

Elton Reservoir, Bury

GM Allocation 7

## PHASE 1 HABITAT SURVEY

March 2019

[ERAP (Consultant Ecologists) Ltd ref: 2017-001]

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## CONTENTS

<b>1.0</b>	<b>Introduction .....</b>	<b>3</b>
1.1	Background and Rationale .....	3
1.2	Objectives .....	3
<b>2.0</b>	<b>Method of Survey .....</b>	<b>4</b>
2.1	Desktop Study.....	4
2.2	Phase 1 Habitat Survey .....	4
2.3	Animal Life .....	5
2.4	Survey and Reporting Limitations .....	5
2.5	Evaluation Methodology.....	5
<b>3.0</b>	<b>Survey Results.....</b>	<b>6</b>
3.1	General Description .....	6
3.2	Dense Continuous Scrub .....	7
3.3	Parkland and Scattered Trees: Broad-leaved Trees .....	7
3.4	Acid Grassland: Unimproved .....	7
3.5	Neutral Grassland: Semi-improved .....	8
3.6	Improved Grassland .....	8
3.7	Marsh / Marshy Grassland .....	9
3.8	Poor Semi-improved Grassland .....	9
3.9	Bracken .....	10
3.10	Other Tall-herb and Fern: Tall Ruderal .....	10
3.11	Swamp .....	10
3.12	Standing Water / Ponds .....	10
3.13	Running Water .....	11
3.14	Cultivated / Disturbed Land: Amenity Grassland.....	12
3.15	Cultivated / Disturbed Land: Ephemeral / Short Perennial.....	12
3.16	Introduced Shrub .....	12
3.17	Hedgerows.....	12
3.18	Coarse, Unmanaged Species-poor Neutral Grassland.....	12
3.19	Other Habitats .....	12
3.20	Invasive Plant Species .....	13
3.21	Animal Life: Incidental Observations.....	13
<b>4.0</b>	<b>Evaluation .....</b>	<b>14</b>
4.1	Quantification .....	14
4.2	Priority Habitats.....	16
4.3	Distinctiveness Values.....	16
4.4	Typicalness, Diversity and Naturalness .....	17
4.5	Fragility .....	17
<b>5.0</b>	<b>Ecological Guidance .....</b>	<b>18</b>
<b>6.0</b>	<b>References .....</b>	<b>18</b>
<b>7.0</b>	<b>Appendix 1: Tables.....</b>	<b>20</b>
<b>8.0</b>	<b>Appendix 2: Figures.....</b>	<b>23</b>

### List of Tables

Table 2.1: Extended Phase 1 Habitat Survey Dates and Weather Conditions .....	4
Table 3.1: Butterfly Species Recorded .....	13
Table 3.2: Dragonfly / Damselfly Species Recorded .....	13
Table 4.1: Summary of Habitat Types and Area Covered (approximately).....	15
Table 4.2: Summary of Distinctiveness Values at the Site .....	16

Table 6.1: Table of Photographs ..... 20

**List of Figures**

Figure 1: Aerial Image of Site and SBI Locations ..... 24  
 Figure 2: Phase 1 Habitat Survey ..... 25  
 Figure 3: Phase 1 Habitat Survey (North) ..... 26  
 Figure 4: Phase 1 Habitat Survey (South) ..... 26

**Document Control**

Survey Type:	Surveyors	Survey Date(s)
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	Chris Schofield and Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM	24 <sup>th</sup> May 2017
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		17 <sup>th</sup> June 2017
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## 1.0 INTRODUCTION

### 1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by Peel Holdings (Land and Property) Limited to carry out the relevant ecological surveys and assessment of the Elton Reservoir site, Bury (GM Allocation 7) (hereafter referred to as the 'site').
- 1.1.2 The surveys were requested in connection with proposals to promote the site within the Greater Manchester Spatial Framework (GMSF) (Greater Manchester Combined Authority, January 2019).
- 1.1.3 The site covers an area of approximately 248 hectares and occupies land between Bury and Radcliffe, Greater Manchester. The site is bound by the A58 (Bury and Bolton Road) to the north, the Metrolink line and Bury Road to the east and residential development to the west. The Ordnance Survey (OS) grid reference at the centre of the site is SD 786 089.
- 1.1.4 It is the intention of this report and all supporting reports to provide a clear and transparent account of the scope of ecological surveys carried out, the rationale for the surveys, the survey limitations experienced and the identification of further surveys necessary to support the progression of the site to a planning application.

### 1.2 Objectives

- 1.2.1 The objectives of this Phase 1 Habitat Survey are to:
- a. Characterise the habitats across the site in accordance with the *Handbook for Phase 1 Habitat Survey* (JNCC, 2010);
  - b. Identify Priority Habitats as defined by *Natural Environment and Rural Communities Act (2006)* Section 41 habitats of principal importance;
  - c. Evaluate the habitats present with reference to the Radcliffe criteria (Radcliffe, 1977) including the identification of the location and extent of any rare, uncommon or particularly sensitive habitats;
  - d. Inform the preparation of constraints and opportunities plans to guide the preparation of a site masterplan;
  - e. Quantify the habitats present to facilitate the progression of the assessment of the proposals under the relevant biodiversity calculator, as required; and
  - f. Identify any further surveys that may be required to fully inform the proposals and ecological assessment.
- 1.2.2 It is not the intention of the survey and reporting carried out to date to provide detailed plant species lists of all habitats at the site. This will be carried out as part of the Phase 2 habitat survey to inform the progression of the site through planning at the appropriate time.

## 2.0 METHOD OF SURVEY

### 2.1 Desktop Study

2.1.1 A comprehensive desktop study and data search has been carried out. Refer to *Results of Desktop Study and Scope of Ecological Survey* (ERAP (Consultant Ecologists) Ltd, March 2019).

### 2.2 Phase 1 Habitat Survey

2.2.1 A Phase 1 Habitat Survey of the site was carried out in March, May and June 2017, March 2018 and March 2019 by Chris Schofield and Victoria Burrows.

2.2.2 Weather conditions on the relevant survey dates are presented below.

**Table 2.1: Extended Phase 1 Habitat Survey Dates and Weather Conditions**

Survey Date	Weather	Surveyor(s)
28 <sup>th</sup> March 2017	Dry, sunny and calm (Beaufort scale 0) and 6°C	Chris Schofield
24 <sup>th</sup> May 2017	Dry and sunny with a light air (Beaufort scale 1) and 19°C	Chris Schofield and Victoria Burrows
25 <sup>th</sup> May 2017	Dry and sunny with a light air (Beaufort scale 1) and 22°C	Victoria Burrows
17 <sup>th</sup> June 2017	Dry and sunny with a light air (Beaufort scale 1) and 24°C	Victoria Burrows
23 <sup>rd</sup> May 2018	Dry and sunny with a gentle breeze (Beaufort scale 3) and 15°C	Victoria Burrows
5 <sup>th</sup> March 2019	Dry with sunny intervals, a light breeze (Beaufort scale 2) and 10°C	Victoria Burrows

2.2.3 A habitat and vegetation map was prepared for the site and the immediate surrounding area, refer to **Figures 2 to 4**. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.4 Target notes were used to facilitate the description of specific Phase 1 Habitat types and, where relevant at this stage, plant species were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.5 Where relevant, stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3<sup>rd</sup> Edition* (Stace, 2010).

