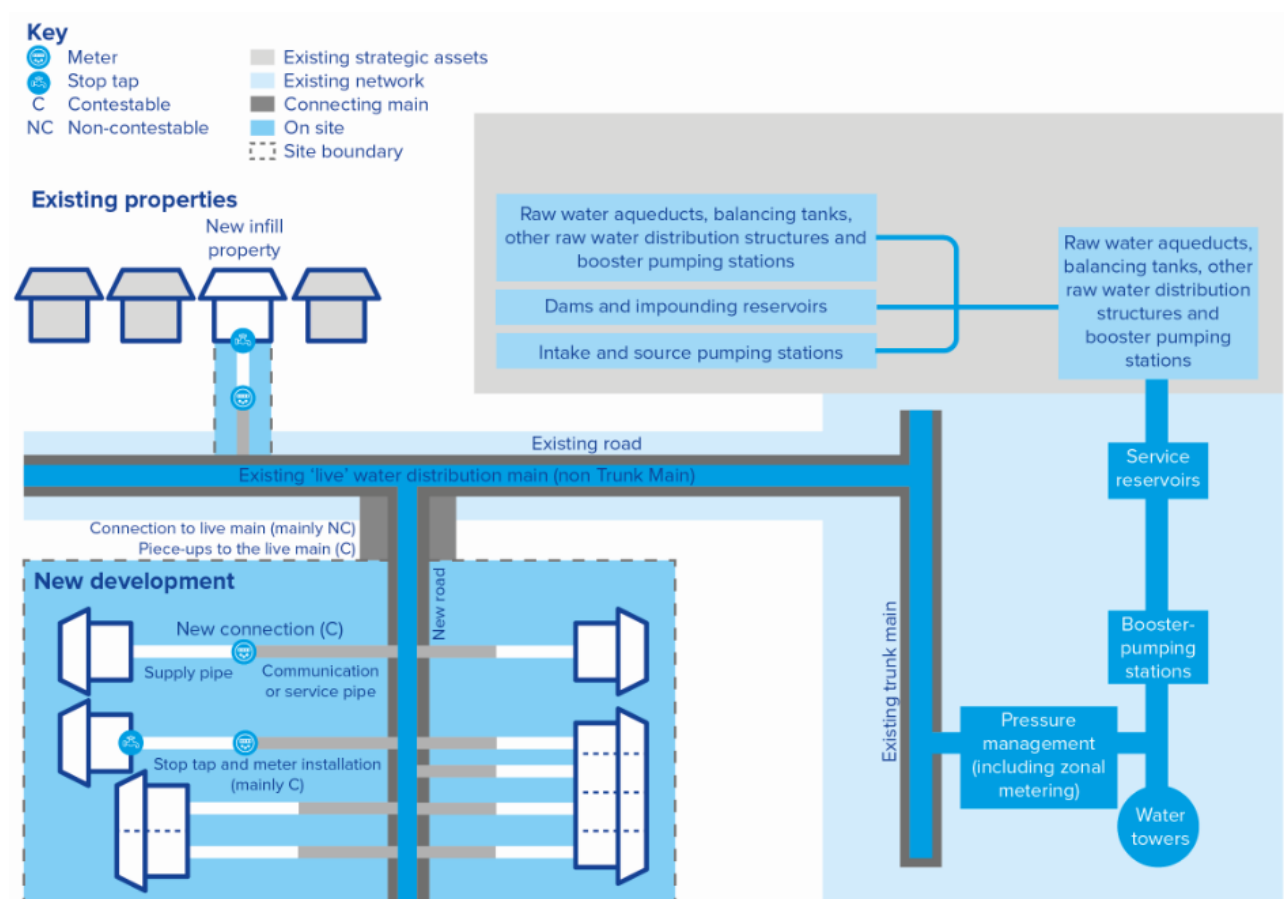


Who pays for what?

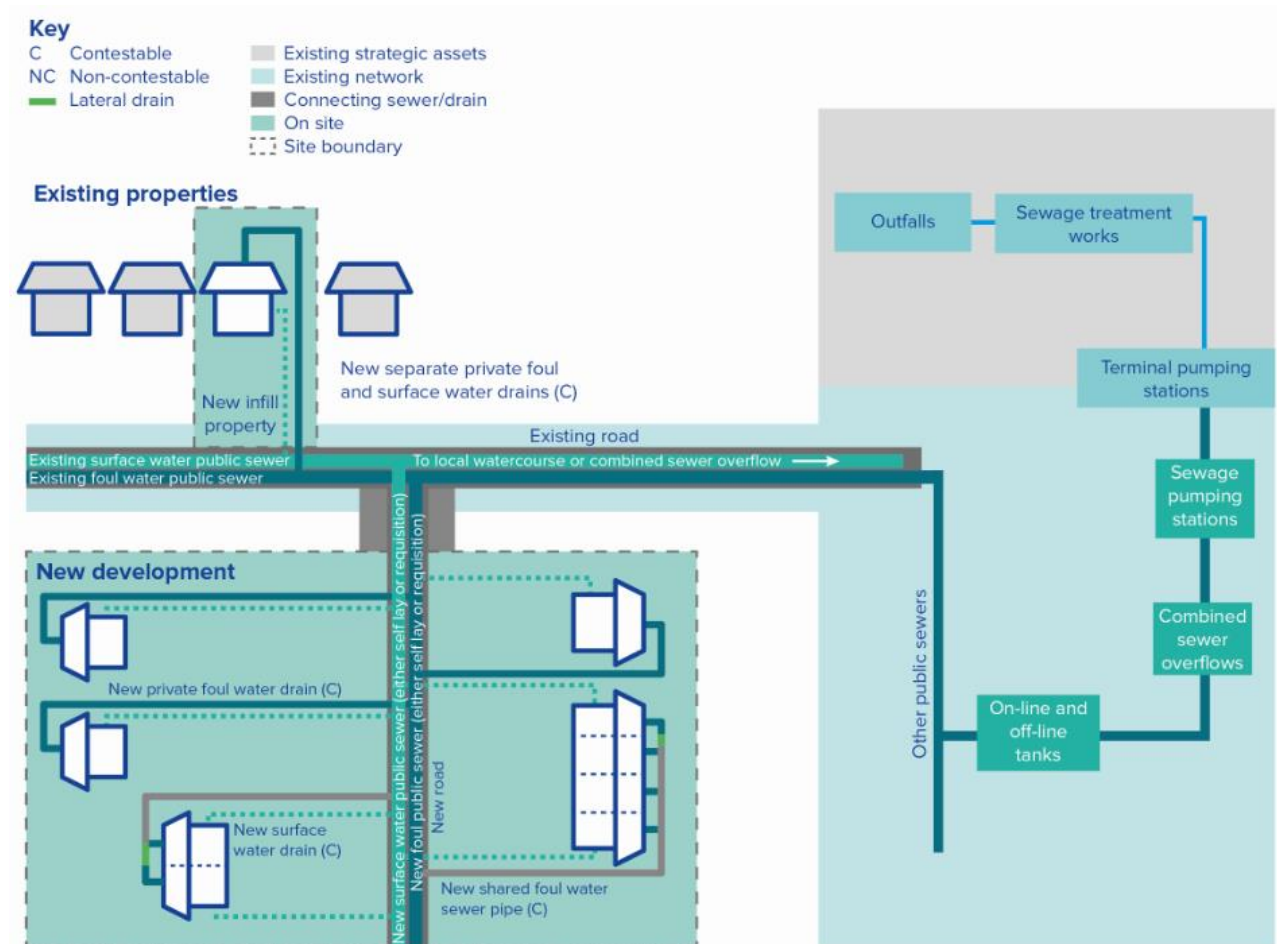
The following diagrams show who pays for what in relation to water and wastewater connection services. The diagrams are annotated as follows:

Infrastructure	Who pays and how?
Site Specific work to connect to an appropriate point on the existing network	Applicants through Site Specific charges
Network reinforcement including upgrades and increased capacity within the existing network	Applicants through the New Infrastructure Charge
New resources and treatment assets	Us through our 5-year investment plan

Typical connections work and the location of existing water assets



Typical connections work and the location of wastewater assets



Who can deliver my connection work?

Developer Services customers can choose who provides the majority of new connection services for their development and who owns and operates the new network once it has been constructed.

The areas where Developer Services customers have a choice over who provides the new infrastructure are known as “**Contestable Services**”. There are other services, such as those linked to application and administration processes or security of water supply and water quality that can only be provided by us. These are known as “**Non-Contestable Services**”.

Further information is detailed in our Annual Contestability Summary which can be found under section 9.3 of the Southern Water [Design and Construction Specification \(DCS\)](#)

The table below details who can provide or deliver different elements of the services in this area.

What service do I need?	Who generally applies?	Who can deliver?
New water supply connections and mains	Existing customer / Developer / Self Lay Provider (SLP)	Self Lay Providers (SLP) New Appointees (NAVs) Southern Water
New sewers and laterals	Existing customer / Developer	Developers or Drainage Contractors New Appointees (NAVs) Southern Water
Adoption and operation of new water connection infrastructure	Developer / Self Lay Provider (SLP)	New Appointees (NAVs) Southern Water
Adoption and operation of new wastewater infrastructure	Developer	New Appointees (NAVs) Southern Water

We encourage applicants to consider all potential delivery options and the following guide sets out further details on the options available to Developer Services customers.

Self-Lay Providers (water supply)

Self-Lay Providers (SLPs) can install new water supply connections for a development. If you want to use a SLP, or compare their service to ours, you should contact them directly.

SLPs can provide many elements of water supply infrastructure (such as mains and service pipes) and when an applicant chooses to use an SLP, the SLP will agree with us the connection work it will carry out.

In most cases we will still need to carry out some work, for example design approvals or mains connections to the existing network. The SLP must include the cost of any work we need to carry out within the estimate it provides to the applicant.

The SLP can often choose who will own the new infrastructure. Once the work has been completed, they have the opportunity to transfer to a NAV or us, providing it reaches the required industry standards.

Southern Water will adopt assets which are provided in accordance with our Design and Construction Specification. More details can be found on our website [Self Lay Schemes](#).

Developers and drainage contractors (wastewater)

In most situations, the wastewater infrastructure needed for a new development is constructed by the developer or a suitable drainage contractor employed by the developer. We very rarely carry out these works.

Once complete, the developer can transfer ownership of the new network to either a NAV or Southern Water. We are obliged to take ownership of ("adopt") these types of assets providing they are designed and constructed to meet water industry standards.

More details can be found on our website [Sewer Adoption](#)

Regional water companies and NAV's

Southern Water are what is known as a regional incumbent water company. All water companies can provide new connection services or agree to take ownership of new water and wastewater connection infrastructure provided by others, in accordance with the Water Industry Act 1991. Water companies are legally required to provide water mains, sewers and lateral drains, if requested by a developer, through a process known as requisitioning.

Alternatively, NAVs (New Appointees and Variations), also known as “inset” companies, can provide new connection services, or take ownership of the new water and wastewater connection infrastructure provided for a new development. NAVs are appointed by Ofwat and replace the regional water company. It is for the developer to choose whether to use a NAV or the regional water company to supply services for new sites, according to certain legal criteria.

More details can be found on our website [NAV](#) or by visiting Ofwat's [website](#)

Details of [current NAVs](#) can be found on Ofwat's website

Section 2: Infrastructure Charges

What are infrastructure charges?

Infrastructure Charges are levied whenever additional loading is being placed on the water or sewerage networks. This is in order to obtain a contribution towards upgrading the relevant network (pipes only) as and when necessary, to help accommodate future development.

When are Infrastructure Charges applied?

Standard 25mm and 32mm domestic use supplies attract 1 charge for water and 1 charge for sewerage.

Infrastructure charges should always be applied at one per property/unit with the following exceptions:

- Fire supplies do not attract charges
- Temporary Building Supplies (TBS) do not attract charges if they are disconnected within 1 year.
 - If they are going to be disconnected at a later time, then this attracts a charge of 25% of the total infrastructure charge, per year, for up to a maximum of 4 years.
 - Temporary Building Supplies that are to be retained to serve a property after construction is complete attract 1 charge only
- Supplies 50mm and over for domestic use such as large houses, residential care homes and sheltered housing, attract charges based on the installed fittings. This logic may also be applied to holiday villages that will not be in use all year round, but each case should be assessed on its own merit.
- Should a supply be commercial to serve machinery, the fittings list will not be relevant and instead the developer will need to supply a flow rate which can be used to size the meter.

What are Infrastructure Credits?

In some circumstances we can apply credits, removing one lot of charge per credit, this can reduce the Infrastructure Charges to zero, however the customer is never refunded any leftover credit and cannot be used elsewhere in their charges.

When are Infrastructure Credits applied?

Infrastructure credits can be applied to recognise previous and/ or existing loading on the network **that is due to be removed/ disconnected** based on proposed fittings versus existing, which should be provided by the customer in Section G of the S45 water connection application.

For example:

If someone is converting a large house in to two flats then one credit can be applied to make up for the existing load on the network.

- 2 x Infrastructure Charge
- 1 x Infrastructure Credit
- Total Customer pays = 1 x Infrastructure Charge

Conditions:

- The site must have had a water supplied via an official SW supply during the last 5 years.
 - If the site has a live supply which is due for disconnection then credit(s) can be applied.
 - If the site has a live supply which they intend to reuse then credits can only be applied if the supply is large enough to qualify for credits based on fittings (50mm+) and the fittings in question are due to be removed. It is rare that previous and new fittings are similar, and the customer ends up not being charged any infrastructure due to the lack of new demand.
 - *For example; a large house being converted in to a care home will have more toilets (fittings) and therefore will require more charges than credits awarded.*

Overview of 2024-25 Infrastructure Charges:

New developments increase the load on our networks and may require investment in upstream network reinforcement. This investment is funded through the Infrastructure Charge where the cost of network reinforcement is levied per property at the time of final connection.

An Income Offset is then applied to produce a net charge. Ofwat recently determined that water companies cannot provide an income offset after 31st March 2025¹. Therefore, an income offset will not be applied to new connections made from April 2025.

Southern Water offer an enhanced environmental incentive scheme. Properties that achieve environmental efficiency standards will be able to receive financial reward. The details of the scheme are laid out in the sections below.

Water Infrastructure Charges

	FY 2023/24	FY2024/25
Water: Gross Charge	£150	£241
Water: Income Offset	-£150	-£150
Water: Net Charge	£0	£91

Wastewater Infrastructure Charges

	FY 2023/24	FY2024/25
Wastewater: Gross Charge	£563	£583
Wastewater: Income Offset	-£129	-£129
Wastewater: Net Charge	£434	£454

¹ [Scope and balance of developer charges and incentives conclusions.pdf \(ofwat.gov.uk\)](#)

Environmental Efficiency Incentives

This year we have introduced a new environmental incentive for enhanced SuDS.

