A1 1:1250

Sports Ground

Club House

Steward's Bungalow

Tennis Court

Relocated Beacon Way LDP

CATCHMENT A

CATCHMENT B

CATCHMENT C

CATCHMENT D

Attenuation A1 Basin
Depth: 1.000m with 1:3 side slopes
Indicative CL: 148.500mAOD
Indicative IL: 147.500mAOD
Indicative Storage Area: 980 m²
Indicative Storage Volume: 460m³

Attenuation A2 Basin
Depth: 1.000m with 1:3 side slopes
Indicative CL: 147.000mAOD
Indicative IL: 146.000mAOD
Indicative Storage Area: 985m²
Indicative Storage Volume: 470m³

Attenuation B Basin
Depth: 1.000m with 1:3 side slopes
Indicative CL: 150.000mAOD
Indicative IL: 149.000mAOD
Indicative Storage Area: 600m²
Indicative Storage Volume: 245m³

Attenuation C Basin
Depth: 1.300m with 1:3 side slopes
Indicative CL: 152.500mAOD
Indicative IL: 151.200mAOD
Indicative Storage Area: 1040m²
Indicative Storage Volume: 640 m³

Attenuation D Basin
Depth: 1m with 1:3 side slopes
Indicative CL: 154.500mAOD
Indicative IL: 153.500mAOD
Indicative Estimated Storage Area: 590m²
Estimated Storage Volume: 300m³

Proposed Flow Control Maximum Peak Surface Water Discharge Rate = 10.3 l/s

Proposed Flow Control Maximum Peak Surface Water Discharge Rate = 2.8 l/s

Proposed Flow Control Maximum Peak Surface Water Discharge Rate = 7.2 l/s

Proposed Flow Control Maximum Peak Surface Water Discharge Rate = 3.2 l/s

Indicative Bed Level: 149.30 mAOD

Indicative Bed Level: 141.75mAOD

Point of connection from foul pumping station

Proposed Outfall to Public Sewer MH1304
CL: 156.98 mAOD
IL: 153.86 mAOD

Key

- Site Boundary
- Surface Water Drainage Catchment A
- Surface Water Drainage Catchment B
- Surface Water Drainage Catchment C
- Surface Water Drainage Catchment D
- Indicative Easement for Existing Ditch
- Indicative Location of Existing Ditches
- Indicative Location of Proposed Attenuation Basins (with 3m access easement)
- Indicative Location of Proposed Swale
- Indicative Location of Proposed Flow Control
- Indicative Location of Proposed Surface Water Network
- Indicative Location of Proposed Headwalls
- Indicative Location of Proposed Manhole
- Indicative Location of Proposed Foul Pumping Station, 12 x 15m with 15m Cordon Sanitaire
- Existing Pond
- High Risk of Surface Water Flooding 1 in 30 Year Event Extent
- Medium Risk of Surface Water Flooding 1 in 100 Year Event Extent
- Low Risk of Surface Water Flooding 1 in 1,000 Year Event Extent
- Indicative Exceedance Flow Route
- Existing Severn Trent Water Foul Gravity Sewer
- Existing Severn Trent Water Surface Water Gravity Sewer
- Existing Severn Trent Water Combined Gravity Sewer
- Point of Access to Foul Pumping Station
- Historical Moat Easement
- Ditch to be Reprofiled to Provide Formalised Connectivity
- Indicative Location of Proposed Foul Rising Main
- Existing Severn Trent Water Foul and Combined Sewer
- Indicative Location of Proposed Foul Water Sewer
- Indicative Location of Proposed Foul Manhole

NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9

1. Do not scale from this drawing.
2. This Drawing is not to be represented in any part or form without the consent of PJA Civil Engineering Ltd. All copyright reserved.
3. No assessment of earthworks and proposed levels has been undertaken at this stage.
4. No assessment of the potential impact of a Surcharged Outfall has been undertaken at this stage.
5. Drawing should be read in conjunction with all other relevant scheme drawings.
6. Drawing includes:
   - 6.1. Illustrative Masterplan, FPCR, provided in October 2023.
   - 6.2. Risk of Surface Water Mapping Extents downloaded from the Environment Agency, November 2022.
   - 6.3. Sewer locations based on Severn Trent Records, December 2022.
   - 6.4. Topographical Survey, JLP Surveying dated 27th July 2023.
7. Indicative Surface Water Drainage Strategy assumes:
   - 7.1. Attenuation Basins are 1.3m deep or 1.0m deep with 1:3 side slopes for all Catchments.
   - 7.2. Attenuation features to have a minimum of 300mm freeboard.
   - 7.3. Volume within the conveyance features has not been included within attenuation calculations at this stage.
   - 7.4. 60% impermeable area for residential development, with an additional 10% added for Urban Creep.
   - 7.5. Discharge limited to Qbar rate for all events up to and including 100 year plus 40% Climate Change event.
   - 7.6. FEH rainfall data.
8. Proposed foul water connection to existing public combined/foul sewer subject to approval from Severn Trent Water.
9. Point of foul connection to public sewer at MH1304 to be confirmed with Severn Trent Water Limited and subject to sewer capacity modeling.
10. Foul Pumping Station Compound Adoptable size is 12m x 15m with a 15m Cordon Sanitaire from any inhabitable development to be applied. Access to be achieved via adoptable highway.
11. Further investigation to confirm connectivity of onsite watercourses required prior to detailed design.

