James Neave
Principal Planner

Please respond to James Neave
Tel: 0330 2225 571
email: james.neave@westsussex.gov.uk

www.westsussex.gov.uk

County Planning

County Hall
Chichester
West Sussex
PO19 1RH

Tel: 01243 777 100

Camilla Fisher
RPS Group Plc.

26 January 2023

By email only

Dear Ms. Fisher,

Application Ref: WSCC/015/18/NH (APP/P3800/W/18/3218965)

Proposal: Recycling, Recovery and Renewable Energy Facility and Ancillary Infrastructure

Address: Former Wealden Brickworks (Site HB), Langhurstwood Road, Horsham, West Sussex, RH12 4QD

Condition(s):

Thank you for your recent submission regarding the above. The Council has considered the information and I am now able to inform you that:

Condition 28 – Foul and Surface Water Drainage

The submitted details for condition 28 (ref: Drainage Strategy – NK018074-RPS-EFW-XX-RP-D-DS001 Rev P08) are acceptable, and the pre-commencement element of condition 28 is now **discharged**.

Yours sincerely

James Neave

Title: **Drainage Strategy**

Project: NK018074 – Sussex EFW
Prepared for: Britaniacrest Recycling (Surrey)





Date: 24 January 2023

Our Ref: NK08074\WL

RPS Planning & Development
Sherwood House
Sherwood Avenue
Newark
Nottinghamshire
NG24 1QQ

Tel: 01636 605700
Email: rpsnewark@rpsgroup.com

Successful Partners
DELIVERING QUALITY

QUALITY MANAGEMENT

Prepared by:	Scott McLean
Authorised by:	Wayne Llewellyn
Date:	24 January 2023
Project Number/ Document Reference:	**NK018074-RPS-EFW-XX-RP-D-DS001**

Revision History

Rev.	Date	Description	Author	Checked
P01	14/02/18	First revision.	WL	SN
P02	01/06/17	Strategy revised following Regulation 22 comments and subsequent drainage survey; discharge is made via Culvert 'A' only. Catchment information updated and flow rate restricted to Q_{BAR}. Simulation summary added. Appendix III drawings updated.	WL	SN
P03	02/06/17	Appendix I drawings updated.	MF	WL
P04	14/02/18	Strategy updated to reflect the revised planning drawings contained in Appendix I. Supporting appendices also updated.	WL	SN
P05	13/03/18	Paragraph 2.3.2, Table A.1, Section 5.2 and Appendix I, II, III and V updated to suit revised site plan. Paragraph 4.5.3 amended. Paragraph 3.7.4 updated to include pumped foul discharge.	WL	SN
P06	11/11/22	Surface water Catchment and drawings updated	SM	WL
P07	06/12/22	Surface water Swales amended to suit landscape req.	SM	WL
P08	24/01/23	Amended to suit comments	SM	WL

CONTENTS

EXECUTIVE SUMMARY

S1 This report has been prepared on behalf of Britaniacrest Recycling Ltd (Surrey) to provide details of the Surface Water Drainage Strategy relating to a full planning application for the development of a proposed Recycling, Recovery and Renewable Energy facility (3Rs Facility) at Wealden Brickworks, West Sussex in accordance with the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) ID7.

S2 The site area covers approximately 3.8 hectares (9.4 acres) of land within the wider Warnham and Wealden Brickworks site and currently benefits from planning permission for a Waste Transfer Facility.

S3 Due to the inherent impermeable nature of the geology beneath the site, infiltration measures are considered unsuitable as the principal means of surface water disposal.

S4 The present flood risk has been identified in the RPS Flood Risk Assessment as "low".

S5 No drainage asset plans have been made available for the site.

S6 The need to consider 20% climate change enhancement during 1:100 yearly events in the management of flood risk and 40% uplift for exceedance to maximise resilience has been identified and included in the calculations appended.

S7 The Environment Agency (EA) and the Horsham Strategic Flood Risk Assessment (SFRA) note that there is no record of groundwater issuing at the surface in the area around the site. No groundwater levels within the immediate site area have been made available.

S8 Boldings Brook has previously been identified as the principal means of surface water disposal for the wider site.

S9 Discharge of existing surface run-off from site is currently unrestricted. The proposed drainage scheme would limit flows to the equivalent Q_{BAR} run-off rate, providing a suitable level of 'long term storage' in accordance with C753.

S10 Existing foul flows are treated by a septic tank prior to top water being discharged into the on-site surface water system, prior to discharge in Boldings Brook. With solid waste collected by tanker as needed. Existing permit EPR/CB3308TD confirms the terms of the consented discharge.

S11 It is proposed to construct a foul sewer network comprising 150mm diameter pipe work to convey domestic foul flows from the office / welfare and gate house areas. Internal foul drainage associated with permitted activity will be designed and disposed of separately.

S12 Similarly to the existing foul system, treated foul flows will discharge into the on-plot surface water network. As the wastewater will discharge to the Boldings Brook watercourse, a Bio-disc package treatment plant has been specified to improve the quality of effluent in line with current standards prior to discharge.

S13 Further consultation between the client and the EA is required to confirm final effluent flows prior to commencement of operations on site.

1 INTRODUCTION

1.1 Purpose

1.1.1 This report has been prepared on behalf of Britaniacrest Recycling Ltd (Surrey) to provide details of the Surface Water Drainage Strategy relating to a full planning application for the development of a proposed Recycling, Recovery and Renewable Energy (3Rs) facility at Wealden Brickworks, West Sussex in accordance with the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) ID7.

1.1.2 This document seeks to provide a surface and foul water drainage strategy in relation to the proposed facility to the satisfaction of the Environment Agency (EA) and Lead Local Flood Authority (LLFA) West Sussex County Council (WSCC).

1.2 Background

1.2.1 We understand a planning permission for a *"proposed Waste Transfer Facility to handle inert and non-inert waste with associated open air inert waste recycling operations landscape improvements and vehicle parking"* (Ref: WSCC/018/14/NH) at the site was granted subject to conditions on 1 July 2014. This permission allowed the upgrading and use of the existing brickworks building to enable the management of up to 200,00 tonnes per year of mixed waste and established the principle of the site's use as a waste transfer facility. Part of this site will involve a covered area for the storage of commodities where received from the facility. Any commodity within this area will be stored temporarily within containers prior to removal off site, such material being of inert nature, including Ferrous and No -ferrous metals recovered from the process. Condition 4 and 5 attached to this permission required the approval of detailed surface and foul water drainage schemes respectively. The required schemes were prepared by SLR and formally submitted in October 2014 and subsequently approved.

1.3 Legislation and Guidance

National Planning Policy Framework, March 2012

1.3.1 The National Planning Policy Framework (NPPF) sets out Government planning policies for England and how these are expected to be applied. The framework acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications. Further details are set out in Chapters 10 and 11 (paragraphs 93-125) of the NPPF.

1.3.2 The NPPF is accompanied by Planning Practice Guidance (PPG) relating to the consideration of climate change and flood risk and conserving the natural environment. Guidance on the minimum requirements for such assessment is contained in PPG ID7.

Horsham District Council: Horsham District Planning Framework – November 2015

1.3.3 The document is the overarching planning document for Horsham district and replaces the Core strategy and general development control policies documents which were adopted in 2007.

1.3.4 The planning framework is prepared to deliver the needs of the district and the wider area to which the district relates. The document sets out the vision, objectives and strategy for the district over the coming years, and contains strategic policies and general planning policies which identify development locations to meet future housing, employment, retail and other needs in the district.

1.3.5 The policies relevant to this drainage strategy are outlined below:

Policy 35 – Climate Change

''Development must be designed so that it can adapt to the impacts of climate change, reducing vulnerability, particularly in terms of flood risk, water supply and changes to the district's landscape. Developments should adapt to climate change using the following measures:

Provision of appropriate flood storage capacity in new building development;

Use of green infrastructure and dual use SuDS to help absorb heat, reduce surface water runoff, provide flood storage capacity and assist habitat migration.''

Policy 38 – Flooding

''Development proposals will:

- *Where there is the potential to increase flood risk, proposals must incorporate the use of sustainable drainage systems (SuDS) where technically feasible, or incorporate water management measures which reduce the risk of flooding and ensure flood risk is not increased elsewhere.*
- *Consider the vulnerability and importance of local ecological resources such as water quality and biodiversity when determining the suitability of SuDS. New development should undertake more detailed assessments to consider the most appropriate SuDS methods for each site. Consideration should also be given to amenity value and green infrastructure.*
- *Utilise drainage techniques that mimic natural drainage patterns and manage surface water as close to its source as possible will be required where technically feasible.*
- *Be in accordance with the objective of the Water Framework Directive, and accord with the findings of the Gatwick Sub Region Water Cycle Study in order to maintain water quality and water availability in rivers and wetlands and wastewater treatment requirements.*

1.3.6 The Horsham District Planning Framework has identified the site as being within an area of employment use.

1.4 Climate Change

1.4.1 The RPS Flood Risk Assessment (FRA) report identifies the central and upper estimate for increases to rainfall intensity as a consequence of climate change compared to the 1961-1960 baseline as 20% and 40%.

1.4.2 This drainage strategy considers 20% climate change enhancement in the management of flood risk, whilst 40% uplift is considered for exceedance to maximise resilience.

2 DEVELOPMEMT SITE

2.1 Site Description

2.1.1 The site is located at the existing Wealden Brickworks site, Langhurst Wood Road at National Grid Reference 517113, 134308, to the north of Horsham.

2.1.2 The site area shown within the red line application boundary covers approximately 3.8 hectares (9.4 acres) of land within the wider Warnham and Wealden Brickworks site and currently benefits from planning permission for a Waste Transfer Facility. The Horsham to Dorking railway adjoins the western boundary of the site. The site's southern boundary is bordered by the internal access road and the Wienerberger brickworks factory (also known as Warnham Brickworks). The eastern boundary is bordered by an internal access road and a Mechanical and Biological Treatment (MBT) facility. Other former brickworks buildings and land lie to the north of the site and beyond that (to the north and north-east) is the active Brookhurst Wood Landfill Site.

2.1.3 Access to the site is gained via a private access road off Langhurst Wood Road.

2.2 Existing Development

2.2.1 The general site layout is shown on Existing Aerial Site Plan drawing **NK0184-RPS-ST-XX-A-DR-101**, included in **Appendix I.**

2.2.2 The site currently hosts a transfer station/materials recycling facility which processes construction, commercial and industrial waste, and inert materials, wood and green waste, as well as carrying out transfer and eventually baling operations on a c.3.27 ha parcel of land including:

Permeable area

- Grass / scrub / rubble 10,084m^2

Less Permeable area

- Buildings, concrete 22,620m^2

2.3 Proposed Development

2.3.1 The proposed development will comprise a Recycling, Recovery and Renewable Energy (3Rs) Facility to sort, separate and process Commercial and Industrial (C&I) and construction, demolition and excavation waste with some of the residual waste being used to generate being used to generate up to 21 megawatts (MW) of electricity per annum.

2.3.2 The proposed development will include the following contributing areas:

Permeable area

- Grass 3,911m^2

Contributing Impermeable areas

- Roof, concrete, footpaths, gravel 29,410m^2

2.3.3 The extent of surface water drainage works to be constructed under this submission is contained within the red line development boundary shown on the RPS Proposed Site Plan drawing

NK018074-RPS-ST-XX-A-DR-0100, which can be found in **Appendix I**. Application Boundary Plan drawing **NK018074-RPS-ST-XX-A-DR-0103** and Ground Floor Plan drawing **NK018074-RPS-ST-XX-A-DR-0104** can also be found in **Appendix I**.

2.3.4 For the avoidance of doubt, the extent of surface water drainage works to be constructed under this submission are contained within the red line development boundary shown on the RPS Proposed Site Plans noted above.

2.4 Topography

2.4.1 An extensive survey of the proposed site and adjacent highway areas was undertaken in September 2014 to confirm existing site levels and features.

2.4.2 Survey levels indicate a reasonably level site covered by the existing building footprint and associated concrete hardstanding, generally in the region of 48.5m AOD to 49.0m AOD. However, it can be seen from the survey data that site levels are lower in the southwest and higher in the northeast, with levels around 47.40m AOD and 51.60m AOD being recorded respectively.

2.4.3 A copy of the Topographical Survey drawing **NK018074-RPS-ST-XX-A-DR-0102** can be found in **Appendix II.**

2.4.4 Proposed site levels are shown on drawing **NK18074-RPS-EFW-XX-DR-C-0701**, which can also be found in **Appendix II.**

2.5 Ground Conditions

2.5.1 The British Geological Survey (BGS) online mapping indicates that the site is directly underlain by the Weald Clay Formation (Dark grey thinly-bedded mudstones (shales) and mudstones with subordinate siltstones, fine- to medium-grained sandstones, including calcareous sandstone (e.g. Horsham Stone Member), shelly limestones (the so-called "Paludina Limestones") and clay ironstones).

2.5.2 Weald Clay, a Lower Cretaceous sedimentary rock, is part of the Wealden Group of rocks.

2.6 Geology and Hydrogeology

2.6.1 The bedrock is classified by the EA under the Water Framework Directive as an unproductive stratum, defined as "…*rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow*".

2.6.2 The BGS Hydrogeology 1:625,000 scale map defines the bedrock under the application area as the Wealden Group. It characterises the bedrock as having essentially no groundwater.

2.6.3 The EA and the Horsham Strategic Flood Risk Assessment (SFRA) note that there is no record of groundwater issuing at the surface in the area around the site. No groundwater levels within the immediate site area have been made available.

2.6.4 Based on the information outlined above, the potential for groundwater flooding is considered to be low.

2.7 **Hydrology**

2.7.1 The closest watercourse to the proposed development is the Boldings Brook, which flows southwards in an open channel 100m west of the site and is a tributary of the River Arun.

2.7.2 A number of unnamed watercourses and ponds are within a 1 km vicinity of the application area. The FRA indicates that the site drains into a tributary of Boldings Brook located to the southwest of the proposed development.

2.8 **Infiltration**

2.8.1 As stated in paragraph 2.5.1 above, the site is underline by Weald Clay. Due to the inherent impermeable nature of this material, infiltration measures are considered unsuitable as the principal means of surface water disposal.

2.9 **Infrastructure Sewers**

2.9.1 No drainage asset plans have been made available for the site by the statutory undertaker; surface and foul water sewers are not present within the vicinity of the site.

2.10 **Flood Risk**

2.10.1 The present flood risk has been identified in the RPS FRA as “low”. The main risk of surface water flooding is therefore from direct rainfall on the site, or from run-off from the railway line that bounds the western edge of the application area.

3 SITE DRAINAGE

3.1 Existing Surface Drainage

3.1.1 Following a detailed drainage survey of the existing waste facility, it is evident the previous drainage scheme approved under the provisions of the extant planning permission at the site as noted in paragraphs 1.2.1 is not relevant. A number of outfalls are not present on site and it is for this reason a detailed drainage survey was commissioned and completed in April 2017.

3.1.2 The survey findings indicate existing surface run-off is directed into the underground system by a series of hardstanding gullies and roof rainwater pipes as noted on the survey drawings. Details of this survey are shown on Drainage Survey drawings UAK3101_C-LG [sheets 1-4], contained in **Appendix II.**

3.1.3 It can be seen from the RPS FRA that Boldings Brook has been identified as the principal means of surface water disposal for the site with upstream conveyance directing run-off to this watercourse via outfall chamber SW34 and the downstream 'Culvert A' structure. The culvert runs below the adjacent Network Rail northern line immediately west of site, which discharges into a tributary of the Boldings Brook. The principal watercourse is approximately 100m west of site. Existing outfall information is provided on drawing **NK018074-RPS-EFW-XX-DR-D-0305** contained in **Appendix III.**

3.1.4 There is no evidence of any formal flow control to limit discharge from site other that the 300mm outfall pipework.

3.2 Existing Foul Drainage

3.2.1 A small foul water sewer network connects welfare facilities to an existing septic tank. It is evident from the survey that treated top water flows currently discharge into the surface water network, prior to discharge into Bolding Brook, as noted in Table S3.2 in EA permit **EPR/CB3308TD** (noted Bolling Brook). Site discharge is currently limited to 5m³/day as stated in Table S3.1 of the EA permit.

3.2.2 This bespoke permit authorises the operation of a non-hazardous waste transfer station with asbestos storage, currently operated by Britaniacrest Recycling at NGR TQ 17148 34313.

3.2.3 A copy of the existing permit to discharge can be found in **Appendix IV**.

3.3 Proposed Surface Water Strategy

3.3.1 The proposed surface water drainage scheme is shown on the Surface and Foul Water Drainage Layout drawing **NK018074-RPS-EFW-XX-DR-D-0300** contained in **Appendix III.** This includes building roof and external circulation and parking areas.

3.3.2 All surface run-off will be discharged the existing 300Ø outfall pipe noted above. It is likely existing chamber EX. SW34 will be re-built to suit the proposed scheme. All flows from this chamber are restricted by the upstream pump.

3.3.3 As stated in paragraph 2.10.1 above, the present flood risk has been identified as "low".

3.4 Proposed Catchment Areas

3.4.1 Site catchment areas have been identified on RPS drawing **NK018074-RPS-EFW-XX-DR-D-0301** contained in **Appendix III**.

3.4.2 The impermeable area shown represents all roof and external paved areas. The permeable areas shown consider all gravelled and grassed areas that contribute to the network. As indicated on the above drawing, a breakdown of the contributing areas for each pipe is shown; finished contours have also been added around the periphery of the site with directional arrows to accurately inform these figures.

3.4.3 Catchment 'hot-spots' that may result in an elevated risk of pollution on this site have been identified as the Storage / Recycling Area, This area will temporarily store recyclable commodity's recovered from the sorting process like Ferrous and No -ferrous metals. Due to the increased risk This area has been isolated with a linear 'cut-of' drain discharging into its own trapped tank for removal and disposal to a suitable treatment plant as required. To minimise surface water run-off entering this system a roof has been added to this area.

3.5 Proposed Surface Discharge Rate

3.5.1 This drainage proposal seeks to control surface water discharge to the equivalent **Q_{BAR}** (mean annual flood) Greenfield run-off rate for all storms up to and including the 100 year + 40% climate change enhancement events. This philosophy will provide a significant betterment when considered against the existing drainage system in terms of flow rate and volume.

3.5.2 Table A.1 below summarises the Greenfield Run-off rates for the proposed site, considering the total contributing area. A copy of the Windes Greenfield Run-off calculation can be found in **Appendix V**.

Return Period	Q_{BAR} (l/s)	Q_2 (l/s)	Q_{30} (l/s)	Q_{100} (l/s)
Greenfield Run-off (l/s/ha)	14.9	13.1	33.8	47.5

Table A.1: Greenfield Run-off Rates

3.6 Proposed Foul Strategy

3.6.1 The proposed foul water drainage scheme is shown on the Surface and Foul Water Drainage Layout drawing **NK018074-RPS-EFW-XX-DR-D-0300** contained in **Appendix III.** This includes domestic flows from the office, gatehouse & welfare facilities. Permitted areas will have a separate drainage network and discharge arrangements, covered separately.

3.6.2 It is proposed to construct a foul sewer network comprising 150mm diameter pipe work to convey domestic foul flows from the office, gatehouse & welfare areas.

3.6.3 Similarly to the existing foul system noted in 3.2.1, treated domestic foul flows will discharge into the on-plot surface water network, upstream of Culvert A. As the wastewater will discharge to a watercourse, a Bio-disc package treatment plant has been specified to improve the quality of the effluent in line with current standards prior to pumped discharge into existing manhole SW34.

3.6.4 These works will render existing EA permit **EPR/CB3308TD** redundant. Referring to online guidance, a Standard Rules Permit is necessary when discharging treated wastewater to surface water at a rate of 5,000 to 20,000 litres per day. Based on a population of 50 people per day, the peak rate of foul discharge (6DWF+10% Infiltration) is estimated at 0.2 l/s, with a daily discharge no higher than 2,500 litres per day, and suggesting that a new Standard Rules Permit would not be necessary for this development.

3.6.5 Further consultation between the client and the EA is required with regard to the disposal of trade effluent from the permitted waste areas once final design flows are known, prior to the commencement of operations on site.

3.6.6 A copy of the foul water drainage calculations can be found in **Appendix V**.

4 SuDS

4.1 Objectives

4.1.1 Surface water run-off should be managed at source, with flows controlled to mimic the natural pre-development rates to reduce downstream impact wherever possible. Water should be conveyed through SuDS components of the surface water Management Train to ensure effective pre-treatment and appropriate flow control prior to discharge from site, giving due consideration to **water quality** and **water quantity** whilst creating and sustaining better places for people and nature, considering the local **amenity** and **biodiversity**.

4.1.2 Sustainable drainage systems (SuDS) mimic natural drainage processes to reduce the effect on the quality and quantity of runoff from developments and provide benefit to amenity and biodiversity.

4.1.3 The NPPF and associated Planning Practice Guidance ID7, Ciria C753 SUDS Manual (2015) and also the Horsham District Planning Framework (2015) promote sustainable water management through the use of SuDS. A hierarchy of techniques is identified:

1) Prevention – the use of good site design and housekeeping measures on individual sites to prevent runoff and pollution (e.g. minimise areas of hard standing);

2) Source Control – control of runoff at or very near its source (such as the use of rainwater harvesting);

3) Site Control – management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole site); and

4) Regional Control – management of runoff from several sites, typically in a detention pond or wetland.

4.1.4 The implementation of SuDS as opposed to conventional drainage systems, provides several benefits by:

- Reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream;
- Reducing the volumes and frequency of water flowing directly to watercourses or sewers from developed sites;
- Improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources;
- Reducing potable water demand through rainwater harvesting;
- Improving amenity through the provision of public open spaces and wildlife habitat; and
- Replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

4.2 **Strategy**

4.2.1 The general drainage strategy for the proposed site is based on SuDS, in accordance with Ciria C753 'The SuDS Manual' to reduce the impact on the receiving watercourse.

4.3 **Discharge Rates**

4.3.1 Run-off from site will be restricted from site to the equivalent Q_{BAR} flow rate noted in Table A.1 at **14.9l/s**

4.4 **Attenuation**

4.4.1 On site provision is proposed in the form of permeable paving, underground storage and swales. These drainage features are to be provided as indicated on RPS drawing **NK018074-RPS-EFW-XX-DR-D-0300**. The type of underground structure will be agreed during the construction contract and is likely to be cellular, plastic arch or large diameter pipes, although other system suitability may be explored. The above drawing also identifies pipe size, gradient and flow controls and also further identifies individual pipe references to the surface water calculations.

4.4.2 Attenuation volumes have been determined using Micro Drainage simulation software. Calculations have been included in **Appendix V.**

4.5 **Water Quantity and Water Quality / Pollution Control**

4.5.1 As stated in paragraph 2.5.1, the site is underlain by Weald Clay which excludes infiltration techniques for surface water disposal. However, a small amount of interception is likely to be made by trans-evaporation.

4.5.2 We understand that client may explore the potential for rainwater harvesting techniques for grey water toilet flushing if deemed commercially viable. We also understand that that Britaniacrest intend to utilise attenuated run-off for the mechanical process contained within the building. However, it has not been possible to confirm quantities at present. The potential related interception is therefore not considered in the design.

4.5.3 Although there would be a slight increase in the positively drained impermeable area, the proposed restriction in discharge rate to Q_{BAR} complies with the requirements of C753, cl 24.10 'Designing for Long Term Storage'.

4.5.4 On-plot surface water treatment train components will be provided in the form of pervious paving to the car park area. External circulation areas will be drained by gullies, linear slot/channel drains and swales, with downstream hydrodynamic vortex separation or filter unit, or Class 1 bypass or full retention separators (to be agreed with the EA), with integral level alarms provided to ensure compliance with BS EN 858-1:2002, in accordance with Pollution Prevention Guideline document PPG3 '*Use and Design of Oil Separators in Surface Water Drainage Systems'.* Equally, proposed run-off quality control for the site may include any number/combination of other of SuDS features, including proprietary items, as noted in C753 that are deemed appropriate.

4.5.5 Table 26.2 of C753 extracted below identifies pollution hazard indices for the varying land usage pertinent to this application.

TABLE 26.2 Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways[1]	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways[1]	High	0.8[2]	0.8[2]	0.9[2]

Notes

1 Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

2 These should only be used if considered appropriate as part of a detailed risk assessment – required for all these land use types (Table 4.3). When dealing with high hazard sites, the environmental regulator should first be consulted for pre-permitting advice. This will help determine the most appropriate approach to the development of a design solution.

4.5.6 Table 26.3 sets out indicative SuDS mitigation indices for discharges to surface waters.

TABLE 26.3 Indicative SuDS mitigation indices for discharges to surface waters

	Mitigation indices[1]		
Type of SuDS component	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4[2]	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond[4]	0.7[3]	0.7	0.5
Wetland	0.8[3]	0.8	0.8
Proprietary treatment systems[5,6]	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Notes

1 SuDS components only deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters.

2 Filter drains can remove coarse sediments, but their use for this purpose will have significant implications with respect to maintenance requirements, and this should be taken into account in the design and Maintenance Plan.

3 Ponds and wetlands can remove coarse sediments, but their use for this purpose will have significant implications with respect to the maintenance requirements and amenity value of the system. Sediment should normally be removed upstream, unless they are specifically designed to retain sediment in a separate part of the component, where it cannot easily migrate to the main body of water.

4 Where a wetland is not specifically designed to provide significantly enhanced treatment, it should be considered as having the same mitigation indices as a pond.

5 See Chapter 14 for approaches to demonstrate product performance. A British Water/Environment Agency assessment code of practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: **http://tinyurl.com/qf7yuj7**

6 SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. SEPA (2014) also provides a flowchart with a summary of checks on suitability of a proprietary system.

4.5.7 It can be seen from the information shown in Table B.1, Table B.2 and Table B.3 below that suitable pollution mitigation provision will be afforded, primarily in the form of sediment traps, swales and permeable paving.

4.5.8 The tables follow the simple index approach in accordance with Table 26.2 and Table 26.3 of C753 as appropriate.

Pollution	Pollution Hazard	SuDS Component	TSS	Metals	Hydro-carbons
Hazard Indices	Low	-	0.3	0.2	0.05
SuDS Mitigation	-	Aquaswirl™ vortex grit separator (O.S.A.)	0.8	0.5	0.7

Table B.1 – Pollution Mitigation Indices: Commercial Roofs

	Pollution Hazard	SuDS Component	TSS	Metals	Hydro-carbons
Hazard Indices	Low	-	0.5	0.4	0.4
SuDS Mitigation	-	Permeable Paving	0.7	0.6	0.7

Table B.1 – Pollution Mitigation Indices: External Car Parking Areas

Pollution	Pollution Hazard	SuDS Component	TSS	Metals	Hydro-carbons
Hazard Indices	High	-	0.8	0.8	0.9
SuDS Mitigation	-	Swale ***AND*** Class 1 SPEL Puraceptor Full retention separator Total	0.5 0.8 / 2 = 0.4 0.9[1] (min)	0.6 0.6/2 = 0.3 0.9[1] (min)	0.6 0.9 / 2 = 0.45 1.05[2] (min)

Table B.3 – Pollution Mitigation Indices: External Circulation Areas with Swale

Pollution	Pollution Hazard	SuDS Component	TSS	Metals	Hydro-carbons
Hazard Indices	High	-	0.8	0.8	0.9
SuDS Mitigation	-	Class 1 SPEL Stormceptor bypass Separator ***AND*** Aquaswirl™ vortex grit separator (O.S.A.) Total	0.8 0.8 / 2 = 0.4 1.2[1]	0.6 0.5/2 = 0.25 0.85[1] (min)	0.9 0.7 / 2 = 0.35 1.25[1,2] (min)

Table B.4 – Pollution Mitigation Indices: External Circulation Areas

[1] When designing in accordance with the SuDS Manual (Ciria C753), when two devices are used in sequence to target the same pollutant, half of the mitigation index of the second component should be allowed in the calculation.

[2] The test procedures applied to manufactured treatment devices do not include measurement of hydrocarbon removal. Therefore, we have estimated that the Aquaswirl™ removes free-phase hydrocarbons by flotation, and also removes hydrocarbons that are adhered to suspended solids. However, hydrocarbons are known to preferentially adhere to the smaller particles so the Aquafilter™ will remove a higher proportion of those hydrocarbons as it is more effective at removing smaller suspended particles.

4.5.9 Any proprietary SuDS manufacturers must provide pollution mitigation indices figures. Alternative pollution mitigation systems to the SuDS treatment train may be provided during the construction period, with the prior formal approval of the LLFA. These may be any of the 'natural' components contained within C753, or any alternative proprietary product demonstrated to be suitable for the specific risk environment.

4.5.10 It may be possible to replace the 'Aquaswirl™ Vortex' separator with a Class 1 Bypass separator with integral level alarm to BS EN 858-1:2002, in accordance with Pollution Prevention Guideline document PPG3 '*Use and Design of Oil Separators in Surface Water Drainage Systems'*.

4.5.11 Additional pollution control measures will be provided in the form of an emergency stop device, with control(s) connected to the fire prevention system and manually located in the gatehouse, reception or other suitable location that is manned and monitored 24hrs a day as required by the client. The device will stop all, or individual, surface water pump flows. In this scenario, discharge from site is temporarily terminated providing on-site emergency storage in the underground drainage system to avoid a potential pollution incident.

4.6 **Designing for Exceedance**

4.6.1 The surface water drainage network has been designed to accommodate run-off from all storms up to and including the 100 year +20% climate change enhanced event within the site boundary. The design also considers the 100 year +40% climate change enhanced storms to build in resilience.

4.6.2 It is evident from the simulation results that a volume of temporary flooding occurs in the 100+40% storm events, as identified in Section 5.2. However, all flooded volumes are contained on site at acceptable depths.

4.6.3 In extreme storm events exceeding the 1:100+40% storm the Roads, kerbs, swales and drainage channels will begin to store water in and against them and these areas have been identified on drawing **NK018074-RPS-EFW-XX-DR-D-0302.** Water will be held against the kerb edges and will provide additional storage in these extreme events.

4.6.4 Due to site levels restrictions surface water discharge is pumped from site. To minimise risk of flooding from pump failure, duty and standby pumps are to be provided. Furthermore, discharge will be automatically switched to alternate the operation between pumps to avoid a standby pump seizing up. Additional measures are to be put in place to ensure continuous pump operation by linking power back to mains electricity supply and the proposed EFW facility and a schedule of regular pump maintenance and testing will be implemented, with records kept, to minimise the likelihood of pump failure.

In the event of a full failure a 300mm diameter High level (top of tank) overflow will be installed with a normally closed Valve. This overflow will be managed by the control room that is managed 24hrs a day and will be made part of the facilities emergency management plan, to be manually opened in the event of full pump failure to ensure a temporary active drainage network will remain.

4.6.5 Foul emergency storage is provided, upstream of the pump chamber to provide 6 hour peak flow capacity. To avoid surface flooding backing up the foul system, all manholes are to be provided with double seals with lockable covers. The pump chamber inlet pipe from the foul system will also include a non-return valve to avoid flood waters backing up pipes and washing out foul water.

5 DRAINAGE DESIGN

5.1 Surface Water Drainage Design Parameters

5.1.1 Drainage elements are to be designed to the criteria stated below in accordance with the requirements of the LLFA (WSCC).

This includes:

- The new surface water drainage system has been designed using current analysis software, Micro Drainage by Inovyze, ensuring EA and LLFA requirements are satisfied to prevent uncontrolled flooding of the site and surrounding areas;
- The surface network has been designed in 'System 1', with further rainfall simulation checks completed;
- The 600mmØ discharge pipe linking the attenuation structure to the pump chamber has not been modelled.
- Flooding shall not be permitted in any areas prior to 1:30 year return period storms;
- For storms in excess of 1:30 year events, controlled temporary overland flooding is permitted with depths restricted to consider Health & Safety;
- No flooding detrimental to buildings shall occur during any storm event;
- Surface water run-off from paved or other impervious surfaces shall not be permitted to escape onto the surface of adjacent sites or highways;
- Site discharge is restricted to the equivalent Q_{BAR} Greenfield Run-off rate for all storms;
- Design Return Periods: 2 year; 30 year; 100 year plus 20% climate change enhancement.
- Additional exceedance sensitivity check for the 100 year plus 40% climate change enhancement storms has also been included;
- Rainfall: Storm intensities are based upon Flood Studies Report (FSR) data;
- M5-60: 20.0mm;
- Ratio 'r': 0.35;
- Volumetric Runoff Coefficient Cv: 0.793 (summer), 0.837 (winter);
- Global time of entry: 4mins;
- Velocity: 1.0 m/s for self-cleansing of pipes where practicable, 0.75 m/s minimum;
- Pipe roughness: 0.6mm;
- Backdrops: Allow in design; maximum depth of 1.5m wherever practicable

- No surcharge of pipes for all 2 year return period storms, where practicable; and
- Surcharged Outfall: Minimum depth of 10% pipe diameter is assumed in the software.

