MWP

# Flood Risk Assessment

## Mill Farm Solar 110kV Substation

Document Reference: 23991–6004-A

Client: Mill Farm Solar Project Ltd.

April 2024

# Contents



# Tables



# Figures

| Project No. | Doc. No. | Rev. | Date | Prepared By | Checked By | Approved By | Status |
|---|---|---|---|---|---|---|---|
| 23991 | 6004 | A | April 2024 | BM | MF | MF | Final |
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# Glossary of Acronyms and Terms

| | |
|---|---|
| AEP | Annual Exceedance Probability |
| CFRAMS | Catchment Flood Risk Assessment and Management Study |
| EPA | Environmental Protection Agency |
| FFL | Finished Floor Level |
| FRA | Flood Risk Assessment |
| FSR | Flood Studies Report |
| FSU | Flood Studies Update |
| GDSDS | Greater Dublin Strategic Drainage Study |
| HEFS | High End Future Scenario |
| mOD | Metres Above Ordnance Datum |
| MRFS | Mid Range Future Scenario |
| MWP | Malachy Walsh & Partners |
| NIFM | National Indicative Fluvial Mapping |
| OPW | Office of Public Works |
| PSFRM | The Planning System and Flood Risk Management Guidelines, November 2009 |
| SuDS | Sustainable Urban Drainage Systems |

# 1 General

## 1.1 Introduction & Background

This Flood Risk Assessment (FRA) report has been prepared on behalf of Mill Farm Solar Project Ltd. (the "applicant") in relation to the proposed development of a new 110kV substation and associated works in the townland of Ricetown, County Meath. The proposed project will comprise of the construction of 1 No. 110kV onsite Eirgrid substation with associated electrical plant, 2 No. Over Head Line (OHL) End Mast structures, electrical equipment, security palisade fencing, an IPP building and a transformer.

The adjacent Solar PV development was approved by Meath County Council (MCC) under reference number 22/1044 on 14th February 2023. The approved development consists of:

"Permission for a period of 10 years to construct and complete a Solar PV development with a total site area of circa 97.05 hectares, to include solar panels mounted on steel support structures, associated cabling and ducting, 12 No. Transformers, 1 No. Temporary Construction Compound, 1 No. Storage Container, maintenance tracks, perimeter fencing and gates, 61 No. CCTV, 4 No. Weather Stations, 3 No. Bunds associated landscaping and ancillary works, with an operational life of 40 years".

The Solar Development will have the energy capacity to power approximately 20,000 homes. The proposed 110kV substation, which is the subject of this report, will be connected to the National Grid by looping into the Meath Hill-Gorman 110kV overhead powerlines above the site.

In support of the planning application for the permitted development the following environmental assessments were undertaken by Neo Environmental Ltd. (Neo):

1. Natura Impact Statement (NIS)
2. Landscape and Visual Assessment
3. Ecological Impact Assessment
4. Archaeological and Architectural Heritage Impact Assessment
5. Flood Risk and Drainage Impact Assessment
6. Construction Traffic Management Plan
7. Noise Impact Assessment
8. Glint and Glare Assessment
9. Outline Construction Environmental Management Plan

The proposed substation will be surrounded on three sides by the solar farm and on the south by the existing 110kV powerline and agricultural lands.

MWP have been engaged by the applicant to prepare a Flood Risk Assessment (FRA) Report of the proposed works to accompany the application.

## 1.2 Site Location

The proposed development site is approximately 3.6ha and is situated in a rural area approximately 12km north of Navan, Co. Meath within the townland of Ricetown.

The proposed substation development is located adjacent to the Mill Farm Solar Project site. The neighbouring townlands include Stokesquarter, Painestown, Killary, Ricetown and the nearest small villages are Lobinstown (2km north-east) and Castletown K.P. (2.6km southwest), Co. Meath (see Figure 1-1 below). The nearest large towns are Navan (12 km south), Ardee in Co. Louth (12km north-east), Kells (14.5km southwest), and Drogheda (22.5km south-east).

The proposed development site is agricultural land utilised to grow crops. The site is elevated and the adjoining hinterland is gently undulating farmland (see Plate 1, below) with a few one-off dwellings nearby. There are no physical features (such as hedgerows, treelines or drainage ditches) to define the site boundary of the proposed development site as it is set among larger agricultural fields. There is a small section of woodland a few metres from the proposed development site to the southwest (see Plate 1, below). There is a drainage ditch running along the southwest and south east boundary of the agricultural field the proposed development site is located within. A farm yard with cowsheds sits within 50m north of the proposed development site, and a decommissioned sand and gravel extraction pit exists approximately 650m northeast of the proposed development site.

The main hydrological feature in vicinity of the proposed development is the Killary Stream seen in Figure 1-2 and Plate 2 below. The Killary Stream runs from south to north to the east of the proposed development. The watercourse converges with the larger River Dee approximately 5.5km north of the proposed development.

The Stephenstown watercourse is located approximately 925m west of the proposed development. The watercourse flows in a northwest direction and converges with the River Dee approximately 4.5km northwest of the proposed development.