REV	DATE	REVISION NOTE	BY
P1	30.10.2023	UPDATED MASTERPLAN	PR
P0	05.10.2023	ISSUE	AB

PJA
Seven House - High Street
Longbridge - Birmingham
B31 2UQ - Tel: 0121 475 0234
Birmingham - Bristol
Exeter - London - Reading
pja.co.uk

CLIENT
Wain Estates

PROJECT
Wilderness Park

DRAWING TITLE
Indicative Surface Water Exceedance Flow Strategy

DRAWING STATUS
INFORMATION

PJA JOB No.	SUB-CODE	DRAWING NO.	REVISION
06832	- WR -	0504	- P1

Revision Letter : P - Prelim / A - Approval / T - Tender / C - Construction

BIM DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
A1@1:1250	AB	AN	October 2023

Appendix F Greenfield Run Off Calculations

Print | Close Report

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Michael Turner
Site name:	Great Barr
Site location:	Birmingham

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	52.55608° N
Longitude:	1.94832° W
Reference:	4163353216
Date:	Dec 01 2022 15:56

Runoff estimation approach FEH Statistical

Site characteristics

Total site area (ha): 27.2

Methodology

Q_{MED} estimation method:	Calculate from BFI and SAAR
BFI and SPR method:	Specify BFI manually
HOST class:	N/A
BFI / BFIHOST:	0.344
Q_{MED} (l/s):	
Q_{BAR} / Q_{MED} factor:	1.12

Hydrological characteristics	Default	Edited
SAAR (mm):	708	708
Hydrological region:	4	4
Growth curve factor 1 year:	0.83	0.83
Growth curve factor 30 years:	2	2
Growth curve factor 100 years:	2.57	2.57
Growth curve factor 200 years:	3.04	3.04

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates	Default	Edited
Q_{BAR} (l/s):		138.73
1 in 1 year (l/s):		115.15
1 in 30 years (l/s):		277.47
1 in 100 year (l/s):		356.55
1 in 200 years (l/s):		421.75

Appendix G Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Catchment A Basin	0.695	5.00		148.500	23.352	94.296	1.000
Attenuation B Basin	0.340	5.00		152.500	23.493	68.749	1.000
Attenuation C Basin	0.970	5.00		153.000	28.425	60.467	1.300
Catchment AA Basin	0.695	5.00		147.000	21.488	81.525	1.000
Catchment D	0.440	5.00	0.0	154.500	28.622	47.802	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Catchment A Basin	Catchment AA Basin	15.000	0.600	147.500	146.000	1.500	10.0	225	5.06	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	4.161	165.5	94.2	0.775	0.775	0.695	0.0	122	4.292

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	15.000	10.0	225	Circular	148.500	147.500	0.775	147.000	146.000	0.775

Link	US Node	Node Type	DS Node	Node Type
1.000	Catchment A Basin	Junction	Catchment AA Basin	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Catchment A Basin	23.352	94.296	148.500	1.000	0	1.000	147.500	225
Attenuation B Basin	23.493	68.749	152.500	1.000				

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections		Link	IL (m)	Dia (mm)
Attenuation C Basin	28.425	60.467	153.000	1.300					
Catchment AA Basin	21.488	81.525	147.000	1.000	1	1	1.000	146.000	225
Catchment D	28.622	47.802	154.500	1.000					

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

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

Node Catchment A Basin Online Orifice Control

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	10.8		
Invert Level (m)	147.500	Diameter (m)	0.074		

Node Attenuation B Basin Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	151.500	Product Number	CTL-SHE-0086-2900-0700-2900
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.9	Min Node Diameter (mm)	1200

Node Attenuation C Basin Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	151.700	Product Number	CTL-SHE-0128-7500-1000-7500
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	7.5	Min Node Diameter (mm)	1200

Node Catchment D Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	153.500	Product Number	CTL-SHE-0092-3400-0700-3400
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	3.4	Min Node Diameter (mm)	1200

Node Catchment AA Basin Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	146.000	Product Number	CTL-SHE-0155-1080-0700-1080
Design Depth (m)	0.700	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	10.8	Min Node Diameter (mm)	1200

Node Catchment A Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	147.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	565.0	0.0	1.000	1175.0	0.0

Node Attenuation B Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	151.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	250.0	0.0	1.000	605.0	0.0

Node Attenuation C Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	151.700
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	605.0	0.0	1.300	1250.0	0.0

Node Catchment AA Basin Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	146.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	770.0	0.0	1.000	1380.0	0.0

Node Catchment D Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	153.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	490.0	0.0	1.000	790.0	0.0

Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	Catchment A Basin	344	148.147	0.647	71.7	493.1345	0.0000	SURCHARGED
360 minute winter	Attenuation B Basin	352	152.177	0.677	35.1	250.5194	0.0000	OK
480 minute winter	Attenuation C Basin	472	152.589	0.889	78.4	734.2739	0.0000	OK
720 minute winter	Catchment AA Basin	720	146.624	0.623	46.7	598.6490	0.0000	OK
480 minute winter	Catchment D	472	154.083	0.583	35.6	336.5356	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Discharge Vol (m³)
360 minute winter	Catchment A Basin	Orifice	Catchment AA Basin	8.9	
360 minute winter	Attenuation B Basin	Hydro-Brake®		2.9	89.3
480 minute winter	Attenuation C Basin	Hydro-Brake®		7.5	263.3
720 minute winter	Catchment AA Basin	Hydro-Brake®		10.8	468.8
480 minute winter	Catchment D	Hydro-Brake®		3.4	114.8

Appendix H Severn Trent Water Developer Enquiry

WONDERFUL ON TAP

16th December 2022

Michael Turner
The Aquarium
King Street
Reading
RG1 2AN

Severn Trent Water Ltd
Oxley Moor Road
Wolverhampton
WV9 5HN

www.stwater.co.uk

Email:
Network.Solutions@SevernTrent.co.uk

Our ref: 1068416

Dear Michael

Proposed Development: Land Off Birmingham Road

I refer to your 'Development Enquiry Request' of 350 houses, school and commercial sites in respect of the above named site. Please find enclosed the sewer records that are included in the fee together with the Supplementary Guidance Notes (SGN) which refer to surface water disposal from development sites.

Protective Strip

Due to a change in legislation on 1 October 2011, there may be former private sewers on the site which have transferred to the responsibility of Severn Trent Water Ltd, which are not shown on the statutory sewer records, but are located in your client's land. These sewers would also have protective strips that we will not allow to be built over. If such sewers are identified to be present on the site, please contact us for further guidance.

Foul Water Drainage

A foul connection into highway Birmingham Rd to the north into the 225mm cws,or 225mm fws in Wilderness Ln to the east @ 5.5l/s 2xdwf but due to surcharge levels and the expected additional flows into the network downstream then additional investigation/modelling will be required.
Due to the performance of the downstream network, modelling will be required to better understand the impact of the additional properties on the public network..

