C2 - Restricted

PROPOSED HOUSING DEVELOPMENT AT CLONBURRIS KISHOGE SITE 5

FLOOD RISK ASSESSMENT

KSG5-RPS-ZZ-XX-RP-C-50002
S5 - P01
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rpsgroup.com

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1 INTRODUCTION

RPS was appointed as Design Team by South Dublin County Council (SDCC) for the design, construction, completion, and commissioning of a Social and Affordable Housing Development of minimum 236 units on undeveloped lands referred to as Site 5 (area c. 6.2ha) adjoining the R136, Thomas Omer Way road and the Kishoge Community College Clonburris, Dublin.

As part of the National Planning Framework's 2019 Regional Spatial and Economic Strategy, land use plans shall include a Strategic Flood Risk Assessment (SFRA). An SFRA was carried out for the Clonburris Strategic Development Zone (SDZ) to inform the preparation of land-use zoning, policies and objectives. This SFRA was prepared in accordance with the recommendations set out in The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009 (The Planning Guidelines). In this SFRA it was recommended that "At site specific level, all development proposals, regardless of location, will require an appropriately detailed flood risk assessment." A similar recommendation was also made in a separate SFRA carried out as part of the South Dublin County Council's County Development Pan (CDP) 2022 – 2028.

The objective of this report is to carry out a Site-Specific Flood Risk Assessment of the proposed new social and affordable housing development on the undeveloped lands within the Clonburris Strategic Development Zone (SDZ). The assessment involves a desktop study. The study examines any flooding risks to the Proposed Development from the local watercourses, particularly from the Griffeen River, Camac River as well as from Grand Canal and assesses any impacts of it on the existing flooding/hydrological regimes of these watercourses, and adjacent lands & properties.

1.1 The Planning System and Flood Risk Management Guidelines

1.1.1 Flood Risk

Understanding flood risk is a key step in managing the impacts of flooding. Flood risk is a combination of the likelihood of flooding and the potential consequences arising:

Flood Risk = (Likelihood of flooding) x (Consequences of flooding)

The likelihood of flooding is defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year. The consequences of flooding depend on the hazards associated with the flooding and the vulnerability of people, property and the environment potentially affected by a flood.

1.1.2 Likelihood of Flooding (Flood Zones)

Flood zones are geographical areas within which the likelihood of flooding is in a particular range, and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning. There are three types of flood zones defined for the purposes of flood risk planning guidelines:

Flood Zone A – Where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 years 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)

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

1.1.3 Consequences of Flooding (Flood Hazards and Development Vulnerability)

The Guidelines provide three vulnerability categories, based on the type of development, which are detailed in **Table 3.1** of the Guidelines, and are summarised as:

- Highly vulnerable, including residential properties, essential infrastructure, and emergency service facilities.
- Less vulnerable, such as retail and commercial and local transport infrastructure.
- Water compatible, including open space, outdoor recreation and associated essential infrastructure, such as changing rooms.

1.1.4 Sequential Approach

A sequential approach to the development process is essential when managing flood risk. This involves five principles in the management of flood risk: Avoidance, Substitution, Justification, Mitigation and Proceeding with the development. **Figure 1-1** extracted from Section 3.1 of the Guidelines sets out the broad philosophy underpinning the sequential approach in flood risk management.

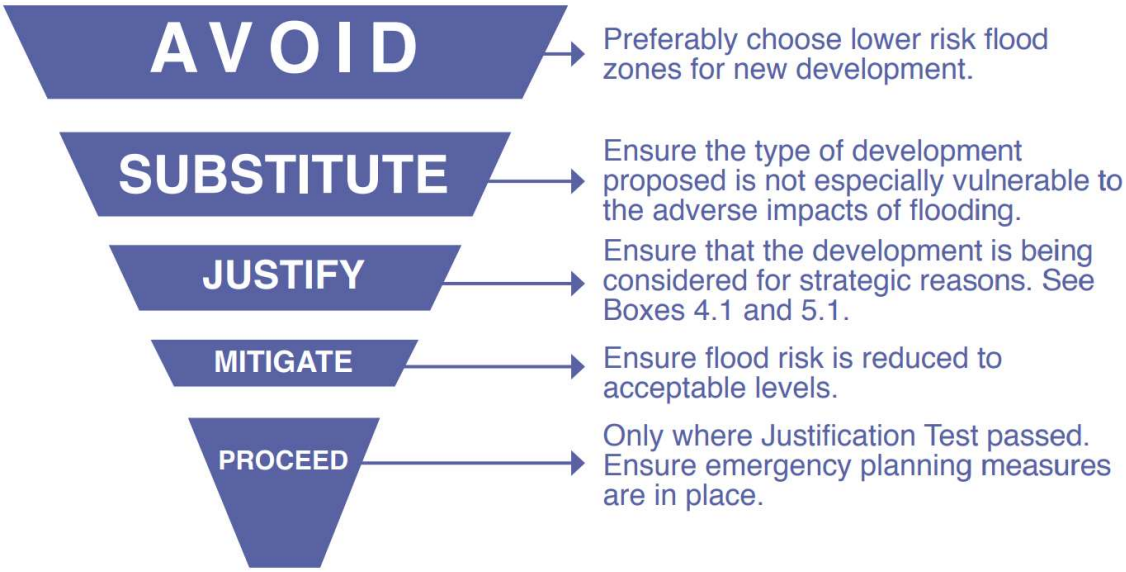

Figure 1-1 Sequential approach principles in flood risk management

1.1.5 Justification Test

The Justification Test may be required where a development is deemed vulnerable and is located within Flood Zone A or B. It has been designed to rigorously assess the appropriateness, or otherwise, of developments that are being considered in areas of moderate or high flood risk.

Table 1-1 Matrix of vulnerability vs flood zone

	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

2 BACKGROUND

2.1 Site Location

The Proposed Development site referred to as Site 5 is located within the Clonburris SDZ planning scheme boundary, adjoining the R136 and Thomas Omer Way and Kishoge Community College, Clonburris, Co. Dublin. The overall site covers an area of approximately 6.2 Ha and is split into two segments by Thomas Omer Way as shown in **Figure 2-1.** Sites A and B are both undeveloped and have varying landscapes. Site A has previously been used for traveller accommodation. There is notable ruins and debris present within this site area which are characterising this site partly as a brownfield site. A series of ESB overhead lines run across both sites from east/west and there is an existing ESB compound facility at the northwest corner of the site (not within the application boundary).

Figure 2-1 Location of the proposed development site

2.2 Proposed Development

The Proposed Development will consist of 236No. residential units, with a mix of three-bedroom houses, two and three-bedroom duplexes, one and two-bedroom apartments. Additionally, the development includes car parking spaces with electric vehicle charging points, visitor cycle parking, an ESB substation, high quality amenity spaces, landscape works, SUDs measures, and all associated site development works.

The natural contours of the land have been carefully analysed to optimise site utilisation while minimising environmental impact. The existing site levels, in relation to both the R136 and the surrounding terrain, have guided the positioning, height, and terracing of the buildings. A robust urban frontage along the main roads (R136 and Thomas Omer Way) is proposed in accordance with the SDZ. Internally, a moderate reduction in height is proposed to create a more inviting and intimate urban frontage and streetscape. This approach enhances both the sustainability and aesthetic appeal of the development.

The proposed minimum ground level within Site A is in the order of 59 mOD suggesting a raising of the existing ground levels, approximately by a maximum depth of 2.5m at some locations. It has also been proposed to lower the existing high grounds by a maximum depth of 1.5m at few locations (refer to Drawing No. KSG5-RPS-ZZ-XX-M3-C-20001 for the proposed cut and fill volumes details). The finished floor levels of the proposed developments at Site A range from 61.685mOD to 59.420mOD.

The proposed minimum ground level within Site B is in the order of 60 mOD suggesting a raising of the existing ground levels (approximately by a maximum depth of 2.5 m at the northwestern part of the site). The finished floor levels of the proposed developments at Site B range from 62.115mOD to 60.255mOD.

Figure 2-2 shows the Proposed Development.

