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Carrigtwohill URDF Initiative

Public Realm Infrastructure Bundle - Screening for Appropriate Assessment

Cork County Council

14/12/2021

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This document has 41 pages including the cover.

Document history

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1. Introduction

Atkins Ireland have been commissioned by Cork County Council to prepare a Screening for Appropriate Assessment report for the proposed project at Carrigtwohill, Co. Cork. The proposed project is part of the Carrigtwohill Urban Regeneration Development Fund (URDF) Initiative with the purpose of providing infrastructure works to support the regeneration, compact growth and sustainable development in Carrigtwohill.

1.1. Project Context

Carrigtwohill has been identified as a regional growth centre by the Cobh Municipal District Local Area Plan[1]. Carrigtwohill's target population for 2022 is 11,618. The Central Statistics Office figures detail a population of 5080 in 2016.

Due to the increasing population and significant demand for housing development in Carrigtwohill, infrastructure upgrades are required to facilitate future population and economic growth of the area. In order to provide capacity for increasing demands within Carrigtwohill, the proposed project will provide additional and upgraded infrastructure within Carrigtwohill public realm to facilitate further plans.

1.2. Proposed Project

The components which comprise the Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle are described below. The location of the proposed project is illustrated in Figure 1-1.

1.2.1. Main Street and Station Road Public Realm Works:

1.2.1.1. Works Components

1. Upgrade of Main Street and Station Road junction including footpath widening, road re-alignment and widening, re-surfacing, signalisation, provision of pedestrian crossings and removal of existing structures/buildings;
2. Provision of three new public spaces as follows:

    i. At junction of Station Road and Main Street;
    ii. At and north of the Community Centre on Main Street;
    iii. At and west of St. Mary's Church on Station Road.

3. Public realm upgrade of Station Road from the junction with Main Street to the junction at Carrigtwohill Train Station including:

    i. Road widening with footpaths / off-road cycle tracks on both sides of the road, raising of existing roads levels where required, and re-location of the existing Grotto;
    ii. Removal of existing boundary walls, re-building of boundary walls, re-location of entrances and local realignment of the stream channel;
    iii. Two number 'Biodiversity Areas';
    iv. New street lighting, undergrounding of overhead lines, new underground services and drainage, and diversion of existing services where required;
    v. Traffic calming measures including re-surfacing, road narrowing, tree planting and raised tables, signalised and unsignalised raised pedestrian crossings;
    vi. Removal of on-street carparking and provision of a new car park (46 no. spaces);
    vii. Upgrade of existing car park at Patrick Pearse Place;
    viii. New shared use pedestrian and cyclist path between Station Road and recreation areas south of Main Street via Patrick Pearse Place and the existing Centra car park;
    ix. New footpaths connecting the following housing developments:
    - Cluain Cairn and An Fána;
    - Cluain Cairn and Castle Close/Castle Avenue.

[1] http://corklocalareaplans.com/wp-content/uploads/2017/08/Cobh-MD-LAP.pdf

4. Public realm upgrade of Main Street from the junction with Castlelake Avenue to the junction with Carrigane Road including:

    i. Footpath widening on both sides of the road with varying surface treatments;
    ii. Shared cycle/pedestrian path on north side of the road from junction with Castlelake Avenue to Bán Na Gréine;
    iii. Removal of existing boundary walls, re-building of boundary walls, and re-location of entrances;
    iv. Street lighting, undergrounding of overhead lines and diversion of existing services as required;
    v. Traffic calming measures including re-surfacing, road narrowing, tree planting, raised tables, signalised and unsignalised raised pedestrian crossings;
    vi. Re-location of on-street car parking to three new car parks (45 no. spaces);
    vii. New road running south from Main Street including underground services, and public lighting;
    viii. New school drop off area accessed from Carrigane Road and ambulant accessible parking.

1.2.1.2. Works Methods

The works will commence with site clearance/ accommodation works. Temporary traffic management including measures for pedestrians and cyclists will be put in place. Pre-construction demolition surveys of buildings/ boundary walls necessary for the construction of the works will be undertaken followed by the demolition of these structures. The site will be cleared of redundant road signage and fencing, street lighting to be replaced, kerbside vegetation to be removed.

Underground utilities which conflict with the main works will be uncovered using mechanical excavators and hand digging. A utility survey, including slit trenches for verification, will be carried out during the detail design stage to determine the location of services to the most accurate extent possible. Any service diversions or protection works that are required will be commenced at this stage. This will include the diversion of all overhead lines to underground ducts and chambers in Main Street and Station Road.

The Woodstock Stream will be diverted for a length of approximately 60 metres towards the northern end of Station Road, as outlined in the design drawings (Appendix A). This will require a new channel to be constructed to the west of the existing channel. The stream will continue to flow in the existing channel while the new channel is being constructed. Once the new channel has been constructed, a connection will be made to the downstream channel and water will be diverted from the upstream culvert into the new channel.

Where suitable, existing pavement layers will be retained or just re-surfaced. Elsewhere, to construct the new carriageways, cycle tracks, footpaths, car parks and public squares excavation to formation/ sub-formation level will be undertaken. This will include the excavation and removal of the existing stone, soil, concrete and bitumen materials along the route followed by the installation of new path and track base materials including new concrete kerbs. Any excavations will be largely undertaken by mechanical means, with any soil arisings to be removed off site for disposal to an appropriately licensed/ permitted waste disposal/ recovery facility following appropriate testing, or reused onsite where testing confirms its suitability. The base layers of the pavement and cycle lane/track are to be made of compacted stone materials. Footpaths will be a mixture of concrete and natural stone finishes. The roads and cycle tracks will have asphalt surfacing. Public square areas will have a mix of concrete and natural stone materials as well as landscaping.

On Station Road where there is no existing surface water drainage system, drainage works will run in tandem with the pavement construction. This will include the installation of gullies along new kerb lines. These gullies will be connected to a new surface water drainage sewer to be installed below the new alignment. The sewer will discharge to an attenuation tank to be constructed below the proposed Station Road car park from where its discharge will be limited to greenfield run-off/ 5l/s and will be to the existing sewer at the southern end of Station Road. By-pass separators will be installed in any new elements of the surface water drainage system. Attenuation tanks will be provided to allow the discharge to receiving waters to be limited to greenfield run-off rates through the use of hydro-brakes. Catch pits will be provided upstream of attenuation tanks to collect silt and debris.

On Main Street drainage works will involve the re-location of existing gullies to the new kerb lines and re-connection to the existing surface water sewer. Underground utility diversions and the installation of new underground utilities will also be completed at this stage. For the new car parks, drainage will be a mixture of porous paving with infiltration to ground and attenuation tanks discharging to the existing surface water sewers.

New road signs, road markings, public lighting columns, traffic signals and bollards will be installed and commissioned where required. Areas of soft landscaping will be top-soiled, seeded and planted. Permanent accommodation works will be completed, including the erection of permanent fencing and boundary walls. Temporary traffic management measures will be removed when appropriate.

1.2.2. Wises Road Junction Upgrades

1.2.2.1. Works Components

1. Upgrade of junction of Wises Road and Main Street including provision of traffic signals, pedestrian crossings, road re-alignment and footpath widening;
2. Upgrade of junction of Wises Road and Oakbrook Link Road/ IDA Industrial Estate Access Road including provision of traffic signals, road re-alignment and footpath widening.

1.2.2.2. Works Methods

The works will commence with site clearance/ accommodation works. Temporary traffic management including measures for pedestrians and cyclists will be put in places. The site will be cleared of redundant road signage and fencing, kerbs, street lighting to be replaced, vegetation to be removed.

Underground utilities which conflict with the main works will be uncovered using mechanical excavators and hand digging where appropriate. A utility survey, including slit trenches for verification, will be carried out during the detail design stage to determine the location of services to the most accurate extent possible. Any service diversions or protection works that are required will be commenced at this stage.

Where suitable, existing pavement layers will be retained or just re-surfaced. Elsewhere, to construct the new carriageways and shared paths excavation to formation/ sub-formation level will be undertaken. This will include the excavation and removal of the existing stone, soil, concrete and bitumen materials along the route followed by the installation of new path and track base materials including new concrete kerbs. Any excavations will be largely undertaken by mechanical means, with any soil arisings to be removed off site for disposal to an appropriately licensed/ permitted waste disposal/ recovery facility following appropriate testing, or reused onsite where testing confirms its suitability. The base layers of the pavement and cycle lane/track are to be made of compacted stone materials. Footpaths will have concrete finishes. The road will have asphalt surfacing.

Drainage works will run in tandem with the pavement construction phase and will be relatively minor. They will involve the re-location of existing gullies to the new kerb lines where required and re-connection to the existing surface water sewer. No new works to the existing surface water drainage system is required. Underground utility diversions and the installation of new underground utilities will also be completed at this stage.

New road signs, road markings, public lighting columns, traffic signals, will be installed and commissioned where required. Areas of soft landscaping will be top-soiled, seeded and planted. Temporary traffic management measures will be removed when appropriate.

1.2.3. N25 Junction 3 (Cobh Cross) Additional Capacity Interim Measures

1.2.3.1. Works Components

Work components comprise an increase in the size of the existing northern roundabout, 2 no. pedestrian/ cyclist crossings, widening and re-alignment of approach roads to the roundabout. The crossings will be connected to the Dunkettle to Carrigtwohill Inter-Urban Cycle Route on the north side of the roundabout and to the proposed pedestrian and cyclist path which will cross the N25 on the existing bridge over the N25.

1.2.3.2. Works Methods

The works will commence with site clearance/ accommodation works. Significant temporary traffic management including measures for pedestrians and cyclists will be put in place following consultation with Transport Infrastructure Ireland (TII). The site will be cleared of redundant road signage and fencing, street lighting to be replaced, kerbs, vegetation to be removed.

Underground utilities which conflict with the main works will be uncovered using mechanical excavators and hand digging where appropriate. A utility survey, including slit trenches for verification, will be carried out during the detail design stage to determine the location of services to the most accurate extent possible. Any service diversions or protection works that are required will be commenced at this stage.

Where suitable, existing pavement layers will be retained or just re-surfaced. Elsewhere, to construct the new carriageways, excavation to formation/ sub-formation level will be undertaken. This will include the excavation and removal of the existing stone, soil, concrete and bitumen materials along the route followed by the installation of new path and track base materials including new concrete kerbs. Any excavations will be largely undertaken by mechanical means, with any soil arisings to be removed off site for disposal to an appropriately licensed/ permitted waste disposal/ recovery facility following appropriate testing, or reused onsite where testing confirms its suitability. Reinforced concrete retaining walls will be constructed to the north of the existing roundabout where required. The base layers of the pavement and cycle lane/track are to be made of compacted stone materials. New road surfaces will be surfaced with asphalt surfacing.

Drainage works are likely to run in tandem with the pavement construction phase. This will involve the re-location of existing gullies to the new kerb lines as well as the provision of new gullies to match the new layout. Gullies will be connected to the existing surface water sewer, which will be fitted with by-pass separators and/ or filter drains will be installed. No new outfalls for the existing surface water drainage system are proposed. Underground utility diversions and the installation of new underground utilities will also be completed at this stage.

New road signs, road markings including the pedestrian/ cyclist crossings, public lighting columns, traffic signals, bollards and vehicle restraint systems (safety barriers) will be installed and commissioned where required. Areas of soft landscaping will be top-soiled, seeded and planted. The shared paths connective the crossings with the existing and proposed shared paths will be constructed. Permanent accommodation works will be completed including the erection of permanent fencing/ boundary walls. Temporary traffic management measures will be removed when appropriate.

In general, across the scheme, excavations for road widening will be a maximum of 1.5m in depth. Excavations required for the installation of the new drainage system along Station Road will have an approximate maximum depth of 2.0m for the drainage runs and a maximum depth of 4m for the attenuation tanks situated under the car parks.

1.3. Biosecurity protocols

Biosecurity protocols will be implemented during the construction phase of the proposed project to prevent the introduction of invasive species listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011, as amended, to site.

All equipment intended to be used at the site shall be dry, clean and free from debris prior to being brought to site.

