Westgate 2040 - Drogheda, Co. Louth

Environmental Impact Assessment Report

Volume 3 - Appendices

December 2023

Comhairle Contae Lú
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Rialtas na hÉireann
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Project Ireland
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Louth County Council

Natura Impact Statement

Westgate 2040 Regeneration, Drogheda

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RSK GENERAL NOTES

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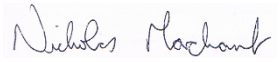
Signature		Signature	
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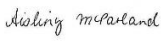
Signature		Signature	
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EXECUTIVE SUMMARY

This Natura Impact Statement has been prepared by NM Ecology Ltd, as part of a planning application for public realm and urban regeneration works on lands within the Westgate Vision Area of Drogheda, Co Louth. The aim of this report is to identify and evaluate any potential effects on Special Protection Areas (SPAs), and Special Areas of Conservation (SACs), referred to jointly as European sites. It covers Stages 1 and 2 of the Appropriate Assessment process.

The southern boundary of the proposed development site adjoins the *River Boyne and River Blackwater* SAC, and a small section of the application site is located within the SAC. However, none of the qualifying interests of this SAC are within the overlapping section with the subject site, so there will be no direct effects on the SAC.

With the adoption of a precautionary approach, it is possible that pollutants (suspended sediments, concrete / cement and hydrocarbons) generated during the construction of the proposed development could have a potential indirect effect on the qualifying interests of the *River Boyne and River Blackwater* SAC or other downstream European sites. In response, a range of pollution-control measures will be implemented during the construction phase of the project to avoid or minimise the risk that any pollutants could reach the River Boyne.

Potential indirect effects from surface water runoff and disturbance / displacement of fauna during the operation of the proposed development were ruled out.

The recommended measures during construction will prevent the pollution of the River Boyne, thus avoiding a significant negative effect on the conservation status of the qualifying interests (aquatic fauna and habitats) of the *River Boyne and River Blackwater SAC*, or any other European sites. As a result, we conclude that the proposed development will not cause significant negative effects upon the integrity of any European sites.

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1 INTRODUCTION

1.1 Background

This document is a Natura Impact Statement, which provides supporting information to assist competent authorities with an Appropriate Assessment of the project, as per Articles 6(3) and 6(4) of the Habitats Directive[1]. The competent authority includes those entitled to authorise or give consideration to a project, e.g. a planning authority or An Bord Pleanála.

Approximately 14% of the land area of Ireland is included in the European Network of Natura 2000 sites, (hereafter referred to as European sites), which includes Special Protection Areas (SPAs) to protect important areas for birds, and Special Areas of Conservation (SACs) to protect habitats and non-avian fauna. Legislative protection for these sites is provided by the *European Council Birds Directive* (79/409/EEC) and *E.C. Habitats Directive* (92/43/EEC, as amended), which are transposed into Irish law by the *European Communities (Birds and Natural Habitats) Regulations* 2011 (SI 477/2011).

A competent authority cannot give consent, permission or other authorisation for a project which is likely to have a significant effect on a European Site. Likely significant effects are any effects that may reasonably be predicted as a consequence of a plan or project, and that may affect the conservation objectives of the features for which the site was designated.

This report includes the following sections: a description of the project, a review of its environmental setting, details of relevant European sites, an appraisal of potential direct, indirect and in-combination effects on European Site(s), a mitigation strategy and a conclusion.

1.2 Statement of Authority

This report was written by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has an MSc in Ecosystem Conservation and Landscape Management from NUI Galway and a BSc in Environmental Science from Queens University Belfast. He is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and operates in accordance with their code of professional conduct.

He has sixteen years of professional experience, including thirteen years as an ecological consultant, one year as a local authority biodiversity officer, and two years managing an NGO overseas. He provides ecological assessments for developments throughout Ireland and Northern Ireland, including wind farms, infrastructural projects (roads, water pipelines, greenways, etc.), and a range of residential and commercial developments.

[1] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 97/62/EC

1.3 Methods

This report has been prepared with reference to the following guidelines:

- *Appropriate Assessment of Plans and Projects in Ireland* (Department of the Housing, Local Government and Heritage, 2009)
- *OPR Practice Note PN01: Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator 2021)
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4)*, E.C., 2002.
- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal* (CIEEM 2018)

Supporting data was collected from the following sources:

- Plans and specifications for the proposed development
- Supporting information on European sites from www.npws.ie
- Ireland Wetland Bird Survey (IWeBS) data from Birdwatch Ireland
- Bedrock, soil, subsoil, surface water and ground water maps from the Geological Survey of Ireland webmapping service, the National Biodiversity Data Centre, and the Environmental Protection Agency web viewer
- The *Louth County Development Plan* 2021 - 2027, and details of permitted or proposed developments from the local authority's online planning records

The study area for this assessment consisted of all land within the red-line planning boundary. All desktop and field survey data was collected between April 2021 and October 2023. Surveys included mapping of habitats and flora, searches for otter field signs, and inspections of the river bank. Bird surveys were not considered necessary because the site does not contain any habitats suitable for bird species associated with nearby SPAs. Fish surveys were not considered necessary because the status of fish within the SAC is well established, and because the project will not involve any in-stream works.

2 DEVELOPMENT PROPOSALS

2.1 Characteristics of the proposed development

The proposed development (hereafter referred to as 'the Project') comprises public realm regeneration works on lands within the Westgate Vision Area of Drogheda, Co. Louth (hereafter referred to as 'the Site'). The overall objective of the 'Westgate 2040' project' is to act as a catalyst to support positive urban regeneration and public realm improvements in the Westgate Vision Area of Drogheda Town Centre.

The proposed development consists of the following:

(1) Public realm improvement works comprising: new hard landscaping including resurfacing, soft landscaping including new tree planting, a water feature channel with stepped concrete elements and integrated landscaping, a Corten steel ground insert delineating the location of the former medieval town wall, a wayfinding Corten steel ground insert, Corten steel signs, Corten steel walkways, street furniture, new pedestrian connections, a SUDS rainwater retention pond, cycle lanes, pedestrian footpaths, external steps, tactile paving, road signs, cycle parking stands and provision of new railings;

(2) Public realm improvement works will also include the creation of a new urban plaza gateway/arrival area at Georges Square and a new enhanced public amenity area adjacent the River Boyne riverfront including a new pedestrian wooden deck promenade/boardwalk;

(3) Demolition of the existing public toilet block at George's Square (between the junctions of George's Street/Fair Street and George's Street/West Street), a section of boundary wall located between Old Abbey Lane and Father Connolly Way and a section of wall located between Dominick Street and Dominick Street car park;

(4) A new raised, free-standing, curved walkway located between the R132 and the existing Medieval Wall to provide a universally accessible connection from West Street to the River Boyne riverfront;

(5) A new freestanding Corten steel pavilion located adjacent the River Boyne riverfront to create a new mixed use/public space;

(6) A new freestanding Corten steel canopy located within, and offset from, the remains of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) to create a new flexible community and cultural space;

(7) Two freestanding Corten steel structures located at the junction of West Street and the R132/George's Street to mark the location of the former medieval West Gate;

(8) Repair and restoration of the old Medieval Wall located adjacent the R132/George's Street (being a Protected Structure – ID No. DB-188 and a recorded monument - RMP No. LH024-041014);

(9) Repair and restoration of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) including the west gable of its north aisle located within Old Abbey Lane;

(10) Reprioritisation of traffic and movement patterns for the streets/roads/lanes/footpaths within the application site to accommodate the proposed public realm improvement works and integrate with the Council's emerging Active Travel projects to the north and south of George's Street/R132;

(11) Road improvement works to include alteration of road alignment, resurfacing, shared surface treatments, revised access arrangements, cycle lanes, pedestrian crossing points, parking bays, loading bays, accessible parking bays, bus stops and new public lighting; and

(12) All associated site works including: drainage, undergrounding of services and all associated ancillary development works.

In summary, the proposed development will involve a series of relatively small-scale works (changes to surfacing, construction of light structures, hard / soft landscaping) within an urban context. The construction methods will involve the use of relatively light machinery and will not generate significant noise or vibration.

The Site is an existing urban area that is subject to anthropogenic disturbance. It is envisaged that human activity in the area will increase slightly as a result of the Project. However, it is not anticipated that this increase would give rise to a likely significant effect on the surrounding environment or its ecological features.

There is existing streetlighting throughout the area. The project will involve some modification of the lighting for aesthetic reasons, but there will be no change to the extent or intensity of lighting in the area.

2.2 Other nearby developments (potential in-combination effects)

To understand potential in-combination effects a desk-based analysis was undertaken of other plans and projects in the surrounding area.

The Site is located in the centre of Drogheda town. It consists almost entirely of roads and pavements, with small pockets of urban grassland or ornamental planting. Further details are provided in Section 3.

Planning applications in the vicinity of the site were reviewed using the online planning records of Louth County Council. The majority of applications were for changes-of-use in existing buildings, or small-scale works such as extensions to commercial premises. However, three developments of moderate scale were noted, as follows:

- Planning reference 181056. Permission granted in 2020 for the demolition of existing derelict structures and the construction of 41 no. apartments. The application was accompanied by a Natura Impact Statement, which concluded that the development

posed no risk of impacts on European sites. A variation was granted in 2021 (planning reference 20763) to increase the height of the buildings and the number of residential units. Construction work has commenced and remains in progress at the time of writing in October 2023. It is likely to be complete by the time the Project commences.

- An Bord Pleanála reference 308224-20. Permission granted for extensive refurbishment of St Dominick's Bridge, which adjoins the south-eastern corner of the Masterplan Area. The application was accompanied by a Natura Impact Statement. At the time of writing in October 2023 all works are complete and the bridge has been reopened to the public.
- An Bord Pleanála reference 308226-20. Permission granted for extensive refurbishment of Obelisk Bridge, which is located approx. 4.1 km west of the Masterplan Area. The application was accompanied by a Natura Impact Statement. At the time of writing in October 2023 this project has recently commenced construction.

Two of the three developments are already complete, or likely to be complete by the time the proposed development is constructed. The third approved development, i.e. the refurbishment of the Obelisk Bridge, is located over 4 km from the Site. Therefore, it is considered highly unlikely that any of these developments would lead to in-combination effects. Nonetheless, this is considered further in Section 5.2.4.

3 ENVIRONMENTAL SETTING

3.1 Site location and surroundings

The Site is located to the west of Drogheda town centre. The application site comprises the following streets, roads and lanes and their adjoining footpath/public realm/junction areas:

- R132/Bridge of Peace/George's Street (including the underpass on the northern side of the River Boyne);
- George's Square; Father Connolly Way (including part of an existing car park area); Dominick Street;
- Patrickswell Lane;
- Old Abbey Lane (including an area to the rear of 56/57 West Street);
- Scholes Lane;
- R900/West Street/Narrow West Street;
- Fair Street;
- and Wellington Quay.

The River Boyne (the *River Boyne and River Blackwater* SAC) adjoins the southern boundary of the Site.

The application site covers an area of approx. 1.89 hectares which includes the following lanes/streets/roads/areas and their adjoining footpath/public realm/junction areas:

3.2 Geology and soils

The underlying bedrock is limestone, classified as 'pale-grey, thickly-bedded, highly micritised grainstones, packstones and wackestones', which is a regionally-important karstified aquifer (Geological Survey of Ireland). Sub-soils and soils are made ground, mainly sealed by buildings and impermeable artificial surfaces.

3.3 Hydrology

The closest major waterbody is the River Boyne, which adjoins the southern boundary of the Site. It is estuarine in the vicinity of the Site, i.e. it is tidal and has a brackish influence. The division between river (freshwater) and estuary (brackish water) occurs near the Battle of the Boyne visitor centre approx. 5 km upstream (west) of the Site. The estuary meets the coast approx. 9 km downstream (east) of the Site.

Under the Water Framework Directive status assessments 2016 – 2021, the transitional waters of the River Boyne are of Moderate status, as are the coastal waters at the mouth of the river.

3.4 Habitats

Habitats within the Site were classified using *A Guide to Habitats in Ireland* (Fossitt 2000). Four habitat types were found within the Site boundary, and a fifth (the estuary) is located just outside the site boundary. Descriptions are provided below.

3.4.1 Buildings and artificial surfaces (BL3)

The majority of the Site consists of buildings, roads, car parks, and other paved surfaces. Some buildings / surfaces support butterfly bush *Buddleja davidii* or common ruderal plants, but none have substantial cover of native vegetation.

3.4.2 Dry meadows and grassy verges (GS2)

A patch of unmanaged grassland was found on the embankment on the eastern side of the 'Bridge of Peace' (George's Street). It is dominated by false oat-grass *Arrhenatherum elatius* and cock's-foot *Dactylis glomerata*, with frequent common bent *Agrostis capillaris*, white clover *Trifolium repens* and ribwort plantain *Plantago lanceolata*.

3.4.3 Scrub (WS1) / Treeline (WL2)

This habitat occurs around the margins of Murdock's Yard in the west of the Site. It consists of a discontinuous line of trees connected by linear scrub habitat. Beech *Fagus sylvatica* is the dominant tree, with some ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. Shrubs include butterfly bush, roses *Rosa* spp, exotic shrubs and dense brambles *Rubus fruticosus*.

3.4.4 Ornamental / non-native shrubs (WS3)

There is a line of non-native shrubs (of unknown species) between Father Connolly Way and the River Boyne. They are cropped to a height of approx. 1 m.

3.4.5 River Boyne Estuary (MW4)

The River Boyne, part of the *River Boyne and River Blackwater* SAC, adjoins the southern boundary of the Site. It is approx. 50m wide and is several metres deep at high tide. The edges of the river are formed by rock gabions of approx. 4 m height. Some brown algae (e.g. *Fucus* spp) was visible along the edges of the river at low tide, but no other vegetation was observed.

3.5 Invasive non-native plant species

No Japanese Knotweed *Fallopia japonica* or any other species listed on Schedule 3 of the *European Communities (Birds and Natural Habitats) Regulations* 2011 (as amended) was recorded in the vicinity of the Site.

Butterfly-bush *Buddleja davidii* was recorded at a number of locations throughout the Site. It is a wind-dispersed species that colonises buildings and other built surfaces, occasionally causing structural damage. However, it is widespread in urban environments, it is not legally-restricted,

and it does not have a negative ecological effect, so it is not considered a high-impact invasive species in Ireland.

3.6 Fauna

Surveys were carried out for range of fauna within the Site; they are described in full in **Chapter 8: Biodiversity** of the Environmental Impact Assessment Report. However, the scope of an Appropriate Assessment is determined by the qualifying interests of relevant European sites, so most species discussed in the Biodiversity chapter are not relevant here. Some information on otters and fish is reproduced below, as they are relevant to the adjacent *River Boyne and River Blackwater* SAC.

3.6.1 Otters

Otters are a qualifying interest of the adjacent *River Boyne and River Blackwater* SAC. The Site was searched for otter holts and other field signs by NM Ecology Ltd on a number of occasions between April 2021 and October 2023. No field signs were found, so there is no possibility that otters breed or rest within the Site. The vertical rock gabions along the adjacent bank of the estuary would prevent Otters from leaving the river at this location and would be unsuitable for an otter holt due to tidal activity.

Otters are likely to forage along the estuary in the vicinity of the Site. They have large territories, and it is expected that the section of river bank adjoining the Site forms only a small part of a much-larger territory (otter territories are thought to range from 2km – 20 km of river).

3.6.2 Fish

Atlantic salmon and river lamprey are qualifying interests of the *River Boyne and River Blackwater* SAC. Both species migrate between freshwater and marine habitats, so they are expected to pass through the Boyne Estuary in the vicinity of the Site. However, they spawn in freshwater habitats, so the estuary would be unsuitable for this purpose.

As the project does not involve any in-stream works it was not considered necessary to carry out fish surveys. Furthermore, as the presence of salmon and river lamprey is well established within the catchment of the *River Boyne and River Blackwater* SAC (hence the SAC designation) it was not considered necessary to undertake fish surveys.

4 APPROPRIATE ASSESSMENT SCREENING

4.1 European sites in the surrounding area

In this section we identify European sites that could potentially be affected by the Project. Maps of European sites in the surrounding area are provided in Figures 1 and 2, and details of relevant sites are provided in Table 1. For the avoidance of doubt, we have not used a 'zone of influence' based on arbitrary distances (e.g. 15 km), as this approach is no longer recommended under the OPR (2021) guidance.

Table 1: European sites of relevance to the Site

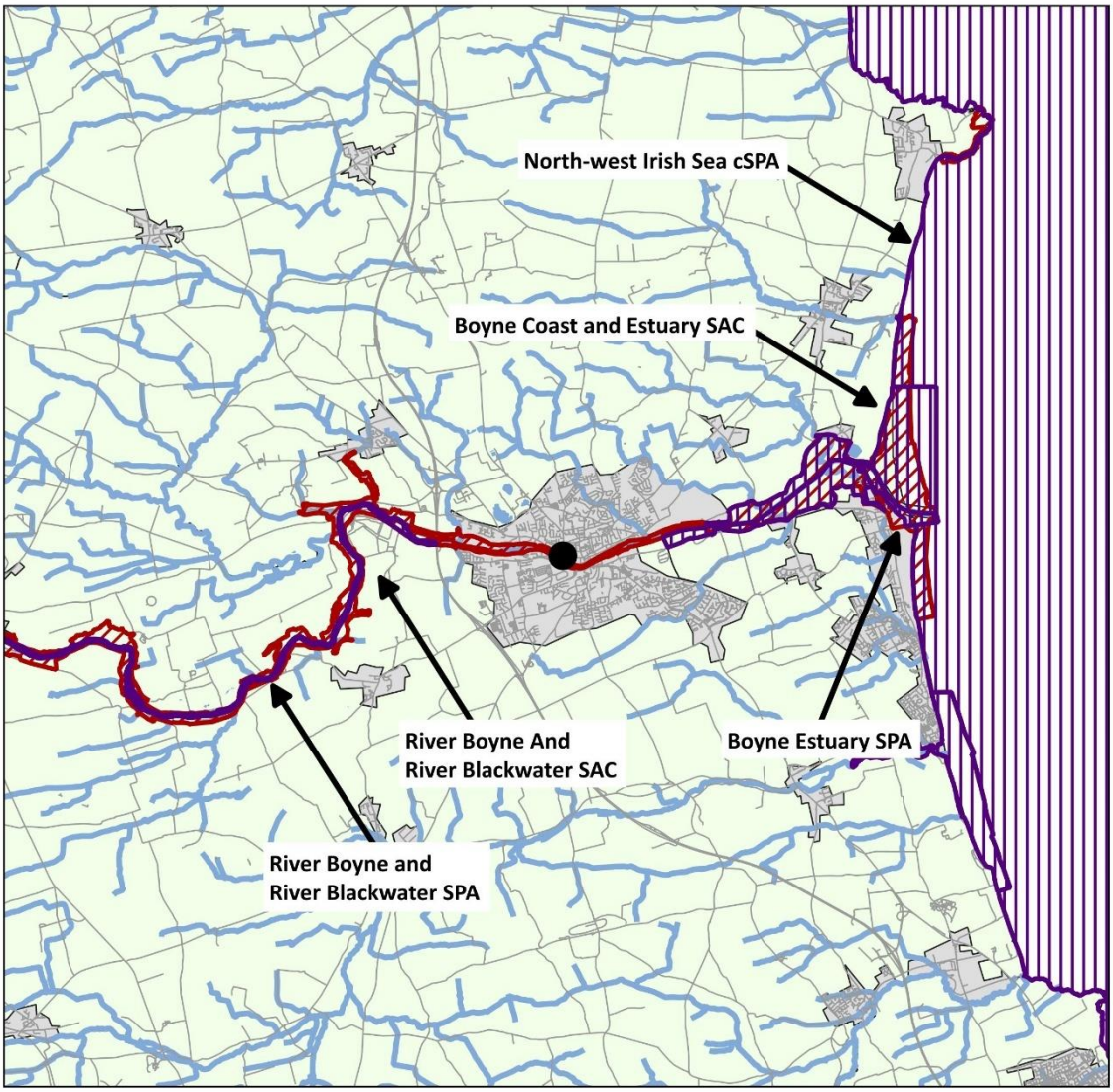
Site name	Distance	Qualifying interests
River Boyne and River Blackwater SAC (site code 2299)	Partial overlap	**Annex I habitats:** alkaline fens, alluvial forests **Annex II species:** river lamprey, salmon, otter
Boyne Estuary SPA (4080)	2.2 km east	**Key habitats:** coastal wetlands **Special Conservation Interests:** shelduck, oystercatcher, golden plover, grey plover, lapwing, knot, sanderling, black-tailed godwit, redshank, turnstone, little tern
River Boyne and River Blackwater SPA (4232)	2.6 km west	**Special Conservation Interests:** kingfisher
Boyne Coast and Estuary SAC (1957)	3.4 km east	**Annex I habitats:** estuaries, mudflats / sandflats, Salicornia and other annuals colonising mud and sand, Atlantic salt meadows, embryonic shifting dunes, shifting dunes, fixed coastal dunes with herbaceous vegetation **Annex II species:** none
North-West Irish Sea cSPA* (4236)	7.4 km east	**Key habitats:** off-shore waters **Special conservation interests:** Common Scoter, Red-throated Diver, Great Northern Diver, Fulmar, Manx Shearwater, Shag, Cormorant, Little Gull, Kittiwake, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Puffin, Razorbill and Guillemot

Figure 1	European sites (broad scale)
Location	Westgate Regeneration Scheme
Applicant	Louth County Council
Date	10 August 2023

NM Ecology Ltd - Ecological Consultants
Website: www.nmecology.com
Email: info@nmecology.com
Tel: 087-6839771

Site location
- Centrepoint of Site
- Roads
- Watercourses

European sites
- Special Areas of Conservation
- Special Protection Areas



NM ECOLOGY

Figure 2	European sites (Drogheda)
Location	Westgate Regeneration Scheme
Applicant	Louth County Council
Date	10 August 2023

NM Ecology Ltd - Ecological Consultants
Website: www.nmecology.com
Email: info@nmecology.com
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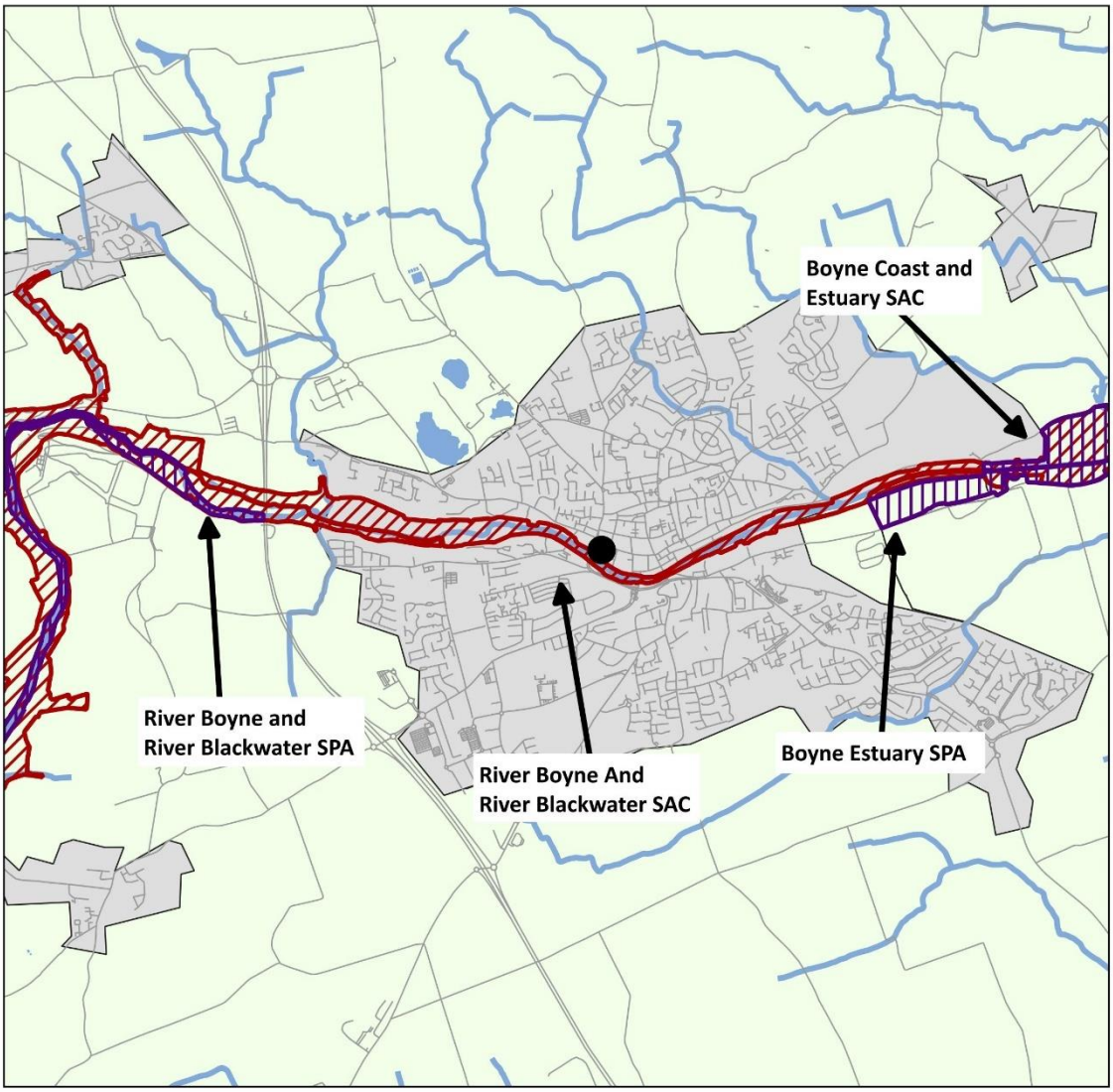
Site location
- Centrepoint of Site
- Roads
- Watercourses

European sites
- Special Areas of Conservation
- Special Protection Areas



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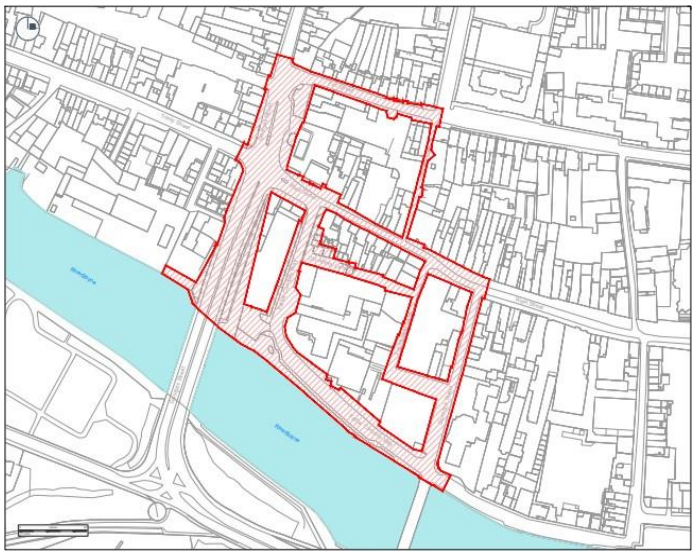
0 0.5 1 1.5 2 km

4.2 Proposed work within European sites (potential direct effects)

The southern boundary of the Site adjoins the *River Boyne and River Blackwater* SAC, and a small section of the Site is within the SAC. Map 1 shows the site location and its boundary.



Map 1 – Extract of Site Location Plan

The SAC boundary is irregular and does not appear to follow either the river bank or the edge of the road. It includes sections of road, footpath and ornamental planting along the top of the river bank that are unsuitable for any of the qualifying interests of the SAC. The photograph (Figure 3) below shows the overlap of the SAC with the boundary of the site.

Figure 3: Location of the SAC boundary relative to the Site. The SAC boundary is irregular, covering sections of road, footpath and ornamental planting outside the river corridor.

The Project will involve some changes to the footpath and ornamental planting along the top of the river bank, which will be within the SAC boundary. In the following subsection we consider whether any of the qualifying interests of the SAC are present in this overlapping area, and thus whether the qualifying interests may be at risk of direct effects.

4.3 Distribution of qualifying interests within the *River Boyne and River Blackwater* SAC

The *River Boyne and River Blackwater* SAC is very large, covering approx. 180 km of the Rivers Boyne, Blackwater and associated tributaries. The section of the Site that adjoins the river covers approx. 200 m of river bank, which is less than 0.1 % of the entire SAC.

The SAC was designated to protect two habitats (alkaline fens, alluvial forests) and three species (salmon, river lamprey, otter). In this section we review desktop and field data on the distribution of these habitats and species within the SAC, to determine whether they may be at risk of direct effects from the Project. Much of this information is provided in the Conservation Objectives and Site Synopsis for the SAC, which are available on the NPWS website.

When considering the distribution of these qualifying interests within the SAC, it is important to note that some are restricted to the freshwater section of the River Boyne, either permanently or for key stages of their life cycle (e.g. spawning). The Boyne is estuarine in the vicinity of the Site and for at least 5 km upstream, so it is unsuitable for any freshwater habitats / species.

The distribution of alkaline fen within the SAC is reported as follows in the Site Synopsis: "*The main areas of alkaline fen in this site are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough*". These are three small lakes located near Kells, approx. 45 km west of the Site. No alkaline fen is found in the vicinity of the Site.

The Conservation Objectives document shows a large area of alluvial forest around the 'Boyne River Islands' to the south of Tullyallen, just upstream of the M1 motorway crossing (Figure 4). This location is approx. 2.5 km west of the Site. Narrow strips of woodland occur elsewhere in the SAC. However, there is no alluvial forest in the vicinity of the Site.

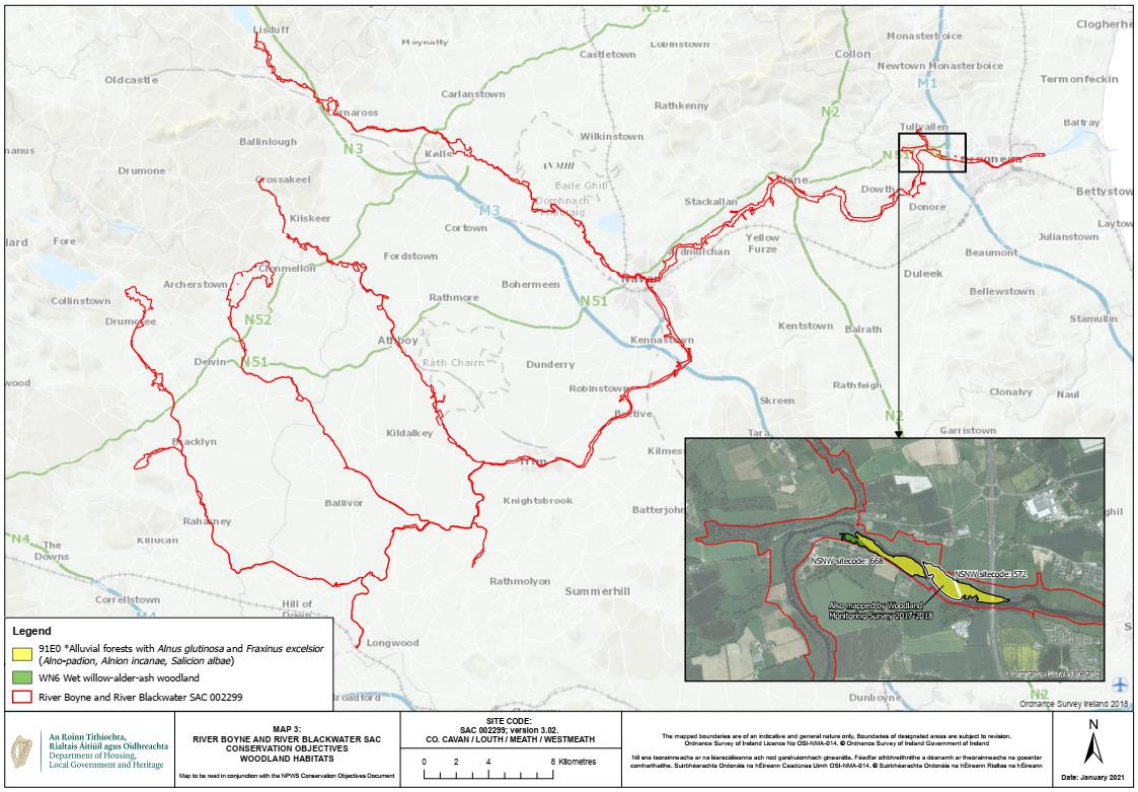


Figure 4: Map showing the distribution of alluvial forest habitat (yellow shading) within the *River Boyne and River Blackwater* SAC. The map is taken from the Conservation Objectives document for the SAC (NPWS, 2021)

Salmon are widespread in the SAC. They spawn in freshwater habitats, and it is noted in the Site Synopsis that salmon "use the tributaries and headwaters as spawning grounds"; these are likely to be at least 10 km upstream of the Site. The estuarine waters in the vicinity of the Site are unsuitable for spawning. However, salmon migrate from rivers to oceans (and vice versa) at stages of their life cycle, so they would occasionally pass by the Site during these migration events.

River lamprey are reported in the Site Synopsis to be "*present in the lower reaches of the Boyne River*", but no other information is provided. In Irish Wildlife Manual No. 5 (Kurz & Costello 1999), it is reported that they "*build nests (redds) and spawn in large and small rivers, usually at the downstream end of pools where there is a swift current*" and that "*river lamprey prefer a sandy or gravelly sediment*". The estuarine section of the Boyne is brackish, tidal and consists of fine silt, so it is not suitable for spawning. However, adult river lamprey also migrate from rivers to oceans, so they would occasionally pass by the Site during these migration events.

Otter are reported to be widespread throughout the SAC, both in freshwater and estuarine sections of the Boyne (refer to Section 3.6.1). They have large foraging territories, which include holts (underground burrows) that are used as breeding and resting places. The Site was searched for holts and other otter field signs by NM Ecology Ltd on a number of occasions between April 2021 and October 2023, but none were found, so there is no possibility that otters breed or rest

within the Site. However, they are likely to forage along the estuary in the vicinity of the Site, as part of a much larger territory.

In summary, the section of the Site that overlaps with the SAC is of no importance for any of the SAC's qualifying interests. Neither alkaline fens nor alluvial forests are present in the vicinity of the Site. Salmon, river lamprey and otter would only be present within the Boyne Estuary, which is outside the Site boundary.

For these reasons, we conclude that the qualifying interests of the SAC are not present within the section of SAC that overlaps with the Site, and thus these features are not at risk of direct effects from the Project. However, it is possible that the qualifying interests of this and other European sites could be affected by indirect effects arising from the Project; this will be considered in the following section.

4.4 Identification of potential pathways for indirect effects

Indirect effects can occur if there is a viable pathway between the source (the Site) and the receptor (habitats and species within a designated site). The most common pathway for effects is surface water, e.g. if a pollutant reaches a river and is carried downstream into a designated site. Other potential pathways are groundwater, air (e.g. airborne dust or sound waves), or land (e.g. flow of liquids, vibration). The zone of effect for hydrological effects can be several kilometres, but for air and land it is rarely more than one hundred metres. An appraisal of potential pathways for negative effects on designated sites is provided below.

The *River Boyne and River Blackwater SAC* adjoins the southern boundary of the Site, and a small section of the Site is within the SAC boundary (Figure 3 above). The distribution of the SAC's qualifying interests within the SAC are outlined in Section 4.3. Considering the proximity of the Site to the Boyne Estuary, and that it is at a higher elevation, there are a number of potential pathways for indirect effects: surface water (either overland or via roadside storm drains), groundwater, land and air.

The *Boyne Estuary SPA* is located approx. 2.2 km east of the Site. It has been designated for the protection of a range of over-wintering coastal / estuarine bird species, and one breeding bird species (little tern). The River Boyne could potentially provide a surface water pathway to the SPA, but all other pathways (via groundwater, land or air) can be ruled out due to distance.

The *River Boyne and River Blackwater SPA* is located approx. 2.6 km west of the Site. It has been designated to protect kingfishers, a riparian bird species. The SPA covers the freshwater section of the River Boyne upstream of the Site, so surface water pathways can be ruled out. All other pathways (via groundwater, land or air) can be ruled out due to distance.

The *Boyne Coast and Estuary SAC* is located approx. 3.4 km east of the proposed development site. It has been designated for the protection of a range of intertidal and coastal habitats, notably mudflats, saltmarsh and dunes. The River Boyne could potentially provide a potential

surface water pathway to the SAC, but all other pathways (via groundwater, land or air) can be ruled out due to distance.

