East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.13H/MCO 6.13H

ENVIRONMENTAL STATEMENT

Technical Appendices

Appendix 13H

Sustainable Drainage Statement - EMG2 Works

October 2025

13

The East Midlands Gateway Phase 2 and Highway Order 202X and The East Midlands Gateway Rail Freight and Highway (Amendment) Order 202X

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Diseworth
Sustainable Drainage Statement – EMG2 Works

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*Update to appendices only

Notice

CONTENTS

FIGURES

TABLES

APPENDICES

1. INTRODUCTION

1.1 A Sustainable Drainage Statement (SDS) sets out the principles of drainage design for a development and summarises the reasoning behind the chosen design. This includes justification of specific flow rates, volumes of attenuated storage, as well as the appropriate level of treatment to be provided to surface water runoff.

1.2 This SDS has been produced by BWB Consulting on behalf of SEGRO (Properties) Ltd in respect of a Development Consent Order (DCO) for East Midlands Gateway 2 (EMG2), with this SDS report forming an appendix to the Environmental Statement (ES) submitted in support of the DCO.

1.3 A Flood Risk Assessment (FRA) has been developed for the site (reference: EMG2-BWB-ZZ-XX-T-W-0014_FRA) and this SDS accompanies the FRA.

1.4 The proposed development is to be submitted for a DCO, and as such the details have been developed in consultation with the relevant statutory bodies relating to flood risk and drainage for the site.

1.5 The Lead Local Flood Authority (LLFA) for the site are Leicestershire County Council (LCC). The LLFA are not the prescribed consultee under the DCO process; however North West Leicestershire District Council, the Local Planning Authority (LPA), are. As the LPA is not the LLFA for the site, the Environment Agency (EA) have been deferred to as the relevant body to comment on the surface water drainage strategy. Despite this, as the LLFA is the body responsible for surface water flood risk in relation to planning, LCC have been consulted through the DCO consultation stage and will comment of the surface water drainage proposals, via the EA.

1.6 Severn Trent Water (STW) are responsible for waste water disposal.

Situational Context & Associated Development

1.7 The proposed development comprises a number of interrelated component parts as follows, and collectively they are referred to as the EMG2 Project:

- **EMG2 Works:**
  - Construction of logistics and advanced manufacturing development and ancillary buildings (DCO, Works No. 1);
  - Construction of road infrastructure (DCO, Works No. 2);
  - Construction of bus interchange (DCO, Works No. 3);
  - Construction of HGV parking (DCO Works No. 4);
  - Provision of hard and soft landscaping (DCO Works No. 5);
  - Creation of a Community Park (DCO, Work No. 21); and
  - Upgrade of the EMG1 substation (DCO, Work No. 20)[1].

[1] Note – As the existing substation is drained via the existing EMG1 drainage system, these specific works have been assessed within the EMG1 Works SDS report (reference: EMG2-BWB-ZZ-XX-RP-CD-0002_SDS (EMG1 Works))

- **Highways Works**
  - A453 access junction works to the EMG2 Main Site (Works No. 6);
  - Hyam's Lane works (Works No. 7);
  - Works to the M1 northbound (Works No. 8);
  - Construction of link road from the M1 northbound to the A50 westbound (Works No. 9);
  - Works to the A50 westbound (Works No. 10);
  - Works to the link road from the M1 southbound and A50 eastbound to M1 Junction 24 (Works No. 11);
  - Works to the west side of the M1 Junction 24 roundabout and A453 northbound approach (Works No. 12a);
  - Works to the east side of the M1 Junction 24 roundabout and A453 southbound approach (Works No. 12b);
  - Improvements to the EMG1 access junction (Works No. 13);
  - Construction of the Active Travel Link between the EMG1 access junction and the A453 west of Finger Farm roundabout (Works No. 14);
  - Provision of an uncontrolled crossing of the A453 at the East Midland Airport signalised access junction (Works No. 15);
  - Works to M1 northbound signage on the approach to M1 Junction 23A (Works No. 16);
  - Works to Long Holden (Works No. 17);
  - Works to the A42/A453 Finger Farm roundabout (Works No. 18); and
  - Upgrade to public footpath L57 to a cycle track (Works No. 19).
- **EMG1 Works**
  - Construction of a new rail-served warehouse building on land adjacent to the rail-freight terminal referred to as Plot 16 (MCO, Works No. 3A) together with associated access and drainage infrastructure, (MCO, Works No. 5A) and landscaping (MCO, Works No. 6A).
  - Alterations to the maximum permitted height of gantry cranes at the rail freight interchange by 4m, to 24m overall; An expansion of the EMG1 Management Suite by the EMG1 site entrance to cater for the additional demand on management facilities resulting from EMG1 (MCO, Works No. 3B);
  - Enhancements to the Public Transport Interchange by way of the installation of EV charging infrastructure for buses and provision of a drop-off layby adjacent to the transport hub (MCO, Works No. 5B and 5C); and
  - Provision of a signalised crossing over the EMG1 exit road approach to the access junction to EMG1 (MCO, Works No. 8A) connecting to the drop-off layby.

1.8 An illustrative site location plan is provided as **Figure 1.1**, which also identifies the approximate extent of the development component parts.

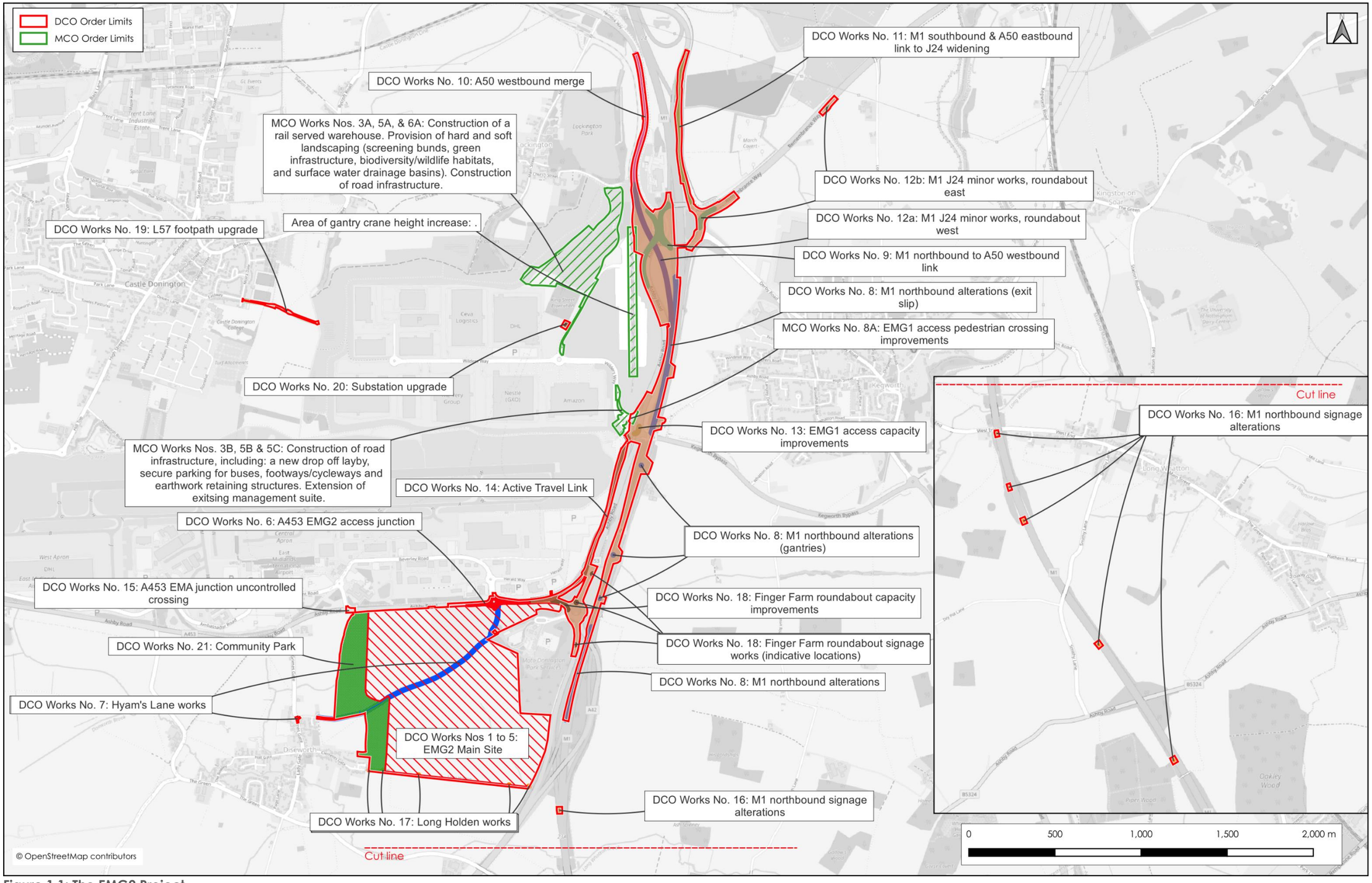

Figure 1.1: The EMG2 Project

1.9 This SDS has been prepared in relation to the 'EMG2 Main Site' and the adjacent area for the proposed Community Park (DCO Works No. 21), which are referred to as 'the site' throughout this report.

1.10 The EMG1 Works and Highway Works have been reviewed under separate cover (references: EMG2-BWB-ZZ-XX-RP-CD-0002_SDS (EMG1 Works) and EMG2-BWB-ZZ-XX-RP-CD-0003_SDS (Highways Works), respectively.

1.11 Refer to Document DCO 2.5 for the parameters plan. Contextual information for the site is provided within **Table 1.1**.

Table 1.1: Site Details

Site Name	EMG2 Main Site & Community Park
NGR (approx.)	SK459250
Approximate Area (ha)	104 (approx.)
Proposed Contributing Area (ha)	69.08 (approx.)
Development Type	Class B8/B2 Office and Warehouse, community park
Lead Local Flood Authority	LCC
EA Area	East Midlands
Sewerage Undertaker	STW

Sustainable Drainage Guidance

Guidance Documents

1.12 This SDS and associated drainage strategy has been written with reference to the following guidance documents:

- LCC's Interim LLFA Guidance Note: Planning and Development in Leicestershire[2];
- The DEFRA Non-Statutory Technical Standards for SuDS (2015)[3];
- The National Policy Statement for National Networks[4] (NPSNN);
- The Department for Transport (DfT) and National Highways (NH) Strategic road network and the delivery of sustainable development guidance (reference: DfT Circular 01/2022)[5]; and
- The CIRIA C753 SuDS Manual[6].

[2] Interim LLFA Guidance Note: Planning and Development in Leicestershire -Rev A (Leicestershire County Council, October 2018)
[3] 2015, DEFRA. Non-statutory technical standards for sustainable drainage systems
[4] National Policy Statement for National Networks, Department for Transport, March 2024
[5] Strategic road network and the delivery of sustainable development guidance (Department for Transport and National Highways, December 2022)
[6] The SuDS Manual Version 6 (CIRIA, 2019)

Climate Change and Urban Creep Allowances

1.13 The site is located within the Soar Management Catchment within the Humber River Basin District. Table 2 from the EA's 'Flood risk assessments: climate change allowances', included as **Table 1.2**, shows the anticipated changes in peak rainfall intensity for the site.

Table 1.2: Soar Management Catchment Peak Rainfall Allowances

Soar Management Catchment Allowance	Total Potential Change Anticipated for the '2050s' (Lifetime up to 2060)	Total Potential Change Anticipated for the '2070s' (2061 to 2125)
1 in 30-Year Rainfall Event		
Upper End	35%	35%
Central	20%	25%
1 in 100-Year Rainfall Event		
Upper End	40%	40%
Central	20%	25%

1.14 The proposed development is anticipated to have a lifespan of up to 75 years, therefore the 2070's epoch central allowance will be used to assess the impacts of climate change for the proposed surface water drainage strategy. Sensitivity testing has been undertaken using the 2070's epoch upper end allowance to ensure that there is no increase in flood risk elsewhere and the built development will be safe from surface water flooding over the anticipated lifetime of the proposed development.

1.15 Based on the above guidance, an allowance of 25% will be applied to the 1 in 100-year return period within the drainage design calculations, with sensitivity testing using a 40% allowance to the 1 in 100-year return period. During the detailed design stage a 25% climate change allowance, with a 35% sensitivity test, should be applied to the 1 in 30-year return period within the drainage design calculations. As the development is built out, the latest EA climate change allowance should be reviewed and used for the detailed design calculations for each phase of the development.

1.16 Based on the proposed development use, no urban creep allowance has been applied to the drainage design calculations.

2. EXISTING CONDITIONS

2.1 The site is bound to the north by East Midlands International Airport (EMIA) beyond Ashby Road (A453). Donnington Park Services is located adjacent to the north-east. The site is bound to the east by the A42 and the M1, the south by Long Holden public byway with agricultural fields beyond, and to the west by agricultural fields. The village of Diseworth is located approximately 150m south-west of the site. A public byway, known as Hyam's Lane, bisects the site from south west to north east.

2.2 The generalised topography of the site is shown in **Figure 2.1** with a full topographical survey (reference: 34529A_T_REV1) included as **Appendix 1**. The site is generally split into two topographical catchments located to the north and south of Hyam's Lane. The northern catchment falls generally in a westerly direction (towards the Hall Brook) with levels ranging from approximately 92.7metres Above Ordnance Datum (mAOD) in the northeast to approximately 67.1mAOD in the southwest. The southern catchment falls generally in a southerly direction with levels ranging from approximately 91.0mAOD in the northeast to approximately 52.6mAOD in the southeast.

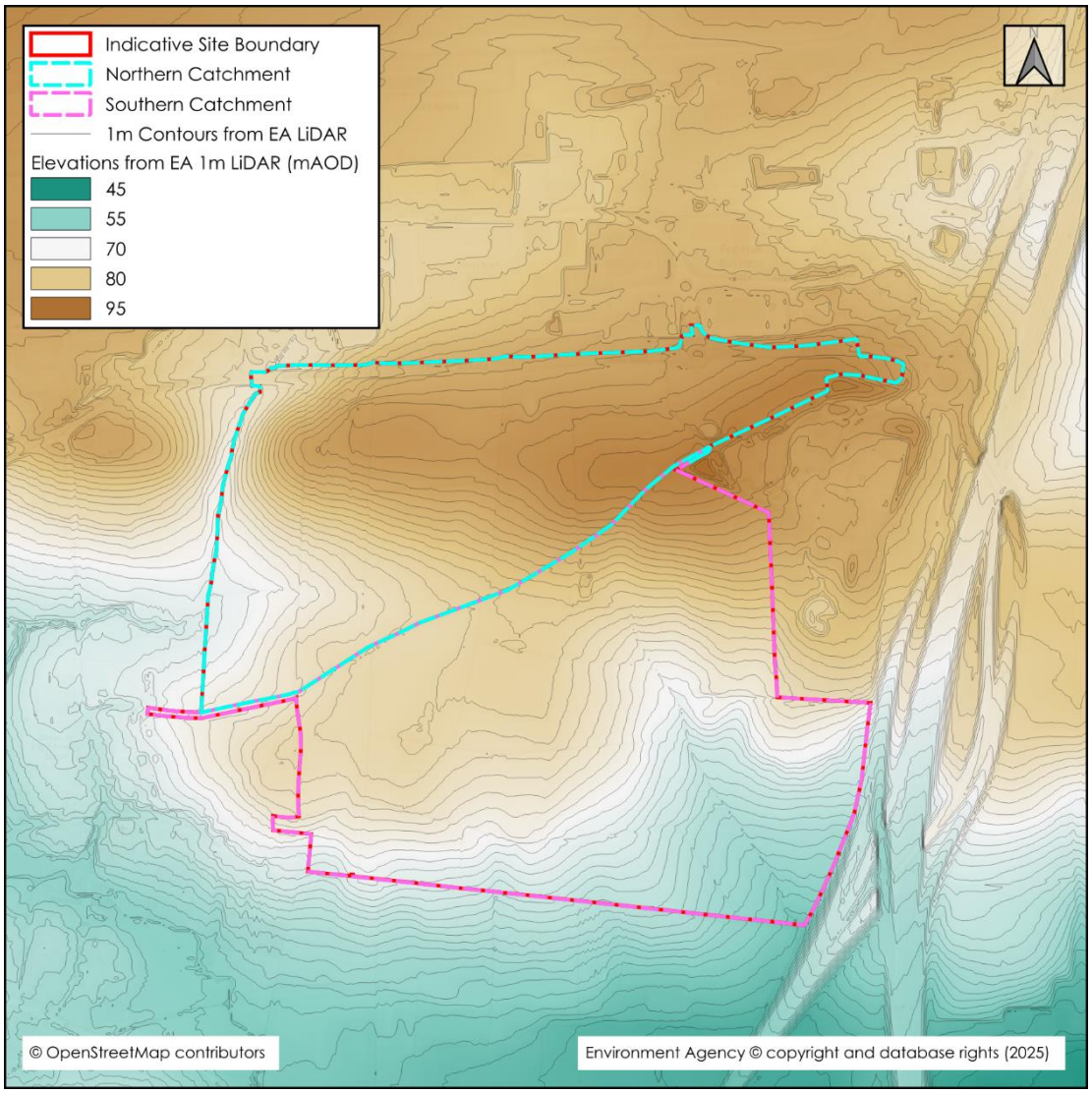

Figure 2.1: Existing Site Topography based on EA 1m LiDAR

2.3 The site is considered to be greenfield in nature and is currently utilised for agricultural practices. Hyam's Lane is made up of loose dirt and gravel.

2.4 The Hall Brook flows along a portion of the western boundary before flowing in a south-westerly direction to its confluence with the Diseworth Brook approximately 500m southeast of the site. A series of field ditches are present in the southeast corner of the site that drain via a piped connection (500mm diameter) which outfalls to larger pipe system (525mm to a 700mm diameter) which runs alongside the A42 and outfalls to the Diseworth Brook beneath the A42 road bridge.

2.5 STW sewer asset records (**Appendix 2**) show a public surface water sewer running parallel to the A42 culvert between the Donnington Services and the Diseworth Brook, outfalling just upstream of the A42 culvert. A public foul water rising main is shown to flow along Hyam's lane in a north-easterly direction. The rising main originates from a pumping station to the west off Grimes Lane and enters a public foul water gravity sewer to the north of the site beyond Ashby Road.

2.6 A Closed-Circuit Television (CCTV) survey (**Appendix 3**) shows the alignment of the existing piped system and surface water public sewer and confirm their ultimate outfall points into Diseworth Brook.

2.7 The site's location and local watercourse network are illustrated within **Figure 2.2**.

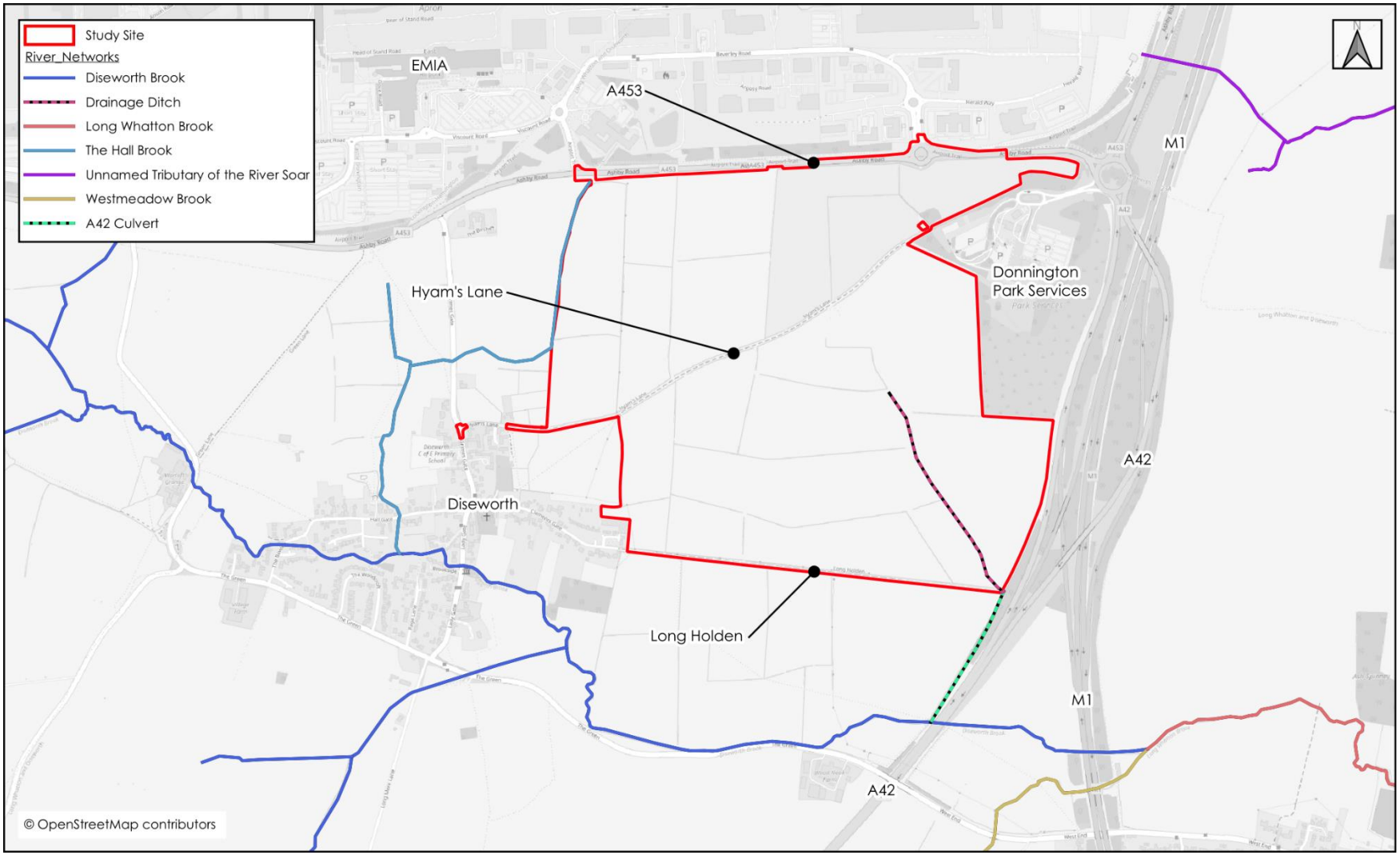

Figure 2.2: Site Location and Watercourse Network

2.8 British Geological Survey (BGS) mapping shows the site to be underlain predominantly by Gunthorpe Member – Mudstone, with thin bands of Gunthorpe Member – Siltstone, Dolomitic and Diseworth Sandstone. The bedrock geology is shown in **Figure 2.3**.

