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## Fassaroe Residential Development - Phase1 Landscape Strategy and Design Rationale

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Rev.Q<sup>1</sup>



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- Tertiary streets Homezone 22.2m wide

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#### INTRODUCTION AND SITE CONTEXT

Cosgrave Property Group proposes to lodge a planning application for a Strategic Housing Development to An Bord Pleanála on lands at Fassaroe, Bray, Co. Wicklow under section 4 of the Planning and Development (Housing) and Residential Tenancies Act 2016. The proposed development will comprise of 241 no. House units, 409 apartment units a 733sq.m. creche, a district park, Neighbourhood centre and various supporting infrastructural requirements.

#### SITE LOCATION AND CONTEXT



The site is located at Fassaroe which is on the western side of Bray to the west of the N11 as shown on the above map

The application site is part of a larger designated development area zoned primarily for residential, open space, employment and community and education uses. The lands also comprise a designated Neighbourhood Centre area. The lands are zoned under the Bray Municipal District (MD) LAP 2018. The LAP identifies two overall phases of development for Fassaroe. The current proposed application comprises the first stage of the 'Phase 1' development. It incorporates most of the LAP Phase 1 and approximately a quarter of the identified housing element of Phase 1.

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Above image shows sketch design for a masterplan for the overall Cosgrave owned lands at Fassaroe

The overall Fassaroe development area is made up primarily of existing agricultural and quarry lands along with some clusters of private dwellings and a waste management facility.

Ballyman Glen which forms the northern boundary of the overall Fassaroe development lands comprises an SAC. The features of interest in the SAC are petrifying springs with tufa formation (Cratoneurion) [7220] and alkaline fens [7230]. These features interact to create a wet woodland habitat which includes different species of orchids and sedges. Overall, the vegetation at this site is well developed.

#### THE APPLICANT SITE

The application site consists primarily agricultural land of an irregular shape and encompasses large fields primarily to the north of Berryfield Lane with the Ballyman Glen adjacent to much of the northern site boundary. The site does extend partly to the south of Berryfield Lane also. To the south of the Lane, the application site includes an area of land between the existing ESB substation to the west and a row of private dwellings to the east. Quarry lands currently operated by Roadstone are adjacent to the south and east. This southern portion of the application site extends west to include the proposed road which will link to the Ballyman Road. The application site also extends to the east to Dargle Road, allowing for the provision of a pedestrian / cycle link from the proposed development to Bray. The site primarily comprises lands which are currently used as agricultural fields, including hedgerow boundaries. Towards the western extent of the lands, the site encompasses the Enniskerry Youth Club amateur football club facility. The historic landfills in the area are also included within the application site.

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#### **PROJECT DESCRIPTION**

The proposed development will comprise of:

- Road link connecting N11 to Ballyman Road.
- Pedestrian / cycle connection across the N11 connecting to Dargle Road.
- Remediation of 5 no. historic landfill sites in line with Certificates of Authorisation issued by the EPA in 2019.
- 15.3ha of District Park / Passive and Active Open Space
- Creche approximately 733 sq.m
- 650 no. residential units; comprising of 241 no. houses and 409 no. apartments.
- Retail unit / kiosk in District Park.
- Phase 1 of the Neighbourhood centre
- Demolition of an existing dwelling at Berryfield Lane.

Along with these elements, the application will also include these associated works:

- Rerouting and undergrounding of overhead ESB lines (110kV and 38kV lines).- excluding the SAC
- Site development / ground works on future development areas.
- Water supply, foul and surface water drainage proposals.
- Provisions for public bus service within the proposed layout.
- Provision of interim bus services by the developer.



Looking NE





Looking East towards Bray.

Above images of the site

#### WICKLOW COUNTY DEVELOPMENT PLAN 2016-2022

The Wicklow County development plan was used as a guide to inform the landscape masterplan for Fassaroe. In particular with respect to the following items:

- Passive Open Space
  - District park
  - Neighbourhood and pocket parks
  - Open grass areas
- Active open Space (AOS)
  - o Sport grounds
  - $\circ \quad \text{Equipped play spaces} \\$
  - o Incidental play spaces

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#### **BRAY MUNICIPAL DISTRICT LOCAL AREA PLAN 2018**



Above image of the GI1 Map from the Bray LAP document

Below is a summary from the Bray Municipal District Local Area Plan of the main objectives and policies that have been taken into consideration when developing the landscape site plan for the phase 1 of Fassaroe:

#### **Open Space and Play objectives** (Chapter 6 of the LAP)

(All proposals will be in consultation with the Community, Cultural & social Development Office of Wicklow County Council)

- To facilitate opportunities for play
- Dedicated Children's play areas with clear passive surveillance for development in excess over 50 units
- MUGA Mixed Use games Area integrated within the neighbourhood parks or active open space.

#### **Biodiversity objectives** (Chapter 9 of the LAP)

- To minimise the impact of new development on the biodiversity and implement measures for the protection and enhancement of biodiversity in the proposals.
- The project will not give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites.
- The proposals will maintain the conservation value of all proposed and future Natural Heritage Ares (NHAs) and to protect other designated ecological sites in Wicklow.

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• To support where possible the protection and enhancement of biodiversity and ecological connectivity within the plan area.

#### Green Infrastructure & recreational Use of Natural Resources Objectives (Chapter 9 of the LAP)

#### Green infrastructure

- The New development proposals where considered appropriate will contribute towards the protection, management and enhancement of the existing green infrastructure assets and corridors of the local area in terms of the design, layout and landscaping proposals.
- To facilitate the development and enhancement of suitable access to and connectivity between areas of
  interest for residents, wildlife and biodiversity, with focus on promoting river corridors, Natura 2000
  sites, nature reserves and other distinctive landscapes as focal features for linkages between natural,
  semi natural and formalised green spaces where feasible and ensuring that there is no adverse impact
  on the conservation objectives of Natura 2000 sites.
- To minimise alterations or interference with river/ stream beds, banks and channels, except for reasons
  of overriding public health and safety.
- To promote the preservation of trees, groups of trees or woodlands in particular native tree species and those trees associated with demesne planting where considered to be viable safe and in line with sound arboriculture management.
- To promote the development of a series of major open spaces and recreational areas linked by green corridors where feasible as per the green infrastructure plan below in particular linking the river valleys to the North and South of the Fassaroe development.

#### Recreational Use of Natural Resources Objectives (Chapter 9 of the LAP)

• To facilitate the use of natural areas for active outdoor pursuits, subject to the highest standards of habitat protection and management and all other normal planning controls

#### Action Area Plan

Fassaroe is identified as the location of major development in Bray; the growth of the settlement in accordance with regional plan targets is contingent on the delivery of the major residential and community services development at this location, there being no other suitable lands in the environs of Bray for such large-scale development. If possible, it is to be developed in accordance with an Action Area Plan. In the absence of an Action Area Plan any application proposal shall show that it will not undermine the achievement of the overall objectives for the Action Area and would contribute a 'pro-rata' share of public infrastructure and facilities. An Action Area Plan has been prepared on behalf of the applicant which incorporates a proposed landscape strategy.

The LAP presents a new concept plan for the Fassaroe Action Area Plan. (Refer to image below)

Key parameters that have led to this concept include:

- Existence of a Natura 2000 site along the northern boundary (Ballyman Glen SAC); development will be suitable set back from this site and lands reserved for passive open uses;
- The necessity of a link road through the area from Bray directly to Enniskerry; the provision of such a road could provide an alternative link to Enniskerry, allow for adjustment to the existing main access road to Enniskerry from the N11, the R117;
- While plans for Luas extension to Bray have undergone a number of revisions, the plan should retain the possibility of Luas extension to and stabling in Fassaroe;
- The area will require a new, central 'village centre' which will provide for both the retail and services needs of the resident population but will also include a school campus;
- The need for a significant new open space facility to serve both the future residents of the area and the wider area; significant parts of the area were formerly used for aggregate extraction and for land filling and such areas are considered optimal for such use.

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#### Key objectives considered from the LAP for the Fassaroe Action Area plan are as follows:

• Development shall be carried out in phases

Phase 1

- Road Link from N11 to Ballyman Road
- Passive Park (min of 8ha)
- Active open space/ sports Zone (min of 14 ha)
- o Sited identified and reserved for school campus
- Neighbourhood Centre
- Up to 2,000 residential units

Phase 2

Identification and reservation of site for additional primary school and remainder of residential units

- The development of this area shall include the provision of an access road from the N11 to Ballyman Road; the scale of such a route shall reflect its primary function as a service road for a new neighbourhood, rather than that of a 'by-pass'; the design and location of this route shall not affect the functionality of the major open space as a single park and an innovative design solution where park crossing is necessary will be required.
- The neighbourhood centre zone and major park shall be accessible to all areas by high quality, direct and safe pedestrian and cycle routes.
- Lands of not less than 22ha shall be laid out and dedicated to parks and active / sports uses (this corresponds to land use zones OS1 and AOS, but not OS2). Lands identified as OS2 generally comprise open, undeveloped lands encompassing flood plains, buffer zones along watercourses, rivers and Natura 2000 sites, steep banks, green breaks between built up areas, green corridors and areas of natural biodiversity. These lands are generally not considered suitable for new development, including for park use, and shall not be included in the required 22ha major open space.
- Private Open Space for houses at Fassaroe shall not be subject to the standard requirements set out in the County Development Plan. However, private open space will be provided as follows:
  - For 1 or 2 bedroom houses a minimum of 50 sqm
  - 3-bedroom houses to have a minimum of 60 sqm
  - 4-bedroom (or more) houses to have a minimum of 75 sqm.



Above image of new Fassaroe concept Map from the Bray LAP document

#### AUDIT ON THE NEEDS OF A "BRAY SPORTS VILLAGE" BY REPUCON CONSULTING

Wicklow County Council recently engaged Repucon Consulting to undertake a sports facility audit and prepare a vision for a Sports Village for Bray. The report provides an outline strategy and vision for Wicklow County Council to progress to a feasibility study. The consultant group surveyed 22 local sports clubs across Bray. The vision is that Bray Sports Village would include sports amenities that will meet existing local and regional demand, foster increased levels of sport and physical activity participation and enable sports women and men to perform to the maximum of their ability.

Cognisance was given to the report presented by Repucon consulting to the members of Bray Municipal District regarding their findings in relation to the need for sport facilities within the Bray area.

Repucon developed three options for Bray Sports Village, with the 'All Weather Model' the recommendation from the consultancy group, and the preferred option of members.

That model includes facilities such as a grass pitch suitable for multiple field sports; a 4G pitch accommodating two full size soccer or one full size GAA pitch; a grass pitch accommodating two full size soccer or one full size GAA pitch; two 4G soccer pitches; a 2G hockey pitch; etc..

The Repucon strategy document does not identify any proposed sites within the Bray area for the Sports Village. It is assumed that this will be considered in the future Feasibility Study to be undertaken. The Cosgrave Property Group owned active open space lands are not of a scale that could potentially accommodate the extent of facilities envisaged in the Repucon report. Some of the individual facilities however, could be accommodated.

When the Repucon plan is further developed by WCC some of those facilities suggested in the report could be considered within the Active open space area of the proposed new District Park.



Above image of option 3 for Bray Sports Village, the all-weather model, which was recommended by Repucon Consultancy

#### TREE AND HEDGEROW LINEAR FEATURE SURVEY

A tree and linear feature survey – appendix I of this document- was caried out by FGE Consulting in September 2021 the aims of the study and survey was to determine the following:

- To assess and evaluate the age, condition, and composition of species within linear features and wooded areas on site.
- Map these features using GIS.

