Drainage Strategy - Surface water

The proposed adoptable highway & plots **1-41** are to drain via a traditional piped network to a new proposed outfall into an existing ditch off site, *(within land under the developers contol)*, at a restricted rate of 8.8 l/s.

Outfall Headwall;
Ref: S21
CL: 63.685 mAOD *(Topo Survey)*
IL: 62.541 mAOD

All of the private dirves & plots **42-45** are to drain direct to ground via infiltration.
Private Drives are to be permeable construction, discharging to ground via the sub-base.
Plots 42-45 Run-off from roof areas are conveyed through a typical drainage network discharging into a private domestc soakawaylocated in the rear garden.

The both Surface Water systems must be designed to cater for storm events upto and including the 1:100yr+40% Climate Change event.

See Inset for Outfall Location

refer to drawing 1955-sit-P03 for off site storm drain

Tree Root Protection Zone

Tree 80 is to be retained, special precautions to be under taken so not to damage tree roots.

Areas Draining Direct to Ground

The shared private drive serving plots 10-14 is to be permeable draining direct to ground.

Proposed Foul water rising main termination Chamber

New connection to existing Foul Water Sewer

- Ex Manhole
 Ref: SJ37415805
 CL: 66.48 mAOD (Topo Survey)
 IL: 65.33 mAOD (Sewer Records)
- Exact location, levels & condition of manhole to be determined by further investigation.

Proposed Foul Water Rising Main

Proposed rising main to run within the development boundary, within Road 1 & Road 2.
The rising main is to be laid approx. 37.5m down St.Marys Avenue to the junction with Clerc-Y-Mendy, an new termination chamber is to be constructed with a short gravity sewer connection to Ex MH SJ37415805.

- Approx. length of Rising Main = 253 m
- Length within Site Boundary = 215.5 m
- Length within New Adoptable Highway = 185.34 m
- Length within St.Marys Avenue = 37.53 m
- Termination Chamber =
 CL: 66.404 mAOD
 IL: 65.357 mAOD

Proposed foul water pumping station

Pumping station details to be co-ordinated with appointed M&E/pump supplier.
15m offset required from inside face of the wet well manhole to habitable buildings

15m Offset from Wet Well

Areas Draining Direct to Ground

Surface Water runoff draining from Plots 42-45 are to discharge to individual private plot soakaways.

Areas Draining Direct to Ground

The shared private drive serving plots 43-45 is to be permeable draining direct to ground.

Drainage Strategy - Foul water

The proposed Foul Water network for the whole site is to drain to a proposed pumping station located adjacent to Plot 41.
The ultimate discharge /connection point being the existing Foul water system located within St.Marys Avenue.
The proposed connection is to be confirmed and agreed by Welsh Water (DCWW) via a pre-development enquiry.

Connection manhole;

MH Ref: SJ37415805 *(existing DCWW)*
CL: 66.48 mAOD *(Topo Survey)*
IL: 65.33 mAOD *(Topo Survey)*
(pipe details taken from DCWW sewer records)

Proposed Surface Water Outfall

Proposed channel to connect into existing ditch network. Details (including water levels) to be confirmed prior to detailed design.

MH Ref: S21
CL: 63.685 mAOD *(Topo Survey)*
IL: 62.541 mAOD *(Topo Survey)*

Approval and consents *(Land drainage consent)* will be required form the Lead Local Flood Authority & Natural Resources Wales. Prior to detailed design consultation with the relevant authorities should be undertaken.

SWS headwall

To be constructed inline with the details set out in Sewers for Adoption 7th Edition Figure C.5 Typical Detail of Outfall to Watercourse, *Suitable for outfall pipes of less than 350mm.*

SUD's connected to existing ditch

Tree Root Protection Zone

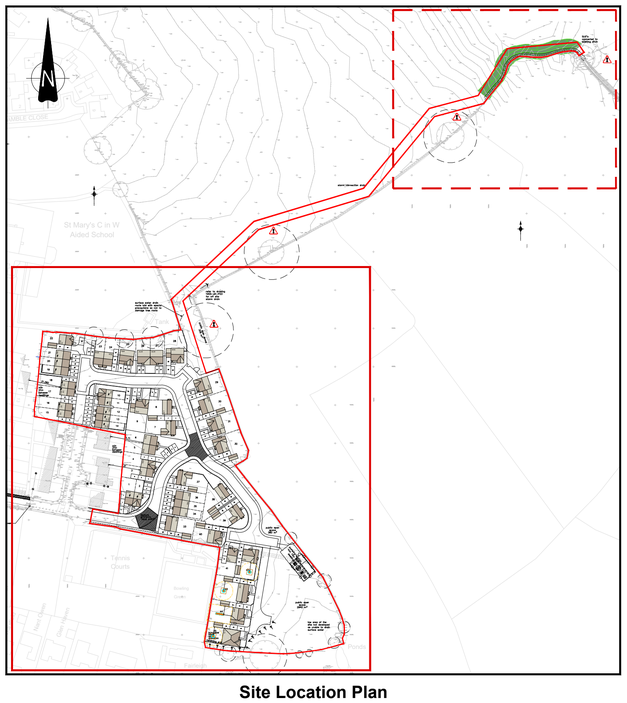
Tree is to be retained, special precautions to be under taken so not to damage tree roots.

