THE ENVIRONMENT PARTNERSHIP

Halsnead Farm, Halsnead Garden Village

Volume 2: Environmental Statement Appendices

Prepared For: Onward Homes Ltd and Starship Build Ltd

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Appendix D1: LVIA Methodology and Criteria Tables

HALSNEAD FARM

Widnes, UK

458-LYR-XX-ZZ-RPT-L-0003

Landscape and Visual Impact Assessment

Appendix D1: Criteria Tables

3rd December 2025

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01 Introduction & Methodology

Introduction

The tables within this appendix are based on accepted methodologies for landscape character and visual impact assessment contained in the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA), Landscape Institute and the Institute for Environmental Management and Assessment, 2013.

The tables set out the criteria and definitions used to assist in assessing the landscape and visual effects and to make the process as transparent as possible. Ultimately, however, the assessment relies on professional judgement and the tables and matrices utilized are a tool to assist in the process.

For a full description of the methodology used to undertake the TVIA, please refer to the main report.

Establishing the Landscape Baseline

There are a range of factors which need to be considered in undertaking a landscape assessment, these include:

- Context of setting in relation to the urban area and the wider landscape;
- Topography in relation to urban form;
- Urban grain, built form and its relationship to historic patterns;
- Heritage assets and their settings;
- Layout and scale of buildings, the density of development and building types;
- Land use patterns both past and present;
- Water bodies and their contribution to the landscape;
- Local vegetation including the nature of green space and tree cover and their relationship to buildings and streets;
- Open space typology and the character and qualities of the public realm; and
- Access and connectivity including streets and footways.

Landscape receptors will be reviewed in terms of:

Value

In relation to its importance to the local community as well as local, county, national or international level designations. Consideration is also made here to the European Landscape Convention (ELC), which the UK has signed and ratified. The ELC refers to landscape being '... about the relationship between people and place. It provides the setting for our day-to-day lives. The term does not mean just special or designated landscapes and it does not only apply to the countryside'. In other words, landscape is not only concerned with those that are recognised as being special or valuable, but also about the ordinary and the everyday and treats the landscape as a resource in its own right.

Susceptibility

The ability of the landscape to accommodate the proposed development without undue consequences on the baseline position and/or the achievement of relevant planning policies and strategies.

Sensitivity to change

This is established by combining judgement on susceptibility and value.

Understanding the value, susceptibility, and the sensitivity to change of the landscape, reflects the extent to which the receiving landscape can accommodate change arising from development. Appendix 1 - Tables 1.1, 1.2, 1.4 and 1.6 provides the criteria applied in this assessment. Landscape value and susceptibility may be considered at varying scales from local to national level

Establishing the Visual Baseline

Eleven viewpoints have been selected to cover a range of distances from the proposed development covering the immediate local environment adjacent to The Site and the wider perspective of the local environment. The positions were selected to represent a range of visual receptors and publicly accessible places from which users may experience a view of the development site.

When establishing the baseline, key factors to consider are the type of view and the likely numbers of viewers (the visual receptors), described as:

- Glimpsed/Filtered/Oblique/Framed/Open Views; and
- Few/Moderate/Many Viewers

Each visual receptor will be reviewed in terms of:

Value

The value attached to views has regard to a number of factors, including: recognition through planning designations or heritage assets; and the popularity of the viewpoint, its appearance in guidebooks, literature or art, on tourist maps and the facilities provided for its enjoyment.

The assessment of the value of views is summarised in Appendix 1 - Table 1.3 Value Attached to Views in terms of High, Medium and Low value. These criteria are provided for guidance only and are not intended to be absolute.

Susceptibility

Susceptibility relates to a person's (the receptor) ability to accommodate the proposed change in the view, mainly a result of:

- The occupation or activity of the viewer at a given location; and
- The extent to which a person's attention or interest may therefore be focussed on a view and the visual amenity experienced at a given view.

The criteria for grading the receptors is summarised in Appendix 1 – Table 1.4 Visual Susceptibility.

Sensitivity

The assessment of receptor sensitivity combines judgements on the susceptibility of the receptor to the specific type of development proposed and the value attributed to that receptor. The starting point for combining these judgements is shown in Appendix 1 - Table 1.6 Receptor Sensitivity Matrix but as highlighted by GLVIA3, "This division is not black and white and in reality, there will be a gradation in susceptibility to change. Each project needs to consider the nature of the groups of people who will be affected and the extent to which their attention is likely to be focussed on views and visual amenity." (Page 114, paragraph. 6.35).

Magnitude and Significance of Landscape Effects

The magnitude is an assessment of the scale, extent and duration of the landscape effects caused by the proposed development. This is assessed on a five-point scale and shown in Appendix 1 - Table 1.7 Landscape Effects - Magnitude.

Determining the magnitude of the landscape effects is based on assessing the following criteria:

- The extent of physical change to key elements or features;
- The extent of the subject area subject to change and the prominence of the proposed development;
- The degree of variance or compatibility between the proposed development and key characteristics of the landscape;
- The degree of change to overall character and image brought about by incremental and combined effects on key characteristics.

The potential significance of the landscape effects is determined by combining the landscape sensitivity and the magnitude of the effect. Appendix 1 - Table 1.9 Significance of Landscape or Visual Effects Matrix shows how these two variables are combined in a matrix to arrive at the significance of the effect. TVIA is not based on quantifiable calculations but to make the process as objective and transparent as possible, we utilise assessment matrices. GLVIA3 does, however, warn of over simplifying the approach and recommends that matrices are accompanied by clear narrative descriptions. For this reason, we sense check the output from assessment tables, apply professional judgement and if necessary, adjust the results. If this scenario occurs an explanation is provided.

Magnitude and Significance of Visual Effects

The magnitude of visual effects may be defined as the scale, extent and duration of the effect caused by a development. The magnitude of the visual effects is based on the following criteria:

- Extent of visibility of the proposed development;
- Proportion of the view occupied by the proposed development, which relates to the distance of the viewpoint from it and the breadth of the existing view;
- Apparent size and prominence taking account of modifying factors in the view likely to reduce or intensify this, for example degree of contrast, framing, scale cues, back grounding and disturbing effects, such as proportional visibility;
- Degree of contrast or integration with the character of existing elements, for example scale, texture, form and design resolution with visual dynamics of the composition, for example stability, cohesion and separation; and
- Angle of view, frequency and duration of sequential views and relative elevation.

The criteria used to judge the magnitude of change to a visual receptor are shown in the Appendix 1 – Table 1.8 Visual Effects - Magnitude.

The potential significance of visual effects is determined by combining the visual sensitivity and the magnitude of the effect. As shown in Appendix 1 - Table 1.9 Significance of Landscape or Visual Effects Matrix, these two variables can be correlated in tabular form to arrive at the significance of the effect. Similar to the assessment of landscape effects, it should be noted that outputs from assessment matrices are sense checked by professional judgement to avoid the process becoming too mechanical and formulaic.

If the proposed development is not visible from a particular viewpoint then it is recorded as no change.

Nature of Effects

Determining the nature of effect sets out whether the impact is beneficial, adverse or neutral can be very subjective and varies according to an individual's responses to a particular development. The criteria for assessing the nature of effect are identified in Appendix 1 – Table 1.10 Nature of Effect. Effects may also be direct or indirect, temporary or permanent. For a development of this nature the effects are considered direct and permanent.

"Significant in EIA terms"

In accordance with EIA Regulations (although this is not an EIA development), a final judgement is made about whether each effect is considered significant or not, both in terms of landscape and visual effects. For the purpose of this assessment, effects that are Moderate or above are considered to be "Significant" in the meaning of the Town and Country Planning (EIA) Regulations 2017 unless otherwise stated and explained.

Cumulative landscape or visual effects occur when additional effects are caused by the proposed development in conjunction with other developments, associated with or separate to it, or actions that occurred in the past, present or are likely to occur in the foreseeable future. Cumulative landscape effects that can impact either on the physical fabric or character of the landscape or any special values attached to it. Cumulative visual effects can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint and / or sequential effects when the observer moves to another viewpoint to see another development.

The methodology applied to the assessment of the development is applied to the cumulative assessment and a narrative is similarly provided to explain the judgements made.

02 Baseline

Table 1.1: Value of Designated Landscape

Value	Criteria	Scale of Importance	Typical Examples
Exceptional	High importance and Rarity. No or very limited potential for substitution/mitigation	International, National	Ramsar sites, World Heritage Site, AONB, some Grade I listed buildings recognisable on an international scale
High	High importance and Rarity. Limited potential for substitution/mitigation.	National, Regional, Local	Ramsar sites, National Park, Heritage Coast, Registered Parks and Gardens, SSSI, some Grade 1 and Grade II listed buildings (& their curtilage), familiar on a national scale, some Scheduled Ancient Monuments
Medium	Moderate importance and common. Limited potential for substitution/mitigation.	Regional, Local	Locally designated sites such as Conservation Areas or Country Parks or other protected features such as protected trees or hedgerows. Some Grade II listed buildings. Or, undesignated but value perhaps expressed through non-official publications or demonstrable use
Low	Low importance and very common. Considerable potential for substitution/mitigation	Local	Areas identified as having some redeeming feature or features and possibly identified for improvement.

An assessment of the Landscape value and susceptibility of the Landscape to change enables the overall sensitivity of the Landscape receptors to be determined. This forms the baseline from which the impacts of the proposed development can be assessed.

Landscape Value

This concerns the relative value that is attached to different Landscape/s (or particular Landscape features) by society. Landscape or their component parts may be valued at community, local, national or international level. Existing Landscape designations have been taken as a starting point for the assessment but the value of undesignated Landscape must be given due consideration.

Table 1.2: Criteria for Assessing the Value of Undesignated Landscapes

Attribute	Criteria
Functional	A building or place should be fit for purpose, designed and delivered in a way that delivers the intended function and achieves value for money in terms of lifetime costs.
Mix of uses	Mix of uses to ensure easy access to facilities and encourage a healthier environment, reducing the need to travel.
Well-designed public space	Functional and attractive hard and soft landscape elements, well orientated and designed routes, inclusion of facilities such as seats and play equipment and public art.
Buildings designed to be adaptable	Flexibility to be able to respond to a range of future needs – how easily buildings change to be adapted for change of use, places that are easy and practical to managed with good access, natural surveillance and hared wearing materials that are easy to repair.
Distinctive character	Consideration of: the local pattern of street blocks and plots; building forms; details and materials; style and vernacular; landform and gardens, parks, trees and plants; and wildlife habitats and microclimates.
Attractive spaces	Consideration of streetscapes, landscapes, buildings and elements within them all, microclimates and views should all be considered.

Whilst the assessment of value is partly based on the planning policy importance of the Landscape other criteria is used to assess Landscape value in more detail, including that of undesignated Landscape. The criteria set out within Table 1.2 opposite has been taken from the Planning Practices Guidance, which supports the National Planning Policy Framework.

Table 1.4: Value attached to views

Value	Criteria
High	Views from Landscape/viewpoints of national importance, or highly popular visitor attractions where the view forms an important part of the experience, or with important cultural associations. Very few detracting elements.
Medium	Views from Landscape/viewpoints of regional/district importance or moderately popular visitor attractions where the view forms part of the experience, or with local cultural associations. Limited detracting elements.
Low	Views from Landscape/viewpoints with no designations, not particularly popular as a viewpoint and with minimal or no cultural associations. Detracting elements prominent.

The assessment of visual receptors is considered in terms of the value of the existing view, susceptibility to change and overall sensitivity of the receptor. Criteria for making these judgements is set out within Tables 1.4 -1.6

Value of the View

The value attached to views has regard to a number of factors, including: recognition through planning designations or heritage assets; and the popularity of the viewpoint, its appearance in guidebooks, literature or art, on tourist maps and the facilities provided for its enjoyment. The assessment of the value of views is summarised in Table 1.4.

03 Assessment

Table 1.3: Landscape Susceptibility

Susceptibility	Criteria
High	Little ability to accommodate the proposed development without undue harm. Rare or vulnerable component of Landscape character. Limited potential for change without effect on integrity of valued feature. Notable aesthetic/ perceptual qualities or cultural associations that could be adversely affected by the development.
Medium	Some ability to accommodate the proposed development without undue harm. Landscape component or character is sufficiently robust or frequent to accommodate some changes without affecting integrity or notable aesthetic/ perceptual or cultural qualities. Some potential for change without effect on valued Landscape feature/ attribute
Low	Substantial ability to accommodate the proposed development without undue harm. Robust or frequent component of the Landscape or Landscape character. Integrity of any valued aspects of Landscape character would be maintained with development in place.
Very Low	Highly robust Landscape component or character. Change to Landscape character compatible with policy/objectives.

This means the ability of a Landscape receptor to accommodate the proposed development without undue consequence for the baseline position and/ or the achievement of Landscape planning policies and strategies. This is assessed using the criteria in Table 1.3 opposite.

Table 1.5: Visual Susceptibility

Value	Criteria
High	Residents with outlook from main aspect of residential property.; People engaged in outdoor recreation, including users of public rights of way, whose attention is likely to be focussed on the Landscape and on particular views; Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience; Communities where views contribute to the Landscape setting enjoyed by residents; and Travellers on scenic routes.
Medium	Travellers on road, rail or other transport routes, where the view is moderately important to the quality of the journey. Residents with compromised visual amenity/ limited outlook. People using public footpaths/cycleways whose main focus is on the journey/commute than visual amenity.
Low	People at their place of work, where the setting is not important to the quality of working life; and Travellers on road, rail or other transport routes, where the view is fleeting and incidental to the journey. People engaged in outdoor sport or recreation, which does not involve appreciation of views

The susceptibility of different types of visual receptor to change in views is mainly a result of; the activity of the viewer at a given location; and the extent to which the person's attention or interest may therefore be focused on a view and the visual amenity experienced at the given location. This is summarized in Table 1.5.

Table 1.6: Receptor Sensitivity Matrix

		Criteria		
		Low	Medium	High
Value	Low	Low	Low/Medium	Medium
	Medium	Low/Medium	Medium	Medium/High
	High	Medium	Medium/High	High

The assessment of receptor sensitivity combines judgements on the susceptibility of the receptor to the specific type of development proposed and the value attributed to that receptor, as shown in Table 1.6.

04

Magnitude of Change & Significance

Table 1.7: Landscape Effects - Magnitude

Value	Criteria
Substantial	The proposed development proposed scheme would completely change the character and/or appearance of the Landscape. Irreparable loss of key Landscape characteristics occurs with a major or complete change to features, characteristics and/or Landscape condition. The development is highly visible and exerts a comprehensive influence upon Landscape character area to the extent that the overall integrity of it is affected and subject to change.
High	The proposed development proposed scheme would cause an obvious change to the character, fabric and quality of the Landscape. Damage or loss or irreparable damage to landscape character will result to the Landscape area through the loss of key features and a reduction in Landscape quality and condition. The development will be highly visible within a comprehensive area of the Landscape area with a major influence upon landscape character.
Moderate	The proposed development proposed scheme would cause a noticeable difference to Landscape character and/or the fabric and quality of the Landscape. Change to key Landscape characteristics may occur but may be repairable or offset with by an improvement in Landscape condition. The development is present within views from a wider area of the Landscape area and is a noticeable feature exerting an influence upon existing Landscape character where it is visible.
Minor	The proposed development would cause a barely perceptible impact, and would slightly affect the character, fabric and quality of the Landscape. The development is present within views from limited areas of the Landscape area and is a minor feature exerting limited influence over existing Landscape character.
Negligible	The proposed development is appropriate in its context. It may be difficult to differentiate from its surroundings and would have no discernible impact on the character, fabric and quality of the Landscape. There is no loss or damage to Landscape character, features or condition.

The magnitude of change is a term that combines judgements about the size and scale of the effects, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is of short or long term in duration and is assessed using the criteria identified within Tables 1.7 & 1.8.

Table 1.8: Visual Effects - Magnitude

Value	Criteria
Substantial	The Proposed Development would completely change the existing view and would substantially affect receptors and key views. The development is a key feature and/or occupies a major proportion of the field of view. The distance between the receptor and development (relevant to the scale of the development) is short and the majority of the development is visible.
High	The Proposed Development would cause an obvious change to the existing view and would largely impact receptors and key views. The development is an obvious feature within views and occupies a large proportion of the field of view. The distance between the receptor and development is short to medium and a high proportion of the development is visible.
Moderate	The Proposed Development proposed scheme would cause a noticeable difference from the existing view impacting receptors and key views. The development is a noticeable feature and occupies a moderate proportion of the field of view. The distance between the receptor and development is medium with only part of the development visible.
Minor	The Proposed Development would be barely perceptible to receptors and key views. The development is a minor element within views and occupies a small proportion of the field of view. The distance between the receptor and development is medium to far and only a small part of the development is visible.
Negligible	The Proposed Development is appropriate in its context. It may be difficult to differentiate from its surroundings and would have no discernible impact on receptors or key views. The development is a very minor element within views and occupies a very limited proportion of the field of view. The distance between the receptor and development is far and only a very small part of the development is visible.

Table 1.9: Significance of Landscape or Visual Effects Matrix

		Sensitivity		
		Low	Medium	High
Magnitude	Negligible	Negligible/Minor	Minor	Minor/Moderate
	Minor	Minor	Minor/Moderate	Moderate
	Moderate	Minor/Moderate	Moderate	Moderate/Major
	High	Moderate	Moderate/Major	Major
	Substantial	Moderate/Major	Major	Substantial

Table 1.9 combines the judgements previously identified for Sensitivity and Magnitude in order to calculate the Significance for each receptor. The outcome of this table is seen as a guide and not absolute. As noted by GLVIA3 matrices must be accompanied by a clear narrative to sense check the output form such tables.

For the purposes of this assessment, an effect will be considered to be 'significant' if it is classed as either 'moderate' or 'major'. This is summarized in Table 1.9 where 'significant' effects are shown in red and underlined.

04 Magnitude of Change & Significance
Nature of Effect

Table 1.10: Nature of Effect

Value	Criteria
Beneficial	The proposed development will have a positive impact on the receptor
Neutral	The proposed development will cause no discernible change to the receptor
Adverse	The proposed development will have a negative impact on the receptor

The determination of the nature of effect can be very subjective and varies according to an individual's response to a particular development. Relevant criteria are shown in Table 1.10.

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Appendix D2: LVIA Viewpoints

HALSNEAD FARM

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Landscape and Visual Impact Assessment

Appendix D2: Viewpoints

3rd December 2025

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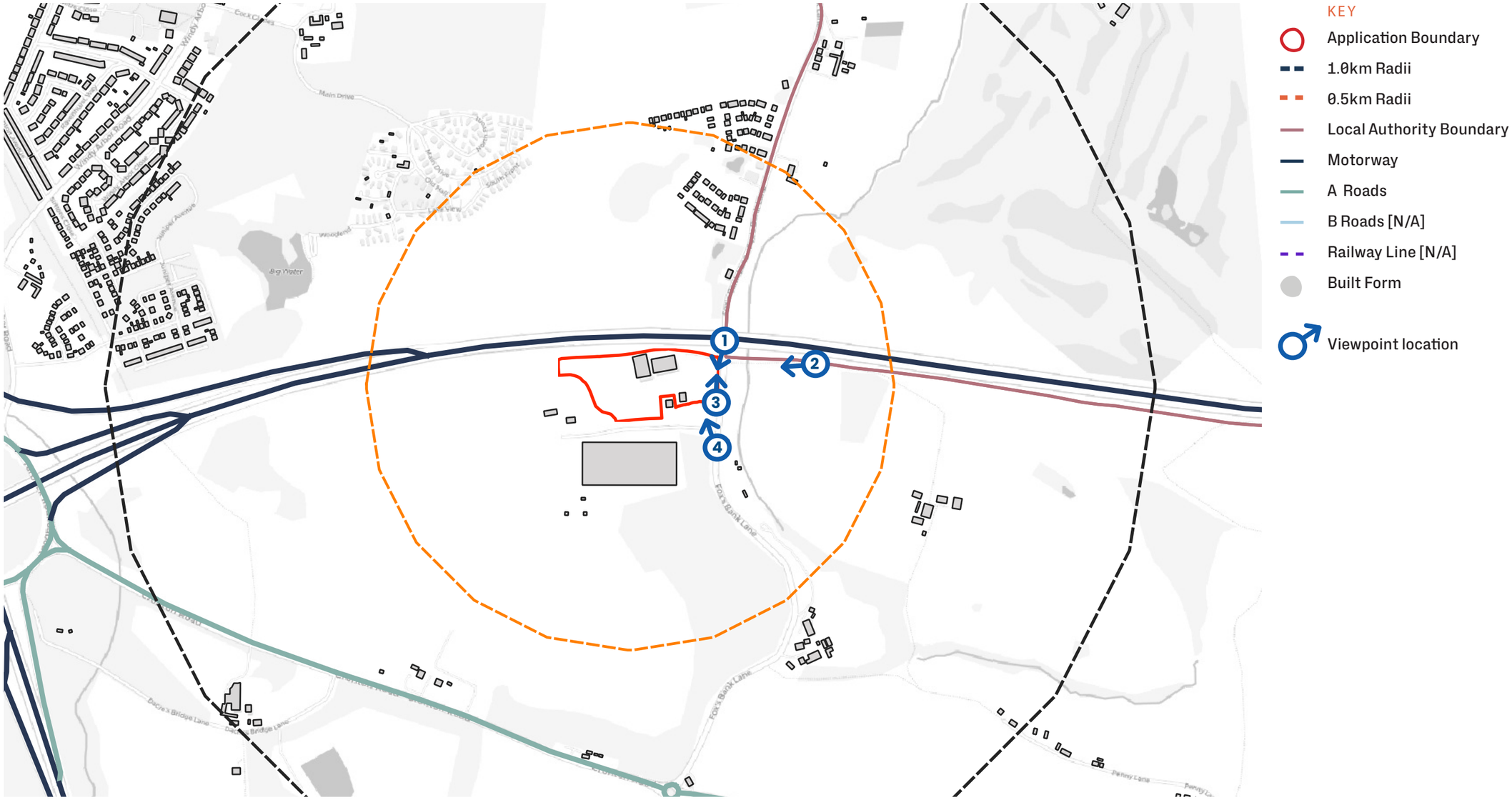
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01 Viewpoint Location Plan

HALSNEAD FARM

01 Viewpoint Location Plan

Viewpoint locations visited in November 2025



KEY

- Application Boundary
- 1.0km Radii
- 0.5km Radii
- Local Authority Boundary
- Motorway
- A Roads
- B Roads [N/A]
- Railway Line [N/A]
- Built Form
- Viewpoint location

02 Viewpoint Photography

02 Viewpoint Photography

Viewpoint 1: Fox's Bank Lane, below motorway bridge, looking south



---------- Indicative extent of proposed development

LOCATION



VIEWPOINT DESCRIPTION
Road to immediate north east of The Site.

RECEPTOR TYPE
Motorists

APPROXIMATE COORDINATE LOCATION:
Latitude: 53° 24' 7.008" N/ Longitude: 2° 47' 13.182" W

APPROX DISTANCE FROM DEVELOPMENT
50m

WEATHER CONDITIONS
Dry and sunny

CAMERA DATA
iPhone 15 back dual wide camera 5.96mm f/1.6

02 Viewpoint Photography

Viewpoint 2: Footpath CR/1/1 looking west



---------- Indicative extent of proposed development

LOCATION



VIEWPOINT DESCRIPTION

Track to immediate east of The Site.

RECEPTOR TYPE

Users of public footpath CR/1/1

APPROXIMATE COORDINATE LOCATION:

Latitude: 53° 24' 3.96" N / Longitude: 2° 47' 3.702" W

APPROX DISTANCE FROM DEVELOPMENT

150m

WEATHER CONDITIONS

Dry and sunny

CAMERA DATA

iPhone 15 back dual wide camera 5.96mm f/1.6

02 Viewpoint Photography

Viewpoint 3: Fox's Bank Lane, close to proposed site entrance, looking north



---------- Indicative extent of proposed development

LOCATION



VIEWPOINT DESCRIPTION

Road outside The Site access

RECEPTOR TYPE

Motorists

APPROXIMATE COORDINATE LOCATION:

Latitude: 53° 24' 2.988" N/ Longitude: 2° 47' 12.978" W

APPROX DISTANCE FROM DEVELOPMENT

Alongside eastern site boundary

WEATHER CONDITIONS

Dry and sunny

CAMERA DATA

iPhone 15 back dual wide camera 5.96mm f/1.6

02 Viewpoint Photography

Viewpoint 4: Fox's Bank Lane, from access to private road, looking north



---------- Indicative extent of proposed development

LOCATION



VIEWPOINT DESCRIPTION
At entrance to lane leading to Old Halsnead

RECEPTOR TYPE
Motorists

APPROXIMATE COORDINATE LOCATION:
Latitude: 53° 23′ 59.442″ N/ Longitude: 2° 47′ 13.62″ W

APPROX DISTANCE FROM DEVELOPMENT
Adjacent to south east corner of site

WEATHER CONDITIONS
Dry and sunny

CAMERA DATA
iPhone 15 back dual wide camera 5.96mm f/1.6

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Appendix D3: LVIA Figures

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Landscape & Visual Impact Assessment

Appendix D3: Figures

3rd December 2025

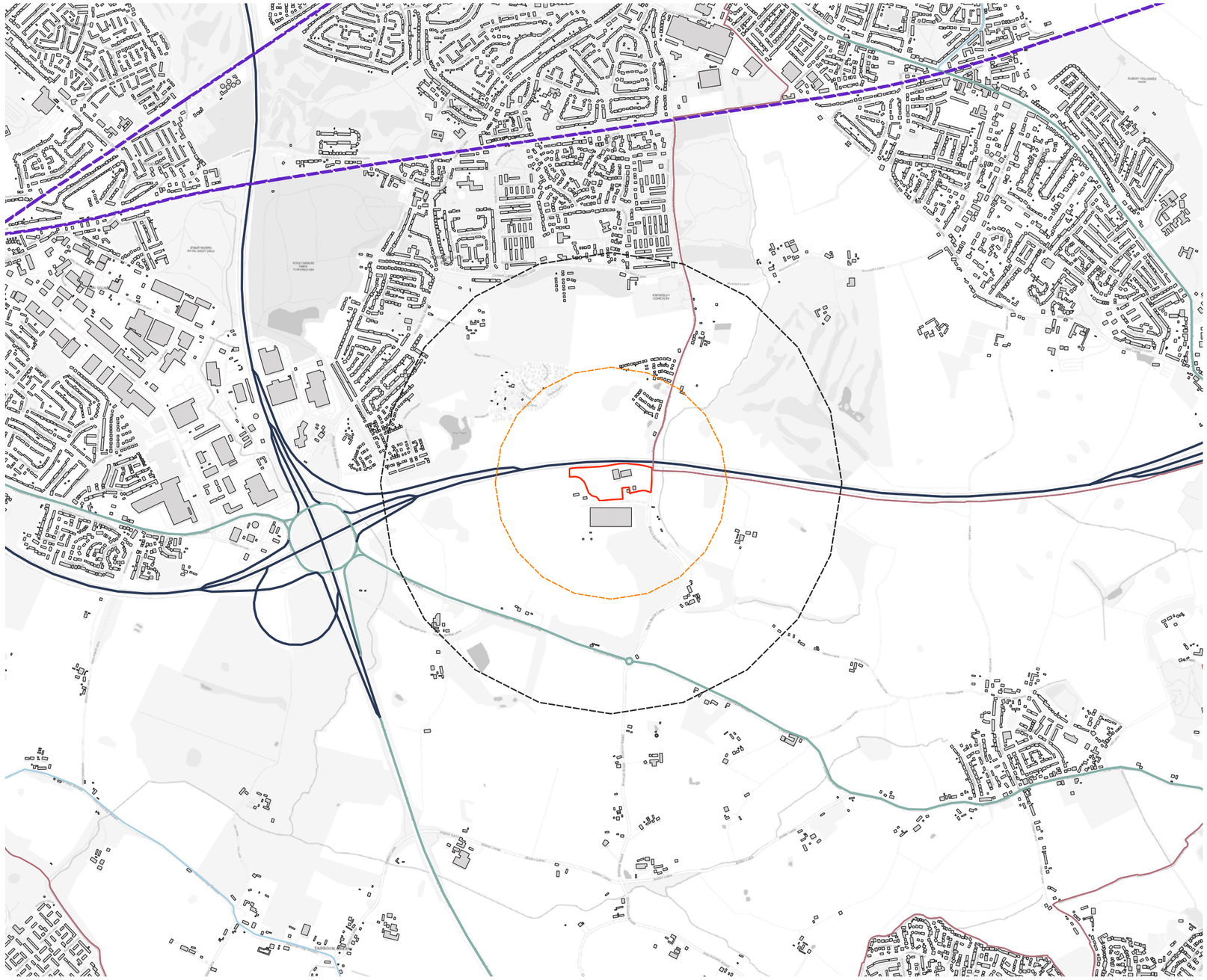
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Figure 1.0: Site Location

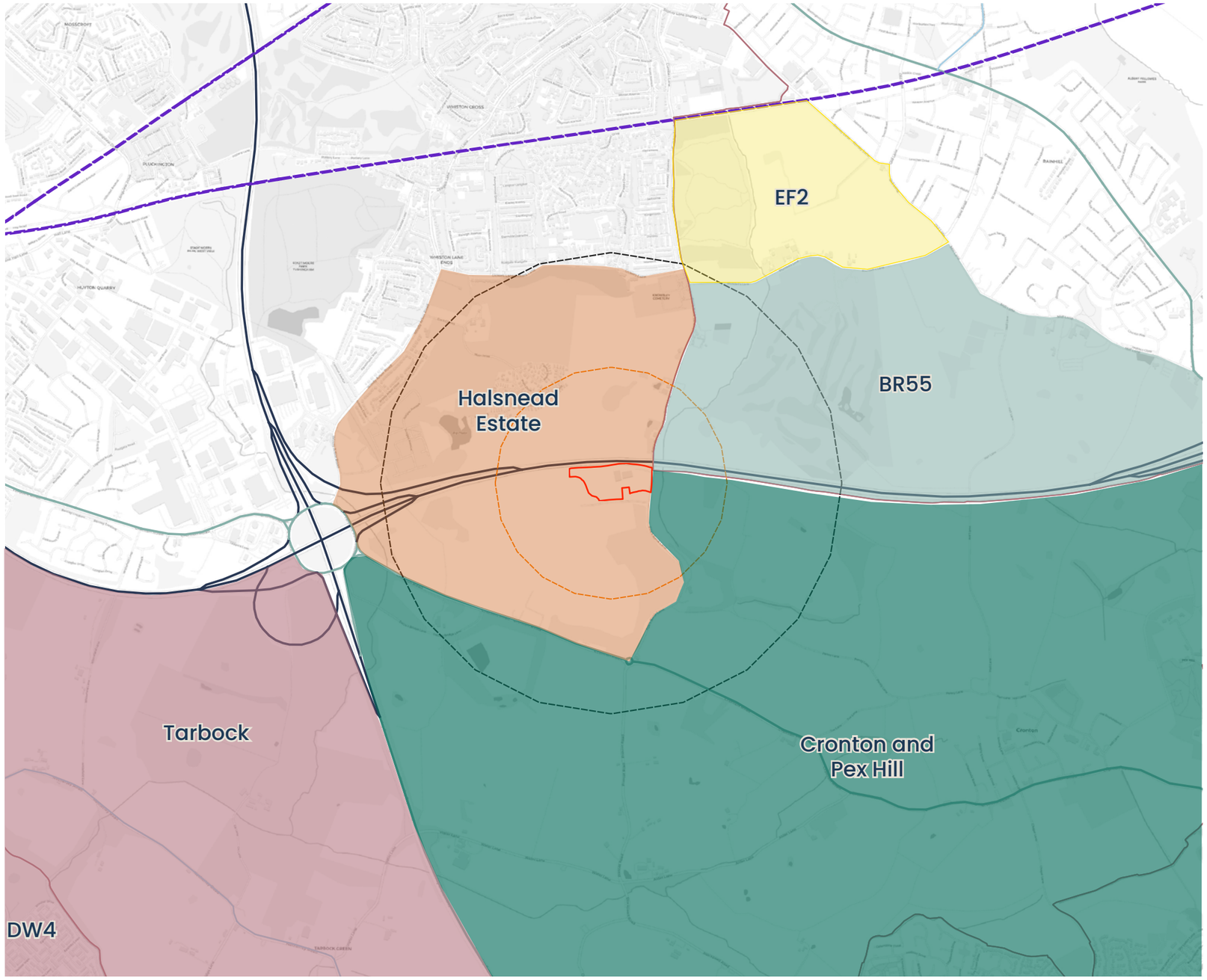


KEY

- Application Boundary
- 1.0km Radii
- 0.5km Radii
- Local Authority Boundary
- Motorway
- A Roads
- B Roads [N/A]
- Railway Line [N/A]
- Built Form

0 500 1,000 m

Figure 1.1: Landscape Types and Character Areas

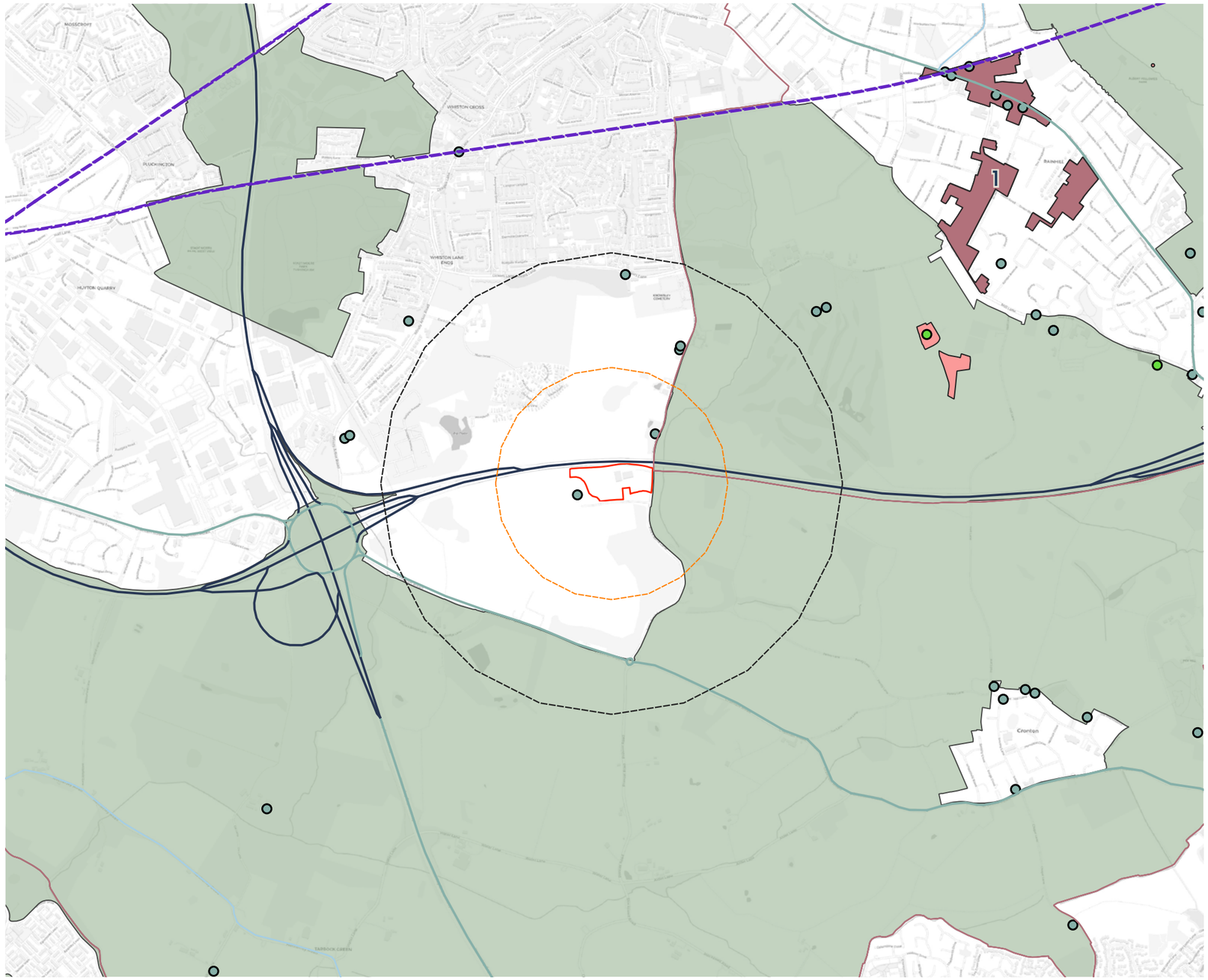


KEY

- Application Boundary
- 1.0km Radii
- 0.5km Radii
- Local Authority Boundary
- Tarbock
- BR55 Rainhill Slopes
- Cronton and Pex Hill
- Halsnead Estate
- EF2 Blundell's Hill

