

# DixonBrosnan

environmental consultants

|                                                                                                                                                                                                                                                                                                                                            |                  |                       |                    |                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------|--------------------|-----------------|
| <b>Project Tree and woodland survey Greenlink Interconnector - Ireland</b>                                                                                                                                                                                                                                                                 |                  |                       |                    |                 |
| <b>Client ARUP</b>                                                                                                                                                                                                                                                                                                                         |                  |                       |                    |                 |
| <b>Project ref</b>                                                                                                                                                                                                                                                                                                                         | <b>Report no</b> | <b>Client ref</b>     |                    |                 |
| 1991.1                                                                                                                                                                                                                                                                                                                                     | 1991.1           | -                     |                    |                 |
| <p>DixonBrosnan 12 Steam Packet House, Passage West, Co. Cork. Tel 086 851 1437  carl@dixonbrosnan.com   www.dixonbrosnan.com</p>                                                                                                                                                                                                          |                  |                       |                    |                 |
| <b>Date</b>                                                                                                                                                                                                                                                                                                                                | <b>Rev</b>       | <b>Status</b>         | <b>Prepared by</b> | <b>Reviewed</b> |
| 18/11/19                                                                                                                                                                                                                                                                                                                                   | 1                | 1 <sup>st</sup> Draft | Mark Donnelly BSc  | Carl Dixon MSc. |
| 13/03/20                                                                                                                                                                                                                                                                                                                                   | 5                | Issue                 | Mark Donnelly BSc  | Carl Dixon MSc. |
|                                                                                                                                                                                                                                                                                                                                            |                  |                       |                    |                 |
|                                                                                                                                                                                                                                                                                                                                            |                  |                       |                    |                 |
|                                                                                                                                                                                                                                                                                                                                            |                  |                       |                    |                 |
| <p>This report and its contents are copyright of DixonBrosnan. It may not be reproduced without permission. The report is to be used only for its intended purpose. The report is confidential to the client, and is personal and non-assignable. No liability is admitted to third parties. ©DixonBrosnan 2019.</p> <p><b>v180907</b></p> |                  |                       |                    |                 |

## Table of Contents

|                                               |    |
|-----------------------------------------------|----|
| 1. Statement of Authority .....               | 3  |
| 2. Report Limitations.....                    | 3  |
| 3. Introduction .....                         | 3  |
| 4. Site description .....                     | 3  |
| 5. Proposed works .....                       | 3  |
| 6. Methodology.....                           | 4  |
| 7. Results - Details of individual trees..... | 8  |
| 7. Conclusions and recommendations.....       | 12 |

## 1. Statement of Authority

The author, Mark Donnelly, holds a BSc. Hons in Forestry from Bangor University, Wales, and is a member of the Institute of Chartered Foresters. He has worked as an arboricultural consultant for the National Trust in Wales for 22 years and as a lecturer in Forest Ecology at Bangor University. In Ireland, he has undertaken a range of arboricultural and ecological surveys for projects including wind farms, quarries, local authorities, housing developments, roads and pipelines. Carl Dixon MSc has 20 years' experience as an ecological consultant and project manager.

## 2. Report Limitations

The statements, findings and recommendations made within the report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in natural and build environment around the trees after the date of this report nor any damage whether physical, chemical, or otherwise. Mark Donnelly cannot accept any liability in connection with the above factors, nor where recommended tree management is not carried out in accordance with modern tree care techniques.

## 3. Introduction

This tree survey was carried out along the onshore route of the proposed Greenlink interconnector between Baginbun Beach and Great Island, County Wexford. The survey area can be divided into two types of tree cover: roadside trees and dense woodland, each requiring its own survey methodology and thus these categories are described separately. The purpose of the survey is to identify trees that could be adversely affected by the proposed works, assess these impacts and make recommendations including mitigation to minimise adverse impacts on the trees.

## 4. Site description

The landscape is described in the Wexford County Development Plan 2013-2019 as “*rolling undulating farmland*”. The Hook Peninsula is recognised as a landscape of Greater Sensitivity within the broader coastal landscape.

The landscape is dominated by arable land and pasture, creating a patchwork of fields bounded by stone and earth banks with hedgerows and occasional trees. Trees are generally scarce on the exposed coasts but are more common inland along roads and river valleys.

