



Maro Developments

Mercury 62

Proposed Employment Development

Environmental Statement Volume 3: Appendices

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Prepared for
Maro Developments

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EIA Competency Schedule

EIA Competency Schedule – Mercury 62

Discipline	Author	Competency Commentary
Ecology	Urban Green	Mark Blacker MSc ACIEEM Mark has over seven years experience working as an ecologist in a professional capacity on a variety of residential, commercial, and large infrastructure developments. This has included organising, conducting, analysis, and reporting of a wide variety of field surveys in support of planning applications, such as amphibians, bats, reptiles, otters, and badgers. Mark has also produced and reviewed ecological reports to support planning applications, including Preliminary Ecological Appraisals, Ecological Impact Assessment and Environmental Statement chapters; Habitats Regulations Assessment, Biodiversity Net Gain assessments. Mark is also registered to use the Natural England Level 1 Class licence for Bats and Great Crested Newts.
Water Resources and Flood Risk	Integra	Colin Hadley – Director – BSc (Hons) CEng MICE MStructE FGS Thirty five years experience in the assessment of sea, river, surface water, sewer and reservoir related flood risk and underground drainage strategies on a wide range of site settings in England, Wales and Scotland working to the relevant standards in those countries. Flood risk assessment work undertaken has included preparation of numerous Flood Risk Assessment reports together with detailed flood modelling where appropriate, undertaking formal Flood Map Challenges with the Environment Agency (EA) and extensive liaison with the relevant statutory consultees including the EA, Lead Local Flood Authority and sewerage undertakers. Drainage design has been undertaken on numerous projects over this extensive time period in a wide variety of site settings as part of an overall civil engineering exercise in tandem with an earthworks / levels design.

Discipline	Author	Competency Commentary
Traffic and Transport	Mott MacDonald	Kevin Blakey – Associate Kevin Blakey is an Associate Transport Planner with 20 years experience working in transport planning in the private and public sectors. Early career was spent working in Cambridgeshire, more recently for the last 15 years has been based in Liverpool working on projects across the Northwest. Kevin has wide experience working on large scale transport projects from initial feasibility studies through to the planning application stages. Also has a detailed knowledge of the planning system and is a chartered member of the RTPI. Main areas of private sector experience include preparing transport assessments and travel plans as well as advising on masterplans, transport strategy and feasibility studies. In terms of the public sector has provided development management advice to National Highways and Local Authorities on new planning applications (transport assessment audit) as well as using planning knowledge to advise them on emerging Local Authority planning policy documents.
Air Quality	Redmore Environmental	Jethro Redmore BEng (Hons), MSc, MIAQM, MIEEnvSc, PIEMA, Cenv Jethro Redmore is Director of Redmore Environmental and has worked as a professional environmental scientist for approximately 16 years. He has been responsible for conducting environmental studies for major road improvement and construction schemes, power stations, oil refineries and other major industrial complexes. In addition, he has undertaken air quality assessments for a wide variety of residential schemes, from individual properties to large scale 'eco-towns'. These studies have been carried out for Environmental Statements, planning applications and to investigate potential nuisance

File Note



Discipline	Author	Competency Commentary
		issues, and have often made reference to relevant industry guidance produced by the Department for Environment, Food and Rural Affairs (DEFRA) and the Institute of Air Quality Management (IAQM), amongst others. Amelia Leatherbarrow-Hurst BSc (Hons), AMIEnvSc, AMIIAQM Amelia Leatherbarrow-Hurst is a Senior Air Quality Consultant at Redmore Environmental and Associate Member of the Institute of Environmental Sciences and IAQM. She has been responsible for conducting air quality studies for a range of projects, including residential, commercial, employment and industrial schemes with a particular emphasis on dispersion modelling of road vehicle exhaust emissions. In addition, she has produced, or project managed, over 300 assessments in support of planning applications for developments throughout the UK.
EIA Coordination	Egniol	Richard Kevan (Director) MRTPI Richard is a Director at Egniol with over 18 years of experience. Richard provides planning and EIA advice to private and public sector clients to navigate the EIA process and secure planning permissions. This includes day-to-day project management and co-ordination of technical consultants providing input into the EIA process. Richard acts as editor-in-chief reviewing and commenting on draft technical ES chapters. He is a Chartered Member of the Royal Town Planning Institute.



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Preliminary Ecological Appraisal

PRELIMINARY ECOLOGICAL APPRAISAL

JUNE 2022

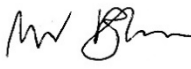
Mercury 62

Cronton Road,
Prescot
Merseyside

U R B A N
G R E E N



QUALITY MANAGEMENT

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Project:	Mercury 62				
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02	23/06/2022	Minor updates following site visit	Mark Blacker	Jake Healy	

NON-TECHNICAL EXECUTIVE SUMMARY

Maro are proposing to develop land at Cronton Road in Prescott (hereafter referred to as ‘the Site’). The applicant will be seeking approval for the proposed erection of a single warehouse unit (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

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 that may occur on Site. Ecological mitigation has been recommended to aim to minimise potential impacts on ecology, due to the proposed development.

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

Current Site Use and Adjacent Site Use	The Site contains undeveloped land with woodland present in the western section. Cronton Road borders the Site to the south and the M62 borders the Site to the west.
Potential Impacts on Designated Sites	A Local Wildlife Site is present within the Site. Without mitigation there is the potential for the integrity of this site to be adversely impacted through construction related activities. It is recommended that a CEMP is implemented during the construction process to manage potentially harmful activities to minimise their effects.
Habitats	The Site comprised predominantly neutral grassland, with semi-natural broadleaved woodland, running water, a ditch, marshy grassland, and tall ruderal vegetation was also present.
Ecological Constraints	The following potential ecological constraints were identified during the assessment: • A non-statutory designated site was present on site. • Suitable habitats for invertebrates, common amphibians, nesting notable bird species, bats, hedgehog, brown hare, otter, and badger was present on site.
Recommended Ecological Mitigation	The following mitigation measures are recommended to minimise potential impacts due to the proposed development: • Precautionary Working Methods during the construction phase for amphibians, hedgehog, otter, and badgers. • If any vegetation require removal, it should be completed outside of the breeding bird season (March to September, inclusive). If this is not feasible, a Nesting Bird Check is to be completed by a qualified ecologist within 48 hours before removal is completed.
Recommended Further Surveys and Reports	No further surveys are required to facilitate this development. However it is recommended that a CEMP and LEMP are implemented to minimise adverse effects during construction and to ensure the long-term management of the habitats to be created on site.
Recommended Ecological Enhancements	The National Planning Policy Framework (NPPF) (2021) 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

Maro are proposing to develop land off Cronton Road in Prescot, Merseyside (hereafter referred to as 'the Site'). The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works. Urban Green have been appointed to undertake a Preliminary Ecological Appraisal (PEA) of the Site.

The author of the report is Mark Blacker, ACIEEM, Senior 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.

1.2 Site Context

The Site is located at National Grid Reference SJ 46758 89304 and comprises a total area of approximately 8.87ha (see Figure 1).

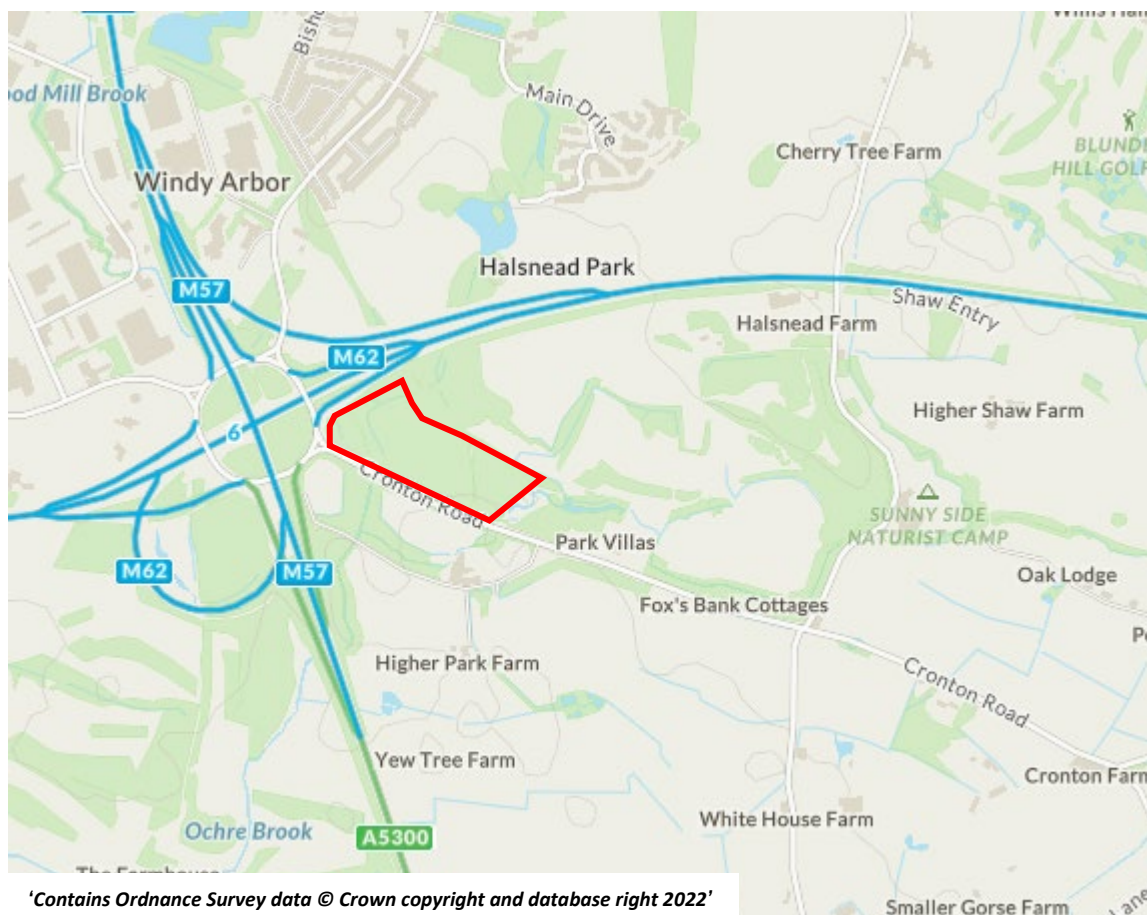


Figure 1 – Site Extent

The Site is located to the east of Junction 6 of the M62, bound by Tarbock roundabout to the west, M62 to the north, Cronton Road to the south and undeveloped land to the east. The Site is irregular in shape and comprises approximately 8.87ha of undeveloped land.

Whilst the surrounding area is undeveloped, land adjacent to the east of the Site is subject to two large development proposals: construction of a new country park, which awaits determination (ref: 20/00578/FUL); and a hybrid application which secured full consent for the development of 15,273sqm

of storage and distribution floorspace (B8) and outline consent for a further 77,629sqm of storage and distribution floorspace (B8) (ref: 20/00494/HYB) which was approved at planning committee on 10th June 2021. These developments, once brought forward in accordance with the adopted Halsnead Garden Village Masterplan SPD will inevitably change the character, use, and appearance of the area.

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 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 Sites. 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) (2021) and other Local Planning Policies are considered with the PEA. Ecological enhancements are advised to be in line with relevant Planning Policies.

2 Previous Surveys

An Extended Phase 1 Habitat Survey was carried out in May 2021 by Andy Harmer Ecology Services. This is within the optimum time to conduct habitat surveys.

No statutory designated sites were identified within 2km of the Site; however one non-statutory designated Site is present within the Site, and a further seven non statutory designated sites are present within 1km of the Site. Strettles Bog, Tarbock Local Wildlife Site (LWS) is located in the western section of the Site. Immediately adjacent to the Site to the north lies The Old Wood, South LWS and immediately adjacent to the east lies Mine Waste, Cronton LWS. Dagger's Bridge Wood LWS lies on the opposite side of Cronton Road (A5080) from the Site. All of these Sites have been designated for their woodland habitats, with some supporting waterbodies and grassland.

Habitats identified on Site comprised:

- Ephemeral/ Neutral Grassland/ Scrub Mosaic;
- Continuous scrub and Scattered Scrub;
- Marshy Grassland;
- Tall, Ruderal Herb;
- Semi-natural Broad-leaved Woodland;
- Running Water; and
- Bare Ground.

The Site was also found to contain suitable habitat to support the following protected/ notable species:

- Birds;
- Bats;
- Water vole;
- Badger; and
- Otter.

Following the completion of the survey, the following recommendations for ecology were made:

- Further survey effort for badger should be conducted within the Site and within 30m of the Site (where access is possible) to understand the use of the Site by badger.
- No vegetation clearance should be conducted between March to August (inclusive). If clearance works are required during this period, then a check for the presence of nesting birds should be conducted no more than 48 hours prior to removal.
- An appropriate buffer zone should be established to protect the integrity of the non-statutory designated Sites identified on Site and adjacent.
- Landscaping scheme should include provision of species-rich native habitats such as grassland, scrub, and new ponds.

- Bird and bat boxes could be erected onto retained trees within the Site.

3 Methods

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

3.1 Desk Study

3.1.1 Online Resources and Local Records Centre

Due to the size and low impact of the proposed development and being located within an urban/rural fringe area of Merseyside 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)	06/06/2022	Locations of statutory designated Sites within 1km of the Site boundary. Locations of Natura 2000 Sites (Ramsar, Special Area of Conservation (SAC) and Special Protection Area (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/)	06/06/2022	Relevant statutory designated Site citations.
JNCC (https://jncc.defra.gov.uk/)	06/06/2022	Information on European wildlife Sites. Details of relevant Section 41 species and habitats.
Merseyside BioBank	06/06/2022	Locally designated wildlife Sites within 1km of Site boundary. Records of protected and notable species within 1km of the Site boundary.
Merseyside Local Biodiversity Action Plans	06/06/2022	Species and habitats which are given special conservation status at the local level.
Catchment Data Explorer	06/06/2022	Summary of data relating to river condition and catchment data, provided The Environment Agency (EA)

3.2 Field Survey

3.2.1 Vegetation

The Site was subject to a field survey on 6th June 2022 by Mark Blacker ACIEEM. The weather conditions were 15°C, overcast (7/8 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.

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.

3.2.2 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*).

3.3 Bat Assessment

3.3.1 Preliminary Roost Assessment

A Preliminary Roost Assessment (PRA) was carried out on the Site trees 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/tree 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/tree 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/tree 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.	Structures: one emergence/re-entry survey between May and August. Trees: No further survey required but precautionary methods of felling recommended.
Negligible Suitability	Negligible habitat features on Site likely to be used by roosting bats.	No further work required.

3.3.2 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.

3.4 Habitat Suitability Index

No ponds were present on Site; however, a further four ponds (P1, P2, P3, and P4) were identified within 250m of the Site boundary (see Section 3.3.10 for further details). 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), ponds beyond this distance were not assessed due to limited connectivity (English Nature, 2001).

These ponds were considered for their suitability to support great crested newts (*Triturus cristatus*) and they underwent a Habitat Suitability Index (HSI) assessment following the methodology set out in ARG UK Advice Notice 5 (Oldham *et al.*, 2010). Ten habitat suitability indices were assessed and inputted into the HSI equation, which generates a score between 0 and 1. The calculated score corresponds to the estimated pond suitability for great crested newt, as outlined in Table 5. Refer to Appendix 5 for further details.

Table 5 – Pond Suitability Scores for Great Crested Newts

HSI Score	Habitat Suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good

HSI Score	Habitat Suitability
>0.8	Excellent

3.5 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.

The Site is directly adjacent to the M62; therefore, it was not possible to fully survey the motorway verge that was present within 30m of the site boundaries. A full survey of the site boundary adjacent to the motorway was surveyed for evidence of badger and any results have been considered precautionarily.

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.

3.6 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 6th December 2023). After this date, this assessment should be reviewed to determine whether any updated surveys are required.

3.7 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*.

4 Baseline Ecological Conditions

4.1 Desk Study

4.1.1 Site Location

The Site is located to the east of Junction 6 of the M62, bound by Tarbock roundabout to the west, M62 to the north, Cronton Road to the south and undeveloped land to the east. The Site is irregular in shape and comprises approximately 8.87ha of undeveloped land.

Ochre Brook is present within the Site, flowing north to south within the Site from a culvert beneath the M62 then being culverted beneath Cronton Road A5080. It is anticipated these habitats will provide suitable foraging, resting, and commuting resources within the local area for a variety of wildlife, such as birds, bats and other terrestrial and aquatic mammals.

Habitats within the surrounding area include industrial and residential developments, agricultural fields and a quarry. Major roads are also present within close proximity of the Site.

4.1.2 Designated Sites

No Sites that form part of the National Site Network were located within 5km of the Site boundary and no statutory designated Sites were present within 1km of the Site. Eight non-statutory designated Sites were located within 1km of the Site and are detailed within Table 6.

Table 6 – Designated Sites within the Search Areas

Designated Site	Approx. Distance from Site	Details
Strettles Bog, Tarbock	Within the Site	A small area of broadleaved woodland bisected by a minor watercourse.
The Old Wood, South	Immediately adjacent to north of Site	Designated area of Ancient Woodland. A predominantly broadleaf woodland with a ditch and marsh habitats. Bracken dominated areas can also be found.
Mine Waste, Cronton	Immediately adjacent to east of Site	A predominantly wooded site with ponds present on the north western side. A mix of dry and wet acid grasslands is present around the ponds and to the south
Daggers; Bridge Wood	25m south	Broadleaf woodland dissected by two watercourses, with the confluence of these two watercourses within the woodland
The Old Wood, North	300m north	A mature broadleaf woodland set in a clough valley with rock outcrops and a former quarry. The woodland was separated from the Old Wood South by construction of the M62 motorway
Ochre Brook, Tarbock	470m south	A minor watercourse that flows south through Merseyside, joining up with Dog Clog Brook 1.2km south of the Site
Big Water and Big Water Wood, Halsnead	500m north	Standing water habitats which support populations of rare plant species.
Ox Lane Wood, Tarbock	750m south west	Section of broadleaf woodland with a ditch also present.

The Site also falls within the Impact Risk Zone of the Mersey Estuary SSSI present 6.5km south of the Site, based on consultation with MAGIC. This Site is designated for supporting internationally important

populations of wildfowl and containing large areas of intertidal sand and mudflats, as well as salt-marsh, brackish marsh, and boulder clay cliffs.

4.1.3 Flora and Fauna

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

Vascular Plant

88 records of bluebell (*Hyacinthoides non-scripta*) were returned in the data search. Three records of the vascular plant species grape-hyacinth (*Muscari neglectum*) and spreading hedge-parsley (*Torilis arvensis*) were returned. The closest record was attributed to bluebell and was located onsite in 2017.

Bluebell are listed under Schedule 8 of the Wildlife and Countryside Act (1981) and the North Merseyside LBAP, with both other species listed under Section 41 of the NERC act (2006).

The data search returned 60 records of notable vascular plant species, namely aggregate-headed hawkweed (*Hieracium aggregatum*), dittander (*Lepidium latifolium*), fly honeysuckle (*Lonicera xylosteum*), fringed water-lily (*Nymphoides peltata*), grape-hyacinth (*Muscari neglectum*), jacob's-ladder (*Polemonium caeruleum*), large-leaved lime (*Tilia platyphyllos*), northern yellow-cress (*Rorippa islandica*), rock stonecrop (*Sedum forsterianum*), spreading hege-parsley (*Torilis arvensis*), water-soldier (*Stratiotes aloides*), and welsh poppy (*Meconopsis cambrica*).

Invertebrates

110 records of dragonfly were returned in the data search, namely blue-tailed dragonfly (*Ischnura elegans*), broad-bodied chaser (*Libellula depressa*), brown hawker (*Aeshna grandis*), common blue damselfly (*Enallagma cyathigerum*), common darter (*Sympetrum striolatum*), common hawker (*Aeshna juncea*), emperor dragonfly (*Anax imperator*), four-spotted chaser (*Libellula quadrimaculata*), migrant hawker (*Aeshna mixta*), and southern hawker (*Aeshna cyanea*). Ten records of wall butterfly (*Lasiommata megera*) were also returned in the data search. The closest records were attributed to blue-tailed damselfly add broad-bodied chaser and were located approximately 125m southeast in 2008.

All dragonfly species returned are listed under the North Merseyside LBAP, with wall butterfly listed under Section 41 of the NERC act (2016).

Two records of the notable invertebrate species branded general (*Stratiomys potamida*) were returned in the data search.

Amphibians

26 records of common toad (*Bufo bufo*) were returned in the data search, with the closest record approximately 30m east of the site from 2008.

Eight records of great crested newt were returned, with the closest record approximately 780m southwest of the site from 2010.

Common toad is listed on Section 41 of the NERC act (2006). Great crested newt is listed under the Wildlife and Countryside Act (1981), Section 41 of the NERC act (2006), and the North Merseyside LBAP.

A MagicMap search returned no granted EPSL relating to great crested newts present within 1km of the Site.

Eel

Nine records of eel (*Anguilla anguilla*) were returned in the data search, the nearest located approximately 70m southeast in 2008.

Eel are listed under Section 41 of the NERC act (2006).

Birds

A total of 91 records of protected or notable birds were returned in the data search 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	Date
<i>Tyto alba</i>	Barn owl	Sch. 1****, Sch.9	<1km	1999
<i>Pyrrhula pyrrhula</i>	Bullfinch	S41****	<1km	1999
<i>Emberiza calandra</i>	Corn bunting	LBAP, S41****	<1km	1999
<i>Cuculus canorus</i>	Cuckoo	S41****	<1km	1998
<i>Prunella modularis</i>	Dunnock	S41****	150m	2008
<i>Locustella naevia</i>	Grasshopper warbler	S41****	150m	2008
<i>Perdix perdix</i>	Grey partridge	LBAP, S41****	150m	2005
<i>Delichon urbicum</i>	House martin	LBAP	<1km	1999
<i>Passer domesticus</i>	House Sparrow	LBAP, S41****	<1km	1999
<i>Alcedo atthis</i>	Kingfisher	Sch. 1****	<1km	2014
<i>Vanellus vanellus</i>	Lapwing	LBAP, S41****	560m	2006
<i>Dryobates minor</i>	Lesser spotted woodpecker	S41****	<1km	1999
<i>Linaria cannabina</i>	Linnet	S41****	<1km	2002
<i>Charadrius dubius</i>	Little ringed plover	Sch. 1****	<1km	2005
<i>Emberiza schoeniclus</i>	Reed bunting	S41****	150m	2008
<i>Alauda arvensis</i>	Skylark	LBAP, S41****	560m	2007
<i>Turdus philomelos</i>	Song thrush	LBAP, S41****	150m	2008
<i>Muscicapa striata</i>	Spotted flycatcher	S41****	<1km	1999
<i>Sturnus vulgaris</i>	Starling	LBAP, S41****	150m	2008
<i>Apus apus</i>	Swift	LBAP	<1km	1999
<i>Passer montanus</i>	Tree sparrow	S41****	<1km	2007
<i>Streptopelia turtur</i>	Turtle dove	S41****	<1km	1998

Scientific Name	Common Name	Protection	Closest Record to Site	
			Approx. Min. Distance	Date
<i>Poecile montanus</i>	Willow tit	S41****	150m	2005
<i>Motacilla flava</i>	Yellow wagtail	S41****	<1km	1998
<i>Emberiza citrinella</i>	Yellowhammer	S41****	<1km	2005

* Red list of BoCC5 (2021)

** Amber list of BoCC5 (2021)

*** Black list BoCC5 (2021)

**** Section 21 of the NERC Act (2009)

***** Schedule 1 or 5 of the WCA (1981)

Bats

41 records of bats were returned in the data search, including records of unidentified bat species (*Chiroptera/Vespertilionidae*), brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), daubenton's bat (*Myotis daubentonii*), unidentified mouse-eared bat species (*Myotis sp.*), common noctule (*Nyctalus noctula*), unidentified pipistrelle species (*Pipistrellus sp.*), soprano pipistrelle (*Pipistrellus pygmaeus*), and whiskered/brandt's bat (*Myotis mystacinus/brandtii*). The closest record was attributed to an unidentified bat species, located 50m north of the site in 1991.

All species of bat returned are listed under Schedules 2 and 5 of the Wildlife and Countryside Act (1981) and the North Merseyside LBAP. Brown long-eared bat, common noctule, and soprano pipistrelle are also listed under Section 41 of the NERC act (2006).

MAGIC also detailed the presence of one granted EPSL within 1km of the Site (Ref: EPSM2013-5867). This licence was to allow destruction of a resting place for common pipistrelle, soprano pipistrelle, brown long-eared bat, and natterer's bat between 2013 - 2014. It was located approximately 250m south-west of the site.

Hedgehog

21 records of hedgehog were returned in the data search, with the closest record located on the southwestern border of the site in 2019.

Hedgehog are listed under Section 41 of the NERC act (2006).

Brown hare

10 records of brown hare (*Lepus europaeus*) were returned in the data search, with the closest record located approximately 130m north of the site in 2012.

Brown hare are listed under Section 41 of the NERC act (2006).

Ferret

One record of feral ferret (*Mustela putorius subsp. furo*) was returned in the data search, located within 1km of the site in 1993.

Ferret are listed under Section 41 of the NERC act (2006).

Water vole

14 records of water vole were returned in the data search, with the closest record located approximately 20m north of the site in 1989.

Water vole are listed under Schedule 5 of the Wildlife and Countryside Act (1981) and Section 41 of the NERC act (2006).

Otter

1 record of otter was returned in the data search, located approximately 630m southwest of the site in 2017.

Otter are listed under Schedules 2 and 5 of the Wildlife and Countryside Act (1981) and Section 41 of the NERC act (2006).

Invasive Non-native Species

Fauna

Eight records of non-native invasive animal species were returned in the data search, namely canada goose (*Branta canadensis*), ruddy duck (*Oxyura jamaicensis*), american mink (*Neovison vison*), and eastern grey squirrel (*Sciurus carolinensis*). The closest record was attributed to eastern grey squirrel and was located onsite in 2017.

All species are listed under Schedule 9 of the Wildlife and Countryside Act (1981).

Flora

224 records of invasive non-native plant species were returned in the data search, namely water fern (*Azolla filiculoides*), Canadian waterweed (*Elodea canadensis*), floating pennywort (*Hydrocotyle ranunculoides*), himalayan balsam (*Impatiens glandulifera*), himalayan cotoneaster (*Cotoneaster simonsii*), japanese knotweed (*Fallopia japonica*), japanese rose (*Rosa rugosa*), Variegated yellow archangel (*Lamium galeobdolon subsp. argentatum*), montbretia (*Crocasmia pottsii x aurea = C. x crocosmiiflora*), rhododendron ponticum (*Rhododendron ponticum*), and virginia-creeper (*Parthenocissus quinquefolia*). The closest record was attributed to Himalayan balsam and was located onsite in 2017.

All species are listed under Schedule 9 of the Wildlife and Countryside Act (1981).

No Records Returned

The data search returned no records for:

- White-clawed crayfish
- Reptiles
- Hazel dormice (*Muscardinus avellanarius*)
- Badger

4.2 Field Survey

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

4.2.1 Mixed Scrub

Dense scrub exists along the southern boundary of the site and is also present as a well established edge layer around the broadleaved semi-natural woodland. Species present within this scrub comprised frequent hawthorn (*Crataegus monogyna*), goat willow (*Salix caprea*), and blackthorn (*Prunus spinosa*), with common gorse (*Ulex europaeus*) present rarely on the soil mounds present within the site.



Photograph 1 – Dense scrub present along the southern site boundary.



Photograph 2–Dense scrub present adjacent to the broadleaved semi-natural woodland within the site.

4.2.2 Marshy Grassland

Marshy grassland was present in a couple of patches within the Site (TN3 and TN4). This was mostly dominated by soft rush (*Juncus effusus*) and reed canary-grass (*Phalaris arundinacea*), with occasional hairy willowherb and rare wild angelica (*Angelica sylvestris*) present.



Photograph 3 – Marshy Grassland present within the eastern section of the site.



Photograph 4 – Marshy Grassland present within the western section of the site.

4.2.3 Tall Ruderal

A small area of tall ruderal vegetation had developed around a mound that had been created within the centre of the site, possibly from where excavated material had been deposited. Plant species present within this habitat included occasional hairy willowherb (*Epilobium hirsutum*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bramble (*Rubus fruticosus* agg.), with field woundwort (*Stachys sylvatica*) present rarely.

4.2.4 Semi-Natural Broadleaved Woodland

Broadleaved semi-natural woodland is present within the Site towards the western section of the site which forms the area designated as Strettlles Bog, Tarbock LWS, and also forms the southern boundary of the site. The species present in the canopy comprised sycamore (*Acer pseudo-platanus*), pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*), silver birch (*Betula pendula*) and hawthorn. Fallen deadwood was present within this woodland, with the ground covered in a dense layer of leaf litter throughout. Evidence of woodland regeneration was present with some sycamore and oak saplings present within the ground layer. No evidence of management practices was observed within the woodland. Some mature trees were present to the western extent of the woodland, but none qualified as being veteran. The woodland present along the boundary with the A5080 Cronton Road contained mostly immature trees, with only a few mature specimens noted.

Ground flora species present within this woodland included bluebell (*Hyacinthoides non-scripta*), dogs mercury, remote sedge (*Carex remota*), creeping soft grass (*Holcus mollis*), with Hart's tongue fern (*Phyllitis scolopendrum*) also present in the wetter area. A dense stand of Himalayan balsam (*Impatiens glandulifera*) was also present within the woodland at TN1 and TN2.



Photograph 5 – Broadleaved semi-natural woodland with bramble ground layer present within the western section of the site.



Photograph 6 – Broadleaved semi-natural woodland present within the western section of the site.

4.2.5 Running Water

Ochre Brook flows through the broadleaved woodland present within the western section of the site (TN6). This watercourse was heavily shaded, fast flowing, with minimal aquatic or marginal vegetation present. The watercourse was approximately 2m in width and the water was approximately 50cm deep. The banks were steep to vertical in places throughout the site and reached a maximum height of 3m above the water level. The substrate of the watercourse consisted of large rocks and pebbles which covered in a layer of silt, additionally the water showed evidence of pollution, likely attributed to runoff from the motorway present adjacent to the site.

Two ditches are also present on site that flow from a culvert adjacent to the northern boundary into Ochre Brook (TN5 and TN7). This flows through a deep cutting in the northern section of the site which had been subject to extensive earthworks and therefore had minimal vegetation established on the banks. Aquatic vegetation including hard rush (*Juncus inflexus*), field horsetail (*Equisetum arvense*), and hairy willowherb.



Photograph 7 – Ochre Brook within the woodland, showing culvert present at western extent of site.



Photograph 8– Drainage ditch that flows into Ochre Brook within the deep cutting.

There is also a further watercourse present adjacent to the eastern site boundary, this is also culverted beneath the A5080 Cronton Road and merges with Ochre Brook south of the site. This watercourse and ochre Brook within the site are designated as main rivers by the Environment Agency.

4.2.6 Other neutral grassland

The majority of the site comprised a mosaic of low-growing neutral grassland and ephemeral/short perennial vegetation, with some tall ruderal species also present. The site showed evidence of heavy machinery using the site, with deep wheel ruts evident, so this habitat had likely become established following a period of disturbance. At the time of survey this habitat was damp although no evidence of standing water was observed within the site. This habitat was observed to be more species rich than agricultural land, although none of the species present were notable and likely to be common within the surrounding area.

Yorkshire fog (*Holcus lanatus*) was present abundantly within this habitat. Species present frequently within this habitat comprised common sorrel (*Rumex acetosa*), creeping cinquefoil (*Potentilla reptans*), creeping thistle (*Cirsium arvense*), and marsh thistle (*Cirsium palustre*). Species present occasionally within this habitat included field horsetail, creeping bent (*Agrostis stolonifera*), hard rush, wild angelica, hogweed, common vetch (*Vicia sativa*), northern marsh orchid (*Dactylorhiza purpurella*), glaucous sedge (*Carex flacca*), field forget-me-not (*Myosotis arvense*). Square-stalked St John's-wort (*Hypericum tetrapterum*) was present rarely.



Photograph 9 – Neutral grassland present within the majority of the site



Photograph 10 - Neutral grassland present within the majority of the site.

4.3 Site Suitability for Protected and Notable Species

4.3.1 Species Discounted from Assessment

Hazel dormouse (*Muscardinus avellanarius*) 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 Merseyside area (Wembridge *et al.*, 2016). The habitats on Site are of limited value due to limited areas of extensive woodland and scrub. As such, the species are reasonably discounted from Site

Red squirrel have been discounted from the assessment. Red squirrel populations are limited to small areas of northern England and, although populations exist within Merseyside, no previous records returned in the data search and no suitable habitat is present on Site. It is anticipated that high abundances of grey squirrel (*Sciurus carolinensis*) 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).

4.3.2 Vascular Plants

The habitats found on Site are common within the surrounding area and have developed relatively recently due to the level of previous disturbance on Site.

The woodland at the western extent of the Site contained bluebell, dog's mercury (*Mercurialis perennis*) which are commonly considered to be indicators of ancient woodland.

4.3.3 Invertebrates

A diversity of habitats were present on Site, including broadleaved woodland with dead wood, running water and ephemeral/grassland/scrub mosaic.

These habitats will likely provide a range of habitats to support invertebrates at all life stages, although due to the location of the Site on an urban/industrial fringe, the assemblage is likely to be restricted to common and widespread species.

4.3.4 White-Clawed Crayfish

Ochre Brook was present within the Site which contained large rocks/pebbles that would provide sheltering habitats for white clawed crayfish. No evidence of undercutting or overhanging roots were seen along the banks.

However, the brook is culverted beneath the motorway and is likely to be subject to a high degree of run off, making the brook unsuitable to support white-clawed crayfish. Additionally, no records of this species were returned from within 1km of the Site during the desk study.

White-clawed crayfish have been reasonably discounted from this assessment and are not discussed further within this report.

4.3.5 Amphibians

No ponds were located within Site and four ponds were identified within 250m of the Site boundary. Ponds greater than 250m away were not considered 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) (English Nature, 2001).

These ponds were generally of poor quality, being heavily shaded and mostly containing low levels of water.

The location of the ponds identified within 250m of the Site is provided in Figure 2. An HSI assessment of all ponds was conducted in June 2022, and found the following results:

- Pond 1: Average suitability;
- Pond 2 and Pond 3: Below Average suitability;
- Pond 4: Poor suitability.

Previous surveys conducted in 2020 by TEP on these ponds and others within the surrounding area found no evidence of GCN, with the ponds also testing negative for GCN eDNA. The ponds identified within this report were subject to standard bottle trapping surveys and no evidence of great crested newts was recorded. Due to these surveys being undertaken recently and that the overall quality of the ponds has not changed from when previous surveys were conducted, GCN are still likely to be absent from the ponds. The M62 present to the west and the A5080 provide a significant barrier to amphibian dispersal across the environment, and the ponds identified are isolated from other ponds.

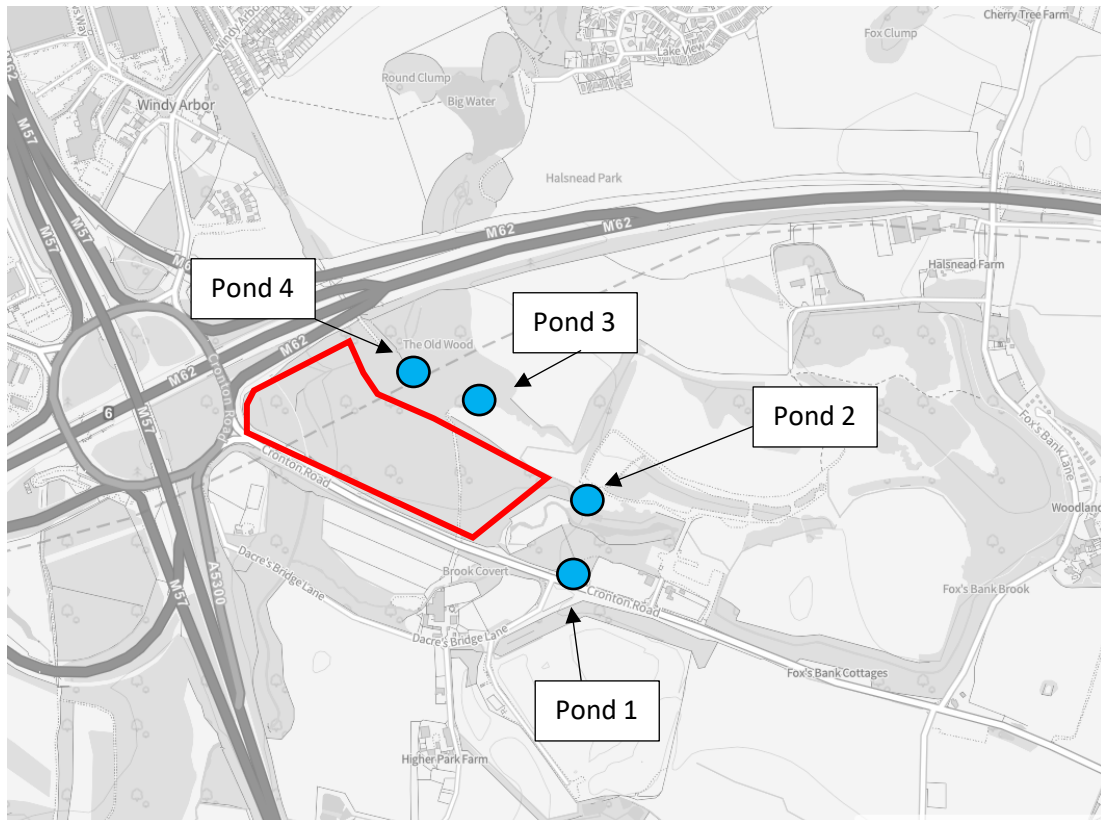


Figure 2: Locations of ponds within 250m of the Site.

The Site comprised a mosaic of habitats with a high abundance of soft rush, with connections to other aquatic habitats within the surrounding area which may provide suitable foraging resources and cover for common amphibians such as common toads.

The presence of great crested newts within the Site is reasonably discounted, though common amphibians may occur on Site.

4.3.6 Reptiles

The Site was found to provide limited value for reptiles, due to the lack of open space for basking within the majority of the Site and the high level of anthropogenic disturbance present due to the proximity of nearby major roads. The woodland and scrub habitats present could provide some terrestrial cover for the species, though these are generally confined to the boundaries.

Overall, the habitats on Site were of limited value and no records of the species group were identified. Reptiles are not considered to be present on Site.

4.3.7 Birds

Ground Nesting

The Site was considered to be unsuitable to ground nesting species, however the boundary habitats and woodland habitats may provide value to species such as skylark, records of which were returned within the desk study.

The Site may provide value to ground nesting bird species.

Passerine

The broadleaved woodland, aquatic habitats and boundary trees all provide suitable habitat to support nesting bird species.

Wintering

The Site offers limited suitable habitat to support wintering birds due to the high level of anthropogenic disturbance present on Site from the adjacent motorway. Additionally, the habitat present on Site is largely of poor quality and would provide limited food sources during winter months to support over wintering birds.

Barn Owl

No mature trees with potential to support a barn owl were recorded on Site. The wider Site and environment provide limited foraging habitat due to the high levels of anthropogenic disturbance present.

4.3.8 Bats

Preliminary Roost Assessment

No buildings were present on Site, and no trees with bat roost potential were identified within the Site. Mature trees were present within the woodland in the western section of the Site, however none with potential to support roosting bats were present.

Commuting and Foraging Bats

The woodland and aquatic habitats on Site are anticipated to provide some value for foraging bats due to providing suitable commuting route within the Site and across the wider environment, as well as providing a range of habitats to support invertebrate prey. The trees and scrub present along the Site northern boundary and the woodland edge, is likely to be of most value to bats as it connects to the wider environment and provides a dark corridor, compared to the Cronton Road boundary which will experience some degree of artificial lighting. The habitats within the Site were relatively common and widespread within the surrounding area.

The Site does not have potential to support roosting bats whilst the broadleaved woodland, aquatic habitats, and Site boundaries may provide foraging and commuting value.

4.3.9 Hedgehog

The broadleaved woodland and scrub habitats will provide suitable cover and foraging habitats for the species. Hedgehog are potentially present within the Site.

4.3.10 Water Vole

Ochre Brook is present within the broadleaved woodland present in the western section of the Site. The banks on this watercourse were approximately 3m high and were steep to vertical throughout most of the Site. The banks were mostly unvegetated, with the watercourse itself being approximately 3m across with a moderate to high flow rate present.

Due to the lack of suitable bankside vegetation and the steepness of the banks, Ochre Brook was considered unsuitable to support water vole.

A ditch joined into Ochre Brook from the north of the Site which was approximately 0.5m across with approximately 10cm depth of water. This drainage ditch also had steep banks and no suitable bankside vegetation that could support water vole.

The desk study did not return any records of water vole within 1 km of the Site.

The Site was considered to be unsuitable to support water vole, and this feature has therefore been reasonably discounted from the assessment and is not discussed further within this report.

4.3.11 Otter

Ochre Brook and the drainage ditch which joins into Ochre Brook were thoroughly searched for signs of otter, including spraints, prints, and slides. No evidence of otter use was found along Ochre Brook, whilst the drainage ditch was considered to be too small to be of value to otter.

The brook is culverted under the adjacent motorway to the west of the Site, which will potentially reduce the value of Ochre Brook as a commuting or foraging route for otter. Additionally, Ochre Brook is culverted to the south of the Site beneath the A5080.

The broadleaved woodland could provide some suitable habitat as a resting place for otter; however, no evidence was observed and no trees with over hanging roots were observed along the banks.

The Site provides limited value to the local otter population; however, it may be used infrequently as a commuting route.

4.3.12 Badger

No evidence of badger was seen on Site or within 30m of the Site. The broadleaved woodland present on Site contained dense vegetation, however no evidence of a mammal pathway or signs of foraging were noted.

The broadleaved woodland was partially on a slope which provided suitable habitat for badger sett construction.

The broadleaved woodland and surrounding vegetation likely provide value as a foraging resource for local badger populations, although the presence of a major road in close proximity to the Site will likely limit the use of the Site by badger.

The wider landscape was assessed as having suitability for the species based on the areas of woodland which connect the Site to the wider area. The Site provides potential sett-building opportunities within the broadleaved woodland and scrub, whilst fruiting trees will provide suitable foraging resources.

The Site potentially provides value to local badger populations.

4.4 Invasive Species

4.4.1 Flora

Himalayan balsam was noted within the Site during the field survey at TN1 and TN2 and a large stand was also present within the broadleaved woodland present on Site. This species is listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) as an invasive non-native species.

5 Ecological Constraints and Recommended Mitigation

5.1 Proposed Development

Maro are proposing to develop land off Cronton Road in Prescott, Merseyside. The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

5.2 Designated Sites

The nearest statutory designated Site is Clinton Wood Local Nature Reserve (3.7km south-east of the Site). There are no impacts anticipated to this Site as result of the proposed development as it is located a sufficient distance away and is separated by anthropogenic barriers such as the residential areas and major roads such that no impacts as a result of development are anticipated.

The Site lies within the IRZ of the Mersey Estuary SSSI. This site is located approximately 6.5km south of the Site and is designated for supporting internationally important populations of wildfowl and estuarine habitats. The Site provides limited potential to support these species due to its size and the high level of anthropogenic disturbance present, which means it is unlikely to act as functional land associated with this designated site.

Strettles Bog, Tarbock LWS, a non-statutory protected Site, is located within the Site. Immediately adjacent to the Site to the north is The Old Wood, South LWS and immediately adjacent to the Site to the east is Mine Waste, Cronton LWS. Dagger's Bridge Wood LWS lies on the opposite side of the A5080 from the site. None of the LWS's or habitats they are designated for will be directly impacted by the development. However due to the proximity of the proposed development to Strettles Bog, Tarbock LWS, measures should be implemented to ensure that construction activities do not degrade this designated site.

5.2.1 Construction Environmental Management Plan

Therefore, it is recommended that a detailed Construction and Environment Management Plan (CEMP) specific to the proposed development is created (and adhered to throughout the course of construction works) to avoid, minimise and mitigate for negative impacts resulting from construction practices on the LWS present within and adjacent to the Site and the associated habitats that the LWS's are designated for.

This plan will detail measures to avoid, minimise or mitigate any potential negative effects caused by construction practices on the environment on and surrounding the Site including:

- The control of run-off from areas of arisings to prevent any pollutants/contaminants entering the onsite and nearby watercourses.
- Appropriate measures to suppress dust during hot, dry and/or windy conditions.
- Excavations should be sealed overnight or should have at least one shallow-sloping side to allow any animals that may fall in to escape.
- An ecologist should be contacted for advice should any protected species be discovered during construction.

5.2.2 Landscape and Ecological Management Plan

A Landscape and Ecological Management Plan (LEMP) could be compiled and implemented on-Site to enhance the biodiversity and overall ecology of the Site, whilst providing methods and management practices to ensure the quality of the LWS present on Site does not deteriorate as a result of the proposed development. This document would also take into consideration the landscaping of the development and ensure they reach the full potential and quality as intended.

This could provide an initial assessment of the Site from a landscape perspective to inform the opportunities and constraints. Develop external works / landscape proposals relevant to the Site context and proposed uses.

The LEMP could include the details of the following:

- Full details of both hard and soft landscape proposals, a schedule of landscape maintenance for a minimum of 5 years, and thereafter a 30-year long term management plan.

5.3 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 terrestrial mammals. The semi-natural broadleaved woodland and running water are of highest value, though the site may provide limited value as a foraging resource for bats.

5.3.1 Broadleaved Woodland and Trees

Generally, the protection measures of retained trees and woodland will be through use of temporary protective demarcation fencing to protect the trees and shrubs. The fencing must extend outside the canopy of the retained trees and must remain in position until the development is complete to ensure protection is provided throughout the construction phase.

The fencing will be in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations.

The Arboriculture Impact Assessment conducted for this Site (Urban Green, 2022) details the partial loss of some areas of broadleaved woodland present along the southern boundary of the Site. It is recommended that replacement tree planting is carried out to compensate for loss of any trees. It is recommended that the planting comprises native species and species known to be of value for the attraction of wildlife. This will include fruiting and flowering species.

5.3.2 Watercourse

Ochre Brook flows through the site within the broadleaved woodland present in the western section of the site and is therefore at risk of being negatively impacted as a result of construction processes. The implementation of a CEMP (as detailed in Section 5.2.1) should control for any negative impacts to this habitat, whilst the implementation of a LEMP (as detailed in Section 5.2.2) will allow for long term management of the habitat to ensure it does not become neglected.

Fox's Brook adjacent to the eastern site boundary should be subject to at least an 8m construction buffer to reduce impacts to the watercourse as a result of the development.

5.4 Fauna

5.4.1 Vascular Plants

The most valuable habitat for vascular plant diversity on Site is the area of broadleaved woodland present within the western section of the Site. This area is to be retained within the development, therefore there are no adverse impacts to vascular plant diversity within the Site anticipated.

5.4.2 Amphibians

Great crested newts were deemed unlikely to be present on Site and no further consideration for the species is required. However, there is a possibility that common amphibians such as common toad may be present on Site.

It is recommended that Reasonable Avoidance Measures are to be followed during Site clearance. All Site contractors are to be inducted to the potential presence of the species. If any amphibians are encountered during Site/vegetation clearance works, they should be moved carefully, by hand, to outside of the development area.

5.4.3 Birds

Vegetation removal 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.

The habitats of highest value to birds within the Site, i.e. broadleaved woodland and aquatic habitats will be retained. There will be some loss of scrub within the Site, therefore the landscape proposals for the Site should contain a range of habitats to support a variety of nesting bird species. The drainage ditch north of the broadleaved woodland had bare unvegetated banks which provide opportunity within the Site to increase the overall habitat provision to support bird species, therefore planting or seeding of these banks should be included within the landscape proposals for this Site.

5.4.4 Bats

The habitats of highest value to bats within the Site, i.e. broadleaved woodland and aquatic habitats will mostly be retained within the development, therefore the overall value of the Site to foraging and commuting bats should not be affected.

The proximity of the M62 and A5080 Cronton Road likely reduce the value of the site to foraging and commuting bats due to the high levels of noise and artificial lighting that are likely present on site. The northern and eastern site boundary likely provide the greatest value to commuting and foraging bats due to reduced level of disturbance present, additionally these linear features will provide greater connectivity to adjacent habitats. Both these boundaries will be retained within the final design and it is also recommended that the landscape designs for this Site include native flowering perennial plants that will provide long term value for invertebrates.

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).

Construction lighting should not be directed towards retained and surrounding habitats including the broadleaved woodland and watercourses. The construction lighting may impact bats which are sensitive

to light. Directional lighting will be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these.

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.
- Internal lighting should be positioned away from windows to minimise light spill, where appropriate.
- 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, where appropriate.
- The use of hard landscaping features to block light and create dark corridors.
- Avoid illuminating any suitable retained bat habitats, particularly the hedgerows and trees, that are potential commuting and foraging habitat for bats.
- Use of timed security lights should be set on motion-sensors and using short, 1-minute timers, to minimise light use, where appropriate.
- Column heights of lighting can be considered to minimise light spill.

5.4.5 Hedgehog

Hedgehog may be present on Site, as such checks for hedgehogs should be carried out prior to grassland and scrub removal to avoid harming this species during works.

5.4.6 Otter

No impacts are anticipated to occur directly to Ochre Brook and the implementation of a CEMP as outlined in Section 5.2 will control for any indirect impacts to the watercourse.

Otter may use the broadleaved woodland present along Ochre Brook as a resting place. No works are anticipated to occur within the broadleaved woodland adjacent to Ochre Brook therefore the impact to otter as a result of this scheme should be minimal.

The following Reasonable Avoidance Measures should be followed throughout the construction phase:

- All Site personnel are to be inducted through use of a toolbox talk, on the presence of otters, their legal protection and working limits.
- Regular inspections of the watercourse and its banks for any sign of otter holts or activity. These should be undertaken by an ecologist at regular intervals during the operation of the Site.

- Any man-made excavations, trenches or pits relating to the development that must remain open overnight, will either be securely fenced off or covered up overnight to avoid entrapment of otters, if left open, access ramps (e.g., mammal ladders, a roughened plank or even a ramp of earth) will be placed within the excavation each night near to crossing points to allow any animals that accidentally fall into the excavation a means of climbing out.
- Any temporarily exposed open pipe system will be capped in such a way as to prevent otters gaining access, as this may happen when contractors are off-Site.

If in the unlikely chance an otter is discovered on Site, the project ecologist is to be contact immediately and Natural England are to be informed.

5.4.7 Badgers

Although no evidence of badger use within the Site was observed, the Site does have potential to support badger. The following Precautionary Working Methods will be adhered to during construction phase to ensure that no badgers are impacted by the proposed development:

- All Site operatives will be inducted to the potential presence of the species and the species legal protection.
- All Site operatives will be inducted as to identifying potential badger setts and should be vigilant if they suspect they locate a new sett during works and inform the Site manager immediately. A minimum 20m buffer will be maintained from the potential sett until an ecologist has been to Site.
- All excavations will be battened at a 45-degree angle or ramps to be positioned to allow escape should animals become trapped.
- All Site machinery and materials will be appropriately stored to avoid harm to the species, notably between July and November each year when extra care is needed to avoid potential impacts on pregnant females.

5.5 Invasive Species

Himalayan balsam was identified during the Site walkover, which is a non-native invasive species. As such, it is recommended, prior to the development, that an invasive species specialist should be contracted to map the extent of invasive species present within the Site and produce a detailed management plan for the removal and eradication of such species onsite. Eradication of this species should be carried out prior to construction commences to reduce chances of spread.

6 Further Surveys

No further surveys are required for this site to facilitate the development.

7 Opportunities for Enhancement

The National Planning Policy Framework (NPPF) (2021) highlights the requirement for planning policies and decisions to conserve and enhance the natural environment.

Paragraph 174 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);*
- d) *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 new building / retained trees. 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.
- The inclusion of 'hedgehog refugia' to provide additional hibernation habitat to promote use of the Site by hedgehogs should be implemented within the design for the Site.
- An ecologically sensitive planting scheme could be incorporated on the Site to promote invertebrate use of the Site, which could benefit local bat and bird species.
- The ditch present within the northern section of the site has bare earth banks on the majority of its length. These can be enhanced through the planting of marginal species which will stabilise the banks and decrease the level of sediment entering the watercourse.

An assessment of the change in ecological value provided by the scheme will be conducted using The Biodiversity Metric 3.1 from Natural England.

8 Conclusion

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

- The major habitats identified on Site included broadleaved semi-natural woodland, marshy grassland, neutral grassland, mixed scrub, and tall ruderal.
- Potential ecological constraints identified included amphibians, nesting birds, commuting, and foraging bats, hedgehog, otter, and badger and are detailed in Section 4.
- Mitigation recommendations to be completed prior and during the construction phase for amphibians, nesting birds, commuting, and foraging bats, hedgehog, otter, and badger have been detailed in Section 5.
- No further surveys are required to determine presence or absence and inform relevant mitigation requirements and therefore to facilitate development.
- General ecological enhancements are listed within Section 7.

