

Drainage Strategy - Foul water

The proposed foul water drainage strategy for the development is divided into two separate networks.

Network 1
Network 1 comprises a gravity system located in the north-west corner of the site. This network is designed to connect to the existing combined sewer within Stoney Road, upstream of existing manhole reference **8604**.

Proposed Connection Manhole Details:

MH Ref: F1.3
Cover Level (CL): 59.98 mAO
Invert Level (IL): 57.87 mAO (150mm Ø – proposed foul connection)
Invert Level (IL): 57.12 mAO (900/825mm Ø – existing sewer)

Network 2
Network 2 serves the majority of the site and drains to a proposed pumping station located adjacent to Plot 51 in the southern corner of the site. The associated rising main is wholly contained within the development and discharges to proposed manhole **F2.1**.

The ultimate discharge point is the existing combined sewer within Cumber Lane. The exact connection location and manhole reference are to be confirmed with United Utilities.

Proposed Connection Manhole Details:

MH Ref: 8501
Cover Level (CL): 58.49 mAO
Invert Level (IL): 57.46 mAO (150mm Ø – proposed connection)
Invert Level (IL): 57.39 mAO (225mm Ø – existing sewer)

Approval to connect to the existing combined sewer network must be obtained from United Utilities prior to the detailed design stage, via a pre-development enquiry.

Further drainage investigations, including CCTV survey works, are required to confirm existing cover levels, invert levels, pipe diameters, manhole dimensions, and the overall condition of the network.

Drainage Strategy - Surface water

Surface water runoff generated by the proposed development will discharge to the existing on-site watercourse via manhole reference **S21**, located along the southern site boundary, at a restricted discharge rate of **42.4 l/s**.

The surface water drainage network has been designed to accommodate the 1 in 30 year storm event, with additional attenuation provided by an on-line attenuation basin to manage the 1 in 100 year event plus 45% allowance for climate change.

Each plot is to be served by its own raised rain garden planter (SuDS Feature).

Connection Manhole Details:
MH Ref: **S21** (existing)
Cover Level (CL): 59.256 mAO
Invert Level (IL): 56.597 mAO (225 mm Ø)

(Manhole details obtained from site survey)

Approval to discharge to the existing surface water network/watercourse must be agreed with the Lead Local Flood Authority (LLFA) prior to the detailed design stage, via a pre-development enquiry.

Further drainage investigation works, including CCTV survey, are required to confirm existing cover levels, invert levels, pipe diameters, manhole dimensions, and the overall condition of the system.

Proposed Foul Water Connection (F1.3 Proposed)

A New connection on to the existing Combined system within Stoney Lane is proposed.

MH Ref: **F1.3**
Cover Level (CL): 59.98 mAO
Invert Level (IL): **57.87** mAO (150mm Ø – proposed foul connection)
Invert Level (IL): 57.12 mAO (900/825mm Ø – existing sewer)

Proposed Finished Floor Levels

The Floor levels indicated on this plan are indicative (+/-500mm) and subject to change following detailed levels design.

Culverted Watercourse Diversion

The existing culverted watercourse crossing the site (north to south) is to be fully investigated to confirm whether it remains active and conveys flows. Previous CCTV survey information is inconclusive regarding current operation and connectivity.

Should the culvert be confirmed as active, hydraulic continuity through the site shall be maintained at all times. The existing culvert will therefore be diverted to align with the proposed development layout, ensuring uninterrupted conveyance of flows.

The diverted culvert shall be designed to accommodate existing and future flows, with alignment, levels and capacity subject to detailed design and relevant authority approval.

A minimum easement of 6 metres shall be maintained either side of the culvert centreline (12 metres total width). No buildings, structures, or permanent obstructions shall be located within this easement.

Proposed SuDS Feature

It is proposed that each plot has its own Raised Rain Garden Planter to provide at source surface water treatment rain water runoff.

Foul Water Rising Main

The proposed foul water rising main will be routed through the site within the proposed road network and will discharge to proposed manhole **F2.1**. From this point, flows will continue via gravity to the existing combined sewer in Cumber Lane.

Rising Main Length: Approx. 377m
Termination Manhole: F2.1

Attenuation Basin

To attenuate flows up to 1:100 year storm + 45% climate change
Base Level: 57.525 m
Top of Bank Level: 59.525 m
Freeboard: 300 mm
Temp maximum storage volume: 1254.412m³

Flow Control Chamber Manhole S21 HB

Hydro International Hydrobrake Optimum
SHE-0254-4320-2500-4320
Design head = 2.500 m
Restricted discharge max. = 42.4 l/sec
Flow control orifice size 256mm
Cover level: 59.649 mAO
Invert level: 56.750 mAO

Proposed Diversion

Minor diversion works proposed to accommodate proposed site layout.

Proposed Surface Water Connection (S23)

A New manhole is to be constructed on to the existing on site culverted watercourse.

MH Ref: **S23** (existing)
Cover Level (CL): 59.256 mAO
Invert Level (IL): 56.597 mAO (225 mm Ø)

Proposed Surface Water Quality Treatment Device (Up-Flow™ Filter)

Surface water runoff from the development shall be treated via a proprietary Up-Flow™ Filter prior to discharge from site.

Proposed Surface Water Quality Treatment Device (Up-Flow™ Filter)

The device shall provide a multi-stage treatment process incorporating sedimentation, screening and fluidised bed filtration within a single chamber. The system is designed to remove a wide range of pollutants including suspended solids, heavy metals, hydrocarbons and nutrients.

