YARDLEY ROAD SOLAR FARM
YARDLEY ROAD, YARDLEY GOBION, TOWCESTER,
WEST NORTHAMPTONSHIRE

DRAINAGE ASSESSMENT

Final Report v1.2
June 2025

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Report Title	**Yardley Road Solar Farm** **Yardley Road, Yardley Gobion, Towcester, West Northamptonshire** Drainage Assessment Final Report v1.2
Client	Yardley Road Solar Farm Limited
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List of Abbreviations

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

1 INTRODUCTION

1.1 Purpose of Report

Weetwood Services Ltd ('Weetwood') has been instructed by Atmos Consulting on behalf of Yardley Road Solar Farm Limited to prepare a DA report to accompany a full planning application for the proposed development of land bisected by Yardley Road, Yardley Gobion, Towcester, West Northamptonshire ("the site") for use as a solar farm.

The assessment has been undertaken in accordance with the requirements of the NPPF and the 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 drainage planning policy
Section 4 Presents an illustrative surface water drainage scheme
Section 5 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:

- National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2025);
- Planning Policy Guidance Section 7 - Flood Risk and Coastal Change, Ministry of Housing, Communities and Local Government, Updated on 25 August 2022, https://www.gov.uk/ guidance/flood-risk-and-coastal-change;
- Flood Risk Assessments - Climate Change Allowances, Government, Updated 27 May 2022, https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances;
- BRE Digest 365 Soakaway Design, BRE, February 2016
- The SuDS Manual (C753), CIRIA, December 2015;
- Non-Statutory Technical Standards for Sustainable Drainage, DEFRA, March 2015;
- Rainfall Runoff Management for Developments (Ref. SC030219), DEFRA/EA, October 2013;
- HR Wallingford Greenfield Runoff Tool, www.uksuds.com;
- Northamptonshire Local Flood Risk Management Strategy, NCC, November 2016;
- West Northamptonshire Joint Core Strategy Local Plan, Daventry District, Northampton Borough and South Northamptonshire Councils, December 2014 ;
- Preliminary Flood Risk Assessment, NCC, June 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/;
- MAGIC, Natural England, https://magic.defra.gov.uk/.

1.4 Third Party Surveys, Drawings and Assessments

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

- Yardley Road Solar Farm Figure 2: Site Layout (Ref. 109-028A-250530) (**Appendix A**).

1.5 Explanatory Note on Flood Probability

This report refers to the likelihood of a rainfall event occurring in terms of an AEP expressed as a percentage.

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 flood' has a 1/30 = 0.033 (3.3%) probability of

occurring or being exceeded in any one year, whilst a '1 in 100 year flood' has a 1/100 = 0.010 (1.0%) probability of occurring or being exceeded 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
0.435	43.5%	2.3	1 in 2.3
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 89.60 ha greenfield site is located to the north and south of Yardley Road at OS NGR SP 768 440, as shown in **Figure 1**. The proposal includes a route for a buried cable between the Site and the grid connection located approximately 6.7 km south-east of the Site, to the south of H3 Monks Way, as illustrated in **Figure 1**.