0 500 1,000 m

Figure 1.2: Designations & Access

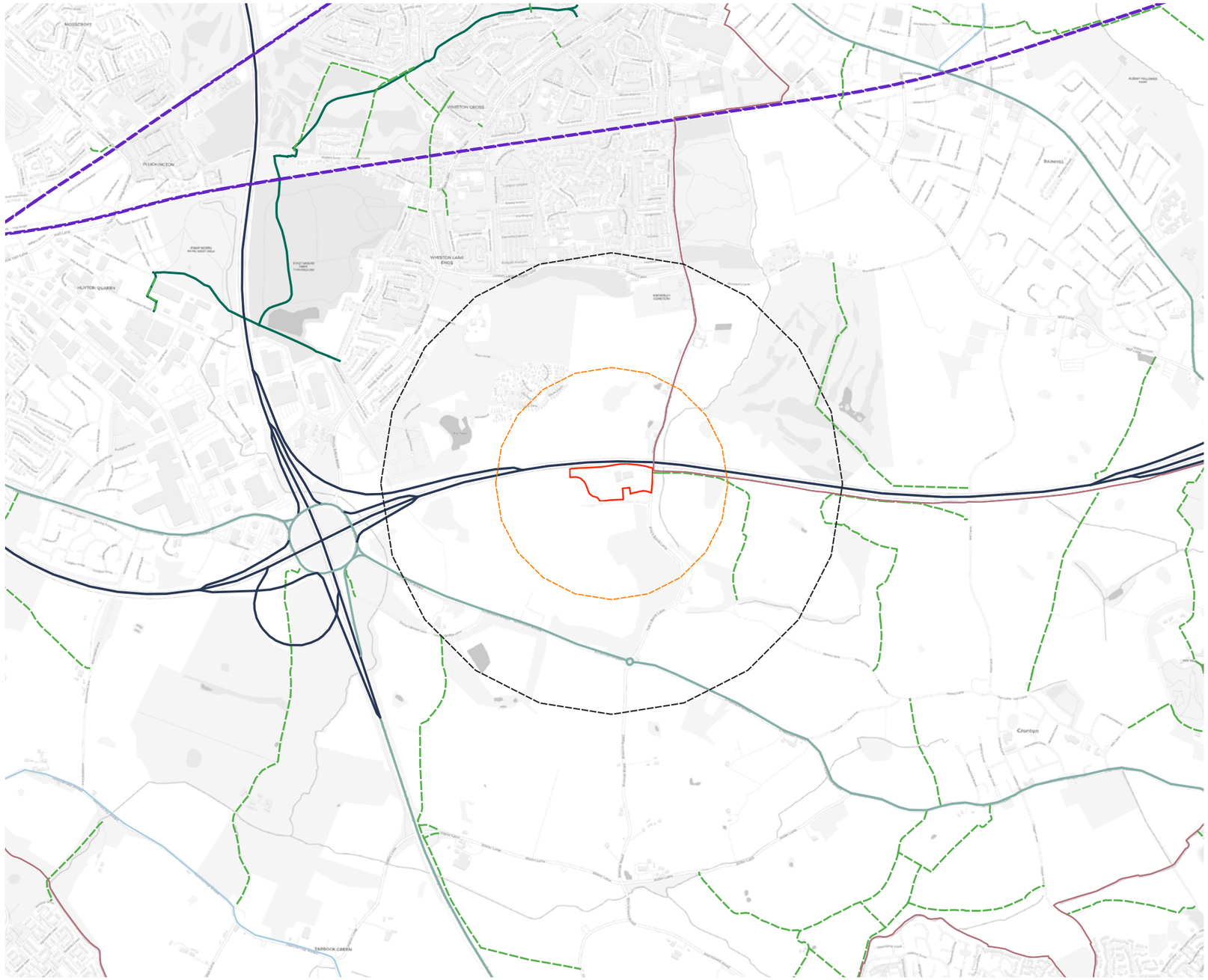


KEY

- Application Boundary
- 1.0km Radii
- 0.5km Radii
- Local Authority Boundary
- Listed Buildings
  - Grade I
  - Grade II
  - Grade II*
- Scheduled Monuments
- Conservation Areas
  - 1. Rainhill
- Greenbelt

0 500 1,000 m

Figure 1.3: Walking & Cycling Infrastructure



KEY

- Application Boundary
- 1.0km Radii
- 0.5km Radii
- Local Authority Boundary
- National Cycle Network
- Public Rights of Way (PROW)

0 500 1,000 m

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Appendix F1: Historic Environment Desk-Based Assessment

Halsnead Farm, Prescot, Merseyside

Historic Environment Desk-Based Assessment

Project no. 6210

On behalf of Starship and Onward Homes

November 2025

Historic Environment Desk-Based Assessment

Halsnead Farm, Prescot, Merseyside

Starship and Onward Homes

November 2025

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Issue Sheet

Halsnead Farm, Prescott, Merseyside

Historic Environment Desk-Based Assessment

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Non-Technical Summary

Lanpro Services Limited was commissioned by Starship and Onward Homes to produce a Historic Environment Desk-Based Assessment ('HEDBA') to support the planning application for a housing development consisting of 87 new homes at Halsnead Farm, Prescot, L35 3SU, within the administrative boundary of Knowsley Council, Merseyside (NGR: SJ 47590 89606). The study site comprises approximately 3.4ha of primarily agricultural land bounded to the north by the M62 and to the south by a modern distribution centre.

The assessment addresses the information requirements set out in the National Planning Policy Framework (NPPF) and provides the proportionate response sought by the NPPF. It draws together the available archaeological, historical, topographic and land-use information in order to clarify the heritage significance and archaeological potential of the site.

This assessment has established that there will be a change within the wider setting of the Grade II Listed Old Halsnead (NHLE 1261787). However, it has been assessed that this part of the asset's setting does not contribute to its significance and therefore the proposed development will not impact the significance of Old Halsnead. Overall, are no designated heritage assets in the study site and the proposed development will have no impact upon the significance of any designated heritage assets in the surrounding area.

The assessment has established that there is one non-designated heritage assets within the study site which has the potential to be impacted by the development. This is the Halsnead Park Wall, Whiston (MME15681), which runs along the eastern boundary of the study site and is considered to be of low significance. It has been assessed that Halsnead Park Wall, Whiston (MME15681) will be directly impacted by the proposed development, and it has been assessed that the proposals would cause a minor harm to its significance. As such, a balanced judgement will be required with regard to this minor scale of harm, in accordance with paragraph 216 of the NPPF.

The available archaeological records, combined with the results of recent archaeological investigations in the surrounding area, suggest that there is very limited potential for the survival of prehistoric and Roman period remains within the study site. The study site is likely to have remained in agricultural use through the medieval and post-medieval periods. It is possible that buried remains relating to medieval or early post-medieval agriculture, such as ploughing or drainage features, could survive, but these would be considered to be of negligible significance. The site formed part of the 18th and 19th century Halsnead Park, but, apart from a former pond, there is no evidence for any former parkland features within the study site, and any buried remains of such features, if present, are unlikely to be of greater than negligible significance.

1 Introduction

1.1.1 Lanpro Services Limited was commissioned by Starship and Onward Homes to produce a Historic Environment Desk-Based Assessment (HEDBA) to support the planning application for a proposed housing development consisting of 87 new homes at Halsnead Farm, Prescot L35 3SU (NGR: SJ 47590 89606). It is located within the administrative boundary of Knowsley Council. The assessment addresses the information requirements set out in the National Planning Policy Framework (NPPF) and provides the proportionate response sought by the NPPF. It draws together the available archaeological, historical, topographic and land-use information to clarify the heritage significance and archaeological potential of the site.

1.1.2 This document provides an assessment of the potential for the survival of archaeological remains within the site and assesses the potential impacts that the proposed development could have on these and other heritage assets in the vicinity.

1.1.3 The assessment has been undertaken to meet the requirements of the National Planning Policy Framework's Section 16: 'Conserving and enhancing the historic environment' (NPPF 2024) and is in line with the Chartered Institute for Archaeologists (CIfA) guidelines Standard and guidance *for historic environment desk-based assessment* (CIfA 2020).

2 Legislation, Policy and Guidance

2.1.1 In considering any planning application for development, the local planning authority will be guided by current legislation, the policy framework set by government planning policy, by current Local Plan policy and by other material considerations.

2.2 Current Legislation

2.2.1 The applicable legislative framework is summarised as follows:

- Ancient Monuments and Archaeological Areas Act (AMAAA) 1979;
- Planning (Listed Buildings and Conservation Areas) (P(LBCA)) Act 1990.
- National Planning Policy Framework 2024

2.2.1 The national policy framework (NPPF, 2024) states that planning applications should consider the potential impact of the development upon heritage assets which includes both designated heritage assets (for example listed buildings and Conservation Areas) and non-designated heritage assets usually comprising assets recorded on a Local List or the Historic Environment Record.

2.2.2 The AMAAA largely concerns to Scheduled Monuments (SMs) and designated archaeological areas, detailing in particular what can and cannot be undertaken on archaeological grounds.

2.2.3 The Planning (Listed Buildings and Conservation Areas) Act 1990 (the 1990 Act) provides for the protection of listed buildings and Conservation Areas and is largely expressed in the planning process through policies in regional and local planning guidance, as outlined below. This act is the primary legislative instrument addressing the treatment of listed buildings and Conservation Areas through the planning process.

2.2.4 Section 66 of the 1990 Act states that '*…in considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the c*ase may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses'.

2.2.5 Section 72 then adds that '..with respect to any buildings or other land in a Conservation Area, of any powers *under any of the provisions mentioned in subsection (2), special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area*'.

2.2.6 As far as Section 72 is concerned, it has previously been established by the Courts that development which does not detract from the character or appearance of a Conservation Area is deemed to be in accordance with the legislation. In other words, there is no statutory requirement to actively 'enhance'.

2.3 National Planning Policy Framework

2.3.1 Section 16 of the NPPF (2024), entitled 'Conserving and enhancing the historic environment' provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets.

2.3.2 Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment, and
- Conservation of England's heritage assets in a manner appropriate to their significance

2.3.3 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 207 states that planning decisions should be based on the significance of the heritage asset (and any contribution made by its setting), and that the '*level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal upon their significance'*. This is supported by paragraph 208 which states that LPAs should take this into account when considering applications.

2.3.1 Paragraphs 212-215 consider the impact of development proposals upon the significance of designated heritage assets. Paragraph 212 states that where a development is proposed that would affect the significance of a designated heritage asset '*great weight should be given to the asset's conservation (and the more important the asset, the greater this weight should be)'*. Paragraph 215 emphasises that '*where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits'* of the scheme, bearing in mind the great weight highlighted in Paragraph 212.

2.3.2 Heritage Assets are defined in Annex 2 of the NPPF as: '*a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing)*'.

2.3.3 Annex 2 also defines 'Archaeological Interest' as a heritage asset which '*holds or potentially holds, evidence of past human activity worthy of expert investigation at some point'*. Heritage Assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

2.3.4 A Designated Heritage Asset comprises a '*World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.*'

2.3.5 In short, government policy provides a framework which:

- Protects nationally important designated Heritage Assets (which include World Heritage Sites, Scheduled Ancient Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas),
- Protects the settings of such designations,
- In appropriate circumstances seeks adequate information (from desk-based assessment and field evaluation where necessary) to enable informed decisions,
- Provides for the excavation and investigation of sites not significant enough to merit in situ preservation.

2.4 Planning Practice Guidance

2.4.1 The Planning Practice Guidance (PPG 2019) is a web-based resource which is to be used in conjunction with the NPPF. It is aimed at planning professionals and prescribes best practice within the planning sector. The relevant section is entitled 'Conserving and enhancing the historic environment'. The guidance given in this section sets out the best practice to applying government policy in the NPPF. It provides an interpretation for each of the interests assigned to heritage assets in understanding significance: archaeological, architectural and artistic, and historic (Paragraph: 006 Reference ID: 18a-006-20190723).

2.5 Local Planning Policy

2.5.1 The Knowsley Local Plan Core Strategy was adopted in January 2016 and sets out the strategy for development in the area until 2028 (Knowsley Council 2016). Within this, the following policy is relevant to this report:

Policy CS20 – Managing the Borough's Historic Environment

1) Development proposals in Knowsley should preserve or enhance the borough's historic and architectural assets, including Listed Buildings, Conservation Areas, Historic Parks and Gardens and archaeological remains, together with other local areas, buildings and structures of historic importance. The Council will:

a) Require preservation of the local distinctiveness and character of historic assets through sensitive design of new development, including appropriate integration with their setting and immediate landscape;

b) Prevent demolition and/or development which would result in substantial harm or the loss of a designated historic asset or its setting, unless the proposal would result in substantial public benefits which clearly outweigh the harm or loss;

c) Where a development proposal will result in less than substantial harm to a designated heritage asset or its setting, assess such harm against the benefits of the proposal;

d) Facilitate long term conservation and enhancement of local assets and areas of historic importance, including through the preparation of Conservation Area Management Plans.

2) The re-use of vacant and underused historic assets will be encouraged, with favourable consideration given, where appropriate, to proposals which will:

a) Enable a use for a purpose sympathetic to its conservation;

b) Retain or introduce public access; and

c) Enhance the importance of the asset for local tourism, leisure or the economy.

3) Development proposals on sites which include, or are considered to have the potential to include, heritage assets or comprising archaeological interest, should be accompanied by a heritage impact statement.

4) Locally important historic assets which are not subject to statutory designation will be identified in a local list and will be afforded consideration in the decision making process.

2.6 Professional Guidance

2.6.1 The CIfA Standard and Guidance for Historic Environment Desk-based Assessment (2020) provides guidelines and recommendations for best practice in undertaking archaeological desk-based research and assessment.

2.6.2 Guidance on the implementation and interpretation of historic environment policy has been provided by the Historic England publications Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment (GPA2; Historic England 2015) and the Historic Environment Good Practice Advice in Planning Note 3 (Second Edition): The Setting of Heritage Assets (GPA3; Historic England 2017).

2.6.3 Historic England's GPA2 outlines a seven-stage process for the assembly and analysis of relevant information relating to heritage assets potentially affected by a proposed development:

- Understand the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment,
- Understand the significance of the affected assets,
- Understand the impact of the proposal on that significance,
- Avoid, minimise and mitigate impact in a way that meets the objectives of the NPPF,
- Look for opportunities to better reveal or enhance significance,
- Justify any harmful impacts in terms of the sustainable development objective of conserving significance and the need for change, and
- Offset negative impacts on aspects of significance by enhancing others through recording, disseminating and archiving archaeological and historical interest of the important elements of the heritage assets affected.

2.6.4 In order to understand the nature, extent and level of significance GPA2 advocates considering the four types of heritage value an asset may hold, as identified in *Conservation Principles* (English Heritage 2008): *aesthetic*, *communal*, *historic* and *evidential*. However, NPPF (2024) has since provided a definition of significance dependant on the following four interests: archaeological, architectural and artistic, or historic. The following assessment of significance results from a combination of any, some or all of these values and interests.

2.6.5 Historic England's GPA3 recognises that whilst setting is not a heritage asset, elements of a setting 'may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral' (para. 4). Setting is described as being distinct to curtilage, character and context. This guidance also notes that the contribution of setting to the significance of a heritage asset is often expressed by reference to views, although the importance of setting lies in what it contributes to the significance of the heritage asset, and this can be influenced by a number of other factors.

2.6.6 The Historic England advice note, Statement of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12 (HEAN 12; Historic England 2019), brings together all of the above guidance in an analysis of an appropriate approach for applicants for heritage and other consents in providing an understanding of the significance of heritage assets in line with NPPF. It emphasises the level of detail required in support of both planning and listed building consent applications, which should be no more than is necessary, i.e. proportionate to the significance of the heritage asset affected, to reach an informed decision.

3 Methodology

3.1 Information Sources

3.1.1 A gazetteer of all records held on the Merseyside Historic Environment Record (HER) and the Historic England National Heritage List for England (NHLE) within a 1km search area is provided in Appendix 1 and their locations illustrated on Figures 1-3. A 1km search area has been determined to be appropriate for establishing the archaeological baseline of the site.

3.1.2 Online repositories for historical maps, plans and relevant documentary sources were consulted in accordance with guidelines laid down by the CIfA (2020).

3.1.3 The Environment Agency's National LiDAR Programme Digital Terrain Model (DTM), at 1m resolution, was downloaded from the Defra Survey Data Download webpage and processed using GIS software.

3.1.4 A range of published and unpublished material has been consulted, including the North West England Regional Research Framework (NWRRF 2025).

3.2 Site Visit

3.2.1 A site visit was undertaken on the 18th of July 2025 in overcast conditions to provide an assessment of the character of the study site and to appraise the potential impact of the proposed development on any heritage assets within the vicinity (Plates 1-7). No previously unrecorded archaeological surface remains were identified and the Grade II Listed 'Old Halsnead' (NHLE 126178) house was not visible due to the presence of dense mature woodland between the study site and the asset (Plate 5).

3.3 Assessment Criteria

Significance

3.3.1 NPPF defines significance as:

The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

3.3.2 Historic England's Conservation Principles (previously English Heritage, 2008) identified four high level values: evidential, historic, aesthetic and communal. NPPF (2024) defines significance in the planning context as resulting from the heritage interest of an asset determined by the following:

- Archaeological Interest: the potential of an asset to yield evidence of past human activity that could be revealed through future investigation. Archaeological interest includes above-ground structures, as well as earthworks and buried or submerged remains.
- Architectural and Artistic Interest: derives from a contemporary appreciation of an asset's aesthetics. Architectural interest is an interest in design, construction, craftsmanship and decoration of buildings and structures. Artistic interest can include the use, representation or influence of historic places or buildings in

artwork. It can also include the skill and emotional impact of works of art that are part of heritage assets or assets in their own right.

- Historic Interest: the way in which an asset can illustrate the story of past events, people and aspects of life (illustrative value, or interest). It can be said to hold communal value when associated with the identity of a community.

3.3.3 These values or interests encompass the criteria that Historic England are obliged to consider when statutorily designating heritage assets.

3.3.4 There are no single defining criteria that dictates the overall asset significance; each asset has to be evaluated against the range of criteria listed above on a case-by-case basis. These values are not intended to be restrictive but are identified in order to help establish a method for thinking systematically and consistently about the heritage values that can be ascribed to a place and contribute to a heritage asset's significance.

3.3.5 Assessment of significance has been undertaken in accordance with the Historic England's Statement of Heritage Significance. Analysing Significance in Heritage Assets (2019).

Setting

3.3.6 The NPPF defines the setting of a heritage asset as:

The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

3.3.7 Historic England's GPA3, *The Setting of Heritage Assets* (2017), was used to inform the methodology for this assessment. The guidance recommends that a systematic and staged '5-step process' to assessment should be adopted, to which this Heritage Statement has adopted steps i) to iv):

i. *identify which heritage assets and their settings are affected,*
ii. *assess the degree to which these settings make a contribution to the significance of the heritage asset(s) or allow significance to be appreciated,*
iii. *assess the effects of the proposed development, whether beneficial or harmful, on that significance or on the ability to appreciate it,*
iv. *explore the way to maximise enhancement and avoid or minimise harm,*
v. *make and document the decision and monitor outcomes.*

3.3.8 The production of this assessment has taken into account the physical and sensory surroundings of the asset, in order to understand the contribution 'setting' makes to the heritage significance of the asset(s). This has included topography and intervening development and vegetation. It also considers how the asset is currently experienced and understood through its setting, in particular views to and from the asset and the site, along with key views, and the extent to which setting may have already been compromised.

Definition of Harm

3.3.9 Current guidance by Historic England is that 'change' does not equate to 'harm'. The NPPF and its accompanying PPG effectively distinguish between two degrees of harm to heritage assets – substantial and less than substantial (paragraphs 214 and 215).

3.3.10 In determining the effects of the proposed scheme this assessment is cognisant of case law. In particular, that for Flag Station, Mansel Lacy, Herefordshire [22/09/2015] Case Number EWHC 2688, wherein it emphasised the primacy of the 1990 Planning Act and the fact that it is up to the decision makers in the planning system to '*have special regard to the desirability of preserving the [listed] building or its setting*'. HH Judge David Cooke stated, in regards to an impact on the setting of a listed building, (Court of Appeal (PALMER and HEREFORDSHIRE COUNCIL & ANR) in 2016 (Case No: C1/2015/3383) para.34):

It is still plainly the case that it is for the decision taker to assess the nature and degree of harm caused, and in the case of harm to setting rather than directly to a listed building itself, the degree to which the impact on the setting affects the reasons why it is listed.

3.3.11 The judgment was agreed by Lord Justice Lewison at the Court of Appeal, who stated that:

It is also clear as a matter both of law and planning policy that harm (if it exists) is to be measured against both the scale of the harm and the significance of the heritage asset. Although the statutory duty requires special regard to be paid to the desirability of not harming the setting of a listed building, that cannot mean that any harm, however minor, would necessarily require planning permission to be refused.

4 Site Description

4.1.1 The study site comprises approximately 3.4ha of primarily agricultural land at Halsnead Farm, Prescot, Merseyside (SJ 47590 89606).

4.1.2 The study site is bounded to the north by the M62. To the immediate north of the site there is a treeline which occupies the motorway embankment. To the east, the site is bounded by Fox's Bank Lane and to the south by an unnamed lane. To the south-east of the study site there is a mid-20th century house known as 'The Bungalow' and to the south-west is a collection of houses including the early 20th century Halsnead Villas, to the west of which is the Grade II Listed Old Halsnead (NHLE 1261787), which are all surrounded by dense mature woodland. To the study site's immediate south is a large, recently constructed distribution centre and adjacent car parking. These have been constructed over the northern side of the former Cronton Colliery, which went out of use in 1984.

4.1.3 The study site is comprised of two agricultural fields and is accessible off Fox's Bank Lane to the east. The northern part of the site contains a range of modern agricultural buildings. There are two electrical pylons within the site located to the east and west of these buildings. The south-eastern portion of the site contains Halsnead Farm, a 20th century farmhouse. Currently the site has fallen out of use but was most recently used as stables and a livery yard.

4.1.4 The topography of the site is generally level at around 38m above Ordnance Datum (aOD). The bedrock geology of the site is comprised of Kinnerton Sandstone Formation formed during the Triassic Period. Over the majority of the site, this is overlain by superficial deposits of Devensian Till which formed during the Quaternary Period. In the eastern portion of the site, near Fox's bank Lane, the Kinnerton Sandstone Formation is overlain by superficial deposits of Alluvium also formed during the Quaternary Period (BGS 2025). The soils within the majority of the site consist *of Slowly permeable seasonally wet slightly acidic but base rich loamy and clayey soils.* In the eastern portion of the site the soils are comprised of *Freely draining slightly acidic sandy soils* (CU 2025).

5 Archaeological and Historical Background

5.1 Introduction

5.1.1 This section reviews existing archaeological evidence for the study site and the archaeological and historical background of the surrounding area, based on a consideration of evidence in the HER and the NHLE within a 1km radius search area, centred on (NGR: SJ 47590 89606). It is not the purpose of this document to create a detailed archaeological or historical narrative of the area, but to provide an assessment of the site's historical development and archaeological potential in accordance with the NPPF.

5.2 Designated Heritage Assets

5.2.1 There are no designated heritage assets within the site.

5.2.2 There are six designated assets, all of which are Grade II Listed Buildings, within the surrounding 1km search area. Five of these Listed Buildings (NHLE 1253249, 1253250, 1253251, 1253429 and 1261894) are located to the north of the M62 motorway. Due to the motorway being a dominant feature of the landscape and being accompanied by dense tree planting to the north and south, there is no intervisibility between the site and any of these assets. Two of these assets, the 'North East Lodge to Halsnead Park' (NHLE 1253249) and its associated gate piers (NHLE 123429), have a limited historical connection to the site as they were all formerly part of the grounds of the no longer extant Halsnead Hall. However, the M62 and the other extensive modern developments in the area have also severed any meaningful appreciation of this historic link. Therefore, the site does not contribute to the significance which these assets gain from their setting. Therefore, these assets will not be taken forward for further assessment.

5.2.3 The site is located immediately adjacent to the grounds of the Grade II Listed house 'Old Halsnead' (NHLE 1261787). Due to the proximity of the site to this asset it will be taken forward for further assessment.

5.2.4 Further details of these designated heritage assets can be found in the gazetteer in Appendix 1 and the locations of these assets are illustrated on Figure 1.

5.3 Non-designated Heritage Assets

5.3.1 Knowsley Council does maintain a list of locally significant buildings, however, at the time of writing the website holding this information was temporarily closed.

5.3.2 The HER records two monument records which fall partially within the study site. These records are 'Halsnead Park, Whiston' (MME15147) and 'Halsnead Park wall, Whiston' (MME15681), as the study site was located in the eastern portion of Halsnead Park from the late 18th /early 19th century until the early 20th century. Following consultation with the Principal Planner at Knowsley Council, both these entries are to be considered non-designated heritage assets.

5.3.3 Since the destruction of Halsnead Hall in the 1930s, time the former grounds of Halsnead Park have experienced widespread, significant development with the addition of modern housing developments into the northern and eastern parts of the park, the addition of the

M62 which runs roughly east/west through the centre of the former parkland and the addition of a colliery which has since been superseded by a distribution centre in the southern part of the former parkland (ARK 2025). Due to this significant development, the appreciation of this area as designed parkland is no longer appreciable and has lost its historical context. It is therefore considered that this asset is of negligible significance and any further development within the former parkland will therefore not affect its legibility as parkland as it has already been lost. As such the non-designated Halsnead Park (MME15147) has been scoped out of further assessment.

5.3.4 The section of wall which follows the line of part of the eastern boundary of Halsnead Park (MME15681) also forms the eastern boundary of the study site (Plate 7). Following the consultation with Knowsley Council, this wall is considered to be a non-designated heritage asset. The proposals include the widening of an existing opening in the wall and the demolition and rebuilding of a section of it. Therefore, the wall will be taken forward for further assessment.

5.3.5 The HER records a further 71 monument records within the wider 1km search area. The majority of these records are associated with post-medieval activity and their details are provided in Appendix 1, with their locations depicted in Figure 1.

5.4 Prehistoric and Roman Periods (c. 9500 BC – c. AD 410)

5.4.1 There is no recorded evidence of prehistoric or Roman period activity within the study site.

5.4.2 The HER records one isolated Roman find spot within the wider search area, consisting of a Roman pottery sherd (MME21791), discovered c.750m north-east of the site.

5.4.3 Based on the lack of evidence for prehistoric and Roman activity within the search area, and the fact that there have been several archaeological investigations undertaken in the vicinity that have not identified remains dating to these periods (EME3083 and EME3309), it is considered that there is very limited potential for remains dating to these periods to survive within the site.

5.5 Medieval Period (c. AD 410 – c. 1540)

5.5.1 There is no recorded evidence of medieval activity within the study site.

5.5.2 The HER records seven entries which relate to medieval activity within the wider 1km search area. Three of these entries relate to find spots of medieval to post-medieval pottery at Lickers Lane, around 750m north of the site (MME15823) and at Higher Shaw Farm, around 500m east of the site (MME7128 and MME7129). The other four HER entries dating to the medieval period relate to agrarian activity and are in the form of curvilinear enclosures indicative of field systems (MME16079 and MME6272), a ditch (MME20871) and a boundary bank (DME3359). The closest of these (MME16079) is located around 100m east of the study site.

5.5.3 Early references to a settlement at Whiston, approximately 900m north of the study site, date to the mid-13th century (ARK 2025). The study site was located outside of the focus of any known medieval settlement and is likely to have remained in agricultural use throughout the period. Therefore, it is considered that any remains of a medieval date

surviving in the study site are likely to relate to agricultural activity and would be of negligible significance.

5.6 Post-Medieval and Modern Periods (c. 1540-present)

5.6.1 The HER records two entries of post-medieval activity within the study site. Both entries (MME15147 and MME15681) relate to the site being part of the grounds of the former Halsnead Hall, which was formerly located around 400m to the north-west of the study site, and was constructed in the 17th century and demolished in the 1930s (ARK 2025).

5.6.2 The surrounding Halsnead Park does not appear to have been established until the late 18th or early 19th century (MME15147), and the area of the park has now largely been divided and subsumed under modern housing, commercial and motorway development since the middle of the 20th century. Some small sections of extant park boundary wall remain, one of which marks the eastern boundary of the study site (MME15681). The HER contains a further eight monuments (MME6245, MME18748, MME21899, MME6856, MME15781, MME15822, MME21890 and MME23843) within the 1km search area which are associated with the Halsnead Park estate. The closest of these entries, the probable site of the ha-ha associated with Halsnead Hall (MME21890), is more than 300m to the northwest of the study site.

5.6.3 The 1842 Tithe map of Whiston (Figure 3) depicts the site as being part of the open parkland of Halsnead Park. It also shows that the Grade II Listed Old Halsnead (NHLE 1261787), located around 50m west of the site was enclosed similarly to today within woodland. This shows that historically, the site area was associated with Halsnead Hall rather than Old Halsnead, despite its proximity to the asset. The tithe map also shows a row of agricultural buildings (MME21893) to the south of Old Halsnead which likely serviced enclosed fields south of the study site.

5.6.4 The 1892 Ordnance Survey (OS) 25-inch map (Figure 4) shows that the study site was still part of the parkland at this time and there was an extant pond with an area of associated woodland in its north-eastern corner. Figure 5 shows that the study site remained in this condition in 1907.

5.6.5 The 1927 25-inch OS map (Figure 6) shows that the study site formed the southern side of a larger field which extended northwards. This highlights that Halsnead Park had been divided for agricultural use by this time. This map depicts the addition of the Cronton Colliery in formerly enclosed fields, which opened in 1913 and was around 150m south of the study site (Northern Mine Research Society 2025).

5.6.6 The 1937 25-inch OS map (Figure 7) shows the addition of Halsnead Farmhouse in the south-eastern area of the study site and the addition of ‘The Bungalow’ which is located just south of the site. The field in which the study site was situated at this time was also marked as being a nursery. The 1937 OS map depicts the expansion of Cronton Colliery, with the addition of associated baths and sewage works around 100m south-west of the study site. The map also shows the addition of a pair of semi-detached houses adjacent to Old Halsnead (NHLE 1261787), around 30m west of the study site.

5.6.7 The 1959 1:2500 OS map (Figure 8) shows the addition of a number of buildings in the northern portion of the study site. It also depicts tree planting in the south-eastern corner of the site and a new boundary around The Bungalow and Halsnead Farmhouse. By this time the farm buildings (MME21893) to the south of Old Halsnead (NHLE 1261787) were no longer extant.

5.6.8 The 1980 1:2500 OS map (Figure 9) shows that at this time the study site mirrors its present proportions due to the construction of the M62 Motorway along its northern boundary. The extant farm buildings and the electrical pylons to the north of the site had also been constructed but the pond in the north-eastern corner of the site was no longer extant.

5.6.9 The 1989 1:2500 OS map (Figure 10) shows the addition of a tank in the north-east corner of the site. To the south of the site, it shows that the colliery is no longer extant after closing down in 1984 (Northern Mine Research Group 2025).

5.6.10 The 2022 DEFRA LiDAR imagery (Figure 11) does not show any potential archaeological features within the site. The faint lines which run east/west on Figure 11 may characterise modern ploughing or drainage.

5.6.11 The 2024 Google Satellite Imagery (Figure 12) highlights the recent addition of a horse arena to the west of the farm buildings in the northern part of the site. It also shows slight changes in plan form to these buildings and the removal of the tank in the north-eastern portion of the site.

5.6.12 The HER records a further 44 monument records dating to the post-medieval and modern periods within the wider 1km search area. The majority of these records relate to agricultural activity, industrial activity related to Cronton Colliery, or residential developments within the area. These assets are detailed in the gazetteer (Appendix 1) and are illustrated on Figure 1. These records do not inform the archaeological baseline or historic background of the site.

5.6.13 The HER also records ten entries of unknown date within the 1km search area. These comprise a series of undated pits (MME21506 and MME21507) the closest of which is c.250m north of the study site, ditches (MME21508, MME21509 and MME20872) the closest being c.450m north of the site, anomalies (MME19921, MME7149) the closest being c.200m north-east of the site, and earthworks (MME7123) around 950m east of the site. These records were identified through a combination of archaeological investigations, cropmarks and aerial photography. The HER also records the possible location of an undated watermill (MME15148), around 400m north-east of the study site, identified from field name evidence and an undated post hole (MME21793), located around 800m north-west of the site, identified through archaeological evaluation.

5.6.14 Overall, it seems that the study site formed part of the Halsnead Park parkland during the late 18th and 19th centuries, but following the division of the park in the 1920s, including the demolition of Halsnead Hall in the 1930s, the study site formed part of a field which became a nursery. The present parcel of land forming the study site has been defined since the construction of the M62 to the north in the 1970s. As there were no buildings

extant on the site during the time the site was parkland, as evidenced from the historic mapping it is unlikely that there are any sub-surface remains relating to Halsnead Park present within the site, although sub-surface remains representing the former 19th century pond may survive. However, it is considered that the remains of the pond, or any buried post-medieval or modern agricultural features, would be of negligible significance.

