Eastwood
CONSULTING ENGINEERS

Drainage Assessment

Land at Tilstock Road, Tilstock

Boningale Homes Limited

25/10/2024

St Andrew's House
23 Kingfield Road
Sheffield, S11 9AS
mail@eastwoodce.com
0114 255 4554
eastwoodce.com

DRAINAGE ASSESSMENT

LAND AT TILSTOCK ROAD, TILSTOCK

FOR

BONINGALE HOMES LIMITED

48888-ECE-XX-XX-RP-C-0002 **25 October 2024**

DRAINAGE ASSESSMENT

LAND AT TILSTOCK ROAD, TILSTOCK

FOR

BONINGALE HOMES LIMITED

Job No.	:	48888
Report Status	:	Issue 3
Document Date	:	25 October 2024
Approved	:	[redacted]

Eastwood
CONSULTING ENGINEERS

CONTENTS

Eastwood
CONSULTING ENGINEERS

APPENDICES

Appendix 1 –	Location plan
– Pegasus Group	Application boundary plan
Appendix 2 – Advantage Geomatics	Topographic survey (24022-P-1)
Appendix 3 – Pegasus Group	Site layout
Appendix 4 – Severn Trent Water	Sewer assets plans
	Pre-development response
	Email correspondence
Appendix 5 – Shropshire Council	Email correspondence
	SuDS Applicability Map
Appendix 6 – Eastwood CE	UKSuDS greenfield runoff calculations
	SuDS checklist Live SuDS maintenance checklist
	Drainage areas
	Drainage layout
	Flow drainage calculations
	Exceedance flow route plan
	Basin and pond cross section

Issue 1:	*27 September 2024*	
Issue 2:	*18 October 2024*	*Text changes following Phase 2 Site Investigation, new site layout and updates to drainage strategy.*
Issue 3:	*25 October 2024*	*Updated to include the revised site layout.*

EXECUTIVE SUMMARY

Surface water disposal is considered in accordance with the drainage hierarchy in Building Regulations Part H 2015 and Planning Practice Guidance 'Reducing the causes and impacts of flooding', paragraph 080 reference ID 7-080-20150323.

Infiltration testing has been conducted by Eastwood Consulting Engineers as part of the Phase 2 Site Investigation (Ref: 48888-ECE-XX-XX-RP-C-006). Four soakaway test pits were undertaken. None of the tests drained, and one of the test pits collapsed during monitoring. Infiltration type SuDS such as soakaways will therefore not be viable.

Surface water disposal will be via gravity to an attenuation basin in the south-eastern corner of the site. Surface water will then discharge via gravity to the 225 mm public surface water sewer located in Tilstock Lane at manhole 4805, subject to confirmation from Severn Trent Water and the LLFA. This will require evidence to show that all other discharge options (watercourse and infiltration) have been discounted.

Surface water discharge will be restricted to the greenfield runoff rate of 17.61 l/s as agreed with Severn Trent Water. The discharge connection point and rate are subject to approval from Severn Trent Water and the LLFA. Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus 45% climate change. The total estimated storage volume is approximately 965 m^3, subject to detailed design.

A basin, pond, conveyance swales and permeable paving (Type C) are proposed to incorporate into the site to provide water treatment. The basin, pond and conveyance swales will also add biodiversity and amenity value to the site. The SuDS features proposed are subject to detailed design and confirmation of the groundwater table elevation following ongoing monitoring as part of the Phase 2 Site Investigation. Due to the potential of shallow groundwater, buoyancy checks will likely be required for the proposed SuDS features.

Foul effluent should discharge via gravity to the 150 mm public foul water sewer south-east of the site at manhole 3802, subject to Severn Trent Water approval. Although this is not the closest foul water public manhole, discharge to the south-east is proposed for a sustainable gravity solution.

Maintenance of the drainage system will be in accordance with the recommendations provided by suppliers and product specifications. Maintenance of the potential SuDS systems for this site will also be in accordance with the recommendations within The SuDS Manual.

Method statements will be provided by the contractor prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during construction

Both the surface and foul water drainage system will be offered for adoption to Severn Trent Water.

1.0 INTRODUCTION

This Drainage Assessment has been prepared on the instruction of Boningale Homes Limited. This Drainage Assessment is to be read in conjunction with the Flood Risk Assessment (Ref: 48888-ECE-XX-XX-RP-C-0001).

The project comprises the proposed development of a 4.05-hectare greenfield site for residential use.

1.1 Site location and description

The site is located to the north of Tilstock and is centred on coordinates 354257E, 338056N (Appendix 1).

The site is bounded by Tilstock Road to the west, fields to the north and east, with residential dwellings to the south.

The site is currently an open grassed field boarded by mature trees and hedgerows.

The site falls from approximately 106.59 mAOD in the north to 102.06 mAOD in the south, at an average gradient of 1 in 35 (Appendix 2).

Proposals are for a full application for the erection of 70 dwellings (including 10 affordable dwellings), associated landscaping, drainage and infrastructure with access taken off Tilstock Road (Appendix 3).

2.0 DRAINAGE STRATEGY

2.1 Existing drainage

Severn Trent Water sewer maps (Appendix 4) record a 150 mm public foul water sewer south of the site near existing residential properties and in Tilstock Lane. There is also a 225 mm public combined sewer and a 150 mm public surface water sewer located in Tilstock Lane, south of the site.

2.2 Consultation with the statutory bodies

2.2.1 Severn Trent Water

Pre-planning advice has been received from Severn Trent Water; their reference 1112265 dated 4th April 2024. The main points of the advice are summarised below.

Foul water:

> The 150 mm foul sewer (MH SJ54373801) south of the site would be the most suitable connection point for the development.
>
> The network can accommodate flow, subject to a S106 submission.