Based on feedback from customers we have also made our incentives more user friendly by aligning with Ofwat's latest guidance and the relevant British Standards.

Wastewater Incentives:

We now offer two wastewater incentives:

Silver – Enhanced SuDS: The new silver wastewater incentive is designed to reward developments that manage their stormwater run-off responsibly. The incentive is available to developments that do not return stormwater to our network. The incentive is also available to developers where site-specific conditions mean they must connect their SuDS to our network due to site-specific drainage conditions. We will reward developers who slow the return rate to our network through enhanced SuDS. These enhanced SuDS must reduce the surface water run-off rate to our sewer network. Developers will be required to evidence that the run-off rate has been reduced by 10% or more under the Greenfield 1-in-1 year run-off rate calculation. Developers can use a Greenfield run off rate calculator to determine the flow of the greenfield site, and based on their proposal, calculate the proposed flow to our network. Developers will need to show a 10% reduction in the Greenfield 1-in-1 year run-off rate through their calculation.

The incentive is worth a £300 credit per plot served by the enhanced SuDS.

Gold – Wastewater Neutrality Incentive: We offer a gold wastewater neutrality incentive to reward developers who completely offset the discharge from their new development. The incentives offers a full discount on the infrastructure charge where the developer retrofits sustainable drainage on existing non-permeable sites, such that the reduction in surface water offsets the wastewater discharge from the new development.

Retrofitting SuDS provides a means to separate rainwater from the sewer network and attenuate the effects of sudden rainfall on our wastewater system where the wastewater catchment is at high risk of flooding or storm overflow discharge. We offer a discount on the wastewater infrastructure charge for each new connection where the developer offsets the increased discharge with the equivalent surface water discharge through the disconnection of impermeable areas. Where SuDS have been employed on the development, remediations requirements will be less reflecting the reduced discharge to be offset.

The incentive is offered to all new developments, although the remediation would need to be undertaken in identified wastewater system catchments which are at high risk of storm overflow discharge.

In cases where the wastewater neutrality incentive is provided, there would be no additional capacity on our wastewater network from the new development. Therefore, the proposed incentive would be a full discount on the wastewater infrastructure charge.

A development without SuDS will have to remediate 130m² of non-permeable surfacing.

A development with SuDS will have to remediate 100m² of non-permeable surfacing.

Water Incentives

There are three tiers of environmental incentive available:

Bronze - Water Efficiency: Properties that achieve efficiency ratings of 100/litres/head/day through the installation of water efficient devices will be entitled to a credit of: £250.

Silver - Water Recycling: As with other water incumbents in water stressed areas, we will continue to an incentive to developers who install water recycling technology. This could include solutions that use rainwater harvesting, grey water recycling or other water reuse technologies. For the incentive to apply the property must rely on water recycling as the primary means of water supply. This equates to around a reuse of 50litres per person per day. Developers must demonstrate they comply with the relevant British Standards. For a single domestic property this would include a 4,000-litre tank for rainwater harvesting. For other types of property, the BSEN 16941 methodology is to be used. Where Grey Water Recycling (GWR) systems are the preferred approach, the developer must ensure that they comply to BSEN 16941 1/2 to redeem the incentive.

The silver incentive is a credit of £800. Water efficient properties that install water recycling devices will be entitled to redeem the full bronze and silver incentive amounting to £1,050.

Gold – Water Neutrality: Where both water efficiency and water recycling solutions have been achieved, Southern Water offer a service to facilitate water neutrality through water efficiency visits and retrofitting water saving devices to other properties. Attainment of tier 1 and tier 2 is a pre-requisite to demonstrate that all reasonable efforts have been made to reduce the baseline demand, prior to further water offsetting activity.

Based on achievement of tier 1 (100 litres/person/day) and tier 2 (min 50 litres/property/day reuse) we calculate the baseline property average daily water demand to be 217 litres/property/day. Using evidence from our large-scale water efficiency delivery programme which found an average saving of 27.5l/day, we estimate that providing approximately 7 water efficiency visits to existing homes will offset the remainder of this water demand.

We offer this service at a subsidised rate of £400 to achieve water neutrality where tier 1 and tier 2 water efficiency has been achieved. This equates to a contribution of approx. £300 per property.

Exclusions to the Water Efficiency Incentives Scheme

The environmental incentive scheme is being introduced to encourage and support behaviour that promotes water efficiency and reduces demand in new homes. We hope that the incentive payment will encourage the development of new homes to meet our 100 litres/person/day challenge and reduce the impact on the environment. As this is an incentive to encourage behaviour it will not be available where there is an obligation to achieve the criterion i.e. in areas where water neutrality is required for planning consent, such as Sussex North.

This is in part because there are insufficient suitable properties available in Sussex North to undertake water efficiency visits and retrofit water saving devices above the activities committed to within our base Water Resource Management Plan (WRMP). For the Sussex North area subject to water neutrality, a centrally coordinated approach is being developed and will be available through the LPA scheme to be announced in the new year.

Further information on the incentives

- Incentives must be applied for at the time of initial application. No incentive will be provided for retrospective applications taking place after connecting to our network.
- Incentives will be issued as a credit against the infrastructure charge. Should the net charge result in a credit to the developer, the credit will be withheld until the connection is made and Southern Water is satisfied that the required efficiency measures have been installed effectively.
- The silver incentive on wastewater was designed as part of a strategy to relieve price increases to developer bills relating to the inflationary cost pressures on site-specific main laying included in the 2024-25 charges scheme. We will review the success of the incentive over the year.

Summary of Environmental Incentives

Environmental Incentive	Water Incentive	Discount	Wastewater Incentive	Discount
Bronze	Water Efficiency	£250	NA	NA
Silver	Water Recycling	£800	Enhanced SuDS	£300
Gold	Water Neutrality	Discount equivalent to £300	Wastewater Neutrality	£454

Infrastructure Charges – general information

Infrastructure Charges – domestic use in other premises

Infrastructure Charges are applicable for domestic use in dwellings that are not individually metered, e.g. flats with a common billing arrangement, and non-dwellings, however they are calculated differently. We calculate this by working out the likely domestic use and how this equates to an equivalent number of domestic dwellings. We use the “**Relevant Multiplier**” approach which is the standard approach used throughout the water industry.

We will utilise the same Relevant Multiplier approach (and other relevant methods) to calculate equivalent Income Offset that is applicable for properties that do not attract the flat rate Infrastructure Charge.

Details of how we calculate the Relevant Multiplier can be found [here](#).

Infrastructure Charge credits

If the development site contained homes that were connected to our network within the last five years, we will apply an Infrastructure Charge credit. This means that we will deduct the number of former homes from the total number of houses that are built as part of the new development, reducing the number of Infrastructure Charges that are due. For example, if a development takes place on a site where 20 homes previously existed, and the new development will result in 40 new homes being built in their place, Infrastructure Charges will only apply to 20 of the new homes that are connected.

In some cases, where the site was not previously housing, we may review the metered water consumption or sewer flows from the site and equate it to an average home within our area, so we can estimate how much water was used previously by the premises on the site and deduct that from the amount we expect to be used by the new properties. In the absence of metered information, other reasonable evidence will be used to estimate the prior demand on the network from the site.

Timing of charges

Due to the changes to how Income Offsets are applied, we will generally collect Infrastructure Charges on connection. Payment upfront may be possible but only where both water and wastewater Infrastructure Charges are paid (when applicable).

Upsizing new main or sewers for future use

Occasionally we may request that mains or sewers that developers or SLPs construct should be upsized to provide capacity for future growth. Where mains and sewers are upsized because of our request, we will repay any extra expense reasonably incurred and fund it from Infrastructure Charges. Our contribution will be based on assumed flow rates for the development relative to that of the other flows allowed for in the design.

Alternative Point of Connection

Occasionally the most cost-effective form of network reinforcement is to transfer the default point of connection (i.e. from the point where the diameter of the new connecting pipework is no larger than the

diameter of our existing network) to a different position known as the 'alternative point of connection'. The 'alternative point of connection' is the nearest point on our existing network where there is currently capacity to serve the proposed development.

In these cases, we are open to discussing with developers, NAVs and SLPs approaches where a commercial agreement can be entered for the applicant to undertake these activities. As the pipework from the 'alternative point of connection' is only related to the development site, the risk is lower than most network reinforcement activities as the work is not modifying or changing the existing network.

As this work is considered network reinforcement, the Site-Specific charges may not apply. The Site-Specific charges are specifically generated for Site Specific activities. The applicability of our published charges to these activities will be considered on a case-by-case basis.

Persons Chargeable

The person liable to pay the water infrastructure charge or the sewerage infrastructure charge shall be

- (i) the person requesting the relevant connection to be made, the person making the relevant connection (other than on behalf of the Company) or the person on whose behalf the relevant connection was requested or made, or
- (ii) if the relevant connection is made without authorisation by the Company, the person making such connection, the person on whose behalf the relevant connection was made or the person using the services provided thereby.

Section 3: Site Specific Charges

General principles

Our Site-specific charges cover all elements of work that may be needed to connect the new properties to our existing network.

What you pay will largely depend on the size of your development and its location. The cost will vary depending on the number of connections needed, the amount and size of the connecting pipework, the depth that it needs to be installed, the nature of the surface that the work is being carried out in and the size of the associated infrastructure required. We have set fixed charges that cover a range of options.

In addition, we have also set charges for other activities that we may need to carry out such as traffic management, work in the highways and working in areas of contaminated land.

In order to be able to make a reasonable estimate of the cost of the Site-specific work required, applicants do need to know the parameters of the development.

Below we have set out a guide to Site-specific work that explains the different types of infrastructure that might be needed and other factors that will need to be considered. This is followed by the charges that will apply to this work.

Surface Categories

The type of surface has a big influence on construction costs because of the difference in techniques used, reinstatement required and co-ordination with other parties. Our charges vary depending on the type of surface and this is set out in the charging tables that follow. The different surface types are detailed below:

Excavation done by others:

- These charges apply when the trench has been pre-excavated by the applicant in line with our standards. It does not include for any backfill or reinstatement.

Unmade ground:

- These charges apply to undisturbed or unfinished surfaces. These could include construction sites, fields or verges.

Footpaths:

- These charges apply when working in a footpath.

Side roads:

- These charges apply when working in/on a minor road. These are formally categorised as Type 3 and Type 4 roads (New Roads and Street Works Act 1991 - Code of Practice). Most local residential roads would fall into this category.

Main roads:

- These charges apply when working on major roads. Main Roads are formally categorised as Type 0, 1 and 2 roads. These roads are much busier, and examples include roads with an official A or B number (e.g. A27) or dual carriageways and higher speed single carriageway roads.

Traffic Management

Standard traffic management approaches where we can keep traffic flowing, or install 2-way traffic lights, are included within our standard charges. If more complex traffic management is needed, or we incur additional local authority charges, we will apply an additional charge for extraordinary traffic management. Examples of where these charges apply include:

- 3- or 4-way temporary traffic lights when working at junctions
- Road closures
- Temporary closure of pedestrian crossings or traffic lights (often known as 'bagging' traffic lights)
- Lane rental charges

Water Site Specific Design

For all Site Specific work that we deliver ourselves, the design costs are inclusive within the charges.

Point of Connection Applications

As with any site design, you will need to know where the Point of Connection (POC) will be for the development you are applying for. This means that for all future applications you will need to have firstly submitted a POC application. This is essential as the identified POC will then inform your design that you submit to us for checking and approval. We aim to have these POC applications back to you within 14 days, or 28 days for complex sites.

Income Offset

Income Offsets no longer apply to Site-specific elements of work.

VAT

The charges set out in this document generally **do not** include VAT. If VAT is required on any elements of work, we will make it clear at the application stage or in the estimates we provide.

Water Connection Services

Water Pre-Planning Enquiry

When you are planning to connect to our water network, you can check if there is available capacity at your point of connection. A Pre-planning Enquiry will assist in identifying any possible capacity constraints that may be associated with servicing your development site.

For sites with over 500 units we'd recommend applying for a Point of Connection application.

Water Pre-Planning Enquiry	Charge
0-50 units (including VAT)	£205
51-250 units (including VAT)	£616
>251 units (including VAT)	£823

New Service Connections (s45)

Guide to our charges for new service connections

- New service connections involve a section of small diameter pipe, known as the communication pipe, laid from an existing water main to the boundary of a property where a water meter chamber and stop-tap (valve) is normally located
- New service connections can be completed by either us or a SLP
- A small diameter supply pipe within the boundary of a property links the communication pipe with the internal plumbing of the house. The supply pipe is the responsibility of the property owner
- Service connections are made under Section 45 or 51 of the Water Industry Act. There is an initial non-refundable application charge with further administration charge only if the applicant goes ahead
- The charges below should be combined to form the total costs associated with a particular application
- The costs for new connections are applied per property and measured by the number of meters installed
- The costs will vary depending on whether the work needs to be carried out in an existing road (side or main road) or in a new development site where the road is not yet surfaced or adopted
- On new development sites, connection types are known as Near Side or Far Side. Pipework up to 3 metres long is described as Near Side; pipework between 3 and 8 metres long is known as Far Side
- For Side Road and Main Road connections, each connection has up to 8 metres of pipework included within the standard charge
- The charges include connection to the water main, a new meter, stop-tap and meter chamber
- Larger diameter pipes may be needed to make connections to larger buildings such as flats and office blocks. We have set charges for a range of pipe diameters including up to 8 metres of pipework. Charges also include connection to the main, a new meter, valve and a boundary box
- If more than 8 metres of pipework is needed, we have set charges for additional pipework
- If the connections need to be made in an area of contaminated land, additional charges will apply to cover the cost of specialist fittings, pipework and management of ground conditions
- Standard traffic management where we can keep traffic flowing, or install 2-way traffic lights, are included within our standard charges
- If more complex traffic management is needed or we incur additional local authority charges, we will apply an additional charge for extraordinary traffic management. This is not always easy to predict but we will make our Developer Services customers aware as early as possible if this charge will apply

- The charge for 3- or 4-way lights is for when temporary 3- or 4-way lights are required. It will also apply where existing traffic lights or pedestrian crossings need to be temporarily disabled to facilitate the works
- The charge for road closures will apply when a road closure is mandated by the local authority
- The lane rental charge will apply when the working on a highway where these charges apply
- The charges associated with water connections are payable up-front, at the point of application, and at the provision of estimates for the work
- The supply meter rate is our charge for the supply of meters only. This applies predominantly to SLP's. The charge includes the procurement and ordering of the meters and delivery to one of our facilities. The meters require picking up from our facilities as the charge does not include delivery
- It is **not a requirement for SLP's to source water meters through Southern Water** providing the installer is utilising meters to our specification:
 - Supplier: Arad Metering Services, 21 Marys Lane, Burghill, Hereford, HR4 7QL
 - Type: Automated Meter Reading (AMR) type screw in concentric 15mm or 20mm meter (supplier ref: F389-10)

