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Report W3137-NIS-SE Natura Impact Statement for the proposed Fethard-On-Sea Sewerage Scheme (southeastern section)

Report for Byrne Looby
PH McCarthy

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1 Introduction

BEC Consultants Ltd has been commissioned to undertake a Stage 2 Appropriate Assessment (Natura Impact Statement – NIS) for the proposed sewerage scheme at Fethard-On-Sea, Co. Wexford. This is required under Article 6(3) of the EU Habitats Directive as per part XAB of the Planning and Development Acts 2000-2010. This report presents information on the Natura 2000 sites (Special Areas of Conservation – SACs, or Special Protection Areas - SPAs) that may potentially be impacted upon by the proposed project and assesses theeffect of the project on the integrity of Natura 2000 sites, with regard to the Conservation Objectives and the structure and function. This report has been prepared with reference to the following documentation:

- DEHLG (2009) Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government.
- EC (2002) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission.

The Appropriate Assessment process focuses on the Natura 2000 sites, their Qualifying Interests and the related conservation objectives. The term Qualifying Interests will be used to refer both to the bird species listed as Features of Interest for SPAs and to the habitats and species listed as Qualifying Interests for SACs.

1.1 Scope of this report

This NIS relates to the southeastern section of the project that extends from a farm gate at the edge of the R734 road eastwards along a farm track through fields at Ramstown, where the new Wastewater Treatment Plant (WwTP) will be built, through to the marine outfall into the Celtic Sea. The proposed development area from the existing primary treatment tank at Tay Lane southwards to the farm gate is addressed in a separate NIS (O'Neill *et al.* 2016).

1.2 Background to Appropriate Assessment

Natura 2000 sites are a network of sites across the member states of the European Community which are deemed to be of international importance for their habitats and/or species. This network comprises SACs designated under the European Union's Habitats Directive (92/43/EEC) and SPAs designated under the Birds Directive (2009/147/EC replacing 79/409/EEC). Both Directives are transcribed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011.

Article 6(3) of the Habitats Directive states: "*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon either individually or in combination with other plans or projects, shall be subject to* ***Appropriate Assessment*** *of its implications for the site in view of the site's conservation objectives*."

As such, any project likely to have a significant effect, either individually or in combination with other plans and projects, on the conservation objectives of Natura 2000 sites must undergo an assessment of the implications of this project on the relevant Natura 2000 sites.

It is detailed in the guidance documents prepared by the Department of the Environment, Heritage and Local Government (DEHLG 2009) and the European Commission (EC 2002) that a staged approach to assessment is required. A conclusion is made at the end of each stage of the assessment as to whether the project should proceed to the next stage.

- Stage 1: Screening - This stage determines whether Appropriate Assessment is necessary. The proposed project is defined and an assessment is made of the potential for significant

effects upon the Natura 2000 network, either alone or in combination with other projects. Plans or projects directly connected with, or necessary to the nature conservation management of the site do not require an Appropriate Assessment.

- Stage 2: Appropriate Assessment - If there is potential for a significant effect on the Natura 2000 network an Appropriate Assessment is required. During this stage the impact of the project on the conservation objectives of the Natura 2000 sites is assessed and measures are proposed to avoid or reduce these impacts such that they do not result in a significant impact. The outcome of the assessment establishes whether the plan or project will have a significant adverse effect on the integrity of the Natura 2000 site, its Qualifying Interests and associated conservation objectives. Factors such as the magnitude, extent, duration and reversibility of the effect are considered in this assessment.
- Stage 3: Alternative Solutions - Before a project that has adverse effects on a Natura 2000 site can proceed to the consideration of imperative reasons of overriding public interest it must be objectively concluded that no less-damaging alternative solutions exist.
- Stage 4: Imperative Reasons of Overriding Public Interest ("IROPI") - Where no alternative options exist and adverse impacts remain but imperative reasons of overriding public interest for the project exist, compensatory measures must be implemented to ensure the overall coherence of the Natura 2000 site.

Stage 1 Appropriate Assessment Screenings have been carried out by Byrne Looby and it has been concluded that a Stage 2 Appropriate Assessment is required. BEC Consultants Ltd has been commissioned to carry out this Stage 2 Appropriate Assessment.

1.3 Appropriate Assessment methodology

Carrying out a Stage 2 Appropriate Assessment requires the following information:

- A description of the project (see Section 2)
- Identification of relevant Natura 2000 sites and compilation of information on their qualifying interests and conservation objectives (see Section 4)
- Assessment of the direct, indirect and cumulative effects of the project (Section 5)
- Details of any mitigation measures (Section 6)
- AA Conclusion (Section 8)

A desk review of the Natura 2000 sites in the vicinity of the proposal was carried out using information available from the National Parks and Wildlife Service (NPWS) website (www.npws.ie). The potential for affecting these conservation objectives was assessed through considering the nature, size and location of the project in relation to the Natura 2000 sites in addition to hydrological connectivity.

2 Project background

2.1 Project description

Fethard-On-Sea is located near Hook Head in County Wexford. The village has a winter population of 270 persons, which increases during the peak summer months from tourists using holiday homes and caravan parks.

The existing Fethard WwTP consists of a primary treatment tank, which provides primary treatment of the effluent. The effluent then discharges via an outfall pipe into a stream in the saltmarsh which then enters Fethard Bay.

The present level of treatment is not in accordance with the requirements of the Urban Wastewater Directive and the Urban Waste Water Treatment Regulations as there is currently no secondary treatment (Byrne Looby Partners 2012). The saltmarsh at Fethard was surveyed as part of the Saltmarsh Monitoring Project (McCorry & Ryle, 2009) and the report authors concluded that eutrophication from the treatment plant was having a negative effect on the Annex I saltmarsh habitats at Fethard and appeared to promote the spread of the invasive Common Cord-grass (*Spartina anglica*).

To address the wastewater treatment and pumping requirements at Fethard, a new sewerage scheme is proposed. Phase 1 is to provide a new WwTP with a treatment capacity of 470 population equivalent (P.E.) in wintertime, and 1400 P.E in summertime (with provision for upgrade in Phase 2 to 600 P.E. in wintertime and 1800 P.E. in summertime), along with associated rising mains, sea outfall and pumping station. The existing primary treatment tank is to be decommissioned, along with the existing outfall to the saltmarsh, with the new pumping station and associated storm overflow to be located at this position.

A pumping station and storage tank will be constructed at Tay Lane on the site of the existing primary treatment plant. The waste water will be pumped to the new WwTP at Ramstown, south of Fethard village, via a new pipeline. Construction of the pipeline will be along Sunny Row and Bam Mills Road, crossing Fethard Bridge and proceeding approximately southwards along the road, then will turn east (proposed gravity sewer section) to extend along a farm track, finally crossing fields to terminate at the site of the proposed WwTP in Ramstown. There will be a final effluent outfall from the WwTP to the Celtic Sea, approximately 1 km southwest of Ingard Point. The following description is from Irish Water (2014):

> "This marine outfall will have a diameter of 225mm and will be approximately 355m in length. It is proposed to construct the pipeline from High Performance Polyethylene (HPPE) material. The outfall will extend to a water depth of approximately 1.6m below Mean Low Water Tide (MLWT) and will be constructed through the foreshore area, commencing on the land side of the cliffs and not emerging until a depth of 1 m below Lowest Astronomical Tide (LAT) has been reached. The outfall discharge point is to include a diffuser ports, with duckbill type non-return valves (Tideflex or other similar supplier). Navigational markers will be provided at both ends of the outfall."

Construction of the outfall will involve horizontal directional drilling through the cliff face to the foreshore, laying the pipeline into a trench dug in the seabed, and then back-filling the trench. A full description of the construction of the marine outfall is given in Irish Water (2014) and is reproduced here:

'*No Dig' Method*

Due to the sensitive nature of the site it is proposed to use "no-dig" or trenchless technology methods to construct the pipeline through the cliff face.

Due to the relatively small diameter of the proposed pipeline directional drilling methods would be suitable. A larger diameter bore could be drilled to provide redundancy in the design for future expansion of the wastewater treatment works. The outfall would be constructed by directional drilling through the cliff face and foreshore with the remainder of the works carried out using a backhoe excavator mounted on a barge. The basic procedure for directional drilling will be as follows:

• A pilot hole will be drilled from the treatment works site to the location of a reception pit in the foreshore;

• A directional drilling receiving pit will be excavated;

• The hole will be reamed to achieve the required diameter; and

• The pipe conduit will be pulled through the reamed hole.

Dredging and Backfilling

Depending on the sea bed makeup the remainder of the outfall from the directional drilling reception pit to the

diffusers could be excavated in an open trench with battered slopes or a trench in rock using a rock breaker.

Dredging and outfall works would consist of the following main tasks:

- Providing a horizontal positioning control system;
- Providing a vertical control system (tide gauge or similar);
- Execution of pre-dredging survey to establish sea bed geometry;
- Execution of intermediate /progress surveys of dredging and backfilling works; and
- Execution of the post-backfill survey to establish the final, as built geometry.

Horizontal positioning controls for the dredger or barge mounted excavator will be achieved using Global Positioning System (GPS). On-board systems on barge mounted excavators or dredgers will be used to determine the correct bucket position.

The HPPE outfall pipe can be welded using butt fusion via a purpose built butt fusion cabin, the line and level of the outfall will be controlled using GPS equipment.

Pre and post surveys will be carried out prior to commencing and after completing every major task.

The rate of excavation using a backhoe dredger or barge mounted excavator depends on many factors, amongst which are soil characteristics, such as in situ density, particle distribution and SPT and/or CPT values, dredging depth, weather conditions, marine traffic, tides, currents, etc.

Pipe Installation

The outfall can be welded and towed into position. Once the pipe sections are prepared, continuous concrete weight collars can be put on them for on-bottom stability and impact protection. This will obviously only be done for those parts of the pipe sections that are outside of the directionally drilled section.

The installation of the continuous concrete weight collars will be done by a crane, which slides the collars over the pipe sections. Spacer blocks located between the collars will allow for bending of the pipe sections during installation.

The pipes will be sunk into position by pumping water in controlled amounts into them. The amount of water will be controlled using a foam pig, pumped water supply and valves control. The pumps will be placed onshore and will have an inline flow meter and manually operated gate valves to control the flow, pig speed and sinking speed of the pipelines, ensuring full control at all times.

While positioning and installing the outfall pipeline on site the dredger or barge mounted excavator will be used as an anchor to keep the pipe in tension and correctly position the pipe in the excavated trench. When the first part (foreshore end) of the outfall pipeline is correctly installed, pumping will commence and the pressure release valve on the offshore end (landside end) of the outfall pipeline will be opened.

