Appropriate Assessment Screening

Castlemartyr WwTP Upgrade

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Contents

Introduction

Irish Water are seeking planning permission to upgrade Castlemartyr Waste Water Treatment Plant (WwTP) in Co. Cork, in order to increase capacity and provide improved treatment ('the Project'). The purpose of this report is to provide information to assist the competent authority, in this case Cork Co.Co., to carry out an Appropriate Assessment (AA) Screening determination with respect to the proposed Project.

Castlemartyr village lies within an agricultural landscape on the N25 ca. 8km east of Midleton. The WwTP site is to the south of the village off the R632, immediately adjacent to the entrance into the Castlemartyr Estate hotel grounds. The existing site is within a wooded area at the northern end of Mitchells Wood, part of the Castlemartyr Woodway, a Coillte forest and recreation area. The Womanagh River (also known as the Kiltha River) flows southwards to the west of the site. The adjacent estate includes further woodlands associated with the Woodway (Pigeons Wood), open parkland and a golf courses.

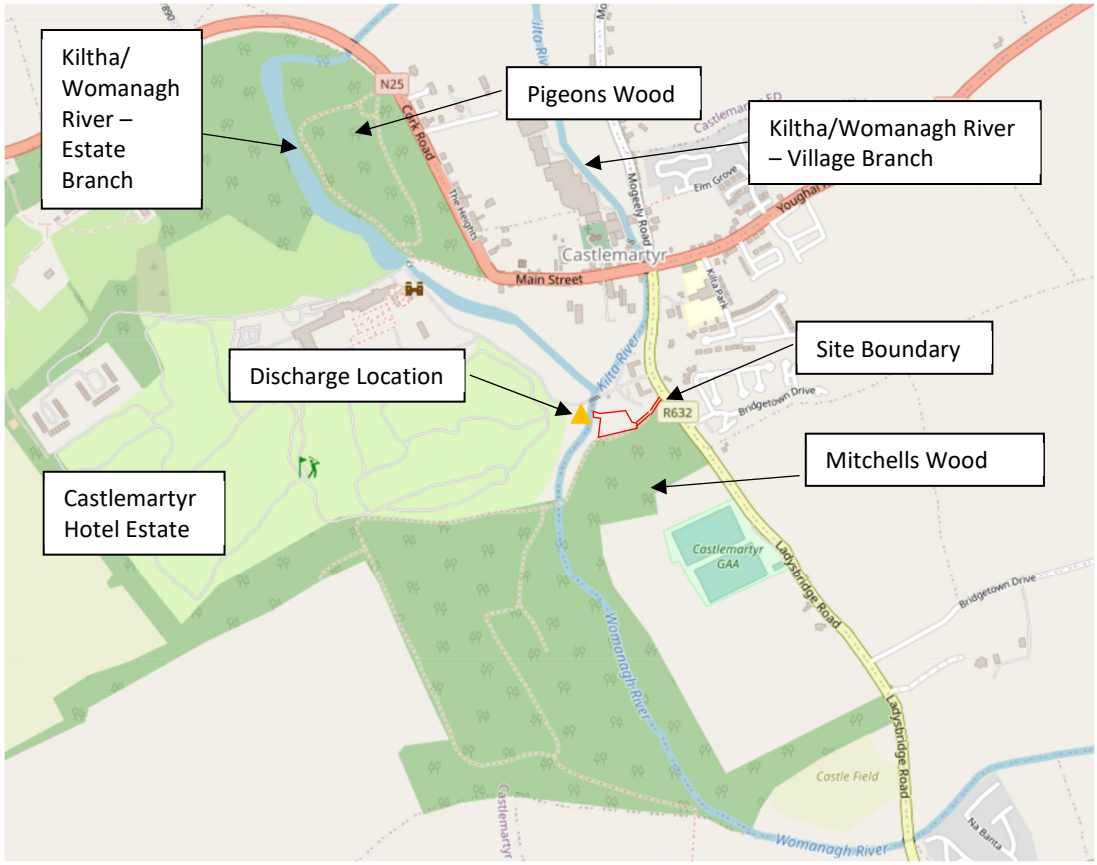

Figure 1 Site Location (© OpenStreetMap contributors)

Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These sites, known as European Sites, are Special Areas of Conservation ('SAC') designated under the Habitats Directive (92/43/EEC) and Special Protection Areas ('SPA') designated under the Birds Directive (79/409/ECC).

AA Screening for Projects is required pursuant to Article 6(3) of the Habitats Directive 92/43/EEC and Part XAB of the Planning and Development Act 2000 (as amended), transposed into Irish Law by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Article 6(3) of the Habitats Directive states that:

> *Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

Article 6(3) provides for a two-stage process. The first stage, AA Screening, appraises whether a plan or project is likely to have significant effects on any European Site in view of best scientific knowledge and the conservation objectives of the site(s). If the competent authority determines that AA is required, the second stage is to carry out the Appropriate Assessment, informed by a Natura Impact Statement (NIS), which assesses whether the project shall adversely effect the integrity of any European Sites.

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

Statement of Authority

This assessment was completed by Kate Harrington MSc MCIEEM, an Ecologist who has 18 years' experience in undertaking ecological surveys and assessments in Ireland and abroad. Ms Harrington's experience includes the preparation of AA Screening, NIS, Ecological Impact Assessments, biodiversity studies and water quality studies for a range of infrastructure projects. She has extensive experience of reviewing and undertaking ecological assessments for Irish Water projects and activities as well as developing guidance documents and advising consultant engineers and ecologists regarding best practice. She currently works as a freelance ecologist and is pursuing a PhD in woodland ecology.

Methodology

Guidance Followed

- Office of the Planning Regulator (OPR). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. (OPR, 2021)

- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government, (DoEHLG, 2010).

- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg, (EC, 2018).

- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2021).

- Annex to the Commission notice to the Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC: Examples of practices, case studies, methods and national guidance. Office for Official Publications of the European Communities, Brussels (EC, 2021).

- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission. Office for Official Publications of the European Communities, Luxembourg, (EC, 2007).

- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013).

AA Screening Approach

This AA Screening has been structured as a stage by stage process as follows:

1. Description of the Project and Receiving environment;
2. Identification of European Sites within the Zone of Influence of the Project and the qualifying interest that could be affected by the Project;
3. Identification and description of impacts likely to result from the Project;
4. Assessment of the likely significance of any effects on the conservation objectives of the European Sites, alone and in-combination with other Plans or Projects;
5. Screening conclusion.

Following the above-referenced legislation and guidelines this assessment is based on the following understanding:

- The **Zone of Influence** (ZoI) is determined by identifying whether a **source-pathway-receptor** connection existing between the Project and a European Site. If a European Site is within the ZoI it does not lead to an automatic conclusion of likely significant effects which will depend on the specific characteristics of the source, pathway and receptor including factors such as: the magnitude, type, extent, duration, intensity, timing and probability of the impact; the nature and extent of the pathway; the vulnerability of the habitats and species concerned; and the presence of potential in-combination impacts. The ZoI should not be established on the basis of arbitrary distances (e.g. 15km buffer).