5.1.2 The site drainage features have been checked against the storm intensities and durations stated in Table C.1 below:

Return Period	FSR Rainfall Analysis
Q_2	15-1440mins
Q_{30}	15-1440mins
Q_{100} +20% CC	15-1440mins
Q_{100} +40% CC	15-1440mins

Table C.1 – Simulation

5.2 **Simulation Results Summary**

5.2.1 **1:2 year:**

Results indicate surcharging is only present at the attenuation structure and pump chamber. No other pipes are surcharged during any 2 year return period storm.

Pumped discharge from site is restricted to 14.9 l/s.

5.2.2 **1:30 year + 30% climate change:**

Surcharged pipes are present across the network during the 30 year storm events, with no flooding present.

Pumped discharge from site is restricted to 14.9 l/s.

5.2.3 **1:100 year + 40% climate change:**

Flooding is present at several locations across site, as identified in the simulation output in the Appendix. PN1.000 has a temporary flooded volume of 6.266m^3, at a depth of 0.07m. and PN19.000 has a temporary flooded volume of 3.016m^3 and will be contained by the kerb and ACO Channels. As 40% is the exceedance level no water will leave the site boundary

Pumped discharge from site remains restricted to 14.9 l/s.

5.2.4 All flooding and flood routing in excess of 1:100+40% storms is noted on drawing 'Temporary Overland Flood Volumes Plan' drawing **NK018074-RPS-EFW-XX-DR-D-0302**. Volume, depth and location information is shown on the above drawing, contained in **Appendix IV**.

All drainage calculations are provided in **Appendix V**.

6 MAINTENANCE

6.1 Operation and Maintenance

6.1.1 The regime included in this section of the report has been provided to assist the necessary maintenance giving due consideration to access and CDM requirements. Britaniacrest Recycling Ltd will assume all responsibility for maintenance of drainage related items within the confines of the development site noted in Section 2.

6.1.2 Paragraph 32.2 of Ciria C753 'The SuDS Manual' v1 states:

"Those responsible for SuDS within a development (owner, tenant, local authority, water company etc), should ideally be provided with an operation and maintenance manual by the designer. This could be part of the documentation provided under CDM (part of the health and safety File)".

6.1.3 This drainage strategy will therefore be provided as part of the O+M manual package of information, specifically highlighting this section of the report.

6.1.4 The above mentioned paragraph later states:

"It is important on industrial estates to clearly identify to everyone which areas drain to SuDS and which to foul sewer. For example, gullies and manhole covers could be colour coded or marked".

6.1.5 Following this guidance, manholes will be marked blue or red to identify the sewer as surface or foul water drainage respectively. Any Covers linked to the Process network should be painted green

6.2 Operation and Maintenance Activity Categories

6.2.1 As stated in C753, maintenance activities can be broadly defined as follows:

- Regular maintenance (including inspections);
- Occasional maintenance; and
- Remedial maintenance.

6.2.2 There may also be one-off requirements sometimes referred to as "establishment maintenance", particularly for planting (e.g. weeding and watering). [These requirements will be defined in the landscape proposals]. Regular maintenance consists of basic tasks carried out on a frequent and predictable schedule, including inspections/monitoring, silt or oil removal (if required more frequently than once per year), vegetation management, sweeping of surfaces and litter/debris removal.

6.2.3 Occasional maintenance comprises tasks that are likely to be require periodically, but on a much less frequent and predictable basis that the regular tasks. Table 32.1 below summarises the likely maintenance activities required for a range of SuDS components; guidance on the components pertinent to this drainage proposal is detailed in Section 6.3.

6.2.4 Remedial maintenance the intermittent tasks that may be required to rectify faults associated with system, although the likelihood of faults can be minimised by good design, construction and regular maintenance activities. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, so timings are difficult to predict.

TABLE 32.1 Typical key SuDS components operation and maintenance activities (for full specifications, see Chapters 11–23)

Operation and maintenance activity	SuDS component												
	Pond	Wetland	Detention basin	Infiltration basin	Soakaway	Infiltration trench	Filter drain	Modular storage	Pervious pavement	Swale/bioretention/ trees	Filter strip	Green roofs	Proprietary treatment systems
Regular maintenance													
Inspection	■	■	■	■	■	■	■	■	■	■	■	■	■
Litter and debris removal	■	■	■	■	□	■	■	□	■	■	■		□
Grass cutting	■	■	■	■	□	■	■	□	□	■	■		
Weed and invasive plant control	□	□	□	□		□	□		□		□	■	
Shrub management (including pruning)	□	□	□	□					□	□	□		
Shoreline vegetation management	■	■	□										
Aquatic vegetation management	■	■	□										
Occasional maintenance													
Sediment management[1]	■	■	■	■	■	■	■	■	■	■	■		■
Vegetation replacement	□	□	□	□						□	□	■	
Vacuum sweeping and brushing									■				
Remedial maintenance													
Structure rehabilitation /repair	□	□	□	□	□	□	□	□	□	□	□	□	
Infiltration surface reconditioning				□	□	□	□		□	□	□		

Key

■ will be required

□ may be required

Notes

1 Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

6.3 Operation and Maintenance

6.3.1 An initial pre-handover inspection of the final development should be completed to ensure the design detail has been implemented on site. Regular inspection will then help to determine future maintenance activities, help establish system performance and allow identification of potential performance failures.

6.3.2 In addition to general cleaning of roof gutters downstream sediment traps, Table 14.2, Table 17.1 and Table 20.15 indicate the minimum required maintenance regime that needs to be implemented post construction for filter drawings and areas of pervious paving – see extracts from C753 below.

TABLE 14.2 An example of operation and maintenance requirements for a proprietary treatment system

Maintenance schedule	Required action	Typical frequency
Routine maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly
	Change the filter media	As recommended by manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill
Remedial actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media and establish appropriate replacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months

TABLE 17.1 Operation and maintenance requirements for swales

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

TABLE 20.15 Operation and maintenance requirements for pervious pavements

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphospate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

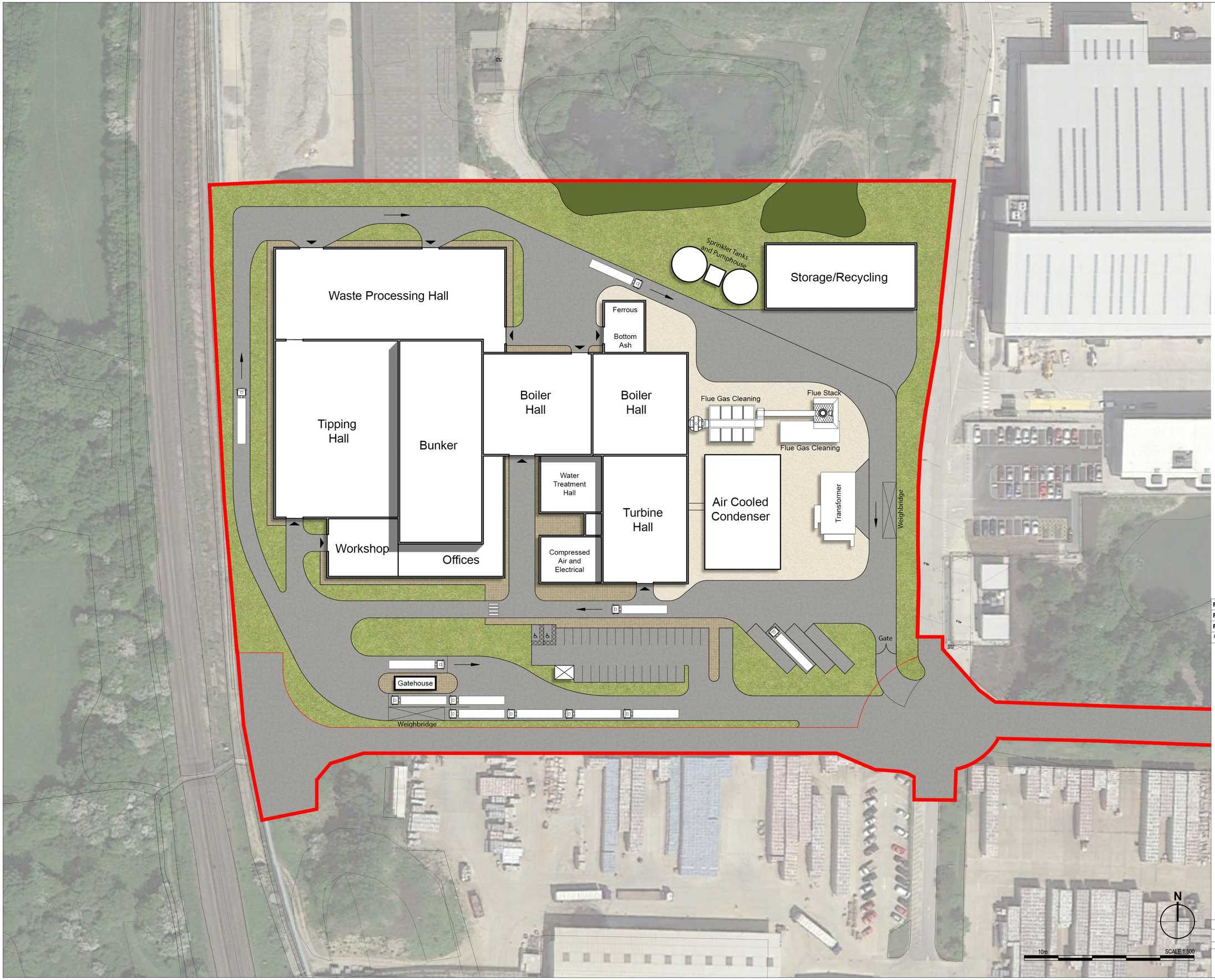
APPENDIX I

Proposed Architectural Drawings

- **NK018074-RPS-ST-XX-A-DR-0100** Proposed Site Plan
- **NK018074-RPS-ST-XX-A-DR-0101** Existing Aerial Site Plan
- **NK018074-RPS-ST-XX-A-DR-0103** Application Boundary Plan
- **NK018074-RPS-ST-XX-A-DR-0104** Ground Floor Plan
- **NK018074-RPS-ST-XX-A-DR-0106** Roof Plan

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.



Rev	Description	By	Ckd	Date
P04	Updates to suit new design	DEC	MJH	14.03.18
P03	Issued for Planning	JT	RJF	03.11.16
P02	ACC location amended, Boiler Hall Roof revised	KM	RJF	13.10.16

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

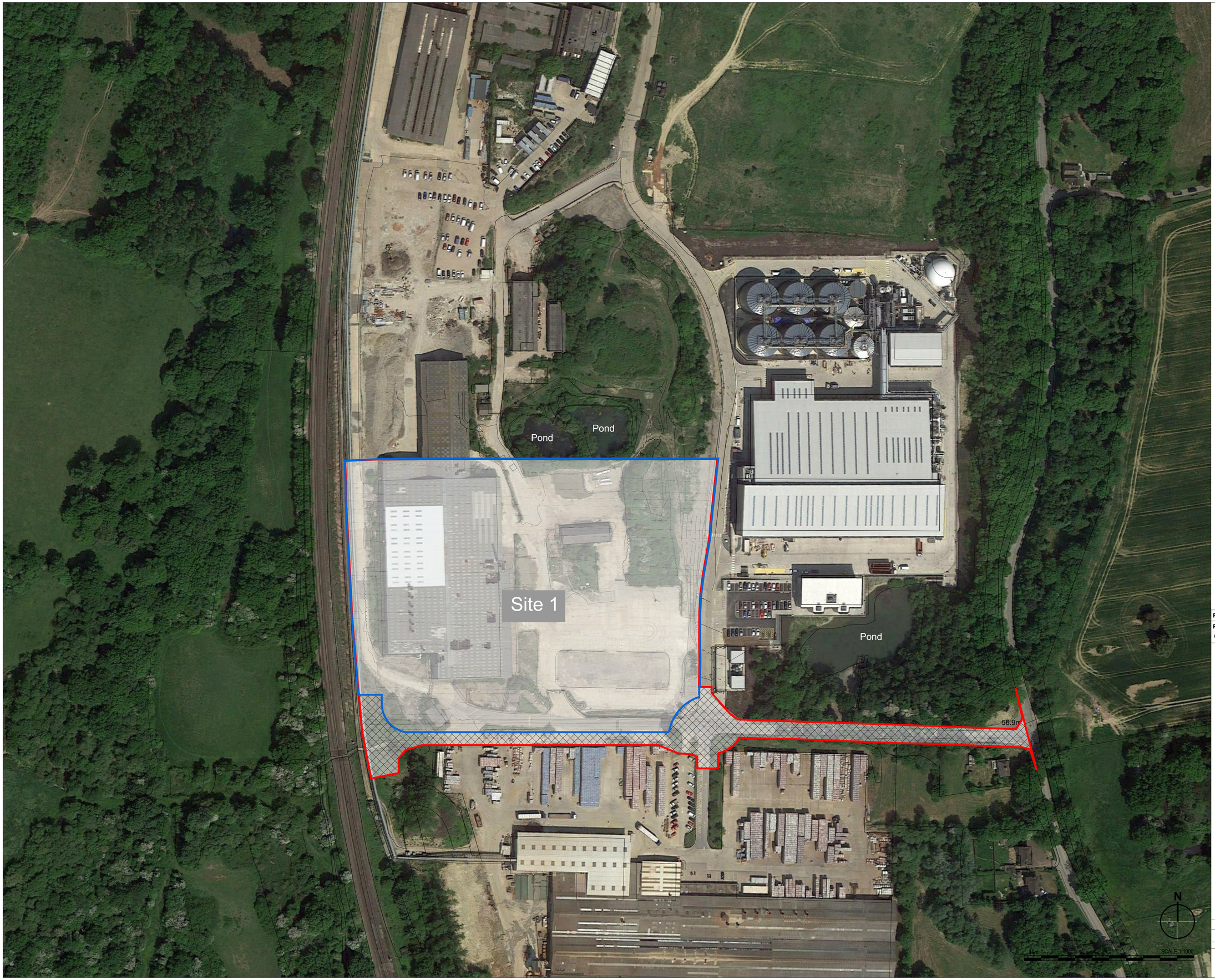
Client BRITANNIACREST RECYCLING

Project Sussex EFW

Title Proposed Site Plan

Status	Scale	Date Created
Preliminary	1:500 @A1	05/09/16
Project Leader	**Drawn By**	**Checked by**
RJF	JT	RJF

Document Number	Revision	Suitability
NK018074-RPS-ST-XX-A-DR-0100	P04	S0
Project Number	Originator - Zone - Level - Type - Role - Drawing Number	



Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

- Development Boundary
- Ownership Boundary
- Shared Right of Way

Rev	Description	By	Ckd	Date
P02	Updates to suit new design	DEC	MJH	14.03.18
P01	Issued for Planning	KLM	RJF	03.11.16

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client BRITANIAGREST RECYCLING

Project Sussex EFW

Title Existing Aerial Site Plan

Status	Scale	Date Created
Preliminary	1:1000 @A1	08/07/16
Project Leader	Drawn By	Checked by
RJF	KLM	RJF

Document Number	Revision	Suitability
NK018074 - RPS-ST-XX-A-DR-0101	P02	S0
Project Number / Originator - Zone - Level - Type - Role - Drawing Number		

rpsgroup.com/uk

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

- Development Boundary
- Ownership Boundary
- Shared Right of Way

Tanks

Biffa

Pond

Pond

Existing Building

Pond

STN 1

STN 2

STN 3

Railway Lines

ED & Ward Bdy

CR

LANGHURSTWOOD ROAD

Langhurstwood Road

Level Crossing

Wienerberger (Brickworks)

Bramblehurst

N

10m

SCALE 1:1000

P02	Updates to suit new design	DEC	MJH	14.03.18
P01	Issued for planning	JH	RJF	03.11.16
Rev	Description	By	Ckd	Date

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client BRITANIACREST RECYCLING

Project Sussex EFW

Title Site Location Plan

Status	Scale	Date Created
Preliminary	1:1000 @A1	26/08/16
Project Leader	Drawn By	Checked by
RJF	JH	RJF

Document Number	Revision	Suitability
NK018074 - RPS-ST-XX-A-DR-0103	P02	S0
Project Number / Originator - Zone - Level - Type - Role - Drawing Number		

rpsgroup.com/uk

Waste Processing Hall
1821m²
67499
30462

Tipping Hall
1873m²
36112
51874

Bunker
1432m²
24150
59299

Workshop
348m²

Offices
448m²

Boiler Hall
940m²
31800
29575

Boiler Hall
817m²
27628
29575

Bottom Ash
174m²
11700
14850

Water Treatment Hall
296m²
17919
16519

Compressed Air and Electrical
239m²
17919
13364

Turbine Hall
916m²
24636
37174

Flue Gas Cleaning
148m²
13502
10988

Flue Gas Cleaning
110m²
17460
6300

Air Cooled Condenser
753m²
22299
33750

Transformer Enclosure
187m²
10250
18222

Storage/Recycling
822m²
43849
18744

Gatehouse
44m²

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

N

5m SCALE 1:250

Rev	Description	By	Ckd	Date
P02	Updates to suit new design	DEC	MJH	14.03.18
P01	Issued for Planning	JH	RJF	03.11.16

RPS
Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 · E: rpsnewark@rpsgroup.com

Client BRITANNIACREST RECYCLING

Project Sussex EFW

Title Ground Floor Plan

Status	Scale	Date Created
Preliminary	1:250 @A1	09/08/16
Project Leader	Drawn By	Checked by
RJF	JH	RJF

Document Number	Revision	Suitability
NK018074 - RPS-MB-GF-A-DR-0104	P02	S0

Project Number | Originator - Zone - Level - Type - Role - Drawing Number

rpsgroup.com/uk

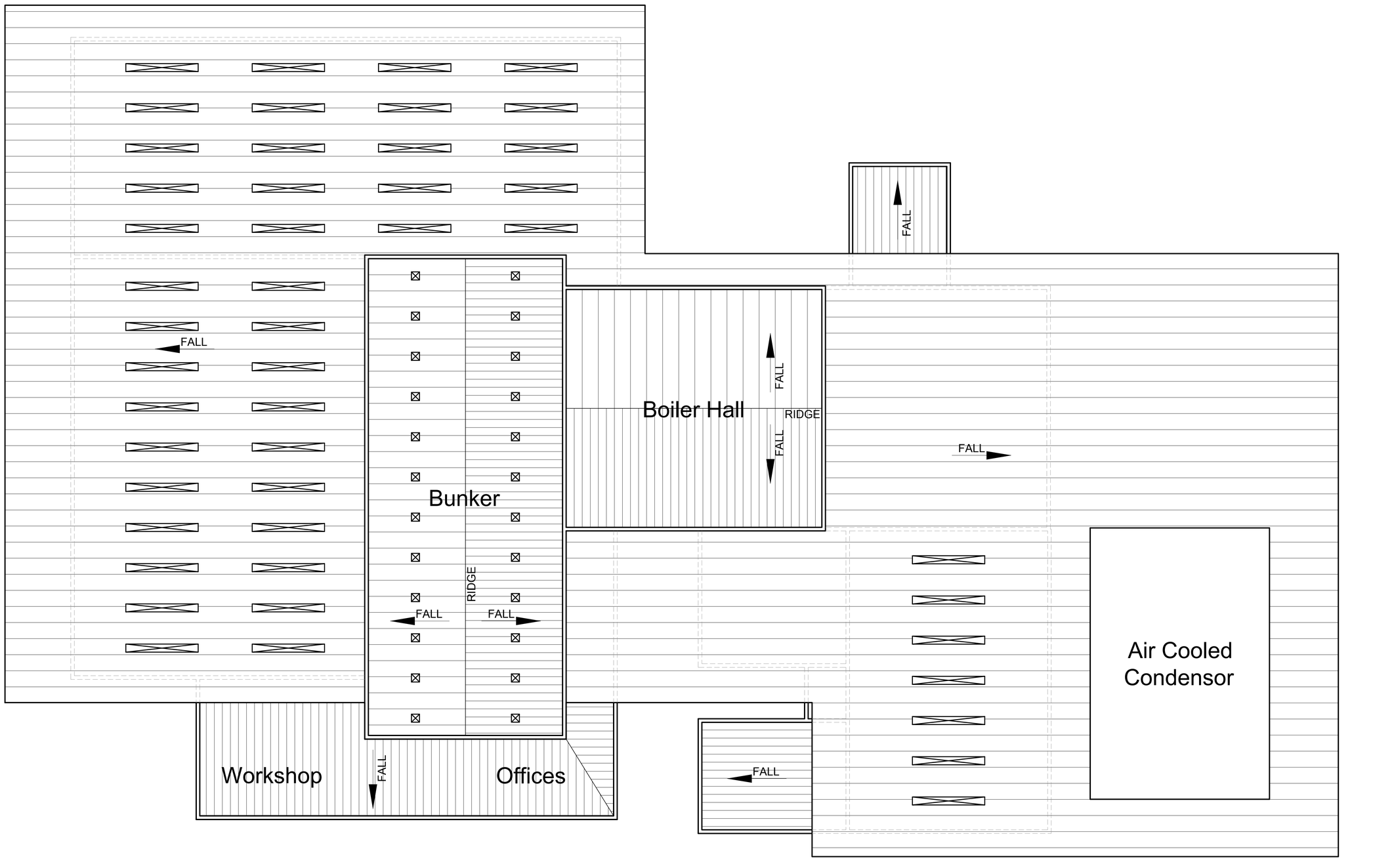
Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

Rooflight

Heat vent



N

5m

SCALE 1:250

Rev	Description	By	Ckd	Date
P02	Updates to suit new design	DEC	MJH	14.03.18
P01	Issued for Planning	JH	RJF	03.11.16

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client BRITANIAGREST RECYCLING

Project Sussex EFW

Title Roof Plan

Status	Scale	Date Created
Preliminary	1:250 @A1	09/09/16
Project Leader	Drawn By	Checked by
RJF	JH	RJF

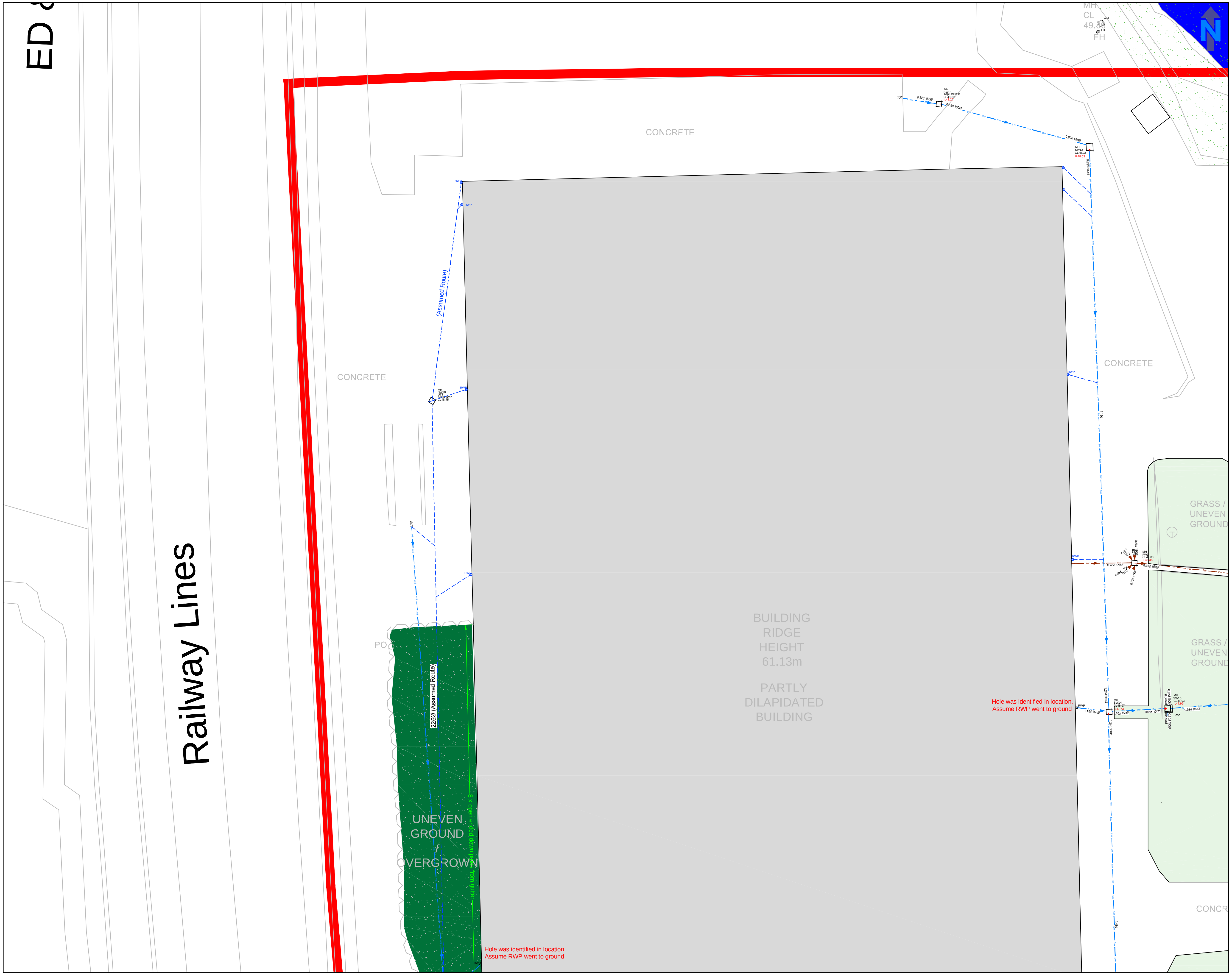
Document Number	Revision	Suitability
NK018074 - RPS-MB-RF-A-DR-0106	P02	S0
Project Number / Originator - Zone - Level - Type - Role - Drawing Number		

rpsgroup.com/uk

APPENDIX II

Topographical / Survey Drawings

- **UAK3101_C-LG [Sheets 1-4]** Drainage Survey
- **NK018074-RPS-ST-XX-A-DR-0102** Topographical Survey
- **NK018074-RPS-EFW-XX-DR-C-0701** Finished Site Levels



Notes:

This drawing and the building works depicted are the copyright of RPS and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.

Where existing trees are to be retained they should be subject to a full Arboricultural inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings and 3 metres from drainage and services. A suitable method of foundation is to be provided to accommodate the proposed tree planting. All tree types are provided as a guide only and a full Arboricultural survey to be conducted to determine the exact tree types should be completed.

Sketch proposals are for illustrative purposes only & as such are subject to detailed site investigation including ground conditions/contaminants, drainage, design & planning/density negotiations. Sketch proposals may be based upon enlargements of OS sheets & visual estimations of existing site features, accuracy will therefore need to be verified by survey. Sketch proposals have not been considered in respect of CDM Regulations.

Survey carried out to client specification and in accordance with RICS publication:
SURVEYS OF LAND, BUILDING & UTILITY SERVICES AT SCALES 1:500 & LARGER, 3rd EDITION.

Utility Services Location Note:

This survey has been carried out using a combination of observation and detection using electrolocation and ground probing radar equipment. Connections between reference points such as manholes are assumed to be straight unless bends are indicated. The accuracy is limited to the tolerances normally expected from the equipment used.

The following indications of completeness and accuracy are for guidance only:

In areas where there is a large concentration of services, the completeness will be between 80% and 90%. This will be reduced where there are obstructions at ground level.

Positional accuracy will vary with depth and pipe / duct material; an accuracy of +/- 150 mm is achievable in normal circumstances but this will be reduced for plastic pipes.

Existing information from historical plans is likely to be unreliable and is shown for guidance only.

Excavations in the area should be carried out with care and in accordance with HSG 47. No absolute guarantee of accuracy should be inferred from these plans.

