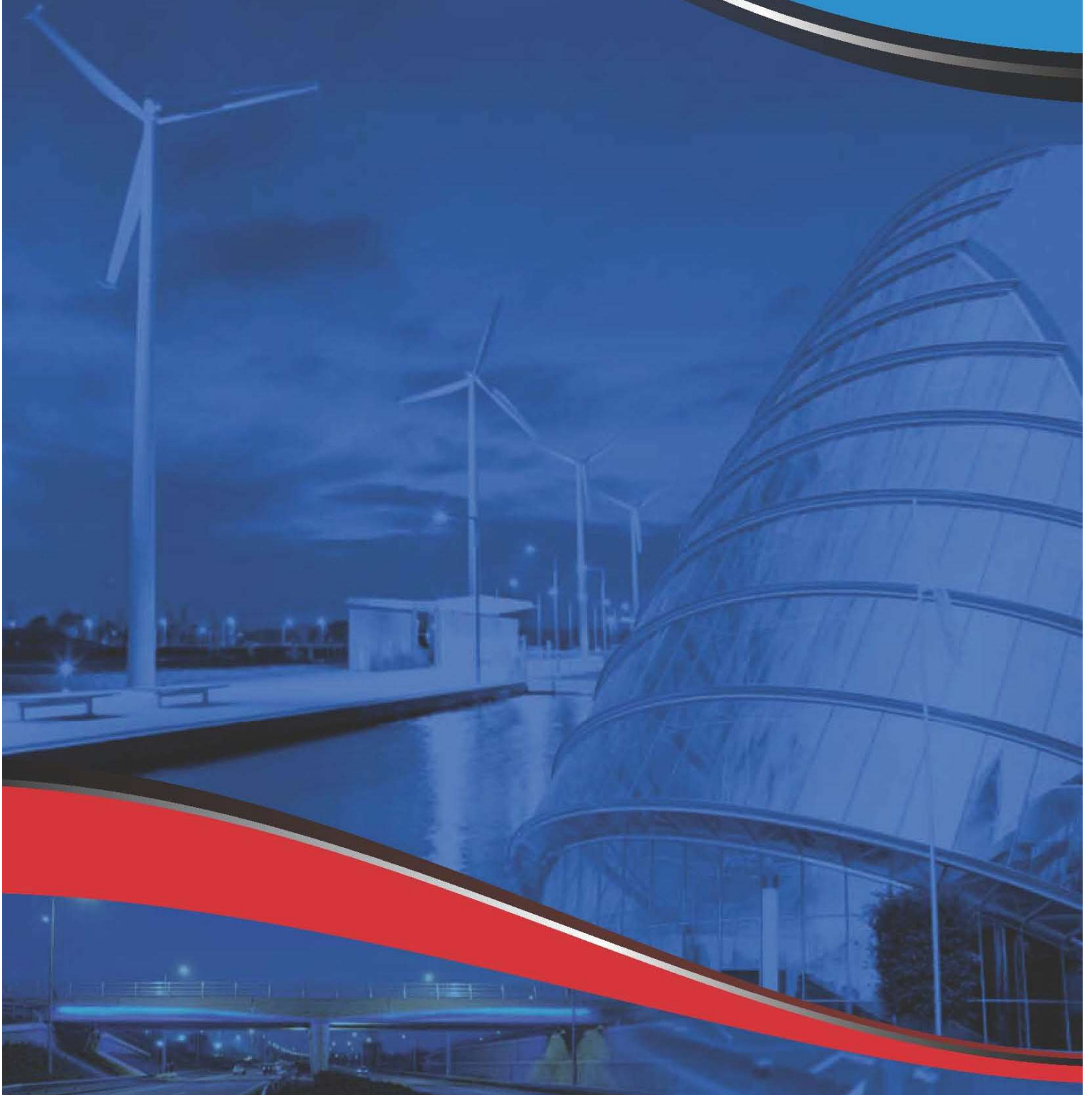


SITE-SPECIFIC FLOOD RISK ASSESSMENT



**Spicer's Bakery, Ramparts Car Park
and Andy Brennan Park Project
Athlumney Road, Co. Meath,
PROJECT NO. P340
20 December 2022**



SITE-SPECIFIC FLOOD RISK ASSESSMENT

**Spicer's Bakery, Ramparts Car Park and Andy
Brennan Park Project Athlumney Road, Co. Meath,**

Ireland

PROJECT NO. P340

20 December 2022

SITE-SPECIFIC FLOOD RISK ASSESSMENT

for

**Spicer's Bakery, Ramparts Car Park and Andy Brennan Park Project
Athlumney Road, Co. Meath, Ireland Spicer's Bakery, Ramparts Car
Park and Andy Brennan Park Project
Athlumney Road, Co. Meath, Ireland**



OCSC

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Multidisciplinary
Consulting Engineers

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DOCUMENT CONTROL & HISTORY

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SITE-SPECIFIC FLOOD RISK ASSESSMENT

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1 INTRODUCTION

1.1 Appointment

O'Connor Sutton Cronin & Associates (OCSC) have been appointed by *Meath County Council* to carry out a Site-Specific Flood Risk Assessment (SSFRA) associated with the site at Athlumney Road, Navan, Co. Meath.

1.2 Administrative Jurisdiction

The proposed development is located in the jurisdiction of Meath County Council and therefore this SSFRA was carried out with reference to the following:

- Meath County Development Plan (2021 – 2027);
- Greater Dublin Strategic Drainage Study (GDSDS);
- The Planning System and Flood Risk Management Guidelines for Planning Authorities (Department of Environment, Heritage and Local Government and the Office of Public Works).
- Circular PL2/2014 (13th August 2014)

1.3 Site Location

The subject site is located at Athlumney, Navan Co. Meath with the R153 (Athlumney Road) horizontally crossing through, dissecting the site.

The land within site boundaries to the North of the R153 currently comprises of a derelict mill and bakery. Within the mill and bakery site there are two NIAH protected structures: Spicers Basin (NIAH Reg. Number 14010082) and the Mill Building (NIAH Reg. Number 14010089). Within this area of land there is a plot which is owned by the Navan Silver Band and is therefore excluded from this assessment.

The land within the site boundaries to the South of the R153 currently encompasses Andy Brennan's Peoples Park.

The site is bounded by the River Boyne to the West, The Rivermill View Apartments to the Northwest. The Ramparts Walk Trail and historic canal to the North and Northeast and the grounds of Loreto Secondary School, Navan Education Centre, and the Sommerville Apartments to the South.

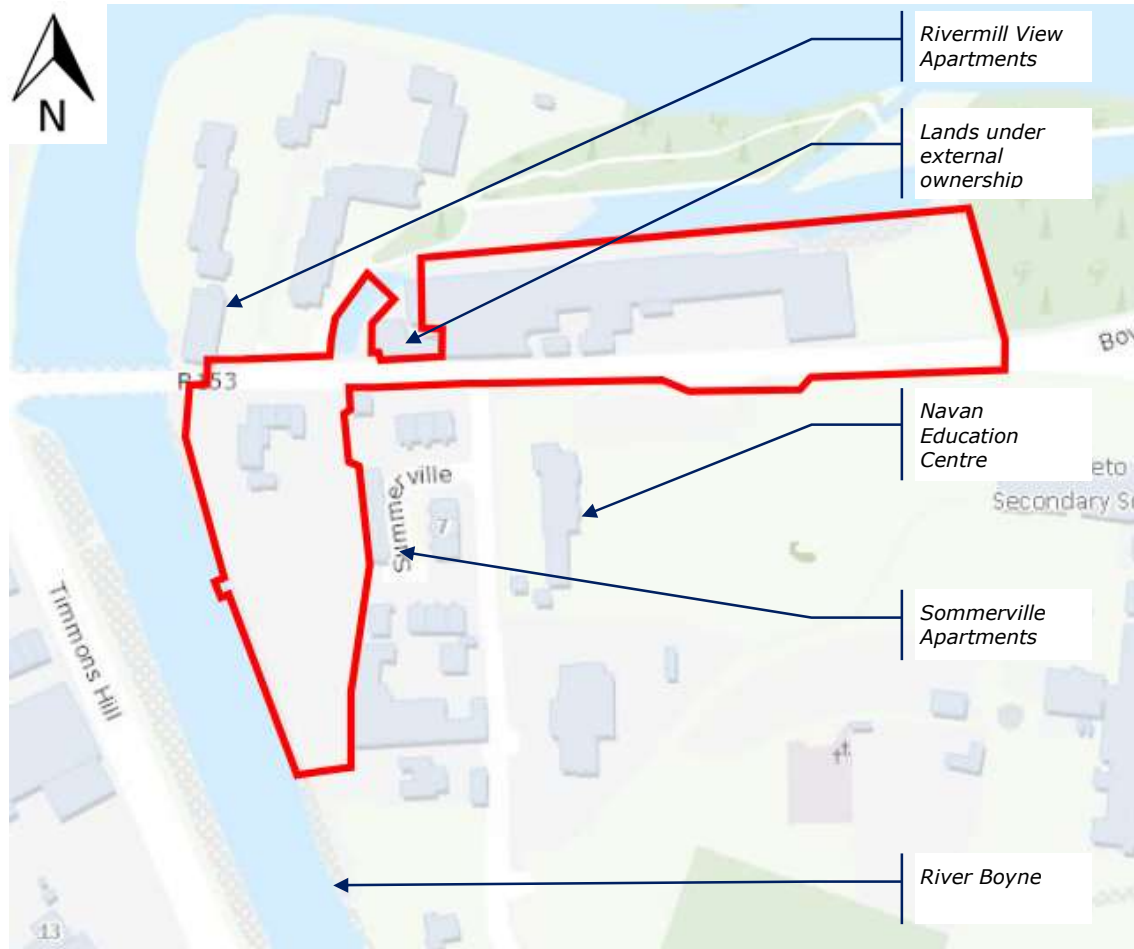


Figure 1-1: Site Location

1.4 Information Consulted

This flood risk assessment has been prepared on the information available from the following sources:

- OPW Flood Maps www.floodinfo.ie;
- DECLG website www.myplan.ie;
- OPW website www.floodmaps.ie;
- Geological Survey of Ireland Maps (GSI);

- Architectural drawings;
- Topographical survey.