The *North-west Irish Sea* cSPA (candidate Special Protection Area) is located approx. 7.4 km east of the Site. It is a very large site that covers pelagic waters along the coasts of Dublin, Meath and Louth between the Liffey Estuary and Dundalk Bay; these waters are used by foraging and roosting birds associated with other SPAs in the region. Although there is superficially a surface water pathway between the Site and the cSPA, any pollutants would be diluted by the Boyne Estuary and the coastal waters of the Irish Sea before they could affect the qualifying interests of the cSPA, so this is not considered to be a feasible pathway. All other pathways (via groundwater, land or air) can be ruled out due to distance.

In summary, there are a number of potential pathways linking the Site and the *River Boyne and River Blackwater* SAC. Surface water pathways were also identified to two other European sites: the *Boyne Estuary* SPA and *Boyne Coast and Estuary SAC*.

4.5 Conclusion of Stage 1: Screening Statement

Section 3 of the OPR guidance (OPR 2021), states that the first stage of the AA process can have two possible conclusions:

- **No likelihood of significant effects.** Appropriate assessment is not required, and the planning application can proceed as normal. Documentation of the screening process including conclusions reached and the basis on which decisions were made must be kept on the planning file.
- **Significant effects cannot be excluded.** Appropriate assessment is required before permission can be granted. A Natura Impact Statement (NIS) will be required in order for the project to proceed.

The Site adjoins the *River Boyne and River Blackwater* SAC and a small section of the Site is within the SAC boundary (Section 4.2). However, none of the qualifying interests of the SAC are present within this overlapping section (Section 4.3), so the risk of direct effects can be ruled out.

There are a number of potential pathways between the Site and the *River Boyne and River Blackwater* SAC. Distant surface water pathways were also identified to two other sites: the *Boyne Estuary* SPA and the *Boyne Coast and Estuary* SAC. In the absence of mitigation measures, it is possible that pollutants generated during the construction of the proposed development could reach one or more of these European sites. Depending on the quantities of pollutants that reach the SAC, the possibility of significant effects cannot be excluded.

Therefore, we conclude that this application meets the second of the above conclusions, because significant effects on the *River Boyne and River Blackwater* SAC (and other downstream sites) from a potential pollution event during construction works cannot be ruled out. This is mainly because best-practice construction-phase pollution-prevention cannot be considered at

Stage 1: Screening. The assessment must proceed to Stage 2: Appropriate Assessment so that mitigation measures can be proposed.

5 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

5.1 Direct Effects

The southern boundary of the Site adjoins the *River Boyne and River Blackwater* SAC and a small section of the Site is within the SAC boundary (refer to Section 4.2 and Figure 3). As described in Section 4.3, none of the qualifying interests of the SAC are present within the Site. Therefore, there is no risk of any direct effects (e.g. habitat loss, fragmentation) on the qualifying interests of the *River Boyne and River Blackwater* SAC.

5.2 Indirect Effects

5.2.1 Potential changes in water quality (construction phase)

The construction of the proposed development will involve a range of activities, including the demolition / removal of existing toilet block, walls and built surfaces, groundworks, the construction of new light structures, and works to roads / footpaths / public realm areas. These activities have potential to generate pollutants, including:

- Concrete and cement, which are composed of highly alkaline, corrosive fine sediments that are very harmful for aquatic fauna.
- Suspended silt or other sediments, which can reduce water quality, harm aquatic fauna, and/or alter the flow of watercourses.
- Hydrocarbons (oil, petrol, diesel, etc), solvents and other chemicals, which can be toxic to aquatic fauna.

Considering the proximity of the Site to the SAC, there is a risk that some of these pollutants could reach the *River Boyne and River Blackwater* SAC. A hypothetical assessment of potential pollution incidents is difficult, because any potential negative effects would vary depending on number of variables that cannot be predicted (e.g. the quantity of pollutant released, the time of year). Most small-scale pollution events within the Site would be contained at source and would never reach the river. Only a large-scale or persistent pollution event could reach the SAC.

Even if some pollutants could reach the estuary, it is considered highly unlikely that they would cause *likely significant effects* on the qualifying interests of the SAC, for the following reasons:

- The proposed works will be relatively minor (resurfacing, etc)
- The majority of works will be over 50 metres from the river
- The adjoining section of the estuary is of relatively low importance for the SAC's qualifying interests (refer to Section 6)
- Estuaries generally have a substrate of fine sand or silt, so they are not affected by additional inputs of suspended sediment.

However, in accordance with the precautionary principle we consider it possible that a large-scale pollution incident could potentially have significant effects on the SAC. Mitigation measures will be necessary in order to avoid or reduce the potential negative effects of pollution incidents.

5.2.2 Potential changes in water quality (operational phase)

At present, surface water runoff from roofs and paved surfaces is collected in surface water drains and discharged to the Boyne Estuary. This will continue to be the case for the proposed development. Rainwater is free of pollutants and poses no risk of negative effects on the qualifying interests of the SAC.

A rainwater retention pond is proposed at the Medieval Wall Character Area, which will collect surface water runoff from hard surfaces to the north. During normal operation it will soak to ground in situ, but during periods of heavy rainfall it will overflow into a pipe that is connected to a nearby storm drain. As a result, the pond poses no risk of indirect effects on the SAC.

The proposed development will not generate any foul water.

5.2.3 Disturbance or displacement of fauna (operational phase)

The Site is frequented by pedestrians, dog walkers and motor vehicles. This will continue to be the case when the Project is complete, although there may be a slight increase in human activity. In this section we consider whether it could disturb or displace the qualifying interests of any European sites.

The *River Boyne and River Blackwater* SAC was designated to protect three species: salmon, river lamprey and otter. Salmon and river lamprey are aquatic species that migrate through the Boyne Estuary. As the Project will not involve any in-stream works, it will not disturb or displace either species.

Otters are crepuscular / nocturnal, which means that they are most active from sunset to sunrise, and typically rest during the day. Most activity at the Site will be during daylight hours when otters are not present. Some events will take place at night, but otters are habituated to existing human activity at the Site, so these events would not disturb or displace them.

There are two SPAs in the surrounding area: the *Boyne Estuary* SPA is 2.2 km east, and the *River Boyne and River Blackwater* SPA is 2.6 km west. At both SPAs are located over 2 km from the Site, there is no risk that any birds within the SPA boundaries would be disturbed or displaced.

Some birds also use secondary habitats outside SPA boundaries (sometimes referred to as 'ex-situ' habitats), particularly playing fields and intensive agricultural land. The majority of the Site consists of artificial surfaces, which are unsuitable for any of these species. There is a narrow strip of grassland at the 'Medieval Wall Character Area', but it is too small, overgrown and subject to existing human disturbance to be used by any SPA species. Therefore, it can be concluded that the Site is unsuitable for any of the species associated with nearby SPAs.

5.2.4 Potential in-combination effects

Planning applications of relevance to this assessment were reviewed in Section 3.2, and three developments were noted.

- Planning reference 181056 granted permission for the construction of 41 apartments. At the time of writing it is under construction, and likely to be complete before the Project commences. As the developments will not be constructed concurrently, there is no risk that they could lead to in-combination effects.
- ABP planning reference 308224-20 granted permission for the refurbishment of St Dominick's Bridge. The project is now complete, so it poses no risk of in-combination effects.
- ABP planning reference 308226-20 granted permission for the for the refurbishment of Obelisk Bridge. At the time of writing in October 2023 it has recently commenced construction. As the bridge is located 4.1 km upstream of the Site, and it was accompanied by a Natura Impact Statement that included pollution-prevention measures, there is not considered to be any risk of in-combination effects.

In summary, no other plans or projects were identified that could potentially give rise to in-combination effects.

6 MITIGATION MEASURES

6.1.1 Engagement of an Ecological Clerk of Works

Some of the following mitigation measures will require specialist ecological expertise. Therefore, the construction contractor will employ an Ecological Clerk of Works (ECoW) to oversee the implementation of the mitigation measures outlined below. The ECoW will be required to provide reports and written correspondence to the Employers' Representative as requested, in order to demonstrate compliance with the measures outlined in this report.

All works must be carried out in accordance with the mitigation measures outlined in the pCEMP, the Environmental Impact Assessment Report (EIAR) and this Natura Impact Statement (NIS) and necessary planning conditions.

6.1.2 Pollution Prevention Measures (Construction phase)

The following mitigation measures have been designed to avoid or minimise any negative effects on water quality in the River Boyne and associated European sites by preventing fine sediments, concrete / cement, hydrocarbons or any other pollutants from reaching nearby drainage ditches or groundwater. All are standard pollution control measures that are regularly used on construction sites in Ireland, and confidence in their success is high. They have been developed with reference to the following guidelines:

- *Guidelines on protection of fisheries during construction works in and adjacent to waters* (Inland Fisheries Ireland, 2016)
- *Pollution prevention guidelines: PPG5 - works and maintenance in or near water* (UK Environment Alliance, 2007)

The implementation and monitoring of all mitigation measures will be the responsibility of the site foreman. Some tasks may be assigned to a qualified member of the construction team (e.g. an environmental manager), although it will be the responsibility of the foreman to ensure that the relevant personnel are sufficiently trained, competent and informed to carry out the tasks outlined here. Liability for any pollution incidents will be assigned to the foreman and their construction company.

The construction compound with set up as part of the initial preparation works in each work area. The site compound will not be located adjacent to or beside the *River Boyne and River Blackwater* SAC. It is proposed that the site compound will be positioned outside of a 50 metre buffer zone from the edge of the river bank. If necessary, this requirement can be secured by the implementation of a planning condition.

The proposal includes for the demolition of the toilet block at Georges Square, a section of wall between Father Connelly Way and Old Abbey Lane and a section of wall along the eastern boundary of Dominick Street car park, as demonstrated in the accompanying planning drawings LOUX3001-P-000-107-A, LOUX3001-P-000-108-A and LOUX3001-P-000-109-A]. All demolition will be undertaken

by a competent demolition contractor in accordance with the current code for demolition and the consultant engineer's specification down to below foundation level. All works will be undertaken in accordance with current best practice[2].

6.1.3 Concrete and cement

These products are highly toxic to fauna, particularly fish and other aquatic / marine species. On-site pouring and/or mixing of concrete or cement will be required during construction works, so the following measures will be implemented in order to retain all cement-based materials within the boundaries of the Site:

- Concrete pouring / mixing will only take place in dry weather conditions. It will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period or high winds)
- If any on-site mixing of concrete is required, it will be carried out at least 50m from the Boyne Estuary. If any cement-based products will be stored on-site, they will be kept in a sheltered area at least 50m from the Boyne Estuary, and will be covered (e.g. with a thick plastic membrane) to prevent spread by wind
- Ready-mix lorries and larger plant will not be cleaned on-site; they will be taken to an appropriate off-site facility with capacity to capture and treat contaminated wash waters
- If any on-site cleaning of tools or concrete-batching plant is required, it will take place at least 50m from the Boyne Estuary. Wash waters will be discharged to a soakaway.

6.1.4 Suspended sediments

The term 'suspended sediments' refers to any silt, mud or other fine sediment that becomes dissolved in water. Water can be contaminated by suspended sediments (SS) from open earthworks and excavations (either from rainfall or groundwater seepage), from rainfall on soil/sediment stockpiles, or from the tyres / tracks of construction vehicles. In order to retain all contaminated waters within the boundary of the Site, the following measures will be implemented:

- Excavation works will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period, or high winds).
- If any excavations need to be dewatered, the SS-contaminated water will be retained and treated within the boundary of the Site. It will be collected and pumped into a settlement tank / pond (or similar feature), left undisturbed until sediments have settled, and then discharged via a buffered outflow to a soakaway that is at least 50m from the Boyne Estuary

[2] Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects.

- Stockpiles of mud, sand or other fine sediments will be stored at least 50m from the Boyne Estuary. Stockpiles will be levelled and compacted, and will be covered with thick plastic membranes in order to limit wind/rainwater erosion
- Dust suppression and road cleaning measures will be implemented, as outlined in Section 8 of the IFI guidelines.

6.1.5 Hydrocarbons and chemicals

Hydrocarbons (oil, petrol, diesel, etc) and solvents are toxic to fauna. These chemicals can enter surface water or groundwater if they are accidentally spilled (e.g. during re-fuelling of machinery), or from leaking containers. In order to retain such materials within the boundaries of the Site, the following measures will be applied throughout the construction works:

- Any fuel, oil or chemical containers will be kept at least 50m from the Boyne Estuary. These pollutants are hazardous and must be stored in a designated bunded area that has sufficient capacity to retain any spills
- All machinery should be protected from vandalism and unauthorised interference, and will be turned off and securely locked overnight
- If any on-site re-fuelling is required, it will take place at least 50m from the Boyne Estuary. Immobile plant will be refuelled over drip-trays
- While in operation, diesel pumps, generators or other similar equipment will be placed on drip trays to catch any leaks
- A spill kit will be kept on-site. If any spills occur, appropriate measures will be taken to intercept hydrocarbons or chemicals on-site before they can leave the Site.

7 CONCLUSION

In Stage 1 of the AA process, significant effects on the *River Boyne and River Blackwater* SAC from a potential pollution event during construction works could not be excluded. In response, a series of mitigation measures have been proposed for the construction phase of the project, to prevent pollutants reaching the Boyne Estuary in sufficient quantities to cause significant effects on the qualifying interests of this or any other European sites. During construction a site foreman will be appointed and will be responsible and liable for the implementation and monitoring of the proposed mitigation measures.

Subject to the implementation of these measures, it has been objectively concluded by NM Ecology Ltd that the proposed development will not adversely affect the integrity of any European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.

This concludes Stage 2 of the AA process. Regulation 42(16) of the EC (Birds and Natural Habitats) Regulations 2011 (as amended) states that "*a public authority shall give consent for a plan or project, or undertake or adopt a plan or project, only after having determined that the plan or project shall not adversely affect the integrity of a European site*". The information presented in this NIS is sufficient for An Bórd Pleanála to reach this conclusion.

For ease of reference, information in this document has been summarised below in the 'Template Screening Form' from the OPR (2021) guidance. Full details are provided in the main body of this document.

STEP 1. Description of the project/proposal and local site characteristics:	
(a) File Reference No:	N.A.
(b) Brief description of the project or plan:	Public realm regeneration works on lands within the Westgate Vision Area of Drogheda
(c) Brief description of site characteristics:	Town centre adjoining Boyne Estuary
(d) Relevant prescribed bodies consulted: e.g. DHLGH (NPWS), EPA, OPW	N.A.
(e) Response to consultation:	N.A.

STEP 2. Identification of relevant Natura 2000 sites using Source-Pathway-Receptor model and compilation of information on Qualifying Interests and conservation objectives.				
European Site (code)	**List of Qualifying Interest/Special Conservation Interest[1]**	**Distance from proposed development[2] (km)**	**Connections (Source-Pathway-Receptor)**	**Considered further in screening Y/N**
River Boyne and River Blackwater SAC (site code 2299)	**Annex I habitats:** alkaline fens, alluvial forests **Annex II species:** river lamprey, salmon, otter	Partial overlap	Surface water, groundwater, land, air	Yes
Boyne Estuary SPA (4080)	**Key habitats:** coastal wetlands **Special Conservation Interests:** shelduck, oystercatcher, golden plover, grey plover, lapwing, knot, sanderling, black-tailed godwit, redshank, turnstone, little tern	2.2 km east	Surface water	Yes
River Boyne and River Blackwater SPA (4232)	**Special Conservation Interests:** kingfisher	2.6 km west	None	No

Boyne Coast and Estuary SAC (1957)	**Annex I habitats:** estuaries, mudflats / sandflats, Salicornia and other annuals colonising mud and sand, Atlantic salt meadows, embryonic shifting dunes, shifting dunes, fixed coastal dunes with herbaceous vegetation **Annex II species:** none	3.4 km east	Surface water	Yes
North-West Irish Sea cSPA* (4236)	**Key habitats:** off-shore waters **Special conservation interests:** Common Scoter, Red-throated Diver, Great Northern Diver, Fulmar, Manx Shearwater, Shag, Cormorant, Little Gull, Kittiwake, Black-headed Gull, Common Gull, Lesser Black-backed Gull, Herring Gull, Great Black-backed Gull, Little Tern, Roseate Tern, Common Tern, Arctic Tern, Puffin, Razorbill and Guillemot	7.4 km east	None	No

[1] Short paraphrasing and/or cross reference to NPWS is acceptable – it is not necessary to reproduce the full text on the QI/SCI.

[2] If the site or part thereof is within the European site or adjacent to the European site, state here.

STEP 3. Assessment of Likely Significant Effects	
(a) Identify all potential direct and indirect impacts that may have an effect on the conservation objectives of a European site, taking into account the size and scale of the project under the following headings:	
Impacts:	**Possible Significance of Impacts: (duration/magnitude etc.)**
Construction phase e.g. • Vegetation clearance • Demolition • Surface water runoff from soil excavation/infill/landscaping (including borrow pits) • Dust, noise, vibration • Lighting disturbance • Impact on groundwater/dewatering • Storage of excavated/construction materials • Access to site • Pests	Pollutants generated during construction works may reach the *River Boyne and River Blackwater* SAC. This is highly unlikely to occur, but under the precautionary principle it cannot be excluded. All other potential effects can be ruled out.
Operational phase e.g. • Direct emission to air and water • Surface water runoff containing contaminant or sediment • Lighting disturbance • Noise/vibration • Changes to water/groundwater due to drainage or abstraction • Presence of people, vehicles and activities • Physical presence of structures (e.g. collision risks) • Potential for accidents or incidents	Rainwater runoff poses no risk to the qualifying interests of the SAC. The proposed development will not generate foul water. Increased human activity in the area will not affect the qualifying interests of the SAC or the special conservation interests of nearby SPAs (either in-situ or ex-situ).
In-combination/Other	No developments were identified that could potentially give rise to in-combination effects.

(b) Describe any likely changes to the European site:	
Examples of the type of changes to give consideration to include: • Reduction or fragmentation of habitat area • Disturbance to QI species • Habitat or species fragmentation	Potential temporary reduction in water quality during construction work

• Reduction or fragmentation in species density • Changes in key indicators of conservation status value (water or air quality etc.) • Changes to areas of sensitivity or threats to QI • Interference with the key relationships that define the structure or ecological function of the site	

(c) Are *'mitigation'* measures necessary to reach a conclusion that likely significant effects can be ruled out at screening?	
☒ **Yes** ☐ **No**	

Step 4. Screening Determination Statement		
The assessment of significance of effects: Describe how the proposed development (alone or in-combination) is/is **not likely** to have **significant** effects on European site(s) in view of its conservation objectives.		
Potential pollution events during construction cannot be excluded		
Conclusion:		
	Tick as Appropriate:	**Recommendation:**
(i) It is clear that there is **no likelihood** of significant effects on a European site.	☐	The proposal can be screened out: Appropriate assessment not required.
(ii) It is **uncertain** whether the proposal will have a significant effect on a European site.	☒	☐ Request further information to complete screening ☒ Request NIS ☐ Refuse planning permission
(iii) **Significant effects** are likely.	☐	☐ Request NIS ☐ Refuse planning permission

8 REFERENCES

Chartered Institute of Ecology and Environmental Management, 2018. Guidelines for Ecological Impact Assessment in the U.K and Ireland: Terrestrial, Freshwater and Coastal (2nd Edition). C.I.E.E.M., Hampshire, England.

Department of the Environment, Heritage and Local Government, 2009. Appropriate Assessment of Plans and Projects in Ireland. National Parks and Wildlife Service, DAHG, Dublin, Ireland.

European Commission. 2002. Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.

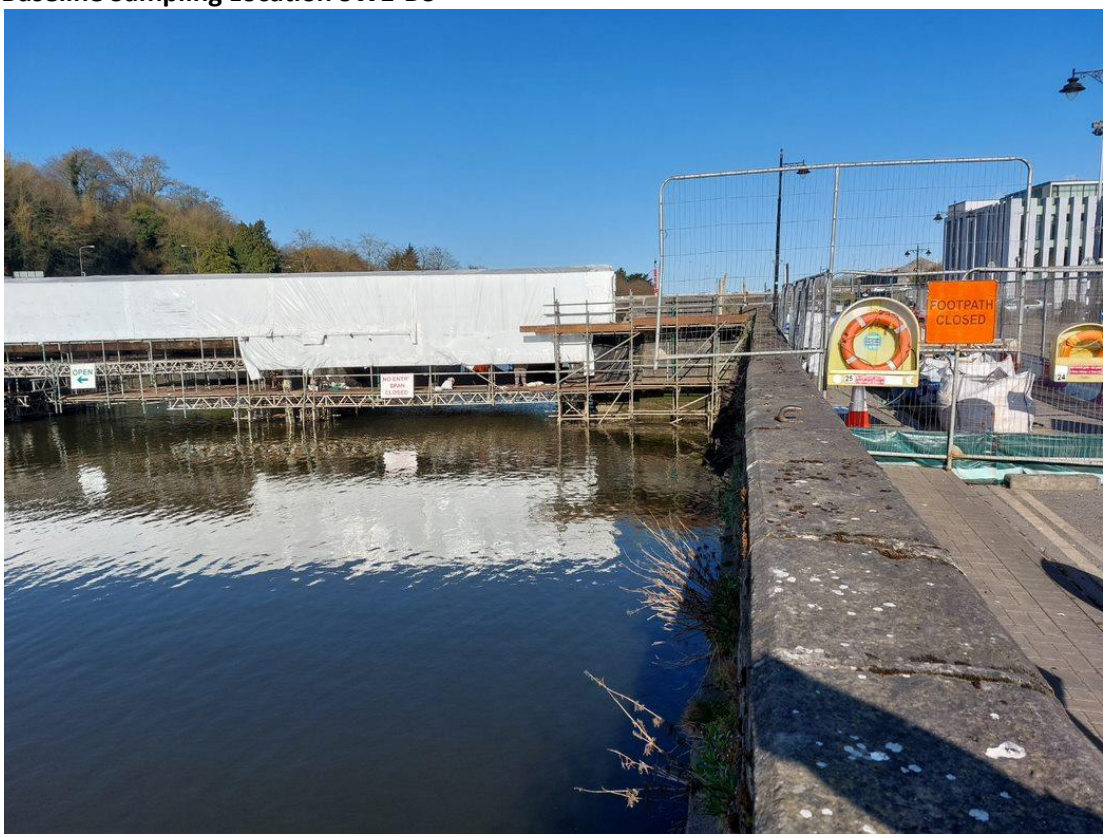
Kurz. I, Costello, M.J. (1999). An outline of the biology, distribution and conservation of lampreys in Ireland. Irish Wildlife Manuals No. 5. National Parks and Wildlife Service

Office of the Planning Regulator 2021. Practice Note PN01: Appropriate Assessment Screening for Development Management. Available online at opr.ie

Appendix 9.1 – Photographs of Site Surveying; Westgate 2040

Turley

Baseline Sampling Location SW1-DS



Baseline Sampling Location SW1-US

Observations from Site Surveying


Danger
Danger

Appendix 9.2- Mapped Geology

App-9.2(01)-Mapped Geology

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Geology

Geological_Linework_100k_2018

Bedrock_Outcrop_ITM_2018

Bedrock_Polygons_ITM_2018

- Mornington Formation
- Platin Formation
- Tullyallen Formation
- Glaspistol Formation
- Drogheda Granite

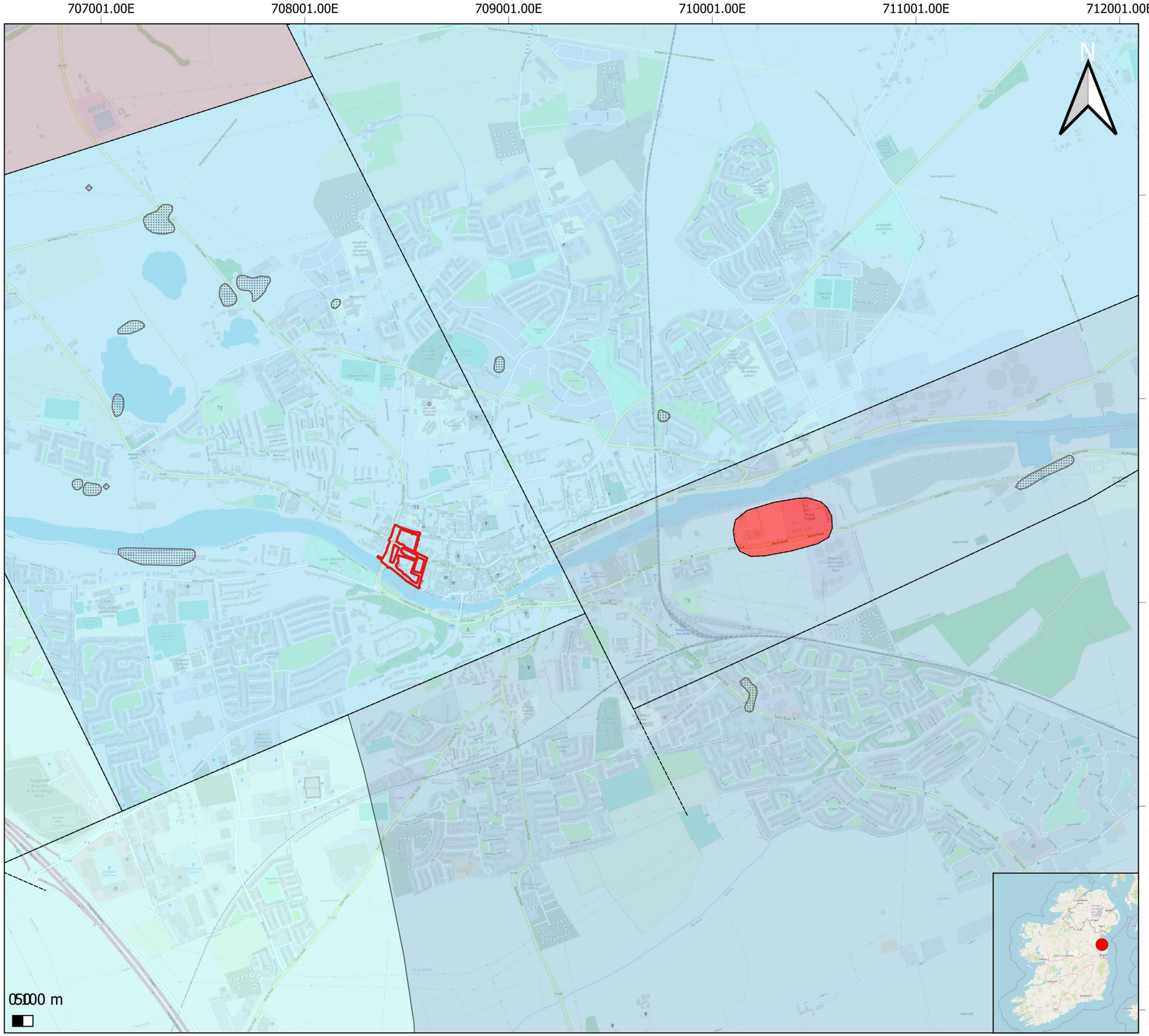
Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.3 – Mapped Soils

App-9.3(01)-Mapped Soils

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Geology

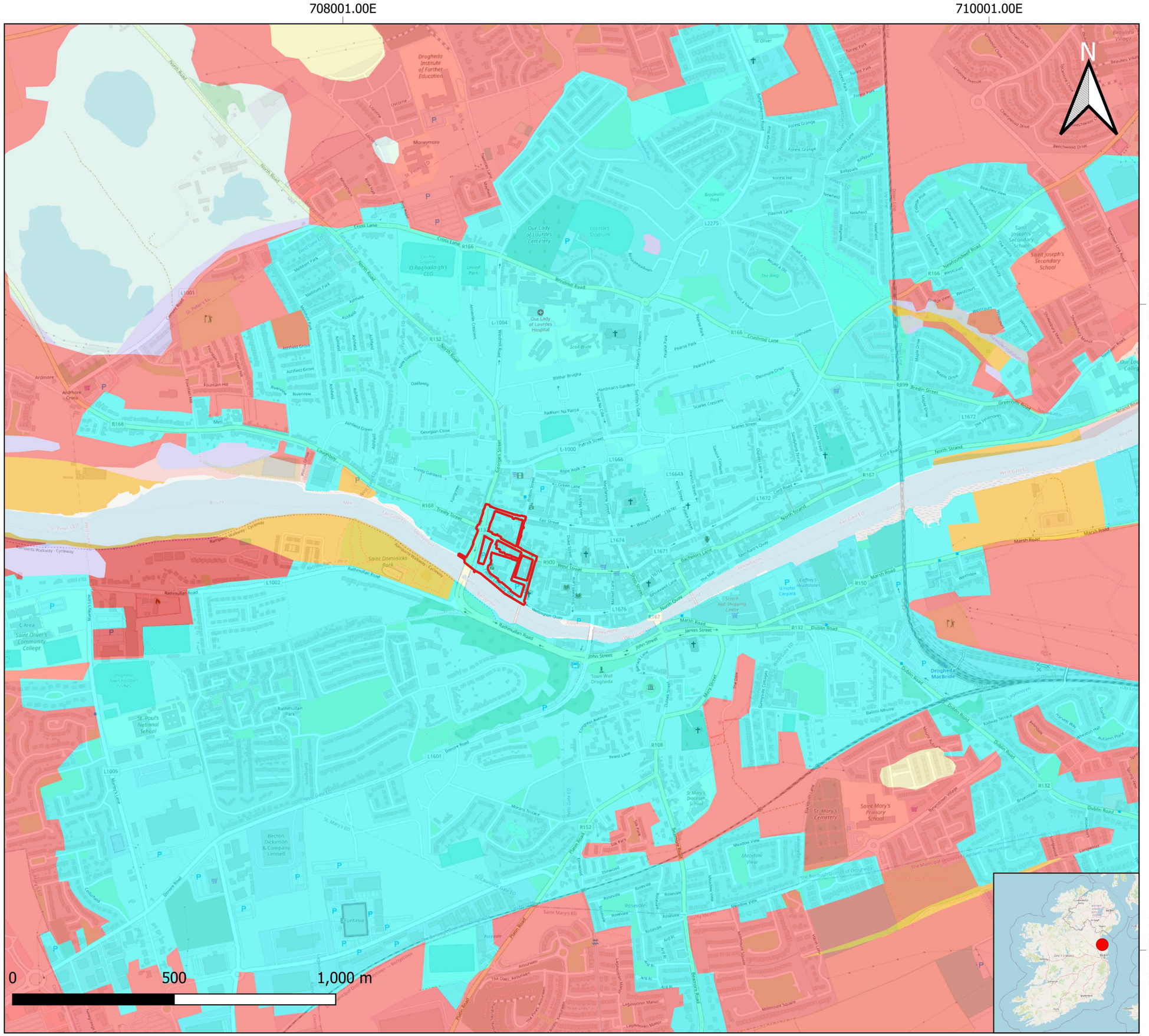
soils_ie_f1

Soil Type

- AlluvMIN - Mineral alluvium
- AminDW - Acid Brown Earths / Brown Podzolics
- AminPD - Surface water Gleys / Ground water Gleys Acidic
- AminSW - Lithosols / Regosols
- BminSP - Surface water Gleys / Ground water Gleys Shallow
- BminSW - Renzinas / Lithosols
- Lac
- Made
- Water

Base Layers

OpenStreetMap



Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
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Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.4 – Mapped Subsoils

App-9.4(01)-Mapped Subsoils

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

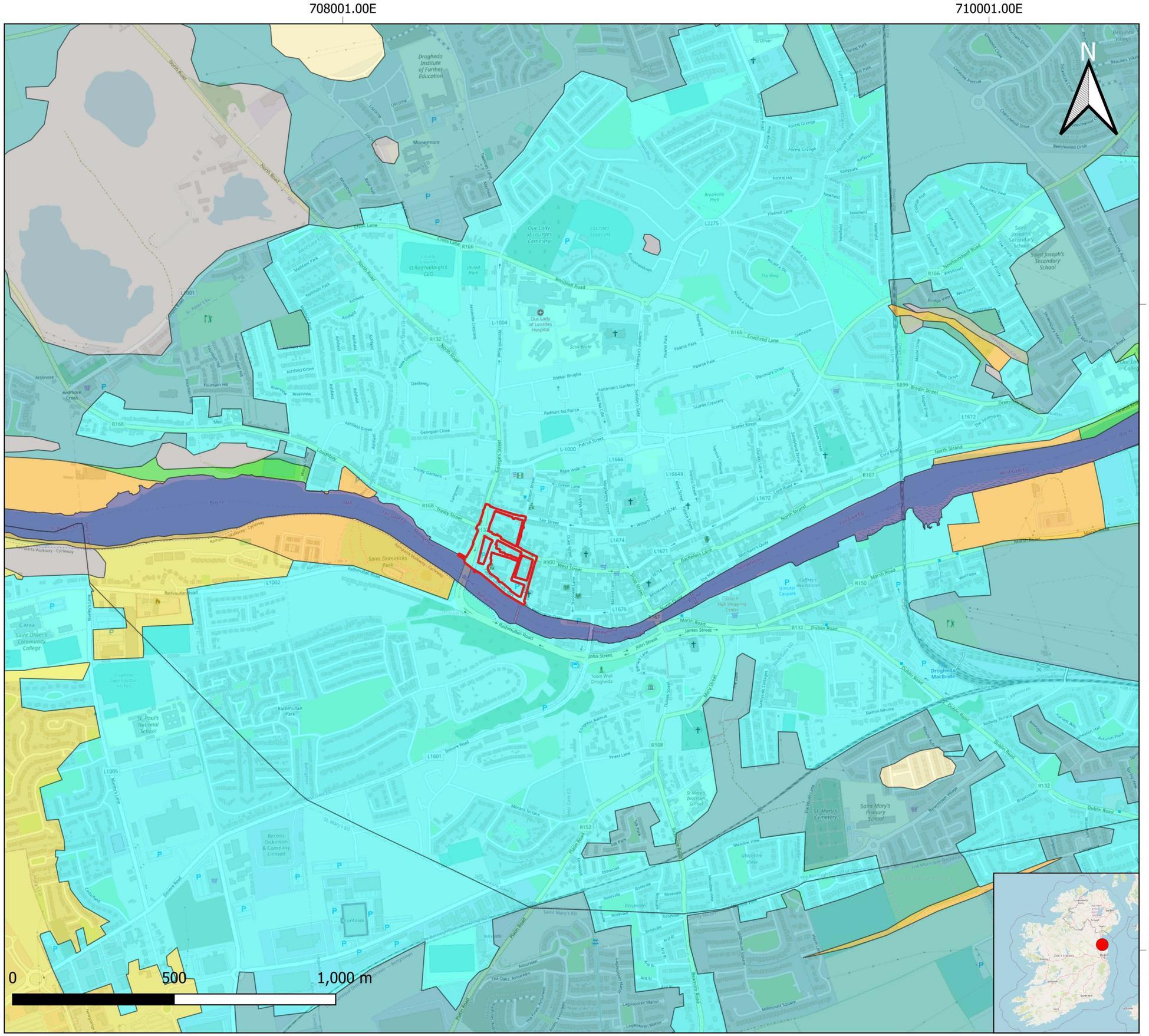
Geology

subsoils_ie

- A - Alluvium undifferentiated gravelly
- GLPSsS - Sandstone and shale sands and gravels Lower Palaeozoic
- IrSTLPSsS - Sandstone and shale till LowerPalaeozoic
- KaRck - Karstified limestone bedrock at surface
- L - Lake sediments undifferentiated
- Made ground
- TLPSsS - Sandstone and shales till Devonian/Carboniferous
- Water

Base Layers

OpenStreetMap



Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.5 - Historic 25” Map

App-9.5(01)-Historic 25" Map

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Base Layers

603124_HistoricMap25_modified

Band 1 (Red)

Band 2 (Green)

Band 3 (Blue)