If drying out of equipment is not feasible, equipment should be either:

i. power steam washed at a suitably high temperature or at least 65 degrees, or

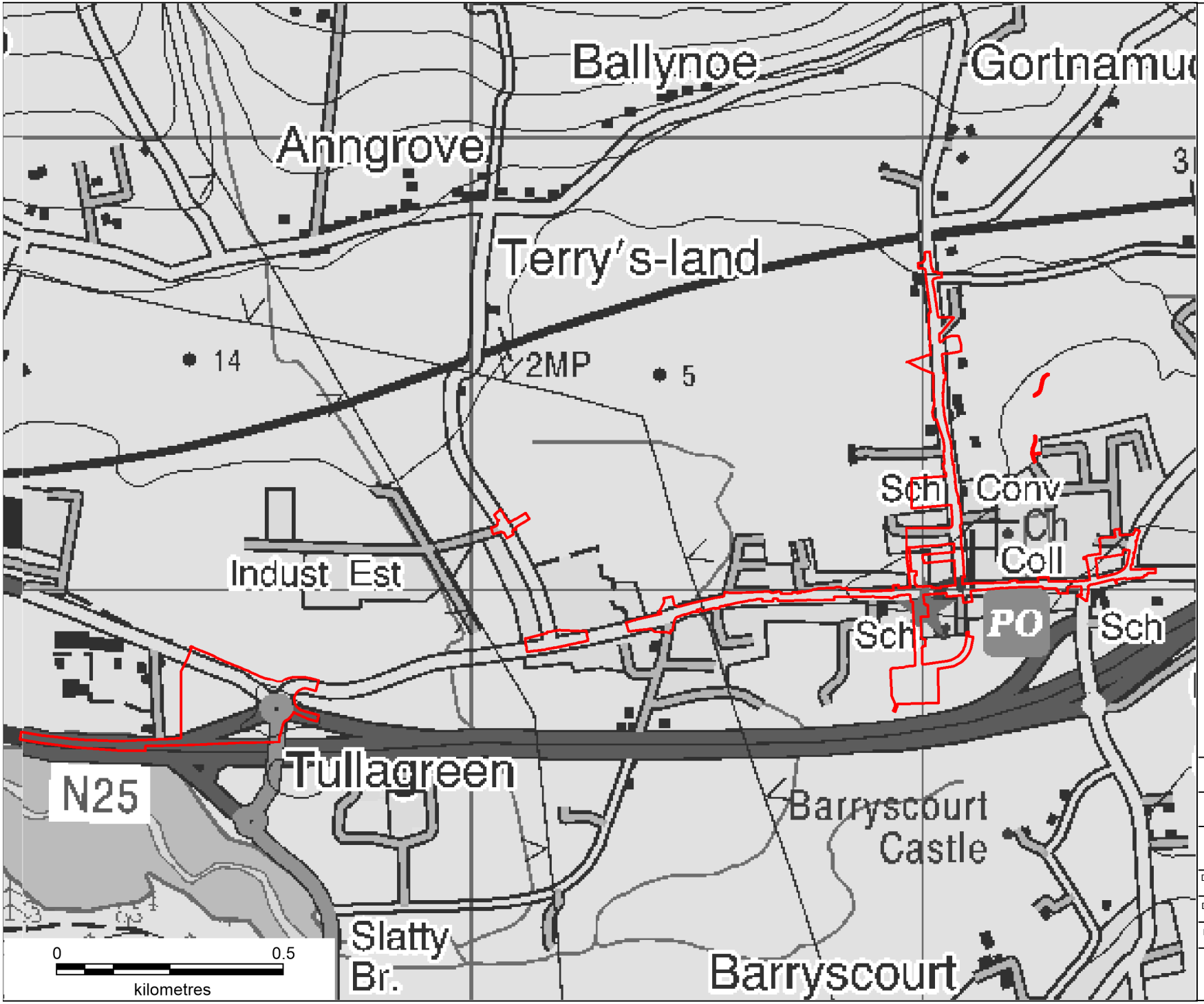
ii. disinfected with an approved disinfectant, e.g. Virkon or an iodine-based product. It is important that the manufacturer's instructions are followed and if required, the correct contact times are allowed for during the disinfection process. Items that are difficult to soak should be sprayed or wiped down with disinfectant.

During the duration of the proposed project, if equipment is removed off-site to be used elsewhere, the said equipment shall be cleaned and disinfected prior to being brought back to the works area of the proposed project.

Appropriate facilities shall be used for the containment, collection and disposal of material and/or water resulting from washing facilities of vehicles, equipment and personnel.

Importation of materials shall comply with Regulation 49 of the EC (Birds and Natural Habitats) Regulations 2011. In relation to 3rd Schedule species, but notably Japanese knotweed and Himalayan balsam, the following general biosecurity and containment measures shall be undertaken during the construction phase of the project:

- Identify and mark out areas of infestation;
- Fence off areas of infestation in advance of and during construction works;
- Erect signage identifying restricted areas;
- Avoid, where possible, using plant and machinery in areas of invasive species infestation;
- Plant and equipment used within areas if invasive species infestation should be inspected post works and washed down in a contained area;
- Site staff should be aware that root zones / control zones for knotweed species extend a minimum of 7m from the extent of the invasive species' surface vegetation.



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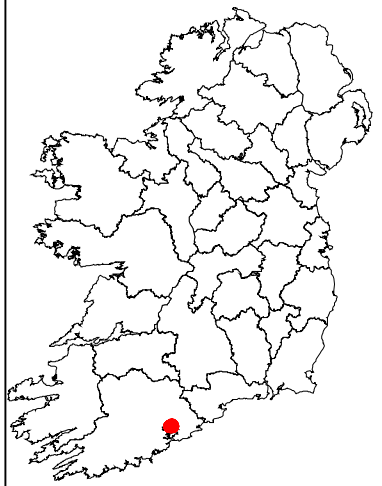
Legend

Red Line Boundary



Client:	Cork County Council
Project:	Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle
Title:	Red Line Boundary

Drawn: EN	Checked: NS	Authorised: PO'D
Date: 05/07/2021	Date: 05/07/2021	Date: 05/07/2021
Drawing No: 1.1		Rev: 1.0

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2. Scope of Study

The aim of this report is to provide supporting information to assist the competent authority to carry out an Appropriate Assessment determination with respect to the proposed project.

2.1. Legislative Context

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, known as the 'Habitats Directive' provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 – 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservations of an EU-wide network of sites known as European sites. European sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects that could potentially affect European sites. Article 6(3) establishes the requirement for Appropriate Assessment:

> *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

Article 6 (4) deals with the steps that should be taken when it is determined, as a result of Appropriate Assessment, that a plan or project will adversely affect a European site. Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures need to be addressed in this case. Article 6(4) states:

> *"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*
>
> *Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."*

2.2. Appropriate Assessment Process

Guidance on the AA process was produced by the European Commission (EC, 2001; 2018), which was subsequently used to develop guidance for Ireland by the Department of Environment, Heritage and Local Government in 2009 (DEHLG, 2009), National Parks and Wildlife Service in 2018[2] (NPWS 2018) and the Office of the Planning Regulator (2021). These guidance documents set out a staged approach to complete the AA process and outline the issues and tests at each stage. The stages outlined below are taken from the guidance document Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DEHLG, 2009).

[2] https://www.npws.ie/development-consultations

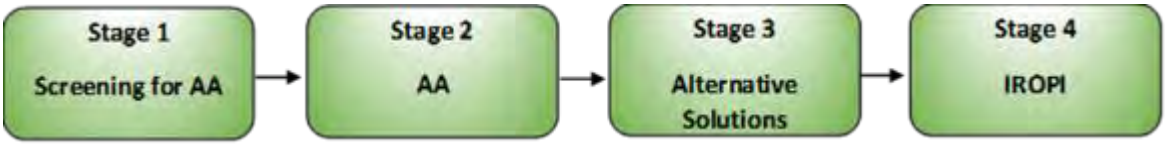


Figure 2-1 - Appropriate Assessment Process (Source: DEHLG, 2009)

2.2.1. Screening for Appropriate Assessment

Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

i. Whether a plan or project is directly connected to or necessary for the management of the site; and
ii. Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, then the process must proceed to Appropriate Assessment.

2.2.2. Appropriate Assessment

Appropriate Assessment considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any necessary mitigation measures.

The competent authority can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site(s) concerned. If this cannot be determined, and where sufficient mitigation cannot be achieved, the alternative solutions need to be considered and the process proceeds to the consideration of alternative solutions.

2.2.3. Alternative Solutions

This examines any alternative solutions or options that could enable the plan or project to proceed without adverse effects on the integrity of a European site. The process must return to AA as alternatives will require assessment in order to proceed. Demonstrating that all reasonable alternatives have been considered and assessed, and that the least damaging option has been selected, it is necessary to examine whether there are imperative reasons of overriding interest (IROPI).

2.2.4. IROPI

This examines whether there are imperative reasons of overriding public interest for allowing a plan or project that will have adverse effects on the integrity of a European site to proceed in cases where it has been established that no less damaging alternative solution exists. Compensatory measures must be proposed and assessed, of which the Commission must be informed.

The AA process only progresses through the full process for certain plans and projects. For example, for a project not connected with the management of a European site and where no likely significant effects on a European site in view of its conservation objectives are identified, the process stops at Screening for AA. Throughout the process the precautionary principle must be applied, which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty (EC, 2001; 2018).

3. Methods

3.1. Legislation & Guidance Documents

This report was prepared with reference and due consideration to the following documents and due regard for relevant case law, including but not limited to:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna (Habitats Directive);
- Statutory Instrument No. 477/2011 — European Communities (Birds and Natural Habitats) Regulations 2011;
- National Parks and Wildlife Service - Development Consultations[3] (NPWS, 2018);
- European Commission (2018). Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC;
- European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Department of the Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities;
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01; and,
- Case C-323/17 People Over Wind & anor. V. Coillte and other relevant court rulings and case law.

3.2. Desk Study

A desk study was carried out to collate information available on European sites in the vicinity of the proposed project. These areas were viewed using Google Earth, Google maps[4] and Bing maps[5] (last accessed on (07/07/2021).

The National Parks and Wildlife Service (NPWS) online databases were reviewed concerning European sites and their features of interest in the vicinity of the proposed project. The Environmental Protection Agency (EPA) mapping[6] system was used to identify any hydrological connection between the proposed project and European sites, this information was supported by ecological walkover surveys.

Locations and boundaries of all European sites within the potential zone of influence of the proposed project were identified and reviewed using the NPWS online map viewer. Boundary shapefiles were also downloaded from this site to facilitate the preparation of project graphics.

Desktop information on relevant European sites was reviewed on the NPWS website, including the site synopsis for each SAC/SPA, the conservation objectives, the site boundaries as shown on the NPWS online map viewer, the standard Natura 2000 Data Form for the SAC/SPA which details conditions and threats of the sites, and published information and unpublished reports on the relevant European sites.

Relevant planning information for the surrounding area was reviewed using the planning enquiry systems of Cork County Council. Search criteria were implemented to determine whether such projects or plans would be relevant to this study and this information was used to determine potential cumulative impacts from other plans / projects with the proposed project.

[3] https://www.npws.ie/development-consultations
[4] https://www.google.ie/maps
[5] http://www.bing.com/maps/
[6] https://gis.epa.ie/EPAMaps/

3.3. Site Visit

Ecological survey methods were in general accordance with those outlined in the following documents:

- A Guide to Habitats in Ireland (Fossitt, 2000);
- Best Practice Guidance for Habitat Survey and Mapping (Smith *et al*., 2011);
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009).

As detailed in Section 5.1, the zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018). The survey area included the lands within the red line boundary and lands within a 50m buffer of the project's red line boundary where possible. Given the nature of the lands bordering the red line boundary of the proposed project, access was not possible into private commercial or residential properties.

Surveys were initially undertaken between June 30th and July 3rd 2020 by Greenleaf Ecology. A second survey was conducted in June 2021 by an Atkins ecologist. During these surveys, the presence of non-native invasive species was also recorded. All features of interest were recorded using a handheld Garmin Map 62 device.