5.7 Previous Archaeological Investigations

5.7.1 The HER records no archaeological events within the site.

5.7.2 The HER records 30 archaeological events within the 1km search area. These comprise archaeological desk-based assessments, evaluations, watching briefs, geophysical survey, field walking, photographic records and building survey. Full details of all HER events within the search area can be found in the gazetteer (Appendix 1).

5.7.3 Two schemes of archaeological investigation have taken place near the site in recent years. Geophysical survey and archaeological evaluation were undertaken in 2019-2020 at Symmetry Park in the fields directly west and south of the site, formerly occupied by Cronton Colliery. These investigations found no significant archaeological remains and the results of both showed evidence of agricultural and industrial activity as expected (Magnitude Surveys 2019; Salford Archaeology 2020). Another scheme of geophysical survey and archaeological evaluation was undertaken north of the M62 (around 70m north of the site) in 2018-2022. The geophysical survey recorded a number of anomalies which seem to relate to former field boundaries, industrial activity and agricultural activity. It also detected several linear anomalies which are likely ditches and possibility relate to when the area was part of the Halsnead Park estate (SUMO 2018). The archaeological evaluation discovered no significant archaeology, and all identified remains appeared to be late post-medieval or modern in date and did not contribute to any further understanding of the Halsnead Park estate or earlier field systems (Oxford Archaeology 2022).

6 Assessment of Significance and Setting

6.1.1 Paragraph 207 of the NPPF states that planning decisions should be based on the significance of the archaeological asset, and that the level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset. Understanding the significance of any heritage assets affected and any contribution made by their setting (paragraph 207, NPPF 2024) is therefore fundamental to understanding the scope for and acceptability of change.

6.1.2 It is recognised that not all parts of an archaeological asset will necessarily be of equal significance. In some cases, certain elements could accommodate change without affecting the significance of the asset. Change is only considered harmful if it erodes an asset's significance.

6.2 Designated Heritage Assets

Old Halsnead (Grade II Listed, NHLE 1261787)

6.2.1 Old Halsnead is set within its own plot, which is surrounded by dense tree planting, as it has been from at least the early 19th century (Figure 3). The significance of the building is considered to be derived chiefly from its historic and architectural interest. Old Halsnead possesses historic interest as it is illustrative of a late 17th century rural house of some status. Its architectural interest is derived from the assets high quality built-form and its use of decorative features such as a round arch entranceway with keystones, mullioned leaded windows and a two-storey gabled porch which includes an armorial crest within its gable. Old Halsnead also likely possesses a degree of evidential value through its phasing and use of historic building techniques.

6.2.2 The asset also derives a degree of significance from its setting through its immediate surrounding grounds which are surrounded by dense mature woodland. The height and density of the surrounding trees provide the plot with an insular, inwards looking feel and heavily filter views out of the plot to the north, east and west. To the south, glimpsed views from the immediate setting of the asset look out over the car park of the large distribution centre. The traditional plot of the asset has been eroded to a degree through the insertion of the Halsnead Villas to the east sometime between 1927 and 1937 (Figures 6 and 7). The Halsnead Villas and their boundaries preclude intervisibility between the study site and Old Halsnead and its front garden. The wider setting of the asset is dominated by modern developments with the area to the south containing a car park associated with a large, prominent distribution centre and the M62 located less than 100m north of the grounds of the asset. With the asset being located so close to the M62, there is constant traffic noise audible from within its grounds, which detracts from the immediate and wider setting of the asset, giving the area a modern and urbanising feel. Overall, the asset derives a limited degree of significance from its immediate setting, which is bound on all sides with dense, mature woodland which heavily filters views to the north, east and west, providing the grounds of the asset with an insular feel. Constant traffic noise from the M62 does detract

from this setting to a degree, limiting the contribution of the immediate setting of the asset to its significance. The wider setting of the asset is characterised by the modern developments of the M62 to the north, the large distribution centre to the south and the 20th century Halsnead Villas to the east. Overall, the wider setting of the asset does not contribute towards its significance.

6.2.3 The study site does not contain any further designated heritage assets and all designated heritage assets in the wider search area have been scoped out of detailed assessment in accordance with step 1 of Historic England setting guidance.

6.3 Non-Designated Heritage Assets

Halsnead Park Wall, Whiston (MME15681)

6.3.1 A section of former boundary wall (MME15681), measuring c.107m, is located along the eastern boundary of the study site (Figure 1, Plate 7). This makes up a small part of a wider scheme of the fragmentary remains of the once circuitous wall which once delineated the extents of Halsnead Park. This wall is considered to be a non-designated heritage asset and is of low significance. The wall derives its significance from its historic value as it is illustrative of the former boundary of Halsnead Park (MME15147), which surrounded Halsnead Hall (MME6856), a post medieval country house formally located c.400m north-west of the site. The area which once was parkland is no longer appreciable as a designed parkland landscape due to extensive modern developments such as the construction of the M62, housing developments and the Cronton Colliery, which has since been superseded by a distribution centre.

6.3.2 The wall also possesses a limited degree of evidential value as the boundary of the former parkland. However, this has been significantly eroded as the northern section of the section of the wall which runs along the eastern boundary of the study site was demolished and rebuilt in its current location in the 20th century. The alignment of the wall in the 1959 Edition OS Mapping (Figure 8) is substantially further west than the current location, first depicted on the 1980 Edition OS map (Figure 9). An access though this wall is evident midway along the length, which is currently blocked by wooden fencing (Plate 7). The wall on either side of this opening is of a poor state of repair.

6.3.3 The wall possesses a limited degree of aesthetic value being constructed of masonry with carved coping. The aesthetic value of the wall has been eroded through its condition, with some areas of the wall missing coping and *ad hoc* repairs being evident over its couse. Other areas of the wall (MME15681) have much greater aesthetic value and are of greater significance, including the former 'north-east gate to Halsnead Park' with a Grade II Listed Lodge (NHLE 1253249) and Gate Piers (NHLE 1253429).

6.3.4 The section of the wall along the site boundary is experienced as a flanking feature to Fox's Bank Lane and is experienced from the road. Its traditional setting has been eroded through the destruction of Halsnead Park and thus the setting of the wall contributes little to its significance.

6.3.5 Overall, the non-designated section of the wall which delineates the eastern boundary of the study site is assessed to be of low significance.

6.4 Potential for Sub-Surface Archaeological Remains

6.4.1 There is no previously recorded evidence for prehistoric or Roman activity in the study site, and only a single record relating to a Roman period find in the wider search area. Recent excavations in the adjacent and surrounding area have not identified any remains of these periods, and it is therefore considered that the study site has limited potential to contain archaeological remains of a prehistoric or Roman period date. If remains dating to these periods were to be present, then there is no evidence to suggest that these would be of greater than local significance.

6.4.2 It is likely that the study site was in agricultural use through the medieval period and was situated beyond any recorded medieval settlement. Therefore, any remains dating to the medieval or post-medieval periods are likely to represent agricultural activity, relating to former ploughing, field boundaries or drainage ditches, and these would be considered to be of negligible significance. The site formed part of the 18th and 19th century Halsnead Park, but, apart from a former pond, there is no evidence for any former parkland features within the study site, and any buried remains of such features, if present, are unlikely to be of greater than negligible significance.

7 Impact Assessment

7.1 Proposed Development

7.1.1 The proposed development consists of 87 new homes which would be a mix of detached and semi-detached houses and apartments. The northern area of the site would comprise a significant landscaped/park area, and trees would be planted to serve as a visual and noise buffer between the development and the M62.

7.1.2 The proposals also include the demolition of Halsnead Farmhouse in the south-eastern part of the site and the large agricultural buildings in the north of the site, all of which are 20th century in date.

7.1.3 The proposals would see the existing gap in the non-designated part of boundary wall widened and the southern half rebuilt on a slightly different alignment to fit the new access road from Fox's Bank Lane, see appendices 3-5 for further details.

7.1.4 Full details of the proposed development can be found in the planning statement which supports this planning application.

7.2 Previous Impacts

7.2.1 Some areas of study site were disturbed in the mid to late 20th century through the construction of Halsnead Farmhouse in the south-eastern portion of the site and the range of modern agricultural buildings and no longer extant tank, in the northern part of the site. This construction has likely destroyed any earlier archaeological remains in these areas.

7.2.2 The rest of the study site has been either parkland or farmland during the post-medieval and modern periods which could have caused some below ground impacts through potential landscaping or ploughing.

7.3 Designated Heritage Assets

Old Halsnead (Grade II Listed, NHLE 1261787)

7.3.1 The proposed development does will not have any direct physical impacts to Old Halsnead. Therefore, the architectural, historic and evidential values which make the primary contribution to the significance of the asset will not be impacted.

7.3.2 The wider setting does not contribute to the historic legibility or the setting of its significance. Therefore, the erosion of openness within the wider setting of the asset will not constitute an impact to the significance of the asset. The study site does not share intervisibility with Old Halsnead due to the intervening dense mature woodland which surrounds the plot of the asset (Plate 5). The proposed development incorporates evergreen tree planting along this boundary to ensure that the level of screening stays intact during the winter months, further minimising the potential for intervisibility (Appendix 2). It is also considered that there will be no impacts to the setting of the asset as a result of increased noise and vibration during the construction phase of the project. This is because there is already a high baseline level of noise during the day, when

construction would be taking place, from the M62 which is located less than 100m north of the asset.

7.3.3 The proposed development will introduce a degree of change into the wider setting of the asset which may have minor heavily filtered glimpsed views of the development. The asset does not derive significance from its wider setting and the legibility of its historic plot and immediate setting will not change. Therefore, while the development will introduce minor change into the into the wider setting, it has been assessed that the proposed development will cause no harm to the significance of the Grade II listed Old Halsnead.

7.3.4 The proposed development will have no impact on any other designated heritage assets.

7.4 Non-Designated Heritage Assets

Halsnead Park Wall, Whiston (MME15681)

7.4.1 The proposed development does include the widening of the existing gap within the wall which runs alongside the eastern boundary of the study site, to create a new access into the site (Appendix 5). This will require minor demolition and realignment of a small portion of the wall (Appendices 3 and 4). This will have a minor impact on the evidential value of the wall, however, the wall will be rebuilt in an aesthetically sympathetic way and repaired with the missing coping reinstated and poor condition made good, improving the aesthetic value of the wall. Overall, this will result in a minor harm to the significance of the non-designated former park boundary wall. This access is a requirement to ensure the viability of this scheme. The minor harm to this non designated heritage asset of low significance must be balanced against the identifiable public benefits of the project detailed in the planning statement.

7.4.2 The proposed development will cause no impact to any other non-designated heritage assets.

7.5 Potential Sub-Surface Archaeological Remains

7.5.1 The assessment has established that there is very limited potential for the survival of buried remains of a prehistoric and/or Roman period date within the study site that could be impacted by the proposed development.

7.5.2 There is potential for the survival of sub-surface features relating to medieval and post-medieval agricultural activity within the study site, such as ploughing, drainage or former field boundaries, which could be impacted by the proposed development, but any such remains would be considered to be of negligible significance.

8 Conclusions

8.1.1 This Historic Environment Desk-Based Assessment draws together the available archaeological, historical, topographic and land-use information in order to clarify the significance and archaeological potential of a site proposed for development at Halsnead Farm, Fox's Bank Lane, Prescot. This assessment addresses the information requirements set out in the NPPF and provides the proportionate response sought by the NPPF.

8.1.2 This assessment has established that there will be a change within the wider setting of the Grade II Listed Old Halsnead (NHLE 1261787). However, it has been assessed that this part of the asset's setting does not contribute to its significance and therefore the proposed development will not impact the significance of Old Halsnead. Overall, are no designated heritage assets in the study site and the proposed development will have no impact upon the significance of any designated heritage assets in the surrounding area.

8.1.3 The assessment has established that there is one non-designated heritage assets within the study site which has the potential to be impacted by the development. This is the Halsnead Park Wall, Whiston (MME15681), which runs along the eastern boundary of the study site and is considered to be of low significance. It has been assessed that Halsnead Park Wall, Whiston (MME15681) will be directly impacted by the proposed development, and it has been assessed that the proposals would cause a minor harm to its significance. As such, a balanced judgement will be required with regard to this minor scale of harm, in accordance with paragraph 216 of the NPPF.

8.1.4 The available archaeological records, combined with the results of recent archaeological investigations in the surrounding area, suggest that there is very limited potential for the survival of prehistoric and Roman period remains within the study site. The study site is likely to have remained in agricultural use through the medieval and post-medieval periods. It is possible that buried remains relating to medieval or early post-medieval agriculture, such as ploughing or drainage features, could survive, but these would be considered to be of negligible significance. The site formed part of the 18th and 19th century Halsnead Park, but, apart from a former pond, there is no evidence for any former parkland features within the study site, and any buried remains of such features, if present, are unlikely to be of greater than negligible significance.

9 References

ARK 2025, Archive Resource of Knowsley, https://archives.knowsley.gov.uk/whiston/history-of-whiston/ (accessed on 14th July 2025)

BGS 2025, British Geological Survey, https://mapapps.bgs.ac.uk/geologyofbritain/home.html (accessed on 10th July 2025)

CIfA 2020, *Standard and guidance for historic environment desk-based assessment*

CU 2025, Cranfield University, Soilscapes viewer https://www.landis.org.uk/soilscapes/ (accessed on 10th July 2025)

DCMS 2010, *Scheduled Monuments. Identifying, protecting, conserving and investigating nationally important archaeological sites under the Ancient Monuments and*

English Heritage 2008, *Conservation Principles*

Historic England 2015, *Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment*

Historic England 2017, *Historic Environment Good Practice Advice in Planning: 3 (2nd Edition) The Setting of Heritage Assets*

Historic England 2019, *Statements of Heritage Significance. Analysing Significance in Heritage Assets: Historic England Advice Note 12.*

ICOMOS 2011, *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*

Knowsley Council 2016, *Knowsley Local Plan Core Strategy*

Magnitude Surveys 2019, *Geophysical Survey Report of Symmetry Park, Huyton, Merseyside*

NPPF 2024, *National Planning Policy Framework* (revised December 2024)

Northern Mine Research Society 2025, https://nmrs.org.uk/mines-map/coal-mining-in-the-british-isles/lancashire-coalfield/st-helens-coalfield/cronton-colliery-1913-1984/ (accessed on 14th July 2025)

NWRRF, 2025, *The North West England Regional Research Framework*, accessed online at: https://researchframeworks.org/nwrf/

Oxford Archaeology 2022, *Fox Wood Garden Village, Whiston, Merseyside, Archaeological Evaluation Report.*

PPG 2019, *Planning Practice Guidance*

Salford Archaeology 2020, *Archaeological Evaluation Report: Symmetry Park Development, Huyton, Merseyside.*

SUMO Geophysics 2018, *Geophysical Survey Report: Land at Foxes Bank Lane, Whiston Knowsley.*

Lanpro

Figures

346500 347000 347500 348000 348500

390500 390000 389500 389000

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 1
The study site and 1km search area with the location of NHLE and Merseyside HER 'Monument' records

Legend:

- Study Site
- 1km Search Area
- Grade II Listed Buildings
- HER 'Monument' Lines
- HER 'monument' Polygons
- HER 'monument' Points
- SHINE 'Monument'

Data: © Historic England 2025; Merseyside HER; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729



Co-ordinate system: OSGB36 / British National Grid

Scale: 1:8000 @ A3

0 110 220 330 440 m

N

Lanpro

346500 347000 347500 348000 348500

390500 390000 389500 389000

EME2527 EME2528
EME2956
EME2957
EME2950
EME3062
EME3466
EME3336
EME3357
EME2950
EME3513
EME3352
EME3512
EME2953
EME3090
EME3019
EME3309
EME3020
EME2520
EME2388
EME3227
EME1423
EME2384
EME2391
EME3025
EME3083
EME2379
EME1421
EME3339

Halsnead Farm

Halsnead Park

Fox Wood Garden Village

Symmetry Park Merseyside

Great Foxshow

Higher Show Farm

Rough Heads

Higher Park Farm

Red House Farm

Penny Lane

Crantock Road

Dacres Bridge Lane

Fox's Bank Lane

Old Penny Lane

Blundell's Lane

Lickers Lane

Halsnead Avenue

Willis Arbor Road

Main Drive

Orchard Close

Woodend

Lake View

Drake Close

Beatty Close

Colgate Lane

Long Hey

Holly Hey

Priory Close

Saint Nicholas Road

Frogshaw Close

Penny Lane

Penrod Road

Tan Lane

M62

A5080

A5300

Data: © Merseyside HER 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:8000 @ A3

0 110 220 330 440 m

N

Lanpro

347500

389500

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 3.
The study site overlain on the 1842 Tithe Map of Whiston

Legend:

Study Site

Data: © The Genealogist 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1750 @ A3

0 25 50 75 100 m

N

Lanpro

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 4.
The study site overlain on the 1892 25-inch Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

Snape Gate Barn
Snape Gate Cottages
Snape Gate
Old Halsnead
Lodge
Brook
Footpath
55
41·106
59
58
·261
57
·624
22
1·878
26
1·594
25
1·840
24
·800
23
4·254
P
O.S.

347500

389500

Snape Gate Barn

59 3·539

58
·261

Snape Gate

Snape Gate
Cottages

57
·624

55
41·106

A R K

Old Halsnead

26
1·600

25
1·834

24
·800

23
4·254

Lodge

19a
2·461

22
1·878

9·7

5

Fox's Bank Lane

C.S.

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 5.
The study site overlain on the 1907 25-inch Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

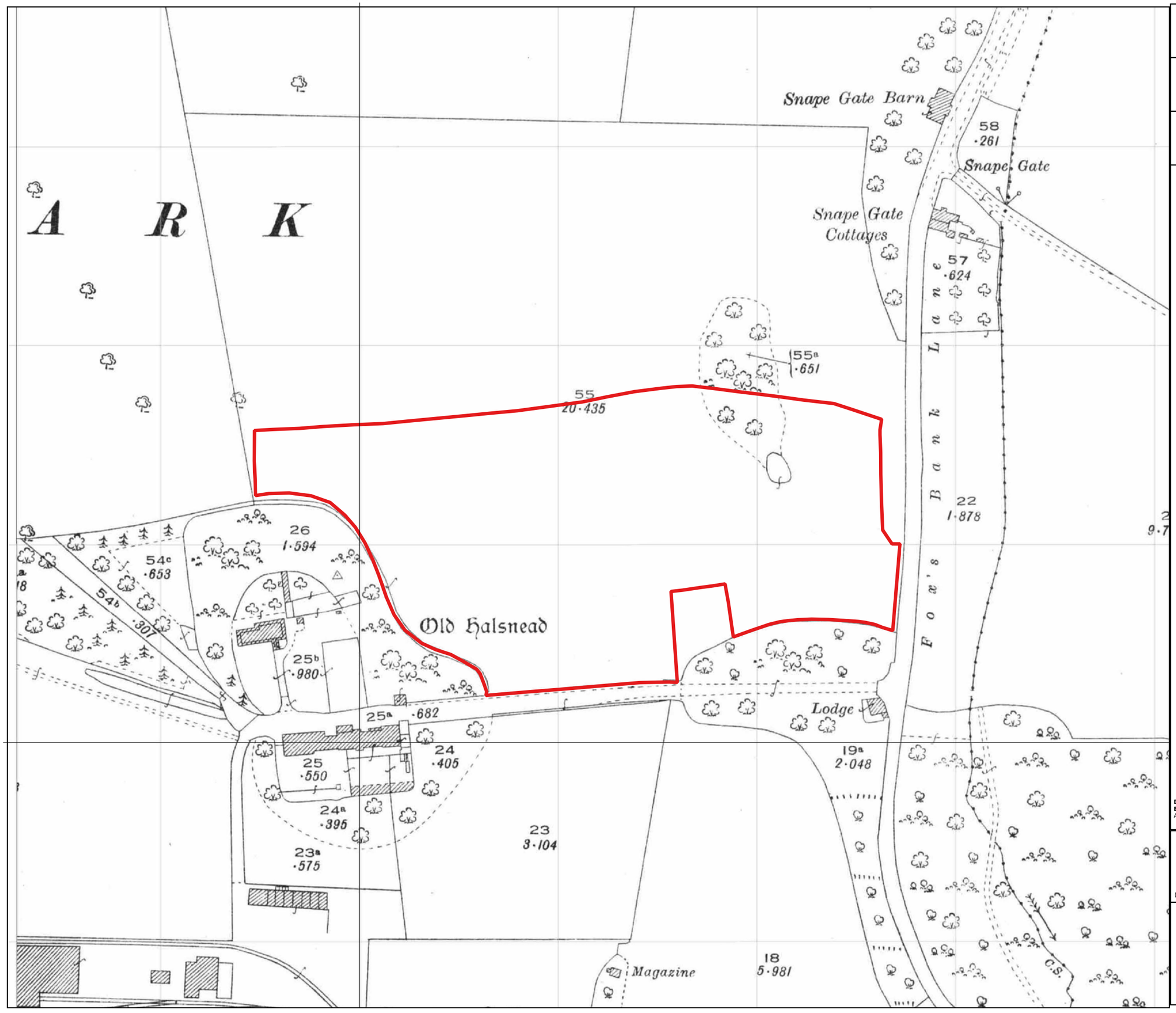
Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 6.
The study site overlain on the 1927 25-inch Ordnance Survey Map

Legend:

Study Site



Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

Snape Gate Barn

Snape Gate Cottages

A R K

222
1·178

218
·261

270
·624

Nursery
269
20·558

Fox's Bank Lane

271
1·878

267
1·594

265
·653

264
·307

266
·980

Old Halsnead

Lodge

273
2·048

268
·550

278
·455

277
2·989

Baths

Filter Bed

Sewage Works
(Cronton Colliery)

274
6.081

F.P.

Cronton Colliery

C.S.

4
4·659

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 7.
The study site overlain on the 1937 25-inch Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

A R K

Snape Gate Barn

116

8178 ·09

B M 114·17

Snape Gate Cottages

8074 ·62

S H A W

6069 21·16

Pond

8062 1·81

C S

4760 1·63

C P

457 ·60

Old Halsnead

4755 ·98

Pond

F O X S

7752 2·25

Lodge

7350 2·06

7948 ·37

El P

El Ps

El Ps

109

B A N K

8244 ·08

8645 2·33

8141 1·58

5946 3·51

Works

6939 5·99

Mine

5737

El P

8536

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 8.
The study site overlain on the 1959 1:2,500 Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

A R K

Snape Gate Barn

34·7m

Gantry

Slopes

Rd (N)

ETL

SHAW

4760
1·63

3457
2·60

Old Halsnead

4755
·98

Pond

42·7m

34·1m

BM 33·34m

7948
·37
El Sub Sta

Cronton Colliery

Water

El Sub Sta

NC & Sc

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 9.
The study site overlain on the 1980 1:2,500 Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

Snape Gate barn

34·7m

5877
2·603ha
6·43

8073
·065ha
·16

4069 6·243ha 15·43

Gantry

Track

ETL

Tank

6260
3·070ha
7·59

8059
·526ha
1·30

Old Halsnead

NC
Sc

Track

4757
1·065ha
2·63

Halsnead Villas

The Bungalow

Halsnead Farm

7253
·558ha
1·38

42·7m

34·1m

B.M 33·34m

El Sub Sta

7948
·150ha
·37

FOX'S BANK LANE

8345
·304ha
·75

Small Holding

8141
·599ha
1·48

ead Park

8
5ha
7

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 10.
The study site overlain on the 1989 1:2,500 Ordnance Survey Map

Legend:

Study Site

Data: © Blackwell's Mapping 2025; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:1800 @ A3

0 25 50 75 100 m

N

Lanpro

347500

389500

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 11.
The study site overlain on the 2022 DEFRA Lidar Imagery

Legend:

Study Site

Data: © DEFRA 2022; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:2200 @ A3

0 30 60 90 120 m

N

Lanpro

347500

348000

390000

389500

Halsnead Farm, Prescot

Historical Environment Desk-Based Assessment

Figure 12.
The study site overlain on the 2024 Google Satellite Imagery

Legend:

Study Site

Data: © Google 2024; Lanpro, 2025
Base Maps: © Crown copyright and database rights 2025. Ordnance Survey AC0000862729

Co-ordinate system: OSGB36 / British National Grid

Scale: 1:3000 @ A3

0 40 80 120 160 m

N

Lanpro

Plates



Plate 1. The view looking west from the eastern part of the study site



Plate 2. The view looking north-east from the middle of the study site



Plate 3. The view looking south from the middle of the study site showing the modern distribution centre



Plate 4. The view looking east from the middle of the study site



Plate 5. The view towards ‘Old Halsnead’ (NHLE 1261787) from the western part of the study site



Plate 6. The view looking east from the north-western corner of the study site



Plate 7. Part of the extant section of former boundary wall which runs along the eastern edge of the study site

Appendix 1 Gazetteer

The following table provides details of heritage assets recorded on the Merseyside HER within 1km of the Site. These have been listed in order of their reference numbers, and their locations are marked on Figure 1.

Monument Ref.	HER Ref.	Name	Grade	Period
NHLE				
1261787	DME116	Old Halsnead	Grade II Listed Building	17th Century
1253249	DME100	North East Lodge to Halsnead Park	Grade II Listed Building	18th Century to 19th Century
1253250	DME102	Barn at Snape Gate	Grade II Listed Building	18th Century
1253251	DME103	Sandfield House	Grade II Listed Building	18th Century
1253429	DME106	Gate Piers Beside North East Lodge to Halsnead Park	Grade II Listed Building	Post-Medieval
1261894	DME121	Church of St Nicholas	Grade II Listed Building	19th Century

Monument Ref.	Name	Period
HER Selected Heritage Inventory for Natural England (SHINE) records		
DME3359	Boundary bank at Cronton, west of Rough Head Wood, running for approximately 250 metres and aligned broadly NW to SE.	Medieval to Post-Medieval

Monument Ref.	Name	Period
HER 'monument' records		
MME10028	Site of Cronton Colliery, Halsnead Park, Whiston	Post-Medieval
MME13083	Site of Prince's House, Cock Glades, Whiston	Post-Medieval
MME13104	Nos. 160-164 Windy Arbour Road, Whiston	Post-Medieval

MME15147	Halsnead Park, Whiston	Post-Medieval
MME15148	Possible location of a mill, Mill Wood, Cronton and Rainhill Boundary	Unknown
MME15681	Halsnead Park wall, Whiston	Post-Medieval
MME15781	Site of an icehouse, Main Drive, Whiston	Post-Medieval
MME15822	18th or 19th century ditch, Lickers Lane, Whiston	Post-Medieval
MME15823	Medieval pottery, Lickers Lane, Whiston	Medieval
MME15926	Sandfield Cottage, The Purlins and End Barn, Lickers Lane, Whiston	Post-Medieval
MME16079	Shaw, a medieval curvilinear enclosure, Cronton	Medieval
MME18748	Church Lodge, Windy Arbor Road, Whiston	Post-Medieval
MME19921	Possible cropmarks, east of Foxes Bank Lane, Cronton	Unknown
MME20860	War memorial, St Nicholas' churchyard, Windy Arbor Road, Whiston	Modern
MME20871	Possibly medieval ditch, Halsnead Park, Whiston	Medieval
MME20872	Undated ditch, Halsnead Park, Whiston	Unknown
MME20895	Site of Fairchilds Farm, Fox's Bank Lane, Whiston	Post-Medieval
MME20919	Site of a house, Lickers Lane, Whiston	Post-Medieval
MME20922	Site of a cottage, Blundells Lane, Whiston	Post-Medieval
MME20923	Site of a building, Windy Arbor Road, Whiston	Post-Medieval
MME21255	Location of a kiln, Cronton Road, Tarbock	Post-Medieval
MME21256	Possible location of a mill, Cronton Road, Tarbock	Post-Medieval
MME21505	Post medieval ditches, Fox's Bank Lane, Whiston	Post-Medieval
MME21506	Undated ditch and pit, Fox's Bank Lane, Whiston	Unknown

MME21507	Undated pit, Fox's Bank Lane, Whiston	Unknown
MME21508	Undated ditch, Fox's Bank Lane, Whiston	Unknown
MME21509	Undated ditch, Fox's Bank Lane, Whiston	Unknown
MME21752	Site of a cottage, Windy Arbor Road, Whiston	Post-Medieval
MME21753	Site of a coal pit, Windy Arbor Road, Whiston	Post-Medieval
MME21757	Site of a building, Windy Arbor Road, Whiston	Post-Medieval
MME21758	Site of a coal pit, Windy Arbor Road, Whiston	Post-Medieval
MME21762	Site of a coal pit, Halsnead Park, Whiston	Post-Medieval
MME21789	Coal pits, Halsnead Park, Whiston	Post-Medieval
MME21790	Post medieval ditch, Halsnead Park, Whiston	Post-Medieval
MME21791	Roman pottery, Halsnead Park, Whiston	Roman
MME21792	Post medieval ditches, Halsnead Park, Whiston	Post-Medieval
MME21793	Undated post hole, Halsnead Park, Whiston	Unknown
MME21851	Location of coal pits, Windy Arbor Road, Windle	Post-Medieval
MME21887	Site of a cottage, Lickers Lane, Whiston	Post-Medieval
MME21888	Site of a cottage, Fox's Bank Lane, Whiston	Post-Medieval
MME21889	Site of a cottage, Fox's Bank Lane, Whiston	Post-Medieval
MME21890	Probable site of a ha-ha, Halsnead Park, Whiston	Post-Medieval
MME21891	Site of a building, Windy Arbor Road, Whiston	Post-Medieval
MME21893	Site of farm buildings, Old Halsnead, Halsnead Park, Whiston	Post-Medieval
MME21899	Carr Lodge, Windy Arbor Road, Whiston	Post-Medieval

MME23843	Route of a carriageway, Halsnead Park, Whiston	Post-Medieval
MME6243	Site of a house, Dacre's Lane, Tarbock	Post-Medieval
MME6245	Tarbock Lodge, Dacre's Bridge Lane, Tarbock	Post-Medieval
MME6272	Medieval field system curvilinear enclosure, north of Water Lane, Tarbock	Medieval
MME6298	Site of coal pits, Main Drive, Halsnead Park, Whiston	Post-Medieval
MME6843	Bluebell Cottage, Cronton Road, Tarbock	Post-Medieval
MME6845	Fox's Bank, No. 93 Cronton Road, Tarbock	Post-Medieval
MME6846	Site of Fox's Bank Farm, Cronton Road, Tarbock	Post-Medieval
MME6849	Site of Red House, Prescot Road, Cronton	Post-Medieval
MME6854	Site of a cottage, Fox's Bank Lane, Tarbock	Post-Medieval
MME6855	Site of Snape Gate Cottages, Foxes Bank Lane, Whiston	Post-Medieval
MME6856	Site of Halsnead, Halsnead Park, Whiston	Post-Medieval
MME6857	Barn and Outbuildings at Prince's House Farm, Cock Glades, Whiston	Post-Medieval
MME6859	Meadowbrook, Fox's Bank Lane, Whiston	Post-Medieval
MME6865	Site of a coal pit, Main Drive, Halsnead Park, Whiston	Post-Medieval
MME7115	Penny Lane Cottages, Penny Lane, Cronton	Post-Medieval
MME7116	No. 95 Penny Lane, Cronton	Post-Medieval
MME7117	Oak Lodge, Penny Lane, Cronton	Post-Medieval
MME7121	Higher Shaw Farm, Shaw Entry, Cronton	Post-Medieval
MME7122	Stone Bridge, Shaw Entry, Cronton	Post-Medieval
MME7123	Earthworks and Features within and near Rough Head Wood, Cronton	Unknown

MME7127	Stone Bridge, Rough Head Wood, Cronton	Post-Medieval
MME7128	Medieval and Post Medieval Pottery, Fields East of Higher Shaw Farm, Cronton	Medieval to Post-Medieval
MME7129	Medieval and Post Medieval Pottery, North of Higher Shaw Farm, Cronton	Medieval to Post-Medieval
MME7130	Barn at Higher Shaw Farm, Shaw Entry, Cronton	Post-Medieval
MME7131	Stables of Higher Shaw Farm, Shaw Entry, Cronton	Post-Medieval
MME7149	Possible cropmark, west of Deans House Farm, Rainhill	Unknown

HER 'event' records

Event UID	Name	Date
EME1421	Field Walking to East of Higher Shaw Farm, Field CR5/6, Cronton	1982
EME1423	Field Walking to North of Higher Shaw Farm, Cronton	1982
EME2379	Desk-based assessment of the former site of Cronton Colliery, Halsnead Park, Whiston - 2003	2003
EME2384	Evaluation at Junction 6 of the M62, Whiston and Tarbock	2005
EME2388	Building survey of Carr House Farm Barn, Windy Arbor Road, Whiston	2008
EME2391	Photographic record of Halsnead Park wall and the Cronton colliery branch line embankment, Whiston	2007
EME2520	Desk-based assessment of Halsnead Park, Whiston	2016/7
EME2527	Magnetometry survey of land at Lickers Lane, Whiston	2013
EME2528	Resistivity survey of land at Lickers Lane, Whiston	2013
EME2529	Evaluation of land at Knowsley Cemetery, south of Lickers Lane, Whiston	2012
EME2950	Desk-based assessment of Halsnead Park, Whiston	2018
EME2953	Magnetometry survey of Halsnead Park, Whiston	2018

EME2956	Magnetometry survey of land at Knowsley cemetery, south of Lickers Lane, Whiston	2012
EME2957	Resistivity survey of land at Knowsley cemetery, south of Lickers Lane, Whiston	2012
EME3019	Desk-based assessment of land east of Windy Arbour Road, Halsnead Park, Whiston	2017
EME3020	Magnetometry survey of land east of Windy Arbour Road, Halsnead Park, Whiston	2019
EME3020	Magnetometry survey of land east of Windy Arbour Road, Halsnead Park, Whiston	2019
EME3025	Magnetometry survey of Symmetry Park, Halsnead Park, Whiston	2019
EME3062	Magnetometry survey of land at Lickers Lane, Whiston	2018
EME3083	Evaluation at Symmetry Park, Tarbock	2020
EME3090	Desk-based assessment of Halsnead Park, land west of Fox's Bank Lane, Whiston	2018/9
EME3227	Evaluation of land east of Windy Arbor Road, Halsnead Park, Whiston	2021
EME3309	Evaluation of land west of Fox's Bank Lane, Whiston	2022
EME3336	Desk-based assessment of land south of Lickers Lane, Whiston	2022
EME3339	Desk-based assessment of land north of Cronton Road, Whiston	2022
EME3352	Evaluation of land east of Windy Arbor Road, Halsnead Park, Whiston	2022
EME3357	Magnetometry survey of land south of Lickers Lane, Whiston	2023
EME3466	Evaluation of land south of Lickers Lane, Whiston	2024
EME3512	Watching brief on land in Halsnead Park, east of Foxshaw Close, Whiston	2024
EME3513	Excavation in Halsnead Park, east of Foxshaw Close, Whiston	2024