2 SITE CONTEXT

2.1 Existing Site Overview

The subject site is approximately 1.6 hectares. It is a mix of landscape, brownfield, and hardstanding, see Figure 1 2.



Figure 2-1: Existing site overview

The area of land within the site boundaries to the North of the R153 is sloping in a northerly direction towards the Ramparts Trail Walk and River Boyne. Levels at the northern boundary of the existing carpark are approximately 36.0m AOD falling to levels of 33.00m AOD at the site's Northern boundary.

The area of land to the South of the R153 is predominantly flat at a level of approximately 32m AOD however there are high points of 33.3m AOD at the park entrance and low points of 30.00m AOD at the tunnel underneath the R153.

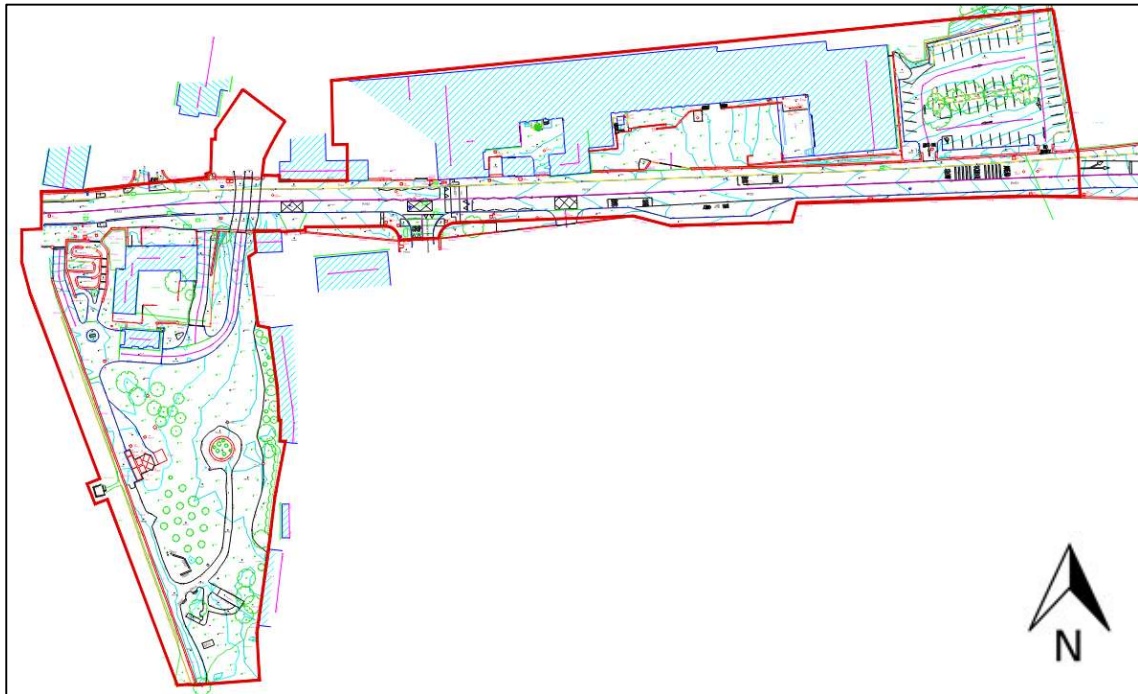


Figure 2.2: Site contour map. (Refer to Appendix B for Topo Survey)

2.2 Site Zoning

The overall site area is 1.6 hectares and is a mix of lands zoned as: H1 – high amenity and C1 – mixed use under the Meath County Development Plan 2021-2027.

2.3 Proposed Development Description

The proposed development comprises of the following

- The preservation and conservation of the former Spicer's Bakery (PS) and demolition of associated outbuildings and sheds.
- The renovation and extension of the former Spicers's Bakery 2 story office building as a café with associated public realm area inclusive of bandstand.
- The reconfiguration of the Ramparts Carpark with new access and egress points, cycle parking, public realm area and footpaths.

- The demolition of 4 no. terraced derelict properties along the Athlumney Road and replacement with a stepped public plaza area at the entrance to Andy Brennan Park.
- The redevelopment of the Andy Brennan Park for active recreational use including the refurbishment of the existing fishing platform.
- Associated landscaping, associated pedestrian linkages including 2 no. pedestrian crossings; site drainage works; and all associated site development works.



Figure 2.3 – Proposed Site Layout

3 RELEVANT GUIDANCE

3.1 The Planning System and Flood Risk Management Guidelines

In September 2008, "The Planning System and Flood Risk Management" (PSFRM) Guidelines were published by the Department of the Environment, Heritage and Local Government in Draft Format. In November 2009, the adopted version of the document was published.

The Flood Risk Management Guidelines give guidance on flood risk and development. The guidelines recommend a precautionary approach when considering flood risk management in the planning system.

The core principle of the guidelines is to adopt a flood risk sequential approach to managing flood risk and to avoid development in areas that are at risk. The sequential approach is based on the identification of flood zones for river and coastal flooding. The guidelines include definitions of Flood Zones A, B and C. It should be noted that these do not consider the presence of flood defences, as there remain risks of overtopping and breach of the defences.

Table 3-1: Flood Risk Zones

Zone A	High Probability of Flooding Where the annual probability of flooding is: greater than 1% for fluvial flooding or greater than 0.5% for coastal flooding
Zone B	Moderate Probability of Flooding Where the annual probability of flooding is: between 0.1% and 1% for fluvial flooding or between 0.1% and 0.5% for coastal flooding
Zone C	Low Probability of Flooding Where the annual probability of flooding is: less than 0.1% for fluvial flooding and less than 0.1% for coastal flooding

The guidelines set out the different types of development appropriate to each zone. Exceptions to the restriction of development due to potential flood risks are provided for with the Justification Test, where the planning need and the sustainable management of flood risk to an acceptable level must be demonstrated. This recognises that there will be a need for future development

in existing towns and urban centres that lie within flood risk zones, and that the avoidance of all future development in these areas would be unsustainable.

3.2 Flood Risk Assessment and Management Plan for the Meath CDP 2020-2026

The flood risk assessment and management plan for the Meath CPD 2020-2026 identifies a number of policies relating to flooding, some are outlined below:

"INF Pol 19 – To implement the findings and recommendations of the Strategic Flood Risk Assessment prepared in conjunction with the County Development Plan review, ensuring climate change is taken into account.

INF Pol 26 – To undertake a review of the "Strategic Flood Risk Assessment for County Meath" in light of the completed flood mapping which has been developed as part of the Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study.

3.3 Climate Change

Both the Greater Dublin Strategic Drainage Study (GSDSDS) and PSFRM Guidelines require that account be taken of the effects of climate change over the design life of a development, typically 100 years. Design parameters to take account of climate change were established in the GSDSDS and revised following later studies and Climate Change Sectorial Adaptation Plan Flood Risk Management (2015-2019) Development published by the OPW. These parameters are set out in Table 3-2, below.

Table 3-2: Climate Change - Impact on Design Parameters

Design Category	Impact of Climate Change
Drainage	20% increase in rainfall
Fluvial (River)	20% increase in flood flow
Tidal/Coastal	Sea level rise of 500 mm ¹

4 FLOOD RISK IDENTIFICATION

4.1 Existing Hydrological Environment

The River Boyne runs adjacent to the site on the sites south western boundary. The River Boyne joins with the River Blackwater shortly upstream from this point and turns sharply right travelling towards Drogheda. The Boyne comes within proximity (35m) of the sites northern boundary after it has made this turn.

There is a historical canal which is no longer used for navigational purposes spanning across the majority of the site's northern boundary.

4.2 Existing Surface Water Drainage

There is no evidence that existing units, hardstanding areas and landscaping areas currently discharge surface water into either a local storm water network or a local combined network. There is no apparent treatment nor attenuation facilities in place.

Public records indicate that there is no existing surface water network serving the site currently as seen in figure 4-1.



Figure 4-1: Existing surface water records

As part of the proposed development, a new surface water network will be constructed to manage all surface water onsite. Please refer to OCSC Engineering Services Report for details.

The proposed gravity network for the development is to discharge storm water into the River Boyne.

4.3 Historical Maps

The historical 6" (1837 – 1842) and the 25" (1888 – 1913) mapping have been examined. Historical mapping is often a very useful source of information for assessing the flood history of an area. The historical maps examined show that that the historic canal located on the current sites northern boundary originally continued through the current site and joined the river Boyne where is now approximately the sites south-western corner as seen in figure 4-2.

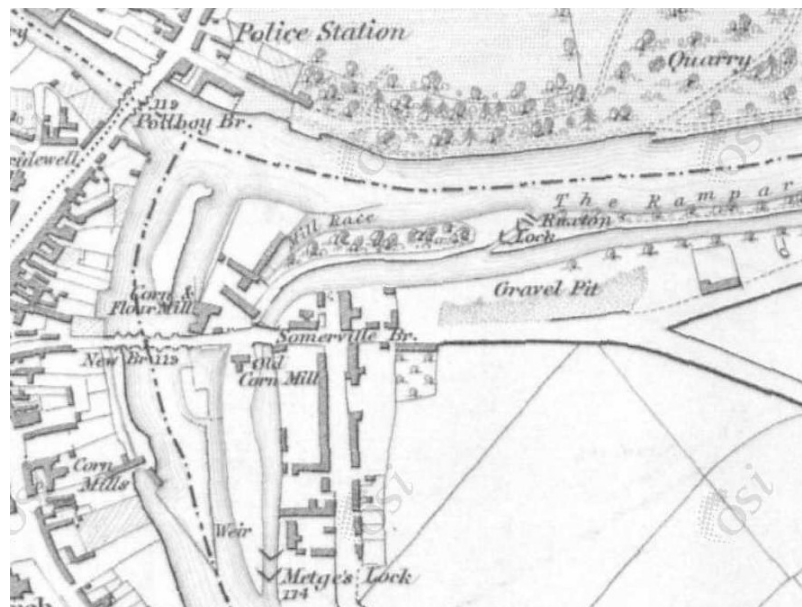


Figure 2-2: Historic 6" (1837-1842) Map

4.4 Historical Flooding

The Office of Public Works (OPW) gathers and collates data from reported flood events throughout the country. From a review of the OPW's National Flood

Hazard Mapping database (www.floodmaps.ie), there are no reported incidents of flooding inside the site boundary.