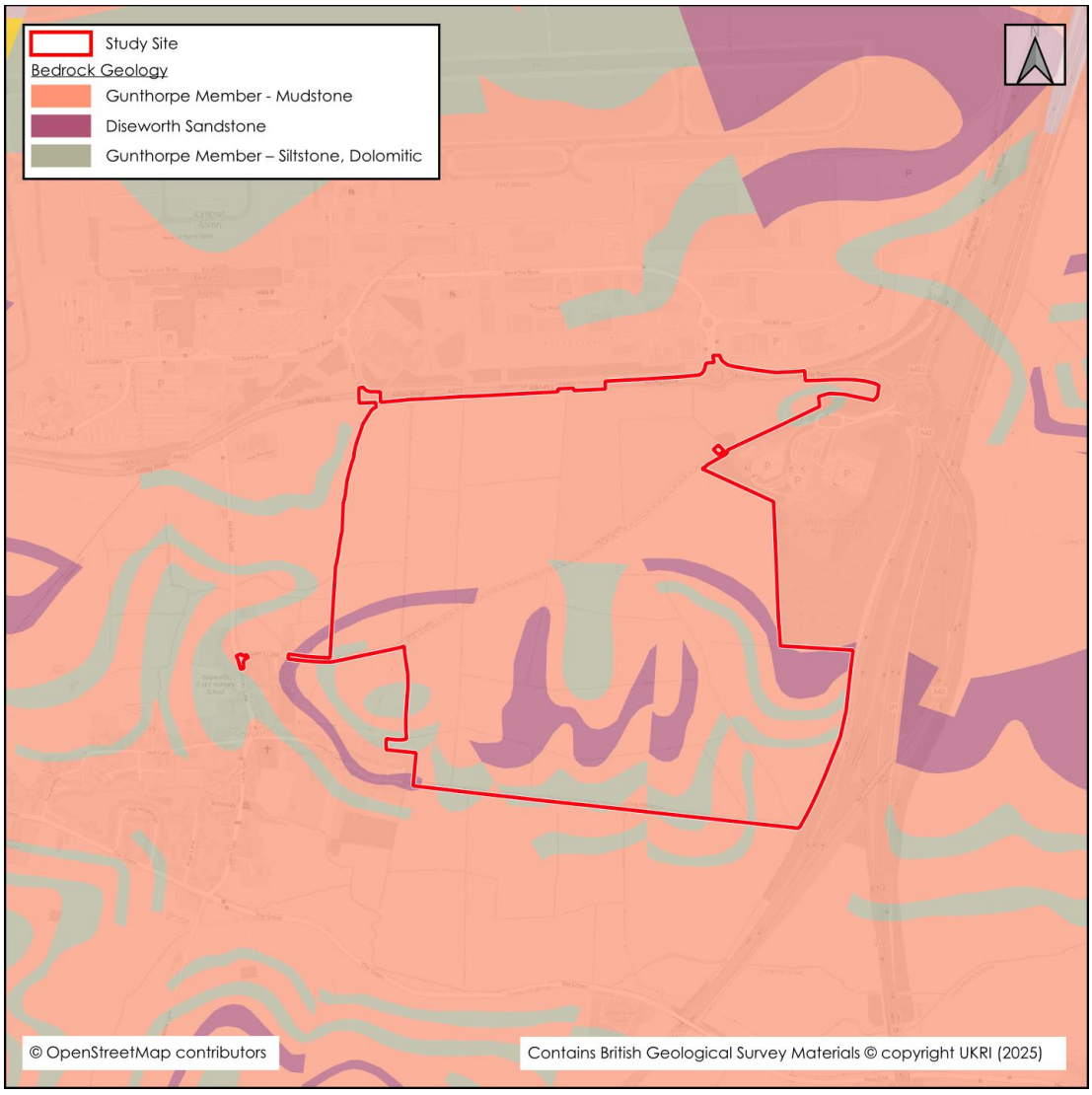

Figure 2.3: BGS Bedrock Map

2.9 Superficial deposits of Glaciofluvial Deposits, Mid Pleistocene – Sand and Gravel, Oadby Member – Diamicton and Head – Clay, Sand and Gravel are expected to be present within the site. The superficial deposits are shown in **Figure 2.4**.

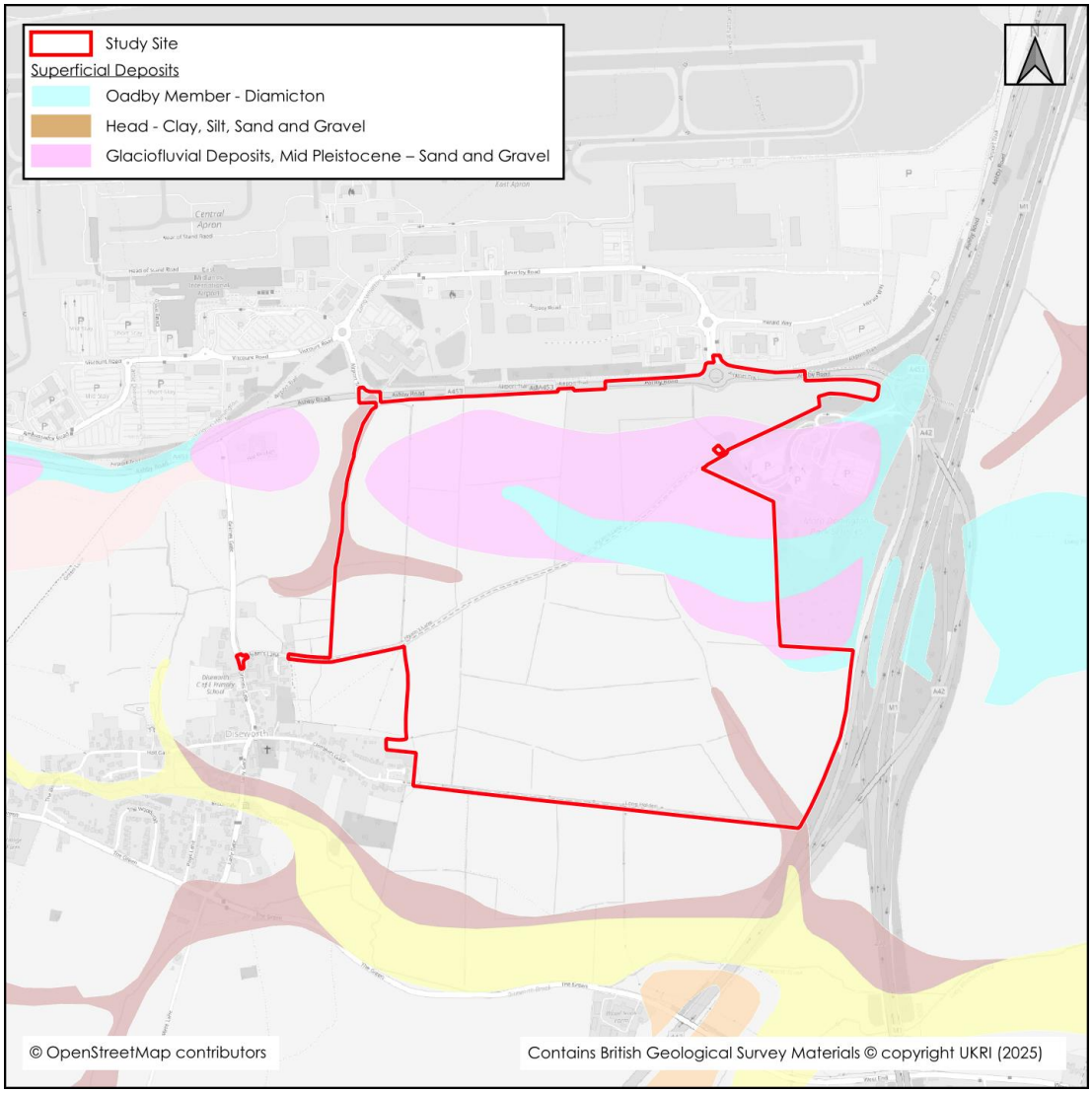

Figure 2.4: BGS Superficial Deposits

2.10 The Factual Ground Investigation Report (reference: 765514-01) prepared by Fairhurst outlines preliminary findings from intrusive ground investigations. This has confirmed the following ground conditions:

- Topsoil (proven from the surface to a maximum depth of between 0.10 m and 0.85 m bgl);
- Isolated occurrences of Made Ground (proven to a maximum depth of 0.20 m and 3.00 m bgl), with the deeper Made Ground encountered within the northern site area (location of anticipated historically infilled clay pits – TP08 and BH04);
- Superficial deposits of The Oadby Member and Glaciofluvial Deposits (proven to maximum depths of 16.40 m bgl and 17.30 m bgl, respectively); and
- Bedrock geology of The Gunthorpe Member and Diseworth Sandstone (proven to a maximum depth of 18.50 m bgl for the former, with the maximum depth of the latter not proven).

2.11 Groundwater monitoring suggested that two groundwater bodies are present between depths of 1.25m and 15.32m bgl (84.90m AOD and 52.7m AOD) within the Glaciofluvial, Weathered Gunthorpe Member and Gunthorpe Member. It was reported that the ground investigations found the ditch in the site to be dry throughout the works. Therefore, the watercourse is likely to be seasonally dry, with its main purpose to drain surface water runoff from the adjacent fields.

2.12 Based on the underlying geology across the site it is anticipated that there will be limited infiltration potential for surface water.

2.13 The accompanying FRA identifies that the site to be generally at low risk of flooding, although there are several potential surface water flow pathways that could form across the site. These potential flow paths are relatively shallow and generally originate from within the site itself. More details on the potential flood risk sources to the site and the proposed mitigation measures are outlined in the accompanying FRA.

2.14 It is understood that that the village of Diseworth to the southwest of the site is at risk of fluvial flooding associated with the Hall Brook and Diseworth Brook.

2.15 Based on the above information, the existing drainage regime at the site is for the northern catchment, as illustrated on **Figure 2.2**, to drain via surface runoff into the Hall Brook, before ultimately draining into Long Whatton Brook, via Diseworth Brook. The southern catchment drains via the existing A42 culvert, into Diseworth Brook and ultimately into Long Whatton Brook to the south east of the site.

Existing Runoff Rates

2.16 An assessment of the existing surface water runoff rates from the site has been undertaken on a litres per second per hectare basis. This is summarised within **Table 2.1**, with the associated calculations presented within **Appendix 4**.

2.17 The runoff rates have been estimated using the Flood Estimation Handbook (FEH) statistical method. This was undertaken using the UKSUDS Greenfield Runoff Rate Estimation Tool.

Table 2.1: Existing Runoff Rate per hectare from the Site

Return Period (Yrs.)	Runoff Rate (l/s/ha)
1	2.7
Mean Annual Flow Rate (QBAR)	3.3
30	6.6
100	8.4

Existing Runoff Volume

2.18 An assessment of the existing surface water runoff rates from the proposed contributing area used to inform the drainage design calculations has been made for a 1 in 100-year, 6 hour storm.

2.19 As the existing site is permeable, the runoff volume has been calculated using the pre-development discharge calculator in Causeway Flow to be 21,232m^3, results are included within **Appendix 5**.

2.20 Per hectare this equates to a greenfield runoff volume of 307m^3.

3. SURFACE WATER DRAINAGE STRATEGY

3.1 A Concept Drainage Strategy is presented as **Appendix 6**, with the supporting attenuation calculations provided within **Appendix 7**.

3.2 The proposed contributing impermeable areas have been measured from the proposed parameters plan (Document DCO 2.5). The following impermeable area assumptions have been used:

- Development plots and adjoining highways = 90%;
- Embankments and bunds = 50%; and
- Attenuating SuDS basins = 100%.

3.3 The assumed impermeable area for the proposed community park car park (100%) has been measured from the FPCR Illustrative Landscape Masterplan, which is enclosed on the Concept Drainage Strategy (**Appendix 6**) and is to be confirmed during the detailed design stage.

3.4 Based on the parameters plan, illustrative landscape masterplan and above impermeable area assumptions, the calculated contributing impermeable area is 69.08ha.

3.5 Given the nature of the DCO applications being approved based on the parameters plan, as the development is built out, the contributing areas may change and therefore the final attenuation requirements and discharge rates from the proposed development may differ from the calculations outlined within this SDS. The principles set out within this report should be carried through as the development is built out.

Drainage Hierarchy

3.6 The Planning Policy Guidance[7] and the SuDS Manual[8] identify that surface water runoff from a development should be disposed of as high up the following hierarchy as reasonably practicable:

i. into the ground (infiltration);
ii. to a surface water body;
iii. to a surface water sewer, highway drain, or another drainage system;
iv. to a combined sewer.

3.7 The aim of this is approach is to manage surface water runoff close to where it falls and mimic natural drainage as closely as possible.

[7] Planning Practice Guidance. http://planningguidance.planningportal.gov.uk/.
[8] The SuDS Manual (C753). CIRIA 2015.

Infiltration

3.8 Based on the existing ground conditions observed on site during the preliminary ground investigation, soakaway drainage is not considered to be viable for the proposed development.

Surface water body

3.9 As described within **Section 2**, the existing northern drainage catchment drains into the Hall Brook along the west site boundary, with the southern catchment draining into the existing A42 culvert, with the entire site ultimately draining into the Long Whatton Brook to the south east.

3.10 Given the existing fluvial flood risk to the village of Diseworth, it is proposed that the entire site will via the A42 culvert, located at the southeast corner of the site; thus, reducing the contribution of flows to the Hall Brook prior to its course through Diseworth.

3.11 Given that the entire site ultimately drains into Long Whatton Brook, cross-catchment transfer is not a significant concern with the proposed outfall strategy. However, In accordance with the NH DfT Circular 01/2022 paragraph 59, flows from the entire development will be limited to the existing catchment rates that currently drain to the A42 culvert (i.e., the southern catchment, as illustrated on **Figure 2.1**).

3.12 Paragraph 59 of the NH DfT Circular 01/2022 reads:

To ensure the integrity of the highway drainage systems, no new connections into those systems from third party development and proposed drainage schemes will be accepted. Where there is already an existing informal or formal connection into the highway drainage system from a proposed development site, the right for a connection may be allowed to continue provided that the flow, rate and quality of the discharge into the highway drainage system remains unaltered or results in a betterment. The company may require a drainage management and maintenance agreement to be entered into to secure this requirement in perpetuity.*

** An informal connection refers to surface water run-off and a formal connection to an engineered connection.*

3.13 Based on the above NH guidance, the proposed approach is considered to be acceptable.

3.14 Additionally, post-development hydraulic modelling has been undertaken as part of the FRA to assess the impacts of the drainage proposals to both Diseworth and downstream of the site. More information relating to the post-development hydraulic modelling is outlined within the accompanying FRA.

Peak Flow Control

3.15 In order to comply with the Non-Statutory Technical Standards for Sustainable Drainage Systems S2-S3[9], runoff from greenfield developments should not exceed the equivalent greenfield rates for the 1 and 100-year return period events. Additionally, to comply with the NH DfT Circular 01/2022, the existing flow rates from the southern catchment into the A42 culvert should not increase post-development.

3.16 Therefore, to comply with the above peak flow control criterion, it is proposed to restrict the maximum discharge rate from the proposed development to the equivalent 1 in 1-year rate for the contributing areas measured within the southern catchment for all events up to the 1 in 100-year + 40% critical storm event. This is summarised within **Table 3.2**.

Table 3.1: Existing Runoff Rates based on measured contributing areas

Catchment	Contributing Area (ha)	Return Period (Yr.)	Existing Runoff Rate (l/s)
Northern	26.72	1	72.1
		QBAR	88.2
		30	176.4
		100	224.4
Southern	42.36	1	114.4
		QBAR	139.8
		30	279.7
		100	355.8
Total	69.08	1	186.5
		QBAR	228.0
		30	455.9
		100	580.3

[9] 2015, DEFRA. Non-statutory technical standards for sustainable drainage systems

Table 3.2: Existing & Proposed Runoff Rates from the proposed development

Return Period (Yr.)	Existing Runoff Rate (l/s)	Proposed Discharge Rate (l/s)	Betterment (%)
1	186.5	114.4	39%
QBAR	228.0		50%
30	455.9		75%
100	580.3		80%
100 + 40%	-		-

3.17 This approach fulfils the necessary peak runoff control criteria and provides a significant betterment to the existing runoff rates leaving the site post-development, particularly during the higher return periods.

3.18 A review of the capacity of the A42 culvert has been undertaken to confirm that the proposed outfall has sufficient capacity to review flows from the proposed development. Based on the proposed maximum discharge rates outlined within **Table 3.2**, the A42 shas sufficient capacity to receive flows from the proposed development. The supporting technical note for this review is provided within **Appendix 8**.

Drainage Catchments

3.19 Given the scale of the proposed development, the proposed drainage system has been split into a total of nine cascading sub-catchments, all of which ultimately drain to the A42 culvert in the southeast site corner. The proposed sub-catchments are illustrated on the Conceptual Drainage Strategy (**Appendix 6**), with catchment details provided in **Table 3.3**.

Table 3.3: Existing & Proposed Runoff Rates from the proposed development

Catchment	Contributing Area (ha)	Maximum Discharge Rate (l/s)	Outfall Location
1	23.12	89.0	Catchment 2
2	2.73	42.8	Catchment 3
3	20.18	33.4	Catchment 4
4	0.82	77.6	Catchment 5
5	0.48	78.4	Catchment 8
6	4.64	7.7	Catchment 5
7	15.35	25.4	Catchment 8
8	0.78	105.0	Catchment 9
9	0.99	114.4	A42 Culvert
Total	**69.08**	**114.4***	

* Maximum discharge rate from final catchment to A42 culvert

Attenuated Storage

3.20 As the development proposals require a restricted runoff rate, it will be necessary to provide attenuated storage to balance the excess volume in a safe manner within the site.

3.21 The surface water storage should be located within the site in a position where it can receive runoff from the development and discharge from the site by gravity, and also in a position where it is hydraulically isolated from any fluvial floodplain or external surface water floodplain / overland flow route that may be present in the site.

3.22 Sufficient storage for events up to the 1 in 100-year storm with an allowance for climate change should be provided.

3.23 It is proposed that the majority of the attenuation for the proposed development will be provided within above ground attenuation basins located along the western and southern peripheries of the site. Where site constraints do not allow for enough space to utilise above ground attenuation, such as for Catchments 6 and 7, below ground cellular storage crates are proposed to provide the required attenuation volume on each respective plot.

3.24 Simulations have been run using Causeway Flow to identify the necessary storage provision for each catchment using FEH-22 rainfall data. The results are summarised in **Table 3.4** and calculations are included as **Appendix 7**.

Table 3.4: Attenuated Storage Requirements

Catchment	Critical Storm	Maximum Volume (m^3) – 1 in 100-year + 25%	Critical Storm	Maximum Volume (m^3) – 1 in 100-year + 40%*
1	720-min Winter	17,445	720-min Winter	19,675
2	7,200-min Winter	8,465	7,200-min Winter	9,475
3	1440-min Winter	16,655	1440-min Winter	18,815
4	720-min Winter	445	720-min Winter	550
5	1,440-min Winter	475	2,160-min Winter	525
6	1,440-min Winter	3,790	1,440-min Winter	4,280
7	960-min Winter	10,725	1,440-min Winter	12,100
8	960-min Winter	740	960-min Winter	850
9	720-min Winter	530	480-min Winter	585
Total	-	**59,270**	-	**66,855**

* Sensitivity test to ensure that necessary storage is provided for upper end climate change allowance within basin design freeboard

3.25 At this conceptual stage it is expected that a minimum of 59,270m^3 of attenuated storage will be required to cater for the maximum anticipated runoff volume for all storm durations up to the 1 in 100-year return period storm, including a 25% climate change allowance, extending to 66,855m^3 during the 1 in 100-year + 40% climate change critical storm, which will be provided within the basin freeboard above the design water level.

3.26 It is envisaged that the final required attenuated storage volume will be determined as development is built out following the approval of the DCO.

Runoff Volume Control

3.27 The Non-Statutory Technical Standards for Sustainable Drainage Systems S4-S6[10] states that where reasonably practical the runoff volume from a development for the 1 in 100-year 6 hour rainfall event should not exceed the runoff volume prior to development or redevelopment. Additionally, if practicable on previously developed sites, the runoff volume should not exceed the equivalent greenfield runoff volume. Where it is not reasonably practicable to constrain the volume of runoff from a development at or below the existing volume, then the runoff must be discharged in a manner that does not adversely affect flood risk, i.e.:

i. The additional runoff volume resulting from the development (the 'long term storage volume') should be discharged separately from the site at a rate of 2l/s/ha or less. Or,

ii. All the runoff volume from the development should be discharged at a rate equivalent to the mean annual flow rate (QBAR) rate under greenfield conditions or less. Or,

iii. All the runoff volume from the development should be discharged at a rate of 2l/s/ha or less.

3.28 Due to the increase in impermeable surfacing within the site post-development, the 1 in 100-year 6-hour runoff volume will increase. However, as the drainage strategy proposes to limit the maximum discharge rate from the site below the existing greenfield QBAR rate for all events up to the 1 in 100-year + 40% critical storm, the volume criterion is met and long-term storage is not required.

