

ECOLOGICAL APPRAISAL

Barton Moss (Port Salford Expansion)

December 2017
Revision 1



Provided by:

The Greater Manchester Ecology Unit
Clarence Arcade
Stamford Street
Ashton-under-Lyne
Tameside
OL6 7PT

Tel: 0161 342 2895



1 INTRODUCTION

The Greater Manchester Ecology Unit (GMEU) was commissioned by Salford City Council in July 2017 to carry out ecological and land use assessments of sites proposed for allocation for potential development in the emerging Salford Local Plan.

One of the sites assessed was Barton Moss Fig 1.

This is a report of the findings of this assessment.

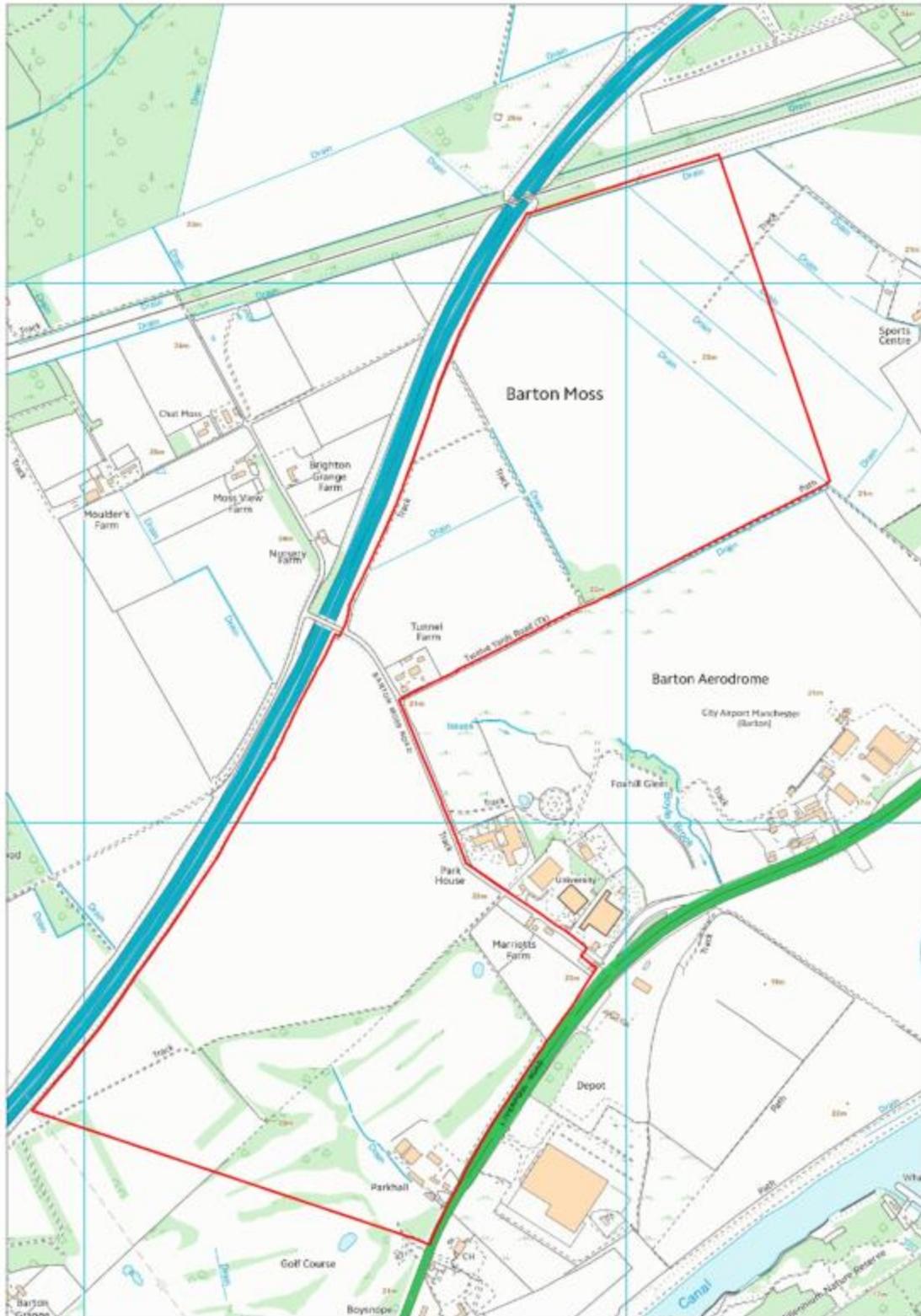


Figure 1 – Assessment Area (as proposed in 2016)

1.1 Project Brief

The work involved:

- An analysis of existing 'desktop' information concerning the site to identify any previously recorded ecological and land use information.
- A field-based ecological survey and land use assessment of the site by an experienced professional ecologist.
- Appraising the overall biodiversity value of the habitats present utilising the defra biodiversity matrices and identifying any species specific biodiversity value associated with the site.
- Making recommendations for issues that should be included within any specific policy for the site and any additional surveys.

1.1.1 In September 2020, the GMEU was asked by Salford City Council to review the document and make any amendments that may be required. It should be noted that the site allocation boundary proposed in the 2020 Publication Greater Manchester Spatial Framework is nearly identical to that shown in the 2016 proposal on the map above (with the change being the removal of land at Marriott's Farm from the 2020 allocation boundary). The site was allocated for 320,000sqm of employment floorspace in the 2016 Draft GMSF; this proposed floorspace is the same as in the Publication GMSF. It is considered appropriate to publish this report in October 2020 because it remains relevant to GM Allocation 30 Port Salford Extension. It is however important to remember that the wider policy context has changed since this report was first written at both a national and local level.

1.2 Site Description

The proposed allocation at Barton Moss is bound by the M62 to the West and City Airport/Liverpool Rd to the east centred at grid reference SJ7344 9661. The site covers approximately 106 ha of farmland and golf course.

1.3 Personnel

The desk study was undertaken by David Dutton, Ecologist with assistance from Steve Atkins. The site visit and assessment was carried out by David Dutton and Steve Atkins.

David is an experienced ecologist over 20 year's ecological survey and assessment experience and more than 10 years practical experience of Countryside Management. Steve Atkins has worked at the GMEU for 9 years and has more than 20 years' experience in carrying out bird surveys.

2 LEGISLATION AND POLICY

The following UK legislation was considered to be most relevant to the proposed site allocations:

- The Conservation of Habitats and Species Regulations 2010 (as amended)

These Regulations designate sites considered to have an international importance for nature conservation. If a development is considered to have the potential to have a significant effect on one or more of these international sites then the development must be subject to a formal Assessment under the terms of the Regulations. Such an Assessment is known as a Habitats Regulations Assessment (HRA).

- The Natural Environment and Rural Communities (NERC) Act (2006)

Section 40 placed a duty on Local authorities to have regard to the Conservation of biodiversity in exercising their functions. Guidance on implementing this duty has been provided by defra¹. For forward planning this emphasises the importance of the plan being based on a good

¹ Guidance for Local Authorities on Implementing the Biodiversity Duty – Defra 2007

evidence base; that the plan seeks biodiversity enhancement; of a local site (SBI) system being in place and; monitoring.

- The Water Environment (Water Framework Directive (England and Wales) Regulations 2003

The EU Water Framework Directive requires environmental objectives be set for all surface and ground waters to enable them to achieve good status or potential for heavily modified water bodies by a defined date. One objective is to prevent further deterioration which can include changes to flow pattern, width and depth of channel, sediment availability/transport and ecology and biology. The mechanism for delivery in the UK is via Regional River Basin Management Plans.

Other legislation taken in to account includes:

- The Wildlife and Countryside Act 1981 (as amended)

This act has a number of schedules that lists both protected and invasive species that are material considerations in the planning process.

- Protection of Badgers Act 1992

As above but specifically for badgers

The following Policy documents were considered most relevant in 2017. The NPPF has since been reviewed and amended and defra have significantly revised their biodiversity off-set guidance.

- The National Planning Policy Framework (NPPF) 2012

Para 17 sets out 12 core planning principles that should underpin plan making; two of these principles are key to this report:

- a. Contributing to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this framework;*
 - b. Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, food risk mitigation, carbon storage and food production) and;*
- Draft Greater Manchester Spatial Framework (GMSF) October 2016.

2.1 The Emerging Local Plan Policy Context

The land at Barton Moss was put forward under policy WG3 (Port Salford Extension) of the draft GMSF as a potential site for the provision of 320,000m² of employment floor space. The policy makes a number of recommendations relating to biodiversity including:

- the protection of Foxhill Glen SBI, the Boyle Brook and associated marsh habitats;
- the retention of existing woodland, ponds and hedgerows within the landscaping of any development;
- protection of watercourse and hydrology of adjacent moss and peatland and;
- contribute to the enhancement of Chat Moss.