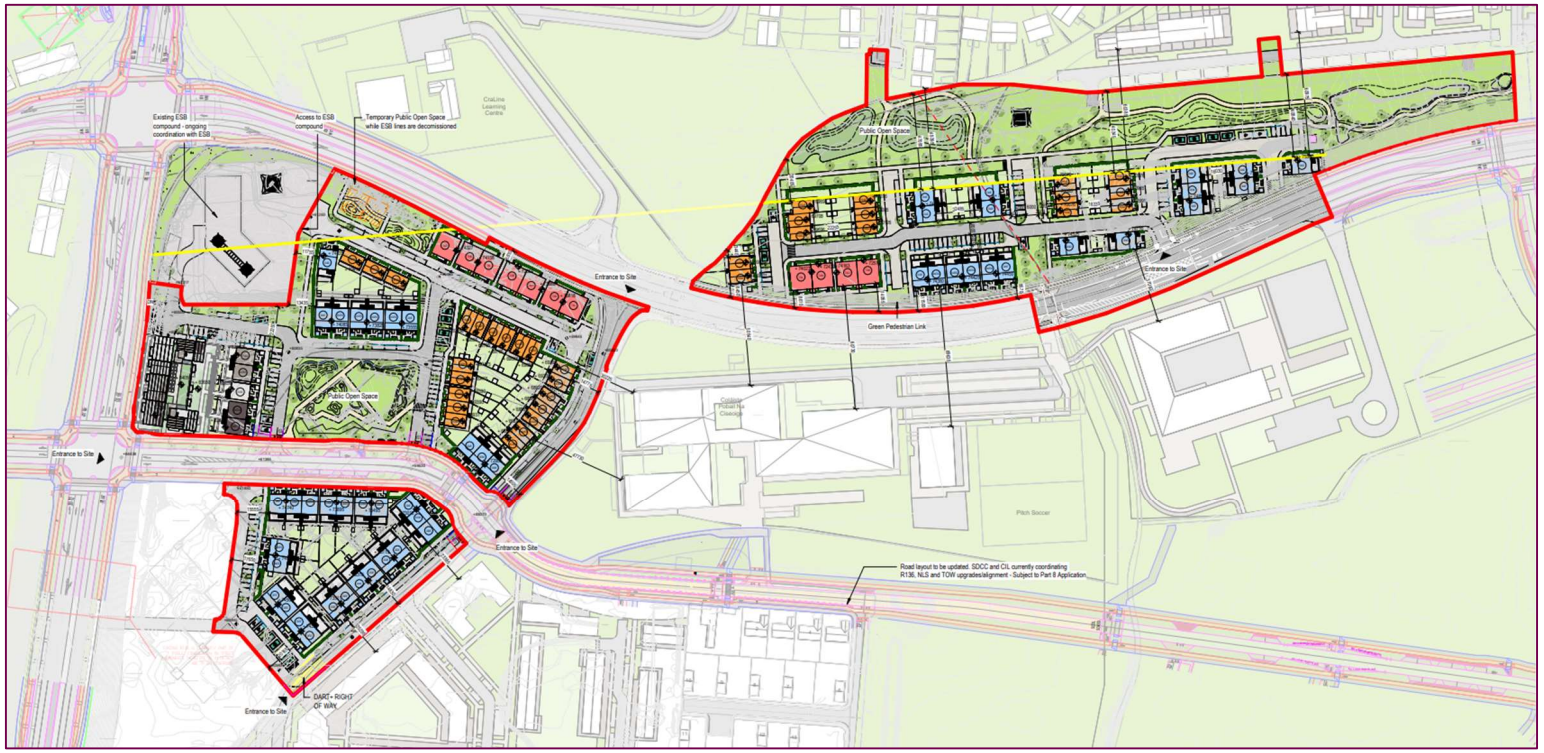

Figure 2-2 Proposed Development

3 EXISTING SITE CHARACTERISTICS

3.1 Hydrology & Drainage

The proposed development site lies within Hydrometric Area 09 – Liffey and Dublin Bay and is located within the Griffeen River catchment area. The Grand Canal's nearest bank is located approximately 500m south of the site and the Griffeen River flows approximately 1km west of the site. The Griffeen River is tributary of River Liffey and rises on Saggart Hill in South Dublin. It flows towards Lucan until it reaches the Griffeen Valley Park. It flows under the Grand Canal through a siphon system and passes through several housing estates, Lucan Village Park and Vesey Park before reaching Griffeen Valley Park. After leaving the park it flows past Lucan house and demesne and enters the River Liffey at the Lucan Weir.

Figure 3-1 shows the location of the site relative to the adjacent watercourses.

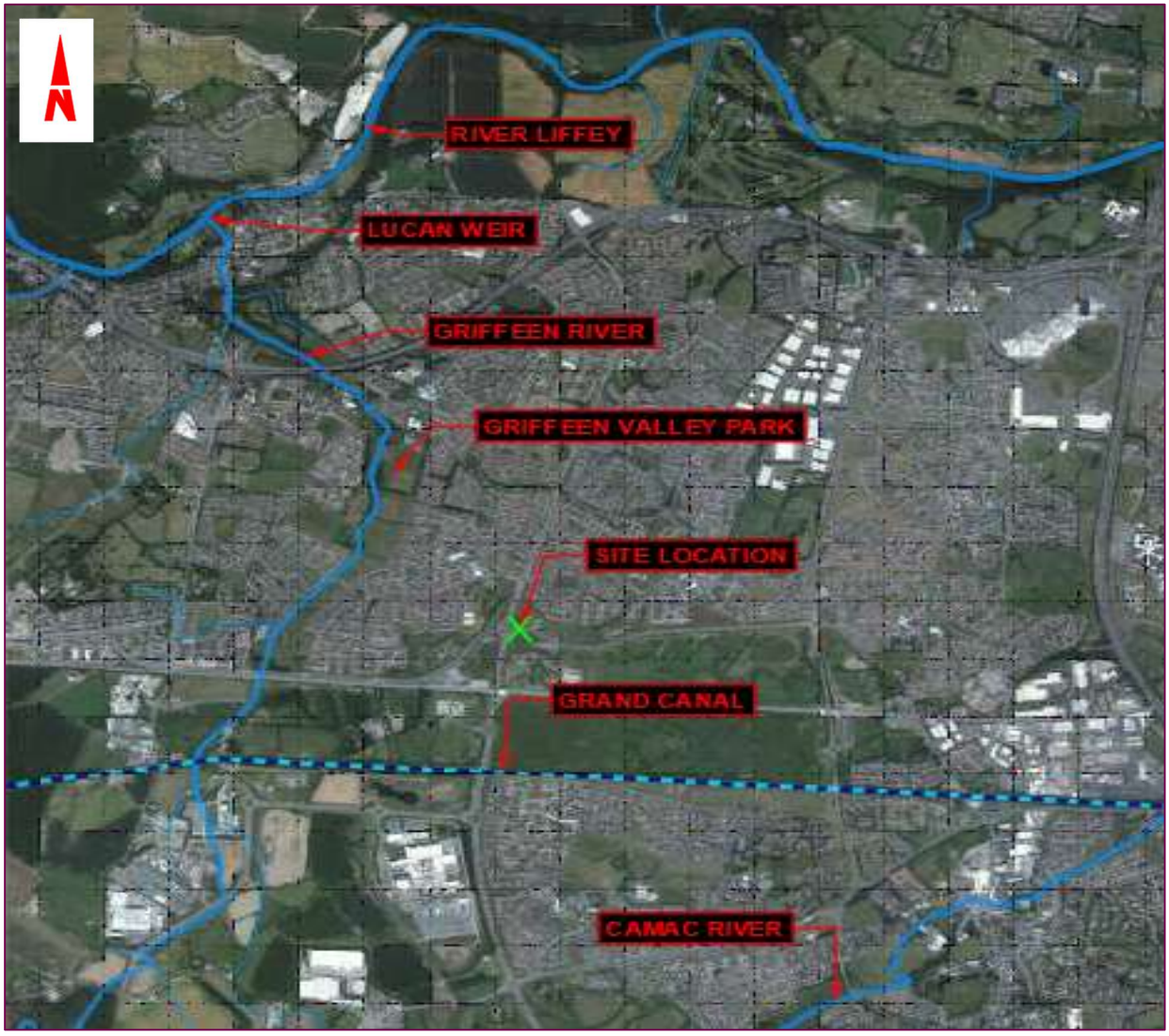

Figure 3-1 Surface watercourses in the vicinity of the proposed site

The Griffeen River has a catchment area of 35 km^2 upstream of its confluence with the River Liffey. The main river channel of Griffeen River is fairly steep with a S1085 value of 8.86m/km and has a long-term average annual rainfall total of 754mm.

3.2 Site Topography and Existing Surface Water Drainage

The existing ground levels within the Site A area range from 58.74 to 60.63 sloping from the northeastern side towards the west-south-western directions. Site A is bounded to the west by R136 road and to the north by Thomas Omer Way & an existing development, the eastern boundary is bounded by a local road (Lynch Lane) and the southern boundary by a vacant site. The existing road levels of Thomas Omer Way range

from 60.66 to 60.16 and slope towards the easterly direction, while the existing road levels of R136 range from 61.30 to 66.69mOD and slopes towards the existing roundabout located at the northwestern side of the site. Site A is predominantly a vacant and heavily vegetated site and currently drains through infiltration and evaporation. Both the R136 and Thomas Omer Way have their separate storm water collection network which eventually discharge into the adjacent main drainage systems (storm network). Refer to **Figure 3-2** and **Figure 3-3** for the existing site levels and stormwater networks located in the vicinity of the site respectively.

