Site Specific Flood Risk Assessment

Ballyloo Substation & Grid Connection SID Application

Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big, Co. Carlow

November 2025

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

Site Specific Flood Risk Assessment

Client: Ballyloo Solar Farm Limited

Location: Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big, County Carlow

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1. Introduction

IE Consulting was requested by Ballyloo Solar Farm Ireland Limited to undertake a Stage 1 / Stage 2 Site Specific Flood Risk Assessment (SSFRA) in support of a planning application for a proposed electricity substation and underground cable grid connection. The purpose of the proposed development is to transport the electricity generated at the proposed Ballyloo, Park and Ballybannon Solar Farms to the national electricity grid via the existing 220/110kV Kellis substation in County Carlow.

The purpose of this SSFRA is to assess the potential flood risk to the proposed development site and to assess the impact that the development as proposed may or may not have on the existing hydrological regime of the area.

Quoted ground levels or estimated flood levels relate to Ordnance Datum (Malin) unless stated otherwise.

This flood risk assessment study has been undertaken in consideration of the following guidance document:

'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' DOEHLG 2009.

2. Project Description

The purpose of the substation and underground cable grid connection (proposed development) is to transport the electricity generated at the proposed Ballyloo, Park and Ballybannon Solar Farms to the national electricity grid via the existing 220/110kV Kellis substation.

The proposed development comprises of:

1. A 220kV Air Insulated Switchgear (AIS) or Gas Insulated Switchgear (GIS) electricity substation or a 110kV AIS electricity substation, including two control buildings, associated electrical structures and apparatus, lightning protection, telecom pole, perimeter security fencing, security lighting, water and drainage infrastructure, temporary construction compound to connect to and serve solar farms;
2. Associated grid connection between the proposed substation and the existing 110/220kV Kellis substation comprising 220kV or 110kV underground electricity cables (reflecting final substation option) of c.8.9 km or c. 8.65 km in length to be provided in an excavated trench including associated fibre cable and ducting, and all associated site development and reinstatement works. Two options are proposed after the first c.8.3 km of underground grid connection and for the final c.0.35 – 0.6 km of the underground cable grid connection route comprising (i) cabling in the L30535 public road, or (ii) cabling in private agricultural land;
3. Temporary construction and permanent operational access to the substation from the L3050, vehicular entrance and access track from this public road;
4. All ancillary site development, excavation, construction, landscaping and reinstatement works;
5. The development subject to this application forms part of grid connection and access arrangements which will facilitate the connection of the permitted Ballyloo Solar Farm (Carlow County Council Reference 24/60043 / An Coimisiún Pleanála Reference ABP-322347-25), permitted Park Solar Farm (Carlow County Council Reference 24/60205), and proposed Ballybannon Solar Farm (Carlow County Council Reference 25/60137) to the national electricity grid via the existing 110/220kV Kellis substation. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development. The NIS includes consideration of the permitted Ballyloo and Park Solar Farms and the proposed Ballybannon Solar Farm which are located in County Carlow.

The operational lifetime of the solar farms is assumed to be 40 years. However, following the decommissioning of the solar farm, it is envisaged that the substation (and underground cable grid connection) will remain in situ as a valuable functioning and operational part of the electricity transmission network managed by the Transmission Systems Operator, EirGrid.

For clarity, it should be noted that any references to the substation or the grid connection in this report encompass all options as described.

3. Site Description

3.1. General

The proposed substation and grid connection are located in a rural setting within the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big in County Carlow. The location of the proposed development site is illustrated on *Figure 1* below and shown on Drawing Number *IE3212-001-B*, *Appendix A*.

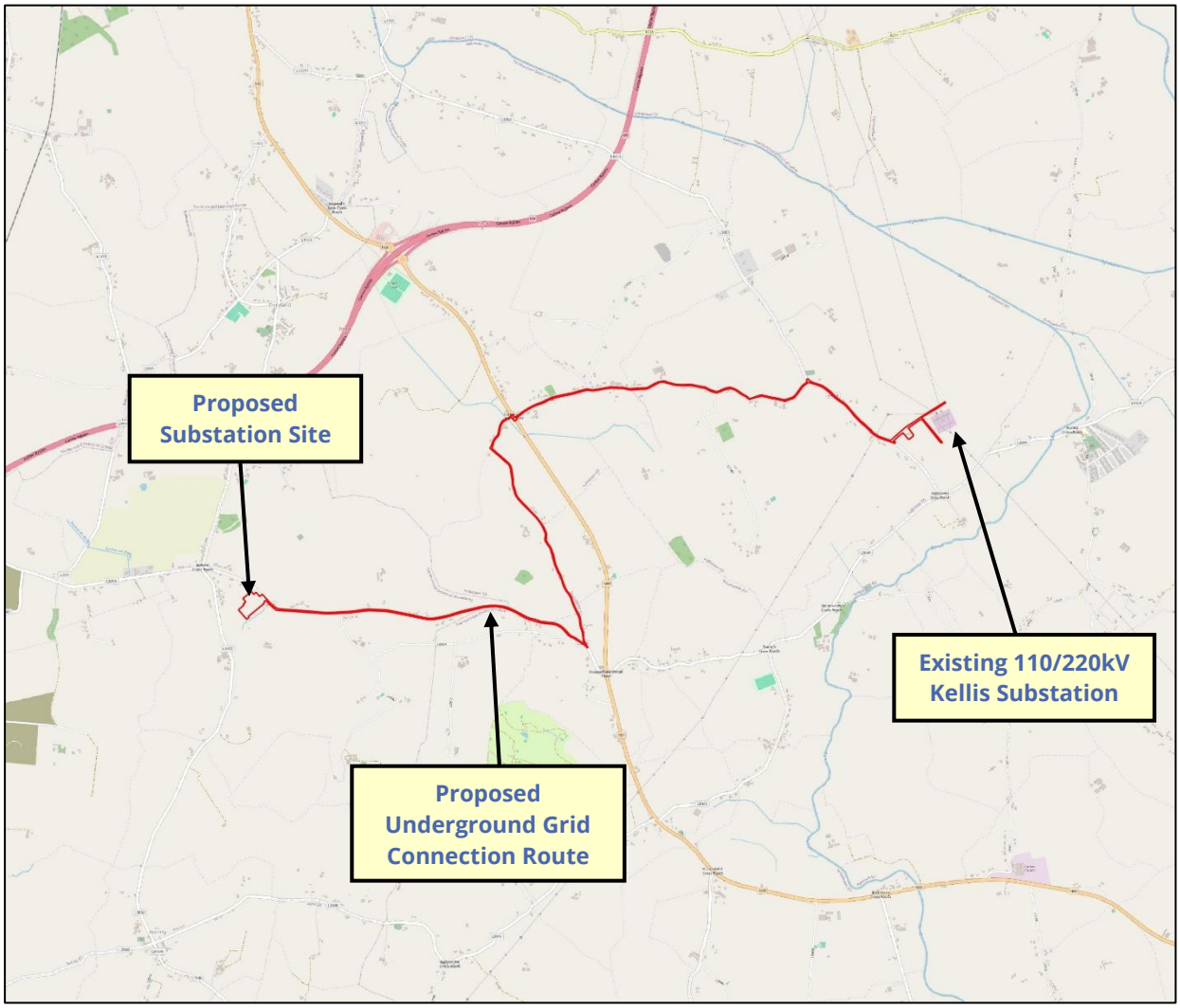


Figure 1 – Site Location

3.2. Existing Topography Levels at Site

Existing ground elevations within the site of the proposed substation range from approximately 102.2m OD (Malin) in the southern area of the site to 96.4m OD (Malin) in the northern area of the site.

3.3. Local Hydrology & Existing Drainage

The most immediate and significant hydrological feature in the vicinity of the proposed development site is the Ballybannon Stream. At this location the Ballybannon Stream generally flows in a south-east to north-west direction as shown in *Figure 2* below. Utilising the OPW Flood Studies Update (FSU) Portal software, the catchment area for the Ballybannon Stream was delineated and found to be approximately 1.577km^2 to the point downstream of the proposed substation site. An assessment of the catchment area indicates an entirely rural catchment with no significant urban fraction in the upstream catchment area.

The proposed grid connection route crosses the Kilmeany Stream and is located south of the Kilballyhue Stream in the townland of Linkardstown. The Burren River is also located in the general vicinity of the proposed grid connection route as illustrated in *Figure 2* below.

