South Tyneside

local development framework

-Technical Appendices -

Local Wildlife Sites and Local Geodiversity Sites

June 2010

South Tyneside Council

The New Development Plan for your Borough

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Local Wildlife Sites (LWS) (all site areas are approximate measurements)

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2. Black Plantation, *Boldon* (1.0ha)
3. Boldon Colliery former Railway Line (1.2ha)
4. Boldon Crossings Pond (2.4ha)
5. Boldon Flats (34.2 ha)
6. Boldon Lake (2.9ha)
7. Calf Close Burn, *Fellgate* (2.7ha)
8. Cemetery Road, *Jarrow* (4.4ha)
9. Cleadon Hill Cliffs (1.3ha)
10. Cleadon Pumping Station (2.9ha)
11. Cleadon Quarry (3.4ha)
12. Cotman Gardens, *South Shields* (4.1ha)
13. Downhill Old Quarry, *West Boldon* (3.0ha)
14. Elliscope Farm East / Hylton Bridge, *West Boldon* (3.5ha)
15. Follingsby (0.2ha)
16. Harton Downhill, *South Shields* (including LNR) (3.4ha)
17. Hebburn Riverside (10.4ha)
18. Hedworth Dene (4.0ha)
19. Inverness Road, *Jarrow* (4.9ha)
20. Jarrow Slake Mud Flats (4.1ha)
21. Kitchener Road, *Whitburn* (0.6ha)
22. Lakeside Inn, *Fellgate* (2.0ha)
23. Lizard Lane Cutting, *Marsden* (0.2ha)
24. Low House Copse, *East Boldon* (0.8ha)
25. Make Me Rich Meadow, *West Boldon* (3.3ha)
26. Marsden Limekilns (6.3ha)
27. Marsden Old Quarry (LNR) (19.3ha)
28. Marsden Quarry (1.5ha)
29. Monkton Pond & Wood, *Hebburn* (2.9ha)
30. Mount Pleasant Marsh, *West Boldon* (8.3ha)
31. Newton Garths, *Boldon Colliery* (9.6ha)
32. Primrose, *Jarrow* (including LNR) (4.5ha)
33. River Don, East House, *Follingsby* (1.4ha)
34. River Don, New Road, *Boldon Colliery* (1.3ha)
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38. South Marine Park Lake, *South Shields* (0.9ha)
39. South Shields Dunes (12.1ha)
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41. Straker Street, *Jarrow* (3.1ha)
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44. Temple Park West, *South Shields* (34.8ha)
45. The Leas, *South Shields* (85.3ha)
46. Tilesheds Burn, *East Boldon* (4.7ha)
47. Tilesheds, *East Boldon* (LNR) (1.3ha)
48. Turner's Hill, *West Boldon* (0.3ha);
49. Undercliffe Pond, *Cleadon* (0.6ha)
50. Wardley Colliery, *Follingsby* (43.9ha)
51. Whitburn Firing Range (37.4ha)
52. Whitburn Point (LNR) (3.9ha)

Local Geodiversity Sites (LGS)

1. Cleadon Hill Cliffs (also LWS) (1.3ha)
2. Cleadon Park Quarry (6.1 ha)
3. Downhill Old Quarry (1.5ha) (also LWS)
4. Marsden Limekilns (also LWS) (2.0ha)
5. Marsden Old Quarry (13.8ha) (also LWS)
6. South Shields Dunes (also LWS) (12.1 ha)

1. Introduction

South Tyneside Local Development Framework

LDD2 Core Strategy
LDD3 Site Specific Allocations
LDD6 South Shields Town Centre & Waterfront AAP
LDD7 Central Jarrow AAP
LDD4 Development Control Policies

The North East of England Plan: Regional Spatial Strategy to 2021 (July 2008) (RSS)

1.1 This Technical Appendices document provides a summary of all of the Local Development Framework's Local Wildlife Site and Local Geodiversity Site designations (existing and proposed), as set out in our South Shields and Jarrow Area Action Plans and Development Management Policies DPD. It supercedes the Technical Appendice produced in January 2008. Bringing them together in this way provides a useful reference as to how we are satisfying the requirements of our LDF Core Strategy (adopted June 2007), as well as those in PPS9 'Biodiversity and Geological Conservation' and latest DEFRA guidance.

1.2 Local Wildlife Sites essentially cover the Sites of Nature Conservation Importance (SNCIs) and Magnesian Limestone Grassland designations previously set out in the South Tyneside Unitary Development Plan (UDP), together with new designations. These Local Wildlife Sites have been selected in partnership with the Durham Wildlife Trust, and both the process used and the change in title comply with Government advice from DEFRA in 'Local Sites, Guidance on their Identification, Selection and Management' (2006). The details of how this guidance was used and the specific methodology applied in South Tyneside are set out in Annex A 'Designation and Management of Local Wildlife Sites in South Tyneside'. This uses the presence of priority habitats, as defined in the Durham Biodiversity Action Plan (DBAP), to determine whether designation as a Local Wildlife Site is appropriate and the methodology explains that the network of Local Wildlife Sites will be subject to periodic review.

1.3 This document identifies:

- those sites where it is proposed that existing Sites of Nature Conservation Importance (SNCIs) are redesignated as Local Wildlife Sites without any boundary changes;
- sites where the boundaries of existing protected SNCI and Magnesian Limestone Grassland areas are proposed to be amended following the review;
- proposed new Local Wildlife Site designations resulting from the review; and
- proposed new Local Geodiversity Site designations.

1.4 Local Geodiversity Sites are sites with substantive geological or geomorphological value that are considered worthy of protection for their educational, research, historical or aesthetic importance. They are equivalent to Local Wildlife Sites and their boundaries may overlap. An audit of the geodiversity of the borough; 'Addressing Geodiversity in South Tyneside' was completed in 2008. Work has now been completed to list and describe the network of six Local Geodiversity Sites to be included in the Local Development Framework.

1.5 This document provides an assessment of each site and summarises the species/habitats/features present and the reasons for designation as a Local Wildlife Site or a Local Geodiversity Site. A site map is also provided.

1.6 Annex A contains the document 'Designation & Management of Local Wildlife Sites in South Tyneside' which contains the methodology used for designating Local Wildlife Sites within the borough. Annexes B and C provide further references. Annex D contains current Durham Biodiversity Plan (DBAP) habitats definitions and Annex E pond species used when applying the definition of a 'pond'.

2. Local Wildlife Sites

1) Beacon Hill Quarry

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

OS grid reference: NZ398639
Approximate size: 1.1 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site is only accessible to legitimate users of the golf course.

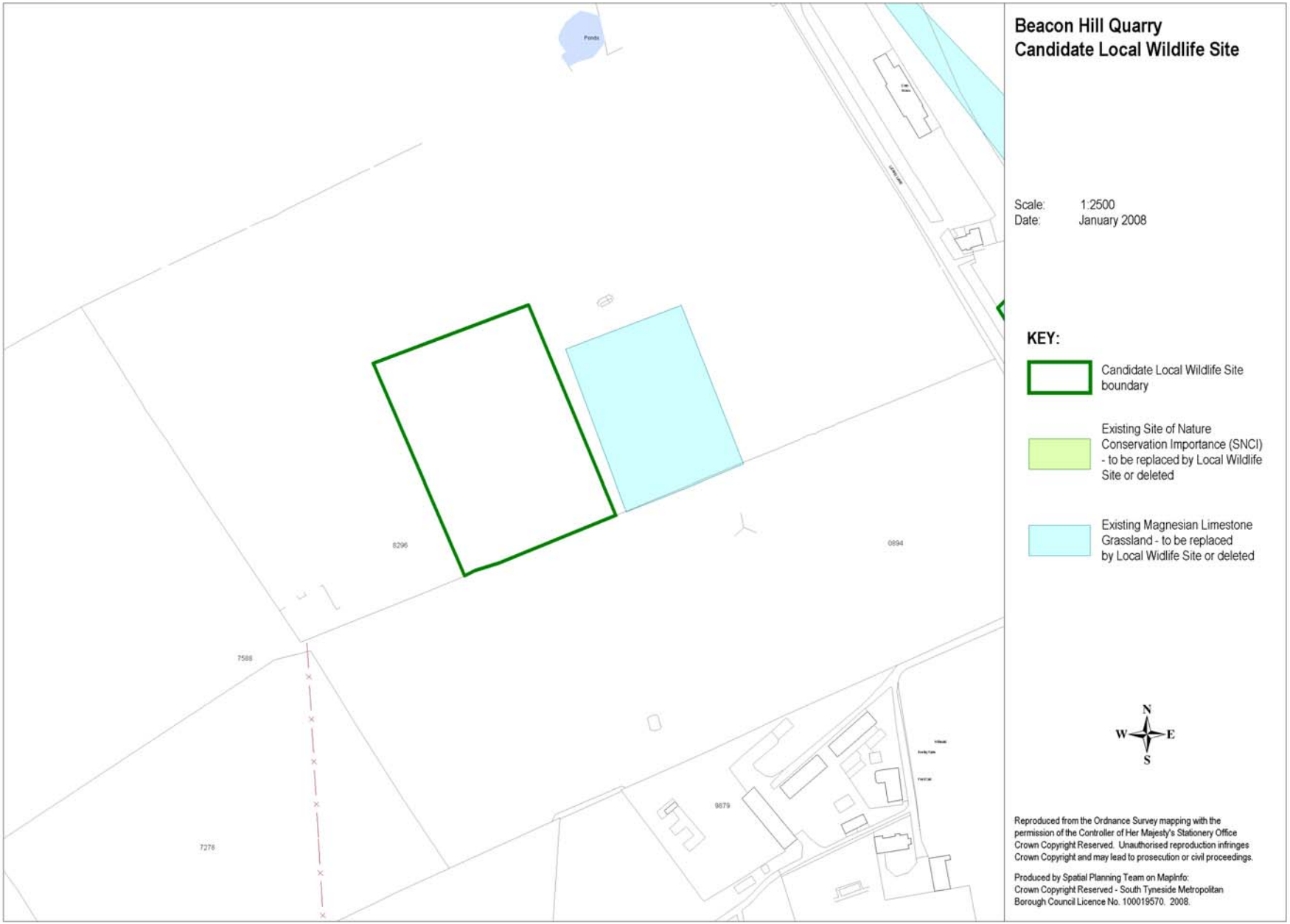
The site lies within Whitburn Golf Course, just west of Lizard Lane. It is bounded to the south by a limestone wall and consists of an area of 'rough' divided into three parts by short sections of path. The habitat is Magnesian limestone grassland – a rare habitat in north east England, together with an area of limestone outcrop. Plants present which indicate high quality species-rich grassland include meadow vetchling, spiny restharrow, burnet saxifrage, heath grass, downy oat-grass and glaucous sedge. Small quantities of the nationally rare perennial flax were found during a survey of 1997, but it was not recorded in a subsequent visit in 2005.

Beacon Hill Quarry qualifies as a Local Wildlife Site because it has more than 0.25 hectares of Magnesian limestone grassland as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The survey of 2005 did not include an assessment of abundance but the following plants from the list were all recorded:

- Harebell
- Ladies bedstraw
- Birds-foot trefoil
- Cowslip
- Salad burnet
- Wild thyme

In addition the site was recommended for Local Wildlife Site status by an independent ecologist, E3 Ecology Ltd, in 2005.

Beacon Hill Quarry was designated as a Magnesian Limestone Grassland Site in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. The boundary has been amended to reflect the situation on the ground more accurately.



Beacon Hill Quarry
Candidate Local Wildlife Site

Scale: 1:2500
Date: January 2008

KEY:

Candidate Local Wildlife Site boundary

Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted

Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted

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2) Black Plantation

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ361605
Approximate size: 1.0 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Broadleaf sandlewood/ Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access.

Black Plantation is a small, rectangular, area of mature even-aged, broadleaved plantation woodland lying to the south of West Boldon. The canopy is dominated by sycamore, whilst other trees present include wych elm, beech, ash and hybrid poplar. The ground flora has no ancient woodland indicators, being dominated by plants such as bramble, stinging nettle, false oat-grass and umbellifers. A diverse bird life includes jays and breeding great spotted woodpecker, whilst barn owl have been recorded using the wider area. The site was surveyed for white-letter hairstreak butterfly in 2007. Whilst no evidence of the butterfly was found the habitats present were judged to be suitable to sustain a colony of this UK Biodiversity Action Plan Priority Species. The plantation is surrounded by arable fields, but has some connectivity with other habitats via linking hedgerows. It falls within a wildlife corridor (as defined by the council's LDF). The woodland at Downhill Old Quarry is 1.3 km to the west whilst the plantations at Belle Vue Villa (Ordnance Survey first Edition) are 140 meters to the east.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Black Plantation qualifies because it consists of broadleaf woodland, which is listed as a priority habitat. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.' To qualify as a Local Wildlife Site a minimum area of 2 hectares of this habitat would normally be required. Black Plantation is only approximately 1 hectare in extent but has nevertheless been selected:

a) Because it is probably the best example of mature woodland in South Tyneside, dating as it does from the 19th Century (it is recorded as already being an established plantation on the Ordnance Survey Second Edition map of 1896).

b) On the basis of its rarity as a habitat in South Tyneside it was recommended for Local Wildlife Site status by an independent ecologist, Dr Moira Owen, in a survey of 1998.

c) It could be described as a 'stepping stone' between the woodlands at Downhill Old Quarry and Belle Vue Villa, for which the minimum size threshold is 1 ha.

It is proposed that Black Plantation is designated as a Local Wildlife Site


Black Plantation
Candidate Local Wildlife Site
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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3) Boldon Colliery former Railway Line

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST29
OS grid reference: NZ355625
Approximate size: 1.2 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Scrub
b) Lowland meadows and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

A length of disused railway embankment, formerly part of the North Eastern Railway Boldon and Newton Garths Branch, which dates from at least 1855 (OS First edition). Situated to the north and east of Colliery Wood it supports unimproved neutral grassland, mature scrub, scattered trees and wet ditch communities. The grassland has a variety of plants characteristic of base-rich railway ballast such as common knapweed, perforate St John's wort, hawkweed and silver hair-grass. The scrub comprises hawthorn, elder, bramble and gorse. Recorded bird use includes yellowhammer, blackcap, whitethroat and willow warbler, with fieldfare and redwing during the winter. The site is also an important area for wintering long-eared owls.

Boldon Colliery Former Railway Line qualifies as a Local Wildlife Site because it has:

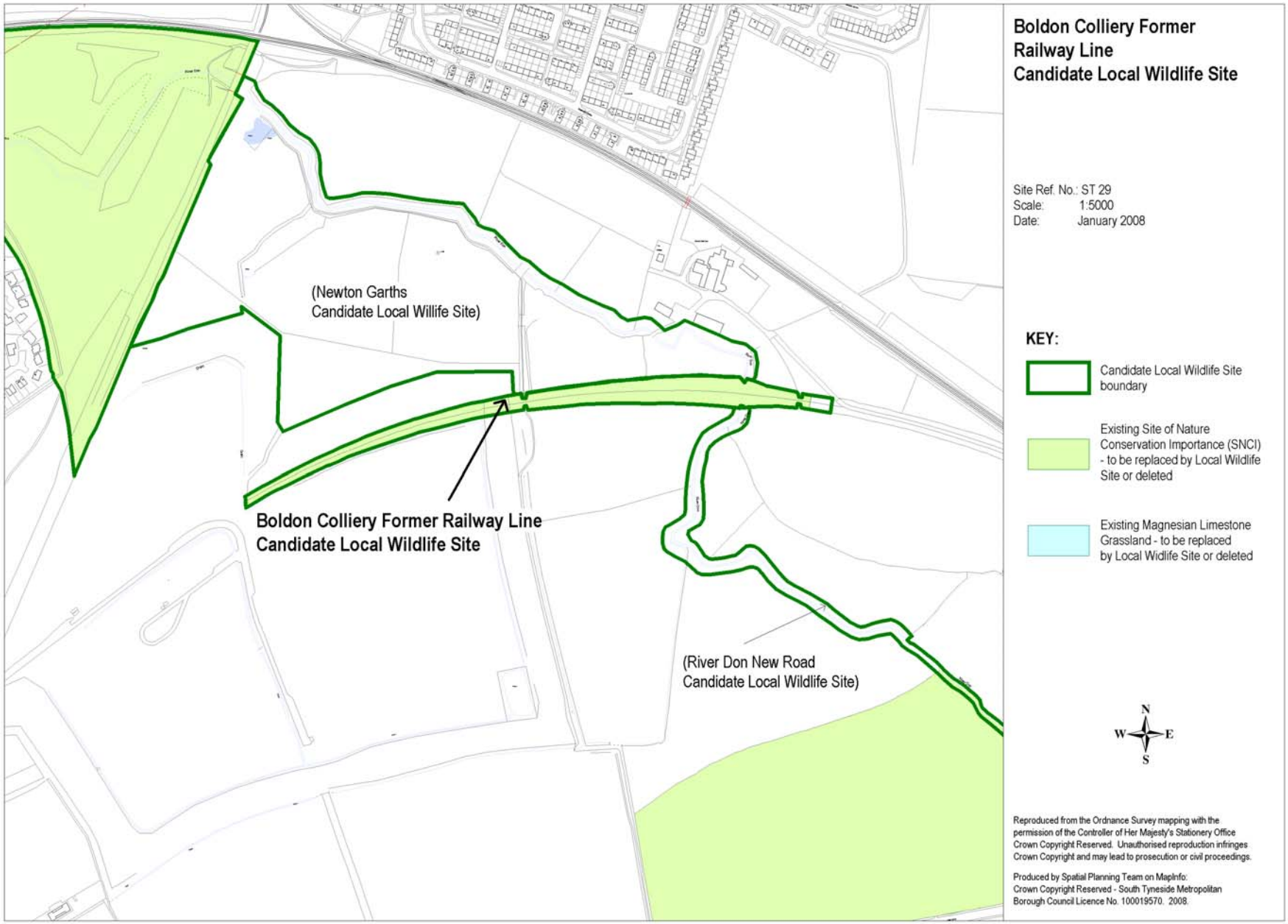
a) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'. To qualify as a Local Wildlife Site on the basis of scrub alone a minimum area of 1.5 hectares of this habitat would normally be required.

b) Lowland meadows and pasture as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey of 1999 did not include an assessment of abundance but the following plants from the list were all recorded:

- Field scabious
- Meadow vetchling
- Birds-foot trefoil
- Great burnet
- Tufted vetch

Whilst the area of scrub falls below the qualifying minimum of 1.5 hectares, it is considered that on the basis of the presence of the species rich grassland habitat (as referred to in b) above) and the presence of valuable wet ditch habitats, all in the context of the archaeological setting, the site should be designated as a Local Wildlife Site.

The site was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


(Newton Garths
Candidate Local Willife Site)
Boldon Colliery Former Railway Line
Candidate Local Wildlife Site
(River Don New Road
Candidate Local Wildlife Site)
Boldon Colliery Former
Railway Line
Candidate Local Wildlife Site
Site Ref. No.: ST 29
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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4) Boldon Crossings Pond

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST25
OS grid reference: NZ361622
Approximate size: 2.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland meadows and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

This is a pond, surrounded by marsh, adjacent to the railway near the level crossings north east of West Boldon, it almost certainly owes its origin and character to the rather impermeable underlying Pelaw Clay. The pond margins support dense stands of tall emergent vegetation, with reedmace, greater pond-sedge, lesser pond sedge, great hairy willowherb and yellow iris. There are also areas of shorter vegetation, with jointed rush, lesser spearwort, fool's water cress and celery leaved crowfoot. The open water supports species such as common water starwort, common and ivy-leaved duckweed, water cress, common water crowfoot and horned pondweed. Around the pond margins damp grassland dominated by creeping bent also holds floating sweet-grass and soft rush. Beyond this is an area with plants typical of drier, neutral grasslands such as tufted vetch, meadow vetchling and common restharrow. Snipe regularly winter, duck species such as Teal use the pond and breeding birds include moorhen and reed bunting.

Boldon Crossings Pond qualifies as a Local Wildlife Site because it has:

a) A pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The description above lists 17 species of naturally occurring, floating, submerged, and/or marginal plant.

b) An area of lowland meadow and pasture which, on its own, would not justify Local Wildlife Site status but which nevertheless forms a valuable component of the overall site.

Boldon Crossings Pond was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.

Boldon Crossings Pond
Candidate Local Wildlife Site

Site Ref. No. ST 25
Scale: 1:2500
Date: January 2008

KEY:

Candidate Local Wildlife Site boundary

Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted

Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted

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5) Boldon Flats

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST20
OS grid reference: NZ377614
Approximate size: 34.2 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pasture
b) Ponds

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed form Moor Lane.

Boldon Flats is an area of low lying pasture which is subject to seasonal flooding. The main part of the site is north of Moor Lane, with two further compartments to the south. (The Site of Special Scientific Interest to the east is not part of the Local Wildlife Site). The grasslands are neutral in character and range from well drained to marshy, with ridge and furrow in places. Species-rich communities hold plants such as pepper saxifrage, heath bedstraw, quaking grass and yellow rattle. This is a rare habitat in north east England. The site is crossed by a system of drainage ditches and channels, leading to a sluice gate at the eastern end. Tubular water-dropwort, which is locally rare, grows in the drainage ditches and in a permanent pond, created in around 1990. The ditches hold breeding water voles and amphibians and there are historical records of many rare invertebrates such as water beetles, water bugs, dragonflies and pond snails. The sluice is used to create a controlled annual winter flood, a process carried out since 1986 under lease to the council. The winter flood attracts many waterbirds. Principal amongst the waders are large flocks (thousands) of lapwing and golden plover, also curlew, redshank and snipe. In terms of wildfowl there are hundreds of wigeon and teal, also many other species of duck, geese and swans in addition to large gatherings of gulls (up to 1000). A winter feeding station by Moor Lane is used by good numbers of finches, buntings and other songbirds. In some years small numbers of lapwing and snipe remain over the summer to breed.

Boldon Flats qualifies because it has:
a) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not assess abundances but did record the following plants from the indicator list:

- Pepper saxifrage
- Glaucous sedge
- Cowslip
- Meadowsweet
- Common knapweed
- Birds foot trefoil
- Meadow vetchling
- Water mint
- Yellow rattle
- Sneezewort

b) A pond, as defined in the Durham Biodiversity Action Plan i.e. ‘a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes

garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The most recent surveys of the pond and ditches at Boldon Flats have revealed the presence of at least 17 species of such plants.
In addition the site is of regional importance for its wintering waterbirds.

Boldon Flats was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. Part of the site has been deleted to take account of a car park extension at Station Approach, which was built in 2001.


Boldon Flats Candidate Local Wildlife Site
(Low House Copse, East Boldon Candidate Local Wildlife Site)
Boldon Flats
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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6) Boldon Lake

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST13
OS grid reference: NZ340610
Approximate size: 2.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland meadows and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Durham Biodiversity Action Plan definition of a pond:

'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.'

Public Access:
There is informal public access around the margins of the lake

The site comprises a man-made lake (the largest body of open water in the borough) adjacent to the Quadrus building in West Boldon, together with species-rich damp grassland alongside. The lake was created in 1986 and has developed substantial areas of marginal vegetation including large stands of reedmace and common reed, and an area dominated by hard rush. Colonies of Australian swamp stonecrop have recently been discovered in various locations around the margins. The lake is well used by waterfowl including mute swan, mallard, coot, moorhen and grey heron. Reed warbler bred in 2006, the only current site for the species in the borough. The lake is also used by at least five species of dragonfly/ damselfly including emperor dragonfly and four-spotted chaser. It is stocked with coarse fish by a local angling club. The area to the south of the lake is a remnant of exceptionally rich, damp ridge and furrow grassland. The ridges hold species-rich neutral grassland communities with cowslip, pepper saxifrage, ladies bedstraw and adders tounge fern. The damp furrows are populated by water areas, hemlock, water drop-wort and northern marsh orchid. This is a rare habitat in north east England and was identified by Claire and John O'Reilly in 2009 as being closely related to MG4 grassland. MG4 is one of only two types of mesotrophic (neutral) grassland in Britain listed as an Annex 1 habitat under the European Habitats Directive.

Boldon Lake qualifies as a Local Wildlife Site because it has:
a) pond, as defined in the Durham Biodiversity Action Plan (see text box). In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Recent surveys of Boldon Lake have revealed the presence of at least 19 species of such plants.

b) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey found the following plants from the list:

- Pepper saxifrage — frequent
- Glaucous sedge — locally frequent
- Agrimony — occasional
- Cowslip — occasional
- Oxeye daisy — occasional
- Pignut — occasional
- Northern marsh orchid — occasional
- Meadowsweet — occasional
- Water avens — occasional

- Rough hawkbit occasional

Boldon Lake was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Boldon Lake
Candidate Local Wildlife Site
(Mount Pleasant Marsh Candidate Local Wildlife Site)
Pond
Pond
Pond
Pond
Pond
Boldon Lake
Candidate Local Wildlife Site
Site Ref. No. ST 13
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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7) Calf Close Burn

Development Management Policies DM7 Local Wildlife Sites – Protected Area with Amended Boundary

Site ref. no.: ST37
OS grid reference: NZ331615
Approximate size: 2.7 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland fen habitats

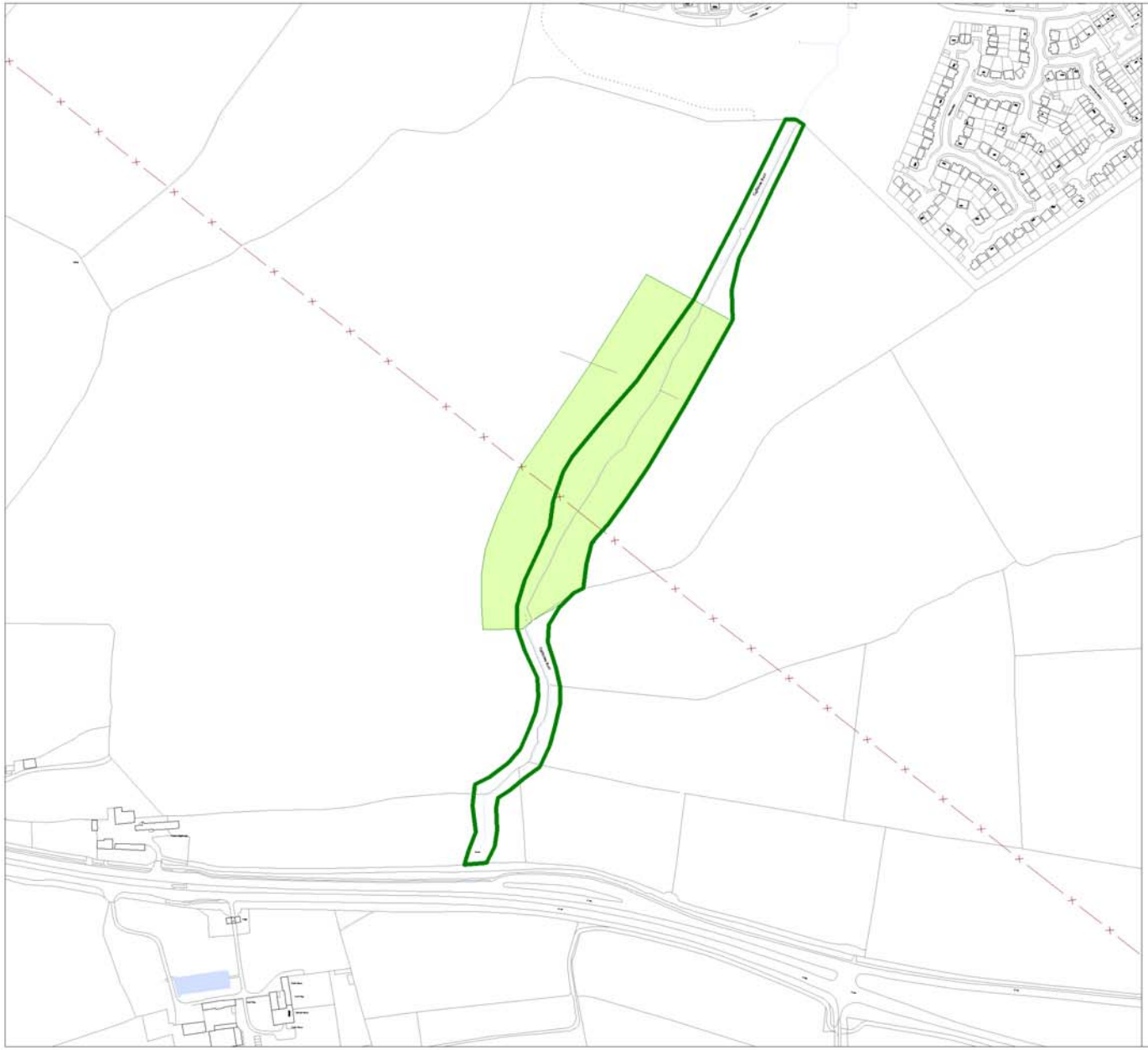
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

Calf Close Burn is a linear site following the course of a small burn as it flows north across agricultural land towards the Fellgate Estate. The stream sides have abundant great hairy willowherb and there is a stand of common reed which extends into the channel of the burn. This is the largest long-standing reedbed in the borough. Other typical lowland fen plants present include meadowsweet, tufted hair-grass, bittersweet, branched bur-reed, water mint, brooklime, lesser pond sedge and hairy sedge. In places there are shrubby, carr type habitats with grey willow and osier, whilst there is also the occasional mature ash tree and hawthorn.

Calf Close Burn qualifies as a Local Wildlife Site because it has more than 0.25 hectares of lowland fen habitats. These meet the definition in the Plan i.e. 'Wetlands overlying both peat and mineral soils and fed by groundwater as well as rainwater. Hydrology varies between and within fen types, from water table above ground for much or most of the year, to water table near the surface for only part of the year. Swamp, *Phragmites australis* Reedbed and Marsh are synonyms for certain types of fen community on particular substrates, with particular dominant species or with particular hydrology.'

Calf Close Burn was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. The boundary has been redrawn with additions and deletions, to more accurately reflect the situation on the ground.



Calf Close Burn
Candidate Local Wildlife Site

Site Ref. No.: ST 37
Scale: 1:5000
Date: January 2008

KEY:

- Candidate Local Wildlife Site boundary
- Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
- Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted

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8) Cemetery Road

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ 333646
Approximate size: 4.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Lowland meadows and pasture
c) Broadleaf woodland
d) Pond

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is access to most of the site via public footpaths.

Cemetery Road is an area of mixed habitat alongside the river Don at Jarrow. The River is tidal as far upstream as Cemetery Road. It has mostly unmodified riverbank and features such as meanders, eroding earth cliffs and banks, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. Upstream the aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. Recent surveys have recorded suitable breeding habitat for water vole, and otter use the river.

Much of the site has tall neutral grassland, with coarse grasses and umbellifers, though in places it becomes more species-rich with plants such as bush vetch, yarrow, meadow foxtail and creeping cinquefoil. Towards the river the grasslands grade into fen communities with reed canary-grass, common reed and bulrush. To the north there are saltmarsh species such as sea couch and sea club-rush.

To the north west there are small broadleaf plantations with field maple, rowan, ash, alder and guelder rose. Hawthorn and elder scrub has developed on the south facing slopes, which provide good habitat for song birds, whilst clearings are ideal for invertebrates. Kingfishers regularly use the river here in winter, whilst wintering bird species include siskin, redpoll and several species of tit. North of Jarrow Cemetery historic land filling activities have resulted in steep banks leading down to the River. These banks are shaded by scrub and are eroding in places, a problem exacerbated by illegal bottle digging.

There is a small pond, created in around 1990, which is used occasionally for pond dipping. It has a good range of plants such as branched bur-reed, water plantain, duckweed and yellow iris, and a diverse fauna including breeding frog, water scorpion, and ramshorn and pond snails.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Cemetery Road qualifies because it:

a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides suitable breeding habitat for water vole and is used by otter.

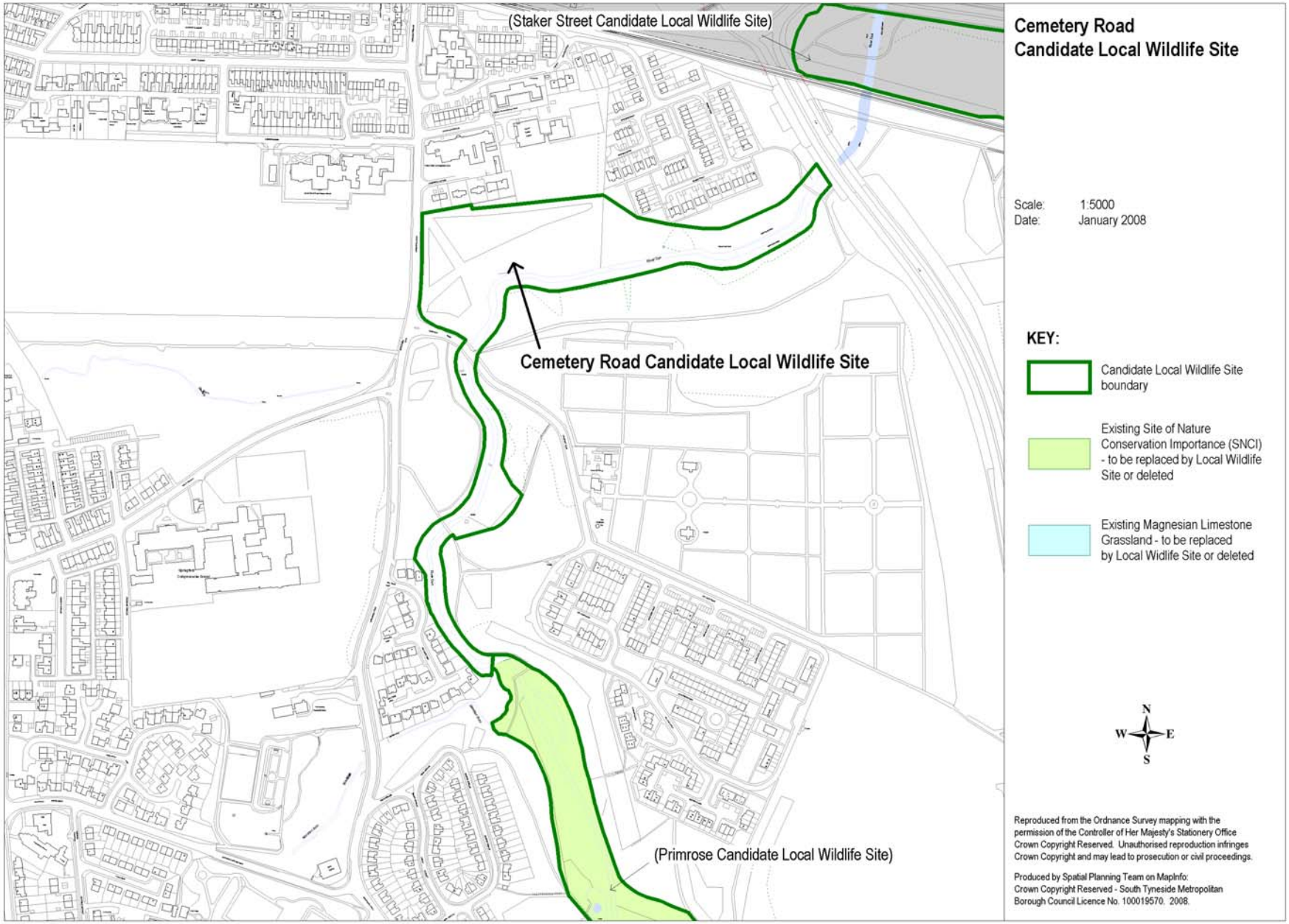
b) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

Common knapweed
Common marsh bedstraw
Birds foot trefoil
Meadow vetchling

c) Has broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

d) Has a pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' (There is no full survey information regarding the pond).
In addition to the four priority habitats listed above there are small elements of lowland fen and coastal salt marsh

It is proposed that Cemetery Road is designated as a Local Wildlife Site


(Staker Street Candidate Local Wildlife Site)
Cemetery Road Candidate Local Wildlife Site
(Primrose Candidate Local Wildlife Site)
Cemetery Road
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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9) Cleadon Hill Cliffs

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST38
OS grid reference: NZ392628
Approximate size: 1.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Scrub
b) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from a public footpath which runs past its north eastern edge

The site, known locally as 'Old Man's Garden', consists of a steep wooded bank surrounded by arable fields. The bank is made up in places of limestone cliffs and ledges. The woodland mostly comprises hawthorn, elder and wych elm scrub with coarse herbaceous vegetation in between. There are small areas, in particular rock exposures, where Magnesian Limestone grassland species such as greater knapweed, ladies bedstraw, birds foot trefoil, biting stonecrop and wild thyme persist. Documentary evidence suggests that the site was formerly more open but, in the absence of management, it is undergoing a transition through scrub to woodland. Cleadon Hill Cliffs is well watched by local bird watchers, and is known to be favoured by migrant birds such as Pallas', Icterine and Marsh warbler in the autumn. It has also regularly hosted a winter roost of long eared owls but this has ceased since around 1990, due to disturbance. Breeding birds include whitethroat, yellowhammer and linnet.

Cleadon Hill Cliffs qualifies as a Local Wildlife Site because it has:
a) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

b) Magnesian limestone grassland.

Although the area of scrub falls just below the qualifying minimum of 1.5 hectares, it is considered that on the basis of the presence of elements of Magnesian limestone grassland, together with the recorded importance of the site for birds, the site should be designated as a Local Wildlife Site.

The site was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


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Cleadon Hill Cliffs
Candidate Local Wildlife Site
Site Ref. No. ST 38
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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10) Cleadon Pumping Station

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST8
OS grid reference: NZ387635
Approximate size: 2.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland
b) Broadleaf woodland
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

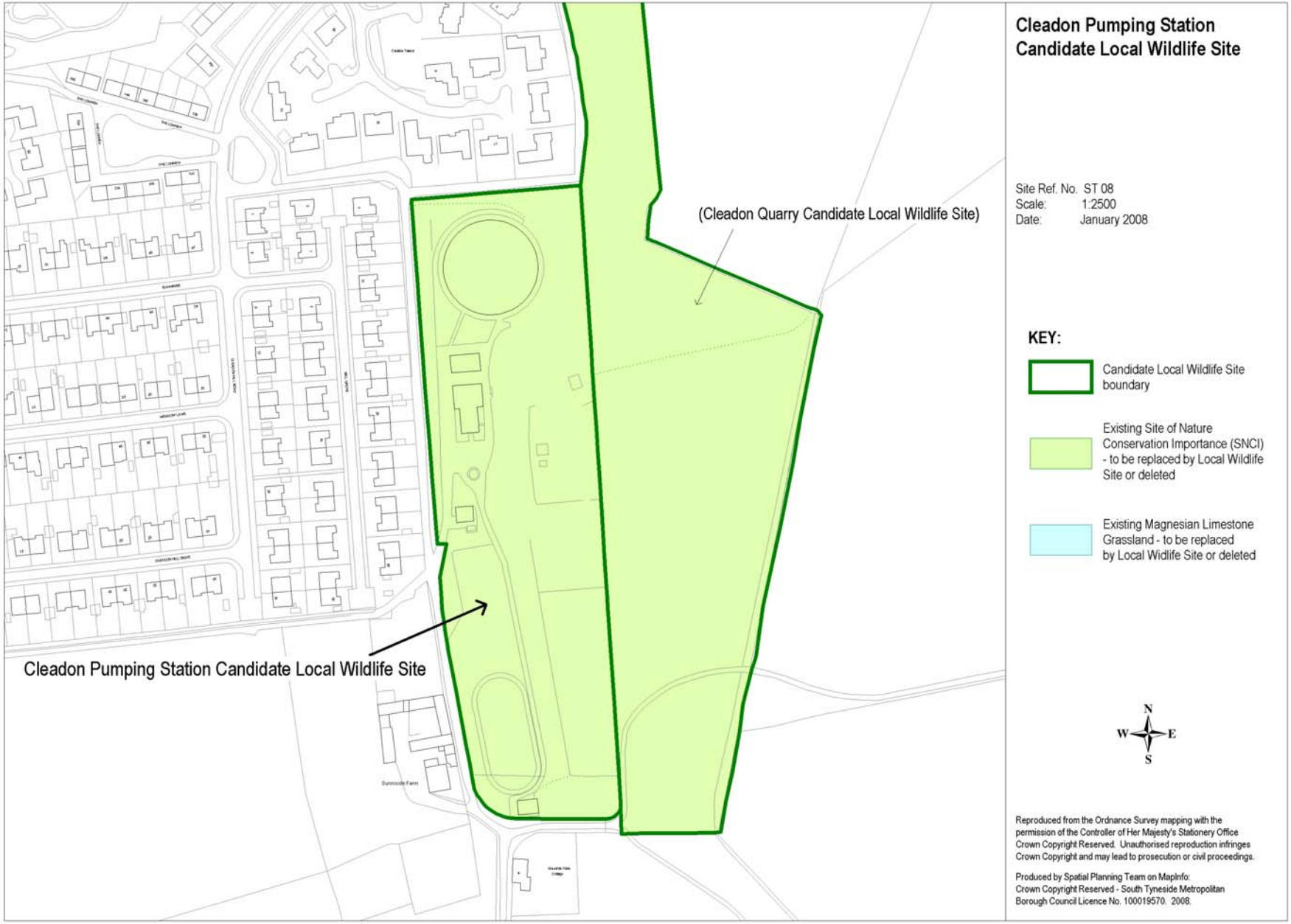
The site is a former water pumping station, enclosed within high stone walls, whose buildings have been converted into residential properties. There are diverse valuable habitats present including a disused cooling pond, which has developed into a species rich secondary Magnesian limestone grassland, with bee orchid and twayblade, glaucous sedge, quaking grass, black medick, sea plantain and goat's beard. This is a rare habitat in north east England. On different levels there are other, coarser, Magnesian limestone grasslands with upright brome and in one location, dropwort. There are also areas of disused quarry, mature secondary woodland with much ivy cover, and scrub.

Cleadon Pumping Station qualifies as a Local Wildlife Site because:
a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The most recent survey, of 1998, did not assess abundance but did record the following species from the indicator list:

- Birds-foot trefoil
- Cowslip
- Dropwort
- Fairy flax
- Greater knapweed
- Hoary plantain
- Ladies bedstraw
- Mouse ear hawkweed
- Orchid spp
- Oxeye daisy
- Rough hawkbit
- Small scabious
- Wild thyme

b) Broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'
c) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

The site was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


(Cleadon Quarry Candidate Local Wildlife Site)
Cleadon Pumping Station Candidate Local Wildlife Site
Cleadon Pumping Station
Candidate Local Wildlife Site
Site Ref. No. ST 08
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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11) Cleadon Quarry

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST9
OS grid reference: NZ387635
Approximate size: 3.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from the public footpath that runs along the eastern boundary.

There are two main areas – a former limestone quarry, now well scrubbed over in places with gorse, and to the south an area of more open grassland, which is cut annually for hay. Both areas have strong elements of species-rich Magnesian limestone grassland, demonstrated by the presence of plants such as ladies bedstraw, rough hawkbit, cowslip, wild marjoram, meadow oat-grass, crested hairgrass, rough hawkbit, black medick, hoary plantain, cowslip and upright brome. This is a rare habitat in north east England.

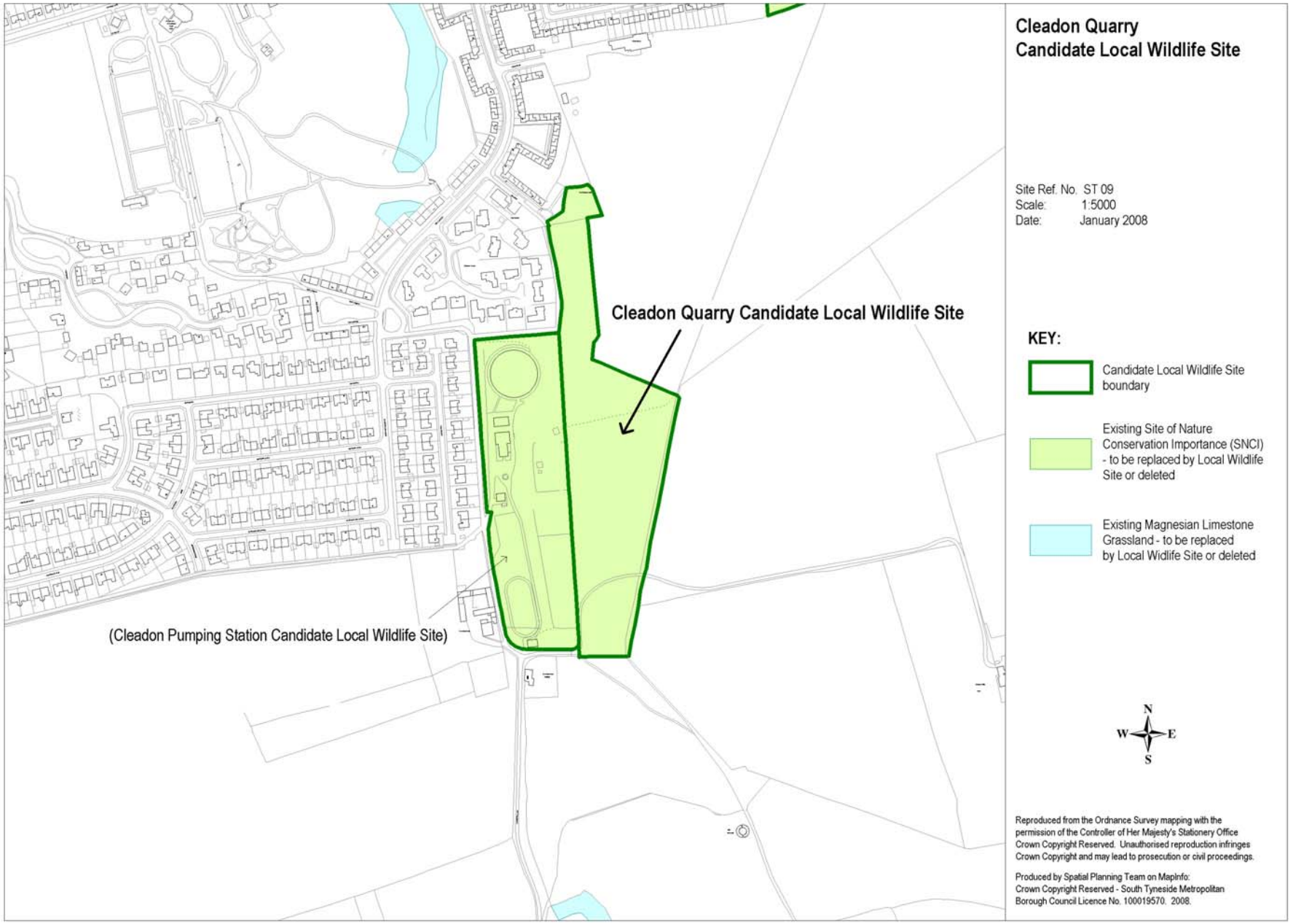
Cleadon Quarry qualifies as a Local Wildlife Site because it has:

a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The most recent survey, of 1997, found the following from the list:

- Greater knapweed frequent
- Common rock-rose frequent
- Wild thyme frequent
- Birds-foot trefoil occasional
- Salad burnet occasional

b) Scrub, as defined in the Durham Biodiversity Action Plan i.e. ‘scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall’.

The site was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Cleadon Quarry Candidate Local Wildlife Site
(Cleadon Pumping Station Candidate Local Wildlife Site)
Cleadon Quarry
Candidate Local Wildlife Site
Site Ref. No. ST 09
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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12) Cotman Gardens

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ370627
Approximate size: 4.1 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadow and pasture
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The Linnet Way footpath runs through, and there is open public access across, the site.

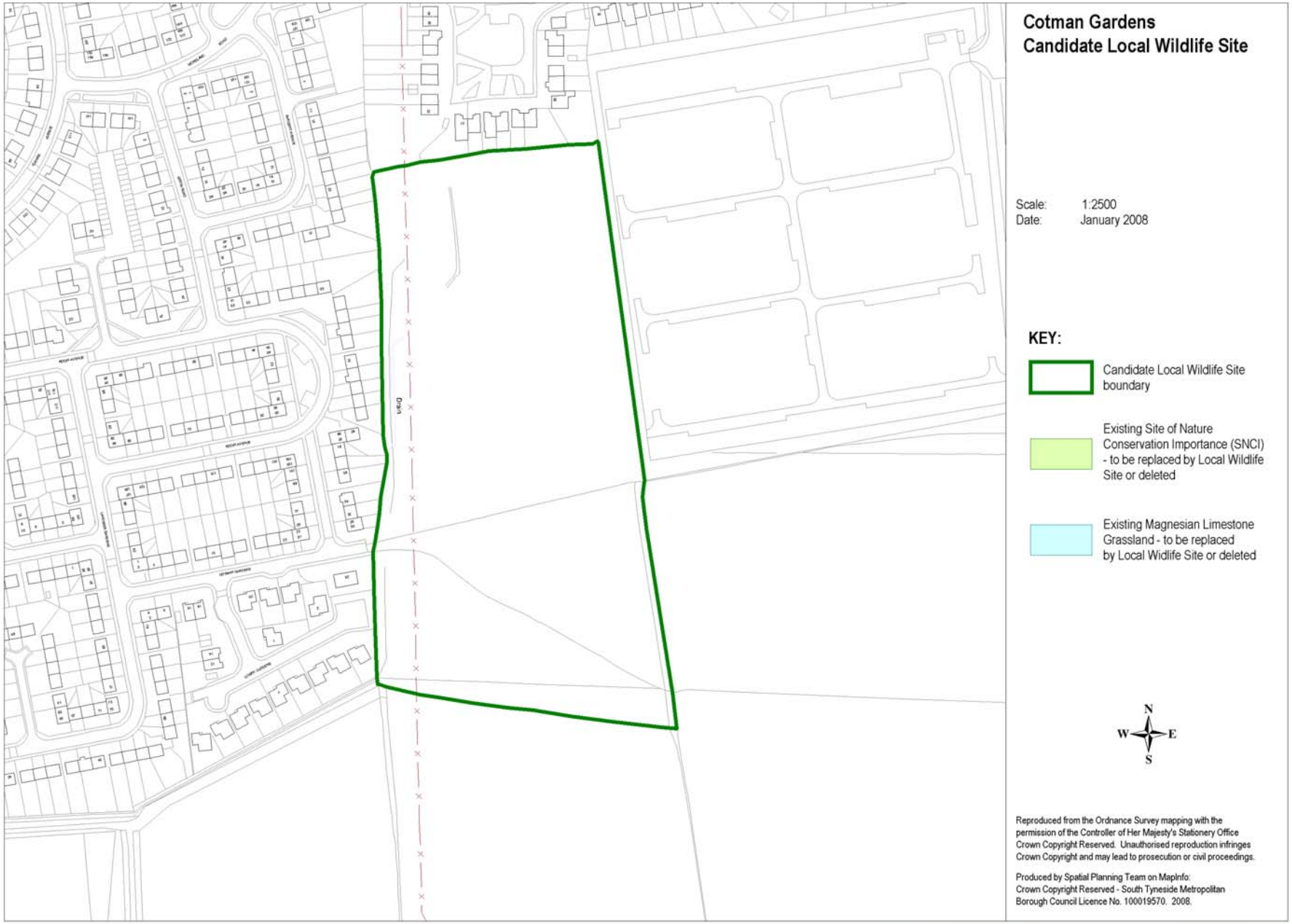
An area of remarkably valuable species-rich lowland neutral grassland, with some of the characteristics of a northern dales hay meadow. Herbs present include pepper saxifrage, zigzag clover and ladies mantle. This is a rare habitat in north east England. The site is managed as a hay meadow, receiving one annual cut. The farmer Mr Ferguson, of Tileshed Farm, has in the past (1995) dressed the field with green hay from a meadow in Allendale, Northumberland, and this could in part account for the unusual combination of species that are present. The field is fringed in the north west corner by damper, coarser grassland and scrub comprising hawthorn, gorse and bramble.

