Naas Inner Relief Road

Screening Report for Appropriate Assessment

Doherty Environmental Consultants Ltd

February 2019

Naas Inner Relief Road

Screening Report for Appropriate Assessment

Document Stage	Document Version	Prepared by
Final	1	Pat Doherty MSc, MCIEEM

This report has been prepared by Doherty Environmental Consultants Ltd. with all reasonable skill, care and diligence. Information report herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is prepared for Kildare County Council and we accept no responsibility to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Table of Contents

1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. have been commissioned by Kildare County Council to undertake a Screening Report for Appropriate Assessment for the proposed Naas Inner Relief Road, Naas, Co. Kildare (see Figure 1.1 for location and Appendix 3 Project Scheme Design Drawings).

This Screening Report for Appropriate Assessment forms Stage 1 of the Habitats Directive Assessment process and is being undertaken in order to comply with the requirements of the Habitats Directive Article 6(3). The function of this Screening Report is to identify the potential for the project to result in likely significant effects to European Sites and to provide information so that the competent authority can determine whether a Stage 2 Appropriate Assessment is required for the project.

1.1 LEGISLATIVE CONTEXT

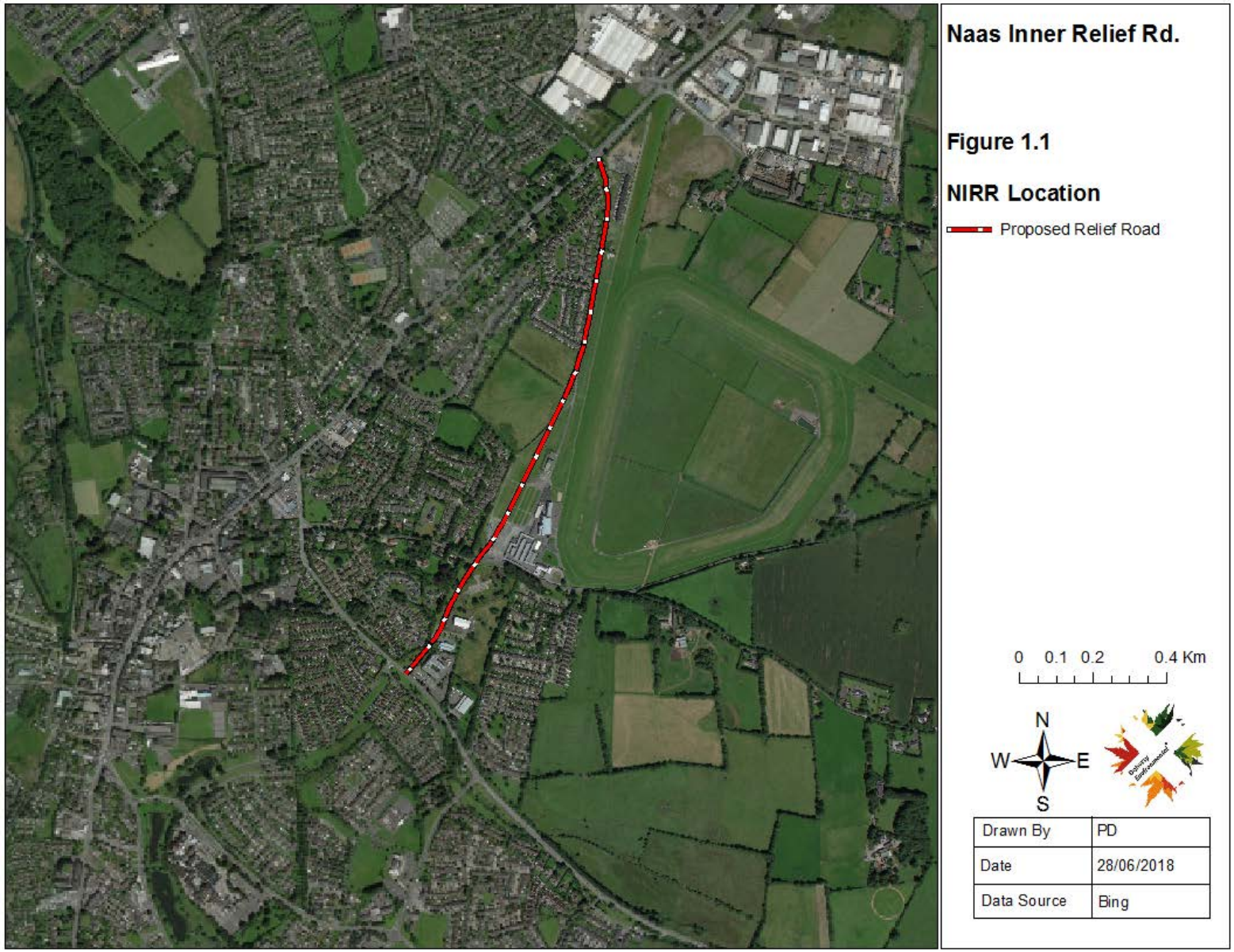
This Screening Report for Appropriate Assessment is being prepared in order to enable the competent authority to comply with Article 6(3) of Council Directive 92/43/EEC (The Habitats Directive). It is prepared to assess whether or not the project alone or in combination with other plans and projects is likely to have a significant effect on any European Site in view of best scientific knowledge and in view of the conservation objectives of the European Sites and specifically on the habitats and species for which the sites have been designated.

1.1.1 Requirement for an Assessment under Article 6 of the Habitats Directive

According to Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 – 2015, the competent Authority has a duty to:

- Determine whether the proposed Project is directly connected to or necessary for the management of one of more European Sites; and, if not,
- Determine if the Project, either individually or in combination with other plans or projects, would be likely to have a significant effect on the Eurpoean Site(s) in view of best scientific knowledge and the Conservation Objectives of the site(s).

This Report contains a Screening for Appropriate Assessment and is intended to assess and address all issues regarding the construction and operation of the Project and to inform and allow the competent authority to comply with the Habitats Directive. Article 6(3) of the Habitats Directive defines the requirements for assessment of projects and plans for which likely significant effects on European Sites may arise. The European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015 (the Habitats Regulations) transpose into Irish law Directive 2009/147/EC (the Birds Directive) and Council Directive 92/43/EEC (the Habitats Directive) lists habitats and species that are of international importance for conservation and require protection. The Habitats legislation requires competent authorities, to carry out a Screening for Appropriate Assessment of plans and projects that, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives. This requirement is transposed into Irish Law by Part 5 of the Habitats Regulations and Part XAB of the Planning and Development Act, 2000 (as amended).


Naas Inner Relief Rd.
Figure 1.1
NIRR Location
Proposed Relief Road
0 0.1 0.2 0.4 Km
N
W
E
S
Drawn By
PD
Date
28/06/2018
Data Source
Bing

1.2 STAGE 1 SCREENING METHOD

This Screening Report has been prepared in order to comply with the legislative requirements outlined in Section 1.1 above and aims to establish whether or not the Naas Inner Relief Road project, alone or in combination with other plans or projects, would be likely to have significant effects on European Sites in view of best scientific knowledge and the Site's conservation objectives.. In this context "likely" refers to the presence of doubt with regard to the absence of significant effects (ECJ case C-127/02) and "significant" means not trivial or inconsequential but an effect that has the potential to undermine the European Site's conservation objectives (English Nature, 1999; ECJ case C-127/02). In other words any effect that compromises the conservation objectives of a European Site and interferes with achieving the conservation objectives for the site would constitute a significant effect.

The nature of the likely interactions between the project and the conservation objectives of European Sites will depend upon the sensitivity of these sites and their reasons for designation to potential impacts arising from the project; the current conservation status of the features for which European Sites have been designated; and any likely changes to key environmental indicators (e.g. habitat structure; vegetation community) that underpin the conservation status of European Sites, in combination with other plans and projects.

This Screening Report for Appropriate Assessment has been undertaken with reference to respective National and European guidance documents: Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities (DEHLG 2010) and *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* and recent European and National case law. The following guidance documents were also of relevance during the preparation of this Screening Report:

- A guide for competent authorities. Environment and Heritage Service, Sept 2002. Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (2010). DEHLG.

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance of the Provisions of Article 6(3) and (4) of the Habitats Directive 92/42/EEC. European Commission (2001).

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC. European commission (2018).

The EC (2001) guidelines outline the stages involved in undertaking a Screening Report for Appropriate Assessment for projects. The methodology adopted during the preparation of this Screening Report is informed by these guidelines and was undertaken in the following stages:

1. Describe the project and determine whether it is necessary for the conservation management of European Sites;

2. Identify European Sites that could be influenced by the project;

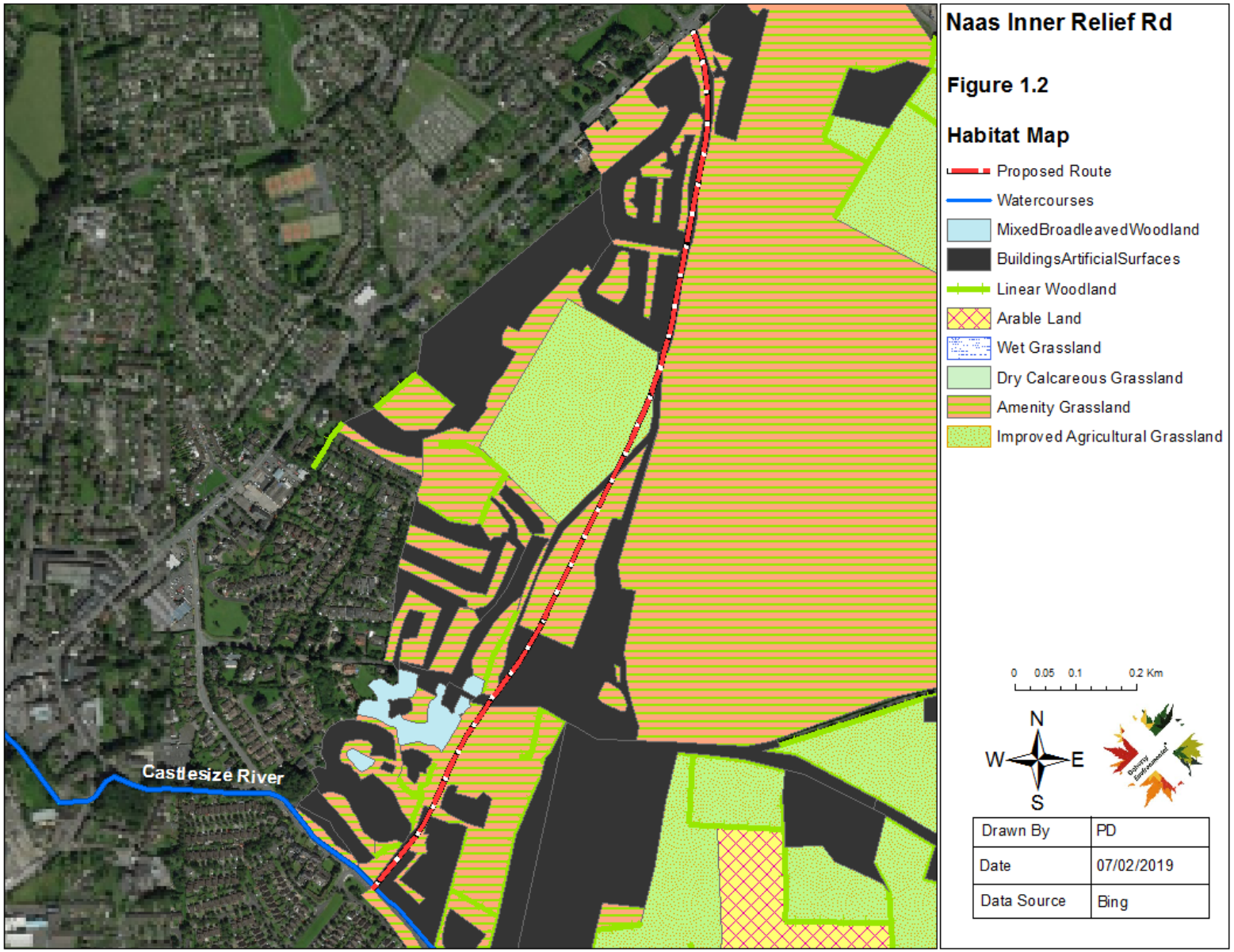
3. Where European Sites are identified as occurring within the zone of influence of the project identify potential effects arising from the project and screen the potential for such effects to negatively affect European Sites identified under Point 2 above; and

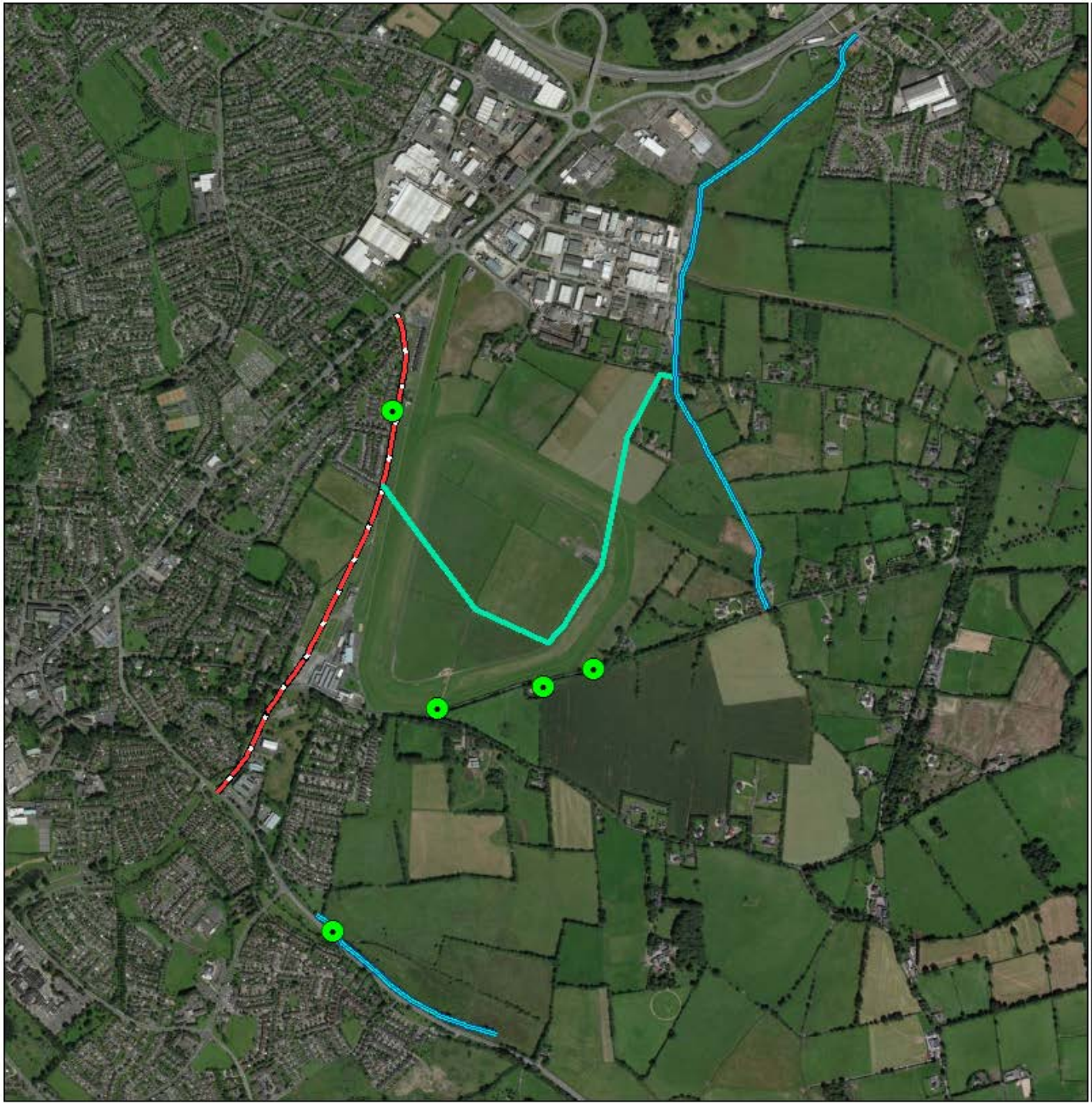
4. Identify other plans or projects that, in combination with the project, have the potential to affect European Sites.

1.3 FIELD STUDIES

A number of ecological field surveys have been completed as part of the assessment of the proposed Naas Inner Relief Road. The relevant field surveys results that are relied upon in this report to inform this Screening Report are listed below.

- Phase 1 Habitat Surveys: Phase 1 Habitat Surveys in line with the Heritage Council's Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011). Habitat surveys were completed in November 2017; May 2018 and June 2018. A habitat map of the land cover at and surrounding the proposed route is presented as Figure 1.2 below. As shown in this habitat map the dominant land cover within and surrounding the proposed route is comprised of buildings and artificial surfaces, amenity grassland and improved agricultural grassland. Grassland habitats dominate the land cover to the east, while buildings and artificial surfaces that represent the urban realm of Naas town dominate the land cover to the west.


Castlesize River
Naas Inner Relief Rd
Figure 1.2
Habitat Map
Proposed Route
Watercourses
MixedBroadleavedWoodland
BuildingsArtificialSurfaces
Linear Woodland
Arable Land
Wet Grassland
Dry Calcareous Grassland
Amenity Grassland
Improved Agricultural Grassland
0 0.05 0.1 0.2 Km
N
W
E
S
Drawn By PD
Date 07/02/2019
Data Source Bing



Naas Inner Relief Rd.

Figure 1.3

Relevant Field Surveys

Vantage Points
Otter Survey
Proposed Drainage Route
Proposed Route

0 0.1250.25 0.5 Km

N
W E
S

Drawn By	PD
Date	28/06/2018
Data Source	Bing

- Otter Surveys: A survey of the un-culverted section of the Castlesize River corridor upstream of the junction of the proposed route and the R410 Blessington Road was completed in 20th November 2017 and 15th May 2018. A survey of the River Morell upstream and downstream of a proposed surface water discharge point was completed on the 13th November 2018. The location of these survey areas are shown on Figure 1.3. These surveys searched for field signs indicating the presence of otters. These field signs include holts, couches, footprints, spraints, prey remains etc. No evidence indicating the presence of otters was recorded during these surveys.

- Bird Surveys: Surveys of the proposed route corridor and surrounding grassland area for the presence of wetland bird species were completed in 20th November 2017, 12th February 2018 and 13th November 2018. These surveys comprised a survey of the proposed route alignment and wider greenfield areas to the east of the alignment from road side vantage points. These surveys were undertaken to identify the presence of wetland bird species such as geese, gulls, ducks, waders and swans utilising grassland habitats. Particular attention was given to identifying the presence or otherwise of special conservation interest bird species of the SPAs in the wider area surrounding the project site. These species include lesser black backed gull and greylag geese. Neither species was recorded during surveys of grassland habitats in the vicinity of the proposed route.

2.0 PROJECT DESCRIPTION

2.1 BACKGROUND

In January 2004, RPS Consulting Engineers were commissioned by Kildare County Council to undertake the preliminary design for the proposed Naas Inner Relief Road located between the R445 Dublin Road and R410 Blessington Road based on Movement Objectives M28 and M29 of the Naas Development Plan (1999).

On the 27th of February 2006, the original Naas Inner Relief Road Scheme received full Part 8 approval in line with the Planning and Development Act 2000 and the Planning and Development Regulations 2001 Part 8.

Due to funding constraints, the original 2006 Part 8 Approval for the Naas Inner Relief Road scheme did not progress any further.

The development of a road link to the east of Naas town, between the R445 Dublin Road and the R410 Blessington Road has long been an objective of Kildare County Council. Roads Programme Objective "RP04" was identified in the Naas Town Development Plan 2011 – 2017, and subsequently in Table 6.1 "Priority Road and Bridge Projects" in the Kildare County Development Plan (CDP) 2017-2023. It seeks 'To construct a distributor road linking the Dublin Road to the Blessington Road via Tipper Road'. The provision of the proposed Naas Inner Relief Road is supported by objective RSO5 of the CDP which states:

"Maintain corridors free from development to facilitate future roads, cycle facilities and other transport infrastructure improvement in order to facilitate road and bridge projects set out in Table 6.1, with the further progression of those road projects subject to assessment against the 'Principles of Road Development' criteria set out in Section 5.3.3 of the Transport Strategy for the Greater Dublin Area 2016-2035. Where the road project is an orbital road around a town centre, its development needs to be accompanied by and facilitate enhanced public transport, cycling and pedestrian facilities in the relevant centre, as required by Section 5.8.2 of the Transport Strategy for the Greater Dublin Area 2016-2035.

.

2.2 DESCRIPTION OF THE PROPOSED NAAS INNER RELIEF ROAD

The proposed Naas Inner Relief Road connects the R445 to the R410. The approximate length of the proposed route is 1.60km. The proposed alignment passes through the housing estates of Racecourse Gate, the Gallops and King's Court. Priority junctions are proposed as accesses to each of these housing developments. The proposed route has its centreline approximately 50m from the western boundary of the racecourse lands and intersects with Tipper Road 500m to the east of the existing junction with the R410 Blessington Road. It is proposed to provide a fully signalised skewed crossroads at this location with some widening of Tipper Road on approach.

The proposed route connects Tipper Road to the R410 Blessington Road on a new alignment of the 'Time House' Industrial Estate Road, slightly further east of the existing alignment. A

new priority junction is proposed for the access to the east-west industrial estate road serving the two northern sites in the estate. The proposed route then connects to the R410 at a proposed upgraded signalised junction at the existing entrance to the IDA 'Time House' Industrial Estate, with upgrades to the R410 for 100m and 125m to the northwest and southeast respectively.

2.2.1 Road Type and Speed Limits

The proposed development comprises of a 6.5m carriageway, 2m footpath, 2m cycle track and 2m verge as described in Section 3 of this report. Other associated proposed works and improvements include:

- Improvement to existing signalised junctions
- New signalised junctions
- At-grade priority junctions
- Pavement
- Traffic signs & road markings
- Earthworks
- Drainage
- Public utilities
- Temporary Traffic Management

2.2.2 Technical Standards

The design has been prepared in accordance with the Design Manual for Urban Roads and Streets (DMURS) published by DTTAS & DoECLG in 2013 and the National Cycle Manual published by the National Transport Authority in 2011.