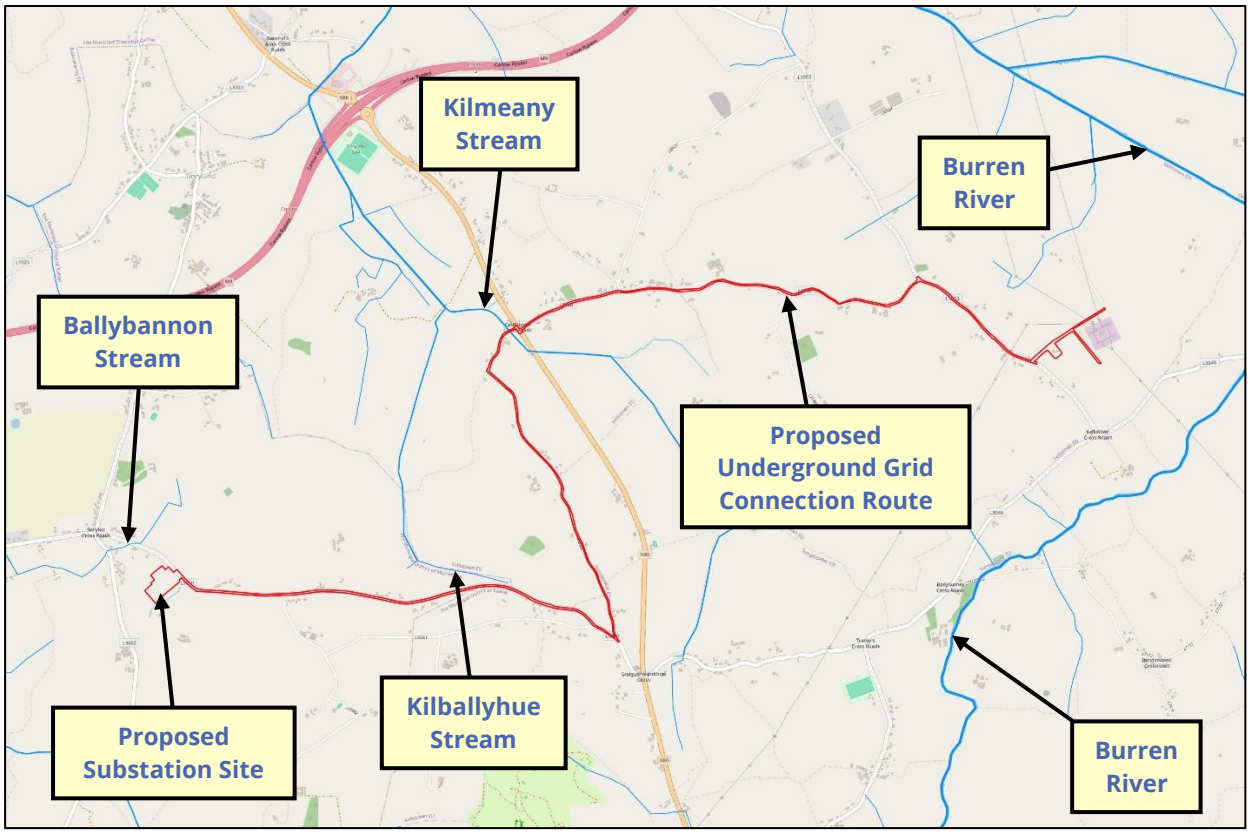


Figure 2 - Local Hydrology

4. Initial Flood Risk Assessment

The flood risk assessment for the proposed development site is undertaken in three principal stages, these being 'Step 1 – Screening', 'Step 2 – Scoping' and 'Step 3 – Assessing'.

4.1. Possible Flooding Mechanisms

Table 1 below summarises the possible flooding mechanisms in consideration of the site:

Source/Pathway	Significant?	Comment/Reason
Tidal/Coastal	No	The site is not located within a coastal or tidally influenced region.
Fluvial	Yes	The Ballybannon Stream is located in the vicinity of the proposed substation site. The proposed grid connection cable route is located in the general vicinity of the Burren River, Kilmeany Stream and Kilballyhue Stream.
Pluvial (urban drainage)	No	There is no significant urban drainage or water supply infrastructure located within or in the vicinity of the site.
Pluvial (overland flow)	No	The site is not surrounded by significantly elevated lands and does not provide an important surface water discharge point to adjacent lands.
Blockage	Possible	The proposed grid connection cable route crosses the Kilmeany Stream along the L30504 local road.
Groundwater	No	There are no significant springs or groundwater discharges mapped or recorded within the immediate vicinity of the site.

Table 1: Flooding Mechanisms

The primary potential flood risk to the proposed development site can be attributed to an extreme fluvial flood event in the Ballybannon Stream, Burren River, Kilmeany Stream or Kilballyhue Stream located in the general vicinity of the site. Secondary and residual flood risk can be attributed to potential surcharge due to blockage of the watercourse crossings of the proposed grid connection cable route located in the vicinity of the site.

In accordance with 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities - DOEHLG 2009' the potential flood risk to the proposed development site is analysed in the subsequent 'Screening Assessment' and "Scoping Assessment" section of this study report.

5. Screening Assessment

The purpose of the screening assessment is to establish the level of flooding risk that may or may not exist for a particular site and to collate and assess existing current or historical information and data which may indicate the level or extent of any flood risk.

If there is a potential flood risk issue then the flood risk assessment procedure should move to 'Step 2 – Scoping Assessment' or if no potential flood risk is identified from the screening stage then the overall flood risk assessment can end at 'Step 1'.

The following information and data was collated as part of the flood risk screening assessment for the proposed development site.

5.1. OPW/EPA/Local Authority Hydrometric Data

Existing sources of OPW, EPA and local authority hydrometric data were investigated. As illustrated in *Figure 3* below, this assessment has determined that there is one hydrometric gauging station located on the Burren River to the east of the proposed development site.

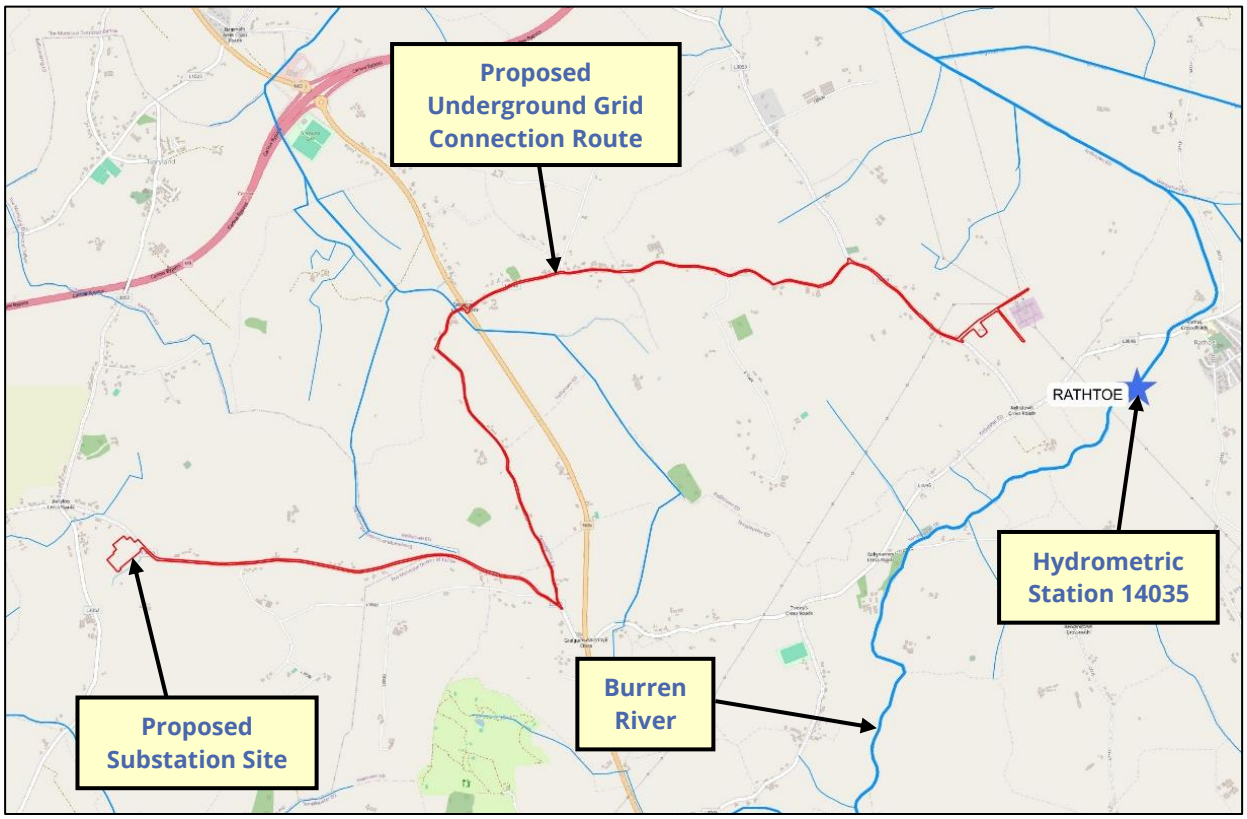


Figure 3 - Hydrometric Gauging Stations

Station 14035 is located on the Burren River entered into the Register of Hydrometric Stations in Ireland as an inactive staff gauge station with spot flow measurements only recorded.

5.2. OPW PFRA Indicative Flood Mapping

Preliminary Flood Risk Assessment (PFRA) Mapping for Ireland was produced by the OPW in 2011. OPW PFRA flood map numbers 2019/MAP/155/A and 2019/MAP/170/A illustrate indicative flood zones within this area of County Carlow.

Figure 4 below illustrates an extract from the above indicative flood map in the vicinity of the proposed development site.

