

# High Speed Rail (Crewe – Manchester) Environmental Statement

Volume 5: Appendix EC-001-00001

## **Ecology and biodiversity**

Ecological baseline data - designated sites

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Department  
for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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# 1 Introduction

- 1.1.1 This report is an appendix to the ecological assessment. It provides details of the ecological designated sites relevant to the Proposed Scheme in relation to the following Community Areas (CA):
- Hough to Walley's Green (MA01);
  - Wimboldsley to Lostock Gralam (MA02);
  - Pickmere to Agden and Hulseheath (MA03);
  - Broomedge to Glazebrook (MA04);
  - Risleigh to Bamfurlong (MA05);
  - Hulseheath to Manchester Airport (MA06);
  - Davenport Green to Ardwick (MA07); and
  - Manchester Piccadilly Station (MA08).
- 1.1.2 Designated sites are shown in the Volume 5 Ecology Map Book, Map Series: EC-01. These maps display designated sites in proximity to the land required for construction of the Proposed Scheme, more distant designated sites listed in this report are beyond the map extents.
- 1.1.3 This appendix should be read in conjunction with:
- Volume 2, Community Area reports;
  - Volume 3, Route-wide effects;
  - Volume 4, Off-route effects; and
  - Volume 5, Technical Appendices.
- 1.1.4 See Environmental Statement, Volume 5, appendices EC-015-0MA01 to EC-015-0MA08 for ecology registers of local level effects for each of the CA respectively and appendices EC-016-0001 to EC-016-0007 and EC-016-00009 for documents to inform Habitats Regulations Assessment screening and Appropriate Assessment.
- 1.1.5 In addition, the baseline data used for the ecological assessment is set out in Background Information and Data (BID)<sup>1</sup>, (see BID EC-002-00001 to BID EC-013-00001) and the BID Ecology Map Books<sup>2</sup> (Map Series EC-01, EC-02 and EC-04 to EC-12) showing habitats and species relevant to the Proposed Scheme. The full list of ecological baseline data reports is as follows:

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<sup>1</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

<sup>2</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data, Ecology Map Book: Map Series EC-02 and EC-04 to EC-12*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

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- Ecological baseline data – Phase 1 Habitat Survey (BID EC-002-00001);
- Ecological baseline data – protected and notable flora (BID EC-003-00001);
- Ecological baseline data – National Vegetation Classification and ancient woodland (BID EC-004-00001);
- Ecological baseline data – hedgerows (BID EC-005-00001);
- Ecological baseline data – river habitat, river macrophyte, and ditch surveys (BID EC-006-00001);
- Ecological baseline data – amphibian and pond and canal surveys (BID EC-007-00001);
- Ecological baseline data – reptiles (BID EC-008-00001);
- Ecological baseline data – breeding and wintering birds (BID EC-009-00001);
- Ecological baseline data – otter and water vole (BID EC-010-00001);
- Ecological baseline data – bats (BID EC-011-00001);
- Ecological baseline data – white clawed crayfish and other invertebrates (BID EC-012-00001); and
- Ecological baseline data – fish (BID EC-013-00001).

1.1.6 Note that baseline data for badger are not made publicly available due to the current and historic persecution of this species.

## 2 Designated sites

### 2.1 Methodology

- 2.1.1 Data searches were initially undertaken to identify designated sites within the following extents as defined in the Technical Note – Ecology and biodiversity – Ecological Field Survey Methods and Standards (FSMS) included in the Environmental Impact Assessment Scope and Methodology Report<sup>3</sup> (SMR) (see Volume 5, Appendix CT-001-00001):
- statutory designated sites within 10km of the Proposed Scheme (i.e. a 10km buffer either side of the centre line of the Proposed Scheme); and
  - non-statutory designated sites within 5km of the Proposed Scheme (i.e. a 5km buffer either side of centre line of the Proposed Scheme).
- 2.1.2 Information on designated sites was obtained from the following sources:
- rECOrd<sup>4</sup>, Local Biological Records Centre for the Cheshire region;
  - Cheshire Wildlife Trust;
  - Greater Manchester Local Record Centre<sup>5</sup>;
  - Natural England; and
  - Joint Nature Conservation Committee.

### Habitats Regulations screening reports

- 2.1.3 Assessment of the effects upon the following internationally important sites has been undertaken:
- Manchester Mosses Special Area of Conservation (SAC)<sup>6</sup>;
  - Rostherne Mere Ramsar site and Midland Meres and Mosses Phase 1 Ramsar site<sup>7</sup>;
  - Midland Meres and Mosses Phase 2 Ramsar site;

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<sup>3</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report*, Volume 5, Appendix CT-001-00001. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

<sup>4</sup> rECOrd, Local Biological Records Centre serving Cheshire. Available online at: <http://www.record-lrc.co.uk/>.

<sup>5</sup> Greater Manchester Local Record Centre. Available online at: <https://www.gmwildlife.org.uk/>.

<sup>6</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Document to inform a Habitats Regulations Assessment for Manchester Mosses SAC (Holcroft Moss) - Addendum 2021*, Volume 5, Appendix EC-016-00002. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

<sup>7</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Document to inform a Habitats Regulations Assessment for Rostherne Mere Ramsar site and Midland Meres and Mosses Phase 1 Ramsar site*, Volume 5, Appendix EC-016-00003. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

- Oak Mere SAC;
- West Midland Mosses SAC;
- Rixton Clay Pits SAC; and
- Rochdale Canal SAC.

2.1.4 This is further to Habitats Regulations<sup>8</sup> screening reports produced at the HS2 Phase Two Appraisal of Sustainability stage<sup>9</sup>.

## 2.2 Deviations, constraints and limitations

2.2.1 All sites within the extents defined within the SMR were reviewed to identify those that were considered likely to be relevant to the assessment. Due to the scale of the Proposed Scheme, only details of those sites meeting the following criteria are presented in the following baseline section:

- all statutory designated sites within a 500m buffer of the Proposed Scheme;
- any other statutory designated sites which are considered potentially subject to significant effects;
- all non-statutory designated sites within or adjacent to the land required for construction of the Proposed Scheme; and
- any other non-statutory designated sites which are considered potentially subject to significant effects.

## 2.3 Baseline

### Statutory designated sites

2.3.1 Table 1 provides details of statutory designated sites relevant to the assessment based on the criteria identified in the SMR. Sites are arranged from south to north. This information is related to the accompanying Ecology Map Series EC-01. The extent of the EC-01 maps is such that some designated sites are identified on them that are not relevant to the assessment due to their distance from the Proposed Scheme. Such sites are not covered in this report. Similarly, some sites are relevant to the assessment, but are located beyond the extent of the EC-01 maps and are, as such, not displayed.

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<sup>8</sup> Natural England (2016), *Guidance on the undertaking of Natural England's Habitats Regulations Assessments*, Version 1.1.

<sup>9</sup> High Speed Two Ltd (2013), *Phase 2 Sustainability Statement Volume 1: Main report of the Appraisal of Sustainability*.



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2.3.2 The Impact Risk Zones (IRZ) are identified in a geographical information system (GIS) tool developed by Natural England to make a rapid initial assessment of sites of special scientific interest (SSSI). The tool identifies potential risks posed by development proposals and indicates the types of development proposal which could potentially have adverse impacts<sup>10</sup>. The Proposed Scheme crosses the IRZ for the following SSSI, which are also included in Table 1:

- Wybunbury Moss SSSI in MA01;
- Sandbach Flashes SSSI in MA01/02;
- Wimboldsley Wood SSSI in MA02;
- Plumley Lime Beds SSSI in MA02/MA03;
- Tabley Mere SSSI in MA02/MA03;
- The Mere, Mere SSSI in MA03;
- Woolston Eyes SSSI in MA04;
- Rixton Clay Pits SSSI in MA04;
- Risleigh Moss SSSI in MA04/MA05;
- Holcroft Moss SSSI in MA04/MA05;
- Highfield Moss SSSI in MA05;
- Astley and Bedford Mosses SSSI in MA04/MA05;
- Abram Flashes SSSI in MA05;
- Bryn Marsh and Ince Moss SSSI in MA05;
- Rostherne Mere SSSI in MA03/MA06;
- Cotteril Clough SSSI in MA06; and
- Rochdale Canal SSSI in MA07/MA08.

