South Brooks Solar Farm

Preliminary Environmental Information

Volume 2: Environmental Summary

Chapter 6: Hydrology

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6 Hydrology

6.1 What is 'Hydrology'

6.1.1 Hydrology is the study of the distribution, movement and behaviour of water both above and below the Earth's surface as well as the impact of human activity on water availability and conditions. In the context of assessing environmental impacts on hydrology arising from development, the following key items are typically assessed and are defined further under the following headings:

- Flood Risk;
- Surface Water Drainage (including Water Quality); and
- Water Supply.

What is 'Flood Risk'

6.1.2 Flood risk is defined by the Environment Agency (EA) as a combination of the probability and potential consequences of flooding[22]. Flooding can occur from various sources including fluvial (rivers), pluvial (surface water), tidal (sea), groundwater and artificial sources.

Tidal and Fluvial Flooding

6.1.3 Areas at risk of flooding from fluvial or tidal sources are defined as Flood Zones. The EA's Flood Map for Planning (FMfP)[23] delineates these areas and they are as follows:

- Flood Zone 1 – Low Probability of Flooding;
- Flood Zone 2 – Medium Probability of Flooding; and
- Flood Zone 3 – High Probability of Flooding.

6.1.4 For clarity, there is one further Flood Zone which is not shown on the FMfP which is Flood Zone 3b, often referred to as the "Functional Floodplain". The Planning Practice Guidance for Flood risk and coastal change[1] defines this as "*Land where water from rivers or the sea has to flow or be stored in times of flood*".

6.1.5 While the FMfP shows areas at risk of flooding from fluvial and tidal sources, it does not take account for protection provided by existing flood defences across much of

[22] Ministry of Housing, Communities and Local Government, Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2018 to 2021). Flood risk and coastal change Planning Practice Guidance. Available at: https://www.gov.uk/guidance/flood-risk-and-coastal-change
[23] Environment Agency. Available at: https://flood-map-for-planning.service.gov.uk/

England. As a result, the mapping is intentionally conservative and illustrates the potential flood extents as if no defences were in place. The FMfP also includes a future scenario showing the impacts of climate change up to the year 2125. This shows the extent of flooding when using the 'upper end' climate change allowance for sea level rise. However, in line with the above, the climate change extents do not take into account the protection that existing flood defences provide.

Surface Water (Pluvial) Flooding

6.1.6 Surface water flooding (i.e. pluvial) occurs when rainfall overwhelms infiltration (soakage) capacity of underlying soils and/or the capacity of local natural or engineered drainage systems (such as sewers). The EA's surface water flood maps identify areas which could experience the following chance of flooding and mapping is provided for both the present day and future climate change scenarios:

- High Chance;
- Medium Chance;
- Low Chance; and
- Very Low Chance.

Sewer Flooding

6.1.7 Sewer flooding occurs when the drainage system's capacity is exceeded causing sewers to surcharge and flood at surface level. Sewer flooding history information can usually be obtained from the relevant sewerage provider or found within the relevant Lead Local Flood Authority's Strategic Flood Risk Assessment documentation.

Groundwater Flooding

6.1.8 Groundwater flooding occurs when the water table is saturated and groundwater flows emerge at the surface as a result of the rising water table. Groundwater flood risk is generally associated with areas with permeable geologies which permit groundwater to flow upwards towards the surface and where peak groundwater levels are naturally high.

Flooding from Artificial Sources

6.1.9 Flood risk from artificial sources is caused by a failure of artificial waterbodies/structure (such as reservoirs or canals). Generally, reservoir assets and canals are maintained to a high standard and the likelihood of failure is typically low however, the EA Flood Risk from Reservoir Mapping shows areas of flood risk when river levels are normal (i.e. when a reservoir breach occurs only), and areas

of flood risk when there is additional flooding from rivers (i.e. when a reservoir breach coincides with a fluvial/tidal flood event).

Surface Water Drainage

6.1.10 Surface water drainage refers to the way in which rainfall or melted snow (i.e. runoff) is conveyed and managed, whether through natural or engineered processes. For natural areas, runoff typically flows overland following natural topography, before either infiltrating to ground or reaching a local waterbody (i.e. pond, lake or watercourse). Within more urban settings, surface water runoff is usually captured within storm sewer systems or within Sustainable Drainage Systems (SuDS) now commonly introduced into new development.

Water Supply

6.1.11 Water supply in the context of development, is the provision of water for use, such as consumption or to facilitate construction processes. Typical sources of water supply include abstraction from groundwater, surface waters (i.e. watercourses, lakes, reservoirs) the sea or direct from water supply companies (often served by reservoirs). Distribution of water is typically through piped networks, whether supplied from water companies or other private sources.

6.2 Key Terms

Table 6-1: Key Terms- Hydrology

Term	Definition
Floodplain	An area of low-lying land located adjacent to a watercourse or surface waterbody that is susceptible to flooding.
Flood Risk	A combination of the likelihood of a flood event occurring and the consequence of that event.
Flood Zone	Flood Zone definitions are set out in the Planning Practice Guidance. There are three flood zones (1, 2 and 3) which refer to the annual probability of river and sea flooding, without the presence of flood defences.
Flood Zone 1	Land assessed as having a low probability of river or sea flooding. Quantified, the probability of flooding is defined as being less than 1 in 1,000 (0.1%) annual probability of occurring in any year.
Flood Zone 2	Land assessed as having a medium probability of river or sea flooding.

Term	Definition
	The quantified probability differs depending on whether the source is river or sea flooding. Probabilities are set out below: River Flooding - between a 1 in 100 (1%) and 1 in 1,000 (0.1%) annual probability of occurring. Sea Flooding - between a 1 in 200 (0.5%) and 1 in 1,000 (0.1%) annual probability of occurring.
Flood Zone 3	Land assessed as having a high probability of river or sea flooding. The quantified probability differs depending on whether the source is river or sea flooding. Probabilities are set out below: River Flooding – greater than 1 in 100 (1%) annual probability of occurring. Sea Flooding – greater than 1 in 200 (0.5%) annual probability of occurring.
Flood Zone 3b (Functional Floodplain)	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. Functional floodplain normally comprises: Land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or Land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).
Tidal Flooding	Flooding that occurs as a result of high tides or storm surge events in which water flows from the sea towards land and inundates low lying areas. This includes tidal river flooding, where they are influenced by tides.
Fluvial Flooding	Flooding that originates from rivers as a result of heavy or prolonged periods of rain or snow melt.
Pluvial Flooding	Flooding that occurs due to high intensity rainfall and results in water ponding or flowing overland.
Sewer Flooding	Flooding that originates from sewerage infrastructure, causing overland flows. This can occur due to a failure of the drainage system (blockage or collapse), the system being over capacity causing surcharging or outfalls being either blocked or submerged due to high water levels.
Groundwater	Water held below the ground's surface in the spaces in soils, superficial deposits and bedrock.
Groundwater Flooding	Flooding that occurs because of the groundwater table rising and resulting in emergence above ground. Groundwater

Term	Definition
	flooding often occurs following extensive periods of heavy rainfall.
Artificial Flooding	Flooding that occurs because of a failure of artificial infrastructure such as reservoirs, canals and ponds.
Groundwater Vulnerability	The vulnerability of groundwater to a pollutant discharged at ground level based on hydrological, geological, hydrogeological and soil properties.
Surface Water	Water that collects on or runs over the ground's surface.
Sustainable Drainage Systems (SuDS)	Methods of managing surface water run-off that mimics natural drainage processes, which are implemented to reduce flood risk, improve water quality and also enhance biodiversity and amenity, in comparison to other drainage methods.
Water Abstraction	Water abstraction is the process of extracting water from natural sources such as rivers, streams, groundwater aquifers or the sea.

6.3 Summary of Points Raised in EIA Scoping Opinion and Project Response

6.3.1 Comments provided by the Planning Inspectorate (PINS) relating to areas to be considered (scoped in) to the Hydrology Chapter are summarised in Table 6-2 below.

Table 6-2: PINS Scoping Opinion on Hydrology

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
Fluvial Flood Risk In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies to scope out fluvial flood risk, this should be included in the ES. Alternatively, evidence can be provided to confirm agreement from relevant consultation bodies and the absence	A Flood Risk Assessment (FRA) will be produced and appended to the ES as a Technical Assessment which will assess flood risk from all sources and any required mitigation to ensure safe operation of the Site and no increase in flood risk off site. Consultation with the EA and the Romney Marsh	Fluvial flood risk, along with the relevant mitigation required to ensure that likely significant effects do not occur, will be assessed within the Hydrology chapter of the ES, which will be submitted with the DCO application. This assessment will be undertaken once the Site boundary has been finalised.

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
of likely significant effects.	Area Internal Drainage Board (RMAIDB) is ongoing to discuss the approach to assessing fluvial flood risk and this will be concluded within the FRA.	
Pluvial Flood Risk In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies to scope out pluvial flood risk, this should be included in the ES. Alternatively, evidence can be provided to confirm agreement from relevant consultation bodies and the absence of likely significant effects.	An FRA will be produced and appended to the ES as a Technical Assessment which will assess flood risk from all sources and any required mitigation to ensure safe operation of the Site and no increase in flood risk off site. Consultation with the EA, RMAIDB and Lead Local Flood Authorities is ongoing to discuss the approach to assessing pluvial flood risk and this will be concluded within the FRA.	Pluvial flood risk, along with the relevant mitigation required to ensure that likely significant effects do not occur, will be assessed within the Hydrology chapter of the ES, which will be submitted with the DCO application. This assessment will be undertaken once the Site boundary has been finalised.
Flood Risk associated with Cable Corridors during operation The locations of all the cables (including interconnectors) are not currently known, and it is noted that some of the proposed cable routes cross flood risk areas. The Inspectorate considers that there is potential for the cables or pylons carrying overhead cables to displace flood water and therefore influence changes to flood risk elsewhere.	Any risk associated with cable corridors and interconnections will be considered and discussed within the FRA.	Once proposals for cable route locations and methods are refined further, this will be discussed in consultation with the EA, the RMAIDB and Lead Local Flood Authorities (LLFAs). Should the relevant consultees require it, flood risk associated with cable corridors can be assessed within the Hydrology Chapter.

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
In the absence of information such as evidence demonstrating clear agreement with relevant statutory bodies, the Inspectorate is not in a position to agree to scope these matters from the assessment. Accordingly, the ES should include an assessment of these matters or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of likely significant effects.		
Zone of Influence and Study Area The current study area is determined to be a 1km buffer from the red line boundary with any impacts to waterbodies beyond 1km from the site boundary considered to be negligible. There is no evidence to support this assertion. The study area defined in the ES should be determined based on the zone of influence and should account for any receptors hydrologically linked to the Project site.	The 1km buffer to define the Study Area is typically used in environmental assessment for hydrology (including for Solar Development) and is based on guidance set out within Design Manual for Roads and Bridges (DMRB) LA 113 2020[24]. This is considered to be a sufficient to enable the deposition of silts in overland flows and dilution of any concentrated pollutants. It is worth noting that national and local policy require evidence that	The Study Area will be confirmed with the relevant consultees including RMAIDB and the EA, through further consultation.

[24] Standards for Highways, 2020. Available at: https://www.standardsforhighways.co.uk/search/d6388f5f-2694-4986-ac46 b17b62c21727

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
The Applicant should seek agreement on the study area with the relevant consultation bodies.	there is no increase in flood risk as a result of development and that surface water runoff be treated appropriately (prior to discharge to ground or a waterbody during either construction or operation). Policy does not set a specific study area to assess these requirements against. As an example, there is a requirement to ensure that sufficient treatment of surface water runoff is provided prior to the point of discharge. This means that there will inherently be no negative impact on water quality further downstream (both in operation or construction). Consultation with the EA and RMAIDB is ongoing to confirm agreement with the Study Area definition and whether there are any other water features they require to be considered as part of the Study Area.	
Flood Modelling and Climate Change Projections The ES should provide up-to-date data to inform the assessment of flood risk and seek agreement on the approach and	The FRA will set out and justify the approach to any flooding modelling/assessments undertaken and will also provide a discussion on the use of appropriate	Flood modelling and climate change projections will be addressed within the Hydrology Chapter of the ES. Appropriate assessments will be

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
conclusions with the relevant consultation bodies. Where flood modelling is not undertaken, it should be explained how and why the data and approach used is appropriate to inform the assessment of LSE and the extent of agreement with consultation bodies. This should take account of up-to-date climate change projections for the lifetime of the Project.	climate change requirements. Consultation with the EA on this point is ongoing to establish an agreed approach.	undertaken once the approaches are agreed with the EA.
Marine Environment as a Receptor The ES should assess potential likely significant effects to the marine environment with regards to changes in water quality or provide evidence to demonstrate there is no pathway for effect.	The Drainage Strategy, Water Framework Directive Screening Assessment and Management Plans (oCEMP, oOEMP, oBSMP and oDEMP) will address water quality in detail and set out mitigation measures to be put in place during all stages of development to ensure no negative impacts to waterbodies or marine environments.	Water quality impacts to marine environments along with any relevant mitigation required to ensure that likely significant effects do not occur, will be assessed within the Hydrology chapter of the ES, which will be submitted with the DCO application
Flood Mitigation It is unclear whether an appropriate height (freeboard) is suggested for panel raising etc to ensure the Project remains safe and operational in times of flood. The Applicant should inform any mitigation with assessments using	The FRA will set out and justify any freeboards provided between flood levels and development infrastructure. Consultation with the EA on this point is ongoing to establish an agreed approach.	Freeboard allowances for flood risk will be addressed within the Hydrology Chapter of the ES. Appropriate assessments will be undertaken once the approaches are agreed with the EA.

