Document Title

Engineering Services Report (incl. Transportation)

Project

Proposed Hotel Extension Development at
Johnstown Estate, Johnstown, Enfield, Co. Meath

Client

Johnstown Estate Limited

Job No. L118

7 November 2024

CS CONSULTING
Civil, Structural & Traffic Engineering

CS CONSULTING
Civil, Structural & Traffic Engineering

ENGINEERING SERVICES REPORT (INCL. TRANSPORTATION)

PROPOSED HOTEL EXTENSION DEVELOPMENT AT JOHNSTOWN ESTATE, JOHNSTOWN, ENFIELD, CO. MEATH

DOCUMENT STATUS					
File Location: j:\l_jobs\job-l118\b_documents\1.0 planning\esr\l118 engineering services report.docx					
BS 1192	L118-CSC-ZZ-XX-RP-C-0001				
Version	**Purpose of Document**	**Author**	**Reviewed by**	**Approved by**	**Issue Date**
P0	PLANNING	FB	SS	MMCE	07.11.2024

ENGINEERING SERVICES REPORT (INCL. TRANSPORTATION)

PROPOSED HOTEL EXTENSION DEVELOPMENT AT JOHNSTOWN ESTATE, JOHNSTOWN, ENFIELD, CO. MEATH

CONTENTS

FIGURES

1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Johnstown Estate Limited to prepare an Engineering Services Report for a hotel extension at Johnstown Estate, Johnstown, Enfield, Co. Meath.

This report details the following aspects of the proposed development:

- Stormwater Drainage Infrastructure
- Foul Drainage Infrastructure
- Potable Water Infrastructure
- Flooding
- Transportation

The Engineering Services Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with all other relevant documentation submitted by other members of the project design team.

2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development site is located at the existing Johnstown Estate, Co. Meath. The site is in the administrative jurisdiction of Meath County Council.

Figure 1 – Location of development site
(Image source: EPA, Osi, OSM Contributors, Google)

The location of the proposed development is shown in Figure 1. The extents and context of the development site are shown in more detail in Figure 2.

The development site is bounded to the north by M4, to the east, south and west by greenfield.

Figure 2 – Site extents and environs
(map data and imagery: NTA, OSM Contributors, Google)

2.2 Existing Land Use

The subject site comprises a hotel with accommodation, dining and leisure facilities. Part of the hotel building entrance and central area is a protected structure.

2.3 Description of Proposed Development

TBC

3.0 SURFACE WATER DRAINAGE

The existing Johnstown Estate development is currently served by drainage infrastructure which positively drains the development areas. The existing infrastructure ranges between 100mm and 450mm in diameter.

The overall Johnstown Estate surface water drainage system ultimately discharges into River Blackwater to the south of the subject site.

The hotel extension is proposed on lands located between the existing self-catering lodges to the east of the main hotel building. At present, this area is predominantly landscaped area with some areas of hard standing including paths and a playground. It is proposed to provide a detention basin with a volume of 90m^3 in order to restrict run off from the hotel extension to the greenfield run-off rate prior to discharging into the existing surface water system.

The proposed surface water drainage layout is illustrated on CS Consulting Drawing No **L118-CSC-ZZ-XX-DR-C-0101.**

4.0 FOUL DRAINAGE

The existing Johnstown Estate development is currently served by dedicated foul drainage infrastructure. The existing infrastructure ranges between 150mm and 225mm in diameter. The existing foul drainage ultimately discharges into the public sewer via a pumped arrangement.

SLAVEN to provide info.

5.0 POTABLE WATER SUPPLY

It is proposed to serve the subject development via the existing water connection which is currently in use on the subject site.

6.0 FLOOD RISK

There is an existing inherent risk of any flood event occurring during any given year. Typically, this likelihood of occurrence was traditionally expressed as a 1-in-100 chance of a 100-year storm event happening in any given year.

A less ambiguous expression of probability is the Annual Exceedance Probability (AEP), which may be defined as the probability of a flood event being exceeded in any given year. Therefore a 1-in-100-year event has a 1% AEP; similarly, a 100% AEP can be expressed as a 1-in-1-year event.

The Planning System and Flood Risk Management, Guidelines for Planning Authorities set out the best practice standards for flood risk assessment in Ireland. These are summarised in Table 1 below.