2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

## 2.3 Animal Life

### Addendum Reports

- 2.3.1 This report should be read in conjunction with the following reports and scoped in ecological survey types:
- Confidential: Badger Survey* (ERAP (Consultant Ecologists) Ltd, March 2019)
  - Water Vole and Otter Survey 2017* (ERAP (Consultant Ecologists) Ltd, March 2019);
  - Bat Activity Surveys and Assessment* (ERAP (Consultant Ecologists) Ltd, March 2019);
  - Wintering and Breeding Bird Surveys 2017* (ERAP (Consultant Ecologists) Ltd, March 2019); and
  - Great Crested Newt Surveys 2017* (ERAP (Consultant Ecologists) Ltd, March 2019).

### Incidental Observations

- 2.3.2 This report also reports on any other incidental observations of animal life such as butterfly species not covered by the addendum reports listed above.

## 2.4 Survey and Reporting Limitations

- 2.4.1 This report provides a Phase 1 Habitat Survey of the Elton Reservoir site (GM Allocation 7). It is not the intention of this report (and supporting surveys) to present a full suite of ecological surveys to the level required to support a planning application / Ecological Impact Assessment (EclA). The scope of survey carried out has been informed by the desktop study *Results of Desktop Study and Scope of Ecological Survey* report (ERAP (Consultant Ecologists) Ltd, March 2019). It is considered that the scope of survey applied to date is appropriate and proportionate to the stage of promoting the site under the GMSF consultation process, to inform the preparation of an ecological constraints and opportunities plan, to enable the identification of potential ecological impacts and, where possible, to identifying compliance with the policies of the GMSF.
- 2.4.2 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC and Google Earth.

## 2.5 Evaluation Methodology

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2018) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.
- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plan has been taken into account in the evaluation of the site.

## 3.0 SURVEY RESULTS

### 3.1 General Description

- 3.1.1 The 248 hectare site occupies a parcel of land bordered by existing built development to the west, north and south-west. The eastern boundary is defined by the Manchester, Bolton and Bury Canal, the Metrolink line and existing built development.
- 3.1.2 Elton Reservoir and Withins Reservoir occupy the central belt through the site. Agricultural farmland occupies the majority of the site, particularly in the north-western and north-eastern areas. A cemetery is present at the western margin and marshy grassland occupies the land between Elton Reservoir and the canal.
- 3.1.3 The following broad habitat types of the Phase 1 Habitat Survey have been identified:
- A2.1 Dense continuous scrub
  - A3.1 Parkland and scattered trees: Broad-leaved trees
  - B1.1 Acid grassland: Unimproved
  - B2.2 Neutral grassland: Semi-improved
  - B4 Improved grassland
  - B5 Marsh / Marshy grassland
  - B6 Poor semi-improved grassland
  - C1.1 Bracken, continuous
  - C3.1 Other tall-herb and fern: Tall ruderal
  - F1 Swamp
  - G1 Standing water
  - G2 Running water
  - J1.2 Cultivated / disturbed land: Amenity grassland
  - J1.3 Cultivated / disturbed land: Ephemeral / short perennial
  - J1.4 Introduced shrub
  - J2 Hedgerow
  - J4 Bare ground
  - J5 Other habitat: Coarse, unmanaged species-poor neutral grassland
  - J5 Other habitat: Individual buildings
  - J5 Other habitat: Ponds

## J5 Other habitat

- 3.1.4 **Figures 1 to 4** illustrate the Phase 1 habitats present at the site with target notes. Photographs are appended at **Table 6.1**.

### 3.2 Dense Continuous Scrub

- 3.2.1 Dense continuous scrub is present throughout the site. The scrub enhances the habitat connectivity around the site, provides an opportunity for wildlife and forms a protective buffer between habitat types, for example to separate the western bank of Elton Reservoir from the agricultural farmland to the west.
- 3.2.2 At **Target Note (TN) 1** the scrub has colonised the route of a former railway line. The canopy and shrub layer is dominated by Goat Willow (*Salix caprea*) with locally frequent Silver Birch (*Betula pendula*), Grey Willow (*Salix cinerea*), Hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*) and occasional Elder (*Sambucus nigra*). The herb layer supports constant and locally abundant Bramble (*Rubus fruticosus* agg.) with frequent and constant Cleavers (*Galium aparine*) and Wood Avens (*Geum urbanum*). Rosebay Willowherb (*Chamerion angustifolium*) is locally abundant with areas of Bracken (*Pteridium aquilinum*). Other detected woodland herbs comprise Male-fern (*Dryopteris filix-mas*), Broad Buckler-fern (*Dryopteris dilatata*), Herb-Robert (*Geranium robertianum*) and Hart's-tongue (*Asplenium scolopendrium*).
- 3.2.3 At **TN1a** is a copse of scrub of a planted origin that is characterised by even-aged poled trees of abundant Lime species (*Tilia* sp.) and Ash (*Fraxinus excelsior*) with locally frequent Field Maple (*Acer campestre*), Cherry species (*Prunus* sp.) and Hawthorn and occasional Elder, Rowan (*Sorbus aucuparia*) and Holly (*Ilex aquifolium*). The herb layer is sparse owing to the dense canopy cover, characteristic species comprise locally frequent Bramble and Indian Balsam (*Impatiens glandulifera*) with very locally abundant Common Nettle (*Urtica dioica*), Cleavers and very locally frequent Herb-Robert.
- 3.2.4 The scrub / developing woodland at **TN1, TN1a** and the other areas is currently unmanaged. This habitat would benefit from management in accordance with conservation objectives such as selective thinning to conserve the longevity of individual trees, permit light to the herb layer and maximise the opportunities for animal life.

### 3.3 Parkland and Scattered Trees: Broad-leaved Trees

- 3.3.1 With the exception of the areas of scrub and the trees within the hedgerows, tree cover is limited within the site and only local areas of trees are present. This includes standard Lime, Sycamore, Ash, Wych Elm (*Ulmus glabra*), Silver Birch, Copper Beech (*Fagus sylvatica* f. *purpurea*) and Horse-chestnut (*Aesculus hippocastanum*) within the East Lancashire Crematorium perimeter (**TN2**).
- 3.3.2 A row of semi-mature to mature Pedunculate Oak (*Quercus robur*) trees extend from Doffer Fold Farm along the route of Doffer Fold Brook to Elton Reservoir (**TN3**). Some of the trees support knot holes and potential roost features for use by bats.