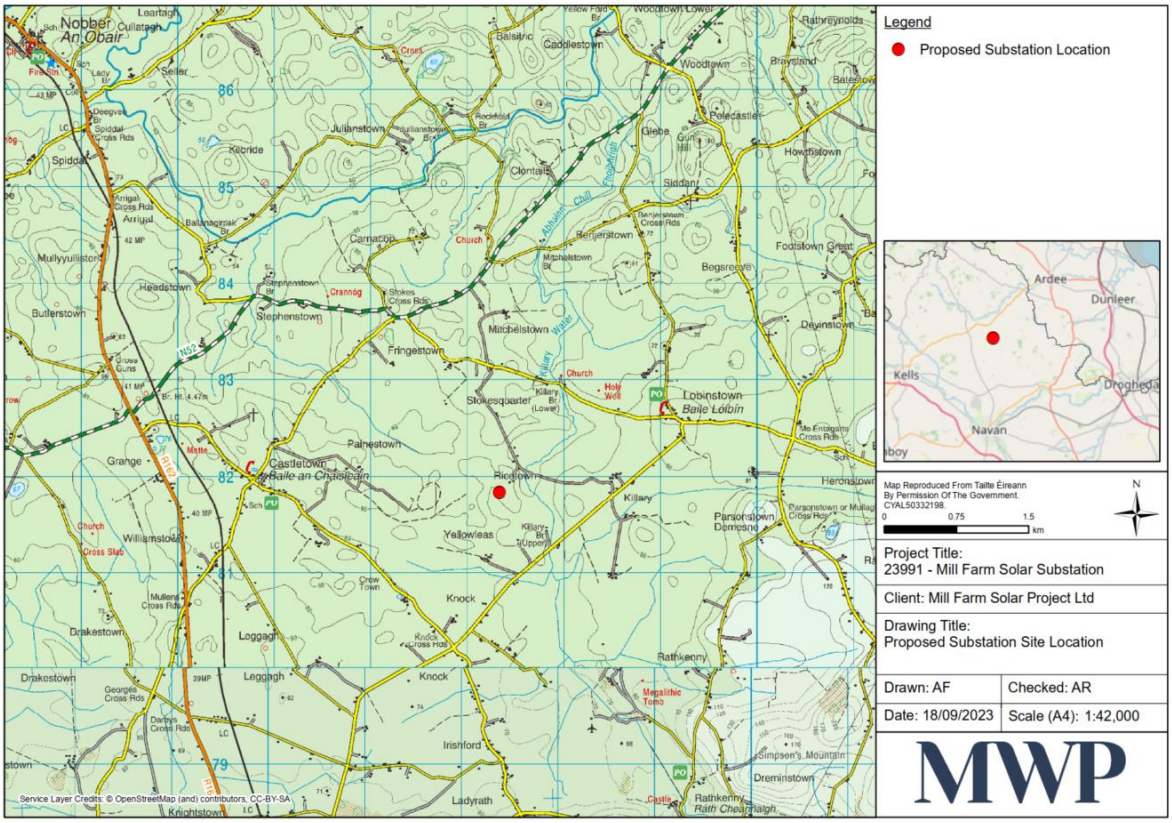


Figure 1-1: Proposed Substation Site Location

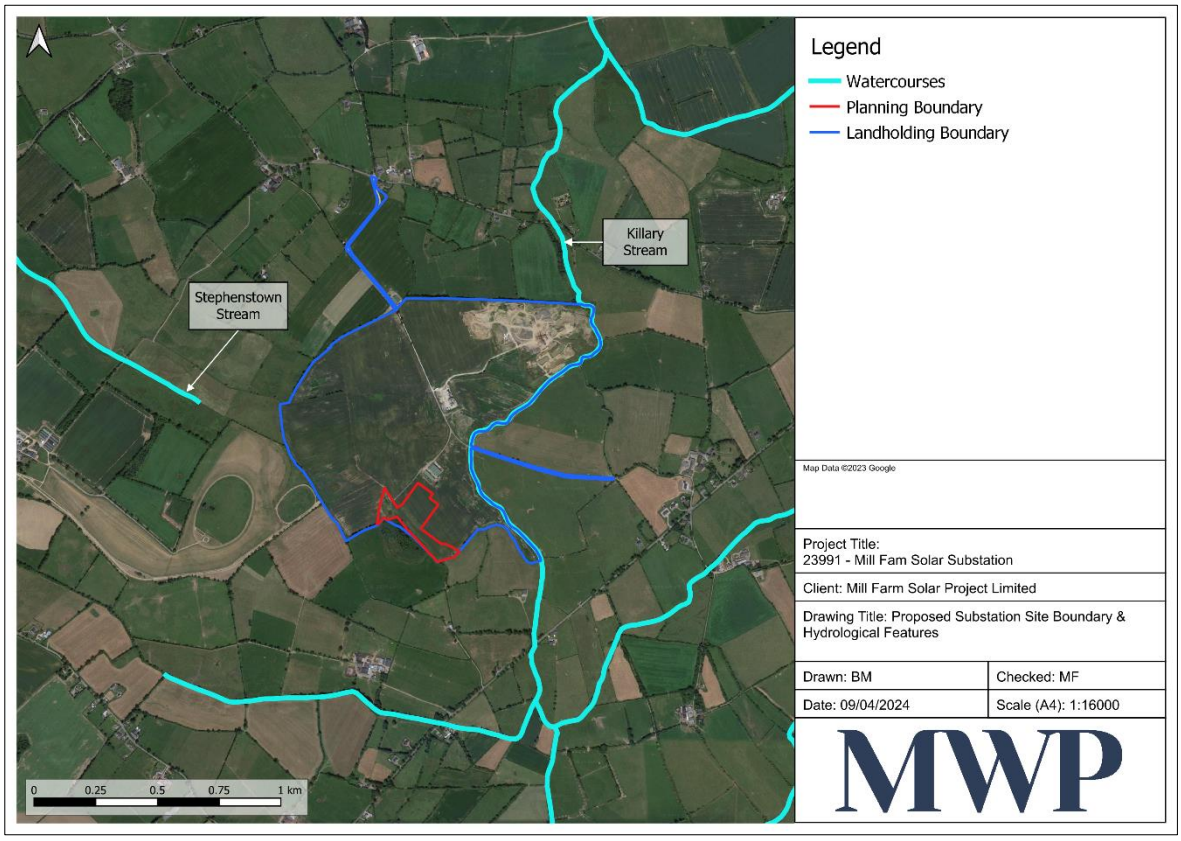


Figure 1-2: Proposed Substation Site Boundary & Hydrological Features

Plate 1. View of the small woodland near the proposed development site (left) and a view of the undulating landscape of the adjoining hinterland (right), both as seen from the proposed development site

Plate 2. Killary Stream

## 1.3 Overview of Proposed Development

It is proposed to construct a 110kV loop-in substation and associated works in the townland of Ricetown, County Meath to connect the permitted Mill Farm Solar Project to the National Grid.

The proposed project will comprise:

- A 110 kilovolt (kV) Air Insulated Switchgear (AIS) loop-in substation with associated compound, including control and operational buildings, electrical plant, equipment, cabling, lighting, CCTV, lightening masts, drainage infrastructure, security palisade fencing, and all associated and ancillary works necessary to facilitate the development.
- Erection of 2 no. overhead line end masts (c. 20m high) and 2 no. lattice gantries (c. 16m high) and associated overhead cabling to enable a loop-in/loop-out grid connection to National grid via the existing the Meath Hill-Gorman 110kV overhead powerlines located above the site.

The works will include site drainage and permanent signage associated with the new construction. The road layout for the proposed project makes use of the existing onsite access road and tracks, associated with the adjacent

permitted solar farm development, where possible. The proposed development is compatible and does not in any way impede or alter the permitted Mill Farm Solar Farm.