The outfall pipeline will then be filled with water from the shore end, which results in it sinking into the trench, if and when required the pipe will be pushed into the right position with the aid of the multipurpose tug. Whilst the pumping progresses, the pipeline will sink in an S-curve into the trench. During the sinking operations the pre-installed foam pig will be pushed through the pipeline. The foam pig will create a seal between the pipe section which is filled with water from the landside and the floating pipe section. The foam pig prevents air from going to the highest point of the pipe. The pig can also be used for contingency operations, when the pipeline has to be re-floated. This can be done by pumping air from the offshore side into the pipe, moving the pig shore wards. The tug will move seaward in progress with the pipeline installation.

Once the pipeline has been fully installed, a survey will be performed to confirm the correct position of the pipeline.

Diffusers

Once the outfall pipeline has been laid into the trench the diffusers will be installed by divers. Once the Tideflex or similar valve has been installed the trench will be backfilled.

The 2012 treated effluent monitoring results for the existing treatment plant, which discharges to Fethard Estuary, are shown in Table 1, together with the Emission Limit Values (ELVs) required by the new treatment plant under the terms of the wastewater discharge licence (licence register number D0241-01). It should be noted that these ELVs refer to the proposed marine outfall, which will discharge treated effluent to the Celtic Sea in an area which does not currently receive any effluent discharge from Fethard.

Table 1. WwTP monitoring results 2012 from 12 samples and required ELVs for new treatment plant (source: EPA 2014). BOD=Biochemical Oxygen Demand; COD=Chemical Oxygen Demand.

	BOD (mg/l)	**COD (mg/l)**	**Suspended solids (mg/l)**	**Ammonia (mg/l)**
2012	61	169	54	17
ELVs for new WwTP	25	125	35	15

As stated above, this NIS relates to the southeastern section of the proposed development and covers the pipeline that runs from the road east along the farm track, the new WwTP, and the marine outfall, a total area of 3.5 ha. The northern section of the proposed scheme (covering an area of 1.1 ha) is described and assessed in full in a separate NIS (O'Neill *et al.* 2016), but will also be addressed in the Cumulative Impacts section of this report.

A summary of the full programme of works for the proposed sewerage scheme is presented below, together with the section (northern or southeastern) in which the works will take place. Appendix 1 contains the site layout showing where the works will take place.

Northern section (see separate NIS: O'Neill et al*. 2016):*

- Decommissioning and removal of existing primary treatment tank and associated outfall;
- Construction of new collector main, pumping station and emergency storm overflow (to be buried and discharge to the same point as the existing outfall to the estuary) at the site of the existing primary treatment tank;
- New rising main from pumping station site to new WwTP.

Southeastern section (this NIS):

- Construction of new WwTP with treatment capacity of 470 P.E. wintertime and 1400 P.E summertime (with provision for upgrade to 600 P.E. (wintertime) and 1800 P.E. (summertime) in Phase 2) at Ramstown;
- New drilled marine outfall;
- New rising main from pumping station site to new WwTP;
- Liquid residuals – assessment of discharge to surface water and treatment and recycling;
- Sludge management – gravity settlement and decant off site.

2.2 Project timing and duration

The construction phase of the project is expected to commence in the first half of 2019, with the WwTP expected to be operational during the second half of 2020.

2.3 Local resource requirements

It is understood that there will be no local resource requirements, such as groundwater abstraction, during the construction or operational phases of the proposed development.

2.4 Disturbance

Noise levels will be increased due to the operation of construction machinery. In particular, drilling of the marine outfall through the cliff and laying of the underwater section of the outfall will cause high levels of noise and vibration, which may disturb marine mammals in the nearby waters. Construction works in the rest of the site will result in greater noise and disturbance levels from the increased movement of machinery and personnel.

Excavation of soil and other material and site clearance will result in disturbance of habitats. This will increase the risk of spreading any alien invasive species that occur within the footprint of the works. It will also disturb any wildlife such as nesting birds in the vicinity of the works.

Increased light levels in the vicinity of construction works may potentially disturb wildlife in the area in the short term. During the construction phase, site lighting will be in operation to ensure safe operation and maintenance for all items of equipment on site during periods of darkness. There will be external security lighting on buildings where machinery is stored and pole-mounted lighting around the site for illuminating early morning or late evening working.

2.5 Potential emissions relating to the construction phase

During the construction phase of the proposed project there is the potential for pollution or silting of waterbodies, streams and surface water drains.

In particular, operation of machinery while excavating the trench to hold the section of outfall in the bay could result in oil spills into the Celtic Sea as well as increased sedimentation.

Construction will also generate spoil and waste consisting of surplus or waste materials, e.g., soil or concrete, which will be transported off site for disposal.

Dust levels will increase from the excavation of soil and construction of new structures; in particular, large amounts of dust will be generated by drilling through the cliff face for the new marine outfall.

Traffic levels in and out of the proposed development area will increase during construction to facilitate employees of the contractor building the WwTP, constructing the new outfall, and laying the pipelines. Additional vehicles during construction will also be required for the transportation of surplus spoil and other waste material off site. The main potential emissions from increased transportation are sedimentation and oil spills.

The effects of the above emissions are discussed in Section 5, and mitigation measures to reduce their impacts are detailed in Section 6.

2.6 Potential emissions relating to the operation of the proposed sewerage scheme

During the operation of the proposed sewerage scheme, the main emission relevant to this NIS (southeastern section) is the discharge of treated effluent from the WwTP via the marine outfall into the Celtic Sea.

The Wastewater Discharge Licence (EPA 2014) sets stringent water quality standards to be adhered to by the new WwTP “to contribute towards good status water quality standards required by the Environmental Objectives Regulations 2009, as amended”, with biannual ambient water quality monitoring, limited volume of discharge and the dilution available in the receiving water all required under the terms of the licence. It is expected that the WwTP will operate within the terms of its discharge licence. The effects of the treated effluent discharge are discussed further in Section 5.

It is not expected that the number or type of vehicles accessing the site during the operation of the new sewerage scheme will differ significantly from previous levels.

2.7 Receiving environment

2.7.1 Field survey – Terrestrial habitats

A field survey was conducted at the proposed project site on the 4th April 2016 by Dr Philip Perrin and Simon Barron of BEC Consultants. In the following site description, habitats are classified according to the Irish habitat classification system (Fossitt 2000). The name and code of each habitat type is given. Where applicable, Annex I habitats of the EU Habitats Directive are also described using the official habitat codes (CEC, 2013). Nomenclature for vascular plants follows Stace (2010).

One EU Annex I habitat was recorded in this part of the survey area, namely 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.

The following nine Fossitt (2000) habitats were recorded here:

- BC1 Arable crops
- BL3 Buildings and artificial surfaces
- CS1 Rocky sea cliffs
- GA2 Amenity grassland (improved)
- GS2 Dry meadows and grassy verges
- LR1 Exposed rocky shores
- LS2 Sand shores
- WL1 Hedgerows
- WL2 Treelines

Farm track

The pipeline route turns off the public R734 road, through a gateway, and runs down a short farm track (Appendix 2, Plate 1 & 2). The southern side of this track is mostly a WL2 Treeline of Leyland Cypress (*Cupressus* × *leylandii*) behind which is a house and curtilage (BL3 Buildings and artificial surfaces, GA2 Amenity grassland (improved)). Beneath this treeline, some small patches of Three-cornered Leek (*Allium triquetrum*) can be found growing. The northern side of the track is bordered by a low WL1 Hedgerow of Bramble (*Rubus fruticosus* agg.) and Blackthorn (*Prunus spinosa*), behind which lies a ploughed field (BC1 Arable crops). There are a few specimens of Butterfly-bush (*Buddleja davidii*) growing in this hedge.

Fields

The track opens out into a large stubble field (BC1 Arable crops) at the eastern end (Appendix 2, Plate 3). The pipeline route runs close to the northern boundary of this field which is a sparse WL1 Hedgerow of Blackthorn, Bramble and Gorse (*Ulex europaeus*). The Gorse has been burnt in the recent past. Some Primroses (*Primula vulgaris*) grow beneath the hedge. While it does not lie directly on the pipeline route, it should be noted that the western boundary hedge in this first field supports several patches of the invasive non-native Three-cornered Leek (*Allium triquetrum*).

The route exits this field to the east and enters a second field which is the proposed location of the new wastewater treatment plant (WwTP). The northwestern, southwestern and northeastern boundaries of this field are also sparse WL1 Hedgerows. Near the northern corner, wetter ground by the hedge supports Common Reed (*Phragmites australis*). Some Fox (*Vulpes vulpes*) droppings were noted along the boundaries and it is likely that some of the smaller holes observed have been used by Rabbit (*Oryctolagus cuniculus*). Robin (*Erithacus rubecula*) and Blackbird (*Turdus merula*) were observed.

Just to the north of the WwTP field is a grassy field of rank Red Fescue (*Festuca rubra*) with abundant Wild Carrot (*Daucus carota*). Also present here are Kidney Vetch (*Anthyllis vulneraria*), Red Clover

(*Trifolium pratense*), Ribwort Plantain (*Plantago lanceolata*) and Broomrape (*Orobanche* sp.). It does not appear to be grazed by livestock so it is best classified as GS2 Dry meadows and grassy verges.

Sea cliffs

To the southeast, the WwTP field is bordered by CS1 Rocky sea cliffs (Appendix 2, Plate 4). These are approximately 8-9 m high, mostly rocky, but capped with a thick layer of soil and sediment. Along the top of the cliffs is a thick mat of Red Fescue with Thrift (*Armeria maritima*) also common and frequent patches of Sea Plantain (*Plantago maritima*). Also present are Common Bird's-foot-trefoil (*Lotus corniculatus*), Hogweed (*Heracleum sphondylium*), Yarrow (*Achillea millefolium*) and the invasive non-native Three-cornered Leek (*Allium triquetrum*). These cliffs constitute Annex I habitat 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts. At the foot of the cliffs is a small area of LS2 Sand shores, behind a stretch of LR1 Exposed rocky shores. The marine section beyond the cliffs has been designated for the Annex I habitats 1160 Large shallow inlets and bays and 1170 Reefs within the Hook Head SAC (000764).

2.7.2 Terrestrial Fieldwork conclusions

Of the nine Fossitt (2000) habitats recorded within the proposed project site, the CS1 Rocky sea cliffs are of the highest conservation value as they correspond to the Annex I habitat 1230 Vegetated sea cliffs. As noted above, there is a small area of LS2 Sand shores at the foot of the cliffs, behind a stretch of LR1 Exposed rocky shores, and the marine section beyond the cliffs has been designated for the Annex I habitats 1160 Large shallow inlets and bays and 1170 Reefs within the Hook Head SAC.