The following text is an extract from Surveys of Land, Buildings and Utility Surveys at scales of 1:500 and Larger, 3rd Edition

"Electronic tracing is a reliable, method of locating buried services. ***On Heavy, built up sites 85% completeness is probably all that can be expected.*** *Plan accuracies of +/- 150mm may be achieved but this figure will depend on the depth of the service below ground level.* ***Where similar services run in close proximity, separation may be impossible. Successful tracing of non-metallic pipes may be limited.*** *Existing record information showing underground services is often incomplete and of doubtful accuracy. It should be regarded only as an indication and cannot be guaranteed"*

Standard Abbreviations

ACO	LINEAR DRAINAGE CHANNEL	GP	GUIDE POST	Shlt	SHELTER
AV	AIR VALVE	GPR	GROUND PROBING RADAR	Si	SPUN IRON
A/R	ASSUMED ROUTE	Grl	GRILLE COVER	SL	SOFFIT LEVEL
BB	BELISH BEACON	GV	GAS VALVE COVER	Slt	SILT LEVEL
BdL	BED LEVEL	Hrl	HAND RAIL	SMP	SETTLEMENT MONITORING Pnt
BH	BOREHOLE	IC	INSPECTION COVER	SP	SIGN POST
Bol	BOLLARD	IL	INVERT LEVEL	SPt	SAMPLING POINT
BP	BOUNDARY POST	I/R	IRON RAILING FENCE	SS	STRUCTURE POINT
B Pvg	BLOCK PAVING	KO	KERB OUTLET	ST	STAND PIPE / SUPPLY TAP
BRck	BICYCLE RACK	Lby	LIFEBUOY	Stl	STILE
BS	BUS STOP	Lck	LOCK GATE	STL	STRUCTURE TOP LEVEL
BT	BRITISH TELECOM COVER	Ldr	LADDER	Stone Pvg	STONE PAVING SLABS
BW	BRICK WALL	LOR	LOSS OF REFLECTION (gpr)	STP	STAND PIPE
BWF	BARBED WIRE FENCE	LOS	LOSS OF SIGNAL (eml)	StPO	STAY POST
CAP	CABLE WINDING MACHINE	LP	LAMP POST	Stu	STUMP
Cat	CATENARY LEVEL	Mcy	MACHINERY	StW	STAYWIRE
CATV	CABLE TV COVER	MH	MANHOLE	SV	STOP VALVE
CB	CONTROL BOX	MgP	MOORING POST	SW	STONE WALL
C/B	CLOSE BOARDED FENCE	Mkr	MARKER POST	Tac	TACTILE PAVING
CD	CHAMBER DEPTH	MP	MILE POST	TBM	TEMPORARY BENCH MARK
Cgd	CATTLE GRID	MS	MILESTONE	TBol	BOLLARD (Dept' Transport)
CI	CAST IRON	MU	ELECTRIC MOTOR	TCB	TELEPHONE CALL BOX
CIP	CABLE INLET POINT	NP	NAME PLATE	TCP	TELEPHONE CALL POST
CL	COVER LEVEL	OSA	OUTSIDE SURVEY AREA	TEL	TELECOM COVER
C/L	CHAIN LINK FENCE	OSBM	OS BENCH MARK	ThL	THRESHOLD LEVEL
Conc	CONCRETE	OGC	OVERGROUND CONDUIT	TL	TRAFFIC SIGNAL POST
Conc Pvg	CONCRETE PAVING	OHca	OVERHEAD CABLE Unidentified	TM	TICKET MACHINE
CP	CATCHPIT	OHC	OVERHEAD CONDUIT	ToV	TOP OF VALVE LEVEL
CpL	COPING LEVEL	OHE	OVERHEAD ELECTRIC	TP	TELEGRAPH POLE
Cpsn	CAPSTAN	OHG	OVERHEAD GANTRY	Tpt	TRIAL PIT
CR	CRANE / HOIST	OHStruct	OVERHEAD STRUCTURE	Tr	TROUGH
Cul	CULVERT	OHT	OVERHEAD TELECOMS	UTL	UNABLE TO LOCATE
CW	CONCRETE WALL	P	POST	UTR	UNABLE TO RAISE
DI	DUCTILE IRON	PB	POST BOX	UTS	UNABLE TO SURVEY
(dilap)	DILAPIDATED	PC	SECURITY CAMERA	UTT	UNABLE TO TRACE (utilities)
(dis)	DISUSED	Pcg	PEDESTRIAN CROSSING	VC	VITRIFIED CLAY
DPC	DAMP PROOF COURSE	P/F	PANEL FENCE	VDP	VEHICLE DETECTION PAD
DS	DIRECTION SIGN	PP	PETROL PUMP	VP	VENT PIPE
DSW	DRYSTONE WALL	P/R	POST & RAIL FENCE	VW	VALVE WHEEL
EIC	ELECTRICITY COVER	Psk	PENSTOCK	WB	WEIGH BRIDGE
EL	EAVES LEVEL	PV	VERTICAL PIPE	WG	WATER GAUGE
EOT	END OF TRACE (utility)	Pyl	PYLON	WL	WATER LEVEL
EP	ELECTRICITY POLE	PZ	PIEZOMETER	WM	WATER METER
ER	EARTH ROD	RE	RODDING EYE	W/M	WIRE MESH FENCE
ESP	ELECTRICITY SUPPLY POINT	RG	RAIN GAUGE	WO	WASHOUT COVER
ESW	ELECTRICITY SWITCH BOX	RL	RIDGE LEVEL	WS	WIND SOCK POLE
FB	FOOTBRIDGE	RMP	RESRVOIR MONITORING Pnt	WSR	WATER LEVEL SENSOR
FL	FLOOR LEVEL	RP	REFLECTOR POST		
FFL	FINISHED FLOOR LEVEL	RS	ROAD SIGN		
Flgt	FLOOR LIGHT	RSP	RAILWAY SIGNAL POST		
FH	FIRE HYDRANT	RW	RETAINING WALL		
FS	FLAG STAFF	RWP	RAN WATER PIPE		
G	GULLY	Sap	SAPLING		
GIS	GAS INLET POINT	SB	SIGN BOARD		

Underground Utility Linestyles:

	SURVEY EXTENTS	D=1.00m 1.00d	DEPTH INFORMATION
BT	BRITISH TELECOM	HW	HOT WATER
BT(r)	TAKEN FROM RECORDS	HW(r)	TAKEN FROM RECORDS
CTV	CATV CABLE	O/F	OPTIC FIBRE
CTV(r)	TAKEN FROM RECORDS	O/F(r)	TAKEN FROM RECORDS
CTV	CCTV CABLE	OIL	OIL PIPELINE
CTV(r)	TAKEN FROM RECORDS	OIL(r)	TAKEN FROM RECORDS
CW	COMBINED WATER	PWR	POWER FEATURE
CW(r)	TAKEN FROM RECORDS	SW	SURFACE WATER
DUC	EMPTY DUCT	SW(r)	TAKEN FROM RECORDS
DUC(r)	TAKEN FROM RECORDS	T	TELECOMMUNICATION CABLE
EA	EARTHING FEATURE	T(r)	TAKEN FROM RECORDS
EA(r)	TAKEN FROM RECORDS	TLM	TELEMETRY CABLE
E	ELECTRIC CABLE	TRA	TRAFFIC SIGNALS
E(r)	TAKEN FROM RECORDS	TRA(r)	TAKEN FROM RECORDS
FL	FUEL LINE	UK	UNKNOWN SERVICE
FL(r)	TAKEN FROM RECORDS	UK(r)	TAKEN FROM RECORDS
FW	FOUL WATER	VNT	VENT
FW(r)	TAKEN FROM RECORDS	VNT(r)	TAKEN FROM RECORDS
GAS	GAS	W	WATER
GAS(r)	TAKEN FROM RECORDS	W(r)	TAKEN FROM RECORDS
GPR	GPR FEATURE	11kV	11KV HV ELECTRIC
GPR(r)	TAKEN FROM RECORDS	11kV(r)	TAKEN FROM RECORDS
Helium	HELIUM FEATURE	REF:GPR02	REFERENCE TO GPR DATA IN REPORT
Helium(r)	TAKEN FROM RECORDS		

Grid:	Datum:
Existing Grid Origins Supplied By Client	Existing Datum Reference Supplied By Client

Revision:	Amendments:	Date:	Name:
-	-	-	-
C	ADDITIONAL COMMENTS	Apr'17	DL
B	SHEET LAYOUTS AMENDED	Apr'17	SP
A	ORIGINAL ISSUE	Apr '17	CL/DL

RPS

THE SURVEY ASSOCIATION

Stafford - Clevedon - Irlam - Warrington - Edinburgh

T: 0800 917 8227 E: rps.survey@rpsgroup.com www.rpsgroup.com

Red Deer House, Dunston Business Village, Stafford Road, Dunston, Staffordshire, ST18 9AB

CLIENT:

RPS P&D
Sherwood House, Sherwood Avenue
Newark, Nottinghamshire

PROJECT:

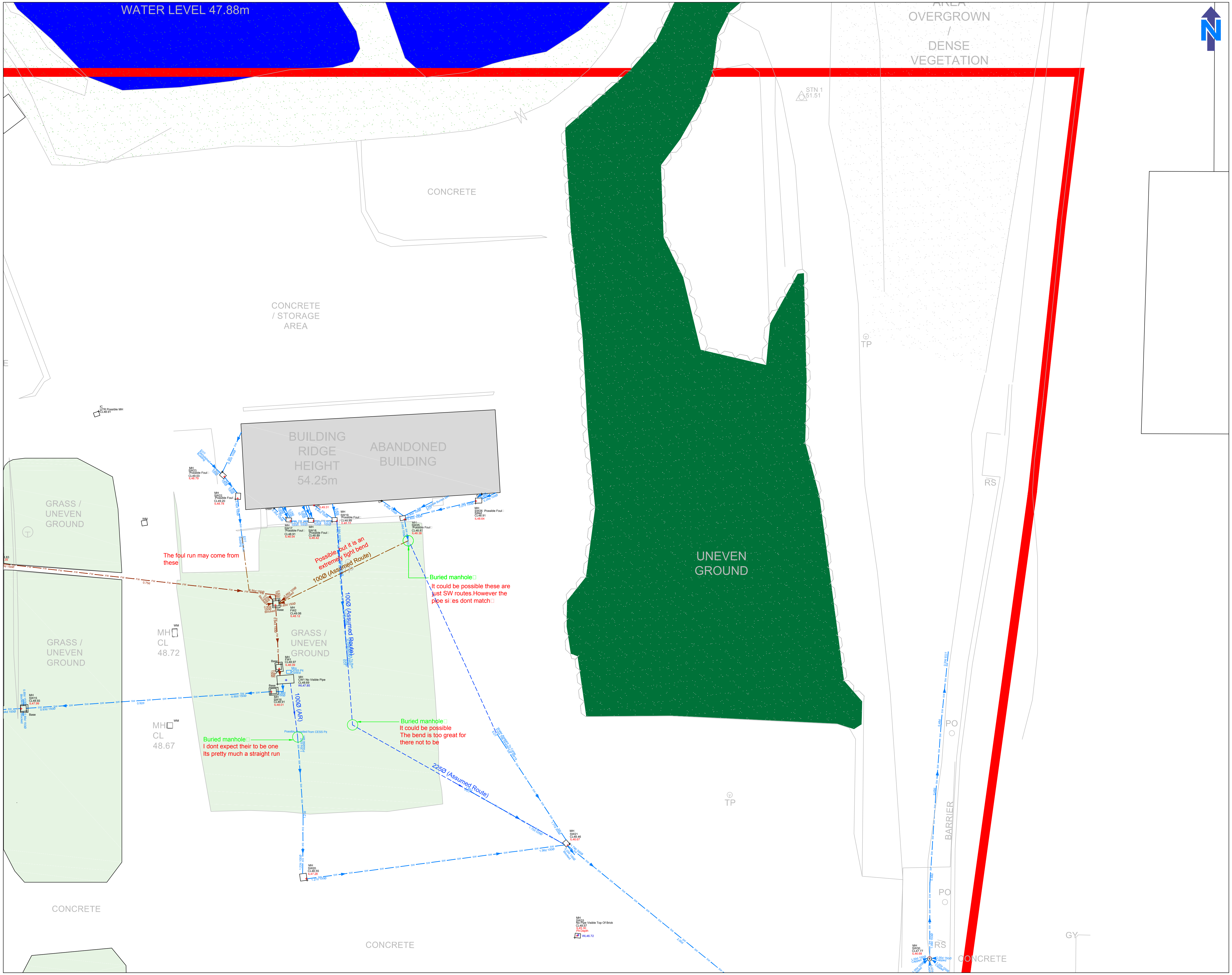
Horsham Drainage

TITLE:

Drainage Survey

Drawn: CL/DL/AO	Checked: SP
Date: April 2017	Scale: 1:200 @ A1
Drg No: UAK3101_C-LG.dwg	Sheet: 1 of 4

GEOMATICS



Notes:

© This drawing and the building works depicted are the copyright of RPS and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.

Where existing trees are to be retained they should be subject to a full Arboricultural inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings and 3 metres from drainage and services. A suitable method of foundation is to be provided to accommodate the proposed tree planting. All tree types are provided as a guide only and a full Arboricultural survey to be conducted to determine the exact tree types should be completed.

Sketch proposals are for illustrative purposes only & as such are subject to detailed site investigation including ground conditions/contaminants, drainage, design & planning/density negotiations. Sketch proposals may be based upon enlargements of OS sheets & visual estimations of existing site features, accuracy will therefore need to be verified by survey. Sketch proposals have not been considered in respect of CDM Regulations.

Survey carried out to client specification and in accordance with RICS publication:
SURVEYS OF LAND , BUILDING & UTILITY SERVICES AT SCALES 1:500 & LARGER, 3rd EDITION.

Utility Services Location Note:

This survey has been carried out using a combination of observation and detection using electrolocation and ground probing radar equipment. Connections between reference points such as manholes are assumed to be straight unless bends are indicated. The accuracy is limited to the tolerances normally expected from the equipment used.

The following indications of completeness and accuracy are for guidance only:

In areas where there is a large concentration of services, the completeness will be between 80% and 90%. This will be reduced where there are obstructions at ground level.

Positional accuracy will vary with depth and pipe / duct material, an accuracy of +/- 150 mm is achievable in normal circumstances but this will be reduced for plastic pipes.

Existing information from historical plans is likely to be unreliable and is shown for guidance only.

Excavations in the area should be carried out with care and in accordance with HSG 47. No absolute guarantee of accuracy should be inferred from these plans.

The following text is an extract from Surveys of Land, Buildings and Utility Surveys at scales of 1:500 and Larger, 3rd Edition

"Electronic tracing is a reliable, method of locating buried services. ***On Heavy, built up sites 85% completeness is probably all that can be expected.*** *Plan accuracies of +/- 150mm may be achieved but this figure will depend on the depth of the service below ground level.* ***Where similar services run in close proximity, separation may be impossible. Successful tracing of non-metallic pipes may be limited.*** *Existing record information showing underground services is often incomplete and of doubtful accuracy. It should be regarded only as an indication and cannot be guaranteed"*

Standard Abbreviations

ACO	LINEAR DRAINAGE CHANNEL	GP	GUIDE POST	Shlt	SHELTER
AV	AIR VALVE	GPR	GROUND PROBING RADAR	Si	SPUN IRON
A/R	ASSUMED ROUTE	Grl	GRILLE COVER	SL	SOFFIT LEVEL
BB	BELISH BEACON	GV	GAS VALVE COVER	Slt	SILT LEVEL
BdL	BED LEVEL	Hrl	HAND RAIL	SMP	SETTLEMENT MONITORING Pnt
BH	BOREHOLE	IC	INSPECTION COVER	SP	SIGN POST
Bol	BOLLARD	IL	INVERT LEVEL	SPt	SAMPLING POINT
BP	BOUNDARY POST	I/R	IRON RAILING FENCE	SS	STRUCTURE POINT
B Pvg	BLOCK PAVING	KO	KERB OUTLET	ST	STAND PIPE / SUPPLY TAP
BRck	BICYCLE RACK	Lby	LIFEBUOY	Sti	STILE
BS	BUS STOP	Lck	LOCK GATE	STL	STRUCTURE TOP LEVEL
BT	BRITISH TELECOM COVER	Ldr	LADDER	Stone Pvg	STONE PAVING SLABS
BW	BRICK WALL	LOR	LOSS OF REFLECTION (gpr)	STP	STAND PIPE
BWF	BARBED WIRE FENCE	LOS	LOSS OF SIGNAL (eml)	StPO	STAY POST
CAP	CABLE WINDING MACHINE	LP	LAMP POST	Stu	STUMP
Cat	CATENARY LEVEL	Mcy	MACHINERY	StW	STAYWIRE
CATV	CABLE TV COVER	MH	MANHOLE	SV	STOP VALVE
CB	CONTROL BOX	MgP	MOORING POST	SW	STONE WALL
C/B	CLOSE BOARDED FENCE	Mkr	MARKER POST	Tac	TACTILE PAVING
CD	CHAMBER DEPTH	MP	MILE POST	TBM	TEMPORARY BENCH MARK
Cgd	CATTLE GRID	MS	MILESTONE	TBol	BOLLARD (Dept Transport)
CI	CAST IRON	MU	ELECTRIC MOTOR	TCB	TELEPHONE CALL BOX
CIP	CABLE INLET POINT	NP	NAME PLATE	TCP	TELEPHONE CALL POST
CL	COVER LEVEL	OSA	OUTSIDE SURVEY AREA	TEL	TELECOM COVER
C/L	CHAIN LINK FENCE	OSBM	OS BENCH MARK	ThL	THRESHOLD LEVEL
Conc	CONCRETE	OGC	OVERGROUND CONDUIT	TL	TRAFFIC SIGNAL POST
Conc Pvg	CONCRETE PAVING	OHca	OVERHEAD CABLE Unidentified	TM	TICKET MACHINE
CP	CATCHPIT	OHC	OVERHEAD CONDUIT	ToV	TOP OF VALVE LEVEL
CpL	COPING LEVEL	OHE	OVERHEAD ELECTRIC	TP	TELEGRAPH POLE
Cpsn	CAPSTAN	OHG	OVERHEAD GANTRY	Tpt	TRIAL PIT
CR	CRANE / HOIST	OHStruct	OVERHEAD STRUCTURE	Tr	TROUGH
Cul	CULVERT	OHT	OVERHEAD TELECOMS	UTL	UNABLE TO LOCATE
CW	CONCRETE WALL	P	POST	UTR	UNABLE TO RAISE
DI	DUCTILE IRON	PB	POST BOX	UTS	UNABLE TO SURVEY
(dilap)	DILAPIDATED	PC	SECURITY CAMERA	UTT	UNABLE TO TRACE (utilities)
(dis)	DISUSED	Pcg	PEDESTRIAN CROSSING	VC	VITRIFIED CLAY
DPC	DAMP PROOF COURSE	P/F	PANEL FENCE	VDP	VEHICLE DETECTION PAD
DS	DIRECTION SIGN	PP	PETROL PUMP	VP	VENT PIPE
DSW	DRYSTONE WALL	P/R	POST & RAIL FENCE	VW	VALVE WHEEL
EIC	ELECTRICITY COVER	Psk	PENSTOCK	WB	WEIGH BRIDGE
EL	EAVES LEVEL	PV	VERTICAL PIPE	WG	WATER GAUGE
EOT	END OF TRACE (utility)	Pyl	PYLON	WL	WATER LEVEL
EP	ELECTRICITY POLE	PZ	PIEZOMETER	WM	WATER METER
ER	EARTH ROD	RE	RODDING EYE	W/M	WIRE MESH FENCE
ESP	ELECTRICITY SUPPLY POINT	RG	RAIN GAUGE	WO	WASHOUT COVER
ESW	ELECTRICITY SWITCH BOX	RL	RIDGE LEVEL	WS	WIND SOCK POLE
FB	FOOTBRIDGE	RMP	RESRVOIR MONITORING Pnt	WSR	WATER LEVEL SENSOR
FL	FLOOR LEVEL	RP	REFLECTOR POST		
FFL	FINISHED FLOOR LEVEL	RS	ROAD SIGN		
Flgt	FLOOR LIGHT	RSP	RAILWAY SIGNAL POST		
FH	FIRE HYDRANT	RW	RETAINING WALL		
FS	FLAG STAFF	RWP	RAN WATER PIPE		
G	GULLY	Sap	SAPLING		
GIS	GAS INLET POINT	SB	SIGN BOARD		

Underground Utility Linestyles:

	SURVEY EXTENTS	D=1.00m 1.00d	DEPTH INFORMATION
BT	BRITISH TELECOM	HW	HOT WATER
BT(r)	TAKEN FROM RECORDS	HW(r)	TAKEN FROM RECORDS
CTV	CATV CABLE	O/F	OPTIC FIBRE
CTV(r)	TAKEN FROM RECORDS	O/F(r)	TAKEN FROM RECORDS
CTV	CCTV CABLE	OIL	OIL PIPELINE
CTV(r)	TAKEN FROM RECORDS	OIL(r)	TAKEN FROM RECORDS
CW	COMBINED WATER	PWR	POWER FEATURE
CW(r)	TAKEN FROM RECORDS	SW	SURFACE WATER
DUC	EMPTY DUCT	SW(r)	TAKEN FROM RECORDS
DUC(r)	TAKEN FROM RECORDS	T	TELECOMMUNICATION CABLE
EA	EARTHING FEATURE	T(r)	TAKEN FROM RECORDS
EA(r)	TAKEN FROM RECORDS	TLM	TELEMETRY CABLE
E	ELECTRIC CABLE	TRA	TRAFFIC SIGNALS
E(r)	TAKEN FROM RECORDS	TRA(r)	TAKEN FROM RECORDS
FL	FUEL LINE	UK	UNKNOWN SERVICE
FL(r)	TAKEN FROM RECORDS	UK(r)	TAKEN FROM RECORDS
FW	FOUL WATER	VNT	VENT
FW(r)	TAKEN FROM RECORDS	VNT(r)	TAKEN FROM RECORDS
GAS	GAS	W	WATER
GAS(r)	TAKEN FROM RECORDS	W(r)	TAKEN FROM RECORDS
GPR	GPR FEATURE	11kV	11KV HV ELECTRIC
GPR(r)	TAKEN FROM RECORDS	11kV(r)	TAKEN FROM RECORDS
Helium	HELIUM FEATURE	REF:GPR02	REFERENCE TO GPR DATA IN REPORT
Helium(r)	TAKEN FROM RECORDS		

Grid:	Datum:
Existing Grid Origins Supplied By Client	Existing Datum Reference Supplied By Client

Revision:	Amendments:	Date:	Name:
-	-	-	-
C	ADDITIONAL COMMENTS	Apr 17	DL
B	SHEET LAYOUTS AMENDED	Apr 17	SP
A	ORIGINAL ISSUE	Apr 17	CL/DL

RPS

THE SURVEY ASSOCIATION AFFILIATE MEMBER

Stafford - Clevedon - Irlam - Warrington - Edinburgh
T: 0800 917 8227 E: rps.survey@rpsgroup.com www.rpsgroup.com
Red Deer House, Dunston Business Village, Stafford Road, Dunston, Staffordshire, ST18 9AB

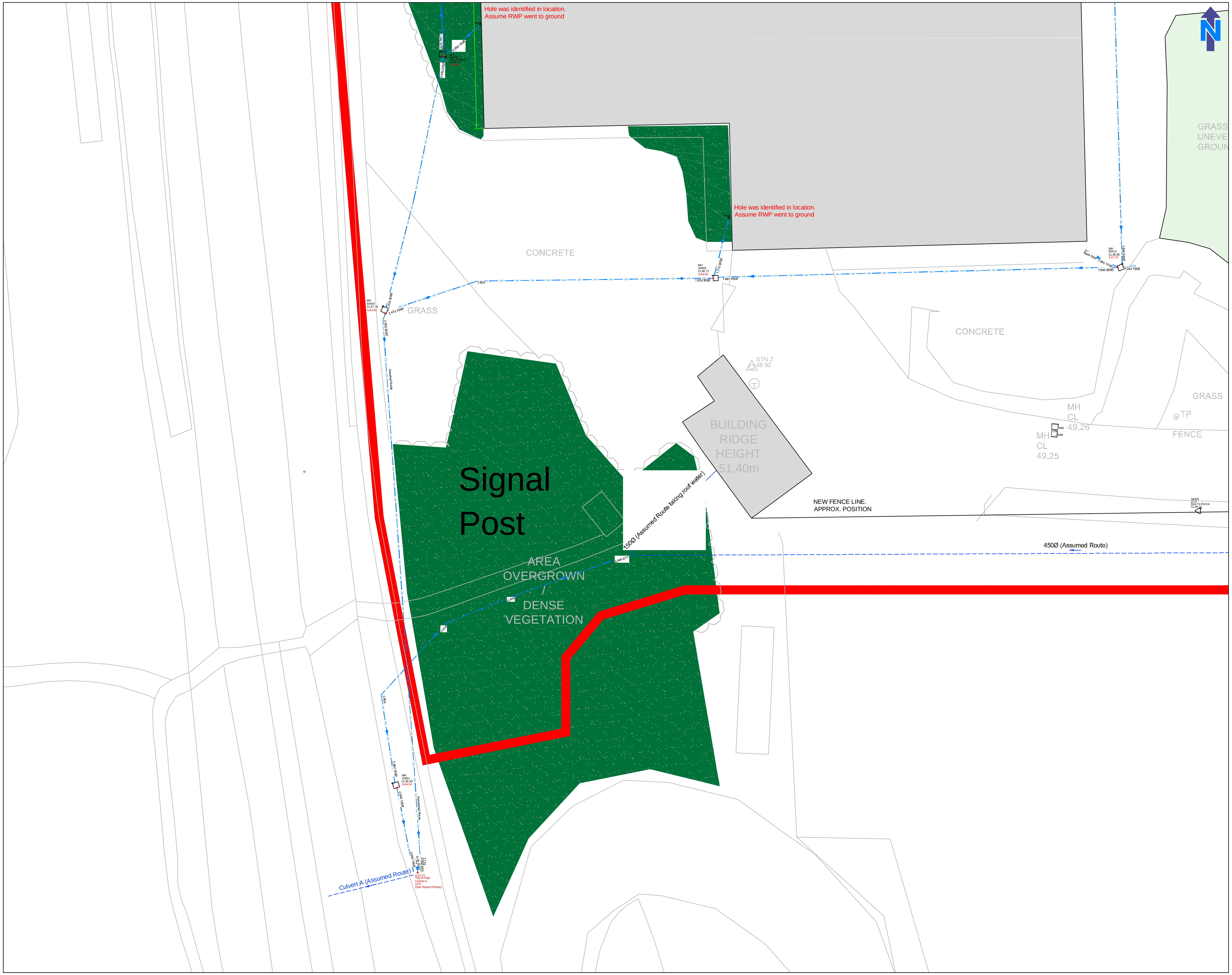
CLIENT:
RPS P&D
Sherwood House, Sherwood Avenue
Newark, Nottinghamshire

PROJECT:
Horsham Drainage

TITLE:
Drainage Survey

Drawn:	CL/DL/AO	Checked:	SP
Date:	April 2017	Scale:	1:200 @ A1
Drg No:	UAK3101-C-LG.dwg	Sheet:	2 of 4

GEOMATICS



Notes:

© This drawing and the building works depicted are the copyright of RPS and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.

Where existing trees are to be retained they should be subject to a full Arboricultural inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings and 3 metres from drainage and services. A suitable method of foundation is to be provided to accommodate the proposed tree planting. All tree types are provided as a guide only and a full Arboricultural survey to be conducted to determine the exact tree types should be completed.

Sketch proposals are for illustrative purposes only & as such are subject to detailed site investigation including ground conditions/contaminants, drainage, design & planning/density negotiations. Sketch proposals may be based upon enlargements of OS sheets & visual estimations of existing site features, accuracy will therefore need to be verified by survey. Sketch proposals have not been considered in respect of CDM Regulations.

Survey carried out to client specification and in accordance with RICS publication:
SURVEYS OF LAND , BUILDING & UTILITY SERVICES AT SCALES 1:500 & LARGER, 3rd EDITION.

Utility Services Location Note:

This survey has been carried out using a combination of observation and detection using electrolocation and ground probing radar equipment. Connections between reference points such as manholes are assumed to be straight unless bends are indicated. The accuracy is limited to the tolerances normally expected from the equipment used.

The following indications of completeness and accuracy are for guidance only:

In areas where there is a large concentration of services, the completeness will be between 80% and 90%. This will be reduced where there are obstructions at ground level.

Positional accuracy will vary with depth and pipe / duct material; an accuracy of +/- 150 mm is achievable in normal circumstances but this will be reduced for plastic pipes.

Existing information from historical plans is likely to be unreliable and is shown for guidance only.

Excavations in the area should be carried out with care and in accordance with HSG 47. No absolute guarantee of accuracy should be inferred from these plans.

The following text is an extract from Surveys of Land, Buildings and Utility Surveys at scales of 1:500 and Larger, 3rd Edition

"Electronic tracing is a reliable, method of locating buried services. ***On Heavy, built up sites 85% completeness is probably all that can be expected.*** *Plan accuracies of +/- 150mm may be achieved but this figure will depend on the depth of the service below ground level.* ***Where similar services run in close proximity, separation may be impossible. Successful tracing of non-metallic pipes may be limited.*** *Existing record information showing underground services is often incomplete and of doubtful accuracy. It should be regarded only as an indication and cannot be guaranteed"*

Standard Abbreviations

ACO	LINEAR DRAINAGE CHANNEL	GP	GUIDE POST	Shlt	SHELTER
AV	AIR VALVE	GPR	GROUND PROBING RADAR	Si	SPUN IRON
A/R	ASSUMED ROUTE	Grl	GRILLE COVER	SL	SOFFIT LEVEL
BB	BELISH BEACON	GV	GAS VALVE COVER	Slt	SILT LEVEL
BdL	BED LEVEL	Hrl	HAND RAIL	SMP	SETTLEMENT MONITORING Pnt
BH	BOREHOLE	IC	INSPECTION COVER	SP	SIGN POST
Bol	BOLLARD	IL	INVERT LEVEL	SPt	SAMPLING POINT
BP	BOUNDARY POST	I/R	IRON RAILING FENCE	SS	STRUCTURE POINT
B Pvg	BLOCK PAVING	KO	KERB OUTLET	ST	STAND PIPE / SUPPLY TAP
BRck	BICYCLE RACK	Lby	LIFEBUOY	Stl	STILE
BS	BUS STOP	Lck	LOCK GATE	STL	STRUCTURE TOP LEVEL
BT	BRITISH TELECOM COVER	Ldr	LADDER	Stone Pvg	STONE PAVING SLABS
BW	BRICK WALL	LOR	LOSS OF REFLECTION (gpr)	STP	STAND PIPE
BWF	BARBED WIRE FENCE	LOS	LOSS OF SIGNAL (eml)	StPO	STAY POST
CAP	CABLE WINDING MACHINE	LP	LAMP POST	Stu	STUMP
Cat	CATENARY LEVEL	Mcy	MACHINERY	StW	STAYWIRE
CATV	CABLE TV COVER	MH	MANHOLE	SV	STOP VALVE
CB	CONTROL BOX	MgP	MOORING POST	SW	STONE WALL
C/B	CLOSE BOARDED FENCE	Mkr	MARKER POST	Tac	TACTILE PAVING
CD	CHAMBER DEPTH	MP	MILE POST	TBM	TEMPORARY BENCH MARK
Cgd	CATTLE GRID	MS	MILESTONE	TBol	BOLLARD (Dept' Transport)
CI	CAST IRON	MU	ELECTRIC MOTOR	TCB	TELEPHONE CALL BOX
CIP	CABLE INLET POINT	NP	NAME PLATE	TCP	TELEPHONE CALL POST
CL	COVER LEVEL	OSA	OUTSIDE SURVEY AREA	TEL	TELECOM COVER
C/L	CHAIN LINK FENCE	OSBM	OS BENCH MARK	ThL	THRESHOLD LEVEL
Conc	CONCRETE	OGC	OVERGROUND CONDUIT	TL	TRAFFIC SIGNAL POST
Conc Pvg	CONCRETE PAVING	OHca	OVERHEAD CABLE Unidentified	TM	TICKET MACHINE
CP	CATCHPIT	OHC	OVERHEAD CONDUIT	ToV	TOP OF VALVE LEVEL
CpL	COPING LEVEL	OHE	OVERHEAD ELECTRIC	TP	TELEGRAPH POLE
Cpsn	CAPSTAN	OHG	OVERHEAD GANTRY	Tpt	TRIAL PIT
CR	CRANE / HOIST	OHStruct	OVERHEAD STRUCTURE	Tr	TROUGH
Cul	CULVERT	OHT	OVERHEAD TELECOMS	UTL	UNABLE TO LOCATE
CW	CONCRETE WALL	P	POST	UTR	UNABLE TO RAISE
Di	DUCTILE IRON	PB	POST BOX	UTS	UNABLE TO SURVEY
(dilap)	DILAPIDATED	PC	SECURITY CAMERA	UTT	UNABLE TO TRACE (utilities)
(dis)	DISUSED	Pcg	PEDESTRIAN CROSSING	VC	VITRIFIED CLAY
DPC	DAMP PROOF COURSE	P/F	PANEL FENCE	VDP	VEHICLE DETECTION PAD
DS	DIRECTION SIGN	PP	PETROL PUMP	VP	VENT PIPE
DSW	DRYSTONE WALL	P/R	POST & RAIL FENCE	VW	VALVE WHEEL
EIC	ELECTRICITY COVER	Psk	PENSTOCK	WB	WEIGH BRIDGE
EL	EAVES LEVEL	PV	VERTICAL PIPE	WG	WATER GAUGE
EOT	END OF TRACE (utility)	Pyl	PYLON	WL	WATER LEVEL
EP	ELECTRICITY POLE	PZ	PIEZOMETER	WM	WATER METER
ER	EARTH ROD	RE	RODDING EYE	W/M	WIRE MESH FENCE
ESP	ELECTRICITY SUPPLY POINT	RG	RAIN GAUGE	WO	WASHOUT COVER
ESW	ELECTRICITY SWITCH BOX	RL	RIDGE LEVEL	WS	WIND SOCK POLE
FB	FOOTBRIDGE	RMP	RESRVOIR MONITORING Pnt	WSR	WATER LEVEL SENSOR
FL	FLOOR LEVEL	RP	REFLECTOR POST		
FFL	FINISHED FLOOR LEVEL	RS	ROAD SIGN		
Flgt	FLOOR LIGHT	RSP	RAILWAY SIGNAL POST		
FH	FIRE HYDRANT	RW	RETAINING WALL		
FS	FLAG STAFF	RWP	RAN WATER PIPE		
G	GULLY	Sap	SAPLING		
GIS	GAS INLET POINT	SB	SIGN BOARD		

Underground Utility Linestyles:

	SURVEY EXTENTS	D=1.00m 1.00d	DEPTH INFORMATION
BT	BRITISH TELECOM	HW	HOT WATER
BT(r)	TAKEN FROM RECORDS	HW(r)	TAKEN FROM RECORDS
CTV	CATV CABLE	O/F	OPTIC FIBRE
CTV(r)	TAKEN FROM RECORDS	O/F(r)	TAKEN FROM RECORDS
CTV	CCTV CABLE	OIL	OIL PIPELINE
CTV(r)	TAKEN FROM RECORDS	OIL(r)	TAKEN FROM RECORDS
CW	COMBINED WATER	PWR	POWER FEATURE
CW(r)	TAKEN FROM RECORDS	SW	SURFACE WATER
DUC	EMPTY DUCT	SW(r)	TAKEN FROM RECORDS
DUC(r)	TAKEN FROM RECORDS	T	TELECOMMUNICATION CABLE
EA	EARTHING FEATURE	T(r)	TAKEN FROM RECORDS
EA(r)	TAKEN FROM RECORDS	TLM	TELEMETRY CABLE
E	ELECTRIC CABLE	TRA	TRAFFIC SIGNALS
E(r)	TAKEN FROM RECORDS	TRA(r)	TAKEN FROM RECORDS
FL	FUEL LINE	UK	UNKNOWN SERVICE
FL(r)	TAKEN FROM RECORDS	UK(r)	TAKEN FROM RECORDS
FW	FOUL WATER	VNT	VENT
FW(r)	TAKEN FROM RECORDS	VNT(r)	TAKEN FROM RECORDS
GAS	GAS	W	WATER
GAS(r)	TAKEN FROM RECORDS	W(r)	TAKEN FROM RECORDS
GPR	GPR FEATURE	11kV	11KV HV ELECTRIC
GPR(r)	TAKEN FROM RECORDS	11kV(r)	TAKEN FROM RECORDS
Helium	HELIUM FEATURE	REF:GPR02	REFERENCE TO GPR DATA IN REPORT
Helium(r)	TAKEN FROM RECORDS		

