

Land at Twynyrodyn, Merthyr Tydfil

Grid Reference SO05969 05665

Invertebrate Survey Report

For Persimmon Homes

July 2022



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Appendix I Aerial view showing Site Location

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Appendix III Drawing **Twynyrodyn Detailed Landscape Proposals TDA.2539.01 March 2020**

1 Introduction

1.1 Survey Brief

TerrAqua Ecological Services Ltd was commissioned by Persimmon Homes to undertake a macro invertebrate survey of a parcel of land referred to as Twynyrodyn, Merthyr Tydfil, Grid Reference SO05969 05665. The survey boundary was taken as that supplied by Mr Morgan Williams Planning Manager for Persimmon Homes.

The survey was undertaken between April and June 2022 (inclusive) as part of pre planning application works in order to understand any issues relating to invertebrates that may arise within the site and allow for any such constraints to be considered during the planning stage. The invertebrate survey was also intended to update previous survey work completed in in spring/summer 2019.

1.2 Client Details

The survey was undertaken on behalf of Persimmon Homes, Persimmon House, Llantrisant Business Park, Rhondda Cynon Taf following instructions to proceed by Mr Morgan Williams, acting for Persimmon Homes.

2 Background

2.1 Rational

An extended Phase I Habitat Survey/Preliminary Ecological Assessment of a parcel of land located at Twynyrodyn, Merthyr Tydfil was undertaken by TerraAqua Ecological Services Ltd in January 2019 on behalf of Persimmon Homes. The survey was subsequently updated in 2021 with a further update commissioned for 2022. The Phase I Surveys identified habitats within the site boundary suitable for use by a range of invertebrate species. Appendix II.

As part of the overall ecological assessment of the site Persimmon Homes commissioned a survey of the site in order to ascertain its importance or otherwise to invertebrates species, with particular emphasis on the identification of Odonata, Hymenoptera and Lepidoptera species including those species listed in the Environment (Wales) Act 2016 as a Species of Principle Importance for maintaining and enhancing Biodiversity in relation to Wales and species afforded protection under Schedule 1 of the Wildlife and Countryside act 1981. The 2019 survey identified a total of ninety three (93) invertebrate species within the site. All of the species recorded were relatively common although two of the recorded species are Species of Principle Importance for maintaining and enhancing Biodiversity in relation to Wales These are cinnabar (*Tyria jacobaeae*), and Small Heath (*Coenonympha pamphilus*).

As part of the overall ecological assessment of the site Persimmon Homes commissioned an updated reptile survey of the site in spring/summer 2022 in order to ascertain its importance, or otherwise, to invertebrate species. The following report details the findings of the 2022 survey (TerraAqua 2022). This will ensure that invertebrates can be given appropriate consideration during any future development of the site. and any protected or uncommon species can be identified.

2.2 Site Description

The site is located within a residential area of the village of Twynyrodyn, Merthyr Tydfil. The site includes areas of tussocky grassland, woodland and scrub. The woodland and scrub habitats extend beyond the boundaries of the site with extensive countryside to the south. The site has a slightly sloping southern aspect.

The site is not covered by any statutory national or international conservation designation such as SAC, SPA or SSSI. The site does lie some 1.75km east of Cwm Gloa Glyndys and CWN Glo SSSI.

Many locally designated Sites of Interest to Nature Conservation (SINC), are located within a 2km radius of the site. These include:

Glynmil 500m west

Merthyr Common South 500m west
Merthyr Common Central 1km north east
Afon Taf 1km west
Rhydycar West 2km south west
Abercanaid Fields 2km south
Pentrebach Fields 1.75km south east
Pentrebach Tip 1.75km south

The habitats within the site boundary all afford potentially good habitats for several invertebrate groups.

3 Methodologies

3.1 Priority Species

In order to achieve an assessment as to the value of the site with regard to invertebrates the survey concentrated on the identification of day flying species of three major invertebrate orders and other macro invertebrates including:

Odonata- dragonflies/damselflies
Hymenoptera- bees
Lepidoptera- day flying moths and butterflies
Orthoptera- grasshoppers and Crickets
Coleoptera-beetles

The survey also included observations for species protected under schedule 1 of the Wildlife and Countryside Act 1981 (as amended), and species listed in the Environment (Wales) Act 2016 as a Species of Principle Importance for maintaining and enhancing Biodiversity in relation to Wales. The survey was undertaken during daylight hours and did not include any night moth trapping.

3.2 Survey Dates and Personnel

The survey was carried out over three separate visits between April and June 2022 and where possible under optimal weather conditions for the observation of flying invertebrates. The duration and timing of the survey varied across each visit Table 1. All surveys were conducted during daylight hours.

The survey was undertaken by Carmen Jones MCIEEM and Dyfrig Jones both highly experienced ecologist with significant experience in undertaking general invertebrate surveys across the region.

Table 1 Survey Dates and Times

Survey Date	Survey Time/Duration	Weather Conditions
30/04/2019	11:00-15:00	Sunny 15°C
15/05/2019	12:00-16:00	Sunny 21°C
17/06/2019	10:00-14:00	Sunny 23°C

3.3 Field Survey

3.3.1 Transect Methodology

The survey was carried out using a transect methodology. Random transects were likely to miss some potentially important habitat types, therefore the transect lines were selected in order that a sample of all habitats present were included at least once along the transect length. This selected line was walked as closely as possible on all of the three survey visits.

3.3.2 Vegetation Sweeping

The vegetation within each habitat type was swept using a long-handled net. Any invertebrates trapped after three sweeps were identified and released. Any invertebrate species disturbed but not caught were also observed and identified. Prior to the sweeping of the vegetation any obviously visible species were recorded, and a butterfly net used to capture any of the three major orders not instantly identifiable. Any invertebrates caught or seen by any method, that could not be identified in the field were photographed, released and identified at a later date.

3.3.3 Visual Identification

In addition to those species recorded during the vegetation sweeping, all species observed by sight including those observed away from the transect line were also recorded. For some species such as Odonata and Lepidoptera these species were observed and identified using close focusing binoculars and included species flying over the site or observed immediately (within 3m) outside the survey boundary.