In a change to our previous process, we no longer charge developers for the hydraulic modelling service. We will liaise with you over time with regards to the outcome of our investigations and any impact that may have on the planning status, occupation, or phasing of the site. However, while we can provide a brief summary

of our findings if you need us to, we will no longer provide the full external capacity assessment report.

From the application you have submitted, I am assuming that the development has not been granted planning approval. In the meantime, the site will be added to our modelling tracker and reviewed regularly until the site can be progressed for sewer modelling. I would therefore be grateful if you would forward as soon as possible the following details:

- Confirmation whether a pumped solution is required (please provide pump rate and frequency, if available)
- Anticipated flow rate from the site
- Proposed planned start and completion date
- Any phasing details of the proposed development
- Confirm how many properties will discharge into each of the connections to the public sewer.
- Planned occupation date

Surface Water Drainage

Under the terms of Section H of the Building Regulations 2000, the disposal of surface water by means of soakaways should be considered as the primary method. If these are found to be unsuitable, satisfactory evidence will need to be submitted. The evidence should be either percolation test results or by the submission of a statement from the SI consultant (extract or a supplementary letter).

Subject to above 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 etc. subject to the developer discussing all aspects of the developments surface water drainage, with the Local Lead Flood Authority (LLFA). Any discharge rate to a watercourse or drainage ditch will be determined by the LLFA / EA.

.

New Connections

For any new connections (including the re-use of existing connections) to the public sewerage system, the developer will need to submit a Section 106 application form. Our Developer Services department are responsible for handling all new connections

enquiries and applications. To contact them for an application form and associated guidance notes please call 0800 707 6600 or download from www.stwater.co.uk.

Please quote the reference 1068416 in any future correspondence (including e-mails) with STW Limited. Please note that Developer Enquiry responses are only valid for 6 months from the date of this letter.

Yours sincerely,

Michael Taylor
Network Solutions
Developer Services

Appendix I Pre-Application Correspondence

Product 4 (Detailed Flood Risk Data) for Great Barr, Birmingham

Reference number: 320218
Date of issue: 11/08/2023

We are unable to provide you with a full product 4 response because:

- There is no detailed modelled information available for this site
- And we do not have any records of flooding in this area.

Flood Map for Planning (Rivers and Sea)

The Flood Map for planning (Rivers and Sea) indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding (flood zone 3). It also shows the extent of the Extreme Flood Outlines (Flood zone 2) which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. The flood zones refer to the land at risk of flooding and **does not** refer to individual properties. It is possible for properties to be built at a level above the floodplain but still fall within the risk area.

The Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered that flooding may occur from other sources such as surface water sewers, road drainage, etc. This map can be accessed via our website: https://flood-map-for-planning.service.gov.uk/

Recorded Flooding

With regards to the history of flooding I can advise that we do not have any records of flooding in this area. It is possible that other flooding may have occurred that we do not have records for, and other organisations, such as the Lead Local Flood Authority or Internal Drainage Boards (where relevant), may have records.

Email: Enquiries_Westmids@environment-agency.gov.uk
Website: www.gov.uk/government/organisations/environment-agency

Risk of Surface Water Flooding Map

Managing the risk of flooding from surface water is the responsibility of Lead Local Flood Authorities. The 'risk of flooding from surface water' map has been produced by the Environment Agency on behalf of government, using information and input from Lead Local Flood Authorities.

You may wish to contact your Local Authority who may be able to provide information on surface water.

It is not possible to say for certain what the flood risk is but we use the best information available to provide an indication so that people can make informed choices about living with or managing the risks. The information we supply does not provide an indicator of flood risk at an individual site level. Further information can be found on the Environment Agency's website, https://flood-warning-information.service.gov.uk/long-term-flood-risk

Email: Enquiries_Westmids@environment-agency.gov.uk
Website: www.gov.uk/government/organisations/environment-agency

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You may wish to contact your Local Authority who may be able to provide information on surface water.

It is not possible to say for certain what the flood risk is but we use the best information available to provide an indication so that people can make informed choices about living with or managing the risks. The information we supply does not provide an indicator of flood risk at an individual site level. Further information can be found on the Environment Agency's website, https://flood-warning-information.service.gov.uk/long-term-flood-risk

Email: Enquiries_Westmids@environment-agency.gov.uk
Website: www.gov.uk/government/organisations/environment-agency

Sandwell Metropolitan Borough Council

Highway Development & Lead Local Flood Authority

Guidance Note LLFA01

Flood Risk Assessment and Statements and Sustainable Urban Drainage Systems

The House of Commons written statement dated 18th December 2014 by the then Secretary of State for Communities and Local Government (DCLG) set out the Government's expectation that sustainable drainage systems would be provided in new developments wherever appropriate and the requirement for local Planning Authorities to consult the relevant Lead Local Flood Authority on Flood Risk Assessments for all proposed major development from 6th April 2015 in accordance with the National Planning Policy Framework (DCLG March 2012)

The DCLG definition of major development is;

'For dwellings, a major development is one where the number of residential units to be constructed is 10 or more. Where the number of residential units to be constructed is not given in the application, a site area of 0.5 hectares (5000m2) or more should be used as the definition of a major development. For all other uses, a major development is one where the floor space to be built is 1,000 square metres or more, or where the site area is 1 hectare or more.

Where a site above 1 hectare is subject to a change of use application it should be coded under major development and not as a change of use '

Technical Guidance To The National Planning Policy Framework (DCLG March 2102), Paragraph 9 refers to site specific flood risk assessments now applicable for all proposed major developments;

'*This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account*'.

Flood risk to the development includes but is not limited to Main river and surface water flooding (informed by EA national flood maps on GOV.UK website) with 'areas at risk of flooding' from main river determining the potential need for sequential or exception testing.

Other flood risk can come from rising ground water, overwhelmed drainage systems and other surface water bodies ie reservoirs/ponds/canals.