- A **likely significant effect** is, any effect that may reasonably be predicted as a consequence of a plan or project that would negatively and significantly affect the conservation objectives established for the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s).. If there is any scientific uncertainty as to the absence of significant effects, the project must be screened in for AA (i.e. the **precautionary principle** must be followed).

- The screening decision should provide some guidance on the scope of the AA that is to follow and on likely significant impacts to be studied.

- The assessment of in-combination effects should include:
    - Projects completed;
    - Projects approved but not started or uncompleted;
    - Projects proposed, i.e. for which an application for approval or consent has been made, including refusals subject to appeal and not yet determined;
    - Proposals in adopted plans; and
    - Proposals in finalised draft plans formally published or submitted for consultation or adoption.

- Any measure or feature of the development that is wholly or partially included in order to avoid or reduce impacts to European sites cannot be considered for the purposes of screening out the need for appropriate assessment. This AA Screening assessment places no reliance on any such measures or features.

Desk Study

The sources of available desktop information used to inform the assessment included:

- The National Parks and Wildlife Service (NPWS) natural heritage database (www.npws.ie) was consulted for designated sites of nature conservation interest in the study area;
- The National Biodiversity Data Centre (NBDC) species database (http://www.biodiversityireland.ie/) and BSBI database https://database.bsbi.org/ were consulted to obtain species records in the study area. Searches for desktop records of relevance focused on the 2km square around the site. The site lies within the top left section of monad (1 km square) W9672 which also includes the eastern half of Mitchells Wood. Adjacent monads are W9673 (Castlemartyr Village), W9573 (Castlemartyr estate and Pigeons wood) and W9572 (Castlemartyr estate and western half of Michell's Wood).
- The Environmental Protection Agency mapping system (https://gis.epa.ie/EPAMaps/), and www.catchments.ie website for data related to water quality;
- The Inland Fisheries Ireland (IFI) website and www.wfdfish.ie website for fisheries data;
- Ordnance Survey Ireland mapping and aerial photography from http://map.geohive.ie/;
- Geological Survey Ireland (GSI) data and maps https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx ; and
- Information on the conservation status of birds in Ireland from Birds of Conservation Concern in Ireland https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/

Field Study

A multi-disciplinary ecological survey (Extended Phase 1 Habitat Survey) was carried out by the author on January 19th and 20th 2022. The vegetation on the site was identified and habitats on site were classified in accordance with The Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000)[1] and the Annex I interpretation manual. [2] Habitats were then mapped in accordance with the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011)[3]. In terms of fauna, the site and surrounding lands were walked and any sights or signs of mammals, birds, amphibians or invertebrates recorded. Further specialist bat and bird surveys were undertaken over the summer of 2022. These are appended to the EcIA for this Project.

In the context of AA Screening, particular attention was paid to identifying the presence of, or potential for, qualifying habitats or species (including ex-situ populations) using the site and surrounding area, as well as potential pathways for effects to European Sites.

The EPA monitoring biological water quality upstream at Castlemartyr village bridge however there is no comparable downstream monitoring point. The river was therefore sampled at the woodland footbridge ca. 210m downstream of the discharge point (Figure 2). The assessment involved kick sampling for

[1] https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf
[2] Interpretation Manual of European Union Habitats – EUR28
https://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf
[3]https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf

macroinvertebrates and subsequent application of the EPA Q-rating scheme (Toner et al, 2003)[4]. The Q rating scheme involves assigning a water quality rating considering the relative abundance of pollution tolerant and pollution sensitive species (Groups A to E), along with other biotic and physio-chemical indicators. The river in the vicinity of the discharge and downstream was also visually assessed for any indicators of pollution.

Figure 2 Site Survey Area (Google Maps Imagery © 2022 CNES/Airbus, Maxar Technologies, Map data © 2022)

[4] Toner, P., Bowman, K., Clabby, G., Lucey, J., McGarrigle, M, Concannon, C., Clenaghan, C., Cunningham, P., Delaney, J., O'Boyle, S., MaCarthaigh, M., Craig, M., and Quinn, R. (2005). Water Quality in Ireland 2001-2003. Environmental Protection Agency, Wexford.

Consultation

INIS Environmental Consultants undertook consultation with the DAU and IFI in 2020 on behalf of Irish Water. No response was received from the DAU. IFI noted the following:

"(…) *Inland Fisheries Ireland welcomes the proposed upgrade to Castlemartyr waste water treatment facilities given the likely resulting improvements in effluent quality discharging to the receiving Kiltha river. The Kiltha river provides a recreational angling resource to local residents and holds stocks of Brown trout and has a modest run of Atlantic salmon. Other fish species present in the catchment include Yellow eel, and Stoneloach, and Lamprey spp. Inland Fisheries Ireland would stress the importance of protecting receiving surface waters from deleterious discharges during the proposed works. This may be achieved via the employment of relevant site mitigations during construction, also in scheduling activity to allow for the maintenance of treatment capacity during same or alternatively to arrange the export of effluent from the plant during any period of unavoidable interruption to the plant capacity as a consequence of the works*. (…)".

Description of Project & Receiving Environment

Description of the Proposed Development

The development will consist of the expansion and upgrade of the existing Castlemartyr WwTP to facilitate an increased treatment capacity and capability. The proposed works will comprise of:

- Provision of c.32m of below ground inlet sewer;
- An emergency stormwater overflow chamber;
- Upgrade of the existing inlet works including 2 no. fine screens and grit removal;
- A 19m³ forward feed pumping station; secondary / biological treatment facilities (include: 1 no. anoxic / aeration tank and 2 no. 8m diameter settlement tanks;
- Tertiary treatment for phosphorus removal comprising chemical dosing and filtration including 1 no. disc filter;
- Sludge management system including the re-purpose of the existing clarifier tank to new picket fence thickener; above-ground storm tank with 255m³ storage,
- Provision of c.15m of below ground outfall pipeline to discharge flows to the existing outfall location at the River Kiltha;
- New treated effluent outfall headwall to River Kiltha – discharging to existing outfall location;
- A new ESB sub-station building (c.21sq.m.);
- A new control building (c.80.6sq.m.); a new permanent generator and fuel tank (c.8m³);
- Upgrade of the existing access road within the WwTP boundary;
- Boundary fencing and treatments; and
- All associated site development works above and below ground on a site of c.0.34 hectares.

The proposed layout and a hydraulic profile drawing is provided in Appendix A.

Construction stage

The proposed works will require clearance of trees and vegetation, including invasive species, within the Project site fenceline. The deepest tank excavation is estimated to be 3.3m below ground level, while the deepest sewer excavation will be 1.3m below ground level. Works are required to the entrance laneway to provide pedestrian access and to lay a watermain, but no tree-felling will be required in this area. Tracked excavators and rigid lorries will be used for works. Minor excavations may be carried out using smaller excavators and 6t dumpers. The proposed outfall sewer will be laid from the final effluent manhole to the existing discharge location using an open-cut method. The new headwall will be installed at the riverbank edge and existing discharge location. The outfall headwall will be a pre-cast unit. This will be lowered into place from the landward side of the works by a suitably sized excavator. This element of the works on the river bank, including installing the new headwall, will take no more than 8 days to complete. Works are expected to commence in January 2023, starting with vegetation clearance and tree-felling, and be completed by January 2025.