9 References

- Bat Conservation Trust and Institute of Lighting Professionals (2018). Bats and artificial lighting in the UK – Bats and the Built Environment Series.
- British Hedgehog Preservation Society / People's Trust for Endangered Species (2019). Hedgehogs and Development. BHPS / PTES.
- Chanin P (2003). Ecology of the European Otter. Conserving Natura 2000
- CIEEM (2019). Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM.
- CIEEM (2019). Guidelines for Preliminary Ecological Appraisal. CIEEM. Rivers Ecology Series No. 10. English Nature, Peterborough.
- Collins (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (Third Edition). The Bat Conservation Trust, London.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746. Available online at britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf
- IEA (1995). Guidelines for Baseline Ecological Assessment. E & F Spon.
- JNCC (2010). Handbook for Phase One Habitat Survey – 2010 Edition. England Field Unit, Nature Conservancy Council. Reprinted JNCC.
- Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C.A., McDonald, R.A., and Shore, R.F. (2018). A review of the population and conservation status of British mammals.
- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001), Great crested newt conservation handbook, Froglife, Halesworth.
- Oldham, R.S., Keeble, J., Swan, M.J.S., and Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetology Journal 10 (4), 143-155.
- Shuttleworth, C., RSST (n.d.). Red and grey squirrels distribution in the British Isles in 1945 and 2010.
- Urban Green (2022). Arboricultural Impact Assessment of Mercury 62. Ref. UG_1485_ARB_AIA_01.

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 transpose 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 affect significantly 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 SoPI under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Legislation for white-clawed crayfish

White-clawed crayfish are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this act it is an offence to:

- Intentionally take white-clawed crayfish from the wild; and,
- Sell or attempt to sell, any part of a white-clawed crayfish, alive or dead, or advertise that one buys or sells, or intends to buy or sell any part of a white-clawed crayfish.

The white-clawed crayfish is listed under Annex II and V of the EC Habitats Directive. The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. Annex II requires that Special Areas of Conservation (SAC) are established specifically to conserve this and other listed species. In a SAC designated for white-clawed crayfish a precautionary principle must be applied when considering the potential impacts of any operations that may affect white-clawed crayfish and their habitat.

White clawed crayfish are listed as a SoPI under Section 41 of NERC Act 2006.

Legislation for amphibians (other than great crested newt)

Under the Wildlife and Countryside Act 1981 (as amended) the four widespread amphibian species, smooth newt (*Triturus vulgaris*), palmate newt (*Triturus helveticus*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*) receive limited protection through section 9(5) only which makes selling, offering for sale, possessing or transporting for the purpose of sale (live or dead animal, part or derivative) an offence.

Common toad is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to reptiles

All native reptile species have some degree of protection in the UK, through section 9(1) and (5) (specified in Schedule 5) of the Wildlife and Countryside Act 1981 (as amended). There are two different levels of protection afforded to reptiles through this legislation according to species and this is described in more detail below.

Full Protection

Sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are afforded protection under The Conservation of Habitats and Species Regulations 2010 (are species of European importance) and are fully protected under the Wildlife and Countryside Act 1981 (as amended) and the CRow Act (2000). The Conservation of Habitats and Species Regulations 2010 implements the European Union's 'Habitats Directive' (Council Directive 92/43/EEC (a) on the Conservation of Natural Habitats and of Wild Fauna and Flora) in Great Britain. The relevant sections of this legislation make it an offence to:

- Intentionally kill, injure or capture or take a reptile;
- Possess or control (live or dead animal, part or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding Site or any structure or place used for shelter or protection by a reptile;
- Disturb whilst the reptile is occupying such a structure or place; and

- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Sand lizard and smooth snake are listed as a SoPI under Section 41 of the NERC Act 2006.

Protection against killing, injuring and trade

This level of protection under section 9 (parts 1 and 5) applies to the four widespread species of reptile, namely the common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Viper berus*). Only part of sub-section 9(1) applies, which make it an offence to:

- Intentionally kill or injure, and
- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Grass snake, slow-worm and adder are all listed as SoPI under Section 41 of the 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 badger

Badgers are protected under the Protection of Badgers Act 1992 (as amended) which makes it an offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so;
- intentionally or recklessly damage, destroy or obstruct access to a badger sett; and
- disturb a badger when it is occupying a sett.

These provisions have implications for construction or preparation works undertaken in the vicinity of an active sett and may be confounded by distance from the sett entrance. Any works resulting in ground penetration, vibration or noise near an identified badger sett entrance/s have the potential to disturb badgers and advice should be sought from a suitably experienced ecologist under such circumstances. If disturbance to an active sett is probable, then a licence may need to be obtained from Natural England before any works commence.

Legislation relating to water vole

The water vole is fully protected under Section 9 of the Wildlife & Countryside Act 1981 (as amended) through its inclusion in Schedule 5. The legal protection makes it an offence to:

- Intentionally kill, injure or capture or take a water vole;
- Possess or control (live or dead animal, part or derivative);
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding Site or any structure or place used for shelter or protection by a water vole;
- Deliberately (intentionally) or recklessly disturb a water vole whilst occupying such as structure or place, and
- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

Water vole is listed as a SoPI under Section 41 of the NERC Act 2006.

Legislation relating to invasive plant species

Several non-native invasive plant species such as Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), Japanese rose (*Rosa rugosa*), variegated yellow archangel

(*Lamiastrum galeobdolon*), rhododendron (*Rhododendron ponticum*) and Japanese knotweed (*Reynoutria 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 - Habitat Suitability Index Assessment

HSI Score	Standing water (P1)	
Photo		
Description	Located approximately 130m east of the Site. A large woodland pond, rounded in shape and covered in a layer of duckweed with no obvious areas of open water visible. The terrestrial habitat surrounding the ponds is of good quality with connectivity for amphibian species, however a major road is present directly south of the Site.	
	Field Score	HSI Score
Sl1 - Location	A	1
Sl2 - Pond area	250m ²	0.5
Sl3 - Pond drying	Never dries	0.9
Sl4 - Water quality	Poor	0.33
Sl5 - Shade	90%	0.4
Sl6 - Waterfowl	Absent	1
Sl7 - Fish	Possible	0.7
Sl8 - Ponds	4	0.72
Sl9 - Terrestrial	Good	1
Sl10 - Macrophytes	1-5%	0.35
Overall HSI score	0.63 – Average	

HSI Score	Standing water (P2)	
Photo		
Description	Located approximately 40m east of the site. A woodland pond with low water levels at the time of survey. The pond is highly shaded, with a border of common reed present around the pond. The terrestrial habitat surrounding the ponds is of good quality with connectivity for amphibian species, however a major road is present directly south of the Site.	
	Field Score	HSI Score
Sl1 - Location	A	1
Sl2 – Pond area	50 - 100m ²	0.1
Sl3 - Pond drying	Never dries	0.9
Sl4 – Water quality	Poor	0.33
Sl5 - Shade	95%	0.3
Sl6 - Waterfowl	Absent	1
Sl7 - Fish	Absent	1
Sl8 - Ponds	4	0.72
Sl9 - Terrestrial	Good	1
Sl10 - Macrophytes	20%	0.5
Overall HSI score	0.56 – Below Average	

HSI Score	Standing water (P3)	
Photo		
Description	Located approximately 45m north of the site. Shallow pond present within an open area adjacent to woodland. Pond had very shallow water at the time of survey and had clearly shrunk from a previous much larger size. The terrestrial habitat surrounding the ponds is of good quality with connectivity for amphibian species, however a major road is present directly north west of the pond.	
	Field Score	HSI Score
Sl1 - Location	A	1
Sl2 - Pond area	50 - 100m ²	0.1
Sl3 - Pond drying	Dries annually	0.1
Sl4 - Water quality	Poor	0.33
Sl5 - Shade	60%	1
Sl6 - Waterfowl	Absent	1
Sl7 - Fish	Absent	1
Sl8 - Ponds	4	0.72
Sl9 - Terrestrial	Good	1
Sl10 - Macrophytes	20%	0.5
Overall HSI score	0.51 – Below Average	

HSI Score	Standing water (P4)	
Photo		
Description	Located approximately 60m north of the Site. A small woodland pond with little water remaining at the time of survey. The pond had a substrate of leaf litter with no bankside or emergent vegetation present. The terrestrial habitat surrounding the ponds is of good quality with connectivity for amphibian species, however a major road is present directly north west of the pond.	
	Field Score	HSI Score
Sl1 - Location	A	1
Sl2 - Pond area	<50m ²	0.02
Sl3 - Pond drying	Dries annually	0.1
Sl4 - Water quality	Poor	0.33
Sl5 - Shade	75%	0.7
Sl6 - Waterfowl	Absent	1
Sl7 - Fish	Absent	1
Sl8 - Ponds	5	0.8
Sl9 - Terrestrial	Good	1
Sl10 - Macrophytes	0%	0.35
Overall HSI score	0.40 – Poor	

Appendix 3 – Habitat Map and Target Notes

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- Red Line Boundary
- TargetNotes



Habitat

- Artificial unvegetated, unsealed surface
- Mixed scrub
- Modified grassland
- Other neutral grassland

Linear Habitat

- Line of trees
- Other Rivers and Streams
- Other Broadleaved Woodland Types



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Client: Maro2

Project: Mercury 62

Title: Habitat Map

Issue: 01

Drawn: CL	Checked: MB	Approved: MB
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Project: UG1602	Scale @ A3: 1:1750	Date: 9/6/2022
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Dwg No: UG_1602_ECO_HM_01	Revision: 01
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Environmental Statement Volume 3: Appendix 6.2

Biodiversity Enhancements Management Plan

BIODIVERSITY NET GAIN DESIGN STAGE ASSESSMENT

July 2022

Mercury 62,
Cronton Road,
Prescot,
Merseyside

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



QUALITY MANAGEMENT

Project No.:	UG1602			
Project:	Mercury 62			
Location:	Cronton Road, Prescott, Merseyside			
Title:	Biodiversity Net Gain Design Stage Assessment			
Document Type:	BNG	Issue No.:	01	
Date:	18/07/2022			
Prepared By:	Mark Blacker	Signature:		Qualifications: Senior Ecologist, MSc, ACIEEM
Checked By:	Shannon Brady	Signature:		Qualifications: Biodiversity Net Gain Consultant
Revision Status:				
Rev:	Date:	Issue/Purpose/Comment:	Prepared:	Checked:

NON-TECHNICAL EXECUTIVE SUMMARY

This Biodiversity Net Gain Assessment has been prepared by Urban Green on behalf of Maro Developments Ltd to support an application for the proposed erection of a single warehouse unit (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The Assessment was conducted using the Biodiversity Metric 3.1 to calculate the pre-and post-development biodiversity habitat units of the site for the proposed development. The results of this calculation are summarised in the following table:

	On-site baseline	Habitat Unit Change				On-site post development	Net change in Biodiversity	
		Retained	Lost	Enhanced	Created		Habitat units	%
Habitat Units	73.71	30.22	43.49	0.00	51.39	81.61	7.9	+10.71
Hedgerow Units	0.00	-	-	-	7.75	7.75	7.75	+100
River Units	2.18	1.61	-	0.57	-	2.56	0.38	+17.35

Overall, this assessment does achieve a net gain in biodiversity, at 10.71% for area habitats, 100% for linear hedgerow habitats and 17.35% for linear river habitats. Offsite mitigation will not be necessary, and the gain is in line with the relevant national and local planning policies.

However, the scheme fails to satisfy the trading rules laid out by the metric as the units contributed by the baseline 'other neutral grassland' and 'other broadleaved woodland' habitats have not been sufficiently compensated for. To fulfil the trading rules, these habitats and their associated units must be replaced entirely with habitats of the same broad habitat type or of higher distinctiveness. In this scenario, a large proportion of the woodland is being retained and the proposed landscape layout offers a mosaic of different habitats of moderate and good condition. The post-development landscape will therefore still provide valuable habitat potential, despite not satisfying trading rules.

To ensure that habitats are maintained at the expected condition, a 30 year-management plan should be implemented post-development (Urban Green, 2022).

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1 Introduction

1.1 Background to the Scheme

Maro Developments Ltd are proposing to develop land off Cronton Road in Prescott, Merseyside (hereafter referred to as 'the Site'). The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works.

Urban Green have been appointed to complete a Biodiversity Net Gain Design Stage Assessment in order to assess the change in value to the environment provided by the proposed development.

The author of the report is Senior Ecologist, Mark Blacker. Mark has experience providing consulting services for a range of development schemes across the UK, including residential, commercial, and large infrastructure schemes.

1.2 Site Context

The site is located at National Grid Reference SJ 46758 89304 and comprises a total area of approximately 10.7ha (see Figure 1).

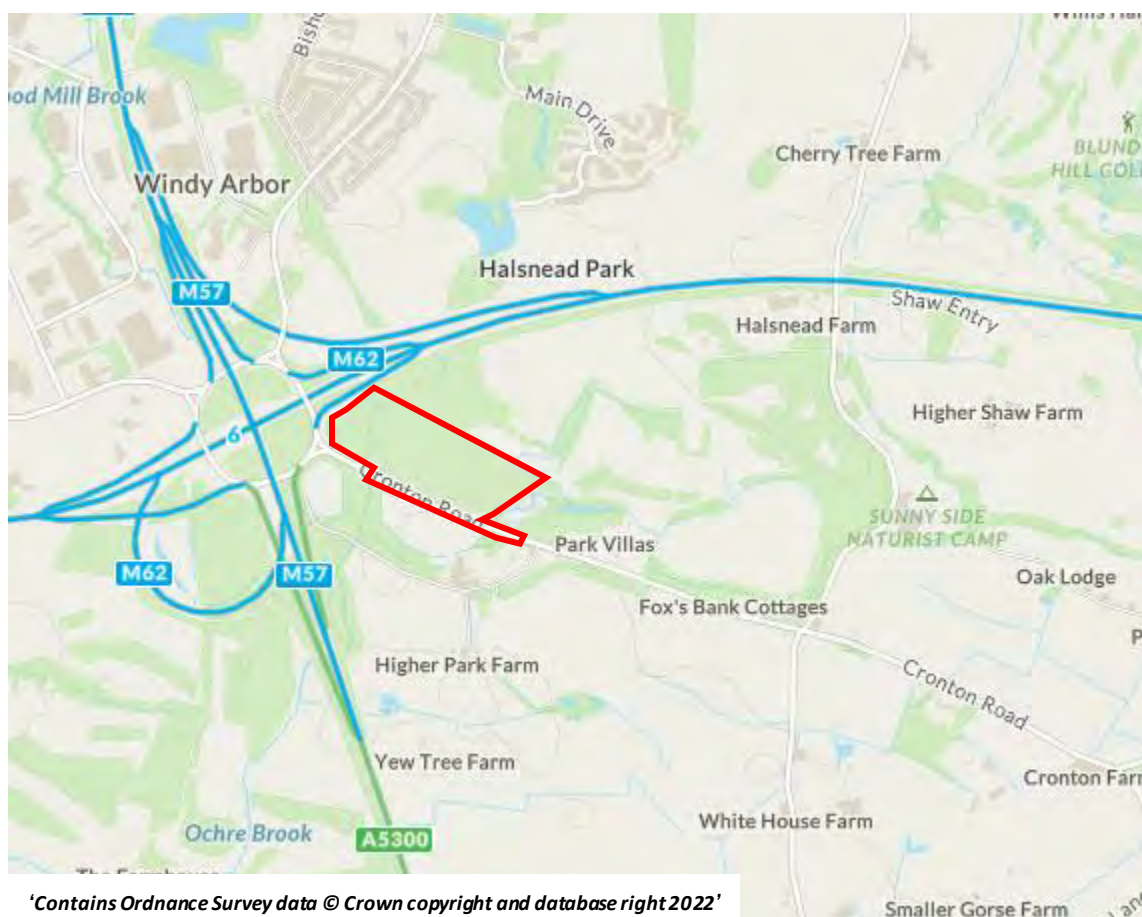


Figure 1 – Site Extent

The Site is located to the east of Junction 6 of the M62, bound by Tarbock roundabout to the west, M62 to the north, Cronton Road to the south and undeveloped land to the east. The Site is irregular in shape

and comprises approximately 10ha of undeveloped land and 0.7ha developed land which is the hard surfacing of Cronton Road.

Whilst the surrounding area is undeveloped, land adjacent to the east of the Site is subject to two large development proposals: construction of a new country park, which awaits determination (ref: 20/00578/FUL); and a hybrid application which secured full consent for the development of 15,273sqm of storage and distribution floorspace (B8) and outline consent for a further 77,629sqm of storage and distribution floorspace (B8) (ref: 20/00494/HYB) which was approved at planning committee on 10th June 2021. These developments, once brought forward in accordance with the adopted Halsnead Garden Village Masterplan SPD will inevitably change the character, use, and appearance of the area.

1.3 Purpose of this Report

This report has been produced to document the methods, results and conclusions of a BNG Assessment that was undertaken on site. The advice herein is based on both desk and field-based studies and intends to fulfil the following purposes:

- Ensure the core principles of Biodiversity Net Gain including the mitigation hierarchy are applied;
- Identify the baseline habitats present on site (pre-development), assess the condition and provide an indication of the ecological value of those habitats;
- Identify the post development habitats present on site, assess the possible target condition and provide an indication of the likely importance of those habitats;
- Calculate the overall change in biodiversity score from pre- to post-development habitats (measured as habitat units);

1.4 Planning Context

BNG means leaving biodiversity in a better state than it was before. As part of the Government's 25 Year Environment Plan, this requirement is being introduced and mandated for all developments. National planning policy and several Local Plans already require developments to deliver BNG.

Currently the National Planning Policy Framework (NPPF, 2021) details:

Paragraph 174 of the NPPF states:

Planning policies and decisions should contribute to and enhance the natural and local environment by:

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

Knowsley Council Local Plan Policy SD1 Sustainable Development

1) When considering development proposals, a positive approach will be taken, which reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. Work will be undertaken proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

2) Planning applications that accord with the policies in this Local Plan (and any relevant policies in Neighbourhood Plans) will be approved without delay, unless material considerations indicate otherwise.

3) Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then permission will be granted unless material considerations indicate otherwise – taking into account whether:

- Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or
- Specific policies in that Framework indicate that development should be restricted.

Knowsley Council Local Plan Policy CS8 Green Infrastructure. Maintenance and Enhancement of Knowsley's Existing Green Infrastructure

1) Knowsley's existing Green Infrastructure and its beneficial functions will be protected, managed and/or enhanced, primarily to:

- Ensure more attractive and cleaner residential neighbourhoods;
- Sustain and promote biodiversity (including designated sites, priority habitats and protected and endangered species) in accordance with importance and contribution to ecological networks;
- Preserve the character and function of historic environments and valued landscapes;
- Mitigate the effects of climate change and flood risk;
- Mitigate air, water and noise pollution;
- Provide local opportunities for sport, recreation and allotments; and
- Provide sustainable transport linkages between residential neighbourhoods and easy access to employment and services.

2) To achieve the above, planning powers and other interventions will be used to:

- Protect and enhance strategically important areas of greenspace;
- Ensure an appropriate quantity and improved quality of locally important open spaces, including outdoor sports provision (and ancillary facilities of appropriate scale);
- Promote effective movement of wildlife through a network of strategic green links, by protecting, maintaining and improving existing and new open spaces, water courses (including water quality) and biodiversity assets;
- Protect, enhance and/or introduce biodiversity into existing areas of Green Infrastructure, through integration into the design of new development and public realm projects;
- Improve accessibility for communities to greenspace offering leisure and recreation opportunities;
- Protect and where possible improve green paths and cycleways linking residential areas, existing strategic areas of greenspace, employment locations, local community services and leisure facilities;
- Work in partnership with other districts and relevant bodies at a landscape scale to minimise the impact of development upon Knowsley's existing biodiversity and geological assets, and sustain

the protection afforded to internationally important sites, including supporting habitat, for biodiversity outside of the borough; and

- Deliver new integrated and functional Green Infrastructure that helps to mitigate and adapt to climate change, such as sustainable drainage systems, carbon capture and storage, soft landscaping and green roofs.

2 Methods

2.1 Biodiversity Net Gain

Biodiversity Net Gain is defined as “development that leaves biodiversity in a better state than before”. This assessment was conducted using the Biodiversity Metric 3.1 from Natural England.

The Biodiversity Metric 3.1 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric considers the size, ecological condition, distinctiveness, and location of habitats assessing ‘Area’, ‘Hedgerow’ and ‘River’ habitats units independently. The metric enables assessments to be made of the baseline and targeted post development biodiversity value of a site.

2.2 Good Practice Principles

To ensure holistic development that makes a lasting positive change to the site’s biodiversity the Good Practice Principles as detailed in Biodiversity Net Gain: Good Practice Principles for Development (Baker, et al., 2019). Key principles include:

- Following the ‘Mitigation Hierarchy’:
 - Avoid impacts on biodiversity
 - Minimise impacts on biodiversity
 - Compensate for biodiversity losses on site
 - Compensate for biodiversity loss off site
- Avoid irreplaceable habitats and losing biodiversity that cannot be offset elsewhere;
- Address risks including difficulty and time of habitat creation and enhancement;
- Make a measurable net gain contribution calculated with a suitable metric with limitations and assumptions clearly identified;
- Achieve the best outcome for biodiversity creating lasting long-term benefits that exceed current expectations;

2.3 Desk Study

A desk study was undertaken by Urban Green in June 2022 to provide information of habitat types, condition, and strategic significance both on site and within the wider area. Due to the size and impact of the proposed development and being located within an urban/rural fringe of Merseyside, a 1 km Local Data Search was conducted as it is deemed an appropriate distance for the Zone of Influence.

Sources of information for the desk study are displayed in Table 1.

Table 1 – Desk Study Sources of Information

Source	Date Consulted	Information Sought
MAGIC Website (www.magic.gov.uk)	06/06/2022	Locations of statutory designated Sites within 1km of the Site boundary. Locations of Natura 2000 Sites (Ramsar, Special Area of Conservation (SAC) and Special Protection Area (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/)	06/06/2022	Relevant statutory designated Site citations.
JNCC (https://jncc.defra.gov.uk/)	06/06/2022	Information on European wildlife Sites. Details of relevant Section 41 species and habitats.
Merseyside BioBank	06/06/2022	Locally designated wildlife Sites within 1km of Site boundary. Records of protected and notable species within 1km of the Site boundary.
Merseyside Local Biodiversity Action Plans	06/06/2022	Species and habitats which are given special conservation status at the local level.
Catchment Data Explorer	06/06/2022	Summary of data relating to river condition and catchment data, provided The Environment Agency (EA)

2.4 Site Mapping

2.4.1 Sources of Information

Table 2 – Site Mapping Sources of Information

Source	Date Consulted	Information Sought
Preliminary Ecological Assessment (PEA) Urban Green 2022	16/06/2022	Phase 1 Habitat Survey map and description of existing habitat condition.

Source	Date Consulted	Information Sought
Proposed Landscape Plan	14/07/2022	Habitat areas and conditions as to be included within the planning layout (post-development) for site.
The Biodiversity Metric 3.1 (JPO39)	16/06/2022	The Biodiversity Metric 3.1, including the tool itself, user guides and reference documentation associated with the tool.

2.4.2 Existing Habitat (Pre-Development)

The site was subject to a field survey by Urban Green on the 6th June 2022, by Senior Ecologist Mark Blacker. The weather conditions were 15°C, overcast (7/8 oktas), with a wind speed of 1 on the Beaufort scale.

The survey was based on the standard methodology as detailed by The UK Habitat Classification User Manual (Butcher et al, 2020) and Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). A UKHab Habitat Plan has been produced to demonstrate habitats within the proposed development and the surrounding area. The mapping techniques are based on The UK Habitat Classification User Manual (Butcher et al, 2020) guidance. The method records the habitat types present, within and immediately surrounding the site, habitat extent and quality. Plant species were also identified and recorded as target notes using the DAFOR scale. 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. 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.

These habitats were subsequently mapped using ESRI ArcGIS Pro software, and habitat areas and lengths were calculated to demonstrate habitats within the proposed development and the surrounding area.

There is one non-statutory designated site present within the site boundary, and a further seven present within 1km of the site. Strettle Bog, Tarbock Local Wildlife Site (LWS) is present within the site and forms the area of broadleaves semi-natural woodland present within the western section of the site.

2.4.3 Planning Layout (Post-Development)

The proposed landscape plan, as provided by the Annabelle Langhorn Landscape Planning Ltd (2022) (see Appendix 2), was provided in DWG. format and an additional PDF document was provided detailing planting mixes and areas of different proposed habitats. These resources were used to inform the assessment.

2.5 The Biodiversity Metric 3.1

The BNG calculation was undertaken utilising The Biodiversity Metric 3.1 from Natural England. The Biodiversity Metric 3.1 uses habitat features as a proxy measure for capturing the value and importance of nature. The metric takes into account the type, size, ecological condition and location of habitats. The metric enables assessments to be made of the present and forecast future biodiversity value of a site.

The calculation was performed by a technically competent person as detailed in British Standard BS8683 - Suitably qualified person – definition in BS8683:2020.

2.6 Habitat Scoring

The Biodiversity Metric 3.1 supplies reference documents and user guides in which to accurately evaluate and assess the different habitats on site as to their condition, distinctiveness, and strategic significance. A summary of the methodology for each assessment undertaken is demonstrated in the following sections.

2.6.1 Condition

The Biodiversity Metric 3.1 uses the term habitat ‘condition’ as one of its measures of the quality of a habitat. Habitat condition will be assessed by a competent person based on guidance provided in part 1a of ‘The Biodiversity Metric 3.1: Technical Supplement’.

‘Condition Sheets’ are provided for each area habitat type. These list positive indicators for each habitat, question whether the condition has been achieved and indicate how many of these indicators need to be present to meet certain thresholds of condition. These condition sheets can be found in “The Biodiversity Metric 3.1: Habitat Condition Assessment Sheets”. Table 3 identifies the habitat condition sheets used to assess both pre and post-development habitats and completed condition sheets for this assessment can be found in section 3. Ochre Brook, which is categorised as ‘other rivers and streams’, was assessed using the MoRPH River Survey method.

Table 3 details the condition sheets used within this assessment.

Table 3 – Conditions sheets used for habitat assessment

Condition Sheet	Habitats Assessed
Area Habitats	
Grassland (Low)	Modified Grassland
Grassland (Medium, High and Very High)	Other Neutral Grassland
Urban	Ruderal/Ephemeral, Urban Trees
Heathland and Shrub	Mixed Scrub
Woodland	Other Woodland, Broadleaved
Ditch	Ditch
Pond	Pond (Non-Priority Habitat)
Hedgerow	Native Species Rich Hedgerow, Native Hedgerow

2.6.2 Distinctiveness

The distinctiveness of each habitat is automatically assigned by the tool, based upon national records of the occurrence and rarity of each habitat. Table 4 provides the basis of the distinctiveness assessment.

Table 4 – Distinctiveness Assessment for Habitats

Distinctiveness Categories		
Category	Scores	Multiplier
Very High	8	Priority habitats as defined in Section 41 of the Natural Environment and Rural Communities (NERC) Act that are highly threatened, internationally scarce and require conservation action e.g. blanket bog.
High	6	Priority habitats as defined in Section 41 of the NERC Act requiring conservation action e.g. lowland fens.
Medium	4	Semi-natural habitats not classed as a Priority Habitat.
Low	2	Habitat of low biodiversity value. Temporary grass and clover ley; intensive orchard; rhododendron scrub.
Very Low	0	Little or no biodiversity value e.g. hard standing or sealed surface.

2.6.3 Strategic Significance

The idea of strategic significance works at a landscape scale. It gives additional unit value to habitats that are in preferred locations for biodiversity and other environmental objectives. Ideally these aspirations will have been summarised in a local strategic planning document which articulates where biodiversity is of high priority and the places where it is less so. Strategic significance utilises published local plans and objectives to identify local priorities for targeting biodiversity and nature improvement, such as Nature Recovery Areas, local biodiversity plans, National Character Area 14 objectives and green infrastructure strategies.

Table 5 – Strategic Significance Assessment for Habitats

Strategic Significance Categories	
Category	Score
High strategic significance High potential & within area formally identified in local policy	1.15
Medium strategic significance Good potential but not in area defined in local policy	1.1
Low Strategic Significance Low potential and not in area defined in local policy	1

2.6.4 Temporal Multiplier

For post-development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account for the period of diminished ecological value while the habitat reaches the targeted post-development condition. This time and therefore risk multiplier differs between habitat types, if the habitat is being created or enhanced and how the habitat is to be managed. The predetermined multiplier is based on the average time to meet targeted condition assuming good practice principles and appropriate management strategies are applied.

2.6.5 Difficulty Multipliers

For post development habitat creation or enhancement, a risk multiplier will be automatically applied by the tool to account the 'difficulty' of habitat-specific enhancement or creation. There are two separate difficulty multipliers assigned to each habitat, one for creation and one for enhancement/restoration, recognising that the technical challenges will not necessarily be the same for both.

2.7 MoRPH River Survey

Condition of the linear river habitat present on site was assessed by a Modular River Physical Survey (MoRPh Survey) undertaken by a certified ecologist. Assessment of linear river habitats condition is based on the extent and diversity of a number of physical features within in both the river channel and riparian as well as the extent and type of any human modifications. This assessment is implemented in two parts:

- A desk-based reach-scale assessment to define river type of the homogenous reach of the river to be affected by development.
- A field based sub-reach scale assessment that captures channel dimensions, physical features / habitats, vegetation structural features, and human interventions to assess the condition of the river at the development site, taking into account the type of river.

The field element of the assessment included, five MoRPh field surveys conducted on contiguous lengths (modules) of river. Each MoRPh module covers a river length that is approximately twice the river width (10m). These five contiguous modules covered a sub reach of the river 50m in length. Due to the small length of the river present within the redline boundary and the small overall length of the river, it was not necessary to survey more than one subreach to assess the condition of the river.

The River Condition Assessment captures information on sediments, vegetation, morphological and water-related features; and the extent and severity of physical modification within the channel, channel margins, banks, and riparian zone (to 10m from the bank tops).

2.8 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.

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.

ESRI ArcGIS Pro software was utilised to produce the pre-development habitat map, with the best possible effort made during the mapping process to ensure that the habitat map accurately represents the area of habitats present on site. Some margin of error is possible due to the continuous and difficult to define nature of habitat boundaries, however this margin of error has been minimised using professional opinion of two experienced ecologists and up to date aerial imagery. As such this is not expected to be a significant constraint and affect the overall Biodiversity Net Gain Calculation provided within this report.

3 Pre-Development Habitat Assessment

Predevelopment baseline habitat condition was assessed following the methodology outlined in Section 2.6. Habitat descriptions and the results of this assessment are provided below. The habitats have been given reference numbers for clarity regarding in-text and the metric calculation (UG_1602_ECO_BNG_CALC_01) which illustrates the numerical data. Full habitat descriptions can be found in the Preliminary Ecological Appraisal (Urban Green, 2022).

3.1 Area Habitats

3.1.1 1) Grassland – Other Neutral Grassland

The largest habitat area on-site was other neutral grassland, which showed evidence of heavy machinery using the site, with deep wheel ruts evident. At the time of survey this habitat was damp, although no evidence of standing water was observed within the site. This habitat was observed to be more species rich than agricultural land, although none of the species present were notable and likely to be common within the surrounding area.

Yorkshire fog (*Holcus lanatus*) was present abundantly within this habitat. Species present frequently within this habitat comprised cock's foot (*Dactylis glomerata*), common sorrel (*Rumex acetosa*), creeping cinquefoil (*Potentilla reptans*), creeping thistle (*Cirsium arvense*), and marsh thistle (*Cirsium palustre*). Species present occasionally within this habitat included field horsetail, creeping bent (*Agrostis stolonifera*), hard rush, wild angelica, hogweed, common vetch (*Vicia sativa*), northern marsh orchid (*Dactylorhiza purpurella*), glaucous sedge (*Carex flacca*), field forget-me-not (*Myosotis arvense*). Square-stalked St John's-wort (*Hypericum tetrapterum*) was present rarely

Table 6 – Condition Assessment for Other Neutral Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland medium, high & very high				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	Fail	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%	Pass
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition criteria 5.	There is an absence of invasive non-native species (as listed in Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access or any other damaging	Fail

				management activities) accounts for less than 5% of total area.	
Condition Criteria 3.	Cover of bare ground between 1% and 5% including localised areas, for example, rabbit warrens	Pass	Condition Criteria 6 (non-acid types only).	There are greater than 9 species per metre squared.	Pass
Condition	Poor	Passes 4 of 6 criteria but fails essential criteria 1			
Distinctiveness	Medium				



Photograph 1 – Neutral grassland present within the majority of the site



Photograph 2 - Neutral grassland present within the majority of the site

3.1.2 2) Grassland – Other Neutral Grassland (marshy grassland)

Two areas of marshy grassland were present within the site. This habitat was mostly dominated by soft rush (*Juncus effusus*) and reed canary-grass (*Phalaris arundinacea*), with occasional hairy willowherb and rare wild angelica (*Angelica sylvestris*) present.

Table 7 – Condition Assessment for Other Neutral Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland medium, high & very high				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type	Fail	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%	Pass

	are very clearly and easily visible throughout the sward.				
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7%) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition criteria 5.	There is an absence of invasive non-native species (as listed in Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access or any other damaging management activities) accounts for less than 5% of total area.	Fail
Condition Criteria 3.	Cover of bare ground between 1% and 5% including localised areas, for example, rabbit warrens	Pass	Condition Criteria 6 (non-acid types only).	There are greater than 9 species per metre squared.	Fail
Condition	Poor	Passes 3 of 6 criteria but fails essential criteria 1			
Distinctiveness		Medium			



Photograph 3 – Marshy Grassland present within the eastern section of the site



Photograph 4 – Marshy Grassland present within the western section of the site.

3.1.3 3) Other Woodland, Broadleaved

Other woodland, broadleaved is present within the Site towards the western section of the site which forms the area designated as Strettles Bog, Tarbock LWS. There are also linear areas of woodland stretching along the north-east, south-east and south-west boundaries of the site. The trees within the woodland are covered by a Tree Preservation Order (TPO) which extends as the woodland continues to

grow. The species present in the canopy comprised sycamore (*Acer pseudo-platanus*), pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*), silver birch (*Betula pendula*) and hawthorn. Fallen deadwood was present within this woodland, with the ground covered in a dense layer of leaf litter throughout. Evidence of woodland regeneration was present with some sycamore and oak saplings present within the ground layer. No evidence of management practices was observed within the woodland. Some mature trees were present to the western extent of the woodland, but none qualified as being veteran

Table 8 – Condition Assessment for other woodland, broadleaved

UK Hab Classification		Other woodland; Broadleaved	
Condition Sheet		Woodland	
Indicator 1. Age distribution of trees	Two age classes present (Moderate – 2 Points)	Indicator 8. Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback (Good – 3 Points)
Indicator 2. Wild, domestic, and feral herbivore damage	No significant browsing damage evident in woodland (Good – 3 Points)	Indicator 9. Vegetation and ground flora	Ancient woodland flora indicators present (Good – 3 Points)
Indicator 3. Invasive plant species	Rhododendron or laurel not present, Himalayan balsam covers less than 10% (Moderate – 2 Points)	Indicator 10. Woodland vertical structure	Two storeys across all survey plots (Moderate – 2 Points)
Indicator 4. Number of native tree species	Five or more native tree or shrub species across woodland parcel (Good – 3 Points)	Indicator 11. Veteran trees	One veteran tree per hectare (Moderate – 2 Points)
Indicator 5. Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native (Good – 3 Points)	Indicator 12. Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps (Good – 3 Points)
Indicator 6. Open space within woodland	10% of woodland has areas of temporary open space, (Good – 3 Points)	Indicator 13. Woodland disturbance	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground (Poor- 1 Point)
Indicator 7. Woodland regeneration	All three classes present in woodland (Good – 3 Points)		
Condition	Good	Scores 33 (>32 = Good)	
Distinctiveness		Medium	



Photograph 5 – Broadleaved semi-natural woodland with bramble ground layer present within the western section of the site.



Photograph 6 – Broadleaved semi-natural woodland present within the western section of the site.

3.1.4 4) Heathland and Shrub– Mixed Scrub

Dense scrub exists along the southern boundary of the site and is also present as a well-established edge layer around the broadleaved semi-natural woodland. Species present within this scrub comprised frequent hawthorn (*Crataegus monogyna*), goat willow (*Salix caprea*), and blackthorn (*Prunus spinosa*), with common gorse (*Ulex europeaus*) present rarely on the soil mounds present within the site.

Table 9 – Condition Assessment for Heathland and Shrub

UK Hab Classification	Heathland and shrub				
Condition Sheet	Scrub				
Condition Criteria 1.	Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover)	Fail	Condition Criteria 4.	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass
Condition Criteria 2.	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Pass	Condition criteria 5.	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Pass
Condition Criteria 3.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Fail			

Condition	Moderate	Passes 3 of 5 criteria
Distinctiveness		Medium

3.1.5 5) Grassland – Modified Grassland

A small area of tall ruderal vegetation had developed around a mound that had been created within the centre of the site, possibly from where excavated material had been deposited. Plant species present within this habitat included occasional hairy willowherb (*Epilobium hirsutum*), common nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), bramble (*Rubus fruticosus* agg.), with field woundwort (*Stachys sylvatica*) present rarely.

Table 10 – Condition Assessment for Modified Grassland

UK Hab Classification	Grassland				
Condition Sheet	Grassland (Low)				
Condition Criteria 1.	There must be 6-8 species per m ² . If a grassland has 9 or more species per m ² it should be classified as a medium distinctiveness grassland habitat type.	Fail	Condition criteria 5.	Cover of bareground between 1% and 5% including localised areas, for example, a concentration of rabbit warrens	Pass
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7cm and at least 20% is more than 7cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Fail	Condition Criteria 6.	Cover of bracken less than 20%	Pass
Condition Criteria 3.	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area.	Pass	Condition Criteria 7.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Pass
Condition Criteria 4.	Physical damage is evident in less than 5% of total grassland area.	Fail			
Condition	Poor	Passes 4 of 7 criteria but fails essential criteria 1.			
Distinctiveness		Low			

3.1.6 6) Sparsely Vegetated Land – Ruderal/Ephemeral

An area of sparsely vegetated land was present on two spoil heaps that had been leftover from the emergency flood works conducted on the ditch. These consisted of compacted soil with large chunks of concrete and other miscellaneous rubble also present. This habitat had become partially colonised with vegetation such as cock's foot, dandelion, teasel, Yorkshire fog, and birds foot trefoil.

Table 11 – Condition Assessment for Ruderal/Ephemeral

UK Hab Classification	Sparsely Vegetated Land				
Condition Sheet	Urban				
Condition Criteria 1.	Vegetation structure is varied, providing opportunities for insects,	Fail	Condition criteria 3.	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total	Pass

	birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.			vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	
Condition Criteria 2.	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	Fail			
Condition	Poor	Passes 1 of 3 condition criteria			
Distinctiveness	Low				

3.1.7 6) Urban - Developed Land, Sealed Surface

This habitat designation comprised the road and pedestrian footpath present immediately adjacent to the site. This habitat provides negligible ecological value and is therefore not applicable for a condition score within the metric as this designation does not provide any value to the biodiversity of a site.

3.2 Linear River Habitats

3.2.1 1) Ditch

Two sections of ditch were present within the site. One ditch flows from a culvert adjacent to the northern boundary into Ochre Brook. This flows through a deep cutting in the northern section of the site which had been subject to extensive earthworks and therefore had minimal vegetation established on the banks. Aquatic vegetation including hard rush (*Juncus inflexus*), field horsetail (*Equisetum arvense*), and hairy willowherb. Towards the western end of the first ditch, there is a tributary from which the second section of ditch flows. This flows towards the A5080 at the south of the site.

Table 12 – Condition Assessment for Ditch

UK Hab Classification	Ditch				
Condition Sheet	Ditch				
Condition Criteria 1.	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass	Condition Criteria 5.	Physical damage not present	Pass
Condition Criteria 2.	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of plants in a 20m ditch length.	Fail	Condition Criteria 6	Sufficient water levels are maintained	Pass

Condition Criteria 3.	There is less than 10% cover of filamentous algae and/or duckweed	Pass	Condition Criteria 7	Less than 10% of the ditch is heavily shaded	Fail
Condition Criteria 4.	A fringe of marginal vegetation is present along more than 75% of the ditch	Fail	Condition Criteria 8	Non-native plants are absent	Fail
Condition	Poor	Passes 4 of 8 attributes			
Distinctiveness	Medium				



Photograph 7– Drainage ditch that flows into Ochre Brook within the deep cutting.

3.2.1 2) Other Rivers and Streams (Ochre Brook)

Ochre Brook was present within the area of other broadleaved woodland present in the western section of the site. This watercourse enters from a culvert beneath the M62 and exits through another culvert beneath A5080 south of the site. The watercourse had a high level of flow and showed evidence of pollution, likely due to surface water run off from the motorway.

Table 13 – Condition Assessment for Other Rivers and Streams

Name	Highlee Clough		
UK Hab Classification	Other Rivers and Streams Type		
Condition Assessment	River MoRPH Survey		
River Category	Other	Reach Valley Gradient	0.01
Braiding Index	1	Bedrock Reach	No
Sinuosity Index	1.23	Coarsest Bed Material	Cobble
Anabranching Index	1	Average Bed Material	Gravel-Pebble
Level of Confinement	Unconfined	Condition Score	Fairly Poor
Condition Score	Fairly Poor		
Distinctiveness	Medium		
Extent of watercourse encroachment	No encroachment		
Extent of riparian encroachment	No encroachment		

4 Retained Habitats

4.1 Area habitats

4.1.1 Other Woodland, Broadleaved

As the woodland on site is protected by a TPO, any removal of areas of woodland or individual trees must be justified and approved by Knowsley Council. Therefore, it is recommended that as large an area of woodland as possible is retained. Currently, 2.2ha of broadleaved woodland is retained within the proposed landscape layout.

4.1.2 Developed Land, Sealed Surface

As Cronton Road comprises the full area of developed land, sealed surface habitat, the entirety of this area is being retained. This habitat type, however, contributes no habitat units to the final score.

4.2 Linear River habitats

4.2.1 Ditch

The section of ditch which flows in a north-south direction, is to be retained. The location and dimensions of the ditch will remain the same.

4.2.2 Other Rivers and Streams (Ochre Brook)

Ochre Brook will be retained in its entirety and there will be no active management of the brook. The habitats surrounding the brook will be modified and enhanced.

Table 14 – Retained Area Habitats

Area Habitat Parcel Reference	Total Area(ha)	Total Units	Area Retained (ha)	Units Retained
3) Other Woodland, Broadleaved	3.1	42.78	2.2	30.22
8) Developed land, sealed surface	0.71	0.00	0.71	0.00
Linear Habitat Parcel Reference	Total Length (km)	Total Units	Length Retained (km)	Units Retained
1) Ditch	0.28	1.06	0.14	0.53
2) Other Rivers and Streams	0.12	1.08	0.12	1.08
			Total	31.83

5 Lost Habitats

Using the Biodiversity Metric 3.1, the habitat units of the pre-development habitats to be lost were calculated.

5.1 Area Habitats

Table 15 shows a summary of the area habitats and their corresponding area (ha) and unit score to be lost on site along with planned mitigation.

Table 15 – Lost Area habitats

Habitat Parcel Reference	Total Area (ha)	Total Units	Area lost (ha)	Units lost	Planned Mitigation
1 & 2) Other Neutral Grassland	6.42	28.25	6.42	28.25	Large areas of replacement 'other neutral grassland' habitat will be created towards the north-east boundary of the site. This will be new areas of wildflower meadow.
3) Other Broadleaved Woodland	3.1	42.78	0.9	12.56	Most of the woodland will be retained and new urban trees across the site will compensate for the loss of woodland area
4) Mixed Scrub	0.23	2.02	0.23	2.02	The existing mixed scrub habitat is in moderate condition but covers a small area. New mixed scrub habitat of equal or better condition will be created and in larger areas.
5) Modified Grassland	0.04	0.09	0.04	0.09	Modified grassland currently comprises a very small area and is in poor condition. The creation of new areas of wildflower meadow will offset the loss of this habitat.
6) Sparsely Vegetated Land	0.26	0.57	0.26	0.57	This area around the ditch was primarily bare ground with some ruderal vegetation present. Higher quality and better condition habitats will easily mitigate for the loss of this habitat.
Total	10.05	73.71	7.85	43.49	

6 Pre-Development Unit Summary

Using the Biodiversity Metric 3.1, the habitat units of the existing site habitats, the units to be retained and the units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in Table 16.

Table 16: Pre-Development Unit Summary

	On-site baseline	Retained	Lost
Area Units	73.71	30.22	43.49
Linear River Units	2.18	2.18	0.00

7 Enhanced Habitats

Post-development habitats as detailed within the Proposed Landscape Plan (Annabelle Langhom Landscape Planning Ltd, 2022) were assessed to establish their condition following the methodology outlined in Section 2.6. The habitats have been given reference numbers of the pre-development habitat to be enhanced for clarity regarding in-text and the metric calculation (UG_1602_ECO_BNG_CALC_01) which illustrates the numerical data.

7.1 Area Habitats

7.1.1 Other Broadleaved Woodland

In current proposals, all areas under the retained woodland will be seeded with EH1 shade tolerant wildflower mix, containing 80% slow growing grasses and 20% native wildflowers. The woodland has already achieved good condition and therefore, within the Biodiversity Metric 3.1, the condition of the woodland cannot be further improved. However, seeding within the woodland should still be encouraged to increase the diversity of ground vegetation within the woodland and provide increased resources for pollinators, birds, and small mammals. Any invasive species present within the woodland should be removed prior to seeding to improve establishment rates of new plants.

7.2 Linear River Habitats

7.2.1 Ditch

The section of the ditch which emerges from the culvert and flows into Ochre Brook is to be enhanced by establishing new vegetation on the banks of the ditch which are currently heavily damaged and contain low cover of ruderal vegetation. The banks will be seeded with a wetland meadow mix, EM8 specification, which contains a mix of 80% grasses and 20% wildflowers. Species within this mix are suited to seasonally wet soils and include species such as: betony (*Betonica officinalis*), common knapweed (*Centaurea nigra*), meadowsweet (*Filipendula ularia*), common bent (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*) and red fescue (*Festuca rubra*). The condition score of the ditch is expected to be elevated from poor to moderate.

Table 17 – Condition Assessment for Ditch

UK Hab Classification	Ditch				
Condition Sheet	Ditch				
Condition Criteria 1.	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass	Condition Criteria 5.	Physical damage not present	Pass
Condition Criteria 2.	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of plants in a 20m ditch length.	Fail	Condition Criteria 6	Sufficient water levels are maintained	Pass
Condition Criteria 3.	There is less than 10% cover of filamentous algae and/or duckweed	Pass	Condition Criteria 7	Less than 10% of the ditch is heavily shaded	Pass
Condition Criteria 4.	A fringe of marginal vegetation is present	Pass	Condition Criteria 8	Non-native plants are absent	Pass

		along more than 75% of the ditch				
Condition	Moderate	Passes 7 of 8 attributes				
Distinctiveness		Medium				

7 Created Habitats on Site

Using the Biodiversity Metric 3.1, the habitat units of the post-development created habitats were calculated.

7.1 Area Habitats

7.1.1 C1) Urban - Developed Land; Sealed Surface – Roads and Car Parking

There is one road leading off the A5080 which will provide access to the site. The road will lead to car parking spaces for site users which are adjacent to the building. The road and car park will be hardstanding which is categorised as developed land; sealed surface and has a predetermined condition of **N/A** within the metric.

7.1.2 C2) Urban - Developed Land; Sealed Surface – Buildings

The proposed development is for the construction of a single industrial warehouse unit with associated office space. Buildings are considered developed land, sealed surface and have a predetermined condition of **N/A** within the metric.

7.1.3 C3) Urban - Urban Trees – Scattered Native Trees / Ornamental Trees

A total of 330 urban trees are due to be planted on site, primarily along the north-east and south-west boundaries, with scattered trees across the rest of the site. These are categorised as ‘scattered native trees’ which are entirely native species and ‘ornamental trees’ which consist of two non-native species. Native species comprise 97% of the proposed urban trees, with the mix including species such as common alder (*Alnus glutinosa*), silver birch (*Betula pendula*), hornbeam (*Carpinus betulus*), bird cherry (*Prunus padus*) and common oak (*Quercus robur*). The selected non-native tree species are purple-leaved cherry (*Prunus cerasifera* ‘Nigra’) and whitebeam ‘Majestica’ (*Sorbus aria* ‘Majestica’).

Table 18 - Condition Assessment for Urban Tree

Classification within Landscape Designs	Scattered Native Trees / Ornamental Trees to Car Park				
UK Hab Classification	Urban tree				
Condition Sheet	Urban tree				
Condition Criteria 1.	The tree is a native species (or more than 70% within the block are native species).	Pass	Condition Criteria 4.	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Pass
Condition Criteria 2.	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap	Pass	Condition Criteria 5.	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark	Pass

		being >5 m wide (individual trees automatically pass this criterion).				
Condition Criteria 3.		The tree is mature or veteran (or more than 50% within the block are mature or veteran).	Fail	Condition Criteria 6.	More than 20% of the tree canopy area is oversailing vegetation beneath.	Pass
Condition	Good	Passes 5 of 6 criteria				
Distinctiveness	Medium					
Time to Target Condition	30+ years					
Difficulty of Creation	Low					

7.1.4 C4) Urban – Introduced Shrub – Shrub Mix Within Car Park (A1 & B1)

Blocks of ornamental scrub, of native and non-native species, will be planted within the car park area. Species within the A1 and B1 species mixes include Mexican orange blossom (*Choisya ternate*), Rakai Hebe (*Hebe rakaiensis*), field rose (*Rosa arvensis*), guelder rose (*Viburnum opulus*), laurustinus 'Eve Price' (*Viburnum tinus* 'Eve Price'), Californian Lilac 'Blue Mound' (*Ceanothus* 'Blue Mound') and common dogwood (*Cornus sanguinea*). Introduced shrub is automatically allocated a condition score of **N/A** within the metric.

7.1.5 C5) Woodland and Forest – Other Woodland, Broadleaved – Native Woodland Mix

The existing woodland is to be extended by planting the area within the north-east corner of the site with native tree and shrub whips. This new area of woodland will not be covered by the TPO which protects the existing woodland. The species composition is a mixture of tree and shrub species which are entirely native and, once mature, the balance of trees and shrubs will create a diverse vertical structure within the woodland, with varied foraging, nesting and commuting opportunities. Tree species include silver birch, hornbeam, wild cherry (*Prunus avium*) and common oak. Shrub species include holly (*Ilex aquifolium*), crab apple (*Malus sylvestris*) and dogrose (*Rosa canina*). A native groundcover layer will also be created by introducing woodland plants, including selfheal (*Prunella vulgaris*), red campion (*Silene dioica*) and bush vetch (*Vicia sepium*).

Table 19 – Condition Assessment for Other Broadleaved Woodland

Classification within Landscape Designs	Native Woodland Mix	
UK Hab Classification	Other Broadleaved Woodland	
Condition Sheet	Woodland	
Indicator	Score	Description
1. Age distribution of trees	Poor – 1 points	One age class present
2. Wild, domestic	Good – 3 points	No significant browsing damage evident in woodland

	and feral herbivore damage		
3.	Invasive plant species	Good – 3 points	No invasive species present in woodland
4.	Number of native tree species	Good – 3 points	Five or more native tree or shrub species found across woodland parcel
5.	Cover of native tree and shrub species	Good – 3 points	> 80% of canopy trees and >80% of understory shrubs are native
6.	Open space within woodland	Good – 3 points	10-20% of woodland has areas of temporary open space
7.	Woodland regeneration	Poor – 1 point	No classes or coppice regrowth present in woodland
8.	Tree health	Good – 3 points	Tree mortality less than 10%, no pests or diseases and no crown dieback
9.	Vegetation and ground flora	Poor – 1 point	No recognisable NVC community
10.	Woodland vertical structure	Poor – 1 point	Two storeys across all survey plots
11.	Veteran trees	Poor – 1 point	No veteran trees present in woodland
12.	Amount of deadwood	Poor – 1 point	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/stems and stumps
13.	Woodland disturbance	Good – 3 points	No nutrient enrichment or damaged ground evident
Total Points		27 points	
Condition		Moderate (26 – 32 points)	
Distinctiveness		Medium	
Difficulty of Creation		Low	
Time to Target Condition		15 years	

7.1.6 C6) Heathland and Shrub – Mixed Scrub – Mixed Scrub Margin Mix

Large areas of mixed scrub habitat will be planted around the periphery of the existing woodland, the ditch and along the north-east boundary of the site, as well as in several small blocks at the southern end of the site. Five native shrub species will be planted within the newly created scrub habitat, with additional introduction of wildflowers suited to scrub habitat. Hazel (*Corylus avellana*), hawthorn, Scotch broom (*Cytisus scoparius*), bramble (*Rubus fruticosus*) and common gorse (*Ulex europaeus*) will be planted, with supplementary planting of birds-foot trefoil (*Lotus corniculatus*) and common knapweed (*Centaurea nigra*).

