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RUABON PARK

Green Infrastructure Statement

January 2025

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This document has been produced by Land Studio on behalf of Steve Grimster. The contents of the document are intended for submission with a planning application related to the redevelopment proposals at Ruabon, Wrexham. Land Studio has prepared this report in accordance with the instructions of the above-named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

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Hello, we are Land Studio.

Connecting People with Nature

We are a leading, nature led, landscape architecture, engineering and ecology design studio based in North Wales and Chester where we work on a wide range of projects from visitor destination sites to education facilities and restoration landscapes. We have created a place where our designers' passion for working with nature can be fully realised within our projects.

The following four values are at the core of our vision, and are aligned with the twelve Building with Nature standards, and are referred to within this statement:



Placemaking

A project should have a narrative, a sense of place and a character defined by the site, its social or physical history and the wider landscape that it inhabits. Placemaking should be a core principle of the design that responds to the brief both for the people using the space and for the wider context, urban or rural.



Biodiversity

How is the project responding to nature and the climate emergency? Are we protecting key habitats? Are we looking to create new or enhanced habitats? What are the unique ecological qualities of the place and how can we incorporate them into our design?



Water Management

All our projects strive to have a fully integrated sustainable drainage system within the wider site design. How is the design responding to site drainage? Does the drainage strategy play an active role in the public realm? Has the design been discussed with the drainage engineer (internally or externally)?



Wellbeing

A key part of our role as designers is to create spaces for people to re-connect with nature. How does the design respond to this ambition? Has the design analysed the needs and requirements of the space for people? Has there been a brief or conversation regarding the end users of the space?

GREEN INFRASTRUCTURE: INTRODUCTION

"GREEN INFRASTRUCTURE IS THE NETWORK OF NATURAL AND SEMI-NATURAL FEATURES, GREEN SPACES, RIVERS AND LAKES THAT INTERSPERSE AND CONNECT PLACES."

The Environment (Wales) Act 2016, provides a context for the delivery of multi-functional green infrastructure. Its protection and provision can make a significant contribution to the sustainable management of natural resources, and in particular to protecting, maintaining and enhancing biodiversity and the resilience of ecosystems in terms of the diversity within and connections between ecosystems and the extent and condition of these ecosystems, so that they are better able to resist, recover from and adapt to pressures. This means that the development of green infrastructure is an important way for local authorities to deliver their Section 6 duty.

Section 6 of the Environment Act 2016.

Integrating Green Infrastructure and Development

The quality of the built environment should be enhanced by integrating green infrastructure into development through appropriate site selection and use of creative design. With careful planning and design, informed by an appropriate level of assessment, green infrastructure can embed the benefits of biodiversity and ecosystem services into new development and places, help to overcome the potential for conflicting objectives, and contribute to health and well-being outcomes.

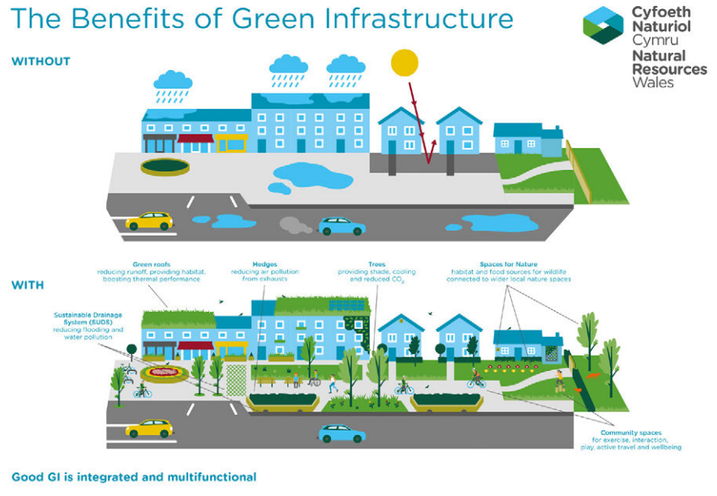
A green infrastructure statement should be submitted with all planning applications. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal.

The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question and must be used for demonstrating how the step-wise approach has been applied.

Development proposals should be informed by the priorities identified in green infrastructure assessments and locally based planning guidance.

The Building with Nature standards represent good practice and are an effective prompt for developers to improve the quality of their schemes and demonstrate the sustainable management of natural resources. Using these standards in a way which is proportionate to the nature and scale of the development proposed will be a useful way of ensuring appropriate consideration in circumstances where there is an absence of a green infrastructure assessment and planned approach or relevant local or Supplementary Planning Guidance.

Planning Policy Wales Chapter 6 (pg 135).





RUABON PARK: **INTRODUCTION**

01

INTRODUCTION

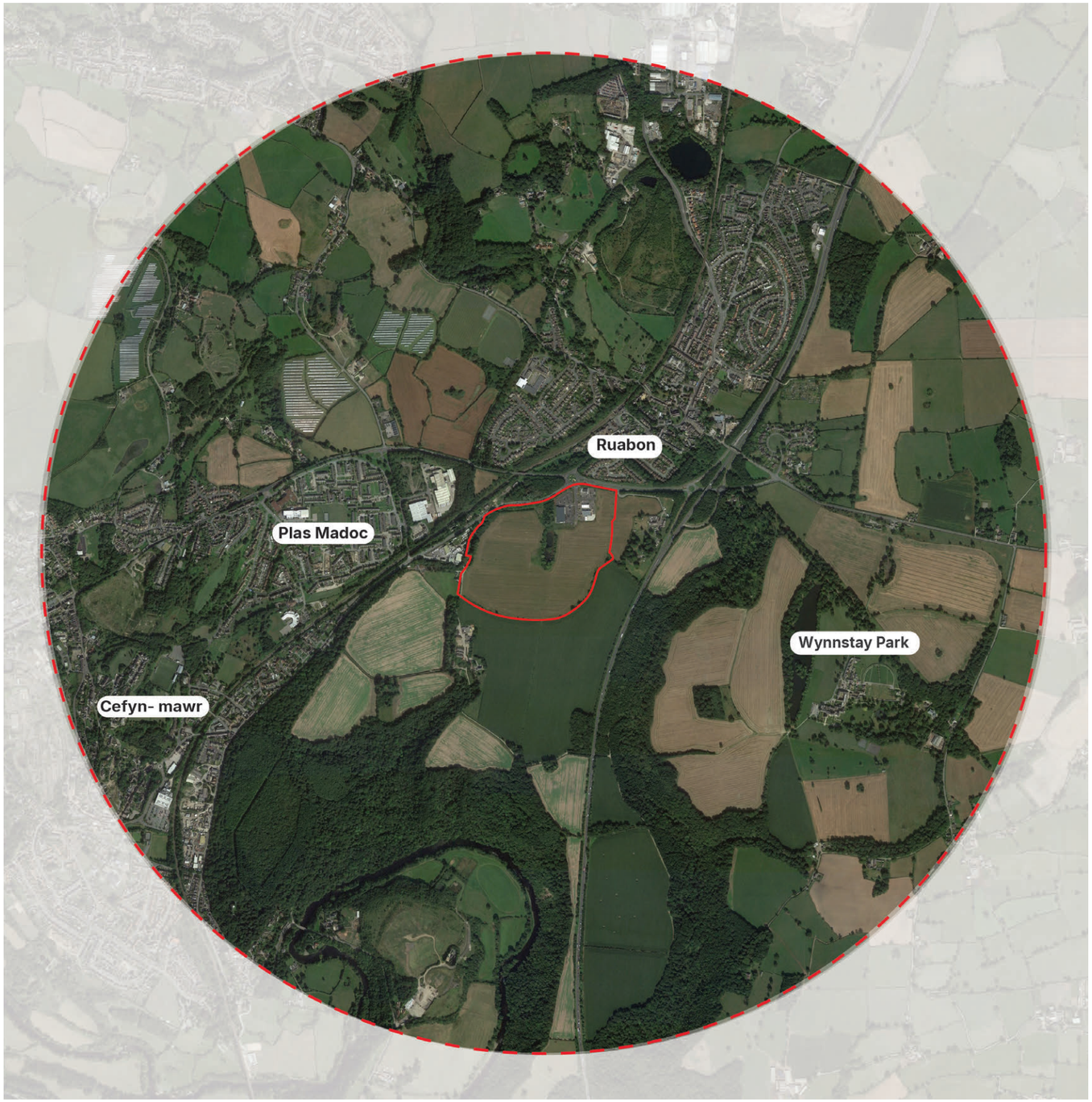


Figure 1: Site Location and wider Landscape Context

Site boundary

2km Radius

This Green Infrastructure Statement has been produced in respect of Phase 2 and phase 3 of the proposed development located in Ruabon Park. See pages 8 and 9 for further details on phases.

The document consists of the following parts;

- Part 01 : Baseline Analysis
- Part 02: Proposal Analysis

The plan on the left illustrates the site location, neighbouring settlements and parkland within the study area.

Within this document reference to the 'study area' includes all land within the 2 km radial boundary. Reference to the 'site' includes land within and on the red line boundary.

A large proportion of the site sits within Wynnstay Park. The parkland and its estate also make up a large proportion of the wider landscape context to the south and east of the study area.

Land to the north is dominated by the settlement of Ruabon and the southern industrial fringe of Johnstown, Wrexham. Land to the west and south west are dominated by the villages of Plas Madoc and Cefyn -mawr.

The south western boundary of the study area forms part of the LLangollen World Heritage site. The SSSI/SAC River Dee passes through this part of the site.

The site is sandwiched between two lines of transport infrastructure. The Shrewsbury to Chester Railway line traverses the study area from north east to the south west; And the A483 that runs from north east to south of the study area. Currently there is no vehicular access to site. Access from Park Road to Wynnstay Park Home Farm is possible but access to site is via private roads.

Proposed access to Phase 1 residential development at Ruabon Park, is via the A539, through the existing industrial development within the north of the site. New access roads to phase 2 and 3 are also proposed from the B5605 to the north east of the site. See figure 2: Proposed phasing Masterplan and figure3-7 for details on the scope for the GI statement.

INTRODUCTION: PROPOSED PHASING MASTERPLAN

The phasing plan was produced by Calderpeel Architects on 10.06.2020. The plan provides conetxt for the three phases included within the Site. Details of housing tenure and proposed unit numbers for phase 1 and 2 are included in addition to information on proposed land use for phase 3.

19126 - RUABON, WREXHAM - GROSS INTERNAL AREA SCHEDULE

DATE: 09/06/2020 **Rev:** K

BASED ON DRAWING - 19126 (P) 002 G

HOUSING

					PHASE 1 HOUSING					PHASE 2 HOUSING										
HOUSE TYPE	BED	TYPE	STOREY	SQFT	PLOT 1	PLOT 2	PLOT 3	PLOT 4	SUB TOTAL	PLOT 5	PLOT 6	PLOT 7	PLOT 8	PLOT 9	SUB TOTAL	TOTAL	TOTAL SQFT	GARAGE PROVISION	OTHER PARKING	NO. OF EXTERNAL SPACES MIN	TOTAL SPACES PER HOUSE TYPE MIN
A	4	DETACHED	2	1329	1	5	8	2	16	3	3	4	2	0	12	**28**	37212	DETACHED SINGLE	DRIVEWAY	3	84
B	4	DETACHED	2	1270	1	2	6	4	13	4	-	4	1	3	12	**25**	31750	INTEGRAL SINGLE	DRIVEWAY	3	75
C	3	SEMI DETACHED	2	1022	12	6	6	14	38	-	14	20	11	14	59	**97**	99134	NONE	DRIVEWAY/ COURTYARD	3	291
C	3	MEWS	2	1022	2	2	-	-	4	-	10	8	5	4	27	**31**	31682	NONE	DRIVEWAY/ COURTYARD	3	93
D	3	DETACHED	2	999	4	2	1	2	9	6	1	-	2	-	9	**18**	17982	INTEGRAL SINGLE	DRIVEWAY	3	54
E	4	DETACHED	2	1308	1	2	4	2	9	3	-	3	1	4	11	**20**	26160	INTEGRAL SINGLE	DRIVEWAY	3	60
F	3	SEMI DETACHED	2	1024	2	2	2	2	8	-	2	4	1	6	13	**21**	21504	NONE	DRIVEWAY/ COURTYARD	3	63
F	3	MEWS	2	1024	-	1	-	-	1	-	4	-	1	-	5	**6**	6144	NONE	DRIVEWAY/ COURTYARD	3	18
G	2	MEWS	2	858	2	2	-	-	4	-	4	4	3	2	13	**17**	14586	NONE	DRIVEWAY/ COURTYARD	2	34
L	5	DETACHED	2.5	1530	-	1	1	-	2	-	-	2	1	2	5	**7**	10710	DETACHED DOUBLE	DRIVEWAY	4	28
M	3	MEWS	2.5	1074	-	3	-	10	13	-	-	-	3	-	3	**16**	17184	NONE	DRIVEWAY/ COURTYARD	3	48
S	4	DETACHED	2	1462	-	1	2	-	3	-	-	-	-	-	0	**3**	4386	DETACHED SINGLE	DRIVEWAY	3	9
										-											
APT N	2	APARTMENTS	3	760	-	-	-	-	0	-	6	-	-	-	6	**6**	4560	NONE	COURTYARD	2	12
APT O	1	APARTMENTS	3	586	-	-	-	-	0	-	2	-	-	-	2	**2**	1172	NONE	COURTYARD	2	4
APT P	2	APARTMENTS	3	676	-	-	-	-	0	-	4	-	-	-	4	**4**	2704	NONE	COURTYARD	2	8
APT R1	2	APARTMENTS	3	670	4	-	-	-	4	-	-	2	-	-	2	**6**	4020	NONE	COURTYARD	2	12
APT R2	2	APARTMENTS	3	760	8	-	-	-	8	-	-	4	-	-	4	**12**	9120	NONE	COURTYARD	2	24
			TOTAL		**37**	**29**	**30**	**36**	132	**16**	**50**	**55**	**31**	**35**	187	**319**	96090			**PARKING REQUIRED**	917
																				PARKING AS DRAWN	917

please note that all areas are approximate and should not be relied upon for any contractual purposes