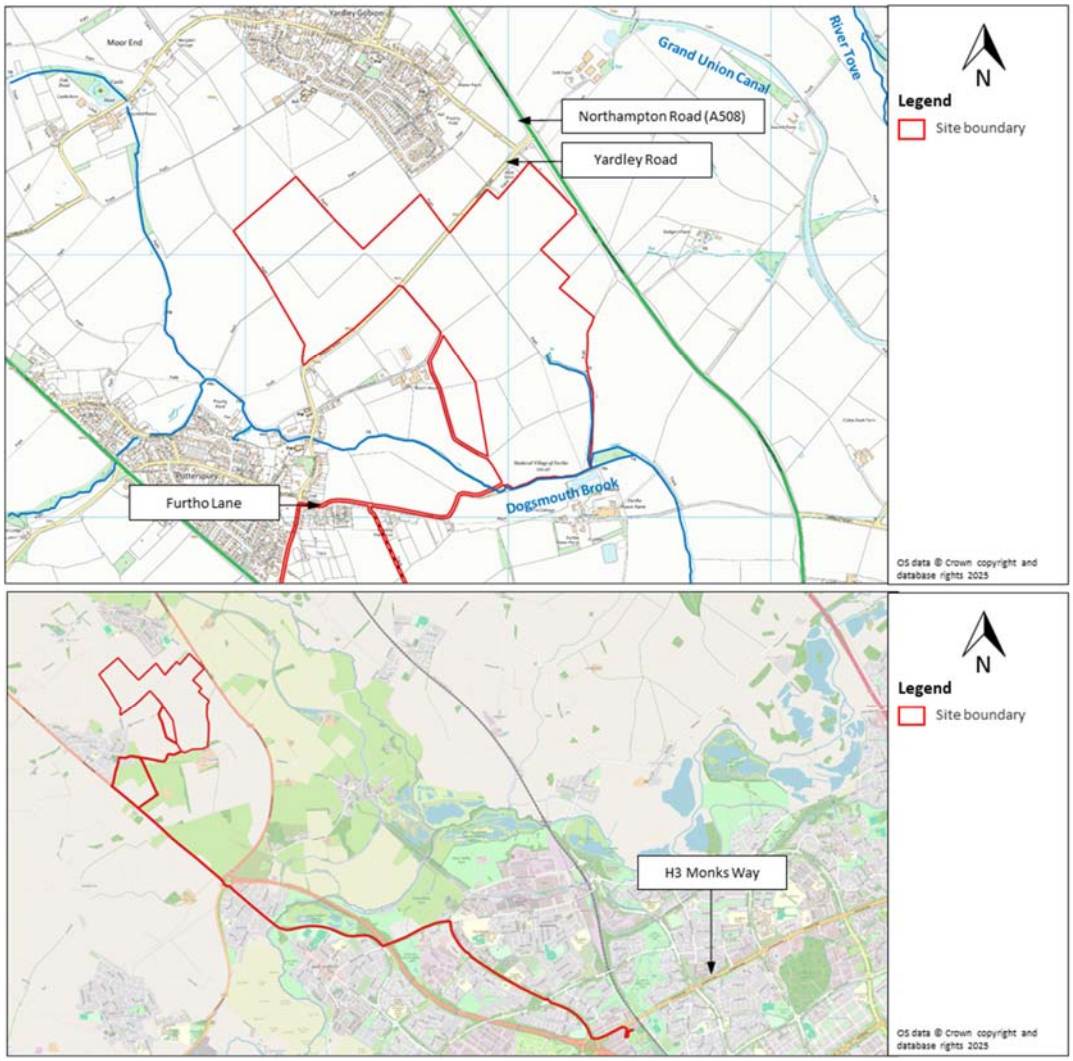

Figure 1: Site Location and Location of Surface Waterbodies

2.2 Proposed Development

The Proposed Development comprises a solar farm consisting of the following key elements: single axis trackers photovoltaic (PV) solar panels (maximum height of up to 3.1 metres (m) high) and associated support frames and cabling; inverter and transformer stations; distribution network operator (DNO) building; customer station; access tracks; security fencing; and landscaping across the Site. Vehicular access will be provided via Yardley Road.

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

The proposed development would be for a lifetime period of 40 years after which the site would be decommissioned and restored to its current use.

Annex 3 of the NPPF classifies solar farm development as Essential Infrastructure.

2.3 Surface Waterbodies in the Vicinity of the Site

Dogsmouth Brook is located approximately 260 m west and along the southern boundary of the Site. Dogsmouth Brook flows in a predominantly south-easterly direction, ultimately outfalling to the River Great Ouse approximately 2.5 kilometres (km) to the south of the Site. An existing drainage ditch issues in the south-east of the Site and outfalls to Dogsmouth Brook. The proposed cable route is shown to cross Dogsmouth Brook and the River Great Ouse to the south (with the latter in the location of the existing London Road crossing).