Appendix 2 Proposed Development



Drawing Title: Proposed Site Plan
Date: 28/09/2025
Drawing no: 1367 - 1001
Scale: 1:500 @ A1
Drawn: HB

revision:

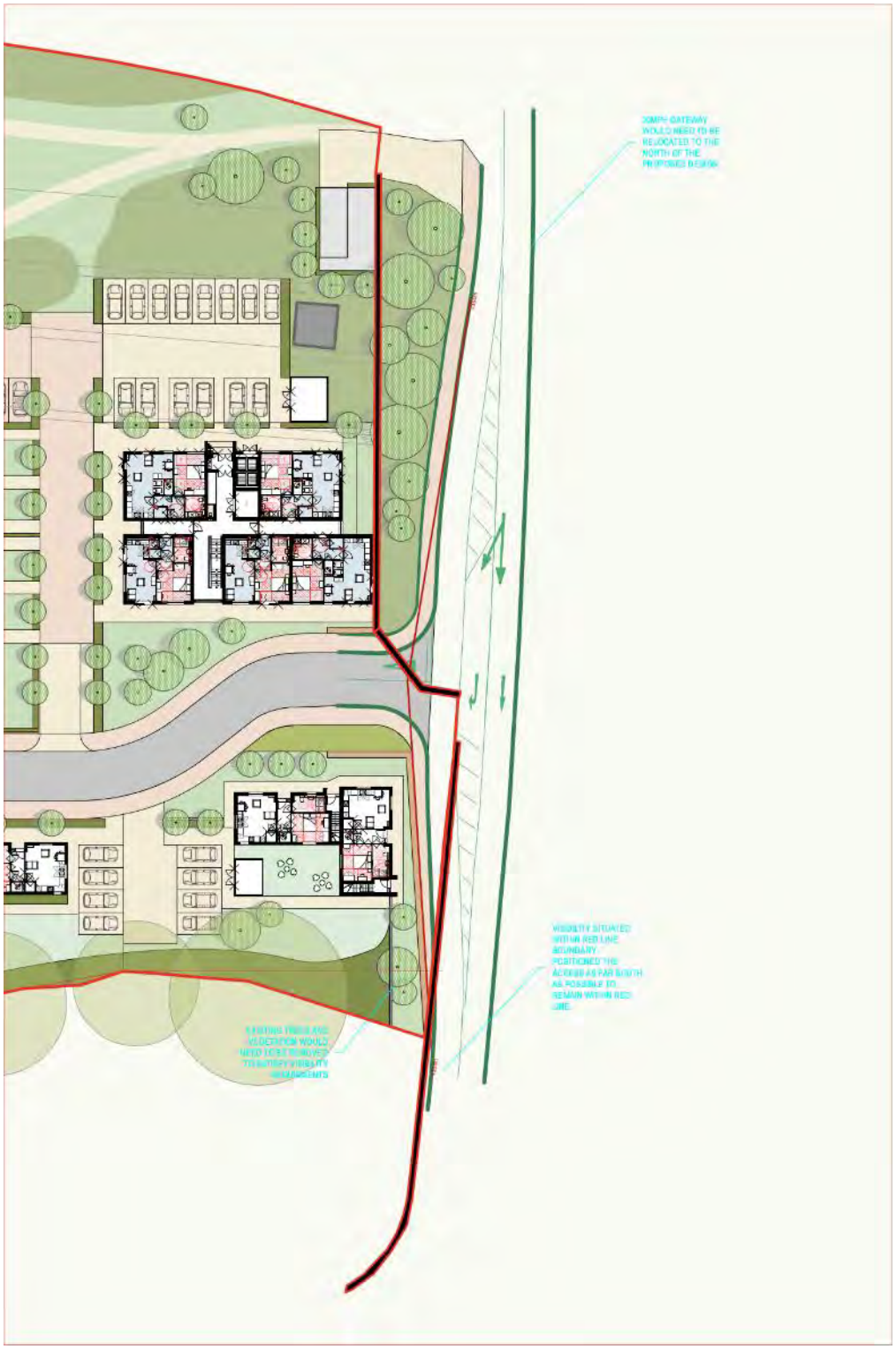
revision notes:

0m 5m 10m 25m 50m

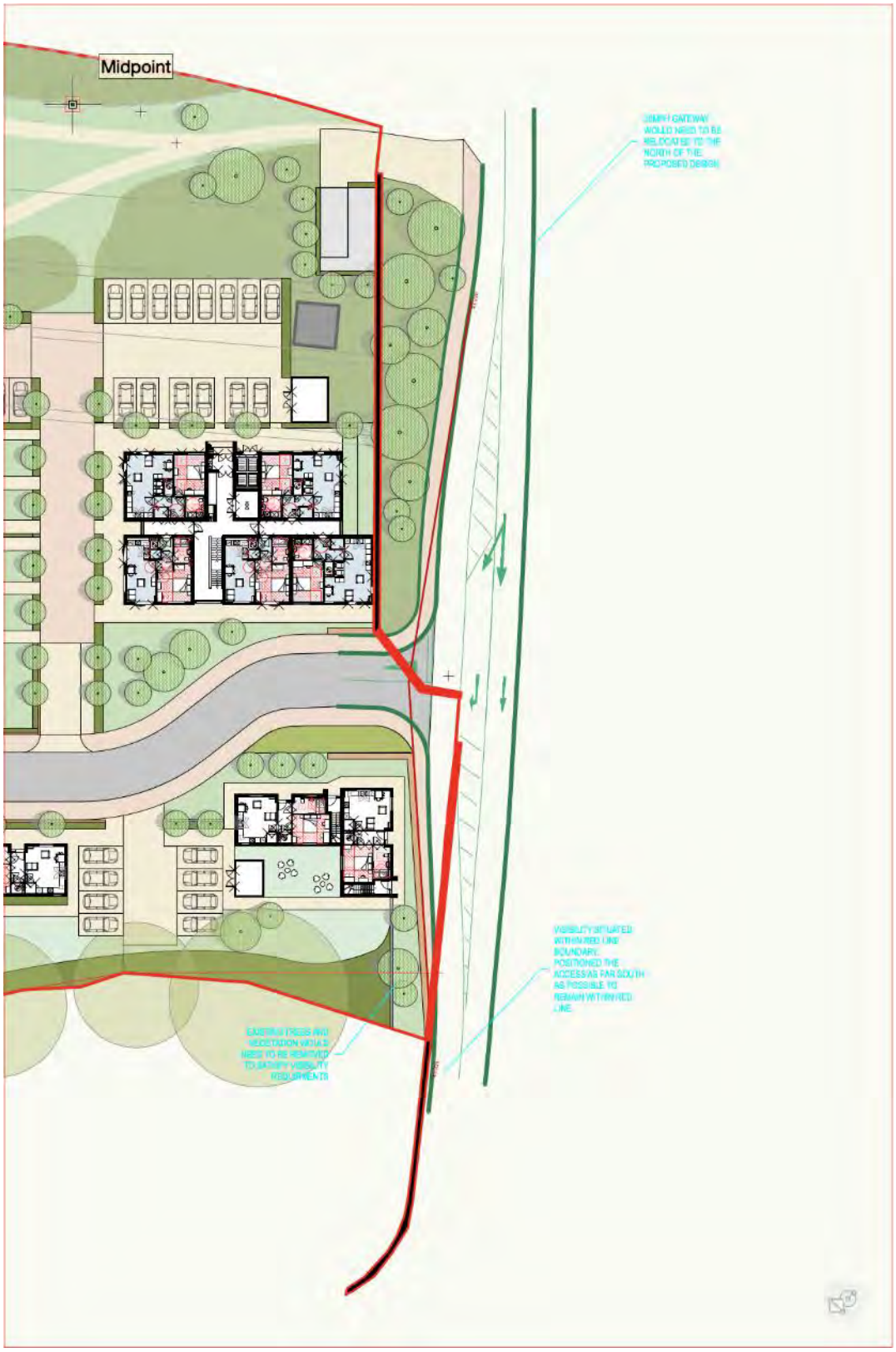
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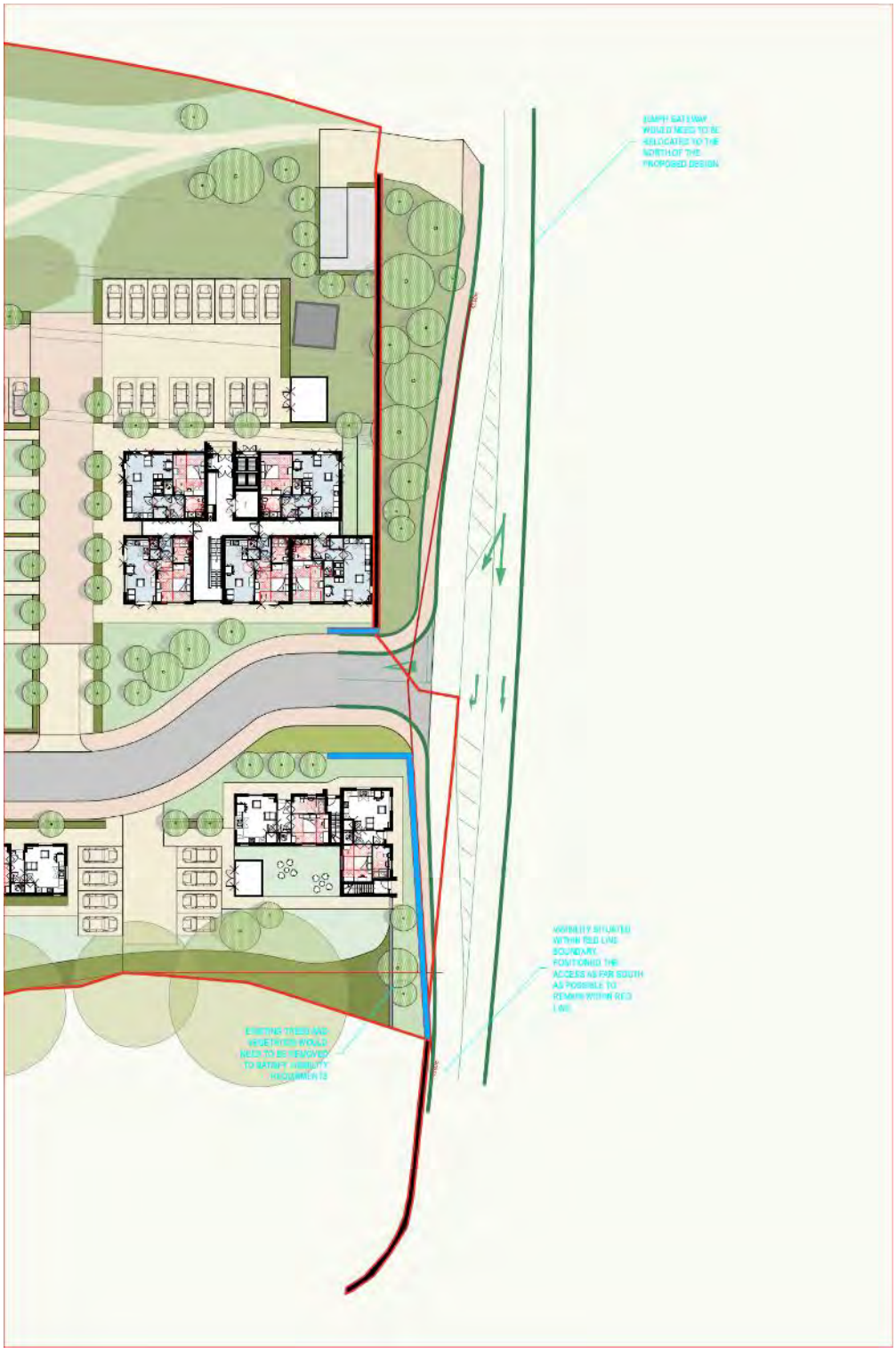
Appendix 3 Extract of Plan Showing the Extant Boundary Wall



Appendix 4 Extract of Plan Showing the Area of Boundary Wall to be Removed



Appendix 5 Extract of Plan Showing the Proposed Rebuilding of the Boundary Wall



Lanpro


RTPI
Royal Town Planning Institute


RIBA
Chartered Practice


REGISTERED ORGANISATION
CIfA


HBF
HOME BUILDERS FEDERATION


Women in Property


IEMA
Transforming the world to sustainability


RIBA 2030
Climate
Challenge
Signatory


Bloom
Accredited Supplier


Landscape Institute
Registered Practice


RSA


CONSTRUCTING EXCELLENCE


LPDF


URBAN DESIGN GROUP
REGISTERED PRACTICE


smas
worksafe consultant
SSIP


QMS
ISO 9001 : 2015
REGISTERED


QMS
ISO 14001 : 2015
REGISTERED


QMS
ISO 45001 : 2018
REGISTERED


CYBER ESSENTIALS

Appendix G1: Assessment Input Data

Air Quality Environmental Impact Assessment

Appendix G1 - Assessment Input Data

Halsnead Farm, Halsnead Garden Village



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1.1 Introduction

1.1.1 The Proposed Development has the potential to expose future residents to poor air quality. In order to assess concentrations of nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}) and particulate matter with an aerodynamic diameter of less than 2.5µm ($PM_{2.5}$) at sensitive locations across the Site, 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 5.1.0.2). 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 (z_0); and,
- Monin-Obukhov length.

1.2.3 The relevant inputs are detailed in the following Sections.

1.3 Assessment Area

1.3.1 The assessment area was defined based on the Site location and anticipated vehicle trip distribution from the Development. Ambient concentrations were predicted over National Grid Reference (NGR): 347425, 389425 to 347850, 389850. One Cartesian grid was used

within the model to produce data suitable for contour plotting using the Surfer software package.

1.3.2 Receptors potentially sensitive to changes in pollutant concentrations were included in the assessment as outlined in Chapter 7 - Air Quality.

1.3.3 Reference should be made to *Figure 7.1*, within Appendix G2, for a map of the assessment extents.

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 in all scenarios, was provided by Curtins, the Transport Consultants for the project.

1.4.2 Data for Wind Arbor Road was not available from the Transport Consultants and was therefore supplemented with data from the Department for Transport (DfT)[1]. The DfT web tool enables the user to view and download traffic flows on every link of the 'A' road and motorway network, as well as selected minor roads, in Great Britain for the years 1999 to 2024. It should be noted that the DfT web tool is referenced in DEFRA guidance[2] as being a suitable source of data for air quality assessments and it is therefore considered to provide a reasonable estimate of traffic flows in the vicinity of the site.

1.4.3 The baseline traffic data was converted to the opening year of the development utilising a factor obtained from TEMPro (version 8.0). This software package has been developed by the DfT to calculate future traffic growth throughout the UK. The Transport Consultant has indicated that since several of the committed development sites sit outside of the transport assessment scope and had negligible trip generation, the usage of TEMPro to account for the level of committed development and Local Plan traffic is considered a robust approach.

1.4.4 Road parameters for input into the model were based on the following:

[1] https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints. Accessed on: 6/10/2025.

[2] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

- Road widths were estimated from aerial photography and UK highway design standards;
- Vehicle speeds were estimated as an average for the relevant road link over the course of a 24-hour period;
- Vehicle speeds were determined following review of speed limits within the study extents, as well as congestion data available from GoogleMaps[3];
- Vehicle speeds specific to slow phases were determined using the methodology outlined in the DEFRA guidance[4];
- Necessary adjustments to slow phase vehicle speeds were based upon congestion data available from GoogleMaps; and,
- The length for slow phases were derived using the approaching distance of 25m outlined in the DEFRA guidance[5] and adjusted accordingly based on aerial photography and congestion data available from GoogleMaps.

1.4.5 A summary of the traffic data used in the assessment is provided in *Table G1.1*.

Table G1.1 Traffic Data

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Avg. Vehicle Speed (km/h)	Road Width (m)
		2024 Verif.	2028 DM	2028 DS			
L1	M62 Westbound (WB), east of Junction 6	52,449	53,902	53,902	10.00	110	11.1
L2	M62 WB, through Junction 6	34,495	35,451	35,451	10.00	110	11.0
L3	M62 WB, west of Junction 6	39,539	40,634	40,682	4.00	110	11.0
L4	M62 Eastbound (EB), east of Junction 6	52,449	53,902	53,902	10.00	110	10.9
L5	M62 EB, through Junction 6	34,495	35,451	35,451	10.00	110	10.6
L6	M62 EB, west of Junction 6	39,539	40,634	40,682	4.00	110	10.6
L7	M62 EB Onslip	13,112	13,475	13,475	10.00	80	4.3
L8	M62 WB Offslip	13,112	13,475	13,475	10.00	80	7.2
L9	Cronton Road East	9,862	10,135	10,322	1.00	60	7.5

[3] https://www.google.co.uk/maps/. Accessed on: 6/10/2025.

[4] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

[5] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Avg. Vehicle Speed (km/h)	Road Width (m)
		2024 Verif.	2028 DM	2028 DS			
L10	Cronton Road East Slow Phase (SP), east of Fox's Bank Lane	9,862	10,135	10,322	1.00	20	11.5
L11	Cronton Road East SP, west of Fox's Bank Lane	9,239	9,494	9,570	1.00	20	10.5
L12	Cronton Road East, west of Fox's Bank Lane	9,239	9,494	9,570	1.00	60	6.9
L13	M57 Southbound (SB) Onslip	8,459	8,694	8,710	12.50	80	7.1
L14	M57 Northbound (NB) Offslip	8,459	8,694	8,710	12.50	80	5.8
L15	M62 WB Onslip	9,885	10,158	10,207	4.00	80	7.4
L16	M62 EB Offslip	9,885	10,158	10,207	4.00	80	6.1
L17	Cronton Road West, east of Whitefield Lane	17,705	18,196	18,214	2.00	45	8.5
L18	Cronton Road West SP	17,705	18,196	18,214	2.00	20	8.8
L19	Cronton Road West, west of Whitefield Lane	17,705	18,196	18,214	2.00	45	6.1
L20	M57 NB Onslip	8,459	8,694	8,714	12.50	80	6.5
L21	M57 SB Offslip	8,459	8,694	8,704	12.50	80	7.4
L22	Windy Arbor Road	11,288	11,670	11,670	1.51	45	7.9
L23	M57 NB	33,838	34,775	34,795	12.50	110	7.9
L24	M57 SB	33,838	34,775	34,795	12.50	110	7.5
L25	M57 to M62 through road	8,459	8,694	8,704	12.50	110	7.4
L26	Fox's Bank Lane, north of Site Access	2,950	3,032	3,130	0.00	45	5.2
L27	Fox's Bank Lane, south of Site Access	2,950	3,032	3,312	0.00	45	5.4
L28	Fox's Bank Lane SP, south of Site Access	2,950	3,032	3,312	0.00	20	10.2
L29	Lickers Lane SP, west of Fox's Bank Lane	4,179	4,295	4,320	1.00	20	9.6
L30	Lickers Lane	4,179	4,295	4,320	1.00	45	7.0
L31	Lickers Lane SP, east of Windy Arbor Road	4,179	4,295	4,320	1.00	20	12.4

Link		24-hour AADT Flow			HDV Prop. of Fleet (%)	Avg. Vehicle Speed (km/h)	Road Width (m)
		2024 Verif.	2028 DM	2028 DS			
R1	Junction 6 Roundabout	16,955	17,435	17,528	12.50	20	9.8
R2	Cronton Road East Roundabout	9,551	9,815	9,955	1.00	20	6.0
L1	M62 Westbound (WB), east of Junction 6	52,449	53,902	53,902	10.00	110	11.1
L2	M62 WB, through Junction 6	34,495	35,451	35,451	10.00	110	11.0
L3	M62 WB, west of Junction 6	39,539	40,634	40,682	4.00	110	11.0
L4	M62 Eastbound (EB), east of Junction 6	52,449	53,902	53,902	10.00	110	10.9
L5	M62 EB, through Junction 6	34,495	35,451	35,451	10.00	110	10.6

1.4.6 Reference should be made to *Figure 7.1*, within Appendix G2, for a graphical representation of the road link locations.

1.5 Emission Factors

1.5.1 The emission factors were calculated using the relevant traffic flows and the Emissions Factor Toolkit (version 13.1). This has been produced by DEFRA and incorporates COPERT 5.8 vehicle emission factors and fleet information.

1.5.2 There is current uncertainty over NO_2 concentrations within the UK, with the implementation of new vehicle emission standards not resulting in the previously expected reduction in roadside levels. Therefore, 2024 emission factors were utilised in preference to the development opening year in order to provide robust model outputs. As predictions for 2024 were verified, it is considered the results are a robust indication of 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 2024 to 31st December 2024 (inclusive). Liverpool Airport is located at National Grid Reference (NGR): 343488, 381791, which is approximately 8.7km south-west of the Site. 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 7.7*, within Appendix G2, 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 the meteorological site. This value is considered appropriate for the nature of both areas and is suggested within ADMS-Roads as being suitable for 'mixed urban/industrial'.

1.9 Background Concentrations

1.9.1 Background annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations for use in the assessment were obtained from the DEFRA mapping study for the grid square containing the H12a, H12b - Halsnead development monitor, NGR: 346500, 389500. These are shown in *Table G1.2*.

Table G1.2 Background Concentrations - Modelling Extents

Pollutant	Predicted 2024 Background Pollutant Concentration (µg/m^3)
NO_2	14.55
PM_{10}	14.98

Pollutant	Predicted 2024 Background Pollutant Concentration (µg/m³)
NO_2	14.55
$PM_{2.5}$	7.56

1.9.2 The annual mean NO_2 concentration was chosen to represent concentrations throughout the dispersion modelling extents without the contribution from road vehicles as it was higher than the DEFRA background for the grid square containing the site, as shown in *Table 7.14*, within Chapter 7 - Air Quality. Background PM_{10} and $PM_{2.5}$ values were chosen to provide continuity throughout the assessment.

1.9.3 Similarly to emission factors, background concentrations from 2024 were utilised in preference to the future year. This provided a robust assessment and is likely to overestimate pollutant concentrations during the operation of the Proposed Development.

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 9.1) provided by DEFRA, which is the method detailed within DEFRA guidance[6].

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,
- Uncertainties associated with monitoring data, including locations.

6 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

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 2024 using traffic data, meteorological data and monitoring results from this year.

1.11.4 Monitoring of NO_2 concentrations were undertaken at six locations within the vicinity of roads included within the model during 2024. It should be noted that H4a, H4b, H6Aa, H6Ab, H9Aa, H9Ab, H10a, H10b and H11a, H11b were located more than 10m from the modelled road and H3a, H3b was a kerbside monitor. As such, they were removed from the verification process in accordance with DEFRA guidance LAQM (TG22).

1.11.5 Maximum results recorded for the remaining six locations, where relevant, were obtained and the road contributions to total NO_x concentrations were calculated following the methodology contained within DEFRA guidance[7]. The monitored annual mean NO_2 concentrations and calculated road NO_x concentrations are summarised in *Table G1.3*.

Table G1.3 NO_x Verification - Monitoring Results

Monitoring Location	Monitored NO_2 Concentration ($\mu g/m^3$)	Calculated Road NO_x Concentration ($\mu g/m^3$)
H1a, H1b	24.4	22.55
H2a, H2b	26.8	28.65
H5Aa, H5Ab	26	26.59
H7Aa, H7Ab	24.5	22.8
H8Aa, H8Ab	29.6	36.14
H12a, H12b	24.6	23.05

1.11.6 The annual mean road NO_x concentrations predicted from the dispersion model and the road NO_x concentrations calculated from the monitoring results are summarised in *Table G1.4*.

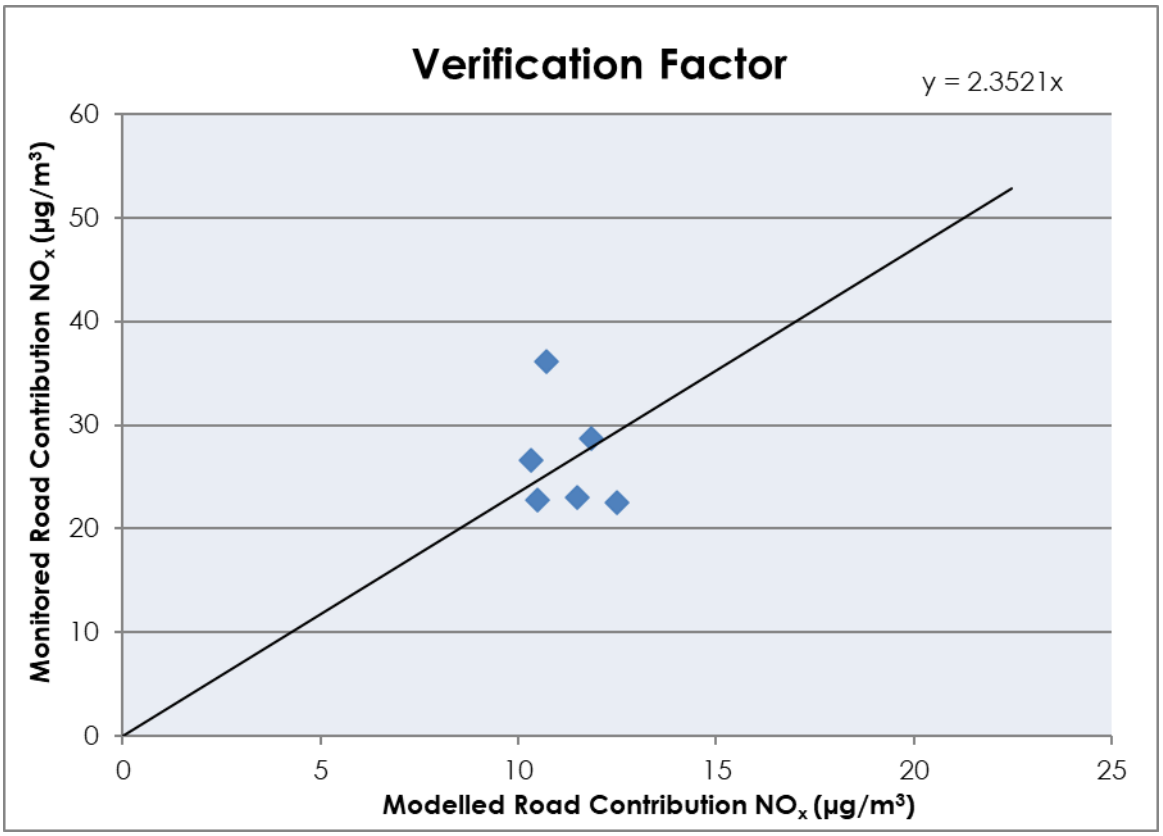
7 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Table G1.4 NO_x Verification - Modelling Results

Monitoring Location	Calculated Road NO_x Concentration (µg/m³)	Modelled Road NO_x Concentration (µg/m³)
H1a, H1b	22.55	12.49
H2a, H2b	28.65	11.85
H5Aa, H5Ab	26.59	10.34
H7Aa, H7Ab	22.8	10.48
H8Aa, H8Ab	36.14	10.70
H12a, H12b	23.05	11.50

1.11.7 The monitored and modelled road NO_x concentrations were graphed and the equation of the trendline based on linear progression though zero calculated. This indicated that a verification factor of 2.3521 was required to be applied to all modelling results, as shown in *Graph G1*.

Graph G1 NO_x Verification Factor



1.11.8 Further analysis of model performance has been completed in order to provide additional confidence in assessment predictions. As such, a comparison of the modelled and monitored NO_2 concentrations was undertaken. The NO_x verification factor was initially applied to the modelled road NO_x concentrations at the monitoring locations and the total NO_2 concentrations calculated using the NO_x to NO_2 spreadsheet. This is summarised in *Table G1.5*.

Table G1.5 NO_2 Verification - Difference between Monitored and Modelled NO_2 Concentrations

Monitoring Location	Modelled Road NO_x Concentration - Verified ($\mu g/m^3$)	Modelled Road NO_2 Verification ($\mu g/m^3$)	Monitored NO_2 Concentration ($\mu g/m^3$)	Difference between Monitored and Modelled NO_2 Concentration (%)
H1a, H1b	29.37	27.01	24.40	10.70
H2a, H2b	27.86	26.44	26.80	-1.34
H5Aa, H5Ab	24.31	25.09	26.00	-3.50
H7Aa, H7Ab	24.64	25.18	24.50	2.78
H8Aa, H8Ab	25.17	25.43	29.60	-14.09
H12a, H12b	27.04	26.36	24.60	7.15

1.11.9 DEFRA guidance[8] states that the majority of modelled results should be within +/-25% of monitored concentrations. As shown in *Table G1.5*, the difference between the modelled and monitored NO_2 concentrations was within +/-25% at all monitoring locations. Model performance is therefore considered to be acceptable in accordance with DEFRA guidance.

1.11.10 The Root Mean Squared Error (RMSE) has also been calculated to define the average error or uncertainty of the mode. In accordance with DEFRA guidance[9], if the RMSE value is higher than +/-25% of the AQO being assessed, it is recommended that the model inputs and verification is revisited in order to make improvements. The annual mean AQO of relevance to the assessment is 40µg/m3. As such, an RMSE value of +/-10µg/m3 is

8 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

9 Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

required in order to have confidence in the predicted values. The RMSE calculated for the study is 2.2µg/m^3, which is within the stated limits.

1.11.11 Taking into account the above factors, the model is considered to be performing to an acceptable standard in line with the applicable guidance[10].

1.11.12 Monitoring of PM_{10} and $PM_{2.5}$ concentrations was not undertaken within the assessment extents during 2024. The NO_x verification factor was therefore used to adjust model predictions of these species in lieu of more accurate data in accordance with DEFRA guidance[11].

[10] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

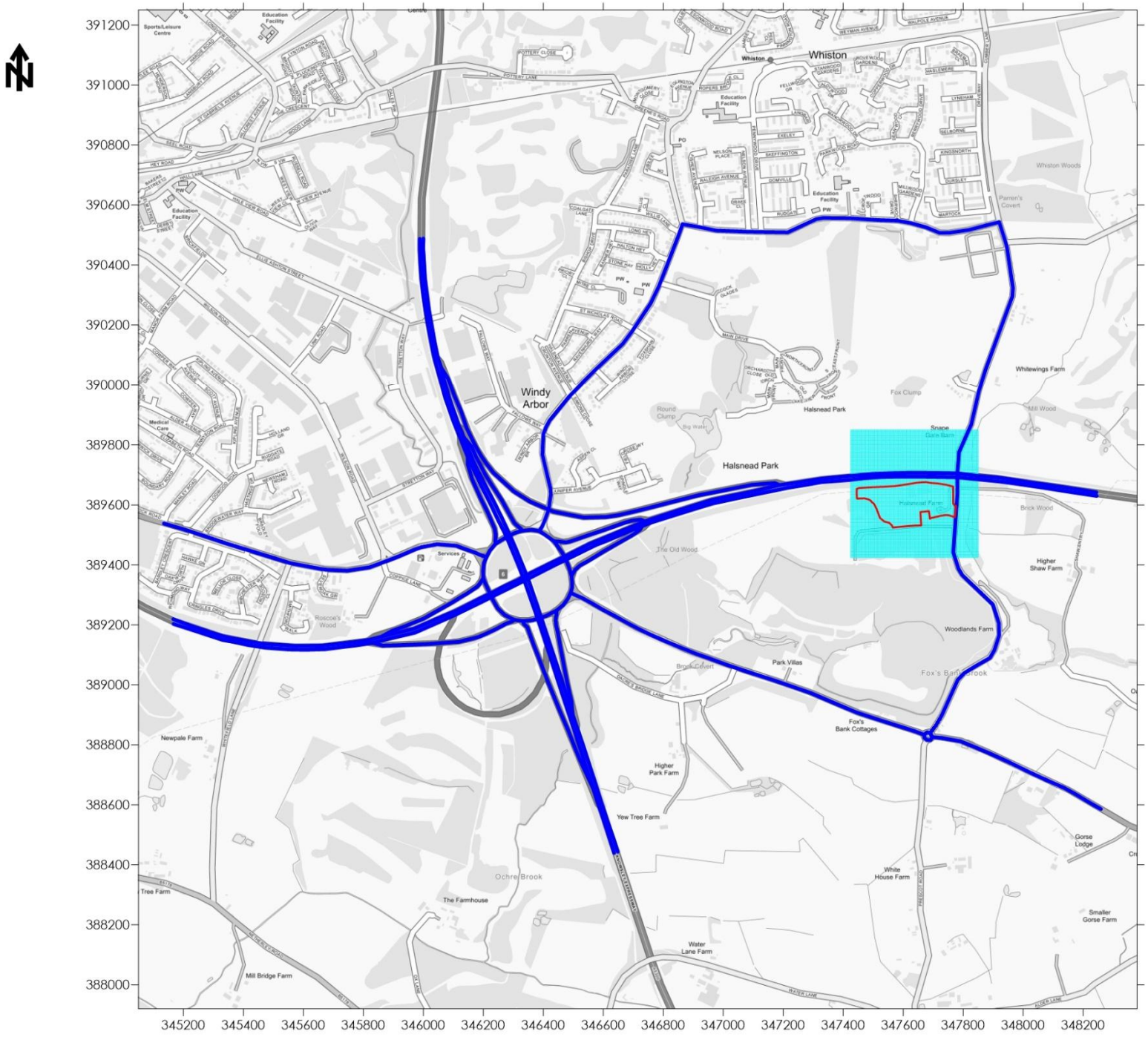
[11] Local Air Quality Management Technical Guidance (TG22), DEFRA, 2022.

