EAST PARK ENERGY

East Park Energy

EN010141

Outline Surface Water Management Plan

Document Reference: EN010141/DR/7.13

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009: Regulation 5(2)(q)

~~August~~ September 2026

Version ~~P04~~P05

EAST PARK ENERGY

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Outline Surface Water Management Plan

APFP Regulation Reference:	Regulation 5(2)(q)
Planning Inspectorate Scheme Reference:	EN010141
Application Document Number:	EN010141/DR/7.13
Author:	Wallingford HydroSolutions

Version	Date	Status
P01	September 2025	DCO Submission
P02	April 2026	Deadline 1
P03	May 2026	Deadline 3
P04	August 2026	Deadline 6
P05	September 2026	Deadline 8

CONTENTS

TABLES

1.0 INTRODUCTION

1.1 Purpose of the Document

1.1.1 This outline Surface Water Management Plan (oSWMP) has been prepared on behalf of BSSL Cambsbed 1 Ltd (the Applicant) for the construction, operation and decommissioning phases of the East Park Energy project ('the Scheme').

1.1.2 This oSWMP includes recommendations for the most appropriate measures to manage surface water run-off at the Site during the construction and operational phases of the project. It considers the scale and nature of the development in the context of surface water drainage and the relevant guidance and legislation. In summary, this report:

- Provides appropriate mitigation measures to manage the quality of surface water run-off during construction, with a provisional layout of mitigation features provided for the hard standing area (i.e., the BESS and substation area) and further recommendations on construction methods based on best practice guidance; and
- Provides appropriate mitigation measures to manage the treatment in addition to the rate and volume of surface water run-off during operation, with a provisional layout of mitigation features for the hard standing area and adjoining impermeable tracks.

1.1.3 This oSWMP is a control document that will be certified as part of the Development Consent Order (DCO) and secured via a Requirement in Schedule 2 of the **draft DCO [EN010141/DR/3.1]**. Should the Scheme be consented, the DCO requires that a final Surface Water Management Plan (SWMP) in substantial accordance with this oSWMP is approved by the relevant local planning authorities prior to commencing the construction phase.

1.1.4 For the purposes of this oSWMP, references to the operational phase include routine maintenance, repair, renewal and replacement activities, including

Routine Replacement Works, Planned Panel Replacement Campaigns and Major Replacement Campaigns as defined in the outline Operational Environmental Management Plan. The approved SWMP will apply to those activities where relevant. Any Major Replacement Campaign Method Statement and Environmental Review will identify the temporary drainage, sediment-control and pollution-prevention measures required for the campaign and will remain consistent with the approved SWMP.

1.1.5 The Site is located on land to the north-west of St Neots on the border between Bedford Borough and Huntingdonshire District. The Site location is shown in Figure 1.

1.2 Sources of Information

1.2.1 The main sources of data and guidance used to inform this plan are as follows:

- Environment Agency's (EA) Surface Water Flood Mapping – To help determine surface water flow paths across the Site[1];
- Flood Estimation Handbook (FEH) Catchment Data - To define catchment boundaries[2];
- Defra Magic Map - To identify groundwater aquifers and source protection zones[3];
- BGS Geology of Britain Viewer - To identify bedrock and superficial deposits[4];
- Landis Soilscapes Map - To identify soil types[5];
- Plans of the Scheme available in the **Works Plan [EN010141/DR/2.3]**, and **ES Vol 3 Figure 2-1: Illustrative Environmental Masterplan [EN010141/DR/6.3]**; and

[1] *EA Surface Water Flood Maps. 2023. Available at: https://flood-map-for-planning.service.gov.uk/*
[2] *FEH Web Service. 2022. Available at: https://fehweb.ceh.ac.uk/*
[3] *DEFRA Magic Map. 2022. Available at: https://magic.defra.gov.uk/magicmap.aspx*
[4] *BGS Geology of Britain Viewer. 2024. Available at: https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/*
[5] *Landis Soilscapes Map. 2022. Available at: http://www.landis.org.uk/soilscapes/*

- 1m LiDAR Data[6].

1.3 Relationship with Other Management Plans

1.3.1 This oSWMP is part of a framework of environmental management documents that will be implemented across the lifetime of the Scheme. The following plans are relevant and will be developed separate to the oSWMP, pursuant to DCO Requirements:

- **Construction Environmental Management Plan (CEMP)**: This plan will set out how the construction phase of the Scheme will be managed to avoid, reduce, or mitigate environmental impacts. It will cover topics like pollution prevention measures, dust and noise control, protection of wildlife, site waste management, and incident response protocols. The CEMP ensures that commitments made in the ES are translated into practical measures on-site. An **outline Construction Environmental Management Plan [EN010141/DR/7.3]** has been prepared and submitted with the application for development consent;
- **Operational Environmental Management Plan (OEMP)**: This plan will set out how the operational phase of the Scheme will be managed to control environmental risks. An **outline Operational Environmental Management Plan [EN010141/DR/7.5]** has been prepared and submitted with the application for development consent;
- **Decommissioning Environmental Management Plan (DEMP):** This plan will set out how the decommissioning phase of the Scheme will be managed to control environmental risks. An **outline Decommissioning Environmental Management Plan [EN010141/DR/7.6]** has been prepared and submitted with the application for development consent;
- **Landscape and Ecological Management Plan (LEMP)**: This plan will set out measures for landscape planting, habitat management, and biodiversity net gain, ensuring that mitigation planting and screening

[6] *Environment Agency. National LiDAR Programme. 2024. Available at: https://www.data.gov.uk/dataset/f0db0249-f17b-4036-9e65-309148c97ce4/national-lidar-programme*

vegetation are effectively maintained An **outline Landscape and Ecological Plan [EN010141/DR/7.7]** has been prepared and submitted with the application for development consent;

- **Soil Management Plan (SMP)**: This plan will ensure the sustainable management of soils and materials by setting out strategies for handling, storage, and reuse of soils. An **outline Soil Management Plan [EN010141/DR/7.9]** has been prepared and submitted with the application for development consent;
- **Battery Safety Management Plan (BSMP)**: This plan describes the safety measures and protocols for the BESS, including fire detection and suppression systems, emergency response procedures, and regulatory compliance. An **outline Battery Safety Management Plan [EN010141/DR/7.10]** has been prepared and submitted with the application for development consent.
- **Archaeological Mitigation Strategy (AMS):** This plan sets out the management of archaeological remains, both known and currently unknown, across the lifetime of the Scheme. An **outline Archaeological Mitigation Strategy [EN010141/DR/7.15]** has been prepared and submitted with the application for development consent.

1.4 Role and Responsibilities

1.4.1 The final SWMP will identify the named persons responsible for its implementation. Overall responsibility will rest with the Construction Project Manager during construction, the Site Manager during operation, including repair, renewal and replacement activities, and the Decommissioning Project Manager during decommissioning.

1.4.2 The Environmental Manager will oversee compliance with the approved SWMP. The Environmental Clerk of Works will undertake and record the inspections and monitoring specified in the approved SWMP and will instruct that an activity is stopped or modified where a drainage, sediment-control or pollution-prevention measure is absent, damaged or ineffective, or where the activity presents an unacceptable risk to surface water, groundwater or another environmental receptor.

1.4.3 The Ecological Clerk of Works and soil scientist will be consulted where the siting, installation, maintenance or removal of a surface water management measure could affect retained habitat, vegetation, soil resources, field drainage or the restoration of agricultural land.

1.4.4 Records of inspections, water-quality monitoring, incidents, non-compliances, remedial actions and verification checks will be maintained through the Environmental Management System applicable to the relevant phase. These records will be made available to the relevant local planning authority or Environment Agency on request.

2.0 THE SCHEME

2.1 Order Limits

2.1.1 The area of land required for the construction, operation and maintenance of the Scheme, which includes land required for all phases of the Scheme, is shown on **ES Vol 3 Figure 1-1: Site Location [EN010141/DR/6.3]**. This is referred to as the 'Order Limits' or the 'Site'.

2.2 The Site

2.2.1 The 'Site' is located to the north-west of the town of St Neots, and is across two administrative areas; Bedford Borough Council (BBC) (a unitary authority) and Huntingdonshire District Council (HDC) (a two-tier authority with Cambridgeshire County Council). The Site location is shown on **ES Vol 3 Figure 1-1: Site Location [EN010141/DR/6.3]**. The Site area extends to approximately 773 hectares (ha).

2.2.2 With reference to **ES Vol 3 Figure 1-2: Site References [EN010141/DR/6.3]**, for ease of reference the Order Limits have been sub-divided into East Park Sites A to D, in which all of the above ground infrastructure proposed as part of the operational Scheme will be located (excluding works to the Eaton Socon Substation). The Order Limits also cover land outside of East Park Sites A to D which will be required for access, cabling, and the grid connection to the Eaton Socon Substation. East Park Sites A to D can be described as follows:

- **East Park Site A** – covering land west of the B660 between Pertenhall and Swineshead at the western end of the Site. East Park Site A comprises arable fields located to the north, west and east side of a small hill that lies between Pertenhall and Riseley. East Park Site A lies either side of the Pertenhall Brook, with access proposed from the B660 to the east.
- **East Park Site B** – covering land between Pertenhall, Keysoe, and Little Staughton. East Park Site B comprises arable fields located north of an

elevated ridgeline which runs between Keysoe and Little Staughton. East Park Site B is crossed by a number of small watercourses, with access proposed from the B660, Great Staughton Road, Little Staughton Road, and an unnamed road between Little Staughton and Great Staughton Road.

- **East Park Site C** – covering land south of Great Staughton. East Park Site C comprises arable fields located south of the River Kym, with access proposed from Moor Road to its south-eastern boundary, and from Little Staughton Road to the north-west.
- **East Park Site D** – covering land around Pastures Farm between Great Staughton and Hail Weston. East Park Site D comprises arable fields with access proposed via a new access from the B645.

2.2.3 With reference to **ES Vol 3 Figure 1-2: Site References [EN010141/DR/6.3]**, there are three linear corridors proposed for underground cabling that connect the different parts of the Site and provide a grid connection to the Eaton Socon Substation. These are also shown on **Figure 1-2** and identified as:

- **Cable Corridor – Site B to Site C** – which connects Site B to Site C across an unnamed road and arable fields.
- **Cable Corridor – Site C to Site D** – which connects Site C to Site D across Moor Road and an arable field.
- **Grid Connection – Site D to Eaton Socon Substation** – which connects Site D to the Eaton Socon Substation and crosses open arable fields, the Duloe Brook, and Duloe Road and Bushmead Road.

2.3 The Scheme

2.3.1 The Scheme comprises a new ground-mounted solar photovoltaic energy generating station and an associated on-site battery energy storage system (BESS) on land to the north-west of St Neots. The Scheme also includes the associated infrastructure for connection to the national grid at the Eaton Socon National Grid Substation.

2.3.2 The Scheme would allow for the generation and export of 400 megawatts (MW) of renewable electricity, as well as the storage of 100 MW of electricity in the BESS.

2.3.3 Subject to the Scheme securing Development Consent in Winter 2026/27 it is anticipated that works would start on site in early 2028 and be completed by mid-to late 2030 (although initial energisation of the Scheme is likely to commence prior to 2030). The Scheme comprises a temporary development with an operational phase of 40 years; decommissioning activities would therefore likely commence in 2070, 40 years after commissioning.

2.3.4 A more detailed description of the Scheme is provided within **ES Vol 1 Chapter 2: The Scheme [EN010141/DR/6.1]**.

3.0 HAZARDS

3.1 Surface Water

Silts and Sediment Pollution

3.1.1 Sediment pollution is the single main pollutant in rainwater run-off from construction sites. Any areas of exposed ground, earthworks (i.e. topsoil stripping of the Site, excavation for utility trenches, culvert and outfall construction in the banks of watercourses) and stockpiles of granular or soluble material could result in the introduction of fine sediment into the watercourses on the Site, particularly during periods of heavy rain if no mitigation measures are maintained. Run-off may also emanate from poor site drainage provision, washing and cleaning activities and after rainfall events that exceed the capacity of the drainage system to be installed.

