



FLYNN
FURNEY

ENVIRONMENTAL CONSULTANTS

Appropriate Assessment Stage 1: Screening

Proposed Accelerated Social Housing Scheme
Mullavalley Louth Village

Document Details

Client: Louth County Council

Project Title: Appropriate Assessment Screening

Document Title: Proposed Accelerated Social Housing Scheme Mullavalley Louth Village

Prepared by: Flynn Furney Environmental Consultants

Rev	Status	Date	Author(s)	Approved by
01	Draft	19/01/2024	LW	ID
02	Final	21/03/2024	LW	ID

Contents

1	Introduction.....	4
2	Background to Screening for Appropriate Assessment	4
2.1	European Designated Sites	4
2.2	Legislative Context.....	5
2.3	Appropriate Assessment Screening Report.....	8
3	Methodology.....	8
3.1	Desk Study	8
3.2	Data Used to Carry Out the Assessment	9
3.3	SPR Model	9
3.4	The Precautionary Principle.....	10
3.5	Field Survey	10
4	Screening of Designated Sites.....	10
4.1	Project Description and Site Location	10
4.1.1	Water Courses and Groundwater	11
4.2	Proposed Works.....	14
4.3	Nearby Designated Sites	16
5	Assessment Criteria.....	20
5.1	Is The Project Necessary To The Management Of The Designated Site(s)?	20
5.2	Direct, Indirect Or Secondary Impacts.....	20
5.2.1	Land Take.....	20
5.2.2	Water Quality and Pollution Control	20
5.2.3	Noise or Vibration Resulting in Disturbance.....	20
5.3	Cumulative and In Combination Impacts.....	21
6	Screening Conclusions.....	21
6.1	Data Collected to Carry Out Assessment.....	21
6.2	Overall Conclusions	21
	References	22
7	Appendix A: Photos	23

1 Introduction

This report comprises information in support of screening for Appropriate Assessment (AA) in line with the requirements of Article 6[3] of the EU Habitats Directive (EC 92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora; the Planning and Development (Amendment) Act 2010; and the European Union (Birds and Natural Habitats) Regulations 2011 as amended.

This screening exercise aims to determine whether the proposed works associated with the development of a social housing scheme at Mullavalley Louth Village and has the potential to significantly impact upon the conservation objectives and overall integrity of any Natura 2000 sites. This assessment is based upon a desk study and fieldwork carried out by suitably qualified ecologists. Also included is a general assessment of the ecological status of the site and the potential impacts of the proposed works on the ecology of the surrounding area, including Designated Sites.

The Competent Authority is obliged to examine the likely significant effects individually or in combination, of the proposed development on European Designated Sites in light of their specific qualifying interests and conservation objectives. If AA screening determines that there is likely to be significant effects on one of these sites, then full AA must be carried out for the proposed works, including the compilation of a Natura Impact Statement to inform the decision-making.

Section 4 of the report comprises the AA Screening that specifically focuses on the potential for impacts on Natura 2000 sites deemed to be at risk from the proposed development. Section 6 of this report provides the Screening Conclusion.

2 Background to Screening for Appropriate Assessment

2.1 European Designated Sites

Sites designated for the conservation of nature in Ireland include:

- Special Areas of Conservation (SACs);
- Special Protection Areas (SPAs);

- Natural Heritage Areas (NHAs), and;
- proposed Natural Heritage Areas (pNHAs)

SPAs and SACs form the Natura 2000 network of sites. It is these sites that are of relevance to the screening process for this Appropriate Assessment Screening. SPAs and SACs are prime wildlife conservation areas in the country, considered to be important on a European as well as Irish level. SPAs and SACs are designated under EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.

All European Designated Sites (henceforth simply referred to as “Designated Sites”) that are connected to the proposed works were considered during the desktop study in order to assess the potential for significant effects upon their Qualifying Interests and Conservation Objectives. Where no connection was identifiable, the nearest site(s) were considered. This stage of the process is used to determine whether any of the Designated Sites (specifically SACs and SPAs) may be ‘screened out’. That is, whether they can be regarded as not being relevant to the process of Appropriate Assessment of the project, having no potential to be significantly impacted.

2.2 Legislative Context

The methodology for this screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled ‘Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6 paragraphs 3 and 4 of the Habitats Directive 92/43/EEC’ (Oxford Brookes University, 2001). This report and contributory fieldwork were carried out in accordance with guidelines given by the Department of Environment, Heritage and Local Government (2009, amended February 2010).