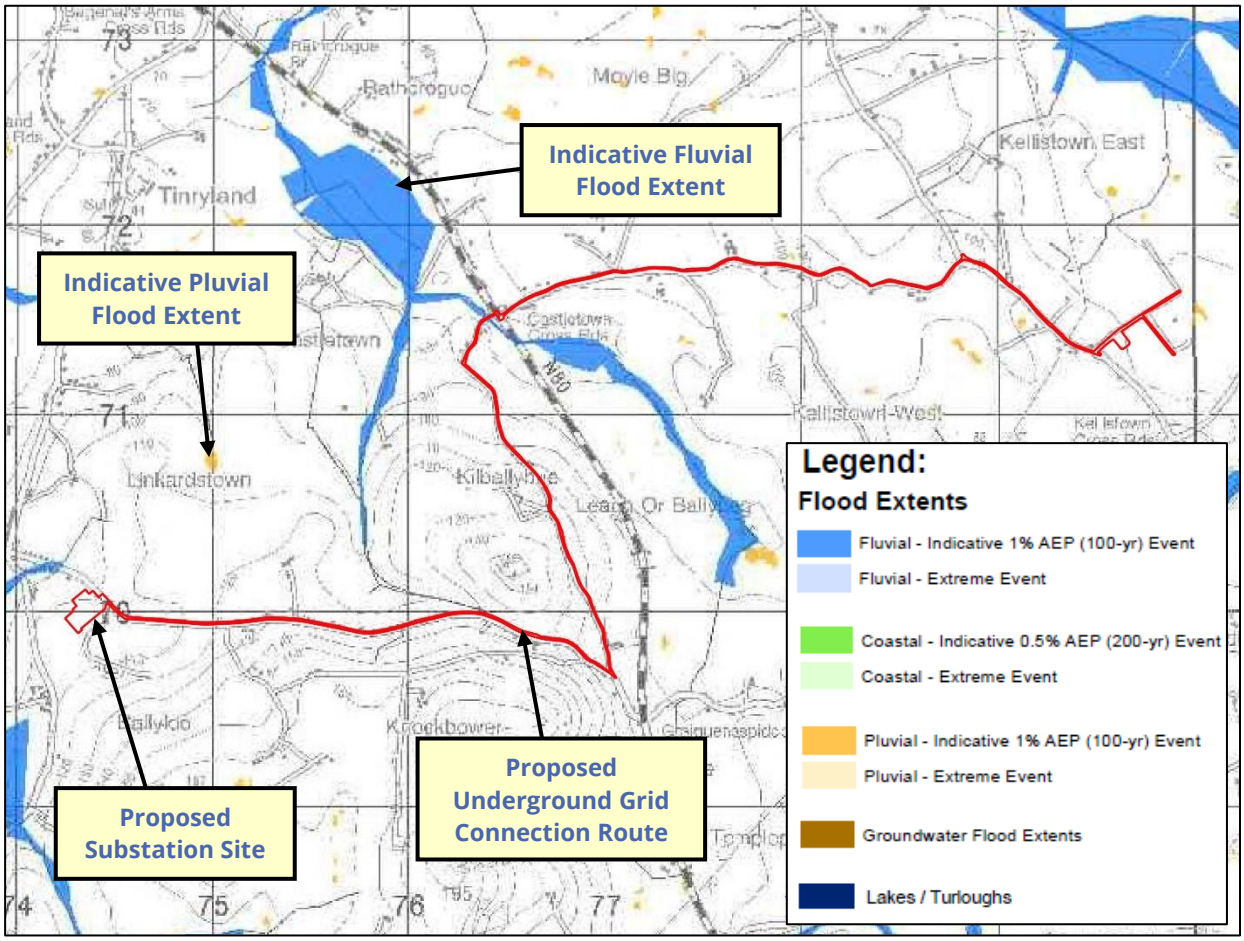


Figure 4 - OPW PFRA Mapping

The OPW PFRA indicative flood mapping indicates that one location along the route of the proposed grid connection falls within an indicative fluvial flood zone associated with the Kilmeany Stream. The proposed development site does not fall within an indicative fluvial, pluvial or groundwater flood zone.

It should be noted that the extent of flooding illustrated on these maps was developed using a low-resolution digital terrain model (DTM) and illustrated flood extents are intended to be indicative only. The flood extents mapped on the PFRA maps are not intended to be used on a site-specific basis.

5.3. Ordnance Survey Historic Mapping

Available historic mapping for the area was consulted, as this can provide evidence of historical flooding incidences or occurrences. The maps that were consulted were the historical 6-inch maps (pre-1900), and the historic 25-inch map series.

Figure 5 and *Figure 6* below illustrates the historic mapping for the area of the proposed development site.

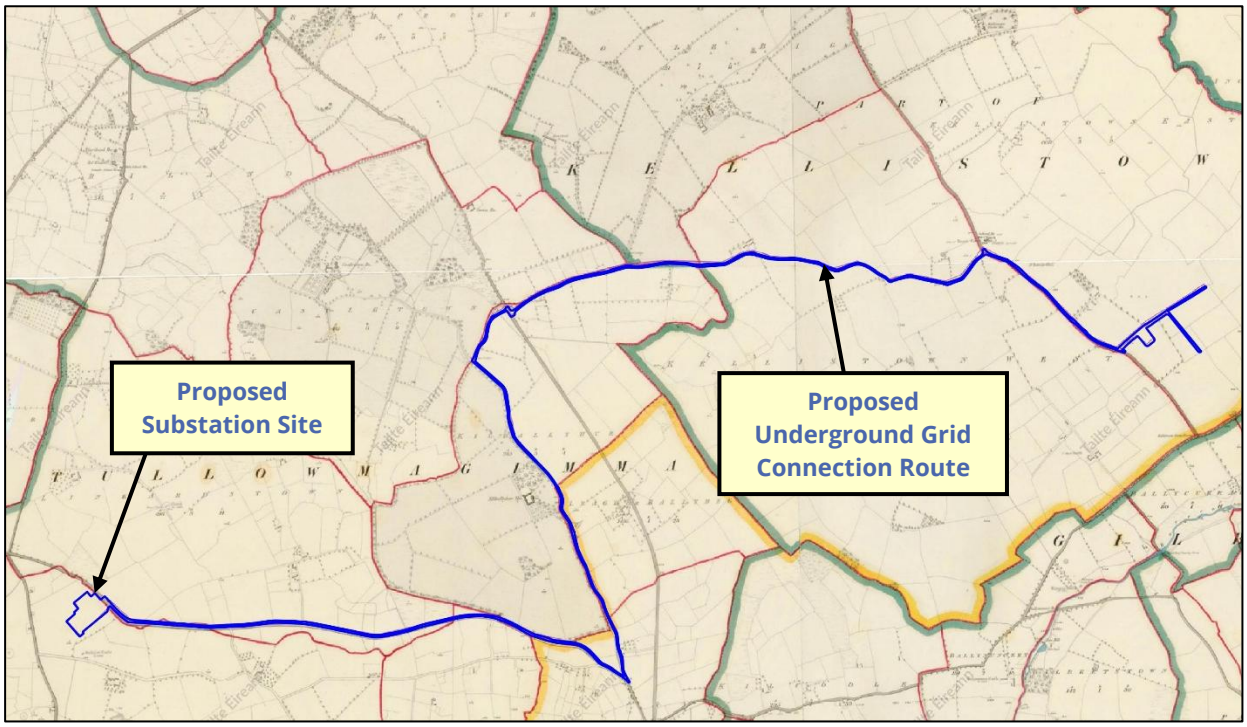


Figure 5 - Historic 6 Inch Mapping

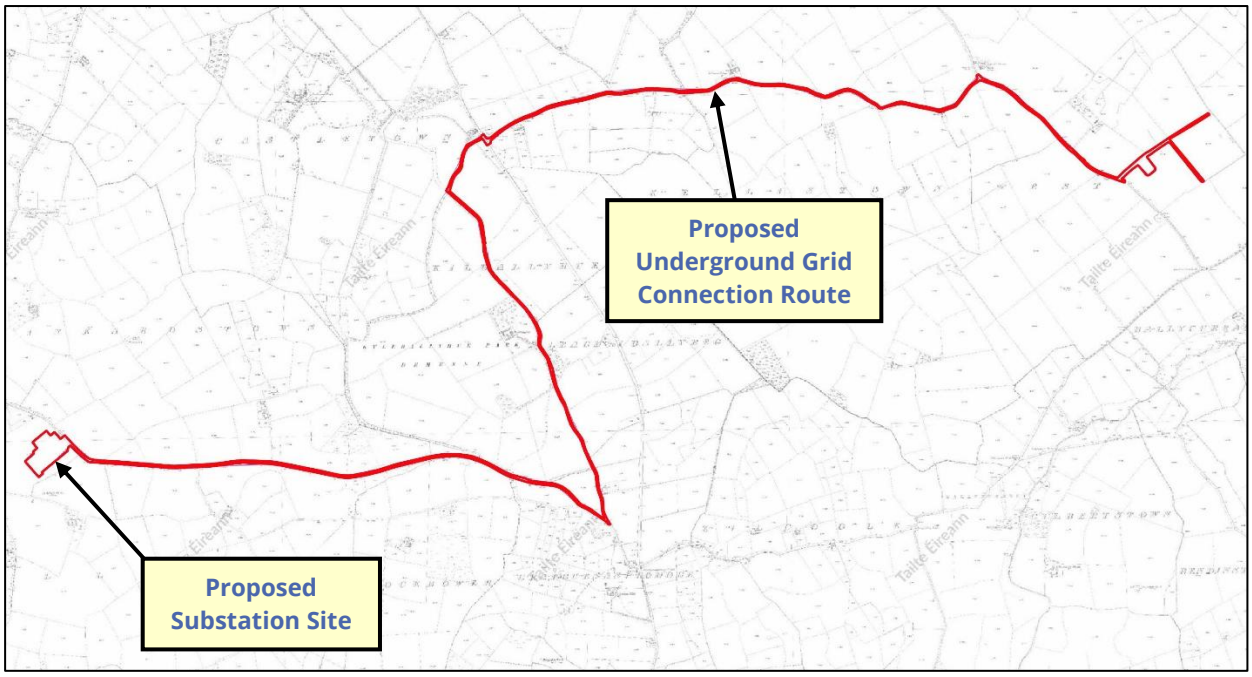


Figure 6 - Historic 25 Inch Mapping

The historic 6 inch and 25 inch mapping does not indicate any historical or anecdotal instances of flooding within or adjacent to the boundary of the proposed substation development site or along the route of the proposed grid connection.