Appendix G2: Figures

Air Quality Environmental Impact Assessment

Appendix G2 - Figures

Halsnead Farm, Halsnead Garden Village



Legend

Site Boundary

Road Link

Output Grid

Title
Figure 7.1 - Study Area and ADMS-Roads Inputs

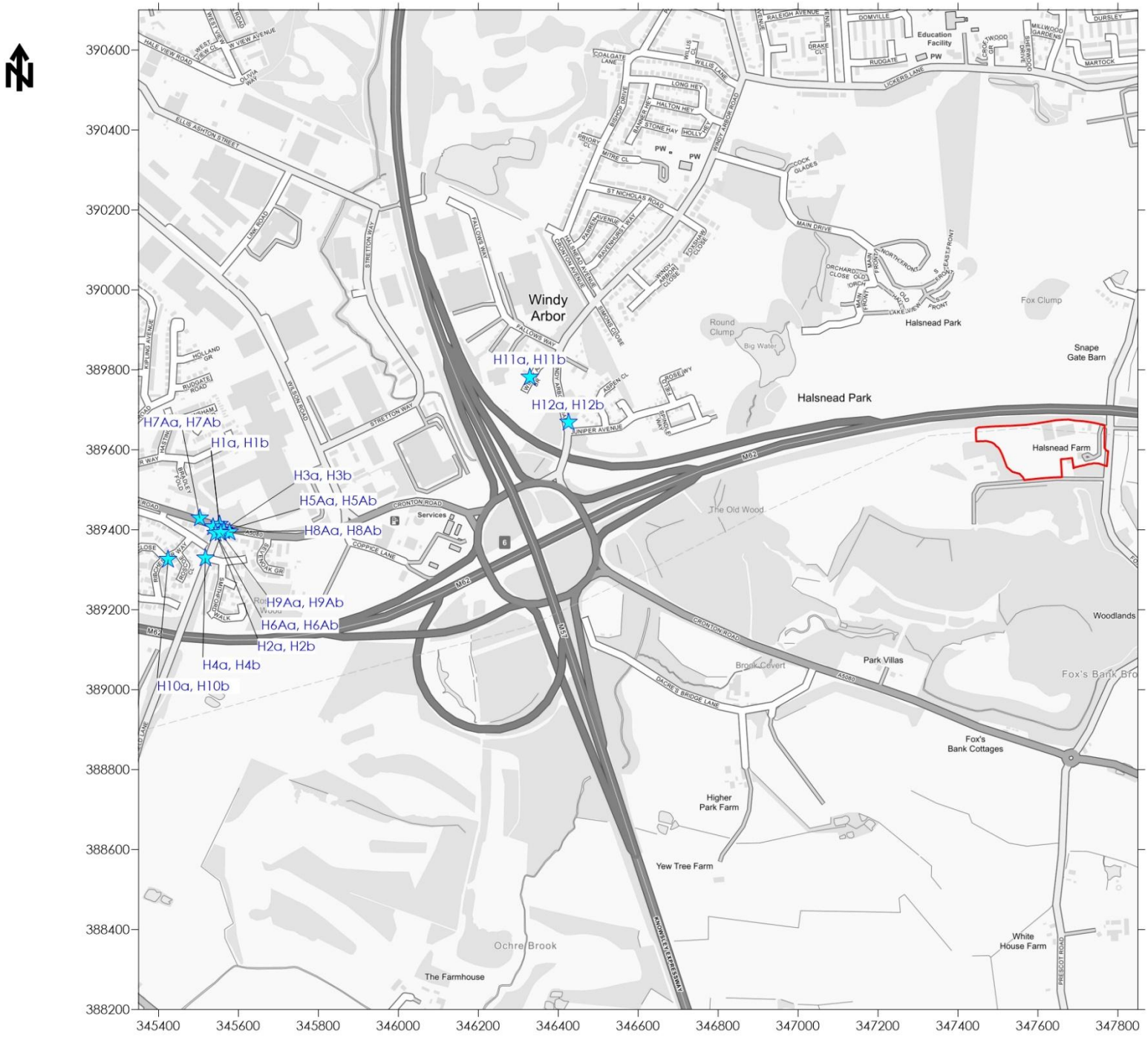
Project
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Halsnead Farm, Halsnead Garden Village

Project Reference
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Legend

Site Boundary

Monitor

Title
Figure 7.2 - Monitoring Locations

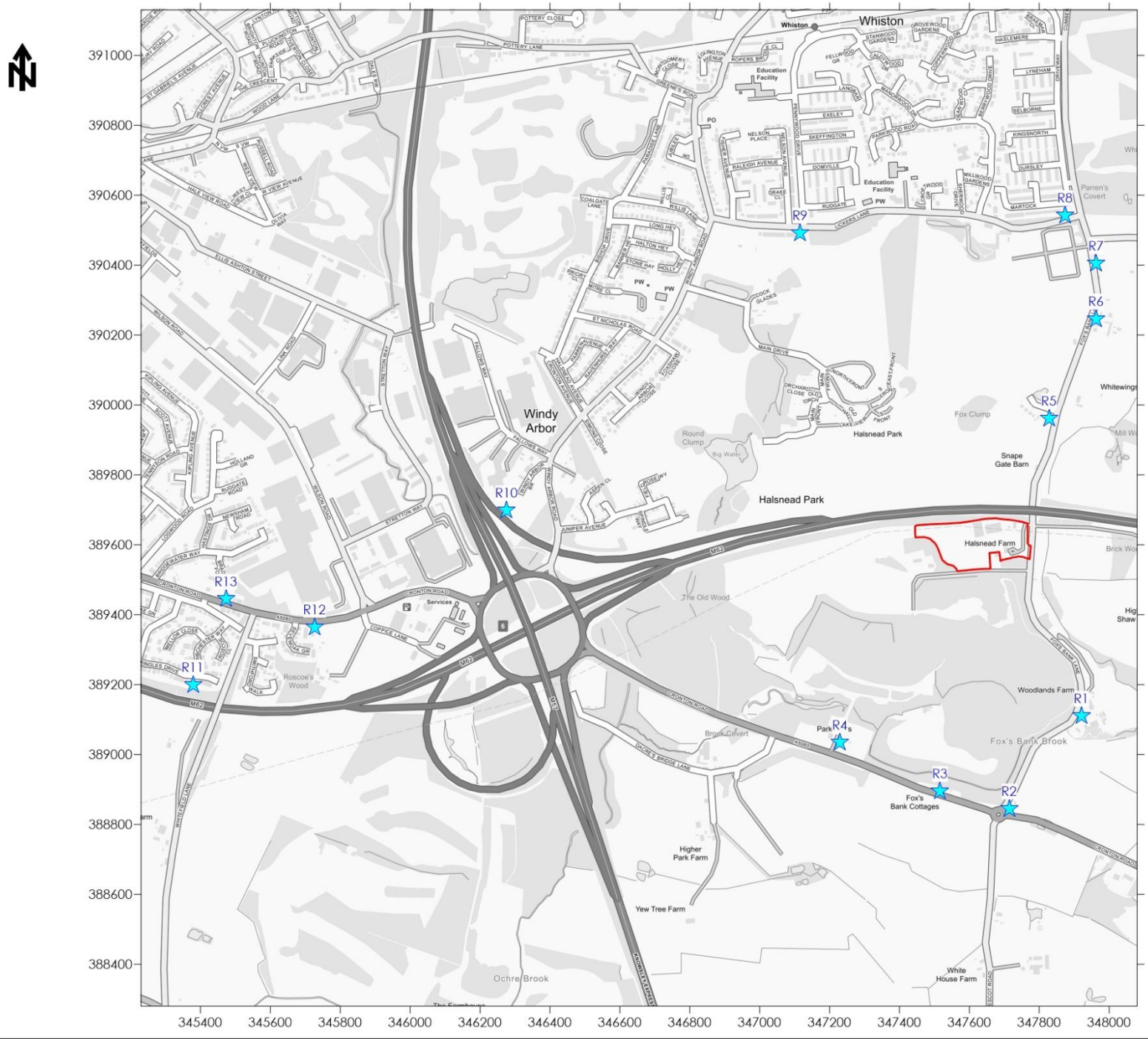
Project
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Legend

Site Boundary

Receptors

Title

Figure 7.3 - Operational Phase Road Vehicle Exhaust Emissions Sensitive Receptor Locations

Project

Air Quality Environmental Impact Assessment
Halsnead Farm, Halsnead Garden Village

Project Reference

9657

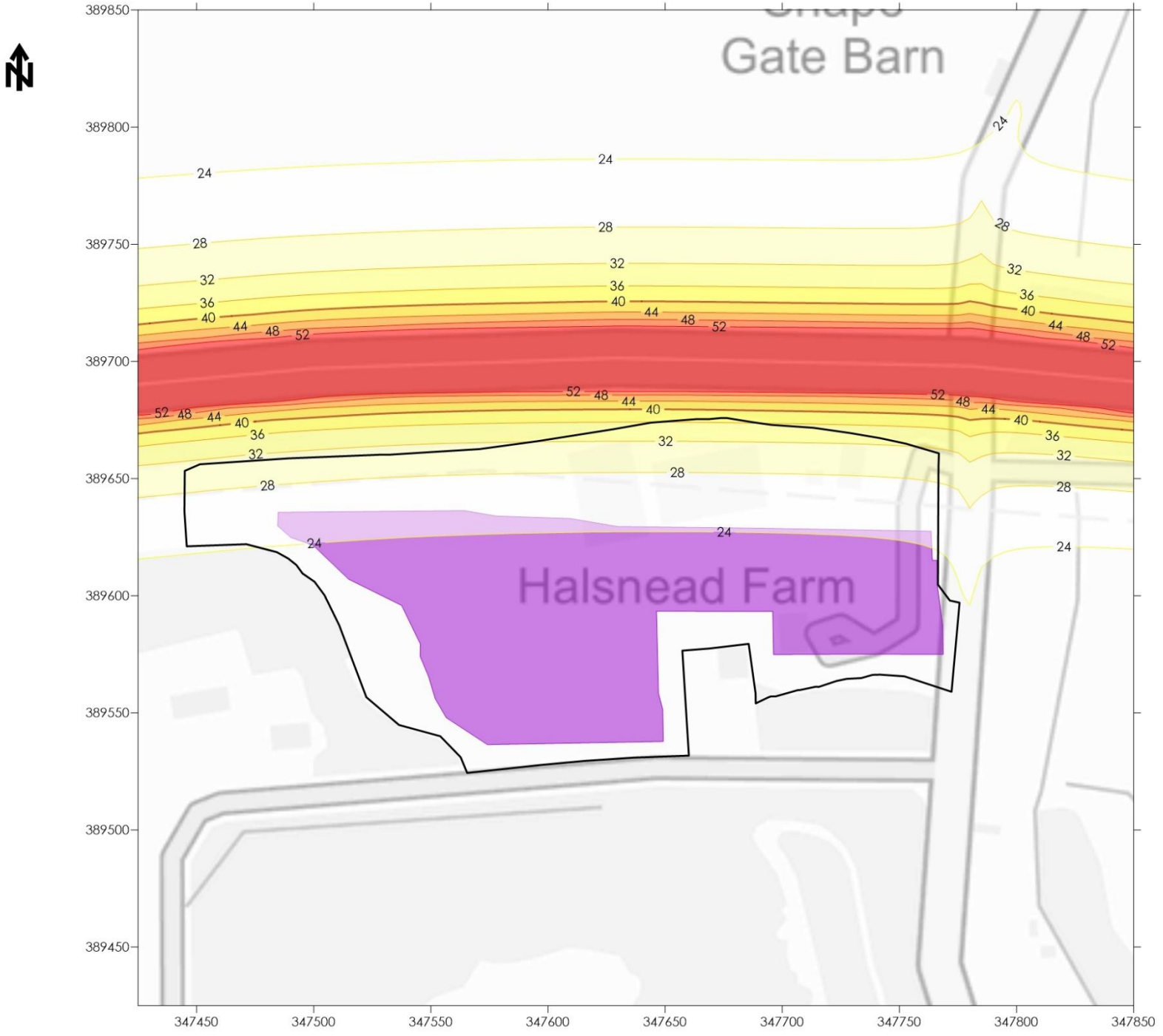
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Legend

Site Boundary

Annual Mean NO_2 Concentration ($\mu g/m^3$)

Proposed Development Area

Title

Figure 7.4 - Predicted Annual Mean NO_2 Concentrations ($\mu g/m^3$)
Do-Something

Project

Air Quality Environmental Impact Assessment
Halsnead Farm, Halsnead Garden Village

Project Reference

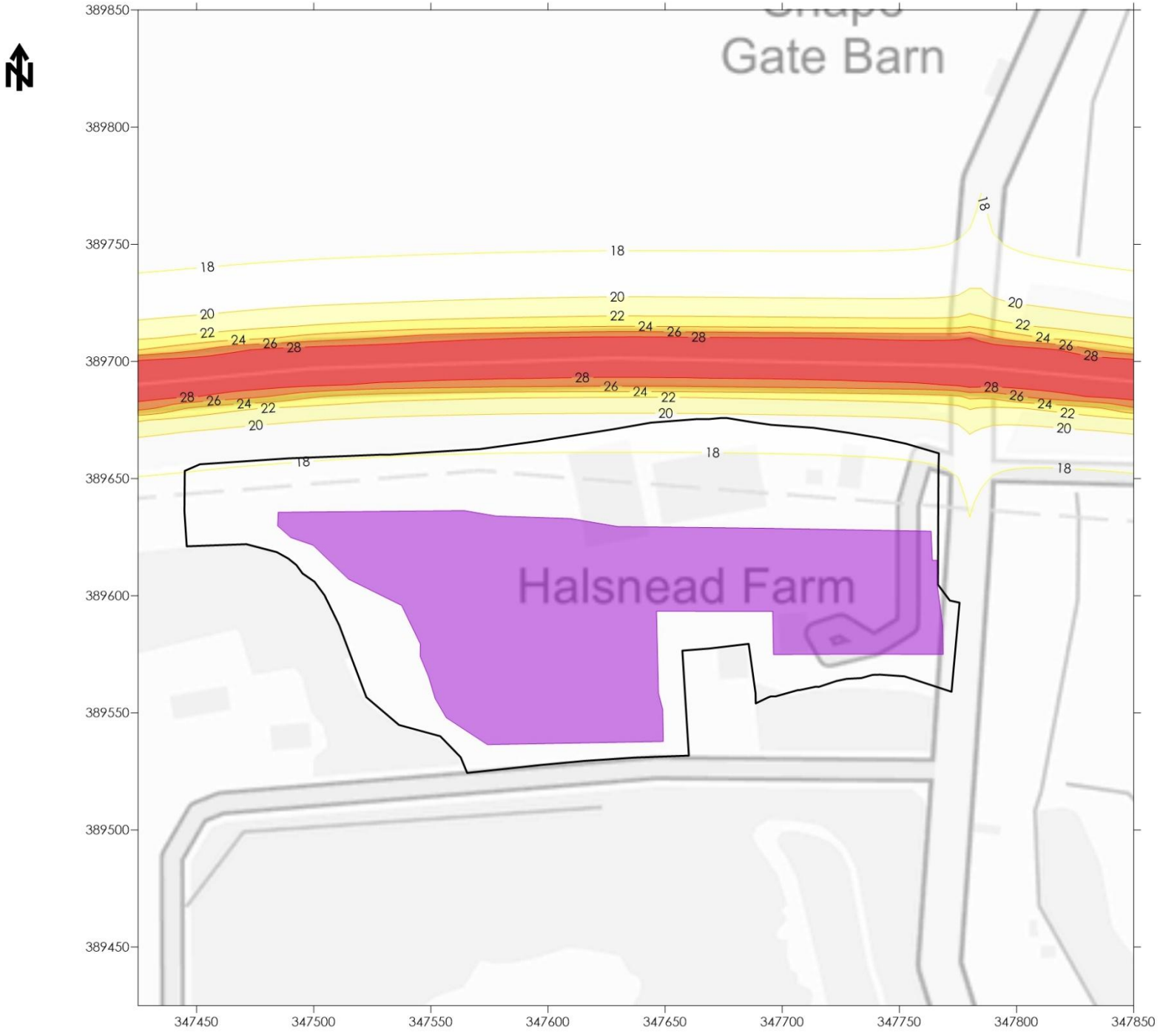
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Legend

Site Boundary

Annual Mean PM_{10} Concentration ($\mu g/m^3$)

28
26
24
22
20
18

Proposed Development Area

Title

Figure 7.5 - Predicted Annual Mean PM_{10} Concentrations ($\mu g/m^3$) Do-Something

Project

Air Quality Environmental Impact Assessment
Halsnead Farm, Halsnead Garden Village

Project Reference

9657

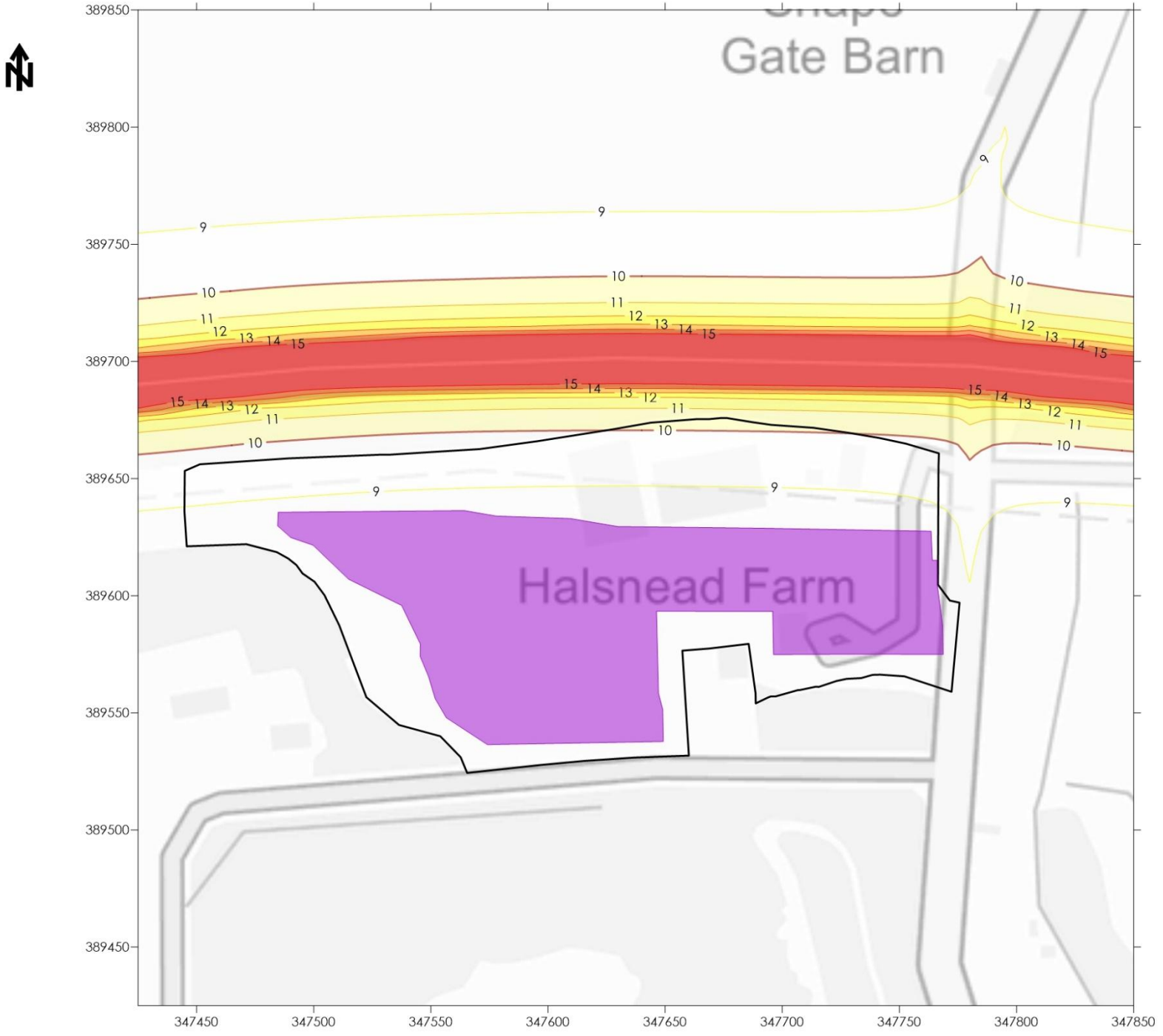
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Site Boundary

Annual Mean $PM_{2.5}$ Concentration (µg/m³)

15
14
13
12
11
10
9

Proposed Development Area

Title

Figure 7.6 - Predicted Annual Mean $PM_{2.5}$ Concentrations (µg/m³) Do-Something

Project

Air Quality Environmental Impact Assessment
Halsnead Farm, Halsnead Garden Village

Project Reference

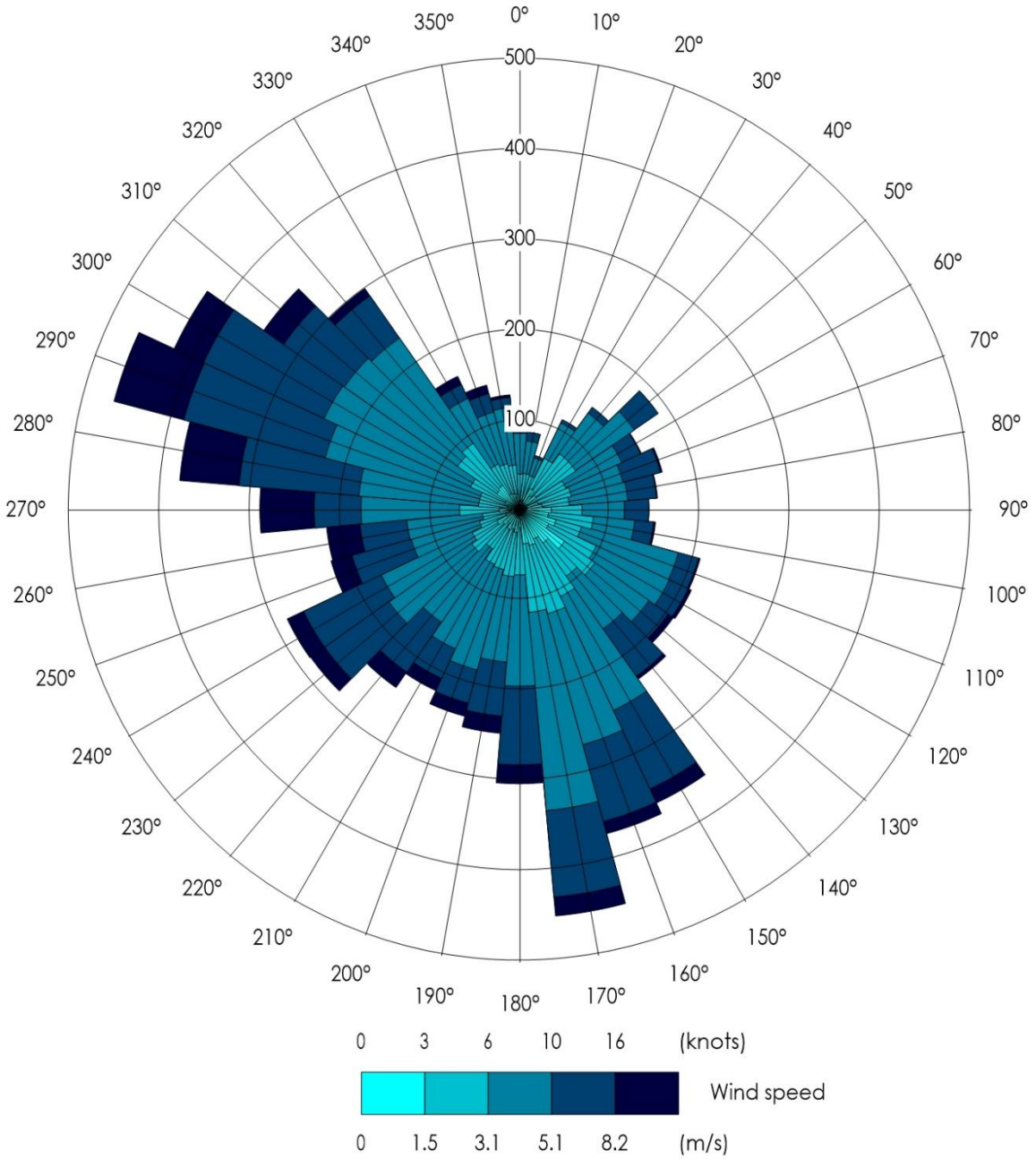
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Title
Figure 7.7 - Wind Rose of 2024 Liverpool Airport Meteorological Data

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Appendix H1: Noise Impact Assessment for Proposed Residential Development - Halsnead Farm (& Baseline Noise Survey Data)

hepworth acoustics

HALSNEAD FARM, APPENDIX H1

NOISE IMPACT ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT HALSNEAD FARM

On behalf of:

Starship Group and Onward Homes

Report No: P24-494-R02
November 2025

APPENDIX H1

NOISE IMPACT ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT HALSNEAD FARM

Report prepared by:
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M15 4PS

On behalf of:
Starship Group and Onward Homes

Report prepared by:
James Shaw BSc MIOA – Senior Consultant



Report checked by:
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1.0 INTRODUCTION

1.1 Hepworth Acoustics Ltd was commissioned by Starship Group and Onward Homes to carry out a noise survey and assessment in connection with a proposed planning application for a residential development on land at Halstead Farm in Knowsley. Specifically, the assessment was primarily required to evaluate traffic noise levels from the nearby M62 motorway, which borders the site to the north. The site location is shown in Figure 1.

1.2 The site comprises an area of farmland that gently rises from east to west alongside the motorway, cresting in the centre before gradually falling towards the west. To the south, the site is bordered by a narrow single-carriage trackway leading to two dwellings. Across this track is a large Yodel warehouse constructed as part of the Tritax Halsnead development.

1.3 During our site inspection, we noted that the warehouse has no vehicle access or loading bays on the elevation facing the site. All loading and parking activities take place on the opposite side of the building. Additionally, no plant equipment was observed on this elevation, and as such, there was no noticeable noise from the Yodel warehouse.

1.4 We understand that three additional units will be constructed as part of the Tritax Halsnead development. We note the presence of two existing dwellings situated between the units and the development land. It is our understanding that a noise impact assessment has been carried out for the new units, considering the closest dwelling. Consequently, the proposed noise control measures would be expected to also ensure adequate protection for these dwellings.

1.5 To the west is agricultural land and to the east is Fox's Bank Lane. The M62 is the only significant source of noise in the local area, with Fox's Bank Lane being a relatively lightly trafficked lane.

1.6 The latest site layout issued by DK-Architects (Ref: 1367-1003, dated September 2025) is shown in Figure 2. The layout shows a substantial buffer between the northern site boundary adjacent to the M62 and the first row of proposed dwellings, with distances from the dwellings facades to nearside carriageway of the motorway in excess of 50 metres.

1.7 The northern area of the site includes several apartment blocks which do not feature rear gardens, whilst a small number of dwellings are positioned with their rear gardens orientated side-on to the motorway.

1.8 In addition, the north-eastern corner of the site incorporates a significant landscaped area that rises by around 4 metres, providing a natural bunding effect. The recommendations presented in this report are based on the current layout and reflect the need for appropriate noise mitigation in accordance with the proposed arrangement of buildings and open space.

1.9 The noise assessment has included:

i. An inspection of the development site and surrounding area;

ii. Measurement of road noise levels on the development land;

iii. Measurement of any noise on the development site from commercial premises located close to the site;

iv. Assessment of the potential noise impact on the development land; and

v. Recommendations for noise mitigation measures.

1.10 The various noise units and indices referred to in this report are described in Appendix I. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2.0 GUIDANCE AND ACOUSTIC DESIGN CRITERIA

National Planning Policy Framework (December 2024)

2.1 Paragraph 198 of the National Planning Policy Framework (NPPF) 2024 states that planning policies and decisions should *"ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*"

2.2 A requirement of Paragraph 200 of the NPPF is that new development can be integrated effectively with existing businesses. Existing businesses should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed. Thus, for this development, if it is found that there is adverse noise impact from the existing commercial premises it is incumbent on the housing developer to incorporate adequate noise mitigation into the residential developer to protect the amenity of the new residents but also to safeguard the business interests of the commercial operator.

Noise Policy Statement for England (2010)

2.3 The Noise Policy Statement for England (NPSE) 2010, which is referred to the in NPPF, includes three aims:

i. Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

ii. Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

iii. Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

British Standard 8233: 2014, '*Guidance on Sound Insulation & Noise Reduction for Buildings*'

2.4 No specific guidance is given in the NPPF on acoustic design criteria, therefore, the guidance discussed below has been used for acoustic design purposes.

2.5 Guidance on acceptable noise levels in habitable rooms and private gardens is set out in British Standard 8233: 2014, *'Guidance on sound insulation and noise reduction for buildings'*. BS 8233 recommends that it is desirable that noise from external sources does not exceed the guidelines values that are shown in Table 1 inside habitable rooms for daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods.

Table 1: BS 8233:2014 Recommended Acoustic Design Criteria (dB $L_{Aeq,T}$)

Activity	Location	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00
Resting	Living room	35	-
Dining	Dining room/area	40	-
Sleeping (daytime resting)	Bedroom	35	30

2.6 BS 8233 also recognises that regular individual noise events at night can cause sleep disturbance. Peaks of noise from individual events are usually described in terms of L_{AFmax} values and these can be highly variable and unpredictable.

Acoustic Design Criteria

2.1 For this development we therefore recommend the following noise criteria be adopted in respect of road traffic noise with windows closed and trickle ventilation provided:

- Daytime noise below 35 dB $L_{Aeq,16hr}$ inside living rooms and bedrooms, 40 dB $L_{Aeq,16hr}$ inside dining rooms; and
- Night-time noise levels not exceeding 30 dB $L_{Aeq,8hr}$ and generally not exceeding 45 dB L_{AFmax} in bedrooms (i.e. no more than 10 times per night).

2.2 For private outdoor amenity spaces of the new houses (e.g. rear gardens) BS8233 states that 'it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments'. In our experience, most local planning authorities have traditionally adopted, or accepted, the 55 dB(A) guideline value for rear gardens of proposed new residential developments near busy roads.

2.3 However, the Standard also recognises that these guideline values are not achievable in all circumstances where development might be desirable and, in such cases, for sites near to the 'strategic transport network' higher noise levels than 55 dB $L_{Aeq,16hr}$ in gardens may be acceptable.

2.4 Nevertheless, for this development, we have adopted a criterion of 55 dB $L_{Aeq,16hr}$ for gardens as far as is practicable.

2.5 Our outline noise mitigation recommendations are described in Section 4.0.

3.0 ROAD TRAFFIC NOISE SURVEY

3.1 A noise survey has been carried out in order to determine representative M62 road traffic noise levels at the site. The locations are indicated in Figure 1 and are described below: -.

1. 2m from boundary fence with M62
2. 65m from boundary fence with M62 (menage paddock)

3.2 The noise survey was carried out between approximately 11:00 on Wednesday 29th January and 11:00 Thursday 30th January 2025.

3.3 Noise measurements were taken in consecutive 2-minute measurement periods for at least 24 hours at both locations, and the surveys were carried using a NTi Audio XL2 'Class 1' sound level meters (s/n: A2A-20361-E0) and a NTi Audio XL3 'Class 1' Sound level meter (s/n: A3A-01451-F0)

3.4 All surveys were undertaken in dry conditions, Daytime temperatures ranged between 7°C and 8°C, while night-time temperatures were between 2°C and 4°C. The weather remained predominantly overcast, with light north westerly winds of approximately 2-3 m/s. Full details of the instrumentation used for the noise surveys, together with notes on weather conditions, etc. are provided in Appendix II.

3.5 Calibration checks were carried out both before and after the measurement periods with no variance in levels noted. The noise measurements were taken in '*free field*' conditions and at a microphone height of approximately 1.5m above the ground.

3.6 The measured day time and night-time L_{Aeq} values have been averaged logarithmically to obtain Daytime (07:00 – 23:00) $L_{Aeq,16hr}$ and Night-time (23:00 – 07:00) $L_{Aeq,\ 8hr}$ values

3.7 The full results of the traffic noise survey are shown in Appendix II, and the noise exposure values are shown in Table 1:

Table 2: Road Traffic Noise Exposure Levels (dB $L_{Aeq,T}$)

Location	Daytime $L_{Aeq,16hr}$	Night-time $L_{Aeq,8hr}$
1. 2m from boundary fence with M62	72	67
2. 65m from boundary fence with M62	64	59

4.0 CALIBRATION OF NOISE MODEL

4.1 Noise calculations have been carried out using the CadnaA noise prediction software for daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods. The technique uses a 3-dimensional computer model of the topography of the site and the surrounding area as a basis for undertaking automated noise calculations.

4.2 Geographical information for the site and its surroundings, including ground level data, has been obtained from Ordnance Survey digital mapping. The proposed bunding has also been incorporated into the noise model.

4.3 Using the results of the road traffic noise surveys initial iterations of the noise propagation model have been generated to provide predicted $L_{Aeq,16hr}$ daytime at 1.5m and $L_{Aeq,8hr}$ night-time noise levels at 4.5m above local ground. Residential blocks have been incorporated into the model to demonstrate the likely effects of development buildings on the site upon road traffic noise propagation. T

4.4 The noise contour plans for the model incorporating the proposed landscaping, with a 3.0 m acoustic barrier positioned in the area beyond the extent of the bunding and close to the motorway are presented in Figure 3 for the daytime and Figure 4 for the night-time

4.5 The results of these calculations have been used to assess the level of sound insulation that is necessary for the windows and ventilation of habitable rooms of the proposed dwellings and form the basis of the outline noise control recommendations in Section 5.0.

5.0 RECOMMENDED SCHEME OF NOISE MITIGATION

5.1 Based on the layout, the computerised noise models indicate predicted daytime noise levels at residential façades of up to about 65 dB $L_{Aeq,16hr}$ close to the motorway in the eastern part of the site. The corresponding predicted night-time noise levels are up to about 61 dB $L_{Aeq,8hr}$ in the eastern part of the site.

5.2 Therefore, based on the predicted noise levels, it will be necessary to incorporate noise mitigation measures to ensure adequate control or road traffic noise in habitable internal areas and external living areas for a number of dwellings close to the motorway.

5.3 Based on this assessment, subject to careful implementation of noise mitigation measures, potentially including those set out below, there is not considered to be any material constraint to implementing measures that secure acceptable internal and outdoor acoustic conditions for residential purposes across the site, in accordance with the guidelines set out in BS 8233.

External Noise Criteria

5.4 The earth bunding forming part of the landscaped public open space to the eastern area of the site is already included in the proposed plans, with a height of 4 m. To ensure adequate acoustic protection for the dwellings located towards the western part of the site, it is recommended that this bunding be supplemented by a 3 m high acoustic barrier along the remainder of the boundary, as shown in Figure 2.

5.5 Proprietary acoustic fences, which are specifically designed to reduce sources of noise such as road traffic, are available from a number of specialist suppliers which include Jacksons Fencing (jacksons-fencing.co.uk), Guardian Fencing (guardianfencing.com) and Ransfords (ransfords.co.uk).

5.6 The acoustic barriers must be imperforate (i.e. have no holes or gaps along their length or at the base) and have a surface mass no less than 10 kg/m2. If formed of timber fencing should be a least 20mm thick and have double-rebated boards; cover strips; and gravel boards at the base. Where required, gates in the acoustic fencing would be acceptable as long as they are built to the same specification as the fence itself.

5.7 The results of our computerised noise modelling indicate that specific plots require additional noise mitigation measures to meet the external noise criteria in private rear gardens. The location and height of these fences are shown in Figure 2.

Glazing

5.8 Windows of standard well-sealed thermal double glazing (4mm glass – 4mm glass) have a typical sound reduction performance of 25 dB $R_w + C_{tr}$. Therefore, where traffic noise levels exceed (façade values) of 60 dB $L_{Aeq,16hr}$ during the daytime and/or 55 dB $L_{Aeq,8hr}$ and/or 70 dB $L_{Amax(10th\ highest)}$ at night, higher specification glazing will be necessary.