Section 45 new service connections application and administration fees

Service	Charge	Contestable / Non-contestable	How is this applied?
S45 - Application Fee (first connection) (inc. VAT)	£85.96	Non-contestable	Per application
S45 - Application Fee (subsequent connections) (inc. VAT)	£52.48	Non-contestable	Per subsequent connection
S45 – Administration Fee (first connection)	£32.93	Non-contestable	Per application
S45 – Administration Fee (subsequent connections)	£20.10	Non-contestable	Per subsequent connection
Water Regulations Inspection (External) – 1 st of every 10 plots (1 st , 11 th , 21 st etc.)	£98.91	Non-contestable	Per connection
Water Regulations Inspection (External) – every other plot (2 nd – 10 th , 12 th – 20 th etc.)	£6.90	Non-contestable	Per connection
Reviewing Site-Specific water distribution systems design	£246.14	Non-contestable	Per connection
Point of connection enquiry	£133.42	Either	Per application
Abortive Charges (site not ready – applied per 10 plots)	£98.91	N/A	Per occurrence
Re-inspection fee (applied per 10 plots)	£98.91	N/A	Per occurrence

Standard connection charges (up to 32mm) – new development sites

Connection type	Charge	Excavation undertaken?	Contestable / Non-contestable	How is this applied?
New development site near side	£320	Excavation done by others	Contestable	Per property
New development site near side	£405	With excavation	Contestable	Per property
New development site far side	£366	Excavation done by others	Contestable	Per property
New development site far side	£486	With excavation	Contestable	Per property

Standard connection charges (up to 32mm) – on existing highways

Connection type	Charge	Excavation undertaken?	Contestable / Non-contestable	How is this applied?
Side Road	£1,029	With excavation	Either	Per property
Main Road	£1,209	With excavation	Either	Per property

Large Diameter Metered Connections – on existing highways or new development sites

Connection type	Charge	Excavation	Contestable / Non-contestable	How is this applied?
63mm connection	£3,349	With excavation	Either	Per property/premise
90mm connection	£8,996	With excavation	Non-contestable	Per property/premise
125mm connection	£9,369	With excavation	Non-contestable	Per property/premise

Additional pipework (per metre)

Surface Pipe size	Excavation done by others	Unmade ground	Footpath	Side Road	Main Road
Property connections (25/32mm)	£13	£40	£101	£121	£173
63mm	£54	£89	£128	£160	£214
90mm	£54	£110	£151	£202	£246
125mm	£62	£123	£162	£215	£260

Contaminated Land

Contaminated land	Charge	Excavation type	How is this applied?
Barrier connection - property connections (25/32/63mm)	£65	Excavation done by others	Per property
Barrier connection - property connections (25/32/63mm)	£170	With excavation	Per property
Barrier pipe – 25/32mm	£28	Not applicable	Per metre of pipe
Barrier pipe – 63mm	£48	Not applicable	Per metre of pipe
Barrier pipe – 90mm	£48	Not applicable	Per metre of pipe
Barrier pipe – 125mm	£55	Not applicable	Per metre of pipe

Extraordinary traffic management associated with new service connection jobs

Standalone traffic management charges for new service connections are different to those associated with new mains. New service jobs are typically less complex and therefore attract a lower, cost-reflective price.

Traffic Management	Charge	How is this applied?
Traffic management – 3 or 4 way lights	£1,751	Per installation if required
Traffic management – road closures	£2,185	Per application if required
Traffic management – lane rentals	£838	Per day required

In November 2022 some local authorities introduced new lane rental schemes. These charges will only apply to certain roads in Kent and West Sussex. These costs will be set out in quotes and passed on to the customer. Further details are available in the section of this document titled “Exceptions to fixed charges” below.

Supply meter only

Supply Meter Only	Charge	How is this applied?
Supply meter	£97	Per meter supplied

Flats with internal meters

Following our development of standard charges, flats with internal meters do not fit easily into our standard charging arrangements as there are lower levels of excavation. As a result, we are offering the option for a bespoke pricing option for those Developer Services customers who are developing flats with internal meters. This bespoke price will be offered as an alternative to the above standard charging approach. The Developer Services customer will then be able to choose which option to go with that offers best value. **We strongly advise Developer Services customers to take up this option** as it may offer better value in these circumstances.

Disconnections

Our unit charge for disconnecting existing connections from our water mains (where chargeable) is **£483**.

Charges for new water mains (s41)

General Information

- Water mains are pipes that will supply water to new homes within a development
- New water mains can be provided by us or by a SLP
- When carried out by a SLP it is done under Section 51 of the Water Industry Act. We will adopt the new infrastructure once it's complete, providing it meets the required industry standards and the new Water Sector Guidance in relation to the Adoption of Self Laid Assets by Water Companies
- Some aspects of water main installation can only be carried out by us and we will provide an estimate to the SLP carrying out the work
- The SLP may request elements of contestable work to be delivered by us. These elements will be charged in accordance with the charges within this document
- If the applicant would like us to provide the new water main, they can do so through an agreement called a Requisition under Section 41 of the Water Industry Act
- The charges below should be combined to form the total costs for the application
- Our water main charges include all valves, hydrants, washouts and the costs involved in co-ordinating our work with the applicant's schedule
- Our "excavation done by others (unmade)" charge applies where there is not currently a surfaced hardstanding
- Our "excavation done by others (made)" charge applies where there is a surfaced hardstanding. Examples include existing roads and highways, brownfield sites or sites where the developer has constructed the highway surfacing
- Separate charges apply when a connection needs to be made to an existing water main. This includes one valve and one hydrant. The charge will depend on the size of the pipe being connected to the existing network
- Connections to Self-Lay Mains are simple pipe to pipe connections to mains laid under an adoption agreement
- On some occasions we may need to install (or be requested to install) pressure monitoring valves to reduce the risk of bursts, district meters that allow us to measure the amount of water being supplied to a specific area, or non-return valves to prevent backflow of water. These will be charged per installation and the cost will depend on the size of the pipe they are connected to
- If the site being developed is on an area of land that may be contaminated due to its previous use, we may need to install a specialist pipe known as a barrier pipe to avoid contamination of the water supply
- If these specialist pipes are required, they are charged in addition to the water main and the cost will vary depending on the pipe size
- Standard traffic management where we can keep traffic flowing, or install 2-way traffic lights, are included within our standard charges
- If more complex traffic management is needed, or we incur additional local authority charges, we will apply an additional charge for extraordinary traffic management. This is not always easy to predict but we will make our Developer Services customers aware as early as possible if this charge will apply
- The charge for 3- or 4-way lights is for when temporary 3 or 4 way lights are required. It will also apply where existing traffic lights or pedestrian crossings need to be temporarily disabled to facilitate the works
- The charge for road closures will apply when a road closure is mandated by the local authority
- The lane rental charge will apply when the working on a highway where these charges apply
- We no longer provide asset payments or the relevant deficit approach for requisitions. We now apply an income offset to the gross infrastructure charge per connection.

The following table may assist in estimating the pipe sizes required for new mains:

Number of properties	Pipe diameter (PE pipes)	Nominal bore (other pipe materials)
0-20	63mm	50mm
20-40	90mm	80mm
40-95	125mm	100mm
95-300	180mm	150mm
300-700	250mm	200mm

New Mains (s41) application, enquiry and administration and design charges

Service	Charge	Contestable / Non-contestable	How is this applied?
S41 – Point of Connection Enquiry	£133	Contestable	Per enquiry
S41 – Mains Application / Administration / Collaborative Full Design Fee – 0 to 50 units	£1,691	Either	Per application
S41 – Mains Application / Administration / Collaborative Full Design Fee – 51 to 250 units	£1,783	Either	Per application
S41 – Mains Application / Administration / Collaborative Full Design Fee – 251 to 500 units	£1,999	Either	Per application
S41 – Mains Application / Administration / Collaborative Full Design Fee – 500+ units	£2,309	Either	Per application

New water mains installations charges (per metre)

Surface Pipe size	Excavation done by others (unmade)	Excavation done by others (made)	Unmade ground	Footpath	Side Road	Main Road
63mm	£75	£122	£122	£169	£207	£270
90mm	£75	£123	£147	£196	£256	£308
125mm	£78	£125	£156	£203	£264	£318
180mm	£96	£162	£192	£245	£290	£346
250mm	£138	£206	£221	£296	£342	£424
315mm	£204	£309	£290	£404	£453	£529
355mm	£239	£340	£331	£445	£499	£579

Mains Connections to an existing water main

Connecting pipe size	Charge	Contestable / Non-contestable	How is this applied?
63mm	£4,662	Either	Per connection
90mm	£4,711	Either	Per connection
125mm	£4,930	Non-Contestable	Per connection
180mm	£6,857	Non-Contestable	Per connection
250mm	£7,603	Non-Contestable	Per connection
315mm	£14,598	Non-Contestable	Per connection
355mm	£27,216	Non-Contestable	Per connection
Connection to Self-Laid Main (any size)	£1,857	Non-Contestable	Per connection

Pressure monitoring valves

Pressure reducing valves (with by-pass)	Charge	Contestable / Non-contestable	How is this applied?
63mm	£13,077	Either	Per installation
90mm	£13,510	Either	Per installation
125mm	£14,623	Either	Per installation
180mm	£17,514	Either	Per installation
250mm	£25,923	Either	Per installation
315mm	£47,551	Either	Per installation
335mm	£47,959	Either	Per installation

District meters

District meters (with by-pass)	Charge	Contestable / Non-contestable	How is this applied?
63mm	£12,043	Either	Per installation
90mm	£12,477	Either	Per installation
125mm	£13,186	Either	Per installation
180mm	£15,659	Either	Per installation
250mm	£24,556	Either	Per installation
315mm	£47,551	Either	Per installation
335mm	£47,959	Either	Per installation

Non-return valves

Non-return valves	Charge	Contestable / Non-contestable	How is this applied?
63mm	£4,169	Contestable	Per installation
90mm	£4,169	Contestable	Per installation
125mm	£4,328	Contestable	Per installation
180mm	£4,513	Contestable	Per installation
250mm	£8,793	Contestable	Per installation
315mm	£10,991	Contestable	Per installation
335mm	£10,991	Contestable	Per installation

Contaminated land (per metre)

Contaminated land	Charge	Excavation type	How is this applied?
Barrier pipe – 63mm	£41	Not applicable	Per metre of pipe
Barrier pipe – 90mm	£41	Not applicable	Per metre of pipe
Barrier pipe – 125mm	£47	Not applicable	Per metre of pipe
Barrier pipe – 180mm	£53	Not applicable	Per metre of pipe
Barrier pipe – 250mm	£100	Not applicable	Per metre of pipe
Barrier pipe – 315mm	£117	Not applicable	Per metre of pipe
Barrier pipe – 355mm	£131	Not applicable	Per metre of pipe

Extraordinary traffic management for mains construction projects

Traffic Management	Charge	How is this applied?
Traffic management – 3 or 4 way lights	£2,080	Per installation if required
Traffic management – road closures	£2,595	Per application if required
Traffic management – lane rentals	£988	Per day required

In November 2022 some local authorities introduced new lane rental schemes. These charges will only apply to certain roads in Kent and West Sussex. These costs will be set out in quotes and passed on to the customer. Further details are available in the section of this document titled “Exceptions to fixed charges” below.

Diverting a water main (S185)

The below information relates to our charges where our existing assets require diverting to permit a development.

- Developers with an interest in land that contains existing water or sewerage assets can arrange for the alteration or removal those assets to allow development work to progress
- For both water mains and sewers this is undertaken under Section 185 of the Water Industry Act
- All or part of the diversion works may be contestable, in which case we will give the developer the opportunity to undertake the works, or employ a suitably qualified third-party contractor to undertake these elements
- The decision on who undertakes the construction is based on the risk of the work and asset criticality ratings
- Applicants can visit our [website](#) or contact our Business Channels team for advice ahead of application
- Alternatively, should a developer delivered diversion be assessed as needing to be delivered by Southern Water, we will only charge the differential in application fees
- We do not offer published fixed charges for construction activities in this area. We will keep this under review
- We will provide a bespoke estimate for each project. The applicant will be free to choose how to proceed on provision of estimates at key stages
- We will utilise information from both our estimating database and supplier contracts at the early stages of the process to provide these bespoke estimates. As the design progresses, we will further engage with our suppliers to deliver an increasingly detailed and accurate quotation for the defined scope of the work required
- The estimates may be different to the requisition published charges due to the individual nature of each site
- The charges associated with diversions are payable up-front and following the provision of estimates.

Service	Charge	Contestable / Non-contestable	How is this applied?
S185 - Application Fee (water diversion) (inc. VAT)	£2,104	Non-contestable	Per application
S185 - Design Fee (Southern Water diversion)	10% of total project value	Non-contestable	Per application
S185 – Technical Assessment Fee (developer diversion)	£681	Non-contestable	Per application
S185 – Security requirements (developer diversions)	See below	Non-contestable	Per application

Security requirements

For developer delivered diversion projects we require a 100% performance deposit. 80% is returned on completion of the works and the remaining 20% following a 1-year warranty period.

Wastewater connection services

Guide to our charges

From April 2020 we developed a single set of construction charges that apply to lateral drains, connections and new sewers. As we have historically undertaken very few wastewater lateral drains and connections, and the scope of the two activities overlap, we have decided to create a consistent, simplified charging approach for these activities.

Wastewater Pre-Planning Enquiries

When you are planning to connect to our sewerage network, you can check if there are possible constraints that may be associated with servicing a development site.

The enquiry can assist developers in understanding the impact the development proposals will have on our sewerage networks prior to land acquisition or the submission of a planning application. This is a simple check that will identify whether the required capacity is available adjacent to or close to the proposed development.