## 5. Proposed works

Greenlink is a nominal 500-megawatt subsea and underground cable electricity interconnector between the existing electricity grids in Ireland and Great Britain. This report relates to the onshore route of approximately 23km of buried cables which will be connected to marine cables at the landfall at Baginbun Beach and run to Great Island. The underground cables are generally routed along local roads.

The buried cable comprises two direct current power cables and a fibre optic cable for control purposes. Excavation trenches will generally be approximately 1.5 metres deep and 700 millimetres wide along existing roads.

At the Campile Estuary it is proposed that a horizontal directional drill (HDD) will pass under the estuary and woodland at a depth of >10m. An overview of the route is provided in **Figure 1**.



**Figure 1: Cable Route and Locations of Construction Compounds** (indicated thus ● | background mapping from Bing © Microsoft 2020)

## 6. Methodology

The site was surveyed on the 24<sup>th</sup> May and 2<sup>nd</sup> June, 2019, covering roadside trees and woodland across the extent of the proposed development.

### 6.1 Roadside Trees

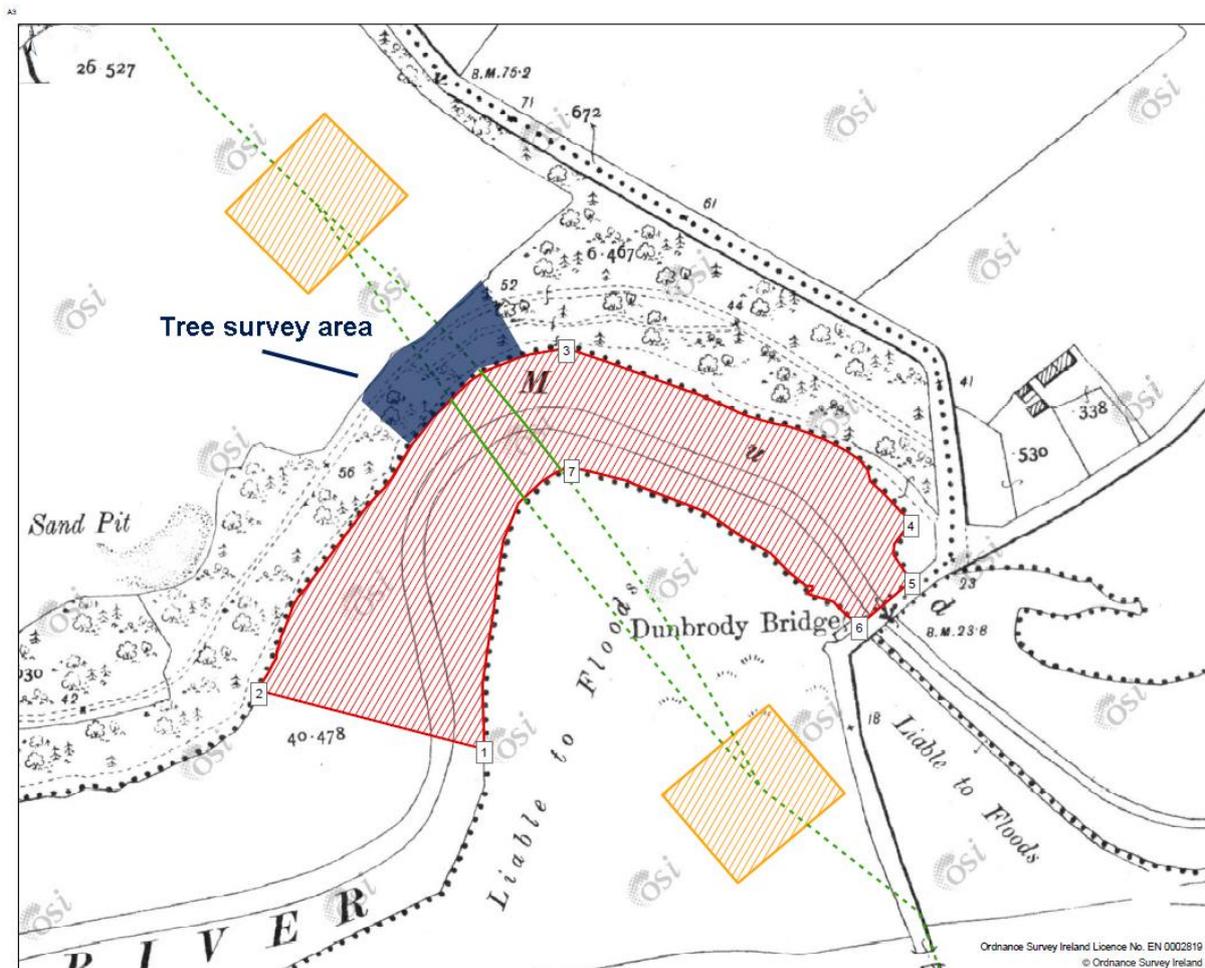
The overland route from Baginbun Head to within 110m of Dunbrody Bridge, is approximately 19.8km and runs primarily along public roads. All trees within 3m of the road surface edge were included and recorded as either individual trees or as groups. The latter was defined as where more than one tree is in close proximity and not necessarily the same species. Their GPS coordinates were recorded and locations mapped. Maps are included as **Attachment A**.