The assessment process is given in Articles 6[3] and 6[4] of the Habitats Directive and is commonly referred to as “Appropriate Assessment” or AA. Article 6 of the Habitats Directive sets out provisions which govern the conservation and management of Natura 2000 sites. Article 6[3] and 6[4] of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6[3] establishes the requirement for Appropriate Assessment:

“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 and 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 implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6[4] continues:

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

It is the responsibility of the proponent of the plan or project to provide the relevant information (ecological surveys, research, analysis etc.) for submission to the 'competent national authority'. If satisfied that the information is complete and objective, the competent authority will use this information to screen the project, i.e. to determine if an AA is required and to carry out the AA, if one is deemed necessary. The competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned."

The appropriate assessment process has four stages. Each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage One are that there will be no significant impacts on the Natura 2000 site, there is no requirement to proceed further. The four stages are:

1. screening to determine if an appropriate assessment is required;
2. appropriate assessment;

3. consideration of alternative solutions, and;
4. imperative reasons of overriding public interest/derogation.

Stage 1: Screening for AA

The aim of screening is to assess firstly if the plan or project is directly connected with or necessary to the management of Designated Site(s); or in view of best scientific knowledge, if the plan or project, individually or in combination with other plans or projects, is likely to have a significant effect on a Designated Site. This is done by examining the proposed plan or project and the conservation objectives of any Designated Sites that might potentially be affected. If screening determines that there is potential for significant effects or there is uncertainty regarding the significance of effects then it will be recommended that the plan or project is brought forward to the next stage of the AA process.

Stage 2: Appropriate Assessment

The aim of stage 2 of the AA process is to identify any adverse impacts that the plan or project might have on the integrity of relevant Designated Sites. As part of the assessment, a key consideration is 'in combination' effects with other plans or projects. Where adverse impacts are identified, mitigation measures can be proposed that would avoid, reduce or remedy any such negative impacts and the plan or project should then be amended accordingly, thereby avoiding the need to progress to Stage 3.

Stage 3: Assessment of Alternative Solutions

If it is not possible during Stage 2 of the AA process to conclude that there will be no adverse effects on site integrity, Stage 3 of the process must be undertaken which is to objectively assess whether alternative solutions exist by which the objectives of the plan or project can be achieved. Explicitly, this means alternative solutions that do not have adverse impacts on the integrity of a Designated Site. It should also be noted that EU guidance on this stage of the process states that, 'other assessment criteria, such as economic criteria, cannot be seen as overruling ecological criteria' (EC, 2002). In other words, if alternative solutions exist that do not have adverse impacts on Designated Sites; they should be adopted regardless of economic considerations. This stage of the AA process should result in the identification of the least damaging options for the plan or project.

Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)/Derogation

This stage of the AA process is undertaken when it has been determined that a plan or project will have adverse effects on the integrity of a Designated Site, but that no alternatives exist. At this stage of the AA process, it is the characteristics of the plan or project itself that will determine whether or not the competent authority can allow it to progress. This is the determination of ‘overriding public interest’. It is important to note that in the case of Designated Sites that include in their qualifying features ‘priority’ habitats or species, as defined in Annex I and II of the Directive, the demonstration of ‘overriding public interest’ is not sufficient and it must be demonstrated that the plan or project is necessary for ‘human health or safety considerations’. Where plans or projects meet these criteria, they can be allowed, provided adequate compensatory measures are proposed. Stage 4 of the process defines and describes these compensation measures.

2.3 Appropriate Assessment Screening Report

This report provides stage one: screening for appropriate assessment. It aims to establish whether a plan or project is likely to have any significant effects on any Natura 2000 sites. The study is based on a preliminary impact assessment using both publicly available data and data collected during site visits and ecological surveys. This is followed by a determination of whether there is a risk that the effects identified could significantly impact any Natura 2000 sites, and if so an AA is required. The need to apply the precautionary principle in making any key decisions in relation to the tests of AA has been confirmed by European Court of Justice case law. Therefore, where significant effects are likely, possible or uncertain at screening stage, AA will be required.

3 Methodology

3.1 Desk Study

A desktop study was carried out as part of this screening process. This included a review of available literature on the site and its immediate environs. Sources of information included the National Parks and

Wildlife Service databases on protected sites and species data, and from the Environmental Protection Agency on watercourses.