5.9 From the survey results these threshold values will be exceeded in the eastern area, particularly where the landscaping is unable to fully screen motorway noise.

5.10 We therefore recommend that the living room and bedroom windows of the nearest houses to the motorway are fitted with upgraded double glazing with a sound insulation performance as high as 32 dB $R_w + C_{tr}$ (shown in Green on Figure 2). Typically, this would be achieved with double glazing specifications of:

- (32 dB $R_w + C_{tr}$) 10mm glass - nominal (12-20mm) cavity – 6.4mm glass.

5.11 Windows in the living rooms and bedrooms of dwellings in the centre will require upgraded double glazing with a sound insulation performance of up to 28 dB $R_w + C_{tr}$ shown in Blue on Figure 2). Typically, a sound insulation performance 28 dB $R_w + C_{tr}$, (can be achieved with double glazing specifications such as

- (28 dB $R_w + C_{tr}$) 4mm glass – 12mm cavity – 4.4mm Stadip Silence Acoustic Laminated Glass

5.12 For both living rooms and bedrooms of dwellings to the west of the site standard thermal double glazing likely to be adequate, this also applies to other houses on the site that are further away from the motorway and or screened effectively by other houses.

Ventilation

5.13 Also, for all habitable rooms for which sound insulated windows are necessary, we recommend that specialist acoustic vents are fitted instead of standard window frame slot vents. Various types of acoustic vents are commercially available. However, in terms of acoustic performance, for exposed

living rooms we would recommend types such as the Greenwood EAR42W 3-part system, comprising humidity sensitive indoor unit, acoustic sleeve, and outdoor acoustic canopy or wall mounted Ryton AAC125HP units, both of which have a good acoustic performance rating of over 42 dB $D_{n,e,w}$.

5.14 For the most exposed bedrooms and living rooms, acoustic vents of a higher rating of 50 dB $D_{n,e,w}$ may be necessary which would require larger wall mounted passive units (e.g. Greenwood Type MA3051 Acoustic Wall Ventilator) or powered through-wall types (e.g. Titon Sonair F+).

5.15 Standard thermal double glazing and standard slot vents are likely to be adequate for other houses on the site that are further away from the motorway and or screened effectively by other houses, however this should be reviewed when a layout drawing is available.

5.16 The precise specifications of all noise mitigation measures will be subject to detailed design, however the above demonstrates that adequately controlling internal and external noise levels in accordance with the guidelines set out in BS 8233 will be readily achievable.

5.17 It is noted that the above recommendations do not take account of the requirement of Approved Document O of the Building Regulations (ADO), as that is not a planning matter.

5.18 It should however be noted that the provisions of ADO will require that mechanical ventilation for dwellings in the areas of development in proximity to the M62 motorway.

External Walls

5.19 The exact construction of the external walls is not known at this stage however it is assumed that the sound insulation performance of the wall construction will not be less than 50 dB R_w. This can be achieved using standard wall constructions, without any specific acoustic enhancements.

Planning Condition

5.20 The need to ensure that an adequate scheme of noise mitigation is implemented can be formalised by an appropriately worded planning condition that requires a scheme of noise mitigation measures as described in this report to be implemented prior to occupation of relevant dwellings.

6.0 SUMMARY AND CONCLUSION

6.1 The impact of motorway traffic noise has been assessed for a proposed residential development on land to the west of the M62 at Halsnead Farm in Knowsley

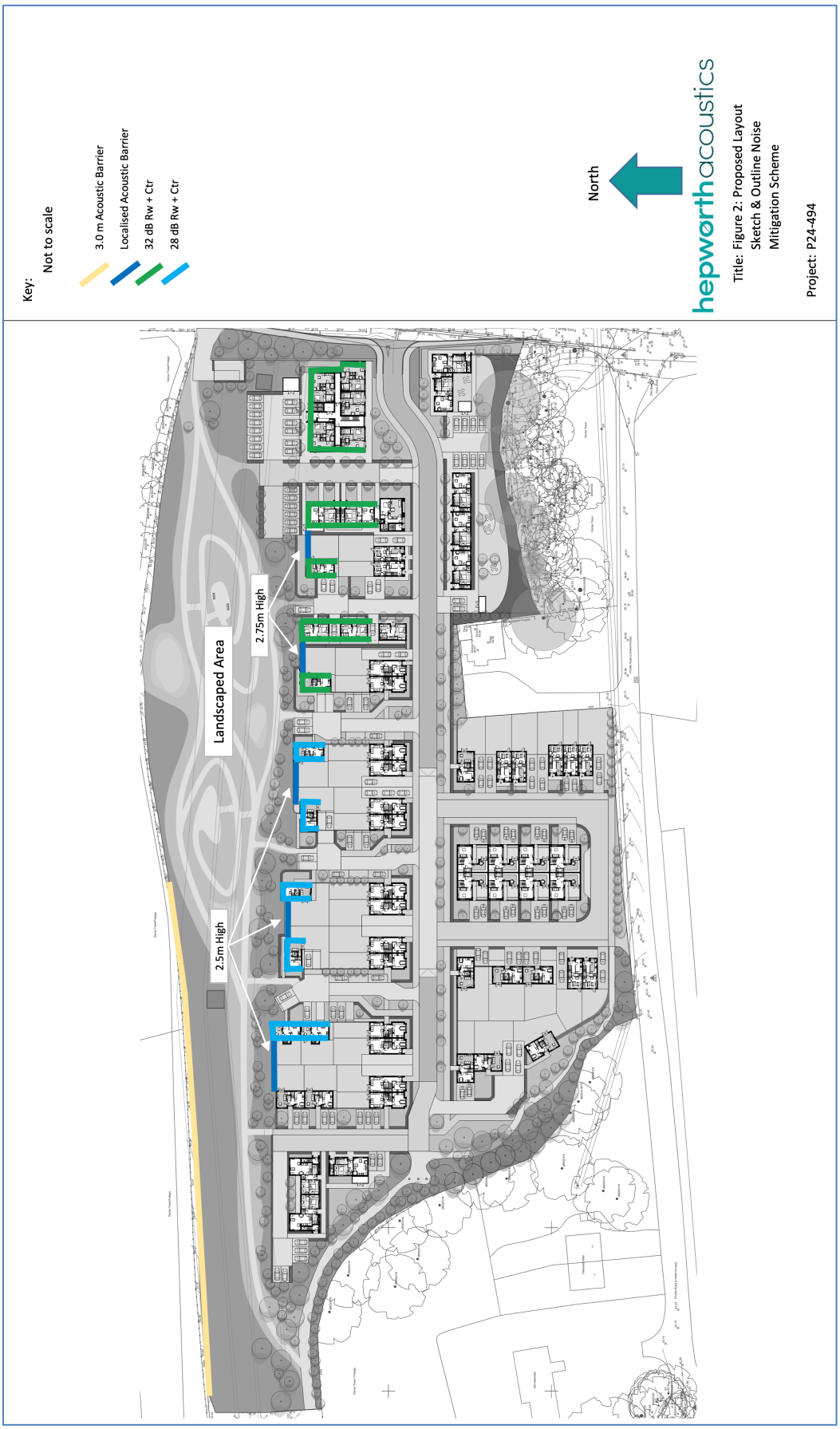
6.2 Traffic noise levels have been measured on the development land for daytime and night-time periods.

6.3 British Standard guideline acoustic design criteria have been adopted that will ensure the protection of residential amenity. However, to achieve these criteria it will be necessary to implement noise mitigation measures for development in the northern area of the site nearest to the M62.

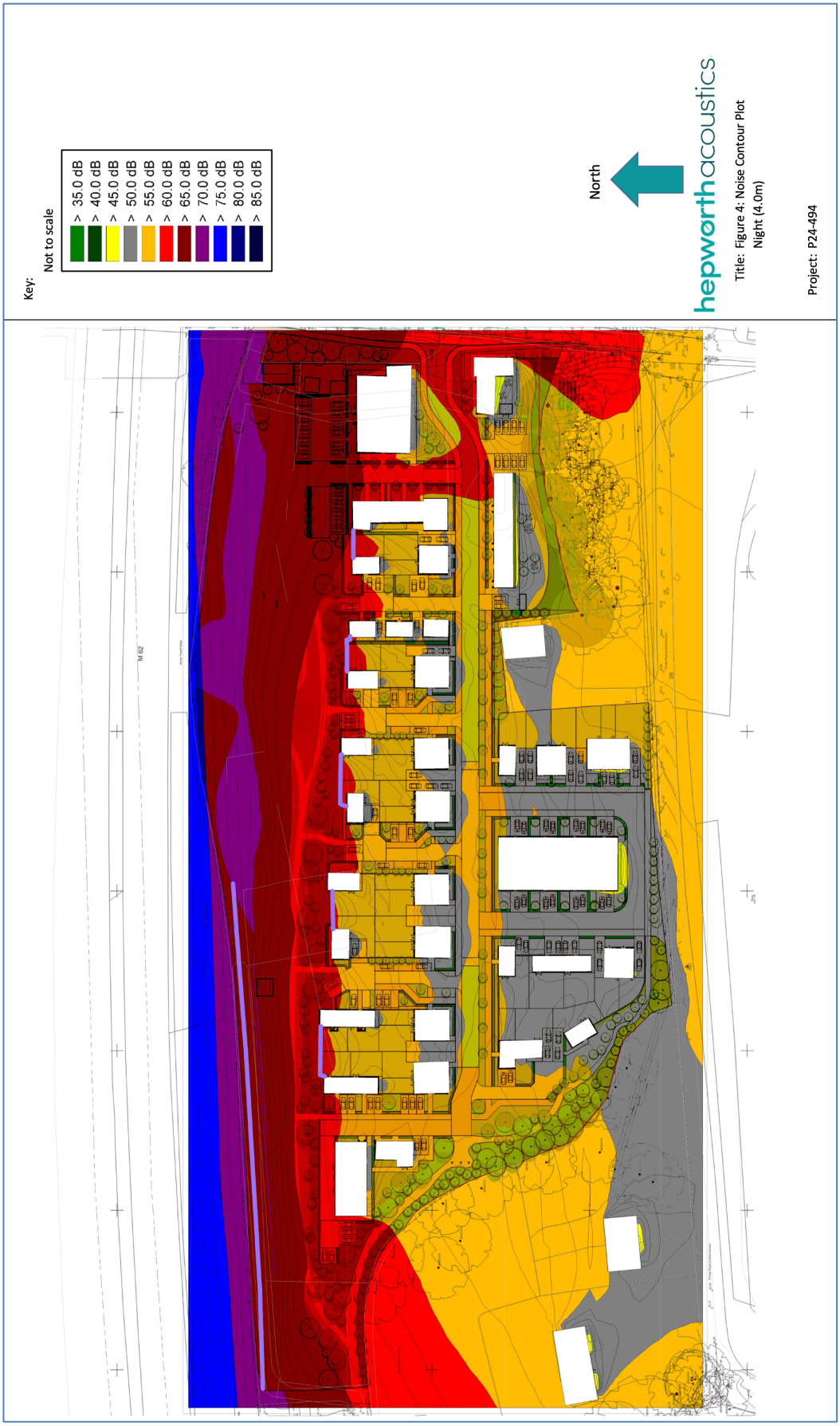
6.4 We have recommended that an appropriate scheme of sound insulation is implemented for the new houses that will be most exposed to traffic noise in order to protect the amenity of the new residents.

6.5 The implementation of an adequate scheme of noise mitigation measures as described in this report can be ensured by the use of an appropriately worded planning condition.

Key:
Not to scale
Noise Measurement Location
x
North
hepworthacoustics
Title: Figure 1: Site Location
Project: P24-494
R3
R4
2
1
R2
R1


Key:
Not to scale
3.0 m Acoustic Barrier
Localised Acoustic Barrier
32 dB Rw + Ctr
28 dB Rw + Ctr
North
hepworthacoustics
Title: Figure 2: Proposed Layout
Sketch & Outline Noise
Mitigation Scheme
Project: P24-494
Landscaped Area
2.75m High
2.5m High


Key:
Not to scale
> 35.0 dB
> 40.0 dB
> 45.0 dB
> 50.0 dB
> 55.0 dB
> 60.0 dB
> 65.0 dB
> 70.0 dB
> 75.0 dB
> 80.0 dB
> 85.0 dB
North
hepworthacoustics
Title: Figure 3: Noise Contour Plot
Daytime (1.5m)
Project: P24-494


Key:
Not to scale
> 35.0 dB
> 40.0 dB
> 45.0 dB
> 50.0 dB
> 55.0 dB
> 60.0 dB
> 65.0 dB
> 70.0 dB
> 75.0 dB
> 80.0 dB
> 85.0 dB
North
hepworthacoustics
Title: Figure 4: Noise Contour Plot
Night (4.0m)
Project: P24-494

Appendix I: Noise Units & Indices

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. The indices used in this report are described below.

C_{tr} This is an A-weighted urban traffic noise spectrum, which can be added to $D_{nT,w}$ or R_w in some standards to take into account different source spectra such as low frequency sound.

R_w This is the 'Weighted Sound Reduction Index', and is a single figure quantity of R, the laboratory measured Sound Reduction Index.

$L_{Aeq,T}$ This is the A–weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period. In other words, $L_{Aeq,T}$ is the level of a continuous noise which has the same total (A–weighted) energy as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for all forms of environmental noise.

L_{AFmax} This is the maximum A–weighted noise level that was recorded during the measurement period in terms of 'Fast' time weighting.

$L_{A10,T}$ This is the A–weighted noise level exceeded for 10% of the time period. $L_{A10,T}$ is usually used as a measure of traffic noise.

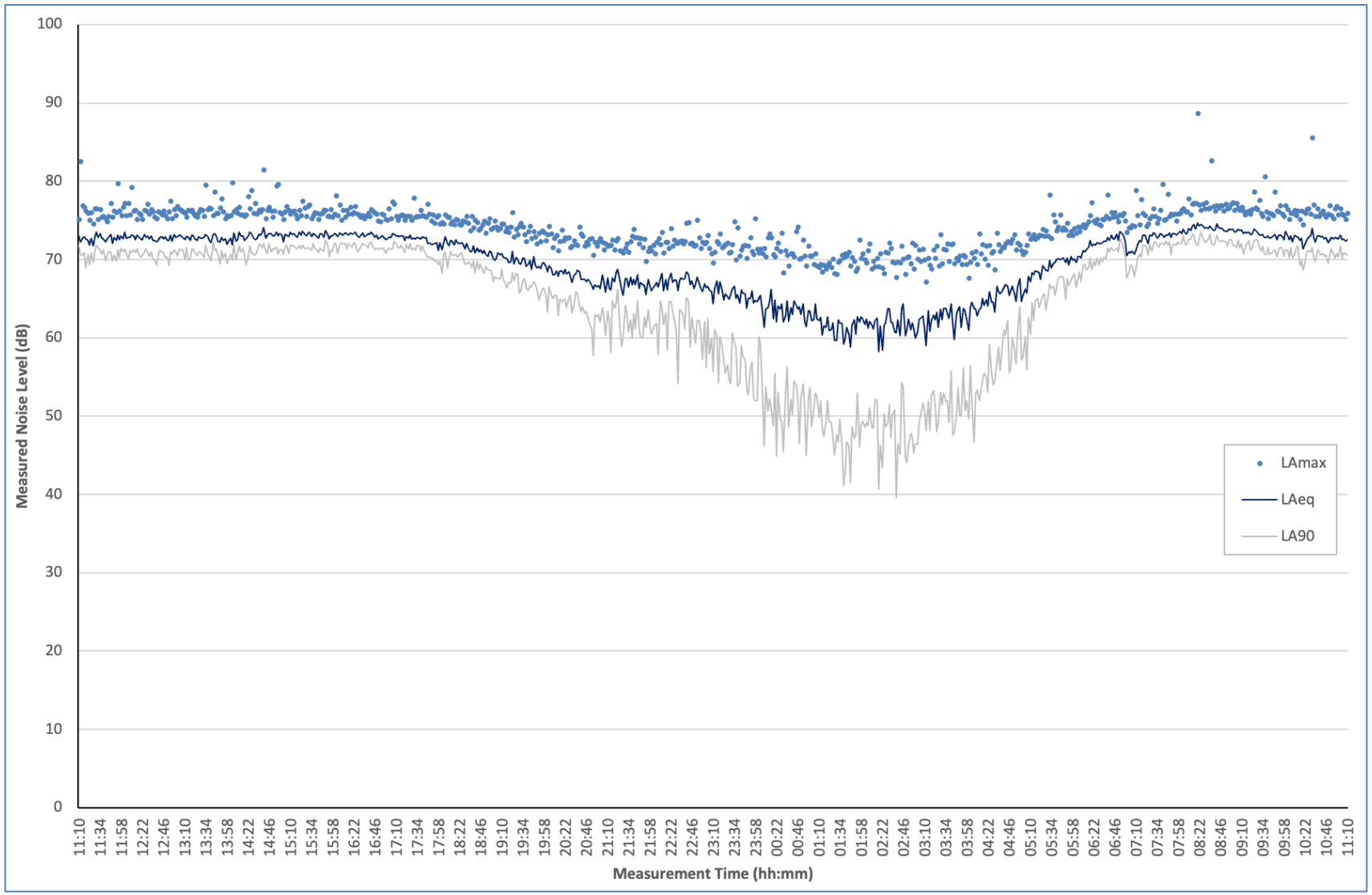
$L_{A90,T}$ This is the A–weighted noise level exceeded for 90% of the time period. $L_{A90,T}$ is used as a measure of background noise.

Appendix II: Noise Survey Results

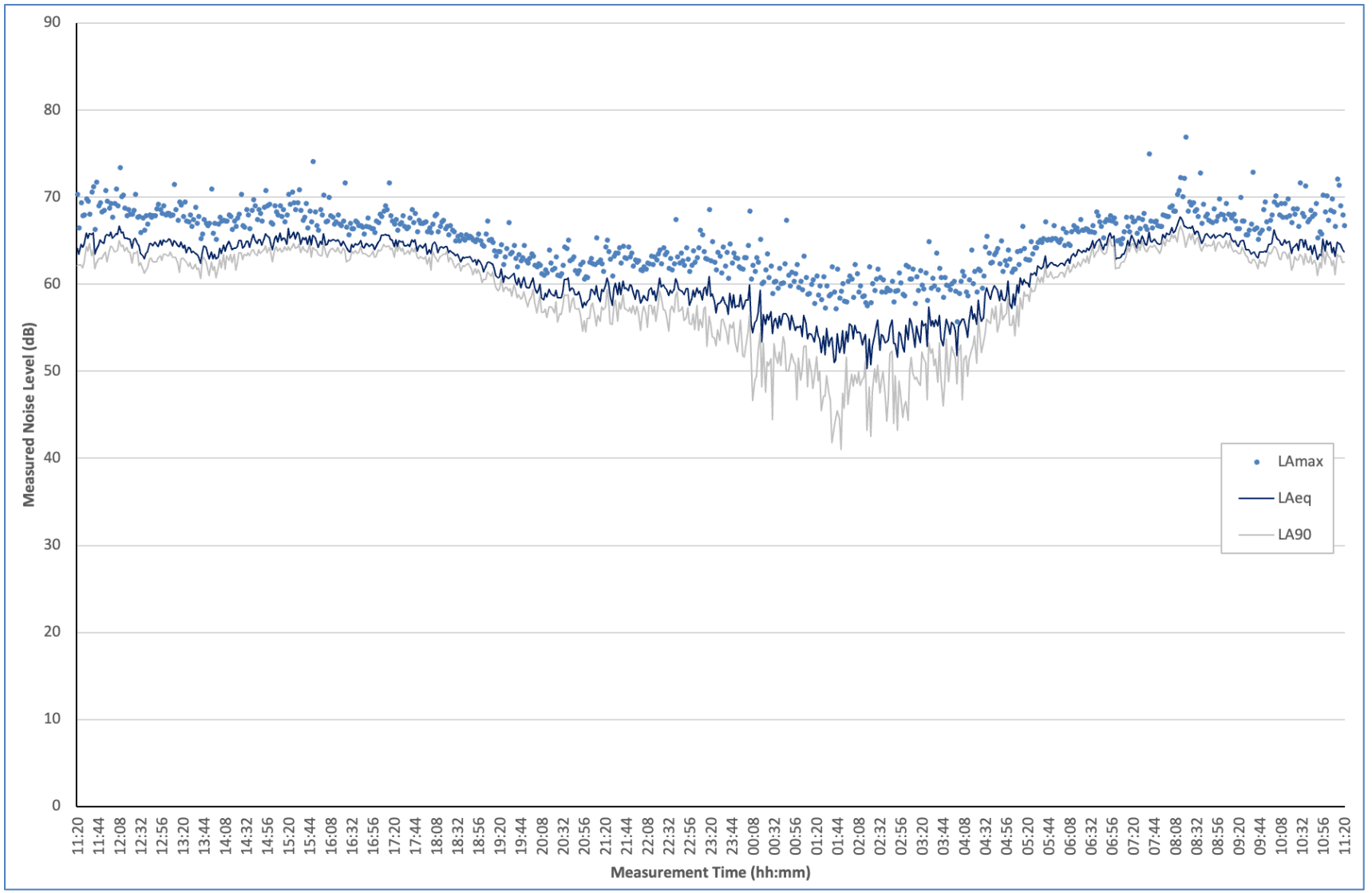
Date(s):	Wednesday 29th – Thursday 30th January 2025
Equipment:	NTi XL2 'Class 1' sound level meter (s/n: A2A-20361-E0) with associated calibrator and environmental outdoor monitoring kit NTi XL3 'Class 1' sound level meter (s/n: A3A-01451-F0) with associated calibrator and environmental outdoor monitoring kit
Weather:	**Wednesday, 29th January 2025:** Daytime: Dry, Cool, 8°C (high), 7°C (low), overcast skies, light north westerly winds (~3 m/s). Night-time: Dry, Cool, 4°C (high), 4°C (low), overcast skies, light north westerly winds (~2 m/s). **Thursday, 30th January 2025:** Daytime: Dry, Cool, 8°C (high), 7°C (low), overcast skies, light north westerly winds (~3 m/s).

All levels in dB(A)

Location 1: 2m From Boundary Fence



Location 2: 65m From Boundary Fence



Appendix I1: Transport Assessment

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HALSNEAD FARM

TRANSPORT ASSESSMENT

Curtins Ref:	**087052-CUR-00-XX-T-TP-00001**
Revision:	P02
Issue Date:	11 November 2025

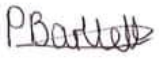
Client Names:	Starship Onward Homes
Client Address:	Starship Hub, Hythe, Tower Road, CH41 1AA.
Site Address:	Halsnead Farm, Fox's Bank Lane.

11 November 2025

Control Sheet

Rev	Description	Checked	Issued	Date
P01	Client review	DJ	DJ	24 September 2025
P02	Planning issue	DJ	DJ	11 November 2025

This report has been prepared for the sole benefit, use, and information for the client. The liability of Curtins with respect to the information contained in the report will not extend to any third party.

Author	Signature	Date
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Reviewed	Signature	Date
Danny Jones MPlan MCIHT MRTPI Associate		11 November 2025

Authorised	Signature	Date
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1.0 Introduction

1.1 Proposed Development Overview

1.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site is situated within the boundary of Knowsley Metropolitan Borough Council.

1.1.2 The site layout is provided in **Appendix A**.

1.2 Planning Background – Halsnead Garden Village Masterplan

1.2.1 The site is situated within the Masterplan area of the Halsnead Garden Village Masterplan. The Masterplan provides a comprehensive framework and guide planning decisions in the area and is formally allocated for development in Knowsley's Local Plan Core Strategy (adopted in 2016). The original Masterplan is provided in **Appendix B**.

1.2.2 The Masterplan aims to deliver approximately 1,600 new homes, a country park, new school places, employment and warehouse opportunities, as well as new roads and supporting infrastructure. A supporting preliminary Transport Assessment for the Masterplan identified the following issues and opportunities:

- Vehicular site access is achievable from several points within the adjacent highway network; there is an opportunity for new junctions to accommodate pedestrian and cycle movements.
- Pedestrian routes can enhance the connectivity to the existing urban area and facilities of Whiston, especially on Windy Arbor Road and Lickers Lane.
- There is a major role for internal circulation routes to make the site as permeable as possible, including making allowance for bus penetration into the residential site. The layout should ensure that the site is as permeable as possible at all stages of development.
- Whiston Rail Station is a key asset to the development. There is a major opportunity to connect the new development to the station by sustainable travel modes.
- There is a significant opportunity to use the former mineral railway line to link the two sites together for pedestrians, cyclists and equestrian uses as well as the potential to support a link to Sustrans route 56.
- Off-site highways works have been identified as being needed to mitigate the impacts of development.

1.2.3 A series of off-site highway improvements to the surrounding road network were identified. It is understood these works are funded by the Liverpool City Region Strategic Investment Fund (LCR SIF). A summary is provided in **Table 1.1**:

Junction		Requirement
A	Windy Arbor Road/Lickers Lane	Widening to the north and south to facilitate: - A two-lane approach on Lickers Lane - A separate right and through lane on Windy Arbor Road northbound, and - The introduction of controlled pedestrian crossing facilities across two arms of the junction. The works would require the reconstruction of the sandstone boundary wall around the recreation ground, and the relocation of a bus stop on Lickers Lane further to the east.
B	Lickers Lane/Fox's Bank Lane	Introduction of traffic signals to allow the controlled movement of traffic out of the Lickers Lane, and also the controlled movement of pedestrians over all arms of the junctions.
C	Windy Arbour Road/Dragon Lane	Windy Arbour Road approach to Dragon Lane widened to allow for a two-lane approach.
D	Stoney Lane/Dragon Lane/ Meadway	Improved designation of the right turn from Dragon Lane to Stoney Lane and improved through alignment on Dragon Lane.
E	Stoney Lane/Cumber Lane	Provision of traffic signals and controlled pedestrian crossing facilities on all arms of the junction.
F	Cronton Road/Fox's Bank Lane	Realignment of Prescot Road to the south to opposite Fox's Bank Road to provide a crossroads arrangement; and widening of Cronton Road to enable the provision of right turn pockets for vehicles turning to the north and south. Relocation of the existing bus stops to the west of the junction into new laybys. Advanced cycle stop lines with lead in lanes to be provided on Cronton Road.
G	Tarbock Island (M62/M57 Junction 6)	Widening to internal quadrants and certain entry slip roads, together with further signalisation of nodes.

Table 1.1 – Halsnead Garden Village Masterplan: Off-site Improvements

1.2.4 Two sites adjacent to the proposed development site and within the Masterplan boundary have recently undergone construction; 'Fox Wood Garden Village' to the north, and 'Tritax Symmetry' to the south. In line with the Masterplan principles, these sites and the proposed development sites are required to link to one-another:

Fox Wood Garden Village

1.2.5 The Fox Wood Garden Village site was approved in February 2022 under planning application number: *20/00417/FUL.* The development is described as the following:

"Residential development comprising of the erection of 350 no.dwellings together with the construction of vehicular access of Fox Bank Lane (comprising signalised junction), SUDs ponds, landscaping, boundary treatments and other associated works (including demolition of existing farm buildings)".

1.2.6 The planning application was accompanied by a Transport Assessment, produced in April 2020. Following a site visit, it is clear a number of units have been constructed and occupied.

Tritax Symmetry

1.2.7 The Tritax Symmetry site was approved in March 2022 under application reference: *20/00494/HYB*. The development is described as the following:

"Hybrid Planning Application comprising: Full application for the development of 161,900 SQ FT of storage and distribution floorspace (Use class B8), including ancillary offices (Use Class B1), security gatehouse, site access road, engineering earthworks, to form a part county park, public car park to serve county park, and associated works; and outline application with details of point access (details of part-access, landscaping, appearance, scale and layout are reserved) for the development of up to 838,100 SQ FT of storage and distribution floorspace (Use class B8), with ancillary offices and light industrial (Use class B1); engineering earthworks to form county park and drainage attenuation ponds; pedestrian/cycle/equestrian route connecting existing M62 footbridge with proposed county park; and associated works".

1.3 Scoping Discussions

1.3.1 Curtins attended a pre-application meeting (via Microsoft Teams) with Highways Officers from Knowsley Council on 30th July 2025 to discuss the latest development proposals and scope of planning documentation. The bullets below provide a summary of discussions:

- **Access:** It was agreed a priority T-junction would be a suitable arrangement to accommodate the development. Notwithstanding, Knowsley Highways indicated a preference for futureproofing by providing dedicated right-turn provision.
- **Car Parking:** Highways officers explained that they have accepted a lower car parking provision in the past for affordable housing sites and was therefore agreed that the same principal would apply for our site. It was also noted that there is a preference for good quality cycle storage facilities for those choosing to cycle.
- **Pedestrian Connectivity (north):** As the site forms part of the wider Halsnead Masterplan, the site will provide connections north into the consented Fox Wood Garden Village site. It was agreed the Fox Wood Garden Village site is expected to deliver onwards connections throughout the wider masterplan area, and that this will be reviewed by the Knowsley S38/S278 team. It was also agreed that other Masterplan users would benefit from this connection through the proposed development site.
- **Pedestrian Connectivity (south):** There will be pedestrian links to the south via the Tritax Symmetry site. This will facilitate a pedestrian route from the proposed development site into Symmetry Park (an industrial unit being brought forwards by Tritax Symmetry). From here, the footpaths will continue south into County Park and the A5080 Cronton Road. Again, it was agreed the Tritax Symmetry site is expected to deliver onwards connections, and that this will be reviewed by the Knowsley S38/S278 team. It was also again agreed that other Masterplan users would benefit from this connection through the proposed development site.

1.3.2 A key agreed item was in relation to accessibility. It was agreed during Curtins' discussions with Knowsley Council that the site is accessible in principle, providing it delivers its 'share' of the pedestrian connections.

1.3.3 The Fox Wood Garden Village and Tritax Symmetry sites are required to deliver connections onwards through the Masterplan; and the Proposed Development site benefits from confirmed connections via the Tritax Symmetry site (albeit these are subject to other consents/agreements outside of the planning process).

1.4 Purpose and Scope of this Report

1.4.1 This Transport Assessment (TA) has been written in order to consider the proposals and their potential impact on the surrounding area from a traffic and transportation perspective. On this basis, this TA contains the following:

- Details of the existing use and the proposals, together with the proposed site plan;
- A review of highway safety within the vicinity of the site for the most recent five years;
- An audit of accessibility by all modes of travel including walking, cycling, and public transport;
- Details regarding the proposed parking levels and access arrangements;
- Information regarding the impact on trip generation and anticipated highway impact forecast; and
- A review of the relevant local and national transport planning policy.

1.5 Structure of the Report

1.5.1 Following this introduction, **Section 2** of the report provides a comprehensive description of the existing site and its location. This includes the local highway network and facilities for pedestrians, cyclists and public transport users.

1.5.2 **Section 2** also reviews the local area in terms of highways safety by way of obtaining records of accidents adjacent to the site over the most recent five-year period available.

1.5.3 The proposals summarised in **Section 3**, including the proposed access, parking provision and servicing arrangements.

1.5.4 The accessibility of the site by sustainable modes of travel is assessed in **Section 4**.

1.5.5 **Section 5** outlines the traffic forecasting methodology used to establish the likely traffic generation associated with the development proposals, andprovides commentary on anticipated highway impact.

1.5.6 Relevant local and national transport policy is summarised in **Section 6**, and the report is summarised and concluded in **Section 7**.

2.0 Site Location and Highway Layout

2.1 Site Location

2.1.1 The proposed site is located in Whiston, Knowsley, c.1.5km south of Whiston town centre. The site is bounded by Fox's Bank Lane to the east, the M62 to the north, agricultural land to the west and south.

2.1.2 **Figure 2.1** below shows the site location.

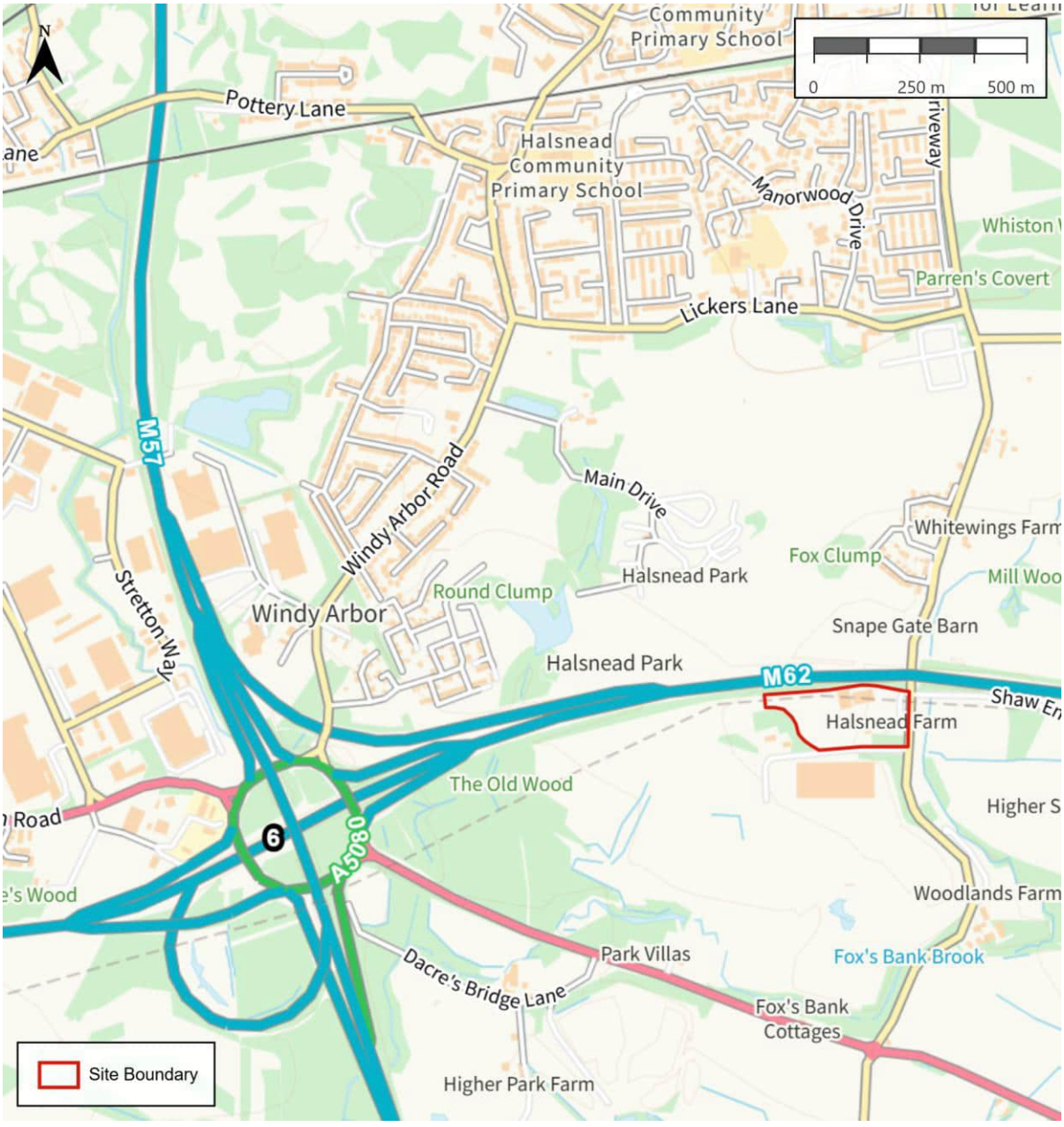


Figure 2.1 – Site Location

(Source: Ordnance Survey, 2025)

2.2 Existing Use

2.2.1 The site is currently used as farmland/agricultural land, with a horse boarding stables.

2.3 Existing Access Arrangements

2.3.1 The site is currently accessed via a priority-controlled T-junction from Fox's Bank Lane, c.25m south of M62.

2.4 Surrounding Highway Network

Fox's Bank Lane

2.4.1 Fox's Bank Lane is a two-directional single lane road, with a typical carriageway width of c.6m and c.2m footways on the eastern side of the carriageway, supported by streetlighting.