The existing ground elevations within Site B range from area 58 to 60 mOD sloping from the southeastern side towards the north and northwestern sides. A shallow drainage ditch runs along the southern boundary of the Site B, along the northern side of Thomas Omer Way. The existing road levels of Thomas Omer Way running along the southern boundary of Site B range from 60 to 61.14 mOD and slope towards the west. The eastern and western boundaries of Site B are bounded by two Greenfield sites, while an urban housing development is located at the northern side of Site B. Site B is predominantly a greenfield site. Refer to **Figure 3-2** for the existing site levels.

Surface runoff from Site B currently drains through infiltration and 2No. 1050 mm diameter stormwater pipes passing through the site in the north-south axis, with one pipe running through the centre of the site and the second one along the western edge of the site. Accumulated site surface runoff in the drainage ditch located at the southern boundary of the site discharges into the above-mentioned stormwater networks via an 800mm diameter pipe. Refer to **Figure 3-2** and **Figure 3-3** for the existing site levels and stormwater networks located in the vicinity of the site respectively.

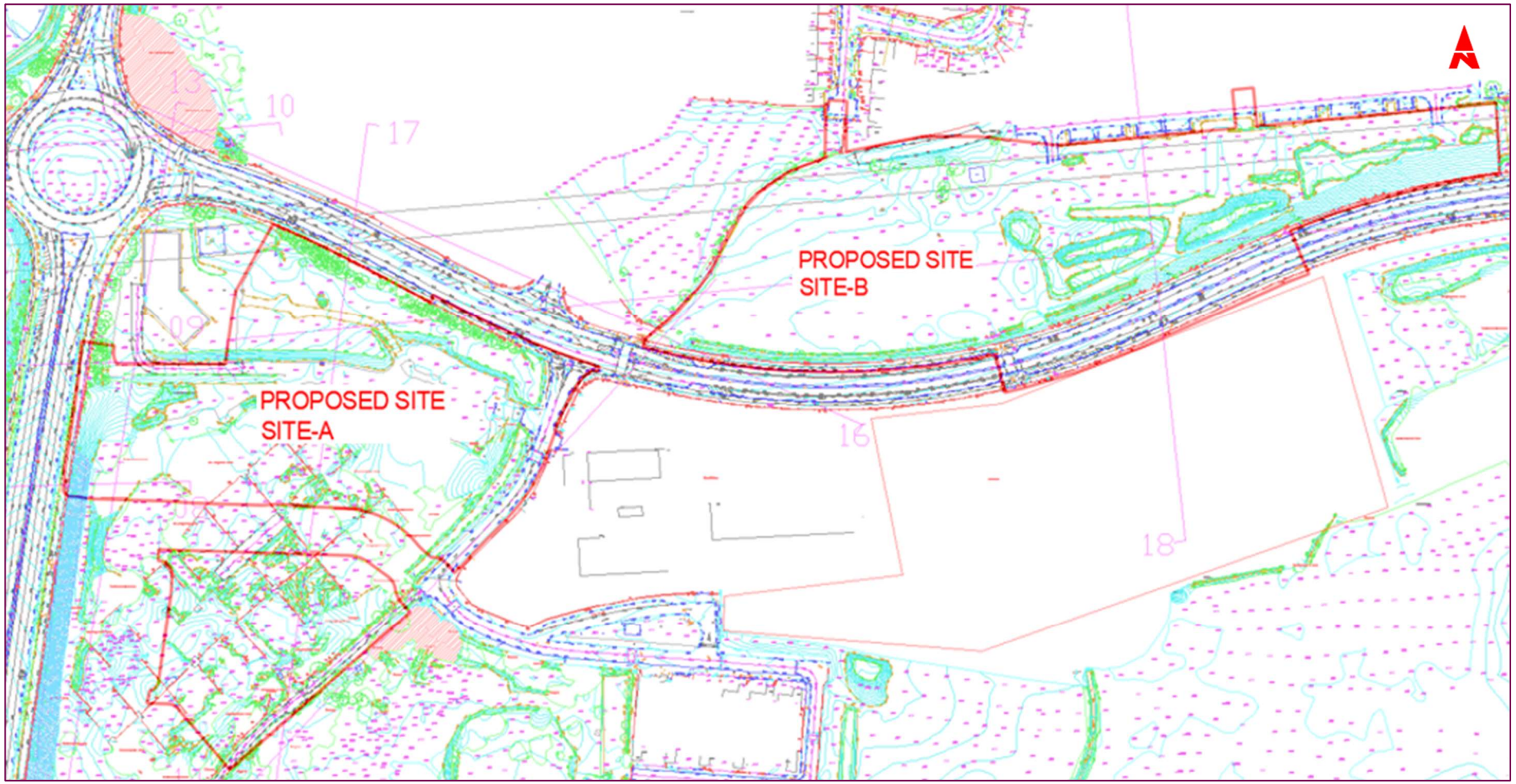

Figure 3-2 Topographic data of the site

Figure 3-3 Existing Drainage Systems in vicinity of the proposed development sites (source: Uisce Eireann mapping database)

3.3 Geology

The EPA National Soils mapping and EPA Subsoil mapping[1] classifies the site and wider surrounding area as '*Made Ground'* with a low sub-soil permeability. Despite the low permeability, groundwater vulnerability of the site is classed as "Extreme" and "High" as presented in Error! Reference source not found.. This indicates that the underlying aquifer could become contaminated because of activities on the land surface as the topsoil and subsoil layer is thin. The South Dublin region and the site is mapped as 'LI – Locally Important Aquifer', which signifies *bedrock which is moderately productive only in local zone* according to GSI Aquifer maps[2].

The GSI Bedrock 100K map, indicates the site as well as the entire South Dublin region is underlain by the "Lucan Formation". The formation comprises dark grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenite limestones, sometimes graded, and interbedded dark grey calcarenite.

Figure 3-4 GSI Groundwater Vulnerability

3.4 Land Zoning –South Dublin County Development Plan

In the SDCC County Development Plan (CDP) 2022-2028, the Proposed Development site is a part of Clonburris Strategic Development Zone (SDZ), with zoning of residential development, open space and general enterprise featuring in the area (see Error! Reference source not found.).

[1] https://gis.epa.ie/EPAMaps/

[2] https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228

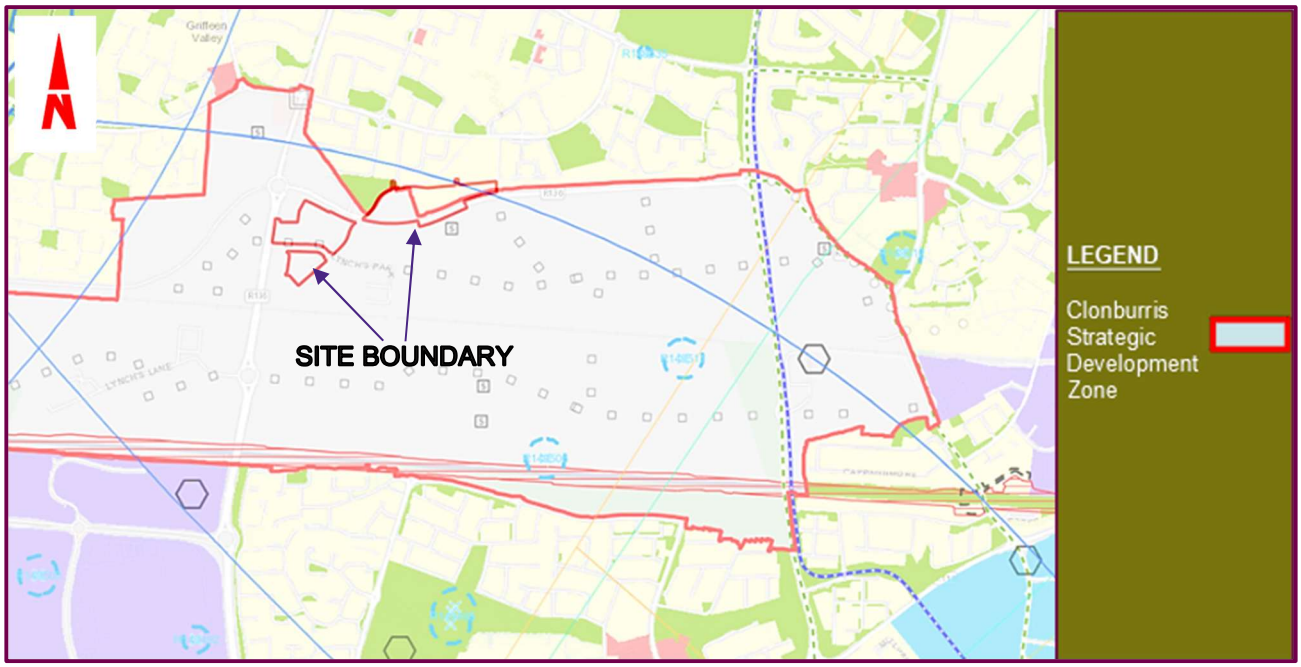

Figure 3-5 SDCC CDP 2022-2028 Land Use Zoning Map Extract

3.5 Policies in SDCC County Development Plan (CDP) 2022-2028

Flood management policies laid in the SDCC CDP 2022-2028, are as follows:

GI1: Protect, enhance and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing and further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, water quality, flood management and adaptation to climate change.