Sustainable Drainage Systems

3.29 The drainage strategy proposes to utilise a series of detention basins and conveyance swales along the site periphery to provide both attenuation and water quality treatment to surface water flows prior to discharge from the site.

3.30 Given the nature of the DCO application, the internal plot layouts, and therefore the potential on-plot SuDS options, are not confirmed. As the plots are built out, the following SuDS should be incorporated into the on-plot drainage system prior to discharging into the spine drainage network conveying flows towards the periphery SuDS:

- Filter Drains;
- Permeable paving / bypass separator (for office parking areas); and
- Full retention separators (for service yard areas).

3.31 The spine highway should utilise either roadside ditches / swales or silt traps and sump units for any highway gullys.

[10] 2015, DEFRA. Non-statutory technical standards for sustainable drainage systems

3.32 It is proposed that a vortex separator (i.e., 'Downstream Defender' or similarly approved product) will be utilised downstream from the Catchment 9 vortex flow control to provide a final stage of surface water treatment as surface water is discharged from the site.

3.33 The detention basins and swales around the site periphery will be lined with an impermeable membrane to mitigate the risk of any potential pollutants infiltrating into the ground and contaminating the groundwater recharge in the vicinity of the site.

3.34 The detention basins will have a low flow channel and the incorporation of any ecological features will be confirmed at detailed design.

3.35 Based on the site's proximity to EMIA, the detention basins will be formed with a ridged base in a 'crinkle-cut' style to promote faster drain down times and discourage birds gathering during the lower return periods.

Water Quality

3.36 In accordance with the SuDS Manual a simple index approach to water quality risk management should be undertaken for the proposed development. This will be compiled to provide a comprehensive account of the water quality treatment provided by the proposed surface water drainage system.

3.37 The SuDS Manual Mitigation Index will be used to assess the treatment levels proposed in relation to the pollution hazard posed from the proposed land use(s). This methodology is adopted to ensure that surface water flows receive adequate treatment through all areas of the site prior to final outfall.

3.38 **Table 3.5** shows the pollution hazard indices for the land use classification(s) that are relevant to the proposed development, as described within table 26.2 in the SuDS Manual.

Table 3.5: Pollution Hazard Indices for Different Land Use Classifications

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Industrial roofs	Low	0.3	0.2	0.05
Non-residential parking	Medium	0.7	0.6	0.7
Industrial sites	High	0.8	0.8	0.9

3.39 The SuDS Mitigation Indices that are relevant to the proposed development, at this stage, as described within table 26.3 of the SuDS Manual, are outlined in **Table 3.6.**

Table 3.6: SuDS Mitigation Indices

Type of SuDS Component	Mitigation Indices		
	TSS	Metals	Hydrocarbons
Swale	0.5	0.6	0.6
Permeable Pavement	0.7	0.6	0.7
Detention Basin	0.5	0.5	0.6
Bypass Separator*	0.8	0.6	0.9
Full Retention Separator*	0.8	0.6	0.9
Vortex Separator^	0.5	0.4	0.5

* Based on SPEL Enhanced Silt Retention bypass / full flow [11] range (other products may vary)
^ Based on Hydro International Downstream Defender 'Advanced Vortex'[12] (other products may vary)

3.40 The sitewide SuDS treatment system (i.e., series of detention basins and swales located along the west and south periphery of the site) will provide the majority of the water quality mitigation for the proposed development. Given the proposed development use, appropriate SuDS / proprietary treatment systems, in the form of bypass or full retention separators, will be used on each plot as required to provide a first stage of treatment prior to connecting into the site wide drainage system.

3.41 At this stage, it is anticipated that in addition to the site wide SuDS treatment system, the following on plot SuDS treatment measures will be incorporated, as a minimum:

- Full retention separators – for service yards; and
- Bypass separators or permeable block paving – for car parking areas;

3.42 The following SuDS treatment measures for each catchment land use is outlined within **Table 3.7** Please note that Catchments 2, 5, 8 and 9 have been excluded from **Table 3.7**, as these catchments only include earthwork batters, which are considered to have no pollution hazard risk. These catchments also drain via the sitewide SuDS treatment system and will therefore receive treatment from a minimum of one detention basin and the vortex separator, with additional treated to the catchments located further upstream within the sitewide drainage system.

[11] SPEL Stormceptor Enhanced Silt Retention bypass / full flow treatment system
[12] Hydro International Downstream Defender 'Advanced Vortex'

Table 3.7: SuDS treatment measures for each catchment

Catchment	Land use	SuDS Treatment Measures
1	Commercial Roof	Detention basin (8no.) + Swale (2no.) + Vortex Separator
	Non-residential Parking	Bypass Separator / Permeable Paving + Detention basin (8no.) + Swale (2no.) + Vortex Separator
	Service Yards	Full Retention Separator + Detention basin (8no.) + Swale (2no.) + Vortex Separator
	Highways	Detention basin (8no.) + Swale (2no.) + Vortex Separator
3	Commercial Roof	Detention basin (7no.) + Swale (2no.) + Vortex Separator
	Non-residential Parking	Bypass Separator / Permeable Paving + Detention basin (7no.) + Swale (2no.) + Vortex Separator
	Service Yards	Full Retention Separator + Detention basin (7no.) + Swale (2no.) + Vortex Separator
	Highways	Detention basin (7no.) + Swale (2no.) + Vortex Separator
4	Non-residential Parking	Detention basin (4no.) + Swale (2no.) + Vortex Separator
6	Commercial Roof	Detention basin (3no.) + Swale (2no.) + Vortex Separator
	Non-residential Parking	Bypass Separator / Permeable Paving + Detention basin (3no.) + Swale (2no.) + Vortex Separator
	Service Yards	Full Retention Separator + Detention basin (3no.) + Swale (2no.) + Vortex Separator
	Highways	Detention basin (3no.) + Swale (2no.) + Vortex Separator
7	Commercial Roof	Detention basin (2no.) + Swale (2no.) + Vortex Separator
	Non-residential Parking	Bypass Separator / Permeable Paving + Detention basin (2no.) + Swale (2no.) + Vortex Separator
	Service Yards	Full Retention Separator + Detention basin (2no.) + Swale (2no.) + Vortex Separator
	Highways	Detention basin (2no.) + Swale (2no.) + Vortex Separator

3.43 The pollution hazard rating and proposed SuDS Mitigation Index for each drainage Catchment is compared within **Table 3.8**. Where more than one SuDS component is proposed, a factor of 0.5 has been applied to the downstream (i.e., secondary and/or tertiary) treatment stages to account for the reduced performance due to reduced inflow concentrations.

Table 3.8: Comparison of Pollution Hazard Rating against Proposed Mitigation Index

Catchment	Land use	Pollution Hazard Rating			Proposed Mitigation Index			Sufficient Treatment Provided?
		TSS	Metals	Hydrocarbons	TSS	Metals	Hydrocarbons	
1	Commercial Roof	0.3	0.2	0.05	3.00	3.05	3.55	✓
	Non-residential Parking	0.7	0.6	0.7	3.45	3.40	3.95	✓
	Service Yards	0.8	0.8	0.9	3.55	3.40	4.15	✓
	Highways	0.8	0.8	0.9	3.55	3.40	4.15	✓
3	Commercial Roof	0.3	0.2	0.05	2.75	2.80	3.25	✓
	Non-residential Parking	0.7	0.6	0.7	3.20	3.15	3.65	✓
	Service Yards	0.8	0.8	0.9	3.30	3.15	3.85	✓
	Highways	0.8	0.8	0.9	3.30	3.15	3.85	✓
4	Non-residential Parking	0.7	0.6	0.7	2.00	2.05	2.35	✓
6	Commercial Roof	0.3	0.2	0.05	1.75	1.80	2.30	✓
	Non-residential Parking	0.7	0.6	0.7	2.20	2.15	2.70	✓
	Service Yards	0.8	0.8	0.9	2.30	2.15	2.90	✓
	Highways	0.8	0.8	0.9	2.30	2.15	2.90	✓
7	Commercial Roof	0.3	0.2	0.05	1.50	1.55	2.05	✓
	Non-residential Parking	0.7	0.6	0.7	1.95	1.90	2.45	✓
	Service Yards	0.8	0.8	0.9	2.05	1.90	2.65	✓
	Highways	0.8	0.8	0.9	2.05	1.90	2.65	✓

3.44 **Table 3.8** demonstrates that the proposed drainage system will provide significant treatment to surface water prior to discharge from the proposed development. It should be noted that for the on-plot non-residential parking water quality assessment, to provide a robust assessment, it is assumed that permeable paving will be used as this SuDS treatment measure provides a lesser pollution mitigation index score compared to bypass separators.

3.45 A Construction Environmental Management Plan (CEMP) will be prepared to support the DCO application and to ensure that the surrounding watercourses are not adversely affected during the construction stages.

Residual Risk and Designing for Exceedance

3.46 It is recommended that the final layout uses the proposed road infrastructure to provide drainage exceedance (overland flood flow) routes through the development and towards the periphery SuDS for events in excess of the capacity of the drainage system.

3.47 The detention basins have been designed to not flood during the 1 in 100-year + 40% critical storms, with additional freeboard provided above the sensitivity test events. In the event that the outfall for a basin becomes blocked, each detention basin flow control chamber will have a weir wall set above the anticipated 1 in 100-year +40% climate change critical storm water level, to provide a controlled location for water to overtop and drain into the downstream network, to be attenuated in the next detention basin, rather than immediately exceeding onto surrounding land.

3.48 If the Catchment 9 basin becomes blocked, exceedance flows will overtop and drain into the A42 culvert, as per the current conditions at the site.

3.49 The plots located within Catchments 6 and 7 should be designed such that any exceedance flows in the event of system blockage is kept on-plot and pools within the car parking and/or service yard areas.

3.50 In addition to the volume of storage provided within the main attenuation, there will be capacity within upstream pipes and manholes which has not been accounted for at this stage and a further level of redundancy to the network will therefore be provided.

4. MAINTENANCE

4.1 A management company will be appointed to maintain the SuDS features, including vegetation maintenance, trash screen clearing and regular outfall inspections. The inlet to the A42 culvert within the site boundary will also be included within the inspection and maintenance regime for the site.

4.2 Requirements for ongoing maintenance of the drainage network should form part of the Operation and Maintenance manual for the site and should be undertaken by the site management. Any specialist or proprietary products that are specified at detailed design should have a manufacturer specific maintenance regime which should be included within the document.

4.3 It is envisaged that the Operation and Maintenance manual will be developed at the detailed design stage, but some examples for the proposed detention basin, swales, and inlet to the A42 are provided below in **Table 4.1**, **Table 4.2** and **Table 4.3**, respectively.

Table 4.1: The SuDS Manual Typical Maintenance Schedule for Swales

Maintenance Schedule	Typical Frequency	Required Action
Regular Maintenance	Monthly	• Inspect inlets, outlets and overflows for blockages, and clear if required.
	Monthly (or as required)	• Remove litter and debris; and • Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours.
	Monthly (during growing season), or as required	• Cut grass – to retain grass height within specified design range.
	Monthly for first year then as required	• Manage other vegetation and remove nuisance plants.
	Monthly for 6 months, quarterly for 2 years, then half yearly	• Inspect vegetation coverage.
	Half yearly	• Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.
Occasional Maintenance	As required or if bare soil is exposed over > 10% of the swale treatment area	• Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.
Remedial Action	As required	• Repair erosion or other damage by re-turfing or reseeding; • Relevel uneven surfaces and reinstate design levels; • Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface; • Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip; and • Remove and dispose of oils or petrol residues using safe standard practices.

Table 4.2: The SuDS Manual Typical Maintenance Schedule for Detention Basins

Maintenance Schedule	Typical Frequency	Required Action
Regular Maintenance	Monthly	• Remove litter and debris; • Inspect inlets, outlets and overflows for blockages, and clear if required; and • Inspect banksides, structures, pipework etc for evidence of physical damage.
	Monthly (during growing season, or as required	• Cut grass – for spillways and access routes.
	Monthly for first year, then annually or as required	• Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.
	Monthly at start, then as required	• Manage other vegetation and remove nuisance plants.
	Half yearly (spring – before nesting season, and autumn	• Cut grass – meadow grass in and around basin.
	Annually	• Check any penstocks and other mechanical devices; • Tidy all dead growth before start of growing season; and • Manage wetland plants in outlet pool – where provided.
	Annually or as required	• Remove sediment from inlets, outlet and forebay.
Occasional Maintenance	As required	• Reseed areas of poor vegetation growth.
	Every 2 years, or as required	• Prune and trim any trees and remove cuttings.
	Every 5 years, or as required	• Remove sediment from inlets, outlets, forebay and main basin when required.
Remedial Action	As required	• Repair/rehabilitation of inlets, outlets and overflows; and • Relevel uneven surfaces and reinstate design levels.

Table 4.3: Typical Maintenance Schedule for the A42 Inlet Headwall

Maintenance Schedule	Typical Frequency	Required Action
Regular Maintenance	Monthly	• Undertake inspection of grating to ensure it is securely fixed without blockages.
	Monthly (during growing season)	• Strim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris.
	Annually, after major storm event, or as required	• Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage
	As required	• Undertake inspection of headwall after leaf fall in autumn.
Occasional Maintenance	As required	• Repair physical damage if necessary. • Remove and dispose of oils or petrol residues using safe standard practices.
Monitoring	Monthly / after large storm events	• Inspect structures for evidence of poor operation.
	Half yearly	• Inspect silt accumulation rates and establish appropriate removal, frequencies.

5. FOUL WATER DRAINAGE

5.1 Foul water will be drained from the proposed development separately to surface water.

5.2 Based on level constraints within the site and the location of the nearby public sewerage infrastructure, foul flows from the entire development cannot drain via gravity. Therefore, it is proposed that foul flows will be collected and conveyed through the development towards a Type 3 pumping station, to be located towards the southern extent of the development.

5.3 It is proposed to pump flows back through the development to the north and into the existing foul public sewer network located within the A453 in the northwest site boundary. An alternative foul outfall is within the EMIA land to the east of the proposed site access point.

5.4 A pre-development enquiry with STW (**Appendix 9**) anticipates that the local sewerage network does not currently have capacity to accept flows from the proposed development and hydraulic modelling is required to determine what improvements to the network are necessary.

5.5 Discussions are ongoing with STW confirm the foul water solution for the proposed development. The latest correspondence is included within **Appendix 9**.

5.6 The final foul outfall location is to be confirmed; however, a proposed pumping station and potential outfall locations are illustrated on the Conceptual Drainage Strategy within **Appendix 6**.

6. SUMMARY

6.1 This statement and supporting appendices demonstrate that the drainage design for the development will comply with the relevant local and national standards, specifically the hierarchy of discharge, runoff rate and volume criterion.

6.2 This SDS is intended to support a DCO and as such the level of detail included is commensurate and subject to the nature of the proposals.

Table 6.1: Sustainable Drainage Statement Summary

		Existing Site	Proposed Development
Approximate Site Area (Ha)		104 (approx.)	
Impermeable Area (Ha)		0	69.08 (approx.)
Outfall Location		Watercourse	Watercourse
Peak Runoff Rate (l/s)	**1 in 1-Year**	186.5	114.4
	QBAR	228.0	
	1 in 30-Year	455.9	
	1 in 100-Year	580.3	
	1 in 100-Year + CC	-	
Volume Control		-	Discharge rate limited below QBAR
Proposed Storage Volume		-	59,270m^3
Flow Control Type		-	Vortex
SuDS Features		-	Detention Basins, Swales and Downstream Defender
Maintenance Responsibility		-	Management Company

6.3 It is envisaged that the final drainage strategy will be determined during the detailed design stage, as the development layout is finalised.

APPENDICES

Appendix 1: Topographical Survey

N

Station Information:

Station	Easting (m)	Northing (m)	Level (m)
D1	446495.174	325438.125	87.825
D2	446600.470	325437.555	88.372
D3	446736.974	325433.074	88.162
D4	446866.060	325436.925	86.081
D5	446878.948	325372.322	85.201
D6	446947.221	325448.280	84.444
GH2	446101.602	325402.684	84.812
GH3	445856.595	325399.844	81.922
N2	446987.475	325220.991	83.873
R1	445582.903	325381.661	75.930
R2	445469.850	325374.391	79.274
SA1	446415.699	325424.224	87.303

OS Note:

Some services may have been omitted due to parked vehicles. The Ordnance Survey tile is to be used as a guide only.

OS Buildings *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigation Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36 (15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

Legend:

Buildings
Wall
Kerb line
Top of Bank
Drop kerb
Centre line
Top of bank
Station and Name
Station Level
Tree / Bush / Sapling
Area of Undergrowth
Woodland
Ridge Level
Eaves Level
Flat Roof Level
Gate
Fence types:
Hedgerow
Iron Railings
Wire Mesh
Post & Rail
Post & Wire
Chain Link
Wooden Panels
Close Boarded
Steel Palisade
Overhead Cable
Concrete edge
Tarmac edge
Grass verge
Camber/Overhang
Verge
Bottom of bank
IC Inspection chamber
Pinv Pipe invert
Gy Gully
Bg Back gully
Dp Down pipe
Pipe Pipe above ground
MH Manhole
WL Water level
FL Flood light
Lp Lamp post
Tp Telegraph post
Ep Electricity post
Tl Traffic light
Bus Bus stop
Sv Stop valve
St Stop tap
Ev Earth rod
Wm Water meter
Gas Gas valve
Av Air valve
ICU Unidentified inspection
Ws Wash out
Rs Rodding eye
BB Belisha beacon
CTV Cable tv
Mkr Marker post
Gmk Gas marker post
Sw Soffit
Fh Fire hydrant
Bol Bollard
IB Illuminated bollard
Bin Rubbish bin
Vp VHH pole
GH Ground light
Lbox Letter box
Stmp Tree Stump
Stile Stile
IFL Internal floor level
ThL Threshold level
Sp Sign post
TH Trathole
BH Borehole
ELC Electric
BT British Telecom
Control box
TT Tactile
BP Brick paved
CPS Concrete paving slabs
CVR Cover
Rtwall Retaining wall
TWL Top of Wall Level
TCL Tree canopy level
G Grith
MG Multi grith
IC Inspection chamber
CL Cover level
IL Invert level
UTR Unable to raise

Rev	Date	Description	Drawn	Q. Rev
1	30.08.22	Additional survey	TC	GH14669

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Measured Building Surveys
- 3D Laser Scanning
- Revit & BIM Models

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CLIENT
SEGRO PLC

PROJECT
EMG Phase 2 (Freeport)
Hyam's Lane, Diseworth
Derby, DE74 2QD

TITLE
Topographical Survey

SCALE	DATE
A0@ 1: 2000	19.04.22
DRAWN	QUALITY REF
JM	GH13710

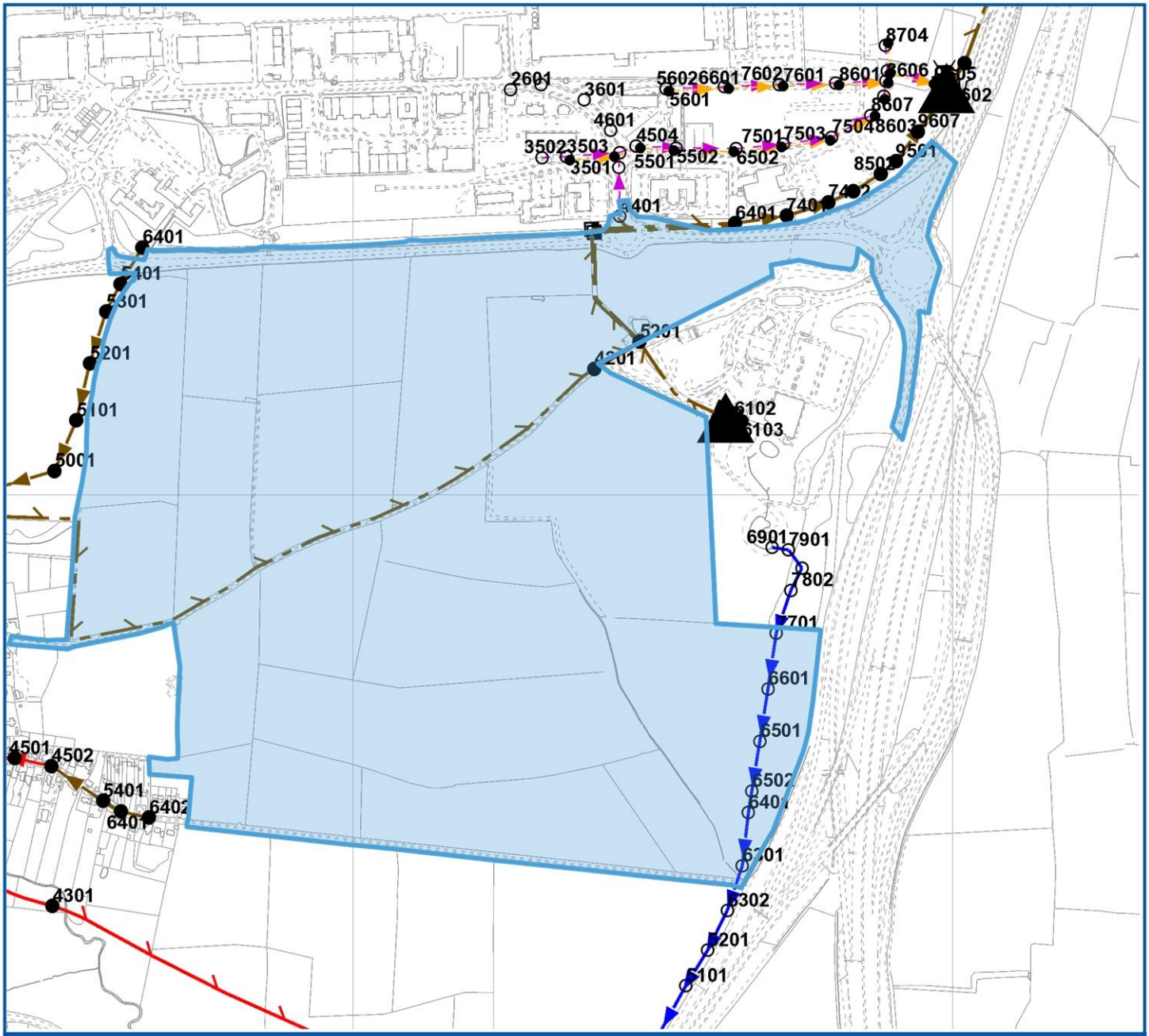
Level datum	See note
Grid orientation	See note
Job number	34529A