The Grand Union Canal is located approximately 650 m north-east/east of the site, beyond which (approximately 1.3 km from the site) the River Tove flows in a predominately southerly direction outfalling to the River Great Ouse.

The River Great Ouse and River Tove are classified as main river, whilst Dogsmouth Brook and the associated drainage ditch referenced above are ordinary watercourse. The Grand Union Canal is operated and maintained by the Canal and River Trust.

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 are indicated to be in the region of 92.5 - 99.5 m AOD to the north of Yardley Road and 77.7 - 95.0 m AOD to the south, generally falling to the south/south-east.

Ground levels on Yardley Road are in the region of 91.0 - 96.0 m AOD adjacent to the site, falling to the south-west and north-east.

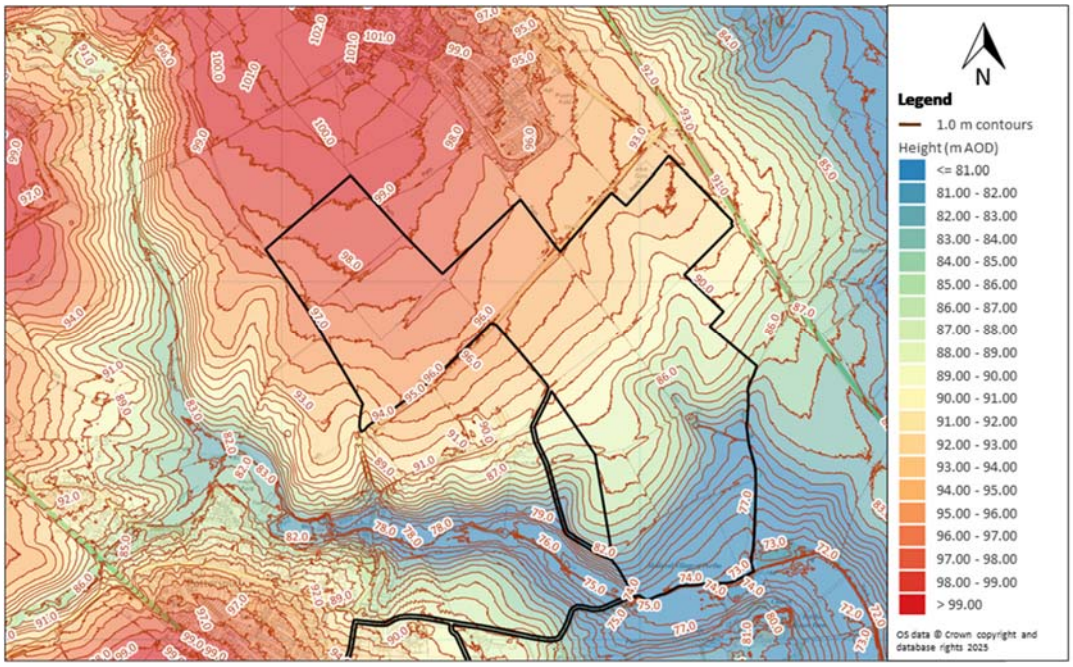

Figure 2: Digital Terrain Model from LiDAR Data

2.5 Ground Conditions

According to the Soilscapes soils dataset produced by the Cranfield Soil and AgriFood Institute[1], soil conditions at the site and within the surrounding area are described as lime-rich loamy and clayey soils with impeded drainage.

BGS mapping of surface geology[2] indicates the underlying bedrock formation comprises Blisworth Limestone Formation - Limestone, predominately overlain by Oadby Member - Diamicton but with a small area of Tufa - Tufa Calcareous in the south-east of the site in the locality of the existing drainage ditch.