Cotman Gardens qualifies because it has:
a) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey found the following plants from the list:

- Common knapweed Abundant
- Birds foot trefoil Abundant
- Glaucous sedge Frequent
- Yellow rattle Frequent
- Pignut Occasional
- Meadow vetchling Occasional
- Rough hawkbit Occasional
- Cowslip Occasional
- Great burnet Occasional
- Goatsbeard Occasional

b) Scrub, as defined in the Durham Biodiversity Action Plan ie ‘scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall’.

It is proposed that Cotman Gardens is designated as a Local Wildlife Site.


Cotman Gardens
Candidate Local Wildlife Site
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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13) Downhill Old Quarry

Development Management Policies DM7
Local Wildlife Sites – Protected Area with Amended Boundary

Site ref. no.: ST22
OS grid reference: NZ348603
Approximate size: 3.0 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland
b) Broadleaf woodland
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

Downhill is a Magnesian limestone 'outlier' which forms a prominent domed hill overlooking the low lying, open land north of the Nissan car plant. Downhill Old Quarry is situated on the northwest edge of the hill. The quarry had already been worked by 1855, as shown on the OS 1st edition. There are three main elements to the site – the first being the former quarry base flanked by a cliff to the east, together with a small paddock by Downhill Farm. The second element is an area of woodland to the west, and the third a small area above the cliff edge. The former quarry base and paddock has a range of species-rich grassland types grading from Magnesian limestone grassland communities through to more neutral grasslands. Species present, in addition to those listed below, include musk thistle, glaucous sedge, black medick, yellow rattle and lesser knapweed. This is a rare habitat in north east England. The woodland has a canopy of ash and sycamore with an understorey of hawthorn, elder and bramble. To the south and east of the site the land was reclaimed in around 1990. A small part of this area adjacent to the cliff edge has shallow soils and is developing a valuable Magnesian limestone community with plants such as autumn gentian, cowslip, centaury, yellow-wort, common spotted orchid, self heal, hoary plantain, fairy flax and glaucous sedge. Birds using the site include Bullfinch and songthrush, whilst barn owl was regularly present until around 2003.

Downhill Old Quarry qualifies because it has:
a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The most recent survey, of 1997, found the following from the list:

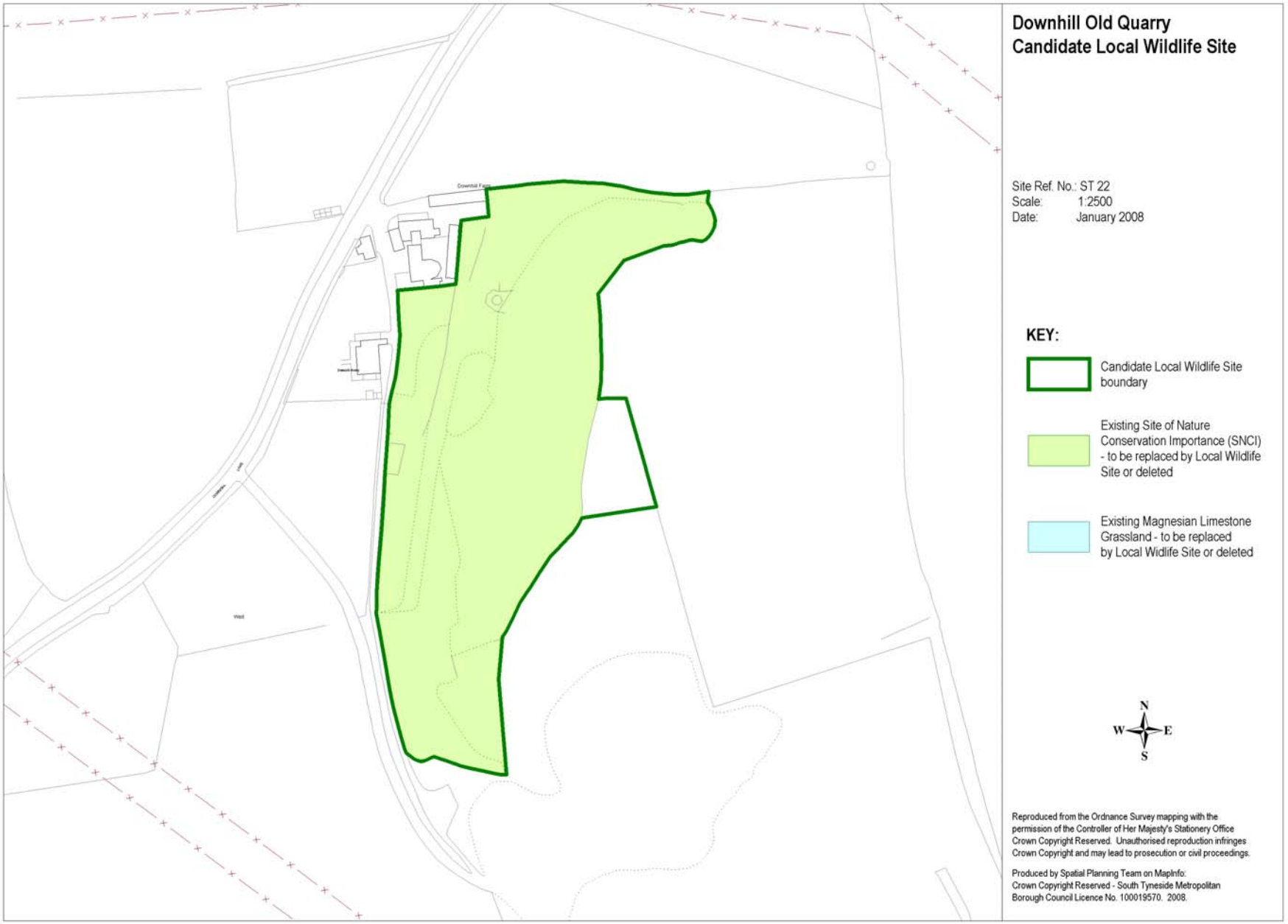
- Common rock-rose frequent
- Common spotted orchid occasional
- Rough hawkbit occasional
- Birds-foot trefoil occasional
- Hoary plantain occasional
- Cowslip occasional
- Salad burnet occasional
- Wild thyme rare
- Greater knapweed rare
- Fairy flax rare

Although only one species was recorded as frequent, the presence of a further nine species from the indicator list is more than sufficient to compensate.

b) Broadleaf woodland. The definition of broadleaf woodland is ‘all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.’

c) Scrub, as defined in the Durham Biodiversity Action Plan i.e. ‘scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall’.

The site was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that a small addition is made as described above (the area above the cliff edge) and that the equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Downhill Old Quarry
Candidate Local Wildlife Site
Site Ref. No.: ST 22
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
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14) Elliscope Farm East/ Hylton Bridge

Development Management Policies DM7
Local Wildlife Sites – Protected Area with Amended Boundary

Site reference number: ST39
OS grid reference: NZ334596
Approximate size: 3.5 hectares

Durham Biodiversity Action Plan priority habitats present

a) River,
b) Broadleaf woodland,
c) Scrub.

Selection criteria
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public access
There is no public access, but the site can be partially overlooked from the road at Hylton Bridge.

The site consists of two small woodlands and the linking section of the River Don, leading east from Hylton Bridge Farm. Elliscope Farm East is a linear, mature broadleaf plantation dominated by sycamore, with ash and elder. The understorey has bramble and species-poor neutral grassland. At the eastern end there is a small pond with reed canary-grass and branched bur-reed. Hylton Bridge is a small mature broadleaf plantation with a varied canopy of sycamore, ash, beech, horse chestnut, lime and crack willow. The understorey comprises hawthorn, hazel and rowan, with some woodland ground flora such as wood false-brome, hairy brome, greater stitchwort and wood avens.

The Don here has mostly unmodified riverbank, with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. Recent surveys have recorded occupied breeding habitat for water vole and use by otter. The riverside margins are mostly covered in dense scrub, but in parts there is coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. The adjacent fields are a mixture of arable and permanent pasture.

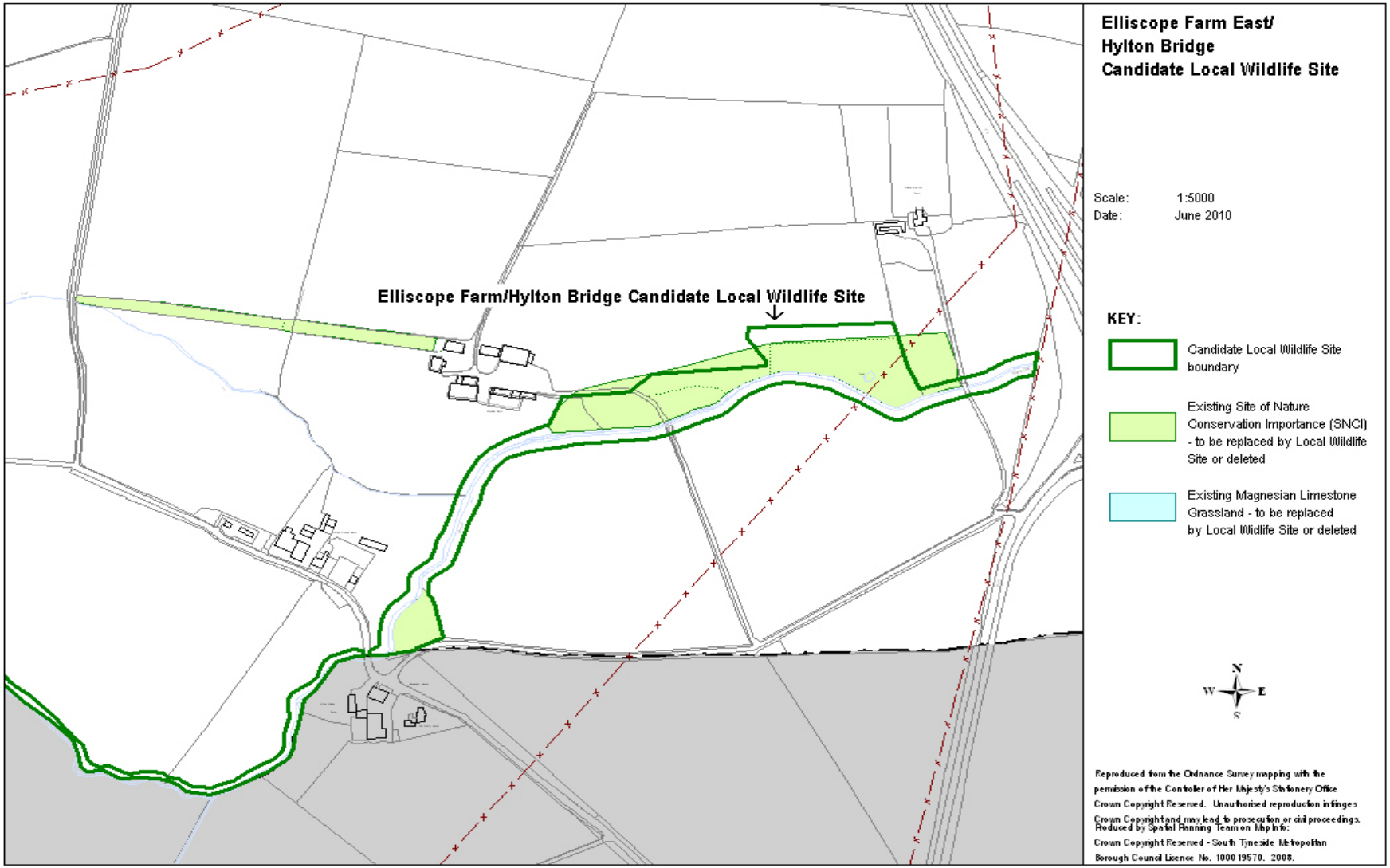
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. At least one of the priority habitats must meet the relevant threshold values whilst smaller areas of other adjacent priority habitats, or those forming a mosaic, should be included in the designation. Elliscope Farm East/Hylton Bridge qualifies because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is used by otter.

b) Contains approximately 1.5 hectares of scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

c) Holds approximately 1.5 hectares of broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

Elliscope Farm East and Hylton Bridge were designated as separate Sites of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of Elliscope Farm East is to be amended to reflect the situation on the ground more accurately and that the two sites are to be combined, incorporating the linking stretch of the

River Don. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Elliscope Farm/Hylton Bridge Candidate Local Wildlife Site
Elliscope Farm East/
Hylton Bridge
Candidate Local Wildlife Site
Scale: 1:5000
Date: June 2010
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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15) Follingsby

Development Management Policies DM7
Local Wildlife Site – Protected Area

Site ref. no.: ST19
OS grid reference: NZ314597
Approximate size: 0.2 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

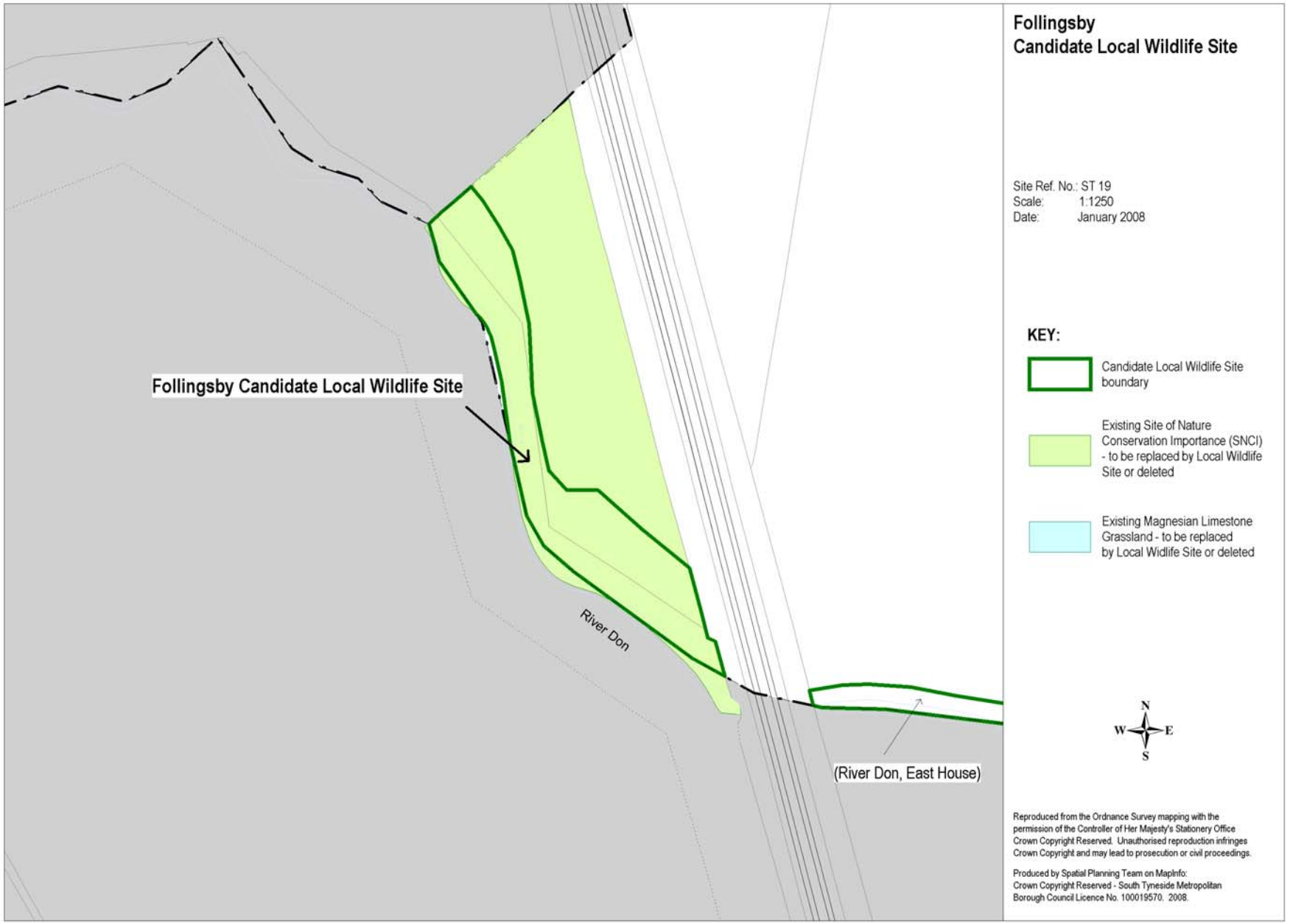
Public Access:
There is no public access to the site.

This is a short section of the River Don near the borough boundary with Gateshead and Sunderland (the west bank falls within the latter). In this stretch the Don has mostly unmodified riverbank, with features such as eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The vegetation within the river channel is heavily shaded, diminishing the growth of aquatic and marginal vegetation, but there are small amounts of branched bur-reed, reed canary-grass and fool's watercress. The riverside margin to the east has a dense cover of trees and shrubs, such as crack willow, sycamore, hawthorn, ash, elder and grey willow, with liverworts and occasional woodland species such as herb-robert and greater stitchwort below. The adjacent fields are arable. Birds using this area in winter include long-eared and short-eared owls, while breeding species include grey partridge, sedge warbler and reed bunting.

Follingsby qualifies as a Local Wildlife Site because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife.

b) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

Follingsby was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Follingsby Candidate Local Wildlife Site
River Don
(River Don, East House)
Follingsby
Candidate Local Wildlife Site
Site Ref. No.: ST 19
Scale: 1:1250
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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16) Harton Downhill

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST1
OS grid reference: NZ391654
Approximate size: 3.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

Harton Downhill, known locally as 'Blackberry Hills', is a small but prominent hill next to the Coast Road. The whole site is a Local Nature Reserve, which encompasses a Site of Special Scientific Interest at the western end, whilst the remainder forms the Local Wildlife Site. The majority of the site comprises short, neutral semi-improved and improved grassland, managed for 'amenity' by regular mowing. This nevertheless holds plants such as self heal, common cat's ear, rough hawkbit and lesser knapweed. Locally the grassland becomes more species-rich and transitional to calcareous grassland with species such as hoary plantain, birds foot trefoil and black medick. Steeper slopes occur in the centre of the site that are only cut once per year. These hold small areas of Magnesian limestone grassland comparable to the adjacent SSSI with additional species such as fairy flax, quaking grass and harebell. This is a rare habitat in north east England. Sculptural marker posts have been positioned nearby to enlarge the area of grass that is only cut once per year, and thereby encourage flowering and seeding.

Harton Downhill qualifies as a Local Wildlife Site because it has:
a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The most recent survey, of 1998, did not assess abundance but did record the following from the list:

- Fairy flax
- Greater knapweed
- Harebell
- Glaucous sedge
- Kidney vetch
- Mouse ear hawkweed
- Wild thyme
- Birds-foot trefoil
- Salad burnet

Harton Downhill was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


(The Leas Candidate Local Wildlife Site)
Harton Downhill Candidate Local Wildlife Site
Harton Downhill
Candidate Local Wildlife Site
Site Ref. No. ST 01
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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17) Hebburn Riverside

Development Management Polices DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST41
OS grid reference: NZ300635
Approximate size: 10.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pasture
b) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

Hebburn Riverside is an area of open grassland and plantations rising steeply from the banks of the River Tyne. Much of the area comprises relatively species-rich neutral grassland, with the plants listed at a) below. This includes an area of horse pasture bounded to the north by a vigorous double hedgerow that was not included in the area designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). Small scale wet areas occur elsewhere, dominated by jointed rush and creeping buttercup, whilst 'waste ground' species such as tall melilot, tansy and sow thistles are present elsewhere. In places the grassland becomes more acidic, as shown by the increasing prominence of plants such as autumn hawkbit, common cat's ear and abundant common bent and red fescue. Small plantations hold trees and shrubs such as poplar, willow, alder, sycamore and sea buckthorn. Cutthroat Dene, at the southern boundary, has a stream and small pools in a marshy dene with great horsetail and floating sweet-grass. Breeding toads have been recorded here. There is a narrow inter-tidal zone along the banks of the Tyne with mud and pebbles, vegetated with bladder wrack.

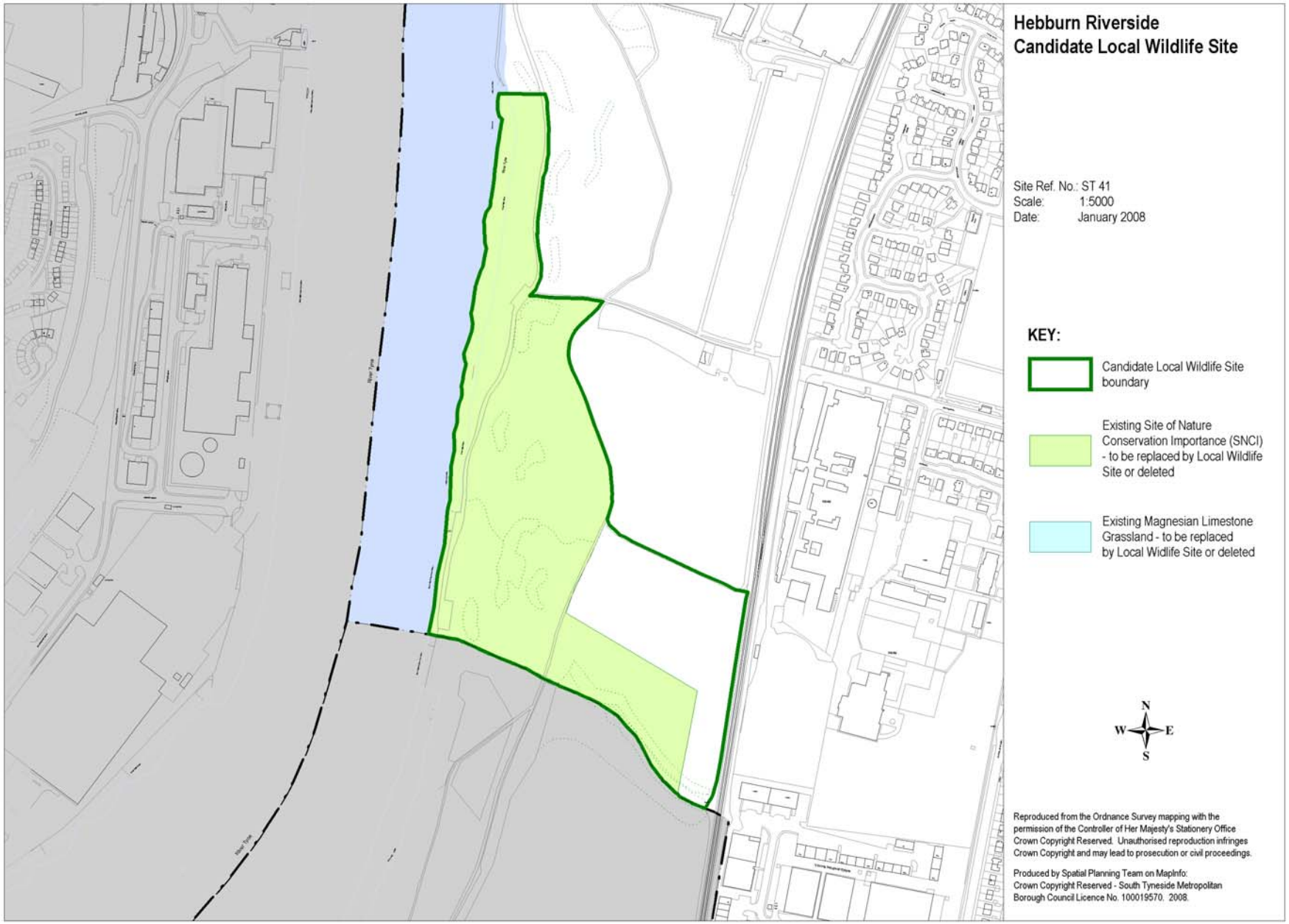
Hebburn Riverside qualifies as a Local Wildlife Site because it:
a) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Autumn hawkbit
- Common knapweed
- Goatsbeard
- Great burnet
- Birds foot trefoil
- Meadow vetchling
- Tufted vetch
- Zigzag clover

b) Has broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

The site also has small areas of lowland fen with ponds, coastal saltmarsh and mudflat.

Hebburn Riverside was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of the site is extended to incorporate an area of grassland at the southern end of the site. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Hebburn Riverside
Candidate Local Wildlife Site
Site Ref. No.: ST 41
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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18) Hedworth Dene

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST35
OS grid reference: NZ338629
Approximate size: 4.0 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Lowland meadows and pastures
c) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access along the riverside between the two sections of Hedworth Lane.

The southern end of the site comprises a bowl-shaped area of land bounded by the A19 and railway line. On either side of the River Don there are semi-natural neutral grasslands ranging from species rich to species poor. Typical species of the former include meadow cranes-bill, great burnet, meadow vetchling, common knapweed, harebell and birds foot trefoil. There is also a heavily grazed, but species-rich horse pasture. On the south facing slopes there is an area of broadleaf woodland and scrub, with mature ash, hawthorn and sycamore, and dense brambles below in places.

The River Don has mostly unmodified riverbank, except for a short stretch to the rear of Hawthorn Drive. It has features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. Recent surveys have recorded suitable breeding habitat for water vole and an otter spaint (faeces left as a means of communicating with other otters) was recorded in 2003. To the north the riverside margins are mostly covered with a combination of scrub and coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. The fields to the east are permanent horse-grazed pasture.

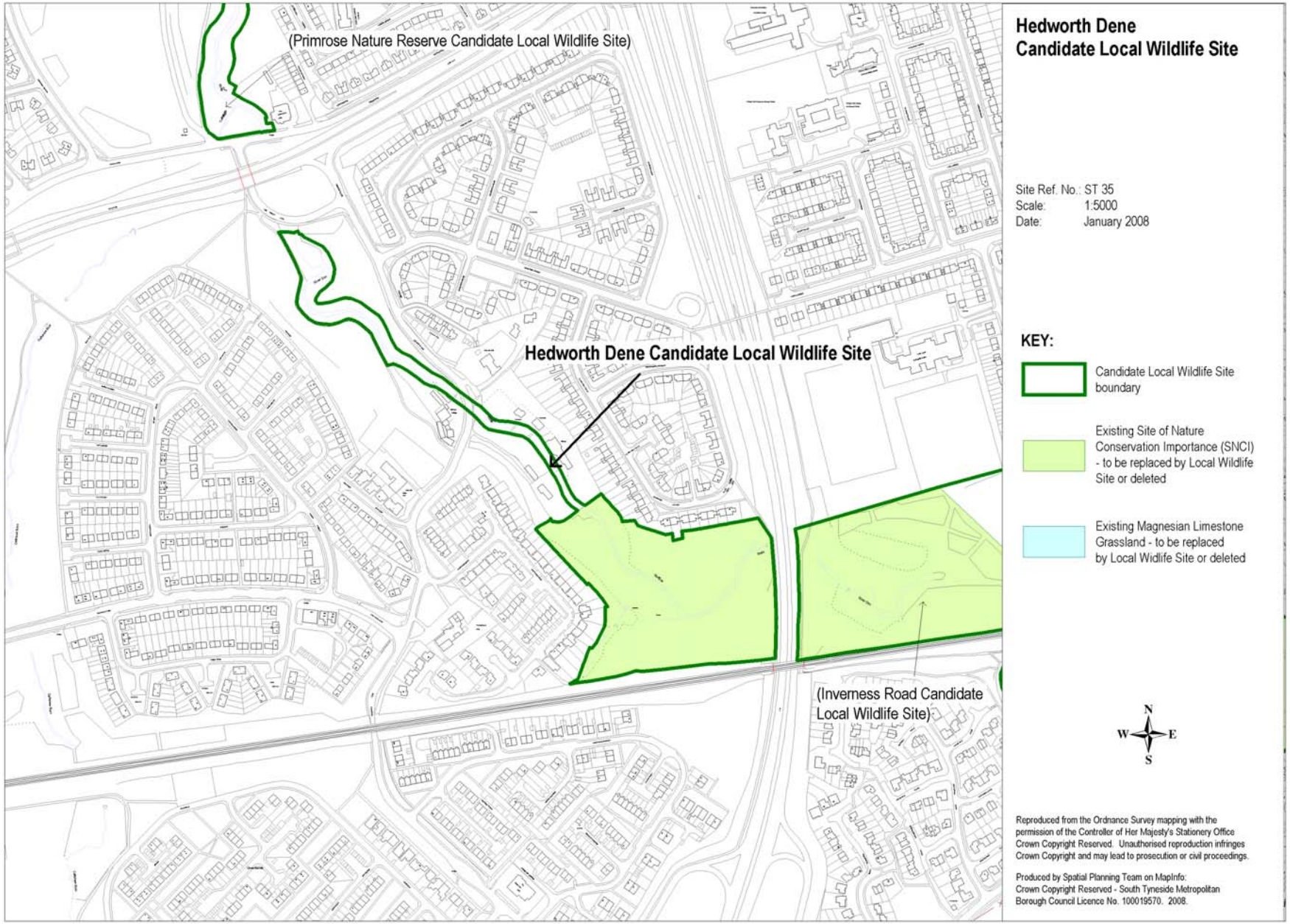
Hedworth Dene qualifies as a Local Wildlife Site because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides suitable breeding habitat for water vole and is used by otter.

b) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Agrimony
- Common knapweed
- Birds foot trefoil
- Meadow cranesbill
- Meadow vetchling
- Pepper saxifrage
- Rough hawkbit
- Great burnet

c) Holds broadleaf woodland. The definition of broadleaf woodland is ‘all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.’

Hedworth Dene was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of the site is to be extended to incorporate the River Don as far north as the northern end of Hedworth Lane. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


(Primrose Nature Reserve Candidate Local Wildlife Site)
Hedworth Dene Candidate Local Wildlife Site
(Inverness Road Candidate Local Wildlife Site)
Hedworth Dene
Candidate Local Wildlife Site
Site Ref. No.: ST 35
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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19) Inverness Road, Jarrow

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST36
OS grid reference: NZ342628
Approximate size: 4.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pastures
b) River
c) Broadleaf woodland
d) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the railway embankment, but full access to the rest of the site.

Inverness Road is a bowl-shaped section of the River Don Valley bounded by the A19, to the west, and the railway line to the south. Much of the site consists of grassland, dominated by tall plants such as false oat-grass, hogweed and creeping thistle. Locally, the grassland becomes much more species rich, with herbs such as meadow cranesbill and great burnet. In places it grades into marshy/flushed grassland, with species such as various sedges, wild angelica, and reed canary-grass.

A short length of the River Don, with culverts at either end, has unmodified riverbank. It has features such as a meander, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. In one section the river bank has been excavated (probably around 1990) to create a small, diversely stocked marsh with plants such as common reed, valerian and lesser pond sedge. Whilst the river itself provides suitable habitat for water vole, the presence of lengthy culverts at both ends may reduce its value for breeding populations. Otters have been recorded upstream and downstream of the site.

Small broadleaf plantations have a variety of trees such as alder and rowan, whilst the embankments of the A19 and the railway have developed mature scrub, with hawthorn, ash and willows near the Don.

Inverness Road qualifies because it:
a) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Agrimony
- Betony
- Common knapweed
- Birds foot trefoil
- Fen bedstraw
- Glaucous sedge
- Goatsbeard
- Greater birds foot trefoil
- Meadow cranesbill
- Meadow vetchling
- Meadowsweet

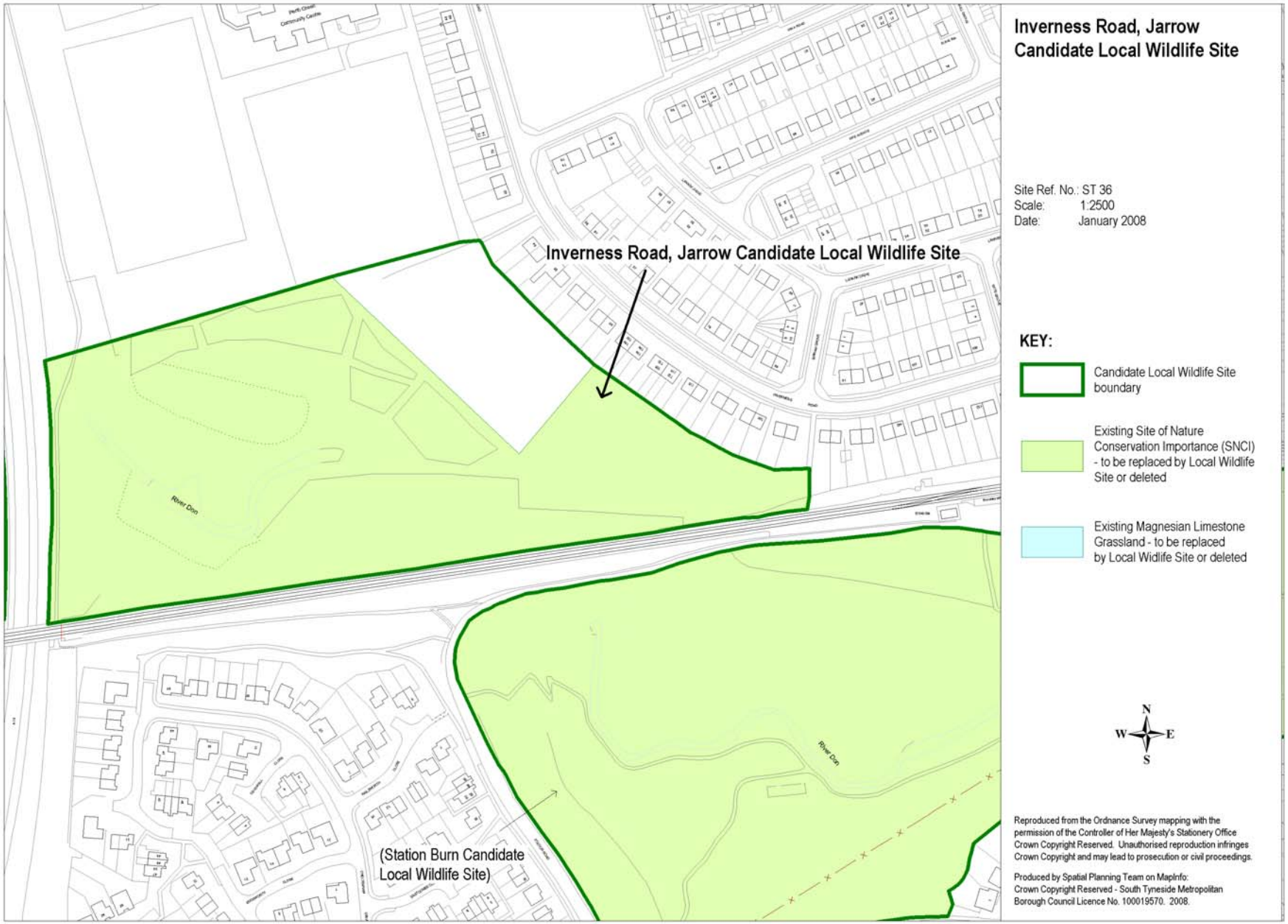
- Oxeye daisy
- Pepper saxifrage
- Great burnet
- Sneezewort
- Tufted vetch
- Yellow rattle

b) Forms part of a section of the River Don, over 5km in length, which has particular habitat features (as described above) which are beneficial to wildlife. It also provides potential breeding habitat for water vole and may be used by passing otters.

c) Holds broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

d) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

Inverness Road was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of the site is to be extended to incorporate a section of grassland to the northeast, which has similar characteristics to the rest of the site. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.



Inverness Road, Jarrow Candidate Local Wildlife Site

Site Ref. No.: ST 36
Scale: 1:2500
Date: January 2008

KEY:

- Candidate Local Wildlife Site boundary
- Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
- Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted

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20) Jarrow Slake Mud Flats

Central Jarrow Area Action Plan J11
Development Management Policies DM7
Local Wildlife Site – Protected Area

Site ref. no.: ST32
OS grid reference: NZ341657
Approximate size: 4.1 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Mudflat

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

Jarrow Slake is situated on the south bank of the River Tyne, immediately downstream of the mouth of the River Don. The Slake was previously of regional importance, comprising a much larger area of inter tidal mudflat (approximately 40 hectares) until most of it was infilled in 1973/74. In 1993/94 the Nissan car terminal was created, with steep rubble banks abutting the mudflat. Three jetties were built across the remaining Slake, splitting it into five sections. The site, together with the adjacent River Don Saltmarsh, nevertheless remains the largest and most important area of inter-tidal mud in South Tyneside. Its value is increased by the presence of other smaller areas of such habitat nearby along the River Tyne corridor.

Mud dwelling invertebrates are conspicuous and their presence has attracted bait diggers. The site is important as a winter feeding and roost site for migrant and wintering birds – attracting a wide range of species. Over 1000 golden plover have been recorded, along with good numbers of curlew, lapwing, dunlin (100 plus), redshank (300 plus), ringed plover and a variety of gull species. Of particular note is a flock of up to 18 turnstones, which is present throughout most of the year. Knot, bar tailed godwit, and spotted redshank have also been recorded. Cormorants roost on the old staithes nearby. In summer the area is also used by arctic, common and sandwich terns.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Jarrow Slake qualifies because it has more than 1 hectare of mudflat. The definition of mudflat is provided by the DEFRA Higher Level Stewardship Farm Improvement Plan handbook, 2005, CO6. It is described as ‘the unvegetated part of inter-tidal habitats’ which ‘consist of fine sediment which is usually a valuable resource for wildlife’ with ‘evidence of invertebrate communities (lugworm casts visible, feeding birds present)’.

Jarrow Slake was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999) and as a Local Wildlife site in the Central Jarrow Area Action Plan, 2009. The equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Jarrow Slake Mud Flats Candidate Local Wildlife Site
River Tyne
River Tyne
River Tyne
Jarrow Slake Mud Flats Candidate Local Wildlife Site
(River Don Saltmarsh Candidate Local Wildlife Site)
Jarrow Slake Mud Flats Candidate Local Wildlife Site
Site ref. no.: ST32
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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21) Kitchener Road

Development Management Policies DM7
Local Wildlife Site - Protected Area with Amended Boundary

OS grid reference: NZ405637
Approximate size: 0.6 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadow and pasture/Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

The site is a narrow strip of uneven horse-grazed pasture north of Kitchener Road. The soils are shallow and there are the remains of a small quarry, from which limestones from the Concretionary Limestone were worked. The quarry has mostly been backfilled. The vegetation comprises relatively species-rich unimproved neutral grassland, but with a strong influence from the limestone at or near the surface. Plants present include musk thistle, black medick, wild mignonette, yarrow, meadow buttercup, ribwort plantain and sorrel.

Kitchener Road qualifies as a Local Wildlife Site because it has more than 0.25 hectares of species-rich grassland which is intermediate between lowland meadows and pasture and Magnesian limestone grassland, as defined in the Durham Biodiversity Action Plan. To meet the definition of a Local Wildlife Site a minimum of a) two species must be recorded as frequent and a further three as occasional from a given list of lowland meadow indicator species, OR b) two species must be recorded as frequent and a further two as occasional from a given list of Magnesian limestone indicator species. The most recent surveys did not assess abundance, but did find the following from the two lists combined:

- Meadow vetchling
- Tufted vetch
- Glaucous sedge
- Greater knapweed
- Fairy flax
- Birds-foot trefoil

The site was designated as a Magnesian Limestone Grassland Site in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. In addition the site has been extended to take in the small quarry area and a section of verge adjacent to Kitchener Road.


(Marsden Quarry Candidate Local Wildlife Site)
Kitchener Road Candidate Local Wildlife Site
ARTHUR STREET
KITCHENER
ROAD
Kitchener Road
Candidate Local Wildlife Site
Scale: 1:1250
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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22) Lakeside Inn, Fellgate

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST42
OS grid reference: NZ321622
Approximate size: 2.0 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland meadows and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

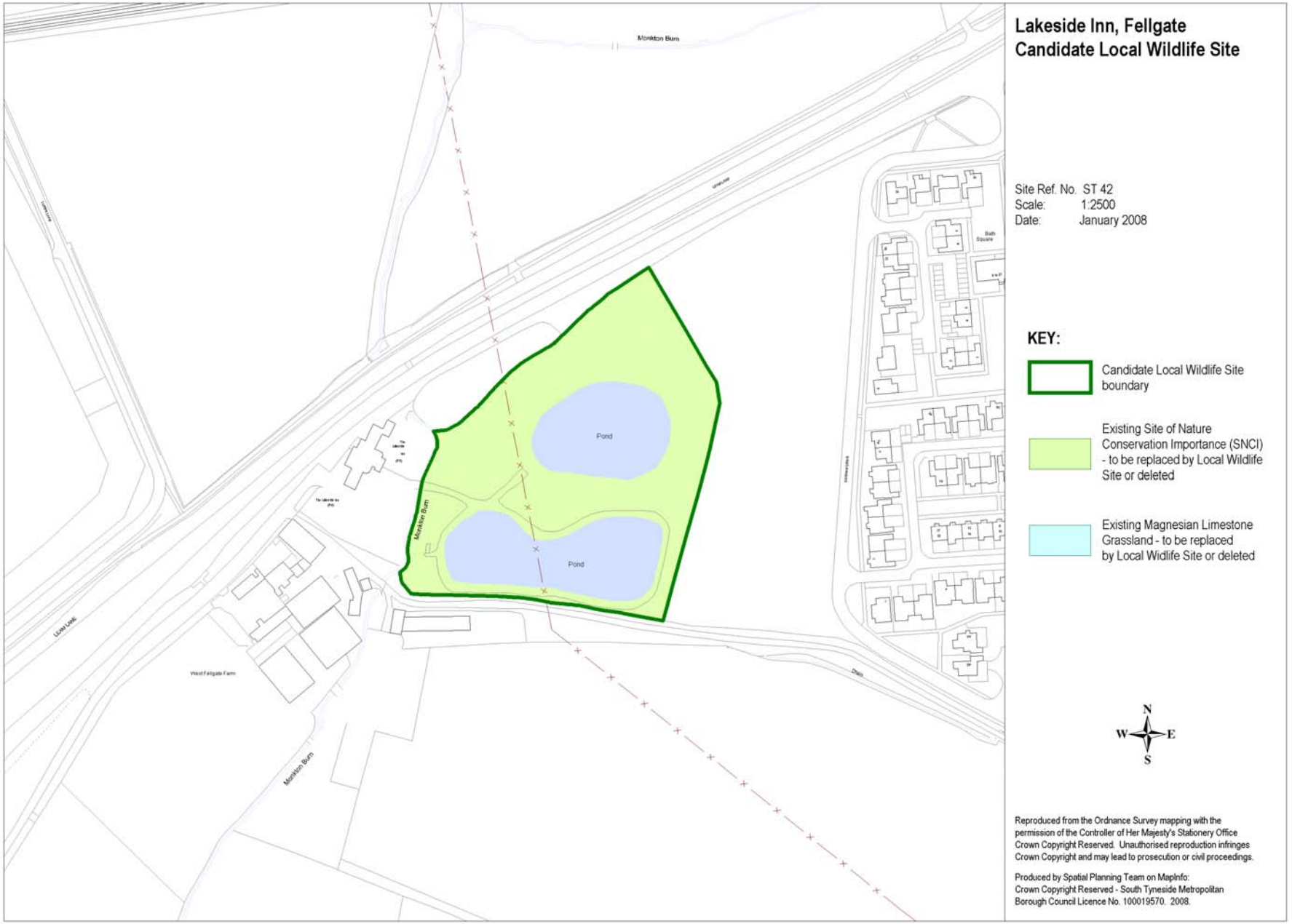
:The site centres on two small lakes created for angling purposes during the 1990s. Development of aquatic and marginal vegetation is controlled to provide optimum conditions for angling, but nevertheless a wide variety of species are present such as broad leaved pondweed, Canadian waterweed, curly pondweed, yellow iris and branched bur-reed. The southern lake has large stands of a plant with characteristics intermediate between reedmace *Typha latifolia* and lesser reedmace *Typha angustifolia*. This hybrid is uncommon in the area i.e. there is only a single record for the north of England in the New Atlas of the British and Irish Flora (Preston, Pearman and Dines 2002). The edges of the northern lake are dominated by rush species, whilst there is also water plantain, floating sweet grass and great hairy willowherb. A survey in 2007 found dominant and extensive stands of the highly invasive Australian swamp stonecrop on the margins of both ponds. The marginal vegetation grades into marshy grassland, whilst other habitats present include semi-improved neutral grassland and small areas of broadleaved plantation woodland and scrub with species such as crack willow, Swedish whitebeam, white poplar and alder. Bird species present include reed bunting, white throat and willow warbler.

Lakeside Inn, Fellgate qualifies as a Local Wildlife Site because it has:

a) A pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The most recent survey recorded 16 species of naturally occurring floating, submerged, and/or marginal plant. A survey in 2002 recorded the presence of frogs and toads in both ponds.

b) An area of lowland meadow and pasture that, on its own, would not justify Local Wildlife Site status but which nevertheless forms a valuable component of the overall site.

Lakeside Inn, Fellgate was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Monkton Burn
Pond
Pond
Monkton Burn
Monkton Burn
Lakeside Inn, Fellgate
Candidate Local Wildlife Site
Site Ref. No. ST 42
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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23) Lizard Lane Cutting

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

OS grid reference: NZ398644
Approximate size: 0.2 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from the roadside, but there is no public footpath.

Lizard Lane Cutting comprises two road verges on either side of Lizard Lane that are steep and rocky in places. The vegetation is Magnesian limestone grassland, with elements of neutral grassland - a rare habitat in north east England. There is considerable diversity for such a small site. Typical plants present include musk thistle, glaucous sedge, quaking grass, black medick and sea plantain together with those listed below. The more neutral element is illustrated by species such as crosswort, sheep's fescue, common cat's ear, goatsbeard, and field scabious.

Lizard Lane Cutting qualifies as a Local Wildlife Site because it has Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The most recent survey, of 2005, did not record abundance but did find the following from the list:

- Birds foot trefoil
- Common rock-rose
- Cowslip
- Eyebright
- Fairy flax
- Greater knapweed
- Harebell
- Kidney vetch
- Ladies bedstraw
- Mouse-ear hawkweed
- Rough hawkbit
- Salad burnet

Although the site falls below the threshold of 0.25 hectares it is considered that bearing in mind the high quality of the habitat, together with the fact that the site is adjacent to Marsden Old Quarry, Lizard Lane Cutting should be designated as a Local Wildlife Site.

The site was designated as a Magnesian Limestone Grassland Site in the UDP (1999). It is proposed that an equivalent status is retained but that the name is changed to Local wildlife Site, in keeping with Government guidance.


(Marsden Old Quarry Candidate Local Wildlife Site)
Lizard Lane Cutting Candidate Local Wildlife Site
Marsden Hall
Marsden Hall
Marsden Cottage
North Lizard Cottages
LIZARD LANE
Lizard Lane Cutting Candidate Local Wildlife Site
Scale: 1:1250
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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24) Low House Copse, East Boldon

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST43
OS grid reference: NZ377610
Approximate size: 0.8 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Broadleaf woodland
b) Ponds

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

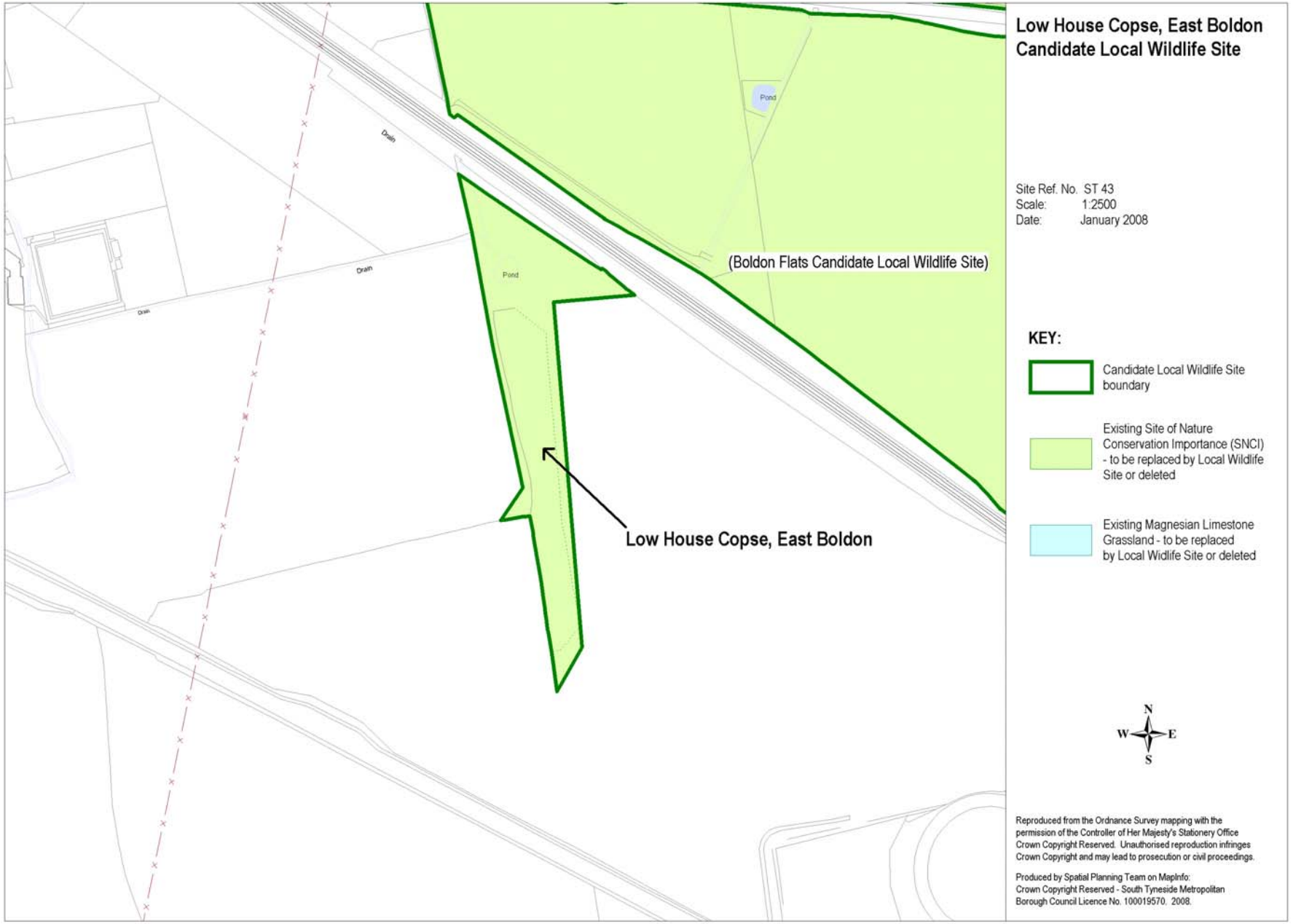
Low House Copse is a small area of plantation woodland to the north east of Low House Farm. There is a relatively open canopy comprising of crack willow, ash, pedunculate oak and elm. The ground flora is dominated by tall grasses such as false oat grass and cocksfoot, whilst wetland and woodland elements are represented by species such as meadowsweet, creeping buttercup, hedge woundwort and wood dock. There are also herbs typical of neutral grasslands such as tufted vetch and meadow vetchling. At the northern end of the site there is a pond with an area of approximately 0.12 hectares. The pond has small islands and tall marginal vegetation such as bulrush and great hairy willowherb, whilst aquatic species present include water plantain, fool's water cress and broad-leaved pondweed. Use by mallard, moorhen, snipe and grey heron has been noted. Other birds regularly using the site include water rail, during the winter and whitethroat, willow warbler and reed bunting. The site is linked to Boldon Flats to the north via the overflow from the pond, which passes underneath the railway embankment between the two sites.

