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Development • Planning • Environment

STOKES LANE SOLAR FARM
LAND NORTH AND SOUTH OF ROOKERY FARM LANE, MONK SHERBORNE, HAMPSHIRE

FLOOD RISK AND DRAINAGE ASSESSMENT

Final Report v1.0
July 2026

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List of Abbreviations

AEP	Annual Exceedance Probability	GSPZ	Groundwater Source Protection Zone
AOD	Above Ordnance Datum	ha	Hectare
ASGWF	Areas Susceptible to Groundwater Flooding	IDB	Internal Drainage Board
bgl	Below Ground Level	km	Kilometres
BGS	British Geological Survey	LFRMS	Local Flood Risk Management Strategy
BRE	Building Research Establishment	LiDAR	Light Detection and Ranging
BSI	British Standards Institute	LLFA	Lead Local Flood Authority
CC	Climate Change	LPA	Local Planning Authority
CCMA	Coastal Change Management Area	l/s	Litres per Second
CDA	Critical Drainage Area	m	Metres
CFMP	Catchment Flood Management Plan	m^2	Square Metres
CIRIA	Construction Industry Research and Information Association	m^3	Cubic Metres
		NFM	Natural Flood Management
CRT	Canal and River Trust	NGR	National Grid Reference
DEFRA	Department for Environment, Food and Rural Affairs	NPPF	National Planning Policy Framework
		NVZ	Nitrate Vulnerable Zone
EA	Environment Agency	OS	Ordnance Survey
FCERM	Flood and Coastal Erosion Risk Management	PFRA	Preliminary Flood Risk Assessment
		PPG	Planning Practice Guidance
FEH	Flood Estimation Handbook	QBAR	Mean Annual Maximum Flow Rate
FFL	Finished Floor Level	QMED	Median Annual Maximum Flow Rate
FMfP	Flood Map for Planning	RBD	River Basin District
FMP	Flood Management Plan	RBMP	River Basin Management Plan
FRA	Flood Risk Assessment	RFI	Request for Information (to the EA)
FRDA	Flood Risk and Drainage Assessment	RMA	Risk Management Authority
FRDSA	Flood Risk, Drainage and Sequential Assessment	RoFSW	Risk of Flooding from Surface Water
		SAC	Special Area of Conservation
FRMP	Flood Risk Management Plan	SFRA	Strategic Flood Risk Assessment
FRSA	Flood Risk and Sequential Assessment	SMP	Shoreline Management Plan
FRSSA	Flood Risk Sequential Site Assessment	SoP	Standard of Protection
FWA	Flood Warning Area	SSSI	Site of Special Scientific Interest
FWEP	Flood Warning and Evacuation Plan	SuDS	Sustainable Drainage System
FWMA	Flood and Water Management Act	SWMP	Surface Water Management Plan
FWS	Flood Warning System	WFD	Water Framework Directive

1 INTRODUCTION

1.1 Purpose of Report

Weetwood Services Ltd ('Weetwood') has been instructed by Recurrent Energy on behalf of Stokes Lane Solar Farm Limited ("the Applicant") to prepare a FRDA report to accompany a full planning application for the Proposed Development of land north and south of Rookery Farm Lane, Monk Sherborne, Hampshire ("the Site") for use as a solar farm.

The assessment has been undertaken in accordance with the requirements of the NPPF and PPG.

1.2 Structure of the Report

The report is structured as follows:

Section 1 Introduction and report structure
Section 2 Provides background information relating to the development site
Section 3 Presents national and local flood risk and drainage planning policy
Section 4 Assesses the potential risk of flooding to the development site
Section 5 Presents an illustrative foul water drainage scheme
Section 6 Presents an illustrative surface water drainage scheme
Section 7 Presents a summary of key findings and the recommendations

1.3 Relevant Documents and Planning Policy

The assessment has been informed by the following documents, policy and information:

- Planning Practice Guidance Section 7 - Flood Risk and Coastal Change, Ministry of Housing, Communities and Local Government, Updated on 17 September 2025, https://www.gov.uk/ guidance/flood-risk-and-coastal-change;
- Preparing a Flood Risk Assessment - Standing Advice, EA, Updated 27 August 2025, https://www.gov.uk /guidance/flood-risk-assessment-standing-advice;
- National Standards for Sustainable Drainage Systems, DEFRA, Updated 30 July 2025, https://www.gov.uk/government/publications/national-standards-for-sustainable-drainagesystems/ national-standards-for-sustainable-drainage-systems-suds;
- National Planning Policy Framework, Ministry of Housing, Communities and Local Government, Updated 7 February 2025, https://www.gov.uk/ government/publications/national-planning-policy-framework--2;
- Using Modelling for Flood Risk Assessments, EA, 12 December 2023, https://www.gov.uk/guidance/ using-modelling-for-flood-risk-assessments#when-to-consider-using-modelling;
- Flood Estimation Guidelines, Version 09, EA, December 2022, https://www.gov.uk/government /publications/ flood-estimation-guidelines;
- Flood Risk Assessments - Climate Change Allowances, Government, Updated 27 May 2022, https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances;
- Strategic Flood Risk Assessment, Basingstoke and Deane Borough Council, July 2021;
- BRE Digest 365 Soakaway Design, BRE, February 2016;
- Basingstoke and Deane Local Plan 2011 - 2029, Basingstoke and Deane Borough Council, May 2016;
- The SuDS Manual (C753), CIRIA, December 2015;
- Rainfall Runoff Management for Developments (Ref. SC030219), DEFRA/EA, October 2013;
- Preliminary Flood Risk Assessment, Hampshire County Council, April 2011;
- Soilscapes, Soil and AgriFood Institute, Cranfield University, www.landis.org.uk/soilscapes;
- National Geoscience Data Centre's Single Onshore Borehole Index, https://www.bgs.ac.uk/products /onshore/SOBI.html;
- BGS Mapping of Surface Geology, https://www.bgs.ac.uk/map-viewers/geoindex-onshore/; and
- MAGIC, Natural England, https://magic.defra.gov.uk/MagicMap.html

1.4 Third Party Surveys, Drawings and Assessments

The assessment has been informed by the following third party surveys, drawings and assessments:

- Site Layout, Solar2, Ref. 110-016L-260410, May 2026 (**Appendix A**); and
- BRE 365 Soakage Testing, IBEX Consulting Engineers Limited - Testing undertaken in October 2025 (**Appendix B**).

1.5 Explanatory Note on Flood Probability

This report refers to the likelihood of a flood event occurring in terms of an AEP expressed as a percentage. This terminology is consistent with the definition of flood zones presented in Table 1 of the PPG (refer to **Section 4.2** of this report).

The AEP is the reciprocal of the return period which describes the rarity of an event in terms of its statistical reoccurrence interval in years. For example, a '1 in 30 year event has a 1/30 = 0.033 (3.3%) probability of occurring in any one year, whilst a '1 in 100 year event' has a 1/100 = 0.010 (1.0%) probability of occurring in any one year.

AEP	AEP (expressed as a %)	Return Period (years)	Alternative Expression
1.000	100.0%	1	1 in 1
0.500	50.0%	2	1 in 2
0.100	10.0%	10	1 in 10
0.050	5.0%	20	1 in 20
0.033	3.3%	30	1 in 30
0.020	2.0%	50	1 in 50
0.010	1.0%	100	1 in 100
0.005	0.5%	200	1 in 200
0.001	0.1%	1,000	1 in 1,000

2 SITE DETAILS AND PROPOSED DEVELOPMENT

2.1 Site Location

The approximately 87.5 ha greenfield site is located north and south of Rookery Farm Lane at OS NGR SU 608 551, as shown in **Figure 1**. The proposal includes a route for a buried cable between the Proposed Development and the grid connection located approximately 1.5 km to the north-east, to the south of Morganston Road, as illustrated in **Figure 1**

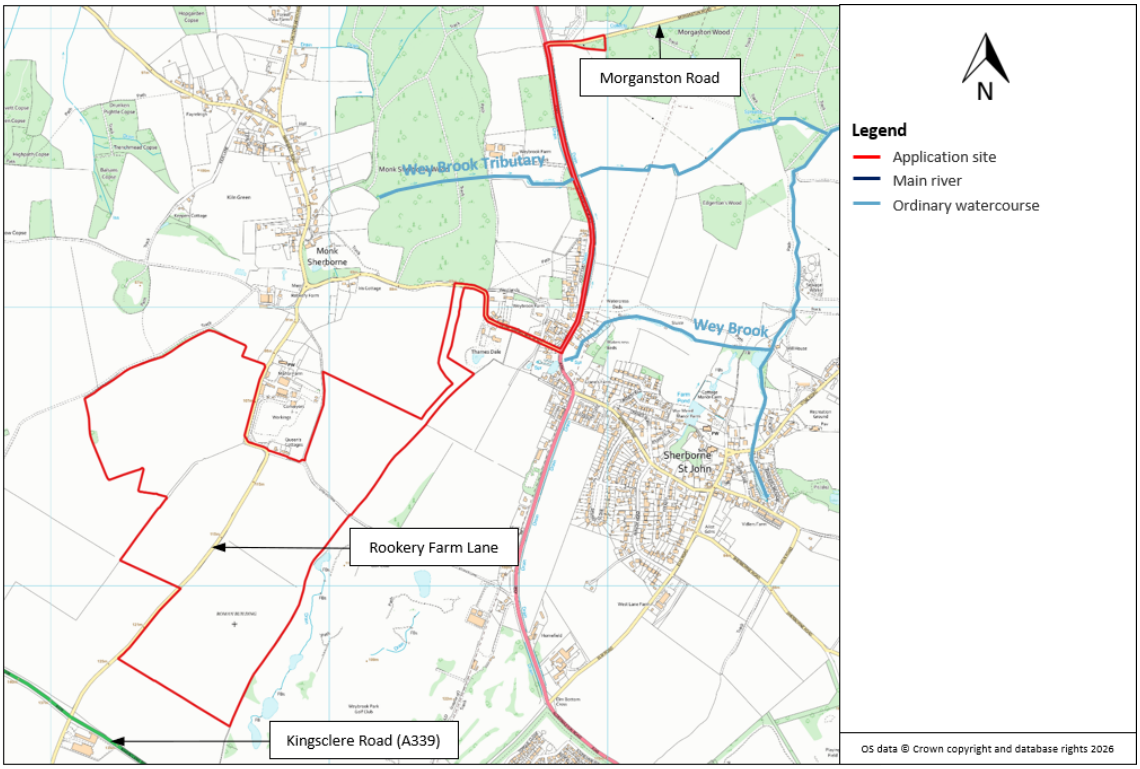


Figure 1: Site Location and Location of Surface Waterbodies

2.2 Proposed Development

The Proposed Development comprises a solar farm consisting of the following key elements: photovoltaic (PV) solar panels (up to 3.1 m high) and associated support frames and cabling; DNO station; customer substation; power stations; access tracks; security fencing; and landscaping across the Site. Vehicular access will be provided via Rookery Farm Lane, which bisects the Site with Kingsclere Road (A339) to the south.

The proposed site layout is provided in **Appendix A**.

The Proposed Development would be for 40 years after which the Site would be decommissioned and restored to its current use.

The NPPF classifies solar farms as Essential Infrastructure.

2.3 Surface Waterbodies in the Vicinity of the Site

Wey Brook issues approximately 30 m to the east/north-east of the Site. Flowing in an easterly/north-easterly direction, Wey Brook passes through "The Lake", an ornamental lake located in the grounds of The Vyne approximately 1.4 km to the east/north-east of the Site before ultimately outfalling to Bow Brook approximately 2.8 km to the north-east of the Site.

The proposed cable route is shown to cross a tributary of Wey Brook to the north of the Site, within the location of the existing Aldermaston Road crossing.

Wey Brook is classified as main river downstream of The Lake.

OS mapping indicates that a series of attenuation basins and interconnecting drainage ditches associated with Weybrook Park Golf Club are located to the east of the Site.

2.4 Topographic Levels

LiDAR data has been used to develop a digital terrain model of the Site and surrounding area as illustrated in **Figure 2**.

Site levels generally range between 89.5 - 126.7 m AOD, falling in a north-easterly direction and along the proposed cable route.

Ground levels on Rookery Farm Lane rise from 102.5 m AOD to the north of the Site to 133.0 m AOD at its junction with Kingsclere Road.

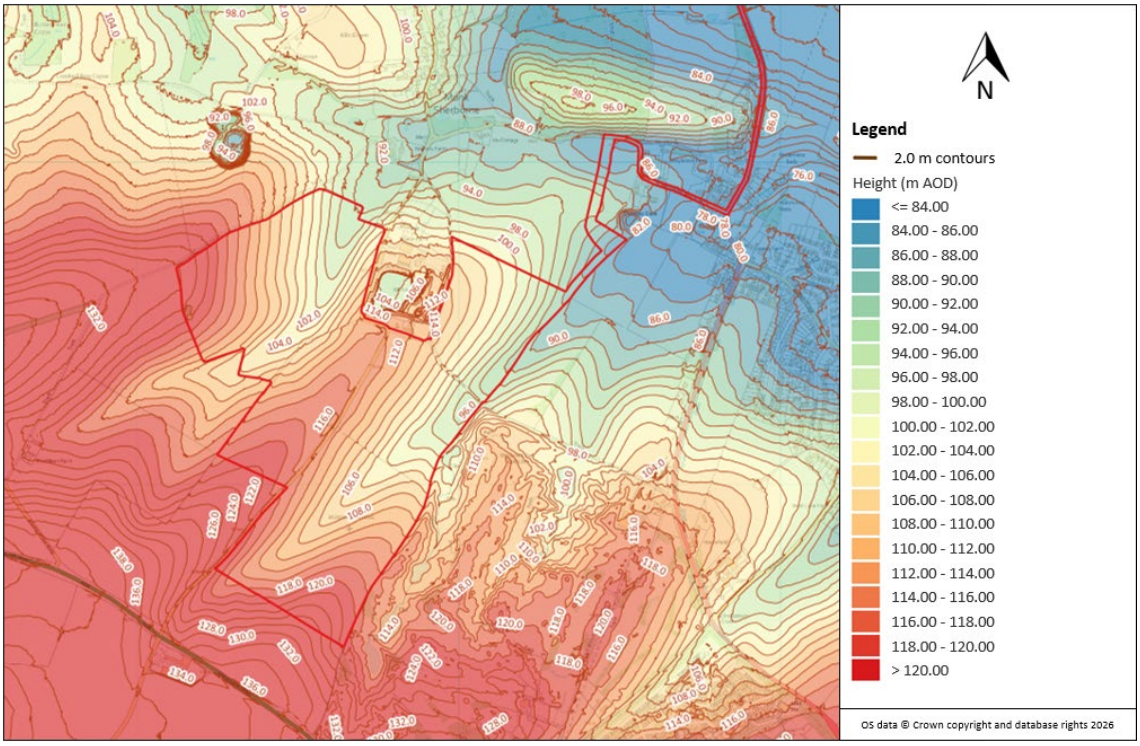


Figure 2: Digital Terrain Model from LiDAR Data

2.5 Ground Conditions

According to the Soilscapes soils dataset produced by the Cranfield Soil and AgriFood Institute, soil conditions at the Site and within the surrounding area are described as shallow lime-rich soils over chalk or limestone.

BGS mapping of surface geology indicates the underlying bedrock formation comprises Seaford Chalk Formation - Chalk. No superficial deposits recorded.

According to the MAGIC website the bedrock at the Site is classified as a Principal aquifer. The southern boundary of the Site is shown to be located at the extremity of a designated Zone III - Total Catchment GSPZ.

Infiltration testing to BRE365 guidelines was undertaken by IBEX Consulting Engineers Limited in October 2025 with ground conditions noted to comprise of topsoil overlying clay with Flints Formation overlying the Seaford Chalk Formation (**Appendix B**). Seven test locations were used across the Site with results varying from 3.2 x 10^{-6} m/s (0.0115 m/hr) to 7.3 x 10^{-5} m/s (0.2628 m/hr). Groundwater was not encountered within the trial pits during the investigation.

3 PLANNING POLICY AND GUIDANCE

3.1 National Planning Policy and Policy Guidance

The thrust of national planning policy, as articulated in the NPPF is that inappropriate development in areas at risk of flooding should be avoided where possible, as summarised below:

- Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere [NPPF para. 170];
- A sequential risk-based approach should be taken to individual applications in areas known to be at risk now or in the future from any form of flooding [NPPF para. 173]. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding [NPPF para. 174];
- The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific [FRA] demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk) [NPPF para. 175];
- Applications for some minor development and changes of use should also not be subject to the sequential, nor the exception test but should still meet the requirements for site-specific [FRAs] set out in footnote 63 [NPPF para. 176];
- Having applied the sequential test, if it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives) the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3 [NPPF para. 177]. For example, the exception test need not be applied for less vulnerable development in any flood zone, or for more vulnerable development in flood zones 1 or 2;
- Where the exception test must be applied, application of the test for development proposals at the application stage should be informed by a site-specific [FRA]. To pass the exception test it should be demonstrated that: a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall [NPPF para. 178]. Both elements of the test should be satisfied for the development to be permitted [NPPF para. 179];
- A site-specific [FRA] should be provided for all development in flood zones 2 and 3. In flood zone 1, an assessment should accompany all proposals involving: sites of 1 ha or more; land which has been identified by the [EA] as having critical drainage problems; land identified in a [SFRA] as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use [NPPF para. 181, footnote 63];
- Development should not increase flood risk elsewhere [NPPF para. 181];
- Development should only be allowed in areas at risk of flooding where the [FRA] (and the sequential and exception tests, as applicable), demonstrate that: a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location; b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; c) the development incorporates [SuDS], unless there is clear evidence that this would be inappropriate; d) any residual (flood) risk can be safely managed; and e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan [NPPF para. 181]; and
- Applications which could affect drainage on or around the site should incorporate SuDS to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. [SuDS] provided as part of proposals for major development should: a) take account of advice from the [LLFA]; b) have

appropriate proposed minimum operational standards; and c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development [NPPF para. 182].