Please see Past Flood Event Local Area Summary Report included in Appendix C which summarises all past flood events within 2.5 kilometres of the site.

Figure 4-3 shows the historical reported flood events in area surrounding the site. There are no reports of flooding occurring within the proposed site, However, there are reported instances of flooding in the vicinity of the site relating to the Rivers Boyne and Blackwater.



Figure 4-3: National Flood Hazard Mapping

4.5 Groundwater Flooding

An assessment of the flood risk posed by ground water is currently generated by Geological Survey Ireland (GSI) and will be openly available information when published. There are no reported incidents of ground water flooding in the vicinity of the site, see Figure 4-4.

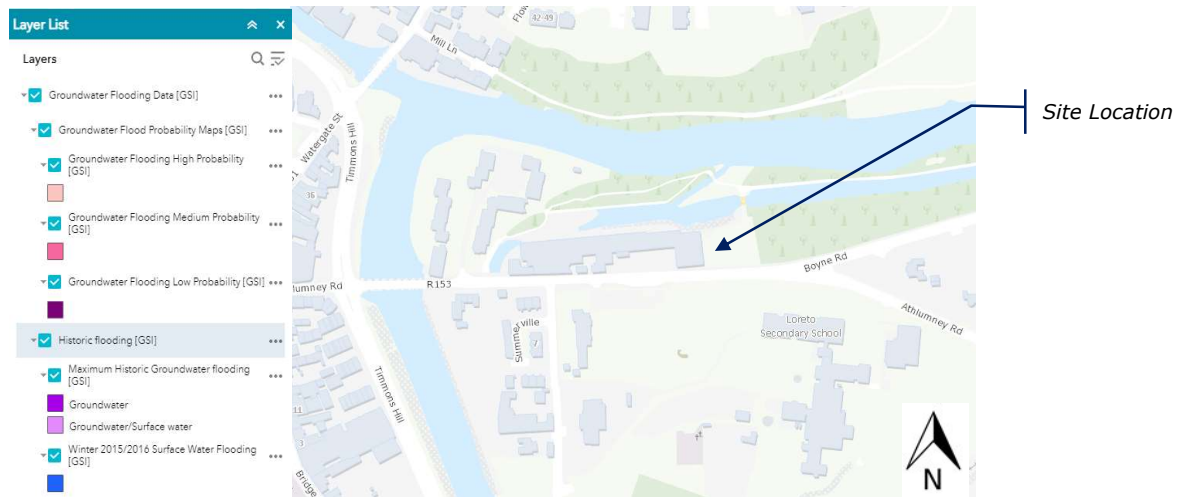


Figure 4-4: Extract from the GSI Groundwater Flooding Data Viewer

According to data obtained from the GSI the subject site is located on subsoil consisting primarily labelled as impure Limestone (Carboniferous). Refer to Figure 4-6.

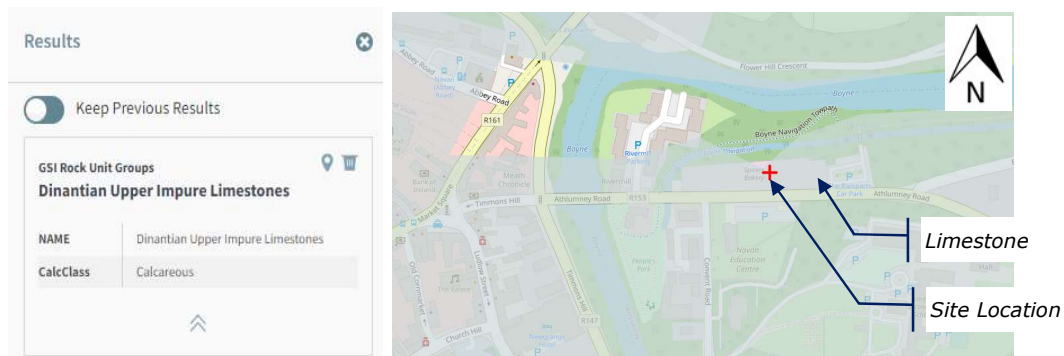


Figure 4-6: Extract from the EPA maps - subsoils

4.6 Navan Pluvial Study

The Navan Pluvial Study include predictive flood maps showing areas predicted to be inundated during a theoretical or 'design' flood event with an estimated probability of occurrence. The site of the proposed development has been included in the Navan Pluvial Study.

Figure 4-5 below is an extract from the pluvial flood map for the area surrounding the proposed development site. The full Navan Pluvial Study map for the area is included in Appendix D of this report. The flood map indicate that a no portion of the site lies within the 10% AEP pluvial flood extent.



Figure 4-5: Extract from Navan development Plan FRA

The pluvial flood risk to the site will be mitigated as the proposed development includes a new surface water drainage scheme which will manage the surface water onsite, and therefore mitigating the risk of pluvial flooding onsite.

4.7 Preliminary Flood Risk Assessment

The Catchment Flood Risk Assessment and Management Study (CFRAMS) is a national programme which to date has produced both a series of Preliminary Flood Risk Assessments (PFRA) which cover the entire country, as well as more detailed flood maps in certain catchments across the country.

Prior to the publication of the detailed CFRAMS flood mapping, a series of Preliminary Flood Risk Assessment (PFRA) maps were published. These maps indicated and fluvial flood risks.

These maps have been superseded by the more detailed CFRAMS maps in the area surrounding the site.

4.8 Catchment Flood Assessment and Management

The CFRAMS maps for the area have been reviewed and reveal that sections of the site are within the 10%, 1%, and 0.1% fluvial AEP event flooding zones.

It is also evident from the mapping that the wall spanning the existing sites southwestern boundary is acting as a flood defence against the 10% AEP flooding event.

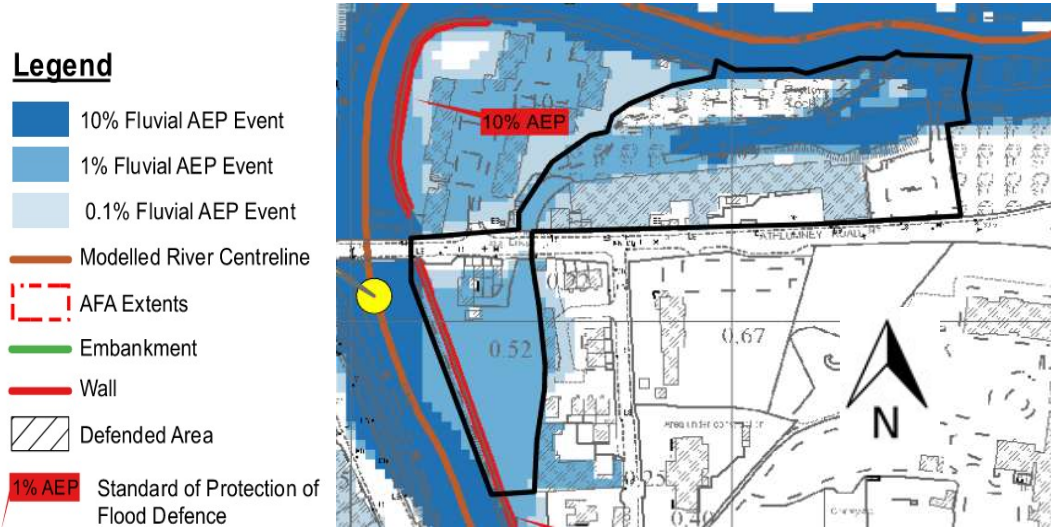


Figure 4-6: Extract from PFRA Maps

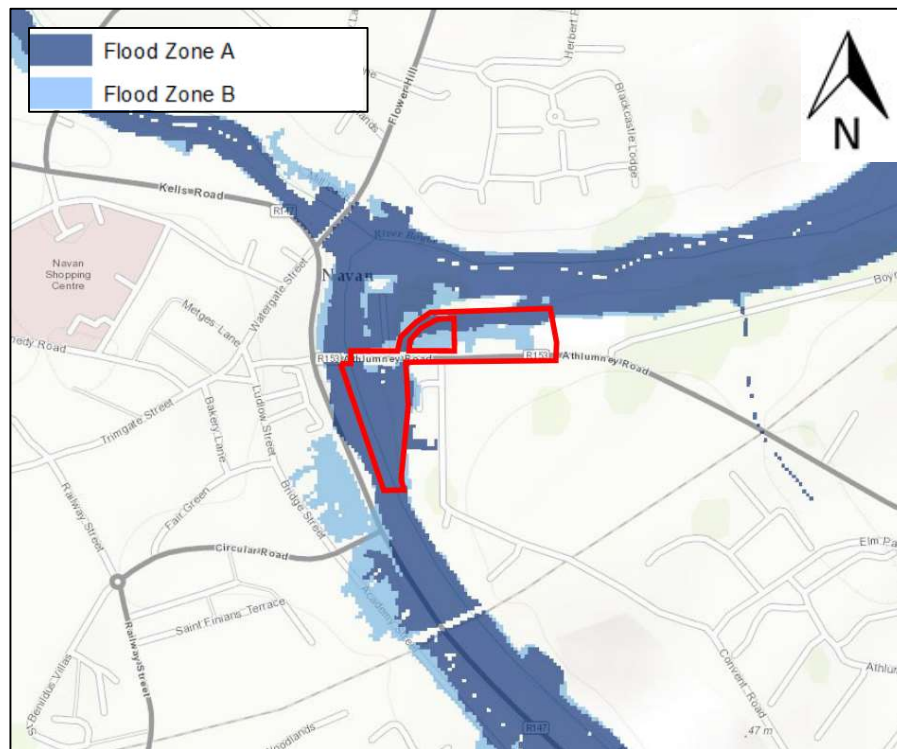


Figure 4-7: Extract from Meath County Council SFRA map

The SFRA notes that the majority of the area of land within the site boundaries to the south of the R153 which is currently Andy Brennan People's Park lies within flood zone A.

The area of land within the site boundaries to the north of the R153 which is currently derelict mill buildings and hardstanding is within both flood zones A and B. The portion of land that lies within flood zone A is along the northern boundary of the site. Please refer to Appendix G for detailed site flood zone map.

