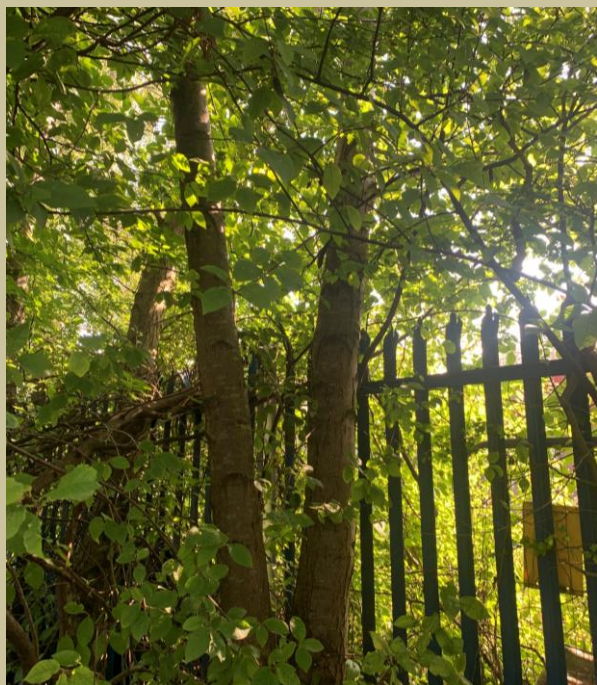


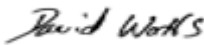


## Arboricultural Impact Assessment

Land off Marl Road,  
Knowsley L33 7UH

Prepared on behalf of  
Forsa Energy Gas Holdings Ltd

## QUALITY MANAGEMENT

| Quality Management Approved prior to Issue |                                                                  |              |                                                                                    |
|--------------------------------------------|------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------|
| Report Ref:                                | SE0952-02_AIA_G01a_DH                                            |              |                                                                                    |
| Site Address:                              | Land Off Marl Road, Knowsley L33 7UH                             |              |                                                                                    |
| Doc Title:                                 | Arboricultural Impact Assessment                                 |              |                                                                                    |
| Issue Date:                                | 15 <sup>th</sup> September 2021                                  | Revision No: | a                                                                                  |
| Prepared by:                               | Dr David Hackett, BSc (Hons)<br>MLD PhD MCIEEM CEnv,<br>Director | Signature:   |  |
| Approved by:                               | David Watts BSc (Hons) FdSc<br>MArborA MCIEEM                    | Signature:   |  |

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This report is based on survey data gathered in August 2021 on land off Marl Road, Knowsley L33 7UH.

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## 1. SUMMARY

Biora were instructed Forsa Energy Gas Holdings Ltd to carry an Arboricultural Impact Assessment of land off Marl Road, Knowsley, to support a planning application for the development and operation of a 20MW gas-powered standby electricity generation plant, associated infrastructure and access road.

The site survey identified four Category B trees (T6, T11, T5, T16) and one Category B group (G4), 10 Category C trees (T2, T5, T7, T8, T12, T13, T17, T18, T19, T20) and three Category C groups (G1, G2, G3) of low quality and seven Category U trees (T1, T3, T4, T9, T10, T14, T21), which are unsuitable for retention

The development proposals will necessitate the removal of three Category B trees (T6, T11, T15) and partial removal of one Category Group (G4), eight Category C trees (T2, T5, T8, T12, T17, T18, T19, T20) and three Category C groups (G1, G2, G3) and the six category U trees (T1, T3, T4, T9, T10, T14), which are recommended for removal due to poor condition.

An Arboricultural Method Statement is provided, which includes the provision of temporary tree protection fencing during development works.

Further tree planting is recommended to mitigate for tree losses due to development.