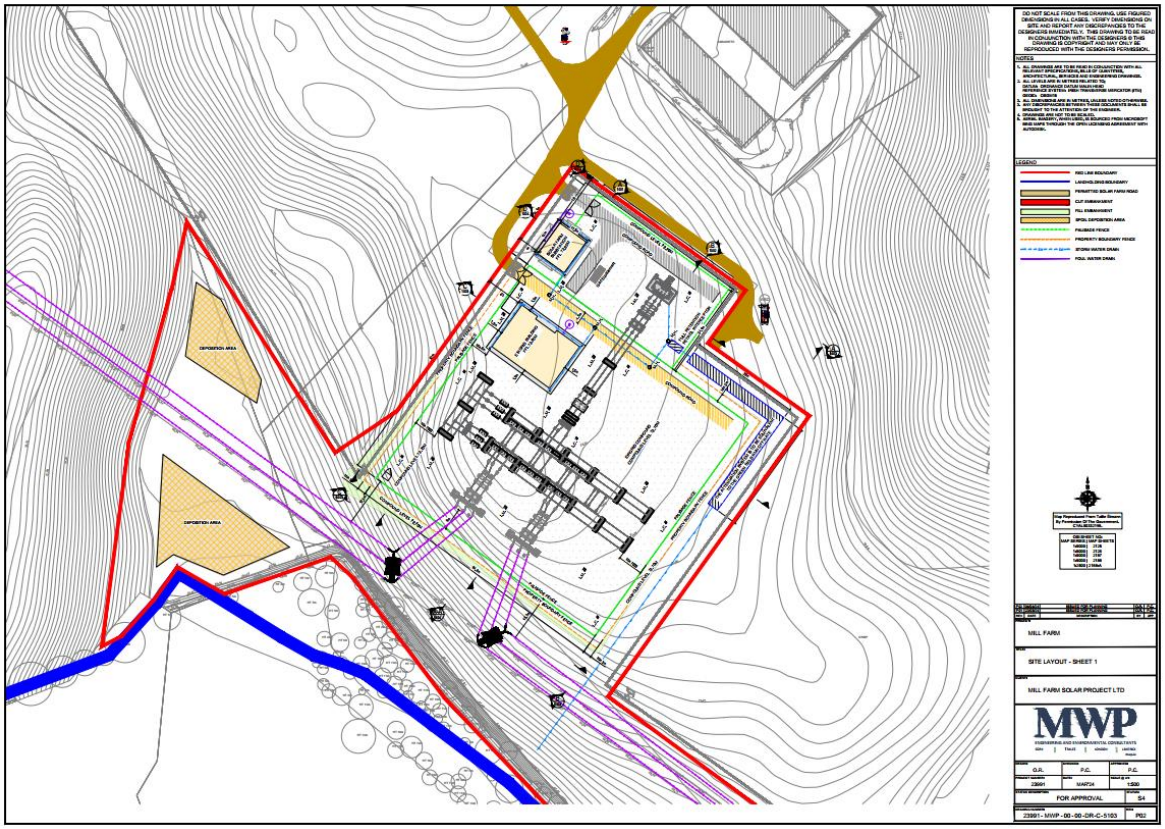


Figure 1-3: Proposed Site Layout

## 1.4 Objectives

The purpose of the report is to establish the flood risk associated with the proposed development and, if appropriate, to recommend mitigation measures to prevent any increase in flood risk within the site or externally in the wider area.

The report has been prepared in the context of *The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009*, published by the Office of Public Works and the Department of Environment, Heritage and Local Government. Flood Risk Assessments are carried out at different scales by different organisations. The hierarchy of assessment types are Regional (RFRA), Strategic (SFRA) and Site-specific (FRA). This report is site-specific.

The report has been prepared in the context of The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009 (PSFRM), published by the Office of Public Works and the Department of Environment, Heritage and Local Government.

## 1.5 Methodology

The Flood Risk Management Guidelines document outlines three stages in the assessment of flood risk as follows:

*Stage 1 Flood risk identification* – to identify whether there may be any flooding or surface water management issues related to a plan area or proposed development site that may warrant further investigation;

*Stage 2 Initial flood risk assessment* – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to determine what surveys and modelling approach is appropriate to match the spatial resolution required and complexity of the flood risk issues. The extent of the risk of flooding should be assessed which may involve preparing indicative flood zone maps. Where existing river or coastal models exist, these should be used broadly to assess the extent of the risk of flooding and potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures; and

*Stage 3 Detailed risk assessment* – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures. This will typically involve use of an existing or construction of a hydraulic model or a river or coastal cell across a wide enough area to appreciate the catchment wide impacts and hydrological processes involved.

This report has been prepared generally in accordance with these stages.

## 1.6 Flood Risk & Zones

In the Planning System and Flood Risk Management Guidelines document, the likelihood of a flood occurring is established through the identification of Flood Zones which indicate a high, moderate or low risk of flooding from fluvial or tidal sources. Table 1-1 below includes the definition of Flood Zones as well as the implications for planning.

The flood zone type is determined based on current water surface levels without allowance for climate change and without the benefit of any flood defences.

It is important to note that the Flood Zones do not take other sources of flooding, such as groundwater or pluvial, into account, so an assessment of risk arising from such sources should also be made, where appropriate.

| Flood Zone | Description & Summary of Planning Implications |
|---|---|
| Zone A<br>High probability of flooding | More than 1% probability (1 in 100) for river flooding and more than 0.5% probability (1 in 200) for coastal flooding.<br>Most types of development would be considered inappropriate in this zone. |
| Zone B<br>Moderate probability of flooding | 0.1% to 1% probability (between 1 in 100 and 1 in 1,000) for river flooding and 0.1% to 0.5% probability (between 1 in 200 and 1 in 1,000) for coastal flooding.<br>Highly vulnerable development, such as hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure, would generally be considered inappropriate in this zone. |
| Zone C<br>Low probability of flooding | This zone defines areas with a low risk of flooding from rivers and the coast (i.e. less than 0.1% probability or less than 1 in 1,000). Development in this zone is appropriate from a flooding perspective (subject to assessment of flood hazard from sources other than rivers and the coast). |

Table 1-1: Definitions of Flood Zones

The Guidelines have outlined three Vulnerability Classifications for developments based on the proposed land use and type of development. These classifications and particular examples of development types which would be included in each classification are summarised as follows;

- **Highly Vulnerable Development:** This would include emergency services, hospitals, schools, residential institutions, dwelling houses, essential infrastructure, water & sewage treatment etc.
- **Less Vulnerable Development:** Retail, leisure, commercial, industrial buildings, local transport infrastructure.
- **Water-compatible development:** Docks, marinas and wharves. Amenity and open space, outdoor sports and recreation and essential facilities such as changing rooms.

The Guidelines include a matrix that determines the appropriateness of different types of development based on their vulnerability classification and the Flood Zones in which they are located. The matrix is reproduced in Table 1-2 below.

Where the matrix indicates that a development is not appropriate it may still be justified based on a procedure described as a Justification Test.

| Vulnerability Classification | Flood Zone A | Flood Zone B | Flood Zone C |
|---|---|---|---|
| Highly Vulnerable Development (Including essential Infrastructure) | Justification Test | Justification Test | Appropriate |
| Less Vulnerable Development | Justification Test | Appropriate | Appropriate |
| Water-compatible Development | Appropriate | Appropriate | Appropriate |

Table 1-2: Vulnerability Matrix

# 2 Flood Risk Identification (Stage 1)

Possible sources of flood risk were identified by;

- Geology & Soils Maps
- Flood History - Examination of available information on the OPW website (www.floodinfo.ie)
- National Indicative Fluvial Mapping (NIFM)
- Meath County Development Plan 2021 -2027 Strategic Flood Risk Assessment
- Previous Flood Studies
- GSI Winter 2015/2016 Surface Water Flooding
- Topographical Survey Information
- Internet Searches

## 2.1 Geology & Soil

The geology and soils at the site have been reviewed using the Geological Survey of Ireland database. The proposed site location is underlain by *BminSW - Shallow well drained mineral (Mainly basic)* according to Teagasc soil data. The soil is described as derived from mainly calcareous parent materials. *AlluMIN – Alluvial (mineral)* soils can be found c.100m north east of the site. The presence of Alluvium soils can be an initial indicator of an area which has been subject to flooding in the geological past but cannot be used to determine flood risk to an area.

The quaternary sediment map indicates that the site is underlain by Gravels derived from Limestones. The bedrock geology in this area is dominated by Clontail Formation which is described as *Calcareous red-mica greywacke*.