**Table 1: Statutory designated sites: SAC, Ramsar sites, SSSI, National Nature Reserves (NNR) and Local Nature Reserves (LNR) within MA01 to MA08**

Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Wybunbury Moss SSSI	SJ697502	This site covers an area of 23.3ha. It is located close to Crewe. It is notified for its quaking bog (schwingmoor), which supports many locally and nationally rare invertebrate species. Surrounded by fen and mixed woodland, the quaking bog is dominated by sphagnum moss. Other bryophytes are abundant, as well as plants such as cotton-grass ( <i>Eriophorum angustifolium</i> ), cranberry ( <i>Vaccinium oxycoccus</i> )	1.8km south-west (70m north of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01

<sup>10</sup> Natural England (2016), *Impact Risk Zones for Sites of Special Scientific Interest*, Version 2.5. Available online at: [http://www.magic.gov.uk/Metadata\\_for\\_magic/SSSI%20IRZ%20User%20Guidance%20MAGIC.pdf](http://www.magic.gov.uk/Metadata_for_magic/SSSI%20IRZ%20User%20Guidance%20MAGIC.pdf).

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		and cross-leaved heath ( <i>Erica tetralix</i> ). Other notable species, all of which are rare in Cheshire, include round-leaved sundew ( <i>Drosera rotundifolia</i> ), bog rosemary ( <i>Andromeda polifolia</i> ) and bog asphodel ( <i>Narthecium ossifragum</i> ). A small pool in one area contains various sedges, including the regionally rare ( <i>Carex limosa</i> ). At the margin, Scots pine ( <i>Pinus sylvestris</i> ) and downy birch occur, with taller and denser mixed woodland beyond. Areas of fen woodland occur, with abundant alder ( <i>Alnus glutinosa</i> ) and willow ( <i>Salix</i> spp.).		
Wybunbury Moss NNR	SJ697502	This site covers an area of 15.8ha. It is designated largely for the same reasons as Wybunbury Moss SSSI. The reserve supports a diverse range of uncommon plants and animals that once would have occurred more widely in similar hollows across the Cheshire plain.	1.8km south-west (70m north of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01
Midland Meres and Mosses Phase 1 Ramsar site	SK025281	Midland Meres and Mosses Phase 1 Ramsar site covers an area of 510.9ha. It consists of a series of lowland open water and peatland sites, set in depressions in glacial drift left by receding ice sheets. The 16 component sites include nutrient-rich water bodies (meres), associated fringing habitats of reed swamps, fen, carr and damp pasture, and floating quaking bog (schwingmoor). The wide range of resulting habitats supports numerous rare species of plants, including nationally scarce cowbane and elongated sedge ( <i>Carex elongate</i> ), and rare invertebrates. The designation is made under Ramsar criterion 2a. Component sites include Wybunbury Moss SSSI, The Mere, Mere SSSI and Tatton Meres SSSI.	260m east (70m north of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01, MA03 and MA06
West Midlands Mosses SAC	SK025281	This site covers an area of 184.6ha. It is designated for its natural dystrophic lakes and ponds and transition mires and quaking bogs. It comprises four constituent SSSI (of which three are also part of the Midland Meres and Mosses Phase 1 Ramsar site and one is included in the Midland Meres and Mosses Phase 2 Ramsar site). The closest component unit of the SAC is Wybunbury Moss SSSI.	1.8km south-west (70m north of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01
Black Firs and Cranberry Bog SSSI	SJ748504	This site covers an area of 12.3ha. Cranberry Bog supports nationally rare schwingmoor basin mire. It exhibits a near-natural structure and floristic composition and is notably rich in bog and fen plants in relation to its small size.	2.6km south-east (adjacent to a road on which traffic will be redistributed as a	MA01

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		<p>Black Mere, the open water part of the site, is the surviving part of a former kettle hole lake and forms the largest dystrophic open water in the county. The basin mire includes a central quaking bog, generally formed of (<i>Sphagnum rubellum</i>) and various leafy liverworts, often capped by the moss (<i>Aulacomnium palustre</i>). Cranberry, round-leaved sundew and cross-leaved heath are abundant associates. The intervening Sphagnum flats and hollows are dominated by Sphagnum moss (<i>Sphagnum recurvum</i>) with abundant common cotton-grass. Towards the margins, flowering plants have greater cover and include heather (<i>Calluna vulgaris</i>), hare's tail cotton-grass (<i>Eriophorum vaginatum</i>), purple moor-grass (<i>Molinia caerulea</i>) and white beak-sedge (<i>Rhynchospora alba</i>).</p> <p>Both Cranberry Bog and Black Mere support uncommon invertebrate species. Cranberry Bog supports micro-moth (<i>Buckleria paludum</i>), the marsh oblique barred moth (<i>Hypenodes turfosalis</i>), moth (<i>Elachista serricornis</i>) and cotton-grass fanner moth (<i>Glyphipterix haworthana</i>). Black Mere supports caddis flies (<i>Limnephilus binotatus</i>, <i>Aphripsodes senilis</i> and <i>Trianodes bicolor</i>).</p> <p>Black Firs comprises an acid valley alderwood containing alder (<i>Alnus glutinosa</i>), downy birch (<i>Betula pubescens</i>) and pedunculate oak (<i>Quercus robur</i>), with a shrub layer of grey willow, alder, hazel (<i>Corylus avellana</i>), alder buckthorn (<i>Frangula alnus</i>), rowan (<i>Sorbus aucuparia</i>) and holly (<i>Ilex aquifolium</i>).</p>	result of the Proposed Scheme)	
Midland Meres and Mosses Phase 2 Ramsar site	SJ488365	This site covers an area of 1,588.2ha. It consists of a series of 18 sites made up of nutrient-rich open water bodies (meres), with fringing habitats of reed swamp, fen, carr and damp pasture, and peatlands. The landscape features developed in depressions in the glacial drift left by receding ice sheets. The wide range of habitats supports nationally important flora and fauna. The closest component unit of the Ramsar site is Black Firs and Cranberry Bog SSSI.	2.6km south-east (adjacent to a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01 and MA02
Oakhanger Moss SSSI	SJ767550	This site covers an area of 13.58ha. It is notified for the range of mire vegetation communities it supports and the way that they, and the underlying geology, clearly demonstrate the vegetation succession stages from open water to raised bog. The site supports adder ( <i>Vipera</i>	4.4km east (120m west of a road on which traffic will be redistributed as a result of the	MA01

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		<i>berus</i> ).	Proposed Scheme)	
Sandbach Flashes SSSI	SJ725594	This site covers an area of 152.9ha. It is notified for its physiographical and biological importance. These flashes are a series of freshwater pools with high salinity, which is very rare for inland habitats and attracts an unusual array of flora and fauna. The flashes are surrounded by improved and semi-improved grassland. The more recently formed flashes are dominated by lesser pond sedge ( <i>Carex acutiformis</i> ) and great reedmace ( <i>Typha latifolia</i> ), whereas the oldest have extensive areas of common reed ( <i>Phragmites australis</i> ). Uncommon aquatic invertebrates, including mayfly ( <i>Caenis robusta</i> ) and a snail ( <i>Gyraulis laevis</i> ), occur on site. The site is important for breeding bird species and supports wildfowl and migrant waders, such as teal ( <i>Anas crecca</i> ), lapwing ( <i>Vanellus vanellus</i> ), wigeon ( <i>Anas penelope</i> ) and curlew ( <i>Numenius arquata</i> ).	370m east	MA01 and MA02
Wettenhall and Darnhall Woods SSSI	SJ638622	This site covers an area of 52.6ha. It comprises a series of woodlands and unimproved grasslands lying in the valley of the Wettenhall Brook. It is notified for the large and diverse woodland present and unimproved grassland, which contains uncommon botanical species including spiny restharrow ( <i>Ononis spinosa</i> ), pepper saxifrage ( <i>Silaum silaus</i> ) and saw-wort ( <i>Serratula tinctoria</i> ).	2.4km west (95m west of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA02
Wimboldsley Wood SSSI	SJ671644	This site covers an area of 19ha. It is situated east of the River Weaver in a steep-sided valley. The site is notified for a variety of woodland types, most notably wet woodland dominated by alder and crack willow ( <i>Salix fragilis</i> ). Other important habitats include unimproved grassland, open water, and the nationally rare saline spring habitat, which supports plant species uncommon in Cheshire such as blunt-flowered rush ( <i>Juncus subnodulosus</i> ) and brookweed ( <i>Samolus valerandii</i> ).	25m west (678m south of a construction traffic route)	MA02
Oak Mere SAC	SJ573679	This site covers an area of 68.5ha. It comprises an oligotrophic lake with transition mires formed in a kettle hole depression in the fluvio-glacial sands of the Cheshire Plain. The assemblage of plants present is rare in the lowlands of England, it includes floating mats of bog-moss ( <i>Sphagnum spp.</i> ) and scarce narrow small-reed ( <i>Calamagrostis stricta</i> ).	9.7km west (adjacent to a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA02