The hedgerows, treelines, scrubland, and wooded areas within the site boundary were walked to undertake a visual assessment of the features species and a location map was prepared to map these elements in the landscape.

The site mainly consists of a mixture of agricultural fields, built environment, recreational sports grounds scrubland and wooded areas such as the SAC.

As can be seen from the below GIS map outlining the baseline conditions from the GGE consulting survey large open areas in much of the central parts of the site is where development is proposed. Along the Northern end of the site and SAC existing woodland and scrub areas are maintained or enhanced to create boundaries and green buffers around the site. Main areas of retention are in the Glen, along Ballyman Lane, Berryfield Lane, around the road's infrastructure at the eastern end of the site.



GIS map highlighting tree and linear features of the site – taken from the FGE consulting GIS map

Some trees, hedgerows and woodland areas will be affected due to landfill remediation works or the development – refer to the arboricultural report in appendix II of this document- but substantial native tree planting and wildflower areas are proposed as part of the development and to mitigate, regenerate or enhance already existing landscape features on the site and will contribute to the overall bio-diversity of the site and wider environment.

A tree protection strategy and management strategy – included in this document under appendix III – has also been worked out as part of this submission in case works are to be carried out in close proximity to existing trees and woodland areas.

### FASSAROE ACTION AREA LANDSCAPE STRATEGY AND VISION

The Bray municipal district Local Area plan, was used as a guide for the current proposed development whilst taking a practical approach to some of the site constraints experienced for example the site topography and the location of previous landfill uses within this site.

Mitchell and Associates strategy for this development at Fassaroe is to create a scheme with a strong 'genus loci', that complements Bray's existing urban public realm and structure while also sensitively integrating the development into the surrounding landscape. We aim to create a new urban and landscape extension to Bray of unique and distinctive quality with a strong sense of place; a self-sustaining and diverse multi-generational community in harmony with its environment that will offer lifelong choices for living, working and recreation. The development will be a highly accessible destination with strong connections to Bray and other parts of its Environs welcoming the wider community to engage and utilise the various facilities provided, as well as providing good connections for its residents and employees to connect with the existing neighbouring towns and villages and wider rural landscape beyond.

The scheme takes its inspiration from the site's unique natural setting, such as the Ballyman Glen and views south to the Sugarloaf and responds to the existing natural features present on site with newly proposed features to enhance the amenity and sustainability of the area.

The aim is to create a high-quality public realm that provides a series of spaces and opportunities for both residents, employees and visitors that complements and enhances the development at Fassaroe.

The Urban Concept and Landscape Concept and Strategy for Fassaroe as presented in the proposed Action Area Plan prepared on behalf of the Applicant are presented below, along with an Implementation Plan for the Landscape Strategy.



Above image from the proposed AAP urban concept strategy

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Above image of the proposed AAP Landscape concept and strategy



Above image identifies the implementation of the proposed AAP and extent of the Active open Space – Passive Open Space, local pocket parks, green corridors and links through the applicant site

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#### FASSAROE KEY LANDSCAPE ELEMENTS

#### **1. DISTRICT PARK**

The District Park will provide the principle green open space for the Fassaroe development. It will in time, along with future phases of development, also connect the Ballyman Glen with the Cookstown Dargle Glen creating a North - South green corridor enhancing biodiversity through the development.

The Ballyman Glen SAC, straddles the County boundary between Dublin and Wicklow and extends beyond this proposed planning application boundary. It is orientated in an east-west direction with a stream running through the centre. Currently the glen is bounded by steeply sloping ground with Gorse and areas of woodland and scrub. The masterplan design retains the open space adjacent to this glen by locating the district park along its length acting as a buffer for the glen to ensure nature conservation and to discourage and prevent access into the glen through the use of landscape. The design of this open space has been sensitively developed to protect SAC and its surrounding woodland with levels to the perimeter of the park seamlessly integrating with the existing levels so as to avoid any disturbance of the tree rooting zones of Ballyman Glen.

The District Park will consist of the following components:

- Entrance area
- Crossing points
- Kiosk and car park area
- Formal Parkland area
- Natural Parkland area
- Attenuation Ponds with viewing areas
- Path infrastructure and steps
- Active and Passive recreation areas
- Soft Landscaping

#### -ENTRANCE AREA:

The main entrance area is located off the proposed main Link Road (Berryfield Avenue). The Arrival's Plaza provides an area of focus along the proposed Berryfield Avenue and brings the open space into the heart of the development. At this point there is an area of hardstanding for events or park activities to take place and on a daily basis it provides a space for users of the park to enjoy views over the attenuation ponds with seating areas. A small designated area is proposed to provide a mobile ice cream van or local farmers produce stall. The entrance area also connects the park North and South by a generous raised crossing point, this will also act as traffic calming measure along the main link road.



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#### -CROSSING POINTS:

There are two crossing points provided on the main Link Road (Berryfield Avenue) where it intersects with the district park. The crossings are strategically located at each side of the park and form a continuous part of the overall path network, so as not to affect the functionality of the main open space. Both crossing points are raised and will be treated with a different surface finish, this to create a physical and visual gateway to the park. The gateway will be further enhanced by dense tree planting along the park edge creating a different feel to the road edge and also contributing to the traffic calming of this road section. The crossing points are a continuation of the main pathway network and therefore its design creates a seamless link between either side of the park. A wetland and strategically dense tree planting to the North and the strategically located pond to the South coral the park users to these designated crossing points hence creating a well-designed, safe and clear uninterrupted connection. Low verge planting along this section of Link Road will help further to the guidance of people. At the car park entrance and kiosk an additional traffic ramp is created to further slow vehicular speed along this section of the Link Road.

Further South in the Park a similar approach has been taken for the crossing point with the existing Berryfield Lane connecting the park to the more active open space

#### -KIOSK AND CAR PARK AREA

A small car park providing for 40no.spaces including 4no disabled car park spaces is proposed to the west of the arrival plaza accessed immediately from the Link Road Berryfield Avenue. This car park is densely planted with trees to the perimeter and arranged on a sinuous curving line to help integrate the car park into the surroundings and reduce the impact of the cars. While residents of the Fassaroe development will be able to access the district park though a network of pathways this district park will welcome visitors from a wider catchment area to come and enjoy the space and park facilities and it is for these users that this car park has been provided. Strong connections are also provided for visitors to access the park through a designated cycle track along the length of Berryfield Avenue or along the shared surface route of Berryfield Lane. In addition to



these facilities a bus stop is proposed close to the district park to encourage further sustainable modes of transport. The park will not be gated and will remain open to the public throughout.



The car park area also allows room for a kiosk type structure which can operate as a coffee shop facility with long views over the glen, the new ponds and to the sugarloaf. The kiosk will also provide for public toilet facilities and function as a security and maintenance storage kiosk. In the short term it can also deliver a local retail function for residents of Fassaroe pending the delivery of a Neighbourhood Centre within the development.

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#### -FORMAL PARKLAND AREA:

The district park provides a sinuous arrangement of pathways through a variety of spaces. There are large open grassed spaces for both active organised sport and informal kick about spaces to occur. These spaces are punctuated with large parkland and native trees which reveal and frame views as one moves through the spaces. Open character and close character planting create a sequence and variety of parkland areas within the district park. Picnic tables and seating areas are provided throughout the park for passive recreation and areas for families to sit while others play close by.





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#### -NATURAL PARKLAND AREA:

The passive open space area within the District Park has two distinct parkland types one is mentioned in the above paragraph which has a manicured and more formal approach which is fully accessible and has a network of firm wide pathways with gently sloped gradients this to allow buggies wheelchairs etc access to the main destination areas within the Park. The existing contours within the formal parkland area are further apart and therefore would accommodate more gentle gradients together with organic pathways part M compliance can be achieved without any invasive interventions. A natural ridge is present within the existing site around the 80.00 contour and this contour line forms the edge of the pond and the central grass area. It is from this contour line where the more natural approach of the District Park starts and where a stepped approach together with steeper paths are introduced. The landscape intervention ties in with the existing landscape and a combination of a native wildflower meadow whip and tree planting is proposed. Due to its more natural approach it will also function as a buffer to the SAC keeping most park users at a distance due to the more challenging gradients of the pathways and more gritty texture of the compacted gravel paths. This area will also include an area where we propose to remediate the existing landscape that will be affected due to the landfill capping works. The affected area will be planted with native tree species and whip planting. This to complement the existing dense vegetation of the SAC and create a protective buffer.



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#### -ATTENUATION PONDS

One of the main elements of the district park are the Ponds. These are designed to provide an aesthetic focus in the park, maximise the restorative benefits of the open space, increase biodiversity and amenity and operate as part of the overall SuDS strategy for the development. The ponds are designed as 3 lily pads gradually stepping down in height and flowing from one into the next. Each pond provides a 600mm free board for water attenuation. The perimeter of the ponds will be formed with shelves to facilitate marginal planting. This coupled with riparian corridors flanking the ponds the biodiversity and amenity of the park is maximised.



Views are created along a sinuous walkway around the ponds and strategically located information boards provide information re the Fauna and flora and the working of the attenuation ponds. A beach is proposed to the west of the largest lily pad where there is a gradual transition into the water, this will enable water fowl to enter and exit the pond freely and provide an opportunity for users to engage safely with the water. This beach will be formed in sand for safety, to reduce the risk of individuals throwing stones. The ground levels naturally rise in this area and a naturalistic amphitheatre is proposed with seating terraces radiating form the pond. This will allow users to sit and look over the water out to the spectacular views across the Ballyman Glen and beyond.







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#### -PATH INFRASTRUCTURE AND STEPS

To create a multifunctional park a wide variety of open spaces have been created, these spaces offer a range of experiences, providing for different ages groups and abilities. Some areas have been created as universally accessible with gentle gradients and in other areas the sloping topography has been retained and the challenge of the gradients has become part of the enjoyment of the space.

To the forefront of the design is creating a park that can be utilised by all. Universal access routes from the "Arrivals Plaza" through the parkland open space, around the attenuation ponds, to and from the car park and main playground have been provided. This provides for a variety of experiences encompassing a wide range of ages and abilities.



A hierarchy of paths has been created with the main circulation route 3m wide accommodating both cyclists and pedestrians. 154no of bike parking spaces have been provided within the passive open space and have been grouped in key locations. In addition, 26no bike parking spaces have been provided for the active open space.

The meandering circulation route means that spaces are concealed and revealed creating an exciting series of spaces. The intention is that this pathway will be an amenity for users to spend time, socialise and relax and enjoy the views and its unique setting. The sinuous pathway passes through a sequence of spaces of both naturalistic and ornamental planting, grass lawns, seating spaces which will all act as orientation points and focal landmarks along the way to create an exciting lively experience as one moves through the Park. The variety of spaces will create a natural wayfinding strategy enabling users to easily navigate through the Park and its amenities creating unique sense of place and inviting people to further explore the spaces. Other circulation routes are stepped with seating points to rest and enjoy views from the site providing immediate access to the lower and higher levels. The topography and stepped access routes are considered as an attraction in itself where the challenge is part of the experience.





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Seating edges formed around pocket spaces along the central meandering pathway maximises the extent of informal seating opportunities. The seating edges are all inward facing to encourage social interaction. The space provides the opportunity for social gathering, lounging and resting points to users of the park.

There are a number of additional access points from the residential buildings and through the residential park to ensure permeability. A gently sloped access route is provided from the car park up into the main parkland area that can be utilised by older people, families with buggies, cyclists and wheelchair users etc. A sinuously shaped pathway provides breath-taking views over the Ballyman Glen and beyond.