Table 20 - Condition Assessment for Mixed Scrub

Classification within Landscape Designs		Mixed Scrub Margin Mix				
UK Hab Classification		Mixed scrub				
Condition Sheet		Scrub				
Condition Criteria 1.		Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	Pass	Condition Criteria 4.	The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	Pass
Condition Criteria 2.		There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	Fail	Condition Criteria 5.	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Fail
Condition Criteria 3.		There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Pass			
Condition	Moderate	Passes 3 of 5 criteria				
Distinctiveness		Medium				
Time to Target Condition		5 years				
Difficulty of Creation		Low				

7.1.7 C7) Grassland – Other Neutral Grassland – General Purpose Wildflower Mix

A new wildflower meadow is to be created adjacent to the north-west boundary of the car park and bordering the ditch, pond and woodland habitats. An additional patch of meadow will also be created along the south-west boundary. The earth will be seeded with an EM1 basic general purpose meadow mixture which contains a 90% mix of slow growing grasses and 10% native wildflowers. Grass species include common bent, crested dogstail (*Cynosurus cristatus*), red fescue and smooth-stalked meadow grass (*Poa pratensis*). Seven wildflower species are incorporated in the mix, including oxeye daisy (*Leucanthemum vulgare*), ribwort plantain (*Plantago lanceolata*) and selfheal (*Prunella vulgaris*).

Table 21 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs	General Purpose Wildflower Mix				
UK Hab Classification	Other neutral grassland				
Condition Sheet	Grassland (medium, high & very high)				
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass

	of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.				
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Pass
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness	Medium				
Time to Target Condition	10 years				
Difficulty of Creation	Low				

7.1.8 C8) Grassland – Other Neutral Grassland – Flowering Lawn Mix

Further wildflower areas will be created in compartments adjacent to the car park and along the south-east boundary. These meadow areas will be seeded with an EL1 flowering lawn mixture which contains a mix of 80% grasses and 20% wildflowers and contains a higher species richness compared to the mixture used in the other wildflower areas (C7). Additional species within these areas include glaucous sedge (*Carex flacca*), smaller cat's-tail (*Phleum bertolonii*), meadow buttercup (*Ranunculus acris*) and cowslip (*Primula veris*).

Table 22 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs		Flowering Lawn Mix			
UK Hab Classification		Other neutral grassland			
Condition Sheet		Grassland (medium, high & very high)			
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Pass
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness		Medium			
Time to Target Condition		10 years			
Difficulty of Creation		Low			

7.1.9 C9) Grassland – Other Neutral Grassland – Wetland Meadow Mix

Marginal vegetation will be established around the existing ditch and proposed pond, as well as in the south-west corner of the site, by seeding with EM8 seed mixture containing 80% grasses and 20%

wildflowers. Species within this mix are suited to seasonally wet soils and are typical of floodplain habitats. Species include sweet vernal-grass (*Anthoxanthum odoratum*), tufted hair-grass (*Deschampsia cespitosa*), Devil's-bit scabious (*Succisa pratensis*) and rough hawkbit (*Leontodon hispidus*).

Table 23 - Condition Assessment for Other Neutral Grassland

Classification within Landscape Designs		Wetland Meadow Mix			
UK Hab Classification		Other neutral grassland			
Condition Sheet		Grassland (medium, high & very high)			
Condition Criteria 1.	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - This criterion is essential for achieving moderate condition for non-acid grassland types only.	Pass	Condition Criteria 4.	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Pass
Condition Criteria 2.	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Condition Criteria 5.	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition ¹ and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	Pass
Condition Criteria 3.	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Condition Criteria 6.	There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	Pass
Condition	Good	Passes 6 of 6 criteria, including both essential criteria.			
Distinctiveness		Medium			
Time to Target Condition		10 years			
Difficulty of Creation		Low			

7.1.10 C10) Lakes - Pond (non-priority habitat) – Pond

A large pond will be created to the north-west of the site, adjacent to the hardstanding access road, woodland and wildflower meadow. The banks of the pond will be sown with wetland wildflower seed (C9), aquatic plants will be introduced and the water levels in the pond will be allowed to fluctuate naturally. The pond will provide a valuable habitat for aquatic and amphibious species, as well as being an interesting visual feature.

Table 24 - Condition Assessment for Pond (Non-Priority Habitat)

Classification within Landscape Designs		Pond			
UK Hab Classification		Pond (non-priority habitat)			
Condition Sheet		Pond			
Condition Criteria 1.	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Pass	Condition Criteria 6.	There is an absence of non-native plant and animal species.	Pass
Condition Criteria 2.	There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge.	Pass	Condition Criteria 7.	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass
Condition Criteria 3.	Less than 10% of the pond is covered with duckweed or filamentous algae.	Pass	Condition Criteria 8.	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds) ³ , should cover at least 50% of the pond area that is less than 3 m deep.	Pass
Condition Criteria 4.	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	Pass	Condition Criteria 9.	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	Pass
Condition Criteria 5.	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	Pass			
Condition	Good	Passes 9 of 9 criteria.			
Distinctiveness		Medium			
Time to Target Condition		5 years.			
Difficulty of Creation		Low			

7.2 Linear Habitats

There were no pre-existing hedgerows or lines of trees to be retained or compensated for. However, hedgerows provide valuable wildlife corridors, as well as opportunities for refuge, resting, foraging and nesting.

7.2.1 Hedgerow – Species Rich Native Hedgerow – Native Hedgerow

A total of 0.89km of native, species rich hedgerow (double staggered) will be created which will encompass the car park and provide a buffer between hardstanding and the habitats across the wider site, as well as between the development and the A5080. Seven native shrub species will make up the hedge, including field maple (*Acer campestre*), dogwood, hazel, hawthorn, European spindle (*Euonymus europaeus*), holly and guelder rose.

Table 25 - Condition Assessment for Native Species Rich Hedgerow

Classification within Landscape Designs		Native Hedgerow			
UK Hab Classification		Native species rich hedgerow			
Condition Sheet		Hedgerow			
A1. Height	>1.5 m average along length	Pass	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	Fail
A2. Width	>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Pass
B1. Gap – hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	Pass	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	Pass
B2. Gap – hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m.	Pass	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	Fail
Condition	Good	Passes 6 of 8 criteria and fails no more than 1 fail in each functional group			
Distinctiveness		Medium			
Time to Target Condition		12 years.			
Difficulty of Creation		Low			

7.2.2 Hedgerow - Native hedgerow – Evergreen Hedgerow

0.02km of evergreen hedgerow will be created as two small lengths of hedgerow bordering a stretch of parking bays. The only species within this hedge is hornbeam.

Table 26 - Condition Assessment for Native Hedgerow

Classification within Landscape Designs		Evergreen Hedgerow				
UK Hab Classification		Native hedgerow				
Condition Sheet		Hedgerow				
A1. Height		>1.5 m average along length	Pass	C1. Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	Fail
A2. Width		>1.5 m average along length	Pass	C2. Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	Pass
B1. Gap – hedge base		Gap between ground and base of canopy <0.5 m for >90% of length (unless ‘line of trees’)	Pass	D1. Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	Pass
B2. Gap – hedge canopy continuity		Gaps make up <10% of total length and No canopy gaps >5 m.	Pass	D2. Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	Fail
Condition	Good	Passes 6 of 8 criteria and fails no more than 1 fail in each functional group				
Distinctiveness		Low				
Time to Target Condition		12 years.				
Difficulty of Creation		Low				

8 Post-Development Summary and Conclusion

Using the Biodiversity Metric 3.1, the habitat units of the planned created habitats were calculated; the habitat units to be retained within site development were calculated; and the habitat units that are anticipated to be lost in site development were calculated.

The results of these calculations are presented in Table 27.

Table 27: Post Development Biodiversity Net Gain Calculation

	Habitat Unit Change					On-site post development	Net change in Biodiversity	
	On-site baseline	Retained	Lost	Enhanced	Created		Habitat units	%
Habitat (Area) Units	73.71	30.22	43.49	0.00	51.39	81.61	7.9	+10.71
Hedgerow (Linear) Units	0.00	-	-	-	7.75	7.75	7.75	+100
River (Linear) Units	2.18	1.61	-	0.57	-	2.56	0.38	+17.35

As illustrated in Table 27, the total Biodiversity Net Gain for the site, based on the current landscape design, is 10.71% for area habitats, 100% for linear hedgerow habitats and 17.35% for linear river habitats. Overall, it demonstrates that the post-development habitats will provide more ecological benefit to local wildlife than the habitats currently found on site and the development is in line with the relevant National Planning Policy Framework and Local Planning Policies.

However, the newly created habitats fail to satisfy the trading rules laid out in the metric. Specifically, the units of medium distinctiveness habitats must be replaced with units from the same broad habitat or higher distinctiveness habitats. In this case, 'other neutral grassland' and 'other broadleaved woodland' have not been sufficiently replaced. The landscape proposals for this site lead to the creation of a wider diversity of habitats including ponds, scrub, and good condition grassland, than are currently present on site. Despite the trading rules not being satisfied, the post-development habitats will provide positive ecological value and habitat heterogeneity.

To ensure that the habitats proposed as part of the post development design of this site reach the condition detailed within this report and the full gain in value to the environment is achieved by this site, a long-term management plan (usually 30 years) is required (Urban Green, 2022). This length of management plan is required due to the complex nature of the habitats to be enhanced/created on site and the high value they will provide to the environment.

9 References

- CIEEM (2017). Guidelines for Preliminary Ecological Appraisal.
- eCountability Ltd. (2018). UK Habitat Classification (Professional Edition).
- Gurnell *et al.* (2019) The MoRPH Survey: Technical Reference Manual.
- JNCC (2010). Handbook for Phase One Habitat Survey – 2010 Edition. England Field Unit, Nature Conservancy Council. Reprinted JNCC.
- Knowsley Council (2013) Knowsley Local Plan: Core Strategy.
- Natural England (2022). The Biodiversity Metric 3.1 - Calculation Tool.
- Natural England (2022). The Biodiversity Metric 3.1 - Technical Supplement.
- Natural England (2022). The Biodiversity Metric 3.1 - User Guide.
- Urban Green (2022) UG_1602_BNG_CALC_01.
- Urban Green (2022) UG_1602_ECO_BEMP_01.
- Urban Green (2022). UG_1602_ECO_PEA_02 final.

Appendix 1 – Pre- Development Habitat Map

U R B A N
G R E E N

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- Red Line Boundary
- TargetNotes
- Other Rivers and Streams
- Sparsely Vegetated
- Mixed scrub
- Modified Grassland
- Other neutral grassland
- Other Broadleaved Woodland Types
- Developed Land Sealed Surface



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

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Project: **Mercury 62**

Title: **Habitat Map**

Issue: **01**

Drawn: CL	Checked: MB	Approved: MB
Project: UG1602	Scale @ A3: NTS	Date: 9/6/2022
Dwg No: UG_1602_ECO_HM_01	Revision: 01	

Watershed

Appendix 2 - Proposed Landscape Plan

U R B A N
G R E E N



Project Name	Mercury 62
Project Number	CLPD 075
Plan Name	Detailed Planting Plan
Plan Number	CLPD 075 P01
Revision	b
Date	01/07/2022
Scale	1:500 @ A0



Environmental Statement Volume 3: Appendix 6.3

Biodiversity Net Gain Assessment

BIODIVERSITY ENHANCEMENT MANAGEMENT PLAN

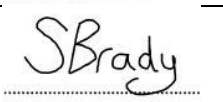
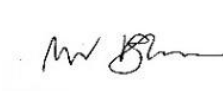
JULY 2022

Mercury 62,
Cronton Road,
Prescot,
Merseyside

U R B A N
G R E E N



QUALITY MANAGEMENT

Project No.:	UG1602				
Project:	Mercury 62				
Location:	Cronton Road, Prescott, Merseyside				
Title:	Biodiversity Enhancement Management Plan				
Document Type:	BEMP				
Date:	18/07/2022				
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Checked By:	Shannon Brady	Signature		Qualifications	Biodiversity Net Gain Consultant
Checked By:	Mark Blacker	Signature		Qualifications	Senior Ecologist, MSc, ACIEEM
Revision Status:					
Rev:	Date:	Issue/Purpose/Comment:	Prepared:	Checked:	

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1 Introduction

1.1 Background to the Scheme

Maro are proposing to develop land off Cronton Road in Prescott, Merseyside (hereafter referred to as 'the Site'). The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping, and other works. Urban Green have been appointed to provide a Biodiversity Enhancement Management Plan (BEMP) for the site which has been written to accompany the Biodiversity Net Gain Assessment of this site which has also been completed.

The author of the report is Mark Blacker, ACIEEM, Senior 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.

1.2 Site Context

The Site is located at National Grid Reference SJ 46758 89304 and comprises a total area of approximately 10.7ha (see Figure 1).

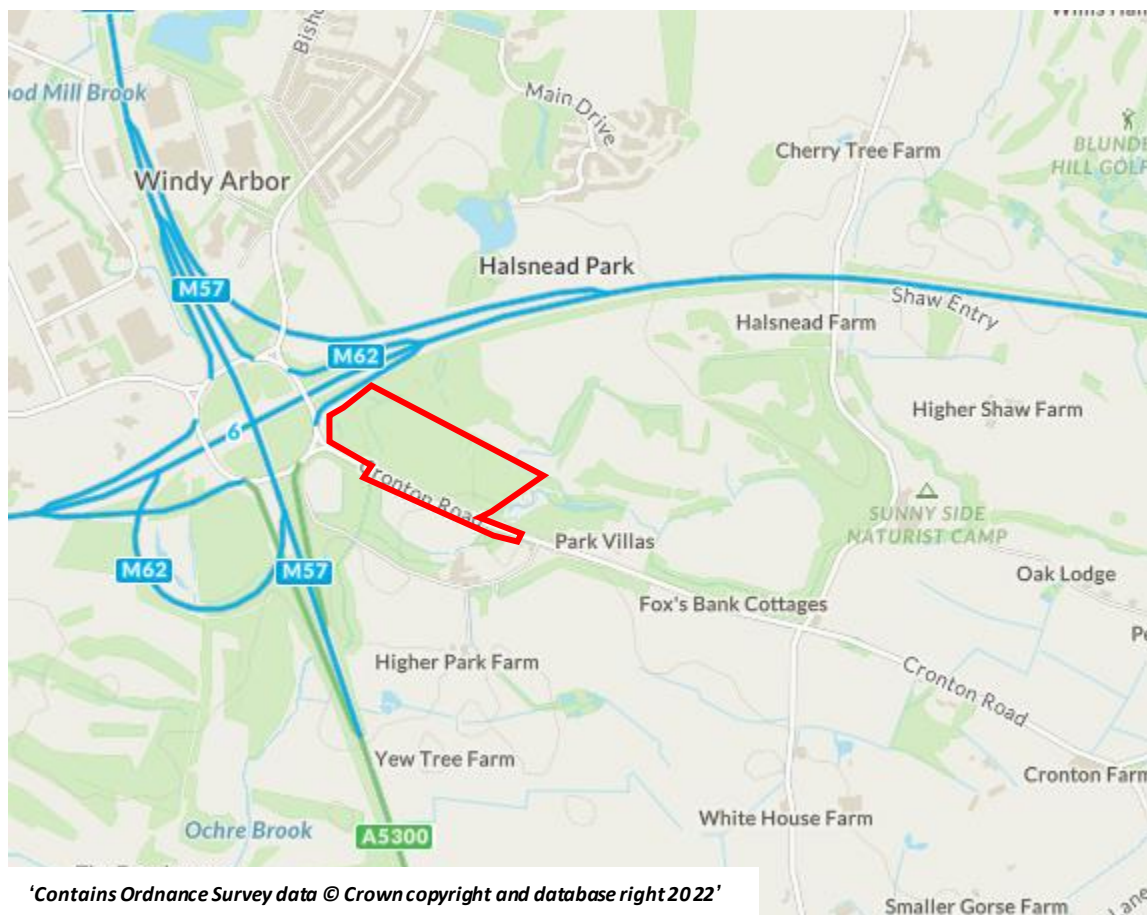


Figure 1 – Site Extent

The Site is located to the east of Junction 6 of the M62, bound by Tarbock roundabout to the west, M62 to the north, Cronton Road to the south and undeveloped land to the east. The Site is irregular in shape and comprises approximately 10ha of undeveloped land and 0.7ha developed land which covers Cronton Road (A5080).

Whilst the surrounding area is undeveloped, land adjacent to the east of the Site is subject to two large development proposals: construction of a new country park, which awaits determination (ref: 20/00578/FUL); and a hybrid application which secured full consent for the development of 15,273sqm of storage and distribution floorspace (B8) and outline consent for a further 77,629sqm of storage and distribution floorspace (B8) (ref: 20/00494/HYB) which was approved at planning committee on 10th June 2021. These developments, once brought forward in accordance with the adopted Halsnead Garden Village Masterplan SPD will inevitably change the character, use, and appearance of the area.

1.3 Purpose of this Management Plan

The purpose of this management plan is to provide a schedule for the long-term management of habitats on site, ensure that existing and proposed habitats are suitably maintained and ensure good establishment and continued improvement of habitat condition. This allows those responsible for the management and maintenance of the site to understand the existing habitats, the development and ongoing management requirements of the site.

1.4 Aims of this Management Plan

This management plan covers the habitat creation and enhancement on site, as detailed within the Biodiversity Net Gain (BNG) Assessment (Urban Green, 2022). This report assessed the development as scoring a gain of 10.71% in area biodiversity units, 100% in linear hedgerow habitat units and 17.35% in linear river units utilising the Biodiversity Metric 3.1.

Appropriate management practices are essential to ensuring that the proposed habitats reach the condition outlined within the Biodiversity Net Gain assessment and that the development achieves the predicted gain in value to the environment. The aim of this management plan is to provide a habitat management plan that:

- Maintains and enhances site biodiversity, through the sustainable management of on-site habitats;
- Promotes the successful establishment and growth of newly created habitats;
- Ensures the health and safety of all site user's post development is protected;
- Outlines a process for the regular monitoring and review of management practices and site habitats; and
- Provide measurable and achievable targets appropriate to each habitat to ensure condition targets are met as set out in Section 5 in accordance with Biodiversity Metric 3.1 habitat condition sheets.
- This Biodiversity Enhancement Management Plan should be read in conjunction with the Landscape and Ecological Management Plan that has also been produced for this site (Landscape Planning, 2022).

2 Management Considerations

2.1 Management Responsibilities

The implementation of this management plan will be the responsibility of the landowner. Any transference of responsibility of this plan should be undertaken with the appropriate appointment of a competent organisation capable of delivering the management detailed within the document.

The organisation implementing this plan will be a management company with the necessary certificates of competence to implement landscape management operation on site. The managing organisation will ensure that all site management complies with good practice standards and all relevant health and safety procedures. The managing organisation will also ensure that measures outlined to avoid pollution incidents, comply with protected species and habitats legislation, and ensure overall environmental protection are enforced.

A maintenance specification is provided in Section 5. This sets out the detailed maintenance requirements for the habitats onsite, which must be followed at all times. Any deviations from the management plan must be highlighted to the site owners or management company.

2.2 Controlling Authority

The controlling authority, Knowsley Metropolitan Borough Council, should be consulted on any matters relating to the approved landscape proposals for the scheme.

2.3 Health and Safety

The site will be managed to comply with all relevant health and safety legislation, approved codes of practice (ACOP) and Health and Safety Executive (HSE) guidance.

As the managing organisation will be the main company involved in on site works, the managing organisation will fulfil the landowner's role and the work manager's role. This places an obligation on the managing company to ensure that any contractor understands and fulfils their health and safety role and any work undertaken on the site will follow the guidelines of the HSE.

2.4 Monitoring and Review

Regular monitoring of the development against measurable targets (as detailed within Section 5.) will be undertaken across all habitats detailed within this management plan. The outcome of this monitoring will form part of a Monitoring and Audit Report to be submitted to the site owner annually to inform the forthcoming year's work. The report will include management operations undertaken, any unexpected changes or declines in habitat condition and any actions required that fall outside those detailed within this report.

A more in-depth habitat assessment of the created habitats on site should also be undertaken between April and September annually by an experienced ecologist. Results should be reported back and feed into a five-year management plan review, to enable assessment of the management prescriptions against the defined objectives for each habitat. Where objectives are not being adequately met, appropriate action will be put in place, with any refinements incorporated into the updated management plan and annual work programme. This review will enable maintenance operations to evolve in accordance with habitat requirements as they establish, and mature and targeted conditions are met.

2.5 General Measures

Habitat creation on site will follow details set out in the Detailed Planting Plan (Annabelle Langhom Landscape Planning Ltd, 2022). The following general measures shall be met to ensure successful habitat creation and succession on site.

- All planting is to follow guidance set out in the relevant British Standard or Horticultural Trades Association documents and carried out by a competent person.
- Planting is to remain undamaged, with healthy and vigorous growth, and is to be planted upright and well balanced. Trees and shrubs are to be of good shape and without elongated shoots, grown in a suitable environment and hardened off before being delivered to the site.
- All planting is to be true to name and free from pests, diseases, discoloration, weeds, fungus, and physiological disorders upon planting.
- If plants/trees are unobtainable alternatives are to be agreed with the Ecologist/Landscape Architect in writing prior to ordering.
- After planting ensure that the full depth of topsoil is wetted. Apply water evenly and without damaging or displacing plants or soil. Continue to water as necessary to ensure the successful establishment and continued thriving of planting.
- All tree/shrub/hedgerow works shall be completed outside of nesting bird season (i.e. between October and February inclusive). If works are required within the nesting bird season, a check must be undertaken of all affected trees by a suitably qualified ecologist.
- All tree works shall be carried out by a skilled, qualified and approved Arboricultural Contractor in accordance with BS3998: 2010 'Tree Work – Recommendations'.

3 Ecological Baseline

The ecological baseline for the site was assessed within the Preliminary Ecological Assessment (PEA) (Urban Green, 2022) informed by an extended phase one habitat survey. A summary of designated sites, notable and/or protected species and habitats identified is provided below, with full descriptions of each feature available within the PEA. The baseline habitat map for the site can be found in Appendix 1.

Table 1 – Identified Ecological features relevant to the site.

Species / Species Group	Evidence	Considered within Assessment	Rationale for Consideration
Designated Sites			
Mersey Estuary SPA and Ramsar	No qualifying features of these designated sites were identified	No	Distance from the site is sufficient that no impacts expected.
Strettles Bog, Tarbock LWS	Present within the site	Yes	Present within the site
The Old Wood, South LWS	Present immediately adjacent to the north of the site	Yes	Present within close proximity of the site
Mine Waste, Cronton LWS	Present immediately adjacent to the east of the site	Yes	Present within close proximity of the site
Five other LWSs	Present within 1km of the site.	No	Present within close proximity of the site
Fauna			
Invertebrates	Limited quality habitats for invertebrates in habitats to be lost	No	No records for notable invertebrates were found during the data search, aquatic habitats are located on site, however they will be retained within the development.
Common Amphibians	Suitable habitat present	Yes	No ponds located within the site and four ponds located within 250m. The unmanaged habitats on site may provide suitable conditions. It is possible that amphibians may occur on site.
Great crested newt (<i>Triturus cristatus</i>)	None	No	No ponds located within the site and four ponds located within 250m. eDNA surveys for GCN came back negative. The presence of great crested newts has therefore been discounted.

Species / Species Group	Evidence	Considered within Assessment	Rationale for Consideration
Reptiles	None	No	The desk study returned no records for reptiles and the habitats available provided limited opportunity for reptiles. Reptiles were not considered to be on site.
Birds (nesting)	Suitable habitat present	Yes	There is little suitability for ground nesting bird species, however, there is suitable nesting potential for passerine birds. 91 records of protected/notable bird species were returned from the data search.
Bats (all species)	None	Yes	The site was assessed to have low value for foraging and commuting bats. No structures or trees with bat roosting potential were present within the site.
Hedgehog (<i>Erinaceus europaeus</i>)	Suitable habitat present	Yes	The scrub habitats and areas of dead wood have potential to support hedgehog and there is connectivity with residential gardens and other suitable habitats. The site therefore has potential to support hedgehogs.
Badger (<i>Meles meles</i>)	Suitable habitat present	No	There were no records of badger returned through the data search and no evidence of badger during the field survey. The site offers potential for sett construction and foraging.
Aquatic Mammals	None	No	Ochre Brook and the ditch present on site have limited suitable habitat for otter and water vole due There is no suitable habitat for otter or water vole present within, or within influencing distance of, the site.
Flora			
Protected Plant Species	No	No	No records were returned for notable vascular plants in the data search and none were recorded during the field survey.
Invasive Plant Species	Yes	No	Extensive areas of Himalayan balsam identified during the site survey.

Table 2 – Pre-development Habitats Identified

UK Hab Classification	Dominant Species / Description	Development Actions and Mitigation
Area Habitats		
Mixed Scrub	Dense scrub exists along the southern boundary of the site and is also present as a well-established edge layer around the broadleaved semi-natural woodland.	This habitat will be mostly lost to facilitate the development. New native scrub will be created to provide transitional habitat between the retained woodland and the new development.
Modified grassland	Small area of this vegetation present as an edge habitat adjacent to small area of scrub within the site.	This habitat will be lost to facilitate the development. This habitat was small in extent and of poor quality and will be replaced by habitats of higher distinctiveness.
Other woodland, broadleaved	Broadleaved woodland is present within the western section of the site, with canopy species comprising sycamore (<i>Acer pseudoplatanus</i>), pedunculate oak (<i>Quercus robur</i>), ash (<i>Fraxinus excelsior</i>), and silver birch (<i>Betula pendula</i>).	This habitat will be mostly retained within the development. Additional woodland planting will be created within the site, along with understorey planting to create a more structured woodland.
Other neutral grassland	This habitat covered the majority of the site, showing some evidence of recent disturbance within the site. Yorkshire fog was mostly dominant within this habitat, with common sorrel (<i>Rumex acetosa</i>), creeping cinquefoil (<i>Potentilla reptans</i>), and marsh thistle (<i>Cirsium palustre</i>) present frequently.	A mix of grassland habitat will be created throughout the site. A wet meadow mix will be seeded around the new pond area which will provide a diversity of forb and grass species. A meadow seed mix will be implemented around the woodland and scrub edge, additionally a lawn mix will be used within amenity areas within the site.
Sparsely vegetated land	This habitat was present on spoil heaps leftover from emergency works carried out on site to prevent flooding. Largely comprised compacted soil with concrete chunks also present.	This habitat is an early successional stage habitat and will be replaced with habitats of greater distinctiveness within the site.
Linear Habitats (Rivers)		
Other rivers and streams	Ochre Brook flows through the broadleaved woodland present within the western section of the site. This watercourse was heavily shaded, fast flowing, with minimal aquatic or marginal vegetation present, and was approximately 2m in width and approximately 50cm deep. The banks were steep to vertical in places throughout the site and reached a maximum height of 3m above the water level.	This habitat type will be retained within the development and will be enhanced through improved management practices and removal of invasive non-native species
Ditch	Two ditches are also present on site that flow from a culvert adjacent to the northern boundary into Ochre Brook.	This habitat type will be retained within the development and will be enhanced through improved management practices and removal of invasive non-native species

UK Hab Classification	Dominant Species / Description	Development Actions and Mitigation
Linear Habitats (Hedgerow)		
Native Species Rich Hedgerow	This habitat type is not present within the baseline for this site.	Installation of new species rich hedgerow habitat within the site will increase connectivity across the site and provide increased foraging/sheltering habitat for invertebrates, birds, and bats.
Native Hedgerow	This habitat type is not present within the baseline for this site.	Installation of new hedgerow habitat within the site will increase connectivity across the site and provide increased foraging/sheltering habitat for invertebrates, birds, and bats.

4 Development Proposals

The site comprises approximately 10.7ha in total. The applicant is seeking approval for the erection of a single warehouse (Use Class B8) with ancillary office space, associated parking, access, landscaping and other works.

The development is expected to achieve a 10.71% net gain in area habitat units, 100% gain in linear hedgerow units and a 17.35% gain in linear river units. This is above the requirements laid out in national and local planning policy.

However, the new habitats fail to satisfy the trading rules laid out by the metric. This is due to units of existing other neutral grassland and other broadleaved woodland not being sufficiently compensated for. If this was to be mediated, additional areas of the same broad habitat or higher distinctiveness habitats would need to be incorporated into the landscape design. However, the retention of large areas of woodland, creation of a wide range of habitats on site and the resulting gain in biodiversity provide a greater diversity in habitats than is currently present on site and therefore has greater value of the environment compared to the pre-development baseline.

5 Ecological Strategy

This section summarises the management strategy for each habitat proposed to be introduced within the final design of the scheme. Each objective includes a target time for positive assessment provided to enable identification of failing management and trigger early intervention. The proposed landscape layout (Annabelle Langhorn Landscape Planning Ltd., 2022), found in Appendix 2, displays the final proposed habitats and their location on site. Areas which are classified as ‘developed land, sealed surface’ offer no ecological opportunities and therefore require no management.

5.1 Area Habitat Enhancement

5.1.1 Broadleaved Woodland

All areas under the retained woodland will be seeded with EH1 shade tolerant wildflower mix, containing 80% slow growing grasses and 20% native wildflowers. The woodland has already achieved good condition and therefore, within the Biodiversity Metric 3.1, the condition of the woodland cannot be further improved. However, seeding within the woodland should still be encouraged to increase the diversity of ground vegetation within the woodland and provide increased resources for pollinators, birds, and small mammals.

Furthermore, it is the legal responsibility of the landowner to control the invasive species present on site to prevent further spread. Efforts should be made to remove invasive, non-native species using appropriate methods before any additional enhancements are made.

To ensure that the woodland remains at the quality it is currently in, the following management recommendations have been provided:

- Undertake selective thinning to increase light levels within the woodland and encourage balanced canopies and growth of ground flora
- Continuous monitoring and removal of invasive plant species
- Pruning of dead and damaged limbs as necessary. To be done during winter, outside of nesting season and when trees are dormant.
- Replacement of failed trees with new planting of similar species composition
- Retention of standing deadwood where safe and possible

5.2 Linear Habitat Enhancement

5.2.1 Ditch

The section of the ditch which emerges from the culvert and flows into Ochre Brook is to be enhanced by establishing new vegetation on the banks of the ditch which are currently heavily damaged and contain low cover of ruderal vegetation. The banks will be seeded with a wetland meadow mix, EM8 specification, which contains a mix of 80% grasses and 20% wildflowers. Species within this mix are suited to seasonally wet soils and include species such as: betony (*Betonica officinalis*), common knapweed (*Centaurea nigra*), meadowsweet (*Filipendula ularia*), common bent (*Agrostis capillaris*), sweet vernal grass (*Anthoxanthum odoratum*) and red fescue (*Festuca rubra*). The condition score of the ditch is expected to be elevated from **poor** to **moderate**. To ensure the ditch remains in moderate condition, the following management recommendations have been provided:

- Remove invasive species within and around the periphery of the ditch
- Remove litter from waterway
- Remove duckweed and other filamentous algae cover to less than 10%
- Cut back vegetation heavily shading the ditch
- Ensure there is continuous cover of marginal vegetation present along >75% of the length of the ditch and seed bare areas

5.3 Area Habitat Creation

5.3.1 Urban trees

A total of 330 new urban trees will be planted across the site, primarily along the north-east and south-west boundaries, with scattered trees across the rest of the site. These are categorised as ‘scattered native trees’ which are entirely native species and ‘ornamental trees’ which consist of two non-native species. Native species comprise 97% of the proposed urban trees, with the mix including species such as common alder (*Alnus glutinosa*), silver birch (*Betula pendula*), hornbeam (*Carpinus betulus*), bird cherry (*Prunus padus*) and common oak (*Quercus robur*). The targeted condition for the urban tree habitat is good, with an expected target condition time of 30+ years. Detailed management techniques are detailed within Table 3 along with the corresponding condition criteria. In order to reach the expected targeted condition of good, at least 5 of the following criteria are expected to be achieved. As condition criterion 1 is fixed by the landscape design, and individual trees automatically pass criterion 2, these are not assessed. An annual schedule of works is detailed in Table 10.

Table 3: Management Objectives for Urban Trees

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. The tree is a native species	N/A	N/A	N/A
2. The tree canopy is predominantly continuous	N/A	N/A	N/A
3. The tree is mature or veteran	- Limit the use of damaging management practices e.g., herbicide use - After 10-20 years, trees will reach semi-maturity and appropriate corrective surgery may be necessary. - Undertake annual arboricultural assessments	Mature and veteran trees are more effective than young trees at providing air filtration services and sequester carbon. Veteran trees provide additional niches for wildlife.	10 years
4. There is little or no evidence of an adverse impact on tree health by anthropogenic	- Only undertake management activities where necessary - Limit use of herbicides around trees	Promotes healthy growth and supports growth to maturity.	From year 1

activities and no current regular pruning regime so the trees retain >75% of expected canopy	• Tree works/pruning should be undertaken by a qualified professional • Avoid cutting all specimens across the plot in a single period, particularly where this is likely to remove all flower/fruit interest for wildlife. • Ensure tree canopy is balanced and consistent with the natural structure for the species		
5. Micro-habitats for birds, mammals and insects are present	• Leave any micro-habitat features, such as ivy and loose bark, in place • Where it is safe and appropriate, retain areas of dead wood • No management activities to take place during nesting season (February to August) • Avoid undertaking management activities on all trees in a single month period to retain important resources for wildlife. • Installation of bird and bat boxes in suitable locations on trees	Ensures diversity is maintained throughout by allowing the creation of additional habitat niches which can be exploited by wildlife.	By year 5
6. More than 20% of the tree canopy area is overhanging vegetation beneath	• Leave a 6m unmown buffer zone around each tree to allow natural succession of surrounding vegetation • No use of herbicides within this zone • Periodic removal of non-native invasive species (Appendix 3)	Creates a buffer habitat around trees to allow movement of wildlife and increases diversity of flora	From year 1

5.3.2 Introduced Shrub

This habitat will be planted in blocks of native and non-native species within the car park area of the site. Due to the ornamental nature and limited ecological value that this habitat type provides, basic aesthetic management is required.

5.3.3 Other Woodland, Broadleaved

The existing woodland is to be extended by planting the area within the north-east corner of the site with native tree and shrub whips. This new area of woodland will not be covered by the TPO which protects the existing woodland. The species composition is a mixture of tree and shrub species which are entirely native and, once mature, the balance of trees and shrubs will create a diverse vertical structure. The expected condition of the woodland to be created is moderate, with an expected target condition time of 15 years. An annual schedule of works is detailed in Table 11.

Table 4: Management Objectives for Other Woodland, Broadleaved

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. Age distribution of trees	Monitor health of trees and plant gaps in the canopy with new young trees of similar species to existing woodland composition	Provides diverse vertical structure, increase foraging and nesting opportunities, and ensures continuous cover of trees in good health	From year 5
2. Wild, domestic, and feral herbivore damage	Install fencing/tree guards to protect from grazing if necessary	Ensures trees reach full maturity and good condition	From year 1
3. Invasive plant species	- Identify and remove invasive non-native species as soon as possible. - Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.	Ensure native assemblage of species throughout habitat. Prevents competition from aggressive non-native species.	From year 1
4. Number of native tree species	- Additional planting within woodland should be native species only. Species selected should be similar to those already in woodland. - Removal of regeneration of non-native tree species	Native species within a habitat provide more niches and foraging resources for native wildlife.	From year 5.
5. Cover of native tree and shrub species	- Supplementary planting of shrub species in the understory - Ensure all planting is of native species e.g. hawthorn (<i>Crataegus monogyna</i>) and hazel (<i>Corylus avellana</i>)	Native species within a habitat provide more niches and foraging resources for native wildlife and a balance of shrubs and trees provides a diverse vertical structure within woodland	From year 3.

6. Open space within woodland	Ensure open space is maintained at less than 20% by planting gaps in canopy with new, native trees	Ensures continuous tree cover which is important for commuting and nesting wildlife.	From year 5.
7. Woodland regeneration	- Appropriate management of trees to promote good health and encourage growth to maturity - Allow natural regeneration and manage anthropogenic influences so areas where regeneration is present is undisturbed	Encourages growth of different age classes	From year 5.
8. Tree health	- Continuous monitoring for signs of disease - Implement biosecurity measures if works are taking place within the woodland and there is a risk of cross contamination with other sites - Remove diseased trees when possible	Promotes healthy growth and prevents regional and national spread of disease	From year 1.
9. Vegetation ground flora	Allow natural regeneration of ground flora and manage anthropogenic influence so areas where regeneration is present is undisturbed	A diverse ground flora layer provides additional habitat opportunities for wildlife and promotes overall floral diversity of the woodland	From year 2.
10. Woodland vertical structure	- Supplementary planting of shrub species in the understory - Appropriate management of trees to promote good health and encourage growth to maturity	Varied vertical structure offers broader nesting, commuting and foraging opportunities to a wider range of birds, invertebrates and small mammals	From year 10.
11. Veteran trees	- Appropriate management of trees to promote good health and encourage growth to maturity - Removal of invasive species which could negatively impact growth	Veteran trees provide habitat niches to native wildlife which younger trees lack	From year 10.
12. Amount of deadwood	- Retain standing deadwood where safe and possible - If dead wood is pruned, leave removed limbs in the woodland	Deadwood is a habitat and foraging resource for bird and invertebrate species	From year 1.
13. Woodland disturbance	Avoid using fertilisers within the woodland	Limiting nutrient enrichment and	From year 1.

	Manage anthropogenic activity within the woodland to limit damage and disturbance e.g. installation of paths	disturbance prevents a handful of species dominating and ensures healthy growth of natural regeneration	
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5.3.4 Mixed Scrub

New areas of mixed scrub are to be created primarily around the periphery of the existing woodland, ditch and along the north-east boundary of the site. This habitat will be planted with native scrub species and the expected condition for all areas of mixed scrub is moderate, with an expected target condition time of 5 years. An annual schedule of works is detailed in Table 12.

Table 5: Management Objectives for Mixed Scrub

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. Habitat is representative of UKHab description and there are at least three woody species	- As many native, shrubby species as possible to be incorporated at design stage - Replace lost plants with another of the same species, size and quality to ensure diversity is maintained and one species cannot dominate.	A wide range of species provides varied foraging, commuting nesting opportunities to birds, invertebrates and small mammals	From year 1
2. There is a good age range	- Allow natural seeding of new shrubs - Appropriate pruning of shrubs to promote health and reach full growth - Replace lost shrubs with young plants, according to the landscape plan	Different life stages provide different foraging and habitat opportunities	From year 4
3. There is an absence of invasive non-native species	- Identification and removal of invasive non-native species as soon as possible. - Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.	Ensure native assemblage of species throughout mixed scrub habitat. Prevents competition from aggressive non-native species.	From year 1
4. The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between	Limit mowing in the immediate habitat surrounding the areas of mixed scrub to allow succession of natural vegetation	Creates a gentle habitat gradient to allow movement of fauna and increases diversity around the mixed scrub habitat.	From year 1

the scrub and adjacent habitat(s).	Avoid using fertiliser on site to prevent a small number of species dominating		
5. There are clearings, glades or rides present within the scrub, providing sheltered edges.	Hand removal of woody species in clearings/rides/glades which would close the open spaces within this habitat	Creates edge habitat which provides additional foraging and commuting benefits for birds, invertebrates and small mammals	By year 5

5.3.5 Other Neutral Grassland – General purpose Wildflower Mix/Flowering Lawn Mix

Three types of other neutral grassland are to be created. All areas will be seeded with a mixture of grass and wildflower species with slight variances in composition. A new wildflower meadow is to be created adjacent to the north-west boundary of the car park and bordering the ditch, pond and woodland habitats, with an additional patch of meadow along the south-west boundary. Further flowering wildflower areas will be created in compartments adjacent to the car park and along the south-east boundary. Finally, marginal vegetation will be established around the existing ditch and proposed pond, as well as in the south-west corner of the site, by seeding with EM8 seed mixture containing 80% grasses and 20% wildflowers.

The expected condition for all areas of other neutral grassland is good with a time to target condition of 10 years. Criteria 1 is dependent on the selection of seed at design stage and therefore has not been assessed. An annual schedule of works is detailed in Table 13.

Table 6: Management Objectives for Other Neutral Grassland

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type. Indicator species are clearly visible throughout sward	N/A	N/A	N/A
2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm)	- Once established, mow wildflower meadows to 50-75mm in spring and autumn to encourage seasonal growth. - Remove arisings to keep nutrient levels low - Stagger mowing of different sections of meadow/groundcover	Varied sward heights provide increased opportunities for commuting and foraging for birds, invertebrates and small mammals	From year 1

	planting to encourage maximum diversity		
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	• Ensure adequate seeding of bare ground • Monitor growth and seed areas of bare ground when seasonally appropriate.	Ensures widespread cover of wildflower assemblages and reduces space for more dominant species to colonise	From year 2
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	• Regular inspection of meadow area for bracken and scrub growth • Hand removal of bracken and scrub species where the cover is approaching the limit	Removing bracken at an early stage prevents species from dominating the habitat and outcompeting other desired species	From year 2
5. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	• Identification and removal of invasive non-native species as soon as possible. • Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.	Ensure native assemblage of species throughout grassland habitat. Prevents competition from aggressive non-native species.	From year 1
6. There are greater than 9 species per metre squared	• No fertiliser to be used on wildflower areas • Reduce mowing to twice yearly to allow flowers to set seed • Monitoring and removal of non-native invasive species • Monitoring and removal of more dominant shrub species	Ensures high floristic diversity and a wide range of habitat and foraging provisions for pollinator and bird species	From year 1

5.3.6 Pond

A large pond will be created to the north-west of the site, adjacent to the hardstanding access road, woodland and wildflower meadow. The banks of the pond will be sown with wetland wildflower seed, aquatic plants introduced to approximately 50% of pond area and the water levels in the pond will be allowed to fluctuate naturally. The target condition for this pond is anticipated to be good, with a time to target condition of 5 years. As condition criteria 4, 5 and 7 are fixed during design and construction, these have not been assessed. There will be no fish introduced to the on-site pond.

Table 7: Management Objectives for Pond

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
1. The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	• Ensure marginal habitats are suitably maintained to reduce run-off of sediment into the pond • Avoid intensive management activities around the pond edge • Remove large litter regularly	Ensures aquatic vegetation receives adequate light levels	From year 1
2. There is semi-natural habitat (i.e. moderate distinctiveness or above) for at least 10 m from the pond edge.	• Maintain marginal habitats and re-seed any areas of bare ground • Manage anthropogenic activity around the pond edge to avoid unnecessary disturbance	Marginal semi-natural habitat provides a transitional habitat between the pond and other site areas. Valuable for amphibious species.	From year 1.
3. Less than 10% of the pond is covered with duckweed or filamentous algae.	• Remove duckweed and filamentous algae by hand using a pond net or a rake	Ensures aquatic vegetation receives adequate light levels	From year 1
4. The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	N/A	N/A	N/A
5. Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	N/A	N/A	N/A
6. There is an absence of non-native plant and animal species.	• Identification and removal of invasive non-native species as soon as possible. • Invasive species to be removed by hand	Ensure native assemblage of species. Prevents competition from aggressive non-native species.	From year 1

7. The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	N/A	N/A	N/A
8. In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds), should cover at least 50% of the pond area that is less than 3 m deep.	• Ensure duckweed is removed to prevent dominant cover • Monitor health of aquatic plants, remove and replace dead plants with the same species	Aquatic plants provide foraging and resting opportunities for aquatic and amphibious species	From year 1.
9. The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	• Prune excess (>50% cover) growth around the periphery of the pond	Allows maximum light levels to reach the pond surface to encourage growth of aquatic vegetation	From year 2.

5.4 Linear Habitat Creation

5.4.1 Native Hedgerows

A total of 0.89km of native, species rich hedgerow (double staggered) will be created which will encompass the car park and provide a buffer between hardstanding and the habitats across the wider site, as well as between the development and the A5080. Seven native shrub species will make up the hedge, including field maple (*Acer campestre*), dogwood (*Cornus sanguinea*), hazel, hawthorn, European spindle (*Euonymus europaeus*), holly (*Ilex aquifolium*) and guelder rose (*Viburnum opulus*). Additionally, 0.02km of evergreen hedgerow will be created as two small lengths of hedgerow bordering a stretch of parking bays. The only species within this hedge is hornbeam (*Carpinus betulus*).

Both types of hedgerow are anticipated to reach a good condition, with the time to target condition expected to be 12 years. An annual schedule of works is detailed in Table 14.

Table 8: Management objectives for Native Hedgerow

Condition Assessment Criteria / objective	Management Activities	Benefit to environment	Target time for Positive Assessment
A1. Height >1.5m average along length.	N/A	N/A	N/A

A2. Width >1.5m average along length.	- Damaging practices and activities should be avoided around the hedge e.g., use of machinery to allow plants to grow to maturity and in good health - Formative pruning should be undertaken to encourage growth	Hedgerows serve several important roles for birds, mammals and invertebrates. Firstly, they act as valuable wildlife corridors, facilitating the movement of species between different habitats, which is especially important in urban environments where there is likely to be a high level of anthropogenic disturbance. Hedgerows, particularly those containing native species, provide plentiful foraging opportunities and can support complex food webs. Finally, hedgerows offer nesting habitat for some bird species, as well as refuge from predators, spaces to rest and shelter.	5 years
B1. Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees').	- Formative pruning should be undertaken to encourage dense growth - Prunings should promote the natural form of shrubs within the hedgerow		
B2. Gaps make up <10% of total length and no canopy gaps >5 m	Replace any failed plants with others of the same species, size and quality		From year 1
C1. >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least).	- Leave a 1m buffer zone around the base of the hedge which is free from management activity e.g. weeding, mowing - Limit use of fertilisers in this area to ensure habitat isn't dominated by a handful of species		From year 1
C2. Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	Limit the use of fertilisers to allow for a higher diversity of flora and prevent a few species dominating		From year 1
D1. >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	- Identification and removal of invasive non-native species as soon as possible. - Where possible, do this by hand. If necessary, application of herbicide should be carried out by an experienced contractor.		From year 1
D2. >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	- Leave a 1m buffer zone around the base of the hedge which is free from management activity e.g. weeding, mowing - Damaging practices and activities should be avoided around the hedge e.g., use of machinery to allow plants to grow to maturity and in good health		2 years

5.5 Five Year Work Programme

Table 10 – Five Year Work Programme for Urban Trees

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Urban trees	Initial and replacement planting	Year 1 then as required to year 5												
	Control and removal of non-native species surrounding trees	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Any required pruning to damaged or diseased trees	As required year 1 to 5												
	Water twice a month during warmer months	Annually during warmer months or as needed in periods of hot weather												

Table 11 – Five Year Work Programme for Other Broadleaved Woodland

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Other Broadleaved Woodland	Replace failed trees	Dormant months years 1-5												
	Monitoring of health and viability	Monthly throughout the year and safety audits every 5 years												
	Control and removal of invasive non-native species	As required year 1 to 5												
	Pruning of dead and damaged limbs	Every three months years 1 to 5												
	Thinning of dense woodland growth	As required year 1 to 5												

Table 12 – Five Year Work Programme for Mixed Scrub

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Mixed scrub	Initial and replacement planting	As required year 1 to 5												
	Visual inspection to assess plant health	Bi-monthly every year												
	Control and removal of invasive non-native species	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Pruning of plants using appropriate methods.	As required year 1 to 5												

Table 13 – Five Year Work Programme for Other Neutral Grassland

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Wildflower planting	Initial and replacement planting	Year 1 then as required to year 5												
	Control and removal of non-native species	As required year 1 to 5												
	Monitoring throughout growing and dormant period to ensure successful establishment and control browsing and other damage	Every three months years 1 to 5												
	Mowing of meadow areas	Spring and autumn cut and removal of arisings												

Table 14 – Five Year Work Programme for Native Hedgerows

Habitat	Action	Frequency Notes	Indicative timing of operation											
			J	F	M	A	M	J	J	A	S	O	N	D
Native Hedgerow	Initial and replacement planting	Year 1 then as required to year 5												
	Control and removal of non-native species	As required year 1 to 5												
	Formative pruning	During winter months for first 2 years then once annually after this												
	Mulching	Twice a year in first year then once annually after this												
	Watering	During warmer months or as needed in periods of hot weather												

6 References

Annabelle Langhorn Landscape Planning Ltd. (2022) Landscape and Ecological Management Plan.

GOV.UK. 2022. Manage scrub and scrub mosaics. [online] Available at:

<https://www.gov.uk/guidance/manage-scrub-and-scrub-mosaics#:~:text=Managing%20scrub%20edges&text=Avoid%20topping%20dense%20patches%20of,to%20avoid%20destroying%20seeding%20herbs.>

Knowsley Council (2020) Design and Local Distinctiveness Guide.

Urban Green (2022). UG_1602_ECO_BNG_01.

Urban Green (2022). UG_1602_BNG_CALC_01

Urban Green (2022). UG_1602_ECO_PEA_02.

Wildlife and Countryside Act (1981).

Appendix 1 – Pre- Development Habitat Map

U R B A N
G R E E N

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- Red Line Boundary
- Target/Notes
- Other Rivers and Streams
- Sparsely Vegetated
- Mixed scrub
- Modified Grassland
- Other neutral grassland
- Other Broadleaved Woodland Types
- Developed Land Sealed Surface



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Client: **Maro2**

Project: **Mercury 62**

Title: **Habitat Map**

Issue: **01**

Drawn: CL	Checked: MB	Approved: MB
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Project: UG1602	Scale @ A3: NTS	Date: 9/6/2022
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Dwg No: UG_1602_ECO_HM_01	Revision: 01
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Appendix 2 - Proposed Landscape Plan

U R B A N
G R E E N



Project Name	Mercury 62
Project Number	CLPD 075
Plan Name	Detailed Planting Plan
Plan Number	CLPD 075 P01
Revision	b
Date	01/07/2022
Scale	1:500 @ A0

APPENDIX 3 – SCHEDULE 9 INVASIVE SPECIES

An invasive, non-native species is a species that is present outside of its native range but has established populations after accidental or intentional introduction to a geographical region. These species have negative ecological impacts on the environments in which they are present by outcompeting native flora and fauna for resources, facilitating the spread of disease, and interrupting natural food webs.

Schedule 9 of the Wildlife and Countryside Act 1981 lists the species within the UK which are considered invasive and are damaging to biodiversity. It is the legal responsibility of the landowner to control populations of invasive species and prevent their growth and spread.

The table below details the invasive non-native species listed on Schedule 9 that have been identified on site and the recommended management practices.

Common name (scientific name)	Identification		Management
Himalayan balsam (<i>Impatiens glandulifera</i>)	- Green or red stems - Serrated oval leaves growing in a whorl round the stem - Bright pink flowers		- Spraying of glyphosate-based herbicides - Application to be carried out by a qualified individual - Herbicide to be applied in spring, before the flowering period but after germination of seeds - Approved herbicides only to be used - Balsam bashing – pulling plants up by the root before seeds are set (before July/August)



Environmental Statement Volume 3: Appendix 7.1

Flood Risk Assessment



Environmental

Geotechnical

Highways

Structural

Civil

Land at Cronton Road

Prescot

Knowsley L35 1QZ

**Proposed New Warehouse Unit
Mercury 62**

**Flood Risk Assessment
Surface Water Drainage Strategy
Foul Water Drainage Strategy**

For: Maro Developments Ltd.

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Ref: 2956-FRA
Job: 2956
Rev:
By: CH

Date: Jun 2022

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APPENDICES

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1. INTRODUCTION

- 1.1 Integra Consulting has been commissioned by Maro Developments Limited to undertake a Flood Risk and Surface Water Drainage Assessment (FRA) for the land at Cronton Road, Prescott, Knowsley L35 1QZ. This document has been prepared to accompany the full planning application for the proposed development of new farm buildings at the application site (refer to Appendix 4 for details).
- 1.2 The objective of the FRA is to identify potential flooding issues and any consequential implications on the proposed site development. Proposed surface water drainage for the development site is also considered.
- 1.3 The FRA has been undertaken in accordance with the pro-forma guidance contained in:
- Department for Communities and Local Government document 'National Planning Practice Guidance: Flood Risk and Coastal Change'
 - DEFRA Flood Risk Assessments: Climate Change Allowances
 - Knowsley Preliminary Flood Risk Assessment 2011 and 2017
 - Strategic Flood Risk Assessment (SFRA) 2009 – Knowsley Council & Sefton Council, Level 1
 - Knowsley Strategic Flood Risk Assessment Level 2 by Capita Symonds dated April 2012
 - Knowsley Sustainable Drainage & Surface Water Management Technical Guidance for Developers by Knowsley Council dated August 2016
 - Knowsley Local Flood Risk Management Strategy 2017
 - DEFRA / Environment Agency publication SC030219 'Rainfall Runoff Management for Developments' dated October 2013.
- 1.4 Due to the absence of any foul water drainage infrastructure in the immediate vicinity of the site a foul water drainage strategy is also included.