Wastewater Pre-planning Enquiry	Wastewater flow	Surface Water Capacity Check
0-50	£205	£411
51-250	£616	£1,232
>251	£823	£1,644

New lateral drains and connections

- Lateral drains are the part of the drain that runs from the edge of the property and connects with the sewer
- Sewer connections are usually undertaken under Section 106 of the Water Industry Act through an application for a connection made to us. If approved, work is usually carried out by a drainage contractor on behalf of the applicant
- There are charges associated with the Section 106 application process
- On very rare occasions, we may need to undertake connection work ourselves and we would notify you of this following review of your Section 106 sewer connection application
- If we need to carry out this work, we do so under Section 107 of the Water Industry Act and only in those specific circumstances would the fixed construction charges detailed below apply
- If we are required to make the connection, the cost will depend on size, depth and the nature of the surface the pipe is being constructed in
- The charges below should be combined to form the total costs associated with a particular application
- Connections are made by connecting a new pipe directly to an existing sewer, existing manhole or by constructing a new manhole
- If a new manhole is not needed, then the connection to the existing sewer or manhole is included in the pipe laying rate
- Highways charges may apply if we need to work with the local authority to allow us to carry out the construction work. These charges would cover any temporary road, parking bay and pedestrian crossing closures
- Traffic management is included within our standard charges

- We may need to reduce the flow in the existing sewer, so we can make the connection safely. A bespoke additional charge for over pumping the receiving sewer will be applied in these cases
- Sewer connections are deep and must be carried out safely. On some occasions, specialist ground support, such as interlocking sheet piles, may be needed to protect our construction teams and the surrounding areas and properties. If this needed, additional bespoke charges would apply
- In areas where groundwater levels are high, we may need to carry out specialist dewatering. In most cases we can manage this with a small pump, but in some conditions a more specialist approach will be needed. Customers will receive a bespoke estimate for this work should these circumstances arise
- The charges associated with wastewater connections are payable up-front on application and provision of estimates. Work will commence on receipt of payment

Sewer Connections (s106/107)

Section 106/107 application and administration charges

Service	Charge	Contestable / Non-contestable	How is this applied?
S106/107 Application / Administration fee – Connection to existing sewer / manhole (inc. VAT)	£335	Non-contestable	Per connection
S106/107 Application / Administration fee – New manhole construction (inc. VAT)	£413	Non-contestable	Per connection

Sewer adoptions (s104/102)

Section 104 /102 application and administration charges

- If new sewers are needed to drain the new properties, developers usually apply through the Section 104 process and work is carried out by a drainage contractor. Under this approach we will adopt the new sewer once it is complete, providing it meets the required industry standards
- There is a similar approach for adopting already constructed sewers under our Section 102 process
- There are fixed charges associated with the Section 104 and 102 application process
- Smaller schemes with a construction value of less than £20,000 will incur a technical approval/inspection fee of £500

Service	Charge	Contestable / Non-contestable	How is this applied?
S102 - Application Fee (including initial administration) (inc. VAT)	£467	Non-contestable	Per application
S104 - Application Fee (including initial administration) (inc. VAT)	£748	Non-contestable	Per application
S102 / S104 - Technical / Inspection Fee (including final administration)	2.5% of construction value	Non-contestable	Per application
S102 / S104 - Legal Fee	£483	Non-contestable	Per application
S104 - Security	Bond – 10% of construction value	Non-contestable	Per application

Requisitioning a new sewer (s98)

If a developer requires us to carry out the construction of a new sewer, they can make an application through a Section 98 requisition. The developer is responsible for the full cost of requisitioning a sewer. Charges are applied at four defined stages in our process as detailed below.

- **Application Fee** – An initial application fee as outlined on our application form will be required with your application and covers the work in assessing the initial feasibility and producing the preliminary estimate and outline design.
- **Detailed Design Fee** – Should you wish to accept the preliminary estimate and proceed to stage 2 of the design process, a 'Detailed Design fee' equivalent to 10% of the preliminary estimate will be required. This fee will cover further detailed design work including land surveys, site investigations, the tendering of the requisition works and producing the formal offer, estimated construction costs and design. The design fee will be deducted from any final payment due once the requisition is complete.
- **Construction cost** – After you have received the formal offer, costs and design, you will need to accept and pay the construction cost of the works. This will be a single lump sum payment to cover all our costs. Once paid it will cover the project management, onsite construction works and final connection for all works related to the S98 requisition. Additional costs may arise through separate applications related to the development for example if a diversion of a water or sewerage main is required
- **Other charges** – If the requisitioned sewer crosses third party land, there will be a cost for land negotiations and compensation. Our Southern Water Land and Estates team will carry out these negotiations with the landowner and agree the level of compensation to be paid. These costs are the responsibility of the requisitioner.
- In addition to the cost of the requisition, Southern Water levies an infrastructure charge for each new property when it is connected to our public sewerage network. This is detailed earlier within these charging arrangements.
- Where network reinforcement is required to ensure there is enough capacity in our network to serve the new homes that are built, without impacting the service of our existing customers, this will be paid for through our Infrastructure Charge.
- We no longer provide asset payments or the relevant deficit approach for requisitions. We now apply an income offset to the gross infrastructure charge per connection.

Section 98 requisition application charges

Service	Charge	Contestable / Non-contestable	How is this applied?
S98 - Application fee (including initial Administration) (inc. VAT)	£5,648	Non-contestable	Per application
S98 - Design fee*	10% of total project value	Either	Per application
S98 - Point of connection enquiry	£133	Either	Per application

New Site-Specific Sewers

- We have set fixed charges for gravity sewers, manhole construction and rising main construction. Costs will vary depending on the size and depth of the sewer
- Our charges include the costs of design, surveys, land-entry, management costs, traffic management and related administration
- The charges also include standard trench support – excavator driven sheet piles and support structures; and groundwater management – through the provision of a localised pump to remove water from a trench
- On some occasions, specialist approaches may be needed, including if the development site contains contaminated material. In such cases we will provide a bespoke estimate

New gravity sewers charges per metre - unmade ground

Pipe size \ Pipe depth	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 150mm	£368	£445	£555	£675
>150 - 300mm	£534	£619	£731	£874
>300 - 450mm	£642	£764	£912	£1,070
>450 - 600mm	£893	£1,053	£1,198	£1,357
>600 - 900mm	£1,225	£1,374	£1,570	£1,716
>900 - 1200mm	£1,637	£1,830	£2,031	£2,194

New gravity sewers charges per metre – footpath

Pipe size \ Pipe depth	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 150mm	£683	£979	£1,327	£1,765
>150 - 300mm	£843	£1,143	£1,432	£1,925
>300 - 450mm	£946	£1,267	£1,620	£2,119
>450 - 600mm	£1,253	£1,648	£2,050	£2,496
>600 - 900mm	£1,560	£2,018	£2,562	£3,165
>900 - 1200mm	£1,989	£2,605	£3,210	£3,916

New gravity sewers charges per metre - side road

Pipe size \ Pipe depth	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 150mm	£722	£1,004	£1,291	£1,701
>150 - 300mm	£871	£1,168	£1,435	£1,863
>300 - 450mm	£963	£1,354	£1,642	£2,144
>450 - 600mm	£1,282	£1,682	£2,069	£2,660
>600 - 900mm	£1,617	£2,154	£2,636	£3,241
>900 - 1200mm	£2,113	£2,722	£3,304	£4,014

New gravity sewers per metre - main road

Pipe depth Pipe size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 150mm	£896	£1,106	£1,431	£1,872
>150 - 300mm	£1,037	£1,281	£1,591	£2,039
>300 - 450mm	£1,146	£1,465	£1,821	£2,313
>450 - 600mm	£1,474	£1,856	£2,266	£2,867
>600 - 900mm	£1,829	£2,306	£2,816	£3,440
>900 - 1200mm	£2,302	£2,942	£3,525	£4,249

New manholes - unmade ground (per manhole)

Manhole depth Manhole size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
1200mm	£6,527	£7,752	£10,396	£12,653
1350mm	£7,189	£8,526	£11,450	£14,003
1500mm	£7,741	£9,116	£12,595	£15,162
1800mm	£10,661	£12,651	£16,713	£20,230
2100mm	£15,340	£18,078	£22,723	£27,370

New manholes – footpath (per manhole)

Manhole depth Manhole size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
1200mm	£7,759	£9,103	£11,908	£14,511
1350mm	£8,485	£9,977	£13,082	£16,001
1500mm	£9,230	£10,669	£14,398	£17,207
1800mm	£12,325	£14,722	£17,003	£22,470
2100mm	£17,254	£20,170	£25,153	£27,272

New manholes - side road (per manhole)

Manhole depth Manhole size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
1200mm	£8,878	£10,477	£13,520	£15,991
1350mm	£9,629	£11,420	£14,755	£17,516
1500mm	£10,418	£12,006	£15,946	£18,522
1800mm	£13,709	£16,255	£20,109	£24,151
2100mm	£18,664	£21,753	£26,804	£31,269

New manholes - main road (per manhole)

Manhole depth Manhole size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
1200mm	£9,873	£11,514	£14,584	£17,058
1350mm	£10,773	£12,614	£15,974	£18,738
1500mm	£11,681	£13,318	£17,286	£19,866
1800mm	£15,314	£17,868	£21,984	£25,821
2100mm	£20,589	£23,694	£28,763	£33,703

New rising main - unmade ground (per metre)

Pipe depth Pipe size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 125mm	£339	£401	£515	£650
>125 - 180mm	£360	£428	£544	£673
>180 - 255mm	£409	£481	£606	£734
>255 - 315mm	£464	£545	£675	£831
>315 - 355mm	£528	£620	£775	£934
>355 - 400mm	£587	£685	£852	£1,032

New rising main – footpath (per metre)

Pipe depth Pipe size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 125mm	£610	£866	£1,195	£1,603
>125 - 180mm	£663	£924	£1,219	£1,630
>180 - 255mm	£724	£981	£1,260	£1,676
>255 - 315mm	£802	£1,083	£1,319	£1,872
>315 - 355mm	£948	£1,224	£1,476	£1,976
>355 - 400mm	£1,019	£1,327	£1,669	£2,155

New rising main – side road (per metre)

Pipe depth Pipe size	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 125mm	£607	£884	£1,189	£1,588
>125 - 180mm	£629	£953	£1,213	£1,616
>180 - 255mm	£691	£999	£1,254	£1,675
>255 - 315mm	£826	£1,100	£1,359	£1,871
>315 - 355mm	£899	£1,216	£1,613	£2,177
>355 - 400mm	£992	£1,355	£1,740	£2,254

New rising main – main road (per metre)

Pipe size \ Pipe depth	Up to 1.5m	>1.5 - 2.5m	>2.5 - 3.5m	>3.5 - 4.5m
0 - 125mm	£798	£1,000	£1,294	£1,712
>125 - 180mm	£792	£1,043	£1,320	£1,741
>180 - 255mm	£845	£1,077	£1,375	£1,787
>255 - 315mm	£958	£1,229	£1,503	£1,981
>315 - 355mm	£1,062	£1,371	£1,751	£2,300
>355 - 400mm	£1,159	£1,513	£1,880	£2,377

Diverting a sewer (s185)

The below information relates to our charges where our existing assets require diverting to permit a development.

- Developers with an interest in land that contains existing water or sewerage assets can arrange for the alteration or removal those assets to allow development work to progress
- For both water mains and sewers this is undertaken under Section 185 of the Water Industry Act
- All or part of the diversion works may be contestable, in which case we will give the developer the opportunity to undertake the works, or employ a suitably qualified third-party contractor to undertake these elements
- The decision on who undertakes the construction is based on the risk of the work and asset criticality ratings
- Applicants can visit our [website](#) or contact our Business Channels team for advice ahead of application
- Alternatively, should a developer delivered diversion be assessed as needing to be delivered by Southern Water, we will only charge the differential in application fees
- We do not offer published fixed charges for construction activities in this area. We will keep this under review
- We will provide a bespoke estimate for each project. The applicant will be free to choose how to proceed on provision of estimates at key stages
- We will utilise information from both our estimating database and supplier contracts at the early stages of the process to provide these bespoke estimates. As the design progresses, we will further engage with our suppliers to deliver an increasingly detailed and accurate quotation for the defined scope of the work required
- The estimates may be different to the requisition published charges due to the individual nature of each site
- The charges associated with diversions are payable up-front and following the provision of estimates.

Service	Charge	Contestable / Non-contestable	How is this applied?
S185 - Application Fee (developer wastewater diversion) (inc. VAT)	£451.13	Non-contestable	Per application
S185 - Application Fee (Southern Water wastewater diversion) (inc. VAT)	£2,683.60	Non-contestable	Per application
S185 - Design Fee (Southern Water diversion)	10% of total project value	Non-contestable	Per application
S185 – Technical Assessment Fee (developer diversion)	£681	Non-contestable	Per application
S185 – Inspection Fees (developer wastewater diversion)	2.5% of construction value	Non-contestable	Per application
S185 – Legal Fees (developer wastewater diversion)	£483	Non-contestable	Per application
S185 – Security requirements (developer diversions)	See below	Non-contestable	Per application

Security requirements

For developer delivered diversion projects we require a 100% performance deposit. 80% is returned on completion of the works and the remaining 20% following a 1-year warranty period.

Site Specific charges – general information

Exceptions to fixed charges

The charges in this document are predominantly fixed charges. On some occasions, the costs associated with laying new water mains and sewers (requisitions) may be more complex and challenging, in which case it will be difficult to provide a fixed charge.

This could include circumstances where:

- The technical complexity of the work is high, or the type of work required is bespoke or carried out infrequently
- Third parties can legitimately recover their costs from companies and there is not a reasonable level of certainty of those costs in advance of connection work being undertaken
- Third parties have rights to protect their assets or interests in a way that affects the construction method. The third parties' requirements are unknown upfront
- The work is to be carried out on or close to land with particular environmental, historical or archaeological characteristics. These characteristics mean that specific measures are required during construction or reinstatement. The details of these measures may not be fully defined in advance of construction.

Where the above circumstances occur, we may be unable to provide a fixed upfront charge for the entire works, and will provide a budget estimate comprising a mixture of:

- Indicative or estimated charges for the elements of works affected by the circumstances above, and;
- Fixed upfront charges for the elements of the work where there is sufficient certainty, and it is reasonable to do so.

There may be occasions where providing an indicative estimate is not possible or where the estimate will not meet the degree of confidence desired by the applicant. In these cases, we will work with the applicant to agree the best way to proceed.

Some specific examples of where exceptions could apply include:

- Management and disposal of contaminated material
- Extraordinary ground support such as interlocking sheet piles
- Extraordinary groundwater control such as deep wells or well pointing
- Excavation of rock or artificial obstructions
- Excavation and reinstatement of concrete highways
- Extraordinary pipe bedding requirements (such as piling)
- Costs associated with land compensation or loss of profit
- Statutory undertakers' diversions
- Tunnelling and trenchless installation techniques such as directional drilling or auger-boring
- Pumping stations and installations
- Costs of permits, permissions and supervision associated with rail crossings, canal or river crossings, major highway crossings
- Costs associated with 'immune bodies' where our statutory powers may not apply
- Bespoke legal agreements such as Deed of Grant Easement or Transfer of Pumping Stations where not included within the routine agreements or processes

The above list is not exhaustive but reflects some typical examples that may fall into the principles outlined above. The examples are generally highly site and context specific. The frequency with which these occur is also difficult to predict. Including these types of circumstance in standard charges would be challenging and could adversely on the charges incurred by all applicants.