#### -ACTIVE AND PASSIVE RECREATION

A diverse type of play elements are located around the park catering for young and old active and passive.





Cognisance was given to the report presented by Repucon consulting to the members of Bray Municipal District regarding their findings in relation to the need for sport facilities within the Bray area.

Repucon developed three options for Bray Sports Village, with the 'All Weather Model' the recommendation from the consultancy group, and the preferred option of members. No proposed site for the Sports Village has been identified by Wicklow County Council. The strategy report by Repucon identifies the need for a Feasibility Report to be undertaken.

While the CPG zoned active open space lands are not of a scale that could accommodate the extent of facilities identified in the Repucon documents it is noted that some of the individual facilities could be provided within the active open space parts of the proposed new District Park. Provision for same has been allowed for in this current landscape design of the Fassaroe District Park.

Some of those facilities suggested in the report could be provided within the Active open space parts of the proposed new District Park area and provision has been allowed for this in the current Landscape design of the Fassaroe District Park.



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Throughout the park active play is provided for by jogging and trim trails which also can be used for mountain biking. An undulating mounded area has been provided to the lower level of the park which can be utilised as a natural play area. This area is populated with dense tree planting to provide screening and extend the Ballyman Glen into the park.



A wooded adventure play area and multi-use games area is proposed along the North West end of the park, to provide for older children opportunities to play. The woodland will buffer noise and the apartment block will provide for passive surveillance. The woodland will visually connect the park to the Ballyman Glen and create a naturalistic setting for families to enjoy but will discourage and prevent access into the glen through a dense landscaped buffer area.

The main central open space in the park has been graded to provide a level area with additional open space for informal kick about spaces, or open ground to run and enjoy the outside space.

A large playground is proposed between the car park and main open space. This play area will be fenced to the perimeter with dog gates provided to create a safe area for young children to play. Seating benches are proposed so adults can sit and socialise while children play. Open spaces within the playground will be provided for buggies to be stored and a variety of equipment will be provided within a wet pour rubber safety surfacing.



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The district park extends south of the Link Road (Berryfield Avenue). The park will utilise a common design language, materials and planting layout connecting the spaces. 2 number raised uncontrolled crossing points will be provided either side of the park from the main arrival plaza at the east of the park and from the west, this will help to create a very permeable open, safe park to enjoy. The southern section of the park connects directly with Berryfield Lane and the proposed active open space connecting the park with the wider environment making an easily accessible high quality open space for all and providing for a future link between the north - Ballyman Glen SAC - and south – the Cookstown River valley.

To the southern section of the district park an additional toddler playground is proposed. This is located close to the proposed crèche and will provide additional opportunities to the crèche open play space. The crèche will have its own secure open play space immediately associated with the building. Smaller open spaces are provided for lying out or small ball play so creating a quieter park close to homes.



The district park continues westwards between the Ballyman Glen and the future proposed apartment blocks. The park provides a range of informal kick about spaces and seating spaces with the jogging and trim trails extended to connect users from their homes into the wider district park. Strong connections are formed with a considered network of circulation routes maximising universal access to open space and amenity activities.

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#### -SOFT LANDSCAPING:

The overarching aim for the establishment of vegetation communities in Fassaroe District Park is to produce a mosaic of native habitats. This is seen to be a way of maximizing the biodiversity potential of the site, providing new opportunities for expansion of (and cross-interaction between) habitats whilst also providing attractive areas of green open space with high amenity value.



Whilst some areas will have a naturalistic character, others are more formal. Some areas will be exposed whilst others will in time be more intimate and sheltered, providing opportunities for interest and a varied experience whilst moving around the site.

The habitats that have been created across the park include:

- Areas of native deciduous and mixed woodland;
- Areas of mixed scrub,
- Areas of tall herb grassland;
- Wildflower meadows
- Areas of close-cropped amenity grassland;
- Marshland and riparian planting
- · Areas of loose rock and scree for lichens, mosses and chasmophytic plants



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#### 2. RESIDENTIAL AREA

The residential area consists of apartment blocks, terrace and semi-detached houses. Throughout the design stage of the project the aim has been to develop a vibrant residential community and so the end users have been to the forefront of the design of the streets and spaces. A hierarchy of streets has been developed to create legible and clear circulation through the residential development mainly prioritising pedestrians and cyclists. This hierarchy of street typologies can be differentiated as follows:

- Link Road proposed as Berryfield Avenue 17.5m wide road section and 26.3m cross section
- Berryfield Lane circa 5m wide road section maintaining its existing width and character
- Local streets 9.5m wide street section and 23m wide cross section
- Tertiary streets Homezone 6m wide street section and 22.2m wide cross section



#### Figure 4-1 - Masterplan Street Typology

- Existing Boulevard Street
- Phase 1 Boulevard Street
- Phase 1 Link Street
- Under Construction Link Street
- Phase 1 Local Street
- Phase 1 Homezone Street

- Phase 1 Existing Berryfield Lane
- Phase 1 Realigned Berryfield Lane
- Future Phase Link Street
- Future Phase Local Street
- Future Phase Homezone Street

Street Typology diagram – Prepared by Atkins for Cosgrave Property Group owned lands at Fassaroe

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#### -LINK ROAD OR BERRYFIELD AVENUE - 17.5m Road section and 26.3m cross section

Berryfield Avenue is the main circulation route for this planning application. It connects with the Fassaroe Distributor Road at the future proposed Neighbourhood Centre and continues through the District Park albeit with a different surface finish, residential area and westwards to the Ballyman Road. The road carriageway is 6.5m wide with verge planting to both sides of the street except where there is access to houses. Where this occurs the street trees will be repositioned within the front gardens to retain a green tree lined avenue. There is a designated 2m wide cycle lane provided to both sides of the road set back behind the planted verge. In addition, a 2m wide footpath is provided.





17.5 - Constant dimension throughout

Link Road - Berryfield Avenue – typology (Raised Kerb and Avenue Tree Planting)

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-BERRYFIELD LANE - circa 5m cross section- existing width retained

Berryfield lane is an existing laneway located within the site. This lane has a number of one-off residential properties, a sports ground and an ESB sub-station dotted along the lane to either side. The existing Berryfield Lane will be retained and be a major green link for the Fassaroe development enhancing biodiversity and is a reminder of the natural setting of the site. It is the intention to retain its unique "character" and prioritise pedestrian and cyclist's movement within the site whilst also providing local access.

There will be only limited areas along Berryfied Lane where new development will front onto the road. The typology in below image presents the scenario for areas where there will be development on both sides in the long term. Otherwise areas of Berryfield lane outside of the development areas will remain as existing

To maximise the potential of this lane as a green link vehicular traffic is aimed to be limited to residents along the lane, it is not intended that this lane would act as an easy vehicular route to the residential development to the west of this planning application boundary and this can be achieved by strategically placed traffic calming measures. Limited vehicular access routes open onto or from this laneway with one main junction with the proposed Link Road (Berryfield Avenue)

It is the intention to retain its unique characteristics and as such there is no kerbed footpath proposed as it is intended that this lane will act as a shared surface. The lane is narrow which will slow traffic speeds again seeking to reduce its attractiveness for motorists other than residents. The existing hedgerows and trees will be retained where possible and to compliment this any new tree planting will consist of small tree species which would commonly be found planted within hedgerows. Species proposed include; Hawthorn, Sorbus and Birch.



Berryfield Lane – Typology (No kerb with native hedge and dense tree planting)

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-LOCAL STREETS - 9.5m wide street section and 23m cross section

The secondary residential streets are connecting streets from Berryfield Avenue to the apartment blocks and dwellings. These streets typically have access to terrace or semi-detached houses These streets provide for off street parking in front gardens and have 5.5m wide carriageway and segregated with a raised kerb a 2m wide footpath either side. Tree planting is proposed at the edge but within the front garden boundary. Driveways are just over 5m long and have a 1.2m landscape buffer between the façade of the dwelling.





9.5 - Constant dimension throughout Parking conditions and planting will vary to suit

Secondary Residential Street – typology (Off-street Parking interplanted with formal tree planting)

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-TERTIARY STREETS - HOMEZONE – 6m wide shared surface and 22.2m cross section

To create liveable streets with reduced traffic many of the residential streets have been designed as homezones with cul de sacs for vehicles. Provision for pedestrians and cyclists has been retained at the ends of these streets to maximise permeability throughout the development. A narrow 4.8m wide carriageway with flush 1.2m wide pedestrian refuge zone to one side is intended to slow motorists and create quiet community streets. Tree planting is proposed to be located in the front gardens/ parking areas and refuge zone to locally narrow the road to help reduce speed on these roads.





*Homezone street – Typology (No kerb with dotted tree planting)* 

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#### **3. RESIDENTIAL POCKET PARKS**

Within the residential area lies a network of pocket parks which connect further green corridors and the District Park within the wider development. This residential pocket parks have been designed for the local residents and provides for informal meeting and gathering places. They are fully overlooked due to their locations within residential cells with adjacent dwellings providing for passive surveillance. A low-key toddler playground is proposed in some instances for local residents. This compliments the larger play area located within the district park. This low-key playgrounds favour the immediate local residents, without attracting increased vehicular traffic to utilise the facilities.



Traffic calming measures like raised table crossings and shared surfaces are proposed to access the pocket parks. These aim to reduce traffic speeds and highlight to motorists that pedestrians have priority. Gently sloped pathways will provide for universal access The residential pocket parks are also part of a wider sequence of green spaces which supports a green infrastructure strategy through the future development and also provides for links with the Ballyman Glen and the Cookstown River.

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Different types of pocket parks have been provided throughout the development each responding to their location and site constraints. Below diagrams of the different typologies of pocket parks.

#### Centralised pocket park:

Located to the west of the District park and north of the Main Link Road with a proposed formal toddler play area and a more informal mounded grass play area with some nature play elements such as stepping logs and natural slide integrated in the design. Seating is provided within the green planting belt around the pocket park adjacent to the play spaces.

To the South of the Link Road a more naturalistic seating area is provided with bioretention area integrated which provides for additional amenity and adds to the biodiversity of the overall development.



#### Linear pocket Plaza:

Located to the east of the District park and north of the Main Link Road. This has a more urban approach and lends itself to local street parties or small events. A sculptural seat meanders through a line of trees creating some additional interest and also provides for some play opportunities. A change in materials will contribute to traffic calming.



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#### 4. NEIGHBOURHOOD CENTRE AND PLAZA

The Neighbourhood Centre will provide the main focal and civic space for the development. It will also act a node for public transport facilities for Fassaroe. The Neighbourhood centre will be the social core of the development providing a mix of different types of retail and associated activities over time providing a vibrant community. The main square runs along the distributor road which leads onto a forecourt populated with planted seating pods where people can meet and gather. A spill out area is proposed from the café with views to the Sugarloaf Mountains and wider environs. The square will feature high quality paving materials and finishes. Cycle parking is proposed at key locations within the Neighbourhood Centre.



Underground car parking facilities are provided within the Neighbourhood Centre. The car parking is landscaped and provides for the semi-private open space facilities for the residential block habitants including for surface car parking.

The Western boundary is formed by the podium of the underground car parking which will be lands caped with an intensive green roof.

Berryfield Lane runs to the South of the Neighbourhood Centre. A direct link has been created with a tiered arrangement of landscaped terraces stepping down into the space. The character of Berryfield Lane will be retained as a Boreen and a new hedgerow planting will be introduced along this boundary to strengthen this connection.