The included drawings P340-OCSC-CC-CC-SK-0524-S4-P01 and P340-OCSC-CC-CC-SK-0525-S4-P01 in the Appendix G demonstrates that both Catchment-1(Car Parking) and Catchment-2 (Andy Brennan Park) are protected by a line of hard flood defences (walls) which protect the site for the 1 % AEP. The Finished floor levels FFL for the proposed café and the Spicer bakery are also higher than the 1% AEP CFRAM Node level marked for the river Boyne.

In case of the 0.1% AEP, the catchment-2 (Andy Brennan Park) major portion of the Park would be impacted by the Fluvial flooding. The FFLs for the proposed café and the Spicer Bakery are remain higher than the 0.1% AEP level.

5 FLOOD RISK ASSESSMENT

5.1 Sources of Flooding

Fluvial Flooding

Fluvial flooding is the result of a river exceeding its capacity and excess water spilling out onto the adjacent floodplain. The proposed site is located adjacent to the River Boyne. The SFRA maps indicate that portions of the site are located in Flood Zone's A and B.

Pluvial Flooding

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter any watercourse or sewer. It is usually associated with high-intensity rainfall.

The Navan Pluvial Study does not identify the site as being at risk of pluvial flooding. However, the proposed development includes the construction of a new surface water drainage scheme which will manage surface water runoff onsite and mitigate the risk of pluvial flooding onsite.

Coastal Flooding

Coastal flooding is the result of sea levels which are higher than normal and result in sea water overflowing onto the land during high tides or storm surges. Given the elevation and location of the site of the proposed development, we consider that tidal flooding does not pose a flood risk in the area.

Groundwater Flooding

Groundwater flooding occurs when the level of the water stored in the ground rises as a result of prolonged rainfall. From a review of the available information, there is no risk of groundwater flooding at the site. There are skateboard bowl features included as part of the proposed development and therefore, the risk of groundwater must be considered.

5.2 Development Vulnerability

The *PSFRM Guidelines* classify potential development in terms of its vulnerability to flooding. The types of development falling within each vulnerability class are described in *Table 3.1* of the *PSFRM Guidelines*, which is reproduced in Table 5-1.

Table 5-1: Development Vulnerability Class

Vulnerability Class	Land uses and types of development which include:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; <i>Dwelling houses</i> , student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc.) in the event of flooding
Less vulnerable development	Buildings used for: retail, leisure, warehousing, commercial, industrial and non-residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry; Waste treatment (except landfill and hazardous waste); Mineral working and processing; and Local transport infrastructure.
Water-compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; <u>Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and</u> Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).

The proposed commercial buildings included in the development are considered to be a **less vulnerable development**.

The remaining development is described as amenity open space and therefore, is considered to be a **water-compatible development**.

The *PSFRM Guidelines* define the zones in which each class of development is appropriate – this is summarised in Table 5-2. The *PSFRM Guidelines* recognises that flood risks should not be the only deciding factor in zoning for development. They also recognise that circumstances will exist where development of a site within a floodplain is desirable; in order to achieve compact and sustainable development of the core of urban settlements. In order to allow consideration of such development, the *PSFRM Guidelines* provide a **Justification Test**, which establishes the criteria under which desirable development of a site in a floodplain may be warranted.

Table 5-2: "Appropriateness" Matrix

	Flood Zone A	Flood Zone B	Flood Zone C
Highly Vulnerable Development	Justification Test	Justification Test	Appropriate
Less Vulnerable Development	Justification Test	Appropriate	Appropriate
Water-compatible Development	Appropriate	Appropriate	Appropriate

The proposed commercial buildings are described as a less vulnerable development and are located on section of the site which is within flood Zone B as shown in figure 5-1 and therefore, considered to be **Appropriate**.



Figure 5-1 - Site Strategic Flood Risk Assessment

The remaining proposed development is described as “amenity open space” and is deemed as a “water compatible development.” This means that although the development will be located within Flood Zone A, the development is still considered **Appropriate**.

As the development is considered “appropriate” a Justification Test is not required.

5.3 Flood Mitigation Measures

With reference to the above, a review of flood maps produced as part of the CFRAMS and SFRA indicate that the site of the proposed development falls within the Flood Zone’s A and B. The critical flooding mechanism for this site will be fluvial flooding.

As noted previously, to cope with pluvial flooding the proposed development will include a new surface water drainage scheme which will manage the surface water onsite.

5.3.1 Emergency Access & Egress

It is necessary to ensure that access and egress will remain possible to the development in the event of an emergency during an extreme flood event. It is proposed to provide access to the development through the existing entrances on the R153.

The access route and surrounding road network is located outside both Flood Zones A and B, and access will be maintained in the event of an emergency.

5.3.2 Infrastructure

The proposed development includes the construction of a surface water drainage scheme which consists of SuDS measures which will minimize the impact to the receiving environment and manage the pluvial flood risk at the site. Please refer to OCSC Engineering Services Report for details.

The proposed surface water scheme has been designed with an allowance for climate change as per the GDSDS.

5.4 Flood Risk Management

Flood risk management under the EU Floods Directive aims to minimise the risks arising from flooding to people, property and the environment. Minimising risk can be achieved through structural measures that block or restrict the pathways of floodwaters, such as river defences or non-structural measures that are often aimed at reducing the vulnerability of people and communities such as flood warning, effective emergency response, or resilience measures for communities or individual properties.

As noted above, all emergency access can be maintained to and from the site from the main entrance. The proposed buildings are located outside the flood extents.

6 CONCLUSIONS AND RECOMMENDATIONS

The assessment is carried out in full compliance with the requirements of "The Planning System & Flood Risk Management Guidelines" published by the Department of the Environment, Heritage and Local Government in November 2009.

As detailed with in the previous sections of this report, the proposed buildings for this development are located within Flood Zone B, while the Amenity Open space is located within Flood Zone A. Therefore each element of the proposed development is considered appropriate for use in accordance with the table 3.2 of the OPW's "The Planning System and Flood Risk Management"

Pluvial and groundwater flooding will be managed through the implementation of the mitigation measures outlined in Section 5.3.

6.1 Recommendations

It has been demonstrated in the earlier sections of this report that the site is at risk of flooding from external sources, however the commercial buildings and amenity open space are proposed within appropriate flood zones for their respective functions and are therefore deemed feasible. It is to be noted that the FFL and the gate levels of the proposed building are higher than the 1 % AEP.

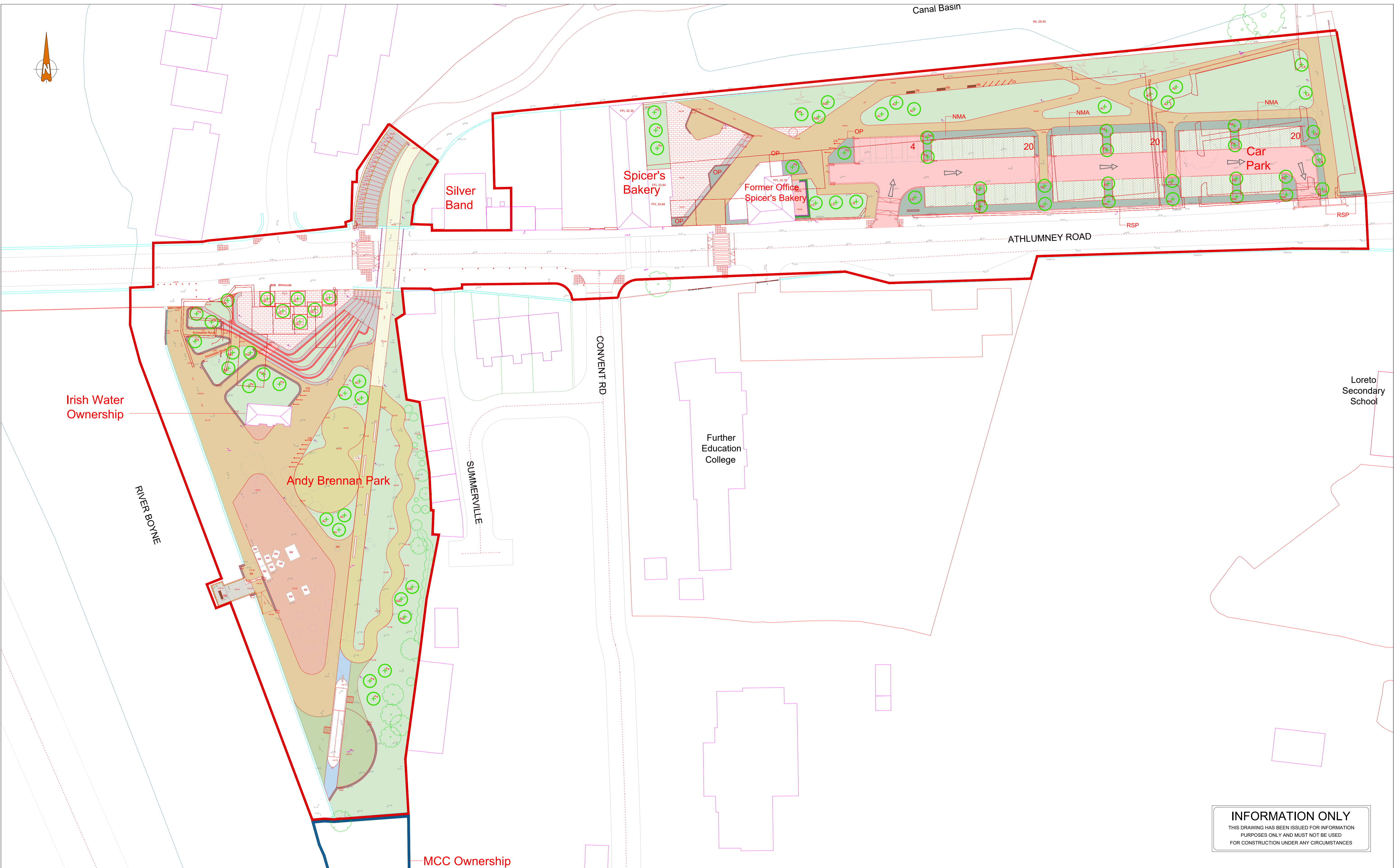
In order to minimise the risk of flooding within the development, it is recommended that all drainage infrastructure is designed and installed in accordance with the relevant standards.