3.1.2 The Scheme involves the construction of solar arrays, a BESS, substation, cabling, access tracks and other associated infrastructure within the upper catchments of a number of small watercourses. Where new tracks pass over watercourses, crossings of suitable capacity will be installed. However, during heavy rainfall sediment from the construction area may be at risk of entering these watercourses with associated impacts.

3.1.3 There would be an increased pollution risk from elevated suspended sediment loads which could potentially impact on the physical, chemical and microbiological water quality characteristics of the watercourses. Consequent impacts and heavy silt deposition could include impacts on aquatic vegetation by sediment coating of leaves; visual changes to the watercourse; damage to fish gills by sediment particles (if present); and silting.

Oils, Hydrocarbons, Concrete and Other Chemicals

3.1.4 Construction works will necessitate the use of heavy plant and machinery, as well as the temporary (construction phase) storage of oils and diesel at site compounds. Everyday operation and maintenance of this plant has the potential to result in chemical contamination of the environment through oil and fuel leaks from vehicles, chemical storage leaks and accidental spillages etc. which may become mobilised during storm events. Construction plant may also generate a point source of hydrocarbons and to a lesser extent heavy metals that could enter surface waters directly or via leaching through the subsoil.

Land Drainage

3.1.5 There is a risk of surface water flooding of working areas. This is most likely to occur during heavy rainfall events which exceed the capacity of any installed drainage system or due to ground conditions resulting in standing water. Impacts associated with flood risk can also occur due to construction activities such as ground reprofiling. The works may also have the potential to alter drainage pathways.

3.2 Groundwater

3.2.1 Key activities associated with the construction phase that could have potential environmental impacts on groundwater are listed as follows:

- Site clearance;
- Construction of road access for construction works;
- Movement of construction machinery;
- Maintenance of construction machinery and equipment;
- Earthworks, excavation and grading; and
- Horizontal Directional Drilling.

3.2.2 The above activities involve changes and/or movements in the terrain which can result in alterations to the dynamics of groundwater resources.

3.2.3 The construction phase will require site clearance, excavation and grading, access and establishment of site facilities which can have negative effects on groundwater aquifers. These activities may alter water dynamics by:

- Disrupting or interrupting aquifer flow should earthworks (excavations) reach groundwater levels;
- Varying groundwater levels, should groundwater from these aquifers be used during construction (e.g. dewatering);
- Pollution (including chemical, siltation and changes in pH, redox and oxygen content) of groundwaters (e.g. from oil leaking from construction vehicles); and
- Release of existing pollution to the wider environment through the disturbance of contaminated soils.

3.2.4 Groundwater protection policy in England and Wales uses aquifer designations that are consistent with the Water Framework Directive. Based on this, the bedrock and superficial drift aquifer designations across the Site were reviewed using the British Geological Society (BGS) Aquifer Designation Map (England)[7]. Only the superficial drift aquifer designations were available for the Site, which are Secondary A and Secondary (undifferentiated) designations. The Secondary A aquifers comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers while the Secondary (undifferentiated) aquifers have variable characteristics of rock types with only a minor value. These are characterised by predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. There is also a small area with a principal bedrock aquifer designation approximately 800m south-west of the Site.

3.2.5 The hydrogeological characteristics of the underlying deposits across the Site were also reviewed using BGS Hydrogeological Maps[8]. The maps show the deposits are uniformed across the Site and are rocks with essentially no groundwater.

---

[7] *British Geological Survey (BGS) Aquifer Designation Dataset for Wales. 2024. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html*
[8] *British Geological Survey (BGS) Hydrogeological Map. 2024. Available at: https://www.bgs.ac.uk/datasets/hydrogeology-625k/*

3.2.6 Based on the BGS groundwater vulnerability maps[9], groundwater vulnerability varies from low to medium-low across the Site, with most of the Site having a low vulnerability classification. In this regard groundwater is expected to have limited with minimal interaction with the surface. Notwithstanding this, protection measures are provided to protect groundwater in the area.

[9] *British Geological Survey (BGS) Groundwater Vulnerability Map (England). 2017. Available at: https://magic.defra.gov.uk/MagicMap.aspx*

4.0 CONSTRUCTION

4.1 Water Quality Measures

4.1.1 The following sections outline the general and specific measures for the Scheme, which have been developed after considering the local receptors, topography, and layout. A section outlining the management of spillage risk is also provided based on general best practice. Details of the indicative drainage layout plans covering the location of the main sediment control measures are provided in Section 6.5.

General Measures

4.1.2 Good surface water management during construction is essential to ensuring that sediment does not pollute downstream watercourses. Therefore, the practices outlined will would be followed to reduce the risk of pollutants mobilisation.

4.1.3 Vegetation cover will be retained for as long as possible to minimise the potential impact of soil stripping, and where bare ground is unused, new vegetation or alternative cover will be established at the earliest opportunity. If there is no time to establish grass cover on a slope, a roughened earthworks profile will provide better erosion control than leaving it smooth. Excavation will take place as soon as possible after the vegetation is stripped to minimise the period during which soil can be eroded. Where possible these works will be undertaken during dry months. Trenching or excavation activities in open land will cease during periods of intense rainfall and temporary bunding will be provided as required, to reduce the risk of sediment transport to the natural drainage system.

4.1.4 Temporary (construction phase) access tracks will be completed as soon as possible and will be made of heavy-duty plastic to protect soils from run-off. Temporary fences or markers will also be used to ensure contractors disturb the minimum area only, for example, preventing the tracking of heavy machinery across surrounding land. For access tracks located within Areas of Archaeological Constraints (AAC), shallow drainage swales are proposed along either side of the tracks. These swales will intercept and convey run-off from the track, reducing the risk of increased run-off, waterlogging or erosion adjacent to the tracks. The Site will be developed in phases wherever possible, with surface water run-off initially managed through a range of sediment treatment measures and SuDS to reduce the run-off rate and volume of discharge to the local drainage network. Along steeper sections of the track where the velocity of surface run-off could pose a significant risk of scour through the construction site, phasing will be vital to reduce the area of exposed ground at any given time.

4.1.5 In both construction and operation, the movement of traffic will be controlled to minimise soil compaction and disturbance. Vehicle movements (including HGVs and plant machinery) outside the defined tracks and hardstanding areas will be avoided where possible. Routine mechanical maintenance of vehicles will be carried out off-site or in one of the construction compounds.

4.1.6 Drainage pathways will be established to direct surface water away from at risk areas and towards the surface water drainage network via sediment controls. The aim of the drainage scheme will be to ensure that water from surrounding land is excluded from the area of development and where this is not possible the volumes draining onto the Site are significantly reduced. There will be no unapproved discharge of foul or contaminated drainage from the Site either to groundwater or any surface waters, whether direct or via a soakaway.

4.1.7 Clay plugs will be inserted within cable trenches at a frequency to suit the specific location to prevent gullying of trenches and preferential routing.

4.1.8 A programme of surface water quality monitoring will be undertaken before and during the construction phase to provide assurance as to the absence of water quality impacts, as set out in the **outline Construction Environmental Management Plan [EN010141/DR/7.3]**.

Specific Measures

Surface Water Interception and Conveyance

4.1.9 Where pluvial flood mapping, site observation or the detailed construction design identifies concentrated surface water run-off approaching an access track or working area, a cut-off drainage measure will be installed before the relevant construction activity begins. The measure will comprise one or more of a shallow cut-off ditch or swale, a shallow ditch combined with a low bund, a recharge trench where ground conditions permit, or a piped cross-drain. The final SWMP will show the location and form of each measure.

4.1.10 Each cut-off drainage measure will be designed to convey run-off without causing erosion or concentrating flows so as to create an increased flood or scour risk at an outfall. Piped crossings and, where necessary, multiple cross-drains will be provided beneath access tracks. Geotextile sumps, sediment traps or check dams will be installed where there is a material risk of siltation or scour. Check dams or equivalent flow-control measures will be installed where the longitudinal gradient of a ditch exceeds 3% (see Plate 1).

4.1.11 The alignment and form of each measure will be reviewed by the Environmental Clerk of Works before installation, in consultation with the Ecological Clerk of Works and soil scientist where relevant. Measures will avoid retained habitats, trees and their root protection areas, watercourse buffers and existing field drainage unless a relevant approved management plan or method statement permits the works.

4.1.12 Any topsoil and subsoil excavated to install a drainage measure will be stripped, stored separately and reinstated in accordance with the approved SMP. On removal of the measure, the original ground profile, soil horizons, vegetation cover and field drainage will be reinstated.

4.1.13 No new open ditches, swales or trenches will be located within the usable width of an open PRoW or in a position that presents a hazard to PRoW users. Where a drainage measure must cross or adjoin a PRoW, it will be shallow, piped, covered, provided with a suitable crossing or otherwise protected as necessary, and will be managed in accordance with the approved PRoWMP. Where safe access cannot be maintained, the temporary closure or diversion procedures in the approved PRoWMP will be followed.

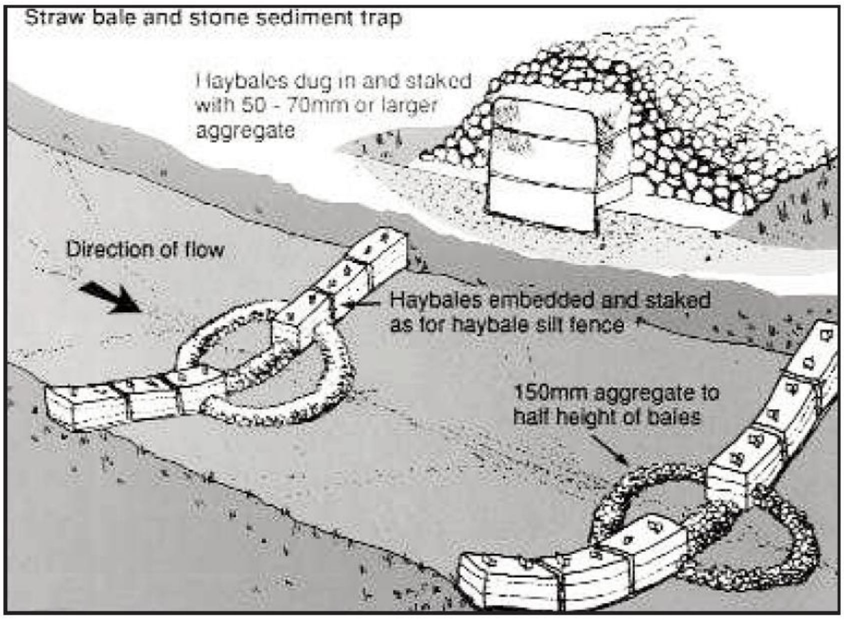


Plate 1 – Typical layout of check Dams (Source; CIRIA, 2006[10])

Filter Strips

4.1.14 A vegetated filter strip will be maintained along the downslope boundary of a ground-disturbing work area where surface water run-off could leave the work area. Where sufficient space is available, the filter strip will be at least 5m wide. A greater width will be provided where the local slope, catchment or anticipated sediment loading requires it.

4.1.15 Where a 5m filter strip cannot be provided, the final SWMP will identify an alternative treatment that provides equivalent sediment control. In areas of heavy clay, or where inspection or water-quality monitoring demonstrates that a filter strip alone is not providing adequate treatment, it will be supplemented

[10] *CIRIA, 2006, Control of water pollution from linear construction projects Site guide (C649).*

by one or more of silt fencing, geotextile matting, sediment traps, check dams or a temporary settlement pond.

Silt Fencing

4.1.16 Silt fencing is recommended as a primary treatment method within any area of earthworks. These will act to break up any preferential flow paths and divert and filter run-off. Plate 2 shows an example of good practice silt fence installation.