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#### 5. SEMI PRIVATE OPEN SPACES AND COMMUNAL PODIUM GARDENS

There are a series of proposed apartment blocks along the perimeter of the district park, active open space and adjacent to the Greenstar site. Each apartment block will have semi private communal gardens providing for passive amenity and recreational use for its residents. A combination of strategically located seating and patio areas in conjunction with toddlers' playful installations create a tranquil environment for residents to enjoy in close proximity to their homes. Ventilation openings will be fully integrated within the landscape design to minimise their impact on the spaces. Generous circulation paths are provided and laid out to minimise any dead ends to create an enjoyable circulation through the space. In addition to this, these semi private spaces are connected to the wider landscape to encourage residents to engage within the district park building the community. Views outwards from the apartment blocks are maximised which will in turn add to the passive surveillance of the open spaces.

The ground floor apartment units patio area looks out onto the communal courtyards and are set in a 1.5m wide landscaped buffer zone to provide for adequate defensible space. A combination of formal and informal planting is used to create a soft interface between private and semi-private areas, but still provides for good passive surveillance. The development will be gated and a boundary railing on top of a dwarf wall will segregate the residential areas from the public areas.

The landscape treatment adjacent to the apartment blocks draws upon the wider landscape utilising the setting and echoing the natural rolling landscape. Shrub planting and trees create secluded areas and provide screening to the lower level apartments, softening the development into the wider environment and screening the development from long distance views into the site.



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#### 6. SITE WIDE PLANTING STRATEGY AND DESIGN

An overall planting strategy has been developed for this development. The street tree planting aims to differentiate between the various areas and helps reinforce its natural setting, orientating residents and visitors through the site. Berryfield Avenue is proposed to be planted with large broad Avenue Trees, such as Ulmus lobel, common name Lobel's Elm this will reinforce to residents and visitors that this is the main spine of the development. Development along Berryfield Lane is designed to maintain its existing laneway character. To compliment this any new tree planting consists of smaller tree species which would commonly be found planted within country side roads. Species proposed include; Crataegus monogyna (Hawthorn), Sorbus aucuparia (Rowan), Malus (Crab Apple), Prunus avium (Bird Cherry) and Betula pubescens (Birch). Within the residential Streets there are both secondary and homezone streets located. The secondary Streets are mainly located adjacent to the apartment blocks and as such have a larger tree species proposed to balance the scale of the buildings with the human scale of the spaces. These species include Quercus palustris (Pin Oak), Corylus colurna (Turkish Hazel) and Pinus maritima (Maritime Pine). The homezone streets are the narrowest of all the streets, proposed at 22.2m wide which includes front gardens/ parking bays to houses on either side of the street. These trees are proposed as narrow ornamental tree species, including Pyrus calleryana 'Chanticleer', (Ornamental Pear), Sorbus 'Sheerwater Seedling' (Rowan), Malus (Crab Apple) and Betula (Birch). Variation in planting character between the homezone streets is proposed to facilitate wayfinding for residents and visitors.

The palette of plant species used within the various spaces shall be based on a range of largely native species. Hardy species will reduce, maintenance over-time, and contributes to the early and rapid development of the planted installation. Seasonal interest will be a consideration in the plant mixes through the site.



Street tree Typology and character area diagram

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The planting mixes shall consist of a combination of evergreen structural planting, herbaceous perennials, bulbs and selected tree species.

#### Native Tree Species Proposed:

Alnus glutinosa
Prunus padus
Malus sylvestris
Betula pubescens
Crataegus monogyna
Corylus avellana
Sorbus aucuparia
Betula pendula
Prunus avius
Salix spp.

#### Native Ornamental Planting Species Proposed:

Dog Rose	Rosa canina
Guelder rose	Viburnum opulus
Holly	llex aquifolium
Honeysuckle	Lonicera periclymenum
Privet	Ligustrum vulgare

#### **Ornamental Planting Species Proposed**

Japanese Anemone	Anemone 'Honorine Jobert'
Montbretia	Crocosmia 'Lucifer'
Rock Rose	Cistus cobariensis
Coral Bells	Heuchera Palace Purple
Lilyturf	Liriope muscari
Rose	Rosa 'White Flowering Carpet'
Rosemary	Rosmarinus officinalis
Christmas Box	Sarcococca hookeriana var Digyna
Japanese Spirea	Spirea japonica 'Anthony Waterer'
Snowberry	Symphoricarpus alba
Allium	Allium schoenoprasum
Fuschia	Fuschia 'Genii'
Lavender	Lavandula hidcote
Foutain Grass	Pennisetum orientale
Shield Fern	Polystichum setiferum
Cherry Laurel	Prunus laurocerasus Zabeliana,
Black Eyed Susan	Rudbeckia 'Goldstrum',
Hybrid Sage	Salvia x sylvestris 'Mainacht'
Lambs Ears	Stachys Byzantina
Feather Grass	Stipa tennuisima 'Pony Tails'
Thyme	Thymus vulgaris
Tall Verbena	Verbena bonariensis

#### 7. MATERIALS PALLETTE

#### PAVING PALLETTE

Current paving materials seen throughout Wicklow will be continued where appropriate to ensure a continuity of appearance and character. The pavements shall be clutter free and unobstructed to ensure clear and free movement.

Hardworks materials and site furniture have been carefully selected to sensitively integrate the park within its receiving environment. The paving palette for the spaces is a coherent, robust, long lasting and multifunctional design solution.

Proposed materials are as follows:

- Concrete and Asphalt for the main roads, pedestrian and cycle pathways. Coloured in some instances to distinct functions and hierarchy or pedestrian priority.
- High quality PC paving with Granite surface textures to areas of importance including areas adjacent to the Park Arrival area.
- High quality and feature PC paving to key areas within the semi-private residential areas
- Black Tarmac with buff coloured chippings rolled into the surface for shared surfaces.
- Buff coloured tarmac pathways for the District Park

#### 8. WAYFINDING

The use of materials will be thoughtful and cohesive, to create a simple calming clutter free network of interconnected spaces from which areas of interest, nature or otherwise can be highlighted without conflict or confusion. This will create an attractive and innovative park landscape and network of spaces.

Using simple methods of orientation the sequence of spaces, particularly the District Park, has been designed to allow visitors and locals to enjoy the space confidently, fostering an experience of comfort, security and familiarity within visitors and residents who have varying needs. This can be achieved by helping users create mental 'connections' so that they find their way around quickly and easily.

Throughout the District Park existing views presents a unique opportunity to create exciting orientation points and also encourages users to explore and utilize this area of Fassaroe and perhaps continue along to the wider hinterland of the Wicklow area.


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## Appendices

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# Appendix i

# Linear Feature and Tree survey report and location Map

# LINEAR FEATURE AND TREE SURVEY

for the

# Proposed Development at Fassaroe, Co. Wicklow

prepared for



by FGE Consulting

FGE Consulting

September 2021

<b>Document Details</b>	
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Document Title	Linear Feature and Tree Survey for the Proposed Development at Fassaroe, Co. Wicklow
Publisher	Finch Geospatial and Environmental Consulting, Kilmolin, Enniskerry, Co. Wicklow, Ireland.
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## 1. Introduction

FGE Consulting were commissioned by RPS Consulting Engineers Ltd. to undertake a visual assessment and map all linear features and trees within the site boundary at Fassaroe, Co. Wicklow. The aims of the study were to determine the following:

- To assess and evaluate the age, condition and composition of species within linear features and wooded areas on-site.
- Map these features using GIS.

#### 1.1. Site Location and Description

The site is located between Bray and Enniskerry in County Wicklow. It mainly consists of a mixture agricultural field, built environment (houses, roads), recreational sports grounds, scrubland and wooded areas. A site location map is presented in Figure 1.



Figure 1: Location of the proposed development.

#### 1.2. Statement of Authority

#### Domhnall Finch – Senior Ecologist and Technical Director

Domhnall Finch (PhD, MSc, BSc, PgCert, ACIEEM, AHEA), has over 8 years' experience conducting technical assessments for a range of development types including infrastructure and residential.

Domhnall is a specialist in the field of bat, mammal and avian ecology and survey methodology. He has been the lead Project Ecologist of a number of medium and large-scale projects, including the largest bat and mammal survey works of any infrastructure to be undertaken in Ireland. This project was a Wind farm development for Bord na Mona that spanned 22,000 ha, and it required intensive sampling effort, survey design, mapping and precise report writing. He has been involved in the production of over 25 wind farm avian reports and has a wealth of experience in Habitat Surveys & Mapping (Fossitt 2000), Marsh Fritillary Surveys, Electro-fishing Surveys and Q-sampling. Through his experience he has refined his report writing skills and has produced top quality reports for Article 6 Appropriate Assessments, Natura Impact Assessments, Construction Environmental Management Plan, Ecology Report and Flora and Fauna chapters for various projects. Throughout his professional career he has had to liaise with a number of stakeholders, from clients in large corporations such as ESBN, ESBI, OPW, BnM and Coillte, to farmers/landowners and subcontractors. Domhnall has a firm understanding of the legislations surrounding planning and the environment and has a positive working relationship with many of the statutory consultees such as NPWS and IFI.

Domhnall has had a keen interest in ornithology since childhood and has honed and refined his bird identification skills over a number of years having working in the UK for the RSPB and also for Birdwatch Ireland at their Head Quarters. Beyond ecology and project management, Domhnall has extensive experience in GIS and has conducted variety mapping and analysis techniques for projects. These including the use of Network Analysis, remote sensing techniques, DEMs, spatial analytics, landscape modelling, predictive modelling, ecosystem services/habitat/connectivity mapping and data processing.

## 2. Methods

All hedgerows, treelines, scrubland, and wooded areas within the site boundary were walked to undertake a visual assessment of the features species composition and note its general condition. These features were photographed (Plates in Appendix) and mapped using GIS. Trees that were not within a treeline or a wooded area were mapped in as individual points.

Surveys were undertaken by Domhnall Finch on the 16<sup>th</sup> and 17<sup>th</sup> of September 2021.

### 3. Results

The results of the surveys identified linear features, trees or wooded areas within the site boundary. Details of these features can be found in Table 1 and the Appendix. Separate GIS shapefiles have also been created for each feature; these can be viewed in **Figure 2**.

Feature	Feature	Feature Details
ID	Туре	
LF1	Treeline	Sparsely planted young trees. Rowan and silver birch. 3m high and in good condition
LF2	Hedgerow	Managed hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, and some young ash trees.
LF3	Hedgerow	Managed hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, and some young ash trees.
LF4	Hedgerow	Managed hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, and some young ash trees.
LF5	Hedgerow	Managed hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, and some young ash trees.
LF6	Hedgerow	Unmanaged hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, and some young ash trees.
LF7	Hedgerow	Unmanaged hedgerow. Approximately 2.5m wide in poor condition. The
		species present include rose, willow, gorse, ash saplings, brambles, elder.
LF8	Hedgerow	Unmanaged hedgerow. Mature and in good condition. Mainly consisting of
		hawthorn, blackthorn, roses, elder, bracken, ivy, and some young ash trees.
LF9	Hedgerow	Vegetation sparsely planted with a maximum height of 1.5m in poor
		condition. Species include elder, brambles, rose, nettles, thistles.
LF10	Hedgerow	Patchy linear feature with sparse vegetation in poor condition, consisting of
		rose, brambles, blackthorn, bracken.
LF11	Hedgerow	Patchy linear feature with sparse vegetation in poor condition, consisting of
		rose, brambles, blackthorn, bracken.
LF12	Hedgerow	Small linear feature, approximately 1.5m high, that is not that densely
		vegetated. Northern half has a brick wall present. Consisting of willow,
		buddleia, nettles, brambles, elder, holly, young ash and sycamore tree.
		Opposite side of the road (out of redline boundary) is more mature with
		hawthorn and blackthorn hedging, plus well-developed sycamore and ash
		trees. Mature vegetation within gardens boundaries as well.
LF13	Treeline	Mature ash treeline with hedgerow underneath. Hedgerow consists of
		brambles, rose, hawthorn, blackthorn, elder, ivy, and bracken. Treeline in
		good condition approximately 15m high.
LF14	Hedgerow	This linear feature consists of a mainly grassy bank with small (1.5m) elder
		plants along the length of it.
LF15	Treeline	Mature ash treeline with hedgerow underneath. Hedgerow consists of
		brambles, rose, hawthorn, blackthorn, elder, ivy, and bracken. Treeline in
		good condition approximately 15m high.
LF16	Hedgerow	Sparsely planted sycamore treeline, 6m high.
LF17	Treeline	Mature beech and ash treeline. 15-22m high and in excellent condition.
LF18	Hedgerow	Managed hedgerow, 1.5m high, consisting of snowberry, elder, ash saplings,
		holly, ivy, and bindweed.
LF19	Treeline	Semi-mature treeline, with snowberry, holly, elder, alder, ivy, hawthorn, ash,
		sycamore, beech and silver birch trees. Approximately 4m high.