Lane Rental Schemes

The Lane Rental Scheme is a daily rate charged to any companies working in certain roads in Kent and West Sussex intended to reduce disruption at certain times. These charges will be included in the cost breakdown of your quote in advance, however we will try to plan in your connection at a time that will avoid the charges. If charges can be avoided a refund will be issued to you.

Detailed guidance on the scheme and how it is applied can be found on the County Council website links below:

[West Sussex Lane Rental Scheme - West Sussex County Council](#)
[Kent Lane Rental Scheme - Kent County Council](#)

Reassessment of charges

For all of the Site-Specific charges, where there is significant variation of primary quantities of 15% or more from the upfront quotation, we will recalculate the charges in line with adjusted quantities based on the detailed charges published within this document.

Differences in the charges

In the different categories of Site-Specific charges there are different charges for what appear to be similar activities. There are two major reasons behind this:

- We use different delivery partners for different types of work. Connections and simple works are generally delivered using different partners to more complex, risky construction works. There are different costs associated with this
- For some simple items there are very low costs in terms of management effort, or the costs are in different charges. An example is water connections where the internal costs for managing the work are covered by our application and administration charges. For more complex elements of work, the charges include all costs associated with project management, design, site investigation, existing customer management, dealing with external stakeholders and permitting, securing planning permission and other similar activities. Due to the way that the charges have been developed these are included within the charge items to make the charges as user-friendly as possible.

Sewer and water network plans & maps

To assist our Developer Services customers in planning their works, it is possible to request an extract of our network plan. We now partner with digdat to provide copies of our network plans. There are a range of pricing options dependant on the options selected by the customer.

Further information can be found on our website [sewer and water maps](#)

Section 4: Charges for SLPs and NAVs

General Guidance

In January 2021, Ofwat introduced a standard practice across the water industry in England for water companies to follow when adopting self-laid mains.

This standard practice is known as the water code for adoption and is also referred to as 'the codes'. You can find out more about the codes here on the [Water UK website](#).

More details can be found on our website [Self Lay Schemes](#)

Charges for SLPs

Section 51 SLP point of connection application, enquiry, administration, and design checking charges

Service	Charge	Contestable / Non-contestable	How is this applied?
S51 – Agreement, Design Check / Approval and Vesting Fee (SLP undertakes design)	£622	Non-contestable	Per adoption agreement
S51 – Water Mains Design Check / Approval Fee (re-designs)	£246	Non-contestable	When required
S51 – Point of Connection Application including level 2 capacity check application – 0 to 50 units (SLP undertake design)	£310	Non-contestable	Per application
S51 – Point of Connection Application including level 2 capacity check application – 51 to 250 units (SLP undertake design)	£926	Non-contestable	Per application
S51 – Point of Connection Application including level 2 capacity check application – 251 to 500 units (SLP undertake design)	£1,233	Non-contestable	Per application
S51 – Point of Connection Application including level 2 capacity check application – >500 units (SLP undertake design)	£1,542	Non-contestable	Per application
S51 – Design service up to 20 plots	£334	Contestable	Per application
S51 – Design service for 20-500 plots	£421	Contestable	Per application
S51 – Design service for 500+ plots	£507	Contestable	Per application

Administration and Application Charges for SLPs – SLF F5

Service	Charge	Contestable / Non-contestable	How is this applied?
S51 – Self-Laid Application Fee (first connection) (inc. VAT)	£66.17	Non-contestable	Per application
S51 – Self-Laid Application Fee (subsequent connections) (inc. VAT)	£40.13	Non-contestable	Per subsequent connection
S51 – Self-Laid Administration Fee (first connection)	£21.16	Non-contestable	Per application
S51 – Self-Laid Administration Fee (subsequent connections)	£13.11	Non-contestable	Per subsequent connection

Construction Rates

From time to time, SLP's will ask us to deliver some work on their behalf for example, connecting a newly laid main delivered by an SLP to an existing large-diameter main. SLP's are offered the same rate as published above in our section "Charges for new water mains" on page 23.

NAVS

NAV Application Charges

Our NAV application charges are applicable to both supply and wastewater applications.

These charges are inclusive of VAT.

NAV Application Charges	Waste	Water
0-50 units	£205	£205
51-250 units	£616	£616
>251 units	£823	£823

Section 5: General Information

Validity Period of Quotations and Transitional Arrangements

After consultation with our Developer Customers, we have developed transitional arrangements for projects and developments that straddle the implementation of the new charging approach.

Infrastructure Charges

- Infrastructure Charges will be chargeable at the gross charge applicable for the year that the property connects to the network
- Income Offsets will be applied to the Infrastructure Charge in cases where the development has not previously received a form of Income Offset (associated with requisitions, Asset Payments or Income Offset equivalents for NAVs)
- The 'old' Infrastructure Charge will continue to apply in the circumstances detailed within 'Historic transitional agreements' detailed below

Site Specific Charges

- The standard validity period of a quote is 3 months.
- We will provide quotations and estimates based on our 2023/24 Charging Arrangements until the 31st March 2024
- For quotes issued between 1st January 2023 to 31st March 2024 we will accept a 6 month validity period for estimates issued for Site Specific activities instead of our standard 3 months validity period
- We will provide quotations and estimates based on our 2024/25 Charging Arrangements from the 1st April 2024
- Minor changes, updates or alterations to existing agreements will be based upon the Charging Arrangements that applied to the year that the agreement was made
- Minor changes, updates or alterations are considered to be a less than 15% change to the primary quantities (properties connected, metres of pipe, value of order etc)
- Larger changes would result in the requirement for a new agreement based upon the current years Charging Arrangements
- Should a customer request a re-quotation under the 2024/25 Charging Arrangements, this will become the quote that the customer must accept

Historic transitional arrangements

We worked with our stakeholders and Water UK to agree a set of principles by which we based our charges during the 2017-18 to 2018-19 transition period. The transition principles for this period are set out below.

Infrastructure Charges

- Following the removal of Condition C in March 2022, all connections made to the Southern Water network, other than those which have legacy agreements, will be charged in accordance with the new Infrastructure Charge as defined in Ofwat's Charges Scheme Rules

Site Specific Charges

- Applications received between 1st February 2018, and the 31st March 2018 for Site Specific mains and sewer work that will be carried out after 1st April 2018, will be quoted on either the old rules, or Ofwat's Charging Rules for New Connection Services. Developers and SLPs will be invited to choose their preferred method
- Applications received between 1st February 2018, and the 31st March 2018 for Site Specific new property connections that will be carried out after 1st April 2018, will be quoted under the old approach due to the volumes of applications. From the 1st April 2018 quotations will be made under the new charging approach
- Developers or SLPs that have received a quotation or draft adoption agreement under the old rules, but have not formally accepted can re-apply after the 1st February 2018 for a quotation in accordance with Charging Rules for New Connection Services
- Quotations for some Site Specific work provided under the old rules, and accepted before 1st April 2018 are to continue to apply until 1st April 2023 unless the Developer Services customer and the company agree to vary the quotation
- Where a legal agreement is already in place in relation to charges for Site Specific work carried out as part of an adoption, then the charges defined within that agreement remain valid for the life of the agreement unless the Developer Services customer and the company agree to vary those charges
- Charges relating to the old charging rules, will be adjusted by inflation if the quotation or legal agreement includes an appropriate provision for adjusting the charges.
- All our quotations under the new charging arrangements have a fixed period of validity. This validity period is detailed on the quotation that is supplied to all Developer Services customers. Should the Developer Services customer not progress within the validity period, it may be necessary to issue an updated quotation for the application

Timings and Methods of payment

Water

Water Connections

Water connection application fees are payable up-front at the time of application.

Administration fees are payable along with the construction fees on the acceptance of the quotation. These are again paid up-front.

Water Mains Laying

Application fees are payable up-front at the time of application.

Any further fees are payable following the issue of the Site-Specific quotation. These fees are generally paid up-front ahead of construction work progressing.

Water Infrastructure Charges

Water infrastructure charges are generally payable on connection. We are happy to discuss advance payment, but in these circumstances, customers must pay both Water and Wastewater Infrastructure Charges when we supply both services. Customers must also be aware that charges can go up and down and therefore there is an element of risk that customer is taking when paying in advance.

Water Income Offset and Environmental Incentives

The water Income Offset and any applicable environmental incentive are payable at the same time as the Infrastructure Charge. Any required evidence must be submitted at the at the time of application.

Wastewater

Wastewater Connections

Wastewater connection application fees are payable up-front at the time of application.

Construction fees (if applicable) are payable up-front on the acceptance of the quotation.

Wastewater Site Specific Sewer Laying

Application fees are payable up-front at the time of application.

Any further fees are payable following the issue of the Site-Specific quotation. There is generally a two-stage approach given the complexity of these projects.

Wastewater Infrastructure Charges

Wastewater infrastructure charges are generally payable on connection. Invoices are issued on a routine basis during the lifespan of the development to the applicant. We measure connected properties via the registering of meters associated with the properties. We are happy to discuss advance payment, but in these circumstances, customers must pay both Water and Wastewater Infrastructure Charges when we supply both services. Customers must also be aware that charges can go up and down and therefore there is an element of risk that customer is taking when paying in advance.

Wastewater Income Offset and Environmental Incentives

The wastewater Income Offset and any applicable environmental incentive are payable at the same time as the Infrastructure Charge. Any required evidence must be submitted at the time of application.

Methods of Payment

We accept BACs, credit and debit cards and cheques for payment for our services. Further details can be found on our Get Connected portal or via the 'Ways to Pay' information that is delivered with our quotations.

How did we calculate the charges?

Infrastructure Charges

Gross Charges

Our gross infrastructure charges use a rolling 5-year forecast to distribute the cost of forecast network reinforcement evenly between the anticipated number of new connections.

This year our forecast plans were informed by our Business Plan which we have submitted to Ofwat for the Price Review in 2024. Our Business Plan contains ambitious plans for increased investment in our network. Our water network is set to benefit from around five million pounds per year. This would increase our infrastructure charge from £150 in 2023/24 to £480 in 2024/25. We consider this bill increase to be too large for a single charging year. We have therefore implemented a handling strategy to reduce customer bill increases. As part of this strategy, we have used a more conservative forecast spend than contained in our Business Plan while we await final approval from Ofwat. We will review the charge again next year and align our charge with Ofwat's final determination on appropriate levels of investment.

Income Offset

Ofwat recently determined that water companies shall not provide an income offset by 2025². We therefore began to phase out the income offset in the 2023/24 charging year with a plan to gradually replace it with environmental incentives that provided sustainable development with financial credit against the gross infrastructure charge. This was intended to offset the effect on bills of removing the income offset while championing sustainable design in the new connections market.

In 2024/25 we have frozen the phase out of the income offset. This approach is part of our handling strategy to manage the one-off correction to site-specific main laying rates driven by inflationary cost pressures on our supply chain.

Water

Site Specific charges - new property connections

A significant amount of work was undertaken to calculate the 2020/21 site specific charges. For new individual property connections, we analysed 12 months of new connections data. This involved nearly 7000 property connections, ensuring a significant population of data to base the new charges upon. We categorised the costs into the new standard categories, along with the number of new water meters (aligned with properties). This allowed us to develop the per water meter (property) average costs.

For larger diameter connections (63mm and above), we undertook the same approach, but adjusted to consider those connections that were related to flats with internal meters, as these were increasing the unit costs.

² [Scope and balance of developer charges and incentives conclusions.pdf \(ofwat.gov.uk\)](#)

The costs for additional pipework and barrier pipe for contaminated land closely correlate to the direct costs in proving these activities.

Traffic management costs were developed by using a selection of traffic management costs and building up a unit average. There was a high degree of cost fluctuation within this area. We will continue to collect data to ensure that this remains as representative as possible.

The charges reflect the relevant costs of providing the work. All Southern Water costs are recovered through the application and administration fees. No Southern Water overheads are applied to the construction costs for service connections.

We review our charges annually and increase our charges in line with CPI. Site-specific charges for wastewater services were increased by 3.9% for the year 2024-25. This is in line with the contractual uplift the Contractors are entitled to under the Framework Contracts.

Our site-specific main laying and connection services for water required a larger one-off correction. Review of actual under recovery highlighted the risk that material costs for fittings and pipes were rising quicker than CPI. We are obliged to increase our charges to a cost reflective rate to ensure fair competition with third parties. Our handling strategies explained earlier in the document tried to minimise the impact on customers.

Site Specific charges - water mains

The charges for laying new water mains were derived by analysing over 100 historic projects to develop all-inclusive unit charges for mains laying activities. The sites included nearly 90,000 metres of water mains installed, again generating a significant data set to drive accuracy. For each pipe size we recorded total length and how many valves and hydrants were installed. By applying our suppliers' standard rates, this allowed us to calculate a unit charge per metre.

Connections in most cases are a standard operation and the charges are based upon a bottom-up estimate. The charges include installation of a valve and hydrant per connection, at the request of the SLP community, so the same charge will apply to different classes of Developer Services customer.

Meters and pressure reducing valves are based on a bottom-up estimate. These include for a by-pass.

The costs for additional pipework and barrier pipe for contaminated land closely correlate to the direct costs in providing these activities.

Traffic management charges were developed by using a selection of traffic management costs and building up a unit average. There was a high degree of cost fluctuation within this area. We will continue to collect data to ensure that this remains as representative as possible.

Uplifts for project management, management of external constraints and administration costs are added to the base construction rates to ensure the charges cover all the costs associated with the provision of the infrastructure.

The charges reflect the relevant costs of providing the work, including administration and project management. There are no corporate overheads applied to these charges.

Wastewater

Site specific charges - new lateral drains, connections, and new sewers

We very rarely construct new lateral drains and connections for our Developer Services customers. This work is generally undertaken directly by applicants and their drainage contractors. Due to this reason we have removed our bespoke Wastewater connections charges and combined into the updated new sewer (requisition) charges.

The charges for laying new sewers are categorised into 3 main areas – gravity pipe laying, manholes and rising main laying. Upper limits on pipe sizes and depths are included, which should cover most activities that Developer Services customers would request in this area.

The base construction rates are aggregated AMP7 suppliers' rates for the activities specified. We include uplifts for Southern Water activities including design, project management and the management of third party activities.

This allows for an all-inclusive charge that, in turn, allows the Developer Services customer to identify the total cost of an activity using information that they would be likely to possess, be able to estimate, or make sensible assumptions around (for example metres or pipe, sizes, depths and number of manholes).

In this case, as traffic management is often unavoidable, traffic management is included within the charges.

The charges reflect the relevant costs of providing the work, including administration and project management. There are no corporate overheads applied to these charges.

Contact Us:

If your enquiry is related to Developer Services, in the first instance contact our Service Desk team 0330 303 0119 option 5 or email us at developerservices@southernwater.co.uk.

