Solar PV Development Study

Rev 3

Sevenoaks District Council

17 July 2026

Delivering a better world

Quality information

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Revision History

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Rev 1	11.05.2026	Addressing Client Comments	AG	Aimee Guild	Principal Energy Advisory Consultant Project Manager
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Abbreviations

Abbreviation	Definition	Abbreviation	Definition
ADMP	Allocation and Development Management Plan	$MtCO_2e$	Million Tonnes of Carbon Dioxide Equivalent
AEP	Annual Exceedance Probability	MW	Megawatt
ALC	Agricultural Land Classification	MWh	Megawatt Hour
AONB	Areas of Outstanding Natural Beauty	MWh/yr	Megawatt Hour per Year
BESS	Battery Energy Storage System	MWp	Megawatt Peak
BMVAL	Best and Most Versatile Agricultural Land	MWp/Ha	Megawatt Peak per Hectare
BNG	Biodiversity Net Gain	NCA	National Character Areas
BOA	Biodiversity Opportunity Areas	NESO	National Energy System Operator
CCGT	Combined Cycle Gas Turbine	NPPF	National Planning Policy Framework
CCS	Carbon Capture and Storage	NPS-EN1	National Policy Statement for Energy
CP30	Clean Power 2030	NPS-EN3	National Policy Statement for Renewable Infrastructure
CO_2e	Carbon Dioxide Equivalent	NPS-EN5	National Policy Statement for Network Infrastructure
DCO	Development Consent Order	PV	Photovoltaic
DFES NSHR	Distribution Future Energy Scenarios Network Scenario Headroom Report	PPG	Planning Practice Guidance
DESNZ	Department for Energy Security and Net Zero	RAG	Red, Amber, Green
DLL	District Level Licences	SAC	Special Areas of Conservation
DNO	Distribution Network Operator	SDC	Sevenoaks District Council
EV	Electric Vehicle	SHELAA	Strategic Housing and Economic Land Availability Assessment
kWh	Kilowatt-Hours	SPA	Special Protection Areas
kWh/m^2	Kilowatt-Hours per Square Meter	SPD	Supplementary Planning Document
kWp	Kilowatt Peak	SSSI	Sites of Special Scientific Interest
LCA	Landscape Character Areas	t	Tonnes
LNR	Local Nature Reserves	tCO_2e	Tonnes of Carbon Dioxide Equivalent
LCT	Landscape Character Types	TMO4+	Decision on Connections Reform Package
m	Metres	UKPN	UK Power Networks

Executive Summary

Sevenoaks District Council (SDC) is committed to tackling the challenge of climate change across the District. This is supported by the SDC Climate Change Strategy 2024. Furthermore, the Council is in the process of updating its Local Plan which is required to take a proactive approach to mitigation and adapting to climate change, including helping to increase the use and supply of renewable and low carbon electricity and heat. SDC has commissioned AECOM to conduct a strategic assessment identifying potentially suitable locations for ground-mounted solar photovoltaic (PV) developments within the District.

The study considers significant local constraints, including extensive Green Belt coverage, National Landscape designations, and a range of historic and ecological features. Despite these challenges, SDC is keen to support national net zero targets and increase renewable energy supply and decarbonisation across the District by developing a strategy which supports solar PV developments and positions them where they are balanced against other development needs.

This assessment employs geographic information system (GIS)-based constraint mapping to identify land that is potentially suitable for ground-mounted solar PV projects (up to 100 MW). A comprehensive suite of planning, environmental, and technical constraints is analysed to systematically exclude constrained land, leaving the most appropriate sites for further consideration. This study is aligned with the latest National Planning Policy Framework (NPPF, December 2024), relevant National Policy Statements (EN-1, EN-3, EN-5), and local planning policies, to provide recommendations that are supportive of both national and local objectives.

The analysis estimates that, even after excluding areas designated as National Landscapes, there is c. 3,519 hectares of land within the District that has the potential for development of solar PV to generate renewable energy and significant carbon savings. Figure 1 compares the developable area of the two scenarios presented in this study, including and excluding the National Landscape areas, and their potential carbon savings (million tonnes of CO_2 equivalent). Excluding the National Landscape area could still result in at least 2.7 $MtCO_2e$ of lifetime carbon savings if all identified areas were developed.

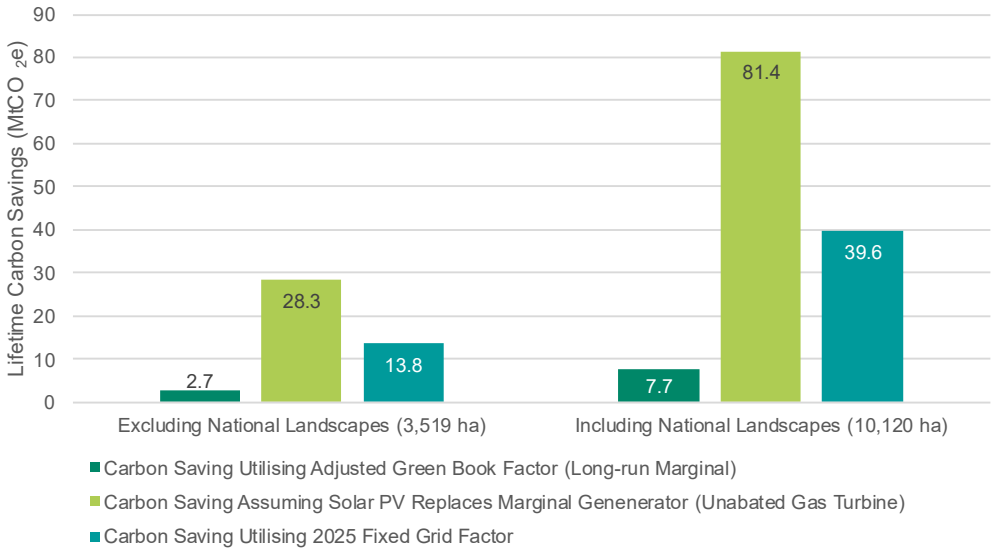


Figure 1. Sevenoaks Total Potential Carbon Savings for Identified Developable Areas, Including and Excluding National Landscape Areas

Modern solar PV farms offer the added benefit of supporting dual land use, such as grazing or arable farming, and can deliver substantial biodiversity net gains, often exceeding statutory requirements.

To assist SDC in evaluating future solar PV applications, the study provides a red, amber, green (RAG) criteria assessment. This assessment provides a list of requirements and considerations for SDC Officers to utilise when evaluating a ground-mounted solar PV application. A red, amber or green rating can be applied to each requirement/consideration to provide clarity and documentation of the status of the application. The aim of the RAG assessment is to provide a simplified, structured and visual evaluation tool for use by SDC Officers to provide a high-level summary of how incoming proposed solar PV development applications align with local and national policies.

It is important to note that this study serves as a high-level assessment intended to inform policy.

1. Introduction

Sevenoaks District Council (SDC) have been working on their Local Plan update since 2022, with Regulation 18 consultation undertaken from October to December 2025, and Regulation 19 consultation taking place in Summer 2026. The intended submission date is planned for December 2026.

Sevenoaks District is highly constrained, including but not limited to significant coverage of Green Belt, National Landscape and both historic and ecological features. This presents a significant challenge to the development of new renewable energy installations, including ground-mounted solar photovoltaics (PV). However, SDC is committed to tackling the challenge of climate change across the District which is supported by the SDC Climate Change Strategy 2024.

In support of SDC's Local Plan, this study identifies potential sites for ground-mounted solar PV projects (up to 100 MW) to assist SDC in developing a specific solar PV local policy. It is understood that SDC wish to utilise the identified areas to inform consideration of the most appropriate areas for such development. Any areas outside those identified will be considered less favourably. This report forms part of the evidence which will be utilised by SDC to develop an updated policy on low carbon and renewable energy and will supplement the 2026 Regulation 19 consultation.

This report provides guidance on landscape and visual considerations, highlights key ecological and planning constraints and provides an overall narrative on each of these topics as well as the suitability of the land and grid capacity across the District with specific regard to ground-mounted solar PV. An estimate of the potential energy generation and associated carbon savings is provided to highlight the potential contribution of ground-mounted solar PV developments in Sevenoaks District to the national targets. A RAG (red, amber, green) Assessment is also provided to support and inform SDC in the development of their policy on solar PV. This assessment provides a comprehensive list of requirements and considerations for SDC officers to utilise when evaluating a ground-mounted solar PV application. A red, amber or green rating can be applied to each requirement/consideration to provide clarity and documentation of the status of the application. The aim of the RAG assessment is to provide a simplified, structured and visual evaluation tool for use by SDC officers to provide a high-level summary of how incoming proposed solar PV development applications align with local and national policies.

The information provided in this report follows the national guidance available as of March 2026. The sources and publication date of all constraints data can be found in Appendix A.

This is a desktop-based study, therefore, no site visits have been carried out to review the feasibility of specific sites that have been identified as having potential for ground-mounted solar PV development. SDC should evaluate each solar PV application on a case-by-case basis, using this report and RAG Assessment as guidance rather than a definitive checklist or substitution for site-specific assessment.

Rooftop solar PV potential is excluded from the scope of this assessment and would require a separate analysis.

2. Planning Policy Context

To support officers within SDC with the development of a solar PV local policy, this section of the report summarises key national policies and guidance that are related to ground-mounted solar PV. A summary of SDC's local policies is also provided for context.

2.1 National Planning Policy

2.1.1 National Planning Policy Framework

The National Planning Policy Framework[1] (NPPF), last updated in December 2024, sets out the Government's planning policies for England and how these should be applied. It provides a framework to support development of local plans and guides their development in a sustainable manner.

2.1.1.1 Energy Related Policy

Paragraph 161 of the NPPF states:

> *The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.*

With regard to plan-making, paragraph 165 of the NPPF sets out that:

> *To help increase the use and supply of renewable and low carbon energy and heat, plans should:*
>
> *a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);*
>
> *b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and*
>
> *c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for collocating potential heat customers and suppliers.*

Following this, paragraph 169 of the NPPF adds *"Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas."*

At the time of writing, a draft of a new version of NPPF is under consultation.[2] The consultation document contains a new dedicated chapter relating to energy infrastructure, titled "*Chapter 10: Securing Clean Energy and Water"*. The introduction of this new chapter reflects the recognised need to enhance energy (and water) infrastructure. It consolidates existing policies on renewable and low-carbon energy and incorporates two additional policies addressing the strategic planning of energy and water infrastructure. Polices relevant to plan-making from this chapter include:

> *W1: Planning for energy and water*
>
> *2. The development plan should reflect this at the most appropriate level by:*
>
> *a. Making provision for development which is required for new or enhanced renewable and low carbon energy development, electricity network infrastructure, water supply, drainage and wastewater infrastructure, whether as part of wider development proposals or as stand-alone developments; and*

[1] Ministry of Housing, Communities and Local Government (2025) National Planning Policy Framework https://www.gov.uk/government/publications/national-planning-policy-framework--2

[2] More details on the consultation available at: https://www.gov.uk/government/consultations/national-planning-policy-framework-proposed-reforms-and-other-changes-to-the-planning-system

b. Setting out any measures to avoid constraints on the operation or future expansion of renewable and low carbon energy development and electricity network infrastructure and water supply and wastewater infrastructure as a result of neighbouring (or nearby) development.

W2: Securing renewable and low carbon energy, and electricity network infrastructure

1. The development plan should support the transition to clean power by planning positively for the increased supply and use of renewable and low carbon energy and electricity network infrastructure. This means that the development plan, should, at the most appropriate level, seek to maximise the potential for suitable development by identifying:

a. Areas which are suitable for renewable and low carbon energy development and electricity network infrastructure, including for future re-powering and life extension, where this would help secure their development

2.1.1.2 Green Belt and Grey Belt Policy

The NPPF sets out policy in relation to development in the Green Belt, which covers over 90% of Sevenoaks District.

Paragraph 153 of the NPPF states:

When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt, including harm to its openness. Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.

With respect to renewable energy projects, paragraph 160 of the NPPF highlights:

When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.

Paragraph 155 introduces the concept of Grey Belt land:

The development of homes, commercial and other development in the Green Belt should also not be regarded as inappropriate where all the following apply:
a. The development would utilise grey belt land and would not fundamentally undermine the purposes (taken together) of the remaining Green Belt across the area of the plan.

A stated in the NPPF glossary:

For the purposes of plan-making and decision-making, 'grey belt' is defined as land in the Green Belt comprising previously developed land and/or any other land that, in either case, does not strongly contribute to any of purposes (a), (b), or (d) in paragraph 143. 'Grey belt' excludes land where the application of the policies relating to the areas or assets in footnote 7 (other than Green Belt) would provide a strong reason for refusing or restricting development.

The five purposes Green Belt serves are listed in paragraph 143 as the following:

a) to check the unrestricted sprawl of large built-up areas;
b) to prevent neighbouring towns merging into one another;
c) to assist in safeguarding the countryside from encroachment;
d) to preserve the setting and special character of historic towns; and
e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

The areas and assets set out in Footnote 7 include:

Habitats sites (and those sites listed in paragraph 194) and/or designated as Sites of Special Scientific Interest; land designated as Green Belt, Local Green Space, a National Landscape, a National Park (or within the Broads Authority) or defined as Heritage Coast; irreplaceable habitats; designated heritage assets (and other heritage assets of archaeological interest referred to in footnote 75); and areas at risk of flooding or coastal change.

2.1.2 National Policy Statements

2.1.2.1 Overarching National Policy Statement for Energy

Overarching National Policy Statement for energy (NPS EN-1),[3] which came into force on 6 January 2026, sets out the national policy for the submission and assessment of applications relating to nationally significant energy infrastructure, including solar PV renewable electricity generation of over 100 MW capacity.

However, as stated in paragraph 1.2.1 NPS EN-1: *"In England, this NPS, in combination with any relevant technology specific NPSs, may be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended)".* Therefore, the NPS may be considered by SDC when determining applications for ground mounted solar PV less than 100 MW.

2.1.2.2 National Policy Statement for Renewable Energy Infrastructure

National Policy Statement for renewable energy infrastructure (NPS EN-3),[4] which came into force on 6 January 2026, provides the technology-specific policy to be considered in conjunction with NPS EN-1 when determining applications for nationally significant infrastructure projects for renewable energy, including large scale ground-mounted solar PV farms. As mentioned above with NPS EN-1, it may also be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). It covers themes such as factors influencing site selection and design, technical considerations and particular impacts usually associated with solar PV farm development in terms of ecology, landscape, glint and glare, heritage, construction, agricultural land, and decommissioning.

2.1.2.3 National Policy Statement for Electricity Networks Infrastructure

National Policy Statement for electricity networks infrastructure (NPS EN-5),[5] which came into force on 6 January 2026, principally concerns high voltage long distance transmission and distribution infrastructure, but also applies to other kinds of electricity infrastructure including underground cables at any voltage, and associated development (such as inverters, transformers, switchgear, cabling, and substations) linked to renewable energy projects. Therefore, NPS EN-5 may also be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended).

2.1.3 National Guidance

2.1.3.1 Renewable and Low Carbon Energy

The renewable and low carbon energy Planning Practice Guidance (PPG) (last updated in August 2023)[6] provides planning principles to support delivery of renewable and low-carbon energy infrastructure, encouraging positive strategies in local plans while detailing considerations for specific technologies.

In the section titled: *"Particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms"*, the PPG sets out the principles and factors that local planning authorities should weigh when assessing planning applications for ground-mounted solar PV development. The PPG sets out that large-scale ground-mounted solar PV development can give rise to landscape and visual effects, particularly within rural and undulating landscapes, but that such impacts may be mitigated through careful siting, layout, screening and design. Decision-makers are advised to promote the effective use of land by giving preference to previously developed land and lower-grade agricultural land where practicable, and to consider opportunities for dual use, such as continued agricultural activity and biodiversity enhancement (discussed further in 3.8). The PPG further identifies the need to assess visual impact, glint and glare, aircraft safety, security measures, and effects on heritage assets and their settings. Solar PV farms are generally regarded as temporary development and conditions should secure decommissioning and restoration at the end of the operational period. Consideration should also be given to site characteristics influencing energy yield, including orientation and topography as part of a balanced planning judgement.

[3] Department for Energy Security and Net Zero (DESNZ) (06/01/2026) Overarching National Policy Statement for energy (EN-1), 2025 https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025
[4] Department for Energy Security and Net Zero (DESNZ) (06/01/2026) National Policy Statement for renewable energy infrastructure (EN-3), 2025 https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3-2025
[5] Department for Energy Security and Net Zero (DESNZ) (06/01/2026) National Policy Statement for renewable energy infrastructure (EN-5), 2025 https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5-2025
[6] Ministry of Housing, Communities and Local Government (14/08/2023) Guidance: Renewable and low carbon energy https://www.gov.uk/guidance/renewable-and-low-carbon-energy

2.2 Local policy

The development plan for SDC comprises:

- The Sevenoaks Core Strategy Development Plan 2011[7]
- The Sevenoaks Allocation and Development Management Plan 2015[8]

The Core Strategy promotes the use of renewable energy as one of its objectives:

> *To ensure that new development takes account of the need to mitigate and adapt to climate change including principles of sustainable development, which include locating development to minimise energy use, promoting travel patterns that reduce the need to travel by car, and encouraging sustainable construction including measures to reduce energy consumption and promote the use of renewable energy*

Core Strategy Policy SP2 Sustainable Development, is most relevant to the development of solar PV farms and states:

> *The District will support and promote the incorporation of decentralised energy sources including combined heat and power in new development and will support small scale and community-based renewable energy developments where such development does not adversely affect the openness of the Green Belt and is consistent with AONB (Areas of Outstanding Natural Beauty) policy.*

2.2.1.1 Development in the Green Belt Supplementary Policy Document

Development in the Green Belt[9] is a Supplementary Policy Document (adopted February 2015) and is guidance tailored to development of buildings in the Green Belt. It does not provide any further guidance on renewable energy development in the Green Belt beyond that already set out in the NPPF.

2.2.1.2 Emerging Local Plan

An emerging Local Plan is currently under preparation. Regulation 19 consultation is expected to take place in Summer 2026.[10] This study will support the evidence base for the emerging Local Plan, particularly by identifying suitable locations for ground-mounted solar PV development in emerging Policy CC3 Low Carbon and Renewable Energy. Policy CC3 encourages new development to maximise opportunities for generating and storing low-carbon and renewable energy, including connecting to decentralised energy networks. It supports renewable energy proposals where environmental, landscape, and amenity impacts can be appropriately mitigated, prioritising lower-quality agricultural land and requiring plans for land restoration after decommissioning.

[7] Sevenoaks District Council (22/02/2011) Core Strategy Development Plan
https://www.sevenoaks.gov.uk/info/20069129/current_local_plan/249/core_strategy_development_plan
[8] Sevenoaks District Council (17/02/2015) Allocations and Development Management Plan
https://www.sevenoaks.gov.uk/info/20069129/current_local_plan/248/allocations_and_development_management_plan
[9] Sevenoaks District Council (02/2015) Green Belt Supplementary Planning Document
https://www.sevenoaks.gov.uk/info/20069129/current_local_plan/259/supplementary_planning_documents_and_other_guidance/2
[10] Sevenoaks District Council (2025) Local Plan consultation October to December 2025
https://www.sevenoaks.gov.uk/info/20069128/emerging_local_plan/861/local_plan_consultation_october_to_december_2025

2.3 NESO Connections Reform

The National Energy System Operator (NESO) has recently overhauled the grid connection process, with Ofgem approving the reform (TMO4+) in April 2025.[11] The previous system was reliant on a "first come first served" methodology, which resulted in multiple developers applying for connection to join the queue in advance of full project design and feasibility. This resulted in an inflated connections queue, with multiple projects which are not progressing, holding up the connection process.

NESO reformed the connection process by creating a new two-gated methodology[12] which hinges on a "first ready and needed" approach. Under the reformed methodology, projects are now assessed based on readiness and Strategic alignment with national energy needs.

The two-gate model operates as follows:

- **Gate 1**
    - Applicable to projects that do not meet Gate 2 criteria.
    - Projects are not assigned a confirmed connection date but may progress through further windows if readiness is demonstrated.
        - "Windows" refers to the review periods in which the network operator will review projects to determine which can progress from Gate 1 to Gate 2. This will be determined by their alignment with the requirements for both readiness and Strategic alignment as well as the status of the strategic quota in the region (i.e., if there is available connection capacity for the projects technology in the region).
- **Gate 2**
    - Applicable to projects that meet the new requirements for both readiness and Strategic alignment. These projects can secure a confirmed connection date, connection point and queue position.

As **strategic alignment** is a key factor in this model, headroom at a local substation is no longer a guarantee of connection. Projects must prove they are both **Ready** (i.e., prove viability by hitting milestones such as securing land rights or planning status), and **Needed** (i.e., project alignment with national targets such as the Clean Power 2030 Action Plan) to allow for prioritisation of a grid connection. Although connecting locally, all electricity flows into the wider high-voltage transmission network therefore if there is congestion upstream, NESO may not approve a new local connection to prevent overloading the wider system.

The planning pathway readiness criteria is not expected to be used for most projects but has been included to help facilitate DCO (Development Consent Order) applications. DCO's are applicable to solar PV projects over 100 MW in size[13] and require Secretary of State approval. Additionally, project progression and compliance milestones have been introduced to ensure projects will be delivered. If projects fail to meet their milestones, they may lose their place within the connections queue.

NESO has applied the reformed connection process to the current queue, reordering projects, removing speculative "zombie" projects with insufficient progress or land rights and ensuring the capacity will meet and not exceed the requirements for CP30. This has essentially set out the new queue for projects to be delivered up to and including 2035. As part of this process, the **Regional Capacity Quotas** set out by NESO identify the available connection capacity per technology in each region.[14] Sevenoaks District sits within transmission network region code *"T11 (South-East England)"* and distribution network region *"D8 (UKPN)"* both of which were found to have **no future capacity for any solar PV or battery projects until beyond 2035**.[14] Therefore, any project proposed of significant capacity is likely to get a Gate 1 offer and essentially wait listed in case a Gate 2, approved to connect, project in the area fails to meet their milestones and are dropped from the list.