4.1.17 Silt fencing will be installed before the relevant earthworks begin and will be positioned transversely to the anticipated direction of run-off. Its spacing will reflect the slope, topography, contributing area and sensitivity of the receiving receptor, as specified in the final SWMP.

4.1.18 Silt fencing and associated sediment controls will be inspected before first use, at least weekly while active, and following rainfall that causes visible overland flow or could have affected the control. Damaged, undermined, overtopped or silted controls will be repaired, replaced or cleared before the relevant ground-disturbing activity continues.

Plate 2 – Example of good practice in silt fence installation (Source: Geosynthetics, 2021[11])

4.1.19 Silt fencing, geotextile matting and temporary check dams, will remain in place until the Environmental Clerk of Works confirms that the contributing area has been stabilised or revegetated and no longer presents a material sediment or pollution risk. They will then be removed and the affected land reinstated in accordance with the approved SMP and LEMP. Land used as a vegetated filter strip will be returned to the land-management regime specified in the approved LEMP.

4.1.20 Before repair, renewal or replacement activities begin, the Site Manager and ECoW will inspect the proposed work area. Where the activity could expose soil, disturb vegetation, concentrate run-off or mobilise sediment or contaminants, the relevant temporary controls in this section will be installed

[11] *Geosynthetics. 2022. Available at: http://www.geosyn.co.uk/product/silt-stop-premium-and-high-flow-silt-fences*

before work begins and maintained until the affected land has been stabilised and reinstated.

Settlement Ponds

4.1.21 If necessary, where other measures described above are not sufficient, settlement ponds will be installed for use as part of the construction phase. These will be sited downslope of the main construction areas to effectively capture and treat run-off from these areas. After the construction phase the ponds will be reinstated to the current conditions. The ponds will be sized to ensure sufficient treatment during construction.

Horizontal Directional Drilling (HDD)

4.1.22 HDD or other trenchless techniques will be used to install underground ducts to accommodate cables. This process can require the use of bentonite as a lubricant for the drill bore which has the potential to breakout at the drive shaft or spill from tanks, potentially entering surface or groundwater bodies. The use of the lubricant material will be carefully controlled to avoid these risks, with mitigation measures set out in the **outline Construction Environmental Management Plan [EN010141/DR/7.3]** and also described within the **outline Archaeological Mitigation Strategy [EN010141/DR/7.16].**

Watercourse Crossings

4.1.23 Whilst the tracks, cabling and grid connection have been designed to minimise the number of watercourse crossings and use existing tracks located along the access route where possible, the creation of new crossings is expected to be required. If crossings are not designed correctly, desiccation could occur during periods of low flow, thus disconnecting the upper reaches of a stream (with potential ecological and resource consequences). All new and modified watercourse crossings will be sized to maintain low-flow connectivity and provide sufficient conveyance capacity for the applicable design flood event, without causing an increase in flood risk, scour or erosion. If not, the tracks in the vicinity of the crossing could flood, resulting in scour and potential track failure, thereby potentially releasing significant sediment into the surrounding watercourses. Where practicable, existing crossings will be utilised instead of creating new crossings.

4.1.24 Where existing crossings are used, these will be widened and strengthened only where necessary. The crossing type and bed profile will be retained, and drainage measures will be provided in accordance with the approved SWMP.

4.1.25 The locations of the required watercourse crossings are set out in **ES Vol 1 Chapter 2: The Scheme [EN010141/DR/6.1]** (for the location of each potential crossing, refer to **ES Vol 3 Figure 2-3: Indicative Crossing Plan [EN010141/DR/6.3]**). Additional details of these crossings have also been provided within **ES Vol 2 Appendix 8-3: Watercourse Crossing Assessment [EN010141/DR/6.2]**. The detailed design of each new or modified ordinary watercourse crossing will be informed by a pre-construction survey and agreed with the LLFA before construction. The existing crossing of Pertenhall Brook, the only Main River crossed by the Scheme, will be retained.

4.1.26 The majority of the proposed watercourse crossings are proposed to be open span crossings and so the detrimental effects expected would be minimal. This is due to the retention of the natural bed formation with this type of crossing meaning flow rates and habitats remain in situ. These proposals are in line with Cambridgeshire County Council's Culvert Policy[12] which in most cases is opposed to culverting of watercourse, instead preferring the use of bridges where crossings are required. Where the length of the crossing deck has made open span bridging of a stream impractical (i.e. the entrance to the main access track to the BESS and Substation), a buried culvert is proposed, which will maintain the natural bed substrate through the feature.

4.1.27 Six temporary (construction phase) watercourse crossings are required during construction, of which two will use Bailey Bridges and four using culverts. The culverts will in these cases be buried, so as to retain the natural

[12] *Cambridgeshire County Council. 2013. Culvert Policy. Available at: https://www.cambridgeshire.gov.uk/asset-library/Cambridgeshires-Culvert-Policy.pdf Accessed on 07/08/2025*

bed formation. These locations are also given in **ES Vol 1 Chapter 2: The Scheme [EN010141/DR/6.1]** (for the location of each potential crossing refer to **ES Vol 3 Figure 2-3: Indicative Crossing Plan [EN010141/DR/6.3]**). Following completion of the relevant construction works, each temporary (construction phase) crossing will be removed as soon as reasonably practicable and the affected watercourse banks, ditch profiles and surrounding land will be reinstated in accordance with the approved CEMP, SWMP and SMP.

4.1.28 Horizontal drills and trenches will also be used for cabling. The crossings will be designed to ensure they will not disconnect the watercourses at times of low flow. Where a trenched crossing is used, the watercourse bed and banks will be reinstated to their pre-construction profile following completion of the works..

4.1.29 At each watercourse crossing work area, silt fencing or other appropriate sediment controls will be installed before the relevant construction works commence and maintained for the duration of those works to intercept polluted run-off from construction activities and vehicle movements. The controls will be positioned so that they do not obstruct the watercourse or damage its banks and will be inspected and maintained in accordance with the requirements for temporary sediment controls set out in the approved SWMP.

Additional measures in vulnerable locations

4.1.30 The final SWMP will identify locations that are particularly vulnerable to surface water pollution, sediment mobilisation or erosion and will specify the additional controls required at each location. These locations will include, but are not limited to:

- Existing overland flow paths/watercourses;
- Watercourse crossings;
- Slopes; and
- Stockpiles.

4.1.31 At locations identified in the final SWMP, silt fencing will be installed perpendicular to existing overland flow paths where required to reduce flow velocity and the risk of scour. Where a construction phase ditch or other drainage measure discharges towards a watercourse, a filter strip and silt fencing, or equivalent sediment controls, will be installed in series. The relevant controls will be installed before the associated ground-disturbing works commence.

4.1.32 Parallel-to-contour drainage will be installed upslope of the hardstanding areas within the East Park BESS and Substation compound before the relevant construction works commence..

4.1.33 Meshes, netting, mat and sheeting made of natural or man-made material will be used where bare ground cannot be promptly revegetated and is at risk of erosion. Biodegradable geotextiles, such as coconut matting (see Plate 3), will be installed, where appropriate in conjunction with silt fencing or other sediment controls.

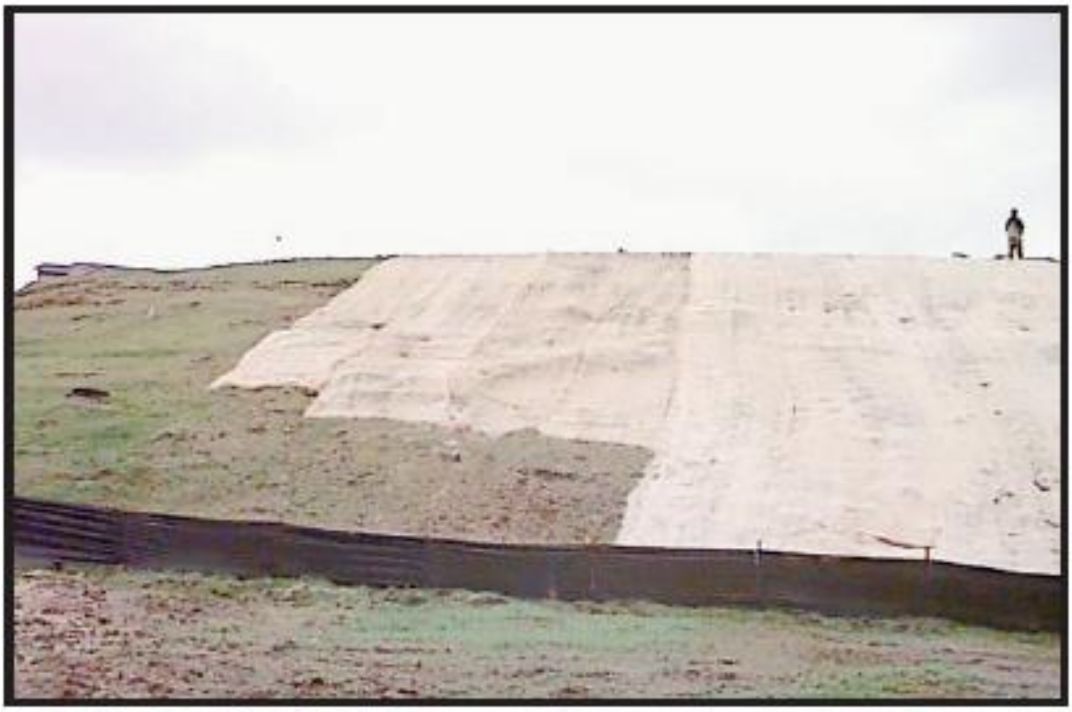


Plate 3 – Coconut matting and silt fence (Source: CIRIA, 2006[10])

Spillage Risk

4.1.34 In addition to the specific measures outlined above, minimisation of pollution events during the construction phase will also be ensured by the adequate maintenance of vehicles, the responsible handling and storage of potentially polluting materials and liquids and suitable training of staff. To reduce the impact of accidental spillages (*e.g.* from plant fuel) during construction, appropriate planning will identify such risks and the precautionary measures to be taken such as:

- Equipment and spill kits will be provided to contain and clean up any spills to minimise the risk of pollutants entering watercourses, groundwater dependent terrestrial ecosystems (GWDTE), or flush areas;
- Refuelling of vehicles and plant machinery will be confined to the designated fuelling areas and will be carefully controlled using drip trays;
- Temporary (construction phase) bunding will be provided as required, to reduce the risk of oil or chemical spills to the natural drainage system;
- Vehicles, plant machinery and equipment will be cleaned at designated washout areas located conveniently and within a controlled area of the Site. These areas will be lined so as to prevent infiltration to groundwater. The washdown areas will be located at least 10 m from the top of bank of watercourses. Runoff from these areas will be appropriately stored and subsequently treated, either by onsite options such as oil separators and temporary settlement ponds, or else stored and then tankered and appropriately treated offsite;
- All fuel and chemicals will be stored within appropriately specified containers and within specifically designed stores / storage areas, located at least 10 m from the top of bank of watercourses. These will be covered areas to prevent the accumulation of rainfall and will be lined with impermeable surfacing to prevent infiltration. There will be bunding around the perimeter of these areas with an appropriate valve outlet to allow any standing water to be released. An oil separator will be used on the outlet

from these bunded areas. The bunded areas will have a minimum capacity of 110% of the capacity of the fuel/chemical containers. There will be appropriate measures to control access and to avoid spillages;

- Concrete batching and any onsite washout will occur in designated areas, which will be lined to prevent infiltration of high alkaline content flow and will be covered to minimise the ingress of rainwater to the containment areas;
- Drip trays will be placed under standing machinery;
- All solid and liquid waste will be managed in accordance with the approved WMP and removed by appropriately licensed contractors to authorised waste-management facilities;
- Training of staff in emergency procedures will be undertaken and spillage response kits will be easily accessible at all times; and
- Areas at particular risk of spillage will have a temporary protective layer laid to prevent infiltration into the soil and reduce the risk to groundwater.