Drawing No. 34529A_T Rev. 1

Comments
This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.
All dimensions should be checked on site prior to design and construction.
Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

Appendix 2: Sewer Asset Records



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 Sewe
- 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

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

Manhole Annotation
- Print1000mLine

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

SEWER RECORD

O/S Map Scale: 1:10,000

This map is centred upon:

Date of Issue: 25-11-24

X: 446366.46 **Y:** 324962.64

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**

Sewer Node Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK46238704	49.185	47.76	47.48	S	CO	C	525	<UNK>	57.71	31/12/1899 00:00:00
SK46246501	69.188	66.45	63.58	S	CO	C	375	<UNK>	29.31	31/12/1899 00:00:00
SK46259608	81.716	80.09	<UNK>	F	VC	C	300	<UNK>	0.35	31/12/1899 00:00:00
SK46258702	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46244001	56.3829	54.65	54.67	S	CO	C	375	<UNK>	<UNK>	31/12/1899 00:00:00
SK46255602	<UNK>	<UNK>	<UNK>	S	CO	C	450	<UNK>	0	31/12/1899 00:00:00
SK46239706	50.45	49.52	48.93	S	CO	C	300	<UNK>	23.05	31/12/1899 00:00:00
SK46254501	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46258501	91.01	88.72	85.49	F	VC	C	300	<UNK>	16.41	31/12/1899 00:00:00
SK46239704	50.525	48.9	48.668	C	CO	C	<UNK>	<UNK>	<UNK>	17/01/2022 00:00:00
SK45255401	73.564	70.564	70.477	F	VC	C	300	<UNK>	577.44	31/12/1899 00:00:00
SK45255001	69.938	68.038	67.704	F	VC	C	300	<UNK>	356.36	31/12/1899 00:00:00
SK46254502	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46254505	<UNK>	<UNK>	<UNK>	S	CO	C	450	<UNK>	0	31/12/1899 00:00:00
SK45243504	59.2299	57.46	57.18	C	VC	C	225	<UNK>	13.39	31/12/1899 00:00:00
SK46247801	87.207	83.77	83.05	S	CO	C	375	<UNK>	57.58	31/12/1899 00:00:00
SK46256502	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46255501	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46258601	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46259603	80.16	<UNK>	<UNK>	F	<UNK>	C	300	<UNK>	0	31/12/1899 00:00:00
SK47231703	50.8499	48.15	48.174	C	CO	C	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK46254201	<UNK>	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46239701	49.2449	47.68	44.98	S	CO	C	600	<UNK>	39.51	31/12/1899 00:00:00
SK46254401	<UNK>	<UNK>	<UNK>	S	VC	C	300	<UNK>	0	31/12/1899 00:00:00
SK46246401	63.02	60.58	58.58	S	CO	C	375	<UNK>	45.06	31/12/1899 00:00:00
SK47231701	50.844	48.154	47.92	C	CO	C	<UNK>	<UNK>	351.78	31/12/1899 00:00:00
SK46245101	57.1629	55.62	55.18	S	CO	C	375	<UNK>	228.91	31/12/1899 00:00:00
SK46256103	<UNK>	<UNK>	88.34	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46238702	52.235	49.32	49.09	C	CO	C	<UNK>	<UNK>	339.83	31/12/1899 00:00:00
SK47232701	51.22	47.9	47.765	C	CO	C	<UNK>	<UNK>	603.43	31/12/1899 00:00:00
SK45255201	71.732	69.532	68.964	F	VC	C	300	<UNK>	171.81	31/12/1899 00:00:00
SK45253001	68.804	67.704	63.25	F	VC	C	<UNK>	<UNK>	22.29	31/12/1899 00:00:00
SK46246302	59.6199	57.49	56.78	S	CO	C	375	<UNK>	102.99	31/12/1899 00:00:00
SK46258701	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46245001	56.3079	55.16	54.71	S	CO	C	375	<UNK>	196.53	31/12/1899 00:00:00
SK45245401	65.3399	63.31	61.51	F	VC	C	150	<UNK>	58.03	31/12/1899 00:00:00
SK46238703	52.095	50.44	47.73	S	CO	C	525	<UNK>	13.14	31/12/1899 00:00:00
SK47231704	50.895	48.5	48.2	C	CO	C	<UNK>	<UNK>	196.83	31/12/1899 00:00:00
SK46253501	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46258603	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK47233701	50.71	47.76	47.51	C	CO	C	<UNK>	<UNK>	301.16	31/12/1899 00:00:00

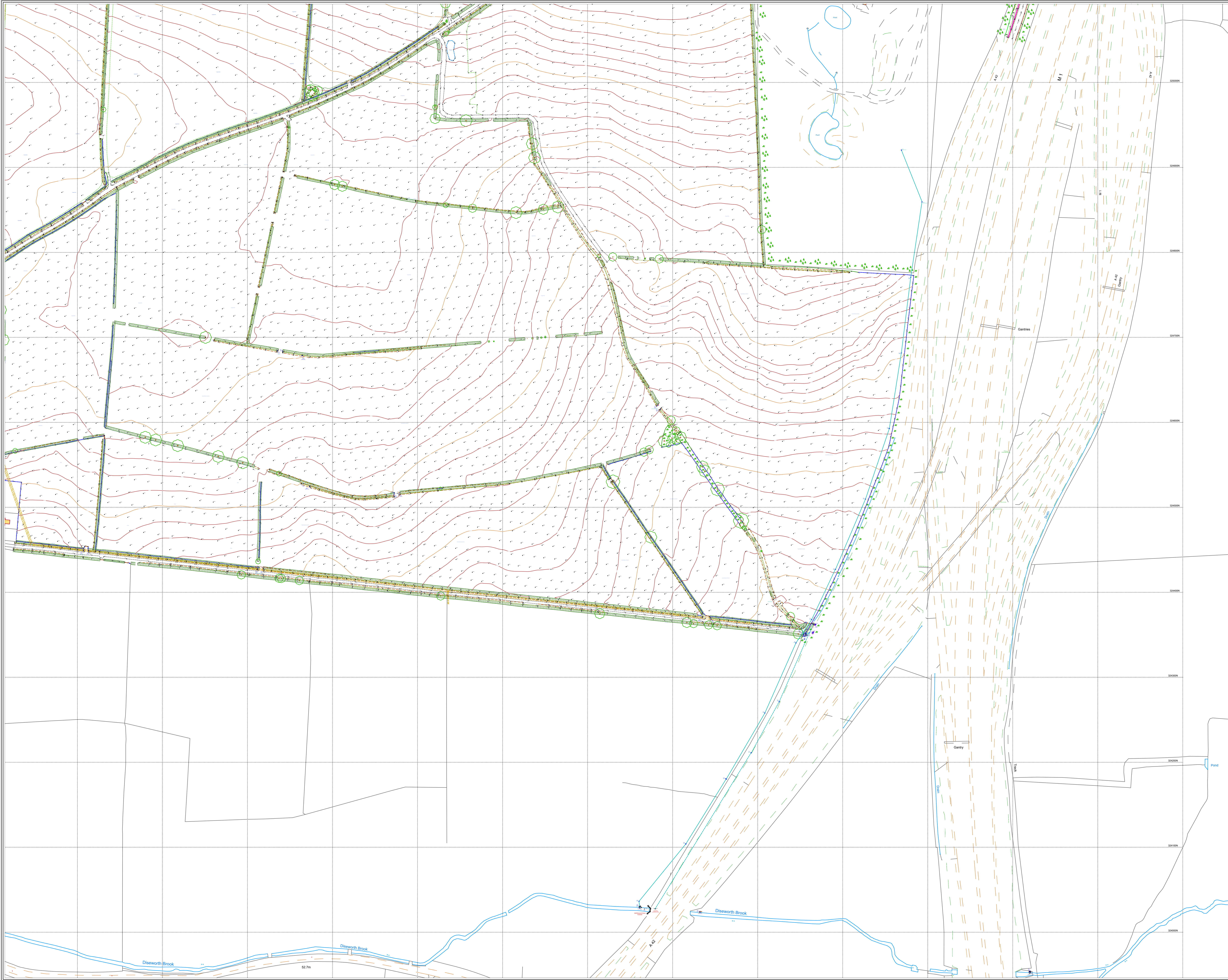
Sewer Node Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK46257401	<UNK>	<UNK>	90.62	F	VC	C	<UNK>	<UNK>	<UNK>	31/12/1899 00:00:00
SK46259607	83.6419	81.74	80.12	F	VC	C	300	<UNK>	34.57	31/12/1899 00:00:00
SK46258704	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46257501	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46255502	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46256102	93.1679	88.33	87.63	F	VC	C	225	<UNK>	19.51	31/12/1899 00:00:00
SK45246402	66.2699	64.41	64.02	F	VC	C	150	<UNK>	123.13	31/12/1899 00:00:00
SK46258608	<UNK>	<UNK>	<UNK>	S	CO	C	750	<UNK>	0	31/12/1899 00:00:00
SK46258607	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46245201	58.755	56.78	55.66	S	CO	C	375	<UNK>	62.32	31/12/1899 00:00:00
SK46257402	92.5179	90.58	88.77	F	VC	C	300	<UNK>	24.86	31/12/1899 00:00:00
SK46258502	87.8349	85.49	83.93	F	VC	C	300	<UNK>	20.51	31/12/1899 00:00:00
SK46256601	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46246502	65.302	63.54	60.6	S	CO	C	375	<UNK>	12.57	31/12/1899 00:00:00
SK46259602	80.16	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46253502	<UNK>	<UNK>	<UNK>	S	CO	C	375	<UNK>	0	31/12/1899 00:00:00
SK45255301	73.177	70.477	69.532	F	VC	C	300	<UNK>	95.53	31/12/1899 00:00:00
SK45244301	55.0999	<UNK>	<UNK>	C	PE	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46257602	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46246301	60.332	58.56	57.5	S	CO	C	375	<UNK>	74.13	31/12/1899 00:00:00
SK45244501	61.7599	59.75	57.48	C	VC	C	225	<UNK>	36.22	31/12/1899 00:00:00
SK46255601	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46256602	<UNK>	<UNK>	<UNK>	S	CO	C	525	<UNK>	0	31/12/1899 00:00:00
SK46258605	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46254503	<UNK>	<UNK>	<UNK>	S	CO	C	525	<UNK>	0	31/12/1899 00:00:00
SK46258604	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK45246401	65.3499	64.01	63.32	F	VC	C	150	<UNK>	49.86	31/12/1899 00:00:00
SK47250701	80.0309	<UNK>	88.8	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46257502	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46259606	80.16	<UNK>	<UNK>	F	<UNK>	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00
SK46246901	85.5559	84.43	84.21	S	CO	C	375	<UNK>	126.36	31/12/1899 00:00:00
SK46258602	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46256501	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46254504	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46257503	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
SK46259501	86.0569	83.9	81.76	F	VC	C	300	<UNK>	28.97	31/12/1899 00:00:00
SK46247802	84.507	82.91	76.01	S	CO	C	375	<UNK>	10.91	31/12/1899 00:00:00
SK46259605	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46258703	<UNK>	<UNK>	<UNK>	S	CO	C	1200	<UNK>	0	31/12/1899 00:00:00
SK46258606	<UNK>	<UNK>	<UNK>	S	CO	C	1200	<UNK>	0	31/12/1899 00:00:00
SK46246601	72.0059	69.76	66.49	S	CO	C	375	<UNK>	26.93	31/12/1899 00:00:00
SK46255201	99.359	97.94	<UNK>	F	PVC	<UNK>	<UNK>	<UNK>	0	31/12/1899 00:00:00

Sewer Node Sewer Pipe Data

Reference	Cover Level	Invert Level Upstream	Invert Level Downstream	Purpose	Material	Pipe Shape	Max Size	Min Size	Gradient	Year Laid
SK46256401	95.2419	93.64	<UNK>	F	VC	C	300	<UNK>	0.93	31/12/1899 00:00:00
SK46239703	50.805	49.08	48.91	C	CO	C	<UNK>	<UNK>	276.53	31/12/1899 00:00:00
SK46239702	30.43	27.71	47.75	S	CO	C	600	<UNK>	<UNK>	31/12/1899 00:00:00
SK46253503	<UNK>	<UNK>	<UNK>	S	CO	C	450	<UNK>	0	31/12/1899 00:00:00
SK45255101	70.8639	68.964	68.038	F	VC	C	300	<UNK>	99.44	31/12/1899 00:00:00
SK46247901	86.9759	84.2	83.81	S	CO	C	375	<UNK>	95.85	31/12/1899 00:00:00
SK47230700	<UNK>	48.668	48.51	C	CO	C	<UNK>	<UNK>	<UNK>	17/01/2022 00:00:00
SK46257601	<UNK>	<UNK>	<UNK>	F	VC	C	225	<UNK>	0	31/12/1899 00:00:00
SK46247701	77.507	74.86	69.81	S	CO	C	375	<UNK>	18.46	31/12/1899 00:00:00
SK45256401	74.7939	70.794	70.564	F	VC	C	300	<UNK>	307.52	31/12/1899 00:00:00
SK45244502	63.33	61.46	59.76	C	VC	C	150	<UNK>	35.89	31/12/1899 00:00:00
SK46257504	<UNK>	<UNK>	<UNK>	S	CO	C	600	<UNK>	0	31/12/1899 00:00:00
<UNK>	<UNK>	<UNK>	<UNK>	F	VC	<UNK>	<UNK>	<UNK>	<UNK>	01/12/2020 00:00:00

Appendix 3: CCTV Survey



N

CCTV KEY

- Surface Water
- Assumed Surface Water
- Foul Water
- Assumed Foul Water
- Combined Water
- Assumed Combined Water

ABBREVIATIONS

B	Sewer broken at this point
BJ	Broken joint
CC	Circumferential crack
CCJ	Circumferential crack on joint
CIPR	Cured in place repair
CIPP	Cured in place pipe
CM	Multiple cracks
CMJ	Cracks multiple on joint
CN	Connection
CUD	Loss of vision (silt)
CUW	Camera underwater
CUZ	Loss of vision (Camera under water)
CW	Combined water
CXD	Connection defective
CXI	Connection intruding
DC	Diameter of pipe changes
DEC	Settled desposits hard or compacted
DEE	Encrustation scale light
DEEJ	Encrustation light at joint
DEF	Debris foulings
DER	Debris rubble
DES	Debris silt
DEX	Othersettled deposits
DEZ	Other attached deposits
FC	Fracture circumferential
FCJ	Fracture circumferential on joint
FL	Fracture longitudinal
FM, FMJ	Fracture multiple
FW	Foul water
GY	Gully
H	Hole
HJ	Hole at joint
HPWJ	High pressure water jetting
IR	Infiltration running
IS	Infiltration seeping
JD	Joint displaced medium
JN	Junction
JXD	Junction defective
LD	Line down
LL	Line left
LR	Line right
LU	Line up
NCA	No camera access
MH	Manhole
OJ	Open joint medium
OBP	Obstruction (external pipe or cable)
REM	General observation at this point with explaination
RFJ	Roots fine at joint
RMJ	Roots mass at joint
RE	Rodding eye
RT	Root tap
SW	Surface Water
SA	Survey Abandoned
UTL	Unable to locate
UTR	Unable to raise
UTS	Unable to survey
WL	Water level
XP	Collapse to pipe

DISCLAIMER

Whilst every effort has been taken in the preparation of this drawing, the original land marks/apparatus configuration may have been altered since the survey/drawing was produced. The user shall make further enquiries and investigations to satisfy himself as to the accuracy of this drawing and position of the apparatus. The exact positions of the apparatus should be verified by the use of suitable detection devices and safe digging practices in accordance with HSG47, further advice on the location of apparatus should be recommended by the owner. No representation is made by Greenhatch Group, its agents or servants as to the accuracy, completeness, and sufficiency or otherwise of this drawing and the position of the apparatus.

All apparatus shall be treated as live unless proved otherwise by the owner. It is the users responsibility to ensure that the information on the location of apparatus is provided to all persons (either direct labour or contractors) working in proximity to the apparatus.

Rev	Date	Description	Drawn	Q. Ref.

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Measured Building Surveys
- 3D Laser Scanning
- Revit & BIM Models

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t. 0048 32 202 2292
www.greenhatch.pl

CLIENT

SEGRO PLC

PROJECT

**EMG Phase 2(Freeport)
Hyam's Lane, Diseworth
Derby, DE74 2QD**

TITLE

CCTV Survey

SCALE	DATE
A1@ 1: 2000	14/09/2022
DRAWN	QUALITY REF
AB	SB

Level datum	Drawing supplied by client
Grid orientation	Drawing supplied by client
Job number	34529A

Drawing No.	Rev.
34529A_CCTV	0

Comments

This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.

All dimensions should be checked on site prior to design and construction.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

CCTV Drainage Survey

East Midlands Gateway, Longholden.

CCTV DRAINAGE SURVEY REPORT

Sewer Surveys UK Ltd
14B Orgreave Close, Sheffield
Tel. 0114 251 3481
info@sewersurveysuk.co.uk

Table of Contents

Project Name	Project Number	Project Date
site	1	30/08/2022

Sewer Surveys UK Ltd
14B Orgreave Close, Sheffield
Tel. 0114 251 3481
info@sewersurveysuk.co.uk

Project Information

Project Name	Project Number	Project Date
site	1	30/08/2022

Client

Company: Greenhatch Group
Contact: Adam Sneddon
Department: Associate Director
Street: Rowan House, Duffield Road
Town or City: Little Eaton, Derby
Post Code: DE21 5DR
Phone: 01332 830044
Email: utilities@greenhatch-group.co.uk

Site

Contact: Adam Sneddon
Department: Associate Director
Street: East Midlands Gateway
Town or City: Longholden
Phone: 01332 830044
Email: utilities@greenhatch-group.co.uk

Contractor

Company: Sewer Surveys UK Ltd
Contact: Andrew Froggatt/ Simon Bennett
Department: Directors
Street: 14B Orgreave Close
Town or City: Sheffield
Post Code: S13 9NP
Phone: 0114 251 3481
Mobile: 07837 768649/07808 220160
Email: info@sewersurveysuk.co.uk

Sewer Surveys UK Ltd
14B Orgreave Close, Sheffield
Tel. 0114 251 3481
info@sewersurveysuk.co.uk

Section Inspection - 06/09/2022 - MH01X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	06/09/22	15:16	1	No Rain Or Snow	Not Specified	MH01X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	1

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH01
Road:	Long Holden (Off)	**Inspected Length:**	89.73 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	89.73 m	**Downstream Node NAMS Ref**	MH02
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:777

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MH01					
0.00	MH	Start node, manhole, reference: MH01	00:04:32		
0.00	WL	Water level 0 % height/diameter	00:04:38		
16.50	REM	General remark: GENERAL PHOTO	00:05:04	_393a61b3-f6db-40ee-b008-51	
89.73	MHF	Finish node type, manhole	00:14:17		
MH02					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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info@sewersurveysuk.co.uk

Section Pictures - 06/09/2022 - MH01X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Downstream	MH01X	1	

_393a61b3-f6db-40ee-b008-516be3f87a8c.jpg, 00:05:04, 16.50 m
General remark, GENERAL PHOTO

Sewer Surveys UK Ltd
14B Orgreave Close, Sheffield
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Section Inspection - 06/09/2022 - MH02X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
2	1	06/09/22	15:16	1	No Rain Or Snow	Not Specified	MH02X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	2

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH02
Road:	Long Holden (Off)	**Inspected Length:**	90.35 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	90.35 m	**Downstream Node NAMS Ref**	MH03
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	450 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments: WRONG SIZE ON RECORDING
Recommendations:

Scale: 1:783	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m MH02						
	0.00	MH	Start node, manhole, reference: MH02	00:00:08		
	0.00	WL	Water level 0 % height/diameter	00:00:14	_3791dc5 5-d929-46 18-bb2e-0	
	90.35	MHF	Finish node type, manhole	00:12:10		
MH03 Depth: m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH02X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
2	Downstream	MH02X	1	

_3791dc55-d929-4618-bb2e-0e758fedf0dd.jpg, 00:00:14, 0.00 m
Water level 0 % height/diameter

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Section Inspection - 06/09/2022 - MH04X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	1	06/09/22	15:16	1	No Rain Or Snow	Not Specified	MH04X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	3

Town or Village:		**Inspection Direction:**	Upstream	**Upstream Node NAMS Re**	MH04
Road:	Long Holden (Off)	**Inspected Length:**	89.04 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	89.04 m	**Downstream Node NAMS Ref**	MH01
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:771

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MH01					
0.00	MH	Start node, manhole, reference: MH04	00:00:08		
0.00	WL	Water level 0 % height/diameter	00:00:16		
1.64	CN	Connection at 06 o´clock, dia 350 mm: BACKDROP	00:01:16		
30.07	GP	General Condition photograph	00:05:17	_65dd77e6-3518-4ae3-b96e-6	
89.04	MHF	Finish node type, manhole	00:12:26		
MH04					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH04X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Upstream	MH04X	1	

_65dd77e6-3518-4ae3-b96e-6d0e2b6ca48d.jpg, 00:05:17, 30.07 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH05X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	1	06/09/22	15:17	1	No Rain Or Snow	Not Specified	MH05X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	4

Town or Village:		**Inspection Direction:**	Upstream	**Upstream Node NAMS Re**	MH05
Road:	Long Holden (Off)	**Inspected Length:**	65.09 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	65.09 m	**Downstream Node NAMS Ref**	MH04
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:564