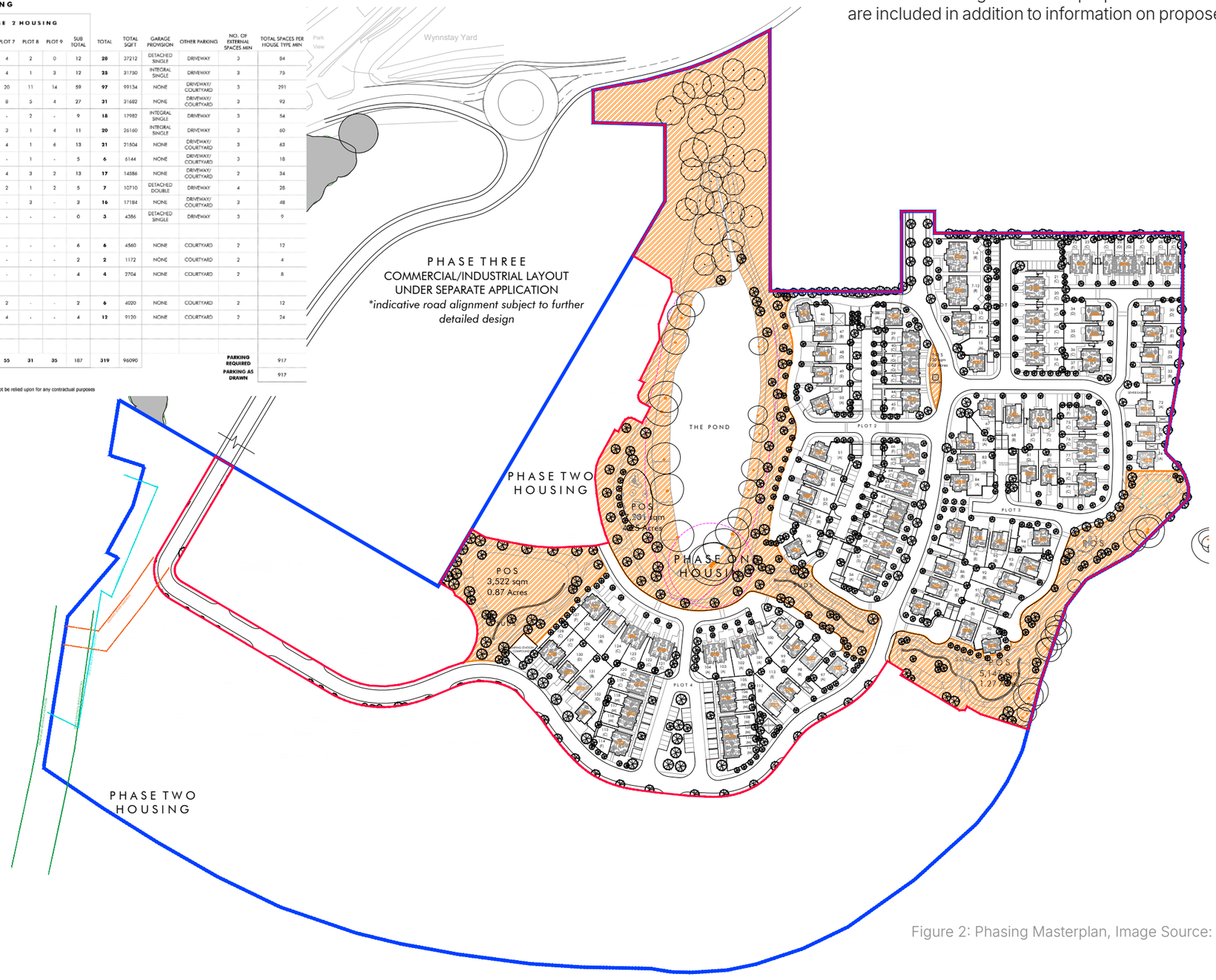


Figure 2: Phasing Masterplan, Image Source: Calderpeel Architects.

INTRODUCTION: SITE LOCATION AND SCOPE



Figure 3: Landscape Masterplan, Image Source, Barnes Walker

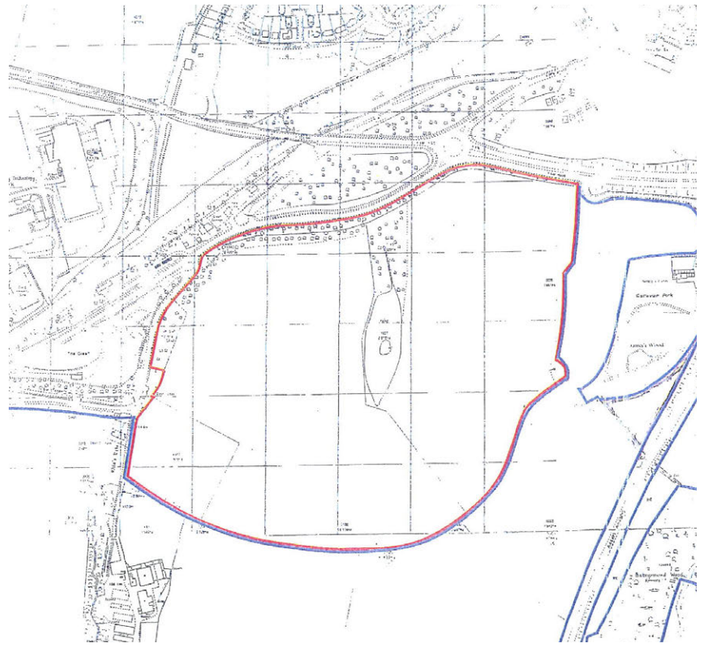


Figure 5: Image Source: Chapman Warren Site Plan drawing W.489.02-2

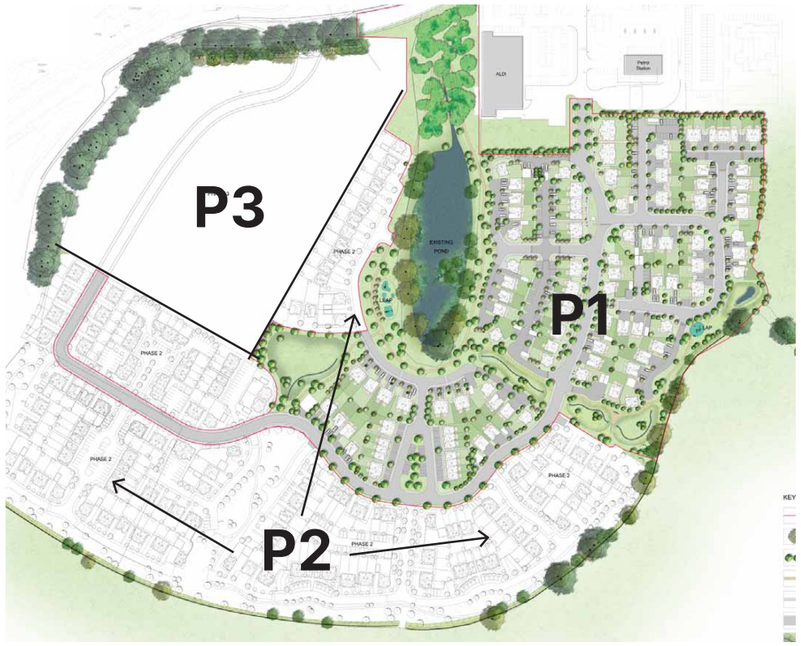


Figure 4: Image Source - - Phase 1 landscape plan M3246-PA-02-V1

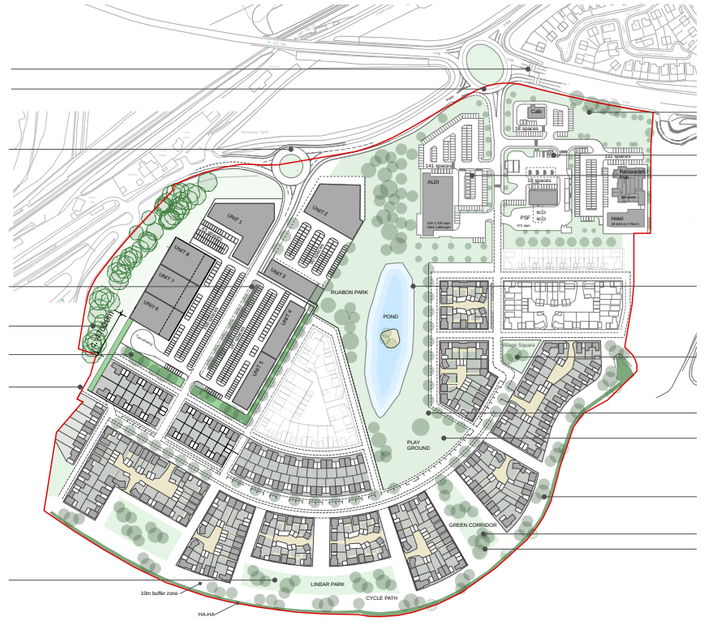


Figure 6: NRAP Architects 2013 Masterplan for Ruabon Park

Phase 1

Phase 1 is a proposed residential development providing 132 new homes of mixed tenure with the inclusion of POS, LAP, LEAP, and SuDs throughout. The designs have been developed by Barnes Walker Landscape Architects to a high level of detail in terms of residential layout, proposed movement and access hierarchy, public open space, boundary treatments, connective green and blue infrastructure, planting specification and typical construction detail and sections.

Phase 2

Phase 2 has an indicative layout for a further 187 houses. The housing layout within the design documents submitted by Barnes walker Landscape Architects has Phase 2 included in their site wide layout, see figure 3 and 4. The detail and design development set out for phase 1 gives an indication of scale and massing of houses and potential road layout. Figure 6 produced by NRAP Architects provides an additional layout to that in figure 3 and 4, indicating a similar arrangement of housing parcels and provision fro green infrastructure.

Phase 3

Phase 3 as referred to in figure 2 phasing masterplan will provide commercial / industrial use. An indicative layout is illustrated in figure 6. Giving an indication of access, scaling, massing, parking provision and connections to adjacent residential development.

Scope for the GI Statement

Part 01 - Baseline analysis scope:

This green infrastructure statement covers the baseline analysis for the whole site inclusive of areas for phase 1, 2 and 3. Baseline analysis has been carried out for the wider study area within a 2 km radius from the centre of the site.

Part 2 - Proposal Analysis

The proposal analysis will make recommendations on the basis of design as set out figure 3-6. They provide an illustrative guide to the future development intended for Ruabon Park, this GI statement will make recommendations on the core considerations of existing habitat and environmental condition and outline opportunities for wider GBI connectivity.