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
up-to-date data and seek agreement on the approach with the relevant consultation bodies.		
Watercourse Crossings The ES should establish the types of watercourse crossings and where they are to be deployed. It should explain why the type of crossing is proposed and is appropriate, including any supporting agreement from the relevant consultation bodies.	The FRA and Water Framework Directive (WFD) Screening Assessment (as well as the management plans) will address watercourse crossings, outlining the type of crossing (such as existing or proposed crossings and whether the latter will be clear span or culverts) and providing suitable justifications for their need. The approach to watercourse crossings will be developed in discussion with the EA and RMAIDB.	Hydrological impacts on watercourse crossings will be addressed within the Hydrology Chapter of the ES. Appropriate assessments will be undertaken once the approaches are agreed with the EA and RMAIDB.
Figures The presentation of Figures 7.9 and 7.10 cut off the lower part of the Project and the potential surface water flooding area. For clarity, the ES should present the entirety of the Project areas being assessed.	The FRA and ES will include Figures which cover the entirety of the Project.	Figures will be prepared and included within the FRA and Hydrology Chapter of the ES.
Site Walkover The Site walkover is said to have been undertaken around the Romney Marshes area and Lydd; the survey area is not identified on a figure and	The initial site walkovers for the purposes of flood risk and drainage are to gain a greater understanding of the area. This includes visual confirmations of	Should detailed surveys be required to inform the design (such as for hydraulic modelling or drainage design), then these would be agreed with the relevant

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
it is not explained why this area was chosen. The ES should identify the location of surveys underpinning the assessment and include figures where appropriate. The Applicant should seek to agree the extent and scope of surveys with the relevant consultation bodies.	topography to inform flood risk and locations of watercourses. However, these walkovers are not considered to be surveys used in undertaking detailed assessments (such as informing hydraulic modelling) and it is not considered appropriate to agree the scope of these walkovers with relevant consultees.	consultees and appropriate figures can be produced for inclusion within the Hydrology Chapter of the ES.
Water Supply ES should assess likely significant effects on water supply where they are likely to occur.	Water supply needs will be assessed as part of the submission.	Water supply will be addressed within the Hydrology Chapter of the ES to ensure that likely significant effects do not occur. Appropriate assessments will be undertaken once the Site boundary has been finalised and proposals developed further.
Impacts to Agricultural Drainage The ES should assess potential impacts on agricultural drainage systems across the site where significant effects are likely to occur and where drainage systems are impacted, report on and assess any implications for changes to flood risk.	The FRA and Outline Drainage Strategy (ODS) will discuss impacts to agricultural drainage, providing justifications on any potential impacts where needed. Consultation with the relevant consultees on this point is ongoing to establish an agreed approach.	Impacts to agricultural drainage will be addressed within the Hydrology Chapter of the ES. Appropriate assessments will be undertaken once the approaches are agreed with the RMAIDB.
Impacts to Groundwater Receptors	Baseline information associated with aquifers, abstractions, safeguard	Impacts to groundwater receptors will be addressed within the

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
Unclear currently whether impacts to groundwater receptors are to be assessed within the Hydrology Chapter.	zones and groundwater vulnerability will be assessed within the Hydrology Chapter however, the impacts and any likely significant effects will be included within the Land and Groundwater Chapter.	Land and Groundwater Chapter of the ES.

6.3.2 In addition to the PINS Scoping Opinion, engagement has been and continues to be undertaken with relevant stakeholders. This includes following:

- four meetings with the EA as well as submission by the Applicant of a Technical Note, setting out proposed approaches to assessing flood risk and requesting further information/clarifications from the EA;
- two meetings with the Romney Marshes Internal Drainage Board (RMAIDB), one of which was an in-person meeting at the RMAIDB offices. In addition, the Applicant also submitted a Technical Note, setting out proposed approaches to assessing flood risk and requesting further information/clarifications from the RMAIDB; and
- Submission by the Applicant of Technical Notes to Kent County Council (KCC) and East Sussex County Council (ESCC) setting out surface water drainage commentary. Noting that the Project spans across two Lead Local Flood Authority (LLFA) areas (i.e. KCC and ESCC).

6.3.3 Discussions with relevant stakeholders are still ongoing and therefore the scope of assessment will evolve as the project progresses ahead of the ES Submission. A summary of ongoing consultation with consultees in relation to hydrology is provided in Table 6-3.

Table 6-3: Summary of Ongoing Comments and Feedback with consultees

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
Tidal Flood Risk – Climate Change Latest climate change requirements to	EA	In assessing the latest sea level rise due to climate change in the context of the	This will be resolved as part of the technical assessments

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
address potential sea level rises to be considered in assessment of flood risk and mitigation requirements.		operational design life of the Project, it is concluded that the current EA flood modelling for climate change is more conservative. It is proposed therefore that the climate change results from the current EA flood modelling be used to inform development and this has been set out to the EA for consideration. Discussions with the EA will continue throughout the process.	(i.e. within the FRA) which support the Hydrology ES Chapter and overall DCO submission.
Tidal Flood Risk – Breach Consideration of the impact that a breach of tidal defence could have to the Project, particularly associated with any proposed sensitive infrastructure (such as substations and battery storage).	EA	Discussions with the EA on this point and the proposed approach to assessment are ongoing.	This will be resolved as part of the technical assessments (i.e. FRA) which support the Hydrology ES Chapter and overall DCO submission.
Fluvial Flood Risk – Modelling Considerations Recommended that some form of modelling be undertaken (referred to as direct rainfall modelling with conservative	EA	Discussions with the EA on this point and the proposed approach to assessment are ongoing.	This will be resolved as part of the technical assessments (i.e. FRA) which support the Hydrology ES Chapter and overall DCO submission.

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
assumptions) to better understand any underlying potential fluvial flood risk associated with smaller ordinary watercourses within the site. Alternative approaches also set out to justify why using the surface water (pluvial) flood risk extents as a proxy for fluvial risk is appropriate if this is preferred by the Applicant.			
Water Framework Directive – Approach to Assessment The approach to undertake a WFD screening assessment which considers the embedded mitigation that will be put in place is considered acceptable.	EA	Noted that the EA responses are in agreement with the suggested approach which is in line with the approach taken on similar schemes.	Principles of assessment approach agreed already. However, it is proposed that draft versions of the WFD Assessment are to be shared with the EA for comment in advance of formal DCO submission.
The RMAIDB raised concerns surrounding management of the water environment.	RMAIDB	Outline Management Plans (i.e. oCEMP, oOEMP and oDEMP) are to be produced and submitted in support of the DCO application. These documents will set out the principles of mitigation to be	This will be resolved through the production of the Outline Management Plans and overall DCO submission.

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
		implemented to ensure there are no negative impacts on the water environment.	
Community group ES Scoping Consultation Response indicates that the ES must provide Romney-Marsh-specific hydrology and flood-risk assessment that includes: Fixed “reasonable worst-case” design parameters for all hydrology-relevant infrastructure under the Rochdale Envelope. Detailed hydraulic modelling and a Surface Water Drainage Strategy incorporating SuDS calibrated for Marsh conditions. Full survey and assessment of subsurface artificial field drainage networks, with clear protection, diversion and/or replacement commitments. Assessment of impacts on IDB infrastructure, operational freeboard and statutory access requirements, informed by direct consultation	Community	Appropriate hydrology-relevant design parameters are currently being discussed with the EA, RMAIDB and LLFAs. Field drains are to be identified in advance where possible through records, and disruption would be avoided as far as reasonably practicable during all phases of development. In relation to flood risk, removal of land drainage would return the fields to a more natural greenfield, pre-drainage state, reducing how quickly flows would arrive at the receiving watercourse network. However, it is anticipated that any damaged field drains would be replaced and any inherent capacity provided by the existing land drainage would be retained. Direct consultations with RMAIDB are ongoing to identify	This will be resolved as part of the technical assessments (i.e. FRA and Drainage Strategy documentation) which support the Hydrology ES Chapter and overall DCO submission.

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
with the IDB and Environment Agency. Climate-change sensitivity analysis to at least 2100. Assessment of all watercourse and ditch crossings on morphology, capacity and ecology. Cumulative hydrological and drainage impact assessment across all relevant NSIPs and major energy schemes in the Romney Marsh catchment.		their infrastructure, how it operates, and their required access/ maintenance arrangements. Appropriate climate change allowances and resultant impacts on flood risk and drainage will be assessed for the development's lifespan (expected to be shorter than 2100). This will be in line policy requirements. Watercourse crossings will be identified in the ES and evaluated in the Hydrology chapter in relation to hydrological impacts. A cumulative effects assessment will be undertaken as part of the EIA.	
Discussions with Affinity Water have taken place, focussing on establishing water supply needs during construction and operation of the Project.	Affinity Water	Further engagement is to take place with Affinity Water and other relevant consultees as required to inform the approach to water supply.	Water supply will be addressed within the Hydrology Chapter of the ES to ensure that likely significant effects do not occur. Appropriate assessments will be undertaken once the Site boundary has been finalised and proposals

Summary of Relevant Stakeholder Consultation Comments	Consultee	Discipline Feedback	Next Steps
			developed further.

6.3.4 **Appendix 1-2: Key Policy and Legislation** provides details on the legislation, policy and guidance that has informed the approach to the hydrology assessment.

6.4 Ongoing Hydrology Work

Study Area

6.4.1 Given the nature of hydrology, it is difficult to accurately define a Study Area as water is a flowing element. Therefore, in the absence of any specific guidance relating to solar developments, a 1km buffer from the Site boundary is considered appropriate to define the Study Area. This is in accordance with Design Manual for Roads and Bridges (DMRB) LA 113 2020 and is considered to be a sufficient distance to enable the deposition of silts in overland flows and dilution of any concentrated pollutants. Any impacts to waterbodies beyond 1km from the Site boundary are considered to be negligible.

6.4.2 As highlighted within Table 6-2, the scoping opinion response from PINS suggested that further investigation into areas that are potentially hydrologically linked to the Site will need to be included within the Study Area. The Study Area set out is considered to be appropriate however, discussions are being held with the relevant consultees to ensure agreement on the extent of the Study Area and this will be fully defined within the Hydrology Chapter of the ES Chapter.

6.4.3 It is worth noting that national and local policy require evidence that there is no increase in flood risk as a result of development and that surface water runoff be treated appropriately (prior to discharge to ground or a waterbody during either construction or operation). Policy does not set a specific study area to assess these requirements against and it can be inferred therefore that there should be no resultant increased flood risk or negative impact on water quality irrespective of distance from the Project. As an example, there is a requirement to ensure that sufficient treatment of surface water runoff is provided prior to the point of discharge. This means that there will inherently be no negative impact on water quality further downstream (in construction, operation and decommissioning).