3.3.4 Stone Turning

Rubble piles and fly tipping debris was periodically searched, and stones turned. Any invertebrate species observed were recorded.

3.4 Survey Limitations

The survey was carried out during daylight hours and no night moth trapping was undertaken. The survey extended over the period April-Late June therefore any species active in late summer may be overlooked.

4 Results

4.1 General

A total of ninety-nine (99) invertebrate species were recorded over the three survey visits. These represented a number of taxonomic groups with most species being recorded on more than one occasion. The full survey results are shown in tables 2-4:

Table 2 Results of 1st Survey April 2022

Common Name	Species	Life Stage
7 Spot Ladybird	<i>Coccinella 7-punctata</i>	Adult
24 Spot lady bird	<i>Subcoccinella 24-punctata</i>	Adult
2 Spot Ladybird	<i>Adalia 2-punctata</i>	Adult
Aphid	<i>Aphis fabae</i>	Adult
Bee	<i>Bombus hortorum</i>	Adult
Bee	<i>Bombus terrestris</i>	Adult
Bee	<i>Bombus lucorum</i>	Adult
Bee	<i>Bombus pratorum</i>	Adult
Beetle	<i>Thanasimus formicarius</i>	Adult
Beetle	<i>Carabus auratus</i>	Adult
Black Ant	<i>Lasius nigra</i>	Adult
Ant	<i>Myrmica sp</i>	Adult
Black Slug	<i>Arion ater</i>	Adult
Cinnabar	<i>Tyria jacobaeae</i>	Adult
Common Blue	<i>Polyommatus icarus</i>	Adult
Common Carpet	<i>Epirrhoe alternata</i>	Adult
Common Wasp	<i>Vespula vulgaris</i>	Adult
Earwig	<i>Fotricula auricularia</i>	Adult
Froghopper	<i>Philaenus spumarius</i>	Adult
Garden Snail	<i>Helix aspersa</i>	Adult
Grass veneer	<i>Crambus pascuella</i>	Adult
Green Bottle	<i>Lucia caesar</i>	Adult
Green Shield Bug	<i>Palomena prasina</i>	Adult
Green Veined White	<i>Artogeia rapae</i>	Adult
Honey Bee	<i>Apis mellifera</i>	Adult
Hoverfly	<i>Syrphus ribesii</i>	Adult
Hoverfly	<i>Myathropa florea</i>	Adult
Hoverfly	<i>Scaeva pyrastris</i>	Adult
Hoverfly	<i>Epiisyrphus balteatus</i>	Adult
Ichneumon	<i>Amblyteles armatorius</i>	Adult
Ladybird	<i>Thea 22-punctata</i>	Adult
Large White	<i>Pieris brassicae</i>	Adult
Leafhopper	<i>Cicadellidae sp</i>	Adult
Lipped Snail	<i>Cepaea nemoralis</i>	Adult
Meadow Brown	<i>Maniola jurtina</i>	Adult
Meadow Grasshopper	<i>Chorthippus parallelus</i>	Adult
Micro Moth	<i>Pyrausta aurata</i>	Adult
Micro Moth	<i>Ancylis badiana</i>	Adult
Micro Moth	<i>Cochylis reseana</i>	Adult
Orange Tip	<i>Anthocharis cardamines</i>	Adult
Brimstone	<i>Gonepteryx rhamni</i>	Adult
Holly Blue	<i>Celastrina argiolus</i>	Adult
Peacock	<i>Aglais io</i>	Adult
Robber Fly	<i>Empis stercorea</i>	Adult

Sawfly	<i>Tenthredo arcuata</i>	Adult
Soldier Beetle	<i>Cantharis rustica</i>	Adult
Soldier Beetle	<i>Malthinus flaveolus</i>	Adult
Speckled Wood	<i>Pararge aegeria</i>	Adult
Spider	<i>Araneus quadratus</i>	Adult
Spider	<i>Araneus diadematus</i>	Adult
Spider	<i>Linyphia triangularis</i>	Adult
Thrip	<i>Thysanoptera sp</i>	Adult
Shield Bug	<i>Palomena prassina</i>	Adult
Violet Ground Beetle	<i>Carabus violaceus</i>	Adult
White Plume Moth	<i>Pterophorus pendactylata</i>	Adult
Wasp Beetle	<i>Cyrtus arietis</i>	Adult
Woodlouse	<i>Oniscus asellus</i>	Adult

Table 3 Results of 2nd Survey May 2022

Common Name	Species	Life Stage
7 Spot Ladybird	<i>Coccinella 7-punctata</i>	Adult
2 Spot Ladybird	<i>Adalia 2-punctata</i>	Adult
6 Spot Burnet	<i>Zygaena filipendula</i>	Adult
Aphid	<i>Aphis fabae</i>	Adult
Bee	<i>Bombus hortorum</i>	Adult
Bee	<i>Bombus terrestris</i>	Adult
Bee	<i>Bombus pratorum</i>	Adult
Bee	<i>Bombus pascorum</i>	Adult
Bee	<i>Anthidium sp</i>	Adult
Bee	<i>Bombus lucorum</i>	Adult
Tawny Mining Bee	<i>Andrena fulva</i>	Adult
Mining Bee	<i>Andrena cineraria</i>	Adult
Beetle	<i>Leistus ferrugineus</i>	Adult
Beetle	<i>Thanasimus formicarius</i>	Adult
Beetle	<i>Carabus auratus</i>	Adult
Beetle	<i>Phyllopertha horticola</i>	Adult
Beetle	<i>Cryptocephalus hypochaeridis</i>	Adult
Black Ant	<i>Lasius nigra</i>	Adult
Ant	<i>Myrmica sp</i>	Adult
Black Ant	<i>Lasius nigra</i>	Adult
Black Slug	<i>Arion ater</i>	Adult
Blue Bottle	<i>Calliphora vomitoria</i>	Adult
Brimstone	<i>Gonepteryx rhanni</i>	Adult
Centipede	<i>Necrophloeophagus longiconis</i>	Adult
Cinnabar	<i>Tyria jacobaeae</i>	Adult
Clouded Yellow	<i>Colias croceus</i>	Adult
Comma	<i>Polygonia c-album</i>	Adult
Common Blue	<i>Polyommatus icarus</i>	Adult
Common Carpet	<i>Epirrhoe alternata</i>	Adult
Common field Grasshopper	<i>Chorthippus brunneus</i>	Adult
Common green Grasshopper	<i>Omocestus viridulus</i>	Adult
Common Wasp	<i>Vespula vulgaris</i>	Adult
Common Footman	<i>Eilema lurideola</i>	Adult
Cuckoo Bee	<i>Psithyrus campestris</i>	
Drone Fly	<i>Eristalis tenax</i>	Adult
Elephant Hawkmoth	<i>Deilephila elpenor</i>	Adult
Garden Snail	<i>Helix aspersa</i>	Adult
Gatekeeper	<i>Pyronia tithonus</i>	Adult
Grass veneer	<i>Crambus pascuella</i>	Adult
Green Bottle	<i>Lucilia caesar</i>	Adult