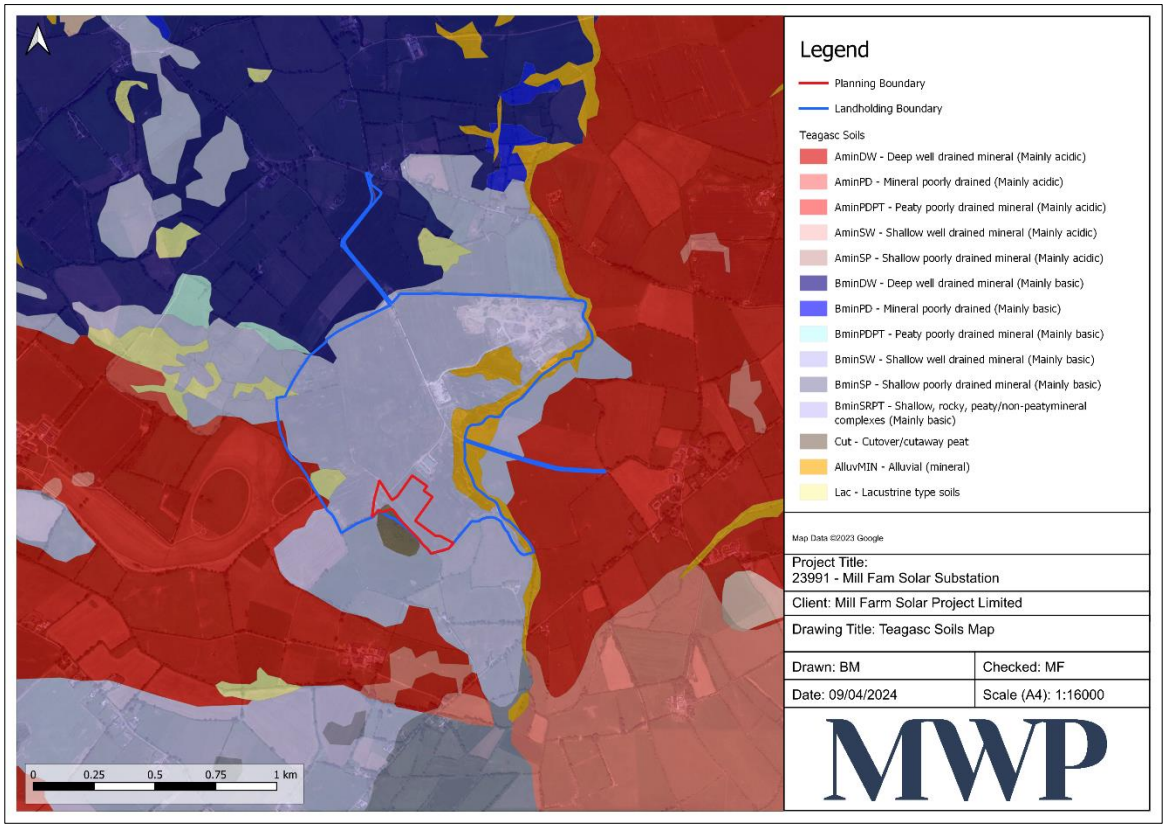


Figure 2-1: Teagasc Soil Map

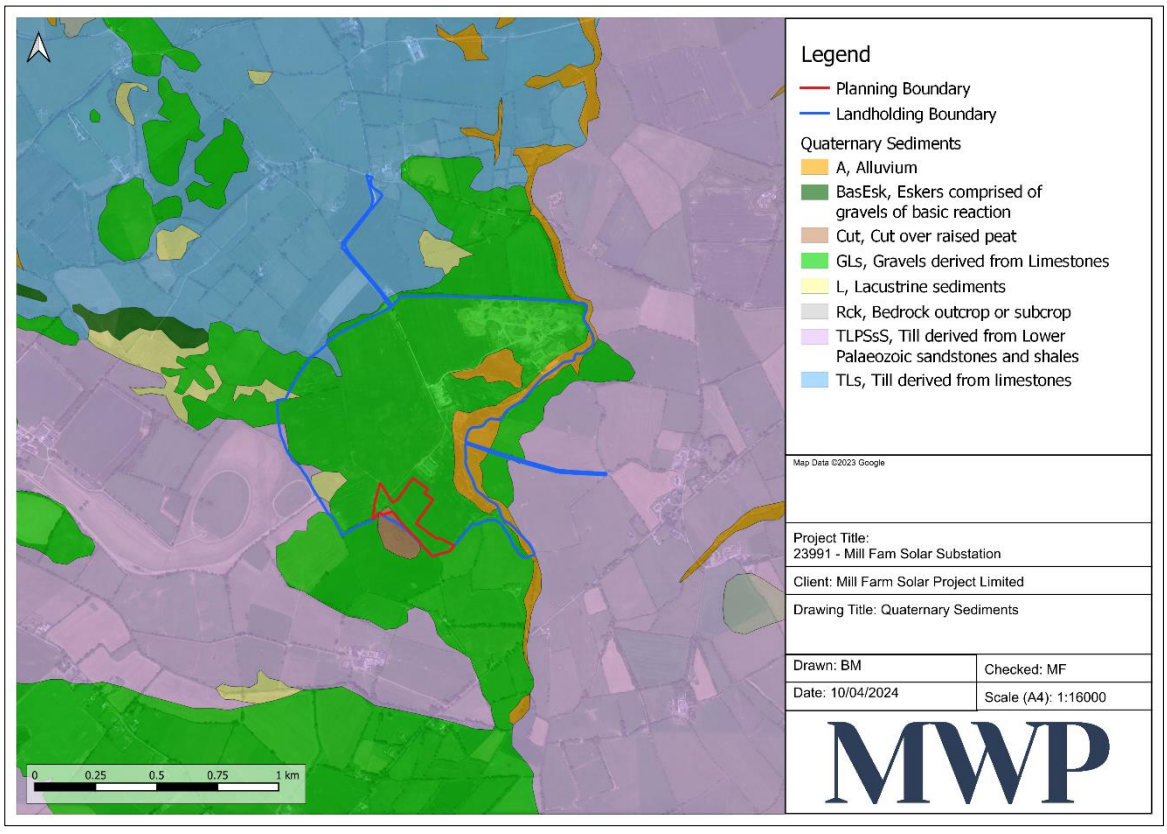


Figure 2-2: Quaternary Sediment Map

## 2.2 Flood History – OPW Local Area Summary Report

The Past Flood Event Local Area Summary Report which was obtained from the Office of Public Works (OPW) floodinfo.ie website is included on Figure 2-3 below. This report summarises all recorded past flood events within 2.5km of the site as seen in Figure 2-4 below. There are a number of past flood events in the area which have been reported which are summarised as follows;

ID-945: Recorded as "Recurring Flood"- Lobinstown CR 245 Recurring – Slane Area Engineer Meeting 15/04/2005 Minutes note "Low lying area floods every year after heavy rain".

ID-946: Recorded as "Recurring Flood"- Deyinstown CR241 Recurring– Slane Area Engineer Meeting 15/04/2005 Minutes note "River overflow its banks after exceptional heavy rain. This occurs once every 2 to 3 years".

There is no history of flooding at the proposed development site.

The Killary Stream has been identified as an OPW Arterial Drainage Channel. Arterial Drainage Schemes were carried out under the Arterial Drainage Act, 1945 to improve land for agriculture and to mitigate flooding. The Killary Stream has been modified to enhance conveyance. The purpose of the schemes was to improve land for agriculture, to ensure that the 3 – year flood was retained in bank.