2.4.2 There is a 60mph to 30mph speed limit change, approximately 60m south of the M62 as it bridges over Fox's Bank Lane

Cronton Road (A5080)

2.4.3 Cronton Road is located to the south of the development site and forms the western and eastern roundabout arms with Fox Bank Lane. Cronton Road is a two-directional single lane road with a typical carriageway width of c.7m and operates at a 40mph speed limit. Footways are present along both sides of Cronton Road, supported by street lighting.

2.4.4 There is pedestrian infrastructure in the form of tactile paving at the roundabout junction, as well as footway provision, although this does not extend for the entirety of Cronton Road

2.5 Collision Data Analysis

2.5.1 Personal Injury Accident (PIA) data for the highway network adjacent to the site has been obtained from CrashMap for the most recent five years, and included to the rear of this report in **Appendix C.**

2.5.1 The records show that there have been 2 recorded accidents in the study area over a five-year assessment period. A total of 1 accident resulted in slight severity injuries, with the remaining accident resulted in a serious injury. No fatal accidents were recorded. This number of accidents over a 5-year period is not considered to be of high value for the study area considered in this review. Additionally, there have been no recorded accidents within the vicinity of the site access point within the accident data study period.

2.5.2 Following a review of the records, it is not considered that there is an existing safety issue that is likely to be exacerbated by the proposed development.

3.0 Development Proposals

3.1 Introduction

3.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for affordable houses in Whiston, Knowsley.

3.1.2 The application is for 88 units. However, it is understood the modular nature of the scheme could result in a slight variation to this, and so, whilst the technical elements of this report reference an upper ceiling of 90 houses, this section considers proposals for a total of 88 units comprising:

- 33no. one-bedroom units;
- 21no. two-bedroom units;
- 20no. three-bedroom units; and
- 14no. four-bedroom units.

3.1.3 The site is situated within the boundary of Knowsley Metropolitan Borough Council.

3.1.4 The proposals are provided in **Appendix A**. The layout indicates a mix of detached and semi-detached residential dwellings, alongside a purpose-built block containing apartment units.

3.2 Proposed Access

Vehicular Access

3.2.1 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** illustrates the proposed vehicular access, comprising a priority T-junction with GIRT facility. The drawing also shows the 30mph visibility splays at the site access.

3.2.2 **Drawings 087052-CUR-XX-XX-D-T-05001-P03** and **087052-CUR-XX-XX-D-T-05002-P01** show how the junction would be negotiated by a refuse vehicle and large car respectively.

Active Travel (Pedestrian and Cycle) and Equestrian Access

3.2.3 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** provides pedestrian connectivity into Fox's Bank Lane. This will connect pedestrians to the north, through Fox Wood Garden Village. Once here, pedestrians will then be able to connect into the existing pedestrian infrastructure for onwards pedestrian connectivity to Whiston.

3.2.4 New pedestrian routes are also to be provided to the south, offering connectivity into the Tritax Symmetry site. These routes will link to the existing access road south of the site, allowing pedestrians to connect directly into Symmetry Park (the industrial development being brought forward by Tritax Symmetry) and the new Country Park. For the avoidance of doubt, these connections achieve:

- A through-route aligned with the Tritax Symmetry site planning requirements;
- A safeguarded connection that links Fox's Bank Road through to the Country Park corridor; and
- Surface treatment, width, and gradient appropriate for pedestrians, cyclists, (and horses).

3.2.5 The site will retain its existing equestrian heritage by providing its part in an equestrian link between existing riding schools to the south and popular riding routes to the north.

3.2.6 Discussions were undertaken with the owners of the land adjacent to the development site, relating to the Tritax Symmetry Park site, following the receipt of the pre-application advice from the LPA. The aim of these discussions was to facilitate a dedicated footpath through the Symmetry Park site to provide future occupants of the development with a secure link to the bus stops on Cronton Road. These discussions have resulted in an agreement in principle.

3.2.7 Combined with the direct access to the Taylor Wimpey site to the north which provides further connectivity to the wider masterplan area, it is concluded that the proposed development in its amended form achieves the necessary connectivity required of Sustainable Urban Extensions and as such aligns with the aims of Policy SUE2c of the Local Plan. Furthermore, the scheme contributes to the overall aim of the Halsnead Garden Village Masterplan SPD Strategic Objective SO4 "Enhancing Connectivity"."

Servicing and Emergency Access

3.2.8 It is anticipated that refuse collection will be carried out from the roadside, with refuse looping round the site. **Drawing 087052-CUR-XX-XX-D-T-05001-P03** demonstrates how a large refuse vehicle would navigate and turn on-site.

3.2.9 It is envisaged any emergency vehicles would undertake similar manoeuvres, and **Drawing 087052-CUR-XX-XX-D-T-05003-P01** demonstrates how a fire tender can access all units in case of emergency.

3.3 Proposed Parking Provision

3.3.1 **Table 3.1** reproduces the Knowsley Council SPD car parking standards:

Number of Bedrooms	Car Parking Max Standards	Disabled Parking	Cycle Parking* Minimum Standards
1 Bedroom	1 space	Case by Case Basis	1 (allocated) 1 (Communal)
2-3 Bedrooms	2 spaces	Case by Case Basis	2 (allocated) 1 (Communal)
4+Bedroom	3 spaces	Case by Case Basis	4 (allocated) 2 (Communal)

*cycle parking need not be provided if garages are available

Table 3.1 – Knowsley Parking Standards

3.3.2 Based on the above, the proposed development can provide a maximum of 157 car parking spaces across the site.

3.3.3 However, given the nature of the development proposals and as discussed with Knowsley Highways, it would not be appropriate to meet the maximum levels of car parking. On this basis, a total of 150 car parking spaces are proposed as follows:

- Houses: 111 spaces;
- Apartments: 37 spaces; and
- Visitor spaces: 2 spaces.

3.3.4 There are 7no. accessible parking bays within the above (associated with the 7no. M4(3) units).

3.3.5 EV charging will be provided in accordance with building regulations; at one point per new dwelling.

3.3.6 Each apartment is allocated a cycle space in a purpose built secure and covered cycle store in close proximity to each block. A minimum of two cycle storage spaces per house are located within secure sheds located in rear gardens.

Local Car Ownership Levels

3.3.7 The level of car parking provision has further been informed by Dataset QS416EW of the 2011 Census, titled 'Car or van availability', centred around the Knowsley 017 Middle Super Output Area (MSOA) where the site is located, for all dwelling types.

Knowsley 017 MSOA Car/Van Ownership	Percent
No cars or vans in household	11%
1 car or van in household	43%
2 cars or vans in household	36%
3 cars or vans in household	8%
4 or more cars or vans in household	2%
Total	100%

Table 3.2 – Car Ownership

3.3.8 At 90%, the vast majority of households have access to two or fewer cars/vans, and more than half (54%) have access to one or no cars/vans.

3.3.9 The average car ownership per household equates to 1.47 cars. Assuming such a level of ownership across 88 units, there could be a total car parking demand of 129 spaces which compares well with the proposed total of 150 spaces on site.

4.0 Accessibility by Sustainable Modes of Transport

4.1 Introduction

4.1.1 The site forms part of the "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.

4.1.2 **Figure 4.1** illustrates how the site is situated in relation to the Fox Wood Garden Village and Tritax Symmetry sites, with the arrows demonstrating how onwards connectivity will be achieved:

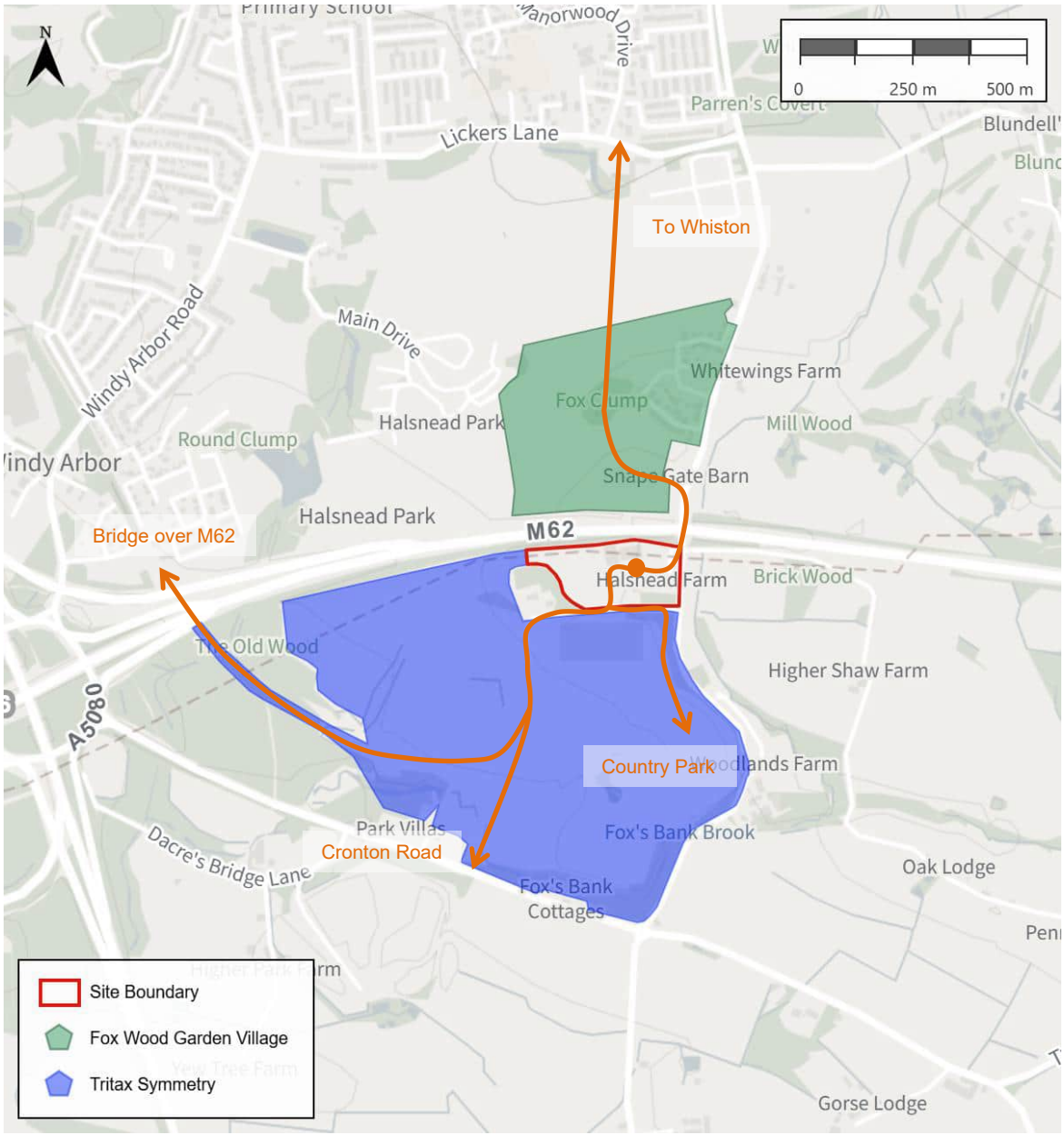


Figure 4.1 – Masterplan Connectivity

(Source: Ordnance Survey, 2025)

4.1.3 This onwards connectivity would be achieved for pedestrians, cyclists and equestrians. However, within such context, this section focuses on:

- Pedestrian Accessibility;
- Accessibility by Cycle; and
- Accessibility by Public Transport.

4.2 Pedestrian Accessibility

4.2.1 From the site, pedestrian access to Fox Wood Garden Village is provided via a dedicated pedestrian footway along the western side of Fox's Bank Lane of at least 2m in width. Here, a dedicated attractive pedestrian link provides access to the internal road network of Fox Wood Garden Village; with a variety of dedicated off-road footways and shared surface streets provided throughout. The internal road network connects to future development phases in the north and west.

4.2.2 Additionally, there will be pedestrian links to the south from the proposed site, which are being brought forward by Tritax. This will involve a pedestrian route from the site, which connects to the existing access road to the south to provide pedestrian connectivity into Symmetry Park (the industrial unit being brought forwards by Tritax Symmetry). From here, residents will be able join onto the footpaths which will continue south into County Park. It is envisioned this footway link will be used by those in the Taylor Wimpey development to the north as well.

4.2.3 This route is proposed as part of the approved proposals for a Country Park on the Land South of the M62 (15/00191/FUL) and also is included in the Core Strategy policy for the wider Masterplan. Once again, the various sites are reliant on one-another to deliver the wider Masterplan pedestrian accessibility.

4.2.4 To assist in summarising the accessibility of the site by foot, an indicative pedestrian catchment plan has been prepared. **Drawing 087052-CUR-00-XX-DR-TP-06001** shows distances of 500m, 1,000m and 2,000m which are termed 'Desirable', 'Acceptable' and the 'Preferred Maximum' by the CIHT for commuting/school trips and are considered representative of a typical residential pedestrian trip.

4.2.5 Lickers Lane is accessible c.1,400m from the centre of the site (via Fox Wood Garden Village and future development phases). From Lickers Lane, various facilities and amenities are accessible throughout Whiston Cross within c.2,600m including the following as presented in **Figure 4.2**:

- Sandfield Natural Play Centre (c.1,500m);
- Go Local Convenience Store (c.1,600m);
- St Leos and Southmead Catholic Primary School (c.1,800m);
- St Leo Church (c.1,800m);
- Halsnead Primary School (c.2,400m);
- Tesco Express (c.2,600m); and

- A variety of local shops and food/drink/takeaway establishments off Windy Arbour Road/ Dragons Lane/Greenes Road (c.2,600m).

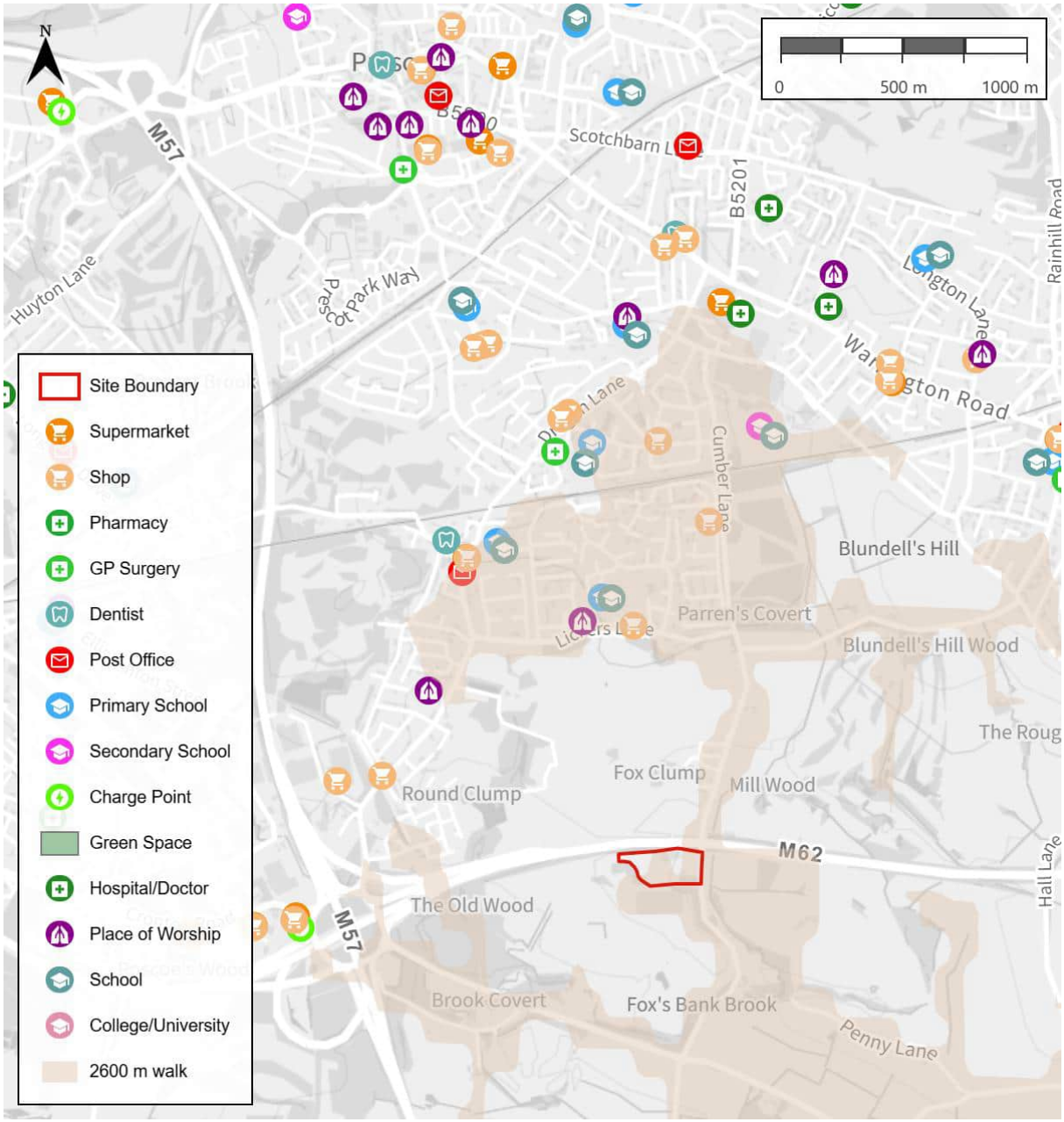


Figure 4.2 – Local Amenities c.2,600m from the Site

4.2.6 Furthermore, additional amenities, facilities and employment opportunities will come forward as part of the Halsnead Garden Village Masterplan; including the New Country Park and various B8 employment uses.

4.2.7 In summary, as part of the wider Sustainable Urban Extension allocation within the Local Plan Core Strategy, the site benefits from various amenities and facilities within the local area.

4.3 Accessibility by Cycle

4.3.1 In order to assist in assessing the accessibility of the site by cycle, **Drawing 087052-CUR-00-XX-DR-TP-06002** presents an 8km cycle catchment for the site. The 8km catchment extends as far as Eccleston in the north, St Helens in the north-east, Widnes in the south and Broadgreen in the west. These areas incorporate a variety of employment, retail and leisure uses. More locally, the following are accessible:

- Whiston Railway Station (c.2.3km);
- Whiston Hospital (c.2.5km);
- Rainhill (c.2.8km); and
- Various employment uses in Tarbock Green (as close as 3.2km).

4.3.2 The nearest National Cycle Route (NCR) is route 56 which is situated approximately 1.8km northwest of the site. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by cycle.

4.4 Accessibility by Public Transport

4.4.1 **Drawing 087052-CUR-00-XX-DR-TP-06003** demonstrates those areas accessible via public transport within 20-, 40- and 60-minute journey from the site. Accessibility by bus and rail are considered in further detail within the subsections below.

Bus Accessibility

4.4.2 The nearest bus stops are located to the south of the site on the A5080 Cronton Road; approximately 800m walk from the centre of the site via the Tritax Symmetry site. The stops on Cronton Road both comprise a flagpole arrangement with timetable information and DDA kerbs.

4.4.3 Additionally, north of the site on Fox's Bank Lane/Cumber Lane or Lickers Lane, there are bus stops accessible within c.1,200m – 1,400m walk from the centre of the site via the wider allocation. The stops on Fox's Bank Lane and Cumber Lane are both complete with shelters and timetable information.

4.4.4 **Table 4.1** details the services that call at these stops, and the associated frequencies:

Bus Service	Route	Typical Frequency		
		Mon – Fri	Sat	Sun/Hols
Cronton Road				
7	Liverpool – Huyton or Warrington	30mins	30mins	30mins
Fox's Bank Lane/Cumber Lane or Lickers Lane				
99	Whiston Station – Prescot Circular	Hourly	Hourly	-
239	Prescot – Broadgreen Hospital	40mins	40mins	-
248	Huyton Bus Station – Prescot Bus Station	Early/Late Services	Early/Late Services	Hourly

Table 4.1 – Summary of Bus Services

4.4.5 Whilst the bus stops are outside a typical walking catchment, the attractiveness of service number 7 in particular (which provides a regular connection into Liverpool city centre and Huyton Bus Station or Warrington Bus Interchange) would offer a genuine option for prospective residents as it offers early and late running services. The walking route is also an attractive route away from roads with high volumes of traffic and via the Country Park if the user wishes to walk slightly further.

4.4.6 Alternative services are available to the north which serve key destinations such as Broadgreen Hospital and various local centres. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by bus.

Rail Accessibility

4.4.7 The nearest Railway Station is Whiston Railway Station, c.2.3km walk north of the site via the wider allocation. The station is managed by Northern Rail and offers services to destinations including Warrington Bank Quay, Liverpool Lime Street, Crewe and Manchester Piccadilly.

4.4.8 Due to the attractive destinations, it is considered some prospective residents may choose to walk to the station via the wider Masterplan which offers attractive route away from roads with high volumes of traffic. Alternatively, the station provides car parking, with 42 standard spaces and 2 accessible spaces (making park-and-ride a feasible option), or the station is within a 10minute leisurely cycle.

4.4.9 There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by rail as part of a multi-modal journey.

4.5 Summary

4.5.1 It is noted the site forms part of the “Sustainable Urban Extension – South of Whiston and South of the M62” allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.

4.5.2 There are pedestrian connections into the north (Fox Wood Garden Village) and south (Tritax Symmetry). Onwards connections are secured via the wider allocation.

4.5.3 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.

5.0 Traffic Forecasting and Highway Impact

5.1 Introduction

5.1.1 Firstly, this section considers the traffic-generating potential of the proposed development site. In order to undertake the assessment, the TRICS database has been used.

5.1.2 TRICS is the industry recognised tool for calculating the anticipated future trip demand of a proposed development. The database contains multi-modal surveys of varying land uses in multiple destinations across the UK, including residential land uses.

5.1.3 The forthcoming TRICS assessment demonstrates any highway impact would be negligible. Notwithstanding this, to provide additional comfort for Highways Officers at Knowsley and to provide additional information regarding the Strategic Road Network (SRN), this section also discusses a model of the site access and the levels of traffic distributed to M62 Junctions 6 and 7.

5.2 TRICS Trip Generation

5.2.1 The following section contains trip generation analysis based on the proposed development during the weekday AM and PM peak hours. The full TRICS outputs are included within **Appendix D** to the rear of this report. The applied selection criteria are set out below:

- TRICS category "Residential – Affordable/Local Authority Houses";
- Weekday surveys;
- Edge of Town Centre and Suburban Areas;
- Vehicle surveys only (insufficient multi-modal surveys available on TRICS).

Consideration has been given to the traditional highway network peak hours of 08:00 – 09:00 and 17:00 – 18:00 to understand development impact at peak times. The trip rates and subsequent vehicular trips associated with the 'up to 90' units are summarised in **Table 5.1** below:

TRICS Trip Rates	Trip Generation AM (08:00 – 09:00)			Trip Generation PM (17:00 – 18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Vehicles	0.124	0.255	**0.379**	0.265	0.199	**0.464**
Trip Generation	11	23	**34**	24	18	**42**

Table 5.1 – Proposed Development Rip Rates and Trips

5.2.2 The above table demonstrates the proposed development could generate approximately 34 and 42 two-way vehicular trips in the traditional AM and PM peak hours respectively. Volumetrically, this translates to an average of 4-5 vehicles every 4-6 minutes in the peak hours.

5.3 Highway Impact

5.3.1 The above trip generation exercise should provide comfort that the proposed development would not have a perceptible impact on the surrounding highway network. It is therefore clear the development would not have a "severe" impact on the surrounding highway network.

5.3.2 As part of a vision-led approach to transport planning, the development of the site would also promote the use of sustainable modes across the wider Masterplan by providing the missing link across the M62 between the land to the north and south of the motorway. This, in turn, connects:

- The Fox Wood Garden Village (and significant planned residential-led development to the north) with employment uses at Tritax Symmetry and the new Country Park (and vice versa); and
- Existing users of the wider equestrian network including nearby livery yards and riding centres (such as Lodge Riding Centre on Dacres Bridge Lane) with Whiston Woods and Rainhill.

5.3.3 On this basis, and in the context of a minimal increase in vehicular movements, the development of the site could be viewed as mitigating any of its adverse impacts by virtue of the role it plays in the context of connecting the wider Masterplan.

5.4 Additional Assessment Information – Proposed Development Traffic Figures

Baseline Data Collection

5.4.1 An independent ATC was undertaken by an independent survey company on 9th January 2025. The surveyed flows are provided to the rear of this report in **Traffic Figures 01** and **02**.

Assessment Years and Traffic Growth

5.4.2 TEMPro is commonly used to generate a suitable future year traffic growth factor, however, a blanket growth factor is not reflective of historical trends.

5.4.3 Notwithstanding this, to ensure a robust assessment of off-site junctions on the surrounding highway network and to provide an additional level of comfort to Highways Officers, growth factors have been taken from the National Trip End Model ('NTEM') with TEMPro for the Knowsley area 011.

5.4.4 **Table 5.2** provides the factors from a base year of 2025 to 2030:

Peak Time	Level		2025-2030
AM Peak	Authority	Knowsley 011	**1.0337**
PM Peak	Authority	Knowsley 011	**1.0343**

Table 5.2 – Unadjusted TEMPro Growth Factors

5.4.5 The 2030 Future Year flows are provided to the rear of this report in **Traffic Figures 03** and **04**.

Trip Distribution and Assignment

5.4.6 Trip distribution has been calculated using information provided by the Census 2011 Origin-Destination information for the place of work at an MSOA (Middle Super Output Area) level. A summary of the projected traffic Census distribution is provided in **Appendix E**, whereas **Traffic Figure 05** included at the rear of this report illustrates the percentages of the traffic that passes through the assessed junctions, assigning traffic to each of the arms.

5.4.7 **Traffic Figures 06** and **07** included at the rear of this report provide the Proposed Development trip assignment for the AM and PM peak periods.

Assessment Traffic Flows

5.4.8 The development traffic flows have been added to the 2025 Application Year scenario to form the '2025 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 08** and **09**.

5.4.9 In addition, the development traffic has been added to the 2030 Future Year scenario to form the '2030 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 10** and **11.**

5.5 Additional Assessment Information – Site Access Model

Regular Assessment

5.5.1 The Site Access has been assessed using the Junctions 9 modelling package using the flows presented in **Traffic Figures 08** – **11**.

5.5.2 Results refer to the Ratio of Flow to Capacity ('RFC') and queue length predicted on each arm of the junction. An RFC of 1.00 indicates that the arm in question is operating at its theoretical capacity, whilst an RFC of 0.85 or less indicates that the arm is operating within its practical capacity.

The full outputs are provided in **Appendix F** and the results are summarised in **Table 5.3** below:

Arm		2025 With Development		2030 With Development	
		RFC	Queue	RFC	Queue
AM Peak					
1	Site Access left right	0.06	0.1	0.06	0.1
2	Fox's Bank Lane ahead right	0.00	0.0	0.00	0.0
PM Peak					
1	Site Access left right	0.04	0.0	0.05	0.0
2	Fox's Bank Lane ahead right	0.10	0.0	0.01	0.0

Table 5.3 – Site Access Junctions 9 Results – Regular Assessment

5.5.3 It is clear from the results shown in **Table 5.3** demonstrate the proposed site access junction is predicted to operate well within capacity in the future year with development scenarios.

Sensitivity Test

5.5.4 Referring to the Fox Wood Garden Village scheme, the associated Transport Assessment presented two-way committed development and development flows totalling 105 in the AM peak, and 116 in the PM peak. The relevant figures taken from the Fox Wood Garden Village Scheme can be found in **Appendix G.**

5.5.5 To incorporate these flows and provide additional comfort, as a sensitivity test, the 2030 Base flows along Fox's Bank Lane have been doubled to represent a potential future increase in traffic flow. This results in an additional traffic load of c.450 two-way trips in the AM peak, and c.370 two-way trips in the PM peak; levels of traffic significantly above those forecasted in the Fox Wood Garden Village Transport Assessment.

5.5.6 In doubling the 2030 main line flows, Curtins has provided a very robust assessment of a future year; just to demonstrate resilience in the access strategy. The full modelling outputs of the subsequent assessment are provided in **Appendix F** and the results are summarised in **Table 5.4** below:

Arm		2030 With Development (Sensitivity Test)	
		RFC	Queue
AM Peak			
1	Site Access left right	0.15	0.2
2	Fox's Bank Lane ahead right	0.01	0.0
PM Peak			
1	Site Access left right	0.11	0.1
2	Fox's Bank Lane ahead right	0.02	0.0

Table 5.4 – Site Access Junctions 9 Results – Sensitivity Test

5.5.7 It is clear from the results shown in **Table 5.4** demonstrate the proposed site access junction continues to operate well within capacity in the future year with development scenarios despite the loading of significant additional traffic as a sensitivity test.

5.6 Additional Assessment Information – Impact on the SRN

5.6.1 Referring to the **Traffic Figures 06** and **07** contained to the rear of this report, it is clear the proposed development would have a negligible impact on the SRN, comprising:

- Approximately 17 and 21 two-way trips to the M62 Junction 6 in the AM and PM peak periods respectively; and
- Approximately 9 and 11 two-way trips distribute north of the site access in the AM and PM peak periods respectively; of which some would go onwards to the M62 Junction 7.

5.6.2 Taking the worst-case impact (this being the PM peak at Junction 6) there could be approximately one additional vehicle through the junction every 3mins. This would not translate to any perceptible impact.

5.6.3 Notwithstanding, and at the time of writing, there is an existing improvement scheme underway at Junction 6 which includes improvements to capacity (specifically carriageway widening on the circulatory).

5.6.4 Finally it should also be noted that, due to the proposed development site status being allocated in the Knowsley Local Plan, the proposed development trips should be accounted for within the most recent modelling analysis provided for the Local Plan and as part of the assessment works for the upgrade of Junction 6.

6.0 Transport Planning Policy

6.1 Introduction

6.1.1 When developing scheme proposals, it is important to review the national and local transport related planning policies. This section aims to outline the key policies throughout relevant policy and guidance documents.

6.2 National Planning Policy Framework (2024)

6.2.1 The National Planning Policy Framework (NPPF) sets out the current national transport planning policy and outlines the important role that transport policies have to play in facilitating sustainable development.

6.2.2 Paragraph 11 states that:

"Plans and decisions should apply a presumption in favour of sustainable development."

6.2.3 For decision taking this means granting permission unless:

"*…any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies*."

6.2.4 Section 9 of the NPPF is entitled *Promoting Sustainable Transport* and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

"*The planning system should actively manage patterns of growth …Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.*"

6.2.5 The document emphasises the need for developments to offer a choice of sustainable modes of transport to *"reduce congestion and emissions and improve air quality and public health"* and provide *"safe and suitable access"* for all users.

6.2.6 Paragraph 115 of the NPPF states that in assessing sites that may be allocated for development in plans, or specific applications in development, it should be ensured that:

a) "sustainable transport modes are prioritised taking account of the vision for the site, 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; 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 through a vision-led approach."*

6.2.7 The development proposals have shown that safe and suitable access to the site will be achieved. Additionally, as part of the wider Halsnead Garden Village Masterplan and by virtue of the Masterplan forming an allocation in the Local Plan, the site has been is an accessible site in accordance with national policy.

6.2.8 Paragraph 116 of the 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, following mitigation, would be severe, taking into account all reasonable future scenarios."

6.2.9 This report has demonstrated any impact on the surrounding road network would not be "severe" and that the development would not result in an unacceptable impact on safety. The proposed development accords with the general principles of the NPPF.

6.3 Knowsley Local Plan Core Strategy 2016

6.3.1 The Knowsley Local Plan comprises sets out the strategic framework of development for Knowsley up to 2028 and beyond. The document provides guidance for development and regeneration for the Borough. The Local Plan outlines 9 strategic objectives as part of its vision:

- ***Sustainable Economic and Employment Growth-*** *To encourage and maintain sustainable economic and employment growth in Knowsley, complementary to that within the wider Liverpool City Region, by accommodating employment related development, improving skills within the workforce, and promoting enterprise, entrepreneurship and innovation.*
- ***Well-balanced Housing Market-*** *To promote a well-balanced housing market throughout Knowsley by providing a sufficient quantity and mix of high quality sustainable housing in appropriate locations to meet needs and demand (including for market, affordable and supported housing).*
- ***Regenerate and Transform-*** *To regenerate and transform areas of social and economic deprivation so they become more sustainable, safer, healthier and more cohesive communities, thus narrowing the gap between the richest and poorest communities in Knowsley.*
- ***Distinctive, Viable and Sustainable Town Centres-*** *To promote distinctive, viable and sustainable town centres in Huyton, Kirkby and Prescot, by improving choice, variety and quality in their range of retail, leisure and other town centre uses, together with thriving district centres, including enhancement of those in Halewood and Stockbridge Village, and a more sustainable pattern of local centres.*
- ***Quality of Place-*** *To promote the quality of place within Knowsley by protecting historically important features and enhancing the character, quality and diversity of Knowsley's built*

environment, including town centres, key employment areas, residential neighbourhoods, green spaces, conservation areas, rural areas and villages, key gateways and transport routes.

- ***Sustainable Transport-*** *To ensure new development in Knowsley encourages a reduction in the overall need to travel, and prioritises sustainable transport such as walking, cycling and public transport. This will help to ensure accessibility and linkage between housing areas and employment locations, shopping, leisure, culture, health care, education, community and sporting facilities, green spaces and other services.*
- ***Manage Environmental Resources-*** *To manage environmental resources in Knowsley prudently by focusing on sustainable development, recycling and renewable technologies, minimising pollution, reducing carbon emissions and responding to the impacts of climate change.*
- ***Green Infrastructure in Rural Areas-*** *To* support and strengthen the role of Knowsley's Green Infrastructure (in rural and urban areas), promote biodiversity, and maintain the character of rural settlements including Cronton, Tarbock and Knowsley Village.
- ***Promote Health and Wellbeing in Knowsley-*** *To address existing health inequalities and encourage enhancements to the health and wellbeing of Knowsley's residents by ensuring a health promoting environment and provision of healthy lifestyle options for those living and working in the borough.*

6.3.2 It is considered that the proposed development is in accordance with the above objectives, and it has been demonstrated that the site is accessible by sustainable modes of transport including walking, cycling and public transport.

