Charlton Quarry SNCI Survey

Spelthorne Borough Council

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The contents of this report were correct at the time of the site visit. The report is provided for the sole use of the named client and is confidential.

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1.1.2 The SNCI survey is required in order to:

- Gather evidence to help determine whether the site meets the Guidance for the Selection of SNCIs (Surrey Wildlife Trust, 2008)
- If the site still meets the criteria for selection, determine whether the boundary of the SNCI continues to be appropriate
- Identify opportunities for positive management to improve the condition of the SNCI.

1.1.3 The SNCI survey included a Phase 1 habitat survey to assess the habitats present within the survey area. During the survey an assessment of the boundaries of the site was undertaken.

1.1.4 The survey visit was undertaken on 26th July 2018.

1.1.5 The following 13 Phase I habitat types were recorded during the field survey:

- Broad-leaved Semi-natural Woodland
- Scattered Broad-leaved Trees
- Dense Scrub
- Tall Ruderal
- Semi-improved Neutral Grassland
- Improved Grassland
- Marshy Grassland (not mapped)
- Species-poor Hedgerow
- Dry Ditch
- Open Water
- Swamp
- Bare Earth
- Building

1.1.6 The site may still support the features for which it was originally selected. It now also supports an additional feature which meets the SNCI selection criteria.

1.1.7 The site *meets* the SNCI selection guidelines under the following criteria;

12) Open Mosaic on Previously Developed Land (OMPDL).

1.1.8 The site *may* meets the SNCI selection guidelines under the following criteria;

21) Birds c) *Supports a breeding bird assemblage or wintering waterbird assemblage of county importance.*

1.1.9 Under the general guidelines based on the Ratcliffe Criteria (Ratcliffe, 1977), the site is particularly important for;

- Its position in an ecological unit and connectivity to the surrounding landscape.

1.1.10 It is recommended further bird surveys are undertaken to ascertain whether or not the species outlined in the original SNCI 'reasons for selection' are still using the site.

1.1.11 Should the site retain its SNCI status boundary changes are recommended (see Figure 2).

1.1.12 Management recommendations to enhance the biodiversity value of the site are given in Section 4.

1.1.13 The information within this report will be provided to the Local Sites Partnership (LSP) who will make recommendations to Spelthorne Borough Council for any changes to the SNCI network as a result of this evaluation.

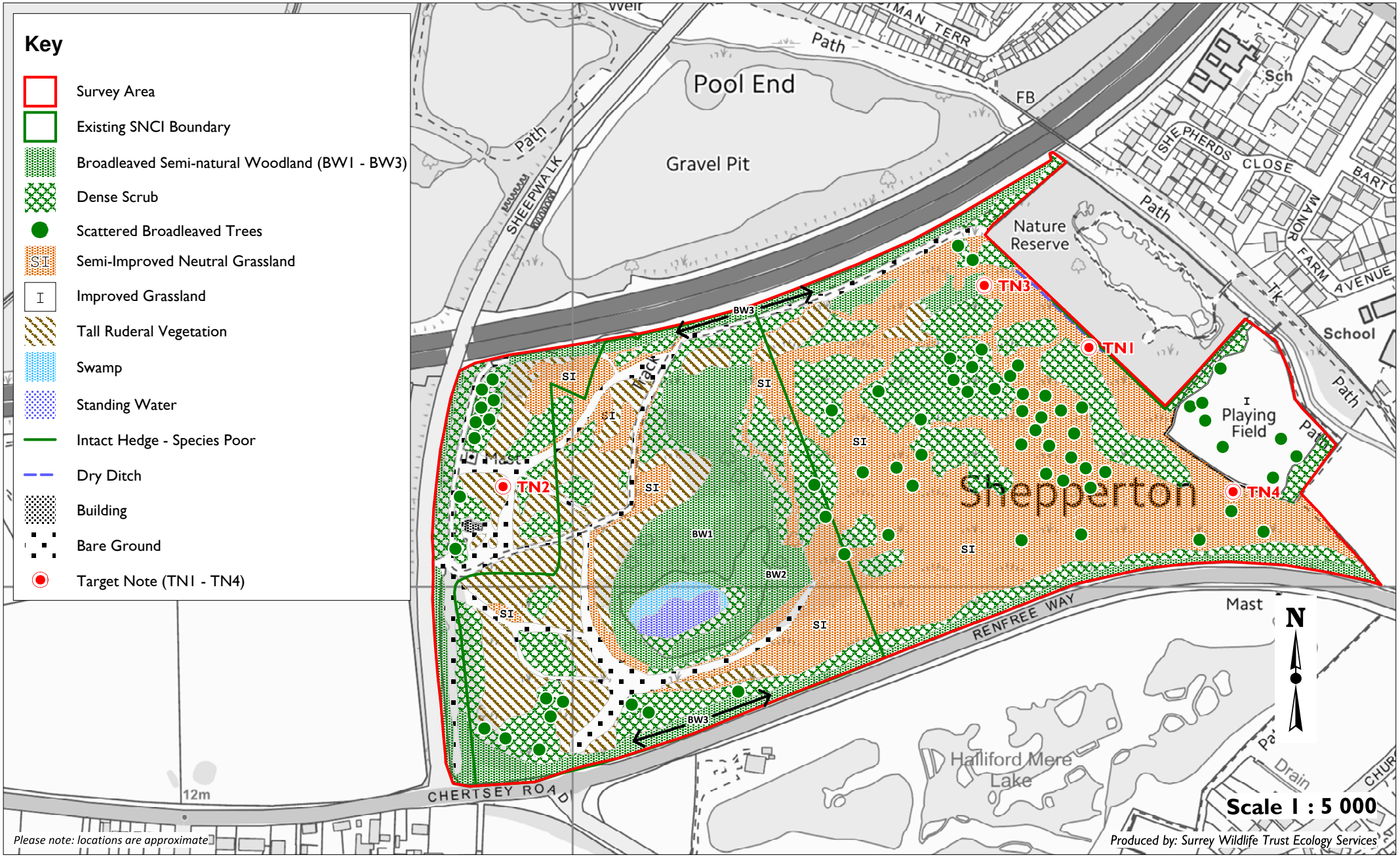

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Figure 1
Charlton Quarry
Phase 1 Habitat Survey