Collection of Data

6.4.4 The following sources have been used to inform the assessment:

- Ordnance Survey (OS) and British Geological Survey (BGS) Mapping, geological and borehole mapping[25];
- DEFRA LiDAR 1m Topographic Dataset[26];
- Environment Agency (EA) Watercourse Mapping[27];
- EA Asset Management Mapping[28];
- EA Flood Map for Planning[29];
- EA Risk of Flooding from Surface Water Mapping[30];
- EA Reservoir Flood Risk Mapping[31];
- EA Historic Flood Maps[32];
- EA Groundwater Vulnerability Mapping[33];
- EA Source Protection Zone Mapping[34];
- EA Drinking Water Protected Areas (Surface Water)[35];
- EA Drinking Water Safeguard Zones (for Surface Water and Groundwater)[36];
- EA Water Framework Directive River Basin Management Plans and Catchment Data Explorer[37];

[25] British Geological Survey GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.214711319.1075902138.1751972686-410814623.1751972686
[26] Department for Environment Food and Rural Affairs. Available at: https://environment.data.gov.uk/survey
[27] Environment Agency. Available at: https://www.data.gov.uk/dataset/4ae8ba46-f9a4-47d0-8d93-0f93eb494540/statutory-main-river-map
[28] Department for Environment Food and Rural Affairs. Available at: https://environment.data.gov.uk/asset-management/index.html
[29] Environment Agency. Available at: https://flood-map-for-planning.service.gov.uk/
[30] Environment Agency. Available at: https://check-long-term-flood-risk.service.gov.uk/postcode
[31] Environment Agency. Available at: https://www.data.gov.uk/dataset/44b9df6e-c1d4-40e9-98eb-bb3698ecb076/risk-of-flooding-from-reservoirs-maximum-flood-extent-web-mapping-service
[32] Environment Agency. Available at: https://www.data.gov.uk/dataset/76292bec-7d8b-43e8-9c98-02734fd89c81/historic-flood-map1
[33] Environment Agency. Available at: https://www.data.gov.uk/dataset/42d7d021-538c-46e2-abbb-644e01c63551/groundwater-vulnerability-maps-2017-on-magic
[34] Environment Agency. Available at: https://www.data.gov.uk/dataset/09889a48-0439-4bbe-8f2a-87bba26fbbf5/source-protection-zones-merged1
[35] Environment Agency. Available at: https://www.data.gov.uk/dataset/3d136e9a-78cf-4452-824d-39d715ba5b69/drinking-water-protected-areas-surface-water
[36] Environment Agency. Available at: https://www.data.gov.uk/dataset/6ac22521-2e77-4dc8-ba90-6bb55d2ea3b8/drinking-water-safeguard-zones-surface-water, https://www.data.gov.uk/dataset/7fe90245-d6e8-4d7c-a13a-65a87455f429/drinking-water-safeguard-zones-groundwater
[37] Environment Agency. Available at: https://environment.data.gov.uk/catchment-planning

- Rother Level 1 Strategic Flood Risk Assessment (SFRA)[38];
- Shepway District Council (now Folkestone and Hythe) SFRA[39];
- LandIS – Soilscapes[40];
- CEH: Flood Estimation Handbook (FEH) Web Service[41].

6.4.5 The following project specific surveys were undertaken:

- Site Walkover 2024 – walking survey around the Romney Marshes area and Lydd to identify flood defence infrastructure, main rivers, watercourses, ditches, embankments, natural flood defences and topography. This walkover was completed to familiarise with the area and inform assessments of the Site and Study Area, but was not a formal survey for the purposes of the ES.

Baseline Conditions

Watercourses

6.4.6 There are a number of main rivers, ordinary watercourses and ditches within the Study Area. All currently identified watercourses (main rivers and RMAIDB watercourses) relevant to the Study Area are shown in **Figure 6-1: Hydrology Study Area** and **Figure 6-2 Watercourses**.

Field and Land Drains (Agricultural Drainage)

6.4.7 Given the agricultural use of much of the Site, it is understood that there are existing and historic field and land drains below ground, which are used to remove excess water within the soil and are commonplace in agricultural settings. Given the historic nature of these features, their exact locations are not known however, it is understood that they do exist.

Water Protected Areas

6.4.8 Drinking Water Protection Areas (DWPAs) are areas where raw water is abstracted for human consumption or is intended for future use. Water sources for drinking supplies need to be protected under the WFD regulations to ensure they are not polluted and avoid/minimise the need for additional purification treatment.

[38] Rother District Council, 2021. Available at: https://www.rother.gov.uk/planning-and-building-control/planning-policy/emerging-local-plan/emerging-evidence-base/strategic-flood-risk-assessment-sfra/
[39] Folkstone and Hythe District Council, 2015. Available at: https://www.folkestone-hythe.gov.uk/downloads/download/102/strategic-flood-risk-assessments
[40] LandIS. Available at: https://www.landis.org.uk/soilscapes/
[41] UK Centre for Ecology and Hydrology. Available at: https://fehweb.ceh.ac.uk/

6.4.9 A large DWPA (surface water) is located towards the north of the Site within the north of the Study Area (**Figure 6-3: Drinking Water Protected Areas**). A small portion of this zone crosses with the northern tip of South Brooks A and the indicative interconnecting cable route area. No other areas of the Site cross into the DWPA.

Flood Risk

6.4.10 **Figure 6-4: EA's Flood Map for Planning** shows that large areas of the Site are located within Flood Zones 2 and 3 which indicates a medium to high probability of flooding from fluvial and tidal sources, without accounting for the presence of flood defences.

6.4.11 The EA has provided hydraulic modelling data in the form of the Romney Marshes Breach and Flood Forecasting (2020) model which assesses coastal flood risk posed to Romney Marshes (and the Site). The model does not contain any assessed fluvial events, and the suitability of the baseline scenario presented in this model is being discussed through ongoing consultation with the EA.

6.4.12 The designated main rivers within the Study Area are Dengemarsh Sewer, Southbrooks Sewer, and Jury's Gut Sewer, which are tidally influenced. Although, there is a possibility that there is some fluvial influence within the Site due to incident rainfall, the dominant source is likely to be tidal.

6.4.13 Based on the EA's Romney Marshes Breach and Flood Forecasting Model, the entire Site is shown to be located outside of the tidal 1 in 200 year return period event defended scenario (**Figure 6-5: Tidal 1 in 200 Defended Flood Event Extent**). The majority of the Site is also shown to be outside of the flood extent during a defended scenario for the 1 in 200 year return period event with an NPPF allowance for climate change up to the year 2115 (**and 6-6: Tidal 1 in 200 NPPF 2115 Climate Change Defended Flood Event Extent** respectively).

6.4.14 Based on the EA modelling, some areas of the Site are shown to be at residual risk of flooding in a breach scenario for the 1 in 200 year plus climate change event. This is particularly the case for breach location 9 at Jury's Gap, which affects the Jury's Gut main river and results in flooding to areas of South Brooks A and B, as illustrated in **Figure 6-7: Tidal 1 in 200 UKCP09 Breach Location 9 Flood Event Extent**. It is worth noting that the breach modelling provided by the EA to date does not include NPPF climate change allowances but does include UKCP09 allowances.

6.4.15 The EA's present day surface water mapping (**Figure 6-8: EA Present Day Surface Water Mapping**) shows that the majority of the Site and Study Area is located within an area of very low risk of flooding from surface water. While small

areas of high to low surface water flood risk are present across the land parcels, these areas are generally shown as localised ponding rather than surface water flow routes.

6.4.16 The EA's climate change surface water mapping (**Figure 6-9: EA Future Climate Change Surface Water Mapping**) also shows that the Site and Study Area remains largely at a very low risk of flooding from surface water in the future 2040 to 2060 scenario. As with the present-day mapping, the climate change mapping also shows that there are no major surface water flow routes across the land parcels.

6.4.17 The EA's reservoir flood risk mapping (**Figure 6-10: EA Reservoir Flood Risk**) shows that the entire Site is located outside of the reservoir flood risk extent, however there are sine areas of reservoir flooding in the Study Area to the west. There also are a number of water infilled quarries within the study area.

6.4.18 The Shepway SFRA indicates that the majority of the district lies within a low-risk area for groundwater flooding. However, it is noted that the high-level mapping does not consider more localised causes of groundwater flooding such as low-lying land which is drained by man-made watercourses. The Site is dominated by low-lying land and consists of marine alluviums and beach sands which typically have the potential to convey groundwater. Combinations of shallow groundwater and permeable geology and soils increase the risk of groundwater levels rising and causing flooding at the ground surface. At this stage, depth to groundwater is unconfirmed.

6.4.19 The Site is largely located across agricultural fields within the Dungeness and Lydd area. As such, piped sewerage infrastructure within the Site is anticipated to be limited and therefore the risk of flooding from surcharging sewers is considered to be low.

Public Sewers and Water Supply

6.4.20 Records indicate that Affinity Water and Southern Water utilities are present within the Study Area. However, there is no indication as to whether these consist of sewerage or potable water infrastructure. It is understood that Southern Water assets consist of public sewers and Affinity Water assets only consist of clean potable water supply.

6.5 Future Hydrology

Collection of future hydrological data

6.5.1 Further hydrological data will be collected from statutory consultees and third parties as needed to inform the Hydrology ES Chapter, including information provided by RMAIDB on their network and assets.

6.5.2 Where identified as required through further consultation with statutory consultees, further surveys and site visits may be undertaken as needed to further inform the flood risk assessment.

Future Baseline

6.5.3 If the Project is not progressed, the future baseline with respect to hydrology is not anticipated to change significantly. The main implications would occur as a result of climate change impacts on tidal flood extents, as well as a natural increase in the greenfield runoff rate as a result of increased rainfall intensity.

6.5.4 On the basis that tidal flooding is likely to be the dominant source of flooding, climate change impacts would result in a rise in sea levels. EA guidance sets out anticipated sea level rise allowance for a number of epochs, depending on River Basin District and indicates that both the higher central and upper central allowance should be assessed.

6.5.5 The EA's Romney Marshes Breach and Flood Forecasting Model does already include results for future climate change scenarios up to the year 2115, however, these are based on outdated allowances.

6.5.6 The impacts that climate change could have are typically assessed against the lifespan of the Project. In the case of South Brooks, the Project is expected to be operational until 2091 (based on becoming operational in 2031 and a design life of 60 years). Based on this, the latest climate change requirements indicate that the following sea level rise could be observed:

- 0.717m for the Higher Central Allowance; and
- 0.939m for the Upper Central Allowance.

6.5.7 The sea level rise for both scenarios outlined above are less than their counterparts already assessed in the EA's Romney Marshes Breach and Flood Forecasting Model. This is mostly due to the fact that the EA modelling assesses the climate change impact to the year 2115, which is 24 years beyond the operational lifespan of the Project. In assessing tidal climate change impacts and assessing mitigation requirements, it is therefore recommended that the current EA modelling results are used to be conservative. Although it is noted that the EA have indicated that

decommissioning should also be considered in any assessment of future climate change and this will be updated accordingly as part of the preparation of the FRA.

6.5.8 In addition to the above, EA guidance indicates that for NSIPs, the maximum credible climate change scenario (H++) should be assessed as a 'sensitivity test' to consider how sensitive proposals are to changes in climate for future scenarios (note this is not the design event, for which specific mitigation is required). In these circumstances, the following should be used for tidal situations:

- The H++ climate change allowance for sea level rise, which is an increase of 1.9m to the year 2100;
- Sensitivity test allowances for offshore wind speed and extreme wave height, which is a maximum of 10% up to the year 2125; and
- An additional 2mm for each year on top of sea level rise allowances from 2017 to account for storm surges.

6.5.9 For clarity, the EA's Romney Marshes Breach and Flood Forecasting Model already includes offshore wind speed and extreme wave height increases of 10%. It is proposed therefore that any assessment of the maximum credible climate change scenario, will focus on the H++ climate change allowance (i.e. increase in sea level rise of 1.9m) and the 2mm each year to account for storm surge.

6.5.10 When considering impacts on rainfall intensity for the area, EA data indicates that increases of up to 45% could occur as a result of climate change.

Methodology for Ongoing Assessment

6.5.11 The anticipated approach for ongoing assessment of hydrology items is set out within the following headings.

Watercourses

6.5.12 It is proposed that a minimum offset of 10m is provided between built development (i.e. panel mounting structures, fences etc) and any watercourses (main rivers, ordinary watercourses and RMAIDB watercourses). This is to allow sufficient space for ecological corridors and also access for maintenance.

6.5.13 Watercourse crossings are to be minimised and existing crossings are to be utilised wherever possible (although existing crossings may require repair or replacement, subject to condition). As part of the FRA, a summary of watercourse crossings will be provided which outlines their location, whether they are existing or new, whether they are temporary or permanent and what form they will take (i.e. culverted or clear span bridge structures). Where culverted crossings are required, justifications for these will be provided.