Sandwell's Surface Water Management Plan (2014) provides additional detailed analysis of localised areas subject to surface water flooding that should also be assessed for proposed new developments.

Flood risk from the development must be assessed and designed principally in accordance with the Non Statutory Technical Standards For Sustainable Drainage (DEFRA March 2015), this is set out and further enhanced within the LASOO (Local Authority SuDS Officer Organisation) Best Practice Guidance document which also provides additional guidance for developers and the level of information required to support respective Planning applications.

Local Planning Policy is also applicable and in part supersedes elements of the above, the Black Country Core Planning Strategy 2012 ENV 5 states;

Policy (References to PPS25 should now be made to NPPF)

The Black Country Authorities will seek to minimize the probability and consequences of flood risk by adopting a strong risk-based approach in line with PPS25. Development will be steered to areas with a low probability of flooding first through the application of the sequential test. The Exception test will then be required for certain vulnerable uses in medium and high probability flood areas. Proposals for development must demonstrate that the level of flood risk associated with the site is acceptable in terms of the Black Country Strategic Flood Risk Assessment and its planning and development management recommendations as well as PPS25 depending on which flood zone the site falls into and the type of development that is proposed (see PPS25, table D1: Flood Zones to explain appropriate uses in flood zones).

To assist in both reducing the extent and impact of flooding and also reducing potential urban heat island effects, all developments should:

a) Incorporate Sustainable Drainage Systems (SUDs), unless it would be impractical to do so, in order to significantly reduce surface water run-off and improve water quality. The type of SUDs used will be dependent on ground conditions;

b) Open up culverted watercourses where feasible and ensure development does not occur over existing culverts where there are deliverable strategies in place to implement this;

c) Take every opportunity, where appropriate development lies adjacent to the river corridors, or their tributaries or the functional floodplain, to benefit the river by reinstating a natural, sinuous river channel and restoring the functional floodplain within the valley where it has been lost previously;

d) On sites requiring a Flood Risk Assessment, reduce surface water flows back to equivalent greenfield rates;

e) Create new green space, increase tree cover and/or provide green roofs;

No development will be permitted within a groundwater Source Protection Zone 1 which would physically disturb an aquifer, and no permission will be granted without a risk assessment demonstrating there would be no adverse effect on water resources.

CIRIA c753 The SuDS Manual (2015) provides full guidance and information on the design philosophy of SuDS systems and core design principles of sustainable drainage elements recommended to prevent flood risk from the proposed development.

The table below indicates the typical level of information that is required to be submitted for each type of application or stage within the planning process.

Pre-app	Outline	Full	Reserved	Discharge	Documents submi. ed
✓	✓	✓			Flood Risk Assessment/Statement
✓	✓	✓			Drainage Strategy/Statement & sketch layout plan
	✓				Preliminary layout drawings
	✓				Preliminary 'outline' hydraulic calculations
	✓				Preliminary landscape proposals
	✓				Ground investigation report (for infiltration if considered)
	✓	✓			Evidence of 3rd party agreement for discharge to their system
		✓		✓	Maintenance program and on-going maintenance
		✓	✓		Detailed development layout
		✓	✓	✓	Detailed flood & drainage design drawings
		✓	✓	✓	Full structural designs, hydraulic calculations & ground
		✓	✓	✓	Geotechnical, factual and interpretive reports, including
		✓	✓	✓	Detailed landscaping details
		✓	✓	✓	Discharge agreements (temporary and permanent)
		✓	✓	✓	Development Management & Construction Phasing Plan
		✓	✓	✓	Exceedance Routing Plan

A proposed minor development application may require a Flood Risk Assessment if it would:

- Have an adverse effect on a watercourse, floodplain or its flood defences;
- Would impede access to flood defence and management facilities; or
- Where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows

Developers should refer to the following core guidance documents;

- **National Planning Policy Framework – Mar 2012**

  Department For Communities and Local Government (DCLG)

  10. Meeting the challenge of climate change, flooding and coastal change (Paragraphs 99-104)

- **Technical Guidance to the National Planning Policy Framework – Mar 2012**

  Department For Communities and Local Government (DCLG)
  Flood Risk (Paragraphs 2-19)

  This sets out the principles of Sequential and Exception Testing for development proposed within specific areas at risk of flooding and to determine whether it is appropriate. This should be assessed by utilising the Environment Agency Flood Maps and Local Authority Strategic Flood Risk Assessments;

- **GOV.UK website - Long term flood risk assessment for locations in England**

  https://flood-warning-information.service.gov.uk/long-term-flood-risk

- **Surface Water Management Plan – Mar 2014**

  Sandwell MBC / WSP

- **Non-Statutory Technical Standards For Sustainable Drainage: Best Practice Guidance**

  Local Authority SuDS Officer Organisation (LASOO)

  This document supports and enhances the subsequent DEFRA technical standards and provides guidance principles and explanations for designers on the design, construction, operation and maintenance of sustainable drainage systems.

- **Black Country Core Planning Strategy 2012 – Feb 2011**

  (ENV 5 Flood Risk, Sustainable Drainage Systems and Urban Heat Island)

  This document provides local Black Country Authority planning policy with regard to FRAs and SuDs. It is important to note that Local Policy in relation to proposed discharge rates supersedes National Policy.