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
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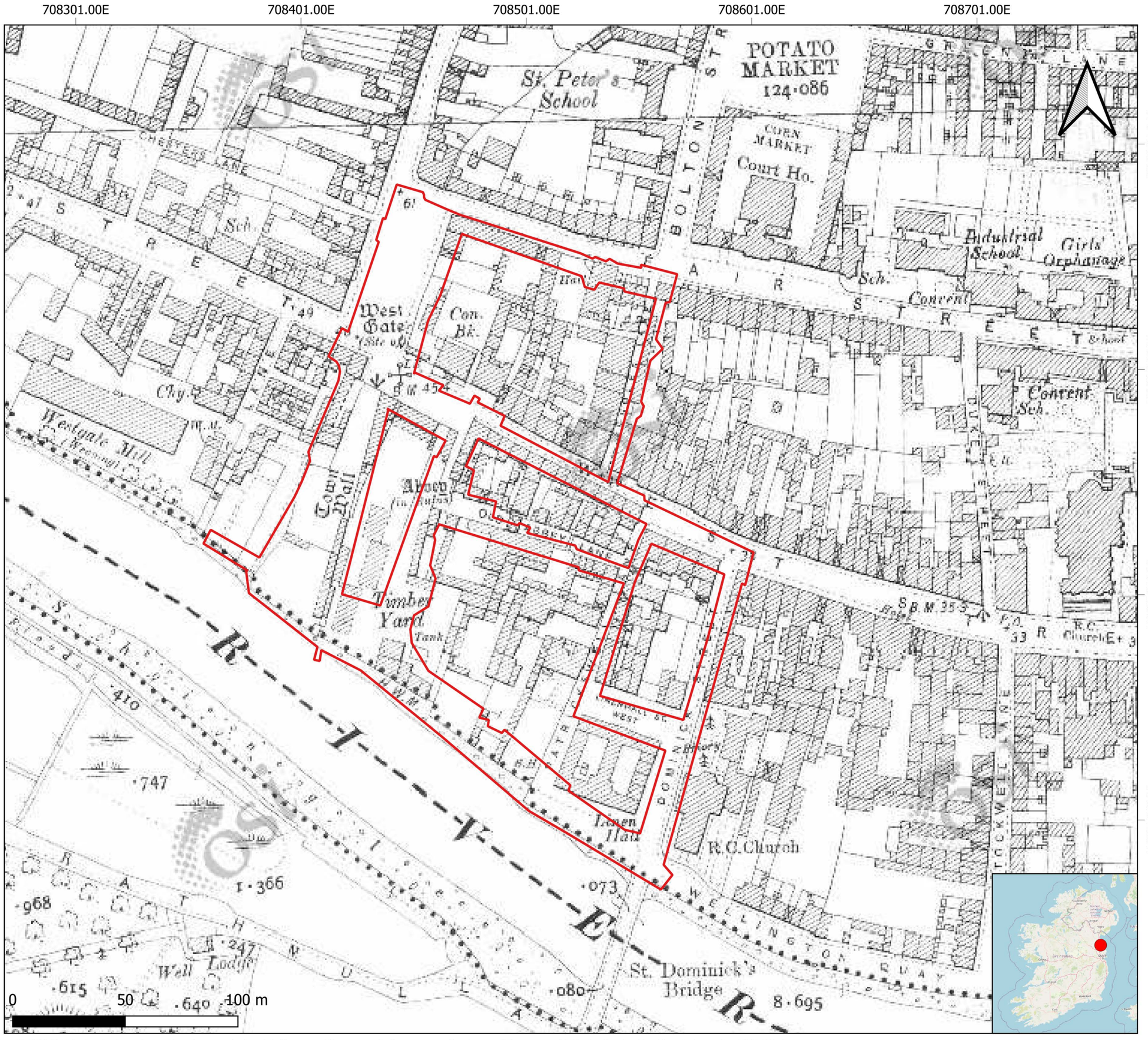
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.6 – Mapped Land Use

App-9.6(01)-Mapped Land Use

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Geology

EPA Corine Land Use 2018

- 112 - Discontinuous urban fabric
- 121 - Industrial or commercial units
- 122 - Road and rail networks and associated land
- 132 - Dump sites
- 141 - Green urban areas
- 211 - Non-irrigated arable land
- 222 - Fruit trees and berry plantations
- 231 - Pastures
- 242 - Complex cultivation patterns
- 313 - Mixed forest
- 421 - Salt marshes
- 511 - Water courses

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
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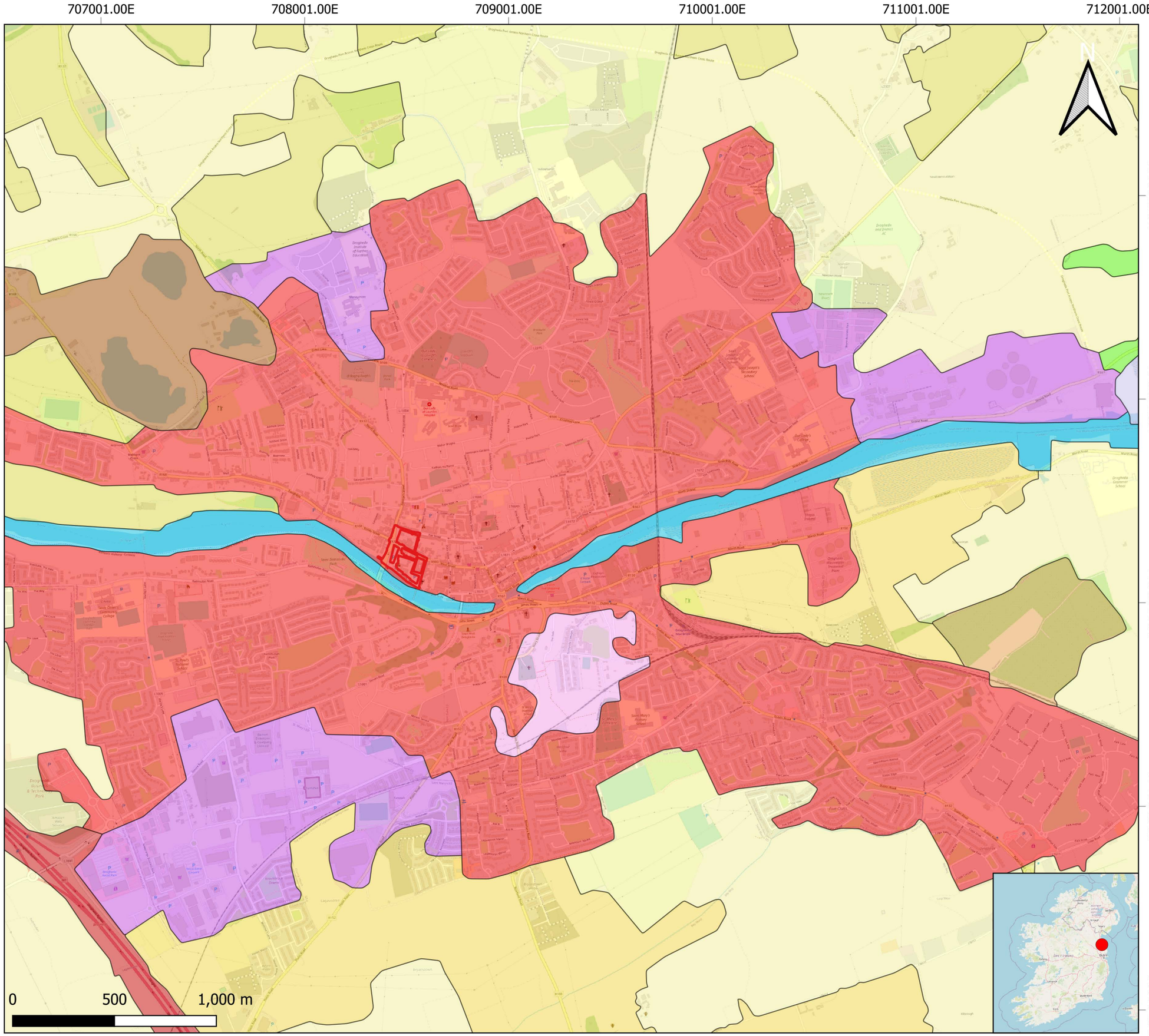


Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.7 – Mapped Special Areas of Conservation

App-9.7(01)-Mapped Special Areas of Conservation

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrology

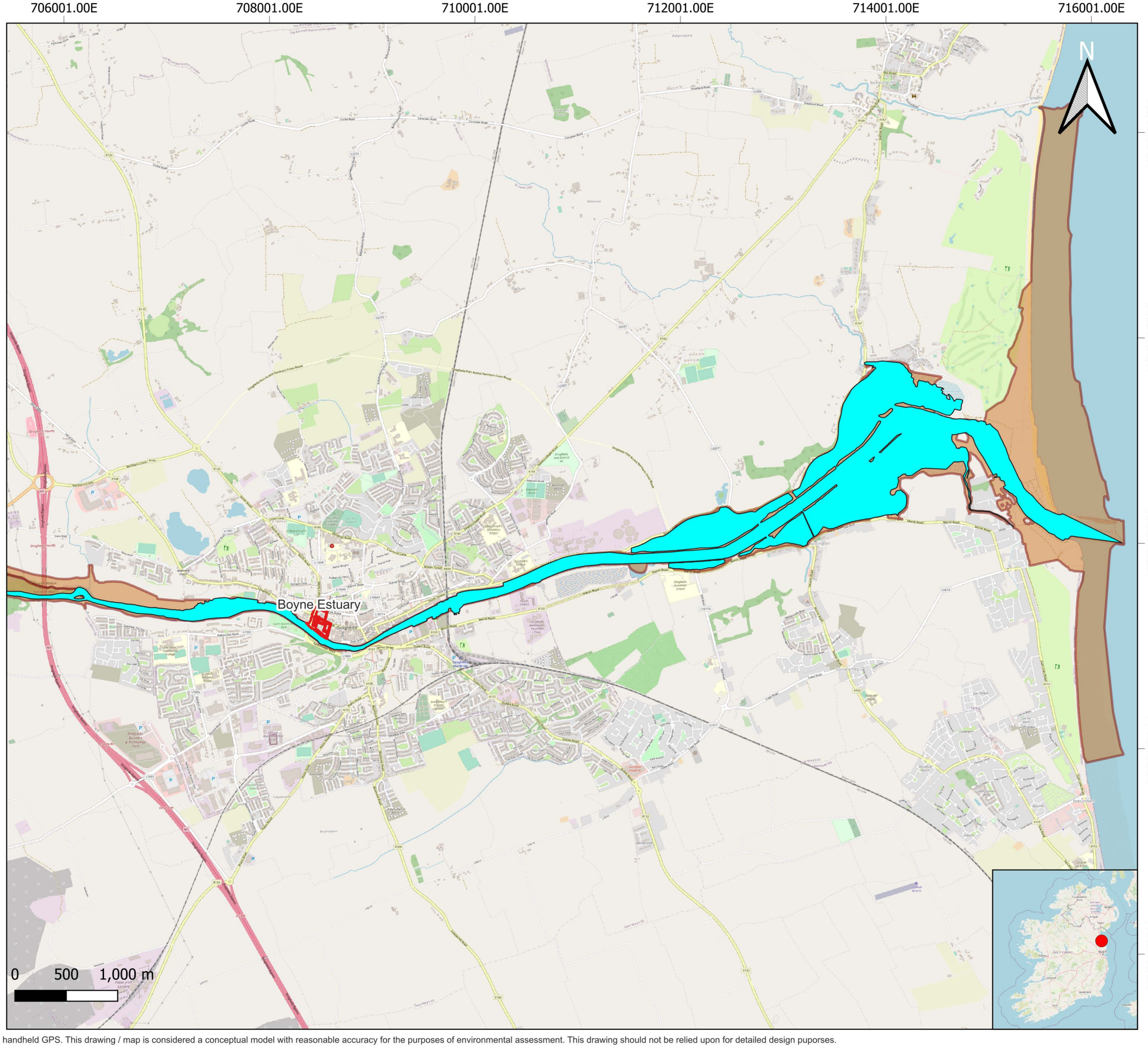
WFDTransitionalWaterbodies_Risk_Cycle3

Designated Areas

Special Area of Conservation (SAC)

Base Layers

OpenStreetMap



Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.8 – Mapped National Heritage Areas

App-9.8(01)-Mapped National Heritage Areas

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Designated Areas

Proposed Natural Heritage Areas (pNHA)

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
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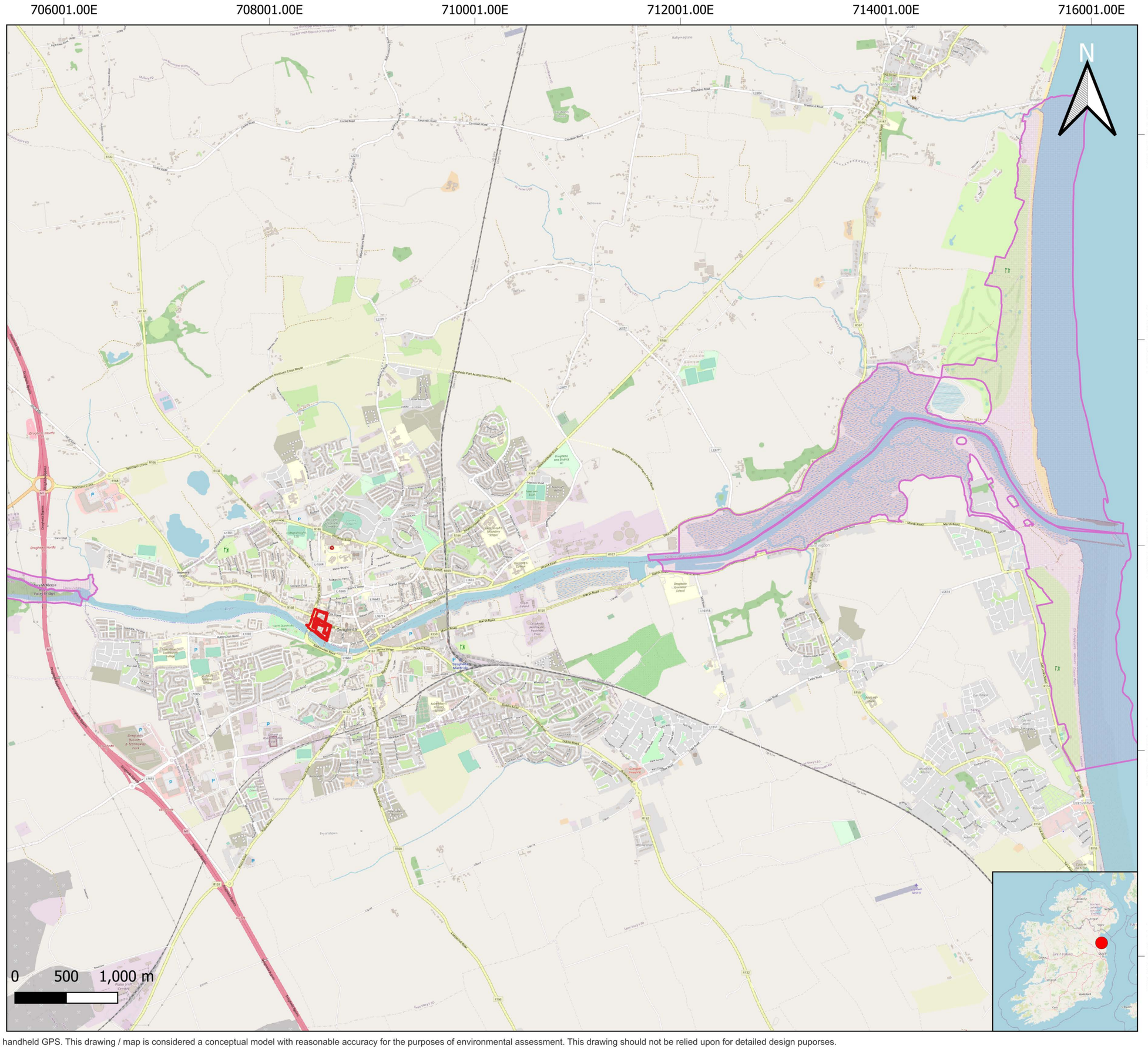


Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 9.9 – Preliminary Construction Environmental Management Plan

Louth County Council

Preliminary Construction Environmental Management Plan

Westgate 2040 Regeneration, Drogheda

Project no: 603903 (04)

OCTOBER 2023

RSK GENERAL NOTES

Project No.: 603903 (03)

Title: Preliminary Construction Environmental Management Plan: Westgate, Drogheda

Client: Louth County Council

Date: 12th October 2023

Office: Dublin

Status: **Final**

Authors:	Bronagh O'Reilly	Technical reviewer:	Michael Walls
Signatures:		Signature:	
Date:	12th October 2023	Date:	12th October 2023

CONTENTS

1 INTRODUCTION

Introduction

1.1 This preliminary Construction Environmental Management Plan (pCEMP) has been prepared by RSK as part of a planning application for public realm and urban regeneration works on lands within the Westgate Vision Area of Drogheda, Co Louth.

1.2 The pCEMP is intended to form the basis for management of the main environmental aspects of the construction of the proposal in order to protect the *River Boyne and River Blackwater SAC* or other downstream European sites and any residential and commercial neighbours in close proximity to the proposed scheme.

1.3 The project is currently at planning stage and as such input from the contractor has not been incorporated into the document. Upon appointment of the contractor, this preliminary document will be issued for further development as a final CEMP for the project. It will contain the site-specific control measures that will be applied by the Contractor and where relevant their sub-contractors during the construction stages of each element of the proposal. All works must be carried out in accordance with the mitigation measures outlined in this pCEMP, the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS) and necessary planning conditions.

1.4 A copy of the final CEMP will be provided to each Contractor working on behalf of Louth County Council and a copy maintained on site for reference by the entire workforce. It must be accessible to all site personnel, subcontractors and representatives of the relevant enforcement authority.

Scope

1.5 It is intended that this pCEMP will be expanded and updated by the appointed Contractor prior to construction works commencing. The aims of the CEMP are to:

- Ensure construction works and activities are completed in accordance with mitigation and best practice approach presented in the EIAR, NIS and any associated planning documentation;
- Ensure construction works and activities are completed in accordance with all planning conditions for the development and that the CEMP is updated as required;
- Ensure construction works and activities have minimal impact/disturbance to local landowners and the local community;
- Ensure construction works and activities have no adverse effect on the integrity of any European Site;
- Ensure that construction traffic to and from the site is strictly managed to avoid unnecessary traffic movements;
- Appoint a dedicated person, who will be on site to liaise with the Public regarding any concerns that they may have in relation to the site operation;

- Adopt a sustainable approach to construction; and,
- Provide adequate environmental training and awareness for all project personnel.

Document Structure

1.6 This pCEMP is structured as follows:

- Section 1 provides an introduction, with scope of the CEMP;
- Section 2 describes the project and overview of construction activities;
- Section 3 references contractual and legal requirements;
- Section 4 details key roles and responsibilities;
- Section 5 details the environmental mitigation measures to be employed during the construction phase;
- Section 6 details the methods of communication;
- Section 7 details the approach to environmental training, logs and site awareness;
- Section 8 details the emergency response and preparedness procedures in the event of an incident; and,
- Section 9 details the approach to monitoring and audit procedures.

2 THE PROJECT

Description of the Development

2.1 The proposed development consists of the following:

(1) Public realm improvement works comprising: new hard landscaping including resurfacing, soft landscaping including new tree planting, a water feature channel with stepped concrete elements and integrated landscaping, a Corten steel ground insert delineating the location of the former medieval town wall, a wayfinding Corten steel ground insert, Corten steel signs, Corten steel walkways, street furniture, new pedestrian connections, a SUDS rainwater retention pond, cycle lanes, pedestrian footpaths, external steps, tactile paving, road signs, cycle parking stands and provision of new railings;

(2) Public realm improvement works will also include the creation of a new urban plaza gateway/arrival area at Georges Square and a new enhanced public amenity area adjacent the River Boyne riverfront including a new pedestrian wooden deck promenade/boardwalk;

(3) Demolition of the existing public toilet block at George's Square (between the junctions of George's Street/Fair Street and George's Street/West Street), a section of boundary wall located between Old Abbey Lane and Father Connolly Way and a section of wall located between Dominick Street and Dominick Street car park;

(4) A new raised, free-standing, curved walkway located between the R132 and the existing Medieval Wall to provide a universally accessible connection from West Street to the River Boyne riverfront;

(5) A new freestanding Corten steel pavilion located adjacent the River Boyne riverfront to create a new mixed use/public space;

(6) A new freestanding Corten steel canopy located within, and offset from, the remains of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) to create a new flexible community and cultural space;

(7) Two freestanding Corten steel structures located at the junction of West Street and the R132/George's Street to mark the location of the former medieval West Gate;

(8) Repair and restoration of the old Medieval Wall located adjacent the R132/George's Street (being a Protected Structure – ID No. DB-188 and a recorded monument - RMP No. LH024-041014);

(9) Repair and restoration of the Old Abbey (being a Protected Structure – ID No. DB-187 and a recorded monument - RMP No. LH024-041011) including the west gable of its north aisle located within Old Abbey Lane;

(10) Reprioritisation of traffic and movement patterns for the streets/roads/lanes/footpaths within the application site to accommodate the proposed public realm improvement works and integrate with the Council's emerging Active Travel projects to the north and south of George's Street/R132;

(11) Road improvement works to include alteration of road alignment, resurfacing, shared surface treatments, revised access arrangements, cycle lanes, pedestrian crossing points, parking bays, loading bays, accessible parking bays, bus stops and new public lighting; and

(12) All associated site works including: drainage, undergrounding of services and all associated ancillary development works.

2.2 The overall objective of the 'Westgate 2040' project' is to act as a catalyst to support positive regeneration, compact growth and sustainable development.

Site Location and Plan

2.3 The application site is located on the northern bank of the River Boyne in the western side of Drogheda Town centred at Irish Grid Reference O 08445, 75254. It measures approximately 1.89 hectares and includes the following lanes/streets/roads/areas and their adjoining footpath/public realm/junction areas: R132/Bridge of Peace/George's Street (including the underpass on the northern side of the River Boyne); George's Square; Father Connolly Way (including part of an existing car park area); Dominick Street; Patrickswell Lane; Old Abbey Lane (including an area to the rear of 56/57 West Street); Scholes Lane; R900/West Street/Narrow West Street; Fair Street; and Wellington Quay, in the townland of Moneymore, Drogheda, Co Louth.

2.4 The western margins of the site extend from the Bridge of Peace northwards along George's Street to the junction with Fair Street. The northern area of the Application Site extends along Fair Street to the junction with Bolton Street with the east boundary marked by Scholes Lane which extends south to West Street and Dominic Street. The southern extents of the proposal extend from Dominic Street in the southeast corner back toward the Bridge of Peace along Father Connolly Way. The River Boyne Estuary flows past the southern boundary of the Site. The redline boundary of the Site is detailed on Figure 1.

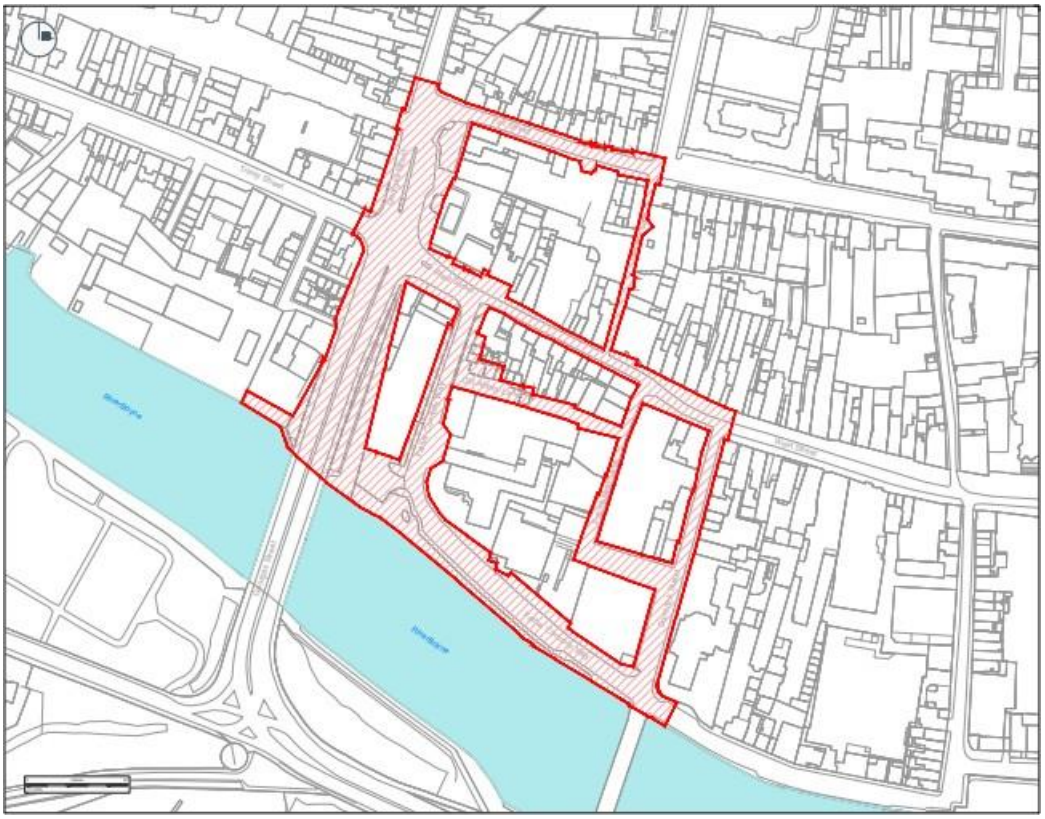


Figure 1: Redline boundary of the Site

2.5 The topography across the site varies considerably with levels between 3.5 – 4.5m AOD along the Riverfront area/Father Connolly Way rising to 8.0 – 11.0m AOD along West Street, located north of 'The Old Abbey', and up to 17 – 18m AOD at Fair Street on the northern boundary of the Site.

2.6 The closest major waterbody to the Site is the River Boyne, which flows adjacent to the southern boundary of the Site. The river is estuarine at this point, mixed with the tidal waters of the Irish Sea. The estuary meets the coast approx. 9 km downstream. Under the Water Framework Directive status assessments 2013 – 2018, the transitional waters of the River Boyne are of Moderate status, as are the coastal waters at the mouth of the river.

2.7 The Natura Impact Statement (NIS) prepared for the proposed development identifies that the southern boundary of the application site adjoins the River Boyne and River Blackwater Special Areas of Conservation (SAC), and a small section of the application site is located within the SAC. However, the NIS confirms that none of the qualifying interests of the SAC are located within this small overlapping area of the subject site.

2.8 The site will be served by existing foul and storm water drainage systems. No modifications to the existing drainage system are proposed.

Project Programme

2.9 A procurement process will commence, upon securing planning approval to appoint a competent and experienced Contractor for delivering the proposed works. The construction phase is currently estimated to be five years.

2.10 The Contractor, once appointed, will develop a detailed construction work programme including plans to minimise risks to construction workers and local residents from dust, noise and vibration and procedures and measures to prevent pollution entering the water environment. The contractor will also address any restrictions when undertaking certain tasks within sensitive bird breeding seasons etc. to avoid or prevent the impact of the construction of the identified species within the site and its environs.

Construction Management

2.11 The appointed Contractor for the works will be required to comply with this CEMP and any revisions made to the document. A broad overview of the proposed construction methodologies is provided below.

Site set up and Compound

2.12 A compound where practicable will be set up as part of the initial preparation works in each work area. The site compound will not be located adjacent to or beside the River Boyne and River Blackwater Special Areas of Conservation. It is proposed that the site compound will be positioned outside of a 50 metre buffer zone from the edge of the river bank. If necessary this requirement can be secured by the implementation of a planning condition.

2.13 The Contractor will ensure that the following information is displayed in the compound as

a minimum:

- Traffic Management and Site Information/Services Plan;
- Silt Run-off Prevention and Protection Poster;
- Name and contact details of person(s) accountable for air quality and dust issues on the site boundary;
- Head or regional office contact information; and,
- Nominated Community Liaison Officer.

2.14 The compound will provide a site office, canteen, first aid room and welfare facilities as well as foul drainage and potable water supply and a designated storage area for materials and wastes.

2.15 Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure.

2.16 All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works and the area will be restored as required.

Site Access

2.17 The existing road network adjacent to each work area will be utilised by all construction vehicles and personnel.

2.18 A set down area for deliveries and temporary storage of construction materials may need to be established at each work area. Each work area is to be clearly demarcated and managed to ensure it is well ordered and tidy in line with good site management practice.

Parking

2.19 Construction personnel will use the nearest available public carpark where feasible when working in each area of the development. The contractor will ensure that construction machinery and plant is sited on impermeable hardstanding only.

2.20 No parking shall be permitted by any site personnel outside the red boundary line of the work area where practical.

Hoarding and Fencing

2.21 Fencing demarcating the boundary of the site, during construction, will be a combination of double clipped traditional secure heras panels (with feet and rakers) and 2.4m timber hoarding either secured to the ground or ballast block.

2.22 The purpose of the 2.4m hoarding will be to act as a buffer with any noise or dust emissions and to minimise any visual impacts by screening the workings areas, plant and equipment.

2.23 Appropriate sight lines / visibility splays will be maintained around the site to ensure the safety of both vehicles and pedestrians.

2.24 Signs will be erected on the boundary hoarding that describes the site as being a construction site, accessible to workers and authorised personnel only, i.e., “Construction

Site – Do Not Enter – Authorised Personnel Only".

2.25 Display information boards will also be erected detailing out of hours contact details, telephone helpline number (for comments / complaints) and information on the works.

Security

2.26 The Contractor will provide site security in the area of the construction that is sufficient and adequate to ensure that the work area is secure and protected from unauthorised access and casual trespass for the duration of the works.

2.27 The following security measures will be provided:

- Site and compound boundaries i.e., fencing, gates, locks etc;
- Deterrence of stockpiling materials close to site / compound boundaries, so they cannot be used for unwanted access;
- Polluting materials to be well secured;
- Procedure to inform Garda Síochána about the site and taking their advice on security; and,
- Procedure for dealing with vandalism, graffiti etc.

Site Lighting

2.28 Entry and egress routes to the site will be illuminated via approved street lighting arrangements. Lighting will be positioned so as not to cause a distraction to passing motorists.

2.29 Site task lighting will have a low lux level and be maintained at a low trajectory only so as to prevent over spill to surrounding properties, ecological receptors or structures used by protected species.

Working hours

2.30 The normal hours of working on any part of the development during the construction period will be:

- 07:00 hours to 19.00 hours Mondays to Fridays; and,
- 07:00 hours to 13:00 hours on Saturdays.

2.31 The following controls will also apply to the works:

- No construction work or operational machinery will be permitted between the hours of 23:00 to 07:00hrs;
- No work will be permitted on Sundays and on public holidays; and,
- There will be no stacking of lorries on the site boundary outside of the working hours.

2.32 Any works outside these normal hours will be subject to the requirement to obtain consent from Louth County Council. The agreement of works outside normal hours should include detail of the site specific working hours and work methods to ensure that the 'best

practicable' means to control potential nuisance are included.

Construction Activities

2.33 Construction activities will involve all the necessary operations to construct the development as described. A high-level overview of the construction activities involved is provided below. This list is not exhaustive and is provided to give an overview of the typical nature of activities. Note also that the precise order in which these activities will take place is not known at this stage.

- Temporary Site Offices / Staff Welfare Units and Storage Compound;
- Site Clearance – isolate and remove existing utilities, demolition of toilet block and walls; vegetation removal, topsoil stripping, storage of topsoil for future reuse, breakout of hardstanding, storage removal of excess spoil;
- Construction of freestanding corten steel pavilions, structures and ground insert - foundation trenching, establishment of foundations, installation of utilities, importation of building materials by HGV, storage of building materials, erection of unit, erection of scaffolding, roofing, fit out of unit;
- Construction/ realignment of access routes and paving areas - site levelling, earthworks, soil compaction, installation of road base, kerbing, road drainage, tarmacking and paving surface; and,
- Tree planting and Landscaping and a SUDS feature; and
- A water feature channel with stepped concrete elements and integrated landscaping;
- Signage.

Typical Equipment

2.34 A list of typical equipment to be used on site during the construction period is summarised below;

- Hand Tools including Hammers, Crow Bars, Shovels, Wheelbarrows;
- Power Tools including Stihl Saws, Battery Drills, Angle Grinders;
- Machinery/Plant including 20t excavators, 1200 rollers, Generators, Hiab Lorry, mobile Crane, Lorries, Forklift, Scaffold including Hop Ups and Aluminium Towers;
- Pumps to enable excavation and service trenches to remain dry;
- Delivery vehicles articulated and non-articulated; and,
- Fuel tank delivery vehicles.

Site Clearance and Earthworks

2.35 Minor site clearance, earthworks and ground preparation will be required as part of the redevelopment at the riverfront area, Old Abbey and Medieval Wall and for the re-profiling of roadways, footpaths and cycle paths along with seating areas. No infilling works will be required. Best practice relating to site clearance, earth works and ground preparation will be implemented. Extra precautions will be put in place along the riverfront area to

minimise and avoid impacts on the River Boyne and River Blackwater Special Areas of Conservation (SAC).

2.36 Given the historic development of the area, and lack of site investigation reports at the time of drafting of the EIAR, further assessment of the underlying soils to determine their nature and potential presence of contamination may be required. A suitably qualified geo-environmental engineer should be engaged to undertake an assessment and intrusive investigation if deemed required prior to the commencement of any significant earthworks or excavations works that may be required as part of the proposal.

2.37 Stripping of topsoil will be coordinated with the proposed staging for the development. The extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work area(s).

2.38 Disturbed subsoil layers will be stabilised as soon as practicable (e.g., backfill of service trenches, construction of hardstanding, construction of building foundations).

2.39 Any infill material/landscaping that is required will be placed and levelled in appropriate lift thicknesses to ensure the material is not over compacted thereby retaining it drainage properties.

2.40 Efforts will be made to ensure that any soil from site clearance and excavation works is re-used on site. Any other waste that cannot be immediately recovered will be tested prior to disposal at the appropriately licensed facility.

Demolition Works

2.41 The proposal includes for the demolition of the toilet block at Georges Square, a section of wall between Father Connelly Way and Old Abbey Lane and a section of wall along the eastern boundary of Dominic Street car park, as demonstrated in the accompanying planning drawings (Insert No) All demolition will be undertaken by a competent demolition contractor in accordance with the current code for demolition and the consultant engineer's specification down to below foundation level. All works will be undertaken in accordance with current best practice[1].

2.42 Prior to the demolition works commencing, the Contractor will ensure that a pre-demolition survey is undertaken on all buildings and structures. In the event that asbestos containing materials are identified, these will be removed by an appropriately qualified and competent asbestos contractor prior to the demolition works commencing.

2.43 The demolition works will be scheduled to minimise any potential disturbance to wildlife using the site or surrounding environment, such as any breeding birds during the bird nesting season March 1st to 31st August. Best practice relating to site demolition works will be implemented. Extra precautions will be put in place along the riverfront area to minimise and avoid impacts on the River Boyne and River Blackwater Special Areas of Conservation (SAC).

2.44 If feasible, the waste generated from the demolition works will be segregated for reuse or recycling in accordance with the relevant legislation and guidelines and the project's Construction Waste Management Plan. Demolition will be carried out in a considered

[1] BEST PRACTICE GUIDELINES for the preparation of resource & waste management plans for construction & demolition projects Louth County Council

manner to reduce the amount of dust, debris and vibration. No crushing or screening of demolition material is proposed on site.

Preservation of Designated and Protected Areas

2.45 Buildings, such as the old Abbey within Old Abbey Lane and the Medieval walls along the eastern side of George's Street are identified as having heritage/archaeological value. Whilst no significant earthworks or excavation works are proposed on any designated sites or protected areas within the development area, the Contractor will implement the appropriate mitigation measures when working in close proximity to these areas to ensure that they are protected and preserved.

2.46 Best practice and precautions during construction will be put in place along the riverfront area to minimise and avoid impacts on the River Boyne and River Blackwater Special Areas of Conservation (SAC). These measures will be in accordance with those outlined in this pCEMP, the EIAR, NIS and any necessary planning conditions.

3 ENVIRONMENTAL POLICIES AND LEGAL REQUIREMENTS

3.1 All site works shall be undertaken in compliance with the CEMP and with all applicable legal and regulatory requirements.

Environmental Policies

3.2 As part of the appointment, the Contractor will provide a copy of their Safety and Environmental Policy. They will ensure that a copy of their Health, Safety and Environmental Policy is clearly displayed on site notice boards during the construction period. All employees are expected to comply with the requirements of the Environmental Policy.

3.3 The Contractor will ensure their employees and support staff (contractors, sub-contractors, suppliers etc.) actively promote and administer a strong environmental culture. To achieve this, a number of initiatives will be in operation during the life of the project. This will include the use of poster campaigns to raise awareness of topical subjects, and toolbox talks involving all members of the project team and site workforce.

Health and Safety Management

3.4 The Contractor shall be responsible for ensuring that the construction works Health and Safety Plan is implemented and followed on site. The works will be carried out in accordance with all relevant health and safety legislation and Codes of Practice and site rules relating to the works will be observed.

Legislation and other legal requirements

3.5 The Contractor shall comply as necessary with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act, The Construction Regulations (SI 291 of 2013), the General Application Regulations (SI 299 of 2007), etc. (and any amendments thereof). In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage.

3.6 A legislation register shall be held by the Contractor and reviewed periodically and updated as necessary. Any legislative changes shall be disseminated to project management immediately, after which the method statements of any affected operations shall be changed accordingly. A consents and licenses register shall also be held by the Contractor which will contain a schedule of all consent submissions and a tracker to confirm they are in place for the start of works. This will be tracked and managed by the Site Manager and confirmation and approved documentation will be sent to the HSEQ manager before works begin, when new consents are obtained, or when consent is withdrawn, or terminated.