### 6.2 Woodland

There is a strip of mature woodland north of the Campile River Estuary adjacent to Dunbrody Bridge. Many of the trees were established during estate planting in the early 19<sup>th</sup> century creating a Mixed Broadleaved Woodland (WD1). However, it retains some characteristics of a semi-natural, oak-birch-holly woodland (WN1) which probably existed on this prior to the 19<sup>th</sup> century planting.

The woodland occupies a steep, sheltered slope, facing south east and running down to the high-water mark. It is classified as a mixed broadleaved and conifer plantation. An area of approximately 60m x 40m was surveyed in detail, with all individual trees recorded and

numbered with consecutive plastic tags (01181-01932). GPS coordinates were recorded for each tree. The woodland survey area is shown below in **Figure 2**.



**Figure 2 Tree Survey Area** | not to scale

### 6.2.1 Survey Key

The survey key utilised for the survey, which is based on the guidelines outlined in the British Standard *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* as detailed below in **Table 1**.

**Table 1 Survey Report Key**

|          |                  |                                                                                                                                                                                                                                                                             |
|----------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Column 1 | Reference number | Individual and groups of trees identified on location maps.                                                                                                                                                                                                                 |
| Column 2 | Coordinates      | Irish Grid Reference Coordinates                                                                                                                                                                                                                                            |
| Column 3 | Species          | Lists species                                                                                                                                                                                                                                                               |
| Column 4 | Age              | <p>IM - An immature tree – greater than 150 mm diameter but regarded as a sapling</p> <p>SM - Semi mature – a young tree but less than 50 % of its ultimate size</p> <p>M - Mature – a tree having attained dimensions typical of a fully-grown specimen of its species</p> |

|           |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           |                     | OM -Over Mature – an old specimen of a species showing signs of decline in health. Usual symptoms include crown starting to break up and decreasing in size.                                                                                                                                                                                                                                                                   |
| Column 5  | Girth (mm)          | Stem diameter (at approximately 1.3 m above ground) in mm                                                                                                                                                                                                                                                                                                                                                                      |
| Column 6  | Height (m)          | Tree height in metres                                                                                                                                                                                                                                                                                                                                                                                                          |
| Column 7  | Spread              | Approximate tree canopy spread in meters.                                                                                                                                                                                                                                                                                                                                                                                      |
| Column 8  | Roadside location   | Tree located on either left (L) or right (R) of road travelling north from Baginbun Beach.                                                                                                                                                                                                                                                                                                                                     |
| Column 9  | Condition           | Good -Full healthy canopy with good form and health<br>Fair - A specimen whose overall condition is typical of the site and may exhibit slightly reduced leaf cover/minor deadwood or may be predisposed to defects, e.g. Coppiced growth, but otherwise in good health.<br>Poor - A specimen which through defect or disease has a limited longevity or may be unsafe.                                                        |
|           |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Column 10 | Group or individual | Recorded as growing in a group or as an individual tree.                                                                                                                                                                                                                                                                                                                                                                       |
| Column 12 | Comments            | Any information relating to trees condition not covered previously and recommendation for removal/retention.                                                                                                                                                                                                                                                                                                                   |
|           |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Column 13 | Priority            | 1.An individual tree or group of trees that are prominent visually and/ or culturally in the landscape, may be of high biodiversity value, healthy and likely to contribute to the amenity of the location for the long term, 15-60 years.<br><br>2.An individual or group of trees that are in poor condition and unlikely to contribute to the amenity of its locality beyond the short to medium term, i.e. up to 15 years. |