RUABON PARK: **BASELINE ANALYSIS**

02

BASELINE ANALYSIS: NATIONAL CHARACTER AREA

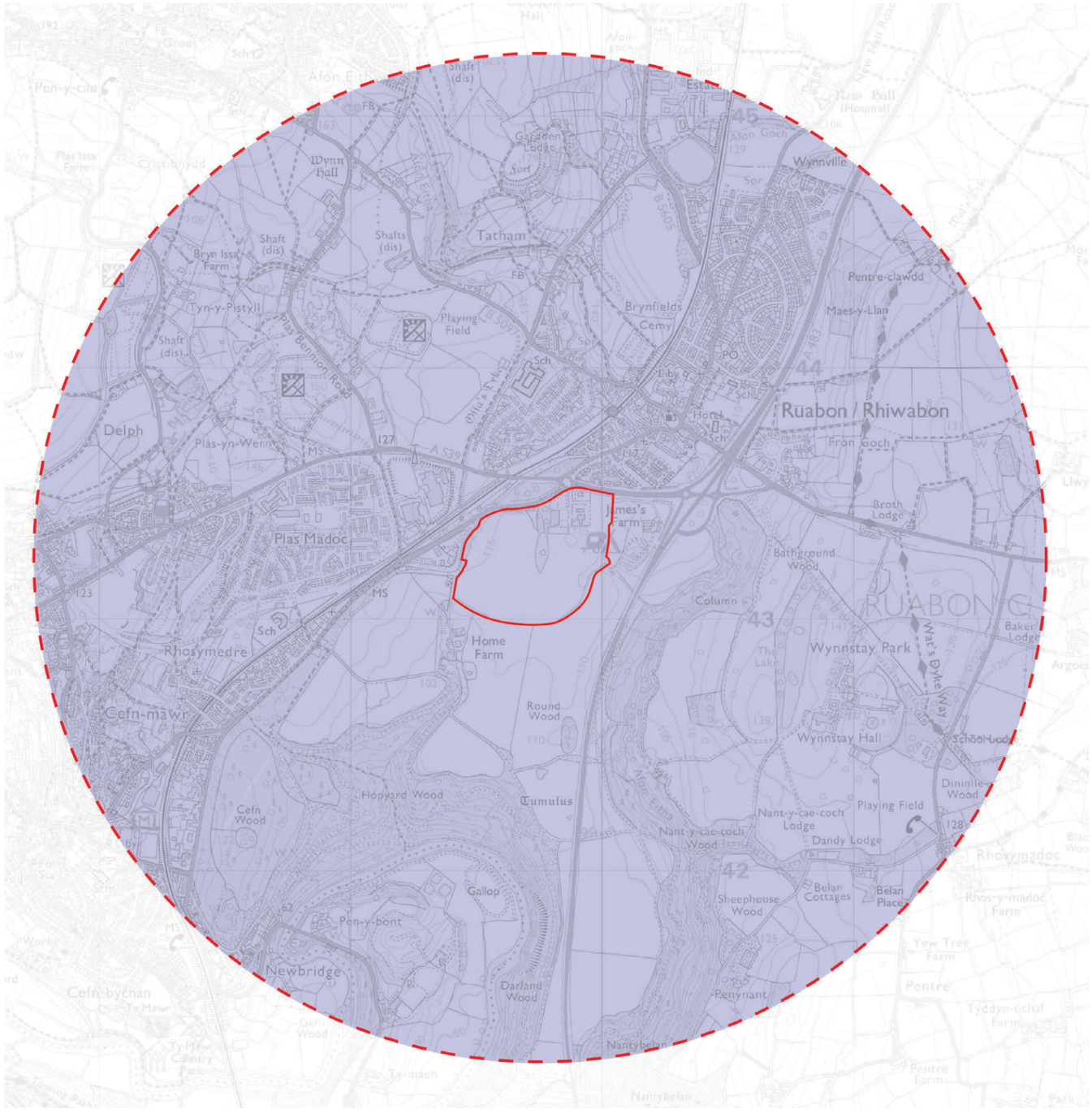


Figure 8: National Character Area

The plan on the left illustrates the location of the landscape character areas within the study area, as specified by Natural Resources Wales LANDMAP. The entire study area sits within the Deeside and Wrexham National Character Area (13).

NCLA 13 Extends from the mouth of the Dee along the coast as far as Point of Ayr, and inland as far south as the Ceiriog Valley. It includes several settlements and centres of population, the principal being the towns of Chirk, Wrexham and its main satellites Ruabon, and Rhosllanerchrugog in the south; Mold, Flint and Holywell in the north and west, and the part-industrial, part-suburban centres of Queensferry, Connah's Quay, Mostyn Docks and Talacre on the shores of the Dee Estuary. Elsewhere, many settlements, like Buckley, have grown out of the linear expansion and coalescence of pre-industrial roadside villages and hamlets. The area encompasses the main concentration of built up areas that fall along the Dee and foothills of Wales. There is great contrast between the large, open estuary mouth, it's large skies and tidal ebb and flow, and the busy developed areas around Connah's Quay, Queensferry and Wrexham.

Key Characteristics of NCLA 13 that can be seen within our study area include:

- Urban settlements - a strongly settled character is apparent in the central and southern parts of the area, with the relatively large, almost linked settlements of Holywell-Connah's Quay-Mold-Wrexham-Ruabon.
- An industrial character - evident in the line of coalesced settlement. Associated both with the Chester to Holyhead railway line, mining and large scale power generation and industrial plants. Industry tends to dwarf historic settlement and features.
- Archaeology - variety of historic sites indicate the former strategic importance of the coastal route and the turbulent history of the Marchlands, including Offa's Dyke and Wat's Dyke. Late Medieval parklands and ecclesiastical / funerary sites.
- Mixed pasture and some arable - and farm woodland cover.
- The River Dee which traverses the NCLA. Minor rivers that dissect the landscape include the River Ethia and associated streams.
- Narrow, incised, wooded tributary valleys

BASELINE ANALYSIS: LANDMAP LANDSCAPE CHARACETR AREAS

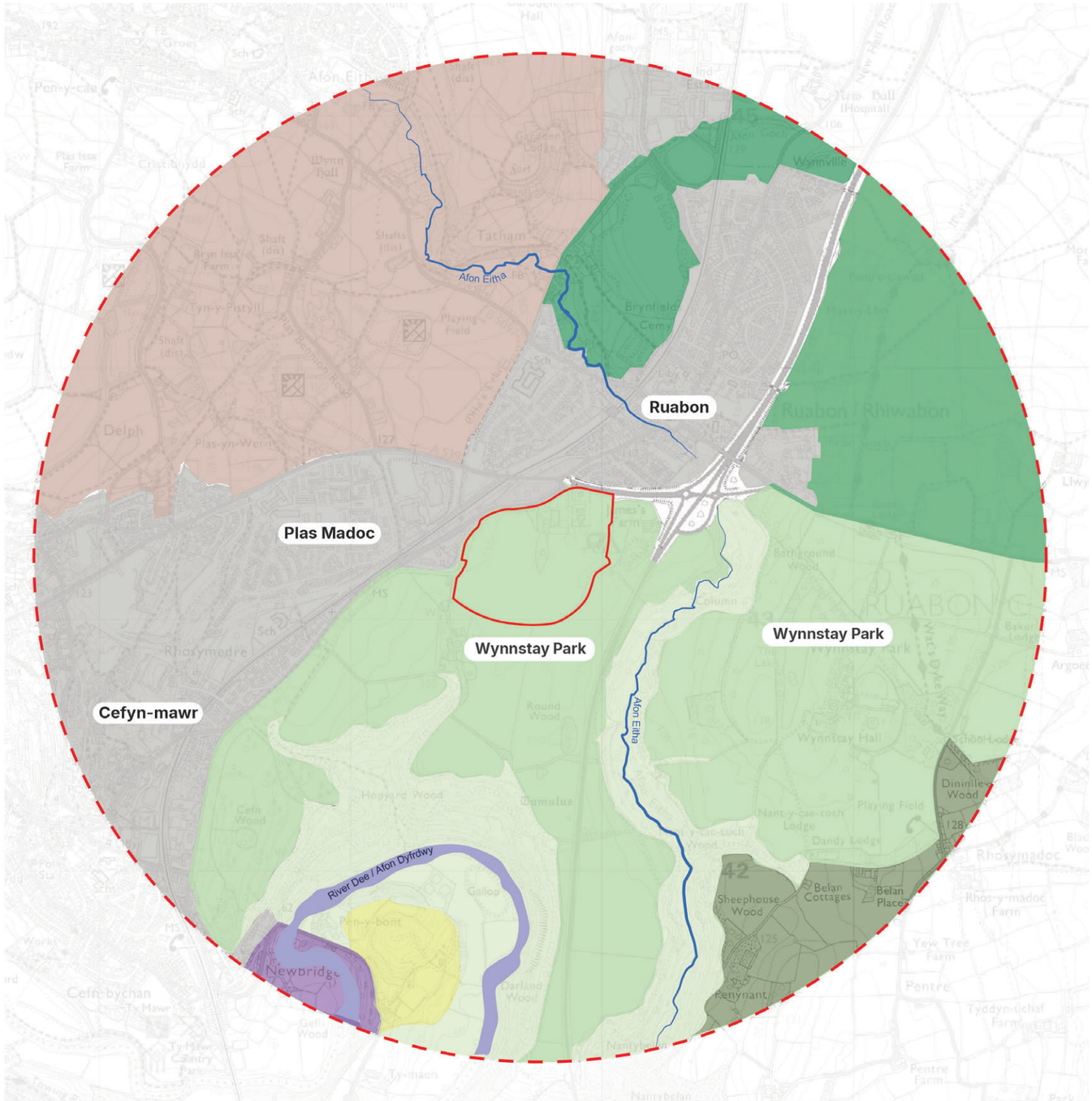


Figure 9: NRW LANDMAP Landscape Visual Sensory

- Site boundary
- 2km Radius
- Listed Buildings
- Excavation
- Wooded Lowland Valleys
- Wynnstay Park Mosiac Rolling Lowland
- Hills and Lower Plateau Grazing
- Village
- Mosaic Rolling Lowland
- Open Rolling Lowland
- Mosaic Lowland Valleys
- Road Corridor

The plan on the left illustrates the visual sensory LANDMAP areas as denoted in NRW mapping portal.

The villages of Ruabon, Plas Modoc and Cefyn-mawr sit with the 2km radius from site. The tip of the urban edge of Wrexham at Rhos Johnstown and Pen-y-Cae lies to the north. The village of Ruabon shares its eastern boundary with the A483 trunk road and environs Rhostyllen to Ruabon.

The majority of the site sits within Wynnstay park. This is classed as a Mosaic of Rolling Lowland. Within Wynnstay park a rare set of historic designed elements and landscape features are present that are unique within this area and nationally in wales.

Wynnstay park is intersected with the wooded lowland valleys associated with the Dee and Ceiriog River Valley. These are classed as undisturbed areas with high ratings of tranquillity.

Further south east to Wynnstay Park further areas of mosaic lowland valley of a different character continue through Pentre, Erbistock, Eyton and Bryn–y-Pys to the English border. These are small, clustered and scattered settlements in the vernacular style of north Shropshire and Cheshire.

To the south of the River Dee lies an excavated area, Penybont and Hafod Clay Pits, and a mosaic Lowland Valley area named Dee Valley new bridge to Froncysyllte

North of Plas Madoc and east of Ruabon - Upland hills and lower plateaus of grazing rural in character with scattered farmsteads.

BASELINE ANALYSIS: LOCAL CHARACTER AND INFLUENCES



Figure 10: Lower Dee Valley. Pont Cysyllte



Figure 11: Wynnstay Colliery Winding Engine House



Figure 12: Wynnstay Colliery Walker Fan House



Figure 13: Wynnstay Hall and Woodland Estate

Figure 10: Cultural Influence

In contrast to the more industrial coastal towns of Queensferry and Connahs Quay, a more traditional developed landscape is associated with the smaller towns, such as Mold, Caergwrle, Ruabon and Chirk. The Pont Cysyllte aqueduct and to a lesser extent the Chirk aqueduct offer sublime gateways to the Vale of Llangollen and the hills of Wales from the flatter lands of England and the borders to the east. The inscription of the Llangollen Canal and the Chirk and Pont Cysyllte aqueducts as a World Heritage Site reflect contemporary 21st century cultural understanding and the international importance of these iconic monuments.

Firgure 11 and 12: Industrial Influence

As a result of bedrock geology including millstone grit and productive coal measures the area of Ruabon has a clear connection to its physical geography. A long history of mineral extraction has left its mark on the landscape, including coal-mining, quarrying and brickworks. Carboniferous Red Measures was brick, tile and pottery production, largely centred on Buckley and Ruabon, where fireclay and mudstone were exploited in shallow pits. A third extractive industry is quarrying for building stone, which has left its mark on the landscape through disused quarries and distinctive stone buildings. Changes in the industrial base of the Wrexham area has also led to many derelict and unused industrial sites scrubbing over and creating new and interesting urban habitats.