4 ENVIRONMENTAL MANAGEMENT IMPLEMENTATION

Roles and Responsibilities

4.1 The appointed Contractor and all sub-contractors will be responsible for ensuring that the potential risks to the environment and local community are adequately avoided or controlled by the application of measures documented within this pCEMP. These will be further developed in their final CEMP and shall be complied with throughout the construction phase. The main organisations and persons involved in the construction stage works are set out below.

The Client

4.2 Louth County Council (LCC) shall be responsible for:

- Securing the land including access required for all works;
- Appointment of the Contractor;
- Setting and communicating appropriate standards for environmental management and ensuring that their environmental policy is delivered; and,
- Review and approval of the CEMP.

Appointed Contractor

4.3 The Contractor shall be responsible for:

- Appointing a Site Manager / Site Supervisor.

Site Manager / Site Supervisor

4.4 The Site Manager shall be responsible for:

- Undertaking weekly Site Compound Checks, and appointing persons to supervise refuelling of tanks and bowsers;
- Ensuring the required consents are in place before work starts;
- Ensuring environmental and waste requirements are included on requisitions and in subcontracts and orders;
- Ensuring oil, including diesel is stored in properly bunded tanks / drip trays;
- Ensuring Waste Transfer Notes / Waste Consignment Notes are checked against invoices before payment;
- Liaising with statutory authorities as required and ensuring records of communication (including verbal communication) are kept. Statutory authorities should always be accompanied on site visits;

- Ensuring employees, contractors and subcontractors implement the controls set out in the CEMP;
- Ensuring employees, contractors and subcontractors receive Induction Training (including project environmental issues) and Toolbox Talks, as appropriate;
- Ensuring personnel needed for audits are available when required;
- Verifying actions resulting from Corrective Action Requests and Observations raised during audits are completed by the deadlines;
- Ensuring environmental training is provided;
- Reporting incidents to the immediately, and to statutory authorities where required;
- Logging and monitoring incidents and non-conformances;
- Disseminating information, including changes to legislation, and relay to relevant contractor's employees;
- Identifying employees who require environmental training and maintain training records in line with the contract for the works;
- Providing advice and dealing with queries and correspondence on environmental issues;
- Identifying significant environmental impacts for the project and assist in setting up contracts to include the necessary controls;
- Monitoring the progress in closing out Corrective Action Requests and Observations raised during audits;
- Ensuring all records are retained and readily available;
- Carrying out monthly site audits; and,
- Appointing any third-party specialists as required.

All Staff

4.5 All staff have responsibility for the environment, responsibilities include but are not limited to:

- In the case of an incident, stopping work, implementing control procedures and reporting it to the Site Manager;
- Contacting the Waste Representative when waste needs collecting;
- Passing any queries or correspondence on public health or environmental issues to the Site Manager; and,
- Working in accordance with environmental procedures, the CEMP and Method Statements.

The Community Liaison Officer / LCC Engagement Officer

4.6 The Community Liaison Officer shall be responsible for:

- Responding to telephone and email queries within 48 hours of receipt;
- Sharing key contact information associated with site development with key stakeholders and update these details as required;
- As a general courtesy, alerting the community to any disruptive works one week in advance of commencement, where reasonably practicable;
- Minimising the impact of site traffic and associated parking on the local road network;
- Arranging any necessary meetings that may be requested by community representatives regarding any on-site issues; and,
- Circulating updates as required on the projects progress to include information of relevance and interest to the local community.

5 ENVIRONMENTAL MANAGEMENT OF SITE ACTIVITIES

General

5.1 The following outlines how potential impacts from the construction phase of the project will be mitigated.

Air Quality - Dust

5.2 During Construction, dust emissions from a site can cause a nuisance for neighbours and contribute to air pollution. The principal activities that have the potential to result in fugitive emissions of dust from site construction works are considered to be construction activity, earthworks and the movement of site traffic on paved and unpaved roadways. Dust can be spread onto the public highway and along public access paths by vehicles entering and exiting the site.

5.3 There are human receptors within 350m of the boundary of the site and within 50m of the track out route; therefore, construction dust may have the potential to cause an adverse effect in the local area. In addition there are designated ecological receptors within 50m of the track out route; therefore, construction dust may also have the potential to cause an adverse effect on ecological receptors.

5.4 The Contractor will develop a Dust Management Plan for the site to detail the controls to be applied throughout the construction phase to ensure that emissions are mitigated. The DMP will include details of any monitoring scheme, if appropriate. The elements of the DMP are provided in Table 1 below.

Table 1: Fugitive Dust Measures

Issue	Control Measure
Site planning	• Erect solid barriers as appropriate to site boundary to screen any proposed stockpiles on site. • Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary. • All site personnel to be fully trained . • Trained and responsible manager on site during working times to maintain logbook and carry out site inspections. • Plan site layout - machinery and dust causing activities should be located away from sensitive receptors.
Site Operations	• Maintain a complaint logbook for all dust and air quality complaints which includes source(s)/cause(s) and migration measures / controls taken to reduce emissions. • Store the complaints logbook on the site and make available to local authority on request.

Issue	Control Measure
	• Conduct regular dust inspections to monitor compliance with dust management plan, record the findings of the inspection within inspection logbook. Increase the frequency of the inspections during prolonged dry and windy conditions or when any activities with higher potential to produce dust are being conducted on site • If required, operations will be fully enclosed where there is a high potential for dust production, or the activities will take an extensive period to undertake. • Dust suppression techniques should be employed for cutting, grinding or sawing activities. • Earthworks and stockpiles will be sited and managed to avoid adverse effects from dust and to prevent damage to underlying soil. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. • Cover, seed or fence stockpiles to prevent wind 'whipping', where practicable for any long term storage of materials. • Use enclosed chutes and conveyors and covered skips. • Minimise dropping material from heights from conveyors, loading shovels or handling equipment and use fine water sprays on equipment where appropriate. • All vehicles to switch off engines when not in use - no idling vehicles • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. • Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas. • Site construction vehicles will be retained on site during the construction period. To minimise noise and emissions, all construction machinery will be switched off when not in use and speed limits imposed on internal roads and across the site • If possible, remove materials that have a potential to produce dust from the site as soon as possible. • Deliveries to and removal of plant, equipment, machinery and waste from the site to take place within permitted hours. • Materials deliveries report to site office and unload within materials storage area • Ensure equipment is readily available on site to clean any dry spillages • Use mobile bowsers and water cannons for dust suppressant where applicable. Move around the site as required. • Water should be administered as required (weather and site conditions dependant) • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless required

Issue	Control Measure
	• Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriate to prevent dust. • All site roads will be swept and sprayed with water in prolonged spells of dry weather to prevent dust causing a nuisance off-site • No site runoff of water or mud permitted • Ensure all site fencing, barriers and scaffolding is clean • No bonfires or burning of wastes to be permitted on site • Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Demolition	• Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust). • Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. • Avoid explosive blasting, using appropriate manual or mechanical alternatives. • Bag and remove any biological debris or damp down such material before demolition.
Track out	• Avoid scabbling (roughening of concrete surfaces) if possible. • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. • Avoid dry sweeping of large areas. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport. • Record any inspections of haul routes and any subsequent action in the site logbook. • Install hard surfaced haul route, which are regularly cleaned and damped down with fixed or mobile sprinkler systems, or mobile water bowsers • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permit.

5.5 Regular dust monitoring as part of site inspections will be undertaken to monitor compliance with the DMP and particularly during critical construction periods at nearby

sensitive locations and/or development site boundaries. Monitoring will include dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundaries.

5.6 Dust deposition, dust flux, or real-time PM10 continuous monitoring locations and duration (including baseline monitoring) will be agreed with the local authority as required.

Noise and Vibration

5.7 During the construction phase, the range of activities with potential to generate noise and vibration emissions to off-site sensitive receptors will include site clearance, ground excavation works, construction of the proposed development, landscaping and erection of any temporary buildings/compounds that may be required.

5.8 The nearest sensitive locations (NSL's) with regards to noise to the proposed development are a number of residential dwellings which surround the site at various points. The distance between the construction site and nearby NSL's varies, the closest distance between the site and neighbouring dwelling will be approximately 10 metres but generally construction works will occur between 15 and 100 metres from existing dwellings, depending on the location where specific works are occurring.

5.9 A baseline noise survey has been undertaken as part of the planning application prepared for the proposed development in general accordance with ISO 1996-2:2017 A*coustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels.* Specific details are set out in the following sections. The implementation of the below suitable control measures will ensure that the impact is minimised.

5.10 Works associated with the site preparation and landscaping are likely to be the most significant construction noise sources, due to the proximity of these works to site perimeters. Other general construction works occurring close to the site boundary adjoining neighbouring dwellings also have the potential to generate significant short-term noise impacts. Noise mitigation measures will therefore be necessary in order to reduce impacts as far as is reasonably practicable.

General Construction Noise

5.11 The Contractor shall ensure to comply with BS 5228-1:2009+A1:2014 *and* BS 5228-2:2009+A1:2014 *Parts 1 and 2 "Code of practice for noise and vibration control on construction and open sites*" and Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.

5.12 The Contractor shall at all times apply the principles of Best Practicable Means and carry out all construction work in such a manner as to reduce any disturbance from noise and vibration to a minimum.

5.13 No construction work will be permitted, nor plant or machinery operated outside the hours of:

- Monday to Friday 07.00 - 19.00
- Saturday 07.00 – 13.00
- Sunday & Bank Holidays - No workings without prior authorisation

5.14 The appointed Contractor will monitor levels of noise and vibration during critical construction periods at nearby sensitive locations and/or development site boundaries.

5.15 Site hoarding, minimum 2.0m height will be appropriately positioned around the perimeter of the construction site for the duration of works where the distance of works is 30m or less to nearby noise sensitive locations to buffer any noise transmitted from plant, equipment and vehicles entering or existing the site.

5.16 In exceptional circumstances, and subject to agreement with the Local Authority, extended hours of operation may be applied for. In such instances an assessment of potential noise impacts shall be carried out in advance of works taking place, and submitted to the Local Authority, as part of the extended hours request.

5.17 Monitoring of construction noise and vibration levels will be undertaken at the closest noise sensitive locations.

5.18 Site access roads will be kept maintained so as to mitigate the potential for vibration from lorries.

5.19 The Contractor will ensure that a site representative is appointed to be responsible for all matters relating to noise and vibration.

5.20 Generators and other potentially noisy plant will be located away as far from sensitive receptors as is practical and vibration isolated support structures will be used where necessary.

5.21 Noisy plant such as generators or high duty compressors will be screened as appropriate to prevent nuisance. No generators or machinery will be permitted to operate at night (is between the hours of 23:00-07:00hrs).

5.22 All appropriate equipment will be fitted with silencers, mufflers or acoustic covers where possible.

5.23 Any plant or machinery that will be used intermittently will be shut down when not in use or throttled back to a minimum.

5.24 All plant and equipment will be maintained by trained personal to ensure noise emissions are reduced, this may include but not be limited to the proper use any maintenance of tools and equipment, the positing of machinery on site to reduce the emission of noise, the avoidance of unnecessary noise, the protection of persons against noise and the operation of sound measuring equipment.

Vehicle Noise

5.25 Vehicles and plant used during construction will be maintained in good and efficient working order. When not in use machinery is to be switched off and not left running. Site vehicles will not be over-revved.

5.26 All machinery will be properly maintained and silenced according to manufacturer's instructions.

5.27 Acoustic covers will be fitted to appropriate machinery.

5.28 All vehicles to observe set speed limits on site and local roads.

5.29 Toolbox talks will be communicated to site staff and contractors so that they are fully informed of noise and vibration control.

Pollution Control

General

5.30 The Contractor will adhere to best practice guidance as detailed below, particularly the CIRIA guidance document C532 Control of water pollution from construction sites. The construction approach will also adhere to the requirements set out in the Inland Fisheries Ireland guidance document Requirements for the Protection of Fisheries Habitat during Construction and Development Works and Development Sites.

- The Good Practice Guidance notes proposed by EA/SEPA/EHS:
- PPG 1: Understanding your environmental responsibilities - good environmental practices
- GPP 2: Above ground oil storage tanks
- PPG 3: Use and design of oil separators in surface water drainage systems
- GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer
- GPP 5: Works and maintenance in or near water
- PPG 6: Working at construction and demolition sites
- PPG 7: Safe storage - The safe operation of refuelling facilities
- GPP 8: Safe storage and disposal of used oils
- GPP 8: Safe storage and disposal of used oils
- GPP 8: Safe storage and disposal of used oils
- GPP 19: Vehicles: Service and Repair
- GPP 21: Pollution incident response planning
- GPP 22: Dealing with spills
- GPP 26 Safe storage - drums and intermediate bulk containers
- PPG 27: Installation, decommissioning and removal of underground storage tanks
- CIRIA Environmental Good Practice on Site.
- CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.
- CIRIA SuDS Manual Technical Guidance C697.
- Development on Unstable Land. Department of Environment (DOE), UK.

5.31 Where possible, hard surfaces that are positively drained will be laid at an early stage in the construction to allow permanent facilities to be used to collect silt and hydrocarbons.

5.32 The extent of exposed ground will be minimised at all times during construction and any stockpiles of mud, sand or other fine sediments will be stored at least 50m from the River Boyne. Stockpiles will be levelled and compacted, and will be covered with thick plastic membranes in order to prevent the creation of contaminated run off.

Surface Water Run-off and Silt Mitigation

5.33 No pollutants, including sediments will be allowed to enter any surface watercourse or to the River Boyne and River Blackwater SAC during construction activities. The Contractor will follow the principles of the CEMP in order to prevent sediment or other contaminates entering any adjacent watercourse.

5.34 It is proposed to maintain existing on-site levels as far as is practical, which will reduce the volumes of soils being disturbed and soils being stockpiled which will reduce the potential for sediment run-off and sediment loading of surface waters.

5.35 All watercourses drain and potential conduits for silt laden runoff will be identified and where necessary, measures shall be taken to minimise direct sediment run-off from the working site into watercourses.

5.36 No permanent, or semi-permanent stockpile will remain on the site during the construction phase of the Development.

5.37 Suitable locations for temporary stockpiles will be identified on a case-by-case basis. The suitability of any particular location will consider characteristics of the proposed site including; slope incline and topography, drainage networks in the vicinity and proximity to same, other relevant characteristics which are likely to facilitate, increase, or compound the potential for entrainment by surface water runoff.

5.38 Temporary stockpiles will be covered with plastic sheeting during all relatively heavy rainfall events and during periods where works have temporarily ceased before completion at a particular area (e.g. weekends).

5.39 Earthworks will be limited to seasonally dry periods and will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period, or high winds).

5.40 Silt fencing will be installed around the perimeter of the site at any locations where surface water is likely to run off, directly into the River Boyne. This could include the river bank, land drains, natural depressions in the soil surface, or any other geomorphological feature which might accommodate surface water run-off.

5.41 The location of the silt fencing will be finalised by the Contractor in accordance with their programme of works and detailed within the final CEMP prepared for the site. The purpose of the silt fencing will be to prevent silt leaving the site in run-off water and entering adjacent land with the potential to impact nearby watercourses.

5.42 Silt fences will consist of a geotextile membrane fixed to wooden stakes approximately 600 mm high. The membrane will be anchored into the ground to form a continuous barrier with the soil surface. Silt fences will be monitored and maintained when necessary during the construction period. Maintenance will include the replacement of the geotextile when damaged and the removal of any silt build-up on the upslope side of the silt fence. Silt fences will be temporary features but will remain in place for a period following the completion of the Construction Phase.

5.43 Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident. See list of emergency contact numbers in Table 3, Section 8.

5.44 Road sweepers will be employed to clean the site access route as required. For example, Any hard surface site roads will be swept to remove mud and aggregate materials from their surface.

5.45 Terram will be placed under new drain covers and in road gullies, where appropriate, in order to intercept silt-laden surface run-off and prevent it from entering the surface water drainage network. This mitigation will be assessed on a regular basis (especially after heavy rain) and maintained if required.

5.46 The Contractor shall provide dedicated persons to ensure that the required mitigation is installed and maintained to an appropriate standard. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.

Water Pumping

5.47 If pumping of water is required onsite, this will be done by pumping water, through terram and/or through installed silt fencing or into a settlement tank / pond using Green Rhino Sediment Filters. These methods will slow the water flow and filter any potential silt from the water. The suspended solids will be left to settle, and then discharged via a buffered outflow to a soakaway that is at least 50m from the River Boyne.

5.48 The requirement for water pumping will be planned in advance (as far as is practicable).

5.49 The Contractor will ensure that all necessary discharge consents are in place before commencing any dewatering activities.

Storage of fuels and hazardous materials

5.50 Any temporary storage areas for chemicals or fuels will be contained within impermeable bunds constructed in line with current best practice. Pollution Prevention Plans will be prepared, and site staff trained to implement them.

5.51 Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity, within the lay down area. The integrity and water

tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.

5.52 Consideration will be given to the phasing of construction to reduce the time when temporary facilities for storage of chemicals refuelling, and vehicle maintenance are used to a minimum.

5.53 Diesel shall be stored in integral bunded fuel bowers. All connections shall be situated within the bund. Fuel shall be stored at least 50m away from any watercourse, where practicable.

5.54 Oils and lubricants used on the site shall be stored in temporary vessels designed to hold 110% of the containers. No oil or lubricants shall be stored within 50m of a watercourse, where practicable.

5.55 Refuelling will only take place in designated areas away from surface water drainage systems, on hardstanding, by appropriately trained personnel. The funnels/nozzles used will be appropriate to the equipment being used.

5.56 Refuelling on the site shall be undertaken at least 50m from any given watercourses (where practicable); mobile plant shall be pulled back from watercourses for refuelling as far as possible and in line with best practice to ensure protection of the water environment

5.57 Tanks will be locked when not in use.

5.58 All plant shall be checked for leaks of fuel and lubricants before being allowed onto the site.

5.59 Pumps and generators used on the site will have integral drip trays where possible. All items of plant without an integral drip tray shall be stored over a portable drip tray. Drip trays shall be inspected and kept free of accumulated rainwater as necessary. Any oily water shall be disposed of at an appropriate licensed facility.

5.60 Any cleaning/arisings from drip trays etc. to be disposed of as hazardous waste in accordance with applicable guidance and legislation.

All oil, fuel etc. storage areas will be decommissioned upon completion of the construction phase.

Cement / Concrete

5.61 Wet concrete operations will be carried out in dry conditions. Operations will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24 hour period or high winds).

5.62 All concrete pours will be carefully planned, and special procedures adopted as required.

5.63 Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage.

5.64 Smaller individual amounts for grouting and patching may need to be mixed on site, as well as larger amounts for general block and brick laying. All washout material and spillage will be contained to prevent cement material from entering the watercourse.

5.65 The wash-out will comprise either a lined skip or a pit lined with heavy-gauge polythene and will be located >50m from the River Boyne.

5.66 No wash down or washout of concrete trucks will be undertaken on site. The wash down or washout of trucks will take place off site in an appropriate facility.

5.67 All vehicles used to transport the cement around the site will be suitable for the amount to be carried. Extra care is to be taken when using public roads and these will be assessed for suitability in transporting large loads.

5.68 All staff should be informed of washing procedures.

5.69 Concrete batching will take place off site or in a designed area with an impermeable surface.

5.70 Excess concrete remaining after a pour will be returned to the batch plant.

5.71 At completion of each work section, solidified concrete will be broken out and disposed of in accordance with the Waste Management Plan.

5.72 If any cement-based products are to be stored on-site, they will be kept in a sheltered area at least 50m from the River Boyne, and covered (e.g. with a thick plastic membrane) to prevent spread by wind.

Flood Risk and Drainage Strategy

5.73 The River Boyne, at the location of the Application Site is a transitional waterbody, and is influenced by both fluvial and coastal waters. The Flood Risk Assessment (FRA) completed by NOD in November 2023 confirms that some areas of the development are at risk from fluvial and coastal flooding, namely the Riverfront area (Father Connolly Way) and lower section of Dominic Street and St Patrickswell Lane as these areas are located are within Flood Zone A and Flood Zone B.

5.74 NOD's FRA identifies the risk of pluvial flooding, groundwater flooding and flooding from human / mechanical error as being low. Inundation from floodwaters will be mitigated through retained and replaced drainage infrastructure, increased soft landscaping areas and incorporation of a SuDS feature.

5.75 NOD's FRA conclued that the proposed development satisfies all the criteria applicable to development management and sustainable management of flood risk to an acceptable level has been demonstrated.

Drainage

5.76 It is assumed that the existing drainage infrastructure will be maintained given the superficial nature of the regeneration project and no new drainage will be engineered as part of the scheme.

5.77 There is no overall increase in hardstanding area and the use of SuDS will ensure that there will be no additional discharge to the existing surface water drains that would increase surface water runoff. Therefore, the baseline greenfield runoff rate (QBAR) will be maintained.

5.78 Site welfare facilities, where required during construction works, will connect to the existing foul sewer system (in consultation with and authorized by Irish Water) or bunded porta-loos will be utilised.

Ecology / Biodiversity

National Sites

5.79 The Natura Impact Statement (NIS) which accompanies the planning application package confirms that the southern boundary of the application site adjoins the River Boyne and River Blackwater SAC, and a small section of the application site along the river front is located within the SAC. However, the NIS advises that none of the qualifying interests of this SAC are within the overlapping section with the subject site, so there will be no direct effects on the SAC.

5.80 The NIS advises that the River Boyne and River Blackwater SAC has been designated to protect a range of habitats and species associated with the freshwater section of the River Boyne, including alluvial forests, salmon, lamprey and otter.

5.81 The Boyne Estuary SPA and Boyne Coast and Estuary SAC are located 2.2 km and 3.4 km downstream of the Application Site. The Site is not within or adjacent to any Natural Heritage Areas, however the River Boyne could potentially provide a potential surface water pathway to the aforementioned designated sites. All other pathways (via groundwater, land or air) can be ruled out due to distance. Please refer to the NIS for further details.

Loss of Habitat

5.82 The habitat survey completed for the site identified a range of habitats of local importance such as dry meadows and grassy verges, scrub, ornamental / non-native shrubs and the River Boyne Estuary. The River Boyne is considered to be of International importance, and the dry meadow to be of Local importance.

5.83 No invasive non-native species covered by legislation were recorded within the development site. Butterfly-bush Buddleja davidii was recorded at a number of locations throughout the site. It is a problematic species that colonises buildings and other built surfaces, occasionally causing structural damage. However, it is very widespread in urban environments, it is not legally-restricted, and it does not have a negative ecological impact, so it is not considered to be an Important Ecological Feature.

Bats

5.84 A number of buildings were identified as having features that could potentially be suitable for roosting bats. However, following a series of bat surveys, there was no evidence that any bats are roosting anywhere in the vicinity of the Application Site. Therefore, the site is of Negligible importance for roosting bats.

5.85 The majority of the Application Site and its immediate surroundings are considered to be of Negligible importance as a feeding area / commuting route for bats. The only feature of importance for bats would be the Boyne Estuary, particularly those areas with little or no artificial light.

5.86 Bat sensitive lighting will be employed for any new lighting proposed, particularly along Father Connolly Way and in the vicinity of the River Boyne which are likely to be used by bats. Bat boxes may also be installed to provide alternative roosting opportunities within the site, if required.

Birds

5.87 A number of common urban birds were recorded on the site, including feral pigeon, jackdaw, rook, hooded crow, starling and pied wagtail. No species of conservation concern were recorded.

5.88 Any tree or shrub removal, and demolition of buildings proposed will be carried out between September and February (inclusive). If this is not possible, an ecologist will survey relevant vegetation in advance in order to determine whether any nests are present. If any are encountered, the vegetation clearance will be delayed until the nesting attempt has been completed, e.g. when chicks have fledged and the nest has been abandoned.

5.89 Tree protection zones will be marked out by the Contractor for all retained trees and hedgerows in the vicinity of working areas.

Other Terrestrial Mammals

5.90 No mammals were observed during field surveys, nor any characteristic field signs of protected species. The urban habitats within the Application Site would be unsuitable for most terrestrial mammals due to the lack of vegetation, the high levels of human activity, and the prevalence of artificial lighting.

5.91 Given that a number of sensitive habitats and species were recorded in the vicinity of the proposed development site, the Contractor will employ an Ecological Clerk of Works (ECoW) to oversee the implementation of the mitigation measures outlined above.

5.92 The ECoW will be required to provide reports and written correspondence to the Employers' Representative as requested, in order to demonstrate compliance with the proposed mitigation measures.

Archaeology / Urban Heritage

5.93 Drogheda is rich in archaeological, architecture and urban heritage therefore there is potential for archaeological features to be present beneath the site. Grounds works associated with the development will therefore have the potential to impact on these features in the absence of measures to protect such features.

5.94 A programme of archaeological testing will be carried out prior to construction by an archaeologist under licence to the National Monuments Service as recommended in the Archaeological, Architectural and Cultural Heritage Chapter of the EIAR.

5.95 The Contractor will undertake all ground disturbance works in accordance with the advice

provided by the appointed archaeologist. In the event that any archaeological features are identified these will either be integrated into the development plans and preserved in situ or recorded and excavated under archaeological conditions.

5.96 In the event that further mitigation measures are required, the Contractor will ensure that no works proceed without prior approval from the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH).

Traffic Management

5.97 Construction traffic will consist of the following –

- Private vehicles owned and driven by site staff and management;
- Construction vehicles e.g., excavation plant, dump trucks; and,
- Materials delivery vehicles involved in site development works.

5.98 The Contractor shall prepare and implement a Traffic Management Plan (TMP) outlining procedures to follow and prescribed routes when working on the site. It is assumed that construction traffic will predominately travel along George's Street (R132) north and southbound and connect onto the N51 northbound and R152 southbound.

5.99 The TMP shall incorporate any restrictions imposed by the planning consents, National Roads Authority and/or the Garda Síochána. The TMP will include specific routing for construction traffic to each areas within the site and any restrictions on construction hours.

5.100 The TMP shall be circulated to all parties who are employed or have a legitimate interest in the works.

5.101 The Contractor shall ensure that Construction Traffic Routing Signs are erected prior to works commencing, and that these are maintained in good and clean condition throughout the duration of the works.

5.102 Management of Construction Traffic shall include the following measures:

- Construction Staff shall be encouraged to arrive before 8:00am and after 18:00pm to avoid the peak hour periods, where feasible;
- Managed parking shall be provided on site with staff encouraged to travel by sustainable means;
- Dedicated parking provisions shall be provided to prevent overspill onto surrounding network;
- Appointment of Construction Manager/Community Liaison Officer;
- Agreed haulage routes along designated HGV routes;
- Provision of wheel wash facilities;
- Road cleaning and sweeping along section of Mill Road adjacent to the site;

- Construction signage at all entrances and exits;
- HGVs inspected for dirt and mud before exiting onto public road network;
- Control and timing of deliveries where possible;
- Entrances and exits manned by flag men during deliveries.

Waste

5.103 The construction of the development will lead to the generation of waste. The key to minimising the production of waste is to implement the waste hierarchy of Prevent, Reuse, Recycle, Recover and Dispose. The Contractor will apply the principles in "*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Waste Projects"* to reduce the amount of materials used thereby minimising use of natural resources and reducing costs.

5.104 There is a minimal amount of waste expected to be generated on the site with the removal of some assumed hardstanding surfacing in areas and demolition of a wall and building structure.

5.105 The Contractor shall implement a Waste Strategy for the project to deal with waste generation during the construction phases.

5.106 The Waste Strategy will set out the requirements of the project including how the project will:

- Clearly identify all wastes that are likely to be produced during construction and classify them as 'controlled' ('general') or hazardous wastes;
- Minimise the waste generated;
- Reuse or recycle wherever possible;
- Collect, separate, store and contain securely and label all wastes;
- Allocate responsibility for waste management on site;
- Employ suitable licensed waste contractor(s) and audit their licence(s); and,
- Monitor and periodically audit the waste management scheme and activities.

5.107 The Waste Strategy will ensure the Application Site meets and maintains the legal waste requirements and will be regularly updated by the Contractor throughout the duration of the development.

5.108 Should there be limited or no opportunities for reuse of materials generated from the excavations required to facilitate construction, the material will require removal for offsite reuse, recovery, recycling and/or disposal. The Contractor will endeavor to ensure that material is reused or recovered off-site insofar as is reasonably practicable before considering disposal at an authorized facility.

5.109 All waste will be classified in line with current waste legislation and guidance (including, soils though WM3 and WAC assessment). The waste will be removed from site by an

appropriately licensed contractor; and disposed of at an appropriately licenced landfill or soil recovery facility.

5.110 A waste register will be maintained to collate all waste management Duty of Care documentation such as waste transfer notes and consignment notes and waste classification documentation, where applicable.

Contaminated Land

5.111 The presence of any significant unsuspected contamination which becomes evident during the development of the site shall be brought to the immediate attention of Louth County Council and where necessary the appropriate statutory authority and works in connection with the unsuspected contamination shall cease until such time as a remediation scheme has been submitted to and approved in writing by the Planning Service. The agreed remediation measures shall then be implemented in their entirety and appropriately verified in accordance with the planning consent for the site.

Energy Strategy & Sustainability

5.112 The Contractor will be pro-active to implement measures to address the procurement of materials, the environmental impact of materials and the sourcing of materials.

6 COMMUNICATION

Internal Communication

6.1 Environmental mitigation measures shall be incorporated into the Risk Assessments and Method Statements (RAMS) prepared by all contractors. All RAMS shall be communicated to the workforce by the Site Manager.

6.2 Weekly construction meetings shall be held during the construction phase. These meetings shall include health, safety and environmental matters such as

- Works activities underway and planned;
- Mitigation measures required to be implemented;
- Results of weekly inspections and any audit results/ feedback;
- Any corrective and preventive actions required to be implemented;
- Identification of areas for continual improvement;
- Status of staff competence and training needs; and,
- Status of the CEMP and of any required consents and approvals and the need for review and updating.

6.3 Any issues resulting from daily or weekly audits shall be discussed with appropriate corrective actions agreed. A 'weekly look ahead' shall be provided at the construction meeting where any environmental constraints or special requirements can be discussed and agreed in advance, where required.

6.4 The Site Manager shall conduct daily construction briefings, as required, to ensure site personnel are advised of any specific environmental requirements and constraints.

6.5 Toolbox talks will be scheduled as and when necessary, over the duration of the project.

6.6 The Contractor will directly and promptly communicate any environmental issues with the relevant body/department via phone or email.

6.7 Site notice boards will display the Environmental Policy of the Client, emergency contacts list, relevant statutory and non-statutory advice and guidance; and any other relevant information. These environmental notice boards will be situated in prominent positions including the main reception area of the site office / compound.

External Communication

6.8 Prior to works commencing on site adjacent residents/commercial users and/or their representatives will be informed on each phase of the development with particular emphasis on safety, traffic management and the control of noise and dust throughout the construction period. The contractor will promote and maintain excellent relationships with adjacent local residents, businesses, occupiers and the general public through regular communication and updates on construction activities that may affect them.

6.9 All communications received by the Contractor that are relevant to the works in site, including enquiries and complaints, shall be passed to the Site Manager.

6.10 If required by the Client any relevant contractors shall attend community engagement events, meetings, etc details of which shall be communicated to stakeholders in advance.

6.11 The Site Manager shall serve as the point of contact for the regulatory authorities for their specific activities. Communications from the regulatory authorities received at the site by the Site Manager shall be immediately reported to the Client.

6.12 A record of all communications shall be maintained by the Contractor.

6.13 Through the induction all members of the workforce shall be made aware that any direct approaches from members of the public should be directed to their Site Manager. The Site Manager shall record all approaches made by members of the public and shall advise the Client's Project Team of all comments received at the worksite from members of the public.

Public Liaison

6.14 The Contractor will establish early community relations with any adjacent residents and local community. All businesses and where relevant local residents shall be notified in advance of works commencing on site.

6.15 A Community Liaison Officer / LCC Engagement Officer will be appointed for the duration of the project and will be responsible for complaint management, public consultation and liaison with the public.

6.16 The Community Liaison Officer / LCC Engagement Officer will manage any complaints from the community in a fair and efficient manner and share key information associated with site development such as potential disruptive works as and when necessary.

Complaints Procedure

6.17 The Contractor shall put in place a system for recording, and responding to, all complaints received from third parties. The system shall include the timely reporting of all such complaints.

6.18 As a minimum the activity leading to the complaint should be stopped immediately; or where not possible to entirely stop the activity reduce it to the lowest possible level e.g., shut off all non-essential plant.

6.19 All complaints will be acknowledged by the Contractor or Louth County Council on receipt and assessed to determine what information is required from all parties in order to formulate a response. The complainant will be called on the same day if a phone number is provided. Where a phone number is not provided an email response shall be given within three days. All complaints shall be recorded and investigated.

Documentation

6.20 The Site Manager shall be responsible for documenting and retaining safe all suitable records relating to environmental issues at the site and/or arising from site operations. Documents shall be stored in a suitable manner and backups created to safeguard the records. This CEMP shall be a controlled document and authorised latest version shall be signed and dated by the responsible person[s]. Other site data records and environmental management documentation would include, but not necessarily be limited to the following:

- Copies of relevant consents, permissions, or other approvals/ authorisations;
- Environmental data records including waste transfer notes/ records of waste collection and treatment/disposal;
- Records of any environmental incidents including actions taken and resolution;
- Records of complaints including actions taken and resolution;
- Records of all plant / equipment entering / leaving site together with any relevant compliance documentation (for instance in respect of noise or air pollutant emissions class);
- Copies of any enforcement notices or instructions issued by the local authority or any statutory regulatory body;
- Record of any prosecutions pending or resolved, and any penalties enforced;
- Records of daily site inspections;
- Records of weekly/monthly audits and minutes of environmental team briefings; and,
- Records of staff training including site inductions and toolbox talks.

7 ENVIRONMENTAL TRAINING AND AWARENESS

Inductions

7.1 All project personnel and sub-contractors shall receive an Environmental Induction Presentation, prior to commencement of works onsite. No personnel, including sub-contractors, shall be permitted to commence employment on site without prior attendance at an induction.

7.2 Environmental topics covered in the induction shall include but will not be limited to:

- Water resources;
- Pollution prevention;
- Emergency response procedures;
- Waste management and housekeeping;
- Management structure;
- Duties and responsibilities;
- Relevant procedures;
- Ecologically sensitive areas;
- Incident reporting;
- Consents and licenses;
- Legislation; and,
- Environmental best practice.

Toolbox Talks

7.3 Regular 'Tool-Box Talks' on specialised topics shall supplement the induction course. Toolbox talks shall be used to highlight issues of concern and to disseminate new information not previously provided. They will also offer site personnel with the opportunity to provide feedback.

7.4 Tool-Box Talks shall include, but will not be limited to, instances where:

- There is a change to existing legislation, which requires an operational change;
- Site inspections or audits have identified corrective actions which require rolling out;
- Work is being undertaken in environmentally sensitive areas;
- There are significant changes in environmental conditions, i.e., heavy rainfall.

7.5 The frequency and topics of the Toolbox Talks shall depend upon the area in which works are taking place. They shall be provided as often as necessary to address site-specific environmental requirements.

7.6 Toolbox talk topics for environmental management shall include, but will not be limited to:

- Control of noise and dust emissions.
- Environmental incident and reporting.
- Silt and water management.
- Waste management and segregation.

7.7 Records of all 'Tool-Box Talks' and attendance shall be kept in the site offices.

Specialist training

7.8 Specialist training for specific members of the construction crews will be provided as required. This may include, but will not be limited to:

- Emergency environmental crews.
- Environmental Monitoring.
- Waste representatives.
- Fuel tanker drivers.

8 EMERGENCY PREPAREDNESS AND RESPONSE

Emergency Response Plan

8.1 An outline Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides procedures to be followed in the event of an emergency in terms of site health and safety and environmental protection.

8.2 The ERP is a working document and will require updating and submissions from the contractor/PSCS throughout the various stages of the project. Where sub-contractors that are contracted on site are governed by their own emergency response procedure, arrangements will be made to allow for inclusion of the sub-contractor's ERP within this document.

Roles and Responsibilities

8.3 The Site Manager will be responsible for activating and coordinating the emergency response procedure. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command.

Spill Kits

8.4 Spill kits capable of dealing with hydrocarbon and chemical spills shall be available at appropriate locations on site. Each storage location shall be clearly visible to the workforce, for instance by deploying clear signage.

8.5 The spill kit contents shall include absorbent pads, absorbent booms, absorbent granules and hazardous waste disposal sacks as a minimum. Regular checks of the spill kits shall be completed to ensure they remain adequately stocked to deal with environmental incidents.