- 1.5 To date, consultations have been undertaken with the Environment Agency (EA - Stephen Sayce, Karen Peart, Graham Bate 2018) and Knowsley Lead Local Flood Authority (LLFA - Kevin McKeown 2018)

2. STANDARDS AND LIMITATIONS

This report has been prepared solely for use by Maro Developments Limited.

It shall not be relied upon or transferred to any other party without the prior written authorisation of Integra Consulting.

The findings and opinions in the report are based on information derived from a variety of different sources. Integra Consulting do not accept any liability for the accuracy or otherwise of any information provided by third parties.

It should be noted that some of the aspects considered in this study may be subject to change with time. Therefore, if the development is delayed or postponed, consideration may need to be given to reviewing such issues to confirm that no changes have taken place, either at the site or within relevant legislation.

Further consultations with statutory bodies are likely as the scheme progresses. It should be noted that even where responses have been received from Regulators, these could be subject to change at a later date.

3. CURRENT SITUATION

3.1 Site Location and Description

The circa 8.7-hectare site is located to the southeast of Tarbock Roundabout at the Junction of the M62 and M57 motorways at National Grid reference 346775E, 389275N, approximately 2.8km southeast of Huyton Town Centre and as shown edged in blue on the site plans in Appendix 1. The 2002 site location plan shows the water features around the site in more detail.

The site is bounded by Cronton Road to the south, the M62 to the northwest, a disused mineral railway to the northeast and Fox's Brook / vegetated land to the east. Chapel Brook, a main river, flows openly through the southwest corner of the site in a north to south direction between culverted sections. Fox's Brook is also a main river. An ordinary watercourse flows through the northwest of the site in a generally east to west direction issuing from a culvert that runs under the mineral railway which takes flows originating from Big Water on the northern side of the M62 motorway. These flows finally discharge into Chapel Brook.

Site levels fall relatively gently, broadly from northeast to southwest with levels varying between circa 25m AOD at the mineral railway and 19m AOD adjacent to Cronton Road reducing to circa 17m AOD at the southwestern corner of the site at the top of the channel to Chapel brook. The existing topographical survey drawings can be found in Appendix 2.

3.2 Flooding

Current Environment Agency flood data indicates the site to lie generally with in Flood Zone 1 but with the areas around Chapel Brook in Flood Zones 2 and 3.

EA / DEFRA flood mapping indicates a minimal extent of surface water flooding with small areas of high-risk surface water flooding identified in the

southern area of the site at the highways land boundary of the site and small areas of low-risk surface water flooding in the north-eastern area of the site.

EA / DEFRA flood mapping does not indicate any areas of the site at elevated risk of reservoir flooding.

Refer to Appendix 3 for maps and details.

3.3 Existing Drainage

There is no known adopted foul water, surface water or combined water sewer infrastructure in close proximity to the site although there is a local system of watercourses and surface drains present, a number of which are identified as 'ordinary' watercourses on the Gov.UK website mapping – these watercourses fall under the jurisdiction of the Lead Local Flood Authority.

This system of watercourses and surface drains evidently flows south westwards before ultimately discharging to Chapel Brook which is identified as 'main river' and therefore falls under the jurisdiction of the Environment Agency.

4. PROPOSED DEVELOPMENT

4.1 Development Proposals

It is proposed to undertake the erection of a large warehouse facility, hard standing and associated works with access from Cronton Road (refer to Appendix 4 for details).

4.2 Surface Water Drainage

The issue of surface water drainage to the proposed development has been considered with reference to the hierarchy of surface water disposal as noted in the Building Regulations H3:

- i) Sustainable Urban Drainage Systems (SUDS)
- ii) Discharge of surface water off site direct to watercourse
- iii) Discharge to adopted sewer

SUDS are made up of one or more structures built to manage surface water runoff. They are used in conjunction with good management of the site to prevent flooding and pollution. There are four general methods of control:

- Filter strips and swales
- Filter drains and permeable surfaces
- Infiltration devices
- Basins and Ponds

A review of the phase 1 and phase 2 ground investigation reports for the site produced by Integra Consulting and BWB respectively indicates that the site is underlain by glacial till in turn underlain by sandstone bedrock at depth. On the basis of this review of the ground investigation records on the site, it is evident that the underlying soils at the site offer a low to very low permeability

and as such soakaway drainage design is unlikely to be viable. Refer to Appendix 5 for ground investigation references, full reports are included in the planning submission,

On the above basis and in line with the hierarchy of surface water discharge, it is therefore proposed to discharge suitably attenuated site surface water from the main site directly to Chapel Brook to the southwest of the site. The surface water from the new adopted HGV access road catchment will discharge into Fox's Brook in line with the existing highway drainage system for Cronton Road. Details for the adopted highway drainage are to be agreed with Knowsley Highways in due course once the scope of that work is known in relation to the through access to the wider Halsnead Village Site.

This post-development surface water drainage strategy has been agreed in principle with the Knowsley LLFA officer and EA officers in 2018 during detailed negotiations and site meetings undertaken at that time during a previous planning pre-application process undertaken then. Refer to Appendix 6.

It is proposed to limit surface water flow rates from the development area to the equivalent pre-development greenfield run off rate Q_{bar} for all rainfall events at the site up to and including the 1 in 100 year event plus 30% climate change factor derived from the DEFRA climate change allowances web site (see Appendix 7). The discharge rate from the development site is proportional to the impermeable area only (approx. 5.5 hectares as opposed to the whole site area of 8.7 hectares) and is calculated to be 33 litres per second (refer also to Appendix 7 for details). A pond structure has been indicated in order to provide the necessary on-site surface water storage capacity (refer to Appendix 10 for details).

Full WinDES modelling has been undertaken for the development site in line with LLFA requirements including provision of details on proposed discharge rates, simulating storms through the whole drainage system, with results of critical storms demonstrating that there is no surcharge in the system for the

1 in 1 year, no above ground flooding for the 1 in 30 year and that any above-ground flooding for the 1 in 100 year storm is limited to areas designated and safe to flood away from buildings. These storms also include an allowance for climate change. It is noted that the critical storm duration for each element of the drainage network has been determined by considering a full range of summer and winter storm durations from 15 minutes up to a 7 day (10080 minute) duration - refer to Appendix 8 for details.

Accordingly, the estimated preliminary on site storage volume to cater for a 1 in 100 year plus 30% climate change event is approximately 3500m³ (refer to Appendix 9 for details). Please note that this estimated figure is subject to finalisation of soil type following any further detailed ground investigation on infiltration rates.

The overland flow route plan in Appendix 11 indicates the direction of overland flow route through the commercial site in an extreme event with flows to the southwest to Chapel Brook and southeast to Fox's Brook in line with the existing/proposed topography which will ultimately be intercepted by the existing network of ditches and watercourses.

Ultimately the final design of the drainage system will be subject to the finalised site arrangement, further targeted site investigation and subsequent development of a detailed drainage scheme.

The post development surface water drainage system will be designed to ensure that:

- Surface water flows up to a 1 in 100 year + 30% climate change event remain in below ground storage.
- Sufficient surface water storage and shallow ponding volume will be available to ensure there is no risk to property.

4.3 National Planning Policy Framework and Technical Guidance

The commercial site development proposals are classed as 'less vulnerable' in Table 2 of the Flood Risk and Coastal Change guidance.

'Less vulnerable' developments in Flood Zone 1 are classed as appropriate according to Table 3 of the Flood Risk and Coastal Change guidance.

Proposed post development levels will be engineered in order to protect the development and not provide any increased flood risk elsewhere.

Types of flooding that could affect the site are:

River- the site predominantly lies in Flood Zone 1

Sea – there is no risk of flooding from the sea

Groundwater – there are no springs or weep areas on the site

Sewers – there have been no local reports of sewer surcharge

4.4 Strategic Flood Risk Assessment & EA Mapping Review

- From our review of the Knowsley Strategic Flood Risk Assessment Level 2 by Capita Symonds dated April 2012, the site does not lie in a Critical Drainage Catchment.

There are no groundwater protection zones in the vicinity of the site and there is negligible residual fluvial risk. The site is not noted to lie within a flood warning area.

4.5 Safe Access and Egress

Safe access / egress from the site in extreme conditions will be via the entrance on Cronton Road.

4.6 Foul Water Drainage

Due to the absence of foul water or combined water infrastructure in the immediate vicinity of the site more remote connection options along with the potential for a foul water treatment plant discharging treated water into Chapel Brook have been considered.

Detailed negotiations were undertaken with the Environment Agency in 2018 as part of a paid consultancy agreement with them resulting in approval in principle to treat foul water from the development in a proprietary treatment plant and discharge treated water to Chapel Brook until such time as foul water infrastructure is provided by the statutory undertaker in Cronton Road as part of an Asset Management Programme. The foul water drainage must be designed so that the connection into the infrastructure when provided is relatively straightforward.

The details of the foul water system are shown on the drainage layout in Appendix 4 and all the correspondence with the Environment Agency in relation to the pre-planning application advice on the option for a private treatment plant is contained in Appendix 12. Formal permitting applications are underway.

5.0 SuDS DESIGN STATEMENT

5.1 SuDS Requirements

SuDS measures are required on the proposed development to comply with the National Planning Policy Framework (NPPF), DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems and the SuDS guidance in the Knowsley Local Flood Risk Management Strategy.

The key conceptual SUDS design criteria for the development are covered in Non-Statutory Technical Standards for Sustainable Drainage, under sections S1 to S9.

Peak Flow Control

S2 of the DEFRA Technical Standards notes that for greenfield developments, the peak runoff from the development for the 1 in 1 year and 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same rainfall event.

Volume Control

Requirement S4 is deemed applicable to the site, which stipulates that the runoff volume in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

Flood Risk within the Development

S7 notes that the drainage system shall be designed such that no flooding shall occur on any part of the site during a 1 in 30 year storm event.

S8 requirement stipulates that during a 1 in 100 year enhanced rainfall event, no flooding of any building shall occur.

S9 also stipulates that site levels shall be designed such that flows which are as a result of rainfall events exceeding the 1 in 100 year enhanced rainfall

event, are managed in exceedance routes that minimise the risks to people and property.

In complying with the above standard for water quantity improvement measures, the design for a 1 in 100 year event will make due allowance for 30% climate change (see section 4.2 above).

Water Quality

In addition to the above measures contained within the DEFRA guidance addressing water quantity issues, designing for water quality is also a requirement of the on-site SUDS measures. Reference is made to CIRIA Report 'C753 – The SUDS Manual', specifically Chapters 4 and 26.

5.2 Proposed SUDS Methodology & Drainage Design Principles

As detailed in section 4.2, discharge of surface water direct to the ground in the form of infiltration measures is deemed unfeasible due to the underlying impermeability of the natural strata. Accordingly, controlled discharge to the Chapel Brook via an attenuation pond is the proposed method of surface water discharge.

Peak Flow Control

Flow from the proposed development site shall be limited to a greenfield runoff rate Q_{bar} of 33 litres per second. This limiting surface water flow rate is derived from the www.uksuds.com spreadsheet routine, as contained within Appendix 7.

Volume Control

The proposed 33 litres per second discharge flow rate will apply for all flood events from the 1 in 1 year to the 1 in 100 year (enhanced) event. This is deemed to match the existing greenfield runoff volume for the same event.

Flood Risk within the Development

To cater for excess surface water runoff, the proposed method of attenuation on the site is to utilise a new storage pond in the southwestern area of the site with a downstream length of drain discharging site surface water into the Chapel Brook via a purpose constructed outfall structure.

The maximum storage depth in the proposed pond will be limited to 1.5m and the pond side slopes will be set to 1 in 3 in line with CIRIA Guidance in order to satisfactorily demonstrate that the risk created by flood water storage is low.

The site is to discharge post-development surface water into the 'SuDS pond' which in turn will discharge through a flow control chamber to limit the discharge to greenfield run off rates to Chapel Brook.

Appendix 9 contains calculations of an in-principle surface water storage volume of circa 3500m³ for the development. It is proposed to accommodate the 1 in 100 year (enhanced) event storage volume within the storage pond. Accordingly, this will ensure that criteria S7 and S8 are met.

Water Quality

In assessing the level of treatment required to ensure sufficient water quality improvement prior to discharge to watercourse, reference is made to Chapter 26 of CIRIA C753 – The SuDS manual. Specifically, Table 26.2 details the pollution hazard indices for different site uses:

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways ¹	High	0.8 ²	0.8 ²	0.9 ²

Based on the proposed development (the closest suitable development definition in Table 26.2 is 'commercial yard'), the pollution hazard level is noted as 'medium', with pollution hazard indices being: Total Suspended Solids 0.7, Metals 0.6, Hydrocarbons 0.7.

As noted in the section 5.2, it is proposed to utilise a surface water storage pond in order to address water quantity and quality improvements on the site. With reference to Table 26.3, this details the mitigation indices for various SUDS measures:

It is noted that the pond achieves mitigation indices as follows: Total Suspended Solids 0.7, Metals 0.7, Hydrocarbons 0.5 but this is downstream from oil interceptors which are provided for the yard and car park areas separately and are class 1 full retention and class 2 bypass respectively. Provision of the interceptors are deemed to reduce hydrocarbon concentrations to a level that would meet the mitigation index for the SuDS pond.

The mitigation indices for a pond in the TSS and Metals categories are therefore considered to greater than or equal to the respective pollution hazard indices for the site. The pollution hazard index of Hydrocarbons exceeds the respective SuDS mitigation index for a pond but since the upstream oil interceptors are provided the combined system is considered satisfactory.

Accordingly, the proposed use of the storage pond is deemed to provide a sufficient level of treatment without the need for further SUDS measures being employed on the site. This is on the condition that the pond is designed and detailed in accordance with section 23 of CIRIA C753 and that the oil interceptors are subjected to a rigorous maintenance regime.

5.3 Management and Maintenance of SuDS Drainage System

The management and maintenance of the above noted SuDS measures to serve the proposed development will be undertaken by a maintenance management company to be appointed for the project. The appointment of the maintenance and management company is to be confirmed at the

completion of the build phase. All parts of the drainage network are to be accessible and are to be constructed from materials that are suitable and robust for the lifetime of the development.

The maintenance activities required for the drainage network are as follows:

5.3.1 Pond

The maintenance for the pond is as follows:

Maintenance Schedule	Required action	Frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut the grass	Monthly (during growing season)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first three years)	Monthly (at start, then as required)
	Inspect inlet, outlet, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May-October)
	Inspect silt accumulation in the pond and establish appropriate removal frequencies	Six monthly
	Check any mechanical devices i.e. penstocks	Six monthly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Tidy all dead growth (scrub clearance) before start of growing season	Annually
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required

	Aerate pond when signs of eutrophication are detected	As required
	Re-align rip-rap or repair other damage	As required
	Repair / re-habilitate inlet and outlet	As required

5.3.2 Flow Control

The maintenance for the flow control is as follows:

Operation	Frequency
Inspect and identify any areas that are not operating correctly, if required take remedial actions	Monthly for three months then at six monthly intervals
Debris removal from catchment surface (where it may cause risk to performance)	Monthly
Check control chamber for blockage or silt, algae or other matter by jetting	As required, but at least four times a year
Remove sediment from upstream drainage network and sediment from within manhole by jetting	As required, but at least twice a year
Repair / check all inlets and control mechanics	As required
Inspect / check all inlets and control mechanics to ensure that they are operating as designed	Twice a year as a minimum and after severe storm events

5.3.3 Flow Control Chamber Design Criteria

In addition to the above maintenance methods, the flow control chamber will be designed so it works effectively throughout the lifespan of the development and will have precautionary features to ensure maintenance work can be carried out promptly and efficiently to ensure no control failure which may otherwise subsequently lead to flooding.

Details of the flow control chamber are as follows:

- High Water Level Alarm: Alarm installed and directed to site maintenance team
- Spares: Control spares to be kept on site for efficient maintenance

5.3.4 Flood Routes

A visual monthly inspection of flood routes should be made in order to check that routes are not blocked by new fences, walls, soil or other rubbish with removal undertaken as necessary.

5.3.5 Spillage – Emergency Action

Most spillages on development sites are of compounds that do not pose a serious risk to the environment as they enter the drainage system in a slow and controlled manner with time available for natural breakdown in a treatment system. Therefore, small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommend by the Environment Agency with residual spillage allowed to bio-remediate in the drainage system.

In the event of a serous spillage, either by volume or of unknown or toxic compounds, then the spillage should be isolated using soil, turf or fabric and outlet pipes from chambers downstream of the spillage blocked with bungs. Bungs for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric. The Environment Agency should be contacted immediately. Oil interceptors are provided for the yard and car park areas separately and are class 1 full retention and class 2 bypass respectively. These must be alarmed monitored and maintained in accordance with manufacturers specifications.

Specific maintenance requirements for oil/water separators are provided in PPG3 2006.

The following items should be undertaken every six months as a minimum:

- Check volume of sludge
- Check thickness of light liquid
- Check function of automatic closure device
- Empty the separator if required
- Check the coalescing material and clean or change if necessary
- Check the function of the warning device (if fitted)

General inspection of the integrity of the separator should occur at a maximum frequency of five years and should cover the following:

- Watertightness of system
- Structural condition
- Internal coatings
- In-built parts
- Electrical devices and installations
- Adjustment of automatic closure devices

It is a requirement that the separators are filled with clean water before being put into operation and each time after emptying for maintenance purposes. An alarm is to be fitted to the separators that will indicate when the collected oil volume is at a maximum – the alarms should be placed in a location that is clearly visible to the maintenance and management company.

5.3.6 Linked and Further Maintenance

The maintenance of the drainage network and SuDS features is to be linked with the landscape maintenance plan for the proposed development.

5.3.7 Maintenance Activities

A log of all maintenance activities is to be kept and made available to the Local Planning Authority (LPA) and / or the Lead Local Flood Authority (LLFA) on request.

6. CONCLUSIONS

6.1 Flooding

Following review of the Environment Agency flood maps and data, it has been confirmed that the site lies mainly in Flood Zone 1 with small areas outside the developed footprint falling into flood zones 2 and 3.

There are to be no off-site surface water flood routes generated by the development during an enhanced 1 in 100 year storm. All surface water runoff will remain on site in the 1 in 100 year + 30% climate change event.

6.2 Site Surface Water Drainage

It is proposed to discharge suitably attenuated site surface water to Chapel Brook to the southwest of the site via an attenuation pond and purpose constructed outfall structure. The adopted HGV access road highway drainage is to be discharged into Fox's Brook to the southeast of the site and this drainage strategy is to be developed by Knowsley Council in line with the future access road to the wider Halsnead Village site.

6.3 Flood Risk Management Measures

There will be a site management Health and Safety document prepared in respect of the site.

6.4 Off Site Impacts

All roofed and paved areas are to be drained into the site surface water drainage system. The design of the site surface water system will ensure that

no off-site flood flows are generated by the proposed development in the 1% plus climate change event.

6.5 Residual Risk

With careful design of the drainage elements as described above, there will be no residual flood related risks remaining after the development has been completed.

The proposed building envelopes will naturally fully lie in Flood Zone 1.

A post-development safe emergency access can be maintained at all times during a flood event with emergency access from Cronton Road.

6.6 Foul Drainage

The foul drainage strategy for the development is to be via a privately managed package treatment plant which is to discharge treated water into Chapel Brook via the purpose constructed surface water outfall structure for the surface water system. A formal permit to discharge will be obtained from the Environment Agency prior to operation of the package plant.

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GREENFIELD RUNOFF RATE AND CLIMATE CHANGE ALLOWANCE

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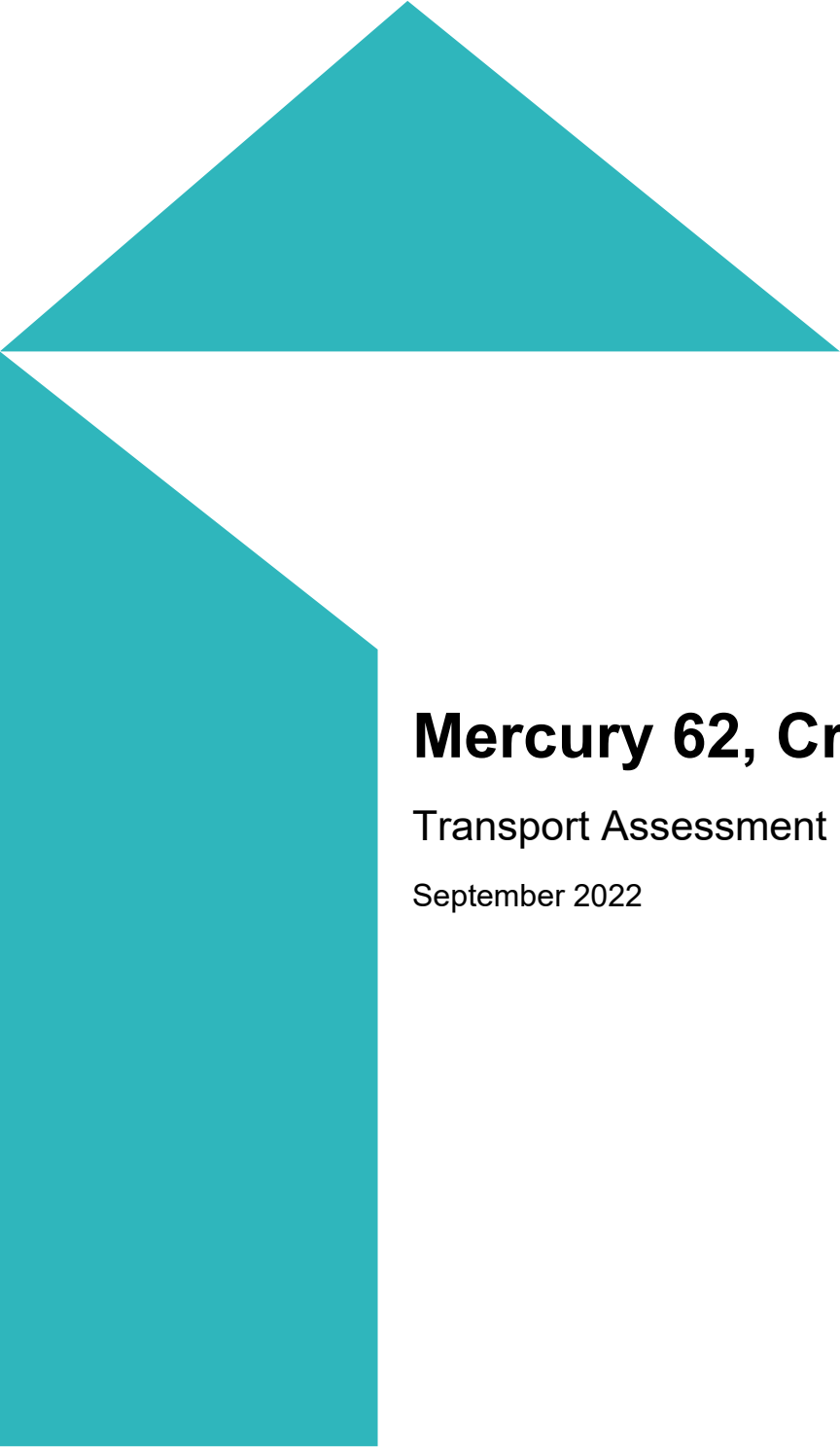
APPENDIX 12

FOUL WATER DRAINAGE CORRESPONDENCE WITH ENVIRONMENT AGENCY



Environmental Statement Volume 3: Appendix 8.1

Transport Assessment

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Mercury 62, Cronton Road

Transport Assessment

September 2022

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Transport Assessment

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1 Introduction

1.1 Mercury 62

Mott MacDonald have been commissioned to prepare a Transport Assessment in support of a commercial development at Cronton Road, Knowsley. The development is located south of the M62 in Knowsley, as indicated in the below figure, and forms part of an area suitable for a Sustainable Urban Extension (SUE) as identified in Knowsley Local Plan Policy. The area is known as Halsnead Garden Village.

Figure 1.1: Site Location



Source: Google Earth / Mott MacDonald

1.2 Scope of Transport Assessment

The scope of the Transport Assessment has been agreed with Knowsley Metropolitan Borough Council (KMBC) through pre-application scoping. Furthermore, scoping has been undertaken with National Highways.

- 12th May: Scoping Meeting with KMBC;
- 19th May: Scoping Note issued to KMBC, and National Highways;
- 7th June: Scoping response received from National Highways;
- 10th June: Scoping response received from KMBC;
- 17th June: Trip generation note issued to KMBC and National Highways;

- 7th July: Meeting with KMBC and National Highways;
- 20th July: VISSIM note issued to KMBC and National Highways;
- 18th August: VISSIM meeting with KMBC and National Highways.

Following agreement of scoping, this document is presented in the below sections:

- Section 2 Planning Policy Context;
- Section 3 Site Location and Accessibility;
- Section 4 Baseline Traffic Conditions;
- Section 5 Committed and Planned Development;
- Section 6 Proposed Development;
- Section 7 Trip Generation and Distribution;
- Section 8 Junction Modelling;
- Section 9 Conclusions.

2 Planning Policy Context

This section outlines planning policy documents which will be relevant to the development of this site to ensure proposals align with local, regional and national guidelines.

2.1 National Planning Policy Framework (NPPF, 2021)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and details how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

The NPPF sets out the following guidelines regarding transport:

Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.*

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users;*
- c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46; and*
- d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

NPPF states that 'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'

This Transport Assessment supports the planning application for the proposed development in accordance with the recommendations set out within the NPPF. The Transport Assessment examines travel to the site by a range of modes, proposals for vehicle and servicing access and personal injury accidents occurring near the development site.

2.2 National Highways Policy & Guidance

National Highways (formerly Highways England) is appointed by the Secretary of State for Transport as a strategic highway company under the provisions of the Infrastructure Act 2015. National Highways are responsible for operating, maintaining and improving the Strategic Road Network (SRN) in England.

National Highways' approach to engaging with the planning system is governed by the advice and guidance set out in:

- The Strategic Road Network Planning for the Future - A guide to working with National Highways on planning matters (2015).
- DfT Circular 02/2013 The Strategic Road Network and the delivery of sustainable development.

As a consultee in the planning system, National Highways has a regulatory duty to co-operate in the planning process. Consequently, National Highways are obliged to give consideration to all proposals received and to provide appropriate, timely and substantive responses.

National Highways' desire to be a proactive planning partner goes beyond this statutory role, but follows the spirit of the Licence which stipulates that National Highways should:

"Support local and national economic growth and regeneration".

Mott MacDonald has engaged with National Highways and their consultants WSP prior to planning submission for pre-application advice.

2.3 Merseyside Local Transport Plan 3 (LTP3)

The Merseyside Local Transport Plan 3 (LTP3) became active on 1st April 2011 and has a vision to provide "a city region committed to a low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens and where sustainable travel is the option of choice." (LTP3, Paragraph 2.2).

To achieve the vision, six goals have been set which include "3) the transport system promotes and enables improved health and wellbeing and road safety" and "4) equality of travel opportunity for all, through a transport system that allows people to connect easily with employment, education, healthcare, other essential services and leisure and recreational opportunities." (LTP3 2.12).

The follow up to LTP3, Merseyside LTP4, is currently in draft status. The document will outline Liverpool City Region's commitment to "plan for, and deliver a clean, safe, resilient, accessible and inclusive London-standard transport system for the movement of people, goods and freight in a way that delivers our economic, social and environmental ambitions, and in particular, a net zero carbon emitting city region by 2040 or sooner".

The LTP4 Draft goals are as follows:

1. Ensure transport plans and strategies are aligned to support sustainable growth
2. Net-zero carbon emissions by 2040 or sooner

3. More attractive streets and sustainable travel infrastructure to improve the health and quality of life, including zero emission freight and passenger transport
4. Resilient, well maintained transport system in response to climate change
5. Support innovation and new technologies

2.4 Knowsley Local Plan: Core Strategy

Knowsley Local plan sets out the vision, objectives and policies which will guide development within Knowsley up to the year 2028. Knowsley's spatial vision for 2028 sets out the following aspirations for the borough:

- By 2028, Knowsley Borough will be known for its successful suburban townships that provide a sense of place and community, having sustainable, diverse, more prosperous and healthy populations.
- Knowsley's economy will be stronger and more diverse, providing employment choices for local people and helping to drive economic growth in the wider Liverpool City Region.
- Knowsley will be attractive for businesses to invest in, providing a range of employment land and premises to meet their needs.
- Knowsley will provide a wide choice of housing to meet needs. Residents will be attracted to the housing on offer and the vibrant, safe and cohesive communities of which it forms part.
- New housing will be provided in sustainable locations, and be well-designed, affordable and form attractive and identifiable neighbourhoods where residents will choose to live.
- The gap in deprivation levels will be narrowed, both between different parts of the borough and between Knowsley and elsewhere.
- Kirkby, Prescot and Huyton Town Centres will have defined and enhanced roles, be regenerated, vibrant and welcoming, providing focal points where local residents will choose to shop and access health care, cultural and other key services and facilities.
- Knowsley's communities will be better connected to local employment opportunities, health care, education, shopping, leisure and recreation provision.
- Land uses and transport will be well co-ordinated to allow Knowsley's residents, workers and visitors to choose more sustainable forms of transport, including public transport, walking and cycling.
- The character and quality of Knowsley's rural villages of Cronton, Tarbock and Knowsley Village will be protected.
- Knowsley's open spaces and indoor and outdoor sporting, recreation and leisure opportunities will be enhanced so that residents and visitors can choose to become more active and pursue healthier lifestyles.

Specifically, in terms of transport Objective 6 strives to ensure that *“new development in Knowsley encourages a reduction in the overall need to travel, and prioritises sustainable transport such as walking, cycling and public transport.”* Policy CS7 concerns Transport Networks and outlines the overall transport strategy, with a focus upon supporting a sustainable transport system. It also describes how new development will be required to be located and designed to prioritise accessibility and sustainable modes of travel.

Within the Local Plan, an area, 'Whiston South of the M62' is identified as being suitable for a sustainable urban extension. This encompasses Halsnead Garden Village and the proposed development site itself.

2.5 Saved Policies: Knowsley Replacement Unitary Development Plan

The Knowsley Replacement UDP was adopted in June 2006 but much of it has been replaced by the Local Plan Core Strategy. There are 39 UDP Policies that continue to be saved, with those relevant to transport detailed below:

Policy T5 Location of Major Traffic Generating New Developments states that:

“Major developments should be or be capable of being located within safe and convenient walking distance of public transport facilities (defined as being no more than 400 metres from a bus stop and/or 800 metres from a rail station or Merseytram stop)” and

“Developments that are likely to generate significant movement of freight or other vehicular traffic should be located at sites, which have good access to, and which will not cause an unacceptable amount of congestion on the rail network or the Strategic Road Network”

“Where a site for a proposed major development is not already within safe and convenient walking distance of a station, stop or interchange on passenger rail, bus or tram networks, planning permission will only be granted if improvements to the public transport network are made. There may also be a requirement for improvements to the Strategic Road Network. All such improvements should be made prior to the completion of the development to provide for satisfactory accessibility for all”.

Policy T7- New Development and Walking and Cycling Routes states that:

“New development should preserve and where possible enhance the walking & cycling network, as it can help enhance and provide access to green corridors & the countryside as well as promoting and encouraging exercise and healthy living for all.

In considering proposals for new development which will block (either partially or wholly) an existing right of way or other existing or proposed walking or cycling route, a balanced consideration of the following factors will be undertaken:

- a) The contribution that the route makes or will make to the walking and/or cycling network in the area and the harm that would be caused to accessibility between existing uses in the surrounding area if the route were no longer available; and
- b) Any benefits to community safety or security that could arise from the closure of the route”

Policy T8 Transport Assessments notes that applications for major traffic generating developments will need to be accompanied by a Transport Assessment to enable the implications of the development upon the transport networks to be assessed. It states that:

“Development proposals that would prejudice the primary function of any part of the highway network (i.e. the motorway, trunk road, primary and local highway network) by generating a material increase in traffic, which would overload the access to, or any part of the network, will not be permitted, unless the necessary mitigation measures required are undertaken”.

Policy T9 Travel Plans states that major traffic generating development proposals will require submission and implementation of a travel plan.

2.6 Ensuring a Choice of Travel SPD

This SPD was developed by a collaboration of the Merseyside local authorities and Merseytravel and was adopted in December 2008. It provides guidance on the access and transport requirements for new developments across Merseyside.

The SPD Objectives are to:

- *Ensure a reasonable choice of access by all modes of transport to new development;*
- *Reduce the environmental impact of travel choices by reducing pollution and improving the local environment;*
- *Improve road safety;*
- *Promote healthier lifestyles by providing opportunities for people to walk or cycle for work or leisure purposes;*
- *Reduce the level of traffic growth and congestion on the strategic and local road network; and*
- *Encourage opportunities to improve the quality of development proposals by better use of space through the provision of less car parking spaces where appropriate.*

It therefore recognises that good design can contribute to sustainable modes of travel and enhance the environmental quality of a scheme, something which is reinforced within this Transport Assessment. The SPD provides guidelines on car and cycle parking provision which should be adhered to in new developments.

2.7 Halsnead Garden Village Masterplan Supplementary Planning Document (SPD)

This document was adopted by Knowsley Council in June 2017 to guide the development of Halsnead Garden Village as a Sustainable Urban Extension (SUE) in accordance with Knowsley's Local Plan Policy. In January 2017, Halsnead was announced as one of 14 proposed new Garden Villages nationally reflecting a commitment to develop the site in a way which creates a distinctive, high quality place.

The SPD aims to guide this development opportunity and help KMBC work collaboratively with developers and landowners to ensure that its ambitions are realised and benefits to Knowsley are maximised. The document:

- Sets out the Council's vision and strategic objectives of a Garden Village shaped by public consultation and stakeholder collaboration;
- Facilitates a coordinated and comprehensive masterplanning approach, to be implemented consistently across multiple planning applications;
- Provides an overarching spatial masterplan to communicate development and design parameters, including land use, access, movement and green infrastructure;
- Establishes key development requirements that all planning applications within Halsnead are expected to adhere to;
- Provides master planning and design principles and guidance, to inform the more detailed design considerations and approaches needed to deliver the Garden Village vision;
- Describes the proposed approach towards delivery of physical infrastructure; and
- Provides a framework for agreements and conditions to be established through the planning process.

Halsnead extends to 174ha, comprising two land parcels to the north and south of the M62. The commercial development which this TA supports is situated within the parcel of land to the south of the M62. Therefore, the development of this site will be guided where appropriate by the Halsnead Garden Village Masterplan Supplementary Planning Document.

The document provides a clear movement strategy which all new developments are required to comply with.

2.7.1 Halsnead Garden Village Transport improvements

Knowsley Council successfully secured Government funding through the LCR Combined Authority SIF to deliver off-site highway infrastructure improvements required for the Garden Village development. This includes the Tarbock Island roundabout at key strategic junction to the immediate east of the proposed development site and also the Fox's Bank Lane / Cronton Road / Prescott Road junction to the east. More detail on Halsnead Garden Village and committed development in the area are included in Section **Error! Reference source not found.**

2.7.2 Halsnead Garden Village Design and Local Distinctiveness Guide

The Halsnead Garden Village Design and Local Distinctiveness Guide, provides parameters for the development of Halsnead Garden Village and it will assist all parties involved in its delivery including developers, designers and planners, to secure the objectives of the development. Providing a basis on which development proposals will be evaluated for their compliance with the objectives and aspirations for Halsnead Garden Village, the Guide will be a meaningful tool in KMBC's decision making process. The Guide provides streetscape guidance for the commercial streets within the Garden Village.

Key features of the commercial street include a 7.3m carriageway width, green verges and a shared footway / cycleway provision on at least one side of the carriageway. The design of the access road to serve the site has been developed in accordance with these principles as well as the site frontage.

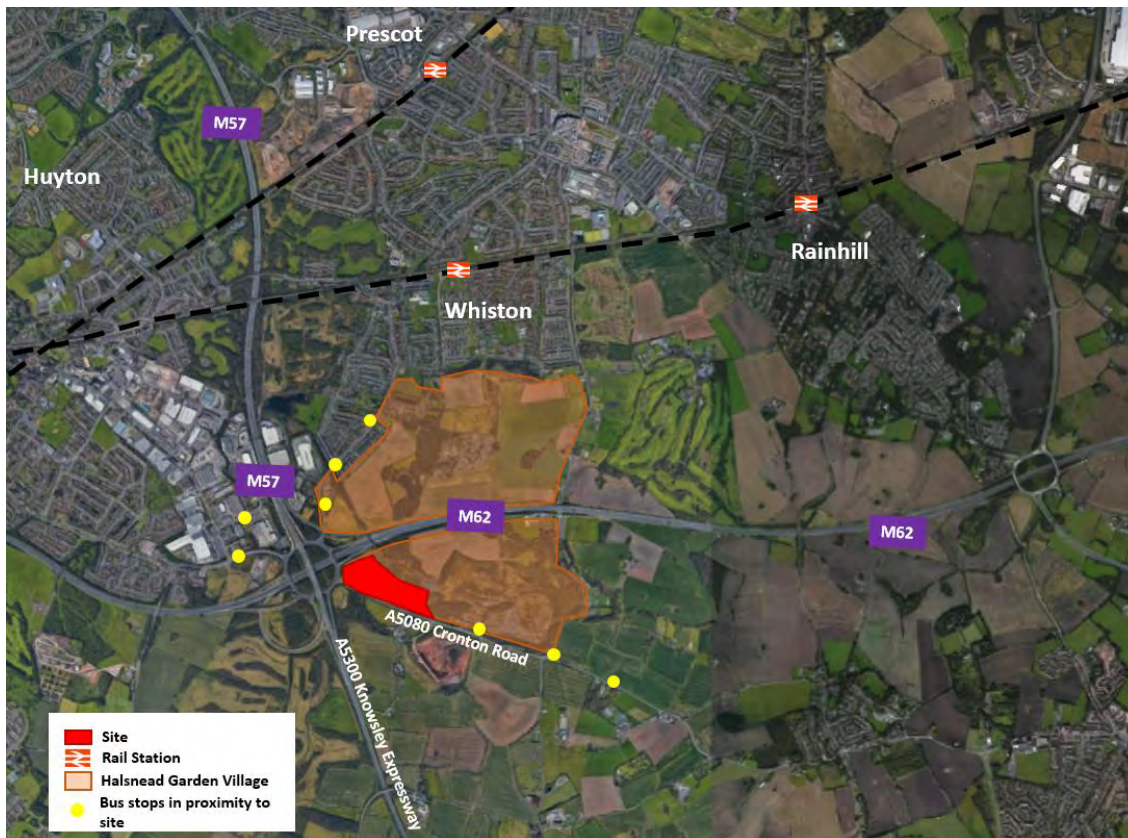
3 Site Location and Accessibility

In this section, following a description of site location, a review of the accessibility of the site is undertaken by road, bus, rail, walking and cycling.

3.1 Location

The site is located in the borough of Knowsley to the south of Whiston. The site is well placed for access to the strategic road network with near direct connections to the M62 and M57. This offers a good level of connectivity to key economic centres such as Warrington and Manchester to the east and Liverpool to the West. The location of the site is illustrated in Figure 3.1 below.

Figure 3.1: Site Location and Accessibility



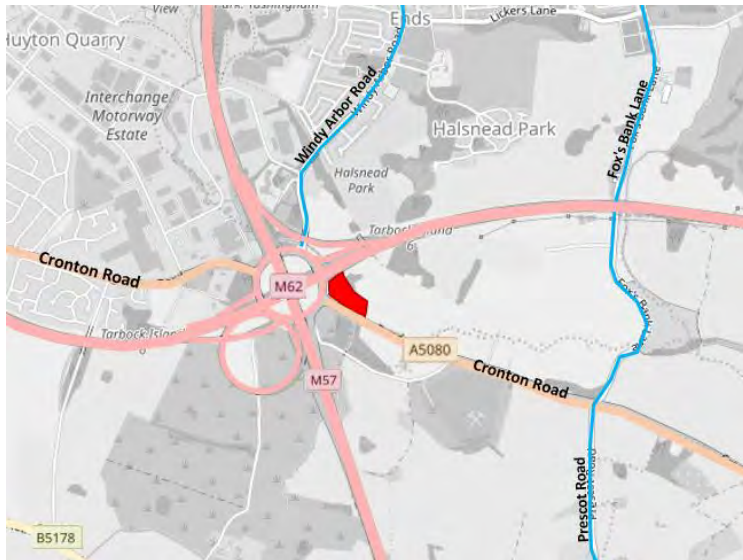
Source: Google Earth / Mott MacDonald

3.2 Highway Network

3.2.1 Strategic Highway Network

The site is located adjacent to Tarbock Island, offering connectivity to the M57 and M62. This provides excellent access to major towns and cities such as Warrington, Liverpool and Manchester which can be reached in around 15, 20 and 40 minutes respectively.

Figure 3.2: Road Network



Source: Mott MacDonald

3.2.1.1 Tarbock Island

The grade separated junction of M62 Junction 6 and M57 Junction 1 is locally known as Tarbock Island.

The M62 runs in an east-west direction in an underpass. The M57 / A5300 Knowsley Expressway traverses the junction in a north-south direction on an overpass. Linking these two routes at an intermediate level is a roundabout, known locally as Tarbock Island. There are direct slip roads linking the M62 westbound with the M57 northbound and the M57 southbound with the M62 eastbound.

It is a strategically important junction linking the M62 Junction to the west towards Liverpool Docks and Liverpool City Centre in the west, John Lennon Airport and Jaguar Land Rover Halewood in the south on the A5300. To the northwest the M57 facilitates access to the eastern suburbs of Liverpool and the M58. To the east it connects towards Warrington, Manchester and the M6.

As well as these strategic connections Tarbock Island also provides more local connections. Cronton Road also forms a western arm to the junction connecting to Huyton. Windy Arbor Road forms an arm at the northeast of the junction. This road provides access towards Whiston. In future Windy Arbor Road will also provide access to new residential development as part of Halshead Garden Village North (see Section 5.1).

The junction is partially signalised with five of the seven entries under signal control, the unsignalised entries being the Windy Arbor Road and the Cronton Road eastern entry.

3.2.2 Local Highway Network

3.2.2.1 A5080 Cronton Road

Cronton Road is a single carriageway road with a 60mph speed limit in the vicinity of the site. It is lit and is equipped with a footway on its northern side. It bounds the proposed development

site to the south and leads to Tarbock Island (M62 junction 6) some 300m to the west of the site and to the east runs towards the village of Cronton some 2km away.

Along the site frontage on Cronton Road there is an informal site access. This will be closed following development. Carriageway width is approximately 7.2m along the site frontage and Cronton Road has good visibility along its relatively straight alignment.

Approximately 100m east of the eastern limit of the site Cronton Road forms a priority junction with Dacre's Bridge Lane. Dacres Bridge Lane forms a cul-de-sac and serves a small number of agricultural properties and a disused quarry. 650m further east Croton Road forms a roundabout junction with Fox's Bank Lane. This junction was formerly a priority junction, until it was improved by KMBC as part of highway works associated with Halshead Garden Village Masterplan.

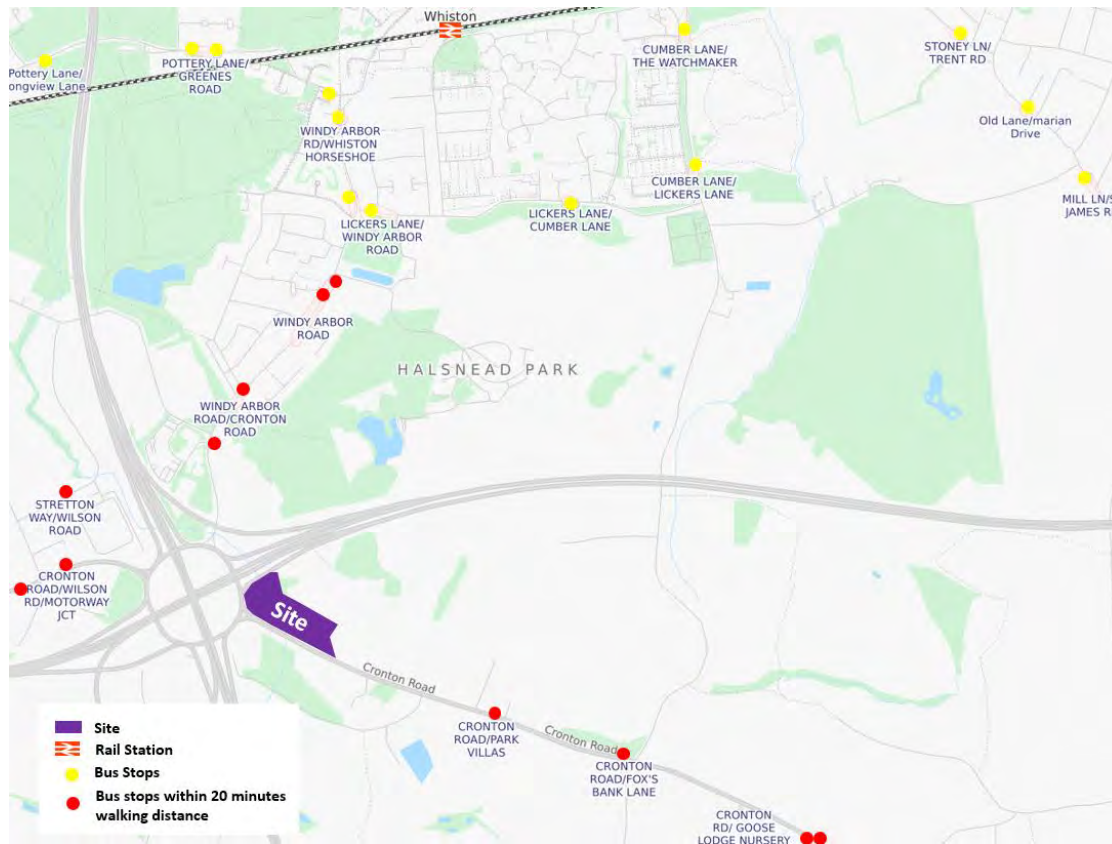
KMBC has informed Mott MacDonald that it is proposed in the near future to change the speed limit on Cronton Road to 40mph in the vicinity of the site. Mott MacDonald understands that the Traffic Regulation Orders for this are currently being processed by KMBC.

3.3 Public Transport Accessibility

3.3.1 Accessibility by Bus

There are a number of bus stops in proximity to the site to serve future employees which offer connectivity to Liverpool City Centre and surrounding areas. The location of these stops is shown in Figure 3.3. The closest bus stops to the development are located on Cronton Road around 7 minutes walking distance from the proposed entrance to the site. Bus stops are located on either side of Cronton Road to allow bus travel in both directions. Additional public transport connectivity is provided along Windy Arbor Road, bus stops on which can be reached in around 10-15 minutes on foot.

Figure 3.3: Bus Stop Locations



Source: Openstreetmap / Mott MacDonald

A summary of services available from these stops and average journey times to key locations is set out in the table below.

Table 3.1: Summary of bus services operating in the vicinity of the site

Service No.	Route	Freq. (Mon-Fri)	Operator	Stop in vicinity of site	Approx. walk time to stop
3	Fazakerley/Huyton – Halewood Shopping Centre	1 bph	Merseytravel	Stretton Way (North-west of site)	17minutes
3A	Fazakerley/Huyton – Liverpool John Lennon Airport	1 bph	Merseytravel	Stretton Way (North-west of site)	17 minutes
6	Huyton to Liverpool (Via Old Swan)	1 service only in AM	Halton Transport	Cronton Road (Adjacent to site)	7 minutes
7	Warrington to Liverpool	2 bph	Arriva	Cronton Road (Adjacent to site)	7 minutes
61	Widnes- Liverpool	2 bph	Halton Transport	Cronton Road (North)/ Windy Arbor Road	12 minutes
248	Huyton Bus Station – Prescot Bus Station	3 services in AM only	Merseytravel	Stretton Way (North-west of site)	17 minutes
897	Huyton Industrial Estate - Kirkby Admin	2 services in AM only	Merseytravel	Stretton Way (North-west of site)	17 minutes

Service No.	Route	Freq. (Mon-Fri)	Operator	Stop in vicinity of site	Approx. walk time to stop
870	Old Swan – Huyton	1 service in AM only	Merseytravel	Stretton Way (North-west of site)	17 minutes

Source: Mott MacDonald

Given the walking distance to the stops on Stretton Way it is likely that this could be prohibitive to many. However the number 7 service stops on Cronton Road providing a connection between Liverpool City Centre and Warrington via Huyton, with buses operating hourly in each direction throughout the day from around 06:00 to around 23:00. Services also run on Saturdays and Sundays.

Although these services are currently infrequent, the development of the Halsnead Masterplan should see enhancements to bus routing and frequency as the population of the area will increase in future. This should make bus a more viable mode of transport for future employees of the site.

3.3.2 Rail

The site is located around a 30-minute walk (1.5 miles) away from the nearest rail station at Whiston. Prescot, and Huyton train stations are also located within approximately 4km of the site. However, these stations are considered to be too remote for passengers to walk to the site, though cycling to the station may be practical.

Whiston rail station lies on the electrified northern route of the Liverpool to Manchester line and benefits from frequent services to both Manchester and Liverpool city centres. A summary of available services from Whiston rail station is provided in the table below.

Table 3.2: Summary of rail services operating in the vicinity of the site

Destination	Frequency	Journey Time	Route	Operator
Manchester Victoria	1 tph	37 mins	Via St Helens Junction	Northern
Liverpool Lime Street	2 tph	20 mins	Via Huyton	Northern
Crewe	1 tph	1 hour 58 mins	Via Manchester Piccadilly	Northern

Source: National Rail / Northern Railway

A bus interchange facility is also provided at the station served by the 99 Hatton's transport service. This service offers an hourly circulatory route between Whiston and Prescot with stops along Windy Arbor Road in close proximity to the site.

3.4 Active Travel: Walking and Cycling

Due to the location of the site being in a currently undeveloped area, walking and cycling destinations are somewhat remote despite the reasonable standard of existing footways and cycleways in the vicinity of the site. The subsequent sections outline the current pedestrian connectivity to the site. However, pedestrian connectivity to and from the site will be enhanced through the delivery of the Halsnead Garden Village Masterplan which includes the following proposals:

- Ensure high quality, convenient, safe and attractive pedestrian, cyclist and equestrian routes where appropriate, into and throughout the site;
- Development will be designed to ensure ease of pedestrian and cyclist movement through all parts of the site, including links to the proposed employment development.

- Provide a high quality pedestrian, cyclist and equestrian route across the M62 using a footbridge along the former mineral railway line connecting Stadt Moers Country Park to the north with land south of the M62.

Current provision for walking and cycling around the site comprises a footway along Cronton Road on the northern side of the carriageway and a shared use pedestrian/cycleway which runs to the north-east of the site and across the M62.