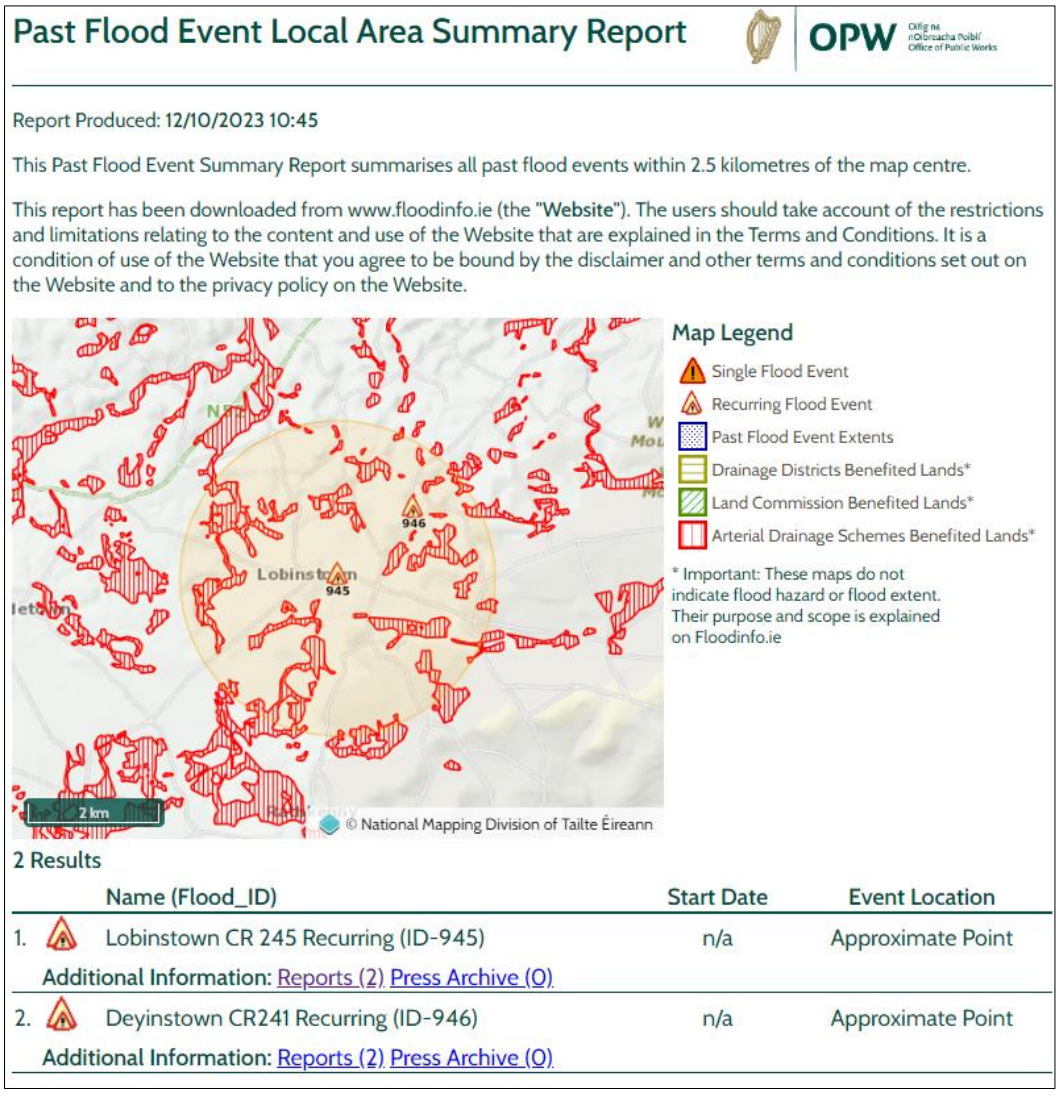


Figure 2-3: OPW Past Flood Event Local Area Summary Report

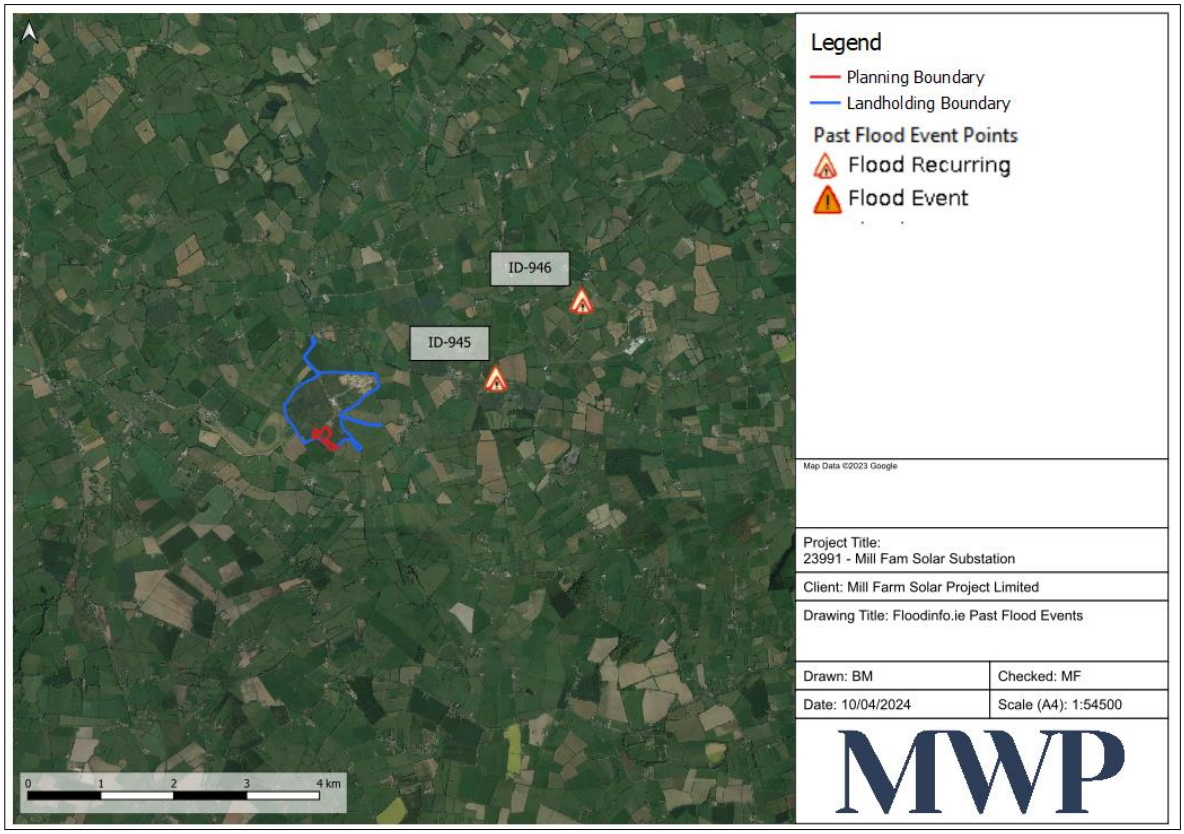


Figure 2-4: Past Flood Event Locations

## 2.3 National Indicative Fluvial Mapping

The National Indicative Fluvial Flood Maps have been produced for catchments greater than 5km² in areas for which flood maps were not produced under the National Catchment Flood Risk Assessment and Management Programme (CFRAM). An extract of the fluvial flood mapping for the current scenario is shown in Figure 2-5.

The flood maps may be used in the Stage 1 Flood Risk Assessment (Flood Risk Identification) to identify areas where further assessment would be required if development is being considered within or adjacent to the flood extents shown on the maps. Similarly, the maps may be used to identify whether flood risk might be a relevant issue when considering a planning application, or when discussing a potential application at pre-planning stage. Local site inspections, and / or making use of the knowledge of staff familiar with a particular area, are essential to determine if the maps for a given area are reasonable. For the purposes of flood zoning, or making decisions on planning applications, it is strongly recommended that a Stage 2 Flood Risk Assessment (Initial Flood Risk Assessment), as set out in the Planning System and Flood Risk Management Guidelines, is undertaken (where there are proposals for zoning or development, and where the area may be prone to flooding, as described above). These maps are 'predictive' flood maps showing indicative areas predicted to be inundated during a theoretical fluvial flood event with an estimated probability of occurrence, rather than information for actual floods that have occurred in the past, which is presented, where available, on the 'past' flood maps.