APPENDIX A. PROPOSED SITE LAYOUT

Appendix A

Proposed Site Layout

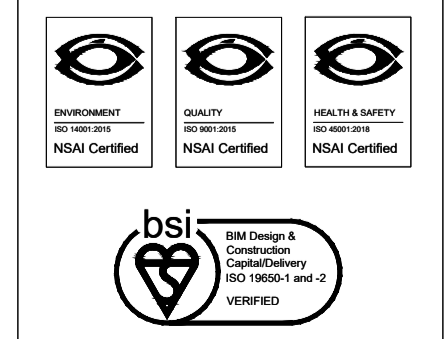


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Head Office,
 9 Prussia Street,
 Dublin 7,
 D07 KT57

TEL +353 (0)1 8682000

e: contactus@ocsc.ie
 w: www.ocsc.ie

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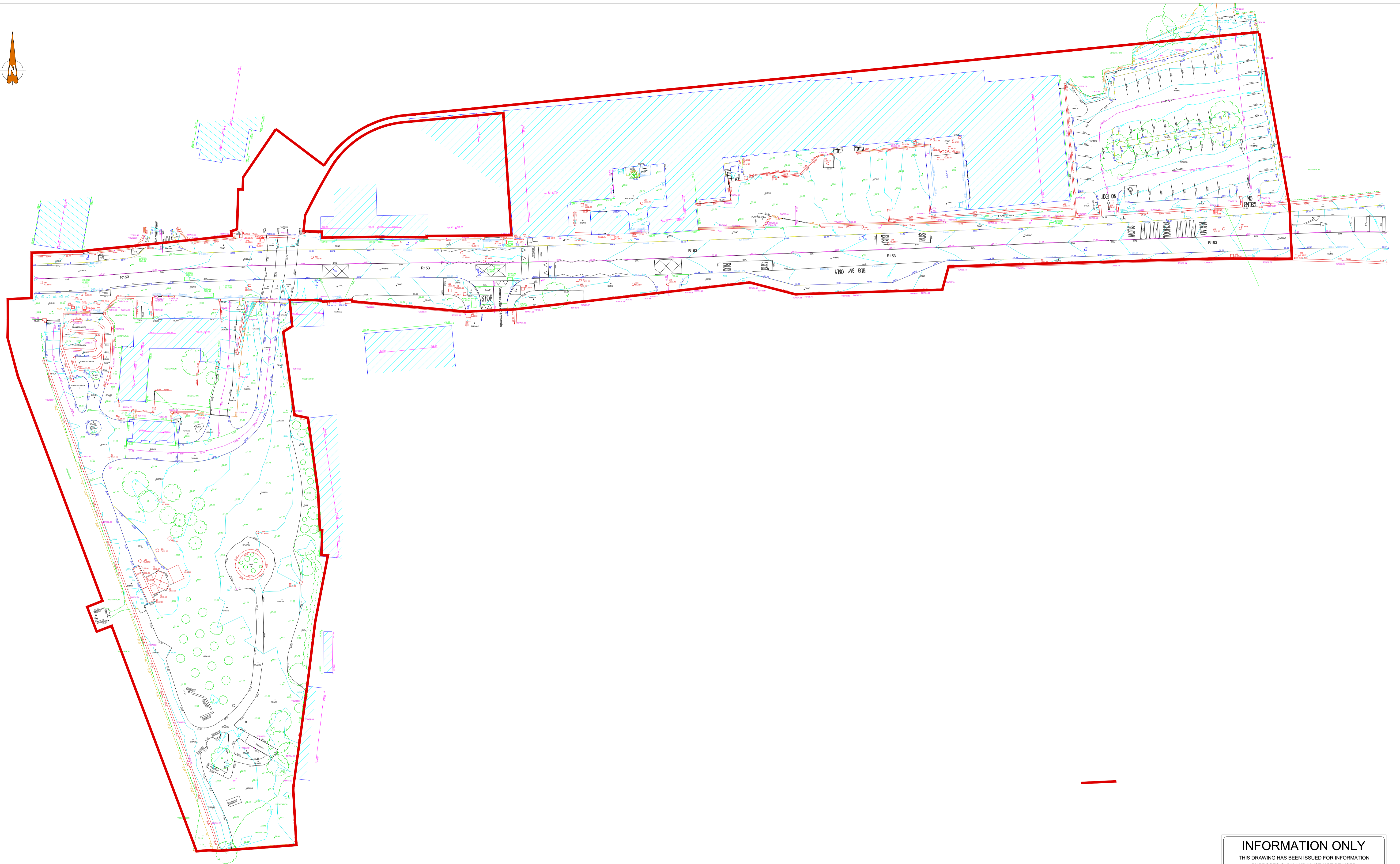
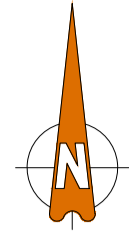
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Project:	SPICER'S BAKERY, RAMPARTS CARPARK AND ANDY BRENNAN PARK PROJECT							
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P340	OCSC	XX	XX	SK	C	0002	SO	P02
Date: 09.12.22 Scale: 1:400 @ A1 Drn by: COR Chkd by: EH Aprvd by: DP								



APPENDIX B. TOPOGRAPHICAL SURVEY

Appendix B

Topographical Survey

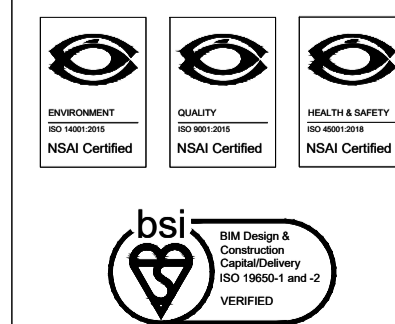


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Head Office,
 9 Prussia Street,
 Dublin 7,
 D07 KT57

TEL +353 (0)1 8682000
 e: contactus@ocsc.ie
 w: www.ocsc.ie



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Client: MEATH COUNTY COUNCIL
 Project: SPICER'S BAKERY, RAMPARTS CARPARK AND ANDY BRENNAN PARK PROJECT
 Title: EXISTING SITE SURVEY

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P340	OCSC	XX	XX	SK	C	0003	SO	P01

Date: 09.12.22 Scale: 1:400 @ A1 Drn by: COR Chkd by: EH Aprvd by: DP



APPENDIX C. OPW FLOOD HISTORY



Appendix C

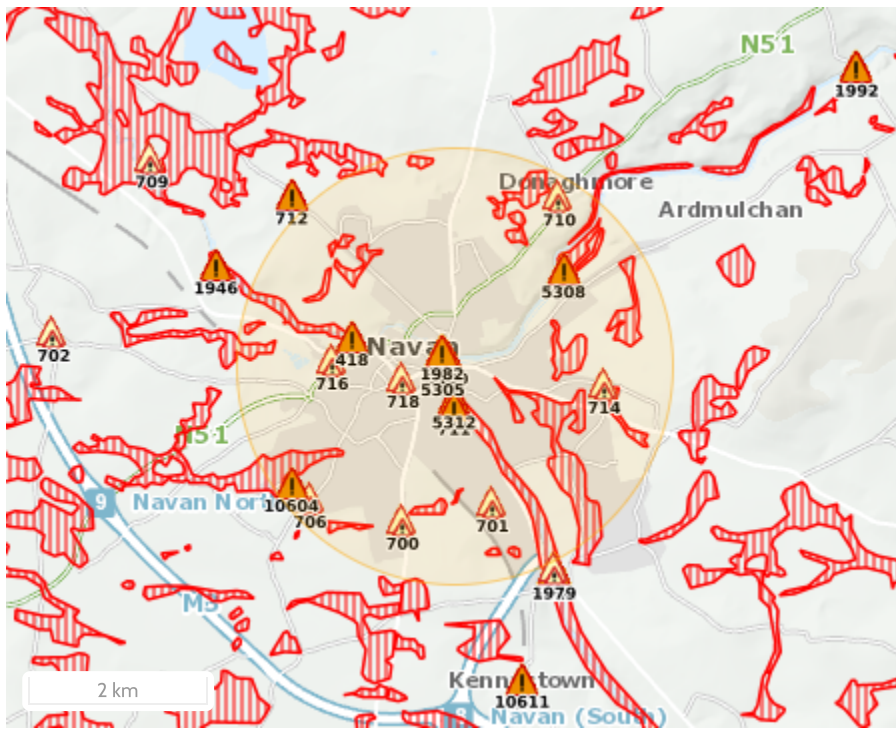
OPW Flood History



Report Produced: 9/12/2022 14:12

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "Website"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.