5.4. Geological Survey of Ireland Mapping

The alluvial deposit maps of the Geological Survey of Ireland (GSI) were consulted to assess the extent of any alluvial deposits in the vicinity of the proposed development site. Alluvial deposits can be an indicator of areas that have been subject to flooding in the recent geological past.

Figure 7 below illustrates the subsoil mapping for the general area of the proposed development site.

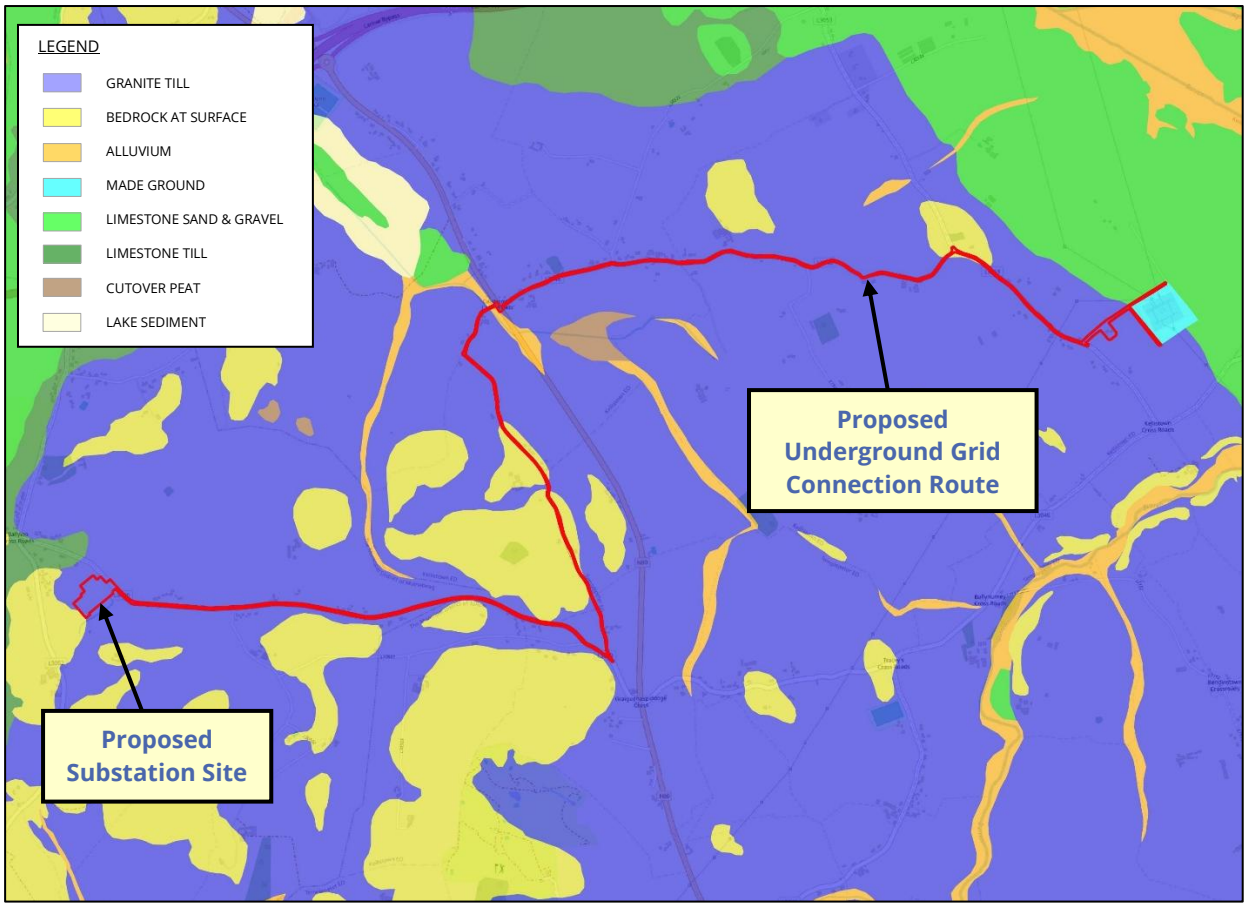


Figure 7 - GSI Subsoil Mapping

Figure 7 above indicates that the proposed development site is predominantly underlain by Granite Till and lesser areas of Bedrock at Surface, Alluvium and Limestone Sand and Gravel. There are no alluvial deposits mapped within the location of the proposed substation site. There is a small area of alluvial deposits mapped along the route of the proposed grid connection.

5.5. Geological Survey of Ireland Groundwater Flood Mapping

Historic and Predictive Groundwater Mapping for Ireland was prepared by the GSi Department of Communication, Climate Action, and Environment in collaboration with Trinity College Dublin and the Institute of Technology Carlow.

Figure 8 below illustrates an extract from the above groundwater flood mapping in the vicinity of the proposed development site.

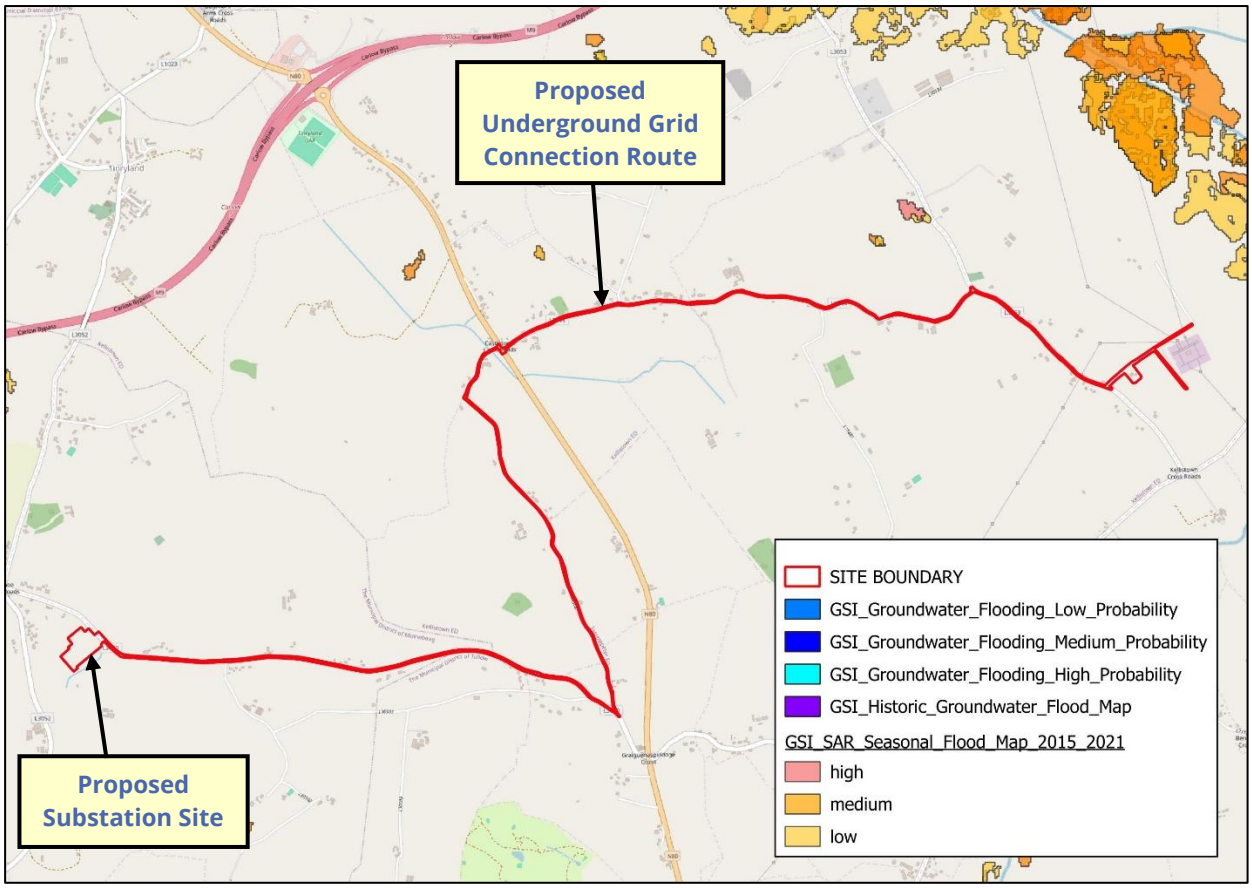


Figure 8 - GSI Groundwater Flood Mapping

The above GSI Groundwater Mapping shows no areas of predictive groundwater flooding mapped within the proposed substation site or along the route of the proposed grid connection.

Overall the groundwater flood risk to the proposed development site is LOW.

5.6. South Eastern CFRAM Study

This area of County Carlow has not been including as an Area of Further Assessment as part of the South Eastern CFRAM Study.