Grid:	Datum:
Existing Grid Origins Supplied By Client	Existing Datum Reference Supplied By Client

Revision:	Amendments:	Date:	Name:
-	-	-	-
C	ADDITIONAL COMMENTS	Apr'17	DL
B	SHEET LAYOUTS AMENDED	Apr'17	SP
A	ORIGINAL ISSUE	Apr '17	CL/DL

RPS

THE SURVEY ASSOCIATION

Stafford - Clevedon - Irlam - Warrington - Edinburgh
T: 0800 917 8227 E: rps.survey@rpsgroup.com www.rpsgroup.com
Red Deer House, Dunston Business Village, Stafford Road, Dunston, Staffordshire, ST18 9AB

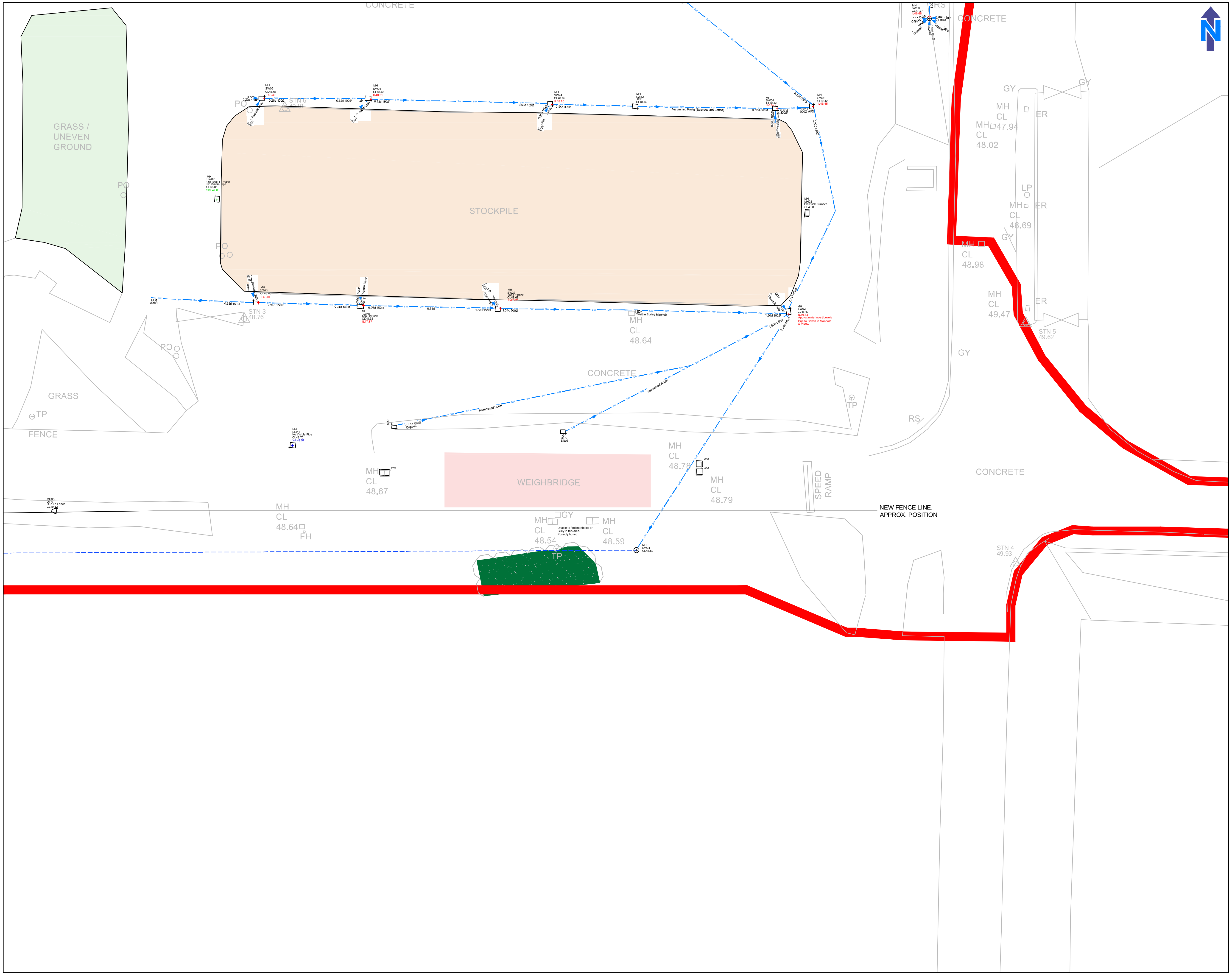
CLIENT:
RPS P&D
Sherwood House, Sherwood Avenue
Newark, Nottinghamshire

PROJECT:
Horsham Drainage

TITLE:
Drainage Survey

Drawn:	CL/DL/AO	Checked:	SP
Date:	April 2017	Scale:	1:200 @ A1
Drg No: UAK3101_C-LG.dwg		Sheet:	3 of 4

GEOMATICS



Notes:

© This drawing and the building works depicted are the copyright of RPS and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications, Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided.

This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.

Where existing trees are to be retained they should be subject to a full Arboricultural inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings and 3 metres from drainage and services. A suitable method of foundation is to be provided to accommodate the proposed tree planting. All tree types are provided as a guide only and a full Arboricultural survey to be conducted to determine the exact tree types should be completed.

Sketch proposals are for illustrative purposes only & as such are subject to detailed site investigation including ground conditions/contaminants, drainage, design & planning/density negotiations. Sketch proposals may be based upon enlargements of OS sheets & visual estimations of existing site features, accuracy will therefore need to be verified by survey. Sketch proposals have not been considered in respect of CDM Regulations.

Survey carried out to client specification and in accordance with RICS publication:
SURVEYS OF LAND , BUILDING & UTILITY SERVICES AT SCALES 1:500 & LARGER, 3rd EDITION.

Utility Services Location Note:

This survey has been carried out using a combination of observation and detection using electrolocation and ground probing radar equipment. Connections between reference points such as manholes are assumed to be straight unless bends are indicated. The accuracy is limited to the tolerances normally expected from the equipment used.

The following indications of completeness and accuracy are for guidance only:

In areas where there is a large concentration of services, the completeness will be between 80% and 90%. This will be reduced where there are obstructions at ground level.

Positional accuracy will vary with depth and pipe / duct material; an accuracy of +/- 150 mm is achievable in normal circumstances but this will be reduced for plastic pipes.

Existing information from historical plans is likely to be unreliable and is shown for guidance only.

Excavations in the area should be carried out with care and in accordance with HSG 47. No absolute guarantee of accuracy should be inferred from these plans.

The following text is an extract from Surveys of Land, Buildings and Utility Surveys at scales of 1:500 and Larger, 3rd Edition

"Electronic tracing is a reliable, method of locating buried services. ***On Heavy, built up sites 85% completeness is probably all that can be expected.*** *Plan accuracies of +/- 150mm may be achieved but this figure will depend on the depth of the service below ground level.* ***Where similar services run in close proximity, separation may be impossible. Successful tracing of non-metallic pipes may be limited.*** *Existing record information showing underground services is often incomplete and of doubtful accuracy. It should be regarded only as an indication and cannot be guaranteed"*

Standard Abbreviations

ACO	LINEAR DRAINAGE CHANNEL	GP	GUIDE POST	Shlt	SHELTER
AV	AIR VALVE	GPR	GROUND PROBING RADAR	Si	SPUN IRON
A/R	ASSUMED ROUTE	Grl	GRILLE COVER	SL	SOFFIT LEVEL
BB	BELISH BEACON	GV	GAS VALVE COVER	Slt	SILT LEVEL
BdL	BED LEVEL	Hrl	HAND RAIL	SMP	SETTLEMENT MONITORING Pnt
BH	BOREHOLE	IC	INSPECTION COVER	SP	SIGN POST
Bol	BOLLARD	IL	INVERT LEVEL	SPt	SAMPLING POINT
BP	BOUNDARY POST	I/R	IRON RAILING FENCE	SS	STRUCTURE POINT
B Pvg	BLOCK PAVING	KO	KERB OUTLET	ST	STAND PIPE / SUPPLY TAP
BRck	BICYCLE RACK	Lby	LIFEBUOY	Stl	STILE
BS	BUS STOP	Lck	LOCK GATE	STL	STRUCTURE TOP LEVEL
BT	BRITISH TELECOM COVER	Ldr	LADDER	Stone Pvg	STONE PAVING SLABS
BW	BRICK WALL	LOR	LOSS OF REFLECTION (gpr)	STP	STAND PIPE
BWF	BARBED WIRE FENCE	LOS	LOSS OF SIGNAL (eml)	StPO	STAY POST
CAP	CABLE WINDING MACHINE	LP	LAMP POST	Stu	STUMP
Cat	CATENARY LEVEL	Mcy	MACHINERY	StW	STAYWIRE
CATV	CABLE TV COVER	MH	MANHOLE	SV	STOP VALVE
CB	CONTROL BOX	MgP	MOORING POST	SW	STONE WALL
C/B	CLOSE BOARDED FENCE	Mkr	MARKER POST	Tac	TACTILE PAVING
CD	CHAMBER DEPTH	MP	MILE POST	TBM	TEMPORARY BENCH MARK
Cgd	CATTLE GRID	MS	MILESTONE	TBol	BOLLARD (Dept' Transport)
CI	CAST IRON	MU	ELECTRIC MOTOR	TCB	TELEPHONE CALL BOX
CIP	CABLE INLET POINT	NP	NAME PLATE	TCP	TELEPHONE CALL POST
CL	COVER LEVEL	OSA	OUTSIDE SURVEY AREA	TEL	TELECOM COVER
C/L	CHAIN LINK FENCE	OSBM	OS BENCH MARK	ThL	THRESHOLD LEVEL
Conc	CONCRETE	OGC	OVERGROUND CONDUIT	TL	TRAFFIC SIGNAL POST
Conc Pvg	CONCRETE PAVING	OHca	OVERHEAD CABLE Unidentified	TM	TICKET MACHINE
CP	CATCHPIT	OHC	OVERHEAD CONDUIT	ToV	TOP OF VALVE LEVEL
CpL	COPING LEVEL	OHE	OVERHEAD ELECTRIC	TP	TELEGRAPH POLE
Cpsn	CAPSTAN	OHG	OVERHEAD GANTRY	Tpt	TRIAL PIT
CR	CRANE / HOIST	OHStruct	OVERHEAD STRUCTURE	Tr	TROUGH
Cul	CULVERT	OHT	OVERHEAD TELECOMS	UTL	UNABLE TO LOCATE
CW	CONCRETE WALL	P	POST	UTR	UNABLE TO RAISE
Di	DUCTILE IRON	PB	POST BOX	UTS	UNABLE TO SURVEY
(dilap)	DILAPIDATED	PC	SECURITY CAMERA	UTT	UNABLE TO TRACE (utilities)
(dis)	DISUSED	Pcg	PEDESTRIAN CROSSING	VC	VITRIFIED CLAY
DPC	DAMP PROOF COURSE	P/F	PANEL FENCE	VDP	VEHICLE DETECTION PAD
DS	DIRECTION SIGN	PP	PETROL PUMP	VP	VENT PIPE
DSW	DRYSTONE WALL	P/R	POST & RAIL FENCE	VW	VALVE WHEEL
EIC	ELECTRICITY COVER	Psk	PENSTOCK	WB	WEIGH BRIDGE
EL	EAVES LEVEL	PV	VERTICAL PIPE	WG	WATER GAUGE
EOT	END OF TRACE (utility)	Pyl	PYLON	WL	WATER LEVEL
EP	ELECTRICITY POLE	PZ	PIEZOMETER	WM	WATER METER
ER	EARTH ROD	RE	RODDING EYE	W/M	WIRE MESH FENCE
ESP	ELECTRICITY SUPPLY POINT	RG	RAIN GAUGE	WO	WASHOUT COVER
ESW	ELECTRICITY SWITCH BOX	RL	RIDGE LEVEL	WS	WIND SOCK POLE
FB	FOOTBRIDGE	RMP	RESRVOIR MONITORING Pnt	WSR	WATER LEVEL SENSOR
FL	FLOOR LEVEL	RP	REFLECTOR POST		
FFL	FINISHED FLOOR LEVEL	RS	ROAD SIGN		
Flgt	FLOOR LIGHT	RSP	RAILWAY SIGNAL POST		
FH	FIRE HYDRANT	RW	RETAINING WALL		
FS	FLAG STAFF	RWP	RAN WATER PIPE		
G	GULLY	Sap	SAPLING		
GIS	GAS INLET POINT	SB	SIGN BOARD		

Underground Utility Linestyles:

(line)	SURVEY EXTENTS	D=1.00m 1.00d	DEPTH INFORMATION
BT	BRITISH TELECOM	HW	HOT WATER
BT(r)	TAKEN FROM RECORDS	HW(r)	TAKEN FROM RECORDS
CTV	CATV CABLE	O/F	OPTIC FIBRE
CTV(r)	TAKEN FROM RECORDS	O/F(r)	TAKEN FROM RECORDS
CTV	CCTV CABLE	OIL	OIL PIPELINE
CTV(r)	TAKEN FROM RECORDS	OIL(r)	TAKEN FROM RECORDS
CW	COMBINED WATER	PWR	POWER FEATURE
CW(r)	TAKEN FROM RECORDS	SW	SURFACE WATER
DUC	EMPTY DUCT	SW(r)	TAKEN FROM RECORDS
DUC(r)	TAKEN FROM RECORDS	T	TELECOMMUNICATION CABLE
EA	EARTHING FEATURE	T(r)	TAKEN FROM RECORDS
EA(r)	TAKEN FROM RECORDS	TLM	TELEMETRY CABLE
E	ELECTRIC CABLE	TRA	TRAFFIC SIGNALS
E(r)	TAKEN FROM RECORDS	TRA(r)	TAKEN FROM RECORDS
FL	FUEL LINE	UK	UNKNOWN SERVICE
FL(r)	TAKEN FROM RECORDS	UK(r)	TAKEN FROM RECORDS
FW	FOUL WATER	VNT	VENT
FW(r)	TAKEN FROM RECORDS	VNT(r)	TAKEN FROM RECORDS
GAS	GAS	W	WATER
GAS(r)	TAKEN FROM RECORDS	W(r)	TAKEN FROM RECORDS
GPR	GPR FEATURE	11kV	11KV HV ELECTRIC
GPR(r)	TAKEN FROM RECORDS	11kV(r)	TAKEN FROM RECORDS
Helium	HELIUM FEATURE	REF:GPR02	REFERENCE TO GPR DATA IN REPORT
Helium(r)	TAKEN FROM RECORDS		

Grid: Existing Grid Origins Supplied By Client

Datum: Existing Datum Reference Supplied By Client

Revision:	Amendments:	Date:	Name:
-	-	-	-
C	ADDITIONAL COMMENTS	Apr'17	DL
B	SHEET LAYOUTS AMENDED	Apr'17	SP
A	ORIGINAL ISSUE	Apr '17	CL/DL

RPS

THE SURVEY ASSOCIATION

Stafford - Clevedon - Irlam - Warrington - Edinburgh
T: 0800 917 8227 E: rps.survey@rpsgroup.com www.rpsgroup.com
Red Deer House, Dunston Business Village, Stafford Road, Dunston, Staffordshire, ST18 9AB

CLIENT:
RPS P&D
Sherwood House, Sherwood Avenue
Newark, Nottinghamshire

PROJECT:
Horsham Drainage

TITLE:
Drainage Survey

Drawn: CL/DL/AO	Checked: SP
Date: April 2017	Scale: 1:200 @ A1
Drg No: UAK3101_C-LG.dwg	Sheet: 4 of 4

GEOMATICS

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

- Development Boundary
- Ownership Boundary
- Shared Right of Way

N 134404.401
E 517002.224

N 134405.301
E 517021.725

N 134405.601
E 517044.052

N 134405.601
E 517221.266

STN 1

N 134402.520
E 517193.020

N 134375.893
E 517003.132

N 134369.652
E 517217.388

N 134358.564
E 517216.450

N 134339.543
E 517005.037

N 134337.065
E 517212.721

N 134326.364
E 517211.336

N 134311.681
E 517006.497

N 134315.788
E 517210.733

N 134299.162
E 517210.606

N 134287.258
E 517210.830

N 134271.417
E 517210.500

N 134271.417
E 517217.904

N 134265.751
E 517210.500

N 134267.850
E 517217.904

N 134266.959
E 517010.420

N 134261.731
E 517023.668

N 134266.959
E 517023.668

STN 2
N 134262.898
E 517055.251

STN 3

N 134252.242
E 517233.401

N 134245.560
E 517012.230

N 134244.959
E 517037.678

N 134244.959
E 517192.721

N 134241.504
E 517234.306

N 134233.660
E 517014.430

N 134237.158
E 517186.695

N 134232.278
E 517198.177

N 134232.477
E 517221.846

N 134229.343
E 517033.768

N 134237.158
E 517047.524

N 134231.852
E 517204.700

N 134223.375
E 517221.574

N 134220.719
E 517033.768

N 134217.502
E 517017.655

N 134223.497
E 517209.520

Pond

Pond
WATER LEVEL 47.88m

Pond
WATER LEVEL 47.88m

AREA OVERGROWN / DENSE VEGETATION

AREA OVERGROWN / DENSE VEGETATION

AREA OVERGROWN / DENSE VEGETATION

AREA OVERGROWN / DENSE VEGETATION

Level Crossing

Signal Post

N

10m

SCALE 1:500

Rev	Description	By	Ckd	Date

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client

BRITANIAGREST RECYCLING

Project Sussex EFW

Title Topographical Survey

Status	Scale	Date Created
Preliminary	1:500 @A1	19/02/18
Project Leader	Drawn By	Checked by
KRP	DEC	MH

Document Number	Revision	Suitability
NK018074-RPS-ST-XX-A-DR-0102	-	S0

Project Number | Originator - Zone - Level - Type - Role - Drawing Number

rpsgroup.com/uk

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. For Site Sections, please refer to drawing NK018074-RPS-EFW-XX-DR-C-0705.

Key

Site Boundary

Concrete / Sheet Piled Retaining Wall

N

Finished Levels
Scale 1:500

10m SCALE 1:500

P04	Levels updated to suit revised site layout.	MF	WL	13.03.18
P03	Finished levels updated in line with current Site Layout.	MF	WL	15.02.18
P02	Levels updated in eastern circulation road adjacent Transformer layby.	MF	WL	31.05.17
Rev	Description	By	Ckd	Date

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client BRITANIAGREST RECYCLING

Project Sussex EfW

Title Finished Levels

Status	Scale	Date Created
Preliminary	1:500 @A1	10.11.2016
Project Leader	**Drawn By**	**Checked by**
DM	WL	DM

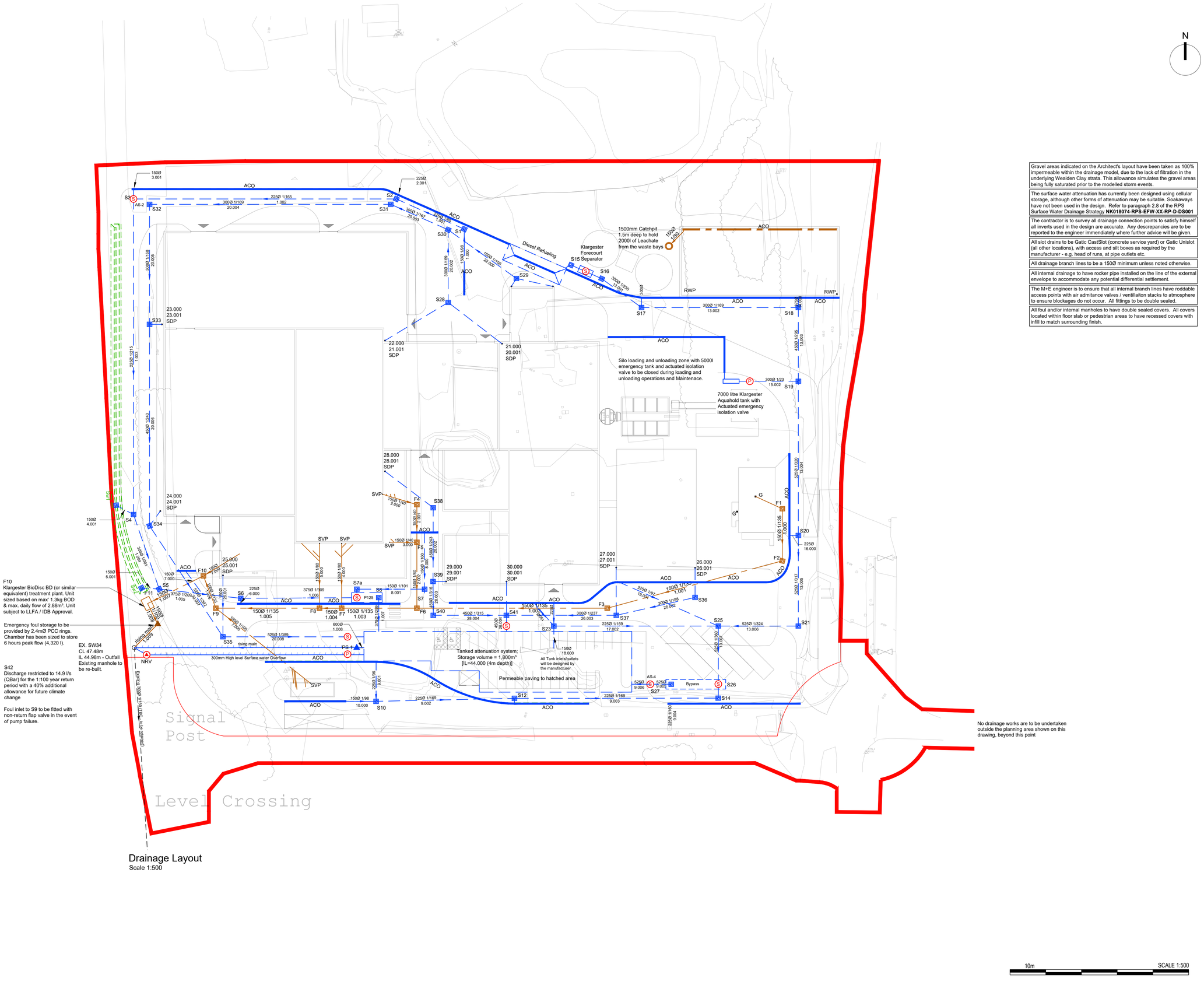
Document Number	Revision	Suitability
NK018074 - RPS-EFW-XX-DR-C-0701	P04	S3
Project Number / Originator - Zone - Level - Type - Role - Drawing Number		

rpsgroup.com/uk

APPENDIX III

Proposed Drainage Strategy Drawings

- **NK018074-RPS-EFW-XX-A-DR-0300** Surface and Foul Water Drainage Layout
- **NK018074-RPS-EFW-XX-A-DR-0301** Surface Water Catchment Plan
- **NK018074-RPS-EFW-XX-A-DR-0302** Temporary Overland Flooded Volumes Plan
- **NK018074-RPS-EFW-XX-DR-D-0305** Existing Outfall Details



Drainage Layout
Scale 1:500

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key:

- ***mmØ 1/300 9.001 — SW Sewer (I/D & Gradient)
- Perforated Filter Drain
- Swale
- SW HDPE Rising Main (O/D & Gradient)
- S2 — SW Manhole
- (11.60) — SW Pumping Station with Inlet Invert
- ***mmØ 1/300 — Existing Surface Water pipe
- ***mmØ 1/100 9.001 — FW Sewer (I/D & Gradient)
- F2 — FW Manhole
- SW Slot Drain
- FW Slot Drain
- 9.001 — MicroDrainage model pipe number
- S — Separator - Vortex or Class 1 Bypass (refer to RPS drainage strategy report NK018074-RPS-EFW-XX-D-DS001 - Section 4.5
- P — Penstock Isolation Valve
- Non-return valve
- G — Trapped Gully
- SDP — Syphonic Primary Downpipe
- SVP — Soil Vent Pipe
- CL — Cover Level
- IL — Invert Level
- BD — Back Drop

Rev	Description	By	Ckd	Date
P08	Updated Swales to reflect the approved Landscape	SM	WL	30.11.22
P07	Updated to Current Landscape surfaces	SM	WL	22.11.22
P06	Updated to Current proposals	MF	WL	14.11.22
P05	Drawing updated with current corporate branding.	MF	WL	04.09.20
P04	Drainage layout updated to reflect revised Site Layout.	MF	WL	13.03.18
P03	Drainage proposals amended to reflect the revised Proposed Site Layout.	LAM	WL	14.02.18
P02	Drainage outfall strategy revised to single outfall at Culvert A following comments made by the LLFA and subsequent drainage survey. Proposed discharge restricted to QBar equivalent Greenfield Runoff Rate for all storms; proposed attenuation volume increased to suit. Temporary flooded volumes indicated. Slotdrain added at Gatehouse.	LAM	WL	31.05.17

MAKING COMPLEX EASY
Sherwood House, Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client: BRITANNIAGREST RECYCLING

Project: Sussex EfW

Title: Drainage Layout

RPS Project Number	Scale @ A1	Date Created
NK018074	1:500	16.11.2016
Task Team Manager: SN	Information Author: LAM	Task Information Manager: WL

Status: S3

Document Number: NK018074-RPS-EFW-XX-DR-D-0300 Revision: P08

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

rpsgroup.com

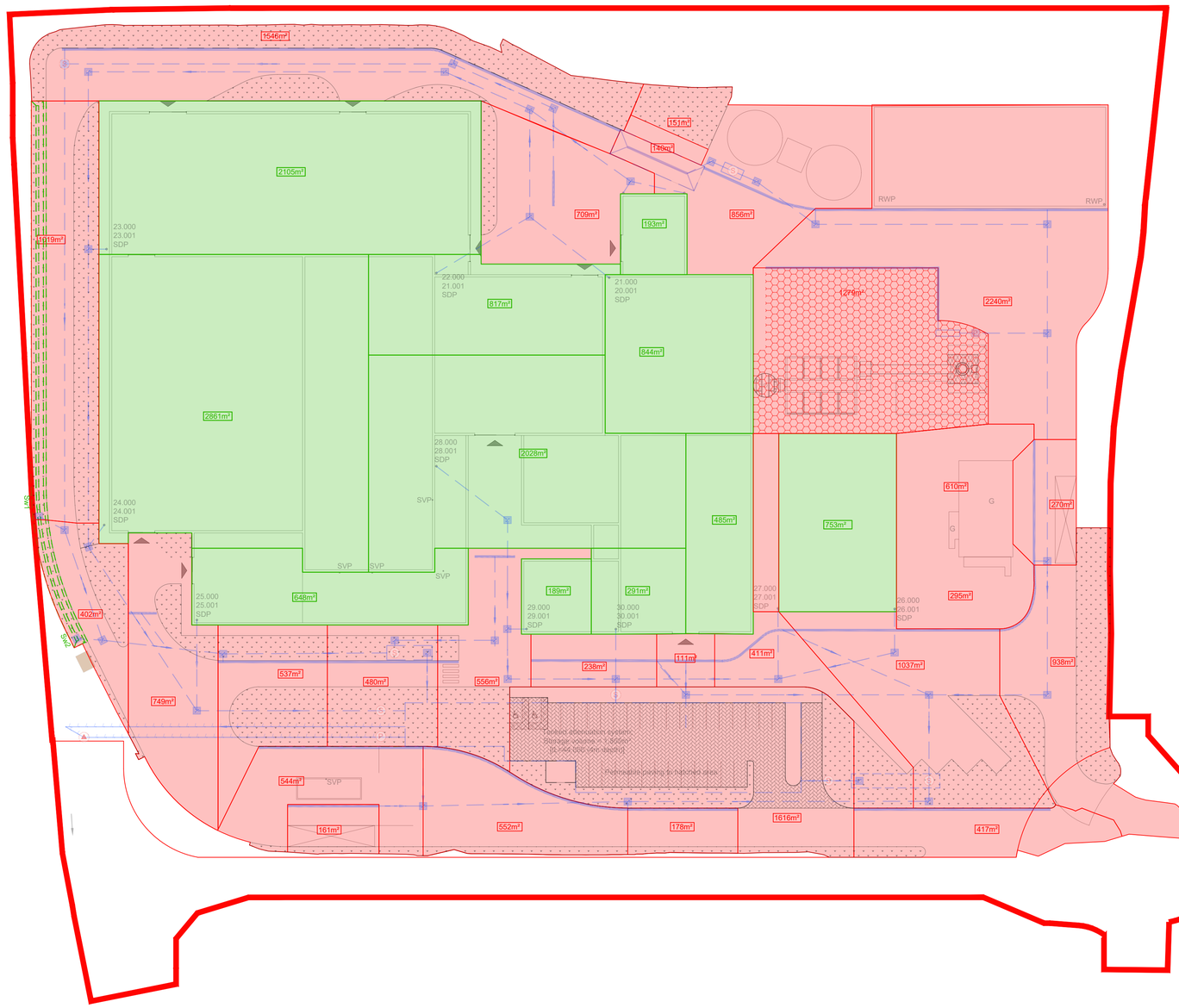
Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

N

Surface Water Catchment Key:

- Extents of Tanked Permeable Paving
- 13,327m² — Roof
- 15,686m² — Hardstanding (Includes Landscaped Areas)
- 3,006m² — Total Contributing Landscaping (Included in Hardstanding Areas)
- Isolation area (with valve and tank)
- Site Boundary



No drainage works are to be undertaken outside the planning area shown on this drawing, beyond this point

Surface Water Catchment Areas
Scale 1:500

10m SCALE 1:500

Rev	Description	By	Ckd	Date
P08	Updated Swales to reflect the approved Landscape	SM	WL	06.12.22
P07	Updated to Current Landscape surfaces	SM	WL	22.11.22
P06	Updated to Current proposals	MF	WL	14.11.22
P05	Drawing updated with current corporate branding.	MF	WL	04.09.20
P04	Drainage layout updated to reflect revised Site Layout.	MF	WL	13.03.18
P03	Drainage proposals amended to reflect the revised Proposed Site Layout.	LAM	WL	15.02.18
P02	Revised based on receipt of new drainage survey information; fall arrows added from 3D ground model.	LAM	WL	26.05.17

MAKING COMPLEX EASY

Sherwood House, Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 **E**: rpsnewark@rpsgroup.com

Client: BRITANIAGREST RECYCLING

Project: Sussex EfW

Title: Surface Water Catchment Areas

RPS Project Number	Scale @ A1	Date Created
NK018074	1:500	16.11.2016
Task Team Manager	**Information Author**	**Task Information Manager**
SN	LAM	WL

Status: S3

Document Number: NK018074-RPS-EFW-XX-DR-D-0301 P08
Project Code - Originator - Zone - Level - Type - Role - Drawing Number