4.1.35 Any spill or suspected pollution incident will be managed in accordance with the Environmental Incident Management and Pollution Prevention Plan applicable to the relevant phase. Such a plan will form part of, or accompany, the final CEMP, OEMP and DEMP.

4.1.36 Any person discovering a spill will, where it is safe to do so:

- stop or isolate the source;
- stop the affected activity;
- deploy the nearest spill kit or other containment equipment;
- prevent the spill entering a drain, swale, ditch, watercourse or exposed soil; and
- notify the Construction Project Manager, Site Manager or Decommissioning Project Manager, as applicable, and the Environmental Manager or ECoW immediately.

4.1.37 The relevant construction / operation / decommissioning phase manager, supported by the Environmental Manager or ECoW, will coordinate the response. This will include, as necessary:

- isolating the affected drainage system or closing the detention basin outlet;
- deploying booms, drain covers, temporary bunds or other containment;
- recovering spilled liquids and contaminated surface water;
- excavating and segregating contaminated soil;
- arranging sampling and specialist assessment;
- arranging treatment or removal by an appropriately licensed contractor; and
- notifying the Environment Agency, relevant local planning authority, emergency services or other external body where required by the Environmental Incident Management and Pollution Prevention Plan.

4.1.38 Contaminated soil will be managed in accordance with the approved SMP and Unexpected Contamination Protocol (which will form part of the approved CEMP, OEMP and DEMP). Contaminated water will not be discharged to ground, groundwater, the drainage system or a watercourse. It will be contained and either treated to an acceptable standard under any necessary permit or consent, or removed to a suitably authorised off-site facility.

4.1.39 The affected activity and any suspended discharge will not resume until the Environmental Manager or Environmental Clerk of Works has confirmed that the source has been controlled, the affected area has been remediated or made safe, and the relevant drainage and pollution-prevention measures are functioning effectively.

4.1.40 The above measures are for the protection of surface water, groundwater, and watercourses.

5.0 OPERATION AND DECOMMISSIONING

5.1.1 During the operational and decommissioning phases the SuDS approach adopted during construction will continue to be used with the swales, ~~and~~ detention basin, and supplementary tanked subsurface attenuation within ~~at~~ the BESS compound remaining through until decommissioning.

5.1.2 Features such as silt fences and geotextile matting will be removed after the construction phase given the reduced pollution hazard during routine operation, but will be reinstated where required for repair, renewal or replacement activities and during decommissioning. This hazard is reduced due to a decreased frequency in the movement of plant, materials, equipment and people on the Site, the limited requirement for any earthworks, as well as increased vegetation over time.

5.1.3 A Decommissioning Surface Water Management Plan will be prepared prior to decommissioning, based on the principles set out in this oSWMP. The plan will be approved by the relevant local planning authority prior to decommissioning works commencing and will involve monitoring of groundwater and surface water quality prior to, during and for an agreed period of time after decommissioning has taken place, as set out in the **outline Decommissioning Environmental Management Plan [EN010141/DR/7.6]**.

6.0 STORAGE VOLUME

6.1.1 Storage volumes will be provided on Site during construction, operation and decommissioning. The primary purpose of storage during construction and decommissioning is to provide sufficient treatment of surface water run-off and reduce run-off rates and volumes from impermeable areas. During operation, these principles remain the same, however there is also a formal requirement to attenuate post-development flows and run-off volumes to pre-development greenfield conditions.

6.1.2 To guide the provision of storage volumes for during the operation phase of the Scheme, the geology and soil characteristics for the Site was reviewed using BGS Geology Viewer[13] and Soilscapes[14], respectively. This indicated that the Site is underlain by bedrocks of mudstone with low permeability and has areas of clayey soils with slightly impeded drainage potential.

6.1.3 On-site water supply will be provided for the East Park BESS in the event of a fire in accordance with the National Fire Chief Council (NFCC) guidance on the design and layout of BESS[15]. The guidance recommends that consideration should be given within the site design to manage water run-off such that, in an emergency, polluted water can be safely contained and treated. This will reduce the risk of polluting groundwater or local watercourses. Based on the Site's geology, soil characteristics and the NFCC guidance, the main principle underpinning the outline drainage plan is to provide sufficient storage for surface water run-off from the impermeable bunded area and tracks associated with the East Park BESS and substation. The storage provided will also be able to store contaminated water from the BESS compound in emergencies.

6.1.4 The following sections detail how greenfield run-off rates have been estimated and used to determine required storage volume for run-off from the proposed

[13] *BGS Geology View, 2025. Available at: https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/*
[14] *Landis Soilscapes Viewer, 2025. Available at: https://www.landis.org.uk/soilscapes/*
[15] *National Fire Chiefs Council (NFCC) Grid Scale Battery Energy Storage System planning – Guidance for FRS. November 2022.*

impermeable areas. It also provides details on the specific SuDS features being used to manage surface water at the Site during the operation phase.

6.2 Site Characteristics

6.2.1 The Site extends to approximately 773 ha and for ease of reference has been subdivided into East Park Sites A to D, in which all the proposed above ground infrastructure as part of the operational scheme will be located, as shown in Figure 1.

6.2.2 The BESS and Substation compound will have an impermeable surface finish (likely to be concrete or an impermeable membrane) to meet the National Fire Chiefs Council (NFCC) guidance mentioned in paragraph 6.1.3. The compound will be designed such that any run-off can be directed towards an adjacent storage feature shown as Work No. 6B on the **Works Plan [EN010141/DR/2.3]**, either directly or following attenuation within supplementary tanked subsurface storage beneath the BESS compound.

6.2.3 The access tracks throughout most of the Site will be constructed of permeable compacted stone, except for the tracks within and around the BESS and Substation compound and the track along the access route from the Main Site Access at the B645. Tracks internal to the BESS and Substation compounds will be constructed of concrete or asphalt.

6.2.4 The land take requirements for the PV panels will be approximately 28% of the overall Order Limits. However, the panels will be installed at a fixed angle and will be elevated on support frame mounting structures arranged in rows on an east-west axis facing south. The maximum height of the panels along the top (northern) edge of the array will be 3.0m above existing ground levels, and the minimum height along the bottom (southern) edge of the array will be 0.8m above the existing ground levels. Therefore, natural ground surface will be left below the panels. The grass sward beneath the panels will be reinstated and maintained to prevent any potential erosion and rilling. The vegetation under and between the panels will maintain/improve the existing hydrological regime, i.e., allow run-off to follow drainage pathways to ditches or watercourse as it would at pre-development conditions.

6.2.5 A point descriptor has been taken from the Flood Estimation Handbook (FEH) Web Service[16] to define the hydrological characteristics of the Site. This was extracted at the centroid of the Order Limits. The single point descriptor in combination with the soil map data was sufficient for defining the hydrological characteristics, as the geology of the Site and surrounding areas are relatively homogeneous. The location of the point descriptor is shown in Figure 2.

6.3 Greenfield Run-off Rates

6.3.1 To estimate run-off and determine the volume requirements for the impermeable areas, greenfield run-off rates have been calculated for the Order Limits using the point descriptor data summarised in Table 1. The calculations are based upon a combination of the Standard Average Annual Rainfall (SAAR), base flow index (BFIHOST) and the portion of time soils are wet (PROPWET).

Table 1 – FEH Point Descriptor

Point Descriptor	Value
SAAR (mm)	554
PROPWET (mm)	0.24
BFIHOST	0.376

6.3.2 Run-off rates for the existing greenfield land have been calculated using ReFH2, which is the current recommended method outlined in the CIRIA SuDS manual[17]. The rates and volumes have been estimated over the entire Site area and for a range of storms up to and including the 1.0% AEP event

[16] *UK Centre for Ecology & Hydrology, 2025. Flood Estimation Handbook (FEH) Web Service.*
[17] *CIRIA (2015), The SuDS Manual (C753)*

plus a 40% upper end allowance for climate change for the Upper and Bedford Ouse Management Catchment. A 40% Upper End allowance has been applied for the 2070s epoch (2061 to 2125) in accordance with the EA's guidance for climate change allowance in flood risk assessments[18]. The guidance recommends assessing the credible maximum scenario for Nationally Significant Infrastructure Projects (NSIPs) and the 2070s epoch is appropriate as the development's lifetime falls between 2061 and 2100. Table 2 below presents the greenfield run-off rates as the unit rate per hectare. The associated calculations are provided in Annex 1.

Table 2 – Greenfield Run-off Rates

Return Period	Greenfield Run-off Rate (l/s/ha)
2-year	2.30
30-year	4.95
30-year + 35%* CC	6.82
100-year	6.36
100-year + 40% CC	9.24

*3.3% AEP 2070s epoch Upper End peak rainfall allowance for Upper and Bedford Ouse management catchment.

6.4 Estimated Volume

6.4.1 The provision of SuDS storage at a site can be achieved by providing attenuation only storage – utilised to store run-off and release at equivalent greenfield rates.

6.4.2 Given the expected ground conditions with poor infiltration, SuDS storage has been sized using the attenuation only approach. This is deemed acceptable

[18] *Environment Agency (EA), 2016. Flood risk assessments: climate change allowances.*

considering the negligible loss of permeable area across the Site as outlined in Section 6.5 below.

6.4.3 The hydraulic modelling package Causeway Flow was used to determine the initial storage volume required for the impermeable areas across the Site (i.e., within East Park Site D for the BESS and substation compounds) for the design event, i.e., 1.0% AEP event plus a 40% climate change allowance. The associated calculations are provided in Annex 2. In this case, the maximum outflow rate from the attenuation storage is limited to the ~~1.0~~50% AEP greenfield run-off rate over the impermeable site area, 2.7ha for the BESS and substation compounds (including the ancillary buildings, tracks around compound and hardstanding for the storage tanks) and 0.4ha for the access track extending from the BESS compound to the B645. The required storage volume ranges to attenuate the 1.0% AEP + CC design event at the ~~1.0~~50% AEP greenfield rate are shown in Table 3. The detention basin is also required to temporarily store the 456,000 litres of on-site water supply provided in the event of a fire.

Table 3 – Storage Volume Estimates

Return Period	BESS Compound Storage Estimate*	Access Track (extending from BESS compound) Storage Estimate
	m^3	m^3
100-year + 40% CC	~~1,630 – 2,012~~2,810.5	~~265~~ 318 – ~~326~~373

*Based on high-level Causeway FLOW model of the combined attenuation storage (see design report in Annex 3).

6.4.4 The drainage system will provide an indicative combined effective storage capacity of approximately 2,817.15m^3, comprising approximately 1,672.4m^3 within the detention basin and approximately 1,144.75m^3 within tanked subsurface attenuation beneath the BESS compound. The detention basin will have an indicative top area of 1,323m^2, a maximum design water depth of 1.85m, a 300mm freeboard, a total depth of 2.15m and 1:3 side slopes. The supplementary storage tank will provide additional attenuation to supplement the main attenuation basin, which will remain the primary attenuation and emergency containment feature. The precise form, location and capacity of the supplementary storage tank will be confirmed in the final SWMP, which will demonstrate through hydraulic modelling that the no flooding occurs during the 1.0% AEP event plus 40% climate change allowance. At detailed design stage, the void ratio will also be accounted for based on the selected storage structure. For this outline design, the tank was initially sized at 0.8m deep with a plan area of 1506.25m^2. To account for the assumed void ratio of 95%, a 5% reduction in the plan area has been applied, resulting in a modelled area of 1430.9m^2 (see Annex 3). Therefore, the indicative dimensions of the tanked subsurface attenuation are 0.8m depth, 120.5m length and 12.5m width..~~The required storage volume range for the BESS compound was used as an initial input in a Causeway Flow drainage model to optimise the size of the detention basin. Based on the model, the detention basin is designed with a top area of 1,323m^2 and a total depth of 2.15m; this allows for a maximum design water depth of 1.85m and a 300mm freeboard. The design report for the model is shown in Annex 3. The design incorporates 1:3 side slopes, allowing for a balance between spatial efficiency and safety. The proposed dimensions are considered appropriate as the top area can be accommodated at the designated location without compromising buried utilities or affecting the tie in level at the final discharge point from the main conveyance swale (see paragraph 6.5.7). Whilst the total excavation depth is 2.15m, the maximum storage water depth (1.85m) remains below the 2m maximum threshold, stated in the CIRIA SuDS Manual. Safety considerations for the detention basin during both the construction and operation phases have been evaluated as part of the overall drainage strategy, which is detailed in paragraph 6.5.9~~.