If you have a specific issue relating to an ongoing project:

Wastewater Services: Technical Manager:	graham.dunn@southernwater.co.uk
Water Services: Technical Manager:	sathikaran.amuthaseelan@southernwater.co.uk
Project Delivery:	peter.simmons@southernwater.co.uk

If you have a specific issue relating to our charges or how they have been calculated, please contact: newconnectioncharging@southernwater.co.uk

Appendices

Appendix i – Additional Services

Our Charging Arrangements sets the charges payable in respect of:

- Water and Wastewater Infrastructure Charges and Offset Charges
- The provision of New Mains and New Sewers
- The provision of Service Connections, Lateral Drains and Wastewater Connections
- Adoption Agreements, Self-Lay Agreements and Diversions

Below are other charges for services which are offered to customers, please note all charges in this section only are inclusive of VAT:

Build Over a Sewer

If you are building a new property or extension you will need to ensure it does not affect our public sewer mains. Therefore, if your proposals mean building over/near (within 3 metres) a public sewer or lateral drain you will need our approval before doing so and required to submit an application form.

	Charges
Build Over Application Fee	£720

Odour Impact Assessments

From April 2021 Southern Water will apply charges for odour assessment services where developments are located in an area perceived to be at risk of odour nuisance in the vicinity of a wastewater treatment works (WwTW).

Southern Water's standard position will be to require an odour risk assessment for developments in the vicinity of wastewater treatment assets. We apply a precautionary buffer zone, for developments located within 500 metres of the site boundary, is assumed in lieu of an odour assessment. However exceptions to this precautionary approach may apply based on historical complaints or local issues.

We would request that an odour assessment, using dispersion modelling tools, is carried out by an experienced odour specialist. The scope of the assessment is to be agreed in advance taking into account Southern Water's internal assessment protocol and technical standards. Due to the potential for odour emissions from wastewater processes, we recommend that all sensitive receptors should be located outside the $1.5 \text{ ou}\mu\text{m}^{-3}$ (expressed as the 98th percentile of hourly averages on an annual basis).

Our overall aim is to work with developers to produce a consistent odour assessment which is acceptable to all parties and suitable for planning submission.

To achieve this we will:

- Provide ongoing contact and information exchange with the developer;
- Ensure Southern Water guidance and technical standards are communicated and effectively applied;
- Provide site information necessary for the assessment (such as relevant odour history, layout, boundary details, treatment process details);
- Arrange access to site and establish contact with site based operational staff;
- Discuss and agree any assessment scope;
- Assist in the identification of odour sources and sampling requirements;
- Highlight health and safety requirements, associated risk assessments and work permits required prior to gaining access to site; and
- Review third party odour assessments and provide constructive feedback. The review will look to make a recommendation to either:
 - Accept the report and its recommendations; or
 - Identify areas that require addressing by the developer or their consultant in order to be recommended for acceptance by SW.

On occasions, where development is identified as constrained by odour, SW remain open to discuss any proportionate and reasonable odour mitigation options that could be applied to facilitate development. Associated discussions and charges are excluded from those stated in this document.

Table 1 details the fixed cost for handling developer enquiries, scope discussions, site visits, review and consultations. Payment will be made up front against an agreed scope of involvement and reviewed should additional involvement or repeat task be required.

A fee to recover any development related costs for additional and necessary tasks can be discussed where required.

References:

- SW Technical Standards document PSWWT 4022 i10 (will be provided on request)

Table1 List of project tasks

Task Ref	Task description	Charge (exc. VAT)
1. Odour Assessment – Consultation & review	• Agreement of assessment scope • Handle information requests • Review of submitted odour assessment by Developer • Consultation and feedback • Excluding Site visit/survey (see below)	£1,681
2. Site Visit (where required)	• Access requirements and attendance – 1 day	£345
3. Site Survey (where required)	• Agreement of Scope of survey (visit) • Organisation (access arrangement and requirements) • Review of method statement and Health & Safety arrangements • Attendance – Up to 2 days	£415

Appendix ii – Worked Examples

The scenarios set out below exclude VAT.

Scenario 1: Single connection to a new house from an existing main

Scenario 1: Single connection to a house from an existing main									Alternative Delivery Method	
Application Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)
	Pre-Construction Charge									
Y	Application Fee per application	Per Application	1	£71.63	£71.63	NA	0	N	£55.14	£55.14
Y	Administration Fee	Per Application	1	£32.93	£32.93	NA	0	N	£17.63	£17.63
Y	Design Fee	Per Application	0		£0.00	NA	0	Y	NA	£0.00
	Construction Charges									
Y	Connection	Per Connection	1	£1,029	£1,029.00	£170.00	£170.00	Y	NA	£0.00
Y	Pipework Road	Per meter	0	NA	£0.00	NA	£0.00	Y	NA	£0.00
Y	Traffic Mngmt	Per TM Usage	0	NA	£0.00	NA	£0.00	Y	NA	£0.00
Y	Meters	Per Connection	0	NA	£0.00	NA	£0.00	Y	NA	£0.00
	Other Charges									
Y	Water Regs		1	£98.91	£98.91	NA	£0.00	Y	NA	£0.00
Y	S106 vetting fee Admin & Application Fee		1	£279.00	£279.00	NA	£0.00	N	NA	£0.00
	Infrastructure Charges									
Y	Infrastructure Charges - Water		1	£241.00	£241.00	NA	£0.00	N	£241.00	£241.00
Y	Infrastructure Charges - Sewerage		1	£582.00	£582.00	NA	£0.00	N	£582.00	£582.00
	Income Offset									
Y	Income Offset Water		1	-£150.00	-£150.00	NA	£0.00	N	-£150.00	-£150.00
	Income Offset Sewerage		1	-£129.00	-£129.00	NA	£0.00	N	-£129.00	-£129.00
Y	Silver Wastewater Incentive		1	-£300.00	-£300.00	NA	£0.00	N	-£300.00	-£300.00
	Totals				£1,755.47		£1,925.47			£316.77

Scenario 2: Single connection to a block of flats from an existing main

Scenario 2: Single connection to a block of flats from an existing main									Alternative Delivery Method	
Application Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)
	Pre-Construction Charge									
Y	Application Fee (First Connection)	Per Application	1	£71.63	£71.63	NA	£0.00	N	£55.14	£55.14
Y	Application Fee (Subsequent Conns)	Per Additional Conn	9	£43.73	£393.57	NA	£0.00	N	£33.44	£300.98
Y	Administration Fee (First Connection)	Per Application	1	£32.93	£32.93	NA	£0.00	N	£17.63	£17.63
Y	Administration Fee (Subsequent Conns)	Per Additional Conn	9	£20.10	£180.90	NA	£0.00	N	£10.93	£98.33
Y	Design Fee	Per Application	1	£246.14	£246.14	NA	£0.00	Y	£0.00	£0.00
	Construction Charges									
Y	Large Diameter Connection 63mm	Per Connection	1	£3,349.00	£3,349.00	£170.00	£128.00	Y	NA	£0.00
	Traffic Mngmt	Per TM Usage	0	£0.00	£0.00	£0.00	£0.00	Y	NA	£0.00
Y	Meters	Per Connection	9	£97.00	£873.00	£0.00	£0.00	Y	NA	£0.00
	Other Charges									
Y	Water Regs (first of every ten plots)	Per Plot	1	£98.91	£98.91	NA	£0.00	Y	NA	£0.00
Y	Water Regs (subsequent conns)	Per Plot	9	£6.90	£62.11	NA	£0.00	Y	NA	£0.00
Y	S106 vetting fee Admin&Application Fee	Per Application	1	£279.00	£279.00	NA	£0.00	N	NA	£0.00
	Infrastructure Charges									
Y	Infrastructure Charges - Water	Per Plot	10	£241.00	£2,410.00	NA	£0.00	N	£241.00	£2,410.00
Y	Infrastructure Charges - Sewerage	Per Plot	10	£582.00	£5,820.00	NA	£0.00	N	£582.00	£5,820.00
	Income Offset									
Y	Income Offset Water	Per Plot	10	-£150.00	-£1,500.00	NA	£0.00	N	-£150.00	-£1,500.00
	Income Offset Sewerage	Per Plot	10	-£129.00	-£1,290.00	NA	£0.00	N	-£129.00	-£1,290.00
Y	Silver Wastewater Incentive	Per Plot	10	-£300.00	-£3,000.00	NA	£0.00	N	-£300.00	-£3,000.00
	Totals				£8,027.19		£8,155.19			£2,912.08

Scenario 3: Medium Development 50 Houses

Scenario 3: Medium Development 50 Houses									Alternative Delivery Method			
Applicable Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate (£)	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)	NAV Rate (£)	NAV Total (£)
Pre-Construction Charge Connection												
Y	Application Fee (First Connection)	Per Application	1	£71.63	£71.63	NA	£0.00	N	£55.14	£55.14	NA	£0.00
Y	Application Fee (Subsequent Conns)	Per Additional Conn	49	£43.73	£2,142.77	NA	£0.00	N	£33.44	£1,638.64	NA	£0.00
Y	Administration Fee (First Connection)	Per Application	1	£32.93	£32.93	NA	£0.00	N	£17.63	£17.63	£32.93	£32.93
Y	Administration Fee (Subsequent Conns)	Per Additional Conn	49	£20.10	£984.90	NA	£0.00	N	£10.93	£535.33	NA	£0.00
	NAV Application fee	Per Design	0	£0.00	0	NA	£0.00	Y	NA	£0.00	£171.00	£171.00
Pre-Construction Charge Mains												
Y	Mains Application, Administration, Collaborative Design	Per Application	1	£1,691.00	£1,691.00	NA	£0.00	Y	£622.00	£622.00	NA	£0.00
Y	Design Fee	Per Design	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	POC	Per Application	1	£133.00	£133.00	NA	£0.00	Y	£622.00	£622.00	NA	£0.00
Construction Charges Connection												
Y	Service Connection	Per Connection	50	£320.00	£16,000.00	£66.00	£3,300.00	Y	NA	£0.00	NA	£0.00
	Pipe Work	Per Meter	0	NA	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
	Meter Installation	Per Installation	0	NA	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Construction Charges Mains												
Y	Mains Connection to 180mm Main	Per Installation	1	£6,857.00	£6,857.00	NA	£0.00	N	£6,857.00	£6,857.00	£6,857.00	£6,857.00
Y	180mm PRV Unmade Ground	Per Installation	1	£17,514.00	£17,514.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	125mm PRV Unmade Ground	Per Installation	3	£14,623.00	£43,869.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	90mm PRV Unmade Ground	Per Installation	1	£13,510.00	£13,510.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	125mm in road including excavation	Per Meter	10	£264.00	£2,640.00	£48.00	£480.00	Y	NA	£0.00	£230.00	£2,300.00
Y	125mm PE in unmade surface with excavation by others	Per Meter	190	£78.00	£14,820.00	£48.00	£9,120.00	Y	NA	£0.00	NA	£0.00
Y	90mm PE in unmade surface with excavation by others	Per Meter	100	£75.00	£7,500.00	£41.00	£4,100.00	Y	NA	£0.00	NA	£0.00
Y	Road Closure	Per TM Usage	1	£2,595.00	£2,595.00	NA	£0.00	Y	NA	£0.00	£2,595.00	£2,595.00
Other Charges												
Y	Water Regs (first of every ten plots)	Per Plot	5	£98.91	£494.57	NA	£0.00	Y	NA	£0.00	NA	0
Y	Water Regs (subsequent conns)	Per Plot	45	£6.90	£310.55	NA	£0.00	Y	NA	£0.00	NA	0
Y	\$106 vetting fee Admin&Application Fee	Per Application	1	£279.00	£279.00	NA	£0.00	N	NA	£0.00	£279.00	£279.00
	NAV Application fees for Sewerage	Per Application	NA	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	£171.00	£171.00
Infrastructure Charges												
Y	Infrastructure Charges - Water	Per Plot	50	£241.00	£12,050.00	NA	£0.00	N	£241.00	£12,050.00	£241.00	£12,050.00
Y	Infrastructure Charges - Sewerage	Per Plot	50	£582.00	£29,100.00	NA	£0.00	N	£582.00	£29,100.00	£582.00	£29,100.00
Income Offset												
Y	Income Offset Water	Per Plot	50	-£150.00	-£7,500.00	NA	£0.00	N	-£150.00	-£7,500.00	-£150.00	-£7,500.00
	Income Offset Sewerage	Per Plot	50	-£129.00	-£6,450.00	NA	£0.00	N	-£129.00	-£6,450.00	-£129.00	-£6,450.00
Y	Silver Wastewater Incentive	Per Plot	50	-£300.00	-£15,000.00	NA	£0.00	N	-£300.00	-£15,000.00	-£300.00	-£15,000.00
Totals					£143,645.35		£160,645.35			£22,547.74		£24,605.93