While on site, semi-natural habitats present were recorded using the Fossitt (2000) classification system and their constituent species noted. Potential sensitive ecological receptors present within the survey area were recorded, including the presence of protected species and habitats or habitats that would support protected species, in addition to noting connectivity to European sites.

3.4. Statement of Authority

The Screening for Appropriate Assessment report was prepared by Emma Nickelsen and Niamh Sweeney. Peer review was undertaken by Paul O' Donoghue.

Niamh Sweeney (BSc, MSc (Res)) is a freshwater ecologist with over 10 years' experience in ecological consultancy, with specialisms in macroinvertebrate and diatom taxonomy. Niamh has worked on numerous Screenings for Appropriate Assessment, Natura Impact Statements and Ecological Impact Assessments for private architect firms, waste companies, numerous County Councils, the OPW and Inland Fisheries Ireland.

Emma Nickelsen has a BSc (Hons) in Environmental Biology and an MSc in Marine Biology. Emma has worked in ecological and environmental consultancy since 2017, working on a wide range of projects including bridge works, road construction, local amenity development and renewable energy. A focus of Emma's work to date has been on conducting Appropriate Assessment screenings, ecological appraisals and supporting the preparation of Natura Impact Statements and Ecological Impact Statements.

Paul O'Donoghue has a BSc (Zoology), MSc (Behavioural Ecology) and a PhD in avian ecology and genetics. His is a chartered member of the Society for the Environment (CEnv) and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Paul has over 20 years' experience in ecology; including extensive experience in the preparation of Habitat Directive Assessments / Natura Impact Statements (i.e. Appropriate Assessment under Article 6(3) of the EU Habitats Directive).

4. Existing Environment

4.1. Desktop review

The proposed project is located within the suburban area of Carrigtwohill, extending from the roundabout at the western extent of the L3680 and the R624 to Cobh (Cobh Cross junction), along the main street of Carrigtwohill village to the junction of Carrigane Road. The proposed project also incorporates local roads that join the main street within the village; Station Road, Church Lane and Well Lane.

Cork Harbour lies to the south of the proposed project. Great Island Channel Special Area of Conservation (001058) and Cork Harbour Special Protection Area for birds (004030) are situated within Cork Harbour. Slatty Water is an estuarine waterbody, which is part of the larger Cork Harbour estuarine waterbody and the SAC and SPA. The western extent of the proposed project in the vicinity of Cobh Cross is located ca. 20m, i.e. on the opposite side of the N25 carriageway, from the SAC and SPA. The eastern extent of the project is located ca. 1.4km from the SAC and ca. 1.6km from the SPA.

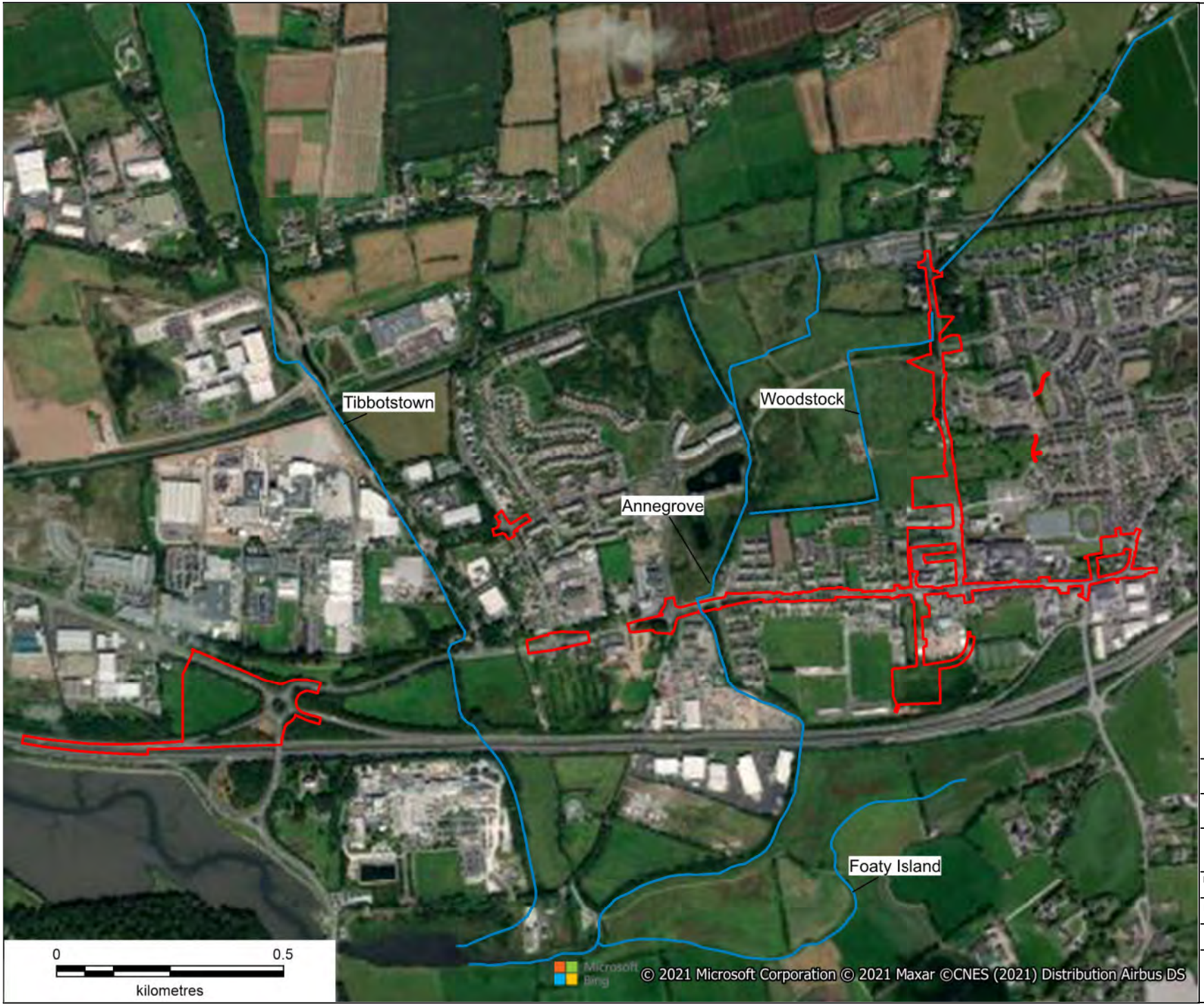
Waterbird data recorded during the 2010/2011 survey programme at Cork Harbour is detailed in the supporting document of the SPA (NPWS, 2014). This document shows the distribution of special conservation interest species recorded during low tide and high tide surveys. The area of Slatty Water in the vicinity of the proposed project is encompassed within sub-sites OL590 Brown Island East and OL595 Slatty's Pool. Waterbirds recorded using these subsites comprised shelduck (*Tadorna tadorna*), wigeon (*Anas penelope*), teal (*Anas crecca*), cormorant (*Phalacrocorax carbo*), grey heron (*Ardea cinerea*), oystercatcher (*Haematopus ostralegus*), lapwing (*Vanellus vanellus*), dunlin (*Calidris alpina*), black-tailed godwit (*Limosa limosa*), curlew (*Numenius arquata*), redshank (*Tringa totanus*), black-headed gull (*Chroicocephalus ridibundus*) and common gull (*Larus canus*). These waterbirds were recorded foraging and roosting, predominantly with sub-site OL590 adjacent to the R624 and slip-road to the N25, with a roost size range of 50-99 birds. NPWS (2014) also identify sub-site specific activities and events that have potential to cause disturbance to waterbirds. The activities identified for sub-sites OL590 and OL595 are non-marina moorings, birdwatching and fishing.

The proposed project lies in the Tibbotstown Water Framework Directive (WFD) subcatchment (SC_010). There are three 1st order streams that lie within the Tibbotstown subcatchment that are within the vicinity of the proposed project; Woodstock stream, Anngrove stream and Tibbotstown stream. These streams are situated in the lands north of Carrigtwohill main street and flow in a general south-westerly and southerly direction. The Woodstock stream is culverted under Station Road and flows in a south-westerly direction to where it joins the Anngrove stream within Terry's Land. The Anngrove stream then flows in a southerly direction (under the L3680 and N25) for approximately 1.6km to Slatty Water. The Tibbotstown stream flows in a southerly direction along the eastern side of the IDA Industrial Estate of Carrigtwohill, under the L3680 and the N25, and into Slatty Water adjacent to the Merck site. Figure 4-1 illustrates the location of the watercourses relevant to the proposed project and Cork Harbour. The Woodstock stream lies within the works area along the northern section of Station Road. The Anngrove stream flows under the L3680, where works will take place within the existing carriageway and footpath, but will not interact with the Anngrove stream. No works are proposed in the vicinity of the Tibbotstown stream.

Due to the overall length and size of the three streams (Woodstock stream, Anngrove stream and Tibbotstown stream), they are not sampled by the EPA and therefore are not assigned a status under the WFD. The transitional waterbody of Slatty Water, which is included in the larger Lough Mahon waterbody by the EPA, is categorised as Moderate status under the WFD.

The proposed project is situated within the Midleton groundwater body (GWB). Tournaisian limestone bedrock, where present, is classified as a regionally important karstified aquifer. There is 1 no. karst feature within the study area; a cave located adjacent to Carrigtwohill Convent. Groundwater vulnerability varies between 'moderate', 'high', 'extreme' and 'rock at or near surface or karst'. Groundwater quality for the GWB is deemed to be 'Good' for the monitoring period 2013-2018, according to data on EPAMaps. Karstification is widespread within the Midleton GWB and diffuse recharge will occur via rainfall percolating through the subsoil. Shallow groundwater is expected within less than 10 metres below the surface according to the GSI mapviewer.

There are no records for Japanese knotweed (*Reynoutria japonica*), Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), or giant rhubarb (*Gunnera tinctoria*) within the red line boundary listed on the NBDC database.

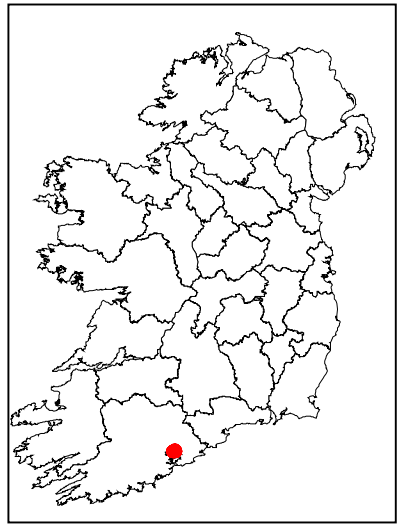


N

Legend

Red Line Boundary

Rivers



Client:	Cork County Council
Project:	Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle
Title:	Surface Water Network

Drawn: EN	Checked: NS	Authorised: PO'D
Date: 05/07/2021	Date: 05/07/2021	Date: 05/07/2021
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4.2. Site Visit

The proposed project will predominantly be within the existing carriageway and footpaths. The main street from Cobh Cross to the Carrigane Road, Station Road, Castlelake Avenue and the road within the Carrigtwohill Business and Technology Park comprise buildings and artificial surfaces (BL3) with some areas of amenity grassland (GA2) and are lined by either hedgerows (WL1) or treelines (WL2) in some places, most of which is tightly mown or trimmed.

The hedgerows and treelines typically comprised bramble (*Rubus fructicosus* agg.), ivy (*Hedera hibernica*), bindweed (*Calystegia* sp.), hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*), birch (*Betula* sp.) and willow (*Salix* sp.). Winter heliotrope (*Petasites fragans*) was common along road verges.

Plate 4-1 – Built land, amenity grassland, treelines and hedgerows within the Public Realm.

Areas of planted mixed broadleaved woodland are present around Cobh Cross junction, verges of junctions in Carrigtwohill townland and a strip of linear woodland to the west of the Carrigtwohill. Species present include sycamore (*Acer pseudoplatanus*), oak (*Quercus* spp.), ash (*Fraxinus excelsior*), elm (*Ulmus glabra*), cherry (*Prunus* spp.), blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*) and bramble (*Rubus fruticosus* agg.).

Plate 4-2 - Mixed broadleaved woodland at Cobh Cross Junction.