### 3.4 Acid Grassland: Unimproved

- 3.4.1 At **TN4** in the field of semi-improved grassland between the canal and the Metrolink line is a large mound of extraneous tipped material. The low pH of the soil in the mound has permitted colonisation by abundant and constant Sheep's-fescue (*Festuca ovina*) and Mat-grass (*Nardus stricta*) with locally frequent Sheep's Sorrel (*Sorbus acetosella*) and moss species to form a species-poor example of acid

grassland. At the base of the mound are patches of Tufted Hair-grass (*Deschampsia cespitosa*) and Soft-rush (*Juncus effusus*).

- 3.4.2 **TN4a** is located at the northern bank of Withins Reservoir and comprises a steep bank colonised by species indicative of substrate with a lower pH such as Sheep's Sorrel, Wavy Hair-grass (*Deschampsia flexuosa*), Creeping Bent (*Agrostis stolonifera*) and Mouse-eared Hawkweed (*Hieracium pilosella*).

### 3.5 Neutral Grassland: Semi-improved

- 3.5.1 The fields of semi-improved grassland are associated with land to the south-east of Elton Reservoir.
- 3.5.2 The two fields / meadows at **TN5** and **TN6** are species diverse and are characterised by abundant and constant Crested Dog's-tail (*Cynosurus cristatus*), Red Clover (*Trifolium pratense*) and Creeping Buttercup (*Ranunculus repens*) with frequent and constant Sweet Vernal-grass (*Anthoxanthum odoratum*), Common Sorrel (*Rumex acetosa*), Red Fescue (*Festuca rubra*) and Meadow Buttercup (*Ranunculus acris*). Other species that characterise the species-rich sward are locally frequent Yellow-rattle (*Rhinanthus minor*), Yorkshire-fog (*Holcus lanatus*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Meadow Foxtail (*Alopecurus pratensis*), Field Wood-rush (*Luzula campestris*) and Ribwort Plantain (*Plantago lanceolata*) with occasional Goat's-beard (*Tragopogon pratensis*), Marsh Thistle (*Cirsium pratense*), Bush Vetch (*Vicia sepium*) and Dandelion (*Taraxacum officinale* agg.). These fields are identified on MAGiC as 'Good quality demi-improved grassland' (ERAP (Consultant Ecologists) Ltd, March 2019).
- 3.5.3 Common Spotted-orchid (*Dactylorhiza fuchsii*) were detected in the southern corner of the field at **TN6a**.
- 3.5.4 The grasslands have affinities with the *MG5 Cynosurus cristatus – Centaurea nigra* and *MG6 Lolium perenne – Cynosurus cristatus* grassland communities of the NVC (Rodwell, 1992).
- 3.5.5 The sward is managed as a hay meadow and grazed by cattle / cut for hay as appropriate. These fields are representative of the Lowland Meadow Priority Habitat.

### 3.6 Improved Grassland

- 3.6.1 The improved grasslands at the site range from a monoculture of Perennial Rye-grass (*Lolium perenne*) in fields associated within the north-western area of the site (for example at **TN7**) to a more diverse plant species assemblage present in fields north of Elton Reservoir (**TN8**). Most of the fields are likely to be cut for hay and silage.
- 3.6.2 The fields of improved grassland are characterised by abundant Perennial Rye-grass (and Rye-grass cultivars) with frequent Creeping Buttercup, White Clover (*Trifolium repens*), Soft-rush, Meadow Foxtail, Common Ragwort (*Senecio jacobaea*) and Yorkshire-fog with locally frequent Cock's-foot (*Dactylis glomerata*) and Common Chickweed (*Stellaria media*) and occasional Broad-leaved Dock (*Rumex obtusifolius*) and Dandelion to form the *MG7 Lolium perenne* grassland community of the NVC (Rodwell, 1992).
- 3.6.3 At the field gateways the compacted soil conditions support Annual Meadow-grass (*Poa annua*), Pineappleweed (*Matricaria discoidea*), Greater Plantain (*Plantago major*) and Scentless Mayweed (*Tripleurospermum inodorum*) to form the *OV21 Poa annua – Plantago major* gateway, trackside and courtyard community of the NVC (Rodwell, 2000)

### 3.7 Marsh / Marshy Grassland

- 3.7.1 The largest area of marshy grassland is associated with Elton Goyt Site of Biological Importance (SBI) (**TN9**).
- 3.7.2 Constant and abundant species comprise Soft-rush with frequent Creeping Buttercup, Yorkshire-fog, Tufted Hair-grass and Greater Bird's-foot-trefoil (*Lotus pedunculatus*) with local areas of Marsh Foxtail (*Alopecurus geniculatus*), Field Wood-rush, Common Sedge (*Carex nigra*), Cuckooflower (*Cardamine pratensis*), Marsh Thistle, Marsh Horsetail (*Equisetum palustre*) and Bistort species (*Persicaria* sp.). Very local stands of Wild Carrot (*Daucus carota*), Yarrow (*Achillea millefolium*), Self-heal (*Prunella vulgaris*), Yellow-rattle and Bluebell (*Hyacinthoides non-scripta*) were also detected.
- 3.7.3 Plants associated with the stream in the centre of the SBI comprise Common Water-starwort (*Callitriche stagnalis*) with Brooklime (*Veronica beccabunga*) and Great Willowherb (*Epilobium hirsutum*). The marshy grassland also supports scattered Hawthorn, Dog-rose (*Rosa canina*), Pedunculate Oak and Gorse (*Ulex europaeus*) shrubs. These fields are identified as Purple Moor Grass and Rush Pasture and Coastal and Floodplain Grazing Marsh on MAGic (ERAP (Consultant Ecologists) Ltd, March 2019).
- 3.7.4 Indian Balsam is present at the southern end of the marshy grassland and SBI.