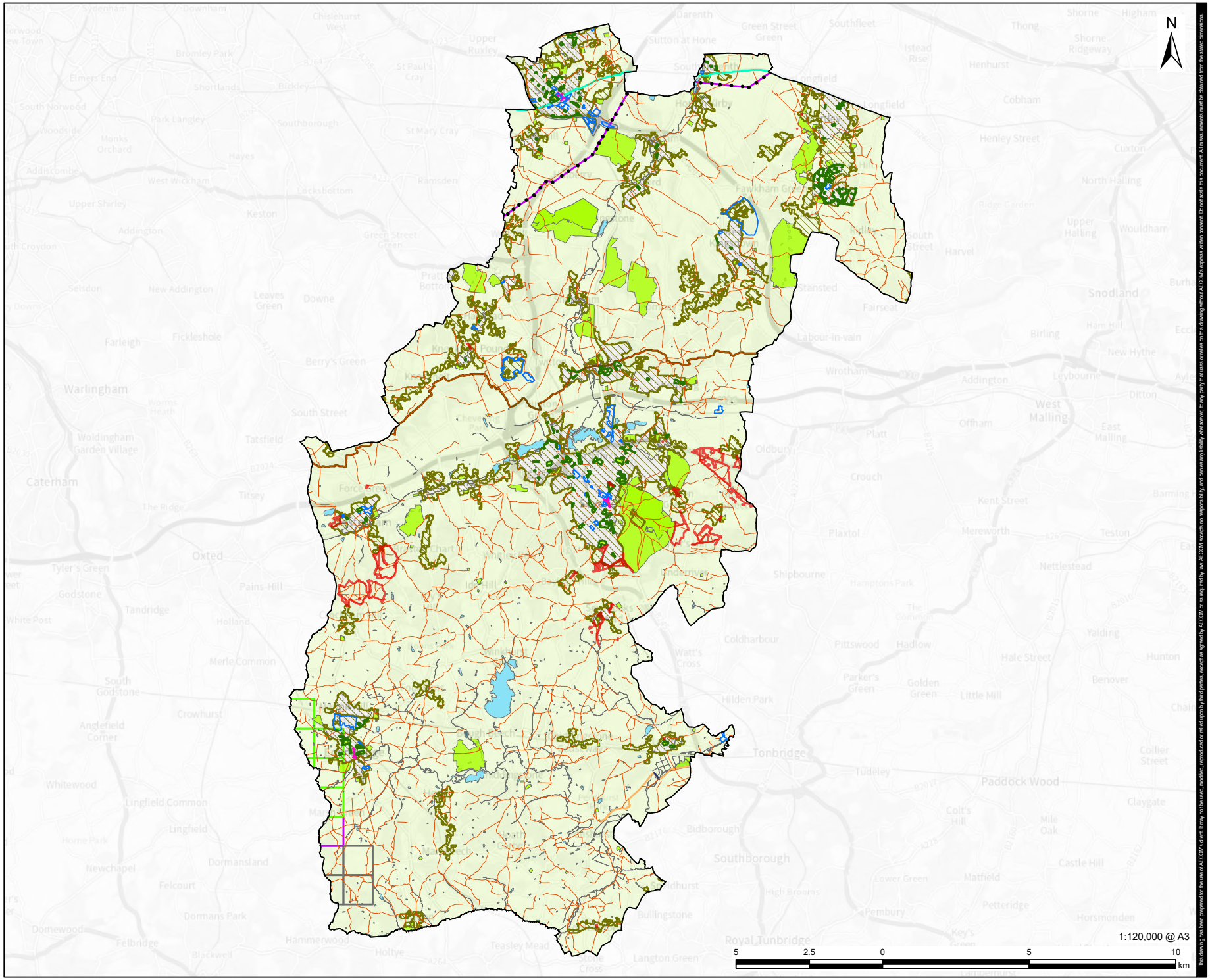
[11] OFGEM (15/04/2025) Decision on Connections Reform Package (TM04+) https://www.ofgem.gov.uk/decision/decision-connections-reform-package-tm04
[12] NESO (2026) Connections Reform design documents and methodologies https://www.neso.energy/industry-information/connections-reform/connections-reform-design-documents-and-methodologies
[13] Uk Government (2025) Statutory Instruments: The Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025 https://www.legislation.gov.uk/uksi/2025/694/contents/made
[14] NESO (January 2026) Connections Reform Detailed Results Data https://www.neso.energy/document/374936/download

NESO has not released how they will assess the future system capacity demand and generation and storage available capacities post 2035. Therefore, projects in the T11 and D8 zone may target completion dates after 2035.

3. Constraints Overview

A high-level desk-based review of the land within the District boundary was undertaken to identify potential landscape and visual, historic, ecological, and geographic constraints and considerations relating to ground-mounted solar PV development. Given the strategic scope of the review, specific site located considerations were not addressed. Instead, broad environmental designations, land allocations, landscape and visual risk factors and ecological risk factors that may influence site suitability were identified.

Figure 2 below details the policy-based constraints such as the Green Belt, active transport routes and Public Rights of Way (PRoW). Some of the linear features identified (e.g., PRoW) that can be re-routed during the construction and operation of a solar PV farm are considered ‘soft constraints’ (i.e., they do not fully constrain the development of solar PV, but they may require mitigation). Other linear features, such as roads, transmission lines and cycle networks, are considered ‘hard constraints’ (i.e., they cannot be moved or mitigated against therefore solar PV cannot be developed on top of them). Details regarding whether a feature was considered a ‘soft’ or ‘hard’ constraint in the creation of the developable areas map can be found in Appendix C. Where appropriate, specific constraints include a buffer that align with national standards or industry precedents. A breakdown of these offsets is documented in Appendix C.



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PROJECT

Solar Development Study

CLIENT

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LEGEND

- Sevenoaks District Boundary

Open Data

- Built Up Area
- Registered Common Land
- Open Green Space
- Green Belt
- Water Body

Sevenoaks District Council Data

- Town Centre Frontage
- Public Right of Way
- Open Space Allocation
- Allocation and Development Management Plan Adopted Allocations

Transport

- National Cycle Network (Traffic Free)
- National Cycle Network (On Road)
- National Trail

Utilities

- Electricity Transmission Network (Tower)
- Electricity Transmission Network (Overhead Line)
- Electricity Transmission Network (Cable)

Instrument Flight Procedures Safeguarded Area - Gatwick Airport

- All buildings, structures & works except for the alteration or extension of an existing single domestic dwelling not exceeding 2 storeys in height.
- All developments except the construction, extension, or alteration of up to 3 No. residential dwellings not exceeding two storeys in height.
- All buildings, structures, and works exceeding 15 metres in height (49.2 feet).

NOTES

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ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60764595

FIGURE TITLE

Sevenoaks District Council - Constraints

FIGURE NUMBER

Figure 2

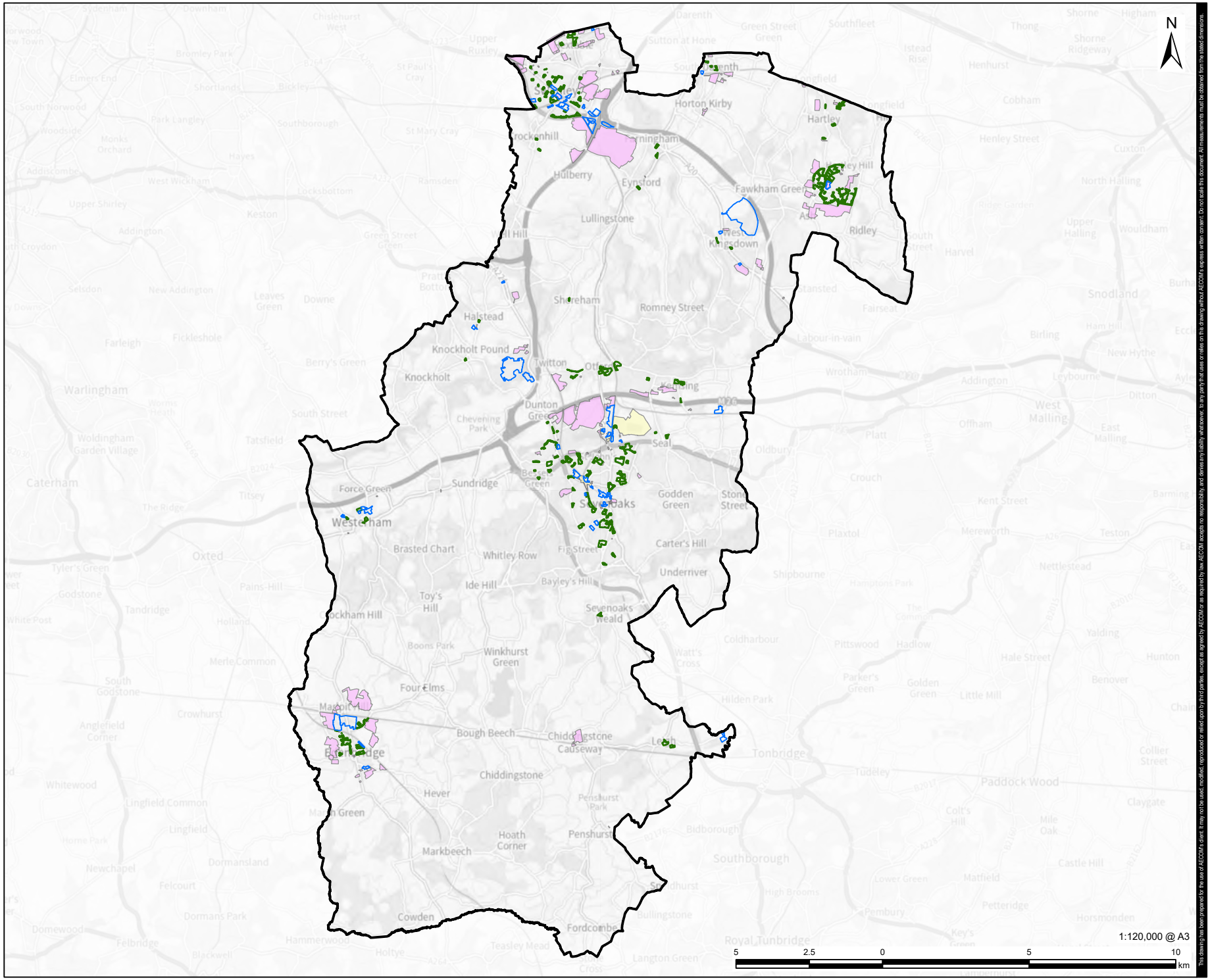
3.1 Allocations

As can be seen in Figure 3, there is land across Sevenoaks District which is, or is proposed to be allocated through the development plan. Table 1 provides the allocations and their descriptions. These areas are considered a hard constraint and are therefore excluded completely from consideration for potential solar PV development.

Table 1. SDC Allocations

Allocation	Description
Proposed Allocations	SDC prepared a Strategic Housing and Economic Land Availability Assessment (SHELAA) in 2025[15] to inform the new Local Plan for the District. This resulted in the proposed allocations consulted upon through the Regulation 18 consultation in 2025 which were considered to be in the most suitable and sustainable locations. The identified sites are subject to change as the plan-making process continues. The Plan identifies potential sites for housing and economic growth, including within Green Belt land, in the most suitable and sustainable locations. The identified sites are not conclusive and are identified as a starting point to inform future decision and plan-making.
Identified Site within Made Neighbourhood Plan	Sevenoaks Town Council prepared a neighbourhood Plan which was 'made' in 2023[16]. It does not explicitly allocate sites for development but does identify potential sites and sets out guidance for them if they were to come forward. There are two other 'made' neighbourhood plans in the District, Swanley and Fawkham, but they do not allocate or identify sites for development.
Open Space	Open space is allocated across Sevenoaks District to protect designated land for public use including, but not limited to, cemeteries, churchyards, sports fields/courts, sports facilities, parks and green space.
Allocations and Development Management Plan (ADMP)	In 2015 SDC adopted an Allocations and Development Management Plan (ADMP)[17] which identifies specific allocations for open space, residential, employment and mixed uses.

[15] Sevenoaks District Council (2025) SHELAA
https://www.sevenoaks.gov.uk/downloads/file/4398/shelaa_2025_methodology_includes_appendix_a
[16] Sevenoaks Town Neighbourhood Plan (2023)
https://www.sevenoaks.gov.uk/info/20069157/made_neighbourhood_plans/742/sevenoaks_town_neighbourhood_plan
[17] Allocations and Development Management Plan (2015)
https://www.sevenoaks.gov.uk/info/20069129/adopted_local_plan/248/allocations_and_development_management_plan



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PROJECT

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LEGEND

- Sevenoaks District Boundary
- Proposed Allocations
- Identified Sites within Made Neighbourhood Plan
- Open Space Allocations
- Allocations and Development Management Plan Adopted Allocations

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PROJECT NUMBER

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FIGURE TITLE

Sevenoaks District Council - Allocations

FIGURE NUMBER

Figure 3

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3.2 Landscape and Visual Considerations

Any proposed development will be weighted on its effect on the key sensitivities/ valued attributes of the local landscape. This will be assessed against SDC's two evidence reports, Sevenoaks Landscape Character Assessment[18] and Sevenoaks Landscape Sensitivity Assessment.[19]

3.2.1 National Landscapes

Two national landscape designations are contained within Sevenoaks District: Kent Downs National Landscape (formerly Area of Outstanding National Beauty) and High Weald National Landscape, the combined area of which are shown in Figure 4. The National Planning Policy Framework (NPPF) states in paragraphs 189 and 190:

> *189: Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas*
>
> *190: When considering applications for development within National Parks, the Broads and National Landscapes, permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest.*

The Management Plan for each National Landscape are statutory documents and material considerations in planning decisions. The Management Plan defines the special qualities of each National Landscape and sets out a strategy to conserve and enhance these qualities.

The landscape components of Kent Downs identified in the Kent Downs National Landscape Management Plan[20] relevant to the District are:

- Dramatic landform and views; a distinctive landscape character
- Biodiversity-rich habitats
- Farmed landscape
- Woodland and trees
- A rich legacy of historic and cultural heritage
- Geology and natural resources
- Tranquillity and remoteness

The Kent Downs Renewable Energy Position Statement (PS) is currently in draft form, replacing the previous statement adopted in 2011. This PS acknowledges the climate crisis and the importance of renewable energy sources and landscapes for carbon storage in soils and trees. This PS recognises the importance of identifying appropriate locations for proposed renewable energy infrastructure and highlights Principle SD5 of the adopted Kent Downs AONB Management Plan which states:

> *Renewable and sustainable energy initiatives and energy efficiency measures will be pursued where they help to conserve and enhance the natural beauty and landscape character of the Kent Downs AONB and bring environmental, social and economic benefits to local people and ensure proposals conform with the Kent Downs AONB Renewable Energy Position Statement, and resisted where they do not*.

Key themes specific to solar developments identified by the PS include the importance of meeting NPPF requirements of exceptional circumstances and the development being in the public interest, the high sensitivity of

[18] Sevenoaks District Council (2017) Sevenoaks Landscape Character Assessment. Sevenoaks District Landscape Character Assessment (January 2017) | Sevenoaks District Council
[19] Sevenoaks District Council (2017) Sevenoaks Landscape Sensitivity Assessment. Sevenoaks District Landscape Sensitivity Assessment (May 2017) | Sevenoaks District Council
[20] Kent Downs National Landscape (2020) Management Plan 2021-2026 The-Kent-Downs-AONB-Management-Plan-2021-2026-Adopted.pdf

the landscape within the National Landscapes site and the landscape and visual impacts a large-scale solar development may have. The PS states:

> *The Kent Downs National Landscape team will therefore usually strongly resist proposals in the National Landscape for commercial-scale solar farms.*

Guidance is provided on what the Kent Downs National Landscape team view as more likely to be acceptable. This includes:

- developments being small scale with no harmful visual impact on the landscape;
- panels being roof or wall mounted or in a small group if ground-mounted;
- the use of screening;
- the use of non-reflective coating and recessive colours on panels and frames;
- development of a Landscape and Ecological Management Plan;
- the use of screw piles, minimal additional infrastructure and cabling; and,
- provision of a timetable for removal of the panels within 3 months of decommissioning.

The core character components of the High Weald's natural beauty identified in the High Weald National Landscape Management Plan[21] relevant to the District are:

- Natural systems (geology, soils, water and climate)
- Settlement
- Routeways
- Woodland
- Fieldscapes and heath
- Dark-night skies
- Aesthetic and perceptual qualities
- Land-based economy and rural living

Each of these landscape components are of equal importance and any proposals for ground-mounted solar PV development within the National Landscapes or their setting, which is undefined, will need to take them into consideration. A site-specific assessment will be required to demonstrate no harm and that the development contributes positively to the designation and objectives of the Management Plans.

The High Weald's 2025 PS on solar farms[22] recognises the climate crisis and the contribution that solar PV can make towards achieving net zero. However, the PS clearly demonstrates the High Weald's view that:

> *Sites within, or affecting the setting of the High Weald National Landscape are not considered suitable locations for commercial scale greenfield ground-mounted solar farms;*
>
> - *they represent significant and uncharacteristic incursions into the rural area,*
> - *they would have a heavily industrialising and urbanising impact on the small-scale medieval landscape, which is so distinctive of the High Weald,*
> - *as such, they would fail to conserve or enhance the landscape and scenic beauty of the designated National Landscape*.

The PS accepts development may occur in exceptional circumstances, with the development being in the public interest, based on paragraph 190 of the NPPF, but that *"exceptional need does not necessarily equate to exceptional circumstances."* Based on the High Weald's assessment of the president case law,

[21] High Weald National Landscape (2023) AONB Management Plan 2024-2029 AONB Management Plan - High Weald National Landscape
[22] High Weald National Landscape (March 2025) Position Statement: Solar Farms and the High Weald National Landscape Position Statement - Solar Farms and the High Weald National Landscape

(R (Mevagissey Parish Council) v Cornwall Council [2013] EHWC 3684 (Admin) (link), paragraph 52): 'Even if there were an exceptional need … that would not necessarily equate to exceptional circumstances for a particular development, because there may be alternative sites that are more suitable because development there would result in less harm to the AONB landscape'.

High Weald's would prefer any solar PV installed within the National Landscape to be of a roof-mounted type, as this is seen as preferable and will not increase industrialisation of the landscape.

3.2.2 Landscape Character

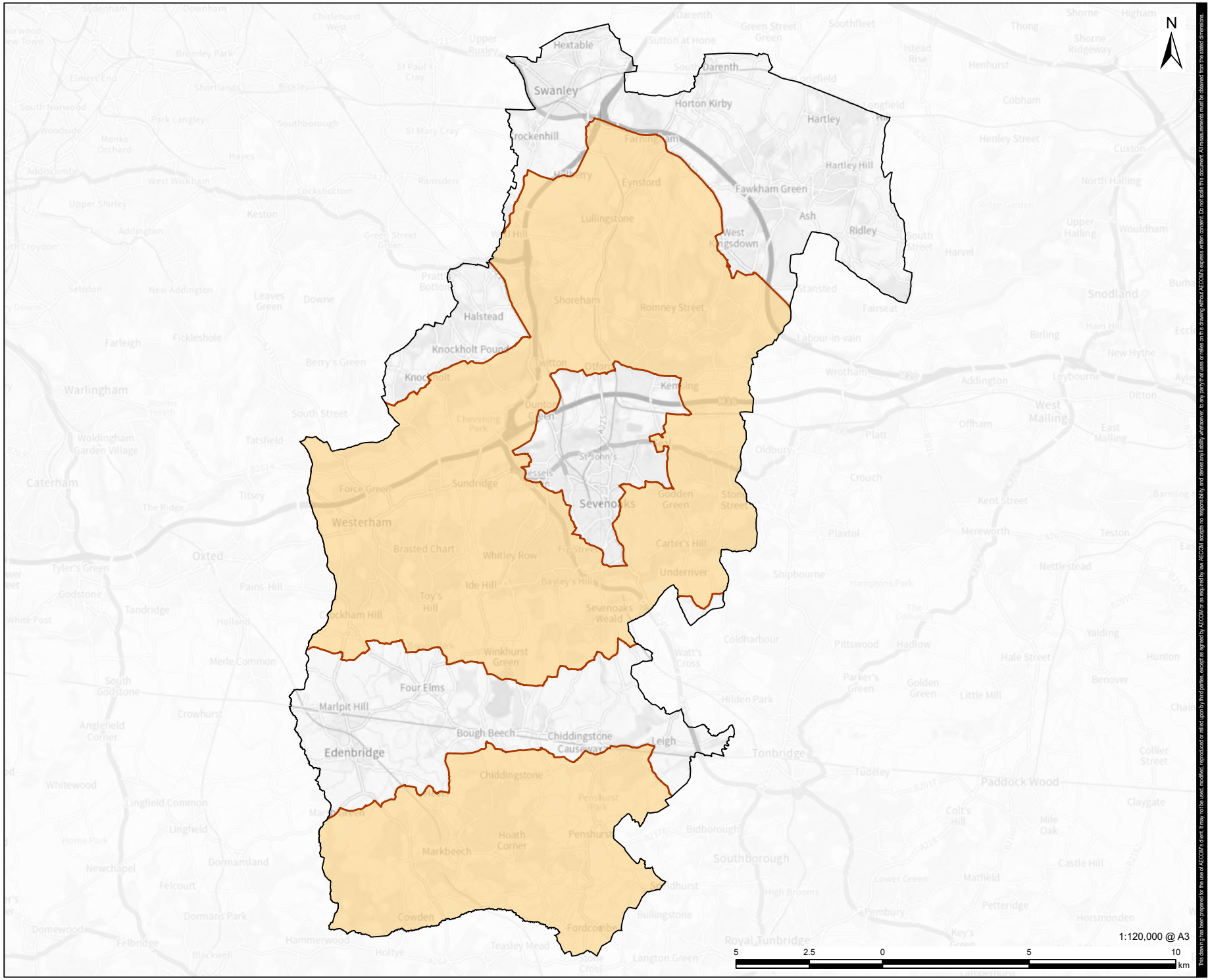
The landscape character of the whole District is described in the landscape character assessments which identify the key characteristics of the landscape at national and local level. National Character Areas (NCA) are defined for England and each NCA represents an area of distinct and recognisable character at the national scale. They form a framework for decision making and planning for future change. NCA profiles provide key characteristics and statements of environmental opportunity to be taken into consideration when planning for development. There are five NCAs[23], these can be seen in Figure 5. The number of NCAs within the District indicates the complexity of the landscape and this is further defined in the Sevenoaks Landscape Character Assessment.[18]

The Landscape Character Assessments identifies 13 Landscape Character Types (LCT) and 31 Landscape Character Areas (LCA). LCTs are areas of the District which have broadly similar patterns of geology, landform, soils, vegetation, land use, settlement and field pattern. Each LCT is subdivided into several geographically specific LCAs which share generic characteristics with other areas of the same type but have their own identity. The landscape character of the National Landscapes is also detailed in published landscape character assessment. The breakdown into LCTs and LCAs aligns with the Sevenoaks Landscape Character Assessment. Each of these published landscape character assessments will need to be considered in any development proposal as a landscape receptor in any future landscape Impact assessment. Landscape receptors are described as components of the landscape that are likely to be affected by the Proposed Developments. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Proposed Developments and these landscape receptors which has potential to result in landscape effects (both adverse and beneficial).

Visual effects relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of features within their view, due to a Proposed Development. Sensitivity of a visual receptor is a combination of the value of the view and susceptibility to changes in the view and visual amenity. The latter is related to the activity that the receptor is engaged in and extent to which their attention is focused on the view and visual amenity. As such those receptors most sensitive to change are likely to include people engaged in outdoor activities where an appreciation of the landscape is the focus or residents in areas where the landscape setting contributes to the setting of the properties. Conversely, those considered least sensitive to change include (but are not restricted to) people engaged in outdoor sports or recreation where there is no focus on the surrounding landscape/views and people at their place of work where their focus is on the work activity.