The boundary of the Port Salford Extension has been carried forward in to the Draft Salford Plan under policy EC4/1.

3 METHODOLOGY

3.1 Desk Top

3.1.1 GIS, Aerial Photography and Historic Maps

OS map bases and aerial photographs from 2016 were utilised to plot habitat boundaries and inform the site visit.

Older aerial photographs were utilised to determine previous usage particularly for fields that now appear to be under-utilised.

Historic maps were utilised to identify previous land use and field boundaries.

3.1.2 National/International Designated Sites

To assess whether development would have an impact on any nationally or international designated site, Natural England's SSSI Impact Risk Zones (November 2016) were used. SSSI Impact Risk Zones (IRZs) are a GIS tool developed by Natural England to make a rapid initial assessment of the potential risks posed by development proposals to designated nature conservation sites including Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. They define zones around each site which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impact (Natural England 2016).

Location details of SSSI's and SAC's can be found in Appendix 1

3.1.3 Sites of Biological Importance

Boundaries of Sites of Biological Importance (SBI), local wildlife sites for Greater Manchester, were obtained from Greater Manchester Local Record Centre. The potential impacts of development were assessed using the following factors:

- Habitats Present
- SBI features of interest
- Distance from the SBI
- Potential pathways between the proposed site allocation and the SBI

Location details can be found in Appendix 2.

3.1.4 Protected and Priority Species

Information held on protected and priority species was provided by the Greater Manchester Local Record Centre and Greater Manchester Bird Group.

Additional bird data was supplied by a local ornithologist.

The information supplied has been utilised to assess the potential impacts on these species and to determine whether further surveys and or mitigation will be required.

Information can be found in Appendix 2, with sensitive bird information removed.

3.1.5 Limitations of Desk-top study

An absence of records of species from a site does not necessarily imply that the species is absent; rather, it may reflect a lack of survey effort for the site concerned. It was also carried out in November 2017 there may therefore be new species records now available.

3.2 Site Visit

3.2.1 The area was visited on the 15th August 2017 for approximately 6 hours. During the visit, habitats and dominant species were recorded and target notes made, utilising the JNCC phase 1 habitat survey

methodology². The condition of the habitats was also recorded. as was land use. Casual records were made of the birds and other species that were seen during the visit.

3.2.2 As the purpose of the site visit was inform the developing Salford Local Plan by provide advice on potential ecological constraints, further surveys needs and potential mitigation requirements the level of survey is regarded as sufficient.

3.2.3 Note the survey is simply a snapshot in terms of land use. Agricultural crops will potentially change year on years.

3.2.4 The survey is now three years old. Whilst there is unlikely to be any significant changes given the nature of the land management, best practice would be to repeat the walkover survey of the site.

4 RESULTS

4.1 Desk Top

4.1.1 Statutory nature conservation sites

The nearest SSSI is Astley & Bedford Mosses part of the Manchester Mosses SAC just over 3km west at its nearest point to the proposed allocation. There are no other statutory sites within 5km.

Holcroft Moss SSSI is the next closest at 5.3km also part of the Manchester Mosses SAC.

4.1.2 Sites of Biological Importance

Three Sites of Biological Importance (SBI) were identified within 1km of Barton Moss.

These were:

- Botany Bay Wood a grade A SBI approximately 560m to the north west, the largest area of broadleaved woodland in Greater Manchester also important for its nationally important heronry;
- Foxhill Glen a grade C SBI approximately 300m SE an area of marshy grassland, swamp, acid grassland and Scrub in the Boyle Brook valley and;
- Davyhulme Sewage Works a grade A site approximately 500m SE designated for its mosaic of habitats.

4.1.3 Protected Species

The GM Local Record Centre has records for four protected species within the proposed land allocation, water vole, barn owl, peregrine falcon and little ringed plover, with an additional seven species within 1km great crested newt, black redstart, kingfisher, brown long-eared bat, common pipistrelle bat, polecat and badger.

4.1.4 UK and Greater Manchester Biodiversity Action Plan Species

The GM Local Record Centre has records for yellowhammer, linnet, skylark and reed bunting within the proposed allocation area.

The Greater Manchester Bird Group holds information for additional priority species, lapwing, spotted flycatcher, yellow wagtail, brambling, bullfinch, song thrush, dunnoek, house sparrow.

David Steel a local bird recorder has provided records for breeding willow tit, yellowhammer and yellow wagtail as well as the presence of stock dove and additional records for all the above priority and protected species.

² JNNC Handbook for Phase 1 Habitat Survey

4.2 Site Visit

4.2.1 Phase 1 habitats present included:

- A1.1 Broadleaved Woodland
- A1.2 Broadleaved Plantation
- A2.1 Dense Scrub
- B2.1 Neutral Grassland
- B2.2 Neutral Grassland semi-improved
- B4 Improved Grassland
- B6 Poor semi-improved grassland
- C1.1 Continuous Bracken
- C3.1 Tall Ruderal
- F1 Swamp
- F2.2 Inundation Community
- G1 Standing Water (ditch holding water)
- J1 Arable
- J2 Amenity Grassland
 - J2.1.2 Intact Hedge Species poor
 - J2.6 Dry Ditch

See appendix 3 for a map of the habitats.

4.2.2 In terms of biodiversity off-setting, the majority of the proposed allocation would be regarded as low value habitat eg arable farmland and amenity grassland, in poor condition with just small pockets of higher value habitat (broadleaved woodland, inundation community) in low to moderate condition.

4.2.3 The main land use was arable farming, with crops of canary grass and potato evident, several fields managed as Italian rye grass ley with other fields fallow and/or abandoned at the time of the survey.



Potatoes



Canary Grass

Fields were generally separated by strips of tall ruderal vegetation and scrub often with a deep drainage ditch, characterised by willow, bramble, rosebay willowherb, stinging nettle, the invasive Himalayan balsam and creeping thistle. See Appendix 4 for map of land use and table summarising

land use, habitat types and biodiversity off-set calculations.

- 4.2.4** At the northern and southern end of the proposed allocation narrow belts of mature willow and birch woodland provide field boundaries, with the southern-most belt including mature oak.
- 4.2.5** The other habitat of interest found in several locations across the site is the inundation communities, (areas of surface water logging) indicators of either localised subsidence or a raising of the water table. The inundation communities were characterised by the presence of bulrush (*Typha latifolia*)
- 4.2.6** Additional Botanical interest is provided by the range of arable weeds, rare in Greater Manchester because of the lack of high quality farmland, these include species such as wild pansy, field pansy and large-flowered hemp-nettle.



Wild Pansy



Large Flowered Hemp-Nettle

- 4.2.7** The invasive Himalayan balsam is locally abundant across the site.
- 4.2.8** A wide range of birds were observed during the site visit including the following UK Biodiversity priority species: grey partridge, stock dove, yellow wagtail, yellowhammer, linnnet and willow tit.
- 4.2.9** Other land usages include:
- part of a golf course in the SE of the area, habitats present including amenity grassland and semi-mature broadleaved plantation. The course appears to lack any significant rough. There is a former field pond which has undergone succession to *Typha* swamp;
 - a large area of hard standing (the site of the drilling for shale gas) and;
 - a small area of improved grassland grazed by horses.

5 DISCUSSION

5.1 Statutory nature conservation sites

The proposed site allocation falls within the 3-4km risk zone for Astley & Bedford Mosses SSSI part of Manchester Mosses SAC. Certain developments within this zone trigger the need to consult Natural England and could require an Appropriate Assessment under the Habitat Regulations and for ecology to be screened in under the EIA Regulations.

The current proposal is for warehousing but the site is large enough to incorporate the following types of commercial development that would provide the trigger:

- Airports, helipads and other aviation proposals. – Given that the site is adjacent to City Airport,

- there is the potential for this sort of development to occur;
- Any industrial or agricultural development that could cause air pollution;
 - General combustion processes in excess of 50MW and;
 - Any discharge of water or liquid waste of more than 20m³ per day to ground or surface water

As Bedford and Astley Mosses are separated from the proposed allocation by the M62, which will provide a barrier to any potential influences and provides a significant background level of air pollution. I would regard the risks of any development having a negative impact on this SSSI/SAC as low.

5.2 Sites of Biological Importance

Botany Bay Wood and Davyhulme Sewage works in addition to being over 500m from the proposed allocation are physically separated in the case of Botany Bay Wood by the M62 and in the case of Davyhulme Sewage Works by Port Salford and the Manchester Ship Canal. The combined distance, barriers and nature of the development, commercial (ie unlikely to be an increase in public pressure) means the risks of any direct or indirect impacts is negligible to nil.