Three-cornered Leek was recorded within the footprint of the southeastern section of the development (Appendix 3). This species is listed on the Third Schedule of S.I. No. 477/2011, the European Communities (Birds and Natural Habitats) Regulations and is an alien invasive species with restrictions placed on its movement. It impacts on habitats by out-competing native plant species. Management of Three-cornered Leek is discussed in more detail in the invasive species report for the Fethard sewerage scheme (O'Neill 2016).

2.7.3 Field survey – Marine habitats

A comprehensive survey of the marine habitats was carried out for the assessment of the marine outfall, so it was not considered necessary to conduct repeat field work in these habitats. The following three sections have been reproduced from the Stage 2 Appropriate Assessment NIS that specifically examined the effects of the marine outfall on the receiving marine environment (Irish Water 2014):

> **Intertidal Environment**
>
> The proposed outfall would extend from a new sewerage treatment plant in the townland of Ramstown approximately 1km to the southwest of Ingard Point. The upper shoreline consists of a cliff face with mobile fine to medium sand at its base. There was no distinct strandline at the cliff base, so a strandline collection for Talitrids was not performed. The rocky portion of the upper shore and the mid and lower shores were infralittoral rock. They were sampled using a 0.25m^2 quadrat. All macroalgae and visible fauna were recorded on a relative abundance scale (ACFOR) and used for habitat classification. In general the cliff consisted of 4 to 6 metres of bedrock overlain by clay. There was a portion of the cliff that appeared to be clay all the way down to the strandline. There were patches of yellow lichen (*Xanthoria* spp.) and black lichen (*Verrucaria maura*) in the splash zone at the top of the littoral zone.
>
> It corresponds to the JNCC biotope (Conor *et al.* 2004) Talitrids on the upper shore and strandline (LS.LSa.ST.Tal.). Both the core and dig samples contained only *Talitrus saltator*.
>
> There was atypical zonation in the fucoid algae (Wrack species) downshore. It would be more typical on moderately exposed shores such as this that the upper shore is characterised by Channel Wrack (*Pelvetia canaliculata*) and Spiral Wrack (*Fucus spiralis*), the midshore by Bladder Wrack (*Fucus vesiculosus*), and

the lower shore by Serrated Wrack (*Fucus serratus*). Here there was significant variability between the samples taken at particular shore levels and the Serrated Wrack zone was on average higher up the shore than the Bladder Wrack zone. This is likely to because of the microtopographical effects of the rocky intertidal reefs running at right angles to the prevailing current. There were patches that were dominated by opportunistic green algae (*Enteromorpha* spp) and barnacles (*Chtamamlus montagui*).

In the October 2011 and February 2012 surveys, patches of the Ross worm *Sabellaria spinulosa* were found on the reefs, particularly in the lower shore. While *Sabellaria* may form the priority habitat biogenic reefs, further investigation into the distribution and reef status of *Sabellaria* at the site confirmed that the species did not constitute a reef in this case. This is because the small patch size, temporal instability and crust like form of the *Sabellaria* at this location did not support a community that differed from the surrounding area. Removing the *Sabellaria* would be very unlikely to have negative effects on adjacent species.

In general the shore conforms to the marine habitat Mixed substrata shores LR4 of the guide to habitats in Ireland (Fossitt, 2000). It has Links with Annex I as Littoral rock categories may contain examples of the annexed habitat, 'reefs (1170)'. The rocky component corresponds to the JNCC habitat LR.MLR.BF Barnacles and fucoids on moderately exposed shores.

Subtidal Environment

The proposed outfall would extend from the MHWM to a point approximately 330m into the subtidal environment. Epifauna was extremely sparse along a dive transect of the proposed outfall route with topshells (*Gibbula cineraria*) and barnacles (*Chtamamlus montagui)* being most numerous.

Algae recorded included the brown kelps *Laminaria hyperborea* and *Saccorhiza polyschides* and reds included: *Dilsea carnosa*, *Heterosiphonia plumosa Desmarestia* sp. and Rhodophycota indet. Small patches of sponges were recorded occasionally (*Porifera crusts indet*.).

JNCC biotopes (Conor *et al.* 2004) are those of MIR.XKScrR Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock and MIR.EphR Ephemeral red seaweeds and kelps on tide-swept mobile infralittoral cobbles. This habitat type is typical of the coast in the vicinity of Hook Head.

This habitat corresponds with the marine habitat ‘Exposed infralittoral rock SR1’ in the guide to habitats in Ireland (Fossitt, 2000). Links with Annex I: Sublittoral rock categories may contain examples of the annexed habitats, ‘reefs (1170)'.

Marine Mammals

At least 21 cetacean species (including whales, dolphins and porpoises) are known to use Irish coastal waters (Berrow and Rogan, 1997). Two species of seal, the harbour seal *Phoca vitulina* and the grey seal *Halichoerus grypus* are also found around Irish coasts. Cetaceans are frequently observed off Hook Head, with Harbour porpoises and Risso’s dolphin sighted as recently as June and September 2008 respectively. Seven species observed and reported in the vicinity of Hook Head, Carnivon Bay and Fethard-on-Sea include Bottlenose dolphin *Tursiops truncatus,* Common Dolphin *Delphinus delphis*, Risso’s Dolphin *Grampus griseus*, Harbour porpoise *Phocoena phocoena*, Minke whale *Balaenoptera acutorostrata,* Fin whale *Balaenoptera physalus* and Humpback Whale *Megaptera novaeangliae*.

3 Consultation

Consultation with the National Parks and Wildlife Service (NPWS) was carried out in relation to this project. The Development Applications Unit was emailed on the 21st April 2016 regarding the proposed development. A comprehensive response was received dated 2nd June 2016. The response is summarised below and given in full in Appendix 5.

Development Applications Unit – Ms Yvonne Nolan

The response from the DAU highlighted the presence of the protected plant Perennial Glasswort (*Arthrocnemum perenne*) in the vicinity of the proposed development and requested a survey for the

species, noting that this may also require application for a licence from NPWS and a request for any pertinent data from NPWS. The DAU also noted that the development is adjacent to a peregrine falcon nest site and that the impact on these birds needs to be assessed.

Documents to be used as guidance when carrying out Appropriate Assessments were listed, and the requirement to consult the published Conservation Objectives for any Natura 2000 sites affected was noted.

Regarding cumulative and *ex situ* impacts, the consideration of all Natura 2000 sites within a distance of 15 km was noted, expanding this radius as required, e.g., to take hydrological connectivity or bird flight paths into account. The DAU's communication also highlighted the need to ensure that no terrestrial or aquatic invasive species are used during landscaping which could impact negatively on Natura 2000 sites.

The DAU's response noted the need to provide complete project details including construction management plans (CMPs) to allow an adequate appropriate assessment to be undertaken. , stating that, if applicants are not in a position to decide the exact location and details of these at time of application, the range of options that may be used should be considered in the assessment. The CMP should also include methods to ensure invasive alien species are not introduced or spread.

The requirement of licences from NPWS was highlighted where there are impacts on protected species (e.g., bats, otters, badgers, protected plants) and their habitats, resting or breeding places (e.g., birds' nests), applications for which should be submitted to NPWS in advance of planning to avoid delays and in case project modifications are necessary. The DAU recommended that, where such survey work takes place well before construction commences, an ecological survey of the development site should take place immediately prior to construction to ensure that no significant change since the baseline survey; there may be a need for new licence applications for protected species at this stage if a licence has expired.

Previous consultation

Previous consultation was carried out with relation to the proposed development for the Appropriate Assessment Screening. The results of this consultation are reproduced below directly from Byrne Looby Partners (2013).

> **List of Agencies Consulted**
> During the site selection stage of the Fethard on Sea Main Drainage Scheme, which encompasses the waste Water treatment works and associated outfall, the following agencies were consulted in terms of the suitability of sites for the treatment plant.
>
> - Development Applications Unit – Mr. Anthony Byrne
> - Marine Licence Vetting Committee – Ms. Geraldine Farrell
> - Southern Regional Fisheries Board – Mr. David McInerney
>
> Under instructions from the Marine Vetting Committee, a separate Appropriate Assessment is being carried out for this outfall development. A foreshore licence will be applied for, for the outfall development. A Part 8 Planning process will be followed in relation to the Waste Water Treatment Works.
>
> **Response to Consultation**
> Responses from the Marine Licence Vetting Committee and Southern Regional Fisheries Board responses relate to the outfall development. The following is a summary of the response received from the Development Applications Unit which relate to the waste water treatment plant.
>
> **Development Applications Unit – Mr. Anthony Byrne**
> During the site selection stage, Mr. Anthony Byrne requested a habitat and species survey for the proposed WWTP sites. The impact of the proposed waste water treatment plant on the natural heritage and biodiversity was assessment subsequently by Roger Goodwillie in 2007 in terms of any possible impacts on the designated sites. In particular, the impact of the development was assessed on species protected under the Wildlife acts and species listed on Annex II of the Habitats Directive. The

ecological survey of each site included a vegetation survey to identify any rare or protected plants. A bat and badger survey to identify any setts or bat roost was carried out.
An ecological survey was conducted by Moore Group on the 28th October 2011. The field in which the pumping station and storage tank is to be constructed was surveyed and Fethard Bridge was examined for bat roosting potential (Annex II species).

Previous consultation with NPWS was also carried out for an earlier NIS, and the results of the consultation are reproduced below directly from that NIS (Irish Water 2014):

Consultation
After determination of the proposed outfall route and the re-assessment of that outfall, the NPWS were informally scoped with regard to the presence of *Sabellaria* sp. and *Sabellaria* reefs in the general area of Hook Head to Bannow Bay. Moore Group and Atlantic Resource Management Solutions Ltd. received an informal direction from Dr. Yvonne Leahy of the Marine Section of the NPWS to determine the extent and cover of the presence of *Sabellaria* at the target location.

4 Natura 2000 Sites

4.1 Natura 2000 Sites Qualifying Interests and conservation objectives

The proposed development site (southeastern section) overlaps with the Hook Head SAC (000764) in the area of the marine outfall (Appendix 4). The Qualifying Interests of this Natura 2000 site (NPWS 2011a), along with their overall National Conservation Assessment (NPWS 2013), are presented in Table 2. The conservation objectives of the site are then discussed.

Table 2. Qualifying Interests for the Hook Head SAC (000764) with overall National Conservation Assessment (NPWS 2011a, 2013).