### 6.2.3 Root Protection Area

The Root Protection Area is the radius measured from the tree centre in metres. The RPA is the minimum radial range of tree protection necessary to safeguard tree roots and would normally be the same as the “Construction Exclusion Zone” enclosed by fencing during construction. The RPA is calculated as follows:

**Single stem tree:** RPA radius = stem diameter x 12 (See Root Protection Area, Table 2)

**Trees with more than one stem arising below 1.50 m above ground level:** RPA radius = equivalent resultant combined stem diameter for multi-stemmed trees.

**Table 2 Root Protection Areas**

| Single stem diameter<br>mm | Radius of nominal circle<br>m | RPA<br>m2 | Single stem diameter<br>mm | Radius of nominal circle<br>m | RPA<br>m2 |
|----------------------------|-------------------------------|-----------|----------------------------|-------------------------------|-----------|
| 75                         | 0.90                          | 3         | 675                        | 8.10                          | 206       |
| 100                        | 1.20                          | 5         | 700                        | 8.40                          | 222       |
| 125                        | 1.50                          | 7         | 725                        | 8.70                          | 238       |
| 150                        | 1.80                          | 10        | 750                        | 9.0                           | 255       |
| 175                        | 2.10                          | 14        | 775                        | 9.30                          | 272       |
| 200                        | 2.40                          | 18        | 800                        | 9.60                          | 290       |
| 225                        | 2.70                          | 23        | 825                        | 9.90                          | 308       |
| 250                        | 3.0                           | 28        | 850                        | 10.20                         | 327       |
| 275                        | 3.30                          | 34        | 875                        | 10.50                         | 346       |
| 300                        | 3.60                          | 41        | 900                        | 10.80                         | 366       |
| 325                        | 3.90                          | 48        | 925                        | 11.10                         | 387       |
| 350                        | 4.20                          | 55        | 950                        | 11.40                         | 408       |
| 375                        | 4.50                          | 64        | 975                        | 11.70                         | 430       |
| 400                        | 4.80                          | 72        | 1000                       | 12.0                          | 452       |
| 425                        | 5.10                          | 81        | 1025                       | 12.30                         | 475       |
| 450                        | 5.40                          | 92        | 1050                       | 12.60                         | 499       |
| 475                        | 5.70                          | 102       | 1075                       | 12.90                         | 519       |
| 500                        | 6.0                           | 113       | 1100                       | 13.20                         | 547       |
| 525                        | 6.30                          | 124       | 1125                       | 13.50                         | 573       |
| 550                        | 6.60                          | 137       | 1150                       | 13.80                         | 598       |
| 575                        | 6.90                          | 150       | 1175                       | 14.10                         | 625       |
| 600                        | 7.20                          | 163       | 1200                       | 14.40                         | 652       |
| 625                        | 7.50                          | 177       | 1225                       | 14.70                         | 679       |
| 650                        | 7.80                          | 191       | 1250                       | 15.0                          | 707       |

## 7. Results - Details of individual trees

Individual trees and their characteristics are detailed below in **Table 3**. The root protection areas (RPAs) for relevant trees are listed in **Table 4**.