Guidance on application of the sequential and exception test is provided in the PPG - Flood Risk and Coastal Change. For example:

- The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future [i.e. taking climate change into account] medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding [PPG para. 7-023];
- Where it is not possible to locate development in low-risk areas, the sequential test should go on to compare reasonably available sites within medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas (PPG para. 7-024);
- Initially, the presence of existing flood risk management infrastructure should be ignored, as the long-term funding, maintenance and renewal of this infrastructure is uncertain. Climate change will also impact upon the level of protection infrastructure will offer throughout the lifetime of development. The sequential test should then consider the spatial variation of risk within medium and then high flood risk areas to identify the lowest risk sites in these areas, ignoring the presence of flood risk management infrastructure (PPG para. 7-024);
- It may then be appropriate to consider the role of flood risk management infrastructure in the variation of risk within high and medium flood risk areas. In doing so, information such as flood depth, velocity, hazard and speed-of-onset in the event of flood risk management infrastructure exceedance and/or failure, should be considered as appropriate. Information on the probability of flood defence failure is unsuitable for planning purposes given the substantial uncertainties involved in such long-term predictions (PPG para. 7-024);
- The sequential test should be applied to 'Major' and 'Non-major' development proposed in areas at risk of flooding, as set out in para. 173 to 174 of the NPPF. Para. 175, 176 and 180 set out exemptions from the sequential test (PPG para. 7-027);
- In applying para. 175 a proportionate approach should be taken. Where a site-specific [FRA] demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by EA flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied (PPG para. 7-027);
- For individual planning applications subject to the sequential test, the area to which the test needs to be applied will be governed by local circumstances relating to the catchment area for the type of development proposed and the needs it is proposing to address. The catchment area should always be appropriate to the nature and scale of the proposal and the settlement it is proposed for. For some developments this may be clear, for example, the catchment area for a school. For a non-major housing development, it would not usually be appropriate for the area of search to extend beyond the specific area of a town or city in which the proposal is located, or beyond an individual village and its immediate neighbouring settlements (PPG para. 7-027a);
- A pragmatic approach needs to be taken where proposals involve comparatively small extensions to existing premises (relative to their existing size), where it may be impractical to accommodate the additional space in an alternative location. Equally, where there are large areas in Flood Zones 2 and 3 (e.g. coastal towns and settlements on major rivers) and development is needed in those areas to sustain the existing community, sites outside them are unlikely to provide reasonable alternatives (PPG para. 7-027a);
- The sequential test should be applied proportionately, focusing on realistic alternatives in areas of lower flood risk that could meet the same development need (PPG para. 7-027a);
- For infrastructure proposals of regional or national importance the area of search may reasonably extend beyond the local planning authority boundary. It may also, in some cases, be relevant to consider whether large scale development could be split across a number of alternative sites at lower risk of flooding, but only where those alternative sites would be capable of accommodating the development in a way which would still serve its intended market(s) as effectively (PPG para. 7-027a);
- Sites should be considered 'reasonably available' for the purposes of the sequential test if their location is suitable for the type of development proposed, they are able to meet the same development needs

and they have a reasonable prospect of being developed at the same time as the proposal (PPG para. 7-028);

- In considering whether alternative lower-risk sites (which could, where relevant, be a series of two or more smaller sites) would be capable of accommodating the proposed development, such alternative sites do not need to be owned by the applicant to be considered 'reasonably available' (PPG para. 7-028); and
- The Exception Test should only be applied as set out in Table 2 [of the PPG ("Flood Risk Vulnerability and Flood Zone Incompatibility")] and only if the Sequential Test has shown that there are no reasonably available, lower risk sites, suitable for the proposed development, to which the development could be steered [PPG para. 7-032].

3.2 Local Planning Policy

The Basingstoke and Deane Local Plan 2011 - 2029 was adopted by Basingstoke and Deane Council in May 2016. The following policy is relevant in respect of flood risk and drainage:

Policy EM6 - Water Quality

The council will work in partnership to protect, manage and improve the water quality of the borough's water environment particularly the quality of water bodies which are currently failing to meet the [WFD] requirements as set out in the associated [RBMP] documents. In the interests of positively managing the water quality of the borough, new development should incorporate [SuDS].

The status of the water environment is monitored as part of RBMPs and the [EA's] annual monitoring process, the results of which will be reported through the council's annual monitoring. Should the monitoring indicate that there is likely to be a deterioration in an individual element's band status of the borough's water body(ies); Policy SS4 will prevent further development which exacerbates such deterioration within the relevant catchment and intervention mechanisms will be required to improve the quality of the relevant catchment prior to the release of any further allocated sites or granting of planning permissions.

In order to protect and improve water quality, potentially contaminating development proposals on principal aquifers or within [SPZs] will need to demonstrate that groundwater and surface water is adequately protected to prevent a deterioration of water quality and pollution of the water source. Development proposals adjacent to a watercourse will incorporate measures to protect the watercourse in accordance with the Green Infrastructure Strategy and the actions of the [RBMPs].

Policy EM7 - Managing Flood Risk

The sequential approach to development, as set out in national guidance, will be applied across the borough, taking into account all other sources of flooding as contained within the council's [SFRA]. Development within areas of flood risk from any source of flooding, will only be acceptable if it is clearly demonstrated that it is appropriate at that location, and that there are no suitable available alternative sites at a lower flood risk. Development proposed in an area at risk of flooding will be required:

a. *To be supported by a [FRA] (subject to the triggers set out below);*
b. *To clearly demonstrate that the benefits of the development to the community, outweigh the risk of flooding when applying the sequential test and exception test (where required);*
c. *When applying the sequential test, to clearly demonstrate that the impacts of climate change are taken into account as identified in the SFRA;*
d. *To provide a safe access and egress route up to a 1 in 100 year event plus climate change; and*
e. *To attenuate surface water run-off so that the run-off rate is no greater than the run-off prior to development taking place or, if the site is previously developed, development actively reduces run-off rates and volumes.*

The triggers for a FRA are:

- *All sites of 1 ha or more in Flood Zone 1;*
- *All Sites in Flood Zone 2 or 3;*
- *Sites that have a record of localised or groundwater flooding from the SFRA;*
- *Sites in critical drainage areas and upstream of critical drainage areas.*

All planning applications for major development are required to ensure that sustainable drainage systems are used for the management of surface water unless demonstrated to be inappropriate. All new developments in areas at risk of flooding must give priority to the use of [SuDS].

3.3 Drainage Technical Guidance

National Standards for SuDS published by DEFRA set out how surface water runoff generated by "everyday rainfall", and during the 50.0%, 3.3% and 1.0% AEP rainfall events should be managed, how peak runoff rates should be restricted, how water quality measures should be implemented, how amenity and biodiversity should be used in SuDS and how maintenance and management plans shall be considered.

3.4 Water Framework Directive

The WFD provides a legal framework for the protection, improvement and sustainable use of inland surface waters, groundwater, transitional waters, and coastal waters across England, and seeks to:

- Prevent deterioration in the status of surface water and groundwater bodies;
- Protect, enhance and restore surface water and groundwater bodies (except artificial or heavily modified water bodies) with the aim of achieving good ecological, chemical and groundwater quantitative status by December 2021;
- Protect and enhance artificial and heavily modified water bodies with the aim of achieving good ecological potential and good chemical status by December 2021; and
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment and progressively reduce pollution of groundwater.

The WFD applies to any proposed development which has the potential to impact on a waterbody. Where this is the case, the EA may require evidence demonstrating that the proposed development does not compromise the aims of the WFD.

3.5 Land Drainage Consent

Land drainage consent may be required from the LLFA (Basingstoke and Deane Council) for work to an ordinary watercourse, including the proposed cable route crossing on the Wey Brook tributary.

4 REVIEW OF FLOOD RISK

4.1 Historical Records of Flooding

The EA Historic Flood Map[1] and Figure 5 of the 2021 SFRA ("Historic Flooding") indicate that there are no records of flooding at the Site; however, the latter records a highway flooding incident at the junction of Rookery Farm Lane and Kingsclere Road, and blocked ditches and drains to the north within the vicinity of Rookery Farm, albeit no further details are provided

4.2 Flood Risk from the Sea (Tidal / Coastal) and Rivers (Fluvial)

The EA FMfP (flood zones 2 and 3) dataset[2] (**Figure 3**) indicates the Site and the proposed cable route to be located in flood zone 1 and are not at risk of flooding when accounting for climate change (2070 to 2125). The flood zone designation is reiterated on Figure 3d of the 2021 SFRA ("Fluvial Flood Risk").

Table 1 of the PPG defines flood zones as follows:

- Flood zone 1: Low Probability. Land having a less than 0.1% annual probability of river or sea flooding;
- Flood zone 2: Medium Probability. Land having between a 1.0% and 0.1% annual probability of river flooding or between a 0.5% and 0.1% annual probability of sea flooding;
- Flood zone 3a: High Probability. Land having a 1.0% or greater annual probability of river flooding or a 0.5% or greater annual probability of sea flooding; and
- Flood zone 3b: Functional Floodplain. Land where water from rivers or the sea has to flow or be stored in times of flood. Land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as a 0.1% annual probability of flooding).

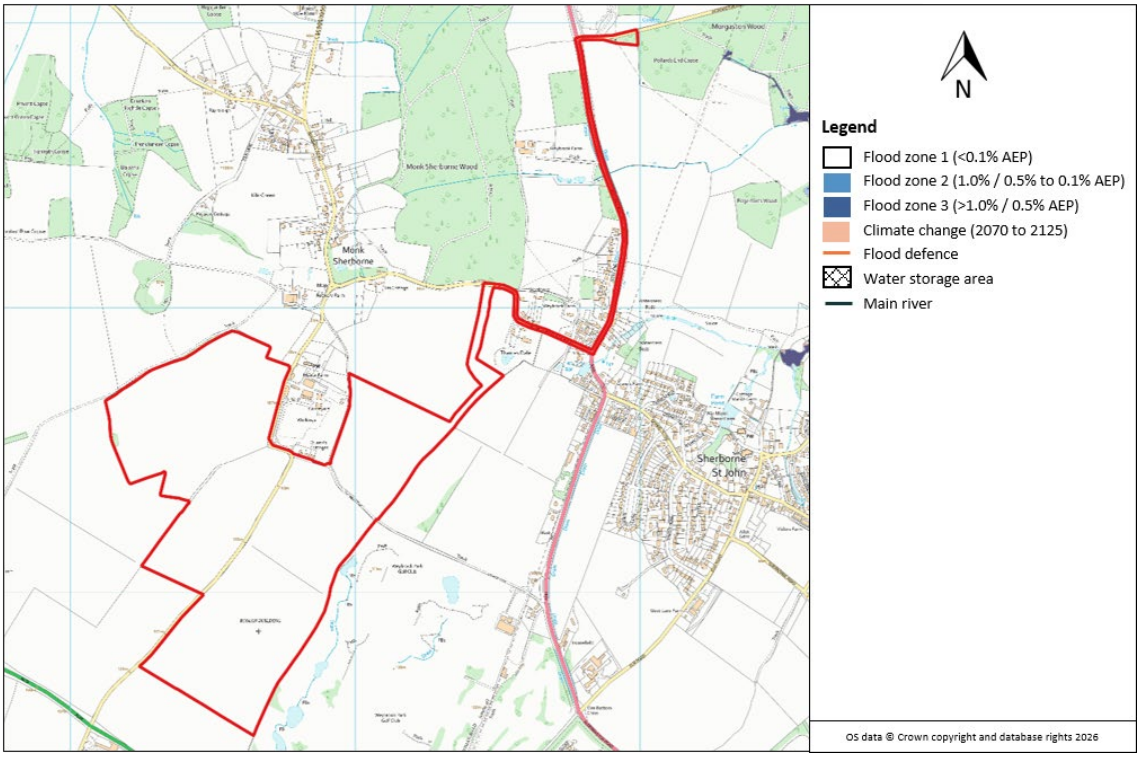


Figure 3: Flood Map for Planning (Flood Zones 2 and 3)
Source: gov.uk website; Accessed: June 2026

1 https://data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map
2 https://flood-map-for-planning.service.gov.uk/

4.3 Flood Risk from Surface Water (Pluvial) and Small Watercourses

The EA FMfP (surface water) dataset (**Figure 4**) indicates the following:

- The Site is not at risk of flooding from surface water in up to a 0.1% AEP event including an allowance for climate change (2061 - 2125), except for three small, isolated areas of ponding in the east, centre and west of the Site that represent existing depressions in the topography. The maximum flood depth within the areas of identified risk is <300 mm, with a depth of up to 900 mm in the east;
- An south-west to north-east overland flow pathway in the north and south of the Site during a 0.1% AEP event including an allowance for climate change. The areas of identified risk are relatively confined and form where the natural contours of the land forms a shallow valley where overland flow would be directed to. The maximum flood depth within these areas is <150 mm; and
- Surface water flooding along parts of the proposed cable route primarily associated with Wey Brook and its tributary. However, the grid connection comprises an underground cable. As such, the cable would not be affected by flooding, nor increase flood risk. During installation, the cable would be laid along trenches with relatively small extents of trenches being excavated and re-instatement generally occurring on the same day. No spoil would be stored within the surface water flood extents indicated. As such, the construction works would not increase flood risk elsewhere.

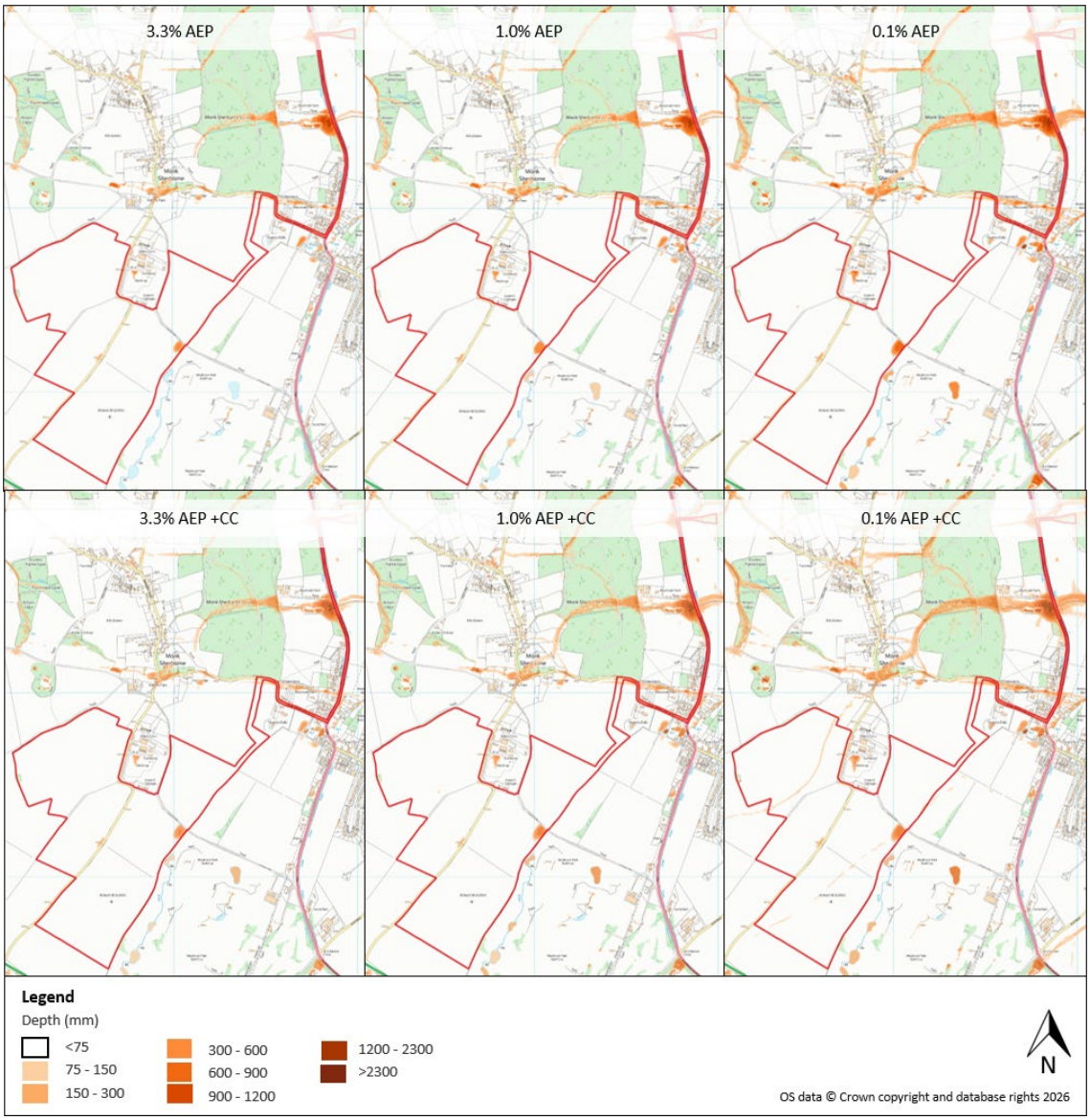


Figure 4: Flood Map for Planning (Surface Water)
Source: gov.uk website; Accessed: June 2026

Figure 6b of the 2021 SFRA ("Risk of Flooding from Surface Water") indicates that the Site is not within a critical drainage area, albeit Sherborne St John to the north-east is.

4.4 Flood Risk from Reservoirs, Canals and Other Water Impounding Structures

As detailed in **Section 2.3**, there are a series of attenuation basins and interconnecting drainage ditches associated with Weybrook Park Golf Club located to the east of the Site. Due to their nature and the adjoining topography, they are not considered to pose a risk of flooding to the Site as indicated on the FMfP (surface water) (**Figure 4**).

There are no canals or other impounded waterbodies located within the immediate vicinity of the Site. The Long Term Flood Risk (reservoirs) dataset (**Figure 5**) indicates that the Site is not at risk of flooding from such sources.

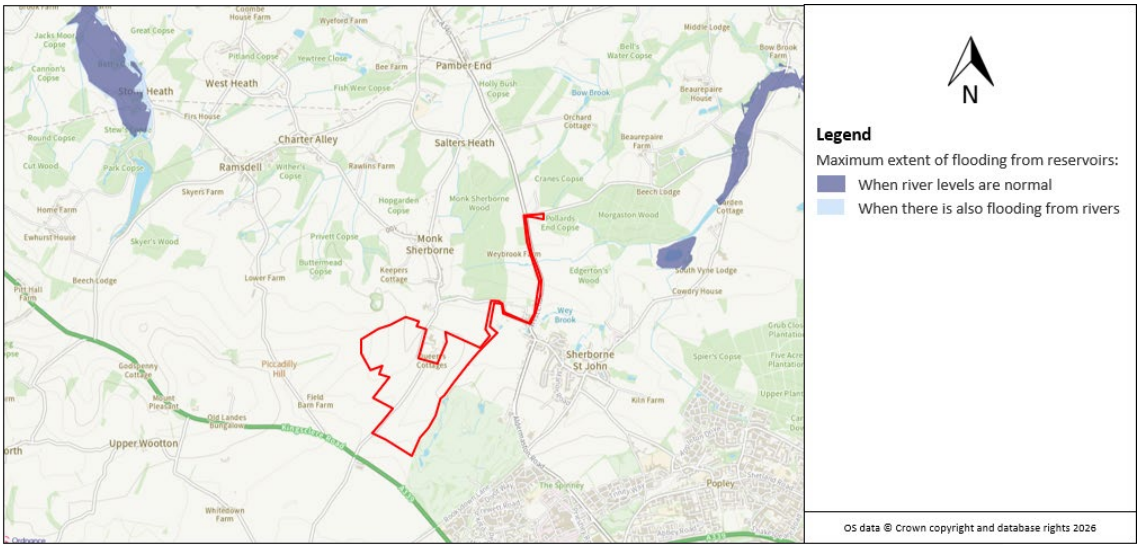


Figure 5: Long Term Flood Risk (Reservoirs)
Source: gov.uk website; Accessed: June 2026

4.5 Flood Risk from Groundwater

Figure 8 of the 2021 SFRA ("Susceptibility to Groundwater Flooding") indicates that the Site falls within an area that has limited potential for groundwater flooding to occur.

Furthermore, due to the topography of the Site and surrounding area, any groundwater emergence at the surface would be expected to be directed north-east, away from the areas of Proposed Development and the Site, and ultimately towards Wey Brook and its tributary.