Consequently, residents either within settlements or in individual properties, users of the network of Public Rights of Way, especially way-marked and promoted routes such as the North Down Way National Trail[24] and cycle routes including the National Cycle Network Route 21[25] will need to be considered in any visual assessment. The assessment will also need to evaluate the development's effect on visitors to heritage assets or other attractions such as Lullingstone, Preston Hill Country Park, and the National Landscapes where views of the surrounding area are an important contributor to the experience. 'Dramatic landform and views' is a distinctive landscape feature of the Kent Downs National Landscape. Views from recognised viewpoints or with cultural associations have particular value.

[23] National England (2025) National Character Area Profiles Natural England - National Character Area Profiles - National Character Area Profiles
[24] National Trails, North Downs Way North Downs Way - National Trails
[25] Walk Wheel Cycle Trust, Route 21 Route 21 - Walk Wheel Cycle Trust



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LEGEND

- Sevenoaks District Boundary
- National Landscape (previously Area of Outstanding Natural Beauty)

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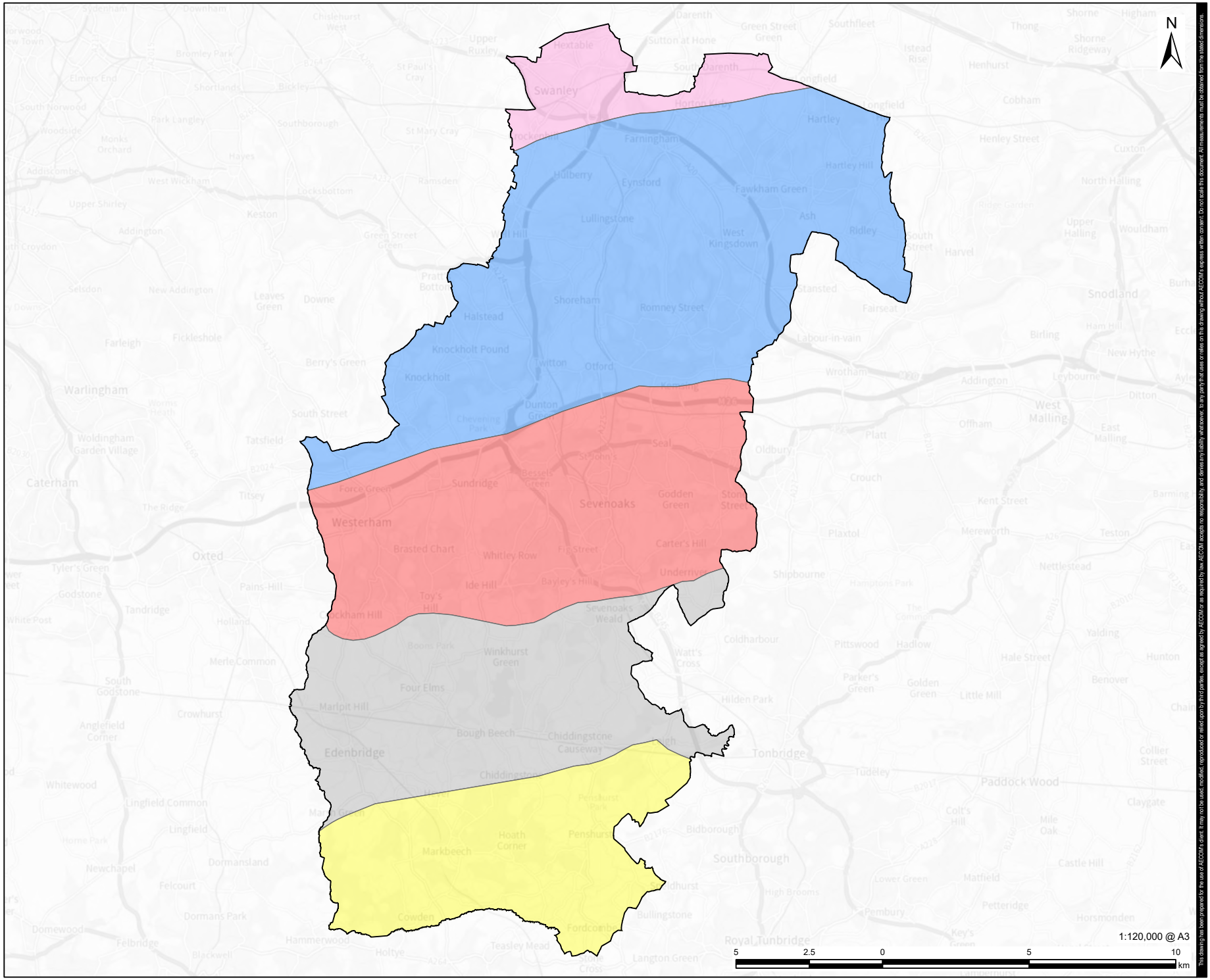
FIGURE TITLE

Sevenoaks District Council – National Landscape (previously Area of Outstanding Natural Beauty)

FIGURE NUMBER

Figure 4



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LEGEND

- Sevenoaks District Boundary

National Character Area

- 113: North Kent Plain
- 119: North Downs
- 120: Wealden Greensand
- 121: Low Weald
- 122: High Weald

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FIGURE TITLE

Sevenoaks District Council – National Character Area

FIGURE NUMBER

Figure 5

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3.3 Historic Assets

The heritage assets relevant to solar PV development within Sevenoaks District boundary are mapped in Figure 6. As can be seen there are multiple listed buildings, ranging between Grade I, Grade II and Grade II*,[26] throughout the area, particularly within urban environments. Where solar PV developments are placed in the locality of a listed building(s), a buffer should be applied, and mitigation should be undertaken to ensure that the buildings setting is not negatively impacted by the development. No nationally stated buffer distance exists, therefore, the application of a buffer and its appropriateness for the setting will be at the SDC's planners' discretion, typically on a site-by-site basis. This will allow the development to satisfy paragraph 213 of the NPPF which states:

> *Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*
>
> *a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*
>
> *b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*

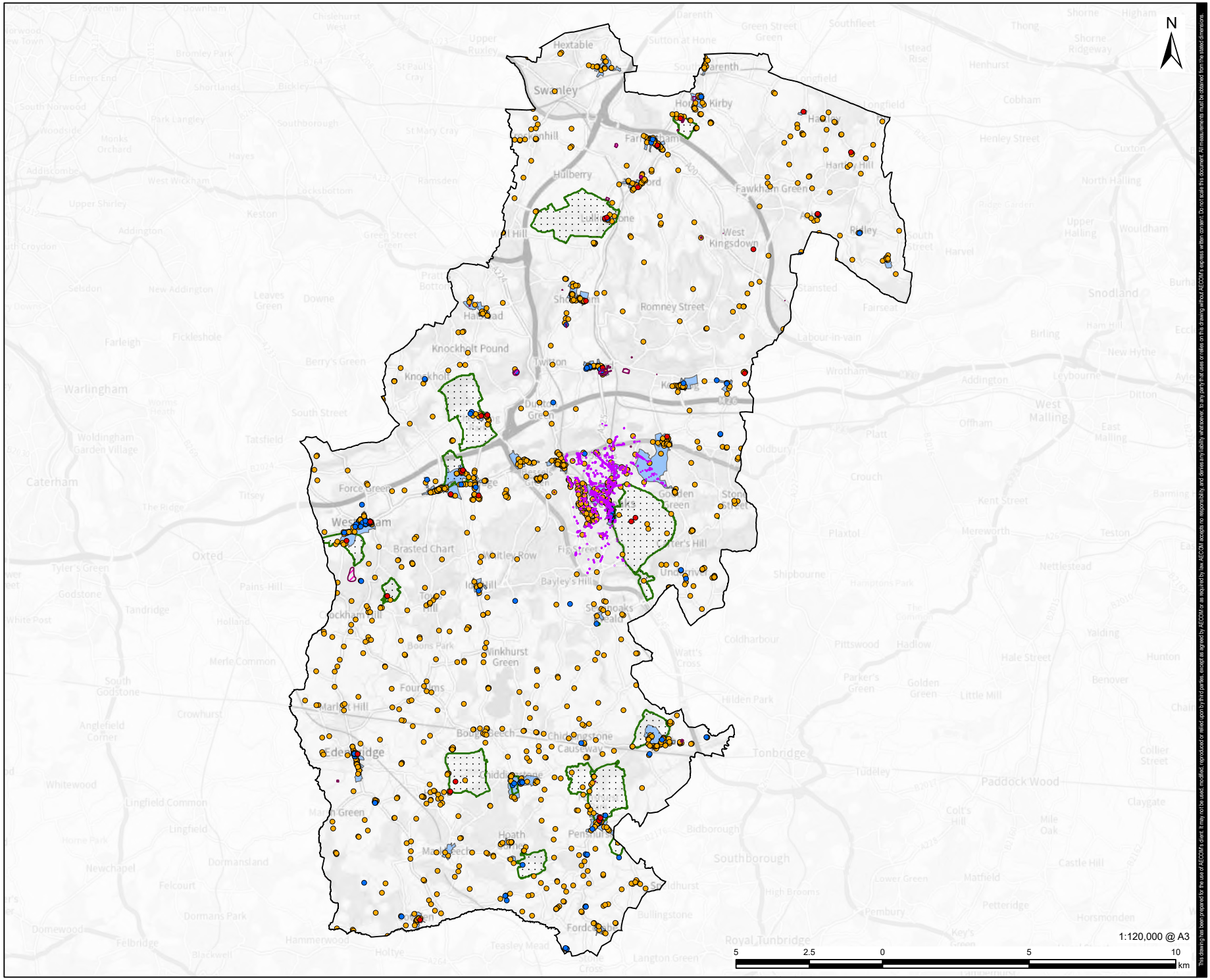
As well as Listed Buildings, there are 32 Scheduled Monuments and 17 Registered Parks and Gardens within the District which, as per NPPF paragraph 213 above, should not be harmed, altered or destroyed by solar PV developments.

Sevenoaks is also host to multiple conservation areas which are a designated heritage asset. These areas are of recognised architectural, archaeological or historical interest and the character of these locations is therefore to be conserved. Any physical change or a change to the setting of these areas must be properly assessed to understand the potential impact and acceptability of any development proposals.

As per NPPF Section 16 *"Conserving and enhancing the historic environment"* and Ministry of Housing, Communities and Local Government Guidance on Historic environment,[27] the significance of each heritage asset and its setting should be understood and accounted for in all developments (in this case, solar PV) where there may be a change to the asset or its setting, and the level of detail should be proportionate to the asset's importance. The significant of a heritage asset may require expert advice in addition to the information provided by the potential developer, therefore this should be considered by SDC when reviewing all solar PV development applications.

[26] Grade I buildings are of exception interest, Grade II buildings are particularly important buildings of more than special interest, Grade II* buildings are of special interest. [Historic England (2025), *What Are Listed Buildings?* https://historicengland.org.uk/listing/what-is-designation/listed-buildings/]

[27] Ministry of Housing, Communities and Local Government (2019), *Guidance: Historic environment,* https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment



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LEGEND

- Sevenoaks District Boundary
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building
- Conservation Area
- Parks and Gardens
- Scheduled Monument
- Locally Listed Asset

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FIGURE TITLE

Sevenoaks District Council – Historical Constraints

FIGURE NUMBER

Figure 6

3.4 Protected Species, Habitats and Ecological Network

There are 17 Sites of Special Scientific Interest (SSSIs) and four Local Nature Reserves (LNRs) within Sevenoaks District, their locations are detailed in Figure 7. These are statutorily designated and legally protected; direct habitat loss within these sites would not be supported. Indirect effects (e.g. noise, dust, hydrological change) may be acceptable; subject to appropriate mitigation. Consultation with Natural England may be required for development near SSSIs depending on proximity to the designated site and its qualifying features. In addition, internationally designated sites outside the District must be considered, including Ashdown Forest Special Protection Area (SPA), Thames Estuary and Marshes SPA, and Medway Estuary and Marshes SPA. These sites are designated for bird interest and could be indirectly affected where functional land within the District supports qualifying species. Non-statutory sites (Local Wildlife Sites and County Wildlife Sites) are not legally protected but should be retained and protected where practicable.

As described in Section 3.2 and seen in Figure 4, much of the District lies within the Kent Downs and High Weald National Landscapes. Management Plans for these National Landscapes include principles for biodiversity conservation and sustainable development. Proposals that align with these principles should be supported.

As Sevenoaks is within the county of Kent, the Kent and Medway Local Nature Recovery Strategy (LNRS), which was published in November 2025, is an applicable statutory strategy focussed on recovering local biodiversity. This strategy sets out ambitious priorities for nature recovery and identifies areas where it is most needed and could deliver the greatest benefit. The 'Areas that Could become of particular Importance for Biodiversity' (ACIB) are parcels of land that are identified within the LNRS where nature recovery actions would achieve the greatest benefit. The AICB are illustrated in Figure 9 below. As can be seen, there is significant coverage across Sevenoaks District indicating there is significant potential for habitat and nature recovery.

The presence of specific habitats cannot be confirmed by desk study alone and requires field surveys. Certain habitats such as some priority habitats are legally protected and any other high-value habitat should be protected as a sensitive ecological receptor. Priority habitats within the District include wood pasture and parkland, traditional orchard, deciduous woodland, and chalk rivers (as identified via the MAGIC database[28] and shown in Figure 8). These habitats should be retained where possible, with appropriate buffers and mitigation. Their presence within a site does not prevent development, provided impacts are mitigated or compensated for. Enhancement of such habitats, particularly where they can be connected to other habitats as set out in the LNRS or enhanced through Biodiversity Net Gain (BNG), should represent a scheme benefit and be seen favourably. In general, higher value habitats (e.g., woodland, ponds, scrub, and watercourses) should be retained, protected and where possible, enhanced.

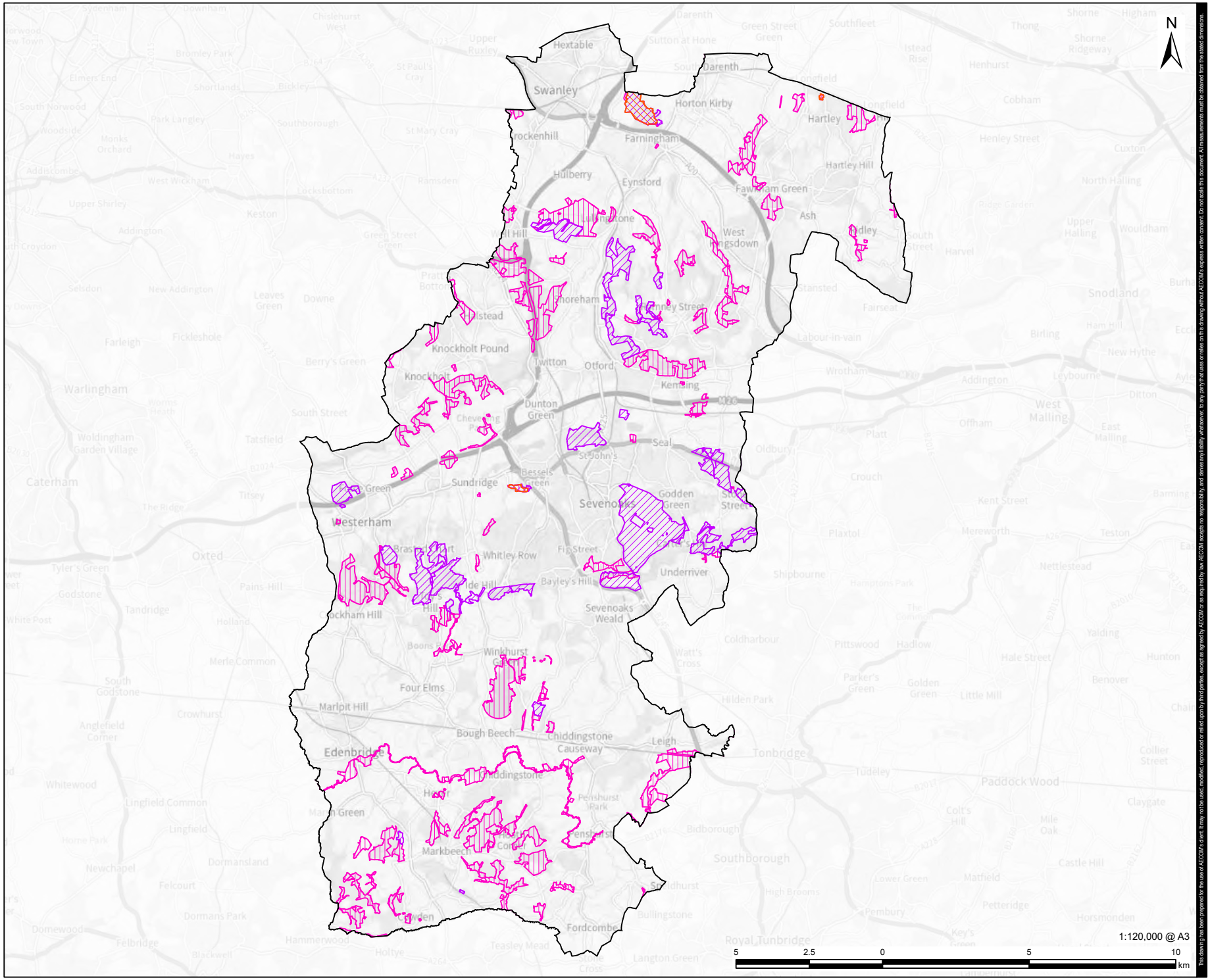
Development on land which would result in the loss or deterioration of ancient woodland and veteran trees, "*should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists*" as per paragraph 193.c) of the NPPF.[1]

Similar to habitats, the presence of species cannot be determined by desk-study and requires site walkovers and species-specific survey. Sites within 20 km of internationally designated sites with birds listed as qualifying features, or within 30 km where bats are a qualifying feature, may require additional survey and mitigation to ensure no adverse effects on the designated site. Relevant sites include Ashdown Forest SPA, Thames Estuary and Marshes SPA, Medway Estuary and Marshes SPA (designated for birds), and Mole Gap to Reigate Escarpment SAC (designated for Bechstein's bat).

Natural England District Level Licences (DLL) are available within green and amber zones (which cover the entirety of the District - see Figure 8). Use of DLL can remove the requirement for detailed great crested newt population surveys, typically only requiring presence/absence surveys of ponds within 250 m of a site. Although licences are available in amber zones, development within green zones is preferable.

Protected species are likely to occur on large-scale solar PV sites. While this presents a design constraint, impacts can typically be mitigated following appropriate surveys. For example, badger setts can usually be retained with suitable buffers, or, where necessary, closed under a licence between 1 July and 30 November.

[28] Department for Environment Food and Rural Affairs (DEFRA) MAGIC Map https://magic.defra.gov.uk/MagicMap.html



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LEGEND

- Sevenoaks District Boundary
- Site of Special Scientific Interest
- Local Nature Reserve
- Local Wildlife Site

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FIGURE TITLE

Sevenoaks District Council – Statutory Designations

FIGURE NUMBER

Figure 7

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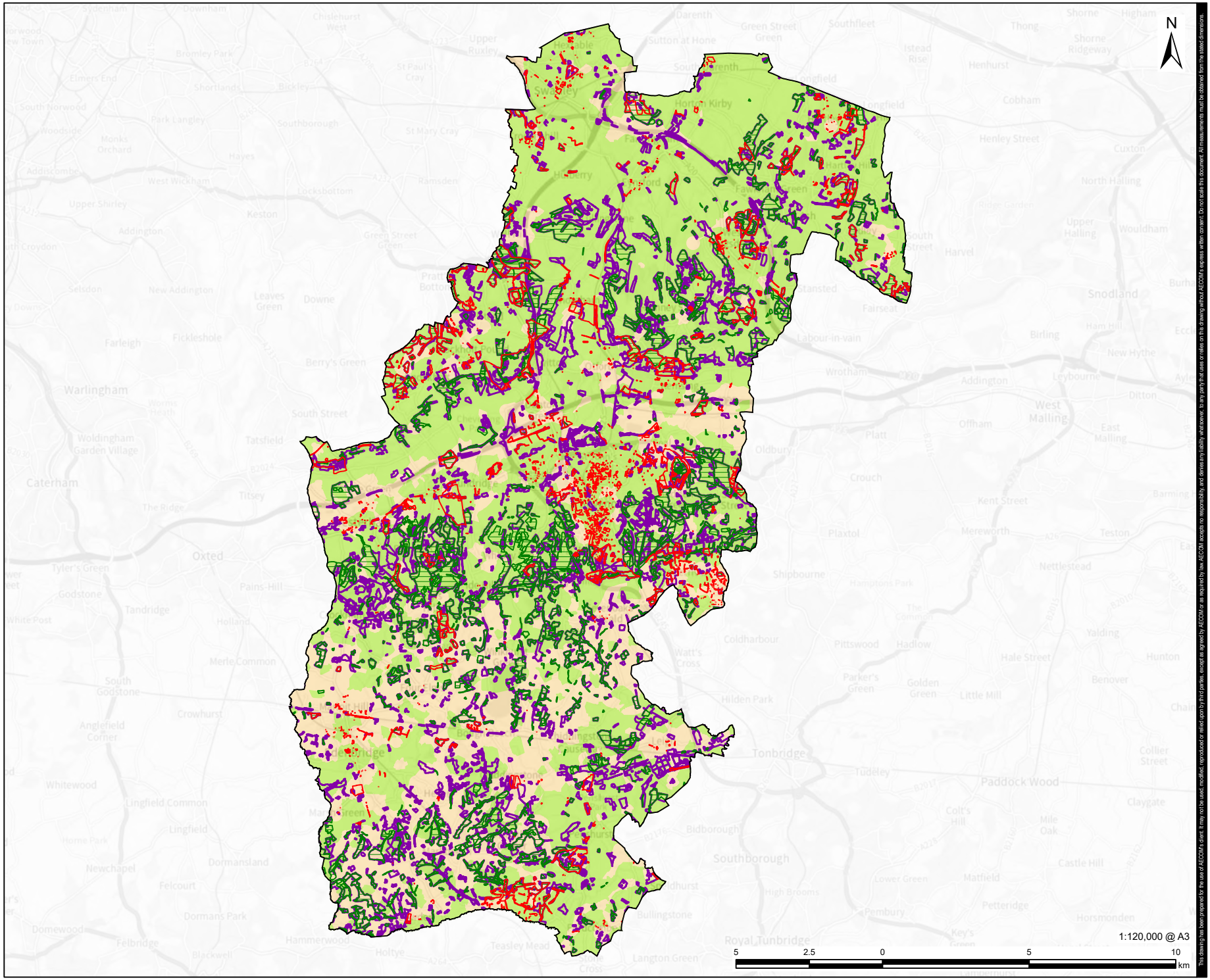

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LEGEND

- Sevenoaks District Boundary
- Tree Preservation Order (TPO)
- Ancient Woodland
- Priority Habitats Inventory