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m MH04					
0.00	MH	Start node, manhole, reference: MH05	00:00:13		
0.00	WL	Water level 0 % height/diameter	00:00:18		
31.36	GP	General Condition photograph	00:05:20	_9bc4a41 2-f72a-40b c-90e6-bc	
65.09	MHF	Finish node type, manhole	00:09:52		
MH05 Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH05X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Upstream	MH05X	1	

_9bc4a412-f72a-40bc-90e6-bc7fabc42619.jpg, 00:05:20, 31.36 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH03X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	1	06/09/22	15:17	1	No Rain Or Snow	Not Specified	MH03X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	5

Town or Village:		**Inspection Direction:**	Upstream	**Upstream Node NAMS Re**	MH03
Road:	Long Holden (Off)	**Inspected Length:**	87.86 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	87.86 m	**Downstream Node NAMS Ref**	MH06
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:761

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MH06					
0.00	MH	Start node, manhole, reference: MH03	00:00:14		
0.90	WL	Water level 0 % height/diameter	00:00:18		
30.52	GP	General Condition photograph	00:03:47	_f72338c4-c7ce-444e-ab20-4d	
87.86	MHF	Finish node type, manhole	00:10:07		
MH03					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH03X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
5	Upstream	MH03X	1	

_f72338c4-c7ce-444e-ab20-4d2f6b493fe3.jpg, 00:03:47, 30.52 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH06X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	1	06/09/22	15:17	1	No Rain Or Snow	Not Specified	MH06X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	6

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH06
Road:	Long Holden (Off)	**Inspected Length:**	90.10 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	90.10 m	**Downstream Node NAMS Ref**	MH07
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:781

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m MH06					
0.00	MH	Start node, manhole, reference: MH06	00:00:07		
0.00	WL	Water level 0 % height/diameter	00:00:11		
41.93	GP	General Condition photograph	00:05:50		
90.10	MHF	Finish node type, manhole	00:10:51		
MH07 Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Inspection - 06/09/2022 - MH07X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	1	06/09/22	15:17	1	No Rain Or Snow	Not Specified	MH07X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	7

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH07
Road:	Long Holden (Off)	**Inspected Length:**	65.27 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	65.27 m	**Downstream Node NAMS Ref**	MH08
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:566

Depth: m
MH07

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH07	00:00:41		
0.01	WL	Water level 5 % height/diameter	00:00:43		
15.15	GP	General Condition photograph	00:02:51	_47d42bd8-e68a-4e2a-90c6-4	
32.95	GP	General Condition photograph	00:05:07	_30785355-44ad-45cd-aeeb-8	
54.13	GP	General Condition photograph	00:07:36	_68d97c09-de87-401e-bf68-54	
65.27	MHF	Finish node type, manhole	00:09:09		

MH08
Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH07X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
7	Downstream	MH07X	1	

_47d42bd8-e68a-4e2a-90c6-400fcb21c963.jpg, 00:02:51, 15.15 m
General Condition photograph

_30785355-44ad-45cd-aeeb-84b5ac5cf1b2.jpg, 00:05:07, 32.95 m
General Condition photograph

_68d97c09-de87-401e-bf68-5477b2e16760.jpg, 00:07:36, 54.13 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH08X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	1	06/09/22	15:17	Not Specified	No Rain Or Snow	Not Specified	MH08X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	8

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH08
Road:	Long Holden (Off)	**Inspected Length:**	33.60 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	33.60 m	**Downstream Node NAMS Ref**	MH09
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:291

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH08	00:00:03		
0.01	WL	Water level 5 % height/diameter	00:00:05		
15.33	GP	General Condition photograph	00:02:21	_e4bb61a4-ab0a-467d-93a4-6	
33.60	MHF	Finish node type, manhole	00:05:02		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH08X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Downstream	MH08X		

_e4bb61a4-ab0a-467d-93a4-65bbdad6d939.jpg, 00:02:21, 15.33 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH09X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	1	06/09/22	15:17	Not Specified	No Rain Or Snow	Not Specified	MH09X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	9

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH09
Road:	Long Holden (Off)	**Inspected Length:**	90.25 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	90.25 m	**Downstream Node NAMS Ref**	MH10
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:782

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MH09					
0.00	MH	Start node, manhole, reference: MH09	00:00:00		
0.01	WL	Water level 5 % height/diameter	00:00:00		
15.66	GP	General Condition photograph	00:03:03	_390ca381-15d0-418f-a45c-e2	
32.66	GP	General Condition photograph	00:05:45	_96ce8c79-5e2d-478d-bf0e-58d	
90.25	MHF	Finish node type, manhole	00:11:14		
MH10					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH09X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
9	Downstream	MH09X		

_390ca381-15d0-418f-a45c-e2b560419aa3.jpg, 00:03:03, 15.66 m
General Condition photograph

_96ce8c79-5e2d-478d-bf0e-58d48171529f.jpg, 00:05:45, 32.66 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH11X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	1	06/09/22	15:17	Not Specified	No Rain Or Snow	Not Specified	MH11X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	10

Town or Village:		**Inspection Direction:**	Upstream	**Upstream Node NAMS Re**	MH11
Road:	Long Holden (Off)	**Inspected Length:**	89.59 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	89.59 m	**Downstream Node NAMS Ref**	MH12
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:776

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH11	00:00:19		
0.00	WL	Water level 0 % height/diameter	00:00:23		
20.03	GP	General Condition photograph	00:02:44	_c52f416b-4ec1-4efa-af89-8528	
50.15	GP	General Condition photograph	00:05:17	_612b8f39-a50e-4149-ade1-68	
89.59	MHF	Finish node type, manhole	00:08:35		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH11X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
10	Upstream	MH11X		

_c52f416b-4ec1-4efa-af89-8528181f16d6.jpg, 00:02:44, 20.03 m
General Condition photograph

_612b8f39-a50e-4149-ade1-68436daa23fc.jpg, 00:05:17, 50.15 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH10X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	1	06/09/22	15:18	Not Specified	No Rain Or Snow	Not Specified	MH10X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	11

Town or Village:		**Inspection Direction:**	Upstream	**Upstream Node NAMS Re**	MH10
Road:	Long Holden (Off)	**Inspected Length:**	89.68 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	89.68 m	**Downstream Node NAMS Ref**	MH11
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: **1:777**

Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH10	00:00:09		
0.00	WL	Water level 0 % height/diameter	00:00:13		
21.16	GP	General Condition photograph	00:02:40	_b9f9db0a-aa81-41f0-8fe2-300d	
49.57	GP	General Condition photograph	00:05:13	_6d3894c7-fb04-44b7-aa8c-0f8	
89.68	MHF	Finish node type, manhole	00:09:08		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH10X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
11	Upstream	MH10X		

_b9f9db0a-aa81-41f0-8fe2-300d445328ad.jpg, 00:02:40, 21.16 m
General Condition photograph

_6d3894c7-fb04-44b7-aa8c-0f877416d629.jpg, 00:05:13, 49.57 m
General Condition photograph

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Section Inspection - 06/09/2022 - MH12X

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	1	06/09/22	15:18	Not Specified	No Rain Or Snow	Not Specified	MH12X

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	12

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH12
Road:	Long Holden (Off)	**Inspected Length:**	86.73 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	86.73 m	**Downstream Node NAMS Ref**	MH13
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:751

Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m					
MH12					
0.00	MH	Start node, manhole, reference: MH12	00:00:07		
0.00	WL	Water level 0 % height/diameter	00:00:11		
24.64	GP	General Condition photograph	00:02:50	_03a2ace7-3884-44ee-9bcc-2	
60.31	GP	General Condition photograph	00:05:21	_f22a16c7-2dd7-4872-a5fb-448	
86.73	MHF	Finish node type, manhole	00:08:03		
MH13					
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

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Section Pictures - 06/09/2022 - MH12X

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
12	Downstream	MH12X		

_03a2ace7-3884-44ee-9bcc-249d12e54f09.jpg, 00:02:50, 24.64 m
General Condition photograph

_f22a16c7-2dd7-4872-a5fb-448f33d4f7f3.jpg, 00:05:21, 60.31 m
General Condition photograph

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info@sewersurveysuk.co.uk

Section Inspection - 31/08/2022

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	1	31/08/22	14:56	Not Specified	No Rain Or Snow	Not Specified	Not Specified

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	13

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	MH13
Road:	Long Holden (Off)	**Inspected Length:**	5.60 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	5.60 m	**Downstream Node NAMS Ref**	OUTLET1
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	375 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50	Position [m]		Code	Observation	MPEG	Photo	Grade
	0.00		MH	Start node, manhole, reference: MH13	00:00:06		
	0.01		WL	Water level 0 % height/diameter	00:00:11		
	0.90	S1	DES	Settled deposits fine 5 % cross-sectional area loss, Start	00:01:28		
	3.08	F1	DES	Settled deposits fine 5 % cross-sectional area loss, Finish	00:02:15		1
	5.12		JDM	Joint displaced medium	00:03:01	_59d4ae3c-aae6-4fce-aa25-b8	1
	5.60		OFF	Finish node type, outfall	00:03:53		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	1.0	0.2	1.0	1.0	1	0.0	0.0	0.0	1.0

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Section Pictures - 31/08/2022

Section	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
13	Downstream			

_59d4ae3c-aae6-4fce-aa25-b87ad489547b.jpg, 00:03:01, 5.12 m
Joint displaced medium

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Section Inspection - 01/09/2022

Section	Inspection	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	1	01/09/22	8:22	Not Specified	No Rain Or Snow	Not Specified	Not Specified

Operator	Vehicle	Camera	Preset Length	Legal Status	NAMS ID
SBY	YR67 VYO	Forward View	Not Specified	Not Specified	14

Town or Village:		**Inspection Direction:**	Downstream	**Upstream Node NAMS Re**	INLET
Road:	Long Holden (Off)	**Inspected Length:**	3.24 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	3.24 m	**Downstream Node NAMS Ref**	MH14
Surface Type:		**Joint Length:**	2.50 m	**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	C
Type of Pipe:		**Dia/Height:**	525 mm
Flow Control:		**Pipe Material:**	Concrete
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:	Routine inspection of condition	**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50

Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		OC	Start node, other special chamber, reference: INLET	00:00:07		
0.90		WL	Water level 5 % height/diameter	00:00:14		
0.91	S1	DES	Settled deposits fine 5 % cross-sectional area loss, Start	00:00:27		
3.24	F1	DES	Settled deposits fine 5 % cross-sectional area loss, Finish	00:01:30		1
3.24		MHF	Finish node type, manhole	00:01:58		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
0	0.0	0.0	0.0	1.0	1	0.0	0.0	0.0	1.0

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Section Profile

Project Name	Project Number	Project Date
site	1	30/08/2022

C, 375 mm

Section	Upstream Node NAMS Ref	Downstream Node NAMS Ref	Date	Road	Pipe Material	Total Length	Inspected Length
1	MH01	MH02	06/09/2022	LONG HOLDEN (OFF)	Concrete	89.73 m	89.73 m
3	MH04	MH01	06/09/2022	LONG HOLDEN (OFF)	Concrete	89.04 m	89.04 m
4	MH05	MH04	06/09/2022	LONG HOLDEN (OFF)	Concrete	65.09 m	65.09 m
5	MH03	MH06	06/09/2022	LONG HOLDEN (OFF)	Concrete	87.86 m	87.86 m
6	MH06	MH07	06/09/2022	LONG HOLDEN (OFF)	Concrete	90.10 m	90.10 m
7	MH07	MH08	06/09/2022	LONG HOLDEN (OFF)	Concrete	65.27 m	65.27 m
8	MH08	MH09	06/09/2022	LONG HOLDEN (OFF)	Concrete	33.60 m	33.60 m
9	MH09	MH10	06/09/2022	LONG HOLDEN (OFF)	Concrete	90.25 m	90.25 m
10	MH11	MH12	06/09/2022	LONG HOLDEN (OFF)	Concrete	89.59 m	89.59 m
11	MH10	MH11	06/09/2022	LONG HOLDEN (OFF)	Concrete	89.68 m	89.68 m
12	MH12	MH13	06/09/2022	LONG HOLDEN (OFF)	Concrete	86.73 m	86.73 m
13	MH13	OUTLET1	31/08/2022	LONG HOLDEN (OFF)	Concrete	5.60 m	5.60 m

Total: 12 Inspections x C 375 mm = 882.54 m Total Length and 882.54 m Inspected Length

C, 450 mm

Section	Upstream Node NAMS Ref	Downstream Node NAMS Ref	Date	Road	Pipe Material	Total Length	Inspected Length
2	MH02	MH03	06/09/2022	LONG HOLDEN (OFF)	Concrete	90.35 m	90.35 m

Total: 1 Inspection x C 450 mm = 90.35 m Total Length and 90.35 m Inspected Length

C, 525 mm

Section	Upstream Node NAMS Ref	Downstream Node NAMS Ref	Date	Road	Pipe Material	Total Length	Inspected Length
14	INLET	MH14	01/09/2022	LONG HOLDEN (OFF)	Concrete	3.24 m	3.24 m

Total: 1 Inspection x C 525 mm = 3.24 m Total Length and 3.24 m Inspected Length

Total: 14 Inspections = 976.13 m Total Length and 976.13 m Inspected Length

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Scoring Summary

Project Name	Project Number	Project Date
site	1	30/08/2022

Structural Defects

Section	PLR	Grade	Description
All inspected pipes are in an acceptable structural condition (< grade 3).			

Service / Operational Condition

Section	PLR	Grade	Description
All inspected pipes are in an acceptable service condition (< grade 3).			

Abandoned Surveys

Section	PLR	Description
All inspections complete, none are abandoned.		

Information

These scoring summaries are based on the SRM grading from the WRc.

Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH01	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 30/08/22
Manufacturer:		Grating:

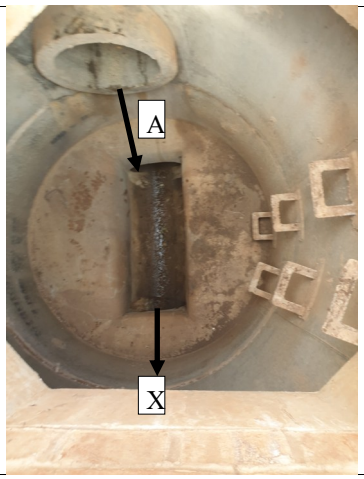
COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 4	Depth: 600	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 6	No. of Ladders:	No. of Landings:		
Size: 1200/1200	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A	MH04		C	375				CO		1.49	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	X	MH02		C	375				CO		2.67	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH02	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 30/08/22
Manufacturer:		Grating:

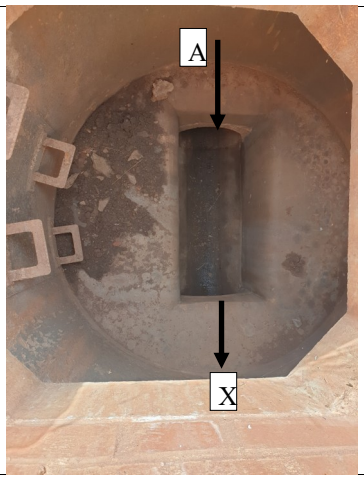
COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:620/620	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 5	Depth: 680	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 5	No. of Ladders:	No. of Landings:		
Size: 1200/1200	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH01		C	375				CO		2.20	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH03		C	375				CO		2.26	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH03	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 30/08/22
Manufacturer:		Grating:

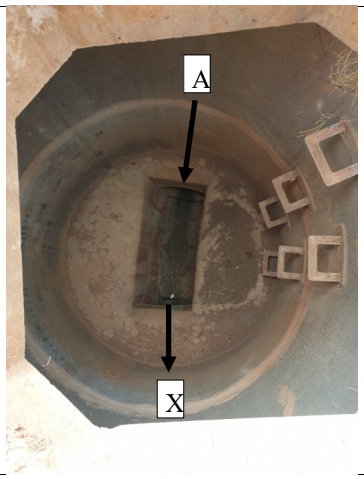
COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth: 450	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 7	No. of Ladders:	No. of Landings:		
Size: 1200/1200	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH02		C	375				CO		2.70	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH06		C	375				CO		2.73	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH06	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 30/08/22
Manufacturer:		Grating:

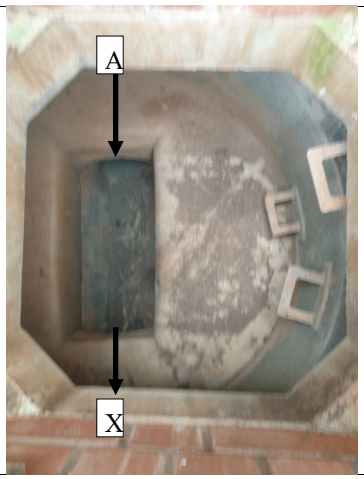
COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth: 450	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 3	No. of Ladders:	No. of Landings:		
Size: 1200/1200	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH03		C	375				CO		1.73	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH07		C	375				CO		1.75	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Job Number:				Survey By: SBY
Grid Ref:	Node Number: MH07			Cover Level:
Location: East Midlands Gateway				
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 30/08/22
Manufacturer:				Grating:

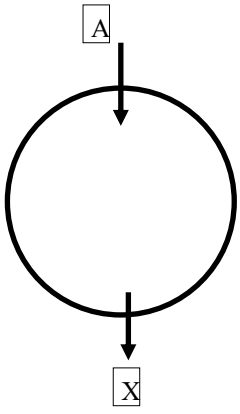
COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth: 480	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 3	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH06		C	375				CO		2.46	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH08		C	375				CO		2.48	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Job Number:					Survey By: SBY
Grid Ref:		Node Number: MH08			Cover Level:
Location: East Midlands Gateway					
Year Laid: Z	Status: PU	Function: SW	Node Type: MH		Survey Date: 31/08/22
Manufacturer:					Grating:

COVER	Shape: DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth: 470	Size:600/600	Vermin:	
CHAMBER	Soffit Type:/	No. of Step Irons: 3	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A	MH07		C	375				CO		1.74	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	X	MH09		C	375				CO		1.77	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:

Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH09	Cover Level:
Location: East Midlands Gateway		

Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:				Grating:

COVER	Shape: SQ	Hinged: /	Lockable: /	Duty: M	Size:620/620	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 4	Depth: 640	Size:610/610	Vermin:	
CHAMBER	Soffit Type:SL	No. of Step Irons: 4	No. of Ladders:	No. of Landings:		

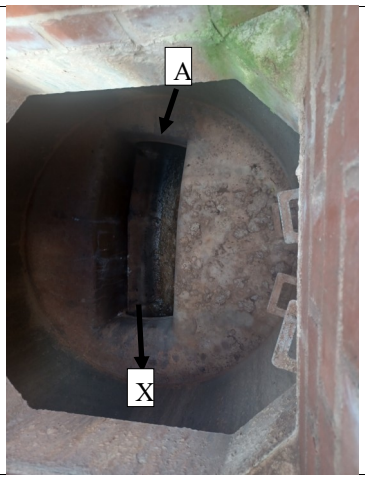
Size: 1350/1350	Const'n Code: CO	Depth of Flow: 5	Depth of Silt:	H of S:

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH8		C	375				CO		2.15	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH10		C	375				CO		1.77	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH10	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:		Grating:

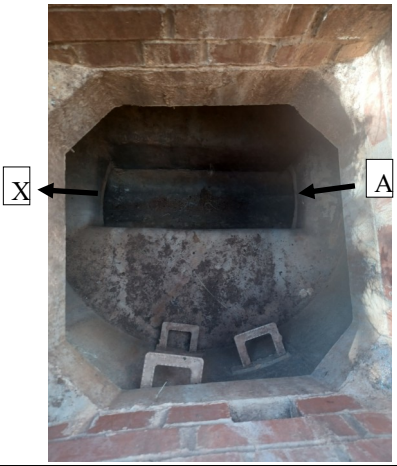
COVER	Shape: SQ	Hinged: /	Lockable: /	Duty: H	Size:620/620	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 5	Depth:	Size:610/610	Vermin:	
CHAMBER	Soffit Type:SL	No. of Step Irons:3	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow: 5	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A	MH9		C	375				CO		1.99	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	X	MH11		C	375				CO		2.01	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH11	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:		Grating:

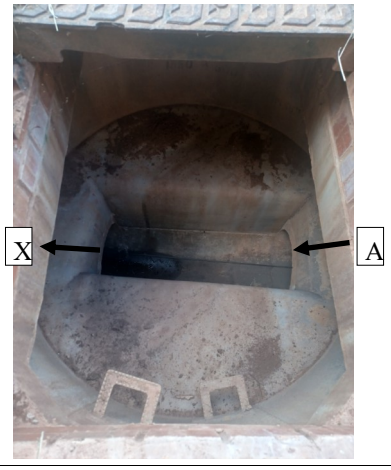
COVER	Shape:SQx2	Hinged: /	Lockable: /	Duty: H	Size:690/690	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth: 480	Size:1300/750	Vermin:	
CHAMBER	Soffit Type:SL	No. of Step Irons:2	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow: 5	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH10		C	375				CO		1.53	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH12		C	375				CO		1.55	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH12	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:		Grating:

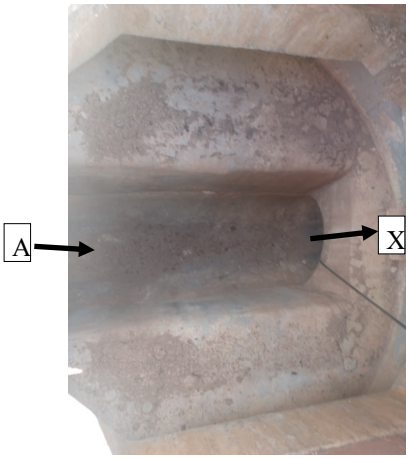
COVER	Shape:SQ	Hinged: /	Lockable: /	Duty: H	Size:750/750	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 1	Depth:430	Size:760/760	Vermin:	
CHAMBER	Soffit Type:SL	No. of Step Irons:1	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow: 5	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH11		C	375				CO		1.15	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH13		C	375				CO		1.18	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Job Number:					Survey By: SBY
Grid Ref:		Node Number: MH13			Cover Level:
Location: East Midlands Gateway					
Year Laid: Z	Status: PU	Function: SW	Node Type: MH		Survey Date: 31/08/22
Manufacturer:					Grating:

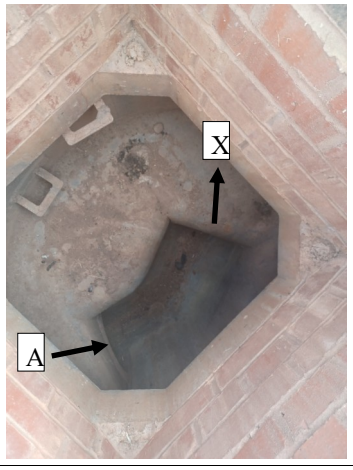
COVER	Shape:SQ	Hinged: /	Lockable: /	Duty: H	Size:620/620	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 5	Depth:700	Size:630/630	Vermin:	
CHAMBER	Soffit Type:SL	No. of Step Irons:	No. of Ladders:	No. of Landings:		
Size: 1350/1350	Const'n Code: CO	Depth of Flow: 5	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size		Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A	MH12		C	375			CO		1.71	
	B										
	C										
	D										
	E										
	F										
OUTGOING PIPES	X	Outfall		C	375			CO		1.74	
	Y										

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH14	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:		Grating:

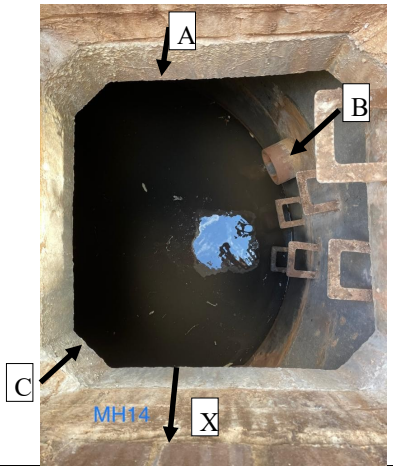
COVER	Shape:DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 3	Depth:540	Size:600/600	Vermin:	
CHAMBER	Soffit Type:	No. of Step Irons:6	No. of Ladders:	No. of Landings:		
Size: 2100/2100	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	Inlet1		C	525				CO		1.77	
	B	Unknown		C	150				VC		1.46	
	C	Inlet1		C	525				CO		1.67	
	D											
	E											
	F											
OUTGOING PIPES	**X**	Unknown		C	700				CO		1.93	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks: Catchpit overall depth 2.20



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH15	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 31/08/22
Manufacturer:		Grating:

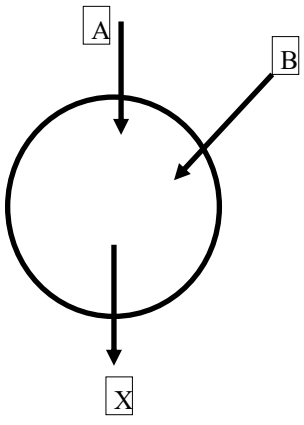
COVER	Shape:DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 1	Depth:370	Size:600/600	Vermin:	
CHAMBER	Soffit Type:	No. of Step Irons:5	No. of Ladders:	No. of Landings:		
Size: 2100/2100	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	**A**	MH14		C	525				CO		1.98	
	B	Unknown		C	150				CO		1.75	
	C											
	D											
	E											
	F											
OUTGOING PIPES	**X**	MH16		C	700				CO		2.00	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: MH16	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: MH	Survey Date: 01/09/22
Manufacturer:		Grating:

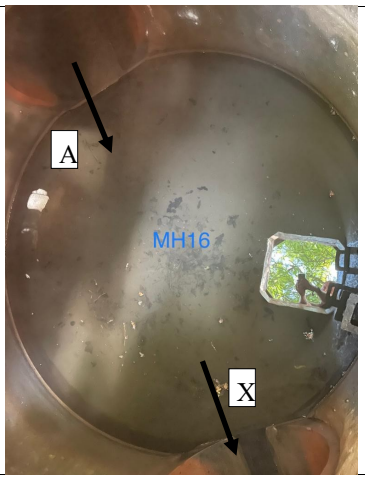
COVER	Shape:DT	Hinged: /	Lockable: /	Duty: M	Size:610/610	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses: 2	Depth:450	Size:600/600	Vermin:	
CHAMBER	Soffit Type:	No. of Step Irons:5	No. of Ladders:	No. of Landings:		
Size: 2100/2100	Const'n Code: CO	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size			Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A	MH15		C	700				CO		1.98	
	B											
	C											
	D											
	E											
	F											
OUTGOING PIPES	X	Brook		C	700				CO		2.20	
	Y											

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks: Overall depth 2.32



Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: Inlet	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: Inlet	Survey Date: 01/09/22
Manufacturer:		Grating:

COVER	Shape:	Hinged: /	Lockable: /	Duty:	Size:	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses:	Depth:	Size:		Vermin:
CHAMBER	Soffit Type:	No. of Step Irons:	No. of Ladders:	No. of Landings:		
Size:	Const'n Code:	Depth of Flow:	Depth of Silt:	H of S:		

	Pipe	U/S D/S node Reference		Shape	Pipe Size		Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A										
	B										
	C										
	D										
	E										
	F										
OUTGOING PIPES	X			C	525			CO			
	Y										

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:

Sewer Surveys UK LTD

Job Number:		Survey By: SBY
Grid Ref:	Node Number: Outlet1	Cover Level:
Location: East Midlands Gateway		
Year Laid: Z	Status: PU	Function: SW	Node Type: Outlet	Survey Date: 01/09/22
Manufacturer:		Grating:

COVER	Shape:	Hinged: /	Lockable: /	Duty:	Size:	Toxic atmos:
SHAFT	Side Entry: /	Regulating Courses:	Depth:	Size:		Vermin:
CHAMBER	Soffit Type:	No. of Step Irons:	No. of Ladders:	No. of Landings:		
Size:	Const'n Code:	Depth of Flow:	Depth of Silt:	H of S:		

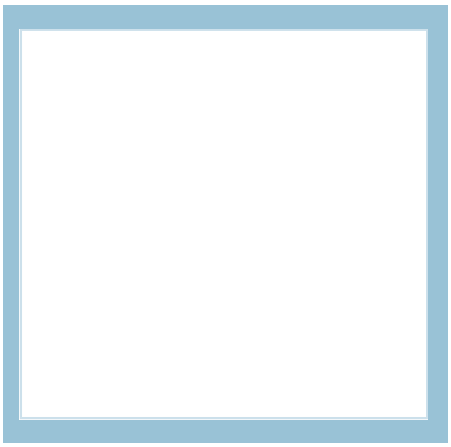
	Pipe	U/S D/S node Reference		Shape	Pipe Size		Backdrop Diameter	Pipe Material	Lining Material	Depth from Cover (M)	Invert Level (M)
INCOMING PIPES	A										
	B										
	C										
	D										
	E										
	F										
OUTGOING PIPES	X	mMH13		C	375			CO		1.22	
	Y										

CONDITION INFORMATION Enter Y if attention required. Use Remarks to clarify

Cover		Irons/Ladders		Shaft		Chamber		Benching		Other	

Remarks:

Sewer Surveys UK LTD



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Appendix 4: Greenfield Runoff Rate Calculations

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

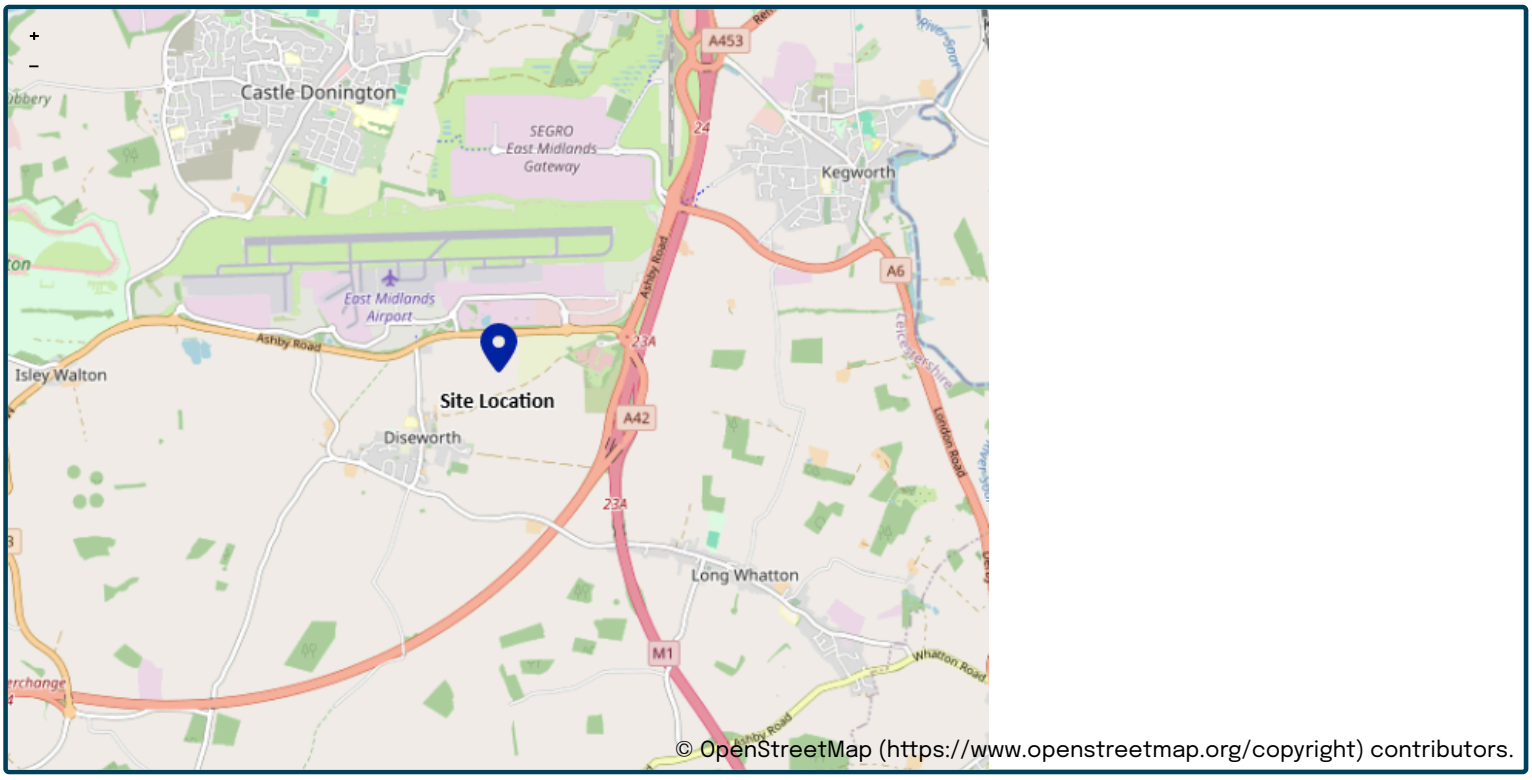
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	24/03/2025
Calculated by	Robin Green
Reference	EMG2
Model version	0.6.5

Location

Site name	Main Site
Site location	Diseworth



Site easting	445919
Site northing	324921

Site details

Total site area (ha)	1 ha

Greenfield runoff

Method

Method	FEH statistical

FEH statistical

	My value		Map value
SAAR (mm)	635 mm		635
BFIHOST	0.403		
QMed-QBar conversion	1.124		1.124
QMed (l/s)	2.92 l/s		
QBar (FEH statistical) (l/s)	3.3 l/s		

Growth curve factors

	My value		Map value
Hydrological region	4		4
1 year growth factor	0.83		
2 year growth factor	0.89		
10 year growth factor	1.49		
30 year growth factor	2		
100 year growth factor	2.57		
200 year growth factor	3.04		

Results

Method	FEH statistical
Flow rate 1 year (l/s)	2.7 l/s
Flow rate 2 year (l/s)	2.9 l/s
Flow rate 10 years (l/s)	4.9 l/s
Flow rate 30 years (l/s)	6.6 l/s
Flow rate 100 years (l/s)	8.4 l/s
Flow rate 200 years (l/s)	10 l/s

Appendix 5: Greenfield Runoff Volume Calculation

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0	Check Discharge Volume	✓
Summer CV	0.750	Skip Steady State	x	Starting Level (m)		100 year 360 minute (m³)	21232

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	25	0	0	100	40	0	0

Pre-development Discharge Volume

Site Makeup	Greenfield	Soil Index	4	Return Period (years)	100	Betterment (%)	0
Greenfield Method	FSR/FEH	SPR	0.45	Climate Change (%)	0	PR	0.428
Positively Drained Area (ha)	69.080	CWI	95.852	Storm Duration (mins)	360	Runoff Volume (m³)	21232

Appendix 6: Concept Drainage Strategy

Potential Foul Outfall
Potential foul gravity outfall via
Ashby Road and new manhole chamber.
Outfall subject to agreement with Severn Trent Water.

Ashby Road Highway Drainage
Drainage associated with the highway improvement works along Ashby Road are covered within BWB report "EMG2-BWB-ZZ-XX-RP-CD-0003_SDS" and BWB drawing "EMG2-BWB-WAT-XX-DR-CD-0504".

Potential Foul Outfall
Potential foul gravity outfall via Ashby Road.
Outfall subject to agreement with Severn Trent Water.

Catchment 1a - Detention Basin
CL: 74.35
IL: 72.05
Maximum water depth*: 1.82m
Minimum freeboard*: 480mm
Maximum water volume*: 8,680m³
Total approximate footprint: 6,190m²
Maximum discharge rate*: 542.7l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Structure base to have ridge and furrows and low flow channel.

Catchment 1
Measured Plot Hardstanding and Highways (90%): 21.249ha
Embankments / Bunds (50%): 0.665ha
SuDS Basins (100%): 1.204ha
Total Contributing Area: 23.118ha

Severn Trent Water Foul Rising Mains
Existing 150mm diameter Foul public rising mains with a 5m easement corridor.
Alignment based on overlay of PDF sewerage asset records (ref: 875119-6).

Hyam's Lane Highway Drainage
Drainage from Hyam's Lane to be diverted and incorporated into the site wide drainage system.

Catchment 1b - Detention Basin
CL: 74.30
IL: 72.00
Maximum water depth*: 1.86m
Minimum freeboard*: 440mm
Maximum water volume*: 8,765m³
Total approximate footprint: 5,850m²
Maximum discharge rate*: 89.0l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: 179mm Orifice.
Structure base to have ridge and furrows and low flow channel.

Catchment 2 - Detention Basin (A)
CL: 73.30
IL: 71.00
Maximum water depth*: 1.72m
Minimum freeboard*: 580mm
Maximum water volume*: 4,960m³
Total approximate footprint: 3,790m²
Maximum discharge rate*: 57.6l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Structure base to have ridge and furrows and low flow channel.

Raised Maintenance Walkway to provide sufficient pipe cover

Head of existing ditch to be infilled

Catchment 2
Embankments / Bunds (50%): 2.075ha
SuDS Basins (100%): 0.651ha
Total Contributing Area: 2.726ha

Catchment 3
Measured Plot Hardstanding and Highways (90%): 17.613ha
Embankments / Bunds (50%): 1.260ha
SuDS Basins (100%): 1.307ha
Total Contributing Area: 20.180ha

Catchment 2 - Detention Basin (B)
CL: 73.25
IL: 70.95
Maximum water depth*: 1.77m
Minimum freeboard*: 530mm
Maximum water volume*: 3,505m³
Total approximate footprint: 2,725m²
Maximum discharge rate*: 42.8l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Catchment 3 - Detention Basin (A)
CL: 74.55
IL: 72.25
Maximum water depth*: 1.59m
Minimum freeboard*: 710mm
Maximum water volume*: 6,860m³
Total approximate footprint: 5,310m²
Maximum discharge rate*: 304.2l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Structure base to have ridge and furrows and low flow channel.

Catchment 7 - Below Ground Attenuation
CL: 67.00
IL: 63.80
95% Void ratio
Tank depth: 2.0m
Minimum cover above tank soffit: 1.2m
Maximum water volume*: 10,725m³
Total approximate footprint: 6,300m²
Maximum discharge rate*: 25.4l/s
*During the 1 in 100-year + 25% critical storm.

Flow Control: Vortex.

Catchment 7
Measured Plot Hardstanding and Highways (90%): 13.950ha
Embankments / Bunds (50%): 1.395ha
Total Contributing Area: 15.345ha

Toe Drain
Proposed toe drain to form ditch to replace existing seasonally dry spring located below proposed Unit 1, as advised by Fairhurst. Drain to be 0.3m deep, with 1:3 internal side slopes and a 0.2m wide base

Catchment 3 - Detention Basin (B)
CL: 74.50
IL: 72.20
Maximum water depth*: 1.64m
Minimum freeboard*: 660mm
Maximum water volume*: 5,310m³
Total approximate footprint: 4,205m²
Maximum discharge rate*: 153.7l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Structure base to have ridge and furrows and low flow channel.

Lowered Maintenance plateau next to basin earthworks for pipe installation route

Type 3 pumping station
Potential location for site wide pumping station. Pumping station location and specification to be confirmed in consultation with Severn Trent Water and subject to review against the final parameters plan and proposed levels and earthworks design.

Catchment 6 - Below Ground Attenuation
CL: 70.00
IL: 68.80
95% Void ratio
Tank depth: 2.0m
Minimum cover above tank soffit: 1.2m
Maximum water volume*: 3,790m³
Total approximate footprint: 2,250m²
Maximum discharge rate*: 7.7l/s
*During the 1 in 100-year + 25% critical storm.

Flow Control: Vortex.

Catchment 6
Measured Plot Hardstanding and Highways (90%): 3.888ha
Embankments / Bunds (50%): 0.750ha
Total Contributing Area: 4.638ha

Catchment 3 - Detention Basin (C)
CL: 74.45
IL: 72.15
Maximum water depth*: 1.69m
Minimum freeboard*: 610mm
Maximum water volume*: 4,485m³
Total approximate footprint: 3,550m²
Maximum discharge rate*: 33.4l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Catchment 4
Community Park Car Park (100%): 0.100ha
Embankments / Bunds (50%): 0.543ha
SuDS Basins (100%): 0.177ha
Total Contributing Area: 0.822ha

Catchment 5
Embankments / Bunds (50%): 0.320ha
SuDS Basins (100%): 0.162ha
Total Contributing Area: 0.482ha

Catchment 8
Embankments / Bunds (50%): 0.570ha
SuDS Basins (100%): 0.212ha
Total Contributing Area: 0.782ha

Catchment 9
Embankments / Bunds (50%): 0.880ha
SuDS Basins (100%): 0.109ha
Total Contributing Area: 0.989ha

Potential Foul Outfall
Potential foul gravity outfall via Long Holden at IL: 64.41.
Outfall subject to agreement with Severn Trent Water and confirmation of land ownership / drainage rights.

Toe Drain
Proposed perimeter toe drain to collect and convey existing surface water flows across landscaped area away from vulnerable properties. Drain to be 0.3m deep, with 1:3 internal side slopes and a 0.2m wide base

Catchment 4 - Detention Basin
CL: 67.50
IL: 65.50
Maximum water depth*: 0.81m
Minimum freeboard*: 1.19m
Maximum water volume*: 445m³
Total approximate footprint: 1,765m²
Maximum discharge rate*: 77.6l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Catchment 5 - Detention Basin
CL: 66.00
IL: 64.70
Maximum water depth*: 0.63m
Minimum freeboard*: 700mm
Maximum water volume*: 475m³
Total approximate footprint: 1,620m²
Maximum discharge rate*: 78.4l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Catchment 8 - Detention Basin
CL: 62.00
IL: 60.70
Maximum water depth*: 0.61m
Minimum freeboard*: 690mm
Maximum water volume*: 740m³
Total approximate footprint: 2,120m²
Maximum discharge rate*: 105.0l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Catchment 9 - Detention Basin
CL: 54.00
IL:52.50
Maximum water depth*: 1.12m
Minimum freeboard*:380mm
Maximum water volume*: 530m³
Total approximate footprint: 1,095m²
Maximum discharge rate*: 114.4l/s
*During the 1 in 100-year + 25% critical storm.

3m maintenance walkway buffer.
1:3 minimum internal side slopes.
Flow Control: Vortex.
Structure base to have ridge and furrows and low flow channel.

Proposed Downstream Defender
Proposed proprietary treatment system to provide a final stage of treatment to surface water prior to discharge from the site

Proposed Surface Water Outfall
Proposed outfall to ditch upstream from M1 highway drainage. Outfall IL 52.00 (to be confirmed) and maximum discharge rate of 114.4l/s (subject to confirm of final drainage strategy, hydraulic modeling and agreement with National Highways)

Model Floodplain (Baseline)
1 in 100-year + 40% model baseline floodplain for Diseworth Brook.

Severn Trent Water Combined Rising Main
Existing 150mm diameter combined public rising main with a 5m easement corridor.
Alignment based on overlay of PDF sewerage asset records (ref: 875119-4).

Model Floodplain (Proposed)
1 in 100-year + 40% model proposed floodplain for Diseworth Brook.

This conceptual drainage strategy is subject to approval of proposed parameters plan, proposed finished levels and earthworks strategy, hydraulic modelling and is to be agreed with a relevant statutory consultees, including the Environment Agency (and the Lead Local Flood authority by proxy), Severn Trent Water and National Highways.

On Plot Surface Water Treatment Requirements
All plots to to utilise upstream SuDS systems for water quality treatment where possible.
These systems include:
- Filter Drains,
- Permeable Paving / Bypass Separator,
- Full Retention Separators,
- Downstream Defender, and being routed through SuDS Basins.

