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FLOOD RISK ASSESSMENT

STAGE 1 – FLOOD RISK IDENTIFICATION

TRAVELLER ACCOMMODATION, COOL QUAY, Co. DUBLIN

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Consulting Civil & Structural Engineers - Environmental & Traffic Engineers - Project Managers - PSDP

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Consulting Civil & Structural Engineers - Environmental & Traffic Engineers - Project Managers - PSDP

1.0 Introduction

This Stage 1 Flood Risk Assessment (FRA) has been prepared by McMahon Associates to support the Part XI process by Fingal County Council (FCC) for Traveller accommodation at Cool Quay, Co Dublin. The FRA has been prepared in accordance with the Office of Public Works (OPW) guidance, The Planning System and Flood Risk Management: Guidelines for Planning Authorities, November 2009.

2.0 Proposed Development Site

The proposed development site is located at Cool Quay in north County Dublin and is located on the boundary with County Meath.

The site itself is approximately 1.55ha in size and is currently used for agriculture. To the west, the site is bounded by a similar agricultural field, which itself adjoins the M2 motorway.

The site is accessed from the R135 which forms the eastern boundary of the site and can also be accessed to the south via Cluthe Lane, which provides access to 4No. existing residential properties. The site is bounded to the north by a single residential property.

To the north of this single property there is a small watercourse which passes under the R135. This unnamed watercourse is a tributary of the Ward River and joins it approximately 2km south east of the proposed development.

A review of the site topography shows the site to be relatively flat, with the site falling gradually from the south west corner to the eastern boundary along the R135. The site is shown to be bounded to the east and west by small ditches which convey water to the nearby unnamed watercourse.

The topographical survey is provided for information in **Appendix A**.

The proposed development will consist of 10No. bays for traveller accommodation and associated access road and drainage.

3.0 Assessment of Flood Risk

In accordance with OPW guidelines, a staged approach has been adopted to assessing the flood risk to the proposed development. Stage 1 is *Flood Risk Identification*, which has been carried out in the following sections.

The need for the further stages; *Stage 2 Initial Flood Risk Assessment* and *Stage 3 Detailed Flood Risk Assessment* is discussed later on in this report.

3.1 Potential Sources of Flooding

As part of the identification of flood risk, the following potential sources have been considered:

- Tidal and River Flooding
- Surface Water (Pluvial) Flooding
- Groundwater Flooding
- Reservoir Flooding

3.2 Tidal and River Flooding

Given the site location, it is considered that tidal flooding will not have an impact on the proposed development.

As outlined previously, the proposed site is located in proximity to an unnamed watercourse. Therefore, a review was carried out of online data provided by the OPW to assess if the site is potentially at risk of flooding. Mapping provided by the OPW is split into Flood Zones A, B and C, as defined below:

Flood Zone A - where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding);

Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and

Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

A review of the OPW mapping shows that the unnamed watercourse was assessed as part of the national Preliminary Flood Risk Assessment (PFRA) and is shown in map 2019/MAP/256/A, included in **Appendix A**.

The flood extents shown in map 2019/MAP/256/A are provided online by the Department of Housing, Planning Community and Local Government (www.myplan.ie/webapp).

Although the mapping is provided at low resolution due to the course nature of the actual modelling undertaken as part of the PFRA, the site is considered to be outside any modelled flood extents, as shown in Figure 1.



Figure 1 – Proposed development site and flood extents from unnamed watercourse.

As per the PFRA mapping, the dark blue extents shown above is defined as “*Indicative 100 Year Event*” and the lighter blue as “*Extreme Event*”. Through consultation with the OPW, it is considered that the extreme event shown corresponds to the 1 in 1,000 year event. The site is therefore considered to be located in Flood Zone C, the zone which is appropriate for all development, as specified by Table 3.2 of the Planning System and Flood Risk Management Guidelines for Planning Authorities.

As national coverage was required as part of the PFRA, the methodology used to generate the flood extents is considered to be relatively high level and coarse. The PFRA Main Report specifies that there are a number of limitations to the assessment and that the purpose of the PFRA is to determine, based on the preliminary assessment only, where flood risk might potentially exist.

The same mapping as provided in the PFRA is contained within the Fingal Development Plan 2017 – 2023, as is shown in Figure 2. Again the site is shown to be clear of the flood extents and definitively refers to the flood extents as Flood Zones A and B.



