

PRELIMINARY ECOLOGICAL APPRAISAL

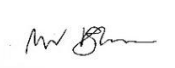
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Castlefield Viaduct Urban Park
Castlefield
Manchester

**U R B A N
G R E E N**



QUALITY MANAGEMENT

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NON-TECHNICAL EXECUTIVE SUMMARY

The National Trust are proposing to develop land at Castlefield Viaduct in Castlefield, Manchester (hereafter referred to as ‘the site’). The proposals include the creation of an urban park that is open to the public within a disused railway viaduct.

Urban Green have been appointed to complete a Preliminary Ecological Appraisal of the site. The objectives of the assessment are to identify habitats on site and determine the suitability for any ‘protected and/or notable’ species may occur on site, with consideration of potential impacts on nearby designated sites. Further surveys and recommendations are provided within this report to minimise potential impacts on development, along with enhancements to maximise the sites value to ecology.

Following the survey work, the key recommendations are summarised in the following table:

Current Site Use and Adjacent Site Use	The site is located within Manchester city centre, next to an active tram line. Commercial and high-density residential buildings are present in the surrounding area. The River Irwell is present approximately 260m west of the site and the Bridgewater Canal is present directly beneath the viaduct, with limited areas of dense vegetation present along the banks.
Potential Impacts on Designated Sites	No potential impacts on designated sites nearby to the site are anticipated to occur due to the proposed development. The site is located at a sufficient distance from nearby designated sites, and the proposed development activities have been considered.
Habitats	Habitats on site comprised scattered scrub, a single broadleaved tree, semi-improved neutral grassland, with the majority of the site comprising ephemeral/short perennial vegetation.
Ecological Constraints	The following potential ecological constraints were identified during the assessment: • Structure 1 has moderate potential to support roosting bats. • The site provides moderate value to commuting and foraging bats. • Nesting birds were observed using the Viaduct structure and ground nesting species may also use the loose substrate present on site.
Recommended Ecological Mitigation	A check for nesting birds is to be carried out before any vegetation or substrate is cleared from site to minimise potential impacts to nesting birds due to the proposed development.
Recommended Further Surveys and Reports	Nocturnal bat surveys on Structure 1 may be required, depending on the scope of further works to be completed on site. Further bat activity surveys to assess the value of the site to foraging bats may be required depending on the final landscape designs of the site.
Recommended Ecological Enhancements	The National Planning Policy Framework (NPPF) (2019) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment. The proposed development provides the opportunity to enhance the site and ecological enhancements have been recommended.

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1 Introduction

1.1 Background to the Scheme

The National Trust are proposing to develop land at Castlefield Viaduct in Castlefield, Manchester (hereafter referred to as ‘the site’). The proposals include the construction of an urban park that is open to the public. Urban Green have been appointed to undertake a Preliminary Ecological Appraisal (PEA) of the site.

The author of the report is Mark Blacker, MSc, ACIEEM, Ecologist at Urban Green. Mark has experience providing ecological consulting services for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes. Mark has a level 1 great crested newt class licence and key experience with terrestrial mammals.

1.2 Site Context

The site is located at National Grid Reference SJ 83013 97624 and comprises a total area of approximately 0.59ha (see Figure 1).

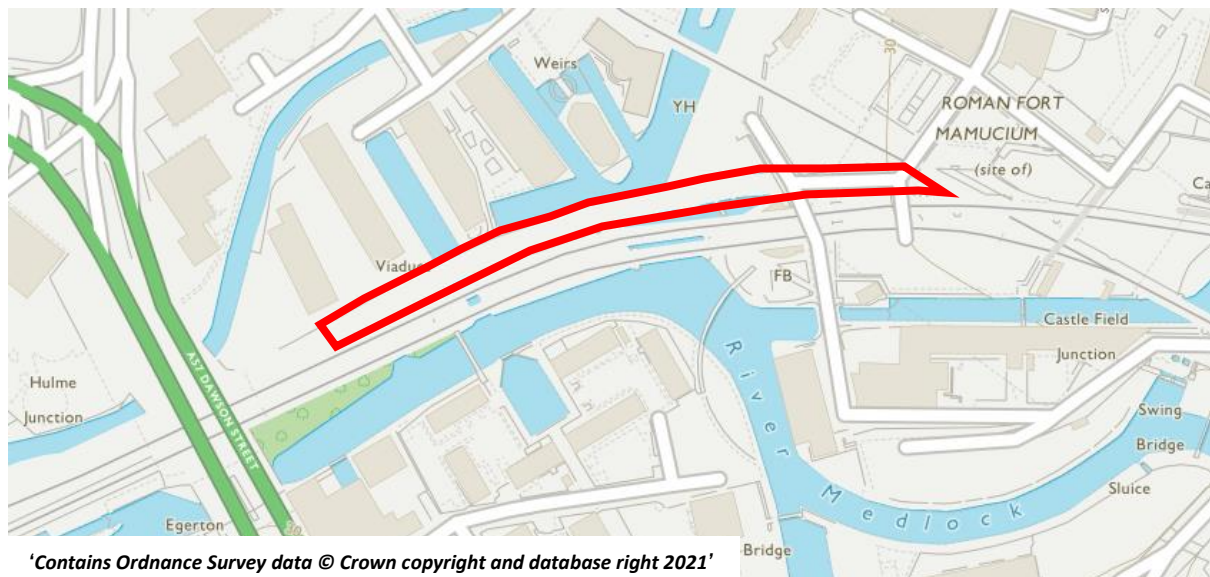


Figure 1 – Site Extent

The site is located in a densely urban area of Manchester city centre, adjacent to an active tram line. The site is also located above the Bridgewater canal and approximately 260m east of the River Irwell. Buildings surrounding the site are mostly commercial offices to the north and high-density residential apartments to the south. Due to the sites location close to the city centre, there is a high level of disturbance present from main roads such as the A635 (M) present approximately 75m west of the site.