3.2 Data Used to Carry Out the Assessment

The following sources of data were employed:

- Environmental Protection Agency (EPA) Appropriate Assessment Tool
- EPA Maps (to identify watercourses, hydrology and Natura 2000 site boundaries)
- NPWS protected species database and online mapping
- National Biodiversity Data Centre
- An Bord Pleanála's online database

3.3 SPR Model

This assessment was carried out with regard to the source-pathway-receptor (SPR) approach, a standard tool in environmental assessment. The SPR concept in ecological impact assessment relates to the idea that for the risk of an impact to occur, a source is needed (a development site); an environmental receptor is present (a lake); and finally, there must be a pathway between the source and the receptor (a watercourse linking the development site to the lake). Even though there might be a risk of an impact occurring, that does not necessarily mean that it will occur, and even if it does occur, it may not be significant. Identification of a risk means that there is a possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature and exposure to the risk and the characteristics of the receptor.

In this instance, the most relevant receptors are any relevant Natura 2000 sites with connectivity of the proposed works. These were considered during the desktop study stage of this screening assessment in order to assess the potential for significant effects upon their Qualifying Interests (QIs), Sites of Community Importance (SCIs) and Conservation Objectives (COs). This stage of the process is used to determine whether any of the Natura sites may be 'screened out'. That is, that they can be regarded as not being relevant to the process, having no potential to be significantly affected or impacted upon.

3.4 The Precautionary Principle

The Precautionary Principle has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: “When human activities may lead to morally unacceptable harm [to the environment] that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis”. Reasoned application of the ‘Precautionary Principle’ is fundamental to the Screening Stage (and AA). The precautionary principle is referenced in Article 191 of the Treaty on the Functioning of the European Union (TFEU). It relates to an approach to risk management whereby if there is the possibility that a given policy or action might cause harm to the public or the environment and if there is still no scientific consensus on the issue, the policy or action in question should not be pursued.

The precautionary principle prevails where ‘reasonable scientific doubt’ cannot be ruled out. Known threats to QIs of relevant sites are analysed to avoid overlooking subtle or far-field effect pathways. The duration of potential effects is a key consideration, in particular, because the European Court of Justice has recently ruled—albeit in specific reference to priority habitats—those effects to site integrity must be “lasting”.

3.5 Field Survey

The field survey was carried out on the 19th of July, 2023 and the 12th of January, 2024. Baseline ecological conditions were assessed. Habitats were classified according to Fossitt (2000). Where applicable, the habitat types and species usage were recorded (Smith et al. 2011; Scannell and Synnott, 1987; Wyse Jackson et al. 2016). Habitats were classified and dominant plant species were noted according to the guidelines given by the JNCC (2010) with reference to Smith et al. (2011) & Scannell and Synnott (1987).

4 Screening of Designated Sites

4.1 Project Description and Site Location

The Mullavalley site is located in Louth Village. The developable site area is 3.48ha in total and is composed of two grassland fields separated by hedgerows. The R171 is found along the northern boundary of the

site. Housing developments are found to the south. Arable croplands are found to the north and west of the site.

The site itself is currently composed of **Improved Agricultural grassland (GA1)** habitat throughout. This was dominated by Annual Meadow-grass (*Poa annua*), Rye Grass (*Lolium Spp*) and Yorkshire fog (*Holcus lanatus*). The herb layer likely contained Thistles (*Cirsium arvense*, *C. vulgare*), Docks (*Rumex spp.*). The fields on the site were separated by mature Hawthorn (*Crataegus monogyna*) dominated **Hedgerows (WL1)** with frequent Bramble (*Rubus fruticosus agg*), Dog-rose (*Rosa canina*) and Ivy (*Hedera helix*). Honeysuckle (*Lonicera periclymenum*) was occasional.

There are no Natura 2000 designated sites within close proximity to the subject site. The closest is Dundalk Bay SAC and SPA is found 10km west of the Mullavalley site.

4.1.1 Water Courses and Groundwater

No water courses are found within the site boundary the closest is the Commons stream which is a tributary of the Louth Stream. This is found 127m northwest of the Mullavalley site. No connectivity exists between this watercourse and the Mullavalley site.

Groundwater vulnerability mapping¹ indicated that the site is in an area of high groundwater vulnerability. No Groundwater dependant habitats or designated sites are found within close proximity to the subject site.