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Oak Mere SSSI	SJ573679	This site covers an area of 68.8ha. It comprises a shallow lake formed where three kettle holes coalesced, making it unique among the Midland meres. It contains a diverse assemblage of aquatic plants and animals, a number of which are regionally and nationally rare.	9.7km west (adjacent to a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA02
Plumley Lime Beds SSSI	SJ707750	This site covers an area of 23.2ha. It is designated for its calcareous habitats, which are now rare throughout the county of Cheshire. The site is rich in willow species and a number of hybrids occur. Ground flora includes calcicole species such as common centaury ( <i>Centaureum erthraea</i> ), hawkweeds ( <i>Hieracium</i> spp.), and yellow-wort ( <i>Blackstonia perfoliate</i> ). Fragrant orchid ( <i>Gymnadenia conopsea</i> ), spotted orchid ( <i>Dactylorhiza fuchsia</i> ) and northern marsh-orchid ( <i>Dactylorhiza purpurella</i> ) are all found within the site. Herb-rich grasslands support ten species of sedge ( <i>Carex</i> spp.) and several species of moss ( <i>Bryophyta</i> spp.). Warblers, including the reed warbler ( <i>Acrocephalus scirpaceus</i> ) and lesser whitethroat ( <i>Sylvia curruca</i> ), utilise the woodland, scrub and reed beds as nesting habitat.	Within	MA02 and MA03
Tabley Mere SSSI	SJ723768	This site covers an area of 44.4ha. The Mere holds very nutrient rich water, with a well-developed aquatic flora. The remainder of the site includes an area of acidic, marshy grassland and woodland. The smaller mere has extensive yellow water-lily ( <i>Nuphar lutea</i> ), with white water-lily ( <i>Nymphaea alba</i> ) scattered throughout. The marginal vegetation grades to fen and damp woodland. In addition to typical fen species, the flora includes cowbane ( <i>Cicuta virosa</i> ) (a very local plant in Cheshire). The larger mere contains extensive stands of submerged plants, particularly autumnal water-starwort ( <i>Callitriche hermaphroditica</i> ) and Canadian pondweed ( <i>Elodea canadensis</i> ). Three species of pondweed ( <i>Potamogeton berchtoldii</i> , <i>Potamogeton crispus</i> and <i>Potamogeton pectinatus</i> ) and horned pondweed ( <i>Zannichellia palustris</i> ) are also present. The site is important for birds, with a large heronry ( <i>Ardea cinerea</i> ) and numerous wildfowl.	124m east (114m west of a construction traffic route)	MA02 and MA03
The Mere, Mere SSSI	SJ733819	This site covers an area of 18.9ha. The site consists of two lakes – The Mere and Little Mere – separated by a spillway. They are moderately	260m east (180m from the nearest construction	MA03

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		nutrient-rich and have been selected because of their very diverse aquatic flora. Twelve species of submerged macrophytes are present, the highest number recorded for any of the Shropshire and Cheshire meres. The nationally rare autumnal water-starwort is locally abundant and the six-stamened waterwort ( <i>Elatine hexandra</i> ) occurs in a number of places. Slender spike-rush ( <i>Eleocharis acicularis</i> ) and shore-weed ( <i>Littorella uniflora</i> ) are both unusually abundant at this site and both are rare in Cheshire. Other notable species include small pondweed and perfoliate pondweed ( <i>Potamogeton perfoliatus</i> ).	traffic route)	
Rixton Clay Pits SAC	SJ684902	This site covers an area of 13.7ha. It comprises parts of an extensive disused brickworks excavated in glacial till. The SAC is classified for a population of great crested newt ( <i>Triturus cristatus</i> ) that are known to breed in at least 20 ponds across the site.	961m west (adjacent to a construction traffic route)	MA04
Rixton Clay Pits SSSI	SJ684902	This site covers an area of 14.9ha. This covers the same area as Rixton Clay Pits SAC. The SSSI is notified for its breeding population of great crested newt. It is also designated for its species-rich calcareous grassland and assemblage of wetland plants, including species that are rare or uncommon in Cheshire such as northern marsh-orchid, creeping willow ( <i>Salix repens</i> ), slender spike-rush ( <i>Eleocharis uniglumis</i> ), lesser marshwort ( <i>Apium inundatum</i> ), blunt-leaved pondweed ( <i>Hydroptila apalachicola</i> ) and three species of stonewort. The SSSI is important for research into the succession of open habitats to scrub and mature secondary woodland. It is located west of Hollins Green and adjacent to the A57 Manchester Road, which would be a proposed construction traffic route.	961m west (adjacent to a construction traffic route)	MA04
Rixton Clay Pits LNR	SJ685904	This site covers an area of 33.6ha. It incorporates both the Rixton Clay Pits SAC and SSSI and is larger than the extent of those designated sites. The site is designated due to	800m west (adjacent to a construction traffic route)	MA04

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		populations of great crested newt.		
Manchester Mosses SAC	SJ691975	This site covers an area of 170.5ha. It consists of three constituent SSSI located to the west of Manchester. The SAC is designated for the degraded raised bog, which is an Annex I Habitat. Holcroft Moss SSSI, west of Irlam, is the nearest component of the SAC partially within the land required for the construction of the Proposed Scheme. The site supports purple moor grass, bracken and birch ( <i>Betula spp.</i> ) The remaining components of the SAC are Risley Moss SSSI, located east of Warrington, and Astley and Bedford Mosses SSSI located south of Leigh.	Within <sup>11</sup> (adjacent to a construction traffic route)	MA04 and MA05
Woolston Eyes SSSI	SJ652884	This site covers an area of 261 ha. It is notified for its breeding bird assemblage, including nationally important numbers of black-necked grebe, gadwall and pochard. It also supports nationally important wintering numbers of teal and shoveler.	2.7km west (bisected by a construction traffic route)	MA04
Risley Moss SSSI	SJ667918	This site covers an area of 85.2ha. It is notified as one of the last remaining fragments of the raised bog system that once covered large areas of South Lancashire and North Cheshire.	520m west (326m from the nearest construction traffic route)	MA04 and MA05
Risley Moss LNR	SJ667918	This site covers an area of 82.4ha. It is designated as one of the last remaining fragments of the raised peat bog system that once covered large areas of South Lancashire and North Cheshire. It is only one of two examples in Cheshire where the water level has been raised and steps taken to encourage the re-establishment of an active mire system. The boundaries of Risley Moss SSSI and LNR are largely the same and 60ha of the LNR is within the Manchester Mosses SAC.	520m west (326m from the nearest construction traffic route)	MA05
Holcroft Moss SSSI	SJ684932	This site covers an area of 19.1ha. A high-pressure gas main that would be decommissioned as part of the construction of the Proposed Scheme is situated beneath the southern part of the SSSI. It is notified as the only known uncut area of raised bog remaining	Within <sup>11</sup> (adjacent to a construction traffic route)	MA04 and MA05

<sup>11</sup> A high-pressure gas main which is required to be decommissioned as part of the construction of the Proposed Scheme is situated beneath the southern part of Holcroft Moss SSSI. The site is located 44m east of the land required for the construction of the M62 West viaduct and intervening land has been identified for the purpose of habitat creation or enhancement, as part of the Proposed Scheme.



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		in Cheshire. The surface vegetation of the moss is dominated by purple moor-grass ( <i>Molina caerulea</i> ) with abundant heather ( <i>Calluna sp.</i> ), cross-leaved heath and cranberry ( <i>Vaccinium oxycoccos</i> ). Wetter hollows support common cottongrass and deergrass ( <i>Trichophorum germanicum</i> ). Five species of bog moss have been recorded in these hollows. The site supports dragonfly populations including the locally scarce black darter ( <i>Sympetrum danae</i> ) and notable breeding and wintering bird assemblages.		
Highfield Moss SSSI	SJ613956	This site covers an area of 21.3ha. It is notified for its peatland vegetation, including acidic marshy grassland and unimproved acidic grassland. It is the best remaining example of the raised mires which once covered large areas of lowland in Greater Manchester and Merseyside.	1.2km west (1.1km from the nearest construction traffic route)	MA05
Astley and Bedford Mosses SSSI	SJ691975	This site covers an area of 92.2ha. It is notified as one of the largest remaining fragments of Chat Moss, a lowland raised mire, most of which has been drained and reclaimed for agriculture or cutover for peat. Mire habitat is dominated by common cotton-grass and hare's tail cotton-grass. Bog mosses are scarce, but four <i>Sphagnum</i> species are present. The site is important for wintering birds of prey such as hen harrier ( <i>Circus cyaneus</i> ), short-eared owl ( <i>Asio flammeus</i> ) and merlin ( <i>Falco columbarius</i> ). It supports breeding species such as curlew and long-eared owl ( <i>Asio otus</i> ).	1.6m north-east (916m from the nearest construction traffic route)	MA05
Pennington Flash LNR	SJ639991	This site covers an area of 91ha near Wigan. It is an urban reserve designated for its biological importance. The mosaic of grassland, marshland and lake habitats support over 230 recorded bird species including bittern ( <i>Botaurus stellaris</i> ), little ringed plover ( <i>Charadrius dubius</i> ), great crested grebe ( <i>Podiceps cristatus</i> ) and kingfisher ( <i>Alcedo atthis</i> ).	413m east (395m from the nearest construction traffic route)	MA05
Abram Flashes SSSI	SD611003	This site covers an area of 39.6ha. It is situated 6km south-east of Wigan adjacent to the Leeds and Liverpool Canal. The flash is a shallow open water body which has resulted in numerous habitats forming around it, including swamp, marsh grassland and herb fen. Abram flash provides excellent habitat for breeding waterfowl communities with species such as tufted duck ( <i>Aythya fuligula</i> ), pochard, garganey ( <i>Anas querquedula</i> ), shoveler, gadwall and ruddy	Adjacent (adjacent to a construction traffic route)	MA05