1.3 Purpose of this Report

This report has been produced to set out the methods, results, and conclusions of a PEA. The purpose of the PEA report is to be identify habitats on site and determine the sites potential value for protected and/or notable fauna and flora, with the addition of potential impacts on designated site. This will inform the need for any further ecological surveys and/or mitigation to minimise the potential impacts on ecology on site and within the local area.

Further information and details of UK legislation for those species which are formally protected is defined in Appendix 1, which are considered throughout the assessment.

The National Planning Policy Framework (NPPF) (2019) and other Local Planning Policies are considered with the PEA. Ecological enhancements are advised to be in line with relevant Planning Policies.

2 Methods

The PEA assessment and Report follows the good practice methodology as detailed within the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2019).

2.1 Desk Study

2.1.1 Online Resources and Local Records Centre

Due to the size and low impact of the proposed development and being located within a predominantly urban area of Manchester, a 1km Local Data Search was conducted as it is deemed an appropriate distance for the Zone of Influence.

Sources of information used in the desk study are presented in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
MAGIC website (www.magic.gov.uk)	18/03/2021	Locations of statutory designated sites within 1km of the site boundary. Locations of the designated sites within the National Site Network (Ramsar, SAC and SPA) within 5km of the site boundary. Locations of European Protected Species Licences (EPSL) and Class Licences within 1km.
Natural England (https://designatedsites/.naturalengland.org.uk/)	18/03/2021	Relevant statutory designated site citations.
Joint Nature Conservation Committee (JNCC) (https://jncc.defra.gov.uk/)	18/03/2021	Information on European wildlife sites. Details of relevant Section 41 species and habitats.
Greater Manchester Ecology Unit	16/03/2021	Locally designated wildlife sites within 1km of site boundary. Records of protected and notable species within 1km of the site boundary.
Greater Manchester Local Biodiversity Action Plans	18/03/2021	Species and habitats which are given special conservation status at the local level.
Catchment Data Explorer	18/03/2021	Summary of data relating to river condition and catchment data, provided The Environment Agency (EA)

MAGIC was also searched to assess whether the site fell within any Impact Risk Zones (IRZ) associated with a statutory designated site or a site forming part of the National Site Network. IRZ's have been identified by Natural England for use by Local Planning Authorities to assess planning applications for likely impacts on these sites and to determine when to consult Natural England for further advice.

2.2 Field Survey

2.2.1 Vegetation

The site was subject to a field survey on 19th April by Mark Blacker (Ecologist) and Katie Bird (Senior Ecologist). The weather conditions were 18°C, clear (2/8 oktas), wind speed 1 Beaufort scale.

The methods were based on the standard methodology as detailed by *JNCC Handbook for Phase 1 Habitat Survey* (JNCC, 2010). A Phase 1 Habitat Plan has been produced to demonstrate habitats within the proposed development and the surrounding area. The mapping techniques are based on *the Phase 1 Habitat Survey* (JNCC, 2010) guidance. Plant common and latin names were taken from the *Online Atlas of British and Irish Flora* (<https://www.brc.ac.uk/plantatlas/>), a continually updated directory of plant nomenclature developed in partnership by the Botanical Society of Britain and Ireland, the Biological Records Centre, the UK Centre for Ecology and Hydrology, and the JNCC.

Flora species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and/or uncommon habitats, were searched for during the survey.

Species abundance is described using the DAFOR scale as shown in Table 2. Percentages are an approximate indication rather than a quantitative measure.

Table 2 – Key to Species Abundance

		Description	Indicative Percentage Ranges
D	Dominant	Covers most of the area	90% or greater
A	Abundant	Very common throughout the area.	50 – 90%
F	Frequent	Common or with many individuals.	20 – 50%
O	Occasional	Occurs in several places but not throughout. Populations are not large.	5 – 20%
R	Rare	Occurs in low numbers in relation to size of area.	Less than 5%

“L” will be used to indicate abundance in a localised area, e.g., LA = Locally abundant

Any invasive species, including those listed on the revised (April 2010) Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were noted during the field survey when sighted.

2.2.2 Fauna

A site search for field signs of protected and notable fauna was undertaken, and incidental sightings are detailed. The searches completed were as follows:

- Suitability of any ponds to support notable and protected amphibians, and the suitability of the site’s terrestrial habitats to support amphibians.
- Suitability of the site to support reptiles by way of habitat structure and refuge piles, as well as links to the wider landscape.
- Search of any watercourses for signs or suitability for white clawed-crayfish (*Austropotamobius pallipes*), water vole (*Arvicola amphibius*) and otter (*Lutra lutra*) by way of burrows, resting places, holts, and foraging signs.

- Suitability of the site to support notable bird species. Bird nests and droppings of notable and protected bird species.
- Suitability of the site to support notable invertebrates.
- Search of the site for any invasive species.
- Badger (*Meles meles*) field signs such as setts, mammal, paths, snuffle holes and latrines.
- Suitability of the site to support notable terrestrial mammals including harvest mouse (*Micromys minutus*) and brown hare (*Lepus europaeus*).

2.3 Bat Assessment

2.3.1 Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out on the site structures using a high-powered torch and close-focussing binoculars.

The PRA methodology is based on information contained within the Bat Conservation Trust (BCT) guidelines, 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 3, which is used as a basis for determining the requirement for further surveys.

Table 3 – Suitability of Buildings and Trees for Roosting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics	Further Survey Requirements
High Roost Suitability	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September, with at least two surveys between May and August.
Moderate Roost Suitability	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but are unlikely to support a roost of high conservation status.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. Surveys can be undertaken between May and September with at least one survey between May and August.
Low Roost Suitability	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate condition and/or suitable surrounding habitat to be used on a regular basis by larger numbers of bats.	One emergence/re-entry survey between May and August.