#### **Table 1:** Details of each of the 58 features identified during the survey.

LF20	Hedgerow	Hedgerow in excellent condition. Mature hedgerow with elder, hawthorn, blackthorn, brambles, roses, and ivy. Approximately 4m high and
LF21	Hedgerow	Managed hedgerow, max 2m high, consisting of elder, hawthorn, blackthorn and brambles
LF22	Hedgerow	Planted in recent times. Young hedgerow consisted of elder, hawthorn, beech, blackthorn and alder – approximately 1 5m high
LF23	Treeline	Treeline along northern eastern side of soccer pitch. Consisting of mature
LF24	Hedgerow	Mature unmanaged hedgerow in excellent condition. It is approximately 4m
1 F 2 5	Treeline	Mature treeline of alder species through the centre of the road, c15m high
LF26	Hedgerow	Managed hedgerow in good condition, c3mhigh, consisting of hawthorn,
LF27	Treeline	Mature well developed treeline. Excellent condition. c25-30m high
LF28	Treeline	Semi-mature treeline consisting mainly of Scots pine with some alder, oak
LF29	Hedgerow	Mature well developed hedgerow approximately 4m high. It's unmanaged and consists of ivy, hawthorn, blackthorn, brambles and holly. Excellent condition.
LF30	Treeline	Mature well developed treeline, between 4-20m high. Excellent condition, consisting mainly of ash trees. Sycamore and wych elm also present. Understory of hawthorn, blackthorn, and holly.
LF31	Treeline	Mature ash treeline in good condition, some patches of absent vegetation along it, approximately 15m high. Mature stands of hawthorn, blackthorn and holly are also within it.
LF32	Treeline	Mature ash treeline in good condition, some patches of absent vegetation along it, approximately 15m high. Mature stands of hawthorn, blackthorn and holly are also within it.
LF33	Hedgerow	Patchy willow hedgerow between treelines. In poor condition, max height of 3m.
LF34	Treeline	Mature treeline between 4 and 15m high, 4m wide in some parts, consisting of willow, ash, hawthorn, blackthorn, rowan, sycamore, and cherry trees. In good condition.
T1	Tree	Two young ash trees, 6m high. Trimmed within hedge. Ok condition
T2	Tree	Two mature ash trees within hedgerow, 8-15 m high and in good condition.
Т3	Tree	Semi-mature ash tree within hedgerow. Good condition, 8m high.
T4	Tree	Cluster of three semi-mature ash trees, with a maximum of height of 8m.
T5	Tree	Three mature ash trees within hedgerow. 20m high and in good condition.
Т6	Tree	Cluster of semi mature trees - 6m. Including ash, conifer species and ornamental trees in garden of the associated house.
T7	Tree	Single semi-mature sycamore and ash, 6m high and in good condition.
Т8	Tree	Semi-mature ash tree in unmanaged hedgerow. Good condition, 6m high.
Т9	Tree	Willow tree within managed hedgerow. Good condition and 4m high.
T10	Tree	Young silver birch within hedgerow. Good condition – c3m high.

T11	Tree	Nine young horse chestnut trees in the centre of the road about. One dead,
		3m high. Ok condition.
T12	Tree	Two cherry trees. Good condition, 5m high.
T13	Tree	Three cherry trees. Good condition, 5m high.
T14	Tree	Single rowan tree in the middle of the roundabout. 4m high, ok condition.
T15	Tree	Three young oak trees (poor condition; 3m high) and a willow tree (1m high)
		in the centre of the roundabout.
WA1	Wooded	Wooded area consisting of mature trees within it. Mainly larch, and
	Area	conifer/pine species. Hawthorn, elder, alder, ivy, roses, beech, sweet
		chestnut, ash, and sycamore trees around periphery of the area. In excellent
		condition – between 4 and 30m high.
WA2	Wooded	Woodland with varying age classes from saplings to mature trees (1-25m).
	Area	Consisting of willow, roses, hawthorn, blackthorn, alder, conifers, hazel,
		bracken, gorse, ash, and sycamore.
WA3	Wooded	Mainly a scrub area that has overgrown, rather than woodland. Consisting of
	Area	willow, alder, hawthorn, blackthorn, buddleia, bindweed, elder, and silver
		birch. This area is in ok condition. Plants max 4m but are isolated through
		bindweed.
WA4	Wooded	This wooded area is in excellent condition and has semi-mature trees within
	Area	it – c 4-5m high. These consist of alder, willow, silver birch, hazel, ash,
		hawthorn, blackthorn, rose, and sycamore. Densely spaced woodland rather
		than scrub habitat.
WA5	Wooded	This area is of mature stature. The majority of these trees are well
	Area	developed and in excellent condition. Some dead wood as well. Trees range
		from 4 - 25m and consist of willow, buddleia, ash, beech, silver sycamore,
		alder, Scot's pine, Oak, cherry laurel, hawthorn, eucalyptus, and hazel.
WA6	Wooded	Semi-mature woodland stands in excellent condition, between 4 and 20m
	Area	high. Consisting of hawthorn, blackthorn, alder, sycamore, hazel, silver birch,
		field maple, willow, rowan, Scot's pine, and some buddleia bushes.
WA7	Wooded	Semi-mature woodland stands in excellent condition, between 4 and 20m
	Area	high. Consisting of hawthorn, blackthorn, alder, sycamore, hazel, silver birch,
		field maple, willow, rowan, Scot's pine, and some buddleia bushes.
WA8	Wooded	Open grassland habitat (horses grazing) with scrub throughout. The scrub is
	Area	approximately 1-2m high and consists mainly of willow but also has oak,
		silver birch, hazel and alder saplings, buddleia bushes, and gorse
WA9	Wooded	Scrub/woodland area with mature trees. This area is mature and has well
	Area	developed trees within it. The height goes from 4-20m. The species consist
		of hawthorn, blackthorn, sycamore, ash, willow, silver birch and rowan
		trees,



Figure 2: Linear features, individual trees and wooded areas within the site boundary.

## 4. Conclusion

Overall, there were 58 linear features or wooded areas identified within the site boundary. In general, the features on-site are in good condition with the majority of linear features being well developed and mature in nature. These provide excellent biodiversity values to the site.

Those areas of particular note are the treelines along the southern boundary of the site, the dense wooded areas along the roadside on the eastern side of the site and the woodland in the valley to the north of the site boundary. Additionally, the central belt of features surrounding the electricity substation and the individual houses to the west of it, host mature treelines and scrubland.

The large agricultural fields in the north eastern side of the site do not have many features within them and those that are there are of poor quality.

Ash trees are the main species within the treelines on-site, the majority of which are mature trees – c20 high. Many of the hedgerows are also mature (c4m high), with only a few being managed (c2m high). The main species within these are hawthorn and blackthorn.

## 5. Appendix



Title: LF34 - mature treeline and understory



Title: LF33 - patchy willow hedgerow



Title: LF32 - ash treeline



Title: LF31 - well developed treeline



#### Title: LF30 - mature treeline



Title: LF29 - unmanaged hedgerow



Title: WA9 - scrub area with mature trees within it



Title: WA9 - centre of scrub area



Title: WA9 - open area within scrubland



Title: WA8 - scrub habitat



Title: WA8 - grazing in open parts of area



Title: WA7 - dense wooded area near roundabout



Title: WA7 - semi-mature woodland stand



Title: WA6 - semi-mature wooded area



Title: LF28 - Scots pine treeline



Title: LF27- treeline consisting mainly of mature ash trees



Title: LF26 - managed hedgerow, showing T10 within it



Title: T15 - trees in the centre of the roundabout



Title: T14 - single rowan tree



Title: T13 - cherry trees



Title: T12 - two cherry trees



Title: T11 - horse chestnut trees



Title: T10 - young silver birch tree



Title: LF25 - mature treeline of alder species



Title: WA5 - showing mature trees



Title: WA5 - mature eucalyptus



Title: LF1 - sparsely planted trees



Title: LF2 - managed hedgerow



Title: LF4 - managed hedgerow near eastern side of site



Title: LF4 - managed hedgerow near western side of the site



Title: LF3 - managed hedgerow along roadside



Title: T1 - young ash trees in hedgerow



Title: LF6 -hedgerow with isolated trees within it



Title: T2 - two semi-mature ash trees



Title: T3 - semi-mature ash tree within hedgerow



Title: T4 - cluster of semi-mature trees



Title: LF7 - unmanaged hedgerow





Title: LF8 - mature hedgerow



Title: T5 - three mature ash trees in hedgerow



Title: LF9 - sparse vegetation along linear feature



Title: LF10 - patchy li ear feature with sparse vegetation



Title: LF11 - patchy vegetation along linear feature



Title: LF12 - Wall along western end



Title: LF12 - small linear feature on eastern end



Title: T6 - cluster of trees within garden



Title: LF13 - mature ash tree from southern end



Title: LF13 - mature ash tree from northern end


Title: T7 - semi-mature ash and sycamore trees



Title: LF14 - patched vegetated bank



Title: LF15 - mature ash trees



Title: LF16 - sparsely planted sycamore treeline



Title: LF17 - mature beech and ash treeline



Title: LF18 - managed hedgerow



Title: LF19 - semi-mature treeline of mixed species



Title: WA1 - more isolated ash and conifer trees along northern boundary of wooded area



Title: WA1 - western side of wooded area along arable field margin



Title: WA1 - trees along road side



Title: WA1 - conifer species in the centre of the wooded area



Title: WA1 - pine species at eastern end of area



Title: LF20 - unmanaged hedgerow



Title: T8- semi-mature ash tree



Title: LF21 - managed hedgerow



Title: T9 - willow tree in managed hedgerow



Title: LF22 - young hedgerow on southern side of soccer pitch



Title: WA2 dense woodland to the north of the site



Title: WA2 - showing mature conifers



Title: WA2 eastern end of woodland



Title: WA3 - scrub area west of dump



Title: WA4 -wooded area with semi-mature trees



Title: LF23 - treeline along north eastern side of soccer pitch



Title: LF24 - mature hedgerow along south eastern side of soccer pitch



## Appendix ii

## Arboricultural Impact Report





## ARBORICULTURAL IMPACT REPORT

## FASSAROE BRAY CO. WICKLOW

Project No. TFAS001 Project name Fassaroe

DateRevision04/03/22B

### **Report Prepared by**

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### Summary

The proposed development will negatively impact on the screening vegetation (WA 5 & 6) at the roundabout necessitating the removal of approximately half of the existing vegetation in this area. Three other WAs will be partly removed (WA 2,4,9) with three (1,3,7) retained in full. Eighteen hedgerows / linear features (5,8,15,16,17,18,19,22,23,25,26,27,28,29,31,32,33 & 34) will be retained in full. Thirteen hedgerows / linear features (LF 1,2,3,4,9,10,11,12,14,20,21,24, 30) will be partially impacted upon with three removed entirely (LF 6,7 & 13).