¹ <https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef>
AA Screening

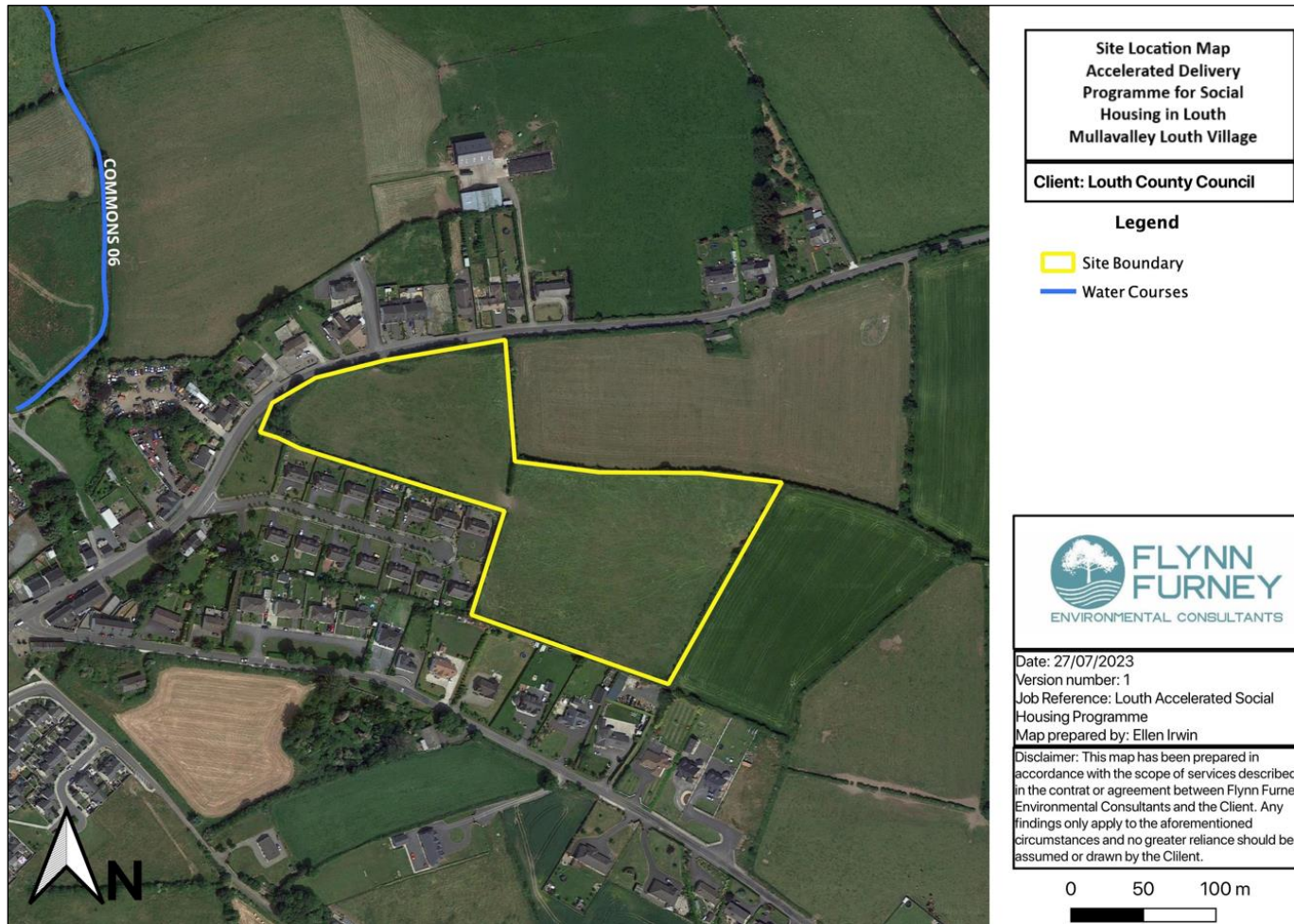


Figure 4.1 Overview of the works area, local water courses and the sites local context

4.2 Proposed Works

The Mullavalley site is located in a Small Towns & Villages Growth Centre as defined in the Louth County Development Plan 2021-2027. Currently the development is proposed to include: The construction of 58no. houses including 8no. 2-bed bungalows, 20no. two storey 2-bed houses, 24no. two storey 3-bed houses, 5no. two storey 4-bed houses, and 1no. 5-bed bungalow.