Operational stage

The current discharge licence specifies ELV's of BOD 15mg/l, COD 125mg/l, SS 35mg/l, pH 6-9 pH units, Ammonia 0.5mg/l and Orthophosphate 0.5mg/l. Considering flow data, assimilative capacity, treatment capabilities, and increased capacity, the proposed scheme has been designed to achieve ELV's of BOD 6.63mg/l, Ammonia 0.68mg/l and Orthophosphate 0.22mgl while ensuring adequate assimilative capacity remains for downstream inputs. These ELV's ensure Good status water chemistry requirements under the WFD are met.

The results presented below consider the average background water quality (capturing upstream pressures), the notionally clean background water quality (considering the impact of the WwTP alone), the low river flow estimate of 0.09422m3/sec, and a PE of 3400 discharging a load of 225l/day (per PE). The upstream data is a mean figure of data from EPA monitoring at Castlemartyr Bridge (RS19W011000) from Sept 2018 to Sept 2021. They demonstrate that compared with the Surface Water Regulations standards (EQS) Good status conditions are maintained downstream at the maximum PE in low flow conditions.

Table 1: Assimilative Capacity Calculations

Parameter	Background		WWDL ELV	Predicted D/S Concentration	SW Regs EQS
BOD	Actual	1.511	6.63	1.950	≤2.6 (good) ≤2.2 (high)
	Notionally Clean	0.260		0.807	
Ortho-phosphate	Actual	0.041	0.22	0.056	≤0.075 (good) ≤0.045 (high)
	Notionally Clean	0.005		0.023	
Ammonia	Actual	0.051	0.68	0.105	≤0.14 (good) ≤0.090 (high)
	Notionally Clean	0.008		0.065	

Overview of the Receiving Environment

Hydrology & Hydrogeology

The WwTP discharges to the Womanagh/Kiltha River. This reach of the river is within the Womanagh_020 waterbody which is currently assigned Moderate WFD status (2013-2018). The Moderate status is driven by Moderate Phytobenthos or Potential, and Moderate Nitrate conditions. Upstream of Castlemartyr the Womanagh_010 waterbody is assigned Good WFD status. The river splits just upstream of Castlemartyr village, with a branch flowing through Castlemartyr estate and a branch continuing through the village (Refer to Figure 1). The estate branch is wide and slow flowing creating lake-like conditions due to being impounded behind a weir. Both branches re-join ca. 70m upstream of the WwTP discharge point. Approximately 1km downstream of the discharge point, the Dower stream joins the Womanagh River. The River then continues 9km via the unassigned Womanagh_030 waterbody, to the unassigned Womanagh estuary waterbody, before entering the Irish Sea in Youghal Bay which is assigned Moderate status (due to Moderate oxygenation conditions).

The EPA monitoring biological water quality at station RS19W011000 (Br in Castlemartyr), ca. 400m upstream of the WwTP discharge point, which was assigned a rating of Q4 in 2020 indicating Good status water quality conditions. There are no recent EPA biological water quality monitoring locations within the Womanagh River downstream of this point. A macroinvertebrate sample was therefore taken ca. 210m downstream of the WwTP adjacent to the woodland footbridge and assessed bankside using the DAFOR scale to provide an indication of water quality. The sample contained abundant Heptageniidae mayfly, frequent *Baetis* spp mayfly, *Gammarus deubeni* shrimp, and Chrironmid fly larvae. The snail *Potamopyrgus antipodarum*, water louse *Asellus aquaticus* and Simuliidae fly larvae were occasional, while Cased caddis Sericostomatiidae, caseless caddis *Hydropsyche* sp, leech and riffle beetles were rare. The assemblage of taxa, and particularly the abundance of pollution-sensitive mayfly, means this site would warrant a Q4 rating in accordance with EPA criteria indicating Good water quality.

Water chemistry is monitored by Cork Co. Co./EPA upstream and downstream of the WwTP discharge. The upstream monitoring point is station RS19W011000 (Br in Castlemartyr), while the downstream monitoring point is station RS19W011040 (ambient d/s TPEFF0500D0134SW001) where the macroinvertebrate sample was taken. Results (Table 2.0) were compared with the Environmental Quality Standards specified in the Surface Waters Regulations 2009 (as amended) with exceedances highlighted in bold. Generally Good status conditions are met upstream and downstream of the discharge with occasional exceedances.

Castlemartyr WwTP is listed as the only significant pressure on Womanagh_020 waterbody. Ladysbridge WwTP also discharges to the Womanagh_020 ca. 1.6km downstream of Castlemartyr WwTP but is not considered a significant pressure. Downstream, significant pressures on the Womanagh_030 waterbody are pasture and arable agriculture, while unknown anthropogenic pressures listed as significant for the Womanagh Estuary. Agriculture is the sole significant pressure on Youghal Bay.

The proposed WWTP exists within the Middleton - IE_SW_G_058 groundwater body. The geology of the site is limestone bedrock overlain with sandstone derived till subsoils. Soil is indicated as sandstone sands and gravel - shallow well drained acidic mineral soil. The bedrock aquifer is regionally important karstified (diffuse). Groundwater vulnerability is classed as Moderate.

Table 2: Womanagh River Water Quality Monitoring Results 2021

Sample Date	Ammonia-Total (as N) mg/l	BOD mg/l	DO %SAT	pH	ortho-Phosphate (as P) mg/l	SS mg/l
SW Regs EQS's	95%ile: ≤0.14 (good) ≤0.090 (high) Mean: ≤0.065 (good) ≤0.040 (high)	95%ile: ≤2.6 (good) ≤2.2 (high)	95%ile: 80-120%	4.5< pH < 9.0	95%ile: ≤0.075 (good) ≤0.045 (high) Mean: ≤0.035 (good) ≤0.025 (high)	
RS19W011000 Br in Castlemartyr (Village Branch)						
13/01/2021	0.037	0.5	102	7.7	0.041	
03/02/2021	0.136	2.3	96.8	7.7	0.039	12
03/02/2021	0.11	1.1	97	7.5	0.042	
17/02/2021	0.076	1.4	96.4	7.9	0.037	7
03/03/2021	0.021	0.5	99	7.8	0.028	
03/03/2021	0.023	1.1	100.4	8	0.034	4
08/04/2021	0.01	0.5	105	8	0.026	
14/04/2021	0.024	1.9	96.1	8	0.018	5
12/05/2021	0.013	0.5	107.2	8.1	0.027	6
19/05/2021	0.14	1.7	105	7.9	0.041	
02/06/2021	0.008	1.3	99	7.8	0.025	7
16/06/2021	0.01	0.5	100	7.9	0.031	1.25
07/07/2021	0.059	0.5	103.4	7.9	0.056	
08/07/2021	0.027	0.5	101	7.8	0.055	
04/08/2021	0.016	1.3	104.4	8.1	0.047	7
19/08/2021	0.023	1.3	109	8.4	0.056	
01/09/2021	0.017	1.3	98.7	7.9	0.049	1.25
16/09/2021	0.01	1	106	8.1	0.073	
06/10/2021	0.01	0.5	98	8.1	0.048	
20/10/2021	0.05	**5.4**	97.8	7.7	**0.134**	102
03/11/2021	0.019	1.1	101.2	7.7	0.033	3
04/11/2021	0.01	0.5	109	7.6	0.033	
09/12/2021	0.11	0.5	102	7.6	0.068	
RS19W011040 ambient d/s TPEFF0500D0134SW001 (Woodland Footbridge)						
03/02/2021	0.108	2.2	93.6	7.8	0.037	9
17/02/2021	0.09	1.2	99.4	7.9	0.033	5
03/03/2021	0.02	1.8	86.2	8	0.015	3
14/04/2021	0.019	1.5	100.6	8	0.035	8
12/05/2021	0.005	1.3	102.4	7.9	0.031	4
02/06/2021	0.033	1.4	98.1	7.7	0.025	6
28/06/2021			93.1			
07/07/2021	**0.494**	1.7	101.8	7.8	0.056	1.25
26/07/2021			100.7			
04/08/2021	0.086	**5.8**	104.7	7.7	**0.229**	84
01/09/2021	0.013	2.1	86.6	7.6	0.033	5
20/10/2021	0.089	**7.4**	97.2	7.5	**0.166**	85
03/11/2021	0.026	1.1	97.7	7.7	0.053	6