Large areas of dry calcareous and neutral grasslands (GS1) are present at the northeast side of the Castlelake Avenue junction, the fields to the west of station road, the field to the east of the Well Lane, and a portion of the field to the east of the GAA pitches. Species in the sward include Sweet Vernal-grass (*Anthoxanthum odoratum*), Timothy (*Phleum pratense*), Yorkshire-fog (*Holcus lanatus*), Creeping Bent (*Agrostis stolonifera*), Rough Meadow-grass (*Poa trivialis*), Glaucus Sedge (*Carex flacca*) and locally frequent Sharp-flowered Rush (*Juncus acutiflorus*) and Soft Rush (*Juncus effusus*) in wet depressions. Herbs present include Creeping Buttercup (*Ranunculus repens*), Greater Bird's-foot-trefoil (*Lotus pedunculatus*), Curled Dock (*Rumex crispus*), Ragwort (*Senecio jacobea*), Common Mouse-ear (*Cerastium fontanum*) and White Clover (*Trifolium repens*); with locally

frequent Common Knapweed (*Centaurea nigra*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and Oxeye Daisy (*Leucanthemum vulgare*).

Plate 4-3 - Dry calcareous and neutral grasslands.

A large area of willow scrub (WS1) is present in the field to the east of the GAA pitches. The trees are approximately 3m tall and densely fill the area. Tall grasses continue throughout. To the south of this area, recolonising bare ground (ED3) is present with species including horsetails (*Equisetum sp.*) and willow. Large stands of Japanese knotweed are present throughout this area of recolonising land, in addition to stands along the adjacent hedgerow to the south. The location of Japanese knotweed is situated outside, but adjacent to, the perimeter of the red line boundary of the proposed project (Figure 4-2).

Plate 4-4 – Willow scrub to the east of the GAA club.

Plate 4-5 – Japanese knotweed to the south of the field of willow scrub.

The Woodstock Stream is culverted under the railway line and Station Road and enters a field to the west of Station Road. The stream flows southwards along the western side of a treeline comprising ash, alder and sycamore. It then turns 90 degrees and flows west along the northern boundary of a construction site. The banks of the stream have been heavily modified during construction works and remain unvegetated, with earth mounds lining both sides of the watercourse. The stream is approximately 20cm deep and flows over a bed of gravel on mud. Plate 4-6 displays the Woodstock Stream to the west of Station Road, having undergone modifications to the banks.

Plate 4-6 – Woodstock Stream to the west of Station Road.

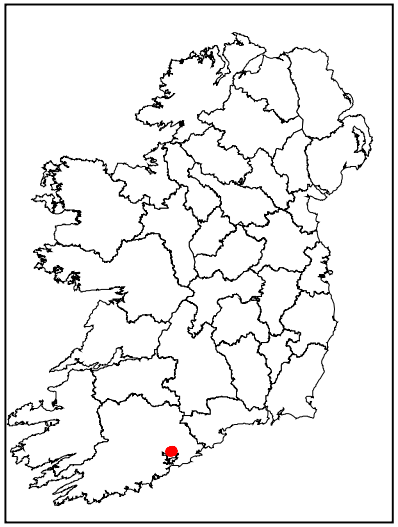
N

Legend

Red Line Boundary

Invasive Species

Japanese knotweed



Client:	Cork County Council
Project:	Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle
Title:	3rd Schedule Invasive Species

Drawn: EN	Checked: NS	Authorised: PO'D
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Drawing No: 4.2		Rev: 1.0

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5. Appropriate Assessment Screening

5.1. Connectivity of Proposed Project to European Sites

The 'zone of influence' (ZoI) for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

A distance of 15km is recommended in the case of plans, as a potential zone of influence and this distance is derived from UK guidance (Scott Wilson *et al*., 2006). However, for projects the distance could be much less, and in some cases less than 100m. National Parks and Wildlife Service and Office of the Planning Regulator guidance[7] advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

Thus, given the nature, scale and extent of the proposed project, the potential zone of influence will consider European sites with regard to the location of a European site, the QIs of the site and their potential mobility outside that European site, the Cause-Pathway-Effect model and potential environment effects of the proposed project.

Due to the nature, scale and extent of the proposed project, sources of potential effect during construction include; noise, vibration, human presence, and surface water and groundwater interception. Thus, the potential zone of influence is considered to be 500m[8] for wintering birds and other mobile species, and receptors with hydrological connectivity to the proposed project.

There are two Special Areas of Conservation (SACs) within the potential zone of influence of the proposed project; the Blackwater River SAC (Cork/Waterford) SAC (002170) and Great Island Channel SAC (001058).

There is one Special Protection Area (SPA) within the potential zone of influence of the proposed project; Cork Harbour SPA (004030).

Due to the nature of the proposed project, geographical location and nature of hydrological connectivity, the European sites within the zone of influence of the proposed project are the Great Island Channel SAC and Cork Harbour SPA. There is no hydrological connectivity or ecological corridors that provide connectivity between the proposed project and the Blackwater River SAC (Cork/Waterford) SAC.

[7] DoEHLG (2009*). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*. Department of Environment, Heritage and Local Government, Dublin, Ireland.
OPR (2021) Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. Office of the Planning Regulator. Dublin, Ireland.

[8] Compilation of data from Madsen (1985), Smit and Visser (1993) and Rees *et al.*, (2005).

Table 5-1 - SACs within ZoI of the proposed project.

Site Name	Site Code	Approximate distance	Features of Interest	Within ZoI
Great Island Channel SAC	0010058	ca. 1km hydrological distance; ca. 20m by land	• Mudflats and sandflats not covered by seawater at low tide [1140] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	Yes. There is indirect connectivity between the proposed project and the SAC via hydrological pathways. There is no overlap or direct connectivity from the proposed project to the SAC. The western extent of the proposed project is located ca. 20m, i.e. on the opposite side of the N25 carriageway, from the SAC.
Blackwater River (Cork/Waterford) SAC	002170	ca. 12km by land	• Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] • Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] • *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Lampetra fluviatilis* (River Lamprey) [1099] • *Alosa fallax fallax* (Twaite Shad) [1103] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355] • *Trichomanes speciosum* (Killarney Fern) [1421]	No. There is no viable direct or indirect connectivity between the proposed project and this SAC. The location, scale and operation of the proposed project is such that it will not contribute to direct, indirect or in-combination impacts on the species and habitats for which the SAC has been designated and does not have the potential to affect the conservation objectives of these species and habitats. This site is not considered further.

Table 5-2 - SPAs within ZoI of the proposed project.

Site Name	Site Code	Approximate distance	Features of Interest	Within ZoI
Cork Harbour SPA	004030	ca. 1.25km hydrological distance; ca. 20m by land	• Little Grebe (*Tachybaptus ruficollis*) [A004] • Great Crested Grebe (*Podiceps cristatus*) [A005] • Cormorant (*Phalacrocorax carbo*) [A017] • Grey Heron (*Ardea cinerea*) [A028] • Shelduck (*Tadorna tadorna*) [A048] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Pintail (*Anas acuta*) [A054] • Shoveler (*Anas clypeata*) [A056] • Red-breasted Merganser (*Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Lapwing (*Vanellus vanellus*) [A142] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Common Tern (*Sterna hirundo*) [A193] • Wetland and Waterbirds [A999]	Yes. There is indirect connectivity between the proposed project and the SPA via hydrological pathways. There is no overlap or direct connectivity from the proposed project to the SPA. The western extent of the proposed project is located ca. 20m, i.e. on the opposite side of the N25 carriageway, from the SPA.

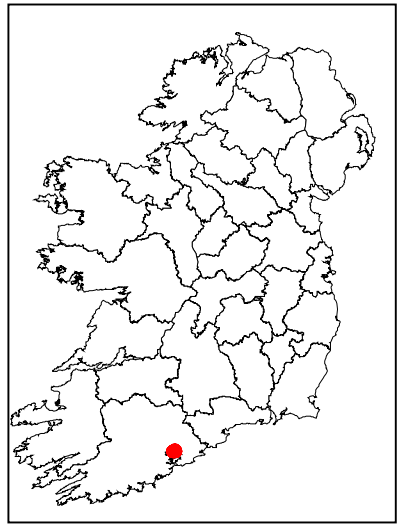
N

Legend

Red Line Boundary

Rivers

Great Island Channel SAC



Client:	Cork County Council
Project:	Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle
Title:	Special Areas of Conservation within Zone of Influence

Drawn: EN	Checked: NS	Authorised: PO'D
Date: 05/07/2021	Date: 05/07/2021	Date: 05/07/2021
Drawing No: 5.1		Rev: 1.0

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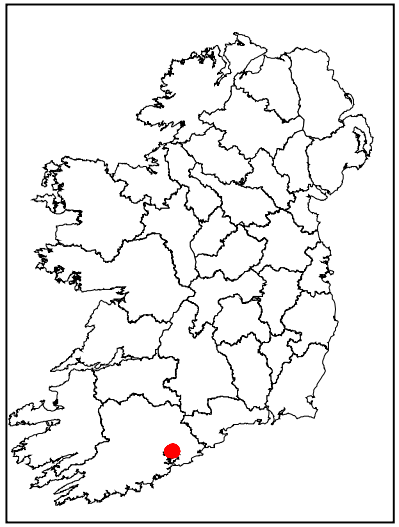
N

Legend

- Red Line Boundary
- Rivers
- Cork Harbour SPA



Client:	Cork County Council
Project:	Carrigtwohill URDF Initiative Public Realm Infrastructure Bundle
Title:	Special Protection Areas within Zone of Influence

Drawn: EN	Checked: NS	Authorised: PO'D
Date: 05/07/2021	Date: 05/07/2021	Date: 05/07/2021
Drawing No: 5.2		Rev: 1.0

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5.2. Brief Description of Great Island Channel SAC

A synopsis of the SAC, as detailed by NPWS, is summarised as follows[9]:

> *'The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.*
>
> *The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably* Macoma balthica*,* Scrobicularia plana*,* Hydrobia ulvae*,* Nepthys hombergi*,* Nereis diversicolor *and* Corophium volutator*.*
>
> *The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*).*
>
> *The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper's Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.*
>
> *The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.*
>
> *The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.'*

5.2.1. Conservation Objectives of Great Island Channel SAC

The Habitats Directive defines when the conservation status of the listed habitats and species is considered as favourable. The definitions it uses for this are specific to the Directive. In summary, they require that the range and areas of the listed habitats, and the range and population of the listed species, should be at least maintained at their status at the time of designation. Site-specific conservation objectives aim to define favourable conservation conditions for a particular habitat or species at that site.

[9] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY001058.pdf

Article (1) of the Habitats Directive (92/43/EEC) describes favourable conservation status for habitats and species as follows.

Favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation objectives for Great Island Channel SAC, to maintain or restore the favourable conservation condition for each of the qualifying interests of the site, were published by NPWS (2014a) Version 1.0; 06/06/2014, and are as follows:

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Great Island Channel SAC;
- To restore the favourable conservation condition of Atlantic salt meadows in Great Island Channel SAC.

5.2.2. Potential Threats

The site synopsis for the Great Island Channel SAC describes the land use and threats to the SAC as follows; *'While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.'*

The threats, pressures and activities with impacts on the SAC[10] are itemised in Table 5-3.

Table 5-3 - Threats, pressures and activities with impacts on the SAC.

Rank	Threats and pressures (code)	Threats and pressure (type)	Inside/outside/both (i/o/b)
M	A08	Fertilisation	o
H	F01	Marine and freshwater aquaculture	i
H	J02.01.02	Suppression of natural fires	i
H	D01.02	Roads and motorways	i
H	E01	Urbanised areas and human habitation	o
M	I01	Invasive non-native species	i
M	A04	Grazing	i
M	K02.03	Eutrophication (natural)	i

[10] https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF001058.pdf

5.3. Brief Description of Cork Harbour SPA

Cork Harbour SPA is described as follows in the NPWS site synopsis[11]:

> *"Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets.*
>
> *Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably* Macoma balthica, Scrobicularia plana, Hydrobia ulvae, Nepthys hombergi, Nereis diversicolor *and* Corophium volutator. *Green algae species occur on the flats, especially* Ulva *spp. Cordgrass (*Spartina *spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Some shallow bay water is included in the site. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.*
>
> *Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Little Egret, Golden Plover, Bar-tailed Godwit, Ruff, Mediterranean Gull and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it. Cork Harbour is also a Ramsar Convention site and part of Cork Harbour SPA is a Wildfowl Sanctuary."*

5.3.1. Conservation Objectives of Cork Harbour SPA

The Conservation Objectives for Cork Harbour SPA are to maintain the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA[12] (last accessed 05/06/2021).