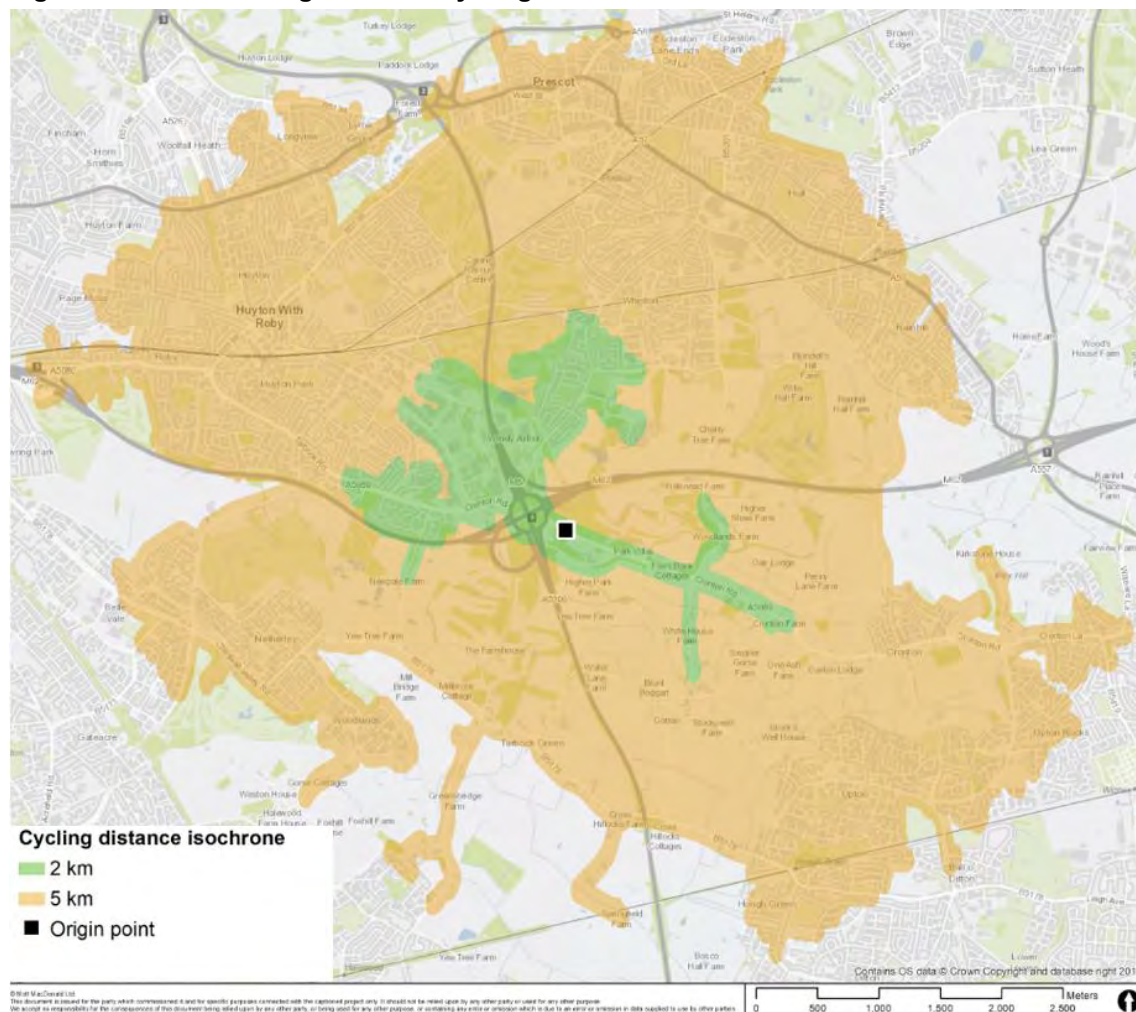
In recent years pedestrian crossing facilities have been installed on uncontrolled and signal-controlled arms of the junction. This has enhanced the connectivity of the site through the junction towards Huyton and Whiston.

The Huyton and Knowsley Mineral Greenway is located to the north of the site which currently runs from Whiston to Stadt Moers Park and forms part of the National Cycle Route 56 running from Chester to Wallasey. The site therefore benefits from close proximity to the national cycle network which can be better connected to the site once wider development proposals come forward.

3.4.1 Walking and Cycling Distances

Travel planning experience and evidence provided in reports by Chartered Institute of Highways and Transportation indicates that a threshold of 2km is a reasonable distance that pedestrians can be expected to walk to access employment, schools or health facilities. For access to similar facilities by bicycle published guidance states that a 5km threshold is a reasonable maximum cycle distance for commuting.

Figure 3.4: 2km Walking and 5km Cycling Isochrone Plan



Source: Mott MacDonald

The plan shows that some residential areas of Tarbock are within the 2km isochrone and also some parts of Whiston Cross. However, on account of the 'out of town' location of the site the coverage in terms of proximity to areas of residential dwellings is limited. For the 5km cycling isochrone however the coverage of residential areas is far greater with Huyton, Prescott, Whiston and Hough Green included. We consider that this mode has greater potential for commuting for future employees at the site – especially once the wider Halsnead Masterplan footway and cycleway infrastructure is provided.

It should also be noted that once the residential elements of the Halsnead Masterplan are built, along with the walking and cycling routes that will accompany the wider masterplan much of the proposed area will be located within the 2km walking catchment, with the entirety of it within the 5km cycle catchment.

3.5 Summary of Accessibility

On account of the relatively undeveloped nature of the surrounding area the urban catchment of the site within a 2km walking distance is relatively limited. The cycle catchment of the site within a 5km cycle is reasonable and includes Huyton, Prescott, Whiston and Hough Green.

Bus services are available on Cronton Road and are also available on nearby Stretton Way although the frequency of these services mean that they will be inconvenient for some future staff. Whiston Rail station is located within cycle distance which could prove attractive for some employees.

With the future development of the wider Halsnead Masterplan site pedestrian connectivity to and from the site will be enhanced through the delivery of the Halsnead Garden Village Masterplan which includes the following proposals:

- Ensure high quality, convenient, safe and attractive pedestrian, cyclist and equestrian routes where appropriate, into and throughout the site;
- Development will be designed to ensure ease of pedestrian and cyclist movement through all parts of the site, including links to the proposed employment development.
- Provide a high quality pedestrian, cyclist and equestrian route across the M62 using a footbridge along the former mineral railway line connecting Stadt Moers Country Park to the north with land south of the M62.

The increase in population on account of the residential elements of Halsnead will also mean that in future many more residents will live within a reasonable walking distance of the site. In addition, the greater number of people living in the local area should have a positive impact in terms of bus frequency in the area.

4 Baseline traffic conditions

This section details the observed and surveyed local traffic conditions in the vicinity of the site in terms of traffic volume and injury collision data. Through scoping discussion with KMBC and National Highways the key network locations are Cronton Road and Tarbock Island.

4.1 Traffic Survey

KMBC has stated that 2019 traffic survey data as included in the planning application for the nearby Symmetry Park committed development (20/00494/HYB) which was granted planning consent in 2022 is suitable for use in this planning application. The traffic surveys at Tarbock Island (junction turning count) and Cronton Road east (automatic count) took place in February that year pre-Covid pandemic and therefore are a reflection of 'normal' conditions.

The surveys show that:

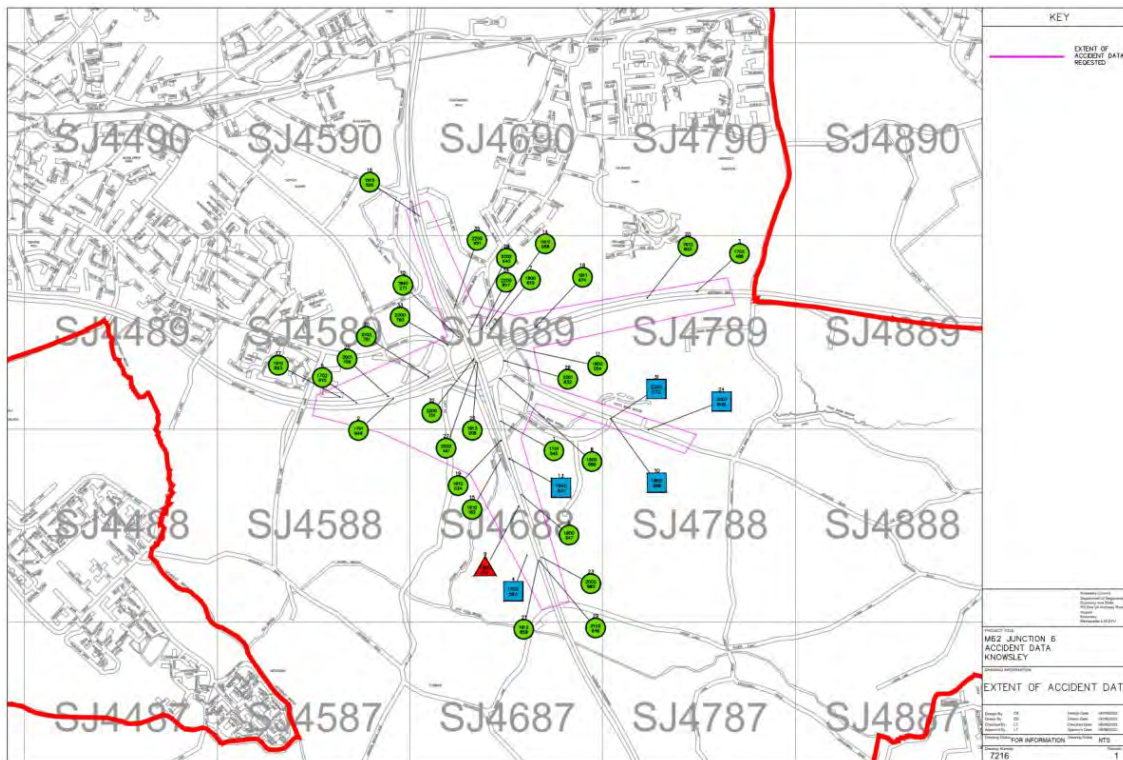
- On an average weekday Cronton Road is trafficked by around 8,850 vehicles per day.
- Morning peak flows occur on Cronton Road between 07:00 and 09:00 with flows of around 650 vehicles per hour.
- Evening peak flows on Cronton Road take place between 16:00 – 18:00 with flows of around 750 vehicles per hour.
- Tarbock Island accommodates around 6,000 vehicles per hour in the morning and evening peak hours.

Junction turning diagrams are included in Appendix A showing turning flows in the peak hours on Cronton Road and Tarbock Island.

4.2 Injury Collision Data

The recorded injury collision data has been obtained from KMBC for the five-year period from June 2017 to June 2022. The area is illustrated in Figure 4.1 below and covers Tarbock Island and Cronton Road along the proposed development site frontage.

Figure 4.1: Injury Collision Location



Source: KMBC

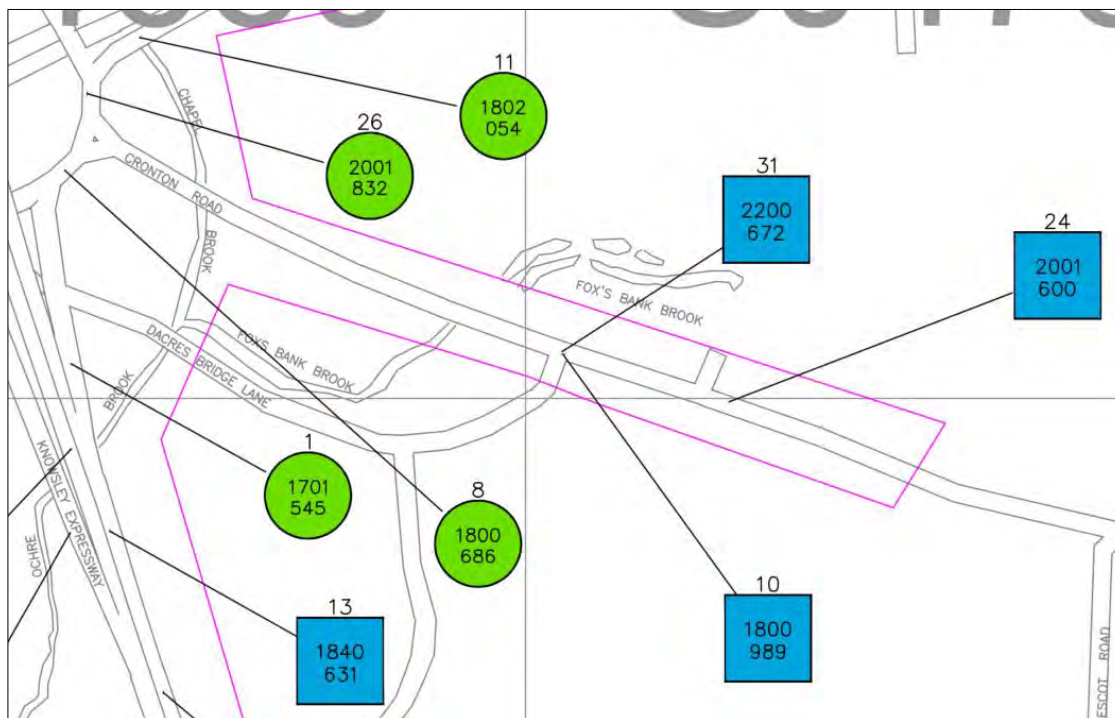
There have been a total of 35 injury collisions over the five-year period. A summary of the accident data is shown in Table 4.1 below. Of all the collisions only 3 occurred on Cronton Road with the remaining 32 at Tarbock Island, its slips roads or the motorway mainlines.

Table 4.1: Collision Summary

Year	Severity			
	Slight	Serious	Fatal	Total
2017	4	1	0	5
2018	5	2	1	8
2019	9	0	0	9
2020	5	1	0	6
2021	2	0	0	2
2022	4	1	0	5
Total	29	5	1	35

4.2.1 Accidents on Cronton Road

Across the five-year period, a total of 3 collisions have occurred in proximity to the site on Cronton Road (Figure 4.2). Two of the collisions on Cronton Road occurred at the junction of Cronton Road and Dacres Bridge Lane, both of which were serious. The other collision on Cronton Road did not occur at a junction and was serious in severity.

Figure 4.2: Cronton Road Collisions


Source: KMBC

4.2.2 Summary

The review of the collisions demonstrated that in general the main causes were not attributable to the road layout but mostly down to driver error. The types of collisions that have occurred are typical of a busy motorway junction. The frequency and nature of the collisions does not indicate a specific safety issue that would need to be addressed as part of the proposal. Full collision data is included as Appendix B.

4.3 Accessibility Assessment

In line with the KMBC Supplementary Planning Document 'Ensuring a Choice of Travel' a Minimum Accessibility Standard Assessment has been undertaken. Table 5 below summarises the scores. The proposed development exceeds the minimum score requirements. It should be noted that the assessment has been undertaken taking account of the committed development KMBC has requested as part of this TA. Accordingly, the assessment has been undertaken on the basis that the Halsnead Masterplan SUE is in place.

Table 2: Minimum Accessibility Assessment

Mode	Minimum Score Required	Actual Score
Access on Foot	2	4
Access by Bicycle	3	3
Access by Public Transport	5	6
Access by Car	1	1
Total Score	11	14

Source: Mott MacDonald

5 Committed and Planned Development

In this section an overview of committed and planned development relevant to this planning application is provided. These developments have been identified in scoping by KMBC.

5.1 Halsnead Garden Village

The Halsnead Garden Village Masterplan SPD was adopted in June 2017. This Masterplan will guide the development of approximately 1,600 new homes, a minimum of 22.5 ha employment, 33ha green space and community facilities including a new Primary School. The proposed Access and Movement Strategy for the site is set out in Figure 5.1 below.

Figure 5.1: Halsnead Garden Village SPD Access and Movement Strategy



Source: KMBC

The Halsnead SPD describes a variety of transport improvements which will be required to mitigate impact and provide access to the development sites. The majority of these are related to the residential element of the Halsnead Masterplan north of the M62. The main items of relevance to this application are capacity improvements to Tarbock Island and an equestrian / cycle / walking route on the alignment of the former mineral railway line connecting the northern residential element of Halsnead to the southern employment site.

KMBC are committed to delivering improvements to Tarbock Island and have recently completed a highway improvement at the Cronton Road / Fox's bank Lane junction to the west of the development site.

The improvements to Tarbock Island have been subject to extensive microsimulation modelling by WSP on behalf of KMBC and the package of improvements have been agreed between KMBC and National Highways to mitigate the impact of Halsnead Garden Village (including Mercury 62). Mott MacDonald understands that delivery of the improvements will commence in 2022.

5.2 Planned and committed developments

Halsnead Garden Village is allocated in the Knowsley Local Plan but does not form a committed development in itself as some of the individual developments which constitute the masterplan have not been subject to planning applications.

KMBC has provided details of the masterplan elements which currently have planning permission and other nearby development sites which must be taken account of for the purpose of traffic assessments. It is proposed that traffic from all these developments are included within baseline traffic flows for the 2024 opening year assessment. For the 2032 future year assessment the same developments are included but with an allowance for additional traffic to be generated by planned future development at Halsnead which does not currently benefit from planning permission.

In this section, details on how committed development flows have been calculated is provided:

5.2.1 Halsnead North Garden Village Committed Developments

5.2.1.1 Bloor Homes 18/00283/HYB

Planning consent was granted for 360 new dwellings in Halsnead Garden Village north of the M62. The transport assessment included development traffic flow information. No detail however was provided on traffic distribution further south than Windy Arbour Road. Accordingly this methodology will be used to distribute development traffic at Tarbock in this assessment.

5.2.1.2 Barton Willmore 20/00399/OUT

The planning application is for 377 new dwellings in Halsnead Garden Village north of the M62. Planning consent has not yet been granted at time of writing however KMBC has recommended that the application is taken account of on a precautionary basis. The Transport Assessment for the application included traffic data. No detail however was provided on traffic distribution further south than Windy Arbour Road. Accordingly development traffic from this site has been accounted for in this Transport Assessment using the distribution methodology as for 18/00283/HYB.

5.2.1.3 Taylor Wimpey 20/00417/FUL

The planning application is for 350 new dwellings in Halsnead Garden Village north of the M62. The Transport Assessment for the application included traffic data. No detail however was provided on development traffic distribution further south than Windy Arbour Road. Accordingly development traffic from this site has been accounted for in this Transport Assessment using the distribution methodology as for 18/00283/HYB.

5.2.1.4 Windy Arbor Brow 20/00329/FUL

The planning application is for 33 dwellings. No Transport Assessment or Transport Statement was submitted with the planning application. Accordingly to take account of this development the same trip rates and distribution methodology has been used as 20/00399/OUT.

5.2.1.5 Remaining Halsnead North developments for 2032 assessment

Halsnead Garden Village masterplan sets out that residential development north of the M62 will number 1,600 dwellings by the time development is completed. It can therefore be anticipated that when complete a further 480 dwellings will be constructed beyond those detailed above by 2032. For the 2032 assessments traffic from these further 480 dwellings has been taken account by using the same trip generation methodology as 20/00399/OUT.

5.2.2 Halsnead Garden Village South Committed Developments

5.2.2.1 Symmetry Park 20/00494/HYB

Planning consent was granted for Symmetry Park in 2020 a total of 92,902m² of B8 development to be accessed from Cronton Road to the east of the proposed Mercury 62 site. Committed traffic for this development is taken from the Transport Assessment which accompanied the planning application prepared by Vectos and the subsequent Technical Note "Technical Note 05: B8 Trip Rates".

5.2.2.2 Remaining Halsnead South developments for 2032 assessment

It is not anticipated that further employment development will come forward at Halsnead Garden Village South of the M62 beyond Symmetry Park and Mercury 62. This is same approach taken as in the Symmetry Park Transport Assessment .

5.2.3 Other Committed Developments

5.2.3.1 Former Prysmian Cables 15/00022/OUT

Planning permission has been granted for 750 dwellings and 930m² employment use. The development site is located some 3.5km away from the Mercury 62 site, near to M57 Junction 2. Mott MacDonald has reviewed the Transport Assessment submitted with the application with the conclusion that it is not forecast to be any material change in traffic on the network in the vicinity Mercury 62 on account of development. Accordingly we consider that that the background growth applied using Temprow is a sufficiently robust way to account for traffic generated by this development in the study area.

5.2.3.2 Land Between Cronton Road and M62 Motorway (Junction 6), Coppice Lane, Huyton 17/00301/HYHB

The development consists of a petrol filling station 1,800m² foodstore and a small amount of employment use. The development is located on Cronton Road to the west of Tarbock Island. Traffic flows have been taken from the Transport Assessment and will be included in future baseline traffic forecasts.

5.2.3.3 Land at Whiston Lane, Huyton 16/00819FUL

The development consists of 62 dwellings, the site is located some 3km away on Whiston Lane in Huyton. A review of the Transport Statement which accompanied the application has been undertaken with the conclusion that it is not forecast to be any material change in traffic on the network in the vicinity Mercury 62 on account of development. Accordingly we consider that that the background growth applied using Temprow is a sufficiently robust way to account for traffic generated by this development in the study area.

5.2.3.4 Land at Knowsley Lane Huyton 18/00062/HYB

The development consists of 7,500m² of employment space with 150 dwellings on Knowsley Lane some 4km away from the Mercury 62 site in the vicinity of M57 Junction 2. A review of the Transport Assessment which accompanied the application has been undertaken with the conclusion that it is not forecast to be any material change in traffic on the network in the vicinity Mercury 62 on account of development. Accordingly we consider that that the background growth applied using Temprow is a sufficiently robust way to account for traffic generated by this development in the study area.

turning lane into the site from Cronton Road. A left and a right turn lane are provided on the exit from the site. Pedestrian and cycle crossing facilities are provided across the site access.

A combined cycleway footway of 3m width is provided on the northern side of Cronton Road along the site frontage and will connect to existing facilities at Tarbock Island. In addition to the bus stop on the southern side of Cronton Road a stop will also be provided on the northern side.

The signalised form of the site access junctions and basic site access strategy have been agreed in scoping with KMBC.

6.3 Site Access and the Halsnead SPD Access Strategy

The Halsnead SPD sets out a broad access and movement strategy for the masterplan area. It stipulates that the employment land to the south of the M62 must be accessed through no more than three new junctions on Cronton Road. The Access and Movement drawing on page 70 of the SPD document (shown as figure 9 in the previous section) illustrates the broad location of the junctions. The westernmost junction closest to Tarbock Island on Cronton Road is classified as a 'other' access junction. It does not connect to any other internal road system. Further east the Strategy drawing shows two primary access junctions: '4 Cronton Road West' and 5 Cronton Road East', providing access to the employment area connected by an internal road network. The SPD document itself does not prescribe what form of junction these site accesses should take.

Between the residential site to the north of the M62 and the employment land to the south of the M62 the SPD stipulates that the two parcels must be connected via a pedestrian, cycle and equestrian route across the former mineral railway line. The SPD states on page 116 that *"It will be critical to consider the points of interface between employment development access roads and pedestrian / cyclist / equestrian routes through the Country Park area. Safety and attractiveness to pedestrians, cyclists and horse riders will be paramount. This may necessitate provision of grade-separated crossings. Developers are encouraged to engage in early discussion with Knowsley Council on detailed design"*.

The proposed site access strategy broadly conforms to the Halsnead SPD access strategy. The western site access junction proposed is equivalent to the 'other' access junction described in the SPD and provides access to the proposed development site only. The movement diagram included in the SPD on page 70 of the document clearly shows that this site access is not intended to link to a wider road or movement network.

The eastern site access to the development site is equivalent to primary access 'junction 4 Cronton Road West' in the SPD. The SPD shows that this site access would connect to a wider internal road network within the masterplan area. The design of the eastern access junction incorporates a shared use pedestrian / cycle facility on its eastern side up to the site boundary and away from junctions carriageway width is 7.3m wide in accordance with the SPD. The eastern site access road is capable of being extended to connect with a wider Halsnead road network. The plan in Appendix D illustrates the potential wider alignment of the road to connect to the nearby 'Symmetry' development. It should be noted that it is not the responsibility of the developer to provide the wider road network. This has been agreed in scoping with KMBC.

For these reasons it is envisaged that when first constructed the eastern access road to the site will provide access to the proposed development only and will terminate shortly after the access to the service yard.

Following development, as the wider SPD employment zone south of the M62 is brought forward and the wider internal road network is expanded, the eastern access road could be extended by others to connect to a wider Halsnead Garden Village South road network.

6.4 Parking

Knowsley Council's parking standards are set out in the 'Ensuring a Choice of Travel' Supplementary Planning Document. It sets the following standards for B8 use:

- Maximum of 1 car parking space per 100m² of development
- Minimum of 6 bays plus 2% of total capacity disabled parking
- Minimum of 1 cycle parking space per 850m²
- Minimum of 1 motorcycle space per 1,000m²

6.4.1 Car Parking

Based on the development uses, a maximum of 291 car parking spaces would be permissible. A total of 295 spaces are proposed. Accordingly the provision is largely in keeping with these standards. 10% of spaces will be EV compatible. 12 spaces will be disabled accessible which is in accordance with KMBC standards.

National Highways and KMBC has requested that justification of car parking provision is given. A comparison is provided here with the Symmetry Park development (20/00494/HYB) which was granted planning consent this year. The outline elements of the scheme did not contain details on parking, however the detailed element- a B8 warehouse of 15,273m² did contain such details:

- Symmetry Park 15,273m² GFA, 154 car parking spaces: 1 space per 100m²
- Mercury 62 29,638m² GFA, 295 parking spaces: 1 space per 100m²

The parking ratio proposed for Mercury 62 is the same as that for the consented Symmetry Park development. Both developments are expected to generate similar levels of traffic per 100m² of development. The trip rates used for the Transport Assessment for the Symmetry Park development site were agreed with KMBC and National Highways. The trip rates proposed for Mercury 62 are similar. Mott MacDonald therefore considers the level of parking provision to be acceptable.

6.4.2 Cycle parking

A total of 36 cycle parking spaces are proposed. This is in keeping with KMBC standards. These are positioned near the front entrance to the site.

6.4.3 Motorcycle Parking

A total of 16 motorcycle parking spaces are proposed. This is in keeping with KMBC maximum standards. These are positioned near the front entrance to the site.

6.5 Stage 1 Road Safety Audit

A Stage 1 Road Safety Audit has been undertaken of the proposed site access arrangements. The full audit is included as Appendix E along with a designer's response. There are no issues raised that cannot be addressed in the detailed design stages.

7 Trip Generation and Distribution

7.1 Introduction

In this section an overview of the trip generation and distribution methodology is provided.

7.2 Trip Generation

7.2.1 Trip Rate Review

KMBC in scoping requested that the trip rates used in this assessment should be consistent with those used in the nearby development at Symmetry Park (20/00494/HYB). Trip rates for that application were agreed with National Highways as well as Knowsley Council. In scoping National Highways undertook a review of the past trip rates and recommended that new trip rates- produced by their consultants WSP are used. The new trip rates are marginally higher than those accepted for the Symmetry Park application. The trip rates recommended for use by national Highways and their consultants will be used as the basis of this assessment. TRICS assessment was undertaken using TRICS version 7.9.1.

The proposed trip rates are illustrated in Table 7.1 below:

Table 7.1: B8 Trip Rate per 100m2

Development Trip Rates				Trip Generation		
Time	Arrival	Departure	Total	Arrival	Departure	Total
0800 - 0900	0.134	0.069	0.203	39	20	59
1700 - 1800	0.039	0.096	0.135	11	28	39
Daily	2.133	1.974	4.107	620	574	1,194

On this basis the daily trip generation profile is illustrated in Table 7.2 below.

Table 7.2: B8 Warehouse Traffic Generation

Cars and vans				HGV Only		
Time	Arrival	Departure	Total	Arrival	Departure	Total
0500 – 0600	42	16	58	19	26	45
0600 – 0700	103	32	135	21	34	56
0700 – 0800	31	26	58	8	8	17
0800 – 0900	27	9	36	12	11	23
0900 – 1000	29	15	44	14	10	24
1000 -1100	14	15	28	16	12	28
1100 – 1200	17	18	35	11	10	21
1200 – 1300	14	15	29	12	8	19
1300 – 1400	26	22	48	13	15	28
1400 – 1500	24	28	51	8	13	22
1500 – 1600	11	32	43	8	8	16
1600 – 1700	8	28	37	10	8	17
1700 – 1800	5	20	25	6	8	14

	Cars and vans			HGV Only		
1800 – 1900	17	15	33	7	5	12
1900 - 2000	16	11	27	37	42	79
2000 – 2100	3	5	8	32	48	79
Total	386	308	694	234	266	500

Source: TRICS

Table 7.2 demonstrates that the development is expected to generate around 1,194 traffic movements between 05:00 and 21:00. Of these 500 or 42% will be HGV. The highest trip generation takes place between 06:00 and 07:00 when the site will generate in the region of 190 traffic movements, 56 of these being HGV movements.

7.3 Trip Distribution

The distribution of development trips in terms of staff movements has been undertaken using Census journey to work data. In terms of HGV movements, to ensure a robust assessment all HGV trips are assumed to have an origin or destination at Tarbock Island. HGV traffic distribution at Tarbock Island has been undertaken using surveyed traffic flows.

7.4 Traffic Growth to Assessment Years

As agreed in scoping with KMBC and National Highways the assessment years are 2024 opening year and 2032 future year (10 years after planning registration). To account for the traffic growth which will take place between the 2019 traffic survey year and the assessment years Temprow factors have been used adjusted using the NTM Model.

We consider this a robust methodology- no adjustment has been made to the Temprow factors to account for the committed developments KMBC has requested we include in the assessments as set out in Section 5.

7.5 Committed Development Traffic

Committed development is discussed in detail in Section 5. Developments requested by KMBC for inclusion in the traffic assessments which currently have planning consent are included in the 2024 assessment years. Future development at Halshead Garden Village which does not have planning consent, but forms an allocation in the Local Plan is included in the 2032 assessments.

7.6 Sensitivity Test

KMBC and National Highways has requested that a sensitivity analysis is undertaken whereby the internal road that would connect the Symmetry Park and Mercury 62 sites has been completed. This internal road would for an extension to the eastern access road. Once complete some Symmetry Park development traffic may choose to use the proposed eastern site access of Mercury 62 – which will initially be an HGV access only to serve the development site. For the purpose of the sensitivity analysis we assume that 50% of Symmetry development traffic would use the eastern access junction in the peak hour. Trip generation of Symmetry Park is taken from the Transport Assessment and subsequent technical notes which accompanied the planning application.

8 Development Impact

8.1 Traffic Impact

In comparison to the 2019 traffic surveys at Tarbock Island, the expected volume of development traffic expected to route through the junction represents an increase of less than 1%. Furthermore in the design of the site access junctions on Cronton Road have been tested using LinSig software through the design process with the conclusion they will operate satisfactorily. It should also be noted that in the development of the forthcoming improvement works at Tarbock Island by KMBC, comprehensive traffic modelling was undertaken to determine in detail the impact of Halsnead Garden Village on the junction.

Notwithstanding this, to support the application KMBC and National Highways have requested that assessment of development impact is undertaken using the microsimulation program VISSIM. VISSIM has been selected as it will be able to provide a visual representation of the interaction of the site access junctions with Tarbock Island.

On account of the timescale for this planning application it has not been possible to complete the VISSIM modelling in time for planning submission. The project team has made Knowsley Council aware of this. Accordingly the results of the VISSIM modelling will be reported as an Addendum to this report following planning submission.

8.2 Sustainable Access

The accessibility assessment provided as part of Section 3 demonstrates that the development is accessible by walking, cycling and public transport. The development will also provide a shared use footway / cycleway along its frontage, new signalised crossings on Cronton Road as well as new bust stops on Cronton Road. Furthermore new sustainable transport infrastructure committed as part of Halsnead Garden Village once in place with further enhance the sustainable connectivity of the site. In light of this we consider that the development will have a beneficial impact on sustainable transport on the local transport network.

9 Conclusions

Mott MacDonald have been commissioned to prepare a Transport Assessment in support of a commercial development at Cronton Road, Knowsley. The development is located south of the M62 in Knowsley and forms part of an area suitable for a Sustainable Urban Extension as identified in Knowsley Local Plan Policy- Halsnead garden Village. The development will consist of approximately 29,081m² B8 use.

This Transport Assessment is accompanied by a Travel Plan which provides detail on the sustainable measures which will be employed at the site to encourage sustainable travel.

The scope of the Transport Assessment has been discussed and agreed prior to planning submission with Knowsley Council and National Highways.

The site is accessible on foot and by bicycle. Tarbock Island is fully equipped with pedestrian crossing facilities. At present bus frequency on Cronton Road is infrequent although other services may be caught over Tarbock Island. In future as the Halsnead Masterplan area is developed public transport frequency will improve and connectivity to the residential areas of the Halsnead masterplan will be created.

The proposed development will be accessed by two new signalised junctions on Cronton Road. As part of the development a new shared use cycleway / footway will be provided long the site frontage connecting to Tarbock Island facilities. New bus stops and pedestrian crossing facilities will be provided on Cronton Road.

An improvement scheme for Tarbock Island has been developed by Knowsley Council to increase the capacity of the junction to mitigate impacts on account of Halsnead Garden Village. It is expected that these works will commence in 2022.

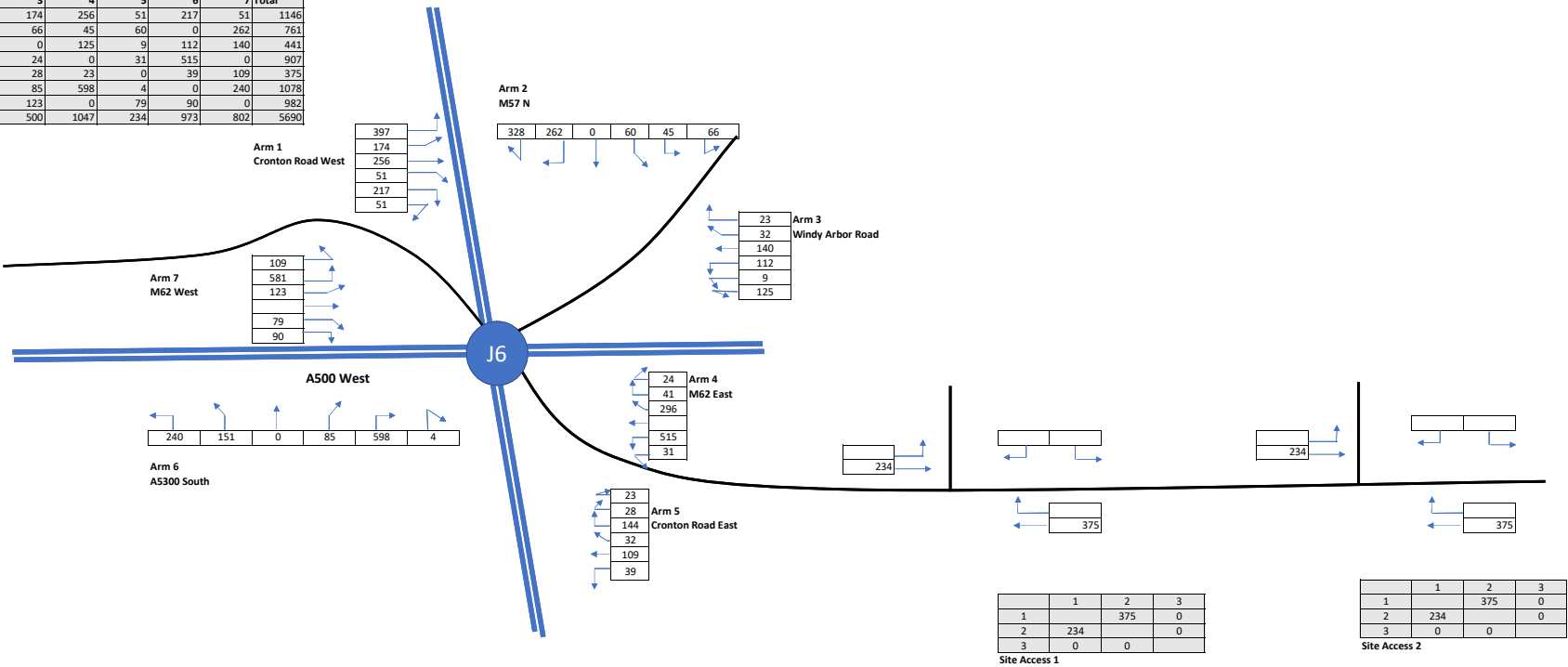
The volume of traffic to be generated by the proposed development has been calculated using trip rates agreed with KMBC and National Highways. The increase in traffic that will route through Tarbock Island as part of the development represents less than 1% of surveyed traffic at the junction at present. As part of the design process the proposed new site access junctions on Cronton Road have been tested in LinSig with the conclusion that they will operate satisfactorily within their design capacity. The junctions and highway works for the development have been subject to Stage 1 Road Safety Audit.

National Highways and KMBC has requested that the operation of the site access junctions and impact at Tarbock Island are assessed using VISSIM microsimulation modelling software. This assessment has not been completed in time for this planning application submission. Once this modelling is completed the results will be reported as an addendum to this Transport Assessment.

A. Traffic Survey Data

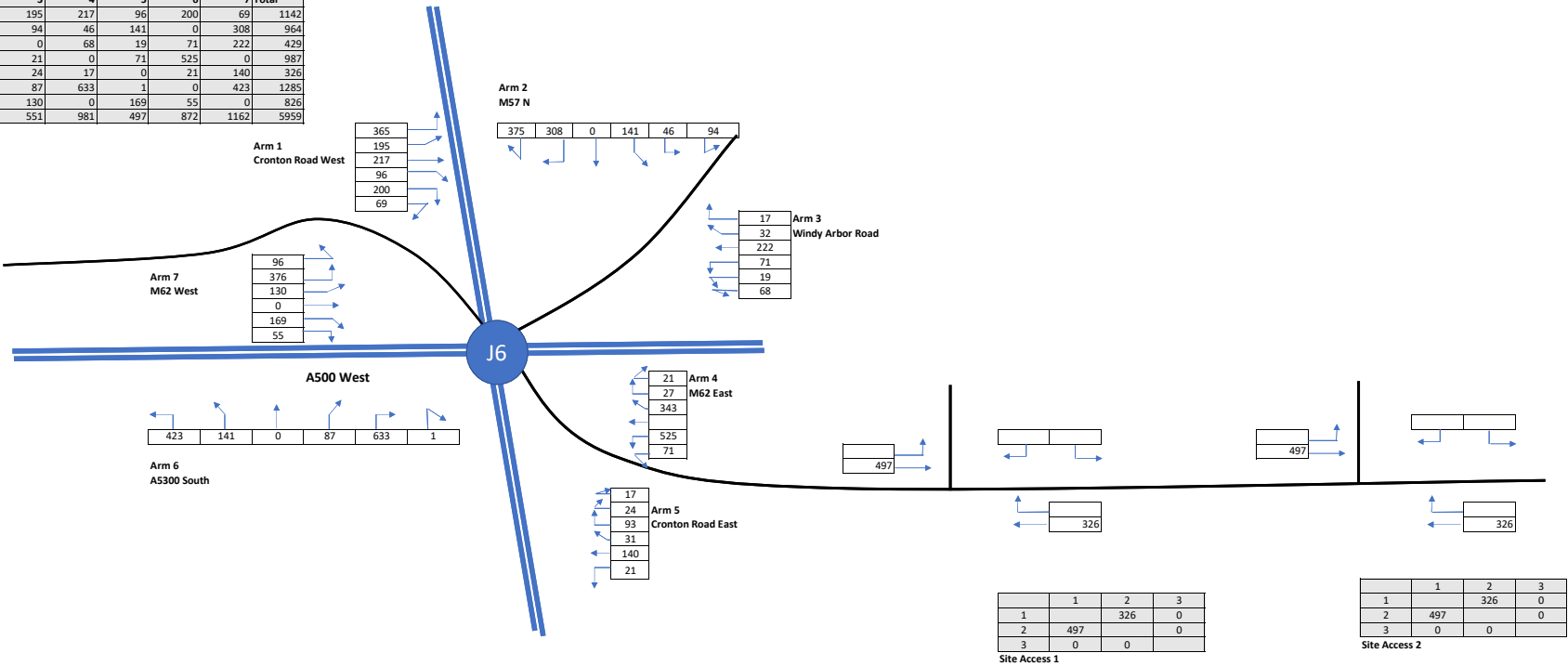
Fig 4.1 2019 AM Peak Survey PCU

	1	2	3	4	5	6	7	Total
1	0	397	174	256	51	217	51	1146
2	328	0	66	45	60	0	262	761
3	32	23	0	125	9	112	140	441
4	296	41	24	0	31	515	0	907
5	32	144	28	23	0	39	109	375
6	151	0	85	598	4	0	240	1078
7	109	581	123	0	79	90	0	982
Total	948	1186	500	1047	234	973	802	5690



2019 PM Peak Survey PCU

	1	2	3	4	5	6	7	Total
1	0	365	195	217	96	200	69	1142
2	375	0	94	46	141	0	308	964
3	32	17	0	68	19	71	222	429
4	343	27	21	0	71	525	0	987
5	31	93	24	17	0	21	140	326
6	141	0	87	633	1	0	423	1285
7	96	376	130	0	169	55	0	826
Total	1018	878	551	981	497	872	1162	5959



B. Collision Data

M62 - Accident Report

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street		
1		E08000011	1701545	Slight	Saturday	24/06/2017	10:45	346472/389040				
Location: M57 JUNCTION TARBOCK ISLAND M57 1st Rd: M57 2nd Rd: A5080												
Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
70MPH	Dual c'way	Slip-R Give	Daylight	Fine	Dry	None	None	Rdworks	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/
1	Car	No	Going ahead	N S	On main	Junt appr	No	P'd veh u/l		None	Untra.	-1 N/
2	Car	No	Waiting	N S	On main	Junt appr	No	None		None	Male	51 N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil		
1	2	Drv/Rider	Male	51	Slight	No	Not ped	Not ped	Not ped	Other		
Description: RENAULT CAPTUR (002) TOOK SLIPROAD FROM TARBOCK ISLAND TO JOIN M57 SOUTHBOUND CARRIAGEWAY. CONES ON CARRIAGEWAY MEANT IT WAS DOWN FROM TWO LANES TO ONE LANE. AS VEHICLE REACHED TOP OF SLIPWAY HAS HAD TO BREAK AND COME TO A STOP TO ALLOW TRAFFIC TO PASS HIM BEFORE HE COULD ENTER CARRIAGEWAY. WHILE STOPPED ANOTHER VEHICLE, A BLACK PEOPLE CARRIER (001) THOUGHT TO BE A FORD GALAXY HAS HIT THE BACK OF THE CAPTUR, CAUSING THE VEHICLE TO SHUNT FORWARD BY A COUPLE OF FEET. PEOPLE CARRIER HAS THEN DRIVEN AROUND THE LEFT SIDE OF CAPTUR AND MADE OFF AT SPEED.												
User Information:												
2		E08000011	1701949	Slight	Wednesday	09/08/2017	05:10	345914/389158				
Location: M62 JUNCTION 6 M62 1st Rd: M62 2nd Rd:												
Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
70MPH	Dual c'way	NotJCT	Dark/lights lit	Rain	Wet	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/
1	Car	No	Going ahead	E W	On main	Not at	No	None		None	Male	54 -\
2	Car	No	Going ahead	E W	On main	Not at	No	None		None	Male	63 -\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil		
1	2	Drv/Rider	Male	63	Slight	No	Not ped	Not ped	Not ped	Other		
Description: VEHICLES TRAVELLING WESTBOUND ON M62. DRIVER OF VEHICLE 001 DRIVES INTO THE REAR OF VEHICLE 002. DRIVER OF VEHICLE 001 BELIEVES HE MAY HAVE FALLEN ASLEEP AT THE WHEEL.												
User Information:												
3		E08000011	1702486	Slight	Tuesday	10/10/2017	07:05	347488/389712				
Location: MARKER POST M62 A 13.5 DLS M62 1st Rd: M62 2nd Rd:												
Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
70MPH	Dual c'way	NotJCT	Daylight	Rain	Wet	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/
1	Car	No	Chg lt lane	W E	On main	Not at	No	None		None	Male	18 -\
2	Car	No	Stop	W E	On main	Not at	No	None		None	Male	24 -\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil		
1	1	Drv/Rider	Male	18	Slight	No	Not ped	Not ped	Not ped	Other		
2	2	Passenger	Female	24	Slight	Front	Not ped	Not ped	Not ped	Other		
Description: VEHICLE 1 TRAVELLING IN LANE 3 OF M62 WESTBOUND. TRAFFIC AHEAD SLOWS. V1 MOVES FROM LANE 3 TO 2 AND COLLIDES WITH REAR OF V2 IN LANE 2												
User Information:												
4		E08000011	1702593	Serious	Friday	20/10/2017	19:50	346608/388347				
Location: A5300 SEGMENT A5300 1st Rd: A5300 2nd Rd:												
Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
70MPH	Dual c'way	NotJCT	Dark/no lights	Fine Wind	Dry	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/
1	M/cycle > 500c	No	Going ahead	S N	On main	Not at	No	None	O/s rebound	Cent barr	Male	21 -\
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Untra.	-1 N/
3	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	48 N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil		
1	1	Passenger	Male	21	Serious	No	Not ped	Not ped	Not ped	Other		
2	1	Drv/Rider	Male	21	Serious	No	Not ped	Not ped	Not ped	Other		
Description: VEH 1 HAS LOST CONTROL AND RIDER HAVE COME OFF THE BIKE. THEY ARE IN LANE 2 OF 2 WHEN STRUCK BY VEH 2, VEH 3 COLLIDES WITH BIKE UNSURE IF HE ALSO COLLIDES WITH RIDERS												
User Information:												

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
5	E08000011	1702910	Slight	Saturday	25/11/2017	00:30	345722/389136						
Location: STREET RECORD M62 JUNCTION 5 FROM JUNCTION 6 OFF SLIP 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Dark/lights lit			Snow	Snow	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Not at	Yes	None		None	Female	32	N/
2	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	24	N/
3	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	22	N/
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 2	Drv/Rider	Male	24	Slight	No	Not ped	Not ped	Not ped	Other				
2 1	Drv/Rider	Female	32	Slight	No	Not ped	Not ped	Not ped	Other				
Description: C261 BEAT **** RTC - SLIGHT INJURY *****													
VEH003 TRAVELLING ALONG M62 BETWEEN JUNCTIONS 5 - 6 EASTBOUND, HAS A LOSS OF CONTROL DUE TO ADVERSE WEATHER CONDITIONS, SNOW IN LANE 3, COLLIDES INTO CENTRAL RESERVATION AND SPINS OFF TO HARD SHOULDER ON NEARSIDE, VEHICLE 002 STOPS TO OFFER HELP TO VEH003, THEN VEH001 DRIVES THROUGH SAME AREA AS VEH003, WHICH CAUSES VEH001 TO SPIN INTO CENTRAL RESERVATION AND COLLIDE INTO VEH'S 002 & 003.													
CON 7951 WELDON, MSOC RPU.													
User Information:													

6	E08000011	1800347	Slight	Thursday	15/02/2018	17:20	346579/388659						
Location: A5300 SEGMENT A5300 1st Rd: A5300 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
60MPH	Dual c'way	NotJCT	Dark/no lights			Fine	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	M/cycle > 500c	No	Going ahead	N S	On main	Not at	No	None		None	Male	23	N/
2	Car	No	Going ahead	N S	On main	Not at	No	None		None	Female	28	N/
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 1	Drv/Rider	Male	23	Slight	No	Not ped	Not ped	Not ped	Other				
Description: VEHICLE NO.1 TRAVELLING SOUTH FROM M57 ONTO A5300 IN SLOW MOVING TRAFFIC. AS VEHICLE NO.2 HAS MOVED FROM LANE ONE INTO LANE TWO, VEHICLE NO.1 HAS COLLIDED INOT REAR OF VEHICLE NO.2 , RESULTING IN RIDER BEING THROWN FROM MOTORCYCLE.													
User Information:													

7	E08000011	1800619	Slight	Saturday	17/03/2018	12:30	346417/389515						
Location: A5080 and WINDY ARBOR ROAD 1st Rd: A5080 2nd Rd: U													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
30MPH	Roundabout	R'dabt Give	Daylight			Snow	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Waiting	NW SW	On main	Junt appr	No	None		None	Male	21	N/
2	Car	No	Going ahead	NW SW	On main	Junt appr	No	None		None	Male	-1	N/
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 1	Drv/Rider	Male	21	Slight	No	Not ped	Not ped	Not ped	Other				
2 1	Passenger	Female	20	Slight	Front	Not ped	Not ped	Not ped	Other				
Description: IP WAS DRIVING ALONG WINDY ARBOR ROAD WHEN COMES TO THE GIVEWAY AT TARBOCK ISLAND ROUNDABOUT, WHILST STOPPED AT WINDY ARBOR ROUNDABOUT GIVEWAY THE OFFENDING VEHICLE HAS GONE INTO THE REAR END OF IPS VEHICLE CAUSING HIM TO SHUNT FORWARD ON TO THE ROUNDABOUT. THE IP THEN PULLED OVER TO THE SIDE OF THE ROAD AND TRIED TO WAVE THE OFFENDING VEHICLE OVER, HOWEVER THE OFFENDING VEHICLE JUST DROVE OFF FAILING TO STOP. AS A RESULT OF THE CRASHG THE IP AND GIRLFRIEND HAVE SUFFERED STIFFNESS TO NECK AND BACK CHEST ATTENDED WALK IN WHO CONFIRMED INJURIES MINOR. DAMAGE TO IPS VEHICLE WAS CRACKED BUMPER AND DAMAGED TO THE CHASSY.													
User Information:													

8	E08000011	1800686	Slight	Tuesday	27/03/2018	16:20	346465/389264						
Location: CRONTON ROAD and KNOWSLEY EXPRESSWAY 1st Rd: A5300 2nd Rd: A5080													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
30MPH	Dual c'way	R'dabt ATS	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Chg rt lane	E W	On main	Junt appr	No	None		None	Untra.	-1	N/
2	Car	No	Rt hand bend	E W	On main	Junt appr	No	None		None	Male	25	N/
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 2	Drv/Rider	Male	25	Slight	No	Not ped	Not ped	Not ped	Other				
Description: IP VEHICLE TRAVELLING IN LANE 3, OFFENDING VEHICLE HAS CUT ACROSS ITS PATH FROM LANE 2 INTO LANE 3, COLLIDING WITH THE NEARSIDE FRONT OF IP VEHICLE.													
User Information:													

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
9	E08000011	1800977	Fatal	Thursday	03/05/2018	13:15	346564/388599						
Location: KNOWSLEY EXPRESSWAY and MOTORWAY M57 1st Rd: A5300 2nd Rd: M57													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	Slip-R Give	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Left turn	S N	On main	Leav main	No	None		None	Male	74	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	74	Fatal	No	Not ped	Not ped	Not ped	Other			
Description: V001 HAS BEEN TRAVELLING ALONG A5300 KNOWSLEY EXPRESSWAY HEADING TO TARBOCK ISLAND. DRIVER HAS HAD SUSPECTED MEDICAL EPISODE AND COLLIDED WITH BARRIER. MALE DIED A SCENE													
User Information:													
10	E08000011	1800989	Serious	Friday	04/05/2018	18:19	347043/389051						
Location: CRONTON ROAD and DACRES BRIDGE LANE 1st Rd: A5080 2nd Rd: U													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
60MPH	Single c'way	T/Stag Give	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Right turn	NW	SE On main	Junt appr	No	None		None	Male	33	N/
2	M/cycle > 500c	No	Going ahead	SE	NW On main	Junt appr	No	None		None	Male	41	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	41	Serious	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE 001 T JUCTION WAITING TO TURN RIGHT. VEH 002 TRAVELLING TOWARDS VEH 001 IN OPPOSITE DIRECTION. VEH 001 PERFORMS MANOEUVRE TURNING DIRECTLY INTO THE PATH OF VEH 002 RESULTING IN COLLISION.													
User Information:													
11	E08000011	1802054	Slight	Saturday	01/09/2018	14:30	346552/389418						
Location: STREET RECORD M62 JUNCTION 5 FROM JUNCTION 6 OFF SLIP 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Slip road	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Taxi	No	Chg rt lane	E W	On main	Not at	No	None		None	Male	46	N/
2	Car	No	Going ahead	E W	On main	Not at	OT	None	O/s & reboun	Barr	Male	31	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	31	Slight	No	Not ped	Not ped	Not ped	Other			
2	2	Passenger	Female	23	Slight	Front	Not ped	Not ped	Not ped	Other			
3	1	Drv/Rider	Male	46	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V1 IS IN LANE ONE OF TWO ON THE SLIP ROAD. A VEHICLE AHEAD OF IT IS STOPPED SO V1 CHANGES LANE AND FAILS TO JUDGE THE PATH / SPEED OF V2 PULLING INTO ITS PATH CAUSING COLLISION AND CAUSING V2 TO OVERTURN.													
User Information:													
12	E08000011	1840271	Slight	Thursday	08/11/2018	20:10	346252/389476						
Location: A5080 and M57 1st Rd: 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	0.00	R'dabt Give	Dark/lights lit			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Reversing	Uk Uk	On main	Mid junction	No	None		None	Untra.	-1	N/
2	Car	No	Going ahead	Uk Uk	On main	Mid junction	No	None		None	Female	48	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Female	48	Slight	No	Not ped	Not ped	Not ped	Other			
2	2	Passenger	Female	20	Slight	Front	Not ped	Not ped	Not ped	Other			
Description: THIS I A TWO VEHICLE SLIGHT INJURY FAIL TO STOP RTC THAT OCCURRED BETWEEN 2010 TO 2015 HRS THURSDAY 8 NOVEMBER 2018 AT THE JUNCTION OF THE M57 AND A5080 ACTUALLY ON THE ROUNDABOUT THE CIRCS ARE THAT V002 A BLUE FORD FOCUS WAS IN TRAFFIC QUEUING TO NEGOTIATE THE ROAD WORKS AT THE JUNCTION AT THIS POINT V001 A SILVER PEUGEOT 307 HAS REVERSED INTO V002 AND THEN DROVE OFF FAILING TO EXCHANGE ANY DETAILS													
User Information:													

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
13	E08000011	1840631	Serious	Wednesday	05/12/2018	06:20	346517/388846						
Location: SEGMENT KNOWSLEY EXPRESSWAY 1st Rd: A5300 2nd Rd: A5080													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	R'dabt ATS	Dark/lights lit			Rain	Wet	None	None	Oil or diesel	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	M/cycle > 500c	No	Stop	N S	On main	Ent r'about	Yes	None		None	Male	34	-\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	34	Serious	No	Not ped	Not ped	Not ped	Other			
Description: MOTORCYCLIST APPROACHING ROUNDABOUT AND SLOWING HITS A PATCH OF OIL ON THE ROAD AND BIKE SLIPS FROM BENEATH HIM.													
User Information:													