Figure 13: Historical Influence

A border area that has historically been under the influence of both England and Wales; Offa's Dyke is a visible symbol of the struggle for control of this area from the 7th to the 9th centuries, and much of the northern part appears in the Doomsday Book. There are also a number of areas of parkland, associated with current or former country houses, adding to the overall wooded nature of the landscape, and providing many old mature trees. The influence of the wealthy and the powerful is readily apparent in great houses and parks such as Wynnstay, where Sir Watkin Williams Wynn II (1748-89) held sway, a friend of Handel, Sir Joshua Reynolds and David Garrick, and Erddig

BASELINE ANALYSIS: DESIGNATIONS

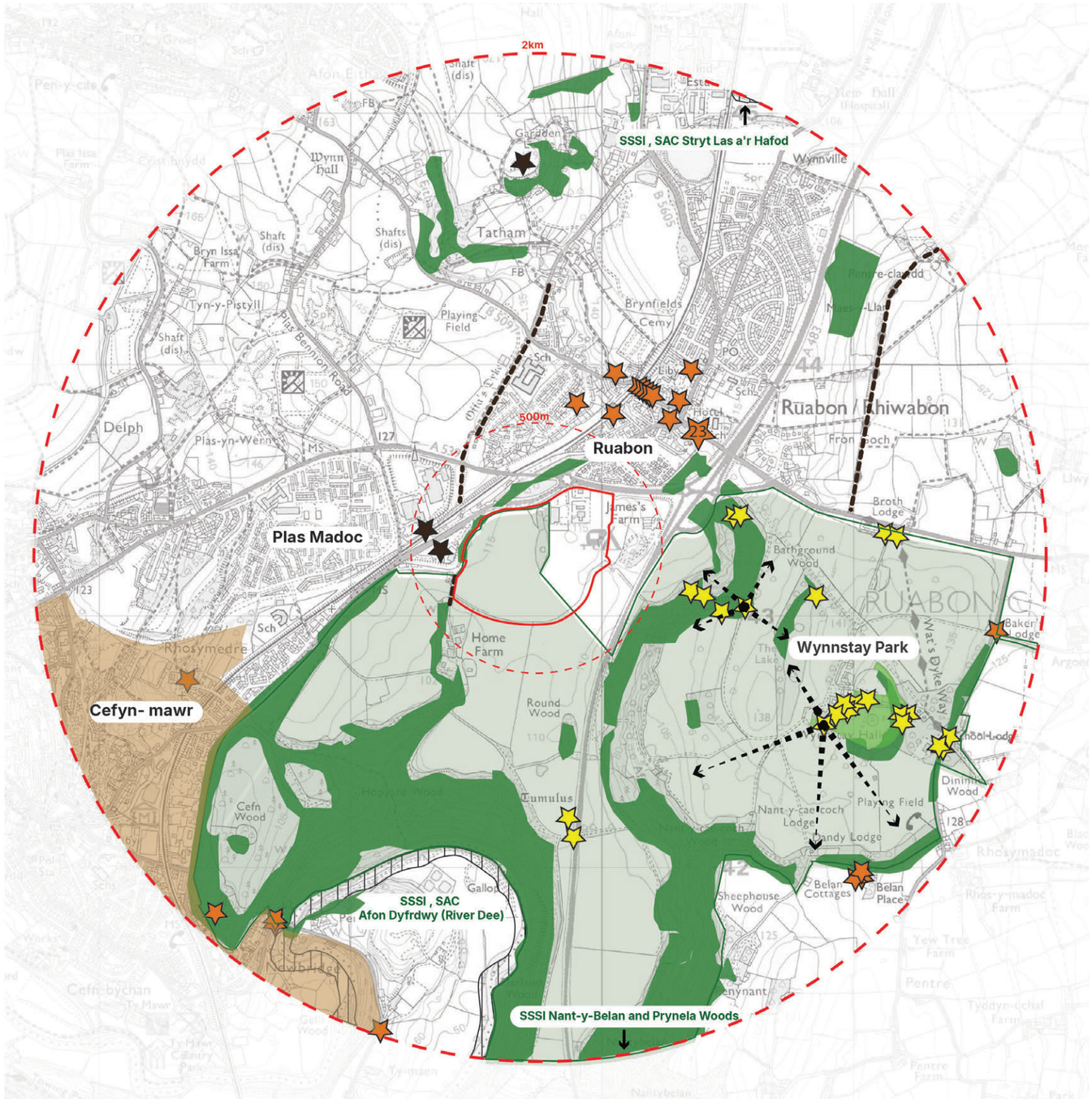


Figure 14: Designations

- Site boundary
- 2km and 500m Radius
- Grade I Registered Historic Parks and Gardens
- Ancient Woodland
- WHS Wales - Essential setting
- SSSI / SAC
- Grade II Listed
- Grade I listed
- Scheduled Ancient Monuments
- Scheduled Ancient Monuments - Linear feature
- Grade I Registered Historic Parks and Gardens : Significant view

The plan on the left illustrates the location of the statutory landscape and heritage designations present within the study area. As illustrated, there are eight statutory designations within the study area. These include Grade I Registered Historic Parks and Gardens, areas of ancient woodland, SSSI's, SAC, scheduled monuments as well as Grade I and Grade II listed buildings and registered areas scattered throughout the study area.

More than 50% of the site sits within Wynnstay Park which was designated as Grade I Registered Historic Park and Garden on 01/02/2022. Scattered throughout the grounds of the park are a variety of Grade I registered areas including smaller gardens, architectural features and significant views.

Large swathes of ancient woodland line the lowland wooded river valleys and the banks of SSSI, SAC River Dee with some further scattered areas of ancient woodland to the north of Ruabon and up towards SSSI , SAC Stryt Las a'r Hafod. To the south west the ancient woodland and River Dee meet the boundary of an area designated as Essential Setting for Llangollen, Pontcysllte Aquaduct and Canal, World Heritage Site.

The western red line boundary of the site is lined with a section of ancient woodland. A break in the ancient woodland marks a section of the medieval earthwork, Offa's Dyke. This section of the earthwork in addition to other sections of Offas Dyke to the north, a section of Wat's Dyke to the north east and Gardden Camp prehistoric Hill fort demonstrate the areas prehistoric and medieval roots. Two further designated scheduled ancient monuments are located approximately 100 - 150 m from the eastern boundary two other scheduled monuments are sited. Wynnstay Colliery Walker Fan House and Wynnstay Colliery Winding Engine House providing narrative of the areas more recent heritage.

BASELINE ANALYSIS: WOODLAND AND WATER

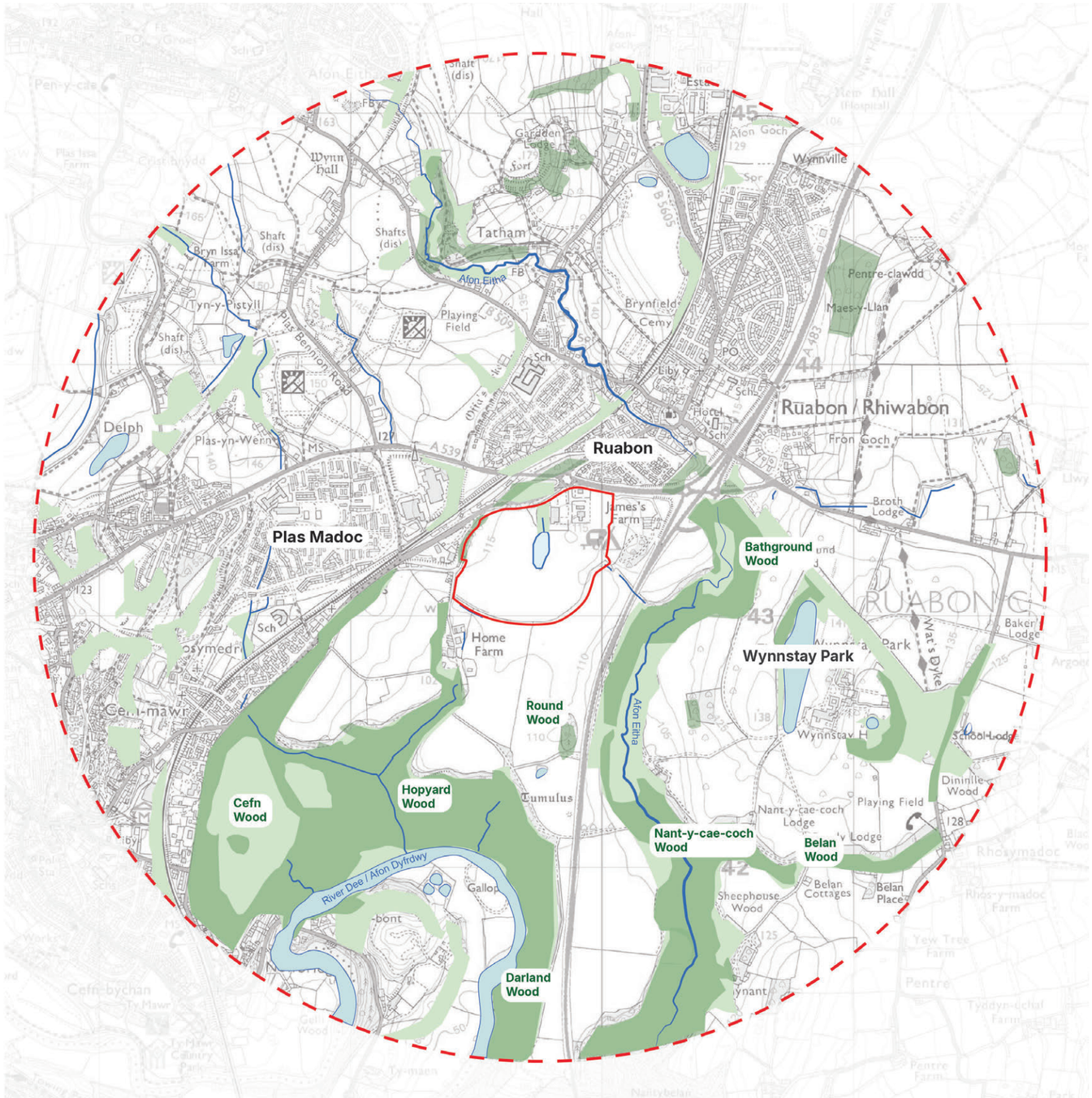


Figure 15: Woodland and Water

Key

- Site boundary
- 2km Radius
- Watercourse
- Water bodies
- Ancient Woodland
- Broadleaf woodland

The plan on the left illustrates the location of the woodland and watercourses and water bodies within 2km of the site.

As illustrated, there is a central lake to the site with a short stream inlet from the adjoining woodland. It is believed that this lake was formed as a picturesque addition to the outer parkland estate of Wynnstay park.

Although the core of the park lies on rolling plateau close to the house and garden, much of the peripheral areas of the estate are wooded, in particular the areas that run along the Dee and Ceiriog River Valley. The wooded lowland valleys contain multiple areas of ancient woodland.

The connection between woodland and water is a dominant feature of the land within Wynnstay Park whereas these connections have become fragmented as you move north through Ruabon and Plas Madoc.

The belt of urban development across the villages of Plas Madoc and Ruabon contain relatively little woodland with the exception of woodland railway sidings. However the presence of woodland in the village of Cefyn-mawr is more plentiful.

Further north east moving up into the hills south of Rhos woodland becomes a regular feature present along the River Eitha and smaller tributaries and around lakes such as Monks Pool.