Low House Copse qualifies as a Local Wildlife Site because it:
a) Consists of broadleaf woodland, which is listed as a priority habitat. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.' In this case the woodland is linked to another valuable wildlife habitat (Boldon Flats) so it is described as a 'connectivity feature'. To qualify as a Local Wildlife Site a minimum area of 1 hectare of this habitat would normally be required.

b) Contains a pond as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' 13 such species were recorded during the most recent survey.

Although the site falls narrowly short of the individual criteria in a) and b) above it is considered that, on the basis of the combination of the two habitats, together with its situation next to Boldon Flats, the site merits designation as a Local Wildlife Site. In addition, on the basis of its rarity as a habitat in South Tyneside, it was recommended for Local Wildlife Site status by an independent ecologist, Dr Moira Owen, in the survey of 1998.

Low House Copse was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Low House Copse, East Boldon
Candidate Local Wildlife Site
Site Ref. No. ST 43
Scale: 1:2500
Date: January 2008
(Boldon Flats Candidate Local Wildlife Site)
Low House Copse, East Boldon
Pond
Drain
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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25) Make Me Rich Meadow

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST15
OS grid reference: NZ341601
Approximate size: 3.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pastures
b) River
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access, but the site can be partially overlooked from the adjacent public bridleway.

The site is made up of an area of species-rich, damp, unimproved grassland, together with a section of the River Don between the A19 and the A184. The meadow was formerly grazed, but has not been intensively managed for some years. In the absence of grazing, large areas have become dominated by tall stands of meadowsweet, great willowherb and tufted hairgrass. However, much of the original herb-rich vegetation has persisted and there are large and flourishing colonies of pepper saxifrage and great burnet. Four species of sedge are present but these are now of rare occurrence in the meadow and have probably declined as more vigorous patch-forming species have become dominant. Other herbs characteristic of this type of meadow include valerian, square-stalked St John's wort, cuckoo flower and wild angelica. Drier parts support harebell, hairless ladies mantle, hawkweeds, crosswort, ox-eye daisy, birds foot trefoil, zigzag clover, hoary ragwort and self heal. This is a rare habitat in northeast England and was identified by Clare and John O'Reilly in 2009 as being closely related to MG4 grassland. MG4 is one of only two types of mesotrophic (neutral) grassland in Britain listed as an Annex 1 habitat under the European Habitats Directive. Hawthorn scrub is well established around the fringes of the grassland, but is so far only of scattered occurrence within, probably due to the damp conditions. Bramble, however, is starting to spread into the grassland in the absence of grazing.

The section of the River Don has mostly unmodified riverbank, with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. The riverside margins typically have coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. There are also areas of scattered scrub. The adjacent fields are arable, with some permanent pasture. Recent surveys have recorded occupied breeding habitat for water vole and use by otter.

Make Me Rich Meadow qualifies because it has:
a) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey found the following plants from the list:

- Meadowsweet — locally dominant
- Pepper saxifrage — frequent
- Common knapweed — locally frequent
- Great burnet — locally frequent
- Meadow vetchling — occasional
- Sneezewort — occasional
- Tufted vetch — occasional

b) Part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is used by otter.
c) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

Make Me Rich Meadow was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. In addition the site is to be extended to take in a section of the River Don, to the north.


(Mount Pleasant Marsh
Candidate Local Wildlife Site)
Make Me Rich Meadow Candidate Local Wildlife Site
Make Me Rich Meadow
Candidate Local Wildlife Site
Site Ref. No.: ST 15
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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26) Marsden Limekilns

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST6
OS grid reference: NZ403645
Approximate size: 6.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

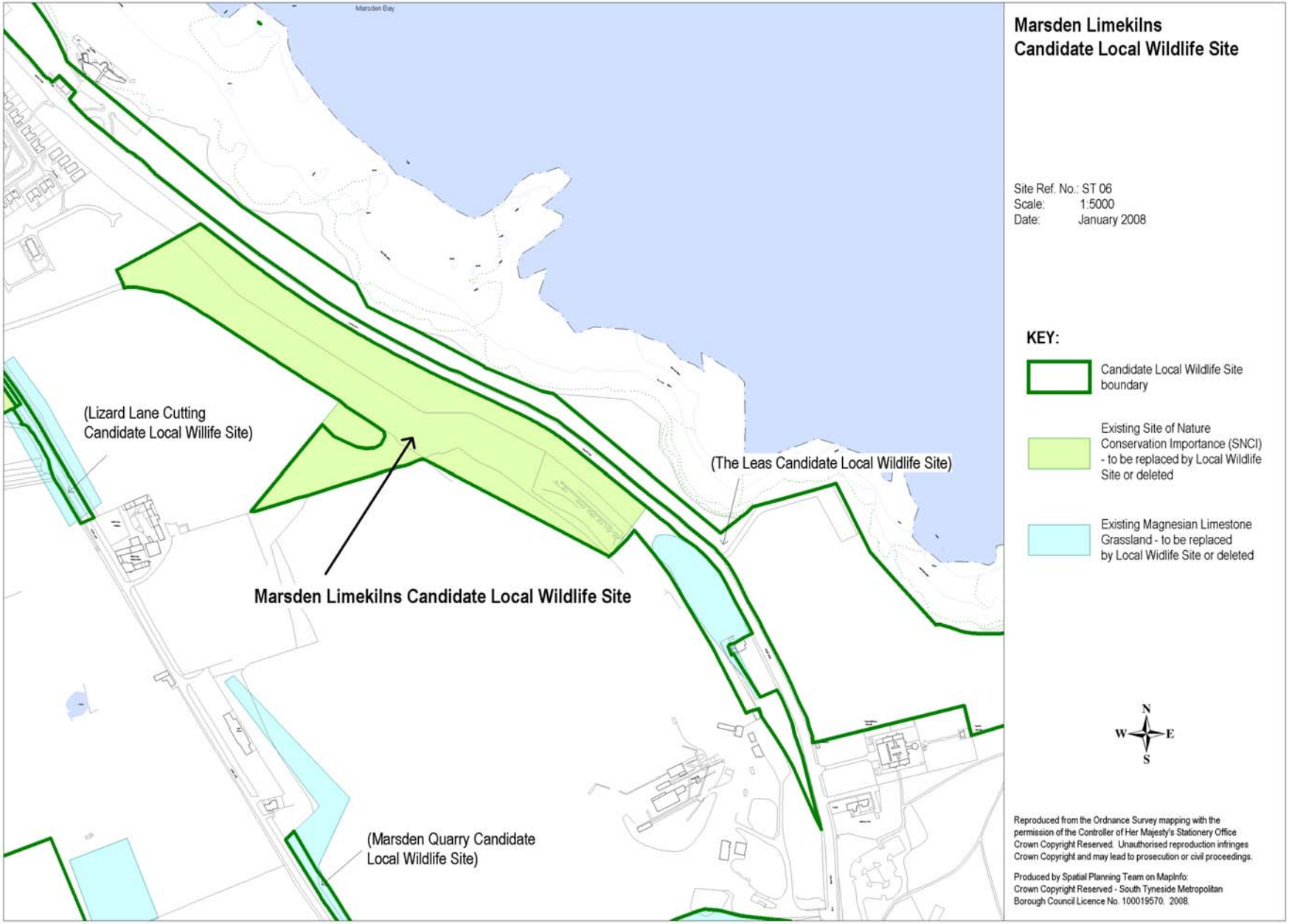
Public Access:
Parts of the site are only accessible to legitimate users of the golf course, but the northern fringe can be viewed from the Coast Road.

This is a diverse site, taking in parts of Whitburn Golf Course, Marsden Limekilns and the strip of land alongside the Coast Road. Habitats present include Magnesian limestone grassland, much of it species-rich. This is a rare habitat in north east England. There are hummocky areas, a rocky outcrop, an area dominated by Japanese knotweed and areas with a maritime influence as demonstrated by the presence of plants such as sea plantain. There are also areas of bramble and scrub. The Magnesian limestone grassland is very varied and holds plants such as common rock-rose, autumn gentian, spiny restharrow and meadow vetchling, in addition to those listed below.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Marsden Limekilns qualifies because it has more than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. A survey of 2005 found the following:

- Birds-foot trefoil — frequent
- Wild thyme — frequent
- Kidney vetch — occasional
- Harebell — occasional
- Carline thistle — occasional
- Greater knapweed — occasional
- Eyebright spp — occasional
- Ladies bedstraw — occasional
- Fairy flax — occasional/frequent
- Salad burnet — occasional
- Small scabious — occasional
- Orchid spp — occasional
- Cowslip — occasional
- Devils-bit scabious — occasional

Whitburn Golf Course was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. In addition the Local Wildlife Site encompasses and would incorporate Marsden Limekilns Magnesian Limestone Grassland Site and additional linking strips of land.


Marsden Bay
(Lizard Lane Cutting
Candidate Local Willife Site)
(The Leas Candidate Local Wildlife Site)
Marsden Limekilns Candidate Local Wildlife Site
(Marsden Quarry Candidate
Local Wildlife Site)
Marsden Limekilns
Candidate Local Wildlife Site
Site Ref. No.: ST 06
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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37) Marsden Old Quarry

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST43
OS grid reference: NZ377610
Approximate size: 0.8 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland
b) Lowland meadows and pasture
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

Marsden Old Quarry is a former limestone quarry that has been managed by the council as a 'nature reserve' since 1948. It was designated as a Local Nature Reserve in 1997. The main interest lies in the diverse Magnesian limestone grassland habitats and the associated scrub. The site features a 15m high cliff, at the top of which is a nationally rare grassland type featuring blue-moor grass, small scabious, common rock-rose and carline thistle. Two further notable plants occur in isolated patches – dropwort and dyers greenweed. In the quarry base the grassland is of a species-rich neutral grassland type with a strong influence from the calcareous bedrock. Plants here include ladies bedstraw, common spotted orchid and rough hawkbit. Widespread patches of Japanese knotweed, totalling up to 1ha in area, were present up until 2003. Treatment over the next three years killed over 95% of the knotweed. West of the cliff a one-hectare plot of land was stripped of soil in 2004 as part of the MAGical Meadows project. The bare rock and shallow soils created were sown with a mix of seed gathered exclusively from Marsden Old Quarry itself. Plants that now thrive there include wild thyme, autumn gentian, birds foot trefoil, musk thistle and greater knapweed.

Substantial areas of gorse scrub hold good numbers of breeding linnets, yellowhammers and whitethroat, whilst at least a further 15 species of bird nest on the site, including skylark and kestrel. The presence of mature sycamore, ash, hazel, Swedish whitebeam and elder scrub/woodland contributes to this being one of the most important sites in the area for viewing migrant bird species, both in terms of numbers and variety. Many rare species have been recorded in recent years.

Marsden Quarry qualifies as a Local Wildlife Site because it has:
a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The survey of 2002 did not assess abundance but did record the following species from the indicator list:

- Autumn gentian
- Birds foot trefoil
- Carline thistle
- Common rock-rose
- Common spotted orchid
- Cowslip
- Devil's bit scabious
- Eyebright
- Fairy flax
- Greater knapweed
- Hairy violet

- Harebell
- Hoary plantain
- Kidney vetch
- Ladies bedstraw
- Mouse ear hawkweed
- Northern marsh orchid
- Rough hawkbit
- Salad burnet
- Small scabious
- Wild thyme
- Yellow-wort

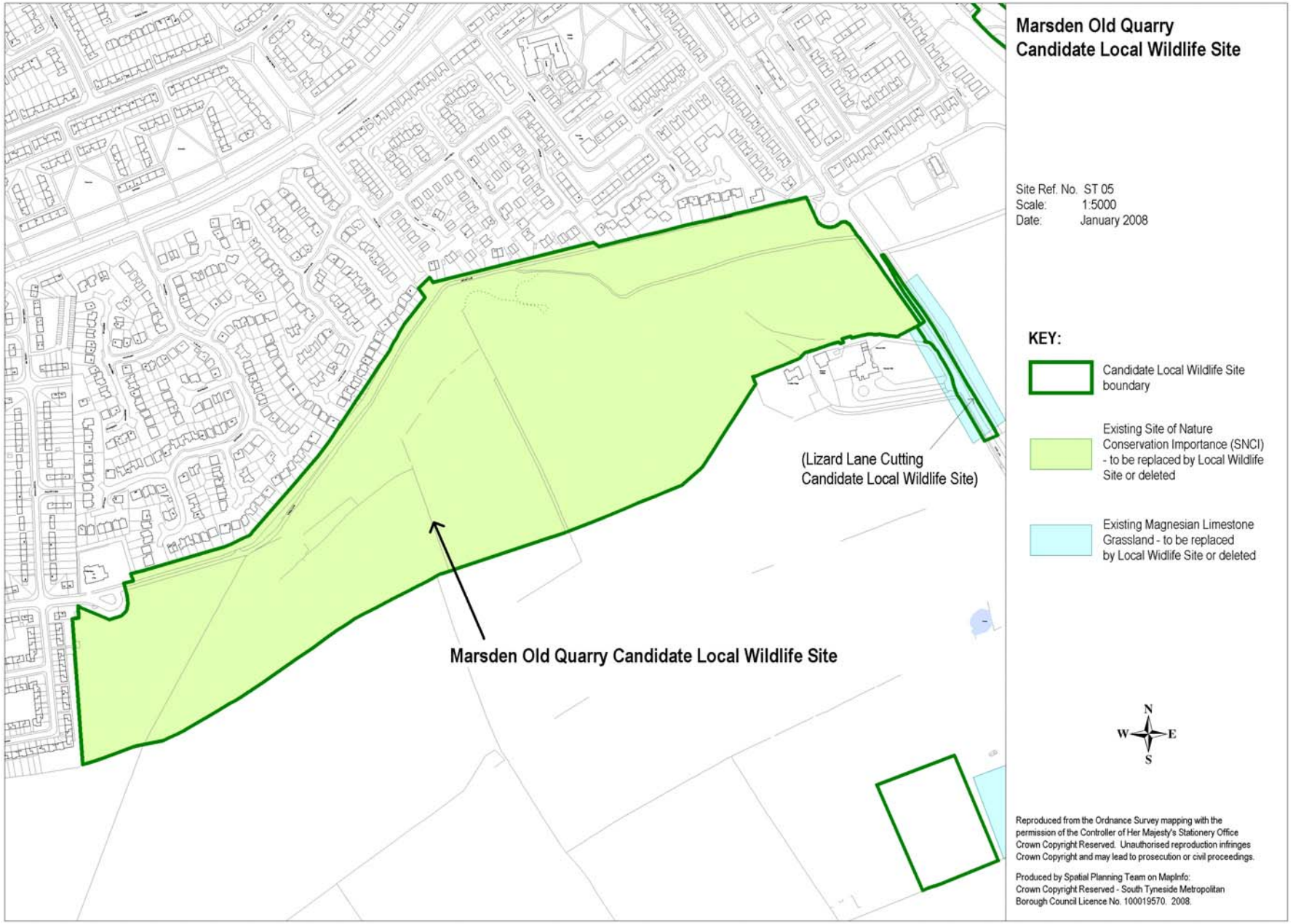
b) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The survey of 2002 did not assess abundance but did record the following species from the indicator list.

- Agrimony
- Birds foot trefoil
- Common spotted orchid
- Cowslip
- Devil's bit scabious
- Dyers greenweed
- Eyebright
- Field scabious
- Glaucous sedge
- Goatsbeard
- Meadow vetchling
- Northern marsh orchid
- Oxeye daisy
- Lesser knapweed
- Pignut
- Rough hawkbit
- Tufted vetch
- Yellow rattle

- Zigzag clover

c) Scrub, as defined in the Durham Biodiversity Action Plan ie 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

Marsden Old Quarry was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Marsden Old Quarry
Candidate Local Wildlife Site
Site Ref. No. ST 05
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
(Lizard Lane Cutting Candidate Local Wildlife Site)
Marsden Old Quarry Candidate Local Wildlife Site
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28) Marsden Quarry

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

OS grid reference: NZ405640
Approximate size: 1.5 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site is not accessible to the public.

The site covers a narrow band of land that skirts the southern and western edges of the working Marsden Quarry. In places coarse neutral grasslands are present, whilst elsewhere areas have been stripped of topsoil to leave thin soils over limestone rock. Over many years these have developed a sparse flora with significant elements of Magnesian limestone grassland communities. Of particular note are populations of yellow-wort, close to its northern limit in Britain, and also sea plantain – reflecting the maritime influences present. In 1999 Dr Sam Ellis carried out a feasibility study into the possibility of introducing Northern Brown Argus butterfly to the site and, in association with this, common rockrose was planted on the site.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Marsden Quarry qualifies because it has more than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The survey of 2005 found the following:

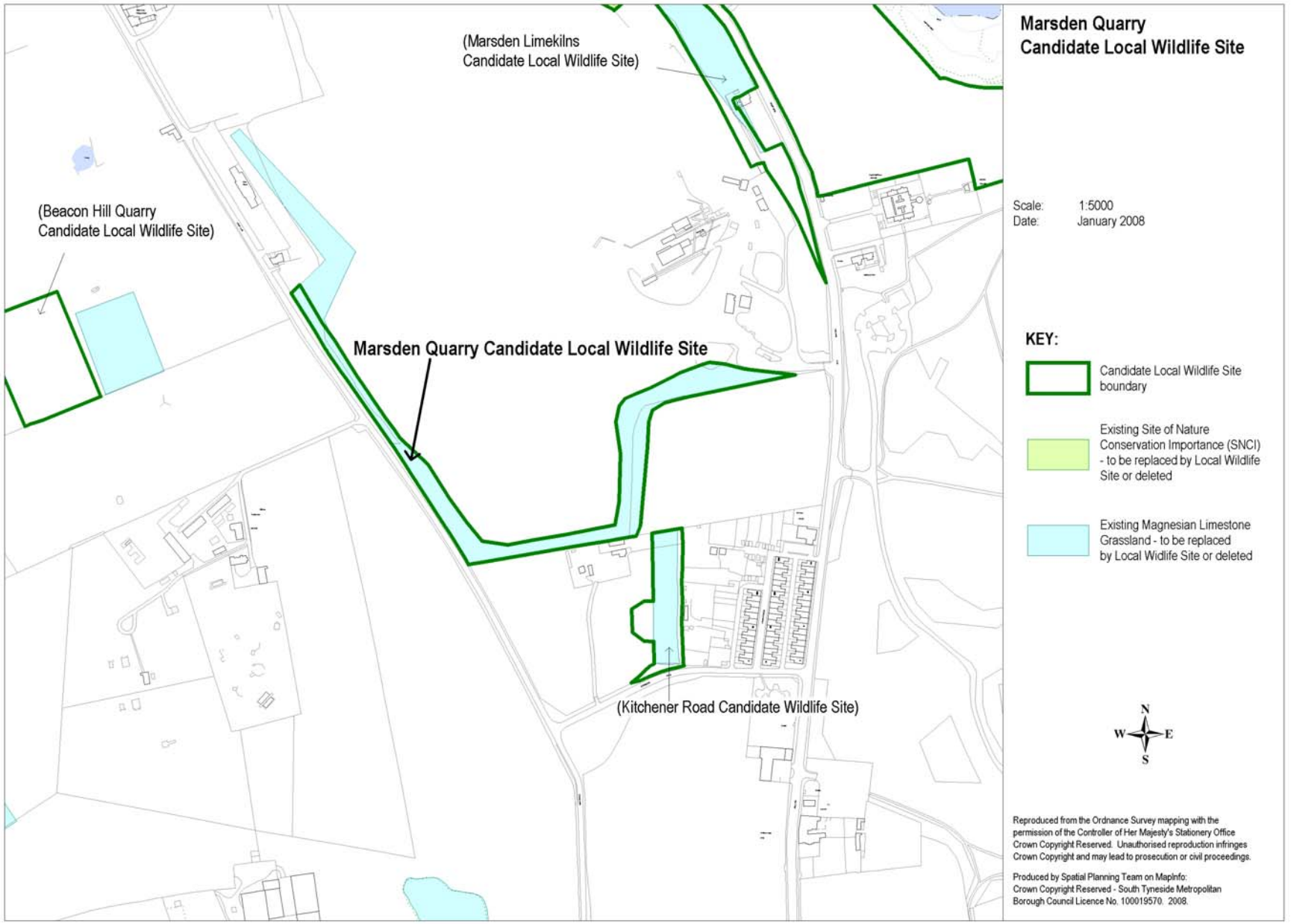
- Eyebright locally frequent
- Yellow-wort occasional
- Rough hawkbit occasional
- Birds foot trefoil occasional
- Wild basil rare

Whilst the above list falls marginally short of meeting the necessary criteria the surveyor only gained access to limited parts of the site due to safety considerations. Previous surveys of 1997 and 1999 recorded (without measuring abundance) the following additional species from the indicator list:

- Kidney vetch
- Greater knapweed
- Fairy flax
- Ladies bedstraw
- Wild thyme

It is therefore considered that the site should qualify for Local Wildlife Site status.

Marsden Quarry was designated as a Magnesian Limestone Grassland Site in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance. The northern section of the site is to be deleted since it has been removed by quarrying.


(Marsden Limekilns
Candidate Local Wildlife Site)
(Beacon Hill Quarry
Candidate Local Wildlife Site)
Marsden Quarry Candidate Local Wildlife Site
(Kitchener Road Candidate Wildlife Site)
Marsden Quarry
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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29) Monkton Pond and Wood

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ319625
Approximate size: 2.9 hectares

Durham Biodiversity Action Plan priority habitats present
a) Ponds,
b) Broadleaf woodland.

Selection criteria
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan

Public access
There is public access around the margins of the pond, and two dipping platforms.

This is a small pond, together with woodland, adjacent to the Metro line. The pond was created in around 1998 in association with the construction of Monkton Business Park. It acts as a 'balancing pond' in the management of the surface water drainage from the business park. Water enters the western end of the pond through an inlet and leaves via an outlet at the eastern end, from where it passes under the railway and into the Monkton Burn. The pond is relatively shallow, with gently sloping margins and an island, and was designed to safeguard a small pre-existing marshy area between it and the railway. The pond was stocked in its first year with a wide range of plants native to the UK, some of them rare in the north east, which had been collected and grown on by a local specialist supplier.

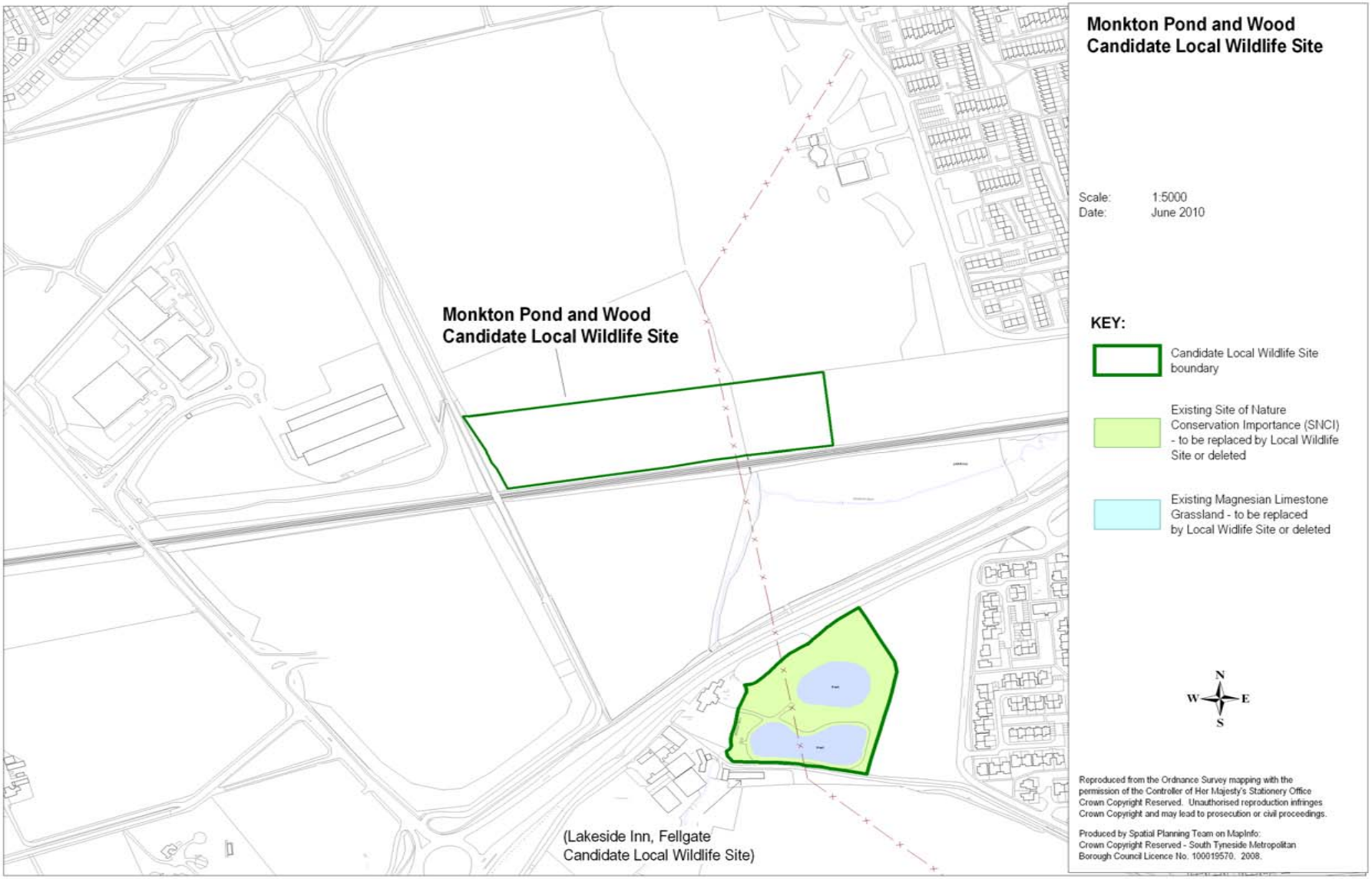
The open water has species such as common duckweed, water cress and water crowfoot. The pond margins support developing stands of tall emergent vegetation, with pond-sedges, branched bur-reed, yellow iris, water dock, flowering rush and sea club-rush. There are also areas of shorter fen vegetation, with sharp-flowered and hard rush, greater spearwort, water plantain, marsh marigold, spike rush, meadowsweet, purple loosestrife, water mint, water forget-me-not, reed canary-grass, marsh cinquefoil and brooklime. Around the pond margins damp grassland holds plants such as meadowsweet, pendulous sedge, wild angelica, cuckoo flower, sneezewort and common fleabane, whilst yellow-wort is present in sparser, drier areas. The pond is regularly used by coot and grey heron and holds breeding frogs and toads.

The pond is located within a strip of land that was planted up as native woodland by the Woodland Trust in 2000. This has slowly matured and now comprises developing woodland/scrub and tall grassland. To the east is a small, dense, broadleaf woodland established at the same time.

Monkton Pond and Wood qualifies because it has:
a) A pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The description above lists 23 species of naturally occurring, floating, submerged, and/or marginal plant.

b) Broadleaf woodland. The definition of this is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.' To qualify as a Local Wildlife Site a minimum area of 2 hectares of this habitat is required, and this is present.

It is proposed that Monkton Pond and Wood is designated as a Local Wildlife Site.


Monkton Pond and Wood
Candidate Local Wildlife Site
(Lakeside Inn, Fellgate
Candidate Local Wildlife Site)
Monkton Pond and Wood
Candidate Local Wildlife Site
Scale: 1:5000
Date: June 2010
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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30) Mount Pleasant Marsh

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST12
OS grid reference: NZ340608
Approximate size: 8.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland fen habitats
c) Lowland meadows and habitats
d) Broadleaf plantation

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Durham Biodiversity Action Plan definition of a pond:

'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.'

Public Access:
Access is by appointment only, or as part of an organised event.

The site is adjacent to the A19 and the busy 'Testos' roundabout. It is set in the grounds of a large electricity substation, but nevertheless holds a surprising variety of valuable habitats in a relatively small area. It is the setting for the West Boldon Environmental Education Centre, run by Groundwork South Tyneside and supported by National Grid. The Centre hosts large volumes of educational visits and training events. The main pond has a viewing/dipping platform and is fringed by extensive stands of reedmace that grade through fen habitats to a small but very species-rich, damp, ridge and furrow meadow with plants such as meadowsweet, marsh ragwort, tufted hair-grass, pepper saxifrage and rush species. This is a rare habitat in north east England. Two smaller ponds near the Centre are rich in pond life and are used for pond dipping. The site has a large population of breeding toads, frogs and smooth newts. Around the margins of the site there are well-established mixed broadleaf plantations and secondary woodland. The field layer has plants such as creeping soft grass, red campion, wavy hair-grass, wood avens and, of particular interest, adders tongue fern and broad leaved helleborine. The ponds play host to grey heron, kingfisher and breeding mallard, moorhen, coot and reed bunting. Elsewhere the site is used by a wide range of birds such as bullfinch, willow tit, great spotted woodpecker and a good density of commoner woodland species. At least six species of dragonfly/ damselfly have been recorded using the marsh in recent years.

Mount Pleasant Marsh qualifies as a Local Wildlife Site because it has:
a) A pond, as defined in the Durham Biodiversity Action Plan (see text box). In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Recent surveys of Mount Pleasant Marsh have revealed the presence of at least 18 species of such plants.

b) Lowland fen habitats. These are defined in the Plan as 'Wetlands overlying both peat and mineral soils and fed by groundwater as well as rainwater…Hydrology varies between and within fen types, from water table above ground for much or most of the year, to water table near the surface for only part of the year. Swamp, *Phragmites australis* Reedbed and Marsh are synonyms for certain types of fen community on particular substrates, with particular dominant species or with particular hydrology.'

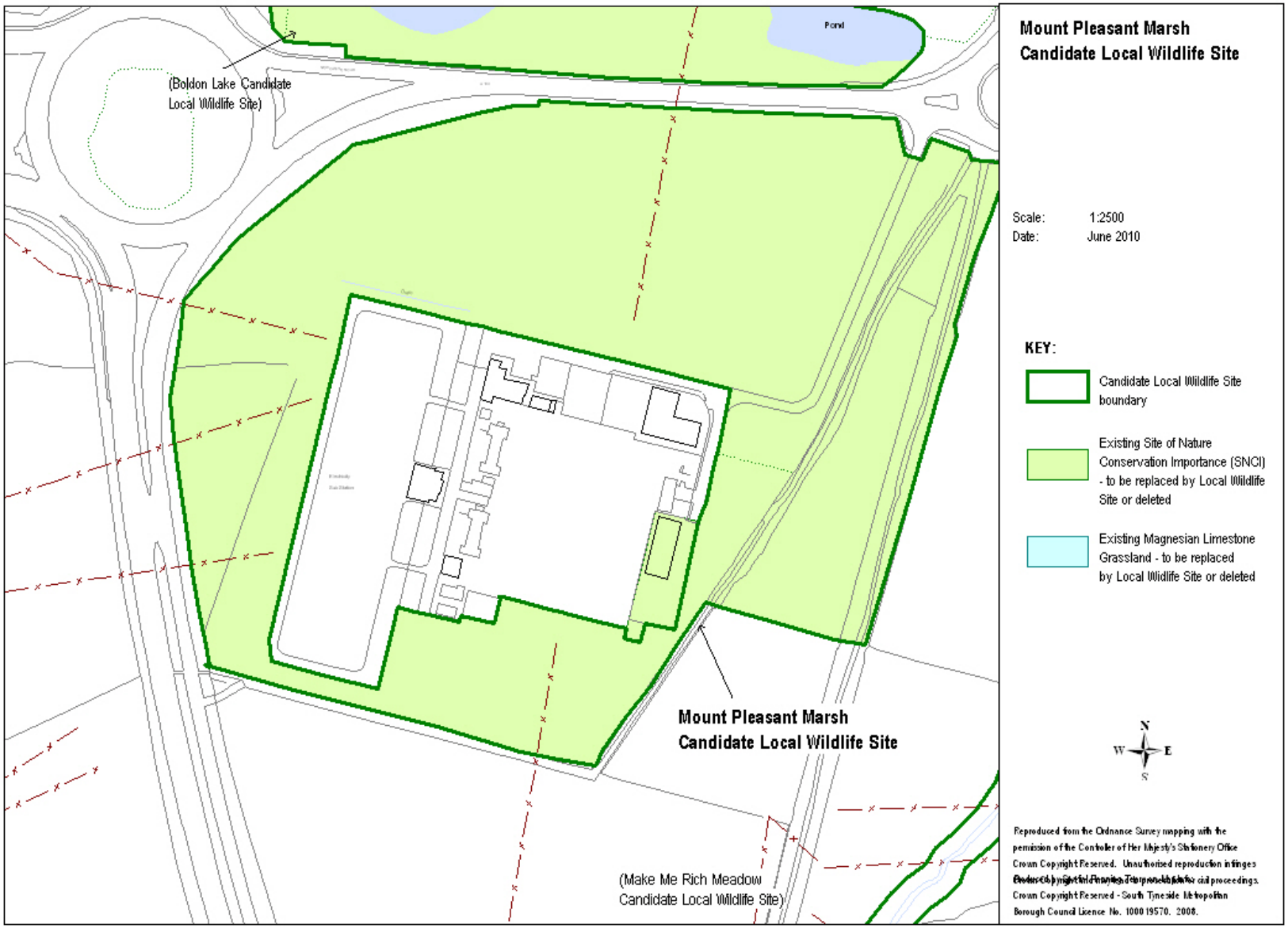
c) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey found the following plants from the list:

- Great burnet frequent
- Meadow vetchling frequent
- Pepper saxifrage frequent

- Glaucous sedge locally frequent
- Eyebright locally frequent
- Greater birds foot trefoil occasional
- Marsh bedstraw occasional
- Northern marsh orchid occasional
- Oxeye daisy occasional
- Pignut occasional
- Meadowsweet occasional
- Water avens occasional
- Rough hawkbit occasional
- Tufted vetch occasional

d) Broadleaf plantation. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

Mount Pleasant Marsh was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Pond
(Boldon Lake Candidate Local Wildlife Site)
Mount Pleasant Marsh Candidate Local Wildlife Site
(Make Me Rich Meadow Candidate Local Wildlife Site)
Mount Pleasant Marsh Candidate Local Wildlife Site
Scale: 1:2500
Date: June 2010
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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31) Newton Garths

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ351626
Approximate size: 9.6 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadow and pasture
b) River
c) Pond

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the meadows, but there is a public footpath along the riverside.

Newton Garths includes several fields heavily grazed by horses, comprising species-rich, neutral, ridge and furrow pasture sloping down to the River Don. This is a rare habitat in north east England. The eastern pasture is dominated by herbs such as plantains, creeping buttercup and yarrow, also common cat's-ear, birds foot trefoil and self heal. The hollows have a wetland element with species such as glaucous sedge and marsh ragwort. The remaining fields to the west are more species-rich with common knapweed, great burnet, harebell, devil's bit scabious and tormentil. A scattering of mature shrubs, such as hawthorn and elder, are mainly associated with the field boundaries. Breeding farmland birds include yellowhammer and grey partridge. There is also a pond, created in around 1991, dominated by common red and reed sweet-grass. Other plants include duckweeds, purple loosestrife and broad-leaved pondweed.

The River Don here has mostly unmodified riverbank with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. The riverside margins typically have coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. There are also areas of scattered scrub and trees. Recent surveys have recorded heavily occupied breeding habitat for water vole, probable use by otter and regular use by moorhen and kingfisher. The river also has a colony of the uncommon banded demoiselle damselfly.

Newton Garths qualifies as a Local Wildlife Site because it has:
a) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey did not assess abundance but did find the following plants from the list:

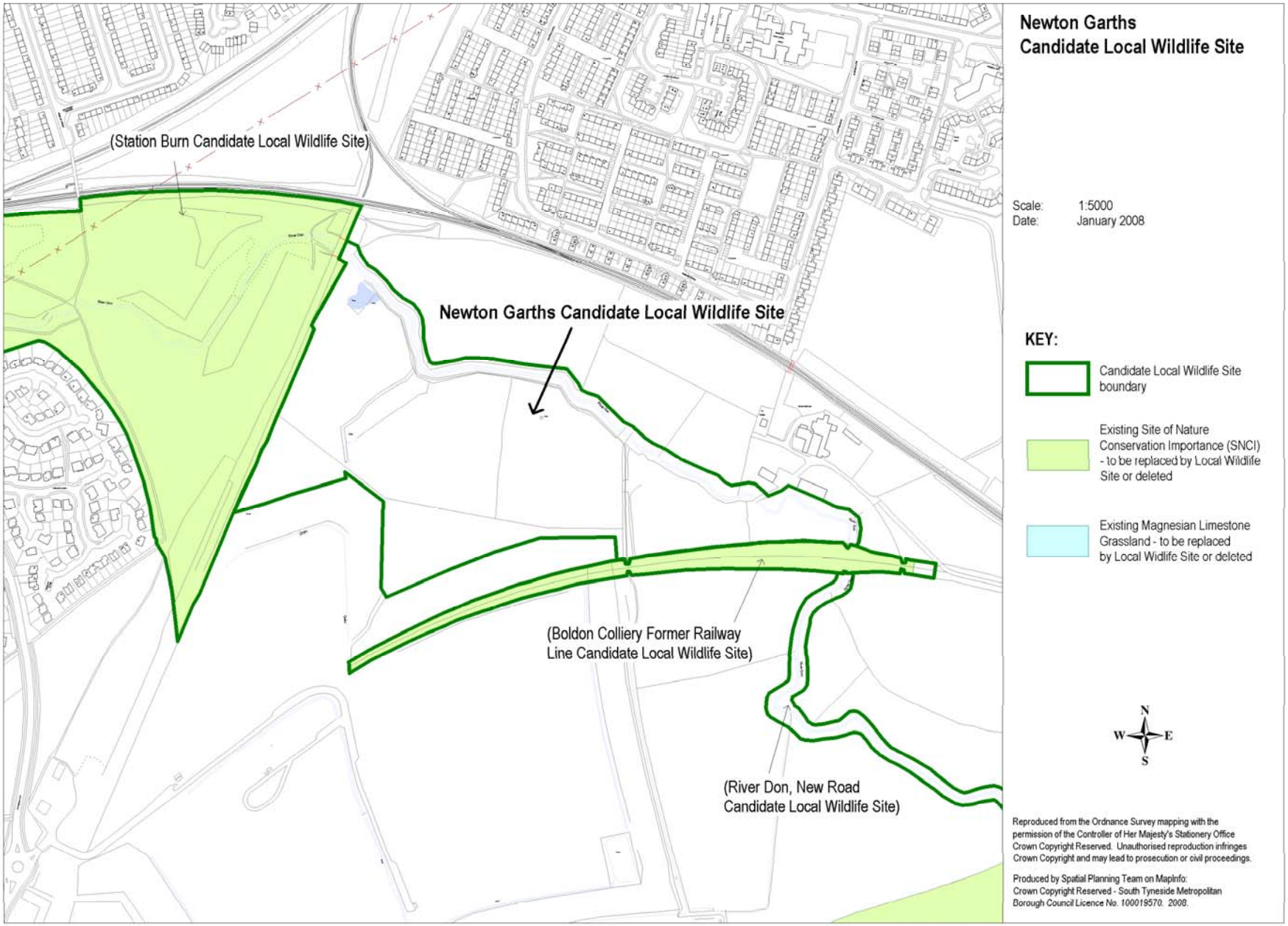
- Betony
- Birds foot trefoil
- Common knapweed
- Devil's-bit scabious
- Meadowsweet
- Glaucous sedge
- Great burnet
- Tormentil
- Water mint

b) Part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It provides occupied breeding habitat for water vole and is probably used by otter.

c) A pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Surveys of the pond at Newton Garths have revealed the presence of at least 18 species of such plants.

d) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

It is proposed that Newton Garths is designated as a Local Wildlife Site.


(Station Burn Candidate Local Wildlife Site)
Newton Garths Candidate Local Wildlife Site
(Boldon Colliery Former Railway Line Candidate Local Wildlife Site)
(River Don, New Road Candidate Local Wildlife Site)
Newton Garths
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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32) Primrose

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST34
OS grid reference: NZ333640
Approximate size: 4.5 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland fen habitats (including reedbed)
b) Ponds
c) River
d) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from public paths which circle the site.

Primrose is a mosaic of wetland habitats created on flood-prone former amenity grassland along the River Don in 1991. It was subsequently designated as a Local Nature Reserve. At its heart is a 0.7ha reedbed, the largest in South Tyneside. There are also associated marshy areas with reed canary-grass, reedmace and greater pond-sedge. A pond, with viewing areas, is situated next to the main path running past the site. Yellow iris, meadowsweet and great hairy willowherb fringe the pond, together with nettles and other coarse vegetation. The pond is fed by the river and receives large amounts of silt.

The river has mostly unmodified riverbank and features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. Recent surveys have recorded suitable breeding habitat for water vole, and otter use the river.

Scattered trees and shrubs such as various willow species, hawthorn and alder have become established and have grown quickly to create woodland areas. Reed warbler have bred here, but not since 2003. Other breeding birds include reed bunting, mallard, moorhen and coot.

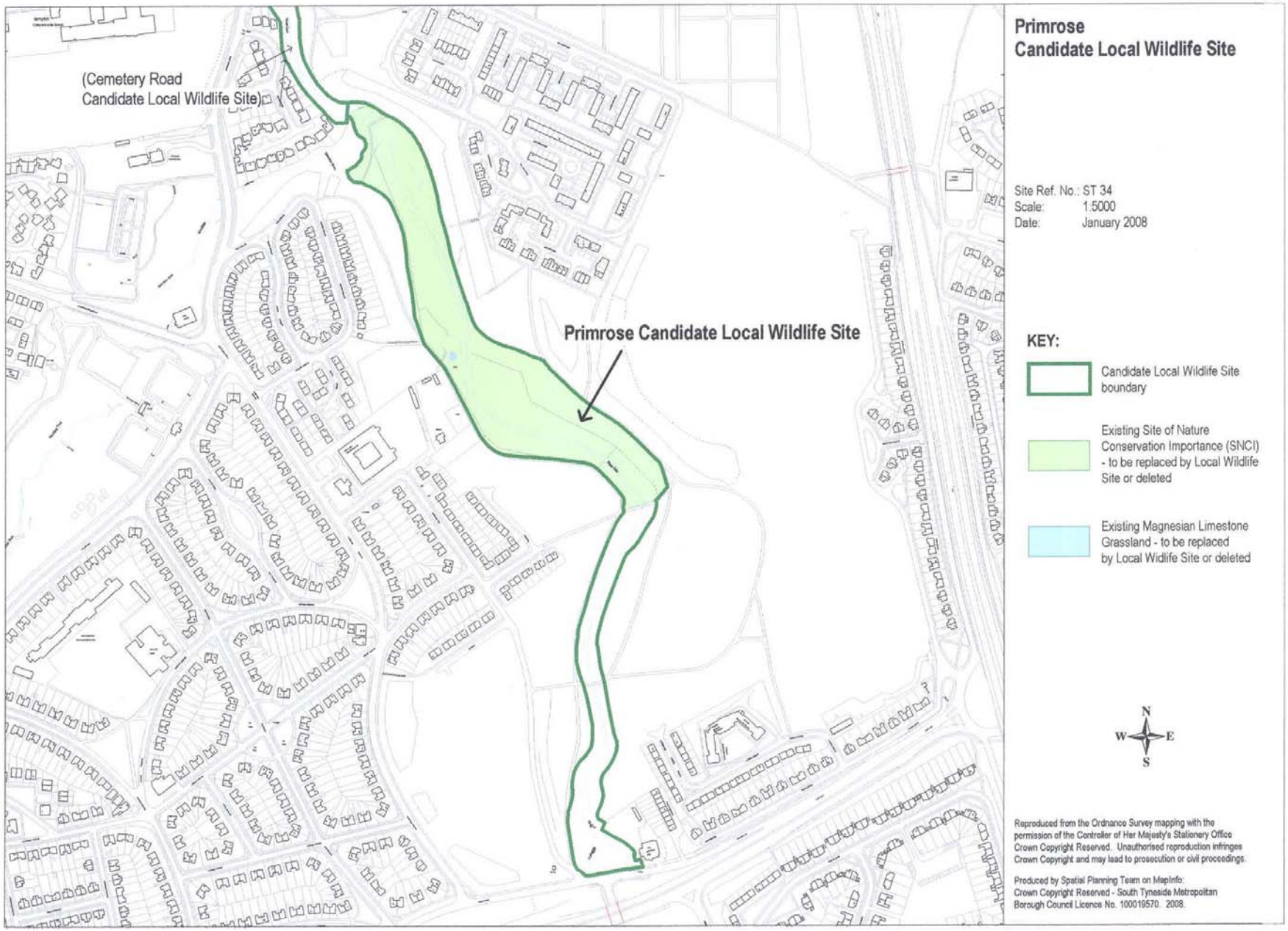
Primrose qualifies as a Local Wildlife Site because it:
a) Has more than 0.25 hectares of lowland fen habitats. These meet the definition in the Plan i.e. 'Wetlands overlying both peat and mineral soils and fed by groundwater as well as rainwater... Hydrology varies between and within fen types, from water table above ground for much or most of the year, to water table near the surface for only part of the year. Swamp, *Phragmites australis* Reedbed and Marsh are synonyms for certain types of fen community on particular substrates, with particular dominant species or with particular hydrology.'

b) Has a pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' A survey of the site in 1999 recorded 15 of these species.

c) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides suitable breeding habitat for water vole and is used by otter.

d) Has broadleaf woodland. The definition of broadleaf woodland is ‘all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland’.

Primrose was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Primrose Local Wildlife Site, in keeping with Government guidance.


(Cemetery Road
Candidate Local Wildlife Site)
Primrose Candidate Local Wildlife Site
Primrose
Candidate Local Wildlife Site
Site Ref. No.: ST 34
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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33 River Don, East House

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ335596
Approximate size: 1.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

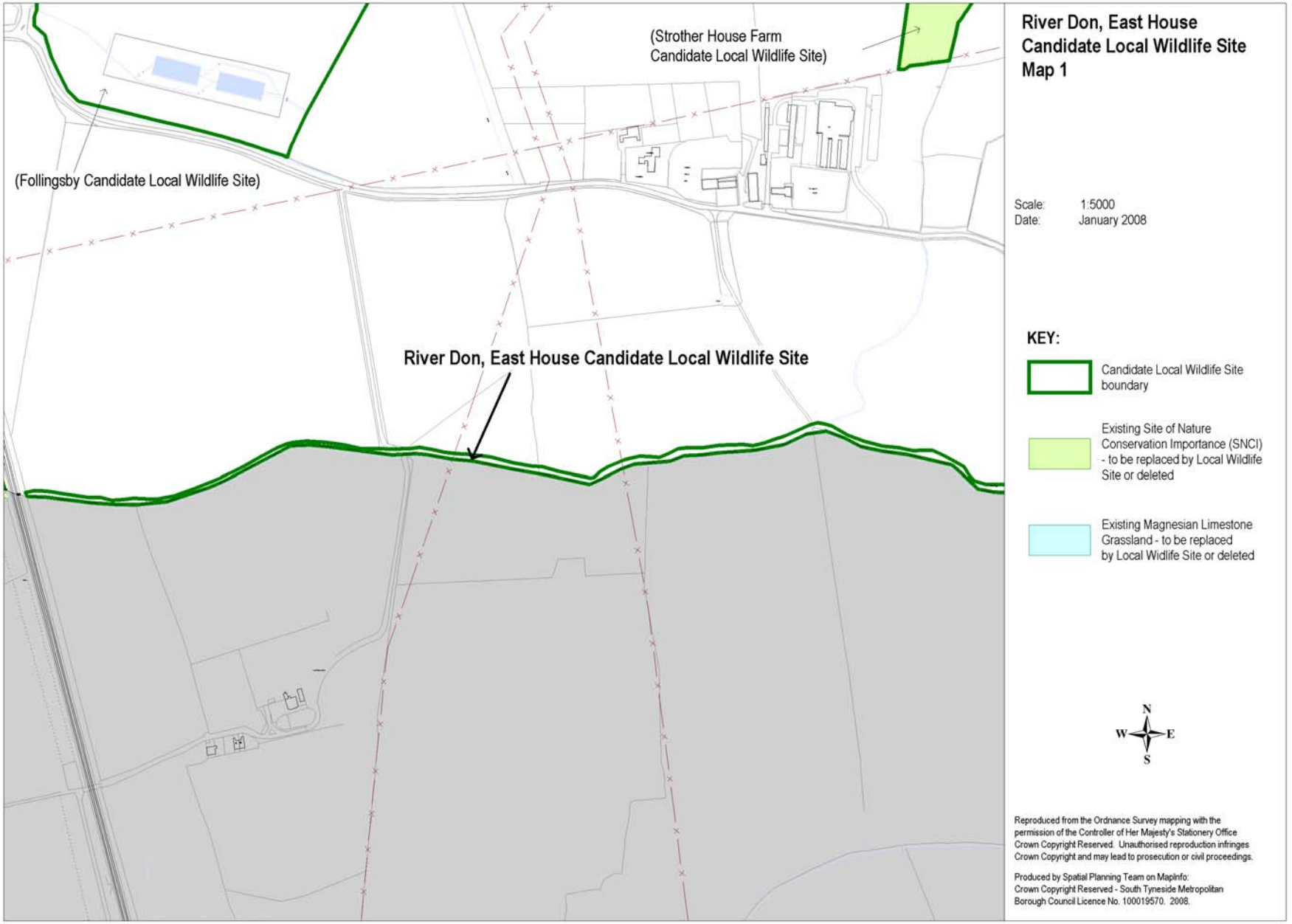
Public Access:
There is no public access, but the site can be partially overlooked from the bridges at Waterloo Road and Follingsby Lane.