Foxhill Glen was protected within the draft GMSF policy as well as proposed as a potential off-site compensation area. The site falls outside the site allocation, but there is a risk that access to the site may pass through this area. The SBI is also probably hydrologically linked to the proposed site allocation with Boyle Brook currently issuing within 100m of the allocation boundary and historically running down from Barton Moss Rd adjacent to Tunnel Farm within the proposed allocation area.

We are also aware that Foxhill Glen SBI has recently been negatively impacted upon by the landowner. Restoration and enhancement is therefore an appropriate action as would be restoring Boyle Brook from within any culverts where this does not interfere with the running of City Airport.

5.3 Protected and Priority Species

There is a wide range of protected and priority species on the site, the majority of which are adapted to farmland landscapes eg. Brown hare, barn owl, grey partridge, yellowhammer, lapwing, linnet and skylark, others adapted to the remnant mossland and wetland habitats associated with ditches eg willow tit, water vole and reed bunting and others that are winter visitors. The most notable species is probably yellow wagtail which is a rare breeder in Greater Manchester, with the strong hold on Chat Moss and a significant percentage of the Chat Moss population on Barton Moss.

The bird species noted are recorded both historically and currently. Any development would result in negative impacts that should be compensated. To fully understand the level of impact both full breeding bird surveys and winter bird surveys should be carried out along with surveys of potential compensation areas to demonstrate that displacement is possible into the wider landscape. There are no records of Barn owl nesting within the site allocation area, but there is a record for a barn owl roosting.

Brown hare records are recent, therefore surveys for this species should also occur and the potential for displacement assessed.

Records of water vole are historic and the ditch where this species was recorded now appears sub-optimal. However full water vole surveys should occur on all theoretically suitable ditches in order to determine whether this protected species is still present or now extinct.

There is one great crested newt record from Barton Aerodrome, now City Airport dating from 2013. The pond where they were recorded is within 150m of the proposed allocation and 250m of inundation communities and ditches. Any open water should therefore be assessed for great crested newt breeding potential and if no evidence is found within the site, an assessment of the potential impacts upon the known small breeding population off-site.

Whilst there are no records of bats from Barton Moss, this is most likely the result of a lack of survey effort. Any existing buildings with the proposed allocation that are proposed for demolition should be assessed for bat roosting and bird nesting potential as should any mature trees proposed for removal.

Little ringed plover are opportunistic breeders. Breeding bird surveys should pick up this species if present but the species is unlikely to be a constraint.

Other protected species recorded as part of the desk top such as peregrine black redstart, kingfisher, polecat and badger are unlikely to be breeding on the site owing to the lack of suitable breeding habitat.

5.4 Invasive Species

Himalayan balsam is locally abundant across the site between fields. The species is listed under schedule 9 part 2 of the Wildlife and Countryside Act 1981 (as amended). Any development proposals will need to avoid, control or eradicate this species. Other invasive species were not noted but Japanese knotweed, monbretia and rhododendron recorded within the data search.



Himalayan Balsam in foreground

5.5 Arable Weeds

There is a good range of arable weeds a plant community that is rare in Greater Manchester and declining nationally. Of particular interest is the presence of large-flowered hemp-nettle, a nationally declining species, characteristic of root crops on peat which has been noted for its presence in this locality for over 160 years. (Buxton 1848 'locally frequent on cultivated fields SW of Manchester;'; Dormer and Tallis 1962 'perhaps one of the truly characteristic weeds of the area is abundant particularly in potato fields')

Whilst these species are probably present throughout Chat Moss, this requires verification. If further surveys indicate that Barton Moss is a stronghold for any of these species then mitigation (eg through translocation or seed collection) should occur.

5.6 Wildlife links and Corridors

The ditches and shelterbelts provide local wildlife corridors across the site, but provide limited linkage beyond the site because of the M62 along the western boundary and development to the east.

The M62 provides a wildlife corridor function along the western boundary providing linkage from Barton Moss to Cadishead Moss. The Liverpool to Manchester Railway line provides a corridor along the northern boundary over the M62. Whilst neither will be directly impacted upon by any development, these corridors could be strengthened through buffer planting of appropriate tree species.

5.7 Contributing to and Enhancing the Natural Environment

Section 109 NPPF states that the planning system should contribute to and enhance the natural and local environment, now superseded by Section 170 NPPF (2019) that states that the planning policies and decisions should contribute to and enhance the natural and local environment. The proposed allocation covers approximately 106ha of which around 75ha would be regarded as low value habitats and 25ha as moderate value habitat. High value habitats are restricted to the linear areas of woodland, inundation area and former pond now swamp on the golf course. The majority of habitats whether of low, moderate or high value would be regarded as being in poor condition.



Inundation community

However even though the site is primarily of low ecological value the scale of the proposed allocation is significant and would without mitigation and or compensation result in a significant negative impact on the natural environment. This also does not take in to account the negative impact on farmland birds and potentially brown hare, water vole and any other protected or priority species that may be present.

As part of the ecological assessment we have calculated provisional biodiversity off-set values utilising defra off-set matrices version 1 for each habitat unit. This has come up with a biodiversity off-set value for the entire site of 320.4 biodiversity units. (The value if all the site was lost). Any development should recalculate these scores utilising defra metrics version 2.

Mitigation for loss of 320.4 biodiversity units would therefore be required assuming the entire site was developed to ensure no loss of biodiversity as required under NPPF guidance and since the report was produced the government has indicated that it likely to make 10% net gain mandatory ie 352 biodiversity units would be required. This could be achieved through enhancement of habitats retained on-site, creation of new habitats on-site or enhancement or creation of habitats off-site.

To put this in context, if high value habitats in good condition were created on the retained low value habitats in poor condition that were easy to create and matured within 5 years, which is the best case scenario then \approx 26ha of land would have been required to be set aside for biodiversity using the version 1 metric.

In reality more land would likely be required, as land enhanced may be of moderate or higher value; some of the habitats created or enhanced may take significantly longer to mature and; enhancement or creation of habitats in good condition may prove challenging thereby increasing the difficulty multipliers.

Clearly there is potential to retain part of the site as mitigation, but the developer may control land north of the motorway and prefer to provide the mitigation off-site. Either way clear evidence of the willingness of the developer and availability of the land as mitigation/compensation should be demonstrated prior to any development proposal.

As noted under section 2 under the policy guidance and above, Defra has revised the off-set matrices since the report was produced. Whilst farmland and improved grassland remain low value habitats in poor condition and continue to score 2 BU per hectare, habitats on peat soils are regarded as wetland habitats. Domestic gardens discounted under metric version 1 now have some value. These changes could reduce or increase the area of habitat enhancement and creation required.

Separate but potentially overlapping with off-set mitigation would be mitigation for loss of habitat for farmland birds. Direct harm can be avoided through clearance outside the bird nesting season, but there will be a loss of potential habitat and if the carrying capacity of the land into which they would be displaced is currently at its maximum, a reduction in the population of these species.

There is insufficient information to determine what the carrying capacity currently is for adjacent farmland. Surveys of areas within or beyond the site allocation would be required and an assessment made for their potential mitigation and or compensation.

Similarly, if the presence of brown hare or water vole is confirmed, evidence that displacement and or mitigation is possible will be required.

5.8 Wider Ecosystem Services

5.8.1 Food Production

Currently the main ecosystem service provided by Barton Moss is food production. Whilst it is not achieving its full potential, with fields being utilised for silage, horse grazing and in some cases apparently abandoned, as grade 1 agricultural land, this is farmland of national importance and part of the most important block of agricultural land in Greater Manchester. If built on it will be permanent lost with significant mitigation unlikely.

5.8.2 Recreation

The golf course provides recreational opportunities for members, but otherwise there is limited access. A public right of way follows the course of 12 yards Road, though this exhibited little evidence of significant use. Walkers were seen utilising Barton Moss Rd.

5.8.3 Flood Alleviation

In terms of flood alleviation, the site will probably score well for on-site storage, through natural holding capacity because of the peaty nature of the soil land and limited gradients to drain water off the site. The current storage capacity and potential if restored to mossland would be lost if developed and would require mitigation preferably through natural flood management techniques to ensure no net risk of flooding downstream.

The site is likely to score poorly on 'roughness' a measure of the land's capacity to physically delay runoff as this is maximised where there is permanent vegetation.

5.8.4 Carbon Storage

In terms of carbon storage, the site will be providing short term storage within the agricultural crops as well as more long term storage in the developing woodland on the golf course. There is again the potential carbon storage capacity of the restoring the mossland. Development is likely to have a negative impact without compensation.