The relationship of woodland and water throughout the study area is significant and important in terms of the wider blue and green infrastructure network especially in relation to the conservation and enhancement of protected landscape designations such as:

- SSSI , SAC Afon Dyfrdwy (River Dee)
- Grade 1 registered Wynnstay Park and Gardens
- SSSI Nant-y-Belan and Prynela Woods
- SSSI , SAC Stryt Las a'r Hafod

BASELINE ANALYSIS: ECOLOGICAL NETWORKS

Priority Ecological Networks

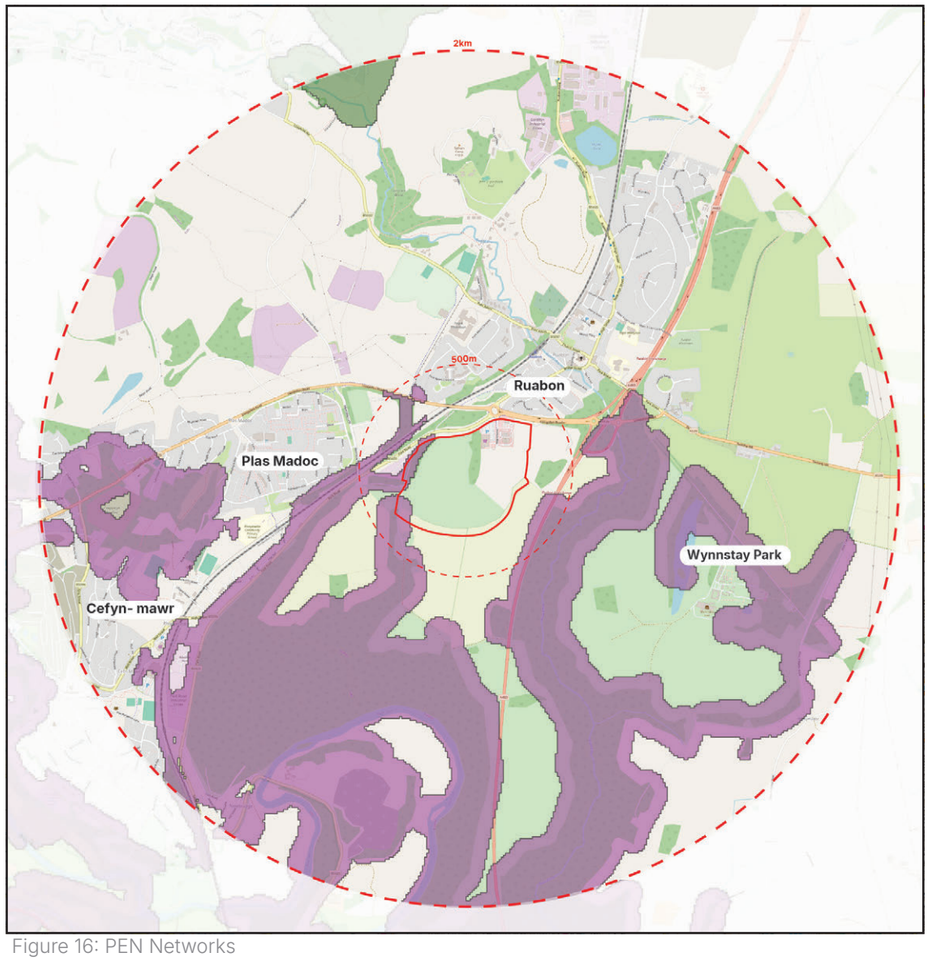


Figure 16: PEN Networks

Local Ecological Networks

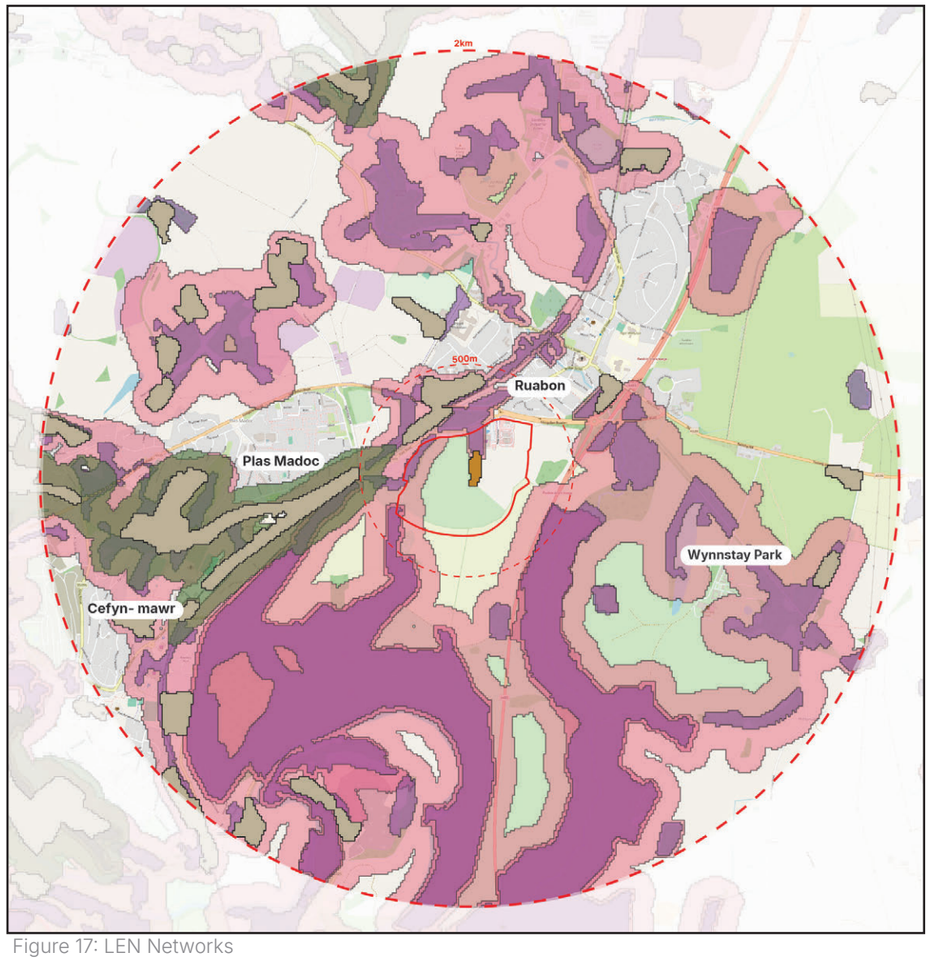


Figure 17: LEN Networks

Priority Ecological Networks

- Site boundary
- 2km Radius
- NRW Native Woodland
- NRW Semi Natural Grassland

Local Ecological Networks

- Site boundary
- 2km Radius
- NRW Lowland Local Network Fen
- NRW Lowland Local Network Grass
- NRW Lowland Focal Network Grass
- NRW Lowland Local Network Wood
- NRW Lowland Core Network Wood
- NRW Lowland focal Network Wood

The plan on the left illustrates the location of areas identified by Natural Resources Wales (NRW) as Priority Ecological Networks present within 2km of the proposed site. This includes sections of woodland and Semi Natural Grassland priority network to the north and east of the proposed site.

The plan on the right illustrates the areas identified by NRW as Local Ecological Networks within 2km of the site. This also identifies some fen central to the site in addition to the woodland and habitat. To the north and northwest Local Ecological Networks of Semi Natural grassland are more prevalent. Local Ecological Network is also identified along the western boundary of the site and in the wider landscape to the south and south west.

One watercourse falls approximately 500m of the proposed site, Afon Eithna lies to the east of the proposed site with the majority of it falling within the woodland and Ecological Networks displayed above.

BASELINE ANALYSIS: PHASE 1 HABITAT SURVEY

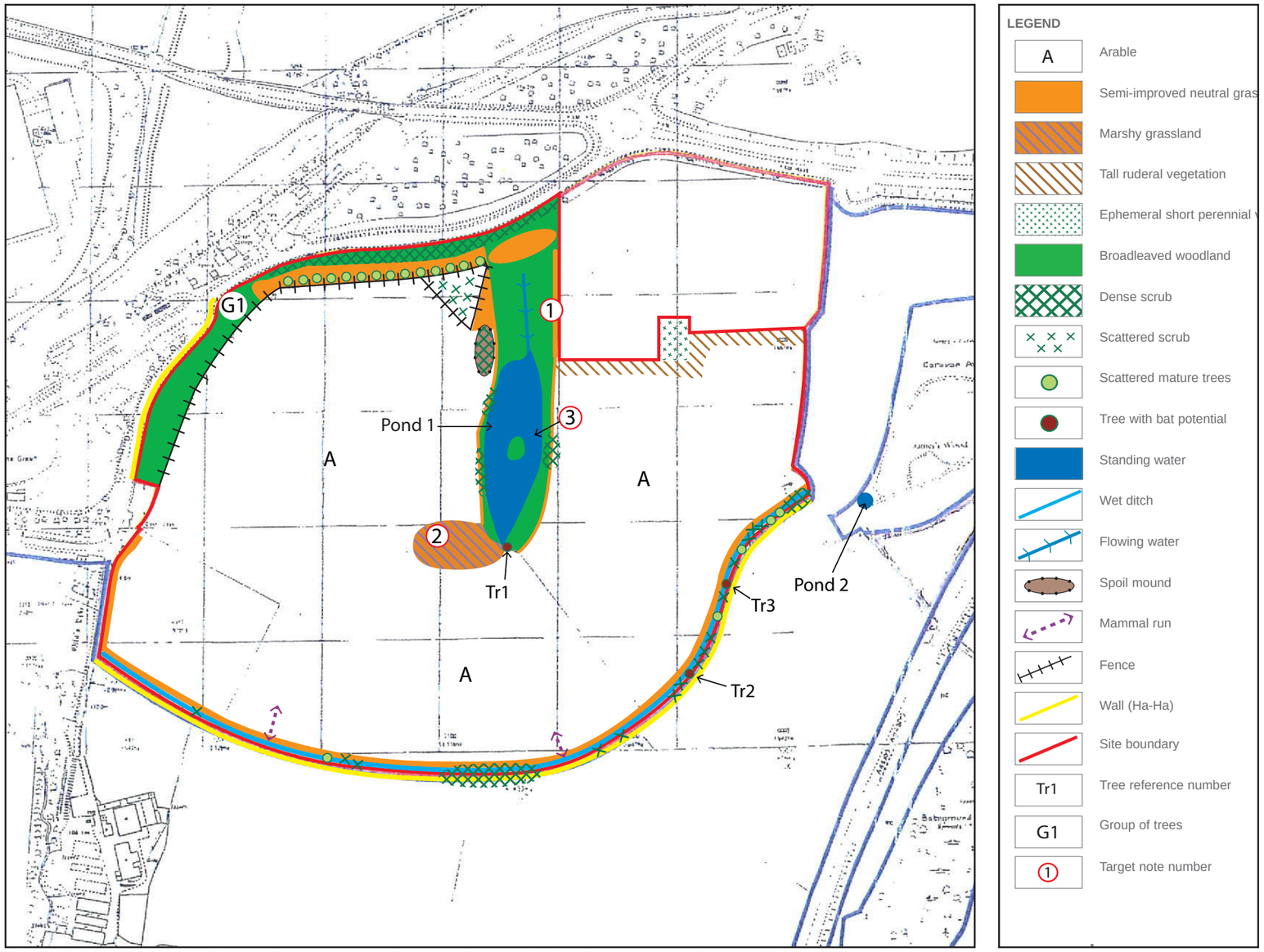


Figure 18: P20-770 Ruabon Phase 1 Ecology report- Extended Phase 1 Habitat Results, Image Source: BSG Ecology

The Phase 1 habitat survey was carried out by BSG Ecology as part of their preliminary ecological appraisal on behalf of Pure Residential and Commercial Ltd in August 2020. In summary, at that time the Site comprised of an arable field, with a large pond surrounded by broad-leaved woodland and scrub within the centre. Marking the southern boundary of the Site, there was a stone ha-ha and a ditch with scattered scrub and mature trees to the north of the ha-ha wall. Along the northern boundary and within the Site, there was a semi-natural broad-leaved woodland present at the west, and tall ruderal vegetation is present within the Site along the northern boundary, at the east.

The habitats within the Site were mapped during the Phase 1 habitat survey, a list of habitat types present at that time can be found below:

- Arable
- Poor Semi-Improved natural grassland
- Dry Ditch
- Marshy Grassland
- Broad Leafed Woodland
- Scrub
- Standing Water
- Flowing Water
- Ephemeral Short Perennial Vegetation
- Tall Ruderal

The locations of the habitats at that time are shown on the extended Phase 1 habitat survey results plan figure 18 . The photographs referred to in the following pages were the ones taken on site at the time of the survey 4 years ago and were consequently recorded within the Reserved Matters Application for Phase 1 Development. The comments and recommendations within the report are specific to the phase 1 residential development and all guidance and recommendations with the report make reference to Barnes Walkers drawings of phase 1 development only. The recommendations can therefore not be used as definitive guidance to habitats and species within the site currently but can provide broader guidance on what may currently be present.

BASELINE ANALYSIS: SITE ECOLOGY



Picture 1: Arable Fields with Perennial Rye Grass Crop



Picture 2. Species-poor semi-improved grassland on arable field margins.



Picture 3: Semi-improved grassland along eastern boundary of Site, adjacent to Aldi (Target Note 1).



Picture 4: Semi-improved grassland to the north of the spoil heap, and adjacent to the broad leaved woodland.



Picture 5: Semi-improved grassland with rushes at north of the Site.



Picture 6. Dry ditch on the southern boundary of the Site.

BASELINE ANALYSIS: SITE ECOLOGY



Picture 7: Area of marshy grassland at the south-west of the pond (Target Note 2), in the centre of the Site.



Picture 8: Broad leaf woodland on western margin on pond, with vehicle tracks.



Picture 9: View of grass track within broad leaf woodland along northern edge of the Site.



Picture 10. Area of scrub within gravel triangle at north of the Site.