Green Veined White	<i>Artogeia rapae</i>	Adult
Honey Bee	<i>Apis meliferis</i>	Adult
Holly Blue	<i>Celastrina argiolus</i>	Adult
Hornet	<i>Vespa crabo</i>	Adult
Hoverfly	<i>Myathropa florea</i>	Adult
Hoverfly	<i>Scaeva pyrastris</i>	Adult
Hoverfly	<i>Epiisyrphus balteatus</i>	Adult
Hoverfly	<i>Syrphus ribesii</i>	Adult
Hummingbird Hawkmoth	<i>Macroglossum stellatarum</i>	Adult
Ichneumon	<i>Amblyteles armatorius</i>	Adult
lacewing	<i>Wesmaelius subnebulosus</i>	Adult
Large White	<i>Pieris brassicae</i>	Adult
Leafhopper	<i>Cicadellidae sp</i>	Adult
Lipped Snail	<i>Cepaea nemoralis</i>	Adult
Meadow Brown	<i>Maniola jurtina</i>	Adult
Meadow Grasshopper	<i>Chorthippus parallelus</i>	Adult
Micro Moth	<i>Pyrausta aurata</i>	Adult
Micro Moth	<i>Cochylis reseana</i>	Adult
Micro Moth	<i>Yponomeutra padella</i>	Adult
Moth	<i>Malacosoma neustria</i>	Adult
Painted lady	<i>Cynthia cardui</i>	Adult
Peacock	<i>Inachis io</i>	Adult
Red Admiral	<i>Vanessa atalanta</i>	Adult
Red tailed Bee	<i>Bombus lapidarius</i>	Adult
Ringlet	<i>Aphantopus hyperantus</i>	Adult
Robber Fly	<i>Empis stercorea</i>	Adult
Rufous Grasshopper	<i>Gomphocerippus rufus</i>	Adult
Sawfly	<i>Tenthredo arcuata</i>	Adult
Small Heath	<i>Coenonympha pamphilus</i>	Adult
Small White	<i>Artogeia rapae</i>	Adult
Snipe Fly	<i>Rhagio scolopacea</i>	Adult
Soldier Beetle	<i>Cantharis rustica</i>	Adult
Soldier Beetle	<i>Rhagonycha fulva</i>	Adult
Soldier Beetle	<i>Malthinus flaveolus</i>	Adult
Soldier Fly	<i>Microchrysa polita</i>	Adult
Spider	<i>Araneus quadratus</i>	Adult
Spider	<i>Araneus diadematus</i>	Adult
Spider	<i>Linyphia triangularis</i>	Adult
Shield Bug	<i>Palomena prassina</i>	Adult
Tawny Mining Bee	<i>Andrena fulva</i>	Adult
Thrip	<i>Thysanoptera sp</i>	Adult
Violet ground Beetle	<i>Carabus violaceus</i>	Adult
Woodlouse	<i>Oniscus asellus</i>	Adult

Table 4 Results of 3rd Survey June 2022

Common Name	Species	Life Stage
Garden Snail	<i>Helix aspersa</i>	Adult
7 Spot Ladybird	<i>Coccinella 7-punctata</i>	Adult
6 Spot Burnet	<i>Zygaena filipendula</i>	Adult
Aphid	<i>Aphis fabae</i>	Adult
Bee	<i>Bombus hortorum</i>	Adult
Bee	<i>Bombus terrestris</i>	Adult
Bee	<i>Bombus pratorum</i>	Adult
Bee	<i>Bombus pascorum</i>	Adult
Bee	<i>Anthidium sp</i>	Adult
Beetle	<i>Leistus ferrugineus</i>	Adult