5.8.5 Air Quality

In terms of air quality the site currently provides limited benefits but also is sparsely populated and therefore unlikely to be generating negative impacts resulting from vehicle movements. The proximity of the M62 will mean air quality on the proposed site allocation is probably primarily influenced by factors outside the site's, Salford CC and the regions control. Development of the site will have negative impacts through an increase in traffic and potentially as a result of potential commercial users of the site. Whether this is significant compared to the impact of the motorway needs to be answered. Any proposal should however seek to make access to the site by bike and public transport as easy as possible.

5.8.6 Landscape

The landscape is open and flat, allowing long views, with large fields, that generally lack traditional field boundaries such as hedgerows. Shelterbelts of birch, oak and willow providing occasional breaks to the openness.

There are no strong focal points for this proposed allocation, such as historic buildings, for which the setting could be harmed.

Whilst in keeping with the landscape character area ie it is not a degraded landscape, contributing positively to the overall value of the Mersey Valley National Character Area, neither is it a unique high value landscape.

5.9 Port Salford Extension (Policy WG3 - GMSF and EC41 – Salford Local Plan)

5.9.1 The proposal is for an extension to the existing permitted Port Salford along the Manchester Ship Canal, which is being developed, because of the aspiration to re-utilise the canal as a major route for transporting freight, thereby alleviating transport on the roads.

There are therefore potential indirect impacts on the Ship Canal resulting from increased shipping, the increased shipping also having potential negative impacts alone or in combination with Port Warrington on the Mersey Estuary SPA. There is also the potential for increased flooding resulting from large areas of hard standing replacing agricultural land, resulting in higher peak flows entering the canal via the Boyle Brook and any other drainage outfall that may originate on the proposed site.

As the ship canal is currently an obstacle to fish migration, funds from this development could be utilised to construct fish passes around the locks that are currently creating the barriers.

5.9.2 As noted under section 2.1, a number of recommendations were included within draft GMSF policy WG3, relating to biodiversity.

- I strongly support the proposal to retain existing woodland, ponds and hedgerows though hedgerows are not as significant part of the Barton Moss Landscape;
- I also agree that the adjacent mossland and watercourse should be protected. However the threat to hydrology of the mosses is very low because of the distance and physical barriers and the only known watercourse in proximity to the site runs through Foxhill Glen SBI;
- Foxhill Glen SBI is close but not directly adjacent to the proposed allocation. It was and probably still is hydrologically linked to Barton Moss via Boyle Brook. There is also the risk that physical access to any proposed development could impact on the SBI. It has also been reported that the site has been negatively impacted upon by the owner. Protection of the SBI is therefore justified and;
- Finally contributing to the enhancement of Chat Moss is an option if on-site mitigation is not possible. This should however be part of a strategic plan for the area that has already been identified as a biodiversity opportunity area.

5.9.3 Other significant ecological issues were not covered by the previous policy. These include:

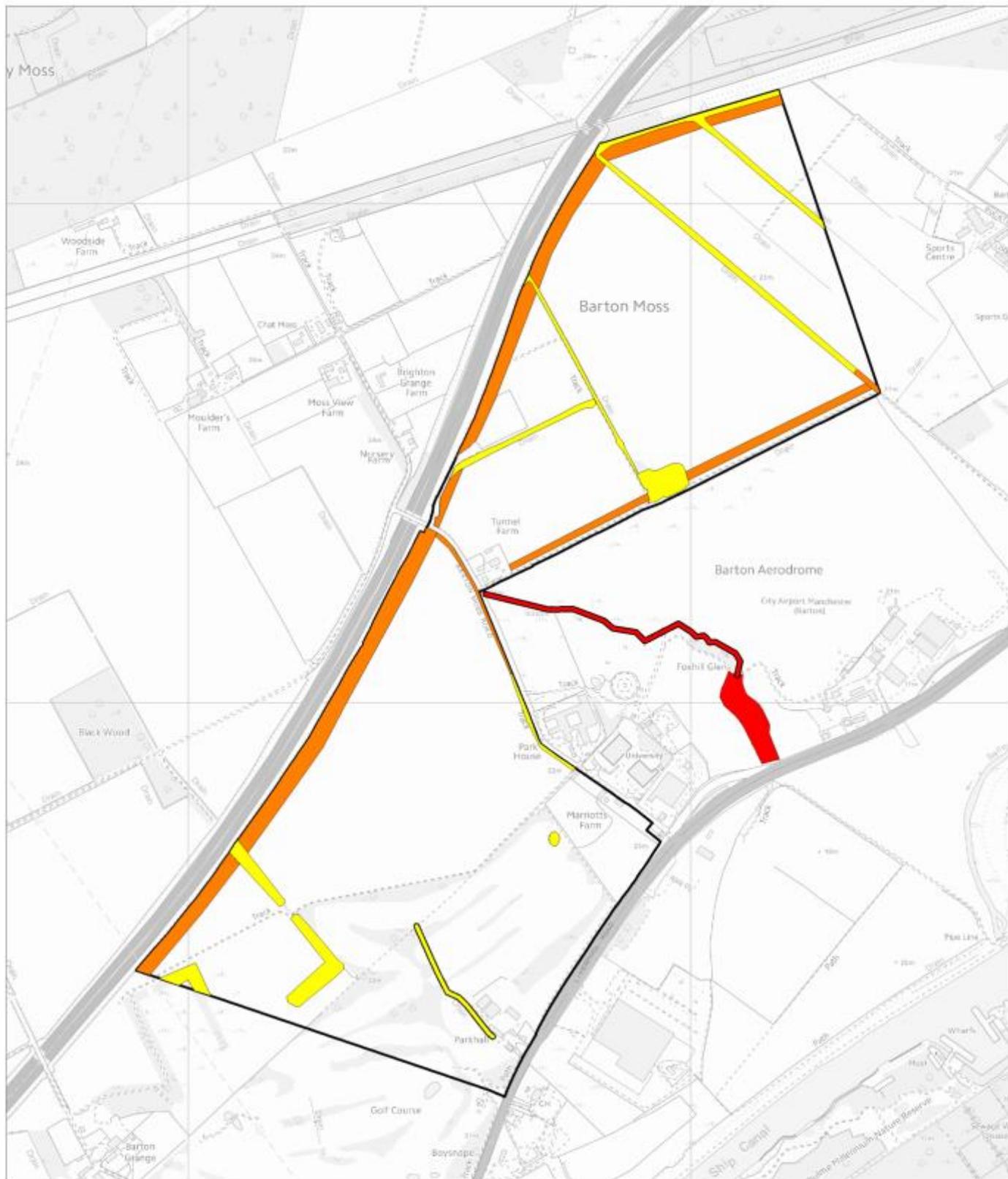
- The value of Barton Moss for farmland wildlife primarily birds but also potentially brown hare and arable weeds;
- The scale of the potential loss of low value ecological habitats and;
- The proximity to the M62 and Manchester to Liverpool railway line, both of which function as wildlife corridors.

6.0 RECOMMENDATIONS

- Developments that may impact on Astley and Bedford Mosses SSSI and Manchester Mosses SAC should be avoided unless they can be demonstrated through an Appropriate Assessment and Environmental Impact Assessment to have no significant impact.
- In line with the proposals in the Draft GMSF, development should avoid indirect impacts on Foxhill Glen SBI and the Boyle Brook, by ensuring no increase in flow or pollutants during and post construction. Foxhill Glen and culverted sections of Boyle Brook are also potential receptor sites for off-site compensations
- Landscaping on-site should incorporate the existing high value habitats, enhance them and buffer utilising tree species that are appropriate to the mossland. Appropriate species include downy birch, oak, goat and grey willow and alder. Ponds and inundation features should also be retained and or created, potentially as part of a SUDs system and buffer planting of the M62 should occur to strengthen the wildlife corridor function and potentially filter out vehicle emissions. (see map below)
- A minimum of 26ha of land should be identified, with a draft masterplan and evidence of landowner control either on or off-site for ecological mitigation prior to any development proposals on Barton Moss.

The mechanism for funding should also be agreed prior to any application so that any subsequent phasing is aware of its financial obligations.