Revision: P08

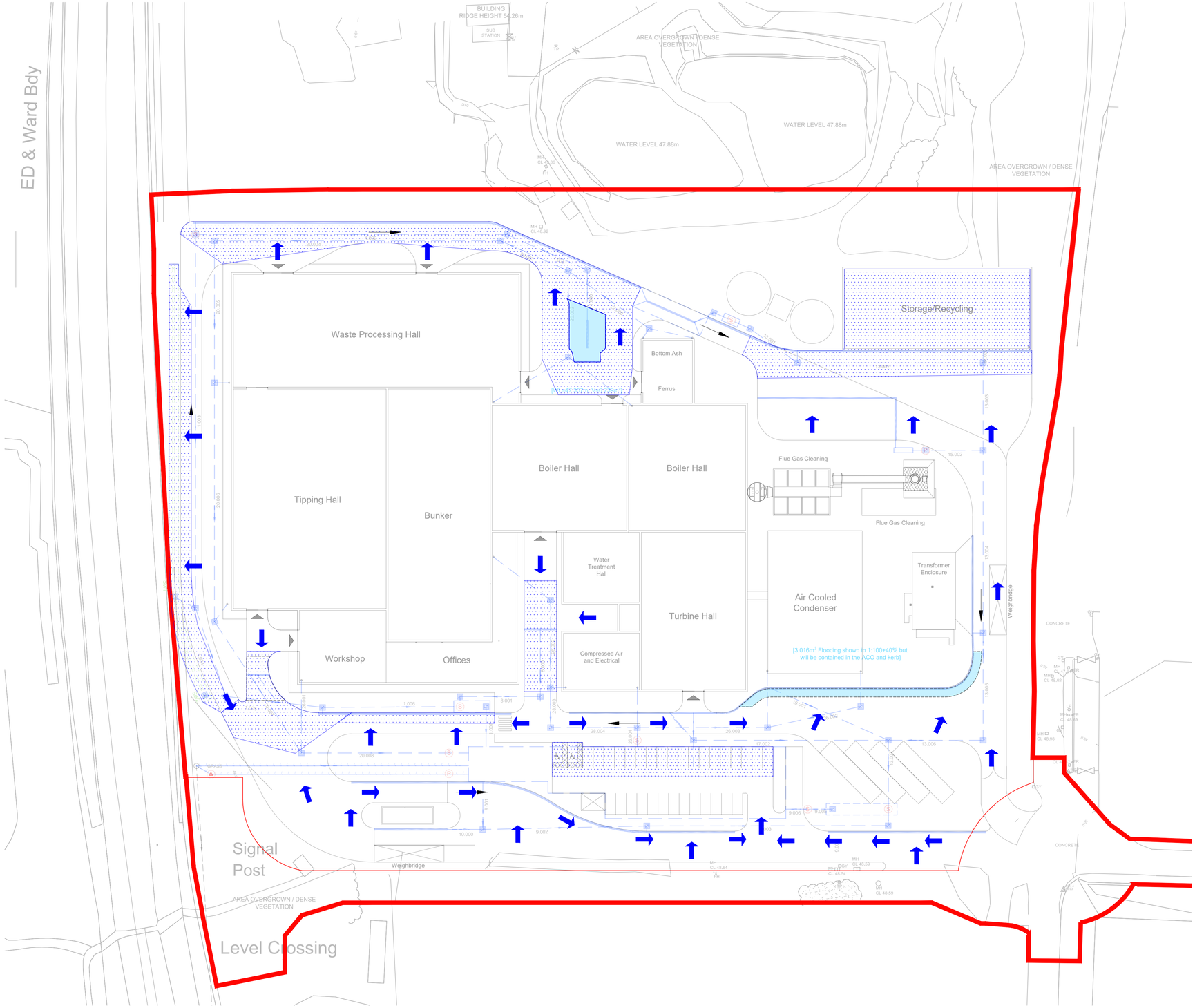
rpsgroup.com

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

- [WL=123m, V=123m³] Temporary Flooding (100yr + 40%)
- Exceedance flow routes in excess of 1:100+40% Storm events
- Temporary exceedance flood storage in excess of 1:100+40% Storm events
- Site Boundary



Temporary Overland Flooded Volumes Plan
in excess of 1:100+20% storms
Scale 1:500

10m SCALE 1:500

Rev	Description	By	Ckd	Date
P07	Exceedance routing added	SM	WL	23.01.23
P06	Updated Swales to reflect the approved Landscape	SM	WL	06.12.22
P05	Updated to Current Landscape surfaces	SM	WL	22.11.22
P04	Updated to Current proposals	MF	WL	14.11.22
P03	Drawing updated with current corporate branding.	MF	WL	04.09.20
P02	Flooded volumes updated in line with revised drainage strategy.	MF	WL	13.03.18

MAKING COMPLEX EASY

Sherwood House, Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client: BRITANIAGREST RECYCLING

Project: Sussex EfW

Title: Temporary Overland Flooded Volumes Plan

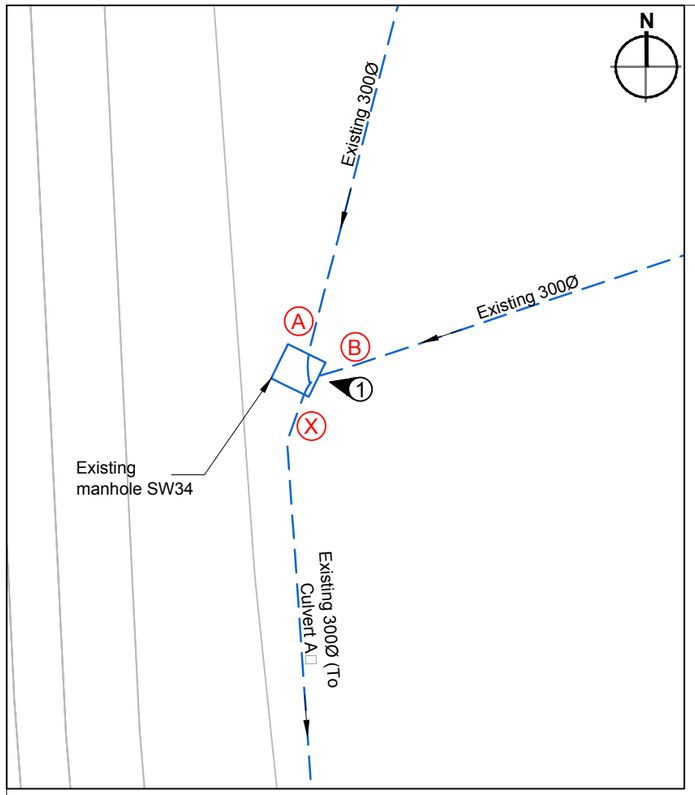
RPS Project Number	Scale @ A1	Date Created
NK018074	1:500	19.02.2018
Task Team Manager	**Information Author**	**Task Information Manager**
SN	MF	WL

Status: S3

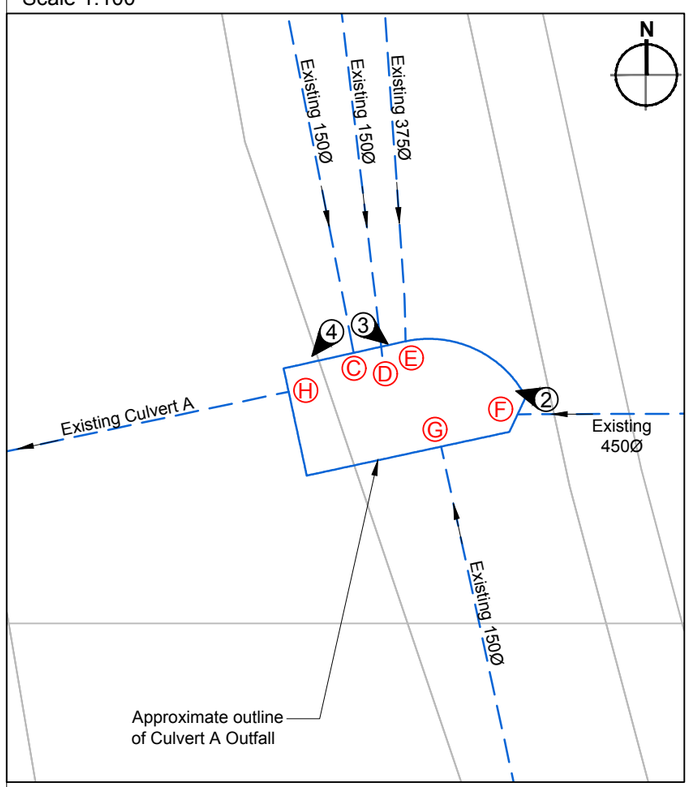
Document Number: NK018074-RPS-EFW-XX-DR-D-0302 Revision: P07

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

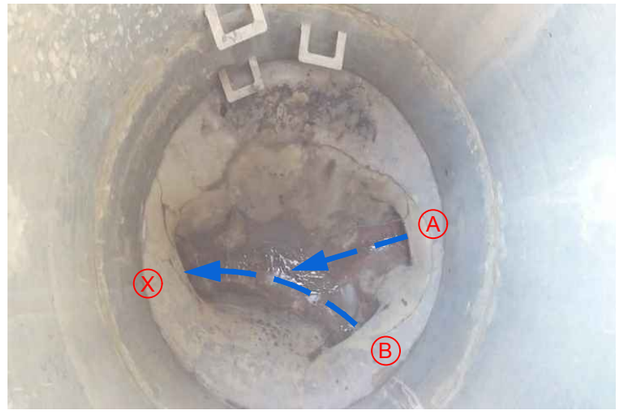
rpsgroup.com



Viewport A - Existing Manhole SW34
Scale 1:100



Viewport B - Outfall into Culvert A
Scale 1:100



Photograph 1

Photograph 2

Photograph 3

Photograph 4

1m SCALE 1:100

Notes

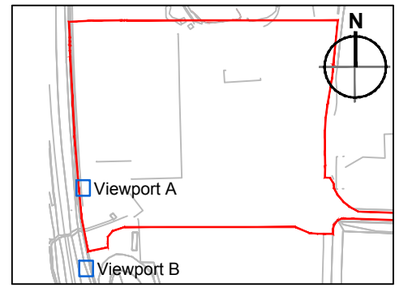
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

E Pipe Reference

3 Photograph Location □ Direction

Direction of Flow



Key Plan
Scale 1:5,000

Rev	Description	By	Ckd	Date

RPS

Sherwood House,Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T:01636 605 700 E: rpsnewark@rpsgroup.com

Client BRITANIAGREST RECYCLING

Project Sussex EfW

Title Existing Outfall Details

Status	Scale	Date Created
Preliminary	1:100 @A3	17/05/2017
Project Leader	Drawn By	Checked by
WL	LAM	WL

Document Number	Revision	Suitability
NK018074 - RPS-XX-DR-D-0305	P01	S0
Project Number / Originator - Zone - Level - Type - Role - Drawing Number		

rpsgroup.com/uk

APPENDIX IV

Existing EA Permit to Discharge

- **Ref: EPR/CB3308TD** Former Wealden Brickworks Waste Transfer Station Permit

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Britaniacrest Recycling Limited

Former Wealden Brickworks Waste Transfer Station
Langhurst Wood Road
Horsham
West Sussex
RH12 4QD

Permit number

EPR/CB3308TD

Former Wealden Brickworks Waste Transfer Station Permit number EPR/CB3308TD

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

This is a bespoke permit that authorises the operation of a non-hazardous waste transfer station with asbestos storage at the former Wealden Brickworks in Horsham, West Sussex. The National Grid reference is TQ 17148 34313. The nearest major watercourse is the Bolding Brook approximately 100 to the West of the site.

The waste will originate from a range of sources including household commercial, industrial and construction and demolition waste. Waste will undergo manual and mechanical sorting or separation, screening, washing, shredding, baling and crushing of waste. The annual throughput will be less than 200,000 tonnes.

An improvement condition has been included in the permit which requires the operator to install a sewage treatment plant within 12 months of permit issue. This will allow operator to discharge treated sewage effluent from the welfare facilities on site either to surface water or into the ground via an infiltration field.

A pre-operational condition has also been included which requires the operator to provide a fire action plan to be submitted to the Agency before the site becomes operational

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/CB3308TD/A001	Duly made 18/11/2014	Application for a Non- Hazardous waste transfer facility with Asbestos storage.
Additional Information	28/01/2015	Amend Site Plan
Permit determined EPR/CB3308TD	03/02/2015	Permit issued to Britaniacrest Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/CB3308TD

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Britaniacrest Recycling Limited ("the operator"),

whose registered office is

26 Reigate Road
Hookwood
Horley
Surrey
RH6 0HJ

Company registration number 02798579

to operate waste operations at

Former Wealden Brickworks Waste Transfer Station
Langhurst Wood Road
Horsham
West Sussex
RH12 4QD

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Helen Rowlands	**03/02/2015**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Avoidance, recovery and disposal of wastes produced by the activities

1.2.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.2.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit and the discharge shall be made at the point marked on the site plan and as listed in table S3.2 (discharge points).

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.1; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.4 The sewage treatment plant shall conform to all relevant British Standards in force at the time of installation

2.4 Technical requirements

Hazardous waste storage and treatment

2.4.1 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

2.5 Improvement programme

2.5.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.5.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.6 Pre-operational conditions

2.6.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1,

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) surface water specified in table S3.1;

3.6 Pests

3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.6.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution, hazard or annoyance from pests;

(b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity reference	**Description of activities for waste operations**	**Limits of activities**
A1 Waste Transfer Station	R3: Recycling/reclamation of organic substances which are not used as solvents R4: Recycling/reclamation of metals and metal compounds R5: Recycling/reclamation of other inorganic compounds R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) D9**:**Physico-chemical treatment not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12 D14: Repackaging prior to submission to any of the operations numbered D1 to D13 D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	Physical treatment including manual and mechanical sorting or separation, screening, washing, shredding, crushing and baling of waste for disposal (no more than 50 tonnes per day) or recovery. Wastes shall be stored for no longer than 1 year prior to disposal or 3 years prior to recovery. All wastes shall be stored and treated on an impermeable surface with sealed drainage system. Rain and uncontaminated surface water shall be kept separate from contaminated water and other liquids. **Asbestos Storage** No more than 10 tonnes of Asbestos waste to be stored on site at any one time. Asbestos shall be double bagged and kept in clearly identified, segregated, secure lockable containers. There shall be no treatment of asbestos waste. Waste types as specified in Table S2.1

Table S1.1 activities		
Activity reference	**Description of activities for waste operations**	**Limits of activities**
Water Discharge IP1	Discharge of treated sewage effluent via outlet 1.	The outlet shall only be used for the discharge of treated sewage effluent. The outlet shall not contain any substance in a concentration such as will cause the waters to be poisonous or injurious to fish or their spawning grounds, spawn or food of fish. The rate of discharge shall not exceed 5m3.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Documents listed in response to table 3a – technical standards, Part B4 of the application form.	01/07/2014
TGN	How to comply with your Environmental Permit	-

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP1	The operator shall install and operate a sewage treatment plant conforming to all relevant British Standards in force at the time of installation and sized in accordance with "Flows and Loads 4" The plant should be installed within 12 months of the permit being issued.	03/02/2016

Table S1.4A Pre-operational measures	
Reference	**Pre-operational measures**
1	The operator is required to submit a fire action plan using the Environment Agency's Technical Guidance Note 7.01 Reducing Waste Fire Risk to aid you. This plan is to include what methods would be used for the containment of fire water run-off and the removal of the contained water to an authorised disposal facility. The plan should be submitted before the site becomes operational.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1. Permitted waste types and quantities for Waste Transfer Station	
Maximum quantity	The total quantity of waste accepted at the site shall be less than 200,000 tonnes per annum
Exclusions Wastes having any of the following characteristics shall not be accepted : • Consisting solely or mainly of dusts, powders or loose fibres • Wastes that are in a form which is either sludge or liquids	
Waste code	Description
01	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS
01 01	**wastes from mineral excavation**
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non- metalliferous excavation
01 03	**wastes from physical and chemical processing of metalliferous minerals**
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 07
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07
02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
02 01 10	waste metal
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 03	materials unsuitable for consumption or processing
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing conserve production yeast and yeast extract production, molasses preparation and fermentation**
02 03 04	materials unsuitable for consumption or processing
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**

02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
04	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES
04 01	**wastes from the leather and fur industry**
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
04 02	**wastes from the textile industry**
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
06	WASTES FROM INORGANIC CHEMICAL PROCESSES
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**
06 11 01	calcium-based reaction wastes from titanium dioxide production
07	WASTES FROM ORGANIC CHEMICAL PROCESSES
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 13	waste plastic
09	WASTES FROM THE PHOTOGRAPHIC INDUSTRY
09 01	**wastes from the photographic industry**
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
10	WASTES FROM THERMAL PROCESSES
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 24	sands from fluidised beds
10 02	**wastes from the iron and steel industry**
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	Solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13

10 02 15	other sludges and filter cakes
10 03	**wastes from aluminium thermal metallurgy**
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 04	**wastes from lead thermal metallurgy**
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
10 05	**wastes from zinc thermal metallurgy**
10 05 01	slags from primary and secondary production
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 06	**wastes from copper thermal metallurgy**
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 01	slags from primary and secondary production
10 07 02	Dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 05	sludges and filter cakes from gas treatment
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
10 08	**wastes from other non-ferrous thermal metallurgy**
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	anode scrap
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19
10 09	**wastes from casting of ferrous pieces**
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 10	**wastes from casting of non-ferrous pieces**
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
10 11	**wastes from manufacture of glass and glass products**
10 11 03	waste glass-based fibrous materials
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09

10 11 12	waste glass other than those mentioned in 10 11 11
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 01	waste preparation mixture before thermal processing
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 07	sludges and filter cakes from gas treatment
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12
10 13 14	waste concrete and concrete sludge
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY
11 01	**wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)**
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 14	degreasing wastes other than those mentioned in 11 01 13
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
11 05 02	zinc ash
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 01	ferrous metal filings and turnings
12 01 03	non-ferrous metal filings and turnings
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging

15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	end-of-life tyres
16 02	**wastes from electrical and electronic equipment**
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15
16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
16 06	Batteries and accumulators
16 06 04	Alkalane batteries (except 16 06 03)
16 06 05	Other batteries and accumulators
16 11	**waste linings and refractories**
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	**metals (including their alloys)**
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	**insulation materials and asbestos-containing construction materials**
17 06 01*	insulation materials containing asbestos – bonded asbestos only

17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05*	construction materials containing asbestos – bonded asbestos only
17 08	**gypsum-based construction material**
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 01	**wastes from incineration or pyrolysis of waste**
19 01 02	ferrous materials removed from bottom ash
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 02	**wastes from physico/chemical treatments of waste (including dechromatation decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 04	**vitrified waste and wastes from vitrification**
19 04 01	vitrified waste
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 (generally packaging waste or mixed refuse)
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 02	glass
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 34	Batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 07	bulky waste

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Discharge source and discharge point ref. & location	**Parameter**	**Limit (including unit)**	**Reference Period**	**Limit of effective range**	**Monitoring frequency**	**Compliance Statistic**
Treated sewage effluent via outlet 1	Maximum daily flow	5m3/day	Total daily volume	N/A	N/A	Maximum
	Visual appearance	The discharge must be clear	Instantaneous (Spot sample)	N/A	N/A	Clear
	Visual appearance	The discharge must have no adverse visible effect on the receiving water, the bed of the watercourse or any plants or animals within the watercourse	Instantaneous (Spot sample)	N/A	N/A	No adverse effect
	Visible oil or grease	No significant trace present	Instantaneous (Spot sample)	N/A	N/A	No significant trace

Table S3.2 Discharge points			
Effluent Name	**Discharge Point**	**Discharge point NGR**	**Receiving water/Environment**
Treated sewage effluent	Outlet 1	At Grid TQ 1715 3432	Bolling Brook via culvert

Table S3.3 Monitoring points			
Effluent(s) and discharge point(s)	**Monitoring type**	**Monitoring point NGR**	**Monitoring point reference**
Treated sewage effluent via outlet 1	Effluent sampling	NGR 1715 3432	Outlet 1

Schedule 4 – Reporting

There is no reporting under this schedule.

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

adverse visible effect” means dead or distressed fish, other animals or plants in the vicinity of the discharge, appreciable deposit of solid material; growth of sewage fungus; or appreciable discolouration.

“Annex I” means Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“Annex II” means Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“building” means a construction that has the objective of providing sheltering cover and minimising emissions of noise, particulate matter, odour and litter.

“D” means a disposal operation provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 No.894, the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138), the List of Wastes (England) Regulations 2005 No.895 and the List of Wastes (Wales) Regulations 2005 No. 1820 (W.148).

“impermeable surface” means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface, and should be read in conjunction with the term “sealed drainage system” (below).

“Industry Standard Protocol” means “A standardised protocol for the monitoring of bioaerosols at open composting facilities” published by the Association for Organics Recycling and developed in conjunction with the Environment Agency

“pests” means Birds, Vermin and Insects.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“R” means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“sealed drainage system” is a drainage system with impermeable components which does not leak and which will ensure that no liquids will run off a surfaced area other than via the system. Except where they are lawfully discharged, all liquids entering the system should be collected in a sealed sump.

significant pollution” means a category 1 or category 2 incident indicated by the Common Incident

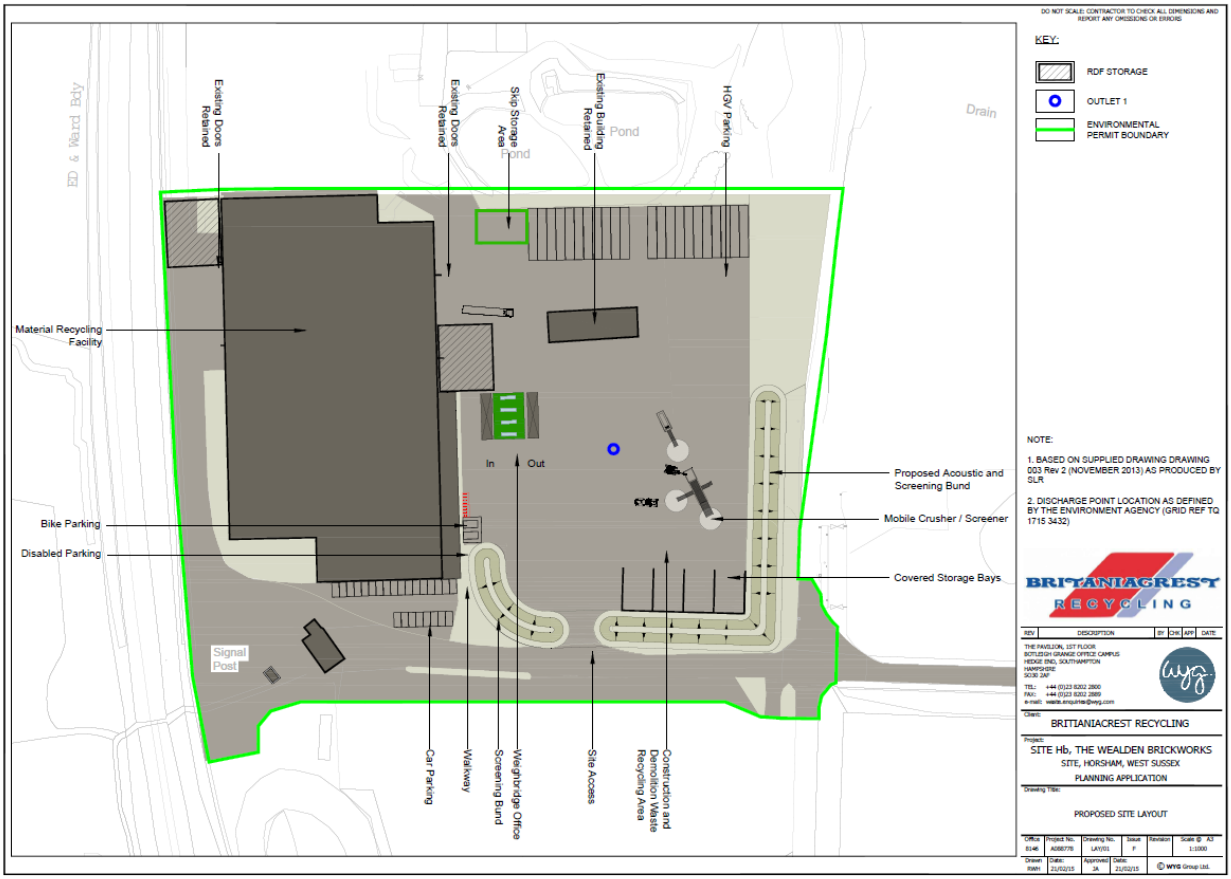
Classification Scheme (CICS).

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT

APPENDIX V

Proposed Drainage Calculations

- **NK018074-RPS-EFW-XX-CA-D-TN001** Cv and Q_{BAR} Calculations
- **NK018074-RPS-EFW-XX-CA-D-SWC001** Surface Water Drainage Calculations
- **NK018074-RPS-EFW-XX-CA-D-SWC001-40** Surface Water Drainage Calculations
- **NK018074-RPS-EFW-XX-CA-D-FWC001** Foul Water Drainage Calculations

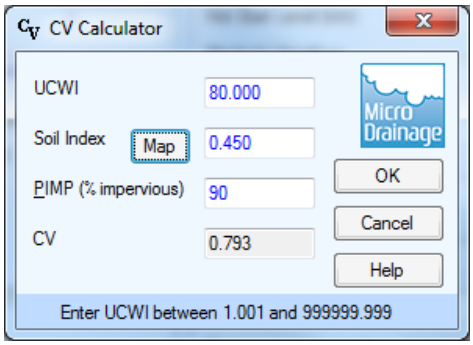
Project:	NK018074 - Sussex - 3Rs Facility, Wealden Works		
Prepared for:	Britaniacrest Recycling Ltd (Surrey)		
Title:	Technical Note: Cv and Q_{BAR} Calculation		
Reference:	**NK018074-RPS-EFW-XX-CA-D-TN001**		
Revision:	P02	Suitability: S2	Date: 13.03.18

TECHNICAL NOTE TN001: Cv and Q_{BAR} Calculation

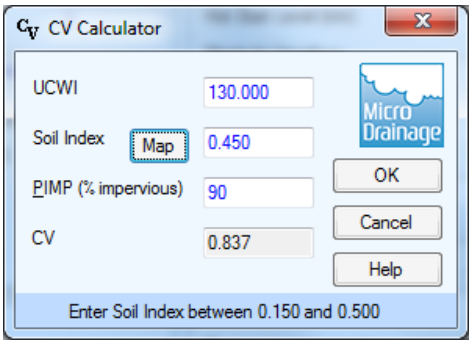
NK018074-RPS-EFW-XX-CA-D-TN001

- **CV** = PR/PIMP where:
- **PR** = 0.829 PIMP + 25.0 SOIL + 0.078 UCWI – 20.7
- **PIMP** = surface intended to drain to the storm sewer [21,426m²/25,460m² = 0.84]
- **SOIL** = 0.45
- **UCWI** = antecedent wetness conditions (mm) [80 for summer, 130 for winter]

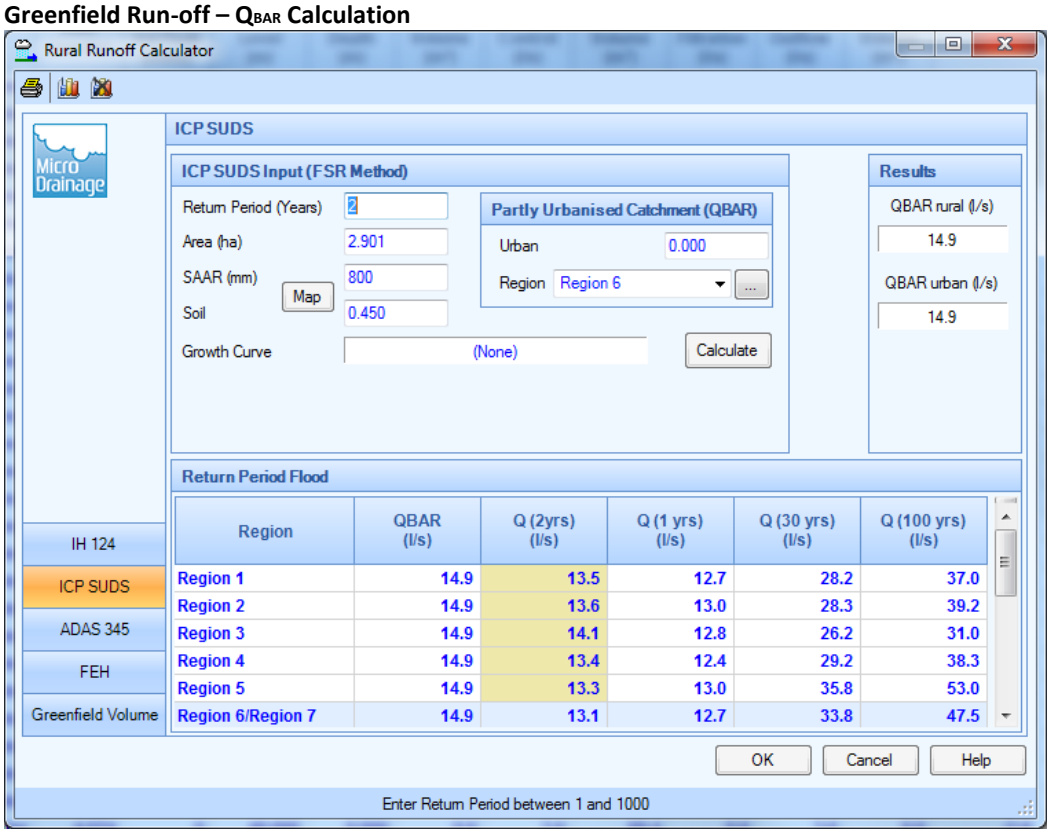
Summer CV



Winter CV



Greenfield Run-off – Q_{BAR} Calculation



Region	QBAR (l/s)	Q (2yrs) (l/s)	Q (1 yrs) (l/s)	Q (30 yrs) (l/s)	Q (100 yrs) (l/s)
Region 1	14.9	13.5	12.7	28.2	37.0
Region 2	14.9	13.6	13.0	28.3	39.2
Region 3	14.9	14.1	12.8	26.2	31.0
Region 4	14.9	13.4	12.4	29.2	38.3
Region 5	14.9	13.3	13.0	35.8	53.0
Region 6/Region 7	14.9	13.1	12.7	33.8	47.5

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	20.000	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	65	Maximum Backdrop Height (m)	0.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	0.000
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

- Indicates pipe length does not match coordinates
« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	11.792	0.120	98.3	0.071	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	20.804	0.210	99.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	2.475	0.015	165.0	0.090	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	73.579	0.435	169.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
3.000	69.244	0.140	494.6	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit	
3.001	3.250	0.020	162.5	0.050	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.003	88.303	0.410	215.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
4.000	77.783	0.150	518.6	0.082	4.00	0.0	0.600	\/	-1	Pipe/Conduit	
4.001	5.510	0.030	183.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	65.00	4.19	46.375	0.071	0.0	0.0	0.0	1.01	17.9	12.5
1.001	65.00	4.46	46.180	0.071	0.0	0.0	0.0	1.31	52.2	12.5
2.000	65.00	4.04	46.508	0.090	0.0	0.0	0.0	1.02	40.4	15.8
1.002	62.21	5.68	45.970	0.161	0.0	0.0	0.0	1.00	39.9	27.1
3.000	58.28	6.59	46.525	0.000	0.0	0.0	0.0	0.45	7.9	0.0
3.001	58.01	6.66	46.385	0.050	0.0	0.0	0.0	0.79	13.9	7.8
1.003	52.23	8.32	45.535	0.211	0.0	0.0	0.0	0.89	35.3	29.8
4.000	65.00	4.84	46.825	0.082	0.0	0.0	0.0	1.54	977.3	14.4
4.001	65.00	4.97	46.675	0.082	0.0	0.0	0.0	0.74	13.0«	14.4