**Table 3: Individual Trees and Their Characteristics**

| Reference number | Coordinates |           | Species       | Age | Girth (mm) | Height (m) | Spread (m) | Side of road<br>L/R | Condition | Group or individual | Comments                                                 | Priority |
|------------------|-------------|-----------|---------------|-----|------------|------------|------------|---------------------|-----------|---------------------|----------------------------------------------------------|----------|
| 1.               | 52.171069   | -6.863578 | Ash 20+       | SM  | <400       | 5          | 3          | L                   | Fair      | Group               | Unmanaged hedge<br>Windswept                             | 2        |
| 2.               | 52.174282   | -6.868831 | Sycamore      | SM  | 250        | 4          | 5          | R                   | Fair      |                     | In cottage garden                                        | 2        |
| 3.               | 52.177299   | -6.87649  | Ash, Sycamore | SM  | >300       | 9          | 15         | L                   | Good      | Group               | 10 trees                                                 | 1        |
| 4.               | 52.177489   | -6.876557 | Ash, Sycamore | M   | 400        | 9          | 10         | L                   | Fair      | Group               | 10 trees<br>Adjacent to ruin                             | 2        |
| 5.               | 52.17758    | -6.877332 | Sycamore      | M   | 350        | 9          | 5          | R                   | Good      |                     | Garden hedgerow                                          | 1        |
| 6.               | 52.178069   | -6.880454 | Willow        | M   | 300        | 11         | 5          | R                   | Fair      |                     | Garden<br>Unstable                                       | 2        |
| 7.               | 52.179027   | -6.882909 | Ash, Elm      | SM  | 300        | 5          | 5          | R                   | Good      | Group               | Mature hedge of 10+ trees (Sitka spruce, Lodgepole pine) | 1        |
| 8.               | 52.179199   | -6.885985 | Conifers      | M   | 300        | 11         | 10         | R                   | Fair      | Group               |                                                          | 2        |
| 9.               | 52.179677   | -6.886928 | Sycamore      | SM  | 250        | 8          | 8          | R                   | Good      | Group               | 8 trees                                                  | 1        |

| Reference number | Coordinates |           | Species       | Age | Girth (mm) | Height (m) | Spread (m) | Side of road<br>L/R | Condition | Group or individual | Comments                                        | Priority |
|------------------|-------------|-----------|---------------|-----|------------|------------|------------|---------------------|-----------|---------------------|-------------------------------------------------|----------|
| 10.              | 52.179779   | -6.887016 | Willow        | SM  | 250        | 7          | 3          | L                   | Fair      |                     | White willow                                    | 2        |
| 11.              | 52.180684   | -6.890212 | Ash, Sycamore | SM  | 300        | 10         | 6          | R                   | Good      | Group               |                                                 | 1        |
| 12.              | 52.180684   | -6.890212 | Sycamore      | SM  | 350        | 9          | 6          | L                   | Good      | Group               | Sycamore and <i>Macrocarpa sp.</i>              | 2        |
| 13.              | 52.189247   | -6.896259 | Ash           | SM  | 300        | 6          | 4          | R                   | Fair      |                     |                                                 | 2        |
| 14.              | 52.206871   | -6.89709  | Elm, Ash      | SM  | 250        | 7          | 6          | R                   | Fair      | Group               |                                                 | 1        |
| 15.              | 52.21093    | -6.898017 | Ash, Sycamore | SM  | 350        | 9          | 10         | R                   | Good      | Group               | 13 trees– planted<br>Garden                     | 1        |
| 16.              | 52.212212   | -6.89857  | Ash           | SM  | 300        | 10         | 8          | R                   | Good      | Group               | 10+ trees                                       | 1        |
| 17.              | 52.213962   | -6.899098 | Conifer       | M   | 800        | 13         | 12         | R                   | Good      | Group               | 3 x Sittka Spruce<br>5 x Monterey Cypress       | 1        |
| 18.              | 52.215853   | -6.89984  | Ash           | M   | 300        | 8          | 5          | R                   | Good      | Group               | 2 trees                                         | 1        |
| 19.              | 52.217037   | -6.900361 | Conifers      | M   | 400        | 12         | 7          | R                   | Fair      | Group               | 2 trees, Scots Pine, Sittka Spruce              | 2        |
| 20.              | 52.22104    | -6.902486 | Mixed         | M   | 600        | 12         | 12         | L                   | Fair/Good | Group               | Horse Chestnut, Monterey Pine,<br>Ash, Sycamore | 1 / 2    |
| 21.              | 52.22104    | -6.902486 | Ash           | SM  | 300        | 6          | 9          | L                   | Good      | Group               | Overgrown hedge                                 | 1        |
| 22.              | 52.222511   | -6.902148 | Ash, Sycamore | SM  | 250        | 8          | 5          | R                   | Good      | Group               | Includes, XX Oak<br>Garden                      | 1        |