The filter media shall be selected to suit the pollution hazard level of the site and may include sand media and/or engineered media (e.g. CP2) to enhance treatment performance.

The unit shall be sized such that the treatment flow rate meets or exceeds the site water quality flow rate, in accordance with the Simple Index Approach as outlined in CIRIA SuDS Manual (C753). The system shall achieve high levels of pollutant removal, including:

- 80% removal of fine sediments (silt/sand)
- 70% removal of heavy metals and nutrients

Effective capture of gross pollutants and hydrocarbons

The unit shall be installed in accordance with manufacturer's guidance and shall be accessible for routine inspection and maintenance. Maintenance shall include removal of accumulated sediment, floatables and periodic replacement of filter media as required.

Legend

- Site Extents
- Existing Public Combined Sewer & Manhole
- Existing Public Surface Water Sewer & Manhole
- Proposed Adaptable Surface Water Sewer & Manhole
- Proposed Gully and 1500 Connection
- Proposed Adaptable Foul Water Sewer & Manhole
- Proposed Sewer Easement
- Proposed Finished Floor Level (+/- 500mm)
- Proposed Foul Water Rising Main
- SUDS Rain Garden Planters

Notes

- Planning layout ref. Taylor Wimpey - 25033-1000H Site Layout_2025-10-09.
- Topographical survey provided by GSO, ref G24104 - Stoney Lane, Precast Topographical and Utility Survey, Dated March 2024.
- Road detail, levels and layout are subject to local authority section 38 Highways approval.

Notes

- The use of any other flow control devices not associated with the Hydro International Hydrobrake Optimum references provided may constitute a Road Risk.
- Drainage design and construction is in accordance with Design and Construction Guidance 2020 (DCC) and the requirements of the Statutory Undertaker.
- Tolerances in place laying to be in accordance with Design and Construction Guidance 2020 (DCC).
- For pipes 150-400mm dia, all rocker pipes to be in accordance with Design and Construction Guidance 2020 (DCC).
- Engineering bricks shall not contain holes or voids.
- Blockwork to manholes to be English bond.
- Where pipes are surrounded in concrete, flexibility is to be maintained at pipe joints by the use of a suitable compressible material eg. 'Flexseal' or 'Flexboard'.
- Granolithic bedding to manholes to be 40mm minimum thickness.
- Recast concrete chamber rings to be reinforced.
- The slope of bedding in all cases should be 1 in 30.
- Manholes shall not incorporate double square or double oblique channel junctions in their inverts.
- All incoming pipes shall be surrounded with 150mm of concrete to the face of the collar of the first flexible joint and the outgoing pipe shall also be surrounded to within 20mm of the first flexible joint and a compressible filler used as a former between the concrete surround and downstream pipe collar.
- All underground services to be confirmed by contractor prior to commencement on site. Any discrepancies to be reported to engineer.
- Private sewers not located in roads to be class 1 granular bed and surround as per standard details.
- Sewers located under adopted roads to be class 1 granular bed and surround as per standard details unless adopted, then provide class 3 if more than 1.2m cover.
- Private sewers with less than 0.6m of cover to be concrete surrounded as class 1 on standard details.
- Adapted sewers with less than 1.2m cover, provide class 2 concrete bed and surround. Concrete haunching may be suitable for large diameter drainage sewers, guidance must be sought from adopting authority prior to use.
- Road gullies to be pcc and trapped with 100mm S14 concrete surround.
- No deep or wide routed trees to be planted within close proximity of the proposed and existing public sewer system.
- Pipes less than 300mm dia, to be Polypropylene (PPVC) unless otherwise stated.

NBS Standards
Effective from 1st January 2025

*****IMPORTANT - Invert levels at proposed points of connection are to be confirmed prior to any works commencing on site as onsite drainage and slab levels may be affected*****

0 10 20 30 40 50m
SCALE 1:500

P11 26.03.26	Up-Flow filter indicated	CP
P12 26.03.26	Updated with additional notes & existing assets	CP
P09 19.01.26	Scale bar shown	TR
P08 05.12.25	Proposed discharge rate amended	CP
P07 05.12.25	Amended to suit new planning layout	TR
P04 15.10.25	Amended to suit layout dated 09.10.25	TR
P03 02.10.25	Cellular storage removed & rising main shown	TR
P04 26.07.25	Amended to suit latest layout	TR
P03 11.04.25	Plots 13 and 14 FFL changed	TR
P02 07.04.25	Drainage strategy amended, pond removed, tank-cast, pipes downsized.	TR
P01 04.04.25	Preliminary issue for review.	TR
Rev. Date	Revision history	By Date

Drawing originator:

BETTS HYDRO BETTS ASSOCIATES BETTS GEO

Client:

Taylor Wimpey

Project file:

Glen Dimplex
Stoney Lane

Drawing file:

Preliminary Original Site Layout

Scale: 1:500 for the original size of A0
Drawn by: CP Checked by: P04022 Date: Apr '2025
Drawing status:

Job No.	Drawing No.	Project	Design	Volume	Level	Type	Date	Number	Revision
TAY143	GDX	BET	ZZ	XX	DR	C	0001	P11	

Do not scale this drawing

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Created 07/04/2024 10:18 | Approved 07/04/2024 10:18