6.5.14 With regards to cable crossings, these will all be below ground and formed using trenchless techniques. The depth below watercourses will be agreed with relevant stakeholders (predominantly the EA and RMAIDB) and will be set out within the FRA and oCEMP.

Field and Land Drains (Agricultural Drainage)

6.5.15 Field drains are to be identified in advance where possible through records, and disruption would be avoided as far as reasonably practicable during all phases of development. It is anticipated that any damaged field drains would be replaced and any inherent capacity provided by the existing land drainage would be retained as well as maintaining any hydrological links to downstream features.

6.5.16 Agricultural drainage would be discussed within the FRA and any mitigation required would be set out within the oCEMP.

Flood Risk

6.5.17 A full assessment of flood risk from all sources that could impact upon operation would be included within the FRA, including for current and future climate change scenarios (as discussed previously). As part of the FRA, mitigation requirements will be set out to ensure that the Project remains safe and operational for its lifetime without increasing flood risk.

6.5.18 It is intended that the approach to flood risk and mitigation requirements are agreed with relevant stakeholders (EA, LLFAs and RMAIDB) in advance of submission and where possible, draft versions of the document will be shared with them for comment prior to submission.

6.5.19 Flood risk mitigation requirements during construction and decommissioning will be set out within the oCEMP and oDEMP respectively.

Water Framework Directive Assessment

6.5.20 In discussions with the EA, the proposed approach to undertaking a Water Framework Directive (WFD) Assessment has been agreed in principle. This document will be developed and the intention is to share draft versions of this with the EA for comment in advance of the DCO Submission.

6.5.21 For clarity, the approach agreed with the EA to assessing the WFD differs slightly from that set out within the NSIP Advice on the WFD[42] but is essentially a streamlined version and ultimately still addresses the overall requirements and aims of the WFD. Rather than undertaking a staged approach to the assessment (i.e.

[42] Planning Inspectorate, March 2025. Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available at: Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive - GOV.UK

screening, scoping and impact assessment), it is proposed and agreed that the following will be undertaken:

- Anticipated works that could impact upon WFD watercourses or waterbodies will be set out;
- Baseline conditions of WFD watercourses and waterbodies within the Study Area will be set out (including overall status);
- Embedded mitigation measures relevant to protecting watercourses and waterbodies that will be committed to within the management plans (such as the oCEMP, oOEMP, oBSMP, oDEMP and oLEMP) will be summarised; and
- The resulting impacts to any relevant WFD watercourse or waterbody once embedded mitigation is in place will then be considered and it can be determined whether the proposed works meet the objectives of the WFD and River Basin Management Plans (RBMP).

Surface Water Drainage

6.5.22 The requirements regarding management of surface water runoff during construction and decommissioning will be discussed within the oCEMP and oDEMP respectively, making reference to best practice measures in terms of pollutant control and runoff restrictions.

6.5.23 The ODS will be developed to assess how surface water runoff will be managed on site at the operation phase. The ODS will include information on the proposed surface water runoff discharge rates, attenuation sizing, inclusion of SuDS features, outfall locations and pollution control measures (including firewater containment which will be discussed with the EA and other relevant stakeholders, such as Kent Fire and Rescue Service).

6.5.24 In addition, a summary of the operational drainage will be provided within the oOEMP and oBSMP (including firewater containment measures).

6.5.25 As the Project progresses, the surface water and fire water management strategies will continue to be developed, in consultations with the EA, RMAIDB, LLFA and Southern Water (where required).

Foul Drainage

6.5.26 During construction, temporary foul drainage measures are to be put in place to contain and manage foul runoff. An appointed contractor will be responsible for management of foul water during construction and it is likely than runoff will be tankered away from the Site to a suitably licensed facility. High-level information on the foul water management strategy during construction will be included in oCEMP.

6.5.27 The foul drainage strategy proposed for the operation phase will be included in the ODS, which will discuss all options for foul water disposal, adhering to the foul drainage hierarchy. Where required adequate discussions will be undertaken with Southern Water, if connection of the proposed foul drainage into their assets is assessed to be feasible. If such option is not feasible, usage of on-site package treatment plant with discharge to a local watercourse, or discharge to septic tanks and removal off the site to a suitably licensed facility will be considered. If these options are taken forward, consultation with the EA and/or RMAIDB will be carried out to ensure that the proposal meets their requirements. A summary of the foul drainage proposals will be provided within the oOEMP.

Water Supply

6.5.28 With regards to water supply, systems will be designed to reduce on site water demand as far as possible through the inclusion of prefabricated components constructed off site (for construction) and the use of water efficient fittings (for all stages of development). Furthermore, limited rainwater harvesting is likely to be utilised from proposed buildings, and water is to be obtained from non-potable sources or private supplies wherever possible.

6.5.29 The above options will be reviewed through the next stages of assessment however, should water supply be required from Affinity Water or Southern Water, high level calculations of demand for all stages of development will be undertaken and discussed with the water company to determine capacity within their networks to provide this demand.

6.6 Important Receptors Identified

6.6.1 The following important receptors have been identified for the Site:

- Users of both the construction site (i.e. ground workers during construction and decommissioning) and of the completed development (operational maintenance staff) in relation to flood risk from all sources;
- Areas within the identified Study Area in relation to flood risk from all sources;
- Existing named watercourses within the Study Area (Dengemarsh Sewer, Jury's Gut Sewer and Southbrooks Sewer) and other unnamed watercourses within the Study Area with respect to associated existing water level management infrastructure, flood defences, surface water discharge rates, groundwater sources, DWPA (surface water) volume, and quality of runoff;
- Existing agricultural drainage;

- Surrounding public water mains and sewers with regards to capacity/supply;
- All future renewable energy generation infrastructure located within the Site; and
- Water quality impacts to marine environments.

6.7 Considering Hydrology in Design

6.7.1 The design of the Project to date has been informed by baseline hydrology conditions (such as locations of watercourses and flood mapping) and stakeholder engagement. The current design has been influenced and takes in to account the following items:

- Current flood mapping in terms of advising on suitability of development;
- The location of existing watercourses and required offsets between them and built development (i.e. minimum of 10m for ordinary watercourses and 16m for Main Rivers);
- The underlying geology and suitability of infiltration as a means of managing surface water runoff. For clarity, this is not deemed feasible due to underlaying clayey soils, and likely high groundwater levels associated with low lying topography. These will be confirmed via an intrusive ground investigation;
- The availability of suitable surface water drainage outfall locations for hardstanding areas (such as substations and BESS), such as discharging to watercourses in the vicinity; and
- The spatial requirements for surface water attenuation prior to discharge to surrounding watercourses.

6.7.2 The design of the Project will continue to be informed by consultation with stakeholders and the following key items are likely to impact upon the design:

- Pluvial and fluvial extents for the design flood extent (subject to whether modelling is ultimately required and undertaken) and either avoiding locating sensitive infrastructure within these areas or setting them above flood levels;
- Tidal flood levels for the design flood event (including climate change) with regards to setting the base of panel heights above ground and siting/levels of sensitive infrastructure. Consideration will also be given to residual flooding events (such as breach of flood defences), although design is not based around these extreme events; and

- The provision of impermeable lining for drainage systems (including SuDS) within areas deemed to have a contamination risk to groundwater (such as due to firewater runoff from BESS areas).

6.8 Preliminary Assessment of Likely Significant Effects

Approach

6.8.1 At this stage of the assessment, the preliminary evaluation of potential effects is based on professional judgement supported by available baseline information.

6.8.2 When undertaking the full assessment of Hydrology within the ES, the overall significance of effect will be informed by a standard method of assessment based on baseline conditions and professional judgement while considering sensitivity and magnitude of change.

Preliminary Assessment

6.8.3 A summary of the preliminary assessment of likely significant effects on Hydrology associated with the Project is provided in Table 6-4. The preliminary assessment set out below is dependent on outcomes of consultation discussions and therefore subject to change when full assessments are undertaken as part of the ES.

6.8.4 In summary, once the recommended mitigation measures are applied, no significant Hydrological effects are expected to occur at any stage of the Project's lifetime.

Table 6-4: Potential Likely Significant Hydrology Effects

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
Construction and Decommissioning	General construction and decommissioning activities on-site, particularly with regards to works involving open excavations.	Flood risk to users of the Site and solar farm infrastructure (including cable route corridors).	Given the potential flood conditions at the Site, without the application of appropriate mitigation, it is possible that construction/decommissioning users could be impacted by flooding. Construction and decommissioning works are to be undertaken in line with best practice and the processes outlined within the oCEMP and oDEMP. This will include techniques that minimise the potential for flood water ingress from any source into open excavations, such as cofferdams. Furthermore, the oCEMP and oDEMP will indicate that site managers will be required to sign up to the EA's flood warning service for the area and will put in place	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will be set out and committed to within the appropriate management plans, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			appropriate flood evacuation procedures.		management plans and watercourse easements agreed with relevant stakeholders to justify why effects are considered to be not significant.
	General construction and decommissioning activities on-site. Siting of compounds, stockpiles and areas of hardstanding that require positive surface water drainage systems.	Changes in flood risk to Off-Site Areas within the Study Area.	Given the potential flood conditions at the Site, without the application of appropriate mitigation, it is possible that construction/decommissioning works could impact flood risk to off site areas. Construction and decommissioning works are to be undertaken in line with best practice and the processes outlined within the oCEMP and oDEMP. This will include items	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will be set out and committed to within the appropriate management plans, which will support the

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			such as locating construction compounds and stockpiles outside of the design flood extents to ensure potential impacts on flood flows or storage are minimised. Furthermore, as part of the oCEMP and oDEMP, temporary measures to manage any change in surface water runoff from hardstanding areas will be put in place. This would include attenuation features to reduce the rate of runoff where appropriate and manage silts/pollution.		DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the management plans to justify why effects are considered to be not significant.
	General construction and decommissioning activities on-site. Excavations or stripping of top soil	Watercourses and marine environment within the Study Area with regards to changes in	Given the number of waterbodies within and in the vicinity of the Site (i.e. watercourses and marine environment within the Study Area), without the application of appropriate mitigation, it is	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will be set out and committed to

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
	that could result in increased silt runoff. Activities that result in surface water runoff, such as wheel washing and concrete production. Areas of hardstanding that require positive surface water drainage systems.	quality and quantity of surface water runoff.	possible that construction/decommissioning works could impact water quality and flood risk associated with these. Construction and decommissioning works are to be undertaken in line with best practice and the processes outlined within the oCEMP and oDEMP. This will include incorporating temporary measures to: Manage any change in surface water runoff from hardstanding areas, including the provision of attenuation features to reduce the rate of runoff which could impact on flood risk. Provide treatment to runoff, ensuring that water quality is acceptable prior to discharge would also be included. In addition to the above, phasing would also be arranged such that attenuation		within the appropriate management plans, which will support the DCO submission. A WFD Assessment is to be prepared which will list anticipated works that could impact WFD waterbodies. This will also set out mitigation measures to ensure that the objectives of WFD and RBMPs are met (making reference to the

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			and treatment measures are in place prior to the creation of hardstanding areas.		management plans). In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the management plans and WFD Assessment to justify why effects are considered to be not significant.
	General construction and decommissioning activities on-site.	Existing Agricultural Drainage	Without the application of appropriate mitigation, there is the potential for existing agricultural drainage to be	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
	Excavations for foundations or stripping of top soil.		impacted during construction or decommissioning. Field drains are to be identified in advance where possible through records and appropriate measures set out to ensure their protection during construction. Should any damage occur to them during this time, it is anticipated that they would be repaired, replaced or diverted to ensure any inherent capacity would be retained as well as maintaining any hydrological links to downstream features.		be set out and committed to within the appropriate management plans, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the management plans to justify why effects are considered to be not significant.