5.7. National Indicative Flood Mapping

The OPW National Indicative Fluvial Mapping (NIFM) set has been produced in 2020 for catchments greater than 5km^2 in areas for which flood maps were not produced under the National CFRAM Programme. These maps indicate areas predicted to flood during a theoretical flood event. The OPW National Indicative Fluvial Mapping (NIFM) flood extent maps are based on the results of a more detailed and higher resolution hydraulic modelling exercise undertaken along the watercourses (with

catchment areas > 5km^2) in the vicinity of the proposed development site in comparison to the OPW PFRA indicative flood map and therefore provide a reasonably accurate delineation of extreme fluvial flood zones in the general vicinity of the site. This mapping set is intended to supersede the OPW PFRA mapping set by producing a higher quality fluvial mapping set.

Figure 9 below illustrates an extract from the OPW NIFM data set in the vicinity of the site of proposed development for the present day scenario 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) fluvial flood events.

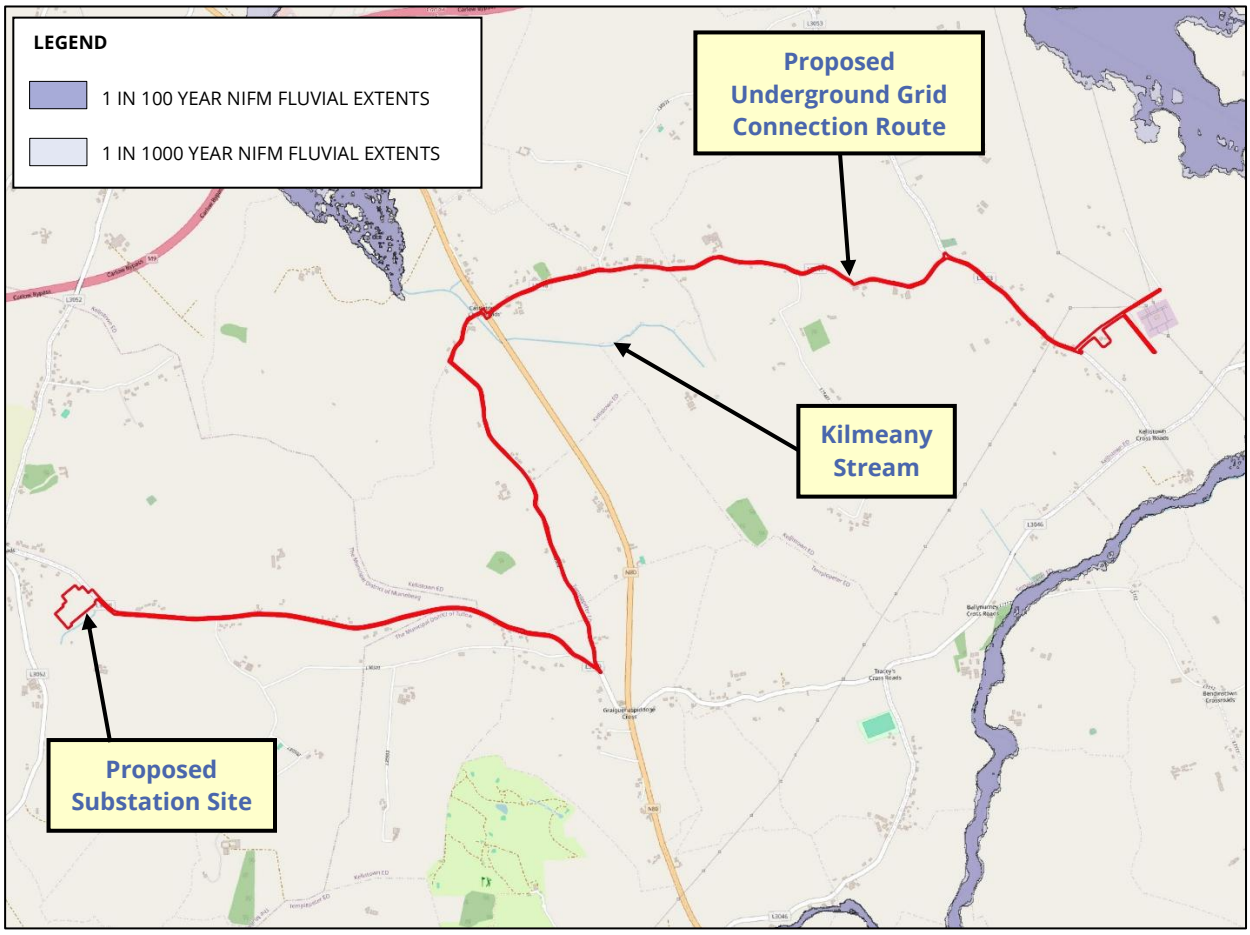


Figure 9 - OPW National Indicative Fluvial Flood Mapping

There are no areas of indicative fluvial flooding mapped within the boundary of the proposed development site.

It should be noted that the catchment area of the Kilmeany Stream is less than 5km^2, therefore it is likely that this watercourse has not been included in the OPW NIFM assessment.

5.8. OPW Flood Info Past Flood Events

The OPW Flood Info website (www.floodinfo.ie) was consulted in relation to available historical or anecdotal information on any flooding incidences or occurrences in the vicinity of the proposed development site.

Figure 10 below illustrates mapping from the Flood Info website in the vicinity of the proposed development site.

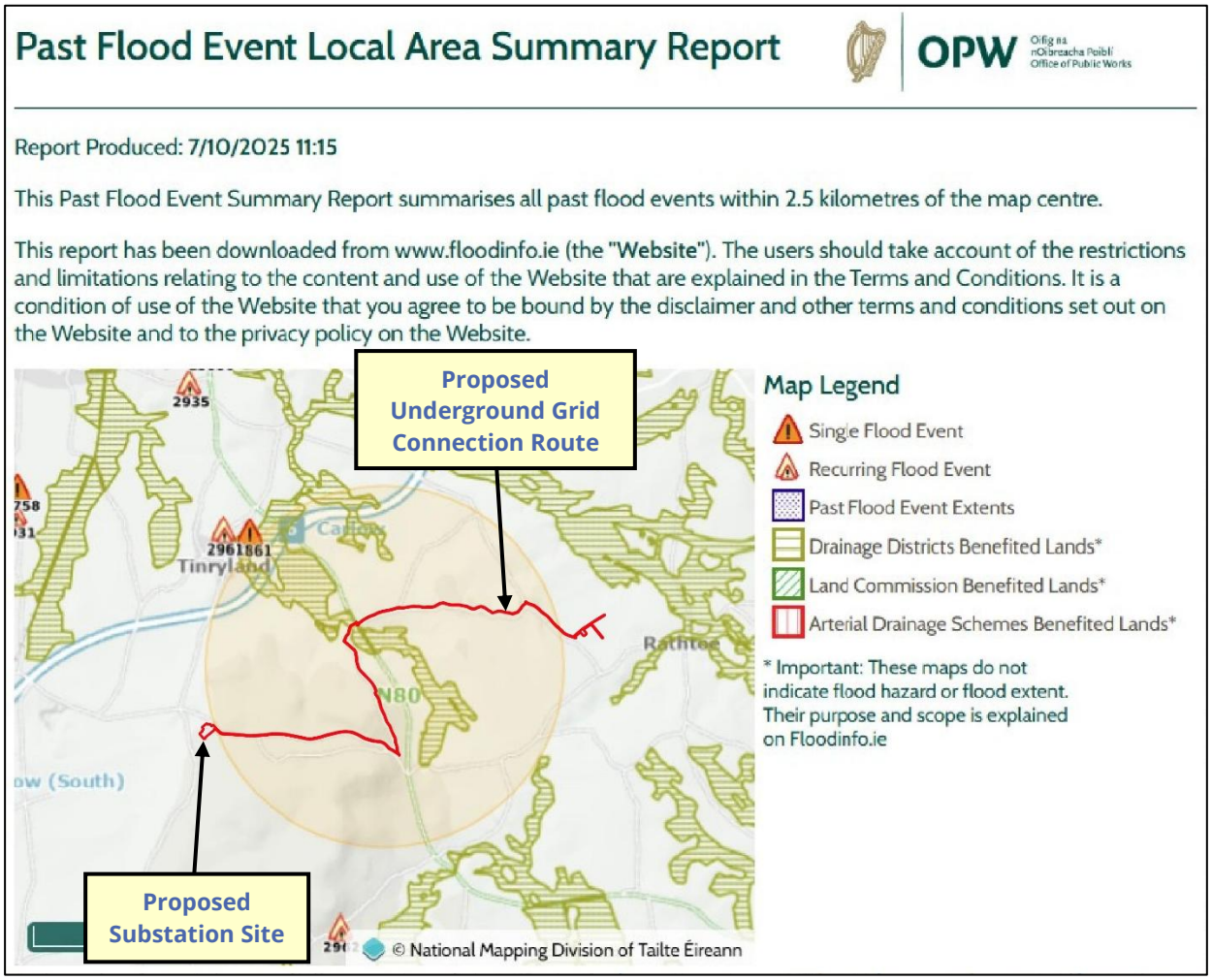


Figure 10 - OPW Flood Info Past Flood Events

As illustrated in *Figure 10* above, there are no flood events recorded at or in the vicinity of the proposed development site. It is noted that an area of the proposed development site is designated as Drainage District 'Benefiting Lands'. 'Benefiting Lands' are defined as 'land that were drained as part of a Drainage District does not necessarily indicate areas of existing flood risk.