4.6 Flood Risk Mitigation

The risk of flooding to the Proposed Development from all identified sources is assessed to be negligible/low, with the exception of some small areas of surface water ponding within localised depressions in the topography and shallow overland flow pathways. The risk of flooding will be mitigated through the implementation of the following measures:

- Flood pathways associated with surface water runoff should not be obstructed by the substations or power stations. The lower edge of PV solar panels is typically set at a minimum of 0.8 m above ground level and, as such, will not obstruct overland flow pathways or areas of ponding and no restrictions should be applied to the siting of the panels;
- The area under the solar panels should be seeded with a suitable grass mix to prevent rilling and an increase in surface water runoff rates as a result of the concentration of runoff under the drip line; and
- Land drainage consent to be obtained from Hampshire County Council (LLFA) for any work to or within 9 m of an ordinary watercourse.

These measures will, subject to the implementation of an appropriately designed surface water drainage scheme (**Section 5**), enable any potential overland flows to be conveyed safely across the Site without affecting property.

4.7 Flood Risk Elsewhere

The Site is not at risk of flooding in a 1.0% AEP fluvial and 0.5% AEP tidal event including an allowance for climate change. As such the proposals would not be expected to impact flood risk elsewhere and no compensatory flood storage would need be provided on site.

The design of the Site to manage overland flow paths originating off-site and the implementation of an appropriately designed surface water drainage scheme (**Section 5**), will ensure that surface water flood risk is not increased elsewhere.

4.8 Flood Risk Sequential Test

NPPF para. 175 states that the sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).

In applying para. 175 of the NPPF, para. 7-027 of the PPG states that a proportionate approach should be taken. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by EA flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied.

The assessment presented within this report demonstrates compliance with the requirements specified within para. 7-027 of the PPG and as such, the sequential test need not be applied.

4.9 Exception Test

The exception test need not be applied for Essential Infrastructure development within flood zone 1. Notwithstanding this, the assessment presented in this report demonstrates that the Proposed Development passes part b of the test, i.e. the development will be safe for its lifetime taking account of the vulnerability of its users and will not increase flood risk elsewhere.

5 SURFACE WATER MANAGEMENT

5.1 Surface Water Drainage at the Existing Site

The Site currently comprises greenfield land and, as such, no formal drainage is expected to be present. Given site topography and ground conditions, surface water runoff would be expected to infiltrate where conditions allow and flow overland in a direction determined by topography.

5.2 Surface Water Drainage at the Developed Site

5.2.1 Runoff Destinations (Standard 1)

In accordance with the National Standards for SuDS, surface water runoff from impermeable surfaces should be disposed of according to the following hierarchy: Collected for non-potable use; Infiltrated to ground; To an above ground surface water body; To a surface water sewer or another piped surface water drainage system; To a combined sewer.

The demand for non-potable water within a solar development is low. As such, the incorporation of rainwater harvesting has been discounted.

As detailed in **Section 2.5,** infiltration testing has been undertaken by IBEX Consulting Engineers Limited in accordance with the guidelines in BRE365. Seven test locations were used across the Site with results varying from 3.2×10^{-6} m/s (0.0115 m/hr) to 7.3×10^{-5} m/s (0.2628 m/hr). It is therefore subsequently proposed to direct all runoff from the developed site to ground (infiltration), utilising the lowest infiltration rate determined by testing within the vicinity of each access track and the substation compound.

'Greenfield' Areas of the Solar Farm

According to published research into the impact of solar farm panels on runoff rates and volumes[3], solar panels do not have a significant impact on the hydrologic response of a site when the ground comprises well managed vegetation such as good grass cover. In such instances, the research cites that well managed vegetation beneath the solar panels results in a potential increase of up to 0.35% in runoff volume.

The proposed development will include managed grassland beneath the solar panels, and the impact on runoff rates and volumes from the panelled part of the development is consequently assessed to be negligible. As such, no specific drainage for the panelled part of the Site is proposed.

Proposed Access Tracks, Power Stations and Substation

It is proposed to incorporate infiltration swales and basins adjacent to access tracks and power stations (where feasible and required) which will collect surface water runoff and encourage natural processes, including infiltration of runoff into the ground and evaporation where feasible without interfering with the operational performance and maintenance of solar panels.

Surface water runoff from the substation area will be conveyed by below ground pipework to an infiltration swale.

The area of impermeable surfaces (power stations, substation compound and access tracks) has been calculated to be 1.066 ha based on the proposed site plan (**Appendix A**).

5.2.2 Management of Everyday Rainfall (Standard 2)

The National Standards for SuDS states that a SuDS approach shall be applied so that the first 5 mm of rainfall for the majority of rainfall events does not leave the Site, and that evidence shall be provided that the approach to managing everyday rainfall has been developed alongside and in support of the management of runoff quality and the delivery of amenity and biodiversity benefits.

Given the proposal to dispose of surface water runoff via infiltration to ground, with no runoff discharging off site, this standard is considered to be satisfied.

[3] Hydrologic Response of Solar Farms, Cook LM and McCuen RH, American Society of Civil Engineers, 2013

5.2.3 Management of Extreme Rainfall and Flooding (Standard 3)

Attenuation Storage

Attenuation storage will be provided to store surface water runoff generated across access tracks, power stations and the substation area.

The attenuation storage facilities have been modelled using Causeway Flow (**Appendix C**). The required storage volume has been sized to store the 1.0% AEP rainfall event including a 40% increase in rainfall intensity to allow for climate change in accordance with Government guidance.

The Site has been divided into five drainage areas, based on the proposed site plan. The required storage volumes are summarised in **Table 2**.

Table 1: Attenuation Storage Volumes

Drainage Area	Infiltration Rate	Attenuation Volume (m^3)	SuDS Type	Storage Area (m^2)	Storage Depth (m)
N1	5.3×10^{-5} m/s (0.191 m/hr) 2.8×10^{-5} m/s (0.101 m/hr)	260.7	Infiltration Swale Infiltration Basin	2,401.0 455.9	0.5 1.0
N2	2.8×10^{-5} m/s (0.101 m/hr)	80.8	Infiltration Swale	1,739.1	0.5
N3	6.5×10^{-6} m/s (0.023 m/hr) 2.7×10^{-5} m/s (0.097 m/hr)	71.1	Infiltration Swale	1,369.9	0.4-0.7
N4	2.7×10^{-5} m/s (0.097 m/hr)	58.0	Infiltration Swale Infiltration Basin	105.0 196.3	0.5 1.0
N5	1.2×10^{-5} m/s (0.043 m/hr) 5.0×10^{-6} m/s (0.018 m/hr)	120.4	Infiltration Swale Infiltration Basin	3106.4 417.6	0.5 1.0

The total length of proposed infiltration swales adjacent to access tracks equates to 2,117.5 m with each swale having either a cross-sectional area of 0.80 m^2, 1.25 m^2 or 1.86 m^2.

A preliminary surface water management plan is provided in **Appendix D**.

Exceedance Routes

Flows resulting from rainfall in excess of the 1.0% AEP rainfall event including an allowance for climate change will be managed in exceedance routes. It is assumed that as the development proposals progress, the design of the Site would ensure flood flows are directed away from sensitive electrical equipment. Illustrative exceedance routes are shown on the preliminary surface water management plan (**Appendix D**) and will be confirmed at the detailed design stage.

5.2.4 Water Quality and Pollution Control (Standard 4)

Table 26.2 of the CIRIA SuDS Manual identifies general access roads as having a low pollution hazard level and indicates that the pollution hazard indices associated with such uses for total suspended solids, metals and hydrocarbons are 0.50, 0.40 and 0.40 respectively.

It is proposed to discharge surface water runoff via infiltration swales and basins which can help reduce pollutant levels in runoff by filtering out fine sediments, metals, hydrocarbons and other pollutants. They can also encourage adsorption and biodegradation processes. Table 26.4 of the CIRIA SuDS Manual indicates that the SuDS mitigation indices for infiltration swales and basins (to include a layer of dense vegetation underlain by a soil with good contaminant attenuation potential of at least 300 mm in depth) for total suspended solids, metals and hydrocarbons are 0.60, 0.50 and 0.60 respectively.

The CIRIA SuDS manual identifies commercial roofs (power stations and substations) as having a low pollution hazard level. As such, minimal treatment measures would be required to treat the quality of the water.

As such, the proposed drainage system would incorporate adequate water quality treatment.

5.2.5 Amenity and Biodiversity (Standard 5 and Standard 6)

The Site will incorporate managed grassland below solar panels and retain landscaped areas/trees in a number of locations which will provide aesthetic benefits and interception of water surface, thus helping with volume control (via evapotranspiration).

It is generally recommended that native vegetation is used to maximise the biodiversity value of these areas. However, it may be valuable to include some non-native vegetation to support pollinators, such as butterflies and bees.

The implementation of soft landscaping will also help provide users of the Site with health and wellbeing benefits.

5.2.6 Adoption and Maintenance of SuDS (Standard 7)

SuDS elements within the curtilage of development would be the responsibility of the Site owner.

An indicative maintenance schedule is presented in **Table 2**.

Table 2: Maintenance Requirements

Schedule	Required action	Frequency
Infiltration Basin		
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for landscaped areas and access routes	Monthly during grow season Or as required)
	Cut grass – meadow grass I and around basin	Half yearly: spring (before nesting season) and autumn
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies	Monthly for first year, then annually or as required
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets	Annually (or as required)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every two years, or as required
	Remove sediments from inlets and main basin when required	
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	
	Repair/rehabilitation of inlets	
	Relevel uneven surface and reinstate design levels	
Swales		
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

Schedule	Required action	Frequency
	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 returfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	

6 SUMMARY AND RECOMMENDATIONS

This report has been prepared for Stokes Lane Solar Farm Limited and relates to the Proposed Development of land north and south of Rookery Farm Lane, Monk Sherborne, Hampshire for use as a solar farm.

The EA FMfP indicates the Site and the proposed cable route to be located in flood zone 1 and are not at risk of flooding when accounting for climate change (2070 to 2125).

An assessment of flood risk from all identified potential sources of flooding has been undertaken using best available information. The risk of flooding to the Proposed Development is assessed to be negligible/low, with the exception of some small areas of surface water ponding within localised depressions in the topography and shallow overland flow pathways.

Surface water flooding is indicated along parts of the proposed cable route primarily associated with Wey Brook and its tributary. However, the grid connection comprises an underground cable. As such, the cable would not be affected by flooding, nor increase flood risk. During installation, the cable would be laid along trenches with relatively small extents of trenches being excavated and re-instatement generally occurring on the same day. No spoil would be stored within the surface water flood extents indicated.

The risk of flooding to the Proposed Development will be mitigated through the implementation of the following measures:

- Flood pathways associated with surface water runoff and runoff associated with existing drainage ditches not to be obstructed by the substation or PV power stations;
- Ground under the PV solar panel drip line to be seeded with a suitable grass mix to prevent rilling and an increase in surface water runoff rates; and
- Land drainage consent to be obtained from Hampshire County Council for any work to or within 9 m of an ordinary watercourse.

The proposals would not be expected to have an adverse impact on flood risk elsewhere.

PPG para. 7-027 states that where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development, without increasing flood risk elsewhere, then the sequential test need not be applied.

The assessment presented within this report demonstrates compliance with the requirements specified within para. 7-027 and as such, the sequential test need not be applied.

The exception test need not be applied for Essential Infrastructure within flood zone 1.

The assessment presents a preliminary scheme for the management of surface water from the proposed development. A summary of the principal findings is provided below:

- The Site comprises greenfield land with no formal drainage. Runoff is expected to infiltrate where conditions allow and flow overland in a direction determined by topography;
- Infiltration testing to BRE365 guidelines proved successful and as such, surface water runoff is proposed to discharge to ground via infiltration swales and basins located adjacent to access tracks;
- The proposed swales and basins will provide sufficient attenuation storage to accommodate a minimum 591.0 m^3 storage requirement across the Site;
- Any exceedance flows will follow the natural topography, mimicking the current arrangement;
- The use of infiltration swales and basins will help manage everyday rainfall and provide the necessary pollution mitigation measures to ensure satisfactory water quality treatment is provided; and
- The Site operator or their appointed management company will be responsible for maintenance.

In conclusion, this report demonstrates that the proposed development may be completed in accordance with the requirements of planning policy.

APPENDIX A

Proposed Site Layout

Stokes Lane Solar Farm

Legend

- Site Boundary
- Solar Panels
- DNO Station
- Customer Substation
- Power Station
- Spare Parts Containers
- Access Tracks
- Perimeter Fences
- Gate
- CCTV

Site Layout

Drawn by: LM Reviewed by: LT Approved by: HW

Date: 21/05/2026
Reference: 110-016L-260410

Scale @ A3: 1:10,000

0 250 500 m

solar2

Contains Ordnance Survey data © Crown copyright and database right 2026

APPENDIX B

Infiltration Testing

02/10/2025

Our ref: ICE0517/LD01/251002

Tim Brook
Weetwood
Park House
Ffordd Byrnwr Gwair
Mold
CH7 1FQ

Dear Tim,

RE: Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW– BRE 365 Soakage Testing

We are pleased to present the results of the soakage testing undertaken at the above site. The soakage tests were undertaken in general accordance with BRE Digest 365 'Soakaway Design' BRE, 2016.

The intrusive investigation was undertaken between 29th September and 1st October, with the works supervised by an IBEX Engineer.

Background

Based on the published geological records, the ground conditions are likely to comprise superficial deposits of the Clay With Flints Formation overlying the Seaford Chalk Formation.

Scope of Site Works

Seven machine excavated trial pits were excavated to a maximum depth of 1.60m bgl and seven soakage tests in accordance with BRE Digest 365 were also undertaken within SA01, SA02, SA03, SA04, SA05, SA06 and SA07 as part of the intrusive investigation.

Ground Conditions

The ground conditions encountered were broadly consistent with those anticipated, namely a thickness of Topsoil overlying the Clay With Flints Formation overlying the Seaford Chalk Formation.

For further details of the ground conditions, reference should be made to the exploratory hole logs presented in Appendix A.

Groundwater

Groundwater was not encountered within the pits during the investigation.

Soakaways

Table 1 summarises the soakage rates, which were calculated based on the results of the soakage testing:

Reference	Geology	Calculated Infiltration Rates (m/s)		
		1st Cycle	2nd Cycle	3rd Cycle
SA01	Clay With Flints Formation	$5.0X10^{-6}$	$5.1X10^{-6}$	$5.2X10^{-6}$
SA02	Clay With Flints Formation	$3.2X10^{-6}$	$1.2X10^{-5}$	$1.1X10^{-5}$
SA03	Clay With Flints Formation	$1.2X10^{-5}$	$2.0X10^{-5}$	$1.7X10^{-5}$
SA04	Seaford Chalk Formation	$3.2X10^{-5}$	$2.7X10^{-5}$	$3.6X10^{-5}$
SA05	Clay With Flints Formation	$5.5X10^{-5}$	$6.4X10^{-5}$	$2.8X10^{-5}$
SA06	Clay With Flints Formation	$8.2X10^{-6}$	$6.9X10^{-6}$	$6.5X10^{-6}$
SA07	Clay With Flints Formation	$7.3X10^{-5}$	$5.3X10^{-5}$	$5.9X10^{-5}$

Table 1 Summary of Soakage Test Results

Closure

We trust that we have interpreted your instructions correctly; please do not hesitate to contact us should you have any queries.

Yours sincerely

For and on Behalf of IBEX Consulting Engineers Limited

Levent Dogan BSc, MSc, PGDip, CEng MCIHT, AMICE, AMIEnvSc
Director

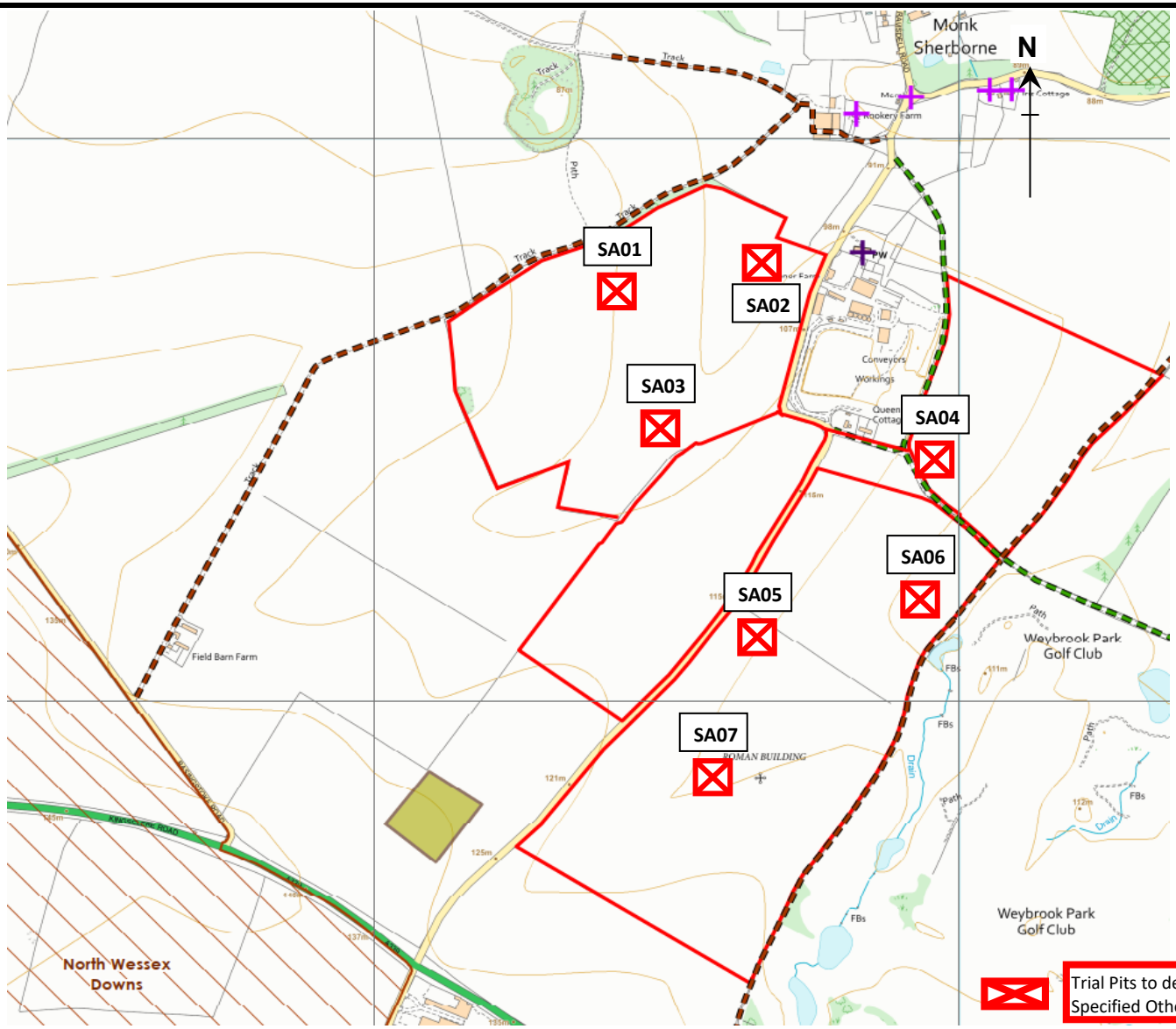
levent.dogan@ibexconsultant.com

Enc.
Figure 1 Site Location Plan
Figure 2 Exploratory Hole Logs Location Plan
Appendix A Exploratory Hole Logs
Appendix B BRE 365 Soakage Testing Results