8.6 Spill drills shall be performed periodically to confirm that the workforce can effectively contain and clear up potentially polluting spillages. All drills will be documented, and details kept on record for the duration of the works.

Fire Prevention

8.7 Means to raise the alarm in the event of a fire such as a siren or foghorn shall be available at the points of work. An assembly point marked with a sign shall be designated a safe distance from the active works locations and will be communicated to all members of the workforce before works commence.

8.8 The workforce shall assemble at the point for a rollcall to be carried out by the Site Security Officer. The Site Manager will decide the appropriate course of and will advise all personnel accordingly.

8.9 All individuals on site, including visitors, will be obliged to immediately sign in on arrival.

Extreme Weather

8.10 The Site Manager shall register to receive Met Eireann weather warnings. All warnings issued by Met Eireann with the potential to impact upon the works shall be communicated by the Site Manager to the workforce in a timely manner so that measures can be implemented where necessary.

8.11 The Contractor shall maintain provisions to deal with extreme hot weather events. Measures shall include provision of safe drinking water and adequate shade.

8.12 Seasonable variations will be monitored to take account of potential wet weather when planning stripping of topsoil and excavations to minimise soil erosion and run off.

Incident Reporting and Investigation

8.13 All incidents, including near misses, shall be classified according to the categories outlined below. All categories of environmental incident shall be reported by the Contractor to Louth CC as outlined in **Table 2** below.

Table 2: Incident Reporting and Investigation

Incident Classification	Definition
Near Miss	An event, controlled through implementation of an effective incident control measure (e.g., drip tray used, effective use of noise barrier).
Minor Environmental Incident	Incidents that have caused minor harm or damage to the environment e.g. • a minor fuel spill below 20 litres onto ground which is immediately cleared; • a minor spill of a chemical not classified as presenting an ecotoxic risk; • exceeding noise levels; • silt runoff from site which does not enter into a surface water feature; or • excess dust emissions.
Major Environmental Incident	Incidents that have caused or may cause significant harm or damage to the environment e.g. • a minor fuel spill which impacts a sensitive land feature, a water body, or drains; • a major fuel spillage over 20 litres; • any spillage of a chemical which is classified as presenting an ecotoxic risk; • silt runoff from site which enters a water feature; or • receipt of a nuisance complaint.

8.14 The Contractor shall report all environmental incidents that are required to be reported to the relevant statutory or regulatory bodies.

8.15 The Contractor shall prepare an investigation report for all environmental incidents. The report is to include:

- Summary of the environmental incident, describing the:
  - nature of the incident;
  - details of any pollutant released including the type and quantity of pollutant released; and,
  - location for the incident (e.g., grid reference);
- Receptors that were or could have been impacted;
- An analysis of what led to the incident occurring;
- Summary of immediate actions taken to mitigate the incident;
- Summary of any remedial action required; and,
- Lessons learned and future measures or actions to be implemented.

8.16 The Contractor will verify the incident investigation and agree with their contractors any further actions which are to be implemented to prevent a reoccurrence of comparable incidents. A timeline for the implementation of all actions shall be established and the Contractor shall provide details of when they have been implemented.

8.17 An incident investigation shall be complete when all details have been recorded on file.

Emergency Contacts

8.18 In the event of an emergency occurrence at the Site, the Contractor shall determine the relevant statutory and regulatory bodies that must be notified. Notification shall be in accordance with the measures outlined above.

8.19 A list of emergency contacts is presented in **Table 3.** A copy of these contacts will be included in the Site Safety Manual and in the site office.

Table 3: List of emergency contacts

Emergency Contacts	
Contact	Contact details
Project Supervisor Construction Stage (PSCS)	TBC prior to commencement
Project Supervisor Design Stage (PSDS)	TBC prior to commencement
Environmental Protection Agency	053 916 0600
Inland Fisheries Ireland	01 884 2600
National Parks and Wildlife Service's regional office	(076) 100 2557
National Environmental Complaints Line (NECL)	1850 365 121
Health and Safety Authority	1890 289 389
Louth County Council – environmental incident report	042-9335457
Emergency Services – Ambulance, Fire, Gardai	999 / 112
Hospital – Our Lady of Lourdes, Drogheda	041 983 7601
Bord Gáis Emergency	1850 20 50 50
Drogheda Garda Station	041 987 4200

Incident Response

8.20 All pollution incidents should be managed through the STOP - CONTAIN - NOTIFY concept.

8.21 As soon as an incident is identified, the first action should be to **STOP** and prevent further discharge to drainage/river/ground.

8.22 **CONTAIN** may constitute control of discharge in the event of a spill, or cessation of works if it is the works that are resulting in the incident, e.g., halting excavations until silt runoff is contained. It is recognised that due to personal health and safety risks it may not always be safe to stop the source of the spill, for instance if a significant volume of an unidentified substance has been released.

8.23 **NOTIFICATION** should take place as soon as practicable, and frequently can take place while further release is being stopped or while a spill is being contained.

Oil, fuel or chemical spill to ground

i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.

ii. If the spill is migrating, create a temporary bund to prevent further spread by using spill kit materials / sandbags.

iii. If drains or field ditches are located nearby, install drain seals/ deploy additional spill kit materials to prevent the spill discharging to the drain or ditch.

iv. Apply absorbent granules or pads (available from spill kit) to the affected area.

v. Contractor will notify the local authority regarding the nature and scale of incident. The following information should be included in the notification:

- Time of discharge;
- Type/quantity of material discharged;
- Location of discharge; and
- Site contact details.

vi. Contractor will notify Louth CC of the incident and communicate the information provided to the local authority.

vii. Containment measures should remain in place until the nature and extent of the contamination can be assessed and a remediation strategy must be prepared.

All impacted materials shall be disposed of in accordance with relevant legislative and regulatory requirements and Duty of Care requirements.

Discovery of unexpected contamination

i. On the discovery of unexpected contamination, the Contractor will immediately halt works in the area.

ii. If impacted materials have already been removed, they shall be returned to the excavation or placed on to a membrane, e.g., terram, to prevent migration of the contaminant to another area.

iii. Contractor to report the situation to Louth CC.

iv. Arrangements will be made between the Contractor and Louth CC for samples of the contamination to be collected and tested on fast turnaround.

v. Contractor to only continue with works in the area once the test results have confirmed the contaminant and a safe means of working has been established.

The Contractor shall be free to continue works in areas unaffected by the contamination but will not speculatively continue to excavate material to find the extent of the contamination without supervision from a geo-environmental engineer.

All impacted materials will be disposed of in accordance with relevant legislative and regulatory requirements as well as relevant Duty of Care requirements.

Oil, fuel or chemical spill to surface water feature

i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.

ii. If source not readily identifiable, contain first (see below) then identify and prevent further release at source.

iii. Immediately deploy appropriately sized boom from nearest spill kit across affected surface water feature. Use stakes to attach it to the sides of the surface water feature. Tie booms together to increase length if required.

iv. Supplement with additional booms across the surface water feature, as required, to contain any migration of the spill not halted by the first installation.

v. Contractor shall notify the local authority regarding the nature and scale of incident. The following information should be included in the notification:

- Time of discharge;
- Type/quantity of material discharged to surface water feature;
- Location of discharge; and
- Site contact details.

vi. Contractor shall notify Louth CC of the incident and communicate the information provided to the local authority.

All impacted materials will be disposed of in accordance with relevant legislative and regulatory requirements and relevant Duty of Care requirements.

Oil, fuel or chemical spill to drainage system

i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.

ii. If source is not readily identifiable, contain the visible pollutant first, then identify and prevent further release at source.

iii. Immediately deploy appropriate drain cover(s) to affected gullies.

iv. Supplement with booms around the gully to contain any migration of the spill.

v. The Contractor shall notify the local authority and the relevant water company regarding the nature and scale of incident. The following information should be included in the notification:

- Time of discharge;
- Type/quantity of material discharged to the drain;
- Location of discharge, specifically which drain; and
- Site contact details.

vi. The Contractor shall notify Louth CC of the incident and communicate the information provided to the local authority.

All impacted materials shall be disposed of in accordance with relevant legislative and regulatory requirements and relevant Duty of Care requirements.

Explosion / Fire Procedure

Explosion/fire incidents should also be dealt with through health and safety procedures. In the event that a fire is detected, or an explosion occurs:

i. Notify the emergency services and evacuate the area.

ii. Attempt to tackle the fire with site equipment only when it is safe to do so.

iii. Ensure that pollution of nearby water bodies including surface water drainage from fire control water or other substances is minimised. Where possible and safe to do so, any site drainage systems should be protected through the deployment

of drain seals/ spill kit materials to ensure any firefighting waters are captured and can be disposed of appropriately.

iv. At a time when it is acceptable to do so, the local authority shall be notified regarding the nature and scale of incident. The following information should be included in the notification:

- Nature of the incident;
- Time and date of the incident;
- Quantity of fire control water discharged to surface water feature/drainage, where relevant;
- Location of discharge; and
- Site contact details.

Discharge of Silt

In the event of an unexpected discharge of silty water, then:

i. Prevent further release at source e.g., cease dewatering the excavations.

ii. Contain silt and protect sensitive receptors from further discharge:

- If a drain is located nearby, install drain seals or deploy spill kit materials to prevent discharge.
- If silt flow is in the direction of surface water features deploy hay bales around surface the feature.
- If silt is being generated by runoff from stockpiles deploy spill kit materials, silt fencing or move soil to form a bund at the base to prevent further silt laden runoff from the stockpile.

iii. If silt is discharged without prior approval the Environment Protection Agency shall be notified. If the silt discharge enters the drainage system, the relevant water company shall also be notified regarding the nature and scale of incident. The following information should be included in all notifications:

- Time of discharge;
- Type/quantity of material discharged;
- Location of discharge, e.g., which drain or surface water feature; and
- Site contact details.

Contamination of or by waste materials

i. Assess whether the area needs to be evacuated, such as if fumes are being given off.

ii. Assess whether the damage can be undone through segregation.

iii. Complete a risk assessment for the task including consideration of any COSHH risks.

iv. If it is safe to do so segregate the waste. If it is not safe to do so, then the full waste quantity is to be consigned as hazardous waste.

v. Contractor to report the incident to the client.

vi. Waste to be collected from site in accordance with normal practice.

Discovery of archaeological artefact or heritage feature

i. Immediately stop works in the area of the artefact or feature.

ii. Ensure the area is isolated from interference by erecting fencing around the discovery. Prevent vehicles from navigating through this area.

iii. Provide a safe means for pedestrians; and if possible, vehicles, to move around the isolated area.

iv. Contractor shall report the find to the client.

v. Client to arrange for the find to be assessed by a qualified heritage or archaeological specialist. Contractor to prevent tampering with the find until it has been assessed.

vi. Works to proceed in accordance with the recommendations given by the heritage or archaeological specialist.

Ecological discovery or damage

i. Immediately stop works in the area.

ii. Contractor to immediately report the incident to the client.

iii. Client to arrange for a qualified ecologist to assess the discovery or damage caused.

iv. Works to proceed in accordance with the advice received from the ecologist.

Vandalism/theft procedure

Acts of theft and vandalism present the risk that damage may be caused to equipment containing hazardous substances that could cause pollution, or damage may be caused to measures which have been installed to prevent the release of pollution. On identifying an act of vandalism or theft:

i. The Contractor shall notify Garda Síochána of the incident.

ii. Inspect all fuel storage tanks/drums and equipment to ensure there has been no release of the fuel or other hazardous substances, e.g., hydraulic fluid.

iii. If a spill is identified follow the procedures for Oil, fuel or chemical spills.

iv. Inspect pollution protection measures, e.g., drainage or silt protection, to ensure it has not been interfered with. Where it is possible, correct any issues identified without causing further release.

v. Inspect site boundaries to identify the access point if not immediately clear and secure the site.

9 MONITORING AND AUDITING

Introduction

9.1 Appropriate monitoring of the environmental effects of construction enables the effectiveness of environmental mitigation to be evaluated. It also allows environmental problems to be identified and responded to at an early stage. Monitoring will also help the Contractor to identify and implement environmental improvements, which will contribute to the overall environmental performance of the project.

9.2 The Contractor will carry out appropriate environmental inspections and monitoring of environmental performance in the form of daily inspections, monthly audits and if required appropriate equipment.

9.3 Where problems are recognised, the corrective action will be identified by the inspector and subsequent corrective action undertaken within a defined time frame.

Daily Inspections

9.4 Daily inspections shall be undertaken and recorded as follows:

i. Visual inspection of the site perimeter to check for dust deposition (evident as soiling and marking) on vegetation, cars and other objects.

ii. Visual inspection of the access roads to check their condition to ensure there is no build-up of dust or earth deposits liable to cause dust emissions as vehicles pass.

iii. Vehicle, equipment and plant inspections shall be completed to check the absence of damage or maintenance issues and that it is correctly functioning.

iv. Visual inspection of all acoustic barriers / screening to check they are present and in good condition.

v. Visual inspection of waste containers and waste storage areas to verify wastes are being correctly segregated and to confirm the absence of mixing of hazardous and non-hazardous wastes.

vi. Visual inspection of all site areas to ensure there is no deposited or wind-blown litter.

vii. If a waste collection is made, a check shall be made of the Waste Transfer Note / Hazardous Waste Consignment Note provided for the collection.

9.5 On all days when potentially dust emitting activities are being conducted, the level of dust generation shall be kept under constant review. A record shall be added to the official site diary when such activities are conducted, the dust emission conditions observed and; when necessary, the mitigation measures taken.

9.6 Any elements of the site management found to be in an unsatisfactory condition during the site inspection shall be addressed on the day. In the event it is not possible to address

the matter on the day it is raised; a note of the reason why shall be made on the inspection record sheet.

Environmental Audits

9.7 Formal audits will be against an audit checklist, which will provide a mechanism to monitor and assess compliance against all project performance requirements and standards.

9.8 Only suitably trained and competent staff will be authorised to perform environmental audits at a suitable frequency to be determined by the nature / duration of the work.

9.9 All aspects of the environmental management at the site shall be assessed against this pCEMP.

9.10 The audit shall include checks of the site records including the daily inspection record sheets, vehicle arrival logs and waste disposal paperwork. All audits shall be documented; where audit actions are raised, close out of these actions shall be assessed at the following audit.

Environmental Monitoring

9.11 Environmental monitoring shall be carried out as necessary and requirements for environmental monitoring shall be reviewed as consents are received and consultations completed.

9.12 Key parameters that will require environmental monitoring include:

- Waste generation during construction; to be monitored as part of the Site Waste Management Plan to ensure the appropriate treatment, handling, management and disposal measures are applied. Records shall be kept of quantities and types of waste handled;
- Inspections of the surface water course;
- The site compound including fuel storage and spill control equipment;
- Construction Plant and Equipment; and,
- Dust and noise pollution arising from construction site activities.

9.13 In the unlikely event that noisy plant or machinery are to be operated that may have the potential to exceed the daily noise target (70 dB $L_{Aeq,1hr}$) or following a complaint, spot checks and/or continuous monitoring may be undertaken using a sound level meter to assess noise levels during such activities. This shall be kept under review and appropriate mitigation measures instigated if necessary.

Water Quality Monitoring

9.14 Surface water samples were collected at two locations; upstream and downstream of the Site to establish baseline water quality in the River Boyne. Routine monitoring will then be undertaken throughout any construction activities in close proximity to the River. Weekly sampling is proposed, as well as sampling following an event such as heavy

rainfall or an accidental spillage. Analysis for total suspended solids, pH and total petroleum hydrocarbons would allow for the detection of sediment loading, concrete pollution or spillages of hydrocarbons.

9.15 A Surface Water Management Plan (SWMP) will be prepared prior to construction works commencing in accordance with 'best practice' industry guidance. The SWMP will outline the requirements for monitoring and/or sampling when working in close proximity to the River Boyne.

9.16 The SWMP will remain as a live document and where there is a requirement for variation at the Site to provide more ecologically sensitive drainage during the construction phase, the SWMP will be updated accordingly.

9.17 The Contractor shall be responsible for monitoring all site works and update to the SWMP. Any changes required will be agreed with the Project Hydrologist, Environmental Clerk of Works (EnvCoW) and relevant stakeholders prior to any drainage works commencing.

Environmental incident and corrective action reporting

9.18 All environmental incidents and near misses shall be reported and investigated by the Contractor. All environmental incidents shall be reported as soon as possible. Where relevant, the appropriate statutory authority (e.g., EPA) shall be informed immediately. Copies of incident investigation reports shall be supplied by the Contractor and action taken to prevent recurrence.

9.19 All corrective action, incident and near miss report forms shall be held in a register maintained at the construction site office.

Non-conformity and corrective action

9.20 Where the client has a concern or raises an issue for resolution, or where potential issues are raised from an inspection or audit of the site/ operations, or by a regulatory authority, the Contractor shall investigate the root cause and any implications arising from the issue and shall if necessary following discussion with the client implement measures to rectify the problem.

9.21 The Contractor shall monitor the effectiveness of the corrective action and report the outcome to the client and where relevant the regulatory authority. All documentation of the issue/ event and corrective action/ outcome shall be retained by the Contractor.

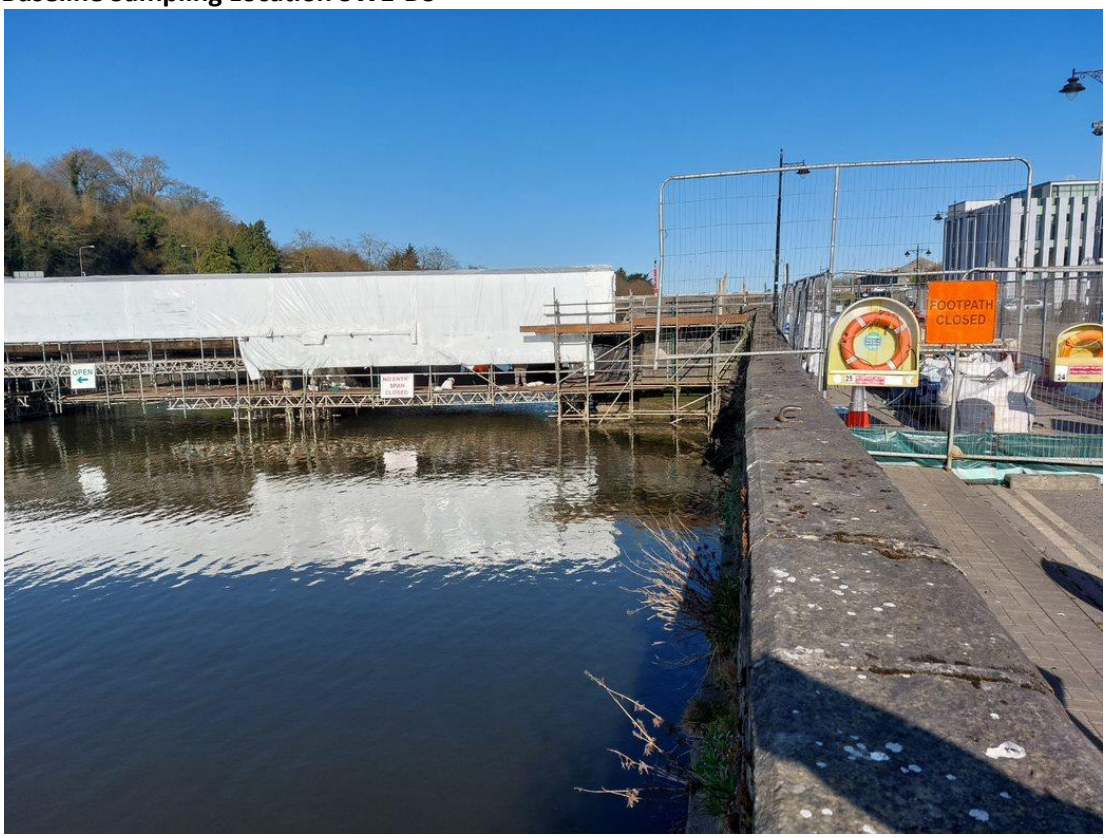
9.22 Where necessary the CEMP and any associated documentation shall be revised and re-issued to avoid recurrence of the issue/ problem.

Review and updates to the CEMP

9.23 The final CEMP will be reviewed on a monthly basis; or following any significant change to the work activities, client requirements, legislation or guidance and updated accordingly. Therefore, the final CEMP will be continuously updated as required.

Appendix 10.1 – Photographs of Site Surveying

Baseline Sampling Location SW1-DS



Baseline Sampling Location SW1-US

Observations from Site Surveying


Danger
Danger

Appendix 10.2 – Local & Regional Hydrology

App-10.2(01)-Local & Regional Hydrology

Legend

Project related data

- 603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrology

- WFD_RiverSubBasins
- WATER_SubCatchments
- WFDTransitionalWaterbodies_Risk_Cycle3
- WFD_RiverWaterbodiesActive_Cycle3

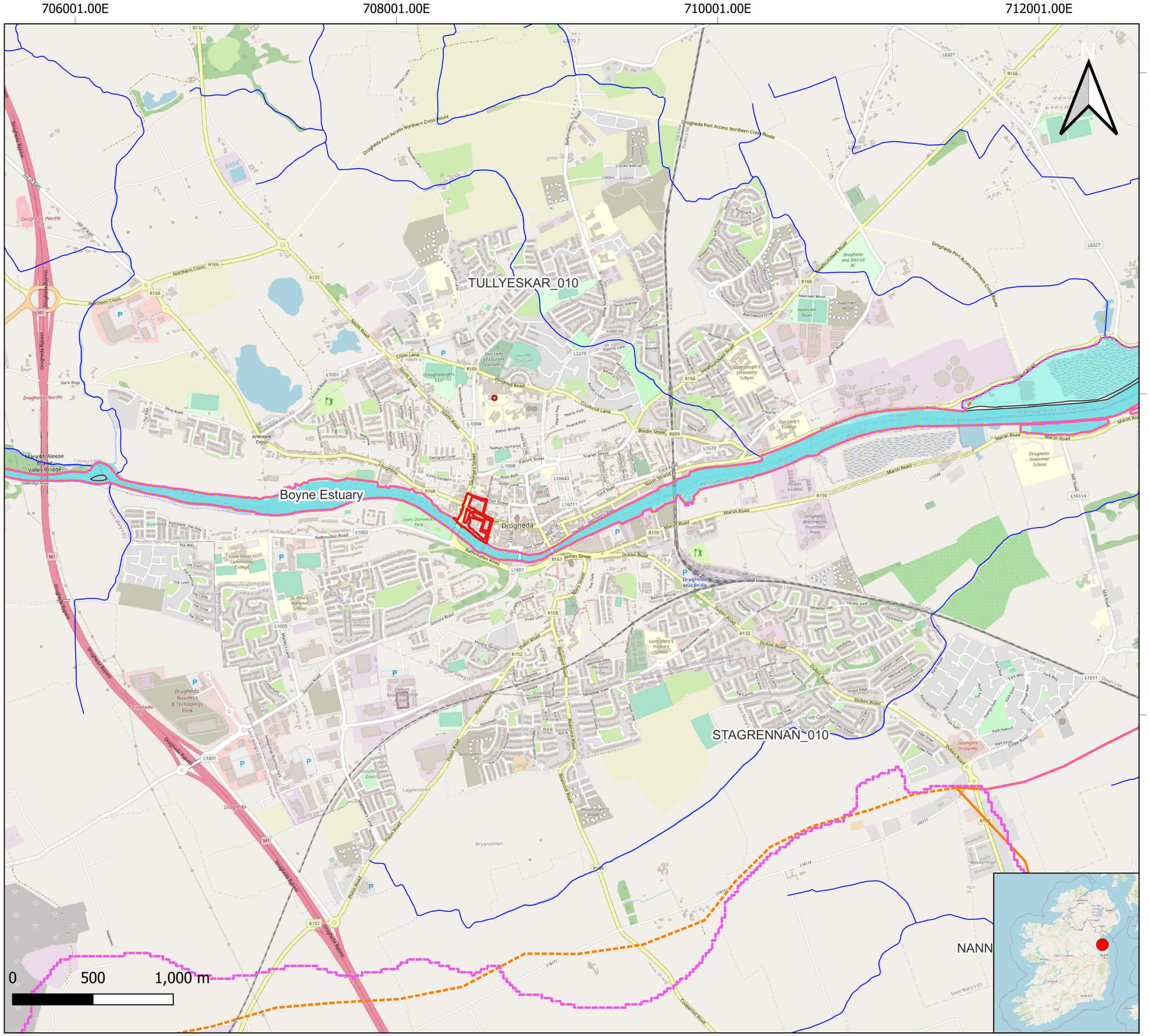
Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.3 – Surface Water Sampling Locations

App-10.3(01)-Surface Water Sampling Locations

Legend

Project related data

603124_SurfaceWaterSamplingLocations

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrology

WFDTransitionalWaterbodies_Risk_Cycle3

WFD_RiverWaterbodiesActive_Cycle3

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
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Global Digital Elevation Model (GDEM) Elevation Da

RSK

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710001.00E

776001.00N

774001.00N

TULLYESKAR_010

Boyne Estuary

N

0 500 1,000 m

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.4 – Bedrock Aquifer

App-10.4(01)-Bedrock Aquifer

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrogeology

Groundwater

IE_GSI_Bedrock_Aquifers_100K_IE32_ITM

- Rkd - Regionally Important Aquifer - Karstified (diffuse)
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- Pl - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
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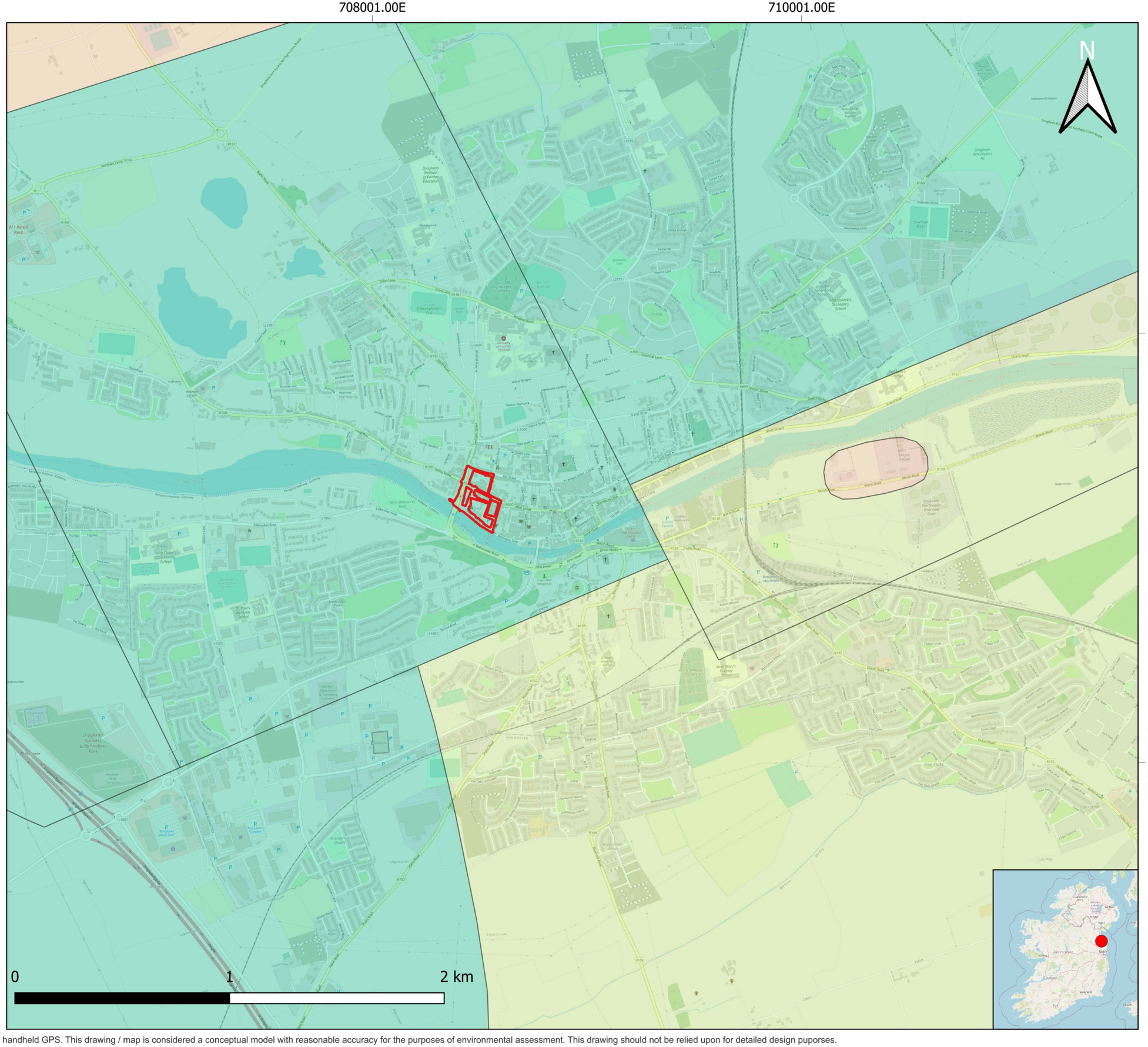
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.5 – Bedrock Aquifer Vulnerability

App-10.5(01)-Bedrock Aquifer Vulnerability

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrogeology

Groundwater

IRL_VULNERABILITY_ITM

- X
- E
- H
- L
- M
- Water

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
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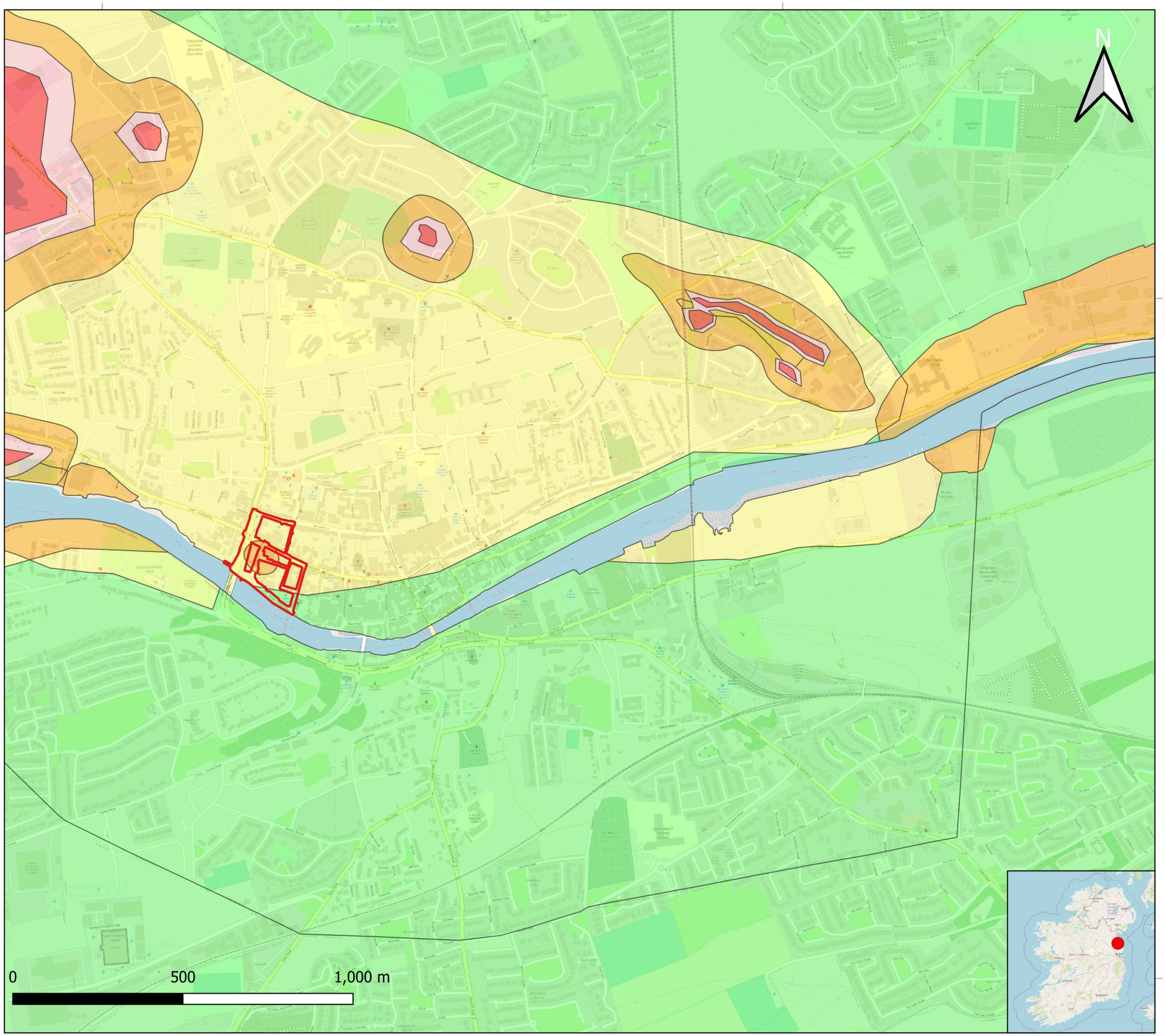
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.6 – WFD Status 2016-2021

App-10.6(01)-WFD Status 2016-2021

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrology

WFD_Status_20162021_TransitionalWaterbodies

Moderate

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK

708001.00E

710001.00E

776001.00N

774001.00N

Boyne Estuary

0 500 1,000 m

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.7 – Groundwater Wells & Springs

App-10.7(01)-Groundwater Wells & Springs

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrogeology

Wells

Wells10to50

Wells polygons

Wells1km_500B

Wells500_250B

Wells100_50B

Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

708001.00E

710001.00E

776001.00N

774001.00N

0 500 1,000 m

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.8– Mapped Designated Protected Areas

App-10.8(01)-Mapped Designated Protected Areas

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrogeology

Groundwater

Source Protection Area (SPA)

Designated Areas

Special Protection Areas (SPAs)

Special Area of Conservation (SAC)

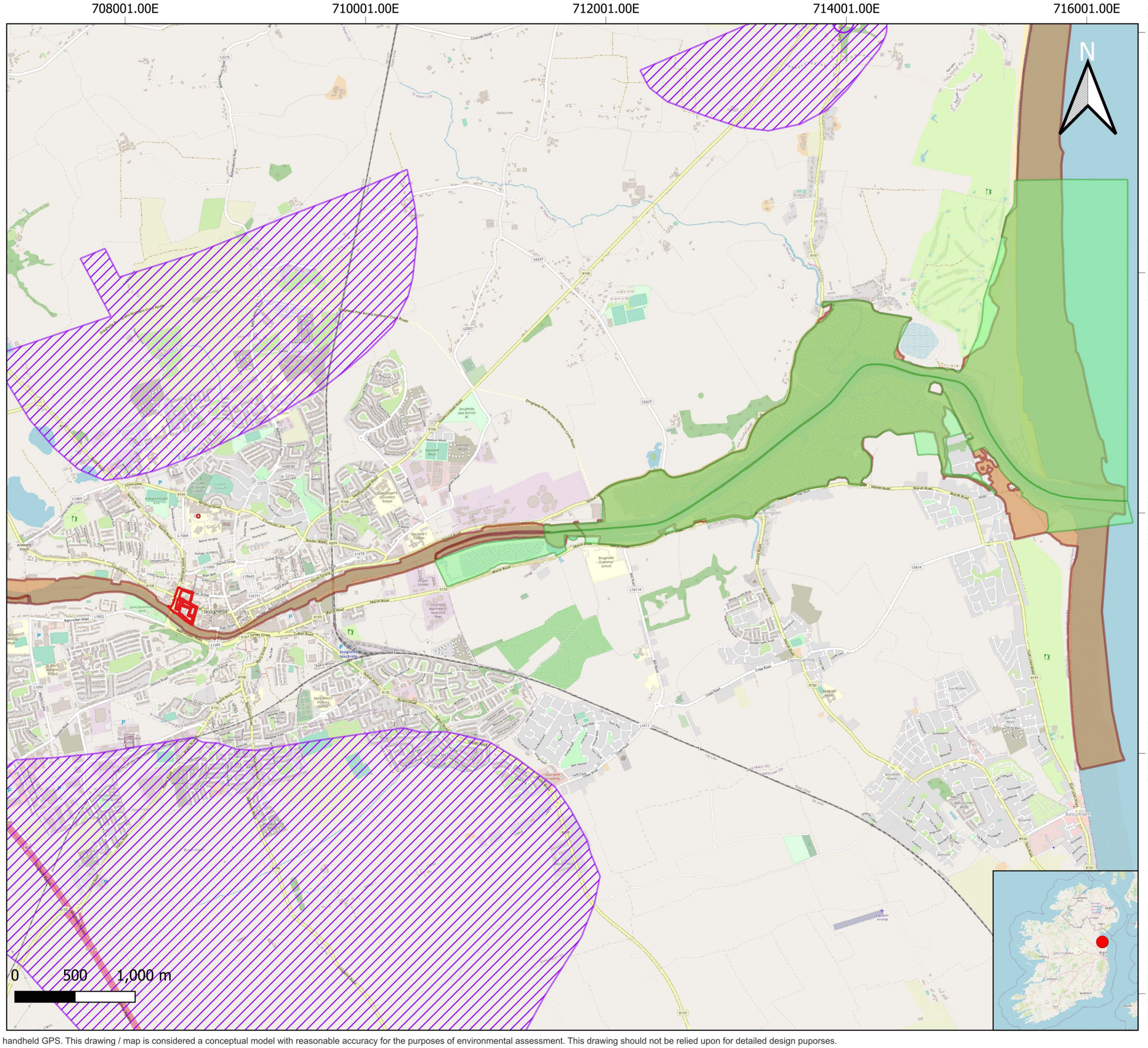
Base Layers

OpenStreetMap

Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK



Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.8 – (B) Surface Water Buffer Zone