The maps refer to flood event probabilities in terms of a percentage Annual Exceedance Probability, or 'AEP'. This represents the probability of an event of this severity occurring in any given year. They are also commonly referred to in terms of a return period (e.g. the 100-year flood). The flood extents for the 1% (Medium Probability) and 0.1% (Low Probability) AEP Present Day Scenario (Current Scenario) flood events are illustrated below in Figure 2-5 below. The NIFM mapping indicates that there is no flood risk to the proposed development.

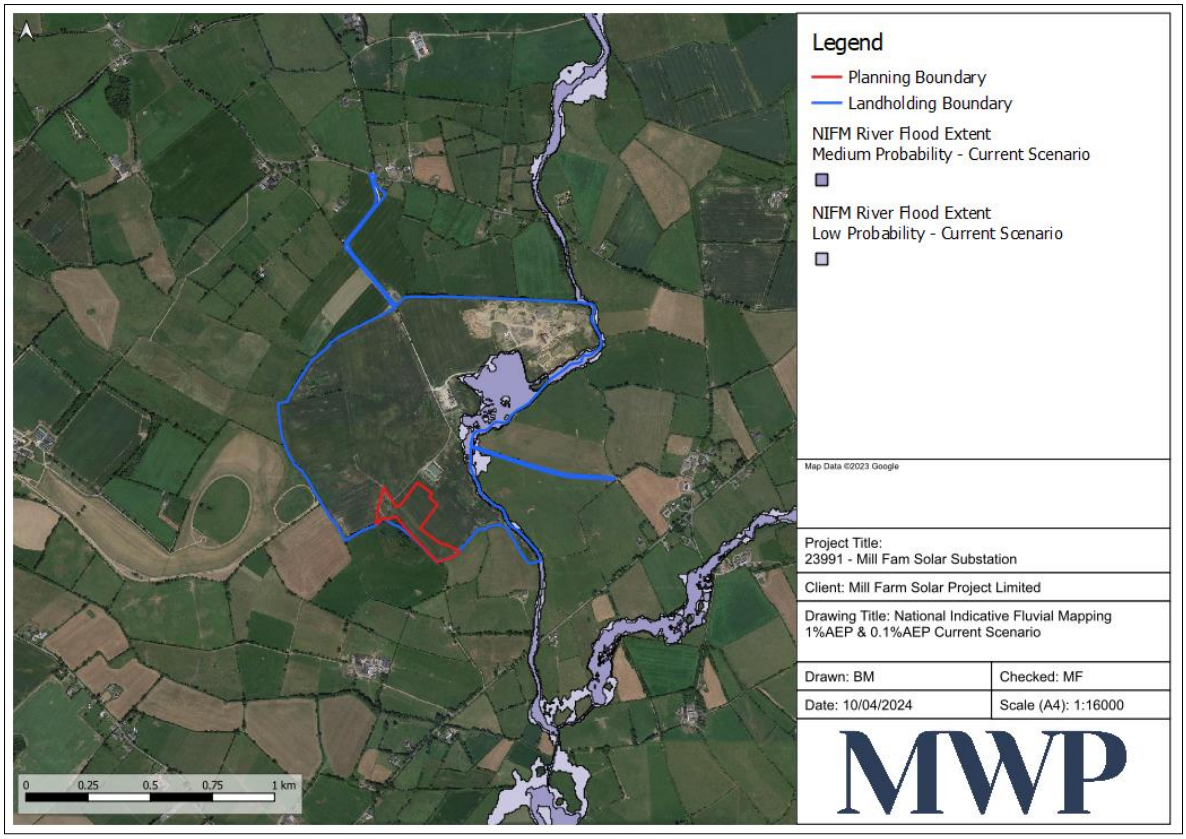


Figure 2-5: National Indicative Fluvial Mapping 1% AEP & 0.1% AEP Current Scenario

## 2.4 Meath County Development Plan 2021 -2027 Strategic Flood Risk Assessment

Under the "Planning System and Flood Risk Management" guidelines, the purpose for a Strategic Flood Risk Assessment (SFRA) is detailed as being "to provide a broad (wide area) assessment of all types of flood risk to inform strategic land-use planning decisions. SFRAs enable the Local Authority to undertake the sequential approach, including the Justification Test, allocate appropriate sites for development and identify how flood risk can be reduced as part of the development plan process".

The SFRA has reviewed flood risk from fluvial, pluvial and groundwater sources. It also considers flooding from drainage systems, reservoirs and canals and other artificial or manmade systems. The study has also considered residual risk associated with various flood alleviation schemes throughout the county. However, the focus of the study is on risk from fluvial and tidal flooding. The SFRA mapping shows that there is no risk of fluvial flooding within the proposed development from the Killary Stream or Stephenstown Stream and the proposed development is in Flood Zone C.

## 2.5 Previous Flood Studies

Neo Environmental Limited was commissioned by Mill Farm Solar Project Limited to prepare a site-specific flood risk assessment [SSFRA] for a Solar PV development was approved by Meath County Council (MCC) under reference number 22/1044 on 14th February 2023.

The flood risk from the Killary Stream and Stephenstown Stream was assessed by Neo Environmental Limited by computing peak flows in the watercourse and using a 2 Dimensional Flood Modeller Pro hydraulic model to simulate the flow patterns and inundations within the Solar PV development site and surrounding areas. A

screenshot of the 0.1%AEP (1 in 1000 year) flood extent map from Neo Environmental Limited report is presented in Figure 2-6 below. The flood mapping undertaken by Neo Environmental does not indicate that the proposed development is at risk of flooding during the 0.1%AEP (1 in 1000-year) event from the Killary Stream or Stephenstown Stream.

Neo Environmental also indicate maximum predicted water levels for the Killary Stream and Stepehnstown Stream at the model reference points during the 1%AEP event (1 in 100-year), 0.1%AEP event (1 in1000-year) and 0.1% AEP event plus Climate Change as seen in Table 2-1 and Table 2-2 below. The relevant model reference point from the Killary Stream in relation to the proposed development is model reference point 3 and from the Stephenstown Stream is model reference point 2. Neo Environmental Limited indicated the maximum predicted water level from the Killary Stream at reference point 3 during the 1% AEP event (1 in 100-year) and 0.1%AEP event (1 in1000-year) is 58.15mOD and 58.41mOD respectively. Neo Environmental Limited indicated the maximum predicted water level from the Stephenstown Stream at reference point 2 during the 0.1% AEP event (1 in 1000-year) and 0.1%AEP event plus climate change (1 in1000-year + CC) is 59.61mOD and 59.74mOD respectively.