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		duck ( <i>Oxyura jamaicensis</i> ). Other breeding birds include yellow wagtail ( <i>Motacilla flava</i> ), reed bunting ( <i>Emberiza schoeniclus</i> ), reed warbler, sedge warbler ( <i>Acrocephalus schoenobaenus</i> ) and waders such as lapwing, snipe ( <i>Gallinago gallinago</i> ) and redshank ( <i>Tringa totanus</i> ).		
Three Sisters LNR	SD583011	This site covers an area of 34ha. It is designated for its grassland habitats and its assemblage of wetland and woodland birds that includes willow tit ( <i>Poecile montanus</i> ), lapwing and teal. The site is part of a larger complex of wetlands in the Wigan area and is important for education and recreation.	988m west (564m from the nearest construction traffic route)	MA05
Bryn Marsh and Ince Moss SSSI	SD591026	This site covers an area of 68.3ha. It is notified as the best example of swamp and tall fen vegetation in Greater Manchester and Merseyside, as well as for its important populations of dragonflies and breeding birds. Little and great crested grebe, mute swan ( <i>Cygnus olor</i> ), tufted duck, snipe, redshank, reed warbler and sedge warbler breed at the SSSI. It forms an important ornithological link with the other wetlands of the Wigan Flashes.	Adjacent	MA05
The Wigan Flashes LNR	SD585031	This site covers an area of 175.0ha. It is designated for its botanical and ornithological importance. The site has open water, reedbed, fen, grassland and wet woodland habitats and it is a wintering site for bittern and other species of wetland birds with over 200 species recorded. The LNR is south of Wigan and 70ha overlap with Bryn Marsh and Ince Moss SSSI.	Adjacent	MA05
Low Hall Park LNR	SD611032	This site covers an area of 16.5ha. It contains open water, swamp, scrub and woodland habitats. The reserve supports a range of nesting bird species and water vole is regularly recorded on this site.	822m east	MA05
Tatton Meres SSSI	SJ754801	This site covers an area of 90ha. It consists of two meres that are among the best examples of meres with moderate fertility and a rich aquatic flora, including an extensive community of submerged macrophytes such as autumnal pondweed ( <i>Callitriche hermaphroditica</i> ), stiff-leaved water-crowfoot ( <i>Ranunculus circinatus</i> ), spiked water-milfoil ( <i>Myriophyllum spicatum</i> ), fennel pondweed ( <i>Potamogeton pectinatus</i> ) and horned pondweed ( <i>Zannichellia palustris</i> ). The site includes a large area of fen, flushed acidic grassland and woodland.	1.9km south (110m from a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA03 and MA06

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Rostherne Mere Ramsar site	SJ744842	Rostherne Mere Ramsar site covers 79.8ha and spans the NNR and SSSI designations listed above. It is listed as one of the deepest and largest of the meres of the Shropshire-Cheshire plain. It supports fauna of national importance including, cormorant, bittern and water rail ( <i>Rallus aquaticus</i> ).	Adjacent (adjacent to a construction traffic route)	MA03 and MA06
Rostherne Mere SSSI	SJ744842	This site covers an area of 152.9ha. It is situated on the outskirts of Altrincham. It is the deepest, and one of the largest, nutrient rich meres in Cheshire. The mere is a natural lake fringed with habitats such as reed swamp, fen, carr and damp pastures. The reed swamps consist mainly of common reed with lesser reedmace ( <i>Typha angustifolia</i> ) and sweet flag ( <i>Acorus calamus</i> ). Alongside the outflow stream is an area noted for bay willow ( <i>Salix pentandra</i> ) and several rare hybrids. The remaining lands are woodland and farmland. The woodlands include both primary and secondary woodland species such as oak ( <i>Quercus</i> spp.) and wood sorrel ( <i>Oxalis acetosella</i> ). The Mere is nationally important for its bird species that choose to winter on the lake and roost in the surrounding habitats. Species recorded include pochard, pintail ( <i>Anas acuta</i> ) and cormorant ( <i>Phalacrocorax carbo</i> ).	Within land required for construction of the Proposed Scheme (adjacent to a construction traffic route)	MA03 and MA06
Rostherne Mere NNR	SJ744842	This site includes the same area as the Rostherne Mere SSSI. It is primarily of importance for its wintering wildfowl populations, particularly pochard. Mallard ( <i>Anas platyrhynchos</i> ), teal, pintail and shoveler are regular visitors and in cold weather ruddy duck, gadwall ( <i>Anas strepera</i> ) and goosander ( <i>Mergus merganser</i> ).	Within land required for construction of the Proposed Scheme (adjacent to a construction traffic route)	MA03 and MA06
Lindow Common SSSI	SJ834811	The site covers an area of 17.4ha. It represents one of the few remaining areas of lowland heath in Cheshire. The site consists of a mixture of wet and dry heath, bog, open water and scattered scrub and woodland.	3.6km east (adjacent to a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA06
Dunham Park SSSI	SJ739870	The site covers an area of 78ha. It comprises pasture-woodland that has been managed as such since mediaeval times. A large number of the oak and beech trees present are ancient, this site is the only site in the north-west and one of the few remaining in Britain with a considerable number of veteran trees present.	690m north-west (adjacent to a road on which traffic will be redistributed as a result of the Proposed	MA06

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Site name and designation	Ordnance survey (OS) grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		The saprophytic beetle fauna and fly fauna is especially rich at this site and includes rarities.	Scheme)	
Cotteril Clough SSSI	SJ805839	This site covers an area of 10.3ha. It comprises three distinct woodland habitats, a stream and clough. The woodlands include species such as, oak, sycamore ( <i>Acer pseudoplatanus</i> ), holly and rowan. Ground flora includes bracken ( <i>Pteridium aquilinum</i> ), hairy woodrush ( <i>Luzula acuminata</i> ) and foxglove ( <i>Digitalis purpurea</i> ). The embankment of the site supports common herb species, including spotted orchid, ribwort plantain ( <i>Plantago lanceolata</i> ) and creeping buttercup ( <i>Ranunculus repens</i> ). Fauna including blackcap ( <i>Sylvia atricapilla</i> ), whitethroat ( <i>Sylvia communis</i> ) and green woodpecker ( <i>Picus viridis</i> ) bird species have been recorded across the site alongside 79 species of spider and the rare beetle ( <i>Dropephylla grandiloqua</i> ).	140m east (adjacent to a construction traffic route)	MA06
Wythenshawe Park LNR	SJ816897	This site covers an area of 85ha and comprises open parkland, grassland and managed woodland.	192m north (10m from the nearest construction traffic route)	MA07
Stenner Woods and Millgate Fields, Didsbury LNR	SJ845899	This site covers an area of 36.6ha. It comprises a mixture of marsh and grassland and Stenner Woods wetter areas allow willow to thrive. The dry grassland supports several tree species including elm ( <i>Ulmus procera</i> ), birch ( <i>Betula pendula</i> ), ash ( <i>Fraxinus excelsior</i> ), sycamore and alder. The marshland ground flora comprises of dotted loosestrife ( <i>Lysimachia punctata variegata</i> ), purple loosestrife ( <i>Lythrum salicaria</i> ), wild angelica ( <i>Angelica sylvestris</i> ) and marsh woundwort ( <i>Stachys palustris</i> ). Invertebrates and beetle larvae inhabit the trees which provide food for great spotted woodpecker ( <i>Dendrocopos major</i> ).	336m south-east (210m from the nearest construction traffic route)	MA07
Clayton Vale LNR	SJ884993	This site covers an area of 52ha. It has areas of unimproved grassland, woodland, three ponds, and the River Medlock flowing through it.	190m north-east	MA07
Hollinwood Branch Canal SSSI	SJ913999	This site covers an area of 3.3ha. The canal is the best example of a mesotrophic standing water system in Greater Manchester and Merseyside. The main habitats are open water, swamp and tall fen. Damp unimproved neutral grassland occurs on the eastern bank and unimproved neutral grassland, scattered trees and shrubs and a hedge to the west. High water quality and the profile of the canal support diverse open water plant communities	3.8km north-east (26m west of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA07 and MA08