Category of Suitability	Typical Characteristics	Further Survey Requirements
Negligible Suitability	Negligible habitat features on site likely to be used by roosting bats.	No further work required.

2.3.2 Commuting and Foraging Bats

The site was assessed for its suitability for use by commuting and foraging bats.

The commuting and foraging assessment methodology is based on information contained within the Bat Conservation Trust guidelines 3rd edition (Collins, 2016). The categorisation within this report is based on that set out in Table 4, which is used as a basis for determining the requirement for further surveys.

Table 4 – Suitability of Site for Foraging and Commuting Bats (adapted from Collins, 2016)

Category of Suitability	Typical Characteristics
High Suitability	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting or foraging bats such as; river valleys, streams, hedgerows, lines of trees or woodland edge. Site is close to or connected to known roosts.
Moderate Suitability	Continuous habitat connected to the wider landscape that could be used by commuting bats such as lines of trees, scrub or linked back gardens. Habitat connected to wider landscape that could be used for bats for foraging such as; trees, scrub, grassland, or water.
Low Suitability	Habitat that could be used by small number of commuting bats such as; defunct hedgerow, isolated features not well connected to surrounding habitat or Isolated habitat that could be used by a small number of foraging bats such as a lone tree or patch of scrub.
Negligible Suitability	No features on site suitable for use by commuting and foraging bats.

2.4 Constraints to the Survey

Whilst every effort has been made to provide a comprehensive description of the site, no investigation could ensure the complete characterisation and prediction of the natural environment.

This PEA does not constitute a full botanical survey. The protected species assessment provides a view of the likelihood of protected species occurring on the site based on the known distribution of species in the local area and the suitability of the habitat.

It should not, however, be taken as providing a full and definitive survey of any protected species group.

Where a lack of records is found during the desk search for a defined geographical area, it does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

The conclusions and recommendations detailed in this report are based upon the site redline boundary and the development proposals as outlined by the client at the time of writing. Should there be any

changes to the site redline boundary or development proposals at a later stage, this assessment should be reviewed to determine whether any amendments or additional survey work is required.

The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited within this document.

2.5 Lifespan of Report

In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys (CIEEM, 2019), the details of this report will remain valid for a period of **18 months** from the date of the survey (i.e., until 19th October 2022). After this date, this assessment should be reviewed to determine whether any updated surveys are required.

2.6 Definitions

For the purposes of this report, the term 'protected and notable species' relates to:

- Species included on Schedules 2 and 4 of *The Conservation of Habitats and Species Regulations 2017*;
- Species included on Schedules 1, 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding species that are only protected in relation to their sale (see section 9[5] and 13[2]);
- Invasive non-native species included on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended);
- Species of principal importance for the conservation of/maintaining and enhancing biodiversity as required under: Section 41 of the *Natural Environment and Rural Communities Act 2006* (England), Section 7 of the *Environment (Wales) Act 2016*, Section 2[4] of the *Nature Conservation (Scotland) Act 2004*;
- Local species of importance as identified within various local biodiversity action plans; and,
- Badgers, which are protected under the *Protection of Badgers Act 1992*.

3 Baseline Ecological Conditions

3.1 Desk Study

3.1.1 Site Location

The site is located on the southern extent of Manchester city centre, adjacent to an active tram line. It is approximately 330m in length and 12m in width, comprising eight spans and is a Grade II listed structure. The Castlefield Viaduct has been disused since 1969 and has only been subject to infrequent vegetation clearance/maintenance since then. High density residential buildings are present in the surrounding area, and tram line is adjacent to the site to the south. The River Irwell is present approximately 260m west of the site and the Bridgewater Canal is present directly beneath the Viaduct, with limited areas of dense vegetation present along the banks.

A car park is present adjacent to the site to the east, with Castlefield Urban Heritage Park present north of the site.

Habitats within the surrounding area are limited to urban street planting and recreational parks, with Castlefield Urban Heritage Park present approximately 50m north of the site. Species associated with urban areas and canals are anticipated to be present within the local area.

3.1.2 Designated Sites

No sites within the National Site Network of European designated sites were located within 5km of the site boundary. No statutory designated sites and or non-statutory designated sites were located within 1km of the site.

The site also falls within the Impact Risk Zone of Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). This site is located approximately 6.8km north east of the site. This site is designated for the significant populations of floating water-plantain (*Luronium natans*) and diversity of pondweed species (*Potamogeton* sp.) supported within the predominantly mesotrophic waters.

3.1.3 Flora and Fauna

The following section summarises protected and/or notable species records that have been recorded within 1km of the site.

Invertebrates

Four records of cinnabar moth (*Tyria jacobaeae*) were returned within 1km of the site. The closest record was located approximately 520m north of the site from 2013. Cinnabar moth is a Species of Principal Importance on Section 41 of the NERC Act, 2006.

Vascular Plant

One record of grass-wrack pondweed (*Potamogeton compressus*) was returned within 1km of the site, located approximately 850m east of the site from 2005. Grass wrack pondweed is a Species of Principal Importance in the UK.

Birds

Schedule 1 Birds

Twenty-one records of birds protected under Schedule 1 of the wildlife and Countryside Act 1981 (as amended) were present within 1km of the site as detailed in Table 6.