| Reference number | Coordinates |           | Species                         | Age | Girth (mm) | Height (m) | Spread (m) | Side of road<br>L/R | Condition | Group or individual | Comments                                   | Priority |
|------------------|-------------|-----------|---------------------------------|-----|------------|------------|------------|---------------------|-----------|---------------------|--------------------------------------------|----------|
| 23.              | 52.225191   | -6.902004 | Ash, Sycamore                   | SM  | 250        | 10         | 5          | R                   | Good      | Group               | Woodland Edge                              | 1        |
| 24.              | 52.237033   | -6.907498 | Beech, Sycamore                 | M   | 600        | 12         | 10         | R                   | Good      | Group               | 25+ trees planted                          | 1        |
| 25.              | 52.242353   | -6.907855 | Ash, Sycamore                   | M   | 400        | 13         | 9          | R                   | Fair      | Group               | Old Hedgerows                              | 2        |
| 26.              | 52.242353   | -6.907855 | Ash, Sycamore                   | M   | 450        | 12         | 10         | L                   | Fair      | Group               | Old Hedgerows                              | 2        |
| 27.              | 52.244632   | -6.912054 | Sycamore                        | SM  | 350        | 9          | 8          | L                   | Good      | Group               | 2 Groups<br>Former Hedgerows               | 1        |
| 28.              | 52.244739   | -6.913342 | Cypress                         | M   | 400        | 12         | 4          | R                   | Good      |                     | Monterey 2. and Leyland Cypress            | 1        |
| 29.              | 52.24486    | -6.915556 | Ash, Alder, Aspen, Black Poplar | IM  | 200        | 6          | 4          | 2.R                 | Good      | Group               | 50+ trees 5m from road outside school etc. | 1        |
| 30.              | 52.245048   | -6.917545 | Ash                             | M   | 600        | 13         | 8          | L                   | Good      |                     | Fine Tree                                  |          |
| 31.              | 52.245905   | -6.922647 | Mixed                           | M   | 400        | 14         | 8          | R                   | Good      | Group               | Scots Pine, Ash, Sycamore                  | 1        |
| 32.              | 52.245147   | -6.93001  | Ash                             | SM  | 350        | 10         | 9          | L                   | Good      | Group               | Overgrown hedge                            | 1        |
| 33.              | 52.2145616  | -6.930179 | Ash, Sycamore                   | SM  | 350        | 10         | 9          | R                   | Good      | Group               | Overgrown hedge                            | 1        |
| 34.              | 52.253375   | -6.934321 | Ash                             | SM  | 250        | 7          | 4          | L                   | Good      | Group               | Garden Hedge                               | 1        |
| 35.              | 52.25524    | -6.93571  | Ash                             | M   | 400        | 9          | 5          | R                   | Good      | Group               | 2 Trees                                    | 1        |
| 36.              | 52.257041   | -6.937441 | Sycamore                        | SM  | 300        | 9          | 5          | R                   | Good      | Fair                |                                            | 2        |

| Reference number | Coordinates |           | Species                       | Age | Girth (mm) | Height (m) | Spread (m) | Side of road<br>L/R | Condition | Group or individual | Comments                 | Priority |
|------------------|-------------|-----------|-------------------------------|-----|------------|------------|------------|---------------------|-----------|---------------------|--------------------------|----------|
|                  |             |           | Sitka Spruce                  |     |            |            |            |                     |           |                     |                          |          |
| 37.              | 52.258325   | -6.939413 | Ash                           | M   | 500        | 13         | 8          | R                   | Good      |                     | Priority Tree            | 1        |
| 38.              | 52.259619   | -6.941111 | Ash, Elm                      | SM  | 250        | 10         | 5          | L                   | Fair      | Group               | Overgrown hedge          | 2        |
| 39.              | 52.263667   | -6.944571 | Ash, sycamore                 | IM  | 200        | 8          | 4          | L                   | Fair      | Group               | Overgrown hedge          | 2        |
| 40.              | 52.264655   | -6.945355 | Ash, Sycamore                 | SM  | 450        | 11         | 8          | R                   | Good      | Group               | Notable oak              | 1        |
| 41.              | 52.265484   | -6.945626 | Sycamore                      | SM  | 400        | 12         | 5          | L                   | Fair      |                     | Multi-stemmed            | 2        |
| 42.              | 52.26642    | -6.946148 | Ash, Sycamore                 | IM  | 250        | 8          | 5          | L                   | Fair      | Group               | Overgrown hedge (Garden) | 2        |
| 43.              | 52.266856   | -6.946557 | Sycamore                      | M   | 450        | 12         | 6          | R                   | Fair      |                     |                          | 1        |
| 44.              | 52.272329   | -6.951953 | Evergreen Larch, Sitka Spruce | M   | 400        | 16         | 6          | R                   | Fair      | Group               | Mature Trees, prominent  | 1        |
| 45.              | 52.274643   | -6.952616 | Turkey Oak                    | SM  | 300        | 15         | 5          | R                   | Good      | Group               | Overgrown hedge          | 2        |
| 46.              | 52.2758     | -6.953127 | Sycamore                      | SM  | 200        | 10         | 5          | L                   | Fair      | Group               | Old quarry               | 1        |
| 47.              | 52.277585   | -6.955351 | Ash, Sycamore                 | IM  | 250        | 11         | 5          | L                   | Fair      | Group               |                          |          |
| 48.              | 52.278955   | -6.956817 | Sycamore                      | SM  | 400        | 11         | 8          | L                   | Good      |                     | Prominent tree           | 1        |
| 49.              | 52.279496   | -6.957515 | Lawsons                       | M   | 300        | 10         |            | L                   | Good      | Group               | Garden hedge             | 1        |
| 50.              | 52.280023   | -6.957926 | Ash                           | SM  | 300        | 8          | 4          |                     | Fair      |                     | Overgrown hedge          | 2        |