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.004	22.061	0.110	200.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
5.000	21.722	0.040	543.0	0.036	4.00	0.0	0.600	\/	-1	Pipe/Conduit	
5.001	4.965	0.042	118.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	22.952	0.110	209.2	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
6.000	1.512	0.025	60.5	0.043	4.00	0.0	0.600	o	100	Pipe/Conduit	
7.000	17.275	0.025	691.0	0.075	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.006	38.649	0.125	309.2	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
8.000	16.961	0.170	99.8	0.053	4.00	0.0	0.600	o	150	Pipe/Conduit	
8.001	12.903	0.128	100.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.007	7.480#	0.025	299.2	0.038	0.00	0.0	0.600	o	375	Pipe/Conduit	
9.000	31.096	0.070	444.2	0.055	4.00	0.0	0.600	o	225	Pipe/Conduit	
9.001	11.050	0.115	96.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
10.000	8.367	0.085	98.4	0.016	4.00	0.0	0.600	o	150	Pipe/Conduit	
9.002	38.753	0.230	168.5	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.004	51.23	8.65	45.050	0.292	0.0	0.0	0.0	1.11	78.1	40.5
5.000	65.00	4.24	46.875	0.036	0.0	0.0	0.0	1.50	954.9	6.3
5.001	65.00	4.33	46.835	0.036	0.0	0.0	0.0	0.92	16.3	6.3
1.005	50.34	8.96	44.865	0.328	0.0	0.0	0.0	1.25	137.9	44.7
6.000	65.00	4.03	46.463	0.043	0.0	0.0	0.0	0.99	7.8	7.6
7.000	65.00	4.59	46.538	0.075	0.0	0.0	0.0	0.49	19.5	13.2
1.006	48.64	9.59	44.755	0.446	0.0	0.0	0.0	1.03	113.2	58.8
8.000	65.00	4.28	46.275	0.053	0.0	0.0	0.0	1.01	17.8	9.4
8.001	65.00	4.50	46.105	0.053	0.0	0.0	0.0	1.00	17.7	9.4
1.007	48.34	9.71	44.630	0.538	0.0	0.0	0.0	1.04	115.1	70.4
9.000	65.00	4.84	47.010	0.055	0.0	0.0	0.0	0.61	24.4	9.7
9.001	65.00	4.98	46.940	0.055	0.0	0.0	0.0	1.33	53.0	9.7
10.000	65.00	4.14	47.120	0.016	0.0	0.0	0.0	1.01	17.9	2.8
9.002	62.47	5.63	46.825	0.071	0.0	0.0	0.0	1.00	39.9	12.0

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
11.000	22.642	0.070	323.5	0.000	4.00	0.0	0.600	o	150	Pipe/Conduit	
11.001	1.487	0.025	59.5	0.055	0.00	0.0	0.600	o	150	Pipe/Conduit	
9.003	43.831	0.260	168.6	0.018	0.00	0.0	0.600	o	225	Pipe/Conduit	
12.000	36.262	0.070	518.0	0.042	4.00	0.0	0.600	o	150	Pipe/Conduit	
12.001	1.487	0.015	99.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
9.004	11.225	0.070	160.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
13.000	9.397	0.045	208.8	0.029	4.00	0.0	0.600	o	300	Pipe/Conduit	
13.001	13.767	0.060	229.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
13.002	43.907	0.260	168.9	0.086	0.00	0.0	0.600	o	300	Pipe/Conduit	
14.000	2.750	0.070	39.3	0.224	4.00	0.0	0.600	o	375	Pipe/Conduit	
13.003	20.622	0.070	294.6	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
15.000	2.375	0.025	95.0	0.128	4.00	0.0	0.600	o	300	Pipe/Conduit	
15.001	7.108	0.070	101.5	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
15.002	13.697	0.600	22.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
13.004	43.160	0.135	319.7	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
16.000	2.500	0.020	125.0	0.190	4.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
11.000	65.00	4.68	47.300	0.000	0.0	0.0	0.0	0.55	9.8	0.0
11.001	65.00	4.70	47.230	0.055	0.0	0.0	0.0	1.31	23.1	9.7
9.003	59.25	6.35	46.595	0.144	0.0	0.0	0.0	1.00	39.9	23.1
12.000	63.60	5.39	47.495	0.042	0.0	0.0	0.0	0.43	7.7	7.2
12.001	63.48	5.41	47.425	0.042	0.0	0.0	0.0	1.01	17.8	7.2
9.004	58.51	6.53	46.335	0.186	0.0	0.0	0.0	1.03	40.9	29.5
13.000	65.00	4.14	46.400	0.029	0.0	0.0	0.0	1.08	76.6	5.1
13.001	65.00	4.37	45.945	0.029	0.0	0.0	0.0	1.03	73.1	5.1
13.002	65.00	4.97	45.885	0.115	0.0	0.0	0.0	1.21	85.3	20.2
14.000	65.00	4.02	45.735	0.224	0.0	0.0	0.0	2.90	320.1	39.4
13.003	64.36	5.24	45.400	0.339	0.0	0.0	0.0	1.30	281.4	59.1
15.000	65.00	4.02	46.725	0.128	0.0	0.0	0.0	1.61	114.0	22.5
15.001	65.00	4.10	46.700	0.128	0.0	0.0	0.0	1.56	110.3	22.5
15.002	65.00	4.17	46.630	0.128	0.0	0.0	0.0	3.30	233.6	22.5
13.004	61.59	5.81	45.330	0.467	0.0	0.0	0.0	1.25	270.0	77.9
16.000	65.00	4.04	47.100	0.190	0.0	0.0	0.0	1.17	46.4	33.4

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
13.005	25.350	0.080	316.9	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
13.006	35.598	0.110	323.6	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
17.000	23.835	0.048	500.0	0.024	4.00	0.0	0.600	o	150	Pipe/Conduit	
17.001	8.492	0.085	99.9	0.052	0.00	0.0	0.600	o	150	Pipe/Conduit	
18.000	7.462	0.130	57.4	0.162	4.00	0.0	0.600	o	225	Pipe/Conduit	
17.002	32.867	0.195	168.5	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
19.000	41.034	0.090	455.9	0.134	4.00	0.0	0.600	o	225	Pipe/Conduit	
19.001	18.939	0.195	97.1	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit	
13.007	9.000	0.025	360.0	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
9.005	5.533	0.015	368.9	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
9.006	5.080#	0.020	254.0	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
20.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	225	Pipe/Conduit	
20.001	18.992	6.350	3.0	0.084	0.00	0.0	0.600	o	150	Pipe/Conduit	
21.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	225	Pipe/Conduit	
21.001	20.651	6.350	3.3	0.082	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.002	20.325	0.120	169.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
13.005	60.10	6.15	45.195	0.657	0.0	0.0	0.0	1.25	271.2	106.9
13.006	58.13	6.63	45.115	0.657	0.0	0.0	0.0	1.24	268.3	106.9
17.000	65.00	4.90	47.180	0.024	0.0	0.0	0.0	0.44	7.8	4.2
17.001	65.00	4.14	46.580	0.000	5.0	0.0	0.0	1.01	17.8	5.0
18.000	65.00	4.07	46.630	0.162	0.0	0.0	0.0	1.73	68.8	28.5
17.002	65.00	4.69	46.420	0.162	5.0	0.0	0.0	1.00	39.9	33.5
19.000	64.91	5.13	46.455	0.134	0.0	0.0	0.0	0.61	24.1	23.6
19.001	63.71	5.37	46.365	0.150	0.0	0.0	0.0	1.33	52.8	25.9
13.007	57.63	6.76	45.005	0.969	5.0	0.0	0.0	1.17	254.3	156.2
9.005	57.32	6.84	44.980	1.155	5.0	0.0	0.0	1.16	251.2	184.3
9.006	57.09	6.90	44.965	1.155	5.0	0.0	0.0	1.40	303.2	184.3
20.000	65.00	2.26	52.400	0.000	0.0	0.0	0.0	0.65	25.8	0.0
20.001	65.00	2.31	52.300	0.084	0.0	0.0	0.0	5.87	103.8	14.8
21.000	65.00	2.26	52.400	0.000	0.0	0.0	0.0	0.65	25.8	0.0
21.001	65.00	2.30	52.300	0.082	0.0	0.0	0.0	7.31	290.6	14.4
20.002	65.00	2.59	45.800	0.166	0.0	0.0	0.0	1.21	85.2	29.2

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
22.000	23.462	0.235	99.8	0.019	4.00	0.0	0.600	o	150	Pipe/Conduit	
20.003	17.578	0.105	167.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
20.004	67.527	0.400	168.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
20.005	33.574	0.200	167.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
23.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	150	Pipe/Conduit	
23.001	3.450	6.350	0.5	0.211	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.006	56.402	0.235	240.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
24.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	300	Pipe/Conduit	
24.001	5.102	6.350	0.8	0.286	0.00	0.0	0.600	o	225	Pipe/Conduit	
20.007	37.221	0.075	496.3	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
25.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	150	Pipe/Conduit	
25.001	17.184	6.350	2.7	0.065	0.00	0.0	0.600	o	150	Pipe/Conduit	
20.008	40.460#	0.100	404.6	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
26.000	13.725	0.025	549.0	0.000	2.00	0.0	0.600	o	150	Pipe/Conduit	
26.001	8.252	6.350	1.3	0.075	0.00	0.0	0.600	o	150	Pipe/Conduit	
26.002	22.608	0.120	188.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
27.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
22.000	65.00	4.39	46.900	0.019	0.0	0.0	0.0	1.01	17.8	3.3
20.003	65.00	4.63	45.680	0.185	0.0	0.0	0.0	1.21	85.7	32.6
20.004	62.76	5.56	45.575	0.185	0.0	0.0	0.0	1.21	85.3	32.6
20.005	60.65	6.02	45.175	0.185	0.0	0.0	0.0	1.21	85.6	32.6
23.000	65.00	2.34	52.325	0.000	0.0	0.0	0.0	0.50	8.8	0.0
23.001	65.00	2.34	52.225	0.211	0.0	0.0	0.0	17.90	711.7	37.1
20.006	57.34	6.83	44.900	0.396	0.0	0.0	0.0	1.17	128.7	61.5
24.000	65.00	2.21	52.250	0.000	0.0	0.0	0.0	0.78	55.1	0.0
24.001	65.00	2.22	52.225	0.286	0.0	0.0	0.0	14.72	585.2	50.3
20.007	55.06	7.45	44.400	0.682	0.0	0.0	0.0	1.00	216.2	101.7
25.000	65.00	2.34	52.475	0.000	0.0	0.0	0.0	0.50	8.8	0.0
25.001	65.00	2.38	52.450	0.065	0.0	0.0	0.0	6.17	109.1	11.4
20.008	53.03	8.06	44.325	0.747	0.0	0.0	0.0	1.11	239.7	107.3
26.000	65.00	2.54	52.325	0.000	0.0	0.0	0.0	0.42	7.5	0.0
26.001	65.00	2.56	52.300	0.075	0.0	0.0	0.0	8.91	157.5	13.2
26.002	65.00	2.89	45.800	0.075	0.0	0.0	0.0	1.14	80.7	13.2
27.000	65.00	2.44	52.400	0.000	0.0	0.0	0.0	0.38	3.0	0.0

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
27.001	13.384	6.350	2.1	0.049	0.00	0.0	0.600	o	150	Pipe/Conduit	
26.003	30.773	0.130	236.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
28.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	100	Pipe/Conduit	
28.001	16.917	6.350	2.7	0.203	0.00	0.0	0.600	o	225	Pipe/Conduit	
28.002	20.648	0.085	242.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
29.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	100	Pipe/Conduit	
29.001	3.626	6.350	0.6	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit	
28.003	9.467	0.030	315.6	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
28.004	20.469	0.065	314.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
30.000	10.000	0.025	400.0	0.000	2.00	0.0	0.600	o	100	Pipe/Conduit	
30.001	9.450	6.350	1.5	0.029	0.00	0.0	0.600	o	225	Pipe/Conduit	
26.004	4.500#	0.020	225.0	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.008	62.294	0.155	401.9	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
27.001	65.00	2.47	52.325	0.049	0.0	0.0	0.0	7.00	123.6	8.6
26.003	65.00	3.39	45.680	0.124	0.0	0.0	0.0	1.02	71.9	21.8
28.000	65.00	2.44	52.325	0.000	0.0	0.0	0.0	0.38	3.0	0.0
28.001	65.00	2.48	52.175	0.203	0.0	0.0	0.0	8.08	321.1	35.7
28.002	65.00	2.82	45.750	0.203	0.0	0.0	0.0	1.00	71.0	35.7
29.000	65.00	2.44	52.400	0.000	0.0	0.0	0.0	0.38	3.0	0.0
29.001	65.00	2.44	52.250	0.019	0.0	0.0	0.0	17.46	694.2	3.3
28.003	65.00	2.97	45.590	0.222	0.0	0.0	0.0	1.01	112.1	39.1
28.004	65.00	3.31	45.560	0.222	0.0	0.0	0.0	1.02	112.2	39.1
30.000	65.00	2.44	52.325	0.000	0.0	0.0	0.0	0.38	3.0	0.0
30.001	65.00	2.45	52.175	0.029	0.0	0.0	0.0	10.81	429.8	5.1
26.004	65.00	3.45	45.475	0.375	0.0	0.0	0.0	1.20	133.0	66.0
1.008	65.00	4.86	43.800	0.000	14.9	0.0	0.0	1.21	341.7	14.9

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
ACO	47.350	0.975	Open Manhole	1200	1.000	46.375	150				
S1	47.440	1.260	Open Manhole	1200	1.001	46.180	225	1.000	46.255	150	
ACO	47.400	0.892	Open Manhole	1200	2.000	46.508	225				
S2	47.415	1.445	Open Manhole	1200	1.002	45.970	225	1.001	45.970	225	
								2.000	46.493	225	523
ACO	47.350	0.825	Open Manhole	1200	3.000	46.525	150				
ACO	47.350	0.965	Open Manhole	1200	3.001	46.385	150	3.000	46.385	150	
S3	47.410	1.875	Open Manhole	1200	1.003	45.535	225	1.002	45.535	225	
								3.001	46.365	150	755
Swale	47.425	0.600	Junction		4.000	46.825	-1				
Sw1	47.425	0.750	Junction		4.001	46.675	150	4.000	46.675	-1	
S4	47.480	2.430	Open Manhole	1200	1.004	45.050	300	1.003	45.125	225	
								4.001	46.645	150	1445
Swale	47.375	0.500	Junction		5.000	46.875	-1				
Sw2	47.375	0.540	Junction		5.001	46.835	150	5.000	46.835	-1	
S5	47.375	2.510	Open Manhole	1350	1.005	44.865	375	1.004	44.940	300	
								5.001	46.793	150	1703
ACO	47.430	0.967	Open Manhole	1200	6.000	46.463	100				
ACO	47.430	0.892	Open Manhole	1200	7.000	46.538	225				
S6	47.555	2.800	Open Manhole	1350	1.006	44.755	375	1.005	44.755	375	
								6.000	46.438	100	1408
								7.000	46.513	225	1608
ACO	47.275	1.000	Open Manhole	1200	8.000	46.275	150				
S7	47.355	1.250	Open Manhole	1200	8.001	46.105	150	8.000	46.105	150	
S8	47.555	2.925	Open Manhole	1350	1.007	44.630	375	1.006	44.630	375	
								8.001	45.977	150	1121
ACO	47.835	0.825	Open Manhole	1200	9.000	47.010	225				
S9	47.835	0.895	Open Manhole	1200	9.001	46.940	225	9.000	46.940	225	
ACO	48.120	1.000	Open Manhole	1200	10.000	47.120	150				
S10	48.120	1.295	Open Manhole	1200	9.002	46.825	225	9.001	46.825	225	
								10.000	47.035	150	135
ACO	48.125	0.825	Open Manhole	1200	11.000	47.300	150				
S11	48.125	0.895	Open Manhole	1200	11.001	47.230	150	11.000	47.230	150	
S12	48.125	1.530	Open Manhole	1200	9.003	46.595	225	9.002	46.595	225	
								11.001	47.205	150	535
ACO	48.320	0.825	Open Manhole	1200	12.000	47.495	150				
S13	48.420	0.995	Open Manhole	1200	12.001	47.425	150	12.000	47.425	150	
S14	48.125	1.790	Open Manhole	1200	9.004	46.335	225	9.003	46.335	225	
								12.001	47.410	150	1000
S15	47.400	1.000	Open Manhole	1200	13.000	46.400	300				
S16	47.370	1.425	Open Manhole	1200	13.001	45.945	300	13.000	46.355	300	410
S17	47.400	1.515	Open Manhole	1200	13.002	45.885	300	13.001	45.885	300	
ACO	47.370	1.635	Open Manhole	1350	14.000	45.735	375				
S18	47.370	1.970	Open Manhole	1500	13.003	45.400	525	13.002	45.625	300	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
								14.000	45.665	375	115
ACO	47.725	1.000	Open Manhole	1200	15.000	46.725	300				
Tank	47.800	1.100	Open Manhole	1200	15.001	46.700	300	15.000	46.700	300	
Valve	47.800	1.170	Open Manhole	1200	15.002	46.630	300	15.001	46.630	300	
S19	48.160	2.830	Open Manhole	1500	13.004	45.330	525	13.003	45.330	525	
								15.002	46.030	300	475
ACO	48.100	1.000	Open Manhole	1200	16.000	47.100	225				
S20	48.160	2.965	Open Manhole	1500	13.005	45.195	525	13.004	45.195	525	
								16.000	47.080	225	1585
S21	48.760	3.645	Open Manhole	1500	13.006	45.115	525	13.005	45.115	525	
ACO	47.630	0.450	Open Manhole	1200	17.000	47.180	150				
S22	47.630	1.050	Open Manhole	1200	17.001	46.580	150	17.000	47.132	150	552
Porus CP	47.630	1.000	Open Manhole	1200	18.000	46.630	225				
S23	47.715	1.295	Open Manhole	1200	17.002	46.420	225	17.001	46.495	150	
								18.000	46.500	225	80
ACO	47.280	0.825	Open Manhole	1200	19.000	46.455	225				
S24	47.280	0.915	Open Manhole	1200	19.001	46.365	225	19.000	46.365	225	
S25	47.935	2.930	Open Manhole	1500	13.007	45.005	525	13.006	45.005	525	
								17.002	46.225	225	920
								19.001	46.170	225	865
S26	48.325	3.345	Open Manhole	1500	9.005	44.980	525	9.004	46.265	225	985
								13.007	44.980	525	
S27	48.000	3.035	Open Manhole	1500	9.006	44.965	525	9.005	44.965	525	
Dummy	52.650	0.250	Open Manhole	1200	20.000	52.400	225				
SDP	52.650	0.350	Open Manhole	1200	20.001	52.300	150	20.000	52.375	225	150
Dummy	52.650	0.250	Open Manhole	1200	21.000	52.400	225				
SDP	52.650	0.350	Open Manhole	1200	21.001	52.300	225	21.000	52.375	225	75
S28	47.440	1.640	Open Manhole	1200	20.002	45.800	300	20.001	45.950	150	
								21.001	45.950	225	75
S29	47.650	0.750	Open Manhole	1200	22.000	46.900	150				
S30	47.485	1.805	Open Manhole	1200	20.003	45.680	300	20.002	45.680	300	
								22.000	46.665	150	835
S31	47.460	1.885	Open Manhole	1200	20.004	45.575	300	20.003	45.575	300	
S32	47.440	2.265	Open Manhole	1200	20.005	45.175	300	20.004	45.175	300	
Dummy	52.650	0.325	Open Manhole	1200	23.000	52.325	150				
SDP	52.650	0.425	Open Manhole	1200	23.001	52.225	225	23.000	52.300	150	
S33	47.575	2.675	Open Manhole	1350	20.006	44.900	375	20.005	44.975	300	
								23.001	45.875	225	825
Dummy	52.650	0.400	Open Manhole	1200	24.000	52.250	300				
SDP	52.650	0.425	Open Manhole	1200	24.001	52.225	225	24.000	52.225	300	
S34	47.565	3.165	Open Manhole	1500	20.007	44.400	525	20.006	44.665	375	115
								24.001	45.875	225	1175
Dummy	52.650	0.175	Open Manhole	1200	25.000	52.475	150				
SDP	52.650	0.200	Open Manhole	1200	25.001	52.450	150	25.000	52.450	150	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S35	47.670	3.345	Open Manhole	1500	20.008	44.325	525	20.007	44.325	525	
								25.001	46.100	150	1400
Dummy	52.650	0.325	Open Manhole	1200	26.000	52.325	150				
SDP	52.650	0.350	Open Manhole	1200	26.001	52.300	150	26.000	52.300	150	
S36	47.970	2.170	Open Manhole	1200	26.002	45.800	300	26.001	45.950	150	
Dummy	52.650	0.250	Open Manhole	1200	27.000	52.400	100				
SDP	52.650	0.325	Open Manhole	1200	27.001	52.325	150	27.000	52.375	100	
S37	47.520	1.840	Open Manhole	1200	26.003	45.680	300	26.002	45.680	300	
								27.001	45.975	150	145
Dummy	52.650	0.325	Open Manhole	1200	28.000	52.325	100				
SDP	52.650	0.475	Open Manhole	1200	28.001	52.175	225	28.000	52.300	100	
S38	47.390	1.640	Open Manhole	1200	28.002	45.750	300	28.001	45.825	225	
Dummy	52.650	0.250	Open Manhole	1200	29.000	52.400	100				
SDP	52.650	0.400	Open Manhole	1200	29.001	52.250	225	29.000	52.375	100	
S39	47.340	1.750	Open Manhole	1350	28.003	45.590	375	28.002	45.665	300	
								29.001	45.900	225	160
S40	47.515	1.955	Open Manhole	1350	28.004	45.560	375	28.003	45.560	375	
Dummy	52.650	0.325	Open Manhole	1200	30.000	52.325	100				
SDP	52.650	0.475	Open Manhole	1200	30.001	52.175	225	30.000	52.300	100	
S41	47.515	2.040	Open Manhole	1350	26.004	45.475	375	26.003	45.550	300	
								28.004	45.495	375	20
								30.001	45.825	225	200
Attenuation	47.630	3.830	Open Manhole	1500	1.008	43.800	600	1.007	44.605	375	580
								9.006	44.945	525	1070
								20.008	44.225	525	350
								26.004	45.455	375	1430
	48.000	4.355	Open Manhole	0		OUTFALL		1.008	43.645	600	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
ACO	517105.244	134374.809	517105.244	134374.809	Required	
S1	517105.244	134386.601	517105.244	134386.601	Required	
ACO	517088.534	134395.922	517088.534	134395.922	Required	
S2	517086.225	134395.031	517086.225	134395.031	Required	
ACO	517081.888	134397.781	517081.888	134397.781	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
ACO	517012.646	134398.281	517012.646	134398.281	Required	
S3	517012.646	134395.031	517012.646	134395.031	Required	
Swale	517007.496	134387.120			No Entry	
Sw1	517007.793	134309.338			No Entry	
S4	517012.646	134306.728	517012.646	134306.728	Required	
Swale	517008.118	134306.792			No Entry	
Sw2	517014.900	134286.156			No Entry	
S5	517019.857	134285.879	517019.857	134285.879	Required	
ACO	517042.661	134281.771	517042.661	134281.771	Required	
ACO	517027.196	134290.979	517027.196	134290.979	Required	
S6	517042.661	134283.283	517042.661	134283.283	Required	
ACO	517094.145	134301.715	517094.145	134301.715	Required	
S7	517094.145	134284.754	517094.145	134284.754	Required	
S8	517081.310	134283.426	517081.310	134283.426	Required	
ACO	517049.465	134265.508	517049.465	134265.508	Required	
S9	517080.562	134265.508	517080.562	134265.508	Required	
ACO	517072.195	134254.458	517072.195	134254.458	Required	
S10	517080.562	134254.458	517080.562	134254.458	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
ACO	517097.122	134249.272	517097.122	134249.272	Required	
S11	517119.306	134253.808	517119.306	134253.808	Required	
S12	517119.306	134255.295	517119.306	134255.295	Required	
ACO	517199.402	134253.808	517199.402	134253.808	Required	
S13	517163.140	134253.808	517163.140	134253.808	Required	
S14	517163.137	134255.295	517163.137	134255.295	Required	
S15	517135.139	134376.542	517135.139	134376.542	Required	
S16	517143.731	134372.734	517143.731	134372.734	Required	
S17	517154.876	134364.652	517154.876	134364.652	Required	
ACO	517198.783	134367.402	517198.783	134367.402	Required	
S18	517198.783	134364.652	517198.783	134364.652	Required	
ACO	517178.086	134346.405	517178.086	134346.405	Required	
Tank	517178.086	134344.030	517178.086	134344.030	Required	
Valve	517185.194	134344.030	517185.194	134344.030	Required	
S19	517198.891	134344.030	517198.891	134344.030	Required	
ACO	517196.283	134300.870	517196.283	134300.870	Required	
S20	517198.783	134300.870	517198.783	134300.870	Required	
S21	517198.783	134275.520	517198.783	134275.520	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
ACO	517100.981	134282.020	517100.981	134282.020	Required	
S22	517124.815	134281.988	517124.815	134281.988	Required	
Porus CP	517126.652	134269.020	517126.652	134269.020	Required	
S23	517130.318	134275.520	517130.318	134275.520	Required	
ACO	517189.763	134287.761	517189.763	134287.761	Required	
S24	517148.729	134287.756	517148.729	134287.756	Required	
S25	517163.185	134275.520	517163.185	134275.520	Required	
S26	517163.185	134266.520	517163.185	134266.520	Required	
S27	517157.652	134266.520	517157.652	134266.520	Required	
Dummy	517123.740	134348.431	517123.740	134348.431	Required	
SDP	517115.808	134354.520	517115.808	134354.520	Required	
Dummy	517074.494	134350.256	517074.494	134350.256	Required	
SDP	517083.058	134355.420	517083.058	134355.420	Required	
S28	517100.743	134366.084	517100.743	134366.084	Required	
S29	517119.852	134372.794	517119.852	134372.794	Required	
S30	517100.744	134386.409	517100.744	134386.409	Required	
S31	517084.673	134393.531	517084.673	134393.531	Required	
S32	517017.146	134393.531	517017.146	134393.531	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
Dummy	517030.596	134359.957	517030.596	134359.957	Required	
SDP	517020.596	134359.957	517020.596	134359.957	Required	
S33	517017.146	134359.957	517017.146	134359.957	Required	
Dummy	517026.026	134315.771	517026.026	134315.771	Required	
SDP	517020.146	134307.682	517020.146	134307.682	Required	
S34	517017.146	134303.555	517017.146	134303.555	Required	
Dummy	517037.695	134299.704	517037.695	134299.704	Required	
SDP	517037.695	134289.704	517037.695	134289.704	Required	
S35	517037.695	134272.520	517037.695	134272.520	Required	
Dummy	517175.570	134304.272	517175.570	134304.272	Required	
SDP	517169.868	134291.788	517169.868	134291.788	Required	
S36	517169.868	134283.536	517169.868	134283.536	Required	
Dummy	517147.711	134301.904	517147.711	134301.904	Required	
SDP	517147.759	134291.904	517147.759	134291.904	Required	
S37	517147.823	134278.520	517147.823	134278.520	Required	
Dummy	517075.075	134324.849	517075.075	134324.849	Required	
SDP	517083.058	134318.825	517083.058	134318.825	Required	
S38	517096.562	134308.635	517096.562	134308.635	Required	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
Dummy	517110.135	134287.987	517110.135	134287.987	Required	
SDP	517100.135	134287.987	517100.135	134287.987	Required	
S39	517096.509	134287.987	517096.509	134287.987	Required	
S40	517096.581	134278.520	517096.581	134278.520	Required	
Dummy	517117.050	134297.970	517117.050	134297.970	Required	
SDP	517117.050	134287.970	517117.050	134287.970	Required	
S41	517117.050	134278.520	517117.050	134278.520	Required	
Attenuation	517075.152	134269.499	517075.152	134269.499	Required	
	517012.858	134269.461			No Entry	

PIPELINE SCHEDULES for Storm

Upstream Manhole

- Indicates pipe length does not match coordinates

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	ACO	47.350	46.375	0.825	Open Manhole	1200
1.001	o	225	S1	47.440	46.180	1.035	Open Manhole	1200
2.000	o	225	ACO	47.400	46.508	0.667	Open Manhole	1200
1.002	o	225	S2	47.415	45.970	1.220	Open Manhole	1200
3.000	o	150	ACO	47.350	46.525	0.675	Open Manhole	1200
3.001	o	150	ACO	47.350	46.385	0.815	Open Manhole	1200
1.003	o	225	S3	47.410	45.535	1.650	Open Manhole	1200
4.000	\/	-1	Swale	47.425	46.825	0.100	Junction	
4.001	o	150	Sw1	47.425	46.675	0.600	Junction	
1.004	o	300	S4	47.480	45.050	2.130	Open Manhole	1200
5.000	\/	-1	Swale	47.375	46.875	0.000	Junction	
5.001	o	150	Sw2	47.375	46.835	0.390	Junction	
1.005	o	375	S5	47.375	44.865	2.135	Open Manhole	1350
6.000	o	100	ACO	47.430	46.463	0.867	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	11.792	98.3	S1	47.440	46.255	1.035	Open Manhole	1200
1.001	20.804	99.1	S2	47.415	45.970	1.220	Open Manhole	1200
2.000	2.475	165.0	S2	47.415	46.493	0.697	Open Manhole	1200
1.002	73.579	169.1	S3	47.410	45.535	1.650	Open Manhole	1200
3.000	69.244	494.6	ACO	47.350	46.385	0.815	Open Manhole	1200
3.001	3.250	162.5	S3	47.410	46.365	0.895	Open Manhole	1200
1.003	88.303	215.4	S4	47.480	45.125	2.130	Open Manhole	1200
4.000	77.783	518.6	Sw1	47.425	46.675	0.250	Junction	
4.001	5.510	183.7	S4	47.480	46.645	0.685	Open Manhole	1200
1.004	22.061	200.9	S5	47.375	44.940	2.135	Open Manhole	1350
5.000	21.722	543.0	Sw2	47.375	46.835	0.040	Junction	
5.001	4.965	118.2	S5	47.375	46.793	0.432	Open Manhole	1350
1.005	22.952	209.2	S6	47.555	44.755	2.425	Open Manhole	1350
6.000	1.512	60.5	S6	47.555	46.438	1.017	Open Manhole	1350

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
7.000	o	225	ACO	47.430	46.538	0.667	Open Manhole	1200
1.006	o	375	S6	47.555	44.755	2.425	Open Manhole	1350
8.000	o	150	ACO	47.275	46.275	0.850	Open Manhole	1200
8.001	o	150	S7	47.355	46.105	1.100	Open Manhole	1200
1.007	o	375	S8	47.555	44.630	2.550	Open Manhole	1350
9.000	o	225	ACO	47.835	47.010	0.600	Open Manhole	1200
9.001	o	225	S9	47.835	46.940	0.670	Open Manhole	1200
10.000	o	150	ACO	48.120	47.120	0.850	Open Manhole	1200
9.002	o	225	S10	48.120	46.825	1.070	Open Manhole	1200
11.000	o	150	ACO	48.125	47.300	0.675	Open Manhole	1200
11.001	o	150	S11	48.125	47.230	0.745	Open Manhole	1200
9.003	o	225	S12	48.125	46.595	1.305	Open Manhole	1200
12.000	o	150	ACO	48.320	47.495	0.675	Open Manhole	1200
12.001	o	150	S13	48.420	47.425	0.845	Open Manhole	1200
9.004	o	225	S14	48.125	46.335	1.565	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
7.000	17.275	691.0	S6	47.555	46.513	0.817	Open Manhole	1350
1.006	38.649	309.2	S8	47.555	44.630	2.550	Open Manhole	1350
8.000	16.961	99.8	S7	47.355	46.105	1.100	Open Manhole	1200
8.001	12.903	100.5	S8	47.555	45.977	1.428	Open Manhole	1350
1.007	7.480#	299.2	Attenuation	47.630	44.605	2.650	Open Manhole	1500
9.000	31.096	444.2	S9	47.835	46.940	0.670	Open Manhole	1200
9.001	11.050	96.1	S10	48.120	46.825	1.070	Open Manhole	1200
10.000	8.367	98.4	S10	48.120	47.035	0.935	Open Manhole	1200
9.002	38.753	168.5	S12	48.125	46.595	1.305	Open Manhole	1200
11.000	22.642	323.5	S11	48.125	47.230	0.745	Open Manhole	1200
11.001	1.487	59.5	S12	48.125	47.205	0.770	Open Manhole	1200
9.003	43.831	168.6	S14	48.125	46.335	1.565	Open Manhole	1200
12.000	36.262	518.0	S13	48.420	47.425	0.845	Open Manhole	1200
12.001	1.487	99.1	S14	48.125	47.410	0.565	Open Manhole	1200
9.004	11.225	160.4	S26	48.325	46.265	1.835	Open Manhole	1500