Surface water:

> The surface water discharge hierarchy should be followed.
>
> Severn Trent Water expects all surface water from the development to be drained in a sustainable way to the nearest watercourse or land drainage channel, including highway drainage, subject to the developer discussing all aspects of the surface water drainage proposals with the Lead Local Flood Authority. The discharge rate to a watercourse or drainage ditch will be determined by the LLFA/ EA.
>
> Severn Trent Water will have to be satisfied that all sustainable options have been exhausted before allowing discharge to the public network.
>
> Sewer records show a watercourse that runs east and west of the site. It is advised to pursue a connection to this if feasible with flow rates to be agreed by the LLFA.

Additional correspondence was received from Severn Trent Water on 17th April 2024 (Appendix 4). A summary of the response is below:

> Foul water connection points are subject to S106 submission.
>
> Once all SuDS options have been exhausted, including soakaways, a connection into the surface water sewer along Old Mill is a suitable connection point for your development. A connection is acceptable subject to a S106 submission. Please note that a connection at this location may involve the crossing of third party land in which the appropriate consent must be sought.

Additional correspondence was sent to Severn Trent Water regarding whether a greenfield discharge rate to the public surface water sewer would be acceptable in principle. The response (dated: 2nd September 2024, Appendix 4) is summarised below:

> Severn Trent Water confirm that they can accept flows for 5 l/s/ha for the whole site, equating to 17.61 l/s discharging into the surface water sewer at MH4805, subject to sustainable options being exhausted and a S106 application.

2.2.2 Shropshire Council (LLFA)

Shropshire Council have been consulted to determine whether there are any suitable watercourses near the site which can accept surface water discharge. Their response, dated 2nd May 2024, states the following:

> The Flood and Water Management Team do not have any watercourses shown on their mapping service; however, it is noted that not everything is mapped and it is recommended that a site survey is the only real way to determine what is present.

Additional correspondence was sent to Shropshire Council to determine whether discharge to the public surface water sewer at the greenfield runoff rate would be acceptable in principle. Their response, received on 19th September 2024 (Appendix 5), states the following:

> The surface water drainage design should be in accordance with Shropshire Councils SuDS Handbook.
>
> The SuDS Handbook stated that the peak flow should not exceed the peak greenfield runoff rate for the same event.

Approval for the proposed discharge rate will be assessed as part of the planning application.

2.3 Ground conditions

The British Geological Survey maps show the bedrock geology is recorded as mudstone of the Lias Group. Superficial deposits are recorded as Devensian - sand and gravel Glacial-fluvial deposits.

A historical borehole log (Ref: SJ53NW3) located approximately 310 m south-east of the site records; 2.6 m marl, 3.4 m dry sand and marl and 0.49 m marl overlying further layers of sand, marl and gravel. Groundwater was recorded at 8.6 m below ground level.

A Phase 2 Site Investigation (Ref: 48888-ECE-XX-XX-RP-C-006) has been carried out by Eastwood Consulting Engineers. Topsoil was recorded to depths of between 0.25 and 0.5 m, generally underlain by sand and clay extending to depths of between 5.5 and 10.2 m. Groundwater monitoring of the wells installed recorded water at depths of between 0.3 and 1.2 m bgl. Groundwater monitoring is currently ongoing as part of the Phase 2 Site Investigation.

2.4 Greenfield Calculations

The greenfield runoff for the site is calculated using the IH24 statistical rainfall run-off method on the UK SuDs greenfield runoff estimation tool (Appendix 6).

Table 1 below summarises the runoff rates for varying return periods. These figures relate to the 4.05 ha site and runoff per unit area.

Greenfield runoff				
Catchment	**Return period**			
	1 in 1 yr	**1 in 30 yr**	**1 in 100 yr**	**1 in 200 yr**
Perry Roden and Tern North Shropshire Operational Catchment	17.61 l/s	35.62l/s	43.62 l/s	49.23 l/s
	4.35 l/s/ha	8.80 l/s/ha	10.77 l/s/ha	12.16 l/s/ha

Table 1: Greenfield runoff rates

2.5 Drainage hierarchy

Surface water disposal should be in accordance with the drainage hierarchy in Building Regulations Part H 2015[1] and Planning Practice Guidance 'Reducing the causes and impacts of flooding', paragraph 080. Disposal via SuDS methods should be considered as the first option. Disposal to the public sewer should be considered only when SuDS methods and disposal to the watercourse are shown to be unsuitable.

2.5.1 Sustainable Drainage Systems (SuDS)

SuDS methods include water infiltration systems such as soakaways, basins and filter strips, together with swales, pervious pavements, detention basins, ponds and other wetland solutions. The various methods are considered in detail in The SuDS Manual (CIRIA C753).

Infiltration testing has been conducted by Eastwood Consulting Engineers as part of the Phase 2 Site Investigation (Ref: 48888-ECE-XX-XX-RP-C-006). Four soakaway test pits were undertaken. None of the tests drained, and one of the test pits collapsed during monitoring. Infiltration type SuDS such as soakaways will therefore not be viable.

The Shropshire Council's SuDS Applicability map (Appendix 5) shows that the site lies within a zone suitable only for attenuation and not infiltration.

An assessment of SuDS methods and their applicability to this site is included in Appendix 6. A basin is proposed for attenuation, along with a pond, conveyance swales and permeable paving (Type C) to provide water treatment. The basin, pond and conveyance swales will also add biodiversity and amenity value to the site. The SuDS features proposed are subject to detailed design and confirmation of the groundwater table elevation following ongoing monitoring as part of the Phase 2 Site Investigation.

2.5.2 Watercourse

The nearest watercourse is an unnamed stream/brook, located approximately 270 m west of the site, flowing south through Tilstock and eventually converging with the Soulton Brook approximately 7 km further south.

---

[1] https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

Surface water discharge to watercourse is not viable for a sustainable gravity drainage solution as a rising main would be required to pump surface water to the unnamed watercourse located in the west of Tilstock.