Code	Qualifying Interest	National Conservation Assessment
1160	Large shallow inlets and bays	Unfavourable – Inadequate (improving)
1170	Reefs	Unfavourable – Bad (declining)
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	Unfavourable – Inadequate (stable)

The proposed development site (southeastern section) is also within 500 m of the Bannow Bay SAC (000697) and Bannow Bay SPA (004033). Potential impacts on these sites could only occur if reduced water quality or increased eutrophication were to impact negatively on the Qualifying Interest habitats or birds. Waste water discharge to the marine environment will be contained in the vicinity of Ingard Point and the results of hydrodynamic modelling (Irish Water 2014) have indicated that there would be no direct or indirect impacts on the Qualifying Interests or conservation objectives of the Bannow Bay SAC or Bannow Bay SPA. Therefore these Natura 2000 sites will not be considered further in this NIS. However, they are discussed in detail in the NIS for the northern section of the proposed development (O'Neill *et al*. 2016).

NPWS (2011a) describes the conservation objectives of Natura 2000 sites as follows:

"A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- *its natural range, and area it covers within that range, are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*

- *the conservation status of its typical species is favourable.*

The favourable conservation status of a species is achieved when:

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

Site-specific Conservation Objectives are available for the Qualifying Interests of the Hook Head SAC (NPWS 2011a), together with supporting documents that give specific information on the site.

4.2 Connectivity between proposed project and Qualifying Interests of Hook Head SAC (000764)

It is important to establish whether there is a pathway between the proposed project and the Natura 2000 site's Qualifying Interests. If there is no pathway (direct or otherwise), an impact cannot occur. If the potential for an impact is thought to exist, the severity of the impact and mitigation measures will be addressed further in Section 5.

Hook Head SAC's Qualifying Interests, which are all Annex I habitats, are mapped in the Site-specific Conservation Objectives (NPWS 2011a). Table 3 below lists the Qualifying Interests of the SAC, their connectivity with the proposed development, and the likelihood of a significant impact occurring.

Table 3. Potential for impact on Qualifying Interests (QIs) of Hook Head SAC based on their location in relation to the proposed development; information on location of QIs is from NPWS (2011a).

Code	Qualifying Interest	Location	Impact
1160	Large shallow inlets and bays	Within footprint of proposed development	Potential for impact exists
1170	Reefs	Within footprint of proposed development	Potential for impact exists
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	Within footprint of proposed development	Potential for impact exists

From this table, it is evident that all three habitats overlap with the footprint of the works and are therefore at risk of impact from the proposed development. All habitats overlap with works associated with the marine outfall.

A summary of the conservation objectives for the Hook Head SAC as they relate to the above three Annex I habitats is given in Tables 4, 5 and 6 below.

Table 4. Summary conservation objectives for 1160 Large shallow inlets and bays within Hook Head SAC.

Overall objective: *To maintain the favourable conservation condition of* ***Large shallow inlets and bays*** *in Hook Head SAC, which is defined by the following list of attributes and targets:*	
Attribute	**Target**
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.
Community extent	The following communities should be maintained in a natural condition: Sand with *Chaetozone christiei* and *Tellina* sp. community; and Coarse sediment with *Pisidia longicornis* and epibenthic fauna community complex.

Table 5. Summary conservation objectives for 1170 Reefs within Hook Head SAC.

Overall objective: *To maintain the favourable conservation condition of* ***Reefs*** *in Hook Head SAC, which is defined by the following list of attributes and targets:*	
Attribute	**Target**

Distribution	The distribution of reefs should remain stable, subject to natural processes.
Habitat area	The permanent area is stable, subject to natural processes.
Community structure	The following reef community complexes should be maintained in a natural condition: Exposed to moderately exposed intertidal reef community complex; and Echinoderm and sponge-dominated community complex.
Community extent	The extent of *Laminaria*-dominated community should be conserved, subject to natural processes.
Community structure	The biology of *Laminaria*-dominated community should be conserved, subject to natural processes.

Table 6. Summary conservation objectives for 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts within Hook Head SAC.

Overall objective: *To maintain the favourable conservation condition of* ***Vegetated sea cliffs of the Atlantic and Baltic coasts*** *in Hook Head SAC, which is defined by the following list of attributes and targets:*		
Attribute		**Target**
Habitat length		Area stable, subject to natural processes, including erosion.
Habitat distribution		No decline, subject to natural processes.
Physical structure	Functionality and hydrological regime	No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures.
Vegetation structure	Zonation	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession.
	Vegetation height	Maintain structural variation within sward.
Vegetation composition	Typical species and sub-communities	Maintain range of sub-communities with typical species listed in the Irish Sea Cliffs Survey (Barron *et al*., 2011).
	Negative indicator species	Negative indicator species (including non-natives) to represent less than 5% cover.
	Bracken and woody species	Cover of bracken (*Pteridium aquilinum*) on grassland and/or heath less than 10%. Cover of woody species on grassland and/or heath less than 20%.

5 Assessment of effects

Potential impacts from the proposed project on the Hook Head SAC Natura 2000 site will now be discussed.

5.1 Impacts on habitats

Impacts on habitats can occur directly, through replacement of habitats with artificial surfaces such as concrete, or more indirectly, through factors such as pollution, disturbance, soil compaction and alterations of hydrological regime. All three habitats listed as Qualifying Interests for Hook Head SAC are within the footprint of works, and are therefore vulnerable to impacts.

5.1.1 Loss of habitats

Some new pipeline will run along the farm track and the new WwTP will be constructed on agricultural farmland. No protected habitats will be lost by these works.

The new marine outfall associated with the new WwTP will discharge directly into the Celtic Sea via a drilled outfall pipe which will be constructed through the sea cliff to emerge in reef and bay habitats. The three Qualifying Interest habitats for the Hook Head SAC are addressed separately below in relation to expected losses due to the proposed development.

1160 Large shallow inlets and bays: The conservation objectives of Annex I habitat 1160 Large shallow inlets and bays are defined in terms of the area of the habitat and the extent of the communities of invertebrates that occupy it. There is no expected loss of this habitat as a result of construction or operation of the proposed development, as the outfall will be submerged and then buried under the existing substrate, apart from the diffuser which will be on the surface. Furthermore,

the communities that help to define the habitat (*Chaetozone christiei* and *Tellina* sp. community in sand, and *Pisidia longicornis* and epibenthic fauna community complex in coarse sediment) naturally occur in sediment and therefore are adapted to deal with the temporary increases in sedimentation that will occur during construction or low-level disturbances to sediment during operation.

1170 Reefs: It is not expected that there will be any permanent loss of Annex I reef habitat from the proposed development, although some disturbance and temporary loss will occur during construction of the marine outfall. Irish Water (2014) notes that the reef community most at risk is the *Laminaria*-dominated community in the sub-tidal zone. *Laminaria*-dominated communities are keystone communities that are of considerable importance to the overall ecology and biodiversity of a habitat by virtue of their physical complexity, and in this SAC they cover an estimated area of 2,752 ha (NPWS 2011b). An estimated 5 m x 200 m (i.e., 0.1 ha) of *Laminaria*-dominated reef habitat will be disturbed during construction of the marine outfall, which equates to less than 0.004% of its area, well below the 15% level of significance suggested by NPWS (2011b). Furthermore, it is expected that the affected area will revert to reef habitat as it will be available for colonisation by the flora and fauna of the *Laminaria* community following construction (Irish Water 2014). Therefore the conservation objectives of the Hook Head SAC relating to reefs habitat will not be contravened.

1230 Vegetated sea cliffs of the Atlantic and Baltic coasts: There will be a small loss of Annex I vegetated sea cliff habitat at the site of drilling of the outfall through rocky sea cliff, but as the area does not essentially affect the length of the habitat and is small in the context of the overall length of cliff in the SAC (approximately 12 km, according to NPWS 2011a) it is not considered to run contrary to the conservation objectives of the SAC, provided the vertical integrity of the cliffs is maintained (i.e., no collapse of the cliff face). Given that the substrate of the cliff is rock, cliff collapse is considered unlikely.

5.1.2 Damage to habitats

As noted above in Section 2, construction of the proposed project will generate large amounts of dust, spoil and waste. Increased traffic and transportation also raise the risk of pollution of water through oil spills and sedimentation. Increased levels of dust are expected to be temporary and not to have a significant effect on the habitats of conservation concern in Hook Head SAC. Spoil and waste, including any contaminated material, will be transported off site. Measures to further mitigate the effects of these impacts, including proper disposal of waste and the procedures to be followed in relation to construction machinery, are given in Section 6.

All three Annex I habitats will be damaged as a result of construction of the marine outfall, and are addressed separately below in relation to the expected impacts.

1160 Large shallow inlets and bays: Damage to this habitat is expected to be temporary in nature as the invertebrate communities that help to define the habitat naturally occur in sediment and therefore are adapted to deal with any temporary increases in sedimentation that occur during construction, or low-level disturbances during operation. It should also be noted that the area of this habitat within the SAC, according to NPWS (2014), is 1,694 ha, while the area affected by the outfall is approximately 0.1 ha, or 0.006%, which is well below the 15% suggested by NPWS (2011b) as being significant.

Therefore it is concluded that the conservation objectives of the Hook Head SAC in relation to Annex I reef habitat (habitat area and community extent – see Table 4) will not be contravened by the proposed works.

1170 Reefs: As noted above, an estimated 0.004% of reef habitat will be disturbed during construction of the marine outfall, but this is not expected to have a significant effect on the permanent area of *Laminaria* community because the affected area would remain as reef habitat, available for colonisation by the flora and fauna of the *Laminaria* community following construction (Irish Water 2014). Section 6 gives further measures to mitigate the effects of outfall construction.

Operation of the proposed scheme is not expected to result in damage to the reef habitat as water quality will be within approved limits (see Section 5.3 below).

Therefore it is concluded that the conservation objectives of the Hook Head SAC in relation to Annex I reef habitat (distribution and area of habitat, and structure and extent of key communities – see Table 5) will not be contravened by the proposed works.

1230 Vegetated sea cliffs of the Atlantic and Baltic coasts: There will be some temporary damage and disturbance to Annex I sea cliffs at the site of drilling of the outfall. If the area is vegetated, natural colonisation by surrounding plant species should restore this to its former state. If the area is unvegetated rock, then any dust generated by drilling should dissipate over a short period of time.

Impacts on protected habitats could potentially occur as a result of disturbance and spread of alien invasive species caused by construction. The Annex I habitat 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts, where the invasive Three-cornered Leek is found, is most at risk from this impact (Three-cornered Leek does not pose a threat to marine habitats), and it is a target within the conservation objectives for Hook Head SAC that negative indicator species (including non-natives) in this habitat should represent less than 5% cover. The top of the sea cliffs habitat will not be disturbed during drilling of the outfall, so there is no expected risk of spreading the species on the cliff from this source. However, some risk remains from carrying bulbs or young plants from elsewhere in the proposed development (e.g., the farm track) to the base of the cliff habitat, where drilling of the outfall will be carried out. Three-cornered Leek can proliferate at the expense of native plant communities. Appropriate measures to reduce the risk of spreading the invasive Three-cornered Leek should be taken. More details are provided in the invasive species report for the Fethard sewerage scheme (O'Neill 2016).