App-10.8 B(01)-Surface Water Buffer Zone

Legend

Project related data

603124_RedLineBoundary_DrawnByHand_20230607

Constraints

Hydrology

WATER_SubCatchments

WFDTransitionalWaterbodies_Risk_Cycle3

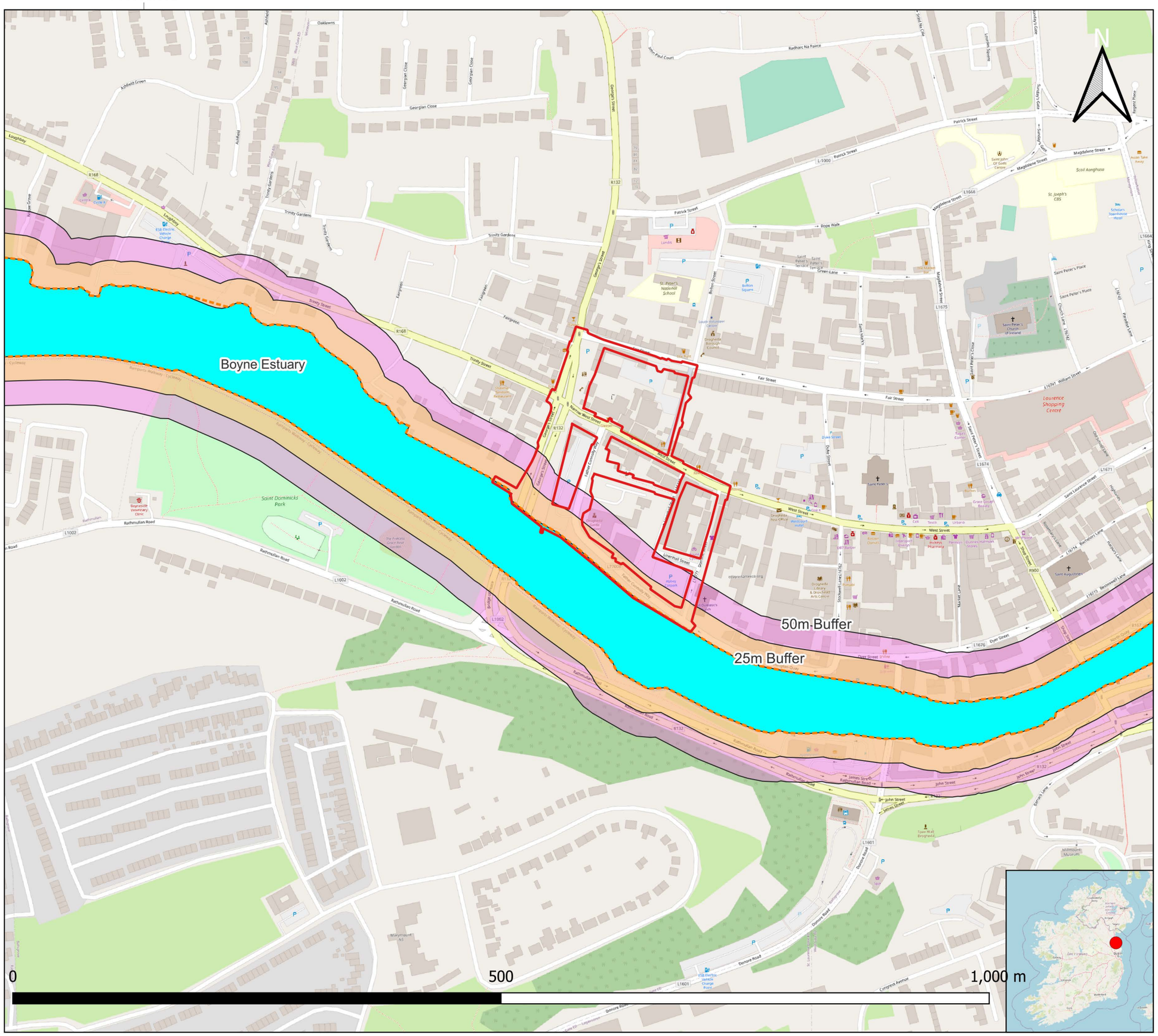
SW_WFD_25mBuffer

SW_WFD_50mBuffer

Base Layers

OpenStreetMap

708001.00E



Project ID:	**603124**
Project Name:	Turley Drogheda Westgate, co. Louth
Projection	ITM
Drawn by:	Camilla Casella
Reviwed by:	Jayne Stephens
Version:	06/06/2023

References/Sources:
Environmental Protection Agency (EPA)
Geological Services Ireland (GSI)
Bing Aerial / GeoHive / Open Street Map / Google Roads
Global Digital Elevation Model (GDEM) Elevation Da

RSK

Note: Data points presented are georeferenced using open source data and/or a handheld GPS. This drawing / map is considered a conceptual model with reasonable accuracy for the purposes of environmental assessment. This drawing should not be relied upon for detailed design puporses.

Appendix 10.9 –Surface water baseline Database & Laboratory Certificates – Westgate 2040

Project: 603124 Westgate

Client: RSK Ireland				**Chemtest Job No.:**		22-12910	22-12910
Quotation No.: Q22-26937				**Chemtest Sample ID.:**		1406204	1406205
				Client Sample ID.:		603124 SW1UG	603124 SW1DS
				Sample Type:		WATER	WATER
				Date Sampled:		31-Mar-2022	31-Mar-2022
Suite	**Determinand**	**Accred.**	**SOP**	**Units**	**LOD**		
		N	1455	5.0 mg/l	0.0050000	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
	Metal Total Water prep	N	1455	-	N/A	Ordered	Ordered
Surface Water Suite	pH	U	1010		N/A	Ordered	Ordered
Surface Water Suite	Electrical Conductivity	U	1020	µS/cm	1.0	Ordered	Ordered
Surface Water Suite	Suspended Solids At 105C	U	1030	mg/l	5.0	Ordered	Ordered
Surface Water Suite	Colour	N	1050	Hazen unit	1.0	Ordered	Ordered
Surface Water Suite	Turbidity	N	1060	NTU	1.0	Ordered	Ordered
Surface Water Suite	Alkalinity (Total)	U	1220	mg/l	10	Ordered	Ordered
Surface Water Suite	Alkalinity (Bicarbonate)	U	1220	mg CaCO3/l	10	Ordered	Ordered
Surface Water Suite	Ammoniacal Nitrogen	U	1220	mg/l	0.050	Ordered	Ordered
Surface Water Suite	Nitrite	U	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Nitrate	U	1220	mg/l	0.50	Ordered	Ordered
Surface Water Suite	Phosphorus (Total)	N	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Orthophosphate as PO4	U	1220	mg/l	0.050	Ordered	Ordered
Surface Water Suite	Phosphorus (Dissolved)	U	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Total Hardness as CaCO3	U	1270	mg/l	15	Ordered	Ordered
Surface Water Suite	Copper (Dissolved)	U	1455	µg/l	0.50	Ordered	Ordered
Surface Water Suite	Zinc (Dissolved)	U	1455	µg/l	2.5	Ordered	Ordered
Surface Water Suite	Copper (Total)	N	1455	µg/l	0.50	Ordered	Ordered
Surface Water Suite	Zinc (Total)	N	1455	µg/l	2.5	Ordered	Ordered
Surface Water Suite	Dissolved Organic Carbon	U	1610	mg/l	2.0	Ordered	Ordered
Surface Water Suite	Total Organic Carbon	U	1610	mg/l	2.0	Ordered	Ordered
Surface Water Suite	Total TPH >C6-C40	U	1670	µg/l	10	Ordered	Ordered
Surface Water Suite	Total Kjeldahl Nitrogen	N	1340	mg/l	1.0	Ordered	Ordered

Summary of Testing

Project: Baseline SW Sampling (Round 2) 603124 - Westgate

Client: RSK Ireland			**Chemtest Job No.**		22-13490	22-13490
Quotation No.: Q22-26937			**Chemtest Sample ID:**		1408834	1408835
Order No.: COC2-2			Client Sample Ref.:		Grab Sample	Grab Sample
			Client Sample ID.:		SW2DS	SW2US
			Sample Location:		River Boyne / Boyne Estuary	River Boyne / Boyne Estuary
			Sample Type:		WATER	WATER
			Date Sampled:		05-Apr-2022	05-Apr-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
	N	1455	5.0 mg/l	0.0050000	Ordered	Ordered
	N	1455	0.500 mg/l	0.0005	Ordered	Ordered
	N	1455	0.500 mg/l	0.0005	Ordered	Ordered
	N	1455	0.500 mg/l	0.0005	Ordered	Ordered
Customs Administration Charge	N			N/A	Complete	
Suite						
Surface Water Suite					Ordered	Ordered

Breakdown of testing

Project: Baseline SW Sampling (Round 2) 603124 - Westgate

Client: RSK Ireland					Chemtest Job No.:	22-13490	22-13490
Quotation No.: Q22-26937					Chemtest Sample ID.:	1408834	1408835
Order No.: COC2-2					Client Sample Ref.:	Grab Sample	Grab Sample
					Client Sample ID.:	SW2DS	SW2US
					Sample Location:	River Boyne / Boyne Estuary	River Boyne / Boyne Estuary
					Sample Type:	WATER	WATER
					Date Sampled:	05-Apr-2022	05-Apr-2022
Suite	**Determinand**	**Accred.**	**SOP**	**Units**	**LOD**		
		N	1455	5.0 mg/l	0.0050000	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
		N	1455	0.500 mg/l	0.0005	Ordered	Ordered
	Customs Administration Charge	N			N/A	Complete	
Surface Water Suite	pH	U	1010		N/A	Ordered	Ordered
Surface Water Suite	Electrical Conductivity	U	1020	µS/cm	1.0	Ordered	Ordered
Surface Water Suite	Suspended Solids At 105C	U	1030	mg/l	5.0	Ordered	Ordered
Surface Water Suite	Colour	N	1050	Hazen unit	1.0	Ordered	Ordered
Surface Water Suite	Turbidity	N	1060	NTU	1.0	Ordered	Ordered
Surface Water Suite	Alkalinity (Total)	U	1220	mg/l	10	Ordered	Ordered
Surface Water Suite	Alkalinity (Bicarbonate)	U	1220	mg CaCO3/l	10	Ordered	Ordered
Surface Water Suite	Ammoniacal Nitrogen	U	1220	mg/l	0.050	Ordered	Ordered
Surface Water Suite	Nitrite	U	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Nitrate	U	1220	mg/l	0.50	Ordered	Ordered
Surface Water Suite	Phosphorus (Total)	N	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Orthophosphate as PO4	U	1220	mg/l	0.050	Ordered	Ordered
Surface Water Suite	Phosphorus (Dissolved)	U	1220	mg/l	0.020	Ordered	Ordered
Surface Water Suite	Total Hardness as CaCO3	U	1270	mg/l	15	Ordered	Ordered
Surface Water Suite	Copper (Dissolved)	U	1455	µg/l	0.50	Ordered	Ordered
Surface Water Suite	Zinc (Dissolved)	U	1455	µg/l	2.5	Ordered	Ordered
Surface Water Suite	Copper (Total)	N	1455	µg/l	0.50	Ordered	Ordered
Surface Water Suite	Zinc (Total)	N	1455	µg/l	2.5	Ordered	Ordered
Surface Water Suite	Dissolved Organic Carbon	U	1610	mg/l	2.0	Ordered	Ordered
Surface Water Suite	Total Organic Carbon	U	1610	mg/l	2.0	Ordered	Ordered
Surface Water Suite	Total TPH >C6-C40	U	1670	µg/l	10	Ordered	Ordered
Surface Water Suite	Total Kjeldahl Nitrogen	N	1340	mg/l	1.0	Ordered	Ordered

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Turley

Appendix 10.9 - Surface Water Database

Sample Details		LIMITS re EIA (Ref. NRA) Indicative Limits Re.: Bathing, Drinking Surface Water reg's.				
Sample ID			SW1 (A)	SW1 (B)	SW2 (A)	SW2 (B)
Project COC Reference			603124 (C0C1)	603124 (COC2)	603124 (COC1)	3006-28 (COC4)
Sample Type	*Medum*		Surface Water	Surface Water	Surface Water	Surface Water
Date Sampled	*dd/mm/yyyy*		31/03/2022	05/04/2022	31/03/2022	05/04/2022
Grid Reference for Sampling Location	*ITM*					
Field Data Discharge Data						
Surface Water Feature	*Type*		River/ Estuary	River/ Estuary	River/ Estuary	River/ Estuary
Description of sample location	*Type*		Downstream	Downstream	Upstream	Upstream
Field Data Qulaity Data						
Clarity			Clear	Clear	Clear	Clear
Colour			None	Slightly Brown / Yellow	None	Slightly Grey
Odour			None	None	None	None
pH	*pH Units*	>6 & <9	7.41	6.93	7.5	6.25
Conductivity	*mS/cm*	2.5	3349	2564	3999 *	795
Temperature	*deg. C*	21.5	9.6	10.9	10.1	10.1
Laboratory data						
Conductivity @ 20 deg.C	*mS/cm*	2.5	**5.9**		**5.4**	
pH	*pH Units*	>6 & <9	8.1		8	
Carbon, Organic (diss.filt)	*mg/l*		5.4		5.3	
Ammoniacal Nitrogen as N (low level)	*mg/l*	0.02	**0.93**		**2.7**	
Nitrate as NO3	*mg/l*		6.9		7.7	
Nitrite as NO2	*mg/l*	0.05	<0.020		0.025	
Nitrogen, Kjeldahl	*mg/l*		6.5		4.1	
Phosphate (Ortho as P)	*mg/l*		0.095		0.092	
Suspended solids, Total	*mg/l*	25	**35**		**32**	
Turbidity	*ntu*		1.5		<1	
Copper (diss.filt)	*µg/l*	5	1.1		2.4	
Phosphorus (diss.filt)	*µg/l*		0.032		0.031	
Zinc (diss.filt)	*µg/l*		2.7		<2.5	
Copper (tot.unfilt)	*µg/l*	2000	0.96		2.4	
Hardness, Total as CaCO3 unfiltered	*mg/l*		800		830	
Phosphorus (tot.unfilt)	*µg/l*		32		31	
Zinc (tot.unfilt)	*µg/l*	30	2.5		<2.5	
TPH / Oil & Greases	*mg/l*	No Impact on Fish	<0.01		<0.01	

Appendix 11.1: Air Quality and Climate Change Standards

The Air Quality Framework Directive (1996) established a framework under which the European Commission (EC) could set limit or target values for specified pollutants. The directive identified several pollutants for which limit or target values have been, or will be set in, subsequent 'daughter directives'. The framework and daughter directives were consolidated by Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe, which retains the existing air quality standards and introduces new objectives for fine particulates ($PM_{2.5}$).

The air quality standards (AQSs) in Europe are set in EU directives, the Clean Air for Europe (CAFE) Directive was published in 2008. The CAFE directive was transposed into Irish legislation by the Air Quality Standards Regulations 2011.

The relevant standards for Europe to protect human health are summarised in Table A9.1

Table A9.1: Air Quality Standards Relevant to the Proposed Development

Substance	Averaging period	Exceedances allowed per year	Ground level concentration limit (µg/m³)
Nitrogen dioxide (NO_2)	1 calenda year	-	40
	1 hour	18	200
Fine particles (PM_{10})	1 calenda year	-	40
	24 hours	35	50
Fine particles ($PM_{2.5}$)	1 calenda year	N/A	20

Local Air Quality Management Review and Assessment Technical Guidance published by the Department for Environment, Food and Rural Affairs (Defra) advises that an exceedance of the 1 hour mean NO_2 objective is unlikely to occur where the annual mean concentration is below 60µg/m³, where road transport is the main source of pollution. This concentration has been used to screen whether the hourly mean objective is likely to be achieved.

Gothenburg Protocol

In 1999, Ireland signed the Gothenburg Protocol to the 1979 UN Convention on Long Range Transboundary Air Pollution. European Commission Directive 2001/81/EC and the National Emissions Ceiling Directive (NECD), prescribes the same emissions limits as the 1999 Gothenburg Protocol. A National Programme for the progressive reduction of emissions of four transboundary pollutants, nitrogen oxides (NO_x), sulphur dioxide (SO_2), volatile organic compounds (VOCs) and ammonia (NH_3), has been in place since April 2005. The data available from the EU in 2010 indicated that Ireland complied with the emissions ceilings for SO_2, VOCs

and NH_3 but failed to comply with the ceiling for NO_x. COM (2013) 920 Final is the "proposal for a Directive on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC", which will apply the 2010 NECD limits until 2020 and establish some new national emission reduction commitments which will be applicable from 2020 and 2030 for SO_2, NO_x, non-methane volatile organic compounds (NMVOC), NH_3, and methane (CH_4). Irelands reduction targets are shown in Table A9.2.

Table A9.2: The reduction targets for Ireland, shown as a percentage reduction from 2005 levels, for four transboundary pollutants (SO_2, NO_x, VOCs, NH_3) and $PM_{2.5}$

Pollutant	Percentage reduction below 2005 level	
	2020-2029	2030
SO_2	65%	83%
NO_x	49%	75%
VOC	25%	32%
NH_3	1%	7%
$PM_{2.5}$	18%	53%

Climate Agreements

Ireland ratified the United Nations Framework Convention on Climate Change (UNFCCC) in April 1994 and the Kyoto Protocol in principle in 1997 and formally in May 2002. For the purpose of the European Union burden sharing agreement under Article 4 of the Kyoto Protocol, in June 1998, Ireland agreed to limit the net growth of the six Greenhouse Gases under the Kyoto Protocol to 13% above the 1990 level over the period 2008-2012.

Ireland is also committed to the Paris Agreement, which aims to limit global temperature increase to no more the 2°C above pre-industrial levels, and the "2030 Climate and Energy Policy framework" agreed by the EU, which endorsed a binding EU target of at least a 40% reduction in greenhouse gas emissions by 2030 compared to 1990.

The Government published the Climate Action Plan 2019 (Government of Ireland, 2019). This Plan is "committed to achieving a net zero carbon energy systems objective for Irish society and in the process, create a resilient, vibrant and sustainable country". This Plan sets out policies and measures aimed to help Ireland achieve its decarbonisation goals.

The Government published a draft of the Climate Action and Low Carbon Development Bill in 2021. If ratified, this legislation would put Ireland in a similar position as countries such as the UK and France where legislation to reach net zero GHG emissions by 2050 is in place.

Appendix 11.2: Construction Dust Assessment Methodology

This appendix contains the construction dust assessment methodology to assess the potential impacts, construction activities are divided into demolition, earthworks, construction and trackout. The descriptors included in this section are based upon the IAQM construction dust guidance. The assessment follows the steps recommended in the guidance.

Step 1 and Step 2 methods from the IAQM construction dust guidance are described in this Appendix to assign dust risk categories for each of the construction activities.

Step 1: Screen the requirement for assessment
The first step is to screen out the requirement for a construction dust assessment, this is usually a somewhat conservative level of screening. An assessment is usually required where there is:

- a 'human receptor' within:
  - 350m of the boundary of the site; or
  - 50m of the route used by construction vehicles on the public highway, up to 500m from the site entrance(s).
- an 'ecological receptor':
  - 50m of the boundary of the site; or
  - 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s).

Step 2A: Defining the Potential Dust Emission Magnitude

Demolition
The dust emission magnitude category for demolition is varied for each site in terms of timing, building type, duration and scale. Examples of the potential dust emission classes are provided in the guidance as follows:

- Large: Total building volume >50,000 m^3, potentially dusty construction material, on-site crushing and screening, demolition activities > 20m above ground level;
- Medium: Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities 10m – 20m above ground level; and
- Small: Total building volume <20,000 m^3, construction material with low potential for dust release, demolition activities < 10m above ground, demolition during wetter months.

Earthworks

The dust emission magnitude category for earthworks is varied for each site in terms of timing, geology, topography and duration. Examples of the potential dust emission classes are provided in the guidance as follows:

- Large: Total site area >10,000 m^2, potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds >8m in height, total material moved >100,000 tonnes;
- Medium: Total site area 2,500 – 10,000 m^2, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 4 – 8m in height, total material moved 20,000 – 100,000 tonnes; and
- Small: Total site area < 2,500 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4m in height, total material moved <10,000 tonnes, earthworks during wetter months.

Construction

The dust emission magnitude category for construction is varied for each site in terms of timing, building type, duration, and scale. Examples of the potential dust emissions classes are provided in the guidance as follows:

- Large: Total building volume > 100,000 m^3, piling, on site concrete batching;
- Medium: Total building volume 25,000 – 100,000 m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching; and
- Small: Total building volume < 25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout

Factors which determine the dust emission magnitude class of trackout activities are vehicle size, vehicle speed, vehicle number, geology and duration. Examples of the potential dust emissions classes are provided in the guidance as follows:

- Large: > 50 HDV (> 3.5t) trips in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length > 100m;
- Medium: 10 – 50 HDV (> 3.5t) trips in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 – 100m; and
- Small: < 10 HDV (> 3.5t) trips in any one day, surface material with low potential for dust release, unpaved road length < 50m.

Step 2B: Defining the Sensitivity of the Area

The sensitivity of the area is defined for dust soiling, human health and ecosystems. The sensitivity of the area takes into account the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM_{10}, the local background concentration; and
- Site-specific factors, such as whether here are natural shelters such as trees, to reduce the risk of wind-blown dust.

Table A9.3 has been used to define the sensitivity of different types of receptors to dust soiling, health effects and ecological effects.

Based on the sensitivities assigned of the different types of receptors surrounding the site and numbers of receptors within certain distances of the site, a sensitivity classification for the area can be defined for each. Tables A9.4 to A9.6 indicate the method used to determine the sensitivity of the area for dust soiling, human health and ecological impacts, respectively.

For trackout, as per the guidance, it is only considered necessary to consider trackout impacts up to 50m from the edge of the road.

Table A9.3: Sensitivity of the Area Surrounding the Site

Sensitivity of Area	Dust Soiling	Human Receptors	Ecological Receptors
High	• Users can reasonably expect an enjoyment of a high level of amenity. • The appearance, aesthetics or value of their property would be diminished by soiling. • The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. • Examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.	• Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day) • Examples include residential properties, hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	• Locations with an international or national designation and the designated features may be affected by dust soiling. • Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain. • Examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
Medium	• Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home. • The appearance, aesthetics or value of their property could be diminished by soiling. • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. • Examples include parks and places of work.	• Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective for PM10 (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). • Examples include office and shop workers, but will generally not include workers occupationally exposed to PM10, as protection is covered by Health and Safety at Work legislation.	• Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. • Locations with a national designation where the features may be affected by dust deposition. • Example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.

Low	• The enjoyment of amenity would not reasonably be expected. • Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. • Examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.	• Locations where human exposure is transient. • Indicative examples include public footpaths, playing fields, parks and shopping streets.	• Locations with a local designation where the features may be affected by dust deposition. • Example is a local Nature Reserve with dust sensitive features.

Table A9.4: Sensitivity of the area to dust soiling effects on people and property

Receptor sensitivity	Number of receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A9.5: Sensitivity of the area to Human Health Impacts

Receptor sensitivity	Annual Mean PM_{10} Concentrations	Number of receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32µg/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28µg/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low

		1-10	Medium	Low	Low	Low	Low
	<24µg/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

* The IAQM guidance recommends a further breakdown of 'medium risk' categories, although these are less conservative and have therefore not been utilised in this assessment.

Table A9.6: Sensitivity of the area to Ecological Impacts

Receptor sensitivity	Dust Emission Magnitude	
	Large	Medium
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2C: Defining the Risk of Impacts

The final step is to use both the dust emission magnitude classification with the sensitivity of the area, to determine a potential risk of impacts for each construction activity, before the application of mitigation. Tables A9.7 to A9.9 indicate the method used to assign the level of risk for each construction activity.

Table A9.7: Risk of Dust Impacts from Demolition

Receptor sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A9.8: Risk of Dust Impacts from Earthworks/Construction

Receptor sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk

Low	Low Risk	Low Risk	Negligible

Table A9.9: Risk of Dust Impacts from Trackout

Receptor sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Appendix 15.1 – Utility Mapping Survey

LEGEND

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Telecom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service/Anomaly	ORANGE	0.5	
Trench Scar	LIGHT GREEN		
Utility Providers Records ESB Records Bord Gais Records Telecom Records Water Records	RED YELLOW MAGENTA BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	
Gas Line Manhole	YELLOW	MH 00	
Foul Sewer/Water Gully	GREEN	G	
Surface/Storm Water Gully	CYAN	G	

NOTES:

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3. GPR = Ground Penetrating Radar - Mala 100 Mhz, 250 Mhz & 500 Mhz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in March 2022.
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9. UTT denotes unable to Trace, UTO denotes unable to Open
10. Where Invert Levels are shown adjacent to MH's, IC's etc. are to the invert of the lowest pipe/duct within the manhole. There may be further pipes/ducts within the MH which are located closer to ground level as per the depths marked on individual pipes/ducts. Care should be taken as higher level ducts may contain live electrical cables.

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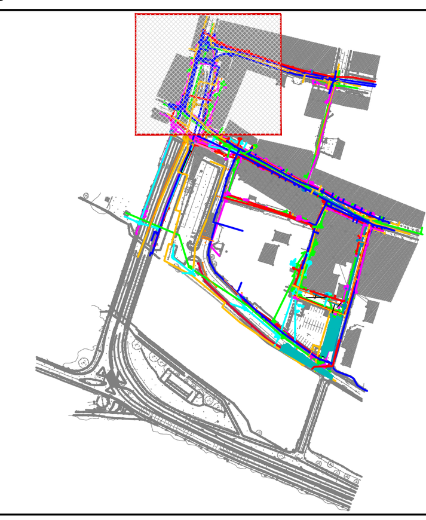

KEY PLAN
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SCANTECH GEOSCIENCE

GPR - Utility Survey

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Client: Turley Architects and Louth CoCo

Project Title: Westgate, Drogheda

Drawing Title: Underground Services Layout

Date: 29th March 2022	Drawn By: J.C
Scale: 1/200 on A1	Checked: R.G
Drawing No: SCT-22013-01_07	Revision:

LEGEND

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Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Telecom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service/Anomaly	ORANGE	0.5	
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
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Telecom Manhole	MAGENTA	MH 00	
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Scale: 1/200 on A1	Checked: R.G
Drawing No: SCT-22013-02_07	Revision:

LEGEND

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Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Telecom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service/Anomaly	ORANGE	0.5	
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
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Drawing No: SCT-22013-03_07 | Revision:

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Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Telecom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
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Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
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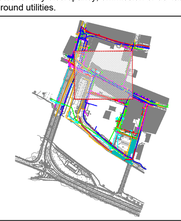

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Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Telecom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service/Anomaly	ORANGE	0.5	
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
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Combined Sewer	BROWN		
Power	RED		
Telecoms			
Telecom	MAGENTA		
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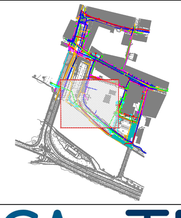

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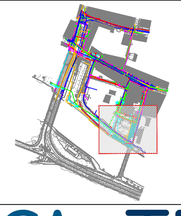

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Date: 29th March 2022 | Drawn By: J.C

Scale: 1/200 on A1 | Checked: R.G

Drawing No: SCT-22013-07_07 | Revision:

Appendix 16.1 Recorded Archaeological Sites within 100m study area

SMR NO.	LH024-041
RMP STATUS	Scheduled for inclusion in the next revision of the RMP
TOWNLAND	Ballsgrove, Lagavooren, Moneymore, Yellowbatter
PARISH	St. Peter's, St. Mary's
BARONY	Drogheda/ Ferrad/ Duleek Lower
I.T.M.	Various
CLASSIFICATION	Historic town
DIST. FROM DEVELOPMENT	Within Zone of Archaeological Potential
DESCRIPTION	Historic settlement of Drogheda
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	LH024-041014
RMP STATUS	Scheduled for inclusion in the next revision of the RMP
TOWNLAND	Lagavooren, Moneymore
PARISH	St. Mary's, St. Peter's
BARONY	Duleek Lower, Drogheda
I.T.M.	Various
CLASSIFICATION	Town defences
DIST. FROM DEVELOPMENT	Within proposed development area
DESCRIPTION	These enclosed an area of c. 45 hectares and had a circumference of 2.35km. We are fortunate that a sixteenth-century plan of Drogheda survives (Bradley 1978, 100) on which the main medieval features are represented, though this must be treated with some caution. The town is divided E-W by the River Boyne which also acted at one time as the county boundary between Louth and Meath. There appear to have been ten gateways, six in the N sector and four in the S. The remains of only

two survive, St Laurence's Gate (LH024-041005-) and the Butter Gate (LH024-041007-). Besides the gateways there were also a number of towers along the walls and the N bank of the river (Bradley 1978, map opp. p. 98). Six or seven of the mural towers were S of the river while in the N sector there appear to have been between seven and ten. No remains of these can be seen on the ground and the only surviving portions of the wall are a large stretch at the W side of the town, a short fragment close to St Laurence's Gate, and a long section to the S of St Mary's Church. A subsidy was conceded in 1279 for a stone enclosure and one in 1316 for the repair of the wall and towers (D'Alton 1844, vol. I, 87), so we can safely assume that the town walls and towers were built by the end of the thirteenth century.

The section situated to the S of St Mary's Church (LH024-041010-), is the longest stretch (c. 92m) and the best-preserved portion of the medieval wall of Drogheda. It is built of roughly coursed limestone blocks and has been constructed in two distinct phases. There are the remains of a wall-walk with single-splayed opes in the parapet wall. There is a further line of opes c. 0.5m below the level of the others, but they are partially blocked by a later raising of the level of the wall-walk. The E portion of the wall is arcaded and buttressed. The buttresses are obviously a late or second phase addition to the wall. The parapet wall is 0.7m thick and the wall-walk 0.9m wide, giving a total thickness of 1.6m. There is a blocked doorway near the W end of the wall but this is undoubtedly of fairly recent origin.

Situated c. 9.5m to the SW of St Laurence's Gate (LH024-041005-), are the only other substantial remains, being c. 12.5m long. Two large sections of arcading each span an area of 3.5m. This arcading is on the inner face of the wall and is c. 0.75m deep. The total Wth of the wall is just less than 2m.

A number of excavations were undertaken along the line of the town wall by ACS Ltd. in 1996 (Excavation Licence 96E0160). Excavations at Peace Bridge revealed a section of the town wall of c. 13th century construction. Two phases of construction were visible both with arrow slits and wall walks. The wall was nearly 2m wide at its base with a batter on the outside and a buttress on the inside against the foundations. It would originally have stood to a height of c. 6.42m. Excavations at Murdock's Car Park revealed two substantial portions of the town wall. They each measured over 1m in Wth but only one or two courses of the wall remained as the rest had been destroyed by later activity. This represents the first archaeological evidence to date for the existence of a medieval river wall. Excavations at the east end of Wellington Quay revealed a short section of the town wall. This section was aligned east to west, was approximately 1.6m thick and had a batter on its western side. Excavations at John Street revealed some of the the

foundations of the town wall which had been excavated into natural boulder clay and evidence for a possible ditch was found just outside the line of the town wall here.

The following describes the various components of the town wall in a clockwise direction beginning with West Gate. A working map has been placed in the SMR file which shows the locations of the various numbered components (1-24 are N of the Boyne and 25-34 are S).

(1) Referred to as West Gate. According to Bradley (1984b) it may have been a twin bastioned structure. Also shown on Taylor and Skinner's map of 1778 but was demolished by 1808 (D'Alton 1844, I, 90). (Bradley 1984b, 89-90)

(2) Referred to as Fair Gate. Appears to have been a rectangular gatehouse. No trace survives at ground level. (Bradley 1984b, 90)

(3) Depicted on early maps as a tower or gate. No trace survives at ground level. (Bradley 1984b, 90)

(4) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 90, Tower 8)

(5) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 90, Tower 9)

(6) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 90, Tower 10)

(7) Referred to as St. Sunday's Gate. The name is derived from 'St. Sunday's Friary', an alternative name for the Dominican friary. Research by Bradley (1984b) indicates that it was a rectangular structure with a barbican linked to the tower by two side walls. In 13th and 14th century documents it is referred to as the North Gate and Cow Gate. No trace survives at ground level. (Bradley 1984b, 90)

(8) Referred to as Tooting Tower on 17th century map. No trace survives at ground level. (Bradley 1984b, 90)

(9) Referred to as Taylor's Hall Tower. May have had gate attached. Portion of this tower was still standing at the rear of No. 13 King Street in 1941. (Bradley 1984b, 90)

(10) Referred to as Pigeon Tower. A 17th century depiction shows an arch. No trace survives at ground level. (Bradley 1984b, 91)

(11) Usually called St Laurence's, it consists of a barbican with an arched entrance-way and a rounded tower at the N and S sides. The towers are four storeys high including the battlement levels but excluding an additional floor for a loft above the third storey. The opposing or inward-facing sides above the level of the central arch have flattened façades, that of the S tower being more pronounced so that it has a sharp angle at the NW. The towers are joined at first- and top-floor level by arches with crenellations above, partly supported on slight oversailings carried on small stone corbels. The second-floor level between the towers must have been built of wood and was carried on beams set on corbels and into the walls. The gate-tower is situated to the E of or outside the line of the town wall, a fragment of which still stands to its SW. There are two garderobe exits in the W face of the S tower and one in the N tower which presumably discharged into a fosse to the W of the gateway.

The gate-tower is constructed of quite well coursed limestone and greywacke rubble, while some of the details such as the portcullis groove and the outer arch contain a hard grey sandstone. Almost at the centre of the E façade, at first-floor level, in the wall that joins the bastions there is a window with a rounded arch and surrounds of moulded Dundry stone. The street level at present is higher than the ground floor of the tower. At the E side, where the street level drops slightly, there is evidence of a slight base batter on the towers. At the E end of the entranceway are the remains of a portcullis groove constructed of grey sandstone, now eroded and stained from pollution. The arch of the entranceway of the E side, which is almost semi-circular, is constructed of badly-eroded sandstone blocks. The arch at the W side is flatter than that on the E side, being segmental and constructed of limestone blocks.

There appear to be two distinct periods of building involved, plus some relatively modem alterations to the entranceway and W façade. The earlier phase, which probably dates to the end of the thirteenth century, includes all the levels up to the roof level of the second storey but not the W façade of the gateway itself. The later medieval phase consists of the two top storeys and the W side of the gateway which were added, or more probably altered, in the fifteenth century. The difference in the building phases can clearly be seen in the method of construction of the vaults at the various levels, the type of crenellations, the oversailings above the arches and the addition of the squared-off western façade of the entranceway. There is no obvious break showing on the outer face of the masonry to indicate that the building was added to rather than altered internally, so that the gate-tower as it stands is probably close to its original height.

The towers internally are almost identical in their layout and construction, and will therefore not be described separately except where considered appropriate. The ground floors of the towers are entered from opposing doorways at the W end of the entranceway. The doorways are built of rubble limestone and have semi-circular arches of small pieces of greywacke. The doorways lead to the ground-floor chambers and the stairwells which are built into the thickness of the wall. That in the S turns anticlockwise and emerges at the S side of the first floor to give access at this level, and that in the N tower goes in the opposite direction. There is a short passage (L c. 2m) from the door to the stairwell and to an almost circular main ground-floor area. The passage has an inverted V-shaped vault constructed of rubble and showing evidence of plank centring. The roofs of the ground, first and second floors have flattened dome- or saucer-shaped vaults, except for that over the ground level of the S tower which must have been wooden. They are constructed of small slabs of greywacke set almost vertically in circles one inside the other with central keystone. In the N wall of the N tower are the remains of a long straight slit with a narrow deep embrasure, now partially blocked. A similar feature, now totally blocked, can be discerned in the SE wall. The same type of ope can also be seen in the S wall of the S tower.