6.4.5 The combined attenuation storage will have an effective storage capacity of approximately 2,817.5m^3 and will be capable of storing the full 456m^3 capacity of the two firefighting water-storage tanks. After allowance for the full firewater volume, approximately 2,361.15m^3 of capacity will remain within the drainage system. The drainage design will provide sufficient capacity to contain either the full firefighting-water volume in combination with the applicable 1 in 10-

year storm event, or the 1.0% AEP event plus 40% climate change allowance on its own, whichever is more onerous. The system has not been sized to detain the full design flood and the full firewater volume simultaneously, as the joint probability of those events is considered negligible.~~The available headroom within the detention basin, above the firewater volume is 1,221 m^3. This is calculated as the total required storage for the BESS compound during a 1.0% AEP + CC event minus the firewater volume of 456 m^3 firewater requirement. This headroom is approximately equivalent to the storage volume required for a 3.3% AEP + CC (30 year + climate change) return period, see Annex 2. The detention basin has not been sized to detain the design flood and the firewater volumes as the joint probability of a maximum design flood occurring at the same time as a major fire event is considered negligible, and significantly lower than the 1.0% annual probability of the design flood alone.~~

6.4.6 Current guidance notes[19] an aspiration criterion that a storage volume equivalent to 15mm of rainfall should be provided to improve stormwater quality (termed “treatment volume”) 15mm of rainfall equated to 150m^3 of storage per hectare of impervious area contributing. The storage will be provided in line with the SuDS infrastructure shown in the indicative drainage layout plan in Figure 3.

6.5 Surface Water Management Strategy

6.5.1 Given the rural setting of the Site and the negligible impact the solar panels will have on surface water run-off, supported by a previous study[20] on the hydrological implications of solar farms and the configuration of the panels outlined in paragraph 6.2.4, no hard engineered solutions are proposed in the surface water management strategy for the solar panels. As such, run-off management will be provided at the source through natural land management.

[19] *Environment Agency (EA), (2013), Report – SC030219, Rainfall runoff management for developments.*
[20] *Cook, L. M., & McCuen, R. H. (2011). Hydrologic response of solar farms, Journal of Hydrologic Engineering, 18(5), 536-541.*

6.5.2 Grassland beneath and between the solar panels will be established and maintained in accordance with the approved LEMP. Advanced seeding will be undertaken between the final crop harvest and the beginning of construction to establish vegetation cover and bind the soil before panel installation.

6.5.3 Before construction begins in each relevant work area, the Environmental Clerk of Works will inspect the vegetation cover, in consultation with the Ecological Clerk of Works where required. Where the grassland has not established sufficiently to bind the soil, or there are visible areas of exposed, eroded or compacted soil, remedial cultivation and reseeding will be undertaken. Erosion-control matting, filter strips, silt fencing or other sediment controls will be installed and retained until stable vegetation cover has been established.

6.5.4 The ground beneath the panels and along the panel driplines will be inspected throughout the operational phase in accordance with Table 7. Any visible rill, scour channel or continuous strip of exposed soil attributable to panel run-off will be treated as a failure requiring remedial action.

6.5.5 Initial remedial action will comprise, as applicable, local scarification, cultivation, regrading and reseeding using an appropriate hardy and water-tolerant grass seed mix, together with temporary erosion and sediment controls. The grazing regime will be adjusted where grazing has contributed to bare or disturbed ground.

6.5.6 Where rilling or scour recurs following initial remediation, a suitably qualified drainage specialist will review the cause. Additional local measures, such as flow spreading, local regrading, erosion-resistant vegetation, shallow interception features or energy-dissipation measures, will be installed where required. The affected area will continue to be inspected until the remedial action has been demonstrated to be effective.

6.5.7 To support watering of the landscaped area under the panels, rainwater harvesting tanks are proposed within East Park Site D at the East Park substation and the storage, operations and maintenance building. The roofs of these buildings will intercept initial rainfall onto the area and provide a nominal amount of storage. The storage provided for rainwater harvesting has conservatively not been accounted for in attenuation storage calculations for the proposed drainage strategy.

6.5.8 Surface water run-off from the impermeable areas in East Park Site D will be intercepted using a combined detention basin, supplementary tanked subsurface attenuation, and swale system. The indicative arrangement is shown in Figure 3. Details on the combined system for each option are provided in the sections below.

6.5.9 In the combined drainage system~~detention basin and swale system (see Figure 3)~~, the detention basin will provide the principal attenuation storage for the run-off from the impermeable BESS and substation compounds, ancillary buildings, access tracks around the compound and the storage tank hardstandings. Supplementary tanked subsurface attenuation within the BESS compound will temporarily store a proportion of the run-off upstream of the detention basin. ~~, and t~~The swales will intercept run-off from the access tracks and act as conveyance channels.

6.5.10 The BESS and substation compound will be impermeable and surface water run-off will be directed towards the adjacent detention basin, either directly or through the supplementary tanked subsurface attenuation. During normal operation, routine, uncontaminated rainfall run-off from the BESS and Substation compounds, ancillary buildings and associated impermeable areas will be directed through the surface water drainage system. The run-off will be treated and attenuated through the detention basin and swales before controlled discharge to the receiving watercourse.

~~6.5.10~~6.5.11 The supplementary tanked subsurface attenuation will comprise a sealed and tanked system beneath hardstanding within the BESS compound. It may comprise geo-cellular storage crates or an equivalent engineered storage system. The final SWMP will identify its effective storage volume, impermeable lining and protection measures, structural loading capacity, inlet and outlet levels, hydraulic connection to the detention basin, flow-control arrangements, drain-down time and means of inspection, cleaning and maintenance.

~~6.5.11~~6.5.12 The outfall or outfalls from the drainage system serving the BESS compound will be fitted with a drainage-isolation system comprising one or more automatically actuated valves connected to the BESS fire alarm system. The system will also incorporate manual override and will operate on a failsafe basis so that, in the event of power loss, system fault or damage during an incident, the default position is closed. Upon activation of the BESS fire alarm, the drainage-isolation system will close and firewater run-off will be retained within the detention basin or other approved containment feature.

~~6.5.12~~6.5.13 Where an internal water-based fire-suppression system is incorporated within the BESS enclosures, a separate water-containment system will be provided where required by the approved BSMP. The final SWMP and BSMP will identify the detailed drainage-isolation and containment arrangement and the relationship between the detention basin and any separate containment feature.

~~6.5.13~~6.5.14 The firewater-containment and pollution-control system serving each BESS construction phase, including the impermeable surfacing, kerbing or bunding required by the detailed design, the detention basin or other approved containment feature, and the drainage-isolation valves and associated controls, will be installed, tested and operational before any battery storage unit is delivered to that phase.

~~6.5.14~~6.5.15 The swales running parallel to the access tracks around the hardstanding will collect run-off from the tracks and discharge it into the detention basin via a culvert. A main conveyance swale will run parallel to the long section of the track extending from the BESS compound, which will simultaneously act as the conveyance channel from the detention basin while intercepting run-off from that section of the access track. A flow control will be used at the outlet of this main swale where its discharges to a nearby watercourse along the Order Limits on the B645. Based on the guidance for surface conveyance systems in the CIRIA SuDS manual[21], the main swale is designed to convey the peak design flow rate from the total impermeable area. Its geometry, calculated using the Manning's conveyance equation[22], is a base width of 1.0m, total depth of 0.6m (includes a 300mm freeboard) and a top width of 4.6m, with 1 in 3 side slopes. It will also have a 3m maintenance buffer on the side not adjoining the road.

~~6.5.15~~6.5.16 The drainage plan also proposes culverts for underground conveyance where required, such as to cross sections of the tracks to provide the required connectivity between adjacent swales and the detention basin. For the connection between the detention basin and main conveyance swale, the culvert must cross existing buried gas and water lines. The required distance from these lines and their depth will be confirmed with Anglian Water and National Gas to finalise the viability of the culverted connection between the detention basin and main swale. Trial pits will be required to confirm the depth of these services, which will need to be known to finalise the alignment and levels for the proposed surface water drainage network.

~~6.5.16~~6.5.17 Safety considerations for the key drainage features were assessed in line with the Construction (Design and Management) Regulations 2015 (CDM 2015)[23] and the CIRIA SuDS Manual[21] to identify, eliminate or reduce foreseeable health and safety risks during the construction, operation and maintenance of the SuDS features.

~~6.5.17~~6.5.18 The assessment focuses on the two primary SuDS features, the 2.15 m deep detention basin (including 300mm freeboard) and the main conveyance swale (4.6 m top width, 1.0 m base). To mitigate the risks of slope instability, both features are designed with 1:3 side slopes. This gradient aligns with the industry-standard threshold for ensuring "self-rescue" and safe mechanical maintenance access. While a 1.85 m water depth is significant, the risk is managed by ensuring that the detention basin functions as a dry pond during

[21] *CIRIA (2015), The SuDS Manual (C753)*
[22] *Chow, V. T. (1959). Open-channel hydraulics. ISBN: 978-1-93284-618-8.*
[23] *Health and Safety Executive (HSE). (2015). The Construction (Design and Management) Regulations 2015.*

normal conditions, which will only utilise maximum storage during extreme storm events or fire emergencies both of which have a low probability occurrence. The existing slope gradient at the detention basin location is also relatively shallow at approximately 1:65, which means that its geometry can be accommodated without an excessive earthwork footprint. Additionally, the solar farm's rural location and restricted public access significantly reduced the likelihood of unauthorised entry, ensuring the residual risk remains as low as reasonably practicable. The detailed design of the supplementary tanked subsurface attenuation will address structural loading, ground and groundwater conditions, resistance to flotation, protection of the impermeable lining, safe access for inspection and maintenance, and the consequences of blockage or loss of storage capacity.

Long Term Storage Provision

~~6.5.18~~6.5.19 In accordance with the local planning guidance and the national SuDS guidance, Long Term Storage (LTS) must be provided to mitigate the additional runoff volume generated by the new impermeable surfaces. The post-development runoff volumes for the BESS compound and the main access track section were calculated using ReFH2 methodology.

~~6.5.19~~6.5.20 The baseline rural runoff volumes were compared against the post-development urban runoff volumes to determine the net increase (i.e., additional runoff volume) requiring mitigation. The results are shown in Table 4.

Table 4 – Additional storage volume from impermeable areas

Impermeable Feature	Baseline Direct Runoff Vol., m^3	Post-Development Direct Runoff Vol., m^3	Additional Runoff Vol., m^3
BESS Compound	908	1720	812
Access Track (extending from BESS compound)	174	279	105

~~6.5.20~~6.5.21 The additional runoff volume must either be managed on-site via infiltration or discharged at an exceptionally low rate to prevent downstream flooding. To ensure a robust design, two options are incorporated within the proposed drainage strategy:

- *Option 1 – Infiltration via swale*: In accordance with the SuDS discharge hierarchy, infiltration is the preferred method of disposal. Infiltration testing will be undertaken at the detailed design stage. If the ground conditions are favourable, the total additional LTS runoff volume will be managed via infiltration through the swale, with exceedance volumes being discharged at greenfield rates.
- *Option 2 – Integrated Flow-Matching Control*: The full discharge from the detention basin and swale will pass through the hydrobrakes at their outlets. The discharge flow curve will be designed such that the initial 812m^3 (for the ~~detention~~ BESS and substation drainage system~~basin~~) and 105m^3 (for the swale) of LTS are slowly released at a controlled rate of 2 l/s/ha. Once this LTS volume is exceeded during a major storm event, the controlled release will match the greenfield runoff rates, utilising the flow-matching approach outlined in paragraph 6.4.3. It is expected that the LTS volume can be discharged at a maximum rate of 2 l/s/ha within the tail of the discharge hydrograph, i.e., after the storm event has finished.