The site consists of a section of the River Don between East House Farm and Hylton Bridge Farm. In this stretch the Don has mostly unmodified riverbank with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. The riverside margins typically have coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. There are also areas of scattered scrub. The adjacent fields are mostly arable, with some permanent pasture. Recent surveys have recorded occupied breeding habitat for water vole and use by otter. Breeding birds using the vicinity include yellowhammer, reed bunting and grey partridge, whilst large numbers of fieldfare and redwing are present in winter.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. River Don, East House qualifies because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is used by otter.

b) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

It is proposed that River Don, East House is designated as a Local Wildlife Site.


(Strother House Farm
Candidate Local Wildlife Site)
(Follingsby Candidate Local Wildlife Site)
River Don, East House Candidate Local Wildlife Site
River Don, East House
Candidate Local Wildlife Site
Map 1
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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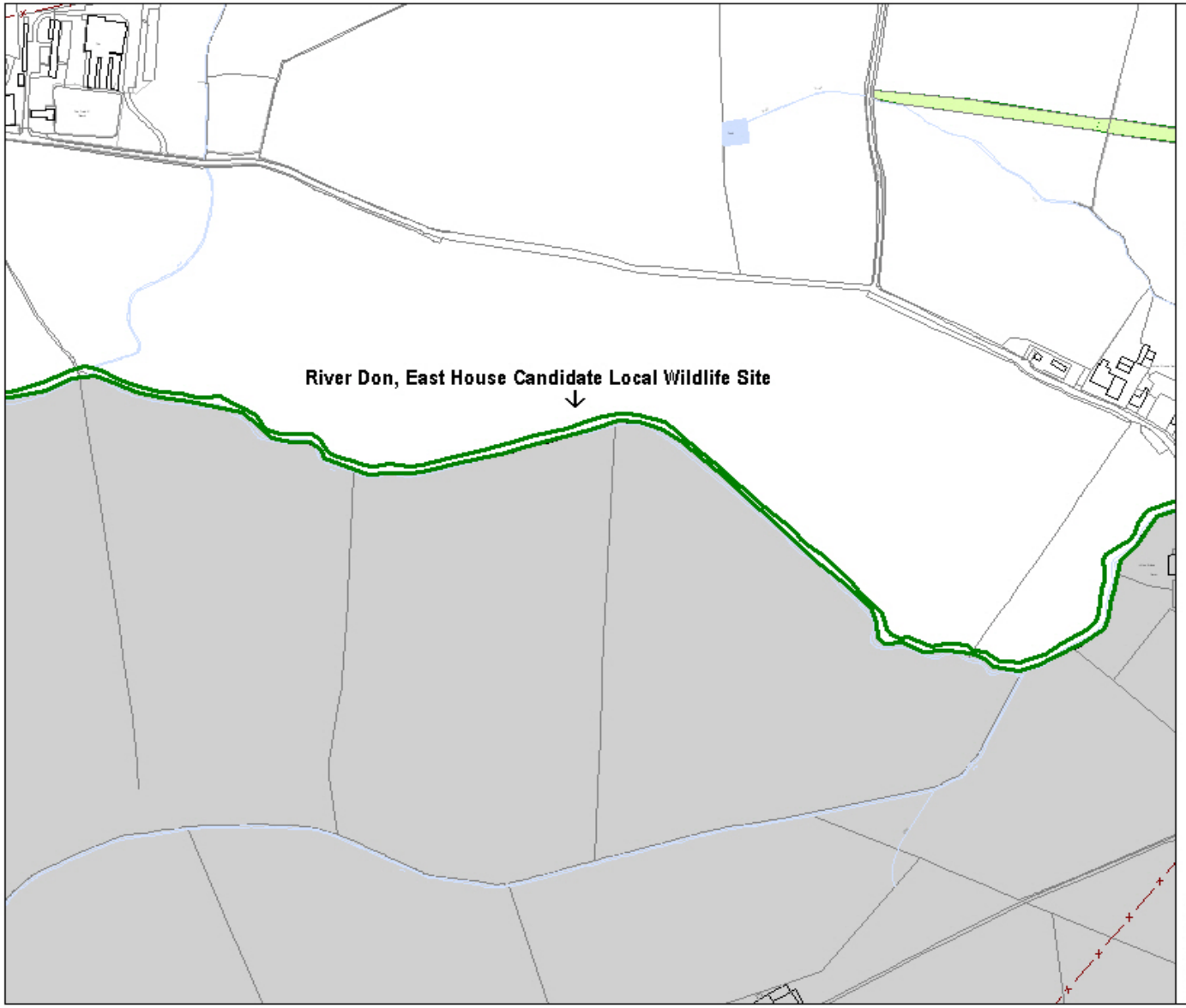

River Don, East House Candidate Local Wildlife Site Map 2

Scale: 1:5000
Date: June 2010

KEY:

- Candidate Local Wildlife Site boundary
- Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
- Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted

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34) River Don, New Road

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ356622
Approximate size: 1.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

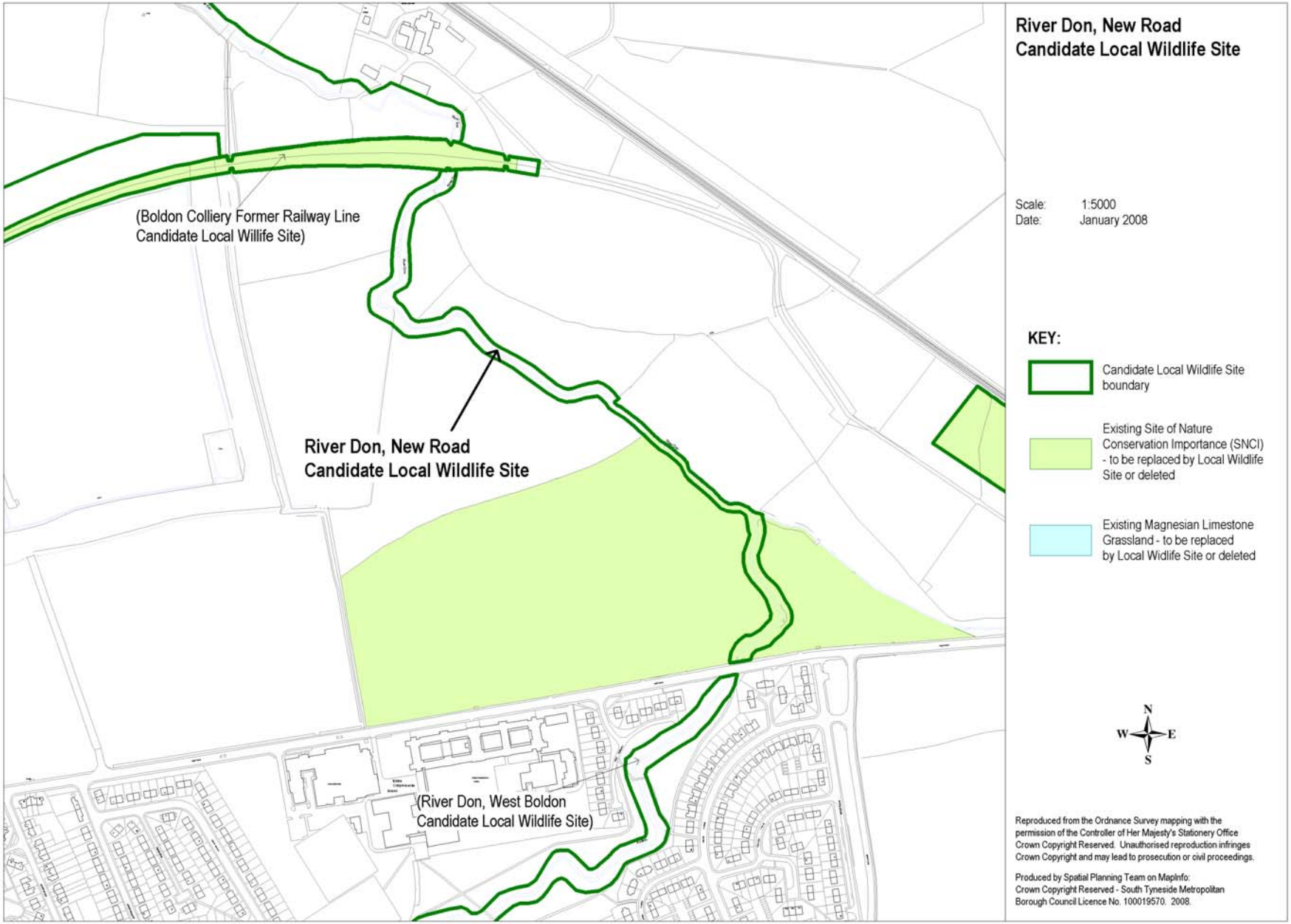
Public Access:
There is no public access, but the site can be partially overlooked from the bridge at New Road.

The site consists of a section of the River Don leading north from New Road. In this stretch the Don has mostly unmodified riverbank with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. The riverside margins typically have coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. There are also areas of scattered riverside scrub, which become more continuous towards the northern end of the site. The adjacent fields are both arable and permanent pasture, with the latter including West Farm Meadows Site of Special Scientific Interest. Recent surveys have recorded occupied breeding habitat for water vole and probable use by otter (i.e. recent records up and downstream).

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. River Don, New Road qualifies because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is probably used by otter.

b) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall.'

It is proposed that River Don, New Road is designated as a Local Wildlife Site.


(Boldon Colliery Former Railway Line
Candidate Local Willife Site)
River Don, New Road
Candidate Local Wildlife Site
(River Don, West Boldon
Candidate Local Wildlife Site)
River Don, New Road
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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35) River Don, North Road

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ346611
Approximate size: 1.1 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Scrub
c) Lowland meadow and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be partially overlooked from a public bridleway running along the west bank.

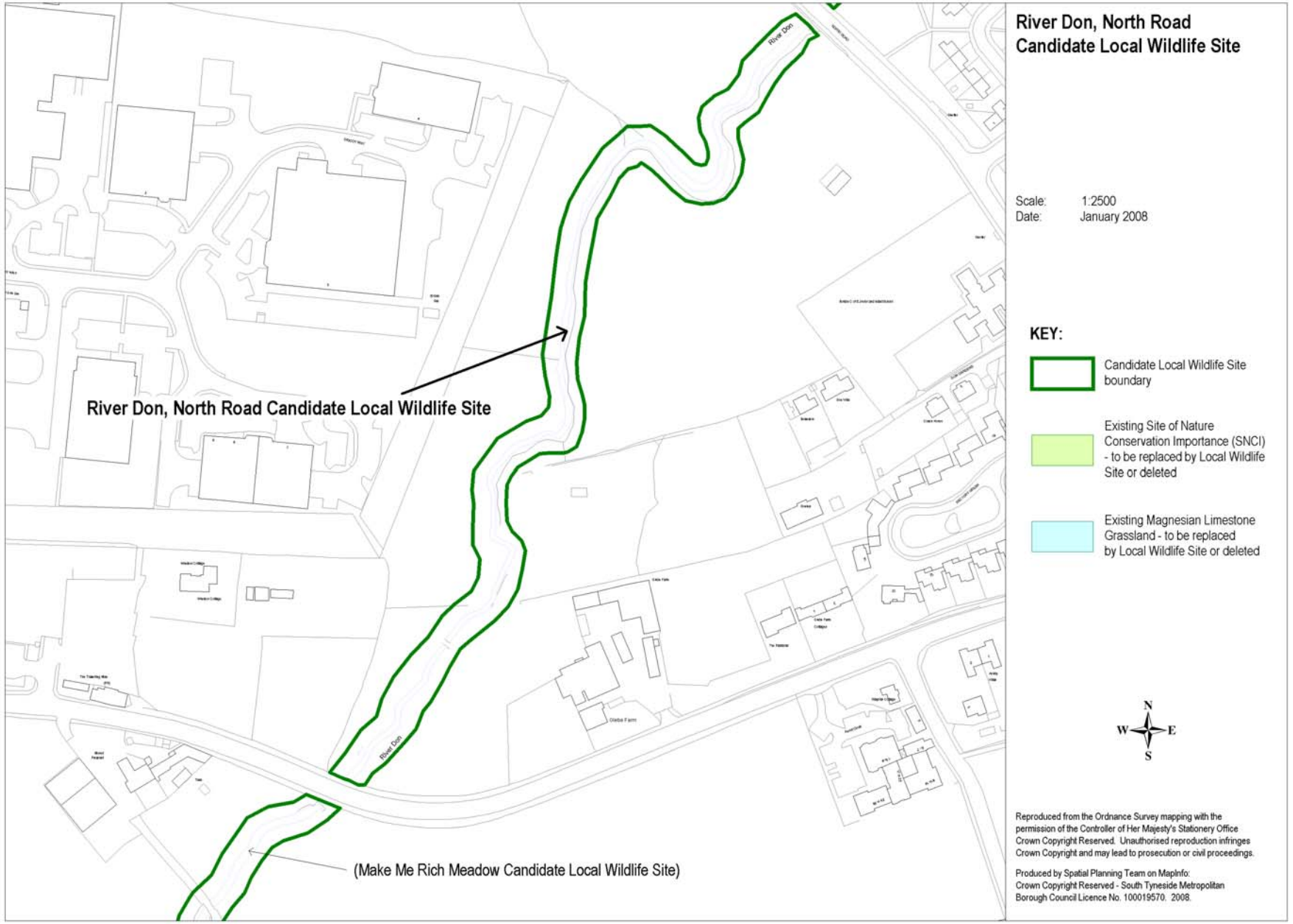
The site consists of a section of the River Don between North Road and Newcastle Road. In this stretch the Don has mostly unmodified riverbank with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress and Himalayan balsam. The riverside margins are mostly well covered with tree/shrub species such as hawthorn, elder and willow species. Along both sides are heavily grazed horse pastures with damp species-rich neutral grassland, featuring plants such as creeping buttercup, lesser knapweed, birds-foot trefoil, oxeye daisy, self heal and meadowsweet. Recent surveys have recorded occupied breeding habitat for water vole and use by otter.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. River Don, North Road qualifies because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is used by otter.

b) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

c) Contains areas of lowland meadow and pasture.

It is proposed that River Don, North Road is designated as a Local Wildlife Site.


River Don, North Road Candidate Local Wildlife Site
(Make Me Rich Meadow Candidate Local Wildlife Site)
River Don
River Don, North Road
Candidate Local Wildlife Site
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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36) River Don Saltmarsh

Central Jarrow Area Action Plan J11
Development Management Policies DM7
Local Wildlife Site – Amended Boundary

Site ref. no.: ST33
OS grid reference: NZ339654
Approximate size: 8.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Mudflat
b) Coastal saltmarsh

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from a path along the west bank of the River Don.

River Don Saltmarsh covers the lower reaches of the River Don, north of the A185. The river used to flow into Jarrow Slake, a large expanse of inter-tidal mud, until the Slake was infilled in 1973/74. In 1993/94 the Nissan car terminal was created on the infilled land to the west and at around the same time works were carried out to improve the profile of the river channel for wildlife. Meanders and an island were created but the scope for greater improvement was limited by the steepness of slopes created by the landfill operations.

The upper levels of the mudflats are vegetated with bladder wrack and green algae. This is followed by a zone of pebbles and boulders, then saltmarsh vegetation dominated by sea aster, with common scurvy-grass, sea poa grass and oraches, together with the species listed below under b). The grassland above the saltmarsh zone varies between tall neutral grassland with species such as false-oatgrass to more species-rich communities. The latter hold plants such as birds foot trefoil, meadow vetchling, common knapweed and wild carrot. In places there are small mixed shrub and tree plantations.

Mud dwelling invertebrates are conspicuous at low tide and their presence contributes to the importance of the site as a winter feeding and roost site for birds – attracting a wide range of species. Golden plover have been recorded, along with good numbers of curlew, lapwing, dunlin (100 plus), redshank (300 plus), ringed plover and a variety of gull species. Of particular note is a flock of up to 18 turnstones, which is present throughout most of the year. Knot, bar tailed godwit, and spotted redshank have also been recorded. Kingfisher are regularly seen.

River Don Saltmarsh is the only remaining saltmarsh of significance in South Tyneside. The site, together with the adjacent Jarrow Slake, is also the largest and most important area of inter-tidal mud in the borough. Its value is increased by the presence of other smaller areas of comparable habitat nearby along the River Tyne corridor.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. River Don Saltmarsh qualifies because it:
a) Has more than 1 hectare of mudflat. The definition of mudflat is provided by the DEFRA Higher Level Stewardship Farm Improvement Plan handbook, 2005, CO6. It is described as ‘the unvegetated part of inter-tidal habitats’ which ‘consist of fine sediment which is usually a valuable resource for wildlife’ with ‘evidence of invertebrate communities (lugworm casts visible, feeding birds present)’.

b) Has more than 0.25 hectares of coastal saltmarsh. The definition is provided by the DEFRA Higher Level Stewardship Farm Improvement Plan handbook, 2005, CO1. To meet the definition a minimum of four species must be recorded as occasional from a given list of indicator species. A recent survey did not assess abundance but did find the following plants from the list:

- Annual sea-blite
- Common saltmarsh grass
- Greater sea-spurrey
- Lesser sea-spurrey
- Sea arrowgrass
- Sea aster
- Sea plantain
- Thrift

River Don Saltmarsh was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999) and as a Local Wildlife site in the Post-Submission Revised Draft Central Jarrow Area Action Plan, (2009). The Plan shows minor changes to the boundary as defined in the Unitary Development Plan, 1999, to reflect the correct position of the high tide mark. The equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance


(Jarrow Slake Mud Flats
Candidate Local Wildlife Site)
River Tyne
River Don Saltmarsh
Candidate Local Wildlife Site
River Don Saltmarsh
Candidate Local Wildlife Site
Map 1
Site ref. no.: ST33
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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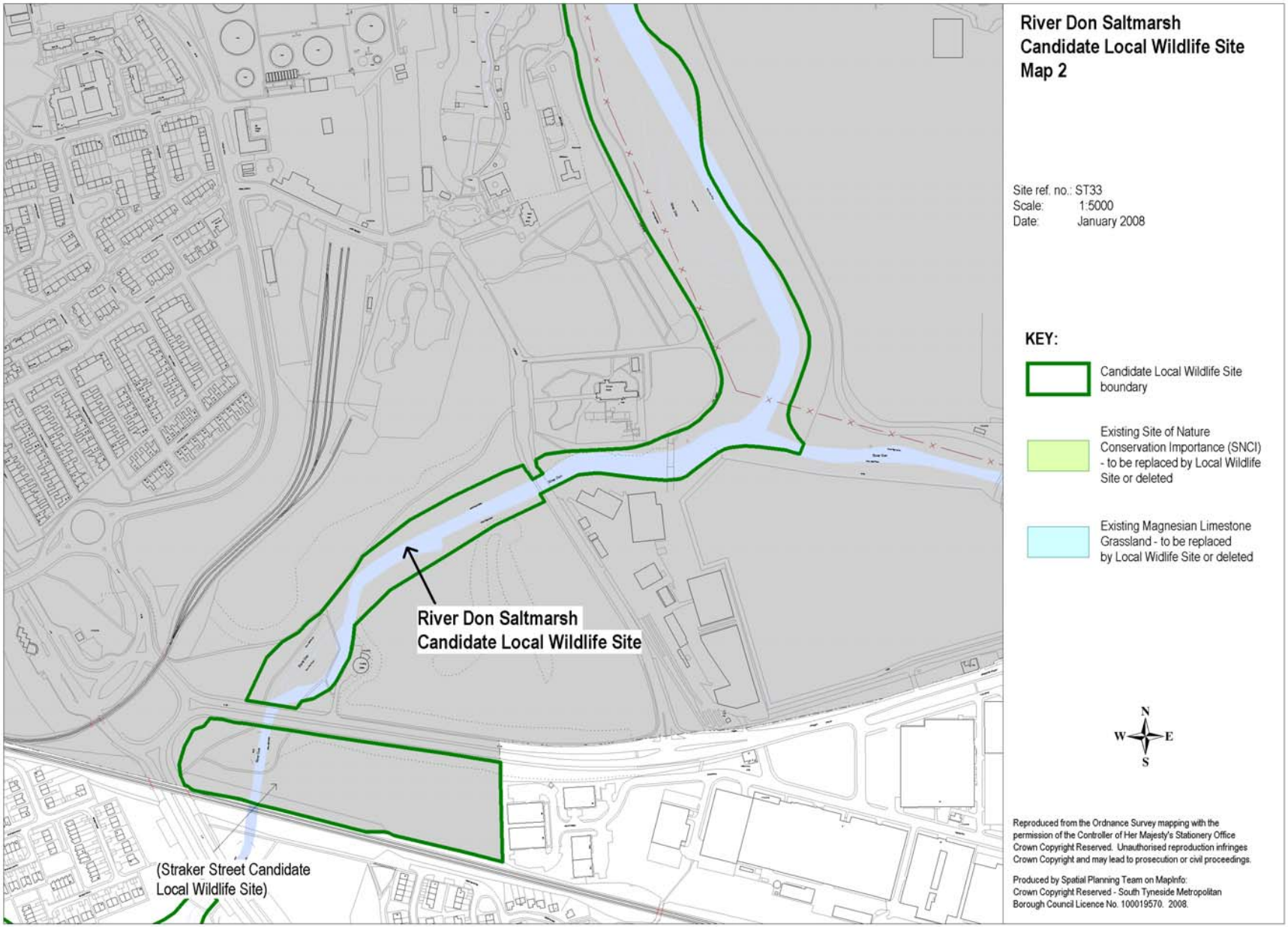
River Don Saltmarsh
Candidate Local Wildlife Site
(Straker Street Candidate
Local Wildlife Site)
River Don Saltmarsh
Candidate Local Wildlife Site
Map 2
Site ref. no.: ST33
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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37) River Don, West Boldon

Development Management Policies DM7
Candidate Local Wildlife Site – New Site

OS grid reference: NZ354616
Approximate size: 2.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) River
b) Scrub

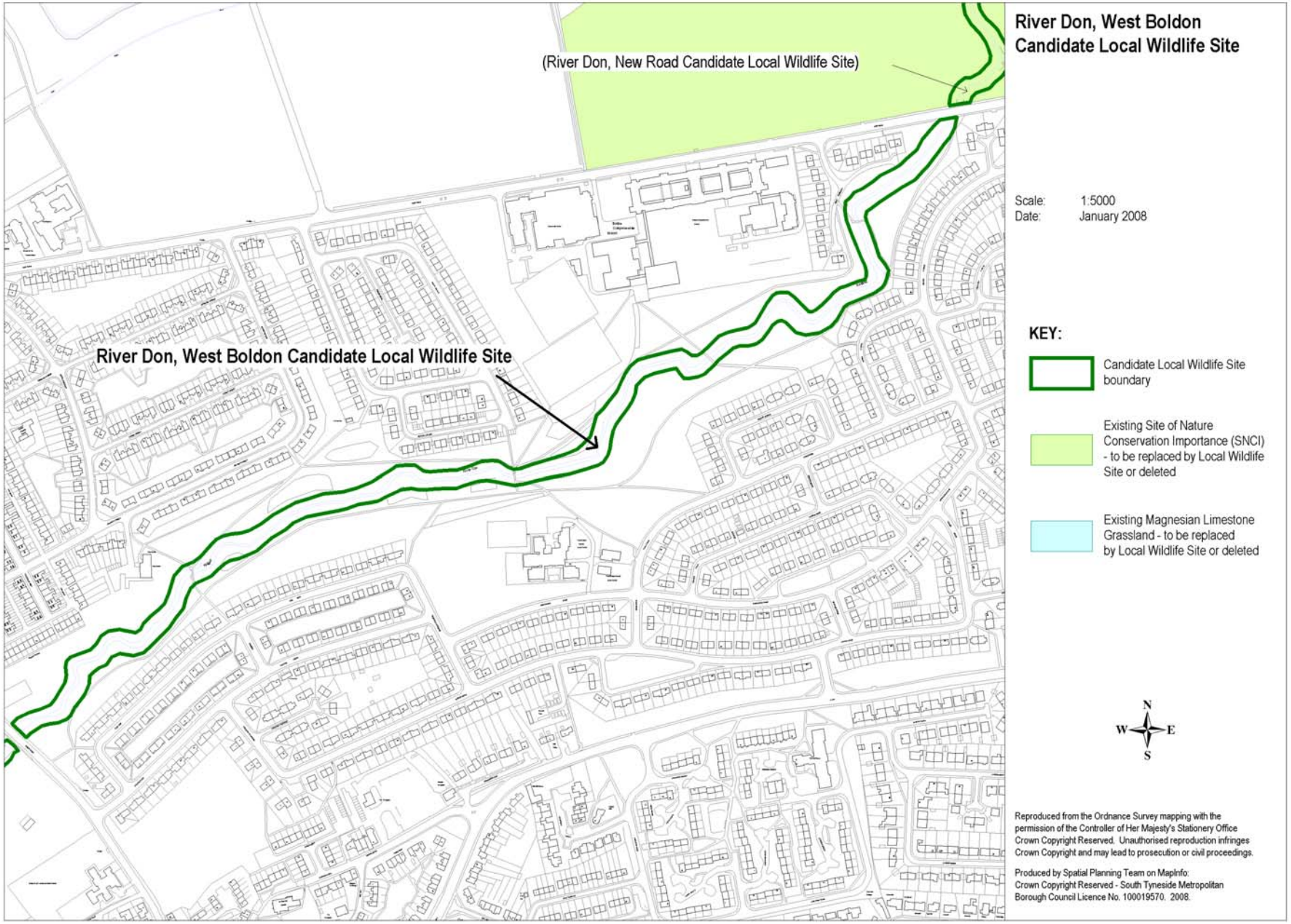
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout, and the presence of nearby housing and schools results in the site being subject to a high level of human disturbance.

This is a linear site and covers the banks of the River Don as it flows through West Boldon between North Road and New Road. The Don here has mostly unmodified riverbank with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel typically includes branched bur-reed, reed canary-grass, fool's watercress, hemlock water-dropwort and Himalayan balsam. The riverside margins are broad and have coarse herbaceous vegetation such as false oat-grass, Yorkshire fog, creeping bent, hogweed, bramble, creeping thistle and great hairy willowherb. Beyond this strip is amenity grassland and, in the north east of the site, raised flood protection banks. There are areas of scattered scrub alongside the river. Recent surveys have demonstrated that this is one of the best breeding sites for water vole in the region. There is likelihood that it is used by otter, demonstrated by the fact that otters have been recorded recently on the River Don to the north and south of this site. Banded demoiselle damselfly are also present.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. River Don, West Boldon qualifies because it:
a) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides occupied breeding habitat for water vole and is used by otter.
b) Contains scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

It is proposed that River Don, West Boldon is designated as a Local Wildlife Site.


(River Don, New Road Candidate Local Wildlife Site)
River Don, West Boldon Candidate Local Wildlife Site
River Don, West Boldon Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
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38) South Marine Park Lake

South Shields Town Centre & Waterfront Area Action Plan SS13
Development Management Policies DM7
Local Wildlife Site

Site ref. no.: ST3
OS grid reference: NZ372674
Approximate size: 0.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Pond

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

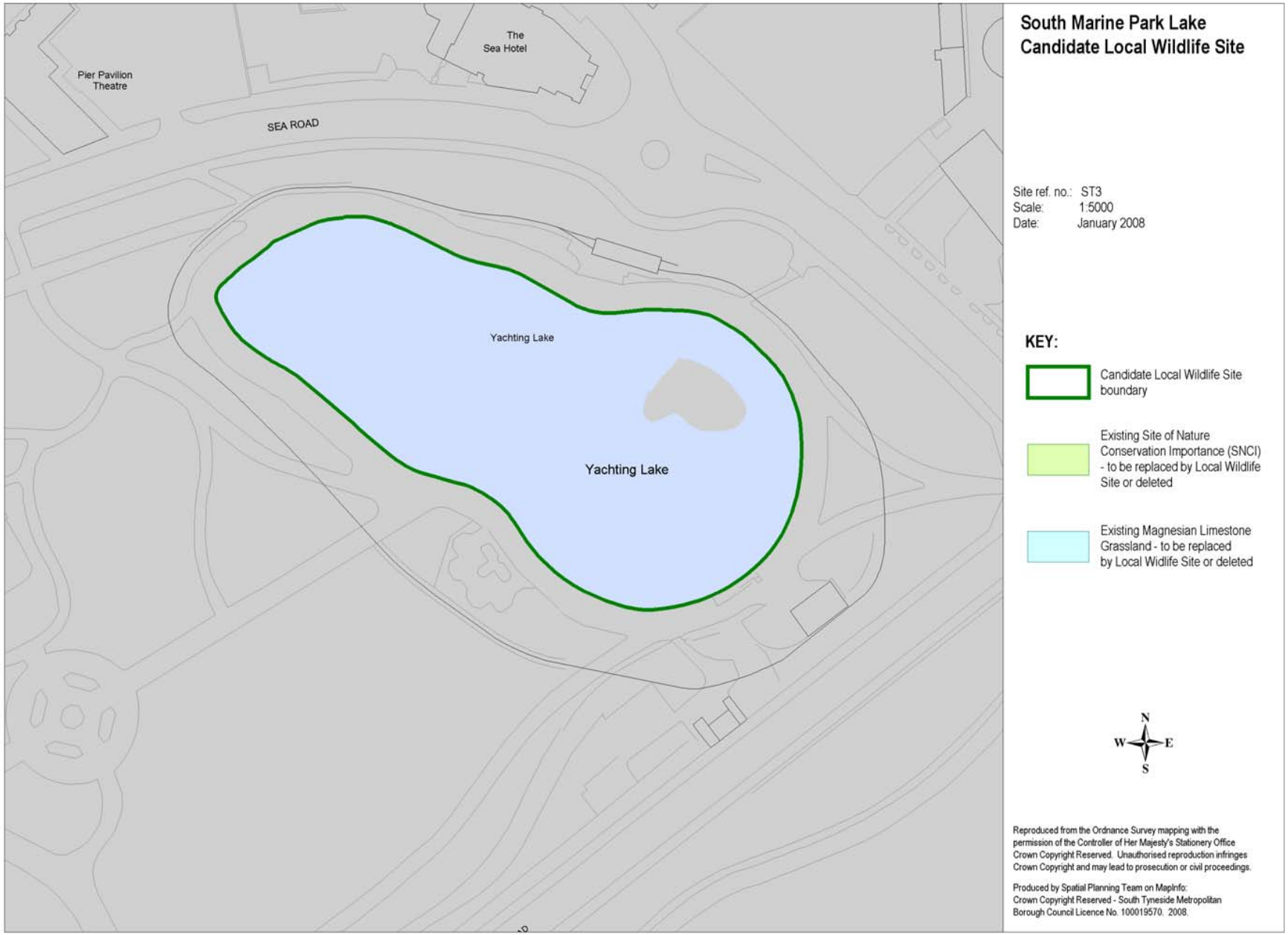
Public Access:
There is public access around the perimeter of the lake.

The lake was built as an ornamental feature when South Marine Park was created in 1890. It has a small island and is heavily used for boating during the holiday season. The edges are hard, with no slopes or fringing vegetation to encourage/facilitate wildlife. The main interest lies in the wildfowl that visit during the winter months.

During the 1990s mute swan numbers increased dramatically to levels of approximately 70 permanent non-breeders, increasing to as much as 200 swans during winter. Daily feeding by the council had assisted this trend. In Feb 2005 declining water quality (ie dangerous levels of bacteria) necessitated the lake being emptied, cleaned of silt and refilled. Large numbers of swan mussels, up to the size of 'a small dinner plate' were found, especially around the fountains. Despite the cessation of council feeding, swan numbers have since returned to up to 100 over the winter months, the largest gathering of mute swans in the country. Winter also sees the lake used by up to 100 tufted duck, up to 20 pochard, coot and occasional ring-necked duck and greater scaup. Less common gulls in recent years have included Mediterranean, glaucous, Iceland and yellow-legged.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. South Marine Park Lake qualifies because it is a pond, as defined in the plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' South Marine Park Lake contains few, if any, of the plants in question. It does however qualify on the basis of hosting one of the largest gatherings of mute swans in the Durham Biodiversity Action Plan area, together with good numbers of tufted duck, pochard and other wildfowl.

South Marine Park Lake was designated as a Local Wildlife Site in the adopted South Shields Town Centre and Waterfront Area Action Plan, 2008.


The
Sea Hotel
Pier Pavilion
Theatre
SEA ROAD
Yachting Lake
Yachting Lake
South Marine Park Lake
Candidate Local Wildlife Site
Site ref. no.: ST3
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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39) South Shields Dunes

South Shields Town Centre & Waterfront Area Action Plan SS13
Development Management Polices DM7
Local Wildlife Site

OS grid reference: NZ375675
Approximate size: 12.1 hectares

Durham Biodiversity Action Plan priority habitats present:

a) Coastal sand dune

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

South Shields Dunes is bounded by the mean high water level to the east and the south pier to the north. Construction of the south pier was completed in 1895. This is thought to have resulted in increased deposition of sand and an eastward shift in the location of Sandhaven beach. It is thought that the area where the dunes are now has been subject to tipping of waste material. This process may have taken place as recently as 1955 and may have played a major part in the development of the dunes. The area has subsequently been covered by wind blown sand.

The site comprises young dunes with pioneer species and the associated foreshore, with larger dunes behind. The system is unable to develop any further inland due to the presence of the adjacent promenade and amusement park. The overall extent of vegetation cover is unstable due to human and coastal erosion and varies noticeably from year to year.

The vegetation is that of a relatively immature dune system, with yellow (ie relatively unstable) dunes sparsely vegetated with lyme-grass and sand couch. Other specialist plants present include marram grass and sand sedge. Occasional broad-leaved species such as coltsfoot, mugwort and creeping thistle are scattered across the landward edge of the site.

To the north cover increases and the vegetation becomes transitional to dune grassland. Though not a prime example of the habitat, South Shields Dunes is the largest single area of dunes within the Durham Biodiversity Action Plan area, a fact that reflects the small area/number of such habitats present.

The dunes are subject to human disturbance and consequently there are only at most a few pairs of breeding meadow pipits and, possibly, linnets. They occasionally hold migrant birds in the autumn and provide a valuable winter feeding area for flocks of pipits, finches and buntings such as the uncommon snow bunting.

The adjacent beach, below the high water mark, is a Site of Special Scientific Interest and is regularly used by feeding sanderling and dunlin during the winter. The beach is also used by several tern species in autumn, including sandwich tern, little tern and the threatened roseate tern. The pier forms part of a Special Protection Area and holds a winter roost of purple sandpiper, whilst the adjacent tidal zone, of rocks and boulders, provides feeding/roosting for the purple sandpipers and also turnstones.

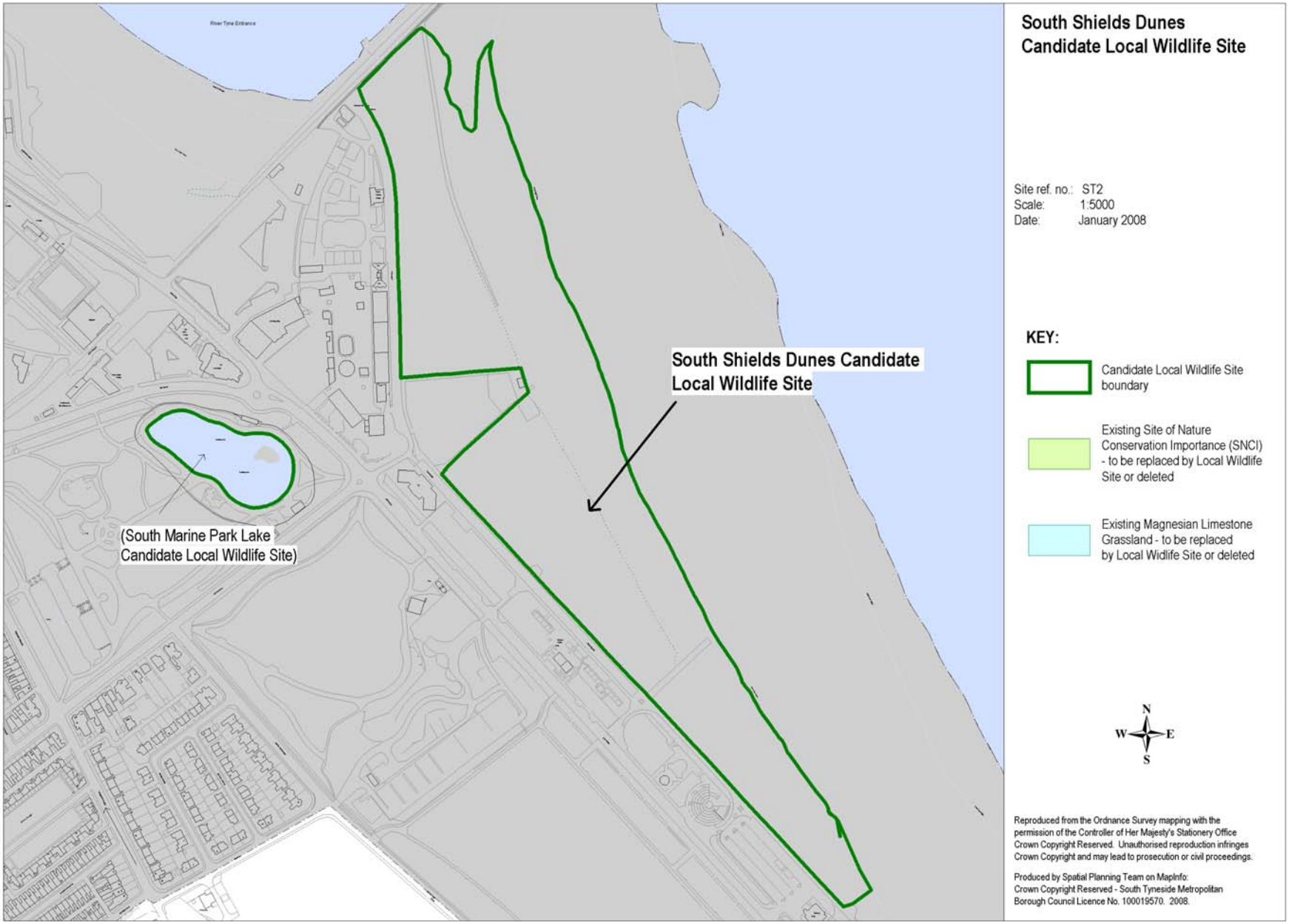
Sites qualify if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. South Shields Dunes qualifies as a Local Wildlife Site because it consists of an area greater than 1 hectare of coastal sand dune. The definition is provided by the DEFRA Higher Level Stewardship Farm Improvement Plan handbook, 2005, CO2. To meet the definition a minimum of eight species must be recorded as occasional from a given list of indicator species. The most recent survey did not assess abundance but did find the following plants from the list:

- Birds foot trefoil
- Cat's ear
- Common mouse-ear
- Common restharrow
- Red fescue
- Ribwort plantain
- Sand sedge
- White clover
- Yellow rattle

In addition a minimum of six species must be recorded as occasional from a second list of indicator species. The most recent survey did not assess abundance but did find the following plants from the list:

- Birds foot trefoil
- Cat's ear
- Common bent
- Ribwort plantain
- Sand sedge
- White clover

South Shields Dunes is designated as a Local Wildlife Site in the South Shields Town Centre and Waterfront Area Action Plan, 2008. The Plan shows changes to the boundary as defined in the Unitary Development Plan, 1999, to reflect the presence of a small skateboard park and to avoid overlap with the adjacent SSSI. The equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


South Shields Dunes Candidate Local Wildlife Site
(South Marine Park Lake Candidate Local Wildlife Site)
South Shields Dunes Candidate Local Wildlife Site
Site ref. no.: ST2
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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40) Station Burn, Boldon Colliery

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST30
OS grid reference: NZ346627
Approximate size: 16.2 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pastures
b) River
c) Ponds
d) Broadleaf woodland
e) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site, with the exception of the railway embankment.

The site, which is also designated as a Local Nature Reserve, is a section of the River Don valley north of Boldon Colliery. Station Burn has an industrial history stretching back at least 500 years. Evidence includes the remains of a water mill and associated features, a former waggonway and earthworks relating to the former Boldon Colliery. The majority of the site comprises grassland, ranging from tall neutral grassland to finer more species-rich grassland with species such as yarrow, cat's ear, black medick, self heal, pepper saxifrage and great burnet. This is a rare habitat in north east England. Marshy areas hold ragged robin and hemlock water dropwort.

The River Don has mostly unmodified riverbank, with features such as meanders, eroding earth cliffs, riffles and pools, and dead wood. Substrates vary from coarse silts to gravel, cobbles and the occasional boulder. The aquatic and marginal vegetation within the river channel includes branched bur-reed, reed canary-grass, fool's watercress, great hairy willwherb, fennel pondweed and Himalayan balsam. Recent surveys have recorded occupied breeding habitat for water vole and otter have recently been recorded both up and downstream. Birds such as moorhen, mallard, grey wagtail and kingfisher regularly use the river, whilst banded demoiselle damselfly are also present.

There are four small ponds, all close to the river. These hold plants such as yellow iris, reed sweet-grass, water plantain, brooklime, spiked water-milfoil and celery-leaved crowfoot. There is also a good variety of animal life including pond snails and invertebrates such as great diving beetles and water boatmen. Tree cover comprises broadleaf woodland with a wide mix of species and scrub dominated by hawthorn and gorse, with bramble and dog rose below. The scrub is primarily on the south facing slopes and is favoured by breeding birds such as whitethroat and yellowhammer, whilst willow tit winter at the site.

Station Burn qualifies as a Local Wildlife Site because it:
a) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Common knapweed
- Betony
- Birds foot trefoil
- Goatsbeard
- Meadowsweet
- Meadow cranesbill
- Meadow vetchling

- Rough hawkbit
- Ragged robin
- Water mint
- Great burnet
- Pepper saxifrage

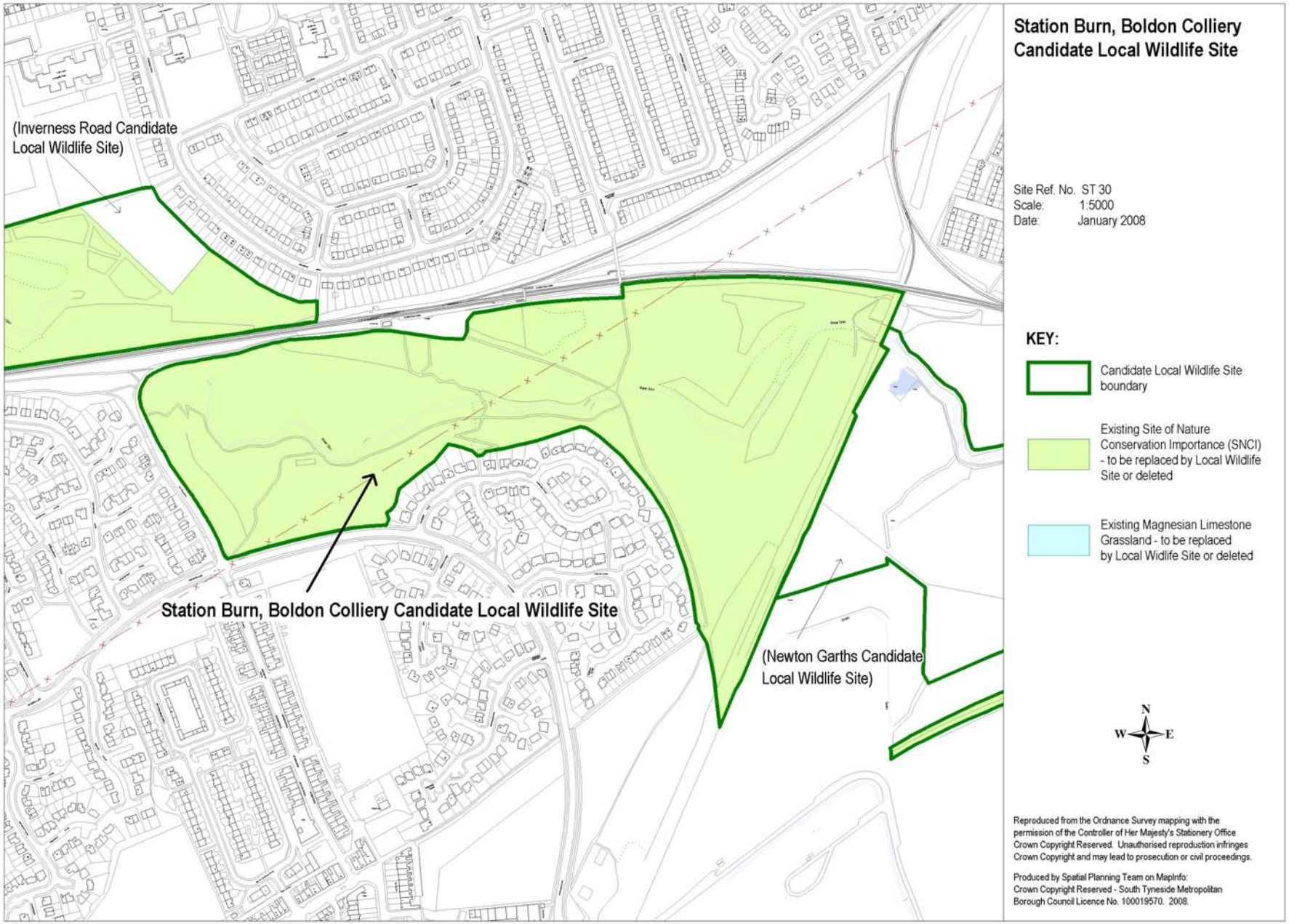
b) Forms part of a section of the River Don which has particular habitat features (as described above) which are beneficial to wildlife. It also provides prime, occupied breeding habitat for water vole and is used by otters.

c) Has ponds, as defined in the Durham Biodiversity Action Plan ie 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Surveys of the ponds at Station Burn have revealed the presence of at least 16 species of such plants.

d) Holds broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

e) Contains scrub, as defined in the Durham Biodiversity Action Plan ie 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'

Station Burn was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


(Inverness Road Candidate Local Wildlife Site)
Station Burn, Boldon Colliery Candidate Local Wildlife Site
(Newton Garths Candidate Local Wildlife Site)
Station Burn, Boldon Colliery Candidate Local Wildlife Site
Site Ref. No. ST 30
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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41) Straker Street

Central Jarrow Area Action Plan J11
Local Wildlife Site – New Site

OS grid reference: NZ336647
Approximate size: 3.1 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Pond
b) Lowland meadows and pasture
c) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is informal public access throughout the site, with the exception of the railway embankment.

The site is located next to the Tyne Tunnel entrance, with Straker Street (A185) to the north and the Metro line to the south. It comprises neutral grassland and broadleaf plantation, together with a pond. The River Don flows through the western end of the site.

The grassland is mostly tall with species such as false oat grass, Yorkshire fog and wild parsnip. In places it becomes more species-rich, with tufted vetch, birds foot trefoil and meadow vetchling, whilst damp hollows hold rushes and orchid species. The pond appears to be of relatively recent origin and certainly post-dates an OS map of 1958. It has sparse aquatic and marginal vegetation. Species present include curled and floating pondweed, reed canary-grass and yellow iris. There is a small island, with sizeable willow trees. A small infestation of Australian swamp stonecrop *Crassula helmsii* was discovered and treated in 2004. A water vole population was found during a survey in 2000. Unusually the voles were nesting within the fringing vegetation as against in the more typical bankside burrows found elsewhere (eg along the River Don, 200m upstream). Kingfisher and grey heron regularly use the pond.

Along the north and south boundaries there are strips of woodland plantation made up of sycamore, Lombardy poplar and white poplar.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Station Burn qualifies because it:
a) Has a pond, as defined in the Durham Biodiversity Action Plan ie 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Surveys of the ponds at Straker Street have revealed the presence of at least 10 species of such plants. Although this falls short of the 15 species required, the site qualifies on the basis of holding breeding water voles (together with b) below).

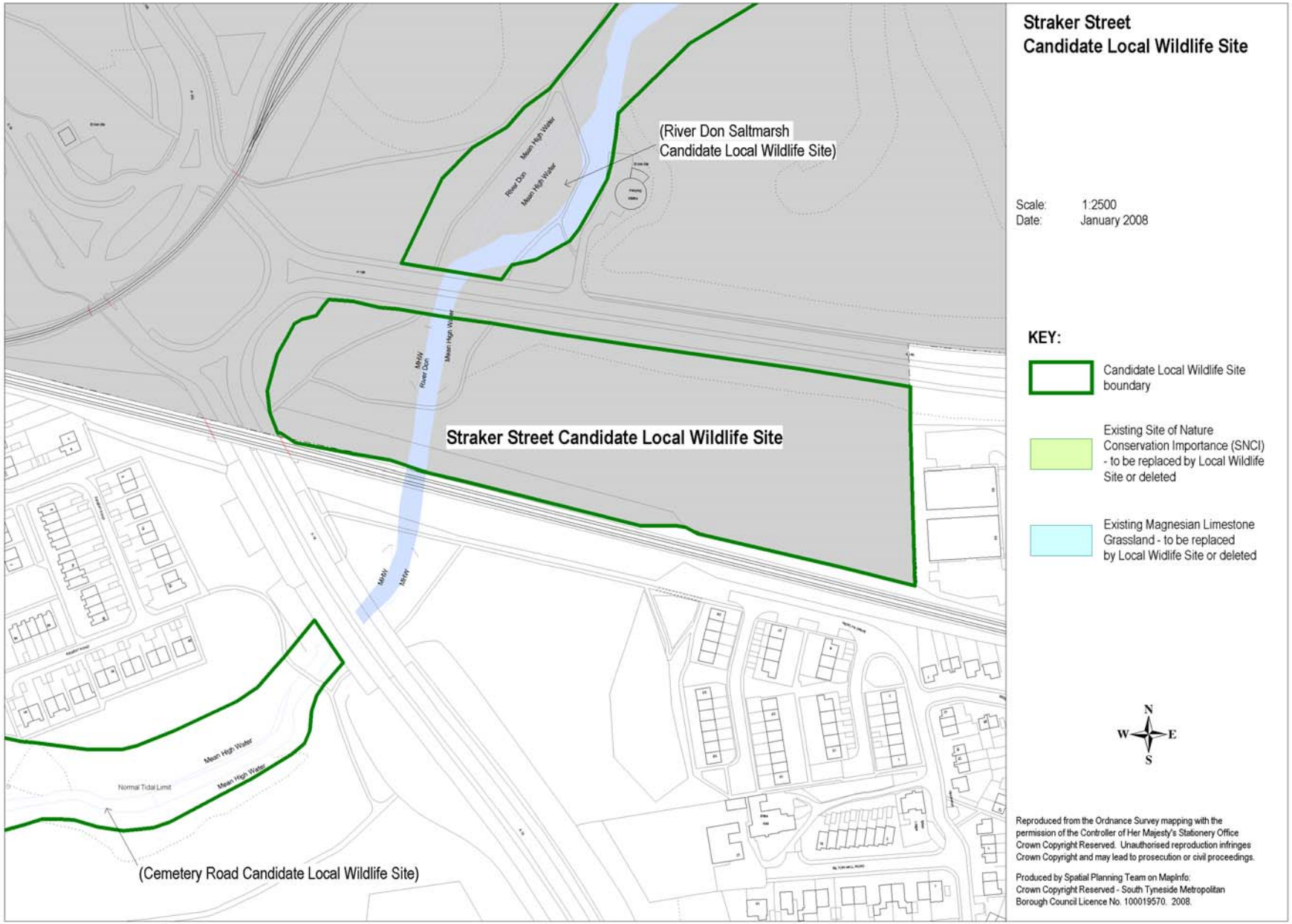
b) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Birds foot trefoil
- Common knapweed

- Common spotted orchid
- Glaucous sedge
- Goatsbeard
- Meadow vetchling
- Northern marsh orchid
- Tufted vetch

c) Holds broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

Straker Street was designated as a Local Wildlife Site in the Post-Submission Revised draft Central Jarrow Area Action Plan (2009). The equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Straker Street
Candidate Local Wildlife Site
(River Don Saltmarsh
Candidate Local Wildlife Site)
Straker Street Candidate Local Wildlife Site
(Cemetery Road Candidate Local Wildlife Site)
Mean High Water
River Don
MHW
Normal Tidal Limit
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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42) Strother House Farm

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST18
OS grid reference: NZ325603
Approximate size: 3.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland fen habitats

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

The site is situated to the north of Strother House Farm. It comprises an area of marshy ground approximately 0.3ha in extent, bounded by a ditch to the south and east. Tall, unmanaged grassland holds species such as tufted hair grass, creeping bent, false oat-grass and reed canary grass. A variety of herbs are present including meadow vetchling, tufted vetch, marsh woundwort, great hairy willowherb, meadowsweet, hemlock water-dropwort and wild angelica. Small hollows may hold water seasonally. The remainder of the site, to the north, is arable land bounded by a ditch. Plants growing on and around the ditch include hawthorn, bramble, umbellifers and bush vetch together with wetland species such as meadowsweet, yellow iris and reed canary grass.