6. Scoping Assessment

The purpose of the scoping stage is to identify possible flood risks and to implement the necessary level of detail and assessment to assess these possible risks, and to ensure these can be adequately addressed in the flood risk assessment. The scoping exercise should also identify that sufficient quantitative information is already available to complete a flood risk assessment appropriate to the scale and nature of the development proposed.

The above screening assessment indicates that according to the OPW PFRA indicative flood map, there is one location along the route of the proposed underground grid connection that is potentially susceptible to fluvial flooding associated with the Kilmeany Stream watercourse. The route of the proposed underground grid connection is not at risk of pluvial or groundwater flooding. The screening assessment indicates that the proposed substation development site is not at risk of fluvial, pluvial or groundwater flooding.

In consideration of the information collated as part of the screening exercise, and the availability of other information and data specific to the proposed development site, it is considered that sufficient quantitative information to complete an appropriate flood risk assessment can be derived from the information collated as part of the screening exercise alone.

The specific flood risk to and from the proposed development site is assessed in the subsequent 'Assessing Flood Risk' stage of this study report.

7. Assessing Flood Risk

7.1. Assessment of Fluvial Flood Risk

The screening assessment undertaken as part of this Site Specific Flood Risk Assessment indicates that the majority of the proposed development site does not fall within an indicative, predictive, historic or anecdotal fluvial, pluvial or groundwater flood zone. The majority of the site therefore falls within Flood Zone 'C'.

As illustrated in *Figure 11* below, the OPW indicative PFRA flood map data set indicates that a minor and limited area of the proposed grid connection route proposed may be susceptible to an extreme fluvial flood event associated with the Kilmeany Stream watercourse.

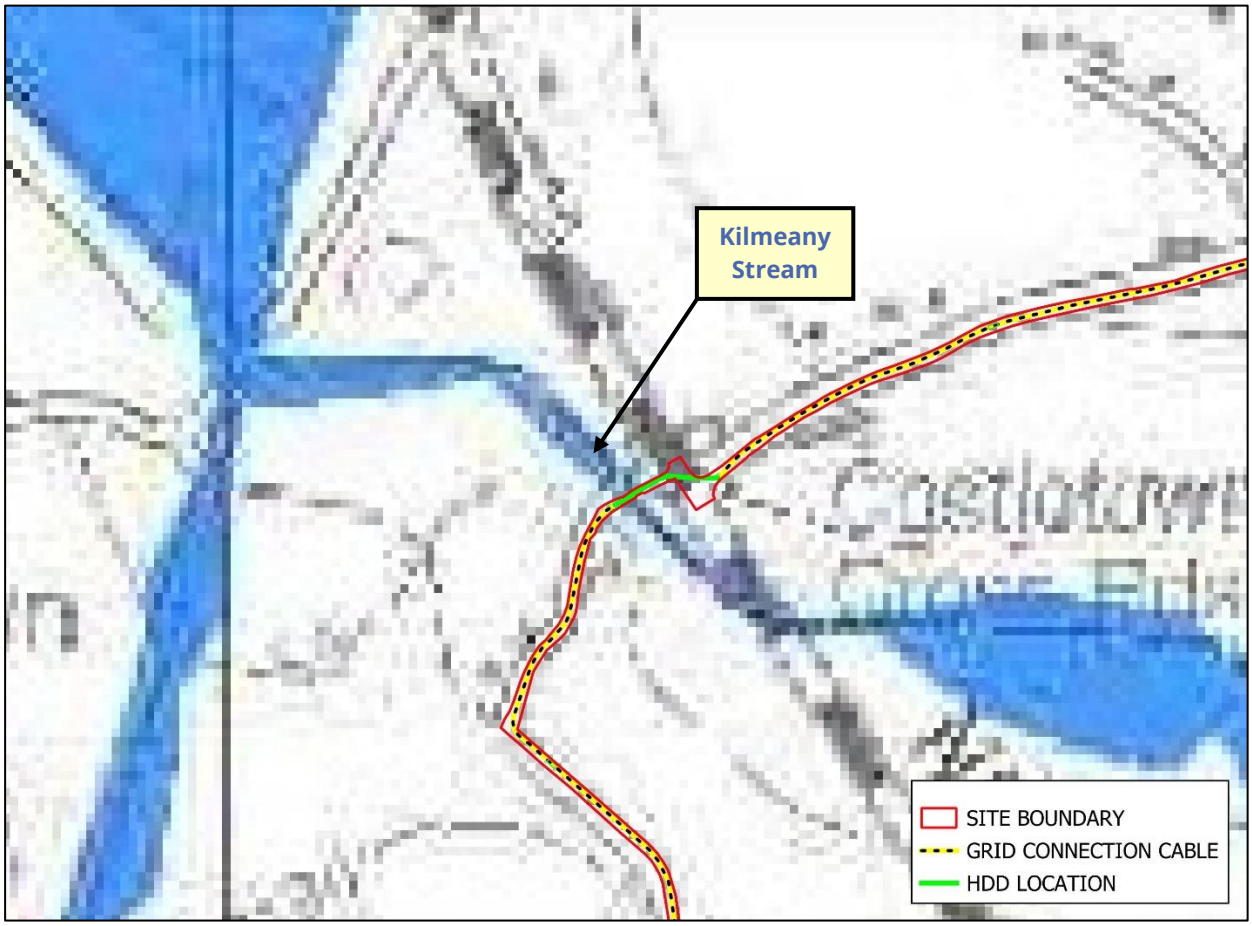


Figure 11 – Indicative PFRA Fluvial Flooding with Cable Crossing Locations

The grid connection cable/cables will be constructed underground within the public road network and will be designed and installed to prevent ingress of water as per the industry standard. Horizontal

directional drilling (HDD) shall be used as the method of crossing under the Kilmeany Stream watercourse at the location shown above in *Figure 11*. There will be no in-stream works at this location.

There is no history of flooding recorded at any location along the route of the proposed grid connection. The available historical 6-inch maps (pre-1900), and the historic 25-inch map series does not indicate any historical or anecdotal instances of flooding along the route of the proposed grid connection. The flood mapping produced by the OPW for this location is also indicative in nature.

The screening assessment undertaken as part of this Site Specific Flood Risk Assessment indicates that the proposed development site does not fall within an indicative, predictive, historic or anecdotal flood zone.

Therefore, the fluvial flood risk to the overall proposed development site is considered to be LOW.

7.2. Potential Flood Risk from the Development

The proposed substation site does not fall within an indicative, predictive, historic or anecdotal flood zone, therefore the proposed substation development will not result in an increased flood risk elsewhere.

The substation compound areas shall be constructed using a permeable gravel material, thus mimicking a soakaway scenario. The main areas to be drained include the roofs, which are modest in area in comparison to the overall compound area. Assuming even the most basic of infiltration rates down through the permeable compound stone, the existing greenfield situation shall be easily maintained.

Access tracks (temporary or permanent) within the proposed development site shall be constructed close to existing ground levels throughout the site and are therefore not expected to have any impact on the hydrological regime of the area. These are considered to be water compatible development which are to be constructed of permeable material and therefore will not increase the volume of surface water runoff.

The proposed cables shall be laid below the existing ground surface (trench depth is 1.425m) and therefore will have no impact on overland flow paths of fluvial waters. The cables/cable ducting will be designed and installed to prevent ingress of water as per the industry standard.

7.2.1. Construction Phase

A Construction Methodology report has been prepared for the proposed substation and grid connection. There is however some shared infrastructure related to site entrances, access roads etc. included in the permitted Ballyloo Solar Farm (planning reference 24/60043, An Coimisiún Pleanála reference ACP-322347-25).

Surface water drainage proposals for the proposed substation compound have been designed to mimic the natural drainage patterns of the site and thereby be in accordance with the Best Management Practices (BMPs) of Sustainable Drainage Systems (SuDS). This is achieved when the following parameters are considered:

- The compound construction is formed with permeable stone thus mimicking a soakaway scenario. ESB compound stone is single sized for the first 150mm for safety purposes. It then changes to a graded 6F2 material.
- The main areas to be drained includes the roofs and the compound road. These equate to approximately 1802m². These areas are modest in themselves and in comparison to the overall compound area. The compound road will be drained via series of road gullies.
- Assuming even the most basic of infiltration rates down through the permeable compound stone, the existing greenfield situation is easily maintained.

The surface water generated in hardstanding and bunded areas will discharge to soakaways via a Class 1 Full Retention Oil Separator. The electrical transformer in the substation is oil filled equipment and, as such, is protected with impermeable bunds. Surface water generated in this bund will be pumped out by an oil sensitive pump ensuring that only non-contaminated water enters the site drainage network.

Works will only be conducted in normal working hours of Monday to Friday 08:00 to 18:00 and Saturday 08:00 to 13:00, with no works on Sundays or Bank Holidays except in exceptional circumstances or in the event of an emergency.

On completion of the works, the pasture will be restored and prepared for seeding to encourage grass growth, restoration of the soil structure and natural creation of meadow grass. The processes will be supplemented in full by a suite of agreed measures to prevent against silt-laden runoff as well as standard good practice site management procedures including routine wheel washing.

7.2.2. Cumulative Flood Risk Potential

7.2.2.1. Proposed Solar Farms

A complete flood risk assessment was prepared for the planning application for the permitted Ballyloo Solar Farm (planning reference 24/60043, An Coimisiún Pleanála reference ACP-322347-25), permitted Park Solar Farm (planning reference 24/602025), and the proposed Ballybannon Solar Farm (planning reference 2560137) which is under consideration by Carlow County Council. Surface water management measures are proposed to manage any potential increase in surface water runoff rates from proposed hard-standing areas beyond the greenfield scenario as a result of these two solar farms. This will ensure there is no increase in flood risk as a result of the proposed solar farm development.