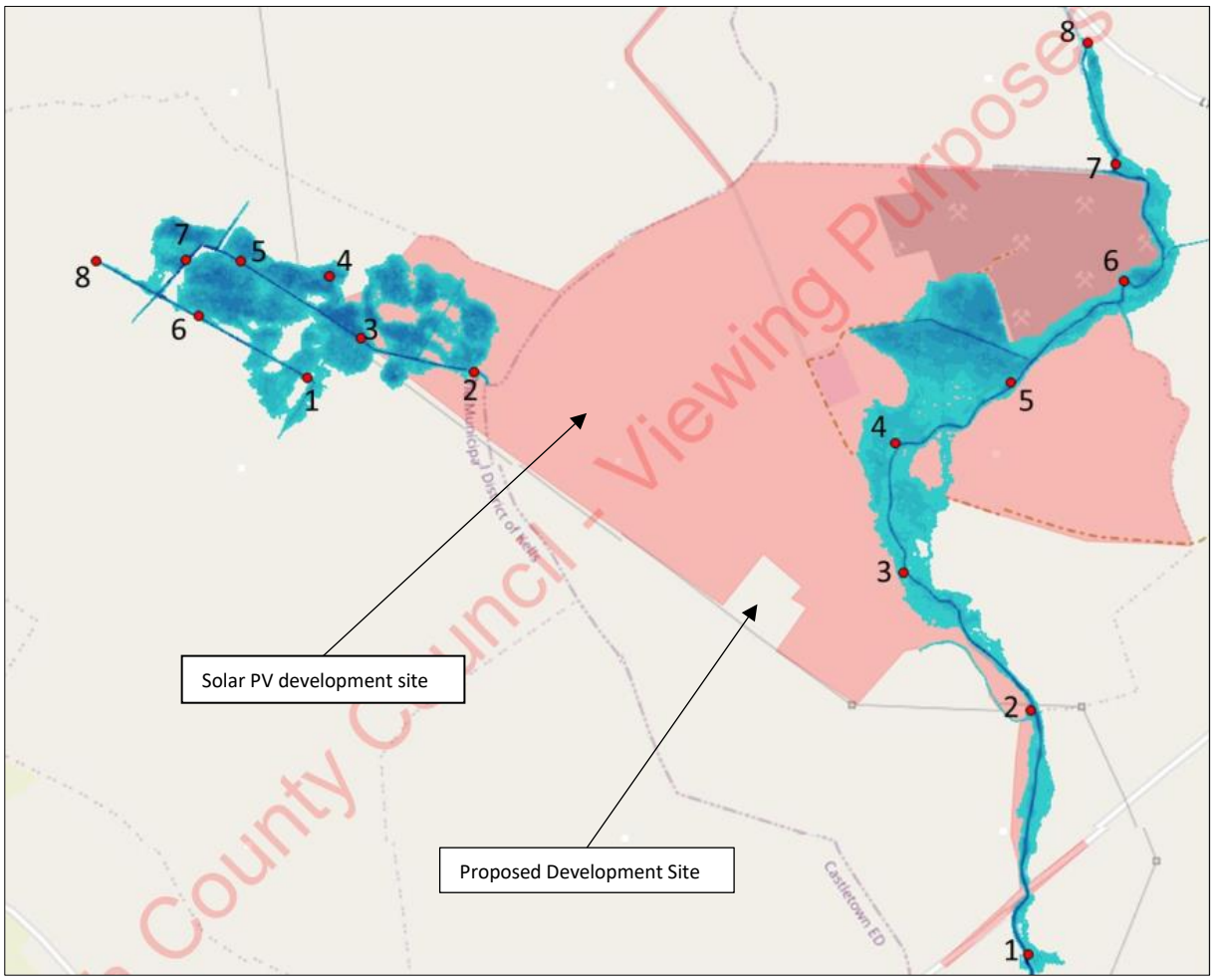


Figure 2-6: 1000-year predicted flood extents for both models, with reference point locations shown for each (Neo Environmental Limited, 2023)

| Model Reference Point | 100-year flood level (mOD) | 1000-year flood level (mOD) |
|---|---|---|
| 1 | 65.33 | 65.55 |
| 2 | 60.91 | 65.55 |
| 3 | 58.15 | 58.41 |
| 4 | 56.95 | 57.10 |
| 5 | 55.96 | 56.29 |
| 6 | 54.66 | 54.96 |
| 7 | 53.32 | 53.48 |

Table 2-1: Predicted peak water levels at reference points along the Killary Stream near site

| Model Reference Point | 1000-year flood level (mOD) | 1000-year + Climate Change flood level (mOD) |
|---|---|---|
| 1 | 59.70 | 59.79 |
| 2 | 59.61 | 59.74 |
| 3 | 59.61 | 59.74 |
| 4 | 59.60 | 59.74 |
| 5 | 59.60 | 59.74 |
| 6 | 59.60 | 59.74 |
| 7 | 59.57 | 59.69 |
| 8 | 58.35 | 58.40 |

Table 2-2: Predicted peak water levels at reference points along the Stephenstown Stream near site

## 2.6 GSI Winter 2015/2016 Surface Water Flooding

The Winter 2015/2016 Surface Water Flooding map shows fluvial (rivers) and pluvial (rain) floods, excluding urban areas, during the winter 2015/2016 flood event. Refer to Figure 2-7. There is no flooding indicated within the proposed development site during this flood event.

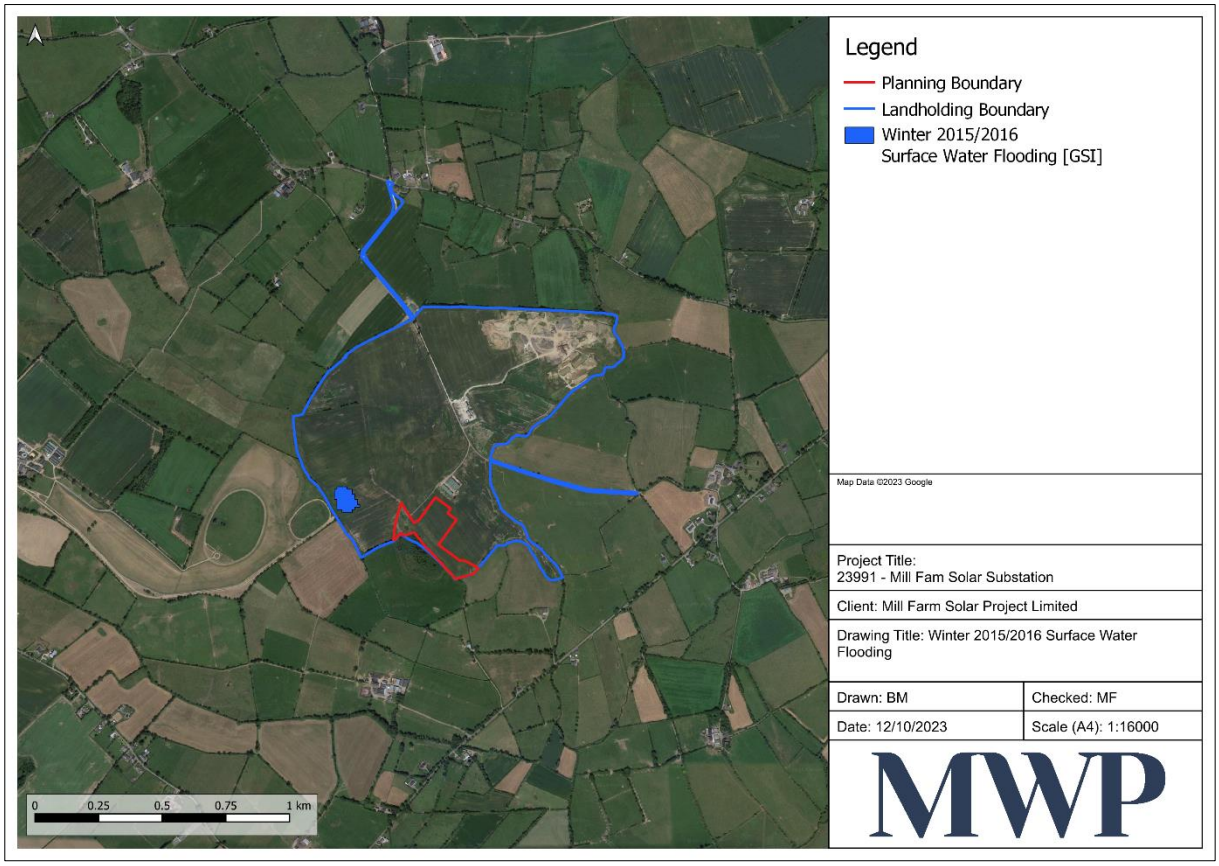


Figure 2-7: Extract of GSI Winter 2015/2016 Surface Water Flooding

## 2.7 Topographical Survey Information

A detailed topographic survey was provided by the client which was carried out in July 2022. The proposed development site is elevated above the existing floodplain. The proposed development site existing ground levels range from approximately 71.25mOD to 72.5mOD. The topography of the surrounding lands generally fall in a south westerly direction towards the Killary Stream where values along the left bank of approximately 58.7mOD to 58.75mOD can be observed.