Picture 11: Dense bramble scrub on spoil heap to the west of the pond.



Picture 12: View of southern part of the Pond (Target Note 3), with broad leaf woodland on margins.

BASELINE ANALYSIS: ACCESS

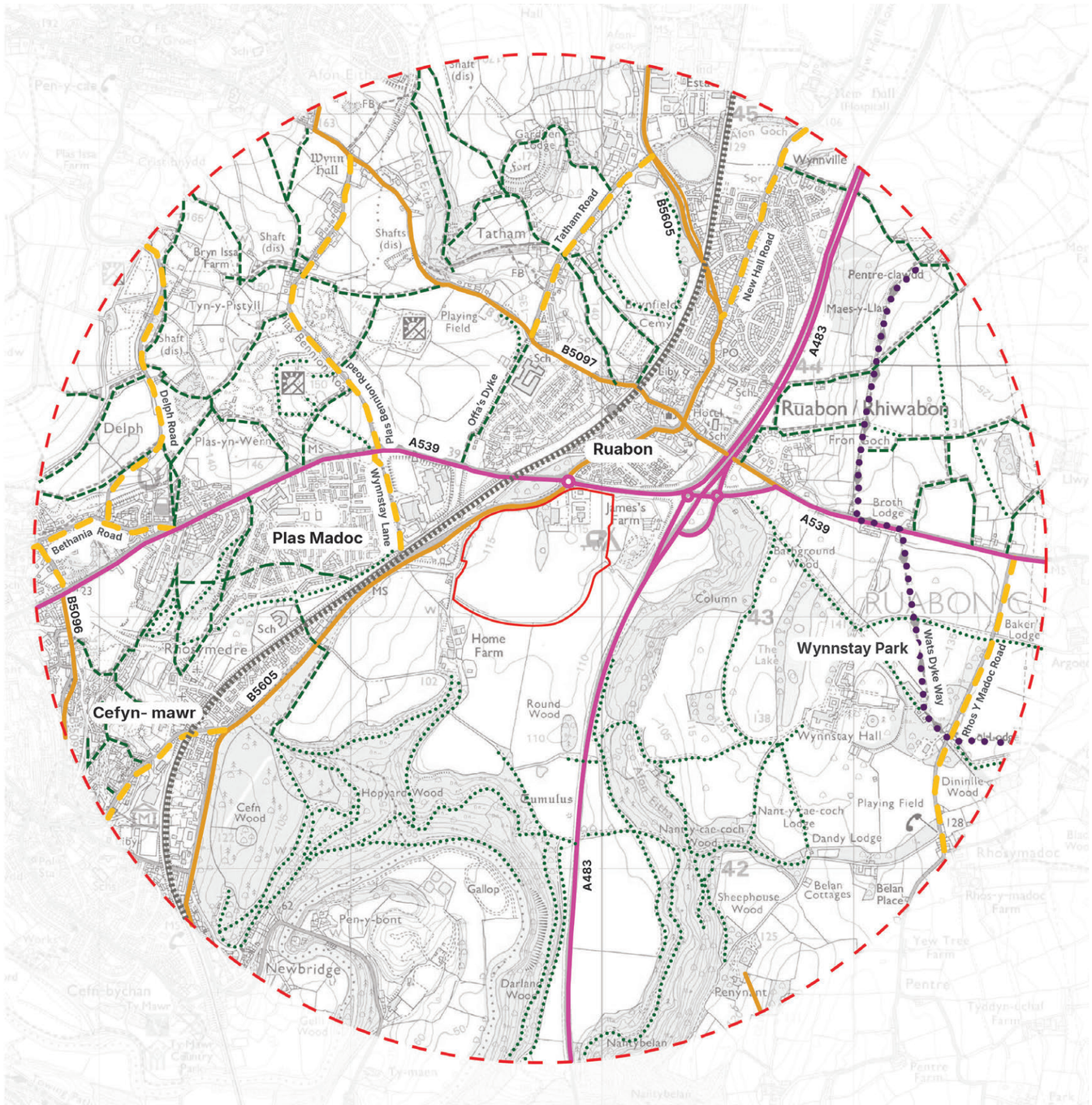


Figure 19: Access

Key

- Site Boundary
- 2km Radius
- A Roads
- B Roads
- Roads more than 4m wide
- Public Right of Way
- Long Distance Footpaths
- Private walks Wynnstay Park

The plan on the left illustrates key access routes within the study area, Phase 2 and 3 of the site currently have no public access but can be accessed from Park Road via a private lane belonging to Wynnstay Home Farm.

The main vehicular routes within the study area include the A483 and A539, which runs in a north east to south east and east west orientation respectively. The B5065 / Park Road runs along the eastern boundary of the site and B5097/ Park Street runs from north west to east orientation where it meets the A539.

The local road network is generally spread throughout the west of study area connecting settlements to one another.

The network of public footpaths/ bridle ways are plentiful and spread mainly throughout the west of the study area creating connections between the local road network. Long distance footpath, Wat's Dyke Way, runs through the east of the study area connecting to public rights north of the A539.

The sites western, southern and eastern boundary are currently inaccessible. No public roads, footpaths or bridle way connect to the site. A road running through the relatively new industrial development within the north eastern quadrant of the site provides a future access road into the proposed phase 1 residential development, shown below.



RUABON PARK: **PROPOSAL ANALYSIS**

03

BUILDING WITH NATURE: THE STANDARDS FRAMEWORK



CORE Standards

Standard 01 - Optimises Multifunctionality and Connectivity

Standard 02 - Positively Responds to the Climate Emergency

Standard 03 - Maximises Environmental Net Gains

Standard 04 - Champions a Context Driven Approach

Standard 05 - Creates Distinctive Places

Standard 06 - Secures Effective Place-keeping



WELLBEING Standards

Standard 07 - Brings Nature Closer to People

Standard 08 - Supports Equitable and Inclusive Places



WATER Standards

Standard 09 - Delivers Climate Resilient Water Management

Standard 10 - Brings Water Closer to People



WILDLIFE Standards

Standard 11 - Delivers Wildlife Enhancement

Standard 12 - Underpins Nature’s Recovery

BUILDING WITH NATURE: MULTI-FUNCTIONALITY & CONNECTIVITY









CORE Standard

Standard 01 - Optimises Multifunctionality and Connectivity

LINKED Standards

Standard 07 - Brings Nature Closer to People

Standard 09 - Delivers Climate Resilient Water Management

Standard 10 - Brings Water Closer to People

Standard 11 - Delivers Wildlife Enhancement

Standard 12 - Underpins Nature's Recovery

As set out in the previous section, the baseline analysis has identified existing green infrastructure and ecological networks on and around the site, as well as potential gaps and opportunities, and suitable locations for new features.

This analysis has been considered in the outline designs and has resulted in the following green infrastructure features being incorporated into the proposals that can contribute to the existing ecological networks and create links beyond the development boundary:

Wildflower Meadow

Street Tree Planting

Tree and Woodland Planting

Hedgerows

Rain Gardens, Swales and Basin

The eastern edge of the proposed site connects directly to grassland Local Ecological Network (LEN) and on the western boundary directly to Woodland Local LEN identified by NRW.

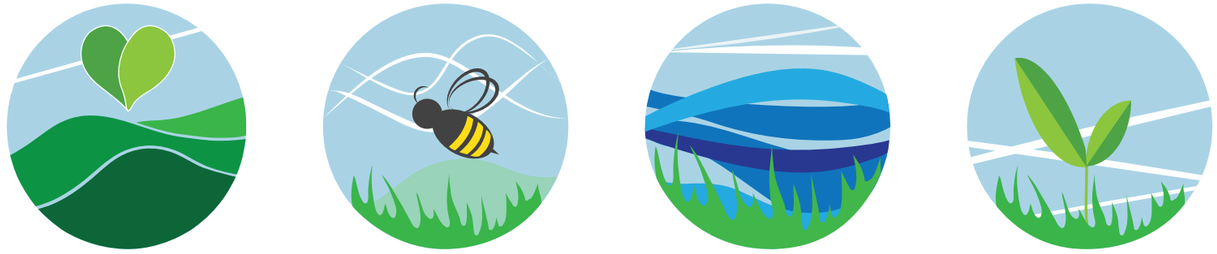
Proposed wildflower meadow alongside tree and shrub planting forms the western portion of the site, once established this will provide a connection between the site and the LENs and strengthen the existing connectivity along the eastern edge of the site.

Provision of wildflower meadow, drainage features and shrub planting will provide foraging, commuting and refuge habitat for a range of birds, small mammals, amphibians and invertebrates.

Generally speaking, new areas of planting and sustainable drainage features will provide habitats for wildlife and ecosystem services such as water and air quality and control and carbon sequestration, helping to contribute to climate mitigation and adaptation. Hedgerow and tree planting can also function as barriers to air pollution and protect soils from erosion.

Hedgerows providing foraging and nesting habitat and corridors for wildlife also form a key role within the built environment as permeable, living boundaries between properties. They can also function as barriers to air pollution and protect soils from erosion.

BUILDING WITH NATURE:



PHASE 1, 2 AND 3 ASSESSMENT

CLIMATE RESILIENCE

CORE Standard

Standard 02 - Positively Responds to the Climate Emergency

LINKED Standards

Standard 09 - Delivers Climate Resilient Water Management

Standard 12 - Underpins Nature's Recovery

The outline design proposals incorporate a number of nature-based solutions that will help to tackle some of the effects of climate change and support Nature's Recovery.

The impact of climate-related hazards such as heatwaves and drought, increased rainfall, surface water run off and flooding, diseases, and storms and high winds can be mitigated through the introduction of the following features:

•Tree planting and hedgerows to provide shade, wind protection, reduceair pollution, prevent soil erosion and reduce flooding

•Pollinator-friendly planting and drought-tolerant meadow mixes

•Permeable paving to all paths and parking areas

•SuDS features including rain gardens, a filter drain, swales and abasin that are dispersed across the site, to create several smaller sub-catchments, with a diversity of features to improve water quality atsource and maximise pollution reduction downstream

It was concluded that the consented Phase 1 development would result in the loss of arable land, part of the marshy grassland vegetation at the south-west of the pond, and the tall ruderal and ephemeral vegetation habitats from the northern boundary of the Site. However marshy and wet meadow grassland created around the proposed ditches and swales forming part of the green corridor of public open space and seeded with a meadow mixture designed for seasonally wet soils that may flood for short periods will mitigate any losses. The inclusion of new stream and ponds also be sown with a pond edge mixture containing suitable native wildflowers and grasses, and aquatic planting comprising of native, non-invasive marginal and aquatic plants will provide further ecological enhancements. The creation of these habitat compensate for the loss of the marshy grassland areas from the

BRINGS NATURE CLOSER TO PEOPLE

WELLBEING Standard

Standard 07 - Brings Nature Closer to People

LINKED Standard

Standard 10 - Brings Water Closer to People

The combined strategy to incorporate SUDS, ecology and the open space within the phase 1 development and reflected in the provision of open space in the phase 2 and 3 masterplan layout enables a robust and attractive townscape to be created around and within a robust green infrastructure network.

All footpaths within the site plans for residential development, provide both the residents and the wider community with access to quality public open space, and along these routes there are trees, hedgerows and rain gardens planted with pollinator-friendly and seasonal interest species.

The whole site should be treated as a SuDS landscape, with the inclusion of rain gardens to the front of properties and permeable paving to paths and parking areas, a filter drain to capture surface water run off from the road, plus a series of swales and a basin to slowly disperse water. The design works with the natural topography of the site, which slopes from north to south.

These drainage solutions positively contribute to a high-quality environment for people, by providing amenity value, opportunities for play and outdoor recreation, and deliver a safe surface water management system, increasing resilience to climate change.

Additionally for nature, the SuDS features create new habitats and improve ecological connectivity.

CREATES DISTINCTIVE PLACES

CORE Standard

Standard 05 - Creates Distinctive Places

LINKED Standard

Standard 11 - Delivers Wildlife Enhancement

The proposed landscape design for phase 1-3 has sought to retain existing features that reflect and enhance landscape character, such as ancient woodland, trees and meadow. The design works with the natural topography to enhance valuable views out of the site and uses the flow of water to create a dynamic SuDS landscape.

On a landscape scale wildlife enhancement is brought about through the strengthening of exiting wildlife corridors/links along the western and south western boundary through provision of meadow, tree and SuDS features that tie in with the existing watercourses and the river and woodland network within the wider context of the study area. The adjacent NRW ecological network areas.

The woodland habitat surrounding the pond was recommended for selective thinning with the exception of three individual trees and the group of trees that have been identified as having potential to support roosting bats should all be retained within the consented development. Any Veteran tree or tree with ancient tree characteristics, should be retained within the public open space area and protected from any built development in accordance with a Tree Protection Plan from a qualified Agriculturist and any works supervised by a ECoW.