Ecological Desktop & Field Survey

The permanent and temporary works areas are within mixed broadleaved woodland habitat (WD1) and wet woodland habitat (WN6). Much of the WD1 habitat is infested with cherry laurel *Prunus laurocerasus*, and there are also a number of *Rhododendron* plants. The WN6 habitat appears to have formed as a result of local drainage conditions rather than connection to the river, with the latter being a feature of Annex I alluvial forest habitat. To the south and east of the site, there is a sitka spruce plantation (WD4) known Mitchells Wood and owned by Coillte.

The Womangh/Kiltha River runs southwards to the west of the site. Giant Hogweed *Heracleum mantegazzianum* was identified on the river bank in close proximity to the site, while the invasive species water fern *Azolla filiculoides* was found upstream of the WwTP site, and there are also records of Canadian pondweed *Elodea canaden*sis from the river. The instream river vegetation has affinities to the Annex I Floating River Vegetation [3260] as described in the EU Interpretation manual, however it is the common and widespread form dominated by water crowfoot which is considered to have low conservation value and indicate damage (NPWS, 2019)[5], as opposed to the rarer subtypes for SAC's are designated.

There are numerous past records of otter from the area and otter prints were identified in muds adjacent to the Womanagh River in close proximity to the site during the field survey. On the river bank ca. 160m downstream of the Project site (at its closest point) evidence of a mammal resting site was identified under undergrowth and fallen tree trunks. Judging by the nature of mammal paths entering and exiting toward the river, is most likely that of the invasive mink *Neovision vision*, for which prints were also identified upstream, but also could be considered a potential otter holt. Evidence of squirrel, likely red, was found in the adjacent conifer woodland. There are also past records native and invasive species including badger Meles meles, bank vole *Myodes glareolus*, mink *Neovision vision*, fox *Vulpes vulpes*, rabbit *Oryctolagus cuniculus*, ferret *Mustela furo* and Irish hare *Lepus timidus hibernicus* within 2km of the site.

The site has high suitability for foraging and commuting bats based on its location within a wider woodland network and the adjacent river/impounded river and parkland habitats.. Bats recorded during foraging or commuting during the survey were primarily pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, with faint and distant calls of brown long-eared bat *Plecotus auratus* and lesser noctule *Nyctalus leisleri* also recorded. Roosting potential in trees on the site ranged from low to moderate, with negligible potential in any existing infrastructure. An emergence and re-entry survey confirmed the absence of roosting bats in the structures and trees within the site at the time of survey.

The wooded and riparian habitats within and around the site provide suitable nesting, roosting and foraging habitat for breeding and wintering birds. Likewise the proximity of open parkland and lakes means a variety of bird species, including wintering waterbirds, use the surrounding area. Reviewing the bird records in the NBDC database for the 2km area around the Project site, records exist for monad W9573 which includes the Castlemartyr estate river/lake habitats and monad W962 which includes the

[5] NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill
https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol2_Habitats_Article17.pdf

Project site and Mitchell's wood. Birds of conservation concern[6] recorded in the vicinity of the Project site, and those listed on Annex I of the Birds Directive, are highlighted below.

Table 3: Bird Records

Bird	Monad	Date	Conservation Status
Common Wood Pigeon (*Columba palumbus*)	W9573 W9672	28/02/2021 23/05/2015	
Eurasian Wigeon (*Anas penelope*)	W9573 W9672	28/02/2021 31/12/2001	Amber List
Gadwall (*Anas strepera*)	W9573 W9672	28/02/2021 31/12/2001	Amber List
Great Cormorant (*Phalacrocorax carbo*)	W9573 W9672	28/02/2021 31/12/2001	Amber List
Little Egret (*Egretta garzetta*)	W9573 W9672	06/05/2021 31/12/2001	Annex I Birds Directive.
Mallard (*Anas platyrhynchos*)	W9573 W9672	06/05/2021 31/12/2001	
Mute Swan (*Cygnus olor*)	W9573 W9672	28/02/2021 31/12/2001	Amber List
Black-headed Gull (*Larus ridibundus*)	W9672	31/12/2001	Red List
Common Kingfisher (*Alcedo atthis*)	W9672	25/05/2015	Annex I Birds Directive Amber List
Eurasian Curlew (*Numenius arquata*)	W9672	31/12/2001	Red List
Little Grebe (*Tachybaptus ruficollis*)	W9672	31/12/2001	Amber List
Mew Gull (*Larus canus*)	W9672	31/12/2001	Amber List
Northern Lapwing (*Vanellus vanellus*)	W9672	31/12/2001	Red List
Northern Shoveler (*Anas clypeata*)	W9672	31/12/2001	Red List
Tufted Duck (*Aythya fuligula*)	W9672	31/12/2001	Amber List

Of note recorded during field surveys are mallard which is amber-listed for its breeding and wintering populations, little egret and kingfisher which are species listed on Annex I of the Birds Directive, and grey wagtail and swift which are red-listed breeding species.

The woodland and riverside habitats are likely to support a diverse range of invertebrates, frog and newt, with past records of the latter upstream of the site. Based on desktop and field findings, the river supports lamprey, yellow eel, salmon and trout.