Eight individual trees / small tree groups (T1,2,3,4,11,12,13,14) will be removed to facilitate the development. Six trees / small tree groups (T5,6,7,8,9,10) will be retained and protected. One small tree group (T15) will be partly retained.

A Project Arborist will be retained for the duration of the construction period to monitor the management of tree protection and to provide advice as required. Tree protection fencing will be erected under the guidance of the Project Arborist and maintained for the duration of the project.

## 1. Client brief & Methodology

CMK Hort + Arb Ltd. were commissioned by Cosgrave Property Group to provide a description of the impact of the proposed development at Fassaroe, Co. Wicklow on existing trees and hedgerows. The analysis of the existing woody vegetation is based on the report provided by FGE Consulting titled Linear Feature and Tree Survey dated September 2021 (Appendix i). The impact on the existing woody vegetation is based on the Landscape Masterplan 0100 & 0105 & 0106 developed by Mitchell & Associates assessed against locations of trees and hedgerows contained within the report provided by FGE Consulting.

## 2. General description of existing woody vegetation

The site is located to the west of Bray / Old Connaught, Co Wicklow (image 1) and encompasses agricultural lands, existing road networks and infrastructure.

Woody vegetation primarily contained within an existing network of hedgerows. There are also a small number of existing individual trees scattered over the site.

The site lies to the south of Ballyman Glen SAC (Site Code: 000713) which is noted for its varied habitats including wet woodland and species rich shrub and ground layers.

The baseline data for this report is derived from that provided by FGE Consulting titled Linear Feature and Tree Survey which lists and describes 34 linear features / hedgerows), 16 individual trees and 9 wooded areas.

The type of woody vegetation is very mixed and varies from areas of scrub to agricultural hedgerows and screen panting adjacent to the M11 and Upper Dargle Road.

Management of the hedgerows and plantings appears to have been limited with lower hawthorn hedges cut to retain their structure with larger



Image 1. Survey boundary (FGE Consulting)

trees both within hedgerows and tree groups largely unmanaged. The result is a mixed quality tree population over the site as a whole.



## **3. Arboricultural Impact**

#### 3.1 Project description

• Road link (2.4km) connecting N11 to Ballyman Road (with westerly connection to Ballyman Road already in place)

- Pedestrian / cycle route including bridge across the N11 to Dargle Road Upper
- 15.3ha of District Park / Active Open Space
- 650 no. residential units comprising 241 no. houses and 409 no. apartments
- 3 No. pocket park areas comprising a total of 0.43ha.
- 733sq.m approx. crèche with capacity for approx. 138 no. childcare spaces
- Retail unit / kiosk (108sq.m.) in district park
- Neighbourhood Centre Phase 1 comprising:
- 1,035sq.m. retail
- 360sq.m. café,
- 480sq.m community concierge (serving entire Fassaroe community)
- 414sq.m. residential ancillary uses for residents of the neighbourhood centre apartments (residents lounge 256sq.m., residents gym 90sq.m., and residents concierge 68sq.m.)
- Demolition of an existing dwelling at Berryfield Lane
- Rerouting and undergrounding of overhead ESB lines (110kV and 38kV lines) across site and into existing ESB Substation
- Site development / ground works on future development areas to ensure sustainable cut and fill balances across the lands
- Water supply, foul and surface water drainage proposals
- Provisions for public bus services in line with demand towards Bray (DART and Bray bus interchange) and towards the Luas at Cherrywood / Brides Glen

• Remediation of 5 no. historic landfill sites in line with Certificates of Authorisation issued to Wicklow County Council by the EPA in 2019

#### 3.2 Impact of the proposed development

The impact of the proposed development on existing woody vegetation is outlined within tables 1 - 6. The impact is based on an overlay of the proposed masterplan onto the tree Survey & Linear Features drawing from FGE Consulting which outlining the locations of individual trees, linear features and woodlands.

#### 3.3 Woodland Areas (WAs)

Three woodland areas / tree groups will be retained in full, five partly removed with one removed in full (refer to tables 1 & 4).

Where wooded area will be partially impacted upon to facilitate the proposed construction works these works can be undertaken with due care to confine the works to the absolute minimum thereby reducing the overall impact on the hedgerows. Fencing will be erected immediately following tree / vegetation removal to protect retained trees / vegetation.

Retained in full	Partly Retained	Fully Removed
1,3,7	2,4,5,6,9	8

**Table 1.** Impact on Woodland Areas (WAs). Numbers refer to individual woodland areas / tree groups as per table 4 & the Linear Feature and Tree Survey report from FGE Consulting)

#### 3.4 Linear Features (LFs)

Eighteen linear features / hedgerows are to be retained. Thirteen partly removed with three totally removed (refer to tables 2 & 5).

Where hedgerows/ linear features will be partially impacted upon to facilitate the proposed construction works these works can be undertaken with due care to confine the works to the



absolute minimum thereby reducing the overall impact on the hedgerows. Fencing will be erected immediately following tree / vegetation removal to protect retained trees / vegetation.

Retained in full	Partly Retained	Fully Removed
5,8,15,16,17,18,19,22,23,25,26,	1,2,3,4,9,10,11,12,14,	6,7,13
27.28.29.31.32.33.34	20.21.24.30	

**Table 2.** Impact on Linear Features (LFs). Numbers refer to individual linear features as per table 5 & the Linear Feature and Tree Survey report from FGE Consulting)

#### 3.5 Individual Trees (Ts)

Six individual trees / small tree clusters will be retained. Eight will be removed in full with one small tree group with a poor specimen partly removed (refer to tables 3 & 6). Fencing will be erected immediately following tree removal to protect retained trees / vegetation.

Retained	Partly Retained	Removed
5,6,7,8,9,10,	15	1,2,3,4,11,12,13,14

**Table 3.** Impact on individual trees (T). Numbers refer to individual trees as per table 6 & theLinear Feature and Tree Survey report from FGE Consulting)

### 4. Commentary

The overall impact of the proposed development is not considered significant in terms of the loss of woody vegetation over the site as a whole. There will be a loss of one wooded area with incursions on five. Three wooded areas will be retained in full.

The loss of linear features / hedgerows will be limited to three in full with impacts on a further thirteen. The full retention of eighteen is considered positive as these linear features provide a range of ecological benefits even if many are poorly structured and limited in terms of species diversity. The arboricultural merit of many of these features is limited through lack of management or mismanagement over time.

The loss of individual trees is high in terms of the percentage of the total identified within the report provided by FGE Consulting. However, none of these have been identified within the report as being of arboricultural significance with the longevity of the ash in particular most likely limited by ash dieback.

The design and layout of the open space areas incorporates in full or part six linear features (LFs 10,11,25,26, 27 & 34) thereby retaining them as they are currently configured or by managing their structure to best incorporate them into these public amenity areas.

The majority of the remaining trees / linear features which have been partly impacted upon are located on the periphery of the site thereby allowing them to be protected following the removal of particular elements.

Remediation works are proposed – Refer to Mitchell + Associates drawings 0100 & 0105 & 0106 and will be undertaken with co-operation from the Project Arborist.

Prior to removal of any woodland areas a report shall be prepared by the Project Arborist which will take note of the species mix and approximate quantities. This report will be used as a base for the re-planting of whips and standards within the woodland areas.

Tree protection area will be determined and agreed with the Project Arborist and installed prior to the commencement of site clearance and construction with all operations in the vicinity of trees / linear features monitored and directed by the Project Arborist (refer to appendix ii Tree Protection Strategy & Method Statement report).



## 5. Tables

Code	Description	Impact	Recommendations
(wooded			
WA 1	Wooded area consisting mainly composed of larch, pine with hawthorn, elder, alder, beech, sweet chestnut, ash, and sycamore	No impact.	Provide tree protection
WA 2	Mixed age willow, hawthorn, blackthorn, alder, conifers, hazel, ash, and sycamore.	Partial site encroachment.	Remove impacted vegetation and protect remaining
WA 3	Scrub area with willow, alder, hawthorn, blackthorn, elder, and silver birch.	No impact.	Provide protection
WA 4	Wooded area containing alder, willow, silver birch, hazel, ash, hawthorn, blackthorn, sycamore.	Partial site encroachment.	Remove impacted vegetation and protect remaining
WA 5	Motorway screen planting of willow, ash, beech, sycamore, alder, Scot's pine, Oak, hawthorn, eucalyptus, and hazel.	Approximately half of the trees to be removed to facilitate road realignment and foot-bridge construction	Remove impacted vegetation and protect remaining
WA 6	Motorway screen planting of willow, ash, beech, sycamore, alder, Scot's pine, Oak, hawthorn, eucalyptus, and hazel.	Approximately half of the trees to be removed to facilitate road realignment and foot-bridge construction	Remove impacted vegetation and protect remaining
WA 7	Motorway screen planting of hawthorn, blackthorn, alder, sycamore, hazel, silver birch, field maple, willow, rowan, and Scot's pine.	No impact.	Provide tree protection
WA 8	Scrub mainly composed of willow with more occasional oak, silver birch, hazel and alder saplings.	Attenuation lake located here for future development	Remove vegetation
WA 9	Scrub/woodland with mature hawthorn, blackthorn, sycamore, ash, willow, silver birch and rowan.	Turning circle for bus encroaches into the vegetation - also red line partially encroaches into this area	Remove impacted vegetation and protect remaining
Table 1. Woo Note: Descri	oded areas. Impacts & Recommendations ptions of areas extracted from FGE Consulting report	titled Linear Feature and Tree Survey re	eport



Code	Description	Impact	Recommendations
(Linear			
feature)			
LF 1	Sparsely planted young trees. Rowan and silver	Partly dissected by road	Remove impacted vegetation and
	birch.		protect remaining
LF 2	Mature managed hedgerow composed of	Partly dissected by road and	Remove impacted vegetation and
	hawthorn, blackthorn and young ash	junctions to connect existing roads	protect remaining
LF 3	Mature managed hedgerow. Mainly consisting of	Partly dissected by road	Remove impacted vegetation and
	hawthorn, blackthorn and young ash.		protect remaining
LF 4	Mature managed hedgerow. Mainly consisting of	Partly dissected by road	Remove impacted vegetation and
	hawthorn, blackthorn and young ash trees.		protect remaining
LF 5	Mature managed hedgerow. Mainly consisting of	Outside red line. No impact	No action necessary
	hawthorn, blackthorn and young ash.		
LF 6	Unmanaged mature hedgerow. Mainly consisting	Area to be capped as on the edge of	Remove existing vegetation
	of hawthorn, blackthorn and young ash.	a landfill area	
LF 7	Unmanaged hedgerow. The species present	Landfill area. To be capped	Remove existing vegetation
	include willow, young ash.		
LF 8	Unmanaged mature hedgerow. Mainly consisting	No impact	Protect
	of hawthorn, blackthorn and young ash.		
LF 9	Vegetation sparsely planted with a maximum	Can be partially retained 1/4th to the	Remove impacted vegetation and
	height of 1.5m in poor condition. Species include	south close to the pump house -	protect remaining
	elder.	3/4th will be lost	
LF 10	Patchy linear feature with sparse vegetation in	Levels changed and landfill	Remove impacted vegetation
	poor condition, consisting of rose, brambles,	mediation works requirements	
	blackthorn.		
LF 11	Patchy linear feature with sparse vegetation in	Levels changed and landfill	Remove impacted vegetation
	poor condition, consisting of rose and blackthorn,	mediation works requirements	
LF 12	Small linear feature, approximately 1.5m high.	Partly within road alignment. 1/ 3rd	Remove impacted vegetation and
	Consisting of willow, holly, young ash and	to be removed due to road	protect remaining
	sycamore.	realignment and connection with	
		Berryfield lane - 2/ 3rd to remain	
		along Berryfield lane as part of the	