## 2.8 Internet Searches

An internet search was conducted to gather information about whether the site was affected by flooding previously. There were no reports of flooding within the proposed site.

## 2.9 Summary of Stage 1 FRA

The Stage 1 FRA has not identified a significant flood risk at this site. Notwithstanding this, a Stage 2 FRA will be carried out to provide a more comprehensive assessment of the flood risk.

# 3 Initial Flood Risk Assessment (Stage 2)

The purpose of Initial Flood Risk Assessment is primarily to ensure that the relevant flood risk sources are identified so that they can be addressed appropriately in the Detailed Flood Risk Assessment, where relevant.

## 3.1 Flooding Sources

The potential sources of flooding and their relevance to the flood risk to the site are outlined in the following sub-sections.

### 3.1.1 River Flooding

Fluvial flooding occurs when the capacity of a river channel is exceeded and water flows onto the adjacent land or floodplain. The main watercourse in the proximity of the site is the Killary Stream which at its closest, is located approximately 180m southeastof the northwestern corner of the proposed development site. The Stephenstown watercourse is located approximately 925m west of the proposed development. The NIFM mapping shows that the proposed development site is located outside of the 1% & 0.1% MRFS flood extents (See Figure 2-5). Whilst the NIFM is indicative, there is no record of flooding at the proposed development site and no flooding was indicated during the Winter of 2015/16 flood event. These findings are consistent with the Meath County Development Plan 2021 – 2027 flood zone maps for the area and Neo Environmental Limited flood extents maps as seen on Figure 2-6. Neo Environmental Limited have provided maximum predicted water level at reference points during the 1% AEP event (1 in 100-year),0.1%AEP event (1 in1000-year) and 0.1%AEP event plus Climate Change. Reference point 3 on the Killary Stream is relevant to the proposed development and the 1% AEP event (1 in 100-year) and 0.1%AEP event (1 in1000-year) has been indicated as 58.15mOD and 58.41mOD respectively. Reference point 2 on the Stephenstown Stream is relevant to the proposed development and the 0.1% AEP event (1 in 1000-year) and 0.1%AEP event plus climate change (1 in1000-year + CC) has been indicated as 59.61mOD and 59.74mOD respectivelyThe Stage 2 FRA indicates that the fluvial flood risk to the proposed development site is low and does not require further consideration in this report.

### 3.1.2 Pluvial Flooding

Overland flow or pluvial flooding occurs when rainfall intensity exceeds the infiltration capacity of the ground. The excess water flows overland to the nearest watercourse or piped drainage system. Intense rainfall events can result in ponding in low areas or upstream of physical obstructions. Overland flow is most likely to occur following periods of sustained and intense rainfall when the ground surface becomes saturated.

The existing site is a greenfield site. Increase in hardstanding area will increase the risk of pluvial flooding. There is no history of pluvial or surface water flooding on the site. As discussed previously the general topography of the proposed development site slopes in a south-westerly direction. There are no low points within the site where ponding would likely occur.

Surface water runoff from the roofs of the substation buildings, and hard-surfaced areas within the electrical yard, will be collected in a series of filter drains, roof guttering and downpipes and routed to an underground gravity drainage network. All runoff collected in the stormwater sewer network will pass through an oil/petrol Interceptor prior to discharging to an attenuation unit on the north-eastern side of the compound. The attenuation unit will provide attenuation of the increased volumes of surface water runoff generated from the hard surfaces of the development when compared to the current greenfield condition. The attenuated surface water runoff is then proposed to overflow at a controlled rate equal to the greenfield runoff rate to an existing vegetated land drain on the southern side of the compound.

Therefore, pluvial flooding does not require further consideration in this report.

### 3.1.3 Estuarial Flooding

Estuarial or tidal flooding is caused by higher-than-normal sea levels which occur primarily due to extreme high tides, storm surges, wave action or due to high river flows combining with high tides. This risk is not relevant to this site due to its location inland and its elevation. Therefore, this does not require further consideration in this report.

### 3.1.4 Groundwater Flooding

Groundwater flooding occurs when the water table rises to the level of the ground surface due to rainfall and flows out over the surface. Groundwater flooding occurs relatively slowly and generally poses a low hazard to people. There is also no known history of such an occurrence in the vicinity of the site and for these reasons this source of flooding will not be considered further in this report.

## 3.2 Flood Zone Identification

The Meath County Development Plan 2021 contains flood zone mapping for this area. A site-specific FRA was carried out by Neo Environmental Limited which also contains flood zone mapping for the adjacent permitted Solar PV Development presented in Figure 2-6. As indicated, the proposed development site is located in Flood Zone C (i.e. outside of Flood Zone A & B) therefore the site has a low probability of flooding as defined in the Flood Risk Management Guidelines and described in Section 1.5 above. The type of development being proposed is appropriate for this flood zone and a Justification Test for the proposed development is therefore not required.

## 3.3 Potential Impacts of Flooding Elsewhere

The proposed development will not adversely impact on fluvial flood risk elsewhere.

The proposed development will create impermeable areas that could increase storm water runoff rates. This will be adequately mitigated by incorporating appropriate Sustainable Urban Drainage Systems (SuDS) into the detailed design which will include limiting the discharge rate from the site to existing greenfield runoff rates.

Due to fact that the proposed development is not located in an active floodplain/conveyance route, it is concluded that the proposed development will not adversely affect flood risk upstream or downstream of the site.

## 3.4 Summary of Stage 2 FRA

It has been established that the potential for flooding within the proposed site development boundary is low and therefore a Stage 3 Flood Risk Assessment is not required.

# 4 Summary & Conclusions

1. This report has been prepared in the context of The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009 (PSFRM), published by the Office of Public Works and the Department of Environment, Heritage and Local Government.
2. The proposed development will consist of a substation, associated buildings, electrical ancillary equipment and compound area.
3. There is no record of previous flooding occurring at this site.
4. The flood risk assessment has identified that the site is within Flood Zone C as defined in the Flood Risk Management Guidelines and is appropriate for the proposed development.
5. It was demonstrated that the proposed development will not have an adverse impact on flooding elsewhere and that the risk to occupants of the site would be low.
6. The detailed design of the site drainage system for the development will include appropriate SuDS, including limiting the post-development discharge rate from the site to existing greenfield runoff rates.

# Appendix A - Photographs

View approximately from proposed development site looking south west toward Killary Stream floodplain

Left bank Killary Stream, camera facing north