### 3.8 Poor Semi-improved Grassland

- 3.8.1 The remainder of the grasslands at the site are classed as poor semi-improved.
- 3.8.2 Constant and abundant plant species that characterise the grasslands are Perennial Rye-grass, Yorkshire-fog, Creeping Buttercup, Sweet Vernal-grass, Meadow Foxtail, Rough Meadow-grass (*Poa trivialis*) and Smooth Meadow-grass (*Poa pratensis*) with frequent to occasional Dandelion, Broad-leaved Dock, Ribwort Plantain, Cuckooflower, Red Clover, Creeping Thistle (*Cirsium arvense*).
- 3.8.3 Areas of lower lying ground in the fields support Soft-rush with Marsh Thistle.
- 3.8.4 Local areas of the grasslands at **TN10** and **TN11** are more species diverse with a decreased cover of Perennial Rye-grass and an increased cover of Crested Dog's-tail, Red Clover, Sweet Vernal-grass and Ribwort Plantain and plants of Yellow-rattle, Black Medick and Meadow Vetchling. The diversity and cover of species indicative of a more species-rich and less improved sward is not as great as at the fields identified as semi-improved grassland.
- 3.8.5 The field at **TN12** is similar in species composition to **TN10** and **TN11** with the Oval Sedge (*Carex ovalis*) and Southern Marsh-orchid detected additionally.
- 3.8.6 **TN13** comprises the semi-improved grasslands around the margins of Elton Reservoir. The grassy sward supports abundant Perennial Rye-grass, Crested Dog's-tail, Yorkshire-fog, Annual Meadow-grass, Rough Meadow-grass, Meadow Foxtail and White Clover with frequent Creeping Bent, Ribwort Plantain and False Oat-grass (*Arrhenatherum elatius*) to form a mosaic of the MG6 *Cynosurus-cristatus* – *Lolium perenne* and the MG1 *Arrhenatherum elatius* communities of the NVC (Rodwell, 1992). Common Bird's-foot-trefoil, Red Bartsia (*Odontites verna*), Silverweed (*Potentilla anserina*), Greater Bird's-foot-trefoil, Hairy Sedge (*Carex hirta*) and Reed Canary-grass (*Phalaris arundinacea*) were also detected. The grassland also supports scattered trees and shrubs of Rowan, Pedunculate Oak, Hawthorn, Goat Willow, Grey Willow and Sycamore; there is evidence of new planting along the western margin of the reservoir.

### 3.9 Bracken

- 3.9.1 Areas of continuous Bracken form part of a mosaic of scrub, tall-herb, Reed Canary-grass swamp and semi-improved grassland associated with the outlet from Withins Reservoir at **TN14**. Frequent deer paths are present in this area and other large mammal activity.

### 3.10 Other Tall-herb and Fern: Tall Ruderal

- 3.10.1 Tall-herb vegetation is present as part of a mosaic of habitats, particularly in areas of unmanaged habitats such as along the inlets and outlets to the reservoirs. Stands comprise Great Willowherb to form the *OV26 Epilobium hirsutum* community of the NVC and areas of Common Nettle and Cleavers to form the *OV24 Urtica dioica - Galium aparine* community (Rodwell, 2000).

### 3.11 Swamp

- 3.11.1 Swamp habitats are typically associated with the Manchester, Bolton and Bury Canal (described at **TN17**) and ponds such as the dense stand of Common Reed (*Phragmites australis*) associated with the Wetland near Ratcliffe SBI at the southern tip of the site (**TN15**). This stand forms the *S4 Phragmites australis* community of the NVC (Rodwell, 1995).

### 3.12 Standing Water / Ponds

#### ***Elton Reservoir***

- 3.12.1 Aquatic and emergent plant species recorded in the reservoir and on the margins comprise Broad-leaved Pondweed (*Potamogeton natans*), Common Duckweed (*Lemna minor*) and Amphibious Bistort (*Persicaria amphibia*) at southern end. Hemlock Water-dropwort (*Oenanthe crocata*) was detected at the retaining wall at the southern end.

#### ***Withins Reservoir (TN16)***

- 3.12.2 Withins Reservoir is a large expanse of open water used by anglers. Marginal emergent plant species comprise Yellow Iris (*Iris pseudacorus*), Reed Canary-grass, Great Willowherb with Bittersweet (*Solanum dulcamara*) and Indian Balsam.

#### ***Manchester, Bury and Bolton Canal (TN17)***

- 3.12.3 The length of the Manchester, Bury and Bolton Canal adjacent to the site is disused. A vertical stone retaining wall is present at the towpath (eastern) bank of the canal. The western bank is an earth bank or is sheet piled. Along the western bank is a continuous belt of emergent vegetation characterised by dense Reed Sweet-grass (*Glyceria maxima*) and Bulrush (*Typha latifolia*) with pockets of Branched Bur-reed (*Sparganium erectum*), Yellow Iris and Soft-rush. Plants amongst the emergent species comprise Angelica (*Angelica sylvestris*) with Common Fleabane (*Pulicaria dysenterica*). Hemp-agrimony (*Eupatorium cannabinum*), Rosebay Willowherb and Royal Fern (*Osmunda regalis*) were recorded growing in the stone retaining wall.

#### ***Ponds***

- 3.12.4 A description and photographs of the ponds within the site are described in the *Great Crested Newt Surveys 2017* report (ERAP (Consultant Ecologists) Ltd, March 2019).

### 3.13 Running Water

3.13.1 Running water is present in the following locations:

- a. Withins Brook (the inlet to Withins Reservoir at Brook Bottom Farm) (TN18);
- b. An outlet from Withins Reservoir towards the canal (TN19);
- c. Spen Moor Brook / inlet to Elton Reservoir (TN20);
- d. The drain beneath the eastern bank of Elton Reservoir (TN21); and
- e. Doffer Fold Brook to the west of Elton Reservoir (TN22).

#### **Withins Brook (TN18)**

3.13.2 Withins Brook is a natural channel (1 to 1.5 metres wide) with earth banks and a silt / mud bed. The channel is lined with Bramble scrub, Common Nettle and other scrub along its length. No aquatic vegetation detected.

#### **Outlet from Withins Reservoir (TN19)**

3.13.3 The outlet from Withins Reservoir Natural channel (1 to 1.5 metres wide) with earth banks and a silt / mud bed. Local sections of channel have a stone retaining wall. Marginal vegetation along the channel comprises a mosaic of Bramble scrub, Common Nettle, Reed Canary-grass, Bracken and other scrub along its length. Common Water-starwort is rare along the course. A brick lined bridge carries a road over the channel near Crow Trees Farm.

#### **Spen Moor Brook / Inlet to Elton Reservoir (TN20)**

3.13.4 The Spen Moor Brook channel has vertical earth banks each side of a 1 to 1.5 metre wide channel, which supports mud / silt and stone cobbles. The banks are up to 2 metres high in places. The channel is lined with scrub characterised by Poplar species (*Populus* sp.), Goat Willow, Hawthorn, Elder and Cherry species. The herb layer is characterised by locally abundant Bramble with frequent Ivy (*Hedera helix*) and locally frequent Cleavers and Common Nettle. Indian Balsam is abundant. Closer to the water are stands of Reed Canary-grass with Ramsons (*Allium ursinum*), Common Hogweed (*Heracleum sphondylium*), Hart's-tongue, Broad Buckler-fern and Bluebell. Rare occurrences of Creeping-Jenny (*Lysimachia nummularia*) was detected.