Beetle	<i>Badister unipustulatus</i>	Adult
Beetle	<i>Carabus auratus</i>	Adult
Beetle	<i>Staphylinus caesareus</i>	Adult
Beetle	<i>Phyllopertha horticola</i>	Adult
Beetle	<i>Cryptocephalus hypochaeridis</i>	Adult
Black Ant	<i>Lasius nigra</i>	Adult
Ant	<i>Myrmica</i> sp	Adult
Black Slug	<i>Arion ater</i>	Adult
Blue Bottle	<i>Calliphora vomitoria</i>	Adult
Centipede	<i>Necrophloeophagus longiconis</i>	Adult
Cinnabar	<i>Tyria jacobaeae</i>	Adult
Clouded Yellow	<i>Colias croceus</i>	Adult
Comma	<i>Polygonia c-album</i>	Adult
Common Blue	<i>Polyommatus icarus</i>	Adult
Common Carpet	<i>Epirrhoe alternata</i>	Adult
Common field Grasshopper	<i>Chorthippus brunneus</i>	Adult
Common green Grasshopper	<i>Omocestus viridulus</i>	Adult
Common Wasp	<i>Vespula vulgaris</i>	Adult
Common Footman	<i>Eilema lurideola</i>	Adult
Cuckoo Bee	<i>Psithyrus campestris</i>	Adult
Drone Fly	<i>Eristalis tenax</i>	Adult
Drone fly	<i>Eristalis tenax</i>	Adult
Elephant Hawkmoth	<i>Deilephila elpenor</i>	Adult
Hummingbird Hawkmoth	<i>Macroglossum stellatarum</i>	Adult
Gatekeeper	<i>Pyronia tithonus</i>	Adult
Grass veneer	<i>Crambus pascuella</i>	Adult
Green Bottle	<i>Lucilia caesar</i>	Adult
Green Veined White	<i>Artogeia rapae</i>	Adult
Harvestman	<i>Leiobunum rotundum</i>	Adult
Earwig	<i>Forficula auricularia</i>	Adult
Honey Bee	<i>Apis meliferis</i>	Adult
Holly Blue	<i>Celastrina argiolus</i>	Adult
Horse fly	<i>Tabanus sudeticus</i>	Adult
Hoverfly	<i>Myathropa florea</i>	Adult
Hoverfly	<i>Syrphus ribesii</i>	Adult
Large White	<i>Pieris brassicae</i>	Adult
Leaf Cutter Bee	<i>Megachile centuncularis</i>	Adult
Leafhopper	<i>Cicadellidae</i> sp	Adult
Lipped Snail	<i>Cepaea nemoralis</i>	Adult
Meadow Brown	<i>Maniola jurtina</i>	Adult
Meadow Grasshopper	<i>Chorthippus parallelus</i>	Adult
Micro Moth	<i>Pyrausta aurata</i>	Adult
Moth	<i>Malacosoma neustria</i>	Adult
Micro Moth	<i>Cochylis reseana</i>	Adult
Painted lady	<i>Cynthia cardui</i>	Adult
Micro Moth	<i>Yponomeuta padella</i>	Adult
Peacock	<i>Inachis io</i>	Adult
Red Admiral	<i>Vanessa atalanta</i>	Adult
Red tailed Bee	<i>Bombus lapidarius</i>	Adult
Ringlet	<i>Aphantopus hyperantus</i>	Adult
Robber Fly	<i>Empis stercorea</i>	Adult
Rufous Grasshopper	<i>Gomphocerippus rufus</i>	Adult
Sawfly	<i>Tenthredo arcuata</i>	Adult
Shield Bug	<i>Palomena prassina</i>	Adult
Small Heath	<i>Coenonympha pamphilus</i>	Adult
Small White	<i>Artogeia rapae</i>	Adult

Snipe Fly	<i>Rhagio scolopacea</i>	Adult
Soldier Beetle	<i>Cantharis rustica</i>	Adult
Soldier Beetle	<i>Rhagonycha fulva</i>	Adult
Soldier Beetle	<i>Malthinus flaveolus</i>	Adult
Soldier Fly	<i>Microchrysa polita</i>	Adult
Spider	<i>Araneus quadratus</i>	Adult
Spider	<i>Araneus diadematus</i>	Adult
Tawny Mining Bee	<i>Andrena fulva</i>	Adult
Thrip	<i>Thysanoptera sp</i>	Adult
Violet ground Beetle	<i>Carabus violaceus</i>	Adult
White Plume Moth	<i>Pterophorus pendactylata</i>	Adult
White Tailed Bumblebee	<i>Bombus lucorum</i>	Adult
Woodlouse	<i>Oniscus asellus</i>	Adult
Red Damselfly	<i>Erythromma najas</i>	Adult

4.2 Data Search Results

No records were found relating to the site or any immediately adjacent habitat. Records were found for invertebrate species within 500m of the site including two records relating to a distance of 85m from the site boundary, which included small heath and cinnabar. Large numbers of invertebrate records, specifically moth species, were found for an area some 500m from the survey boundary. **LERC Reference: 0212-748.**

5 Evaluation

5.1 Conservation Status of Species Recorded

Ninety-Nine (99) species of invertebrate were recorded across the three survey visits (April, May & June 2022). Most species recorded can be considered relatively common and occur in wide range of habitat types.

- Of the ninety-nine species recorded none are currently afforded full protection under the Wildlife and Countryside Act 1981 (as amended)
- Two of the recorded species are Species of Principle Importance for maintaining and enhancing Biodiversity in relation to Wales These are cinnabar (*Tyria jacobaeae*), and Small Heath (*Coenonympha pamphilus*)
- No species recorded on the site has a current Merthyr Local Biodiversity Action Plan (LBAP) Species Action Plan (SAP) in place

None of the butterfly species were particularly abundant across the site and no part of the site was favoured by any individual species. The most common species numerically was meadow brown. Orange tip was the most common species recorded during the April visit. Meadow brown, speckled wood and ringlet were the most abundant butterflies recorded during May. Red admiral and peacock were frequently recorded during the June survey visit. Grass

veneer and micro moths (*Pyrausta aurata*) were regularly disturbed from the open grassland areas as were grasshopper species.

Ground nesting bees including *Bombus terrestris* and *Bombus hortorum* were common across the site particularly around the areas of bare earth associated with the peripheral areas of the site and worn informal pathways Tawny mining bees (*Andrena fulva*) were also recorded around the perimeter of the grasslands and other bare areas.

Four species of grasshopper were recorded, Meadow (*Chorthippus parallelus*), Common Green (*Omocestus viridulus*), Common Field (*Chorthippus brunneus*) and Rufous (*Gomphocerippus rufus*). Common field, meadow and common green were recorded in relative abundance during the June surveys.

The value of the site with regard to invertebrate species is generally confined to those species with a wide tolerance of habitat types. Of the species recorded, many were recorded in large numbers particularly some common, bee, and hover fly species and within the grasslands grasshoppers were relatively abundant. Invertebrates such as ants, woodlice, spiders, centipedes and snails were all present across the site and commonly found beneath discarded stones and other debris.

The greatest number of species were recorded within the unmanaged grasslands and associated scrub although mining bees were more common in disturbed and bare ground.

No evidence was found during the survey that the site supports any invertebrates listed in Schedule I of the Wildlife and Countryside Act (as amended)

The results of the survey and the diverse nature of the habitats present would suggest that if left in its current state the site is likely to be colonised by and support a large number of invertebrates from a wide range of taxonomic groups and this is likely, over time, to include some uncommon species. The results of the Phase I Habitat Survey do not suggest that the site contains habitats likely to support a population of fully protected or rare species.