Table 1 - Summary of Level of Service – Flooding Source.

Flooding Source	Drainage	River	Tidal/Coastal

Residential	1% AEP	1% AEP	0.1% AEP
Commercial	1% AEP	1% AEP	0.5% AEP
Water-compatible docks, marinas)	-	>1% AEP	>0.5% AEP

Under these guidelines, a proposed development site has first to be assessed to determine the flood zone category it falls under.

It is a requirement of both Meath County Council's and the Department of the Environment, community & Local Government flooding guidelines, The Planning System and Flood Risk Management, Guidelines for Planning Authorities, that the predicted effects of climate change are incorporated into any proposed design. Table 2 below indicates the predicted climate change variations.

Table 2 - The predicted climate change variations

Design Category	Predicted Impact of Climate Change
Drainage	20% Increase in rainfall
Fluvial (River flows)	20% Increase in flood flow

The flooding guidelines categorise the risks associated with flooding into three areas, Zone A, B & C. This categorisation is indicated below.

- Zone A – High Probability of Flooding. Where the average probability of flooding from rivers and sea is highest (greater than 1% annually or 1 in 100 for river flooding or 0.5% annually or 1 in 200 for coastal flooding).

- Zone B – Moderate Probability of Flooding. Where the average probability of flooding from rivers and sea is moderate (risk between 0.1% annually or 1 in 1000 years and 1% annually or 1 in 100 years for river flooding, and between 0.1% or 1 in 1000 years and 0.5% annually or 1 in 200 for coastal flooding).

- Zone C – Low Probability of Flooding. Where the probability of flooding from rivers and sea is moderate (risk is less than 0.1% annually or 1 in 1000 years for both rivers and coastal flooding).

In accordance with the Planning Systems and Flood Risk Management Guidelines for Planning Authorities, commercial units are classified as 'less vulnerable developments', dwellings are classed as 'highly vulnerable developments'.

The subject development site is situated approximately 190m to the north of the River Blackwater. Please refer to Figure 3.