Table 6 – Protected or notable birds recorded within 1km

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
<i>Phoenicurus ochruros</i>	Black Redstart	WCA Sch 1, BoCC*	550m north east	2018
<i>Alcedo atthis</i>	Kingfisher	WCA Sch 1, BoCC**	70m north west	2019
<i>Charadrius dubius</i>	Little Ringed Plover	WCA Sch 1,	500m north west	2012
<i>Falco peregrinus</i>	Peregrine	WCA Sch 1,	250m east	2008

* Listed Red on the Bird of Conservation Concern 4 (2015)

** Listed Amber on the Bird of Conservation Concern 4 (2015)

*** Wildlife & Countryside Act (Sch 1, 5 & 8)

****Previously UKBAP species now Section 41 (NERC Act, 2006),

Passerine Birds

142 records of passerine birds were returned from within 1km of the site as detailed in Table 7

Table 7 – Records of Passerine birds within 1km of the site

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance (m)	Date
<i>Pyrrhula pyrrhula</i>	Bullfinch	BoCC4**, S41****	400m north	2014
<i>Prunella modularis</i>	Dunnock	BoCC4**, S41****	100m north	2016
<i>Larus argentatus</i>	Herring Gull	BoCC*, S41****	850m north west	2015
<i>Passer domesticus</i>	House Sparrow	BoCC4*, S41****	600m south west	2014
<i>Vanellus vanellus</i>	Lapwing	BoCC4*, S41****	600m north west	2012
<i>Carduelis cannabina</i>	Linnet	BoCC4*, S41****	800m north west	2015
<i>Alauda arvensis</i>	Skylark	BoCC4*, S41****	500m north west	2012
<i>Turdus philomelos</i>	Song thrush	BoCC4*, S41****	500m south west	2012
<i>Sturnus vulgaris</i>	Starling	BoCC4*, S41****	400m west	2014

* Listed Red on the Bird of Conservation Concern 4 (2015)

** Listed Amber on the Bird of Conservation Concern 4 (2015)

*** Wildlife & Countryside Act (Sch 1, 5 & 8)

****Previously UKBAP species now Section 41 (NERC Act, 2006),

Bats

A total of 31 records of bat roosts were returned within the search area. Common pipistrelle (*Pipistrellus pipistrellus*) was the most common species recorded roosting, with records also returned for Daubenton's bat (*Myotis daubentonii*), soprano pipistrelle (*Pipistrellus pygmaeus*), and an unidentified *Pipistrellus* sp. The closest record of a roost was that of three records of a common pipistrelle roosting within the brick support pillar of the tram line viaduct adjacent to the Castlefield

Viaduct from 2013, above which the urban park is planned to be constructed. Soprano pipistrelle is listed on Section 41 of the NERC Act (2009).

A total of 56 records of bat activity within the search area were returned, with the majority relating to either common pipistrelle or soprano pipistrelle. A single record of a brown long-eared bat was returned, and one unidentified bat. Brown long-eared bat is listed on Section 41 of the NERC Act (2009).

MAGIC also detailed the presence of five granted EPSL within 1km of the site. Four of the granted licences related to common pipistrelle, with the closest record (REF: 2015-16009-EPS-MIT) to allow for the destruction of a resting place for common pipistrelle between 2016 - 2021. It was located approximately 550m north of the site. One licence to allow for the destruction of a brown long-eared breeding and resting site was present approximately 500m north east of the site (REF: EPSM2012-5061

Hedgehog

Three records of hedgehog (*Erinaceus europaeus*) were returned within 1km of the site, with the closest record located approximately 750m south of the site from 2014. Hedgehog are listed on Section 41 of the NERC Act (2009).

No Records Returned

The data search returned no records for:

- Badger
- Great crested newt
- Hazel dormice (*Muscardinus avellanarius*)
- Otter
- Red squirrel (*Sciurus vulgaris*)
- Water vole
- White-clawed crayfish
- Brown hare
- Harvest mouse
- Reptiles
- Barn Owl

3.2 Field Survey

The site habitats and accompanying Target Notes are presented in the Phase 1 Habitat Map in Appendix 2.

3.2.1 Ephemeral/ Short Perennial vegetation

The majority of the site was covered in loose substrate which was left over from when the site was an active railway viaduct. The ground surface was uneven throughout and the loose substrate has become

sparsely vegetated, with patches of bare substrate still present occasionally throughout (see Photograph 1 and 2).



Photograph 1 – Castlefield Viaduct looking west.



Photograph 2 – Castlefield Viaduct going over the Bridgewater canal.

Barren strawberry (*Potentilla sterilis*), daisy (*Bellis perennis*), rockspurge (*Cotoneaster horizontalis*) and dandelion (*Taraxacum officinale* agg.) were present frequently. Common mouseear (*Cerastium fontanum*), herb Robert (*Geranium robertianum*), ragwort (*Jacobaea vulgaris*), coltsfoot (*Tussilago farfara*), wild strawberry (*Fragaria vesca*), perennial ryegrass (*Lolium perenne*), a different *Cotoneaster* sp. and buddleia (*Buddleia davidii*) were present occasionally. Meadow buttercup (*Ranunculus acris*), bristly ox-tongue (*Helminthotheca echinoides*), common bent (*Agrostis stolonifera*), bramble (*Rubus fruticosus* agg.), shining cranesbill (*Geranium lucidum*), slender tare (*Vicia parviflora*), and maiden hair spleenwort (*Asplenium trichomanes*) were present rarely.

Some tree species were present, and saplings have started to colonise parts of the viaduct with goat willow (*Salix caprea*), rowan (*Sorbus aucuparia*), ash (*Fraxinus excelsior*), silver birch (*Betula pendula*), and broom (*Cytisus scoparius*) present. Saplings were approximately 50cm in height.

3.2.2 Scattered Scrub

At the eastern extent of the site, a line of scrub had developed adjacent to the fence that separated the site from the car park. Species present within this habitat comprised silver birch (*Betula pendula*) and goat willow.

3.2.3 Semi-improved Neutral Grassland

At the western extent of the site a small area of grassland had established. This section of the viaduct was dominated by red fescue (*Festuca rubra*), with daisy (*Bellis perennis*) ragwort (*Jacobaea vulgaris*), and dandelion (*Taraxacum officinale* agg.) being frequent. Common vetch (*Vicia sativa*), yarrow (*Achillea millefolium*), dog rose (*Rosa canina*), and rockspurge were present rarely.