Code (Linear	Description	Impact	Recommendations
feature)		Danaan lan daaan a	
		Boreen landscape	
LF 13	Mature ash treeline.	Direct impact from development	Fell
LF 14	A mainly grassy bank with small (1.5m) elder	Impact from road works and driveways	Retain 1/2 to the West. Remove remaining vegetation
LF 15	Mature ash treeline with hawthorn, blackthorn, elder.	No impact	Retain and protect
LF 16	Sparsely planted sycamore treeline, 6m high.	No impact	Retain and protect
LF 17	Mature beech and ash treeline.	No impact	Retain and protect
LF 18	Managed hedgerow, 1.5m high, consisting of elder, ash saplings and holly.	No impact	Retain and protect
LF 19	Semi-mature treeline, with holly, elder, alder, hawthorn, ash, sycamore, beech and silver birch.	No impact	Retain and protect
LF 20	Unmanaged mature hedgerow with elder,	Partly dissected by road and inside	Remove impacted vegetation and
	hawthorn, blackthorn.	landfill remediation area	protect remaining
LF 21	Managed hedgerow, max 2m high, consisting of elder, hawthorn and blackthorn	Affected by landfill remediation works and road slightly encroaches to the west (approx 180m is affected)	Remove impacted vegetation (approx. 180m) and protect remaining
LF 22	Young hedgerow of elder, hawthorn, beech, blackthorn and alder	No impact	Retain and protect
LF 23	Mature treeline with sycamore, holly and cherry	No impact	Retain and protect
LF 24	Mature unmanaged hedgerow 4m high of blackthorn, hawthorn.	Partly affected to the south by the road works	Remove impacted vegetation
LF 25	Mature treeline of alder species through the centre of the road.	No impact	Retain and protect
LF 26	Managed c3m high hedgerow of hawthorn, blackthorn, oak with a single silver birch tree.	No impact	Retain and protect
LF 27	Mature well developed treeline of ash, beech, sycamore and alder	No impact	Retain and protect
LF 28	Semi-mature treeline of Scots pine with alder, oak	No impact	Retain and protect



Code	Description	Impact	Recommendations
(Linear			
feature)			
	and beech.		
LF 29	Mature unmanaged hedgerow with hawthorn,	No impact	Retain and protect
	blackthorn, & holly.		
LF 30	Mature well developed treeline, with ash,	Partly dissected by road and by GAA	Fell impacted vegetation and protect
	sycamore and wych elm.	pitch to the East	remaining
LF 31	Mature treeline with ash hawthorn, blackthorn and	No impact	Retain and protect
	holly.		
LF 32	Mature ash treeline with hawthorn, blackthorn and	No impact	Retain and protect
	holly.		
LF 33	Patchy willow hedgerow between tree lines.	No impact	Retain and protect
LF 34	Mature treeline of willow, ash, hawthorn,	No impact	Retain and protect
	blackthorn, rowan, sycamore, and cherry.		
Table 2. Linear features. Impacts & Recommendations			
Note: Descriptions of vegetation extracted from FGE Consulting report titled Linear Feature and Tree Survey report			



Code: Trees	Description	Impact	Recommendations
small groups)			
T1	Two young ash trees within hedge	Impacted by the connection to Berryfield Road	Remove
T2	Two mature ash trees hedgerow	Impacted by landfill capping works	Remove
Т3	Semi-mature ash within hedgerow.	Impacted by landfill capping works	Remove
Τ4	Cluster of three semi-mature ash trees, with a maximum of height of 8m	Impacted by landfill capping works	Remove
T5	Three mature ash within hedgerow	No impact	Retain and protect
Т6	Cluster of semi mature trees - including ash, conifer species and ornamental trees	No impact	Retain and protect
Τ7	Single semi-mature sycamore and ash	No impact	Retain and protect
Т8	Single semi-mature ash	No impact	Retain and protect
Т9	Willow tree within managed hedgerow. Good condition and 4m high	No impact	Retain and protect
T10	Young silver birch within hedgerow	No impact	Retain and protect
T11	Nine young horse chestnut trees in the centre of the road. One dead.	Within road alignment	Remove
T12	Two cherry trees.	Within road alignment	Remove
T13	Three cherry trees.	Within road alignment	Remove
T14	Single rowan tree in the middle of the roundabout.	Remove	Remove
T15	Three young oak trees (poor condition; and a willow tree (1m high) in the centre of the roundabout.	Remove poor trees	Remove poor trees. Protect retained trees
Table 3. Trees (individual / small groups. Impacts & Recommendations			
Note: Descriptions	s of trees extracted from FGE Consulting report ti	itled Linear Feature and Tree Survey re	port

# APPENDIX iii TREE PROTECTION STRATEGY & METHOD STATEMENT



# TREE PROTECTION STRATEGY & METHOD STATEMENT

# FASSAROE CO. WICKLOW FASSAROE CO. WICKLOW

roject No. TFAS001 Project name Fassaroe **Date** 09/02/22 Revision A

### **Report Prepared by**

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Fig 1.	Tree Protection Fencing Detail
Fig 2.	Rola-Trac protective matting

### **1. Introduction**

This document is designed to outline the procedures which will be undertaken to effectively retain trees free from adverse construction impacts for the duration of the construction period on the site of the housing development at Fassaroe, Co. Wicklow. The document is divided into sections which begin at the pre-construction planning stage and follows on to post construction re-assessment of retained trees.

#### 1.2 Key issues

Appointment of an arborist (Site Arborist) to oversee all works relevant to trees.

Scheduling of tree and construction works.

Establishment of tree protection.

Monitoring of tree protection (adherence to the Tree Protection Code of Practice). Supervision of works in the vicinity of trees.

Post construction re-assessment of retained trees.

## 2. Consulting Arborist

A Site Arborist shall be appointed prior to the commencement of site construction works and will be responsible for the setting up and monitoring of tree protection, liaising with local authority tree / planning officers and providing feedback and advice to the design construction teams on issues relevant to trees. The Site Arborist shall be retained for the duration of construction works and should be appointed to carry out a post-construction tree survey / assessment.

## **3. Scheduling of works**

#### 3.1 Pre-construction meetings/tree works

- An onsite meeting will be held if required, with all relevant parties; including the Developer and or his Agents, Site Arborist and Local Planning Authority
- Remedial works to trees throughout the site where indicated as necessary within the Tree Works Schedule. All works will be undertaken to BS 3998 2010 Tree Work and/or to current best practice.
- Erection of tree protection fencing as per recommendations contained within BS 5837:2012 Trees in relation to design, demolition and construction Recommendations. Tree protection to be erected under supervision of Site Arborist prior to main construction works being undertake on site.

#### **3.2 Construction period**

- The Site Arborist shall monitor tree protection.
- The Site Arborist shall specify any necessary remedial works to trees which may arise due to construction works.
- The Main Contractor shall carry out any instructions made by the Site Arborist with regard to the protection of retained trees and ensure where necessary that these instructions are followed by any sub-contractors.

#### 3.3 Post construction works will consist of:

• Re-survey of retained trees and the implementation of measures contained with the survey document.

## 4. Preservation of Trees

#### 4.1 Contractors obligations

The Contractor shall take all precautions to ensure that any trees which are not required to be taken down under the contract shall remain undisturbed and undamaged. All works to trees and all operations adjacent to trees should be undertaken in accordance with the Code of Practice. The Contractor must appoint a qualified arboricultural contractor to undertake all tree works subject to approval by the Consulting Arborist. The Contractor shall undertake no works to trees unless instructed by the Contract Administrator. All works on or within the Construction Exclusion Zone are to be supervised by the site arborist. Five working days notice of intention to undertake works to be given.

#### 4.2 Setting out: Protected Tree Zone/Construction Exclusion Zone

The tree protection zone shall be set out in accordance with the Code of Practice (5).. A notice 'Construction Exclusion Zone' shall be placed on tree protection fencing at regular intervals along the protective fencing. This notice shall include contact details for the Site Arborist. Strictly no access should be permitted to this zone unless instructed by the Site Arborist.

The Contractor is to maintain the protective fencing in good condition to the satisfaction of the Site Arborist for the duration of the contract. Any damage to fencing is to be reported to the Site Arborist immediately. Damaged fencing is to be repaired within 2 hours of the damage occurring. All works within the vicinity of the damaged fencing are to be suspended until the fencing is repaired.

#### 4.3 Maintenance of Protected Tree Zone

The Site Arborist should be given 5 days notice of any works within or access required to this zone. The 'Protected Tree Zone' should under no circumstances be used for storage of materials, equipment, or site debris. No fires should be lit within the "Protected Tree Zone", or equipment washed or cleaned.

## 5. Code of Practice for the preservation of trees.

The following specification is intended for the preservation of trees. These guidelines will help sustain vigour and minimise adverse growing conditions for trees set out for retention.

#### 5.1 Code of Practice notifications

The Code of Practice will be brought to the attention of all site personnel including those of the Main Contractor, Sub-Contractors and Engineering Specialists associated with the project.

All operations to be in accordance with BS 5837:2012 Trees in relation to design, demolition and construction -Recommendations.

The Contractor should purchase and make available on site a copy of the above.

#### 5.2 The Site Arborist:

- Supervise the installation of tree protection fencing.
- Supervise all tree works and assess on-going tree protection.
- Liaise with the relevant authorities during the project.
- Constantly monitor the project with regard to tree health to ensure that no damage is caused to the subject trees during the operational works.
- Report any negligent damage to trees which will prejudice their health.
- Monitor, where necessary, all works carried out by the Arboricultural Contractor and Main Contractor within the 'Protected Tree Zone'.

#### **5.3 Arboricultural Contractor:**

- Submit a full method statement containing machinery to be used, removal of wood etc to the Site Arborist.
- Carry out works to the most up to date arboricultural practices available e.g. BS 3998. Recommendations for tree work (as amended).
- Undertake work only with suitably qualified operatives in constant consultation with the Site Arborist.
- Trees identified for removal will be section felled in wooded areas so as not to damage remaining trees.

#### 5.4 Main Contractor:

- Appoint a member of staff to be responsible for tree protection and this person shall be the point of contact between the Main Contractor and the Site Arborist.
- Undertake all work in accordance with this specification.
- Ensure that all personnel, operatives, sub-contractors etc. are aware of this specification and operate accordingly
- Notify the Site Arborist of any potential conflicts that may affect the health, vigour and viability of trees.

#### 5.5 Access:

Access to the site and service roads shall be agreed with the Site Arborist prior to commencement of works. Where it is deemed necessary for heavy machinery access the contractor shall refer to the guidelines within BS 5837 2012 and liaise with the Site Arborist to instigate the most appropriate root protection system.

### 6. Post Construction

A post construction report on the condition of trees should be undertaken and all recommendations made within this report should be carried out to BS3998 Tree Works.