Map Legend

- Single Flood Event
- Recurring Flood Event
- Past Flood Event Extents
- Drainage Districts Benefited Lands*
- Land Commission Benefited Lands*
- Arterial Drainage Schemes Benefited Lands*

* Important: These maps do not indicate flood hazard or flood extent. Their purpose and scope is explained on Floodinfo.ie

18 Results

Name (Flood_ID)	Start Date	Event Location
1. Boyne Athlumney Nov 2002 (ID-5305) Additional Information: Reports (1) Press Archive (0)	14/11/2002	Approximate Point
2. Boyne Navan Nov 1965 (ID-1982) Additional Information: Reports (1) Press Archive (0)	17/11/1965	Approximate Point
3. Boyne Blackcastle Nov 2002 (ID-5308) Additional Information: Reports (1) Press Archive (0)	14/11/2002	Approximate Point
4. Boyne Blackwater Nov 2002 (ID-5309) Additional Information: Reports (1) Press Archive (0)	14/11/2002	Approximate Point
5. Boyne Railway Bridge, Navan Nov 2002 (ID-5312) Additional Information: Reports (1) Press Archive (0)	14/11/2002	Approximate Point
6. Boyne Navan Nov 2000 (ID-417) Additional Information: Reports (9) Press Archive (3)	06/11/2000	Approximate Point

	Name (Flood_ID)	Start Date	Event Location
7.	 Navan Swan Culvert, Trim Road Recurring (ID-700) Additional Information: Reports (2) , Press Archive (0)	n/a	Approximate Point
8.	 Blackwater Navan Nov 2000 (ID-418) Additional Information: Reports (4) , Press Archive (1)	07/11/2000	Approximate Point
9.	 Boyne Navan Feb 1990 (ID-419) Additional Information: Reports (1) , Press Archive (1)	07/02/1990	Approximate Point
10.	 Donaghmore at Round Tower Recurring (ID-710) Additional Information: Reports (2) , Press Archive (0)	n/a	Approximate Point
11.	 Boyne Navan Nov 2002 (ID-420) Additional Information: Reports (1) , Press Archive (0)	15/11/2002	Approximate Point
12.	 Boyne Academy Street, Navan 1991 (ID-711) Additional Information: Reports (2) , Press Archive (0)	01/01/1991	Approximate Point
13.	 Swan Kilcarn Housing Estate Navan Recurring (ID-701) Additional Information: Reports (3) , Press Archive (0)	n/a	Approximate Point
14.	 Navan Commons Road Recurring (ID-706) Additional Information: Reports (2) , Press Archive (0)	n/a	Approximate Point
15.	 Navan Atlumney Recurring (ID-714) Additional Information: Reports (3) , Press Archive (0)	n/a	Approximate Point
16.	 Moatville Housing Estate Navan Recurring (ID-716) Additional Information: Reports (2) , Press Archive (1)	n/a	Approximate Point
17.	 Raish Court Navan Recurring (ID-718) Additional Information: Reports (2) , Press Archive (0)	n/a	Approximate Point
18.	 Boyne Commons Lane Navan August 2008 (ID-10604) Additional Information: Reports (1) , Press Archive (0)	15/08/2008	Approximate Point



APPENDIX D. NAVAN PLUVIAL STUDY MAP

Appendix D

Navan Pluvial Study Map

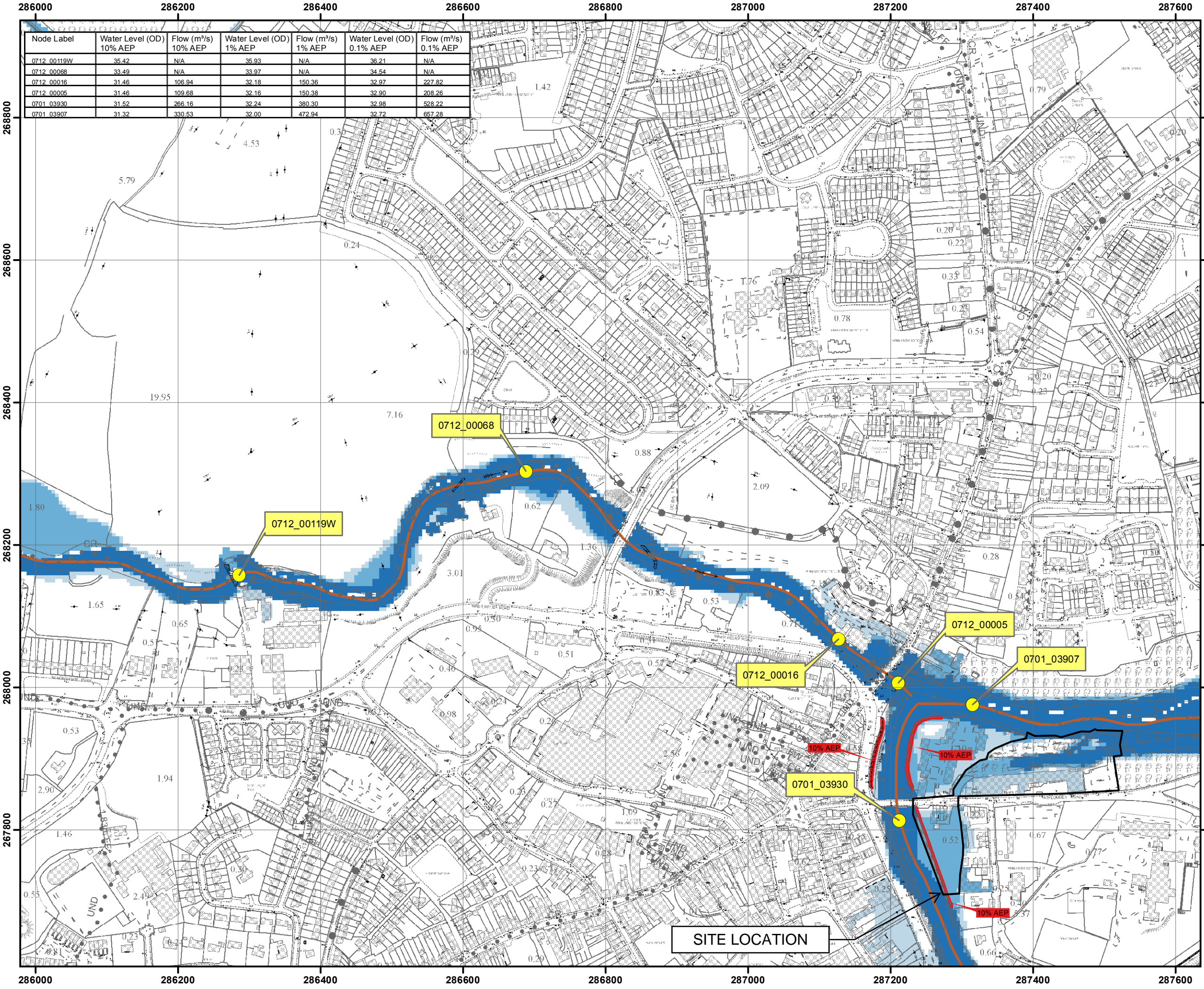




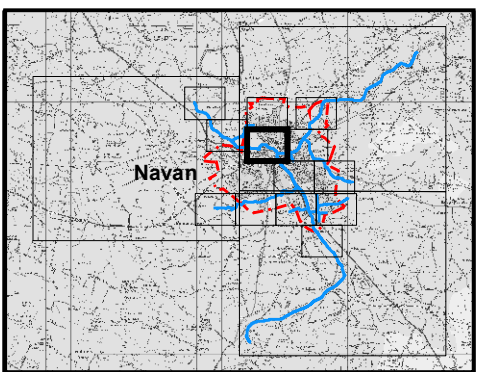
APPENDIX E. OPW CFRAMS MAPS

Appendix E

OPW CFRAMS Maps



Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
0712_00119W	35.42	N/A	35.93	N/A	36.21	N/A
0712_00068	33.49	N/A	33.97	N/A	34.54	N/A
0712_00016	31.46	106.94	32.18	150.36	32.97	227.82
0712_00005	31.46	109.68	32.16	150.38	32.90	208.26
0701_03930	31.52	266.16	32.24	380.30	32.98	528.22
0701_03907	31.32	330.53	32.00	472.94	32.72	657.28



IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

- Legend**
- 10% Fluvial AEP Event
 - 1% Fluvial AEP Event
 - 0.1% Fluvial AEP Event
 - Modelled River Centreline
 - AFA Extents
 - Embankment
 - Wall
 - Defended Area
 - 1% AEP Standard of Protection of Flood Defence (Walls / Embankments)
 - 0.1% AEP Standard of Protection of Flood Defence (Walls / Embankments)
 - Node Point
 - Node ID Node Label

FINAL

REV:	NOTE:	DATE:
03	Amendment made to model	16/11/17
02	Flood Defences added to page 10	26/10/17
01	Flood Defences added to map.	05/05/17



The Office of Public Works
Jonathan Swift Street
Trim
Co Meath

Elmwood House T +44(0) 28 90 667914
74 Boucher Road F +44(0) 28 90 668286
Belfast W www.rpsgroup.com
BT12 6RZ E ireland@rpsgroup.com

Map:	Navan Fluvial Flood Extents
Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By:	F.M.C. Date : 16 November 2017
Checked By:	S.P. Date : 16 November 2017
Approved By:	G.G. Date : 16 November 2017
Drawing No.:	E07NAV_EXFCD_F3_10
Map Series:	Page 10 of 16
Drawing Scale:	1:5,000 @ A3