3.2.4 Broadleaved Scattered Trees

A single multi-stemmed goat willow was present at the far eastern extent of the site. This tree was approximately 3m in height and the stem was covered in ivy.

3.3 Site Suitability for Protected and Notable Species

3.3.1 Species Discounted from Assessment

Water vole, otter and white-clawed crayfish have been discounted from assessment as no aquatic habitats are located on site or within proximity. The Bridgewater Canal is present directly beneath the Castlefield Viaduct, however this watercourse was not directly connected to the site. This watercourse also had hard concrete/brick banks on both sides with limited vegetation present and is likely to be unsuitable to support these aquatic species. No records of white-clawed crayfish, water vole, or otter were returned within the desk study and these species are therefore not discussed further within this report.

Hazel Dormouse mainly occur in southern counties, especially in Devon, Somerset, Sussex, and Kent. There are few recorded localities north of the Midlands, though they are present in parts of the Lake District and in scattered Welsh localities (Matthews *et al.*, 2018). The species are not generally known to be present within the Manchester area (Wembridge *et al.*, 2016). The habitats on site are of negligible value due to a lack of areas of scrub or woodland. As such, the species are reasonably discounted from site and not discussed further within this report.

Red squirrel have been discounted from the assessment. Red squirrel populations are limited to small areas of northern England and are not known to be present in the Manchester area; with no previous records returned in the data search. No suitable habitat is present for this species and it is anticipated that high abundances of grey squirrel are present within this region (Shuttleworth/RSST n.d.). This species will displace red squirrel through competition as well as cause increased red squirrel mortality through the spread of squirrel pox (The Mammal Society, 2020). Red squirrel is therefore not discussed further within this report.

3.3.2 Invertebrates

No deadwood, aquatic habitats or high floristic diversity was located on site which would provide an important resource for invertebrates during their life cycle. It is anticipated common species will be present due to the minimal management on site. A small tortoiseshell butterfly (*Aglais urticae*) was observed on site.

Ragwort was observed on site, which is the main larval food plant of the cinnabar moth, which is listed on Section 41 of the NERC Act (2006). Desk study records of this species were returned within 1km of the site.

Overall, it is expected that some notable invertebrate species will be present within the site.

3.3.3 Amphibians

No ponds were located within site or within 250m of the site boundary. As great crested newts' upper dispersal limit is generally considered to be up to 250m from a waterbody (though occurrence of greater distances does exist), great crested newts are not anticipated to be present on site (English Nature, 2001). Terrestrial habitats present on site are not suitable to support amphibian species due to the exposed nature of the site with limited ground cover available.

The Bridgewater Canal is present directly beneath the Castlefield Viaduct, however this watercourse is not directly connected to the site. This watercourse also has hard concrete/brick banks with limited vegetation present within an urban environment which makes it unsuitable to support common amphibian species.

Amphibians are therefore not anticipated to be present on site and are not discussed further within this report.

3.3.4 Reptiles

Habitats on site were unsuitable for reptile species as the site is isolated within an urban environment and not connected to sites that have suitable reptile habitat. Habitats on site also lacked a variety of heights and structure that reptiles use to avoid predation (NARRS, 2007).

Reptiles are not considered to be present on site and are not discussed further within this report.

3.3.5 Birds

The structure of the Castlefield Viaduct itself was identified to provide value to nesting birds during the survey as multiple feral pigeons (*Columba livia domestica*) were observed nesting. Additionally, broken eggshells were identified on the ground.

Vegetation on site was limited in extent and was not dense enough to provide suitable nesting habitat. A single tree was present at the eastern extent of the site, on which a single wren (*Troglodytes troglodytes*) was observed, however no sign of a nest was found.

The habitat found on site likely provides some value to ground nesting birds due to the isolated nature of the site. Records for black redstart and little ringed plover have been recorded within proximity of the site, which are known to use loose substrate with minimal vegetation for nesting.

Birds of prey are unlikely to use the site for perching as the site is overlooked by taller buildings to the north which would restrict their range of view. Disturbance from trams and nearby construction sites would also limit their likelihood of being present on site.

The site provides value to notable ground nesting and passerine birds within the structure of the viaduct and within the loose substrate and are therefore likely to be present on site.

3.3.6 Bats

Preliminary Roost Assessment

A PRA was completed on all structures and trees located on site. Please refer to Appendix 1 for the results of the PRA and imagery of PRFs identified during the survey. A single tree was present on site and contained no PRFs or suitable holes/crevices deep enough for roosting opportunities and was assessed as having negligible bat roosting potential.

Records of a common pipistrelle roost

Structure 1 within the Viaduct was assessed as providing moderate bat roost potential. This was a large brick support structure with minor defects in the brickwork on all aspects. A full description and photographs of this structure is provided in Appendix 2. Records of a common pipistrelle roost were also provided within close proximity to this structure.

Commuting and Foraging Bats

The site likely provides good value to commuting and foraging bats due to the linear nature of the site and the invertebrate population supported by the minimally managed habitat present on site.

The Bridgewater Canal is also likely used as an important commuting route and foraging/drinking resource across the city by bat species, and the proximity of the site to this water course will increase the value it provides to local bat populations.

The site has the potential to support roosting bats whilst the habitats may provide moderate commuting and foraging value.

3.3.7 Hedgehog

The habitats present on site do not provide value to hedgehog due to the isolated nature of the site within an urban environment.

Hedgehogs are not anticipated to be present on site and are not considered further within this report.

3.3.8 Badger

Habitats present on site do not provide suitable foraging or sett building habitat for badger due to a lack of connectivity to other suitable habitats and the isolated nature of the viaduct within an urban environment.

Badger are not anticipated to be present on site, neither are they expected to use the site; therefore they are not considered further within this report.