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation objective for non-breeding birds Special Conservation Interests of Cork Harbour SPA[13] are summarised in Table 5-4.

[11] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004030.pdf
[12] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004030.pdf
[13] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004030.pdf

Table 5-4 - Conservation Objectives of Cork Harbour SPA.

Objective 1: To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Cork Harbour SPA, which is defined by the following list of attributes and targets:			
Parameter	**Attribute**	**Measure**	**Target**
Population	Population Trend	Percentage change as per population trend assessment using waterbird count data collected through the Irish Wetland Bird Survey and other surveys	The long term population trend should be stable or increasing
Range	Distribution	Range, timing or intensity of use of areas used by waterbirds, as determined by regular low tide and other waterbird surveys	There should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest other than that occurring from natural patterns of variation.
Area	Wetland habitat	Area (Ha)	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 Ha, other than that occurring from natural patterns of variation.

5.3.2. Potential Threats

The threats, pressures and activities[14] with impact on Cork Harbour SPA are itemised in Table 5-5.

Table 5-5 - Threats, pressures and activities with impacts on the SPA.

Rank	Threats and pressures (code)	Threats and pressures (type)	Inside/outside/both (i/o/b)
M	F02.03	Leisure fishing	i
H	E02	Industrial or commercial areas	o
M	G01.01	Nautical sports	i
M	D03.02	Shipping lanes	i
M	G01.02	Walking, horse riding and non-motorised vehicles	i
H	D01.02	Roads, motorways	o
H	E01	Urbanised areas, human habitation	o
L	E01.03	Dispersed habitation	o
H	F01	Marine and Freshwater Aquaculture	i
M	G01.06	Skiing, off-piste	i
M	A08	Fertilisation	o
H	D03.01	Port areas	o

[14] https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004030.pdf

5.4. Likelihood of Significant Effects on European sites

The available information on European sites was reviewed to establish whether or not the proposed project is likely to have a significant effect on the conservation objectives of the designated sites. The likelihood of impacts on the qualifying interests of the European sites identified in this report is based on information collated from the desk study, site visit, site plans and other available existing information.

The likelihood of impacts occurring are established in light of the type and scale of the proposed works, the location of the proposed works with respect to European sites and the features of interest and conservation objectives of the European sites.

This screening report is prepared following the Cause – Pathway – Effect model. The potential impacts are summarised into the following categories for screening purposes.

- Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development or agricultural purposes. Direct impacts can be as a result of a change in land use or management, such as the removal of agricultural practices that prevent scrub encroachment.

- Indirect and secondary impacts do not have a straight-line route between cause and effect. It is potentially more challenging to ensure that all the possible indirect impacts of the project – in combination with other plans and projects - have been established. These can arise, for example, when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality can occur as an indirect consequence of development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact. Disturbance to fauna can arise directly through the loss of habitat (e.g. displacement of roosting bats) or indirectly through noise, vibration and increased activity associated with construction and operation.

5.4.1. Identification of Potential Impacts

5.4.1.1. Potential impacts during construction

Direct Impacts

As outlined in Section 1, the construction activities associated with the proposed project will be carried out within the red line boundary of the proposed project and construction traffic will use the existing road network in the environs of Carrigtwohill in order to access the proposed project.

The works to Cobh Cross are the closest to the European sites, the nearest point located ca. 20m from the SAC and SPA. All works locations are located on the opposite side of the N25 dual carriageway to the European sites and are thus physically separated from the European sites by roads and verges. Therefore, given to the nature, extent and location of the proposed project, these works are not anticipated to cause direct impacts, such as habitat loss, habitat modification or direct disturbance, to the SAC and SPA during the construction phase.

Indirect Impacts

Indirect impacts for proposed works relate primarily to potential indirect disturbance of bird species of the SPA and hydrological linkages between the work areas and the European sites.

The proposed works at Cobh Cross is the closest element of the proposed project to the SPA. The activities and events identified to have potential to cause disturbance to waterbirds within sub-sites OL590 and OL595 are non-marina moorings, birdwatching and fishing (NPWS, 2014). Given the surrounding environment of the proposed works at Cobh Cross, and the presence of ambient noise from high volumes of road traffic in the area, the use of machinery and presence of personnel at this proximity to the SPA is not anticipated to cause disturbance to the waterbirds of the SPA. Please note that the red line boundary of the proposed project at Cobh Cross is ca. 20m from the SPA and on the opposite side of the N25 dual carriageway (Appendix A). The works at Cobh Cross will involve works such as open excavations, earth works and re-surfacing of surfaces, which will be carried out within the red line boundary of the project. These works fall into the categories of ‘moderate to low’ and ‘low’ disturbance

categories, as detailed in the TIDE toolbox[15]. These works are not activities that create sudden bursts of noise, such as piling or blasting. These works will create low to moderate levels of constant noise, which are less disruptive to waterbirds. It is not anticipated that these activities will significantly increase the ambient noise levels at the estuary. Due to the nature, scale and location of the proposed works at Cobh Cross, it is not anticipated that level of noise during the construction phase of the project will result in noise levels that would cause disturbance to or displacement of waterbirds of the SPA.

The remainder of the proposed project is located throughout Carrigtwohill village. The lands in which the proposed project is situated do not offer suitable foraging or nesting habitat for bird species of the SPA. Built lands such as commercial business parks and housing estates, roads and agricultural lands are situated between the European sites and the proposed project. Thus, due to the nature and location of the proposed project, indirect impacts to bird species of the SPA are not anticipated during the construction phase of the proposed project.

As described in Section 4.1 and 4.2, the Woodstock stream lies within the works area along the northern section of Station Road. The realignment of the Woodstock Stream will be conducted by open trenching a new channel alongside the existing stream. The new channel will be created off-line from the live channel and therefore will be created in the dry. Once this channel has been excavated to dimensions that reflect those of the existing stream, the downstream end of the new channel will be joined to the existing stream. The upstream end will then be connected to the culvert and the stream diverted. The Woodstock Stream is a highly modified channel and currently runs through a large area of open land and an operational construction site in the lands west of Station Road. The commissioning of the new channel will likely result in a minor and localised plume of suspended soils as the stream flows over the newly excavated soils, however this will be temporary and localised in nature, as it is anticipated that the localised suspended solids plume will settle out within the Woodstock stream. Given the nature, scale and location of the proposed works relative to the European sites (2km hydrological distance between the site of realignment and the SAC), likely significant effects to the habitats of the SAC and waterbirds of the SPA are not anticipated.

Along a localised area of Station Road, a new section of surface water drainage system will be installed, due to the fact that there is no existing surface water drainage system in place, and will tie in with the existing drainage system. There are no watercourses or open drains adjacent to this works area and therefore, this works area does not have hydrological connectivity to the SAC and SPA. Thus, no potential impacts will occur.

The remainder of excavations, clearance works, laying of new pavements, road infrastructure and associated services shall all be conducted with the existing road networks and the adjoining verges. It should be noted that there will be no works to the existing drainage system and only minor works, such as the re-location of gullies is required. Thus, any runoff from works will enter the existing drainage system, which is equipped with petrol interceptors and catch pits. Given the nature and scale of works, it is not anticipated that the aforementioned work types will incur a deterioration of water quality of waterbodies or, in turn, likely significant effects on the SAC or SPA.

As stated above, the works along the main street to widen the road corridors and provide a new cycle and pedestrian pathway will be conducted within the existing footprint of the road and verges. There is only one location along the Main Street (L3680) where works are located in the vicinity of a watercourse that has connectivity to the SAC and SPA; the Anngrove stream. The Anngrove stream is culverted under the L3680 in the vicinity of Carrig Downs and Carrigtwohill Industrial Estate, which is located south of the L3680. All works in the vicinity where the Anngrove stream is culverted under the L3680 will be within the existing carriageway and verges. The proposed works will not interact with the Anngrove stream or its riparian areas. Any run-off during the works will flow to the existing surface water drainage system, which is fitted with interceptors and catch pits. Therefore, likely significant effects to the habitats of the SAC and waterbirds of the SPA are not anticipated. It should be noted, as detailed in Section 4.1, that no works are proposed in the of Tibbotstown stream.

The new road infrastructure and associated services will be predominantly located within the existing networks. Given the depth of the excavations required to facilitate these works, it is not anticipated that groundwater will be encountered. The lands within the proposed red line boundary are located across areas of moderate to extremely high groundwater vulnerability with a gravel aquifer. However, given the maximum depth of excavations, the location of the proposed works and the nature of complex indirect hydrological connectivity to the Slatty Water, likely significant effects to the habitats of the SAC and waterbirds of the SPA via hydrological pathways are not anticipated.

[15] TIDE toolbox - TIDE tools (tide-toolbox.eu).

As outlined in Section 1.5 under Biosecurity Protocols, the potential spread of invasive species will be controlled by:

- Identifying and marking out areas of infestation;
- Fencing off areas of infestation in advance of and during construction works;
- Erecting signage identifying restricted areas;
- Avoiding using plant and machinery in areas of invasive species infestation;
- Plant and equipment used within areas of invasive species infestation should be inspected post works and washed down in a contained area;
- Establishing root zones / control zones for knotweed extending a minimum of 7m from the extent of invasive species surface vegetation.

The location of Japanese knotweed is situated outside, but adjacent to, the perimeter of the red line boundary of the proposed project and at a remove from waterbodies. Winter heliotrope is situated along a number of roadside verges, however given the location and physical remove of the works areas from the SAC and SPA, it is not anticipated that winter heliotrope could be spread to the European sites as a result of the proposed works. Thus, it is not anticipated that invasive plant species will be spread to European sites and therefore, impacts on habitats of the SAC and supporting habitats of the SPA will not occur.

5.4.1.2. Potential impacts during operation

The aim of the proposed project is to provide infrastructure works to support the regeneration, compact growth and sustainable development in Carrigtwohill town. The result of the operation of the proposed project in the vicinity of Carrigtwohill will be a decrease in traffic congestion and improved traffic management and infrastructure. Thus, increases in traffic volumes and recreational activities in the vicinity of the SAC and SPA are not anticipated. The proposed project will not result in an expansion of the road network in the vicinity of the SAC and SPA.

All infrastructure resulting from the proposed project will be permanent during operation. All areas of expansion of paved areas will be supported by appropriately proportioned drainage systems, which will be equipped with petrol interceptors, catch pits and attenuation tanks fitted with hydro brakes to filter and control the release of water to receiving water bodies at greenfield rates, ensuring that all road runoff will flow to the existing drainage system. Thus, likely significant effects to the SAC and SPA during the operation of the proposed project are not anticipated.

5.5. In-Combination Impacts

In-combination impacts with the following plans and projects were considered during the preparation of this report. The search of Cork County Council's planning database was map-based.

The Cork County Development Plan 2022-2028 sets out policies and objectives for the development of the County during the period of the Plan. The Plan seeks to secure the sustainable development and improvement of the economic, environmental, cultural and social assets of Cork County. The Plan has outlined objectives for biodiversity within the county. These include:

- Providing protection to all designated sites, national and European, and to maintain or develop linkages between these,
- Providing protection to protected plants and animals in accordance with legal requirements, and
- Retain areas of local biodiversity value, ecological corridors and habitats which contribute to the county ecological network, to protect them from inappropriate development.

A NIS was prepared for the Cork County Development Plan which assessed the Plan and its potential to adversely affect the integrity of European sites. The findings of the NIS were integrated into the Plan, ensuring that potential impacts were avoided, reduced or offset. Thus, an AA determination was made by Cork County Council that the Plan will not adversely affect the integrity of European sites due to the incorporation of mitigation measures into the Plan as a result of the AA process.