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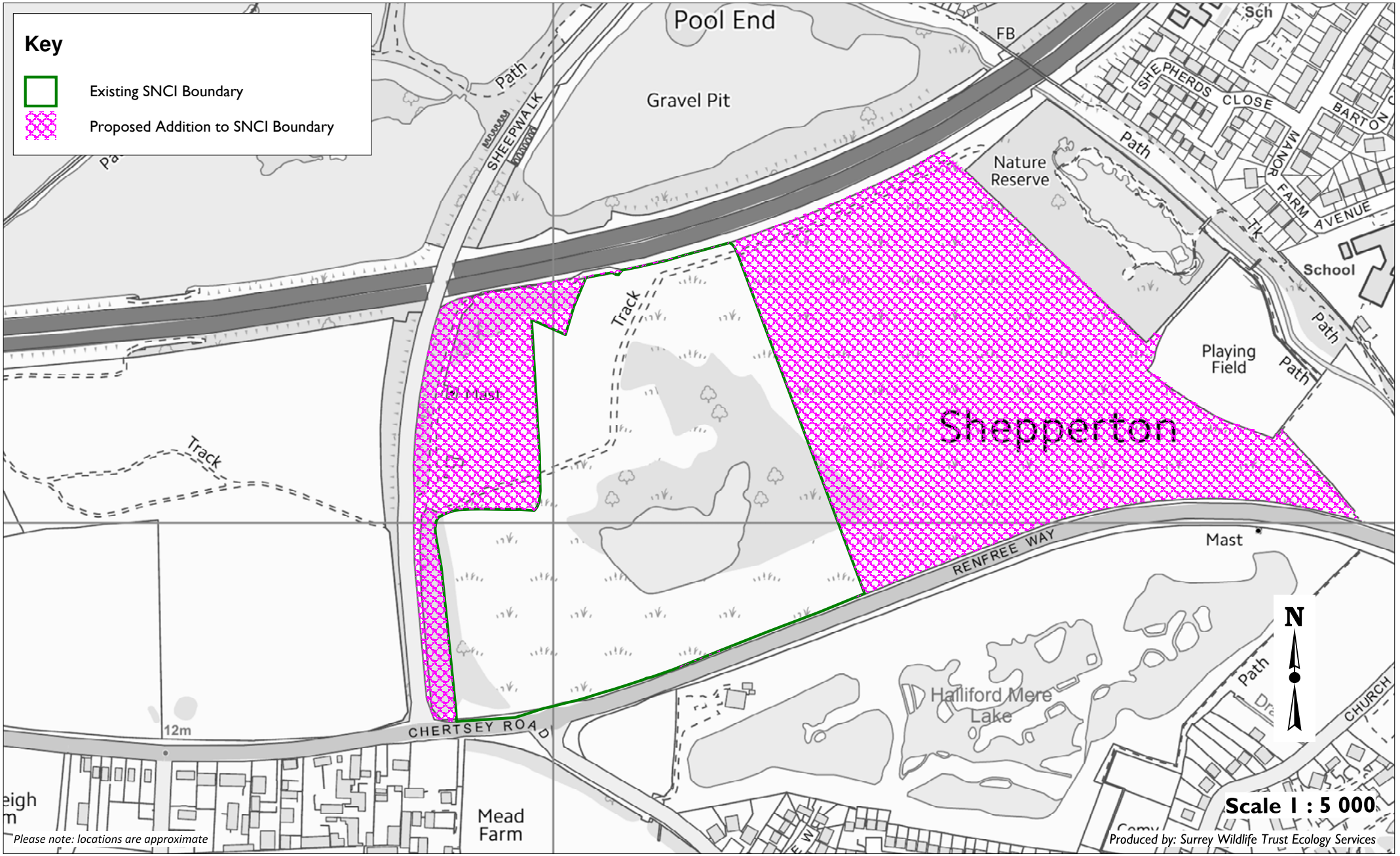

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Figure 2
Charlton Quarry
Boundary Change For Consideration
by Local Sites Partnership

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Figure 3: Site photographs

Photograph 1
Bare earth, semi-improved neutral grassland and BW1.

Photograph 2
BW2.

Photograph 3
Dense scrub, improved grassland and scattered trees.

Photograph 4
An example of dense scrub.

Photograph 5
Tall ruderal vegetation in the foreground.

Photograph 6
Marshy grassland.

Photograph 1
Marshy grassland and species-poor hedgerow behind.

Photograph 2
Lake and swamp vegetation visible in background.

Photograph 3
Partially collapsed building and bare earth.

Photograph 4
Improved grassland – disused playing field.

2 Introduction

2.1.1 Surrey Wildlife Trust (SWT) Ecology Services was commissioned on 14th May 2018 by Spelthorne Borough Council to undertake a SNCI survey of Charlton Quarry (also known as Land east of Sheep Walk, Shepperton) off Sheep Walk. This is one of four SNCI surveys which are being undertaken for Spelthorne Borough Council by SWT Ecology Services this year.

2.2 Scope of work

2.2.1 The aim of this report is to:

- Gather evidence to help determine whether the site meets the Guidance for the Selection of SNCIs (Surrey Wildlife Trust, 2008)
- If the site still meets the criteria for selection, determine whether the boundary of the SNCI continues to be appropriate
- Identify opportunities for positive management to improve the condition of the SNCI.

2.2.2 The information within this report will be provided to the Local Sites Partnership (LSP) who will make recommendations to Spelthorne Borough Council for any changes to the SNCI network as a result of this evaluation.

2.2.3 The information and data provided have been prepared in accordance with current best-practice guidance (CIEEM 2017a) and British Standard Institution (2013). Our ecologists are bound by CIEEM's code of conduct (CIEEM 2017b).

2.3 Survey area

2.3.1 The survey area, presented in Figure 1, comprises land within the SNCI boundary plus an additional 14ha of open land immediately adjacent and contiguous with the existing SNCI. The existing SNCI is 14.5 ha in size and is located at immediately south of the M3 at Shepperton. The site is bounded by Sheep Walk to the west, Renfree Way to the south, Funky Footprints Nature Reserve to the east and the M3 to the north. The surrounding area comprises several flooded gravel pits, the large Queen Mary Reservoir (1.5km north of the site) and the River Thames (0.5km to the south). The towns of Chertsey, Weybridge and Shepperton are also all within 2km of the site. The survey area is located in Spelthorne Borough Council.