The technical standards contained in the NRA Design Manual for Roads & Bridges (NRA DMRB), which is an adaptation of the UK Design Manual for Roads & Bridges (UK DMRB) for Irish conditions has also taken into consideration when designing the road geometry. The

NRA DMRB has been the prescribed technical standard for all national road schemes in Ireland since December 2000.

2.2.3 Design Speed

In accordance with Chapter 4.1.1 of the Design Manual for Urban Roads and Streets and due to the proposed route located in close proximity to Naas Town Centre, a 50km/hr speed limit is proposed to be imposed for the proposed road scheme, with design speed limit of 60km/hr.

2.2.4 Proposed Road Type and Mainline Cross-Section

Based on the 50km/hr speed limit, an 18.5m wide road footprint is proposed to facilitate the proposed road scheme which consist of the following design widths and their respective design parameters are outlined as follows:

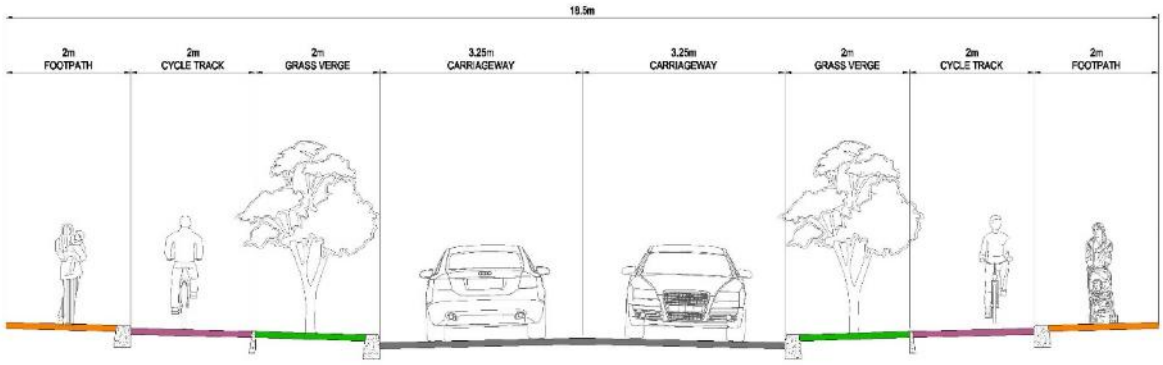


Figure 2.1: Proposed Road Cross Section

6.5m Carriageway

- 3.25m per lane
- In accordance with DMURS - Figure 4.55 - 'standard carriageway width for arterial and link streets, range for low to moderate design speeds' for the proposed 50km/hr speed limit
- Gradient = 1:40

2 m Footpath

- In accordance with DMURS - Figure 4.34
- 2m footpath width proposed according to function from lower/moderate activity to higher activity as development density increases.
- 2m Footpath - desirable space for two people to pass comfortably.
- Gradient = 1:40

2m Cycle Track

- In accordance with the NATIONAL CYCLE MANUAL, Chapter 1.7.2 'SEGREGATION' and Chapter 1.7.4 'GUIDANCE GRAPH' for 60km/h (85th Percentile) design speed (also see DMURS Figure 4.52).
- Gradient = 1:40
- In accordance with NATIONAL CYCLE MANUAL, Chapter 1.5.2 'WIDTH CALCULATOR', where:

  A 'Inside Edge - Kerb' = 0.25m

  B 'Single File + Overtaking, Partially using next lane' = 1.25m

  C 'Outside Edge - Raised kerb, dropped kerb or physical barrier' = 0.5m

  A + **B** + **C** = 2.0m

2m Verge

- In accordance with DMURS - Chapter 4.3.1 - 'on arterial and link streets with no on-street parking, a 1.5m to 2.0m wide grass verge is proposed to provide a buffer zone and to facilitate the planting of large street trees and items of street furniture'
- Continuation of existing tree line located on both sides of the existing The Gallops road.
- Future proof for potential access requirements to surrounding lands
- To provide protection of potential future service corridor

3.0 DESCRIPTION OF THE PROJECT SITE

The proposed Naas Inner Relief Road is located immediately to the east of Naas town centre. The land-cover within and adjacent to the footprint of the proposed road corridor is dominated by improved grassland (GA1 & GA2) and arable land (BC1). Areas of built land in the form of residential housing occur to the west, southwest and north of the alignment. Naas Racecourse, which is dominated by amenity grassland habitat (GA2) occurs to the east of the alignment. Scattered trees occur within the parkland amenity grassland along the southern section of the proposed road corridor between the Tipper Road and the R410 Blessington Road. No hedgerow field boundaries are crossed by the proposed Naas Inner Relief Road.

The proposed route corridor occupies a low-lying and flat landscape with little change in altitude throughout. The elevations within the study area range from 90m to 100m OD Malin. The route alignment is located within the River Liffey catchment and hydrometric area No. 9. The sub-catchments occurring in the area surrounding the project footprint include the River Morell (sub-basin site code: Morell_020) and a sub-catchment of the River Liffey (sub-basin site code: Liffey_120) which includes the Castlesize River.

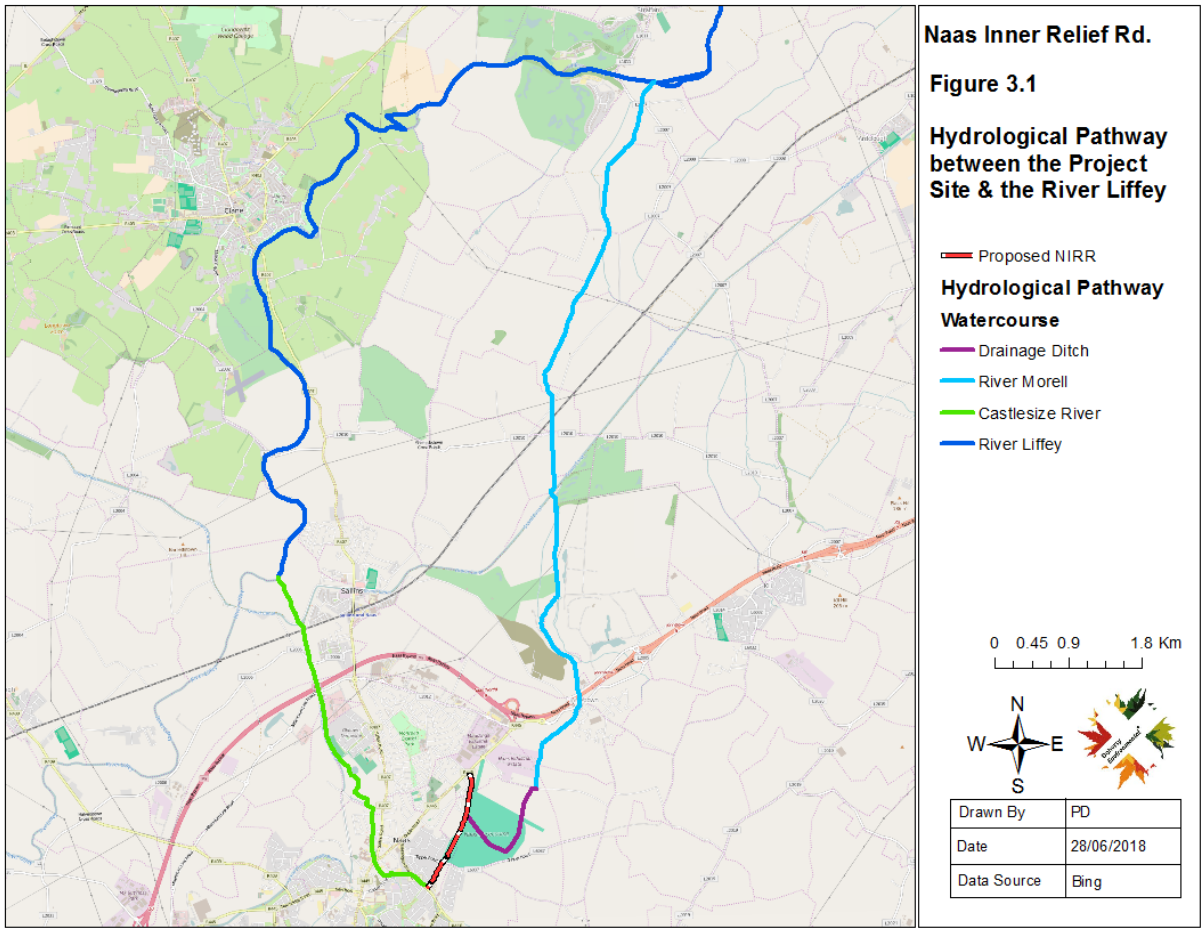
The nearest point of the Morell River to the project site is located approximately 800m to the east. From a review of the EPA *Envision* Database, the most up to date status of the Morell River at the nearest monitoring stations to the project is *'Poor' to 'Good'*. There are two monitoring points along the Morell River. The upstream monitoring point at South Br West of Tipper House has a Q-value of 3-4 (moderate to good). The downstream monitoring point at a bridge near Fishery Lane has a recent Q-value of 4 (good). The Morell River is a tributary of the River Liffey and the confluence of these watercourses is located approximately 10km downstream of the proposed Naas Inner Relief Road surface water discharge point.

A review of Catchments.ie database indicates that the water quality of the River Morell recorded between 2010 and 2015 was poor along its stretch downstream of the proposed discharge point and the M7 overbridge at Johnstown. Downstream of Johnstown the water quality of the river improves to moderate, while the lower stretch of the river between the railway over bridge and its confluence with the River Liffey has been classified as good water quality. The Water Framework Directive water quality status for the Morell River between

the project's proposed discharge point and Irish Rail crossing to the north has been assessed as being At Risk. The remaining section of the river between the Irish Rail crossing and the confluence of the River Liffey has been assessed as being Not At Risk.

The Morell River is known to support otters, with evidence of this species being recorded downstream of the project site (RPS, 2017). This watercourse is also an important salmonid fishery and supports significant populations of Atlantic Salmon, Sea Trout, Brown Trout, Lamprey and White-Clawed Crayfish. The IFI stated that the Morell is "hugely important in that it provides a valuable salmonid spawning and nursery habitat contribution to the Liffey main channel" (RPS, 2017).

Castlesize River is culverted at the southern end of the proposed road corridor. No baseline water quality information is available for this watercourse. This watercourse drains to the River Liffey, the nearest point of which is located approximately 4.7km downstream. Prior to draining the River Liffey the Castlesize River first drains into the southern end of an artificial pond, approximately 1.6km downstream of the project site. The Castlesize then discharges from this pond at its northern end and drains to the River Liffey (the hydrological pathway between the project site and the River Liffey along the Castlesize River and the Morell River is shown in Figure 3.1).



A review of Catchments.ie database indicates that the water quality of the Castlesize River recorded between 2010 and 2015 was moderate along its entire length from its source along the Blessington Road to a short distance upstream of its confluence with the River Liffey. The Water Framework Directive water quality status for the Castlesize River has been assessed as being Not At Risk.

The culverted sections of the Castlesize River towards the south of the proposed Naas Inner Relief Road is of low fisheries value. Previous surveys downstream along this watercourse have recorded Stickleback and Brown Trout. No field signs of otters have been recorded along this watercourse during field surveys in June 2018.

A review of Catchments.ie database indicates that the water quality of the River Liffey downstream of the project site at the confluence of the Castlesize River and the Morell River, recorded between 2010 and 2015, was good. The water quality decreased to moderate near Celbridge and upstream of the Leixlip Reservoir and was also classed as moderate at

Chapelizod, a short distance upstream of the Liffey Estuary. The overall Water Framework Directive water quality status for the Liffey Catchment downstream of the project site is assessed as being at Moderate status. The Liffey Catchment drains to the Liffey Estuary and Dublin Bay. The overall Water Framework Directive water quality status of the transitional waters at Dublin Bay is assessed as being at Good status.

4.0 IS THE PROJECT NECESSARY FOR THE CONSERVATION MANAGEMENT OF EUROPEAN SITES

The project has been described in Section 2 of the Screening Report and it is clear from the description provided that the project is not directly connected with or necessary for the future conservation management of any European Sites.

5.0 EUROPEAN SITES WITHIN THE ZONE OF INFLUENCE OF THE PROJECT

5.1 LIST OF EUROPEAN SITES

Current guidance recommends that all European Sites occurring within 15km of project sites should be identified at the outset of a screening exercise. A total of seven European Sites have been identified in the surrounding 15km area. Table 5.1 lists these European Sites and the spatial relationship between each of these sites and the study area is shown on Figure 5.1. Appendix 1 lists the qualifying features of interest/special conservation interest for each of these European Sites.

In addition to the European Sites occurring within a 15km area of the project site the DEHLG 2010 guidelines on Appropriate Assessment of Plans and Projects in Ireland also advise that where the potential exists for a hydrological pathway to occur between the project site and European Sites beyond the 15km distance, then these sites should also be included as part of the Screening. As such the European Sites hydrologically linked to the study area are also included. The River Liffey, which receives surface waters draining the project site, drains to Dublin Bay, where a number of European Sites are located. A total of four European Sites are located at Dublin Bay. These European Sites are shown in Figure 5.2 and are listed in Table 5.1. Appendix 1 provides a summary description of the European Sites occurring at Dublin Bay and lists their qualifying feature of interest/special conservation interests.

A total of 11 eleven European Sites have been included in the list of European Sites occurring within the wider area surrounding the project site. The next step of this Screening is to identify which, if any of these European Sites, occur within the zone of influence of the proposed Naas Inner Relief Road.

5.2 IDENTIFICATION OF EUROPEAN SITES IN THE PROJECT ZONE OF INFLUENCE

European Sites occur in the zone of influence of the project where there is potential for such sites to be impacted by the project.. As the nearest European Site (Red Bog SAC) is located at a remote distance (approximately 7.7km) from the project site, the project will not have the potential to result in direct impacts (such as habitat loss) within European Sites. Thus this Screening focuses on investigating whether impact pathways exist between the proposed road development and the 11 European Sites listed in Table 5.1 below.

A source-pathway-receptor model has been used to establish which of these European Sites could occur within the zone of influence of the project. Under such a model the project, as described above, represents the source.

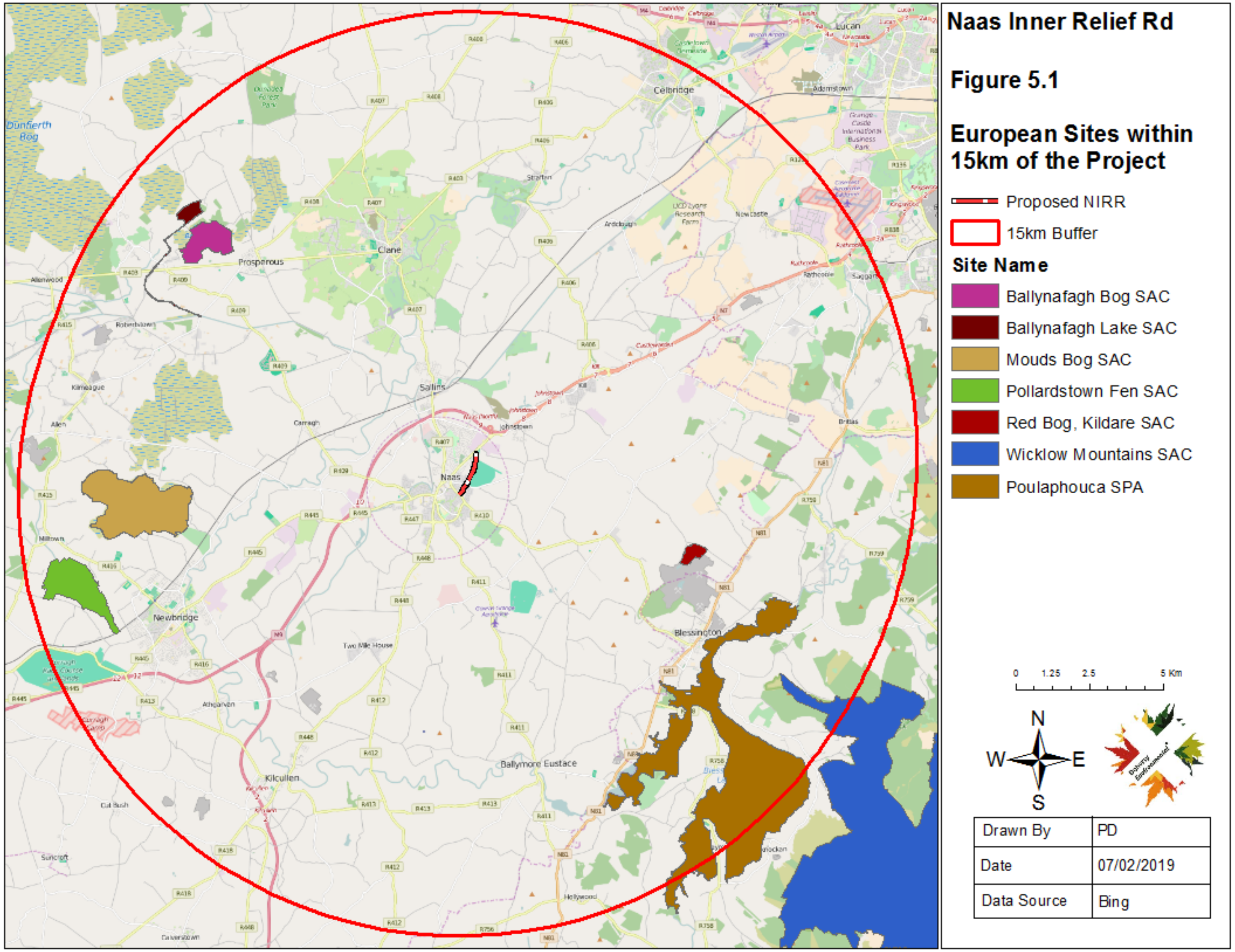
Potential impact pathways are restricted to hydrological and aerial pathways as these represent the principal emissions generated by activities at the project site. Other emissions generated by the project, such as noise and lighting, will not have the potential to influence European Sites due to the distance between the project site and these Sites. Notwithstanding this, the potential for mobile qualifying species of surrounding European Sites to interact with the project site and immediate surrounding area is also included as a potential impact pathway.

The receptors represent European Sites and their associated qualifying features of interest.

European Sites and their associated qualifying features are likely to occur in the zone of influence of the project only where the above pathways establish a link between the project site and European Sites or where the project site is likely to play an important role in supporting populations of mobile species that are listed as special conservation interests/qualifying species for surrounding European Sites.

Table 5.1 provides a determination as to whether each of the 11 European Site listed in Table 5.1 occur within the zone of influence of the project. This determination has been undertaken in line with the following assessment questions:

- Is there a hydrological pathway linking the Project site to European Sites and does this pathway have the potential to function as an impact pathway?
- Are Annex I qualifying habitats of these European Sites at risk of experiencing impacts as a result of the project?
- Does the project site have the potential to interact with or support Annex II qualifying species/special conservation interest bird species of these European Sites?



Naas Inner Relief Rd
Figure 5.1
European Sites within 15km of the Project
Proposed NIRR
15km Buffer
Site Name
Ballynafagh Bog SAC
Ballynafagh Lake SAC
Mouds Bog SAC
Pollardstown Fen SAC
Red Bog, Kildare SAC
Wicklow Mountains SAC
Poulaphouca SPA
0 1.25 2.5 5 Km
N
W
E
S
Drawn By
PD
Date
07/02/2019
Data Source
Bing
Naas
Sallins
Clane
Celbridge
Prosperous
Newbridge
Kilcullen
Ballymore Eustace
Blessington

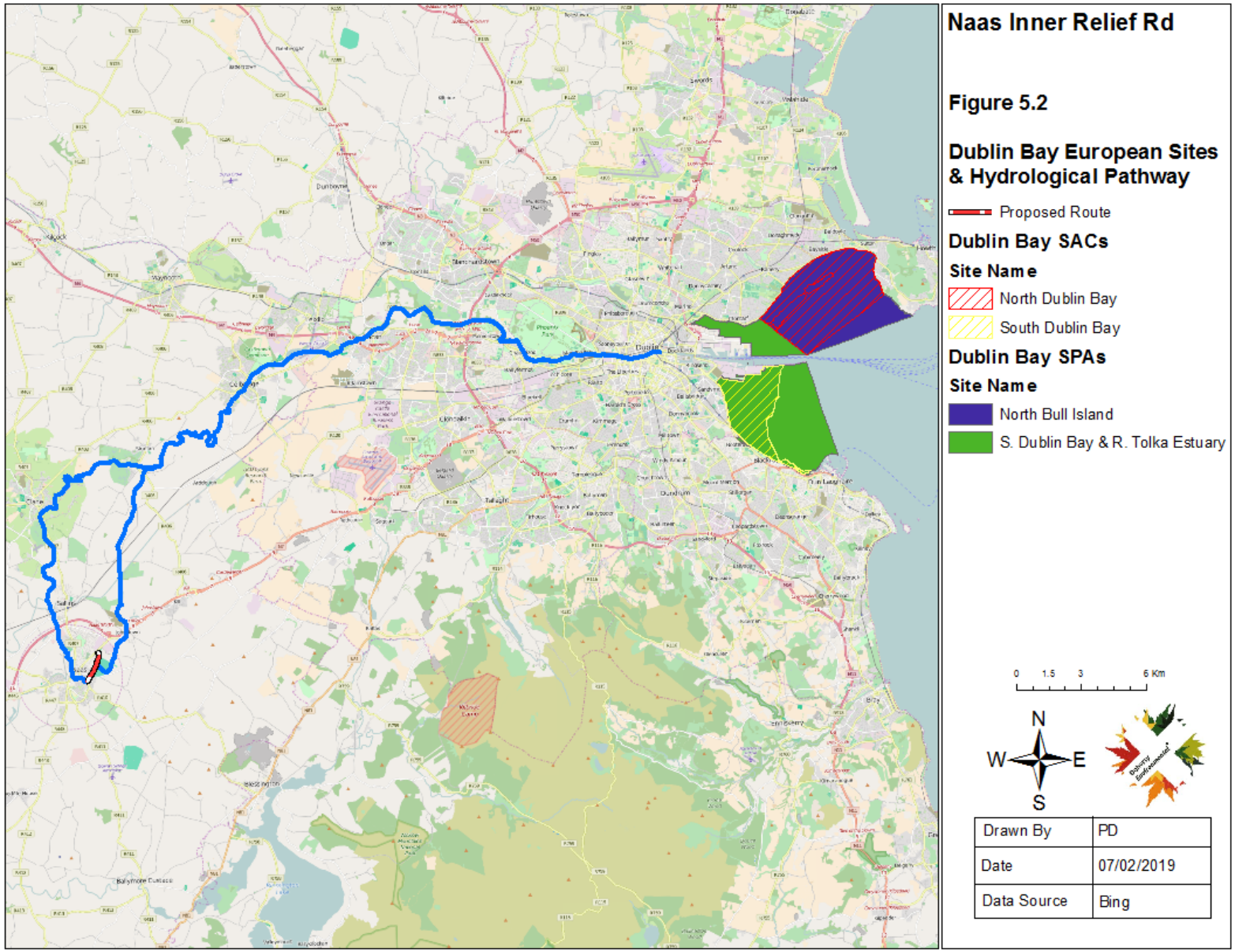

Naas Inner Relief Rd
Figure 5.2
Dublin Bay European Sites & Hydrological Pathway
Proposed Route
Dublin Bay SACs
Site Name
North Dublin Bay
South Dublin Bay
Dublin Bay SPAs
Site Name
North Bull Island
S. Dublin Bay & R. Tolka Estuary
0 1.5 3 6 Km
N
W E
S
Drawn By PD
Date 07/02/2019
Data Source Bing

Table 5.1: Identification of European Sites within the Zone of Influence of the Project

European Sites	Distance from Project Site	Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?	Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?	Does the Project have the potential to interact with Mobile Species?	Do European Sites occur within the Projects Zone of Influence?
Mouds Bog SAC	9.1km to the west	No. This SAC is designated for Annex I peatland habitats, namely raised bog, degraded raised bog and Rhynchosporion depressions. These Annex I habitats are ombrotrophic (i.e rain-fed) in nature and there is no hydrological pathway linking these habitats or this SAC to the project site.	No. Motor vehicle pollutant concentrations tend to be higher closer to the road, with the highest levels generally within the first 150m of the roadway and reaching background levels within approximately 600m of a roadway, depending on the pollutant, time of day and surrounding terrain (Karner et al., 2010). In addition current TII guidelines (NRA, 2011) state that consideration of potential aerial pathways and air impacts to designated sites (i.e. European Sites) need only be given to roads where there is a significant change in traffic flows and where the road is located	No. No Annex II species are listed as qualifying features of interest for this SAC.	No. No pathways link the project site to this SAC.