GI3: Protect and enhance the natural, historical, amenity and biodiversity value of the County's watercourses. Require the long-term management and protection of these watercourses as significant elements of the County's and Region's Green Infrastructure Network and liaise with relevant Prescribed Bodies where appropriate. Accommodate flood waters as far as possible during extreme flooding events and enhance biodiversity and amenity through the designation of riparian corridors and the application of appropriate restrictions to development within these corridors.

IE3: Manage surface water and protect and enhance ground and surface water quality to meet the requirements of the EU Water Framework Directive.

IE4: Ensure the continued incorporation of Flood Risk Management into the spatial planning of the County, to meet the requirements of the EU Floods Directive and the EU Water Framework Directive and to promote a climate resilient County.

4 FLOOD RISK ASSESSMENT STAGE I – FLOOD RISK IDENTIFICATION

This section identifies existing information pertinent to flood risks at the proposed development site. The information used to inform this assessment includes historical mapping and indicative sources relating to previous predictive flood studies and risk assessments.

4.1 Flooding History

4.1.1 OPW Past Flood Events

The OPW Flood Mapping website www.floodinfo.ie provides information about the location of known flood events in Ireland, showing supporting information in the form of reports, photos, and press articles about those floods. No instances of flooding were recorded within or 1 km proximity to the site as shown in **Figure 4-1.**

Table 4-1 presents a summary of flood events recorded approximately within 2.5 km radius to the subject development site. The OPW flood events history (as shown in **Figure 4-1**) around this area depicts that there had been a number of notable flood events occurred along the low-lying floodplains of Griffeen and Camac Rivers in November 1982, June 1993 and November 2000. The main causes of flooding were the prolonged heavy rainfall and inadequate capacity of Griffeen and Camac River channels. It should be mentioned here that during these flood events the subject development site was not flooded. The flood event in closest proximity to the development site occurred in Beech Row, Ronanstown (ID-1183), which is situated 1.56km from the development site.

Table 4-1 OPW historic flood event summary

Flood ID	Location	Recorded date of occurrence	Frequency	Source	Description
ID–2138	Camac Cherrywood	05/11/1982	Single	Camac River	The most severe flooding which occurred in the entire County. The flooding occurred due to overflow of the Camac River channel in several areas adjoining some existing housing development area.
ID–1237	Griffeen River	06/11/2000	Single	Griffeen River	Severe flooding occurred in the Griffeen Valley just to the north of the Dublin Cork Railway line in the vicinity of the new housing areas of Old Forge and Grange Manor estates.
ID- 487	Camac Clondalkin	11/06/1993	Single	Camac River	Camac River burst its banks in several locations resulting in flooding of private property at two separate locations in Clondalkin area- at Leinster terrace and Nangor road as well as Cherrywood estate
ID–1183	Beech Row Ronanstown	n/a	Recurring	Heavy rainfall	Flooding due to heavy rainfall
ID–1184	Cappagh more Ronanstown	n/a	Recurring	Heavy rainfall	Flooding due to heavy rainfall

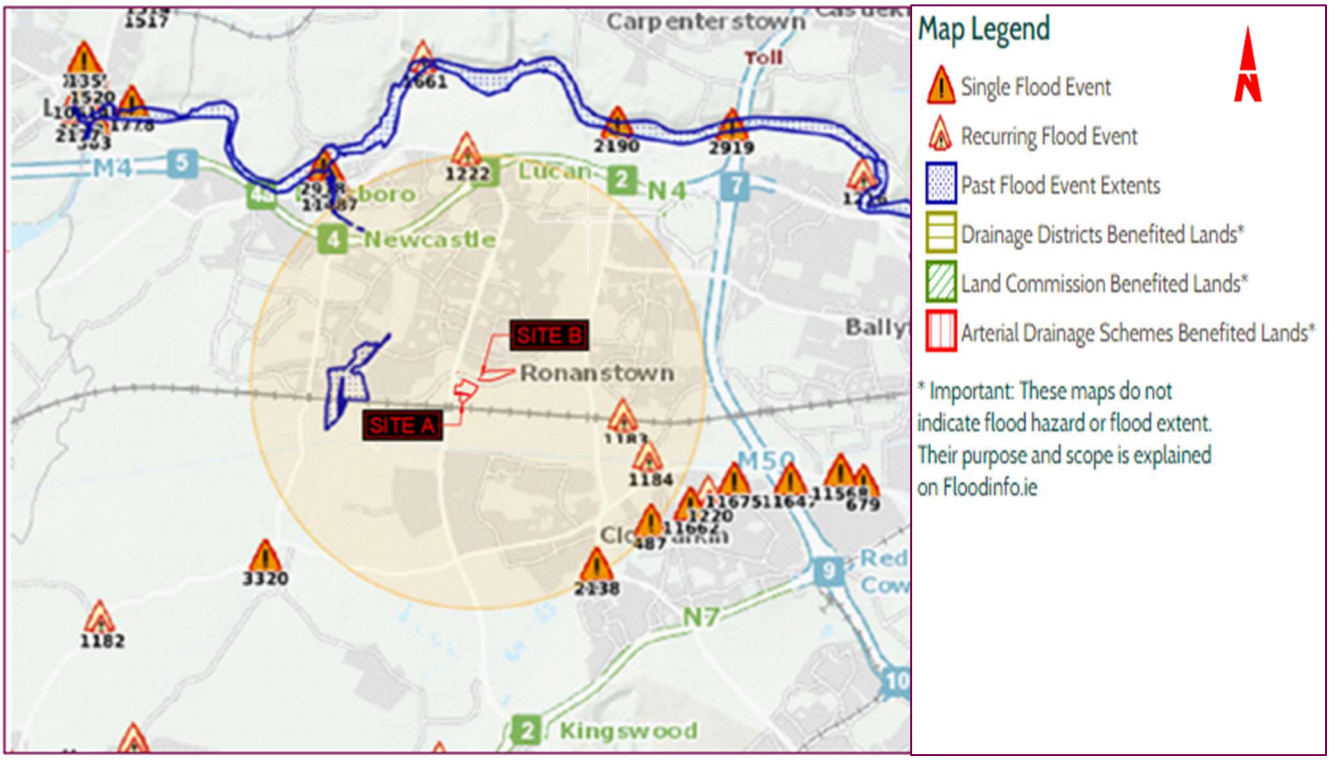

Figure 4-1 OPW historic flood event

4.1.2 OSi Historical Mapping

Ordnance Survey of Ireland (OSi) Historical Mappings (both 6 inch and 25-inch maps) have been investigated for evidence of historical flooding and to identify any changes in the natural drainage regime at the site. None of the maps show any historical flooding within the subject development site or in its immediate vicinity. **Figure 4-2** shows an extract of the 25-inch historic map for the subject development site area.