The development will also include the construction of a new entrance onto the R171; provision of new cycleway, footpath, and public lighting along the boundary with the R171; new estate roads and homezones within the site; 109no. car parking spaces including both on-street and in-curtilage parking; cycle parking; hard and soft landscaping including public open spaces, playground, and private gardens; boundary treatments; ESB substation; lighting; laying of underground sewers, mains and pipes; underground attenuation tank; and all associated works.

The proposed development will 28% of public open space. General works associated with the proposed development include:

- The removal of soil and overburden material
- Connection to services including water, wastewater, stormwater, electricity and broadband, where applicable
- The construction of 58 social housing units
- The installation of SuDS infrastructure including attenuation tanks, petrol/ oil interceptor, bio-retention systems/ rain gardens and tree pits
- Landscaping and;
- All associated site works

Attenuation tanks will only be used as a last resort where other measures are not feasible. They will be provided on site and will have the capacity for site storage for 1/100 storm and 20% climate change with hydrobrake connection to mains. Petrol/ oil interceptors will be included in the overall drainage design. Bio-retention systems/ rain gardens and tree pits will be included in the landscape design but are not

included in SuDS calculation due to impermeable ground conditions and poor infiltration however they will still contribute to overall SuDS.

4.3 Zone of Influence and Potential Impacts or Effects

The proposed works have the potential to result in a number of direct and indirect effects. These are set out in Table 4.1, which identifies the “zones of influence” for each effect (i.e. the area over which effects may occur).

Table 4.1 Potential impacts, effects and their zone of influence

Potential Impact and Effect	Description	Zone of Influence
Land-take resulting in habitat loss or degradation.	The permanent loss of the habitat present in the footprint of the works and access routes.	Lands within the proposed footprint of works and access routes. This also includes supporting habitat types and areas.
Changes in water quality and quantity/distribution resulting in habitat loss or degradation.	Reduction in the quality of retained habitat or loss of habitat from surrounding areas as a result of surface water pollution.	Changes in surface water quality, as a result of works, associated with the proposed development within local water bodies, wetlands or supporting habitat areas.
Noise or vibration resulting in disturbance.	Direct impact on feature species reducing their ability to forage or breed.	Generally assessed within 150m for otter underground sites. Cutts et al. (2013) notes that different types of disturbance stimuli are characterised by different avifaunal reactions, however, as a general rule of thumb, a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl.