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
			within 200m of the designated site. As this European Site is located approximately 9.1km to the west of the study area there will be no potential for an aerial pathway to link emissions associated with the operation of a road within the study area to this SAC.		
Pollardstown Fen SAC	12.7km to the west	No. This SAC is designated for the presence of the Annex I habitats calcareous fens, alkaline fens and petrifying spring. Both habitats rely on soligenous hydrological processes. There are no surface water or groundwater pathways linking the project site to this SAC and its associated Annex I qualifying habitats.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	No. This SAC is designated for its role in supporting three species of the Annex II Vertigo snails. These species are predominantly sedentary in nature and there will be no potential for them to interact with the project site and associated activities at the project site.	No. No pathways link the project site to this SAC.

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
Ballynafagh Lake SAC	10.5km to the northwest	No. This SAC is designated for the presence of the Annex I habitat alkaline fens. This habitat relies on soligenous (i.e. groundwater) hydrological processes. There are no surface water or groundwater pathways linking the project site to this SAC and its associated Annex I qualifying habitat.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	No. This SAC is designated for its role in supporting populations of the Annex II species marsh fritillary butterfly and Vertigo moulinsiana. No suitable habitat for either species occurs in the vicinity of the project. In the absecne of suitable habitat the project site and surrounding area will not have the potential to support these species and they will not occur in the immediately vicinity of the project site.. Furthermore there are no indirect impacts linking the project to the populations of these species supported by this SAC.	No. No pathways link the project site to this SAC.
Ballynafagh	10.6km to the	No. This SAC is designated for Annex I peatland habitats, namely raised bog	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation	No. No Annex II species are listed as qualifying features of interest for	No. No pathways link the

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
Bog SAC	northwest	and Rhynchosporion depressions. These Annex I habitats are ombrotrophic in nature and there is no hydrological pathway linking these habitats or this SAC to the project site.	phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	this SAC.	project site to this SAC.
Red Bog SAC	7.7km to the southeast	No. This SAC is designated for a range of lotic, riparian and coastal Annex I habitats. This SAC and its associated qualifying habitats are located at a remote distance from the project site and occur within a separate surface water catchment. As such there is no potential for a hydrological impact pathway to occur.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	No. This SAC is designated for its role in supporting Annex II freshwater species and the sedentary Killarney fern. This SAC and its associated qualifying species are located at a remote distance from the project site and occur within a separate surface water catchment. As such there is no potential for an impact pathway to occur between the project site and populations of these	No. No pathways link the project site to this SAC.

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
				species supported by this SAC.	
Wicklow Mountain SAC	12.6km to the southeast	No, this is an upland SAC designated for its role in supporting peatland and upland grassland habitats. There is no hydrological pathway linking the study area to this SAC.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	Yes. This SAC is designated for its role is supporting a population of otters. Whilst the footprint of the project site does not support habitats upon which otters rely and the Castlesize River located along the southern end of the scheme is culverted and is of low fishery potential and of sub-optimal potential for supporting otters, the Morell River is known to support otters. Furthermore as both the Morell River and the Castlesize River are connected to the River Liffey, where otters are known to occur, a hydrological pathway exists between the project and	Yes. A hydrological pathway connects the project to known otter habitat along the River Liffey downstream of the project site. Whilst the otter habitat located along the River Lifey catchment downstream of the project site is not located within this SAC and is located within a separate surface water catchment to this SAC, a precautionary approach has been taken to this screening by assuming that the section of the Liffey catchment,

European Sites	Distance from Project Site	Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?	Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?	Does the Project have the potential to interact with Mobile Species?	Do European Sites occur within the Projects Zone of Influence?
				known otter habitat downstream. Whilst this SAC is located within a separate surface water catchment to the Liffey catchment it is noted that otters are known to range widely over large territorial areas (Chanin, 2003) and across catchments (Harris & Yalden, 2008). As such it is possible that the otter population supported by this SAC interact with the Liffey catchment, which is connected to the project via the Castlesize River and the Morell River. These interactions may take the form of: individual otters from this SAC foraging within the Liffey	downstream of the scheme, plays a role in supporting the population of otters supported by this SAC.

European Sites	Distance from Project Site	Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?	Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?	Does the Project have the potential to interact with Mobile Species?	Do European Sites occur within the Projects Zone of Influence?
				catchment downstream of the project site; and the Liffey catchment downstream of the project site may function as a source or sink catchment for the otter population occurring within the SAC. Given the potential for such interactions to occur between the Liffey catchment and the otter population of this SAC, the potential also exists for the project to interact with the SACs otter population, by virtue of its connection to the River Liffey.	

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
Poulaphouca Reservoir SPA	9.3km to the southeast	No. The wetland habitats associated with this SPA are located at a remote distance from the project site and no hydrological pathway connects the project site and associated activities to the wetland habitats of this SPA.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	No. This SPA is designated for its role in supporting populations of greylag goose and lesser black-backed gull. Surveys at the project site during the 2017/2018 winter season did not record the presence of either of these species along or surrounding the project site and these species are not considered to rely on habitats in the vicinity of the project site.	No. No pathways link the project site to this SPA.
South Dublin Bay SAC	47km downstream and to the east	No. Modelling of the Liffey Estuary and Dublin Bay has shown that the waters from the Liffey draining into Dublin Bay are deflected east and north towards Dollymount and Howth. The presence of the South Great Wall in Dublin Bay provides a barrier to the movement of waters towards the south	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation	No. No Annex II species are listed as qualifying features of interest for this SAC.	No. No pathways link the project site to this SAC.

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
		(Dowly & Bedri, 2007; Bedri et al., 2012; Camp, Dresser & McKee, 2012). As such there is no effective hydrological pathway between the project site and this SAC.	phase of the road to this SAC.		
North Dublin Bay SAC	50km downstream and to the east	Yes, there is a hydrological pathway between this European Sites and the project site, via the River Liffey.	No. This SAC is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	No. This SAC supports a population of the liverwort Petalophyllum ralfsii. This is a sedentary species and there is no potential for the project to interact with this species.	Yes. Due to the presence of a hydrological pathway, this SAC occurs within the zone of influence of the project.
North Bull Island SPA	50km downstream and to the	Yes, there is a hydrological pathway between this European Sites and the	No. This SPA is not located within the zone of influence of aerial emissions likely to be generated by the operation	No. This SPA is designated for its role in supporting a number of wetland bird species. Individuals	Yes. Due to the presence of a hydrological pathway, this SAC occurs within the

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
	east	project site, via the River Liffey.	phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	associated with the SPA populations of these species are very unlikely to occur in the vicinity of the project site and there is no potential impact pathway (hydrological or aerial) linking the project site to the foraging and roosting ground upon which these species rely.	zone of influence of the project.
South Dublin Bay & Tolka Estuary SPA	47km downstream and to the east	Yes, there is a hydrological pathway between the project site, via the River Liffey, and the Tolka Estuary section of this SPA.	No. This SPA is not located within the zone of influence of aerial emissions likely to be generated by the operation phase of the project (see Karner et al., 2010; and current TII guidelines (NRA, 2011)). As such there will be no potential for an aerial pathway to link emissions associated with the operation phase of the road to this SAC.	Yes. The Tolka Estuary Section of the SPA provides roosting and foraging habitat for a range of wintering bird species of the SPA. As there is a hydrological pathway between the project site and this section of the SPA, there is also a linkage between the species that rely on this section of the SPA and	Yes. Due to the presence of a hydrological pathway, this SAC occurs within the zone of influence of the project.

European Sites	**Distance from Project Site**	**Is there a Hydrological Pathway and does it have the potential to function as an Impact Pathway?**	**Is there an Aerial Pathway and does it have the potential to function as an Impact Pathway?**	**Does the Project have the potential to interact with Mobile Species?**	**Do European Sites occur within the Projects Zone of Influence?**
				the project site.	

Table 5.1 above examines the relationship between the project site and the European Sites occurring within the surrounding area. As noted within this table no European Sites occur in close proximity to the project site (the closest European Site being 7.7km from the project site). The site is hydrologically linked (see Figure 5.2: Hydrological Pathway) to the following European Sites occurring at Dublin Bay:

North Dublin Bay SAC;

North Bull Island SPA; and

South Dublin Bay River Tolka Estuary SPA.

These European Sites are located approximately 47km and 50km downstream from the project site. As a hydrological pathway exists between the project site and these European Sites, further examination of the project's potential to result in likely significant effects to these European Sites downstream at Dublin Bay is required.

The potential for linkages between the project and the otter population of the Wicklow Mountains SAC has also been identified.

In summary the European Sites identified as occurring within the zone of influence of the project are:

1. North Dublin Bay SAC;
2. North Bull Island SPA;
3. South Dublin Bay River Tolka Estuary SPA; and
4. Wicklow Mountains SAC.

6.0 EUROPEAN SITES BASELINE

6.1 NORTH DUBLIN BAY

This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island is

the focal point of this site. Qualifying features for which this site has been designated as a SAC are listed in Table 5.1 below. Distribution maps of this SAC's qualifying habitats are published in the Conservation Objectives for this SAC (see NPWS, 2013).

The threats and pressures to this SAC have been documented in the Standard Natura 2000 Data Form for the site (NPWS, 2017). The documented threats and pressures to this SAC are as follows:

- Urbanised areas, human habitation
- Walking, horseriding and non-motorised vehicles
- Golf course
- Industrial or commercial areas
- Discharges

Table 5.1 lists:

- each of the qualifying features of interest for this SAC;
- their conservation status; and
- identifies the qualifying features of interest of the SAC that occur within the zone of influence of the project by virtue of the hydrological pathway along the River Liffey.

Table 5.1: North Dublin Bay SAC qualifying features of interest, conservation status, threats and pressures and identification of the features of interest occurring within the zone of influence of the project

Qualifying Annex Feature	Conservation Status (Site-Level)	Conservation Status (National-Level)	Does the qualifying features of interest occur within the zone of influence of the project?
Mudflats and sandflats not covered by seawater at low tide	Favourable	Poor	Yes. A hydrological pathway occurs between the project site and this qualifying habitat.
Annual vegetation of drift lines	Not established	Poor	No. The qualifying habitat is terrestrial in nature and is not influenced by

			waters conveyed along the River Liffey to Dublin Bay.
Salicornia and other annuals colonizing mud and sand	Unfavourable	Poor	Yes. A hydrological pathway occurs between the project site and this qualifying habitat.
Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	Favourable	Poor	Yes. A hydrological pathway occurs between the project site and this qualifying habitat.
Petalwort (Petalophyllum ralfsii)	Not established	Good	No. This species occurs within dune slacks on North Bull Island. It is terrestrial in nature and is not influenced by waters conveyed along the River Liffey to Dublin Bay.
Mediterranean salt meadows (Juncetalia maritimi)	Favourable	Poor	Yes. A hydrological pathway occurs between the project site and this qualifying habitat.
Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	Unfavourable-inadeqaute	Poor	No. The qualifying habitat is terrestrial in nature and is not influenced by waters conveyed along the River Liffey to Dublin Bay.
Fixed coastal dunes with herbaceous vegetation (grey dunes)	Unfavourable-Bad	Bad	No. The qualifying habitat is terrestrial in nature and is not influenced by waters conveyed along the River Liffey to Dublin Bay.
Humid dune slacks	Unfavourable-inadeqaute	Bad	No. The qualifying habitat is terrestrial in nature and is not influenced by waters conveyed along the River Liffey to Dublin Bay.

6.2 NORTH BULL ISLAND SPA

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone and Black-

headed Gull. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The qualifying features for which this site has been designated as a SPA are listed in Table 5.2 below. The threats and pressures to this SAC have been documented in the Standard Natura 2000 Data Form for the site (NPWS, 2017). The documented threats and pressures to this SPA are as follows:

- Disposal of household / recreational facility waste
- Golf Course
- Industrial or commercial areas
- Walking, horseriding and non-motorised vehicles
- Bridge, viaduct
- Roads, motorways
- Discharges

Table 5.2 lists:

- each of the special conservation interests for this SPA;
- their conservation status; and
- identifies the qualifying features of interest of the SAC that occur within the zone of influence of the project by virtue of the hydrological pathway along the River Liffey.

The distribution of foraging and/or roost sites for the special conservation interest bird species within the SPA as mapped by the NPWS (NPWS, 2014) has been relied upon to identify the species that could be influenced by the hydrological pathway.

Table 5.2: North Dublin Bay SAC qualifying features of interest, conservation status, threats and pressures and identification of the features of interest occurring within the zone of influence of the project

SCIs	Conservation Status	Does the qualifying features of interest occur within the zone of influence of the project?
Light-bellied Brent Goose (*Branta bernicla hrota*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Shelduck (*Tadorna tadorna*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Teal (*Anas crecca*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Pintail (*Anas acuta*)	Red listed species – Species of high conservation concern†	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Shoveler (*Anas clypeata*)	Red listed species – Species of high conservation concern†	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Oystercatcher (*Haematopus ostralegus*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Golden Plover (*Pluvialis apricaria*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Grey Plover (*Pluvialis squatarola*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Knot (*Calidris canutus*)	Red listed species – Species of high conservation concern†	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Sanderling (*Calidris alba)*	Green listed species – Species not threatened	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Dunlin (*Calidris alpina*)	Amber listed species- Species of medium	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.

	conservation concern	
Black-tailed Godwit (*Limosa limosa*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Bar-tailed Godwit (*Limosa lapponica*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Curlew (*Numenius arquata*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Redshank (*Tringa totanus*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Turnstone (*Arenaria interpres*)	Green listed species – Species not threatened	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Black-headed Gull (*Larus ridibundus*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Wetlands & Waterbirds		Yes. Mudflat and sandflat habitats occur downstream of the project site at the Liffey Estuary.

6.3 SOUTH DUBLIN BAY RIVER TOLKA ESTUARY SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species over-wintering species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Curlew, Redshank, and Black-headed Gull. This SPA is also designated for its role in supporting breeding colonies of the following species: Roseate Tern, Common Tern and Artic Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The qualifying features for which this site has been designated as a SPA are listed in Table 5.3 below. The threats and pressures to this SAC have been documented in the Standard Natura 2000 Data Form for the site (NPWS, 2017). The documented threats and pressures to this SPA are as follows:

- Walking, horseriding and non-motorised vehicles
- Reclamation of land from sea, estuary or marsh
- Discharges
- Roads, motorways
- Industrial or commercial areas

Table 5.3 lists:

- each of the special conservation interests for this SPA;
- their conservation status; and
- identifies the qualifying features of interest of the SAC that occur within the zone of influence of the project by virtue of the hydrological pathway along the River Liffey.

The distribution of foraging and/or roost sites for the special conservation interest bird species within the SPA as mapped by the NPWS (NPWS, 2014) has been relied upon to identify the species that could be influenced by the hydrological pathway.

Table 5.3: South Dublin Bay River Tolka Estuary SPA qualifying features of interest, conservation status, threats and pressures and identification of the features of interest occurring within the zone of influence of the project

SCIs	Conservation Status	Does the qualifying features of interest occur within the zone of influence of the project?
Light-bellied Brent Goose (*Branta bernicla hrota*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Oystercatcher (*Haematopus ostralegus*)	Amber listed species- Species of medium	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey

	conservation concern	Estuary.
Ringed Plover (*Charadrius hiaticula*)	Amber listed species- Species of medium conservation concern	No. This species does not rely on the section of the SPA occurring at the River Tolka Estuary.
Grey Plover (*Pluvialis squatarola*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Knot (*Calidris canutus*)	Red listed species – Species of high conservation concern†	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Sanderling (*Calidris alba*)	Green listed species – Species not threatened	No. This species does not rely on the section of the SPA occurring at the River Tolka Estuary.
Dunlin (*Calidris alpina*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Bar-tailed Godwit (*Limosa lapponica*)	Amber listed species- Species of medium conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Redshank (*Tringa totanus*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Black-headed Gull (*Croicocephalus ridibundus*)	Red listed species – Species of high conservation concern	Yes. Foraging habitat for this species occurring downstream of the project site at the Liffey Estuary.
Roseate Tern (*Sterna dougallii*)	Green listed species – Species not threatened	Yes. This species forages in the Liffey Estuary and Dublin Bay.
Common Tern (*Sterna hirundo*)	Amber listed species- Species of medium conservation concern	Yes. This species forages in the Liffey Estuary and Dublin Bay.
Arctic Tern (*Sterna paradisaea*)	Amber listed species- Species of medium conservation concern	Yes. This species forages in the Liffey Estuary and Dublin Bay.
Wetlands & Waterbirds		Yes. Mudflat and sandflat habitats occur downstream of the project site at the Liffey Estuary.

6.4 WICKLOW MOUNTAINS SAC

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300 m, with much ground over 600 m. Qualifying features for which this site has been designated are listed in Appendix 1.

The threats and pressures to this SAC have been documented in the Standard Natura 2000 Data Form for the site (NPWS, 2017). The documented threats and pressures to this SAC are as follows:

- Off-road motorized driving
- Disposal of household / recreational facility waste
- Damage by herbivores (including game species)
- Grazing in forests/ woodland
- Mountaineering, rock climbing, speleology
- Missing or wrongly directed conservation measures
- Walking, horseriding and non-motorised vehicles
- Invasive non-native species
- Erosion
- Grazing
- Wildlife watching
- Trampling, overuse,
- Stock feeding
- Urbanised areas, human habitation
- Hunting and collection of wild animals (terrestrial)

- Collapse of terrain, landslide
- Collection (fungi, lichen, berries etc.)
- Vandalism
- Outdoor sports and leisure activities, recreational activities
- Tree surgery, felling for public safety, removal of roadside trees
- Military manoeuvres
- Burning down
- Paths, tracks, cycling tracks
- Peat extraction
- Taking from nest (falcons)

Table 5.4 provides information on the otter population of this SAC, its conservation status and the threats and pressures to the conservation status of otters, as documented by the NPWS in their otter threat response plan (2009) and their Article 17 report to the EC (NPWS, 2013).

Table 5.4: Wicklow Mountains SAC Otter Population: Conservation status, threats and pressures and reason for why this qualifying feature of interest occurs within the zone of influence of the project

Qualifying Annex Feature	Conservation Status	Threats and Pressures	Does the qualifying features of interest occur within the zone of influence of the project?
Otter	Favourable	Habitat Destruction; Roads and motorways; Passive fishing; and Pollution to surface waters.	Yes. The otter population of the SAC may rely on the Liffey catchment and the Morell River downstream of the project for foraging.

7.0 CONSERVATION OBJECTIVES

Detailed Site-Specific Conservation Objectives have been published for the four European Sites occurring within the zone of influence of the project. These Conservation Objectives are outlined in Section 8 below and an assessment is provided in Section 8 by evaluating the project's potential to result in likely significant effects to the Conservation Objectives of the qualifying feature of interest occurring in the zone of influence of the project.

8.0 ASSESSMENT

8.1 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS TO FEATURES OF INTEREST WITHIN THE ZONE OF INFLUENCE OF THE PROJECT

The consideration of how the project could result in likely significant effects to European Site features of interest within its zone of influence relates to an examination of the project's potential to result in contamination to local surface waters with consequent negative effects downstream along the Liffey catchment and at Dublin Bay. The local surface waters that will receive contaminated surface water in the event of a release of pollutants to the aquatic environment are the Castlesize River and the Morell River (see Figure 3.1 for location of these watercourses). Whether the project will have the potential to result in likely significant effects to the otter population downstream along the Liffey catchment or the relevant features of interest of European Sites at Dublin Bay downstream of these receiving watercourses is dependent on the capacity of the hydrological pathway between the project site and these features to function as an effective impact pathway. An assessment of the hydrological pathway and its potential to function as an impact pathway is provided in the following sub-section.