2.4 Ownership

2.4.1 The site is owned by private landowner.

2.5 Methodology

Desk Study

2.5.1 The following information was reviewed prior to visiting the site:

- The reasons for selection of the SNCI
- Previous surveys on the site
- Defra MAGIC Maps
- Surrey ancient woodland inventory
- Biodiversity Opportunity Areas map

Phase 1 habitat survey

2.5.2 The Phase 1 habitat survey was undertaken within the survey area. Survey methods followed best-practice guidance (JNCC 2010). Phase 1 habitat survey is a standardised system for classifying and mapping habitats within the UK. The survey comprised a systematic search of the survey area, during which surveyors recorded habitat types and mapped their boundaries. Habitat types were defined as per the Phase 1 habitat survey criteria.

2.5.3 Within each habitat type a record of the vascular plant species was made and an assessment of their abundance recorded. Abundances of each vascular plant species within each habitat type are based on the DAFOR scale, presented below.

- D - Dominant
- A - Abundant
- F - Frequent
- O - Occasional
- R – Rare

2.5.4 Nomenclature of vascular plants followed Stace (2010). Common names are presented in the text, with scientific names detailed in Appendix 1.

2.5.5 A record was also made of any fauna that was incidentally recorded.

2.5.6 The presence of any non-native invasive species was noted, and their location and distribution mapped.

2.5.7 Notable observations were recorded during the survey as target notes.

2.5.8 The survey visit was undertaken on 26th July 2018 by Alex Learmont BSc (Hons) ACIEEM - Ecologist .

Evaluation of the site

2.5.9 The information collected during the information review and Phase 1 habitat survey was used to assess whether the site meets the Guidance for the Selection of SNCIs (Surrey Wildlife Trust, 2008) and whether the boundary of the SNCI continues to be appropriate.

2.5.10 Opportunities for positive management to improve the condition of the SNCI were identified.

2.6 Limitations

2.6.1 Phase 1 habitat surveys can be undertaken at any time of year, with the optimal season being between March and September, when most plant species are visible. Where feasible, all efforts were made to schedule the survey in optimal weather conditions and time of year. Nevertheless, field surveys usually fail to record all species present for various reasons, including the seasonal absence of some species, and short survey duration. Rare or cryptic species are often missed in short surveys.

2.6.2 The survey was undertaken in warm and sunny conditions.

2.6.3 Although the survey was undertaken within the optimal timeframe, it was preceded by an unusually long hot and dry period of weather which had impacted the flora and habitats present on site. This had caused many species to desiccate and ‘go over’ early, making identification of some species more challenging. Therefore it is likely a

full inventory of species present at the site was not taken. However, a satisfactory number of key indicator species were identified as to allow adequate habitat assessment.

2.6.4 Access to the lakes edge was not possible due to the dense nature of the scrub and woodland around its margins. It was viewed from the western bank and studied with binoculars. It is possible some emergent and aquatic plants may have been missed as a result.

2.6.5 Up to date bird records were not available at the time of the site visit, as they are one of the reasons for selection, it would be important to gather any recent records to complete the assessment.

2.6.6 The Defra guidance on Local Wildlife Sites (Defra, 2006) recommends that sites are reviewed regularly. It is recommended that habitats, such as woodland, should be monitored every 10 years while less stable habitats, such as grassland and heathland, should be monitored every five years.

3 Baseline Conditions

3.1 Desk study results

Previous reason for selection

3.1.1 The site was originally selected in 1996 for its wetland habitat which has a good diversity of birds including Grey Heron, Little Ringed Plover, Little Tern and Little Egret.

Previous surveys on the site

3.1.2 The following surveys have been undertaken on the site in the past;

- 1995, Duncan Smith and Peter Abbott

Statutory and non-statutory designated sites in the local area

3.1.3 No statutory sites are located within 1km of the site. However, the site is within the Site of Special Scientific Interest (SSSI) Impact Risk Zones of Dumsey Meadow SSSI. Chertsey Meads Local Nature Reserve (LNR) is also located 0.6km west of the site.

3.1.4 Four non-statutory designated sites, comprising Sites of Nature Conservation Importance (SNCI), were recorded within 1km of the survey area.

3.1.5 The distance of these Surrey non-statutory designated sites from the survey area is presented in Table 1.

Table 1: Non-statutory designated sites desk study results

Site name	Brief description	Distance from survey area (km)
Sheep Walk Lake SNCI	Surrey Wildlife Trust Reserve part of a complex of lakes, together with one large and two smaller lakes. Selected as an important wetland supporting bird assemblages of county importance for both wintering and summer breeding birds. Over 100 species have been recorded at this site including 9 birds of conservation concern in Surrey.	0.07
Littleton Lake SNCI	Approximately 30 year old gravel working, now a sailing club, with mature stands of willow and scrub around lake. Lies contiguous with Sheepwalk Lake reserve (SWT). 3 small islands provide ideal sanctuaries for breeding birds.	0.40
River Thames SNCI	River, bank and semi-natural habitats associated with the tow-path.	0.50
Ferris Meadows SNCI	A lake created after gravel working now occupies this site. Several grassland habitats now surround the lake, including remnants of Thames alluvial grassland. Wetland communities fringing the river Thames are of importance.	0.55
Shepperton Quarry SNCI	Two large water bodies bordering the River Thames bisected by M3. Good range of wetland habitats important for wintering wildfowl and 5 species found on the RSPB's Birds of Conservation Concern (1996) including Pochards, Herring Gull, Lapwing, Kingfisher and Goldfinch.	0.9

Ancient woodland

3.1.6 Woodland within the SNCI is not classified as ancient semi-natural woodland (Davies, 2011).

3.1.7 No parcels of ancient woodland were identified within 1km of the survey area.

Biodiversity Opportunity Areas

3.1.8 The survey area is located within the Thames Valley Thorpe and Shepperton Biodiversity Opportunity Area (BOA).

3.2 Phase 1 habitat survey results

3.2.1 13 habitats were recorded during the Phase 1 habitat survey. The location of these is presented in Figure 1 and photographs are presented in Figure 2. A summary of each habitat is provided below.

3.2.2 A total of 76 vascular plants were recorded during the survey. This is a fairly typical number given the habitats present and the time of year. Of these two are 'Species typical of grassland of conservation interest in Surrey' (as listed in Guidance for the Selection of SNCIs in Surrey, May 2008). Five are ancient woodland indicator plants for the south-east, (Kirby, 2004). No notable plant species (as listed on the Draft Surrey County Rare Plant Register Oct 2016) were recorded on the site during the survey. Three are considered non-native invasive species.