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		containing several regionally and nationally rare species.		
Rochdale Canal SAC	SD888065	This site covers an area of 24.9ha. It is designated for the population of floating water-plantain ( <i>Luronium natans</i> ) present, which occurs within a botanically diverse water plant community that holds a wide range of pondweeds. The canal has predominantly mesotrophic water.	2.7km north-east (adjacent to roads on which traffic will be redistributed as a result of the Proposed Scheme)	MA07 and MA08
Rochdale Canal SSSI	SD888 065	This site covers 25.6ha and largely spans the Rochdale Canal SAC. It is designated for important habitats for submerged aquatic plants and emergent vegetation. The canal supports a rich but generally common assemblage of invertebrates, with 112 recorded species, of which 13 species are of local importance. A number of waterside bird species are present, including grey wagtail ( <i>Motacilla cinerea</i> ) and kingfisher.	2.7km north-east (adjacent to roads on which traffic will be redistributed as a result of the Proposed Scheme)	MA07 and MA08

2.3.3 Any additional relevant information on habitats or animal populations within these designated sites is given in the relevant species reports.

## Non-statutory designated sites

2.3.4 In Cheshire, the wildlife trust identifies local wildlife sites (LWS) (previously known as sites of biological importance (SBI))<sup>12</sup> which are sites with 'substantive nature conservation value'. They are defined areas identified and selected locally for their nature conservation value, based on important, distinctive and threatened habitats, and species with a national, regional and (importantly) a local context<sup>13</sup>.

2.3.5 In Greater Manchester, sites of substantive nature conservation value are identified as SBI. The SBI system is designed to establish and highlight to planners, landowners and site managers where areas of high biodiversity interest occur so that appropriate decisions on planning applications, land use and land management can be made.

2.3.6 Table 2 provides details of non-statutory designated sites of county / metropolitan value relevant to the assessment, based on the criteria identified in the SMR. Sites are ordered south to north. This information is related to the accompanying Ecology Map Series EC-01.

<sup>12</sup> Greater Manchester Ecology Unit (2016), *Greater Manchester Sites of Biological Importance Selection Guidelines*, Version 2.0.

<sup>13</sup> Cheshire Wildlife Trust (2014), *Local Wildlife Site Selection Criteria for the Cheshire region*.

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**Table 2: Non-statutory designated sites of county/metropolitan value relevant to the assessment within MA01 to MA08**

Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Basford Brook LWS	SJ732508	This site covers an area of 4.3ha. It is designated for providing a wildlife corridor comprising wet woodland, lowland mixed deciduous woodland, marshy grassland, neutral grassland and reedbeds.	804m east (64m south of a road on which traffic will be redistributed as a result of the Proposed Scheme)	MA01
Mere Gutter with Basford Brook LWS	SJ727515	This site covers an area of 10.7ha. It is a single watercourse, designated as one of three key sites for white-clawed crayfish ( <i>Austropotamobius pallipes</i> ) within Cheshire.	Adjacent <sup>14</sup>	MA01
Crewe Swift Colony LWS	SJ690564	This site covers an area of 13.3ha and is designated for a breeding colony of swifts ( <i>Apus apus</i> ). It comprises six streets in a 1930s housing development, which due to its construction (for example large, overhanging eaves), provide swifts with suitable nesting opportunities and is considered one of the largest colonies of breeding swifts in the UK.	Within <sup>15</sup> (adjacent to a construction traffic route)	MA01
Moss Bridge Marsh LWS	SJ699586	This site covers an area of 4.6ha. It is designated for its mosaic of marshy grassland, neutral grassland, reedmace swamp and ditches and for supporting a population of grass snake ( <i>Natrix helvetica</i> ).	Within <sup>15</sup> (adjacent to a construction traffic route)	MA01
Moss Bridge Marsh Veteran Tree LWS	SJ702585	This site covers an area of 100m <sup>2</sup> and comprises a single veteran oak in an area of neutral grassland, located to the south of Moss Bridge Marsh LWS.	128m east	MA01
Spring Plantation Grassland LWS	SJ696587	This site covers an area of 1.1ha. It is designated for species-rich neutral grassland bordered by species-rich hedgerows, which include veteran crack willows, along the southern field boundary.	Within <sup>15</sup>	MA01
Ridding Farm Ponds LWS	SJ700604	This site covers an area of 0.3ha and comprises three well-vegetated ponds in an agricultural landscape.	360m north-east	MA01
Worsley Covert	SJ678614	This site covers an area of 11.8ha and a narrow	177m west	MA01

<sup>14</sup> Utilities works associated with the construction of the Proposed Scheme, consisting of diverting an existing gas pipeline, will bisect the LWS to the east of Basford Hall Sorting Sidings. The Proposed Scheme will pass beneath the site in tunnel to the north of the existing Basford Hall Sorting Sidings.

<sup>15</sup> Land required for the construction of the Proposed Scheme.

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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
LWS		strip of broadleaved woodland, through which flows 1.7km of a tributary of the River Weaver. The LWS includes areas of ancient semi-natural woodland: Worsley Covert and Polestead Wood.	(151m west of a construction traffic route)	
Shropshire Union Canal (Middlewich Branch) LWS	SJ678631	This site covers an area of 14.1ha and comprises a 7km section of canal, including a 570m section that passes through Polestead Wood. The LWS is designated for its species-rich neutral grassland along the canal banks and swamp habitat on the eastern bank.	Within <sup>15</sup>	MA01 and MA02
Boundary Wood/Weaver Bank Wood LWS	SJ677627	This site covers an area of 7.5ha. It comprises a narrow stretch of broadleaved woodland, through which flows a tributary of the River Weaver. The LWS includes Weaver Bank, a plantation on ancient woodland site (PAWS).	20m west	MA01 and MA02
Rookery/Small Rookery Woods LWS	SJ675636	This site covers an area of 1.9ha and comprises ancient semi-natural woodland.	Adjacent	MA02
Woodland near Lea Hall, Wimboldsley LWS	SJ678641	This site covers an area of 0.7ha and comprises ancient semi-natural woodland.	Adjacent	MA02
The Willowbeds LWS	SJ676670	This site covers an area of 9.1ha. It comprises plantation woodland, divided into distinct sections by a system of drains and ditches, and is principally designated for its marshy habitats and vascular plant assemblage. Damper areas are present in the east and several ephemeral ponds are present in the central section of the site. The presence of water-purslane ( <i>Lythrum portula</i> ) is particularly of interest as it is a locally scarce species.	Within <sup>15</sup>	MA02
Bostock Road Orchards LWS	SJ685670	This site covers an area of 0.3ha. Designated for the presence of traditional orchards, it consists of two distinct sites at Greenheyes Farm and Bank Farm.	Within <sup>15</sup> (adjacent to a construction traffic route)	MA02
Greenhays Farm Pasture LWS	SJ688671	This site covers an area of 5.8ha and is designated for its neutral semi-improved and unimproved grassland, which supports some locally scarce species. The grassland is bordered by hedgerows, a section of which is species rich.	Adjacent	MA02
River Dane, Bostock LWS	SJ683681	This site covers an area of 21.2ha. It comprises a section of the River Dane between Middlewich and Bostock Green, which is designated for the mosaic of habitats along the river corridor. Habitats include wet woodland, lowland mixed deciduous woodland, moderately species-rich	Within <sup>15</sup>	MA02