Based on the survey results the site does not meet the current criteria for selection as a Wildlife Site (SINC) with regard to its assemblage of invertebrate species.

The loss of the grasslands and partial loss of the young plantation woodlands will lead to the loss of habitat suitable for a large percentage of butterfly, grasshopper and moth species recorded. Based on the current site layout it is likely that a large percentage of these existing habitats will be lost.

Following completion of the development it is likely that some areas of domestic gardens will, in time, become suitable for use by common butterfly species. However, mitigation for the loss of grasslands and scrub can be mitigated for with appropriate planting of wild flower mix and

native shrubs within the landscaping proposals for the site. Based on the proposed site layout Drawing **Twynyrodyn Detailed Landscape Proposals TDA.2539.01 March 2020** (Appendix III)

6 **Recommendations**

The loss of the grassland and scrub areas should be mitigated for by an appropriately designed landscape and biodiversity enhancement plan. This should include the planting of diverse wildflower grasslands and planting of native shrubs in open area of the site.

References

Clements, D.K& Pryce, R.D. (2000). Criteria for the selection of wildlife sites in Gwent, Glamorgan and Carmarthenshire. Gwent Wildlife Trust.

TerrAqua Ecological Services Ltd (2018) Extended Phase I Habitat Survey of Land at Twynyrodyn, Merthyr Tydfil. Persimmon Homes

TerrAqua Ecological Services Ltd (2021) Extended Phase I Habitat Survey/Preliminary Ecological Assessment Land at Twynyrodyn, Merthyr Tydfil for Persimmon Homes

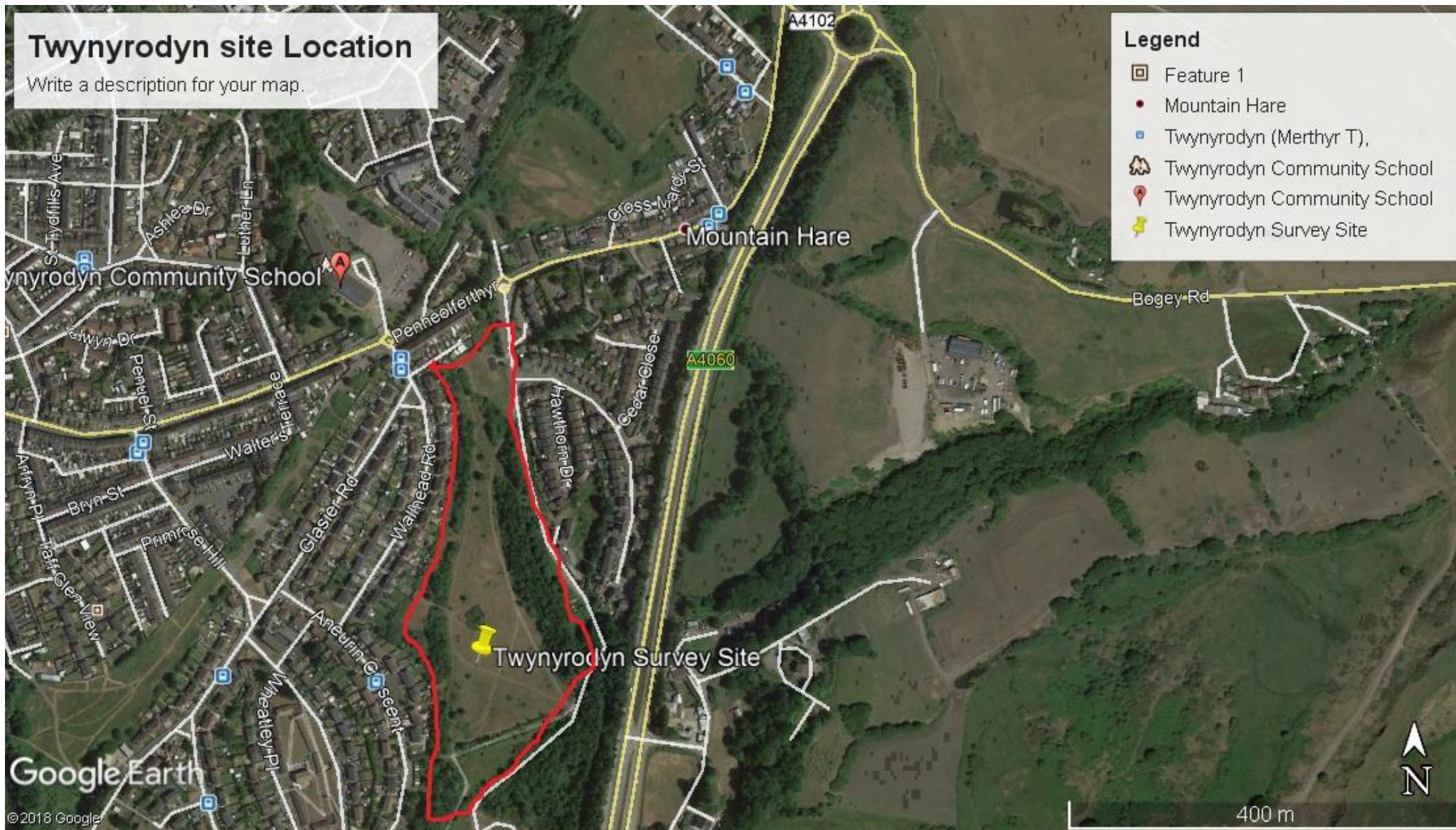
JNCC, (1998). Species Action Plans. UK BAP, English Nature, JNCC

South East Wales Biodiversity Records Centre (SEWBReC) Data search January 2022
Twynyrodyn for TerrAqua Ecological Services Ltd **LERC Reference: 0212-748.**

Welsh Assembly Government (2016) List of are Species of Principle Importance for maintaining and enhancing Biodiversity in relation to Wales