3.13.5 The watercourse extends beneath stone and brick bridges to reach Elton Reservoir.

#### **Drain Beneath the Eastern Bank of Elton Reservoir (TN21)**

3.13.6 The drain extending from the Elton Reservoir overflow comprises a 1 metre wide channel with vertical stone lined retaining walls and a flat silt and cobble bed. No marginal vegetation is present. Aquatic vegetation is limited to local stands of Floating Sweet-grass (*Glyceria fluitans*). The scrub on the eastern bank of the channel supports Bramble with an abundance of Bluebell.

#### **Doffer Fold Brook to the West of Elton Reservoir (TN22)**

3.13.7 Doffer Fold Brook comprises a tree and shrub lined corridor with woodland herbs to indicate a remnant semi-natural feature. Semi-mature to mature Pedunculate Oak trees line the corridor with locally frequent Ash, Crack Willow (*Salix fragilis*), Sycamore, Hawthorn and very local Beech (*Fagus sylvatica*).

Woodland herbs on the sloping banks comprise occasional Broad Buckler-fern, Male-fern, Wood Avens, Bluebell and locally abundant Bracken. Indian Balsam is very abundant / very locally dominant.

### **3.14 Cultivated / Disturbed Land: Amenity Grassland**

3.14.1 Amenity grassland is present at the East Lancashire Crematorium and at the southern tip of the site associated with the former school (TN23).

3.14.2 At TN23, owing to the closure of the school the grassland is not currently managed and has facilitated the growth of more competitive broad-leaved grasses such as abundant False Oat-grass along with a high cover of remnant grass species from the playing fields such as Meadow Foxtail, Perennial Rye-grass, Yorkshire-fog, Sweet Vernal-grass, Rough Meadow-grass, Smooth Meadow-grass, Red Fescue, Common Bent and herbs such as locally frequent Creeping Buttercup and occasional Dandelion and Bush Vetch. Bramble scrub encroachment is occurring from the margins.

### **3.15 Cultivated / Disturbed Land: Ephemeral / Short Perennial**

3.15.1 Ephemeral / short perennial vegetation is present at areas used for car parking.

### **3.16 Introduced Shrub**

3.16.1 Local areas of the site, such as around the curtilage of the farmsteads have planted hedgerows of species such as Cherry Laurel (*Prunus laurocerasus*).

### **3.17 Hedgerows**

3.17.1 Hedgerows are frequent throughout the site and from continuous linear features to separate the grasslands and also demarcate the boundary between the Elton Reservoir perimeter footpath and the agricultural land. The hedgerows are typically dominated by Hawthorn with occasional occurrences of Elder, Holly and Dog-rose. The herb layers at the hedgerows are similar with constant species typical of hedgerows affected by the spray drift of application of fertiliser on the adjacent fields comprising Common Nettle, Cleavers, Yorkshire-fog, Cock's-foot, Creeping Thistle, Common Chickweed, and Creeping Buttercup. Woodland herbs are poorly represented at the hedgerows and limited to occasional Male-fern, Wood Avens and Herb-Robert.

### **3.18 Coarse, Unmanaged Species-poor Neutral Grassland**

3.18.1 At TN24 is an mounded area on the footprint of a former railway line. The species-rich unmanaged grassland that has colonised this area is characterised by Meadow Vetchling (*Lathyrus pratensis*), Zig-zag Clover (*Trifolium medium*), Red Fescue, Mouse-eared Hawkweed, Common Knapweed (*Centaurea nigra*), Field Wood-rush with Ribwort Plantain, Meadow Foxtail and False Oat-grass. Bramble scrub encroachment is occurring from the margins.

### **3.19 Other Habitats**

3.19.1 The areas marked as other habitats comprise the farms and private properties within the site that have been omitted from the surveyed area.

### 3.20 Invasive Plant Species

- 3.20.1 Invasive plant species recorded within the site comprise Japanese Knotweed, Giant Hogweed, Indian Balsam and Montbretia (*Crocsmia × crocosmiiiflora*).
- 3.20.2 Established stands of Japanese Knotweed stands were recorded in the following areas:
- Adjacent to the bridge at the former railway corridor near Buckingham Drive;
  - Along the new cycleway / footpath near the Bellway Homes development; and
  - On the banks of the River Irwell at the north-eastern corner of the site.
- 3.20.3 The Giant Hogweed plants were recorded on the banks of the River Irwell at the north-eastern corner of the site. A single plant was recorded in on the banks of the stream in Elton Goyt SBI.
- 3.20.4 Indian Balsam is prolific in specific areas of the site, particularly along the watercourses.
- 3.20.5 Montbretia was found around the margins of Withins Reservoir.

### 3.21 Animal Life: Incidental Observations

- 3.21.1 The paragraphs and tables below provide an inventory of the incidental animal species recorded during the Phase 1 habitat surveys. It is not the intention that this section of the report provides a full species list for all taxa.

#### Butterfly Species

- 3.21.2 Butterfly species recorded during the Phase 1 Habitat Surveys are listed below:

**Table 3.1: Butterfly Species Recorded**

Scientific Name	Common Name	Notes
<i>Aglais urticae</i>	Small tortoiseshell	Observed along canal
<i>Anthocharis cardamines</i>	Orange tip	Observed along canal
<i>Pararge aegeria</i>	Speckled wood	Along hedgerows
<i>Pieris brassicae</i>	Large white	Observed at the semi-improved grasslands at TN5 and TN6
<i>Pieris napi</i>	Green-veined white	Mating along canal
<i>Thymelicus sylvestris</i>	Small skipper	At semi-improved grasslands

- 3.21.3 All detected species are common and widespread. None of these species are Priority Species.

#### Dragonfly / Damselfly Species

- 3.21.4 Dragonfly / damselfly species recorded during the Phase 1 Habitat Surveys are listed below:

**Table 3.2: Dragonfly / Damselfly Species Recorded**

Scientific Name	Common Name	Notes
<i>Enallagma cyathigerum</i>	Common blue damselfly	Associated with Withins Reservoir area
<i>Ischnura elegans</i>	Blue-tailed damselfly	At Elton Reservoir
<i>Libellula depressa</i>	Broad-bodied chaser	Associated with Withins Reservoir area

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3.21.5 All detected species are common and widespread. None of these species are Priority Species.

**Brown Hare**

3.21.6 Sightings of individual brown hare (*Lepus europaeus*) (a Priority Species) were recorded in the fields near Old Hall Farm to the south of Elton Reservoir.

**Deer**

3.21.7 Deer hoof prints and paths are frequent throughout the site, particularly around Withins Reservoir and along the Spen Moor Brook corridor. An adult roe deer (*Capreolus capreolus*) was observed near the Sailing Club building on 28th March 2017.