On a local level, proposed hedgerow, tree and meadow habitat provides commuting and stepping stone habitat across the proposed site. The habitat provision will create additional nesting/refuge/roosting and foraging opportunities for a range of faunal species. Nesting and roosting is provided through the addition of bat and bird boxes on proposed building and suitable trees within the site.

PROPOSAL ANALYSIS: MASTERPLAN PHASES 1 - 3

Proposal Analysis- Phase 1

In Barnes Walkers phase 1 proposals, figure 20, it is recommended that the existing vegetation around the existing pond and along the existing ditch and ha-ha will be cleared once phase 1 is complete. Clearance is recommended to be undertaken under the instruction and supervision of an Ecological Clerk of Works. (ECoW)

Within the phase 1 designs where possible boundary and screening treatments utilise planting enhancing the performance of the connective green infrastructure on site, these measures are also used within phase 2 and 3 of the residential development at Ruabon. These soft boundary treatments include Native Hedgerow Mix, Residential frontage hedgerow, Spine road hedges, and parking court boundary shrubs. Estate railings are also proposed with the dual purpose of support for climbing plants to create robust furniture/planted divides between properties.

Where possible footpaths along roads are separated by a verge of Grass or soft landscaping. Along wider verges trees are planted.

Proposal Analysis Phase 2 and 3-

In the NRAP Masterplan, figure 21, provides illustrative details for phases 2 and 3. The outline design for the residential areas shares many landscape features shown within the Barnes Walker proposals such as:

- A peripheral Linear park with connective green corridors to larger open greenspace with the existing pond as a central feature.(10m buffer)
- Combinations of LAP, and LEAP set within designated greenspace with generous tree planting and soft edges for informal play opportunities.
- In addition to the detail shown on the residential plans the outline design for the industrial use areas for phase 3:
- Retain existing ancient woodland buffer.
- Additional woodland planting and screening from the industrial development.
- A buffer between the industrial development and the ancient woodland.

Where possible phase 3 boundary and screening treatments utilise planting enhancing the performance of the connective green infrastructure on site.



Figure 20 : Barnes Walker whole site masterplan - Indicative of the potential design proposals for phase 2. Image Source: Barnes Walker

PROPOSAL ANALYSIS: MASTERPLAN PHASES 1 - 3

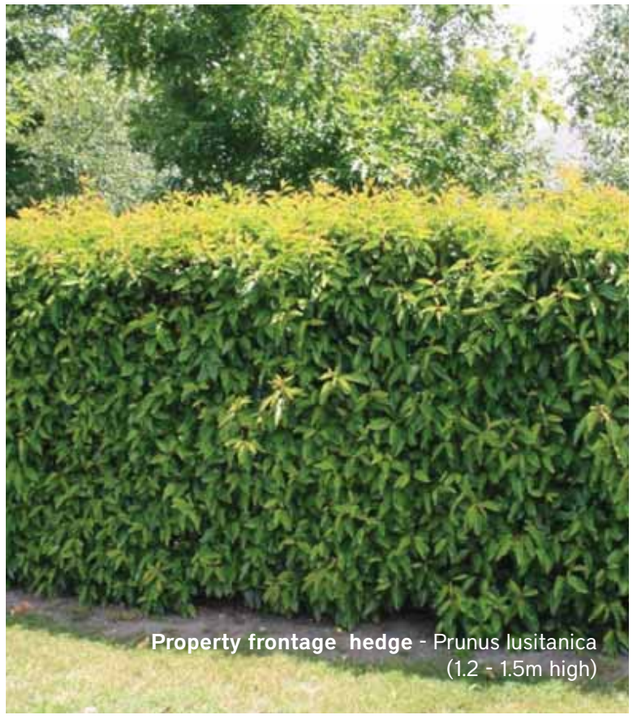


Figure 21 : Existing outline approved Plan 2500-op-20 REV e, NRAP Architects - Landscape Masterplan for Ruabon Park 2013. Image Source - NRAP Architects

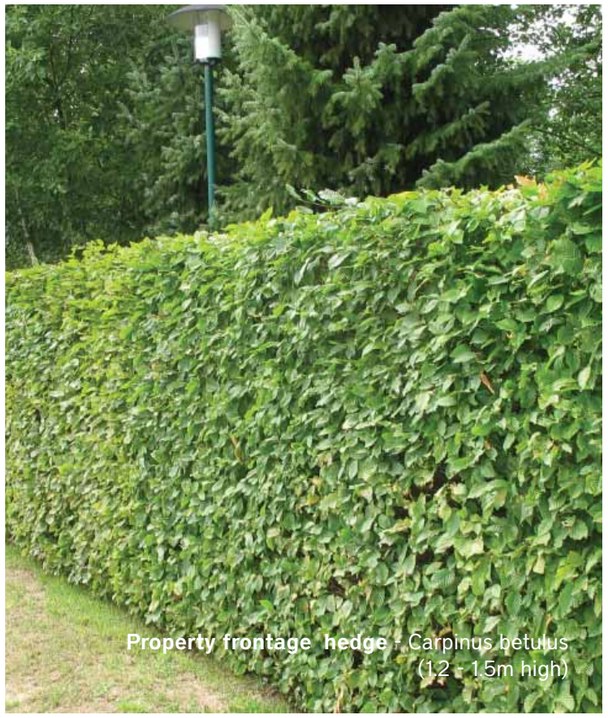
PROPOSAL ANALYSIS: BOUNDARY PLANTING



Open space mixed native hedgerow
(1.5m high)



Property frontage hedge - Prunus lusitanica
(1.2 - 1.5m high)



Property frontage hedge - Carpinus betulus
(1.2 - 1.5m high)



Boundary mixed Native species hedge
(2/3m high)



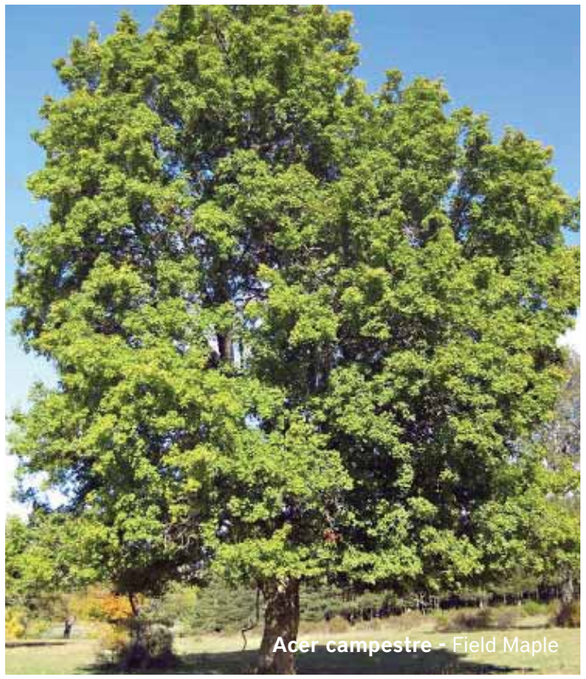
Griselinia property hedge - Griselinia littoralis
(1.2-1.5m high)

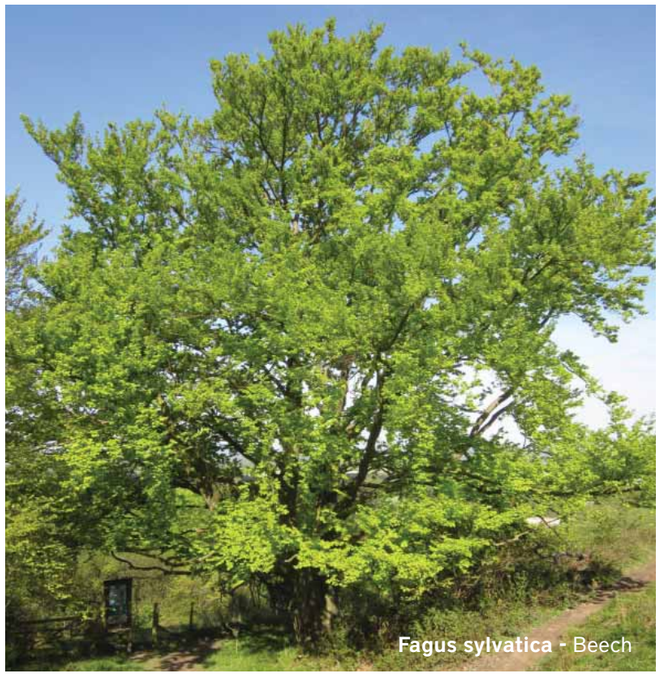


Property frontage hedge - Fagus sylvatica
(1.2 - 1.5m high)

Image Source: Page 25 Trees in Public Areas, Barnes Walker Landscape Elements Manual for Ruabon, Wrexham, Pure Residential and Commercial

PROPOSAL ANALYSIS: SOFTWORKS IN PUBLIC AREAS


Acer campestre - Field Maple


Fagus sylvatica - Beech


Quercus petraea - Sessile Oak


Sorbus alba - Whitebeam


Betula pendula - Silver Birch


Malus sylvestris - Crab apple


Quercus robur - English Oak

Image Source: Page 35 Trees in Public Areas, Barnes Walker Landscape Elements Manual for Ruabon, Wrexham, Pure Residential and Commercial

PROPOSAL RECOMMENDATIONS: DRAINAGE DESIGN ANALYSIS



Figure 4: Typical Indicative Amenity Space Plan - See drawing M3245-SD-06-V1 for full details

1 - Seating areas, with bench seats
2 - Hogging paths with sett edge trim
3 - Mown grass paths
4 - Wildflower meadow banks
5 - Swale/balancing pond base
6 - Ditch drain
7 - Wetland marginal planting
8 - Native species 'parkland trees'
9 - Water logging tolerant tree species
10 - Reinforced grass spillway
11 - Stepping stones
12 - Existing boundary ditch and Ha-Ha wall
13 - Headwalls and drain design detailed by

Image Source: Phase 1 Amenity Space from Barnes Walker Landscape Elements Manual for Ruabon, Wrexham, Pure Residential and Commercial

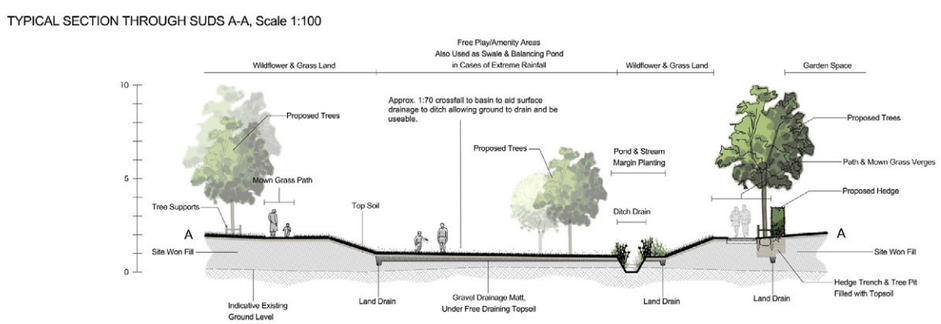


Image Source: Phase 1 drainage proposals from Barnes Walker Landscape Elements Manual for Ruabon, Wrexham, Pure Residential and Commercial







Drainage within the proposed residential developments to phase 1 include detailed proposals of SuDS features located centrally with the and connecting to a series of linear Suds features and swales like green fingers that spread throughout both phase 1 and phase 2 of the residential development. Critical is the use of the low points of the site and also the use of the boundary ha ha in the form of a wetland linear band/park, ensuring run off from site has minimal impact on the adjacent sensitivities such as the ancient woodland belts, scheduled monuments and grade I registered park and gardens.

The SUDS capacity and design proposals from Barnes Walker are carefully considered and accommodated within;

- Traditional open drainage ditches linked by pipes under roads and pathways;
- Organically shaped, earth formed basins that accommodate peak flows to allow for a slow and controlled outflow of water;
- Some constructed ponds within the basins to serve as permanent features.

The combined strategy to incorporate SUDS, ecology and the open space enables a robust and attractive townscape to be created around and within a robust green infrastructure network.