Great Crested Newt Risk Zone

- Amber Zone
- Green Zone

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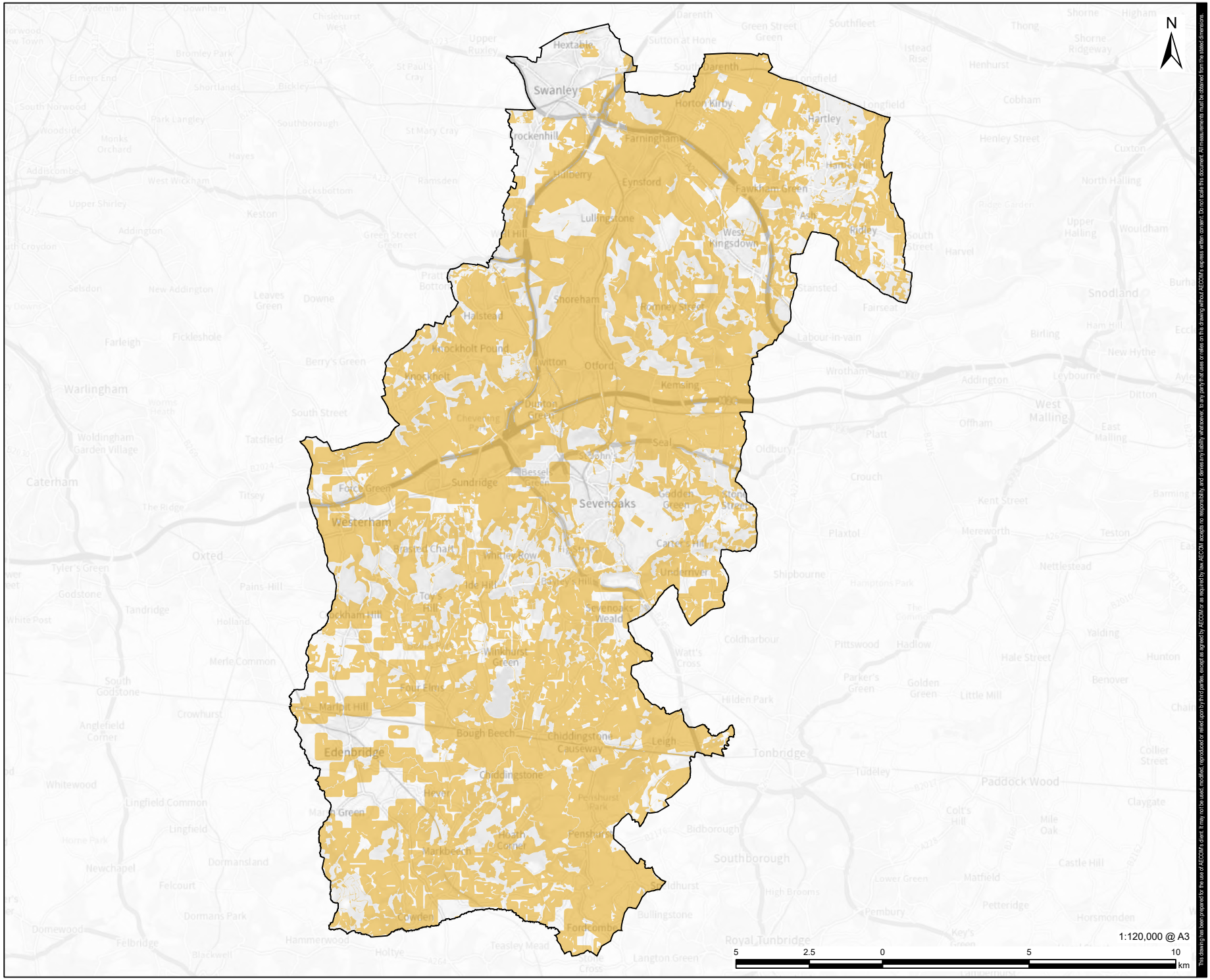
FIGURE TITLE

Sevenoaks District Council – Habitats

FIGURE NUMBER

Figure 8



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LEGEND

Sevenoaks District Boundary

ACIB - Areas that Could Become of Particular Importance for Biodiversity

MAPPED DATA NOTES

1. The Kent and Medway Local Nature Recovery Strategy Potential Measures collectively define the Areas that Could be of particular Importance for Biodiversity (ACIB).

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FIGURE TITLE

Sevenoaks District Council – Kent and Medway Local Nature Recovery Strategy ACIB

FIGURE NUMBER

Figure 9

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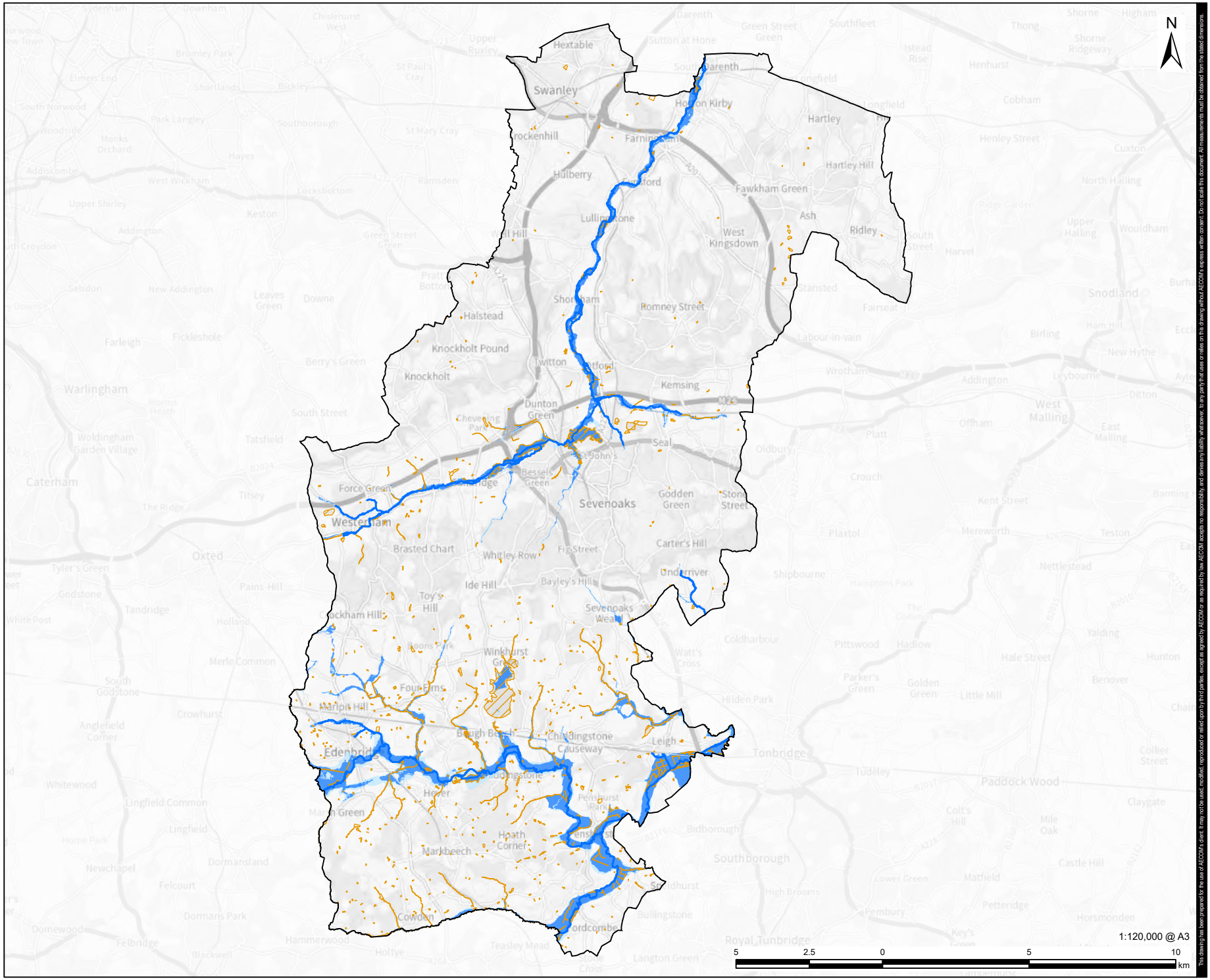
3.5 Flood Risk

The main watercourses running through Sevenoaks District are the River Darent and River Eden (a major tributary of the River Medway), supported by a network of connected streams and brooks. These rivers and their tributaries are the main cause of the Zone 2 & 3 flood risks in the area, as can be seen in Figure 10. Zone 3 is defined as land with a greater than a 1 in 100-year flood event (1.0% annual exceedance probability (AEP)), whilst Zone 2 is defined as having between a 1 in 100 and 1 in 1000-year probability of fluvial flooding event (1.0% – 0.1% AEP).

In addition to the flood risk posed by watercourses, there is a risk of flooding associated with surface water and with site specific surface water features such as drains and ponds. All flood risks should be considered in ground-mounted solar PV applications with all health, safety and environmental risks adequately identified and accounted for in design and operations planning. For example, surface water feature risks should be identified and appropriate mitigations implemented as part of the design process, sensitive electrical equipment should be raised above predicted flood depths or sited outside the flood extents, and adequate drainage should be incorporated into the site design.

Solar PV can be installed within areas at risk of flooding and will not constrain development. However, mitigation may be required by the Environment Agency, who should be consulted by a developer as part of the application process. Where appropriate, a site-specific flood risk assessment should be undertaken by the developer, and this should be submitted with their planning application. Sources of uncertainty should be identified within the assessment and a mitigation strategy developed.



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LEGEND

- Sevenoaks District Boundary
- Main River
- Waterbody
- Flood Zone 2
- Flood Zone 3

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FIGURE TITLE

Sevenoaks District Council – Flood Zones and Waterbodies

FIGURE NUMBER

Figure 10

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3.6 Land Use and Agricultural Grading

The land within the Sevenoaks District boundary has been assessed to understand its potential for agricultural use. This has been performed using Defra's Predictive Agricultural Land Classification (ALC) mapping.[29] Land is designated into eight categories, with the top three, 1,2 & 3a, being considered the Best and Most Versatile Agricultural Land (BMVAL), Table 2 details each category's land quality.

Table 2. Predictive Agricultural Land Classification (ALC)

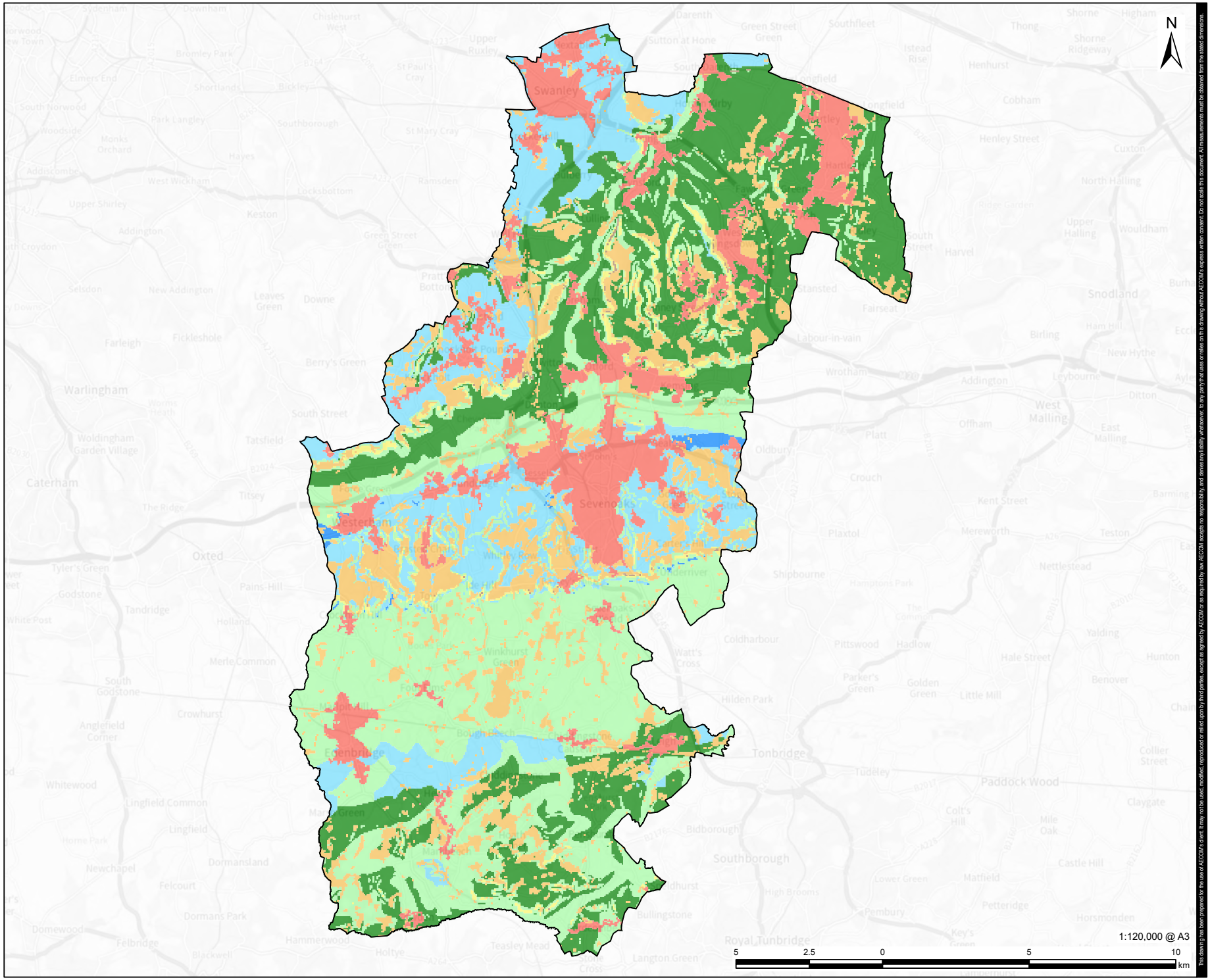
Category	Land Quality	BMVAL	Constraint Type (for the creation of the Developable Areas Maps)
1	Excellent	Yes	Hard
2	Very Good	Yes	Hard
3a	Good	Yes	Soft
3b	Moderate	No	Soft
4	Poor	No	Soft
5	Very Poor	No	Soft
Non-Agricultural	N/A	No	Hard
Urban	N/A	No	Hard

NPPF (paragraph 187(b)) advises that significant developments on agricultural land should prioritise the use of lower grade agricultural land and not use BMVAL. However, NPS Renewable Energy Infrastructure, EN-3, (Dec 2025)[30] (2.10.21) states that land type should not be a predominating factor in determining the suitability of a site for solar PV development. Therefore, the developer may use high grade (1, 2, & 3a) BMVAL, but they must robustly justify its use as part of their planning application. Paragraph 2.10.22 of the NPS[30] states that "*ground mounted solar PV arrays are not prohibited on BMVAL*" therefore, the current land use cannot be used as the sole justification for the rejection of a solar PV farm. Additionally, recent case law[31,32&33] has set the precedent of BMVAL use for solar PV farms with the Planning Inspectorate granting various proposed solar PV farms located on land with over 50% BMVAL. It is therefore suggested that proposed developments which are sited on BMVAL perform site specific land surveys. The land survey should confirm the land quality and allow a deeper understanding of the proposed development's potential impacts, forming part of the developer's justification.

As seen in Figure 11, Sevenoaks District is dominated by BMVAL, grades 2 and 3a, to the north of the District, with a band of grade 2 land sweeping across the centre around Sevenoaks town. There is a band of moderate quality, grade 3b, land found between Edenbridge and Underriver. The south of the District, below the grade 3b band, has no dominate land classification but is mixture of Grade 2-3b land. Note, there is a small section of Grade 1 (excellent) agricultural land to the West of Sevenoaks. It would be preferable if areas of BMVAL were avoided. Where it is not possible, and its use is robustly justified, it is recommended SDC should consider the percentage of the land, which is classified as grade 1, 2 & 3a as part of the application in reference to recent case law.

For the purposes of creating the developable areas maps, as seen in Figure 15 and Figure 16, it has been assumed that BMVAL Grades 1, 2 and urban land are unsuitable for solar PV development. BMVAL Grade 3a has been included within the mapping, due to the precedent set by recent case law. As stated, development can occur on any grade of BMVAL with robust justification, therefore, the developable areas should be considered as a guide to represent the areas that are the more favourable and not as the only areas within the District where SDC will consider solar PV proposals.

[29] Natural England (09/10/2025) Provisional Agricultural Land Classification (ALC) https://www.data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc2
[30] Department for Energy Security & Net Zero (DESNZ) (Dec 2025) National Policy Statement for Renewable Energy Infrastructure (EN-3), Pg95 https://data.parliament.uk/DepositedPapers/Files/DEP2025-0795/NPS_for_Renewable_Energy_Infrastructure_EN-3.pdf
[31] Pathfinder Clean Energy (PACE) UKDev Ltd v Broadland District Council. (2025) Reference: APP/K2610/W/25/3359225,. https://acp.planninginspectorate.gov.uk/ViewCase.aspx?Caseid=3359225&CoID=0
[32] Elgin Energy EsCo Ltd v Torridge District Council (2025) Reference: APP/W1145/W/24/3353044, https://acp.planninginspectorate.gov.uk/ViewCase.aspx?Caseid=3353044&CoID=0
[33] Woolpots Solar Farm Ltd. v North Yorkshire Council (2025) Reference: APP/W1145/W/24/3353044, https://acp.planninginspectorate.gov.uk/ViewCase.aspx?Caseid=3353044&CoID=0



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LEGEND

- Sevenoaks District Boundary

Predictive Agricultural Land Classification (ALC Grade)

- 1
- 2
- 3a
- 3b
- 4
- 5
- non-agricultural
- urban

NOTES

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PROJECT NUMBER

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FIGURE TITLE

Sevenoaks District Council – Agricultural Land Classifications

FIGURE NUMBER

Figure 11

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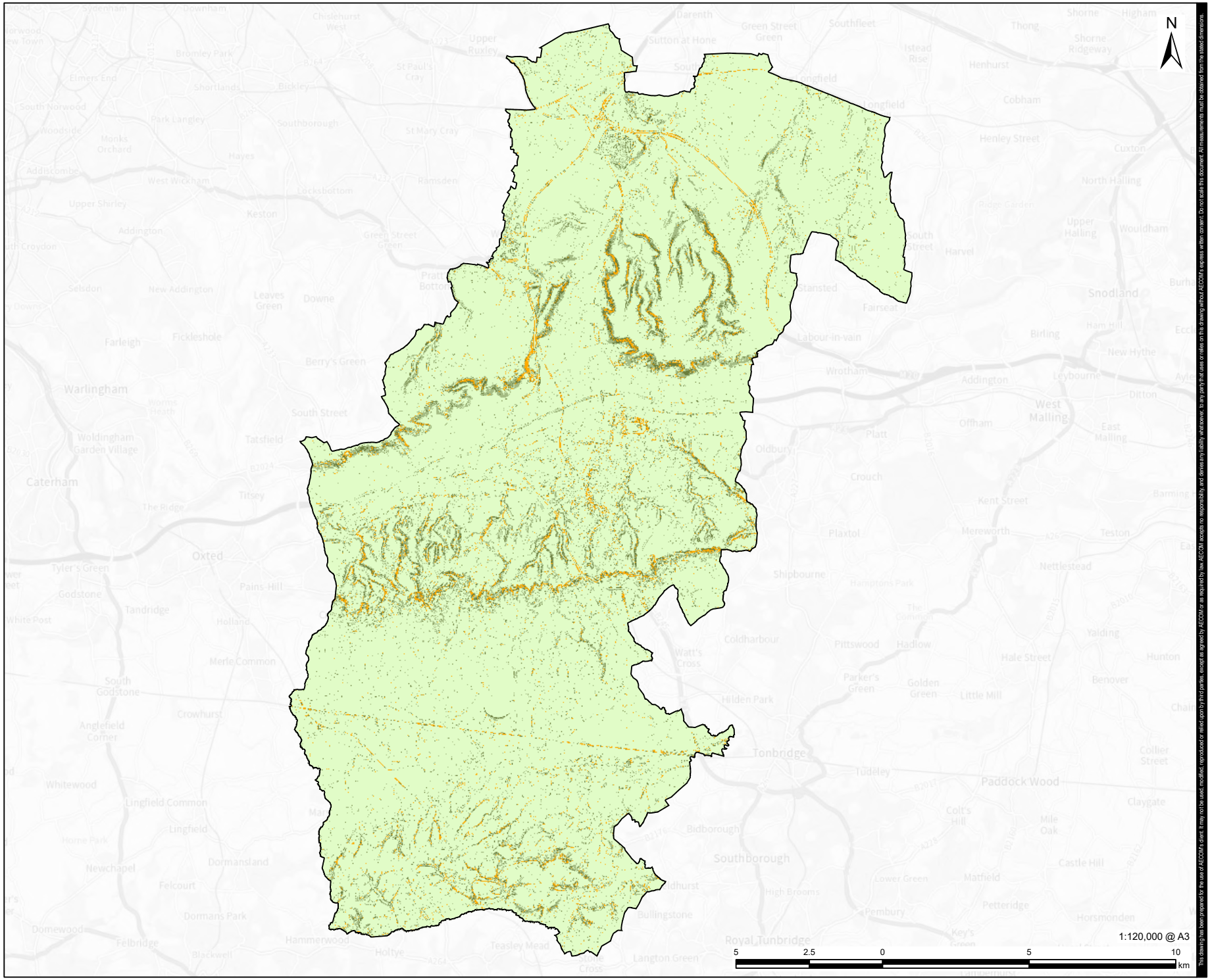
3.7 Slope

Solar PV within the UK is typically developed on slopes up to 10°; this is largely due to economic considerations. Ground-mounted solar PV has been installed at slope angles of up to 20° in other countries, however, this is likely to come at an additional expense to the developer due to increased costs including civil engineering works (e.g., longer piles), specialised mounting systems and installation timeline.

Figure 12 demonstrates the slope across Sevenoaks District, with orange indicating areas which cannot support solar PV (i.e., above 20°). As can be seen, a substantial portion of the Sevenoaks District area could support a solar PV installation as the slope is below 20°. It is therefore unlikely that a solar PV farm application will be constrained by the site's slope, as this should have been considered and avoided or mitigated for by the developer in the design stages of the project.



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LEGEND

Sevenoaks District Boundary

Slope (Degrees)

- 0 - 9.99
- 10 - 14.99
- 15 - 19.99
- 20 - 84.04

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FOR INFORMATION

PROJECT NUMBER

60764595

FIGURE TITLE

Sevenoaks District Council - Slope

FIGURE NUMBER

Figure 12

3.8 Areas Suitable for Dual Land Use

Ground mounted solar PV is typically installed 0.5 – 1.0 m from the ground surface, at the optimum inclination angle for annual solar PV generation, to maintain a low overall height. This is advantageous to reduce the installation's visual impact and costs associated with the mitigation of wind loads. An installation of ~0.8 m and above can accommodate grazing sheep underneath, without any design modifications and is considered a standard installation. Modified designs mounted at a greater height (>2.5 m), can also be considered for cattle however there are a large number of technical risks associated with this, including increased wind load and greater visual impacts. Arrays may also be spaced at greater intervals to allow for more plant growth and better grazing opportunity between rows but reducing the electrical generation potential by having less panels within a given area.

Wildflower and local meadow grass can be seeded between array spacing which can result in biodiversity gains. However, biodiversity improvements should not be considered as an additional benefit unless it is expected to exceed the biodiversity net gain statutory obligations as per Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021)[34] of at least 10% increase in biodiversity.