## **4.0 EVALUATION**

### **4.1 Quantification**

4.1.1 A summary of the broad habitat types present at the site and the area covered is presented at **Table 4.1** below.

**Table 4.1: Summary of Habitat Types and Area Covered**

Broad Habitat Type	Conservation Status / Notes	Habitat Distinctiveness <sup>1</sup>	Approximate Area Covered (hectares)	% of Total Site Area
A2.1 Dense continuous scrub	-	Medium-low	13.24	5.34%
A3.1 Parkland and scattered trees - broad-leaved trees	-	Medium	0.56	0.23%
B1.1 Acid grassland - unimproved	-	Medium	0.36	0.14%
B2.2 Neutral grassland - semi-improved	Lowland Meadow Priority Habitat	High (upgraded from medium as this is Priority Habitat)	20.28	8.18%
B4 Improved grassland	-	Low	91.69	36.97%
B5 Marsh / marshy grassland	Coastal Floodplain and Grazing Marshy Priority Habitat	High	8.06	3.25%
B6 Poor semi-improved grassland	-	Medium-low	60.45	24.37%
C1.1 Bracken, continuous	-	Low	0.05	0.02%
C3.1 Other tall-herb and fern - tall ruderal	-	Medium-low	1.56	0.63%
F1 Swamp	Common Reed areas have affinities with the Reedbed Priority Habitat	High	1.33	0.54%
G1 Standing water	-	High	26.07	10.51%
G2 Running water	-	High	1.20	0.48%
J1.2 Cultivated / disturbed land - amenity grassland	-	Low	8.91	3.59%
J1.3 Cultivated / disturbed land – ephemeral / short perennial	-	Low	0.41	0.16%
J1.4 Introduced shrub	-	Low	0.02	0.01%
J4 Bare ground	-	Low	7.70	3.10%
J5 - Other habitat - coarse, unmanaged species-poor neutral grassland	-	Medium	0.23	0.09%
J5 - Other habitat - individual buildings	-	None	1.10	0.44%
J5 - Other habitat - ponds	Many of the ponds meet the criteria to be Priority Habitat	High	1.14	0.46%
J5 Other habitat	-	None	2.17	0.87%
<b>Linear Habitats</b>				
J2.1.1 Hedgerows – intact, native species-poor	Priority Habitat All hedgerows are assumed to be 1 metre wide	Medium	1.45 (14.45 kilometres)	0.58%
J2.2.2 Hedgerows – defunct, native species poor	Priority Habitat All hedgerows are assumed to be 1 metre wide	Low	0.07 (0.693 kilometres)	0.02%
Ditches	Assumed to be 1 metre wide	High	0.04 (0.393 kilometres)	0.03%
	<b>TOTAL</b>		<b>c.248 hectares</b>	<b>100.01%</b>

<sup>1</sup> 'High', 'Medium' or 'Low' in accordance with Appendix 1 - Distinctiveness Bands for the Biodiversity Offsetting Pilot and The Environment Bank Biodiversity Impact Assessment calculator. (Defra, 2012)

## 4.2 Priority Habitats

- 4.2.1 The semi-improved grasslands are representative of the Lowland Meadow Priority Habitat and occupy 20.28 hectares (8.18%) of the site area.
- 4.2.2 The hedgerows and the associated trees and scrub within the site and on the site boundaries are Priority Habitat and are of local value as they add structural diversity, support a habitat connectivity / green infrastructure function and are suitable for use by nesting birds, foraging bats and hedgehog (a Priority Species). Hedgerow Priority Habitat accounts for approximately 0.6% of the site area. All hedgerows will be assessed in accordance with the *The Hedgerows Regulations 1997* wildlife and landscape criteria (H.M.S.O., 1997) during the Phase 2 surveys to determine if any meet the criteria to be classed as 'important'.
- 4.2.3 The marshy grassland, particularly the area within and adjacent to Elton Goyt SBI (c. 5.5 hectares) is representative of Coastal Floodplain and Grazing Marsh Priority Habitat.
- 4.2.4 The stand of Common Reed at TN15 is relatively small in area (0.0185ha) this vegetation has affinities with the Reedbed Priority Habitat.
- 4.2.5 There are 36 ponds within the site area. Ten ponds support great crested newt and are therefore Priority Habitat. Further surveys for aquatic invertebrates, if required, will be carried out as part of the Phase 2 surveys and may identify other ponds as Priority Habitat.

## 4.3 Distinctiveness Values

### Summary for the Site

- 4.3.1 The distinctiveness of a habitat includes parameters such as species richness, diversity, rarity and the degree to which a habitat supports species rarely found in other habitats. Defra has defined the distinctiveness values for the habitat types as part of the biodiversity offsetting pilot studies (Defra, 2012).
- 4.3.2 Based on the use of the Defra values only it is indicated that the site supports the following:

**Table 4.2: Summary of Distinctiveness Values at the Site**

Distinctiveness	Area (ha)	% of Site Area
High	58.12	23.45%
Medium	2.6	1.04%
Medium - Low	75.25	30.34%
Low	108.85	43.87%
None	3.27	1.31%
<b>TOTAL</b>	<b>248 ha</b>	<b>c. 100%</b>

### Priority Habitat Distinctiveness

- 4.3.3 The identified Lowland Meadow, Pond, Marshy grassland and Reedbed Priority Habitats within the site have a 'High' distinctiveness value. The intact hedgerows have a 'Medium' distinctiveness. It is considered that this is appropriate for the site owing their species-poor condition.

### Other 'High' Distinctiveness Habitats

- 4.3.4 Standing water and running water have a 'High' distinctiveness value.

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### **Medium – Low Distinctiveness Habitats**

- 4.3.5 The poor semi-improved grassland that occupies 24.37% of the site area is of ‘Medium – Low’ distinctiveness. The grasslands are typically species poor in terms of their plant species composition, although it is recognised that local areas of grassland, particularly the fields at TN10, TN11 and TN12 are of greater species diversity. Further more detailed survey may enable the collation of evidence and rationale to downgrade some semi-improved grasslands to ‘Low’ and confirm the areas of ‘Medium’ distinctiveness. Conversely, the potential to enhance the value of the semi-improved grasslands by the application of appropriate management is recognised and has been taken into consideration in the wider ecological strategy.
- 4.3.6 Other ‘Medium-Low’ Distinctiveness habitats comprise the dense, continuous scrub and other tall-herb and fern - tall ruderal areas of vegetation

### **‘Medium’ Distinctiveness Habitats**

- 4.3.7 ‘Medium’ distinctiveness habitats comprise the scattered trees, the acid grassland and the unmanaged species poor neutral grassland. These fragments of vegetation type contribute to only 1.05% of the site area.

### **‘Low’ Distinctiveness Habitats**

- 4.3.8 The improved grassland that occupies the majority (36.97%) of the site is of ‘Low’ ecological value / distinctiveness in terms of its plant species composition. Other habitats of ‘Low’ distinctiveness comprise the bracken, amenity grassland, ephemeral vegetation, introduced shrub, bare ground and defunct hedgerows. It is considered that this is appropriate within the context of the site and surrounds.