In summary, it is not expected that the proposed works will run contrary to the conservation objectives of the Hook Head SAC as they relate to Annex I sea cliff habitat (see Table 6 above).

5.2 Impacts on species

No species are listed as Qualifying Interests for the Hook Head SAC. However, a number of other species of interest have been recorded in the vicinity of the proposed development and every effort should be made to reduce impacts on them. The consultation response from the DAU noted that the development is adjacent to a peregrine falcon nest site. While this is not a Qualifying Interest for the SAC, every effort should be made to minimise disturbance to the species. This can be achieved by avoiding works in the area outside of the bird nesting season.

Irish Water (2014) noted the following in relation to marine mammals: "Benthic disturbance activity can result in damage to the biological environment. Destruction of benthic communities will displace species of invertebrate and fish and may subsequently affect the food chain and impact on marine predators. However, the effects of substrate removal will be determined by the extent of disturbance activity. In addition to the physical act of sediment removal, activities result in potential disturbance to marine mammals through increases in vessel activity and increase local ambient marine noise levels. Construction activity will be responsible for an increase in the noise levels in the water near the construction site. Given the frequency of cetaceans in the vicinity of the proposed outfall pipeline there would be a potential negative impact depending on the methodology used for the construction of the pipeline."

It should be taken into account that any disturbance from the construction phase of the proposed project will be temporary in nature and limited to a small edge of what is a large, primarily marine SAC. Mitigation measures to reduce or avoid disturbance to species are detailed below in Section 6.

5.3 Impacts on water quality

Any construction activities have the potential to release suspended solids and chemical pollutants into local watercourses (e.g., streams) or waterbodies (e.g., bays), which could impact negatively on water quality. The greatest risk to waterbodies is associated with construction of the outfall and operation of the sewerage scheme. The construction works for the outfall will take place close to and within the Celtic Sea in Hook Head SAC, and will involve rock drilling, earth removal and some underwater excavation, which will release sediment to the local environment and poses a potential risk to the marine habitats (1160 Large shallow inlets and bays and 1170 Reefs) of Hook Head SAC. There is also the potential for oil spills from operation of the machinery during construction of the marine trench. Operation of the scheme will release effluent to waters that currently are free of such emissions.

Irish Water (2014) carried out an assessment the impacts of the construction and operation of the marine outfall on the intertidal and subtidal environment, including impacts on water quality. Hydrodynamic modelling was also conducted to assess the dissipation of the effluent in the receiving waters. The conclusions from Irish Water (2014) are summarised below:

Potential Impacts on the Intertidal Environment

- There would be no significant impact on the intertidal reef communities in the area of the proposed outfall. The increase in sedimentation during the construction phase is unlikely to be detrimental to the intertidal communities and there would be no significant change in water quality and thus no indirect impacts from turbidity or eutrophication.

Potential Impacts on Subtidal Environment

- At the proposed WwTP diffuser site, the potential eutrophication impact is limited. Hydrodynamic modelling indicates that the DIN [Dissolved Inorganic Nitrogen] loading of the water will be below the Environmental Quality Standard (EQS) for waters achieving High status (S.I. No. 272/2009). The suspended solids load of the treated effluent will be <35mg/l, which will be initially diluted to <0.1mg/l on discharge. These concentrations are very unlikely to lead to reduced water clarity in the receiving waters at the proposed site.

Hydrodynamic Dispersion Modelling

- A 2-dimensional depth average hydrodynamic and dispersion model of Fethard Harbour and Bannow Bay was developed so as to predict the water quality impact from the proposed Fethard-on-Sea Sewerage Scheme and Marine Outfall.
- The dispersion results show that the proposed effluent discharge at the proposed outfall location will meet all relevant Environmental Water Quality Standards set for either coastal or transitional water bodies. The impact on BOD, TSS, TP and TN concentrations are shown to be minor within the mixing Zone of the outfall (i.e. within 50 to 100m of the outfall) and practically imperceptible outside of the mixing zone.
- The Faecal coliform analysis as an indicator of pathogenic impact shows that the existing Class B Shellfish production status of the waters north of Ingard point will easily be maintained and that a Class A shellfish production standard will be met for a final effluent Quality of 1 x 105 No./100ml faecal coliforms.
- In order to minimise any potential risk to the designated shellfish production waters from either bacteria or more persistent viruses, UV disinfection achieving as a minimum of Log_2 kill is proposed (i.e. final effluent of 1000 No./100ml).
- The dispersion results also show that the bathing water at various beaches / swimming locations, even at the more stringent Blue Flag Standard of 100 No./100ml (which currently does not apply to any of the beaches) will not be compromised by the proposed outfall.

Impacts to surface water from the construction of the pipeline and WwTP are expected to be small and temporary in nature, with preventative measures, such as those described in Section 6 below, taken to reduce any negative impacts.

5.4 Cumulative impacts

When assessing cumulative impacts or in-combination effects it is necessary to consider the effect of other plans and projects that, together with the current project, could have a cumulative impact on Natura 2000 sites.

Works on the northern section of the Fethard-On-Sea sewerage scheme (see separate NIS, O'Neill *et al.* 2016) will be taken into account at this stage as they will be taking place simultaneously with works on the southeastern section.

Works on the northern section will involve laying of a pipeline along the road, construction of a new pumping station, storage tank and storm overflow, and decommissioning of the existing treatment tank and outfall. The main issues that are relevant in terms of cumulative impacts with the current project are disturbance and emissions. To reduce the duration of impacts through disturbance, both sections of the project (northern and southeastern) should be worked on simultaneously. To reduce the effects of emissions, the measures described below in Section 6 and in O'Neill *et al.* (2016) should be taken to mitigate any negative impacts to species and habitats in the local vicinity, particularly habitats which are vulnerable to impacts from deterioration in water quality. Because the incidence of the alien invasive species Three-cornered Leek is higher in the southeastern section of the proposed development, particular care should be taken to avoid the transfer of bulbs and seedlings of the plant from the southeastern section to the northern section.

The storm overflow in the northern section of the proposed development will discharge from the new pipe into a stream within the saltmarsh. This stream eventually flows into Fethard Bay, north of Ingard Point. It is not anticipated that there will be negative impacts on the habitats of Hook Head SAC from any emissions from the northern section of the proposed development, and water quality in Fethard Bay are expected to improve following works in the northern section of the proposed sewerage scheme.

Emissions from the southeastern section of the proposed development, to which this NIS refers, are expected to be confined to the Celtic sea, south of Ingard Point. Therefore, there will be no negative impacts on the habitats or species of Bannow Bay SAC or Bannow Bay SPA as a result of emissions from the southeastern section of the proposed development.

Other plans and projects specific to the two Natura 2000 sites listed above are:

- Draft Wexford County Development Plan 2013-2019 (Wexford County Council 2012)
- County Wexford Draft Biodiversity Action Plan 2012-2017 (Wexford County Council 2011)
- Ballyteigue Bannow Water Management Unit Action Plan (SERBD, 2010)
- Individual planning applications in the local area

The Draft Wexford County Development Plan 2013-2019 contains many policies and objectives aimed at protecting the natural environment, including Natura 2000 sites. These include:

- Water Supply Objective WS03 'To ensure that all proposed future public water abstractions within the plan area are screened for Appropriate Assessment of its potential impact on the Natura 2000 network, in accordance with Article 6 of the Habitats Directive'.
- Heritage Objective HT03 'To ensure that development proposals do not have an unacceptable impact on our heritage unless there is a reason of over-riding public interest for such development'.

- Natural Heritage Objective NH01 'To conserve and protect the integrity of sites designated for their habitat/wildlife or geological/geomorphological importance and prohibit development which would damage or threaten the integrity of these sites, including SACs, cSAC, SPAs, NHAs, pNHAs, Nature Reserves, and Refuges for Fauna'.

The Ballyteigue Bannow Water Management Unit Action Plan states that the Fethard-On-Sea WwTP is considered 'At Risk' and it should be investigated as to whether its capacity needs to be increased, though this was considered the lowest of the three priority levels.

A search for Planning Applications on the Wexford County Council Map Viewer (https://maps.wexford.ie/imaps/ accessed 20th April 2016) showed 55 planning applications submitted in the last five years in the locality of the proposed project. Most were in relation to new residences or residential extensions, with associated ancillary works including sewage treatment. A selection of relevant planning applications submitted within the last five years within the vicinity of the components of the Fethard WwTP are:

Grange, Fethard, 2016: Permission for erection of fully serviced two-storey dwelling with treatment plant together with all associated and ancillary site works.

Fethard, 2015: Permission for permanent retention and completion of a granny flat and also for permission to upgrade the existing sewage treatment system.

Fethard, 2014: Upgrade existing effluent treatment system including the removal of the discharge to surface waters pipework from that previously approved under previous planning registration number.

Poulfur, Fethard, 2013: Permission for works associated with construction of new primary school, including construction of new waste water treatment system, percolation area and surface water attenuation tank on the adjoining lands and all associated site works.

Ramstown, Fethard, 2012: Construction of a single-storey extension to a dwelling house and the construction of a domestic effluent treatment plant and other ancillary works.

Overall, no specific pathway has been identified by which any of the plans and projects identified would have a significant negative in-combination effect on the Natura 2000 site Hook Head SAC, provided best practice is followed in all cases to deal with construction dust, noise and emissions, and post-construction to ensure that all waste water quality meets or exceeds acceptable standards.

6 Mitigation measures

6.1 Mitigation of impacts on Qualifying Interest habitats

Construction of the marine outfall from the WwTP to the Celtic Sea has the potential to cause severe disturbance to, and even loss of, reef habitat. To minimise impacts on this Annex I habitats and to expedite recovery of the habitats following construction the following mitigation measures are proposed:

- Access to the outfall route by machinery and workers will be limited to the construction wayleave which will be strictly limited to 5m.
- Works should be carried out in calm weather to reduce the risks of accidents and spills and to increase visibility for Marine Mammal Observers, should these be required (see below).
- Appropriate oil-spill response kits should be available, with staff on site who are trained in their use.