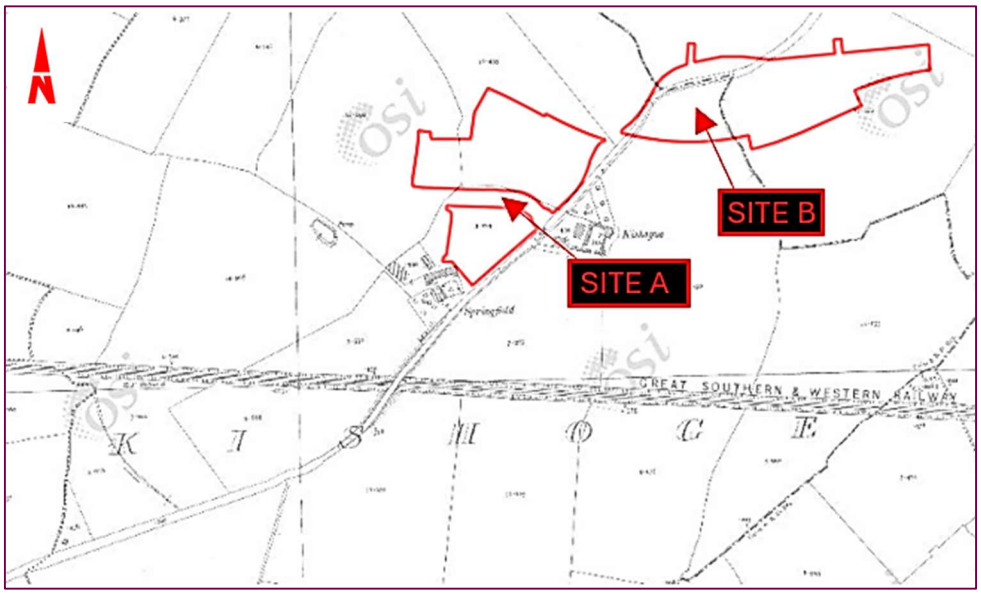

Figure 4-2 Historic 25-inch Map

4.1.3 GSI Historical Groundwater Flooding

There was no historical groundwater flooding identified in the vicinity of the Proposed Development[3].

4.1.4 Pluvial Flooding

No pluvial flooding was reported within the proposed development site or in its immediate vicinity.

4.2 Predictive Flooding

4.2.1 OPW Catchment Flood Risk and Management (CFRAM) Predictive Surface Water Flooding

The Griffeen River and Camac River were included in the Eastern CFRAM Study and for which flood maps were produced. The Royal Canal was not modelled as part the CFRAM study. The flood maps prepared under this study are the 'predictive flood maps' showing areas predicted to be inundated during a theoretical or 'design' flood event with an estimated probability of occurrence, rather than information for actual floods that have occurred in the past.

The risk of fluvial flooding in the 'present day' scenario to the site is low as highlighted in **Figure 4-3,** as the proposed development boundary is outside of the predicted 0.1% Annual Exceedance Probability fluvial flooding extents (1 in 1000-year flood event).

The Mid-Range Future Scenario (MRFS) refers to current day flood extents plus a 20% increase in peak flood flows. The subject site is also shown not to be liable to flooding under this future MRFS scenario (see **Figure 4-4).**

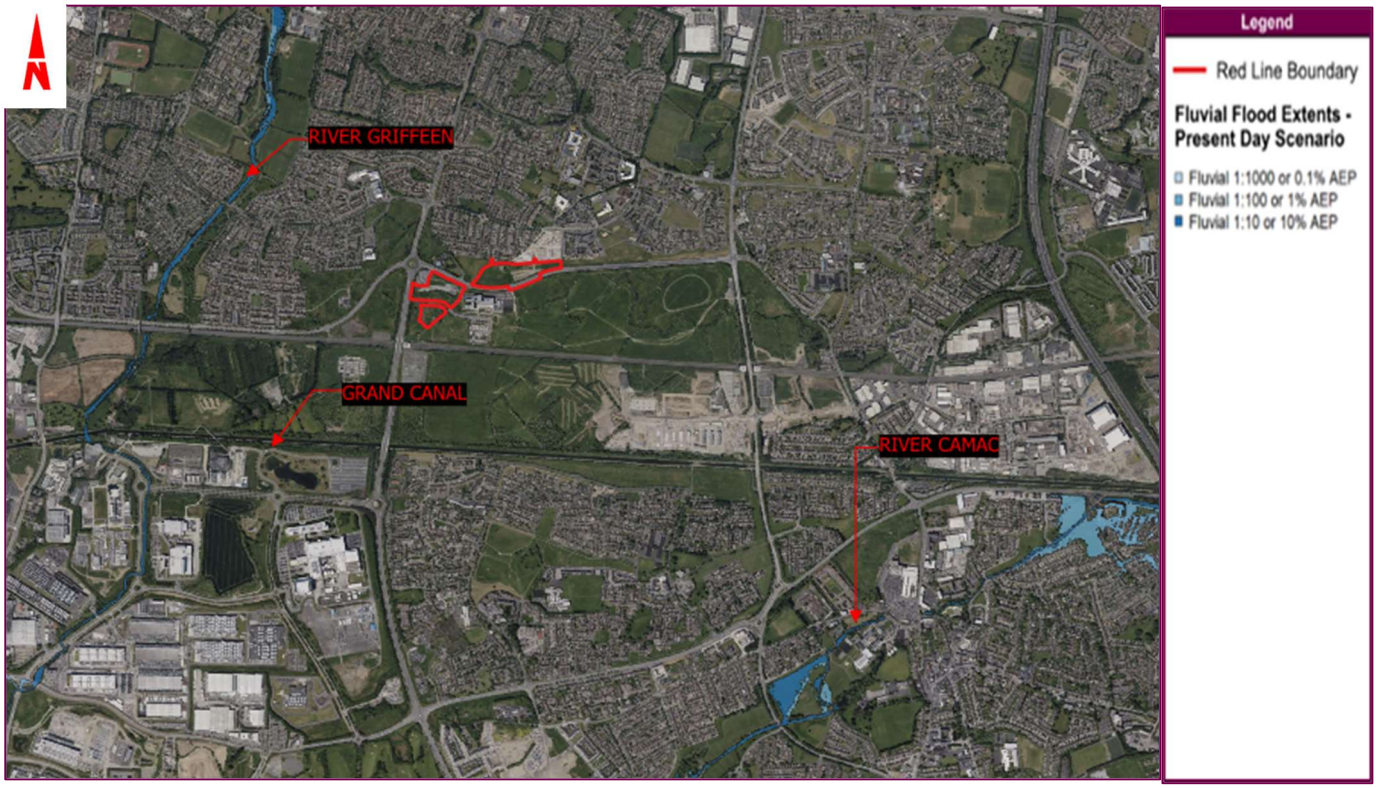

Figure 4-3 OPW Eastern CFRAM study Predicted Fluvial Flooding - Present day scenario

[3] Flood Maps - Floodinfo.ie

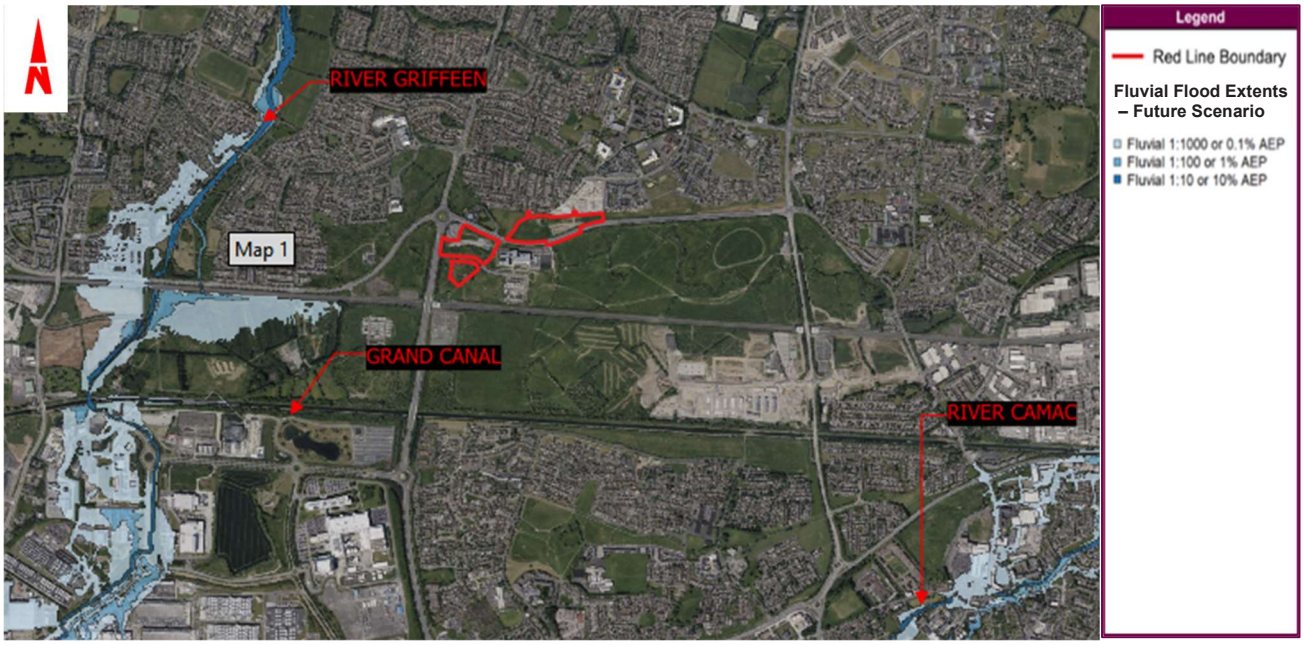

Figure 4-4 CFRAM study Predicted Fluvial Flooding - Medium Range Future Scenario (MRFS)

4.2.2 CFRAM Coastal Hazard Mapping

No coastal flooding risk identified/predicted at the subject development site in the CFRAM study[4].