[6] https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/

Photo 1 Impounded Womanagh River (Estate Branch)

Photo 2 Womanagh River adjacent to Project site

Photo 3 Primary Discharge

Photo 4 Woodland within Project site

Photo 5 Entrance to existing WwTP

Photo 6 Ballymacoda Bay

European Sites

The Project site and existing WwTP are not located within any SAC or SPA. In the first instance it is necessary to review the European Sites in the wider region, in the context of the nature, scale and extent of the Project, and consider the potential pathways for indirect damage or disturbance to their qualifying interests in order to define the potential zone of influence of the Project. The Sites listed in Table 4 were those considered in defining the potential zone of influence of the Project. These include European Sites within any potential dilution/dispersion zone for any pollutants entering surface or groundwater, or those with mobile species for which any ex-situ effects must be considered. The relevant sites are shown in Figure 3.

Table 4: European Sites considered in defining the potential zone of influence

Site Name & Code	Qualifying Interests	Pathway and Distance
Ballymacoda (Clonpriest and Pillmore) SAC (000077)	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410]	12km to east via Womanagh River surface water pathway
Ballymacoda Bay SPA (004023),	Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Ringed Plover (Charadrius hiaticula) [A137] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] 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]	12km to east via Womanagh River surface water pathway and potential for ex-situ birds associated with SPA to use habitats around Castlemartyr

	Turnstone (Arenaria interpres) [A169] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Gull (Larus canus) [A182] Lesser Black-backed Gull (Larus fuscus) [A183] Wetland and Waterbirds [A999]	
Cork Harbour SPA (004030)	Little Grebe (Tachybaptus ruficollis) [A004] Great Crested Grebe (Podiceps cristatus) [A005] Cormorant (Phalacrocorax carbo) [A017] Grey Heron (Ardea cinerea) [A028] Shelduck (Tadorna tadorna) [A048] Wigeon (Anas penelope) [A050] Teal (Anas crecca) [A052] Pintail (Anas acuta) [A054] Shoveler (Anas clypeata) [A056] Red-breasted Merganser (Mergus serrator) [A069] Oystercatcher (Haematopus ostralegus) [A130] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Dunlin (Calidris alpina) [A149] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Redshank (Tringa totanus) [A162] Black-headed Gull (Chroicocephalus ridibundus) [A179] Common Gull (Larus canus) [A182]	7.6km west via hydrogeological pathway (same bedrock aquifer as Project site) and potential for ex-situ birds associated with SPA to use habitats around Castlemartyr

	Lesser Black-backed Gull (Larus fuscus) [A183] Common Tern (Sterna hirundo) [A193] Wetland and Waterbirds [A999]	
Great Island Channel SAC (001058)	Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]	7.6km west via hydrogeological pathway (same bedrock aquifer as Project site)
Ballycotton Bay SPA (004022)	Teal (Anas crecca) [A052] Ringed Plover (Charadrius hiaticula) [A137] Golden Plover (Pluvialis apricaria) [A140] Grey Plover (Pluvialis squatarola) [A141] Lapwing (Vanellus vanellus) [A142] Black-tailed Godwit (Limosa limosa) [A156] Bar-tailed Godwit (Limosa lapponica) [A157] Curlew (Numenius arquata) [A160] Turnstone (Arenaria interpres) [A169] Common Gull (Larus canus) [A182] Lesser Black-backed Gull (Larus fuscus) [A183] Wetland and Waterbirds [A999]	6.8km southeast - Potential for ex-situ birds associated with SPA to use habitats around Castlemartyr

Considering the source-pathway-receptor model, all the sites above are considered to be potentially within the zone of influence of the Project. The potential impacts that could arise, and likely significant effects that could result, are considered further below.

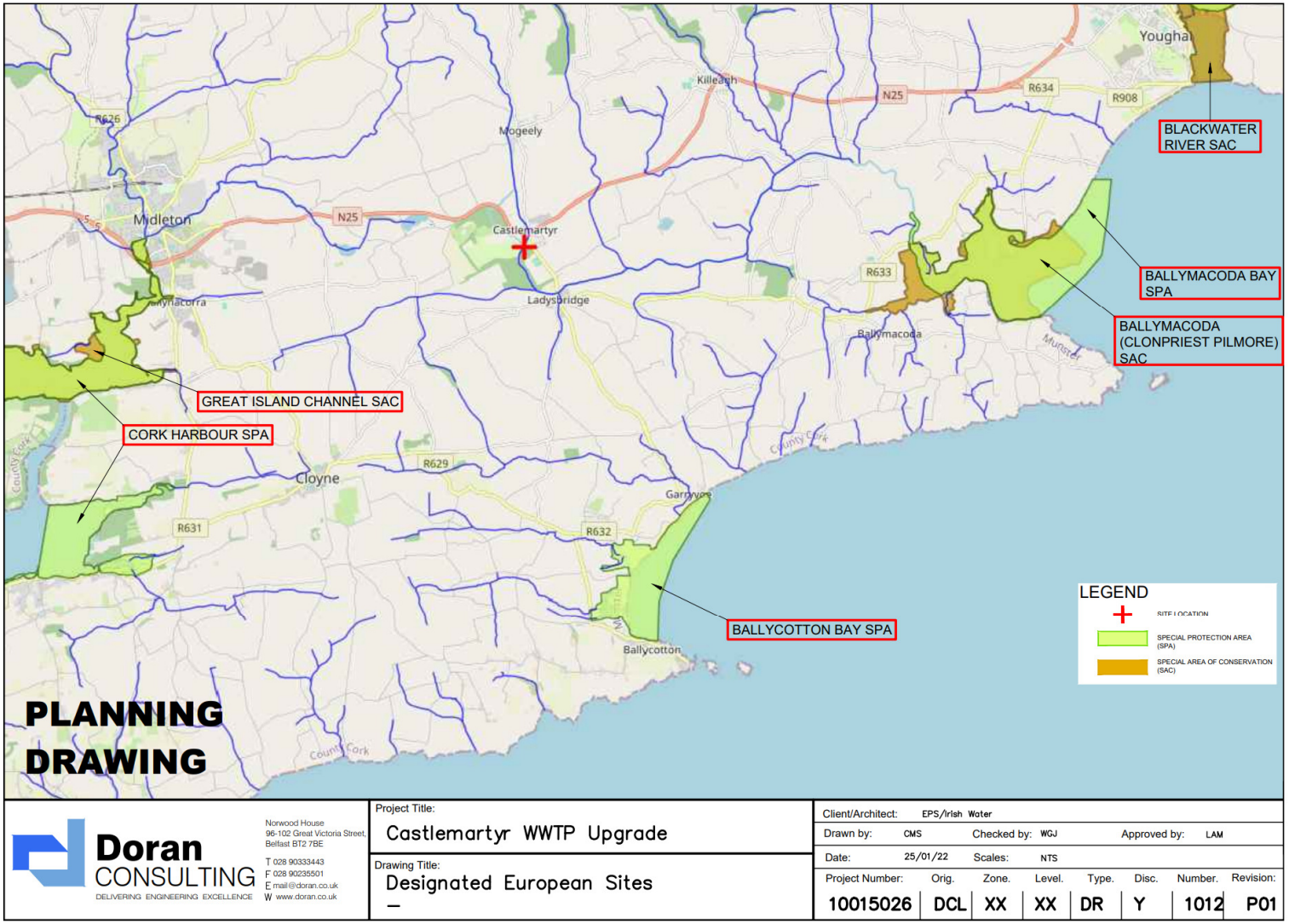

Figure 3 European Sites

Likely Impacts Arising

Given the scale and nature of the project, the direct and indirect impacts that could arise during project construction of relevance to the European Sites listed above are as follows:

- Release of sediment-laden waters, wastes or other pollutants: Any releases of sediments or pollutants from the excavation and construction of new infrastructure will naturally flow toward the Womanagh River. Depending on the scale of the releases, water quality could be negatively affected. Releases of pollutants within deeper excavations could also interact with groundwater, affecting groundwater quality.
- Noise and Visual disturbance - Construction activities could result in disturbance of ex-situ birds associated with the SPAs above using the areas around the Project site
- Habitat loss - Should areas of the site be used by ex-situ bird species, the loss of habitat would need to be considered.
- Facilitating spread of invasive species.