The proposed substation shall not be located in an area of flood risk and therefore will not result in any displacement of potential floodwater volumes. The substation compound areas shall be constructed using a permeable gravel material, thus mimicking a soakaway scenario. In addition there will be no increased flood risk to the proposed substation site as a result of its associated solar farm developments.

The grid connection cable/cables will be constructed underground within the public road network (primarily) and will be designed and installed to prevent ingress of water as per the industry standard. Horizontal directional drilling (HDD) shall be used as the method of crossing under the Kilmeany Stream watercourse. There will be no in-stream works required at this location. The proposed grid connection cables will not result in an increased flood risk to the surrounding lands, or any of the other developments proposed in the area. In addition there will be no increased flood risk to the proposed grid connection cables as a result of its associated solar farm developments.

Overall the cumulative impact of flood risk in consideration of the proposed development is considered to be low.

7.2.2.2. Other Projects

There are also a number of other unrelated projects proposed in the wider area, which are shown in *Figure 12* below.

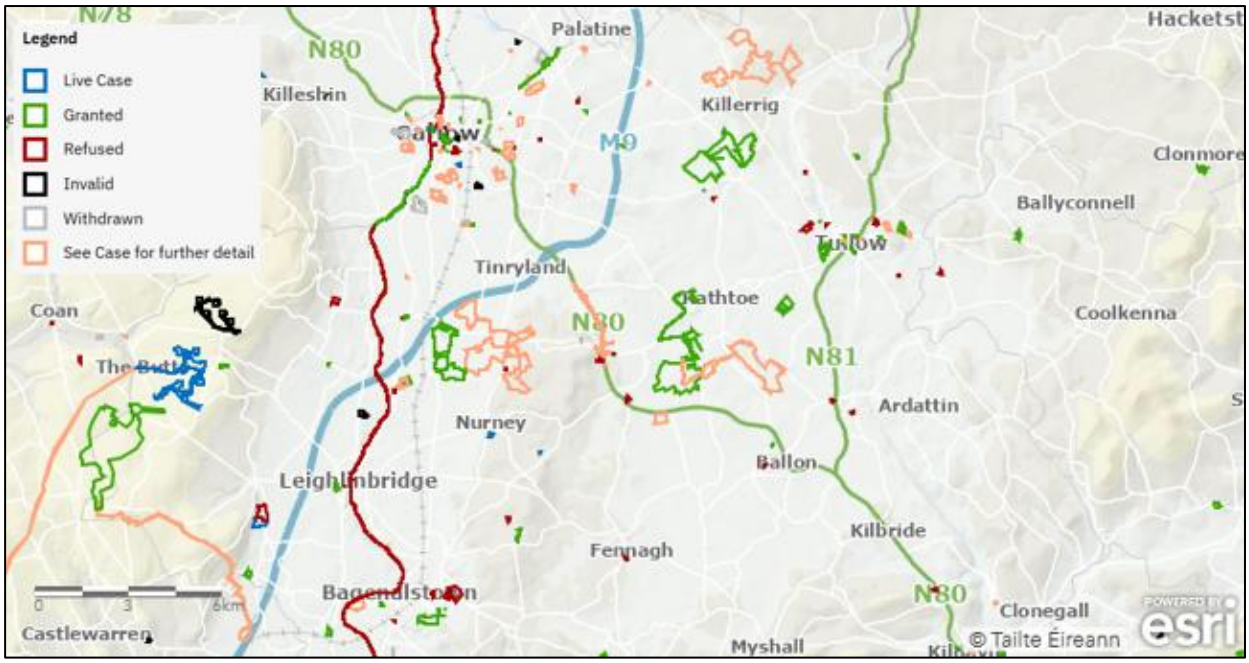


Figure 12 – Other Project Locations from An Coimisiún Pleanála Planning Enquiry System

A complete list of these projects is summarised below in *Table 2*:

Reference No.	Distance from Subject Site	Status	Description
24/60205	0km	Granted Permission – 24/04/2025	A 10 Year planning permission for a solar farm with a total area of circa 73 hectares in the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application
24/60043	0km	Granted Permission – 05/09/2025	A 10 Year Planning Permission for a solar farm with a total area of circa 192 hectares. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application
25/60137	0km	Notification to grant – 31/10/25	A 10 Year Planning Permission for a solar farm with a total area of circa 57 hectares. The solar farm will consist of solar panels on ground mounted frames, 8 no. single storey electrical inverter/transformer stations, 2 no. single storey spare parts containers, 1 no. Ring Main Unit, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L4038, L8185, R448, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 5 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and the Dublin - Waterford railway), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. existing entrances from the R448 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farms proposed under Carlow County Council References 24/60043 and 24/60205, but will not alter infrastructure proposed under these applications. The

			operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.
24/60410	0.1km	Granted Permission – 06/06/25	The replacement ("restringing") of the existing overhead line circuit conductor wires with a new higher capacity conductor • the strengthening of foundations at 7no. locations • shear block remedial works at 77no. locations • the strengthening of towers (i.e., member replacement) at 34no. locations • the replacement of 5.1km of earthwire • the painting of all structures • the replacement of insulating and ancillary hardware at structures • all associated works within the existing Kellis 220kV substation to accommodate the uprated 220kV OHL including uprating of the Great Island bay in Kellis 220kV substation
24/60223	0.1km	Granted Permission – 20/09/2024	110kV underground electricity cabling and all associated ancillary site development works. The cabling will extend from and connect with permitted 110kV underground electricity cabling (under An Bord Pleanála reference ABP-313139-22) on the L30535 public road to a line bay in the Kellis 220kV substation.
313139-22	0.1km	Granted Permission – 03/11/2022	Proposed 110kV substation and underground grid connection.
20143	0.1km	Granted Permission – 2/09/2021	A 10 year Planning Permission for a solar farm.
24/60295	2.0km	Live Application, Decision Due – 07/01/2026	Ten year planning permission for renewable energy development comprising of the construction of a solar farm.
ABP-303821	0.2km	Granted Permission – 23/09/2019	10 year permission for an up to 100MW Battery Energy Storage Facility providing energy services to the National Grid consisting of construction and operation of up to 34 metal containers.
ABP-320354	c. 5.5km	Live Application, Decision Due – 04/12/2024 (Decision delayed at Board)	Permission for the construction of 7 wind turbines and all associated works. A 10 year planning permission and 35 year operational life of the wind farm from the date of commissioning is sought. Environmental Impact Assessment Report and Natura Impact Statement submitted with application.
24/60295	c.2.4km	Live Application, Decision Due – 7/01/2026	Ten year planning permission for renewable energy development comprising of the construction of a solar farm.
24/60332	c. 1.8km	Granted Permission – 12/12/2024	the demolition of all existing structures within the Tinryland Wastewater Treatment Plant and the construction on an extended site (0.09 ha in total) which will consist of a new pumping station (17m2), new below-ground storm tank (total storage of 123m³), replacement welfare facility (33m2), ground-mounted photovoltaic array (83 m2), new palisade perimeter fencing (2.4m high) and associated works; the construction of a new rising main and gravity main (3.7km in length) along the Nurney Road, L1023

			and N80, connecting to the existing wastewater sewer at Ballinacarrig; and all ancillary and associated temporary works. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application
ABP-318295	c. 3.7km	Granted Permission – 21/11/2024	Construction of five wind turbines, meteorological mast, electricity substation and associated site works. The application is accompanied by a Planning Report, Environmental Impact Assessment Report and a Natura Impact Statement.
24/60149	c. 1.4km	Granted Permission – 27/09/2024	The expansion of the existing commercial store into the adjoining agricultural use buildings including raised roof height to the unit to the east and the provision of a retention pond and all associated ancillary works, the buildings will be repurposed as whiskey maturation warehouses
ABP-318475	c. 8km	Granted Permission – 04/06/2024	A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works.
ABP-315063	c. 0.1km	Granted Permission – 02/05/2024	Development of a synchronous condenser grid support facility and all associated works
ABP-315365	c. 5.5km	Granted Permission – 21/11/2023	Wind energy development consisting of 7 no. wind turbines and all associated works.
ABP-322690	c.0km	Live Application - due to be decided by 01/12/2025	Proposed 110kV electrical substation and grid connection.
ABP-321416	c.3km	Live Application - due to be decided by 05/06/2025	Proposed development along a section of the N80 Road known as the N80 Leagh Bends Scheme.
21/23	c.3.75km	Granted 26/10/21	Construction of a Solar PV development and all associated site works.
23/92	c.3.85km	Granted 04/06/2024	A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works.

22/142	c.3km	Granted Permission – 22/03/2023	Clonmacshane Solar Farm
ABP-314421	c. 460m	Granted Permission – 26/07/2022	To construct a 30m multi-user lattice telecommunications support structure, carrying antenna and dishes enclosed within a 2.4 metre high palisade fence compound together with associated ground equipment cabinets and associated site works including new access track and to replace existing gated access. The installation will form part of eir mobile telecommunications network. A Natura Impact Statement (N.I.S.) will accompany the planning application.
24/60205	0km	Granted Permission – 24/04/2025	A 10 Year planning permission for a solar farm with a total area of circa 73 hectares in the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application

Table 2: Cumulative Projects List

Due to the close proximity of other projects in the wider area, the potential for both individual and cumulative flood risk impacts within the proposed solar farm development site have been considered. Regardless of which development commences or if one of the developments does not proceed due to external factors, there is no increase in flood risk to the proposed solar farm developments. In particular each development would have to demonstrate compliance with Carlow County Council's drainage policy included in the Carlow County Development Plan 2022-2028. This may include surface water management proposals for these other projects to ensure there is no increase in runoff rates in excess of pre-development scenario greenfield runoff rates to insure there is no increase in flood risk elsewhere. In consideration of this, the proposed substation and grid connection will have no cumulative impact on flood risk with any of the other developments (including other solar farms) proposed in the wider area listed in *Table 2* above.