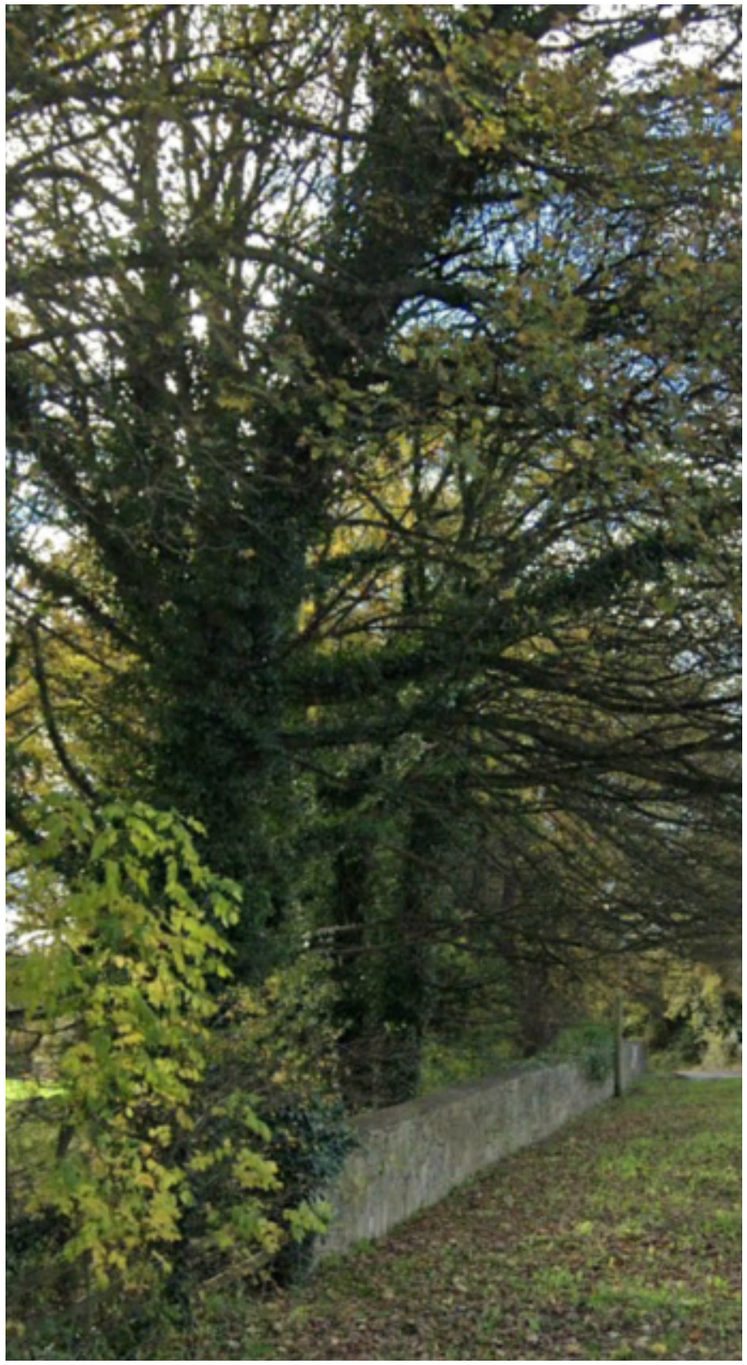
SuDS features could also include permeable paving interlinked with small rain gardens to the central road and following the natural topography of the site.

SuD's features that are occasionally inundated with water can be managed as a wet meadow, corresponding with the adjacent grassland Local Ecological Network and fen habitat identified centrally at the lake and across the rolling plateau of the majority of the site.

Planting could include:

- Drainage Ditches - Wetland margin planting, with Coir mats/roles, plugs and seeding of non invasive native species
- The base of the swales - planted with meadow mixes suitable for wetlands and additional tree planting that can tolerate possible annual waterlogging of the space, such as Birch, Willow and Alder.

PROPOSAL ANALYSIS: STEP-WISE APPROACH



Phase 2 and Phase 3

For the Phase 2 and phase 3 of the Ruabon Park development, the footprint predominantly comprises habitat of limited ecological value, arable land. Boundary hedgerow features (priority habitat) and ancient woodland trees are a feature .

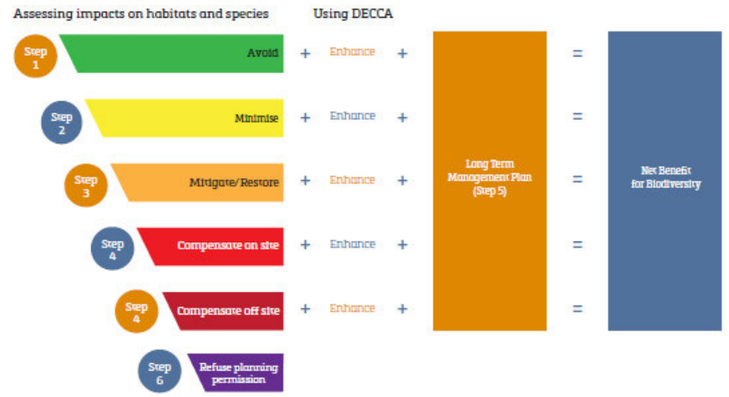
Where practicable all trees are retained (including trees identified with bat roost potential) within the proposed masterplan layouts, apart from a small section of loss required to make way for access and services.

Provision of new native hedgerow and woodland planting along external boundaries and some internal boundaries around residential mitigate for the loss of tree and scrub and provide a robust network for foraging mammals, strengthening the existing local hedgerow provision.

On a local level, proposed habitat provides commuting and stepping stone habitat across the site through provision of wildflower meadow, hedgerow, tree and tree planting alongside naturalistic drainage features. It is considered that the sites functionality to provide foraging and commuting habitat for local fauna will be enhanced as a result of the proposals. The design principles laid out in Barnes Walker Landscape Elements Manual, written and produced for phase 1 of the development and providing guidance for both phases 2 and 3 is robust and thorough in its approach to green infrastructure as a guiding design principal. The design layouts within this document support this approach within the illustrative masterplan proposals.

On a more landscape scale, the proposed wildflower meadow, drainage features, and planting strengthen existing connectivity to nearby woodland and watercourses to the eastern and southern boundaries of the site and add to the retained habitat along the western peripheries of the proposed development site that are identified as NRW grassland Local Ecological Network.

New areas of planting and sustainable drainage features provide habitats for wildlife and ecosystem services such as water and air quality and control and carbon sequestration, helping to contribute to climate mitigation and adaptation. Hedgerow and tree planting can also function as barriers to air pollution and protect soils from erosion.



NET BIODIVERSITY BENEFIT: CHANGES TO HABITAT AND OPEN GREENSPACE

Phase 2 and Phase 3

Phases 2 and 3 of Ruabon Park covers an area of approximately 12.5 hectares. As identified within BSG ECOLOGY Preliminary Ecological Assessment and phase 1 habitat survey, the following habitats can be found within phase 2 and phase 3 of Ruabon Park. Listed here with the area they cover and the approximate area and percentage of phase 2 and 3 of the development site.

- **Arable** - 10.5 hectares - 84 %
- **Broadleaved Woodland** - 0.7 hectares - 6%
- **Scattered Scrub** - 0.45- 4%
- **Scattered Mature Trees within Semi Improved Natural Grassland**- 0.3 hectares - 2 %
- **Dense Scrub** - 0.15 hectares - 1%
- **Wet Ditch** - 0.4 hectares - 3%

Potential Environmental Impact, Policies and Management

Mitigation (including avoidance) and habitat creation or enhancement measures should be encouraged as part of the detailed design.

It is recognised that as a result of Ruabon Park development that there will be a number of habitats lost, gained and altered. The greatest impact will be on arable land due to the percentage of existing arable land on site. However the grasslands on site are not listed under the provisions of the Environment (Wales) Act 2016, or considered to be of intrinsic botanical interest. The main mitigation for arable land loss will be to compensate for the loss of habitat suitable for nesting birds.

It is considered that the proposed development has the opportunity to provide additional breeding opportunities for birds through the planting of suitable nesting habitat within the areas of landscaping. Native tree species and native hedgerow planting will be included within the landscaping, along both the Site boundary and within the public open space. In addition, the native shrub and tree planting within the public open space (POS) and the residential gardens will provide foraging opportunities for birds, with native broadleaved species including berry producing species such as rowan Sorbus aucuparia, crab apple Malus sylvestris, hawthorn Crataegus monogyna and blackthorn Prunus spinosa, to provide an additional food source for birds.

Within the current phase 2 design, allocated green spaces include the linear Park and the Green Corridor. In total these provide approx. 1 hectare of POS, with an additional 1.5 hectares of private gardens and street trees. With consideration of new planting and greenspace

IMAGES OF EXISTING HABITAT AND OPEN GREENSPACE



Arable Fields with Perennial Rye Grass Crop



Scattered mature trees within Semi Improved natural grassland.



Broadleaf woodland along northern edge of the Site.



Dense bramble scrub on spoil heap to the west of the pond.



Scattered Scrub with Saplings



Ditch on the southern boundary of the Site.

the total loss of green space in phase 2 is approximately 3.4 hectares. These new habitats will complement the retained habitats and provide important links both across and off the Site, and will provide enhanced foraging habitats for bats and birds within the Site.

Within the current phase 3 design, the majority of the existing arable land will become hardstanding for industrial use. However the integration of 3 linear tree belts and associated Suds, totalling 477 linear metres provides enhanced green infrastructure connectivity between existing woodland belts around the site periphery with trees and woodland around the central pond.

The braodleaved woodland on the northern and north-western boundaries of the Site are classed as a sensitive habitat both for ecological value and also the proportion of the woodland designated as ancient. There will be little to no impact on the north western belt of woodland. To mitigate impacts to the existing trees and ancient seed banks, BS 5827 'Trees in relation to Design, Demolition and Construction, must be followed. The woodland would also benefit from a management plan to encourage maintain a level of light to the woodland floor, allowing ground flora from the ancient seed bank to flourish. A buffer zone of approx 15-20m between proposed industrial units 1, 8, 7, and 6 and the woodland edge will allow day light to reach the woodland. New units and lighting design may also need to undergo a dark skies assessment to ensure that commuting bats from the woodland are not impacted by the intensified use of the land and associated security lighting.

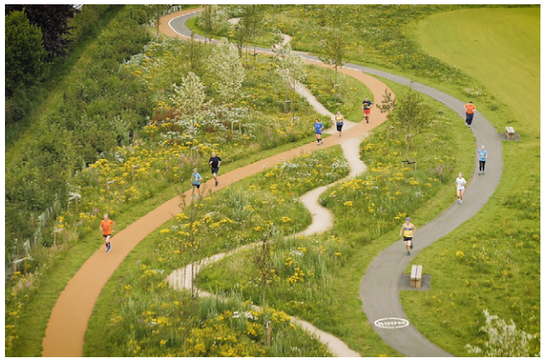
The woodland along the northern boundary will be impacted by the access road with a loss of approximately 780 m sq. The impact of this has been mitigated by the planting of 2166 sq m of woodland belt connecting the existing peripheral woodland belts with the proposed open greenspace and pond to the centre of the whole masterplan.

There will be a loss of triangle of scattered scrub to the north of the site which has become colonised by silver birch, alder and willow saplings. The area loss is approximately 1500 sq m. Unit 2 will be built on this area. To reduce the environmental impact of this loss, the saplings could be trans located on site to one of the new areas of woodland planting. Thus providing a sustainable approach to plant procurment. Furthermore the linear park and cycle lane that stretch 770 linear metres along the phase 2 southern boundary, adjacent to the Ha Ha, also provides opportunities for scrub and shrubs to thrive.

PRECEDENT IMAGES OF PROPOSED HABITAT AND OPEN GREENSPACE



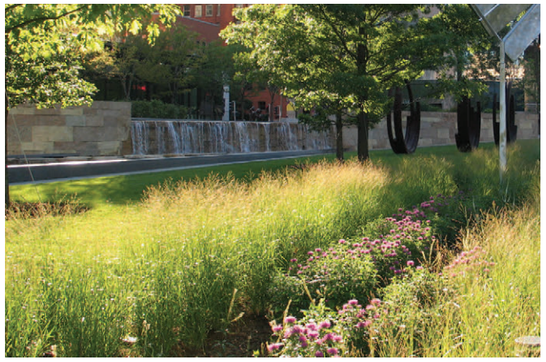
Wildflower meadow enhancements with new tree planting



Linear Parks - A space for people and nature



Habitat enhancements for nesting birds set within a residential setting.



Well managed vegetated Swales providing ecological benefit.



Industrial sites with dedicated space for people and nature.



Tree lined roads with integrated SuDS and flood alleviation.

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Barnes Walker - M3246-PA-01-V1_Site Wide Masterplan

Barnes Walker - M3246-PA-06-V1 Typical Amenity Space-Swale Proposals

Barnes Walker - M3246-PA-07-V1_Phase 1 Public Open Space

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Natural Resources Wales National Landscape Character 31/03/2014 NLCA13 DEESIDE AND WREXHAM