Figures

IBEX
CONSULTING
ENGINEERS

Project:	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW			**Title**	Site Location Plan
Client:	Stokes Lane Solar Farm Limited			**IBEX Consulting Engineers Limited** **Abbey House, 25 Clarendon Road** **Redhill, Surrey. RH1 1QZ** **+44(0)1737 452622 www.ibexconsultant.com**	IBEX CONSULTING ENGINEERS
Ref No:	ICE0517	**Revision:**	0		
Drawn:	LD	**Date:**	22/09/2025		
Figure:	1	**Scale:**	Not To Scale		



Project:	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW			**Title**	Exploratory Hole Logs Location Plan
Client:	Stokes Lane Solar Farm Limited			**IBEX Consulting Engineers Limited** **Abbey House, 25 Clarendon Road** **Redhill, Surrey. RH1 1QZ** **+44(0)1737 452622 www.ibexconsultant.com**	IBEX CONSULTING ENGINEERS
Ref No:	ICE0517	**Revision:**	0		
Drawn:	LD	**Date:**	22/09/2025		
Figure:	2	**Scale:**	Not To Scale		

Appendix A

Exploratory Hole Logs

IBEX
CONSULTING
ENGINEERS

IBEX
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ENGINEERS
T: +44(0)1737 452622
E: info@ibexconsultant.com
W: www.ibexconsultant.com

Key to exploratory hole symbols and abbreviations

SAMPLE TYPES

ACM - Asbestos sample
AMAL - Amalgamated sample
B - Bulk disturbed sample
BLK - Block sample
C - Core sample
CBR - CBR test sample
D - Disturbed sample
ES - Environmental sample
EW - Environmental water sample
G - Gas sample
J - Jar sample
L - Liner sample
TW - Pushed thin wall sample
U - Undisturbed sample
UT - Undisturbed thin wall sample
W - Water sample

IN-SITU TESTS

HV - Hand shear vane
HV(r) - Hand shear vane residual
PID - Photo ionisation detector
PP - Hand penetrometer
SPT - Standard penetration test
SPT(C) - SPT using cone

GROUNDWATER

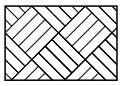
Groundwater strike

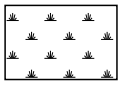
Groundwater rest level

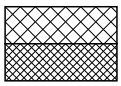
ROTARY CORE DETAILS

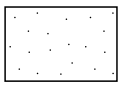
TCR - Total core recovery (%)
SCR - Solid core recovery (%)
RQD - Rock quality designation (%)
FI - Fracture index
NI - Non-intact core
AZCL - Assumed zone of core loss

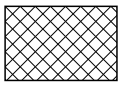
LEGEND

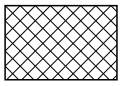
 Topsoil

 Peat

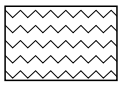
 Made ground [cohesive]

 Concrete

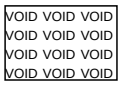
 Wood

 Brick

Bituminous material

 Gypsum

Coal



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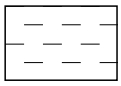
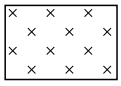
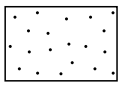
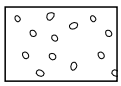
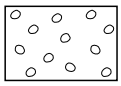
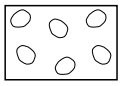
 Clay

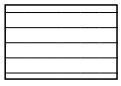
 Silt

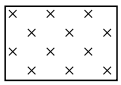
 Sand

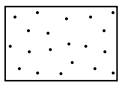
 Gravel

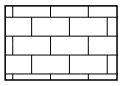
 Cobbles

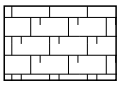
 Boulders

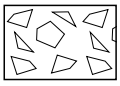
 Mudstone

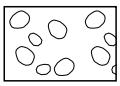
 Siltstone

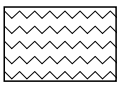
 Sandstone

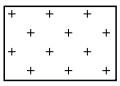
 Limestone

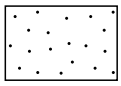
 Chalk

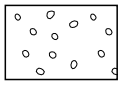
 Breccia

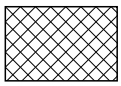
 Conglomerate

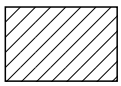
 Metamorphic

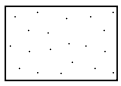
 Igneous

 Sand backfill

 Gravel backfill

 Arisings

 Bentonite

 Concrete

Grout

Plain pipe

Slotted pipe

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Trial Pit

SA01

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.32) 0.32		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						(1.18) 1.50		Orange brown gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
								End of Trial Pit at 1.50m

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.50m TP Mini digger
Stable
L = 1.60m
W = 0.30m

Logger
LD

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Trial Pit

SA02

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.40)		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						0.40		
						(0.65)		Orange brown gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
						1.05		
						(0.55)		Off white brown gravelly sandy chalky CLAY. [CLAY WITH FLINTS FORMATION]
						1.60		*End of Trial Pit at 1.60m*

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.60m TP Mini digger
Stable
L = 1.44m
W = 0.30m

Logger
LD

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Trial Pit

SA03

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
						(0.27)		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						0.27		Orange brown gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
						(1.23)		
						1.50		*End of Trial Pit at 1.50m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.50m TP Mini digger
Stable
L = 1.50m
W = 0.30m

Logger
LD

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Trial Pit

SA04

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
						(0.28) 0.28		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						(1.22)		Recovered as structureless CHALK composed of silty sandy GRAVEL. Clasts are very weak to weak and moderately weak, low to medium density. Matrix is off-white and orange stained. Occasional medium to coarse and sub-angular to sub-rounded flint. [SEAFORD CHALK FORMATION]
						1.50		*End of Trial Pit at 1.50m*

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.50m TP Mini digger
Stable
L = 1.40m
W = 0.30m

Logger
LD

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Trial Pit

SA05
Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Type/ Ref	Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Description
						(0.28) 0.28		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						(1.22)		Off white brown gravelly sandy chalky CLAY. [CLAY WITH FLINTS FORMATION]
						1.50		*End of Trial Pit at 1.50m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.50m TP Mini digger
Stable
L = 1.50m
W = 0.30m

Logger
LD

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Trial Pit

SA06

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client
Stokes Lane Solar Farm Limited

Consultant
LD

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.23) 0.23		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						(0.60) 0.83		Brown gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
						(0.67) 1.50		Off white brown gravelly sandy chalky CLAY. [CLAY WITH FLINTS FORMATION]
								End of Trial Pit at 1.50m

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.50m TP Mini digger
Stable
L = 1.60m
W = 0.30m

Logger
LD

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Trial Pit

SA07

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
TP				1:25

Project Name	Project No.	Start Date	End Date
Land off Rookery Farm Lane, Monk Sherborne	ICE0517	2025-09-29	2025-09-29

Client	Consultant	Contractor
Stokes Lane Solar Farm Limited	LD	

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.20) 0.20		Grass over greyish brown gravelly sandy silty clay. [TOPSOIL]
						(0.70) 0.90		Brown gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
						(0.70) 1.60		Brown very gravelly sandy silty CLAY. Gravel is fine to coarse flint gravel. [CLAY WITH FLINTS FORMATION]
								End of Trial Pit at 1.60m

Remarks
Soakage test undertaken

Method, Plant, Stability, Dimensions
0.00 - 1.60m TP Mini digger
Stable
L = 1.38m
W = 0.30m

Logger
LD

Appendix B

BRE 365 Soakage Testing Results

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Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
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Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA01**
Pit depth (m)	1.50
Pit width (m)	0.30
Pit length (m)	1.60
Depth to standing water (m)	

Test 1

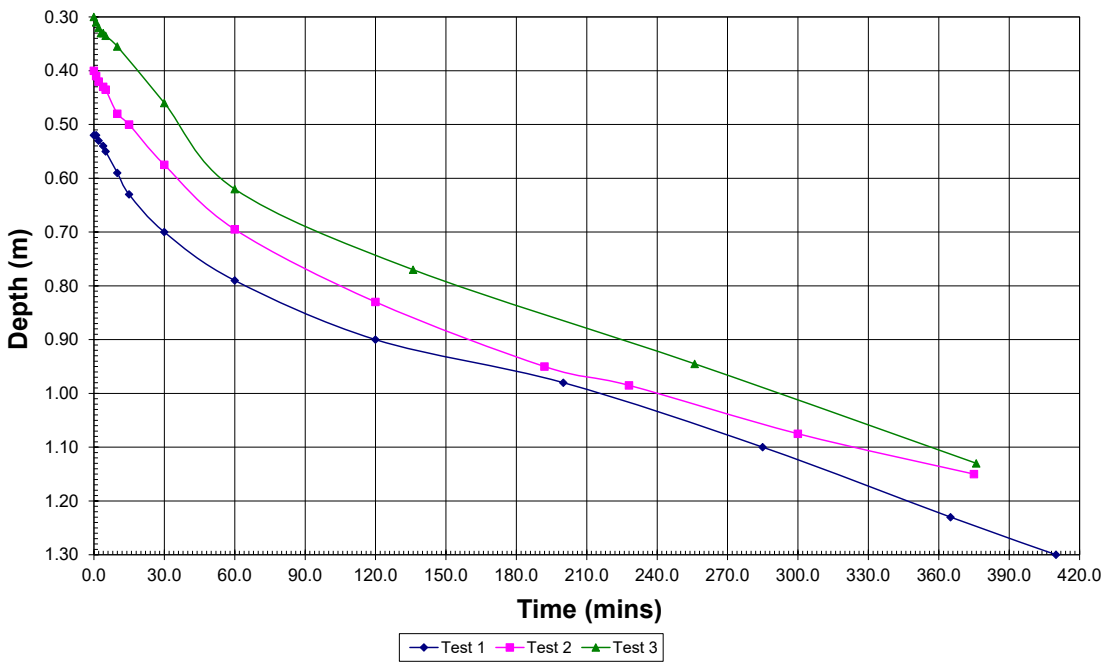
Time (min)	Depth (m)
0.0	0.52
1.0	0.52
2.0	0.53
4.0	0.54
5.0	0.55
10.0	0.59
15.0	0.63
30.0	0.70
60.0	0.79
120.0	0.90
200.0	0.98
285.0	1.10
365.0	1.23
410.0	1.30

Test 2

Time (min)	Depth (m)
0.0	0.40
1.0	0.41
2.0	0.42
4.0	0.43
5.0	0.44
10.0	0.48
15.0	0.50
30.0	0.58
60.0	0.70
120.0	0.83
192.0	0.95
228.0	0.99
300.0	1.08
375.0	1.15

Test 3

Time (min)	Depth (m)
0.0	0.30
1.0	0.31
2.0	0.32
3.0	0.33
4.0	0.33
5.0	0.34
10.0	0.36
30.0	0.46
60.0	0.62
136.0	0.77
256.0	0.95
376.0	1.13



Max. depth (m)	1.50	1.40	1.40
Effective depth (m)	0.98	1.00	1.10
75% effective depth (m)	0.77	0.65	0.58
50% effective depth (m)	1.01	0.90	0.85
25% effective depth (m)	1.26	1.15	1.13
t75 (min)	52.00	46.00	49.00
t50 (min)			
t25 (min)	384.00	375.00	376.00
Vp 75-25	0.24	0.24	0.26
ap 50	2.342	2.38	2.57
tp 75-25	332.00	329.00	327.00

Soil infiltration rate (m/s)	**5.0E-06**	**5.1E-06**	**5.2E-06**
Soil infiltration rate (mm/hr)	**1.81E+01**	**1.84E+01**	**1.88E+01**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
Redhill, Surrey, RH1 1QZ
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Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA02**
Pit depth (m)	1.60
Pit width (m)	0.30
Pit length (m)	1.44
Depth to standing water (m)	

Test 1

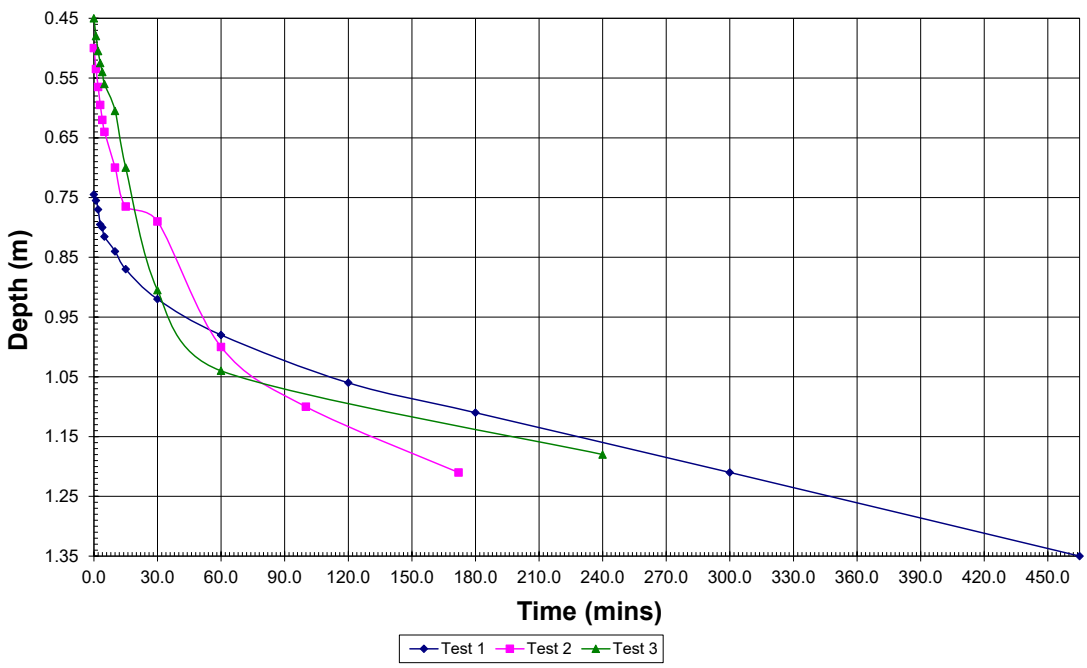
Time (min)	Depth (m)
0.0	0.75
1.0	0.76
2.0	0.77
3.0	0.80
4.0	0.80
5.0	0.82
10.0	0.84
15.0	0.87
30.0	0.92
60.0	0.98
120.0	1.06
180.0	1.11
300.0	1.21
465.0	1.35

Test 2

Time (min)	Depth (m)
0.0	0.50
1.0	0.54
2.0	0.57
3.0	0.60
4.0	0.62
5.0	0.64
10.0	0.70
15.0	0.77
30.0	0.79
60.0	1.00
100.0	1.10
172.0	1.21

Test 3

Time (min)	Depth (m)
0.0	0.45
1.0	0.48
2.0	0.51
3.0	0.53
4.0	0.54
5.0	0.56
10.0	0.61
15.0	0.70
30.0	0.91
60.0	1.04
240.0	1.18



Max. depth (m)	1.55	1.39	1.35
Effective depth (m)	0.81	0.89	0.90
75% effective depth (m)	0.95	0.72	0.68
50% effective depth (m)	1.15	0.95	0.90
25% effective depth (m)	1.35	1.17	1.13
t75 (min)	43.00	11.00	14.00
t50 (min)			
t25 (min)	465.00	144.50	167.00
Vp 75-25	0.17	0.19	0.19
ap 50	1.8327	1.9806	1.998
tp 75-25	422.00	133.50	153.00

Soil infiltration rate (m/s)	**3.7E-06**	**1.2E-05**	**1.1E-05**
Soil infiltration rate (mm/hr)	**1.35E+01**	**4.36E+01**	**3.82E+01**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
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Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA03**
Pit depth (m)	1.50
Pit width (m)	0.30
Pit length (m)	1.50
Depth to standing water (m)	

Test 1

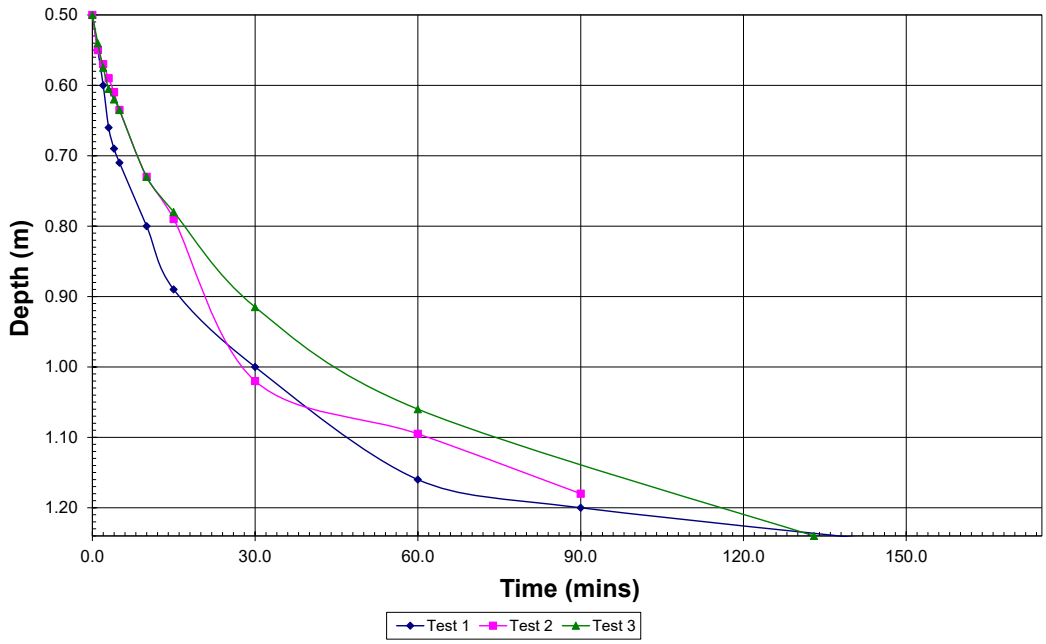
Time (min)	Depth (m)
0.0	0.50
1.0	0.55
2.0	0.60
3.0	0.66
4.0	0.69
5.0	0.71
10.0	0.80
15.0	0.89
30.0	1.00
60.0	1.16
90.0	1.20
175.0	1.27

Test 2

Time (min)	Depth (m)
0.0	0.50
1.0	0.55
2.0	0.57
3.0	0.59
4.0	0.61
5.0	0.64
10.0	0.73
15.0	0.79
30.0	1.02
60.0	1.10
90.0	1.18

Test 3

Time (min)	Depth (m)
0.0	0.50
1.0	0.54
2.0	0.58
3.0	0.61
4.0	0.62
5.0	0.64
10.0	0.73
15.0	0.78
30.0	0.92
60.0	1.06
133.0	1.24



Max. depth (m)	1.50	1.40	1.40
Effective depth (m)	1.00	0.90	0.90
75% effective depth (m)	0.75	0.73	0.73
50% effective depth (m)	1.00	0.95	0.95
25% effective depth (m)	1.25	1.18	1.18
t75 (min)	7.20	10.00	10.00
t50 (min)			
t25 (min)	150.00	90.00	107.50
Vp 75-25	0.23	0.20	0.20
ap 50	2.25	2.07	2.07
tp 75-25	142.80	80.00	97.50