Water Quality Protection

~~6.5.21~~6.5.22 The capacity of the combined detention basin and swale drainage system to provide sufficient water quality protection for day-to-day use under normal conditions was assessed using the Simple Index Approach[21]. The pollution hazard for the impermeable areas can be classified as low based on a ‘low traffic road’ land use classification. The pollution hazard indices for the contaminant types at the low pollution hazard level are shown in Table 5 and the pollution mitigation indices for the proposed SuDS features are shown in Table 6.

Table 5 – Pollution hazard indices for different land use classifications

Land Use	Pollution hazard level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Low traffic roads	Low	0.5	0.4	0.4

Table 6 – Indicative SuDS mitigation indices for discharges to surface water

SuDS Component	Mitigation indices		
	TSS	Metal	Hydrocarbons
Detention basin	0.5	0.5	0.6
Swale	0.5	0.6	0.6

~~6.5.22~~6.5.23 Based on the pollution hazard and SuDS mitigation indices presented above, the detention basin and swale will deliver adequate treatment of the run-off as the total pollution mitigation index for each contaminant type is equal to or exceeds the respective pollution hazard index for the contaminant type.

~~6.5.23~~6.5.24 In the event of a fire or other similar incident, the sluice gate will be automatically closed, and potentially contaminated water will be collected and treated off site.

~~6.5.24~~6.5.25 Following a BESS fire or other incident involving the use of firefighting or fire-suppression water, the detention basin and any connected tanked subsurface attenuation storage will remain closed and the retained water will be sampled and analysed by a UK-accredited laboratory. The approach to analysis will be determined having regard to the BESS design, battery chemistry, substances involved in the incident and the requirements of the Environment Agency and other relevant regulators.

~~6.5.25~~6.5.26 Retained firewater will not be released while test results are awaited. Where testing confirms that the water is suitable for discharge, it will be released to the local drainage network under controlled conditions only after prior approval has been obtained from the relevant regulator. Where testing identifies contamination, the water will be removed by tanker and treated at an appropriately authorised off-site facility.

~~6.5.26~~6.5.27 Where a spill, leak, maintenance activity or other non-fire incident has caused, or may have caused, contamination of surface water run-off, the Scheme's surface water drainage system will be manually isolated at the earliest safe opportunity. The water will be managed in accordance with the Environmental Incident Management and Pollution Prevention Plan (as per the approved CEMP, OEMP, DEMP) and will be sampled where required by the Environmental Manager or the relevant regulator. It will not be discharged until it has been confirmed to be suitable for discharge and any required regulatory approval has been obtained.

~~6.5.27~~6.5.28 The final SWMP, Watercourse and Groundwater Quality Monitoring Plan, BSMP and Emergency Response Plan will identify the responsibilities, sampling procedures, analytical parameters, assessment criteria, regulatory-notification arrangements and records applicable to incident water.

Maintenance Plan

~~6.5.28~~6.5.29 The maintenance plan has been produced using the relevant guidance from the CIRIA SuDS Manual and the key maintenance items for the proposed drainage strategy have been broken down in Table 7.

Table 7 – Operation and maintenance requirements for proposed drainage features

Feature	Scheme Phase	Inspection, maintenance or testing	Minimum Frequency
Surface water interception and drainage, filter strips, silt fencing, check dams, matting, sediment traps and settlement ponds	Construction Operation (where required) Decommissioning*	Inspect location, installation, integrity, sediment accumulation, evidence of overtopping or bypass, erosion and discharge condition.	Before first use; at least weekly while active; following rainfall producing visible overland flow; and following any impact or alteration.
Detention basin	Construction Operation Decommissioning	Remove litter and debris	Monthly
		Cut grass – for spillways and access route	Monthly (during growing season) or as required
		Cut grass – meadow grass in and around basin	Half yearly
		Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
		Inspect banksides, structures and pipework for evidence of physical damage	Monthly
		Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
		Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required.
		Relevel uneven surfaces and reinstate design levels	As required
Sluice gate, flow controls and alarm interface	Construction Operation	Functionally test automatic closure, manual closure or override, seals, alarm interface and reopening procedure.	Quarterly; following any activation; and following maintenance or repair.

	Decommissioning		
Tanked subsurface attenuation storage	Construction Operation Decommissioning	Inspect access chambers, inlets, outlets, flow controls and visible structural components for blockage, sediment accumulation, surcharge, leakage, deformation or damage. Confirm that the feature drains down and retains its design capacity. Clean, jet, pump out, repair or reinstate as required.	Before commissioning; at least annually; and following any significant surcharge, flooding or fire incident event.
Swales	Construction Operation Decommissioning	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, and record areas where water is ponding > 48 hrs	Monthly, or when required
		Inspect vegetation cover	Monthly for 6 months, quarterly for 2 years, then half yearly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
		Repair erosion or other damage by re-turfing or reseeding	As required or if bare soil is exposed over 10% or more of the swale treatment area
		Repair erosion or other damage by returfing or reseeding	As required
		Relevel uneven surfaces and reinstate design levels	As required

Grassland beneath panels and panel driplines	Construction Operation	Inspect vegetation cover, bare strips, rills, scour, grazing damage, compaction and drought stress.	Monthly and following rainfall producing visible overland flow during years 1 to 5; at least annually and following such rainfall thereafter; and before and after replacement activity in the affected area.

*in accordance with the approved DSWMP

ANNEX 1 – GREENFIELD RUN-OFF RATES

ReFH2 Greenfield Runoff Estimate
Calculation Sheet

Site Name	East Park Energy
Site Location	Bedford/Huntington Border
X (Eastings)	508218
Y (Nothings)	263813
Engineer	Ajani Jacobs
Checked by	Daniel Hamilton
Reference	WHS1967
Revision	4
Date	15-Jul-26

Site Description

Total Area (ha)	766
Existing Developed area (ha)	0
SAAR (mm)	554
PROPWET(mm)	0.24
BFIHOST19	0.37

Rainfall Parameters

Duration (hh:mm:ss)	11:00:00
Timestep (hh:mm:ss)	01:00:00
SCF (Seasonal correction factor)	0.65
ARF (Areal correction factor)	1 [0.97]
Seasonality	Winter

Loss Model Parameters

Cini (mm)	132.55
Cmax (mm)	311.17

Routing Parameters

Tp (hr)	6.76
Up	0.65
Uk	0.8

Baseflow Parameters

BF0 (m^3/s)	0.29
BL (hr)	45.83
BR	0.97

Growth Curves and Discharge rates

Event	*Q/Qmed*	*Q (l/s)*	*Q (l/s/ha)*
Q1	**-**	**1538.40**	**2.01**
Q2	1.00	1761.76	**2.30**
Q30	**2.15**	**3795.01**	**4.95**
Q30 (+35%CC)	**2.96**	**5223.36**	**6.82**
Q100	**2.77**	**4874.84**	**6.36**
Q100 (+40%CC)	**4.02**	**7074.86**	**9.24**
Q1000	4.90	8634.05	11.27

ANNEX 2 – SUDS FEATURES CALCULATION SHEET

East Park Energy - SuDS Required Storage Calculations

WHS1967 - Eaton Socon (East Park Energy)

Information Sheet

Parameter			Source /rational
Impermeable Area			Extracted from dwg in QGIS
Storage volume required			Calculated in Causeway Flow
Climate change allowance (%)			EA Peak Rainfall Allowance for Upper and Bedford Ouse Management Catchment (Credible Maximum - .i.e, Upper End Allowance)
30-year		35	https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall
100-year		40	
Peak discharge (l/s/ha) **For attenuation**		-	Soakways for buildings (if applicable)
		2.3	Greenfield runoff rates (2yr)
		4.95	Greenfield runoff rates (30yr)
		6.36	Greenfield runoff rates (100yr)
		9.24	Greenfield runoff rates (100yrCC)
Geology	Bedrock geology - *Mudstone* Superficial deposits: General site - *Sand, Gravel, Diamicton, Clay and Silt* Section of site with buildings - *Unavailable*		https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/
Soil information	General site (including the area with buildings): *Lime-rich loamy and clayey soils with slighly impeded drainage. Texture - clayey, some loamy.* *Areas of loamy freely draining and loamy & clayey impeded drainage through the site.*		https://www.landis.org.uk/soilscapes/
Infiltration rates*:	Best-estimate	Worst-case	CIRIA SuDS Manual pg. 546 (based geology and soil information)
m/s	0.000001	0.00000001	
m/h	0.0036	0.000036	

* Soil type/texture:
Very poor infiltration media/Silty clay loam

Infiltration range: 1×10^{-8} - 1×10^{-6}

Document Details

Prepared by:	Ajani Jacobs *(Consultant)*
Reviewed by:	Brett Park *(Associate)*
Date	11/09/2026
Version	6

East Park Energy - SuDS Required Storage Calculations

Required Storage Estimate and Headroom Assessment for Combined Attenuation Storage (Attenuation Basin + Tanked Subsurface attenation @ BESS Compound)

Impermeable Area Summary

Feature	Impermeable area, Ha
hard surface	17729
O&M building	755.66
Substation control building	1027.59
Tracks (Inside & around BESS compound)	7379
Water storage (57m2 ea.)	114
TOTAL	**27005.25**

Requried Storage Vol. Estimate

Component	Impermeable Area		Required storage with infiltration, m^3		Required storage without infiltration**	
	m^2	Ha	Best-estimate	Worst-case	m^3	m^3/ha
Hard surface (entire hard surface area)*	27005.25	2.7	-	-	2817.15 (See Annex 3)	

*the combined attenuation storage will intercept runoff from the impermeable areas except the section of the track extending from the BESS compound.

discharging at **2yr greenfield rate (l/s/Ha) per impermeable area (Ha), m^3/s 6.21

Storage feature should be able to accommodate entire fire water stores (l): 456000

456 m^3

Storage capacity above firewater volume 2361.15 m3

Runoff volumes from ReFH

Return Period	Direct runoff vol (ReFH)	
	ML	m^3
1yr	0.647	647
2yr	0.751	751
30yr	1.64	1640
30yrCC	1.33	1330
50yr	1.82	1820
50yrCC	2.54	2540
75yr	1.97	1970
75yrCC	2.75	2750
100yr	2.08	2080
100yrCC	2.91	2910
200yr	2.41	2410
200yrCC	3.37	3370
1000yr	3.46	3460

∴ Storage capacity above firewater volume is ~equivalent to the 0.5% AEP return period (200yr)