## 2. Introduction

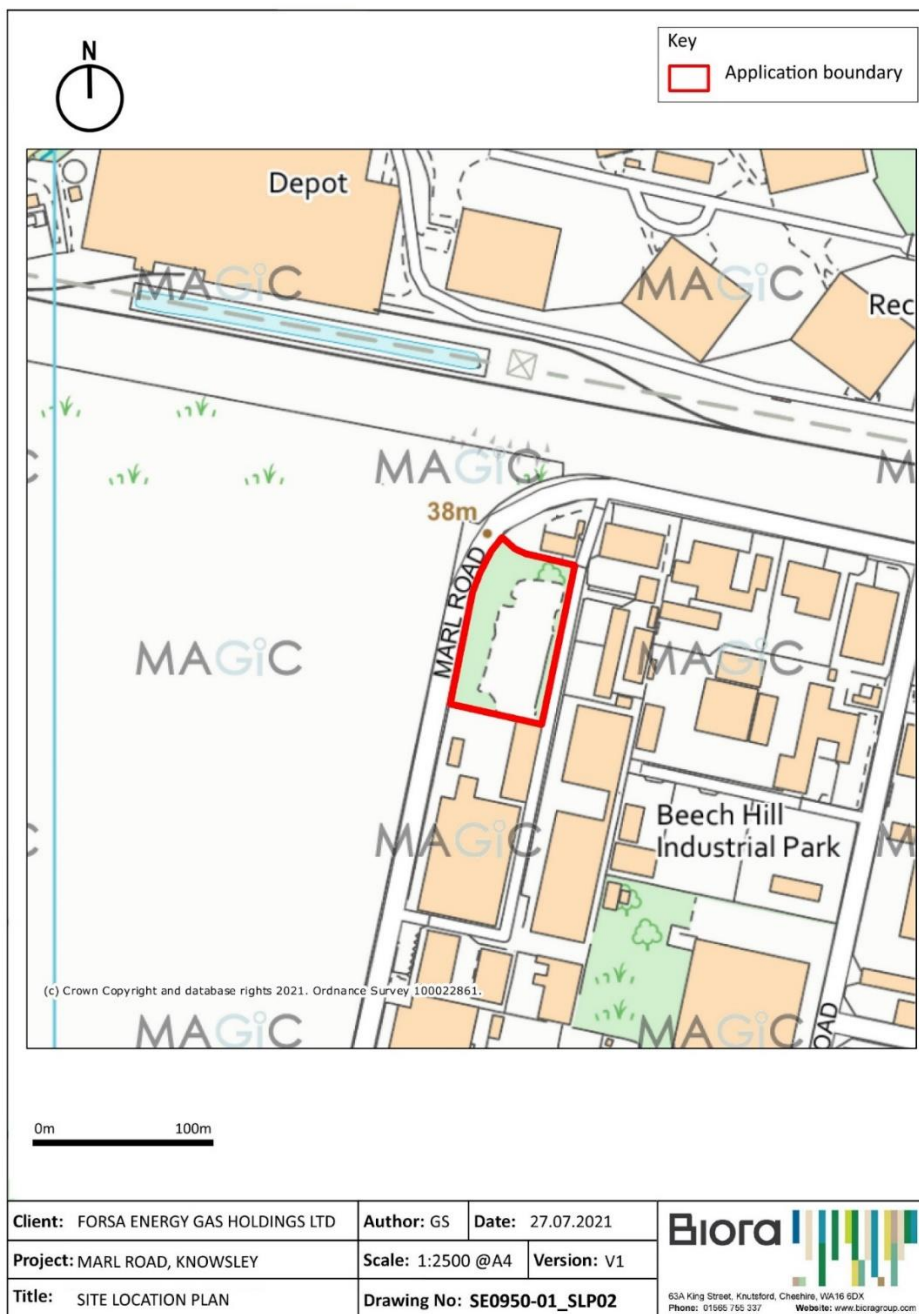
### 2.1. Background

- 2.2.1 Biora were instructed by Forsa Energy Gas Holdings Ltd to carry out an Arboricultural Impact Assessment of trees on land off Marl Road, Knowsley, to support a planning application for the development and operation of a 20MW gas-powered standby electricity generation plant, associated infrastructure and access road.
- 2.2.2 This site previously had full planning permission for redevelopment (15/00595/FUL) for power station development; permission, which was granted in 2015, has now lapsed. The application was supported by an Arboricultural Impact Assessment by Arbtech.
- 2.2.3 The purpose of the survey and report is to:
- Assess the quality of the trees on and immediately adjacent to the site, in accordance with BS5837: 2012 – Trees in Relation to Demolition Design and Construction: Recommendations (hereafter referred to as BS5837: 2012).
  - Identify trees suitable for retention and for removal in relation to the planned demolition of the buildings on the site, but also taking account their possible retention within the proposed subsequent redevelopment.
  - Prescribe tree protection measures to ensure that trees to be retained survive the proposed development works and thrive upon its completion.
  - Where necessary, to identify the requirements for mitigation planting.

### 2.2. Site Details

- 2.2.1 The site is located at the corner of Marl Road, Knowsley L33 7UH, OS grid reference **SJ 43254 99483** and is bound by Marl Road to the west and industrial developments to the north, south and east.
- 2.2.2 The underlying soils at this location are, according to Cranfield <http://www.landis.org.uk/soilscapes/>, deep, eolian sand.
- 2.2.3 **Figure 1** below illustrates the site location and application boundary.

Figure 1: Location and Site Red Line Boundary (not to scale)



## 2.3. Proposed Development

2.3.1 The proposals are for the development and operation of a 20MW gas-powered standby electricity generation plant, associated infrastructure and access road. The proposed development is illustrated in **Figure 2** below.

**Figure 2: Proposed Development (not to scale)**



## 2.4. Legislation

2.4.1 Interrogation of the Knowsley TPO website: <https://secured.knowsley.gov.uk/myneighbourhood> showed that there were no Tree Preservation Orders on Trees at this location; the site is not within a conservation area.