According to the MAGIC website[3] the Oadby Member superficial deposits at the site are classified as a Secondary (undifferentiated) aquifer, whilst the Tufa superficial deposits are classified as a Secondary A aquifer and the underlying bedrock as a Principal aquifer. The site is not shown to be located within a designated GSPZ.

1 www.landis.org.uk/soilscapes/
2 https://www.bgs.ac.uk/map-viewers/geoindex-onshore/
3 https://magic.defra.gov.uk/MagicMap.aspx

3 PLANNING POLICY AND GUIDANCE

3.1 National Planning Policy and Policy Guidance

The NPPF sets out government's planning policies for England and how these are expected to be applied. The NPPF seeks to ensure that flood risk is taken into account at all stages in the planning process and is appropriately addressed.

NPPF paragraph 181 states that development should not increase flood risk elsewhere. NPPF paragraph 181 states that development should only be allowed in areas at risk of flooding where the development incorporates SuDS, unless there is clear evidence that this would be inappropriate.

NPPF paragraph 182 states that *"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"*.

3.2 Local Planning Policy

The West Northamptonshire Joint Core Strategy Local Plan was adopted by the former Daventry District, Northampton Borough and South Northamptonshire Councils in December 2014 and covers the period up to 2029. The following policy is relevant in respect of flood risk and drainage:

Policy BN7a - Water Supply, Quality and Wastewater Infrastructure

New development proposals will ensure that adequate and appropriate water supply and wastewater infrastructure is available to meet the additional requirements placed upon it and to ensure that water quality is protected, and as far as is practicable, improved.

Development proposals will ensure that adequate wastewater treatment capacity is available to address capacity and environmental constraints.

Development should use sustainable drainage systems, wherever practicable, to improve water quality, reduce flood risk and provide environmental and adaptation benefits.

To ensure all new housing is water efficient all new development will be required to achieve the equivalent of minimum level 4 standards for water conservation in the code for sustainable homes or any national equivalent standard from 2016

Policy BN7 - Flood Risk

Development proposals will comply with flood risk assessment and management requirements set out in the [NPPF] and [PPG] and the West Northamptonshire [SFRAs] to address current and future flood risks with appropriate climate change allowances.

A sequential approach will be applied to all proposals for development in order to direct development to areas at the lowest probability of flooding unless it has met the requirements of the Sequential Test and the Exception Test as set out within Table 6.

All new development, including regeneration proposals, will need to demonstrate that there is no increased risk of flooding to existing properties, and proposed development is (or can be) safe and shall seek to improve existing flood risk management.

All proposals for development of 1 [ha] or above in flood zone 1 and for development in 2, 3a or 3b must be accompanied by a [FRA] that set out the mitigation measures for the site and agreed with the relevant authority.

A [FRA] must also accompany proposals where it may be subject to other sources, and forms, of flooding or where other bodies have indicated that there may be drainage problems.

In order to meet the Exception Test development must:

1. *Demonstrate that the development provided wider sustainability benefits to the community that outweigh the flood risk;*
2. *Be located on previously developed land; and*
3. *Be accompanied by a site specific Flood Risk Assessment that demonstrates that the development will be safe for its lifetime without increasing flood risk elsewhere and where possible, reduce flood risk overall*

Where flood risk management required the use of [SuDS] to manage surface water run off, these should:

a. *Separate surface water from foul and combined sewers;*
b. *Be accompanied by a long term management and maintenance plan; and*
c. *Protect and enhance water quality.*

The Design standard for the upper Nene catchment (through Northampton and within the Nene catchment upstream of Northampton) is the 0.5% probability (1 in 200 chance of occurring in any year) event plus climate change. Surface water attenuation should be provided up to this standard.

WNC is preparing a new local plan. The West Northamptonshire Local Plan - 2041 (Regulation 18) Consultation Draft was published in April 2024. The following draft policy is relevant in respect of flood risk:

Policy PL5 - Flood Risk

A. All proposals for development of 1 [ha] or above in flood zone 1 and for development in flood zones 2, 3a or 3b must be accompanied by a [FRA] that sets out the mitigation and resilience measures for the site. An FRA should also accompany proposals where they may be subject to other sources and forms of flooding or where other bodies have indicated that there may be drainage problems. The FRA should be agreed with the Council as [the LLFA].