Soil infiltration rate (m/s)	**1.2E-05**	**2.0E-05**	**1.7E-05**
Soil infiltration rate (mm/hr)	**4.20E+01**	**7.34E+01**	**6.02E+01**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
Redhill, Surrey, RH1 1QZ
+44(0)1737 452622 www.ibexconsultant.com

Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA04**
Pit depth (m)	1.50
Pit width (m)	0.30
Pit length (m)	1.40
Depth to standing water (m)	

Test 1

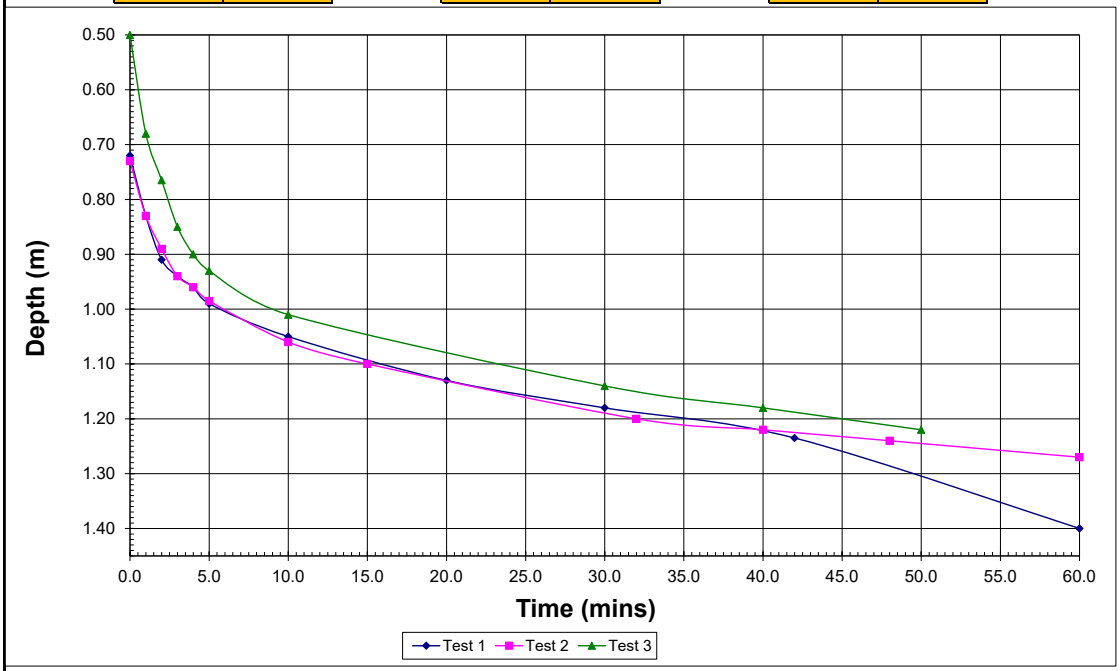
Time (min)	Depth (m)
0.0	0.72
1.0	0.83
2.0	0.91
3.0	0.94
4.0	0.96
5.0	0.99
10.0	1.05
20.0	1.13
30.0	1.18
42.0	1.24
60.0	1.40

Test 2

Time (min)	Depth (m)
0.0	0.73
1.0	0.83
2.0	0.89
3.0	0.94
4.0	0.96
5.0	0.99
10.0	1.06
15.0	1.10
32.0	1.20
40.0	1.22
48.0	1.24
60.0	1.27

Test 3

Time (min)	Depth (m)
0.0	0.50
1.0	0.68
2.0	0.77
3.0	0.85
4.0	0.90
5.0	0.93
10.0	1.01
30.0	1.14
40.0	1.18
50.0	1.22



Max. depth (m)	1.50	1.45	1.45
Effective depth (m)	0.78	0.72	0.95
75% effective depth (m)	0.92	0.91	0.74
50% effective depth (m)	1.11	1.09	0.98
25% effective depth (m)	1.31	1.27	1.21
t75 (min)	2.30	2.40	1.60
t50 (min)			
t25 (min)	50.50	60.00	47.50
Vp 75-25	0.16	0.15	0.20
ap 50	1.746	1.644	2.035
tp 75-25	48.20	57.60	45.90

Soil infiltration rate (m/s)	**3.2E-05**	**2.7E-05**	**3.6E-05**
Soil infiltration rate (mm/hr)	**1.17E+02**	**9.58E+01**	**1.28E+02**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
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+44(0)1737 452622 www.ibexconsultant.com

Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA05**
Pit depth (m)	1.50
Pit width (m)	0.30
Pit length (m)	1.50
Depth to standing water (m)	

Test 1

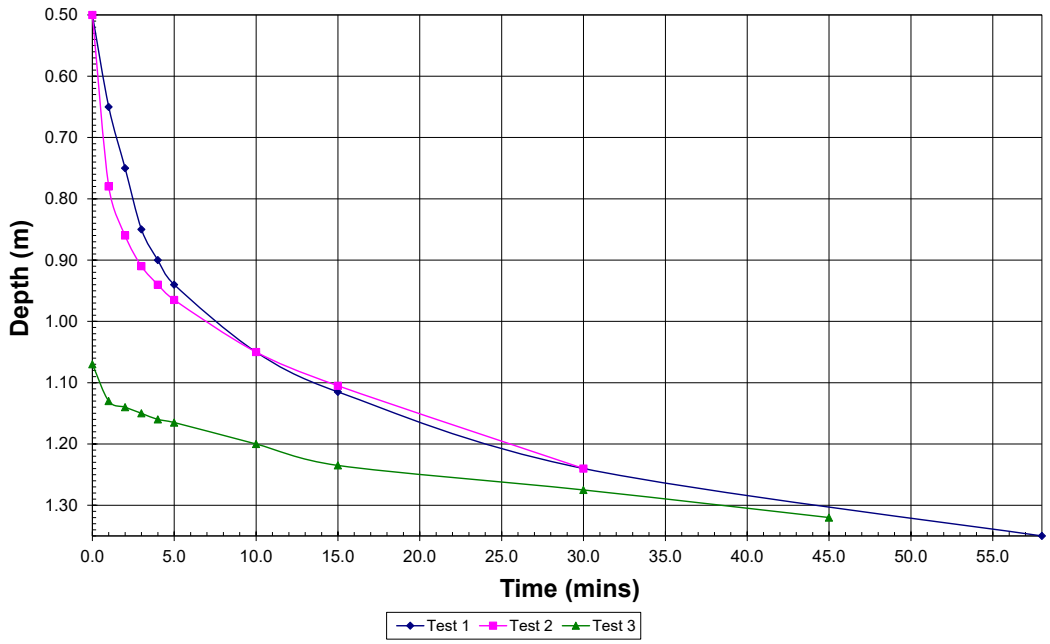
Time (min)	Depth (m)
0.0	0.50
1.0	0.65
2.0	0.75
3.0	0.85
4.0	0.90
5.0	0.94
10.0	1.05
15.0	1.12
30.0	1.24
58.0	1.35

Test 2

Time (min)	Depth (m)
0.0	0.50
1.0	0.78
2.0	0.86
3.0	0.91
4.0	0.94
5.0	0.97
10.0	1.05
15.0	1.11
30.0	1.24

Test 3

Time (min)	Depth (m)
0.0	1.07
1.0	1.13
2.0	1.14
3.0	1.15
4.0	1.16
5.0	1.17
10.0	1.20
15.0	1.24
30.0	1.28
45.0	1.32



Max. depth (m)	1.50	1.45	1.40
Effective depth (m)	1.00	0.95	0.33
75% effective depth (m)	0.75	0.74	1.15
50% effective depth (m)	1.00	0.98	1.24
25% effective depth (m)	1.25	1.21	1.32
t75 (min)	2.00	0.80	3.00
t50 (min)			
t25 (min)	32.50	26.60	45.00
Vp 75-25	0.23	0.21	0.07
ap 50	2.25	2.16	1.044
tp 75-25	30.50	25.80	42.00

Soil infiltration rate (m/s)	**5.5E-05**	**6.4E-05**	**2.8E-05**
Soil infiltration rate (mm/hr)	**1.97E+02**	**2.30E+02**	**1.02E+02**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
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+44(0)1737 452622 www.ibexconsultant.com

Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA06**
Pit depth (m)	1.50
Pit width (m)	0.30
Pit length (m)	1.60
Depth to standing water (m)	

Test 1

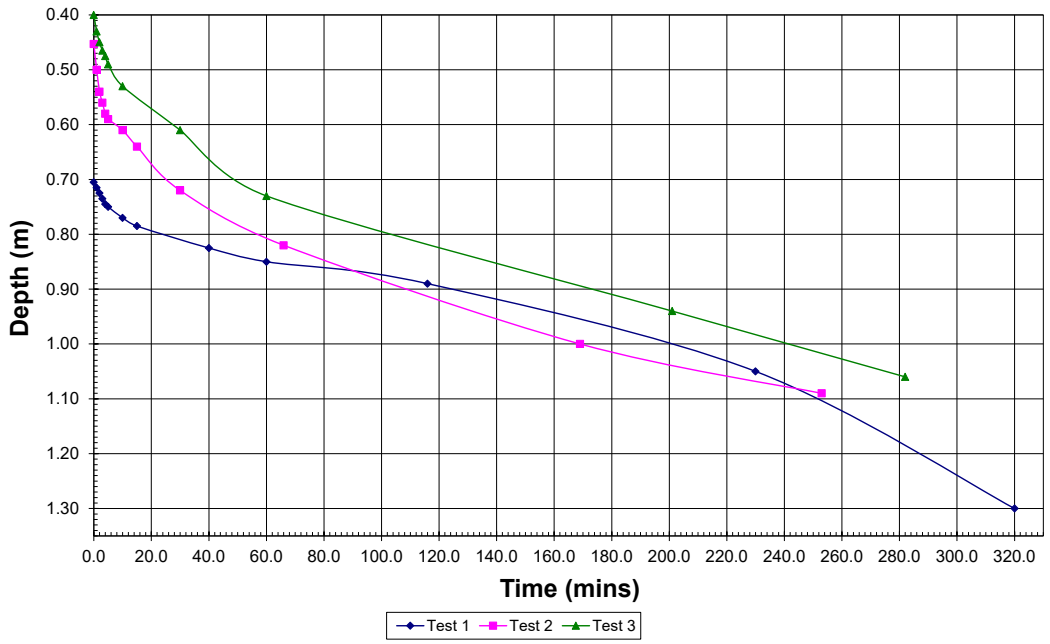
Time (min)	Depth (m)
0.0	0.71
1.0	0.72
2.0	0.73
3.0	0.74
4.0	0.75
5.0	0.75
10.0	0.77
15.0	0.79
40.0	0.83
60.0	0.85
116.0	0.89
230.0	1.05
320.0	1.30

Test 2

Time (min)	Depth (m)
0.0	0.45
1.0	0.50
2.0	0.54
3.0	0.56
4.0	0.58
5.0	0.59
10.0	0.61
15.0	0.64
30.0	0.72
66.0	0.82
169.0	1.00
253.0	1.09

Test 3

Time (min)	Depth (m)
0.0	0.40
1.0	0.43
2.0	0.45
3.0	0.47
4.0	0.48
5.0	0.49
10.0	0.53
30.0	0.61
60.0	0.73
201.0	0.94
282.0	1.06



Max. depth (m)	1.50	1.30	1.28
Effective depth (m)	0.80	0.85	0.88
75% effective depth (m)	0.90	0.66	0.62
50% effective depth (m)	1.10	0.88	0.84
25% effective depth (m)	1.30	1.09	1.06
t75 (min)	125.00	18.00	32.00
t50 (min)			
t25 (min)	320.00	253.00	282.00
Vp 75-25	0.19	0.20	0.21
ap 50	1.9905	2.0893	2.152
tp 75-25	195.00	235.00	250.00

Soil infiltration rate (m/s)	**8.2E-06**	**6.9E-06**	**6.5E-06**
Soil infiltration rate (mm/hr)	**2.95E+01**	**2.48E+01**	**2.36E+01**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

Soakaway Test Results (after BRE Digest 365)

IBEX Consulting Engineers Limited
Abbey House, 25 Clarendon Road,
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+44(0)1737 452622 www.ibexconsultant.com

Project Name :	Land off Rookery Farm Lane, Monk Sherborne, RG26 5HW	**Job No. :**	ICE0517
Client :	Stokes Lane Solar Farm Limited	**Date :**	02/10/2025

Pit reference	**SA07**
Pit depth (m)	1.60
Pit width (m)	0.30
Pit length (m)	1.38
Depth to standing water (m)	

Test 1

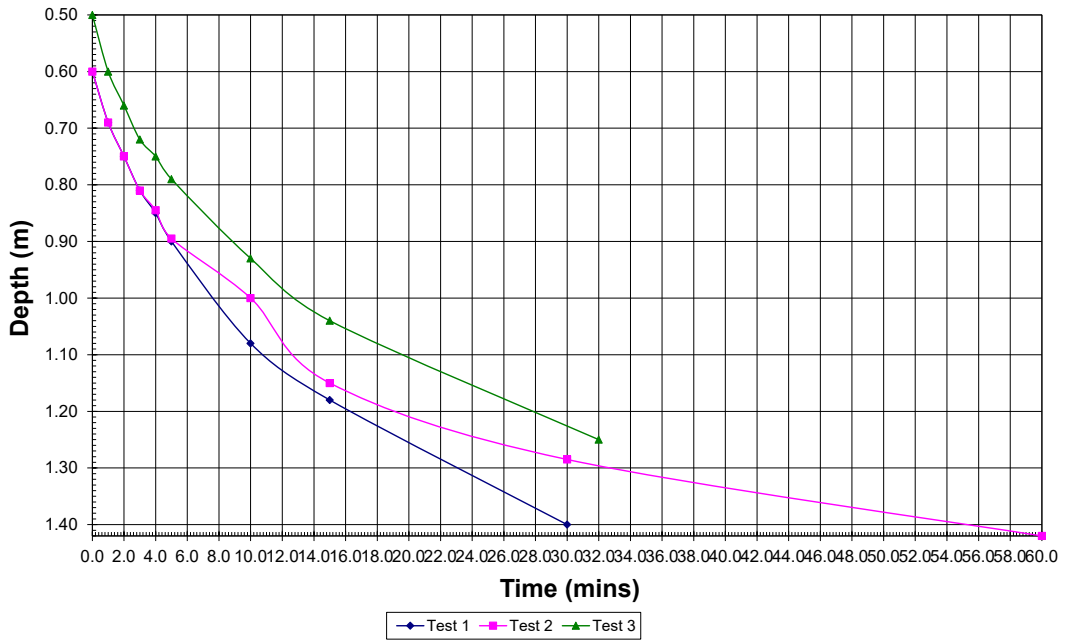
Time (min)	Depth (m)
0.0	0.60
1.0	0.69
2.0	0.75
3.0	0.81
4.0	0.85
5.0	0.90
10.0	1.08
15.0	1.18
30.0	1.40

Test 2

Time (min)	Depth (m)
0.0	0.60
1.0	0.69
2.0	0.75
3.0	0.81
4.0	0.85
5.0	0.90
10.0	1.00
15.0	1.15
30.0	1.29
60.0	1.42

Test 3

Time (min)	Depth (m)
0.0	0.50
1.0	0.60
2.0	0.66
3.0	0.72
4.0	0.75
5.0	0.79
10.0	0.93
15.0	1.04
32.0	1.25



Max. depth (m)	1.60	1.55	1.50
Effective depth (m)	1.00	0.95	1.00
75% effective depth (m)	0.85	0.84	0.75
50% effective depth (m)	1.10	1.08	1.00
25% effective depth (m)	1.35	1.31	1.25
t75 (min)	4.00	3.80	4.00
t50 (min)			
t25 (min)	26.45	34.80	32.00
Vp 75-25	0.21	0.20	0.21
ap 50	2.094	2.01	2.094
tp 75-25	22.45	31.00	28.00

Soil infiltration rate (m/s)	**7.3E-05**	**5.3E-05**	**5.9E-05**
Soil infiltration rate (mm/hr)	**2.64E+02**	**1.89E+02**	**2.12E+02**

Notes:

1	Orange cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0

APPENDIX C

Surface Water Attenuation - Storage Volume Calculation

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Swale-1A	0.113	5.00	125.900	460562.373	154568.571	0.500
Swale-1A End			112.100	460551.522	154798.812	0.500
Swale-1B	0.071	5.00	111.600	460549.692	154953.215	0.500
Swale-1B End			108.600	460550.982	154844.244	0.500
Swale-2	0.083	5.00	111.600	460549.739	154953.316	0.500
Swale-3	0.035	5.00	114.000	460632.690	155164.013	0.500
Basin-N1			108.000	460692.559	155103.970	1.000
Dummy-2/3 Outfall			108.000	460697.596	155103.626	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Swale-1A	Swale-1A End	235.300	0.030	125.400	111.600	13.800	17.1	500	6.16	50.0
1.001	Swale-1A End	Swale-1B End	48.296	0.030	111.600	108.100	3.500	13.8	150	6.96	50.0
1.002	Swale-1B	Swale-1B End	109.000	0.030	111.100	108.100	3.000	36.3	500	5.79	50.0
1.003	Swale-1B End	Basin-N1	266.500	0.030	108.100	107.500	0.600	444.2	300	22.75	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	3.375	4219.2	20.4	0.000	0.000	0.113	0.0	39	0.794
1.001	1.005	17.8	20.4	0.350	0.350	0.113	0.0	150	1.025
1.002	2.312	2890.4	12.8	0.000	0.000	0.071	0.0	38	0.536
1.003	0.281	19.9	33.2	0.200	0.200	0.184	0.0	300	0.285

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Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.000	Swale-2	Basin-N1	208.200	0.030	111.100	107.500	3.600	57.8	500	6.89	50.0
3.000	Swale-3	Basin-N1	87.900	0.030	113.500	107.500	6.000	14.7	500	5.40	50.0
2.001	Basin-N1	Dummy-2/3 Outfall	5.000	0.030	107.000	107.000	0.000	0.0	150	22.84	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
2.000	1.833	2291.0	15.0	0.000	0.000	0.083	0.0	46	0.478
3.000	3.641	4551.8	6.3	0.000	0.000	0.035	0.0	19	0.569
2.001	1.000	17.7	54.6	0.850	0.850	0.302	0.0	0	∞

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	235.300	17.1	500	1:4 Swale 0.191	125.900	125.400	0.000	112.100	111.600	0.000
1.001	48.296	13.8	150	Circular	112.100	111.600	0.350	108.600	108.100	0.350
1.002	109.000	36.3	500	1:4 Swale 0.191	111.600	111.100	0.000	108.600	108.100	0.000
1.003	266.500	444.2	300	Circular	108.600	108.100	0.200	108.000	107.500	0.200
2.000	208.200	57.8	500	1:4 Swale 0.101	111.600	111.100	0.000	108.000	107.500	0.000
3.000	87.900	14.7	500	1:4 Swale 0.101	114.000	113.500	0.000	108.000	107.500	0.000
2.001	5.000	0.0	150	Circular	108.000	107.000	0.850	108.000	107.000	0.850