## 2.5. Survey Methods

- 2.5.1 The site survey was carried out on 4<sup>th</sup> August 2021.
- 2.5.2 All trees on site were inspected from ground level, using the Visual Tree Assessment (VTA) method. Tree heights, crown clearances and crown spreads were measured to the nearest 0.5 m. The diameter at breast height (DBH) of trees was measured to the nearest 10 mm, and was used to calculate the root protection areas (RPAs) of trees, in accordance with BS5837: 2012. In accordance with BS5837: 2012, trees were classified as either A, B, C or U, using the criteria shown in [Table 1](#), below.

*Table 1: BS5837 Cascade Chart (adapted from British Standards, 2012)*

| Category   | Definition                                                                                                                                                                                                                                         | Retention                                                             | Colour code |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------|
| Category A | Trees of high quality with an estimated remaining life expectancy of at least 40 years; trees that are particularly good examples of their species, especially if rare or unusual.                                                                 | Highly desirable                                                      | Light green |
| Category B | Trees of moderate quality with an estimated remaining life expectancy of at least 20 years; trees lacking the special quality to merit category A designation.                                                                                     | Desirable                                                             | Dark blue   |
| Category C | Trees of low quality with an estimated remaining contribution of at least 10 years, or trees with a stem diameter below 150 mm; unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. | Feasible, but should be removed if posing a constraint to development | Grey        |
| Category U | Trees that have serious, irremediable, structural and/or physiological defects, including those that will become unviable after removal of other category U trees.                                                                                 | Unfeasible                                                            | Dark red    |

- 2.5.3 Where necessary, comments were made as to any outstanding safety concerns of trees on the site; however, a full tree safety assessment was not undertaken.

## 2.6. Qualifications

- 2.6.1 David Watts is a Chartered Arboriculturist and member of the Arboricultural Association at Professional level, who holds an FdSc in Arboriculture, a BSc (Hons) in Ecology, a PGCert Arboriculture & Urban Forestry and the Lantra Professional Tree Inspection Certificate.
- 2.6.2 Dr Hackett BSc (Hons) MLD PhD MCIEEM CEnv M.I.Soil Sci. is a plant ecologist, landscape architect and soil scientist with specialism in plant/soil relations and over 20 years of experience in tree survey.

## 3. RESULTS AND ASSESSMENT

### 3.1. Tree Population Assessment

- 3.1.1 The site survey recorded 21 trees on and adjacent to the site and 4 groups on site. These include 4 Category B trees, and 1 group B trees of moderate quality, 10 Category C trees and 3 groups of low quality, and 7 Category U trees with a safe useful life expectancy (SULE) of less than ten years. Tree categorisation is summarised in [Table 2](#), below.

*Table 2: Summary of Tree Categories on the Site*

| Category      | Tree numbers                                             | Totals                    |
|---------------|----------------------------------------------------------|---------------------------|
| Category A    | -                                                        | -                         |
| Category B    | T6, T11, T5, T16, G4                                     | 4 Trees, 1 Group          |
| Category C    | T2, T5, T7, T8, T12, T13, T17, T18, T19, T20, G1, G2, G3 | 10 Trees, 3 Groups        |
| Category U    | T1, T3, T4, T9, T10, T14, T21                            | 7 Trees                   |
| <b>Total:</b> |                                                          | <b>21 Trees, 4 Groups</b> |

- 3.1.2 Since the tree survey by Arbtech in 2015, a line of young trees, mainly alder, has developed on the eastern boundary.
- 3.1.3 The most numerous species on the site are alder (*Alnus glutinosa*) and sycamore (*Acer pseudoplatanus*). Other trees include ash (*Fraxinus excelsior*), English oak (*Quercus robur*), rowan (*Sorbus aucuparia*), downy birch (*Betula pubescens*), goad willow (*Salix caprea*), hazel (*Corylus avellana*), white poplar (*Populus alba*), crack willow (*Salix fragilis*) and Swedish whitebeam (*Sorbus intermedia*).
- 3.1.4 Trees throughout the site have been subject to pruning works, including facilitation pruning. Most of this work has not been carried out to industry standards, with branch stubs left on branches and stems. This has resulted in bushy, adventitious growth on pruning cuts, and in some cases has reduced the life expectancy of the trees. Many of the trees have also been damaged (bark and branches removed etc) from earth moving machinery, and by the movement – removal and piling around roots – of the soils on site.
- 3.1.5 None of the trees on the site have been classed as Category A. This is partly due to the close spacing of the within groups trees and damage from mechanical activity on the site, which makes long-term retention of some unviable and the damage to trees around the perimeter of the site. Some of these trees will, however, live for more than forty years, although none exhibited the special qualities necessary for Category A designation.
- 3.1.6 In terms of the viability of retention, the trees on site can be distinguished as follows: all trees to the south and east of the site are growing out of made materials in a raised platform (between 1.5 – 2.0 m); all of the trees to the north and east are growing at ‘ground level’, but some, particularly, those to the north east and east edge of G4, have their roots within the made ground. It is very likely that the redevelopment will seek to establish a single platform at this ‘ground level’ and earth movement to achieve this will necessitate the removal trees growing in the made ground and those whose roots extend into the made ground.
- 3.1.7 Were trees to be retained on the southern and eastern boundaries, it would be very unlikely whether they would survive the change in drainage/irrigation following site redevelopment.
- 3.1.8 Tree data can be viewed in [Appendix 1: Tree Survey Schedule](#). Photographs of the trees are provided in [Appendix 2: Photographs](#). Locations of trees can be viewed in [Appendix 3: Tree Constraints Plan](#).