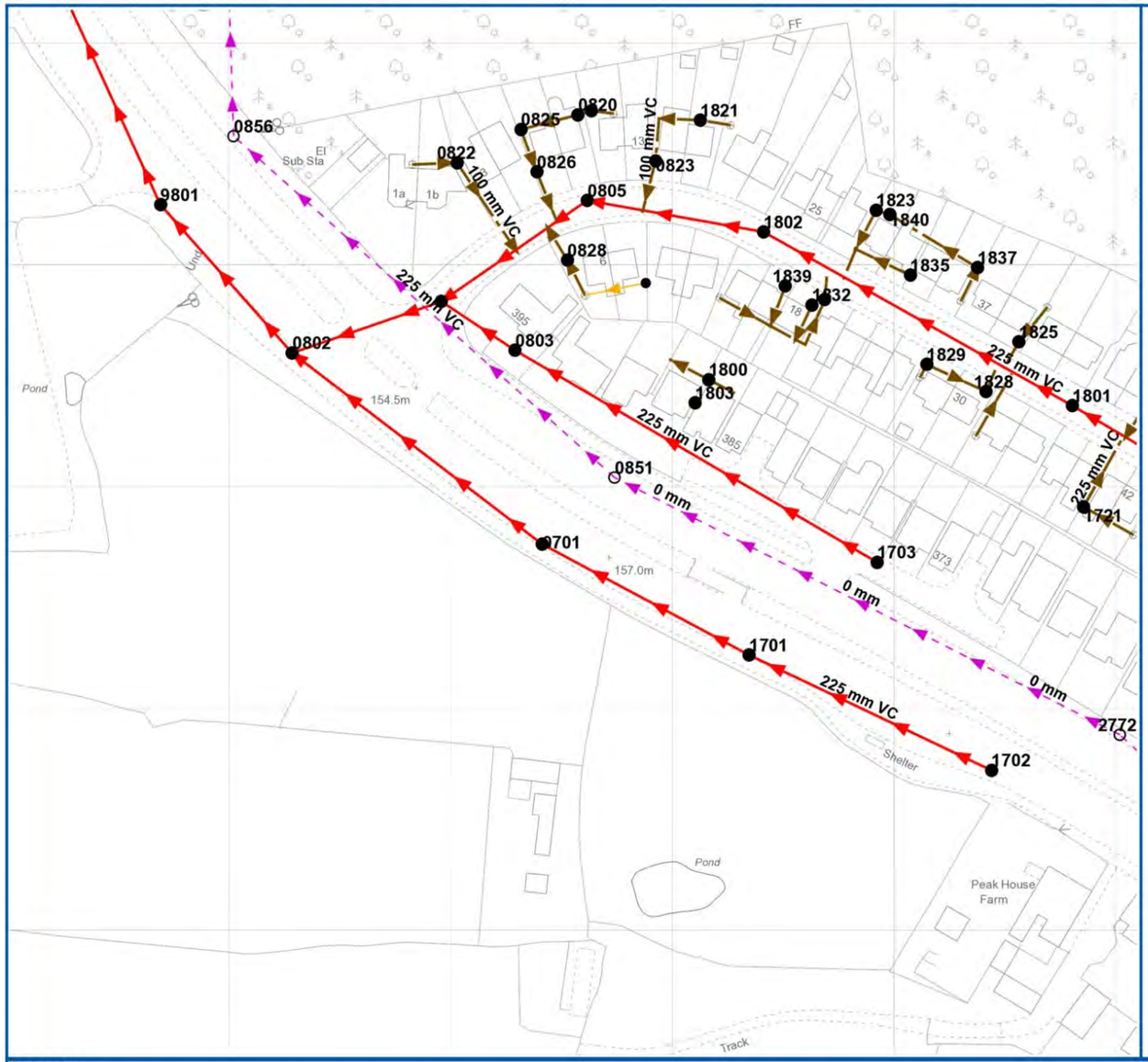
- **GOV.UK website - Flood Risk Assessments: Climate change allowances – Feb 2016**

  https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

  This supersedes the climate change figures issued within the Tech Guidance To NPPF 2012.

- **CIRIA C753 The SuDS Manual - 2015**

  This provides industry good practice guidance covering the planning, design, construction and maintenance of SuDS systems.



Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SP04950856	151.13	<UNK>	<UNK>	S	VC	C	225	<UNK>	0	02/11/2007 00:00:00
SP04951829	159.07	158.4	157.76	F	VC	C	100	<UNK>	23	31/12/1899 00:00:00
SP04951839	158.3099	158.07	157.8	F	VC	C	100	<UNK>	35.63	31/12/1899 00:00:00
SP04950701	156.47	153.98	150.94	C	VC	C	225	<UNK>	23.35	31/12/1899 00:00:00
SP04951703	159.1999	157.54	155.66	C	VC	C	225	<UNK>	50.35	31/12/1899 00:00:00
SP04951721	159.5099	157.47	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SP04950851	156.52	155.34	<UNK>	S	VC	C	225	<UNK>	0.74	02/11/2007 00:00:00
SP04951821	157.19	156.67	155.77	F	VC	C	100	<UNK>	21.04	31/12/1899 00:00:00
SP04950823	156.75	155.77	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SP04951828	159.16	157.76	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SP04950826	155.9799	155.33	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SP04950828	156.85	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951803	<UNK>	<UNK>	<UNK>	F	VC	U	100	<UNK>	<UNK>	31/12/1899 00:00:00
SP04950822	154.94	153.55	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SP04951837	158.6	158.04	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SP04951801	159.3999	156.86	155.88	C	VC	C	225	<UNK>	81.6	31/12/1899 00:00:00
SP04950829	<UNK>	<UNK>	<UNK>	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951702	160.1049	156.925	156.233	C	VC	C	<UNK>	<UNK>	87.77	31/12/1899 00:00:00
SP04951825	159.1399	157.66	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SP04950803	157.11	152.8	152.12	C	VC	C	225	<UNK>	29.28	31/12/1899 00:00:00
SP04950820	<UNK>	<UNK>	155.35	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP03959801	150.75	148.31	<UNK>	C	VC	C	<UNK>	<UNK>	0.34	31/12/1899 00:00:00
SP04951800	<UNK>	<UNK>	<UNK>	F	VC	U	100	<UNK>	<UNK>	31/12/1899 00:00:00
SP04951840	<UNK>	<UNK>	<UNK>	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951802	157.71	155.85	154.48	C	VC	C	225	<UNK>	29.51	31/12/1899 00:00:00
SP04952772	160.6809	0	0	S	<UNK>	<UNK>	0	0	0	31/12/1899 00:00:00
SP04951701	158.3899	156.07	153.99	C	VC	C	225	<UNK>	25.47	31/12/1899 00:00:00
SP04951834	158.46	157.23	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SP04950825	155.9799	155.35	155.33	F	VC	C	100	<UNK>	512.5	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
Foul Bifurcation Manhole
Combined Bifurcation Manhole
Surface Water Bifurcation Manhole
Dual Manhole
Foul Single Manhole
Combined Single Manhole
Surface Water Single Manhole
Twin Manhole
Foul Adopted Manhole
Combined Adopted Manhole
Surface Adopted Manhole
Transferred Manhole
Unsurveyed 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
Scalaway
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 Meeting Symbol
Bench Mark Symbol
Railway Switch Symbol
Road Related Flow Symbol
Print50mLine