8.1.1 Assessment of the Hydrological Pathway's Potential to Function as an Impact Pathway

The distance between the project site and the Dublin Bay European Sites occurring within the zone of influence of the project is approximately 47km and 50km (see distances provided in Table 5.1 above). The hydrological pathway consists of the Castlesize River and the Morell River and the discharge of surface water from the road corridor to these watercourses and the Liffey Catchment.

The Castlesize River drains into the River Liffey approximately 4.7km downstream of the project site. Prior to draining to the River Liffey the Castlesize River first drains to an artificial pond to the west of Naas town, approximately 1.6km downstream of the project site. This pond forms an existing "natural" break along the hydrological pathway between the project site and the River Liffey, and provides natural attenuation and settlement of suspended solids from the upstream section of this watercourse. The Morell River drains to the River Liffey approximately 11.2km downstream of the proposed surface water outfall. Prior to draining the to Morell River the surface pathway conveying surface water from the project site will first discharge to an existing drainage ditch before merging with the Morell River.

A hydrological environmental assessment of the potential for the discharge of surface water to the Castlesize River and the Morell River to result in water quality effects has been undertaken. This hydrological environmental assessment was completed without regard to the various surface water management design features that will be implemented as part of the project. This assessment concluded that the potential impact of the project to the receiving aquatic environment during both the construction phase and operation phase will be neutral and imperceptible i.e. an impact capable of measurement but without significant consequences (following EPA draft EIA Guidelines 2018).

In addition the following points support the conclusions of the hydrological environmental assessment:

- During construction, the primary contaminants of concern are hydrocarbons and suspended solids. There is very limited potential for accidental contamination during construction as any required bulk storage of fuels will be within the construction compound. As such the only potential leakage along the route corridor is a single construction vehicle leak i.e. maximum 200 litres. Should any hydrocarbon contaminated run-off enter open surface water it will become quickly diluted downstream. Based on the flow and shallow gradient noted in the drainage catchment natural degradation will easily occur within < 1 kilometre of the discharge point to the receiving watercourses. Should run-off with elevated suspended solids reach the Morell or Castlesize rivers, it will readily attenuate to background within 1 kilometre. As such the potential for a change in water quality as a result of an accidental emission during the construction of the route will be negligible and imperceptible

within the Castlesize and Morell Rivers and will not result in significant impacts to the status of these watercourses.

- The proposed construction compound will be located a minimum of 250m from the nearest point of the Castlesize River and the Morell River and is not directly connected to or in the immediate vicinity of any drainage ditch. There is no direct source pathway linkage. The location of the compound away from receiving watercourses will ensure there is no risk of contaminated surface water being released from the construction compound to the Liffey catchment during the construction phase.

- During the operation phase of the proposed Naas Inner Relief Road the risk of accidental spillage and subsequent discharge of potentially polluting material to the Morell or Castlesize Rivers will be negligible and imperceptible. This is based on:

    - the low speed limit of 50kph that will apply;

    - the low risk of heavy good vehicles (HGVs) accidents given the low speed limit and design layout of the road in accordance with DMURS. It is noted that the risk of accidental spillage and a pollution incident on any road is proportionate to the risk of a HGV road traffic collision (TII, 2015).

    - The design and provision of the proposed road, which aims to support the Road Safety Authority (RSA) Road Safety Strategy 2013 – 2020 by alleviating the congestion currently experienced on Naas Town Centre is anticipated to result in a reduction in collisions in the surrounding road network.

    - Even in the absence of considering any design measures that will manage, control and treat runoff during the construction phase and operation phase, an accidental release of potentially contaminating material (due to a collision or release from a tanker etc.), there will be no likely water quality impact within 1 kilometre of the site. Any impact to the receiving Morell River or

Castlesize River would be localised and temporary and will not result in any likely significant effects to the water quality of these watercourses.

- Routine stormwater runoff from the proposed Naas Inner Relief Road will not have the potential to represent a risk of pollution to the receiving Castlesize River, the Morell River and the River Liffey downstream.

- The volumes of surface water draining the project site represents a miniscule fraction of the volumes discharging to the Liffey catchment downstream of the project site and the Liffey Estuary upstream of the Dublin Bay European Sites. In the very unlikely event that contaminated surface waters enter the Castlesize River or the Morell River, based on what is set out above, any associated pollutants will be adequately diluted and degraded before reaching lower sections of the Liffey catchment and in those circumstances no likely significant effects will arise.

- The presence of lake waterbodies, which include an un-name lake along the Castlesize River downstream of the project site and the Leixlip Reservoir, between the project site and Dublin Bay will act as an attenuation pond. The presence of these lakes will aid in settlement in the unlikely event that pollutants arise and reduce potential for contaminants reaching the downstream Liffey catchment.

- Finally other studies have shown that pollutants in the Liffey Estuary are rapidly mixed and become diluted within the estuary and Dublin Bay (O'Higgins and Wilson, 2005; Wilson and Jackson, 2011) again indicating that any potential for the release of contaminants to the Castlesize River or the Morell River during the project will not have the potential to result in any perceptible effect to water quality 47 km downstream at Dublin Bay and so will not have any likely significant effects.

8.2 POTENTIAL IN-COMBINATION EFFECTS

8.2.1 Potential for the Project to Result in In-Combination Effects with Existing Threats & Pressures

Section 5 above outlines the existing threats and pressures to the European Sites and their qualifying features of interest occurring within the zone of influence of the project. These

threats and pressures are listed in Table 8.1 below and an assessment is provided to examine the potential for the project to combine with these existing threats and pressures to result in likely significant effects to the features of interest occurring within the zone of influence of the project.

Table 8.1: Assessment of the Project's Potential to combine with Documented Threats and Pressures

Threat & Pressure	Assessment
Urbanised areas human habitation	There will be no potential for the project to combine with this pressure to result in cumulative effects to the European Sites at Dublin Bay or the otter population of the Wicklow Mountains SAC that may occur downstream along the Liffey catchment. This is based on the following reasons: The project will not result in an increase in urbanization or human habitation within the vicinity of any habitats that are relied upon by the features of interest of surrounding European Sites identified as occurring within the zone of influence of the project. The project is located within an area that this already strongly influenced by an urban landscape character and is located in the immediate vicinity of Naas town centre. It will not result in any changes to the landscape character of the area. The project is located at remote distances for the nearest the European Sites at Dublin Bay and from the nearest stretch of optimum otter habitat along the Morell River.
Golf course	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the use and management of a golf course on North Bull Island adjacent to the North Bull Island SPA and North Dublin Bay SAC.
Disposal of household / recreational facility	The project will not result in the generation of any household or recreational facility waste during its construction phase or operation phase.

waste	
Industrial or commercial areas	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the existing industrial and commercial land uses within the vicinity of the European Sites at Dublin Bay.
Walking, horseriding and non-motorised vehicles	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the recreational activities within and in the vicinity of the European Sites at Dublin Bay.
Bridge, viaduct	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the use of existing bridges and viaducts within and in the vicinity of the European Sites at Dublin Bay.
Roads, motorways	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the use of existing roads within and in the vicinity of the European Sites at Dublin Bay. While the project involves the provision of a new road, this will be located at a significant distance from any European Sites, including those at Dublin Bay, and will not have the potential to combine with roads in the vicinity of European Sites to result in cumulative disturbance effects to qualifying features of interest.
Discharges	A review of the Catchments.ie database for all point source discharges along the Castlesize River and the Morell River downstream of the project site has been completed to inform this cumulative assessment. Each of these are presented below and an assessment of potential cumulative effects is provided. ***Morell River*** *Industrial Emissions Licence No. P0812: Arrow Group, Maudlins Industrial*

	Estate A review of the 2017 Annual Environmental Report (AER) for this facility revealed no exceedance in the stormwater emission limits set for this facility. The AER reported no non-compliance issues during 2017. As such the project will not have the potential to combine with this facility to result in likely significant effects to water quality along the Morell River. *Industrial Pollution Control (IPC) Licence P0782: Dennison Trailers* There are no licenced emissions to waters associated with this IPC licence. As such the project will not have the potential to combine with this facility to result in likely significant effects to water quality along the Morell River. *Industrial Pollution Control (IPC) Licence P0239: Trimite Truecoat Ltd.* A review of EPA documents associated with this IPC licence indicate that there are no licenced aqueous emissions associated with this facility. As such the project will not have the potential to combine with this facility to result in likely significant effects to water quality along the Morell River. *Waste Licence W0047: Kerdiffstown Landfill Remediation Project* An EIAR and Screening for Appropriate Assessment for this project was completed in 2017. The Screening for Appropriate Assessment found that this project does not have the potential to result in likely significant effects to European Sites. Based on the findings of the Screening for Appropriate Assessment for this project it is concluded that the proposed Naas Inner Relief Road project will not have the potential to combine with the Kerdiffstown Landfill Remediation Project to result in likely significant effects to European Sites. *Section 4 Discharge Licence WP184/04* No information on the status of this licence was sourced during the completion of this Screeninge. However it is noted that this discharge is located within a stretch of the Morell River that has been classed at good ecological status. As such it can be inferred that this Section 4 discharge is not resulting in negative effects to the water quality of the River Morell and therefore there will be no potential for the project to combine with the Section 4 discharge to result in cumulative effects to the water quality of this river. Thus we are satisfied that this Section 4 Discharge Licence will not result in any adverse effects to the water quality of the River Morell and

	therefore there is no potential for the Project to combine with the Section 4 Discharge Licence to result in any likely significant effects to the water quality of this river. ***Castlesize River*** *Industrial Emissions Licence No. P0257: LPD Ltd.* A review of EPA documents associated with this IPC licence indicate that there are no licenced aqueous emissions to surface waters associated with this facility. As such the project will not have the potential to combine with this facility to result in likely significant effects to water quality along the Castlesize River. *Industrial Emissions Licence No. P08197: Boran Plastics* A review of EPA documents associated with this IPC licence indicate that there are no licenced aqueous emissions to surface waters associated with this facility. As such the project will not have the potential to combine with this facility to result in likely significant effects to water quality along the Castlesize River.
Reclamation of land from sea, estuary or marsh	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the recreational activities within and in the vicinity of the European Sites at Dublin Bay.
Habitat Destruction	Habitat destruction has been identified by the NPWS as a threat to the otter population of Ireland. The project will not result in the loss of or significant disturbance to any otter habitat and as such will not have the potential to combine with other land uses to result in likely significant effects to otter habitat.
Passive fishing	This potential threat/pressure is not relevant to the project. This threat/pressure has been identified by the NPWS due to potential concerns regarding the recreational fishing activities within and in the vicinity of the Wicklow Mountains SAC.

The existing threats and pressures identified in Section 5 above for the European Sites occurring within the zone of influence of project have been examined in Table 8.1 above and it has been found that the project will not have the potential to combine with these existing

threats and pressures to result in likely significant effects to the four European Sites and their associated qualifying features of interest occurring within the zone of influence of the project and there is no doubt in this conclusion.

8.2.2 Assessment of the Project's Potential In-Combination Effects with Other Plans & Projects

This section of the Screening Report examines the potential for the project to combine with other plans and projects to result in likely significant effects to European Sites. This examination considers the potential for such in-combination effects to the four European Sites identified as occurring in the zone of influence of the project.

With the exception of the otter population of the Wicklow Mountains SAC, there will be no potential for the project to combine with other plans or projects to result in likely significant effects to the 7 European Sites occurring within 15km of the project site (as identified in Table 5.1) for the following reasons:

- All 7 European Sites are located at a remote distance from the project site, with the closest European Sites (Red Bog SAC) being located approximately 7.7km to the west.

- There are no potential impact pathways that connect the project to these 7 European Sites and in the absence of such pathways there will be no potential for the project to combine with other plans or projects to result in likely significant effects to these European Sites.

In light of the above the remainder of this Section examines the potential for the project to combine with other plans or projects to result in likely significant effects to relevant qualifying features of interest of the four European Sites identified as occurring within its zone of influence.

8.2.2.1 Potential for In-Combination Effects with Other Projects

A search of the Kildare County Council on-line planning portal was completed on the 10th December 2018 to identify any other current projects (i.e. within the last five years) in the vicinity of the proposed project or along the Castlesize River and Morell River upstream and

downstream of the project site. Table 8.2 lists the project's (according to their locations within either the Castlesize or Morell catchment) that have been identified during this search and provides an assessment of the potential for the proposed project to combine with these other projects to result in likely significant effects to the four European Sites and their associated qualifying feature of interest occurring within the zone of influence of the project.

Table 8.2: Assessment of the Project's Potential to Combine with Other Projects

Project Planning Ref. & Brief Description	**Assessment**
Morell Catchment	
River Morell Flood Relief Scheme	The River Morell flood relief scheme includes elements along the river that aim to minimise the potential for flooding in the future. These elements include the construction of culverts, embankments, flood walls, stream realignment works and tie - ins to existing structures. A Screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites has been completed. The screening for Appropriate Assessment for this project has determined that no likely significant effects to European Sites will arise as a result of this project. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
18/908: New 2-storey rear extension to existing 2-storey	This project represents a small-scale project which comprises the construction of a dwelling within an existing residential area. This project is located over 100m from the nearest point of the Morell

terraced house	River and will not result in any discharges to the river. It will not have the potential to result in perturbations to the water quality of the River Morell and will not have the potential to combine with the existing project to result in likely significant effects to the water quality of this river.
17/683: New Residential Dwelling	This new residential dwelling is located approximately 50m from the River Morell. This project will include the provision of a proprietary wastewater treatment system. The proposed wastewater treatment system has been reviewed by Kildare County Council's environment section, who have concluded that this project, with the installation of the proposed wastewater treatment system will not have the potential to result in impacts to the environment including the water quality of the River Morell. Based on this assessment it is concluded that the proposed Naas Inner Relief Road will not have the potential to combine with this project to result in likely significant effects to the water quality of the River Morell or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
17/694: Construction of Fuel Store & Garage	This application relates to the provision of a shed to provide cover for the applicants car and also to provide sheltered storage for solid fuel, in the form of turf briquettes. The application site bounds the River Morell. The provision of the shed will represent minor works that will not have the potential to result in perturbations to the water quality and status of the River Morell. Based on this assessment it is concluded that the proposed Naas Inner Relief Road will not have the potential to combine with this project to result in likely significant effects to the water quality of the River Morell or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
16/1230: New garage for	This project site is located adjacent to the River Morell over 5km

existing residential dwelling	downstream from the project site. This project is small in scale and involves the provision of a garage for domestic use. Its construction and use will not have the potential to result in perturbations to the water quality or status of the River Morell. There will be no potential for the project to combine with this project to result in likely significant effects to the water quality or ecological status of the River Morell or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
15/504: Construction of new conservatory attached to existing residential dwelling	This project comprises the construction of a conservatory to the front on an existing residential dwelling. The works associated with this project will be minor in scale and are not predicted to have the potential to result in perturbations to the water quality of the River Morell. There will be no potential for the project to combine with this project to result in likely significant effects to the water quality or ecological status of the River Morell or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
14/536: Change of use of 5 office buildings and ancillary works	This project, which is located adjacent to the River Morell, will involve alterations to the internal layout of an existing building. It will not involve any activities that will present a risk of perturbations to the water quality of the River Morell. There will be no potential for the project to combine with this project to result in likely significant effects to the water quality or ecological status of the River Morell or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road
Castlesize Catchment	

18/480: Extension and alteration	This project proposes to undertake an extension to the north and west of an existing convent. The Castlesize River is located to the east of the existing convent structure. A Screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites has been completed. The screening for Appropriate Assessment for this projecthas determined that no likely significant effects to European Sites will arise as a result of this project. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
18/1226: Construction of an extension to an existing dwelling.	This project is located approximately 30m to the south of the Castlesize River and will involve an extension to the rear of this structure. The works associated with this project will be small in scale and will be buffered from the river by existing buildings, road surfaces and greenfield land. This project will not have the potential to result in perturbations to water quality and there will be no potential for it to combine with the proposed Naas Inner Relief Road to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
18/1047: Construction of a domestic garage.	This project is small in scale and is located over 130m to the south of the Castlesize River. It is buffered from the river by existing buildings, roads and greenfield lands. This project will not have the potential to result in perturbations to water quality and there will be no potential for it to combine with the proposed Naas Inner Relief Road to result likely significant effects to the water quality of this river or the European Sites and associated qualifying

	features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
17/1351: modifications to existing car park to provide additional car parking space and bicycle parking	This project is located along the R410 adjacent to a culverted section of the Castlesize River. The project will comprise the alteration of existing greenfield landscape in the form of a landscaped lawn to a car parking area. A screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites. The screening for Appropriate Assessment for this project has determined that an Appropriate Assessment is not required. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
16/217: Proposed demolition of an existing small stand and part demolition of the existing self-service restaurant at Naas Racecourse	This project is located 400m to the north of the Castlesize River and is buffered from the river by existing roads, buildings and greenfield lands. A screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites has been completed. The screening for Appropriate Assessment for this project has determined that an Appropriate Assessment is not required. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
15/1060: Construction of a	This project is located adjacent to the R410 road and the Castlesize

residential dwelling development comprising 395 houses and a neighbourhood centre	River. A screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites, has been completed. The screening for Appropriate Assessment for this project has determined that an Appropriate Assessment is not required. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
15/1011: Demolition of an existing bungalow and construction of a residential dwelling	This project site is located approximately 50m to the south of a pond/wetland area into which the Castlesize River flows. The project is buffered from this pond/wetland area by existing gardens, a road and boundary walls that form a barrier to the movement of water. Works associated with this project will be small in scale. Given the above it is predicted that this project will not have the potential to result in perturbations to the water quality of the Castlesize River and there will be no potential for it to combine with the proposed Naas Inner Relief Road to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.
14/461: erection of a stand-alone single storey pre-fabricated Training Room (floor area = 40.2sqm) to the rear of existing Training Centre together with all associated site works.	This project site is located over a 100m to the northeast of a culverted section of the Castlesize River. The works associated with this project are small in scale and are not predicted to have the potential to result in perturbations to water quality in the Castlesize River. There will be no potential for it to combine with the proposed Naas Inner Relief Road to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone

	of influence of the proposed Naas Inner Relief Road.
14/500025: construction of an external single storey UPS Room building circa 20.6 sqm and associated site works to be located on the site of Time House.	This project is located adjacent to the R410 road and a culverted section of the Castlesize River. A screening for Appropriate Assessment, which examined the potential for this project, alone and in-combination with other plans and projects, to result in likely significant effects to European Sites has been completed. The screening for Appropriate Assessment for this project has determined that an Appropriate Assessment is not required. Given the results of this screening for Appropriate Assessment, there will be no potential for the proposed Naas Inner Relief Road project to combine with this project to result in likely significant effects to the water quality of this river or the European Sites and associated qualifying features of interest occurring within the zone of influence of the proposed Naas Inner Relief Road.

8.2.2.2 Potential for In-Combination Effects with Other Plans

The relevant plan with respect to the location of the project is the current Kildare CDP 2017 – 2023. The Kildare CDP has been reviewed in order to identify any other plans or projects that may be facilitated by the CDP within the vicinity of the project site. No such plans or projects have been identified and it is considered that there will be no potential for the project to combine with the Kildare CDP to result in likely significant effects to European Sites.

8.2.3 Assessment of the Project's Potential to Result in Likely significant effects to the Qualifying Interests occurring within its Zone Of Influence

The function of this Screening for Appropriate Assessment is to assess whether or not the project, alone or in combination with other plans or projects, is likely to have a significant effect on any European Site, in view of best scientific knowledge and the conservation objectives of European Sites and specifically the habitats and species for which the sites have been designated.. The structural and functional elements of a European Site to maintain the favourable conservation status of qualifying features of interest are embedded into the list of detailed Site Specific Conservation Objectives for each of the site's interest features. As such the detailed Conservation Objectives of a European Sites represent the parameters against

which an assessment of a project's potential to result in likely significant effects should be undertaken.

Site Specific Conservation Objectives for the otter population of the Wicklow Mountains SAC; the special conservation interests of the South Dublin Bay River Tolka Estuary SPA and the North Bull Island SPA; and the relevant qualifying features of interest of the North Dublin Bay SAC occurring within the zone of influence of the project have been published by the NPWS (NPWS, 2013; 2015a; 2015b; & 2017). Table 8.3 lists the Conservation Objectives attributes and targets for each of these features and provides an assessment of the potential for the project to undermine each of these targets.