Potential Operational Stage impacts are:

- Improved-quality discharge to the Womanagh River – The biological and chemical water quality data indicate that the current discharge is not significant impacting downstream water quality. Furthermore the WAC analysis indicates Good status water quality conditions will be met by the proposed discharge.
- Increased site operations and maintenance resulting in higher disturbance levels to ex-situ species.

Likely Significant Effects on European Sites

The purpose of this section of the Screening is to examine the possibility that the Project, either individually or in combination with other plans and projects, is likely to result in significant effects to any European Site. It further considers the qualifying interests which may be sensitive to the potential impacts of the Project identified above, in the context of the nature and scale of the works.

The Conservation Objectives and Supporting Documents of the 5-no. relevant European Sites were reviewed as part of this Screening Assessment:

- NPWS (2015) Conservation Objectives: Ballymacoda (Clonpriest and Pillmore) SAC 000077. Version 2. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Ballymacoda (Clonpriest and Pillmore) SAC 000077. Conservation objectives supporting document – coastal habitats. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2015) Ballymacoda (Clonpriest and Pillmore) SAC 000077. Conservation objectives supporting document – marine habitats. Version 2. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

- NPWS (2014) Conservation Objectives: Ballymacoda Bay SPA 004023. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Ballymacoda Bay SPA 004023. Conservation objectives supporting document Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Conservation Objectives: Cork Harbour SPA 004030. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- NPWS (2014) Cork Harbour SPA 004030. Conservation objectives supporting document Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht
- NPWS (2014) Conservation Objectives: Great Island Channel SAC 001058. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Great Island Channel SAC 001058. Conservation objectives supporting document – coastal habitats. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Great Island Channel SAC 001058. Conservation objectives supporting document – marine habitats. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Conservation Objectives: Ballycotton Bay SPA 004022. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2014) Ballycotton Bay SPA 004022. Conservation objectives supporting document Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The Project is not directly connected with or necessary to the management of any site for nature conservation.

Construction Stage Effects

There is a direct pathway for impacts arising to water quality to affect the conservations objectives of the qualifying interests of Ballymacoda (Clonpriest and Pillmore) SAC and Ballymacoda Bay SPA. The risk of uncontrolled releases of sediments or other pollutants is highest from dewatering activities and from works at the headwall. In the absence of control measures there is also the potential for invasive species to be spread along this pathway. While the impact would need to be severe given the distance to the nearest estuarine habitats, considering the precautionary principle, significant effects cannot be excluded at this stage.

The hydrogeological pathway identified to Ballymacoda Ballymacoda (Clonpriest and Pillmore) SAC, Ballymacoda Bay SPA, Cork Harbour SPA and Great Island Channel SAC is via a regionally important diffuse karstified aquifer[7]. This aquifer type is characterised by diffuse groundwater flows rather than more direct conduit flows[8]. Given the limited depth and scale of excavations, and distance to these designated sites, there is no likelihood of any localised groundwater pollution giving rise to significant effects on the conservations objectives of the qualifying interests of these sites.

The pathway for ex-situ birds associated with Cork Harbour SPA, Ballymacoda Bay SPA and Ballycotton Bay SPA relates to the possibility that wintering birds associated with these sites could use the habitats in the vicinity of the Project Site as ex-situ roosting or foraging grounds. Some wintering bird species that are also qualifying interests of the relevant sites (e.g. wigeon, curlew, lapwing) have been recorded from

[7] https://gis.epa.ie/EPAMaps/Water
[8] https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/aquifer-classification/Pages/Aquifer-categories-and-types.aspx

habitats associated with the Womanagh River and particularly the impounded section in the estate. The habitats however are unsuitable for anything other than small groups of wintering birds, due to high disturbance levels. The scale of disturbance associated with the Project, in the context of disturbance in the surrounding area, may cause occasionally small number of wintering birds to displace to quieter areas of the estate upstream, but has no potential to give rise to significant effects on the conservations objectives of the qualifying interests of these sites.

Operational Stage Effects

The pathway for operational impacts arises from the discharge of treated effluent to the Womanagh River and the potential for water quality impacts to arise and affect the qualifying interests of Ballymacoda (Clonpriest and Pillmore) SAC and Ballymacoda Bay SPA . Elevated nutrient input from wastewater effluent into the freshwater and marine environments can lead to an altered nutrient balance (eutrophication), increased primary productivity, and the potential for algal blooms. While downstream water quality and WAC analysis results indicate that local water quality will not be affected, adequacy of the proposed treatment standards needs to be considered in the context of the attributes and targets of the downstream qualifying interests, particularly those in unfavourable conservation condition, and therefore significant effects cannot be excluded at this stage.

Potential Cumulative or In-combination Effects with other Plans and Projects

As part of AA Screening, in addition to the Project and Approved Development, other relevant projects and plans in the region must also be considered. This report aims to identify at this early stage any possible significant effects on the European Sites arising from in-combination or cumulative impacts with other plans and projects.

<u>Plans</u>
Plans of relevance include Irish Waters WSSP, the Cork County Development Plan, and the national river basin management plan.

In 2015, Irish Water published the **Water Services Strategic Plan**, a 25-year Plan which as well as detailing current and future challenges affecting water services, identifies priorities to be addressed in the medium term. Solutions in these priority areas are delivered through capital and other projects outlined in Irish Waters Investment Plan, a multi annual plan covering a five-year horizon, currently 2020-2024. The Castlemartyr WwTP upgrade is prioritised for investment under this plan.