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: 1:1,250

Date of Issue: 30-08-23

This map is centred upon:

X: 404077.53 **Y:** 295789.65

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**

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Michael Turner

From: Network Solutions <Network.Solutions@severntrent.co.uk>
Sent: 30 August 2023 10:06
To: Michael Turner
Subject: RE: [PJA: 06832] Asset Information 1068416
Attachments: A34.pdf; Wildeness Ln.pdf

ST Classification: OFFICIAL PERSONAL

Good Morning

Please find the two plans with information as requested.
The information for M/H 0802 seems to be missing from the plan, our records indicate Cover Level 153.63 and Invert Level 150.91 on the 225mm combined sewer.

Please note the section highlighted in cyan on the original plan, was just an indication of a reference point, off our records and is not significant to the sewers on site.

Kind Regards

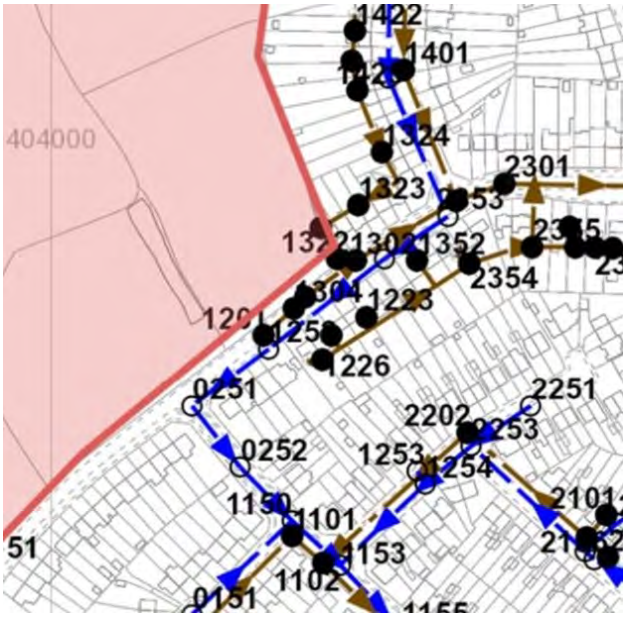
Michael Taylor
Network Solutions
Developer Services
Email. Network.Solutions@severntrent.co.uk

From: Michael Turner <michael.turner@pja.co.uk>
Sent: 15 August 2023 16:58
To: Asset.Protection <Asset.Protection@severntrent.co.uk>
Cc: Andrea Nelmes <andrea.nelmes@pja.co.uk>; Phoebe Ryding <Phoebe.ryding@pja.co.uk>
Subject: [PJA: 06832] Asset Information

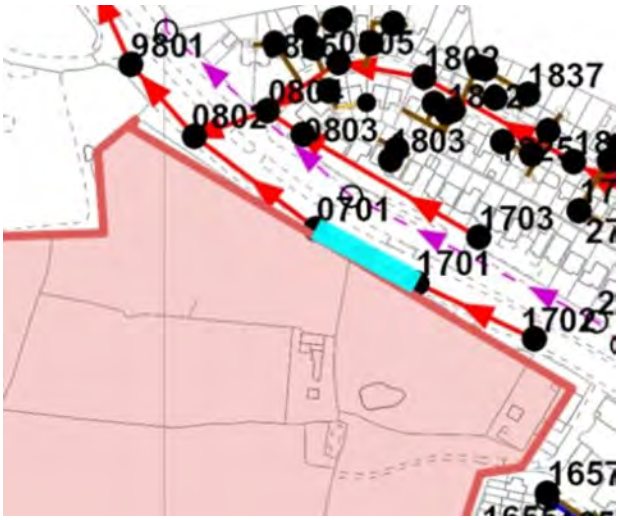
Dear Sir/Madam

We have been provided with STWL sewer asset information/mapping previously as part of a developer enquiry response (Ref. 1068416 L/O). We are reviewing potential foul connection points along Birmingham Road and Wilderness Lane, however the current mapping is set at a scale that makes it difficult to differentiate MH's and associated references. Could you therefore please provide a zoomed in version with complete sewer record information (cover and invert levels) for the system along Wilderness Lane, Walsall for both Foul and Surface Water. An excerpt of the area of interest is included below.

The Site details are Great Barr, Birmingham. OS Co-ordinates: 403852 , 295492



Furthermore, on Birmingham Road (A34) would you be able to provide the Cover and Invert Level of the Manholes labelled, 1702, 1701, 0701, 0802, and 9801 in addition to clarifying why one section of sewer is highlighted cyan? These manholes are shown below:

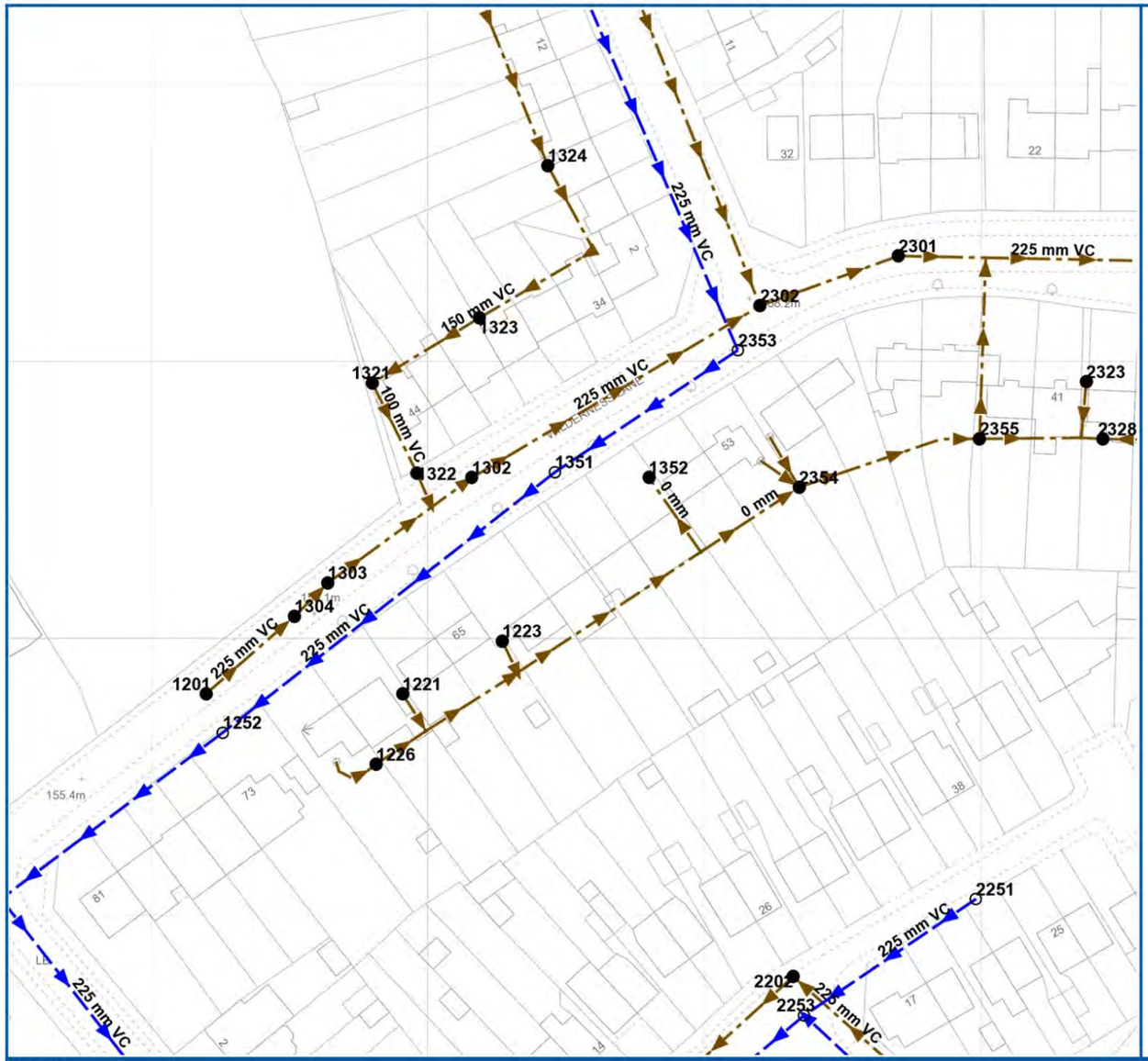


I look forward to hearing from you.

Kind regards,

Michael

Michael Turner
Graduate Engineer
Reading
T. 0118 338 4861
The Aquarium, King Street, Reading, RG1 2AN, UK
www.pja.co.uk



Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SP04952301	158.856	153.345	0	F	VC	C	225	0	0.1	31/12/1899 00:00:00
SP04952355	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04952355	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951322	156.91	156.05	<UNK>	F	VC	C	150	<UNK>	0	31/12/1899 00:00:00
SP04951223	156.8399	156.12	<UNK>	F	VC	C	100	<UNK>	0	31/12/1899 00:00:00
SP04951252	155.554	154.734	153.426	S	VC	C	225	<UNK>	38.17	31/12/1899 00:00:00
SP04951303	156.2599	153.859	153.729	F	VC	C	225	<UNK>	247.69	31/12/1899 00:00:00
SP04951321	157.66	157.08	156.05	F	VC	C	100	<UNK>	17.67	31/12/1899 00:00:00
SP04951351	157.621	156.042	154.734	S	VC	C	225	<UNK>	58.18	31/12/1899 00:00:00
SP04952328	<UNK>	<UNK>	159.61	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951302	157.0859	153.729	153.402	F	VC	C	225	<UNK>	183.45	31/12/1899 00:00:00
SP04952202	155.317	152.93	150.013	F	VC	C	225	<UNK>	34.67	31/12/1899 00:00:00
SP04952253	155.2769	153.22	152.629	S	VC	C	225	<UNK>	52.95	31/12/1899 00:00:00
SP04951226	<UNK>	<UNK>	<UNK>	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951304	156.134	153.984	153.859	F	VC	C	225	<UNK>	65.31	31/12/1899 00:00:00
SP04952251	157.054	155.539	153.22	S	VC	C	225	<UNK>	16.14	31/12/1899 00:00:00
SP04951323	157.88	157.12	157.08	F	VC	C	150	<UNK>	564.25	31/12/1899 00:00:00
SP04952323	160.3899	<UNK>	159.61	F	VC	C	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951201	155.5639	154.134	153.984	F	VC	C	225	<UNK>	141.73	31/12/1899 00:00:00
SP04952302	158.1519	153.402	153.345	F	VC	C	225	<UNK>	442.83	31/12/1899 00:00:00
SP04952353	158.014	156.712	156.042	S	VC	C	225	<UNK>	59.19	31/12/1899 00:00:00
SP04952354	<UNK>	<UNK>	<UNK>	F	U	U	<UNK>	<UNK>	0	31/12/1899 00:00:00
SP04951324	158.36	157.49	157.12	F	VC	C	150	<UNK>	111.97	31/12/1899 00:00:00
SP04951221	156.38	155.57	<UNK>	F	VC	C	100	<UNK>	0	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
Foul Bifurcation Manhole
Combined Bifurcation Manhole
Surface Water Bifurcation Manhole
Dual Manhole
Foul Single Manhole
Combined Single Manhole
Surface Water Single Manhole
Twin Manhole
Foul Adopted Manhole
Combined Adopted Manhole
Surface Adopted Manhole
Transferred Manhole
Unsurveyed 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
Foul Unsurveyed Pipe
Combined Unsurveyed Pipe
Surface Water Unsurveyed Pipe
Foul Unsurveyed Pipe
Combined Unsurveyed Pipe
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 Vacuum Sewer
Combined Lateral Drain