Three schools (Planning Application: 195707) and associated internal infrastructure is currently undergoing construction to the west of Station Road. This development is located on both sides of the Woodstock Stream for about 700m from the end of the extent to be realigned in this proposed public realm infrastructure project. The development of the school will be completed prior to the commencement of the Public Realm Project. The school development has implemented a Construction and Environmental Management Plan detailing protective measures for the Woodstock stream, thus mitigating the effects of pollution events during the construction of the project. The Public Realm project proposes to realign 60m of the Woodstock stream. The realignment of the Woodstock Stream will be conducted by open trenching a new channel alongside the existing stream. The new channel will be created off-line from the live channel and therefore will be created in the dry. Once this channel has been excavated to dimensions that reflect those of the existing stream, the downstream end of the new channel will be joined to the existing stream. The upstream end will then be connected to the culvert and the stream diverted. Therefore, due to the construction methods employed and the nature and scale of the proposed re-alignment of the Woodstock stream, in-combination effects due to pollution events are not anticipated. Thus, it is not anticipated that effects of the two projects will act in combination and therefore, potential risk of impacts to the habitats of the SAC and waterbirds of the SPA is not anticipated.

Committed developments, which have not yet been built or are currently under construction, are presented in Table 5-6.

Table 5-6 - Committed Development in the vicinty of the proposed project.

Planning Ref.	Decision Date	Applicant Name	Location	Description
195707	28/04/2020	The Minister for Education and Skills	Castlelake, Terrysland, Carrigtohill, Co. Cork	Demolition of 1no. derelict two story dwelling and 1no. derelict single story agricultural storage building. Construction of 3 no. new school buildings.
176934	08/11/2018	Petrogas Group Ltd	Castlelake, Terrysland, Carrigtohill, Co. Cork	Development of 6no. pump islands with canopy.
175399	16/04/2018	BAM Property Ltd.	Castlelake, Terrysland, Carrigtohill, Co. Cork	Construction of 277 no. residential units consisting of 43 no. detached houses, 94 no. semi-detached houses, 40 no. three storey terraced houses, 9 no. duplex houses, 9 no. duplex apartments and 82 no. 2 & 3 bedroom apartments arranged in three blocks of three stories and one block of four stories and associated site development works. The proposed development represents a change of layout and house types on part of the lands previously permitted under the overall 'Castlelake' development Ref:00/7674 (An Bord Pleanala Ref: PL.04.131129) extended under 12/5005 and Ref: 00/7607 (An Bord Pleanala Ref: PL.04/125446) extended under 11/4857.
184693	14/05/2018	BAM Property Ltd.	Castlelake, Terrysland, Carrigtohill, Co. Cork.	Construction of a crèche of 581sq.m over one and two storeys, new entrance, carparking and boundaries, and all associated site development works.
165091	30/06/2016	Mary Barry	Cluan Cairn, Station Road, Carrigtohill, Co. Cork.	Extension to existing "All Aboard" Creche facility comprising 90sq.m building, relocation of outdoor play area, and ancillary roads and services connection works. Development is within the cartilage of Rockville House (Protected Structure RPS ID 1317).

Planning Ref.	Decision Date	Applicant Name	Location	Description
174498	16/06/2017	Murnane & O'Shea Ltd.	Church Road, Carrigtohill, Co. Cork	Residential development of 25 no. residential units and all ancillary site development works. The proposed development consists of 20 no. 3 bed semi-detached dwellings, 4 no. 2 bed semi-detached dwellings and 1 no. 3 bedroom detached dwelling. The development will be accessed via an upgraded entrance from Church Road.
195836	13/09/2019	IDA Ireland	IDA Business Park, Anngrove & Terry's Land, Carrigtwohill, Co Cork.	Internal road upgrades. The proposed development will involve the upgrade of existing internal access roads to provide a dedicated shared use cycleway and footpath, pedestrian and cycle crossing point, bus lane, bus shelter and traffic safety barrier. The proposed development will also include for the provision of a cycleway and footpath adjacent to the L-3616 public road to connect into the L-3615 at the north eastern corner of the IDA Business Park.

Given the nature, extent and scale of the proposed project, it is not anticipated that it will act in-combination with the plans or projects outlined above, or other plans or projects, to give rise to cumulative impacts on the Great Island Channel SAC and Cork Harbour SPA.

5.6. Consideration of Findings

This Screening for Appropriate Assessment report is based on the best available scientific information. It is concluded by the authors of this report that it can be excluded, on the basis of objective information, that the proposed project, individually or in-combination with other plans and projects, will have likely significant effects on the Great Island Channel SAC and Cork Harbour SPA in view of their conservation objectives. Thus, it is concluded that the proposed project does not need to proceed to Appropriate Assessment.

Should the scope or nature of the proposed project change, a new Screening for Appropriate Assessment report shall be required.

6. Appropriate Assessment Screening Matrix

Presented below is a summary screening matrix for the proposed project at Carrigtwohill, Co. Cork. As discussed above, this summarises the assessment of potential impacts on the Great Island Channel SAC and Cork Harbour SPA. All other European sites are not within the zone of influence of the proposed project.

1. Description of the project or plan	
Location	Carrigtwohill, Co. Cork
Distance from designated site	Ca. 20m by land from the SAC and SPA at its most western extent.
Brief Description of the project or plan	See Section 1
Is the plan directly connected with or necessary to the site management for nature conservation?	No

2. Brief Description of the Natura 2000 site(s)	
Name	Great Island Channel SAC (001058) Cork Harbour SPA (004030)
Site designation status	SAC SPA
Qualifying interests	Refer to Tables 5-1 and 5-2
Unit size	Great Island Channel SAC (001058) – Area: 1442.59654 ha; of which marine: 86.139% Cork Harbour SPA (004232) – Area: 2660.269531 ha; of which marine: 90.792%

3. Assessment Criteria	
Other plans or projects which may have a cumulative impact	A map-based planning search was conducted on Cork County Council's planning system. There are no plans and projects identified in the immediate environs of the proposed project that could provide a pathway for other plans and projects to act in-combination and to give rise to cumulative impacts on the Great Island Channel SAC and Cork Harbour SPA.
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites.	See Section 1 for description of the proposed project.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of: - *Size and scale* - *Land-take*	No land-take of the SAC and/or SPA is required for the proposed project. There are no water abstraction requirements for the proposed project. There are no excavation requirements within or adjacent to the SAC and SPA. A 60m length of the Woodstock Stream will be realigned by excavating a new channel and then redirecting flow. This

3. Assessment Criteria	
- *Distance from Natura 2000 site or key features of the site* - *Resource requirements* - *Emissions* - *Excavation requirements* - *Transportation requirements* - *Duration of construction, operation etc.* - *Others*	work will be located 2km upstream of the SAC/SPA and given the scale and nature of the works, no potential impacts are anticipated.
Describe any likely changes to the site arising as a result of: - *Reduction of habitat area* - *Disturbance of key species* - *Habitat or species fragmentation* - *Reduction in species density* - *Changes in key indicators of conservation value* - *Climate change*	There shall be no reduction of habitat area of SAC habitats or SPA wetlands as a result of the proposed project. Disturbance to SPA bird species is not anticipated due to the nature, scale and location of the proposed project. During construction, the proposed works have the potential to release silt-laden runoff and accidental spills of hydrocarbons. However, all run-off will be contained within the drainage system which shall be fitted with oil interceptors, catch pits and attenuation tanks. Thus, the risk is not significant, and the perceived risk posed by the works to the SAC and SPA is negligible. Therefore, likely significant effects are not anticipated.
Describe any likely impacts on the Natura 2000 site as a whole in terms of: - *Interference with the key relationships that define the structure of the site* *Interference with key relationships that define the function of the site.*	There are no likely changes to the SAC and SPA as a result of the proposed project with respect to the key relationships that define the structure or function of the SAC and SPA.
Provide indicators of significance as a result of the identification of effects set out above in terms of: - *Loss* - *Fragmentation* - *Disruption* - *Disturbance* - *Change to key elements of the site*	There shall be no effects of loss, fragmentation, disruption or disturbance as a result of the proposed project. As set out above, there is potential for silt-laden runoff and accidental hydrocarbon spills during construction to the local environment, however due to the nature, extent and scale of the proposed project, likely significant effects are not anticipated.
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.	None of the potential impacts outlined above are likely to be significant in nature.

Data collected to carry out the assessment			
Who carried out the assessment	*Sources of data*	*Level of assessment completed*	*Where can the full results of the assessments be accessed and viewed?*
Atkins Unit 2B 2200 Cork Airport Business Park, Cork	Desktop data derived from the NPWS – Natura 2000 form, site synopsis, SAC reports etc. National Biodiversity Date Centre online data. EPA Envision Mapping system; Google maps; Bing Maps etc. Cork County Council Planning Enquiry System	Screening for Appropriate Assessment	Atkins, Unit 2B 2200 Cork Airport Business Park, Cork

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Appendices

Appendix A. Red Line Boundary

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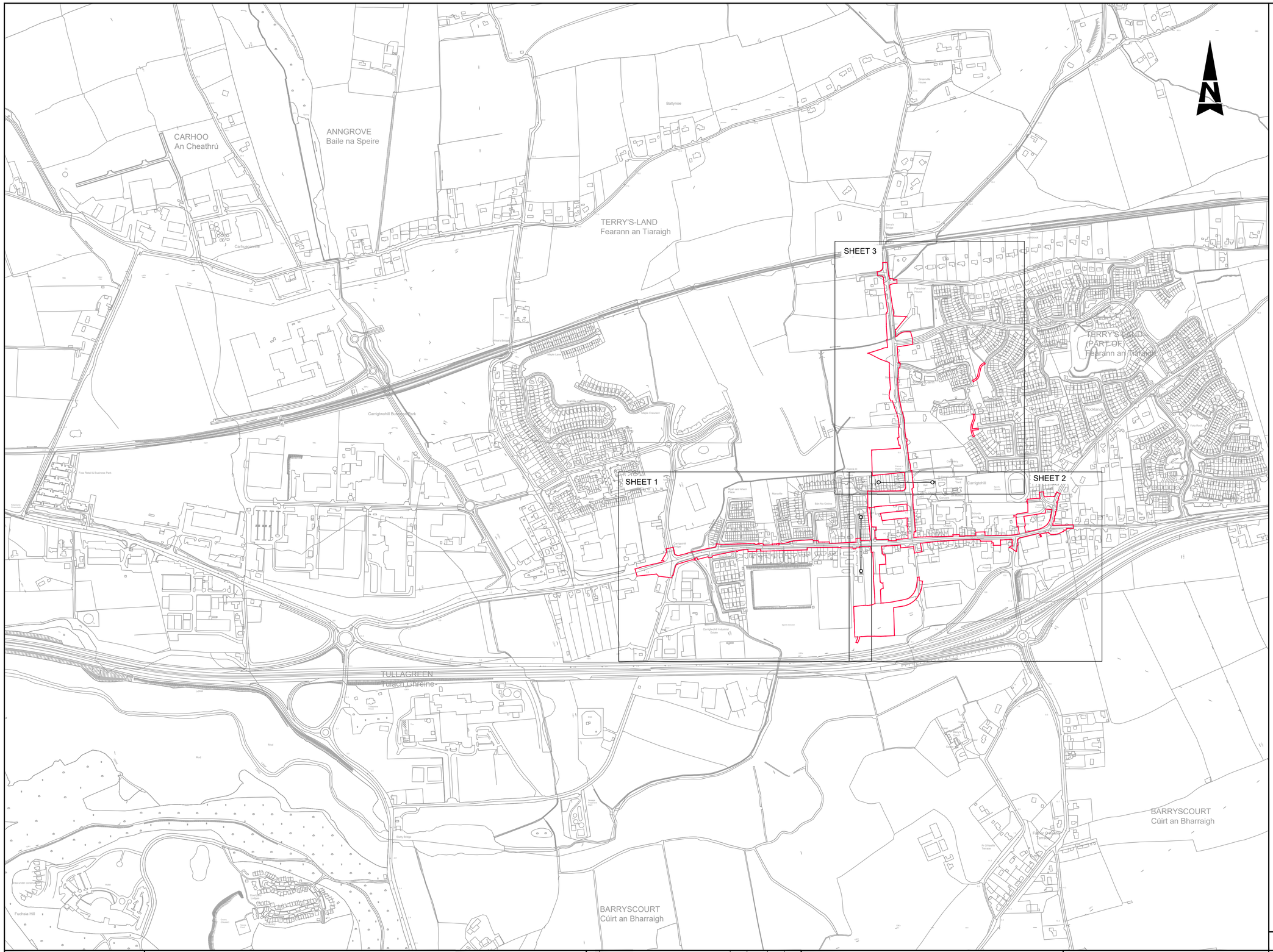