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		semi-improved grassland, species-rich hedgerow and a pond, as well as the river itself, which is freely meandering and supports water-crowfoot ( <i>Ranunculus aquatilis</i> ). Notable ground flora, including locally scarce toothwort ( <i>Lathraea squamaria</i> ), and a number of veteran trees, including ash, oak, sycamore and crack willow, are present. Various bird species, including kingfisher and great spotted woodpecker, along with dragonfly and damselfly species, have been recorded along this section of the River Dane.		
Dane Valley LWS	SJ709674	This site covers an area of 7ha and comprises a section of the River Dane between Byley Bridge and Ravenscroft Bridge. The LWS is designated for its meandering stretch of river, sand and pebble beaches, high vertical banks with exposed sandy faces, and the presence of reed canary grass ( <i>Phalaris arundinacea</i> ) fen, water-crowfoot, a colony of sand martin ( <i>Riparia riparia</i> ) and supporting otter ( <i>Lutra lutra</i> ).	493m north (adjacent to a construction traffic route)	MA02
Veteran Ash, Bank Farm, Bostock LWS	SJ684672	This site covers an area of 200m <sup>2</sup> and is designated for one large veteran ash tree located to the east of Bank Farm.	Within <sup>15</sup>	MA02
Veteran Ash Tree, Greenhayes, Bostock LWS	SJ687673	This site covers an area of 400m <sup>2</sup> and is designated for a very large, veteran ash tree, within a species-rich hedgerow north-east of Greenhayes Farm.	99m south	MA02
Flint Mill Reedbeds LWS	SJ380676	This site covers an area of 1.5ha and is designated for reedbeds along the eastern bank of the Trent and Mersey Canal.	8m east	MA02
Bull's Wood and Meadow LWS	SJ683680	This site covers an area of 3.4ha. It is designated for its ancient woodland habitat, comprising 2.1ha of PAWS and 0.3ha of ancient semi-natural woodland, its neutral grassland, marshy grassland and a veteran ash tree.	Within <sup>15</sup>	MA02
Trent and Mersey Canal LWS	SJ683688	This site covers an area of 2.7ha and is designated for the presence of deciduous woodland, which includes two veteran trees, an oak and an ash, and reedbeds along the eastern bank of the canal.	Within <sup>15</sup>	MA02
Peck Mill Valley LWS	SJ670703	This site covers an area of 1.7ha and is designated for its ancient semi-natural woodland and marshy grassland.	1.1km west (bisected by a construction traffic route)	MA02
Puddinglake Brook Wood LWS	SJ684700	This site covers an area of 0.7ha. It is designated for lowland mixed deciduous woodland along Puddinglake Brook, including	Within <sup>15</sup>	MA02



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		areas of wet woodland, and the presence of a large veteran crack willow.		
Whatcroft Hedge LWS	SJ684702	This site covers an area of 400m <sup>2</sup> and is designated for its species-rich hedge and a veteran ash tree at its eastern end.	7m south-east (10m north of a construction traffic route)	MA02
Whatcroft Lane Wetlands LWS	SJ684707	This site covers an area of 1.9ha. It comprises two areas, one fringing and the other adjacent to the Trent and Mersey Canal. A narrow pond lies between the Trent and Mersey Canal and the Mid-Cheshire Line, largely surrounded by reed swamp containing diverse marginal-emergent and aquatic flora. To the north, a large area of common reed fringes the canal, with areas of grassland and scrub also present.	Within (38m north of a construction traffic route)	MA02
Ash Trees along Trent and Mersey Canal, Billinge Green LWS	SJ682709	This site covers an area of 700m <sup>2</sup> and is designated for two large veteran ash trees on the western bank of the canal, to the north-east of Brook Farm.	Within <sup>15</sup>	MA02
Billinge Green Farm Pond LWS	SJ681712	This site covers an area of 6.9ha. It comprises a large pond surrounded by semi-natural woodland and includes an area of swamp that supports diverse flora.	41m west	MA02
Pear Tree Farm LWS	SJ685714	This site covers an area of 0.1ha and comprises a traditional orchard of pear ( <i>Pyrus</i> spp.) trees.	Within <sup>15</sup>	MA02
Wade Brook LWS	SJ688743	This site covers an area of 5.7ha and comprises a section of Wade Brook, marshy grassland, reedbed and a small field pond.	Within (adjacent to a construction traffic route)	MA02
Long Wood LWS	SJ701750	This site covers an area of 2.6ha and comprises a narrow semi-natural broadleaved woodland, with a ditch system passing through it and several ponds.	Within <sup>15</sup>	MA02
Mill Wood and Mill Bottoms LWS	SJ707755	This site covers an area of 5.4ha and is designated for its complex of woodlands and other habitats along the banks of the Peover Eye. Mill Wood comprises lowland mixed deciduous woodland with many veteran beech trees as well as a veteran sycamore and crack willow. Mill Bottoms comprises a mix of wet woodland with drier deciduous woodland with veteran beech, ash, crack willow and oak trees present.	45m east (12m south-east of a construction traffic route)	MA02
Winnington and Peas Wood LWS	SJ700756	This site covers an area of 12.1ha. It is designated for its lowland mixed deciduous woodland habitat, including areas of ancient semi-natural woodland on the slopes of the Wincham/Smoker Brook and Peover Eye.	Within <sup>15</sup> (adjacent to a construction traffic route)	MA02



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Leonard's And Smoker Wood LWS	SJ704762	This site covers an area of 10.7ha. It is designated for its two narrow connected woodlands along Smoker Brook, including areas of ancient semi-natural woodland that support several veteran oak, ash trees and a fungal assemblage of more than fifty species, and a diverse understory and ground flora.	Within <sup>15</sup> (adjacent to a construction traffic route)	MA02 and MA03
Rinks Wood and Round Wood LWS	SJ714778	This site covers an area of 14.8ha and is designated for its mixed, semi-natural woodland and coniferous woodland including areas of ancient semi-natural woodland and Rinks Pool.	Adjacent (adjacent to a construction traffic route)	MA03
Arley and Waterless Brook Corridor LWS	SJ704790	This site covers an area of 3.5ha and is designated for its lowland mixed deciduous woodland, wet woodland, veteran and ancient trees, neutral and marshy grassland, hedgerow and river habitat along Arley Brook.	Within <sup>15</sup>	MA03
Bongs Wood and Rough LWS	SJ701797	This site covers an area of 7.6ha and is designated for its lowland mixed deciduous woodland and wet woodland along Arley Brook, including areas of ancient semi-natural woodland.	Within <sup>15</sup>	MA03
Tabley Pipe Wood LWS	SJ719804	This site covers an area of 5.2ha and is designated for its lowland mixed deciduous woodland and wet woodland.	Adjacent (adjacent to a construction traffic route)	MA03
Meremoss (Mere) LWS	SJ730806	This site covers an area of 43.8ha and is designated for its lowland mixed deciduous woodland, including areas of ancient semi-natural woodland.	311m east (adjacent to a construction traffic route)	MA03
Belt Wood LWS	SJ717818	This site covers an area of 10.5ha and is designated for its lowland mixed deciduous woodland.	Within <sup>15</sup>	MA03
Cicely Mill Pool LWS	SJ738829	This site covers an area of 4.8ha and is designated for its wet woodland and fen and comprises a shallow, silty lake managed for sport fishing and wildlife conservation.	664m east	MA03 and MA06
Fields Behind "Ye Olde No. 3" LWS	SJ720865	This site covers an area of 2.5ha and is designated for its broadleaved woodland, wet woodland and areas of swamp. It comprises two fields adjacent to the Bridgewater Canal.	4m north (adjacent to a construction traffic route)	MA03
Woolstencroft Farm Meadow LWS	SJ722872	This site covers an area of 6.1ha and is designated for its lowland mixed deciduous woodland, neutral and semi-improved grassland, floodplain grazing marsh, ponds and ditches and hedgerow.	543m north (330m north of a construction traffic route)	MA03, MA04
Fox Covert and	SJ708886	This site is a Grade B SBI and covers an area of	Within <sup>15</sup>	MA04

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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Meadows SBI		5.1ha. It is designated for its lowland broadleaved and wet woodland habitats.		
Wigsey Lane Meadows SBI	SJ695889	This site covers an area of 5.6ha and is designated for its marshy grassland with associated areas of open water. A number of ditches cross the site. The site supports good populations of birds and invertebrates. The site also supports amphibians including frog and common toad.	637m west	MA04
Coroners Wood SBI	SJ706907	This site is a Grade B SBI and covers an area of 1.9ha. It is designated for its woodland and grassland habitats and is part of an area of ancient semi-natural woodland.	15m east	MA04
Partington Nature Reserve SBI	SJ720919	This site is a Grade C SBI and covers an area of 7.3ha. It is designated for its open water habitat and habitat mosaic.	1.4km north-east (adjacent to a construction traffic route)	MA04
Old River Irwell SBI	SJ724941	This site is a Grade B SBI and covers an area of 4.1ha. It is designated for its wintering bird populations including wintering tufted ducks and goldeneye ( <i>Bucephala clangula</i> ).	2.5km east (25m from a construction traffic route)	MA04
Great Woollen Wood SBI	SJ693939	This site is a Grade B SBI and covers an area of 5.7ha. It is designated for its woodland habitat.	242m east	MA04
Heatley Lake, LWS	SJ701880	This site covers an area of 2.2ha and is designated for its lake with dense marginal vegetation, reed swamp, wet neutral grassland and wet woodland.	117m west	MA04
Rixton Brickworks, LWS	SJ685906	This site covers an area of 20.1ha and is designated for its wetland habitats, including a lake rich in submerged, floating and marginal vegetation and two smaller water bodies. There is also woodland with wildflowers and scrub. Part of the LWS overlaps with Rixton Clay Pits SAC, SSSI and LNR.	855m west (adjacent to a construction traffic route)	MA04
Rixton Moss, LWS	SJ669904	This site covers an area of 278ha and is designated as an area of reclaimed mossland, now arable but retaining an extensive network of ditches. It has notable breeding populations of corn bunting ( <i>Emberiza calandra</i> ) and yellow wagtail and is important for black darter dragonfly and brown hare ( <i>Lepus lepus</i> ).	937m west (adjacent to a construction traffic route)	MA04
Cadishead Moss SBI	SJ698951	This site is a Grade A SBI and covers an area of 8.6ha. It is designated for its heathland, bog and notable bird species. Hobby ( <i>Falco subbuteo</i> ) and short-eared owl have been recorded. Other species present include brown hare, common lizard ( <i>Zootoca vivipara</i> ) and the rare bog bush cricket ( <i>Metrioptera brachyptera</i> ). Sphagnum	Within <sup>15</sup>	MA04