Nearby Designated Sites

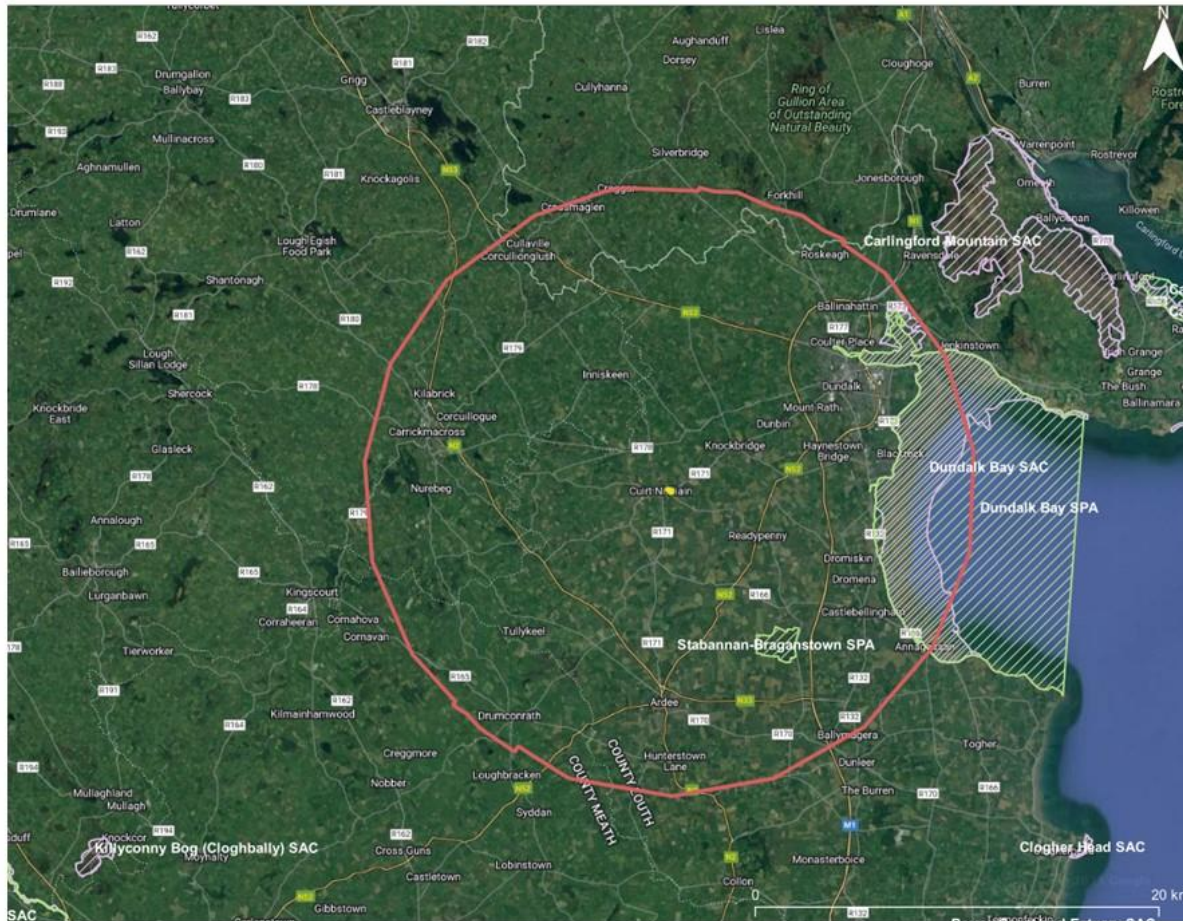
SACs and SPAs form the European/Natura 2000 network of sites. It is these sites that are of relevance to the screening process for the Appropriate Assessment. SPAs and SACs are prime wildlife conservation areas in the country, considered to be important on a European as well as Irish level. SPAs and SACs are designated under EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.

Table 4.2 Source - Pathway - Receptor Assessment

Site Name Designation Site Code	Qualifying Interests	Distance	Likely Zone of Impact Determination
Dundalk Bay SAC (000455)	<ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] 	10km	<p>The proposed development is located outside the boundary of this SAC and there is no potential for direct effect.</p> <p>The potential for indirect effects on the QIs can be ruled out due to the intervening distance between the development site and the SAC and the absence of a source-pathway-receptor chain for a likely significant effect.</p> <p>No source-pathway-receptor links and no risk of likely significant effects were identified, either alone or in combination with other</p>

	<ul style="list-style-type: none"> • Mediterranean salt meadows (Juncetalia maritimi) [1410] 		<p>plans or project</p>
<p>Dundalk Bay SPA (004026)</p>	<ul style="list-style-type: none"> • Great Crested Grebe (Podiceps cristatus)[A005] • Greylag Goose (Anser anser) [A043] • Light-bellied Brent Goose (Branta berniclahrota) [A046] • Shelduck (Tadorna tadorna) [A048] • Teal (Anas crecca) [A052] • Mallard (Anas platyrhynchos) [A053] • Pintail (Anas acuta) [A054] • Common Scoter (Melanitta nigra) [A065] • Red-breasted Merganser (Mergus serrator)[A069] • Oystercatcher (Haematopus ostralegus) [A130] • Ringed Plover (Charadrius hiaticula) [A137] • Golden Plover (Pluvialis apricaria) [A140] 	<p>10km</p>	<p>The proposed development is located outside the boundary of this SPA and there is no potential for direct effects.</p> <p>This area could not support and provide any significant foraging, roosting and nesting habitat ex-situ for any of the QI species of this SPA.</p> <p>Works sufficiently distant from the boundary of this SPA. As such no noise or disturbance-related impacts will occur.</p> <p>No source-pathway-receptor links and no risk of likely significant effects were identified, either alone or in combination with other plans or projects.</p>