The **Cork County Development Plan** 2022-2027 has been recently published. This new plan amalgamates the former municipal area regional plans into the main county plan. The plan has several relevant objectives and statements relating to wastewater:

- WM 11-1: EU Water Framework Directive and the River Basin Management Plan
    - *f) Support the prioritisation of the provision of water services infrastructure in: 1. Metropolitan Cork, the Key Towns and Main Towns to complement the overall strategy for economic and population growth while ensuring appropriate protection of the environment. 2. All settlements where services are not meeting current needs, are failing to meet the requirements of the Urban Wastewater Treatment Directive, and where these deficiencies are – interfering with Councils ability to meet the*

requirements of the Water Framework Directive; or – having negative impacts on Natura 2000 sites; and

- *g) Development may only proceed where appropriate wastewater treatment is available which meets the requirements of environmental legislation, the Water Framework Directive and the requirements of the Habitats Directive*

- Emission Limit Values (ELVs)
  - *11.5.12 In many instances, the Emission Limit Value standards set by the EPA when licensing treatment plants are significantly higher than the requirements of the Urban Wastewater Directive (UWWD). Some of these ELV standards cannot consistently be achieved even by relatively modern plants without significant upgrades. This is a national issue not unique to Cork but it occurs in several locations across the County.*
  - *11.5.13 In assessing the capacity of a WWTP to cater for future development where an ELV issue pertains, the assessment has been based on the hydraulic and organic loadings of the treatment plant relative to its design capacity on the assumption that the ELV issue will be resolved in an approach that will be determined/ agreed at a national level between Irish Water and the EPA.*
- Castlemartyr is noted as a WwTP not currently complaint with its ELV's with further infrastructure upgrades required and with the following implications for development expansion:
  - *Future capacity subject to implementation of projects on the Irish Water Investment Plan (Revenue Control Period 3) or aligned programmes. Any development which would have an adverse impact will be put on hold until resolution of issues relating to impact on water quality in sensitive water catchments.*
- *Section 11.9.5 The assimilative capacity of the County's waterbodies is not infinite, and it is considered important, when assessing individual development proposals involving abstraction or dilution of discharges, that sufficient assimilative capacity is retained so as to allow for the continued growth of the overall settlement and avoiding the unsustainable exploitation of the watercourse.*

Information on the **River Basin Management Plan** (2018-2021), Draft River Basin Management Plan (2022-2027), and associated information on the catchments available on www.catchments.ie was reviewed:

- The RBMP sets out the measures that are necessary to protect and restore water quality in Ireland. The overall aim of the plan is to ensure that Irelands natural waters are sustainably management and that freshwater resources are protected so as to maintain and improve Ireland's water environment. The Draft 3rd cycle plan, identifies that based on 2013-2018 data, 53% of surface waters are in good or high ecological status while the remaining 47% are in unsatisfactory ecological status.
- The Plan (2018-2021) identifies Castlemartyr as the only significant pressure on the Womanagh_020 waterbody.
- Continued investment in wastewater infrastructure is highlighted as one of the key actions in the plans. The Womanagh River is identified as an Area For Action (AFA) with a Restoration objective, though there is no specific reference to Castlemartyr upgrade as a measure/action.

The above plans have themselves been assessed in accordance with Article 6(3) of the Habitats Directive and Part XAB of the Planning and Development Act, 2000 and the implementation of those plans will not result in adverse effects to the integrity of any European site(s). The plans support the upgrade of

Castlemartyr WwTP. Considered with the Project, there is no potential for these Plans to give rise to cumulative effects on any European Site.

Projects

Cork Co.Co. planning system was reviewed for any proposed or potentially active projects that could lead to in-combination impacts with the Project. There have been a number of recently approved developments associated with the Castlemartyr estate: 175371 (wedding/Conferencing building), 175372 (car park extension), 17373 (bar extension and terrace) 175636 (various extensions and modifications) and 216775 (external and internal modifications including realignment of internal road). The 4 no. 2017 applications and the 2021 application were subject to AA Screening with the competent authority determining that were would be no significant effects on any European Sites. These projects therefore do not have the potential to give rise to cumulative effects with the Project.

A range of other small development residential, business and agricultural developments within the Castlemartyr agglomeration, which may seek connection to the sewerage network, have been recently granted or are seeking planning consent. Irish Water reviews available capacity for treatment prior to any connection to the IW network and therefore any local development connecting to the WwTP will be within the treatment capacity which meets WFD requirements. As discussed, for certainty regarding likely effects, the treatment standards require further consideration in the context of the downstream Ballymacoda (Clonpriest and Pillmore) SAC and Ballymacoda Bay SPA , however as the impact of the upgraded WwTP 'alone' accounts for the full operating capacity inclusive of future new connections, these potential connections do not have the potential to give rise to cumulative effects with the Project.

The hotel pumping station adjacent to the WwTP is in need of improvement works. Flooding was observed above the pumping station's access cover. The cause of this is not clear, but may be due to high river flows and associated ingress of water through structural defects in the pumping station chamber. Flooding was noted to be contained above the PS and by surrounding vegetation. No spillage to the watercourse was observed. The Project will improve treatment standards in Castlemartyr WwTP however for certainty, these standards need to be assessed in the context of the attributes and targets of the downstream European Sites Ballymacoda (Clonpriest and Pillmore) SAC and Ballymacoda Bay SPAs, and therefore any potential negative cumulative effects on the downstream European Sites of the discharge in-combination with the risk of intermittent pump station flooding spillages cannot be excluded at this stage.

Screening Conclusions

The likely impacts that will arise from Castlemartyr WwTP Upgrade Project have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 network.

This AA Screening assessment finds that the likelihood of significant effects on Ballymacoda (Clonpriest and Pillmore) SAC and Ballymacoda Bay SPA arising from the proposed Project individually or in combination with other projects cannot be excluded. As a result, a Stage Two Appropriate Assessment is required.

APPENDIX A

SITE LAYOUT AND HYDRAULIC PROFILE

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS DRAWINGS AND DOCUMENTATION.
2. ALL LEVELS IN METRES TO MALIN HEAD DATUM.
3. ALL DIMENSIONS IN MM UNLESS NOTED OTHERWISE.
4. PROPOSED STRUCTURAL HEIGHTS, LEVELS AND DIMENSIONS ARE INDICATIVE.

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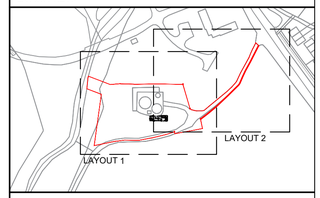

KEY:-

+9.56 EXISTING SITE LEVELS

+9.56 PROPOSED SITE LEVELS

EXISTING INCOMING SEWERS - NO WORKS REQUIRED

PROPOSED NEW PROCESS PIPEWORK

PROPOSED ADDITIONAL LAND ACQUISITION

PROPOSED SITE RED LINE BOUNDARY

OS MAPPING REFERENCE: 6510-12

REPRODUCED FROM THE ORDNANCE SURVEY BY PERMISSION OF THE GOVERNANCE LICENSE NO.3-3-54

Rev	Drawn	Chkd	Appvd	Date	Description
P12	CMS	WGJ	LAM	06/10/2022	PLANNING ISSUE
P11	CMS	WGJ	LAM	19/08/2022	UPDATED FOR PLANNING ISSUE
P10	CMS	WGJ	LAM	08/03/2022	UPDATED FOR PLANNING ISSUE

Drawing Status: PLANNING

Drawing Scale:	1:200	Drawn By:	CMS
Original Size:	A1	Date:	APR 21

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Scheme Name: PROVISION OF MAJOR PROCESS MEICA AND DBO WORKS LOT 2B-5 ECI WWTP