B. In order to meet the exception test, development must:
   i. demonstrate that it provides wider sustainability benefits to the community that outweigh the flood risk; and
   ii. be accompanied by a site-specific [FRA] that demonstrates that the development will be safe for its lifetime without increasing flood risk elsewhere and where possible, reduce flood risk overall.

C. Where flood risk management requires the use of sustainable drainage systems to manage surface water run-off, these should:
   i. separate surface water from foul and combined sewers;
   ii. be accompanied by a long-term management and maintenance plan; and
   iii. protect and enhance water quality.

D. Surface water attenuation should be provided to the design standard for the Upper Nene catchment (through Northampton and within the Nene catchment upstream of Northampton) i.e. the 0.5% probability (1 in 200 chance of occurring in any year) event plus climate change.

E. For all development suitable access must be provided and maintained for water supply and drainage infrastructure.

3.3 Drainage Technical Guidance

Non-statutory technical standards for sustainable drainage published by DEFRA in March 2015 set out how surface water runoff generated during the 3.3% and 1.0% AEP rainfall events and for events exceeding the 1.0% AEP event should be managed, how peak runoff rates should be restricted and how runoff volumes should be controlled.

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;
- 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 Environmental Permitting and Land Drainage Consent

Under the Environmental Permitting (England and Wales) Regulations 2016 an Environmental Permit for Flood Risk Activities[4] is required from the EA for any permanent or temporary works, including works:

- In, over or under a designated main river
- Within 8 m of the top of bank of a designated main river or of the landward toe of a flood defence (16 m if it is a tidal main river or a sea defence).

In addition, any permanent or temporary works within the floodplain of a designated main river may also require an Environmental Permit for Flood Risk Activities. A permit is separate to and in addition to any planning permission granted.

Land drainage consent may be required from the LLFA or IDB for work to an ordinary watercourse.

Undertaking activities controlled by local byelaws also requires the relevant consent.

4 https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

4 SURFACE WATER MANAGEMENT

4.1 Surface Water Drainage at the Existing Site

The site currently comprises greenfield land with no formal drainage infrastructure believed to be present at the site. Given site topography and ground conditions, surface water runoff would be expected to slowly infiltrate where conditions allow and flow overland in a direction determined by topography, ultimately discharging to Dogsmouth Brook.

The site has a total approximate area of 89.68 ha. The greenfield surface water runoff rates for the site, calculated using the HR Wallingford Greenfield Runoff Tool[5] are presented in **Table 1**. Details of the input parameters and the output results are provided in **Appendix B**.

Table 1: Greenfield Runoff Rate

AEP of Rainfall Event	Greenfield Runoff Rate (l/s/ha)	Greenfield Runoff Rate for 89.68 ha Site (l/s)
100.0%	3.6	322.9
QBAR	4.2	376.7
3.3%	10.3	923.7
1.0%	14.9	1,336.2

4.2 Surface Water Drainage at the Developed Site

4.2.1 Disposal of Surface Water

For the purposes of this assessment, the site has been split into two areas, the northern parcel (north of Yardley Road) and the southern parcel (south of Yardley Road).

In accordance with PPG - Flood Risk and Coastal Change para. 056, surface water runoff should be disposed of according to the following hierarchy: Into the ground (infiltration); To a surface water body; To a surface water sewer, highway drain, or another drainage system; To a combined sewer.

As detailed in **Section 2.5**, the site is underlain by soils with impeded drainage. As such, the disposal of surface water via infiltration is unlikely to be feasible; however, infiltration tests have not been undertaken at this stage. Such tests may be undertaken at the detailed design stage in accordance with the guidelines in BRE365.