Diseworth
Town End
Diseworth Brook

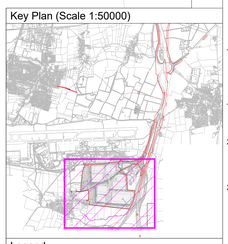
Drawing Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. Enclosed Illustrative Landscape Masterplan based on FPCR drawing "10666-FPCR-XX-XX-DR-A-0001_S2-P09" dated 15/08/25.
6. Enclosed topographical survey based on Greenhatch Group drawing "34529A_T" dated 19/04/22.
7. Enclosed Root Protection Areas based on FPCR drawing "10666-T" dated 01/06/22.
8. Enclosed foul and combined public sewer assets based on a PDF overlay of public sewerage asset records (reference: 875119, dated 14/04/22). This information is provided without liability or warranty and the exact alignments, size and depths of these sewerage assets are subject to confirmation via on-site survey.
9. Enclosed surface water public sewer and highway drainage assets based on Greenhatch Group drawing "34529A_CCTV" dated 14/09/22.
10. Enclosed 1 in 100-year + 40% Climate Change modeled flood extents based on BWB baseline hydraulic modeling exercise.
11. Do not construct from this drawing. This concept strategy is a proof of concept only and is to be agreed with the Lead Local Flood Authority, Severn Trent Water and the Environment Agency.

Drainage Notes

12. The maximum proposed discharge rate from the proposed development has been limited to the greenfield 1 in 1-year rate based on the existing drainage catchment to the south of Hyam's Lane for all events up to the 1 in 100-year + 40% critical storm.
13. The equivalent greenfield runoff rate has been calculated using the FEH rainfall method on a 2.7 liters per second per hectare basis and has been prorated based on the total catchment contributing area (69.08ha) used within the attenuation calculations, with an adjustment factor (approximately 61%) to ensure that the maximum discharge rate from the proposed development does not exceed the existing runoff rate to the existing National Highways drainage system (114.4l/s).
14. The following impermeable area assumptions have been used, as measured of the UMC Architects parameters plan, drawing "EMG2-UMC-SI-01-DR-A-0088_P15", dated 16/07/25:
    - Plot hard standing areas and highways = 90%
    - Embankments and bunds = 50%
    - Attenuating SuDS basins = 100%
15. The assumed impermeable area for the proposed community park car park (100%) has been measured from the FPCR Illustrative Landscape Masterplan and is to be confirmed during the detailed design stage.
16. All SuDS detention basins have been designed with internal side slopes and external tie in batters of 1:3 and a maximum design water depth below 2m and a minimum 300mm freeboard during the 1 in 100-year + 25% critical storm event, with a sensitivity test undertaken using the 1 in 100-year + 40% critical storm to ensure that the basins have sufficient capacity to accommodate the additional volume of during this event.
17. All SuDS detention basins have been designed to have a maximum storage capacity during the 1 in 100-year + 40% critical storm below 10,000m³. The basins will be designed to overflow safely for events in excess of the 1 in 100-year + 40% critical storm.
18. Due to the potential risk of bird strike associated with East Midlands Airport, all SuDS detention basins to have a dry base and other necessary design elements, such as a ridge and furrowed base, to discourage birds from gathering and improve drain down times.
19. Detention basins to have low flow channel and incorporation of ecological features is to be confirmed at detailed design.
20. The proposed foul drainage solution is to be confirmed in consultation with Severn Trent Water and the Client. The location and type of pumping station and ultimate outfall location is to be confirmed.
21. The proposed drainage concept is subject to review against the final proposed levels and earthworks strategy, and a review against the drainage strategy on downstream flood risk within the BWB hydraulic modeling exercise.

Key Plan (Scale 1:50000)



Legend

- Development Consent Order Boundary
- Existing Watercourse
- 1 in 100-year + 40% Modeled Baseline Floodplain
- 1 in 100-year + 40% Modeled Proposed Floodplain
- Existing Root Protection Areas
- Existing Highway Drainage
- Existing Surface Water Public Sewer
- Existing Foul Public Sewer
- Existing Foul Rising Main
- Existing Combined Public Sewer
- Existing Combined Public Rising Main
- Existing Public Sewer Easements
- Catchment 1 (Plot and Highways)
- Catchment 1 (Embankment)
- Catchment 2 (Embankment)
- Catchment 3 (Plot and Highways)
- Catchment 3 (Embankment)
- Catchment 4 (Embankment)
- Catchment 4 (Community Park Car Park)
- Catchment 5 (Embankment)
- Catchment 6 (Plot and Highways)
- Catchment 6 (Embankment)
- Catchment 7 (Plot and Highways)
- Catchment 7 (Embankment)
- Catchment 8 (Embankment)
- Catchment 9 (Embankment)
- Indicative Direction of Flow for Surface Water
- Proposed Surface Water Sewer
- Proposed Foul Sewer
- Proposed Headwall
- Proposed Flow Control
- Proposed Downstream Defender
- Proposed Underground Attenuation Tank
- Proposed SuDS Basin
- Proposed SuDS Basin Earthworks Tie in extent
- Proposed Conveyance Swale
- Proposed Toe Drain
- Proposed Illustrative Foul Pumping Station
- Proposed Foul Rising Main - Option 1
- Proposed Foul Rising Main - Option 2

Rev	Date	Details of issue / revision	Drw	Rev
P06	15.08.25	Updated to latest Illustrative Landscape Masterplan	MPB	MPB
P05	25.07.25	Revised to latest parameters plan	MPB	RJ
P04	25.06.25	Updated to latest Illustrative Landscape Masterplan and added Community Park Car Park	MPB	RJ
P03	12.06.25	Updated to latest Parameters / Masterplan and added basin low flow channels	MPB	RJ
P02	12.05.25	Added toe drains, revised attenuation calculations, basin earthworks and updated drainage notes	MPB	RJ
P01	20.11.24	For Information	MPB	RJ

Issues & Revisions

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **Main Site Concept Drainage Strategy**

Drawn:	M. Bailey	Reviewed:	Rowan Jobling	
BWB Ref:	220500	Date:	20.11.24	Scale@A0: 1:2000

Drawing Status: **For Information**

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMG2-BWB-WAT-ZZ-DR-CD-0501	S2	P06

J:\2022\220500-East Midlands Gateway Phase 2\Project\Delivery\01-WIP\Drawings\EMG2-BWB-WAT-ZZ-DR-CD-0501_Main Site Concept Drainage Strategy.dwg

Appendix 7: Causeway Flow Calculations

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	0.750	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Catchment 1a	22.533	12.00	74.350		-92.158	100.836	2.300
Catchment 1b	0.585	12.00	74.300		-93.671	70.218	2.300
Catchment 2a	2.454	5.00	73.300		-92.916	37.295	2.300
Catchment 2b	0.272	5.00	73.250		-92.626	22.671	2.300
Catchment 3a	19.404	5.00	74.550		-65.281	7.280	2.300
Catchment 3b	0.421	5.00	74.500		-65.281	-8.329	2.300
Catchment 3c	0.355	5.00	74.450		-65.484	-22.137	2.300
Catchment 4	0.822	5.00	67.500		-36.265	-57.268	2.000
Catchment 5	0.482	5.00	66.000		-8.464	-60.549	1.300
Catchment 6	4.638	5.00	70.000		1.763	-39.130	3.200
Catchment 7	13.345	5.00	67.000		18.165	-40.189	3.200
Catchment 8	0.782	5.00	62.000		29.356	-65.759	1.300
Catchment 9	0.989	5.00	54.000		98.244	-74.249	1.650
2			53.000	1200	111.190	-87.933	0.967

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 1a	Catchment 1b	30.000	0.600	72.050	72.000	0.050	600.0	600	12.51	0.0
2.000	Catchment 2a	Catchment 2b	24.000	0.600	71.000	70.950	0.050	480.0	600	5.36	50.0
1.000_1	Catchment 3a	Catchment 3b	24.000	0.600	72.250	72.200	0.050	480.0	600	5.36	50.0
1.001_1	Catchment 3b	Catchment 3c	23.900	0.600	72.200	72.150	0.050	478.0	600	5.72	50.0
4.000	Catchment 4	Catchment 5	32.500	0.600	65.500	64.700	0.800	40.6	365	5.19	50.0
5.000	Catchment 9	2	18.837	0.600	52.350	52.033	0.317	59.4	450	5.12	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	0.987	279.0	0.0	1.700	1.700	22.533	0.0	0	0.000
2.000	1.105	312.3	332.6	1.700	1.700	2.454	0.0	549	1.226
1.000_1	1.105	312.3	2629.7	1.700	1.700	19.404	0.0	600	1.114
1.001_1	1.107	313.0	2686.8	1.700	1.700	19.825	0.0	600	1.117
4.000	2.801	293.1	111.4	1.635	0.935	0.822	0.0	156	2.617
5.000	2.641	420.0	134.0	1.200	0.517	0.989	0.0	174	2.361

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	30.000	600.0	600	Circular	74.350	72.050	1.700	74.300	72.000	1.700
2.000	24.000	480.0	600	Circular	73.300	71.000	1.700	73.250	70.950	1.700
1.000_1	24.000	480.0	600	Circular	74.550	72.250	1.700	74.500	72.200	1.700
1.001_1	23.900	478.0	600	Circular	74.500	72.200	1.700	74.450	72.150	1.700
4.000	32.500	40.6	365	Circular	67.500	65.500	1.635	66.000	64.700	0.935
5.000	18.837	59.4	450	Circular	54.000	52.350	1.200	53.000	52.033	0.517

Link	US Node	Node Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Catchment 1a	Junction	Catchment 1b		Junction	
2.000	Catchment 2a	Junction	Catchment 2b		Junction	
1.000_1	Catchment 3a	Junction	Catchment 3b		Junction	
1.001_1	Catchment 3b	Junction	Catchment 3c		Junction	
4.000	Catchment 4	Junction	Catchment 5		Junction	
5.000	Catchment 9	Junction	2	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
Catchment 1a	-92.158	100.836	74.350	2.300		0		1.000	72.050	600

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
Catchment 1b	-93.671	70.218	74.300	2.300		1		1.000	72.000	600
Catchment 2a	-92.916	37.295	73.300	2.300		0		2.000	71.000	600
Catchment 2b	-92.626	22.671	73.250	2.300		1		2.000	70.950	600
Catchment 3a	-65.281	7.280	74.550	2.300		0		1.000_1	72.250	600
Catchment 3b	-65.281	-8.329	74.500	2.300		1		1.000_1	72.200	600
						0		1.001_1	72.200	600
Catchment 3c	-65.484	-22.137	74.450	2.300		1		1.001_1	72.150	600
Catchment 4	-36.265	-57.268	67.500	2.000		0		4.000	65.500	365
Catchment 5	-8.464	-60.549	66.000	1.300		1		4.000	64.700	365
Catchment 6	1.763	-39.130	70.000	3.200						
Catchment 7	18.165	-40.189	67.000	3.200						
Catchment 8	29.356	-65.759	62.000	1.300						
Catchment 9	98.244	-74.249	54.000	1.650		0		5.000	52.350	450
2	111.190	-87.933	53.000	0.967	1200	1		5.000	52.033	450

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	0.840	Drain Down Time (mins)	240	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0	Check Discharge Volume	✓
Summer CV	0.750	Skip Steady State	x	Starting Level (m)		100 year 360 minute (m³)	21232

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	25	0	0	100	40	0	0

Pre-development Discharge Volume

Site Makeup	Greenfield	Soil Index	4	Return Period (years)	100	Betterment (%)	0
Greenfield Method	FSR/FEH	SPR	0.45	Climate Change (%)	0	PR	0.428
Positively Drained Area (ha)	69.080	CWI	95.852	Storm Duration (mins)	360	Runoff Volume (m³)	21232

Node Catchment 1b Offline Orifice Control

Flap Valve	x	Invert Level (m)	72.000	Design Flow (l/s)	95.0	Discharge Coefficient	0.600
Loop to Node	Catchment 2a	Design Depth (m)	2.100	Diameter (m)	0.179		

Node Catchment 2b Offline ACO Q-Brake Control

Flap Valve	x	Invert Level (m)	70.950	Design Flow (l/s)	42.8	Min Node Diameter (mm)	1500
Loop to Node	Catchment 4	Design Depth (m)	2.200	Min Outlet Diameter (m)	0.295	Orifice Diameter (m)	0.234

Node Catchment 3c Offline ACO Q-Brake Control

Flap Valve	x	Invert Level (m)	72.150	Design Flow (l/s)	33.4	Min Node Diameter (mm)	1500
Loop to Node	Catchment 4	Design Depth (m)	2.200	Min Outlet Diameter (m)	0.220	Orifice Diameter (m)	0.210

Node Catchment 6 Offline ACO Q-Brake Control

Flap Valve	x	Invert Level (m)	66.800	Design Flow (l/s)	7.7	Min Node Diameter (mm)	1050
Loop to Node	Catchment 5	Design Depth (m)	2.000	Min Outlet Diameter (m)	0.145	Orifice Diameter (m)	0.110

Node Catchment 5 Offline Hydro-Brake® Control

Flap Valve	x	Design Flow (l/s)	78.4	Min Outlet Diameter (m)	0.375
Loop to Node	Catchment 8	Objective	(HE) Minimise upstream storage	Min Node Diameter (mm)	2700
Invert Level (m)	64.700	Sump Available	✓		
Design Depth (m)	1.200	Product Number	CTL-SHE-0354-7840-1200-7840		

Node Catchment 7 Offline ACO Q-Brake Control

Flap Valve	x	Invert Level (m)	63.800	Design Flow (l/s)	25.4	Min Node Diameter (mm)	1200
Loop to Node	Catchment 8	Design Depth (m)	2.000	Min Outlet Diameter (m)	0.220	Orifice Diameter (m)	0.188

Node Catchment 8 Offline Hydro-Brake® Control

Flap Valve	x	Design Flow (l/s)	105.0	Min Outlet Diameter (m)	0.450
Loop to Node	Catchment 9	Objective	(HE) Minimise upstream storage	Min Node Diameter (mm)	3000
Invert Level (m)	60.700	Sump Available	✓		
Design Depth (m)	1.200	Product Number	CTL-SHE-0400-1050-1200-1050		

Node Catchment 4 Online ACO Q-Brake Control

Flap Valve	x	Invert Level (m)	65.500	Min Outlet Diameter (m)	0.365
Downstream Link	4.000	Design Depth (m)	1.800	Min Node Diameter (mm)	1800
Replaces Downstream Link	✓	Design Flow (l/s)	77.6	Orifice Diameter (m)	0.314

Node Catchment 9 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	5.000	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0415-1144-1200-1144
Invert Level (m)	52.350	Min Outlet Diameter (m)	0.450
Design Depth (m)	1.200	Min Node Diameter (mm)	3000
Design Flow (l/s)	114.4		

Node Catchment 1a Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.050
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	3533.5	0.0	2.300	6192.0	0.0

Node Catchment 1b Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.000
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	3932.0	0.0	2.300	5848.0	0.0

Node Catchment 2a Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	71.000
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	2305.0	0.0	2.300	3789.0	0.0

Node Catchment 2b Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.950
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	1511.5	0.0	2.300	2723.5	0.0

Node Catchment 3a Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.250
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	3543.0	0.0	2.300	5311.3	0.0

Node Catchment 3b Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.200
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	2704.4	0.0	2.300	4207.3	0.0

Node Catchment 3c Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.150
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	2138.0	0.0	2.300	3551.7	0.0

Node Catchment 4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	65.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	0

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	229.6	0.0	2.000	1765.8	0.0

Node Catchment 5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	64.700
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	300

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	471.1	0.0	1.300	1621.6	0.0

Node Catchment 6 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	66.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	2240.0	0.0	2.000	2240.0	0.0	2.001	0.0	0.0

Node Catchment 7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	63.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	6300.0	0.0	2.000	6300.0	0.0	2.001	0.0	0.0

Node Catchment 8 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	60.700
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	928.4	0.0	1.300	2120.6	0.0

Node Catchment 9 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	52.500
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	263.8	0.0	1.500	1094.5	0.0

Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Catchment 1a	705	73.866	1.816	1117.0	8679.7510	0.0000	SURCHARGED
720 minute winter	Catchment 1b	720	73.860	1.860	570.6	8764.9160	0.0000	OK
7200 minute winter	Catchment 2a	7200	72.722	1.722	84.2	4961.2070	0.0000	SURCHARGED
7200 minute winter	Catchment 2b	7200	72.721	1.771	59.2	3507.1120	0.0000	OK
1440 minute winter	Catchment 3a	1440	73.837	1.587	520.9	6859.2290	0.0000	SURCHARGED
1440 minute winter	Catchment 3b	1440	73.837	1.637	315.5	5308.3870	0.0000	SURCHARGED
1440 minute winter	Catchment 3c	1440	73.837	1.687	163.2	4485.4600	0.0000	OK
720 minute winter	Catchment 4	675	66.312	0.812	109.3	446.0729	0.0000	SURCHARGED
1440 minute winter	Catchment 5	1440	65.329	0.629	90.1	475.6710	0.0000	OK
1440 minute winter	Catchment 6	1440	68.556	1.756	124.5	3787.5520	0.0000	OK
960 minute winter	Catchment 7	960	65.568	1.768	516.7	10727.3500	0.0000	OK
960 minute winter	Catchment 8	930	61.308	0.608	130.1	741.2571	0.0000	OK
720 minute winter	Catchment 9	705	53.467	1.117	152.3	527.8346	0.0000	SURCHARGED
15 minute summer	2	1	52.033	0.000	114.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Catchment 1a	1.000	Catchment 1b	542.7	2.349	1.945	8.4503	
720 minute winter	Catchment 1b	Orifice	Catchment 2a	89.0				3535.9
7200 minute winter	Catchment 2a	2.000	Catchment 2b	57.5	1.095	0.184	6.7603	
7200 minute winter	Catchment 2b	ACO Q-Brake	Catchment 4	42.8				13204.0
1440 minute winter	Catchment 3a	1.000_1	Catchment 3b	304.2	1.669	0.974	6.7603	
1440 minute winter	Catchment 3b	1.001_1	Catchment 3c	153.7	1.692	0.491	6.7321	
1440 minute winter	Catchment 3c	ACO Q-Brake	Catchment 4	33.4				2383.2
720 minute winter	Catchment 4	ACO Q-Brake	Catchment 5	77.6				
1440 minute winter	Catchment 5	Hydro-Brake®	Catchment 8	78.4				5952.2
1440 minute winter	Catchment 6	ACO Q-Brake	Catchment 5	7.7				597.9
960 minute winter	Catchment 7	ACO Q-Brake	Catchment 8	25.4				1431.6
960 minute winter	Catchment 8	Hydro-Brake®	Catchment 9	105.0				5710.6
720 minute winter	Catchment 9	Hydro-Brake®	2	114.4				4939.7

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.97%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Catchment 1a	705	74.060	2.010	1251.2	9833.5180	0.0000	FLOOD RISK
720 minute winter	Catchment 1b	720	74.054	2.054	629.1	9841.9480	0.0000	OK
7200 minute winter	Catchment 2a	7260	72.890	1.890	90.5	5550.5210	0.0000	SURCHARGED
7200 minute winter	Catchment 2b	7260	72.890	1.940	61.2	3927.4440	0.0000	OK
1440 minute winter	Catchment 3a	1440	74.016	1.766	583.4	7754.9880	0.0000	SURCHARGED
1440 minute winter	Catchment 3b	1440	74.016	1.816	351.0	5995.3960	0.0000	SURCHARGED
1440 minute winter	Catchment 3c	1440	74.016	1.866	178.9	5064.2690	0.0000	OK
720 minute winter	Catchment 4	705	66.425	0.925	114.6	548.3627	0.0000	SURCHARGED
2160 minute winter	Catchment 5	1920	65.377	0.677	87.5	526.3657	0.0000	OK
1440 minute winter	Catchment 6	1440	68.784	1.984	139.4	4279.2080	0.0000	OK
1440 minute winter	Catchment 7	1440	65.794	1.994	401.2	12100.0800	0.0000	OK
960 minute winter	Catchment 8	960	61.379	0.679	132.6	849.5842	0.0000	OK
480 minute winter	Catchment 9	464	53.537	1.187	180.5	585.5822	0.0000	SURCHARGED
15 minute summer	2	1	52.033	0.000	114.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
720 minute winter	Catchment 1a	1.000	Catchment 1b	597.9	2.355	2.143	8.4503	
720 minute winter	Catchment 1b	Orifice	Catchment 2a	93.8				3739.7
7200 minute winter	Catchment 2a	2.000	Catchment 2b	59.3	1.106	0.190	6.7603	
7200 minute winter	Catchment 2b	ACO Q-Brake	Catchment 4	42.8				13647.6
1440 minute winter	Catchment 3a	1.000_1	Catchment 3b	338.3	1.761	1.083	6.7603	
1440 minute winter	Catchment 3b	1.001_1	Catchment 3c	168.2	1.714	0.537	6.7321	
1440 minute winter	Catchment 3c	ACO Q-Brake	Catchment 4	33.4				2480.1
720 minute winter	Catchment 4	ACO Q-Brake	Catchment 5	77.6				
2160 minute winter	Catchment 5	Hydro-Brake®	Catchment 8	78.4				8606.3
1440 minute winter	Catchment 6	ACO Q-Brake	Catchment 5	7.7				626.0
1440 minute winter	Catchment 7	ACO Q-Brake	Catchment 8	25.4				2061.8
960 minute winter	Catchment 8	Hydro-Brake®	Catchment 9	105.0				5784.3
480 minute winter	Catchment 9	Hydro-Brake®	2	114.4				3914.8

Appendix 8: A42 Culvert Capacity Review

Job No.	Doc No.	Rev.	Page
220500	EMG2-BWB-ZZ-XX-T-W_0009	P02	Page 1
Project		Date Prepared	Prepared by
East Midlands Gateway Phase 2		24/03/25	Robin Green
Title			Authorised by
A42 Culvert Capacity Review			Claire Gardner

Introduction

The note has been prepared to provide further information in respect to a number of flood risk and drainage related comments raised in the Environment Agency's (EA) scoping opinion of the proposed East Midlands Gateway Phase 2 scheme.