2.6 Proposals for surface water disposal

The final disposal strategy for surface water run-off requires detailed consideration and approval during the design phase of the project. The final design will need the approval of the relevant statutory bodies but will broadly follow these principles:

Surface water disposal will be via gravity to an attenuation basin in the south-eastern corner of the site. Surface water will then discharge via gravity to the 225 mm public surface water sewer located in Tilstock Lane at manhole 4805, subject to confirmation from Severn Trent Water and the LLFA. This will require evidence to show that all other discharge options (watercourse and infiltration) have been discounted.

Surface water discharge will be restricted to the greenfield runoff rate of 17.61 l/s as agreed with Severn Trent Water (Appendix 4). The discharge connection point and rate are subject to approval from Severn Trent Water and the LLFA.

Attenuation storage will be provided in a basin for rainfall events up to the return period of 1 in 100 year plus 45% climate change. The maximum total estimated storage volume is approximately 965 m^3, subject to detailed design. Attenuation calculations are provided in Appendix 6.

A basin, pond, conveyance swales and permeable paving (Type C) are proposed to provide water treatment. The basin, pond and conveyance swales will also provide biodiversity and amenity value to the site. The SuDS features proposed are subject to detailed design and confirmation of the groundwater table elevation following ongoing monitoring as part of the Phase 2 Site Investigation.

Due to the potential of shallow groundwater, buoyancy checks will likely be required for the proposed SuDS features.

The surface water drainage system will be offered for adoption to Severn Trent Water.

2.7 SuDS Maintenance

Maintenance of the potential SuDS systems for this site will be in accordance with the recommendations within The SuDS Manual (CIRIA C753, 2015) as stipulated in Table 2, along with any recommendations provided by suppliers and product specifications.

Table 2 summarises maintenance actions and frequency for each component (surface and sub surface) of the drainage system. Maintenance access requirements such as vehicle and machinery access (where applicable) will also need consideration.

Features adopted by authorities, such as drainage authorities, will be maintained under their normal regime of inspection and maintenance.

The maintenance schedules below should be followed to ensure flood risk on site does not increase through system blockages or poor maintenance. Following the maintenance schedule is required to ensure the drainage features remain functional for the lifetime of the development.

SuDS SYSTEM	**ACTION**	**FREQUENCY**
Basin	Inspect surface inlet/ outlet structures removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
	Mow grass access paths and verges surrounding basins at 35 to 50 mm minimum and 75 mm or as specified to provide a cared for appearance and allow pedestrian access.	Monthly or as required.
	Confirm whether a liner is present to hold water or prevent pollution of groundwater to protect.	Annually or every 3 years as required
	Where silt has accumulated on the apron or around inlet/ outlet, then remove.	Annually or every 3 years as required
	Retain as much existing vegetation as possible to ensure rapid re-colonisation of open areas.	Annually or every 3 years as required
	Undertake silt removal during September-October to minimise damage to protected wildlife	

Basin	and ensure re-growth of aquatic vegetation before winter.	Annually or every 3 years as required
Pond	Remove litter and debris	Monthly (or as required)
	Cut grass	Monthly (during growing seasons)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May-October)
	Inspect silt accumulation and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred to inform management and disposal options	Half yearly
	Check any mechanical devices	Half yearly
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays	Every 5 years, or as required
	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required

Pond	Repair / rehabilitate inlets, outlets and overflows	As required
Swales	Mow amenity grass access paths and verges around swales at 35 – 50 mm minimum and 75 mm maximum.	Monthly or as required
	Mow swales at 100 mm with 150 mm maximum to filter and control runoff in normal grass swales.	Monthly or as required
	Where marsh or wetland develops in the swale due to wet conditions, cut annually or as required at 100 mm.	Annually or as required
	Where there is a build-up of silt, remove and spread on site. Undertake when ground is damp in autumn or early spring and transplant turf and overseed to original design levels.	As required
	Spread excavated material (silt) on site above the SuDS design profile, in accordance with EA Waste Exemption Guidance.	As required
	All damage to be returned to design profile unless there is a design flaw.	As required
Guttering, gullies and piped drainage system	General removal of litter and debris.	6 monthly, after autumn leaf fall (or as required)
	Cleaning of gullies, drainage channel and drainage channel sump units to remove debris and silt.	6 monthly, after autumn leaf fall (or more frequently if necessary)
	Cleaning of manholes to remove debris and silt.	Annually, after autumn leaf fall (or more frequently if necessary)
	If the system allows rainfall infiltration from above, check filter surface for blockages. Remove and replace infiltration material if deemed necessary.	Annually

Guttering, gullies and piped drainage system	Remove sediment from pre-treatment structures.	Annually or as required
	Inspection of all access chambers, inspection chambers, manholes and proprietary storage units to identify and make good any defects as necessary.	Annually
	Inspect inlets, outlets, vents and overflows to ensure they are operating as designed.	Annually
Vortex flow control	Remove litter and debris	Monthly
	Cleaning of flow control to remove debris and silt	Annually (or more frequently if necessary)
	Inspect inlets and outlets for blockages and clear if required	Monthly
	Repair any damages to flow control device and manhole	As required
	Repair any damage to manhole cover	As required
	Repair any damage to inlet/outlet	As required
Inlets	Inspection for debris and sediment build up.	Annually (and following poor performance)
	Inspect inlets for blockages and clear if required.	Monthly
	Inspect inlet pipework for blockages, clogging, standing water and structural damage.	Monthly
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate.	As required

Table 2: SuDS Maintenance

Method statements will be provided by the contractor prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during construction.

2.8 Proposals for foul disposal

Foul effluent should discharge via gravity to the 150 mm public foul water sewer south-east of the site at manhole 3802, subject to Severn Trent Water approval. Although this is not the closest foul water public manhole, discharge to the south-east is proposed for a sustainable gravity solution.

The foul water drainage system will be offered for adoption to Severn Trent Water.

2.9 Residual flood risk

There is a potential flood risk to site occupiers and to others from surface water runoff as a result of developing the site. The residual risk can be managed by the general flood mitigation measures outlined in Section 2.10.