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
	Welfare facilities. Construction and decommissioning works that require water supply (such as wheel washing, welfare facilities and concrete production).	Public Water Supply	Without the application of appropriate mitigation or confirmation from water companies, there is the potential for public water supply to be impacted during construction or decommissioning. The construction works will be designed to reduce onsite water demand as far as possible. This will include measures such as inclusion of prefabricated components manufactured off site. Furthermore, limited rainwater harvesting is likely to be utilised from proposed buildings, and if capacity is not available from public supplies, water may be sourced from non-potable sources or private supplies wherever possible. Ultimately, the water companies will only provide volumes of water that will not	With the measures set out to limit water demand and the water companies positions to only supply available capacity with detrimental impacts, effects are anticipated to be not significant.	High level calculations of demand for construction will be undertaken and discussed with the water company to determine capacity within their networks to provide this demand. Should capacity not be available from public supplies, then additional volumes would be brought in from private supplies. In the full assessment within the

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			be detrimental to wider supply or reserves.		Hydrology Chapter of the ES, reference will be made to calculations undertaken and discussions held with the relevant stakeholders to justify why effects are considered to be not significant.
	Foul runoff from welfare facilities.	Wastewater Infrastructure and Impact on Capacity	Given the nature of construction and decommissioning, without the application of appropriate mitigation, there is the potential for existing wastewater infrastructure to be impacted in terms of physical damage and capacity.	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will be set out and committed to within the appropriate management

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			Construction and decommissioning works are to be undertaken in line with best practice and the processes outlined within the oCEMP and oDEMP. This will include techniques to minimise potential damage to utilities. Furthermore, all works within proximity to any existing wastewater infrastructure will be undertaken following consultation and agreement of necessary protective provisions with the relevant stakeholders. During construction, temporary foul drainage measures are to be put in place to contain and manage foul runoff. If feasible, foul water will be discharged to public sewer. If such option is not viable, foul water is likely to be tankered away from the Site by an appropriate contractor to a suitably licensed facility.		plans, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to discussions held with the relevant stakeholders, easements agreed and protective provisions to justify why effects are considered to be not significant.

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
Operation	Any activity that requires occupants to be on Site.	Flood risk to users of the Site and solar farm infrastructure (including cable route corridors)	It is anticipated that there will be limited occupancy at the Site however, given the potential flood conditions, without the application of appropriate mitigation, it is possible that operational users could be impacted by flooding. As part of the site management, there will be a requirement prepare a Flood Evacuation Management Plan, which will include signing up to the EA's flood warning service for the area and setting out appropriate flood evacuation or safe refuge procedures. This will be discussed in outline detail within the FRA and oOEMP, but will ultimately be detailed within the OEMP prior to occupation.	Effects are expected to be not significant.	Outline measures to ensure that effects are not significant will be set out within the FRA and oOEMP, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the management plans and

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
					watercourse easements agreed with relevant stakeholders to justify why effects are considered to be not significant.
	Siting of Project (i.e. panel mounting structures, sub-stations and BESS units) within the floodplain. Areas of hardstanding that require positive surface water drainage systems.	Changes in flood risk to Off Site Areas within the Study Area	Given the potential flood conditions at the Site, without the application of appropriate mitigation, the operational site could impact flood risk to off site areas. Exact flood mitigation measures to be incorporated are subject to full assessment of baseline and future flood risk at the Site as well as consultation with relevant stakeholders. However, measures could include the following:	With the measures set out within the FRA, effects are anticipated to be not significant.	Measures to ensure that effects are not significant will be set out within the FRA, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			Sequentially locating sensitive equipment outside of the design flood extents. Raising of equipment above the design flood level to ensure they remain operational. In the case of raising solar panels, this would ensure there will be a minimal impact on floodplain storage (for fluvial sources) or changes in flood flows. Ensuring no land raising is provided within design flood extents or providing floodplain compensation to ensure no loss in floodplain storage (for fluvial sources) Management of surface water runoff from any areas of significant hardstanding to match natural greenfield rates.		ES, reference will be made to the measures set out within the management plans to justify why effects are considered to be not significant.
	Areas of hardstanding that require positive	Watercourses and marine environment within the	Runoff from areas of significant hardstanding is to be restricted to discharge rates agreed with the RMAIDB and/or the EA,	Effects are expected to be not significant.	Outline measures to ensure that effects are not

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
	surface water drainage systems.	Study Area with regards to changes in quality and quantity of surface water runoff	before discharging to surrounding watercourses. Surface water drainage catchments are to be set such that they mimic natural catchments based on topography, ensuring that proportional areas continue to drain to their associated watercourses. This ensures there is no increase in flood risk or impact on hydromorphology as a result. Surface water runoff from hardstanding areas will receive sufficient treatment upstream of the outfall to ensure no detrimental impact on water quality to waterbodies. This will be achieved through the use of SuDS features. The potential for polluted runoff from firewater within any battery storage area will be considered and suitable containment measures will be		significant will be set out within the Drainage Strategy and oOEMP, which will support the DCO submission. In the full assessment within the Hydrology Chapter of the ES, reference will be made to the measures set out within the management plans to justify why effects are considered to be not significant.

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			put in place. It is proposed that battery storage area is provided with its own separate surface water drainage system, so if needed, the runoff generated in this area could be contained to mitigate the risk of pollution to the water environment, including groundwater resources. Surface water drainage serving the battery storage area will include appropriate pollution control measures such as but not limited to cut-off valves, sampling points, so in case of accidental pollution or fire event, runoff from this area can be temporarily isolated and tested. If water is found to be contaminated, it will be removed from the Site by tanker for treatment at an appropriately licensed offsite facility. If testing confirms that the water is suitable for		

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			discharge or reuse, it would be released to the local drainage network under controlled conditions, in consultation with the RMAIDB and/or the EA, or reused as a potential source of firefighting water by re-filling the water tanks. The surface water drainage strategy will be set out in greater detail within the technical assessments appended the ES (i.e. Drainage Strategy) and be summarised within the oOEMP.		
	Operational works that require water supply (such as panel cleaning and topping up of firewater tanks).	Public Water Supply	Without the application of appropriate mitigation or confirmation from water companies, there is the potential for public water supply to be impacted during operation. Water is to be brought in by bowser for panel cleaning and	With the measures set out to limit water demand and the water companies' positions to only supply available	High level calculations of demand during operation will be undertaken and discussed with the water company to determine

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			will not require a connection to public water supply mains. Operational demand for potable water to support welfare is likely to limited. There will also be demand for initial filling of firewater tanks and subsequent topping up. Limited rainwater harvesting is likely to be utilised from proposed buildings, and water is to be sourced from non-potable sources or private supplies wherever possible, to limit the impact on public capacity. Ultimately, the water companies will only provide volumes of water that will not be detrimental to wider supply or reserves.	capacity without detrimental impacts, effects are anticipated to be not significant.	capacity within their networks to provide this demand. Should capacity not be available from public supplies, then additional volumes would be brought in from private supplies. In the full assessment within the Hydrology Chapter of the ES, reference will be made to calculations undertaken and discussions held with the relevant stakeholders to

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
					justify why effects are considered to be not significant.
	Foul runoff from welfare facilities.	Wastewater Infrastructure and Impact on Capacity	Without the application of appropriate mitigation within design, there is the potential for existing wastewater infrastructure to be impacted in terms of physical damage and capacity. It is intended that protective provisions be put in place with relevant stakeholders to ensure appropriate stand-off/easements are agreed. Any easements which are required to be free from construction, structures and haul/access roads will be illustrated within constraints plans and considered in the development of the Project proposals.	With appropriate stand off distances and subject to discussions with the relevant stakeholders on foul runoff proposals, effects are anticipated to be not significant.	The foul strategy will be assessed in greater detail within the Drainage Strategy documentation that will support the DCO Submission.

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			It is anticipated that there will be limited occupancy at the Site and therefore limited foul runoff generated. Foul drainage strategy proposed for the operation phase will be included in the ODS and will discuss all options for foul water disposal, adhering to foul drainage hierarchy. Initially, Southern Water will be consulted to discuss the suitability of discharging foul runoff to their sewerage network. If such option is not feasible, the potential to utilise an on-site package treatment plant with discharge to a local watercourse, or discharge to cess pits and removal off the site to a suitably licensed facility will be considered. If these options are taken forward, consultation with the EA and/or RMAIDB will be		

Phase	Activity	Receptor	Preliminary Assessment	Potential Significant Effect(s)	Next Steps
			carried out to ensure that the proposal meets their requirements. Discussions surrounding this will be undertaken with the EA and RMAIDB to discuss acceptability.		

Drawing number

Figure 6-1

Project/Location

South Brooks Solar Farm

Drawing title

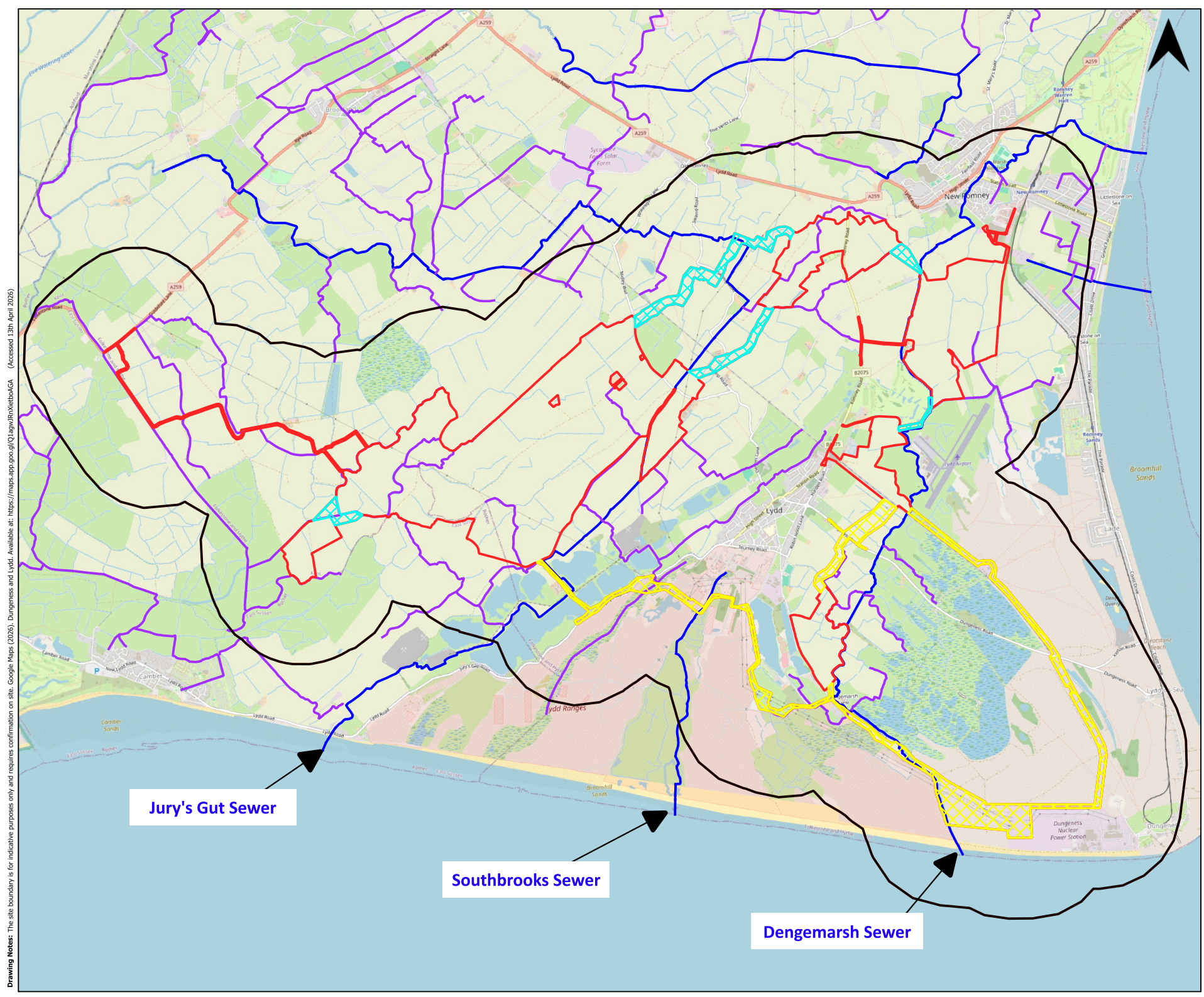
Hydrology Study Area

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Substation Areas
- Indicative Solar Farm Areas
- Indicative Mitigation Land Areas
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes

0 1 2 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)