Strother House Farm qualifies as a Local Wildlife Site because it has more than 0.25 hectares of lowland fen habitats. These meet the definition in the Plan i.e. 'Wetlands overlying both peat and mineral soils and fed by groundwater as well as rainwater...Hydrology varies between and within fen types, from water table above ground for much or most of the year, to water table near the surface for only part of the year. Swamp, *Phragmites australis* Reedbed and Marsh are synonyms for certain types of fen community on particular substrates, with particular dominant species or with particular hydrology.'

Strother House Farm was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Strother House Farm
Candidate Local Wildlife Site
Site Ref. No. ST 18
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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43) Temple Park East

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ373633
Approximate size: 6.6 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pasture/Magnesian limestone grassland
b) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

Temple Park East is an unmanaged area of coarse grassland and scrub at the south western end of the park. It comprises a raised area of landfill created prior to 1974. Grassland has developed which, as can be seen from the lists below, is species-rich in places. The presence of some of the species such as sainfoin, which is not considered to be native in the region, suggests that the area may have been seeded in the past. Elsewhere there are patches of bare ground with a sparse vegetation cover that is akin to 'early successional brown field land'. This has plants such as glaucous sedge, red bartsia, hoary ragwort and common toadflax. To the west there is a shallow depression featuring a large patch of water chickweed – an apparent anomaly and a plant that is extremely rare in the County.

Hawthorn scrub is scattered throughout the site, becoming denser to the south. The scrub is well used by songbirds, whilst the unmanaged grassland holds small mammals which in turn provide prey for kestrels.

Temple Park East qualifies as a Local Wildlife Site because it:
a) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

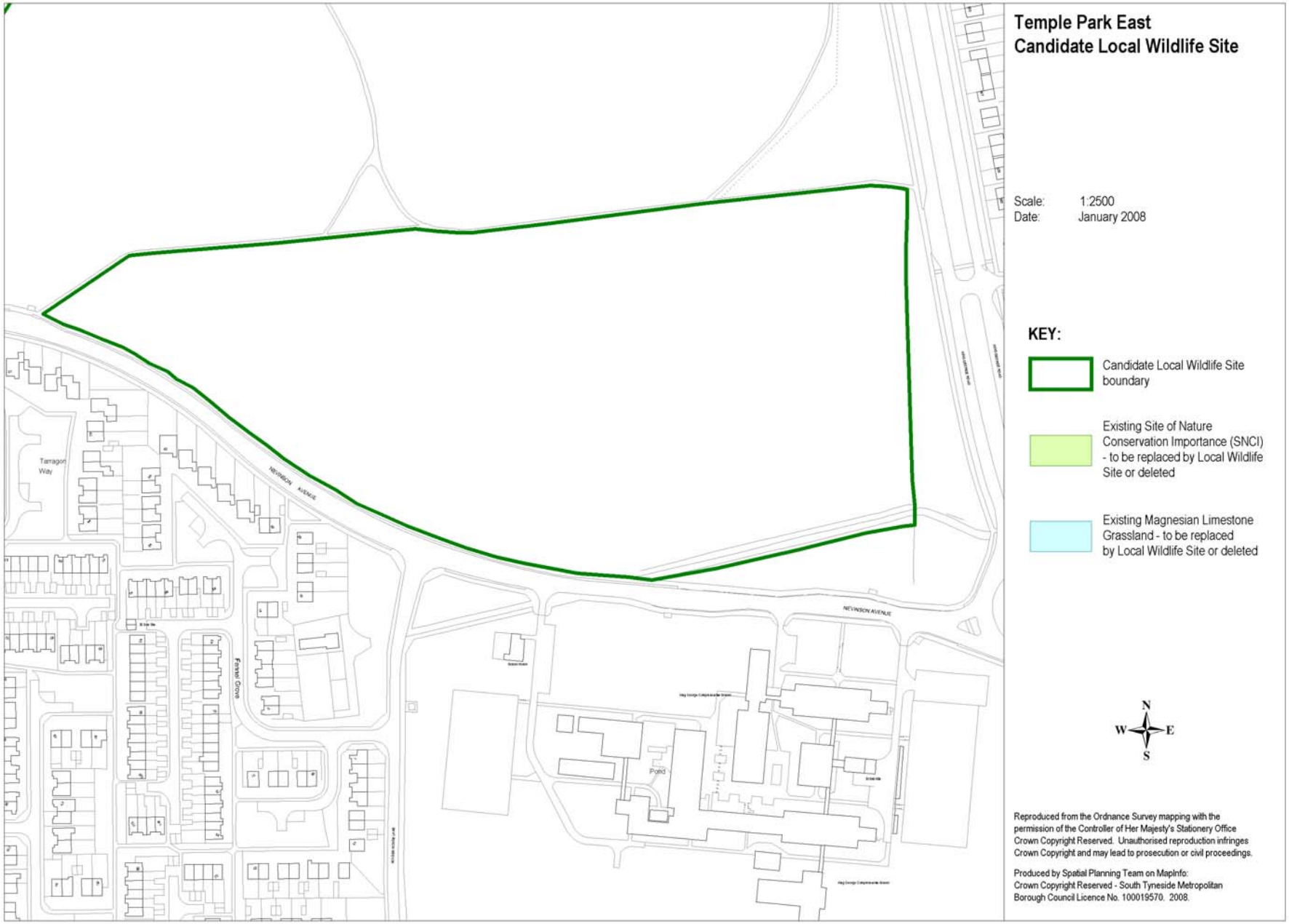
- Birds foot trefoil
- Glaucous sedge
- Ladies bedstraw
- Lesser knapweed
- Meadow cranesbill
- Yellow rattle

In addition the following plants from the Magnesian limestone grassland indicator species list were recorded:

- Greater knapweed
- Ladies bedstraw
- Salad burnet

b) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

It is proposed that Temple Park East is designated as a Local Wildlife Site.


Temple Park East
Candidate Local Wildlife Site
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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Tarragon Way
NEVINSON AVENUE
Fennel Grove
Pond
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44) Temple Park West

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

Site ref. no.: ST4
OS grid reference: NZ366636
Approximate size: 34.8 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pasture
b) Broadleaf woodland
c) Pond

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is public access throughout the site.

Temple Park is a large area of amenity open space within an urban setting and yet parts of it have a 'wild' character. The site comprises of long-infilled claypits and substantial areas of made ground (mostly domestic waste), which have since been landscaped. Much of the site supports tall, neutral grassland with relatively coarse species such as rosebay willowherb, false oat-grass, cocksfoot and Yorkshire fog. In places the flora becomes more varied, with species such as tall melilot, salad burnet and those listed below under a). Maturing broadleaf plantations featuring crack willow, sycamore, hawthorn, elder, white poplar, alders and Swedish whitebeam are scattered across the site. There are two small marshy, wet ditch systems, one with an associated pond. These hold plants such as common horsetail, floating sweetgrass, water starwort and curled pondweed. The pond has breeding palmate newt and southern hawker dragonfly has been recorded. Breeding birds include grasshopper warbler, whitethroat and willow warbler, as well as good numbers of other species. There is occasional use by long-eared owl during the winter.

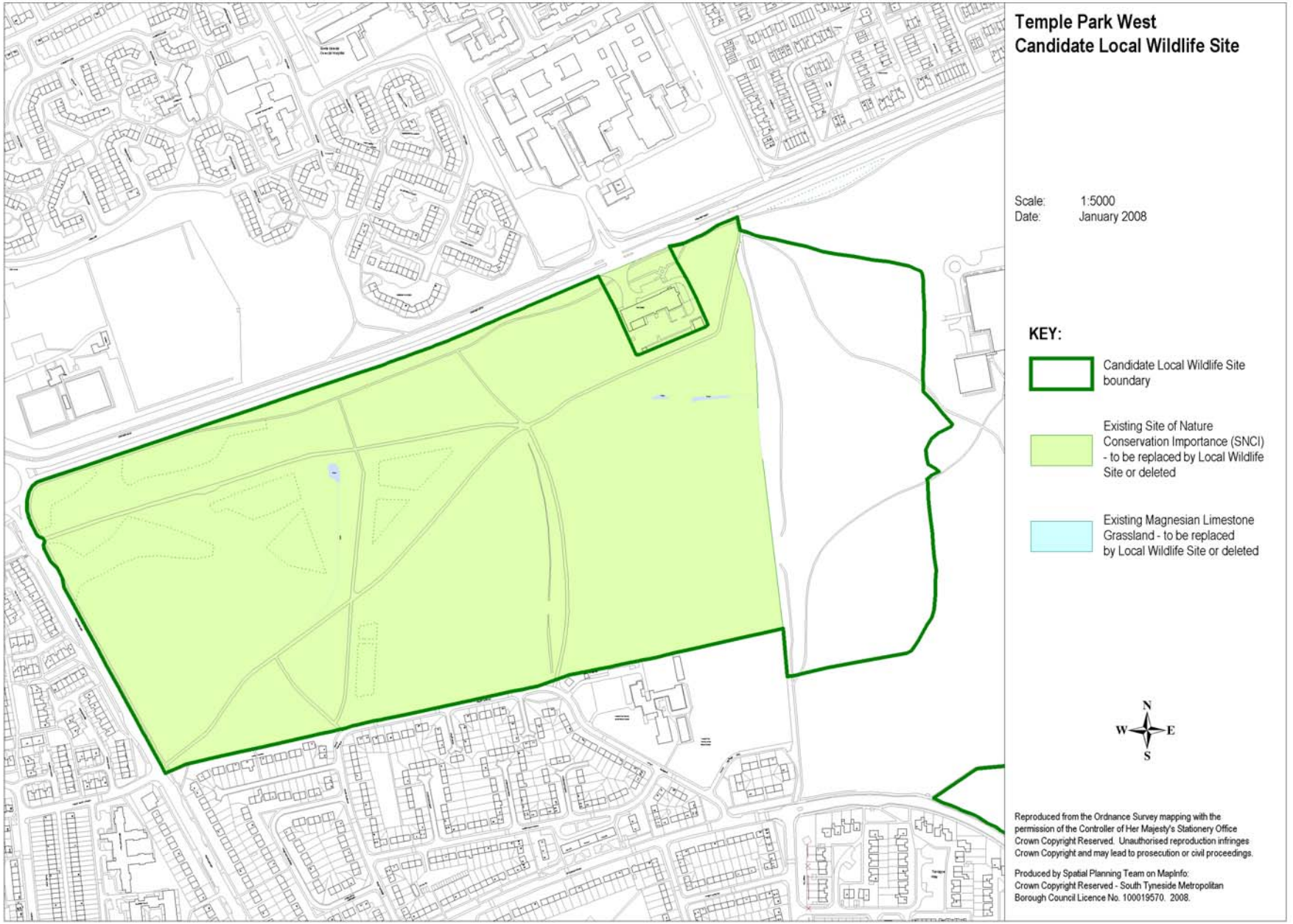
Temple Park West qualifies as a Local Wildlife Site because it:
a) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Agrimony
- Birds foot trefoil
- Common sedge
- Fragrant orchid
- Goatsbeard
- Lesser knapweed
- Meadowsweet
- Meadow cranesbill
- Meadow vetchling
- Oxeye daisy
- Tufted vetch
- Yellow rattle

b) Has broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

c) Has a pond, as defined in the Durham Biodiversity Action Plan i.e. ‘a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.’ In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should ‘Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.’ The most recent survey of 1998 recorded 19 such species of plant.

Temple Park West was named ‘Temple Park’ and designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the name is to be changed to Temple Park West and that the boundary is to be extended to incorporate an area of grassland at the eastern end of the site. The area that now houses a Fire Station (built in 2000) is to be removed. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


Temple Park West
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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45) The Leas

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ390657
Approximate size: 85.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland
b) Lowland meadows and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site has open public access throughout.

The Leas is a large stretch of open grassland following the coast from Trow Quarry down to Souter Lighthouse. It is by far the biggest area of botanically rich permanent grassland in the borough and is managed by the National Trust. The area is a complex mosaic of different types of grassland. Much of this is tall, coarse neutral grassland and regularly mown grassland with perennial ryegrass. This is suffused throughout with elements of species-rich Magnesian limestone and neutral grassland types. In places the species-rich grasslands become the dominant community. This is a rare habitat in northeast England. There is a maritime influence throughout, as demonstrated by the presence of plants such as thrift, sea plantain and scurvy grass. Trow quarry is a small disused limestone quarry, which supports a range of typical magnesian limestone grassland plants benefiting from its rock faces and shallow soils. Frenchman's Lea has large areas of tall neutral grassland, but this becomes far more species rich in places towards the Coast Road. Notable plants here include perennial flax (at its most northerly station in Britain), and common spotted, northern marsh, pyramidal and bee orchids. Marsden Lea also has large areas of tall neutral grassland, but includes many species such as common cat's ear, autumn hawkbit, restharrow and creeping cinquefoil. A hedgerow nearly a kilometre long has been created in the middle of Frenchman's/Marsden Lea, parallel to the coast. Despite the exposed location it is now firmly established, with hardy trees/shrubs such as hawthorn, blackthorn, Swedish whitebeam and sycamore.

Rocket Green is an exceptionally rich area opposite Marsden Limekilns with tor-grass, meadow and downy oat-grass and a spectacular diversity of herbs including dropwort, saw-wort, burnet saxifrage and autumn gentian. Tor-grass is rare in the North East, but can be invasive – so may have to be managed in future to prevent undue spread. The land north of Souter Lighthouse was the site of Marsden Village, demolished in the early 1960s. This is mostly managed as amenity grassland, but nevertheless is relatively herb-rich, with common cat's ear, creeping cinquefoil, lesser knapweed, sea and hoary plantain, lesser hawkbit and black medick.

Across the Leas the management regime aims to create a mosaic of long and short grass throughout the seasons. Whilst providing for amenity this also benefits flowering plants, invertebrates and small mammals such as shrews and voles. These in turn favour important populations of breeding birds e.g. reed bunting, linnet, meadow pipit, skylark and grey partridge (the latter two UK Biodiversity Action Plan priority species), whilst little owl breed at Trow Quarry. Regular wintering birds include short-eared owl, and finch flocks featuring uncommon species such as snow and Lapland buntings. Trow quarry (together with Marsden Old Quarry) is the best 'migrant trap' in the borough and attracts many migrant birds in the autumn, after suitable weather. For example an eastern crowned warbler in October 2009, was the first in Britain.

The Leas qualifies as a Local Wildlife Site because it has:
a) More than 0.25 hectares of Magnesian limestone grassland as defined in the Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. Recent surveys have found the following species from the list:

- Birds foot trefoil locally abundant
- Cowslip locally frequent
- Fairy flax locally frequent
- Hoary plantain locally frequent
- Kidney vetch locally frequent
- Ladies bedstraw locally frequent
- Common spotted orchid occasional
- Eyebright occasional
- Greater knapweed occasional
- Northern marsh orchid occasional
- Rough hawkbit occasional
- Salad burnet occasional
- Small scabious occasional
- Yellow-wort occasional
- Bee orchid rare
- Fragrant orchid rare
- Pyramidal orchid rare
- Common rockrose, saw-wort and wild thyme have all been recorded, but without an assessment of abundance.

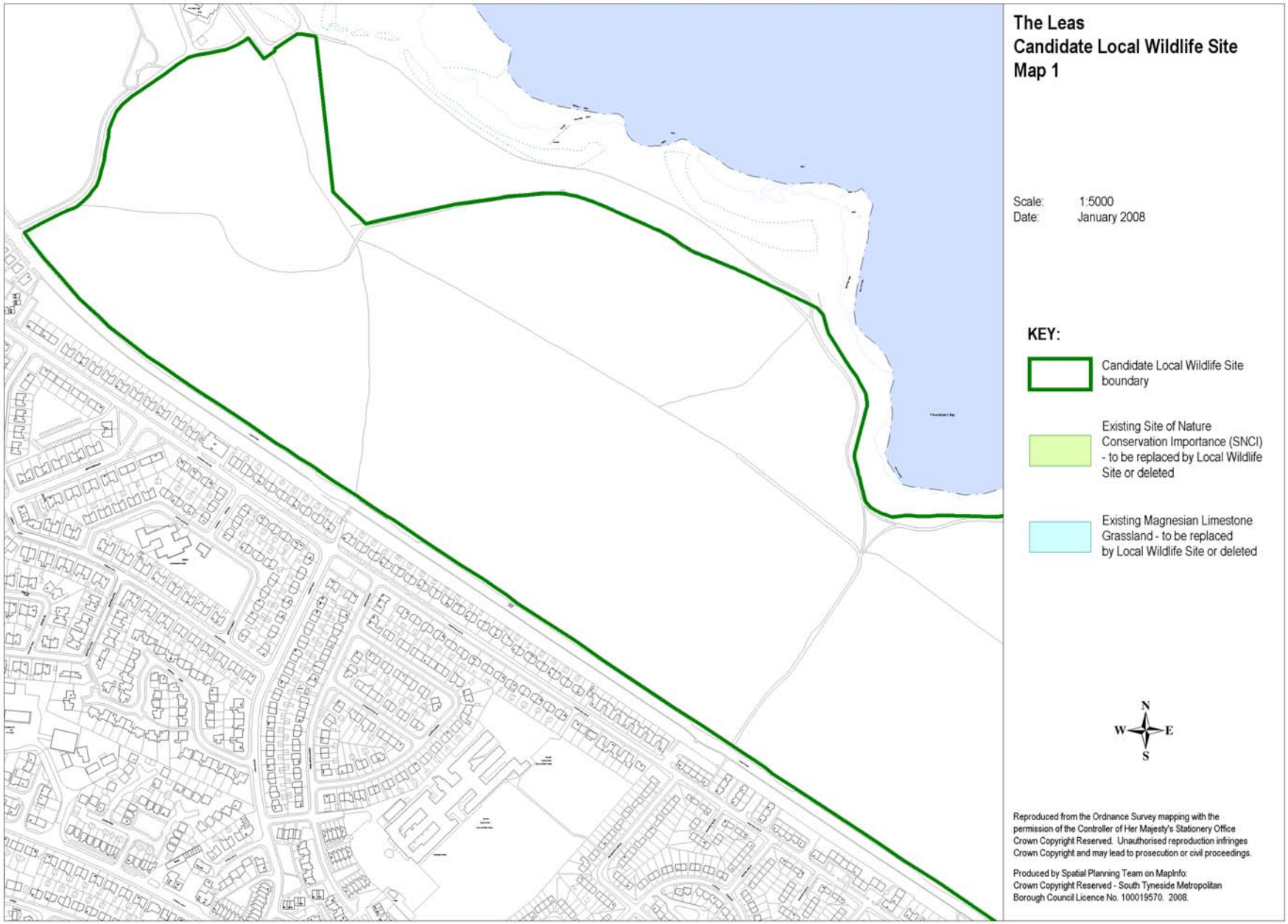
b) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. Recent surveys have found the following species from the list, in addition to eight that are common to both lists:

- Glaucous sedge locally frequent
- Lesser knapweed locally frequent
- Yellow rattle locally frequent
- Goatsbeard occasional
- Meadow cranesbill occasional
- Oxeye daisy occasional

- Field scabious, meadow vetchling and tufted vetch have all been recorded, but without an assessment of abundance.

The site also has additional value due to its function as a 'buffer zone' i.e. providing the opportunity for the internationally important habitats (Special Area of Conservation) on the cliff tops to migrate inland over time as the coast erodes.

It is proposed that The Leas is designated as a Local Wildlife Site.


The Leas
Candidate Local Wildlife Site
Map 1
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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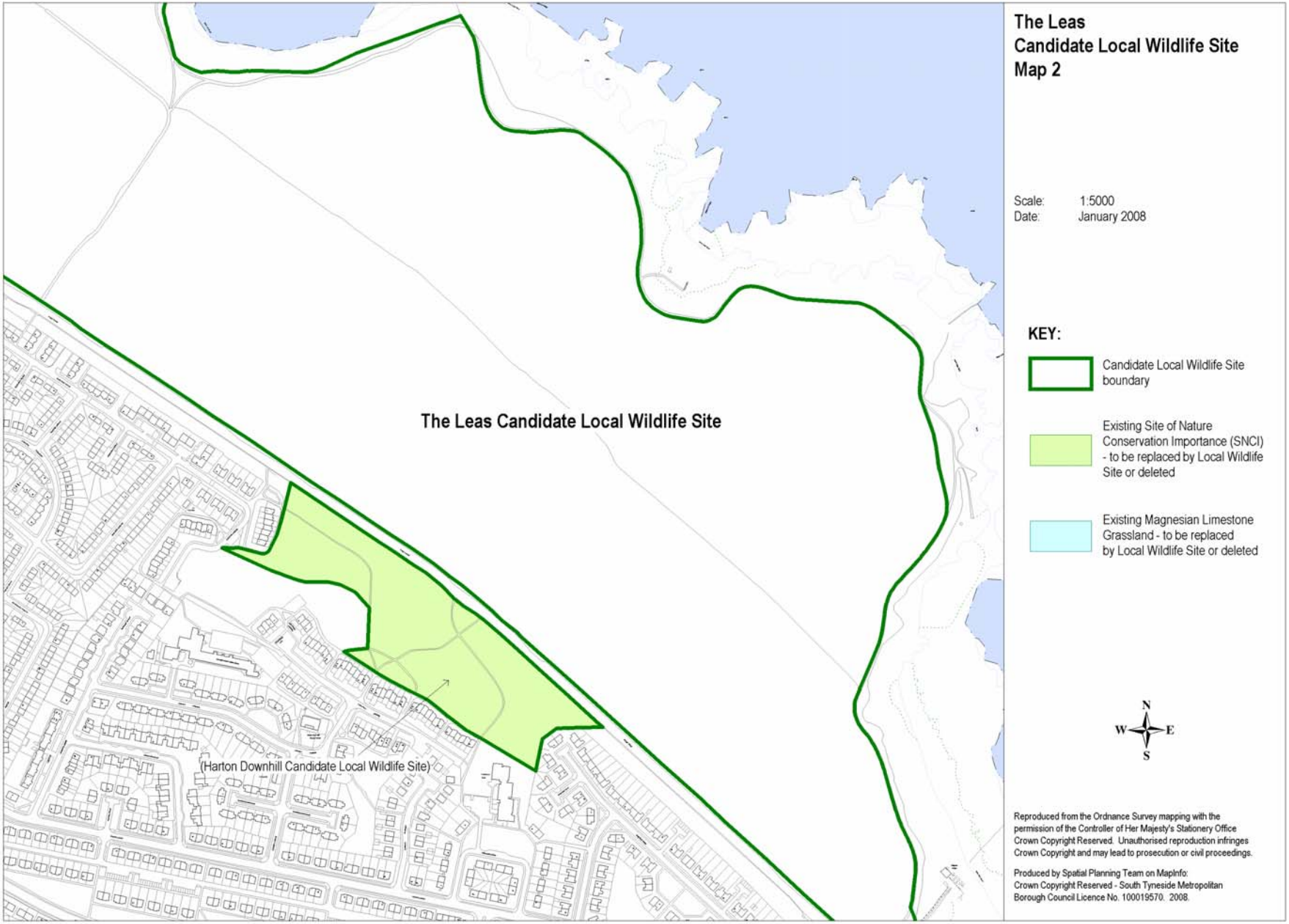
The Leas Candidate Local Wildlife Site
(Harton Downhill Candidate Local Wildlife Site)
The Leas
Candidate Local Wildlife Site
Map 2
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
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The Leas
Candidate Local Wildlife Site
Map 3
Scale: 1:5000
Date: January 2008
The Leas Candidate Local Wildlife Site
Marsden Bay
(Marsden Old Quarry Candidate Local Wildlife Site)
(Lizard Lane Cutting Candidate Local Wildlife Site)
(Marsden Limekilns
Candidate Local Wildlife Site)
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
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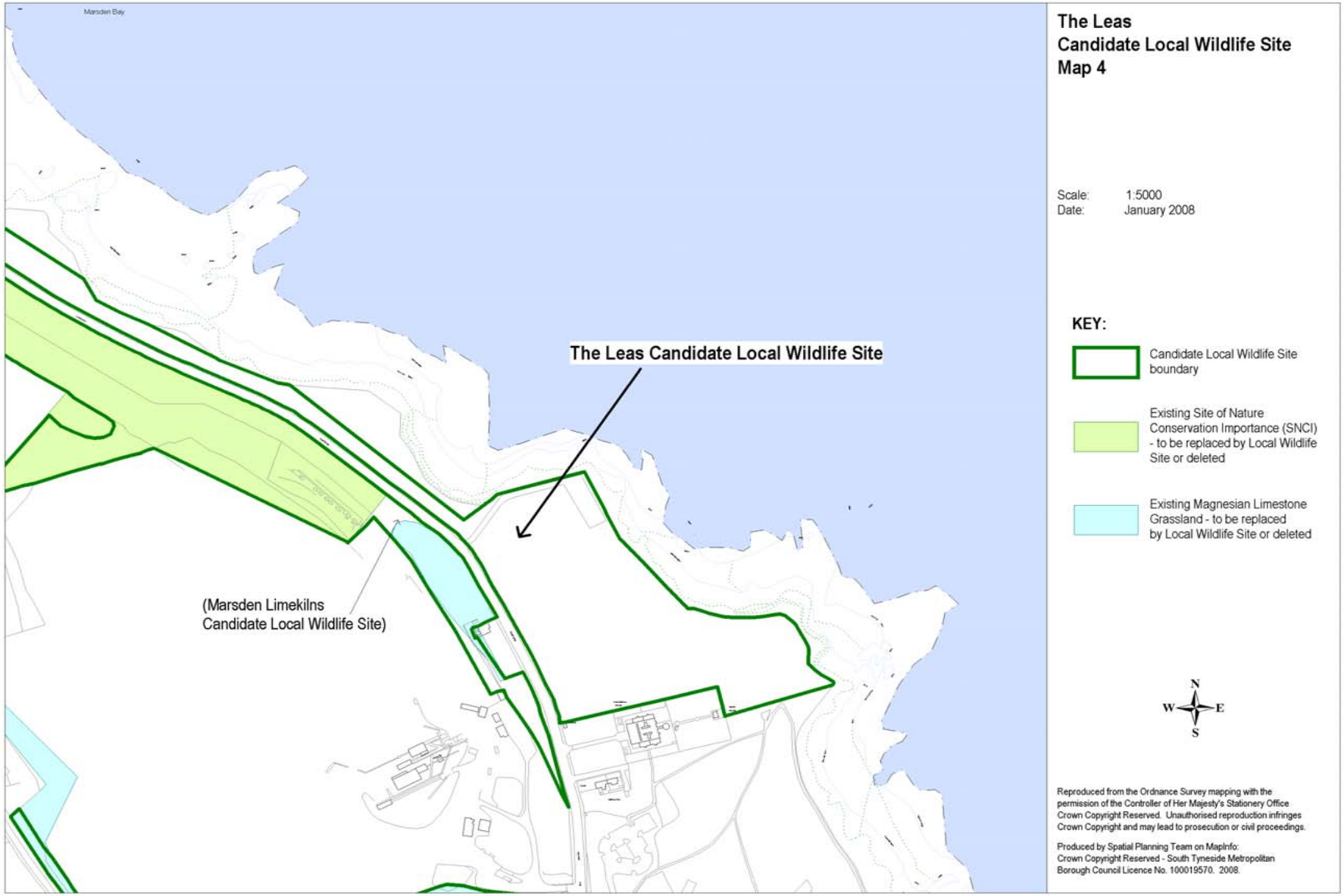
Marsden Bay
The Leas Candidate Local Wildlife Site
(Marsden Limekilns
Candidate Local Wildlife Site)
The Leas
Candidate Local Wildlife Site
Map 4
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Wildlife Site or deleted
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46) Tilesheds Burn, East Boldon

Development Management Policies DM7
Local Wildlife Site – Protected Area with Amended Boundary

The site comprises a small area of wetland habitat associated with drainage ditches near Tilesheds Lane, together with two adjacent ridge and furrow fields. Ditches, hedgerow, scrub and a small area of rough grassland provide additional habitats. The Tilesheds Burn and associated ditches are marshy areas heavily vegetated with wetland plants including lesser reedmace, greater reedmace, yellow iris, branched bur-reed, reed canary grass, fools watercress, brooklime, bittersweet, common duckweed, marsh ragwort and water starwort. Lesser reedmace is rare in the north east. The ridge and furrow fields are unimproved and are cut for hay in July, then closely grazed till the following spring.

Site ref. no.: ST28
OS grid reference: NZ368618
Approximate size: 4.7 hectares

The two large fields to the south of the burn are of rigg and furrow type and are very interesting botanically. The presence of great burnet, pepper saxifrage and adder's tongue fern scattered throughout these fields is highly indicative of old, unimproved grassland. This is a rare habitat in north east England. Seasonal flooding occurs and accounts for the presence of a number of damp grassland species such as cuckoo flower, lesser spearwort, marsh ragwort, wild angelica, meadowsweet, marsh foxtail, water starwort and flote-grass. At least three sedge species are present - hairy, glaucous and carnation. Four species of rush are also present - soft, hard, toad and jointed. Lesser knapweed and *Dactylorhiza* orchids have also been recorded. The ridge and furrow pattern is very visible, with the drier ridges picked out by meadow buttercup and yellow rattle. In places the ditches have associated old redundant hedges consisting mostly of hawthorn with some elder. In the winter the flooded areas are used by up to 50 Curlews, whilst the remaining pasture land is a feeding area for fieldfare, redwing and several commoner species

Durham Biodiversity Action Plan priority habitats present:
a) Lowland meadows and pasture
b) Lowland fen habitats
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Tilesheds Burn, East Boldon qualifies as a Local Wildlife Site because it has:
a) More than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. A recent survey did not assess abundance but did find the following plants from the list:

- Adders tongue fern
- Fen bedstraw
- Great burnet
- Lesser knapweed
- Marsh marigold
- Meadowsweet
- Meadow vetchling
- Pepper saxifrage
- Tufted vetch
- Yellow rattle

Public Access:
There is no public access to this site.

b) More than 0.25 hectares of lowland fen habitats. These meet the definition in the Plan ie 'Wetlands overlying both peat and mineral soils and fed by groundwater as well as rainwater…Hydrology varies between and within fen types, from water table above ground for much or most of the year, to water table near the surface for only part of the year. Swamp, *Phragmites australis* Reedbed and Marsh are synonyms for certain types of fen community on particular substrates, with particular dominant species or with particular hydrology.'

c) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

Tilesheds Burn, East Boldon was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of the site is to be extended to incorporate the two ridge and furrow fields to the west and the two ditches to the north. An equivalent status will be retained but the name changed to Local Wildlife Site, in keeping with Government guidance.


(Tilesheds Nature Reserve
Candidate Local Wildlife Site)
Tilesheds Burn, East Boldon Candidate Local Wildlife Site
Cleadon Lane
Industrial Estate
Tilesheds Burn, East Boldon
Candidate Local Wildlife Site
Site Ref. No.: ST 28
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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47) Tilesheds

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area with Amended Boundary

Site ref. no.: ST27
OS grid reference: NZ367620
Approximate size: 1.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland meadows and pasture
c) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
Most of the reserve can be viewed from the public path that runs through the site.

Tilesheds stands on the outcrop of Pelaw Clay and its name may recall former working of the clay for brick and tile making. The Nature Reserve was created in 1992 from an area that was previously an agricultural field. It was declared as a Local Nature Reserve in 1997. The main feature of the site is a pond, with a dipping/viewing platform. The pond holds water all year round and is fringed by a small reedbed and a very diverse marsh. The marsh is dominated in places by reedmace, also reed sweet-grass and a variety of sedges. At the northern edge of the pond there is a stand of lesser reedmace, whilst to the east can be found tubular water-dropwort. The latter two plants are rare in the north east. Smooth and palmate newt both breed at the site.

A pair of mute swans breeds each year whilst coots, moorhens, mallards and grey heron regularly use the pond. It also occasionally attracts locally scare ducks such as gargoney and pintail, whilst snipe and jack snipe have used the marsh in recent winters. Sizeable flocks of house sparrows use a hawthorn hedgerow adjacent to the pond. The sparrows, along with brown rat, feed on the excess food left by members of the public feeding the swans and ducks. To the east is a small area of species-rich grassland, created at the same time as the pond. There are also small native broadleaf plantations, featuring an area of willow, which is coppiced annually.

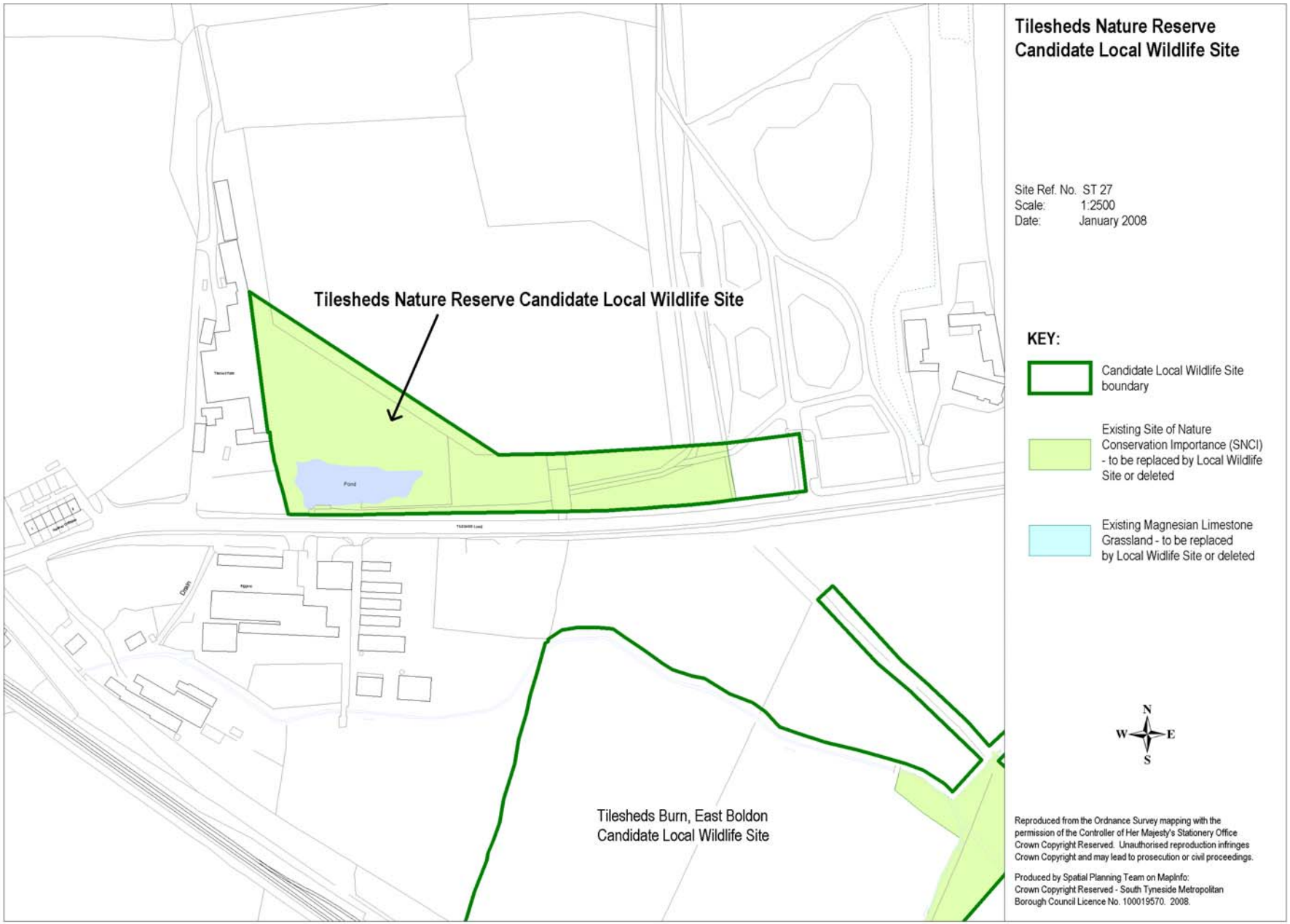
Tilesheds qualifies as a Local Wildlife Site because it:
a) Has a pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' Surveys of the pond at Tilesheds have revealed the presence of at least 23 species of such plants.

b) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not measure abundance but did record the following plants from the indicator list:

- Common knapweed
- Bird's-foot trefoil
- Cowslip
- Oxeye daisy
- Common spotted orchid
- Yellow rattle

c) Holds broadleaf woodland. The definition of broadleaf woodland is ‘all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.’

Tilesheds Nature Reserve was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that there will be a small addition at the eastern end of the site in order to be consistent with the Local Nature Reserve boundary. The equivalent status will be retained but the name changed toTilesheds Local Wildlife Site, in keeping with Government guidance.


Tilesheds Nature Reserve Candidate Local Wildlife Site
Pond
Drain
Tilesheds Burn, East Boldon
Candidate Local Wildlife Site
Tilesheds Nature Reserve
Candidate Local Wildlife Site
Site Ref. No. ST 27
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
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48) Turner's Hill

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ356606
Approximate size: 0.3 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Magnesian limestone grassland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

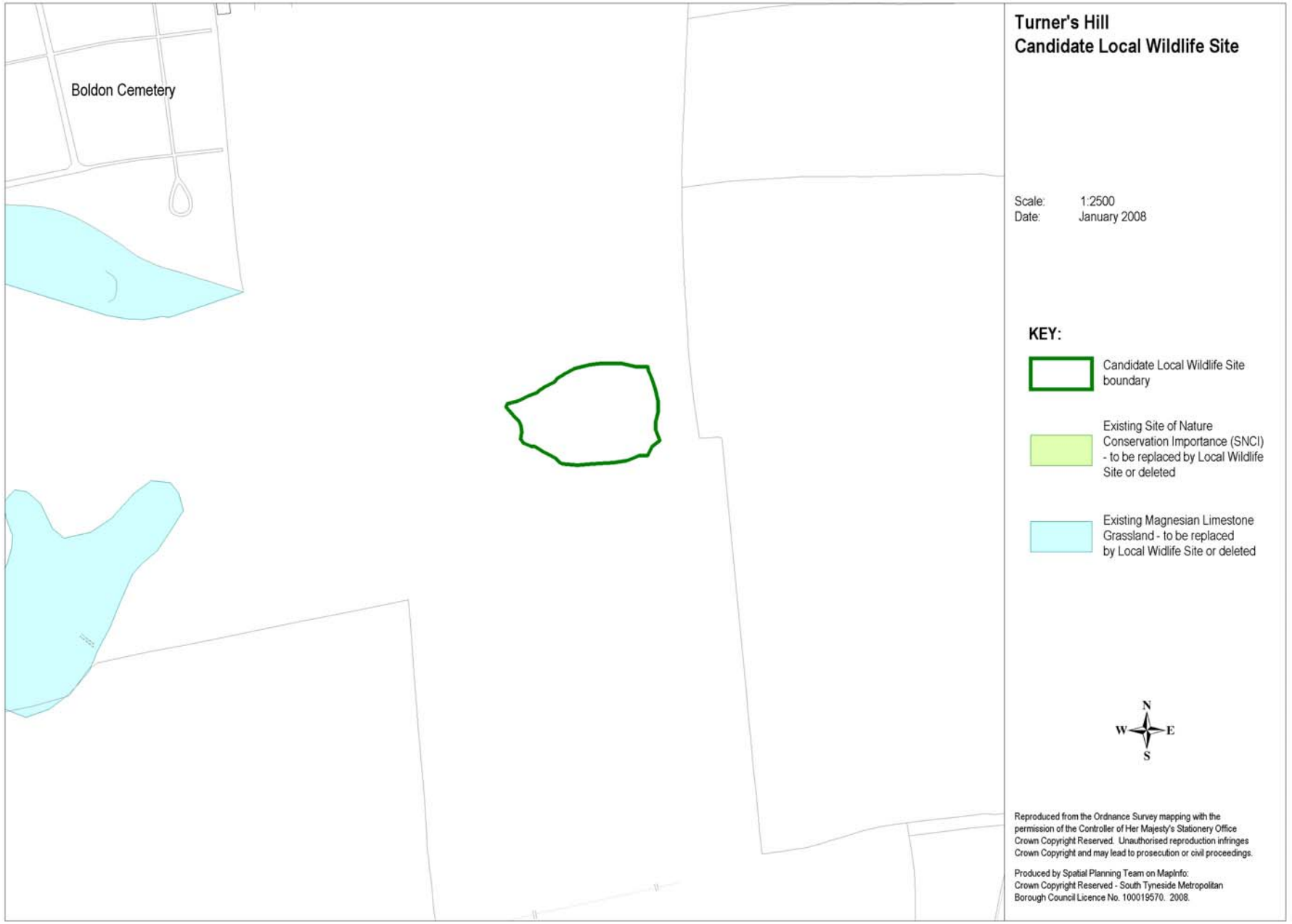
Public Access:
The site is only accessible to legitimate users of the golf course.

Turner's Hill is an area of grassland on a small circular hillock within Boldon Golf Course, south east of Boldon Cemetery. The site has an exceptionally rich and diverse flora, with wild flowers and grasses typical of Magnesian limestone grassland. This is a rare habitat in northeast England. Plants present include Autumn gentian, dyers greenweed, twayblade, burnet saxifrage, crested hair-grass and glaucous sedge.

Turner's Hill qualifies as a Local Wildlife Site because it has more than 0.25 hectares of Magnesian limestone grassland as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further three as occasional from a given list of indicator species. The survey of 2005 found the following:

- Greater knapweed frequent
- Ladies bedstraw frequent
- Fairy flax frequent
- Kidney vetch occasional
- Harebell occasional
- Orchid spp occasional
- Eyebright spp occasional
- Rough hawkbit occasional
- Birds-foot trefoil occasional
- Cowslip occasional
- Small scabious occasional
- Devils-bit scabious occasional
- Wild thyme occasional

It is proposed that Turner's Hill is designated as a Local Wildlife Site.


Boldon Cemetery
Turner's Hill
Candidate Local Wildlife Site
Scale: 1:2500
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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49) Undercliffe Pond

Development Management Policies DM7
Local Wildlife Site – Existing Protected Area

Site ref. no.: ST11
OS grid reference: NZ389623
Approximate size: 0.6 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Pond

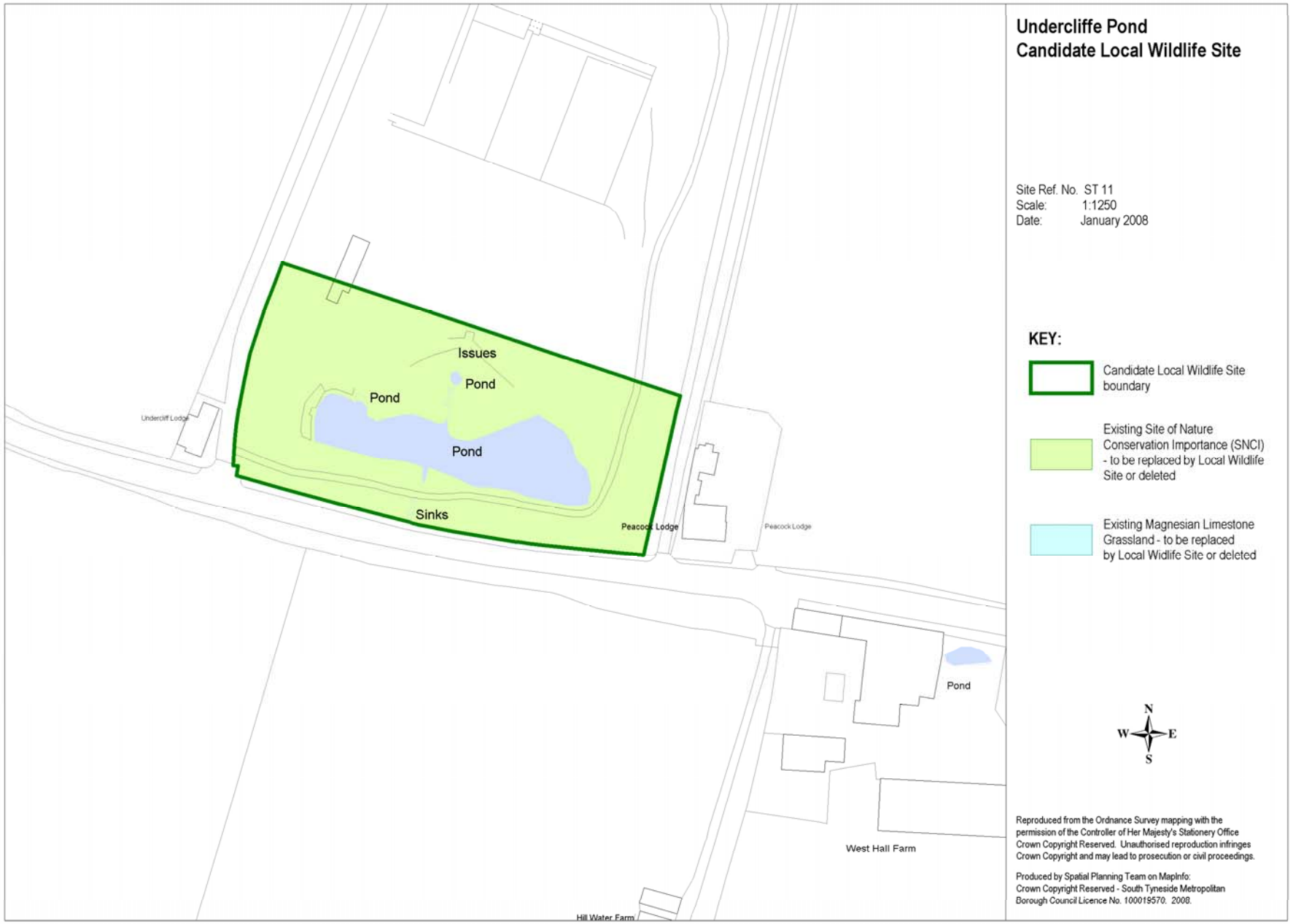
Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

Undercliffe Pond is a Victorian estate pond. The estate layout is shown on the OS 1st edition map of 1858 but the pond is not shown until the 2nd edition map of 1896 and its shape has not changed since. The pond is heavily shaded by mature broadleaf trees and is apparently neglected and overgrown. No survey has been possible since it has not been possible to gain access or ascertain the ownership. A previous description refers to the pond having yellow iris and great pond sedge, whilst being used by mallard, moorhen and grey heron

Undercliffe Pond qualifies as a Local Wildlife Site because it has:
a) A pond, as defined in the Durham Biodiversity Action Plan i.e. 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' In the absence of survey information it is considered that Undercliffe Pond should remain a designated site until a survey and assessment can be carried out.

Undercliffe Pond was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that an equivalent status is retained but that the name is changed to Local Wildlife Site, in keeping with Government guidance.


Undercliffe Pond
Candidate Local Wildlife Site
Site Ref. No. ST 11
Scale: 1:1250
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
Issues
Pond
Pond
Pond
Sinks
Undercliff Lodge
Peacock Lodge
Peacock Lodge
Pond
West Hall Farm
Hill Water Farm
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50) Wardley Colliery

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ315605
Approximate size: 43.9 hectares

Durham Biodiversity Action Plan priority habitats present:

a) Early successional brown field land
b) Ponds
c) Scrub

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site.

This is a former colliery site mostly comprising a large raised area of colliery spoil. It is the largest 'early successional brown field' site in South Tyneside and its nature and size mean that it is considered to be the most valuable example of its type in South Tyneside.

Most of the vegetation has arisen by natural colonisation with the result that there is a mosaic of varied habitats ranging from bare ground, through sparse grasslands on nutrient-poor soils to coarser grasslands. Where the sparser communities occur low nutrient levels contribute to botanical diversity by increasing stress levels which deter coarser, faster growing species and result in delayed vegetation succession. The result in places is a diverse mosaic of fine grasses and nectar-rich herbs as demonstrated by the list at a) below, together with species such as eyebright and sheep's fescue. The more mature grasslands are species-rich in places, with plants such as lesser knapweed, meadow vetchling and goatsbeard. Each species of plant has its own associated invertebrate fauna, which in turn attracts particular predators and parasites.

Parts of the site to the north and east have been reclaimed and planted with trees whilst scattered scrub has also developed in places. In the centre of the site a permanent pond, approximately 0.2 hectares in extent, has developed (dating from at least 1999). The pond holds sparse marginal vegetation such as spike-rush and jointed rush and is used by at least one species of damselfly, the large red damselfly. There are also two rectangular water bodies to the south of the site and a number of ditches and wet areas around the perimeter with species such as reedmace.

The topography of the site features sheltered hollows, eroding areas and south/west facing slopes. The bare ground heats up quickly in the sun to provide ideal conditions for warmth loving invertebrates. It also provides nesting sites for burrowing species such as solitary mining bees and wasps.

The site holds wall brown and dingy skipper butterflies, both of which are priority species in the UK Biodiversity Action Plan and feature on the England Biodiversity List, 2008 relating to the NERC Act (2006) Section 41 – Habitats and Species of Principal Importance in England. Dingy skipper is also a priority species in the Durham Biodiversity Action Plan.