- Off-site compensation should be carried out in combination with other development proposals around the periphery of Chat Moss such as Cadishead Moss, and Boothstown because whilst 26ha would normally be regarded as a large area, the current management regime on which the current wildlife and agriculture is based relies on rotation of crops across individual fields of this scale.
- A traditional mixed farmland habitat managed for farmland birds, brown hare, water voles and arable weed in mind by an organisation such as Lancs Wildlife Trust. The biodiversity heartland identified in the GMSF and draft Salford Local Plan covers over 800ha and should be the starting point for any search for suitable land.
- Wider ecological surveys (farmland birds, brown hare, water vole in the ditches and arable weeds) and studies of Chat Mosses current and potential carrying capacity for farmland biodiversity are required in order to determine the potential for displacement of existing species from the proposed allocation area and the relative value of the site against the rest of Chat Moss.
- Bat surveys should occur for any building proposed for demolition.
- GCN assessments and potentially survey of open water habitat on the site should occur and mitigation provided for loss of terrestrial habitat within the zone of influence of the pond on City Airport with an known breeding population.
- An invasive species management plan for the entire site should be produced at the outset and not left to individual phases of development.
- The 2017 walk over survey should be repeated and the biodiversity baseline scores recalculated utilising the version 2 metric.



Existing Features of Ecological Value (Retain and enhance)



Priority Areas for On-site Enhancement



Priority Area for Off-site Enhancement

7.0 CONCLUSIONS

The proposed allocation will result in a significant negative biodiversity impact unless mitigation and or compensation is provided. This is primarily due to the scale of the development.

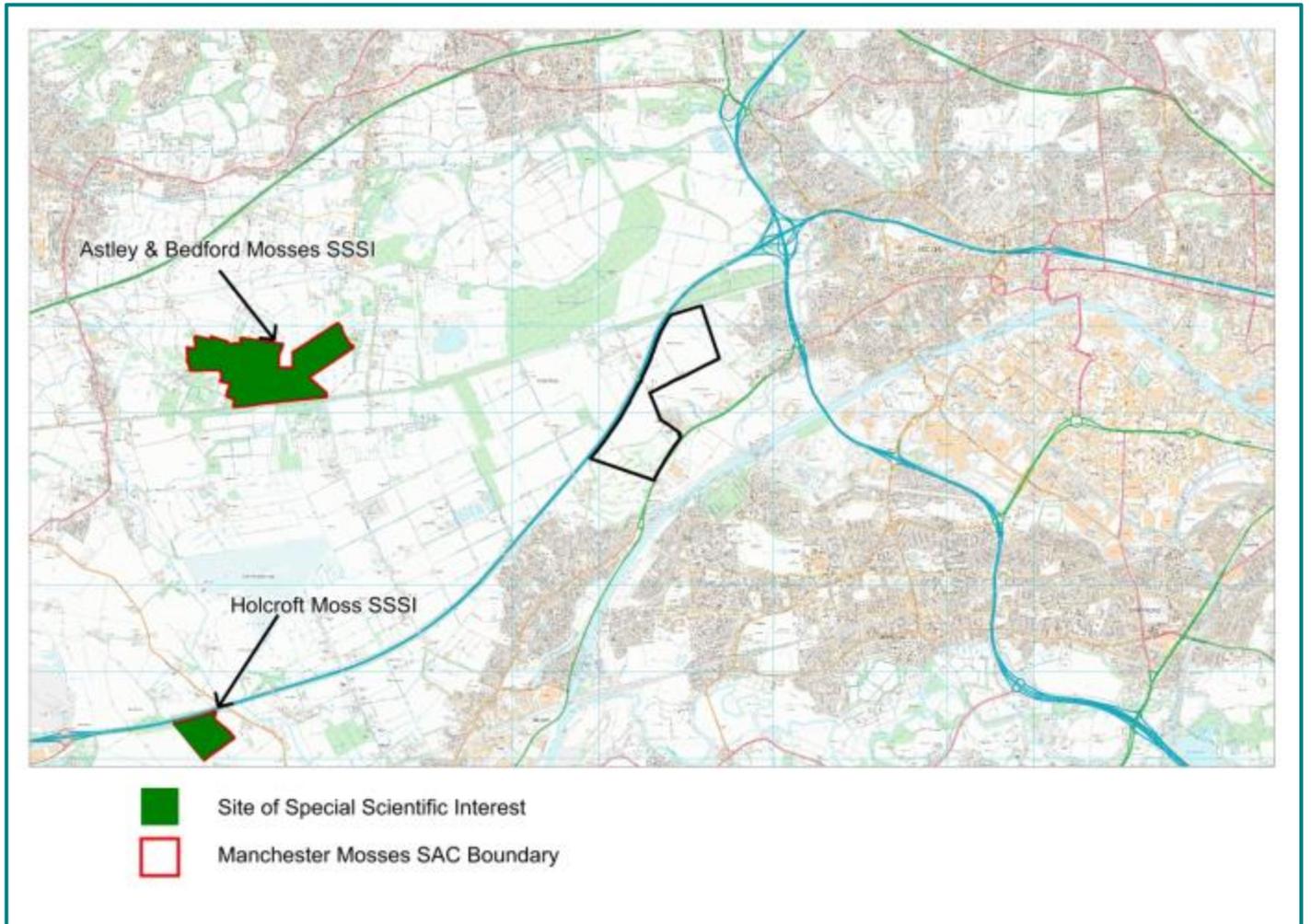
The other significant impact is the loss of breeding habitat for a number of UK Biodiversity Priority Species including species such as yellow wagtail and yellowhammer where a significant percentage of the GM population is located on Chat Moss.

Further information is required on how adequate land will be provided to ensure no net loss and further surveys required to better understand the current and potential carrying capacity of Chat Moss to enable mitigation for farmland birds.

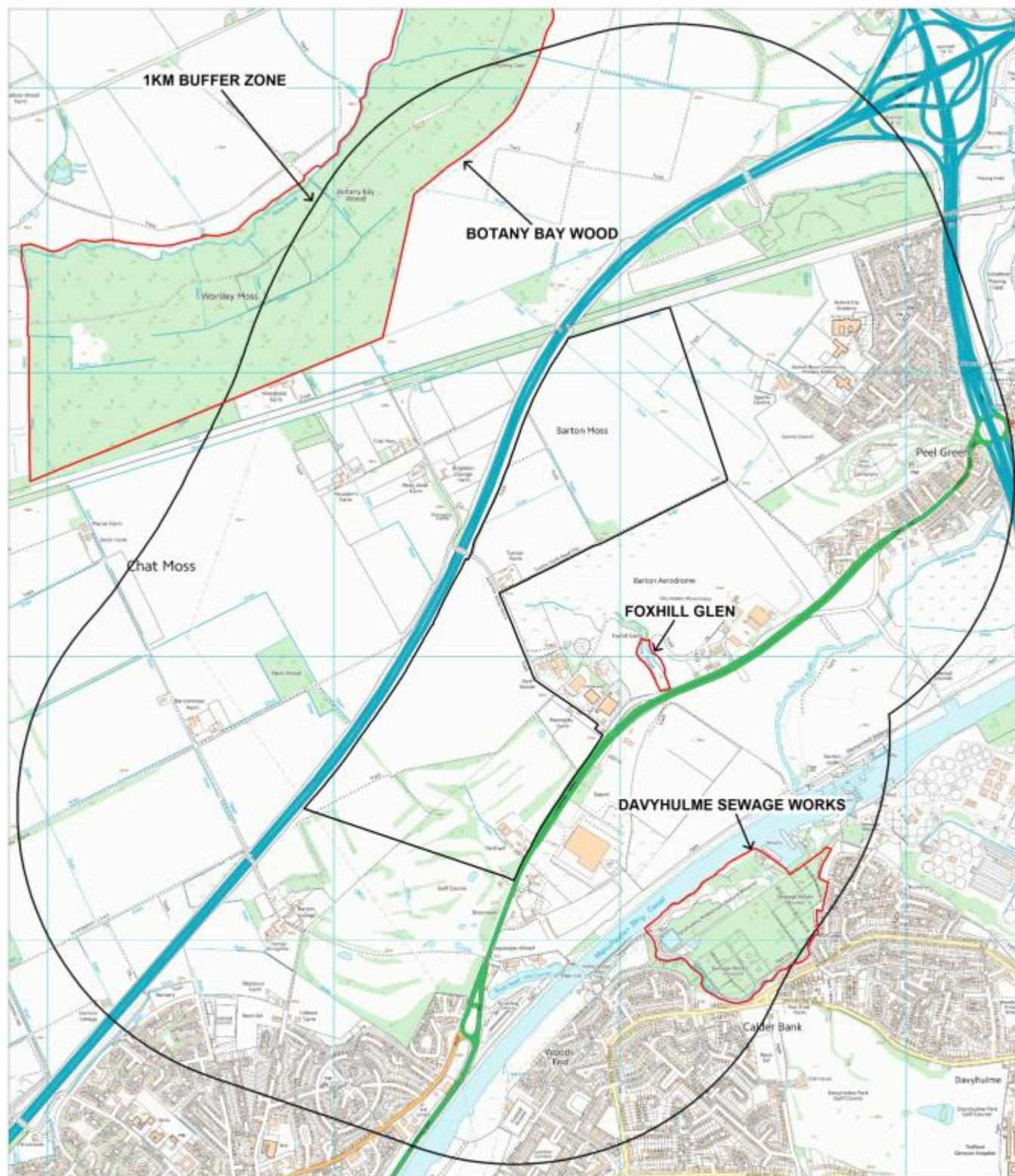
Further information is also required to determine whether water vole are still present on Barton Moss and to determine the potential impact on great crested newts.