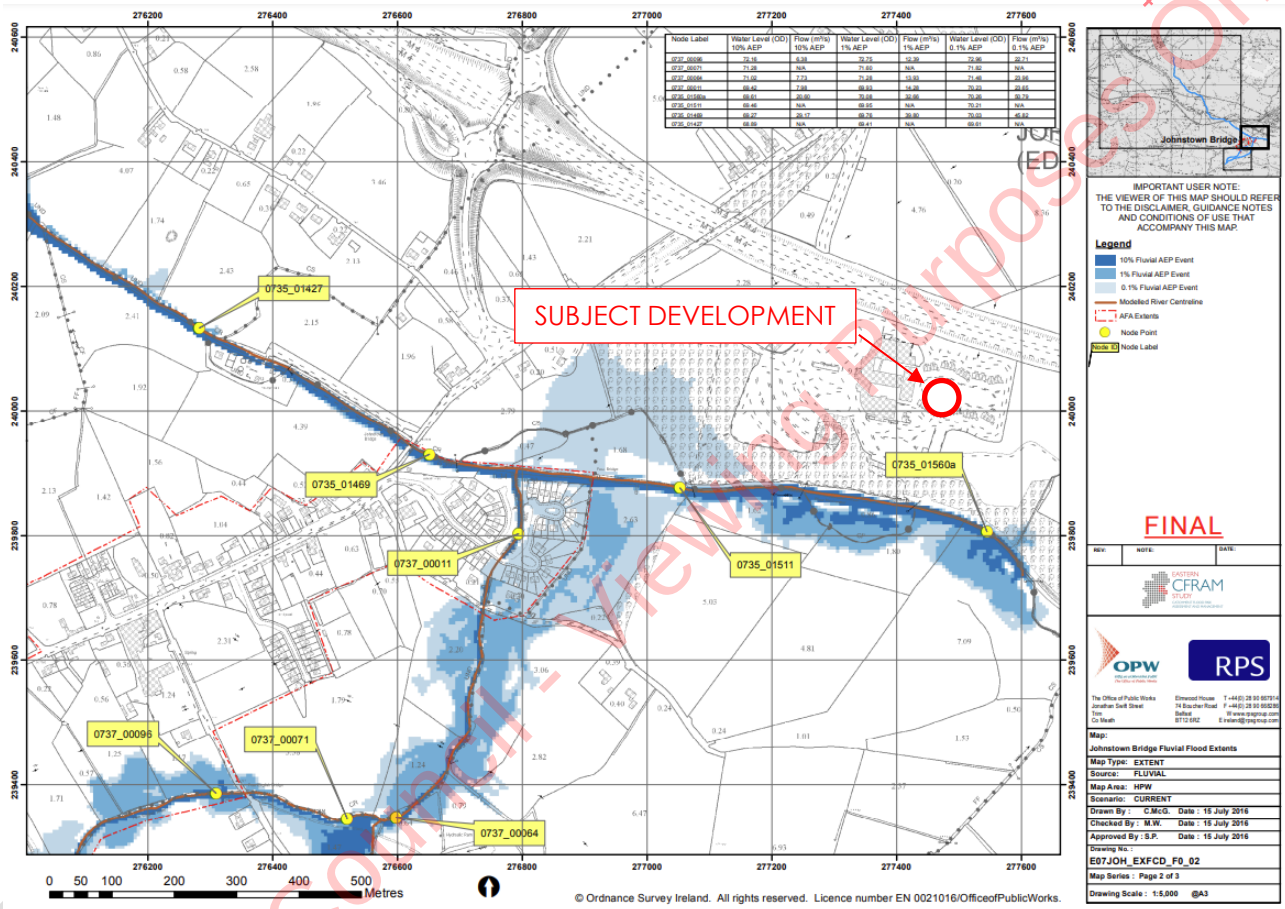

Figure 3 - OPW CFRAM Fluvial Flood Extents

Reviewing the OPW flood maps and the Meath County Development Plan 2021-2027 Strategic Flood Risk Assessment, the subject lands are located in Flood Zone C, as such a justification test for development is not required.

The sites local geology & hydrogeological conditions do not indicate that flooding from groundwater is an issue at the site.

7.0 TRAFFIC AND TRANSPORTATION

7.1 Access and Layout

It is proposed to utilise the existing access and layout of the hotel for all access and deliveries.

The existing hotel development is accessed via Johnstown Road to the west of the development. Deliveries shall be brought to and from the existing deliveries yard located to the south-east of the main hotel building.

7.2 Trip Generation

The subject development comprises 90no. hotel bedrooms as well as the removal of 1no existing hotel bedroom. It is not proposed to provide additional car parking for the subject development – please refer to section 7.2 for details. Trip generation factors from the TRICS database have been used to predict the trip generation to and from the proposed development for both the AM and PM peak periods.

The TRICS sub-category '06 – Hotel, Food and Drink / A - Hotels' has been employed, being the most appropriate for the development. This is described in the TRICS land use category definitions as follows:

"Hotels, guest houses and B&B's. Trip rates are calculated by Gross Floor Area, Bedrooms, or Employees."

Table 2 – TRICS Subject Development Trip Generation Rates

	Arrivals *(per hour per bedroom)*	*Departures* *(per hour per bedroom)*
AM Peak (08:00 – 09:00)	*0.104*	*0.243*
PM Peak (17:00-18:00)	*0.263*	*0.181*

Trip numbers in this instance have been calculated as a function of the TRICS trip rates given in Table 2 and the total number of additional bedrooms (89no.). the following trip generation figures are calculated.

Table 3 – TRICS Subject Development Trip Generation

	Arrivals *(per hour)*	*Departures* *(per hour)*	*Total* *(trips per hour)*
AM Peak (08:00 – 09:00)	*9*	*22*	*31*
PM Peak (17:00-18:00)	*23*	*16*	*39*

It is not anticipated that the increased trip generation due to the subject development shall negatively impact on the road network surrounding the proposed development, due to the modest increase in trip generation foreseen.

7.3 Parking

The subject development consists of provision of 90no. hotel bedrooms and removal of 1no. existing bedroom in order to facilitate a connection to the main hotel building.

7.3.1 Car parking Requirements

The car parking provision of the proposed development has been assessed with respect to the *Meath County Development Plan 2021-2027*, which defines the standard maxima for car parking provision in new developments. The maximum and proposed car parking provision is provided in Table 4.