3.2.3 A list of vascular plant species recorded within each habitat type and their abundance and status is provided in Appendix 1.

Table 2: Phase 1 habitat survey results

Phase 1 habitat	Photo No.	Description
Broad-leaved Semi-natural Woodland	1 2	The broad-leaved semi-natural woodland at Charlton Quarry has been separated into BW1, BW2 and BW3. **BW1** This is an area of dense broad-leaved woodland found in the centre of the site and encompassing the open lake. Species here include occasional Crack Willow, White Willow, Rusty (or Grey) Willow, Aspen, Wild Cherry, Hawthorn, Pedunculate Oak, Alder and White Poplar. The understorey and field layer are sparse. **BW2** An area of recently planted broad-leaved species including occasional Field Maple, Ash, Hawthorn, White Poplar, Wild Cherry with rare Aspen and Hazel. No field layer or understorey present. **BW3** A thin linear strip of broad-leaved woodland borders the south, west and north of the site. These areas include locally frequent Field Maple and occasional Sycamore, Hawthorn, Wild Cherry and Pedunculate Oak.
Scattered Broad-leaved Tree	3	Scattered broad-leaved trees are frequent throughout the site. While some may have been planted, several of the younger specimens appear to be self-sown. Species include frequent Hawthorn, occasional Goat Willow, Crack Willow, Wild Cherry and rare Pedunculate Oak.
Dense Scrub	3 4	Unmanaged scrub is a dominant feature across the site. In places dense stands of dominant Bramble tower overhead with abundant Common Nettle, occasional Butterfly Bush, Dog Rose and Dogwood. This is especially common along the footpath found on the northern boundary of the site. Stands of Willow carr are also frequent in the northern part of the site which integrate with dense bramble scrub and areas of tall ruderal vegetation.
Tall Ruderal	5	Large areas of tall ruderal vegetation are present across the site, although these are concentrated to the north and west. Species composition is broadly similar throughout the site with locally dominant patches of Goats Rue, abundant Common Nettle, occasional Mugwort, Wild Carrot, Great Willowherb, Teasel, Spear Thistle, Greater Burdock, Prickly Lettuce, Hawkweed Oxtongue and Hemlock.
Semi-improved Neutral Grassland	1	In the north-west corner of the site, small pockets of neutral grassland exist sandwiched between areas of tall ruderal vegetation and patches of dense scrub, as well as larger areas in the central and southern parts of the site. Here grasslands have a slightly greater species diversity including frequent Perennial Rye-grass, occasional Annual Meadow-grass, Common Bent, Smaller Cat's Tail, Ribwort Plantain, Yorkshire-fog, Greater Plantain, Black Medick, Red Clover, Dandelion, Knotgrass, Wild Carrot, Upright Hedge Parsley, Scentless Mayweed, Field Horsetail, Comfrey and Hawkweed Oxtongue.

Phase 1 habitat	Photo No.	Description
Improved Grassland	3	In the eastern corner of the site there is a disused playing field which is dominated by typical improved grassland species such as Perennial Rye Grass, occasional Common Nettle, Creeping Thistle and Dandelion. However the grassland has been left unmanaged and as a result the sward is long and other species such as occasional False Oat-grass, Mugwort, and Hemlock are also present. In some areas in the northern part of the site, conditions become damp with species such as Field Horsetail, Amphibious Bistort and Hard Rush becoming occasional to frequent amongst the improved grassland pockets.
Marshy Grassland	6 7	There is a small patch of dominant Pond Sedge found in the north-east corner of the site, approximately 10x10m in size. In addition there are a number of smaller stands of Common Reed found sporadically in this area of the site. This is too small to map, therefore the approximate position is marked on Figure 1 as TN1.
Intact Species-poor Hedgerow	7	A species-poor hedgerow forms the eastern boundary between the site and the adjacent Nature Reserve. The hedgerow is approximately 2-3m tall and dominated by planted Hawthorn.
Dry Ditch		A shallow dry ditch runs along a section of the eastern boundary of the site. Species here include occasional False Oat-grass, Teasel, Bramble with rare Pedunculate Oak and Salix saplings.
Open Water	8	A 0.6ha eutrophic lake with heavily scrubbed and wooded margins is found in the centre of the site. The northern edge of the lake is bordered by a large swathe of Common Reed and a small silt beach. Emergent vegetation around the borders of the lake include frequent Purple Loosestrife and occasional Amphibious Bistort. Aquatic vegetation is rare in the lake itself with small patches of Pond Weed and rare Water Plantain visible from the edge. Much of the lake margins are dominated by Common Osier, White Willow and Grey Willow.
Swamp	8	A swathe of tall emergent vegetation dominated by Common Reed found bordering the northern edge of the lake.
Bare Ground	9	Bare earth is an important feature of this site and is present in the form of paths, large tracks and open spaces around the lake and building. Species found along the margins of the bare earth areas includes occasional Annual Meadow-grass, Knotgrass, Yarrow, Black Mustard and rare Creeping Cinquefoil,
Building	9	A partially collapsed brick building found on the western side of the site. A number of non-native species are found in this area including Garden Privet, Oregon Grape and Japanese Knotweed, all of which may be remnants of a long-disused garden.

3.2.4 Evidence of the following bird species were recorded:

- Grey Heron
- Coot
- Moorhen
- Mallard
- Wren
- Blue Tit
- Great Tit
- Robin
- Wood Pigeon
- Collared Dove
- Blackbird
- Starling
- Carrion Crow

3.2.5 The following target notes were recorded during the survey.

- TN1 - Area of marshy grassland, see Table 2 above for description.
- TN2 - Japanese Knotweed stands near to building. Mature plant which appears to be spreading.
- TN3 - Car wreckage
- TN4 - Remnants of a BBQ with litter

4 Site Evaluation

Does the site still support the features for which it was selected?

4.1.1 The site was originally selected in 1996 for its "*wetland habitat which has a good diversity of birds including Grey Heron, Little Ringed Plover, Little Tern and Little Egret*".

4.1.2 In order to fully ascertain whether or not the site still meets the criteria for which it was originally selected, further bird-focused survey effort would be required. At present it is not possible to say, after one survey visit, whether or not these species are still visiting the site.

4.1.3 Further bird surveys are recommended for this site, ideally over a number of years.

Does the site meet the SNCI selection guidelines as revised in 2008?