The survey is now three years old and the biodiversity off-set metric guidance has been revised. Updates are therefore required. The data search from Greater Manchester is also now three years old and should be updated.

Appendix 1 - Location of Statutory Protected Sites



Appendix 2 – Information supplied by Local Record Centre



KEY

SITE OF BIOLOGICAL IMPORTANCE

 SBI BOUNDARY

GREATER MANCHESTER ECOLOGY UNIT
 ECOLOGICAL SEARCH - SJ73443 96612
 BARTON MOSS - MAP 1

SCALE 1:12500

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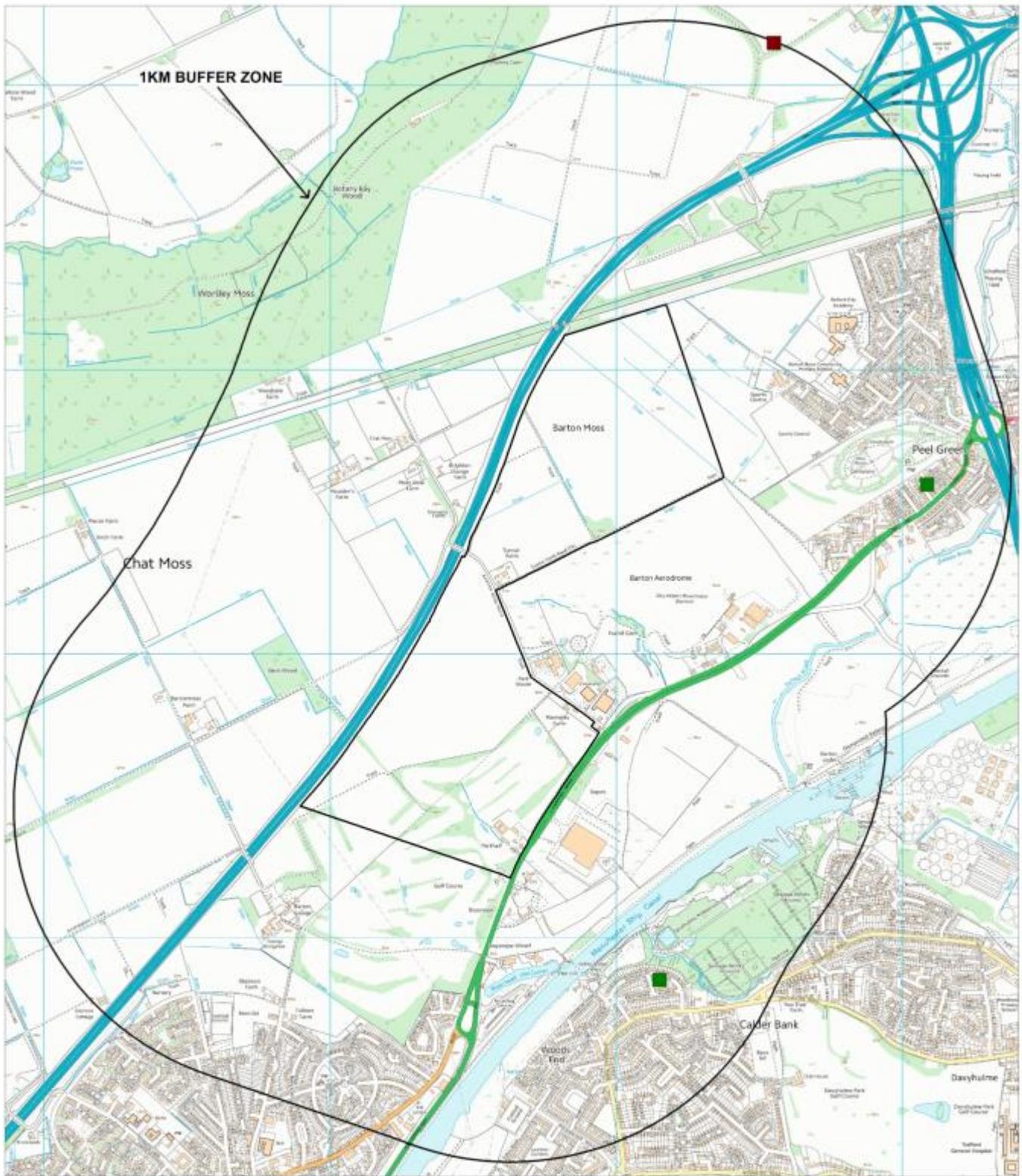
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Greater Manchester
 Ecology Unit

Telephone 0161 342 4409
 Email: gmeu@tameside.gov.uk

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KEY

BAT ROOSTS - NONE

BATS OTHER SIGNS

- BROWN LONG-EARED BAT
- COMMON PIPISTRELLE

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BARTON MOSS - MAP 3**

SCALE 1:12,500

BAT DATA COURTESY OF SOUTH LANCAS BAT GROUP

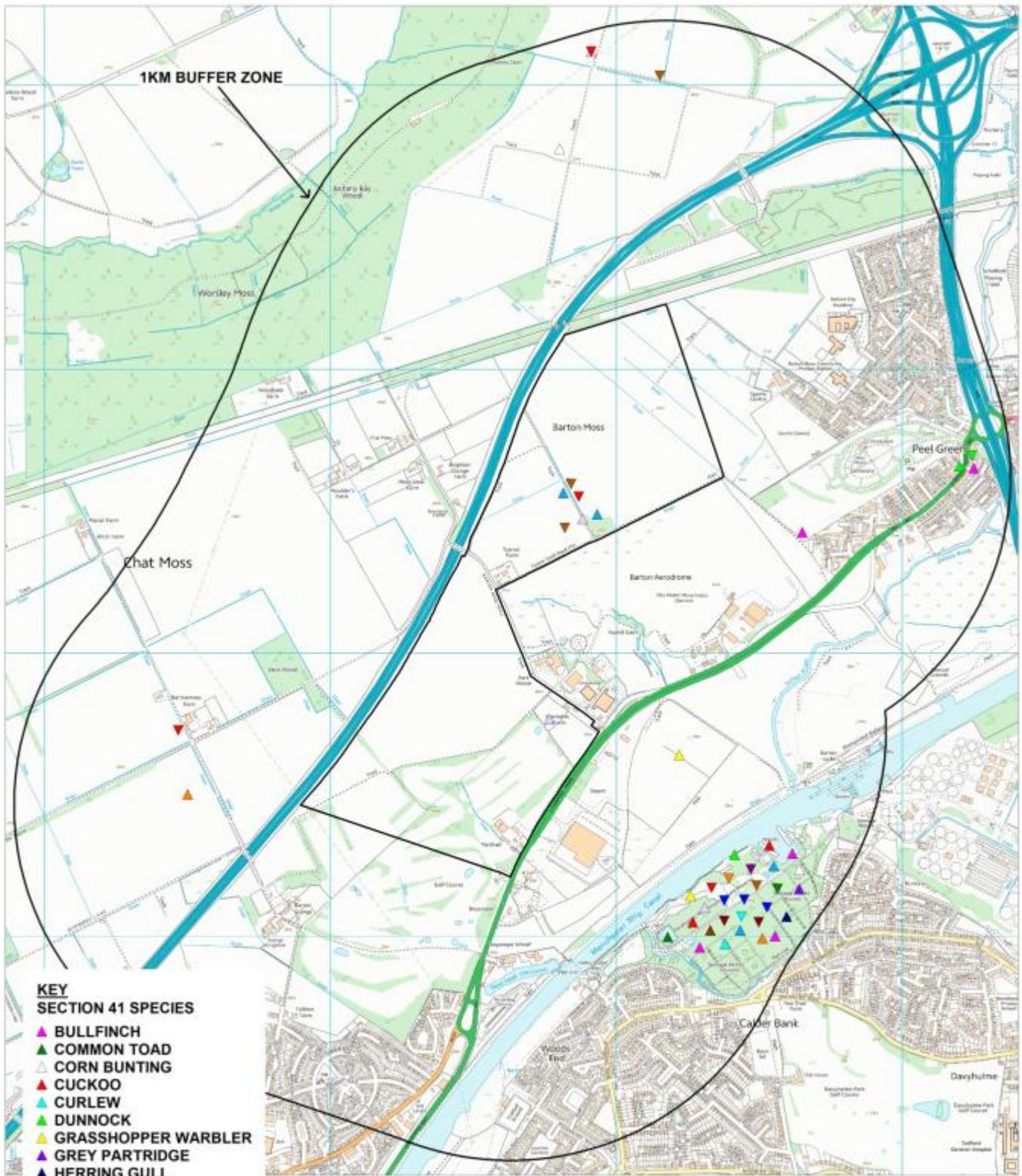
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BARTON MOSS - MAP 4