Scenario 4: Medium Development 50 Houses Water Company Excavates

Scenario 4: Medium Development 50 Houses Water Company Excavates									Alternative Delivery Method			
Applicable Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate (£)	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)	NAV Rate (£)	NAV Total (£)
Pre-Construction Charge Connection												
Y	Application Fee (First Connection)	Per Application	1	£71.63	£71.63	NA	£0.00	N	£55.14	£55.14	NA	£0.00
Y	Application Fee (Subsequent Conns)	Per Additional Conn	49	£43.73	£2,142.77	NA	£0.00	N	£33.44	£1,638.64	NA	£0.00
Y	Administration Fee (First Connection)	Per Application	1	£32.93	£32.93	NA	£0.00	N	£17.63	£17.63	£32.93	£32.93
Y	Administration Fee (Subsequent Conns)	Per Additional Conn	49	£20.10	£984.90	NA	£0.00	N	£10.93	£535.33	NA	£0.00
	NAV Application fee for supply	Per Design	0	£0.00	0	NA	£0.00	Y	NA	£0.00	£171.00	£171.00
Pre-Construction Charge Mains												
Y	Mains Application, Administration, Collaborative Design	Per Application	1	£1,691.00	£1,691.00	NA	£0.00	Y	£622.00	£622.00	NA	£0.00
Y	Design Fee	Per Design	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	POC	Per Application	1	£133.00	£133.00	NA	£0.00	Y	£310.00	£310.00	NA	£0.00
Construction Charges Connection												
Y	Service Connection	Per Connection	50	£405.00	£20,250.00	£170.00	£8,500.00	Y	NA	£0.00	NA	£0.00
	Pipe Work	Per Meter	0	NA	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
	Meter Installation	Per Installation	0	NA	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Construction Charges Mains												
Y	Mains Connection to 180mm Main	Per Connection	1	£6,857.00	£6,857.00	NA	£0.00	N	£6,857.00	£6,857.00	£6,857.00	£6,857.00
Y	150mm PRV Unmade Ground	Per Installation	1	£17,514.00	£17,514.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	100mm PRV Unmade Ground	Per Installation	3	£14,623.00	£43,869.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	80mm PRV Unmade Ground	Per Installation	1	£13,510.00	£13,510.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	125mm PE in road with excavation	Per Meter	10	£264.00	£2,640.00	£48.00	£480.00	Y	NA	£0.00	£264.00	£2,640.00
Y	125mm in footpath with excavation	Per Meter	50	£203.00	£10,150.00	£48.00	£2,400.00	Y	NA	£0.00	NA	£0.00
Y	125mm PE in unmade surface with excavation	Per Meter	140	£156.00	£21,840.00	£48.00	£6,720.00	Y	NA	£0.00	NA	£0.00
Y	90mm PE in unmade surface with excavation	Per Meter	100	£147.00	£14,700.00	£41.00	£4,100.00	Y	NA	£0.00	NA	£0.00
Y	Traffic Mngmt	Per TM Usage	1	£2,595.00	£2,595.00	NA	£0.00	Y	NA	£0.00	£2,595.00	£2,595.00
Other Charges												
Y	Water Regs (first of every ten plots)	Per Plot	5	£98.91	£494.57	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	Water Regs (subsequent conns)	Per Plot	45	£6.90	£310.55	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	S106 vetting fee Admin&Application Fee	Per Application	1	£279.00	£279.00	NA	£0.00	N	NA	£0.00	£279.00	£279.00
	NAV Application fees for Sewerage	Per Application	0	£0.00	£0.00	NA	£0.00	N	NA	£0.00	£171.00	£171.00
Infrastructure Charges												
Y	Infrastructure Charges - Water	Per Plot	50	£241.00	£12,050.00	NA	£0.00	N	£241.00	£12,050.00	£241.00	£12,050.00
Y	Infrastructure Charges - Sewerage	Per Plot	50	£582.00	£29,100.00	NA	£0.00	N	£582.00	£29,100.00	£582.00	£29,100.00
Income Offset												
Y	Income Offset Water	Per Plot	50	-£150.00	-£7,500.00	NA	£0.00	N	-£150.00	-£7,500.00	-£150.00	-£7,500.00
	Income Offset Sewerage	Per Plot	50	-£129.00	-£6,450.00	NA	£0.00	N	-£129.00	-£6,450.00	-£129.00	-£6,450.00
Y	Silver Wastewater Incentive	Per Plot	50	-£300.00	-£15,000.00	NA	£0.00	N	-£300.00	-£15,000.00	-£300.00	-£15,000.00
	Totals				£172,265.35		£194,465.35			£22,235.74		£24,945.93

Scenario 5: Large housing development requiring new mains and communication pipes (excavation and reinstatement completed by others)

Scenario 5: Large housing development requiring new mains and communication pipes (excavation and reinstatement completed by others)									Alternative Delivery Method			
Applicable Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate (£)	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)	NAV Rate (£)	NAV Total (£)
Pre-Construction Charge Connection												
Y	Application Fee (First Connection)	Per Application	1	£71.63	£71.63	NA	£0.00	N	£55.14	£55.14	NA	£0.00
Y	Application Fee (Subsequent Conns)	Per Additional Conn	199	£43.73	£8,702.27	NA	£0.00	N	£33.44	£6,654.89	NA	£0.00
Y	Administration Fee (First Connection)	Per Application	1	£32.93	£32.93	NA	£0.00	N	£17.63	£17.63	£33.00	£33.00
Y	Administration Fee (Subsequent Conns)	Per Additional Conn	199	£20.10	£3,999.90	NA	£0.00	N	£10.93	£2,174.08	NA	£0.00
	NAV Application fee	Per Design	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	£533.00	£533.00
Pre-Construction Charge Mains												
	Mains Application, Administration, Collaborative Design	Per Application	1	£1,783.00	£1,783.00	NA	£0.00	Y	£622.00	£622.00	NA	£0.00
	Design Fee	Per Design	0	£0.00	£0.00	NA	£0.00	Y	£0.00	£0.00	NA	£0.00
Y	POC	Per Application	1	£133.00	£133.00	NA	£0.00	Y	£310.00	£310.00	NA	£0.00
Construction Charges Connection												
Y	Service Connection	Per Connection	200	£320.00	£64,000.00	£66.00	£13,200.00	Y	NA	£0.00	NA	£0.00
	Pipe Work	Per meter	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
	Meter Installation	Per Installation	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Construction Charges Mains												
Y	Mains Connection to 250mm Main	Per Connection	1	£7,603.00	£7,603.00	NA	£0.00	N	£7,603.00	£7,603.00	£7,603.00	£7,603.00
Y	180mm in road with excavation	Per Meter	20	£290.00	£5,800.00	£53.00	£1,060.00	Y	NA	£0.00	£290.00	£5,800.00
Y	180mm Excavation by others unmade ground	Per Meter	100	£96.00	£9,600.00	£53.00	£5,300.00	Y	NA	£0.00	NA	£0.00
Y	125mm Excavation by others unmade ground	Per Meter	480	£78.00	£37,440.00	£48.00	£23,040.00	Y	NA	£0.00	NA	£0.00
Y	90mm Excavation by others unmade ground	Per Meter	400	£75.00	£30,000.00	£41.00	£16,400.00	Y	NA	£0.00	NA	£0.00
Y	150mm PRV Unmade Ground	Per Installation	1	£17,514.00	£17,514.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	100mm PRV Unmade Ground	Per Installation	5	£14,623.00	£73,115.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	80mm PRV Unmade Ground	Per Installation	2	£13,510.00	£27,020.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	Traffic Mngmt	Per TM Usage	1	£2,595.00	£2,595.00	NA	£0.00	Y	£2,595.00	£2,595.00	£2,595.00	£2,169.00
Other Charges												
Y	Water Regs (first of every ten plots)	Per Plot	20	£98.91	£1,978.30	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	Water Regs (subsequent conns)	Per Plot	180	£6.90	£1,242.19	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	S106 vetting fee Admin&Application Fee	Per Application	1	£279.00	£279.00	NA	£0.00	N	NA	£0.00	£279.00	£242.50
Y	S98 Requisition Application	Per Application	1	£4,707.00	£4,707.00	NA	£0.00	N	NA	£0.00	NA	£0.00
Y	S98 POC Application	Per Application	1	£133.00	£133.00	NA	£0.00	N	NA	£0.00	NA	£0.00
Y	20m of 600mm gravity sewer in side road @2.5m deep	Per Meter	20	£2,636.00	£52,720.00	NA	£0.00	Y	NA	£0.00	£2,636.00	£52,720.00
	NAV Sewerage Application Form	Per Application	0	NA	£0.00	NA	£0.00	N	NA	£0.00	£533.00	£533.00
Infrastructure Charges												
Y	Infrastructure Charges - Water	Per Plot	200	£241.00	£48,200.00	NA	£0.00	N	£241.00	£48,200.00	£241.00	£48,200.00
Y	Infrastructure Charges - Sewerage	Per Plot	200	£582.00	£116,400.00	NA	£0.00	N	£582.00	£116,400.00	£582.00	£116,400.00
Income Offset												
				0								
Y	Income Offset Water	Per Plot	200	-£150.00	-£30,000.00	NA	£0.00	N	-£150.00	-£30,000.00	-£150.00	-£30,000.00
	Income Offset Sewerage	Per Plot	200	-£129.00	-£25,800.00	NA	£0.00	N	-£129.00	-£25,800.00	-£129.00	-£25,800.00
Y	Silver Wastewater Incentive	Per Plot	200	-£300.00	-£60,000.00	NA	£0.00	N	-£300.00	-£60,000.00	-£300.00	-£60,000.00
Totals					£399,269.21		£458,269.21			£68,831.74		£118,433.50

Scenario 6: Large housing development requiring new mains and communication pipes (excavation and reinstatement completed by Water Company)

Scenario 6: Large housing development requiring new mains and communication pipes (excavation and reinstatement completed by Water Company)									Alternative Delivery Method			
Applicable Charge	Item	Unit	Qty	Rate (£)	Total Charge (£)	Barrier Pipe Uplift/Rate	Barrier Pipe Total Charge (£)	Contestable? (Y/N)	Self-Lay Rate (£)	Self-Lay Total Charge (£)	NAV Rate (£)	NAV Total (£)
Pre-Construction Charge Connection												
Y	Application Fee (First Connection)	Per Application	1	£71.63	£71.63	NA	£0.00	N	£55.14	£55.14	NA	£0.00
Y	Application Fee (Subsequent Conns)	Per Additional Conn	199	£43.73	£8,702.27	NA	£0.00	N	£33.44	£6,654.89	NA	£0.00
Y	Administration Fee (First Connection)	Per Application	1	£32.93	£32.93	NA	£0.00	N	£17.63	£17.63	£33.00	£33.00
Y	Administration Fee (Subsequent Conns)	Per Additional Conn	199	£20.10	£3,999.90	NA	£0.00	N	£10.93	£2,174.08	NA	£0.00
	NAV Application fee	Per Design	0	£0.00	£0.00	NA	£0.00	Y	NA	£0.00	£533.00	£533.00
Pre-Construction Charge Mains												
Y	Mains Application, Administration, Collaborative Design	Per Application	1	£1,783.00	£1,783.00	NA	£0.00	N	£622.00	£622.00	NA	£0.00
	Design Fee	Per Design	0	£0.00	£0.00	NA	£0.00	N		£0.00	NA	£0.00
Y	POC	Per Application	1	£133.00	£133.00	NA	£0.00	N	£926.00	£926.00	NA	£0.00
Construction Charges Connection												
Y	Service Connection	Per Connection	200	£405.00	£81,000.00	£170.00	£34,000.00	Y	NA	£0.00	NA	£0.00
	Pipe Work	Per Meter	0	£0.00	£0.00	£0.00	£0.00	Y	NA	£0.00	NA	£0.00
	Meter Installation	Per installation	0	£0.00	£0.00	£0.00	£0.00	Y	NA	£0.00	NA	£0.00
Construction Charges Mains												
Y	Mains Connection to 250mm Main	Per Connection	1	£7,603.00	£7,603.00	£0.00	£0.00	Y	£7,603.00	£7,603.00	£7,603.00	£7,603.00
Y	180mm in road with excavation	Per Meter	20	£290.00	£5,800.00	£53.00	£1,060.00	Y	NA	£0.00	£290.00	£5,800.00
Y	180mm with Excavation in footpath	Per Meter	100	£245.00	£24,500.00	£53.00	£5,300.00	Y	NA	£0.00	NA	£0.00
Y	125mm with Excavation in unmade ground	Per Meter	480	£156.00	£74,880.00	£48.00	£23,040.00	Y	NA	£0.00	NA	£0.00
Y	90mm with Excavation in unmade ground	Per Meter	400	£147.00	£58,800.00	£41.00	£16,400.00	Y	NA	£0.00	NA	£0.00
Y	150mm PRV Unmade Ground	Per installation	1	£17,514.00	£17,514.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	100mm PRV Unmade Ground	Per installation	5	£14,623.00	£73,115.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	80mm PRV Unmade Ground	Per installation	2	£13,510.00	£27,020.00	NA	£0.00	Y	NA	£0.00	NA	£0.00
Y	Traffic Mngmt	Per TM Usage	1	£2,595.00	£2,595.00	NA	£0.00	Y	£2,595.00	£2,595.00	£2,595.00	£2,595.00
Other Charges												
Y	Water Regs (first of every ten plots)	Per Plot	20	£98.91	£1,978.30	NA	£0.00	N	NA	£0.00	NA	£0.00
Y	Water Regs (subsequent conns)	Per Plot	180	£6.90	£1,242.19	NA	£0.00	N	NA	£0.00	NA	£0.00
	S106 vetting fee Admin&Application Fee	Per Application	1	£279.00	£279.00	NA	£0.00	N	NA	£0.00	£279.00	£279.00
	S98 Requisition Application	Per Application	1	£4,707.00	£4,707.00	NA	£0.00	N	NA	£0.00	NA	£0.00
	S98 POC Application	Per Application	1	£133.00	£133.00	NA	£0.00	N	NA	£0.00	NA	£0.00
	20m of 600mm gravity sewer in side road @2.5m deep	Per Meter	20	£2,636.00	£52,720.00	NA	£0.00	Y	NA	£0.00	£2,660.00	£53,200.00
Y	NAV Sewerage Application fee	Per Application	0	NA	£0.00	NA	£0.00	N	NA	£0.00	£533.00	£533.00
Infrastructure Charges												
Y	Infrastructure Charges - Water	Per Plot	200	£241.00	£48,200.00	NA	£0.00	N	£241.00	£48,200.00	£241.00	£48,200.00
Y	Infrastructure Charges - Sewerage	Per Plot	200	£582.00	£116,400.00	NA	£0.00	N	£582.00	£116,400.00	£582.00	£116,400.00
Income Offset												
Y	Income Offset Water	Per Plot	200	-£150.00	-£30,000.00	NA	£0.00	N	-£150.00	-£30,000.00	-£150.00	-£30,000.00
	Income Offset Sewerage	Per Plot	200	-£129.00	-£25,800.00	NA	£0.00	N	-£129.00	-£25,800.00	-£129.00	-£25,800.00
Y	Silver Wastewater Incentive	Per Plot	200	-£300.00	-£60,000.00	NA	£0.00	N	-£300.00	-£60,000.00	-£300.00	-£60,000.00
	Totals				£497,409.21		£577,209.21			£69,447.74		£119,376.00

Appendix iii Glossary and defined terms

Where possible we have adopted the industry agreed common terms.

The complete list is available on the Ofwat website [here](#):

Administration Fee means the fee associated with general administration activities, after the cost advice stage, relating to the construction phase, which can include processing any payments, scheduling the works, supervision and project management, and processing information into relevant billing/management systems. This would not include site-based activities covered in construction costs, such as additional site visits. Adoption means the process whereby assets are vested in the water company and subsequently maintained at its expense.

Alternative Point of Connection means another location indicated by the Water Company which is neither i) a practical location indicated by the Developer Customer, nor ii) the nearest practical location where the existing Water Main or Sewer is the same size or larger than the new connecting Water Main or Sewer.

Annual Contestability Summary

means the standard format document published annually (or more frequently) by the Water Company on its website setting out which work and services are Contestable Work and Services and which are Non-contestable Work and Services as described in section 3 of the Water Sector Guidance (see www.water.org.uk/water-sector-guidance-approved-documents/).

Application Fee means the fee levied at point of application, which is associated with upfront application processing, which can include reviewing and acknowledging an application, checking that all relevant information has been received, preparing a cost advice, an agreement or the acceptance for the proposed works.