4.2.3 OPW National Indicative Fluvial Mapping (NIFM)

As the site location was included within the CFRAM Study, NIFM flood mapping does not include the subject site area.

4.2.4 GSI GWFlood Predictive Groundwater Flooding

The predictive Groundwater Flood Maps prepared in the Geological Survey of Ireland (GSI) carried out GWFlood project (2016-2019) identified no groundwater flooding within the subject site and its immediate vicinity.

4.2.5 Pluvial Flooding

Pluvial flooding relates to flooding as a direct result of extreme rainfall. Pluvial flooding can occur during rainfall events of extreme intensity. If the rate at which water falls on the ground is faster than the rate at which the water can make its way to the drainage network, then flooding will occur. There is currently no information available on the OPW website for the Proposed Development area in relation to any future pluvial flooding.

4.2.6 Strategic Flood Risk Assessment (SFRA)

A Strategic Flood Risk Assessment (SFRA) was undertaken as part of the preparation of the South Dublin County Development Plan 2022 – 2028. An extract of the flood zone maps prepared in this SFRA for the land areas located in the vicinity of the proposed developed site are shown in **Figure 4-5**. It can be seen in this figure that the subject development site is located in flood Zone C (outside of Flood Zones A & B), where probability of flooding from rivers is low (less than 0.1% AEP or 1 in 1000-year return period). Refer to Section 1.1.2 for further details of various categories of flood zones specified in the Planning Guidelines.

[4] Flood Maps - Floodinfo.ie

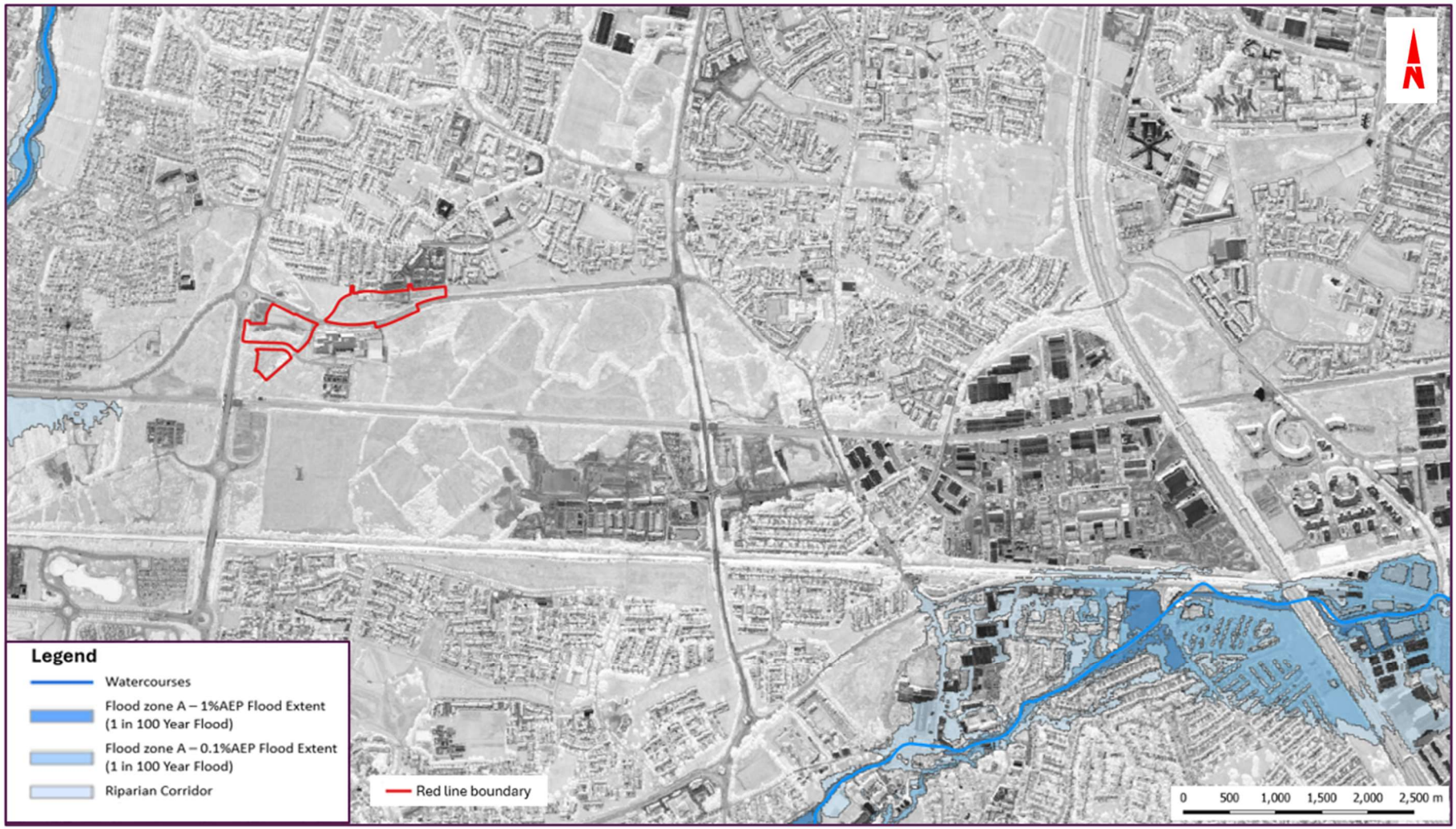

Figure 4-5 South Dublin 2022-2028 SFRA Flood extents

5 PROPOSED SURFACE WATER DRAINAGE SYSTEMS

Separate surface water collection networks along with some SuDs elements including permeable paving and bioretention tree pits have been proposed at both sites. The proposed surface water network for Site A comprises of 225 mm to 300 mm diameter collection network discharging into a main 1050 mm diameter surface water pipe running through the middle of the site. This pipe discharges collected site surface runoff into the adjacent existing main drainage systems. Refer to Drawing No. KSG5-RPS-KSG5A-XX-DR-C-21021 included in **Appendix A** for the proposed surface water drainage systems for Site A.

For Site B, an in-situ surface water collection network is proposed via nature-based solutions. Collected site runoff will be attenuated first through 2No. detention basins located at the northwestern edge of the site before discharging into existing 1050 mm diameter surface water drainage pipe north via Foxborough Court to Balgaddy Road. Site surface runoff will be treated through a petrol interceptor before discharging into the detention basins.

Diversion of the existing 1050mm diameter storm pipes within the site is required to facilitate the development. As part of the development works, the pipes will be diverted into the proposed estate trunk roads with a 9m service wayleave over same for future maintenance requirements. The falls, flowrates, pipe diameters and manhole spacing will be maintained as per the current situation. There will be no additional flow into the pipe network and existing connections/catchments to these pipes from the wider area will remain facilitated. This was discussed and agreed in principle with SDCC Drainage Dept in August/Sept 2024. Refer to Drawing No. KSG5-RPS-KSG5B-XX-DR-C-21022 included in **Appendix A** for the proposed surface water drainage systems for Site B.

An allowance of 20% increase in rainfall depth is included in design of the above-mentioned surface water drainage systems to cater for future climate change effects on rainfall volume.

5.1 Flood Impacts

Through implementation of best practice engineering methods, it is not envisaged that the proposed development will be at risk of nor exacerbate flood risk at the site and its immediate vicinity. Any increase in surface runoff generated by the proposed developed will be attenuated and treated through a suite of SuDs type drainage systems as discussed above, before discharging into the adjacent surface water drainage network with a hydrobrake implemented at the outfall manhole to limit outflow to greenfield runoff rates. This therefore will not pose any increased flooding risks at the adjacent lands and properties.

5.2 Residual Risks

Residual risks are defined as risks that remain after all risk avoidance, substitution and mitigation measures have been taken. This flood risk assessment identifies the following as the main sources of residual risk to the proposed development.

- Failure of the on-site surface water drainage / attenuation systems (pluvial risk);

Failure of the surface water systems could include exceedance of the attenuation tank capacities, or blockage of the surface water gullies. To mitigate against failure of the drainage / attenuation systems, it is recommended to set a minimum Finished Floor Level (FFL) of 150mm above any external hardstanding areas.