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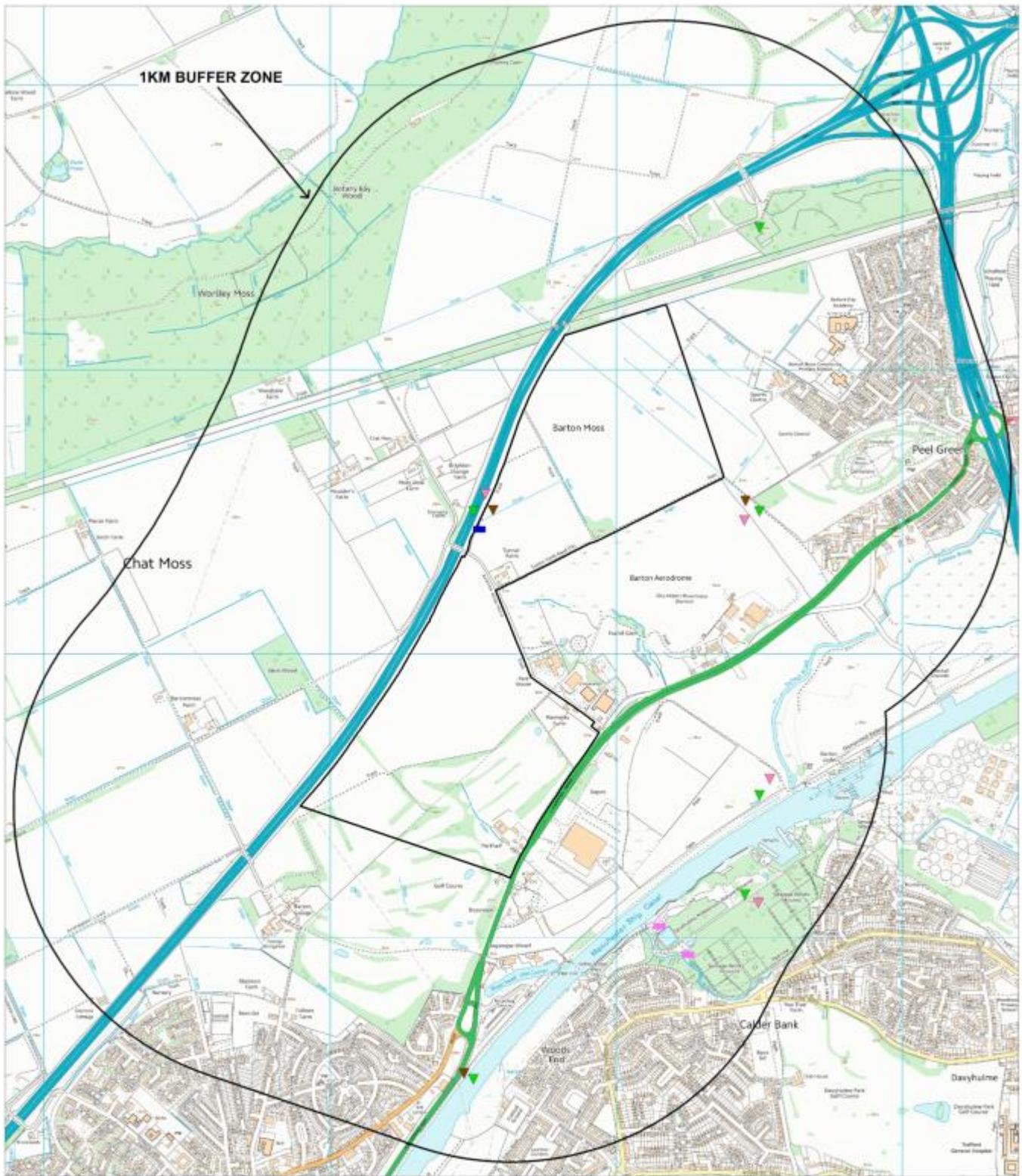
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**Greater Manchester
 Ecology Unit**

Telephone 0161 342 4409
 Email: gmeu@tameside.gov.uk

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KEY

INVASIVE SPECIES

- ▼ HIMALAYAN BALSAM
- ▼ JAPANESE KNOTWEED
- MONTBRETIA
- NEW ZEALAND PIGMYWEED
- ▼ RHODODENDRON

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BARTON MOSS - MAP 5**

SCALE 1:12,500

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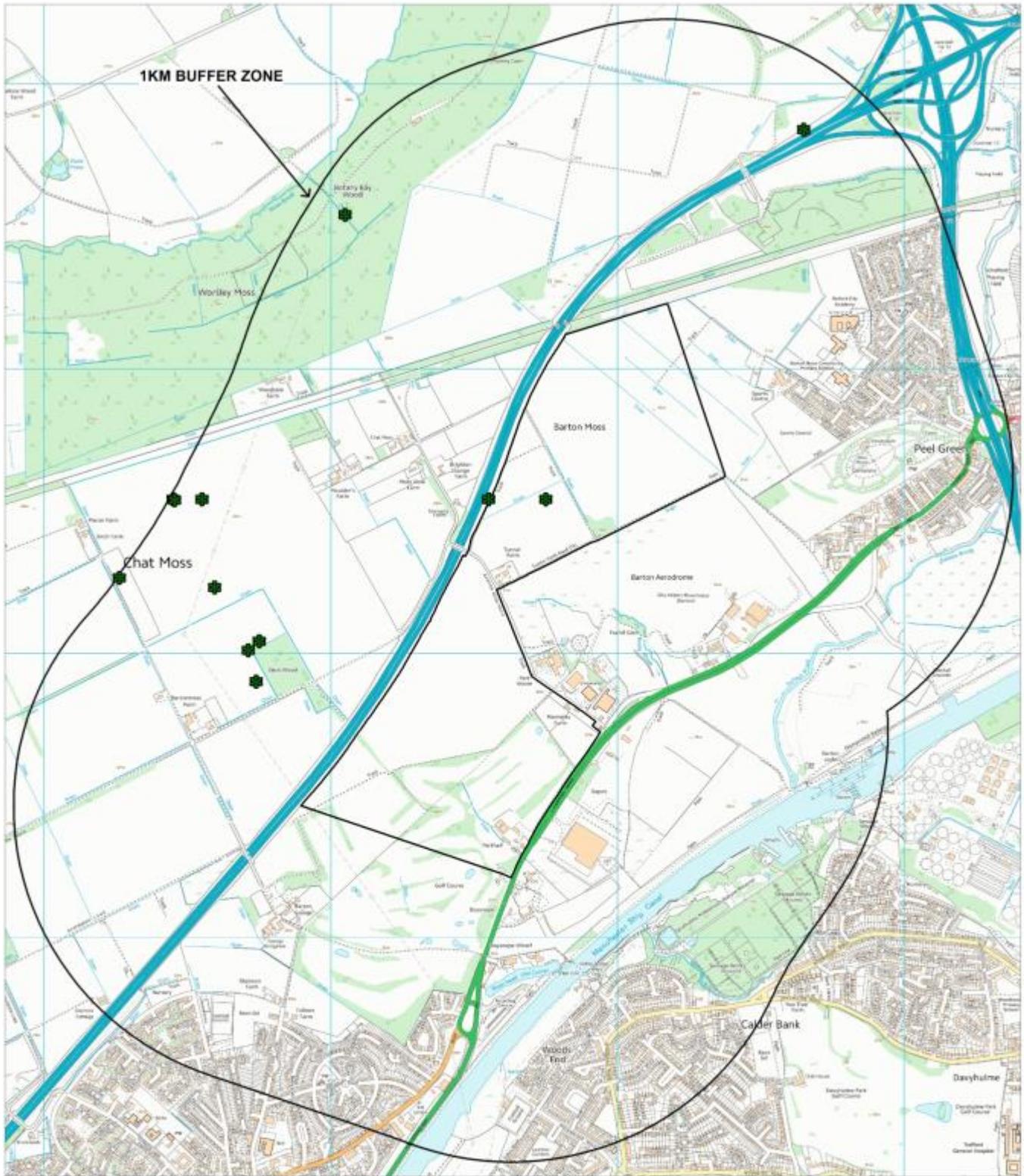
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Ecology Unit**