At the first-floor level there is a garderobe set into a recess in the W wall; that in the N tower is now blocked. The N tower has a stone-flagged floor which is presumably of fairly recent origin while the wooden floor of the S tower has not survived. In the N tower at the top of the stairwell is a simple single-light ope in the N wall, and there is one in a similar position in the S wall of the S tower. In the E wall of both towers there is a wide embrasure with a long narrow ope. The stairwells from the ground floor to the first floor have narrow passages with lintelled roofs. The doorways of the towers, which exit onto the open area directly over the gateway, have slightly-pointed two-centred arches, one of which is constructed of greywacke rubble.

Access to the second-floor level is gained by modern stone steps set against the W face of the cross-wall over the gateway. Their present position would obstruct the working of the portcullis. Originally they would have been built away from the face of the cross-wall to allow the portcullis to be raised and lowered, or else wooden steps were used. The doorways to the second-floor levels have rounded arches and are also constructed of rubble greywacke and limestone. A wooden platform once joined the two towers at the second-floor level as is evidenced by corbels and beam holes set in their opposing walls. It is likely that the portcullis was worked from this platform. The area, over the gateway is higher than the first-floor levels of the towers. This heightening must be attributed to relatively modern alterations designed to give easier access

through the gateway. The present W façade of the first-floor level is probably also part of these late alterations.

The second-floor level of the S tower has a garderobe which is set into a narrow recess and exits very close to the S side of the remodelled W façade of the gateway. In the E wall there is a small rectangular chamber with a long narrow ope. There is a large rectangular recess in the S wall which is possibly an embrasure but there is apparently no evidence for an ope. A smaller and deeper recess situated in the W wall to the S of the garderobe also lacks an ope, but in this case it may never have had one. The N tower at this level has the remains of a late tiled floor. There are embrasures with long slit opes in its N and E walls but that at the N is now blocked. There is a small recess in the wall at the WNW.

Access to the third floor of the N tower is now via a broken stairwell which commences just to the E of the doorway of the second-floor level. This is not an original stairwell since it can be clearly seen that the SE section of the second-floor roof was broken through to accommodate it and a pillar was added to the wall at the SE side to carry it. The straight joints between the pillar and the original wall are clearly visible. The original entrance to the third-floor level was from the S tower via a wooden gallery through a doorway constructed of rubble greywacke and having an almost flat arch. The sill level of this doorway is now c. 1m below the present apex of the third floor, which strongly indicates that the roof over the second level is a later insertion. Its present position would not allow for easy access from the wooden gallery through the present doorway. The opening in the roof for the present stairwell also cuts across the doorway and prevents access to an ope in the SE wall of the tower. The roof over the third floor is divided in two, each part having a corbelled vault constructed of large limestone or greywacke slabs. The vaults are supported by a central arch built of punch-dressed limestone blocks. Below this roof level a wooden floor was inserted which was carried on corbels and the thickness of the wall. Access to this loft area must have been via wooden steps through a trapdoor in the floor. The lower portion of the walls at third-floor level have alternating simple slit opes and larger rectangular ones.

In the S tower at third-floor level the opes at the W side have been blocked but can be discerned on the outer face of the wall. Two rectangular ones from the E to the SE side of the S tower have pointed arches of small greywacke slabs, whereas those in the N tower have lintels. Bradley (1984b, 92) has suggested that these rectangular opes represent the gaps between merlons of the original structure. While this is possible there is no clear evidence of remains of merlons showing in the wall and the distance between the rectangular opes would appear to be too great. In the NNE section of the wall of the N tower there is a large ope which is now blocked. Originally it appears to have been a

large embrasure with a slit ope but was later partially blocked to give support to the large limestone arch supporting the roof. The loft level of the fourth storey is lit by single-splayed opes in the W walls in both towers and in the N tower at the SE and NE.

Access to the battlement level is via a narrow stone stairwell from the third floor and through a narrow doorway out onto the top of the roof. Only part of the N jamb of the doorway, which is constructed of limestone blocks, now survives. The S tower has six stepped merlons, four of which are pierced at their bases by single-splayed opes. The top or battlement level of the N tower also has stepped merlons but none are pierced and there is a total of seven. Access to the N tower battlements was from the S tower via a crenellated passageway supported by a late medieval arch which straddles the towers. There are three merlons on each side of the passageway, none of which are pierced. The S tower projects further E from the line of the portcullis than the N tower, which appears to be slightly flattened at the E side. (D'Alton 1844, 84; Bradley 1978; 1984b, 91-4)

(12) Referred to as the Blind Gate. No trace survives at ground level. (Bradley 1984b, 89-93)

(13) Referred to as St. Catherine's Gate. A seventeenth century map shows it with a small wharf or quay attached. No trace survives at ground level. However excavations at The Mall by ACS Ltd. in 1996 - 1997 (Excavation Licence 96E0160) exposed two very substantial north to south walls which may represent the remains of this gate. (Bradley 1984b, 93-4)

(14) A mural tower depicted on 17th century map (1657). No trace survives at ground level. (Bradley 1984b, 94, Tower 11)

(15) Tower with an arch depicted on 17th century map. This may have functioned as a watergate. No trace survives at ground level. (Bradley 1984b, 94)

(16) A bridge gate depicted on 17th century map. No trace survives at ground level. (Bradley 1984b, 94)

(17) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(18) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(19) A mural tower discovered during pre-development excavation (Excavation Licence 96E0160). The exposed remains consisted of several layers of tightly packed cobbles representing a medieval street surface. To the S, this cobbled layer was cut by a semi-circular structure of limestone blocks with a projecting structure of masonry blocks, the centre of which was filled with coarse uncut blocks. This probably represents the remains of a mural tower as shown on Ricciardelli's 18th century painting of Drogheda. (Murphy, Donald, 1997b)

(20) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(21) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(22) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(23) A mural tower depicted on at least one of three historical sources dating to the 16th/17th centuries. No trace survives at ground level. (Bradley 1984b, 94, Towers 12-17)

(24) A mural tower depicted as a river tower on 17th century map. No trace survives at ground level. (Bradley 1984b, 89, Tower 7)

(25) Depicted on 17th century map. No trace survives at ground level. (Bradley 1984b, 86-7, Tower 1)

(26) Referred to as St. James's Gate. It may have been a bastioned gatehouse. No trace survives at ground level. (Bradley 1984b, 87)

(27) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 87, Tower 2)

(28) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 87, Tower 3)

	(29) Referred to as the Duleek Gate. It is first mentioned in the 14th century. May have been a rectangular gatehouse with a barbican. No trace survives at ground level. (Bradley 1984b, 88) (30) A mural tower depicted on 18th century map. No trace survives at ground level. (Bradley 1984b, 88, Tower 4) (31) A mural tower depicted on early maps. No trace survives at ground level. (Bradley 1984b, 88, Tower 5) (32) Situated on the S side of the River Boyne and usually referred to as 'Butter Gate'. Only the ground-floor level survives and it is hexagonal in plan with the entranceway piercing it from E to W. It is constructed of roughly coursed limestone blocks, greywacke and grey sandstone. The opening at the W end is narrower (Wth c. 2.25m) than that at the E (c. 3.25m) and it has grooves for a portcullis. The ground level falls away sharply to the W of the gateway but this is apparently the result of modern quarrying. The SW section of the wall shows evidence of rebuilding and the walls are battered on all but the E side. The arch over the E end of the entranceway is rounded and built of limestone while most of the quoin stones in the NE and SE angles are grey sandstone. Nothing is left of the building at first-floor level, but according to Fleming (1914, 32) it had a round-headed window and arrow loop in the S wall and a simple slit ope directly over the arch to the entrance of the W side. A fragment of the town wall (c. lm long) projects from the S side and also, probably, from the N where it is incorporated in a modern boundary wall. (Bradley 1978, 110) (33) Referred to as St. John's Gate. It may have been a large rectangular gatehouse possibly with a barbican. No trace survives at ground level. (Bradley 1984b, 89) (34) A mural tower depicted on 17th century map and drawing. Its outline is visible on the 1938 OS 6-inch map. No trace now at ground level. (Bradley 1984b, 89, Tower 6) St Laurence's Gate (11) is a National Monument, in state guardianship: No. 511.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	LH024-041011
RMP STATUS	Scheduled for inclusion in the next revision of the RMP

TOWNLAND	Moneymore
PARISH	St. Peter's
BARONY	Drogheda
I.T.M.	708504,775227
CLASSIFICATION	Religious house - Fratres Cruciferi
DIST. FROM DEVELOPMENT	Within proposed development area
DESCRIPTION	Abbey and Hospital of St Mary d'Urso, founded by Ursus de Swemele c. 1206-14 outside the then medieval W gate of Drogheda (CLAJ 1959, 154-9). The standing remains consist of part of the nave, chancel, the W gable of the N aisle, and the central bell-tower. It is built of roughly coursed limestone blocks, greywacke and rubble. There is virtually nothing left of the nave except for portions of the S wall which have been disturbed and in places rebuilt with brick. To the N of where the W end of the nave should be there are the remains of a gable wall containing a window, now filled in, which is presumably the W end of a destroyed N aisle. It is a two-centred arch of moulded sandstone and its W façade has the remains of carved heads at the base of the arch, that at the N side being almost completely eroded. The N jamb is missing while that at the S side is of moulded sandstone. The E façade has a simple two-centred moulded arch of sandstone. Part of a later wall abuts the S side of the nave at right angles. It contains a now blocked opening with segmental arch of hammer-dressed blocks of limestone which must be of late medieval date. The vaulting of the cross-tower is stepped upwards in three stages and there are two floor levels above the arch. The upper one has a twin-light transomed window at each side, while the lower stage has a small plain rectangular opening immediately below the apex of the original roof lines of the nave and chancel, but this is hardly big enough to give access to the lofts of these structures. The windows of the upper level have cusped ogee-headed arches of limestone. There is a plain rectangular-shaped doorway in the SE angle of the tower just below the line of the roof of the chancel which must have given access to a gallery. The arches of the tower are two-centred and are constructed with chamfered grey sandstone. There is a doorway in the S face of the tower at first-floor level. It has a segmental arch constructed with rough blocks of greywacke and limestone. It presumably gave access from the first-floor level of the domestic range to the tower, which in turn led to the chancel gallery - a similar arrangement to that at Carlingford Priory (LH005-042013-).

	The E window of the chancel has a large two-centred arch, but since all the tracery has been robbed it is not possible to say what type of dressed stone was used or what number of lights there were. The S wall of the chancel has one half of a small arch, now blocked, about 6m E of the central tower. It has a central keystone and limestone blocks. Just to the E and at a slightly higher level there is a moulded sandstone window jamb. In the S façade of the S wall of the chancel just to the E of the tower are the remains of a doorway at ground level, now blocked. All the arch and jamb stones, which are limestone blocks, are still in position. It has a two-centred pointed arch with keystone and is quite plain. It gave access in late medieval times to the chancel from the cloister. About 26m S of the nave there is a short E-W stretch of medieval walling (L c. 7m) which has the remains of a splay at its W extremity. On the same E-W line as this wall and c. 13m to the E there is a further small fragment which contains punch-dressed quoin stones and may be a jamb from a late medieval doorway.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	LH024-041063
RMP STATUS	Scheduled for inclusion in the next revision of the RMP
TOWNLAND	Moneymore
PARISH	St. Peter's
BARONY	Drogheda
I.T.M.	708544,775237
CLASSIFICATION	House - medieval
DIST. FROM DEVELOPMENT	Immediately adjacent to the proposed development area
DESCRIPTION	Situated on the S side of Narrow West Street, at the crest of the S-facing slope down to the River Boyne. The house at 43/44 West Street, has a projecting chimney breast on the E gable, but a commemorative plaque of Nicholas Elcock with the date 1583 on the E wall was thought to have been moved from another house (Tempest 1943). Internal works during 2017 removed internal walls at the ground floor level, and revealed the internal stairs to be a 19th century feature. The roof is also of this date, probably resulting from a refurbishment of c. 1830. The masonry of the basement and ground floor appear to be late medieval in date. The E wall at the first floor and much of the second is also original, and the Elcock plaque might be in its original position. The N wall at the basement level has a base-batter, suggesting it was probably the original ground floor of a three storey building, the roof-line of which is evident inside the E gable. About 1650 new structural timbers were introduced,

	and a decorative fireplace added to the E gable at the first floor. Later in the seventeenth century, c. 1675, the front (N) and S walls above the basement were rebuilt.
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	LH024-041079
RMP STATUS	Scheduled for inclusion in the next revision of the RMP
TOWNLAND	Moneymore
PARISH	St. Peter's
BARONY	Drogheda
I.T.M.	708555,775110
CLASSIFICATION	Quay
DIST. FROM DEVELOPMENT	Within the proposed development area
DESCRIPTION	Excavations at the S end of Dominic Street (Excavation Licence 96E0160) revealed an E-W aligned section of quay wall. It was over 1m thick and was constructed of mortared stone (pers. comm. Eoin Corcoran (Archaeological Consultancy Services Limited), 2002).
REFERENCE	www.archaeology.ie/ SMR file

SMR NO.	LH024-041065
RMP STATUS	Scheduled for inclusion in the next revision of the RMP
TOWNLAND	Moneymore
PARISH	St. Peter's
BARONY	Drogheda
I.T.M.	708650,775190
CLASSIFICATION	House - medieval
DIST. FROM DEVELOPMENT	c. 57m east
DESCRIPTION	A half-timbered medieval building survived until 1945 on the site of the present post office on West Street. (Campbell 1987, 53)
REFERENCE	www.archaeology.ie/ SMR file

Appendix 16.2 LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht and the Islands 1999, 35). This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The National Monuments Act 1930 to 2014 and relevant provisions of the National Cultural Institutions Act 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. A National Monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for the Department of Housing, Local Government and Heritage) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition, they are liable for costs for the repair of the damage caused.

In addition to this, under the European Communities (Environmental Impact Assessment) Regulations 1989, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

Louth County Development Plan (2021-2027)
Policy Objectives

BHC 1 To protect and enhance archaeological sites and monuments, underwater archaeology, and archaeological objects listed in the Record of Monuments and Places (RMP), and/or the Register of Historic Monuments and seek their preservation (i.e. presumption in favour of preservation in situ or in exceptional cases, at a minimum, preservation by record) through the planning process and having regard to the advice and recommendations of the National Monuments Service of the Department of Housing, Local Government and Heritage and the principles as set out in the 'Framework and Principles for the Protection of the Archaeological Heritage' (Department of Arts, Heritage, Gaeltacht and the Islands 1999).

BHC 2 To protect the built heritage assets of the county and ensure they are managed and preserved in a manner that does not adversely impact on the intrinsic value of these assets whilst supporting economic renewal and sustainable development.

BHC 3 To protect known and unknown archaeological areas, sites, monuments, structures and objects, having regard to the advice of the National Monuments Services of the Department of Housing, Local Government and Heritage.

BHC 4 To promote awareness and knowledge of the archaeological resources of the County and support initiatives where appropriate that provide better access to the historic built environment.

BHC 5 To protect all sites and features of archaeological interest discovered subsequent to the publication of the Record of Monuments and Places (i.e. preservation in situ or in exceptional circumstances, at a minimum preservation by record) having regard to the advice and recommendations of the National Monuments Section of the Department of Housing, Local Government and Heritage.

BHC 6 To ensure any development, either above or below ground, adjacent to or in the immediate vicinity of a recorded monument or a Zone of Archaeological Potential (including formerly walled towns) shall not be detrimental to or detract from the character of the archaeological site or its setting and be sited and designed to protect the monument and its setting. Where upstanding remains exist, a visual impact assessment may be required.

BHC 7 To require applicants seeking permission for development within Zones of Archaeological Potential and other sites as listed in the Record of Monuments and Places to include an assessment of the likely archaeological potential as part of the planning application and the Council may require that an on-site archaeological assessment is carried out by trial work, prior to a decision on a planning application being taken.

BHC 8 To protect and preserve in situ all surviving elements of medieval town defences (both upstanding and buried) and associated features in accordance with the Conservation and Management Plans as applicable and with 'National Policy on Town Defences' (Department of Environment, Heritage and Local Government 2008).

BHC 9 To retain the surviving medieval street pattern, building lines and burgage plot widths in historic walled towns.

BHC 10 To require, as part of the development management process, archaeological impact assessments, geophysical surveys, test excavations and monitoring, as appropriate, where development proposals involve ground clearance of more than half a hectare or for linear developments over one kilometre in length or for developments in proximity to areas with a density of known archaeological monuments and history of discovery, as identified by a licensed archaeologist.

Appendix 16.3 Impact Assessment and The Cultural Heritage Resource

POTENTIAL IMPACTS ON ARCHAEOLOGICAL AND HISTORICAL REMAINS

Impacts are defined as 'the degree of change in an environment resulting from a development' (Environmental Protection Agency 2017). They are described as profound, significant or slight impacts on archaeological remains. They may be negative, positive or neutral, direct, indirect or cumulative, temporary or permanent.

Impacts can be identified from detailed information about a project, the nature of the area affected and the range of archaeological and historical resources potentially affected. Development can affect the archaeological and historical resource of a given landscape in a number of ways.

- Permanent and temporary land-take, associated structures, landscape mounding, and their construction may result in damage to or loss of archaeological remains and deposits, or physical loss to the setting of historic monuments and to the physical coherence of the landscape.

- Archaeological sites can be affected adversely in a number of ways: disturbance by excavation, topsoil stripping and the passage of heavy machinery; disturbance by vehicles working in unsuitable conditions; or burial of sites, limiting accessibility for future archaeological investigation.

- Hydrological changes in groundwater or surface water levels can result from construction activities such as de-watering and spoil disposal, or longer-term changes in drainage patterns. These may desiccate archaeological remains and associated deposits.

- Visual impacts on the historic landscape sometimes arise from construction traffic and facilities, built earthworks and structures, landscape mounding and planting, noise, fences and associated works. These features can impinge directly on historic monuments and historic landscape elements as well as their visual amenity value.

- Landscape measures such as tree planting can damage sub-surface archaeological features, due to topsoil stripping and through the root action of trees and shrubs as they grow.

- Ground consolidation by construction activities or the weight of permanent embankments can cause damage to buried archaeological remains, especially in colluviums or peat deposits.

- Disruption due to construction also offers in general the potential for adversely affecting archaeological remains. This can include machinery, site offices, and service trenches.

Although not widely appreciated, positive impacts can accrue from developments. These can include positive resource management policies, improved maintenance and access to archaeological monuments, and the increased level of knowledge of a site or historic landscape as a result of archaeological assessment and fieldwork.

PREDICTED IMPACTS

The severity of a given level of land-take or visual intrusion varies with the type of monument, site or landscape features and its existing environment. Severity of impact can be judged taking the following into account:

- The proportion of the feature affected and how far physical characteristics fundamental to the understanding of the feature would be lost;
- Consideration of the type, date, survival/condition, fragility/vulnerability, rarity, potential and amenity value of the feature affected;
- Assessment of the levels of noise, visual and hydrological impacts, either in general or site-specific terms, as may be provided by other specialists.

Appendix 16.4 Mitigation Measures and The Cultural Heritage Resource

POTENTIAL MITIGATION STRATEGIES FOR CULTURAL HERITAGE REMAINS

Mitigation is defined as features of the design or other measures of the proposed development that can be adopted to avoid, prevent, reduce, or offset negative effects.

The best opportunities for avoiding damage to archaeological remains or intrusion on their setting and amenity arise when the site options for the development are being considered. Damage to the archaeological resource immediately adjacent to developments may be prevented by the selection of appropriate construction methods. Reducing adverse effects can be achieved by good design, for example by screening historic buildings or upstanding archaeological monuments or by burying archaeological sites undisturbed rather than destroying them. Offsetting adverse effects is probably best illustrated by the full investigation and recording of archaeological sites that cannot be preserved in situ.

DEFINITION OF MITIGATION STRATEGIES

ARCHAEOLOGICAL RESOURCE

The ideal mitigation for all archaeological sites is preservation in situ. This is not always a practical solution. Therefore, a series of recommendations are offered to provide ameliorative measures where avoidance and preservation in situ are not possible.

Archaeological Test Trenching can be defined as 'a limited programme of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality, and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate' (CIfA 2014a).

Full Archaeological Excavation can be defined as 'a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design' (CIfA 2014b).

Archaeological Monitoring can be defined as 'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive (CIfA 2014c).

Appendix 18.1 – Tree Survey

TREE SURVEY REPORT

FOR:

WESTGATE, DROGHEDA

M. LARGE TREE SERVICES LTD.

"Coolewell", Church Rd, Newtownabbey, BT36 6DH

Tel (02890) 342838 Fax (02890) 837377 E-mail sales@mlarge.com

Web www.mlarge.com

M. LARGE TREE SERVICES LTD

TREE SURVEY AND REPORT

SITE:

WESTGATE, DROGHEDA

CLIENT:

LOUTH COUNTY COUNCIL

TERMS OF REFERENCE:

- **To survey and produce a report on the health and condition of trees growing on the above site.**
- **To make recommendations for tree works to ensure site safety and good arboricultural management.**
- **To provide a photographic record of the trees on the site.**

SURVEY DATE (S)

25th October 2021

SURVEYED BY

Stephen Warren

TREE SURVEY AND REPORT FOR:

WESTGATE, DROGHEDA

1. OVERVIEW.

A total of thirty-eight individual trees and one small group have been surveyed on the site. Of these, the majority are in a healthy condition, and require only minimal remedial attention. The group, and three individual trees are in poor health, and are recommended for removal.

As the trees are growing in public areas, monitoring is necessary out to ensure the lateral or lower branch growth does not become a hazard for pedestrians. This may be regarded as only a minor part of the management of the trees, but should be carried out in addition to the specific recommendations and on an ongoing basis.

Specific observations and recommendations for individual trees and groups are recorded in the attached survey schedule. All tree works carried out should follow British Standard (BS) 3998: 2010: *Tree works recommendations*.

There is a proposed development and regeneration of the area. Any and all construction or development operations carried out within the RPA of any tree must follow British Standard (BS) 5837:2012: *Trees in relation to design, development, and construction – Recommendations*.

Stephen Warren BSc (Hons)

2. SURVEY METHODOLOGY.

- The site was surveyed on the 25th of October 2021. Trees were assessed visually in accordance with standard Visual Tree Assessment and the report compiled in the attached survey schedule follows as per BS 5837:2012.
- The trees were inspected from ground level only, and no decay detection equipment was used.
- No tissue samples were taken, nor were any internal investigations of the subject trees undertaken.
- No soil samples were taken.
- All trees have been surveyed individually.
- Trees below 75mm diameter at a height of 1.5m are not covered under BS5837 2012 and any examples growing on the site have not been included in this survey.
- All trees surveyed have been marked on a map plan supplied by Turleys Architects. This plan shows the tree number, category, Root Protection Area (RPA), accurate crown spreads and Construction Exclusion Zones (CEZ).
- Root Protection Areas (RPA) are recorded in the schedule and highlighted on the map with red circles around the trees. These are minimum areas in m^2 and should be left undisturbed around each tree. Those described as in poor condition, have still been marked with an RPA.

The following information was recorded for each tree:

Tree Number.
Trees are designated a number that is unique to them throughout the survey.

Tree Species.
The common name.

Life stage.
The relative age within its species and is expressed as young (y), semi-mature (sm), mature (m) and over-mature (om).

Tree height.
The approximate height of the tree in metres from ground level to the top of the crown.

Diameter at breast height.
The diameter of the main stem (cm) measured at 1.5m from ground.

Crown spread.
The crown extent (m) from the stem centre to the North, South, East, and West. These figures were estimated by pacing.

BS5837 Root Protection Area (m^2).
An assessment of the Root Protection Area (RPA) required, based on the individual tree data collected and calculations found in BS5837: 2012.

BS5837 Root Protection radius (m).
The distance measured, in metres, from the stem centre and used to calculate the Root Protection Area.

Observations.
Notes on the trees structure and health.

Recommendations for remedial works.
Notes on recommended tree surgery to maintain the tree.

BS5837 tree categorization rating.
See table 1.

Table 1 Adapted from BS 5837: 2012 (p.9)

Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Table 2 Adapted from BS 5837: 2012 (p.10)

Identification of tree categories

Category (from Table 1)	Colour [A)]	RGB code [A)]
U	Dark red	127-000-000
A	Light green	000-255-000
B	Mid blue	000-000-255
C	Grey	091-091-091

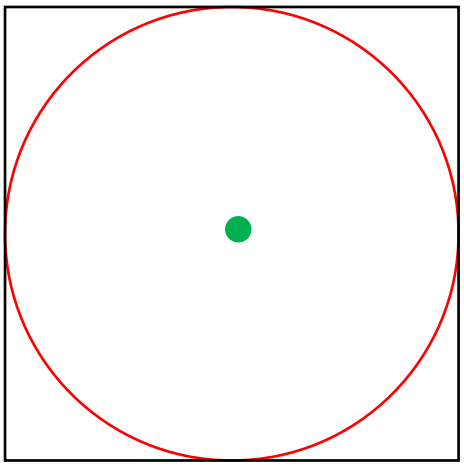
[A)] Colours verified against http://safecolours.rigdenage.com/palettefiles.html#files [viewed 2012-03-26].

3. TREE PROTECTION MEASURES.

All construction operations carried out within the RPA should follow *British Standard (BS) 5837:2012: Trees in relation to design, development, and construction – Recommendations*.

3.1.1 Protective fencing.

The protective fencing shall be erected to form a Construction Exclusion Zone (CEZ) and will be erected prior to any site works. BS5837 defines this zone as an 'area based on the root protection area from which access is prohibited for the duration of a project' (p.3). As a guideline, it may be described as a square of length and breadth equal to the diameter of the RPA (figure 1).



Red:	RPA
Black:	CEZ
Green:	Tree location

Figure 1: RPA and CEZ

The barrier will comprise of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld mesh panels will be fixed securely with wire or scaffold clamps (Figure 2). Weld mesh panels on rubber or concrete feet are not resistant to impact, and should not be used.

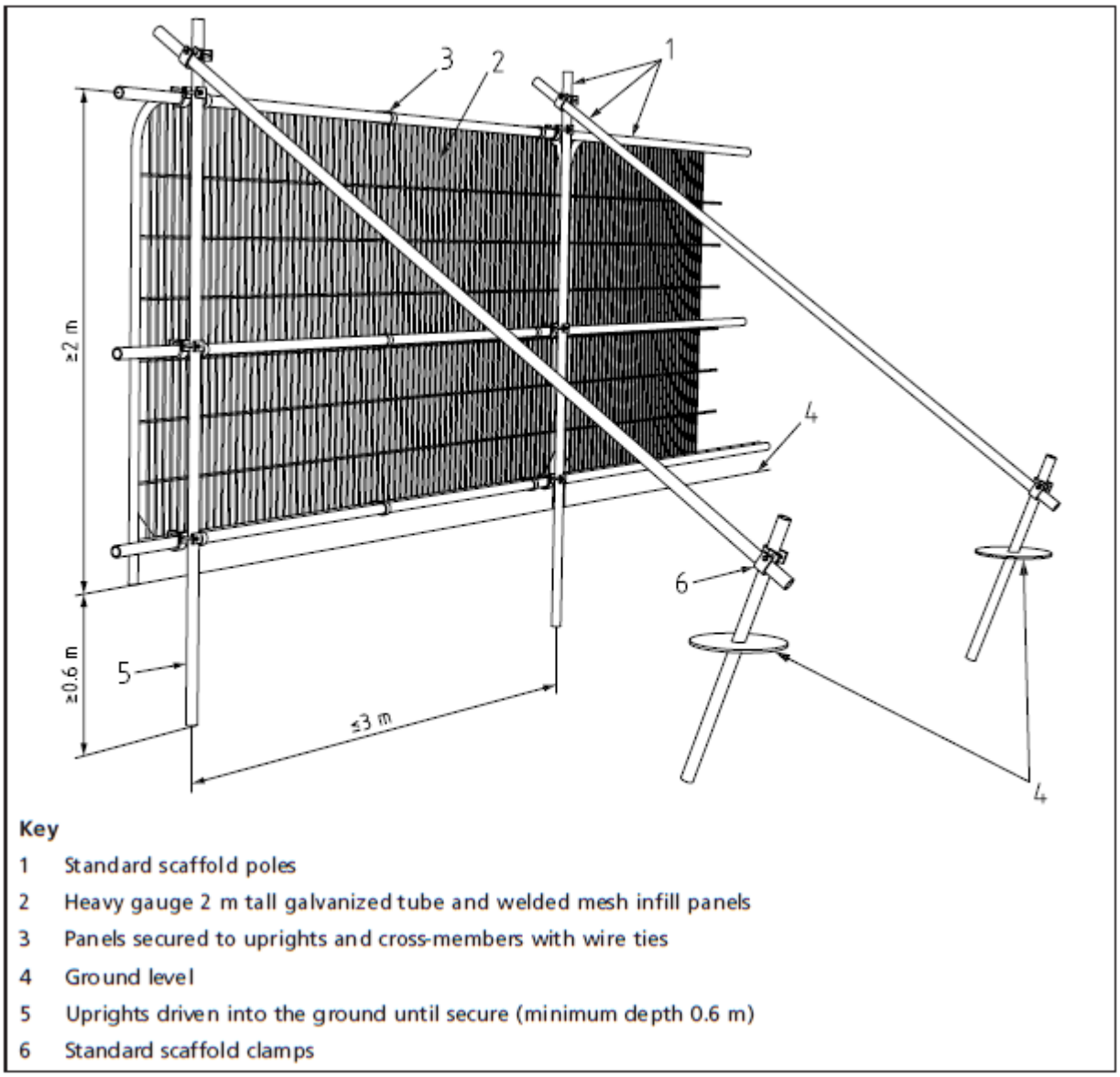


Figure 2 - Tree Protective fencing specification (adapted from BS5837:2012, p.20).

Once the fencing is in place, it must remain in-situ throughout the following:

- Contractor occupancy
- Plant and Materials delivery
- Construction works
- Installation of porous surfacing
- Utility installation
- Completion of development
- Landscaping

3.1.2

The area within the CEZ will be regarded as sacrosanct and the tree protective fencing shall not be taken down, or relocated, at any time without the consultation of an arboriculturalist.

3.1.3

Ground protection within a Root Protection Area (RPA) can take the form of scaffold boards or trakway. This will enable the provision of working space within the RPA. And allow pedestrian movements.

3.1.4

Removal of existing surfacing, built forms or other excavations within the Construction Exclusion Zone of retained trees, must be done by hand (where feasible and in line with Health and Safety polices), to avoid any surface root damage, and shall be supervised on-site by the retained Arboricultural Consultant.

3.1.5

Any removal of hard surfacing, built form, or other excavations near trees, will be undertaken by working only from the existing hard surface or protected ground area. The required work should then be completed with hand operated tools or appropriate machinery, but under the supervision of an arboriculturalist. Any machinery or equipment to be used will need to lightweight, and run on additional ground protection, or working from the existing hard standing only.

If the area of the zone of protection around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid, or the area receives soft landscaping treatment, then ground/tree protection MUST be correctly re-established immediately after the hard surface removal work has been completed. If for whatever reason there is a delay before the area that was previously protected by hard surfacing is left exposed, and is awaiting new surfacing, then a temporary surface must be implemented, and/or Hessian sacking must be placed over any exposed roots.

3.2 AREAS OF ROAD OR PARKING WITHIN RPA.

The areas of road or parking within the Root Protection Area of the trees will be constructed using a cellular confinement system on top of Geotextile membrane. This system, which uses no-dig techniques for its installation means that:

- No roots will be severed.
- No soil will be compacted.
- The free action of oxygen and carbon dioxide into and out of the soil is maintained.
- Water infiltration into the soil is not impeded.

When installing the system, the following guidelines should be adhered to:

- The ground must be protected at all stages of installation. There is little point in using this technique if the damage to the roots and soil is done by other site activities before it is installed.
- Geotextile membrane will be used underneath the cell system to prevent penetration into the soil of fill material.
- The fill material should be granular and permit water and air flow.
- Any edging should be carefully designed to prevent excavation and root severance.
- A permeable and gas porous wearing course should be installed above the Geocell.

The method for installing this system will be as follows:

1 Remove grass and other vegetation and the upper organic layer of soil by hand digging. Arisings should be wheel-barrowed out of the tree protection area. Machinery (even low ground pressure tracked vehicles) should not be used due to the danger of soil compaction.

2 Small depressions may be filled with sharp sand.

3 Lay out Geotextile over the area.

4 Lay out Geocell and carefully peg in place.

5 Fill the cells working from the area furthest from the tree first. Further filling should be carried out using the filled Geocell as a platform.

6 Install a permeable wearing course, e.g. porous tarmac, block paviours on a sharp sand base (a further layer of Terram above the filled Geocell will be needed in this case to prevent the sand mixing with the granular fill below).

3.3 UTILITY SERVICE CONNECTIONS.

The following services should avoid the Root Protection Areas of trees and their roots:

- Foul and surface water drains Electricity
- Land drains
- Telephone
- Soakaways
- Lighting
- Gas Signage
- Oil Water

3.4 TRENCHLESS TECHNIQUE.

If, for whatever reason this is not possible, service runs will be installed using a trench-less technique. This will be in the form of either auger boring, 500mm below the existing ground hand dug trenches level, or by use of an air spade, so that most roots are retained and therefore the installation is not detrimental to the retained trees. These services will be installed following the guidelines as set out in National Joint Utilities Group Technical Publication, Vol. 4 (2007) – “Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees”.

3.5 AVOIDING DAMAGE TO STEMS AND BRANCHES.

Care shall be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs, and counterweights, can operate without coming into contact with retained trees. Such contact could result in serious damage to them, and might make their safe retention impossible. Consequently, any transit or traverse of plant near trees, should be conducted under the supervision of a banksman, to ensure adequate clearance from trees is always maintained.

3.6 REPORT DAMAGE TO TREES AND TREE PROTECTION FENCING.

Should any damage occur to trees noted for retention, either by the above works or as the result of any other action, the damage should be reported to the site supervisor immediately. The site agent shall report up the chain of responsibility to the retained Consultant Arboriculturalist, or in the absence of such an appointment, to an appropriately qualified Arboriculturalist, to enable remedial measures to be implemented as necessary.

Should protective fencing become so damaged that its function in protecting trees is impaired, all work shall cease near the damage, until the fence has been returned to standard.

3.7 COMPENSATORY AND PRE-EMPTIVE PRUNING.

Where root damage is expected and unavoidable, or where the crown of a tree may infringe upon the development, it is appropriate to reduce a tree by pruning. This can, in the case of root loss, limit the die back and loss of vigor presented in the crown common with this problem. In the case where the crown infringes upon the development pre-emptive pruning can mean that the tree is undamaged and will not interfere with construction resulting in possible damage.

3.8 REMOVAL OF PROTECTIVE FENCING.

When the development phase is complete, all drainage and service runs are in place, all site machinery has been removed, and any landscaping for the principal area of the site has been implemented, the protective fencing will be dismantled. This fence dismantling must be done with great care, and will need to be supervised to avoid heavy machinery being used. Hoarding, scaffolding and other fencing materials will need to be removed from site immediately.

4. SUMMARY OF TREE SURVEY.

There is a minor amount of ivy growth on several trees throughout the site. Ivy has a high biodiversity value and, in woodland environments, the cutting and removal of it is not recommended. However, it may also disguise underlying problems as well as increasing the sail effect of crowns and all trees on the site with ivy growth should have that growth be cut at the base.

There is also a build-up of deadwood in many of the larger trees. Whilst this is a natural occurrence, and does not reflect the overall health of an individual tree, there is considered to be a risk of damage to persons or property beneath the crown caused by falling deadwood. It should therefore be kept to a minimum, and crown cleaning has been recommended. This consists of the removal of all unwanted material from the crown of the tree and may be regarded as the basic safety prune. It should include the removal of all dead, dying, broken or diseased material from the tree.

Photograph 1: An overview of trees 16 (right) to 25.

In conifer species, there is often a significant amount of natural dieback of the lower branches. As the crown of the tree grows, it effectively suppresses its own lower branches. This is generally not as large as the deadwood occurring in the crowns of broadleaved trees and is not considered to be as hazardous. Examples of trees with such natural dieback need not be crown-cleaned, unless immediately overhanging roads or paths.

Many trees are growing close to paths, roads, and other hard surfaces. These surfaces act as a barrier to root development and trees affected should be monitored for any loss of vigour. In addition, damage may be caused by the weight of vehicles to any roots that have grown under these surfaces. Root growth may even cause damage to the surfaces, potentially creating a risk to the public or vehicles. In all cases, regular monitoring is required to identify potential problems as early as possible.

Photograph 2: The base of tree 1 growing within a hard, paved surface.