4.1.4 The site meets the SNCI guidelines under the following criteria;

12) Open Mosaic on Previously Developed Land (OMPDL).

4.1.5 The following six characteristic features of OMPDL are found at Charlton Quarry: floristic and habitat diversity; soil impacting plant growth in some way; bare ground; shelter (in the form of woodland and scrub); disturbance and surrounding land-use providing connectivity to other similarly disturbed sites.

4.1.6 Furthermore it is not known whether Charlton Quarry has a significant invertebrate assemblage associated with the OMPDL present. During the survey visit in July there did seem to be an abundance of orthoptera amongst other insect groups. Further survey work would be needed to ascertain whether the invertebrate assemblage in the open mosaic habitat at Charlton Quarry is significant.

4.1.7 The site may meet the SNCI guidelines under the following criteria;

21) Birds c) *Supports a breeding bird assemblage or wintering waterbird assemblage of county importance.*

4.1.8 Grey Heron was observed on the lake during the survey visit on 26th July 2018. Without further survey effort, it cannot be ruled out that other wetland bird species may also be using the lake.

See appendices 3 & 4 for the full assessment of the site against all criteria.

Supporting features

4.1.9 The SNCI selection guidelines (Surrey Wildlife Trust, 2008) state that "*sites that are close to, but do not quite meet the detailed habitat and species guidelines … may be considered for selection where they are judged as important using the general guidelines*" which are based on the Ratcliffe Criteria (Ratcliffe, 1977). Appendix 5 shows an assessment of the site against the general guidelines.

4.1.10 This site is particularly important for its position in an ecological unit and connectivity in the landscape with regards to nearby restored gravel extraction sites. Many of these sites include large waterbodies which are important for a variety of wetland bird species. Charlton Quarry represents an additional site within this wider wetland context providing breeding, refuge and feeding opportunities for wetland birds.

Signs of damage

4.1.11 A burnt-out portable BBQ and other litter was recorded at TN3 in the south-east corner of the survey area. A crashed and abandoned car was located at TN2. The building found on the western edge of the survey area is abandoned and severely damaged, with no roof and crumbling walls.

Site condition (surveyor's opinion)

4.1.12 In the surveyors opinion the site is in 'Favourable' condition.

4.1.13 The site still contains wetland habitat which has the potential to support a variety of wetland bird species. Although only Grey Heron, Coot, Mallard and Moorhen were present during the survey visit, other species may still be using the site.

4.1.14 In addition to the wetland habitats on the site, an area of OMPDL is present within the survey area. This is an excellent example of the varied and valuable mixture of habitats found on typical brownfield sites, providing resources for a wide range of species throughout the year.

Boundaries

4.1.15 Should the site be deemed to still meet the criteria, significant boundary changes are recommended (see Figure 2).

4.1.16 Currently the SNCI boundary encompasses 14.5ha of land centred on the lake, omitting the north-west corner of the survey area. Two major changes are proposed: 1) the north-west corner of the survey area (an additional 2ha) be included in the boundary and 2) an additional 12ha be included to encompass the remaining scrubland, grassland, thin belts of woodland and ruderal vegetation found immediately east of the existing SNCI boundary.

4.1.17 The north-west corner of the survey area is an integral part of the OMPDL habitat found within the existing SNCI. Furthermore, there are large areas of bare earth found in and around the dilapidated building.

4.1.18 The additional 12ha found immediately east of the existing SNCI are contiguous with the habitats present within the SNCI. In the northern part of this section, habitats are heterogeneous with a mixture of grassland, willow carr, dense scrub, ruderal and damp grassland. The remaining grassland, scattered trees and dense scrub found in the south provide habitat for a range of species and act as a buffer between the more sensitive lake and wetland bird fauna with the adjacent housing estate. Finally, by extending the SNCI boundary to encompass these sections, the boundary will be greatly simplified for administrative purposes.

Additional information or surveys required

4.1.19 It is recommended further bird surveys are undertaken to ascertain whether or not the species outlined in the original SNCI 'reasons for selection' are still using the site. These surveys should ideally take place over a number of years and at different times of the year in order to capture both breeding migrants and any over-wintering birds.

5 Site Management Recommendations

5.1.1 Species such as Little Ringed Plover and Little Tern were likely originally attracted to Charlton Quarry when it was newly restored post-extraction and the margins of the lake were still open and shingly. Overtime, the lake margins have become more and more vegetated, which has made the area less suitable for these species.

5.1.2 It does not seem sensible to significantly de-vegetate the lake margins in order to restore suitability for a small number of wetland bird species, especially when this may be to the detriment of other birds currently using the site. It may be possible, however, to install permanently moored shingle-covered rafts around the lakes edges which may attract Little Ringed Plover or Common Tern to breed on the lake.

5.1.3 Furthermore, by occasionally cutting or coppicing some of the trees around the lake margins it will allow light to reach the lake and help prevent a build-up of leaf litter. Too much vegetation will inhibit floating and emergent vegetation and its associated invertebrate fauna.

5.1.4 The site is becomingly increasingly dominated by encroaching scrub and scattered trees. Whilst these are valuable habitats in themselves, the continued succession of the site will result in the eventual replacement of the OMPDL habitat with scrubland and woodland. Ideally scrub and trees should be maintained at less than 15% cover (Buglife, 2012) to prevent shading and outcompeting other plant communities and bare ground present in the OMPDL. Rotational cutting can help achieve this. Grazing also has a similar effect as long as the grazing pressure is not too high.

5.1.5 Japanese Knotweed is present on the site. This is a very invasive species which will spread rapidly if not controlled. The species is listed on Schedule 9 the Wildlife and Countryside Act 1981 which means that it is an offence to plant or cause the species to spread in the wild. Care should be taken if moving the species off site for disposal. The Environment Agency (EA) have produced 'The Knotweed Code of Practice' (EA, 2013). Although this is aimed at developers it contains a lot of useful information on controlling this species. This and other information can be found on their website.