According to published research into the impact of solar farm / park panels on runoff rates and volumes[6], solar panels do not have a significant impact on the hydrologic response of a site when the ground comprises of 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.

It is subsequently proposed to direct all runoff from the developed site in accordance with the following:

Northern Parcel

Surface water runoff from access tracks and other areas of hardstanding (substation and inverter units) are expected to be managed through the following features:

- Managed grassland to be incorporated beneath the solar panels;
- Existing swales/ditches located along the northern edge of Yardley Road.

Such features will interrupt potential flow paths, slow down flows and encourage natural processes, including infiltration and evaporation where feasible without interfering with the operational performance and maintenance of the solar panels.

5 www.uksuds.com
6 Hydrologic Response of Solar Farms, Cook LM and McCuen RH, American Society of Civil Engineers, 2013

Southern Parcel

Surface water runoff from access tracks and areas of hardstanding (i.e. substation and inverter units) will be discharged to the existing drainage ditch to the south-east of the site.

4.2.2 Post Development Impermeable Area

The area of impermeable surfaces within the southern parcel (access tracks and inverter units) has been calculated to be 0.60 ha, based on **Appendix A**.

4.2.3 Peak Flow Control

It is proposed to restrict surface water runoff in the southern parcel to the existing greenfield QBAR rate of 2.5 /s post development, as outlined in **Table 1**.

4.2.4 Volume Control

Where reasonably practicable, for greenfield sites, the runoff volume from the proposed development to any highway drain, sewer or surface water body in the 1.0% AEP, 6 hour rainfall event should not exceed the greenfield runoff volume for the same event.

As outlined within The SuDS Manual extra runoff volumes in extreme events may be managed by releasing all runoff (above the 100.0% AEP event) from the site at a maximum rate of 2 l/s/ha or QBAR, whichever is the higher value.

It is therefore proposed to restrict peak discharge rates to the greenfield QBAR rate in up to the 1.0% AEP event, including an allowance for climate change.

4.2.5 Attenuation Storage

Northern Parcel

No formal drainage system is proposed in the northern parcel.

Southern Parcel

Attenuation storage will be provided to store surface water runoff generated across access tracks and inverter units.

The attenuation storage facility has been modelled using Causeway Flow (**Appendix C**). Based on a 40 year development lifetime, the required storage volume has been sized to store the 1.0% AEP rainfall event including a 25% increase in rainfall intensity to allow for climate change in accordance with Government guidance.

Assuming a peak discharge rate of 2.5 l/s, a total storage volume of 543.6 m^3 would be required.

The storage volume could be accommodated within an attenuation basin, with an area of 724.6 m^2 and a depth of 1.2 m.

A preliminary surface water drainage layout is provided in **Appendix D**.

4.2.6 Exceedance Routes

Northern Parcel

Any overland flows that exceed the capacity of the existing swales/ditches in the northern parcel will follow natural topography, ensuring flows are directed in a south-westerly direction along Yardley Road, mimicking current arrangements.

Southern Parcel

Any overland flows 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.

4.2.7 Pollution Control

Table 26.2 of the CIRIA SuDS Manual identifies general access roads and commercial roofs (inverter units, substations and storage containers) as having a low pollution hazard level and indicates that the pollution hazard indices associated with such uses for total suspended solids, hydrocarbons and metals are 0.50, 0.40 and 0.40, and 0.30, 0.20 and 0.05 respectively.

Northern Parcel

As discussed in **Section 4.2.1**, surface water runoff from the proposed development including access tracks, will discharge onto managed grassland, and flow overland prior to being intercepted by existing swales/ditches.

The use of existing grassed swales/ditches slows the flow of water which facilitates sedimentation, filtration through the root zone and soil matrix, evapotranspiration and infiltration into the underlying soil. Table 26.3 of the CIRIA SuDS Manual indicates that the SuDS mitigation indices for swales for total suspended solids, hydrocarbons and metals are 0.50, 0.60 and 0.60 respectively.