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
13.000	o	300	S15	47.400	46.400	0.700	Open Manhole	1200
13.001	o	300	S16	47.370	45.945	1.125	Open Manhole	1200
13.002	o	300	S17	47.400	45.885	1.215	Open Manhole	1200
14.000	o	375	ACO	47.370	45.735	1.260	Open Manhole	1350
13.003	o	525	S18	47.370	45.400	1.445	Open Manhole	1500
15.000	o	300	ACO	47.725	46.725	0.700	Open Manhole	1200
15.001	o	300	Tank	47.800	46.700	0.800	Open Manhole	1200
15.002	o	300	Valve	47.800	46.630	0.870	Open Manhole	1200
13.004	o	525	S19	48.160	45.330	2.305	Open Manhole	1500
16.000	o	225	ACO	48.100	47.100	0.775	Open Manhole	1200
13.005	o	525	S20	48.160	45.195	2.440	Open Manhole	1500
13.006	o	525	S21	48.760	45.115	3.120	Open Manhole	1500
17.000	o	150	ACO	47.630	47.180	0.300	Open Manhole	1200
17.001	o	150	S22	47.630	46.580	0.900	Open Manhole	1200
18.000	o	225	Porus CP	47.630	46.630	0.775	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
13.000	9.397	208.8	S16	47.370	46.355	0.715	Open Manhole	1200
13.001	13.767	229.5	S17	47.400	45.885	1.215	Open Manhole	1200
13.002	43.907	168.9	S18	47.370	45.625	1.445	Open Manhole	1500
14.000	2.750	39.3	S18	47.370	45.665	1.330	Open Manhole	1500
13.003	20.622	294.6	S19	48.160	45.330	2.305	Open Manhole	1500
15.000	2.375	95.0	Tank	47.800	46.700	0.800	Open Manhole	1200
15.001	7.108	101.5	Valve	47.800	46.630	0.870	Open Manhole	1200
15.002	13.697	22.8	S19	48.160	46.030	1.830	Open Manhole	1500
13.004	43.160	319.7	S20	48.160	45.195	2.440	Open Manhole	1500
16.000	2.500	125.0	S20	48.160	47.080	0.855	Open Manhole	1500
13.005	25.350	316.9	S21	48.760	45.115	3.120	Open Manhole	1500
13.006	35.598	323.6	S25	47.935	45.005	2.405	Open Manhole	1500
17.000	23.835	500.0	S22	47.630	47.132	0.348	Open Manhole	1200
17.001	8.492	99.9	S23	47.715	46.495	1.070	Open Manhole	1200
18.000	7.462	57.4	S23	47.715	46.500	0.990	Open Manhole	1200

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
17.002	o	225	S23	47.715	46.420	1.070	Open Manhole	1200
19.000	o	225	ACO	47.280	46.455	0.600	Open Manhole	1200
19.001	o	225	S24	47.280	46.365	0.690	Open Manhole	1200
13.007	o	525	S25	47.935	45.005	2.405	Open Manhole	1500
9.005	o	525	S26	48.325	44.980	2.820	Open Manhole	1500
9.006	o	525	S27	48.000	44.965	2.510	Open Manhole	1500
20.000	o	225	Dummy	52.650	52.400	0.025	Open Manhole	1200
20.001	o	150	SDP	52.650	52.300	0.200	Open Manhole	1200
21.000	o	225	Dummy	52.650	52.400	0.025	Open Manhole	1200
21.001	o	225	SDP	52.650	52.300	0.125	Open Manhole	1200
20.002	o	300	S28	47.440	45.800	1.340	Open Manhole	1200
22.000	o	150	S29	47.650	46.900	0.600	Open Manhole	1200
20.003	o	300	S30	47.485	45.680	1.505	Open Manhole	1200
20.004	o	300	S31	47.460	45.575	1.585	Open Manhole	1200
20.005	o	300	S32	47.440	45.175	1.965	Open Manhole	1200
23.000	o	150	Dummy	52.650	52.325	0.175	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
17.002	32.867	168.5	S25	47.935	46.225	1.485	Open Manhole	1500
19.000	41.034	455.9	S24	47.280	46.365	0.690	Open Manhole	1200
19.001	18.939	97.1	S25	47.935	46.170	1.540	Open Manhole	1500
13.007	9.000	360.0	S26	48.325	44.980	2.820	Open Manhole	1500
9.005	5.533	368.9	S27	48.000	44.965	2.510	Open Manhole	1500
9.006	5.080#	254.0	Attenuation	47.630	44.945	2.160	Open Manhole	1500
20.000	10.000	400.0	SDP	52.650	52.375	0.050	Open Manhole	1200
20.001	18.992	3.0	S28	47.440	45.950	1.340	Open Manhole	1200
21.000	10.000	400.0	SDP	52.650	52.375	0.050	Open Manhole	1200
21.001	20.651	3.3	S28	47.440	45.950	1.265	Open Manhole	1200
20.002	20.325	169.4	S30	47.485	45.680	1.505	Open Manhole	1200
22.000	23.462	99.8	S30	47.485	46.665	0.670	Open Manhole	1200
20.003	17.578	167.4	S31	47.460	45.575	1.585	Open Manhole	1200
20.004	67.527	168.8	S32	47.440	45.175	1.965	Open Manhole	1200
20.005	33.574	167.9	S33	47.575	44.975	2.300	Open Manhole	1350
23.000	10.000	400.0	SDP	52.650	52.300	0.200	Open Manhole	1200

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
23.001	o	225	SDP	52.650	52.225	0.200	Open Manhole	1200
20.006	o	375	S33	47.575	44.900	2.300	Open Manhole	1350
24.000	o	300	Dummy	52.650	52.250	0.100	Open Manhole	1200
24.001	o	225	SDP	52.650	52.225	0.200	Open Manhole	1200
20.007	o	525	S34	47.565	44.400	2.640	Open Manhole	1500
25.000	o	150	Dummy	52.650	52.475	0.025	Open Manhole	1200
25.001	o	150	SDP	52.650	52.450	0.050	Open Manhole	1200
20.008	o	525	S35	47.670	44.325	2.820	Open Manhole	1500
26.000	o	150	Dummy	52.650	52.325	0.175	Open Manhole	1200
26.001	o	150	SDP	52.650	52.300	0.200	Open Manhole	1200
26.002	o	300	S36	47.970	45.800	1.870	Open Manhole	1200
27.000	o	100	Dummy	52.650	52.400	0.150	Open Manhole	1200
27.001	o	150	SDP	52.650	52.325	0.175	Open Manhole	1200
26.003	o	300	S37	47.520	45.680	1.540	Open Manhole	1200
28.000	o	100	Dummy	52.650	52.325	0.225	Open Manhole	1200
28.001	o	225	SDP	52.650	52.175	0.250	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
23.001	3.450	0.5	S33	47.575	45.875	1.475	Open Manhole	1350
20.006	56.402	240.0	S34	47.565	44.665	2.525	Open Manhole	1500
24.000	10.000	400.0	SDP	52.650	52.225	0.125	Open Manhole	1200
24.001	5.102	0.8	S34	47.565	45.875	1.465	Open Manhole	1500
20.007	37.221	496.3	S35	47.670	44.325	2.820	Open Manhole	1500
25.000	10.000	400.0	SDP	52.650	52.450	0.050	Open Manhole	1200
25.001	17.184	2.7	S35	47.670	46.100	1.420	Open Manhole	1500
20.008	40.460#	404.6	Attenuation	47.630	44.225	2.880	Open Manhole	1500
26.000	13.725	549.0	SDP	52.650	52.300	0.200	Open Manhole	1200
26.001	8.252	1.3	S36	47.970	45.950	1.870	Open Manhole	1200
26.002	22.608	188.4	S37	47.520	45.680	1.540	Open Manhole	1200
27.000	10.000	400.0	SDP	52.650	52.375	0.175	Open Manhole	1200
27.001	13.384	2.1	S37	47.520	45.975	1.395	Open Manhole	1200
26.003	30.773	236.7	S41	47.515	45.550	1.665	Open Manhole	1350
28.000	10.000	400.0	SDP	52.650	52.300	0.250	Open Manhole	1200
28.001	16.917	2.7	S38	47.390	45.825	1.340	Open Manhole	1200

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
28.002	o	300	S38	47.390	45.750	1.340	Open Manhole	1200
29.000	o	100	Dummy	52.650	52.400	0.150	Open Manhole	1200
29.001	o	225	SDP	52.650	52.250	0.175	Open Manhole	1200
28.003	o	375	S39	47.340	45.590	1.375	Open Manhole	1350
28.004	o	375	S40	47.515	45.560	1.580	Open Manhole	1350
30.000	o	100	Dummy	52.650	52.325	0.225	Open Manhole	1200
30.001	o	225	SDP	52.650	52.175	0.250	Open Manhole	1200
26.004	o	375	S41	47.515	45.475	1.665	Open Manhole	1350
1.008	o	600	Attenuation	47.630	43.800	3.230	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
28.002	20.648	242.9	S39	47.340	45.665	1.375	Open Manhole	1350
29.000	10.000	400.0	SDP	52.650	52.375	0.175	Open Manhole	1200
29.001	3.626	0.6	S39	47.340	45.900	1.215	Open Manhole	1350
28.003	9.467	315.6	S40	47.515	45.560	1.580	Open Manhole	1350
28.004	20.469	314.9	S41	47.515	45.495	1.645	Open Manhole	1350
30.000	10.000	400.0	SDP	52.650	52.300	0.250	Open Manhole	1200
30.001	9.450	1.5	S41	47.515	45.825	1.465	Open Manhole	1350
26.004	4.500#	225.0	Attenuation	47.630	45.455	1.800	Open Manhole	1500
1.008	62.294	401.9		48.000	43.645	3.755	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.008		48.000	43.645	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.837	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Simulation Criteria for Storm

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Winter
Return Period (years)	2	Cv (Summer)	0.837
Region	England and Wales	Cv (Winter)	0.837
M5-60 (mm)	20.000	Storm Duration (mins)	30
Ratio R	0.350		

Online Controls for Storm

Pump Manhole: Attenuation, DS/PN: 1.008, Volume (m³): 17.0

Invert Level (m) 43.800

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.200	14.9000	1.400	14.9000	2.600	14.9000	3.800	14.9000	5.000	14.9000
0.400	14.9000	1.600	14.9000	2.800	14.9000	4.000	14.9000	5.200	14.9000
0.600	14.9000	1.800	14.9000	3.000	14.9000	4.200	14.9000	5.400	14.9000
0.800	14.9000	2.000	14.9000	3.200	14.9000	4.400	14.9000	5.600	14.9000
1.000	14.9000	2.200	14.9000	3.400	14.9000	4.600	14.9000	5.800	14.9000
1.200	14.9000	2.400	14.9000	3.600	14.9000	4.800	14.9000	6.000	14.9000

Storage Structures for Storm

Porous Car Park Manhole: S22, DS/PN: 17.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	59.0
Membrane Percolation (mm/hr)	1000	Length (m)	16.0
Max Percolation (l/s)	262.2	Slope (1:X)	40.0
Safety Factor	3.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	46.580	Cap Volume Depth (m)	0.340

Cellular Storage Manhole: Attenuation, DS/PN: 1.008

Invert Level (m)	44.000	Safety Factor	3.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.97
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	1027.5	0.0	1.800	1027.5	0.0	1.801	0.0	0.0

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 20.000	Cv (Summer) 0.793
Region	England and Wales	Ratio R 0.350	Cv (Winter) 0.837

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 20

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
1.000	ACO	15 Summer	1	+0%	30/15 Summer				46.465	-0.060	0.000
1.001	S1	15 Summer	1	+0%	30/15 Summer				46.252	-0.153	0.000
2.000	ACO	15 Summer	1	+0%	30/15 Summer				46.619	-0.114	0.000
1.002	S2	15 Summer	1	+0%	30/15 Summer				46.099	-0.096	0.000
3.000	ACO	15 Summer	1	+0%	100/15 Summer				46.525	-0.150	0.000
3.001	ACO	15 Summer	1	+0%	30/15 Summer				46.464	-0.071	0.000
1.003	S3	15 Summer	1	+0%	30/15 Summer				45.687	-0.073	0.000
4.000	Swale	15 Summer	1	+0%					46.874	-0.451	0.000
4.001	Sw1	15 Summer	1	+0%	30/15 Summer				46.778	-0.047	0.000
1.004	S4	15 Summer	1	+0%	100/15 Summer				45.196	-0.154	0.000
5.000	Swale	15 Summer	1	+0%					46.916	-0.459	0.000
5.001	Sw2	15 Summer	1	+0%	100/15 Summer				46.899	-0.086	0.000
1.005	S5	15 Winter	1	+0%	100/15 Summer				45.008	-0.233	0.000
6.000	ACO	15 Summer	1	+0%	1/15 Summer				46.588	0.025	0.000
7.000	ACO	15 Summer	1	+0%	30/15 Summer				46.702	-0.061	0.000
1.006	S6	15 Winter	1	+0%	100/15 Summer				44.932	-0.198	0.000
8.000	ACO	15 Summer	1	+0%	30/15 Summer				46.349	-0.076	0.000
8.001	S7	15 Summer	1	+0%	30/15 Summer				46.180	-0.075	0.000
1.007	S8	15 Winter	1	+0%	30/15 Summer				44.855	-0.150	0.000
9.000	ACO	15 Summer	1	+0%	100/15 Summer				47.103	-0.132	0.000
9.001	S9	15 Summer	1	+0%	100/15 Summer				47.004	-0.161	0.000
10.000	ACO	15 Summer	1	+0%	100/15 Summer				47.159	-0.111	0.000
9.002	S10	15 Summer	1	+0%	100/15 Summer				46.904	-0.146	0.000
11.000	ACO	15 Winter	1	+0%	100/15 Summer				47.305	-0.145	0.000
11.001	S11	15 Summer	1	+0%	30/15 Summer				47.312	-0.068	0.000
9.003	S12	15 Summer	1	+0%	30/15 Summer				46.703	-0.117	0.000
12.000	ACO	15 Summer	1	+0%	30/15 Summer				47.601	-0.044	0.000
12.001	S13	15 Summer	1	+0%	30/15 Summer				47.504	-0.071	0.000
9.004	S14	15 Summer	1	+0%	30/15 Summer				46.469	-0.091	0.000
13.000	S15	15 Summer	1	+0%	100/15 Winter				46.454	-0.246	0.000

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	ACO	0.66			10.7	OK	
1.001	S1	0.23			10.7	OK	
2.000	ACO	0.49			13.6	OK	
1.002	S2	0.56			21.8	OK	
3.000	ACO	0.00			0.0	OK	
3.001	ACO	0.53			5.5	OK	
1.003	S3	0.71			24.4	OK	
4.000	Swale	0.01			11.6	OK	
4.001	Sw1	0.80			8.7	OK*	
1.004	S4	0.48			32.8	OK	
5.000	Swale	0.01			5.3	OK	
5.001	Sw2	0.38			4.9	OK*	
1.005	S5	0.30			35.8	OK	
6.000	ACO	1.45			6.4	SURCHARGED	
7.000	ACO	0.85			10.9	OK	
1.006	S6	0.44			45.3	OK	
8.000	ACO	0.48			8.0	OK	
8.001	S7	0.49			7.9	OK	
1.007	S8	0.66			52.4	OK	
9.000	ACO	0.34			7.8	OK	
9.001	S9	0.18			8.0	OK	
10.000	ACO	0.15			2.4	OK	
9.002	S10	0.26			9.7	OK	
11.000	ACO	0.00			0.0	OK	
11.001	S11	0.56			6.1	OK	
9.003	S12	0.45			17.3	OK	
12.000	ACO	0.80			6.0	OK	
12.001	S13	0.54			5.8	OK	
9.004	S14	0.65			22.7	OK	
13.000	S15	0.07			4.4	OK	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
13.001	S16	15 Summer	1	+0%	100/15 Summer				46.003	-0.242
13.002	S17	15 Summer	1	+0%	100/15 Summer				45.970	-0.215
14.000	ACO	15 Summer	1	+0%	100/15 Summer				45.879	-0.231
13.003	S18	15 Summer	1	+0%	30/15 Summer				45.575	-0.350
15.000	ACO	15 Summer	1	+0%	100/15 Summer				46.843	-0.182
15.001	Tank	15 Summer	1	+0%	100/15 Summer				46.811	-0.189
15.002	Valve	15 Summer	1	+0%					46.693	-0.237
13.004	S19	15 Summer	1	+0%	30/15 Summer				45.526	-0.329
16.000	ACO	15 Summer	1	+0%	30/15 Summer				47.292	-0.033
13.005	S20	15 Summer	1	+0%	30/15 Summer				45.448	-0.272
13.006	S21	15 Summer	1	+0%	30/15 Summer				45.405	-0.235
17.000	ACO	15 Summer	1	+0%	30/15 Summer				47.254	-0.076
17.001	S22	240 Summer	1	+0%	100/15 Summer				46.619	-0.111
18.000	Porus CP	15 Summer	1	+0%	30/15 Summer				46.740	-0.115
17.002	S23	15 Summer	1	+0%	30/15 Summer				46.558	-0.087
19.000	ACO	15 Summer	1	+0%	30/15 Summer				46.619	-0.061
19.001	S24	15 Summer	1	+0%	100/15 Summer				46.468	-0.122
13.007	S25	15 Summer	1	+0%	30/15 Summer				45.370	-0.160
9.005	S26	15 Summer	1	+0%	30/15 Summer				45.347	-0.158
9.006	S27	15 Summer	1	+0%	30/15 Summer				45.324	-0.166
20.000	Dummy	15 Summer	1	+0%					52.400	-0.225
20.001	SDP	15 Summer	1	+0%					52.331	-0.119
21.000	Dummy	15 Summer	1	+0%					52.400	-0.225
21.001	SDP	15 Summer	1	+0%					52.327	-0.198
20.002	S28	15 Summer	1	+0%	100/15 Summer				45.903	-0.197
22.000	S29	15 Summer	1	+0%					46.941	-0.109
20.003	S30	15 Summer	1	+0%	100/15 Summer				45.791	-0.189
20.004	S31	15 Summer	1	+0%	100/15 Summer				45.679	-0.196
20.005	S32	15 Summer	1	+0%	100/15 Summer				45.279	-0.196
23.000	Dummy	15 Summer	1	+0%					52.325	-0.150
23.001	SDP	15 Summer	1	+0%					52.263	-0.187
20.006	S33	15 Winter	1	+0%	100/15 Summer				45.052	-0.223
24.000	Dummy	15 Winter	1	+0%					52.267	-0.283
24.001	SDP	15 Summer	1	+0%					52.271	-0.179
20.007	S34	15 Winter	1	+0%	100/15 Summer				44.635	-0.290
25.000	Dummy	15 Summer	1	+0%					52.475	-0.150
25.001	SDP	15 Summer	1	+0%					52.477	-0.123
20.008	S35	15 Winter	1	+0%	30/240 Winter				44.542	-0.308
26.000	Dummy	15 Summer	1	+0%					52.325	-0.150
26.001	SDP	15 Summer	1	+0%					52.324	-0.126
26.002	S36	15 Summer	1	+0%	100/15 Summer				45.869	-0.231
27.000	Dummy	15 Summer	1	+0%					52.400	-0.100
27.001	SDP	15 Summer	1	+0%					52.346	-0.129
26.003	S37	15 Summer	1	+0%	100/15 Summer				45.774	-0.206
28.000	Dummy	15 Summer	1	+0%					52.325	-0.100
28.001	SDP	15 Summer	1	+0%					52.218	-0.182
28.002	S38	15 Summer	1	+0%	30/15 Summer				45.877	-0.173
29.000	Dummy	15 Summer	1	+0%					52.400	-0.100
29.001	SDP	15 Summer	1	+0%					52.257	-0.218
28.003	S39	15 Winter	1	+0%	30/15 Summer				45.737	-0.228
28.004	S40	15 Summer	1	+0%	30/15 Summer				45.709	-0.226
30.000	Dummy	15 Summer	1	+0%					52.325	-0.100
30.001	SDP	15 Summer	1	+0%					52.185	-0.215
26.004	S41	15 Summer	1	+0%	30/15 Summer				45.667	-0.183
1.008	Attenuation	180 Winter	1	+0%	30/15 Winter				44.294	-0.106

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
13.001	S16	0.000	0.07			4.4	OK	
13.002	S17	0.000	0.18			14.1	OK	
14.000	ACO	0.000	0.32			33.9	OK	
13.003	S18	0.000	0.21			46.0	OK	
15.000	ACO	0.000	0.33			19.3	OK	
15.001	Tank	0.000	0.29			19.3	OK	
15.002	Valve	0.000	0.10			19.2	OK	
13.004	S19	0.000	0.26			62.8	OK	
16.000	ACO	0.000	1.00			27.8	OK	
13.005	S20	0.000	0.36			80.5	OK	
13.006	S21	0.000	0.33			75.1	OK	
17.000	ACO	0.000	0.47			3.5	OK	
17.001	S22	0.000	0.15		24	2.3	OK	
18.000	Porus CP	0.000	0.48			24.5	OK	
17.002	S23	0.000	0.68			25.6	OK	
19.000	ACO	0.000	0.82			18.8	OK	
19.001	S24	0.000	0.43			20.4	OK	
13.007	S25	0.000	0.73			108.1	OK	
9.005	S26	0.000	0.82			131.0	OK	
9.006	S27	0.000	0.81			130.5	OK	
20.000	Dummy	0.000	0.00			0.0	OK	
20.001	SDP	0.000	0.10			9.5	OK	
21.000	Dummy	0.000	0.00			0.0	OK	
21.001	SDP	0.000	0.04			9.3	OK	
20.002	S28	0.000	0.25			18.6	OK	
22.000	S29	0.000	0.17			2.9	OK	
20.003	S30	0.000	0.29			21.6	OK	
20.004	S31	0.000	0.25			20.6	OK	
20.005	S32	0.000	0.26			20.2	OK	
23.000	Dummy	0.000	0.00			0.0	OK	
23.001	SDP	0.000	0.07			23.9	OK	
20.006	S33	0.000	0.34			41.4	OK	
24.000	Dummy	0.000	0.00			0.1	OK	
24.001	SDP	0.000	0.09			32.4	OK	
20.007	S34	0.000	0.37			69.2	OK	
25.000	Dummy	0.000	0.00			0.0	FLOOD RISK	
25.001	SDP	0.000	0.07			7.3	FLOOD RISK	
20.008	S35	0.000	0.36			75.1	OK	
26.000	Dummy	0.000	0.00			0.0	OK	
26.001	SDP	0.000	0.06			8.5	OK	
26.002	S36	0.000	0.12			8.4	OK	
27.000	Dummy	0.000	0.00			0.0	OK	
27.001	SDP	0.000	0.05			5.6	OK	
26.003	S37	0.000	0.21			13.8	OK	
28.000	Dummy	0.000	0.00			0.0	OK	
28.001	SDP	0.000	0.08			23.0	OK	
28.002	S38	0.000	0.37			22.9	OK	
29.000	Dummy	0.000	0.00			0.0	OK	
29.001	SDP	0.000	0.01			2.2	OK	
28.003	S39	0.000	0.31			24.7	OK	
28.004	S40	0.000	0.26			24.2	OK	
30.000	Dummy	0.000	0.00			0.0	OK	
30.001	SDP	0.000	0.01			3.3	OK	
26.004	S41	0.000	0.52			40.8	OK	
1.008	Attenuation	0.000	0.05		173	14.9	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 20.000	Cv (Summer) 0.793
Region	England and Wales	Ratio R 0.350	Cv (Winter) 0.837

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 20

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
1.000	ACO	15 Summer	30	+0%	30/15 Summer				46.786	0.261	0.000
1.001	S1	15 Summer	30	+0%	30/15 Summer				46.629	0.224	0.000
2.000	ACO	15 Summer	30	+0%	30/15 Summer				46.763	0.030	0.000
1.002	S2	15 Summer	30	+0%	30/15 Summer				46.592	0.397	0.000
3.000	ACO	15 Summer	30	+0%	100/15 Summer				46.571	-0.104	0.000
3.001	ACO	15 Summer	30	+0%	30/15 Summer				46.578	0.043	0.000
1.003	S3	15 Winter	30	+0%	30/15 Summer				46.196	0.436	0.000
4.000	Swale	15 Summer	30	+0%					46.907	-0.418	0.000
4.001	Sw1	15 Winter	30	+0%	30/15 Summer				46.845	0.020	0.000
1.004	S4	15 Winter	30	+0%	100/15 Summer				45.271	-0.079	0.000
5.000	Swale	15 Summer	30	+0%					46.958	-0.417	0.000
5.001	Sw2	15 Summer	30	+0%	100/15 Summer				46.948	-0.037	0.000
1.005	S5	15 Winter	30	+0%	100/15 Summer				45.151	-0.089	0.000
6.000	ACO	15 Summer	30	+0%	1/15 Summer				46.827	0.264	0.000
7.000	ACO	15 Summer	30	+0%	30/15 Summer				46.790	0.027	0.000
1.006	S6	15 Winter	30	+0%	100/15 Summer				45.113	-0.018	0.000
8.000	ACO	15 Summer	30	+0%	30/15 Summer				46.485	0.060	0.000
8.001	S7	15 Summer	30	+0%	30/15 Summer				46.274	0.019	0.000
1.007	S8	15 Winter	30	+0%	30/15 Summer				45.025	0.020	0.000
9.000	ACO	15 Summer	30	+0%	100/15 Summer				47.175	-0.060	0.000
9.001	S9	15 Summer	30	+0%	100/15 Summer				47.044	-0.121	0.000
10.000	ACO	15 Summer	30	+0%	100/15 Summer				47.184	-0.086	0.000
9.002	S10	15 Summer	30	+0%	100/15 Summer				46.994	-0.056	0.000
11.000	ACO	15 Summer	30	+0%	100/15 Summer				47.443	-0.007	0.000
11.001	S11	15 Summer	30	+0%	30/15 Summer				47.446	0.066	0.000
9.003	S12	15 Summer	30	+0%	30/15 Summer				46.922	0.102	0.000
12.000	ACO	15 Summer	30	+0%	30/15 Summer				47.833	0.188	0.000

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	ACO	1.46			23.6	SURCHARGED	
1.001	S1	0.42			19.7	SURCHARGED	
2.000	ACO	1.17			32.7	SURCHARGED	
1.002	S2	1.11			43.1	SURCHARGED	
3.000	ACO	0.02			0.1	OK	
3.001	ACO	1.57			16.2	SURCHARGED	
1.003	S3	1.36			46.9	SURCHARGED	
4.000	Swale	0.03			28.4	OK	
4.001	Sw1	1.38			14.9	SURCHARGED*	
1.004	S4	0.89			61.3	OK	
5.000	Swale	0.02			13.1	OK	
5.001	Sw2	0.92			11.8	OK*	
1.005	S5	0.58			68.0	OK	
6.000	ACO	3.34			14.7	SURCHARGED	
7.000	ACO	2.17			27.7	SURCHARGED	
1.006	S6	0.86			88.2	OK	
8.000	ACO	1.10			18.2	SURCHARGED	
8.001	S7	1.10			17.8	SURCHARGED	
1.007	S8	1.36			107.2	SURCHARGED	
9.000	ACO	0.85			19.3	OK	
9.001	S9	0.44			19.6	OK	
10.000	ACO	0.38			5.9	OK	
9.002	S10	0.62			23.3	OK	
11.000	ACO	0.08			0.8	OK	
11.001	S11	1.74			18.8	SURCHARGED	
9.003	S12	1.05			40.1	SURCHARGED	
12.000	ACO	1.84			13.6	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
12.001	S13	15 Summer	30	+0%	30/15 Summer				47.593	0.018
9.004	S14	15 Summer	30	+0%	30/15 Summer				46.637	0.077
13.000	S15	15 Summer	30	+0%	100/15 Winter				46.486	-0.214
13.001	S16	15 Summer	30	+0%	100/15 Summer				46.057	-0.188
13.002	S17	15 Summer	30	+0%	100/15 Summer				46.041	-0.144
14.000	ACO	15 Summer	30	+0%	100/15 Summer				46.000	-0.110
13.003	S18	15 Summer	30	+0%	30/15 Summer				45.993	0.068
15.000	ACO	15 Summer	30	+0%	100/15 Summer				46.930	-0.095
15.001	Tank	15 Summer	30	+0%	100/15 Summer				46.890	-0.110
15.002	Valve	15 Summer	30	+0%					46.731	-0.199
13.004	S19	15 Summer	30	+0%	30/15 Summer				45.974	0.119
16.000	ACO	15 Summer	30	+0%	30/15 Summer				47.541	0.216
13.005	S20	15 Summer	30	+0%	30/15 Summer				45.944	0.224
13.006	S21	15 Summer	30	+0%	30/15 Summer				45.906	0.266
17.000	ACO	15 Summer	30	+0%	30/15 Summer				47.340	0.010
17.001	S22	30 Summer	30	+0%	100/15 Summer				46.707	-0.023
18.000	Porus CP	15 Summer	30	+0%	30/15 Summer				46.948	0.093
17.002	S23	15 Summer	30	+0%	30/15 Summer				46.776	0.131
19.000	ACO	15 Summer	30	+0%	30/15 Summer				46.949	0.269
19.001	S24	15 Summer	30	+0%	100/15 Summer				46.550	-0.040
13.007	S25	15 Summer	30	+0%	30/15 Summer				45.857	0.327
9.005	S26	15 Summer	30	+0%	30/15 Summer				45.755	0.250
9.006	S27	15 Summer	30	+0%	30/15 Summer				45.599	0.109
20.000	Dummy	15 Summer	30	+0%					52.400	-0.225
20.001	SDP	15 Summer	30	+0%					52.358	-0.092
21.000	Dummy	15 Summer	30	+0%					52.400	-0.225
21.001	SDP	15 Summer	30	+0%					52.350	-0.175
20.002	S28	15 Summer	30	+0%	100/15 Summer				46.009	-0.091
22.000	S29	15 Summer	30	+0%					46.967	-0.083
20.003	S30	15 Summer	30	+0%	100/15 Summer				45.907	-0.073
20.004	S31	15 Summer	30	+0%	100/15 Summer				45.784	-0.091
20.005	S32	15 Summer	30	+0%	100/15 Summer				45.379	-0.096
23.000	Dummy	15 Summer	30	+0%					52.325	-0.150
23.001	SDP	15 Summer	30	+0%					52.296	-0.154
20.006	S33	15 Summer	30	+0%	100/15 Summer				45.207	-0.068
24.000	Dummy	15 Summer	30	+0%					52.309	-0.241
24.001	SDP	15 Summer	30	+0%					52.309	-0.141
20.007	S34	15 Summer	30	+0%	100/15 Summer				44.925	0.000
25.000	Dummy	15 Summer	30	+0%					52.490	-0.135
25.001	SDP	15 Summer	30	+0%					52.499	-0.101
20.008	S35	360 Winter	30	+0%	30/240 Winter				44.896	0.046
26.000	Dummy	15 Summer	30	+0%					52.337	-0.138
26.001	SDP	15 Summer	30	+0%					52.346	-0.104
26.002	S36	15 Summer	30	+0%	100/15 Summer				45.981	-0.119
27.000	Dummy	15 Summer	30	+0%					52.400	-0.100
27.001	SDP	15 Summer	30	+0%					52.365	-0.110
26.003	S37	15 Summer	30	+0%	100/15 Summer				45.956	-0.024
28.000	Dummy	15 Summer	30	+0%					52.325	-0.100
28.001	SDP	15 Summer	30	+0%					52.253	-0.147
28.002	S38	15 Summer	30	+0%	30/15 Summer				46.083	0.033
29.000	Dummy	15 Summer	30	+0%					52.400	-0.100
29.001	SDP	15 Summer	30	+0%					52.271	-0.204
28.003	S39	15 Summer	30	+0%	30/15 Summer				45.978	0.013
28.004	S40	15 Summer	30	+0%	30/15 Summer				45.952	0.017
30.000	Dummy	15 Summer	30	+0%					52.325	-0.100
30.001	SDP	15 Summer	30	+0%					52.201	-0.199
26.004	S41	15 Summer	30	+0%	30/15 Summer				45.909	0.059