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

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Key
 Brown Hare
 ■ Brown Hare

**GREATER MANCHESTER ECOLOGY UNIT
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 BARTON MOSS - MAP 6**



SCALE 1:12,500

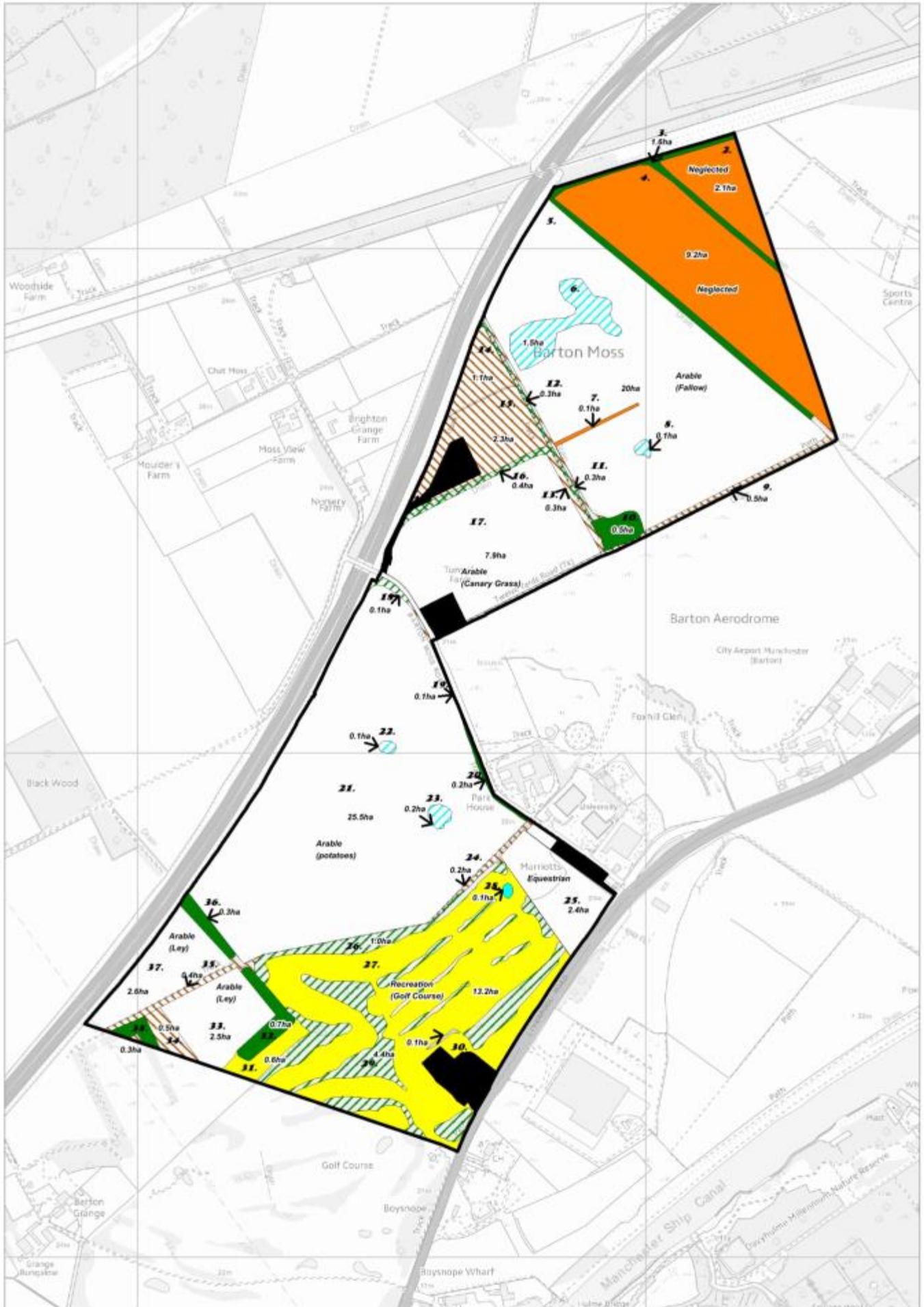
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Appendix 4 – Land Use and Field numbering system



Field No.	Ward	Grid Reference	Phase 1 Habitat	Area (ha)	Off-set Calculations			Land use
					Distinctive	Condition	Bio Units	
2	Winton	SJ7413 9809	Neutral Grassland(species Poor)	2.1	4	1	8.4	Arable (neglected)
3	Winton	SJ7400 9794	Line of Trees	1.6	4	2	12.8	Agricultural Field Boundary
4	Winton	SJ7409 9790	Neutral Grassland(species Poor)	9.2	4	1	36.8	Arable (neglected)
5	Winton	SJ7403 9777	Arable	20	2	1	40	Arable (fallow)?
6	Winton	SJ7384 9785	Inundation Community	1.5	6	2	18	Semi-natural (early succession)
7	Winton	SJ7390 9765	Neutral Grassland(species Poor)	0.1	4	1	0.4	Agricultural Field Boundary
8	Winton	SJ7399 9760	Inundation Community	0.1	6	2	1.2	Semi-natural (early succession)
9	Winton	SJ 7422 9755	Tall Ruderal	0.5	4	1	2	Agricultural Field Boundary
10	Winton	SJ 7394 9744	Broadleaved Woodland	0.5	6	1	3	Derelict
11	Winton	SJ7379 9767	Tall Ruderal	0.3	4	1	1.2	Agricultural Field Boundary
12	Winton	SJ 7379 9766	Scrub	0.3	4	1	1.2	Agricultural Field Boundary
13	Winton	SJ 7387 9749	Tall Ruderal	0.3	4	1	1.2	Agricultural Field Boundary
14	Winton	SJ7368 9775	Tall Ruderal	1.1	4	1	4.4	Arable (abandoned)
15	Winton	SJ7367 9760	Tall Ruderal	2.3	4	1	9.2	Arable (abandoned)
16	Winton	SJ7365 9753	Scrub	0.4	4	1	1.6	Agricultural Field Boundary
17	Winton	SJ7370 9743	Arable	7.9	2	1	15.8	Arable (fallow/Canary Grass)
18	Irlam	SJ7345 9732	Broadleaved Plantation	0.1	4	1	0.4	Agricultural Field Boundary
19	Irlam	SJ7359 9718	Tall Ruderal	0.1	4	1	0.4	Agricultural Field Boundary
20	Irlam	SJ7368 9696	Broadleaved Woodland	0.2	6	1	1.2	Agricultural Field Boundary
21	Irlam	SJ7343 9697	Arable	25.5	2	1	51	Arable (potatoes)
22	Irlam	SJ7349 9701	Inundation Community	0.1	6	2	1.2	Semi-natural (early succession)
23	Irlam	SJ7359 9687	Inundation Community	0.2	6	2	2.4	Semi-natural (early succession)
24	Irlam	SJ7368 9677	Tall Ruderal	0.2	4	1	0.8	Agricultural Field Boundary
25	Irlam	SJ7383 9672	Improved Grassland	2.4	2	1	4.8	Equestrian
26	Irlam	SJ7358 9666	Broadleaved Plantation	1	4	2	8	Recreation (Golf)
27	Irlam	SJ7355 9650	Amenity Grassland	13.2	2	1	26.4	Recreation (Golf)
28	Irlam	SJ7372 9673	Swamp	0.1	6	1	0.6	Recreation (Golf)
29	Irlam	SJ7348 9644	Broadleaved Plantation	4.4	4	2	35.2	Recreation (Golf)
30	Irlam	SJ7360 9643	Line of Trees (conifers)	0.1	2	1	0.2	Recreation (Golf)
31	Irlam	SJ7325 9641	Amenity Grassland	0.6	2	1	1.2	Recreation (Golf)
32	Irlam	SJ7328 9649	Broadleaved Woodland	0.7	6	2	8.4	Shelterbelt ?
33	Irlam	SJ7316 9647	Arable	2.5	2	1	5	Arable (Ley)
34	Irlam	SJ7307 9644	Tall Ruderal	0.5	4	1	2	Arable (neglected)
35	Irlam	SJ7309 9652	Tall Ruderal	0.4	4	1	1.6	Agricultural Field Boundary
36	Irlam	SJ7314 9665	Broadleaved Woodland	0.3	6	2	3.6	Shelterbelt ?
37	Irlam	SJ7304 9657	Arable	2.6	2	1	5.2	Arable (Ley)
38	Irlam	SJ7299 9644	Broadleaved Woodland	0.3	6	2	3.6	Shelterbelt ?