3.4 Invasive Species

At least two *Cotoneaster* species were identified within the site during the field survey, including rockspray cotoneaster (TN1). Although it was not possible to identify the second down to species, most *Cotoneaster* species, including rockspray cotoneaster, are listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) as an invasive non-native species.

4 Ecological Constraints and Recommended Mitigation

4.1 Proposed Development

The National Trust are proposing to develop land at Castlefield Viaduct in Castlefield, Manchester. The proposals include the construction of an urban park that is open to the public.

4.2 Designated Sites

The site is located within the impact risk zone for Rochdale Canal SAC and SSSI. This designated site is located 6.8km north east of the site and is separated by anthropogenic barriers such as extensive residential areas, such that no impacts as a result of development are anticipated. The proposed development is low impact and does not fall within any of the categories that would require further consultation with Natural England.

Designated sites are therefore not anticipated to be impacted by this site and are not discussed further within this report.

4.3 Habitats

The site comprised habitats that were found to be widespread within the local area; however, they did contain value for wildlife such as bats, birds and invertebrates. The short ephemeral / perennial vegetation is the most valuable habitat and should be retained within the urban park where possible.

4.4 Fauna

4.4.1 Invertebrates

The site contains ragwort which is the larval food plant of the cinnabar moth. It is recommended that sections of the habitat within Castlefield Viaduct containing this plant are retained intact, and this plant and others that are known to provide value to invertebrate species are included within the planting scheme for this project.

Dead wood hibernacula or insect hotels should be included within the design of the site to provide additional nesting habitat for invertebrates, which would be an increase over the range of invertebrate habitats present on site currently.

4.4.2 Birds

Vegetation removal and any clearance of the loose substrate present on the viaduct should be undertaken outside of the breeding bird season (March to September, inclusive). If this is not possible, a suitably experienced ecologist should check the habitat for breeding bird activity no more than 48 hours before clearance. If nesting activity is found, nests must be left in situ until the young have fledged.

It should be noted that not undertaking necessary vegetation clearance outside of the bird nesting season and subsequently relying on a nesting bird check during the bird nesting season frequently leads to delays in schedule. It is therefore strongly recommended to undertake vegetation clearance outside of bird nesting season to avoid such delays.

Landscape designs for this site should include fruiting and seed producing species that will provide value to foraging birds.

4.4.3 Bats

Roosting Bats

As stated in Section 3.3.6, Structure 1 was assessed as having bat roosting potential. Further bat surveys may be required to confirm presence or absence of roosting bats within Structure 1, if any of the works to be carried out at the Castlefield Viaduct lead to potential disturbance of this structure.

Foraging and Commuting Bats

The site provides moderate value for foraging bats as it represents a relatively large area of mostly unmanaged habitat within close proximity to the Bridgewater Canal which is likely to be a major commuting route for bats within the city centre. Further surveys to assess the importance of the site for foraging and commuting bats may be required if the final design of the site will lead to a significant loss in habitat.

Slow-flying species such as brown long-eared and *Myotis* species, which are known to be in the local area, are sensitive to lighting and may be impacted by the proposed development, should no mitigation for lighting be considered.

Lighting mitigation should follow the guidance outlined in the Institute for Lighting Engineers document “Guidance for the Reduction of Obtrusive Lighting” (2005) and BCT’s “Bats and Artificial Lighting in the UK” (2018).

An External Lighting Scheme had not been produced on the writing of this report. As such, the following recommendations are to be considered within the scheme during its condition, to minimise impacts of lighting. The recommendations are as follows:

- Keep site lighting to minimum levels.
- Luminaries should lack UV elements and preferably LED lighting with a warm white light should be used over cool white light (ideally <2700Kelvin).
- Lighting should feature peak wavelengths greater than 550nm.
- Light placement should be downward facing to prevent excess horizontal or vertical light spill.
- The use of integrated fittings such as cowls, shields, louvres, and hoods, that effectively contain light spill from unintended areas.
- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating any suitable bat habitats, particularly the Bridgewater Canal, that are likely valuable commuting and foraging habitat for bats.
- Column heights of lighting can be considered to minimise light spill.

4.5 Invasive Species

Non-native invasive flora species were identified during the site walkover. As such, it is recommended, prior to the development, that the species should be eradicated following the most current guidance set out by the Environment Agency by a qualified contractor.

5 Further Surveys

5.1 Roosting Bats

As Structure 1 was identified as having bat roosting potential, further surveys at this structure may be required to confirm the presence or likely absence of roosting bats. Works that may require further survey effort will be those that lead to additional disturbance above the background level that could cause additional noise or vibrations to the structure.

All surveys should be undertaken in accordance with the current BCT guidance (Collins, 2016).

The surveys would involve situating a number of suitably qualified surveyors around the base of the brick structure to monitor for bats emerging from potential roost locations (dusk emergence survey) for a specified amount of time. The surveys should be completed between May – September (inclusive). It is anticipated five surveyors would be required.

If bats are identified roosting within the buildings on site, a minimum of three surveys will be required to inform a Natural England EPSL. The surveys will identify what bat roosts are present and will in turn clarify what mitigation will be required as part of the ESPL. Roost provision, lighting and timescales will be considered as part of the licence.

An EPSL can only be submitted once full planning permission has been granted and all wildlife conditions have been discharged.

5.2 Foraging and Commuting Bats

Further surveys to assess the level of use of the site by commuting and foraging bats may be required if the design for the site will result in a significant loss of habitat, as the site is an important area of mostly unmanaged habitat within the urban environment.

Surveys would consist of a combination of static detectors which would be left *in situ* on site for seven days at a time throughout the peak of bat activity season, and bat activity transect along a previously defined route measuring bat activity at defined listening points. This survey would be repeated multiple times throughout the survey season and would provide a baseline of bat activity in the surrounding area and the importance of the site for foraging and commuting bats which would inform any necessary compensatory measures to be included.