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
12.001	S13	0.000	1.18			12.8	SURCHARGED	
9.004	S14	0.000	1.50			52.1	SURCHARGED	
13.000	S15	0.000	0.18			10.7	OK	
13.001	S16	0.000	0.18			10.7	OK	
13.002	S17	0.000	0.51			40.6	OK	
14.000	ACO	0.000	0.77			83.0	OK	
13.003	S18	0.000	0.53			118.0	SURCHARGED	
15.000	ACO	0.000	0.80			47.4	OK	
15.001	Tank	0.000	0.72			47.5	OK	
15.002	Valve	0.000	0.25			47.3	OK	
13.004	S19	0.000	0.59			139.6	SURCHARGED	
16.000	ACO	0.000	2.47			68.7	SURCHARGED	
13.005	S20	0.000	0.76			168.5	SURCHARGED	
13.006	S21	0.000	0.68			155.9	SURCHARGED	
17.000	ACO	0.000	1.13			8.4	FLOOD RISK	
17.001	S22	0.000	0.99		8	15.4	OK	
18.000	Porus CP	0.000	1.11			56.2	SURCHARGED	
17.002	S23	0.000	1.31			49.1	SURCHARGED	
19.000	ACO	0.000	1.90			43.5	SURCHARGED	
19.001	S24	0.000	1.00			47.3	OK	
13.007	S25	0.000	1.65			245.9	SURCHARGED	
9.005	S26	0.000	1.87			296.3	SURCHARGED	
9.006	S27	0.000	1.86			298.6	SURCHARGED	
20.000	Dummy	0.000	0.00			0.0	OK	
20.001	SDP	0.000	0.32			31.1	FLOOD RISK	
21.000	Dummy	0.000	0.00			0.0	OK	
21.001	SDP	0.000	0.12			30.3	FLOOD RISK	
20.002	S28	0.000	0.82			61.3	OK	
22.000	S29	0.000	0.42			7.0	OK	
20.003	S30	0.000	0.91			67.1	OK	
20.004	S31	0.000	0.77			63.2	OK	
20.005	S32	0.000	0.78			61.6	OK	
23.000	Dummy	0.000	0.00			0.0	OK	
23.001	SDP	0.000	0.22			78.0	OK	
20.006	S33	0.000	0.97			116.3	OK	
24.000	Dummy	0.000	0.01			0.4	OK	
24.001	SDP	0.000	0.30			105.7	OK	
20.007	S34	0.000	1.03			191.5	OK	
25.000	Dummy	0.000	0.01			0.1	FLOOD RISK	
25.001	SDP	0.000	0.24			24.0	FLOOD RISK	
20.008	S35	0.000	0.17			36.4	SURCHARGED	
26.000	Dummy	0.000	0.01			0.0	OK	
26.001	SDP	0.000	0.20			27.7	OK	
26.002	S36	0.000	0.38			27.2	OK	
27.000	Dummy	0.000	0.00			0.0	OK	
27.001	SDP	0.000	0.16			18.1	FLOOD RISK	
26.003	S37	0.000	0.58			38.0	OK	
28.000	Dummy	0.000	0.00			0.0	OK	
28.001	SDP	0.000	0.26			75.1	OK	
28.002	S38	0.000	1.20			74.5	SURCHARGED	
29.000	Dummy	0.000	0.00			0.0	OK	
29.001	SDP	0.000	0.02			7.0	OK	
28.003	S39	0.000	0.94			74.8	SURCHARGED	
28.004	S40	0.000	0.77			72.6	SURCHARGED	
30.000	Dummy	0.000	0.00			0.0	OK	
30.001	SDP	0.000	0.03			10.7	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
26.004	S41	0.000	1.51			118.0	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.008	Attenuation	360 Winter	30	+0%	30/15 Winter				44.895	0.495

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.008	Attenuation	0.000	0.05			14.9	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 20.000	Cv (Summer) 0.793
Region	England and Wales	Ratio R 0.350	Cv (Winter) 0.837

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 20

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	ACO	15 Winter	100	+20%	30/15 Summer				47.349	0.824
1.001	S1	15 Winter	100	+20%	30/15 Summer				47.280	0.875
2.000	ACO	15 Summer	100	+20%	30/15 Summer				47.321	0.588
1.002	S2	15 Summer	100	+20%	30/15 Summer				47.257	1.062
3.000	ACO	15 Winter	100	+20%	100/15 Summer				46.773	0.098
3.001	ACO	15 Summer	100	+20%	30/15 Summer				46.801	0.266
1.003	S3	15 Winter	100	+20%	30/15 Summer				46.706	0.946
4.000	Swale	15 Summer	100	+20%					46.938	-0.387
4.001	Sw1	15 Winter	100	+20%	30/15 Summer				46.900	0.075
1.004	S4	600 Winter	100	+20%	100/15 Summer				45.567	0.217
5.000	Swale	15 Summer	100	+20%					47.002	-0.373
5.001	Sw2	15 Summer	100	+20%	100/15 Summer				46.998	0.013
1.005	S5	600 Winter	100	+20%	100/15 Summer				45.566	0.325
6.000	ACO	15 Summer	100	+20%	1/15 Summer				47.157	0.594
7.000	ACO	15 Summer	100	+20%	30/15 Summer				46.880	0.117
1.006	S6	600 Winter	100	+20%	100/15 Summer				45.564	0.434
8.000	ACO	15 Summer	100	+20%	30/15 Summer				46.844	0.419
8.001	S7	15 Summer	100	+20%	30/15 Summer				46.440	0.185
1.007	S8	600 Winter	100	+20%	30/15 Summer				45.562	0.557
9.000	ACO	15 Summer	100	+20%	100/15 Summer				47.467	0.232
9.001	S9	15 Summer	100	+20%	100/15 Summer				47.410	0.245
10.000	ACO	15 Summer	100	+20%	100/15 Summer				47.396	0.126
9.002	S10	15 Summer	100	+20%	100/15 Summer				47.381	0.331
11.000	ACO	15 Summer	100	+20%	100/15 Summer				47.581	0.131
11.001	S11	15 Summer	100	+20%	30/15 Summer				47.585	0.205
9.003	S12	15 Summer	100	+20%	30/15 Summer				47.298	0.478
12.000	ACO	15 Summer	100	+20%	30/15 Summer				48.150	0.505

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	ACO	0.000	1.52			24.6	FLOOD RISK	
1.001	S1	0.000	0.55			26.2	FLOOD RISK	
2.000	ACO	0.000	1.67			46.5	FLOOD RISK	
1.002	S2	0.000	1.23			47.5	FLOOD RISK	
3.000	ACO	0.000	0.11			0.9	SURCHARGED	
3.001	ACO	0.000	2.46			25.4	SURCHARGED	
1.003	S3	0.000	1.67			57.4	SURCHARGED	
4.000	Swale	0.000	0.05			44.0	OK	
4.001	Sw1	0.000	1.94			21.0	SURCHARGED*	
1.004	S4	0.000	0.22			15.3	SURCHARGED	
5.000	Swale	0.000	0.02			19.9	OK	
5.001	Sw2	0.000	1.19			15.3	SURCHARGED*	
1.005	S5	0.000	0.15			17.2	SURCHARGED	
6.000	ACO	0.000	4.94			21.7	FLOOD RISK	
7.000	ACO	0.000	3.35			42.7	SURCHARGED	
1.006	S6	0.000	0.23			23.3	SURCHARGED	
8.000	ACO	0.000	1.55			25.7	SURCHARGED	
8.001	S7	0.000	1.56			25.1	SURCHARGED	
1.007	S8	0.000	0.36			28.0	SURCHARGED	
9.000	ACO	0.000	1.27			29.0	SURCHARGED	
9.001	S9	0.000	0.49			22.1	SURCHARGED	
10.000	ACO	0.000	0.56			8.7	SURCHARGED	
9.002	S10	0.000	0.73			27.7	SURCHARGED	
11.000	ACO	0.000	0.17			1.5	SURCHARGED	
11.001	S11	0.000	2.71			29.4	SURCHARGED	
9.003	S12	0.000	1.39			53.1	SURCHARGED	
12.000	ACO	0.000	2.60			19.3	FLOOD RISK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
12.001	S13	15 Summer	100	+20%	30/15 Summer				47.651	0.076
9.004	S14	15 Summer	100	+20%	30/15 Summer				46.784	0.224
13.000	S15	15 Winter	100	+20%	100/15 Winter				46.705	0.005
13.001	S16	15 Winter	100	+20%	100/15 Summer				46.699	0.454
13.002	S17	15 Winter	100	+20%	100/15 Summer				46.691	0.506
14.000	ACO	15 Winter	100	+20%	100/15 Summer				46.652	0.542
13.003	S18	15 Winter	100	+20%	30/15 Summer				46.636	0.711
15.000	ACO	15 Summer	100	+20%	100/15 Summer				47.088	0.063
15.001	Tank	15 Summer	100	+20%	100/15 Summer				47.003	0.003
15.002	Valve	15 Summer	100	+20%					46.758	-0.172
13.004	S19	15 Summer	100	+20%	30/15 Summer				46.607	0.752
16.000	ACO	15 Summer	100	+20%	30/15 Summer				47.867	0.542
13.005	S20	15 Summer	100	+20%	30/15 Summer				46.555	0.835
13.006	S21	15 Summer	100	+20%	30/15 Summer				46.468	0.828
17.000	ACO	15 Summer	100	+20%	30/15 Summer				47.430	0.100
17.001	S22	30 Summer	100	+20%	100/15 Summer				46.800	0.070
18.000	Porus CP	15 Summer	100	+20%	30/15 Summer				47.335	0.480
17.002	S23	15 Summer	100	+20%	30/15 Summer				46.950	0.305
19.000	ACO	15 Summer	100	+20%	30/15 Summer				47.278	0.598
19.001	S24	30 Summer	100	+20%	100/15 Summer				46.740	0.150
13.007	S25	15 Summer	100	+20%	30/15 Summer				46.342	0.812
9.005	S26	15 Summer	100	+20%	30/15 Summer				46.109	0.604
9.006	S27	15 Summer	100	+20%	30/15 Summer				45.775	0.285
20.000	Dummy	15 Summer	100	+20%					52.400	-0.225
20.001	SDP	15 Summer	100	+20%					52.375	-0.075
21.000	Dummy	15 Summer	100	+20%					52.400	-0.225
21.001	SDP	15 Summer	100	+20%					52.364	-0.161
20.002	S28	15 Summer	100	+20%	100/15 Summer				46.471	0.371
22.000	S29	15 Summer	100	+20%					46.988	-0.062
20.003	S30	15 Summer	100	+20%	100/15 Summer				46.336	0.356
20.004	S31	15 Summer	100	+20%	100/15 Summer				46.182	0.307
20.005	S32	15 Summer	100	+20%	100/15 Summer				45.694	0.219
23.000	Dummy	15 Summer	100	+20%					52.325	-0.150
23.001	SDP	15 Summer	100	+20%					52.316	-0.134
20.006	S33	600 Winter	100	+20%	100/15 Summer				45.566	0.291
24.000	Dummy	15 Summer	100	+20%					52.332	-0.218
24.001	SDP	15 Summer	100	+20%					52.332	-0.118
20.007	S34	600 Winter	100	+20%	100/15 Summer				45.564	0.639
25.000	Dummy	15 Summer	100	+20%					52.505	-0.120
25.001	SDP	15 Summer	100	+20%					52.513	-0.087
20.008	S35	600 Winter	100	+20%	30/240 Winter				45.563	0.713
26.000	Dummy	15 Summer	100	+20%					52.350	-0.125
26.001	SDP	15 Summer	100	+20%					52.357	-0.093
26.002	S36	15 Summer	100	+20%	100/15 Summer				46.252	0.152
27.000	Dummy	15 Summer	100	+20%					52.400	-0.100
27.001	SDP	15 Summer	100	+20%					52.376	-0.099
26.003	S37	15 Summer	100	+20%	100/15 Summer				46.206	0.226
28.000	Dummy	15 Summer	100	+20%					52.325	-0.100
28.001	SDP	15 Summer	100	+20%					52.275	-0.125
28.002	S38	15 Summer	100	+20%	30/15 Summer				46.565	0.515
29.000	Dummy	15 Summer	100	+20%					52.400	-0.100
29.001	SDP	15 Summer	100	+20%					52.276	-0.199
28.003	S39	15 Summer	100	+20%	30/15 Summer				46.273	0.308
28.004	S40	15 Summer	100	+20%	30/15 Summer				46.173	0.238
30.000	Dummy	15 Summer	100	+20%					52.325	-0.100
30.001	SDP	15 Summer	100	+20%					52.206	-0.194
26.004	S41	15 Summer	100	+20%	30/15 Summer				46.066	0.216

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
12.001	S13	0.000	1.80			19.5	SURCHARGED	
9.004	S14	0.000	2.05			71.2	SURCHARGED	
13.000	S15	0.000	0.27			15.7	SURCHARGED	
13.001	S16	0.000	0.31			19.0	SURCHARGED	
13.002	S17	0.000	0.65			51.9	SURCHARGED	
14.000	ACO	0.000	1.04			111.5	SURCHARGED	
13.003	S18	0.000	0.63			138.8	SURCHARGED	
15.000	ACO	0.000	1.23			73.0	SURCHARGED	
15.001	Tank	0.000	1.09			72.5	SURCHARGED	
15.002	Valve	0.000	0.37			71.1	OK	
13.004	S19	0.000	0.73			172.9	SURCHARGED	
16.000	ACO	0.000	3.69			102.9	FLOOD RISK	
13.005	S20	0.000	1.18			260.3	SURCHARGED	
13.006	S21	0.000	1.10			253.2	SURCHARGED	
17.000	ACO	0.000	1.77			13.2	FLOOD RISK	
17.001	S22	0.000	1.33		12	20.7	SURCHARGED	
18.000	Porus CP	0.000	1.66			84.4	FLOOD RISK	
17.002	S23	0.000	1.61			60.4	SURCHARGED	
19.000	ACO	0.000	2.47			56.6	FLOOD RISK	
19.001	S24	0.000	1.33			63.1	SURCHARGED	
13.007	S25	0.000	2.46			365.5	SURCHARGED	
9.005	S26	0.000	2.77			439.5	SURCHARGED	
9.006	S27	0.000	2.74			440.4	SURCHARGED	
20.000	Dummy	0.000	0.00			0.0	OK	
20.001	SDP	0.000	0.50			48.3	FLOOD RISK	
21.000	Dummy	0.000	0.00			0.0	OK	
21.001	SDP	0.000	0.18			47.2	FLOOD RISK	
20.002	S28	0.000	1.24			92.1	SURCHARGED	
22.000	S29	0.000	0.65			10.9	OK	
20.003	S30	0.000	1.33			97.3	SURCHARGED	
20.004	S31	0.000	1.09			88.6	SURCHARGED	
20.005	S32	0.000	1.19			93.7	SURCHARGED	
23.000	Dummy	0.000	0.00			0.0	OK	
23.001	SDP	0.000	0.34			121.3	OK	
20.006	S33	0.000	0.17			20.8	SURCHARGED	
24.000	Dummy	0.000	0.01			0.5	OK	
24.001	SDP	0.000	0.46			164.5	OK	
20.007	S34	0.000	0.19			34.8	SURCHARGED	
25.000	Dummy	0.000	0.02			0.2	FLOOD RISK	
25.001	SDP	0.000	0.37			37.3	FLOOD RISK	
20.008	S35	0.000	0.18			37.0	SURCHARGED	
26.000	Dummy	0.000	0.02			0.1	FLOOD RISK	
26.001	SDP	0.000	0.31			43.0	FLOOD RISK	
26.002	S36	0.000	0.55			39.6	SURCHARGED	
27.000	Dummy	0.000	0.00			0.0	OK	
27.001	SDP	0.000	0.25			28.2	FLOOD RISK	
26.003	S37	0.000	0.99			64.5	SURCHARGED	
28.000	Dummy	0.000	0.00			0.0	OK	
28.001	SDP	0.000	0.41			116.7	OK	
28.002	S38	0.000	1.80			112.0	SURCHARGED	
29.000	Dummy	0.000	0.00			0.0	OK	
29.001	SDP	0.000	0.03			10.9	OK	
28.003	S39	0.000	1.52			120.6	SURCHARGED	
28.004	S40	0.000	1.27			120.4	SURCHARGED	
30.000	Dummy	0.000	0.00			0.0	OK	
30.001	SDP	0.000	0.05			16.7	OK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
26.004	S41	0.000	2.54			198.4	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.008	Attenuation	600 Winter	100	+20%	30/15 Winter				45.561	1.161

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.008	Attenuation	0.000	0.05			14.9	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 20.000	Cv (Summer) 0.793
Region	England and Wales	Ratio R 0.350	Cv (Winter) 0.837

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	ACO	15 Winter	100	+40%	100/15 Summer	100/15 Summer			47.356	0.831
1.001	S1	15 Summer	100	+40%	100/15 Summer				47.346	0.941
2.000	ACO	15 Summer	100	+40%	100/15 Summer				47.399	0.666
1.002	S2	15 Summer	100	+40%	100/15 Summer				47.339	1.144
3.000	ACO	15 Winter	100	+40%	100/15 Summer				46.959	0.284
3.001	ACO	15 Summer	100	+40%	100/15 Summer				47.005	0.470
1.003	S3	15 Summer	100	+40%	100/15 Summer				46.889	1.129
4.000	Swale	15 Summer	100	+40%					46.952	-0.373
4.001	Sw1	30 Summer	100	+40%	100/15 Summer				46.924	0.099
1.004	S4	720 Winter	100	+40%	100/15 Summer				46.850	1.500
5.000	Swale	15 Summer	100	+40%					47.023	-0.352
5.001	Sw2	15 Summer	100	+40%	100/15 Summer				47.020	0.035
1.005	S5	720 Winter	100	+40%	100/15 Summer				46.860	1.620
6.000	ACO	15 Summer	100	+40%	100/15 Summer				47.335	0.772
7.000	ACO	15 Summer	100	+40%	100/15 Summer				46.935	0.172
1.006	S6	720 Winter	100	+40%	100/15 Summer				46.858	1.728
8.000	ACO	15 Summer	100	+40%	100/15 Summer				47.055	0.630
8.001	S7	720 Winter	100	+40%	100/15 Summer				46.840	0.585
1.007	S8	720 Winter	100	+40%	100/15 Summer				46.853	1.847
9.000	ACO	15 Summer	100	+40%	100/15 Summer				47.707	0.472
9.001	S9	15 Summer	100	+40%	100/15 Summer				47.626	0.461
10.000	ACO	15 Summer	100	+40%	100/15 Summer				47.614	0.344
9.002	S10	15 Summer	100	+40%	100/15 Summer				47.593	0.543
11.000	ACO	15 Summer	100	+40%	100/15 Summer				47.660	0.210
11.001	S11	15 Summer	100	+40%	100/15 Summer				47.671	0.291
9.003	S12	15 Summer	100	+40%	100/15 Summer				47.483	0.663
12.000	ACO	15 Summer	100	+40%	100/15 Summer				48.315	0.670

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	ACO	6.266	1.98			32.2	FLOOD	4
1.001	S1	0.000	0.66			31.5	FLOOD RISK	
2.000	ACO	0.000	1.71			47.8	FLOOD RISK	
1.002	S2	0.000	1.27			49.1	FLOOD RISK	
3.000	ACO	0.000	0.19			1.5	SURCHARGED	
3.001	ACO	0.000	2.73			28.2	SURCHARGED	
1.003	S3	0.000	1.70			58.4	SURCHARGED	
4.000	Swale	0.000	0.05			51.3	OK	
4.001	Sw1	0.000	2.13			23.1	SURCHARGED*	
1.004	S4	0.000	0.23			15.5	SURCHARGED	
5.000	Swale	0.000	0.03			23.1	OK	
5.001	Sw2	0.000	1.39			17.8	SURCHARGED*	
1.005	S5	0.000	0.15			17.2	SURCHARGED	
6.000	ACO	0.000	5.62			24.7	FLOOD RISK	
7.000	ACO	0.000	3.88			49.6	SURCHARGED	
1.006	S6	0.000	0.22			22.6	SURCHARGED	
8.000	ACO	0.000	1.76			29.1	FLOOD RISK	
8.001	S7	0.000	0.18			2.8	SURCHARGED	
1.007	S8	0.000	0.34			26.6	SURCHARGED	
9.000	ACO	0.000	1.31			29.9	FLOOD RISK	
9.001	S9	0.000	0.51			23.0	FLOOD RISK	
10.000	ACO	0.000	0.65			10.2	SURCHARGED	
9.002	S10	0.000	0.77			29.3	SURCHARGED	
11.000	ACO	0.000	0.23			2.2	SURCHARGED	
11.001	S11	0.000	3.12			33.8	SURCHARGED	
9.003	S12	0.000	1.53			58.1	SURCHARGED	
12.000	ACO	0.000	2.95			21.9	FLOOD RISK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
12.001	S13	15 Summer	100	+40%	100/15 Summer				47.677	0.102
9.004	S14	15 Summer	100	+40%	100/15 Summer				46.851	0.291
13.000	S15	15 Winter	100	+40%	100/15 Summer				47.031	0.331
13.001	S16	15 Winter	100	+40%	100/15 Summer				47.024	0.779
13.002	S17	15 Winter	100	+40%	100/15 Summer				47.015	0.830
14.000	ACO	15 Winter	100	+40%	100/15 Summer				46.962	0.852
13.003	S18	15 Winter	100	+40%	100/15 Summer				46.939	1.014
15.000	ACO	15 Summer	100	+40%	100/15 Summer				47.150	0.125
15.001	Tank	15 Summer	100	+40%	100/15 Summer				47.032	0.032
15.002	Valve	15 Summer	100	+40%	100/15 Summer				46.952	0.022
13.004	S19	15 Winter	100	+40%	100/15 Summer				46.905	1.050
16.000	ACO	15 Summer	100	+40%	100/15 Summer				48.056	0.731
13.005	S20	720 Winter	100	+40%	100/15 Summer				46.865	1.145
13.006	S21	720 Winter	100	+40%	100/15 Summer				46.856	1.216
17.000	ACO	15 Summer	100	+40%	100/15 Summer				47.482	0.152
17.001	S22	30 Winter	100	+40%	100/15 Summer				46.835	0.105
18.000	Porus CP	15 Summer	100	+40%	100/15 Summer				47.562	0.707
17.002	S23	15 Summer	100	+40%	100/15 Summer				47.066	0.421
19.000	ACO	15 Summer	100	+40%	100/15 Summer	100/15 Summer			47.283	0.603
19.001	S24	720 Winter	100	+40%	100/15 Summer				46.845	0.255
13.007	S25	720 Winter	100	+40%	100/15 Summer				46.853	1.323
9.005	S26	720 Winter	100	+40%	100/15 Summer				46.853	1.348
9.006	S27	720 Winter	100	+40%	100/15 Summer				46.853	1.363
20.000	Dummy	15 Summer	100	+40%					52.400	-0.225
20.001	SDP	15 Summer	100	+40%					52.382	-0.068
21.000	Dummy	15 Summer	100	+40%					52.400	-0.225
21.001	SDP	15 Summer	100	+40%					52.369	-0.156
20.002	S28	15 Summer	100	+40%	100/15 Summer				47.050	0.950
22.000	S29	15 Summer	100	+40%					46.998	-0.052
20.003	S30	15 Summer	100	+40%	100/15 Summer				46.877	0.897
20.004	S31	720 Winter	100	+40%	100/15 Summer				46.838	0.963
20.005	S32	720 Winter	100	+40%	100/15 Summer				46.872	1.397
23.000	Dummy	15 Summer	100	+40%					52.325	-0.150
23.001	SDP	15 Summer	100	+40%					52.323	-0.127
20.006	S33	720 Winter	100	+40%	100/15 Summer				46.871	1.596
24.000	Dummy	15 Summer	100	+40%					52.343	-0.207
24.001	SDP	15 Summer	100	+40%					52.343	-0.107
20.007	S34	720 Winter	100	+40%	100/15 Summer				46.863	1.938
25.000	Dummy	15 Summer	100	+40%					52.511	-0.114
25.001	SDP	15 Summer	100	+40%					52.518	-0.082
20.008	S35	720 Winter	100	+40%	100/15 Summer				46.859	2.009
26.000	Dummy	15 Summer	100	+40%					52.356	-0.119
26.001	SDP	15 Summer	100	+40%					52.363	-0.087
26.002	S36	720 Winter	100	+40%	100/15 Summer				46.855	0.755
27.000	Dummy	15 Summer	100	+40%					52.400	-0.100
27.001	SDP	15 Summer	100	+40%					52.380	-0.095
26.003	S37	720 Winter	100	+40%	100/15 Summer				46.859	0.879
28.000	Dummy	15 Summer	100	+40%					52.325	-0.100
28.001	SDP	15 Summer	100	+40%					52.284	-0.116
28.002	S38	720 Winter	100	+40%	100/15 Summer				46.852	0.802
29.000	Dummy	15 Summer	100	+40%					52.400	-0.100
29.001	SDP	15 Summer	100	+40%					52.277	-0.198
28.003	S39	720 Winter	100	+40%	100/15 Summer				46.857	0.892
28.004	S40	720 Winter	100	+40%	100/15 Summer				46.860	0.925
30.000	Dummy	15 Summer	100	+40%					52.325	-0.100
30.001	SDP	15 Summer	100	+40%					52.209	-0.191
26.004	S41	720 Winter	100	+40%	100/15 Summer				46.854	1.004

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
12.001	S13	0.000	2.03			22.1	SURCHARGED	
9.004	S14	0.000	2.30			79.9	SURCHARGED	
13.000	S15	0.000	0.30			17.6	SURCHARGED	
13.001	S16	0.000	0.35			20.9	SURCHARGED	
13.002	S17	0.000	0.73			57.9	SURCHARGED	
14.000	ACO	0.000	1.23			131.9	SURCHARGED	
13.003	S18	0.000	0.62			137.7	SURCHARGED	
15.000	ACO	0.000	1.44			85.4	SURCHARGED	
15.001	Tank	0.000	1.28			84.9	SURCHARGED	
15.002	Valve	0.000	0.44			84.2	SURCHARGED	
13.004	S19	0.000	0.81			192.8	SURCHARGED	
16.000	ACO	0.000	4.27			119.0	FLOOD RISK	
13.005	S20	0.000	0.16			34.9	SURCHARGED	
13.006	S21	0.000	0.15			34.9	SURCHARGED	
17.000	ACO	0.000	2.05			15.2	FLOOD RISK	
17.001	S22	0.000	1.44		14	22.4	SURCHARGED	
18.000	Porus CP	0.000	1.90			96.5	FLOOD RISK	
17.002	S23	0.000	1.78			66.8	SURCHARGED	
19.000	ACO	3.016	2.47			56.5	FLOOD	3
19.001	S24	0.000	0.17			8.0	SURCHARGED	
13.007	S25	0.000	0.37			55.5	SURCHARGED	
9.005	S26	0.000	0.41			65.4	SURCHARGED	
9.006	S27	0.000	0.41			65.4	SURCHARGED	
20.000	Dummy	0.000	0.00			0.0	OK	
20.001	SDP	0.000	0.58			56.4	FLOOD RISK	
21.000	Dummy	0.000	0.00			0.0	OK	
21.001	SDP	0.000	0.21			55.0	FLOOD RISK	
20.002	S28	0.000	1.38			102.3	SURCHARGED	
22.000	S29	0.000	0.76			12.7	OK	
20.003	S30	0.000	1.45			106.6	SURCHARGED	
20.004	S31	0.000	0.12			9.8	SURCHARGED	
20.005	S32	0.000	0.13			9.8	SURCHARGED	
23.000	Dummy	0.000	0.00			0.0	OK	
23.001	SDP	0.000	0.40			141.5	OK	
20.006	S33	0.000	0.17			20.9	SURCHARGED	
24.000	Dummy	0.000	0.02			0.6	OK	
24.001	SDP	0.000	0.54			192.0	OK	
20.007	S34	0.000	0.19			34.7	SURCHARGED	
25.000	Dummy	0.000	0.03			0.2	FLOOD RISK	
25.001	SDP	0.000	0.43			43.5	FLOOD RISK	
20.008	S35	0.000	0.18			36.9	SURCHARGED	
26.000	Dummy	0.000	0.02			0.1	FLOOD RISK	
26.001	SDP	0.000	0.37			50.2	FLOOD RISK	
26.002	S36	0.000	0.06			4.0	SURCHARGED	
27.000	Dummy	0.000	0.00			0.0	OK	
27.001	SDP	0.000	0.29			32.9	FLOOD RISK	
26.003	S37	0.000	0.10			6.6	SURCHARGED	
28.000	Dummy	0.000	0.00			0.0	OK	
28.001	SDP	0.000	0.48			136.2	OK	
28.002	S38	0.000	0.17			10.8	SURCHARGED	
29.000	Dummy	0.000	0.00			0.0	OK	
29.001	SDP	0.000	0.04			12.7	OK	
28.003	S39	0.000	0.15			11.8	SURCHARGED	
28.004	S40	0.000	0.12			11.8	SURCHARGED	
30.000	Dummy	0.000	0.00			0.0	OK	
30.001	SDP	0.000	0.05			19.5	OK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
26.004	S41	0.000	0.25			19.9	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.008	Attenuation	720 Winter	100	+40%	100/15 Summer				46.852	2.452

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.008	Attenuation	0.000	0.05			14.9	SURCHARGED	

FOUL SEWERAGE DESIGN

Design Criteria for Foul - Unit

Pipe Sizes STANDARD Manhole Sizes STANDARD

Industrial Flow (l/s/ha)	0.00	Add Flow / Climate Change (%)	0
Industrial Peak Flow Factor	0.00	Minimum Backdrop Height (m)	0.200
Calculation Method	EN 752	Maximum Backdrop Height (m)	20.000
Frequency Factor	0.00	Min Design Depth for Optimisation (m)	1.200
Domestic (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Domestic Peak Flow Factor	6.00	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Foul - Unit

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Units	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	8.233	0.446	18.5	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.001	14.576	0.108	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.002	50.759	0.376	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.003	53.299	0.395	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
2.000	10.110	0.253	40.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
2.001	10.518	0.078	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
3.000	7.626	0.191	39.9	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
2.002	18.457	0.137	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.004	21.077	0.156	135.1	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
4.000	18.118	0.226	80.2	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.005	6.179	0.046	134.3	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Units	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	46.220	0.000	0.0	0.0	0.0	0	0.00	2.36	41.6	0.0
1.001	45.774	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
1.002	45.666	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
1.003	45.290	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
2.000	46.600	0.000	0.0	0.0	0.0	0	0.00	1.60	28.2	0.0
2.001	46.347	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
3.000	46.600	0.000	0.0	0.0	0.0	0	0.00	1.60	28.2	0.0
2.002	46.269	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
1.004	44.895	0.000	0.0	0.0	0.0	0	0.00	0.86	15.2	0.0
4.000	46.600	0.000	0.0	0.0	0.0	0	0.00	1.12	19.9	0.0
1.005	44.739	0.000	0.0	0.0	0.0	0	0.00	0.87	15.3	0.0

Network Design Table for Foul - Unit

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Units	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
5.000	18.137	0.227	79.9	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.006	29.034	0.215	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
6.000	33.774	0.422	80.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.007	9.674	0.072	135.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
7.000	11.831	0.148	80.0	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.008	17.438	0.129	135.2	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.009	6.400	0.047	136.2	0.000	0.0	0.0	0.600	o	150	Pipe/Conduit	
1.010	4.535	0.034	133.4	0.000	0.0	0.0	46.220	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	Σ Area (ha)	Σ Base Flow (l/s)	Σ Units	Add Flow (l/s)	P.Dep (mm)	P.Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
5.000	46.600	0.000	0.0	0.0	0.0	0	0.00	1.13	19.9	0.0
1.006	44.693	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
6.000	46.915	0.000	0.0	0.0	0.0	0	0.00	1.12	19.9	0.0
1.007	44.478	0.000	0.0	0.0	0.0	0	0.00	0.86	15.3	0.0
7.000	46.600	0.000	0.0	0.0	0.0	0	0.00	1.12	19.9	0.0
1.008	44.406	0.000	0.0	0.0	0.0	0	0.00	0.86	15.2	0.0
1.009	44.277	0.000	0.0	0.0	0.0	0	0.00	0.86	15.2	0.0
1.010	44.230	0.000	0.0	0.0	0.0	0	0.00	0.32	5.7	0.0

Free Flowing Outfall Details for Foul - Unit

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.010		47.930	44.196	0.000	0	0

Simulation Criteria for Foul - Unit

Volumetric Runoff Coeff	0.837	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Region England and Wales
Return Period (years) 2 M5-60 (mm) 20.000

Synthetic Rainfall Details

Ratio R	0.350	Cv (Winter)	0.837
Profile Type	Winter	Storm Duration (mins)	30
Cv (Summer)	0.837		