Drawing number

Figure 6-2

Project/Location

South Brooks Solar Farm

Drawing title

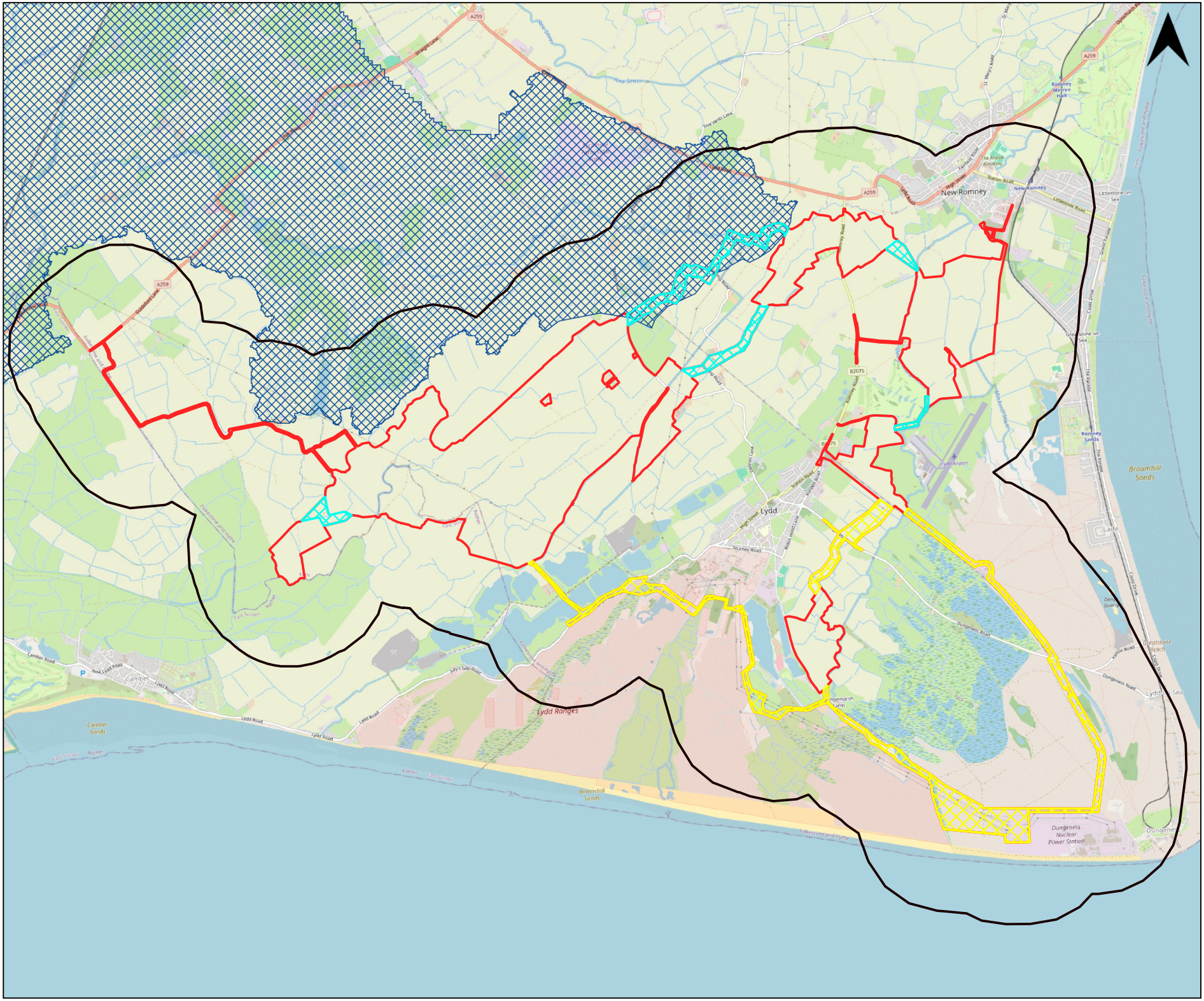
Watercourses

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- EA Main Rivers
- IDB watercourses

0 1 2 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)



Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-3

Project/Location

South Brooks Solar Farm

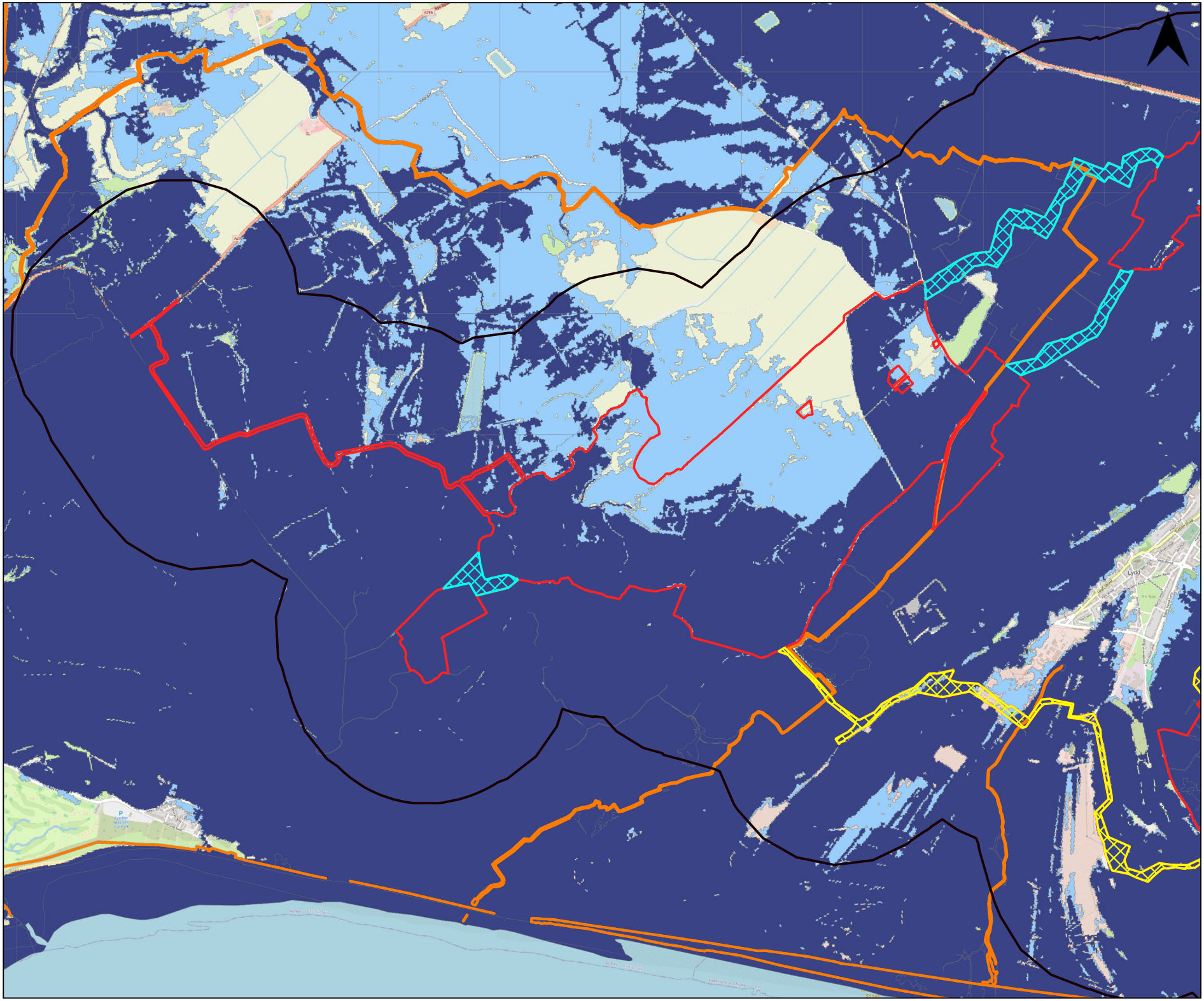
Drawing title

Drinking Water Protected Areas (Surface Water)

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Drinking Water Protected Areas (Surface Water)

0 1 2 km



Drawing number

Figure 6-4A

Project/Location

South Brooks Solar Farm

Drawing title

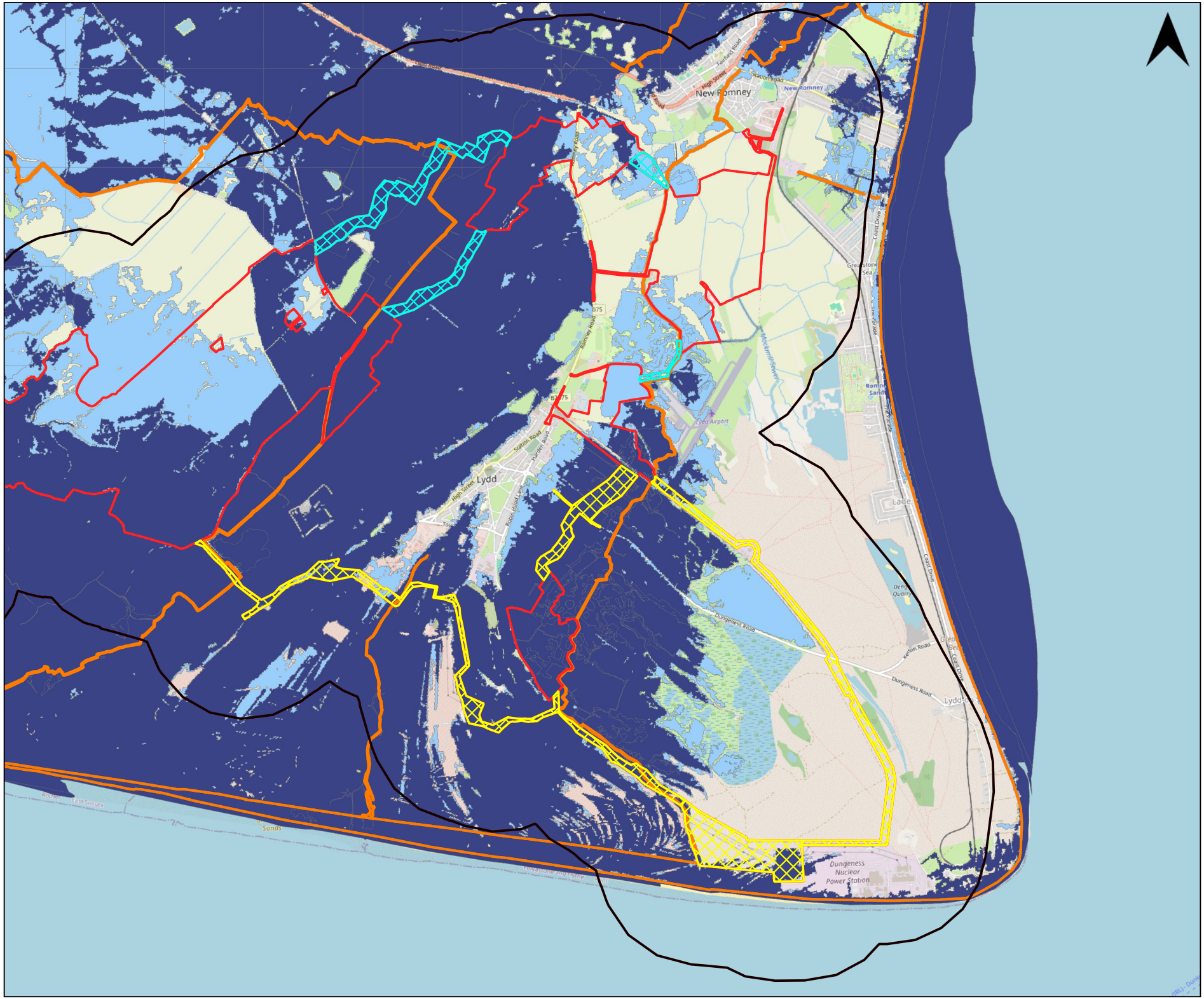
Environment Agency Flood Map for Planning

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Flood Zone 1
- Flood Zone 2
- Flood Zone 3
- Flood Defences

0 0.5 1 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)



Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXkebbAGA (Accessed 13th April 2026)