Territorial behaviour was observed in June 2008 that suggested the presence of breeding lapwing and skylark. Grey partridge were also present. All three are priority species in the UK Biodiversity Action Plan and the Durham Biodiversity Action Plan. They are also listed in the England Biodiversity List, 2008 and the RSPB Red List 2009. In addition two bird species that are scarce in the borough, red-legged partridge and long-eared owl, have been recorded as occurring on the site (Durham Bird Club, 2008).

In 2010 a substantial volume of material was temporarily stored at the northern end of the site in connection with the construction of the new Tyne Tunnel. All of the material was subsequently removed and the site was returned to a condition that favours its natural recolonisation in keeping with its setting within an early successional brown field site.

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan. Wardley Colliery qualifies because it has:

a) More than 0.5 hectares of early successional brown field land as defined in the Plan. To meet the definition there must be some mosaics of open ground, less than 30% shrub or tree cover, and the site may contain one or more of the plants from the list in t*he* Durham Biodiversity Action Plan habitat definition. A survey from 2008 estimated the proportion of bare ground to be approximately 40-50% and the proportion of shrub/tree cover to be approximately 5%. Recent surveys have found the following plants from the list:

Birds foot trefoil	frequent
Fairy flax	frequent
Hawkweeds (Hieracium sp)	frequent
Kidney vetch	frequent
Mouse ear hawkweed	frequent
Common centaury	occasional
Common spotted orchid	occasional
Mignonette	occasional
Yellow-wort	rare

The main criteria for brownfield land of high nature conservation value are one or more of the following;

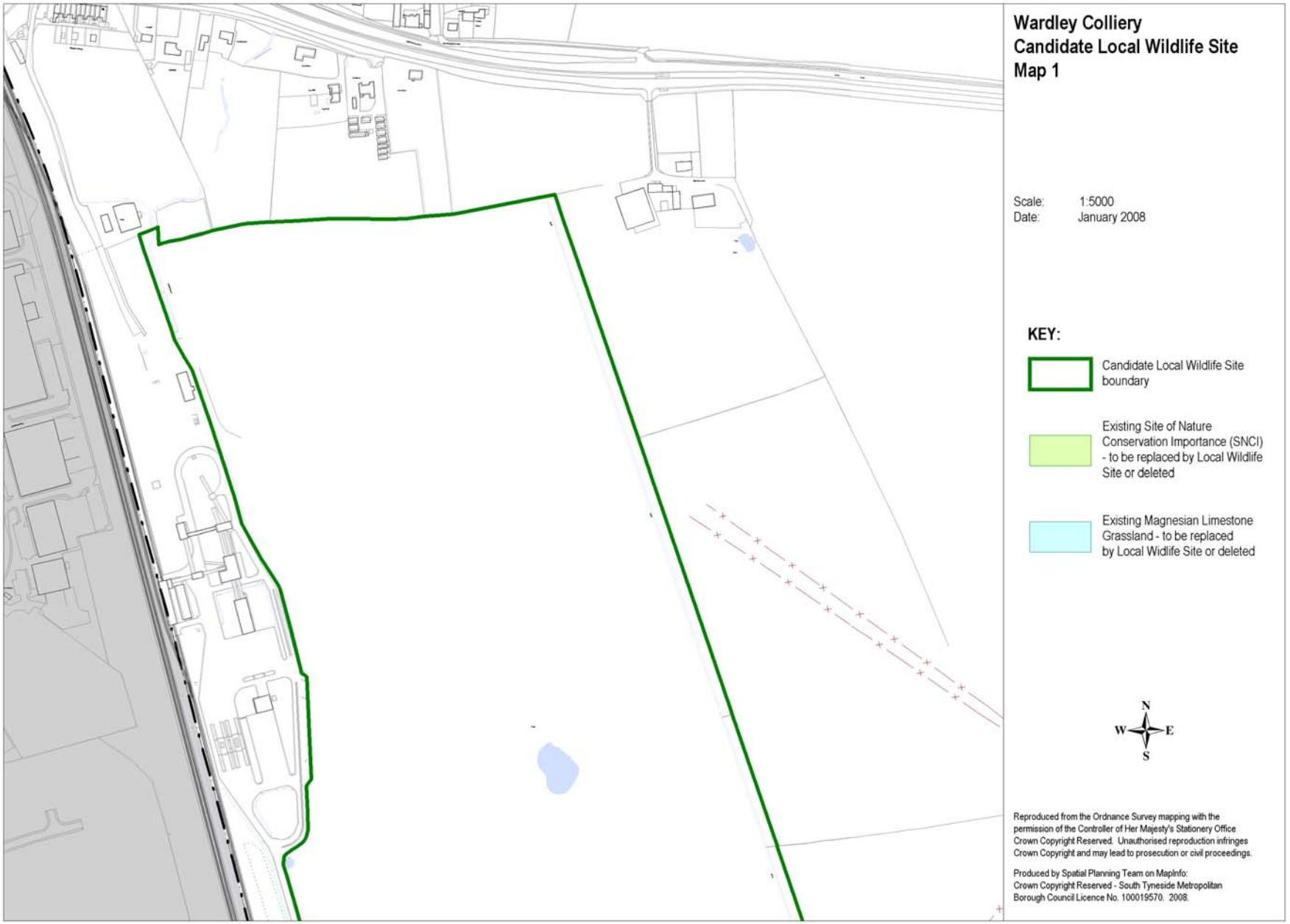
- Habitats typical of the soil/substrate conditions concerned which demonstrate the characteristic mosaic of bare ground, pioneer communities, flower-rich grassland and other habitat patches with associated structural and topographical features.
- Areas that have retained bare ground and pioneer communities over an extended period, demonstrating arrested succession.
- Areas that support either the last remaining examples where the habitat was formerly widespread/extensive, or rare/specialised types of this habitat for example where the nature of the substrate is particularly unusual.
- Presence of UK BAP priority species, Durham BAP priority species or Red Data Book/List species.
- Importance for a significant assemblage of key species groups.

The site demonstrates at least the first four of the above and, possibly, the last as well.

b) Ponds, as defined in the Durham Biodiversity Action Plan ie 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The survey of 2005 did not look in sufficient detail at the ponds to assess whether or not they meet the full criteria, but regardless of this they form a valuable component of the mosaic of habitats on the site.

c) Scrub, as defined in the Durham Biodiversity Action Plan i.e. 'scattered or dense stands of naturally regenerating locally native tree and shrub species, generally under 5m tall'.

It is proposed that Wardley Colliery is designated as a Local Wildlife Site.


Wardley Colliery
Candidate Local Wildlife Site
Map 1
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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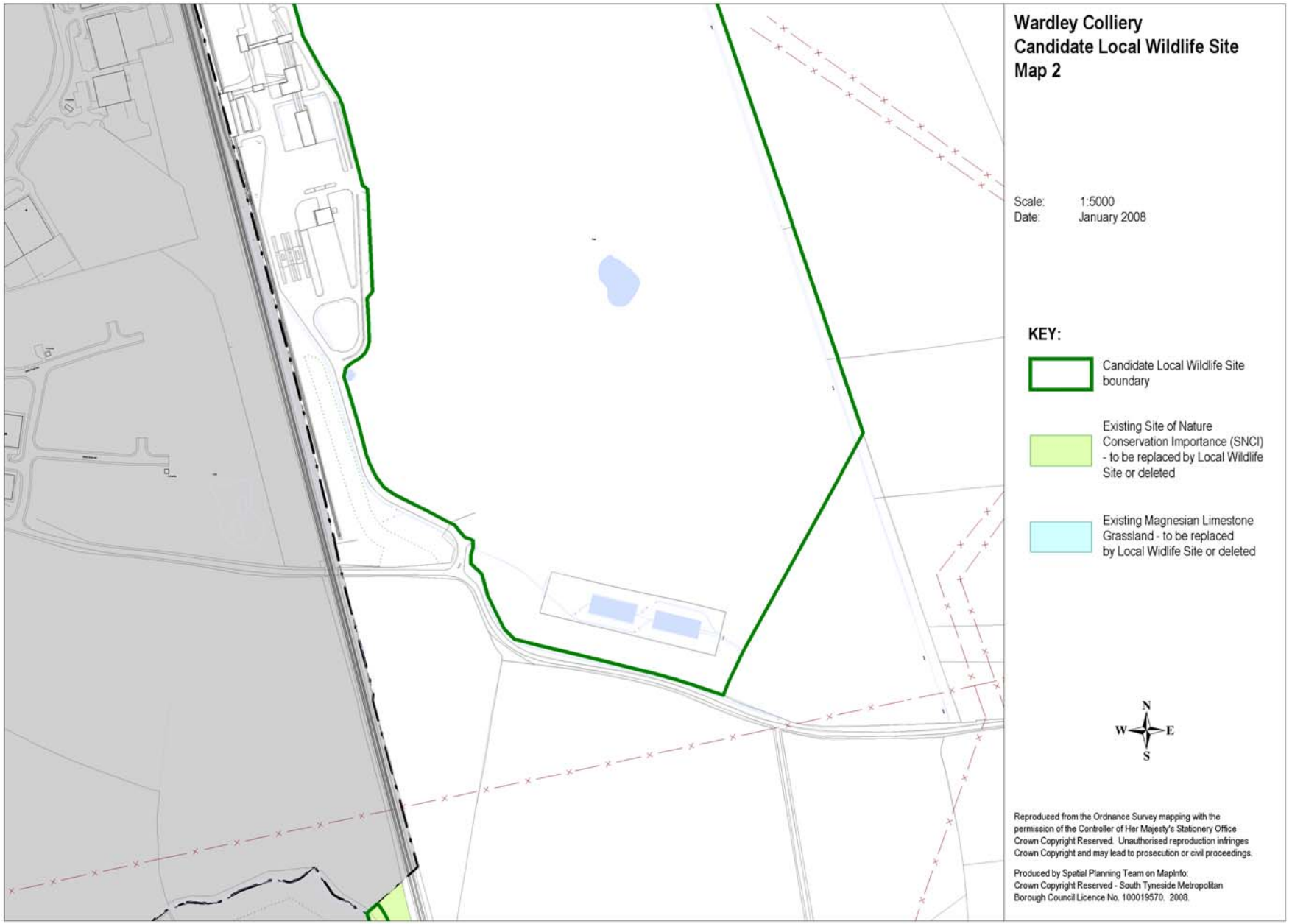
Wardley Colliery
Candidate Local Wildlife Site
Map 2
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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51) Whitburn Firing Range

Development Management Policies DM7
Local Wildlife Site – New Site

OS grid reference: NZ411627
Approximate size: 37.4 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Possible lowland meadow and pasture

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
There is no public access to the site, but it can be overlooked from public footpaths on four sides.

The site is a substantial area of heavily grazed pasture grassland on the coastal plain at Whitburn. It holds four firing ranges, dating from the early 1900s, each backed by a bund on the seaward side. The firing ranges were remodelled in 1993 to create a steeper slope towards the bunds. The pasture retains ridge and furrow earthworks in places, remnants of the common fields associated with Whitburn medieval village. The ridge and furrow shows one of the best examples in South Tyneside of the elongated reverse 'S' pattern typically created by a pre-1540 system of ox-drawn ploughing. Where present it illustrates the likelihood that the land has not been subsequently ploughed and has remained as permanent pasture. There are also small marshy hollows, including the remains of two or more ponds. The pasture comprises semi-improved neutral grassland dominated by grasses such as perennial ryegrass, cocksfoot, meadow grasses, Yorkshire fog, bents, crested dogs-tail, red fescue and yellow oat-grass. Broadleaved herbs include yarrow, ribwort plantain, birds foot trefoil, self heal, creeping cinquefoil, common knapweed, autumn hawkbit, meadow buttercup, bulbous buttercup and common cat's-ear. The grassland becomes more species rich towards the coast, with species such as sea plantain.

The site is an important winter roosting/loafing site for the Whitburn golden plover flock, regularly attracting over 2,500 birds. This is equivalent to 1% of the British wintering population and so is defined by the British Trust for Ornithology as of national importance. In recent years the flock has regularly reached up to 5000 birds (Durham Bird Club, 2008). The attraction of the wider area to this species depends upon the availability of the large open space provided by the Firing Range, together with the arable fields to the north. The Range provides the necessary undisturbed short grass throughout the winter, whilst the autumn cereals in the fields to the north provide an alternative, which diminishes in value as the crop develops and becomes taller and/or when there is disturbance from humans/dogs. Disturbance occurs during firing, approximately two to three times per week, and at these times the flock may relocate to St Mary's Isle, north of the Tyne.

The Firing Range is used in winter by up to 1000 lapwing and good numbers of redshank, oystercatcher and ringed plover. It is also used by up to 100 curlew – one of the largest feeding flocks in Durham (Vice County 66) away from the Tees Marshes. Up to 100 turnstone (approximately 0.2% of the British wintering population) can frequently be seen foraging on the Firing Range, even at ebbing or low tide when they would be expected to be along the tideline. Skylark, meadow pipit and pied wagtail breed on the site and are present throughout the year. The site is also a valuable foraging area for up to 500 starlings at any time of the year (1000 during Autumn 2009). Small numbers of rock pipit breed along the coast and use the area of the site adjacent to the coastal path, particularly the mounds, for foraging.

Sites qualify as a Local Wildlife Site if they contain a species or species assemblage that is rare, threatened or important/significant at the national, regional or sub-regional level. As described above the site meets this criterion by virtue of its considerable ornithological importance, e.g. the presence of a nationally important golden plover flock. It is also regularly used by five other bird species of particular importance. Lapwing, skylark and starling are priority species in

both the UK and the Durham Biodiversity Action Plans and are on the England Biodiversity List 2008 and the RSPB Red List 2009. Curlew is a priority species in the UK Biodiversity Action Plan and is on the England Biodiversity List 2008, whilst redshank is a priority species in the Durham Biodiversity Action Plan.

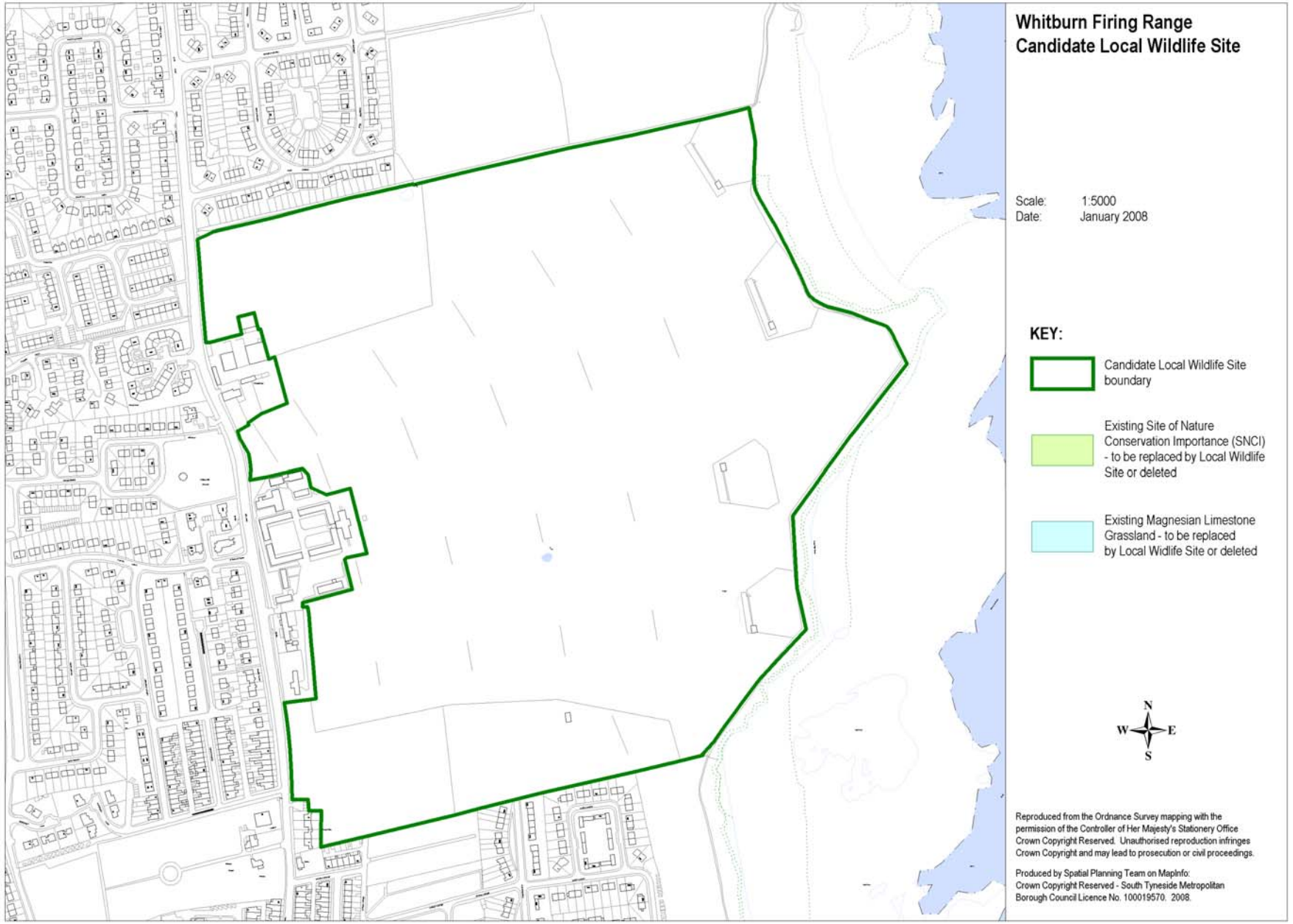
In addition the site has more than 0.5 hectares of grassland that may meet the definition in the Durham Biodiversity Action Plan for lowland meadow and pasture. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not assess abundance, but did find the following species from the list:

- Autumn hawkbit
- Birds foot trefoil
- Common knapweed

Whilst this does not include the four species required, the survey was only carried out on a single visit (at the end of August) after a period of heavy grazing had resulted in the sward being low, and therefore some species from the indicator list may have been missed. The site also has additional value due to its function as a 'buffer zone' ie providing the opportunity for the internationally important (Special Area of Conservation) cliff top habitats to migrate inland over time as the coast erodes.

It is considered that, on the basis of the features described above, the site meets the criteria for Local Wildlife Site status.

It is proposed that Whitburn Firing Range is designated as a Local Wildlife Site.


Whitburn Firing Range
Candidate Local Wildlife Site
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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52) Whitburn Point

Development Management Policies DM7
Local Wildlife Sites – Protected Area with Amended Boundary

Site ref. no.: ST7
OS grid reference: NZ413633
Approximate size: 3.9 hectares

Durham Biodiversity Action Plan priority habitats present:
a) Ponds
b) Lowland meadows and pasture
c) Broadleaf woodland

Sites qualify as a Local Wildlife Site if they contain significant areas of one or more priority habitats as defined in the Durham Biodiversity Action Plan.

Public Access:
The site can be viewed from public paths along three sides of the reserve. Access to the Bird Observatory is managed by the Durham Bird Club

The reserve was created in around 1990 in association with reclamation of the Whitburn Colliery site. At the same time a Bird Observatory was established to facilitate sea watching. The observatory is run by Durham Bird Club and has proved to be highly popular – enabling valuable ornithological data to be gathered and yielding regular sightings of interesting birds and cetaceans. Throughout the 1990s three wildlife ponds were created, with associated ditches to feed the ponds. An L-shaped belt of broadleaf trees around the south and west sides of the site was planted in 1990. Later on a thorn hedge was established and gorse and burnet rose planted on the northern mound overlooking the reserve. Whitburn Point was designated as a Local Nature Reserve in 2003.

The ponds feature marshy grassland, swamp, marginal vegetation and standing water. Breeding birds have included mallard, tufted duck and reed bunting. Visitors have included grey heron, garganey, teal, wigeon, snipe and moorhen. There is a large population of common frog, together with common toad. Sticklebacks and horse leeches are abundant, whilst common red darter and various dragonflies can also be found. The grassland is mostly tall, unimproved, neutral grassland, dominated by false oat-grass, cocksfoot and Yorkshire fog. Locally the sward is herb-rich, with bee orchid. Skylark and meadow pipit breed on the site, with the latter being particularly abundant. Grey partridge also use the grassland, whilst stonechat is a regular winter visitor. Common shrew and short-tailed field vole can be found, together with predators such as fox, kestrel and short-eared owl. Other visiting mammals include hare.

Station Burn qualifies as a Local Wildlife Site because it:
a) Has ponds, as defined in the Durham Biodiversity Action Plan ie 'a temporary or permanent water body between 5 square metres and two hectares in surface area, which holds areas of open water at least part of the year. The definition excludes garden ponds.' In addition South Tyneside Council has adopted the definition for ponds of high value from DEFRA Higher Level Stewardship Farm Environment Plan, WO7, which requires that they should 'Contain at least 15 naturally occurring, floating, submerged, and/or marginal plants and/or support high value species of plant or animal.' The most recent survey of the ponds revealed the presence of at least 18 species of such plants.

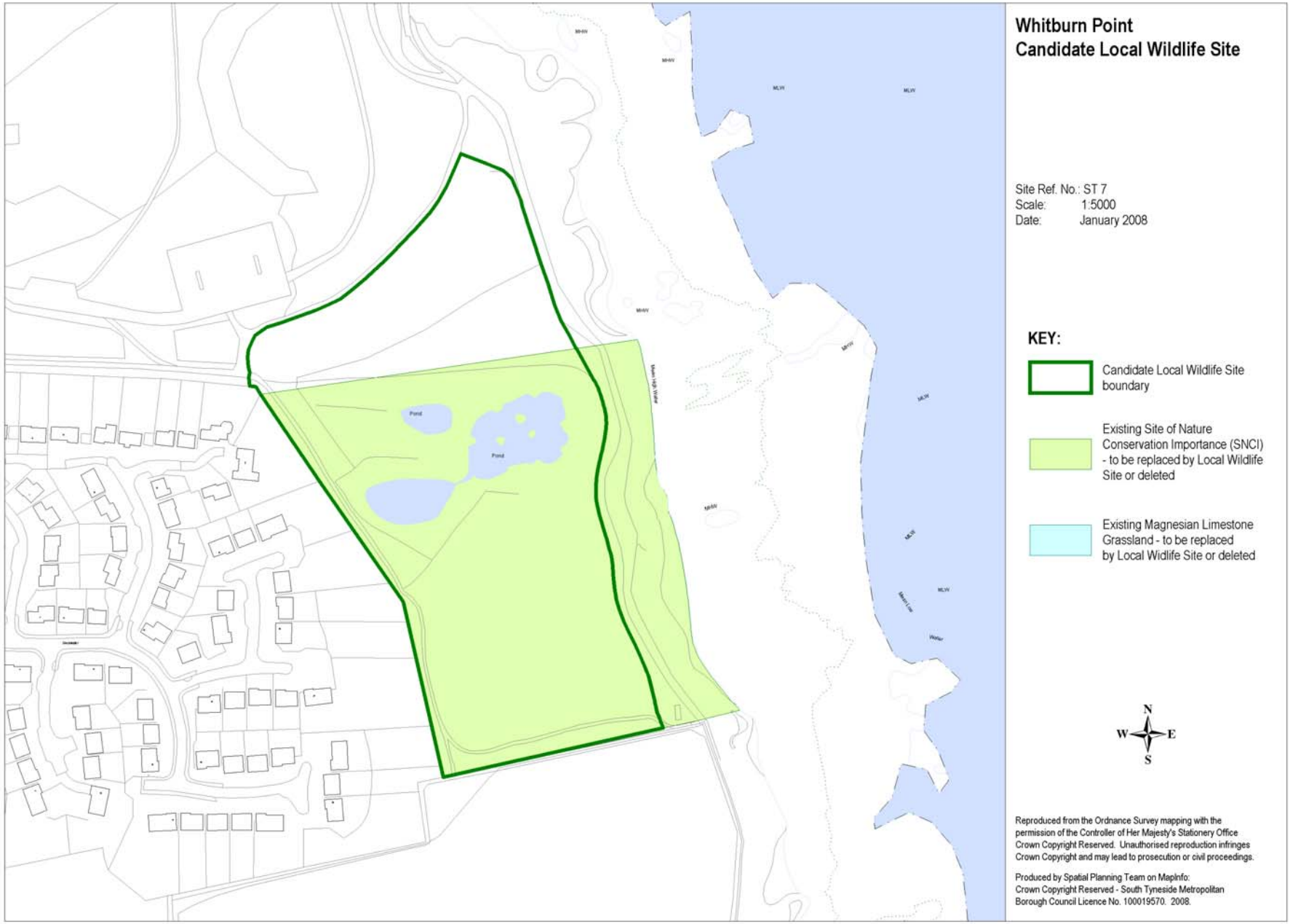
b) Has more than 0.5 hectares of lowland meadow and pasture as defined in the Durham Biodiversity Action Plan. To meet the definition a minimum of two species must be recorded as frequent and a further two as occasional from a given list of indicator species. The most recent survey did not assess abundance, but did find the following species from the list:

- Bee orchid
- Birds foot trefoil
- Common spotted orchid
- Glaucous sedge
- Lesser knapweed

- Meadowsweet
- Meadow vecthling
- Northern marsh orchid
- Oxeye daisy
- Rough hawkbit
- Yellow rattle
- Zigzag clover

c) Holds broadleaf woodland. The definition of broadleaf woodland is 'all woodland which is not ancient (established since 1600) and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.'

Whitburn Point was designated as a Site of Nature Conservation Importance in the Unitary Development Plan (1999). It is proposed that the boundary of the site is to be extended to the north to bring it into line with the Local Nature Reserve boundary. The boundary will also be reduced to the east to remove an overlap with the Durham Coast SSSI. An equivalent status will be retained for the site but the name changed to Local Wildlife Site, in keeping with Government guidance.


Whitburn Point
Candidate Local Wildlife Site
Site Ref. No.: ST 7
Scale: 1:5000
Date: January 2008
KEY:
Candidate Local Wildlife Site boundary
Existing Site of Nature Conservation Importance (SNCI) - to be replaced by Local Wildlife Site or deleted
Existing Magnesian Limestone Grassland - to be replaced by Local Widlife Site or deleted
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3. Candidate Local Geodiversity Sites

3.1 Local Geodiversity Sites are 'sites with substantive geological or geomorphological value that are considered worthy of protection for their educational, research, historical or aesthetic importance'. They are equivalent to Local Wildlife Sites and their boundaries may overlap.

3.2 An audit of the geodiversity of the borough; 'Addressing Geodiversity in South Tyneside' was completed in 2008. This was followed up by the study 'South Tyneside Council Local Geodiversity Site Network', Brian Young, 2010. Based on these two publications work has now been completed to list and describe the network of six Local Geodiversity Sites to be included in the Local Development Framework.

1) Cleadon Hill Cliffs

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 1.3 hectares

Date of site visit(s)
For the purposes of this evaluation the site was visited by Brian Young on 12th April 2010.

Recommendation
The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS).

Reasons for designation as Local Geodiversity Site (LGS)
As the character of the rocks in the substantial exposures of the Concretionary Limestone Formation at this site differ in a number of respects from rocks of this formation exposed elsewhere, e.g. at Marsden Old Quarry and Cleadon Park Quarry, this site is an important and useful addition to a South Tyneside network of sites representative of these unusual rocks.

The proposed LGS adjoins Cleadon Hills Local Nature Reserve (LNR) and thus is well-placed to complement the geodiversity and biodiversity features present within that nature reserve.

Site description
Boundary of Local Geodiversity Site (LGS)
The site comprises a long line of low cliffs, almost certainly much modified by long-abandoned quarrying, on the south west flanks of Cleadon Hills.

Geological features of significance within this LGS lie within the area edged red on the accompanying 1:2500 scale map extract. The boundaries coincide exactly with those of the proposed Cleadon Cliffs Wildlife Site (LWS).

Geodiversity features of the site
The last date of any quarrying activity is unknown, but since abandonment the rock faces have become heavily overgrown with thick ground vegetation, shrubs and trees. Many parts of the exposure are today difficult to access and to view, especially during the summer months when ground vegetation is high and trees are in full leaf. Since abandonment, slight to moderate weathering has accentuated, and thus partially enhanced, some of the geological features present within these rocks.

Cleadon Hill Cliffs expose limestones and dolomites of Permian age, long known collectively as the 'Magnesian Limestone'. The internationally recognised term 'Zechstein Group' has today supplanted the term 'Magnesian Limestone'

as a collective name for these rocks and their equivalents across central and eastern Europe and Russia. The name 'Zechstein' is derived from the Zechstein Sea, the name given by geologists to the sea in which these rocks were deposited. However, as the original term Magnesian Limestone is so deeply embedded in British geological literature, and in modern biodiversity studies, most notably with reference to the unique 'Magnesian Limestone grassland habitat, the term is still employed by many geologists and ecologists, and is employed in this site description and others in the equivalent rocks in South Tyneside.

In older geological literature, including BGS Sheet NZ36SE, the 'Magnesian Limestone' was subdivided into smaller stratigraphical units, including in ascending stratigraphical order, the Lower, Middle and Upper Magnesian Limestone. Modern stratigraphical protocols have replaced these older names with new formation names. Accordingly, the former Lower Magnesian Limestone is today formally styled the Raisby Formation, the former Middle Magnesian Limestone the Ford Formation and the former Upper Magnesian Limestone includes the Concretionary Limestone and overlying Roker Dolomite formations.

All of the limestones and dolomites exposed today at Cleadon Hills Cliffs belong to the Concretionary Limestone Formation.

A note on British Geological Survey (BGS) Sheet NZ36SE records the following generalised section of the long former quarry face.

* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*

Limestone, brown, massive at top, thick-bedded below, finely spherulitic except in several thin granular beds	[>3.7 m]
Dolomite, buff, fine-grained, partially brecciated	[0.3 m]
Limestone, dolomitic, brown, thin and medium-bedded, hard, crystalline, with thin beds of buff dolomite near top and scattered subspherical calcite concretions	[1.5 m]

* Modern stratigraphical classification introduced since survey of BG Sheet NZ36SE

It is clear from the field examination undertaken for this investigation that the exposed faces are today significantly more overgrown than when recorded for BGS Sheet NZ36SE. Moreover, it is not easy to match the features exposed today

with those recorded in the above section. Nevertheless, the long section exposed here reveals important features within the Concretionary Limestone Formation.

Well-marked original bedding is generally clearly visible within most of the faces, though many of the original sedimentary structures and textures have been considerably overprinted or obliterated by the processes of re-crystallisation which has affected the rocks of the Concretionary Limestone Formation here and throughout South Tyneside.

Although virtually all of the limestone visible today at this site is clearly much re-crystallised, the striking spherulitic structures, of the sort seen so abundantly in the Concretionay Limestone Formation at Marsden Old Quarry, Cleadon Park Quarry and elsewhere in South Tyneside, are much less clearly defined and much less conspicuous here than at those locations.

Over much of the north western half of the exposed faces re-crystallisation has produced a hard limestone in which numerous small (generally up to around 1 cm) irregular cavities give the rock an overall rather cellular appearance. Within the south eastern third of the face a few beds exhibit well-formed mutually interfering pale buff coloured sub-spherical 'cannon-ball' type calcite concretions up to a few centimetres across, in places still embedded in a pale yellow rather powdery dolomite matrix.

A small number of large (up to 0.75 m) loose blocks of limestone, dumped at the extreme north western end of the site, were seen to exhibit striking spherulitic concretions up to several centimetres across. The situation of these blocks suggest that they may be clearance stones from the nearby fields: they could not be matched with any of the limestones seen in the exposures in the nearby cliffs.

Geological map coverage

Cleadon Hills Cliffs lie on BGS 1:50 000 scale Sheet 21 (Sunderland), published in 1978. A more detailed depiction of the geology is presented on BGS 1:10 560 sheet NZ36SE, published in 1975.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, Cleadon Hills Cliffs are contained in:

Lawrence, D.J.D. 2009. Limestone Landscapes – a geodiversity audit and action plan for the Durham Magnesian Limestone Plateau. *British Geological Survey Open Report,* OR/09/007. 114 pp.

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Smith, D.B. 1995A. *Marine Permian of England (Geological Conservation Review,* Vol. 8), Joint Nature Conservation Committee. (London: Chapman and Hall)

Stone, P., Millward, D., Young, B., Merritt, J.W., Clarke, S.M., McCormac, M. and Lawrence, D.J.D. 2010. *British regional geology: Northern England* (Fifth edition). Keyworth, Nottingham: British Geological Survey

Young, B. 2008. *Addressing geodiversity in South Tyneside: a report for South Tyneside Council.* 136 pp.

Other useful literature sources are cited in the reference lists contained in the above publications.

Recorded history and cultural associations

Whereas the date of any quarry working is unknown, the remnants of these workings offer valuable opportunities to make important links between geodiversity and economic and social history, particularly with regard to the making and uses of lime for agricultural and building purposes, and the use of locally quarried stone in the nearby built environment.

Value for appreciation of nature and learning

The clarity of the exposed sections and their significance in understanding the nature and origins of the local succession of Permian rocks make this an important site both in the local and regional context. The geological features exposed here, together with evidence of the site's former use as a limestone quarry, offer valuable opportunities to demonstrate and emphasize the clear interdependence between geodiversity, biodiversity and the area's economic and cultural heritage. In addition

As the proposed LGS adjoins an existing Local Nature Reserve, it is ideally placed for educational use at all levels, research and public interpretation.

Site management advice and objectives

The rock faces and the land immediately adjoining them on their downhill side are heavily overgrown with rank herbaceous vegetation, thick shrubs and small trees, rendering access and visibility of the faces difficult, or locally, almost impossible.

Although the rocks exposed here belong entirely to the Concretionary Limestone Formation, which is well exposed at several other LGS within South Tyneside, the character of the rock here differs significantly from that in these other exposures, notably in the unusual cellular appearance and overall subdued development of spherultic structures. The site is therefore a valuable one within a network of localities at which these unusual rocks may be studied. It is therefore recommended that some clearance of vegetation be undertaken and that future regular clearance of those areas be carried out to maintain accessibility and visibility. No particular sections of the present faces call for particular treatment: any such clearance might be most usefully undertaken adjacent to a length of up to around 30 metres of the currently clearest north western parts of the face, with clearance also targeted on the south eastern 50 metres of the face.

As the present investigation has not included any assessment of biodiversity features, care should be taken to ensure that any vegetation clearance should be carried out in the light of appropriate evaluations of the biodiversity interest.

There is some evidence of the tipping of farm waste over the edges of the faces from the field that lies uphill and to the north east of the cliff line. So far as could be established at the time of this investigation, this practice does not appear to have obscured or seriously compromised the value of the rock exposures. However, it may be worth seeking to discourage future tipping of this sort should the site be adopted as an LGS.


South Tyneside Council
Regeneration & Resources
Cleadon Hills Cliffs
Scale 1:2500

2) Cleadon Park Quarry

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 6.1 hectares

Date of site visit(s)
For the purposes of this evaluation the site was visited by Brian Young on 1st April 2010.

Recommendation
The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS).

Reasons for designation as Local Geodiversity Site (LGS)
The site provides very extensive clear exposures of rocks of the Concretionary Limestone Formation (formerly Upper Magnesian Limestone), in which a variety of concretionary forms are present. In addition, it is one of the very few sites in south Tyneside at which fossils have been recorded from these rocks.

As the site is today a much used public park and area of playing fields it is freely available to public access and thus offers a fine opportunity to conserve and interpret these unusual rocks.

Site description
Boundary of Local Geodiversity Site (LGS)
The site comprises a long-abandoned limestone quarry which has been extensively landscaped and used for many years as a public park and amenity land, including sports fields.

Geological features of significance within this proposed LGS lie within the area edged red on the accompanying 1:2500 scale map extract. This includes the former quarry faces, together with a substantial area of made ground within the former floor of the quarry.

Geodiversity features of the site
The last date of quarry working here is unknown, but since abandonment the old workings have been considerably landscaped and converted to a public park and extensive area of amenity land, including sports fields. Considerable shrub cover has developed adjacent to many of the former working faces. Since abandonment, slight to moderate weathering has accentuated, and thus partially enhanced, some of the geological features present within these rocks.

Cleadon Park Quarry exposes limestones and dolomites of Permian age, long known collectively as the 'Magnesian Limestone'. The internationally recognised term 'Zechstein Group' has today supplanted the term 'Magnesian Limestone' as a collective name for these rocks and their equivalents across central and eastern Europe and Russia. The name 'Zechstein' is derived from the Zechstein sea, the name given by geologists to the sea in which these rocks were

deposited. However, as the original term Magnesian Limestone is so deeply embedded in British geological literature, and in modern biodiversity studies, most notably with reference to the unique 'Magnesian Limestone grassland habitat, the term is still employed by many geologists and ecologists, and is employed in this site description and others in the equivalent rocks in South Tyneside.

In older geological literature, including British Geological Survey (BGS) Sheet NZ36SE, the 'Magnesian Limestone' was subdivided into smaller stratigraphical units, including in ascending stratigraphical order, the Lower, Middle and Upper Magnesian Limestone. Modern stratigraphical protocols have replaced these older names with new formation names. Accordingly, the former Lower Magnesian Limestone is today formally styled the Raisby Formation, the former Middle Magnesian Limestone the Ford Formation and the former Upper Magnesian Limestone includes the Concretionary Limestone and overlying Roker Dolomite formations.

All of the limestones and dolomites exposed today at Cleadon Park Quarry belong to the Concretionary Limestone Formation.

A note on BGS Sheet NZ36SE records that the floor of the old quarry has been partially filled with made ground, though the nature and thickness of the fill material is not indicated.

Notes on BGS Sheet NZ36SE record the following rather generalised summaries of the succession of rocks exposed in the faces of the former quarry at points A, B, C and D on the accompanying map extract.

A).
* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*
Massive grey-brown limestone, mainly finely laminated,
finely crystalline but with extensive patches of coarse
to very coarse calcite spherules [>3.7 m]

B).
* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*
Grey-brown coarsely spherulitic concretionary limestone
with scattered relics of former fine lamination [>6.1 m]

C).
* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*
Thin-bedded grey-brown laminated limestone with extensive

coarse spherulitic calcite	[>3,7 m]

D).

* *Topsoil etc.*

Red-brown clay with some stones	[0.6 – 0.9 m]

* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*

Grey-brown laminated finely spherulitic limestone	[>4.6 m]

* Modern stratigraphical classification introduced since survey of BGS Sheet NZ36SW

Smith (1995B) gives brief additional details of the rocks exposed at Locality A (above), including the occurrence of moulds of the fossil bivalves *Liebea* and *Schizodus* in a few beds within the sequence, though no examples of these were seen during the present investigation. In this account, Smith notes that some of the prominent spherulites within the limestone, which are here up to 8 cm across, have been rotated and fractured by partial dissolution at some stage since their formation. He also highlights the presence of buff powdery dolomite forming a matrix between the spherulites. Smith concludes that the features present within these rocks give evidence of their formation within water depths of between 120 and 200 m in anoxic conditions: some of the beds contain evidence of annual seasonal alternations of sediment type.

The present brief examination revealed that between localities A and B the limestone faces are generally well exposed, though locally partially concealed by shrub growth. Well-developed bedding, or lamination, is conspicuous in many places and the radiating spherules of calcite are almost universally present: spherules are mostly up to 2 – 3 cm across, though larger examples occur locally. At locality B a few beds exhibit sub-spherical concretions of typical 'cannon ball' type.

Sub-spherical, 'cannon-ball' type concretions are especially conspicuous in a few beds at E.

The section at locality D is today very overgrown and the features are difficult to discern.

Isolated low pillars of limestone with conspicuous spherulitic concretions form prominent features within the park at localities F and G.

The low face at locality H exhibits rather thickly bedded limestone in which conspicuous dissolution cavities, up to around 1 metre across are prominent within the centre of the face. Such dissolution features are generally uncommon within the

Magnesian Limestone and, rather surprisingly, are not mentioned either on BGS Sheet NZ36SE or in the Sunderland Memoir (Smith 1994).

Geological map coverage

Cleadon Park Quarry lies on BGS 1:50 000 scale Sheet 21 (Sunderland), published in 1978. A more detailed depiction of the geology is presented on BGS 1:10 560 sheet NZ36SE, published in 1975.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, Cleadon Park Quarry are contained in:

Lawrence, D.J.D. 2009. Limestone Landscapes – a geodiversity audit and action plan for the Durham Magnesian Limestone Plateau. *British Geological Survey Open Report,* OR/09/007. 114 pp.

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Smith, D.B. 1995A. *Marine Permian of England (Geological Conservation Review,* Vol. 8), Joint Nature Conservation Committee. (London: Chapman and Hall)

Smith, D.B. 1995B. The Magnesian Limestone between South Shields and Seaham. pp 146-153 *in* Scrutton, C. (Editor). *Northumbrian Rocks and Landscape*. Second edition with minor corrections 2004. Yorkshire Geological Society.

Stone, P., Millward, D., Young, B., Merritt, J.W., Clarke, S.M., McCormac, M. and Lawrence, D.J.D. 2010. *British regional geology: Northern England* (Fifth edition). Keyworth, Nottingham: British Geological Survey

Young, B. 2008. *Addressing geodiversity in South Tyneside: a report for South Tyneside Council.* 136 pp.

Other useful literature sources are cited in the reference lists contained in the above publications.

Recorded history and cultural associations

The former quarrying activities offer valuable opportunities to make important links between geodiversity and economic and social history, particularly with regard to the making and uses of lime for agricultural and building purposes, and the use of locally quarried stone in the nearby built environment.

The site is included in the itinerary of a much-used geological field guide (Smith 1995B).

Value for the appreciation of nature and learning

The clarity of the exposed sections and their significance in understanding the nature and origins of the local succession of Permian rocks make this an important site both in the local and regional context. The inclusion of this site within a popular and much used geological field guide (Smith 1995B) greatly enhances the geodiversity value of the site and its features.

The geological features exposed here, together with the site's former use as a major limestone quarry, offer valuable opportunities to demonstrate and emphasize the importance of geodiversity within the areas economic and cultural heritage.

As a public park, the links between geodiversity and biodiversity and much less clear than at many other sites in South Tyneside.

Site management advice and objectives

As a public park and area of amenity grassland, managed by the local authority, the site and its geological features enjoy good protection. Unless a fundamental change of use of the site is allowed, this protection may be regarded as adequate for the foreseeable future.

Whereas shrub growth locally partially conceals the geological features of the old quarry faces, particularly between localities A and B, this does not currently detract from their value or importance in demonstrating those features. However, a careful watch should be maintained on this shrub growth in future years and appropriate thinning and clearance of cover should be undertaken if this becomes necessary to maintain clear visibility of these faces.

Although, as noted above, the features formerly recorded at locality D are today much overgrown, none of those features are deemed sufficiently important to warrant any form of clearance or other intervention.


South Tyneside Council
Regeneration & Resources
Cleadon Park Quarry
Scale 1:2500
A
B
C
D
E
F
G
H

3) Downhill Old Quarry

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 1.5 hectares

Date of site visit(s)
For the purpose of this evaluation the site was visited by Brian Young on 9th April 2010.

Recommendation
The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS)

Reasons for designation as a Local Geodiversity Site (LGS)
The site includes the most complete sections through rocks of the Ford and underlying Raisby formations in South Tyneside. In addition, the discontinuity at the base of the Ford formation, known in the geological literature as the 'Downhill Slide', is superbly exposed in what must be regarded as its 'type' location.

Although the site lies entirely on private land to which there is currently no arrangements for public access, it merits designation as an LGS.

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Site description
Boundary of Local Geodiversity Site (LGS)
The site comprises a long-abandoned limestone quarry, including an adjoining well-preserved limekiln.

Geological features of significance lie within the area edged red on the accompanying 1.2500 scale map extract. Although the area of geological interest is slightly smaller than that of the Downhill Old Quarry Local Wildlife Site (LWS), it may be considered convenient simply to establish the same boundaries for the LGS as for the LWS.

Geodiversity features of the site
The last date of working of the quarry is unknown, but since abandonment the floor of the workings, together with associated spoil heaps and talus slopes adjacent to the former working faces, have become covered by well-established grassland, with considerable shrub and small tree growth adjacent to the former working faces. Since abandonment, slight to moderate weathering has accentuated, and thus partially enhanced, some of the geological features present within these rocks.

Downhill Old Quarry exposes limestones and dolomites of Permian age, long known collectively as the 'Magnesian Limestone'. The internationally recognised term 'Zechstein Group' has today supplanted the term 'Magnesian Limestone' as a collective name for these rocks and their equivalents across central and eastern Europe and Russia. The name 'Zechstein' is derived from the Zechstein sea, the name given by geologists to the sea in which these rocks were

deposited. However, as the original term Magnesian Limestone is so deeply embedded in British geological literature, and in modern biodiversity studies, most notably with reference to the unique 'Magnesian Limestone grassland habitat, the term is still employed by many geologists and ecologists, and is employed in this site description and others in the equivalent rocks in South Tyneside.

In older geological literature, including British Geological Survey (BGS) 1;10 560 Sheet NZ36SW, the Magnesian Limestone was subdivided into smaller units including, in ascending stratigraphical order, the Lower, Middle and Upper Magnesian Limestone. Modern stratigraphical protocols have replaced these older names with new formation names. Accordingly, the former Lower Magnesian Limestone is today formally styled the Raisby Formation, the former Middle Magnesian Limestone the Ford Formation and the former Upper Magnesian Limestone includes the Concretionary Limestone and overlying Roker Dolomite formations.

A note on BGS Sheet NZ36SW records the following rather generalised summary of the succession of rocks exposed in the faces of Downhill Old Quarry.

**Topsoil etc.*
Clay, brown, rubbly, much dolomite debris [0 – 0.9 m]
**Ford Formation (formerly Middle Magnesian Limestone)*
Reef dolomite, buff massive [6.0 – 15.2 m]
Discontinuity (? slide plane) [the 'Downhill slide'], relief c 9.1 m
**Raisby Formation (formerly Lower Magnesian Limestone)*
Dolomite, buff and grey hard fine grained, bedded [0 – 7.6 m]
Dolomite, calcitic buff and grey, partly autobrecciated [c 3.7 m]
Dolomite, buff, evenly bedded [>3.7 m]

* Modern stratigraphical classification introduced since survey of BGS Sheet NZ36SW

A further note refers to a 'drift-filled cleft' in the quarry face, near its southern end.

Most of the features referred to in the above quoted note, were observed during the present site visit. The following notes highlight particular features of interest arising from this inspection.

Ford Formation (formerly Middle Magnesian Limestone)
These limestones comprise the upper parts of the exposed faces. Throughout much of the quarry the rocks are rather inaccessible in the higher parts of the face, though most notably in the central portions of the face, slopes of vegetated debris enable access to these limestones.

Where seen at close quarters the Ford Formation limestones comprise pale-buff to creamish white weathering massive dolomite or dolomitic limestone. These rocks formed within a substantial reef structure close to the western margin of the Zechstein Sea during Permian times. Major reef-building organisms included various species of bryozoa, though the reef is known to have featured a wealth of associated marine organisms including brachiopods, bivalves, gastropods and rare corals, crinoids and echinoids. Whereas good fossilised examples of many of these creatures are known from nearby exposures of the Ford Formation reef limestones, including the now obliterated exposures in the southern lost quarry at Downhill, recrystallisation processes since the deposition of the rocks has obliterated most traces of these fossils in the rocks exposed at the site today. A feature of these reef rocks is their local brecciated nature, in which blocks of early-formed limestone are engulfed in the surrounding limestone. Examples of this type of syn-sedimentary brecciation are visible locally in some of the exposures accessible via vegetated talus slopes.

The 'Downhill Slide'
During Permian times, instability of the sub-marine sediments resulted in the downslope movement of large masses of Ford Formation reef limestone. This mass movement cut WSW-ENE trending channels in the underlying beds, including the limestones of the Raisby Formation, and in some places the Yellow Sands. In consequence, the reef limestones of the Ford Formation here rest on a plane of discontinuity, known in geological literature as the 'Downhill Slide'.

As recorded in the note on BGS Sheet NZ36SE, the plane of discontinuity here exhibits a relief of about 9 metres. The very markedly undulating and strikingly discordant junction of the Ford Formation reef limestones with the underlying limestones and dolomites of the Raisby Formation is a conspicuous feature in Downhill Old Quarry, especially near the southern and northern extremities of the old faces. A particularly good section through the 'slide', showing its uneven and sharply discordant relationship to the underlying beds, is exposed near the southern extremity of the face.

Raisby Formation (formerly Lower Magnesian Limestone)
Pale yellowish grey to cream coloured dolomitic limestones and dolomites, in which prominent comparatively even horizontal bedding is very conspicuous, are exposed beneath the 'Downhill Slide' in the lower parts of the old quarry faces. The clear section of these rocks in which their discordant relationship with the 'Downhill Slide' is conspicuous, has been noted above. The lowermost, evenly bedded and partly autobecciated dolomites, noted in the above section, were not seen during the field examination for this report. They appear to have been concealed beneath debris and vegetation since the date of the geological survey.

Other features of geological interest

The 'drift filled cleft' noted on BGS Sheet NZ36SE, near the southern extremity of the quarry face was not seen during the field examination for this report. It too may have become concealed beneath debris and vegetation since the date of the geological survey.

The site includes a very fine old lime kiln. The outer walls of this are built mainly of well bedded limestone and dolomite from the Raisby Formation, almost certainly extracted from the adjoining quarry. Some blocks of presumed Coal Measures sandstone are incorporated in these outer walls though, as they are comparatively few, they may represent loose blocks or clearance stones from neighbouring land, or from former buildings on or near the site. The arches of the draw points at the base of the kiln are formed from red bricks, perhaps made locally from superficial sediments. The kiln lining is almost certainly of sandstone or firebrick, though this was not seen during the field visit.

Geological map coverage

Downhill Old Quarry lies on BGS 1:50 000 scale Sheet 21 (Sunderland), published in 1978. A more detailed depiction of the geology is presented on BGS 1:10 560 sheet NZ36SW, published in 1973.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, Downhill Old Quarry are contained in:

Hollingworth, N.T.J. and Pettigrew, T.H. 1988. *Zechstein reef fossils and their palaeoecology*. Palaeontological Association Field Guides to Fossils No. 3. Palaeontological Association. London. 75 pp.

Lawrence, D.J.D. 2009. Limestone Landscapes – a geodiversity audit and action plan for the Durham Magnesian Limestone Plateau. *British Geological Survey Open report,* OR/09/007. 114 pp.

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Smith, D.B. 1995. *Marine Permian of England (Geological Conservation Review,* Vol. 8), Joint Nature Conservation Committee. (London: Chapman and Hall)

Stone, P., Millward, D., Young, B., Merritt, J.W., Clarke, S.M., McCormac, M. and Lawrence, D.J.D. 2010. *British regional geology: Northern England* (Fifth edition). Keyworth, Nottingham: British Geological Survey

Young,B. 2008. *Addressing geodiversity in South Tyneside: a report for South Tyneside Council.* 136 pp.

Other useful literature sources are cited in the references lists contained in the above publications.