Fig 1. Tree Protection Detail (Herras type fencing or similar approved.

## 7. Arboricultural Method Statement

This section gives general guidance on methods of work to minimise damage to trees. The design team including the project arborist should be consulted at an early stage prior to the commencement of any works. This will reduce the potential for conflict between trees and works.

#### 7.I Below Ground

Wherever trees are present, precautions should be taken to minimise damage to their root systems. As the shape of the root system is unpredictable, there should be control and supervision of any works, particularly if this involves excavating through the surface 600mm, where the majority of roots develop.

#### 7.2 Fine Roots

Fine roots are vulnerable to desiccation once they are exposed to the air. Larger roots have a bark layer which provides some protection against desiccation and temperature change. The greatest risk to these roots occurs when there are rapid fluctuations in air temperature around them e.g. frost and extremes of heat. It is therefore important to protect exposed roots where a trench is to be left open overnight where there is a risk of frost. In winter, before leaving the site at the end of the day, the exposed roots should be wrapped with dry sacking. This sacking must be removed before the trench is backfilled.

#### 7.3 Precautions

The precautions referred to in this section are applicable to any excavations or other works occurring within the Prohibited or Precautionary Zones as illustrated in Figure 1 – 'Tree Protection Zone'.

#### 7.4 Realignment

Whenever possible works should always be diverted or re-aligned outside the Tree Protection Zones. Under no circumstances can machinery be used to excavate open trenches within the Tree Protection Zones unless under the supervision of the Project Arborist.

The appropriate method of working within Tree Protection Zones should be determined in consultation with the Project Arborist / Client and may depend on the following circumstances.

- The scope of the works (e.g. one-off repair or part of an extensive operation)
- Degree of urgency (e.g. for restoration of supplies)
- Knowledge of location of other apparatus
- Soil conditions
- Age, condition, quality and life expectancy of the tree

Where works are required for the laying or maintenance of any apparatus within the Tree Protection Zones there are various techniques available to minimise damage.

Acceptable techniques in order of preference are;

#### a) Trenchless

Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Prohibited or Precautionary Zones. In order to avoid damage to roots by percussive boring techniques it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g. oil, bentonite, etc.) must not be used when working within the Prohibited Zone. Lubricating materials other than water may be used within the Precautionary Zone following consultation and by agreement.

#### b) Broken Trench - Hand-dug

This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching as in (c) below. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Prohibited Zone.

#### c) Continuous Trench - Hand-dug

The use of this method must be considered only as a last resort if works are to be undertaken by agreement within the Prohibited Zone. The objective being to retain as many undamaged roots as possible.

Hand digging within the Prohibited or Precautionary zones must be undertaken with great care requiring closer supervision than normal operations.

After careful removal of the hard surface material digging must proceed with hand tools. Clumps of roots less than 25mm in diameter (including fibrous roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect the bark around the roots.

All roots greater than 25mm diameter should be preserved and worked around. These roots must not be severed without first consulting the owner of the tree or the consulting arboriculturist. If after consultation severance is unavoidable, roots must be cut back using a sharp tool to leave the smallest wound.

#### 7.5 Backfilling

7.5.1Backfilling should be carefully carried out to avoid direct damage to roots and excessive compaction of the soil around them. The backfill should, where possible, include the placement of an inert granular material mixed with top soil or sharp sand (not builder's sand) around the roots. This should allow the soil to be compacted for resurfacing without damage to the roots securing a local aerated zone enabling the root to survive in the longer term.
7.5.2 Backfilling outside the constructed highway limits should be carried out using the excavated soil. This should not be compacted but lightly "tamped" and usually left slightly proud of the surrounding surface to allow natural settlement. Other materials should not be incorporated into the backfill.

## 8. Additional Precautions near Trees

8.1 Movement of heavy mechanical plant (excavators etc.) must not be undertaken within the Prohibited Zone and should be avoided within the Precautionary Zone, except on existing hard surfaces, in order to prevent unnecessary compaction of the soil. This is particularly important on soils with a high proportion of clay. Spoil or material must not be stored within the Prohibited Zone and should be avoided within the Precautionary Zone.

Where it is absolutely necessary to use mechanical plant within the Precautionary Zone care should be taken to avoid impact damage to the trunk and branches. A tree must not be used as an end-stop for paving slabs or other materials nor for security chaining of mechanical plant. If the trunk or branches of a tree are damaged in any way advice should be sought from the supervising arboriculturist. See table 1 – 'Prevention of Damage to Trees Below Ground' below for summary details regarding causes and types of damage to trees and the implications of the damage and the necessary precautions to be taken to avoid damage.

Causes of Damage	Type of Damage	Implications to Tree	Precautions
Trenching, mechanical digging etc.	Root severance	<ul> <li>The tree may fall over</li> <li>Death of the root beyond the point of damage</li> <li>Potential risk of infection of the tree The larger the root the greater the impact on the tree.</li> </ul>	Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the consulting arborist. For roots less than 25mm in diameter use a sharp tool and make a clean cut leaving as small a wound as possible.
Trenching, mechanical digging, top soil surface removal etc.	Root bark damage	<ul> <li>The tree may fall over</li> <li>If the damage circles the root it will cause the death of the root beyond that point</li> <li>Potential risk of infection of the tree The larger the root the greater the impact on the tree.</li> </ul>	Do not use mechanical machinery to strip the top soil within the Precautionary Zone. Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the consulting arborist. For roots less than 25mm use a sharp tool and make a clean cut leaving as small a wound as possible.
Vehicle movement and plant use.	Soil compaction & water saturation	Restricts or prevents passage of gaseous	Prevent all vehicle movement, plant use
		diffusion through soil.	or material storage

## TABLE 1 - Prevention of Damage to Trees Below Ground

Material storage within the precautionary area.		the roots are asphyxiated and killed affecting the whole tree.	within the Precautionary Zone. Use tree root protection mats where this is not possible
Causes of Damage	Type of Damage	Implications to Tree	Precautions
Top-soil scouring, excavation or banking up.	Alterations in soil level causing compaction or exposure of roots.	Lowering levels strips out the mass of roots over a wide area. Raising soil levels asphyxiates roots and has the same effect as soil compaction.	Avoid altering or disturbing soil levels within the Precautionary Zone.
Use of herbicides.	Poisoning of the tree via root absorption	<ul> <li>Death of the whole tree</li> <li>Death of individual branches</li> <li>Damage to leaves and shoots.</li> </ul>	The selection and application of herbicides must be undertaken by a competent person in accordance with COSHH regulations.
Spillage of oils or other materials.	Contamination of soil	Toxic and asphyxiation effects of chemicals, oils, building materials (cement, plaster, additives etc.) on the root system can kill the tree.	Never store oils, chemicals or building materials within the Precautionary Zone or within the branch spread of a tree, which ever is the greater.
Placement or replacement of underground apparatus.	Various	Death of all or part of the tree.	Effective planning and liaison with the consulting arborist, taking into consideration the position of trees, and their future growth potential and management.

**8.2 Tree root protection mats** Protective matting such as Rola-Trac<sup>tm</sup> (image 2) should be placed over the initial work zone areas near tree root systems to mitigate any adverse effects from the presence of machinery and associated construction activity by works personnel. These also have the benefit of protecting the soil from any potential works contaminants due to works.

Image 2. Rola-Trac<sup>™</sup> protective matting.



# 9. Above Ground

### 9.I Damage by Pruning

Trees (including shrubs and hedges) can be damaged by inappropriate or excessive pruning. The aim of pruning should be to achieve vegetation clearances in ways which minimise the aesthetic and physical impact on retained trees and shrubs.

Reasonable care should be taken to avoid unnecessary damage to flora and fauna and to access ways.

Work should comply with BS3998. Pruning is a skilled job which should be undertaken by appropriately trained and experienced staff.

Given constraints often imposed by others it is not always possible to prune in an aesthetically pleasing way. However an effective Utility Arborist adjusts the work carried out for each plant to achieve the best possible standard, given the prevailing constraints.

· Ideally vegetation is left well balanced with natural crown shapes

• Pruning must also take into account the vegetation re-growth expected in the interval between cuts. This will vary widely between plant species and sites.

• Vegetation management: tree selection for retention and replanting at an early stage can be used to prevent the need for much more intrusive and damaging work in the future when the vegetation grows closer to the overhead line. Good practice often involves interventions over a number of cutting cycles to manage trees and shrubs so that future conflict with local infrastructure is minimised.

Where reasonably possible avoid recognised injurious practices such as:

o Topping or lopping to an arbitrary height or branch length

**o** Unbalancing a tree crown by excessive one-sided pruning

**o** Pollarding. Unless pollarding is the existing recognised management technique.

o Inappropriate use of flailing.

o Climbing damage - Care should be taken to avoid injuring thin and weak barked species by inappropriate use of rope access techniques.
o Access damage - Vehicle access and treatment of arisings should avoid injury to low branches, stems, root buttresses and feeder roots.
o Spreading Disease - Appropriate regard should be given to avoid spreading fungal diseases.

• If the only pruning option is to severely reduce or unbalance a tree, then coppicing, or felling and replacement planting are often better options.

See table 2 – 'Prevention of Damage to Trees Above Ground' below for summary details regarding causes and types of damage to trees and the implications of the damage and the necessary precautions to be taken to avoid damage.

Causes of Damage	Type of Damage	Implications to Tree	Precautions
Impact by vehicle or plant Physical attachment of signs or hoardings to the trunk Storage of materials at base of tree Rubbing by winch or pulling cables	Bark bruising, bark removal, damage to the wood, damage to buttress roots, abrasion to trunk	Wounding with the potential for infection ultimately resulting in death of all or part of the tree. Structural failure of the tree	Surround the trunk with protective free- standing barrier. Exclude vehicles, plant or material storage from the Precautionary Zone. Ensure sufficient clearance of cables or ropes.
Impact by vehicle or plant Rubbing by overhead cables	Bark damage to branches, breakage and splitting of branches, abrasion to branches	Structural failure of the branch. Wounding or loss of a branch with the potential for infection ultimately resulting in death of all or part of the branch or tree.	Exclude vehicles, plant or material storage from the Precautionary Zone. Ensure sufficient clearance of cables or ropes. All pruning should be carried out in accordance with BS3998 (prune affected branches to give appropriate clearance from cables)
Inappropriate siting of overhead apparatus, such as CCTV, lighting fixtures and communications masts and dishes.	Inappropriate pruning, unnecessary tree removal	Severely pruning tree to acquire line of sight signal for communications dish etc.	Effective planning and liaison with arboriculturist, taking into consideration the position of trees, and their future growth potential and management.
Lack of forethought in design and location of apparatus and services entries on new developments	Complete tree removal	The tree is removed unnecessarily	Agree the location and installation of services at the design stage. Consideration should be given to the creation of dedicated service routes wherever possible.
Use of herbicides	Poisoning of the tree via absorption through bark, leaves and shoots	Death of the whole tree, death of individual branches, damage to leaves and shoots	The selection and application of herbicides must be undertaken by a competent person in accordance with COSHH regulations.

## 9.2 Chemical Damage to Trees

Chemical damage to trees adjacent to utility premises and operational land can be avoided if;

• the risk is identified when planning any work involving herbicides or other chemicals ensuring that only appropriate chemicals are used. Particular care should be exercised when considering the use of herbicides recommended for "non crop areas" as many of these also specify "do not use where there may be roots of desirable plants",

• herbicides are applied only at the rate and in the manner recommended by the manufacturer,

• follow-up applications are not undertaken until weeds reappear on the operational land,

• alternative methods of weed control are considered.

#### References

NJUG (2007) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.