Barrier Pipe means a polyethylene (PE) pipe with an aluminium barrier layer conforming to water industry specification 4-32-19.

Bond or Surety means a cash bond or financial guarantee underwritten by an appropriate warranty provider, bank or insurance company, which is accepted by the Water Company.

Branch Connection means the connection of new pipework to an existing Water Main such to provide a supply of water to a Development.

Communication Pipe means any part of a Service Pipe which a Water Company could be, or have been, required to lay under section 46 of the Water Industry Act 1991. Typically, it consists of a pipe laid from an existing or newly laid Water Main to the boundary of a property and may include a meter housing and / or external stop valve.

Contaminated Land means land by which a water company will install or request the installation of barrier pipe, following review of the previous use of site, or where proven necessary, in accordance with section 78A of the Environmental Protection Act 1990.

Contestable Work means the work or services that can be completed by either a Water Company or an Accredited Third Party, with the work and services relating to the provision of water supplies defined in each Water Company's Annual Contestability Summary. For work related to new sewerage services, the majority of work is considered contestable, excluding diversions and requisitions.

Design Checking Fee means the cost of checking a design submitted by an Accredited Third Party

Design Fee means the cost of designing against the application, providing a detailed site drawing and design, specification and cost advice. This may also include activities identified in the Administration Fee (such as site visit) if that cost is not already charged by the particular Water Company.

Developer Services means, collectively, the activities associated with serving Developer Customers, which may include the provision of new Water Mains, new Sewers, Communication Pipes, Lateral Drains, diversions of water and sewerage assets and connections made to supply water for building purposes.

Domestic Use means water used primarily for domestic purposes, including for drinking, washing, cooking, central heating and sanitary purposes.

Excavation by Others means any work undertaken by someone other than the Water Company in excavation, backfilling or reinstatement.

Excavation by Water Company means any work undertaken by the Water Company (or an agent acting on their behalf) in excavation, backfilling or reinstatement.

Existing Main means a Water Main or Sewer that was commissioned independently of development commencing.

Far Side Connection means a connection between premises and an existing water main on the opposite side of the street to those premises, to a maximum communication pipe length of distance of 18 metres, for which a straight linear meterage rate is not applied. Where the water main is located in the centre line of the street then the connection will be considered a Far Side Connection.

Fire Supplies means supplies provided solely for fire safety provision.

Fixed Charges means charges which are fixed in amount or which are calculated by reference to a predetermined methodology set out in a Water Company's Charging Arrangements, the application of which allows calculation at the outset of the total amount owing in a given Charging Year in respect of the charges in question. For the avoidance of doubt, a Water Company may impose Fixed Charges by reference to a unit measurement (for example, per megalitre). Furthermore, a Water Company may offer more than one Fixed Charge in charging for a service provided in accordance with the present rules (for example, by differentiating between different geographic areas).

Footpath means a hard-surfaced area intended for use by pedestrian or cyclists.

Household Premises means any premises used principally as a domestic dwelling or intended for such use, such as a house or flat.

Infrastructure Credit means a credit which may be applied when there has previously been a billable account on the same site/address. The eligibility criteria and method of calculating Infrastructure Credits is defined by the Water Company in its Charging Arrangements. This term is autonomous from any incentives applied against the infrastructure charge, for water efficiency for example. These are defined in the term Water Efficiency Incentive.

Infrastructure Charge means the charges described in section 146(2) of the Water Industry Act 1991. That is, a charge paid by the Developer Customer to the Water Company when a property is connected to the company's water supply or sewer network for the first time. The charges fund wider network reinforcement to meet the increased demand arising from the new connections.

Manifold Connection means where a Communication Pipe connects with a manifold to which separate Supply Pipes are connected and meters may be fitted.

NAV means a company appointed by Ofwat through the new appointments and variations process to provide water and/or sewerage services to customers in an area previously served by the incumbent Water Company. A new appointment is made when Ofwat appoints a company for the first time to provide services for specific geographic area. A variation occurs where an existing appointment is varied to amend the area served.

Near Side Connection means a connection between premises and an existing Water Main on the same side of a street to those premises. Where the Water Main is in the centre line of the street then the connection will be considered a Far Side Connection.

Network Assembly means components such as sluice valves or washouts, including associated chambers, needed to operate and maintain a water network.

Network Reinforcement means work to provide or modify such other specified types of infrastructure (mains and tanks, service reservoirs, pumping stations, or sewers) as is necessary in consequence of the need to provide adequate water supply and/or sewerage capacity to a development at which mains, service pipes, public sewers and/or lateral drains have been installed or connected by the company imposing the charge or by a company with whom the company has entered into an agreement for bulk supply or bulk discharge.

Non-contestable Work means work or services that can only be completed by the Water Company (or an agent acting on their behalf) and, in the case of work or services associated with the provision of water supplies, is defined in each Water Company's Annual Contestability Summary.

Non-domestic Use means water used primarily for non-domestic purposes, including anything not for Domestic Use, such as water for industrial or business use (including manufacturing processes, washing and cleaning and cooling), agricultural use and filling swimming pools.

Non-household Premises means any premises not a household premises, being used principally for industrial, business, recreational or community purposes and not as a dwelling, or intended for such use.

Non-standard Connection means a service sized above the standard size as defined by the Water Company.

Phase means a discrete part of a Development which the Developer Customer chooses to separately progress.

Pre-Planning Enquiry means an enquiry submitted by a Developer Customer to understand the infrastructure requirements or considerations for proposed developments.

Pre-Planning Enquiry Response means a report by the Water Company in response to a Pre-Planning Enquiry that will confirm i) if the development can be supplied with water, ii) capacity within the wastewater network, iii) if any reinforcement work will be required to supply the site together, iv) and, if applicable, identify any existing assets crossing the site which may require diverting or protecting, and v) if Network Reinforcement is required to supply the site, what indicative capital cost or range of costs is likely for these works.

Relevant Multiplier means a calculation to determine the Infrastructure Charges payable relating to Non-household Premises or Household Premises subject to a common billing agreement and is based on the number and type of water fittings proposed for those premises.

Road means a hard-surfaced area intended for vehicles.

Self-certification means the activity whereby an Accredited Third Party inspects, checks and certifies installations, both internal and external to a premise, as being compliant with relevant standards and requirements.

Service Connection means the joining of a Service Pipe to a Water Main which is provided under section 45 and 46 of the Water Industry Act 1991.

Service Pipe means a pipe, which is, or is to be, connected with a Water Main for supplying water from that main to any premise.

Sewerage Sector Guidance means guidance documents published in accordance with Ofwat's Code for adoption agreements, relating to the adoption of sewerage assets and available at www.water.org.uk/sewerage-sector-guidance-approveddocuments/.

Supply Pipe means the part of the Service Pipe that is not the Communication Pipe, and which remains the customer's responsibility. This can be seen in Figure 1.

Sustainable Drainage Incentive means, where offered, a reduction in infrastructure charges to a Developer Customer where they evidence that a Development will or does meet a stipulated threshold for use of a sustainable drainage solution, as defined in the Water Company's Charging Arrangements and/or specific environmental policies.

Traffic Management Fees means charges to cover the cost of working in the highway safely as a result of compliance with the Traffic Management Act 2004.

Trial hole means exploratory excavation to identify the location of apparatus, prior to works commencing. Unmade Ground means ground which does not have a man-made surface, and may feature grass and topsoil.

Upsizing means where the Water Company instructs that new Water Mains and/or Sewers are increased in size beyond that required to satisfy the minimum design for a specific Development. This may be to facilitate future development and is deemed Network Reinforcement.

Water Company means a company holding an appointment as a water or sewerage undertaker under the Water Industry Act 1991.

Water Efficiency Incentive means, where offered, a reduction in infrastructure charges to a Developer Customer where they evidence that a Development will or does meet a stipulated threshold for reduced water consumption, as defined in the Water Company's Charging Arrangements and/or specific environmental policies.

Water Industry Registration Scheme (WIRS) means the scheme operated by Lloyd's Register EMEA on behalf of Water UK and its members, which certifies the competence of companies undertaking Self-Lay, or such other scheme as replaces it from time to time.

Water Regs UK means the company responsible for running the Water Industry Approved Plumber Scheme (WIAPS) on behalf of the water industry in England and Wales, formerly provided under the Water Regulations Advisory Scheme. The company promotes compliance with the Water Fitting Regulations 1999 and other relevant standards across the UK to protect customers.

Water Regulations Advisory Scheme (WRAS) means a compliance mark that demonstrates that an item or product complies with standards set out by Water Supply (Water Fittings) Regulations 1999.

Water Sector Guidance means guidance documents published in accordance with Ofwat's Code for adoption agreements, relating to the adoption of water assets and available at www.water.org.uk/water-sector-guidance-approved-documents/.

APPENDIX D

MicroDrainage Calculations

Tridax Ltd		Page 1
Honeywood House Whitfield Kent CT16 3EH	107 Vale Road Existing Discharge	
Date 23/08/2024 11:12	Designed by SJC	
File T-2024-079 Existing Dis...	Checked by	
XP Solutions		Network 2020.1.3

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	5.500	0.400	13.8	0.011	5.00	0.600	o	100	Pipe/Conduit

PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
1.000	EXMH	18.390	17.710	0.580	17.890	17.310	0.480		1200

Tridax Ltd		Page 2																																								
Honeywood House Whitfield Kent CT16 3EH	107 Vale Road existing Discharge																																									
Date 23/08/2024 11:12	Designed by SJC																																									
File T-2024-079 Existing Dis...	Checked by																																									
XP Solutions	Network 2020.1.3																																									
<u>2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)</u> <u>for Storm</u>																																										
<u>Simulation Criteria</u>																																										
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000																																										
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000																																										
Hot Start Level (mm) 0 Inlet Coefficient 0.800																																										
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000																																										
Foul Sewage per hectare (l/s) 0.000																																										
Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0																																										
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0																																										
<u>Synthetic Rainfall Details</u>																																										
Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750																																										
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840																																										
Margin for Flood Risk Warning (mm) 100.0 DVD Status OFF																																										
Analysis Timestep Fine Inertia Status OFF																																										
DTS Status ON																																										
Profile(s) Summer and Winter																																										
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,																																										
1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																																										
Return Period(s) (years) 2, 30, 100																																										
Climate Change (%) 0, 0, 0																																										
<table><tr><td></td><td></td><td></td><td></td><td>Water</td><td>Flooded</td><td></td><td></td><td>Pipe</td><td></td></tr><tr><td></td><td></td><td>US/CL</td><td>Level</td><td>Volume</td><td>Flow /</td><td>Discharge</td><td>Flow</td><td></td><td></td></tr><tr><td>PN</td><td>Event</td><td>(m)</td><td>(m)</td><td>(m³)</td><td>Cap.</td><td>Vol (m³)</td><td>(l/s)</td><td>Status</td><td></td></tr><tr><td>1.000</td><td>15 minute 2 year Winter I+0%</td><td>18.390</td><td>17.739</td><td>0.000</td><td>0.18</td><td>1.228</td><td>2.6</td><td>OK</td><td></td></tr></table>							Water	Flooded			Pipe				US/CL	Level	Volume	Flow /	Discharge	Flow			PN	Event	(m)	(m)	(m³)	Cap.	Vol (m³)	(l/s)	Status		1.000	15 minute 2 year Winter I+0%	18.390	17.739	0.000	0.18	1.228	2.6	OK	
				Water	Flooded			Pipe																																		
		US/CL	Level	Volume	Flow /	Discharge	Flow																																			
PN	Event	(m)	(m)	(m³)	Cap.	Vol (m³)	(l/s)	Status																																		
1.000	15 minute 2 year Winter I+0%	18.390	17.739	0.000	0.18	1.228	2.6	OK																																		
©1982-2020 Innovyze																																										

Tridax Ltd		Page 3
Honeywood House Whitfield Kent CT16 3EH	107 Vale Road existing Discharge	
Date 23/08/2024 11:12	Designed by SJC	
File T-2024-079 Existing Dis...	Checked by	
XP Solutions	Network 2020.1.3	
30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm		
Simulation Criteria		
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000		
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000		
Hot Start Level (mm) 0 Inlet Coefficient 0.800		
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000		
Foul Sewage per hectare (l/s) 0.000		
Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0		
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0		
Synthetic Rainfall Details		
Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750		
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840		
Margin for Flood Risk Warning (mm) 100.0 DVD Status OFF		
Analysis Timestep Fine Inertia Status OFF		
DTS Status ON		
Profile(s) Summer and Winter		
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080		
Return Period(s) (years) 2, 30, 100		
Climate Change (%) 0, 0, 0		
Water Flooded		
PN	Event	US/CL Level Volume Flow / Discharge Pipe Flow Status
		(m) (m) (m³) Cap. Vol (m³) (l/s)
1.000	15 minute 30 year Winter I+0%	18.390 17.751 0.000 0.34 2.344 5.0 OK
©1982-2020 Innovyze		

Tridax Ltd		Page 4																						
Honeywood House Whitfield Kent CT16 3EH	107 Vale Road existing Discharge																							
Date 23/08/2024 11:12 File T-2024-079 Existing Dis...	Designed by SJC Checked by																							
XP Solutions	Network 2020.1.3																							
<u>100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm</u>																								
<u>Simulation Criteria</u>																								
Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000																								
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000																								
Hot Start Level (mm) 0 Inlet Coefficient 0.800																								
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000																								
Foul Sewage per hectare (l/s) 0.000																								
Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0																								
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0																								
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Rainfall Model FSR M5-60 (mm) 26.250 Cv (Summer) 0.750																								
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Margin for Flood Risk Warning (mm) 100.0 DVD Status OFF																								
Analysis Timestep Fine Inertia Status OFF																								
DTS Status ON																								
Profile(s) Summer and Winter																								
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																								
Return Period(s) (years) 2, 30, 100																								
Climate Change (%) 0, 0, 0																								
<table><tr><th rowspan="2">PN</th><th rowspan="2">Event</th><th rowspan="2">US/CL (m)</th><th colspan="2">Water Flooded</th><th rowspan="2">Flow / Discharge Cap.</th><th colspan="2">Pipe</th><th rowspan="2">Status</th></tr><tr><th>Level (m)</th><th>Volume (m³)</th><th>Discharge Vol (m³)</th><th>Flow (l/s)</th></tr><tr><td>1.000</td><td>15 minute 100 year Winter I+0%</td><td>18.390</td><td>17.757</td><td>0.000</td><td>0.45</td><td>3.066</td><td>6.5</td><td>OK</td></tr></table>			PN	Event	US/CL (m)	Water Flooded		Flow / Discharge Cap.	Pipe		Status	Level (m)	Volume (m³)	Discharge Vol (m³)	Flow (l/s)	1.000	15 minute 100 year Winter I+0%	18.390	17.757	0.000	0.45	3.066	6.5	OK
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