	<ul style="list-style-type: none"> ● Grey Plover (Pluvialis squatarola) [A141] ● Lapwing (Vanellus vanellus) [A142] ● Knot (Calidris canutus) [A143] ● 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] ● Herring Gull (Larus argentatus) [A184] <p>Wetland and Waterbirds [A999]</p>		<p>The proposed development is located outside the boundary of this SPA and there is no potential for direct effects.</p> <p>This area could not support and provide any significant foraging, roosting and nesting habitat ex-situ for any of the QI species of this SPA.</p> <p>Works sufficiently distant from the boundary of this SPA. As such no noise or disturbance-related impacts will occur.</p> <p>No source-pathway-receptor links and no risk of likely significant effects were identified, either alone or in combination with other plans or projects</p>
<p>Stabannan-Braganstown SPA (004091)</p>	<p>Greylag Goose (Anser anser) [A043]</p>	<p>8.3km</p>	



Mullavalley Accelerated Social Housing	
Client: Louth County Council	
Legend	
	Special Protected Areas
	Special Areas of Conservation
	15km Buffer
	Mullavalley Location
	
Prepared by: Lauren Woods Date: 16/01/2023 Version: 1 Project: Mullavalley Accelerated Social Housing Imagery from: Google	
Disclaimer: This map has been prepared in accordance with the scope of services described in the contract or agreement between Flynn Furney Environmental Consultants and the Client. Any findings only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client.	

Figure 4.3 The nearest Designated Sites to the proposed development site

5 Assessment Criteria

5.1 Is The Project Necessary To The Management Of The Designated Site(s)?

The proposed project is not necessary to or connected with the management of any Designated Sites.

5.2 Direct, Indirect Or Secondary Impacts

Applying the concept of the source-pathway-receptor model, there are no identifiable direct impacts on nearby Designated sites. The following sources and pathways were considered and are discussed further below.

- Land take
- Surface water
- Noise or vibration resulting in disturbance.

5.2.1 Land Take

Works are entirely outside any European designated site. No supporting habitat areas to any designated site will be impacted by the proposed works.

5.2.2 Water Quality and Pollution Control

No watercourses were found with connectivity to the proposed development that could provide connectivity to any designated site. As such no hydrological impact pathway exist.

5.2.3 Noise or Vibration Resulting in Disturbance

Works will not occur within close proximity to any designated site. As such no noise or disturbance related impacts will occur.

5.3 Cumulative and In Combination Impacts

A number of local planning applications were reviewed. As no potential impacts were identified as a result of this scheme no cumulative impacts can therefore exist.

6 Screening Conclusions

The findings of this Screening Assessment are presented following the European Commission's Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).

6.1 Data Collected to Carry Out Assessment

In preparation of this report, the following sources were used to gather information:

- Review of NPWS Site Synopses, Conservation Objectives and Map for the European Sites reviewed
- Review of OS maps and aerial photographs of the site of the proposed project.
- Review of the project description and an assessment of its likely effects on local ecology including European sites and;
- No.1 site visit conducted by Ian Douglas (B.Sc., MSc.) in July 2023.

6.2 Overall Conclusions

In our professional opinion and in view of the best scientific knowledge and in view of the conservation objectives of the European sites reviewed in the screening exercise, the proposed development individually/in combination with other plans and projects (either directly or indirectly) are not likely to have any significant effects on nearby designated sites. **Therefore, progression to Stage 2 Appropriate Assessment is not required.**

References

European Commission DE, 2001. Assessment of plans and projects significantly affecting Natura 2000 sites.

Environmental Protection Agency, Appropriate Assessment Tool: <https://gis.epa.ie/EPAMaps/AAGeoTool>

Fossitt, J.A. (2000) A Guide to Habitats in Ireland. The Heritage Council, Kilkenny.

JNCC (2010) Handbook for Phase 1 Habitat Survey. Joint Nature Conservation Committee, Peterborough, UK.

National Planning Application Map Viewer: <https://myplan.ie/national-planning-application-map-viewer/>

National Roads Authority (2009) Ecological Surveying Techniques for Protected flora and fauna during the Planning of National Road Schemes. NRA (now Transport Infrastructure Ireland), Dublin.


Scannell, M J P and Synott, D M, 1987, Census Catalogue of the Flora of Ireland. Stationary Office, Dublin.

Smith, G.F., O'Donoghue, P., O'Hora, K. and Delaney, E., 2011. Best practice guidance for habitat survey and mapping. The Heritage Council: Ireland.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland.

Appendix A: Photos

Figure no.	Description	Image
1	Southern field	
2	Northern field with mature Hawthorn hedgerows	

3	Southern field with mature Hawthorn hedgerows and the surrounding landscape of houses and further agricultural lands	
4	Northern field looking north	