An existing grass verge adjacent to the existing swales/ditches will act as a filter strip which effectively reduces particulate pollutant levels by removing sediments, organic materials and heavy metals. Table 26.3 of the CIRIA SuDS Manual indicates that the SuDS mitigation indices for filter strips for total suspended solids, hydrocarbons and metals are 0.40, 0.40 and 0.50 respectively.

Southern Parcel

It is proposed to discharge surface water runoff from the access tracks via filter drains which will convey flows to an attenuation basin. Attenuation basins can provide water quality benefits via the settlement of pollutants in still or slow moving water, adsorption by the soil, and biological activity.

Table 26.3 of the CIRIA SuDS Manual indicates that the SuDS mitigation indices for filter drains and attenuation basins for total suspended solids, hydrocarbons and metals are 0.40, 0.40 and 0.40, and 0.50, 0.50 and 0.60 respectively.

As such, the existing swales/ditches (including grassed filter strip) and proposed drainage system would incorporate adequate water quality treatment.

4.2.8 Maintenance of SuDS

SuDS for the development will be maintained by the site operator or their appointed management company.

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

Table 2: Maintenance Requirements

Schedule	Required action	Frequency
Attenuation Basin		
Regular maintenance	Remove litter and debris	Monthly
	Cut grass	Monthly during grow 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 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

Schedule	Required action	Frequency
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets/outlets	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/outlets 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/outlets	
	Relevel uneven surface and reinstate design levels	
Filter Drain		
Regular maintenance	Remove litter including leaf litter and debris from filter drain surface, access chambers and pre-treatment devices	Monthly (or as required)
	Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage	Monthly
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies	Six monthly
	Remove sediment from pre-treatment devices	Six monthly (or as required)
Occasional maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010)	As required
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium	Five yearly (or as required)
	Clear perforated pipework of blockages	As required
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
	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	
Flow Control Unit		
Routine maintenance	Remove litter and debris and inspect for sediment accumulation	Six Monthly
	Remove sediment from sump	As necessary – Indicated by system inspections
Remedial actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor operation	Six Monthly

Schedule	Required action	Frequency
	Inspect flow control unit and establish appropriate replacement frequencies	Six Monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first year of operation, then every six months

5 SUMMARY AND RECOMMENDATIONS

This report has been prepared on behalf of Yardley Road Solar Farm Limited and relates to the proposed development of land bisected by Yardley Road, Yardley Gobion, Towcester, West Northamptonshire for use as a solar farm.

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 allows and flow overland in a direction determined by topography.
- No formal drainage is proposed to the northern parcel (north of Yardley Road) as existing swales/ditches will intercept, store and treat surface water runoff, along with managed grassland below solar panels.
- Surface water runoff from access tracks and inverter units in the southern parcel (south of Yardley Road) is proposed to discharge into the existing drainage ditch to the south-east of the site.
- Flows from the southern parcel will be restricted to the QBAR greenfield rate with attenuation storage provided in an attenuation basin.
- Any exceedance flows will follow the natural topography, mimicking the current arrangement.
- The utilisation of existing swales/ditches, filter drains and an attenuation basin will provide the necessary pollution mitigation measures to ensure satisfactory water quality treatment is achieved.
- The site operator or their appointed management company will be responsible for maintenance.

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

APPENDIX A

Proposed Site Plan

Yardley Road (Potterspury) Solar Farm

Legend

- Development Boundary
- Fence
- MV Cable Line
- MV Interconnector
- Inverter
- Customer Substation
- Road
- Temporary Construction Road
- Spare Container
- Temporary Construction Compound

Site Layout

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

Date: 30/05/2025

Reference: 109-028A-250530

Scale @ A0: 1:2,500

0 125 250 m

solar2

Yardley Road (Potterspury) Solar Farm

Legend

- Development Boundary

Site Layout

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

Date: 30/05/2025

Reference: 109-028A-250530

Scale @ A0: 1:2,500

0 125 250 m

solar2