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		( <i>Sphagnum</i> sp.) moss and cottongrass are recolonising Little Woollen Moss.		
Pestfurlong Moss, LWS	SJ670929	This site covers an area of 4.2ha and is designated for its wet woodland, grassland and fens, swamps, bogs and reedbeds.	62m south (adjacent to a construction traffic route)	MA05
Gorse Covert Mounds, LWS	SJ665928	This site covers an area of 19ha and is designated for wet woodland, grassland and scattered ponds and its vascular plants. The habitats support many different invertebrates, most notably dragonfly and damselfly species, for which the site is also designated.	Within <sup>15</sup>	MA05
Silver Lane Ponds, LWS	SJ663941	This site covers an area of 19ha and is designated for its restorable Biodiversity Action Plan <sup>16</sup> grassland and the four lakes on-site that contain reedbed. The site is particularly important for owl species including barn owl ( <i>Tyto alba</i> ) and wintering short-eared owl.	Within <sup>15</sup>	MA05
Eleven Acre Common, LWS	SJ644954	This site covers an area of 4.5ha and is designated for its herb-rich neutral grassland. The habitat supports butterfly species, including gatekeeper ( <i>Pyronia tithonus</i> ) and small skipper ( <i>Thymelicus sylvestris</i> ).	Within <sup>15</sup>	MA05
Astley and Bedford Mosses SBI	SJ692975	This site covers an area of 91ha and is designated for its lowland raised bog. The SBI covers the same area as the Astley and Bedford Mosses SSSI.	1.6km east	MA05
Highfield Moss SBI	SJ614956	This site covers an area of 19ha and is designated for its heathland, remnant peat mossland and acid grassland.	1.2km west	MA05
Pennington Flash SBI	SJ635990	This site covers an area of 151ha and is designated for its semi-natural grasslands, reedbed, swamp, fen and standing open water. It is also designated for its birds including willow tit, lapwing, reed bunting and grasshopper warbler ( <i>Locustella naevia</i> ). It includes the area designated as LNR.	101m east	MA05
Lightshaw Lime Beds SBI	SJ615988	This site covers an area of 8.6ha. It is designated for its large areas of standing open water, small ponds, former settling ponds, that have a calcareous plant community, and its assemblage of breeding birds, including reed bunting, willow tit and bullfinch ( <i>Pyrrhula</i>	5m west	MA05

<sup>16</sup> Greater Manchester Biodiversity Action Plan, (2009), *Habitat Action Plan, Grasslands*. Available online at: [Microsoft Word - Grasslands HAP 09 updated.doc \(gmwildlife.org.uk\)](#).

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		<i>pyrrhula</i> ). It supports a population of great crested newt and water vole.		
Ponds near Lightshaw Lane, SBI	SJ616991	This site covers an area of 11.8ha and is designated for its population of great crested newts, its ponds and its assemblages of breeding birds, including reed bunting, shoveler and possibly water rail.	Within <sup>15</sup>	MA05
Abram Flashes, SBI	SD612002	This site covers an area of 43ha. It is designated for its reedbed, swamp and fen and its populations of UK scarce breeding birds, including gadwall, teal and water rail. It is also designated for its winter bird assemblage, which includes black-tailed godwit ( <i>Limosa limosa</i> ) and curlew. The majority of the SBI is also notified as Abram Flashes SSSI.	Adjacent	MA05
Edge Green Common SBI	SJ602996	This site covers an area of 4.5ha. It is designated for its remnant mossland surrounded by grassland and developing woodland. The mossland habitats are dominated by purple moor-grass. Other species present include heather, sharp flowered rush and bilberry. Four <i>Sphagnum</i> moss species are present within the wetter areas.	Adjacent	MA05
Edge Green SBI	SJ602997	This site is a Grade C SBI and covers an area of 1ha. It is designated for swamp. Reed bunting and reed warblers are known to breed in the SBI.	Adjacent	MA05
Horrock's Flash, SBI	SD593026	This site covers an area of 58ha. It is designated for its large area of standing water and its populations of butterflies, including speckled wood ( <i>Pararge aegeria</i> ) and meadow brown ( <i>Maniola jurtina</i> ). It is also designated for its UK scarce breeding birds, including little ringed plover, willow tit, lapwing, reed bunting and spotted flycatcher ( <i>Muscicapa striata</i> ) and its winter bird assemblages, which includes bittern. It is located within the larger Bryn Marsh and Ince Moss SSSI and Wigan Flashes LNR.	Adjacent	MA05
Bryn Marsh SBI	SD584025	This site covers an area of 16ha. It is designated for its reedbeds, swamp, fen and standing water and its populations of UK scarce breeding birds, including reed bunting, song thrush ( <i>Turdus philomelos</i> ), bittern and willow tit. It is also designated for its dragonflies. It is within the larger Bryn Marsh and Ince Moss SSSI and Wigan Flashes LNR.	1.0km west	MA05
Yarwood Heath	SJ744853	This site covers an area of 2.8ha and is designated for its lowland mixed deciduous	Within <sup>15</sup> (adjacent to a	MA06

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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Covert LWS		woodland and several interconnecting pools along the site's southern boundary.	construction traffic route)	
Hancock's Bank South LWS	SJ754844	This site covers an area of 5.7ha and is designated for its wet hollows, lowland mixed deciduous woodland including areas of ancient semi-natural woodland and neutral and marshy grassland habitat along Blackburn's Brook.	Within <sup>15</sup> (adjacent to a construction traffic route)	MA06
Hancock's Bank North LWS	SJ753848	This site covers an area of 1.4ha and, is designated for its broadleaved woodland along Blackburn's Brook and includes areas of ancient semi-natural woodland.	Adjacent	MA06
Twiss's Wood LWS	SJ752833	This site covers an area of 7.4ha and is designated for its lowland mixed deciduous woodland.	449m south (145m north-west of a construction traffic route)	MA06
Ryecroft Covert LWS	SJ758845	This site covers an area of 4.2ha and is designated for its lowland mixed deciduous woodland and marshy grassland.	Within <sup>15</sup>	MA06
Watch Hill SBI	SJ749860	This site covers an area of 5.2ha and is designated for lowland mixed deciduous woodland which includes Watch Hill ancient woodland. Plantation woodland, scrub and running water habitats are also present.	59m east	MA06
Old Deer Enclosure, Tatton Park LWS	SJ760827	This site covers an area of 86.9ha. It is designated for its river habitats along Tatton Mere Brook, frequent ponds and wet hollows, grassland habitats and small parcels of mixed plantation woodland. The site is used extensively by a managed population (400 breeding herd) of red ( <i>Cervus elaphus</i> ) and fallow deer ( <i>Dama dama</i> ).	344m south (125m south-east of a construction traffic route)	MA06
Hanging Bank Covert SBI	SJ753855	This site covers an area of 0.7ha and is designated for its oak and ash woodland with hawthorn and elder understorey. The woodland contains the invasive species <i>Rhododendron</i> sp., Himalayan balsam and extensive areas of giant hogweed. The site supports a diverse assemblage of woodland birds.	221m north	MA06
Vicarage Gorse Covert SBI	SJ756954	This site covers an area of 1.9ha and is designated for its mature oak and ash woodland, with hazel and hawthorn ( <i>Crataegus monogyna</i> ) understorey. The ground flora is moderately species-rich. The woodland contains the invasive species <i>Rhododendron</i> sp., Himalayan balsam and giant hogweed ( <i>Heracleum mantegazzianum</i> ). The site supports a diverse assemblage of woodland birds.	207m north	MA06
The Priors	SJ761856	This site covers an area of 0.7ha and is	222m north	MA06