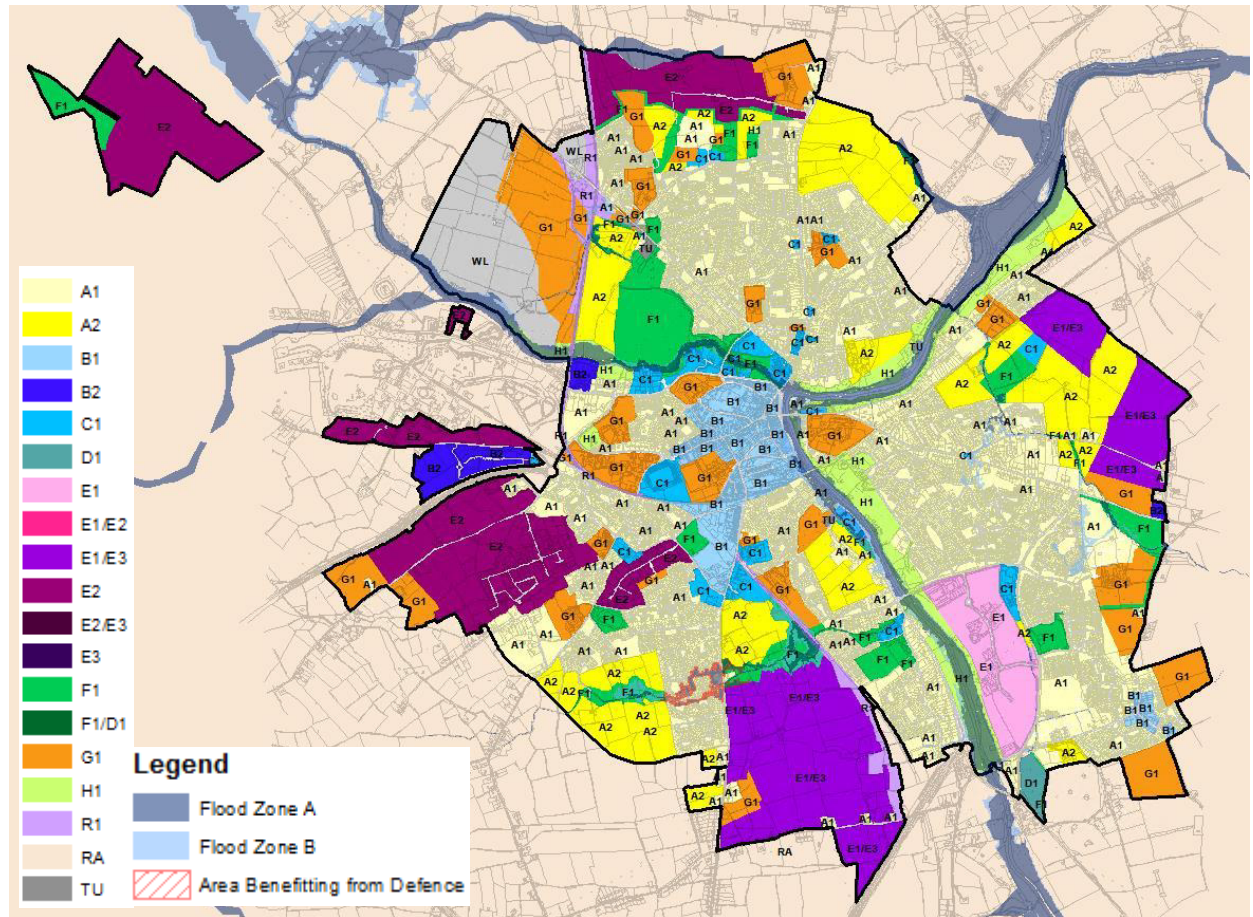
**APPENDIX F. MEATH COUNTY DEVELOPMENT PLAN STRATEGIC FLOOD RISK
ASSESSMENT**

Appendix F

Meath County Development Plan SSFRA

5.30 Navan

Hierarchy	LARGE GROWTH TOWN 1
Area for Further Assessment under CFRAM programme?	Yes - Flood Mapping available, flood relief scheme is pending project-level assessment. It is not listed on the 118 OPW schemes emanating from the CFRAM.



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The Flood Zone mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately. Flood Zone A – Fluvial: 1 in 100 year or 1% AEP, Tidal: 1 in 200 year or 0.5% AEP. Flood Zone B – 1 in 1000 year or 0.1% AEP.

Flood Zone Data	CFRAM, PFRA, and JBA site visit.
Historic Flooding	Significant flood history in Navan from Swan River & Rivers Boyne/Blackwater. Significant events in 2013, 2009, 2008, 2002, 2000.

Comment:

Areas of existing residential development (A1) and town centre lands (B1) are at potential risk of flooding. Flood history supports Flood Zone mapping on Academy Street and Bridge Street as well as flooding from the River Swan in Balreask and Kilcarn housing estates. Balreask Manor and Canterbrook estates are now protected up to a 1 in 100 year standard. In line with the policies (INF POL 14-29) of the MCDP, any extensions/change of use/reconstruction should be subject to an appropriately detailed FRA.

All new residential zoning objectives (A2) follow the sequential approach and preferentially avoid areas within Flood Zone A or B. In all cases, risk can be managed by an appropriately detailed FRA at development management stage (in line with INF POL 14-29 of the MCDP).

There is significant existing C1 and B2 development adjacent to the Rivers Boyne and Blackwater some of which is located within Flood Zone A/B and risk should be managed in line with the policies (INF POL 14-29) of the MCDP. Any extensions/change of use/reconstruction should be subject to an appropriately detailed FRA.

Areas of C1 & E1 development within Flood Zone A or B are located off Metges Road (Priory Stream). Flood extents are now mapped by the CFRAM modelling, and are not significantly out of bank, it is recommended that open space is maintained adjacent to the watercourses within Flood Zone A/B in accordance with INF POL 14-29 (INF POL 22 in particular). An appropriately detailed FRA will be required to demonstrate that any planning application(s) are employing this approach. There is also A2 zoned land in this area and the CFRAM mapping confirms minor flood risk Flood Zone A/B is retained within the channel. Any planning applications on the A2 sites adjoining the local watercourses should be subject to appropriately detailed FRA in line with INF POL 14-29 of the MCDP.

Some existing E2 lands to the north of the settlement (Kilsaran) have a small overlap with Flood Zone A, as generated from PFRA mapping. Any potential future development should seek to address the risk in more detail in line with INF POL 14-29.

The protection of the designated route of the extension of the Clonsilla to Parkway rail line to Navan is catered for by zoning objective R1 “To provide for a strategic rail corridor and associated physical infrastructure.” The zoning has a single purpose use which is to protect the designated route from development which would otherwise compromise its future delivery. As such, the Justification Test and more detailed FRA of the corridor is not required. At such a time as the scheme is formally progressed then the detailed design should be subject to further investigation in line with the Planning System and Flood Risk Management Guidelines. For the most part the route alignment seeks to utilise an existing de-commissioned railway line and many of the river crossings are already in place. Any new crossings will also need to obtain OPW Section 50 consent. To the west of this zoning some G1 lands are within Flood Zone A/B. Flood Zone A is retained within the channel, Flood Zone B impacts some lands and adequate provision for the management of flood risk should be provided at development management stage through the application of INF POL 14-29.

Proposed road objectives could potentially intersect Flood Zones A/B. The indicative sites will require further assessment once the routes are confirmed and intersections with Flood Zone A/B have been identified, in line with the INF POL 14-29 of the MCDP. OPW Section 50 consent for all watercourse crossings will be required prior to construction.

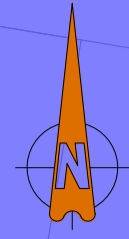
Climate Change	Moderate to high risk presented, particularly on smaller watercourses where culverts are exerting an influence on upstream flood levels.
Conclusion	Flood risk is manageable by application of Policies 14-29 of the MCDP. Undeveloped zoned land applies the sequential approach and preferentially avoids risk. Some existing land is at risk but a potential flood relief scheme has not been guaranteed by OPW after the formal promotion of 118 schemes from the CFRAM process. Any potential link roads crossing Flood Zone A/B should be subject to FRA and Section 50 consent.



APPENDIX G. Site Strategic Flood Risk Assessment

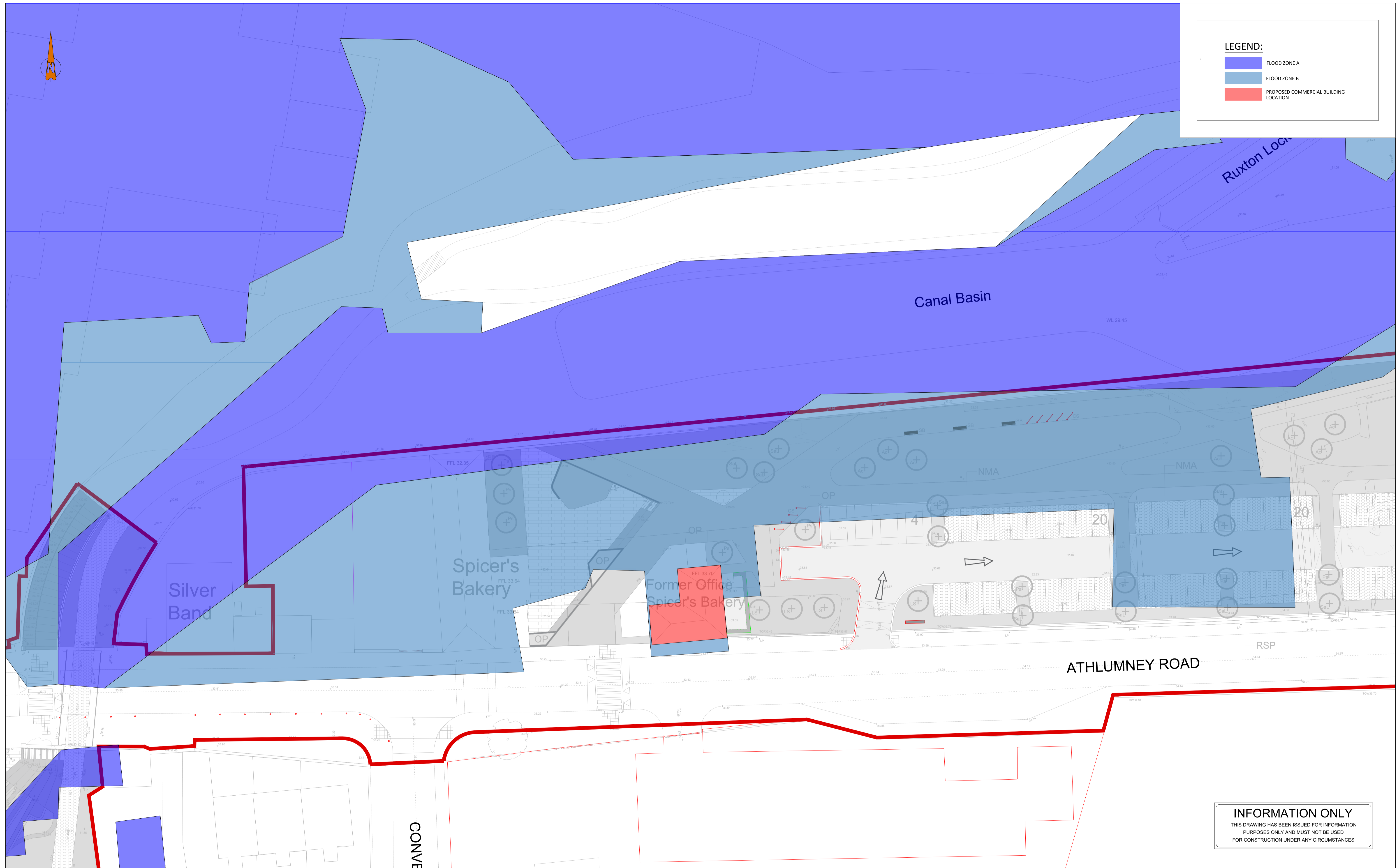
Appendix G

Site SSFRA



LEGEND:

- FLOOD ZONE A
- FLOOD ZONE B
- PROPOSED COMMERCIAL BUILDING LOCATION

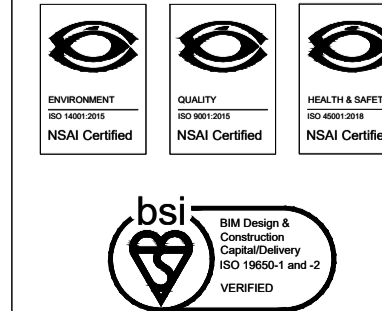


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P01	15.11.22	SUITABLE FOR INFORMATION	COR	DP

Rev No.	Date	Revision Note	Drn by	Chkd by



Head Office,
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 Dublin 7,
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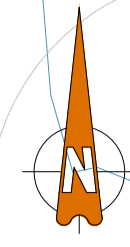


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Client: MEATH COUNTY COUNCIL
 Project: SPICER'S BAKERY, RAMPARTS CARPARK AND ANDY BRENNAN PARK PROJECT
 Title: STRATEGIC FLOOD RISK ASSESSMENT

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
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Date: 15.12.22 Scale: 1:250 @ A1 Drn by: COR Chkd by: DP Aprvd by:



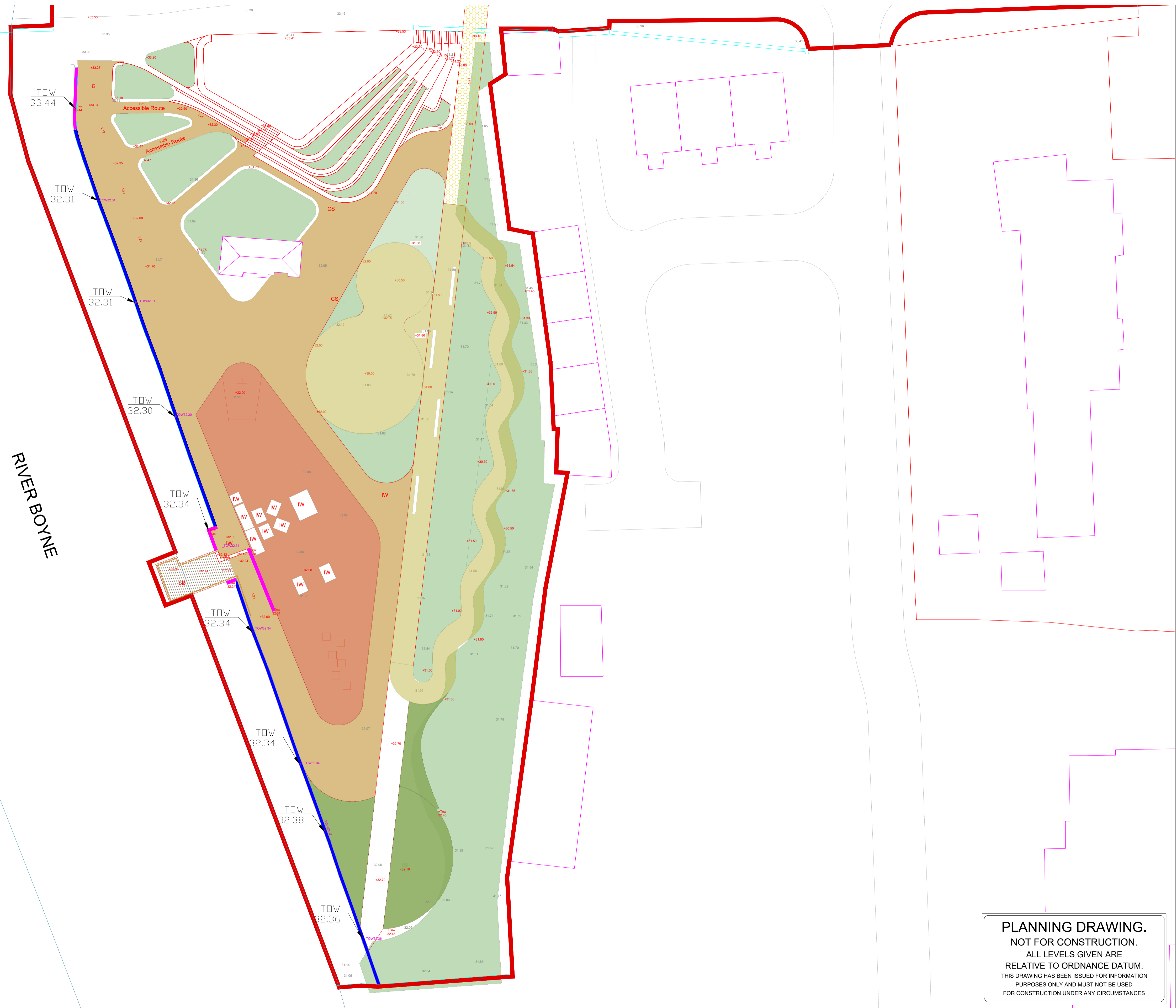
LEGEND

PROPOSED WALL —

EXISTING WALL —

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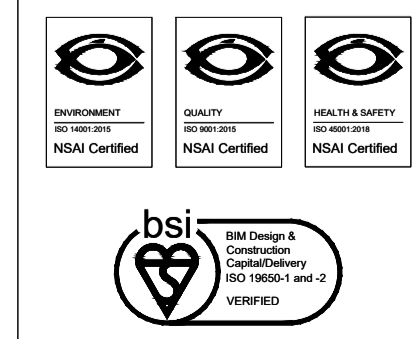


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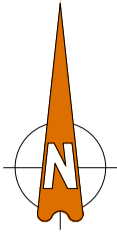
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Project: SPICER'S BAKERY, RAMPARTS CAR PARK AND ANDY BRENNAN PARK PROJECT
Title: ANDY BRENNAN PARK FLUVIAL FLOOD ASSESSMENT

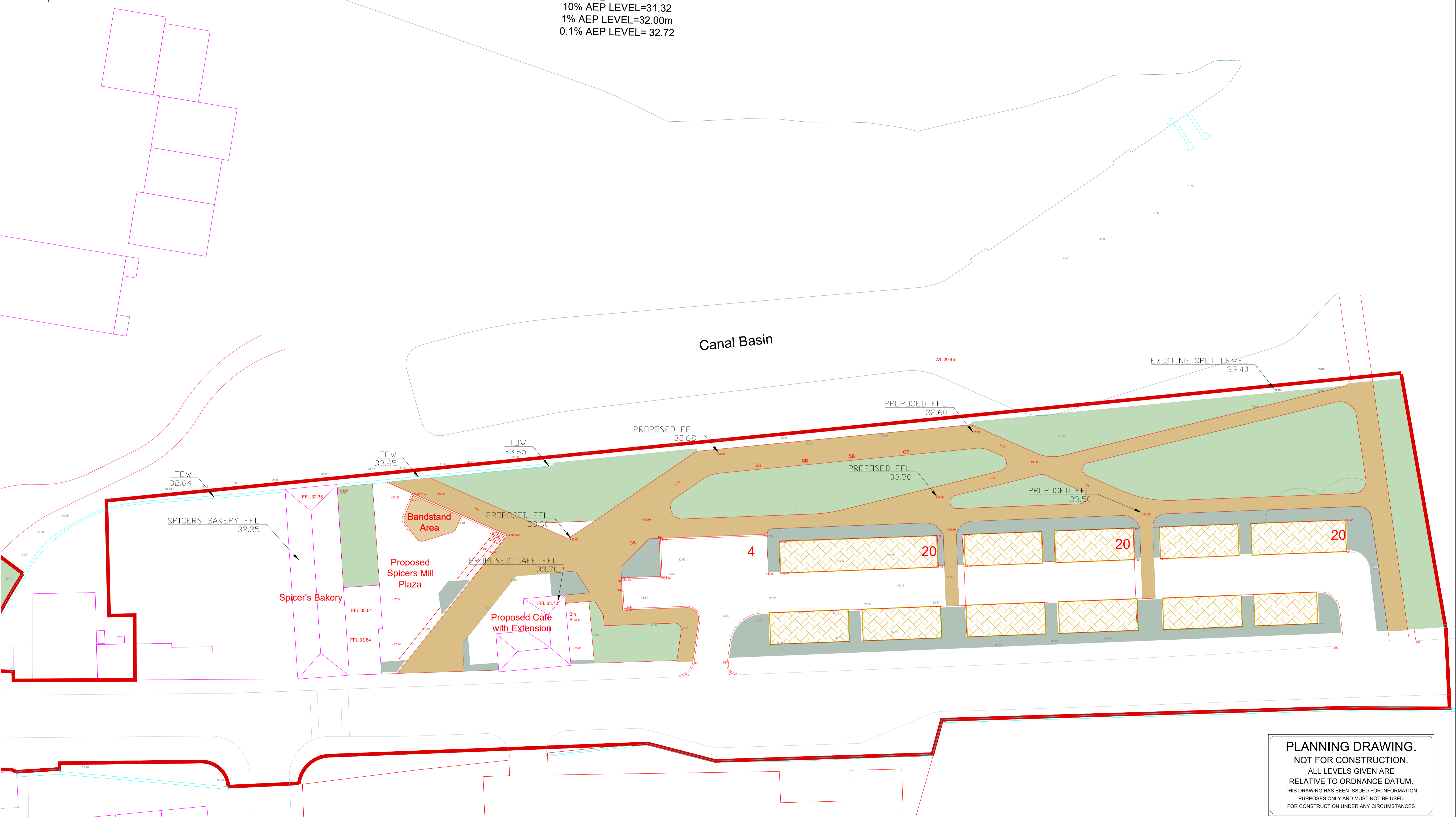
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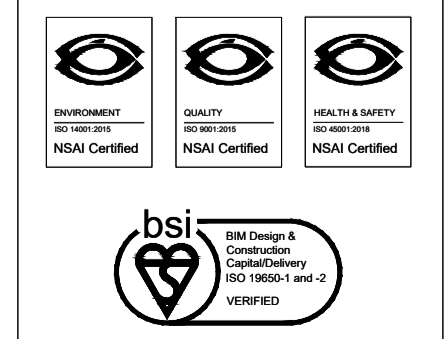
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0.1% AEP LEVEL= 32.72



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Title:	CAR PARK FLUVIAL FLOOD ASSESMNT							
Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
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