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7 Appendix 1: Vascular plant species recorded during Phase 1 habitat survey

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Acer campestre	Field Maple	LF		Yes		
Acer pseudoplatanus	Sycamore	O				
Achillea millefolium	Yarrow	O				
Agrostis stolonifera	Common Bent	O				
Alisma plantago-aquatica	Water Plantain	R	Yes			
Alnus glutinosa	Alder	R				
Arctium lappa	Greater Burdock	O				
Arrhenatherum elatius	False Oat-grass	O				
Artemisia vulgaris	Mugwort	F				
Betula pendula	Silver Birch	R				
Brassica nigra	Black Mustard	O	Yes			
Buddleja davidii	Butterfly Bush	R				Plantlife
Carex sp.	Pond Sedge sp.	LD				
Carpinus betulus	Hornbeam	R		Yes		

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Cirsium arvense	Creeping Thistle	O				
Cirsium vulgare	Spear Thistle	O				
Conium maculatum	Hemlock	O				
Cornus sanguinea	Dogwood	O				
Corylus avellana	Hazel	O				
Crataegus monogyna	Hawthorn	O				
Dactylis glomerata	Cock's-foot	LF				
Daucus carota	Wild Carrot	O				
Epilobium hirsutum	Great Willowherb	F				
Equisetum arvense	Field Horsetail	R				
Fallopia japonica	Japanese Knotweed	R				Schedule 9
Fraxinus excelsior	Ash	R				
Galega officinalis	Goat's Rue	F				
Galium aparine	Cleavers	O				
Hedera helix	Common Ivy	O				

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Holcus lanatus	Yorkshire-fog	O				
Jacobaea vulgaris	Common Ragwort	O				
Juncus inflexus	Hard Rush	R				
Lactuca serriola	Prickly Lettuce	O				
Ligustrum Ovalifolium	Garden Privet	R				
Lolium perenne	Perennial Rye-grass	F				
Lotus corniculatus	Common Bird's-foot-trefoil	R		Yes		
Lythrum salicaria	Purple Loosestrife	LF				
Mahonia aquifolium	Oregon Grape	R				
Malus sylvestris	Apple sp.	R		Yes		
Medicago lupulina	Black Medick	LF				
Oenothera sp.	Evening Primrose	R				
Persicaria amphibia	Amphibious Bistort	R				
Phragmites australis	Common Reed	LF				

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Picris echioides	Bristly Oxtongue	O				
Picris hieracioides	Hawkweed Oxtongue	O		Yes		
Plantago lanceolate	Ribwort Plantain	O				
Poa annua	Annual Meadow-grass	O				
Polygonum aviculare	Knotgrass	O				
Populus alba	White Poplar	O				
Populus tremula	Aspen	R				
Potentilla reptans	Creeping Cinquefoil	R				
Potomageton sp.	Pondweed	R				
Prunus avium	Wild Cherry	O		Yes		
Prunus spinosa	Blackthorn	O				
Quercus cerris	Turkey Oak	R				Plantlife
Quercus petraea	Sessile Oak	R				
Quercus robur	Pedunculate Oak	O				
Quercus rubra	Red Oak	R				

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Robinia pseudoacacia	False Acacia	R				SWT, 2012
Rosa arvensis	Field Rose	O		Yes		
Rosa canina	Dog Rose	O				
Rubus fruticosus	Bramble	F				
Rumex conglomeratus	Clustered Dock	O				
Rumex obtusifolius	Broad-leaved Dock	O				
Salix caprea	Goat Willow	F				
Salix cinerea	Grey Willow	F				
Salix fragilis	Crack Willow	F				
Sambucus nigra	Elder	R				
Sorbus aucuparia	Rowan	R				
Symphytum officionale	Comfrey	O				
Taraxacum officinale	Dandelion	O				
Torilis japonica	Upright Hedge Parsley	O				
Trifolium pratense	Red Clover	LF				

Scientific name	Common name	Site abundance (DAFOR)	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species
Tripleurospermum inodorum	Scentless Mayweed	O				
Tussilago farfara	Colt's Foot	O				
Typha latifolia	Reedmace	R				
Urtica dioica	Common Nettle	O				
Total		**76**	**Total: 2 No. of bold: 0**	**5**	**0**	**3**

*Species typical of grassland of conservation interest in Surrey (as listed in Guidance for the Selection of SNCIs in Surrey, May 2008). The number of bold species within this list should also be noted separately.
**Ancient Woodland Indicator species (as listed for the Nature Conservancy Council South-East Region, see Rose 2006)
***Species that are Rare, Scarce or of Conservation Interest in Surrey (as listed on the Draft Surrey County Rare Plant Register Oct 2016)
****Invasive species;

- Schedule 9: Species as listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended),
- Plantlife, 2010: Species identified as Critical, Urgent or Moderate risk within Horizon Scanning for Invasive non-native plants (Plantlife , 2010),
- SWT, 2012: Species listed within Surrey Non-native Invasive Species List (SWT, 2012).

8 Appendix 2: Additional vascular plant species of interest recorded on the site in previous surveys

Scientific name	Common name	*Grassland Indicator Species	**AWIs	***County Notable	****Invasive species	Date of record / Recorder
Leucanthemum vulgare	Oxeye Daisy	Yes				1995/D.Smith & P.Abbott
Tilia cordata	Small-leaved Lime		Yes			1995/D.Smith & P.Abbott
Verbascum theapsus	Great Mullein	Yes				1995/D.Smith & P.Abbott
Vicia sepium	Bush Vetch		Yes			1995/D.Smith & P.Abbott
Total		**Total: No. of bold: 0**	**2**	**0**	**0**	

*Species typical of grassland of conservation interest in Surrey (as listed in Guidance for the Selection of SNCIs in Surrey, May 2008). The number of bold species within this list should also be noted separately.
**Ancient Woodland Indicator species (as listed for the Nature Conservancy Council South-East Region, see Rose 2006)
***Species that are Rare, Scarce or of Conservation Interest in Surrey (as listed on the Draft Surrey County Rare Plant Register Oct 2016)
****Invasive species;

- Schedule 9: Species as listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended),
- Plantlife, 2010: Species identified as Critical, Urgent or Moderate risk within Horizon Scanning for Invasive non-native plants (Plantlife , 2010),
- SWT, 2012: Species listed within Surrey Non-native Invasive Species List (SWT, 2012

9 Appendix 3: A review of the site against the Guidance for the Selection of SNCIs in Surrey (Surrey Wildlife Trust, 2008) – Habitat Guidelines