## **4.4 Typicalness, Diversity and Naturalness**

- 4.4.1 The vegetation and NVC communities present are typical of the edaphic conditions present and the agricultural management applied across the majority of the site.
- 4.4.2 The plant communities present are common and widespread across lowland Britain. No rare or uncommon plant species have been found to date.
- 4.4.3 Owing to the agricultural improvement that has been applied across the majority of the site any areas that could be regarded as semi-natural are limited to the mosaic of habitats with mature trees and woodland herbs associated with the inlets and outlets to the reservoirs such as the Doffer Fold Brook corridor (TN22) and the outlet at Withins Reservoir (TN19).

## **4.5 Fragility**

- 4.5.1 The fragility of the habitats present is related to the sensitivity of a habitat to environmental change. Owing to the reliance of the marshy grassland habitats at Elton Goyt SBI to a combination of periodic inundation (to maintain wet and waterlogged soil conditions) and the appropriate grazing regime it is considered that the marshy grassland habitats are the most fragile at the site. This is recognised and considered further in the ecological mitigation strategy (ERAP (Consultant Ecologists) Ltd, March 2019) and advice provided.

## Invasive Species

- 4.5.2 The presence of at least four plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is a consideration in connection with the proposals but does not represent a significant ecological constraint.

## 5.0 ECOLOGICAL GUIDANCE

- 5.1 This Phase 1 Habitat Survey provides an overview of the habitats at the site. It is accepted that more detailed surveys including the preparation of comprehensive plant species lists, surveys of hedgerows in accordance with *The Hedgerows Regulations 1997* and detailed mapping of the invasive plant species is necessary to support a detailed planning application.
- 5.2 The baseline information presented in this Phase 1 Habitat Survey has informed the preparation of the Development Framework (Peel, March 2019) and Sketch Masterplan (Turley, March 2019) for the site. This guidance has ensured, where feasible, that development at the Elton Reservoir site will aim to achieve:
- a. Conservation of the Sites of Biological Importance (SBI) and their features of interest, particularly bird species diversity, with appropriate buffers, and / or secure, deliver and manage compensatory habitats, where possible;
  - b. Avoidance and conservation of Priority Habitats at the site (and extend the area covered by Priority Habitat, where feasible);
  - c. Avoidance of fragmentation and protection existing, improved and creation of ecosystem services and green infrastructure
  - d. Maintenance and enhancement of populations of the identified protected species (great crested newt, badger and foraging bats) and Priority Species at a favourable conservation status and implement actions to achieve enhancement; and
  - e. Secure a scheme that achieves and will deliver a net gain for biodiversity
- 5.3 Where loss of habitat is unavoidable the Phase 1 Habitat Survey information has been used to identify areas of habitat where compensatory provisions will be feasible, refer to the *Outlined Ecological Mitigation and Enhancement Strategy* (ERAP (Consultant Ecologists) Ltd, March 2019).
- 5.4 The Phase 1 Habitat Survey has also facilitated the identification of areas where enhancement of habitats and opportunities for animal life can be feasibly secured by the proposals, refer to the *Outlined Ecological Mitigation and Enhancement Strategy* (ERAP (Consultant Ecologists) Ltd, March 2019).

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**7.0 APPENDIX 1: TABLES**

**Table 7.1: Table of Photographs**

	
<p><b>Photo 1:</b> Scrub copse at TN10 (June 2017)</p>	<p><b>Photo 2:</b> Acid grassland on mound (March 2019)</p>
	
<p><b>Photo 3:</b> Semi-improved grassland at TN5 and TN6 (May 2017)</p>	<p><b>Photo 4:</b> Marshy grassland / semi-improved grassland</p>
	
<p><b>Photo 5:</b> Marshy grassland in Elton Goyt SBI (March 2019)</p>	<p><b>Photo 6:</b> Marshy grassland and semi-improved grassland in Elton Goyt SBI (May 2017)</p>



**Photo 7:** Southern Marsh Orchid near TN12 (May 2017)



**Photo 8:** Common Reed swamp / reedbed at TN15



**Photo 9:** Grassland at southern end of Elton Reservoir



**Photo 10:** Withins Reservoir (June 2017)



**Photo 11:** Manchester, Bolton and Bury Canal (June 2017)



**Photo 12:** Withins Brook (March 2017)



**Photo 13:** Outlet from Withins Reservoir (March 2019)



**Photo 14:** Stone bridge at Spen Moor Brook (March 2019)



**Photo 15:** Brick bridge at Spen Moor Brook (March 2019)



**Photo 16:** Doffer Fold Brook (March 2019)



**Photo 17:** Typical Hawthorn hedgerow (May 2017)



**Photo 18:** Invasive plant species (Giant Hogweed and Japanese Knotweed) on banks of River Irwell (March 2019)

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## 8.0 APPENDIX 2: FIGURES

**Figure 1: Plan to Show Sites of Biological Importance**



**Key to Map Symbols**

- Site boundary
- SBI boundaries

Source Image: ESRI World Imagery

<b>Project Name:</b> Elton Parkland, Bury	
<b>Title: Figure 1</b> Plan to Show Sites of Biological Importance	
<b>Central Grid Ref:</b> SD 786 089	<b>Reference No.</b> ERAP Ltd. 2017-001
<b>Version &amp; Date:</b> v1 (BR) 05/03/2019	
<b>Scale:</b> 1:10,000 at A3	
0 100 200 300 400 m	
<p><b>ERAP</b> Ltd          Consultant Ecologists          49a Manor Lane, Penwortham, Preston, Lancashire PR10TA          Tel: 01772 750 502 Email: mail@erap.co.uk          Website: www.erap.co.uk</p>	