14	E08000011	1910058	Slight	Tuesday	08/01/2019	19:10	346398/389534						
Location: A5080 and WINDY ARBOR ROAD 1st Rd: A5080 2nd Rd: U													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
60 MPH	Roundabout	R'dabt Give	Dark/lights lit			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Rt hand bend	N S	On main	Ent r'about	No	None		None	Male	49	-\
2	Car	No	Left turn	S N	On main	Leave r'about	No	None		None	Male	57	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	57	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE 2 WAS COMING OFF TARBOCK ISLAND ONTO WINDY ARBOR ROAD. VEHICLE 1 WAS APPROACHING TARBOCK ISLAND AND HAS TRIED TO JOIN ROUND ABOUT GOING THE WRONG WAY CAUSING BOTH VEHICLES TO COLLIDE WITH FRONT OFFSIDE OF EACH OTHER													
User Information:													

15	E08000011	1910162	Slight	Friday	11/01/2019	16:10	346471/388844						
Location: A5300 SEGMENT A A5300 1st Rd: A5300 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	NotJCT	Dark/lights lit			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	S N	On main	Not at	No	None	O/s cent res	None	Female	37	-\
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	39	-\
3	Car	No	Going ahead	S N	On main	Not at	No	None		None	Untra.	-1	-\
4	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	49	-\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Female	37	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V001 FAILS TO NOTICE STATIONARY VEHICLES AND COLIDES WITH THE REAR CASUING DAMAGE TO A FURTHER 3 VEHICLES													
User Information:													

16	E08000011	1910525	Slight	Friday	22/02/2019	19:15	346053/390101						
Location: STREET RECORD M57 JUNCTION 1 FROM JUNTION 2 OFF SLIP 1st Rd: M57 2nd Rd: M62													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	Slip-R Give	Dark/no lights			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Chg rt lane	N S	On main	Mid junction	OT	Bollard		None	Male	38	+\
2	Car	No	Going ahead	N S	On main	Mid junction	Yes	None		None	Female	54	-\
3	Car	No	Going ahead	N S	On main	Mid junction	Yes	None		None	Untra.	-1	-\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Passenger	Female	6	Slight	Rear	Not ped	Not ped	Not ped	Other			
2	2	Passenger	Female	84	Slight	Front	Not ped	Not ped	Not ped	Other			
Description: V1 TRAVELLING ALONG M57 SOUTH DRIVER IS DRUNK COLLIDES WITH BULL NOSE OF SLIP ROAD EXIT ONTO M62 FLIPS OVER SEVERAL TIMES COLLIDING WITH V2 AND V3 CANNOT AVOID FURTHER COLLISION													
User Information:													

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
17	E08000011	1910663	Slight	Monday	04/03/2019	08:56	345636/389166						
Location: MOTORWAY BEAT MC1 M62 JUNCTION 5 TO JUNCTION 6 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	NotJCT	Dark/lights lit			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Not at	Over	None	Nearside	Tree	Male	21	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	21	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE LOSES CONTROL IN BAD WEATHER													
User Information:													

18	E08000011	1911974	Slight	Thursday	16/05/2019	17:20	346653/389528						
Location: M62 JUNCTION 6 M62 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Bus or Coach	No	Going ahead	W E	On main	Not at	No	None		None	Male	64	-v
2	Car	No	Going ahead	W E	On main	Not at	No	None		None	Female	24	-v
3	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	23	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Female	24	Slight	No	Not ped	Not ped	Not ped	Other			
2	3	Drv/Rider	Male	23	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V1 CHANGES LANES FROM 1 TO 2 APPROACHING SLIP ROAD BUT FAILED TO ACCOUNT FOR SLOWING TRAFFIC AND COLLIDES WITH REAR OF V2 PUSHING THIS INTO V3.													
User Information:													

19	E08000011	1912034	Slight	Wednesday	07/08/2019	17:10	346472/388941						
Location: A5300 SEGMENT A A5300 1st Rd: 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	0.00	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	63	-v
2	Van/Goods < 3.	No	Stop	N S	On main	Not at	No	None		None	Male	58	-v
3	Car	No	Stop	N S	On main	Not at	No	None		None	Female	23	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	63	Slight	No	Not ped	Not ped	Not ped	Other			
2	1	Passenger	Female	70	Slight	Front	Not ped	Not ped	Not ped	Other			
3	2	Drv/Rider	Male	58	Slight	No	Not ped	Not ped	Not ped	Other			
4	3	Drv/Rider	Female	23	Slight	No	Not ped	Not ped	Not ped	Other			
5	3	Passenger	Male	27	Slight	Front	Not ped	Not ped	Not ped	Other			
Description: V001 DRIVEN BY ANDREW GALE (WITH PHYSICAL DISABLILTES) FAILED TO SLOW FOR STATIONARY TRAFFIC WHICH IS AHEAD ON THE CARRAIGWAY DUE TO BROKEN DOWN VEHICLE IN A LIVE LANE. V001 INTO THE N/S OF V002, CAUSING V001 TO SPIN COLLIDING WITH THE REAR OF V003													
User Information:													

20	E08000011	1912802	Slight	Sunday	03/11/2019	15:50	347231/389678						
Location: MOTORWAY BEAT MC1 M62 JUNCTION 6 TO JUNCTION 7 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	NotJCT	Dark/lights lit			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Chg rt lane	W E	On main	Not at	Over	None		None	Female	19	-v
2	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	25	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Female	19	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE TWO HAS BEEN TRAVELLING IN LANE THREE, VEHICLE ONE IN LANE TWO HAS THEN MOVED INTO LANE THREE WITHOUT INDICATION, UPON ARRIVAL THE DRIVER OF VEHICLE ONE HAS STATED SHE HAS FAILED TO LOOK PROPERLY WHICH IS CONSITENT WITH DAMAGE CAUSED TO VEHICLE TWO AND ACCOUNT OF DRIVER FROM VEHICLE TWO.													
User Information:													

M62 - Accident Report

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street			
21		E08000011	1912858	Slight	Wednesday	06/11/2019	08:10	346665/388312					
Location: A5300 SEGMENT A A5300 1st Rd: A5300 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/	
1	Van/Goods < 3.	No	Going ahead	S N	On main	Not at	No	None		None	Male	29 -\	
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Female	27 -\	
3	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	40 -\	
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 2	Drv/Rider	Female	27	Slight	No	Not ped	Not ped	Not ped	Other				
Description: VEHICLE 001 FAILS TO SEE THAT VEHICLES AHEAD ARE COMING TO STOP AND COLLIDES WITH WITH VEHICLE 002 THAT COLLIDES WITH VEHICLE 003 CAUSING DAMAGE AND INJURY TO DRIVER OF VEHICLE 002													
User Information:													
22		E08000011	1913208	Slight	Thursday	12/12/2019	12:43	346351/389345					
Location: KNOWSLEY EXPRESSWAY SEGMENT M62 JUNCTION 6 TO BOROUGH BOUNDARY 1st Rd: A5300 2nd Rd: M62													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Slip road	R'dabt ATS	Daylight			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/	
1	Car	No	Going ahead	S N	On main	Mid junction	No	None	Nearside	None	Male	22 -\	
2	Car	No	Going ahead	S N	On main	Mid junction	No	None		None	Male	-1 -\	
3	Car	No	Going ahead	S N	On main	Mid junction	No	None		None	Male	39 -\	
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 2	Drv/Rider	Male	0	Slight	No	Not ped	Not ped	Not ped	Other				
3 3	Drv/Rider	Male	39	Slight	No	Not ped	Not ped	Not ped	Other				
Description: VEHICLE HAS BROKEN OUT OF TPAC CONTAINMENT INJURING OFFICERS													
User Information:													
23		E08000011	2000980	Slight	Monday	11/05/2020	00:15	346682/388337					
Location: A5300 SEGMENT A5300 1st Rd: A5300 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Dark/lights lit			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/	
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	30 -\	
2	Car	No	Stop	N S	On main	Not at	No	None		None	Male	41 -\	
3	Car	No	O/T on N/S	N S	On main	Not at	No	None		None	Male	28 -\	
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 1	Drv/Rider	Male	30	Slight	No	Not ped	Not ped	Not ped	Other				
2 2	Drv/Rider	Male	41	Slight	No	Not ped	Not ped	Not ped	Other				
3 3	Drv/Rider	Male	28	Slight	No	Not ped	Not ped	Not ped	Other				
4 3	Passenger	Male	41	Slight	Front	Not ped	Not ped	Not ped	Other				
Description: V003 FAILED TO STOP AND INVOLVED IN PURSUIT. V003 HAS MADE CONTACT WITH V001 ON ITS NEARSIDE AND THEN MADE CONTACT WITH THE REAR OF V002.													
User Information:													
24		E08000011	2001600	Serious	Tuesday	24/03/2020	13:14	347236/388996					
Location: CRONTON ROAD SEGMENT 659 CRONTON ROAD 1st Rd: A5080 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
60MPH	Single c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age B/	
1	Car	No	O/T on N/S	SE NW	On main	Not at	Yes	None		None	Male	33 Re	
2	Goods 3.5 - 7.	No	Going ahead	NW SE	On main	Not at	No	None		None	Male	49 -\	
Cas No Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1 1	Drv/Rider	Male	33	Serious	No	Not ped	Not ped	Not ped	Other				
Description: V001 HAS GONE TO OVERTAKE A SLOWER MOVING TAXI. AS IT DID SO THE TAXI ACCELERATED AND SO V001 BRAKED SHARPLY TO AVOID ONCOMING TRAFFIC. A FAULT WITH THE ABS ON V001 MEANT THAT THE TYRE LOCKED UP AND SKIDDED BEFORE IT COLLIDED WITH A SLOW MOVING ROAD SWEEPER.													
User Information:													

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
25	E08000011	2001706	Slight	Tuesday	25/08/2020	15:45	345887/389169						
Location: MOTORWAY BEAT MC1 M62 JUNCTION 5 TO JUNCTION 6 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Daylight			Rain Wind	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	48	-\
2	Car	No	Going ahead	W E	On main	Not at	No	None		None	Male	23	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	23	Slight	No	Not ped	Not ped	Not ped	Other			
2	1	Drv/Rider	Male	48	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEH 001 HAS BEEN DRIVING ALONG M62 WHEN IT IS SUSPECTED THAT IT HAS ENCOUNTERED A MECHANICAL FAILURE ON FRONT NEARSIDE, VEHICLE 002 HAS COLLIDED WITH THE REAR OF VEH 001 AS IT HAD SLOWED DOWN CONSIDERABLY, WEATHER WAS VERY POOR MEANING VISIBILTY REDUCED													
User Information:													
26	E08000011	2001832	Slight	Tuesday	08/09/2020	06:58	346491/389353						
Location: MOTORWAY BEAT MC1 M62 JUNCTION 6 TO JUNCTION 5 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	N NE	On main	Not at	Yes	None		None	Female	27	+\
2	Car	No	Going ahead	E W	On main	Not at	No	None		None	Male	57	-\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Passenger	Male	50	Slight	Front	Not ped	Not ped	Not ped	Other			
Description: V001 MAKES OFF FROM A DAMAGE ONLY COLLISION, DRIVER OF V001 IS INTOXICATED, EXITS MOTORWAY AT M62 JCT 6 AT SPEED, LOOSES CONTROL AND COLLIDES WITH BARRIER.													
User Information:													
27	E08000011	2002461	Slight	Tuesday	01/12/2020	11:23	346343/389347						
Location: M62 6TO5 WB MOTORWAY BEAT MC1 M62 JUNCTION 6 TO JUNCTION 5 1st Rd: M62 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	E W	On main	Not at	No	None		None	Male	39	-\
2	Goods > 7.5t	Art	Going ahead	E W	On main	Not at	No	None		None	Male	34	-\
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	39	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE 1 REAR END VEHICLE 2 ON THE M62 WEST BOUND CARRIAGEWAY													
User Information:													
28	E08000011	2002640	Slight	Thursday	17/12/2020	18:29	346306/389503						
Location: CRONTON ROAD and WINDY ARBOR ROAD 1st Rd: A5080 2nd Rd: U													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
30MPH	Dual c'way	R'dabt ATS	Dark/lights lit			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Leave r'about	No	None		None	Untra.	-1	N/
2	Car	No	Waiting	W E	On main	Leave r'about	No	None		None	Male	35	N/
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	35	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V002 IS WAITING AT RED ATS ON A ROUNDABOUT. V001 COLLIDES WITH THE REAR OF V001 CAUSING MINOR DAMAGE AND MINOR NECK PAIN TO THE DRIVER OF V001. V002 SAYS HE WILL PULL OVER OUT OF TRAFFIC BUT THEN DRIVES OFF AT SPEED, FAILING TO PASS DETAILS.													
User Information:													

M62 - Accident Report

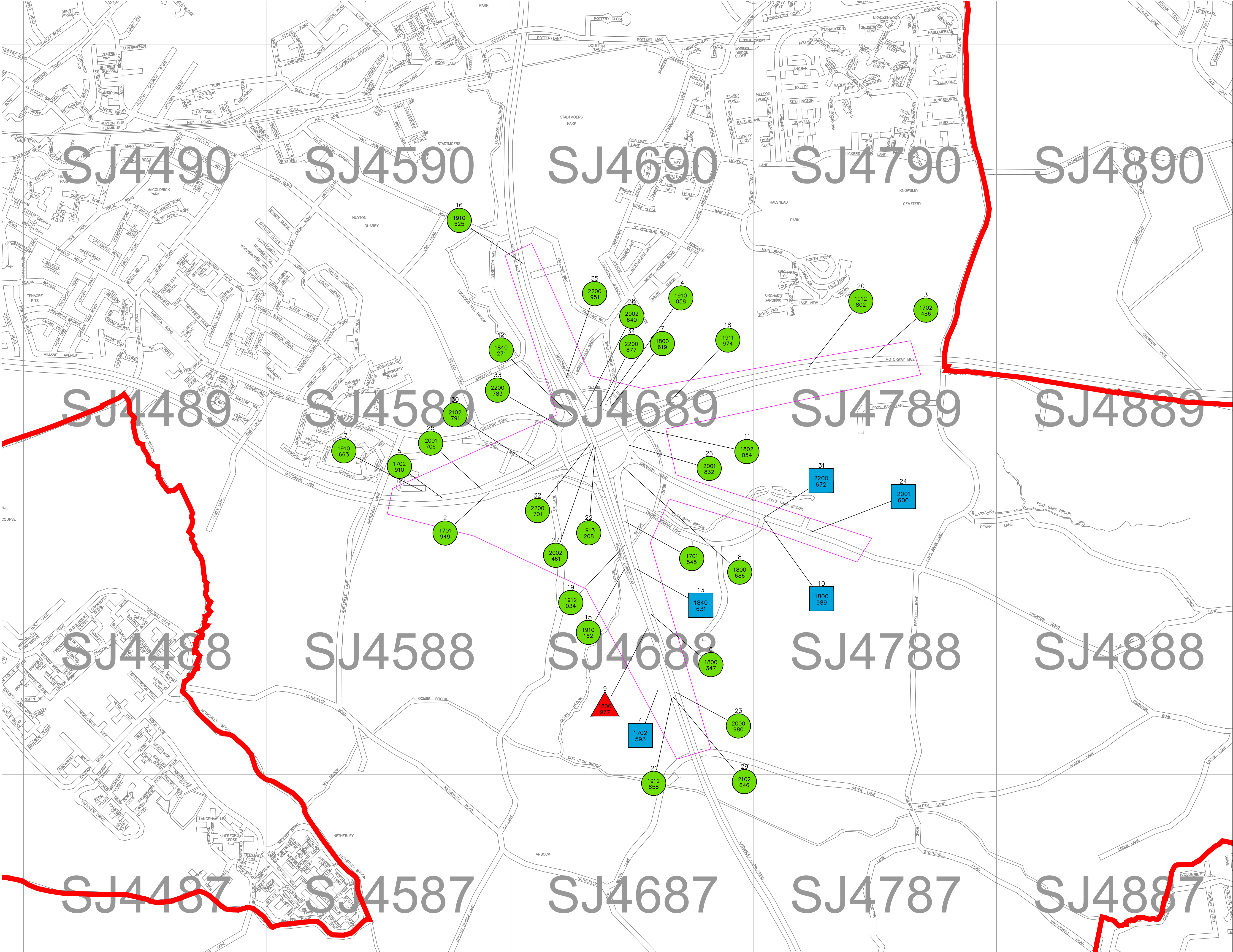
No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street				
29	E08000011	2102646	Slight	Sunday	28/11/2021	07:00	346670/388319						
Location: A5300 SEGMENT A5300 1st Rd: A5300 2nd Rd:													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	NotJCT	Dark/no lights			Fine	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	S N	On main	Not at	No	None	N/s & rebound	Tree	Male	36	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	36	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V001 TRAVELLING N/B ON THE A5300, KNOWSLEY EXPRESSWAY, HUYTON. NO OTHER VEHICLES ON THE ROAD AND THE ROAD WAS IN GOOD CONDITION. FOR REASON'S UNKNOWN THE DRIVER LOOSES CONTROL OF THE VEHICLE WHICH SWERVES FROM LANE 1 INTO LANE 2 AND COLLIDES INTO THE CENTRAL RESERVATION. V001 THEN BOUNCES ACROSS LANE 1 AND OFF THE ROAD AND INTO SOME TREES. DRIVER ALLEGES MEDICAL CONDITION AND HAS A HISTORY OF HEART COMPLAINTS. EGC SHOWS ABDNORMAL HEART RHYTEM. DRIVER ALSO TESTS POSITIVE FOR COCAINE.													
User Information:													
30	E08000011	2102791	Slight	Sunday	12/12/2021	07:47	346096/389270						
Location: M62 JUNCTION 6 M62 1st Rd: M62 2nd Rd: A5080													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
70 MPH	Dual c'way	Slip-R ATS	Dark/unknown			Rain	Wet	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Ent from slip	No	None		None	Male	41	-v
2	Car	No	Going ahead	W E	On main	Ent from slip	No	None		None	Male	58	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	2	Drv/Rider	Male	58	Slight	No	Not ped	Not ped	Not ped	Other			
Description: V002 AT REAR OF STATIONARY TRAFFIC, LANE 2 OF 2. V001 FAILS TO SEE V002 STATIONARY AND CRASHES INTO REAR. REAR END SHUNT													
User Information:													
31	E08000011	2200672	Serious	Sunday	20/03/2022	12:38	347042/389054						
Location: CRONTON ROAD and DACRES BRIDGE LANE 1st Rd: A5080 2nd Rd: U													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
50 MPH	Single c'way	T/Stag Give	Daylight			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Car	No	Going ahead	W E	On main	Mid junction	No	None		None	Female	31	-v
2	Car	No	Right turn	E S	On main	Junt cleared	No	None		None	Female	27	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Female	31	Serious	No	Not ped	Not ped	Not ped	Other			
2	2	Drv/Rider	Female	27	Slight	No	Not ped	Not ped	Not ped	Other			
3	1	Passenger	Male	26	Slight	Front	Not ped	Not ped	Not ped	Other			
Description: POLICE VEHICLE WAS ON A 999 RUN WITH EMERGENCY EQUIPMENT ACTIVATED (LIGHTS AND SIRENS), AHEAD WERE 2 VEHICLES IN THE SINGLE CARRIAGEWAY ROAD, THE FRONT VEHICLE WAS INDICATING TO THE OFFSIDE TO TURN INTO A ROAD. LEAD VEHICLE HAS STARTED TO TURN RIGHT WHILST THE POLICE VEHICLE HAS GONE TO OVERTAKE IT.													
User Information:													
32	E08000011	2200701	Slight	Thursday	24/03/2022	19:05	346331/389362						
Location: KNOWSLEY EXPRESSWAY and SPEKE ROAD 1st Rd: A562 2nd Rd: A5300													
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard		
60 MPH	Roundabout	R'dabt ATS	Dark/lights lit			Fine	Dry	None	None	None	None		
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/
1	Goods > 7.5t	Art	Going ahead	E W	On main	Leave r'about	OT	None	Nearside	Barr	Male	43	-v
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil			
1	1	Drv/Rider	Male	43	Slight	No	Not ped	Not ped	Not ped	Other			
Description: VEHICLE 1 HAS BEEN TRAVELLING ALONG THE A5300 APPROACHING THE ROUNDANBOUT WITH THE A562. VEHIVCLE 1 HAS COME TO A STOP AT THE TRAFFIC LIGHT CONTROLLED JUNCTION AND MOVED OFF TO ENTER THE A562 VIA THE SLIP ROAD IN A WEST BOUND DIRECTION. AS VEHICLE HAS NEGITATED THE ROUNABOUT THE LOAD IN THE CONTAINER VEHICLE 1 IS CARRYING SHIFTS CAUSING IT TO ROLL OVER AND LEAVE THE ROADWAY ON THE NEARSIDE. DRIVER OF VEHICLE 1 SUSTAINES SLIGHT INJURIES IN THE FORM OF A SMALL CUT TO HIS LEFT FINGER. INCIDENT IS CAPTURED ON CCTV FROM A VEHICLE FOLLOWING.													
User Information:													

M62 - Accident Report

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street					
33	E08000011	2200783	Slight	Wednesday	16/03/2022	18:55	346195/389437							
Location: A580 SEGMENT A580 1st Rd: A580 2nd Rd:														
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
30 MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/	
1	Car	No	Going ahead	NW	NE On main	Not at	No	None		None	Untra.	-1	N/	
2	Car	No	Reversing	NW	NE On main	Not at	No	None		None	Female	56	N/	
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1	2	Drv/Rider	Female	56	Slight	No	Not ped	Not ped	Not ped	Other				
Description: V2 HAD STOPPED BEHIND A WHITE AUDI AS THE TRAFFIC LIGHTS WERE ON RED. THE VEHICLE 1 IN FRONT OF V2 PUT ON THEIR REVERSE LIGHTS, THEN SUDDENLY THEY QUICKLY ACCELERATED BACKWARDS INTO THE FRONT OF V2. CAUSING INJURY														
User Information:														

34	E08000011	2200877	Slight	Monday	21/03/2022	16:15	346372/389516							
Location: A5080 and WINDY ARBOR ROAD 1st Rd: A5080 2nd Rd: U														
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
30 MPH	Roundabout	R'dabt Give	Daylight			Fine	Dry	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/	
1	Car	No	Going ahead	NW	SE On main	Leav main	No	None		None	Female	32	N/	
2	M/cycle 50 - 1	No	Going ahead	SE	NW On main	Junt cleared	No	None		None	Male	33	N/	
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1	2	Drv/Rider	Male	33	Slight	No	Not ped	Not ped	Not ped	Other				
Description: V2 WAS GOING DOWN TARBOCK ROAD WHEN THE THIRD PARTY (V2) COMING FROM THE PARK ROAD (WINDY ARBOR ROAD) FAILED TO GIVE WAY HITTING MY BIKE ON THE FRONT LEFT, RIDER OF V2 FELL OFF FROM THE BIKE LANDING ON THE FLOOR														
User Information:														

35	E08000011	2200951	Slight	Friday	15/04/2022	13:15	346230/389629							
Location: M57 SEGMENT M57 1st Rd: M57 2nd Rd:														
Speed	C'Way	Jct Det/Ctrl	Lighting			Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard			
70 MPH	Dual c'way	NotJCT	Daylight			Fine	Dry	None	None	None	None			
Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/	
1	M/cycle > 500c	No	Going ahead	N	S On main	Not at	No	None		None	Male	36	N/	
Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil				
1	1	Drv/Rider	Male	36	Slight	No	Not ped	Not ped	Not ped	Other				
Description: VEHICLE TRAVELLING IN A STRAIGHT LINE IN LANE 1, RIDER FELT FRONT WHEEL AND STEERING GO HEAVY, STARTED TO WOBBLE AND THEN LOST CONTROL OF FRONT. FRONT TYRE IS FLAT AND APPEARS TO HAVE HAD SUDDEN PRESSURE LOSS.														
User Information:														



KEY

EXTENT OF
ACCIDENT DATA
REQUESTED

Knowsley Council
Department of Regeneration,
Economy and Skills
PO Box 24 Archway Road
Huyton
Knowsley
Merseyside L36 9YU

PROJECT TITLE
M62 JUNCTION 6
ACCIDENT DATA
KNOWSLEY

DRAWING INFORMATION
EXTENT OF ACCIDENT DATA

Design By	EB	Design Date	08/06/2022
Drawn By	EB	Drawn Date	08/06/2022
Checked By	LT	Checked Date	08/06/2022
Approved By	LT	Approved Date	08/06/2022

Drawing Status	FOR INFORMATION	Drawing Scale	NTS
Drawing Number	7216	Revision	1

C. Assessment Traffic Flows

AM Trip Distribution Cars %

	1	2	3	4	5	6	7	Total
1					9%			
2					26%			
3					10%			
4					8%			
5	9%	26%	10%	8%	19%	9%	20%	
6					9%			
7					20%			
Total								

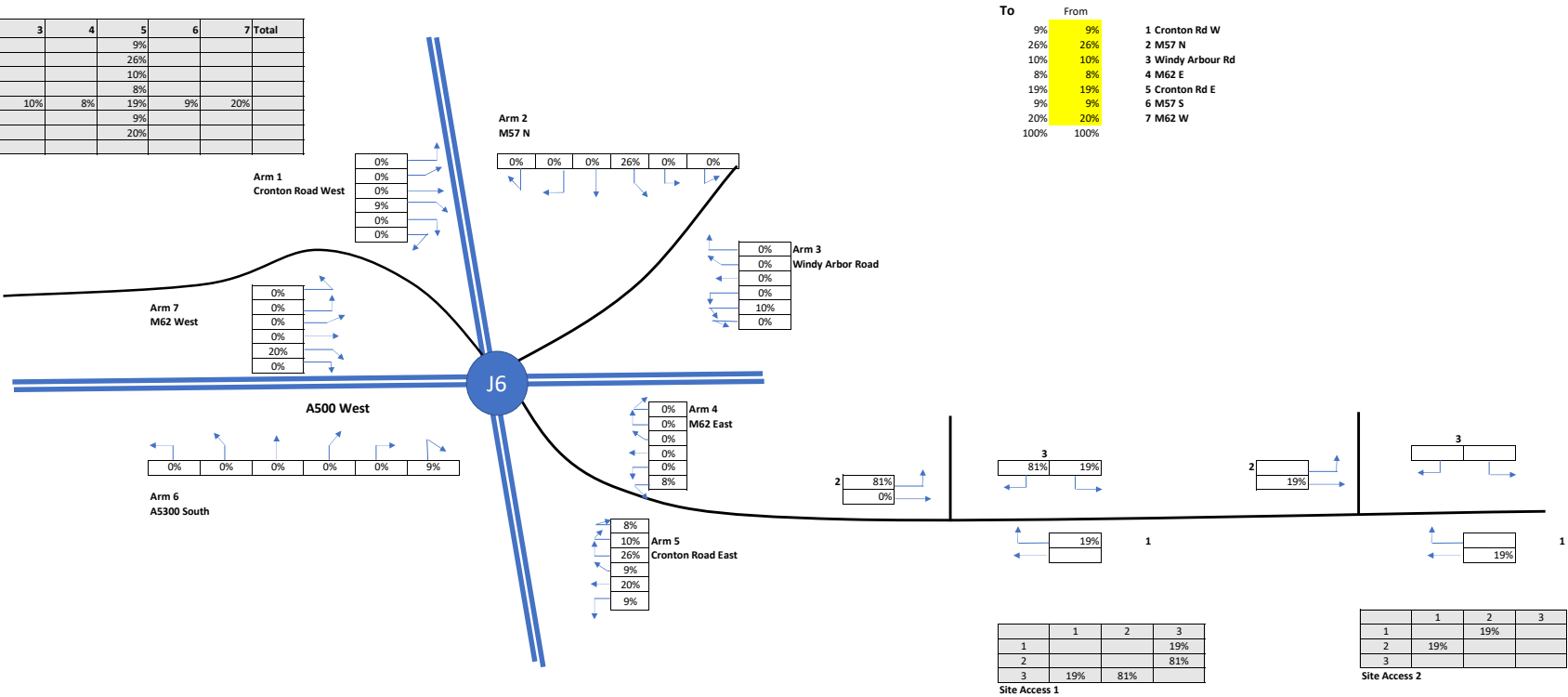


Fig X.X 2018 AM Trip Distribution Cars

	1	2	3	4	5	6	7	Total
1	0	0	0	0	2	0	0	2
2	0	0	0	0	7	0	0	7
3	0	0	0	0	3	0	0	3
4	0	0	0	0	2	0	0	2
5	1	2	1	1	0	1	2	7
6	0	0	0	0	2	0	0	2
7	0	0	0	0	5	0	0	5
Total	1	2	1	1	22	1	2	29

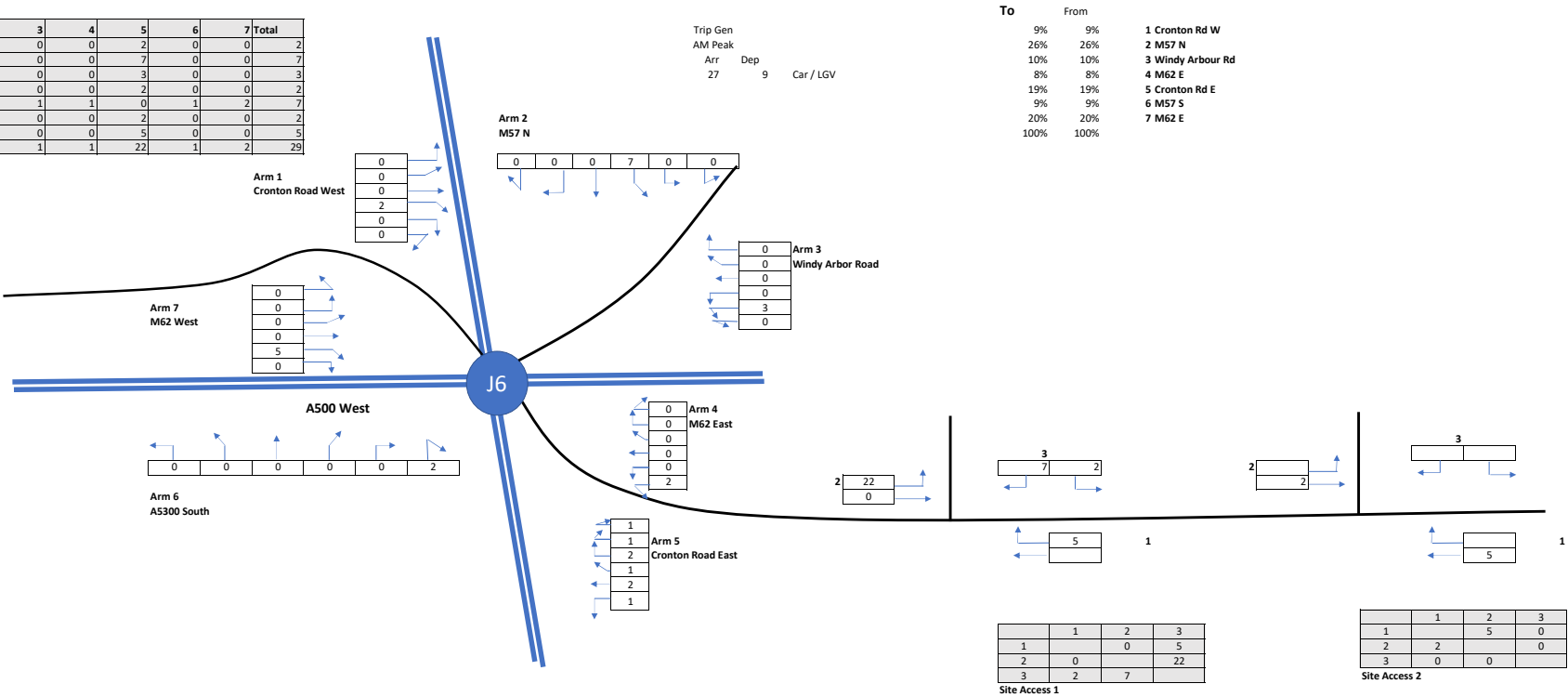


Fig X.X 2018 AM Trip Distribution % HG

	1	2	3	4	5	6	7	Total
1								
2								
3								
4								
5								
6								
7								
Total								

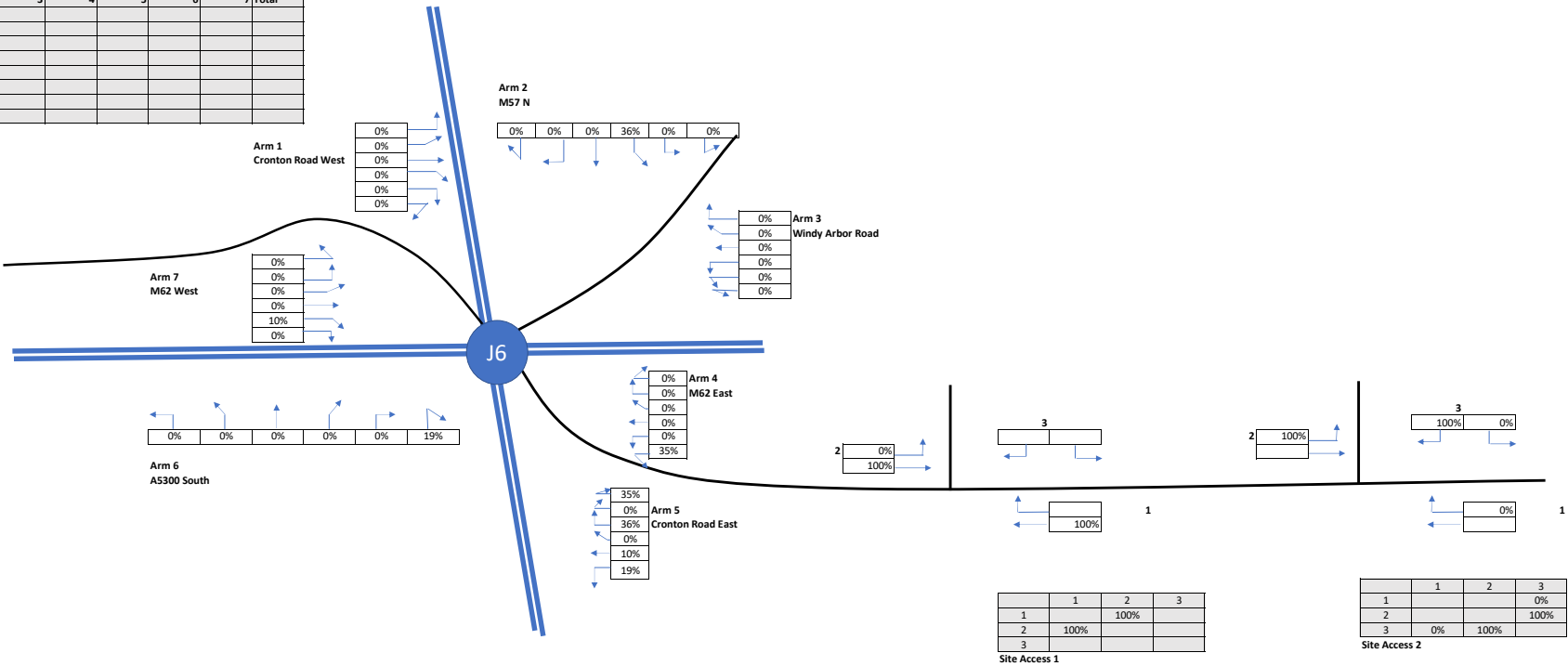


Fig X.X 2018 AM Trip Distribution HGV

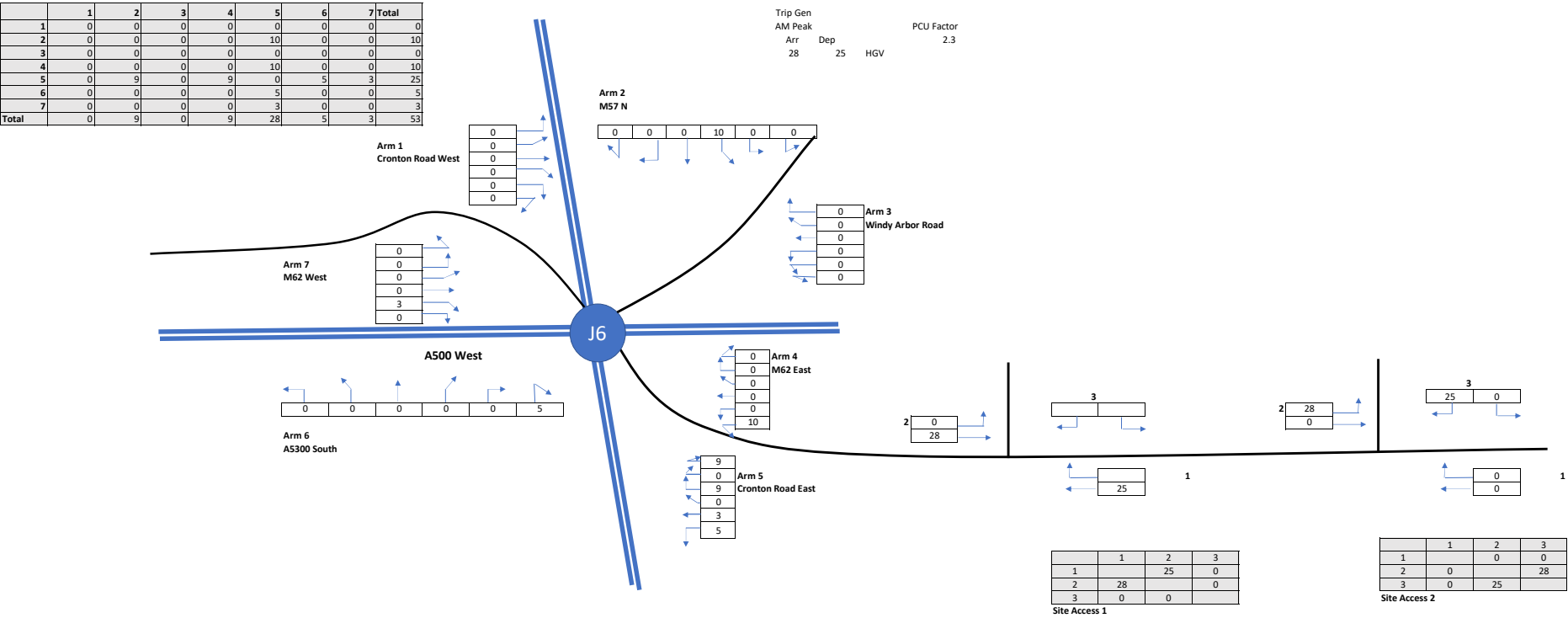
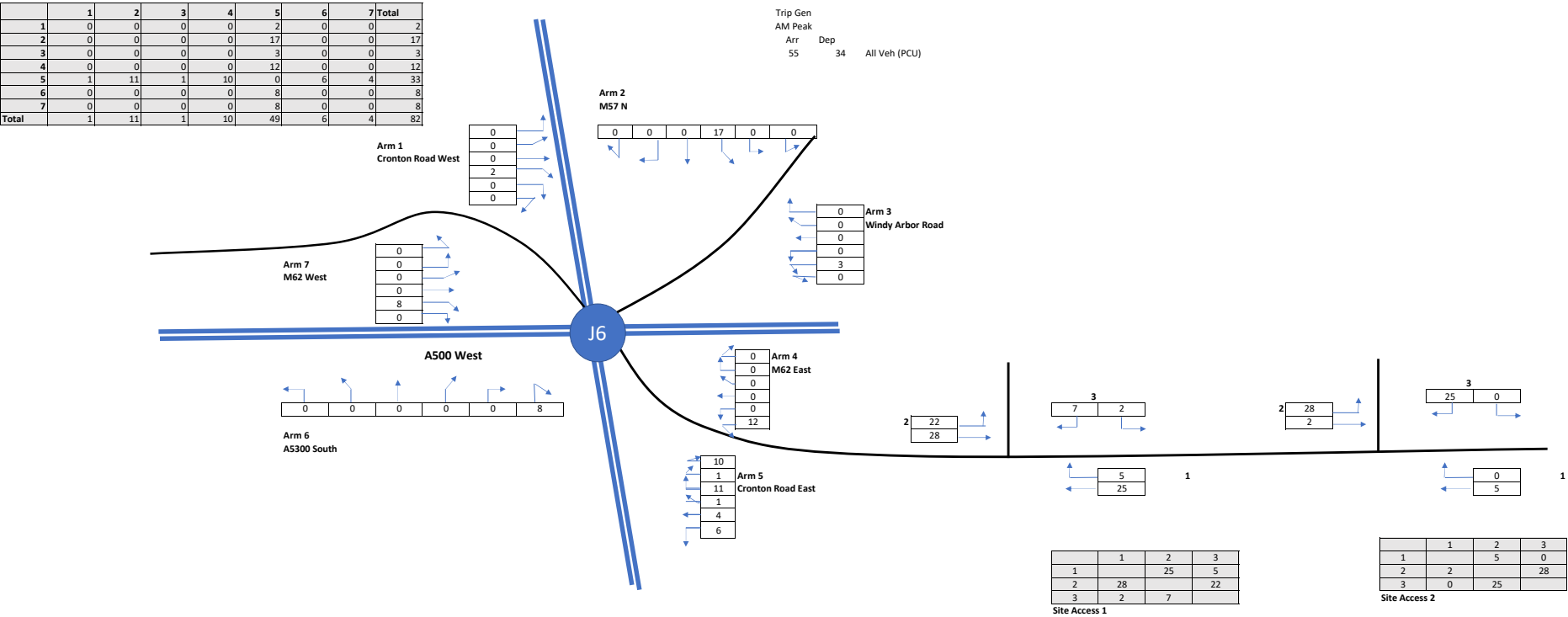
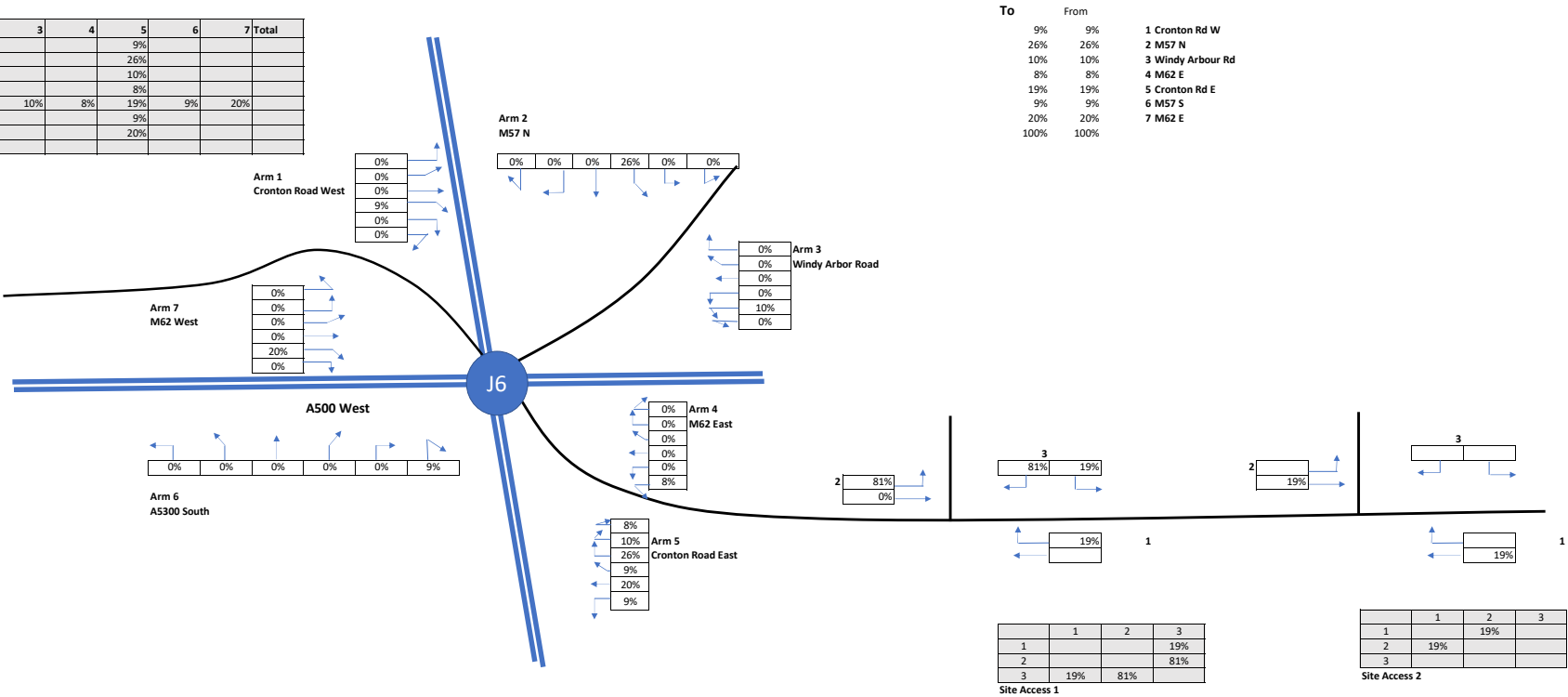


Fig 7.3 AM Development Traffic All Vehicles (PCU)



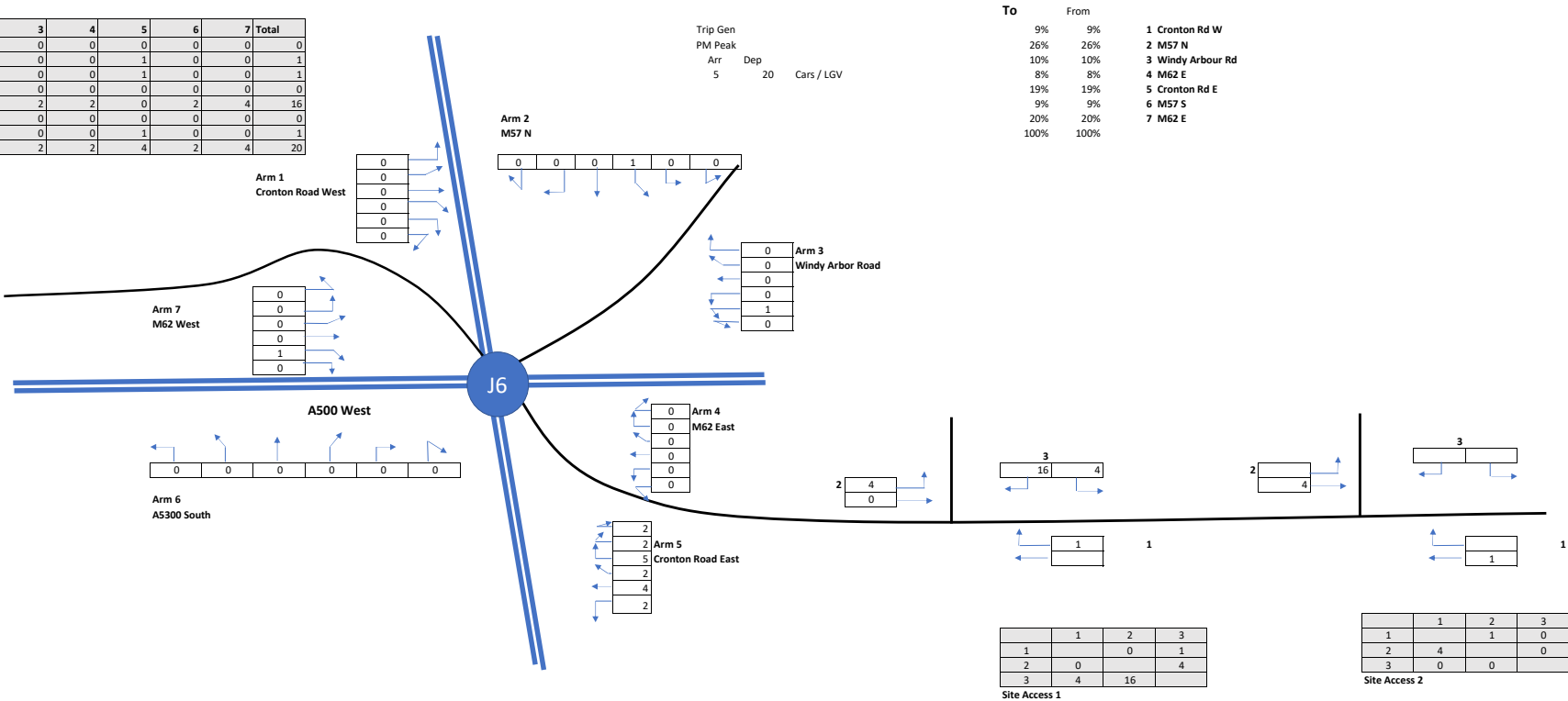
PM Trip Distribution Cars %

	1	2	3	4	5	6	7	Total
1					9%			
2					26%			
3					10%			
4					8%			
5	9%	26%	10%	8%	19%	9%	20%	
6					9%			
7					20%			
Total								



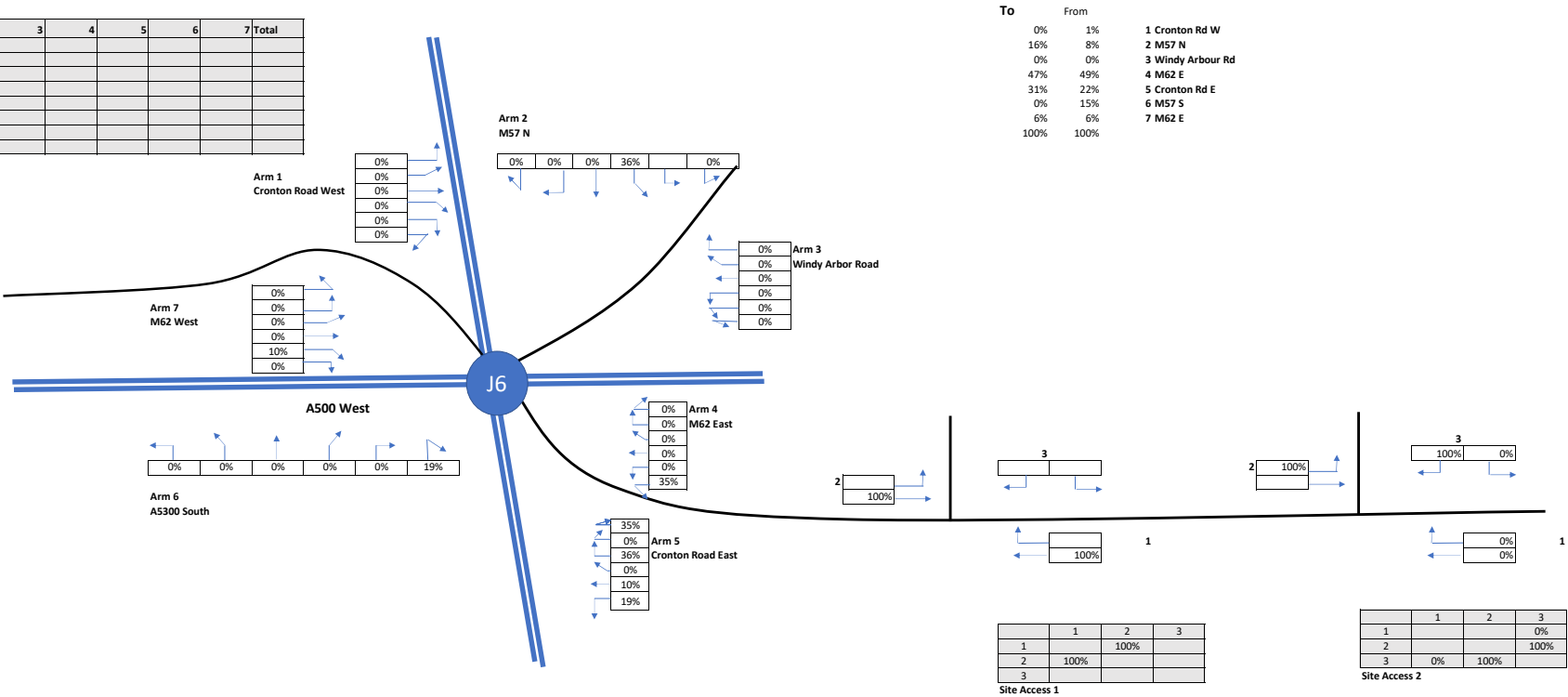
PM Trip Distribution Cars

	1	2	3	4	5	6	7	Total
1	0	0	0	0	0	0	0	0
2	0	0	0	0	1	0	0	1
3	0	0	0	0	1	0	0	1
4	0	0	0	0	0	0	0	0
5	2	5	2	2	0	2	4	16
6	0	0	0	0	0	0	0	0
7	0	0	0	0	1	0	0	1
Total	2	5	2	2	4	2	4	20