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 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

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

Ancillary
Balancing Lagoon
Grease Trap
Interceptor
Screen

Chamber
Flushing Chamber
Scalaway
Overflow

Connector
Sewer Junctions
SewerLine Connection Node

Fitting
Print50mLine

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 Meeting Symbol
Bench Mark Symbol
Railway Switch Symbol
Road Related Flow Symbol

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
S	SIPHON
BD	BACK DROP
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 Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0345 601 6616

SEWER RECORD (Tabular)

O/S Map Scale: 1:1,000

This map is centred upon:

Date of Issue: 30-08-23

X: 404176.21 **Y:** 295319.14

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**

Michael Turner

From: Asset.Protection <Asset.Protection@severntrent.co.uk>
Sent: 15 August 2023 12:28
To: Michael Turner
Subject: RE: [PJA: 06832] Historic Sewer Flood Risk - J-230728-22276

Categories: Scanned by Gekko

ST Classification: OFFICIAL PERSONAL

Hi Michael

Thank you for your email below.

We have reported flood incidents within the proximity of the site since 1996.

Kind regards

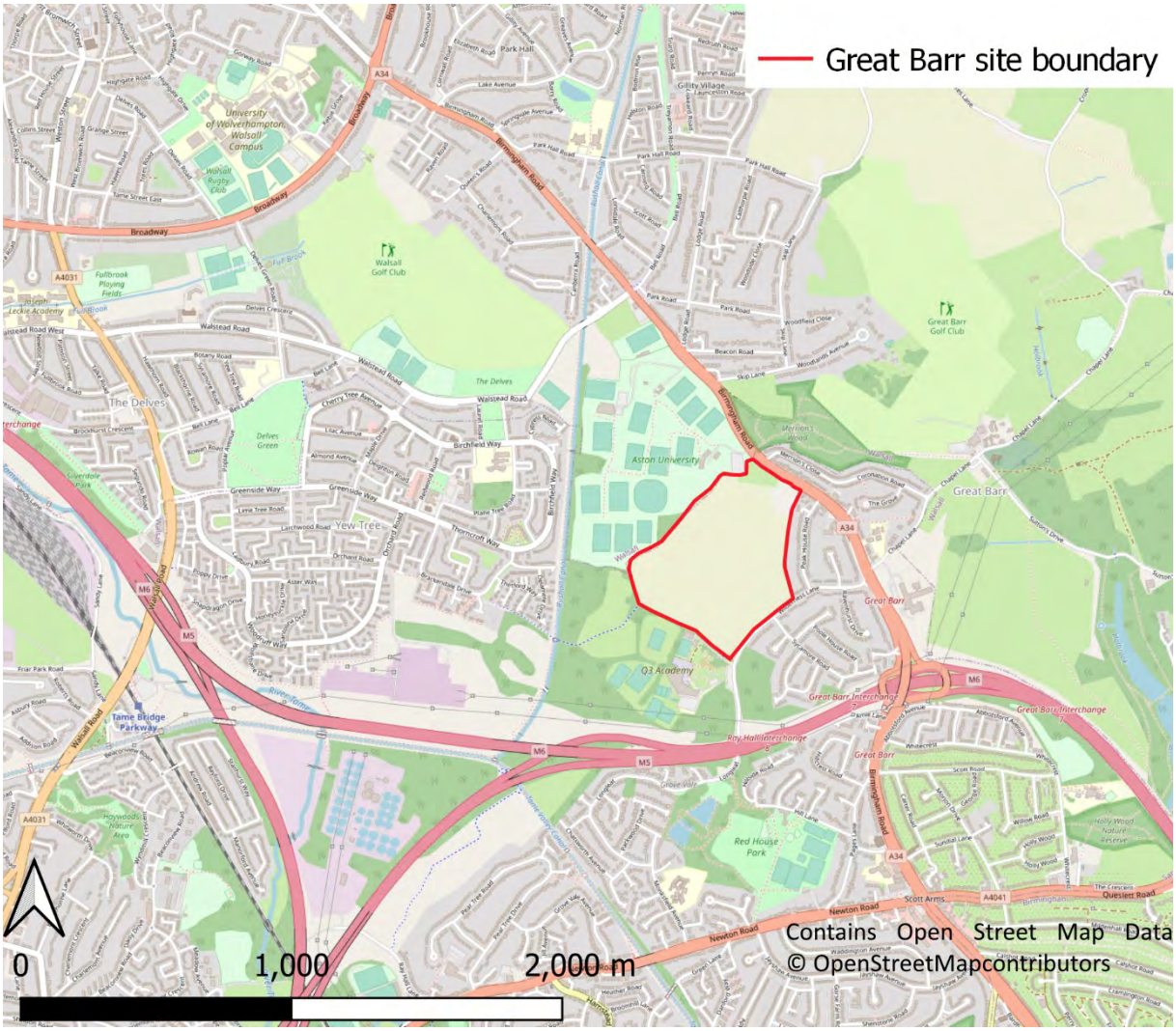
Asif Mussa

Senior Evaluation Technician
Asset Protection
Asset Strategy & Planning
Chief Engineer, Severn Trent Water

From: Michael Turner <michael.turner@pja.co.uk>
Sent: 09 August 2023 10:33
To: Asset.Protection <Asset.Protection@severntrent.co.uk>
Subject: [PJA: 06832] Historic Sewer Flood Risk

Dear Sir / Madam,

PJA have been appointed to provide flood risk and drainage advice for a proposed development at Great Barr, Birmingham. OS Co-ordinates:.403951 , 295476. A Site Location Plan is available below:



We would be grateful if you could provide us with any historical flood records or historical sewer flood information you hold on the Site.

Kind regards,

Michael Turner

Michael Turner
Graduate Engineer
Reading
T. 0118 338 4861
The Aquarium, King Street, Reading, RG1 2AN, UK
www.pja.co.uk