**Table 4 Root protection areas for Priority 1 individual trees and groups of trees**

| No. | Coordinates |           | Species                            | R.P.A (m) |
|-----|-------------|-----------|------------------------------------|-----------|
| 3   | 52.177299   | -6.87649  | Ash, Sycamore                      | 3.6       |
| 5   | 52.17758    | -6.877332 | Sycamore                           | 4.2       |
| 7   | 52.179027   | -6.882909 | Ash, Elm                           | 3.6       |
| 9   | 52.179677   | -6.886928 | Sycamore                           | 3         |
| 12  | 52.180684   | -6.890212 | Ash, Sycamore                      | 4.2       |
| 14  | 52.206871   | -6.89709  | Elm, Ash                           | 3         |
| 15  | 52.21093    | -6.898017 | Ash, Sycamore                      | 4.2       |
| 16  | 52.212212   | -6.89857  | Ash                                | 3.6       |
| 17  | 52.213962   | -6.899098 | Conifer                            | 9.6       |
| 18  | 52.215853   | -6.89984  | Ash                                | 3.6       |
| 20  | 52.217037   | -6.900361 | Mixed                              | 3.6       |
| 21  | 52.22104    | -6.902486 | Ash                                | 3.6       |
| 22  | 52.222511   | -6.902148 | Ash, Sycamore                      | 3.0       |
| 23  | 52.225191   | -6.902004 | Ash, Sycamore                      | 3.0       |
| 24  | 52.237033   | -6.907498 | Beech, Sycamore                    | 7.2       |
| 27  | 52.244632   | -6.912054 | Sycamore                           | 4.2       |
| 28  | 52.244739   | -6.913342 | Cypress                            | 4.8       |
| 29  | 52.24486    | -6.915556 | Ash, Alder, Aspen,<br>Black Poplar | 2.4       |
| 30  | 52.245048   | -6.917545 | Ash                                | 7.2       |
| 31  | 52.245905   | -6.922647 | Mixed                              | 4.8       |
| 32  | 52.245147   | -6.93001  | Ash                                | 4.2       |
| 33  | 52.2145616  | -6.930179 | Ash, Sycamore                      | 4.2       |
| 34  | 52.253375   | -6.934321 | Ash, Cypress                       | 3.0       |
| 35  | 52.25524    | -6.93571  | Ash                                | 4.8       |
| 37  | 52.258325   | -6.939413 | Ash                                | 6.0       |
| 40  | 52.264655   | -6.945355 | Ash, Sycamore                      | 5.4       |
| 43  | 52.266856   | -6.946557 | Sycamore                           | 5.4       |
| 44  | 52.272329   | -6.951953 | Evergreen Larch,<br>Sitka Spruce   | 4.8       |
| 45  | 52.274643   | -6.952616 | Sycamore                           | 2.4       |
| 47  | 52.277585   | -6.955351 | Ash, Sycamore                      | 3.0       |
| 48  | 52.278955   | -6.956817 | Sycamore                           | 4.8       |
| 49  | 52.279496   | -6.957515 | Lawsons                            | 3.6       |

## 7. Conclusions and recommendations

### 7.1 Woodland at Campile

The woodland occupies a steep, sheltered slope, facing south east and running down to the high-water mark. It is classified as a mixed broadleaved/ conifer plantation. An area of approximately 60m x 40m was surveyed in detail. The underlining soil substrate is free draining shale and drift with brown earth on the woodland floor.