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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
Wood SBI		designated for its well-developed ash and oak woodland on a steep slope above the River Bollin. The ground flora is species-rich, with plants including dog's mercury ( <i>Mercurialis perennis</i> ), red campion ( <i>Silene dioica</i> ), bluebell ( <i>Hyacinthoides non-scripta</i> ), moschatel ( <i>Adoxa moschatellina</i> ) and tufted hair-grass ( <i>Deschampsia cespitosa</i> ). The woodland contains the invasive species Himalayan balsam and giant hogweed.		
Birkinheath Covert LWS	SJ761837	This site covers an area of 3.6ha and is designated for its lowland mixed deciduous woodland.	Within (adjacent to a construction traffic route)	MA06
Ashley Mill Wood LWS	SJ767855	This site covers an area of 0.5ha and is designated for its lowland mixed deciduous woodland.	Adjacent (adjacent to a construction traffic route)	MA06
Wood near Arden House LWS	SJ770836	This site covers an area of 3ha and is designated for its mixed semi-natural woodland including areas of ancient semi-natural woodland.	Within <sup>15</sup>	MA06
Sugar Brook LWS	SJ774828	This site covers an area of 2.9ha and is designated for its lowland mixed deciduous woodland, hedgerows, neutral grassland, traditional orchards and veteran and ancient trees. The woodland is thought to be a small fragment of remaining ancient woodland.	Within <sup>15</sup>	MA06
Ashley Brickworks LWS	SJ774835	This site (formally Erlam's Meadow LWS), covers an area of 3.1ha and is designated for its lowland mixed deciduous woodland, rough meadow, ponds and stream habitat.	Within <sup>15</sup>	MA06
Jackson's Bank West LWS	SJ779852	This site covers an area of 5.4ha and is designated for its lowland mixed deciduous and wet woodland.	399m east	MA06
Bentley and Tomfield Banks SBI	SJ784853	This site covers an area of 8.6ha and is designated for its semi-natural broadleaved woodland including areas of ancient semi-natural woodland.	639m north	MA06
Ecclesfield Wood LWS	SJ781836	This site covers an area of 3ha and is designated for its lowland deciduous woodland and comprises scattered ponds and a stream along its northern boundary.	Within <sup>15</sup>	MA06
Jackson's Bank East LWS	SJ785846	This site covers an area of 1.9ha and is designated for its lowland mixed deciduous woodland along the River Bollin.	108m north	MA06
Rossmill SBI	SJ790847	This site covers an area of 5.4ha and is designated for its semi-natural broadleaved	Adjacent	MA06

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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		woodland including areas of ancient semi-natural woodland, its grassland and marsh.		
Brickhill Wood LWS	SJ790836	This site covers an area of 4.2ha and is designated for its standing water and mixed semi-natural woodland including areas of ancient semi-natural woodland. The site also has a good assemblage of birds.	Adjacent	MA06
Veteran Oak Tree, Thorns Green LWS	SJ792841	This site is designated for the veteran oak tree present.	Within <sup>15</sup>	MA06
Wood near Chapel Lane SBI	SJ794844	This site covers an area of 0.8ha and is designated for its woodland which is linked to an extensive network of ancient woodland along the bank of the River Bollin.	Within <sup>15</sup>	MA06
Mill Wood, Castle Mill LWS	SJ797838	This site covers an area of 3.7ha and is designated for its lowland mixed deciduous and wet woodland, hedgerows, grassland and veteran and ancient trees.	Within (adjacent to a construction traffic route)	MA06
Sunbank Wood and Ponds SBI	SJ800841	This site covers an area of 23.7ha and is designated for its woodland habitat including areas of ancient semi-natural woodland and ponds that support a range of amphibian species including great crested newt.	Within (adjacent to a construction traffic route)	MA06
Cotteril Clough SBI	SJ806840	This site covers an area of 11.2ha and comprises areas of ancient semi-natural woodland. The majority of the SBI is also Cotteril Clough SSSI as described above.	140m east (adjacent to a construction traffic route)	MA06
Bollin Oxbow at Castle Hill LWS	SJ801835	This site covers an area of 4.7ha and is designated for its lowland mixed deciduous woodland, hedgerows, grazing marsh and grassland habitats, ponds and ditches and river habitat along the River Bollin.	157m south	MA06
Well and Double Woods SBI	SJ803834	This site covers an area of 5.3ha and is designated for its woodland habitat and woodland floor plant communities.	139m south-east	MA06
Road Cutting at Castle Hill SBI	SJ807837	This site covers an area of 0.6ha and is designated for its calcareous grassland within its woodland and scrub habitat. It is the only known calcareous grassland site in Manchester.	642m south (adjacent to a construction traffic route)	MA06
Ponds near Manchester Airport Runway SBI	SJ809838	This site covers an area of 4.1ha and is designated for its ponds that provide habitat for amphibians, including breeding great crested newt.	469m south (100m east of a construction traffic route)	MA06
Ponds at Davenport Green SBI	SJ797868	This site covers an area of 34.2ha and is designated for its grassland, aquatic invertebrates, ponds, hedgerow and amphibians. The ponds support great crested	110m north-west	MA06



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Site name and designation	OS grid reference	Site description	Distance from the Proposed Scheme (m) and orientation	Relevant CA number
		newt.		
Davenport Green Wood SBI	SJ804860	This site covers an area of 3.6ha and is designated for its semi-natural broadleaved woodland and bird assemblages.	Within <sup>15</sup>	MA06
Blackcarr Wood and Baguley Bottoms SBI	SJ819888	This site covers an area of 5.7ha and is designated for its semi-natural broadleaved woodland.	88m west	MA07
Gib Lane Wood SBI	SJ820895	Gib Lane Wood SBI, covers an area of 6.2ha and is designated for its broadleaved woodland. The SBI is within the Wythenshawe Park LNR.	195m north	MA07
Round Wood SBI	SJ824892	Round Wood SBI, covers an area of 1.9ha and comprises woodland that supports a range of bird species.	105m north	MA07
Fletchers Moss SBI	SJ845900	This site covers an area of 6.1ha and is designated as wet woodland. The LWS falls within the Stenner Woods and Millgate Fields LNR boundary.	340m south-east	MA07
Wrengate Wood SBI	SJ838910	This site covers an area of 2.2ha and is designated for broadleaved and wet woodland, a water body, a stream, and a heronry.	Within <sup>15</sup>	MA07
Ashton Canal (West) SBI	SJ869984	This site covers an area of 8.5ha comprising part of the Ashton Canal. It is designated for its submerged aquatic flora.	Adjacent (adjacent to construction traffic routes)	MA08
Rochdale Canal, Stott's Lane-Ducie Street Basin SBI	SJ866995	This site covers an area of 8.9ha comprising part of the Rochdale Canal. The area outwith the SSSI, is designated for its regionally important aquatic habitats and flora.	Adjacent (adjacent to construction traffic routes)	MA08

2.3.7 The route of the Proposed Scheme will cross the Great Manchester Wetlands Nature Improvement Area (NIA), covering an area of 48,000ha. Whilst not a designated site, locally determined NIAs are identified and agreed by nature partnerships and local planning authorities. The Greater Manchester NIA incorporates the wetlands known as the Flashes around Wigan, the Mosslands in the vicinity of Salford and Warrington, and the River Mersey corridor from Rixton to Warrington. The NIA objectives include improving species dispersal and providing habitat connectivity, optimising the carbon storage of lowland raised bog and restoring key designated sites. The route of the Proposed Scheme crosses three areas of land identified to represent Wildlife Corridors by the City of Salford and Trafford Council, as part of their planning framework. These occur adjacent to the M56 near Davenport Green in the Hulseheath to Manchester Airport (MA06) area, at the crossing point with the River Bollin and at the crossing point with the Manchester Ship Canal in the Broomedge to Glazebrook (MA04) area. Further north, within the Risley to Bamfurlong (MA05) area, the northernmost section of the Proposed Scheme from Stone Cross Lane at Lowton, also lies within a Wildlife Corridor identified by Wigan Metropolitan Borough Council.



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2.3.8 Two Lancashire Wildlife Trust nature reserves are of relevance to the construction of the Proposed Scheme within the Risley to Barmfurlong (MA05) area:

- Lightshaw Meadows is a reserve covering an area of 18ha, 13ha of which is within Abram Flashes SSSI. It is designated for its wetland habitats and associated bird assemblage including lapwing, redshank and little ringed plover. It is located west of Abram and adjacent to land required for construction of the Proposed Scheme; and
- Cadishead and Little Woolden Moss nature reserve covering an area of 115ha. It is designated as one of the last remaining fragments of the Chat Moss peatlands and is currently being restored by Lancashire Wildlife Trust. Hobby and short-eared owl have been recorded at the site. Other species present include brown hare, common lizard and the rare bog bush cricket. *Sphagnum* moss and cottongrass are recolonising Little Woolden Moss. The reserve is located within land that has been identified for the purposes of habitat creation or enhancement, as part of the Proposed Scheme.

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