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND:

PART 8 SITE BOUNDARY

Project Ireland 2040
Building Ireland's Future

Rev	Description	By	Date	Chk'd	Auth
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-	ISSUED FOR PART 8 PLANNING	KL	06/21	JOC	RAN

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Clients: CORK COUNTY COUNCIL

Project: CARRIGTWOHILL URDF INITIATIVE
PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: MAIN STREET AND STATION ROAD
PUBLIC REALM WORKS
SITE LOCATION MAP
KEY PLAN

Original Scale	Des/Drawn	Checked	Authorised
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Status	Drawing Number	Rev
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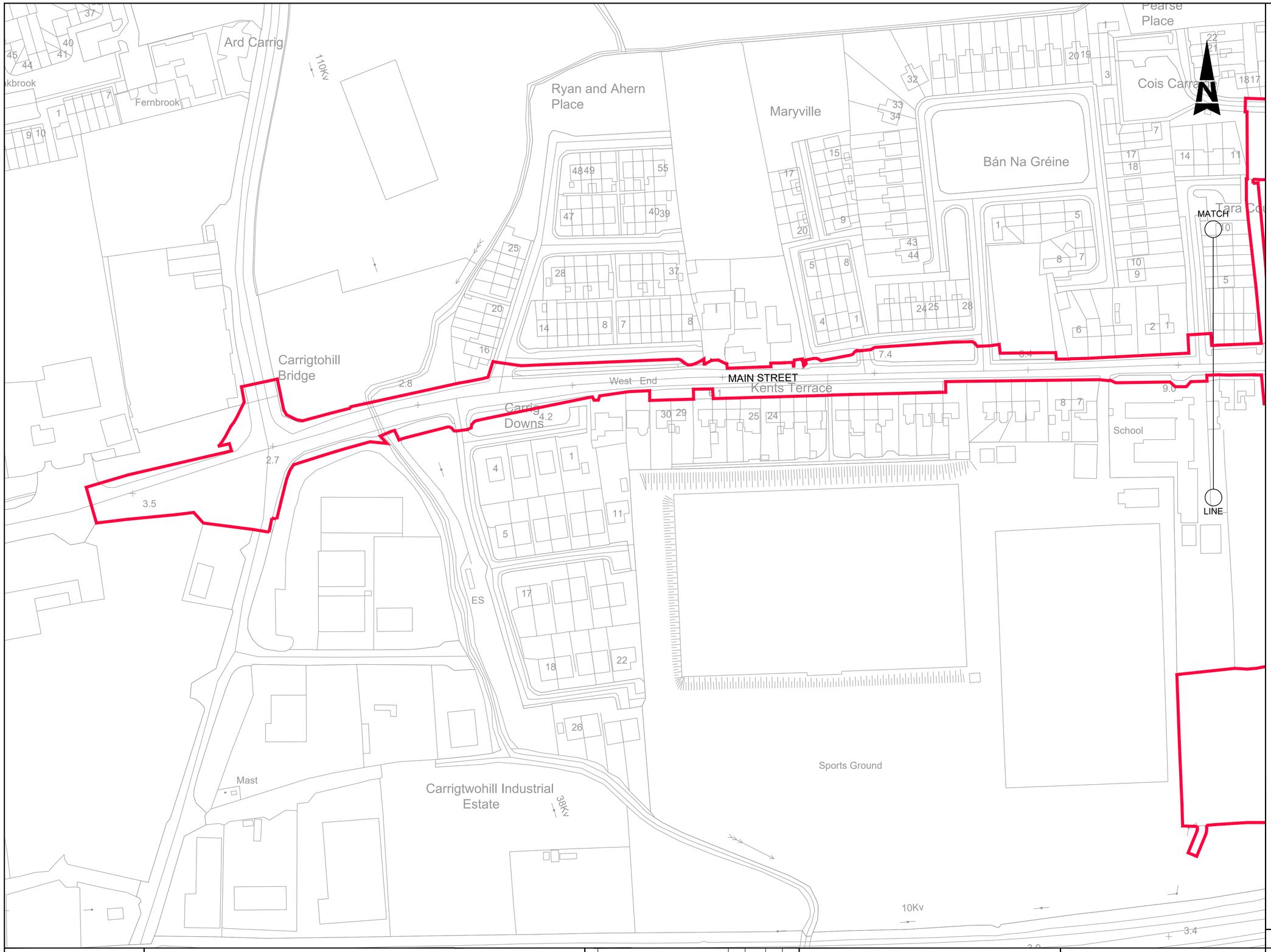

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PART 8 SITE BOUNDARY

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Purpose: ISSUED FOR PLANNING

Title: MAIN STREET AND STATION ROAD
PUBLIC REALM WORKS
SITE LOCATION MAP
SHEET 1 OF 3

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	Date 08/06/21	Date 08/06/21	Date 08/06/21

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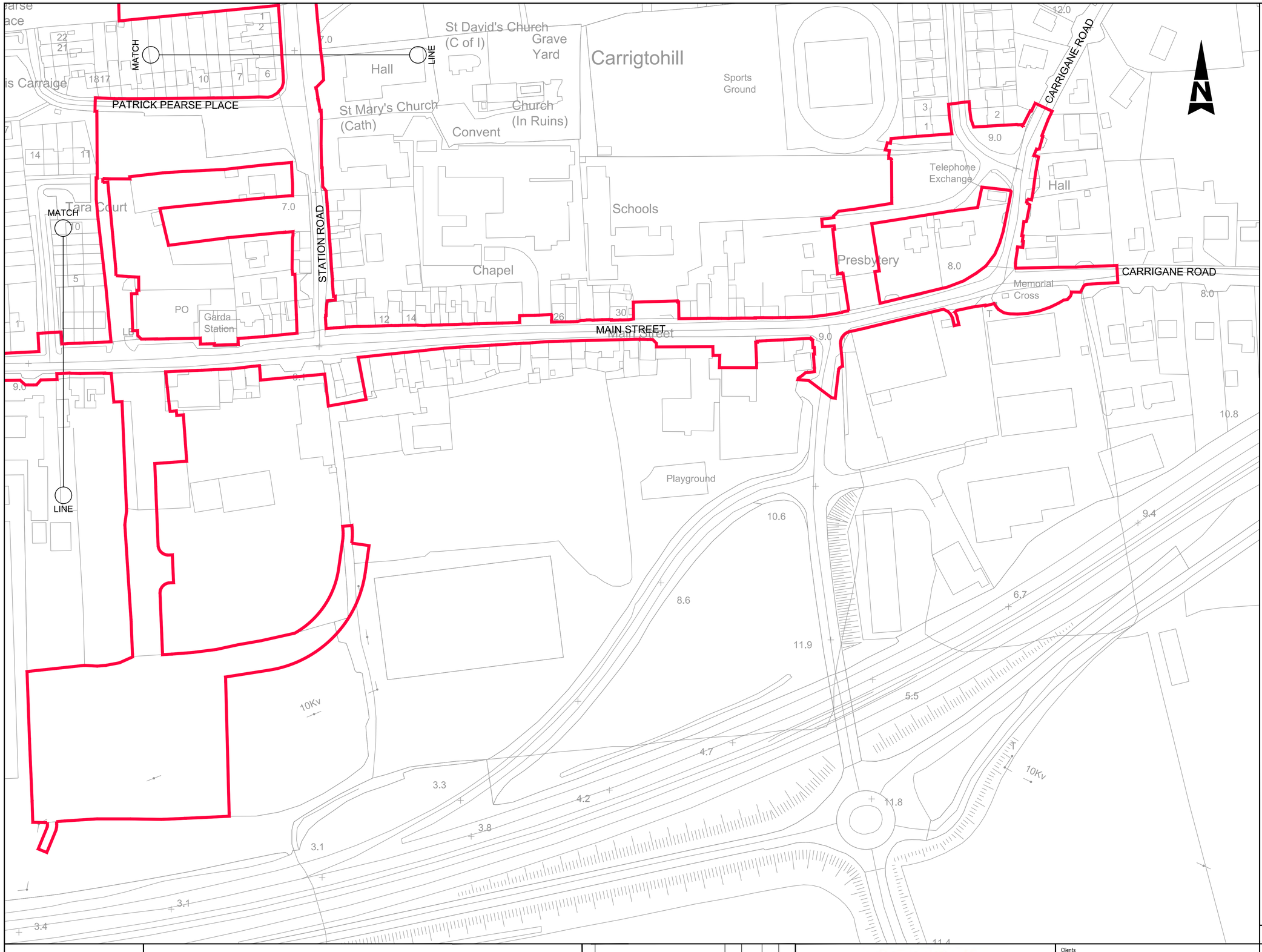

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PART 8 SITE BOUNDARY

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PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: MAIN STREET AND STATION ROAD
PUBLIC REALM WORKS
SITE LOCATION MAP
SHEET 2 OF 3

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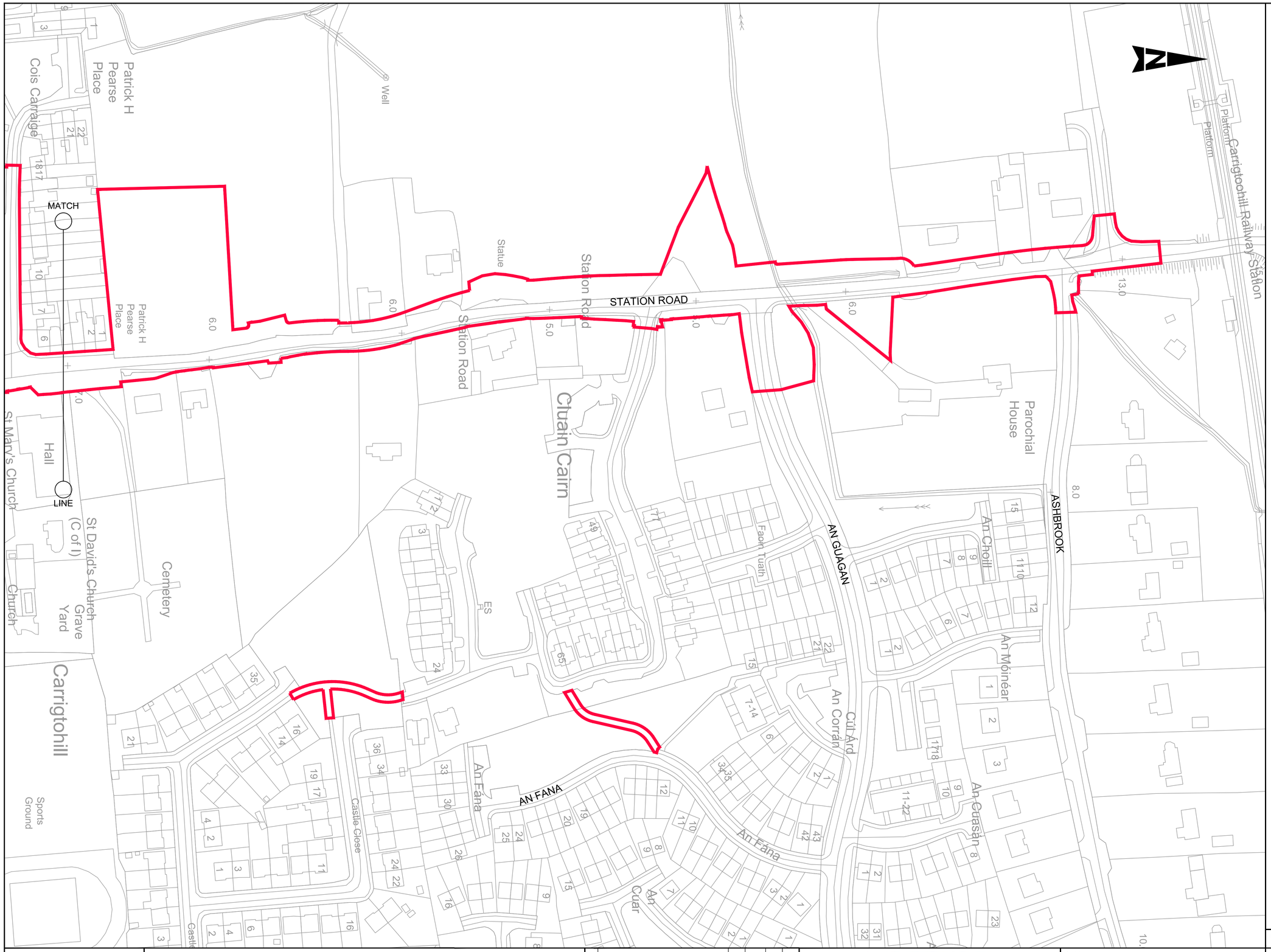