Drawing Title: CASTLEMARTYR WWTP PROPOSED SITE LAYOUT 1 OF 2

Client: IRISH WATER

Consulting Engineers: DORAN CONSULTING

EPS Project Code:	Originator:		
EC0008	DORAN CONSULTING		
Zone/Asset: XX	Level: XX	Type: DR	Role: Y
Sheet Number: 1001		Suitability Code: S3	Revision Code: P12

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OS MAPPING REFERENCE: 6510-12

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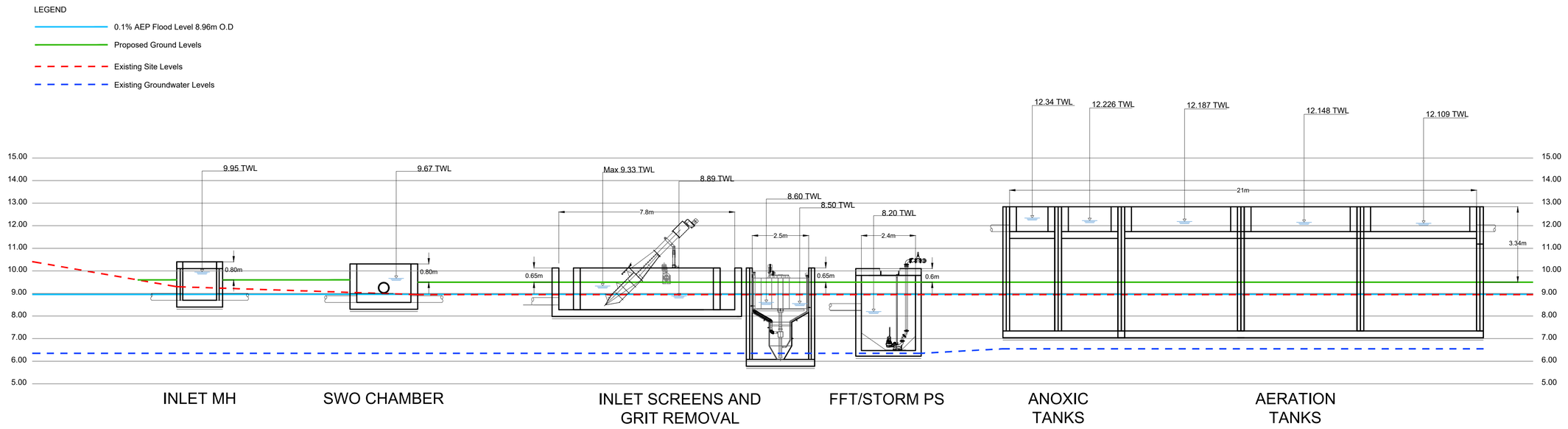

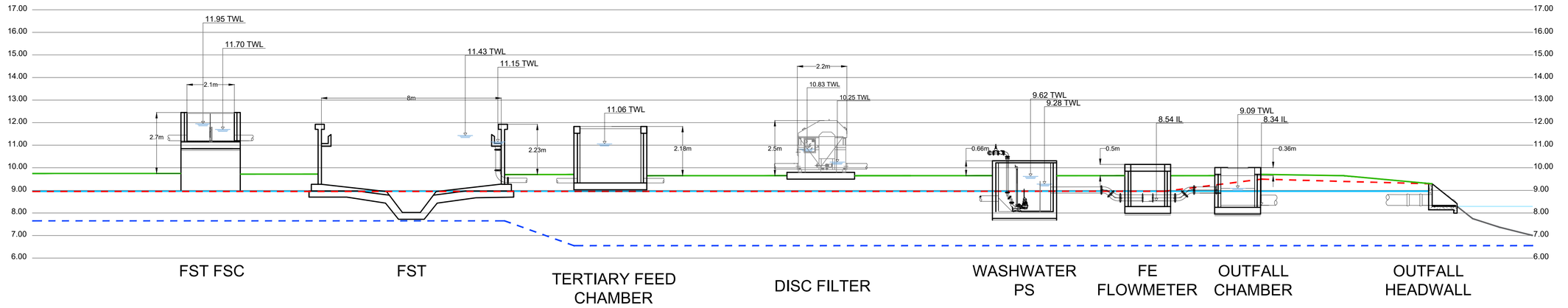

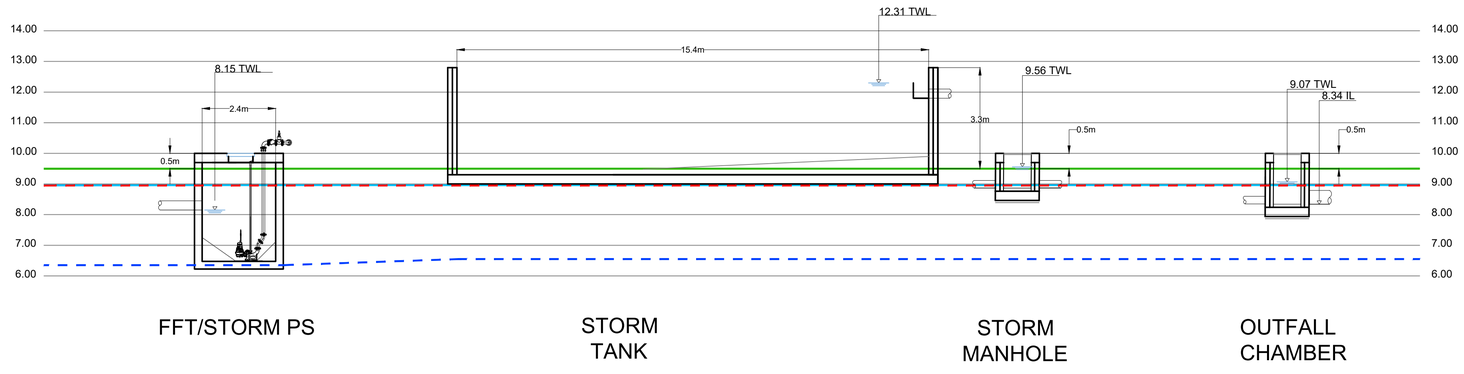

NOTES

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Rev	Drawn	Chkd	Appvd	Date	Description
P07	CMS	WGJ	-	06/10/2022	PLANNING ISSUE
P06	CMS	WGJ	-	19/08/2022	STRUCTURE HEIGHTS UPDATED
P05	CMS	WGJ	-	08/03/2022	PLANNING REVIEW ISSUE

Drawing Status: PLANNING

Drawing Scale:	1:100	Drawn By:	CMS
Original Size:	A1	Date:	APR 21

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Scheme Name: PROVISION OF MAJOR PROCESS MEICA AND DBO WORKS LOT 2B-5 ECI WWTP

Drawing Title: CASTLEMARTYR WWTP
PROPOSED HYDRAULIC PROFILE & SECTIONS

Client: IRISH WATER

Consulting Engineers: DORAN CONSULTING

EPS Project Code: EC0008		Originator: DORAN CONSULTING	
Zone/Asset: XX	Level: XX	Type: DR	Role: Y
Sheet Number: 1004		Suitability Code: S3	Revision Code: P07

Drawing Number: 10015026-DRC-XX-XX-DR-Y-1004