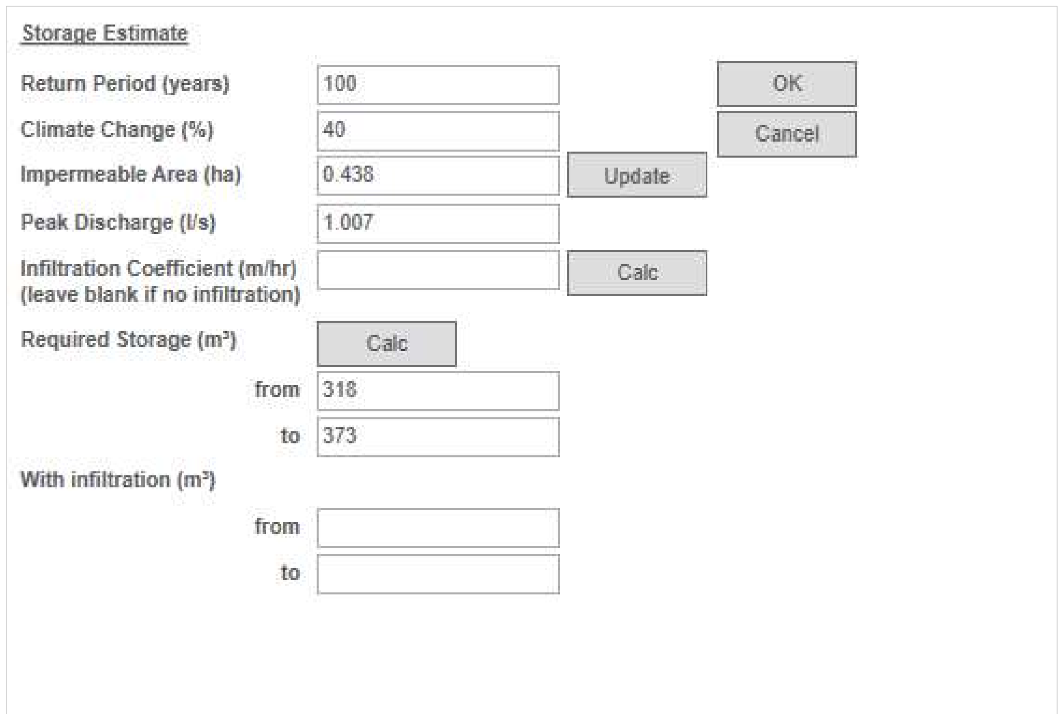
East Park Energy - SuDS Required Storage Calculations

Required Storage Estimate for Main Swale

Component	Impermeable Area		m^3		Required storage without infiltration**	
	m^2	Ha	Best-estimate	Worst-case	m^3	m^3/ha
Access Tracks (extending from BESS compound)*	4379	0.4379	-	-	318-373	851.79
Total	**4379**	**0.4379**				

*The swale will provide storage/conveyance for access track extending from the BESS compound

****Discharging at 100yr greenfield rate (l/s/Ha) per impermeable area (Ha):** **1.007 l/s**


Storage Estimate
Return Period (years) 100
Climate Change (%) 40
Impermeable Area (ha) 0.438 Update
Peak Discharge (l/s) 1.007
Infiltration Coefficient (m/hr) (leave blank if no infiltration) Calc
Required Storage (m³) Calc
from 318
to 373
With infiltration (m³)
from
to
OK
Cancel

East Park Energy - SuDS Required Storage Calculations

Main Conveyance Swale Geometry (Cross-section)

Total Imperameable Area for Swale (ha):	
BESS Compound	2.7
Access track and operations buidling	0.4379
Total	**3.14**

Maximum outflow to swale per impermeable area @ 2yr greenfield rate (l/s):

l/s	7.22	Flow input for Manning's Equation on page 5
m^3/s	0.01	

Swale Cross-section*:

Depth of swale (*y* from mannings eqn flow on pg. 5)	0.20	m
Total depth (including 300m freeboard)	0.50	m
Top Width**	4.00	m

* Cross-section based on higher flows from 100yrCC event (0.03 m^3/s); however, there is opportunity to downsize the swale at detailed design based on lower flows for 100yr event (0.02 m^3/s) or 2yr event (0.01 m^3/s)

** $W = b + 2(sd)$

Where:

W = Top width (m)

b = Base width (m), assuming 1 m wide base

s = Side slope horizontal ratio, (3 for a 1:3 slope)

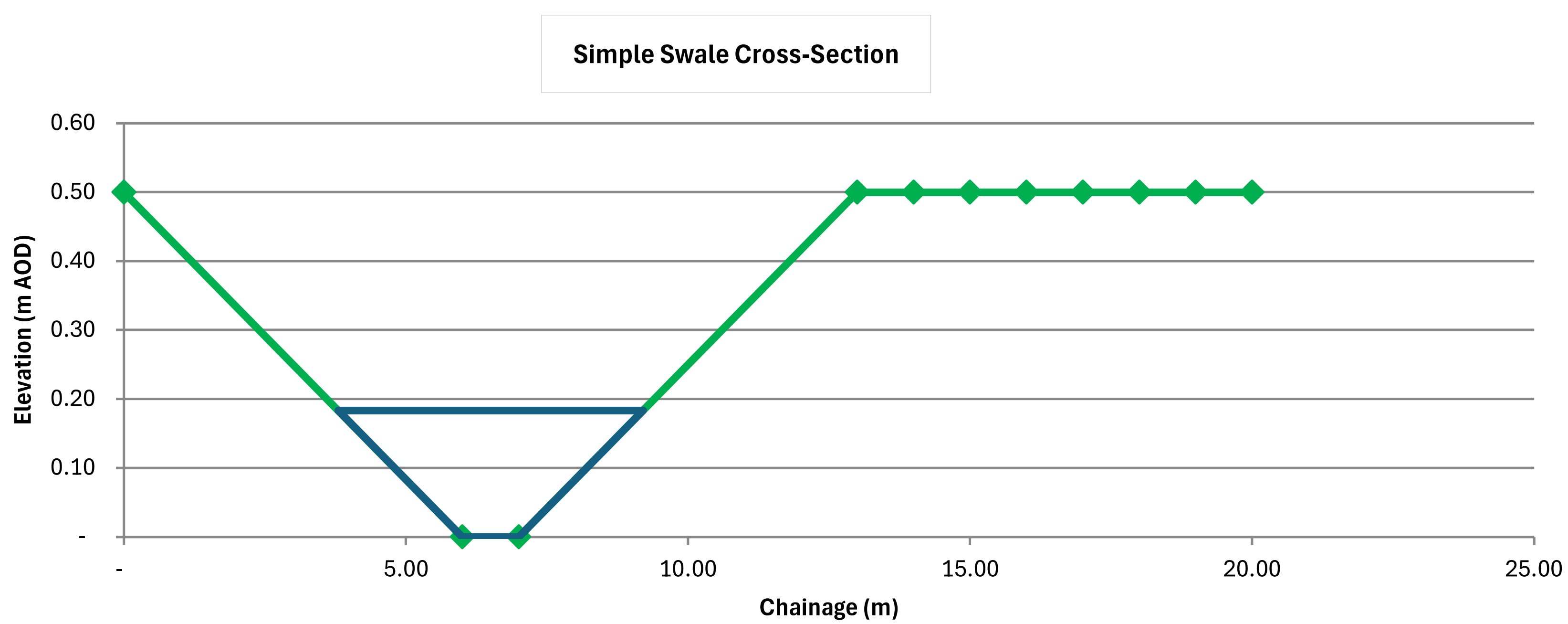
d = Total depth (m)

Manning's Flow Equation for Open Channel

Q	0.03	<< Use goal seak to change y to get required value of Q
y	0.18	
S	0.0092	
n	0.4000	
A	0.59	
P	5.42	
R	0.11	

$$Q = VA = \left(\frac{1.00}{n}\right) AR^{\frac{2}{3}} \sqrt{S} \quad [SI]$$

Cross Section				Bed below WL					
X	**Y**	Above WL		**X**	**Bed Y**	**WL Y**	**Depth**	**Area**	**Wetted Perim**
-	0.50	Y	first LB above	3.80	0.18	0.18	-		
6.00	-	N		6.00	-	0.18	0.18	0.20	2.21
7.00	-	N		7.00	-	0.18	0.18	0.18	1.00
13.00	0.50	Y	first RB above	9.20	0.18	0.18	-	0.20	2.21
14.00	0.50	Y						-	-
15.00	0.50	Y						-	-
16.00	0.50	Y						-	-
17.00	0.50	Y						-	-
18.00	0.50	Y						-	-
19.00	0.50	Y						-	-
20.00	0.50	Y						-	-



ANNEX 3 – DESIGN REPORT

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
Tank	2.700	5.00	28.000				2.150	25.850
Atten. Basin	0.000	5.00	28.000		1091.678	10.464	2.150	25.850
1			28.000	1800	1102.330	-44.970	2.150	25.850

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
2	35	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	40	0	0

Node 1 Online Hydro-Brake® Control

Flap Valve	x
Replaces Downstream Link	x
Invert Level (m)	25.850
Design Depth (m)	1.850
Design Flow (l/s)	6.2
Objective	(HE) Minimise upstream storage
Sump Available	✓
Product Number	CTL-SHE-0104-6200-1850-6200
Min Outlet Diameter (m)	0.150
Min Node Diameter (mm)	1200

Node 1 Pond Storage Structure

Invert Level (m)	25.850	Analyse flow through structure	x
Time to half empty (mins)			

Inlets
Atten. Basin

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	485.0	1.850	1323.0	2.150	1512.0

Node 1 Tank Storage Structure

Invert Level (m)	25.850	Analyse flow through structure	x
Time to half empty (mins)			

Inlets
Tank

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1430.9	0.800	1430.9

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Tank	690	26.173	0.323	44.6	0.0000	0.0000	OK
720 minute winter	Atten. Basin	720	26.167	0.317	5.7	0.0000	0.0000	OK
720 minute winter	1	705	26.168	0.318	30.4	621.3265	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
720 minute winter	1	Hydro-Brake®	5.5	227.6

Results for 2 year +35% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Tank	915	26.298	0.448	47.8	0.0000	0.0000	OK
960 minute winter	Atten. Basin	945	26.292	0.442	6.3	0.0000	0.0000	OK
960 minute winter	1	930	26.293	0.443	32.9	877.3909	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	1	Hydro-Brake®	5.7	300.8

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Tank	945	26.590	0.740	75.8	0.0000	0.0000	OK
960 minute winter	Atten. Basin	960	26.582	0.732	11.3	0.0000	0.0000	OK
960 minute winter	1	945	26.583	0.733	52.0	1498.6410	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	1	Hydro-Brake®	5.7	315.3

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Tank	945	27.126	1.276	102.4	0.0000	0.0000	OK
960 minute winter	Atten. Basin	960	27.116	1.266	27.4	0.0000	0.0000	OK
960 minute winter	1	945	27.118	1.268	70.6	2102.6220	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	1	Hydro-Brake®	5.7	313.2

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.99%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	Tank	945	26.992	1.142	96.0	0.0000	0.0000	OK
960 minute winter	Atten. Basin	960	26.982	1.132	20.0	0.0000	0.0000	OK
960 minute winter	1	945	26.984	1.134	66.1	1961.1030	0.0000	OK