Overall the cumulative impact of flood risk in consideration of the proposed development as well as projects proposed in the wider area is considered to be low.

8. Summary Conclusions

In consideration of the findings of this Site-Specific Flood Risk Assessment and analysis the following conclusions and are made in respect of the proposed development site:

- A Site-Specific Flood Risk (SSFRA) assessment, appropriate to the type and scale of development proposed, and in accordance with 'The Planning System and Flood Risk Management Guidelines – DoEHLG-2009' has been undertaken.
- The proposed development site has been screened, scoped, and assessed for flood risk in accordance with the above guidelines.

Flood Risk to the Development as Proposed

- The OPW indicative PFRA flood map data set indicates that a minor and limited area of the proposed grid connection route proposed may be susceptible to an extreme fluvial flood event associated with the Kilmeany Stream watercourse.
- The proposed grid connection route is not at risk of pluvial or groundwater flooding.
- The grid connection cable/cables will be constructed underground within the public road network and will be designed and installed to prevent ingress of water as per the industry standard.
- Horizontal directional drilling (HDD) shall be used as the method of crossing under the Kilmeany Stream watercourse. There will be no in-stream works at this location. In this regard the potential flood risk to the proposed grid connection route is considered to be LOW.
- The proposed substation site does not fall within an indicative, predictive, historic or anecdotal flood zone.
- Therefore, therefore the potential flood risk to the proposed substation development site is considered to be LOW.

Flood Risk from the Development as Proposed

- The proposed substation shall not be located in an area of flood risk and therefore is not expected to result in any displacement of potential floodwaters. The substation compound areas shall be constructed using a permeable gravel material, thus mimicking a soakaway scenario. The main areas to be drained include the roofs, which are a modest area in comparison to the overall compound area. Assuming even the most basic of infiltration rates

down through the permeable compound stone, the existing greenfield situation is easily maintained.

- The proposed access tracks shall be constructed using permeable materials at or close to existing ground level throughout the site and therefore is not expected to have any impact on any floodwater volumes or overland flow paths.
- The proposed cables shall be laid below the existing ground surface where the trench depth will be up to 1.425m. There will therefore be no impact on overland flow paths of fluvial waters.
- A cumulative assessment has been undertaken to determine the potential for any off site flood impacts as a result of the proposed substation and grid connection; or indeed any flooding impact at the site of the substation or grid connection as a result of other developments in the local area.
  - Surface water management measures are proposed for the permitted Park Solar Farm, permitted Ballyloo Solar Farm and the proposed Ballybannon Solar Farm to manage any potential increase in surface water runoff rates from proposed hard-standing areas beyond the greenfield scenario as a result of these two solar farms. This will ensure there is no increase in flood risk as a result of the proposed solar farm development.
  - The grid connection cable/cables will be constructed underground within the public road network and will be designed and installed to prevent ingress of water as per the industry standard. Horizontal directional drilling (HDD) shall be used as the method of crossing under the Kilmeany Stream. The proposed grid connection cables will not result in an increased flood risk to the surrounding lands, or any of the other developments proposed in the area. In addition there will be no increased flood risk to the proposed grid connection cables as a result of the associated solar farm developments.
  - Due to the close proximity of other projects in the wider area, the potential for both individual and cumulative flood risk impacts within the proposed solar farm development site have been considered. Regardless of which development commences or if one of the developments does not proceed due to external factors, there is no increase in flood risk to the proposed solar farm developments. Each development would have to demonstrate compliance with Carlow County Council's drainage policy to ensure there is no increase in runoff beyond greenfield runoff rates to insure there is no increase in flood risk elsewhere.

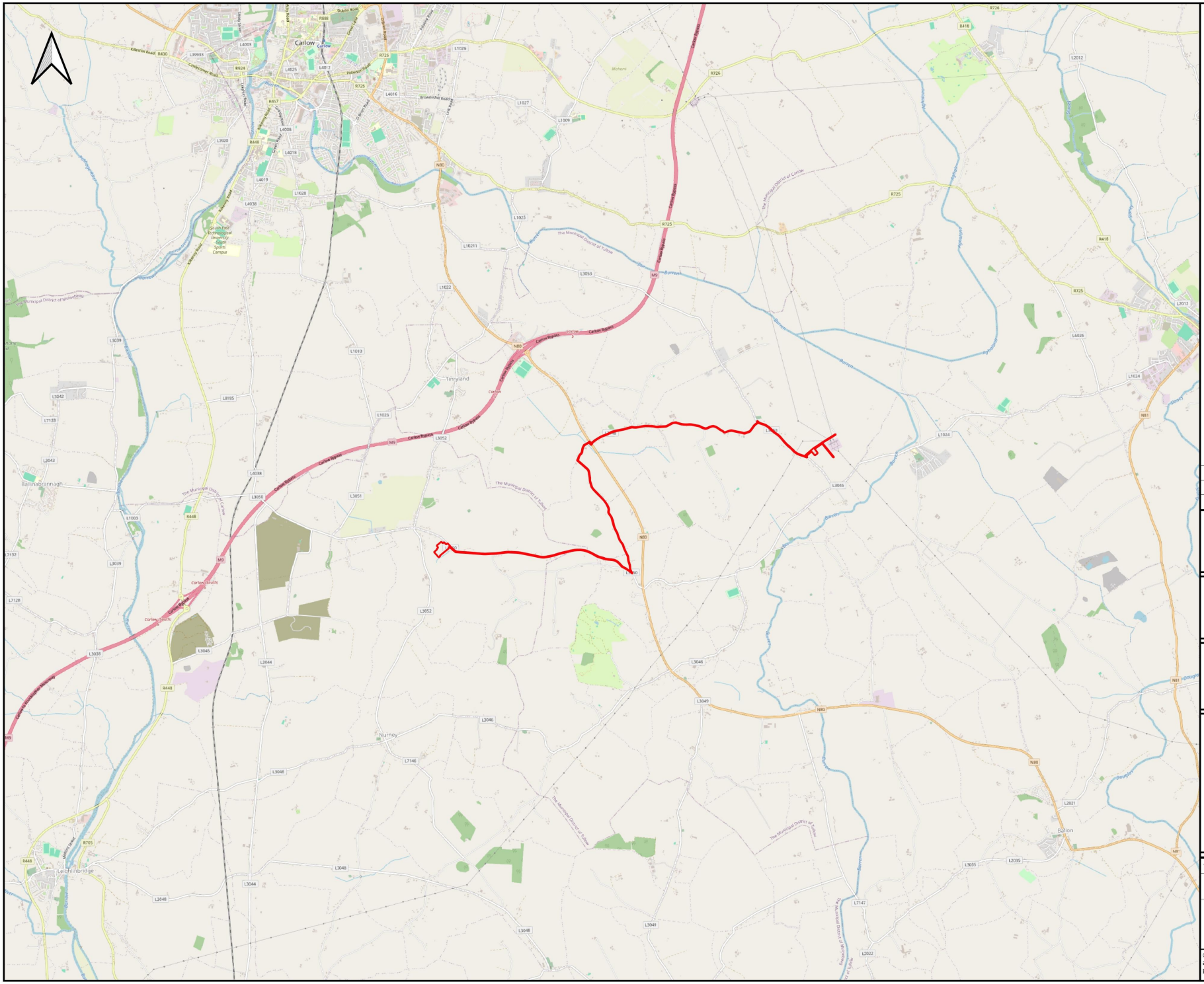
- Overall, no cumulative impacts are predicted.

- Overall, and in consideration of the type and form of development proposed, this Site Specific Flood Risk Assessment indicates that the proposed substation and grid connection development is not predicted to result in an adverse impact to the hydrological regime of the area or increase flood risk elsewhere and is therefore considered to be appropriate from a flood risk perspective.

Appendices

Appendix A. Drawings

IE3212-001-B Site Location



LEGEND

SITE BOUNDARY

rev.	date	amendment	drn	ckd
B	10.10.25	PLANNING	NOM	PMS
A	08.10.25	PLANNING	NOM	PMS

PROPOSED BALLYLOO SUBSTATION & GRID CONNECTION SID APPLICATION
CO. CARLOW

SITE SPECIFIC FLOOD RISK ASSESSMENT

LOCATION PLAN

IE CONSULTING
WATER-ENVIRONMENTAL-CIVIL

CARLOW OFFICE:
INNOVATION CENTRE
GREEN ROAD
CARLOW R95 W248

NEWRY OFFICE:
7 LINENHALL
WIN BUSINESS PARK
NEWRY BT35 6PH

file location: N:\IE3212\DRAWINGS	scale: 1:50,000	A3
drawing status: PLANNING	datum: MALIN	
	drawn: NOM	
drawing no. IE3212-001	rev: B	checked: PMS
		approved: PMS
		date: 10/10/2025