Crown reduction has been recommended for many trees and may be used to reduce mechanical stress on individual branches or the whole tree, making the tree more suited to its immediate environment. Any reduction should retain the main structure of the crown and a significant proportion of the foliage, leaving a similar, but smaller outline. Pruning cuts should be as small as possible and in general not exceed 10cm diameter. Measurements for reduction recommended in the report should be regarded as approximate, with pruning cuts made at an appropriate branching point rather than removing exactly the specified length. Please note, a general reduction of 4m (for example) is a reduction of 4m from the height and 4m from the *total* width of the tree. Where necessary, more detailed measurements are given.

The term “reduce endweight to balance crown” is used where a tree has more branching in one direction, causing it to become unbalanced. Whilst an unbalanced crown is not necessarily an immediate problem, uneven weighting in a tree can increase the likelihood of wind-throw. The shortest “extent” of each crown-spread should be taken as a guide and the remaining branches pruned close to that length.

Photograph 3: Note how number 10 (right) is becoming slightly unbalanced due to suppression from the tree.

ADDITIONAL PHOTOGRAPHIC RECORD

Photograph 4: An overview of trees 1-5 (left to right).

Photograph 5: Minor damage at the base of tree 10. This type of wounding is unlikely to have long term detrimental effects of the tree.

Photograph 6: Tree 12, growing from the wall of the bridge.

Photograph 7: As they expand, the roots of tree 12 will push and weaken the structural integrity of the wall.

Photograph 8: The base of tree 31. Note close proximity of the carpark and the pavement/road. These surfaces will affect the growth and development of the roots.

Photograph 9: Group 38. These self-seeded trees are growing on top of (or at the base of) the old stone wall. As with tree 12, the root systems are unlikely to fully develop, resulting in the failure of the trees, and the weakening of the wall.

KEY TO SURVEY SHEETS

1) TREE NO: REFERENCE TAG NUMBER ON TREE.

2) TREE SPECIES.

3) AGE:
- **y: YOUNG.**
- **sm: SEMI MATURE.**
- **m: MATURE.**
- **om: OVER MATURE.**

4) CONDITION*:
- **GOOD: A SUPERIOR TREE WITH NO VISIBLE FAULTS.**
- **FAIR: A HEALTHY TREE WITH ONLY MINOR DEFECTS.**
- **POOR: SEVERAL OR SEVERE DEFICIENCIES HEALTH.**
- **DEAD: DEAD OR DEATH IMMINENT. FAILURE IRREVERSIBLE.**

5) HT: TREE HEIGHT IN METERS.

6) DBH: DIAMETER AT BREAST HEIGHT (1.5m).

7) RPR: ROOT PROTECTION RADIUS.
THE RADIUS, IN METRES, USED TO CALCULATE THE RPA.

8) RPA (ROOT PROTECTION AREA):
THE MINIMUM AREA AROUND A TREE DEEMED TO CONTAIN SUFFICIENT ROOTS AND ROOTING VOLUME TO MAINTAIN THE TREE. PROTECTION OF THE ROOTS AND SOIL STRUCTURE IS TREATED AS A PRIORITY. CALCULATED AS PER GUIDELINES IN BS 5837 (2012).

9) CROWN SPREAD:
THE DISTANCE IN METRES FROM THE CENTRE OF THE TREE TO THE NORTH, SOUTH, EAST, AND WEST.

10) OBSERVATIONS:
COMMENTS REGARDING THE GENERAL HEALTH AND CONDITION OF THE TREE.

11) RECOMMENDATIONS:
ACTION TO BE TAKEN BASED ON OBSERVATIONS.

12) BS5837 TREE CATEGORISATION RATING (SEE TABLE 1).

Please note:
The condition of a tree is based on its physiological health when inspected, and does not include any external environmental factors (such as restrictions to root growth) or predicted development of issues (such as spread of existing decay). Therefore, a direct correlation between the condition of a tree and its category SHOULD NOT BE ASSUMED. As an extreme example, a tree may in theory be described as in "good" condition, but still have a low Categorisation Rating (12).

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
1	Oak	y	Fair	5	8	0.96	3	1	1	1	1	This single stemmed tree has a healthy crown. It is growing in a small bed, surrounded by hard surfaces. There is branching from ground level.	No action is required at this time.	B
2	Oak	y	Fair	5	8	0.96	3	1	1	1	1	This single stemmed tree has a healthy crown. It is growing in a small bed, surrounded by hard surfaces. There is branching from ground level.	No action is required at this time.	B
3	Oak	y	Fair	5	8	0.96	3	1	1	1	1	This single stemmed tree has a healthy crown. It is growing in a small bed, surrounded by hard surfaces. There is branching from ground level.	No action is required at this time.	B
4	Oak	y	Fair	5	7	0.84	2	1	1	1	1	This single stemmed tree has a healthy crown. It is growing in a small bed, surrounded by hard surfaces. There is branching from ground level.	No action is required at this time.	B
5	Oak	y	Fair	5	8	0.96	3	1	1	1	1	This single stemmed tree has a healthy crown. It is growing in a small bed, surrounded by hard surfaces. There is branching from ground level.	No action is required at this time.	B
6	Lime	y	Fair	5	11	1.32	5	2	2	2	2	This single stemmed tree has a healthy crown. There is minor wounding at points of branch loss, and epicormic growth at the base. The tree has a minor inclusion at the fork union.	Remove epicormic growth.	B
7	Lime	y	Fair	7	13	1.56	8	3	3	2	2	This single stemmed tree has a healthy crown. There is minor wounding to the lower part of the stem.	No action is required at this time.	B
8	Lime	y	Fair	7	12	1.44	7	2	3	1	2	This single stemmed tree has a healthy crown. The tree has minor epicormic growth at the base.	No action is required at this time.	B
9	Hazel	y	Fair	4	to 12	1.44	7	3	4	5	4	This multi-stemmed tree has a healthy, partially suppressed crown. It is self-seeded, natural regeneration growing at the edge of a river.	No action is required at this time.	C

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
10	Lime	y	Fair	7	14	1.68	9	1	3	2	2	This single stemmed tree has a healthy, partially suppressed crown. There is slightly more branching to the south due to suppression from tree 9, and the crown may become unbalanced. The tree has old, minor wounding to the lower part of the stem.	No action is required at this time.	B
11	Lime	y	Fair	6	12	1.44	7	2	3	2	3	This single stemmed tree has a healthy crown. There is an inclusion at the fork union and epicormic growth at the base.	Remove epicormic growth.	B
12	Sycamore	y	Poor	5	to 13	1.56	8	1	0	1	2	This multi-stemmed tree has a healthy crown, but is self-seeded, natural regeneration growing from a wall. The location will have an adverse effect on the long-term health of this tree, and damage the structural integrity of the wall.	Fell to maintain site safety.	U
13	Sycamore	y	Poor	6	12	1.44	7	2	1	2	1	This single stemmed tree has a healthy crown, but is growing at the base of a wall. The location will have an adverse effect on the long-term health of this tree, and damage the base of the wall.	Fell to maintain site safety.	U
14	Sycamore	y	Fair	9	to 16	1.92	12	3	3	4	3	This multi-stemmed tree has a healthy crown that contains minor crossed/fused branches, and has an inclusion at the fork union. The tree is partially overgrown with ivy. It is growing between a path and a road, and may have a restricted root system as a result.	Cut ivy.	B
15	Willow	y	Fair	5	to 11	1.32	5	2	3	3	3	This multi-stemmed tree has a healthy crown. It is self-seeded, natural regeneration growing at the edge of a river. There is minor deadwood throughout the crown, and the tree is partially overgrown with ivy.	No action is required at this time.	C

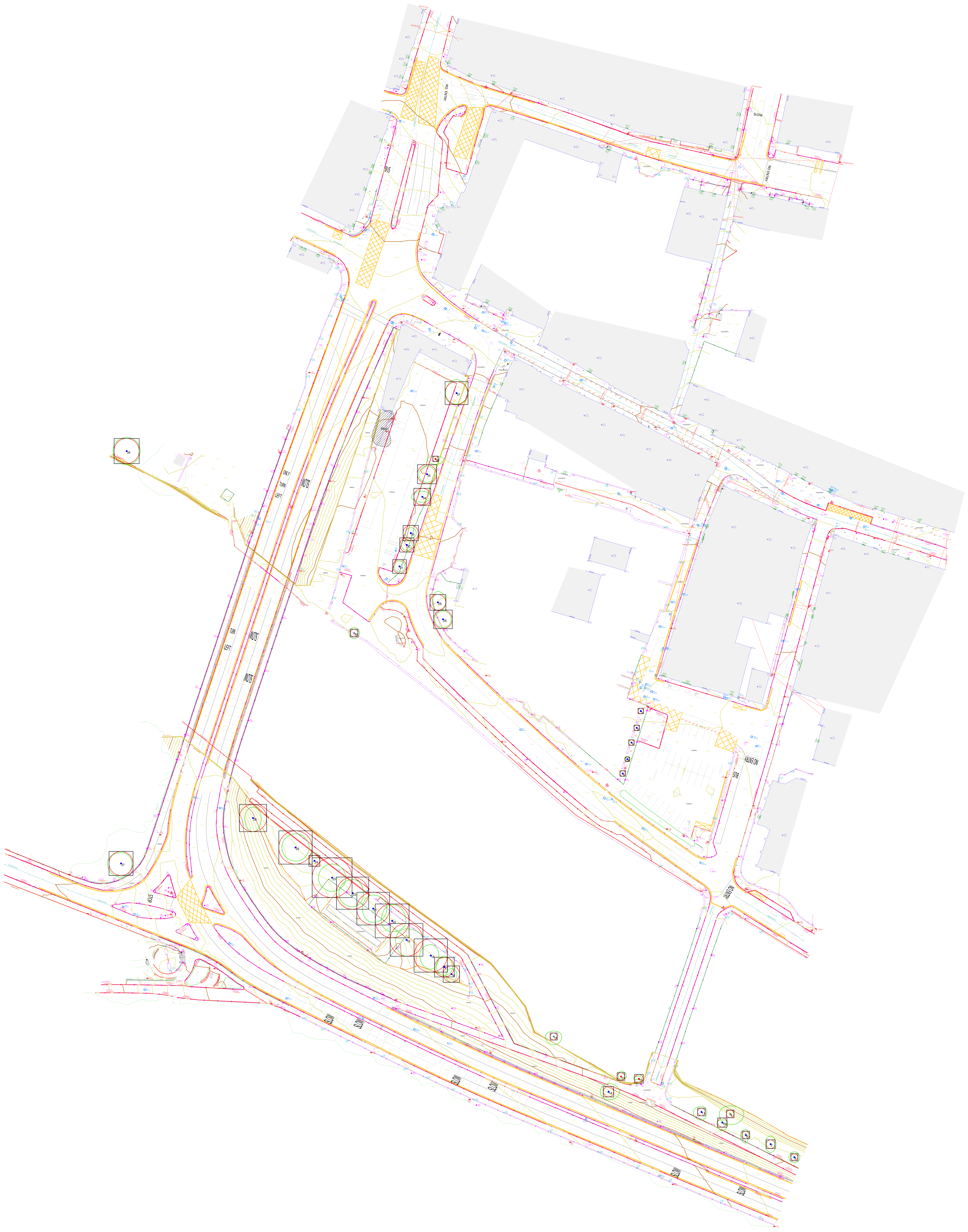
No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
16	Cypress	m	Fair	16	to 25	3.00	28	2	3	2	2	This multi-stemmed tree has a healthy, partially suppressed crown that contains minor deadwood. There is also natural dieback of the inner and lower branches. The tree has a sweep at the base, and minor wounding to the buttress. It is growing close to a wall, and may have a restricted root system as a result.	No action is required at this time.	B
17	Cypress	m	Fair	17	to 30	3.60	41	4	3	3	3	This multi-stemmed tree has a healthy, partially suppressed crown that contains deadwood. There is also a broken (split) branch to the north, and natural dieback of the inner and lower branches. The tree is heavily overgrown with ivy and is overhanging a path.	Remove deadwood and broken branch. Cut ivy.	B
18	Lime	m	Fair	17	51	6.12	118	4	5	3	4	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood throughout the crown, and lateral branch growth overhangs a path and a streetlight. There is minor epicormic growth at the base. It is growing close to a wall, and may have a restricted root system as a result. There is a decayed wound to the lower part of the main stem.	Remove epicormic growth. Crown clean. Reduce endweight to balance crown. Reduce height by 4m.	B
19	Lime	m	Fair	17	50	6.00	113	4	6	6	4	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood throughout the crown, and lateral branch growth overhangs a path and a playground. There is minor epicormic growth at the base and minor ivy growth on the main stem. It is growing close to a wall, and may have a restricted root system as a result.	Remove epicormic growth. Crown clean. Reduce endweight to balance crown. Reduce height by 4m.	B
20	Lime	m	Fair	17	52	6.24	122	6	4	5	4	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood throughout the crown, and lateral branch growth overhangs a path and a playground. There is minor epicormic growth at the base. It is growing close to a wall, and may have a restricted root system as a result. There is a large inclusion at the fork union.	Remove epicormic growth. Crown clean. Reduce endweight to balance crown. Reduce height by 4m.	B

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
21	Lime	m	Fair	17	50	6.00	113	5	5	5	4	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood throughout the crown, and lateral branch growth overhangs a path and a playground. There is minor epicormic growth at the base and slight scraping wounds to the lower part of the stem. It is growing close to a wall, and may have a restricted root system as a result.	Remove epicormic growth. Crown clean. Reduce endweight to balance crown. Reduce height by 4m.	B
22	Lime	m	Fair	17	49	5.88	109	5	5	4	5	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood throughout the crown, and lateral branch growth overhangs a path and a playground. There is minor epicormic growth, ivy, and wounding at the base. It is growing close to a wall, and may have a restricted root system as a result.	Remove epicormic growth. Crown clean. Reduce endweight to balance crown. Reduce height by 4m.	B
23	Lime	m	Fair	17	61	7.32	168	5	5	5	5	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is deadwood and crossed/fused branches throughout the crown, and lateral branch growth overhangs a path and a playground. There is minor epicormic growth at the base. It is growing close to a wall, and may have a restricted root system as a result.	Remove epicormic growth. Crown clean. Reduce endweight to 4m. Reduce height by 4m.	B
24	Lime	sm	Fair	10	to 17	2.04	13	3	2	2	2	This multi-stemmed tree has a healthy, partially suppressed crown that contains minor deadwood and small crossed/fused branches. There is decayed wounding to the lower part of the stem. The tree is growing close to a wall, and is overhanging a streetlight and a path.	No action is required at this time.	B
25	Lime	m	Fair	14	51	6.12	118	5	5	5	5	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is minor deadwood throughout the crown, and lateral branches overhang a path. The tree is growing close to a wall and may have a restricted root system as a result. It is heavily overgrown with ivy, and has epicormic growth at the base.	Remove epicormic growth. Cut ivy. Crown clean. Crown reduce by 2m.	B

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
26	Lime	m	Fair	10	42	5.04	80	4	5	3	3	This single stemmed tree has a healthy crown that has previously been reduced. It is growing on a slope and has epicormic growth at the base. The tree is heavily overgrown with ivy. There an inclusion at the main fork union, and smaller inclusions at several forks throughout the crown.	Remove epicormic growth. Cut ivy. Reduce endweight to balance crown.	B
27	Sycamore	m	Fair	15	37	4.44	62	4	5	4	5	This single stemmed tree is forking at 2m and has a large inclusion at the fork union. The tree has a healthy, partially suppressed crown. It is growing on a slope and is overhanging a path.	No action is required at this time.	B
28	Willow	sm	Fair	7	28	3.36	35	3	3	3	3	This single stemmed tree has a healthy, partially suppressed crown that contains minor deadwood. It is growing at the base of a streetlight, and has previously been crown-lifted over a pavement. A large secondary stem has been removed from the base.	No action is required at this time.	B
29	Rowan	m	Fair	6	24	2.88	26	4	3	3	2	This single stemmed tree has a healthy, partially suppressed crown that has previously been reduced. There is minor deadwood in the crown, and the tree is overhanging a pavement. There are old wounds at the base, likely due to strimmer damage. The root system is slightly exposed in the lawn, and minor damage has occurred.	No action is required at this time.	B
30	Sycamore	y	Fair	4	to 12	1.44	7	2	2	2	2	This multi-stemmed tree is self-seeded, natural regeneration growing on top of a wall at the edge of a river. It has a healthy, partially suppressed crown, but the root system is restricted by the wall and river.	No action is required at this time.	C
31	Hornbeam	sm	Fair	7	21	2.52	20	2	2	2	2	This single stemmed tree has a healthy crown. It is forking at 1m, so the DBH has been measured at the base. The tree is growing in a shrub bed between a pavement/road and a carpark area; the growth of the root system is likely to be restricted as a result.	No action is required at this time.	B

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
32	Hornbeam	sm	Fair	7	22	2.64	22	2	2	2	2	This single stemmed tree has a healthy crown. It is forking at 1m, so the DBH has been measured at the base. The tree is growing in a shrub bed between a pavement/road and a carpark area; the growth of the root system is likely to be restricted as a result.	No action is required at this time.	B
33	Hornbeam	sm	Fair	7	23	2.76	24	2	2	2	2	This single stemmed tree has a healthy crown. It is forking at 1m, so the DBH has been measured at the base. The tree is growing in a shrub bed between a pavement/road and a carpark area; the growth of the root system is likely to be restricted as a result.	No action is required at this time.	B
34	Hornbeam	sm	Fair	7	26	3.12	31	2	2	3	4	This single stemmed tree has a healthy, but slightly unbalanced and partially suppressed crown that contains minor deadwood and minor dieback. It is forking at 1m, so the DBH has been measured at the base. The tree is growing in a shrub bed between a pavement/road and a carpark area; the growth of the root system is likely to be restricted as a result.	Reduce endweight west by 2m. Monitor vigour.	B
35	Hornbeam	sm	Fair	8	29	3.48	38	3	3	3	3	This multi-stemmed tree has a healthy crown, but there are minor inclusions at several forks throughout the crown. It is forking at 1m, so the DBH has been measured at the base. The tree is growing in a shrub bed between a pavement/road and a carpark area; the growth of the root system is likely to be restricted as a result.	No action is required at this time.	B
36	Ash, Sycamore	y	Poor	to 6	to 8	0.96	3	1	2	3	3	These two multi-stemmed trees are self-seeded, natural regeneration growing at the base of a wall. The sycamore is too small to be subject to BS5837, but is growing so close to the ash that they should be managed together. There is inadequate area for sufficient root material to grow, and this will have an adverse effect on the long-term health of both trees.	Fell to maintain site safety.	U

No	Species	Age	Cdtn	Ht (m)	DBH (cm)	RPR (m)	RPA (m^2)	Crown Spread (m) N	S	E	W	Observations	Recommendations	Cat
37	Hornbeam	sm	Fair	9	35	4.20	55	5	4	4	4	This single stemmed tree is forking at 1.2m, so the DBH has been measured at the base. The tree has a large branch to the north that is developing into a secondary leader and causing a slight imbalance in the crown. The tree is growing in a shrub bed between a wall and a carpark area; the growth of the root system is likely to be restricted as a result. The tree is partially overgrown with ivy.	Cut ivy.	B
38	Mixed species	y	Poor	to 4	to 16	1.92	12	to 3				This group of sycamore and cypress trees are self-seeded, natural regeneration growing on top of a wall. There is ivy growth throughout. One sycamore is growing at the edge of the car park, at the base of the wall. This location will not allow the growth of an adequate amount of root material, and will eventually lead to the failure of the trees or significant damage to the wall.	Fell to maintain site safety.	U
39	Sycamore	m	Fair	16	38	4.56	65	5	5	5	5	This single stemmed tree has a healthy, partially suppressed crown that contains deadwood and minor dieback. It is growing at the base of a wall, and at the edge of a river. It is heavily overgrown with ivy and has minor wounding to the lower part of the stem.	Cut ivy. Crown clean. Reduce endweight to 4m. Reduce height by 4m.	B



LEGEND

Street furniture & Services

- Over Head Wires (LUAS) - Pylon ESB
- Flowerbed
- Pipe
- Lift
- Barrier
- Pump
- Trial Pit
- Bus/Tram Shelter
- Postbox
- V Valve - General
- WV Water Valve
- GV Gas Valve
- SV Sluice Valve
- AV Air Valve
- SC Stop Cock
- CPP C P Post
- MK Marker Post
- TL Traffic light
- PM Parking Meter
- PAM Plane Aerial Mark
- SCV Smart Card Validator
- UV Unknown Valve
- Sign RS Road Sign
- BS Bus Stop
- BD Bollard
- BEA Beacon
- CH Coalhole Cover
- BH Bore Hole
- EP Electricity Pole
- TP Telegraph pole
- OCS OCS Pole
- CP CCTV Camera Pole
- LP Lamp Post
- FMH or Foul Manhole
- SMH or Surface Water MH
- MH or Manholes
- AC Air Conditioning Vents
- ICU Services Inspection Cover
- ICTC Traffic Inspection Cover
- ICTV Cable TV Inspection Cover
- ICES ESAT Inspection Cover
- ICNC NTL Inspection Cover
- ICEM Eircom Inspection Cover
- RE Rodding Eye
- PBOX Phone Box
- Bench Seat
- Duct
- Kiosk
- GAS Gas Cover
- GY Gully
- CPBox C P Box
- U/G Vent U/G Car Park Vent
- BIN Waste Bin
- HY Hydrant
- FH Fire Hydrant
- EBOX ESB Box
- ICE ESB Inspection Cover
- TFB Traffic Control Box
- LUAS LUAS Technical Cubicle
- Ticket Vending Machine
- WM Water Meter Cover
- ICT Telecom Inspection Cover
- Monument / Toilets
- Tank Storage
- Basement: MH, Cover & Pipe
- DAM Dished Aerial Mark
- STAY Stay for pole
- PP Pipe Protection
- WO Washout

Natural Features

- Surface Change
- Land Drain
- Bottom of Slope
- Top of Slope
- Ditch
- Water Edge / Lake / Pond
- Hedge / Trees Drip Line / Vegetation
- Tree Coniferous
- WLVL Water Level
- CRWN Crown Level
- IL Invert level
- BL Bed Level
- S Spotheight
- Tree Deciduous

Golf

- FWAY Fair Way
- GREE Green
- TBOX Tee Box

Other

- S1 Survey Station
- Photo point
- TOT Top of Tree

Built Features

Roads & Road Markings

- Building
- Edge of Road
- Kerb Bottom
- Kerb Top
- Bridge Abutment
- Bridge Deck
- Bridge Parapet
- Building Façade
- Fence
- Gate
- Road Centreline
- Top of Wall
- Hoarding
- Property Line
- Road Scar
- Top of Fence
- FL 0.00 Floor Level
- APX 0.00 Apex Height
- EV 0.00 Eaves Height
- PAR 0.00 Parapet Height
- SOFF 0.00 Soffit Elevation
- STPL 5.12 Step Level
- CONC Concrete Pad
- Track
- Footpath / Platform Train & Tram
- Damp Proof Course / Verge
- Bridge Pier / Wall & Gate Pillar / LUAS Trackbed
- Cycleway / Private Landing Area
- Wall / Retaining Wall
- Railway / Tram Rail / Grating / Ramp
- Building Canopy / Roof / Overhang

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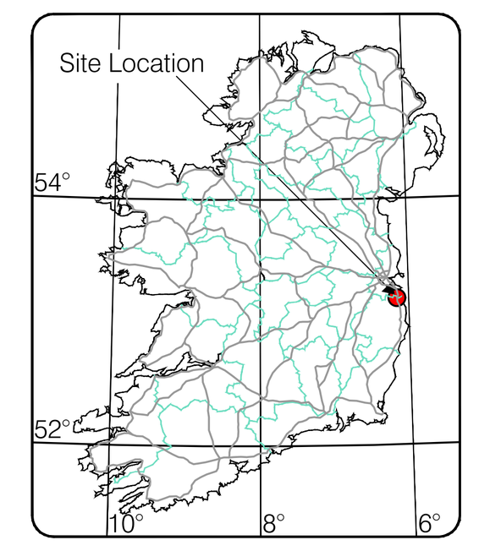
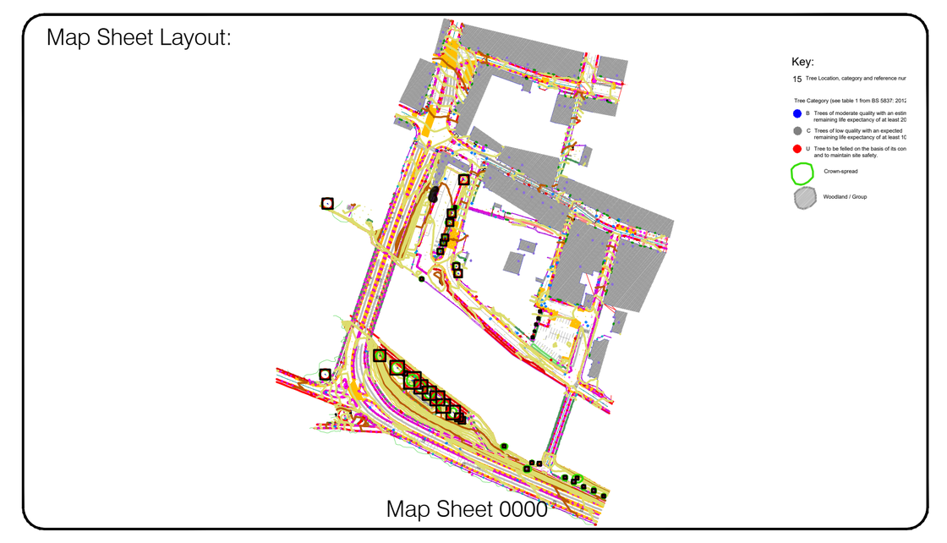
The Company shall not be liable for any inaccuracy of the data provided beyond the specified scale or accuracy, or for any matters resulting from their use for purposes other than that stated in the Contract. No liability shall attach to the Surveyor in respect of any consequential loss or damages suffered by the Client.

The Client must promptly notify the Company of any errors in mapping of which it becomes aware. If misleading, inaccurate or otherwise inappropriate information is brought to the Company's attention or the Company itself identifies any such imprecision or error in a survey, it shall use its reasonable endeavours to fix or remove it and if necessary in certain instances, the Company being on notice of any such misleading, inaccurate or otherwise inappropriate information, it will re-conduct the survey and reproduce the data to within the specified scale or accuracy.

North





Surveyed by : MP	Date: August 2021	Datum : Malin Head
Drawn by : VMS	Date: September 2021	Grid System:
Checked by : PK	Date: 28.09.2021	Irish National Grid ☐ ITM ■

Revisions

No.	Date	Description
1	28.09.2021	First Drawing

Murphy GEOSPATIAL

Topographic surveys, Measured Building Surveys, Setting-Out, As-Built Surveys, Hydrographic Surveys, Legal Mapping, Pipeline Surveys, Services Location, Ground Penetrating Radar, Laser Scanning, Rectified Photography

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Client : Turley Property Advisors

Project : Westgate, Drogheda

Date : 28.09.2021 **Scale :** 1:500@A1

Description : Topographical Survey

Drawing Number : MSG42384_T_ITM_Rev0

Appendix 18.2 – Verified Views

Verified View Photomontages For Proposed

Westgate Regeneration Scheme, Drogheda, Co. Louth

December 2023

Document at A3 prepared by G-Net 3D

NSC Campus, Mahon, Cork

www. gnet3d.com

Photomontage Methodology

The methodology used to develop the photomontages is based on the "Visual Representation of Development Proposals" Guidance note by the Landscape Institute, 2019.

Photography

The photography was carried out on the July 12th, 2023, using Sony α7RIII full frame camera. Two lenses 24mm and 50mm prime lens were used for the photography.
A 24mm - wide angle lens was selected for the photography to provide more information on the context around the proposed development. The horizontal field of view of these photographs is 74°. The above-mentioned guidance suggests that 40° angle is the closest to human eye vision and is recommended for the verified photomontages. In the cases where the wide lens is used, there should be an indication of 40° field of view, which is shown on the bottom of all the views.
A recommended viewing distance of the photomontages taken using 50mm lens is around 500mm and 24mm lens - 300mm from eyes when printed on A3 paper.

Geomax Zenith 60 GPS Antennae was used to accurately record the viewpoint and reference markers' coordinates and height levels. Viewpoint locations are indicated in the viewpoint map to the right, viewpoint coordinates and information on photography is under each photo.

Modelling

Preparation of an accurate 3D model of the proposed development, including existing landscape and infrastructure.

Setup

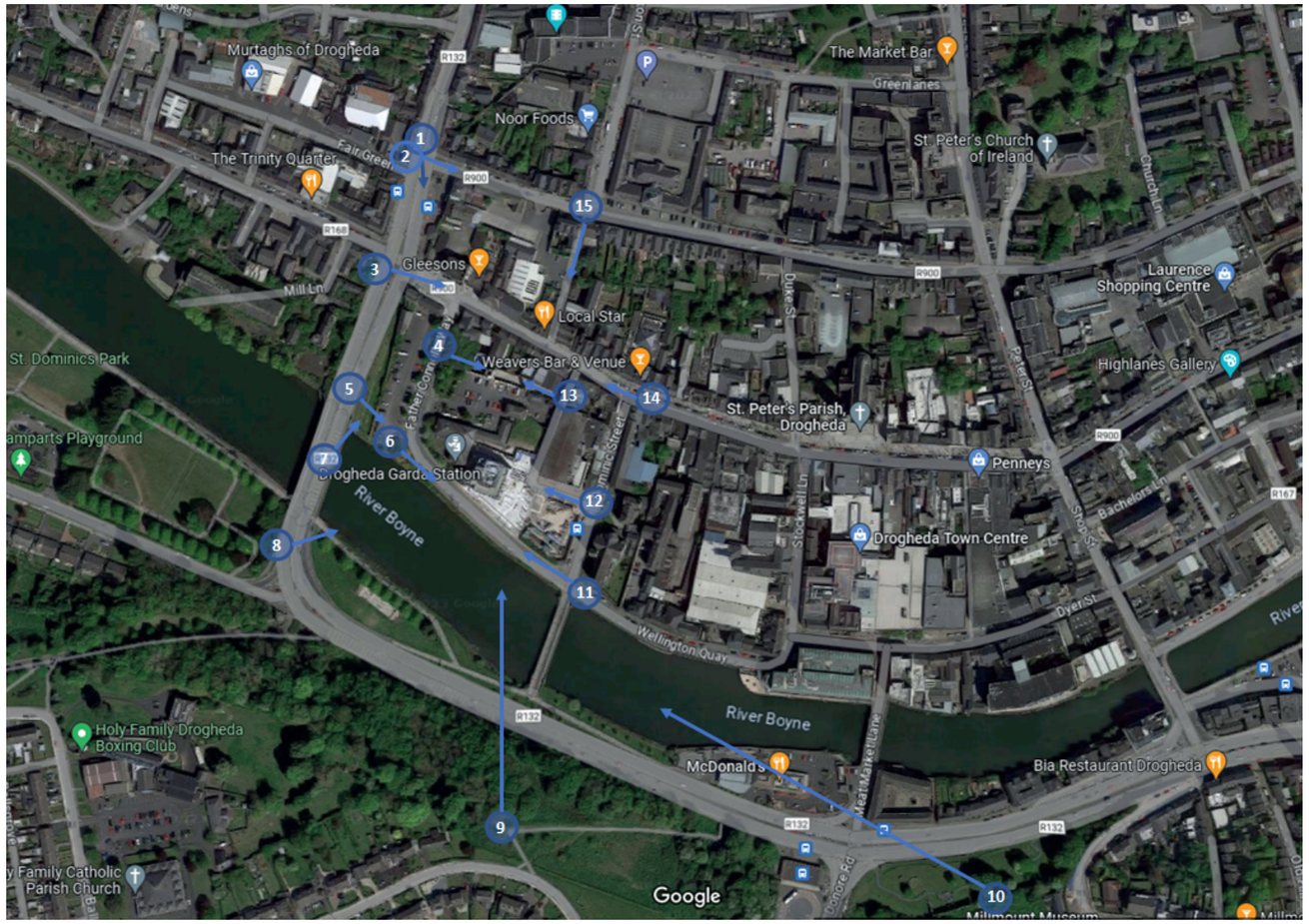
The following information is used to accurately position the model of the proposed development into the photographs:
-Site survey,
-Photographs,
-Verified viewpoint coordinates and height levels are accurately marked on the location OSi map.
To match the 3D camera view with the photograph we take the following steps:
The camera height is taken from information gathered on the levels from where the photos are taken (table below). The height levels of the proposed development are outlined on the site. Focal length is based on the photograph EXIF info.
This data is imported into our 3D software and the 3D camera is matched with the selected photographs. To match the 3D camera accurately we use all the above data and the reference 3D models. The reference 3D models are existing structures i.e. buildings, roads, lamps, etc which are visible on the photographs. These items are modelled based on the survey information. After all the above conditions are fulfilled and we are satisfied that the camera matches correctly, we proceed to the next step.

Rendering

We apply the materials and textures prior to rendering the photomontage images. Light settings are adjusted to match the brightness of the photographs and sun is positioned according to the date and time the photo was taken.

Post processing

This process means incorporating a 3D image of the proposed development into the photograph to achieve the final result.



Viewpoint map

View 1. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:33 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708443.397;775390.449;16.620

Prepared By G-Net 3D

View 1. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:33 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708443.397;775390.449;16.620	Prepared By G-Net 3D

View 2. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:42 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708440.558;775383.956;16.307

Prepared By G-Net 3D

View 2. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:42 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708440.558;775383.956;16.307	Prepared By G-Net 3D

View 3. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:51 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708417.427;775305.017;11.676	Prepared By G-Net 3D

View 3. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:51 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708417.427;775305.017;11.676	Prepared By G-Net 3D

View 4. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:16 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708452.987;775242.140;7.485

Prepared By G-Net 3D

View 4. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:16 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708452.987;775242.140;7.485

Prepared By G-Net 3D

View 5. As Exists

< 24mm 73.7° | <<50 mm 39.6° | 39.6° 50mm>> | 73.7° 24mm >

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:57 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708396.152;775188.515;10.051

Prepared By G-Net 3D

View 5. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:57 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708396.152;775188.515;10.051

Prepared By G-Net 3D

View 6. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:10 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708415.237;775183.153;4.104

Prepared By G-Net 3D

View 6. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 15:10 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708415.237;775183.153;4.104

Prepared By G-Net 3D

View 7. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 16:28 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708383.551;775150.746;9.706	Prepared By G-Net 3D

View 7. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 16:28 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708383.551;775150.746;9.706

Prepared By G-Net 3D

View 8. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 16:04 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708353.612;775116.674;9.528

Prepared By G-Net 3D

View 8. Proposed

< 24mm 73.7°

<<50 mm 39.6°

39.6° 50mm>>

73.7° 24mm >

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 16:04 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708353.612;775116.674;9.528

Prepared By G-Net 3D

View 9. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 13:27 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708547.566;774916.452;21.860

Prepared By G-Net 3D

View 9. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 13:27 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708547.566;774916.452;21.860

Prepared By G-Net 3D

View 10. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 12:41 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708949.999;774824.849;41.037

Prepared By G-Net 3D

View 10. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 12:41 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708949.999;774824.849;41.037

Prepared By G-Net 3D

View 11. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:02 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708562.690;775081.263;3.445

Prepared By G-Net 3D

View 11. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:02 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708562.690;775081.263;3.445

Prepared By G-Net 3D

View 12. As Exists

< 24mm 73.7° | <<50 mm 39.6° | 39.6° 50mm>> | 73.7° 24mm >

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:08 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708575.421;775138.613;3.932	Prepared By G-Net 3D

View 12. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:08 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708575.421;775138.613;3.932

Prepared By G-Net 3D

View 13. As Exists

< 24mm 73.7° | <<50 mm 39.6° | 39.6° 50mm>> | 73.7° 24mm >

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:29 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708544.441;775210.794;8.842

Prepared By G-Net 3D

View 13. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:29 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708544.441;775210.794;8.842

Prepared By G-Net 3D

View 14. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:14 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708603.142;775210.603;8.703

Prepared By G-Net 3D

View 14. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:14 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708603.142;775210.603;8.703

Prepared By G-Net 3D

View 15. As Exists

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:47 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708558.623;775340.079;17.506

Prepared By G-Net 3D

View 15. Proposed

Project Name: Westgate Regeneration Scheme	Photo Date: 12.07.2023 Photo Time: 14:47 Camera: Sony a7RIII	Viewpoint Coordinates (ITM): 708558.623;775340.079;17.506

Prepared By G-Net 3D

Comhairle Contae **Lú**
Louth County Council

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040