### 3.2. Impact Assessment

- 3.2.1 The development proposals will necessitate the removal of three Category B trees and partial removal of 1 group of Category B trees, and 8 Category C trees and 3 Category C groups. This is roughly equivalent to the numbers programmed for removal in the 2015 Arboricultural Impact Assessment, even considering the addition of self-seeded trees to the eastern boundary over this period.

- 3.2.2 While some of the trees on the eastern boundary could be potentially retained, it is unlikely that the trees would survive the changes brought about by the changes in levels and drainage/irrigation.
- 3.2.3 **Table 3** below shows a summary of trees necessitating removal. Trees identified for removal can be viewed in **Appendix 4: Tree Protection Plan**.

*Table 3: Summary of Trees Necessitating Removal*

| Category      | Tree Removals due to Development                 | Tree Removals due to poor condition | Totals                                   |
|---------------|--------------------------------------------------|-------------------------------------|------------------------------------------|
| Category A    | -                                                | -                                   | -                                        |
| Category B    | T6, T11, T15, G4 (partial)                       | -                                   | 3 T, 1G (partial)                        |
| Category C    | T2, T5, T8, T12, T17, T18, T19, T20, G1, G2, G3, |                                     | 8 T, 2G                                  |
| Category U    |                                                  | T1, T3, T4, T9, T10, T14            | 6 T                                      |
| <b>Total:</b> |                                                  |                                     | <b>17 Trees 2 Groups 1 Group Partial</b> |

### 3.3. Mitigation

- 3.3.1 A total of 17 trees, two groups of trees and partial removal of one group of trees are recommended for removal to facilitate the proposed development. Some of these trees are not within the development platform but are unlikely to survive the change in ground conditions/drainage.
- 3.3.2 Mitigation for the loss of these trees will require compensatory planting, with trees planted on at least a like-for-like basis. Trees planted for mitigation should be heavy standard in size. Species composition, locations of trees and planting specifications should be detailed in a Tree Planting Plan. Mitigation, should, ideally, be as close to the original location as possible and a number of low quality and failing trees have been identified close to the site that would provide a number of suitable locations for trees provided in mitigation of the loss due to development.

## 4. ARBORICULTURAL METHOD STATEMENT

### 4.1. Timing of Works

4.1.1 The phasing of works should be carried out in accordance with Table 5, below:

**Table 5: Timing of Works**

| Stage | Works                                               |
|-------|-----------------------------------------------------|
| 1     | Site induction                                      |
| 2     | Carry out tree works                                |
| 3     | Install temporary tree protection fencing           |
| 4     | Inspection by arboricultural consultant             |
| 5     | Carry out construction works                        |
| 6     | Remove tree protection fencing once works completed |
| 7     | Final inspection by arboricultural consultant       |

### 4.2. Site Induction

4.2.1 Prior to works commencing, all contractors should attend a site induction. All contractors should be briefed on arboricultural concerns arising from the development proposals, including tree root protection areas (RPAs). This method statement should be issued to all contractors on the site.

### 4.3. Tree Works

4.3.1 It is recommended that trees posing a constraint to development, in addition to trees with limited life expectancy, are removed prior to the commencement of any further works on the site. Table 3 shows a summary of trees scheduled for removal. Trees identified for removal can be viewed in [Appendix 4: Tree Protection Plan](#).

4.3.2 Trees recommended for removal include T6, T11, T15, G4 (partial), T2, T5, T8, T12, T17, T18, T19, T20, G1, G2, G3. All tree works should be carried out by a suitably qualified and fully insured arboricultural contractor.

4.3.3 At the time of writing, trees recommended for removal are not afforded protection by TPOs and are not within a Conservation Area. This may be subject to change, and any legal designations afforded trees should be verified with the local authority prior to works commencing. Killing or damaging a protected tree is a criminal offence which can result in an unlimited fine.