Figure 2 – Proposed development site and flood extents from unnamed watercourse as shown in the Strategic Flood Risk Assessment document within Fingal Development Plan 2017-2023.

The same flooding information as provided in the PFRA is shown in greater resolution on the Fingal East Meath Flood Risk Assessment and Management Study (FEM FRAMS) interactive draft flood mapping for the Fingal Development Plan 2017-2023, which is available online. Figure 3 below clearly shows the site to be clear of any flood extents and therefore located in Flood Zone C, the zone which is compatible with all forms of development.

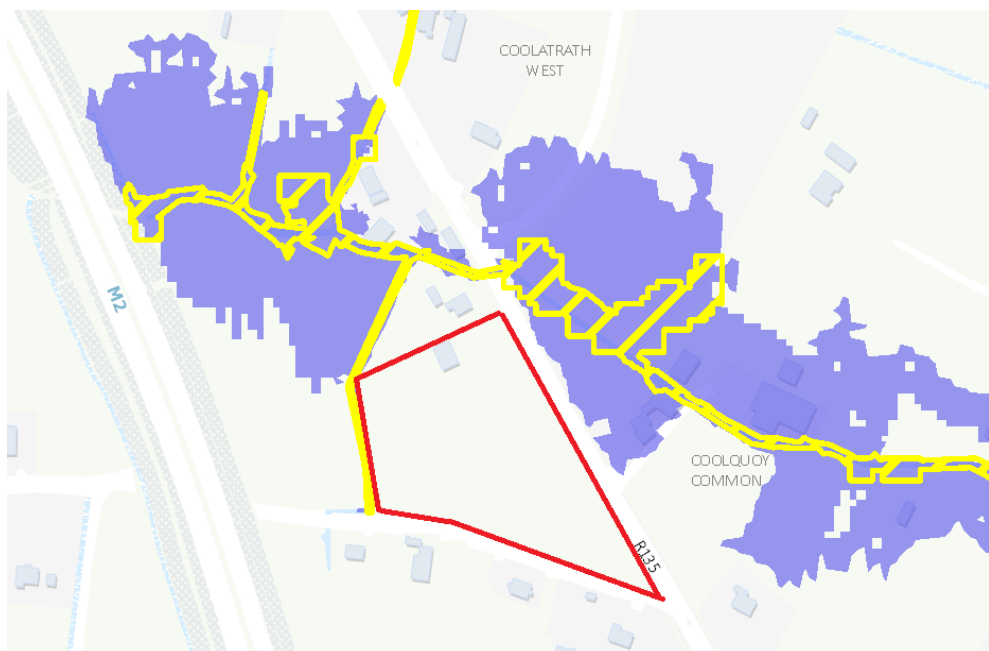


Figure 3 – Proposed development site and flood extents from unnamed watercourse as shown in Fingal Development Plan 2017-2023 online flood mapping.

As a result of the PFRA, the OPW designated areas to be assessed further as part of the Catchment Flood Risk Assessment and Management (CFRAM) programme. The proposed development site and its surrounds were not identified as warranting further assessment under the CFRAM programme.

Based on this, it is considered unlikely that the proposed development site will be susceptible to fluvial flooding.

3.3 Surface Water (Pluvial) Flooding

Surface water flooding is a result of rainfall exceeding the infiltration capacity of the receiving land and the excess runoff flowing overland along the naturally topography of an area.

As part of the PFRA, indicative pluvial flood maps were generated. Again, as national coverage was required, the methodology used to generate the pluvial flood risk is considered to be relatively coarse. However, the proposed site and its surrounds are again shown to be clear of any pluvial flood risk.

As part of a site walkover, it was noted that there was an area of the site where water was ponding.

A review of the topographical survey shows this area to be the lowest part of the site and that the overland flow route to the adjacent ditch has become overgrown. This localised depression is located in the approximately location of the proposed site access and therefore the proposed levels in this area will be altered to ensure that this ponding will not occur post development.

In addition, the source of this ponding water is considered likely to be that of overland flow from the site itself. Post development, this runoff will be captured by the proposed drainage network and conveyed directly to the existing ditch, mitigating this potential ponding issue.

3.4 Groundwater Flooding

As part of the PFRA, indicative groundwater flood mapping has been generated. The methodology used to identify areas potentially prone to groundwater flooding was evidence based, with the vast majority of reoccurring groundwater flooding originating at turloughs.