Appendix I

Aerial View Showing Site Location



Aerial View 1 Location of Twynrodyn Survey Area (Image Google Earth 2019)

Appendix II

Map Showing Habitats Present and Targeted Ecological Features

TerrAqua Ecological Services Ltd

Land at Twynyrodyn, Merthyr Tydfil
for Persimmon Homes East Wales

Preliminary Ecological Assessment

SCALE : 1 : 2500 @ A4 DATE : 1/6/2022

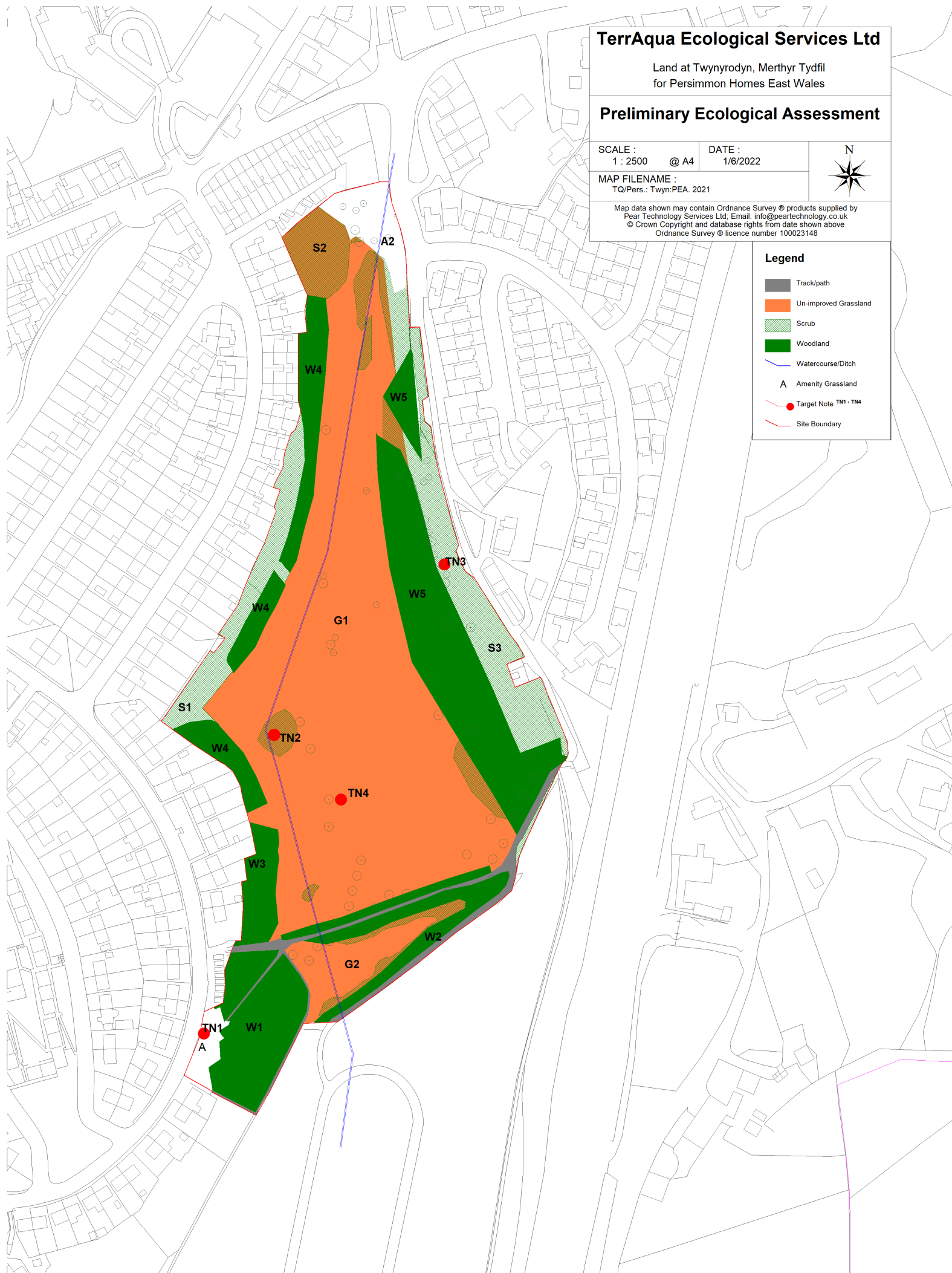
MAP FILENAME :
TQ/Pers.: Twyn:PEA. 2021



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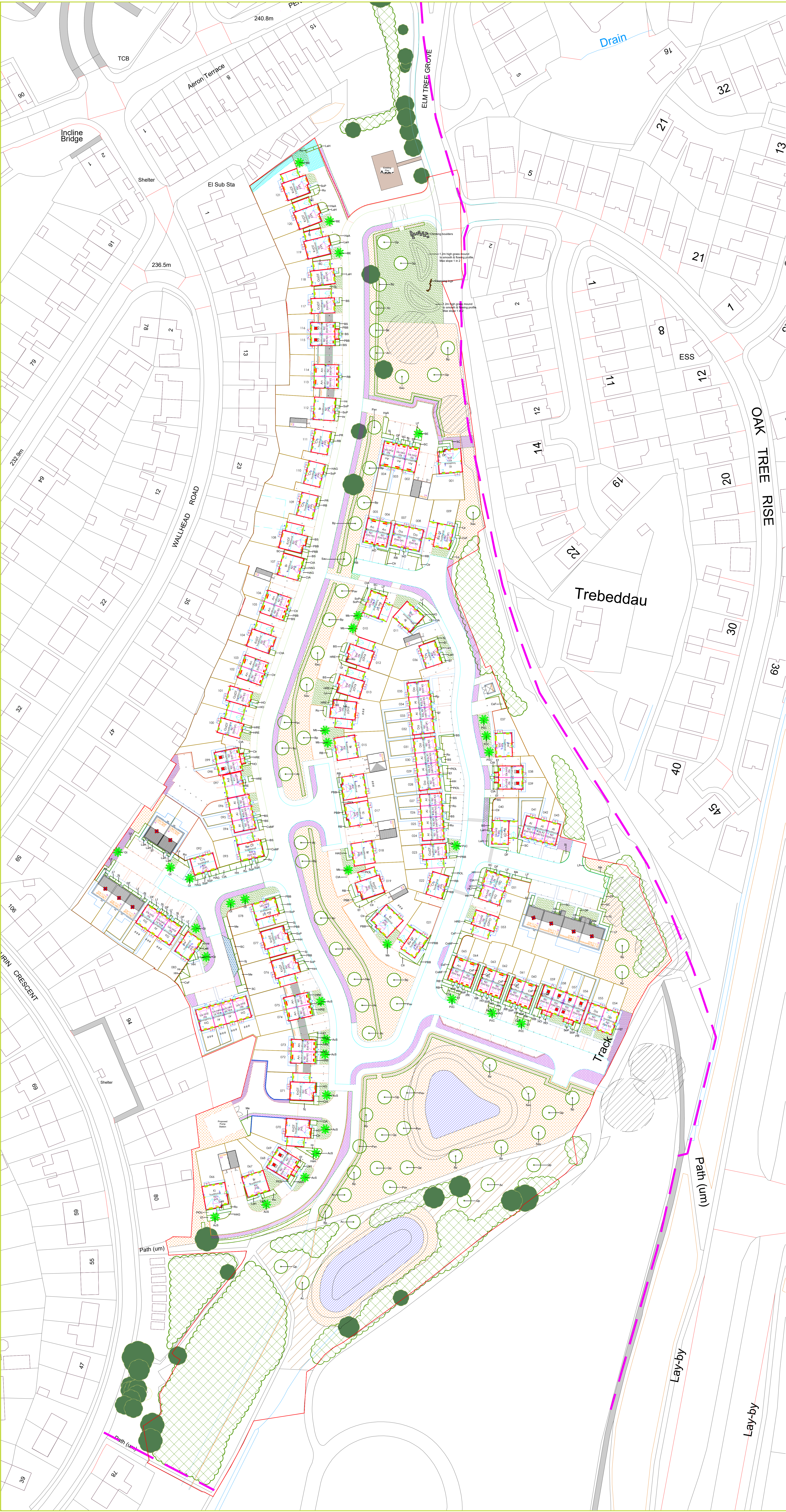
Legend

- Track/path
- Un-improved Grassland
- Scrub
- Woodland
- Watercourse/Ditch
- A Amenity Grassland
- Target Note TN1 - TN4
- Site Boundary



Appendix III

Drawing Twynyrodyn Detailed Landscape Proposals TDA.2539.01 March 2020



SOFT LANDSCAPE KEY

- EXISTING TREES & VEGETATION TO BE RETAINED
(Cops & thin spots to be filled with new native planting. Refer to schedule for species)
- PROPOSED ORNAMENTAL TREE PLANTING
(Refer to schedule for species)
- PROPOSED NATIVE TREE PLANTING
(Refer to schedule for species)
- PROPOSED SHRUB PLANTING
(Refer to schedule for species/densities. 200mm maintenance strip to be left clear between shrubs and structures & fences)
- PROPOSED NATIVE HEDGEROWS
(Refer to Plant schedule for species/densities)
- PROPOSED WILDFLOWER SEEDING 1
(Seeding to be Ecovogel EL1)
- PROPOSED WILDFLOWER SEEDING 2
(Seeding to be Ecovogel EMI)
- PROPOSED WILDFLOWER SEEDING 3