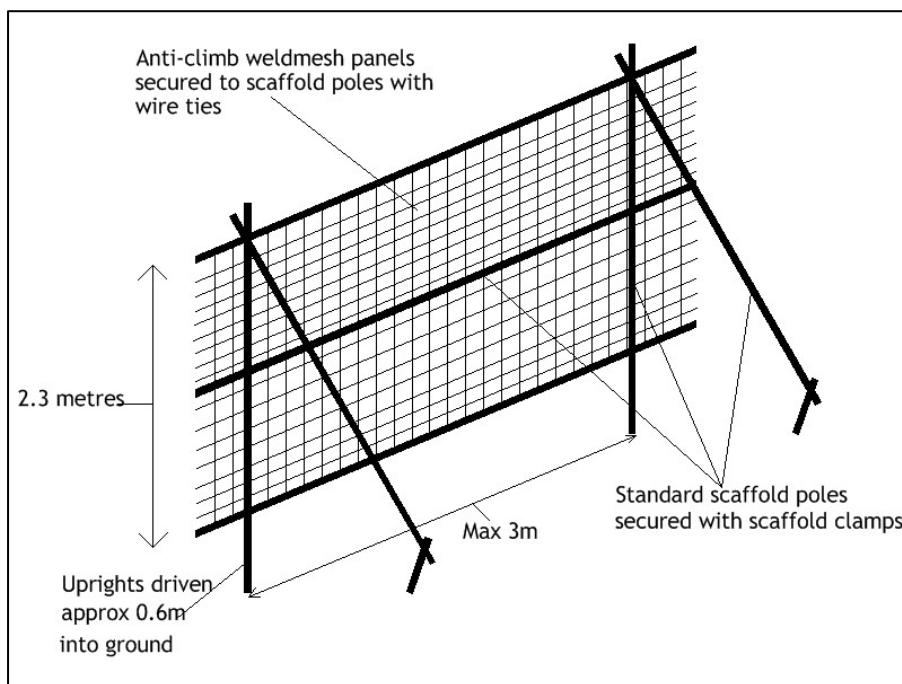
### 4.4. Tree Protection

4.4.1 Prior to machinery entering the site, it will be necessary to ensure that all trees scheduled for retention are adequately protected. This will require the installation of temporary of tree protection fencing, which must remain in place during development works. The location of tree protection fencing can be viewed in [Appendix 4: Tree Protection Plan](#).

4.4.2 Tree protection fencing should consist of a vertical scaffold framework, well braced to resist impacts. The vertical poles should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be fixed (see Figure 3, below).

4.4.3 Laminated waterproof A3 signs should be fixed securely to fencing panels on each enclosure at 9m intervals. The signs should clearly read: 'Protected Tree Zone, no storage or operations within fenced off areas'.

4.4.4 Once the construction works have been completed, the tree protection fencing may be removed. This should be done with care to ensure that no damage to trees is caused.



**Figure 3: Temporary Protective Fencing**

#### **4.5. General Precautionary Measures**

- 4.5.1 Prior to the commencement of development works, a site storage area should be designated. This should be outside the tree protection fencing.
- 4.5.2 No materials hazardous to tree health, such as oil, bitumen or cement should be stored within the RPAs of trees.
- 4.5.3 No fires should be lit within the site.
- 4.5.4 Where there is a risk of polluted water runoff into RPAs, heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination.
- 4.5.5 If any breach in the tree protection measures occurs, it is the site manager's responsibility to report this to an arboricultural consultant so the appropriate measures may be taken.

#### **4.6. Further Inspections**

- 4.6.1 It is recommended that inspections by an arboricultural consultant are undertaken:
  - Upon installation of tree protection fencing to determine if it is satisfactory.
  - Upon completion of the development works.
- 4.6.2 After each inspection a letter accompanied by photographic evidence should be submitted by the arboricultural consultant to the local authority tree officer to confirm if the method statement has been followed correctly and to state whether trees have been adversely impacted by development works. The letter should be supplemented by photographic evidence.

#### **4.7. Project Arboriculturist Details**

- 4.7.1 If any issue regarding tree protection arises during the course of development works, the project arboriculturist should be contacted using the details below:

David Watts MICFor MArborA

Biora

63A King Street

Knutsford

Cheshire

WA16 6DX

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Telephone: 01565 755337

## APPENDICES

## APPENDIX 1: TREE SURVEY SCHEDULE

A plan of the tree locations can be viewed in [Appendix 3: Tree Constraints Plan](#).

| Key          |                                                      |          |                                                      |
|--------------|------------------------------------------------------|----------|------------------------------------------------------|
| Species      | Common name and scientific name                      | Age      | Y – Young sapling/newly planted tree                 |
| H            | Height, measured to nearest 0.5 m                    |          | SM – Semi-mature; tree in 1/3 of estimated lifespan  |
| CC           | Height of crown clearance, measured to nearest 0.5 m |          | EM – Early mature; tree in 2/3 of estimated lifespan |
| No of stems  | Number of stems bifurcating below 1.5 m              |          | M – Mature; tree in 3/3 of estimated lifespan        |
| DBH          | Diameter at breast height (1.5 m), to nearest 10 mm  |          | V – Veteran tree                                     |
| Crown spread | Measured to nearest 0.5 m                            | SULE     | Safe useful life expectancy, in years                |
| RPA          | Root protection area, in metres                      | Category | See BS5837 cascade chart (Table 1)                   |
| RPR          | Root protection radius, in metres                    | #        | Denotes estimated value                              |