Panels can also be installed vertically, facing east/west, with examples for both arable and cattle farming being in operation. A study conducted by Engie found that generation periods were increased due to the capture of energy at sunrise and set resulting in ~30% more production than a typical ground array of the same generation capacity.[35] However, the space required for installation compared to a typical ground array of the same capacity is considerably more. The row spacing of vertical systems provides sufficient access for mechanical equipment, allowing crops to be planted and harvested between the panels.

[34] UK Government (01/05/2025) Environment Act 2021, Schedule 14 https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted

[35] Gwénaëlle Deboutte (2024) *'Engie reveals results of French vertical agrivoltaic demonstrator'*, https://www.pv-magazine.com/2024/10/07/engie-reveals-results-of-french-vertical-agrivoltaic-demonstrator/

3.9 Grid Connection Capacity

To connect any renewable generation asset to the national grid, a grid connection agreement must first be secured with the relevant Distribution Network Operator (DNO). Responsibility for securing this agreement rests with the project developer, and it is not anticipated that the council would be involved in this process.

A high-level grid constraints review has been undertaken, including mapping of substations across Sevenoaks District to inform SDC of the potential knock-on impacts of any proposed solar PV developments. These impacts may include the requirement for grid upgrades by the DNO ahead of connection, as well as any additional planning approval workload that may be incumbent on the council.

An initial assessment of available grid connection capacity was undertaken by reviewing the information available on the local DNO website; UK Power Networks (UKPN).[36] At the time of writing, the District area is currently without major constraints for inverter-based generation (solar PV & batteries). The District area contains seven primary substations; each rated at 33/11kV (see Figure 13 for locations). There are eleven additional substations, whose distribution include small areas within the District boundary. The region is served by three 132/33kV grid supply substations (also known as, Bulk Supply Points (BSP)), Chelsfield, Dormansland, and Tunbridge Wells, which ultimately all connect to the Northfleet East Grid Supply Point located south of Springhead.

UKPN annually produces their Distribution Future Energy Scenarios Network Scenario Headroom Report (DFES NSHR).[37] The DFES NSHR provides four potential network-wide decarbonisation scenarios, "*Counterfactual", "Electrical Engagement", "Holistic Transition",* and *"Hydrogen Evolution".* These scenarios vary in their level of adoption of various energy and carbon saving technologies such as heat pumps, renewable energies and electric vehicles (EVs) to understand the need for grid upgrades and how these technologies will affect transformer head room capacity. For the purpose of this study AECOM have only considered the "*Counterfactual*" and "*Electrical Engagement*" scenarios. These scenarios have been selected as they represent the two extremes' regarding electrification. The "*Counterfactual*" scenario assumes zero adoption of energy and carbon saving technologies, maintaining the status quo. Whilst the "*Electrical Engagement"* scenario assumes a high level of electrification, including heating and EV adoption; creating an increased demand for electricity. The UKPN scenario results for 2026 and 2031 have been used to demonstrate the predicted change in availability for the connection of inverter-based generation (solar PV & batteries) over the next five years. Additionally, where more capacity has become available in the period, it is an indication the DNO anticipates upgrading the substation's equipment within the five-year period.

The substations' maximum demand capacities, which vary seasonally due there being a higher electricity demand in winter for space heating and lighting, and inverter-based generation headroom for both scenarios are presented in Table 3. The table shows the expected capacities in 2026 and 2031 to demonstrate the five-year outlook for each substation. Additionally, Figure 13 provides a visual representation of this information including the substation's locations across the District. As can be seen, only Chelsfield Grid, North Sevenoaks and Sundridge have availability to connect significant capacity (i.e., greater than 15MW), before reinforcement works would be required by UKPN. Penshurst substation is the only primary substation in the southeast of the District and currently has no available future capacity for inverter-based generation without network reinforcement works. This is expected to be a significant constraint for prospective developers. Regarding the substations which predominantly feed outside of the District boundary (notated by asterisks in Table 3), there are seven substations which could accommodate over 15MW of inverter-based generation before upgrades are necessary. However, as these substations do not primarily serve Sevenoaks District, it is unclear if the total capacity would be applicable to the council-managed area. Again, responsibility for clarification would lay with the solar PV developer to gain from the DNO.

The Chelsfield 132/33kV Grid Substation currently has 65 MW of installed capacity allocated for future battery energy storage system (BESS) integration.

[36] UKPN (01/12/2025) UK Power Networks Grid and Primary Sites https://ukpowernetworks.opendatasoft.com/explore/dataset/grid-and-primary-sites/information/?disjunctive.local_authority&disjunctive.powertransformercount

[37] UKPN (2025) Distribution Future Energy Scenarios 2025 https://dso.ukpowernetworks.co.uk/distribution-future-energy-scenarios

Table 3. Sevenoaks Primary Substation Capacities

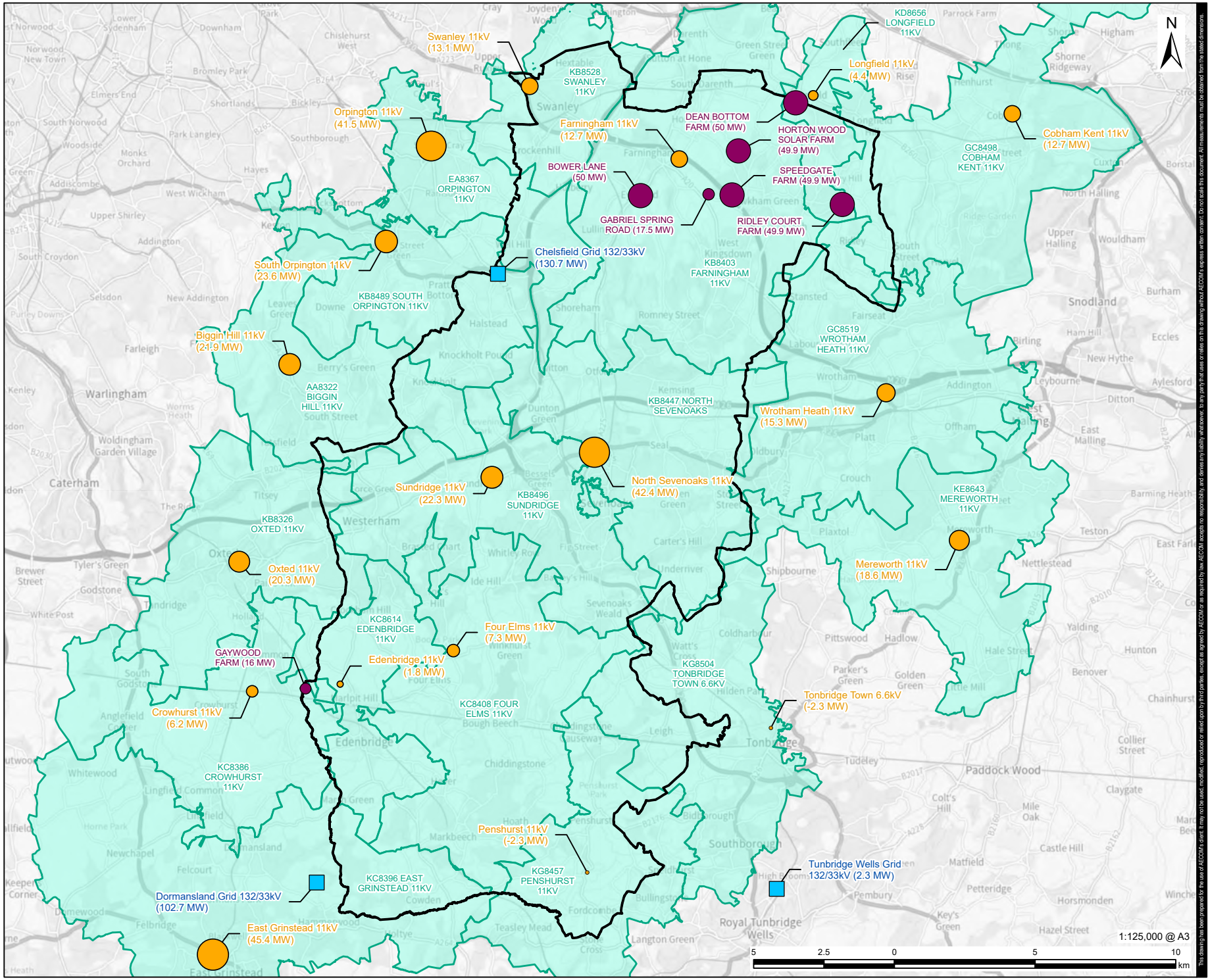
Substation – Low Voltage Side	Counterfactual (MW)		Electrical Engagement (MW)		Maximum Available Demand (MW)	
	Year 2026	Year 2031	Year 2026	Year 2031	Summer	Winter
Chelsfield Grid 132kV	*UKPN does not provide data for the high voltage side of the Chelsfield Grid primary substation.*					
Chelsfield Grid 33kV	140.9	140.5	139.4	130.7	Not provided	Not provided
Edenbridge 11kV	2.5	2.4	2.4	1.8	2.5	2.0
Farningham 11kV	13.9	13.6	13.6	12.7	7.5	7.0
Four Elms 11kV	5.8	6.8	5.7	7.3	6.0	4.0
North Sevenoaks 11kV	43.6	44.1	43.2	42.4	26.0	25.0
Penshurst 11kV	2.9	2.3	1.7	-2.3	10.0	7.5
Sundridge 11kV	18.5	20.2	22.4	22.3	6.0	5.0
Swanley 11kV	14.3	14.1	14.1	13.1	8.0	5.9
East Grinstead 11kV*	48.0	47.6	47.4	45.4	37.6	44.1
Orpington 11kV*	43.2	42.7	42.9	41.5	35.6	45.3
South Orpington 11kV*	24.8	24.6	24.6	23.6	19.8	22.6
Biggin Hill 11kV*	22.7	22..6	22.6	21.9	19.6	21.2
Longfield 11kV*	5.4	4.8	5.3	4.4	17.1	23.0
Cobham Kent 11 kV*	13.8	13.6	13.6	12.7	9.7	13.0
Tonbridge Town 6.6kV*	2.9	2.3	1.7	-2.9	17.3	21.9
Oxted 11kV*	21.4	21.2	21.2	20.3	16.7	17.6
Crowhurst 11kV*	6.8	7.2	6.5	6.2	9.7	12.9
Wrotham Heath 11kV*	16.1	16.4	15.9	15.3	13.0	16.6
Mereworth 11kV*	20.8	21.1	19.9	18.6	17.1	20.1
Northfleet East 132kV**	66.7	44.4	67.3	44.7	171.0	217.2
Northfleet East 33kV**	148.0	112.6	112.4	110.6	Not provided	Not provided

*Substation not located within Sevenoaks Boundary. Predominately feeding other council areas.
** The substation is not shown on the provided map, Figure 13.
Source: UKPN Data Portal[38]

Several large-scale solar PV projects have received grid connection offers in and around Eynsford, in the north of Sevenoaks District (Figure 13). Although all of these projects have been accepted for connection, none are currently operational. The UK grid connection reform, by NESO, may have had an impact on if these projects will be granted a connection offer (see Section 2.3 for more details on the grid reform process).[39] As a result, newer solar PV developments may be connected ahead of earlier applicants if they progress more rapidly through planning and development stages.

At the feasibility stage, the grid connection should be assessed on a site-by-site basis, through a formal grid study undertaken by the DNO. This study confirms if the local electrical infrastructure has sufficient capacity to safely accommodate the additional power generated at the site. Where this is not the case, the costs of any required network upgrades are borne by the installation project. Grid connection costs can vary significantly depending on the extent to which the proposed generation impacts the DNO's existing equipment and network capacity. Early engagement with the DNO is therefore recommended for any renewable energy project.

[38] Distribution Future Energy Scenarios Network Scenario Headroom Report (DFES NSHR) & UK Power Networks Grid and Primary Sites (2026) UKPN Data Portal https://ukpowernetworks.opendatasoft.com/pages/home/
[39] NESO (8/12/2025) NESO implements electricity grid connection reforms to unlock investment in Great Britain https://www.neso.energy/neso-implements-electricity-grid-connection-reforms-unlock-investment-great-britain



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LEGEND

- Sevenoaks District Boundary
- Primary Substation Distribution Area
- Grid Substation

Primary Substation

2031 Headroom (MW)

1, 5, 10, 50, 100

Proposed Solar PV

Energy (MW)

1, 5, 10, 50, 100

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3. The indicated generation headroom capacity uses UKPN data from the Electric Engagement scenario of their Distribution Future Energy Scenarios 2025 report for inverter-based generation in 2031

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60764595

FIGURE TITLE

Sevenoaks District Council – Generation Headroom Capacity (MW)

FIGURE NUMBER

Figure 13

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4. Solar PV Generation Potential within the District

This section of the report details the solar resource availability across the District and presents the results of the desktop-based solar PV opportunity evaluation. The evaluation considers the local constraints to determine the areas suitable for ground mounted solar PV development and estimates the associated electricity generation and carbon savings potential.

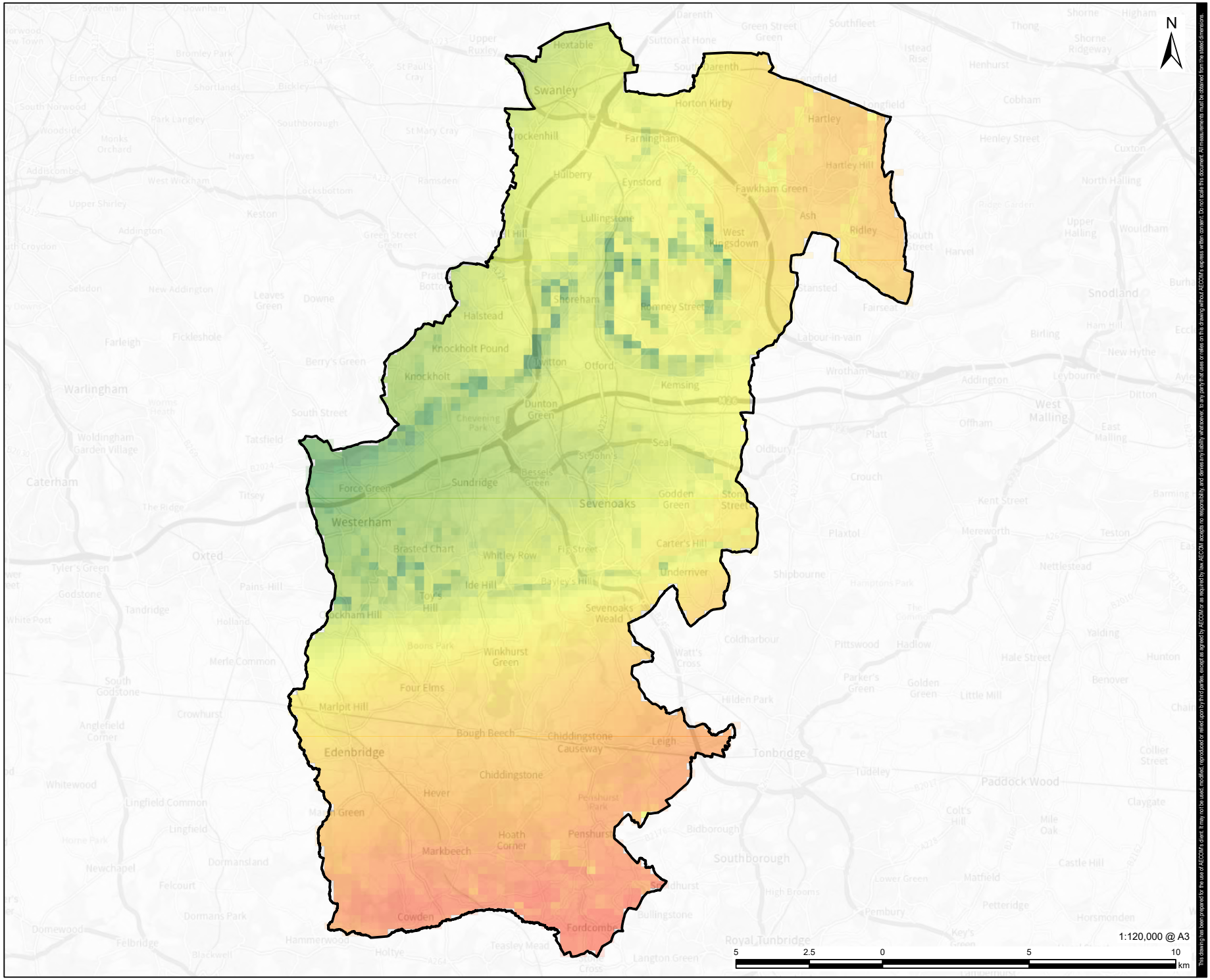
This report presents the full potential of the District if all identified areas are developed, however, it is not expected that this will be the case. Instead, this will allow SDC to understand how the District may contribute to the UK's net zero targets, when considering solar PV development applications and when producing local solar PV policy.

4.1 Solar Resource Overview

Based on a review of the available solar resource mapping, Sevenoaks District is shown to have strong potential to support solar PV renewable energy generation. Global Horizontal Irradiance (GHI),[40] the total solar radiation incident on a horizontal surface, varies across the District and is a key factor influencing the potential output of ground-mounted solar PV. As can be seen in Figure 14, the irradiance distribution across Sevenoaks District is a mix of moderate to higher-performing areas, with localised variations that reflect differences in land cover and elevation. It is worth noting that GHI does not account for tree/vegetation cover, buildings, or other temporary shading features, and a site-specific analysis should be undertaken to accurately determine the suitability of solar PV installations.

Across most of the District, annual insolation (i.e., the total amount of solar energy received at a location over a year) typically falls within the 1,000 - 1,100 kWh/m² range, assuming no shading. These levels align closely with irradiance range observed across wider Kent, 750 - 1,100 kWh/m², which is recognised as one of the stronger solar regions in the UK. This places Sevenoaks above the national average, where typical UK GHI values are closer to ~950 kWh/m². This comparatively high solar resource indicates that the District is well-suited for solar PV development, with favourable conditions for year-round generation.

[40] GHI is an industry standard metric for assessing solar resource potential as it provides a consistent measure of the total solar energy available at a given location. GHI includes both direct and diffused radiation, which are both utilised by solar PV, making it well suited to a high-level assessment of the resource required for Solar PV electricity generation.



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LEGEND

Sevenoaks District Boundary

(GHI) in kWh/m²

1064.70

1029.64

NOTES

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2. Solar resource data © 2019 Solargis. The data is published in Global Solar Atlas under a Creative Commons 4.0 Attribution International license, CC BY 4.0 with the following mandatory and binding addition:
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FIGURE TITLE

Sevenoaks District Council - Global Horizontal Irradiance (GHI)

FIGURE NUMBER

Figure 14

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4.2 Ground Mounted Solar PV Opportunity Areas

To understand the potential for solar PV development throughout Sevenoaks District, a desktop GIS constraint-based mapping approach has been undertaken, with the methodology available in Appendix B, and the constraints used available in Appendix C. This produces the potential developable areas by applying buffers and/or exclusion zones to hard constraints (i.e., areas where ground-mount solar PV cannot be developed) such as, water bodies, SSSIs and rail lines (the full list of constraints can be seen in Appendix A). Note for the purpose of this document land categorised as BMVAL Grade 1&2 has been considered as a hard constraint and removed from consideration. However, this land can be developed on with robust justifications and therefore the mapping does not represent the full potential for solar PV development in the District, instead it highlights areas with the strongest precedent for obtaining planning permission. It is expected that developers will physically survey their proposed sites, prior to planning applications, to ensure any constraints not present on publicly available databases are mitigated against (e.g., farm drains, small water features, or local wildlife).

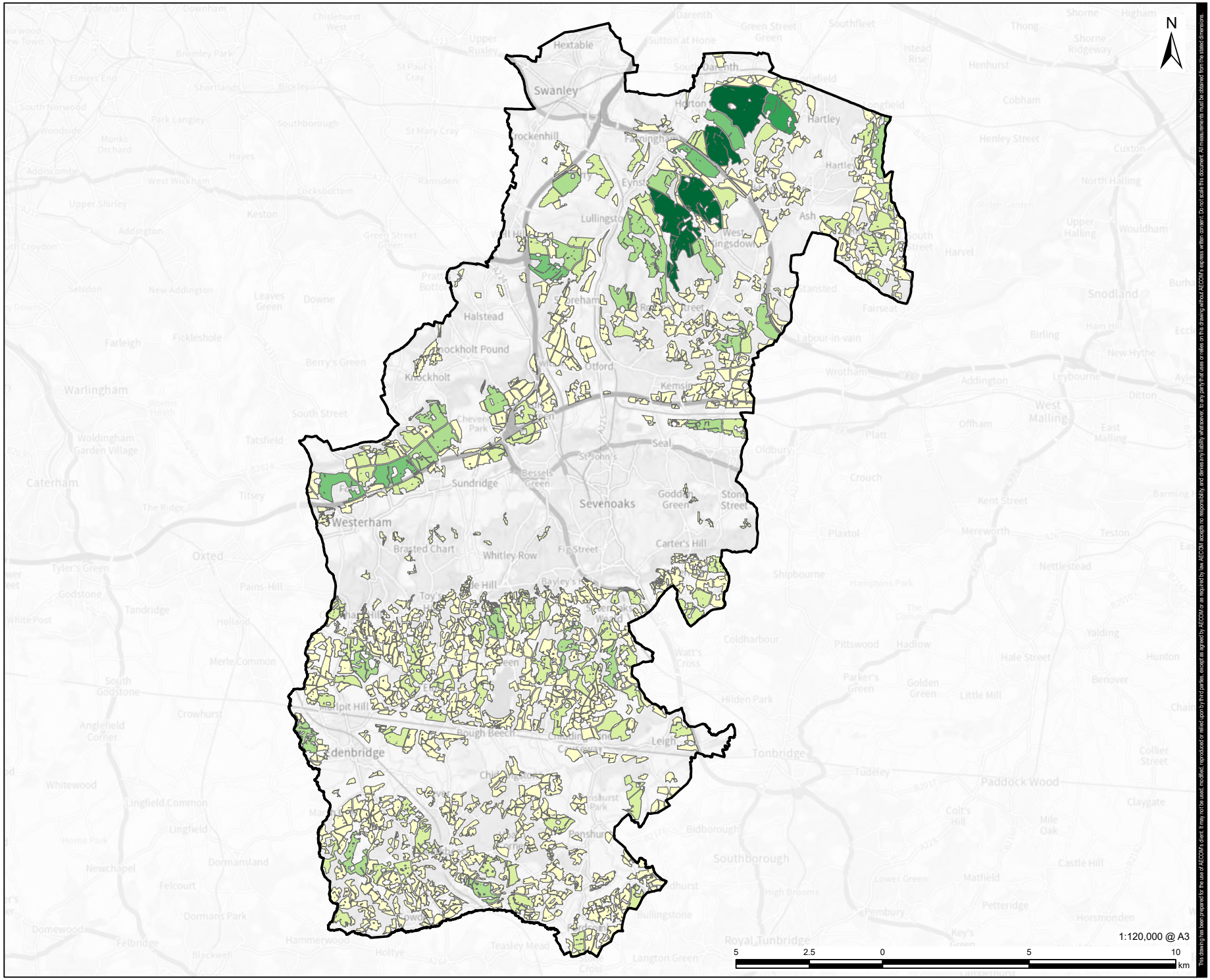
There is a significant proportion of Sevenoaks District which is designated as National Landscape (see Figure 4, Section 3.2). There is no national policy for the inclusion or exclusion of solar PV on this land, and this decision is typically made at a local council level (i.e., by SDC). To provide SDC with an overview of the land potentially available for solar PV development within and outside of this designation, two solar PV developable scenarios have been produced and analysed. The first (Figure 15) represents the potential developable area if solar PV farms above 1MW are permitted to develop within the National Landscape designated areas. Figure 16 demonstrates the developable area for solar PV farms if the National Landscapes are fully excluded, without exception.