- Irish Water (2014) notes the following: “Studies have consistently shown that recovery time for *Laminaria digitata* following harvesting or severe storm damage to a predisturbance state is in the order of 2 to 3 years (Perez 1971, Smith 1985). The time necessary for recovery is dependent on the season in which the disturbance happens and how effectively the disturbance clears the *Laminaria* species in question (Engelen *et al* 2011). *Laminaria* spp. show temperature associated peaks in fecundity typically in mid-summer and late autumn.” Therefore, to reduce the time taken for reinstatement of the community, disturbance to the substrate should be kept to a minimum, if possible leaving some of the plants *in situ* on excavated material that will be reused to backfill the trench, and a time of mid-summer to late autumn may favour more rapid reinstatement of the *Laminaria*-dominated community.
- Appropriate biosecurity measures will be implemented to ensure that the invasive species identified in the vicinity of the site (O’Neill 2016) are not spread or transported. This may be limited to marking off areas of invasive species to prevent entry by workers or vehicles, or may require the use of geotextiles or washing down of vehicles to prevent the spread of such plants.

6.2 Mitigation of impacts on species

Clearance of scrub and hedgerows will be conducted outside the bird-breeding season of 1st March to 31st August to minimise disturbance to nesting birds, as required under Section 40 of the Wildlife Acts 1976 to 2012 (while Section 40 does not apply in relation to site clearance for site preparation works, birds’ nests remain protected).

Works will be kept to the minimum required, and will be completed as quickly as practicable to minimise disturbance to birds and animals.

As recommended in Irish Water (2014), to mitigate the potential impact on marine mammals the presence of an experienced Marine Mammal Observer may be required during the construction phase of the outfall pipeline to alert the contractor to the presence of marine mammals so that works can be temporarily suspended until the particular mammals have vacated the area. Best practice guidelines for the protection of marine mammals in Irish waters shall be consulted and adhered to before and during the construction phase of the outfall pipeline (Irish Water 2014).

6.3 Mitigation of impacts on water quality during construction

During the construction phase of the proposed sewerage scheme all necessary precautions will be taken to prevent the pollution or silting of watercourses, surface water drains or waterbodies. Standard measures should be implemented to minimise the release of sediment from the construction site into the surrounding environment. With the implementation of the measures described below, it is considered that there is no likelihood of an adverse impact from the construction of the proposed project on the Hook Head SAC from the generation of silt.

There is a risk of a hydrocarbon spill from the operation of plant, machinery and vehicles during the construction of the proposed project. Hydrocarbons and heavy metals can have toxic effects on aquatic organisms. The measures listed below should be implemented so that the likelihood of an impact on water quality from a release of pollutants during the construction phase of the proposed project is reduced and there will be no adverse effect on the Hook Head SAC.

- Surface water run-off will be directed into appropriately designed silt traps prior to discharge to surface waters.
- Fuels, oils, greases and hydraulic fluids will be stored in bunded compounds well away from waterbodies and watercourses, and such compounds will not be located within any Natura 2000 site.

- Maintenance and refuelling of plant and machinery will take place in a bunded area or off site.
- All plant and machinery will be well maintained and regularly checked for leaks.
- Spill kits and staff trained in their use will be available to deal with any incident on site during the operation of the proposed development.
- Stockpile areas for sands and gravel will be kept to minimum size, well away from any waterbodies or watercourses.
- Construction works, especially ones involving the pouring of concrete, will be conducted in the dry.

As the proposed development occurs adjacent to a waterbody, the guidance published by the Eastern Regional Fisheries Board (now Inland Fisheries Ireland) should be consulted in relation to protecting water quality during construction (IFI 2016).

6.4 Mitigation of impacts on water quality during operation

The Wastewater Discharge Licence is issued with conditions that relate to the emissions permissible under the terms of the licence for the Fethard sewerage scheme. These conditions must be met for the WwTP to operate within the terms of the licence. The emission level values (ELVs) specified for the Fethard sewerage scheme are set out in Table 7.

Table 7 Required ELVs for new Fethard treatment plant (source: EPA 2014).
BOD=Biochemical Oxygen Demand; COD=Chemical Oxygen Demand.

	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Total Oxidised Nitrogen (as N)	Ammonia (mg/l)
ELVs for new WwTP	25	125	35	35	15

Monitoring of the discharge from the WwTP will be carried out according to the terms of the Wastewater Discharge Licence D0241-01 to ensure that no deleterious substances are present at a level that could impact negatively on the quality of the receiving waters. According to the licence, the licensing authority "*sets stringent ELVs … to contribute towards good status water quality standards required by the Environmental Objectives Regulations 2009, as amended; [and] requires biannual ambient water quality monitoring; the limited volume of the discharge and the dilution available in the receiving water*."

6.5 General mitigation measures

6.5.1 Disposal of spoil and waste

All excavated surplus, unsuitable or waste materials will be transported off site for disposal. A licensed waste facility will be used for disposal and all relevant licences, permits and permissions required for the use of the licensed dump sites obtained. Vehicles used for the transport of waste material will also have the appropriate permits. Bituminous materials or other spoil contaminated with Polycyclic Aromatic Hydrocarbons (PAHs) will only be disposed of at an appropriately licensed facility.

6.5.2 Dust and noise control

During the works, Best Practicable Means shall be employed to minimise air-blown dust being emitted from the site. This includes covering skips and slack heaps, netting of scaffolding, daily washing down of pavements or other public areas, and any other precautions necessary to prevent dust nuisances.

Any works on the project site will be compliant with the contents and recommendations of British Standard 5228: Code of Practice for Noise Control on Construction and Demolition Sites, as well as

the Safety, Health and Welfare at Work (General Application) Regulations 2007. All plant used during the works will be the quietest of its type available for carrying out the work required and will be maintained in good condition with regard to minimising noise output.

7 Summary of assessment of potential impacts and mitigation measures required

Table 8 summarises the assessment of potential impacts on the Qualifying Interests listed for Hook Head SAC (000764) by the proposed works at Fethard.

Table 8. Summary of the assessment of potential impacts on the Qualifying Interests of the Hook Head SAC (000764) by the proposed works at Fethard WwTP.

Qualifying Interest	**Natura 2000**	**Potential for impacts**	**Potential impacts**			**Cumulative impacts**	**Mitigation**	**Conclusion**
			Disturbance	Emissions (construction)	Emissions (operation)			
	Section 4		Section 2.4	Sections 2.5	Section 2.6	Section 5.4	Section 6	
1160 Large shallow inlets and bays	SAC 000764	Yes – within footprint of works	Disturbance of habitat and noise disturbance while constructing outfall	Potential for oil spills when constructing marine outfall	Effluent from marine outfall	No significant cumulative negative impacts	Agreed measures such as silt traps, use of bunded areas, etc.; mitigation work practices outlined in Section 6 for outfall construction; monitoring of effluent discharge	No significant impact
1170 Reefs	SAC 000764	Yes – within footprint of works	Disturbance of habitat and noise disturbance while constructing outfall	Potential for oil spills when constructing marine outfall	Effluent from marine outfall	No significant cumulative negative impacts	Agreed measures such as silt traps, use of bunded areas, etc.; mitigation work practices outlined in Section 6 for outfall construction; monitoring of effluent discharge	No significant impact
1230 Vegetated sea cliffs of the Atlantic and Baltic coasts	SAC 000764	Yes – within footprint of works	Increased traffic, disturbance of habitat and noise disturbance while constructing WwTP and outfall	Potential for oil spills when constructing marine outfall; Dust from drilling and other construction activities	No significant impact	No significant cumulative negative impacts	Agreed measures such as silt traps, use of bunded areas, etc.	No significant impact

8 Appropriate Assessment Conclusion

The proposed works for the Fethard-On-Sea sewerage scheme (southeastern section) are located partly within the Hook Head SAC. No permanent direct loss of the Qualifying Interest habitats 1160 Reefs or 1170 Large shallow inlets and bays within the SAC is expected to occur if the mitigation measures detailed in Section 6 are followed. Horizontal directional drilling from the proposed WwTP through rocky sea cliffs to the intertidal area will minimise impacts on the Qualifying Interest habitat 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts.

The construction and operational phases will not lead to significant permanent impacts on habitats in the footprint of the proposed works. The small area of reef that is proposed to be disturbed (0.004%) during construction will remain as reef habitat post construction, available for colonisation by flora and fauna. In the operational phase, the diffuser will not change the permanent extent of the marine environment, because the effluent must meet the Environmental Quality Standards for coastal waters set out in the terms of the Waste Water Discharge Licence.

No significant adverse impacts on Qualifying Interest Annex I habitats in the Hook Head SAC, either alone or in combination with other plans or projects, including the northern section of the Fethard-On-Sea sewerage scheme, will occur in the future as long as the appropriate mitigation measures detailed in this NIS and the NIS relating to the northern part of the scheme (O'Neill *et al.* 2016) are implemented.

It is thus concluded that, provided all mitigation measures listed above are followed, there will be no significant adverse effects from the southeastern section of the proposed sewerage system development at Fethard-On-Sea on the structure and function of Hook Head SAC or any other Natura 2000 site. Nor will there be any significant adverse effect on the conservation objectives of the site or its Qualifying Interests.

It should be noted that this report is valid for this proposed project only and any changes to this project must be subjected to the Appropriate Assessment process.