| Tree No. | Species                            | H (m) | CC (m) | No. of stems | DBH (mm)   | Crown Spread (m) |   |   |   | Age | Comments                                                                                                                                              | RPA (m <sup>2</sup> ) | RPR (m) | SULE  | Category        |
|----------|------------------------------------|-------|--------|--------------|------------|------------------|---|---|---|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|-------|-----------------|
|          |                                    |       |        |              |            | N                | E | S | W |     |                                                                                                                                                       |                       |         |       |                 |
| T1       | alder<br><i>Alnus glutinosa</i>    | 6     | 4      | 1            | 180        | 2                | 2 | 5 | 4 | Y   | Roots exposed and damaged by earth movement                                                                                                           | 15.2                  | 2.2     | <10   | U               |
| T2       | alder<br><i>Alnus glutinosa</i>    | 8     | 4      | 2            | 150<br>170 | 3                | 3 | 3 | 3 | Y   | Small, open wounds on stems. Lost leader at 5 m                                                                                                       | 22.9                  | 2.7     | 10-20 | C <sub>1</sub>  |
| T3       | goat willow<br><i>Salix caprea</i> | 8     | 4      | 1            | 250        | 3                | 3 | 3 | 3 | Y   | Roots exposed by earth movement; tree leaning to east                                                                                                 | 28.2                  | 3.0     | <10   | U               |
| T4       | alder<br><i>Alnus glutinosa</i>    | 8     | 4      | 1            | 200        | 0                | 3 | 3 | 3 | Y   | Leaning to south-east against palisade fence; bark missing at 1.5 through abrasion with fence – structural defect and likely to break in strong wind. | 16.6                  | 2.4     | <10   | U               |
| T5       | goat willow<br><i>Salix caprea</i> | 7     | 4      | 1            | 100        | 3                | 3 | 3 | 3 | Y   | Young tree of little arboricultural value in made ground                                                                                              | 4.5                   | 1.2     | 10-20 | C <sub>1</sub>  |
| T6       | alder<br><i>Alnus glutinosa</i>    | 10    | 6      | 1            | 240        | 3                | 3 | 3 | 3 | SM  | Healthy alder on boundary; no abrasion from proximity to fence. Provides screening and amenity between sites.                                         | 26.5                  | 2.9     | >20   | B <sub>12</sub> |
| T7       | rowan<br><i>Sorbus aucuparia</i>   |       |        |              | 100        |                  |   |   |   |     | Entwined around T5. To be removed if T5 is removed                                                                                                    |                       |         | <10   | C <sub>1</sub>  |

| Tree No. | Species                                        | H (m)  | CC (m) | No. of stems | DBH (mm)     | Crown Spread (m) |     |     |     | Age | Comments                                                                                                                                                                                                                                                                                    | RPA (m <sup>2</sup> ) | RPR (m) | SULE  | Category        |
|----------|------------------------------------------------|--------|--------|--------------|--------------|------------------|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|-------|-----------------|
|          |                                                |        |        |              |              | N                | E   | S   | W   |     |                                                                                                                                                                                                                                                                                             |                       |         |       |                 |
| T8       | hairy birch<br><i>Betula pubescens</i>         | 12     | 4      | 1            | 290          | 6                | 6   | 6   | 6   | EM  | Tree growing against fence with partially occluded wound at 2.25 m                                                                                                                                                                                                                          | 38.5                  | 3.5     | >20   | C <sub>1</sub>  |
| T9       | goat willow<br><i>Salix caprea</i>             | 7      | 3      | 2            | 150<br>100   | 5                | 4   | 0   | 3   | Y   | Exposed roots and rubble piled against tree                                                                                                                                                                                                                                                 | 11.3                  | 1.9     | <10   | U               |
| T10      | hairy birch<br><i>Betula pubescens</i>         | 14     | 3      | 2            | 220<br>190   | 4                | 5   | 5   | 3   | SM  | Stem bifurcates at 0.5; leaning to south; open wound at 1.5 at junction of branches                                                                                                                                                                                                         | 38.5                  | 3.5     | <10   | U               |
| T11      | English oak<br><i>Quercus Robur</i>            | 8      | 2.5    | 1            | 180          | 2                | 2   | 2   | 3   | Y   | No obvious defects in this young tree located on boundary                                                                                                                                                                                                                                   | 15.2                  | 2.2     | >20   | B <sub>12</sub> |
| T12      | English oak<br><i>Quercus Robur</i>            | 8      | 5      | 1            | 140          | 2.5              | 2.5 | 2.5 | 2.5 | Y   | Large occluded wound at 0.5 m; otherwise apparently healthy tree                                                                                                                                                                                                                            | 10.2                  | 1.8     | 20-40 | C <sub>1</sub>  |
| T13      | English oak<br><i>Quercus Robur</i>            | 8      | 1.5    | 1            | 360          | 2.5              | 2.5 | 2.5 | 2.5 | Y   | Occluded scar down main stem (apparent lightning strike). Damage may cause problems with long-term structural integrity                                                                                                                                                                     | 58.1                  | 4.3     | 20-40 | C <sub>1</sub>  |
| T14      | alder<br><i>Alnus glutinosa</i>                | 6      | 2      | 2            | 140<br>130   | 2                | 2   | 2   | 2   | Y   | Extensive recent damage to trunk at 0.5 m                                                                                                                                                                                                                                                   | 16.6                  | 2.3     | <10   | U               |
| G1       | alder (5)<br><i>Alnus glutinosa</i>            | 6-8    | 4-5    |              | 120-<br>130  | 3                | 3   | 3   | 3   | Y   | Group of Alder on boundary. Limited mechanical damage to branches and stems.                                                                                                                                                                                                                | 38.5                  | 3.5     | 10-20 | C <sub>1</sub>  |
| G2       | alder (4) and oak (1)                          | 8-9    | 5-6    |              | 120-<br>180  | 2.5              | 2.5 | 2.5 | 2.5 | y   | Some mechanical damage to stems (between 1 – 1.5 m) and earth piled against stems. Remedial action if trees to be retained.                                                                                                                                                                 |                       |         | 10-20 | C <sub>1</sub>  |
| G3       | hazel<br><i>Corylus avellana</i>               | 6-7    | 2      |              | 100 -<br>140 | 2.5              | 2.5 | 2.5 | 2.5 | Y   | Damage to stems on side facing into the site, probably from earth-moving machinery                                                                                                                                                                                                          |                       |         | 10-20 | C <sub>1</sub>  |
| G4       | ash, hairy birch, goat willow, sycamore, hazel | 8 - 14 | 7      |              | 210          | 5                | 5   | 5   | 5   | SM  | All trees growing at lower level than main site (approximately 2 m below). Planted trees (guards and stakes still apparent) starting to develop woodland characteristics; hawthorn understory. Provides screening into the site and visual amenity at prominent location on corner of road. |                       |         | >20   | B <sub>2</sub>  |