Specifically, the note provides further information relating to the culvert that flows from north to south at the toe of the A42 highway embankment between the EMG2 Works and the Diseworth Brook. In the returned scoping opinion, the EA state: "*The Drainage Report should assess if there is sufficient capacity within the piped connection alongside the A42 and consider the risk of blockage and how this would be managed.*"

This note is based upon the emerging Development Proposals, that are still subject to change.

Existing Arrangements

The EMG2 Works currently falls towards the Hall Brook and the village of Diseworth in the west and the Diseworth Brook in the south. Hyam's Lane, which bisects the site diagonally from the south-west to north-east, is located on the approximate alignment of the catchment break. The generalised topography of the area is illustrated within **Figure 1**.

Ground Investigation completed by Fairhurst has identified that the EMG2 Works is underlain by clayey soils with very poor infiltration rates. During a storm event, when the very limited infiltration capacity of the soils is exceeded, surface water runoff will follow the fall on the topography and flow overland towards the receiving watercourses. To the south of Hyam's Lane a number of field drains/ditches are present that help to intercept and direct overland flows towards the south-eastern corner of the Site. A culvert provides ongoing connectivity beneath Long Holden (a footpath/track located off the southern boundary), and after a very short open reach flows enter a culvert that runs at the toe of the A42 embankment.

Using the emerging parameters plan for the EMG2 Works, the approximate development area (84ha) and likely impermeable area (69.6ha) have been calculated. Approximately 61% of the developable area is located with the catchment that is currently drained to the A42 culvert – which equates to an impermeable area of 42.4ha. The HR Wallingford UK SUDS greenfield runoff tool was used to estimate the equivalent greenfield runoff rate from the future impermeable area within the current A42 culvert catchment. The rates are summarised within **Table 1**.

Table 1 – Greenfield Runoff Rates

Return Period Storm (yrs)	FEH Runoff Rate (l/s/ha)	Equivalent Runoff Rate from the Total Estimated EMG2 Imp. Area: 69.6ha (l/s)	Equivalent Runoff Rate from the Estimated EMG2 Imp. Area Proposed within the Existing A42 Catchment: 42.4ha (l/s)
1 in 1	2.7	187.9	114.4
Annual Average Runoff Rate (QBAR)	3.3	229.7	139.9
1 in 30	6.6	459.4	279.8
1 in 100	8.4	612.5	373.1
1 in 100+25%	10.5	730.8	445.2
1 in 100+40%	11.8	821.3	500.3

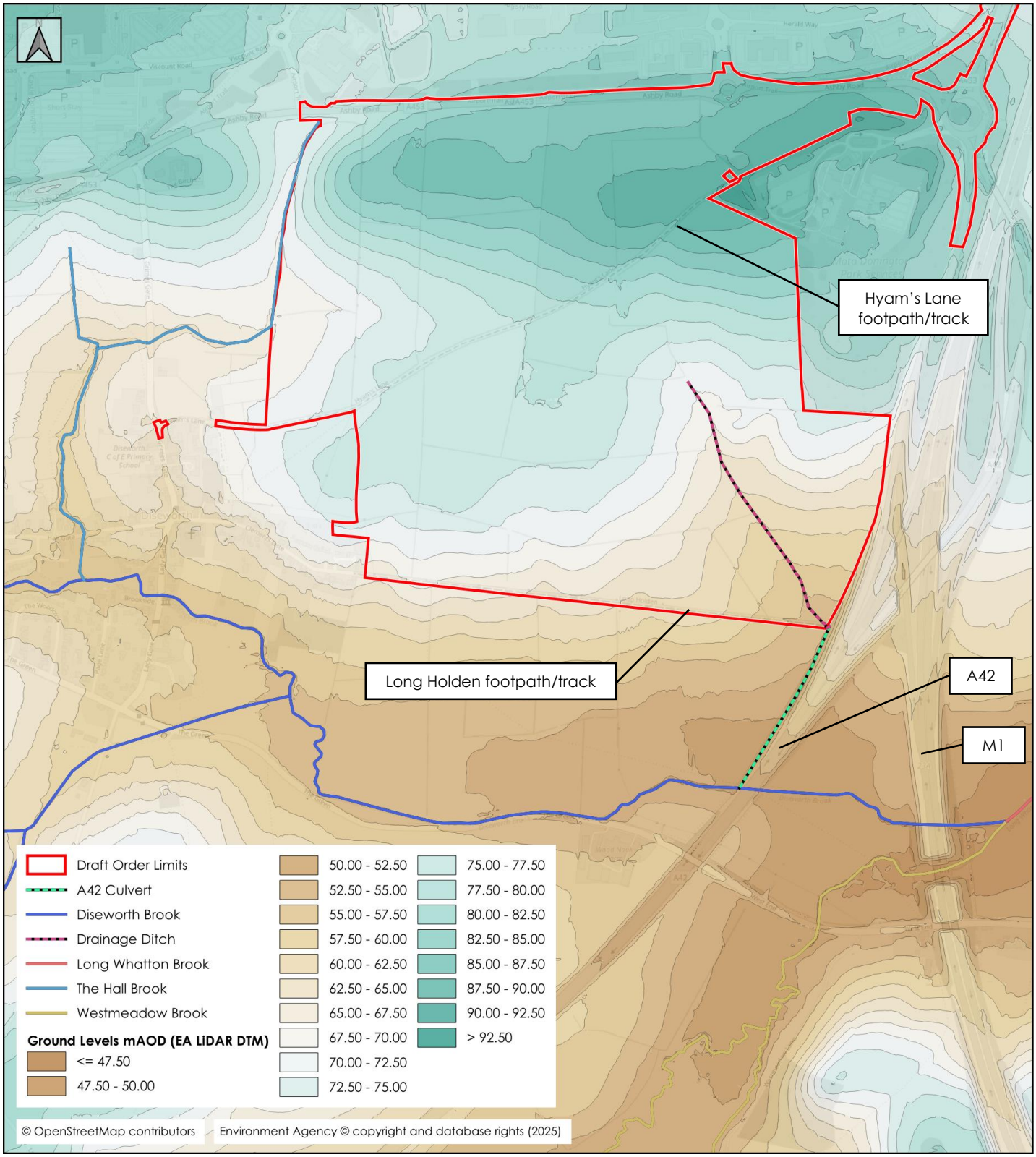

Figure 1 – Generalised Topography at EMG2 Main Site

A CCTV survey of the downstream A42 culvert connectivity has been completed. The survey has shown that:

- To reach the A42 culvert the runoff from the area first passes beneath the Long Holden footpath/track within a 500dia pipe laid at 1:30 – using the Colebrook-White equation a pipe full capacity of 780l/s can be estimated.
- After passing beneath the track, flows enter a 525dia pipe laid at roughly 1:7 – this has a pipe full capacity of 1840l/s
- A 700dia pipe then runs at the toe of the A42 embankment eventually outfalling to the Diseworth Brook. This has an average gradient of 1:100 – this has a pipe full capacity of 1030l/s.

Proposed Arrangements

The scheme proposes to maintain a connection for the disposal of surface water runoff from the development to the A42 culvert.

In paragraph 59 of the Department for Transport (DfT) Circular 01/2022 and written into the DMRB (CG 501 paragraph 6.3.1) it is stated that where there is already an existing informal or formal connection into the highway drainage system from a proposed development site, the right for a connection may be allowed to continue provided that the flow, rate and quality of the discharge into the highway drainage system remains unaltered or results in a betterment.

Therefore, the discharge rate into the culvert from the development will be restricted to the equivalent 1 in 1-year greenfield rate from the proposed impermeable area that will be located within the current A42 catchment – a rate of 114.4l/s. Additionally, the surface water runoff from the development will receive treatment prior to be discharged. Therefore, the relevant requirements of DfT Circular 01/2022 will be fulfilled.

The proposed peak discharge rate of 114.4/s is well below the downstream pipe capacity and below the existing contributing runoff from the site at larger storms (see **Table 2**). Therefore, it is concluded that there is sufficient capacity within the existing A42 culvert, and that scheme will reduce flows in the culvert in most large storm events.

Table 2 – Greenfield Runoff Rates

Return Period Storm (yrs)	Equivalent Greenfield Runoff Rate from the Estimated EMG2 Imp. Area Proposed within the Existing A42 Catchment (l/s)	Proposed Discharge Rate to the A42 Culvert (l/s)	Percentage Change in Peak Flow to the A42 Culvert
1 in 1	114.4	114.4	0%
Annual Average Runoff Rate (QBAR)	139.9	114.4	-18%
1 in 30	279.8	114.4	-59%
1 in 100	373.1	114.4	-69%
1 in 100+25%	445.2	114.4	-74%
1 in 100+40%	500.3	114.4	-77%

Risk of Blockage

During a site visit it was observed that debris can accumulate at the inlet to the A42 culvert. In the event of blockage, surface water would follow the fall of the topography (see **Figure 1**) and flow southwards at the toe of the A42 highway embankment (over the top of the A42 culvert) before outfalling to the Diseworth Brook just upstream of the culvert outfall.

It is proposed that the inlet to the A42 pipe will be added to the inspection and maintenance regime of the EMG2 Project to ensure that it is kept in good condition to manage the risk of a potential blockage.

Furthermore, the runoff from the development will be treated to remove sediments and debris, whereas currently runoff from the agriculture fields can freely enter the pipe system transporting debris and sediment.

Therefore, the EMG2 Project is expected to reduce the risk of blockage within the A42 culvert.

Appendix 9: STW Pre-development Enquiry and Additional Correspondence

WONDERFUL ON TAP

SEVERN TRENT

BWB Consulting
11 Portland Street
Manchester
M1 3HU

Severn Trent Water Ltd
Leicester Water Centre
Gorse Hill
Anstey
Leicester
LE7 7GU

[redacted]

Email:
Network.Solutions@SevernTrent.co.uk

Vijay Tanna

25th November 2024

F.A.O: [redacted]

Our ref: **1133992**

Dear Sir/Madam,

Proposed Development: (Upto 24xIndustrial units -20.83l/s)
North and South of Hyams Lane, Long Whatton and Disewoth, Derby
XY:446000;325000

I refer to your 'Development Enquiry Request' 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

Sewer records show a public foul rising main running across your development site. The sewer will require a 10m clearance about the pipe's centreline (5m each side). Please note, no planting of trees or construction should take place within these easements.

Sewer records show a public 300 foul water sewer towards the north west of the site. The sewer will require a 10m clearance about the pipe's centreline (5m each side). Please note, no planting of trees or construction should take place within these easements

Sewer records show a public 375mm surface water sewer towards the south east of the site. The sewer will require a 10m clearance about the pipe's centreline (5m each side). Please note, no planting of trees or construction should take place within these easements.

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 require protective strips of 3 metres either side of the sewer's centreline 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.

Please note: there is no guarantee that you will be able to build over or close to any Severn Trent sewers, and where a diversion is required there is no guarantee that you will be able to undertake those works on a self-lay basis. Every approach to build near to or divert our assets has to be assessed on its own merit and the decision of what is or isn't permissible is taken based on the risk to the asset and the wider catchment it serves. It is vital therefore that you contact us at the earliest opportunity to discuss the implications of our assets crossing your site. Failure to do so could significantly affect the costs and timescales of your project if it transpires diversionary works need to be carried out by Severn Trent.

Foul Water Drainage

The nearest foul sewers are located in the highway to the west of the site on Grimes Gate and nearest mh is SK4524**3702**. It is anticipated the approximate development of such size would generate approx. foul flows of 20.83l/s (2xdwf).

Due to the nature of the development, the additional flows and existing flood and surcharge levels, there is insufficient capacity within the Severn Trent network and insufficient capacity within the receiving pumping station (Diseworth - Ladygate (SPS)) at present and modelling will be required, which may show that improvements are required to the Severn Trent network.

We are undergoing a prioritisation process of all investment requirements and emerging risks from growth on our network and treatment works as we build our plan for the coming Asset Management Plan period (2025-2030) and beyond.

We will pass the details of your site over for consideration and feedback if anything arises which is of concern. We will let you know as soon as possible if anything will affect your connection points and timescales and whether we need to make representation to the Planning Authority to apply conditions relating to phasing or occupation of the site**.** This will enable us to understand what system improvements are required due to your proposed development drainage scheme.

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), all adoptable pump stations must pump min of 3.8l/s minimal
- 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.

All connections are subject to the required Section 106 sewer connection application.

Please note for any discharge of non- domestic flows you will need to also consult with our Trade Effluent team via :
trade.effluent@severntrent.co.uk

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, 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.

Note, STW will have to be satisfied that all sustainable option have been exhausted before allowing discharge to the public network. Please note you must ensure to look in to connecting the SW into any nearby watercourses.

Subject to above, a connection to the 375mm surface water sewer and nearest mh SK4624**6501** running across the east of the site can be considered with flows restricted in line with greenfield run off rates of 5l/s per hectare Therefore, a gravity connection to the public sewer (direct or indirect) is acceptable subject to a formal Section 106 sewer connection approval.

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 7076600 or download from [redacted]

Please quote the above reference 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

[redacted]
Network Solutions
Developer Services

Outlook

RE: Development enquiry ref: 1133992- North and South of Hyams Lane, Long Whatton and Disewoth, Derby

From Network Solutions [redacted]
Date Tue 15/07/2025 12:41
To Matthew Bailey [redacted] Trade Effluent [redacted]
Cc Robin Green [redacted]

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

ST Classification: OFFICIAL PERSONAL

Good afternoon Matthew

Thank you for your email and thank you for providing the drainage plan and Sustainable Drainage Statement.

Previous modelling was carried out which has highlighted High flooding impact as well as a very high operational impact.

I will get in touch with our growth and planning team to review the site further to confirm the risk level from your proposed connection. Aswell as to understand if any improvement works has since taken place or if anything has been planned in. Or whether we need to make representation to the Planning Authority to apply conditions relating to phasing or occupation of the site.

To expedite the prioritisation process please inform us to as and when you secure the DCO.

Please note from reviewing your drainage plan I understand you are proposing to connect the rising main directly to the to the public foul sewer- however if a connection is permitted any pumped connection would need to be made via a 'break chamber' and short section of gravity sewer, prior to connecting to an existing or new manhole on the public sewer.

For any queries regarding your non domestic flows our Trade Effluent team will be bets to advise further.

Many thanks

Vijay Tanna
Senior Evaluation Technician
Network Solutions| Severn Trent Water

[redacted]

WONDERFUL ON TAP SEVERN TRENT

Did you know? You can now make full applications online for a variety of our Developer Service offerings including Development Enquiries. Take a look here for more details:
[redacted]

We have listened to our customers and local communities and Severn Trent have made a pledge to transform and protect the health of our Rivers, for more information please follow the link below:
[redacted]

We always aim for a 10/10 service . If there's anything we can do to make your experience even better , please let us know

---

From: Matthew Bailey [redacted]
Sent: 14 July 2025 14:48
To: Network Solutions [redacted] Trade Effluent [redacted]
Cc: Robin Green [redacted]
Subject: Re: Development enquiry ref: 1133992- North and South of Hyams Lane, Long Whatton and Disewoth, Derby

Caution: This is an external email originating outside Severn Trent. Think before you click on links or open attachments.

Hi Vijay,

Please find attached the latest concept drainage strategy drawing. I have also attached the latest Sustainable Drainage Statement report with the appendices removed (to reduce its file size). Section 5 of this report relates to the foul water drainage strategy.

Let me know if you need any of the other appendices sent across for review.

Please can you confirm receipt of the attached and also a likely timescale for you to review and provide a response?

Thanks,

Matt

Matthew Bailey

Senior Engineer | BWB Consulting Limited

[redacted]

Advance Notice of Annual Leave / Out of Office:

-

From: Network Solutions [redacted]
Sent: 08 July 2025 15:29
To: Matthew Bailey [redacted] Trade Effluent [redacted]
Cc: Robin Green [redacted]
Subject: RE: Development enquiry ref: 1133992- North and South of Hyams Lane, Long Whatton and Disewoth, Derby

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

ST Classification: OFFICIAL PERSONAL

Good afternoon

Thank you for your email.

Due to cyber security restrictions we are not permitted to access any 3rd party external links/SharePoint folders.
Can you please arrange to share PDF attachments of the proposed drainage plan for this proposed development site for us to review further.

Many thanks

Vijay Tanna
Senior Evaluation Technician
Network Solutions| Severn Trent Water

[redacted]

[redacted]

WONDERFUL ON TAP SEVERN TRENT

Did you know? You can now make full applications online for a variety of our Developer Service offerings including Development Enquiries. Take a look here for more details: https://www.stwater.co.uk/building-and-developing/regulations-and-forms/application-forms-and-guidance/

We have listened to our customers and local communities and Severn Trent have made a pledge to transform and protect the health of our Rivers, for more information please follow the link below:
https://www.stwater.co.uk/get-river-positive/our-river-pledges/

We always aim for a 10/10 service . If there's anything we can do to make your experience even better , please let us know

---

From: Matthew Bailey [redacted]
Sent: 04 July 2025 16:01
To: Network Solutions [redacted] Trade Effluent [redacted]
Cc: Robin Green [redacted]
Subject: Re: Development enquiry ref: 1133992- North and South of Hyams Lane, Long Whatton and Disewoth, Derby

Caution: This is an external email originating outside Severn Trent. Think before you click on links or open attachments.

Hi Vijay,

I am emailing to provide an update on this application and hopefully this will allow you to provide further detail to your response and/or prepare for the future connection of this site and undertake any necessary hydraulic modelling works.

I will be emailing separately on the other pre-planning enquiry (reference: 1133855) which is part of the overall scheme. This is an upcoming Development Consent Order (DCO) / Material Consent Order (MCO), so works differently to a typical planning application with limited details on the future occupier uses of the units to be constructed; therefore, if it would be useful to Severn Trent Water Network Solutions Team (I have also looped in the trade effluent team, which I have mentioned below) for us to have a Teams call to discuss the proposals to help coordinate how we prepare for this development then I would be happy to set up a meeting. Please let me know if this would be useful to you.

The 2nd round of statutory consultation started last Friday (27th June) and the drainage strategy is more developed since the initial pre-planning enquiry was submitted.

I have attached the latest proposed project delivery programme. All being well, the construction of the main site will be taking place between Summer 2025 through to Autumn 2023, with enabling

works occurring between Summer 2026 through to Summer 2028, with building occupations starting from January 2027 with completion by September 2030.

The latest drainage strategy, and accompanying conceptual drainage strategy drawing, can be downloaded from this link - 250407_EMG2 DCO - Drainage Strategy

We are proposing for foul flows to drain within the site to one (or multiple if necessary) terminal pumping station(s) which will then discharge foul flows to the public foul sewer network. There are two potential separate foul public sewers locate within the A453 at the north site boundary which we hope to utilise.

Given the nature of a DCO application, the final configuration of the development will not be confirmed until the DCO application has been approved; however, based on the latest parameters plan (which the DCO would be approved based on), there would be a maximum allowable development floorspace of **30ha** across the site. We have the opportunity to utilise foul water attenuation within the site to allow us to limit the maximum discharge rate from any pumping stations to facilitate a connection(s) into the foul public sewer network.

You have asked for additional details in your pre-planning response which I have copied and replied to below in **blue**.

• Confirmation whether a pumped solution is required (please provide pump rate and frequency, if available), all adoptable pump stations must pump min of 3.8l/s minimal
This is to be confirmed (TBC) and will only be known once the development is being built out; however, we can utilise foul water attenuation within the site to control our maximum foul discharge rate to work with STW as necessary to facilitate the connection of the development to the public sewerage system.
• Anticipated flow rate from the site
Again, TBC; however, you have suggested that will be approximately 20.83l/s based on the old parameters plan for the site (latest parameters plan has been attached). We can work with STW to set this rate if required.
• Proposed planned start and completion date
See attached delivery programme.
• Any phasing details of the proposed development
See attached delivery programme.
• Confirm how many properties will discharge into each of the connections to the public sewer.
Anywhere between 7-24 total units to be constructed, with a maximum total floorspace delivered across the site of 30ha. The attached delivery programme suggest that 11 units will be constructed at this stage.

I trust the above and attached allows you to undertake your modelling works and/or advise on the viability of the future connection(s) of this upcoming development. Please do let me know if you need any additional information or would like a meeting to discuss the proposals and options for how the site is delivered to facilitate a connection to the public sewerage network without resulting in any adverse impacts to the wider network, whilst also not delaying the delivery programme of the development.

Trade Effluent
At this stage, we do not know who the occupier of the unit will be and therefore we do not know if any trade effluent will be generated. Therefore, I'd also be keen to get the trade effluents thoughts on who we as a collect prepare for the upcoming DCO application, as it's likely that the future occupier of the unit won't be determined until the DCO application has been approved and the unit is being built out. Therefore, we might need to prepare for a potential future occupier that has wet trade effluent to provide resilience to the drainage proposals.

If you could please review the above and attached and confirm back to me if there is anything else you need from us to help STW prepare for this site coming forwards, please can you advise.

Thanks,

Matt

Matthew Bailey
Senior Engineer | BWB Consulting Limited

[redacted]

Advance Notice of Annual Leave / Out of Office:

- 07/07/25 - 12/07/25

From: Network Solutions [redacted]
Sent: 25 November 2024 15:31
To: Matthew Bailey [redacted]
Subject: Development enquiry ref: 1133992- North and South of Hyams Lane, Long Whatton and Disewoth, Derby

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

ST Classification: OFFICIAL PERSONAL

Good afternoon
Please find attached below our Developer Enquiry response letter, along with a sewer record extract and supplementary guidance notes with regard to the above site.
If you have any further queries with regard to our response, please do not hesitate to contact us on the number / email address mentioned below. Please refrain from sending responses to a certain individual directly. Our email address below will ensure that your response is logged and tracked for a response. When responding, please quote our reference number above in all return correspondence.
(reply to [redacted]
Kind regards,

Vijay Tanna
Senior Evaluation Technician
Network Solutions| Severn Trent Water

[redacted]


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A CAF GROUP COMPANY