6 CONCLUSION

The flood data reviewed in Section 4 identified no historical fluvial, pluvial or groundwater flood risk within the proposed development site and its immediate vicinity. Further to this, in the Eastern CFRAM study and also the Groundwater flood studies carried by GSI also did not identify any future fluvial and groundwater flood risks within the proposed site or its immediate vicinity. Flood zones maps prepared in the SFRA undertaken as part of the South Dublin County Development Plan 2022-2028 showed the subject site is located in Flood Zone C (outside of Flood Zones A & B). Therefore, there is no need to progress to Stage II FRA.

In the South Dublin County Development Plan 2022-2028, the Proposed Development site is located within the Clonburris Strategic Development Zone (SDZ), with zones of residential development and open space, and general enterprise are also featuring in the area. Based on the Planning Guidelines, the proposed residential development at the subject site is deemed appropriate.

Through implementation of best practice engineering methods, it is not envisaged that the proposed development will be at risk of nor exacerbate flood risk at the site and its immediate vicinity. Any increase in surface runoff generated by the proposed developed will be attenuated and treated through a suite of SuDs type drainage systems as discussed above, before discharging into the adjacent surface water drainage network with a hydrobrake implemented at the outfall manhole to limit outflow to greenfield runoff rates. This therefore will not pose any increased flooding risks at the adjacent lands and properties.

Appendix A:
Proposed Surface Water Drainage Systems

GENERAL NOTES:

1. ALL SURFACE WATER INFRASTRUCTURE DETAILS AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS & SOUTH DUBLIN COUNTY COUNCILS REQUIREMENTS
2. PERMISSIBLE PIPE MATERIAL:
   - 2.1. CONCRETE:
     - DIAMETER: SEWERS 225mm Ø AND ABOVE)
     - JOINTS: SPIGOT AND SOCKET WITH RUBBER RING FITTINGS
     - STRENGTH CLASS: 120 (CRUSHING LOADS TABLE 8 BS 5911-1)
     - PIPE AND FITTINGS: SPIGOT AND SOCKET OR REBATED FORM.
     - COMPLIANCE: IS EN 1916, BS5911-1 AND IS 6 OR EQUIVALENT STANDARD
   - 2.1. THERMOPLASTIC STRUCTURED WALL PIPES:
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 13476
   - 2.2. UNPLASTICISED PVC;
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 1401
   - 2.3. ALTERNATIVE PIPE MATERIAL TO BE IRISH AGRÉMENT CERTIFIED AND APPROVED BY SOUTH DUBLIN COUNTY COUNCIL
3. PIPE SIZES
   - 3.1. SEWER PIPE SIZE: AS SHOWN ON DRAWING
   - 3.2. SERVICE CONNECTION: 150mm Ø MIN (MIN 1/100 GRADIENT)
   - 3.3. GULLY PIPE CONNECTION 150mm Ø MIN
4. DEPTH OF COVER:
   - 4.1. ROADWAYS: NOT LESS THAN 1.2m
   - 4.2. PUBLIC OPEN SPACE: NOT LESS THAN 0.9m
   - 4.3. PRIVATE AREAS WITH NO VEHICLE ACCESS: NOT LESS THAN 0.5m
5. ALL MAIN SEWERS WITH LESS THAN COVER AS STATED ABOVE UNDER ROADS TO BE SURROUNDED IN 150mm C20 CONCRETE
6. MANHOLE COVERS (IN ACCORDANCE WITH IS EN 124):
   - 6.1. PUBLIC AREAS (ROADS & PARKING BAYS): CLASS D400
   - 6.2. PUBLIC FOOTPATHS CLASS B125
   - 6.3. PRIVATE DRIVEWAYS: CLASS B125
   - 6.4. PRIVATE FOOTPATHS & GARDENS: CLASS A15
7. PROVIDE MANHOLE COVERS AND AJ'S WITH ARCHITECTURAL PAVING WHERE REQUIRED.
8. ROAD GULLIES, GRATINGS AND FRAMES TO COMPLY WITH IS EN 124, CLASS D400. GULLIES TO BE PRECAST CONCRETE UNLESS OTHERWISE AGREED.
9. ALL ACCESS JUNCTIONS TO BE IN ACCORDANCE WITH EN 13598-1 AND EN 7158 AND SUITABLE FOR 150mm ID PIPEWORK
10. CE CERTIFICATION TO BE PROVIDED FOR ALL PRODUCTS COVERED BY THE EU CONSTRUCTION PRODUCTS REGULATION (NO.305/2011-CPR)
11. ALL MATERIALS PROPOSED FOR USE ON SITE TO BE APPROVED PRIOR TO ARRIVAL ON SITE
12. TO BE READ IN CONJUNCTION WITH RPS ENGINEERING SERVICES REPORT AND STANDARD DRAINAGE DETAILS

THOMAS OMER WAY

GRANGE CASTLE ROAD

LYNCHES LANE

LYNCHES PARK

KISHOGE COMMUNITY COLLEGE

SMH-01 CL 60.370 IL 58.000
SMH-02 CL 60.800 IL 56.993
SMH-03 CL 60.800 IL 58.545
SMH-04 CL 59.900 IL 57.455
SMH-05 CL 60.700 IL 57.405
SMH-06 CL 61.200 IL 59.750
SMH-07 CL 60.430 IL 58.745
SMH-08 CL 60.360 IL 58.910
SMH-09 CL 60.450 IL 57.935
SMH-10 CL 59.970 IL 57.745
SMH-11 CL 59.250 IL 57.480
SMH-12 CL 61.400 IL 59.900
SMH-13 CL 61.025 IL 58.865
SMH-14 CL 60.540 IL 58.070
SMH-15 CL 59.885 IL 57.410
SMH-16 CL 59.480 IL 56.933
SDMH-01 CL 60.220 IL 55.600
SDMH-02 CL 60.210 IL 55.540
SDMH-03 CL 60.250 IL 55.530
SDMH-04 CL 60.000 IL 55.410
SDMH-09 CL 60.200 IL 55.73
SDMH-20 CL 60.210 IL 58.635

SWALE
SWALE

NEW CONNECTION TO SURFACE INFRASTRUCTURE AS PART OF REGISTER REFERENCE SDZ24A/0033W

NEW CONNECTION TO SURFACE INFRASTRUCTURE AS PART OF REGISTER REFERENCE SDZ24A/0033W

NEW CONNECTION TO SURFACE INFRASTRUCTURE AS PART OF REGISTER REFERENCE SDZ24A/0033W

59.5
59.4

LEGEND

- SITE BOUNDARY
- **PROPOSED**
- PROPOSED SURFACE WATER SEWER
- PROPOSED Ø150mm FILTER DRAIN TO MAIN SW SEWER
- PROPOSED SURFACE WATER DIVERSION
- SMH-XX SURFACE WATER MANHOLE
- SDMH-XX PROPOSED DIVERSION MANHOLE
- BULK DRAINAGE TO BE INSTALLED BY OTHERS
- **EXISTING**
- EXISTING SURFACE WATER SEWER
- EXISTING SW MAIN TO BE DECOMMISSIONED
- SDMH-XX EXISTING MANHOLE
- **SUDS MEASURES IN ADDITION TO ATTENUATION /DETENTION POND**
- GREEN ROOF (APARTMENT UNITS)
- BIO RETENTION TREE PIT (BETWEEN PERMEABLE PARKING SPACES) TO LANDSCAPE ARCHITECT SPECIFICATION
- PERMEABLE PAVING - PARKING BAY
- PERMEABLE PAVING - HOMEZONE

Client: Comhairle Contae Átha Cliath Theas / South Dublin County Council

General Notes
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(iv) Information including topographical survey, geotechnical investigation and utility detail used in the design have been provided by others.
(v) All Levels refer to Ordnance Survey Datum, Malin Head.