| Tree No. | Species                                       | H (m) | CC (m) | No. of stems | DBH (mm)                                      | Crown Spread (m) |     |     |     | Age | Comments                                                                                                                                                                                                                                          | RPA (m <sup>2</sup> ) | RPR (m) | SULE  | Category       |
|----------|-----------------------------------------------|-------|--------|--------------|-----------------------------------------------|------------------|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|-------|----------------|
|          |                                               |       |        |              |                                               | N                | E   | S   | W   |     |                                                                                                                                                                                                                                                   |                       |         |       |                |
| T15      | ash<br><i>Fraxinus excelsior</i>              | 10    | 7      | 4            | 210                                           | 5                | 5   | 5   | 5   | SM  | Healthy young tree; reinforcing bar embedded in first main branch – damage only superficial.                                                                                                                                                      | 19.6                  | 2.5     | 20+   | B <sub>2</sub> |
| T16      | English oak<br><i>Quercus robur</i>           | 12    | 6      | 2            | 210                                           | 2                | 5   | 5   | 5   | SM  | Healthy young tree near site boundary.                                                                                                                                                                                                            | 19.6                  | 2.5     | 20+   | B <sub>2</sub> |
| T17      | hairy birch<br><i>Betula pendula</i>          | 9     | 4-5    | 1            | 255                                           | 0                | 2   | 4   | 2   | M   | Tree leaning towards the south; imbalanced canopy due to proximity of adjacent trees.                                                                                                                                                             | 30.2                  | 3.1     | <20   | C <sub>1</sub> |
| T18      | white poplar<br><i>Populus alba</i>           | 10    | 6-7    | 7            | 280<br>250<br>230<br>410<br>350<br>220<br>220 | 3                | 7   | 7   | 7   | M   | Large, multi-stem white poplar to southern boundary of the site. Lower branches showing large, unoccluded wounds - may lead to structural failure. Where tree is to be retained, tree would benefit from pollarding and removal of damaged stems. | 333.1                 | 10.3    | <20   | C <sub>1</sub> |
| T19      | hairy birch<br><i>Betula pubescens</i>        | 6.5   | 3      | 1            | 140                                           | 1                | 3   | 3   | 0   | Y   | Young tree leaning to east; canopy limited by proximity of large poplar                                                                                                                                                                           | 8.9                   | 1.68    | 10-20 | C <sub>1</sub> |
| T20      | crack willow<br><i>Salix fragilis</i>         | 16    | 6      | 2            | 120<br>300                                    | 7                | 7   | 7   | 7   | M   | Some mechanical damage to lower branches; split in lower stem from approx. 0.5 – 1.0 m; no other obvious signs of disease                                                                                                                         | 47.8                  | 3.9     | <20   | C <sub>1</sub> |
| T21      | Swedish whitebeam<br><i>Sorbus intermedia</i> | 12    | 4      | 1            | 550                                           | 5.5              | 5.5 | 5.5 | 5.5 | M   | This tree sits adjacent to the site in the footpath immediately west of the site. Branching at 2 m; unoccluded damage and bark inclusions on main stems; structurally unsound and may collapse/shed limbs in strong winds.                        | 136.8                 | 6.6     | <10   | U              |

## APPENDIX 2: PHOTOGRAPHS



Plate 1: T1 Young alder growing adjacent to boundary fence. Large open wound on stem at 0.5 m



Plate 2: T8 Healthy young alder near boundary fence.