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND:

PART 8 SITE BOUNDARY

A1

0 10 100

DO NOT SCALE

File: 5194601-HTR_PR_DR_0003 to 0010.dwg
Date: Jan 26, 2022 - 12:44pm Plotted by: FMendozaDiaz

Project Ireland 2040 Building Ireland's Future

Rev	Description	By	Date	Chk'd	Auth
A	ISSUED FOR PART 8 PLANNING	FMD	07/21	JOC	RAN
-	ISSUED FOR PART 8 PLANNING	KL	06/21	JOC	RAN

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Clients: CORK COUNTY COUNCIL

Project: CARRIGTWOHILL URDF INITIATIVE
PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: MAIN STREET AND STATION ROAD
PUBLIC REALM WORKS
SITE LOCATION MAP
SHEET 3 OF 3

Original Scale	Des/Drawn	Checked	Authorised
1:1000	KL Date 08/06/21	JOC Date 08/06/21	RAN Date 08/06/21

Status	Drawing Number	Rev
P	5194601 / HTR / PR / DR / 0006	A

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PART 8 SITE BOUNDARY

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Clients: CORK COUNTY COUNCIL

Project: CARRIGTWOHILL URDF INITIATIVE
PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: WISE'S ROAD JUNCTION UPGRADES
SITE LOCATION MAP
KEY PLAN

Original Scale	Des/Drawn	Checked	Authorised
1:5000	KL	JOC	RAN
	Date 08/06/21	Date 08/06/21	Date 08/06/21

Status	Drawing Number	Rev
P	5194601 / HTR / PR / DR / 0007	A

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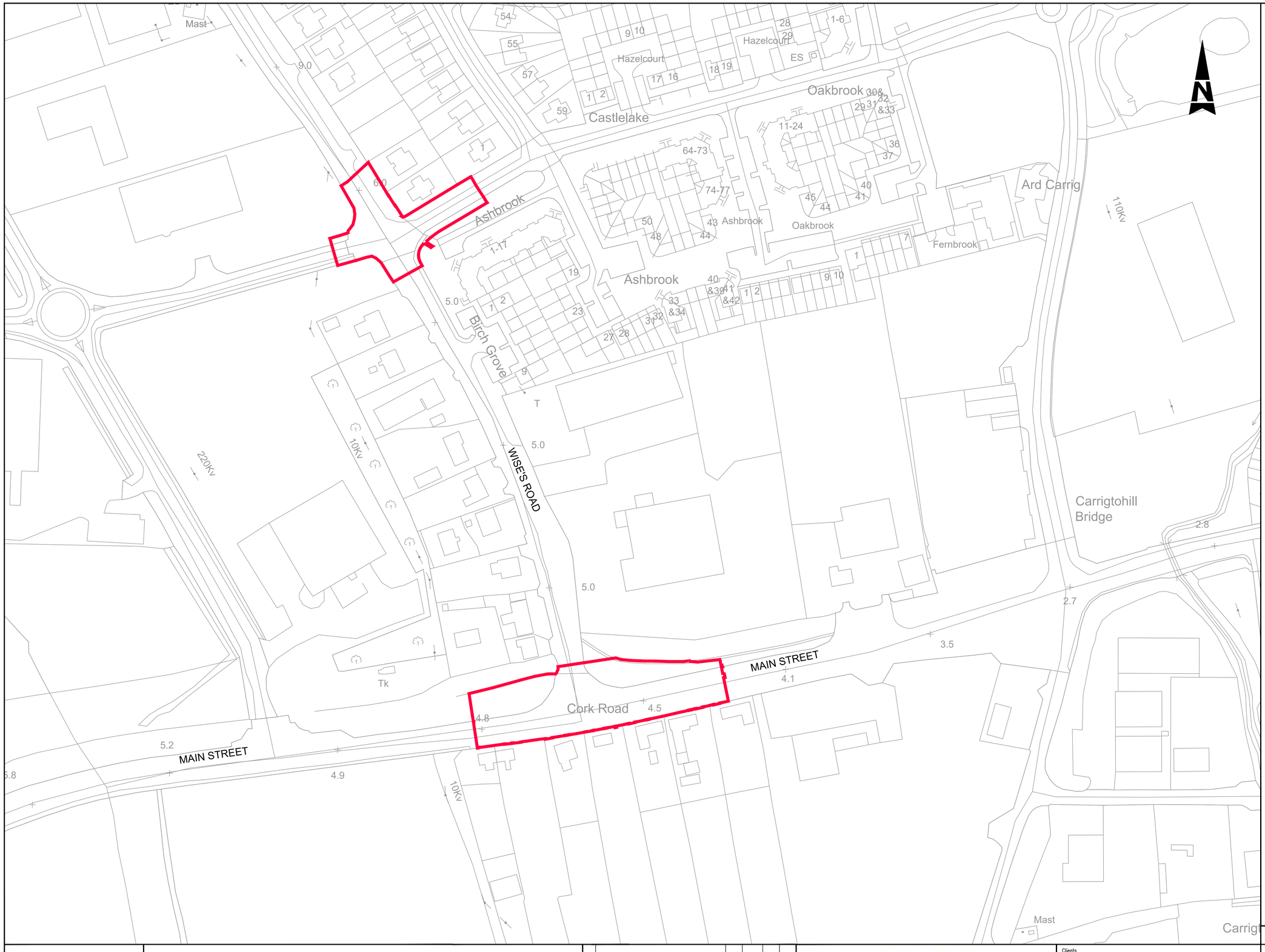

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Clients: CORK COUNTY COUNCIL

Project: CARRIGTWOHILL URDF INITIATIVE
PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: WISE'S ROAD JUNCTION UPGRADES
SITE LOCATION MAP
SHEET 1 OF 1

Original Scale	Des/Drawn	Checked	Authorised
1:1000	KL	JOC	RAN
	Date 08/06/21	Date 08/06/21	Date 08/06/21

Status	Drawing Number	Rev
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Rev	Description	By	Date	Chk'd	Auth
B	ISSUED FOR PART 8 PLANNING	FMD	01/22	JOC	RAN
A	ISSUED FOR PART 8 PLANNING	FMD	07/21	JOC	RAN
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Clients: CORK COUNTY COUNCIL

Project: CARRIGTWOHILL URDF INITIATIVE
PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: N25 JUNCTION 3 (COBH CROSS)
ADDITIONAL CAPACITY INTERIM MEASURES
SITE LOCATION MAP
KEY PLAN

Original Scale	Des/Drawn	Checked	Authorised
1:5000	KL	JOC	RAN
	Date 08/06/21	Date 08/06/21	Date 08/06/21

Status	Drawing Number	Rev
P	5194601 / HTR / PR / DR / 0009	B

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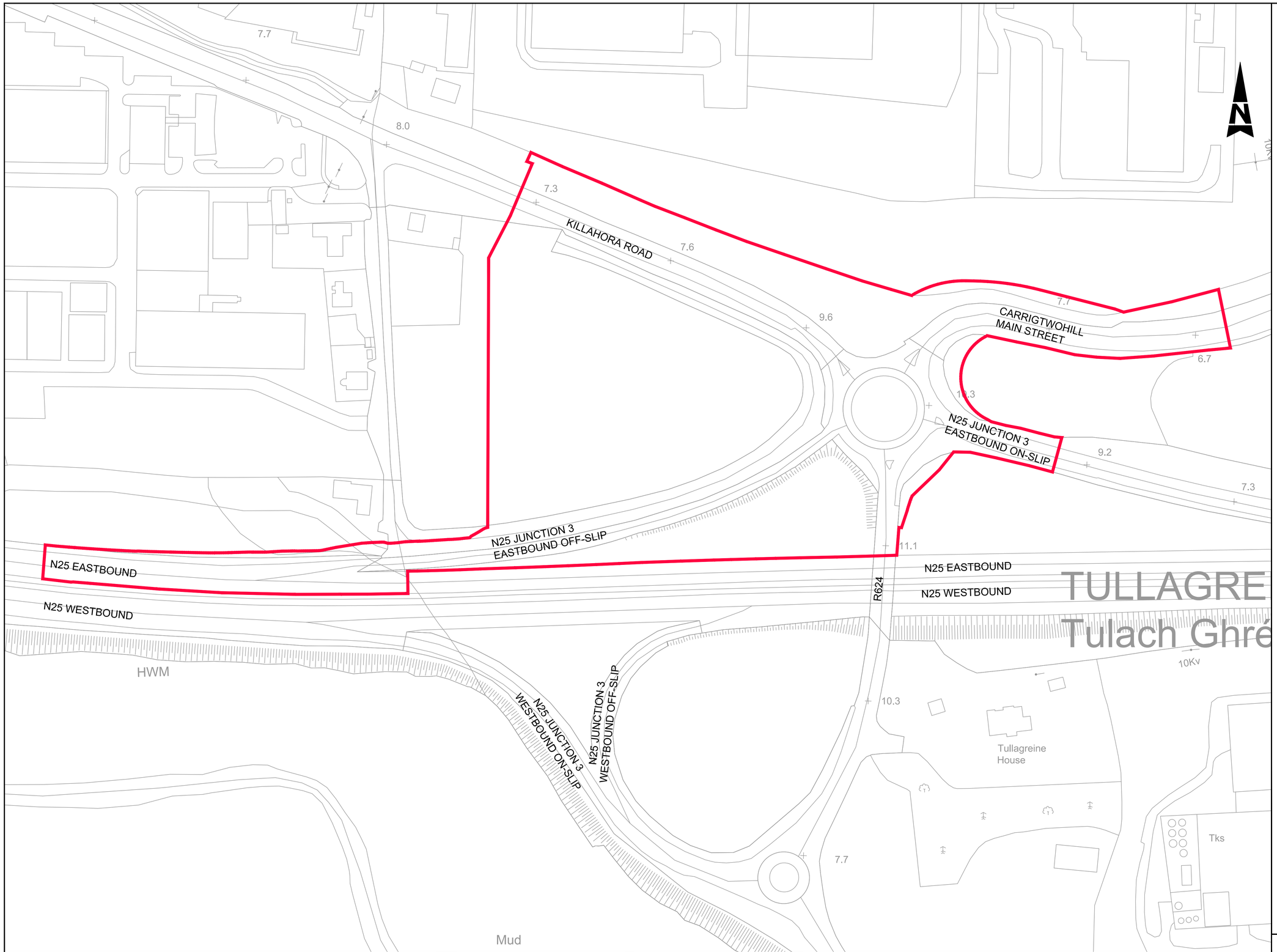

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PUBLIC REALM INFRASTRUCTURE BUNDLE

Purpose: ISSUED FOR PLANNING

Title: N25 JUNCTION 3 (COBH CROSS)
ADDITIONAL CAPACITY INTERIM MEASURES
SITE LOCATION MAP
SHEET 1 OF 1

Original Scale	Des/Drawn	Checked	Authorised
1:1000	KL	JOC	RAN
	Date 08/06/21	Date 08/06/21	Date 06/06/21

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