Link	US Node	Node Type	DS Node	Node Type
1.000	Swale-1A	Junction	Swale-1A End	Junction
1.001	Swale-1A End	Junction	Swale-1B End	Junction
1.002	Swale-1B	Junction	Swale-1B End	Junction
1.003	Swale-1B End	Junction	Basin-N1	Junction
2.000	Swale-2	Junction	Basin-N1	Junction
3.000	Swale-3	Junction	Basin-N1	Junction
2.001	Basin-N1	Junction	Dummy-2/3 Outfall	Junction

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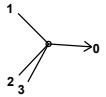
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Swale-1A	460562.373	154568.571	125.900	0.500				
					0	1.000	125.400	500
Swale-1A End	460551.522	154798.812	112.100	0.500		1	1.000	111.600	500
						0	1.001	111.600	150
Swale-1B	460549.692	154953.215	111.600	0.500				
					0	1.002	111.100	500
Swale-1B End	460550.982	154844.244	108.600	0.500		1	1.002	108.100	500
						2	1.001	108.100	150
					0	1.003	108.100	300
Swale-2	460549.739	154953.316	111.600	0.500				
					0	2.000	111.100	500
Swale-3	460632.690	155164.013	114.000	0.500				
					0	3.000	113.500	500
Basin-N1	460692.559	155103.970	108.000	1.000		1	3.000	107.500	500
						2	2.000	107.500	500
						3	1.003	107.500	300
						0	2.001	107.000	150
Dummy-2/3 Outfall	460697.596	155103.626	108.000	1.000		1	2.001	107.000	150

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SuDS Carriers

Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
1.000	Swale-1A	Swale-1A End	1:4 Swale 0.191	0.19100	0.19100	2.0	1
1.002	Swale-1B	Swale-1B End	1:4 Swale 0.191	0.19100	0.19100	2.0	1
2.000	Swale-2	Basin-N1	1:4 Swale 0.101	0.10100	0.10100	2.0	1
3.000	Swale-3	Basin-N1	1:4 Swale 0.101	0.10100	0.10100	2.0	1

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	40	0	0
30	0	0	0				

Node Basin-N1 Online Pump Control

Flap Valve	x	Invert Level (m)	107.000	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

Node Basin-N1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.10100	Safety Factor	2.0	Invert Level (m)	107.000
Side Inf Coefficient (m/hr)	0.10100	Porosity	1.00	Time to half empty (mins)	488

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Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	123.6	123.6	1.000	455.9	460.8

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Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-1A	11	125.435	0.035	19.1	0.1589	0.0000	OK
120 minute summer	Swale-1A End	72	111.665	0.065	9.3	0.0000	0.0000	OK
15 minute summer	Swale-1B	11	111.136	0.035	12.0	0.1007	0.0000	OK
240 minute summer	Swale-1B End	152	108.248	0.148	9.3	0.0000	0.0000	OK
30 minute summer	Swale-2	21	111.131	0.031	12.5	0.1039	0.0000	OK
15 minute summer	Swale-3	12	113.517	0.017	5.9	0.0232	0.0000	OK
360 minute summer	Basin-N1	304	107.225	0.225	8.8	36.2390	0.0000	SURCHARGED
15 minute summer	Dummy-2/3 Outfall	1	107.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-1A	1.000	Swale-1A End	16.9	0.808	0.004	6.5699	
120 minute summer	Swale-1A End	1.001	Swale-1B End	6.9	0.643	0.389	0.5645	
120 minute summer	Swale-1A End	Infiltration (1.000)		0.0				
15 minute summer	Swale-1B	1.002	Swale-1B End	11.4	0.562	0.004	4.3981	
240 minute summer	Swale-1B End	1.003	Basin-N1	5.2	0.248	0.260	5.7648	
240 minute summer	Swale-1B End	Infiltration (1.002)		0.3				
30 minute summer	Swale-2	2.000	Basin-N1	6.7	0.391	0.003	3.5629	
15 minute summer	Swale-3	3.000	Basin-N1	4.9	0.524	0.001	0.8250	
360 minute summer	Basin-N1	Pump	Dummy-2/3 Outfall	0.0				0.0
360 minute summer	Basin-N1	Infiltration (3.000)		0.0				
360 minute summer	Basin-N1	Infiltration (2.000)		0.0				
360 minute summer	Basin-N1	Infiltration		2.6				

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Results for 30 year Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-1A	11	125.465	0.065	56.8	0.2921	0.0000	OK
30 minute summer	Swale-1A End	25	111.741	0.141	47.3	0.0000	0.0000	OK
15 minute summer	Swale-1B	11	111.164	0.064	35.7	0.1803	0.0000	OK
120 minute summer	Swale-1B End	86	108.365	0.265	30.6	0.0000	0.0000	OK
30 minute summer	Swale-2	20	111.163	0.063	37.8	0.2090	0.0000	OK
15 minute summer	Swale-3	11	113.532	0.032	17.6	0.0454	0.0000	OK
240 minute winter	Basin-N1	252	107.497	0.496	20.4	102.3120	0.0000	SURCHARGED
15 minute summer	Dummy-2/3 Outfall	1	107.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-1A	1.000	Swale-1A End	51.9	1.037	0.012	18.3487	
30 minute summer	Swale-1A End	1.001	Swale-1B End	18.3	1.072	1.032	0.8397	
30 minute summer	Swale-1A End	Infiltration (1.000)		0.1				
15 minute summer	Swale-1B	1.002	Swale-1B End	34.4	0.734	0.012	14.0189	
120 minute summer	Swale-1B End	1.003	Basin-N1	14.8	0.338	0.742	11.2093	
120 minute summer	Swale-1B End	Infiltration (1.002)		0.6				
30 minute summer	Swale-2	2.000	Basin-N1	25.1	0.581	0.011	9.0170	
15 minute summer	Swale-3	3.000	Basin-N1	15.8	0.776	0.003	1.7936	
240 minute winter	Basin-N1	Pump	Dummy-2/3 Outfall	0.0				0.0
240 minute winter	Basin-N1	Infiltration (3.000)		0.0				
240 minute winter	Basin-N1	Infiltration (2.000)		0.0				
240 minute winter	Basin-N1	Infiltration		4.0				

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 97.22%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-1A	11	125.488	0.088	102.5	0.3997	0.0000	OK
60 minute summer	Swale-1A End	46	111.850	0.250	67.8	0.0000	0.0000	FLOOD RISK
15 minute summer	Swale-1B	11	111.186	0.086	64.5	0.2451	0.0000	OK
180 minute winter	Swale-1B End	132	108.465	0.365	32.0	0.0000	0.0000	FLOOD RISK
30 minute summer	Swale-2	20	111.189	0.089	68.8	0.2956	0.0000	OK
15 minute summer	Swale-3	11	113.546	0.046	31.8	0.0641	0.0000	OK
360 minute winter	Basin-N1	352	107.699	0.699	28.8	167.5697	0.0000	SURCHARGED
15 minute summer	Dummy-2/3 Outfall	1	107.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-1A	1.000	Swale-1A End	94.9	1.161	0.023	37.3797	
60 minute summer	Swale-1A End	1.001	Swale-1B End	18.4	1.046	1.034	0.8502	
60 minute summer	Swale-1A End	Infiltration (1.000)		0.3				
15 minute summer	Swale-1B	1.002	Swale-1B End	62.0	0.818	0.021	22.5883	
180 minute winter	Swale-1B End	1.003	Basin-N1	20.8	0.376	1.046	13.5065	
180 minute winter	Swale-1B End	Infiltration (1.002)		0.9				
30 minute summer	Swale-2	2.000	Basin-N1	50.0	0.702	0.022	14.8375	
15 minute summer	Swale-3	3.000	Basin-N1	29.5	0.944	0.006	2.7500	
360 minute winter	Basin-N1	Pump	Dummy-2/3 Outfall	0.0				0.0
360 minute winter	Basin-N1	Infiltration (3.000)		0.1				
360 minute winter	Basin-N1	Infiltration (2.000)		0.4				
360 minute winter	Basin-N1	Infiltration		5.0				

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Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Swale-4	0.084	5.00	115.000	460621.934	155173.225	0.500
Swale-4/5A End			101.800	460797.634	155074.117	0.500
Swale-5A	0.044	5.00	104.700	460888.927	155016.090	0.500
Dummy-4/5A Outfall			101.800	460811.139	155084.935	0.500
Swale-5B	0.047	5.00	104.700	460888.943	155016.600	0.500
Swale-5B End			99.000	460941.960	155113.769	0.500
Dummy-5B Outfall			99.000	460961.071	155115.823	0.500

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
4.000	Swale-4	Swale-4/5A End	206.500	0.030	114.500	101.300	13.200	15.6	500	5.98	50.0
5.000	Swale-5A	Swale-4/5A End	108.500	0.030	104.200	101.300	2.900	37.4	500	5.79	50.0
4.001	Swale-4/5A End	Dummy-4/5A Outfall	5.000	0.030	101.300	101.300	0.000	0.0	150	6.06	50.0
5.001	Swale-5B	Swale-5B End	115.000	0.030	104.200	98.500	5.700	20.2	500	5.62	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
4.000	3.524	4404.9	15.2	0.000	0.000	0.084	0.0	33	0.755
5.000	2.279	2848.3	8.0	0.000	0.000	0.044	0.0	29	0.454
4.001	1.000	17.7	23.1	0.350	0.350	0.128	0.0	0	∞
5.001	3.103	3878.8	8.5	0.000	0.000	0.047	0.0	25	0.568

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Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
5.002	Swale-5B End	Dummy-5B Outfall	5.000	0.030	98.500	98.500	0.000	0.0	150	5.70	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
5.002	1.000	17.7	8.5	0.350	0.350	0.047	0.0	0	∞

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.000	206.500	15.6	500	1:4 Swale 0.101	115.000	114.500	0.000	101.800	101.300	0.000
5.000	108.500	37.4	500	1:4 Swale 0.101	104.700	104.200	0.000	101.800	101.300	0.000
4.001	5.000	0.0	150	Circular	101.800	101.300	0.350	101.800	101.300	0.350
5.001	115.000	20.2	500	1:4 Swale 0.101	104.700	104.200	0.000	99.000	98.500	0.000
5.002	5.000	0.0	150	Circular	99.000	98.500	0.350	99.000	98.500	0.350

Link	US Node	Node Type	DS Node	Node Type
4.000	Swale-4	Junction	Swale-4/5A End	Junction
5.000	Swale-5A	Junction	Swale-4/5A End	Junction
4.001	Swale-4/5A End	Junction	Dummy-4/5A Outfall	Junction
5.001	Swale-5B	Junction	Swale-5B End	Junction
5.002	Swale-5B End	Junction	Dummy-5B Outfall	Junction

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Swale-4	460621.934	155173.225	115.000	0.500				
					0	4.000	114.500	500
Swale-4/5A End	460797.634	155074.117	101.800	0.500		1	5.000	101.300	500
						2	4.000	101.300	500
					0	4.001	101.300	150
Swale-5A	460888.927	155016.090	104.700	0.500				
					0	5.000	104.200	500
Dummy-4/5A Outfall	460811.139	155084.935	101.800	0.500		1	4.001	101.300	150
Swale-5B	460888.943	155016.600	104.700	0.500				
					0	5.001	104.200	500
Swale-5B End	460941.960	155113.769	99.000	0.500		1	5.001	98.500	500
					0	5.002	98.500	150
Dummy-5B Outfall	460961.071	155115.823	99.000	0.500		1	5.002	98.500	150

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SuDS Carriers

Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
4.000	Swale-4	Swale-4/5A End	1:4 Swale 0.101	0.10100	0.10100	2.0	1
5.000	Swale-5A	Swale-4/5A End	1:4 Swale 0.101	0.10100	0.10100	2.0	1
5.001	Swale-5B	Swale-5B End	1:4 Swale 0.101	0.10100	0.10100	2.0	1

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	40	0	0
30	0	0	0				

Node Dummy-4/5A Outfall Online Pump Control

Flap Valve	x	Invert Level (m)	101.300	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

Node Dummy-5B Outfall Online Pump Control

Flap Valve	x	Invert Level (m)	98.500	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

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Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

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Results for 2 year Critical Storm Duration. Lowest mass balance: 95.78%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-4	11	114.529	0.029	14.2	0.0972	0.0000	OK
1440 minute winter	Swale-4/5A End	1080	101.497	0.197	1.4	0.0000	0.0000	SURCHARGED
15 minute summer	Swale-5A	11	104.226	0.026	7.5	0.0461	0.0000	OK
1440 minute winter	Dummy-4/5A Outfall	1080	101.497	0.197	0.0	0.0000	0.0000	OK
15 minute summer	Swale-5B	11	104.223	0.023	8.0	0.0431	0.0000	OK
1440 minute summer	Swale-5B End	1020	98.698	0.198	0.8	0.0000	0.0000	SURCHARGED
1440 minute summer	Dummy-5B Outfall	1020	98.698	0.198	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-4	4.000	Swale-4/5A End	12.5	0.723	0.003	6.6116	
1440 minute winter	Swale-4/5A End	4.001	Dummy-4/5A Outfall	0.0	0.020	0.000	0.0880	
1440 minute winter	Swale-4/5A End	Infiltration (5.000)		0.2				
1440 minute winter	Swale-4/5A End	Infiltration (4.000)		0.1				
15 minute summer	Swale-5A	5.000	Swale-4/5A End	6.8	0.432	0.002	3.4589	
1440 minute winter	Dummy-4/5A Outfall	Pump		0.0				0.0
15 minute summer	Swale-5B	5.001	Swale-5B End	7.3	0.506	0.002	3.6552	
1440 minute summer	Swale-5B End	5.002	Dummy-5B Outfall	0.0	0.024	0.001	0.0880	
1440 minute summer	Swale-5B End	Infiltration (5.001)		0.1				
1440 minute summer	Dummy-5B Outfall	Pump		0.0				0.0

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Results for 30 year Critical Storm Duration. Lowest mass balance: 93.11%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-4	11	114.554	0.054	42.2	0.1811	0.0000	OK
720 minute winter	Swale-4/5A End	705	101.608	0.308	4.9	0.0000	0.0000	FLOOD RISK
15 minute summer	Swale-5A	11	104.249	0.049	22.1	0.0856	0.0000	OK
720 minute winter	Dummy-4/5A Outfall	705	101.608	0.308	0.0	0.0000	0.0000	OK
15 minute summer	Swale-5B	11	104.243	0.043	23.6	0.0806	0.0000	OK
720 minute winter	Swale-5B End	705	98.807	0.307	1.8	0.0000	0.0000	FLOOD RISK
720 minute winter	Dummy-5B Outfall	705	98.807	0.307	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-4	4.000	Swale-4/5A End	38.6	0.915	0.009	20.6962	
720 minute winter	Swale-4/5A End	4.001	Dummy-4/5A Outfall	0.0	0.037	0.001	0.0880	
720 minute winter	Swale-4/5A End	Infiltration (5.000)		0.4				
720 minute winter	Swale-4/5A End	Infiltration (4.000)		0.2				
15 minute summer	Swale-5A	5.000	Swale-4/5A End	20.6	0.534	0.007	10.8493	
720 minute winter	Dummy-4/5A Outfall	Pump		0.0				0.0
15 minute summer	Swale-5B	5.001	Swale-5B End	22.3	0.587	0.006	11.4527	
720 minute winter	Swale-5B End	5.002	Dummy-5B Outfall	0.0	0.032	0.001	0.0880	
720 minute winter	Swale-5B End	Infiltration (5.001)		0.2				
720 minute winter	Dummy-5B Outfall	Pump		0.0				0.0

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 90.26%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-4	11	114.574	0.074	76.2	0.2500	0.0000	OK
960 minute winter	Swale-4/5A End	930	101.731	0.431	6.5	0.0000	0.0000	FLOOD RISK
15 minute summer	Swale-5A	11	104.267	0.067	39.9	0.1183	0.0000	OK
960 minute winter	Dummy-4/5A Outfall	930	101.731	0.431	0.0	0.0000	0.0000	OK
15 minute summer	Swale-5B	11	104.260	0.059	42.7	0.1118	0.0000	OK
600 minute winter	Swale-5B End	600	98.928	0.428	3.5	0.0000	0.0000	FLOOD RISK
600 minute winter	Dummy-5B Outfall	600	98.928	0.428	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-4	4.000	Swale-4/5A End	70.9	0.984	0.016	38.4901	
960 minute winter	Swale-4/5A End	4.001	Dummy-4/5A Outfall	0.0	0.038	0.001	0.0880	
960 minute winter	Swale-4/5A End	Infiltration (5.000)		0.6				
960 minute winter	Swale-4/5A End	Infiltration (4.000)		0.2				
15 minute summer	Swale-5A	5.000	Swale-4/5A End	37.7	0.575	0.013	20.1927	
960 minute winter	Dummy-4/5A Outfall	Pump		0.0				0.0
15 minute summer	Swale-5B	5.001	Swale-5B End	40.8	0.620	0.011	21.3872	
600 minute winter	Swale-5B End	5.002	Dummy-5B Outfall	0.0	0.047	0.002	0.0880	
600 minute winter	Swale-5B End	Infiltration (5.001)		0.3				
600 minute winter	Dummy-5B Outfall	Pump		0.0				0.0

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Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Swale-6	0.053	5.00	99.000	460949.352	155109.007	0.600
Swale-6 End			97.200	460950.020	155198.494	0.600
Dummy-6 Outfall			97.200	460967.365	155198.494	0.600
Swale-7	0.088	5.00	109.000	460907.388	155434.121	0.500
Swale-7 End			98.000	460949.706	155230.490	0.500
Dummy-7 Outfall			98.000	460975.875	155230.490	0.500
Swale-8	0.015	5.00	102.000	460965.135	155336.817	0.500
Swale-8 End			100.500	460976.198	155326.127	0.500
Dummy-8 Outfall			100.500	460993.326	155326.127	0.500

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Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.000	Swale-6	Swale-6 End	89.700	0.030	98.400	96.600	1.800	49.8	700	5.66	50.0
6.001	Swale-6 End	Dummy-6 Outfall	5.000	0.030	96.600	96.600	0.000	0.0	150	5.75	50.0
7.000	Swale-7	Swale-7 End	213.000	0.030	108.500	97.500	11.000	19.4	500	6.12	50.0
7.001	Swale-7 End	Dummy-7 Outfall	5.000	0.030	97.500	97.500	0.000	0.0	150	6.20	50.0
8.000	Swale-8	Swale-8 End	15.400	0.300	101.500	100.000	1.500	10.3	400	5.68	50.0
8.001	Swale-8 End	Dummy-8 Outfall	5.000	0.300	100.000	100.000	0.000	0.0	150	5.77	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
6.000	2.252	4188.5	9.6	0.000	0.000	0.053	0.0	29	0.406
6.001	1.000	17.7	9.6	0.450	0.450	0.053	0.0	0	∞
7.000	3.167	3959.2	15.9	0.000	0.000	0.088	0.0	35	0.701
7.001	1.000	17.7	15.9	0.350	0.350	0.088	0.0	0	∞
8.000	0.375	299.9	2.7	0.100	0.100	0.015	0.0	44	0.108
8.001	1.000	17.7	2.7	0.350	0.350	0.015	0.0	0	∞