Rev	Date	Drn	Chk	Amendment / Issue	App
S5 P02	26.02.25	JP	DJ	ISSUE FOR PLANNING	KL
S5 P01	10.02.25	JP	DJ	ISSUE FOR PLANNING	KL

RPS MAKING COMPLEX EASY — A TETRA TECH COMPANY

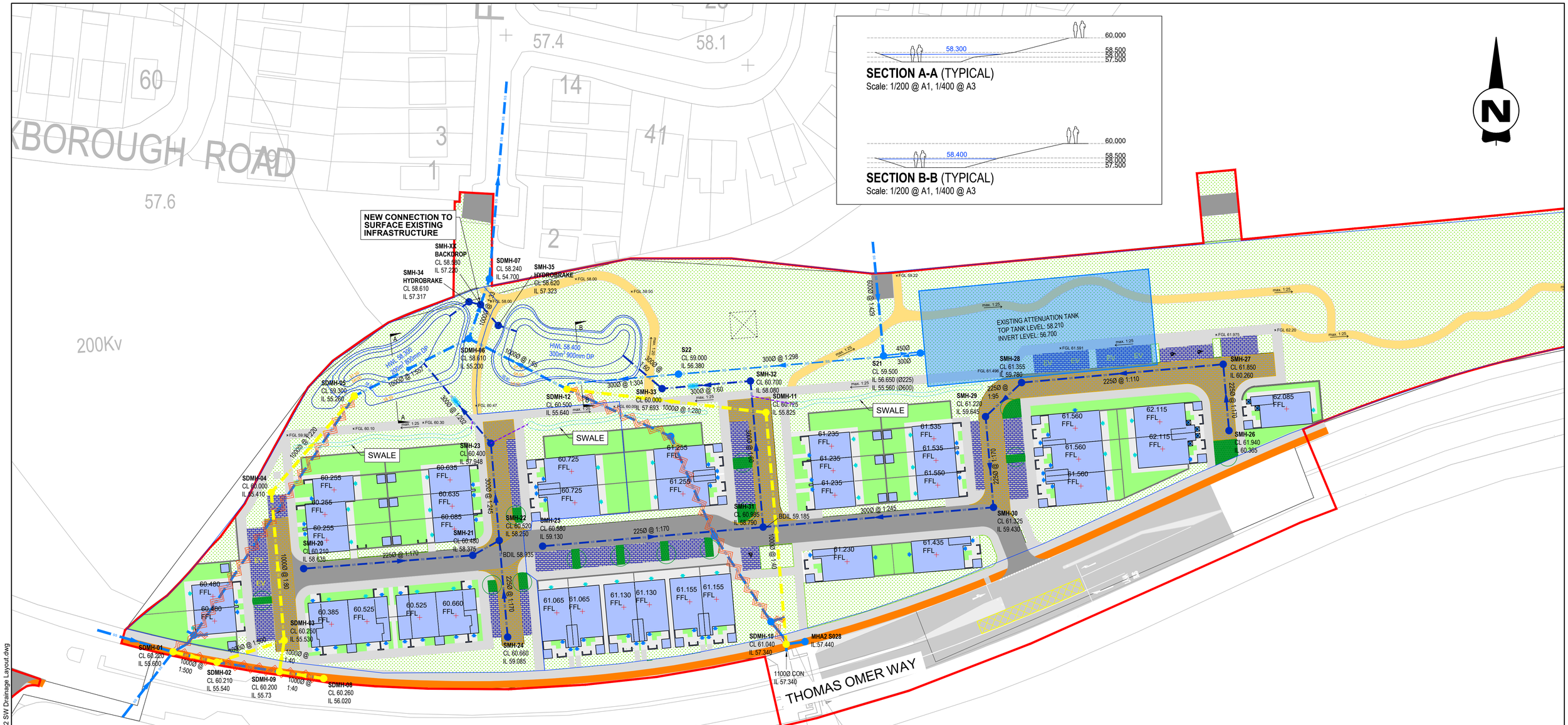
Model File Identifier

Scale: 1/500 @ A1, 1/1000 @ A3
Created on: 01.09.24
Sheets: 1 of 1

Project: KISHOGE PART 10 APPLICATION
Title: SITE 5 KSG5A
PROPOSED SURFACE WATER DRAINAGE LAYOUT

File Identifier: KSG5-RPS-KSG5A-XX-DR-C-21021.dwg
Status: S5
Rev: P02

\\dubl-wp-f01\Work_Structures\IE000783 - Clonburris KNE SITE 5\8.0 Drawings\DGN\SG5-RPS-ZZ-XX-DR-C-21021_21022 SW Drainage Layout.dwg



GENERAL NOTES:

1. ALL SURFACE WATER INFRASTRUCTURE DETAILS AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS & SOUTH DUBLIN COUNTY COUNCILS REQUIREMENTS
2. PERMISSIBLE PIPE MATERIAL:
   - 2.1. CONCRETE:
     - DIAMETER: SEWERS 225mm Ø AND ABOVE)
     - JOINTS: SPIGOT AND SOCKET WITH RUBBER RING FITTINGS
     - STRENGTH CLASS: 120 (CRUSHING LOADS TABLE 8 BS 5911-1)
     - PIPE AND FITTINGS: SPIGOT AND SOCKET OR REBATED FORM.
     - COMPLIANCE: IS EN 1916, BS5911-1 AND IS 6 OR EQUIVALENT STANDARD
   - 2.1. THERMOPLASTIC STRUCTURED WALL PIPES:
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 13476
   - 2.2. UNPLASTICISED PVC;
     - DIAMETER: SEWERS 150mm - 450mm Ø, SERVICE CONNECTIONS: 100mm Ø
     - STIFFNESS CLASS: 8kN/m²
     - JETTING RESISTANCE: 2,600 PSI (180 BAR)
     - COMPLIANCE: IS EN 1401
   - 2.3. ALTERNATIVE PIPE MATERIAL TO BE IRISH AGRÉMENT CERTIFIED AND APPROVED BY SOUTH DUBLIN COUNTY COUNCIL
3. PIPE SIZES
   - 3.1. SEWER PIPE SIZE: AS SHOWN ON DRAWING
   - 3.2. SERVICE CONNECTION: 150mm Ø MIN (MIN 1/100 GRADIENT)
   - 3.3. GULLY PIPE CONNECTION 150mm Ø MIN
4. DEPTH OF COVER:
   - 4.1. ROADWAYS: NOT LESS THAN 1.2m
   - 4.2. PUBLIC OPEN SPACE: NOT LESS THAN 0.9m
   - 4.3. PRIVATE AREAS WITH NO VEHICLE ACCESS: NOT LESS THAN 0.5m
5. ALL MAIN SEWERS WITH LESS THAN COVER AS STATED ABOVE UNDER ROADS TO BE SURROUNDED IN 150mm C20 CONCRETE
6. MANHOLE COVERS (IN ACCORDANCE WITH IS EN 124):
   - 6.1. PUBLIC AREAS (ROADS & PARKING BAYS): CLASS D400
   - 6.2. PUBLIC FOOTPATHS CLASS B125
   - 6.3. PRIVATE DRIVEWAYS: CLASS B125
   - 6.4. PRIVATE FOOTPATHS & GARDENS: CLASS A15
7. PROVIDE MANHOLE COVERS AND AJ'S WITH ARCHITECTURAL PAVING WHERE REQUIRED.
8. ROAD GULLIES, GRATINGS AND FRAMES TO COMPLY WITH IS EN 124, CLASS D400. GULLIES TO BE PRECAST CONCRETE UNLESS OTHERWISE AGREED.
9. ALL ACCESS JUNCTIONS TO BE IN ACCORDANCE WITH EN 13598-1 AND EN 7158 AND SUITABLE FOR 150mm ID PIPEWORK
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LEGEND

EXISTING
- SITE BOUNDARY
- EXISTING SURFACE WATER SEWER
- EXISTING SW MAIN TO BE DECOMMISSIONED
- SDMH-XX EXISTING MANHOLE

PROPOSED
- PROPOSED SURFACE WATER SEWER
- PROPOSED Ø150mm FILTER DRAIN TO MAIN SW SEWER
- PROPOSED SURFACE WATER DIVERSION
- SMH-XX SURFACE WATER MANHOLE
- BACKDROP MANHOLE
- SDMH-XX PROPOSED DIVERSION MANHOLE
- CLASS 1 OIL PETROL BYPASS INTERCEPTOR

SUDS MEASURES IN ADDITION TO ATTENUATION /DETENTION POND
- BIO RETENTION TREE PIT (BETWEEN PERMEABLE PARKING SPACES) TO LANDSCAPE ARCHITECT SPECIFICATION
- PERMEABLE PAVING - PARKING BAY
- PERMEABLE PAVING - HOMEZONE

Client

Comhairle Contae Átha Cliath Theas
South Dublin County Council

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S5 P02	26.02.25	JS	DJ	ISSUE FOR PLANNING	KV
S5 P01	10.02.25	JS	DJ	ISSUE FOR PLANNING	KV

RPS MAKING COMPLEX EASY
A TETRA TECH COMPANY

Model File Identifier

Scale: 1/500 @ A1, 1/1000 @ A3

Created on: 01.09.24

Sheets: 1 of 1

Project: KISHOGE PART 10 APPLICATION

Title: SITE 5 KSG5B PROPOSED SURFACE WATER DRAINAGE LAYOUT

File Identifier: KSG5-RPS-KSG5B-XX-DR-C-21022.dwg

Status: S5

Rev: P02

\\dubl-wp-f01\Work_Structures\IE000783 - Clonburris KNE SITE 5\8.0 Drawings\DG\KSG5-RPS-ZZ-XX-DR-C-21021_21022 SW Drainage Layout.dwg