6 Opportunities for Enhancement

The National Planning Policy Framework (NPPF) (2019) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment.

Paragraph 170 states that this should be achieved by (in terms of this assessment only):

- a) *protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

Specific enhancement recommendations for the site include the following:

- Bat and bird boxes could be placed on the existing Castlefield Viaduct structure, away from the southern side of the site which is in close proximity to the tram line. A plan to show the locations of these boxes and the specifications should be produced by a suitably qualified ecologist once the layout is finalised.
- As much of the current habitat on site should be retained within the design of the site to maintain the site's value for invertebrates and commuting and foraging bats.
- Native flowering species should be planted within the proposed park to enhance the value of the site to invertebrates, which will in turn provide value to the local bird and bat populations.

7 Conclusion

The PEA has met the objectives of the report, by demonstrating the following:

- The major habitats identified on site included semi-improved neutral grassland, ephemeral/short perennial vegetation, scattered scrub, and a broadleaved tree.
- Potential ecological constraints identified included non-native invasive species, nesting birds and bats and are detailed in Section 5.
- Mitigation recommendations to be completed prior and during the construction phase for invertebrates, non-native invasive species, bats and nesting birds have been detailed in Section 5.
- Further bat surveys may be required to determine presence or absence and inform relevant mitigation requirements.
- General ecological enhancements are listed within Section 6.

8 References

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Appendix 1 – Relevant Legislation

Legislation relating to European Protected Species (e.g., bats, otter, great crested newt)

European Protected Species and their resting places (e.g., bat roosts) are protected under the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CROW) Act 2000, and the Conservation of Habitats and Species Regulations 2017.

The Conservation of Habitats and Species Regulations 2017 transposed the European Union's 'Habitats Directive' (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive) into UK law. The Regulations provide for the designation and protection of 'European Sites', the protection of 'European Protected Species' (EPS), and the adaptation of planning and other controls for the protection of European Sites. EPS are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to:

- Intentionally kill, injure, or take certain animals listed in Schedule 5;
- Intentionally or recklessly damage or destroy any structure or place which any wild animal specified in Schedule 5 uses for shelter or protection;
- Intentionally or recklessly disturb any such animal while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place which any such animal uses for shelter or protection.

In addition, under this legislation there are offences relating to sale, possession and control of wild animals listed in Schedule 5.

- Under the Conservation of Habitats and Species Regulations 2017 it is an offence to:
- Deliberately capture, injure or kill any wild animal listed as a European Protected Species;
- Deliberately disturb wild animals of any such species in such a way as to be likely:
- to impair their ability:
 - to survive, to breed or reproduce, or to rear or nurture their young, or;
 - in the case of animals of a hibernating or migratory species, to hibernate or migrate, or;
- to significantly affect the local distribution or abundance of the species to which they belong.
- Deliberately take or destroy the eggs of such an animal, or;
- Damage or destroy a breeding site or resting place of such an animal.

In addition, under this legislation there are offences relating to possession, control sale and exchange of an EPS.

Great crested newt, otter and several species of bat are listed as a Species of Principle Importance (SoPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Legislation relating to breeding birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act 1981 (as amended) and it is an offence, with certain exceptions, to:

- Intentionally kill, injure, or take any wild bird;
- Intentionally take, damage, or destroy the nest of any wild bird while it is in use or being built;
- Intentionally take or destroy the egg of any wild bird; and
- Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is in, on or near a nest with eggs or young; or disturb the dependent young of such a bird.

Schedule 1 of the Wildlife and Countryside Act 1981 provides further protection for selected species (including peregrine falcon (*Falco peregrinus*), barn owl (*Tyto alba*), little ringed plover (*Charadrius dubius*) and black redstart (*Phoenicurus ochruros*) during the breeding season. If any person intentionally or recklessly disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturb dependent young of such a bird. That person shall be guilty of an offence.

A number of bird species are listed as SoPI under Section 41 of the NERC Act 2006.

Conservation status - Birds of Conservation Concern (Eaton et al., 2015)

The UK's leading bird conservation organisations have worked together on the third quantitative review of the status of the birds that occur regularly in the UK, updating the last review in 2011. The status of birds within the UK have been regularly monitored through a series of surveys, including the national Breeding Bird Survey, Common Bird Census, sea bird monitoring programs and wetland monitoring programs. The result of this review and continued monitoring is The Population Status of Birds in the UK, Birds of Conservation Concern 4: 2015.

Birds are assessed against criteria to place each species on one of three alert lists, red, amber or green. Red list species are considered to be of high conservation concern, being either globally threatened, having historical UK population declines, having a rapid population decline or breeding range contraction of 50% or more in the last 25 years.

Amber list species are considered to be of medium conservation concern as they meet one or more of the following criteria (but none of the red list criteria): Red listed for historical decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years), a UK breeding range contraction of between 25% and 49%, a reduction of breeding or non-breeding population of 25-49% in the last 25 years, a 5-year mean of 1-300 breeding pairs in the UK, an unfavourable European conservation status, at least 50% of the UK breeding population found in 10 or fewer sites, or where the breeding population in the UK represents 20% or more of the European breeding populations.

Green list species are considered to be of low conservation concern. They include all regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Legislation relating to invasive plant species

Several non-native invasive plant species including (but not limited to) Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), Japanese rose (*Rosa rugosa*), variegated yellow archangel (*Lamium galeobdolon*), rhododendron (*Rhododendron ponticum*) and Japanese

knotweed (*Fallopia japonica*) are listed under Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended), which makes it an offence to ‘...plant or otherwise cause the species to grow in the wild’. This includes spreading or transferring contaminated soil from one area to another.