The number of potential sites and total area available which has the potential for solar PV development for each scenario can be seen in Table 4.

Table 4. SDC Potential Developable Land for Solar PV Developments

Scenario	No of Islanded Land Parcels	Total Land Available (m^2)	Maximum Land parcel size (m^2)	Mean Land parcel size (m^2)	Median Land parcel size (m^2)	Min Land parcel size (m^2)
SDC Including National Landscape Areas	884	101,200,000	2,114,000	20,020	114,500	73,160
SDC Excluding National Landscape Areas	318	35,190,000	2,114,000	20,050	110,700	66,660

Note, the areas identified as developable have not been rationalised for land parcel shape, slope aspect, or ground conditions. This is due to the high-level nature of the investigation and the report's intention to provide a District wide maximum potential assessment.



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LEGEND

- Sevenoaks District Boundary

Ground Mounted Solar PV Developable Area

- Up to 10 MWp
- 10 MWp to 20 MWp
- 20 MWp to 30 MWp
- 30 MWp to 40 MWp
- 40 MWp to 50 MWp
- > 50MWp

MAPPED DATA NOTES

1. Land parcel sizes are representative and do not indicate the exact size of solar PV development that could be established on each land parcel. This is for information purposes only and land parcels could be separated or combined to accommodate smaller or larger developments.
2. A rule of thumb of 2 hectares per 1MWp installed capacity of Solar PV has been applied to colour code the land parcels in this figure.

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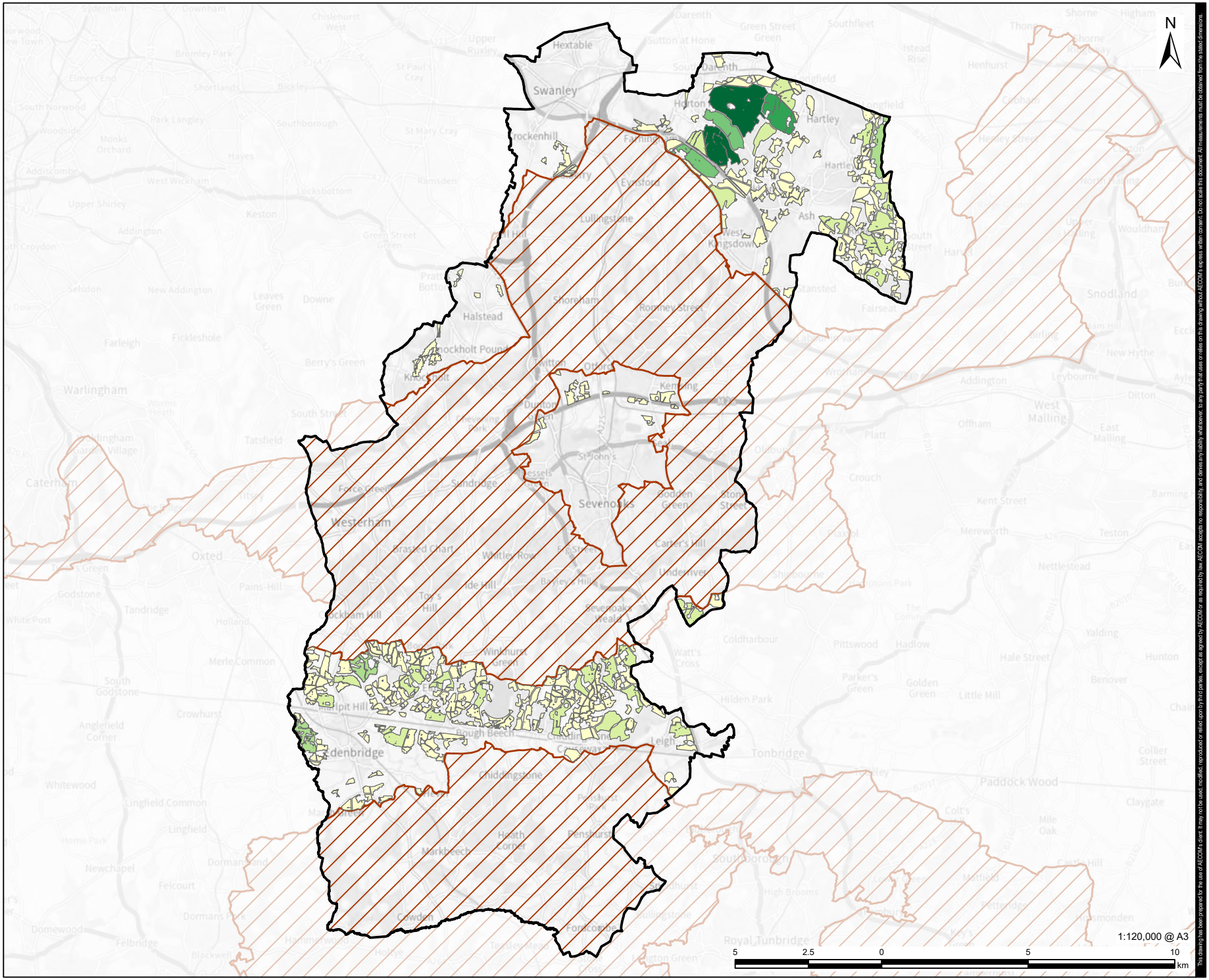
FIGURE TITLE

Sevenoaks District Council – Ground Mounted Solar PV Potential Areas - Including National Landscape Areas

FIGURE NUMBER

Figure 15



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LEGEND

- Sevenoaks District Boundary
- National Landscape Area

Ground Mounted Solar PV Developable Area

- Up to 10 MWp
- 10 MWp to 20 MWp
- 20 MWp to 30 MWp
- 30 MWp to 40 MWp
- 40 MWp to 50 MWp
- > 50MWp

MAPPED DATA NOTES

1. Land parcel sizes are representative and do not indicate the exact size of solar PV development that could be established on each land parcel. This is for information purposes only and land parcels could be separated or combined to accommodate smaller or larger developments.
2. A rule of thumb of 2 hectares per 1MWp installed capacity of Solar PV has been applied to colour code the land parcels in this figure.

NOTES

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ISSUE PURPOSE

FOR INFORMATION

PROJECT NUMBER

60764595

FIGURE TITLE

Sevenoaks District Council – Ground Mounted Solar PV Potential Areas - Excluding National Landscape Areas

FIGURE NUMBER

Figure 16

4.3 Potential Solar PV Generation and Carbon Saving Results

The individual land parcels found by the GIS developable area study have undergone a high-level solar PV farm sizing, lifetime generation and carbon calculations as per the methodology set out in Appendix B. The results of this assessment can be seen in Table 5 & Table 6 for the evaluation including and excluding the National Landscape areas respectively.

The results presented demonstrate the potential for ground-mounted solar PV development opportunities across Sevenoaks District. However, it is unlikely that all areas will be developed for myriad reasons including, cumulative impacts, grid connection constraints, competing development needs and challenges securing land use rights. SDC should keep this in mind, as the purpose of this document is to provide information only and guidance for developing a solar PV policy.

Allowing development within the National Landscape areas significantly increases the number of sites available for solar PV projects. This could ultimately lead to almost three times the lifetime carbon savings if all potential sites are developed.

Table 5. SDC Solar PV Potential Areas, Including National Landscape Areas, Estimated Lifetime (40 years) Generation & Carbon Savings

Solar PV Farm Size Range (MWp)	No Sites in Range	Total Area of Sites (m^2)	Total Generation (GWh)	Carbon Saving Green Book (tCO_2e)	Carbon Saving Unabated Gas Removal (tCO_2e)	Carbon Saving Fixed Grid Factor ($ktCO_2e$)
2	241	7,073,000	15,630	535,900	5,690,000	2,767,000
5	319	21,010,000	46,450	1,592,000	16,900,000	8,221,000
10	214	29,540,000	65,300	2,239,000	23,770,000	11,560,000
15	50	11,930,000	26,380	904,200	9,600,000	4,669,000
20	26	9,058,000	20,020	686,300	7,287,000	3,544,000
25	15	6,659,000	14,720	504,600	5,357,000	2,606,000
30	9	4,918,000	10,870	372,700	3,956,000	1,924,000
35	3	1,956,000	4,323	148,200	1,573,000	765,200
40	2	1,526,000	3,374	115,700	1,228,000	597,200
45	1	884,500	1,955	67,020	711,500	346,000
>45	4	6,618,000	14,630	501,500	5,324,000	2,589,000
Total	884	101,200,000	223,700	7,667,000	81,400,000	39,590,000

As seen in Table 6, excluding the National Landscape areas still results in 318 viable 1 MW and above solar PV installations. A significant proportion (~88%) of the identified developable areas are estimated to support solar PV farms below 10 MW. Additionally, there are two areas which can support over 45 MW. Therefore, it is likely that SDC will still encounter applications for variety of solar PV farm sizes and should prepare their local plans for all applications. The combined carbon savings, if all sites are developed, ranges from 2,666,000 - 28,310,000 tCO_2e, dependant on methodology, showing solar PV's large potential for contribution to the UK's carbon reduction goals.

Table 6. SDC Solar PV Potential Areas, Excluding National Landscape Areas, Estimated Lifetime (40 yrs) Generation & Carbon Savings

Solar PV Farm Size Range (MWp)	No Sites in Range	Total Area of Sites (m^2)	Total Generation (GWh)	Carbon Saving Green Book (tCO_2e)	Carbon Saving Unabated Gas Removal (tCO_2e)	Carbon Saving Fixed Grid Factor (tCO_2e)
2	96	2,795,000	6,177	211,800	2,248,000	1,093,000
5	109	6,923,000	15,300	524,600	5,569,000	2,708,000
10	76	10,620,000	23,470	804,700	8,543,000	4,155,000
15	18	4,307,000	9,521	326,400	3,465,000	1,685,000
20	11	3,817,000	8,437	289,200	3,070,000	1,493,000
25	2	842,100	1,861	63,810	677,400	329,500
30	1	541,900	1,198	41,070	436,000	212,000
35	2	1,310,000	2,896	99,270	1,054,000	512,500
40	0	0	0	0	0	0
45	1	884,500	1,955	67,020	711,500	346,000
>45	2	3,149,000	6,960	238,600	2,533,000	1,232,000
Total	318	35,190,000	77,780	2,666,000	28,310,000	13,770,000

4.4 Solar PV Farm Decommissioning

Solar PV farms are considered temporary installations, typically operating for around 30 - 40 years. At the end of their operational life, they can be fully decommissioned with solar PV panels, mounting frames, inverters, and cabling removed from the site. As ground-mounted solar PV requires minimal permanent foundations, the land can usually be restored to a condition very close to its original or even an improved state. Developers are expected to include a detailed decommissioning plan as part of their planning submission, outlining how materials will be removed and recycled and how the land will be reinstated. This plan is typically reviewed by the planning authority and relevant specialists to ensure that long-term environmental commitments are met.

5. RAG Assessment

A red, amber, green (RAG) constraints assessment has been created to support and inform SDC in understanding the national and local planning and environmental impacts that each solar PV development application should consider. A copy of the assessment is found in Appendix D.

The RAG assessment has been developed to provide the SDC application assessor an initial concise overview of the planning and environmental requirements associated with a solar PV development application. This includes necessary surveys, constraints, and mitigation measures. This assessment is performed through reviewing the developer provided documentation to ensure that all required information is included and aligns with the relevant planning criteria. The RAG should be used to provide a subjective review and is not intended to inform a final decision.

The RAG Assessment evaluates the following key areas:

- Planning Policy Compliance - Energy
- Planning Policy Compliance - Green belt
- Landscape and Visual
- Protected Species, Habitats and Ecological Network
- Agricultural Land & Soil
- Heritage & Archaeology
- Flood Risk & Drainage
- Amenity - Noise & Residential
- Decommissioning & Restoration

6. Conclusion

This study demonstrates that, despite the District's significant planning and environmental constraints, there is considerable potential for ground-mounted solar PV to contribute meaningfully to both local and national clean energy and decarbonisation objectives. Furthermore, it finds that following the removal of BMVAL Grades 1 & 2 from development consideration, a large portion of land remains potentially suitable, with 37 sites being available for solar PV farms of 15 MW and above, after accounting for major constraints. The evidence and analysis provided form a strong foundation for SDC's emerging Local Plan and support the development of a dedicated policy for solar PV and renewable energy, aligned with the latest national guidance.

Solar PV developments in the District can be designed not only to generate clean energy but also to support ongoing agricultural activities and enhance local biodiversity, thereby delivering long-term environmental and economic benefits. The assessment criteria and strategic mapping produced by the study provide SDC with practical tools to proactively manage planning applications, ensuring that only the most suitable sites are prioritised. It will be essential for each application to be evaluated on a case-by-case basis, supported by further site-specific surveys and stakeholder engagement.

Appendix A List of All Data Sources

Layer Name	Data Provider	Date Acquired	Source Web Link
Predictive Agricultural Land Classification	DEFRA	15/04/2026	https://environment.data.gov.uk/spatialdata/predictive-alc-england-raster/wms
Slope (Degrees)	Derived from DEFRA data	02/03/2026	https://experience.arcgis.com/experience/753ad2ebd3554fa696885b8c366c3049/page/Open-Data?views=Habitat-Mapping
Main River	Environment Agency	27/01/2026	https://environment.data.gov.uk/
Flood Map for Planning: Flood Zones	Environment Agency	27/01/2026	https://environment.data.gov.uk/
Scheduled Monument	Historic England	10/02/2026	https://historicengland.org.uk/listing/the-list/data-downloads/
Listed Building (Grade)	Historic England	10/02/2026	https://historicengland.org.uk/listing/the-list/data-downloads/
Parks and Gardens	Historic England	Live Service	https://services-eu1.arcgis.com/ZOdPfBS3aqqDYPUQ/arcgis/rest/services/National_Heritage_List_for_England_NHLE_v02_VIEW/FeatureServer/7
Instrument Flight Procedures Safeguarded Area - Gatwick Airport	London Gatwick	Live Service	https://services-eu1.arcgis.com/vgNfulWOSSpqG5gz/arcgis/rest/services/Gatwick_Safeguarding_Constraints/FeatureServer/7
Tower	National Grid	10/02/2026	https://www.arcgis.com/home/item.html?id=a7cb9ea07114405eb1017c0c121f09e2
Electricity Transmission Network (Cable)	National Grid	10/02/2026	https://www.arcgis.com/home/item.html?id=a7cb9ea07114405eb1017c0c121f09e2
Electricity Transmission Network (Overhead Line)	National Grid	10/02/2026	https://www.arcgis.com/home/item.html?id=a7cb9ea07114405eb1017c0c121f09e2
Utilities	National Grid	10/02/2026	https://www.arcgis.com/home/item.html?id=a7cb9ea07114405eb1017c0c121f09e2
Local Nature Reserve	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
Site of Special Scientific Interest	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
Ancient Woodland	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
Priority Habitats Inventory England	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
National Landscape Area	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
National Trail	Natural England	Live Service	https://services.arcgis.com/JJzESW51TqeY9uat/arcgis/rest/services/National_Trails_England/FeatureServer/0
Registered Common Land	Natural England	Live Service	https://services.arcgis.com/JJzESW51TqeY9uat/arcgis/rest/services/CRoW_Act_2000_Section_4_Conclusive_Registered_Common_Land/FeatureServer/0
Area of Outstanding Natural Beauty	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
National Character Area	Natural England	27/01/2026	https://naturalengland-defra.opendata.arcgis.com/
Railway Track	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Building	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Road	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Surface Water Line	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Waterbody	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Open Data	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/
Open Green Space	Ordnance Survey	Live Service	https://services.arcgis.com/qHLhLQrcvEnxjtPr/arcgis/rest/services/OS_Open_Greenspace/FeatureServer/1
Water Body	Ordnance Survey	27/01/2026	https://osdatahub.os.uk/

Layer Name	Data Provider	Date Acquired	Source Web Link
GCN Risk Zones	SDC	27/01/2026	https://gis-sevenoaks.opendata.arcgis.com/
Public Right of Way	SDC	27/01/2026	https://gis-sevenoaks.opendata.arcgis.com/
Asset Of Community Value	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Kent Wildlife Trust Local Wildlife Site	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Locally Listed Assets	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Conservation Area	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Metropolitan Green Belt	SDC	Live Service	https://utility.arcgis.com/usrsvcs/servers/1345caa6dde041438506bc5f944876f0/rest/services/Metropolitan_Green_Belt_SDC/FeatureServer/0
Tree Preservation Order	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Biodiversity Opportunity Area	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Town Centre Frontage	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Green Belt	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
ADMP Adopted Allocations	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Open Space Allocation	SDC	02/02/2026	https://gis-sevenoaks.opendata.arcgis.com/
Neighbourhood Plan Allocation	SDC	10/03/2026	https://gis-sevenoaks.opendata.arcgis.com/
Strategic Housing and Economic Land Availability	SDC	10/03/2026	https://gis-sevenoaks.opendata.arcgis.com/
(GHI) in kWh/m2	Solar GIS	04/02/2026	https://solargis.com/resources/free-maps-and-gis-data
National Cycle Network	SUSTRANS	Live Service	https://services5.arcgis.com/1ZHcUS1lwPTg4ms0/arcgis/rest/services/National_Cycle_Network_Public/FeatureServer/0
Primary Substation Distribution Area selection	UK Power Networks	16/02/2026	https://ukpowernetworks.opendatasoft.com/pages/home/
Proposed and Operational Solar PV	UK Power Networks	27/01/2026	https://ukpowernetworks.opendatasoft.com/pages/home/
Primary Substation	UK Power Networks	27/01/2026	https://ukpowernetworks.opendatasoft.com/pages/home/
Grid Substation	UK Power Networks	27/01/2026	https://ukpowernetworks.opendatasoft.com/pages/home/
Primary Substation	UK Power Networks	27/01/2026	https://ukpowernetworks.opendatasoft.com/pages/home/

Appendix B Solar PV Generation Assessment: Methodology

To support SDC in understanding the energy generation potential of Sevenoaks District, with regards to ground-mounted solar PV, a high-level estimate of potential annual generation has been made. This solar PV energy generation assessment has been conducted using the methodology summarised in Figure 17 and detailed below.

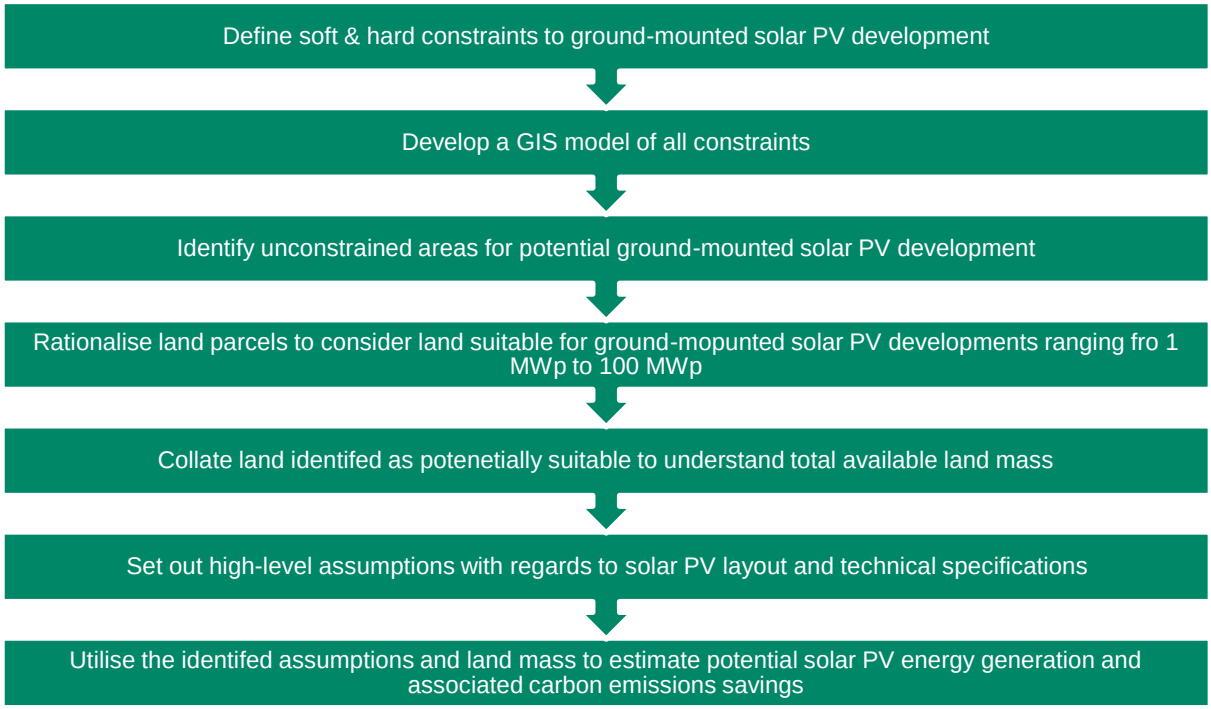

Figure 17. Solar PV Generation Assessment Methodology

1. Spatial, environmental and constraints data provided by SDC and sourced via online open sources (see Appendix A for all data sources) were utilised to build a GIS model, using Esri ArcGIS desktop, of appropriate soft and hard constraints that may impact ground-mounted solar PV development. The data sets utilised in this study include:
    - Planning constraints
    - Environmental constraints
    - Existing infrastructure
    - Watercourse and flood risk
    - Topography
    - Mean wind speed,
    - Global Horizontal Index (GHI) irradiance (from SolarGIS[41])
    - Council boundary

The GIS model was then used to identify areas of constraint and allowed for a high-level measurement of land areas with the potential opportunity for development of ground-mounted solar PV farms within the Council's boundary.

The areas of potential development were rationalised to only consider land parcels capable of installation of solar PV farms ranging from 1 MWp to 100 MWp.

Areas which were identified as suitable for solar PV within the Council's boundary were collated and their combined potential energy yield was estimated using the MCS guidance for solar PV installation, performance estimation method;[42] further detailed in Section B1 below.

[41] SolarGIS (2025) 'Solar resource maps & GIS data', https://solargis.com/resources/free-maps-and-gis-data
[42] MCS (01/01/2025) 032: 2025 ISSUE 1.0, Solar PV & Battery Pre-sale Information and System Performance Estimate Standard https://mcscertified.com/standards-tools-library/

The potential generation was then used to calculate the potential carbon emission savings, further detailed in Section B2 below.