(Seeding to be Ecovogel EMI)
- PROPOSED GROUNDCOVER PLANTING
(Refer to Plant schedule for species/densities)
- EXISTING GRASS / SCRUB TO BE RETAINED
- PROPOSED RAIN GARDEN PANTING
(Refer to Planting Module for species/densities)

PLANT SCHEDULE

NATIVE TREE PLANTING									
ABBRV	SPECIES	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
Ac	Acer campestre	12	12	14	g	CON	2-3L	-	-
Bp	Betula pendula	12	12	14	g	CON	2-3L	-	-
Par	Prunus avium	12	12	14	g	CON	2-3L	-	-
Qp	Quercus petraea	12	12	14	g	CON	2-3L	-	-
Sau	Sorbus aucuparia	14	14	16	g	CON	2-3L	-	-

ORNAMENTAL TREE PLANTING									
ABBRV	SPECIES	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
AcS	Acer campestre 'Streetwise'	12	12	14	g	CON	2-3L	-	-
Bp	Betula Edinburg	12	12	14	g	CON	2-3L	-	-
Qp	Quercus ilex - classic street keeper	12	12	14	g	CON	2-3L	-	-
Mb	Malus baccata 'Street Parade'	12	12	14	g	CON	2-3L	-	-
Pc	Pyrus calleryana 'Charitae'	12	12	14	g	CON	2-3L	-	-

GROUNDCOVER PLANTING									
ABBRV	SPP. & PERCENTAGE IN MIX	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
AS KEY	Phytolacca americana	5	5	5	5	CON	-	-	-

NATIVE HEDGEROW PLANTING									
ABBRV	SPP. & PERCENTAGE IN MIX	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
AS KEY	Corylus avellana (30%)	5	5	5	5	CON	-	-	-
AS KEY	Crataegus monogyna (30%)	5	5	5	5	CON	-	-	-
AS KEY	Rosa arvensis (15%)	5	5	5	5	CON	-	-	-
AS KEY	Rosa arvensis (15%)	5	5	5	5	CON	-	-	-
AS KEY	Viburnum opulus (15%)	5	5	5	5	CON	-	-	-