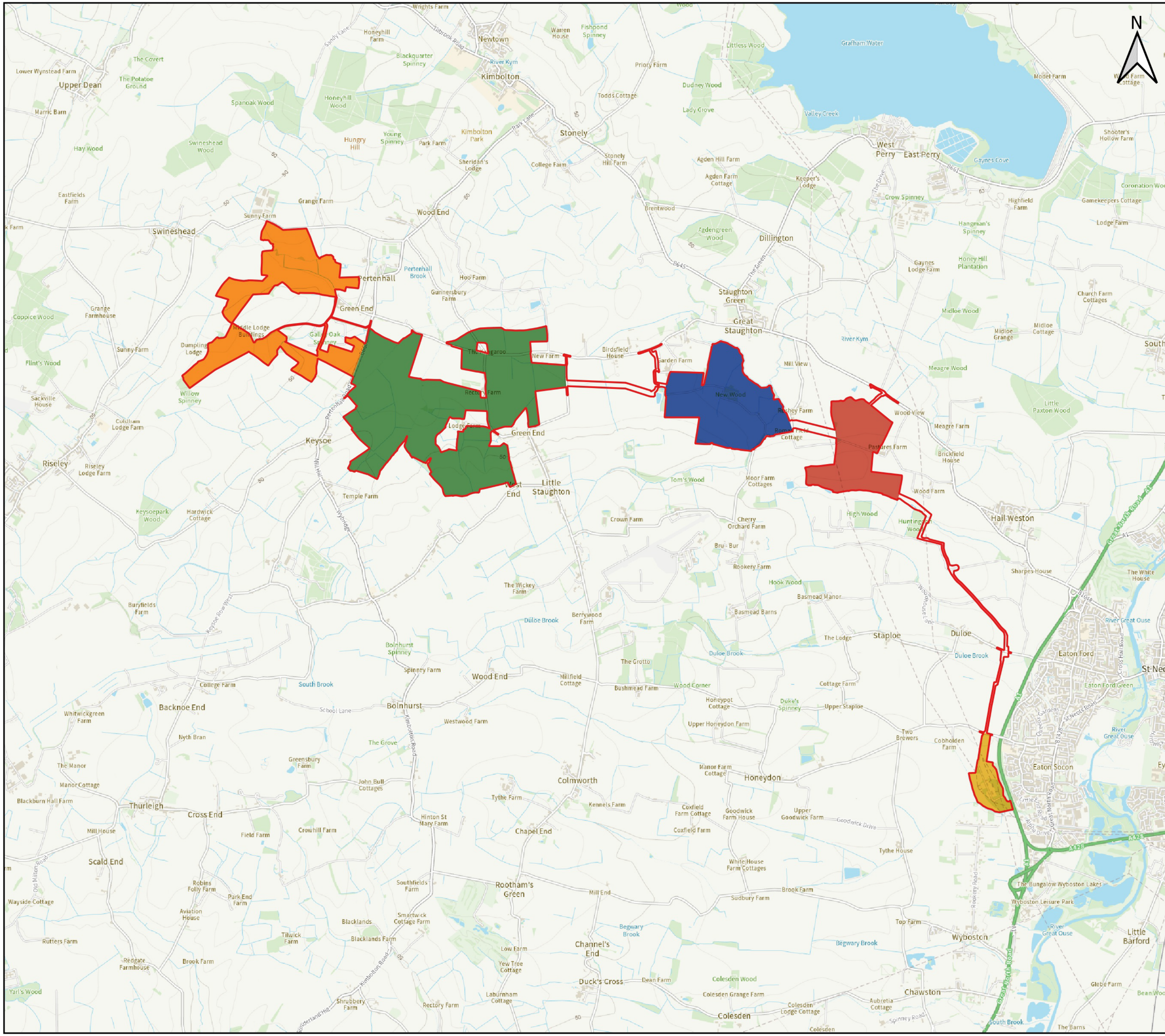
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m³)
960 minute winter	1	Hydro-Brake®	5.7	304.2

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.98%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m^3)	Flood (m^3)	Status
1440 minute winter	Tank	1410	27.709	1.859	93.4	0.0000	0.0000	OK
1440 minute winter	Atten. Basin	1440	27.697	1.847	40.8	0.0000	0.0000	OK
1440 minute winter	1	1410	27.699	1.849	88.5	2810.4890	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)	Discharge Vol (m^3)
1440 minute winter	1	Hydro-Brake®	6.2	491.6

FIGURE 1 – SITE LOCATION AND SUBDIVISION



Project :

East Park Energy

Client :

axis

Legend :

Order Limits

Site Subdivisions

East Park A

East Park B

East Park C

East Park D

Connection Point

Access Routes/Internal Cabling & Grid Connection Corridors

Scale : 0 1,000 2,000 m

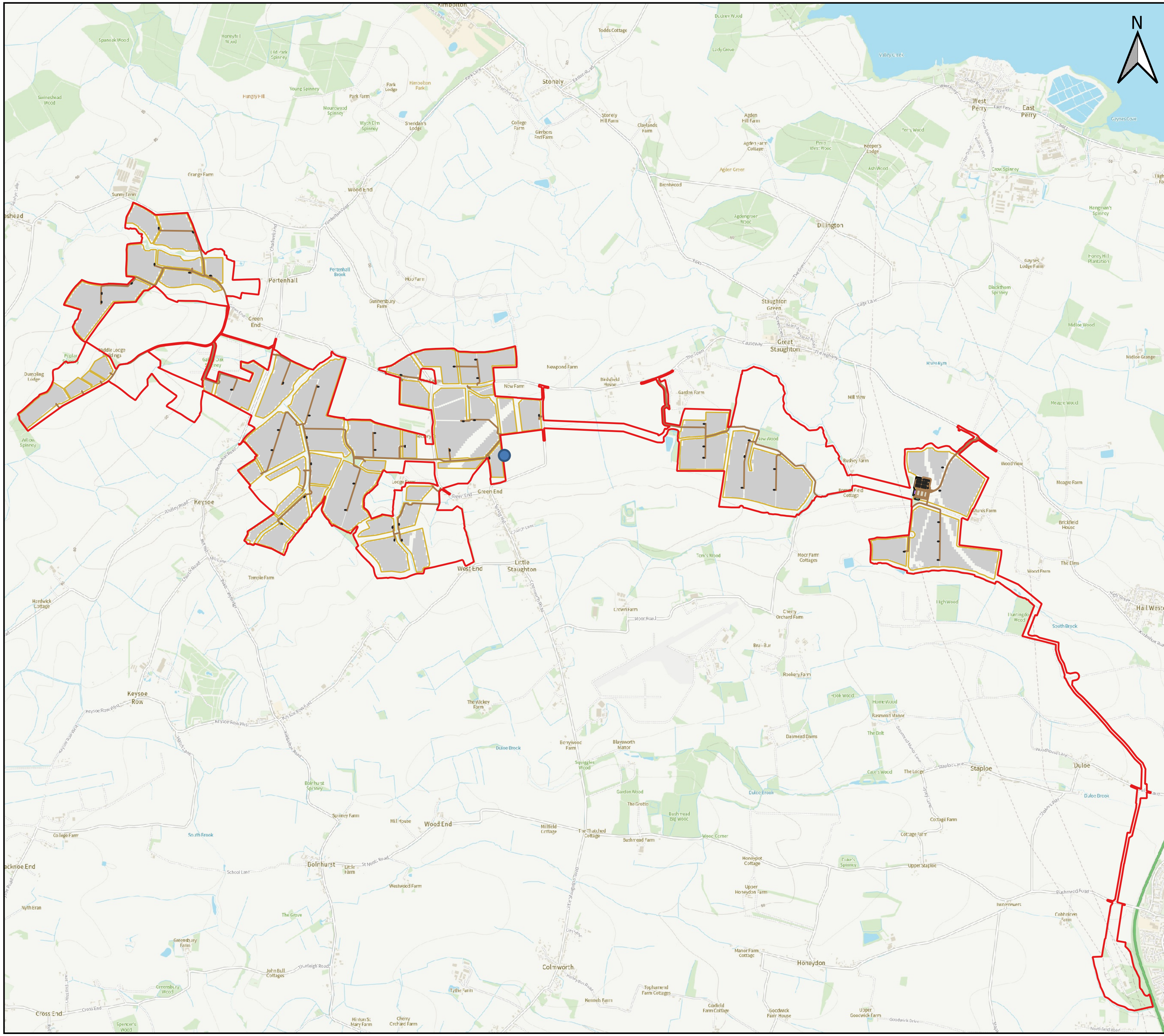
Title :

Figure 1: Site Location and Subdivisions

Drawing :	Rev :
WHS1967-T01-0001	3

WHS

FIGURE 2 – SITE AREA AND POINT DESCRIPTOR LOCATION



Project :

East Park Energy

Client :

axis

Legend :

Order Limits

Point Location (Centroid of site boundary)

Scale :

0 1,000 2,000 m

Title :

Figure 2: Site Area and Point Location

Drawing :

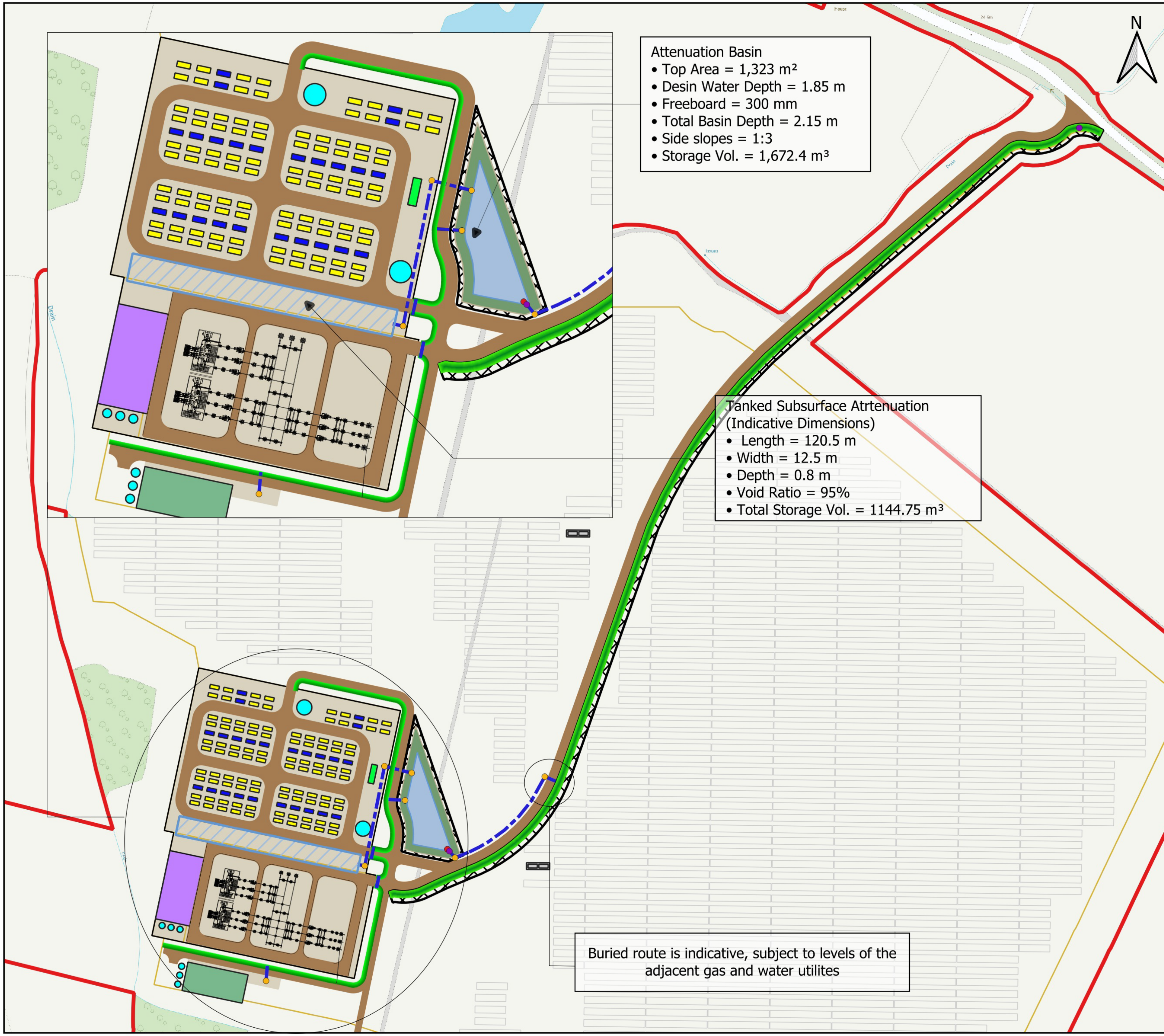
WHS1967-T01-0002

Rev :

3

WHS

FIGURE 3 – INDICATIVE DRAINAGE LAYOUT



Project :

East Park Energy

Client :

axis

Legend :

- Batteries
- Battery Control Building
- Transformers
- Water Storage
- PV Panels
- O&M building
- Substation Control Building
- Access Track
- Bunded Area
- Hard Surface

Outline Drainage

- Tanked Subsurface Attenuation
- Detention Lagoon - Freeboard
- Detention Lagoon - Top Area
- Detention Lagoon - Bottom Area
- Swales
- Maintenance Zones
- Existing Watercourse
- Surface Water Drain (Culverts)
- Manholes
- Flow Control
- Sluice Gate

Scale : 0 50 100 m

Title :

Figure 3: Outline Drainage Plan

Drawing :	Rev :
WHS1967-T01-0003	12

WHS