2.10 Mitigation measures

The proposed surface water drainage system is designed to current best practice and to the standards laid out in the publication 'Design and Construction Guidance for foul and surface water sewers' and Building Regulations Part H 2015.

In the event of surface water exceedance during extreme rainfall events the site is laid out so that surface water runoff is directed away from houses (Appendix 6), including those on neighbouring streets.

3.0 CONCLUSIONS

1. Infiltration testing has been conducted by Eastwood Consulting Engineers as part of the Phase 2 Site Investigation (Ref: 48888-ECE-XX-XX-RP-C-006). Four soakaway test pits were undertaken. None of the tests drained, and one of the test pits collapsed during monitoring. Infiltration type SuDS such as soakaways will therefore not be viable.

2. A basin, pond, conveyance swales and permeable paving (Type C) are proposed to provide water treatment. The basin, pond and conveyance swales will also provide biodiversity and amenity value to the site. The SuDS features proposed are subject to detailed design and confirmation of the groundwater table elevation following ongoing monitoring as part of the Phase 2 Site Investigation. Due to the potential of shallow groundwater, buoyancy checks will likely be required for the proposed SuDS features.

3. Surface water disposal will be via gravity to an attenuation basin in the south-eastern corner of the site. Surface water will then discharge via gravity to the 225 mm public surface water sewer located in Tilstock Lane at manhole 4805, subject to confirmation from Severn Trent Water and the LLFA. This will require evidence to show that all other discharge options (watercourse and infiltration) have been discounted.

4. Surface water discharge will be restricted to the greenfield runoff rate of 17.61 l/s as agreed with Severn Trent Water. The discharge connection point and rate are subject to approval from Severn Trent Water and the LLFA. Attenuation storage will be provided for rainfall events up to the return period of 1 in 100 year plus 45% climate change with a total estimated storage volume is approximately 965 m^3, subject to detailed design.

5. Foul effluent should discharge via gravity to the 150 mm public foul water sewer south-east of the site at manhole 3802, subject to Severn Trent Water approval. Although this is not the closest foul water public manhole, discharge to the south-east is proposed for a sustainable gravity solution.

6. Maintenance of the drainage system will be in accordance with the recommendations provided by suppliers and product specifications. Maintenance of the SuDS systems for this site will also be in accordance with the recommendations within The SuDS Manual.

7. Method statements will be provided by the contractor prior to construction. These will include details on how contaminated water, erosion and sediment control will be dealt with during construction

8. Both the surface and foul water drainage system will be offered for adoption to Severn Trent Water.

APPENDICES

APPENDIX 1

Location Plan

Location Plan

Issue:

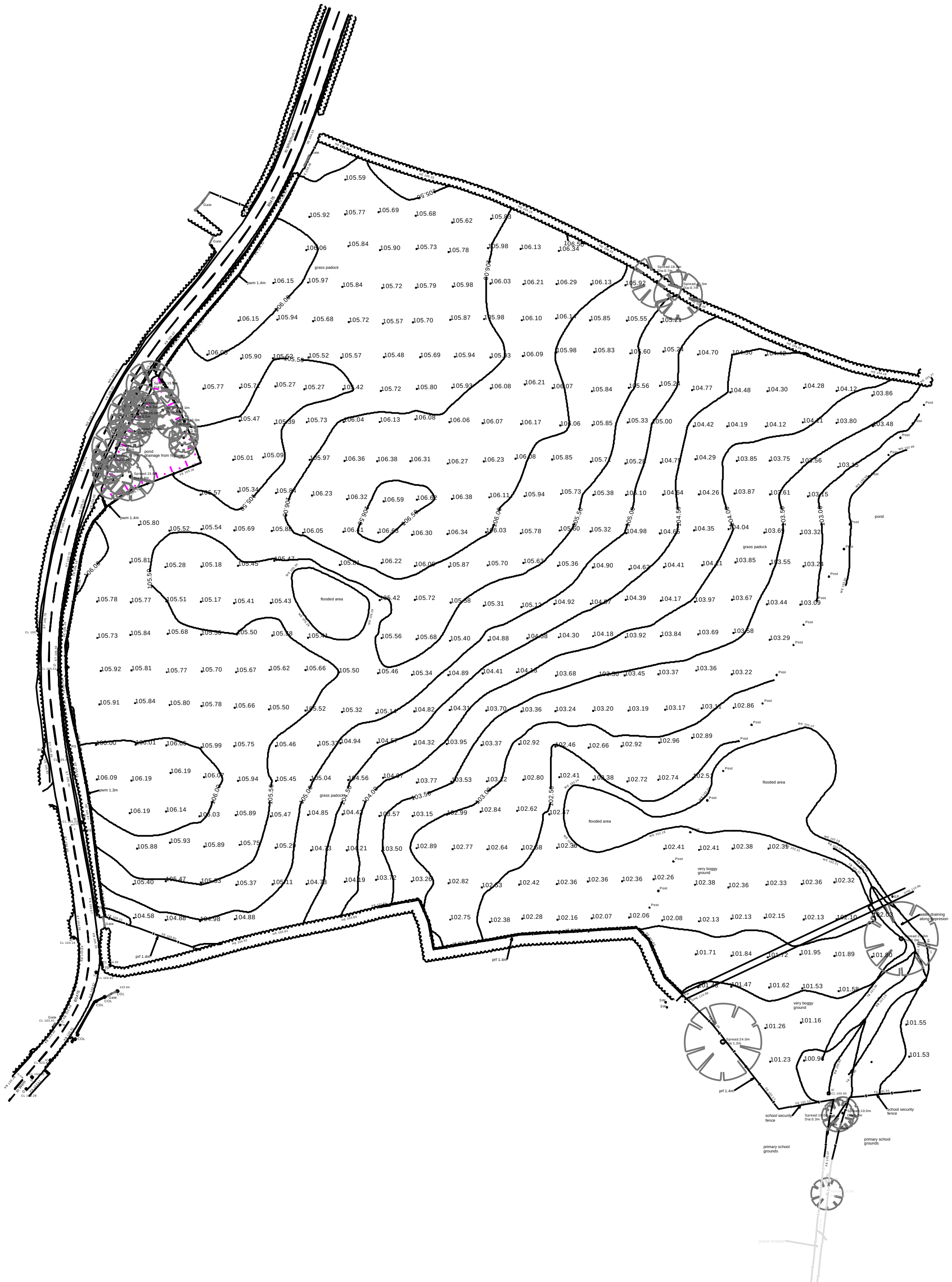
DRAFT

LAND NORTH OF TILSTOCK ROAD - SITE LOCATION PLAN

PEGASUS GROUP

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: JF | APPROVED BY: CP | DATE: 17/07/2024 | SCALE: 1:1250@A3 | DRWG: P24-1425_DE_001_A_01 | CLIENT: BONINGALE HOMES |

APPENDIX 2



grass paddock
pond
flooded area
grass paddock
grass paddock
flooded area
flooded area
pond
very boggy ground
very boggy ground
school security fence
school security fence
primary school grounds
primary school grounds

Eastwood
CONSULTING ENGINEERS

APPENDIX 3

Issue:

TILSTOCK
Accommodation Schedule

Unit Type	No. Beds	No.Persons	Storeys	No. of Units
Open Market				
TYPE C2	2	3	2	6
TYPE C	2	4	2	10
TYPE D	3	4	2	10
TYPE L	3	5	2	10
TYPE E	3	5	2	5
TYPE G	4	7	2	9
TYPE H	4	7	2	10
			OM TOTAL	**60**
Affordable				
AH1B BUNG - M4(3)	1	2	1	4
TYPE C2	2	3	2	3
AH3B	3	4	2	3
			AFF TOTAL	**10**
			TOTAL UNITS	70

KEY: SITE LAYOUT

APPLICATION BOUNDARY

SURFACE MATERIALS:
- GARDEN/POS/HIGHWAY VERGE (SEE DETAILED LANDSCAPE PROPOSALS)
- TARMACADUM

OTHER:
- BIN STORE
- GATE/PERSONNEL DOOR
- AFFORDABLE HOUSING
- INDICATIVE SWALE LOCATION

LANDSCAPING:
- INDICATIVE TREE PLANTING (SEE DETAILED LANDSCAPE PROPOSALS)
- RETAINED VEGETATION (SEE TREE RETENTION PLAN)
- RETAINED TREE (CATEGORY A)
- RETAINED TREE (CATEGORY B)
- RETAINED TREE (CATEGORY C)
- ROOT PROTECTION ZONE
- TREE REMOVED

ENCLOSURE DETAILS:
- 1.8M HIGH BRICK WALL
- 1.8M HIGH CLOSE BOARDED FENCING
- 0.45M HIGH KNEE RAIL
- FENCING TO PLAY SPACES INC LEAP AND LAP - 1.2M ANTI TRAP BOW TOP FENCING
- FENCING TO THE SUDS BASIN - 1.2M BOW TOP FENCING
- LOW LEVEL HEDGEROW (SEE DETAILED LANDSCAPE PROPOSALS)