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
6.000	89.700	49.8	700	1:4 Swale 0.023	99.000	98.400	0.000	97.200	96.600	0.000
6.001	5.000	0.0	150	Circular	97.200	96.600	0.450	97.200	96.600	0.450
7.000	213.000	19.4	500	1:4 Swale 0.097 500	109.000	108.500	0.000	98.000	97.500	0.000
7.001	5.000	0.0	150	Circular	98.000	97.500	0.350	98.000	97.500	0.350
8.000	15.400	10.3	400	1:4 Swale 0.097 400	102.000	101.500	0.100	100.500	100.000	0.100

Link	US Node	Node Type	DS Node	Node Type
6.000	Swale-6	Junction	Swale-6 End	Junction
6.001	Swale-6 End	Junction	Dummy-6 Outfall	Junction
7.000	Swale-7	Junction	Swale-7 End	Junction
7.001	Swale-7 End	Junction	Dummy-7 Outfall	Junction
8.000	Swale-8	Junction	Swale-8 End	Junction

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Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
8.001	5.000	0.0	150	Circular	100.500	100.000	0.350	100.500	100.000	0.350

Link	US Node	Node Type	DS Node	Node Type
8.001	Swale-8 End	Junction	Dummy-8 Outfall	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Swale-6	460949.352	155109.007	99.000	0.600				
					0	6.000	98.400	700
Swale-6 End	460950.020	155198.494	97.200	0.600	1	6.000	96.600	700
					0	6.001	96.600	150
Dummy-6 Outfall	460967.365	155198.494	97.200	0.600	1	6.001	96.600	150
Swale-7	460907.388	155434.121	109.000	0.500				
					0	7.000	108.500	500
Swale-7 End	460949.706	155230.490	98.000	0.500		1	7.000	97.500	500
						0	7.001	97.500	150
Dummy-7 Outfall	460975.875	155230.490	98.000	0.500	1	7.001	97.500	150

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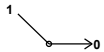
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Swale-8	460965.135	155336.817	102.000	0.500	0	8.000	101.500	400
Swale-8 End	460976.198	155326.127	100.500	0.500	1  0	8.000	100.000	400
					0	8.001	100.000	150
Dummy-8 Outfall	460993.326	155326.127	100.500	0.500	1	8.001	100.000	150

SuDS Carriers

Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
6.000	Swale-6	Swale-6 End	1:4 Swale 0.023	0.02300	0.02300	2.0	1
7.000	Swale-7	Swale-7 End	1:4 Swale 0.097 500	0.09700	0.09700	2.0	1
8.000	Swale-8	Swale-8 End	1:4 Swale 0.097 400	0.09700	0.09700	2.0	1

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

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

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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	40	0	0
30	0	0	0				

Node Dummy-6 Outfall Online Pump Control

Flap Valve	x	Invert Level (m)	96.600	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

Node Dummy-7 Outfall Online Pump Control

Flap Valve	x	Invert Level (m)	97.500	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

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Results for 2 year Critical Storm Duration. Lowest mass balance: 93.24%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-6	11	98.427	0.027	9.0	0.0471	0.0000	OK
1440 minute summer	Swale-6 End	1080	96.838	0.238	0.9	0.0000	0.0000	SURCHARGED
1440 minute summer	Dummy-6 Outfall	1080	96.838	0.238	0.0	0.0000	0.0000	OK
15 minute summer	Swale-7	11	108.532	0.031	14.9	0.1107	0.0000	OK
1440 minute winter	Swale-7 End	1380	97.722	0.222	1.0	0.0000	0.0000	FLOOD RISK
1440 minute winter	Dummy-7 Outfall	1380	97.722	0.222	0.0	0.0000	0.0000	OK
15 minute summer	Swale-8	11	101.541	0.041	2.5	0.0245	0.0000	OK
120 minute summer	Swale-8 End	74	100.154	0.154	1.3	0.0000	0.0000	SURCHARGED
120 minute summer	Dummy-8 Outfall	74	100.023	0.023	0.7	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-6	6.000	Swale-6 End	8.3	0.371	0.002	4.0517	
1440 minute summer	Swale-6 End	6.001	Dummy-6 Outfall	0.0	0.025	0.001	0.0880	
1440 minute summer	Swale-6 End	Infiltration (6.000)		0.1				
1440 minute summer	Dummy-6 Outfall	Pump		0.0				0.0
15 minute summer	Swale-7	7.000	Swale-7 End	13.0	0.708	0.003	6.9089	
1440 minute winter	Swale-7 End	7.001	Dummy-7 Outfall	0.0	0.021	0.000	0.0880	
1440 minute winter	Swale-7 End	Infiltration (7.000)		0.1				
1440 minute winter	Dummy-7 Outfall	Pump		0.0				0.0
15 minute summer	Swale-8	8.000	Swale-8 End	2.4	0.088	0.008	0.9663	
120 minute summer	Swale-8 End	8.001	Dummy-8 Outfall	0.7	0.064	0.039	0.0483	2.3
120 minute summer	Swale-8 End	Infiltration (8.000)		0.0				

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Results for 30 year Critical Storm Duration. Lowest mass balance: 90.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-6	11	98.450	0.050	26.7	0.0885	0.0000	OK
720 minute winter	Swale-6 End	720	96.968	0.368	2.0	0.0000	0.0000	FLOOD RISK
720 minute winter	Dummy-6 Outfall	720	96.968	0.368	0.0	0.0000	0.0000	OK
15 minute summer	Swale-7	11	108.558	0.058	44.3	0.2053	0.0000	OK
1440 minute summer	Swale-7 End	1440	97.833	0.333	2.8	0.0000	0.0000	FLOOD RISK
1440 minute summer	Dummy-7 Outfall	1440	97.833	0.333	0.0	0.0000	0.0000	OK
15 minute summer	Swale-8	11	101.573	0.073	7.5	0.0439	0.0000	OK
60 minute summer	Swale-8 End	45	100.304	0.304	5.0	0.0000	0.0000	FLOOD RISK
60 minute summer	Dummy-8 Outfall	45	100.030	0.030	1.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-6	6.000	Swale-6 End	25.1	0.455	0.006	12.8031	
720 minute winter	Swale-6 End	6.001	Dummy-6 Outfall	0.0	0.033	0.001	0.0880	
720 minute winter	Swale-6 End	Infiltration (6.000)		0.2				
720 minute winter	Dummy-6 Outfall	Pump		0.0				0.0
15 minute summer	Swale-7	7.000	Swale-7 End	40.2	0.905	0.010	21.7608	
1440 minute summer	Swale-7 End	7.001	Dummy-7 Outfall	0.0	0.028	0.001	0.0880	
1440 minute summer	Swale-7 End	Infiltration (7.000)		0.2				
1440 minute summer	Dummy-7 Outfall	Pump		0.0				0.0
15 minute summer	Swale-8	8.000	Swale-8 End	7.2	0.097	0.024	3.0132	
60 minute summer	Swale-8 End	8.001	Dummy-8 Outfall	1.2	0.096	0.066	0.0503	5.1
60 minute summer	Swale-8 End	Infiltration (8.000)		0.1				

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 87.35%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-6	11	98.470	0.070	48.1	0.1233	0.0000	OK
960 minute winter	Swale-6 End	945	97.120	0.520	2.7	0.0000	0.0000	FLOOD RISK
960 minute winter	Dummy-6 Outfall	945	97.120	0.520	0.0	0.0000	0.0000	OK
15 minute summer	Swale-7	11	108.580	0.080	79.8	0.2823	0.0000	OK
1440 minute winter	Swale-7 End	1410	97.965	0.465	3.2	0.0000	0.0000	FLOOD RISK
1440 minute winter	Dummy-7 Outfall	1410	97.965	0.465	0.0	0.0000	0.0000	OK
15 minute summer	Swale-8	11	101.599	0.099	13.6	0.0591	0.0000	OK
60 minute summer	Swale-8 End	49	100.457	0.457	9.2	0.0000	0.0000	FLOOD RISK
60 minute summer	Dummy-8 Outfall	49	100.034	0.034	1.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-6	6.000	Swale-6 End	45.9	0.475	0.011	23.9084	
960 minute winter	Swale-6 End	6.001	Dummy-6 Outfall	0.0	0.035	0.002	0.0880	
960 minute winter	Swale-6 End	Infiltration (6.000)		0.3				
960 minute winter	Dummy-6 Outfall	Pump		0.0				0.0
15 minute summer	Swale-7	7.000	Swale-7 End	73.6	0.986	0.019	40.4827	
1440 minute winter	Swale-7 End	7.001	Dummy-7 Outfall	0.0	0.027	0.001	0.0880	
1440 minute winter	Swale-7 End	Infiltration (7.000)		0.3				
1440 minute winter	Dummy-7 Outfall	Pump		0.0				0.0
15 minute summer	Swale-8	8.000	Swale-8 End	13.1	0.107	0.044	5.8722	
60 minute summer	Swale-8 End	8.001	Dummy-8 Outfall	1.5	0.120	0.084	0.0516	9.2
60 minute summer	Swale-8 End	Infiltration (8.000)		0.1				

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Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Swale-12	0.084	5.00	109.000	460916.631	155445.783	0.500
Swale-12 End			107.000	460952.043	155435.168	1.000
Dummy-12 Outfall			107.000	460979.460	155435.168	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
12.000	Swale-12	Swale-12 End	30.800	0.030	108.500	106.500	2.000	15.4	500	5.14	50.0
12.001	Swale-12 End	Dummy-12 Outfall	5.000	0.030	106.000	106.000	0.000	0.0	150	5.23	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
12.000	3.552	4439.6	15.2	0.000	0.000	0.084	0.0	32	0.748
12.001	1.000	17.7	15.2	0.850	0.850	0.084	0.0	0	∞

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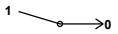
Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
12.000	30.800	15.4	500	1:4 Swale 0.097	109.000	108.500	0.000	107.000	106.500	0.000
12.001	5.000	0.0	150	Circular	107.000	106.000	0.850	107.000	106.000	0.850

Link	US Node	US Node Type	DS Node	DS Node Type
12.000	Swale-12	Junction	Swale-12 End	Junction
12.001	Swale-12 End	Junction	Dummy-12 Outfall	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
Swale-12	460916.631	155445.783	109.000	0.500				
					0	12.000	108.500	500
Swale-12 End	460952.043	155435.168	107.000	1.000	1	12.000	106.500	500
								
					0	12.001	106.000	150
Dummy-12 Outfall	460979.460	155435.168	107.000	1.000	1	12.001	106.000	150

SuDS Carriers

Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
12.000	Swale-12	Swale-12 End	1:4 Swale 0.097	0.09700	0.09700	2.0	1

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Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	40	0	0
30	0	0	0				

Node Dummy-12 Outfall Online Pump Control

Flap Valve	x	Invert Level (m)	106.000	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.100	0.000

Node Swale-12 End Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.09700	Safety Factor	2.0	Invert Level (m)	106.000
Side Inf Coefficient (m/hr)	0.09700	Porosity	1.00	Time to half empty (mins)	304

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	24.8	24.8	1.000	196.3	199.6

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Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-12	11	108.530	0.030	14.2	0.1022	0.0000	OK
360 minute summer	Swale-12 End	248	106.259	0.259	3.9	12.1590	0.0000	SURCHARGED
360 minute summer	Dummy-12 Outfall	248	106.259	0.259	0.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-12	12.000	Swale-12 End	13.8	0.730	0.003	0.5823	
360 minute summer	Swale-12 End	12.001	Dummy-12 Outfall	0.1	0.044	0.003	0.0880	
360 minute summer	Swale-12 End	Infiltration (12.000)		0.0				
360 minute summer	Swale-12 End	Infiltration		0.9				
360 minute summer	Dummy-12 Outfall	Pump		0.0				0.0

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Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-12	10	108.556	0.056	42.2	0.1871	0.0000	OK
180 minute winter	Swale-12 End	176	106.474	0.474	9.5	30.9821	0.0000	SURCHARGED
180 minute winter	Dummy-12 Outfall	176	106.474	0.474	0.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-12	12.000	Swale-12 End	41.2	1.025	0.009	1.2389	
180 minute winter	Swale-12 End	12.001	Dummy-12 Outfall	0.1	0.064	0.007	0.0880	
180 minute winter	Swale-12 End	Infiltration (12.000)		0.0				
180 minute winter	Swale-12 End	Infiltration		1.4				
180 minute winter	Dummy-12 Outfall	Pump		0.0				0.0

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	Swale-12	10	108.576	0.076	76.2	0.2565	0.0000	OK
240 minute winter	Swale-12 End	232	106.674	0.674	13.4	55.6747	0.0000	SURCHARGED
240 minute winter	Dummy-12 Outfall	232	106.674	0.674	0.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	Swale-12	12.000	Swale-12 End	74.9	1.219	0.017	1.8920	
240 minute winter	Swale-12 End	12.001	Dummy-12 Outfall	0.1	0.067	0.008	0.0880	
240 minute winter	Swale-12 End	Infiltration (12.000)		0.1				
240 minute winter	Swale-12 End	Infiltration		1.9				
240 minute winter	Dummy-12 Outfall	Pump		0.0				0.0

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Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
SWALE-9	0.202	5.00	109.400	460413.478	155690.928	0.500
SWALE-10	0.082	5.00	112.000	460693.534	155509.545	0.500
SWALE-11	0.109	5.00	112.000	460411.604	155292.772	0.500
9-11 Junc			104.000	460524.853	155456.445	0.500
BASIN N5			103.000	460529.690	155466.438	1.000
Dummy Outfall			103.000	460947.574	155467.782	1.000

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
9.000	SWALE-9	9-11 Junc	439.700	0.600	108.900	103.500	5.400	81.4	500	6.88	50.0
10.000	SWALE-10	BASIN N5	150.000	0.030	111.500	102.000	9.500	15.8	500	5.71	50.0
11.000	SWALE-11	9-11 Junc	217.000	0.030	111.500	103.500	8.000	27.1	500	6.35	50.0
10.001	9-11 Junc	BASIN N5	12.747	0.600	103.500	102.250	1.250	10.2	300	6.93	50.0
Dummy Outfall	BASIN N5	Dummy Outfall	5.000	0.600	102.000	102.000	0.000	0.0	100	7.01	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
9.000	3.890	4862.9	36.5	0.000	0.000	0.202	0.0	47	1.098
10.000	3.508	4384.5	14.8	0.000	0.500	0.082	0.0	32	0.739
11.000	2.676	3345.2	19.7	0.000	0.000	0.109	0.0	43	0.673
10.001	4.950	349.9	56.2	0.200	0.450	0.311	0.0	81	3.659
Dummy Outfall	1.000	7.9	71.0	0.900	0.900	0.393	0.0	0	∞

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Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
9.000	439.700	81.4	500	1:4 Swale 0.0180	109.400	108.900	0.000	104.000	103.500	0.000
10.000	150.000	15.8	500	1:4 Swale 0.0432	112.000	111.500	0.000	103.000	102.000	0.500
11.000	217.000	27.1	500	1:4 Swale 0.0432	112.000	111.500	0.000	104.000	103.500	0.000
10.001	12.747	10.2	300	Circular	104.000	103.500	0.200	103.000	102.250	0.450
Dummy Outfall	5.000	0.0	100	Circular	103.000	102.000	0.900	103.000	102.000	0.900

Link	US Node	Node Type	DS Node	Node Type
9.000	SWALE-9	Junction	9-11 Junc	Junction
10.000	SWALE-10	Junction	BASIN N5	Junction
11.000	SWALE-11	Junction	9-11 Junc	Junction
10.001	9-11 Junc	Junction	BASIN N5	Junction
Dummy Outfall	BASIN N5	Junction	Dummy Outfall	Junction

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
SWALE-9	460413.478	155690.928	109.400	0.500	0	9.000	108.900	500
SWALE-10	460693.534	155509.545	112.000	0.500	0	10.000	111.500	500
SWALE-11	460411.604	155292.772	112.000	0.500	0	11.000	111.500	500
9-11 Junc	460524.853	155456.445	104.000	0.500	1 2 0	11.000 9.000 10.001	103.500 103.500 103.500	500 500 300

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Connections	Link	IL (m)	Dia (mm)
BASIN N5	460529.690	155466.438	103.000	1.000	1	10.000	102.000	500
					2	10.001	102.250	300
					0	Dummy Outfall	102.000	100
Dummy Outfall	460947.574	155467.782	103.000	1.000	1	Dummy Outfall	102.000	100

SuDS Carriers

Link	US Node	DS Node	Link Type	Base Inf Coef (m/hr)	Sides Inf Coef (m/hr)	Safety Factor	Time to Half Empty (mins)
9.000	SWALE-9	9-11 Junc	1:4 Swale 0.0180	0.01800	0.01800	2.0	1
10.000	SWALE-10	BASIN N5	1:4 Swale 0.0432	0.04320	0.04320	2.0	1
11.000	SWALE-11	9-11 Junc	1:4 Swale 0.0432	0.04320	0.04320	2.0	1

Simulation Settings

Rainfall Methodology	FEH-22	Winter CV	1.000	Drain Down Time (mins)	1440	Check Discharge Rate(s)	x
Rainfall Events	Singular	Analysis Speed	Detailed	Additional Storage (m³/ha)	20.0	Check Discharge Volume	x
Summer CV	1.000	Skip Steady State	x	Starting Level (m)			

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	40	0	0
30	0	0	0				

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Node BASIN N5 Online Pump Control

Flap Valve	x	Invert Level (m)	102.000	Design Flow (l/s)	0.1	Switch off depth (m)	0.100
Replaces Downstream Link	✓	Design Depth (m)	9.000	Switch on depth (m)	9.000		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
9.000	0.000	9.001	0.000

Node BASIN N5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.04320	Safety Factor	2.0	Invert Level (m)	102.000
Side Inf Coefficient (m/hr)	0.04320	Porosity	1.00	Time to half empty (mins)	810

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	279.3	279.3	1.000	685.6	692.7

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Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SWALE-9	12	108.942	0.042	34.2	0.3386	0.0000	OK
15 minute summer	SWALE-10	11	111.534	0.034	13.9	0.1114	0.0000	OK
15 minute summer	SWALE-11	12	111.540	0.040	18.5	0.1735	0.0000	OK
30 minute summer	9-11 Junc	24	103.553	0.053	40.0	0.0000	0.0000	OK
480 minute summer	BASIN N5	384	102.182	0.182	14.0	57.6300	0.0000	SURCHARGED
15 minute summer	Dummy Outfall	1	102.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SWALE-9	9.000	9-11 Junc	27.0	1.145	0.006	11.9887	
15 minute summer	SWALE-10	10.000	BASIN N5	12.7	1.027	0.003	3.7166	
15 minute summer	SWALE-11	11.000	9-11 Junc	15.9	0.724	0.005	5.6219	
30 minute summer	9-11 Junc	10.001	BASIN N5	23.8	2.867	0.068	0.1060	
30 minute summer	9-11 Junc	Infiltration (11.000)		0.0				
30 minute summer	9-11 Junc	Infiltration (9.000)		0.0				
480 minute summer	BASIN N5	Pump	Dummy Outfall	0.0				0.0
480 minute summer	BASIN N5	Infiltration (10.000)		0.0				
480 minute summer	BASIN N5	Infiltration		2.0				