Again, the proposed development site is shown to be clear of any potential groundwater flooding.

3.5 Reservoir Flooding

The PFRA acknowledges the potential flood risk associated with reservoir flooding, however outlines that it has not been possible to assess any impact in reservoir failure due to a lack of available information.

A review of the area surrounding the site does not suggest it is located in proximity to a reservoir. In addition, above ground reservoirs are subject to strict maintenance regimes and therefore are unlikely to fail. It is therefore considered that the site is highly unlikely to be impacted by reservoir flooding.

3.6 Historic Flooding

Historic flood information is provided online by the OPW via their floodmaps.ie website. For the Fingal area, there are minutes of a meeting which reports on flooding in 2000 and 2002. An area in Cool Quay is mentioned as experiencing road and property flooding, however this was noted on the Ward Road, approximately 1.5km south of the site. The site itself and it's the surrounding area is not noted as having a history of flooding.

Through consultation with FCC, it was suggested that the culvert under the R135 could be blocked and needs to be investigated.

4.0 Conclusion

As part of this Stage 1 assessment, a number of potential sources of flood risk have been identified.

Data published by the OPW confirms the site is not at risk of tidal, reservoir, groundwater or surface water flooding.

The site is shown to be adjacent to an unnamed watercourse and therefore has the potential to be impacted by fluvial flooding. However, flood mapping provided by the OPW shows the site to be located outside of the flood extents of the extreme event. Therefore the site is considered unlikely to be at risk of fluvial flooding.

Additionally, the PFRA recommends a number of areas that have been identified as being at potential risk of flooding for further, more detailed assessment. The proposed development site and its surrounds have not been identified as requiring further assessment.

It is therefore considered that the site is highly unlikely to be impacted by flooding from any of the sources discussed in this report and that further assessment in the form of a Stage 2 or 3 assessments of the FRA process is not required.

Appendix A

Topographical Survey

Preliminary Flood Risk Assessment Mapping

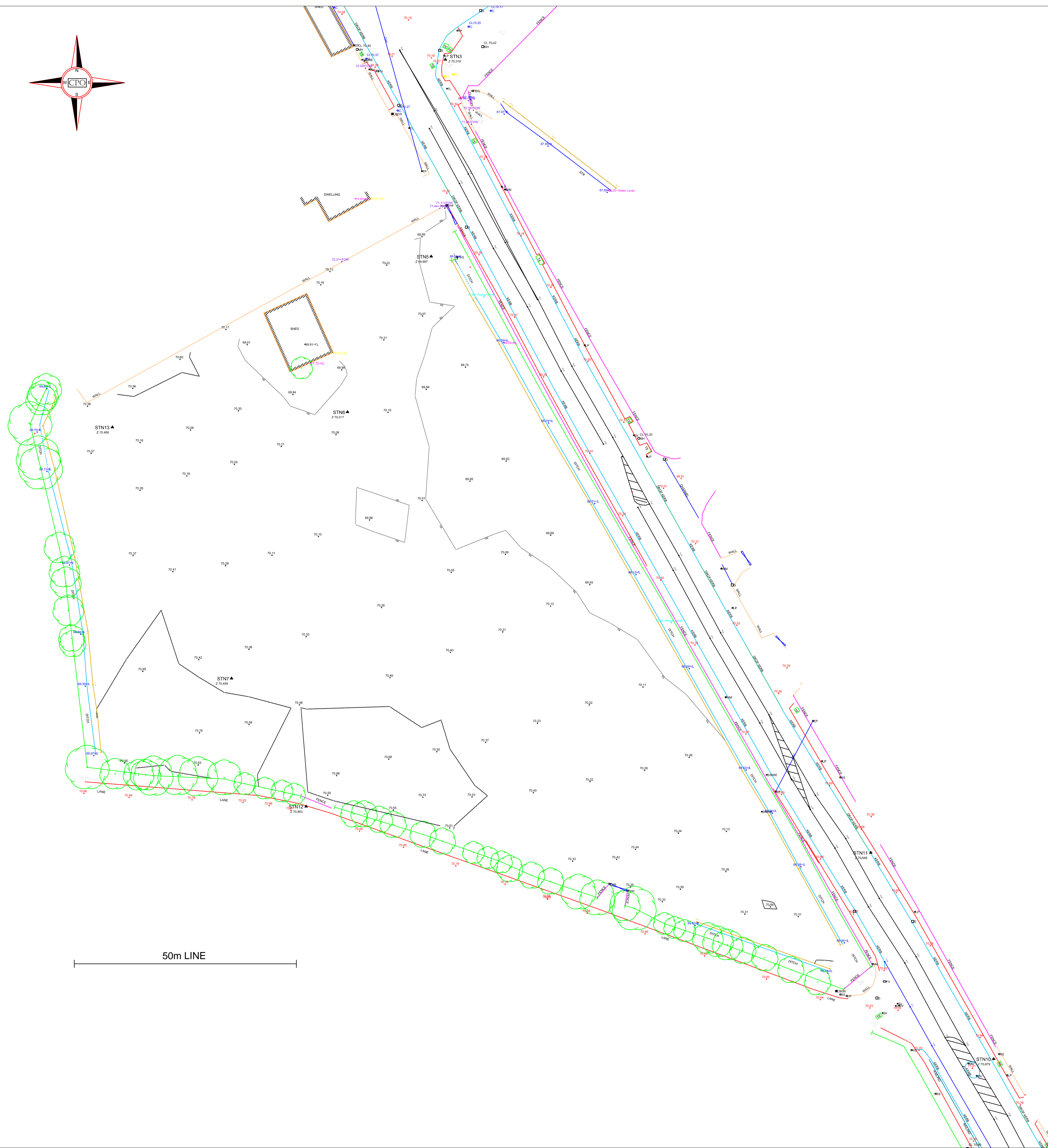
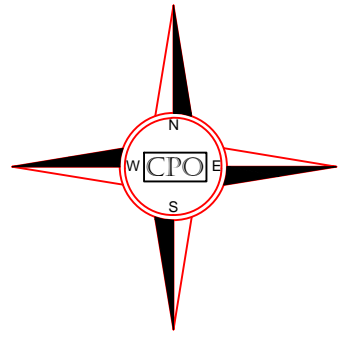
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Notes:

Contours shown at 1m & 0.5m intervals
The Survey is related to Irish Grid Co-ordinates
and related to O.S.B.M (Main Head)

Project:
Topographical Survey @
Coolquay, Swords Co Dublin

Client:
Mc Mahon Engineers

Engineer:
P. Murphy

Surveyed by:



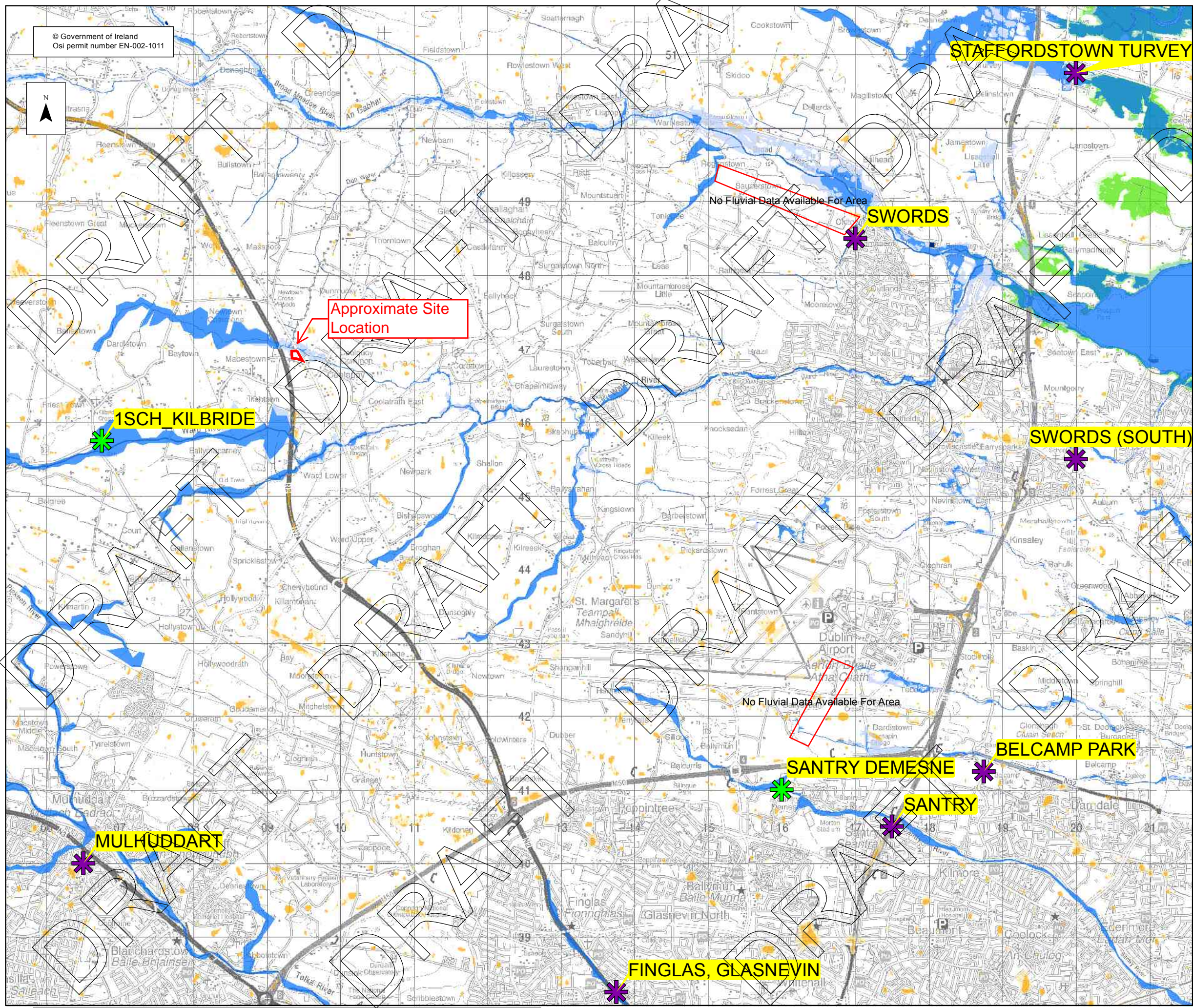
LAND SURVEYING | SITE ENGINEERING
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Date Surveyed:
22-03-2018

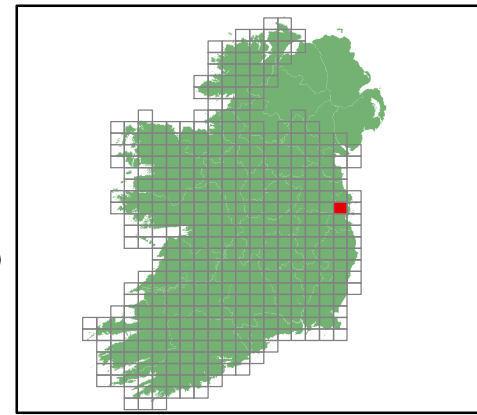
Scale:
1:500

Drg No:
2990-1-3D
Sheet 1 of 1

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Location Plan :



Legend:

- Flood Extents**
- Fluvial - Indicative 1% AEP (100-yr) Event
 - Fluvial - Extreme Event
 - Coastal - Indicative 0.5% AEP (200-yr) Event
 - Coastal - Extreme Event
 - Pluvial - Indicative 1% AEP (100-yr) Event
 - Pluvial - Extreme Event
 - Groundwater Flood Extents
 - Lakes / Turloughs
- PFRA Outcomes**
- ✳ Probable Area for Further Assessment
 - ✳ Possible Area for Further Assessment

Important User Note:
The flood extents shown on these maps are based on broad-scale simple analysis and may not be accurate for a specific location. Information on the purpose, development and limitations of these maps is available in the relevant reports (see www.cfram.ie). Users should seek professional advice if they intend to rely on the maps in any way.

If you believe that the maps are inaccurate in some way please forward full details by contacting the OPW (refer to PFRA Information leaflets or 'Have Your Say' on www.cfram.ie).

Office of Public Works
Jonathon Swift Street
Trim
Co Meath
Ireland

Project :
PRELIMINARY FLOOD RISK ASSESMENT (PFRA)

Map :
PFRA Indicative extents and outcomes
- Draft for Consultation

Figure By : PJW Date : July 2011
Checked By : MA Date : July 2011

Figure No. : 2019 / MAP / 256 / A Revision : 0

Drawing Scale : 1:50,000 Plot Scale : 1:1 @ A3