PM Trip Distribution HGV %

	1	2	3	4	5	6	7	Total
1								
2								
3								
4								
5								
6								
7								
Total								



PM Trip Distribution HG

	1	2	3	4	5	6	7	Total
1	0	0	0	0	0	0	0	0
2	0	0	0	0	5	0	0	5
3	0	0	0	0	0	0	0	0
4	0	0	0	0	5	0	0	5
5	0	7	0	6	0	3	2	18
6	0	0	0	0	3	0	0	3
7	0	0	0	0	1	0	0	1
Total	0	7	0	6	14	3	2	

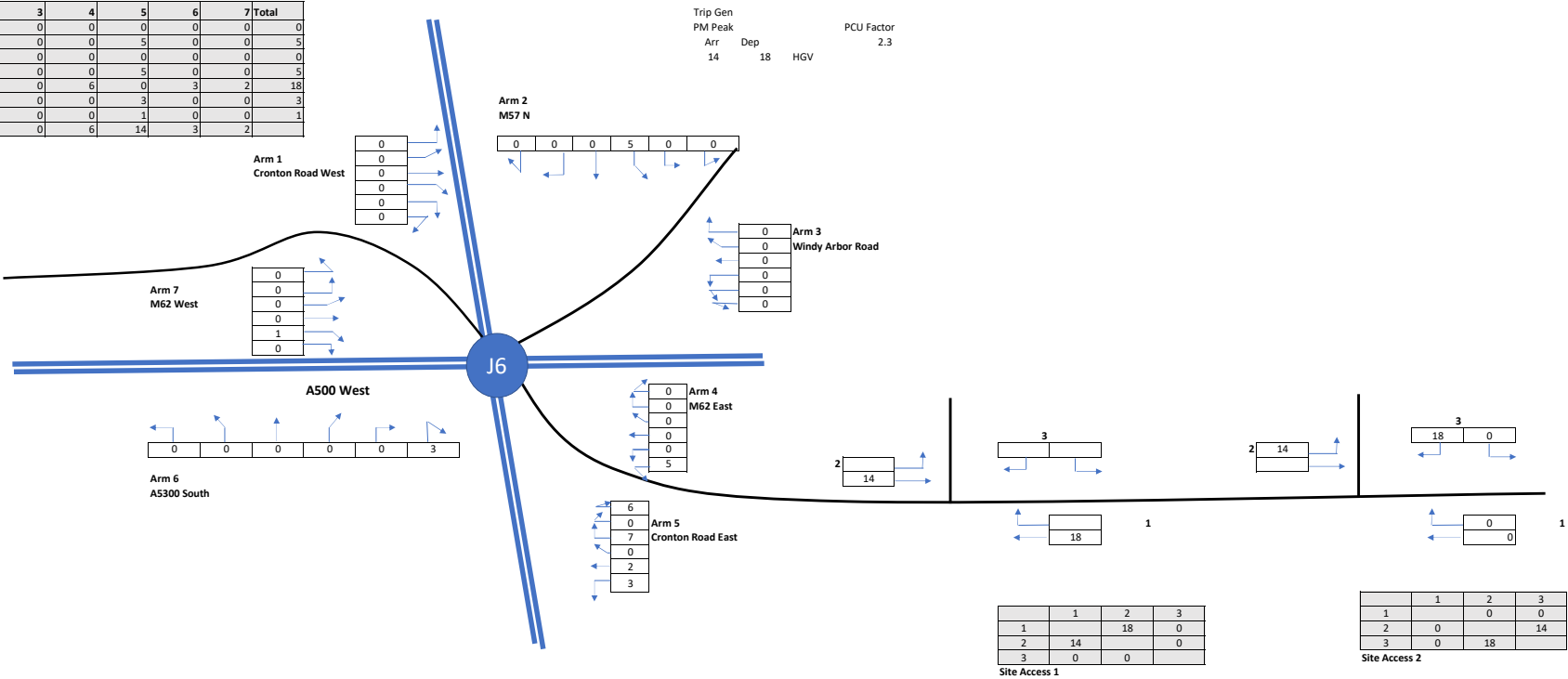
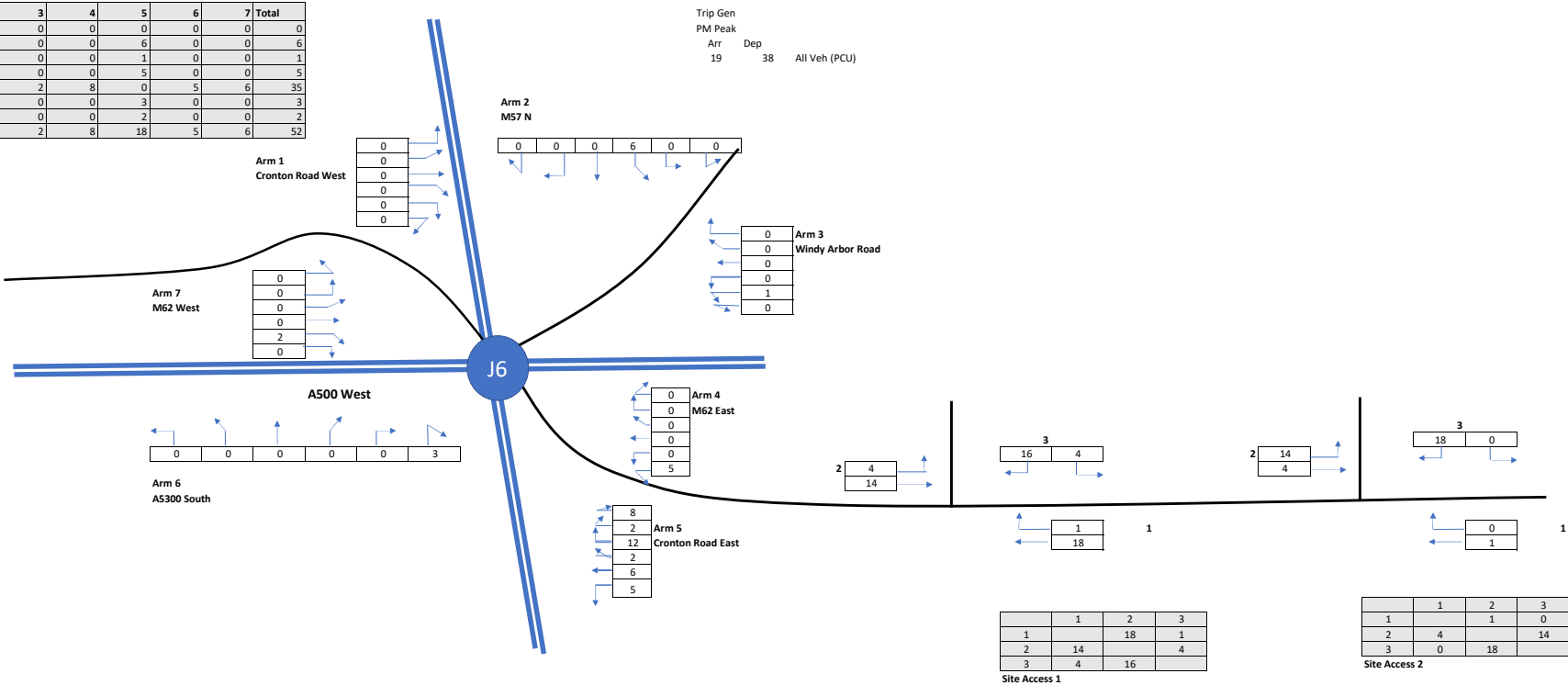


Fig 7.4 PM Development Traffic All Vehicles (PCU)

	1	2	3	4	5	6	7	Total
1	0	0	0	0	0	0	0	0
2	0	0	0	0	6	0	0	6
3	0	0	0	0	1	0	0	1
4	0	0	0	0	5	0	0	5
5	2	12	2	8	0	5	6	35
6	0	0	0	0	3	0	0	3
7	0	0	0	0	2	0	0	2
Total	2	12	2	8	18	5	6	52



D. Development Plan



SCHEDULE OF AREAS

UNIT 1		
GF WAREHOUSE	25,920 sqm	279,003 sqft
GF UNDERCROFT	841 sqm	9,053 sqft
GF OFFICE CORE	135 sqm	1,453 sqft
GF OPS OFFICE	303 sqm	3,261 sqft
FF OFFICE	932 sqm	10,032 sqft
SF OFFICE	932 sqm	10,032 sqft
Gatehouse	18 sqm	194 sqft
TOTAL	29,081 sqm	313,028 sqft

OVERALL TOTAL 29,081 sqm 313,028 sqft

Parking Provision

42 Trailer Parking Spaces
295 Car Parking Spaces
16 Motorcycle Spaces
36 Cycle Spaces

General Notes

All site dimensions shall be verified by the Contractor on site prior to commencing any works.

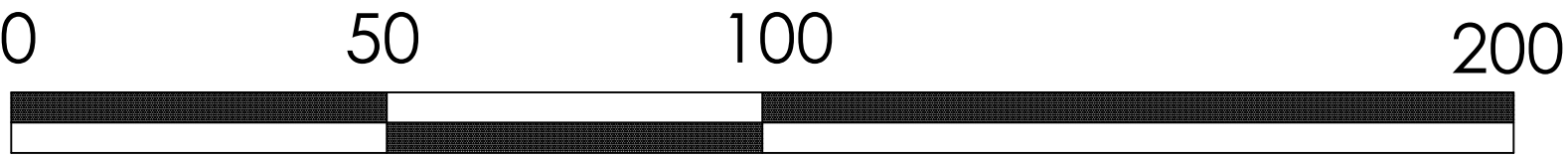
Do not scale from this drawing.

Only work to written dimensions.

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Legend

- Planning Boundary
- Proposed secure fence line (2.4m high paladin - colour Green)
- Knee rail Fence
- Timber Post & Rail Fence (1.2m high)
- Retaining Wall - refer to engineer's details
- Existing Trees to be retained
- Proposed Trees
- Proposed hedgerow
- All landscaping shown indicatively only. Please refer to Landscape Architect drawings for full details.
- Proposed Surface pedestrian footpath



SCALE (METRES)

P1	PLANNING ISSUE	21.07.2022	AL	MW
Rev.	Description	Date	ISS	APP

Scale: 1:1000@A1
Status: S2 Information
Drawn by: AL
Checked by: MW
Date: 31.05.22
Client:

MARO DEVELOPMENTS

Project:
MERCURY 62, CRONTON

Sheet Name:
PROPOSED SITE PLAN

Project No.	Orig.	Zone	Level	Type	Role	Dwg No.	Rev
17021-FRA-AV-XX-DR-A-0501							P1

fletcher | rae

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w www.fletcher-rae.com
e info@fletcher-rae.com



Key to symbols

Reference drawings

M
MOTT
MACDONALD

M

Royal Liver Building
Pier Head
Liverpool, L3 1JH
United Kingdom

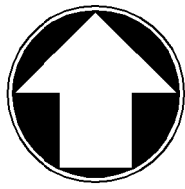
+44 (0)151 482 9910
+44 (0)20 8681 5706
mottmac.com

Client

Title	MERCURY 62 CRONTON ACCESS JUNCTIONS TO SITE A5080 CRONTON ROAD GENERAL ARRANGEMENT OPTION 1
-------	---

Designed	M.S.Davies		Eng check		
Drawn	M.S.Davies		Coordination		
Dwg check	K.Blakey		Approved	K.Riley	
Scale at A1 1:1000	Status PRE		Rev P3	Security STD	

Drawing Number
392094-MMD-00-XX-DR-C-0101



Notes

Key to symbols

13.61

6.6

4.46

3.6

1.36

4.47

1.33

1.33

2.87

90° Horiz

10° Vert

FTA Design Articulated Vehicle (1998)

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Max Track Width

Lock to lock time

Kerb to Kerb Turning Radius

16.480m

2.550m

3.870m

0.515m

2.470m

3.00s

6.550m

5.079

0.816

3.035

Large Car (2006)

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Max Track Width

Lock to lock time

Kerb to Kerb Turning Radius

5.079m

1.872m

1.525m

0.310m

1.831m

4.00s

5.900m

Reference drawings

P3	14.09.22	MSD	Inset views added. Drat stamp removed	KB	KR
P2	23.06.22	MSD	Road safety comments incorporated	KB	KR
P1	25.05.22	MSD	First issue	KB	KR
Rev	Date	Drawn	Description	Ch'k'd	App'd

M

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Client

MARO DEVELOPMENTS

Title

MERCURY 62 CRONTON
ACCESS JUNCTIONS TO SITE
A5080 CRONTON ROAD
GENERAL ARRANGEMENT
OPTION 1 - with Autotracks

Designed	M.S.Davies	Eng check		
Drawn	M.S.Davies	Coordination		
Dwg check	K.Blakey	Approved	K.Riley	
Scale at A1	1:1000	Status	PRE	P3
Drawing Number	392094-MMD-00-XX-DR-C-0101	Security	STD	

Mott MacDonald
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P:\Liverpool\ITD\Projects\392094 Cronton Mercury\Drawings\392094-MMD-00-XX-DR-C-0101_P3.dwg DAV69047

E. Road Safety Audit

Project:	Cronton Mercury		
Our reference:	407586	Your reference:	NA
Prepared by:	Kevin Blakey	Date:	30 th June 2022
Approved by:	Duncan Crockett	Checked by:	Sean Williamson
Subject:	Stage 1 Road Safety Audit: Designer's Response		

1 Introduction

The technical note comprises the Designer's Response to the Stage 1 Road Safety Audit (RSA) conducted by Mott MacDonald on the highway works associated with the Cronton Road development in (Document Ref 287864-739-A, dated 22nd June 2022). The Full RSA report is included as Appendix A to this note.

The note provides a response to each of the 'problems' and 'recommendations' identified in the RSA in turn. A revised proposals plan which takes account of the comments provided within the RSA and this Designer's Response is included as Appendix B

2 Items Identified in Stage 1 RSA

2.1 Problem 1.01

Location: Cronton Road western access.

Summary: It is not clear how pedestrians access the main building, and a lack of crossing provision may lead to trips and falls should they cross at a full height kerb. Should pedestrians remain in the carriageway, it increases the risk of conflict with motor vehicles.

Detail: A footway is proposed to run in to the new development site via a ramped footway, however it is not clear where pedestrians are to walk following this, and whether they will be required to cross an access road. A lack of suitable crossing provision could lead to trips and falls particularly for the mobility impaired, should they cross at a full height kerb. Should pedestrians remain within the carriageway it will increase the risk of conflict between users.

Recommendation: The footway should continue to provide access into the main building with appropriate crossing provision where required.

2.1.1 Designer's Response

This issue is accepted. The revised plan in Appendix B now shows a pedestrian crossing across the internal carriageway between the ramped footway and the site entrance.

2.2 Problem 1.02

Location: Cronton Road western access.

Summary: It is not clear how cyclists access the cycle parking. Should cyclists remain in the carriageway, it increases the risk of conflict with motor vehicles.

Detail: A shared footway / cycleway is proposed along the northern side of Cronton Road, however access into the northern access is via footway only. This will likely result in cyclists entering the carriageway and riding through the car park to access the cycle parking, increasing the risk of conflict with vehicles likely to be manoeuvring into and out of parking spaces. Westbound cyclists entering the site may enter on the wrong side of the carriageway potentially towards vehicles travelling in the opposite direction. Alternatively, cyclists may continue on the footway, which does not appear adequate in width to accommodate cyclists and may lead to conflict with pedestrians

Recommendation: Provide a continuous route for cyclists to link with the cycle parking

2.2.1 Designer's Response

A clearer route to the cycle parking is provided in the revised layout in Appendix B. Road markings are provided, signing the designated cycle route to cycle parking from the site access junction. These markings will both indicate the route to cyclists and also make motorists aware that cyclists will route through the car park. Westbound cyclists will either use the designated route- using the cycle crossing provided from the shared footway / cycleway, or dismount and use the ramped footway into the site.

2.3 Problem 1.03

Location: Cronton Road eastern access.

Summary: Provision of advance cycle stop lines may encourage cyclists to use HGV access, increasing cyclists' vulnerability.

Detail: The eastern access is proposed to provide access for HGVs only and the provision of advanced cycle stop lines may encourage cyclists to be on the carriageway and to turn at this junction, increasing their vulnerability to being struck by HGVs.

Recommendation: Remove advanced cycle stop lines from the HGV access to discourage use by cyclists.

2.3.1 Designer's Response

This issue should be considered further in the detailed design stages. It is Knowsley Council's aspiration that the eastern access will at some point be extended to serve other developments. When this occurs the access will be used by cars and other vehicles as well as HGVs and possibly cyclists. Following any planning consent the timing of when the access road will be extended to serve other areas should be known and the decision of whether to include advance stop lines or not can be made.

2.4 Problem 1.04

Location: Cronton Road eastern access.

Summary: The footway extends into the site which could encourage pedestrian/cyclist movement which would not be desirable and could result in conflict with HGVs

Detail: At the eastern access the footway is shown to extend into the site before terminating. This access is to be for HGV traffic only and is therefore unlikely to be desirable for pedestrians and cyclists. Should pedestrians more familiar with the site arrangements continue along this route, it could result in them walking on a grassed verge which could be uneven potentially leading to trips and falls. Alternatively, pedestrians may walk within the carriageway increasing their vulnerability to being struck by HGVs using this access.

Recommendation: Terminate the footway at the crossing point to discourage pedestrians from using the HGV access.

2.4.1 Designer's Response

This issue should be considered at the detailed design stages. Knowsley Council, to address an issue unrelated to this safety audit has requested that the western verge at this access point is converted to a footway. This is to 'future proof' the design for when the access road is extended in future (please refer to the preceding point 2.3.1). this change is shown in the drawing in Appendix B. Depending on the timing of the extension of the access road to serve wider developments a decision can be made following planning approval on whether to include fencing to stop pedestrians and cyclists using the route until it is appropriate.

2.5 Problem 1.05

Location: Scheme tie-ins.

Summary: Lack of footway / cycleway tie in may result in cyclists using the carriageway resulting in side-swipe collisions within the carriageway.

Detail: It is not clear how the proposed shared use footway / cycleway will tie in with the existing provisions. At the western end of the scheme near the M57 / M62 Roundabout cyclists are currently signed off the footway onto the carriageway. Should this remain, cyclists may not be aware of a new shared use provision and continue on carriageway. It is not known how westbound cyclists will access the new shared use footway / cycleway. Should cyclists remain on carriageway it increases the potential for collisions with passing vehicles and the potential for side swipe collisions. Alternatively, should cyclists remain on the footway following the end of the shared use facility, it increases the risk of conflict with pedestrians, particularly if the footway narrows.

Recommendation: At the western end of the scheme extend the shared use facility to tie into the existing provision at the M57 / M62 roundabout. At the eastern end of the scheme provide a suitable location for cyclists to either join the shared use footway or to re-join the carriageway.

2.5.1 Designer's Response

This issue as accepted. The drawing in Appendix B shows the shared footway / cycleway tying in with the existing provision at Tarbock Island to the west. The east the drawing shows the footway / cycleway terminating in the vicinity of Dacres Bride Lane where cyclists will re-join the carriageway.

2.6 Problem 1.06

Location: Both signalised Junctions

Summary: Lack of parking provision for maintenance of the traffic signals/controller and culvert trash screen/water works may lead to inappropriate parking resulting in poor overtaking manoeuvres leading to side swipe collisions or conflict with pedestrians should they park and block the shared footway/cycleway.

Detail: The two new junctions are proposed to become signalised. Should maintenance operatives be required to visit the signals, there is no provision for them to park. This may result in operatives parking either on A5080 Cronton Road or within the access roads which may obstruct through traffic or impact on effectiveness of signalised junction. Parked vehicles may lead to poor overtaking manoeuvres which may result in side-swipe collisions. Alternatively, a vehicle may park on the footway, increasing the risk of conflict with pedestrians or cyclists on the shared use path.

In addition, water works are present near the eastern most junction and similarly may require access.

Recommendation: Provide a maintenance bay for the signals and water works.

2.6.1 Designer's Response

The developer has confirmed that maintenance vehicles will be permitted to park within the on-site car park near the western access.

The provision of a bay near the eastern access has been considered and on account of level and site constraints it is not possible to provide within the site access road within a reasonable distance of the signals. Accordingly we consider that for access to the eastern set of signals and the existing water works maintenance operatives may park on-street on Dacres Bridge Lane safely and within a reasonable distance of the signals and water works. Dacres Bridge Lane is a lightly trafficked cul-de-sac and provides access to a small number of agricultural properties and a disused quarry.

2.7 Problem 1.07

Location: Eastern signalised Junction

Summary: Presence of steps may lead to trips and falls resulting in personal injury

Detail: Close to the proposed eastern access, a culvert and associated water works are present with a set of steps leading down from Cronton Road for maintenance of the works. The proposed development is likely to lead to increased pedestrian numbers on Cronton Road, and visitors to the site may believe the steps provide access to the development and could be used by unauthorised users. The steps could be a hazard leading to trips and falls which may result in personal injury.

Recommendation: Provide gated access to the steps to prevent access by unauthorised users.

2.7.1 Designer's Response

As part of the construction of the eastern signal junction, an alternative access arrangement for the water works will be agreed with United Utilities. The stepped access will no longer be in place when the signalised junction is constructed. The design of the new access arrangement will be undertaken to United Utilities requirements and the need for a gate will be considered as part of the design process.

A. Road Safety Audit

Cronton Mercury New Access Arrangements

Road Safety Audit Stage 1

June 2022

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Cronton Mercury New Access Arrangements

Road Safety Audit Stage 1

June 2022

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	22/06/2022	R J Collins	J Barnes	T Blaney	First Issue
					

Document reference: 287864/TPN/ITD/739 | A |

Information class: Standard

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1 Introduction

This report describes a Stage 1 Road Safety Audit carried out on two options for the proposed access arrangements for a new warehousing development on A5080 Cronton Road, Knowsley.

The audit was carried out at the request of Mott MacDonald on behalf of their client, Maro Developments.

The audit took place at the Manchester office of Mott MacDonald and consisted of a detailed examination of the submitted documentation and drawings listed in **Appendix A**.

It is confirmed that this is a Stage 1 Road Safety Audit and that the audit was undertaken upon completion of the preliminary design work.

The Road Safety Audit Team consisted of:

Rachael Collins	BA (Hons), MSc (Certificate of Competency in Road Safety Audit, July 2016) Audit Team Leader, Mott MacDonald
John Barnes	MCIHT, MSoRSA (Certificate of Competency in Road Safety Audit, September 2012) Audit Team Member, Mott MacDonald

The Audit Team visited the site of the proposed works together on Thursday 16th June 2022 at 20:00 hrs. During this visit the weather conditions were fine and the road surface was dry. Traffic flows were moderate. Pedestrian activity was limited to 2 walkers and 1 cyclist was observed travelling towards the M62 using the footway.

This Road Safety Audit was carried out in based on National Highways' Departmental Standard GG119, and Road Safety Audit Brief (Doc Ref: 100392094) dated 06/06/2022. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

The comments and suggestions for road safety improvements made in this report seek to address matters that might have an adverse effect on road safety in the context of the chosen design. No attempt has been made to comment on the justification of the scheme. Consequently, the Audit Team accept no responsibility for the design or construction of the scheme.

All the issues raised in this report are considered to be required for action. The comments contained in the report are based on safety related concerns and, as such, the design engineer will need to consider carefully how to respond to each of the issues. The Audit Response Report should be completed by the Design Team and kept on file for future reference.

A previous Stage 1 Road Safety Audit was undertaken by this Audit Team in October 2018, (Doc Ref 287864/TPN/ITD/390A) which considered priority-controlled access into the development site. This Audit considers two signalised junctions.

A Key Plan indicating the location of any identified safety related issues is provided in **Appendix B**.

Scheme Description

The works include:

The creation of two new signal-controlled junctions on the northern side of A5080 Cronton Road to provide access to a new warehouse development. The western junction will accommodate car traffic and provide access to the main car park for staff and visitors. The eastern junction will provide access for HGV traffic only.

A 3m shared cycleway / footway will be provided along the northern perimeter of the site with advance cycle stop lines on both approaches to both junctions.

All arms of the two junctions will have controlled pedestrian crossing facilities. The western junction will link to a new westbound bus stop. A bus stop will also be provided in the eastbound direction part way between the two new junctions.

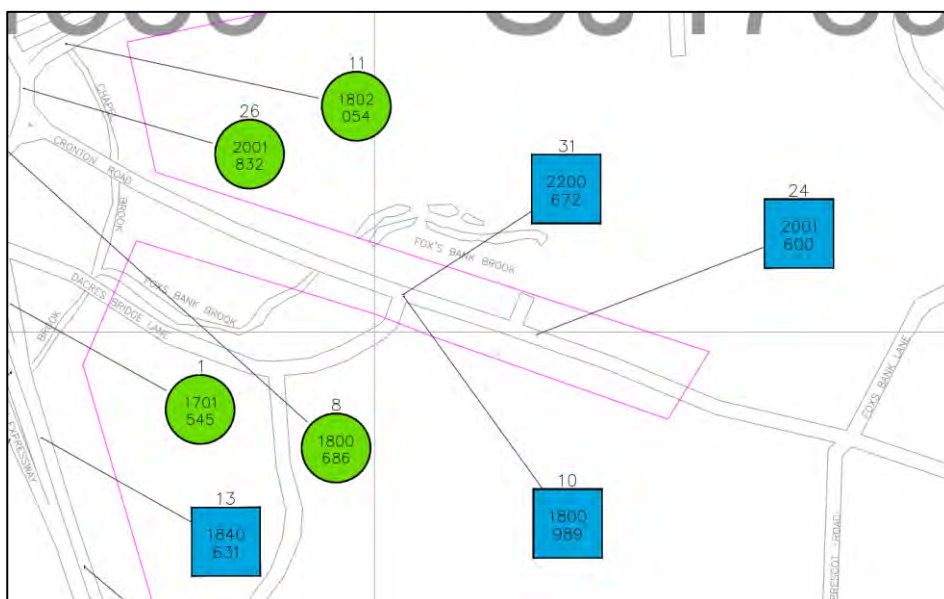
Two options exist for the eastern junction. The first – a single lane HGV exit – the second for a two lane HGV exit. The second option has been developed to provide additional capacity should further development be served of this access in the future.

The existing speed limit on Cronton Road is 60mph, however, Knowsley Council are currently in the legal process of reducing this to 40mph. It is expected that this reduction will be made by the end of 2022.

Collision Data

Five years collision data between June 2017 and June 2022 has been reviewed for the area of the proposed site. This shows that no collisions were recorded on Cronton Road in the vicinity of the two new junctions. Three collisions were recorded to the east of the development, with two at the junction with Dacres Bridge Lane, both of which involved right turn manoeuvres, one whilst a police vehicle on an emergency response was overtaking. The third collision involved a collision whilst overtaking.

Figure 1.1: Location of collisions



Source: Knowsley Council

2 Items Raised at this Stage 1 Audit

This section describes road safety related issues identified by the Audit Team that are associated with the scheme as presented in **Appendix A**.

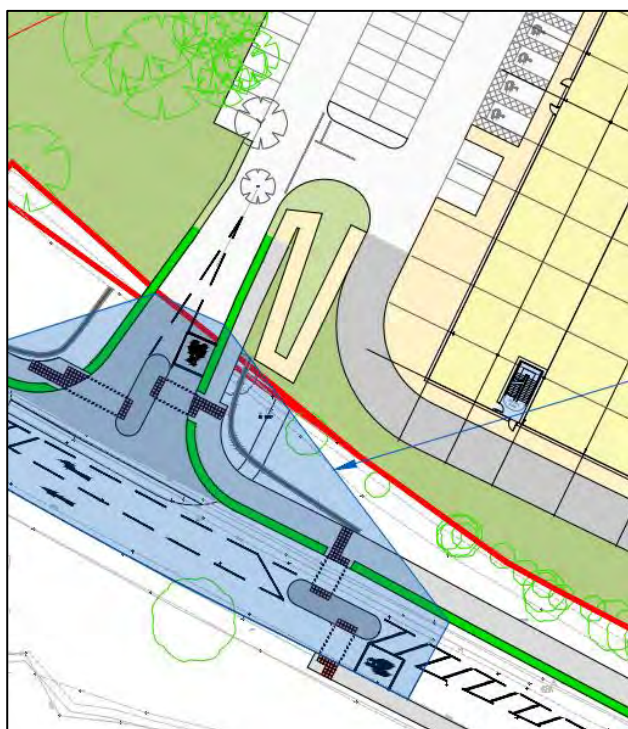
2.1.1 Problem 1.01

Location: Cronton Road western access (both options).

Summary: *It is not clear how pedestrians access the main building, and a lack of crossing provision may lead to trips and falls should they cross at a full height kerb. Should pedestrians remain in the carriageway, it increases the risk of conflict with motor vehicles.*

A footway is proposed to run in to the new development site via a ramped footway, however it is not clear where pedestrians are to walk following this, and whether they will be required to cross an access road. A lack of suitable crossing provision could lead to trips and falls particularly for the mobility impaired, should they cross at a full height kerb. Should pedestrians remain within the carriageway it will increase the risk of conflict between users.

Figure 2.1: Unclear continuation for pedestrians.



Source: Mott MacDonald

Recommendation

The footway should continue to provide access into the main building with appropriate crossing provision where required.

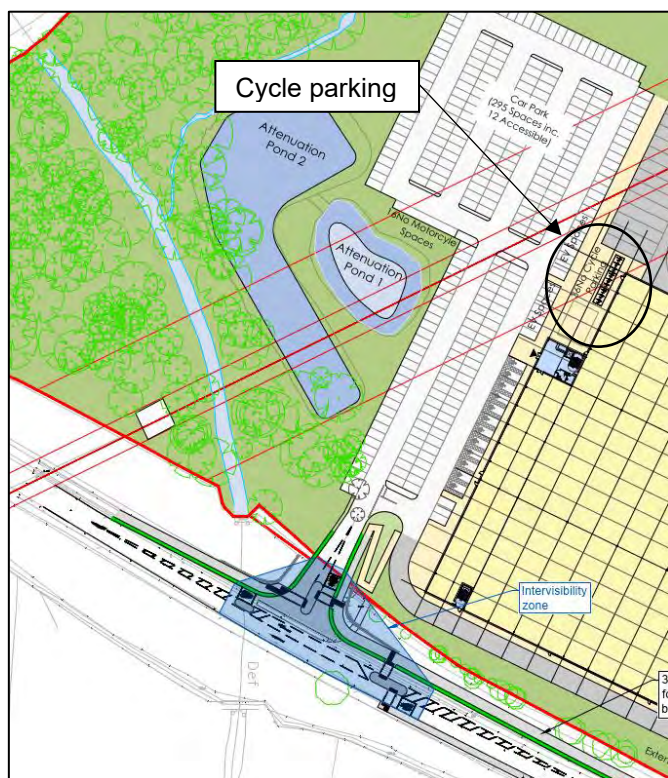
2.1.2 Problem 1.02

Location: Cronton Road western access (both options).

Summary: It is not clear how cyclists access the cycle parking. Should cyclists remain in the carriageway, it increases the risk of conflict with motor vehicles.

A shared footway / cycleway is proposed along the northern side of Cronton Road, however access into the northern access is via footway only. This will likely result in cyclists entering the carriageway and riding through the car park to access the cycle parking, increasing the risk of conflict with vehicles likely to be manoeuvring into and out of parking spaces. Westbound cyclists entering the site may enter on the wrong side of the carriageway potentially towards vehicles travelling in the opposite direction. Alternatively, cyclists may continue on the footway, which does not appear adequate in width to accommodate cyclists and may lead to conflict with pedestrians.

Figure 2.2: Unclear continuation for cyclists.



Source: Mott MacDonald

Recommendation

Provide a continuous route for cyclists to link with the cycle parking.

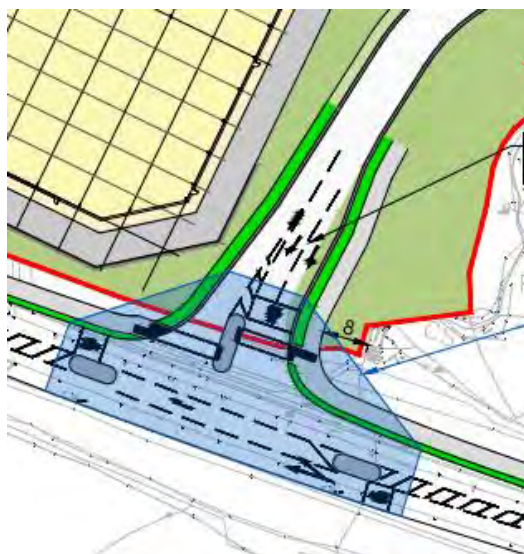
2.1.3 Problem 1.03

Location: Cronton Road eastern access (both options).

Summary: Provision of advance cycle stop lines may encourage cyclists to use HGV access, increasing cyclists' vulnerability.

The eastern access is proposed to provide access for HGVs only and the provision of advanced cycle stop lines may encourage cyclists to be on the carriageway and to turn at this junction, increasing their vulnerability to being struck by HGVs.

Figure 2.3: Advance cycle stop lines on approach to HGV access.



Source: Mott MacDonald

Recommendation

Remove advanced cycle stop lines from the HGV access to discourage use by cyclists.

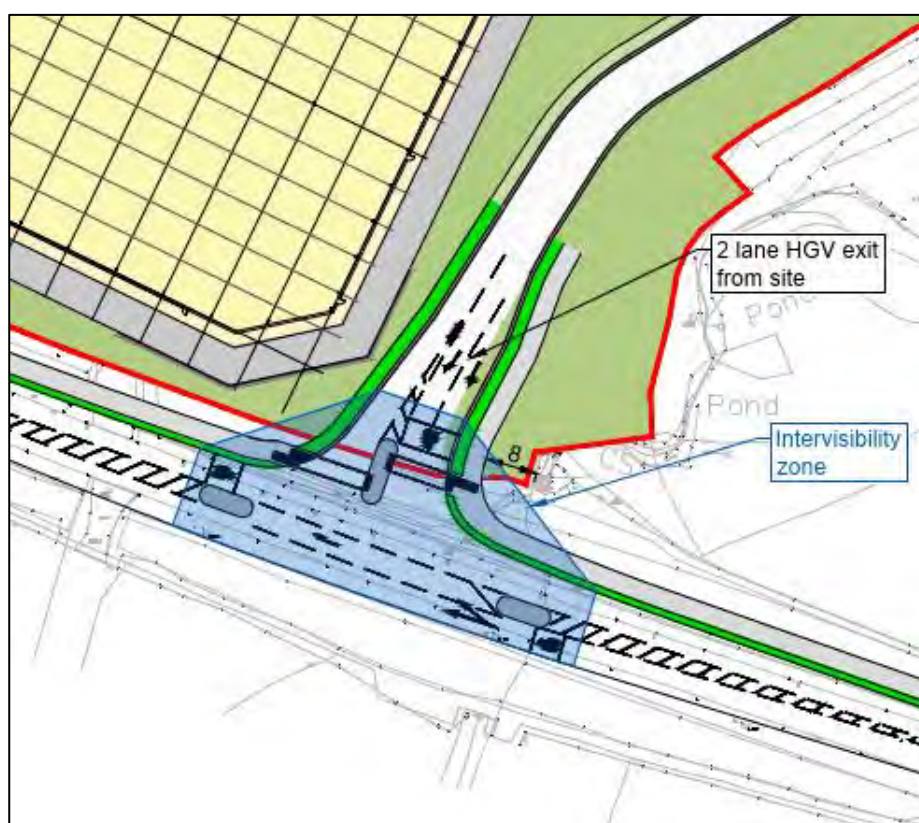
2.1.4 Problem 1.04

Location: Cronton Road eastern access (both options).

Summary: The footway extends into the site which could encourage pedestrian/cyclist movement which would not be desirable and could result in conflict with HGVs.

At the eastern access the footway is shown to extend into the site before terminating. This access is to be for HGV traffic only and is therefore unlikely to be desirable for pedestrians and cyclists. Should pedestrians more familiar with the site arrangements continue along this route, it could result in them walking on a grassed verge which could be uneven potentially leading to trips and falls. Alternatively, pedestrians may walk within the carriageway increasing their vulnerability to being struck by HGVs using this access.

Figure 2.4: Continuation of footway into eastern access.



Source: Mott MacDonald

Recommendation

Terminate the footway at the crossing point to discourage pedestrians from using the HGV access.

2.1.5 Problem 1.05

Location: Scheme tie-ins (both options).

Summary: Lack of footway / cycleway tie in may result in cyclists using the carriageway resulting in side-swipe collisions within the carriageway.

It is not clear how the proposed shared use footway / cycleway will tie in with the existing provisions. At the western end of the scheme near the M57 / M62 Roundabout cyclists are currently signed off the footway onto the carriageway. Should this remain, cyclists may not be aware of a new shared use provision and continue on carriageway. It is not known how westbound cyclists will access the new shared use footway / cycleway.

Should cyclists remain on carriageway it increases the potential for collisions with passing vehicles and the potential for side swipe collisions. Alternatively, should cyclists remain on the footway following the end of the shared use facility, it increases the risk of conflict with pedestrians, particularly if the footway narrows.

Recommendation

At the western end of the scheme extend the shared use facility to tie into the existing provision at the M57 / M62 roundabout. At the eastern end of the scheme provide a suitable location for cyclists to either join the shared use footway or to re-join the carriageway.

2.1.6 Problem 1.06

Location: Both signalised Junctions (both options).

Summary: Lack of parking provision for maintenance of the traffic signals/controller and culvert trash screen/water works may lead to inappropriate parking resulting in poor overtaking manoeuvres leading to side swipe collisions or conflict with pedestrians should they park and block the shared footway/cycleway.

The two new junctions are proposed to become signalised. Should maintenance operatives be required to visit the signals, there is no provision for them to park. This may result in operatives parking either on A5080 Cronton Road or within the access roads which may obstruct through traffic or impact on effectiveness of signalised junction. Parked vehicles may lead to poor overtaking manoeuvres which may result in side-swipe collisions. Alternatively, a vehicle may park on the footway, increasing the risk of conflict with pedestrians or cyclists on the shared use path.

In addition, water works are present near the eastern most junction and similarly may require access.

Recommendation

Provide a maintenance bay for the signals and water works.

2.1.7 Problem 1.07

Location: Eastern signalised Junction (both options).

Summary: Presence of steps may lead to trips and falls resulting in personal injury.

Close to the proposed eastern access, a culvert and associated water works are present with a set of steps leading down from Cronton Road for maintenance of the works. The proposed development is likely to lead to increased pedestrian numbers on Cronton Road, and visitors to the site may believe the steps provide access to the development and could be used by unauthorised users. The steps could be a hazard leading to trips and falls which may result in personal injury.

Figure 2.5: Steps leading down to water works.



Source: Mott MacDonald

Recommendation

Provide gated access to the steps to prevent access by unauthorised users.

2.1.8 Problem 1.08

Location: Scheme wide (both options).

Summary: Presence of vegetation may restrict visibility to signal heads and effectiveness of street lighting.

Both sides of the A5080 Cronton Road have a high level of low tree canopy and vegetation which overhangs the footway. The Audit Team are concerned that the vegetation could obscure forward visibility to the traffic signal heads and reduce the effectiveness of the street lighting lanterns. Should motorists fail to observe the signals it could result in late braking leading to rear end shunt collisions, or motorists may overshoot the stop line, leading to conflict with turning traffic at the junctions.

Figure 2.6: Overhanging vegetation.



Source: Mott MacDonald

Recommendation

Cut back vegetation so that traffic signal heads and lighting columns are clear to approaching traffic.

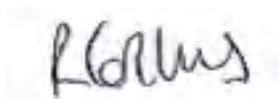
3 Audit Team Statement

We certify that this audit has been carried out in accordance with Departmental Standard GG119 and Road Safety Audit Brief (100392094).

Road Safety Audit Team Leader

R J Collins BA (Hons), MSc
(Certificate of Competency in Road Safety Audit, July 2016)

Signed:



Date: 22nd June 2022

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Signed:



Date: 22nd June 2022

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Appendices

A.	List of Drawings Examined	12
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A. List of Drawings Examined

The following documents were examined as part of this Road Safety Audit.

Table 1: Drawings

Document Number	Revision	Drawing Title
392094-MMD-00-XX-DR-C-0101	P1	A5080 Cronton Road General Arrangement, Option 1
392094-MMD-00-XX-DR-C-0102	P1	A5080 Cronton Road General Arrangement, Option 2

Source: Mott MacDonald

Problem 1.05

Problem 1.02

Problem 1.01

Problem 1.04

Problems 1.03 & 1.06

Problem 1.07

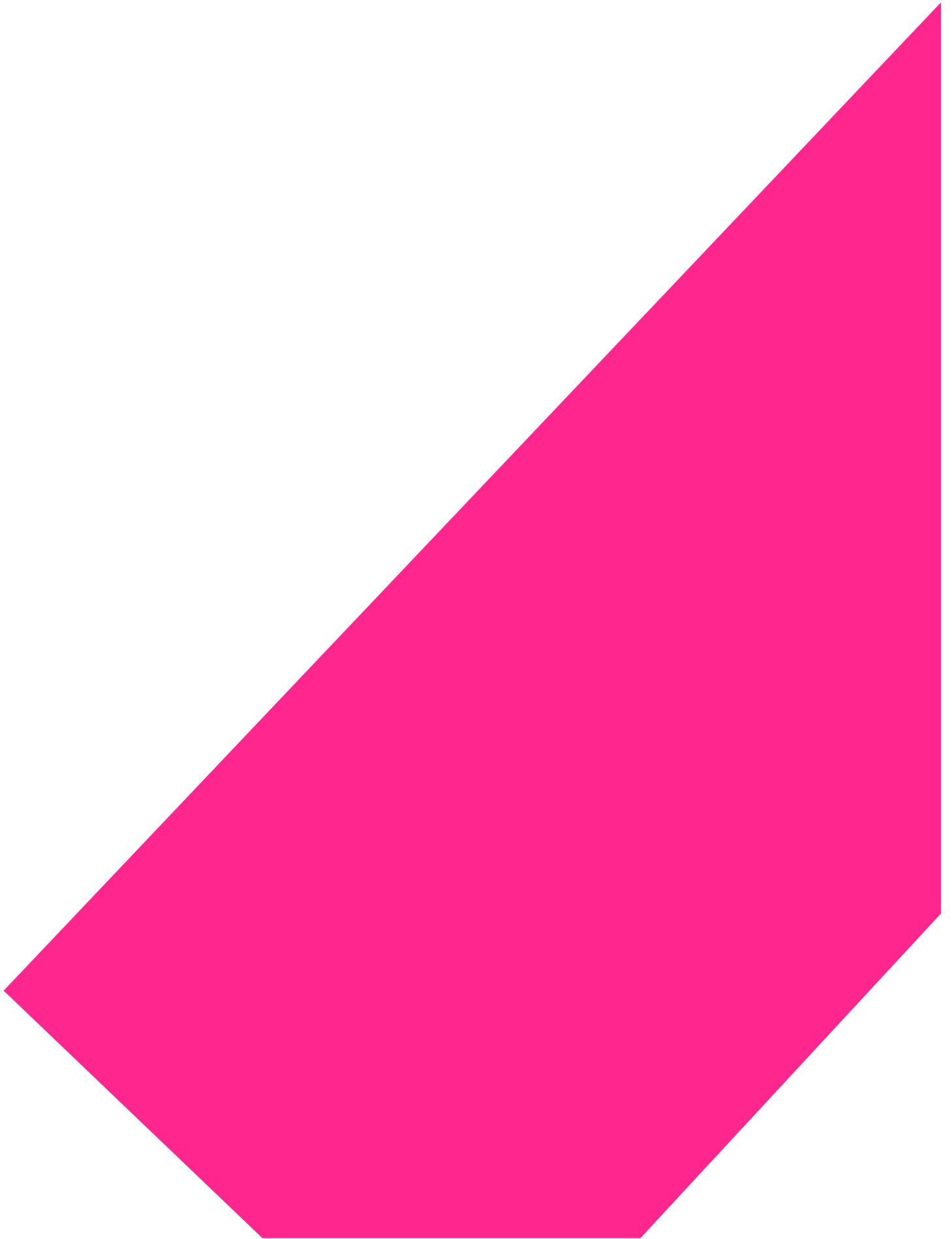
Problem 1.05

Scheme wide: Problem 1.08

Not to scale

Draft

PI		20.05.22	MMD	First issue	KS	KR
Rev	Date	Drawn	Description	Drawn	Drawn	Drawn
M M NOT MACDONALD						
				Royal Lane Building Floor 1st Location: L3 1.41 United Kingdom +44 (0)151 482 5910 +44 (0)20 8861 5700 mercurys.com		
Client						
MARO DEVELOPMENTS						
Title						
MERCURY 62 CRONTON ACCESS JUNCTIONS TO SITE A5080 CRONTON ROAD GENERAL ARRANGEMENT OPTION 1						
Drawn	M.S. Davies	Eng. check		Drawn		
Checked	M.S. Davies	Coordination		Checked		
Day check	K. Elwyn	Approval		K. Elwyn		
Scale	1:1000	Status	PRE	File	P1	Security
Drawing Number				392094-MMD-00-XX-DR-C-0101		



B. Revised Proposals Plan



Notes

Key to symbols

Reference drawings

P2	23.06.22	MSD	Road safety comments incorporated	KB	KR
P1	25.05.22	MSD	First issue	KB	KR
Rev	Date	Drawn	Description	Ch'k'd	App'd

M

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Client

MARO DEVELOPMENTS

Title

MERCURY 62 CRONTON
ACCESS JUNCTIONS TO SITE
A5080 CRONTON ROAD
GENERAL ARRANGEMENT
OPTION 1

Designed	M.S.Davies	Eng check		
Drawn	M.S.Davies	Coordination		
Dwg check	K.Blakey	Approved	K.Riley	
Scale at A1	1:1000	Status	PRE	P2
		Rev		STD

Drawing Number

392094-MMD-00-XX-DR-C-0101





Environmental Statement Volume 3: Appendix 8.2

Framework Travel Plan



Mercury 62, Cronton Road

Framework Travel Plan

September 2022

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Framework Travel Plan

September 2022

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	August 2022	DJ	KB	DC	Draft
B	September 2022	DJ	KB	DC	FINAL

Document reference: 392094 | 2 | B

Information class: Standard

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1 Introduction

This document has been prepared in support of a planning application for a proposed warehouse development on Cronton Road in Knowsley. A Transport Assessment has also been prepared which this travel plan should be read in conjunction with.

1.1 Travel Plan

A Travel Plan provides a strategy for managing travel demand and involves a dynamic process of implementation, monitoring and review. It is a package of practical measures with the aim of improving access by all modes of travel, improving choices for everyone.

The underlying aim of any Travel Plan is to minimise the number of single occupancy vehicle (SOV) car trips generated by encouraging a shift to more sustainable modes of transport, thereby mitigating the negative impacts of travel.

It is important that a Travel Plan is not static in time, developed only to satisfy a planning application. Instead, it is a dynamic process of implementation, monitoring and review which will evolve over time and accommodate improvements in local and regional transport infrastructure. Frequent reviewing and monitoring of travel behaviour to and from the site provides a mechanism for assessing the effectiveness of the Travel Plan, to determine whether modal share targets should be adjusted, and highlight any issues relating to transport which could be improved.

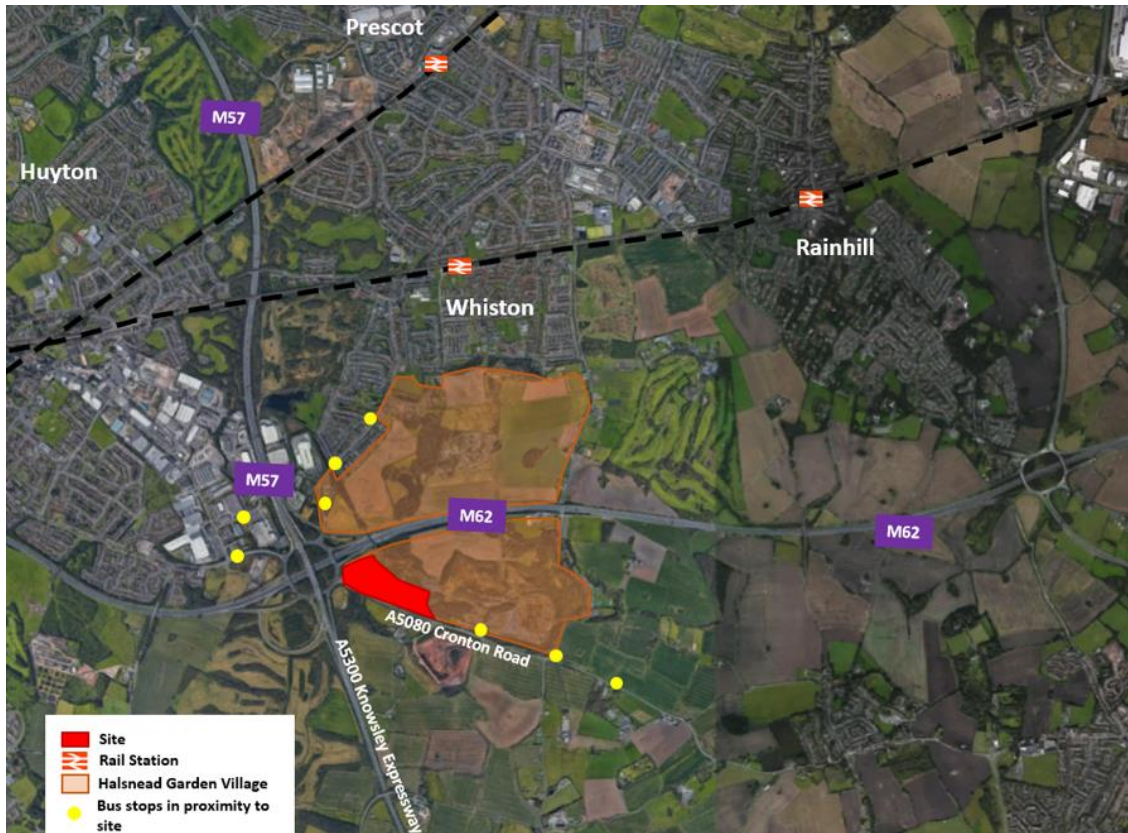
This Travel Plan is a framework as there are a number of unknowns at this stage as the site is not built or occupied. Future modal share data, characteristics of the employees and specific developer commitments are not known. Therefore, as more information becomes available about the specificities of the development and employees more detail can be added to the Travel Plan to further tailor it to the development.

1.2 Proposed Development

1.2.1 Site Location

The proposed development site is located south of the M62, east of Tarbock island. Figure 1 provides an overview of the site location.

Figure 1: Proposal Site Location and Strategic Context



Source: Mott MacDonald

1.2.2 Development Details

The Mercury 62 site comprises a warehouse distribution building of 29,058m². This consists of the actual B8 warehouse of 29,063m².

The development site will be accessed through two new signalised junctions with Cronton Road. A plan of the proposed development is shown as Appendix A.

1.3 Report Format

The remainder of this Travel Plan is divided into the following sections.

- **Section 2:** Policy Context
- **Section 3:** Infrastructure Commitments
- **Section 4:** Travel Plan Objectives and Measures
- **Section 5:** Marketing and Monitoring

2 Policy Context

2.1 National Planning Policy Framework (NPPF, 2021)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and details how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

The NPPF sets out the following guidelines regarding transport:

Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.*

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users;*
- c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46; and*
- d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

NPPF states that 'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'

This Travel Plan supports the planning application for the proposed development in accordance with the recommendations set out within the NPPF. The Travel Plan provides a set of measures to manage travel to the site by a range of modes.

2.2 Merseyside Local Transport Plan 3 (LTP3)

The Merseyside Local Transport Plan 3 (LTP3) became active on 1st April 2011 and has a vision to provide “a city region committed to a low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens and where sustainable travel is the option of choice.” (LTP3, Paragraph 2.2).

To achieve the vision, six goals have been set which include “3) the transport system promotes and enables improved health and wellbeing and road safety” and “4) equality of travel opportunity for all, through a transport system that allows people to connect easily with employment, education, healthcare, other essential services and leisure and recreational opportunities.” (LTP3 2.12).

The follow up to LTP3, Merseyside LTP4, is currently in draft status. The document will outline Liverpool City Region’s commitment to “plan for, and deliver a clean, safe, resilient, accessible and inclusive London-standard transport system for the movement of people, goods and freight in a way that delivers our economic, social and environmental ambitions, and in particular, a net zero carbon emitting city region by 2040 or sooner”.

The LTP4 Draft goals are as follows:

1. Ensure transport plans and strategies are aligned to support sustainable growth
2. Net-zero carbon emissions by 2040 or sooner
3. More attractive streets and sustainable travel infrastructure to improve the health and quality of life, including zero emission freight and passenger transport
4. Resilient, well maintained transport system in response to climate change
5. Support innovation and new technologies

This travel aims to increase opportunities and encourage active travel for all staff as well as presenting opportunities to enhance the use of public transport, therefore supporting the vision outlined in the Merseyside Local Transport Plan 3.