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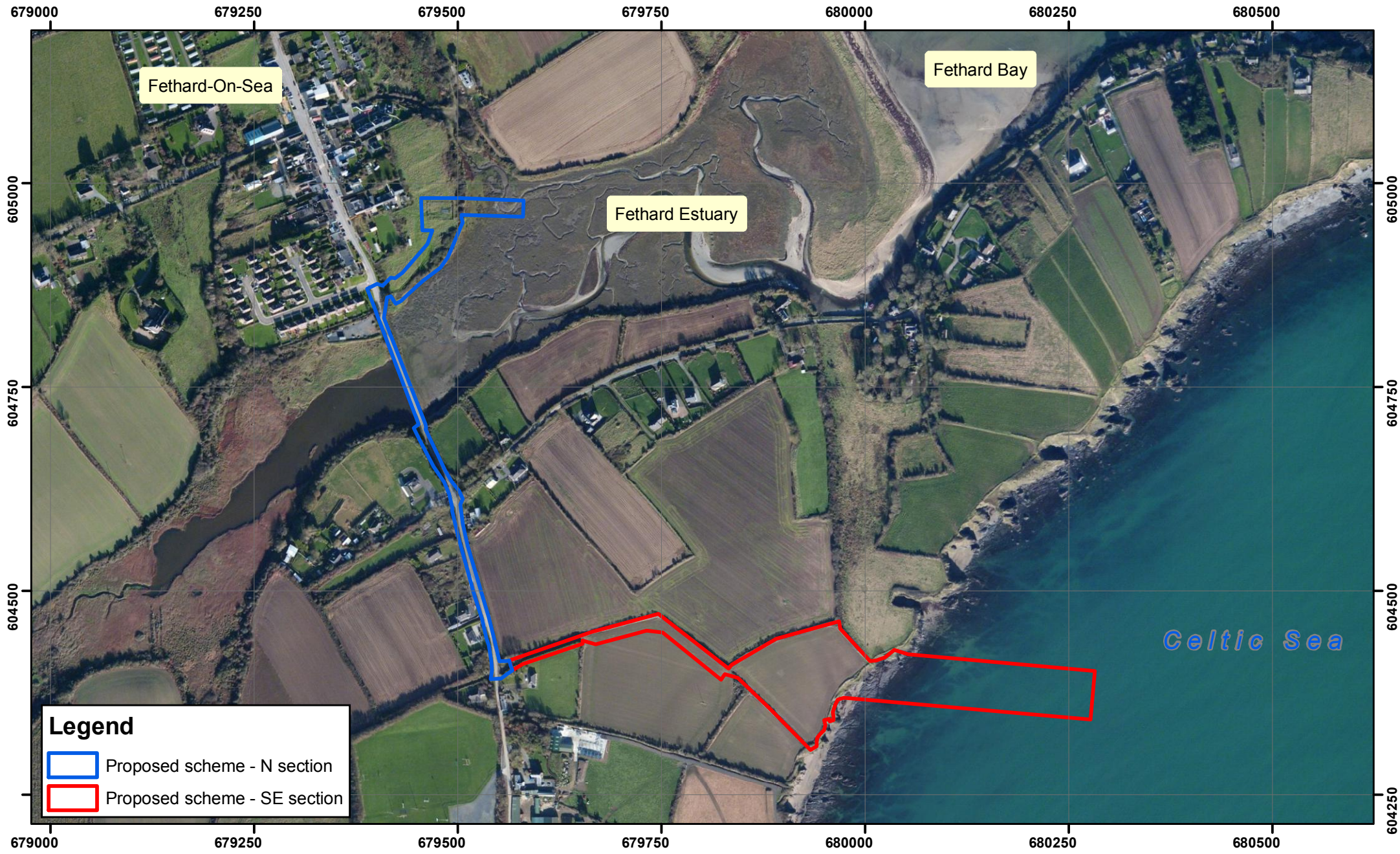
Appendix 1: Fethard-On-Sea proposed sewerage scheme - Location of works



N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Map Projection: IRENET95 Irish Transverse Mercator

1:6,000

0 62.5 125 250 Meters

bec CONSULTANTS

Appendix 2: Site photographs from southeastern section of proposed scheme

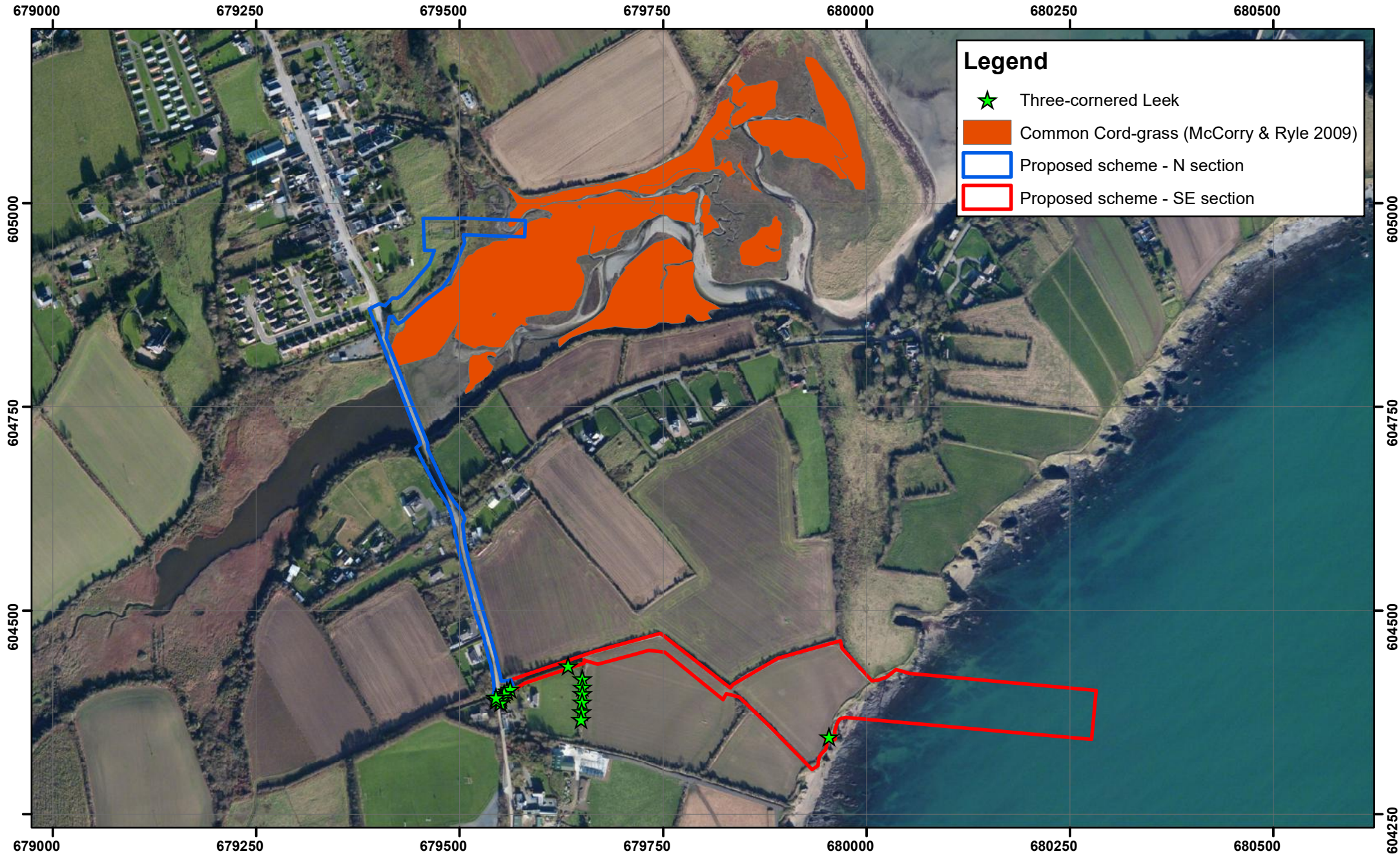
Plate 1: Farm lane along which new pipeline will run

Plate 2: Western end of farm lane

Plate 3: Looking north; western cereal field, pipeline to run eastwards along upper hedgerow

Plate 4: Looking southwest; eastern cereal field in which WwTP to be built; Annex I 1230 Atlantic sea cliffs through which new outfall to be drilled

Appendix 3: Fethard-On-Sea proposed sewerage scheme - Location of Alien Invasive Species



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Map Projection: IRENET95 Irish Transverse Mercator

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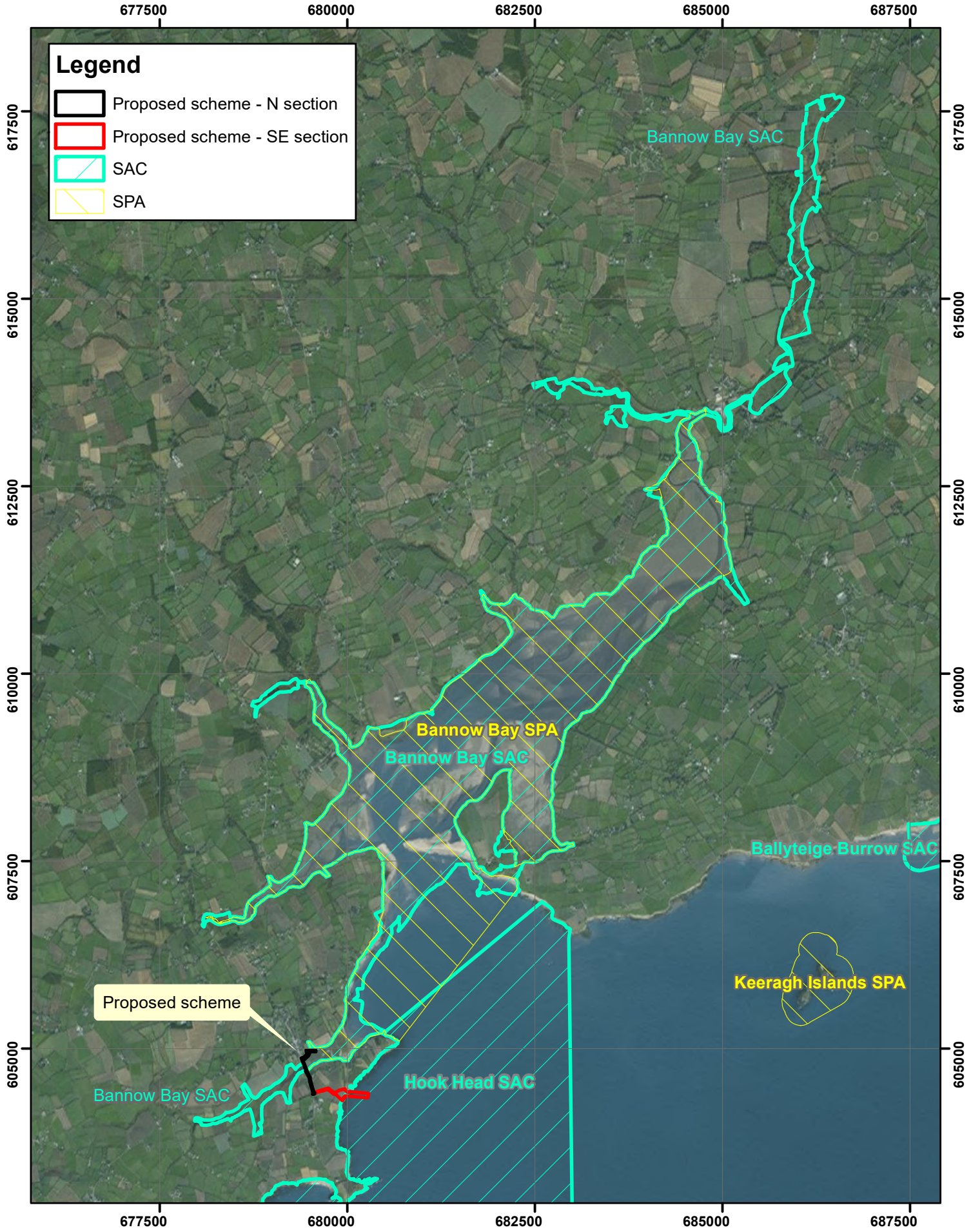
bec CONSULTANTS

Appendix 4: Fethard-On-Sea works in relation to Natura 2000 network
(a) Overall context