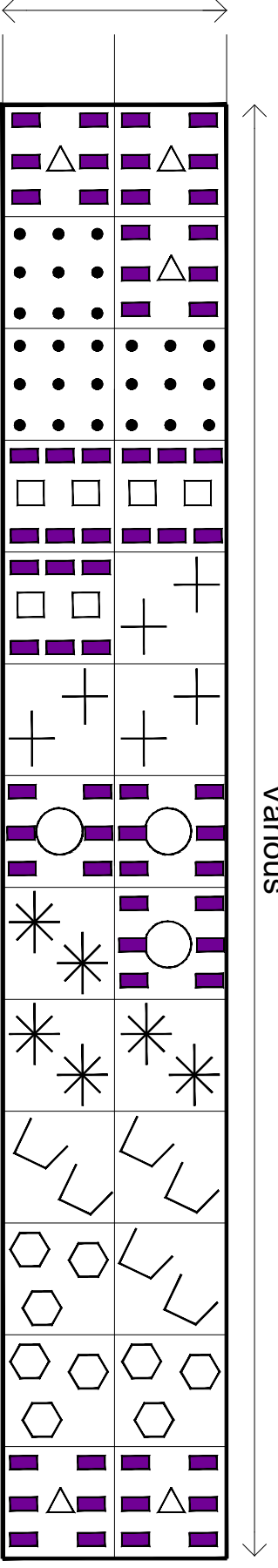
SHRUB PLANTING									
ABBRV	SPECIES	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
BS	Baccharis foeniculifera	4	4	4	4	CON	2-3L	-	-
Cuf	Cornus sericea 'Flacrament'	3	3	3	3	CON	2-3L	-	-
CMF	Cornus sanguinea 'Midwinter Fire'	3	3	3	3	CON	2-3L	-	-
CIA	Chamaenerion 'Apple Blossom'	4	4	4	4	CON	2-3L	-	-
Ctr	Ceanothus thyrsiflorus var. repens	5	5	5	5	CON	2-3L	-	-
DF	Dryopteris Filix-Mas	4	4	4	4	CON	2-3L	-	-
EF	Eucalyptus fortunei 'Emerald Gem'	4	4	4	4	CON	2-3L	-	-
HAA	Hydrangea arborescens Annabelle	2	2	2	2	CON	2-3L	-	-
HAG	Hebe 'Autumn Glory'	5	5	5	5	CON	2-3L	-	-
HM	Hypericum Helioscopia	3	3	3	3	CON	2-3L	-	-
Ho	Heuchera 'Obsidian'	5	5	5	5	CON	2-3L	-	-
He	Hebe rakatanus	4	4	4	4	CON	2-3L	-	-
PRE	Petaea Red Edge	5	5	5	5	CON	2-3L	-	-
LAF	Lavandula angustifolia 'Hidcot'	5	5	5	5	CON	2-3L	-	-
LF	Leucostoe scarietta zebell	3	3	3	3	CON	2-3L	-	-
Lo	Lonicera pileata	4	4	4	4	CON	2-3L	-	-
Me	Malva sylvestris 'Soft Caramel'	3	3	3	3	CON	2-3L	-	-
PBB	Phloxium Bronze Baby	4	4	4	4	CON	2-3L	-	-
POL	Prunus laurocerasus 'Otto Luyken'	3	3	3	3	CON	2-3L	-	-
PR	Prunella sp. 'Little Red Robert'	4	4	4	4	CON	2-3L	-	-
RB	Rhododendron Bicolor	4	4	4	4	CON	2-3L	-	-
Ro	Rosmarinus officinalis	4	4	4	4	CON	2-3L	-	-
SC	Sarcococca hookeriana digyna	3	3	3	3	CON	2-3L	-	-
SL	Sorbus domestica 'Nella'	3	3	3	3	CON	2-3L	-	-
Sup	Salvia officinalis Purpurascens	5	5	5	5	CON	2-3L	-	-

INFILL NATIVE UNDERSTOREY PLANTING									
ABBRV	SPP. & PERCENTAGE IN MIX	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
AS KEY	Corylus avellana (30%)	1	1	1	1	CON	-	-	-
AS KEY	Cornus sanguinea (10%)	1	1	1	1	CON	-	-	-
AS KEY	Crataegus monogyna (30%)	1	1	1	1	CON	-	-	-
AS KEY	Hex aquatum (10%)	1	1	1	1	CON	-	-	-

BULB PLANTING									
ABBRV	SPP. & PERCENTAGE IN MIX	DENSITY	HEIGHT	GIRTH	ROOT	CON	POT	SIZE	TOTAL
AS KEY	Galanthus nivalis (30%)	20	20	20	20	BULB	-	-	-
AS KEY	Hyacinthoides non-scripta (10%)	20	20	20	20	BULB	-	-	-
AS KEY	Narcissus pseudonarcissus (50%)	20	20	20	20	BULB	-	-	-

RAIN GARDEN PLANTING MODULE

2.0m



KEY TO PLANTING MODULE
(TYPICAL 2.0m x 10.0m SQUARE MODULE BASED ON 1.0m GRID)

- △ Calamagrostis brachytricha (30-40 Con 2-3L)
- + Zantedeschia aethiopica (30-40 Con 2-3L)
- Dryopteris filix-mas (30-40 Con 2-3L)
- Iris pseudacorus (30-40 Con 2-3L)
- * Helleborus foetidus (30-40 Con 2-3L)
- Lychnis flos-cuculi (30-40 Con 1L)
- ◁ Carex pseudocyperus (30-40 Con 2-3L)
- Juncus effusus (30-40 Con 2-3L)
- Ajuga reptans 'Atropurpurea' (Con 9cm)

NOTE:
Native trees, hedgerows and infill planting to be protected with biodegradable spiral guards
Bare-root planting within native infill planting to be staked with 900mm bamboo canes & Holdfast Natural Tree Ties
Trees within 2m of hard surfacing or services to be planted with GreenBlue Urban ReRoot root barriers
This is a colour drawing produced at a scale of 1:500 @ A0.
Do not rely on monochrome or reduced copies

F	Amended site layout	AMP	28.06.22
TDA THE GRANARY NEWLAND FAWR FARM LLANGAN CF35 5DN TEL: 01446 789367			
CLIENT PERSIMMON HOMES EAST WALES			
DRAWING NUMBER TDA 2539.01		SCALE 1:500 @ A0	
DRAWN RHC/AMP		DATE MARCH 2020	
PROJECT TWYN YR ODYN			
DRAWING TITLE DETAILED SOFT LANDSCAPE PROPOSALS			