Flow Control Chamber Manhole S19 HB
Hydro International HydroBrake Optimum
SHE-0137-8800-1000-8800
Design head = 1.000m
Restricted discharge max. = 8.8 l/sec
Flow control orifice size 137mm
Cover level: 64.623 mAOD
Invert level: 62.629 mAOD

Tree Root Protection Zone

Tree is to be retained, special precautions to be under taken so not to damage tree roots.

Inset
Proposed Surface Water Outfall to Existing ditch network
Scale: 1:500



Site Location Plan
Scale: 1:2000

LEGEND

- Site Boundary
- FFL 134.65 — Proposed Finished Floor Level
- +(133.70) — Existing Boundary Ground Level
- 16.500 — Proposed Road / Driveway Contour - Major (0.50m interval)
- 16.450 — Proposed Road / Driveway Contour - Minor (0.05m interval)
- ACO — Private Drainage (ACO Channel & Gully)
- +17.100 — Proposed Spot Level
- Proposed Steps *(300mm going, 150mm rising)*
- STEP-450 — Stepped Foundation
- 4C — Underbuild - Measured from FFL to PGL
- SC — Tanking - Measured from FFL to PGL
- GB - 0.150m — Gravel Boards (up to 300mm) - *Retained height shown*
- RET - 0.590m — Masonry Retaining Wall (over 300mm) - *Retained height shown*
- SWS SWS — Existing Surface Water Sewer
- FWS FWS — Existing Foul Water Sewer
- SWS SWS — Existing Surface Water Sewer to be Abandoned
- FWS FWS — Existing Foul Water Sewer to be Abandoned
- Proposed Surface Water Sewer
- Proposed Highway Drainage
- Proposed Foul Water Sewer
- Proposed Foul Water Sewer
- Proposed Sewer Easement *(3m from centre line of pipe work)*
- Proposed Permeable Carriageway

NOTES

CONNECTIONS

1. All SVP, RWP and BIG connections are indicative and must be confirmed by architect.
2. All surface water / gully connections on combined systems to be trapped.
3. Pipe gradients out of building to connecting manhole to be laid an 1:40 in accordance with Part H of the 2002 Building Regulations, Table 6. All inverts to SVP within 3 storey buildings must be 750mm in accordance with Building Regulations.

PIPEWORK

1. Where surface and foul water pipe sizes are not indicated the diameter is to be ø100 unless stated otherwise.
2. Where surface water pipe gradients are not indicated a ø100 pipe is to be laid no shallower than 1:100 and a ø150 pipe is to be laid no shallower than 1:150.
3. Where foul water pipe gradients are not indicated a ø100 pipe is to be laid no shallower than 1:80, with the exception of the first connection that is to be laid at 1:40. a ø150 pipe is to be laid no shallower than 1:150.

INSPECTION CHAMBERS & MANHOLES

1. Manhole covers to be marked "FWS" or "SWS" as appropriate.
2. Brickwork to manholes to be english bond.
3. All manhole covers and frames must comply with BS EN124. Covers in roads to be grade D400 and be 150mm deep. Manhole covers in car parking areas and drives to be grade B125, whilst landscaped areas may be grade A15. All to be sized in accordance with Part H of Building Regulations:2002, Tables 11 & 12.
4. Precast concrete chamber rings to be reinforced.

BACKDROPS

1. Backdrops in the private manholes / inspection chambers to be internal.
2. Backdrops in the main drainage system being offered for adoption are to be in accordance with Sewers for Adoption 7th Edition - for additional information see Drainage Construction Details drg.

BEDDING AND SURROUND

1. Private sewers located under adopted / private roads to be Class S Granular Bed and Surround with a minimum of 1.2m cover. Where this cannot be achieved a Class Z Concrete Bed and Surround is to be provided. - for additional information see Road Construction Details drg.
2. Private sewers located under landscaped areas or driveways / car parking bays to be Class F Granular Bed and Surround with a minimum of 0.6m cover. Where this cannot be achieved a Class Z Concrete Bed and Surround is to be provided. - for additional information see Road Construction Details drg.

SERVICES

1. All underground services to be confirmed by contractor prior to commencement on site. Any discrepancies to be reported to engineer.

The developer must self-vet and certify that the design criteria, material standards and workmanship specifications for the proposed adoptable sewers are in accordance with those set out in "Sewers for Adoption" 7th Edition (SFA 7th), The Welsh Ministers Standards and the requirement of DCWW as the Statutory Sewerage Undertaker.

Subject to a Section 104 Adoption Agreement being complete, a Section 106 application to connect must be made to DCWW the developer shall give 21 days' notice prior to connection. The works may only be undertaken by an SSIP Health & Safety approved contractor.

Mark	Date	Details	By
C	14.03.23	Updated with Layout Rev E	CP
B	04.01.23	Updated with Layout Rev D & Client comments re; off-site Surface Water Drainage route	CP
A	12.12.22	Preliminary issue for review	CP

Revision history

Drawing originator:

BETTS HYDRO CONSULTING ENGINEERS | BETTS ASSOCIATES CONSULTING ENGINEERS | BETTS GEO CONSULTING ENGINEERS

Client: Pickstockhomes

Project title:

St. Marys Avenue,
Overton, Wrexham

Drawing title:

Preliminary
Drainage Strategy Plan
Overview

Scale: 1:500 for the original size of A1

Drawn by: CP | Checked by: RA | Passed by: RA | Date: Dec 2022

Drawing status: Preliminary

Job No:	Drawing No: Project	Origin.	Volume	Level	Type	Discip.	Number	Revision:
PSH06	xx	BET	xx	xx	xx	C	01	C

Do not scale this drawing

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