Habitat	Notes	Result
1) Woodland		
a) All sites containing over 5ha of ancient semi-natural woodland (ASNW).		Not present
b) Other ancient woodland including plantations on ancient woodland sites where there is a significant element of the original semi-natural woodland surviving.		Not present
c) Areas of woodland which are not themselves ancient but which are immediately adjacent to ancient woodland sites should also be considered for selection.		Not present
d) Other semi-natural woodland comprising important community types of restricted distribution in the county. This will include;		
e) Wet woodland falling within NVC types; W1, W2, W4c, W5, W6 and W7		Not present
f) Lowland Beech, Yew and Box Woodland falling within NVC types; W12, W13, W14 and W15		Not present
g) Wealden gill woodland		Not present
h) Sites supporting a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
2) Wood Pasture, Parkland and Veteran Trees		
a) Wood pasture and parkland over 2ha which can demonstrate 3 or more of the features defined in the selection guidelines (Surrey Wildlife Trust, 2008) should be considered for selection.		Not present
b) Groups of 3 or more ancient or veteran trees as defined in the selection guidelines (Surrey Wildlife Trust 2008) within 0.25ha.		Not present
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present

Habitat	Notes	Result
3) Traditional Orchards		
a) Traditionally managed orchards of biodiversity value, as defined in the selection guidelines (Surrey Wildlife Trust 2008)		Not present
b) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
4) Neutral Grassland		
a) All sites supporting the following NVC communities; MG4, MG5 or MG8.		Not present
b) Grassland sites which support a high diversity of species typical of grassland of conservation interest in Surrey. As a guideline, sites which support 15 or more of the species listed in Table 1 including at least 2 of the species in bold are likely to be of SNCI quality.		Not present
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
5) Acidic Grassland		
a) All sites supporting the following NVC communities; U1, U2, U3, U4 or U20a.		Not present
b) Grassland sites which support a high diversity of species typical of grassland of conservation interest in Surrey. As a guideline, sites which support 15 or more of the species listed in Table 1 including at least 2 of the species in bold are likely to be of SNCI quality.		Not present
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
6) Calcareous Grassland		
a) All sites supporting the following NVC communities: CG2, CG3, CG4, CG5, CG6 or CG7.		Not present
b) Grassland sites which support a high diversity of species typical of grassland of conservation interest in Surrey. As a guideline, sites which support 15 or more of the species listed in Table 1 including at least 2 of the species in bold are likely to be of SNCI quality.		Not present

Habitat	Notes	Result
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
7) Heathland		
a) All areas of heathland vegetation; including matrices of dwarf shrub, bare ground, grassland, valley mires and scrub should be considered. Heathland over 2ha would automatically qualify.		Not present
b) Areas of heathland which are heavily afforested or have succeeded to mature woodland with potential to be restored to heathland and either; • retain sufficient remnants of heathland or • are contiguous with, or form an integral part of an area of heathland.		Not present
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
8) Standing open water		
a) Any lake classified by the UK Lakes HAP joint steering group as Tier 1 or Tier 2 where not already covered by other designations.	It is not known whether the site supports a lake classified by the UK Lakes HAP joint steering group.	N/A
b) Ponds which qualify under the criteria for UK BAP priority habitat.		Not present
c) Water bodies or clusters of water bodies which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
9) Wetlands		
a) All reedbeds over 2ha.		Not present
b) Reedbeds of between 0.25 and 2ha where they form part of a wider habitat mosaic.		Not present

Habitat	Notes	Result
c) Fens, mires, swamps and marshes over 2ha with flora characteristic of the following NVC communities: M6, M21, M24, M25, M27, M29, S3, S4, S5, S6, S7, S8, S9, S10, S12, S13, S14, S15, S16, S19, S22, S23, S26, S27, S28.		Not present
d) Fens, mires, swamps and marshes (NVC as above) of between 0.25 and 2ha where they form part of a wider habitat mosaic.		Not present
e) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
10) Floodplain Grazing Marsh		
a) All floodplain grazing marsh over 5ha that is not designated as SSSI.		Not present
b) Floodplain grazing marsh of less than 5ha where it forms part of a wider habitat mosaic of water-dependent habitats, or where it links SSSIs.		Not present
c) Sites which support a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
11) Rivers, Canals and Streams		
a) Chalk stream.		Not present
b) River classed by the Environment Agency as Grade A within the GQA.		Not present
c) River with a HMS of 0 (classified as “pristine” by RHS).		Not present
d) River with a conservation evaluation of either “Critical” or “Important” within strategic RCS.		Not present
e) River which supports viable populations or spawning sites of animals listed in guidelines.		Not present
f) Sites which support a significant population of a species as discussed in the species guidance	See Appendix 2	Not present
12) Open Mosaic Habitats on Previously Developed Land		

a) Open Mosaic habitat sites where; • 6 or more of the characteristic features are found • form part of a wider complex of similar areas, providing long term habitat opportunity • There is a significant invertebrate assemblage	The following 6 characteristic features are found at Charlton Quarry – **Floristic and habitat diversity** *High species richness and small-scale habitat heterogeneity* – Charlton Quarry supports a matrix of habitats including bare earth, tall ruderal vegetation, grassland, woodland and encroaching scrub. This habitat heterogeneity is also reflected on a small-scale, with minor changes in topography, possibly soil depth and composition leading to localised variations in the vegetation communities seen across the site. **Soil type and structure** *Soil with low fertility or other characteristics affecting plant growth* – due to the sites history as a gravel extraction site, the soil is composed of thin, shallow Brickearth which has impacted plant growth on the site, evident in the continued areas of bare earth and patchy, early-successional nature of plant communities present across much of the site. **Bare ground** *Areas with no vegetation, especially undisturbed* – the western half of the site is rich in areas of bare earth. Some areas appear to have been more recently disturbed, including the larger tracks, whereas small footpaths and areas around the dilapidated building appear less-frequently disturbed. **Shelter**	Present

	Development of trees and scrub providing structural diversity – the site boasts approximately 3ha of young broad-leaved woodland with scattered trees and encroaching scrub present across the rest of the site. **Disturbance** *Any disturbance serving to maintain bare ground and habitat mosaic* – it was clear from the survey visit that the areas of bare earth are subject to some level of disturbance, whether this is from vehicles, bikes, walkers or some other means, as the tracks and pathways are well-worn with little to no vegetation growth. **Surrounding landuse** *Adjacent areas providing potential (eg active workings) or connectivity* – Charlton Quarry is an area with a long history of mineral extraction workings. There are several sites within 1km of Charlton Quarry which have previously been used as gravel extraction quarries and have since been restored for nature conservation or recreation. It is not known whether Charlton Quarry has a significant invertebrate assemblage. During the survey visit in July there did seem to be an abundance of orthoptera amongst other insect groups. Further survey work would be needed to ascertain whether the invertebrate assemblage in the open mosaic habitat at Charlton Quarry is significant.	