Table 8.3: Assessment Of Likely Significant Effects Against The Site Specific Conservation Objectives For Qualifying Features Of Interest Occurring Within The Zone Of Influence Of The Project

Attribute. No.	Attribute	Target	Assessment
Estuaries (North Dublin Bay SAC)			
1	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	The project is located at a remote distance from this habitat and will not have the potential to result in changes to its extent at North Dublin Bay.
2	Community distribution	Conserve the following community types in a natural condition: Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex; Estuarine subtidal muddy sand to mixed sediment with gammarids community complex; Subtidal sand to mixed sediment with *Nucula nucleus* community complex; Subtidal sand to mixed sediment with *Nephtys* spp. community complex; Fucoid-	The project will not have the potential to result in any changes to the infauna and epifaunal communities supported by the littoral sands and muds of this habitat. A surface water pathway via the Liffey catchment connects the project site to this habitat. Assessment of this pathway's potential to function as an impact pathway has been provided in Section 8.1.1 above. This assessment has found that the hydrological pathway linking the project site to this habitat will not have the potential to function as an impact pathway and is not likely, alone or in-combination with other plans or projects (see

		dominated intertidal reef community complex; Faunal turf-dominated subtidal reef community; and Anemone-dominated subtidal reef community.	Section 8.2 above), to result in significant effects to this habitat. Given the results of this assessment the project will not have the potential to undermine the targets for this attribute.
Mudflat (North Dublin Bay SAC)			
3	Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	The project is located at a remote distance from this habitat and given the results of the assessments outlined in Section 8.1.1 and 8.2 above it will not have the potential, alone or in-combination with other plans and projects, to result in changes to its extent at North Dublin Bay.
4	Community distribution	Conserve the following community types in a natural condition: Intertidal sand with *Scolelepis squamata* and *Pontocrates* spp. community; and Intertidal sand to mixed sediment with polychaetes, molluscs and crustaceans community complex.	For reasons outlined for Attribute No. 2 above the project will not have the potential, alone or in-combination with other plans and projects, to result in changes to the status of the communities supported by this habitat.
Atlantic & Mediterranean Saltmarsh (North Dublin Bay SAC)			
5	Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession.	The project is located at a remote distance from this habitat and given the results of the assessments outlined in Section 8.1.1 and 8.2 above it will not have the potential, alone or in-combination with other plans and projects, to result in changes to its extent at North Dublin Bay.
6	Habitat distribution	No decline or change in habitat distribution, subject to natural processes.	The project is located at a remote distance from the saltmarsh habitats occurring at North Dublin Bay SAC and given the results of the assessments outlined in Section 8.1.1 and 8.2 above it will not have the potential, alone or in-combination with other plans and projects, to influence the processes (such as hydrology)

			that underpin the distribution of this habitat within the SAC. As such it will not have the potential to undermine this target.
7	Physical structure: sediment supply	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions	The project is located at a remote distance from examples of saltmarsh habitat supported by this SAC. It will not present any physical obstacles to the influx of sediment via the Liffey estuary to this habitat. Furthermore given the results of the assessments outlined in Section 8.1.1 and 8.2 above it will not have the potential, alone or in-combination with other plans and projects, to influence circulation of sediment and organic matter that underpin the physical structure of this habitat.
8	Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	The creeks and pans of the saltmarsh habitats are influenced by hydrological processes such as freshwater influxes and tidal regimes. The project will not result in any changes to the hydrological regime of the Liffey catchment and will not have the potential to result in changes to the hydrology of Dublin Bay that influence the structure of creeks and pans within the North Dublin Bay saltmarsh habitats.
9	Physical structure: flooding regime	Maintain natural tidal regime	The project will not have the potential to influence the tidal regime at Dublin Bay.
10	Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	The zonation of lower and upper saltmarsh habitats is influence by a variety of processes including the rate of freshwater influx at the saltmarsh. The project will not have the potential to result in changes to the flow rates of receiving watercourses occurring at the local sub-catchment levels surrounding the project site. In light of this, the project will not have the potential, alone or in-combination with other plans and projects, to result in changes to the flow rates at the Liffey estuary

			and will in turn have no potential to influence the zonation and vegetation structure of saltmarsh habitats.
11	Vegetation structure: vegetation height	Maintain structural variation within sward	For reasons outlined above for Attribute No. 10 the project will not have the potential, alone or in-combination with other plans and projects, to result in changes to the sward height of saltmarsh habitats occurring at North Dublin Bay SAC.
12	Vegetation structure: vegetation cover	Maintain more than 90% of the saltmarsh area vegetated	Factors influencing vegetation cover in this habitat include erosion, deposition and land use activities such as grazing. The project will not have the potential, alone or in-combination with other plans and projects, to influence the rates of erosion or deposition within this coastal habitat and will not have the potential to influence land use activities within this habitat.
13	Vegetation composition: typical species and sub-communities	Maintain range of sub-communities with typical species listed in Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Vegetation composition within this habitat is influenced by a range of factors such as water chemistry, the presence or otherwise of non-native invasive species and land use activities. Given the results of the assessments outlined in Section 8.1.1 and 8.2 above the project will not have the potential to influence the water chemistry underpinning vegetation composition within this habitat. It will not have the potential, alone or in-combination with other plans and projects, to result in the introduction of non-native invasive species to this habitat, which is located approximately 43km from the project site and will not have the potential to influence land use activities within this habitat.
14	Vegetation structure: negative indicator species- *Spartina*	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of	The project is located at a remote distance from the North Dublin Bay SAC and will not result in any disturbance to stands of *Spartina*

	anglica	less than 1%	and will not have the potential, alone or in-combination with other plans and projects, to result in the spread of this species within the SAC.
Otters (Wicklow Mountains SAC)			
15	Distribution	No significant decline	The project will not have the potential to change the distribution of otters in the vicinity of the project site. The Castlesize River is the only watercourse occurring in close proximity to the project site and no evidence of use of this watercourse by otters has been recorded during current and previous field surveys. This watercourse is adjudged to be of low potential to support foraging otters and no otters were identified as breeding within the vicinity of the project site. The Morell River occurring to the east of the project site will receive surface water from the project site. Otters are known to foraging along this watercourses but no breeding or resting places for this species were identified in the vicinity of the proposed surface water discharge point. Furthermore as the project is predicted to have a neutral and imperceptible impact to water quality of the Castlesize and Morell Rivers it will not have the potential to result in changes to otter habitat in these watercourses that could in turn result in a decline in their distribution. Furthermore, even in the unlikely event of an accident or spillage during the operation phase (and in the absence of any consideration of surface drainage control and treatment measures), any negative impacts to water quality will be localised, to within 1km of the discharge point to the river, and temporary. Given that otters are highly mobile and roam large distances within their territories such a

			localised and short-term effect will not have the potential, alone or in-combination with other plans and projects, to undermine the status of any otters support by the Morell River or the main channel of the River Liffey downstream.
16	Extent of terrestrial habitat	No significant decline	Terrestrial habitat for otters occurring within at least 10m of watercourses. The project will not result in any changes to terrestrial habitats occurring along the riparian zone of the Castlesize and Morell Rivers.
17	Extent of freshwater habitat (river)	No significant decline	As the project is predicted to have a neutral and imperceptible impact to water quality of the Castlesize and Morell Rivers it will not have the potential to result in changes to otter habitat in these watercourses that could in turn result in a decline in their distribution. Furthermore, even in the unlikely event of an accident or spillage during the operation phase (and in the absence of any consideration of surface drainage control and treatment measures), it is predicted that negative impacts to water quality will be localised, to within 1km of the discharge point to the river, and temporary. Given that otters are highly mobile and roam large distances within their territories such a localised and short-term effect will represent a negligible effect to otters and will not represent a significant decline in the extent of freshwater habitat available to them.
18	Extent of freshwater habitat (lakes)	No significant decline	This attribute and target are not relevant to the project as no lakes occur within the catchment area.
19	Couching sites and holts	No significant decline	No couching sites or holts were identified as occurring along the Castlesize or Morell

			Rivers during field surveys. No holts or couching sites occur in the immediate vicinity of the project and none will be disturbed by the project's activities.
20	Fish biomass	No significant decline	As the project is predicted to have a neutral and imperceptible impact to water quality of the Castlesize and Morell Rivers it will not have the potential to result in changes to fish biomass supported by the receiving Liffey catchment downstream of the project site. Furthermore, even in the unlikely event of an accident or spillage during the operation phase (and in the absence of any consideration of surface drainage control and treatment measures), any negative impacts to water quality will be localised, to within 1km of the discharge point to the river, and temporary. Such an effect, which will have the potential to result in a temporary and localised effect to fish stocks within the Castlesize and Morell Rivers, will not represent a significant decline in the fish biomass available to otters within the Liffey catchment downstream of the project discharge points.
21	Barriers to connectivity	No significant increase	The project does not involve any instream works or features that will alter the connectivity of the existing Castlesize or Morell River corridors.
Special conservation interest bird species (South Dublin Bay River Tolka Estuary SPA & North Bull Island SPA)			
22	Population trend	Long term population trend stable or increasing	The project is located at a remote distance from these SPAs at Dublin Bay and will not represent a change in land cover or land use within the vicinity of the SPA. Baseline use patterns of the wetland habitats that support these bird species will not be influenced by the project. Furthermore given the findings of

			the assessment of the hydrological pathway provided in Section 8.1.1 above there will be no potential for the project to indirectly influence the status of wetland habitats within the SPA, upon which these bird species rely.
23	Distribution	There should be no significant decrease in the range, timing or intensity of use of areas by special conservation interest bird species of the SPA occurring within the zone of influence other than that occurring from natural patterns of variation	For the reasons outlined for Attribute No. 22, the project will not have the potential, alone or in-combination with other plans and projects, to undermine this target.
Wetland habitat (South Dublin Bay River Tolka Estuary SPA & North Bull Island SPA)			
24	Wetland habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 32,261ha, other than that occurring from natural patterns of variation	Given the findings of the assessment of the hydrological pathway provided in Section 8.1.1 above there will be no potential for the project, alone or in-combination with other plans and projects, to indirectly influence the status of the wetland habitats of this SPA.

Table 8.4 provides a Screening Matrix in line with EU Guidance (2001) Assessment Criteria used to examine the potential of the proposed development to result in likely significant effects to European Sites. These assessment criteria are used to further examine whether the project will have the potential to result in likely significant effects to the qualifying features/special conservation interests of the European Sites occurring within its zone of influence.

Table 8.4: Screening Matrix

Assessment Criteria

Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) to the European Sites and associated interest features occurring within the zone of influence of the project, by virtue of:	
Size and Scale	The project is considered to be of a moderate size and scale and involves the provision of a relief road at Naas, Co. Kildare.
Land-take	The project will result in the loss of improved grassland habitats, scattered trees and the alteration of existing built land surfaces. It will not involve the crossing of any open surface watercourses. The Castlesize River is located at the southern end of the proposed route. This stream is culverted at the southern end of the proposed route, at the junction of the R410 Blessington Road. The project will not result in any land take from European Sites, or the loss of any habitat upon which qualifying species of European Sites rely.
Distance from European sites or key features of the site	The project is located at a remote distance from any European Sites. The nearest European Sites downstream are approximately 43km from the project site. The potential exists for otters of the Wicklow Mountain to occur along the Morell River, which will receive surface waters draining from the project site and along the River Liffey downstream of the project site.
Resource requirements	No resources associated with any European Sites will be required for, or utilised by the project.
Emissions	***Surface Waters*** Surface water generated at the project site during the construction phase and

	operation phase will be discharged to the Castlesize River and Morell River. The discharge of surface water from the project site during the construction phase and the operation phase will represent a neutral and imperceptible impact to the water quality of these watercourses. The absence of significant effects to the water quality of these watercourses will eliminate the potential for the project to result in significant negative effects to the status of otters using these watercourses and the status of qualifying habitats and species occurring downstream of the project site at Dublin Bay. ***Noise*** All European Sites are located at a remote distance from the project site and noise generated by the project's construction and operation phases will not have the potential to result in disturbances to qualifying species supported by these European Sites. As no suitable otter habitat occurs within the vicinity of the project (the nearest point of the Morell River to the project site is approximately 800m to the east) noise will not result in disturbance to this species. ***Light*** The project will not result in any changes in the lighting regime within European Sites occurring within its zone of influence of the project. As no suitable habitat upon which otters may rely occur within the vicinity of the project site, the installation of lighting along the proposed Naas Inner Relief Road route corridor will not result in disturbance to this species.
Excavation requirements	All excavations will be restricted to the footprint of the project and will not occur within European Sites.

Duration of construction, operation etc.	The duration of the construction phase is estimated to be 12-15 months. The design life of the road is for 120 years.
Transportation Requirements	The provision of the project will have an overall positive traffic and transport impact for the town of Naas. Traffic and transport during the construction phase and operation phase will not result in adverse effects to European Sites.
In-Combination Effects	The existing threats and pressures to the European Sites and the associated qualifying features of interest occurring within the zone of influence of the project have been outlined in Section 5 above and the potential for the project to combine with these threats and pressures to result in cumulative effects to European Sites and associated qualifying features of interest has been provided in Section 8.2 above. This assessment found that the project will not have the potential to combine with these threats and pressures to result in likely significant effects to status of these European Sites and associated qualifying features of interest. The potential for the project to combine with other plans and projects in the Castlesize and Morell catchment has been assessed in Section 8.2 above. This assessment found that the project will not combine with these other plans and projects to result in likely significant effects to the status of these European Sites and associated qualifying features of interest.
Describe any likely changes to qualifying features arising as a result of:	
Reduction of habitat area	The proposed road corridor will not result in a reduction in the extent of qualifying habitats or wetland supported by the European Sites occurring within its zone of influence.

Disturbance of key species	As outlined in Table 8.3 the project will not result in any disturbance to qualifying species of surrounding European Sites that may occur within its zone of influence.
Habitat or species fragmentation	The project will not result in the fragmentation of any qualifying habitats of European Sites or the habitats upon which qualifying species rely.
Reduction in species density	The project will not result in a decrease in the densities of special conservation interest bird species of the SPAs at Dublin Bay. This is due to the absence of a functional impact pathway between these European Sites at the project. The assessment outlined in Table 8.3 above has found that the project will not result in a reduction in the density of otters supported by the Wicklow Mountains SAC, which may also rely on the Liffey catchment downstream from the project site.
Changes in key indicators of conservation status	The attributes outlined in Table 8.3 represent the key indicators of conservation status of the qualifying features of interest/special conservation interests of the European Sites occurring within the zone of influence of the project. As detailed in Table 8.3 the project will not result in changes to these key indicators.
Climate Change	The project will over the long-term operation phase have a positive impact on climate.
Describe any likely impacts on European Sites as a whole in terms of:	

Interference with key relationships that define the structure and function of the site	The attributes listed in Table 8.3 have been selected during the drafting of the Site Specific Conservation Objectives for the European Sites occurring within the zone of influence of the project as they represent the key features that define the structure and function of these European Sites. As detailed in Table 8.3 the project will not interfere with these key attributes.
Provide indicators of significance as a result of the identification of effects set out above in terms of:	
Loss	The project will not result in any loss of habitat within any European Sites. The project will not result in any perceptible loss of habitat upon which mobile species (i.e. otters) of surrounding European Sites may rely.
Fragmentation	The project will not result in any fragmentation of habitat within any European Sites. The project will not result in any perceptible fragmentation of habitat upon which mobile species (i.e. otters) of surrounding European Sites may rely.
Disruption	The project will not result in any disruption of habitat within any European Sites. The project will not result in any perceptible disruption of habitat upon which mobile species (i.e. otters) of surrounding European Sites may rely.
Disturbance	The project will not result in any disruption of habitat within any European Sites. The project will not result in any perceptible disturbance of habitat upon which mobile species (i.e. otters) of surrounding European Sites may rely.
Changes to key elements of the	The project will not result in any changes to key elements underpinning the conservation status of any European Sites. The project will not result in any perceptible change to key elements of habitats (i.e. water quality of

site	watercourses) upon which mobile species (i.e. otters) of surrounding European Sites may rely.
Describe from the above the 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.	
It has been concluded that likely significant effects to the four European Sites identified as occurring within the zone of influence of the project will not arise as a result of the project. It is the considered view of the authors of this Screeing Report for Appropriate Assessment that it can be concluded by Kildare County Council that the project is not likely, alone or in-combination with other plans or projects, to have a significant effect on any European Sites in view of their Conservation Objectives and on the basis of best scientific evidence and there is no reasonable scientific doubt as to that conclusion..	

9.0 SCREENING CONCLUSION

During the preparation of this Screening Report for Appropriate Assessment of the proposed Naas Inner Relief Road it was found that seven European Sites occur within a 15km radius of the project site and an additional four European Sites occur at a greater distance (i.e. greater than approximately 47km downstream). The nearest European Site (Red Bog SAC) to the project site is located approximately 7.7km to the east. Of the seven European Sites occurring within a 15km radius of the project sitenone, with the exception of the otter population of the Wicklow Mountains SAC, were identified as occurring within the zone of influence of the proposed Naas Inner Relief Road.

Three of the four European Sites occurring at Dublin Bay have been identified as occurring within the zone of influence of the project by virtue of the presence of a hydrological pathway linking the project site to these European Sites. As such, a total of four European Sites were identified as occurring within the zone of influence of the project. These European Sites are:

- Wicklow Mountains SAC;

- North Dublin Bay SAC;
- South Dublin Bay River Tolka Estuary SPA; and
- North Bull Island SPA.

The potential for the hydrological pathway, that links the project to these European Sites, to function as an impact pathway was assessed as part of this Screening for Appropriate Assessment. This Screening has also relied upon the findings of the Hydrological Environmental Assessment (see Appendix 2), completed for the project. This Hydrological Environmental Assessment has assessed the potential for the construction phase and operation phase of the project to result in impacts to the water quality of the Castlesize and Morell Rivers and the Liffey catchment downstream of the project. The Hydrological Environmental Assessment has been prepared in the absence of any consideration of measures that will be implemented to control and manage surface water generated at the project site during the construction phase and operation phase.

This Screening Report for Appropriate Assessment has found that, in light of the conclusions of the Hydrological Environmental Assessment, the project will have a neutral to imperceptible effect on the water quality of receiving watercourses (i.e. the Castlesize River and the Morell River). Based on the very low hazard potential present during construction and operation and the gradient and distance there is no likely impact on the downstream Liffey Catchment. The Hydrological Environmenal Assessment has found that even in the very unlikely event of an accidental spillage or release of polluting material to the Morell or Castlesize Rivers natural degradation will easily occur within < 1km of the discharge point to these receiving watercourses. This will ensure that the potential for a change in water quality as a result of an accidental emission during construction phase and operation phase of the project will be negligible and imperceptible and will not result in significant impacts to the status of these watercourses.

In light of the findings of this report it is the considered view of the authors of this Screeing Report for Appropriate Assessment that it can be concluded by Kildare County Council that the project is not likely, alone or in-combination with other plans or projects, to have a significant effect on any European Sites in view of their Conservation Objectives and on the basis of best scientific evidence and there is no reasonable scientific doubt as to that conclusion.

REFERENCES

Bedri, Z., O'Sullivan, J., Bruen, M., (2012) An environmental consequence for Dublin Bay of a shift from hydro-carbon to other energy production methods. IWA World Congress on Water, Climate and Energy Dublin, Ireland, 14th – 18th May, 2012.

Camp, Dresser & McKee, (2012). Ringend Wastewater Treatment Works Extension Environmental Impact Statement. Report for Dublin City Council.

Department of the Environment Heritage and Local Government (DEHLG) (2008) Circular letter SEA 1/08 & NPWS 1/08.

Department of the Environment Heritage and Local Government (DEHLG) (2010). Appropriate Assessment of Plans and Projects. Guidance for Local Authorities.

Dowly, A. & Bedri, Z. (2007) *Modelling of Ringsend Discharge*. Report commissioned by EPA in association with IPPC licencing for Ringsend WwTW. Available online at: http://www.epa.ie/licences/lic_eDMS/090151b280269ef8.pdf

English Nature (1999). Habitats *regulations guidance note no. 3 (HRGN No. 3). Determination of Likely Significant Effect under The Conservation (Natural Habitats &c) Regulations 1994.*

European Commission (2000). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC*. Luxembourg.

European Communities (2001). *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Luxembourg.

European Commission (1992). EU Habitats Directive.

Harris, S. & Yalden, D.W. (eds) (2008). Mammals of the British Isles: Handbook, 4th Edition. Southampton.

Karner, A. A., Eisinger, D. S., & Niemeier, D. A. (2010). Near-roadway air quality: Synthesizing the findings from real-world data. Environmental Science & Technology: Vol 44(14), p5334-5344.

NPWS (2009). Threat Response Plan: Otter (2009-2011). National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin.

NPWS (2013). Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015a). Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2015b). Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2017). Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NRA (2011). Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes.

RPS (2017). Morell River Flood Management Scheme. Environmental Impact Assessment Report.

TII (2015). Road Drainage and the Water Environment. Publication No. DN-DNG-03065

APPENDIX 1: QUALIFYING FEATURES OF INTEREST OF EUROPEAN SITES OCCURRING WITHIN THE WIDER SURROUNDING AREA

A total of seven European Sites were identified as occurring within a 15km radius of the project site and an addition four European Sites were identified as occurring downstream of the project site at Dublin Bay. Table A1.1 below lists the qualifying features of interest of each of these European Sites.