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

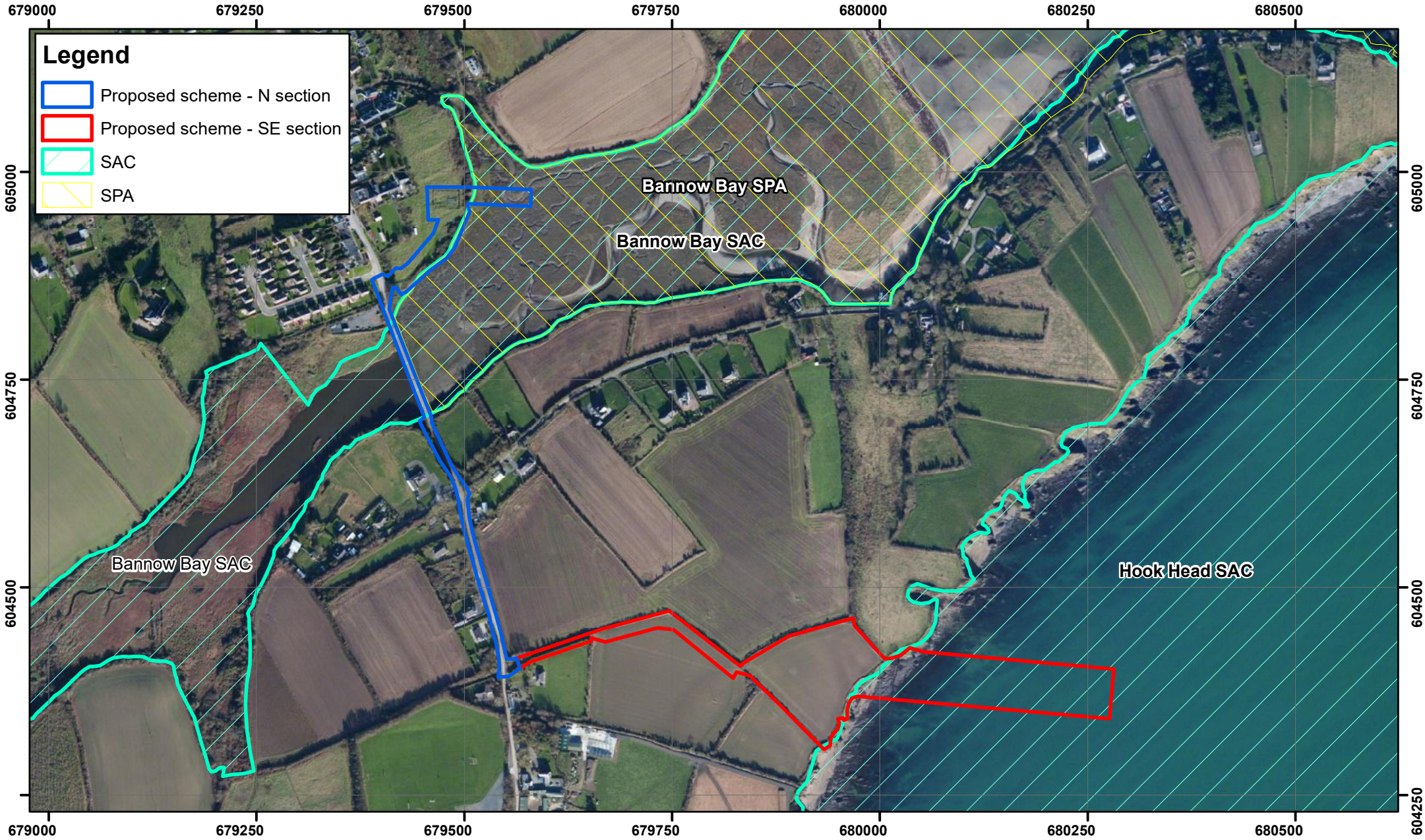
Map Projection: IRENET95 - ITM

1:65,000

0 0.5 1 2 Kilometres

bec CONSULTANTS

Appendix 4: Fethard-On-Sea works in relation to Natura 2000 network
(b) Local context



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Map Projection: IRENET95 Irish Transverse Mercator

1:6,000

0 65 130 260 Metres

Appendix 5: Consultation – Response from Development Applications Unit

Received 2nd June 2016

An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

Your Ref:
Our Ref: **G Pre00141/2016** *(Please quote in all related correspondence)*

02 June 2016

Fionnuala O'Neill PhD, MCIEEM
Senior Ecologist
www.botanicalenvironmental.com

Via email to foneill@botanicalenvironmental.com

Re: Request for nature conservation observations for proposed Wastewater treatment plant at Fethard, Co. Wexford

A chara

On behalf of the Department of Arts, Heritage and the Gaeltacht, I refer to correspondence received in connection with the above. Outlined below are heritage-related observations/recommendations of the Department under the stated heading(s).

Nature Conservation

The applicant has requested scoping information for a NIS. However there are other issues that also need to be considered. In particular it should be noted by the applicant that the protected plant Perennial Glasswort (*Arthrocnemum perenne*) occurs in the vicinity of the proposed development. Therefore a survey will be necessary and a licence may need to be applied for. The applicant should complete a data request form requesting the data for this rare plant from the National Parks and Wildlife Service (NPWS) of this Department. This can be found at http://www.npws.ie/maps-and-data/request-data . It should also be noted that the saltmarsh monitoring project of this Department mapped this area and the reports can be found at the publications section of www.npws.ie .

In addition it appears that the development is adjacent to a peregrine falcon nest site and the impact on these birds needs to be assessed.

Please find below some general scoping comments for appropriate assessment screening and appropriate assessment as well as licensing requirements.

Appropriate Assessment

Guidance

With regard to appropriate assessment (AA) and screening for AA, some Guidance documents are referred to below which may help. However CJEU case law has to some

extent clarified certain issues and should be consulted. In particular case C-258/2011-N6 Galway City Outer Bypass is relevant as is the recent opinion on the Briels case, C-521/12.

Guidance on AA is available in the Departmental guidance document on Appropriate Assessment, which is available on the NPWS web site at http://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf and in the EU Commission guidance entitled "*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*" which can be downloaded from http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf

Conservation objectives

In order to carry out the appropriate assessment screening, and/or prepare the Natura Impact Statement (NIS), information about the relevant Natura 2000 sites including their conservation objectives will need to be collected. Details of designated sites and species and conservation objectives can be found on www.npws.ie . Site-specific, as opposed to generic, conservation objectives are now available for some sites. Each conservation objective for a qualifying interest is defined by a list of attributes and targets and is often supported by further documentation. Where these are not available for a site, an examination of the attributes that are used to define site-specific conservation objectives for the same QIs in other sites can be usefully used to ensure the full ecological implications of a proposal for a site's conservation objective and its integrity are analysed and assessed. It is advised, as per the notes and guidelines in the site-specific conservation objectives, that any reports quoting conservation objectives should give the version number and date, so that it can be ensured and established that the most up-to-date versions are used in the preparation of Natura Impact Statements and in undertaking appropriate assessments.

Where further detail is required on any information on the website www.npws.ie , a data request form should be submitted. This can be found at http://www.npws.ie/maps-and-data/request-data .

Cumulative and ex situ impacts

A rule of thumb often used is to include all Natura 2000 sites within a distance of 15km. It should be noted however that this will not always be appropriate. In some instances where there are hydrological connections a whole river catchment or a groundwater aquifer may need to be included. Similarly where bird flight paths are involved the impact may be on an SPA more than 15 km away.

Other relevant Local Authorities should be consulted to determine if there are any projects or plans which, in combination with this proposed development, could impact on any Natura 2000 sites

Alien invasive species

If the proposed development is adjacent to a Natura 2000 site and involves landscaping or a garden, care should be taken to ensure that no terrestrial or aquatic invasive species are used which could impact negatively on these sites. Information on alien

invasive species in Ireland can be found at http://invasives.biodiversityireland.ie/ and at http://invasivespeciesireland.com/ .

CMPs

Complete project details including construction management plans (CMPs) need to be provided in order to allow an adequate appropriate assessment to be undertaken. Applicants need to be able to demonstrate that CMPs and other such plans are adequate and effective mitigation, supported by scientific information and analysis, and that they are feasible within the physical constraints of the site. The positions, locations and sizes of construction infrastructure and mitigation, such as settlement ponds, disposal sites and construction compounds, may significantly affect European sites, designated sites, habitats, and species in their own right and could have an effect for example on drainage, water quality, habitat loss, and disturbance. If these are undetermined at time of the assessment, all potential effects of the development on the site are not being considered. If applicants are not in a position to decide the exact location and details of these at time of application, then they need to consider the range of options that may be used in their assessment so that all issues are covered. The CMP should also include methods to ensure invasive alien species are not introduced or spread.

Licences

Where there are impacts on protected species and their habitats, resting or breeding places, licences may be required under the Wildlife Acts or derogations under the Habitats Regulations. In particular bats and otters are strictly protected under annex IV of the Habitats Directive and a copy of Circular Letter NPWS 2/07 entitled "*Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 – strict protection of certain species/applications for derogation licences*" can be found on the Departmental website at http://www.npws.ie/sites/default/files/general/circular-npws-02-07.pdf. It should be noted however that this Regulation has been replaced by SI 477 of 2011 and that section 53 is the relevant section.

In addition licences will be required if there are any impacts on other protected species or their resting or breeding places, such as on protected plants, badger setts or birds' nests. Where possible hedges and trees should not be removed during the nesting season (i.e. March 1st to August 31st). Birds' nests can only be intentionally destroyed under licence issued under the Wildlife Acts of 1976 to 2012.

In order to apply for any such licences or derogations as mentioned above the results of a survey should be submitted to the National Parks and Wildlife Service of this Department. Such surveys are to be carried out by appropriately qualified person/s at an appropriate time of the year. Details of survey methodology should also be provided. Such licences should be applied for in advance of planning to avoid delays and in case project modifications are necessary.

Should the survey work take place well before construction commences, it is recommended that an ecological survey of the development site should take place immediately prior to construction to ensure no significant change in the baseline ecological survey has occurred. If there has been any significant change mitigation may require amendment and where a licence has expired, there will be a need for new licence applications for protected species.

In order to apply for any such licences or derogations as mentioned above the results of a survey should be submitted to the National Parks and Wildlife Service of this Department which should have been carried out by appropriately qualified person/s at an appropriate time of the year. Details of survey methodology should also be provided. Such licences should be applied for in advance of planning to avoid delays and in case project modifications are necessary.

The above observations and recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by a planning authority, in her role as statutory consultee under the Planning and Development Act 2000, as amended.

You are requested to send further communications to this Department's Development Applications Unit (DAU) at **manager.dau@ahg.gov.ie** (team monitored); if this is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit (DAU)
Department of Arts, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

Le meas

Yvonne Nolan,
Development Applications Unit

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