Habitat	Notes	Result
b) Sites which support a significant population of a species as discussed in the species guidelines.	See Appendix 2	
13) Arable		
a) Meets criteria for Important Arable Plant Areas and not covered by other designation.		Not present
b) Supports a significant population of a species as discussed in the species guidance.	See Appendix 2	Not present
14) Scrub Communities *When selecting sites based on other habitats all areas of associated scrub should be identified and included within the SNCI boundary.*		N/A
15) Community and access a) Sites which serve as Accessible Natural Greenspace within urban areas. *Sites which are close to but do not fully meet the habitat or species guidelines may be considered for selection if they meet this criteria.*		Not present
16) Geology and Geomorphology RIGS regarded as the geological equivalent of SNCIs.		Not present

10 Appendix 4: A review of the site against the Guidance for the Selection of SNCIs in Surrey (Surrey Wildlife Trust, 2008) – Species Guidelines

Species	Notes	Result
17) Mammals Sites with known populations of:		
a) Dormouse		Unlikely
b) Water Vole		Unlikely
c) Otter		Unlikely
18) Mammals – Bats		
a) Contains a 'significant' bat breeding roost or hibernation site.		Unknown
b) Any breeding roost or hibernation site used by multiple bat species concurrently.		Unknown
c) Foraging sites with more than 5 species recorded or used by Annex II species.		Unknown
19) Amphibians		
a) Supports populations of Natterjack Toad.		Unlikely
b) Regularly record 'good' or 'exceptional' breeding populations of Great Crested Newt.		Unknown
c) Supports populations of four or more native amphibian species.		Unknown
d) 'Exceptional' populations of any amphibian species.		Unknown
e) 'Good' populations of 3 or more native amphibian species.		Unknown
20) Reptiles		
a) Supports populations of Smooth Snake or Sand Lizard.		Unlikely
b) Populations of 3 or more native reptile species.		Unknown

Species	Notes	Result
c) 'Exceptional' population of a single reptile species or a 'good' population of Adders		Unknown
d) Assemblage of species scoring at least 4 points.		Unknown
21) Birds		
a) Holds more than 10% of Surrey's breeding or wintering population of a species.		Unlikely
b) Supports species on the conservation concern list for Surrey categories 1-3.		Unknown
c) Supports a breeding bird assemblage or wintering waterbird assemblage of county importance.	Further survey work recommended	Unknown
22) Invertebrates		
a) Supports one or more nationally rare or declining species as listed in the latest national Red Data Books or lists.		Unknown
b) Supports an important assemblage or population(s) of a BAP priority species.		Unknown
c) Supports an important assemblage or population(s) of a nationally scarce species.		Unknown
23) Additional Invertebrate Guidelines		
a) Meet the British Dragonfly Society criteria for Key Dragonfly Sites		Unknown
b) Supports a butterfly species within list A.		Unknown
c) Supports a locally notable population of four or more of the butterfly species within list B.		Unknown
d) Sites with a Species Quality Score of greater than 4 for Wasps, bees & Ants.		Unknown
24) Vascular Plants		
a) Supports one or more species included in the latest national Red Data List for plants.		Unknown

Species	Notes	Result
b) Supports an important assemblage or population(s) of a UK BAP priority species.		Unknown
c) Supports a nationally scarce species.		Unknown
d) Supports species identified by Surrey Botanical Society as rare and notable within Surrey.		Unknown
e) Sites selected as Important Plant Areas by Plantlife.		Unknown
25) Lower Plants & Fungi		
a) Supports one or more nationally rare or declining species as listed in the national Red Data Books.		Unknown
b) Supports an important assemblage or population(s) of UK BAP priority species.		Unknown
c) Supports a nationally scarce species.		Unknown
d) Sites classified as Important Fungus Areas by Plantlife.		Unknown
e) Sites classified as Important Stonewort Areas by Plantlife.		Unknown

11 Appendix 5: A review of the site against the Guidance for the Selection of SNCIs in Surrey (Surrey Wildlife Trust, 2008) – General Guidelines

11.1.1 Sites which are close to, but do not quite meet the detailed habitat and species guidelines later in the report may be considered for selection where they are judged as important using the general guidelines below. These general guidelines are based upon the Ratcliffe Criteria (1977), for assessing the nature conservation value of a proposed SNCI with the rationale based upon the findings of the survey.

Selection Criteria	Analysis of site against criteria
Rarity	No rare or scarce habitat types were recorded.
Diversity	The site is not exceptionally botanically or structurally diverse.
Size	The site is currently 14.5ha in size, but an additional 14ha are recommended to be included in the SNCI boundary as a result of the latest SNCI survey.
Naturalness	As the site is an old gravel extraction quarry, the resulting habitats present reflect this recent disturbance by man with ruderal vegetation and pioneering tree and scrub species forming an integral feature of the site. The lake on site is also man-made. Deliberately planted non-native species are present around the dilapidated building (not part of the existing SNCI but in the proposed boundary extension area) and accidentally introduced invasive plant species are present including Japanese Knotweed and Butterfly Bush.
Typicalness	The surrounding area has been heavily used for gravel extraction for a number of years. As a result there are many similar restored quarries within 1km of the site.
Fragility	The areas of bare earth and ruderal communities require occasional disturbance.
Replacability	It would be difficult to replicate the complex mosaic of habitats and species present on the site should they be lost.

Selection Criteria	Analysis of site against criteria
Position in ecological unit / Connectivity with the landscape	The site falls within a network of similar sites such as Haliford Mere Lake and Pool End Gravel Pit to the north. However, the site is bordered on the south and west by B-roads and the M3 to the north, the latter of which is a major barrier to many species. It is also part of the TV04 Thames Valley – Thorpe to Shepperton BOA.
Educational value and value for the appreciation of nature.	The site is not open to the public and therefore does not provide educational or recreational value.
Potential value	By maintaining the complex mix of open mosaic habitats, a variety of species are likely to benefit. At one time the site provided habitat and refuge for a number of interesting bird species, including Little Ringed Plover and Little Tern. Whilst the habitat surrounding the lake is likely no longer suitable for some of these species, it does still support an assemblage of wetland birds, such as Grey Heron. Shingle-covered rafts could be used to provide potential nesting sites for Common Tern and Little Ringed Plover.
Recorded history and cultural associations	There has been some past bird recording.