B.1 Solar PV Generation Calculation Methodology

The energy production of a solar PV farm is estimated either using the area available, reduced to account for the panel spacing, road access, etc., with 50% being typically applied. This allows the peak installed capacity of the solar PV farm to be determined using the input panel specifications. In the case of this high-level assessment, a JA Solar JAM66D46-640 LB[43] panel is used as it represents typical specifications of solar PV panels currently available. This panel does not represent AECOMs recommended panel, it is for demonstration purposes only and a wide range of other panels are available on the market with varying characteristics including, but not limited to, rated capacity, physical dimensions, and manufacturing standards. The specification of the representative panel used in this assessment can be seen in Table 7.

Table 7. Reference Solar PV Panel Specification

Attribute	Value
Rated Capacity (kWp)	640
Panel Degradation Year 1	1.0%
Linear Degradation following year 1	0.4%
Panel Life (Years)	30
Panel Length (mm)	2,382
Panel Width (mm)	1,134

The average annual energy generation per kilowatt of installed peak power (kWh/kWp) is determined using the MCS estimation table for “Zone 2 – Brighton”,[44] as Sevenoaks District sits within its boundary. The panel inclination and orientation are assumed as the average between 30 - 40° and South facing. Combined with the solar PV farm total rated capacity, the total annual generation is estimated. It is assumed the solar PV farm has no shading, i.e., a shading factor of 1.

The solar PV farm life cycle has been set at 40 years which is typical for planning applications. Solar PV panel renewable has been set at the warranty period of 25 years, meaning it is assumed that the panels are replaced and the site is reenergised after 25 years.

B.2 Solar PV Lifetime Carbon Savings Methodology

The carbon savings for the solar PV installations have been calculated using three approaches; this is to allow the council to understand the range of potential carbon savings by any proposed project. All approaches consider the removal of the solar PV farm’s generated energy from the UK’s grid with each approach varying the carbon factor applied to the savings. The carbon factors used by each approach are determined as follows:

- Scenario 1: Follow those presented in the Department for Energy Security and Net Zero (DESNZ) Green Book[45] for long-run marginal generation offset by 2 years to account for the UK’s lag in the reporting of yearly carbon emissions.
- Scenario 2: The removal of an unabated gas turbine’s generation from the grid.
- Scenario 3: The removal of 2025 grid emissions fixed throughout the project’s lifetime.

The carbon emissions are calculated based on the estimated annual solar PV farm’s production for each methodology, detailed further below, over the course of the project’s life cycle (40 years), to provide it’s potential for aiding in the UK’s generation capacity decarbonisation and net zero goals.

[43] JA Solar (2025) JAM66D45 LB n-type Double Glass Bifacial Modules https://www.jasolar.com/statics/gaiban/pdfh5/pdf.html?file=https://www.jasolar.com/uploadfile/fujian/2025/1010/f3492a5896b76e5.pdf
[44] MCS (01/01/2025) 032: 2025 ISSUE 1.0, Solar PV & Battery Pre-sale Information and System Performance Estimate Standard https://mcscertified.com/standards-tools-library/
[45] Department for Energy Security and Net Zero (DESNZ) (30/11/2023) Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

B.2.1 Scenario 1: Green Book Carbon Factors

This methodology uses the DESNZ Green Book predicted emission factors for long-run marginal generation-based emissions. A marginal generator is the last to be switched on in an electrical grid to meet the electricity demand, this is due to its increased expense and carbon emissions per unit of energy. In the UK, marginal generation is generally provided by unabated natural gas turbine units. The emissions pathway has been adjusted by two years: this is to account for the timeframe of DESNZ grid report being approximately two years behind the year of consumption. The need for this is demonstrated in Figure 18 & Figure 19 which show the improved alignment of the Green Book projections with historic, real generation once adjusted by two years (Figure 19).

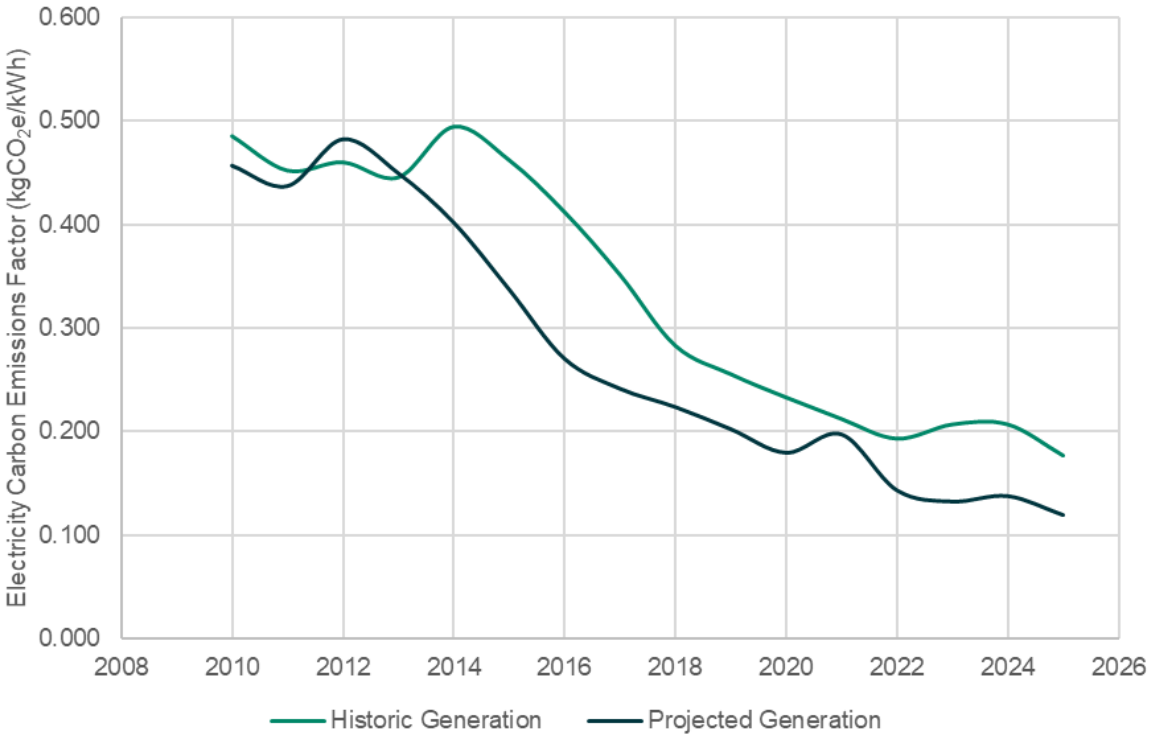

Figure 18. Historic Grid Generation vs Green Book Projected Generation

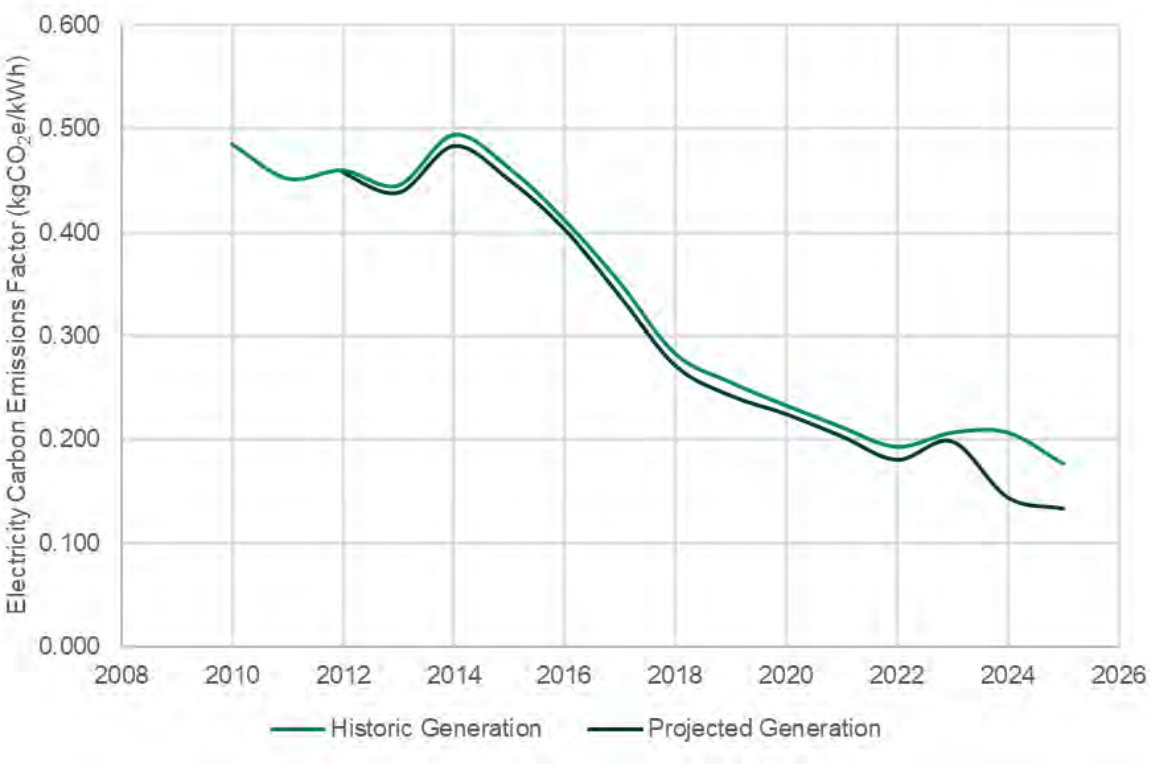

Figure 19. Historic Grid Generation vs Green Book Projected Generation Adjusted by Two Years

This methodology assumes any renewable generation added to the grid will remove a marginal generator from the mix. The Green Book predictions are optimistic on the decarbonisation of marginal generators which may be due to various assumptions being made in the construction of the decarbonisation pathway. These assumptions include biogas penetration, alternative energy storage technologies, etc. connecting to the electrical grid. However, this is uncertain and can only confirmed following implementation.

B.2.2 Scenario 2: Removal of Unabated Gas Turbine Generation

At current, no gas turbine generators have carbon capture and storage (CCS) facilities in operation, resulting in the release of unabated carbon into the atmosphere. Therefore, this methodology considers any renewable generation added to the grid will replace generation provided by a combined cycle gas turbine (CCGT).

The carbon emissions factor for the CCGT generation has been constructed in the following steps:

1. Using the baseline data provided by the UK government for operational turbines in 2015 including carbon emissions per unit of electricity generated and CCGT thermal efficiency of 52%.[46]
2. Calculating the emission factor from the baseline 2015 data (Step One) to 2023 using the assumption of
    a. 1% increase in efficiency of the UK's CCGT generation assets in the period.
    b. This has been informed by the DESNZ assumptions for its 2023 Generation Costs Report quoting a CCGT thermal efficiency of 53%.[47]
3. Then calculating the emission factor from 2023 (Step Two) to 2040 using a linear reduction to 8% over the period.
    a. Equating to the UK's CCGT portfolio efficiency being 61%, approximately 3% lower than the current best in class CCGT generator[48] to account for legacy equipment.
4. Fixing the emission factor from 2040 (Step Three) onwards.

B.2.3 Scenario 3: Fixed Grid Factor

For this methodology, any renewable generation added will remove carbon emissions based on the fixed grid emissions factor stated for 2025.[49] This is considered a conservative methodology between the two other approaches, as it both allows for the removal of carbon considering a mixed use system, under the expectation that the grid emission factor will not increase and does not assume the marginal assets will continue to be only CCGTs.

[46] UK Parliament (26/11/2025) Fossil Fuelled Power Stations: Carbon Emissions and Nitrogen Oxides, Question for Department for Energy and Climate Change, UIN 17799 https://questions-statements.parliament.uk/written-questions/detail/2015-11-26/17799
[47] Department for Energy Security and Net Zero (DESNZ) (16/11/2023) Electricity generation costs 2023 https://www.gov.uk/government/publications/electricity-generation-costs-2023
[48] Siemens Energy (18/06/2024) Keadby 2 power station, UK: The future of power generation https://www.siemens-energy.com/global/en/home/stories/power-generation-in-uk.html
[49] Department for Energy Security and Net Zero (DESNZ) (2025) Government conversion factors for company reporting of greenhouse gas emissions https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

Appendix C Solar PV Developable Area Constraints

Constraint	Soft or Hard Constraint (For Creation of Developable Areas Maps)	Buffer Applied (m) (For Creation of Developable Areas Maps)
Agricultural Land Classification: Grade 1	Hard	0
Agricultural Land Classification: Grade 2	Hard	0
Agricultural Land Classification: Grade 3a	Soft	0
Agricultural Land Classification: Grade 3b	Soft	0
Agricultural Land Classification: Grade 4	No constraint	0
Agricultural Land Classification: Non-Agricultural	No constraint	0
Agricultural Land Classification: Urban	Hard	0
Allocations and Development Management Plan Adopted Allocations	Hard	0
Assets of Community Value	Hard	50
Ancient Woodland	Hard	15
National Landscapes	Hard and Soft (2 figures)	0
Buildings	Hard	50
Biodiversity Opportunity Area	Soft	n/a
Conservation Area	Hard	15
Electricity Transmission Network (Cable)	Hard	10
Electricity Transmission Network (Overhead Line)	Hard	10
Electricity Transmission Network (Tower)	Hard	10
Flood Zone 2	Soft	20
Flood Zone 3	Soft	20
GHI	n/a	n/a
Green Belt	Soft	n/a
Listed Buildings (Grade I, II and III)	Hard	50
Local Nature Reserve	Hard	0
Kent Wildlife Trust Local Wildlife Site	Hard	0
Locally Listed Assets	Hard	50
Railway	Hard	190
Rivers	Hard	10
Roads	Hard	20
National Cycle Network (On Road)	Hard	10
National Cycle Network (Traffic Free)	Hard	10
National Trail	Hard	10
Nature England's Great Crested Newt Risk Zones	Soft	n/a
Identified Sites within Made Neighbourhood Plan	Hard	0
Open Green Space	Hard	15
Open Space Allocations	Hard	0
Proposed Allocations	Hard	0
Parks and Gardens	Hard	50
Public Rights of Way	Soft	10
Scheduled Monuments	Hard	10
Settlements	0	0
Site of Special Scientific Interest	Hard	0
Slope	Hard	>20 degrees
Strategic Housing and Economic Land Availability	Hard	0
Town Centre Frontage	Hard	0
Tree Protection Orders	Soft	0
Water Body	Hard	10
Woodland	Hard	10

Appendix D Solar PV Farm Application RAG Assessment

Sevenoaks District Council
Solar PV Farm Application - Guidance RAG Assessment (V3)

Assessor:	
Date:	

RAG Key	
Green	Compliant/ no significant concerns
Amber	Partial Compliance or outstanding queries
Red	Non-compliant
N/A	Not Applicable

Instructions

1. Review each criterion against the submitted application documents.
2. Record Document Reference and page number in 'Document References' column.
3. Record concise notes in the 'Decision Notes' column.
4. Assign a RAG status (Red / Amber / Green/ N/A) to each row.
5. Review the RAG ratings to understand how the application is to progress with regards to relevant policy.

Note *This document is intended for advice only. It does not constitute sufficient information or weighting to make a final planning judgement.*

Section #	Assessment Criteria	Dependent Section #	Requirement/ Consideration	Policy Reference	Document References	RAG	Decision Notes
1.0	**Planning Policy Compliance - Energy**						
1.01	NPPF Alignment		Does the application show a contribution to Net Zero by 2050?	NPPF §161			
1.02	NPPF Alignment		Does the application: a) demonstrate the overall need for renewable or low carbon energy? Significant weight should be given to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future and; b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions. In the case of applications for the repowering and life-extension of existing renewable sites, significant weight should be given to the benefits of utilising an established site.	NPPF §168			
1.03	NPPF Alignment		Does the application sit within land identified in the local plan as favourable for renewable development?	NPPF §169 & NPPF Consultation §W1(2)			
1.04	NPPF Alignment		For applications for commercial scale projects outside the identified developable solar PV areas; is it demonstrated that the proposed location meets the criteria used in identifying suitable areas?	NPPF §169			
1.05	NPPF Consultation Text Alignment		Has the application provided sufficient detail to weigh the benefits of; - Improving energy security, - Supporting economic development, - using an established site, if re-powering or life extending, -its contribution to community-led renewable and low carbon projects including its social benefit	NPPF Consultation Text §W3(2)			
1.06	NPPF Consultation Text Alignment		Is the application time limited? If so have decommissioning and site restoration details been provided?	NPPF Consultation Text §W3(3)			
1.07	National Policy Statements		Is the development consistent with the quoted NPS for energy related projects?	NPS EN-1&3			
1.08	Local Policy		Would the development be supported by the Adopted Local Plan?	Sevenoaks Core Strategy Development Plan 2011, Allocations and Development Management Plan 2015			
1.09	Emerging Local Policy		Is the development compliant with Policy CC3 of the emerging Local Plan?	Post Regulation 19 CC3 Policy			
2.00	**Planning Policy Compliance - Green belt**						

2.01	NPPF Alignment		Is the development on green belt land? If so, have Very Special Circumstances been demonstrated? For renewable energy special circumstances can include, the wider environmental benefits brought by renewable energy reduction.	NPPF §§153 & 160
2.02	NPPF Alignment		Does the development sit on land designated as green belt? If so, does the development infringe on one or more of the five purposes of the green belt? 1) to check the unrestricted sprawl of large built-up areas; 2) to prevent neighbouring towns merging into one another; 3) to assist in safeguarding the countryside from encroachment; 4) to preserve the setting and special character of historic towns; and 5) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.	NPPF §143
2.03	NPPF Alignment		Is the land classified as grey belt? How does the land parcel perform against the four criteria where development should "*not be regarded as inappropriate*"?	NPPF §155
3.00	**Landscape and Visual**			
3.01	NPPF Alignment		Does the development sit within either the Kent Downs National Landscape or High Weald National Landscape? If so, has the development been demonstrated to be within the public interest?	NPPF §§189&190
3.02	NPPF Alignment	3.01	If not located within the National Landscape designated areas, does the development consider the setting of the Kent Downs National Landscape or High Weald National Landscape?	NPPF §§189
3.03	National Landscapes		Does the development considered the National Landscape Management Plans?	Kent Downs National Management Plan & High Weald National Management Plan
3.04	Landscape Character		Has the application considered the landscape character of its location? Has the application mitigated any of its landscape area effects, where required?	Sevenoaks Landscape Character Assessment
3.05	Visual Receptors		Have impacts on residential properties, public right of way users (PRoW), transport routes and tourist/recreational receptors been assessed?	GLVIA3 §6; NPPF §185
3.06	Glint & Glare		Has a glint and glare assessment been submitted? Is there impact on roads, PRoW, aviation or residential properties?	PPG: Renewable Energy
4.00	**Protected Species, Habitats and Ecological Network**			
4.01	Special Scientific Interest (SSSIs)		Is the development located adjacent to an SSSI? Has Natural England been consulted?	
4.02	Special Scientific Interest (SSSIs) and four Local Nature Reserves		If the development is located near an SSSI or LNR has its effect been mitigated for? E.g. noise, dust in construction etc.	
4.03	Biodiversity Opportunity Areas (BOAs)		Has the development demonstrated a contribution to the BOA?	
4.04	Priority Habitat		Have priority habitats been retained and mitigated for? Offset buffers etc.	
4.05	Species Presence		Have appropriate ecology surveys been conducted and at risk identified species been mitigated for?	
4.06	Internationally Designated Sites		Does the application sit within a distance from an internationally designated site with qualifying features which would require additional surveys (20km for birds and 30km for bats)? Has the survey been performed and mitigation been implemented?	
4.07	Great Crested Newt		Is the application in a Natural England District Level Licences (DLL) green zone? If amber, has a DLL been applied	

4.08	Protected Species		Has any protected species been mitigated for within the application?	
5.00	**Agricultural Land & Soil**			
5.01	ALC Survey		Has an Agricultural Land Classification (ALC) survey been carried out?	NPPF §174(b); MHCLG Guidance
5.02	ALC Classification	1.2	Is any of the land used in a Grade 1,2 or 3a classification? If so has this been sufficiently justified?	NPPF §174(b); MHCLG Guidance
5.03	Soil Management Plan		Has a Soil Management Plan been supplied? Are there sufficient topsoil protection measures in place?	Natural England TIN049
5.04	Dual Land Use		Has dual land use been considered? E.g. biodiverse flora and fauna, combined cattle grazing or crop farming	
6.00	**Heritage & Archaeology**			
6.01	Designated Heritage Assets		Is the proposed development within the setting or in the direct location of an existing Listed Buildings, Scheduled Monuments, Registered Parks & Gardens or Conservation Areas?	NPPF §§197-208; Historic England HEAN3
6.02	Setting Assessment		Has a setting assessment been carried out? Is any harm less-than-substantial or substantial? Is public benefit sufficient?	NPPF §§208-209; HE Guidance GPA3
6.03	Archaeology (DBA)		Has a Desk-Based Assessment been submitted? Is a Written Scheme of Investigation for trial trenching required?	NPPF §196; HEAN1
6.04	Non-Designated Heritage Assets		Have non-designated heritage assets been identified and their significance weighed appropriately?	NPPF §§203-204
7.00	**Flood Risk & Drainage**			
7.01	Flood Zone & Sequential Test		Is any part of the application in Flood Zone 2 or 3? Has the Sequential Test (and if needed Exception Test) been	NPPF §§163-168; PPG: FRA
7.02	Flood Risk Assessment		Does the FRA address all sources of flooding (fluvial, surface, groundwater)? Has the Environment Agency been consulted?	NPPF §163; EA Standing Advice
7.03	Surface Water Drainage		Has a drainage strategy been submitted demonstrating no increase in run-off rates? Is SuDS incorporated?	SuDS Approved Documents; Lead LLFA
7.04	Watercourses & Buffers		Are there ordinary or main river watercourses on/adjacent to application? Have appropriate buffer zones been applied?	WRA 1991; EA Flood Risk Activity Regs
8.00	**Amenity - Noise & Residential**			
8.01	Noise (BESS / Inverters)		If a battery energy storage system or large inverters are included, has a noise assessment been submitted meeting BS 4142?	BS 4142:2014+A1:2019; NPPF §185
8.02	Residential Amenity		What is the distance to nearest dwellings? Is impact on outlook, daylight and general amenity acceptable?	NPPF §185
9.00	**Decommissioning & Restoration**			
9.01	Decommissioning Plan		Has a decommissioning and restoration plan been submitted? Is it appropriately secured by condition?	PPG: Renewable Energy; LPA Condition
9.02	Financial Bond / Security		Is a financial bond or equivalent mechanism proposed to ensure sufficient decommissioning funds are available?	LPA Condition; S.106 Agreement
9.03	Consent Time-Limit		Is the consent time-limited (typically 25-40 years)? Is there a condition requiring removal upon cessation of use?	LPA Condition
10.00	**Fire Risks - Solar PV**			
10.01	Fire Service Consultation		Has the fire service been consulted prior to the application?	Best Practice
10.02	Site Access		Has sufficient spacing been provided to allow fire service access and manoeuvrability around site. Kent Fire and Rescue Service (KFRS) expect this is to the requirements in Section 15 of Approved Document B Vol 2.	Section 15 Approved Document B Vol 2.
10.03	Equipment Spacing		Do the PV panels, inverters, arrays, etc. have sufficient spacing to limit fire spread and enable fire fighting access?	Section 15 Approved Document B Vol 2.
10.04	Local Receptors		Has the application identified surrounding receptors which could be impacted as a result of an incident or at risk due to fire event?	KFRS Requirement
10.05	Monitoring Equipment		Does the application detail the inclusion of sufficient fire and fault monitoring and control systems?	KFRS Requirement

10.06	Emergency Response Procedure	Does the application detail the Emergency Response Procedure for the site?	KFRS Requirement
11.00	**Fire Risks - BESS**		
11.01	Fire Service Consultation	Has the fire service been consulted prior to the application?	KFRS Guidance
11.02	National Fire Chiefs Council (NFCC) Compliance	Does the design comply with the NFCC Guidance for BESS?	KFRS Requirement
11.03	Outline Battery Safety Management Plan	Has an OBSMP been developed for the site?	Best Practice

Appendix E Solar PV and Battery Energy Storage System Fire Safety

Important Notice: *This document is intended as a general guidance and FAQ resource which summarises current fire safety considerations, industry standards and good practice relevant to solar PV and battery energy storage system development. It must not be considered a fire safety plan, fire risk assessment, emergency response plan, or definitive statement of fire safety requirements for any specific solar PV or BESS installation. A site-specific professional assessment is always required.*

This document is provided for general information and awareness purposes only. It is not intended to constitute, and should not be relied upon as, a fire safety strategy, fire risk assessment, engineering design, legal advice, regulatory interpretation, or site-specific safety plan. While reasonable care has been taken in the preparation of this document, the information contained herein may not address all circumstances, risks, regulations, standards, or operational considerations applicable to a particular project, site, or installation.