Table A1.1: Qualifying Features of Interest for European Sites occurring within 15km of the Project

European Sites	Qualifying features of interest
Mouds Bog SAC	Active raised bogs [7110]
	Degraded raised bogs still capable of natural regeneration [7120]
	Depressions on peat substrates of the Rhynchosporion [7150]
Pollardstown Fen SAC	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]
	Petrifying springs with tufa formation (Cratoneurion) [7220]
	Alkaline fens [7230]
	Vertigo geyeri (Geyer's Whorl Snail) [1013]
	Vertigo angustior (Narrow-mouthed Whorl Snail) [1014]
	Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]

Ballynafagh Lake SAC	Alkaline fens [7230]
	Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016]
	Euphydryas aurinia (Marsh Fritillary) [1065]
Ballynafagh Bog SAC	Active raised bogs [7110]
	Degraded raised bogs still capable of natural regeneration [7120]
	Depressions on peat substrates of the Rhynchosporion [7150]
Red Bog SAC	Transition mires and quaking bogs [7140]
Wicklow Mountain SAC	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]
	Natural dystrophic lakes and ponds [3160]
	Northern Atlantic wet heaths with Erica tetralix [4010]
	European dry heaths [4030]
	Alpine and Boreal heaths [4060]
	Calaminarian grasslands of the Violetalia calaminariae [6130]
	Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental

	Europe) [6230]
	Blanket bogs (* if active bog) [7130]
	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani) [8110]
	Calcareous rocky slopes with chasmophytic vegetation [8210]
	Siliceous rocky slopes with chasmophytic vegetation [8220]
	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]
	Lutra lutra (Otter) [1355]
Poulaphouca Reservoir SPA	Greylag Goose (Anser anser) [A043]
	Lesser Black-backed Gull (Larus fuscus) [A183]
South Dublin Bay SAC	Mudflats and sandflats not covered by seawater at low tide [1140]
	Annual vegetation of drift lines [1210]
	Salicornia and other annuals colonising mud and sand [1310]
	Embryonic shifting dunes [2110]
North Dublin Bay SAC	Mudflats and sandflats not covered by seawater at low tide [1140]

	Annual vegetation of drift lines [1210]
	Salicornia and other annuals colonising mud and sand [1310]
	Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]
	Mediterranean salt meadows (Juncetalia maritimi) [1410]
	Embryonic shifting dunes [2110]
	Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120]
	Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
	Humid dune slacks [2190]
	Petalophyllum ralfsii (Petalwort) [1395]
North Bull Island SPA	Light-bellied Brent Goose (Branta bernicla hrota) [A046]
	Shelduck (Tadorna tadorna) [A048]
	Teal (Anas crecca) [A052]
	Pintail (Anas acuta) [A054]
	Shoveler (Anas clypeata) [A056]

	Oystercatcher (Haematopus ostralegus) [A130]
	Golden Plover (Pluvialis apricaria) [A140]
	Grey Plover (Pluvialis squatarola) [A141]
	Knot (Calidris canutus) [A143]
	Sanderling (Calidris alba) [A144]
	Dunlin (Calidris alpina) [A149]
	Black-tailed Godwit (Limosa limosa) [A156]
	Bar-tailed Godwit (Limosa lapponica) [A157]
	Curlew (Numenius arquata) [A160]
	Redshank (Tringa totanus) [A162]
	Turnstone (Arenaria interpres) [A169]
	Black-headed Gull (Chroicocephalus ridibundus) [A179]
	Wetland and Waterbirds [A999]
South Dublin Bay & Tolka Estuary SPA	Light-bellied Brent Goose (Branta bernicla hrota) [A046]
	Oystercatcher (Haematopus ostralegus) [A130]

	Ringed Plover (Charadrius hiaticula) [A137]
	Grey Plover (Pluvialis squatarola) [A141]
	Knot (Calidris canutus) [A143]
	Sanderling (Calidris alba) [A144]
	Dunlin (Calidris alpina) [A149]
	Bar-tailed Godwit (Limosa lapponica) [A157]
	Redshank (Tringa totanus) [A162]
	Black-headed Gull (Chroicocephalus ridibundus) [A179]
	Roseate Tern (Sterna dougallii) [A192]
	Common Tern (Sterna hirundo) [A193]
	Arctic Tern (Sterna paradisaea) [A194]
	Wetland and Waterbirds [A999]

APPENDIX 2: HYDROLOGICAL ENVIRONMENTAL ASSESSMENT

The Tecpro Building,
Clonshaugh Business & Technology Park,
Dublin 17, Ireland.

T: + 353 1 847 4220
F: + 353 1 847 4257
E: info@awnconsulting.com
W: www.awnconsulting.com

Hydrological & Hydrogeological Qualitative Risk Assessment

- Naas Inner Relief Road.

Technical Report Prepared For

CSEA.

Technical Report Prepared By

Teri Hayes Director
BSc MSc PGeo

Our Reference

TH/19/10544WR01

Date of Issue

20th January 2019

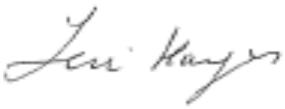
Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

Document History

Document Reference		Original Issue Date	
TH/19/10544WR01		20th January 2019	
Revision Level	20th January 2019	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
Name	Teri Hayes	Pat Groves
Title	Director and Hydrogeologist	Hydrogeologist
Date	20 January 2019	20 January 2019

CONTENTS **Page**

1. Introduction

1.1 Scope of Work

The scope of this review is to assess the potential for any likely impacts (unmitigated) on receiving waters during construction or post development. In particular, this review considers the likely impact of construction and operation run-off from the proposed development on water quality status within any identified Natura 2000 sites. A site walkover was undertaken with Mr Pat Doherty, (Ecologist for the project) and this technical note will inform Mr Dohertys' Screening Report for Appropriate Assessment which has to address the unmitigated impact on any Natura 2000 site that might potentially be affected. The assessment relies on information regarding construction and design provided by the site engineers CSEA.

This report is prepared by *Teri Hayes* (BSc MSc PGeol EurGeol). Teri is a hydrogeologist with over 25 years of experience in water resource management and impact assessment. She has a Masters in Hydrogeology and is a former President of the Irish Group of the Association of Hydrogeologists (IAH) and has provided advisory services on water related environmental and planning issues to both public and private sector bodies. She is qualified as a *competent person* as recognised by the EPA in relation to contaminated land assessment (IGI Register of competent persons www.igi.ie). Her specialist area of expertise is water resource management eco-hydrogeology, hydrological assessment and environmental impact assessment.

1.2 Site Location

It is proposed to construct the Naas Inner Relief Road at Naas, Co. Kildare (see Figure 1.1 for location).

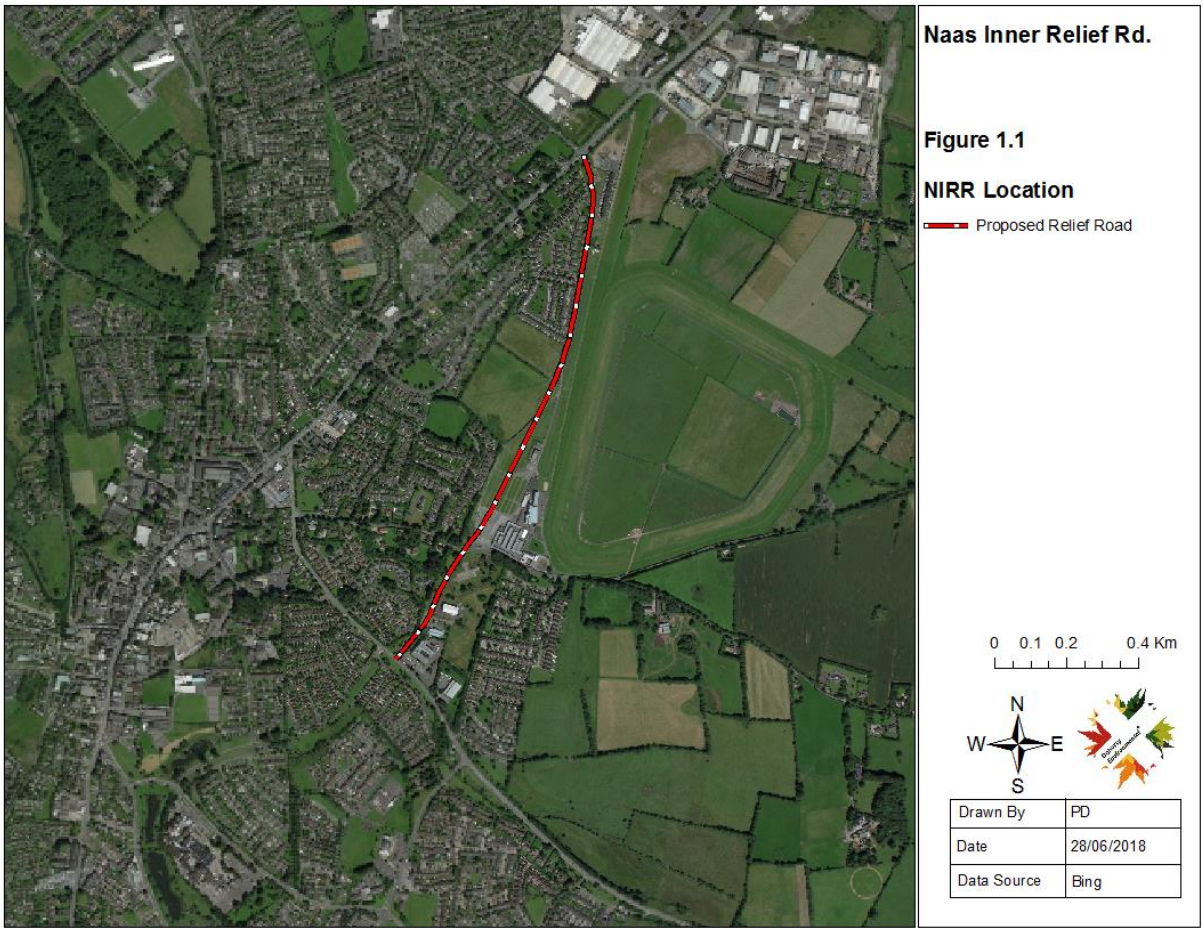


Figure 1: Site Location (Source Doherty Environmental)

The proposed Naas Inner Relief Road is 1.6 km in length and connects the R445 to the R410.

The proposed route crossed a low -lying flat landscape. The southern part of the proposed development generally slopes southerly from approximately 107m OD on a ridge along Tipper Road to approximately 103m OD toward R410 Blessington Road. The northern part of the proposed development slopes northerly from Tipper Road to approximately 91m OD toward R445 Dublin Road.

2.0 Hydrology & Drainage

2.1 Hydrological Setting & Water Quality Status

A reliable Conceptual Site Model (CSM) requires an understanding of the existing hydrological and hydrogeological setting. This is described below for the proposed development and surrounding hydrological and hydrogeological environs.

Figure 2 below presents he hydrological setting. The proposed route alignment is located within the River Liffey catchment (hydrometric area No. 9). The sub-catchments occurring in the area surrounding the project footprint include the River Morell (sub-basin site code: Morell_020) and a sub-catchment of the River Liffey (sub-basin site code: Liffey_120) which includes the Castlesize River.

The nearest point of the Morell River to the proposed route is approximately 800m to the east of the route corridor. The Castlesize River is culverted at the southern end of the proposed road corridor. This river ultimately drains to the River Liffey, the nearest point of which is located approximately 4.7km downstream. Prior to draining to the River Liffey the Castlesize River first drains into the southern end of an artificial pond, approximately 1.6km downstream of the proposed route. The Castlesize then discharges from this pond at its northern end and drains to the River Liffey.

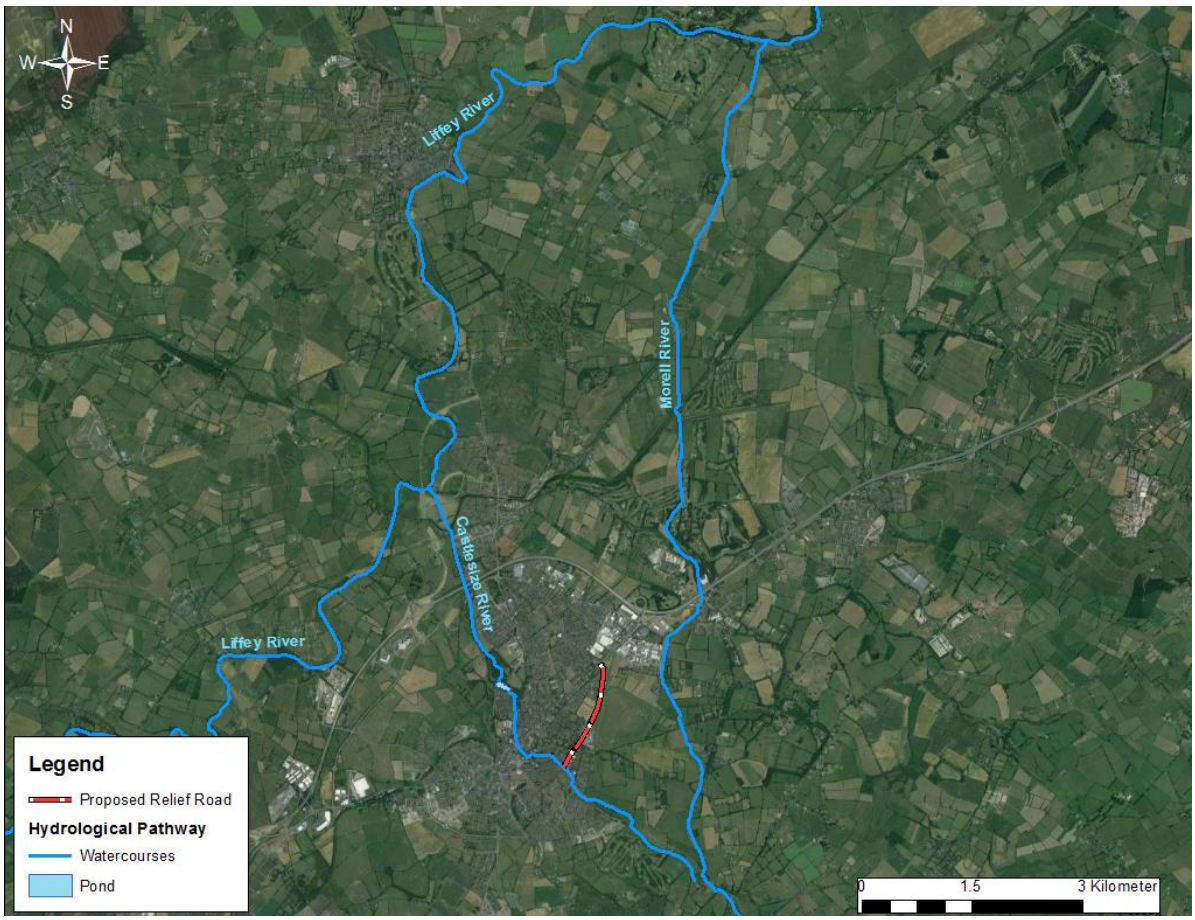


Figure 2: Hydrological Setting

The Liffey ultimately discharges to Dublin Bay (North Bull Island SPA, North Dublin Bay SAC, and South Dublin Bay River Tolka Estuary SPA). These European Sites are located approximately 43km downstream from the project site.

The EPA website (www.epa.ie and catchments.ie) presents the available water quality status information for water bodies in Ireland. The most up to date status of the Morell River at the nearest monitoring stations to the project is *'Poor' to 'Good'.* There are two monitoring points along the Morell River. The upstream monitoring point at South Br West of Tipper House has a Q-value of 3-4 (moderate to good). The downstream monitoring point at a bridge near Fishery Lane has a recent Q-value of 4 (good). The confluence of the Morell and the Liffey watercourses is located approximately 10km downstream of the proposed Naas Inner Relief Road surface water discharge point.

A review of Catchments.ie database indicates that the water quality of the River Morell recorded between 2010 and 2015 was poor along its stretch downstream of the proposed discharge point and the M7 overbridge at Johnstown. Downstream of Johnstown the water quality of the river improves to moderate, while the lower stretch of the river between the railway over bridge and its confluence with the River Liffey has been classified as good water quality. The Water Framework Directive water quality status for the Morell River

between the project's proposed discharge point and Irish Rail crossing to the north has been assessed as being "At Risk". The remaining section of the river between the Irish Rail crossing and the confluence of the River Liffey has been assessed as being "Not At Risk".

The water quality of the Castlesize River, recorded between 2010 and 2015 was moderate along its entire length from its source along the Blessington Road to a short distance upstream of its confluence with the River Liffey. The Water Framework Directive water quality status for the Castlesize River has been assessed as being "Not At Risk."

The Liffey Estuary Lower which has a WFD status of '*Moderate'*, and Dublin Bay has a WFD status of '*Good*'. Both waterbodies have a WFD risk score of '*At risk of not achieving good status*'. The most recent surface water quality data for the Liffey Estuary Lower and Dublin Bay (2010-2012) indicate that they are '*Unpolluted*'. Under the "Trophic Status Assessment Scheme" classification of the EPA, "*Unpolluted*" means there have been no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present (EPA 2015).

2.3 Aquifer Description & Water Quality Status

The Geological Survey of Ireland (GSI) has described the main underlying aquifer as a '*Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones*'. The proposed development is within the '*Dublin*' groundwater body and is classified as '*Poorly productive bedrock*'. The most recent WFD groundwater status for this water body (2010-2015) is '*Good'*.

Aquifer vulnerability is a term used to describe the natural protection to the underlying aquifer. The GSI classifies the bedrock aquifer in the region of the site as having *High* (H) vulnerability status.

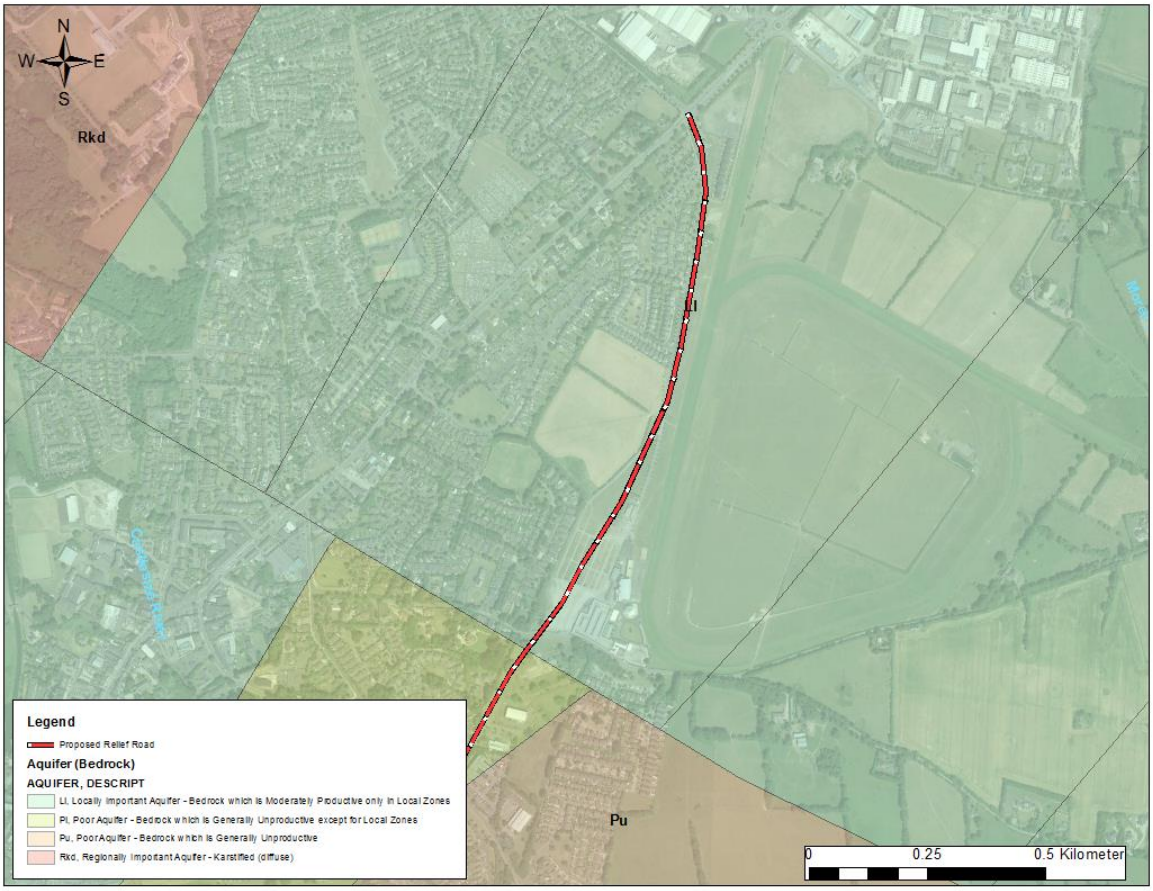


Figure 3: Hydrogeological Setting

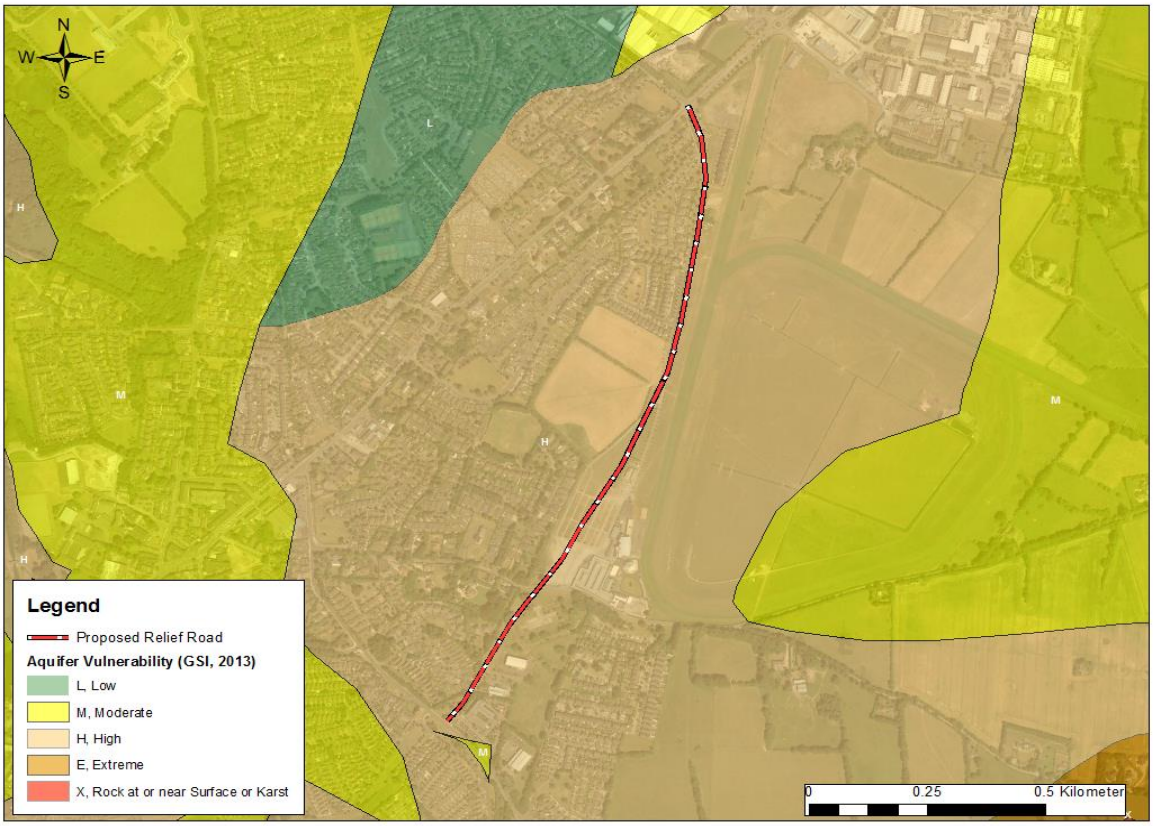


Figure 4: Aquifer Vulnerability Setting

2.2 Summary of Existing and Proposed Stormwater Drainage

2.2.1 Existing Storm Drainage

The runoff currently generated from the existing AIB and IDA industrial park is conveyed through a series of gullies and stormwater pipes beneath the IDA Ireland 'Time House' Industrial Estate Road to the culverted Castlesize Stream frontage of the AIB premise. The existing culvert, approximately 2.2m (W) x 0.75m (H), flows north-westerly along Blessington Road which ultimately discharges to the Castlersize River.