2.3 Ensuring a Choice of Travel Supplementary Planning Document (SPD)

This SPD was developed by a collaboration of the Merseyside local authorities and Merseytravel. It has been adopted by Knowsley Council, and provides guidance on the access and transport requirements for new developments.

The SPD Objectives are:

- Ensure a reasonable choice of access by all modes of transport to new development;
- Providing Increased choice of access for the end user(s);
- Promoting opportunities to maximise the quality or density of the development saving space through the provision of less car parking spaces where appropriate;
- Helping create healthier workforces / residents where people choose to walk or cycle;
- Promoting social cohesion and sustainable communities through the creation of streets that encourage social interaction, positively integrate with the built environment, whilst still permitting effective movement of traffic; and
- Improved environmental image.

In accordance with the SPD a Minimum Accessibility Standard Assessment (MASA) has been produced to accompany this planning application.

This Travel Plan has been developed in align with the identified objectives within the Ensuring a Choice of Travel Supplementary Planning Document such as helping create healthier workforces, promoting social cohesion, ensuring a reasonable choice of access by all modes and improved environmental image.

2.4 Knowsley Local Plan (2016-2028)

The Core Strategy part of the Local Plan sets out the strategic framework for the growth and development of Knowsley up to 2028 and beyond. It sets out how and where new development and regeneration should take place and will therefore promote, guide and manage the future development of the borough. The Core Strategy will also shape the investment plans of the Council and other public, voluntary and private sector organisations.

The Strategy for Knowsley aims to make Knowsley 'The Borough of Choice', with a sustainable and diverse population, living in successful suburban townships that provide a sense of place and community. The vision states that:

'By 2023, Knowsley will have:

- Attractive, sustainable neighbourhoods with a wide choice of housing and excellent community facilities;
- Vibrant and welcoming town centres;
- Residents and local communities who are able to make positive lifestyle choices;
- High quality employment areas which help to drive economic growth in the Liverpool City Region;
- Narrowed the gap in deprivation levels both between different parts of the borough and between Knowsley and elsewhere.'

A key aspect of the Knowsley Local Plan will be to support a sustainable transport system and geographical pattern of development which minimises the need to travel and will help grow the borough's economy, ensuring that jobs, shops and services are accessible to all, leading to a lesser reliance on the car for travel. This will help to improve the environment and the health and wellbeing of residents.

Policy CS7 in the Plan outlines Knowsley's Overall Transport Strategy:

- Planning powers and other interventions will be used to support a sustainable and integrated transport system that will:
 - Support the economy by facilitating efficient movement of people and goods within the borough and linking to Liverpool City Centre, the Port of Liverpool, Liverpool John Lennon Airport and other destinations in the surrounding area;
 - Help meet the development needs of the borough through to 2028;
 - Ensure people can get to where they need to by a choice of walking, cycling and public transport;
 - Enhance road safety;
 - Seek to reduce carbon emissions; and
 - Improve the health and wellbeing of local people.
- New development will be required to be:
 - Located and designed to prioritise accessibility and sustainable modes of travel through a choice of walking, cycling, public transport, and incorporate access for private vehicles. Where deficiencies are identified, developer contributions will be required to improve the accessibility of the location;

- Located and designed to ensure that larger scale proposals (attracting a lot of visitors, customers and/or employees) are located in the most accessible locations;
- Where subject to a planning application, accompanied (except in the case of smaller scale proposals) by Transport Assessments and/or Travel Plans;
- In compliance with adopted cycle, car, disabled and service vehicle parking standards for different types and scales of new development;
- Inclusive of measures that will mitigate carbon emissions and improve air quality where appropriate; and
- Consistent with safeguarding arrangements that secure the operational integrity and safety of Liverpool John Lennon Airport.

This Travel Plan directly supports the key visions outlined in the Knowsley Local Plan (2016-2028) by facilitating the development of attractive, sustainable neighbourhoods which seek to reduce carbon emissions and improve the health and wellbeing of local people through the promotion of sustainable transport modes.

3 Infrastructure Commitments

Section 3 and 4 of the Transport Assessment set out in detail the opportunities for travel at the proposed development site.

As part of the wider Halsnead Masterplan SPD improvements will be made to utilise sustainable transport infrastructure which will not only benefit the employees of the site but also provide connectivity to the wider residential neighbourhoods of Whitson, Huyton and Cronton.

3.1 Facilities for Active Travel

Pedestrian and cycle facilities will be enhanced as part of the Halsnead Masterplan SPD. This includes a high-quality pedestrian, cyclist and equestrian route across the M62 using a footbridge along the former mineral railway line. This facility will all access for pedestrians and cyclists without having to negotiate the Tarbock Island Interchange.

The Huyton and Knowsley Mineral Greenway is located to the north of the site which currently runs from Whiston to Stadt Moers Park and forms part of the National Cycle Route 56 running from Chester to Liverpool. The site therefore benefits from close proximity to the national cycle network providing opportunities for cycling as a main mode of travel for staff from nearby residential areas of Huyton, Prescott, Whiston and Hough Green. These areas are all located within 5km from the site.

Some parts of Tarbock and Whiston Cross are also located within 2km of the site which is considered reasonable walking distance. Therefore, there are also opportunities for potential employees from these areas to walk to work.

It should also be noted that once the residential elements of the Halsnead Masterplan are built, along with the walking and cycling routes that will accompany the wider masterplan much of the proposed area will be located within the 2km walking catchment, with the entirety of it within the 5km cycle catchment. Therefore, opportunities for walking and cycling to work will be viable mode of travel for a large proportion of staff.

The design of the internal pedestrian footways and cycle facilities will be designed with good passive surveillance wherever possible. This will help encourage the use of these routes and provide a level of security to pedestrians and cyclists.

3.2 Facilities for Public Transport

Bus stops along Cronton Road provide half hourly services between Liverpool, Widnes, Warrington and Huyton. However, the existing bus stop facilities along Cronton Road are likely to be unsuitable bus patronage generated by future employees. Therefore, current bus stop facilities are likely to be required to be upgraded to current best practice standards in line with the relevant Knowsley Metropolitan Borough Council standards. Additional public transport connectivity is provided along Windy Arbor Road which can be reached in around 10-15 minutes on foot.

The development of the Halsnead Masterplan will also see enhancements to bus routing and frequency, increasing the attractiveness of bus as a main mode of transport for future employees of the site.

The site is also located in proximity to Whiston Rail Station which benefits from frequent services to both Manchester and Liverpool city centres. Improvements to walking and cycling

infrastructure across the M62 will enhance connectivity between the station and the site therefore increasing travel by rail for employees.

4 Travel Plan Objectives and Measures

Travel Plan objectives and measures have been identified for implementation based on the real opportunity for the use of sustainable transport modes.

4.1 Travel Plan Objectives

The Travel Plan must have objectives and targets which are quantifiable and measurable over time, to be able to assess whether the methods implemented to influence travel behaviour have been successful. These must be ambitious enough to provide employees and visitors with incentives to make every effort to achieve significant changes in travel patterns, yet still be realistic and achievable. The overarching objectives of the Mercury 62 Commercial Development site are:

- To minimise the traffic generated by employees;
- To increase the proportion of commuting walking, cycling and using public transport;
- To reduce the number of single occupancy vehicle journeys;
- To increase modal choice for staff; and
- To reduce the carbon footprint of the development.

4.2 Welcome Packs

A welcome pack should be distributed to all staff upon their first arrival to the development. This should include information about the Travel Plan and the local transport infrastructure. This information, such as the locations of bus stops/rail stations, and the services available, as well as recommended walking and cycling routes to major trip generators should be included within the pack. Details about the locations of cycle facilities on site should be included, along with information about the health and wellbeing benefits of using active modes of travel. Similar information should also be displayed in communal areas such as the retail spaces within the development. This welcome pack will need to be updated with the latest travel information and distributed each year as new people are employed.

4.3 Travel Plan Administration

A Travel Plan Co-ordinator should be assigned to the development to oversee the implementation of this Travel Plan. A Travel Plan Co-ordinator (TPC) is a designated person whose responsibility it is to ensure effective co-ordination, promotion, monitoring and management of the Travel Plan. The TPC can be designated from within the management team and need not be a full-time role.

The role of the co-ordinator is to act as a contact point for all travel and transport related enquiries. The TPC will ensure travel information is disseminated effectively to staff and will manage the implementation of Travel Plan measures. They will also be responsible for monitoring modal shift through carrying out surveys and promoting sustainable and active travel modes.

4.4 Measures

A full action plan which provides policy measures and methodologies which could potentially be implemented at Mercury 62 is provided in Table 1.

Table 1: Travel Plan Measures

Type of Transport/ Initiative	Measure	Methodology	Date	Cost
Travel Plan Administration	Travel Plan Coordinator (TPC)	Provide contact name for Travel Plan Coordinator to Knowsley Metropolitan Borough Council	Prior to occupation	Low
	Set up a Travel Plan Steering Group	Travel Plan Coordinator to establish a steering group to support Travel Plan implementation and provide direction. Encourage business on site to produce and implement their own Travel Plans	Prior to occupation	Low
	Endeavour to negotiate travel discounts for employees	Negotiate discounts for employees where possible e.g. with local taxi firms, cycle shops and on public transport.	Prior to Occupation	Low
	TP Materials	Ensure TP materials highlight sustainable transport links and local amenities and that staff are aware of local non-car travel opportunities	Prior to Occupation	Low
	Welcome Packs and Travel Plan Guide	Source information and produce a welcome pack including local walking and cycling routes, local amenities, bus and rail timetables and ticketing information, discounts available to employees, a summary of the Travel Plan and contact details for the Travel Plan Coordinator and travel information lines. Ensure welcome pack content is available online via employer's website and marketing information.	Prior to Occupation	Low
	Undertake staff travel survey	Develop a staff travel survey and distribute via email or post.	Ongoing	Low
	Establish Travel Plan targets and update Travel Plan measures	Establish Travel Plan targets based on Travel Plan survey results	Within 3 months of Travel Plan surveys.	
	Monitor use of car and cycle parking spaces	Undertake 6 monthly usage surveys in staff car parks.	Ongoing	Low
	Set up employee database	Set up database of preferred contact method and details for employees for Travel Plan communications	Ongoing	Low
Car	Repeat staff travel survey	Repeat travel survey biannually	Every 2 years	
	Car sharing scheme	Promote staff car sharing database to facilitate communication between staff about the possibility of sharing lifts rather than driving on their own.	Prior to Occupation/ Ongoing	Low

Type of Transport/ Initiative	Measure	Methodology	Date	Cost
	Cycle to Work Scheme	Encourage businesses to promote a 'Cycle to Work' scheme and provide incentives for people who stick to it.	Prior to Occupation/ Ongoing	Low
Public Transport	Approach bus operators where required to improve frequency to Cronton site	Engage with bus operators to influence bus routes and timetables	Prior to Occupation	Low
	Public Transport Service Updates	Provide updates to staff regarding service frequencies and timetables for bus and rail services	As required	Low
	Season ticket loan scheme	Promote season ticket loan scheme for staff employed at businesses on site	Prior to Occupation	Low
Active Travel	Apply for any Travel Plan grants available	Liaise with Knowsley Metropolitan Borough Council, Stagecoach, Arriva, Merseytravel to apply for Access Funding money that may be available for capital and revenue schemes.	Prior to Occupation	Low
	Cycle to work scheme	Encourage salary sacrifice scheme	Prior to Occupation	Cost neutral
	Implement proposed measures for sustainable Travel	Implement cycle parking, pedestrian footways, crossings and signage as part of construction phase.	During construction	Part of construction
	Promote any cycle training and maintenance courses	Promote any cycle training and maintenance courses available locally	Ongoing	Low
	Promote national events	Promote events e.g. Bike Week	Annually	Low
	Introduce, promote and monitor new cycle storage	Install and promote new cycle storage	Prior to Occupation	Medium

Source: Mott MacDonald

5 Marketing and Monitoring

5.1 Travel Plan Monitoring

It is recommended that the predominant method for assessing the benefits of the Travel Plan is through the achievement of mode share targets. This will allow comparable figures to be monitored regularly to see the overall trend of mode share.

Travel Plan progress will be monitored through the review of progress against measures identified for implementation. Progress made toward these measures will allow actions to be undertaken should any part of the plan be lacking in impact. Progress reports and revised measures can then be produced on a regular basis.

In addition to travel surveys monitoring will also be undertaken in the form of, reviewing usage of car parking and the take up of promotions.

5.2 Marketing Strategy

The Travel Plan Coordinator will be responsible for marketing of the Travel Plan. These measures will ensure that information regarding Travel Planning is disseminated to all staff on site.

The following actions to inform employers of the Travel Plan are recommended utilising existing lines of communication:

- Include sustainable travel information within marketing materials for development.
- Produce a 'Welcome Information Pack' for all new employees including details of infrastructure links;
- Promote and co-ordinate site events such as 'Bike Week';
- Advertise Travel Plan activities and events via traditional methods such as direct email;
- Set up and update Travel Plan page on company intranet with links to the latest Travel Plan information;
- Disseminate information via staff meetings.

A. Development Plan



SCHEDULE OF AREAS

UNIT 1		
GF WAREHOUSE	25,920 sqm	279,003 sqft
GF UNDERCROFT	841 sqm	9,053 sqft
GF OFFICE CORE	135 sqm	1,453 sqft
GF OPS OFFICE	303 sqm	3,261 sqft
FF OFFICE	932 sqm	10,032 sqft
SF OFFICE	932 sqm	10,032 sqft
Gatehouse	18 sqm	194 sqft
TOTAL	29,081 sqm	313,028 sqft

OVERALL TOTAL 29,081 sqm 313,028 sqft

Parking Provision

42 Trailer Parking Spaces
295 Car Parking Spaces
16 Motorcycle Spaces
36 Cycle Spaces

General Notes

All site dimensions shall be verified by the Contractor on site prior to commencing any works.

Do not scale from this drawing.

Only work to written dimensions.

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Legend

- Planning Boundary
- Proposed secure fence line (2.4m high paladin - colour Green)
- Knee rail Fence
- Timber Post & Rail Fence (1.2m high)
- Retaining Wall - refer to engineer's details
- Existing Trees to be retained
- Proposed Trees
- Proposed hedgerow
- All landscaping shown indicatively only. Please refer to Landscape Architect drawings for full details.
- Proposed Surface pedestrian footpath

P1 PLANNING ISSUE
Rev. Description
21.07.2022 Date
AL MW ISS APP

Scale 1:1000@A1
Status S2 Information
Drawn by AL
Checked by MW
Date 31.05.22
Client:

MARO DEVELOPMENTS

Project:
MERCURY 62, CRONTON

Sheet Name:
PROPOSED SITE PLAN

Project No. Orig. Zone Level Type Role Dwg No. Rev
17021-FRA-AV-XX-DR-A-0501 P1

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Environmental Statement Volume 3: Appendix 9.1

Air Quality - Assessment Input Data

Air Quality Environmental Impact Assessment

Appendix 10.1 - Assessment Input Data

Cronton Road, Knowsley



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1.1 Introduction

- 1.1.1 The proposed development has the potential to cause air quality impacts as a result of exhaust emissions associated with vehicles travelling to and from the Site. In order to assess nitrogen dioxide (NO₂), particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀) and particulate matter with an aerodynamic diameter of less than 2.5µm (PM_{2.5}) concentrations at sensitive locations, detailed dispersion modelling was undertaken in accordance with the following methodology.

1.2 Dispersion Model

- 1.2.1 Dispersion modelling was undertaken using the ADMS-Roads dispersion model (version 5.0.1.3). ADMS-Roads is developed by Cambridge Environmental Research Consultants (CERC) and is routinely used throughout the world for the prediction of pollutant dispersion from road sources. Modelling predictions from this software package are accepted within the UK by the Environment Agency and Department for Environment, Food and Rural Affairs (DEFRA).

- 1.2.2 The model requires input data that details the following parameters:

- Assessment area;
- Traffic flow data;
- Vehicle emission factors;
- Spatial co-ordinates of emissions;
- Street width;
- Meteorological data;
- Roughness length (z₀); and,
- Monin-Obukhov length.

- 1.2.3 These are detailed in the following Sections.

1.3 Assessment Area

- 1.3.1 Ambient concentrations were predicted over National Grid Reference (NGR): 345480, 388320 to 347520, 390360. One Cartesian grid was used within the model to produce data suitable for contour plotting using the Surfer software package.

1.3.2 Reference should be made to **Figure 10.10** in **Appendix 10.2** for a map of the assessment area.

1.4 Traffic Flow Data

1.4.1 Traffic data for use in the assessment, including 24-hour Annual Average Daily Traffic (AADT) flows and fleet composition as Heavy Duty Vehicle (HDV) proportion, was provided by Mott MacDonald Limited, the Transport Consultants for the project.

1.4.2 Traffic data for Whitefield Lane was not available from the Transport Consultants. As such, information for this link was obtained from an Air Quality Assessment¹ produced in support of the Cronton Colliery, Halsnead Garden Village development adjacent to the Site. As planning permission was granted for this scheme on 4th March 2022, the report was considered to provide suitable data in lieu of other sources.

1.4.3 A summary of the traffic flow data is provided in Table A10.1.

Table A10.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		Verif.	2024 DM	2024 DS	Verif.	2024 DM	2024 DS
L1	A4080 Cronton Road, East of Park Villas	9,407	12,722	12,860	1.00	9.09	9.00
L2	A4080 Cronton Road, East of Site Entrance	9,407	12,722	12,860	1.00	9.09	9.00
L3	A4080 Cronton Road, West of Site Entrance	9,407	12,722	13,832	1.00	9.09	12.15
L4	A5300 Knowsley Expressway, South of Northbound (NB) Slip Road	55,943	60,552	60,715	10.00	10.41	10.55
L5	A5300 Knowsley Expressway, Between Slip Roads	55,943	60,552	60,715	10.00	10.41	10.55
L6	A5300 Knowsley Expressway/M57, Over Tarbock Island	48,413	52,219	52,420	12.27	12.46	12.62
L7	M57, Between Slip Roads	73,159	78,699	79,072	14.00	14.04	14.21

¹ Redmore Environmental Ltd, 2020. Cronton Colliery, Knowsley - Air Quality Assessment.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		Verif.	2024 DM	2024 DS	Verif.	2024 DM	2024 DS
L8	M57, North of Southbound (SB) Slip Road	73,159	78,699	79,072	14.00	14.04	14.21
L9	M62 to A5300/M57	17,061	18,593	18,593	9.66	9.66	9.66
L10	M57 On-slip, NB	12,907	14,188	14,370	4.00	4.45	5.09
L11	M57 Off-slip, SB	10,704	11,829	12,021	5.00	5.46	6.11
L12	Tarbock Island	12,561	14,372	14,927	4.41	5.32	6.88
L13	A5300 Knowsley Expressway, Off-slip, NB	14,130	15,409	15,491	3.00	4.15	4.43
L14	A5300 Knowsley Expressway, On-slip, NB	11,020	12,402	12,483	8.00	8.90	9.26
L15	M62, West of On and Off Slip Roads	75,426	81,761	81,955	4.00	4.13	4.19
L16	M62, West of Tarbock Island	75,426	81,761	81,955	4.00	4.13	4.19
L17	M62, Below Tarbock Island	65,805	70,967	71,130	7.42	7.60	7.71
L18	M62, East of Tarbock Island	100,055	107,484	107,724	10.00	10.24	10.39
L19	M62, East of On and Off Slip Roads	100,055	107,484	107,724	10.00	10.24	10.39
L20	A5300 to M62	17,061	18,593	18,593	9.66	9.66	9.66
L21	M62, On-slip, Westbound (WB)	16,191	18,356	18,447	4.00	4.33	4.46
L22	M62, Off-slip, Eastbound (EB)	11,445	12,592	12,695	2.00	2.46	2.63
L23	M62, On-slip, EB	11,954	13,535	13,658	9.00	9.83	10.45
L24	M62, Off-slip, WB	11,065	12,086	12,203	10.00	9.73	10.34
L25	Windy Arbor Road	12,459	16,242	16,316	2.00	1.63	1.62
L26	Windy Arbor Road, NB off Roundabout	6,230	8,121	8,158	2.00	1.63	1.62
L27	Windy Arbor Road, SB on Roundabout	6,230	8,121	8,158	2.00	1.63	1.62
L28	A5080 Cronton Road, NB off Roundabout	8,444	9,365	9,397	2.00	1.92	1.91
L29	A5080 Cronton Road, SB on Roundabout	8,444	9,365	9,397	2.00	1.92	1.91

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)		
		Verif.	2024 DM	2024 DS	Verif.	2024 DM	2024 DS
L30	A5080 Cronton Road, West of Tarbock Island	16,888	18,730	18,794	2.00	1.92	1.91
L31	A5080 Cronton Road, East of Whitefield Lane	16,888	18,730	18,794	2.00	1.92	1.91
L32	A5080 Cronton Road, East of Whitefield Lane, Junction	16,888	18,730	18,794	2.00	1.92	1.91
L33	A5080 Cronton Road, West of Whitefield Lane, Junction	16,888	18,730	18,794	2.00	1.92	1.91
L34	A5080 Cronton Road, West of Whitefield Lane	16,888	18,730	18,794	2.00	1.92	1.91
L35	Whitefield Lane, Junction	11,890	12,880	12,880	2.12	2.05	2.05
L36	Whitefield Lane	11,890	12,880	12,880	2.12	2.05	2.05
L37	Whitefield Lane	11,890	12,880	12,880	2.12	2.05	2.05

1.4.4 Road widths were estimated from aerial photography and UK highway design standards. A summary of the link parameters is provided in Table A10.2.

Table A10.2 Road Parameters

Link		Road Width (m)	Average Vehicle Speed (km/h)
L1	A4080 Cronton Road, East of Park Villas	7.0	80
L2	A4080 Cronton Road, East of Site Entrance	7.0	80
L3	A4080 Cronton Road, West of Site Entrance	7.0	90
L4	A5300 Knowsley Expressway, South of NB Slip Road	19.2	95
L5	A5300 Knowsley Expressway, Between Slip Roads	24.9	95
L6	A5300 Knowsley Expressway/M57, Over Tarbock Island	20.9	95
L7	M57, Between Slip Roads	28.9	95
L8	M57, North of SB Slip Road	26.0	95
L9	M62 to A5300/M57	7.2	80
L10	M57 On-slip, NB	4.2	80

Link		Road Width (m)	Average Vehicle Speed (km/h)
L11	M57 Off-slip, SB	7.5	45
L12	Tarbock Island	10.4	35
L13	A5300 Knowsley Expressway, Off-slip, NB	6.4	45
L14	A5300 Knowsley Expressway, On-slip, NB	7.0	80
L15	M62, West of On and Off Slip Roads	25.6	95
L16	M62, West of Tarbock Island	22.7	95
L17	M62, Below Tarbock Island	26.4	95
L18	M62, East of Tarbock Island	34.6	95
L19	M62, East of On and Off Slip Roads	26.3	95
L20	A5300 to M62	4.5	80
L21	M62, On-slip, WB	4.0	80
L22	M62, Off-slip, EB	6.2	45
L23	M62, On-slip, EB	4.0	80
L24	M62, Off-slip, WB	7.1	45
L25	Windy Arbor Road	7.8	45
L26	Windy Arbor Road, NB off Roundabout	4.4	35
L27	Windy Arbor Road, SB on Roundabout	7.2	25
L28	A5080 Cronton Road, NB off Roundabout	4.3	35
L29	A5080 Cronton Road, SB on Roundabout	7.0	25
L30	A5080 Cronton Road, West of Tarbock Island	12.1	60
L31	A5080 Cronton Road, East of Whitefield Lane	6.9	60
L32	A5080 Cronton Road, East of Whitefield Lane, Junction	9.5	15
L33	A5080 Cronton Road, West of Whitefield Lane, Junction	7.6	15
L34	A5080 Cronton Road, West of Whitefield Lane	5.9	50
L35	Whitefield Lane, Junction	8.2	15
L36	Whitefield Lane	8.5	60
L37	Whitefield Lane	6.8	80

- 1.4.5 Reference should be made to **Figure 10.10** in **Appendix 10.2** for a graphical representation of the road link locations.

1.5 Emission Factors

- 1.5.1 Emission factors for each link were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 11.1). This has been produced by DEFRA and incorporates COPERT 5.3 vehicle emission factors and fleet information.
- 1.5.2 There is current uncertainty over NO₂ concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2019 emission factors were utilised in preference to the proposed development opening year in order to provide robust model outputs. As predictions for 2019 were verified, it is considered the results are a robust indication of worst case concentrations for the future year.

1.6 Meteorological Data

- 1.6.1 Meteorological data used in the assessment was taken from Liverpool Airport meteorological station over the period 1st January 2019 to 31st December 2019 (inclusive). Liverpool Airport is located at NGR: 343488, 381791, which is approximately 7.4km south-west of the proposed development. It is anticipated that conditions would be reasonably similar over a distance of this magnitude. The data was therefore considered suitable for an assessment of this nature.
- 1.6.2 All meteorological records used in the assessment were provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of data within the UK. Reference should be made to Figure 10.2 in for a wind rose of the utilised meteorological data.

1.7 Roughness Length

- 1.7.1 The z_0 is a modelling parameter applied to allow consideration of surface height roughness elements. A z_0 of 0.5m was used to describe the modelling extents. This is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'parkland, open suburbia'.

- 1.7.2 A z_0 of 0.1m was used to describe the meteorological site. This is considered appropriate for the morphology of the area and is suggested within ADMS-Roads as being suitable for 'root crops'.

1.8 Monin-Obukhov Length

- 1.8.1 A minimum Monin-Obukhov length of 30m was used to describe the modelling extents and meteorological site. This value is considered appropriate for the nature of both areas and is suggested within ADMS-Roads as being suitable for 'cities and large towns'.

1.9 Background Concentrations

- 1.9.1 Annual mean NO_2 , PM_{10} and $\text{PM}_{2.5}$ background concentrations for use in the assessment were taken from the DEFRA mapping study for the grid square containing the Site, as shown in Table 10.14 Chapter 10 - Air Quality.
- 1.9.2 Similarly to emission factors, background concentrations from 2019 were utilised in preference to the opening year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the proposal.

1.10 NO_x to NO_2 Conversion

- 1.10.1 Predicted annual mean oxides of nitrogen (NO_x) concentrations were converted to NO_2 concentrations using the spreadsheet (version 8.1) provided by DEFRA, which is the method detailed within DEFRA guidance².

1.11 Verification

- 1.11.1 The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including:
- Estimates of background concentrations;
 - Uncertainties in source activity data such as traffic flows and emission factors;
 - Variations in meteorological conditions;
 - Overall model limitations; and,

² DEFRA, 2022. Local Air Quality Management (TG22).

- Uncertainties associated with monitoring data, including locations.

1.11.2 Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all of these aspects.

1.11.3 For the purpose of the assessment, model verification was undertaken for 2019 using traffic data, meteorological data and monitoring results from this year. The choice of 2019 as the verification year aligns with the Institute of Air Quality Management (IAQM) position statement 'Use of 2020 and 2021 Monitoring Datasets'³, which states:

"If you are carrying out an air quality study that includes validation against monitoring data, use 2019 monitoring data as the last typical year."

1.11.4 Knowsley Borough Council undertook monitoring of NO₂ concentrations at nine locations within the vicinity of roads included within the model during 2019. Review of the results indicated that the Huyton automatic station is co-located with one diffusion tube, H1a, H1b. The continuous analyser is considered to provide the most accurate record of NO₂ concentrations at this location. As such, the diffusion tube was removed from the verification procedure.

1.11.5 Results from the remaining locations were obtained and the road contributions to total NO_x concentrations calculated following the methodology contained within DEFRA guidance⁴. The monitored annual mean NO₂ concentrations and calculated road NO_x concentrations are summarised in Table A10.3.

Table A10.3 NO_x Verification - Monitoring Results

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
Huyton	Cronton Road, Huyton	37.5	28.00
H2a, H2b	Outside 2 Whitefield Lane	41.0	34.98
H3a, H3b	Outside 1 Whitefield Lane	49.3	51.46
H4a, H4b	Opposite Smithford Walk	29.8	15.05

³ IAQM, 2021. Use of 2020 and 2021 Monitoring Datasets.

⁴ DEFRA, 2022. Local Air Quality Management (TG22).

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Calculated Road NO _x Concentration (µg/m ³)
H5a, H5b	Sevenoak Grove	26.8	7.08
H6a, H6b	Wilson Road Junction	30.0	16.48
H7a, H7b	Tarbock Island	36.8	27.14
H8a, H8b	Natruscot	26.6	10.83
H12a, H12b	Halsnead Development	33.5	17.91

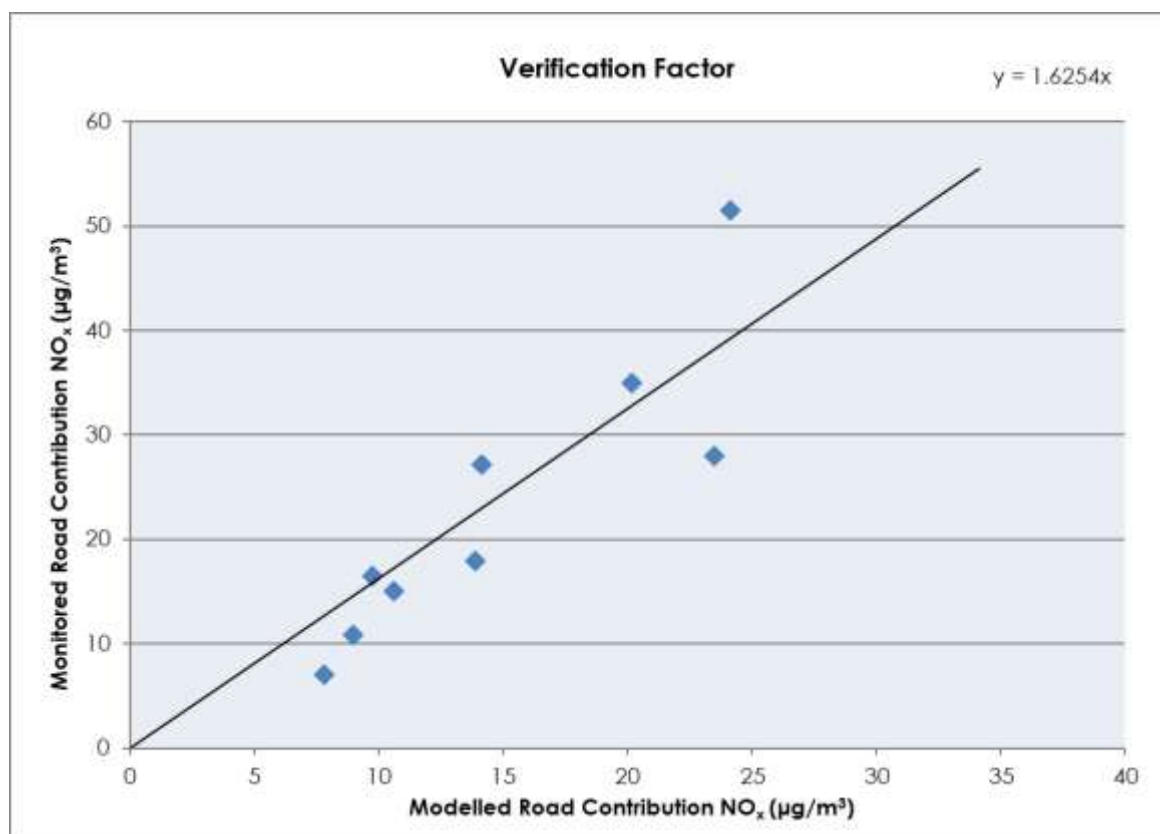
1.11.6 The annual mean road NO_x concentrations predicted from the dispersion model and the 2019 road NO_x concentrations calculated from the monitoring results are summarised in Table A10.4.

Table A10.4 NO_x Verification - Modelling Results

Monitoring Location		Monitored NO ₂ Concentration (µg/m ³)	Modelled Road NO _x Concentration (µg/m ³)
Huyton	Cronton Road, Huyton	28.00	23.48
H2a, H2b	Outside 2 Whitefield Lane	34.98	20.17
H3a, H3b	Outside 1 Whitefield Lane	51.46	24.13
H4a, H4b	Opposite Smithford Walk	15.05	10.61
H5a, H5b	Sevenoak Grove	7.08	7.81
H6a, H6b	Wilson Road Junction	16.48	9.76
H7a, H7b	Tarbock Island	27.14	14.15
H8a, H8b	Natruscot	10.83	8.98
H12a, H12b	Halsnead Development	17.91	13.88

1.11.7 The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression through zero calculated. This indicated that a verification factor of 1.6254 was required to be applied to all modelling results, as shown in Graph 1.

Graph 1 NO_x Verification Factor



1.11.8 Monitoring of PM₁₀ concentrations was undertaken at one location within the vicinity of roads included within the model during 2019. The monitored annual mean PM₁₀ concentration and modelled PM₁₀ concentration is shown in Table A10.5.

Table A10.5 PM₁₀ Verification - Modelling Result

Monitoring Location		Monitored PM ₁₀ Concentration (µg/m³)	Modelled Road PM ₁₀ Concentration (µg/m³)
Huyton	Cronton Road, Huyton	22.9	16.6

1.11.9 The monitored and modelled PM₁₀ concentrations were compared to calculate the associated ratio. This indicated a verification factor of 1.3791 was required to be applied to all modelling PM₁₀ results.

1.11.10 Monitoring of PM_{2.5} concentrations was undertaken at one location within the vicinity of roads included within the model during 2019. The monitored annual mean PM₁₀ concentration and modelled PM_{2.5} concentration is shown in Table A10.6.

Table A10.6 PM_{2.5} Verification - Modelling Result

Monitoring Location		Monitored PM _{2.5} Concentration (µg/m ³)	Modelled Road PM _{2.5} Concentration (µg/m ³)
Huyton	Cronton Road, Huyton	10.8	10.3

1.11.11 The monitored and modelled PM_{2.5} concentrations were compared to calculate the associated ratio. This indicated a verification factor of 1.0447 was required to be applied to all modelling PM_{2.5} results.



Environmental Statement Volume 3: Appendix 9.2

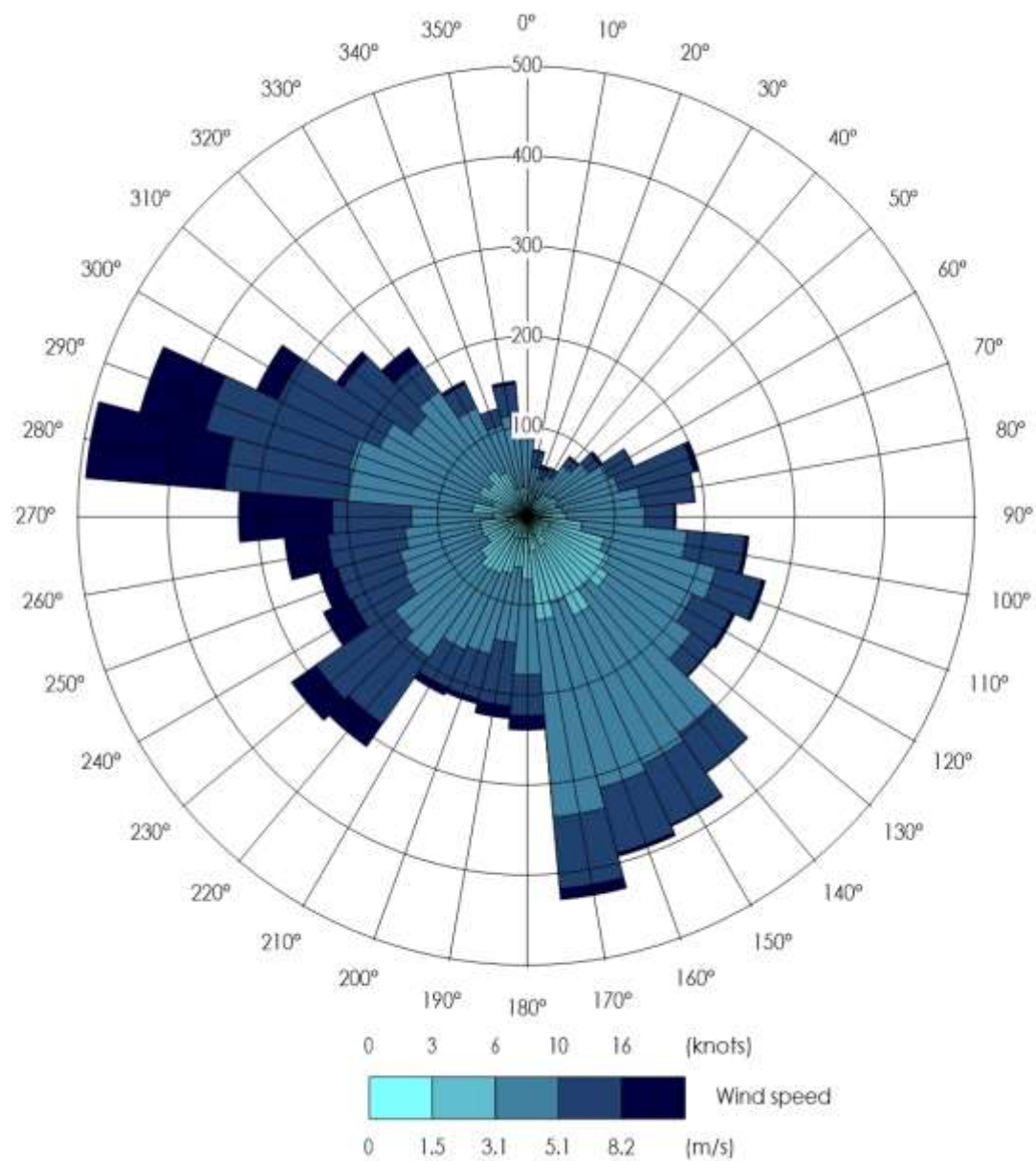
Air Quality - Figures

Air Quality Environmental Impact Assessment
Appendix 9.2 - Figures

Cronton Road, Knowsley







Legend

Title

Figure 10.2 - Wind Rose of 2019
Liverpool Airport Meteorological
Data

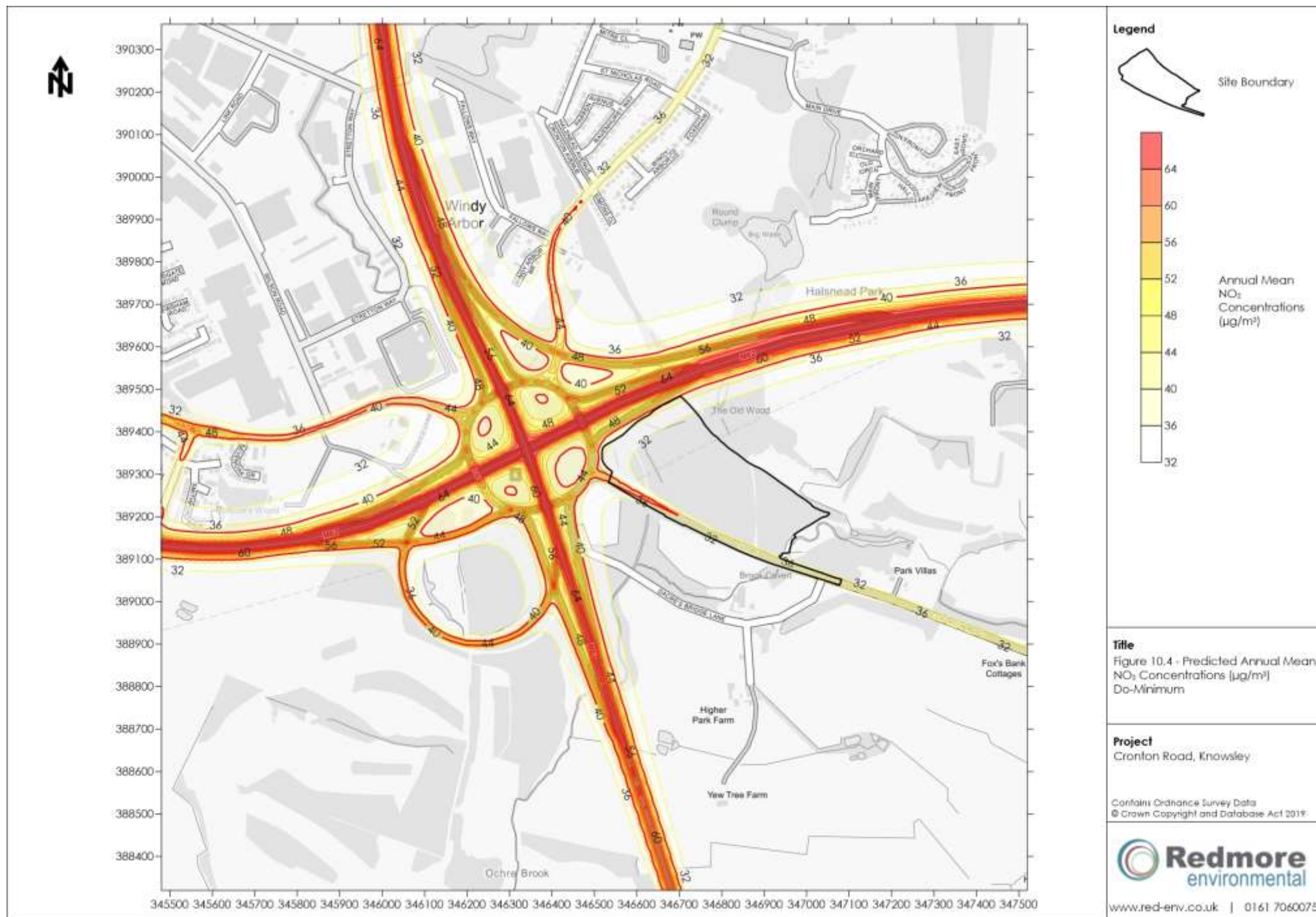
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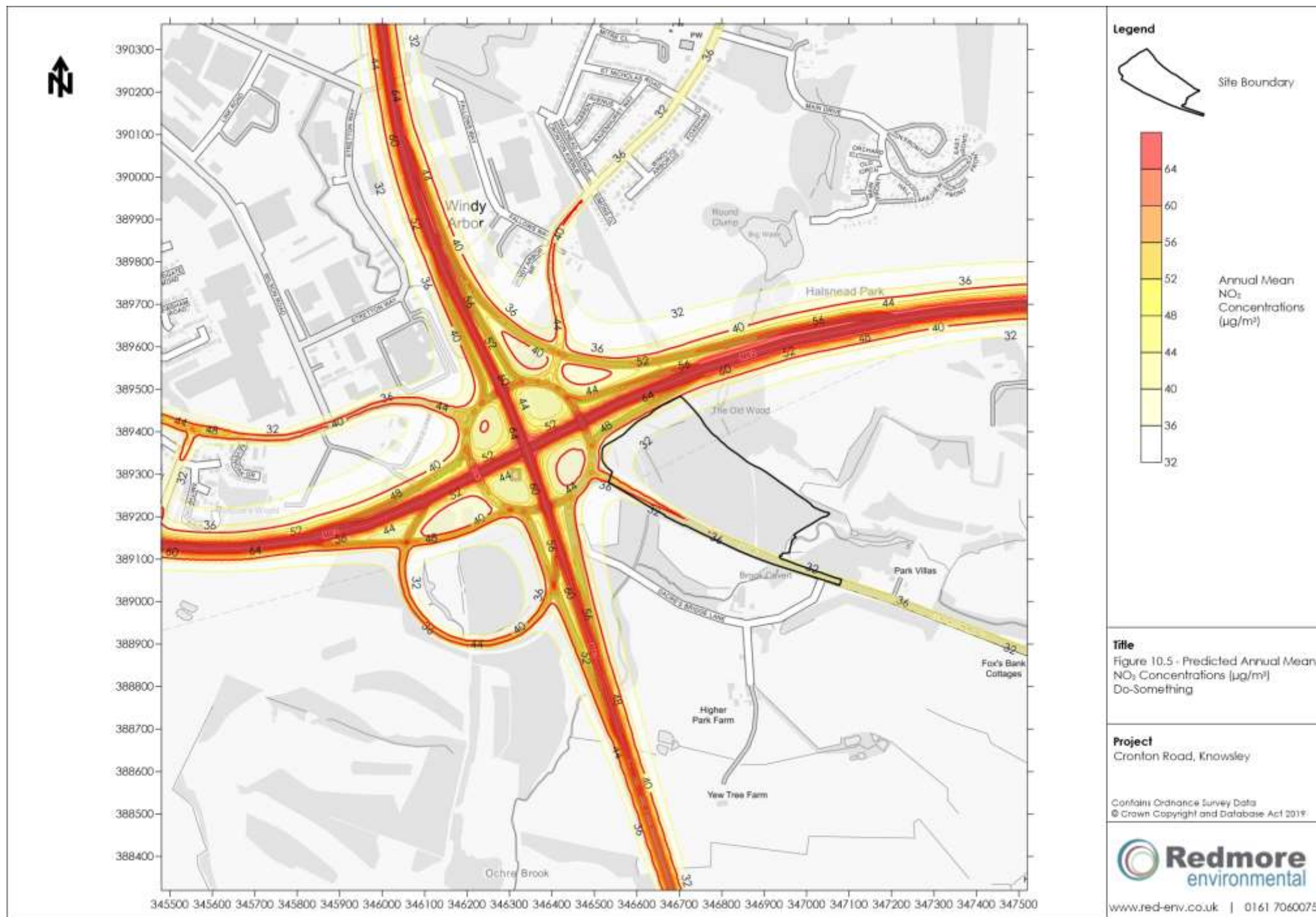
Cranton Road, Knowsley



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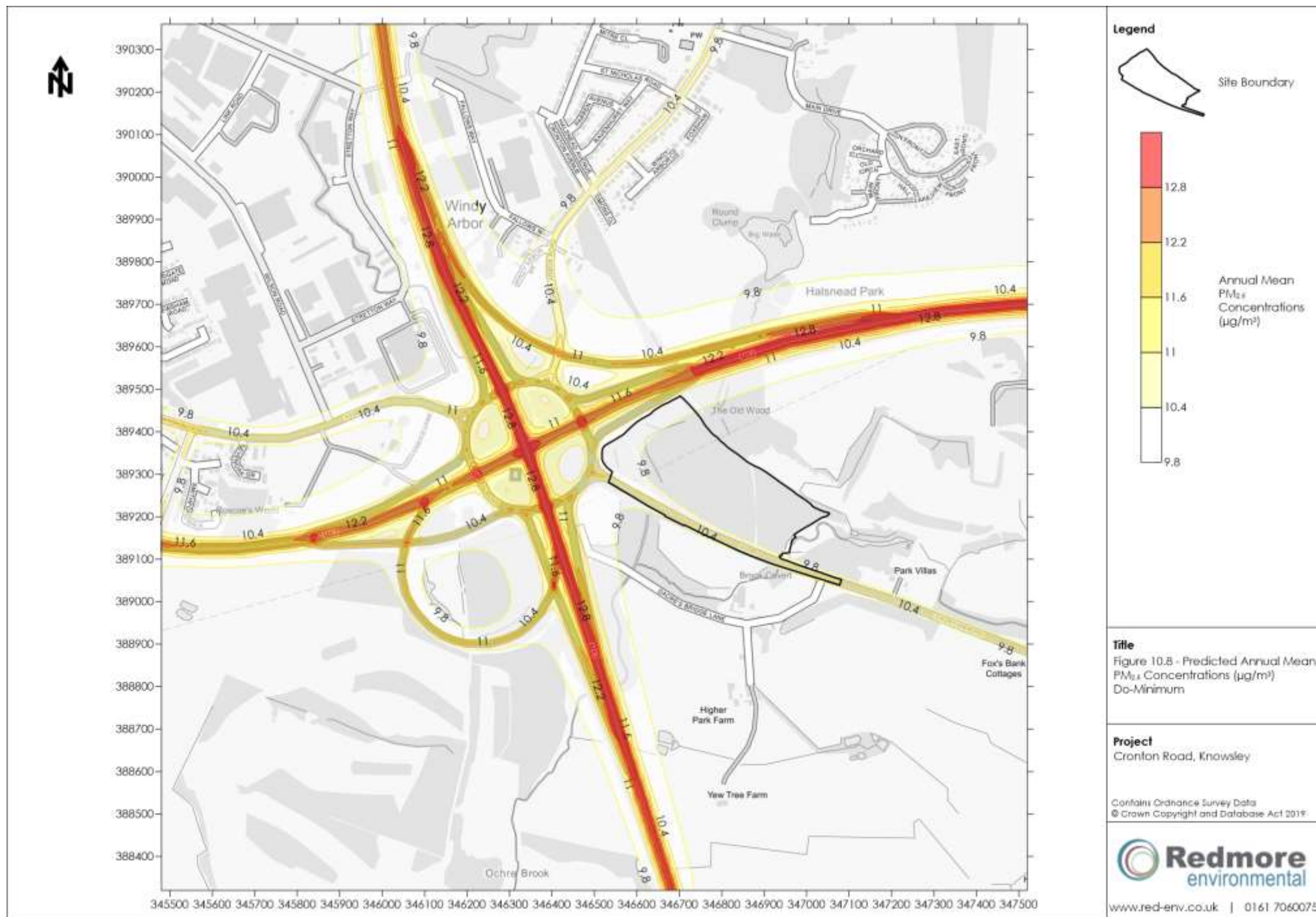


















Environmental Statement Volume 3: Appendix 9.3

Air Quality - Abbreviations and Glossary

Air Quality Environmental Impact Assessment
Appendix 10.3 - Abbreviations and Glossary

Cronton Road, Knowsley



Abbreviations

AADT - Annual Average Daily Traffic
ADM - Atmospheric Dispersion Modelling
AQLV - Air Quality Limit Value
AQMA - Air Quality Management Area
AQO - Air Quality Objective
AQS - Air Quality Strategy
CEMP - Construction Environmental Management Plan
CERC - Cambridge Environmental Research Consultants
DEFRA - Department for Environment, Food and Rural Affairs
DM - Do-Minimum
DMP - Dust Management Plan
DMRB - Design Manual for Roads and Bridges
DS - Do-Something
EB - Eastbound
EIA - Environmental Impact Assessment
ES - Environmental Statement
HDV - Heavy Duty Vehicle
IAQM - Institute of Air Quality Management
KBC - Knowsley Borough Council
LA - Local Authority
LAQM - Local Air Quality Management
NB - Northbound
NGR - National Grid Reference
NO₂ - Nitrogen Dioxide
NO_x - Oxides of Nitrogen
NPPF - National Planning Policy Framework
NPPG - National Planning Practice Guidance
PM₁₀ - Particulate matter with an aerodynamic diameter of less than 10µm
PM_{2.5} - Particulate matter with an aerodynamic diameter of less than 2.5µm
SB - Southbound
UDP - Unitary Development Plan
WB - Westbound
Z₀ - Roughness Length

Glossary

Air Quality Limit Value - Legally binding parameters defined in air quality legislation that must not be exceeded. Limit values are set for individual pollutants and are a combination of a concentration value, an averaging time over which it is measured, the number of exceedences allowed per year, and a date by which it must be achieved.

Air Quality Management Area - An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives.

Air Quality Objective - The name given to the maximum ambient pollutant concentration that is not to be exceeded either without exception or within a permitted number of exceedences over a specified timescale for a pollutant outlined in the nation Air Quality Strategy.

Air Quality Strategy - A national government document which contains standards, objectives and measures for improving ambient air quality.

Annual Average Daily Traffic - The number of traffic movements on a given road in a 24-hour period as an average across one year.

Background Concentration - The pollutant concentration assumed to represent baseline concentrations in the atmosphere across the modelled area.

Diffusion Tube Monitoring - A passive, periodic monitoring method. The tubes contain a substance which absorb the pollutant of interest at a known rate and from the period exposed and subsequent analysis an ambient pollutant concentration can be calculated.

Do-Minimum - The scenario representing predicted traffic flows in the future year inclusive of committed developments should the proposals not be completed.

Do-Something - The scenario representing predicted traffic flows in the future year inclusive of committed developments should the proposals be completed.

Dust - Dust is a generic term covering particles of different compositions, shapes and sizes. These can have different impacts and effects:

- Those particles up to 10µm (micrometres) in diameter (known as PM₁₀) remain suspended in air for long periods and because they are fine enough to be breathed in and can, potentially, cause health effects.
- The particles that are larger (and maybe visible to the naked eye) are not thought to cause health effects to the same extent, but can cause disamenity through soiling and staining when they deposit onto window ledges, cars, laundry and plants etc.

Dust Management Plan - A document that describes the site specific methods to be used to control dust emissions.

Heavy Duty Vehicle - Vehicles with a gross weight of greater than 3.5 tonnes.

Roughness Length - A measure of the surface roughness of the area.

Trackout - The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when HDVs leave the construction/demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.