Estate Managers and landowners have a duty to pro-actively treat knotweed outbreaks. Under the Natural Environment and Rural Communities Act 2006 (NERC), subsection 14ZA (1), makes it is an offence to sell, offer or expose for sale, or to have in one’s possession or transport for the purpose of sale, any Schedule 9 animal or plant or anything from which such an animal or plant can be propagated, including rhizomes of Japanese knotweed. Under subsection 14ZA (2) it is also an offence to publish or cause to be published any advertisement for the purchase or sale of these animals and plants.

The Environmental Protection Act 1990 (EPA 1990) contains a number of legal provisions concerning controlled waste. Any Japanese knotweed contaminated soil or plant material that is intended for discard is likely to be classified as controlled waste.

The Environmental Protection (Duty of Care) regulations 1991 also imposes a ‘duty of care’ on persons concerned with controlled waste, which includes any materials incorporating Japanese knotweed including soil, grass cuttings, general wastes and ash arising from the burning of knotweed. The duty applies to any person, who produces, imports, carries, keeps, treats or disposes of controlled waste. Failure to appropriately dispose of any material containing Japanese knotweed may lead to prosecution under Section 33 and 34 of the EPA 1990 and Section 14 (2) of the Wildlife & Countryside Act 1981 (as amended).

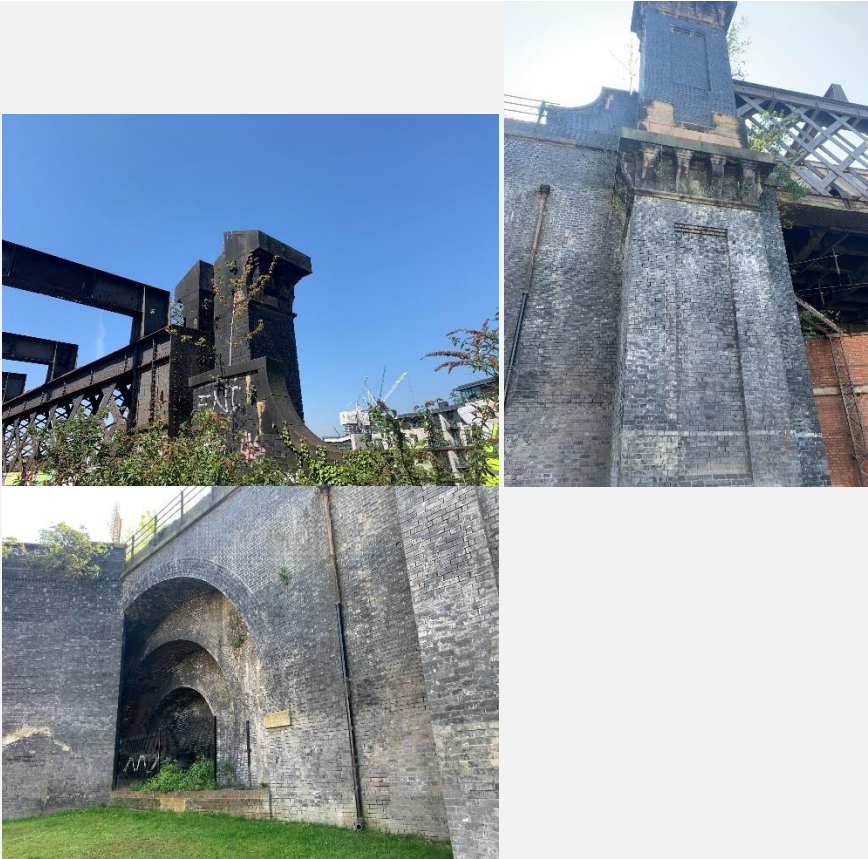
If knotweed stands are to be treated with herbicides, The Control of Pesticides Regulations (1986) applies. These regulations require any person who uses a pesticide to take all reasonable precautions to protect the health of human beings, creatures and plants, safeguard the environment and in particular avoid the pollution of water. If pesticides are to be used in or near to a watercourse, the Environment Agency should be contacted, and approval must be sought (application to use herbicides in or near water).

Waste leaving the site must be handled responsibly and in accordance with the law at all stages between its production and final recovery or disposal. Waste must be transferred to an authorised person, who is either a registered waste carrier or exempted from registration by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991.

Additional legislation regarding the transport of Japanese knotweed contaminated materials is covered by the Hazardous Waste Regulations 2005 (HWR, 2005). This contains provisions about the handling and movement of hazardous waste. Consignment notes must be completed when any hazardous waste is transferred, which includes details about the hazardous waste properties and any handling requirements. Untreated Japanese knotweed is not classed as hazardous waste, but material containing knotweed which has been treated with certain herbicides, may be classified as hazardous waste.

If any waste soil or knotweed is sent for landfill either before or after treatment, it must go to a landfill that is authorised to receive it.

Appendix 2 – Preliminary Roost Assessment

Building Reference	Description	Photo	Category of Suitability
Structure 1	Brick support structure at the eastern end of the Viaduct. This structure is approximately 20m in height and was constructed of brick throughout. Minor gaps were present within the brickwork at the top of the structure which was above the level of the viaduct which appeared dry and could extend back into the structure. There were also minor defects and missing bricks within the arches at the base of the structure on the northern and southern faces that could support low numbers of crevice dwelling species.		Moderate

Appendix 3 – Habitat Map and Target Notes



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- Red Line Boundary
- Scattered Scrub
- Ephemeral / Short Perennial Vegetation
- Semi-improved Grassland
- Broadleaved Scattered Tree
- Target Note



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Client: **Castlefield Viaduct**

Project: **UG922 Castlefield Viaduct**

Title: **Phase 1 Habitat Map**

Issue: **01**

Drawn: MC	Checked: MB	Approved: KB
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Project: UG922	Scale @ A3: 1:1500	Date: 26/04/2021
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Dwg No: UG_922_ECO_HM_01	Revision: 01
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