There is an existing stormwater sewer network on the Gallops Estate Road which serves the Gallops and Kings Court housing development. During the joint site visit between CSEA and Kildare County Council, it was observed that there is an existing 600mm diameter storm network located at the most southerly end of the existing Gallops Estate Road which exits an existing storm chamber located within the Gallops Estate Road prior to falling in a southerly direction and connecting into an existing storm chamber situated within the lands of Naas Racecourse. From this existing storm chamber located within the lands of Naas racecourse, this existing 600mm diameter storm network falls and flows in an easterly direction, through two existing storm chambers located within the central portion of the Naas Racecourse lands prior to discharging into an existing internal drainage ditch network. The existing drainage ditch network continues in an easterly direction prior to connecting into a north falling existing drainage ditch also located within the central portion of the existing Naas Racecourse lands. Located within the central portion of the existing Naas Racecourse lands, and where the northerly internal drainage ditch terminates, is an existing retention pond which is currently being utilised for irrigation purposes associated with the existing lands owned and operated by Naas Racecourse. From this location of the proposed study area, excess storm water is culverted through an existing 600mm and 225mm diameter storm pipes which ultimately fall in a northerly direction prior to discharging and joining a tributary of the existing Morell River.

2.2.2 Proposed Storm Drainage

The design of the stormwater sewers for the proposed scheme shall be in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), the 2010 Building Regulation - Technical Guidance Document H, the SuDS Manual, the TII Design of 'earthworks drainage, network drainage, attenuation and pollution control' DN-DNG-03066. It is proposed that stormwater from the route, following attenuation at three outfalls. The proposed discharge rate from the outfalls has been restricted to the greenfield discharge rate and as such shall not cause excessive runoff to the downstream receiving watercourse.

Outfall A
The runoff generates from north of the proposed junction at the Tipper Road to the junction of R410 Blessington Road will be collected by series of gullies and sealed drainage to the proposed attenuation system, which discharges to the existing stomwater network at R410 Blessington Road via a petrol/oil bypass separator, which ultimately discharges to the culverted Castlesize stream frontage of AIB premise. The outfall is c 140 m from the road development.

Outfall B
The runoff generates from south of the proposed junction at R445 Dublin Road to the proposed junction at the Tipper Road will be collected by series of gullies and sealed drainage to the proposed attenuation system, which discharges to an existing storm chamber located within the Gallops Estate Road via a petrol/oil bypass separator which ultimately discharges into the existing retention pond within the Naas Racecourse. The distance from the proposed road to the Morell river is c. 1142 m.

Outfall C
The runoff generated due to the carriageway widening to accommodate for the cycle track will be collected by a series of gullies and sealed drainage to the proposed attenuation system, which discharges to the existing stomwater network at R410 Blessington Road via a petrol/oil bypass separator and ultimately to the Castlesize river.

3.0 Conceptual Site Model (CSM)

A conceptual site model is developed based on a good understanding of the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This in turn allows possible source pathway receptor (S-P-R) linkages to be identified. If no S-P-R linkages are identified, then there is no risk to receptors. The receptors considered in this report are European sites as identified by the project ecologist.

3.1 Assessment of Plausible Sources

Potential sources during construction and operation are considered. For the purposes of undertaking the potential of any hydrological/hydrogeological SPR linkages, all sources are considered without mitigation i.e. a worst case scenario. Construction sources (short term) and Operation sources (long term) are considered below. This assessment considers the impact of sources without any mitigation measures in place.

<u>Construction</u>
The following sources are considered plausible for the proposed construction site.

(i) The primary contaminants of concern are hydrocarbons and suspended solids. There is very limited potential for accidental contamination during construction as any required bulk storage of fuels will be within the construction compound. As such the only potential leakage along the route corridor is a single construction vehicle leak i.e. maximum 200 litres. Refueling will generally be undertaken off site at construction site. However, some construction site may have a bunded double skinned fuel oil tank/bowser on site for refueling. As a worst case scenario, a rupture of a 1000 litre tank to ground is considered. This would be a single short term event.

(ii) Leakage may occur from construction equipment. As a worst case scenario an unmitigated leak of 200 litres is considered. This would be a single short term event.

(iii) Use of wet cement is a requirement during construction. Runoff water from recent cemented areas will result in highly alkaline water with high pH. As this would only occur during particular phases of work this is again considered as a single short term event rather than ongoing.

(iv) Construction requires soil excavation and removal. Unmitigated run-off could contain a high concentration of suspended solids during earthworks. This could be considered an intermittent short term event i.e. if adequate mitigation measures were not incorporated in the construction plan.

It is noted that the proposed development site is surrounded by development which already has stormwater infrastructure in place and as such this built infrastructure provides additional attenuation for run-off prior to discharging to the natural waterways.

Operation

During operation, the primary contaminant of concern is hydrocarbons, should an accidental and unmitigated leak occur due to vehicle accident. Interceptors are included in the design storm water infrastructure. However, this assessment considers the risk in the absence of this mitigation. Metals and suspended solids will generally be adsorbed close to the road source within existing storm drainage.

3.2 Assessment of Pathways

The following pathways have been considered within this assessment. Impact assessment is presented in Section 3.4.

(i) Vertical migration to the underlying limestone is minimised due to the natural soil cover providing aquifer protection from any localised diesel/fuel oil spills during construction or operation. The site is generally underlain by a *Locally Important Limestone Aquifer* characterised by discrete local fracturing with little connectivity rather than large connected fractures which are indicative of Regional Aquifers. As such flow paths are local.

(ii) There is an indirect pathway through man made drainage infrastructure (described in section 2) which provides a pathway to the River Morell and Castlesize River, which are tributaries of the Liffey. However, the distance between the project site and the Dublin Bay European Sites occurring within the zone of influence of the project is approximately 47km. The hydrological pathway consists of the Castlesize River and the Morell River and the discharge of surface water from the road corridor to these watercourses and the Liffey Catchment. The Castlesize River drains into the River Liffey approximately 4.7km downstream of the project site. Prior to draining to the River Liffey the Castlesize River first drains to an artificial pond to the west of Naas town, approximately 1.6km downstream of the project site. This pond forms an existing “natural” break along the hydrological pathway between the project site and the River Liffey, and provides natural attenuation and settlement of suspended solids from the upstream section of this watercourse. The Morell River drains to the River Liffey approximately 11.2km downstream of the proposed surface water outfall. Prior to draining to the Morell River the surface pathway conveying surface water from the proposed road will first discharge to an existing drainage ditch with a shallow gradient before merging with the Morell River, again this ditch provides ample capacity for attenuaton and natural degradation.

3.3 Assessment of Receptors

The site is hydrologically linked (to the following European Sites occurring at Dublin Bay:
North Dublin Bay SAC;
North Bull Island SPA; and
South Dublin Bay River Tolka Estuary SPA.

These European Sites are located approximately 43km downstream from the project site.
The potential for linkages between the project and the otter population of the Wicklow Mountains SAC has also been identified by the project ecologist.

The receptors considered are:

(i) Underlying limestone aquifer
(ii) River Morell and Castlesize River and,

(iii) Liffey Estuary and Dublin Bay

3.4 Assessment of Source Pathway Receptor Linkages

This section assesses the plausible pollutant linkages considered as part of the assessment and a review of the assessed risk is summarised below. This hydrological environmental assessment was completed without regard to the various surface water management design features that will be implemented as part of the project.

- The overburden thickness and a lack of fracture connectivity within the "locally important" limestone will minimise the rate of offsite migration for any indirect discharges to ground at the site.

- During construction, the primary contaminants of concern are hydrocarbons and suspended solids. There is very limited potential for accidental contamination during construction as any required bulk storage of fuels will be within the construction compound. As such the only potential leakage along the route corridor is a single construction vehicle leak i.e. maximum 200-500 litres. This will normally readily attenuate locally within soil and man existing drainage infrastructure. However, should any hydrocarbon contaminated run-off enter open surface water it will become quickly diluted downstream. Based on the flow and shallow gradient noted in the drainage catchment natural degradation will easily occur within < 1 kilometre of the discharge point to the receiving watercourses. Should run-off with elevated suspended solids reach the Morell or Castlesize rivers, it will readily attenuate to background within 1 kilometre. As such the potential for a change in water quality as a result of an accidental emission during the construction of the route will be negligible and imperceptible within the Castlesize and Morell Rivers and will not result in significant impacts to the status of these watercourses.

- The proposed construction compound will be located a minimum of 250m from the nearest point of the Castlesize River and the Morell River and is not directly connected to or in the immediate vicinity of any drainage ditch. There is no direct source pathway linkage. The location of the compound away from receiving watercourses will ensure there is no risk of contaminated surface water being released from the construction compound to the Liffey catchment during the construction phase.

- During the operation phase of the proposed Naas Inner Relief Road the risk of accidental spillage and subsequent discharge of potentially polluting material to the Morell or Castlesize Rivers will be negligible and imperceptible. This is based on:

    - the low speed limit of 50kph that will apply;

    - the low risk of heavy good vehicles (HGVs) accidents given the low speed limit and design layout of the road in accordance with DMURS. It is noted that the risk of accidental spillage and a pollution incident on any road is proportionate to the risk of a HGV road traffic collision (TII, 2015).

- The design and provision of the proposed road, which aims to support the Road Safety Authority (RSA) Road Safety Strategy 2013 – 2020 by alleviating the congestion currently experienced on Naas Town Centre is anticipated to result in a reduction in collisions in the surrounding road network.

- Even in the absence of considering any design measures that will manage, control and treat runoff during the construction phase and operation phase, an accidental release of potentially contaminating material (due to a collision or release from a tanker etc.), there will be no likely water quality impact within 1 kilometre of the site. Any impact to the receiving Morell River or Castlesize River would be localised and temporary and will not result in any likely significant effects to the water quality of these watercourses.

- Routine stormwater runoff from the proposed Naas Inner Relief Road will not have the potential to represent a risk of pollution to the receiving Castlesize River, the Morell River and the River Liffey downstream.

- The volumes of surface water draining the project site represents a miniscule fraction of the volumes discharging to the Liffey catchment downstream of the project site and the Liffey Estuary upstream of the Dublin Bay European Sites. In the very unlikely event that contaminated surface waters enter the Castlesize River or the Morell River, based on what is set out above, any associated pollutants will be adequately diluted and degraded before reaching lower sections of the Liffey catchment and in those circumstances no likely significant effects will arise.

- The presence of lake waterbodies, which include an un-name lake along the Castlesize River downstream of the project site and the Leixlip Reservoir, between the project site and Dublin Bay will act as an attenuation pond. The presence of these lakes will aid in settlement in the unlikely event that pollutants arise and reduce potential for contaminants reaching the downstream Liffey catchment.

- Finally other studies have shown that pollutants in the Liffey Estuary are rapidly mixed and become diluted within the estuary and Dublin Bay. This has been shown in model predictions undertaken by O'Higgins and Wilson, 2005, as part of an EIA for the WWTP in 2012 and in the recent EIAR (2018) submitted by Dublin City Council (DCC) regarding Ringsend WWTP planning upgrades. This again indicating that any potential for the release of contaminants to the Castlesize River or the Morell River during the project will not have the potential to result in any perceptible effect to water quality 47 km downstream at Dublin Bay and so will not have any likely significant effects.

4.0 Conclusions

A conceptual site model (CSM) has been prepared following a desk top review of the site and surrounding environs. On the basis of this CSM, plausible source-pathway-receptor linkages have been assessed assuming no mitigation measures in place at the proposed

development site.

The potential impact of the project to the receiving aquatic environment during both the construction phase and operation phase will be neutral and imperceptible i.e. an impact capable of measurement but without significant consequences (following EPA draft EIA Guidelines 2018).

In line with good practice, mitigation measures have been included in the construction design, management of construction programme and during operation of the proposed road. These measures will provide further protective measures to receiving soil and water. However, the protection of downstream Special Areas of Conservation is in no way reliant on these measures.

5.0 References

Consultation with Design Engineers CSEA.

Environmental Protection Agency On line mapping https://gis.epa.ie/EPAMaps/

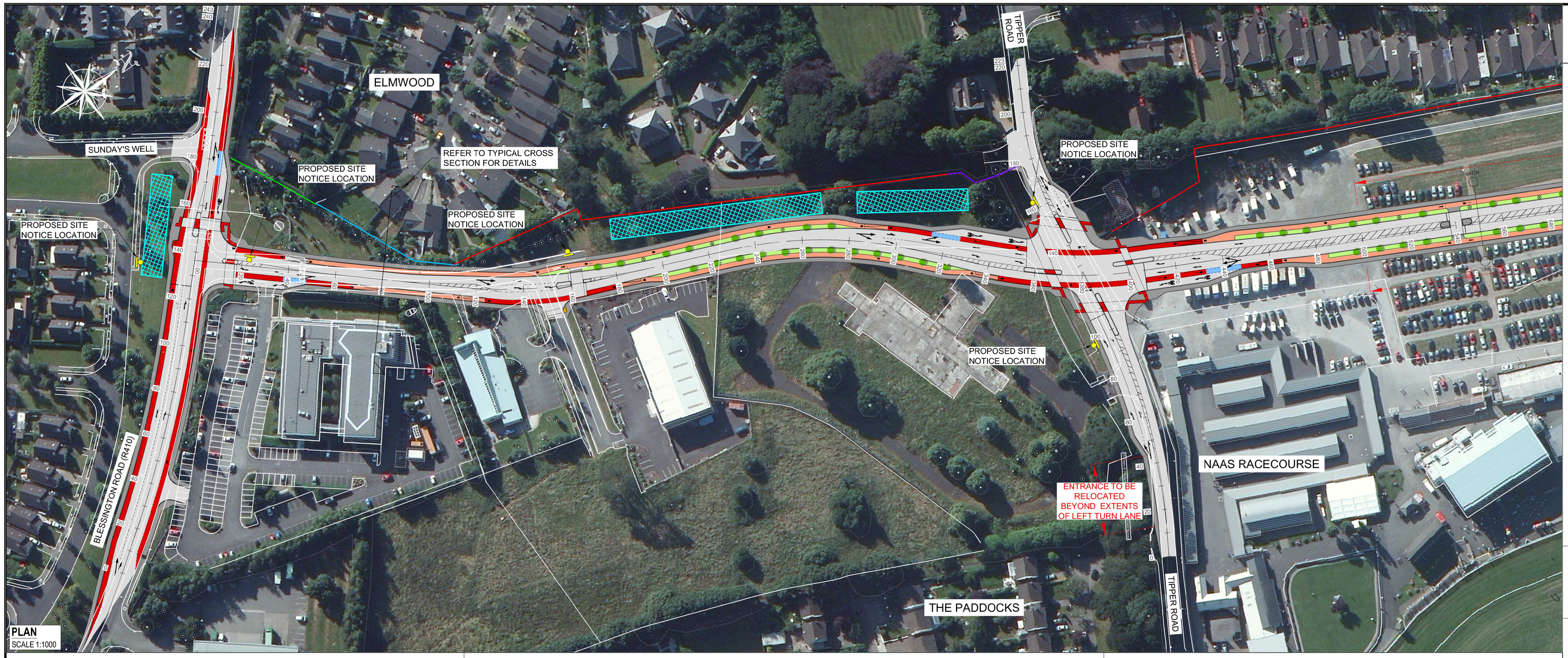
Geological Survey of Ireland On line mapping https://gis.gsi.ie

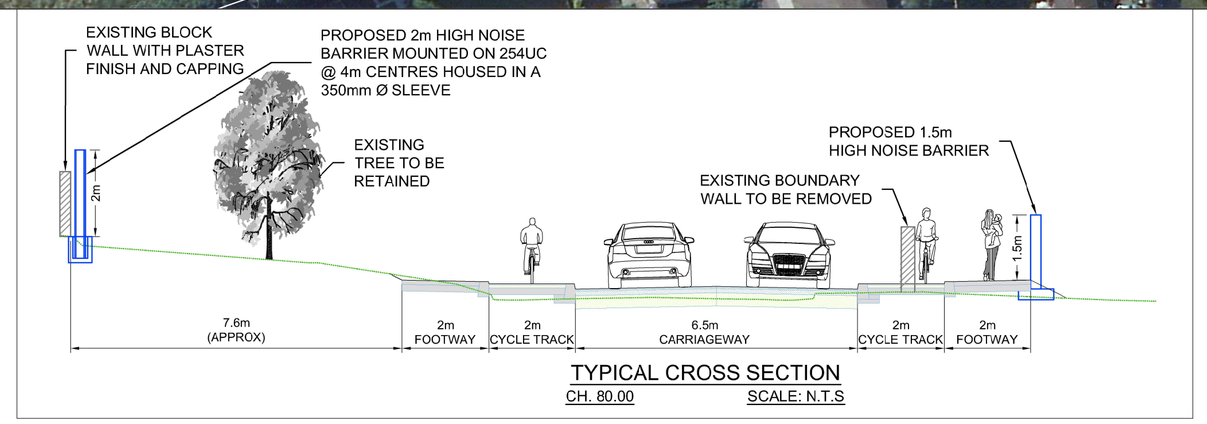
Irish Water (2018). Ringsend Wastewater Treatment Plant Upgrade Project Environmental Impact Assessment Report. Water quality data from volume 3, section 4 and Appendix 4A. Report by TJ O'Connor and Associates Consulting Engineers, Barry and Partners Consulting Engineers and Royal Haskoning DHV on behalf of Irish Water.

APPENDIX 3: SCHEME DRAWINGS

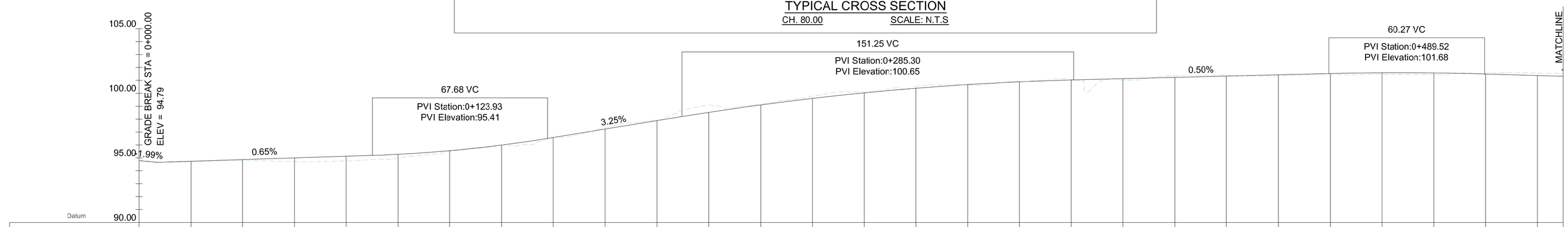
This drawing is produced using the Irish Transverse Mercator (ITM) Geographic Coordinate System

A1





TYPICAL CROSS SECTION
CH. 80.00 SCALE: N.T.S



Chainage	Proposed Levels	Existing Levels	Level Difference
00.000	94.791	94.791	0.000
20.000	94.738	94.698	0.040
40.000	94.867	94.791	0.076
60.000	94.997	94.716	0.281
80.000	95.126	94.758	0.368
100.000	95.274	94.991	0.283
120.000	95.557	95.517	0.040
140.000	95.993	96.009	-0.016
160.000	96.583	96.566	0.016
180.000	97.233	97.341	-0.108
200.000	97.883	97.930	-0.048
220.000	98.523	99.098	-0.575
240.000	99.099	99.156	-0.057
260.000	99.602	99.772	-0.169
280.000	100.033	100.112	-0.079
300.000	100.391	100.520	-0.129
320.000	100.676	100.656	0.020
340.000	100.889	100.907	-0.018
360.000	101.028	101.082	-0.054
380.000	101.128	100.992	0.137
400.000	101.228	101.364	-0.135
420.000	101.328	101.391	-0.062
440.000	101.428	101.362	0.067
460.000	101.528	101.450	0.078
480.000	101.590	101.473	0.117
500.000	101.578	101.444	0.135
520.000	101.494	101.574	-0.080
540.000	101.375	101.568	-0.192

Vertical Geometry: G =-1.992% L =6.907; G =0.647% L =83.174; R =2601.701 K =26.000 L =67.675; G =3.250% L =51.941; R =5503.420 K =55.000 L =151.250; G =0.500% L =98.433; R =5500.053 K =55.000 L =60.271

Horizontal Geometry: L =6.907; L =104.265; R: 200.000 L: 65.204; L =51.873; R: 180.000 L: 78.389; L =33.905; R: 180.000 L: 64.043

PREFERRED ROUTE PROFILE
SCALE: 1:1000 HORIZONTAL
1:200 VERTICAL

LEGEND:

—	PROPOSED 2m HIGH NOISE BARRIER CONSTRUCTED INFRONT OF EXISTING PLASTERED BLOCK WALL
—	EXISTING FENCE (POST & RAIL) TO BE REPLACED BY 2m HIGH NOISE BARRIER
—	EXISTING CONCRETE WALL WITH CAPPING TO BE EXTENDED TO 3m HIGH INCLUDING NOISE BARRIER
—	EXISTING PANEL FENCE TO BE REPLACED WITH 2m HIGH NOISE BARRIER
—	EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TO 3.5m HIGH INCLUDING NOISE BARRIER
—	EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TO 1.5m HIGH INCLUDING NOISE BARRIER
- - -	EXISTING PLASTERED BLOCK WALL WITH RAILING TO BE REMOVED
—	PROPOSED 1.5m HIGH NOISE BARRIER
—○—	PROPOSED 3.5m HIGH NOISE BARRIER
-·-	PROPOSED 2m HIGH POST AND PANEL NOISE BARRIER
— —	PROPOSED 2m HIGH BLOCK WALL
⬜	PROPOSED CARRIAGEWAY
🟧	PROPOSED CYCLE TRACK
🟥	PROPOSED CYCLE LANE
🟦	PROPOSED CYCLE LANE / LEFT TURN CONFLICT ZONE
⬛	PROPOSED FOOTPATH
🟫	PROPOSED SHARED SURFACE
🟩	PROPOSED GRASS VERGE, TREES & PUBLIC LIGHTING
▨	POTENTIAL SITE COMPOUND LOCATION A
▨	POTENTIAL SITE COMPOUND LOCATION B
▩	PROPOSED ATTENUATION TANK LOCATION