Users are responsible for obtaining appropriate professional advice and undertaking project-specific assessments to determine compliance with applicable legislation, regulations, standards, guidance, and insurer requirements. Decisions relating to the design, installation, operation, maintenance, emergency response, and fire safety management of specific solar photovoltaic (PV) and battery energy storage system (BESS) installations should be made by suitably qualified and competent professionals.

This outline identifies the fire safety risks associated with both Solar Photovoltaic (PV) ground mounted systems and Battery Energy Storage System (BESS) installation. The purpose is to discuss common fire hazards that may be present with these technologies during operation and to outline industry-standards and practices that are typically implemented to reduce fire risks. However, this does not constitute a formal fire risk assessment and does not assess any site-specific factors.

Solar PV and BESS technologies have different fire risk profiles, with ground-mounted solar PV generally regarded as a low fire-risk technology and BESS installations requiring additional mitigation due to the storage of electrical energy. Solar PV modules can remain energised during daylight hours even when the PV system has been isolated or shut down and BESS installations can present additional hazards due to the storage of large amounts of electrical energy within the battery cells. Under abnormal conditions or where there is a fault within these systems, this may result in overheating, electrical arcs and, in uncommon cases, fire.

The information presented below is intended to support the understanding of key fire safety issues relevant to these systems and to highlight the importance of appropriate design, installation, maintenance, monitoring and emergency response planning, to reduce the likelihood and impact of fire-related incidents.

E.1 Solar PV Fire Safety

Ground mounted solar PV systems are generally considered as a low-risk technology, when designed, installed and maintained in accordance with applicable standards and industry best practice, keeping the likelihood of fire very low and facilitating emergency response.

The principal fire hazards associated with solar PV systems arise from electrical faults, equipment failures, or installation defects. Potential issues may include damaged cables, loose electrical connections, inverter faults, and insulation failures.

The following table presents common fire risks for solar PV systems, outlines typical causes, and highlights mitigations measures that reduce the residual risk to appropriate levels.

Table 8. Solar PV Risk and Mitigation

Failure Mode	Cause / Description	Mitigation
PV Module Catching Fire	DC cable connector mismatch can cause resistive heating and DC arcs that ignites module junction box.	Using certified PV modules connectors, and single connector ecosystem to avoid mismatching between connectors.
	Poor connector installation (crimps/torque), can cause resistive heating and DC arcs that ignites module junction box.	Employing an experienced contractor, provide necessary training, and conducting site inspections including torque check.
	Hotspots due to poor design or module defect/damage, can cause resistive heating that ignites module junction box.	Adopt a proper design minimising module shading. Use certified modules manufacturers providing Factory Acceptance Tests (FAT), conducting module site inspection tests to confirm no damages from transportation, handling and installation.
Cables Damage and Faults	Cable insulation damage during installation or due to mechanical and environmental loads on cable, causing current leakage to the ground or nearby conductor. Increased circuit current will cause temperature rise and probable devices ignition.	Cable installation in containments to protect from mechanical stress and environmental conditions.
		Abiding with the cable manufacturer bending radius and avoiding cable tension to avoid mechanical stresses during installation.
		Use of certified inverters containing protection devices like DC arc-fault protection and under voltage relay
Inverter Fires	Internal component failure causing electrical voltage or current exceeding the allowable values, heat accumulation and fire ignition.	Use of certified inverters manufacturers providing Factory acceptance test (FAT), and site testing to ensure all protection features are working up to standard.
	Cooling system failure will cause temperature accumulation and internal components catching fire.	Regular monitoring for inverter temperature. Regular inspection and maintenance to inverter fans and cooling systems.
MV Transformer Failure	Insulation breakdown leading to arcing and pool fires	Use of less flammable dielectric cooling fluids, reducing pool-fire likelihood Fire detection and suppression adopted integrated in the transformer.

E.2 BESS Fire Safety

Safety considerations should underpin the site design and equipment procurement in order to minimise the fire risk and reduce propagation pathways as far as reasonably practicable.

To improve the safety of the overall system, various levels of detection and suppression mechanisms should be thoughtfully incorporated. These mechanisms should be designed to promptly identify and mitigate any potential risk of thermal runaway and the conditions that may lead up to it. In the unlikely event that a fire does occur, the spacing and location of the BESS units should be carefully considered to eliminate any possibility of fire spreading between units. BESS units should be selected that have been designed by the manufacturer to self-contain fire risks.

Although not a statutory consultee, it is considered good practice and is highly encouraged for the developer and the local authority to have early engagement with the relevant Fire and Rescue Service. Site-specific emergency response plans, risk management plans and fire safety strategies should be prepared and shared with the Fire and Rescue Service, as appropriate, to ensure that site access arrangements, firefighting requirements, emergency isolation procedures, water supplies, drainage controls and post-incident recovery measures are understood and can be incorporated into operational response planning.

Environmental protection should also form part of the site design process. In the unlikely event of a fire, consideration should be given to the containment and management of contaminated firefighting water and other potential pollutants to, as far as possible, protect the soils, groundwater, surface watercourses and environmentally sensitive receptors. Appropriate drainage, containment and pollution control measures should therefore be incorporated into site design where required.

Table 9. BESS Failure Mode and Mitigation

Failure Mode	Cause / Description	Mitigation
Electrical Failure	An electrical failure can occur if the battery is overcharged, over-discharged, undercharged or charged too rapidly. Insulation faults, short circuit or power surge can also cause damage to the battery. These conditions can cause internal overheating and lead to thermal runaway and eventually fire.	Control systems should continuously monitor battery conditions and utilise automatic circuit breakers to protect equipment during a fault condition.
Mechanical Failure	Mechanical abuse of the battery can be caused by compression and deformation of the battery container, including collision or vibration during transportation or movements around the battery enclosures.	Quality checks on equipment at the point of manufacture ensure that components and systems are not damaged prior to shipping. Damage to the battery can be prevented by protecting the internal systems through the robust design of the enclosures. Care must be taken when transporting and installing battery units. Packing and handling shall be in accordance with the manufacturer's guidance. Upon arrival to the BESS Site, units should be inspected to ensure there is no damage prior to further handling and installation. Impact protection barriers may also be considered. Permit to Work (PTW) procedures, which will mitigate the risk of accidental damage during installation and maintenance, should be established at the BESS Site. A regular maintenance schedule in accordance with manufacturer / supplier requirements should be developed to identify any damage or defect at the BESS Site and be performed by experienced personnel.
Thermal Failure	Thermal failure occurs when the BESS is subjected to or is operating at temperatures outside its specified operating range. This can lead to premature ageing of the battery, thermal runaway or even complete failure and result in a fire event. This issue can occur if exposed to external heat sources, overheated adjacent cells and high environmental temperatures.	The BESS chemistry type should be selected with a higher thermal stability which means thermal failure is less likely. Thermal safety measures such as ventilation and cooling of the batteries should be in place to ensure efficient heat dissipation to manage the temperature of the system. Redundant systems ensure cooling system availability is protected in the event of cooling system primary power failure.
Environmental Impacts	Seismic events, extreme ambient temperatures, high wind speeds and high levels of solid or water ingress and damage caused by debris.	The Applicant's approved suppliers list should be rigorous in this regard and only adopt robust technologies well within their safety limits. The units should be ingress protection rated to IP55. They should withstand high wind speeds and seismic forces.
System Faults	Manufacturing defects or failure of the control and instrumentation systems can lead to failure in monitoring the operating environment of the BESS.	Manufacturing faults should be protected by quality processes (Factory Acceptance Tests (FAT), BESS Site Acceptance Tests (SAT) and Inspection and Test Plans (ITP)) as the first line of defence. Faults should be detected and managed by the Battery Management System (BMS) and the Energy Management System (EMS). The BMS continuously monitors the individual cell condition, measuring its operating parameters and states, such as state-of-charge (SoC) and state-of-health (SoH), it also regulates the charge and discharge of batteries and ensures that the battery is within safe operational limits. EMS provides stability, resilience and reliability by communicating with the Power Conversion System (PCS) and BMS to monitor and control the flow of energy within the BESS. It optimises the charge-discharge cycles to guarantee safe operation while highlighting any issues to the operators.

E.2.1 Thermal Runaway

Lithium-ion batteries have the risk of catching on fire if they overheat or are subject to physical damage or any of the issues highlighted in Table 9. If damage occurs, it can result in a short circuit, the battery will heat up to very high temperatures in a process called thermal runaway. As the battery cells rapidly degrade, they can produce significant amounts of heat, off-gassing, smoke and can eventually cause it to ignite. If not detected and controlled, it can lead to a fire. If the cell explodes it may affect adjacent cells, damaging them and in turn causing the fire to spread between cells. The rapid overheating that occurs during thermal runaway may not be visible compared to conventional fires however it is still detectable by robust temperature and gas detection systems and BMS. The rapid overheating can be detected by temperature detection systems and consequently the affected cell can be shut down before thermal runaway occurs to the extent that it would lead to ignition.

Lithium Iron Phosphate (LFP) batteries are less prone to thermal runaway due to being more chemically stable compared to other lithium-ion chemistries. The risk of thermal runaway spreading between batteries can be mitigated by good battery design and ensuring there is adequate spacing between units. UL 9540A details the test method for evaluating thermal runaway fire propagation in BESS. All BESS installed on site should be tested to this standard and demonstrate that unit level performance criteria are met.

In the event of a fire, toxic and flammable gases such as carbon monoxide and hydrogen may be released. While smoke and temperature sensors are standard in battery units, it is considered industry best practice to include a gas detection system that can shut down the units upon detection of combustible gas. The potential for the release of dangerous gases is low; however, the risk must be properly mitigated by design and operational controls.

E.2.2 Electric Shock

When an alarm is raised, the battery should automatically disconnect and isolate from the grid. Should there be damage to any electrical protection equipment, there is a risk of electric shock as the batteries may still hold a residual charge. Responders should confirm if the BESS has been disconnected and treat any exposed cables or equipment as “live”. A controlled burn strategy is expected to be adopted so it is expected that firefighters will only point water jets at battery units adjacent to the impacted unit, as a preventative measure to eliminate propagation, thus reducing the risk of electrocution. Residual charge should not pose an electrical shock risk when firefighting with water but if the fire has damaged electrical protection, it may be a risk if firefighters touch exposed cables.

E.3 Solar PV and BESS Relevant Guidance

Table 3 Relevant Guidance

Required by	Description	Adheres To
Electricity at Work Regulations (EAWR) 1989	Legal duties to design, construct, operate, and maintain electrical systems safely, including isolation, inspection and testing.	Compliance achieved through BS 7671 standards, risk assessments, and safe systems of work.
BS 7671 (latest Edition)	Requirements for Electrical Installations and PV system design and installation.	Electrical designs, installation methods, and commissioning.
IET Code of Practice for Grid-Connected Solar PV Systems	Best practice for design, installation, commissioning, documentation, and O&M of PV systems.	Design reports, commissioning checklists, and O&M plans align with the IET Code of Practice.
BS EN IEC 61215 and BS EN IEC 61730 (PV modules)	Module design qualification/type approval and safety requirements, including electrical and fire safety.	Modules must be BS EN IEC 61215 and 61730 certified.
BS EN 62852 (PV connectors)	Safety and performance requirements for PV DC connectors and mating compatibility.	Single compatible connector ecosystem certified to BS EN 62852.
BS EN IEC 63027 (PV DC arc-fault detection)	Requirements for DC arc-fault detection devices in PV circuits.	Where required, AFCI functions compliant with BS EN IEC 63027 are specified.
BS EN 62109-1/-2 (Inverter safety)	Safety of power converters for use in PV power systems, covering electrical, thermal, and mechanical aspects.	Inverters conforming to BS EN 62109.
ENA Engineering Recommendation G99 (and G98 where applicable)	Requirements for connecting generation to UK distribution networks, including protection, type testing, interface, and commissioning.	Applications, protection settings, and commissioning are managed to meet G99 requirements.
NFCC	Operational expectations for safe access, isolation information, and pre-incident planning at solar farms.	Access and isolation adhere to NFCC and FRS.
Environment Agency/SEPA – Pollution Prevention (GPPs) and CIRIA C736 (Secondary containment)	Runoff control and secondary containment for oils/contaminants (e.g., transformer bunds/sumps) to protect soil and water.	We design oil containment and runoff management to CIRIA C736 and apply GPP guidance for incident water control and disposal.
Industry best practice	The separation distance between the BESS and transformer will be a minimum of 6m unless sufficient 3rd Party data demonstrates less is safe (as agreed with the FRS).	Adheres to industry best practice using mitigations.
National Fire Chiefs Council (NFCC)	Each group of battery enclosures, inverters and transformers will be separated from the next by a minimum of 6 m, unless sufficient UL 9540a testing and/or 3rd Party Fire and Explosion testing heat flux data can be provided, and it is agreed with the FRS.	Mitigations to NFCC provided. Compliant with latest international standard FM Global 5-33 (2023).
NFCC	The separation distance between the BESS enclosures and a hedge or tree will be a minimum of 10m from the edge of the canopy.	Compliant to NFCC. Mitigations proposed. Compliant with latest international standard NFPA 855 (2023).
NFCC	BESS will be separated from the site boundaries by a minimum of 25m prior to any mitigations.	Compliant to NFCC. Mitigations proposed. Compliant with latest international standard NFPA 855 (2023).

Required by	Description	Adheres To
NFPA 855 (2023)	BESS will be separated from any public rights of way by a minimum of 3m (10ft).	Compliant with latest international standard NFPA 855 (2023).
NFCC	BESS will be separated from any occupied buildings by 25m prior to any mitigations.	Compliant to NFCC / NFPA 855
NFPA 855 (2023)	BESS will be separated from stored combustible materials by a minimum of 3m (10ft).	Compliant to NFCC / NFPA 855
NFPA 855 (2023)	BESS will be separated from hazardous materials by a minimum of 3m (10ft).	Compliant to NFCC / NFPA 855
NFPA 855 (2023)	BESS will be separated from high-piled stock by a minimum of 3m (10ft).	Compliant to NFCC / NFPA 855
NFCC	Fire-fighting water tanks will be located a minimum distance of 10m from the nearest BESS enclosure (ideally upwind from the prevailing wind direction).	Compliant to NFCC
NFCC	Hydrant supplies for boundary cooling purposes should be located close to BESS enclosures (but considering safe access in the event of a fire) and should be capable of delivering no less than 1,900 litres per minute for at least 2 hours.	Compliant to NFCC
NFCC	Vehicle turning facilities will be provided in any dead-end access route that is longer than 20m.	Compliant to NFCC
NFCC	The minimum access road width to reach a BESS facility will be 4m, with two access points.	Compliant to NFCC
NFCC	Consideration given to management of water runoff (e.g. drainage systems, interceptors, bunded lagoons etc) and suitable environmental protection measures should be provided.	Compliant to NFCC
NFCC	Signage installed in suitable and visible location on the outside of BESS units identifying the presence of BESS system.	Compliant to NFCC
Industry best practice	All installation, maintenance and access to battery enclosures is from the outside. No personnel will ever be able to be inside a battery enclosure due to enclosure design.	Compliant to industry best practice
NFCC	Details of any evidence-based testing of the system design should be requested, for example, results of UL 9540a testing.	NFCC
NFCC	Effective and appropriate method of early detection of a fault within the batteries should be in place, with immediate disconnection of the affected battery/batteries.	NFCC
NFCC	Suitable suppression systems shall be installed in units to prevent or limit propagation between modules. They shall be designed by a competent system designer	NFCC
NFCC	BESS enclosures shall be fitted with deflagration and explosion protection and venting.	NFCC
NFCC	Emergency Plans including Risk Management and Emergency Response Plans (ERP) shared with the FRS.	NFCC
NFCC	Post-incident hazards and mitigations should be addressed in post-incident recovery Plan.	NFCC

As per the guidance provided in this appendix, there are no identified inherent fire safety reasons why appropriately designed solar PV or BESS sites could not be developed within the areas identified in the solar PV development study, subject to site-specific assessment and compliance with relevant standards, guidance and emergency response requirements.

The fire safety risks associated with solar PV and BESS developments are typically addressed through a combination of site design, equipment specification, operational management and emergency response planning. Whilst the assessment of detailed fire safety measures is primarily a matter for designer, developers, operators and relevant regulatory bodies, a number of fire safety considerations may be relevant to the planning process.

These can include:

- the location and layout of equipment;
- separation distances between infrastructure and surrounding receptors;
- access arrangements for emergency services;
- provision of fire detection, monitoring and suppression systems;
- containment and management of potentially contaminated firefighting water;
- environmental protection measures;
- emergency response planning; and
- consultation with the relevant Fire and Rescue Service, where appropriate.

Planning applications should therefore demonstrate that fire safety considerations have been appropriately and proportionately incorporated into the design of the proposed development and that any site-specific risks can be satisfactorily mitigated through the measures proposed.

Appendix F Fire Safety - Frequently Raised Community Questions

1. *Is it safe to live near a site with battery storage?*

Modern battery storage sites are designed with layers of automated safety systems. BESS sites are operated to meet strict safety standards, minimising risks to nearby residents during normal operations. They are situated at safe setback distances from residential properties, meaning they pose very low day-to-day health or safety risks to nearby residents.

2. *What standards apply, who ensures safety, and how is compliance monitored?*

The main standards in place regulating the design, installation and operation of battery storage sites are NFPA 855 (installation and fire protection for energy storage), UL 9540 (system-level safety certification), UL 9540A (fire propagation test method), IEC 62933 (safety and performance framework for energy storage), and NFCC guidance (operational and planning guidance for Fire and Rescue Services). The site owner and the designated operations and maintenance (O&M) contractor are legally responsible for safe operation. Compliance is monitored via independent third-party audits, the local Fire & Rescue Service, the local planning authorities, national health and safety regulators, and the Distribution Network Operator (DNO) monitors electrical protection.

3. *How likely is a battery to catch fire and what causes it?*

Battery fires are uncommon events, typically caused by thermal runaway linked to cell defects, physical damage, external heat or inadequate cooling, or electrical faults. Monitoring systems, thermal management, smoke detection and alarms, fire suppression and propagation controls are all features built in the BESS to reduce these risks.

4. *Could there be an explosion risk?*

The risk of an explosion is highly mitigated. If a battery undergoes thermal runaway, it can release flammable gases. However, modern BESS enclosures are legally required to feature deflagration (rapid pressure release) mitigation vents.

5. *How would a battery fire be dealt with?*

Local Fire and Rescue Services are provided with site-specific information such as battery chemistry, layouts, electrical hazards, drainage, shutdown procedures, and site access plans. Response follows a pre-agreed Emergency Response Plan (ERP) developed with the local Fire & Rescue Service. The plan includes automated detection triggering immediate DC isolation and system shutdown, fire suppression activates within the enclosure, alarm to Fire & Rescue Service via monitored signalling, cooling strategy, and monitoring and overhaul.

6. *What fire prevention and monitoring systems are in place?*

BESS sites use multiple independent layers of protection:

- Battery Management System (BMS): monitors temperature, voltage, and current monitoring at cell level
- Energy Management System (EMS): system-level oversight and remote monitoring
- Thermal Management: active cooling to keep cells within safe operational temperature ranges
- Gas and Smoke detection
- Fire suppression

7. *Could a fire spread beyond the site to nearby homes or land?*

Separation gaps are considered in the design stage between the batteries and vegetation, combustible materials, site boundaries, public right of ways and occupied buildings to limit any spread beyond the immediate vicinity as regulated under NFPA 855 and National Fire Chiefs Council (NFCC).

8. *Would toxic fumes be released and what would be the impact on nearby residents?*

Yes, like any major plastics or chemical fire, burning lithium-ion batteries can release toxic gases, such as hydrogen fluoride (HF), carbon monoxide (CO) and other combustion products. NFCC guidance recognises that smoke from a BESS fire may contain toxic products of combustion and should be managed through appropriate emergency response measures.

Utility-scale BESS developments may be assessed using atmospheric dispersion modelling to evaluate potential off-site impacts from smoke and toxic combustion products. This is not a universal requirement for utility-scale BESS developments in the UK, however, local planning authorities, fire and rescue services, public health consultees (such as UKHSA) or other health and safety regulators may request project-specific consequence modelling where there is potential for off-site impacts on sensitive receptors. NFCC guidance promotes a risk-based approach to assessing hazards associated with grid-scale BESS developments and encourages engagement between developers, planners and fire and rescue services during the planning process.

The potential impact of toxic combustion products is highly dependent on factors such as the scale of the incident, weather conditions, site layout and the distance to nearby receptors. In general, airborne contaminants disperse and dilute with distance from the source as they mix with the surrounding atmosphere, resulting in lower concentrations at increasing distances from the point of release. Where site-specific assessments identify potential risks to nearby receptors, appropriate mitigation and emergency response measures can be incorporated in the design and operation of the facility.

9. Could water used to tackle a fire become contaminated and pollute groundwater or surrounding land?

Consideration should be given in the site design to manage water runoff using bunded (impermeable) hard standing beneath and around all BESS units, sealed drainage systems preventing any discharge to the surface water network and dedicated attenuation ponds for containment water. All of these environmental protection measures are regulated under NFPA 855 and National Fire Chiefs Council (NFCC). These matters should be considered as part of the planning and design process and may be informed by drainage, flood risk and environmental assessments where appropriate.