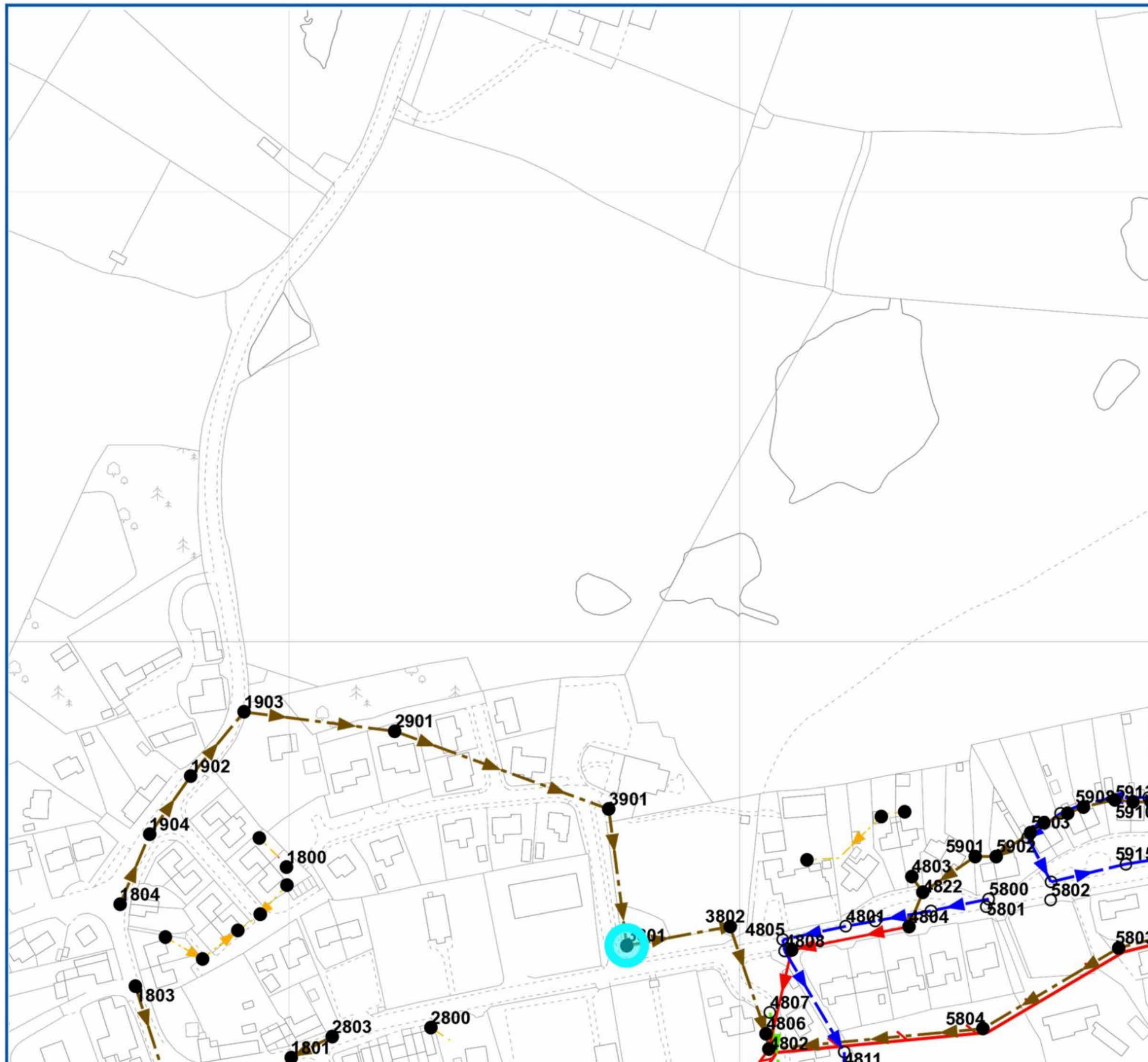
N 0 10 25 m

LAND NORTH OF TILSTOCK ROAD - SITE LAYOUT

PEGASUS GROUP

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: JF | APPROVED BY: CP | DATE: 24/10/2024 | SCALE: 1:500@A1 | DRWG: P24-1425_DE_002_C_02 | CLIENT: BONINGALE HOMES |

APPENDIX 4



Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SJ54373901	103.022	100.34	99.52	F	VC	C	150	<UNK>	75.2	31/12/1899 00:00:00
SJ54375915	100.5179	99.71	99.51	S	PF	C	150	<UNK>	277.95	31/12/1899 00:00:00
SJ54374809	100.712	98.912	98.827	S	VC	C	225	<UNK>	157.271	31/12/1899 00:00:00
SJ54374801	100.268	98.827	98.678	S	VC	C	225	<UNK>	191.597	31/12/1899 00:00:00
SJ54375803	100.3679	97.14	<UNK>	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SJ54375912	101.097	100.2	99.94	S	VC	C	150	<UNK>	154.35	31/12/1899 00:00:00
SJ54373802	100.924	98.91	97.91	F	VC	C	150	<UNK>	50.73	31/12/1899 00:00:00
SJ54374810	98.971	97.304	97.112	S	VC	C	225	<UNK>	39.307	31/12/1899 00:00:00
SJ54372803	102.7929	101.19	100.02	F	VC	C	150	<UNK>	17.62	31/12/1899 00:00:00
SJ54374805	97.984	98.678	98.625	S	VC	C	225	<UNK>	97.358	31/12/1899 00:00:00
SJ54375910	101.1129	99.91	99.84	F	VC	C	150	<UNK>	115.14	31/12/1899 00:00:00
SJ54372901	<UNK>	<UNK>	100.37	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SJ54375800	100.25	99.4	99.106	S	VC	C	225	<UNK>	2480.813	31/12/1899 00:00:00
SJ54374823	100.2969	97.607	96.35	C	VC	C	150	<UNK>	34.92	31/12/1899 00:00:00
SJ54371803	105.509	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SJ54371903	103.856	101.43	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SJ54372800	<UNK>	<UNK>	<UNK>	F	P	U	100	<UNK>	<UNK>	31/12/1899 00:00:00
SJ54374806	99.7259	97.88	97.63	F	VC	C	150	<UNK>	29.44	31/12/1899 00:00:00
SJ54371801	103.219	99.92	99.589	F	VC	C	150	<UNK>	219.24	31/12/1899 00:00:00
SJ54374800	100.476	99.106	98.912	S	VC	C	225	<UNK>	129.247	31/12/1899 00:00:00
SJ54374807	<UNK>	<UNK>	<UNK>	S	UPVC	<UNK>	225	<UNK>	<UNK>	03/08/2023 00:00:00
SJ54375905	100.731	99.44	99.36	F	VC	C	150	<UNK>	99.5	31/12/1899 00:00:00
SJ54375909	101.0699	99.83	99.74	F	VC	C	150	<UNK>	159.11	31/12/1899 00:00:00
SJ54375820	100.175	99.82	99.71	S	PF	C	150	<UNK>	317.55	31/12/1899 00:00:00
SJ54375906	101.1259	99.69	99.44	F	VC	C	150	<UNK>	45.52	31/12/1899 00:00:00
SJ54374802	99.677	96.18	95.566	C	VC	C	<UNK>	<UNK>	149.23	31/12/1899 00:00:00
SJ54371904	103.7979	102.318	<UNK>	F	VC	C	150	<UNK>	0.3	31/12/1899 00:00:00
SJ54371804	105.012	103.58	102.328	F	VC	C	150	<UNK>	27.9	31/12/1899 00:00:00
SJ54371902	103.3349	<UNK>	101.47	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00

LEGEND

Operational Site

Waste Water Pump
- Transfered Asset
- S24
- S104
- S102
- Null Private
- Null
- None
- Highway Drain
- Adopted Sewer

Storage
- Disposal Site
- Off-Line Waste Water Storage
- On-Line Waste Water Storage
- Wet Well

Waste Water Process Structure
- Sewage Treatment Point
- Sewage Treatment Structure
- Sludge Treatment Point
- Sludge Treatment Structure

Manhole
- Twin Manhole

- Foul Manhole
- Surface Water Manhole
- Combined Manhole
- Dual Manhole
- UnSurveyed Foul Manhole
- UnSurveyed Surface Water Manhole
- UnSurveyed Combined Manhole
- Unsurveyed Unknown Manhole