Drawing number

Figure 6-4B

Project/Location

South Brooks Solar Farm

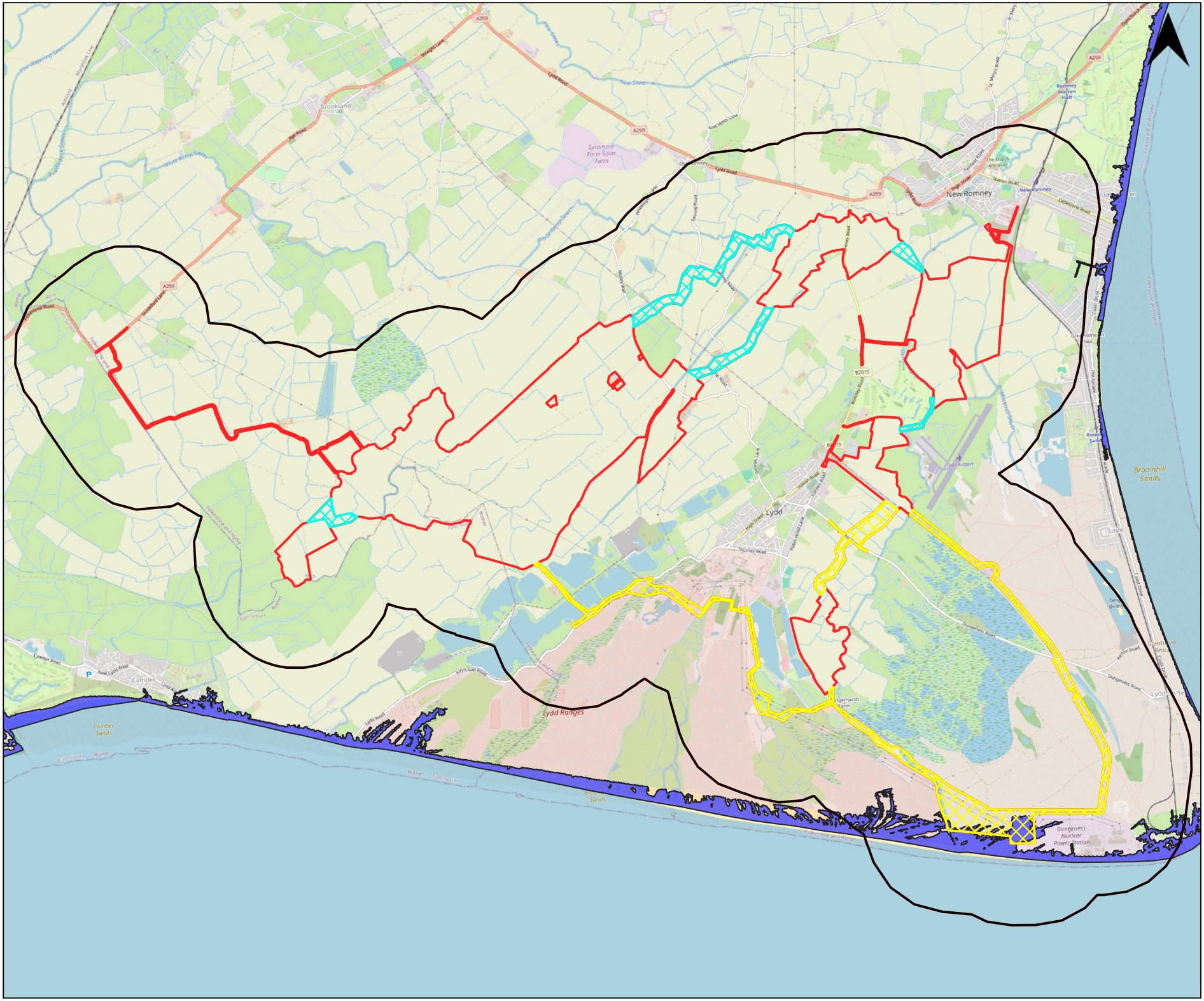
Drawing title

Environment Agency Flood Map for Planning

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Flood Zone 1
- Flood Zone 2
- Flood Zone 3
- Flood Defences

0 0.5 1 km



Drawing number

Figure 6-5

Project/Location

South Brooks Solar Farm

Drawing title

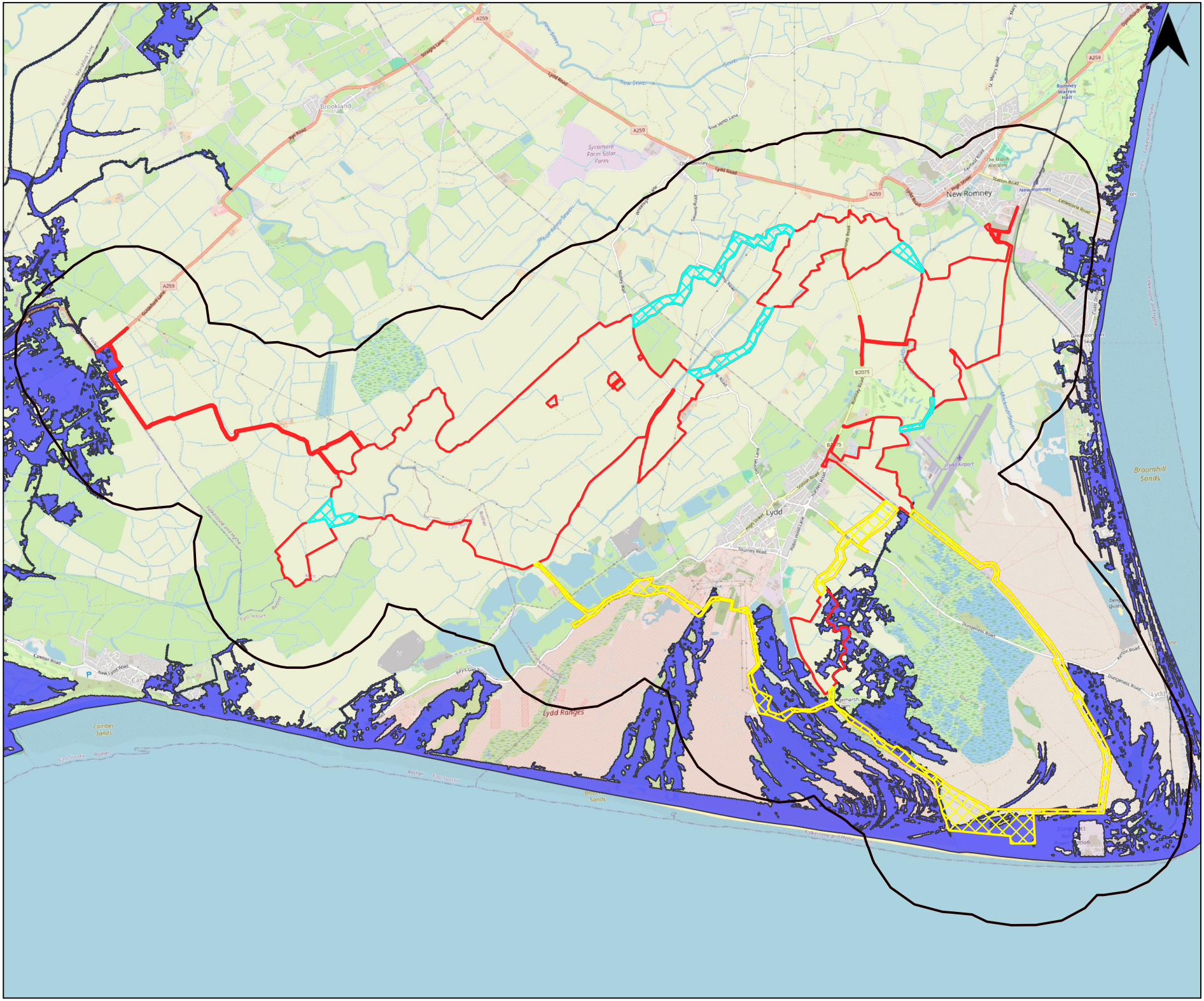
Tidal Defended 1 in 200 Year Flood Event

Legend

- Site Boundary
- Hydrology Study Area
- Tidal Defended 1 in 200 Year Flood Extent
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes

0 1 2 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)



Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-6

Project/Location

South Brooks Solar Farm

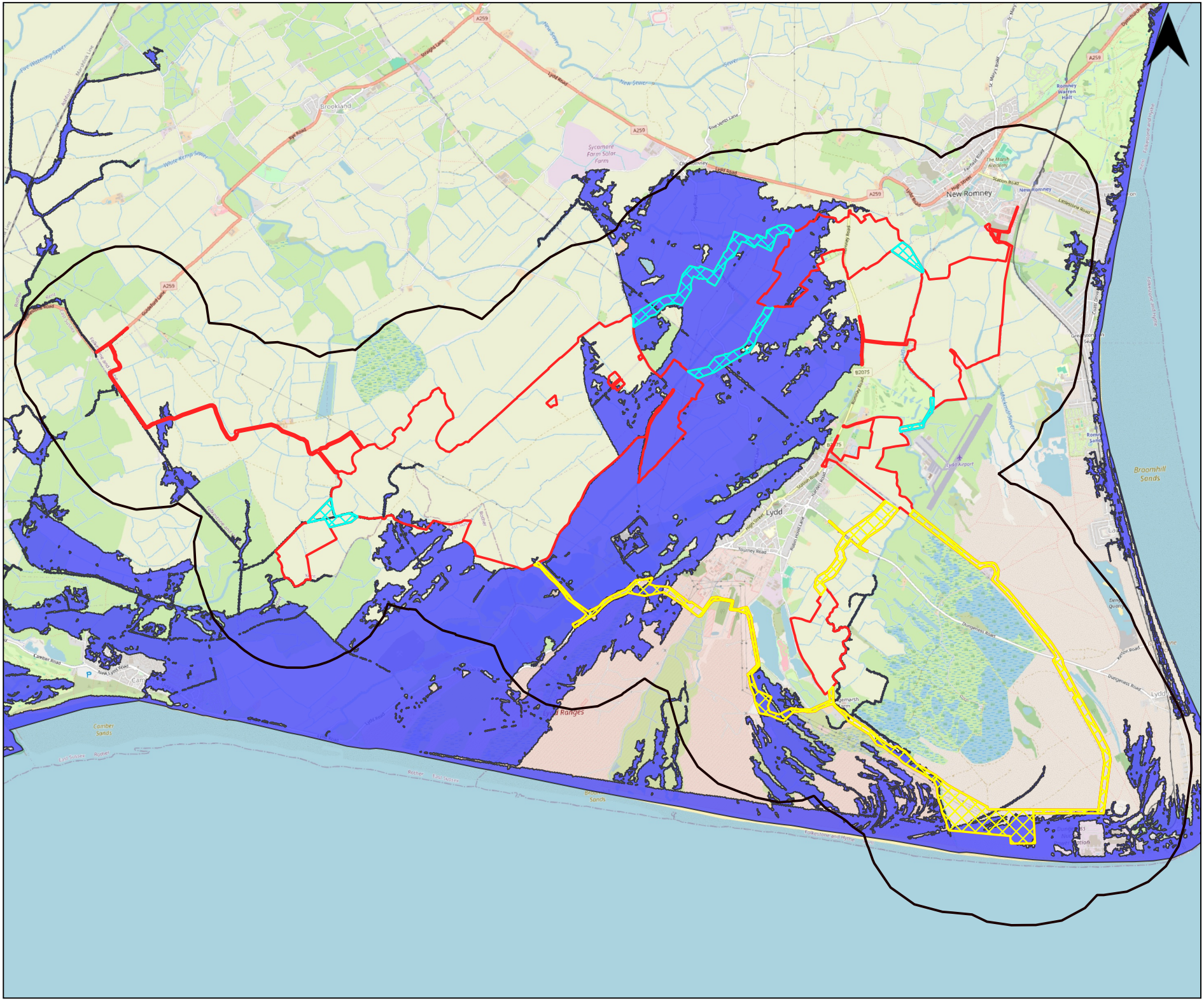
Drawing title

Tidal Defended Climate Change Design Event

Legend

- Site Boundary
- Hydrology Study Area
- Tidal Defended 1 in 200 NPPF 2115 Climate Change Year Flood Extent
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes

0 1 2 km



Drawing number

Figure 6-7

Project/Location

South Brooks Solar Farm

Drawing title

Tidal Breach location 9 Flood Event

Legend

- Site Boundary
- Hydrology Study Area
- Tidal Breach Location 9 UKCP09 2115 Flood Extent
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes

0 1 2 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwURnKietboAGA (Accessed 13th April 2026)