Rebuilding Ireland

Kildare County Council
Comhairle Contae Chill Dara

Revision	Description	Drw'n	Chk'd	Date
P02	PLANNING	DC	CAB	22.02.2019
P01	FOR INFORMATION	DC	GE	08.01.2019

Clifton Scannell Emerson Associates

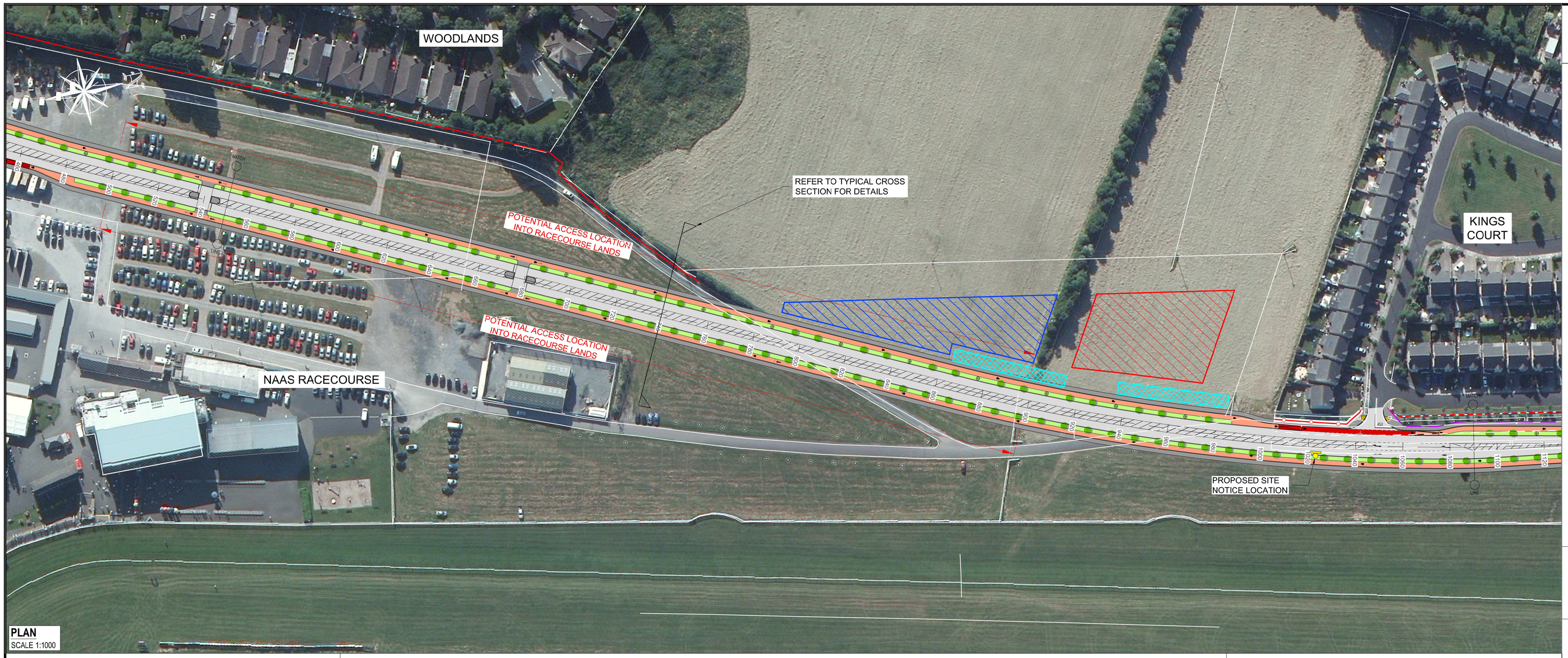
Clifton Scannell Emerson Associates Limited
Consulting Engineers,
Seafort Lodge,
Castledawson Avenue,
Blackrock, Co. Dublin,
Ireland, A94 P768

T. +353 1 288 5006
F. +353 1 283 3466
E. info@csea.ie
W. www.csea.ie

Client: KILDARE COUNTY COUNCIL
Project: NAAS INNER RELIEF ROAD
Dwg. Title: PROPOSED NAAS INNER RELIEF ROAD PLAN & LONGSECTION - SHEET 1 OF 3
Drawn By: DC Date: 08.01.2019
Checked by: GE Scale: AS INDICATED @ A1

Project Code	Originator	Zone/Phase	Level	Type	Role	Dwg. No.
17_169	CSE	HML	XX	DR	C	2201

Status Code: S2 Suitability Description: SUITABLE FOR INFORMATION
Revision: P02 Project Status: PLANNING
CSEA Job No.: 17_169



PLAN
SCALE 1:1000

This drawing is produced using the Irish Transverse Mercator (ITM) Geographic Coordinate System

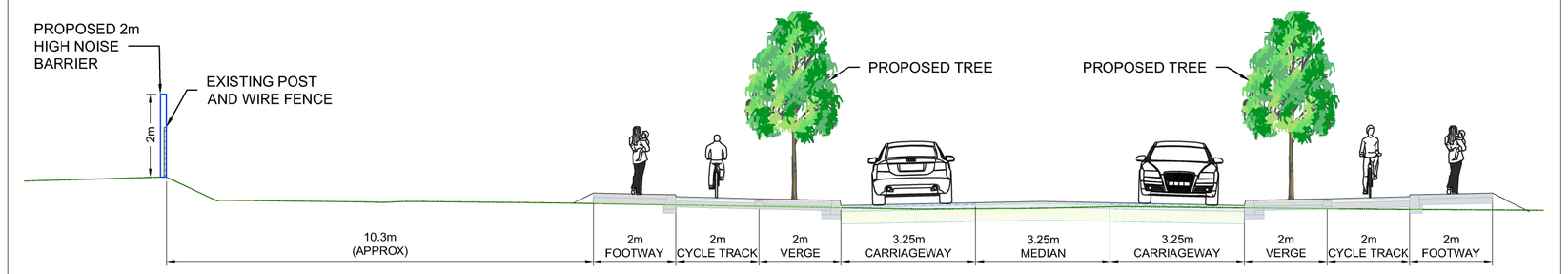
A1

LEGEND:

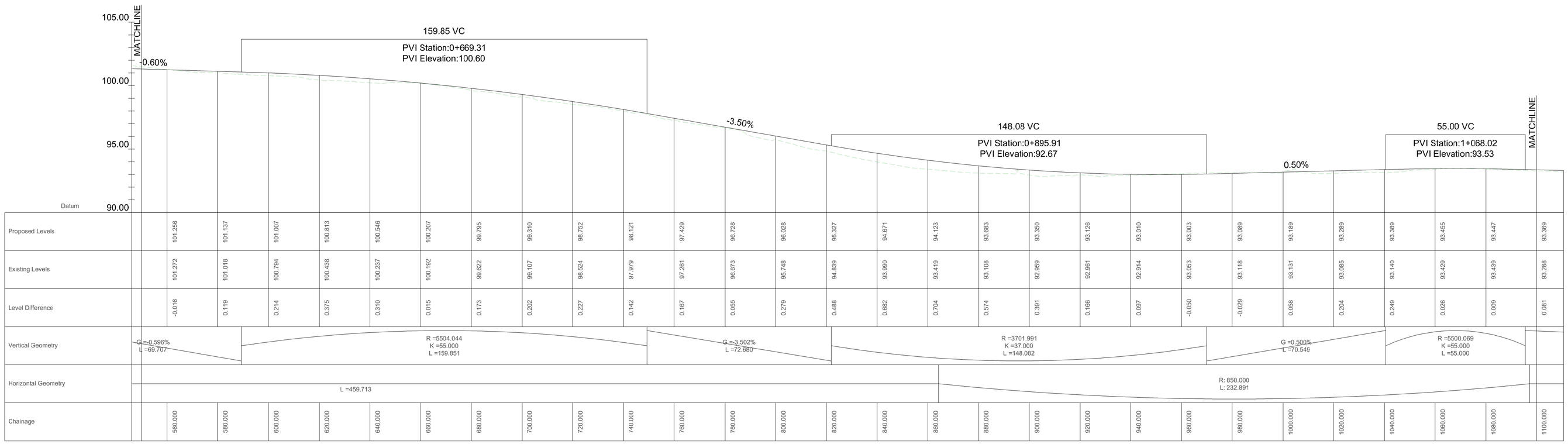
- PROPOSED 2m HIGH NOISE BARRIER CONSTRUCTED INFRONT OF EXISTING PLASTERED BLOCK WALL
- EXISTING FENCE (POST & RAIL) TO BE REPLACED BY 2m HIGH NOISE BARRIER
- EXISTING CONCRETE WALL WITH CAPPING TO BE EXTENDED TO 3m HIGH INCLUDING NOISE BARRIER
- EXISTING PANEL FENCE TO BE REPLACED WITH 2m HIGH NOISE BARRIER
- EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TO 3.5m HIGH INCLUDING NOISE BARRIER
- EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TO 1.5m HIGH INCLUDING NOISE BARRIER
- EXISTING PLASTERED BLOCK WALL WITH RAILING TO BE REMOVED
- PROPOSED 1.5m HIGH NOISE BARRIER
- PROPOSED 3.5m HIGH NOISE BARRIER
- PROPOSED 2m HIGH POST AND PANEL NOISE BARRIER
- PROPOSED 2m HIGH BLOCK WALL
- PROPOSED CARRIAGEWAY
- PROPOSED CYCLE TRACK
- PROPOSED CYCLE LANE
- PROPOSED CYCLE LANE / LEFT TURN CONFLICT ZONE
- PROPOSED FOOTPATH
- PROPOSED SHARED SURFACE
- PROPOSED GRASS VERGE, TREES & PUBLIC LIGHTING
- POTENTIAL SITE COMPOUND LOCATION A
- POTENTIAL SITE COMPOUND LOCATION B
- PROPOSED ATTENUATION TANK LOCATION

Rebuilding Ireland

Kildare County Council
Comhairle Contae Chill Dara



TYPICAL CROSS SECTION
CH. 740.00 SCALE: N.T.S



PREFERRED ROUTE PROFILE
SCALE: 1:1000 HORIZONTAL
1:200 VERTICAL

Revision	Description	Drw'n	Chk'd	Date
P02	PLANNING	DC	CAB	22.02.2019
P01	FOR INFORMATION	DC	GE	08.01.2019

Clifton Scannell Emerson Associates

Clifton Scannell Emerson Associates Limited
Consulting Engineers,
Seafort Lodge,
Castledawson Avenue,
Blackrock, Co. Dublin,
Ireland, A94 P768

T. +353 1 288 5006
F. +353 1 283 3466
E. info@csea.ie
W www.csea.ie

Client: KILDARE COUNTY COUNCIL

Project: NAAS INNER RELIEF ROAD

Dwg. Title: PROPOSED NAAS INNER RELIEF ROAD PLAN & LONGSECTION - SHEET 2 OF 3

Drawn By: DC | Date: 08.01.2019

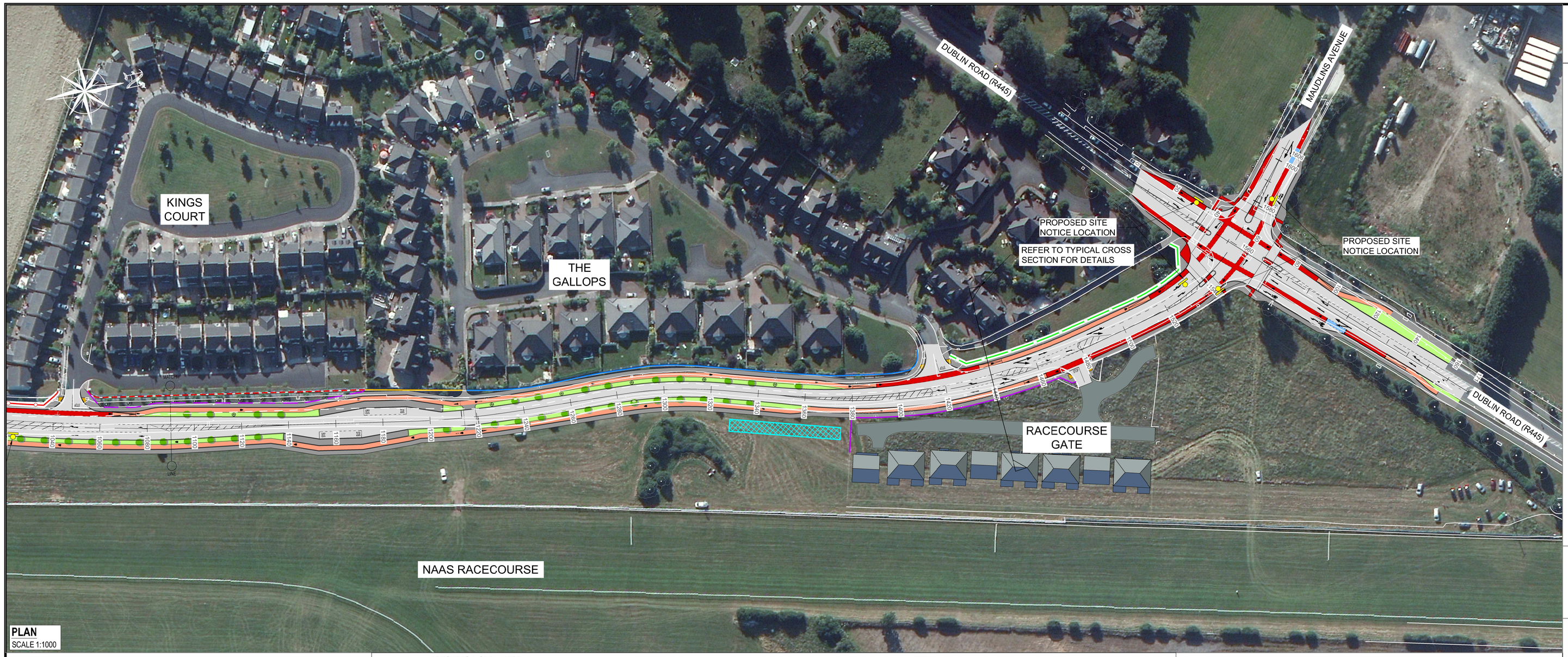
Checked by: GE | Scale: AS INDICATED @ A1

Project Code	Originator	Zone/ Phase	Level	Type	Role	Dwg. No.
17_169	CSE	HML	XX	DR	C	2202

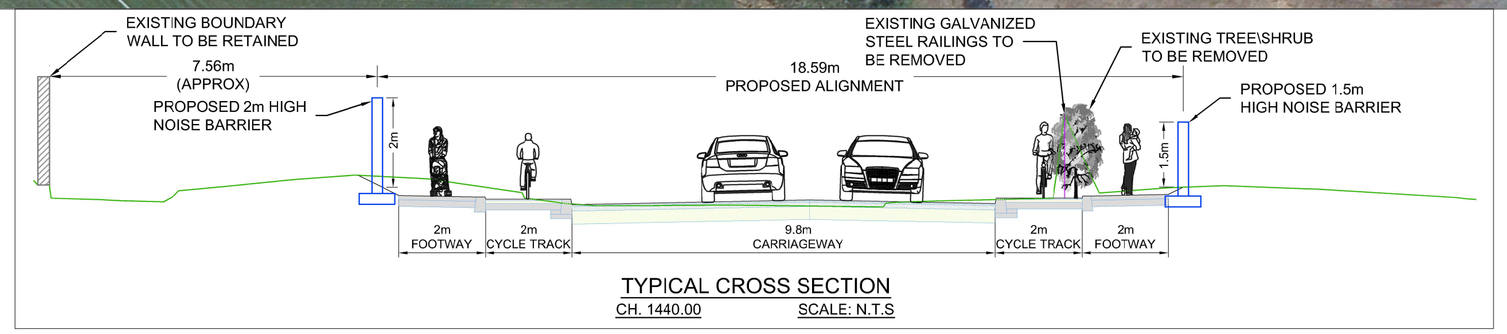
S2 — SUITABLE FOR INFORMATION (Status Code / Suitability Description)

P02 — PLANNING (Revision / Project Status)

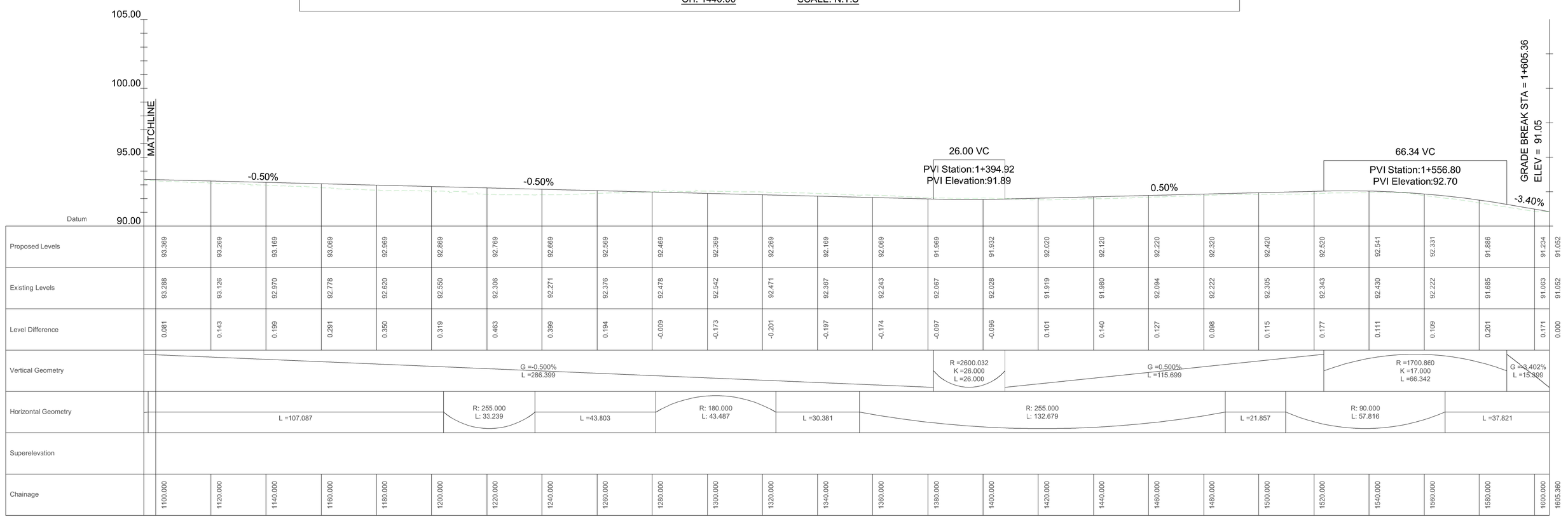
17_169 (CSEA Job No.)



PLAN
SCALE 1:1000



TYPICAL CROSS SECTION
CH. 1440.00 SCALE: N.T.S



PREFERRED ROUTE PROFILE
SCALE: 1:1000 HORIZONTAL
1:200 VERTICAL

This drawing is produced using the Irish Transverse Mercator (ITM) Geographic Coordinate System

A1

LEGEND:

- PROPOSED 2m HIGH NOISE BARRIER CONSTRUCTED INFRONT OF EXISTING PLASTERED BLOCK WALL
- EXISTING FENCE (POST & RAIL) TO BE REPLACED BY 2m HIGH NOISE BARRIER
- EXISTING CONCRETE WALL WITH CAPPING TO BE EXTENDED TC 3m HIGH INCLUDING NOISE BARRIER
- EXISTING PANEL FENCE TO BE REPLACED WITH 2m HIGH NOISE BARRIER
- EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TC 3.5m HIGH INCLUDING NOISE BARRIER
- EXISTING BRICK WALL WITH GALVANIZED RAILING EXTENDED TC 1.5m HIGH INCLUDING NOISE BARRIER
- EXISTING PLASTERED BLOCK WALL WITH RAILING TO BE REMOVED
- PROPOSED 1.5m HIGH NOISE BARRIER
- PROPOSED 3.5m HIGH NOISE BARRIER
- PROPOSED 2m HIGH POST AND PANEL NOISE BARRIER
- PROPOSED 2m HIGH BLOCK WALL
- PROPOSED CARRIAGEWAY
- PROPOSED CYCLE TRACK
- PROPOSED CYCLE LANE
- PROPOSED CYCLE LANE / LEFT TURN CONFLICT ZONE
- PROPOSED FOOTPATH
- PROPOSED SHARED SURFACE
- PROPOSED GRASS VERGE, TREES & PUBLIC LIGHTING
- POTENTIAL SITE COMPOUND LOCATION A
- POTENTIAL SITE COMPOUND LOCATION B
- PROPOSED ATTENUATION TANK LOCATION

Rebuilding Ireland

Kildare County Council
Comhairle Contae Chill Dara

Revision	Description	Drw'n	Chk'd	Date
P02	PLANNING	DC	CAB	22.02.2019
P01	FOR INFORMATION	DC	GE	08.01.2019

Clifton Scannell Emerson Associates

Clifton Scannell Emerson Associates Limited
Consulting Engineers,
Seafort Lodge,
Castlectawson Avenue,
Blackrock, Co. Dublin,
Ireland, A94 P768

T: +353 1 288 5006
F: +353 1 283 3466
E: info@csea.ie
W: www.csea.ie

Client: KILDARE COUNTY COUNCIL

Project: NAAS INNER RELIEF ROAD

Dwg. Title: PROPOSED NAAS INNER RELIEF ROAD PLAN & LONGSECTION - SHEET 3 OF 3

Drawn By: DC Date: 08.01.2019

Checked by: GE Scale: AS INDICATED @ A1

Project Code	Originator	Zone/ Phase	Level	Type	Role	Dwg. No.
17_169	CSE	HML	XX	DR	C	2203

S2 SUITABLE FOR INFORMATION
Status Code Suitability Description

P02 PLANNING
Revision Project Status

17_169
CSEA Job No.