Gravity Sewer Pipe
- Foul Gravity Sewer
- Combined Gravity Sewer
- Surface Water Gravity Sewer
- S104 Surface Water Gravity Sewer
- S104 Combined Gravity Sewer
- S104 Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Transferred Surface Water Sewer
- Transferred Combined Sewer

- Transferred Foul Sewer
- Disposal Pipe
- Overflow Pipe
- Culverted Water Course
- Waste Internal Site Pipe
- Sewer Service Connection
- Gravity Sewer Others

Pressure Sewer Pipe
- Surface Water Pressure Sewer
- Combined Pressure Sewer
- Foul Pressure Sewer
- S104 Surface Water Pressure Sewer
- S104 Combined Pressure Sewer
- S104 Foul Pressure Sewer
- Private Surface Water Pressure Sewer
- Private Combined Pressure Sewer
- Private Foul Pressure Sewer
- Surface Water Vacuum Sewer
- Foul Vacuum Sewer
- Combined Vacuum Sewer
- S104 Surface Water Vacuum Sewer
- S104 Combined Vacuum Sewer
- S104 Foul Vacuum Sewer

- Private Surface Water Vaccum Sewer
- Private Combined Vacuum Sewer
- Private Foul Vacuum Sewer
- Surface Water Siphon
- Combined Siphon
- Foul Siphon
- Private Surface Water Siphon
- Private Combined Siphon
- Private Foul Siphon
- S104 Surface Water Siphon
- S104 Combined Siphon
- S104 Foul Siphon
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Disposal Pipe

Service Pipe
- Surface Water Lateral Drain
- Combined Lateral Drain
- Foul Lateral Drain
- S104 Surface Water Lateral Drain
- S104 Combined Lateral Drain
- S104 Foul Lateral Drain

- Private Surface Water Lateral Drain
- Private Combined Lateral Drain
- Private Foul Lateral Drain
- Transferred Surface Water Lateral Dra
- Transferred Combined Lateral Drain
- Transferred Foul Lateral Drain

Ancillary
- Balancing Lagoon
- Grease Trap
- Interceptor
- Screen

Chamber
- Flushing Chamber
- Soakaway
- Overflow

Fitting
- Blind Shaft
- Facility Connector
- Head Node
- Lamphole
- Sewerage Air Valve
- Sewerage Chemical Injection Point
- Sewerage Hatch Box

- Sewerage Pressure Washout
- Vent Column
- Waste Water Outfall

Control Valve
- Hydrobrake
- Penstock
- Sewerage Isolation Valve
- Sewerage Non Return Valve

Print200mLine

MATERIALS

-	- NONE
AC	- ASBESTOS CEME
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRP	- GLASS REINFORCED PLASTIC
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
ST	- STEEL
U	- UNKNOWN
VC	- VITRIFIED CLAY
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
D	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

SEVERN TRENT

Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD (Tabular)

O/S Map Scale: 1:2,500

Date of Issue: 04-04-24

This map is centred upon:

X: 354329.84 **Y:** 338045.31

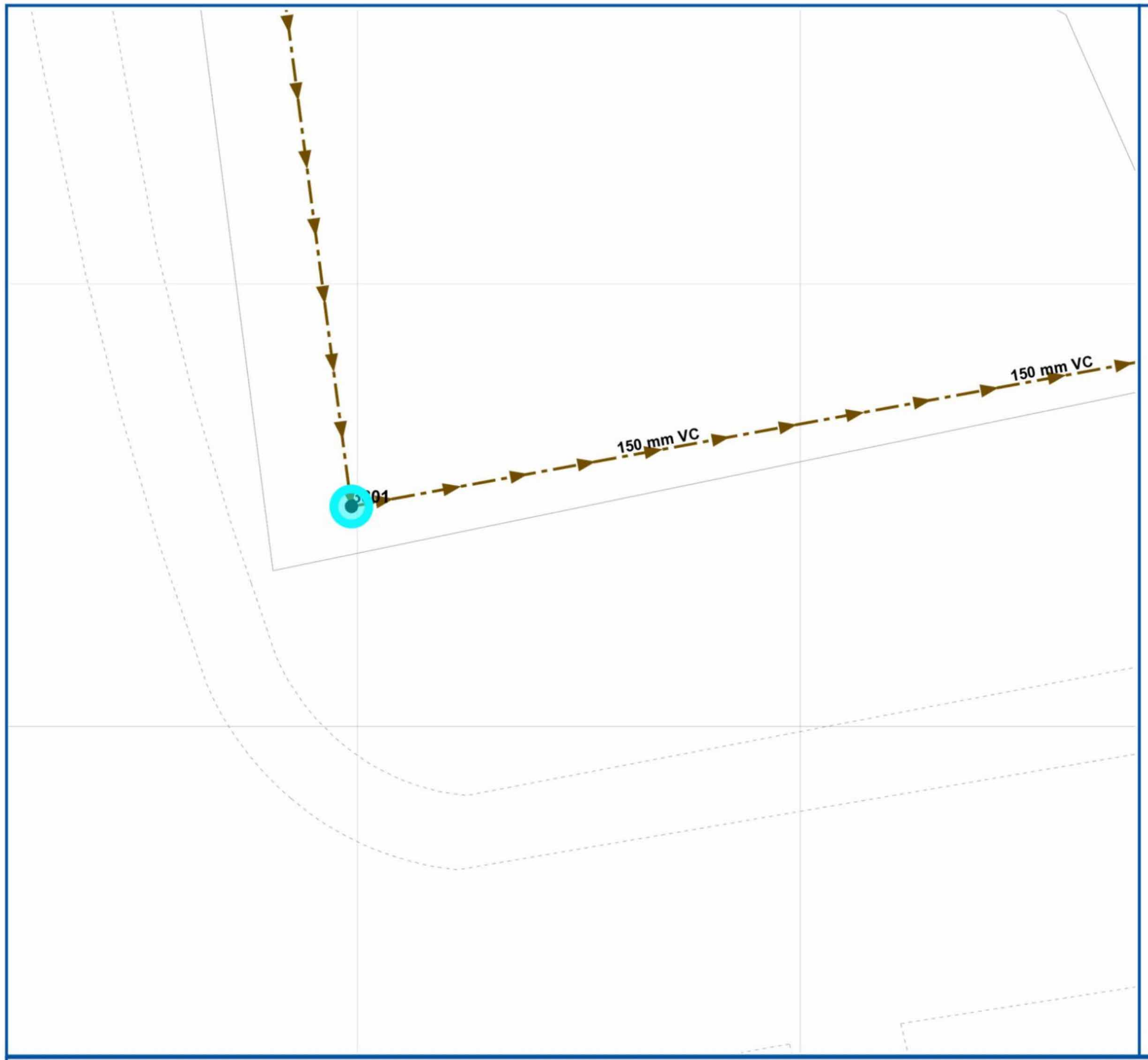
Disclaimer Statement:

1 Do not scale off this Map.

2 This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.

3 On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map.

5 Ordnance Survey licence number: **100031673**



Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SJ54373801	101.998	99.49	98.92	F	VC	C	150	<UNK>	83.95	31/12/1899 00:00:00

LEGEND

Operational Site

Waste Water Pump
- Transferred Asset
- S24
- S104
- S102
- Null Private
- Null
- None
- Highway Drain
- Adopted Sewer

Storage
- Disposal Site
- Off-Line Waste Water Storage
- On-Line Waste Water Storage
- Wet Well

Waste Water Process Structure
- Sewage Treatment Point
- Sewage Treatment Structure
- Sludge Treatment Point
- Sludge Treatment Structure

Manhole
- Twin Manhole
- Foul Manhole
- Surface Water Manhole
- Combined Manhole
- Dual Manhole
- UnSurveyed Foul Manhole
- UnSurveyed Surface Water Manhole
- UnSurveyed Combined Manhole
- Unsurveyed Unknown Manhole

Gravity Sewer Pipe
- Foul Gravity Sewer
- Combined Gravity Sewer
- Surface Water Gravity Sewer
- S104 Surface Water Gravity Sewer
- S104 Combined Gravity Sewer
- S104 Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Transferred Surface Water Sewer
- Transferred Combined Sewer
- Transferred Foul Sewer
- Disposal Pipe
- Overflow Pipe
- Culverted Water Course
- Waste Internal Site Pipe
- Sewer Service Connection
- Gravity Sewer Others

Pressure Sewer Pipe
- Surface Water Pressure Sewer
- Combined Pressure Sewer
- Foul Pressure Sewer
- S104 Surface Water Pressure Sewer
- S104 Combined Pressure Sewer
- S104 Foul Pressure Sewer
- Private Surface Water Pressure Sewer
- Private Combined Pressure Sewer
- Private Foul Pressure Sewer
- Surface Water Vacuum Sewer
- Foul Vacuum Sewer
- Combined Vacuum Sewer
- S104 Surface Water Vacuum Sewer
- S104 Combined Vacuum Sewer
- S104 Foul Vacuum Sewer
- Private Surface Water Vaccum Sewer
- Private Combined Vacuum Sewer
- Private Foul Vacuum Sewer
- Surface Water Siphon
- Combined Siphon
- Foul Siphon
- Private Surface Water Siphon
- Private Combined Siphon
- Private Foul Siphon
- S104 Surface Water Siphon
- S104 Combined Siphon
- S104 Foul Siphon
- Surface Water Unsurveyed Pipe
- Combined Unsurveyed Pipe
- Foul Unsurveyed Pipe
- Disposal Pipe

Service Pipe
- Surface Water Lateral Drain
- Combined Lateral Drain
- Foul Lateral Drain
- S104 Surface Water Lateral Drain
- S104 Combined Lateral Drain
- S104 Foul Lateral Drain
- Private Surface Water Lateral Drain
- Private Combined Lateral Drain
- Private Foul Lateral Drain
- Transferred Surface Water Lateral Dra
- Transferred Combined Lateral Drain
- Transferred Foul Lateral Drain

Ancillary
- Balancing Lagoon
- Grease Trap
- Interceptor
- Screen

Chamber
- Flushing Chamber
- Soakaway
- Overflow

Connector
- Sewer Junctions
- SewerLine Connection Node

Fitting
- Blind Shaft
- Facility Connector
- Head Node
- Lamphole
- Sewerage Air Valve
- Sewerage Chemical Injection Point
- Sewerage Hatch Box
- Sewerage Pressure Washout
- Vent Column
- Waste Water Outfall

Control Valve
- Hydrobrake
- Penstock
- Sewerage Isolation Valve
- Sewerage Non Return Valve

LandlineSymbol
- Culvert Symbol
- Direction Of Flow Symbol
- Boundary Half Mereing Symbol
- Bench Mark Symbol
- Railway Switch Symbol
- Road Related Flow Symbol

Print10mLine

MATERIALS

-	- NONE
AC	- ASBESTOS CEME
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRP	- GLASS REINFORCED PLASTIC
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHELENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
ST	- STEEL
U	- UNKNOWN
VC	- VITRIFIED CLAY
XXX	- OTHER

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
D	- HIGHWAY DRAIN
S104	- SECTION 104

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

SEVERN TRENT

Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD (Tabular)

O/S Map Scale: 1:125

Date of Issue: 04-04-24

This map is centred upon:

X: 354354.84 **Y:** 337864.41

Disclaimer Statement:

1 Do not scale off this Map.

2 This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.

3 On 1 October 2011 most private sewers and private lateral drains in Severn Trent Water's sewerage area, which were connected to a public sewer as at 1 July 2011, transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on 1 October 2012. Private pumping stations, which form part of these sewers or lateral drains, will transfer to ownership of Severn Trent Water on or before 1 October 2016. Severn Trent Water does not possess complete records of these assets. These assets may not be displayed on the map.

5 Ordnance Survey licence number: **100031673**