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Results for 30 year Critical Storm Duration. Lowest mass balance: 99.98%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SWALE-9	11	108.978	0.078	101.5	0.6275	0.0000	OK
15 minute summer	SWALE-10	11	111.561	0.061	41.2	0.2012	0.0000	OK
15 minute summer	SWALE-11	11	111.573	0.073	54.8	0.3181	0.0000	OK
30 minute summer	9-11 Junc	22	103.603	0.103	126.4	0.0000	0.0000	OK
360 minute winter	BASIN N5	368	102.376	0.376	25.7	133.8183	0.0000	SURCHARGED
15 minute summer	Dummy Outfall	1	102.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SWALE-9	9.000	9-11 Junc	90.6	1.521	0.019	30.7798	
15 minute summer	SWALE-10	10.000	BASIN N5	41.3	1.371	0.009	18.4710	
15 minute summer	SWALE-11	11.000	9-11 Junc	51.0	0.952	0.015	14.4501	
30 minute summer	9-11 Junc	10.001	BASIN N5	90.1	4.209	0.258	0.2729	
30 minute summer	9-11 Junc	Infiltration (11.000)		0.0				
30 minute summer	9-11 Junc	Infiltration (9.000)		0.0				
360 minute winter	BASIN N5	Pump	Dummy Outfall	0.0				0.0
360 minute winter	BASIN N5	Infiltration (10.000)		0.1				
360 minute winter	BASIN N5	Infiltration		2.5				

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SWALE-9	11	109.006	0.106	183.3	0.8561	0.0000	OK
15 minute summer	SWALE-10	10	111.582	0.082	74.3	0.2692	0.0000	OK
15 minute summer	SWALE-11	11	111.599	0.099	98.8	0.4296	0.0000	OK
30 minute summer	9-11 Junc	22	103.647	0.147	235.4	0.0000	0.0000	OK
600 minute winter	BASIN N5	600	102.592	0.592	29.5	236.5064	0.0000	SURCHARGED
15 minute summer	Dummy Outfall	1	102.000	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SWALE-9	9.000	9-11 Junc	169.1	1.734	0.035	51.5710	
15 minute summer	SWALE-10	10.000	BASIN N5	78.0	1.563	0.018	42.5444	
15 minute summer	SWALE-11	11.000	9-11 Junc	93.2	1.083	0.028	24.2611	
30 minute summer	9-11 Junc	10.001	BASIN N5	171.8	5.004	0.491	0.4376	
30 minute summer	9-11 Junc	Infiltration (11.000)		0.0				
30 minute summer	9-11 Junc	Infiltration (9.000)		0.1				
600 minute winter	BASIN N5	Pump	Dummy Outfall	0.0				0.0
600 minute winter	BASIN N5	Infiltration (10.000)		0.2				
600 minute winter	BASIN N5	Infiltration		3.1				

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APPENDIX D

Preliminary Surface Water Management Plan

N

GL=115.00
IL=114.50

GL=114.00
IL=113.50

N2

N2 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 1,746.4 m² / 0.175 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

INFILTRATION SWALE-3

BASED ON AN INFILTRATION RATE OF 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

TOTAL LENGTH = 87.9 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N1 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-3

INFILTRATION SWALE-4

BASED ON AN INFILTRATION RATE OF 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

TOTAL LENGTH = 206.5 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N2 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-4

GL=108.00
IL=107.50

INFILTRATION BASIN N1

455.9 m² x 1.0 m DEEP
TOP LEVEL = 108.00 m AOD
BASE LEVEL = 107.00 m AOD
SIDE SLOPES = 1:4

INFILTRATION RATE = 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

CRITICAL 1.0% AEP RAINFALL EVENT, INCLUDING 40% CLIMATE CHANGE ALLOWANCE, MODEL DETAILS:
WATER VOLUME = 167.6 m³
WATER DEPTH = 0.699 m
WATER LEVEL = 107.699 m AOD
FREEBOARD = 301 mm
HALF DRAIN TIME = 810 MINUTES

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N5 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO INFILTRATION BASIN

GL=101.80
IL=101.30

INFILTRATION SWALE-5A

BASED ON AN INFILTRATION RATE OF 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

TOTAL LENGTH = 108.5 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N2 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-5A

INFILTRATION SWALE-2

BASED ON AN INFILTRATION RATE OF 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

TOTAL LENGTH = 208.2 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N1 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-2

N1

N1 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 2,928.2 m² / 0.293 ha
POWER STATIONS = 29.7 m² x 3 = 89.1 m² / 0.009 ha
TOTAL = 0.302 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

1,003.266.5m 300Ø PERFORATED CARRIER LAND DRAIN

GL=111.60
IL=111.10

INFILTRATION SWALE-1B

BASED ON AN INFILTRATION RATE OF 5.3 x 10^{-5} m/s (0.191 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA07)

TOTAL LENGTH = 109.0 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N1 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-1B

GL=108.60
IL=108.10

GL=109.60
IL=109.10

GL=112.10
IL=111.60

INFILTRATION SWALE-1A

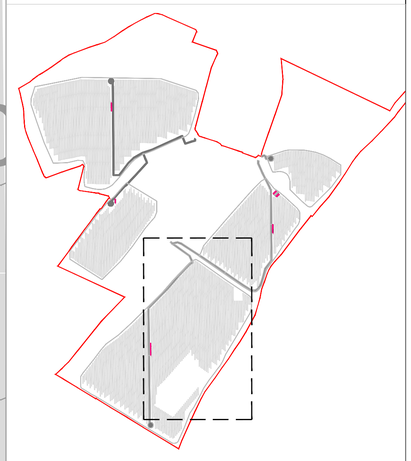
BASED ON AN INFILTRATION RATE OF 5.3 x 10^{-5} m/s (0.191 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA07)

TOTAL LENGTH = 235.3 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N1 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-1A

GL=125.90
IL=125.40

116.0
114.0
112.0
110.0
108.0
106.0
104.0
102.0
100
124.0
124.0



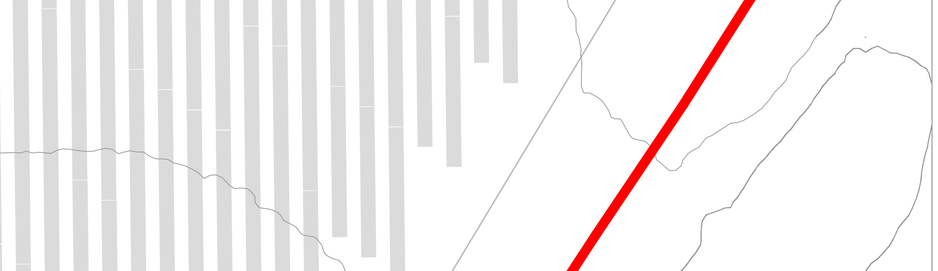
FULL SITE ARRANGEMENT
SCALE 1:10,000

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT WEETWOOD DRAWINGS. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF WEETWOOD.
2. ANNUAL EXCEEDANCE PROBABILITY RAINFALL EVENTS:
   - 100.0% (1:1) AEP RAINFALL EVENT
   - 43.5% (QBAR) AEP RAINFALL EVENT
   - 3.3% (1:30) AEP RAINFALL EVENT
   - 1.0% (1:100) AEP RAINFALL EVENT
3. PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 'SITE LAYOUT' DRAWING (REF: 110-016L-260410, MAY 2026).

DRAINAGE KEY

- PROPOSED INFILTRATION BASIN/SWALE
- PROPOSED SURFACE WATER SEWER
- EXISTING LEVEL
- SITE BOUNDARY



TYPICAL SECTION THROUGH INFILTRATION SWALE

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY
P5	24.06.26	UPDATED TO SUIT NEW LAYOUT	WC	TB
P4	28.11.25	UPDATED TO SUIT NEW LAYOUT	WC	TB
P3	10.06.25	REDLINE BOUNDARY AMENDED	WC	TB
P2	29.05.25	UPDATED TO SUIT NEW LAYOUT	WC	TB
P1	07.05.25	INITIAL ISSUE	WC	TB

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Client
STOKES LANE SOLAR FARM LIMITED

Drawing Status: PLANNING	Date: MAY 2025
	Scale (A0): 1:500
Project: STOKES LANE SOLAR FARM	Drawn by: WC
	Check by: TB
Drawing Number: 5761-WTWD-00-XX-DR-D-1101	Revision: P5

Drawing Title
SURFACE WATER MANAGEMENT PLAN
1 OF 3

THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL OTHER RELEVANT DRAWINGS. DO NOT SCALE FROM THIS DRAWING.

N

114.0

112.0

N4

INFILTRATION SWALE-12

INFILTRATION RATE = 2.7 x 10^{-5} m/s (0.097 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA04)

TOTAL LENGTH = 30.8 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N4 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-12

N4 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 396.2 m² / 0.040 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

GL=109.00
IL=108.50

GL=109.00
IL=108.50

GL=107.00
IL=106.50

INFILTRATION BASIN N4

196.3 m² x 1.0 m DEEP
TOP LEVEL = 107.00 m AOD
BASE LEVEL = 106.00 m AOD
SIDE SLOPES = 1:4

INFILTRATION RATE = 2.7 x 10^{-5} m/s (0.097 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA04)

CRITICAL 1.0% AEP RAINFALL EVENT, INCLUDING 40% CLIMATE CHANGE ALLOWANCE, MODEL DETAILS:
WATER VOLUME = 55.7 m³
WATER DEPTH = 0.674 m
WATER LEVEL = 106.674 m AOD
FREEBOARD = 326 mm
HALF DRAIN TIME = 304 MINUTES

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N4 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO INFILTRATION BASIN

INFILTRATION SWALE-7

BASED ON AN INFILTRATION RATE OF 2.7 x 10^{-5} m/s (0.097 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA04)

TOTAL LENGTH = 213.0 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N3 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-7

SUBSTATION/CONTAINER SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

INFILTRATION SWALE-8

BASED ON AN INFILTRATION RATE OF 2.7 x 10^{-5} m/s (0.097 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA04)

TOTAL LENGTH = 15.4 m
CROSS SECTIONAL AREA = 0.8 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N3 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-8

GL=103.00
IL=102.50

GL=102.00
IL=101.50

GL=100.50
IL=100.00

N3

N3 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 1,351.3 m² / 0.135 ha
POWER STATIONS = 29.7 m² x 2 = 59.4 m² / 0.006 ha
SUBSTATION = 50.8 m² / 0.005 ha
DNO STATION = 40.7 m² / 0.004 ha
CONTAINERS = 31.9 m² x 2 = 63.8 m² / 0.006 ha
TOTAL = 0.156 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

GL=98.00
IL=97.50

INFILTRATION SWALE-6

BASED ON AN INFILTRATION RATE OF 6.5 x 10^{-6} m/s (0.023 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA06)

TOTAL LENGTH = 89.7 m
CROSS SECTIONAL AREA = 1.86 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N3 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-6

GL=97.20
IL=96.60

N2

N2 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 1,746.4 m² / 0.175 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

GL=99.00
IL=98.50

GL=99.00
IL=98.40

INFILTRATION SWALE-5B

BASED ON AN INFILTRATION RATE OF 2.8 x 10^{-5} m/s (0.101 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA05)

TOTAL LENGTH = 115.0 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N2 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-5B

GL=104.70
IL=104.20

98.0

100.0

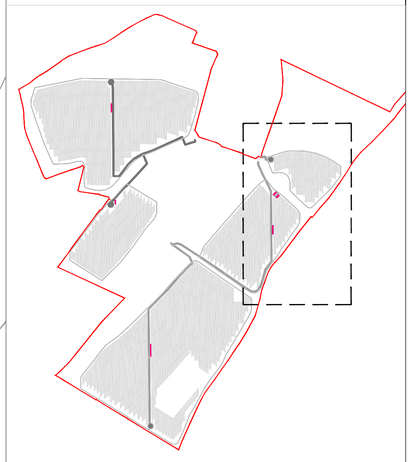
10

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT WEETWOOD DRAWINGS. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF WEETWOOD.

2. ANNUAL EXCEEDANCE PROBABILITY RAINFALL EVENTS:
- 100.0% (1:1) AEP RAINFALL EVENT
- 43.5% (QBAR) AEP RAINFALL EVENT
- 3.3% (1:30) AEP RAINFALL EVENT
- 1.0% (1:100) AEP RAINFALL EVENT

3. PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 'SITE LAYOUT' DRAWING (REF: 110-016L-260410, MAY 2026).

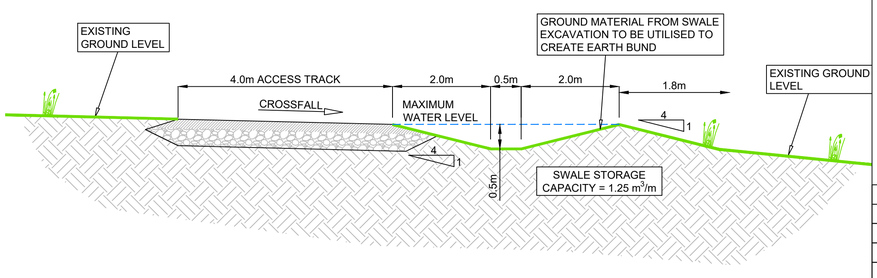


FULL SITE ARRANGEMENT
SCALE 1:10,000

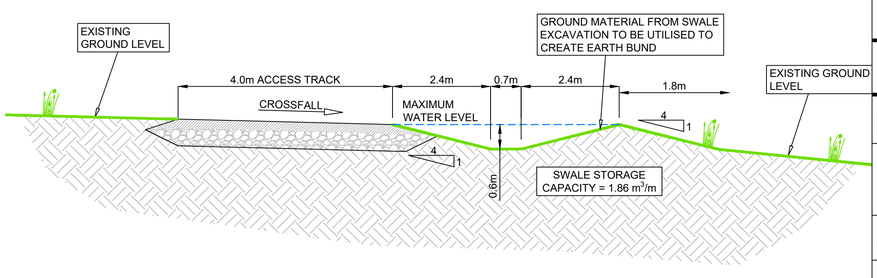
DRAINAGE KEY

- PROPOSED INFILTRATION BASIN/
- PROPOSED SURFACE WATER SE
- EXISTING LEVEL
- SITE BOUNDARY

TYPICAL SECTION THROUGH INFILTRATION SWALE-8



TYPICAL SECTION THROUGH INFILTRATION SWALE



TYPICAL SECTION THROUGH INFILTRATION SWALE-6

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY
P5	24.06.26	UPDATED TO SUIT NEW LAYOUT	WC	TB
P4	28.11.25	UPDATED TO SUIT NEW LAYOUT	WC	TB
P3	10.06.25	REDLINE BOUNDARY AMENDED	WC	TB
P2	29.05.25	UPDATED TO SUIT NEW LAYOUT	WC	TB
P1	07.05.25	INITIAL ISSUE	WC	TB

Weetwood
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CH7 1FQ
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www.weetwood.net

Client
STOKES LANE SOLAR FARM LIMITED

Drawing Status: PLANNING	Date: MAY 2025
	Scale (A0): 1:500
Project: STOKES LANE SOLAR FARM	Drawn by: WC
	Check by: TB
Drawing Number: 5761-WTWD-00-XX-DR-D-1102	Revision: P5

Drawing Title
SURFACE WATER MANAGEMENT PLAN
2 OF 3

THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL OTHER RELEVANT DRAWINGS. DO NOT SCALE FROM THIS DRAWING.

N

GL=108.80
IL=108.30

GL=108.50
IL=108.00

INFILTRATION SWALE-9

INFILTRATION RATE = 5.0 x 10^{-6} m/s (0.018 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA01)

TOTAL LENGTH = 439.7 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N5 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-9

INFILTRATION BASIN N5

417.6 m² x 1.0 m DEEP
TOP LEVEL = 103.00 m AOD
BASE LEVEL = 102.00 m AOD
SIDE SLOPES = 1:4

INFILTRATION RATE = 1.2 x 10^{-5} m/s (0.043 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA03)

CRITICAL 1.0% AEP RAINFALL EVENT, INCLUDING 40% CLIMATE CHANGE ALLOWANCE, MODEL DETAILS:
WATER VOLUME = 236.5 m³
WATER DEPTH = 0.592 m
WATER LEVEL = 102.592 m AOD
FREEBOARD = 408 mm
HALF DRAIN TIME = 810 MINUTES

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N5 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO INFILTRATION BASIN

GL=112.00
IL=111.50

GL=104.00
IL=103.50

INFILTRATION SWALE-10

INFILTRATION RATE = 1.2 x 10^{-5} m/s (0.043 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA03)

TOTAL LENGTH = 150.0 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N5 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-10

N5

N5 CONTRIBUTING AREA

TOTAL ACCESS ROAD = 3,842.2 m² / 0.384 ha
POWER STATIONS = 29.7 m² x 3 = 89.1 m² / 0.009 ha
TOTAL = 0.393 ha

ACCESS ROAD SURFACE WATER RUNOFF TO BE DIRECTED INTO ADJACENT INFILTRATION SWALE

INFILTRATION SWALE-11

INFILTRATION RATE = 1.2 x 10^{-5} m/s (0.043 m/hr)
AS PER IBEX CONSULTING INFILTRATION TESTING
(REF: ICE0517/LD01/251002 - TRIAL PIT SA03)

TOTAL LENGTH = 217.0 m
CROSS SECTIONAL AREA = 1.25 m²

REFER TO CAUSEWAY FLOW FILE "2026-06-22 5761 SW Storage Calculation N5 (R4)" FOR SURFACE WATER CALCULATIONS RELATING TO SWALE-11

GL=112.00
IL=111.50

98.0
104.0
112.0
100

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT WEETWOOD DRAWINGS. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF WEETWOOD.
2. ANNUAL EXCEEDANCE PROBABILITY RAINFALL EVENTS:
   - 100.0% (1:1) AEP RAINFALL EVENT
   - 43.5% (QBAR) AEP RAINFALL EVENT
   - 3.3% (1:30) AEP RAINFALL EVENT
   - 1.0% (1:100) AEP RAINFALL EVENT
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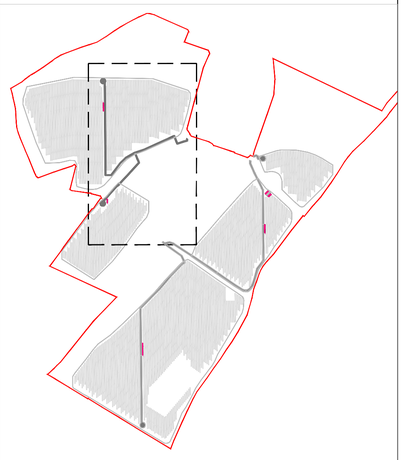

FULL SITE ARRANGEMENT
SCALE 1:10,000

DRAINAGE KEY

- PROPOSED INFILTRATION BASIN/SWALE
- PROPOSED SURFACE WATER SEWER
- EXISTING LEVEL
- SITE BOUNDARY

TYPICAL SECTION THROUGH INFILTRATION SWALE

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY
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Drawing Title
SURFACE WATER MANAGEMENT PLAN
3 OF 3

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River Realignment and Restoration
Water Framework Directive Assessments
Environmental Permit and Land Drainage Applications
Sequential, Justification and Exception Tests
Utility Assessments
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