Plate 3: T15, showing reinforcing bar embed in stem at branch junction.



Plate 4: G4, as viewed from within site.



Plate 5: View looking out from G4 at made ground, toward development site.

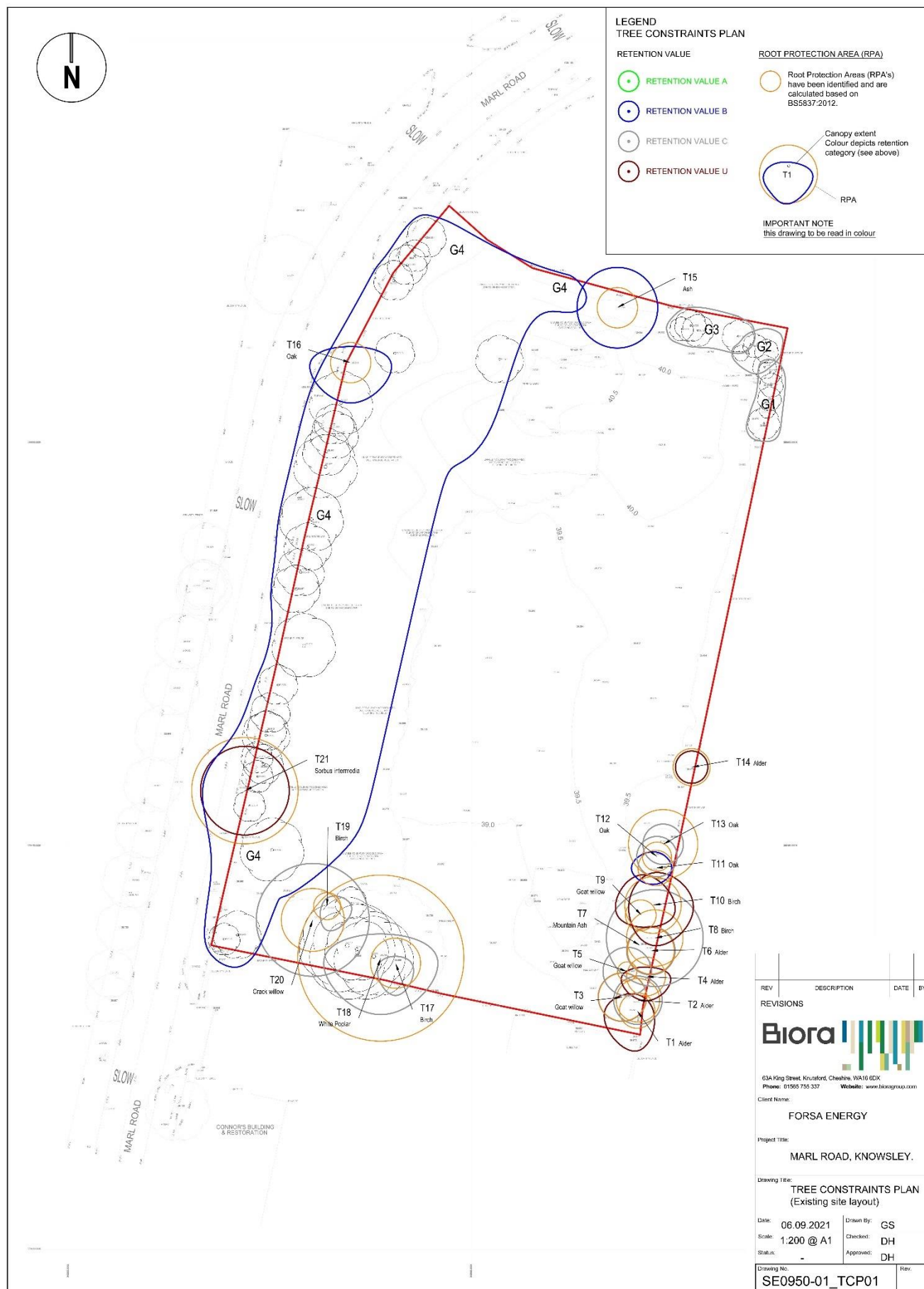


Plate 6: T18 Large multi-stem white poplar to southern boundary



Plate 7: T21, Swedish Whitebeam, showing wounds to main stem and bark inclusions.

## APPENDIX 3: TREE CONSTRAINTS PLAN



## APPENDIX 4: TREE PROTECTION PLAN