Recorded history and cultural associations

It is important, when reviewing literature sources and other records, including museum specimen registers, to distinguish the precise identity of this site. Until the 1970s two separate, but closely-spaced, quarries were conspicuous features on the western slopes of Downhill. The quarry that is the subject of this description is the northernmost of these two workings. The southern quarry, the northern edge of which lay approximately 100 metres south of the present site, is referred to in a number of publications and in museum registers, as it was formerly an important and prolific source of Permian fish fossils. This southern quarry was totally obliterated by landfilling in the 1970s.

The former quarrying activities at Downhill offer valuable opportunities to make important links between geodiversity and economic and social history, particularly with regard to the making and uses of lime for agricultural and building purposes, and the use of locally quarried stone in the built environment.

The well-preserved limekiln is a Grade 2 listed building.

The geological features exposed at Downhill Old Quarry, together with the site's former use as a limestone quarry, offer valuable opportunities to demonstrate and emphasize the clear interdependence of biodiversity with geodiversity.

Smith (1994; 1995) makes reference to rocks exposed at this site, in particular the 'Downhill Slide'.

Value for the appreciation of nature and learning

The clarity of the exposed sections and their significance in understanding the nature and origins of the local succession of Permian rocks make this an important site both in the local and regional context.

In addition, the site's former use as a limestone quarry offers valuable opportunities to demonstrate and emphasize the clear interdependence between geodiversity, biodiversity and the area's cultural and economic heritage.

The geodiversity features of the site offer substantial educational and research opportunities. These would be greatly enhanced if some form of access agreement for *bona fide* educational and research visits, either by groups or individuals, could be negotiated.

Site management advice and objectives

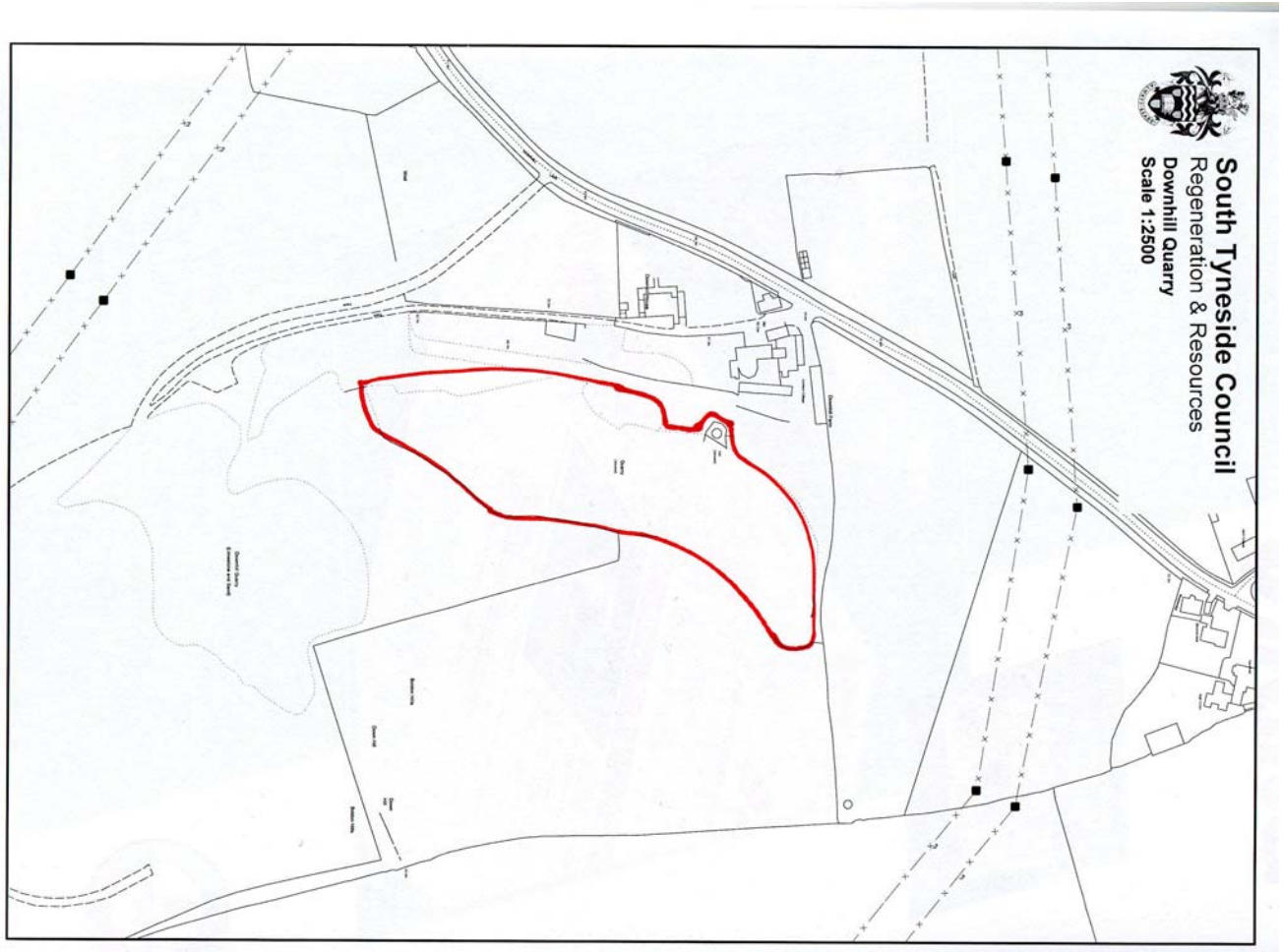
The current use of the old quarry as a grass paddock, apparently subjected to periodic grazing or mowing, is well suited to the protection of its geological interest. However, the geological features exposed in the remaining faces are substantially concealed by the growth of shrubs and small trees. Whereas some sections of these these may be examined with comparative ease during the winter months, thick leaf cover and ground vegetation effectively obliterates visibility during the summer months.

Periodic selective clearance of shrubs from the northern and southernmost sections of the face would allow easier visibility of these sections and thus would greatly enhance the geodiversity value of this important site. Obviously, such clearance should be undertaken with full regard to any biodiversity interests. It is likely that clearance of this sort may be needed at roughly 5 – 10 year intervals.

Whereas substantial amounts of vegetated talus adjoin the lower parts of some of the faces, few if any features of geological importance are concealed beneath this material that warrant its clearance. However, any management of the site for its geodiversity interest should be vigilant for future degradation of the faces and with the possibility of progressive obliteration of the features currently so well exposed.

The adjoining lime kiln is a Grade 2 listed building. Management and conservation of this structure obviously requires to be undertaken in line with the conditions attached to this designation.

The value of the site would be greatly enhanced if some form of access agreement for *bona fide* educational and research visits, either by groups or individuals, could be negotiated.


South Tyneside Council
Regeneration & Resources
Downhill Quarry
Scale 1:2500

4) Marsden Limekilns

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 2 hectares

Date of site visit(s)
For the purposes of this evaluation the site was visited by Brian Young on 1st April and 13th May 2010.

Recommendation
The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS).

Reasons for designation as a Local Geodiversity Site (LGS)
The clear exposures of limestones of the Concretionary Limestone Formation exhibit some of the most striking spherultic concretions visible within South Tyneside. The exposure is of interest in demonstrating the presence of both spherultic and 'cannon ball' type concretions.

In addition to the fine geological features, the site includes the finest group of abandoned limekilns within South Tyneside.

The juxtaposition of good geological features, remnants of former quarrying, lime making in the abandoned kilns and the significant biodiversity interest bring together the obvious interdependence of geodiversity, biodiversity, economic and cultural heritage within a single site.

Site description
Boundary of Local Geodiversity Site (LGS)
The site comprises parts of a long-abandoned, and partially overgrown, limestone quarry together with a fine group of large disused lime kilns.

Geological features of significance within this LGS lie within the area edged red on the accompanying 1:2500 scale map extract. The boundaries coincide exactly with those of the Marsden Limekilns Wildlife Site (LWS).

Geodiversity features of the site
a.) Geology
The last date of any quarrying activity here is unknown. Since abandonment the rock faces have been subjected to slight to moderate weathering that has accentuated, and thus partially enhanced, some of the geological features present within these rocks.

The limestones and dolomites exposed on this site are of Permian age and have long been known collectively as the 'Magnesian Limestone'. The internationally recognised term 'Zechstein Group' has today supplanted the term 'Magnesian

Limestone' as a collective name for these rocks and their equivalents across central and eastern Europe and Russia. The name 'Zechstein' is derived from the Zechstein Sea, the name given by geologists to the sea in which these rocks were deposited. However, as the original term Magnesian Limestone is so deeply embedded in British geological literature, and in modern biodiversity studies, most notably with reference to the unique 'Magnesian Limestone grassland habitat, the term is still employed by many geologists and ecologists, and is employed in this site description and others in the equivalent rocks in South Tyneside.

In older geological literature, including British Geological Survey (BGS) Sheet NZ46SW, the 'Magnesian Limestone' was subdivided into smaller stratigraphical units, including in ascending stratigraphical order, the Lower, Middle and Upper Magnesian Limestone. Modern stratigraphical protocols have replaced these older names with new formation names. Accordingly, the former Lower Magnesian Limestone is today formally styled the Raisby Formation, the former Middle Magnesian Limestone the Ford Formation and the former Upper Magnesian Limestone includes the Concretionary Limestone and overlying Roker Dolomite formations.

All of the limestones and dolomites exposed adjacent to Marsden Limekilns belong to the Concretionary Limestone Formation.

A note on BGS Sheet NZ46SW records the following section at point a on the accompanying 1:25 00 scale map extract:

* *Concretionary Limestone Formation (formerly Upper Magnesian Limestone)*
Brown and grey thin to thick-bedded crystalline limestone with
many patches rich in partly spherulitic calcite concretions
(some more than 25 cm across) and much fibrous calcite.
Many of the concretions have a bivalve at the core.
Much buff fine-grained dolomite between concretions. [>4.6 m]

* Modern stratigraphical classification introduced since survey of BGS Sheet NZ46SW

This relates to the cliff-like exposure that overlooks the 16th tee on Whitburn Golf Course. Most of the features included in this description may still be recognised today, though at the time of the evaluation visit, no bivalve fossils recorded as forming the nucleus of many of the concretions, were seen. It is also noteworthy that some of the exposed beds exhibit sub-spherical 'cannon ball' type concretions.

b). Industrial archaeological features

The most conspicuous feature of the site, especially when viewed from the A183 road, is the prominent range of large disused lime kilns adjacent to the course of a former railway. The kilns are of a variety of styles, apparently reflecting different dates of construction and use.

Detailed descriptions of the of the design, construction and methods of operation of these kilns is not appropriate here. However, it is interesting to note the use of locally sourced limestone blocks in the outer walls of large portions of the kiln range. Coal Measures sandstones and red common bricks are also prominent in places. Collapsed portions of the kilns towards the north western end of the range reveal the fire-brick linings of the kilns. Reddening of the limestones and sandstones, due to the heat of kilns, is visible in several places.

Geological map coverage

Marsden Limekilns lie on BGS 1:50 000 scale Sheet 21 (Sunderland), published in 1978. A more detailed depiction of the geology is presented on BGS 1:10 560 sheet NZ46SW, published in 1975.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, Marsden Limekilns are contained in:

Lawrence, D.J.D. 2009. Limestone Landscapes – a geodiversity audit and action plan for the Durham Magnesian Limestone Plateau. *British Geological Survey Open Report,* OR/09/007. 114 pp.

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Smith, D.B. 1995A. *Marine Permian of England (Geological Conservation Review,* Vol. 8), Joint Nature Conservation Committee. (London: Chapman and Hall)

Stone, P., Millward, D., Young, B., Merritt, J.W., Clarke, S.M., McCormac, M. and Lawrence, D.J.D. 2010. *British regional geology: Northern England* (Fifth edition). Keyworth, Nottingham: British Geological Survey

Young, B. 2008. *Addressing geodiversity in South Tyneside: a report for South*

Tyneside Council. 136 pp.

Other useful literature sources are cited in the reference lists contained in the above publications.

Recorded history and cultural associations

Whereas the date of any quarry working is unknown, the remnants of these workings offer valuable opportunities to make important links between geodiversity and economic and social history, particularly with regard to the making and uses of lime for agricultural and building purposes.

Value for appreciation of nature and learning

The clarity of the exposed sections and their significance in understanding the nature and origins of the local succession of Permian rocks make this an important site both in the local and regional context.

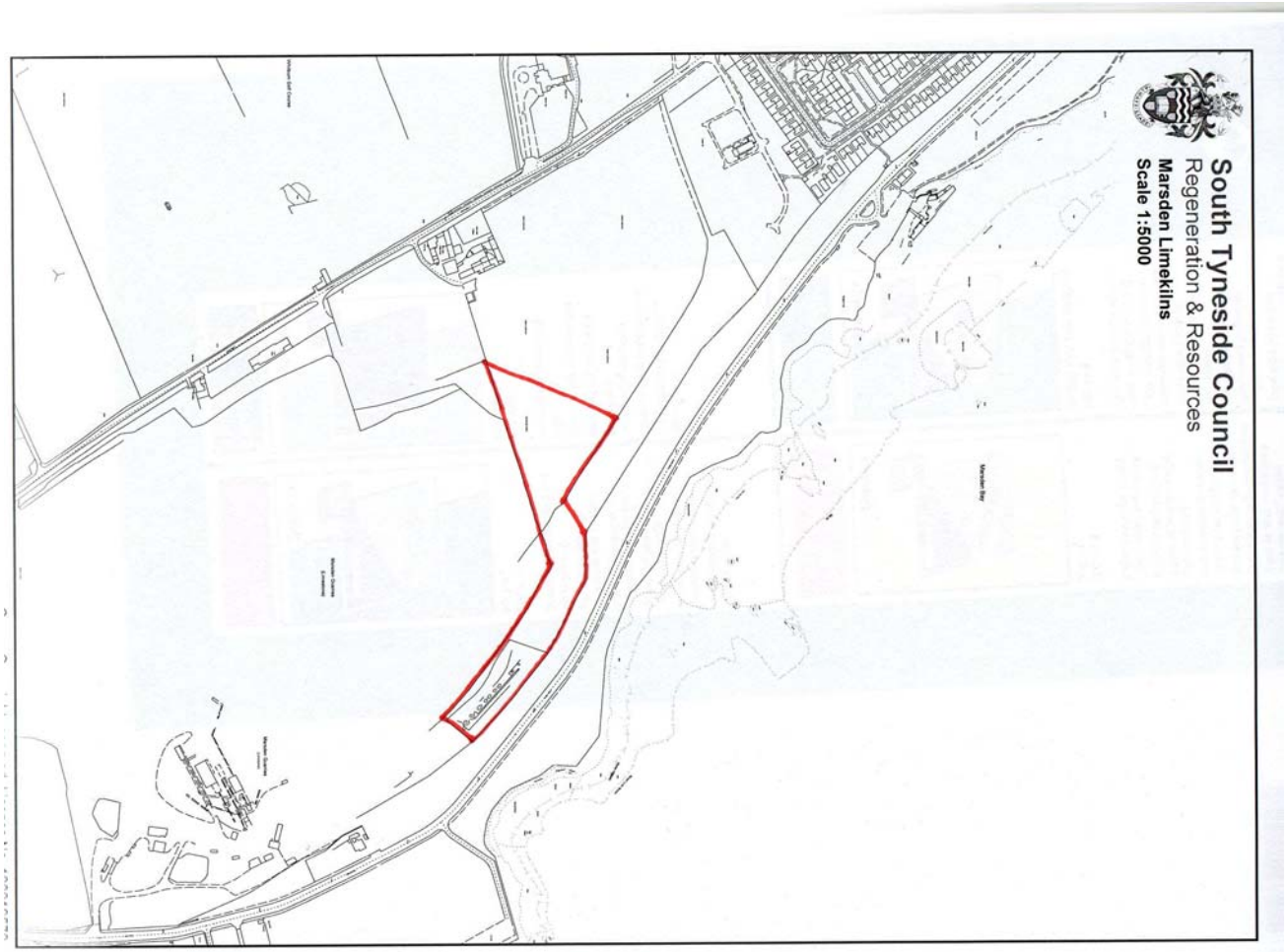
The evidence of the site's former use as a limestone quarry, together with its fine range of major limekilns, offer valuable opportunities to demonstrate and emphasize the clear interdependence between geodiversity, biodiversity and the area's economic and cultural heritage.

The site and its varied features are ideally placed for educational use at all levels, research and public interpretation.

Site management advice and objectives

The geological features exposed at this site are comparatively small and, forming part of the landscape of the golf course, may be regarded as robust and in no immediate need of any form of management intervention.

The limekilns comprise the most extensive series of such structures within South Tyneside and indeed within the region. Issues of their preservation, stabilisation and conservation lie predominantly within the remit of archaeological conservation. It is likely that they already enjoy some protection as scheduled structures. If so, it is suggested that attention is directed towards stabilisation of vulnerable parts of the structures to arrest further deterioration. It is also urged that any interpretation initiatives undertaken on these kilns be linked closely with the local and regional geological context.


South Tyneside Council
Regeneration & Resources
Marsden Limekilns
Scale 1:5000

5) Marsden Old Quarry

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 13.8 hectares

Date of site visit(s)

For the purposes of this evaluation the site was visited briefly by Brian Young on 9th April 2010. However, as the observations and recommendations presented in the report of a detailed survey of the site, commissioned from Brian Young in June 2006 by South Tyneside Council, remain valid today, reference is made to these in the appropriate sections of the present report.

Recommendation

The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS).

Reasons for designation as a Local Geodiversity Site (LGS)

The site offers excellent and extensive exposures of rocks belonging to the Concretionary Limestone Formation of the Zechstein Group (formerly Upper Magnesian Limestone). At Marsden Old Quarry these rocks display a variety of concretionary structures as well as evidence of collapse brecciation and other features characteristic of these unusual rocks.

In addition, as the site is an existing Local Nature Reserve and Local Wildlife Site (LWS) it presents an invaluable opportunity to demonstrate the essential links between the unique geodiversity and biodiversity interests.

Site description

Boundary of Local Geodiversity Site (LGS)

This site comprises the extensive long-abandoned workings of this former limestone quarry and adjoining areas of Magnesian Limestone Grassland.

Geological features of significance lie within the area edged red on the accompanying 1:2500 scale map extract. This area is rather smaller than that of the Marsden Old Quarry Local Nature Reserve and Local Wildlife Site (LWS).

Geodiversity features of the site

Marsden Old Quarry provides extensive exposures of limestones and dolomites of Permian age, long known collectively as the 'Magnesian Limestone'.

The internationally recognised term 'Zechstein Group' has today supplanted the term 'Magnesian Limestone' as a collective name for these rocks and their equivalents across central and eastern Europe and Russia. The name 'Zechstein' is derived from the Zechstein sea, the name given by geologists to the sea in which these rocks were

deposited. However, as the original term Magnesian Limestone is so deeply embedded in British geological literature, and in modern biodiversity studies, most notably with reference to the unique 'Magnesian Limestone grassland habitat, the term is still employed by many geologists and ecologists, and is employed in this site description and others in the equivalent rocks in South Tyneside.

In older geological literature, including British Geological Survey (BGS) Sheet NZ36SE, the 'Magnesian Limestone' was subdivided into smaller stratigraphical units, including in ascending stratigraphical order, the Lower, Middle and upper Magnesian Limestone. Modern stratigraphical protocols have replaced these older names with new formation names. Accordingly, the former Lower Magnesian Limestone is today formally styled the Raisby Formation, the former Middle Magnesian Limestone the Ford Formation and the former Upper Magnesian Limestone includes the Concretionary Limestone and overlying Roker Dolomite formations.

All of the limestones and dolomites exposed today at Marsden Old Quarry belong to the Concretionary Limestone Formation.

The results of a detailed examination of this site, together with suggestions for future management, conservation and potential educational uses were the subject of a report prepared by B.Young commissioned by South Tyneside Council in 2006. As the features described in this report remain well-exposed at the site today, they are not repeated here. For details of these features, and comments on their local, regional and national significance, reference should be made to this report.

Geological map coverage

Marsden Old Quarry lies on BGS 1:50 000 scale Sheet 21 (Sunderland), published in 1978. A more detailed depiction of the geology is presented on BGS 1:10 560 sheet NZ36SE, published in 1975.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, Marsden Old Quarry are contained in:

Lawrence, D.J.D. 2009. Limestone Landscapes – a geodiversity audit and action plan for the Durham Magnesian Limestone Plateau. *British Geological Survey Open report,* OR/09/007. 114 pp.

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Smith, D.B. 1995. *Marine Permian of England (Geological Conservation Review,* Vol. 8), Joint Nature Conservation Committee. (London: Chapman and Hall)

Stone, P., Millward, D., Young, B., Merritt, J.W., Clarke, S.M., McCormac, M. and Lawrence, D.J.D. 2010. *British regional geology: Northern England* (Fifth edition). Keyworth, Nottingham: British Geological Survey

Young, B. 2006. *Marsden Old Quarry Local Nature Reserve, South Tyneside: A review of the geological features and their geodiversity significance.* Report for South Tyneside Council . 43 pp. plus illustrations and maps.

Young, B. 2008A. *Addressing geodiversity in South Tyneside: a report for South Tyneside Council.* 136 pp.

Young, B. 2008B. Epsomite from Marsden Old Quarry, South Tyneside. *Transactions of the Natural History Society of Northumbria.* Vol. 66., Part 3, pp 227-228.

Other useful literature sources are cited in the reference lists contained in the above publications.

Recorded history and cultural associations

The former quarrying activities offer valuable opportunities to make important links between geodiversity and economic and social history, particularly with regard to the making and uses of lime for agricultural and building purposes, and the use of locally quarried stone in the built environment.

Smith (1994) makes reference to rocks exposed at this site, under its previous name of Marsden Hall Quarry.

More recently, Young (2008B) has described an occurrence of the magnesium sulphate mineral epsomite from the site.

Value for the appreciation of nature and learning

The extensive and very clear sections of the Concretionary Limestone exposed in this Local Nature Reserve offer fine opportunities to examine and understand the processes involved in the formation of these unusual rocks.

In addition, the site's former use as a limestone quarry offers valuable opportunities to demonstrate and emphasize the clear interdependence between geodiversity, biodiversity and the area's cultural and economic heritage.

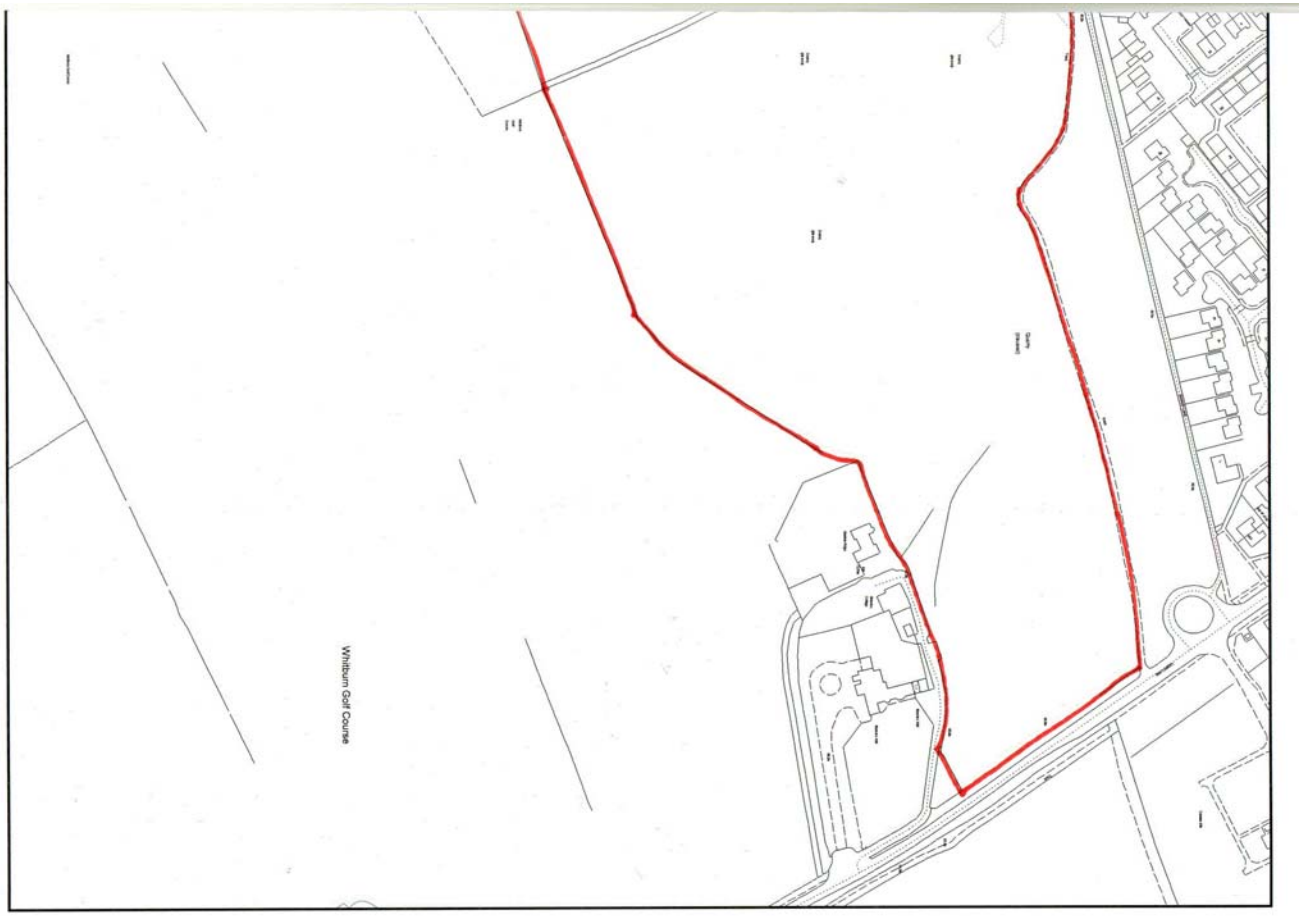
The recent experimental re-creation of areas of Magnesian Limestone grassland are especially important in making these important connections.

The geodiversity features of the site offer substantial educational opportunities from primary school to university and life-long learning level, as well as a range of public interpretation initiatives, as discussed by Young (2006 pp 34-36).

Site management advice and objectives

Suggestions for conservation and management of the site's geodiversity interest, outlined in Young (2006 pp30-34) remain relevant.


South Tyneside Council
Regeneration & Resources
Marsden Old Quarry
Scale 1:2500


Whitburn Golf Course

6) South Shields Dunes

Development Management Policies DM7
Local Geodiversity Site

Approximate size: 12 hectares

Date of site visit(s)
For the purposes of this evaluation the site was visited by Brian Young on 9th April 2010.

Recommendation
The geodiversity features present on the site are considered to merit designation as a Local Geodiversity Site (LGS).

Reasons for designation as a Local Geodiversity Site (LGS)
Deposits of blown Sand, of Holocene age, are important coastal features of north east England. South Shields Dunes comprises the most extensive area of such deposits in South Tyneside.

As sand dunes of this sort are actively forming and evolving today, they give important first hand insights into the operation of these modern geological processes.

South Shields Dunes are an important habitat for a range of biodiversity interests all of which are dependent upon, and inextricably linked with, their geodiversity significance.

Site description
Boundary of Local Geodiversity Site (LGS)
This site comprises the extensive area of sand dunes adjacent to the modern beach, south of South Shields pier.

Features of geodiversity significance lie within the area edged red on the accompanying 1:10 000 scale map extract. The boundaries coincide exactly with those of the South Shields Dunes Local Wildlife Site (LWS).

Geodiversity features of the site
Dunes of this sort have accumulated during the current episode of geological time, known as the Holocene. This episode comprises the past approximately 11 000 years since the final melting of the last of the Quaternary ice sheets. The South Shields Dunes are thus very recent (in geological terms) additions to the area's geodiversity and are still growing.

In common with other areas of blown sand in north east England, the South Shields Dunes comprise low ridges, generally parallel to the coast, composed of fine-grained sand. Such dunes form as sand is blown onshore and deposited at the head of sandy beaches as a result of some obstruction to wind flow. With time, the accumulated sand becomes populated by specialised plant species such as lyme grass (*Leymus arenarius*), marram grass (*Ammophila arenaria*) and sand couch (*Elytrigia juncea*): all of these grass species bind and stabilise the dune structures.

The development and evolution of the South Shields Dunes has been influenced by the adjoining pier and, possibly, landfilling. Construction of the south pier was completed in 1895. This was followed by increased deposition of sand and an eastward shift in the location of Sandhaven beach. It is thought that the area where the dunes are now has been subject to the tipping of waste material. This process may have taken place as recently as 1955 and may have played a significant part in the development of the dunes. The area has subsequently been covered by blown sand. (M. Hawking, *personal communication* 2010).

A feature of the sand dunes of the Northumberland coast is the comparatively high (locally up to 7%) of calcium carbonate ($CaCO_3$) content of the constituent sand, due to the abundance of finely comminuted shell debris. No analyses have been obtained for the sands of the South Shields Dunes, though samples of this dune sand react vigorously to dilute hydrochloric acid, indicating a significant carbonate content.

Similarly, no detailed studies of the mineralogical composition of the South Shields sands are known. However, during this investigation, the pattern of ephemeral ripple marks resulting from contemporary wind action, on the loose sand surfaces of parts of the dunes, were seen to be accentuated by the presence of bands of black sand lying in the troughs between ripple crests. These black grains were shown to be the strongly magnetic mineral magnetite ($Fe^{2+}Fe_2^{3+}O_4$). Local concentrations of such 'heavy minerals' have long been known from the beach sands of the Northumberland coast, though no records have been found for such minerals south of the Tyne: this therefore appears to be a new record. These local 'heavy mineral' concentrations may result from the concentration, by wave action, of grains weathered from some of the Carboniferous sandstones and perhaps from igneous rocks such as the dolerites of the Whin Sill and Palaeogene dykes, including the Tynemouth Dyke.

Geological map coverage

South Shields Dunes lie on British Geological Survey (BGS) 1: 50 000 scale sheets 15 (Tynemouth) and 21 (Sunderland), published in 1968 and 1978 respectively. A more detailed depiction of the geology is presented on BGS 1:10 560 scale Sheet NZ36NE, published in 1981.

Significant literature references

Important references to the local geology, including the geological features exposed at, and in the vicinity of, South Shields Dunes are contained in:

Smith, D.B. 1994. Geology of the country around Sunderland. *Memoir of the British Geological Survey*. London: H.M.S.O. 161 pp.

Young, B. 2008. *Addressing geodiversity in South Tyneside: a report for South Tyneside Council.* 136 pp.

Other useful literature sources are cited in the reference lists contained in the above publications.

Recorded history and cultural associations

The coastal sand dunes of the north east coast have long been the focus of research on the nature, formation and evolution of such recent geological features and deposits. Although no detailed studies are known to have been directed specifically towards the South Shields Dunes, they are an important example of such deposits and offer excellent opportunities for further research targeted both on their geodiversity and biodiversity interest. Recent human influence, including the construction of the pier and subsequent landfilling, on the development of the dunes, noted above, gives a valuable insight into the importance of human activity on present-day geological processes.

The South Shields Dunes are of significance as one of only two areas of such habitats in the Durham Biodiversity Action Plan (the other such site is Crimdon Dunes, in the south of County Durham).

Value for the appreciation of nature and learning

The geological features present here are important in understanding the coastal processes involved in beach and dune formation and evolution. In addition, South Shields Dunes offer valuable opportunities to understand and demonstrate the clear interrelationships between geodiversity and biodiversity.

The geodiversity features of the site offer substantial educational opportunities from primary school to university and life-long learning level, as well as a range of public interpretation initiatives.

Site management advice and objectives

Such recent geological deposits as dunes of unconsolidated blown sand are delicate and potentially vulnerable natural features. By their very nature dunes are unstable and susceptible to significant modification during prolonged periods of high wind or storms. Indeed, this instability and constantly changing form, are essential and defining characteristics of their geodiversity significance.

Those management practices and procedures designed to protect and maintain the biodiversity interest of the dune system will serve to protect the parallel geodiversity interest.

Map

For map of site please refer to Local Wildlife Site 39) South Shields Dunes which shares same boundaries.

Annex A: Designation and management of Local Wildlife Sites in South Tyneside

SECTION 1

A Protocol for the Administration of Local Wildlife Sites (LWS)

1.0 Background and Context

This document describes the system that has been adopted by the Local Wildlife Site Partnership for defining, defending and promoting non-statutory nature conservation sites in South Tyneside. These sites were previously referred to as Sites of Nature Conservation Importance (SNCI). They will henceforth be referred to as Local Wildlife Sites (see DEFRA guidance below).

Planning Policy Statement PPS9 describes Local Wildlife Sites as sites of regional and local biodiversity interest with a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and well being of the community; and in supporting research and education. Local Wildlife Sites are defined by DEFRA in its 2006 publication 'Local Sites, Guidance on their Identification, Selection and Management', hereafter referred to as the DEFRA guidance. It is intended/expected by DEFRA that this guidance will be adopted nationally, and this process is well under way.

The existing 35 SNCI's were designated in, and continue to be protected by, saved Policy ENV19/3 of the South Tyneside Unitary Development Plan (UDP). The new Local Wildlife Site system will form an important component of the Local Development Framework and adoption of the principles contained within the DEFRA guidance will provide the new system with a suitably sound basis. The UDP also designated 12 "Magnesian Limestone Grasslands". These will be re-considered as part of this process and either designated as Local Wildlife Sites or deleted.

In order to ensure that the system for LWS selection is integrated into the wider processes that govern nature conservation and also complements the role the planning system plays in protecting wildlife resources, the criteria for the selection of LWS are to be based on UK Biodiversity Action Plan (BAP) and Durham Biodiversity Action Plan (DBAP) habitat types and existing reference works that list species under threat.

The designation should not generally be applied to land that has been given a statutory conservation designation. However, consideration may need to be given to designating LWS on land that has ecological value but is currently designated solely as a geological Site of Special Scientific Interest.

This document refers solely to LWS. Local Geodiversity Sites are covered in Section 3.

1.1 Framework for Establishing and Administering the LWS Selection System

The Local Wildlife Site Partnership

A partnership has been formed to administer the LWS selection system on behalf of South Tyneside Council (henceforth referred to as the Partnership). The Partnership consists of representatives of South Tyneside Council and Durham Wildlife Trust. Additional members such as Durham Biodiversity Partnership, Natural England, Durham Bird Club, North East Butterfly Conservation and neighbouring local authorities will be co-opted to provide expert knowledge on aspects of LWS selection and management as required.

The purpose of the Partnership is to:

- agree the basis for site selection;
- co-ordinate site selection procedures including survey, identification and ratification;
- actively promote and support site management;
- co-ordinate funding provision including the seeking of external funding opportunities;
- promote educational use where appropriate;
- establish a process for monitoring the condition of the selected sites; and,
- review the operation of the LWS selection system at suitable intervals.

South Tyneside Council will ensure that LWS selections are incorporated into the Local Development Framework and any other relevant planning documents and strategies.

1.2 Terms of Reference of the Partnership

The Partnership will meet according to need. At meetings potential sites will be recommended for designation as LWS and existing sites will be recommended for removal from the LWS register if their ecological interest has fallen below the stated threshold level. In addition, existing site boundaries can be reviewed and site descriptions changed as necessary.

1.3 Evaluation and Selection of LWS

Site selection criteria are based on the DEFRA guidance and should address the questions listed below.

- Does the site meet criteria thresholds for nature conservation value?
- Have the criteria taken account of the distribution, abundance and increasing or declining trends in the nature conservation resource?
- Will selection help to maintain viable populations and functioning ecological communities?
- Is the site of particular value in conservation terms given its geographical and social context?

When a site has been deemed fit for LWS selection the Partnership will forward copies of the information used to assess the site to the landowner, with a written explanation of the assessment criteria and reasoning behind site selection. The landowner will be invited to comment on the proposed selection and supply any information relating to the assessment of the site that they feel will have a material affect on the decision of the Partnership.

All sites put forward for consideration as LWS that meet the selection criteria defined in section 2 of this document will be deemed as sites only, until the landowner has been given this opportunity to evaluate and comment upon the recommendation of the Partnership.

At the next meeting, the Partnership will compare any additional information supplied by the landowner against the site selection criteria and either confirm LWS status or reject the proposal to confer LWS status. DEFRA guidance states 'The objective of site selection is to select all sites that meet the criteria'.

Site ratification will initially be incorporated into the production and review of the relevant Local Development Framework Documents. Confirmation of the site's status will be subject to the recommendations of the Inspector's Report on the Independent Examination, which will be binding on the council. Where more modest subsequent changes are proposed this will not always be possible. In such cases changes will still be subject to a full consultation procedure with landowners and other interested parties and will be taken account of by the ongoing LDF review process.

Details of new LWS designations, and amendments to existing LWS, will be supplied to the appropriate officers at South Tyneside Council to ensure that internal procedures are followed to ratify and record LWS status.

Establishing Landownership

Reasonable steps should be taken to establish landownership prior to the assessment of a site for LWS selection. These may include: searching existing information held by members of the Partnership; making verbal and written enquiries to members of the public, business, local authorities and statutory bodies, and; carrying out Land Registry searches.

Contacting Landowners

It is important that adequate information is collected to allow the assessment of a site for LWS selection and this will involve carrying out a site survey. If landownership is known, permission must be sought from the landowner before a site is accessed to carry out a survey. The exceptions to this are if accessing the site using a public right of way can provide adequate survey data, or if a right of access is permitted under existing statutory instrument. If the landowner refuses to allow access for adequate survey work to be undertaken a new site cannot be considered for LWS selection. If an existing site cannot be properly reviewed for the same reason it should not be removed from the register of LWS.

1.4 Reviewing Existing Sites

All existing sites, selected as SNCIs prior to the adoption of this protocol, will be subject to review in accordance with the agreed criteria. This will apply to the 35 SNCIs defined in the South Tyneside Unitary Development Plan (UDP), 1999. In addition the 12 Magnesian Limestone Grassland Sites listed in the UDP will also be reviewed, and incorporated into the new LWS system.

Following the adoption of this protocol all LWS will be reviewed against the selection criteria at least once every 10 years and will either be confirmed or de-selected. The selection criteria themselves will be subject to review and will be amended according to need and in line with changes in the Durham Biodiversity Action Plan and other relevant documents such as IUCN Red Data Books.

All site reviews must follow the advice given in 1.3 above on establishing land ownership and obtaining landowner permission to survey. Without this permission a site cannot be reviewed and will therefore remain as a LWS until the Partnership receives evidence that the site no longer meets the selection criteria.

1.5 Managing the LWS Selection System

Recording and Handling of Information relating to LWS

After the adoption of this protocol, South Tyneside Council will hold the information relating to the selection of new LWS and the review of existing LWS. The information will be held in a register and will be displayed in a standard format to be agreed by the Partnership. Durham Wildlife Trust will also hold a copy of the register. Members of the Partnership will be permitted to copy and disseminate this information to third parties. A fee may be charged to cover the cost of time expended searching the register at the request of a third party.

1.6 Resourcing the LWS Selection System

South Tyneside Council will provide sufficient resources to ensure that the administration of the LWS system in terms of designation and review is carried out to a satisfactory standard, within the context of the Local Development Framework. In addition members of the Partnership will seek resources and external funding for works that will enhance and expand the LWS network such as habitat defragmentation and the provision of support and advice to private land managers.

1.7 Advising on Effective Management of LWS

When selecting new or reviewing existing LWS the Partnership will, as part of the documentation supplied to landowners, make general recommendations regarding the management of the site. These should include a brief summary of the biodiversity interest that warrants LWS designation and the management actions required to maintain and enhance that interest.

1.8 Monitoring

The Partnership will monitor the network of LWS to ensure that they retain their substantive value. This will entail measuring the features for which the sites were selected and the target will be, as a minimum, to maintain those features. Monitoring/review of the full network will take place at least once every ten years. The results of this monitoring will be reported, as appropriate, in the relevant editions of the LDF Annual Monitoring Reports. These are currently published in December each year for the 12 month period ending 31 March in the same calendar year.

SECTION 2

Site Selection Criteria

2.0 Introduction

The following methodology is to be used to evaluate sites that are put forward for designation as Local Wildlife Sites (LWS). The selection criteria have been designed to follow the guidance produced by DEFRA in the publication 'Local Sites, Guidance on their Identification, Selection and Management', 2006. The DEFRA guidance defines ten criteria from which measurable thresholds have been developed:

- Size or extent
- Diversity
- Naturalness
- Rare or exceptional feature
- Fragility
- Typicalness
- Connectivity within the landscape
- Recorded history and cultural associations
- Value for appreciation of nature
- Value for learning

The basis for the criteria is the existing framework of nature conservation prioritisation; the habitat and species plans that form part of national, regional and local Biodiversity Action Plans (BAPs). By referencing existing BAPs these site selection criteria specifically follow the advice contained in paragraph 35 of the DEFRA guidance, '*The selection of Local Sites to help sustain biodiversity should be founded on national, regional and local biodiversity priorities.*'

Utilisation of the existing BAP structure ensures that habitat and species priorities are adequately considered, and that the sites selected are representative of those conservation priorities. This approach also ensures that the sites selected are of, *'substantive nature conservation value',* as advised by the DEFRA guidance.

Utilisation of the full range of BAP habitat and species, from national to local priorities, ensures that consideration is given to species and habitats that are regarded as scarce on a national level, through to those that may not be significant nationally but have local significance e.g. at the edge of range. As BAPs are periodically reviewed and amended to reflect changing trends; utilising BAPs as a basis for selection ensures that the criteria will remain truly representative.

2.2 Selection of Sites by Habitat

Any Local Wildlife Sites must contain at least one habitat type that is listed in the UKBAP or local BAP (Durham BAP). The habitat types present on a site will be determined by a site survey and must be clearly mapped. The baseline information for a site will be compared to the BAP habitat definition, by the LWS Partnership. The LWS Partnership will then determine whether the LWS meets the BAP habitat definition.

Sites can be selected as representative of a single habitat type or as a mosaic of habitat types. Table 1 details the minimum area of BAP habitat or mosaic of BAP habitats that must be present for a site to be selected as a Local Wildlife Site.

In some cases there will be a mosaic of BAP habitats present on a site but individually they may not reach the minimum area/length as defined in this criteria. In such cases the proportion of the minimum size for each habitat should be calculated and then combined. If the summed total is equal to or greater than 1 then the site will qualify as a LWS. Please see the worked example below:

Proportion of Defined Habitat = Actual Habitat Size/Minimum Defined Area-Length

For example

- Site contains 1.2ha of Wood Pasture and Parkland where the minimum area is 2ha. The proportion of the minimum size is 0.6

- Site also contains 0.125ha of Lowland Meadow and Pasture where the minimum area is 0.25ha. The proportion of the minimum size is 0.5

The proportions for each habitat are then summed:

- 0.6 + 0.5 = 1.1

As the summed total is equal to or greater than 1 this site would qualify as a LWS.

The rationale for the score equal to or greater than 1 is that the combination of adjacent BAP habitats brings diversity and edge effect benefits.

For reasons of practicality and to provide sites with some degree of physical protection, a LWS can be designated that does not contain BAP habitats in its entirety as long as the minimum area/length requirement for BAP habitat is met. For example, a field may contain sufficient area of BAP grassland habitat to qualify as a LWS, but the overall area of the field is larger in extent, containing additional non-BAP habitat. The total area of the field should be designated to facilitate ease of management and provide an easily definable site boundary.

Where sites perform an important ecological function in addition to the intrinsic value of the habitat they provide, for example as 'stepping stones' or 'corridors' that increase the ecological connectivity of a landscape (henceforth referred to as connectivity features), the minimum area or length of BAP habitat making up the feature can be up to 50% lower than the usual minimum permitted for qualification as a LWS.

A suite of areas that enhance connectivity by forming a chain of 'stepping stones' across the landscape can be designated as a single LWS, even though they are formed by areas that individually fall below the minimum area or length requirement. As outlined above, the total minimum area of a suite of such sites can be up to 50% lower than the minimum permitted for qualification as a LWS.

All habitat types listed in the Durham Biodiversity Action Plan (DBAP) are shown in Table 1.
The minimum value for area or length of habitat to qualify as a LWS has been devised after consultation with specialists who have expert knowledge of the area. In order to reflect changes in conservation status the minimum area requirements for LWS will be reviewed according to need.

By basing designation on the BAP process, assessment of sites against thresholds set against the first seven of the DEFRA guidance criteria has been achieved. The threshold values for size and connectivity are given in Table 1.

Table 1: Threshold Values for DBAP Habitats

Durham Biodiversity Action Plan Habitat	Minimum Area/Length	Connectivity Feature Minimum Area or Length
Woodland		
Native Hedgerow	100m	50m
Ancient Semi-Natural Woodland (including PAWS)	1ha	0.5ha

Other Broadleaf Woodland	2ha	1ha
Wet Woodland	0.5ha	0.25ha
Scrub	1ha	0.5ha
Wood Pasture	2ha	1ha
Parkland	2ha	1ha
Veteran Trees	Valuable	Potentially Interesting
Upland		
Blanket Bog and Upland Wet Heath	5ha	2.5ha
Calaminarian Grassland	0.125ha	0.0625ha
Species-rich Upland Acid Grassland	0.5ha	.25ha
Upland Scree and Rock Vegetation	0.5ha	0.25ha
Upland Calcareous Grassland	0.5ha	0.25ha
Upland Dry Heath	5ha	2.5ha
Upland Hay Meadows	0.5ha	0.25ha
Lowland		
Early Successional Brownfield Land	0.5ha	0.25ha
Lowland Acid Grassland	0.5ha	0.25ha
Lowland Heath	0.5ha	0.25ha
Lowland Meadows and Pastures	0.25ha	0.125ha
Magnesian Limestone Grassland	0.25ha	0.125ha
CG8 Grassland	0.125ha	0.0625ha
Road Verges of Conservation Importance	50m	25m
Waxcap Grasslands	0.2ha	0.1ha
Coastal soft cliffs and slopes	0.1ha	0.05ha
Wetlands		
Phragmites australis Reedbed	0.25ha	0.125ha
Lowland Fen Habitats	0.125ha	0.0625ha
Ponds	$5m^2$	$2.5m^2$
Rivers & Streams (Excluding Canals & Ditches)	0.5km	0.25km
Floodplain Grazing Marsh	2ha	1ha
Exposed Riverine Sediments	0.25ha	0.125ha
North East Marine and Coastal Biodiversity		

Action Plan Priority Habitats		
Coastal salt marsh	0.25ha	0.125ha
Coastal sand dune	1ha	0.5ha
Mudflat	1ha	0.5ha

Table 2. Durham Biodiversity Action Plan and North East Marine and Coastal Biodiversity Action Plan habitat definitions

Durham Biodiversity Action Plan Priority Habitats		
Woodland	Defined in DBAP July 2010	Alternative/additional definition to be applied
Ancient semi-natural woodland (including PAWS)	Yes	
Other broadleaf woodland	Yes, but to be checked for suitability	
Native hedgerow	Yes, but use DEFRA definition	Define as per 'Ancient and/or species-rich hedgerow' F02 – see DEFRA HLS-FEP handbook 2005
Parkland	Yes	
Scrub	Yes	
Veteran trees	Yes	
Wet woodland	No	Define as per 'Wet woodland' T13 – see DEFRA HLS-FEP handbook 2005
Wood pasture	No	
Wetland		
Exposed riverine sediments	Yes	
Floodplain grazing marsh	Yes	(Spp-rich examples to be additionally recorded as lowland meadows and pasture)
Lowland fen habitats	Yes	

Phragmites australis reedbed	Yes	
Ponds	Yes	Can also be defined as per 'Pond' W07 – see DEFRA HLS-FEP handbook 2005
Rivers and streams	Yes	Positive features include – minimum water quality, minimum proportion of unmodified riverbank, exposed riverine sediments, dead wood, use by otters, suitable breeding habitat for water vole, kingfisher and sand martin.
Upland heath and grassland		
Calaminarian Grassland	Yes	
Lowland heath and grassland		
CG8 grassland	Yes	
Coastal soft cliffs and slopes	No	
Early successional brownfield land	Yes	
Lowland acid grassland	Yes	
Lowland heath	Yes	
Lowland meadows and pasture	Yes	
Magnesian limestone grassland	Yes	
Road verges of conservation importance	Yes	
Waxcap grassland	Yes	
North East Marine and Coastal BAP Priority Habitats		
Coastal salt marsh	-	Define as per 'Coastal salt-marsh' C01 – see DEFRA HLS-FEP handbook 2005
Coastal sand dune	-	Define as per 'Coastal sand dune' C02 – see DEFRA HLS-FEP handbook 2005
Mudflat	-	Define as per 'Mudflats' C06 – see DEFRA HLS-FEP handbook 2005

2.3 Rationale for the Value of Local Wildlife Sites for the Appreciation of Nature and Learning

The remaining three criteria - recorded history and cultural associations, value for appreciation of nature and value for learning, will only be considered when sites fall outside the habitat requirements previously identified in terms of minimum area/length.
In the event of a site having at least 75% of total habitat area required, evidence concerning the above three criteria may be submitted and where there is clear value concerning one or more of the criteria a site will qualify as a LWS.

2.4 Selection of Sites by Species

Ideally, species conservation is achieved by the conservation of habitats, so in many cases LWS designation on BAP habitat grounds will protect species of conservation concern. Some BAP species can also be relatively widespread and abundant, so LWS selection on grounds of inclusion in species plans at UK or local level could result in the designation of large areas of land, not only those sites of substantive ecological interest. For this reason BAP status for species has not been used as the main criteria for designation.

However in particular cases the selection of sites on species grounds can be based on the presence of a species or species assemblage that is rare, threatened or important/significant at the national, regional or sub-regional level. For example where bird populations are present in nationally, regionally or sub-regionally important numbers the site will qualify as a LWS. National importance is defined by the British Trust for Ornithology in terms of a percentage of the overall population. A species will be regarded as being present at a particular location if there is a record submitted to, and accepted by, the appropriate County Recorder within ten years of the designation proposal. Identification of species that are rare or threatened will be done from information obtained from existing documents and publications that are produced for that purpose. Examples of reference documents to be used for different species are listed in ANNEX C.

To ensure ease of documentation and management, and some degree of protection, a site with a species or species assemblage of national or regional importance/significance will be defined by adopting a site boundary that utilises existing features e.g. an existing field boundary may be used even if the species of interest is supported in only a small area of the field.

Annex B: General reference documents

Durham Biodiversity Action Plan priority habitat definitions
http://www.durhambiodiversity.org.uk/

UK Biodiversity Action Plan habitat definitions
http://www.ukbap.org.uk/default.aspx

DEFRA HLS-FEP handbook 2005
http://www.naturalengland.org.uk/ourwork/farming/funding/es/hls/fep.aspx

'Local Sites, guidance on their identification, selection and management' DEFRA 2006 – available as pdf download
http://www.defra.gov.uk/rural/protected/localsites.htm

Annex C: Reference documents regarding additional site selection criteria by species

The following list of reference documents gives examples, it is not exclusive.