The extent of the surveyed woodland is 0.79ha in size and supports 52 trees. Approximately 40% of the trees are oak and 50% of these oak trees are mature. Approximately 10% of the

trees consist of mature Scots Pine and European Larch. The remaining percentage (50%) consists of birch, sycamore and ash and these are predominantly immature trees.

The extent of root growth depends on species and the soil/substrate. Factors that influence the latter include compaction, subsoil structure and depth and bedrock. Examination of trees uprooted by wind in the locality and on a similar substrate, indicates that tree rooting is shallow and of horizontal orientation.

Oak is a deep rooting species that naturally develops a tap root. This tap root would generally extend to approximately 1-2m in depth. At Campile, the root depth is considerably less and most roots for oak and for the other species recorded within the woodland would be located within 0.5 m of the surface due to the prevailing ground conditions.

The proposed HDD under the Campile Estuary and woodland, at a minimum depth of 10m, and the associated temporary construction compounds will not interfere with tree roots and thus will not adversely affect tree health and stability. However, tree health can be affected by damage to trees within the Root Protection Areas (RPA). An extended buffer zone of 50m will be provided to ensure there is no loss of adjacent trees which protect the surveyed area from the risk of wind damage.

It is noted that some of the surveyed trees, particularly mature trees with cavities, rough bark and dead wood are suitable as roosts and breeding sites for bats. A preliminary ground level roost assessment was carried out to identify, from ground level in daylight using close-focusing binoculars, any potential roost features (PRF) within trees or structures that had suitability to support roosting bats. The results were used to grade trees as having Negligible, Low, Moderate, or High suitability for roosting bats in accordance with Bat Conservation Trust guidelines (Collins, 2016). The trees detailed within **Table 5** were identified as being of high suitability for bats, however in the absence of any impact on this woodland, there will be no adverse effects on roosting sites or feeding/commuting habitat for bats.

**Table 5. Trees of high suitability for bat surveys**

| Tree No. | Species            | Coordinates  |             |
|----------|--------------------|--------------|-------------|
| 01881    | Mature Scots Pine  | 52.17.1424   | 6.57.3253   |
| 01888    | Mature Sessile Oak | 52.17.133836 | 6.57.329364 |
| 01898    | Mature Scots Pine  | 52.17.133188 | 6.57.346068 |

## 7.2 Roadside trees

There is a relatively low population of roadside trees along the proposed cable route compared to other agricultural landscapes in Wexford, particularly in the sections of the route with high levels of exposure to coastal winds with high salt levels. Fifty individual trees/groups of trees were identified along the proposed cable route. It is noted that over 50% of the trees along the route are ash which are susceptible to ash die-back disease and there is a strong probability that these trees will be infected in the short-term. It is also noted that there are large numbers of immature elm along the roadsides and Dutch elm disease, which is endemic in Ireland, will prevent them from reaching maturity.

Excavations within the road surface or within the road verges have the potential to damage existing tree roots within the root protection area. The R.P.A is an exclusion zone around the trees within which excavation and related activities, including material and machinery storage would ideally not take place

The RPA for each tree/group of Priority 1 trees is provided in **Table 4**. However, root structure is influenced by the surrounding environment, in particular soil structure. In reality the exact RPA will vary according to species, soil/substrate characteristics, watertable and surrounding land use.

Of particular relevance to this survey is the influence of soil compaction and hard surfaces on trees growing alongside roads. Generally, these trees will respond naturally by producing deeper roots or by sending roots in alternative directions, which will mitigate against damage from excavations in the road within the normal RPA. However, for all trees recorded the excavations should be located as far as possible from the tree to minimise the potential for impacts. For Priority 1 trees (table 4) particular attention will be paid to protecting the RPA's and where the excavations cannot be rerouted to the opposite side of the road, the supervising arboriculturalist will assess if there is a requirement for remedial tree surgery, for example crown reduction, post works, to improve the tree's survival in the long term.

## Attachment A Mapping