**Figure 2: Phase 1 Habitat Survey**

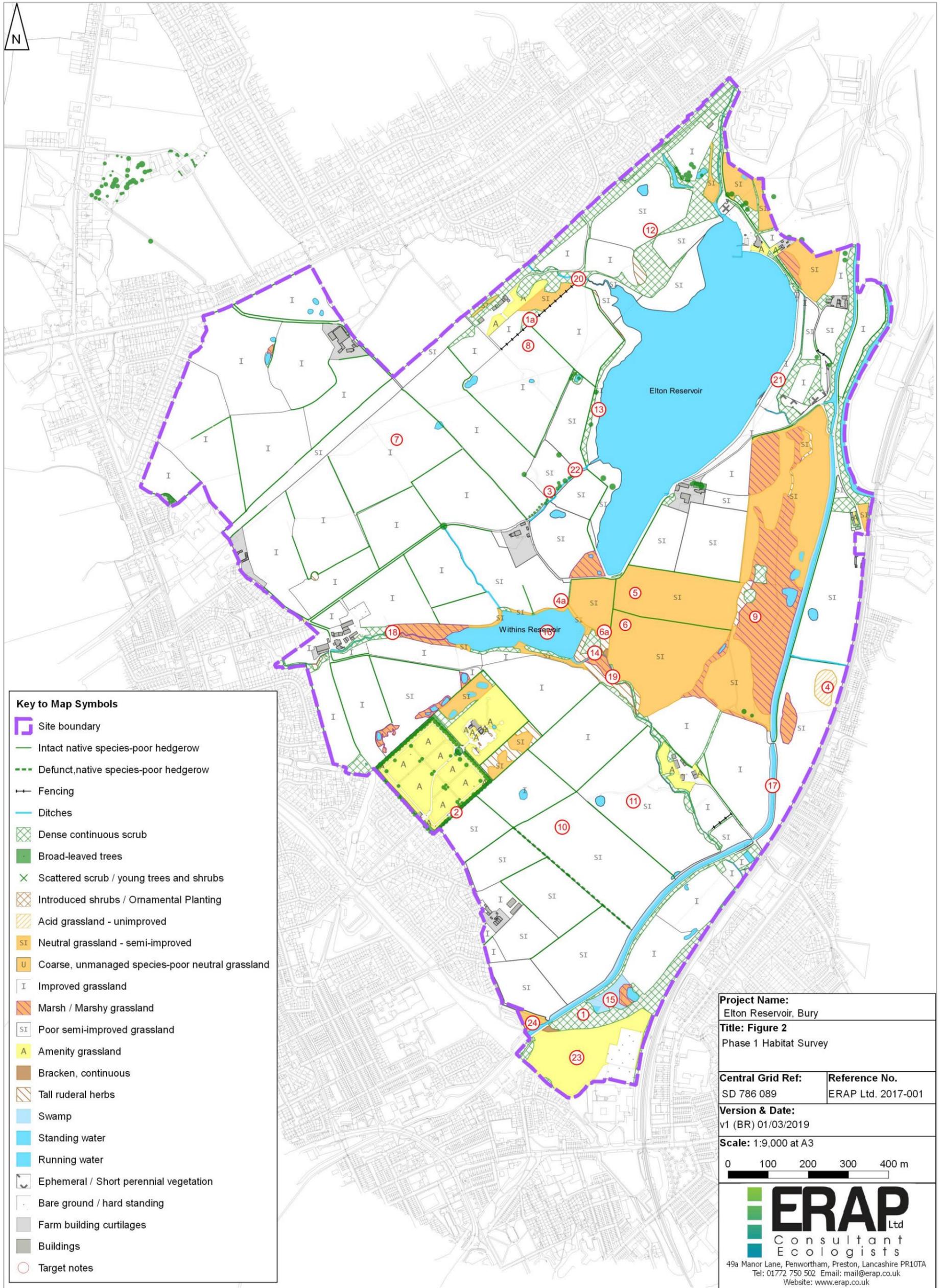


Figure 3: Phase 1 Habitat Survey (North)

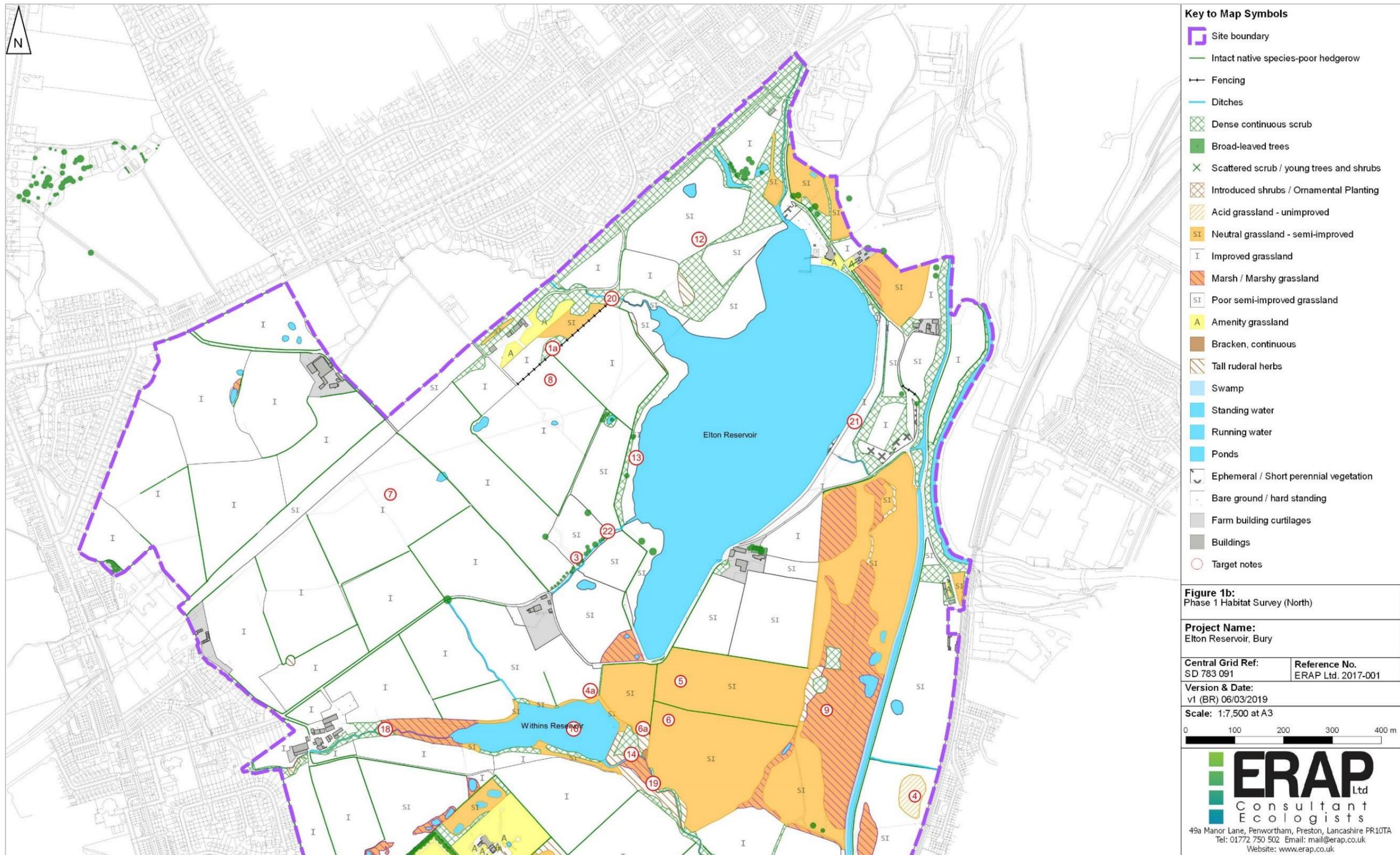


Figure 4: Phase 1 Habitat Survey (South)