Invertebrates

- All species listed in the applicable, current IUCN Red Data Book.
- All Biodiversity Action Plan species
- Those species defined by Butterfly Conservation North East as high priority.

Vascular plants

- All species listed in appropriate, current IUCN Red Data Book as critically endangered, endangered, vulnerable, near threatened.
- All species listed in the current BSBI list as critically endangered, endangered, near threatened, rare, vulnerable and scarce.
- All species listed in Scarce Plants in Britain (1994) - Stewart, Pearman and Preston.
- All native species recorded in three or less sites in Vice County 66, with the definition of site as per Wells i.e. a site is a floating 1km square. This definition is as used in the Durham Rare Plant Register by J. L. Durkin.

Non-vascular plants

- All species listed in appropriate, current IUCN Red Data Book.

Fungi

- All species listed in appropriate, current IUCN Red Data Book.

Woodland Habitats

Native Hedgerows
Identification & Mapping

A hedgerow is defined as a line of trees or shrubs over 20m long and less than 5m wide, provided that at one time the trees or shrubs were more or less continuous. (from UK Steering Group on Hedgerows, published in Natural England's Hedgerow Survey Handbook*).

A native hedgerow is defined here as one in which over 80% of the woody plants are native species.

A hedgerow tree is an isolated tree, of whatever species, age or origin, which has been deliberately or incidentally allowed to grow within a native hedgerow.

Condition Assessment

Follow DEFRA's Hedgerow Survey Handbook (Appendix 9)* which combines measures of height, width, integrity, nutrient enrichment and other factors.

* *DEFRA (2007)* Hedgerow Survey Handbook – A standard procedure for local surveys in the UK. *Prepared on behalf of the Steering Group for the UK. DEFRA, London.*

Ancient Semi-Natiral Woodland (including PAWS)
Identification & Mapping

Ancient woodland includes all woodland sites with evidence of continuous wooded cover since 1600 AD. The definition includes Planted Ancient Woodland Sites (PAWS).

Planted Ancient Woodland Sites (PAWS) are woodland sites which contain evidence of former ancient woodland, or for which there is recorded evidence of former ancient woodland, and which have subsequently been planted with coniferous or broadleaved trees.

There is a current inventory of ancient woodlands (and PAWS) over 2ha in extent. There are known to be inaccuracies in this inventory and further work is planned to revisit these sites and update the inventory.

In addition to these definitions, rare native woodland stands types of relevance to the Durham BAP will be further defined at a later stage, but will broadly follow the National Vegetation Classification (Rodwell). These stand types are subject to current and ongoing inventory work.

Condition Assessment

There is a standard condition assessment for Ancient Woodlands (JNCC 2004*)

There will be a baseline for condition for all sites surveyed, but it will be difficult to repeat this work regularly. For sites recorded in unfavourable condition, records of current positive interventions will give the site 'recovering' status.

*JNCC, (2004) *Common Standards Monitoring Guidance for Woodland*, Version February 2004, ISSN 1743-8160

Other Broadleaf Woodland

Identification & Mapping

This priority habitat encompasses all woodland which is not ancient (established since 1600), and which contains predominantly broadleaf species. This includes plantation as well as semi-natural or secondary woodland.

Mature broadleaf woodland dominated by non-native broadleaf species such as sycamore and beech are important in the context of the Durham BAP area and are included in this definition, however all new plantation relating to targets for this priority habitat should be of native species.

It should be noted that native but non-broadleaf species such as yew and juniper can be important components of this priority habitat.

An important exclusion to this definition, however, is of broadleaf plantation woodland which has been planted, inappropriately, on another DBAP priority habitat, or on land which would have met the definition of another DBAP priority habitat in the previous 30 years.

Condition Assessment

Because of the large extent of this resource and the difficulty of measuring its condition overall, the extent of this habitat which is in active management (as measured by statistics from Forestry Commission grant schemes) will be taken to in

Wet Woodland

Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species. It is found on floodplains, as successional habitat on fens and bogs, along streams and hill-side flushes, and in peaty hollows. In terms of the National Vegetation Classification it includes a wide range of communities from W1 to W8.

Identification & Mapping

For the purposes of mapping, parcels meeting the above description should be mapped as Wet Woodland in addition to either Other Broadleaf Woodland or Ancient Semi-Natural Woodland.

Condition Assessment

No condition assessment has been defined for this habitat

Scrub

There is no overall target set for the extent or condition of Scrub, and as a large scale transitional community it is difficult to map. However, for the purposes of this plan a coastal strip has been defined as a 500m buffer from the coast (mean high water), within which the cover of scrub will be monitored. A target has been set for the extent of scrub within this coastal strip.

Identification & Mapping

Scrub is comprised of scattered or dense stands of naturally regenerated locally native tree and shrub species, generally under 5m tall.

Condition Assessment

No condition assessment has been defined for this habitat

NOTE: Scrub which meets one of the following definitions is recognised by Natural England is being of high environmental value.

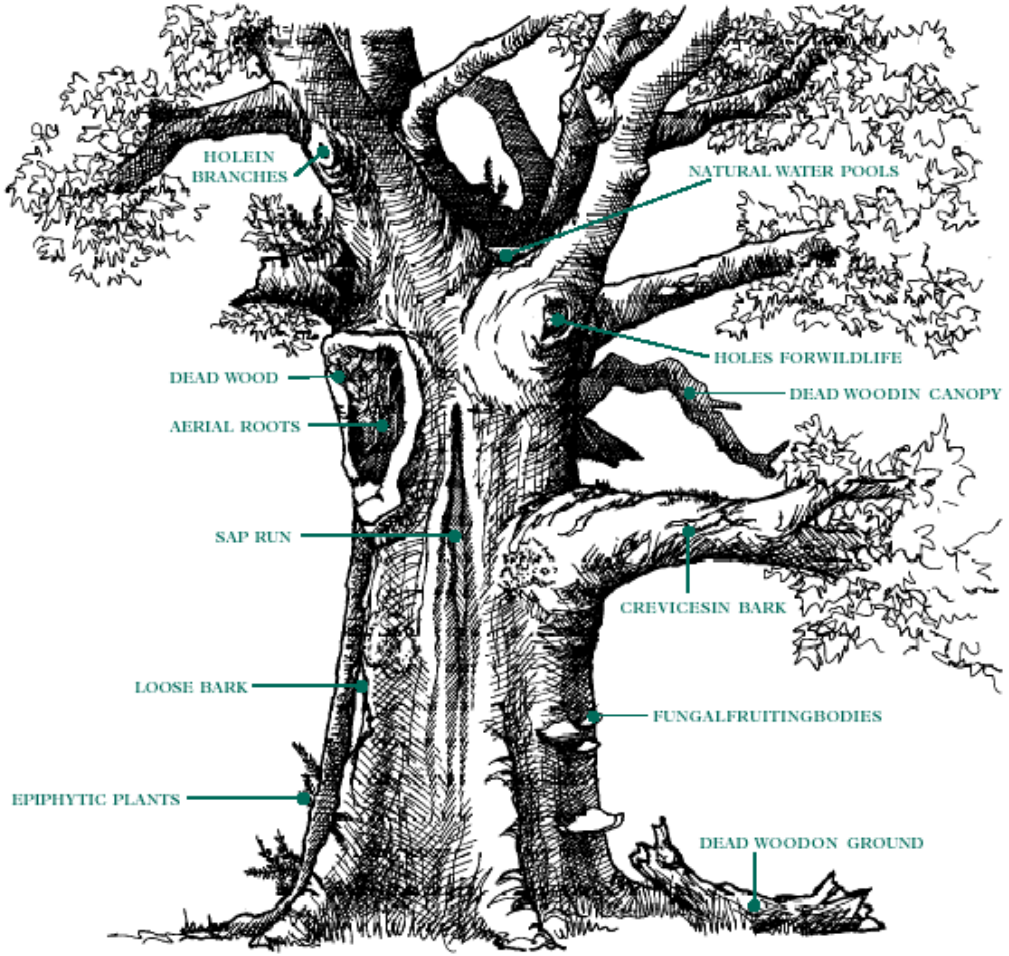
Scrub on calcareous soils with three or more of the following species: way-faring tree, wild privet, dogwood, spurge laurel, black bryony, hawthorn or spindle.

Scrub on peat soils with two or more of the following species: tea-leaved willow, eared willow, goat willow, grey willow, bay willow, purple willow, osier.

Wood Pasture, Parkland and Veteran Trees

Wood pasture or parkland are vegetation structures rather than particular plant communities. They are matrices of grassland, heathland and/or woodland habitats which contains large open-grown or high forest trees (often pollards) at various densities (following the UK BAP definition and Defra's T03 definition for parkland and wood pasture)*.

Veteran trees are in-field, boundary or woodland trees which are over mature and with evidence of decay, often having been kept alive through management such as pollarding. It is not possible to use size precisely as a guide to maturity for individual species, because diameter or circumference depends on a number of other factors, including soil type and past and present competition. However a rule of thumb has been developed and is presented in the table below. Veteran trees also contain some or all of the following features:



From the Veteran Trees Initiative / Woodland Trust

In-field trees of this nature often indicate the presence of former wood pasture or parkland

Veteran Tree Rule Of Thumb Trunk Diameters

These 'rules of thumb' collate the maximum trunk sizes recorded by Mitchell (1974) for each species and adapting categories of 'potentially interesting', 'valuable' and 'truly ancient' described by Read (2000) to relate to these maximum trunk sizes

Species	Diameter at Breast Height (1.3m) in meters			
	Max diameter	Potentially interesting	Valuable	Truly ancient
Acer campestre	0.96	0.31	0.45	0.60
Acer platanoides	1.27	0.41	0.60	0.80
Acer pseudoplatanus	2.23	0.71	1.05	1.39
Aesculus hippocastanum	2.04	0.65	0.96	1.27
Alnus glutinosa	1.18	0.38	0.55	0.74
Alnus incarna	0.64	0.20	0.30	0.40
Arbutus unedo	0.38	0.12	0.18	0.24
Betula pendula	0.96	0.31	0.45	0.60
Betula pubescens	0.96	0.31	0.45	0.60
Buxus sempervirens	0.25	0.08	0.12	0.16
Carpinus betulus	1.27	0.41	0.60	0.80
Castanea sativa	3.18	1.02	1.50	1.99
Crataegus monogyna	0.96	0.31	0.45	0.60
Fagus sylvatica	1.97	0.63	0.93	1.23
Fraxinus excelsior	1.91	0.61	0.90	1.19
Ilex aquifolium	0.57	0.18	0.27	0.36
Juglans regia	1.91	0.61	0.90	1.19
Malus sylvestris	0.96	0.31	0.45	0.60
Mespilus germanica	0.48	0.15	0.22	0.30
P. x canadensis var serotina	1.91	0.61	0.90	1.19
P. x canescens	1.59	0.51	0.75	0.99

Pinus sylvestris	1.59	0.51	0.75	0.99
Populus alba	0.64	0.20	0.30	0.40
Populus nigra	1.59	0.51	0.75	0.99
Prunus avium	1.43	0.46	0.67	0.90
Pyrus pyraster	0.64	0.20	0.30	0.40
Quercus cerris	2.55	0.82	1.20	1.59
Quercus ilex	1.37	0.44	0.64	0.86
Quercus petraea	2.83	0.91	1.33	1.77
Quercus robur	3.18	1.02	1.50	1.99
Robinia pseudoaccacia	1.59	0.51	0.75	0.99
S. x thuringiaca	0.48	0.15	0.22	0.30
Salix caprea	1.27	0.41	0.60	0.80
Salix fragilis	1.11	0.36	0.52	0.70
Sorbus aria agg	0.60	0.19	0.28	0.38
Sorbus aucuparia	0.80	0.25	0.37	0.50
Sorbus intermedia agg	0.64	0.20	0.30	0.40
Sorbus latifolia agg	0.86	0.28	0.40	0.54
Sorbus torminalis	0.89	0.29	0.42	0.56
Tilia x europea	2.23	0.71	1.05	1.39
Taxus baccata	3.18	1.02	1.50	1.99
Tilia cordata	1.91	0.61	0.90	1.19
Tilia platyphyllos	1.85	0.59	0.87	1.15
U. x hollandica	1.59	0.51	0.75	0.99
U. x vegeta	1.75	0.56	0.82	1.09
Ulmus glabra	2.23	0.71	1.05	1.39
Ulmus minor	1.94	0.62	0.91	1.21
Ulmus procera	2.23	0.71	1.05	1.39

*From Hedgerow Survey handbook2nd edition***

Identification & Mapping

For the purposes of monitoring, a Veteran Tree will be defined as any tree in the 'valuable' or 'truly ancient' columns in the table above.

It is obviously important for recruitment to also monitor trees in age classes below. Whichever monitoring methodology is adopted for this target, data on species and diameter at breast height should be recorded for all trees in the sample which fall into the 'potentially interesting' column or above.

Parkland will be defined and mapped through the Durham County Council's Historic Landscape Character Assessment.

There is insufficient understanding of Wood Pasture in the Durham context at present to allow a definition.

Condition Assessment

For Veteran trees

Any Parkland which is covered by funding from Environmental Stewardship or a Woodland Grant Scheme will be assumed to be in favourable condition, until such time as further work is undertaken to determine a more appropriate condition assessment. See Defra's condition assessment in the T03 definition of wood pasture & parkland for further guidance.*

Any Wood Pasture (once defined) which is covered by funding from Environmental Stewardship or a Woodland Grant Scheme will be assumed to be in favourable condition, until such time as further work is undertaken to determine a more appropriate condition assessment. See Defra's condition assessment in the T03 definition of wood pasture & parkland for further guidance.**

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

** *DEFRA (2007)* Hedgerow Survey Handbook – A standard procedure for local surveys in the UK. *Prepared on behalf of the Steering Group for the UK. DEFRA, London.*

Wetland Habitats

Phragmites australis Reedbed

Reedbeds are wetlands dominated by stands of common reed (*Phragmites australis*), where the water table is at or above ground for most of the year (swamps). *Phragmites australis* must cover more than 60% of the swamp community for the habitat to meet this definition. *Phragmites australis* Reedbed is a type of Fen community that is of particular value to many birds.

Condition Assessment

1. Cover of scrub within the reedbed must be less than 10%.
2. Surface water is present over at least part of the reedbed for most of the year.
3. Cover of undesirable species (docks, thistles, ragworts, Indian (Himalayan) balsam) must be less than 5%.

Adapted from the Defra's W08 reedbeds definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

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Lowland Fen habitats

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

There is a lot of confusion surrounding fen classifications and terminology. Many classifications use highly technical terminology that combine topographical features, hydrology and vegetation types, which can make the subject inaccessible for the non-specialist. In this classification we define the fen types according to the vegetation alone as this is most easily observed at a site. There is also little agreement on where fen starts and other wetland habitats stop. The narrowest views of what is meant by fen, might include only small sedge rich fen and species-rich tall herb fen vegetation types while other views of fen can be much broader.

For the purposes of the Durham BAP, we are taking a broad view of fen to include all wetland habitats apart from the following that are covered under other HAPs:

- aquatic (wholly or predominantly submerged) vegetation
- blanket bog (including bog pools) & wet heath
- fen carr (wet woodland)
- wet grassland (lowland meadows & pastures)
- fen meadow (purple moor-grass and rush pasture)

The dividing line between some of these habitats and fen is not always clear. Wetlands can have complex patterns of vegetation and the different types of fen described below often merge into each other. This is especially apparent in wet depressions and around the margins of ponds where there is a gradual transition between very wet conditions and much drier conditions higher up. Further information on how to differentiate between these habitats is/will be available on the DBAP website.

Types of fen in lowland Durham:

Pioneer vegetation on exposed mud

This type of usually short-lived vegetation colonises areas left exposed after water levels subside, e.g. on the margins of ponds or other water bodies with fluctuating water levels. There is usually a high proportion of annual species and often a high cover of bare mud. Sometimes there is a high cover of bryophytes. It is a dynamic type of vegetation that can undergo rapid changes in a relatively short time. The early open stages provide an important habitat for highly specialised and scarce species of invertebrates and bryophytes. In lowland Durham this includes the NVC communities OV31 and the more open examples of OV32

Species-poor swamps

Swamp is vegetation that grows out of water so that water is visible at the surface between the emergent plants. Most swamps are species-poor with the individual plants often densely packed together. Some swamp types are uncommon or of relatively high conservation interest. Other types are common and of less interest and if not controlled, invade more valuable vegetation. Example of these 'invasive' types in Durham include S12 - bulrush swamp, S4 & S26 - reedbed and to a lesser extent S14 - branched bur-reed swamp. In lowland Durham swamps are most frequently dominated by the following species (NVC community in brackets) bulrush (S12), branched bur-reed (S14), common spike-rush (S19), common reed (S4 & S26), lesser pond-sedge (S7), water horsetail (S10), and soft rush (not in NVC). Less common swamp types in lowland Durham include reed sweet-grass (S5), greater pond-sedge (S6), common club-rush (S8), bottle sedge (S9), bladder-sedge (S11), lesser bulrush (S13), false fox-sedge (S18), grey club-rush (S20), sea club-rush (S21) and hard rush (not in NVC).

Reedbed

Reedbed is a separate UKBAP habitat but has already been mentioned above as it is a type of species-poor swamp. Large stands of reeds can provide valuable habitat for specialist birds such as bittern, bearded tit, reed warbler and sedge warbler. Smaller stands are not used by these birds and are usually of less conservation interest compared to the types of vegetation they often replace when the reeds spread. If *Phragmites* cover is greater than 60%, then the habitat is both *Phragmites australis* reedbed and fen.

Tall herb fen

This type of fen includes various mixtures of tall wetland herbs such as meadowsweet, great willowherb, wild angelica, hemp agrimony, marsh cinquefoil and many more. These herbs are sometimes mixed with grasses, sedges or rushes. Many examples of this type of habitat in lowland Durham are now unmanaged, rank and species-poor. These include the NVC types OV26, S28 and the more species-poor examples of M27. The most species-rich types of tall herb fen in lowland Durham include S27 and the more species-rich examples of M27.

Small sedge poor fen

This vegetation is usually much shorter than tall herb fen and consists of open mixtures of small sedges such as common sedge, glaucous sedge and sometimes star sedge with grasses, rushes and wetland herbs suited to acidic conditions. There is usually a high cover of bryophytes. Some examples in lowland Durham are similar to forms of M6 but there is usually no *Sphagnum* present.

Small sedge rich fen

Most of the more species-rich examples of fen vegetation in lowland Durham are of this type. It is similar to small sedge poor fen but is usually more species-rich and includes species that prefer calcareous conditions including yellow, carnation and tawny sedges. There is usually a wide mixture of sedges, herbs and bryophytes with no one species dominating. It sometimes includes uncommon or very specialist calcareous flush species like common butterwort, grass of Parnasus and round-leaved wintergreen. This vegetation mostly conforms to M10 (sub-community b). It is a rare habitat in lowland Durham and is always of high conservation interest. It is confined to flushes and pond margins where the water is influenced by the magnesian limestone.

Mixed rush and bryophyte fen

This type of vegetation is not uncommon in lowland Durham and does not conform to any of the NVC types. It is a species-rich type of vegetation that usually has a continuous carpet of bryophytes with a relatively open canopy comprised of a mixture of rushes and wetland herbs. It is usually found on fen peat near the margins of water bodies. Other types of vegetation also fit in here but further analysis of recent survey data is needed to define this type of fen more precisely and work out its relationship to the other fen types.

Other marginal vegetation

Other species-poor or moderately species-rich types of marginal vegetation include the more closed examples of OV32 – mixtures of marginal herbs including water forget-me-not and celery-leaved buttercup, S23 – similar mixtures of marginal herbs such as fool's water-cress, water cress, water forget-me-not and brooklime and S22 – a species-poor type of vegetation dominated by floating sweet-grass.

Note on the topographical situations where fens occur in lowland Durham:

The topographical situation largely determines the hydrology of the habitat which influences the type of fen vegetation that can develop. Other fen classifications use topographical terms so some of these are explained below. More information on the types of topographical situations that each of the fen types described below occur in lowland Durham is/will be available on the DBAP website.

Springs and flushes – areas where water comes to the surface and seeps over the ground.

Valley fen – wetland adjacent to a stream or river and sometimes on the wettest parts of the valley sides.

Flood plain fen – flat river valleys that flood regularly.
Basin fen – wet depressions without water flowing through and out.
Open water transition fen – wetland that develops on the margins of water bodies.

Ponds

For the purposes of the Durham BAP a pond is defined as any permanent or seasonal water body up to 2ha in surface area, which holds water either seasonally or permanently. Newly created ponds are counted as Durham BAP ponds, but will be subject to a condition assessment.

Some of these Durham BAP ponds which support rare or threatened species or contain a high diversity of wildlife can also be classed as having higher wildlife value, if they fit in with one or more of the following criteria;

- Provide habitats of international importance: Ponds that meet criteria under Annex I of the Habitats Directive.
- Support species of high conservation importance (Red Data Book species, UK BAP species, Durham BAP priority species, species fully protected under the Wildlife and Countryside Act Schedule 5 and 8, Habitats Directive Annex II species, Regionally Rare and Scarce wetland plant species and Nationally Scarce aquatic invertebrate species.
- Ponds of high ecological quality: Ponds classified in the fair or above PSYM category for ecological quality (i.e. having a PSYM score 51% or above).

The limit of a pond is defined as the winter high water mark.

Rivers & Streams

Rivers and streams are naturally dynamic habitats with a constant or seasonal flow of water. In their unmodified state rivers are dynamic features, which interact with their floodplains enabling a range of wetland habitats to develop such as grazing marsh, wet woodland and fen habitats including reedbed. This habitat definition covers any flowing water, including rivers, streams, ditches and their associated riparian habitat. Both shingle beds and eroding river banks support a range of specialised invertebrates, including very rare beetles. Small streams and ditches are important, particularly as corridors for mobile species such as the otter and kingfisher. Rivers and their banks are both important.
Note: Further work by specialists is required to develop guidelines for the identification of river reaches which will be priorities for UK BAP

Floodplain grazing marsh

Floodplain grazing marsh is an area of lowland grassland within a floodplain, which is seasonally inundated with water. The grassland may or may not be species rich. Species-poor versions are, none-the-less, important as habitat for wading birds. Species rich versions of this type of grassland should be additionally recorded under lowland meadows and pasture (see definition)

Exposed Riverine Sediments

Exposed riverine sediments (ERS) are mineral deposits (normally sand, gravel, pebble with cobble in this context) in river channels that are exposed during low flows, particularly in the spring and summer. The scouring action of winter floods plays a vital role in producing suitable habitat (namely exposed insolated substrate), by removing vegetation and also finely divided organic matter that would promote the growth of lush material.

Upland Habitats

Blanket Bog and Upland Wet Heath

Blanket Bog and Upland Wet Heath share many floristic characteristics which make them difficult to differentiate, but which separate them both from Upland Dry Heath. In broad terms all three habitats contain dwarf shrubs such as heather and cross-leaved heath, but Sphagnum mosses are sparse or absent on dry heath.

A standard definition differentiates these two habitats on the basis of the depth of peat (blanket bog on more than 50cm of peat, and wet heath on less than 50cm of peat), however this is often difficult to ascertain in the field, and we treat the two habitats as one broad habitat for the purposes of this plan.

Identification & Mapping

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The definition of this habitat is upland wetland vegetation characterised by Sphagnum mosses, cotton grasses and dwarf shrubs (especially heather and cross-leaved heath).
*This definition aligns with the definitions M06 and M04 (wet component) by Defra.**

*The definition also encompasses NVC communities as follows: Bog pools M2, M3, Blanket Bog M17, M18, M19, M20, M25, wet heath M16, H21a. (Rodwell 1991)***

Condition Assessment

Not yet agreed.

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

**Rodwell, JS (ed.) (1991) *British plant communities. Volume 2. Mires and heaths*. Cambridge University Press, Cambridge

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Calaminarian Grassland

A particular community type matching the NVC community OV37 (Rodwell)*, typically found within the North Pennines Natural Area but also found on river shingles derived from spoil from leadmining.

Identification & Mapping

Generally short open vegetation of fine-leaved grasses, flowers, mosses and lichens on spoil and gravel from mineral extraction or river gravels, principally associated with lead, or associated with metal-rich ultrabasic exposures. A very rare habitat type, found in the North Pennines, Yorkshire Dales, Derbyshire, the Mendips, Tyne Valley, Tees Valley and areas downstream.

Typical grasses include: common bent, red fescue, sheep's fescue, sweet vernal-grass.

● If it meets the description above and contains one or more of the following wild flower indicator species in the sward then the grassland meets the definition.

Alpine penny-cress	Pyrenean scurvygrass	Spring sandwort
Mountain pansy	Sea campion	Thrift

Condition Assessment

1. Cover of bare ground, including cobbles, gravel and encrusting lichens must be between 20% and 90%.

2. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, cow parsley, hogweed, coarse grasses) less than 10%.

3. Cover of trees and scrub less than 5%.
Adapted from Defra's G10 calaminarian grassland definition*.

DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

** Rodwell J (ed.) 1998. British *Plant Communities, Volume 3 Grasslands and montane communities*. Cambridge University Press.

Species-rich Upland Acid Grassland

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Most upland acid grassland is relatively species-poor but occasionally very species-rich examples are found which are closely related to the NVC community U4c (Rodwell 1998)*. This is a poorly understood type of grassland. The description in British Plant Communities is based only on a small number of samples from the Peak District. In 2006 and 2007 similar vegetation was found several times in the North Pennines, in mostly small patches on unmown banks within upland hay meadows, but it may also occur in other situations in the uplands.

This type of grassland may be very important for the following rare or uncommon plants:

adder's-tongue	eyebright (*Euphrasia rostkoviana*)	shady horsetail
alpine bistort	fragrant orchid (subspecies *borealis & conopsea*)	small white-orchid
bird's-eye primrose	greater butterfly-orchid	twayblade

Identification & Mapping

Typical grasses and rushes include: common bent, red fescue, crested dog's-tail, sweet vernal-grass, and field wood-rush.

The typical acid grassland herbs tormentil and heath bedstraw are normally present. Sometimes other species normally associated with acid grassland are also present including heath rush, purple moor-grass, sheep's fescue, heather, bracken, wavy hair-grass, mat grass, hard fern and bilberry.

This vegetation is highly species rich, normally with more than 20 species per square metre.

To meet the definition at least three of the following indicator species should be present and usually at least one of these is frequent:

betony	devil's-bit scabious	zig-zag clover
bitter-vetch	heath grass	

In addition the vegetation will usually contain at least five of the following:

bluebell	eyebright (*Euphrasia arctica*)	pignut
bugle	germander speedwell	primrose
bush vetch	harebell	quaking-grass
cat's-ear	heath spotted-orchid	ribwort plantain
common bird's-foot-trefoil	lady's bedstraw	rough hawkbit
common dog-violet	meadow oat-grass	selfheal
common milkwort	meadow vetchling	wood anemone
common spotted-orchid	mountain pansy	wood horsetail
downy oat-grass	northern marsh-orchid	yarrow

Condition Assessment

1. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 30%.
2. At least 20 species present per square metre.
3. Cover of litter/thatch less than 30%.

4. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.
5. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, false oat-grass, tufted hair-grass, bracken) less than 10%.

Averis A, Averis B, Birks J, Horsfield D, Thompson D & Yeo M. (2004). *An illustrated guide to British upland vegetation.* Joint Nature Conservation Committee.

*Rodwell J (ed.) 1998. British *Plant Communities, Volume 3 Grasslands and montane communities*. Cambridge University Press, Cambridge.

Upland Screes & Rock Habitat

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Upland Screes and Rock habitats are part of the Annex 1 habitat Inland Rock, and includes Acid Screes, Calcareous Screes, Calcareous Rocky Slopes with Chasmophytic vegetation, Acid Rocky Slopes with Chasmophytic vegetation, Upland tall herbs, and also recently exposed rock (e.g. worked quarries with potential for recolonisation).

Identification & Mapping

This habitat is broadly defined as vegetated areas of rocky substrates or exposed rock with potential for vegetation, within moorland grazing units of upland areas. This includes vegetation growing out of crevices, cracks and ledges on exposed rocks, including cliffs, scree, rubble and rocky slopes.

Condition Assessment

1. Cover of bracken, scrub and trees less than 25%.
2. Cover of weeds (e.g. creeping and spear thistles, docks, brambles, common ragwort, common nettle) or non-native species less than 1%.
3. Less than 50% of live leaves (broad-leaved plants), fronds (ferns) or shoots (dwarf shrubs) showing signs of grazing or browsing.
4. Cover of disturbed bare ground less than 10%.

Adapted from Defra's M07 upland cliffs & screes definition*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

Upland Calcareous Grassland

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The best upland calcareous grassland matches CG9 or CG10 (Rodwell 1998)**.

Identification & Mapping

Species-rich, semi-natural grassland generally dominated by fine-leaved grasses, on calcareous soils over carboniferous limestone in upland areas. Managed primarily by grazing. Often occurs in parts of large scale enclosures with other less species-rich grassland types.

Typical grasses include: common bent, crested hair-grass, meadow oat-grass, red fescue, sheep's fescue, sweet vernal-grass, quaking-grass.

● If at least two of the following wildflower indicator species are frequent and another two at least occasional in the sward then the grassland meets this definition.

● If three indicator species are occasional or four are present (but not limited to field corners or edges) then the grassland meets this definition but must be recorded as being in poor condition

Alpine bistort
Bird's-eye primrose
Carline thistle
Common bird's-foot-trefoil
Common butterwort
Common rock-rose
Dropwort
Devil's-bit scabious
Eyebrights
Fairy flax
Gentians
Grass-of-parnassus
Harebell
Hoary rock-rose
Hoary whitlowgrass
Horseshoe vetch
Lesser clubmoss
Mossy saxifrage
Mountain everlasting
Mouse-ear hawkweed
Rough hawkbit
Salad burnet
Small scabious
Squinancywort
Wild thyme
Yellow saxifrage
Small sedges

Condition Assessment

1. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.
2. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort,

common nettle, false oat-grass) less than 10%.
3. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 20%.
4. Cover of herbs indicative of nutrient enrichment (daisy, creeping buttercup) less than 25%.

Adapted from Defra's G08 upland calcareous grassland definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

**Rodwell J (ed.) 1998. British *Plant Communities, Volume 3 Grasslands and montane communities*. Cambridge University Press, Cambridge.

Upland Dry Heath

Identification & Mapping

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

Heath vegetation with at least 25% cover of dwarf shrubs (heathers, bilberry, crowberry and western gorse).

Heath characterised by frequent cross-leaved heath and wetland species such as bog-mosses (Sphagnum) and/or purple moor-grass, heath rush and deergrass should be recorded as upland wet heath / blanket bog.

Heathland mosaics with more than 75% acid grassland or other habitats do not meet the definition and should be mapped as alternate habitats (e.g. acid grassland) or divided into appropriate parcels for mapping separately.

Condition Assessment

1. Cover of dwarf shrubs must be at least 75%, with at least two dwarf shrub species frequent.

2. At least 10% of the area of dwarf-shrub heath remains unburnt throughout the burning rotation.

3. There must be a range of age classes of heather present, with cover of young (pioneer stage) heather between 25% and 50% and cover of old (mature/degenerate stages) between 10% and 30%.

4. No more than 33% of heather shoots grazed (when assessed between February and April), or flowering heather plants are at least frequent in autumn.
Adapted from Defra's M04 upland heath definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

Upland Hay meadows

The definition of upland for the Durham BAP is all land within the North Pennines Natural Area.

The best upland hay meadows match the MG3 community (Rodwell) with some gradation into MG5 in more low lying areas.

As well as the main MG3 community, upland hay meadows often contain other areas of species rich grassland within the field boundary. In the wetter meadows the main community is more like a species-rich, upland version of MG8 than MG3. The meadows often contain smaller areas of other types of species-rich grassland on steep uncut banks, among rock outcrops or lead mining waste or on different soil types.

Identification & Mapping

The following definition is an amalgam of the structure of DEFRA's G09 definition for upland haymeadow (which includes damper MG8-type communities) and the positive indicator list from EN's non-statutory site condition assessments for MG3.

Upland Haymeadows conform to the following:

- Species-rich neutral grassland on moist, free-draining soils in the North Pennines Natural Area.
- At least three indicators occasional or four indicators present (but not limited to field corners or edges) from the following list:

Lady's mantles
Wood anenome
Common Knapweed
Melancholy thistle
Pignut
Eyebrights
Meadowsweet
Wood cranesbill
Water avens
Meadow vetchling

Hawkbits
Bird's foot trefoil
Common bistort
Yellow rattle
Great burnet
Devil's bit scabious
Globe flower

Follow the non-statutory site condition assessment for MG3.
Both this condition assessment and the G09 condition statement* set the bar relatively low for good condition, and so an additional higher tier of condition may be added at a later date.

Enhancement of DBAP habitat in poor condition to met the above condition assessment contributes to the 'increase extent of habitat in good condition' target

Restoration of non-BAP habitat to habitat meeting the above definition (even in poor condition), would contribute to an 'increase extent of habitat' target.

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

Lowland Habitats

Early Successional Brownfield Land (syn: Open Mosaic Habitats on Post Industrial Land)

The habitat comprises mosaics of bare ground with, typically, very early pioneer communities on skeletal substrates, more established open grasslands, usually dominated by fineleaved grasses with many herbs, areas of bare ground, scrub and patches of other habitats such as heathland, swamp, ephemeral pools and inundation grasslands. High quality examples may be characterised as unmanaged flower-rich grasslands with sparsely vegetated areas developed on poor soils/substrates.

Invertebrate faunas can be species-rich and may include many uncommon species, such as dingy skipper and grayling. Exotic plants provide for an extended flowering season and, with the floristic and structural diversity of the habitat mosaic, contribute to the value of the habitat for invertebrates.

Some areas are important for birds such as little ringed plover, as well as more widespread, but UK BAP priority species, including skylark and grey partridge. The habitat provides secure breeding and feeding areas commonly absent from land under agricultural management.

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Identification & Mapping

Brownfield land has some mosaics of open ground, less than 30% shrub or tree cover, and may contain one or more of the plants (or species groups) from the following list.

Blue fleabane (*Erigeron acer*)

Common bird's foot trefoil (*Lotus corniculatus*)

Common Centaury (*Centaurium erythraea*)

Early hair grass (*Aira praecox*)

Fairy Flax (*Linum catharticum*)

Hawkweeds (*Hieracium* sp.)

Mignonette (*Reseda lutea*)

Mouse-ear hawkweeds (*Pilosella* sp.)

Mullein (*Verbascum thapsus*)

Orchids

Rat's tail fescue (*Vulpia myuros*)

Silver hair grass (*Aira caryophyllea*)

Squirrel tail fescue (*Vulpia bromoides*)

Toadflaxes,purple & common (*Linum purpurea and Linum vulgaris*)

Yellow-wort (*Blackstonia perfoliata*)

Cup lichens and Dog lichens (*Cladonia & Peltigera* sp.)

Kidney Vetch (*Anthyllis vulneraria*)

The main criteria for brownfield land of high nature conservation value are one or more of the following;

- Habitats typical of the soil/substrate conditions concerned which demonstrate the characteristic mosaic of bare ground, pioneer communities, flower-rich grassland and other habitat patches with associated structural and topographical features.
- Areas that have retained bare ground and pioneer communities over an extended period, demonstrating arrested succession.
- Areas that support either the last remaining examples where the habitat was formerly widespread/extensive, or rare/specialised types of this habitat for example where the nature of the substrate is particularly unusual.
- Presence of UK BAP priority species, Durham BAP priority species or Red Data Book/List species.
- Importance for a significant assemblage of key species groups.

When mapping the habitat, areas of scrub, wet flush or more lush vegetation should be included as part of the habitat's structural diversity, unless these elements take the habitat outside of the definition. In places brownfield sites have been landscaped/planted with trees, but still retain areas of brownfield habitat. Estimates of tree cover should apply to each individual habitat area rather than the entire land parcel.

Notes

Later successional stages on brownfield land may become important as semi-natural habitats such as lowland heath and neutral or calcareous grassland in their own right, and conform to those definitions. We are not concerned with these stages within this definition.

Sites with communities intermediate between brownfield land and later successional stages such as heath or grassland may in fact be excluded from either definition. It is our intention that these communities should also be classified as DBAP habitats and further work will be done to establish a working definition for these communities. Indicators for these communities may include heathers, heath grass (*Danthonia decumbens*) and field woodrush (*Luzula campestris*).

Condition Assessment

There is currently no condition assessment designed for this habitat.

Maritime Grassland

Identification & Mapping

The definition of maritime is all land within 500m of the coast (mean high water mark)

Maritime grassland is defined as any grassland meeting the definition for lowland meadows and pasture, or magnesian limestone grassland which lies within the maritime zone.

Condition Assessment

Follow the condition assessment for lowland meadow and pasture *or* magnesian limestone grassland *as appropriate.*

Coastal Soft Cliffs and Slopes

Identification & Mapping

To be defined following a habitat audit.

Condition Assessment

To be defined following a habitat audit.

Strandline

Strandline is an easily identifiable line of seaweed and other debris which is left stranded along the high water mark on beaches.

Identification & Mapping

For the purpose of monitoring to be measured as a linear feature on all beaches.

Condition Assessment

No condition assessment defined

Lowland Acid Grassland
Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.
Semi-natural grassland generally dominated by fine-leaved grasses on nutrient-poor, free-draining soils in the lowlands. Mosses and/or lichens are sometimes frequent. Managed primarily by grazing. Some sites may be species-poor (dominated, for example, by wavy hair-grass). However lowland acid grassland is a scarce resource and any site is likely to be considered of high value.

Typical grasses include: common bent, early hair-grass, heath-grass, sheep's fescue, sweet vernal-grass, wavy hair-grass.

● If at least one of the following wild flower indicator species are frequent and another three at least occasional in the sward then the grassland meets the definition for this habitat.

● If three indicator species are occasional, or four are present at lower frequency (but not limited to field corners or edges) then the habitat meets this definition but must be recorded as being in poor condition

Autumn Hawkbit
Betony
Bitter-vetch
Common Catsear
Devil''s-bit scabious
Harebell
Hawkweeds
Heath bedstraw
Heath milkwort
Heath Speedwell
Heath spotted orchid
Lousewort
Mouse-eared Hawkweed
Sheep's sorrel
Tormentil
Wood sage
Cup lichens and Dog lichens (Cladonia & Peltigera sp

Where lowland acid grassland occurs as part of a lowland heath mosaic it should additionally be recorded as lowland heath, unless the cover of heather is insufficient for it to meet this definition.

Condition Assessment

1. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, rosebay willowherb, marsh thistle, musk thistle, greater plantain) less than 5%.

2. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.

3. Cover of scrub and bramble less than 5%.

4. Cover of coarse grass species, such as yorkshire-fog and cock's-foot, must be less than 20%.
Adapted from Defra's G05 lowland dry acid grassland definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

Lowland Heath

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.
Dry heath, wet heath and valley mire communities in the lowlands on acidic soils and shallow peat, typically comprising heathers, gorses, fine grasses, wild flowers and lichens in a complex mosaic, usually with at least 25% cover of heathers and other dwarf shrubs.

Condition Assessment

1. Cover of dwarf shrubs must be between 25% and 95%, with at least two species frequent.

2. There must be a range of age classes of heather present, with cover of young (pioneer stage) heather between 10% and 15% and cover of old (mature/degenerate stages) between 10% and 30%.

3. Cover of undesirable species (bracken, injurious weeds, invasive non-native plants) must be less than 10%.

4. Cover of trees/scrub must be less than 15%.

Adapted from Defra's M03 lowland heath definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

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Lowland Meadows & Pasture

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Species-rich, semi-natural grassland (meadows or pastures) on free-draining, neutral soils in the lowlands and upland fringes, including species-rich flood plain grassland. Managed by cutting and/or grazing.

Typical grasses include: cock's-foot, common bent, crested dog's-tail, red fescue, meadow fescue, sweet vernal-grass, yellow oat-grass, yorkshire-fog.

● If at least two of the following wildflower indicator species are frequent and another two at least occasional in the sward then the grassland meets the definition for this habitat.

● If three indicator species are occasional or four are present at lower frequencies (but not limited to field edges or corners) then the grassland meets the definition but it must be recorded as being in poor condition.

Adder's Tongue Fern
Agrimony
Autumn hawkbit
Betony
Bitter vetch
Common knapweed
Bugle
Common bird's-foot-trefoil
Cowslip
Devil's-bit scabious
Dyer's greenweed
Eyebrights
Field Scabious
Field Woodrush
Goat's-beard
Great burnet
Greater bird's-foot trefoil
Lady's-mantles
Marsh/Fen bedstraw
Marsh-marigold
Meadow Cranesbill
Meadow vetchling
Meadowsweet
Rough hawkbit
Orchids
Oxeye daisy
Pepper-saxifrage
Pignut
Ragged-robin
Sneezewort
Tormentil
Tufted Vetch
Water avens
Water mint
Yellow rattle
Zig Zag Clover
Small blue-green sedges

Species rich grasslands which conform to this definition and are seasonally inundated by floodwater should be recorded as lowland meadows and pastures, and also as Floodplain Grazing Marsh.

Condition Assessment

1. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle, marsh ragwort, cow parsley, bracken) less than 5%.

2. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 20%.

3. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.

4. Cover of invasive trees and shrubs must be less than 5%.
Adapted from Defra's G06 lowland meadows definition.*

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

Magnesian Limestone Grassland

Identification & Mapping

The definition of lowland for the Durham BAP is all land outside the North Pennines Natural Area.

Species-rich, semi-natural grassland on magnesian limestone in the lowlands. Managed primarily by grazing.

Typical grasses include: blue moor-grass, cock's-foot, common bent, downy oat-grass, meadow oat-grass, quaking-grass, sheep's fescue, upright brome, yellow oat-grass.

● If at least two of the following wild flower indicator species are at least frequent and another three at least occasional in the sward then the grassland meets the definition.
● If only three indicator species are occasional in the sward or four species are present at a lower frequency (but not limited to field edges or corners) then the habitat meets this definition but must be recorded as being in poor condition.

Betony
Bloody cranesbill
Burnet saxifrage
Carline thistle
Common bird's-foot-trefoil
Common rock-rose
Cowslip
Dropwort
Devil's-bit scabious
Eyebright
Fairy flax
Gentians
Greater knapweed
Hairy violet
Harebell
Hoary plantain
Kidney vetch
Lady's bedstraw
Milkworts
Mouse-ear hawkweed
Orchids
Oxeye daisy
Purple milk-vetch
Restharrow
Rough/Lesser hawkbit
Salad burnet
Saw-wort
Small scabious
Spiny restharrow
Thyme-leaved sandwort
Wild basil
Wild marjoram
Wild thyme
Yellow-wort

Condition Assessment

1. Cover of undesirable species (creeping thistle, spear thistle, curled dock, broad-leaved dock, common ragwort, common nettle) less than 5%.

2. Cover of wild flowers and sedges throughout the sward (excluding undesirable species) more than 30%.

3. Cover of bare ground (including localised areas e.g. rabbit warrens) less than 10%.

4. Cover of invasive trees and shrubs must be less than 5%.

Adapted from Defra's G04 lowland calcareous grassland definition.*

*DEFRA (2005) *Higher Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

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CG8 Grassland

The particular community - Blue Moor grass / Small Scabious (*Sesleria albicans / Scabiosa columbaria*) grassland - is a NVC community of lowland calcareous grassland which occurs uniquely within Europe in the Durham Magnesian Limestone Natural Area. This community is included in the definition for Magnesian Limestone Grassland, but because of its rarity is defined separately as an additional monitoring target.

Identification & Mapping

The community should conform to the description of CG8 (Rodwell 1992*). For rapid identification of this habitat and mapping the presence of Blue Moor grass (Sesleria albicans) is taken as the defining feature of CG8 in the Durham area.

Condition Assessment

Condition Assessment should follow the non-statutory condition assessment for CG8 grassland.

*Rodwell J S (1992) *British Plant communities Volume 3 Grasslands and Montane Communities*. Cambridge University Press. Pages 211-217.

Road Verges of Conservation Importance

Road verges contain a variety of habitats, but in the Durham context their main value lies in the species rich grassland communities that have managed to survive in parts. These botanically species rich verges also have value for invertebrates.

Identification & Mapping

To meet the definition a road verge of conservation importance must

1: contain at least 5 species from the following list within at least one 20m linear section.

Agrimony
Betony
Bitter vetch
Bloody cranesbill
Bugle
Burnett saxifrage
Carline thistle
Common bird's-foot trefoil
Common bistort
Common Centaury
Common meadow-rue
Common rock-rose
Cowslip
Devil's-bit scabious
Dyer's greenweed
Eyebright
Goat's-beard
Fairy flax
Great burnet
Gentians
Greater Knapweed
Hairy violet
Harebell
Hawkbits
Hoary plantain
Horeshoe vetch
Kidney vetch
Lady's bedstraw
Lady's mantles
Marsh/Fen bedstraw
Milkworts

Mouse-ear hawkweed
Orchids
Pepper saxifrage
Purple milk vetch
Quaking Grass
Ragged robin
Salad burnet
Saw-wort
Small Scabious
Sneezewort
Sweet cicely
Thyme-leaved sandwort
Tormentil
Water avens
Water mint
Wild marjoram
Wild thyme
Wood anenome
Yellow rattle
Yellow-wort
Small blue-green sedges
Ancient woodland indicator

(Derived from lists for lowland calcareous grassland and lowland meadow in DEFRA's HLS-FEP handbook* with some adjustment for Durham.)

or

2: contain any of the red-listed lady's mantles* ***Alchemilla acutiloba, A. glomerulans, A. monticola, A. subcrenata, A.wichurae****, or Northern Hawks-beard - **Crepis mollis.***

or

3: be a recorded breeding site for any Durham BAP invertebrate species.

For the purposes of mapping a road verge parcel needs to be contained within a reasonable management unit (e.g between field entrances or road junctions).

Condition Assessment

There is currently no condition assessment defined for this habitat, although species lists from fixed quadrats on a sample of road verge parcels are recorded regularly to monitor species loss / gain.

*DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

*JNCC (2007). *Conservation Designations for UK Taxa – downloadable spreadsheet*. jncc.gov.uk

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Waxcap Grasslands

Identification & Mapping

To qualify as the priority habitat a grassland compartment needs to contain five or more species of Hygrocybe, or to contain one of the UKBAP species for waxcap grasslands listed below:

Hygrocybe calyptriformis

Hygrocybe spadicea

Microglossum olivaceum

Condition Assessment

There is currently no condition assessment for this habitat.

References

DEFRA (2005) Higher *Level Stewardship: Farm Environment Plan – Guidance handbook*. www.defra.gov.uk

DEFRA (2007) Hedgerow Survey Handbook – A standard procedure for local surveys in the UK. Prepared on behalf of the Steering Group for the UK. *DEFRA, London*.

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Annex E: Pond species to be used when applying definition of 'Pond'

ANNEX E: Pond species to be used when applying the definition of 'Pond' W07, DEFRA HLS-FEP handbook 2005

- Ponds supporting significant numbers of key species. i.e. supporting at least 15 wetland plant species from the list below.

Achillea ptarmica	Sneezewort
Alisma plantago-aquatica	Water plantain
Alopecurus geniculatus	Marsh foxtail
Angelica sylvestris	Wild angelica
Apium nodiflorum	Fool's water-cress
Berula erecta	Lesser water-parsnip
Callitriche hamulata	Intermediate water-starwort
Callitriche platycarpa	Various-leaved water-starwort
Callitriche stagnalis	Common water-starwort
Caltha palustris	Marsh marigold
Carex acutiformis	Lesser pond-sedge
Carex hirta	Hairy sedge
Carex otrubae	False fox-sedge
Carex riparia	Greater pond-sedge
Carex rostrata	Bottle sedge
Carex vesicaria	Bladder sedge
Cirsium palustre	Marsh thistle
Crepis paludosa	Marsh hawk's-beard
Eleocharis palustris	Common spike-rush
Elodea Canadensis	Canadian pondweed
Epilobium hirsutum	Greater hairy willowherb
Epilobium parviflorum	Hoary willowherb
Equisetum fluviatile	Water horsetail
Equisetum palustre	Marsh horsetail
Eupatorium cannabinum	Hemp-agrimony
Filaginella uliginosa	Marsh cudweed

Filipendula ulmaria	Meadowsweet
Galium palustre	Common marsh-bedstraw
Galium uliginosum	Fen bedstraw
Glyceria fluitans	Floating sweet-grass
Glyceria maxima	Reed sweet-grass
Glyceria plicata	Plicate sweet-grass
Hippuris vulgaris	Mare's-tail
Hydrocotyle vulgaris	Marsh pennywort
Iris pseudacorus	Yellow flag
Juncos bufonius	Toad rush
Juncos bulbosus	Bulbous rush
Juncus inflexus	Hard rush
Lemna minor	Common duckweed
Lemna trisulca	Ivy-leaved duckweed
Lychnis flos-cuculi	Ragged robin
Lycopus europaeus	Gipsywort
Lysimachia vulgaris	Yellow loosestrife
Lythrum salicaria	Purple loosestrife
Mentha aquatica	Water mint
Menyanthes trifolia ta	Bogbean
Myosotis laxa	Tufted forget-me-not
Myosotis scorpioides	Water forget-me-not
Myriophyllum spicatum	Spiked water-milfoil
Nasturtium spp	Water-cresses
Nuphar alba	Yellow water-lily
Nymphaea alba	White water-lily
Oenanthe crocata	Hemlock water-dropwort
Oenanthe fistulosa	Tubular water-dropwort
Phalaris arundinacea	Reed canary-grass
Phragmites australis	Common reed
Polygonum amphibium	Amphibious bistort
Potamogeton spp	Pondweeds
Potentilla palustris	Marsh cinquefoil
Pulicaria dysenterica	Common fleabane

Ranculus spp	Water crowfoots
Ranunculus flammula	Lesser spearwort
Ranunculus lingua	Greater spearwort
Ranunculus sceleratus	Celery-leaved buttercup
Rumex hydrolapathum	Water dock
Schoenoplectus lacustris	Common club-rush
Scrirpus lacustris	Common club-rush
Scrophularia auriculata	Water figwort
Scuttelaria galericulata	Skullcap
Senecio aquaticus	Marsh ragwort
Sparganium emersum	Unbranched bur-reed
Sparganium erectum	Branched bur-reed
Stachys palustris	Marsh woundwort
Stellaria uliginosa	Bog stitchwort
Triglochin palustris	Marsh arrowgrass
Typha latifolia	Great reedmace
Valeriana officinalis	Common valerian
Veronica beccabunga	Brooklime
Veronica scutellata	Marsh speedwell
Zannichellia palustris	Horned pondweed

To find out more about the new Local Development Framework, contact:

Spatial Planning Team, Housing Strategy and Regulatory Services,
South Tyneside Council, Town Hall and Civic Offices,
Westoe Road, South Shields, Tyne and Wear, NE33 2RL

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If you know someone who would like this information in a different format contact the communicatons team on 0191 424 7385.

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