Table 4 – Car Parking Provision – Meath County Development Plan 2021-2027

Land Use	Car Parking Maximum	Quantum	Maximum Provision	Proposed Additional Provision
Hotel Accommodation	1 per bedroom	90 bedrooms	90 spaces	0 spaces

It is not proposed to provide additional car parking spaces to serve the proposed development. It is considered that the existing quantum of car parking spaces is sufficient to accommodate the increased parking demand. An assessment of the existing car parking quantum is provided in Table 5. The existing hotel and associated amenities include the following elements:

- Rooms (128)
- Self Catering lodges (40)

- Spa (1095m2)
- Leisure Centre (1474m2)
- Restaurant (372m2)
- Bars/function rooms (2339m2)
- Sports Pitches (2no.)

Table 5 – Existing Car Parking Provision – assessed vs Meath County Development Plan 2021-2027

Land Use	Car Parking Maximum	Quantum	Maximum Provision	Existing Provision
Hotel Accommodation	1 per bedroom	128 bedrooms	128 spaces	606 spaces
Self-Catering Accommodation	1 per unit	40 units	40 spaces	
Spa/Leisure Centre	5 spaces per 100m^2	2569m^2	128 spaces	
Bars/Function Rooms	1 space per 4m^2	1823m^2	456 spaces	
Beauty/Hair Salon	5 spaces per 100m^2	101m^2	5 spaces	
Restaurant	1 space per 5m^2	372m^2	74 spaces	
Sports Pitches	15 spaces per pitch	2 pitches	30 spaces	
Total			861 spaces	606 spaces

As shown in Table 5, the existing site benefits from the availability of 605no. car parking spaces at present. The addition of 89 additional bedrooms (90 proposed – 1 to be removed) results in a calculated maximum provision of 950 car parking spaces to serve the existing and proposed development when assessed against the current development plan standards.

RESTAURANT EXTENSION TO BE INCLUDED ABOVE

It should be noted that many of the above uses are primarily used by guests of the hotel, such as spa, gym, hotel bar, function rooms etc. As such, it is considered that a reduction in the car parking provision from the maximum outlined within the County Development Plan is appropriate in this instance. Furthermore, the peak operating hours of the various hotel amenities, shall vary throughout the day e.g. Gym & Bar. As such, it is likely that the existing car parking can serve more than one use. The existing development includes 12no. coach parking spaces which can reduce the reliance on the private car parking spaces.

Anecdotally, the hotel operator should state that the existing car parking appears to have residual capacity. HOTEL OPERATOR to CONFIRM

7.3.2 Electric Vehicle Charging Spaces

The existing car parking area includes a total of 8no. car parking spaces equipped with electric vehicle charging points which shall be available to guests of the proposed hotel extension.

It is not proposed to provide additional car parking as part of the subject development.

7.3.3 Disabled-accessible Spaces

The existing car parking area includes a total of 9no. car parking spaces suitable for use by disabled accessible vehicles which shall be available to guests of the proposed hotel extension.

It is not proposed to provide additional car parking as part of the subject development.

7.3.4 Bicycle Parking Requirements

The bicycle parking provision of the proposed development has been assessed in accordance with the Meath *County Development Plan 2021-2027* which defines standard norms for the provision of bicycle parking in new developments.

Table 6 – Bicycle Parking Provision – Meath County Development Plan 2021-2027

Land Use	Bicycle Parking Standard	Quantum	Standard Provision	Proposed Provision
Hotel Accommodation	1 space per 10 staff members	332 staff members (incl. part time)	33 spaces	33 spaces

It is proposed to provide 33no. bicycle parking spaces to serve the subject development.

8.0 CONCLUSION

It is proposed to construct a hotel extension comprising 90no. bedrooms, removal of one existing bedroom.

- The development surface water drainage shall comply with the requirements of the Meath County Development Plan 2021-2027.
- The development foul water drainage and potable water supply shall be provided in accordance with the requirements of the Irish Water Code of Practice for Wastewater Infrastructure and the Code of Practice for Water Infrastructure respectively.
- The subject development is situated within Flood Zone C and the risk of flooding is low.
- Access and servicing to the development shall be via the existing established access and deliveries arrangement.
- The development is unlikely to result in significant impacts on the surrounding road network.
- It is not proposed to provide additional car parking to serve the proposed extension given the quantum of existing car parking which exists within the overall hotel lands.