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-8A

Project/Location

South Brooks Solar Farm

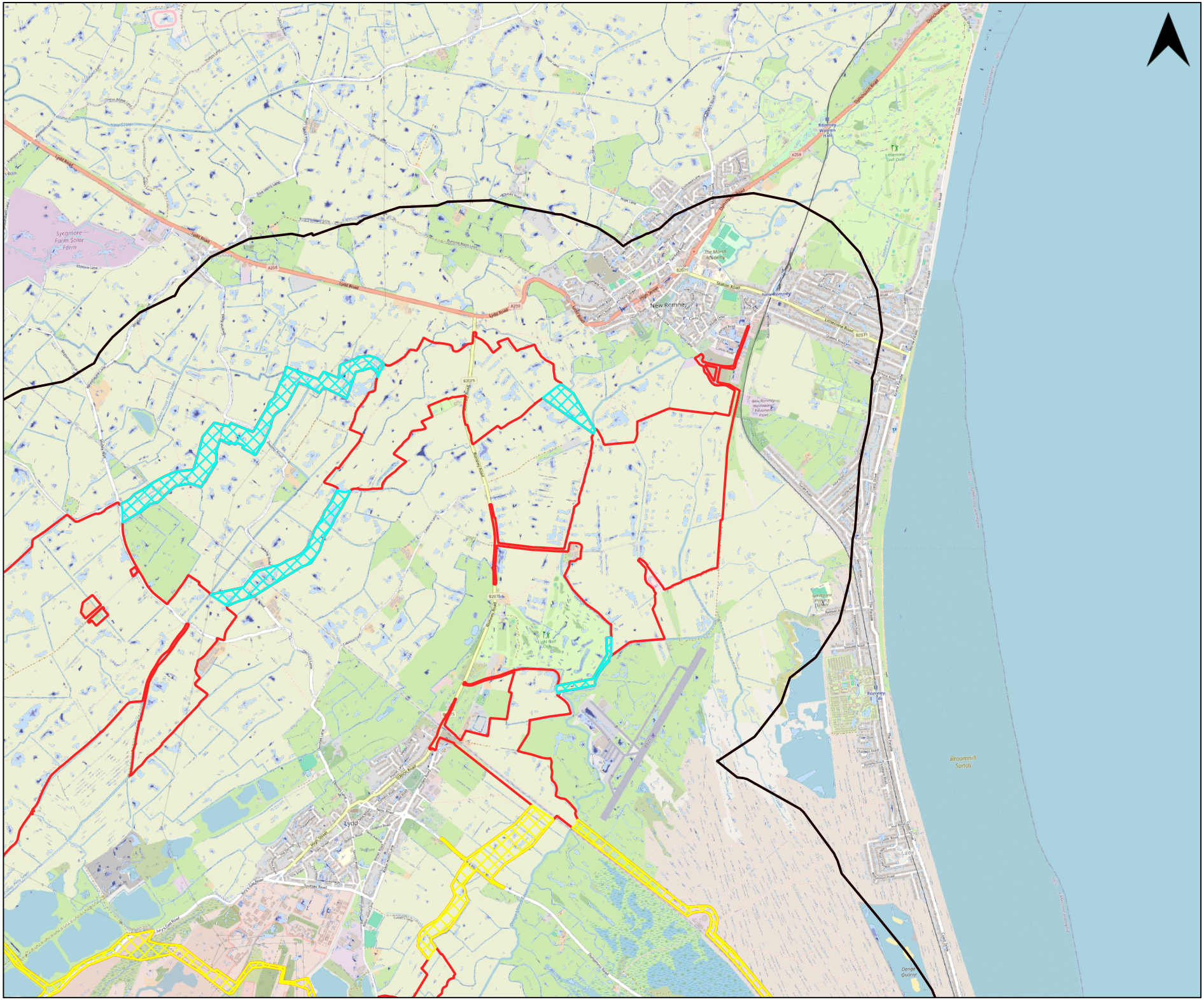
Drawing title

Environment Agency Present Day Surface Water Flood Map

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.75 1.5 km



Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXketboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-8B

Project/Location

South Brooks Solar Farm

Drawing title

Environment Agency Present Day Surface Water Flood Map

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.5 1 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXketboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-8C

Project/Location

South Brooks Solar Farm

Drawing title

Environment Agency Present Day Surface Water Flood Map

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.5 1 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-9A

Project/Location

South Brooks Solar Farm

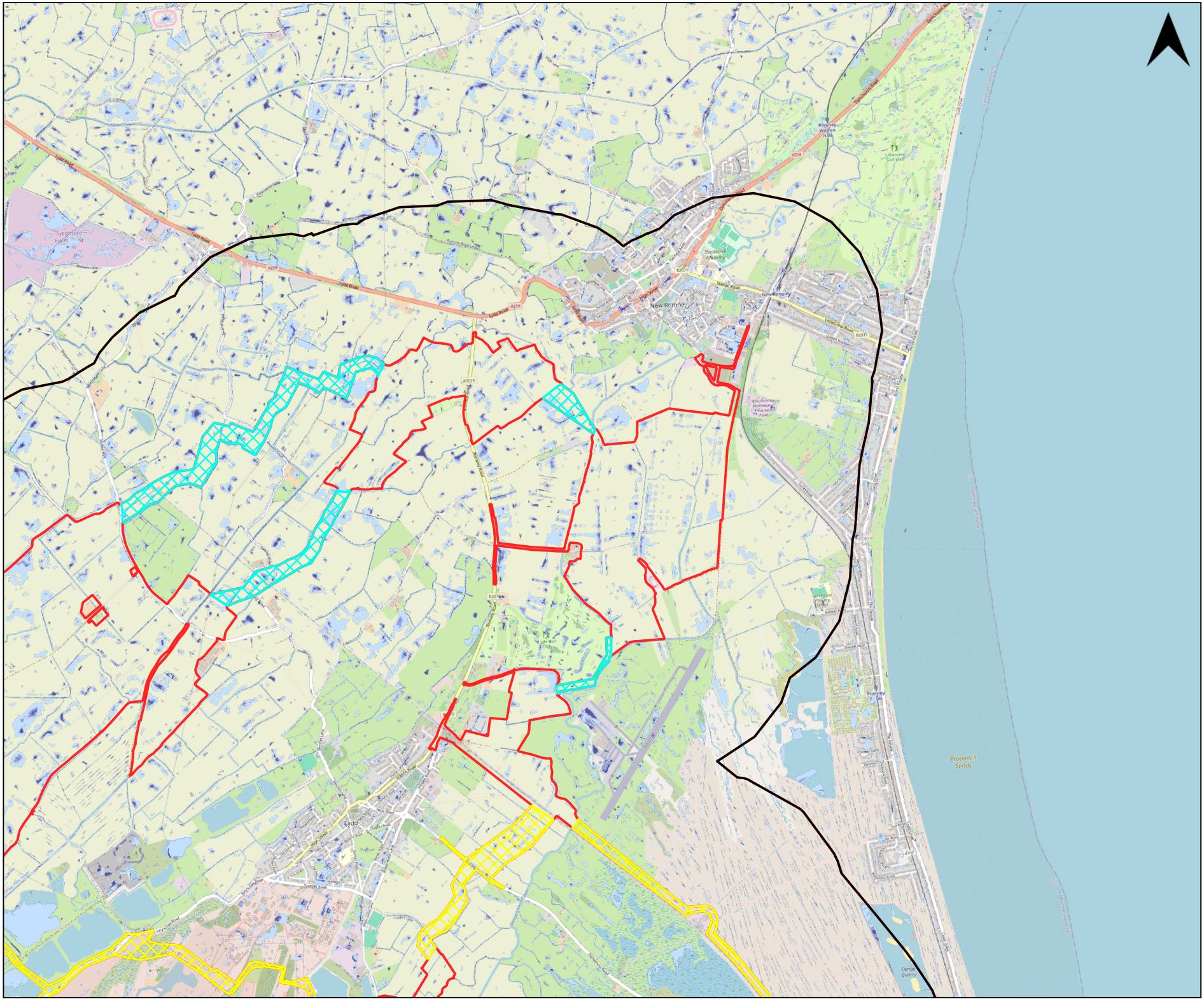
Drawing title

Environment Agency Future Climate Change Scenario Water Flood Map for 2040 to 2060

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.75 1.5 km



Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXkebboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-9B

Project/Location

South Brooks Solar Farm

Drawing title

Environment Agency Future Climate Change Scenario Water Flood Map for 2040 to 2060

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.5 1 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXketboAGA (Accessed 13th April 2026)

Drawing number

Figure 6-9C

Project/Location

South Brooks Solar Farm

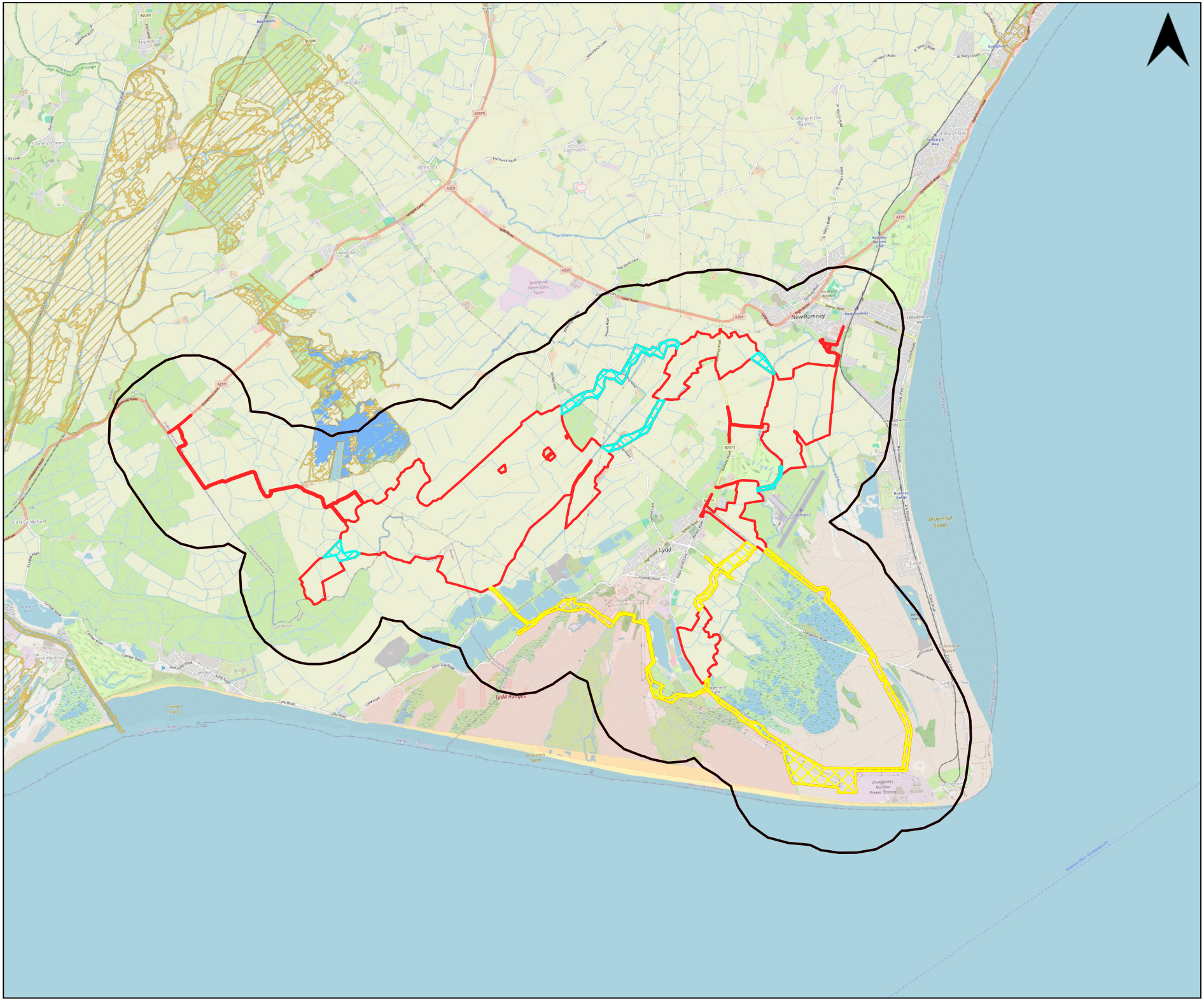
Drawing title

Environment Agency Future Climate Change Scenario Water Flood Map for 2040 to 2060

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Very Low Risk
- Low Risk
- Medium Risk
- High Risk

0 0.5 1 km



Drawing number

Figure 6-10

Project/Location

South Brooks Solar Farm

Drawing title

Environment Agency's Risk of Flooding from Reservoirs Map

Legend

- Site Boundary
- Hydrology Study Area
- Indicative Grid Connection Cable Routes
- Indicative Interconnecting Cable Routes
- Maximum Extent of Reservoir Flooding (Normal River Levels)
- Maximum Extent of Reservoir Flooding (with Flooding from Rivers)

0 1.25 2.5 km

Drawing Notes: The site boundary is for indicative purposes only and requires confirmation on site. Google Maps (2026). Dungeness and Lydd. Available at: https://maps.app.goo.gl/Q1agwJRnXietboAGA (Accessed 13th April 2026)

South Brooks
Solar Farm

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