6.3.3 Also as covered throughout this TA, the proposed development site sits within the wider "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). Policy SUE2 requires the site to:

"a) deliver sustainable development;

b) demonstrate a comprehensive approach to the development of the relevant Sustainable Urban Extension and to infrastructure provision (including, subject to the requirements of Policy CS27: Planning and Paying for Infrastructure, provision of an appropriate proportion of financial and/or 'in kind' contributions towards strategic and/or local infrastructure required to enable the comprehensive development of the sites);

c) be of a high design quality which enhances local distinctiveness and identity (incorporating localised design features where appropriate) and provides high levels of physical and visual integration and connectivity with adjacent urban development (see Policy CS19: Design Quality and Accessibility in New Development);

d) be carried out in accordance with the development principles and using any appropriate development assessment tools as required by Policy CS2: Development Principles;

e) deliver development (including the principal uses defined in Policy SUE1: Sustainable Urban Extensions) which will help to meet borough-wide and local needs;

f) include appropriate provision for public open space (POS), walking and cycling routes as part of the Green Infrastructure network integrating with existing POS, recreational assets and areas of ecological value (see Policy CS8: Green Infrastructure and Policy CS21: Greenspaces and Trees);

g) provide good transport linkages within the relevant Sustainable Urban Extension and with surrounding areas (see Policy CS7: Transport Networks);

h) Protect or enhance historic and architectural assets where appropriate (see Policy CS20: Managing the Borough's Historic Environment);

i) Address flood risk by locating development in areas of low probability of flooding and including flood mitigation measures where necessary (see Policy CS24: Flood Risk); and

j) Provide a clearly defined edge to the developed area."

6.3.4 This TA demonstrates the proposed development meets the above policy objectives. The proposed development can be considered to be in accordance with the relevant Local Plan Policy from a traffic and transport perspective.

6.4 Merseyside Local Transport Plan

6.4.1 The Local Transport Plan sets out implementation plans for the medium and long term and aims to improve transport within the Merseyside region. The Third Local Transport Plan envisions the following;

"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".

6.4.2 The Local Transport Plan has six goals;

- *"Help create the right conditions for sustainable economic growth by supporting the priorities of the Liverpool City Region, the Local Enterprise Partnership and the Local Strategic Partnerships.*
- *Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.*
- *Ensure the transport system promotes and enables improved health and wellbeing and road safety.*
- *Ensure 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.*
- *Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.*
- *Maintain our assets to a high standard."*

6.4.3 The proposed development is in line with the LTP goals.

6.5 'Ensuring a Choice of Travel' SPD

6.5.1 The 'Ensuring a Choice of Travel' SPD was developed in partnership with the Merseyside Local Authorities and Merseytravel in order to provide consistent guidance to developers on access and transport requirements for new development across the wider Merseyside area. Its overall objectives are:

- *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;*
- *Improving 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.*

6.5.2 This TA has demonstrated the proposed development is in accordance with the SPD. Full reasoning as to why the maximum car parking standards have not been met is provided.

6.6 Conclusions

6.6.1 The proposed development meets the sustainable objectives of the National Planning Policy Framework and its residual traffic impacts are not severe. The proposals are also in accordance with regional and local transport planning policies, providing a suitable level of parking and encouraging uptake in sustainable modes.

6.6.2 From a traffic and transportation perspective there are no reasons why the development proposals should not be granted planning approval.

7.0 Summary and Conclusions

7.1 Summary

7.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site layout is provided in **Appendix A.**

7.1.2 A review of baseline conditions in the vicinity of the site has been undertaken. It is noted the site forms part of the "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established. The wider Masterplan is provided in **Appendix B**.

7.1.3 Following a review of road collision statistics, it is considered that are no existing safety issues that would be exacerbated by the proposed development.

7.1.4 Details on the site access and parking proposals have been provided. Pedestrian access is to be provided along Fox's Bank Lane to the north (and onwards towards Whiston via the Fox Wood Garden Village development and wider Masterplan), and into the Tritax Symmetry development in the south (and onwards into the wider Masterplan including the Country Park). Justification for the proposed levels of car parking has been provided.

7.1.5 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.

7.1.6 Robust traffic modelling demonstrates the proposed access operates with significant spare capacity. Traffic associated with proposed development would not have a perceptible impact on the surrounding highway network from the perspective of both highway capacity and safety. Additional sensitivity testing considering the site access and the M62 Junction 6 and 7 are provided.

7.1.7 A review of relevant local and national transport planning guidance has been undertaken. It is considered that the proposed development is in general accordance with such policies and guidance.

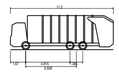
7.2 Conclusions

7.2.1 Based on the above, it is considered that there are no highways and transportation reasons to refuse planning permission for the proposed development.

Drawings

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Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

Rev:	Description:	Date:	By:	Chkd:
P03	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS 11.2m REFUSE

Drawn By	Designed By	Checked By
P	PB	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:500

Project Code - Originator - Function - Spatial - Form - Discipline - Number	Revision
087052 - CUR - XX - XX - D - T - 05001	P03

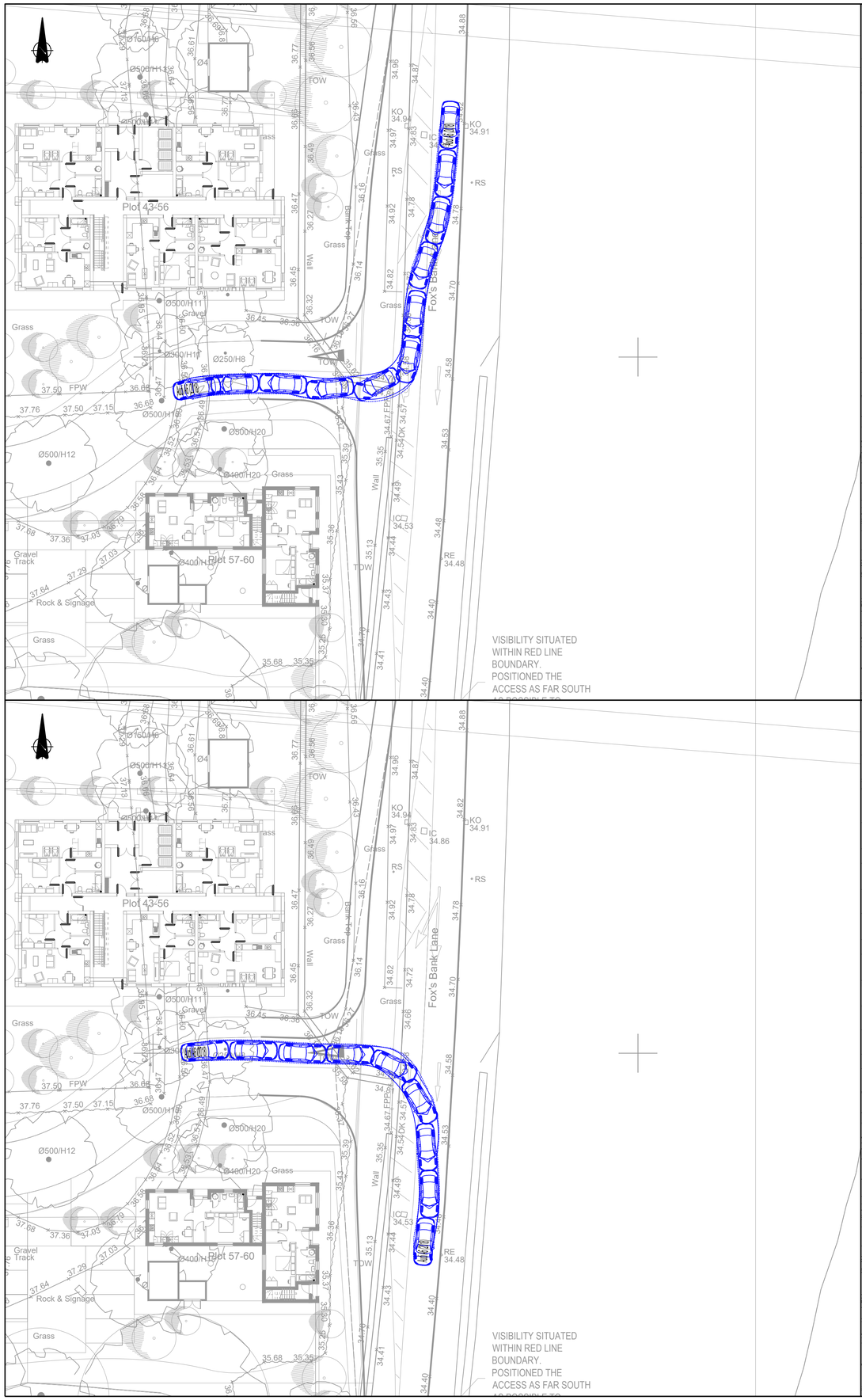
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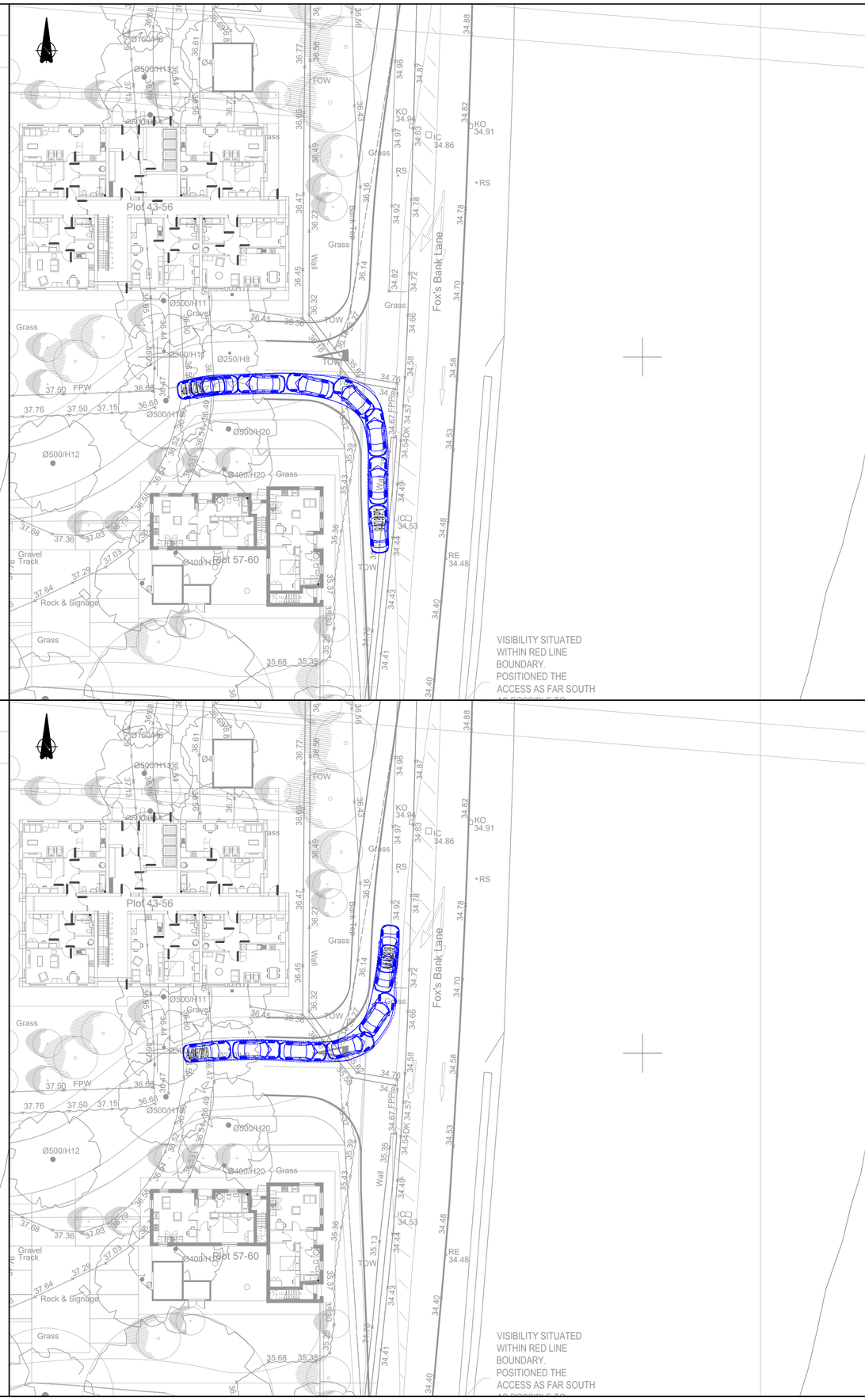
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Audi A6 (2018)	
Overall Length	4.939m
Overall Width	2.114m
Overall Body Height	1.457m
Min Body Ground Clearance	0.142m
Max Track Width	1.875m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.950m





Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY **S0**

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS LARGE CAR

Drawn By	Designed By	Checked By
HD	HD	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:250

Project Code - Originator - Function - Spatial - Form - Discipline - Number: 087052 - CUR - XX - XX - D - T - 05002

Revision: P02

'ILF:S:\Projects\087052-Halsnead_Farm\Q4-Production\4A-Models-Drawings\TP\CAD\05\

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Dennis Sabre Fire Tender (LWB)

Overall Length	7.700m
Overall Width	2.410m
Overall Body Height	3.517m
Min Body Ground Clearance	0.415m
Track Width	2.380m
Lock to lock time	5.00s
Kerb to Kerb Turning Radius	7.400m

Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS FIRE TENDER

Drawn By	Designed By	Checked By
PB	PB	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:500

Project Code - Originator - Function - Spatial - Form - Discipline - Number	Revision
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Project:
HALSNEAD FARM

Drg Title:
ACCESSIBILITY
INDICATIVE WALKING CATCHMENT

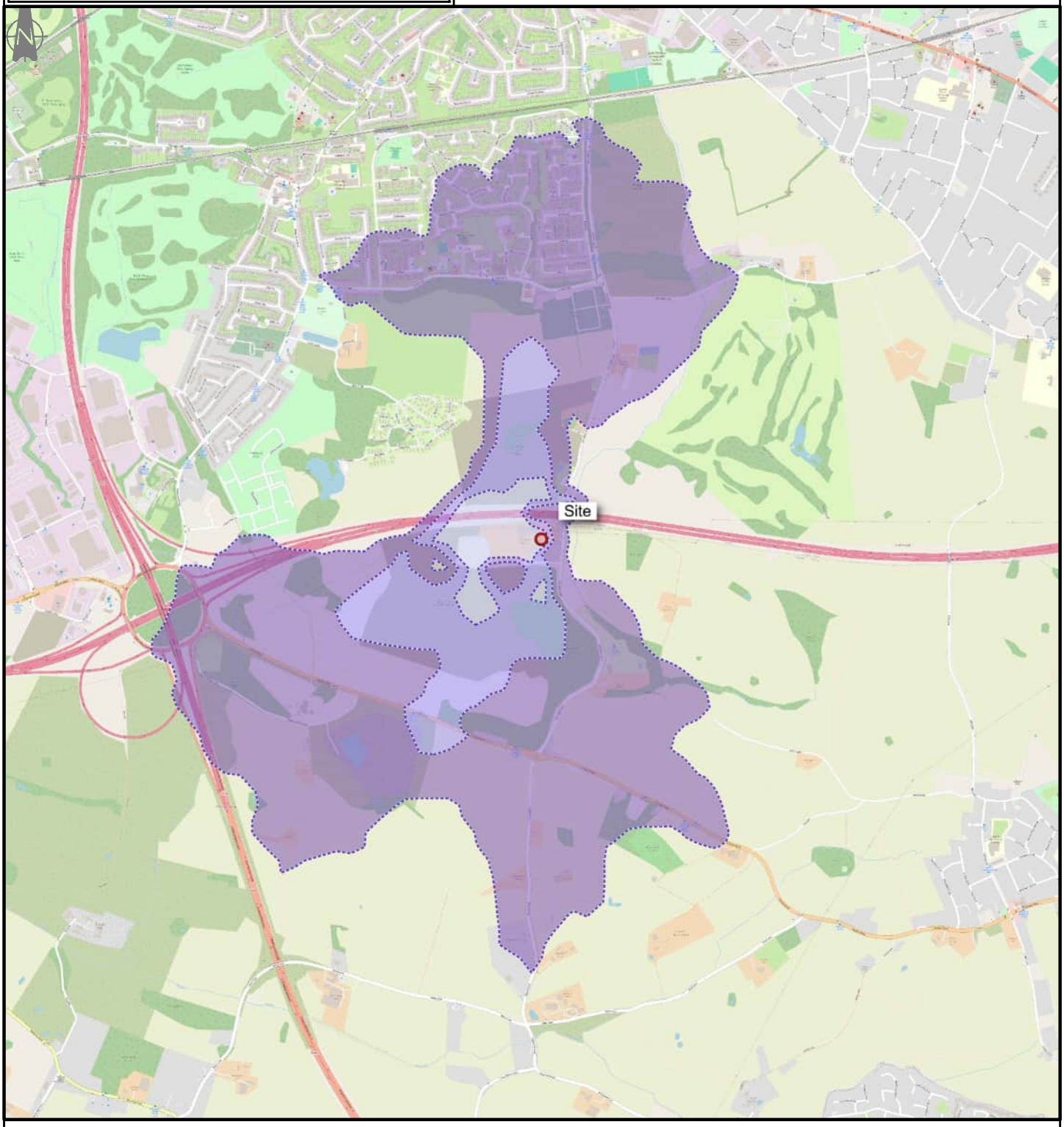
Status:
PRELIMINARY

Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
087052	CUR	XX	XX	G	TP	06001	P01



KEY:
Site
Walking Catchment
2000m
1000m
500m

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Project: HALSNEAD FARM

Status: PRELIMINARY

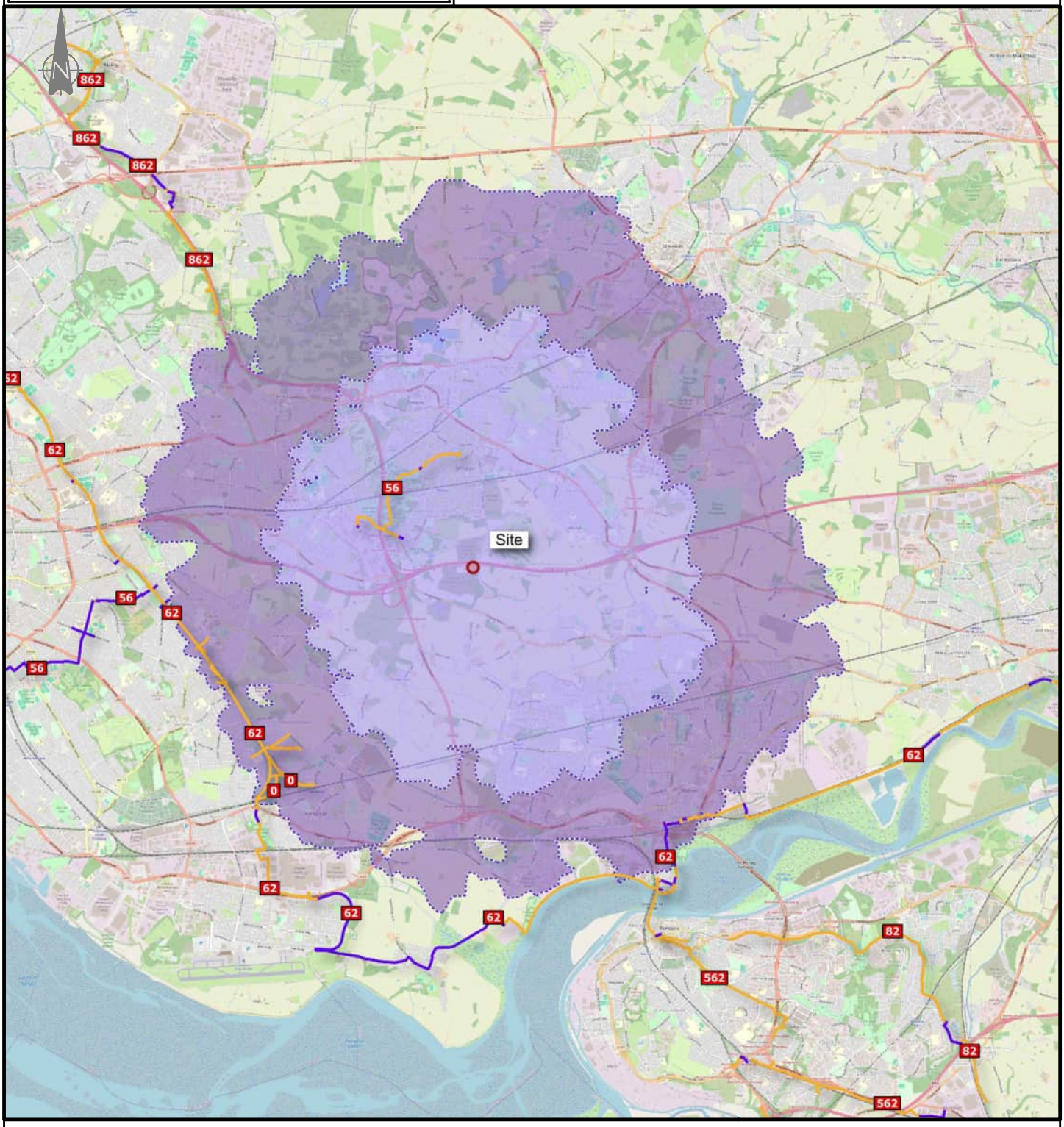
Drg Title: ACCESSIBILITY
INDICATIVE CYCLE CATCHMENT

Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
087052	CUR	XX	XX	G	TP	06002	P01



KEY: Site

Cycling Catchment
8000m
5500m

National Cycle Network Public
On Road Cycle Route
Traffic-free Cycle Route

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Project: HALSNEAD FARM

Drg Title: ACCESSIBILITY INDICATIVE PUBLIC TRANSPORT CATCHMENT

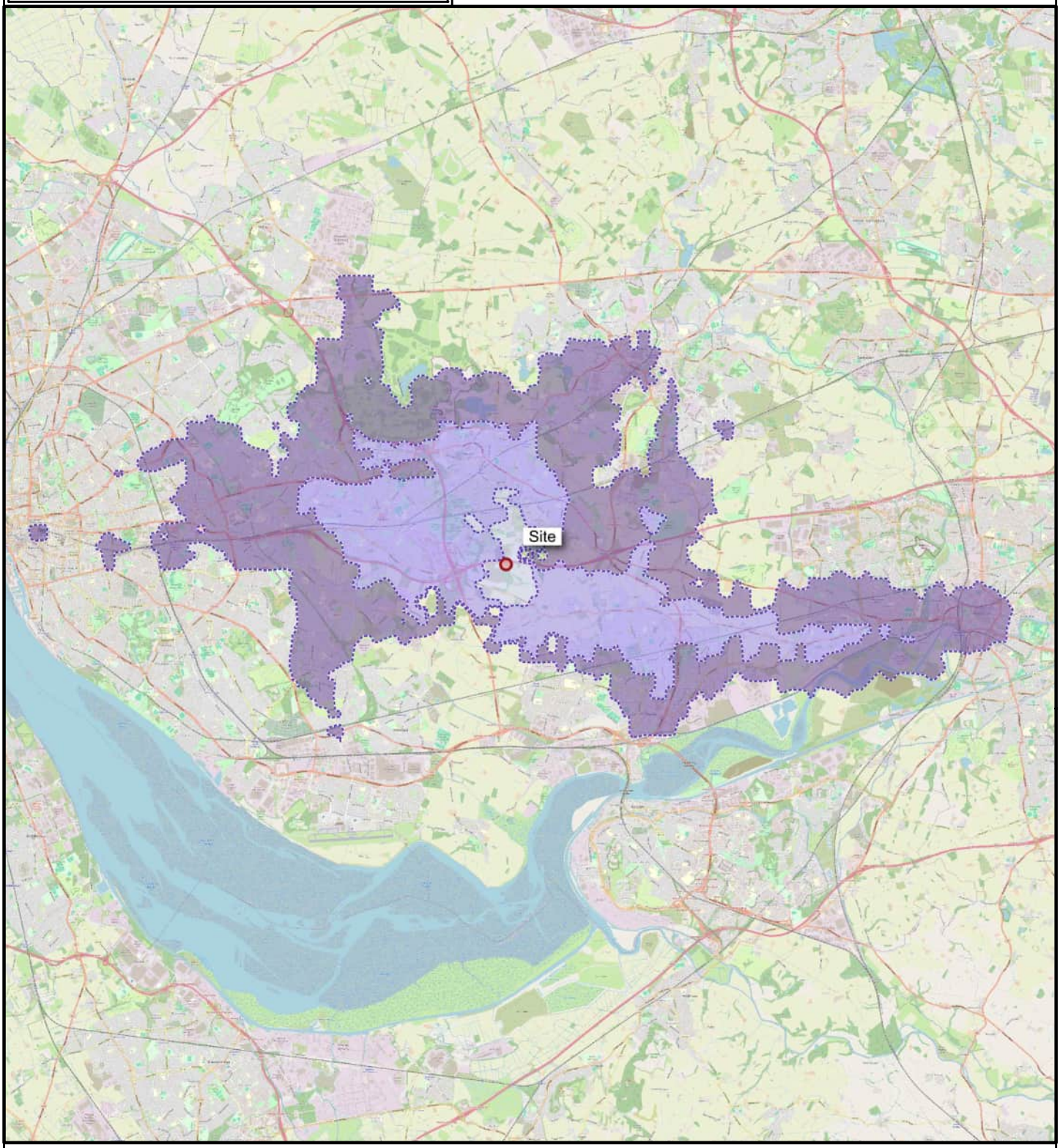
Status: PRELIMINARY

Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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KEY:
- Site
- Public Transport Catchment
  - 60 minutes
  - 40 minutes
  - 20 minutes

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30MPH GATEWAY WOULD NEED TO BE RELOCATED TO THE NORTH OF THE PROPOSED DESIGN

VISIBILITY SITUATED WITHIN RED LINE BOUNDARY. POSITIONED THE ACCESS AS FAR SOUTH AS POSSIBLE TO REMAIN WITHIN RED LINE.

EXISTING TREES AND VEGETATION WOULD NEED TO BE REMOVED TO SATISFY VISIBILITY REQUIRMENTS

Fox's Bank Lane

Plot 33
Plot 34
Plot 35
Plot 39-42
Plot 43-56
Plot 36-38
Plot 61-66
Plot 57-60

STN1
STN2A
STN 1D

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KEY:

- PROPOSED RAISED KERB
- PROPOSED FLUSH KERB / BACK OF FOOTWAY
- PROPOSED ROAD MARKINGS
- 2.40 x 43.00m — PROPOSED VISIBILITY SPLAYS (30mph)
- RED LINE BOUNDARY

Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: ACCESS ARRANGEMENT

Drawn By	Designed By	Checked By
PB	PB	JA

Project No	Date	Scales @ A1
087052	22/07/25	1:250

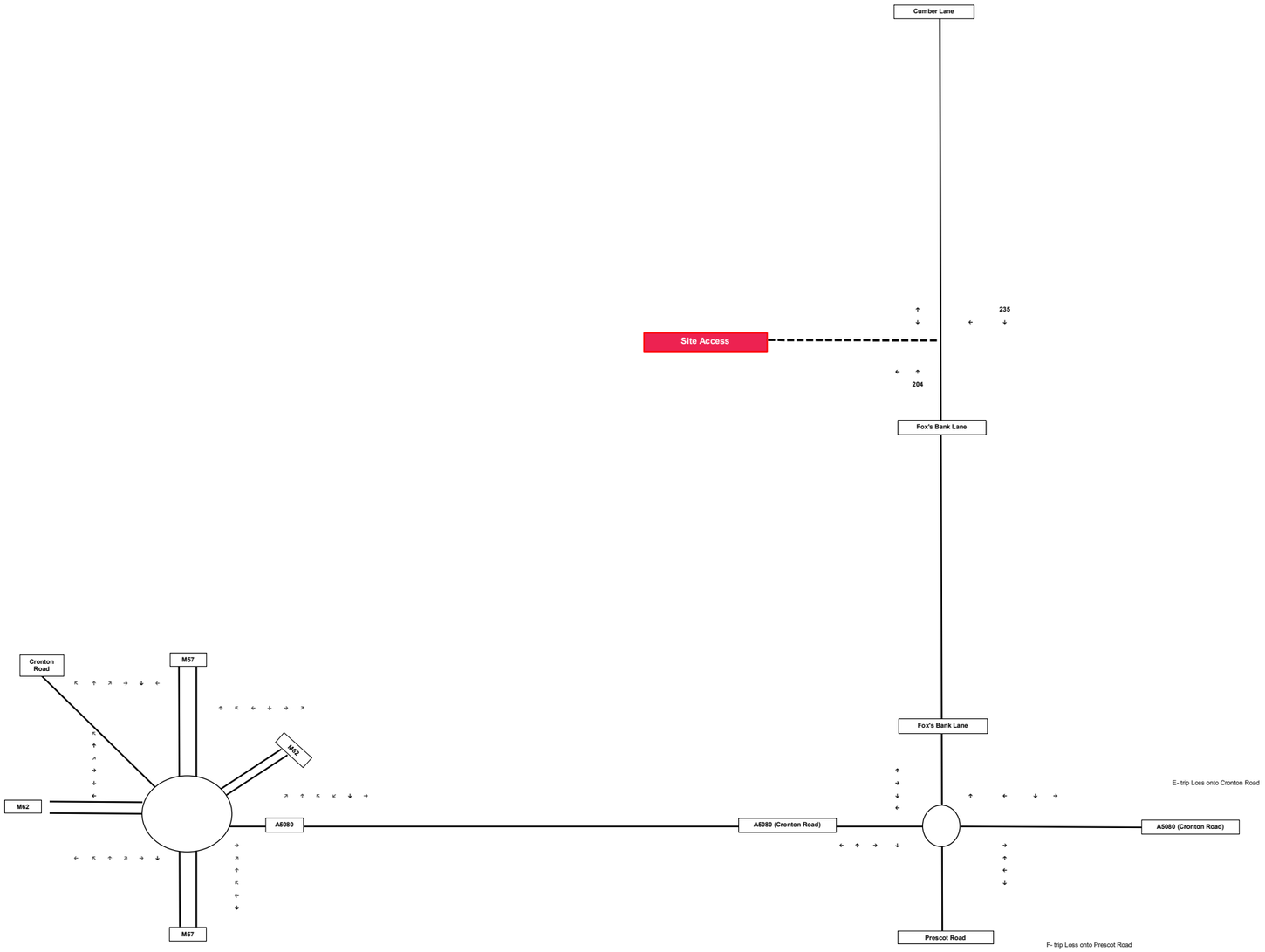
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Revision: P02

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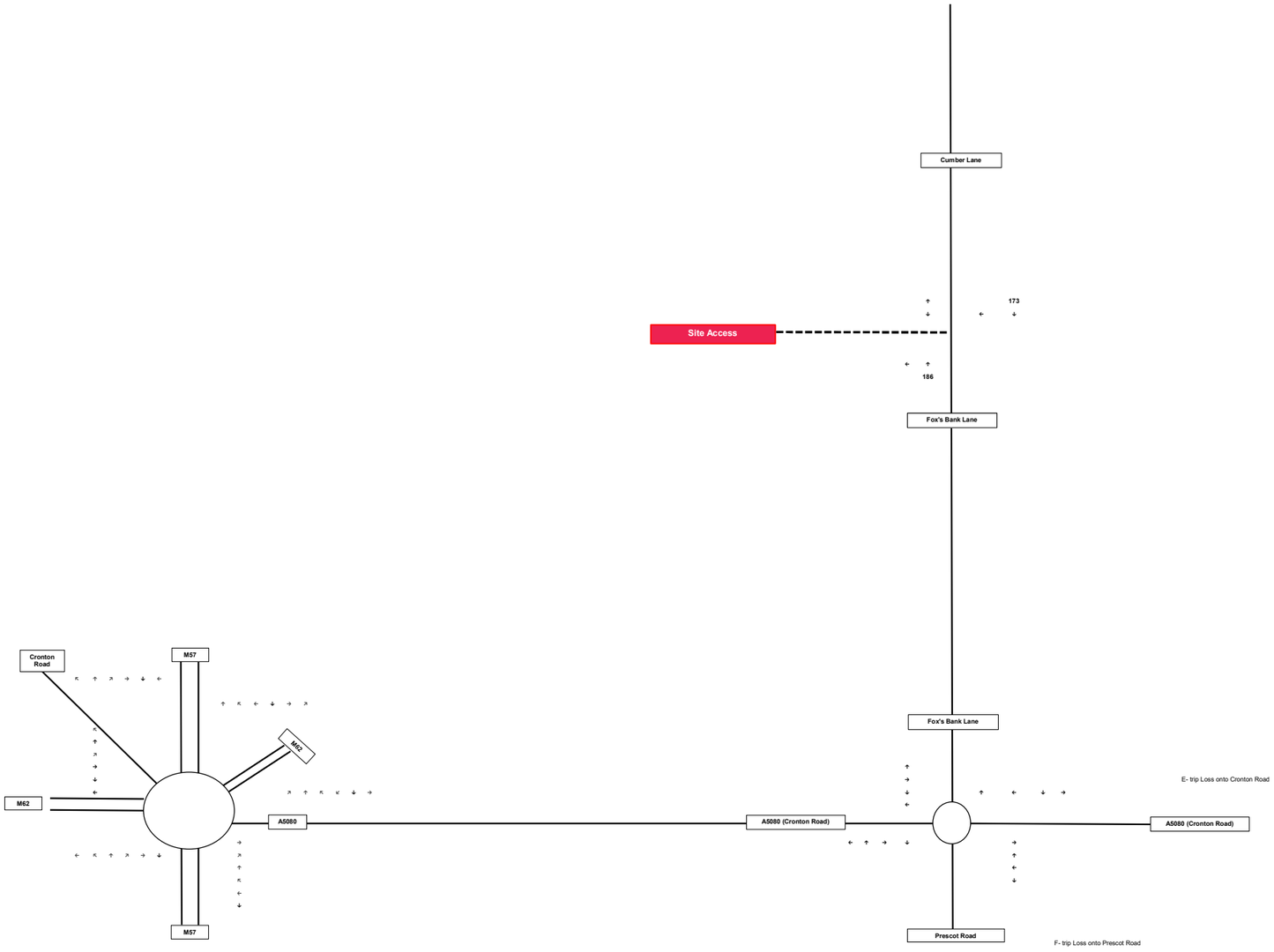
Traffic Figures

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



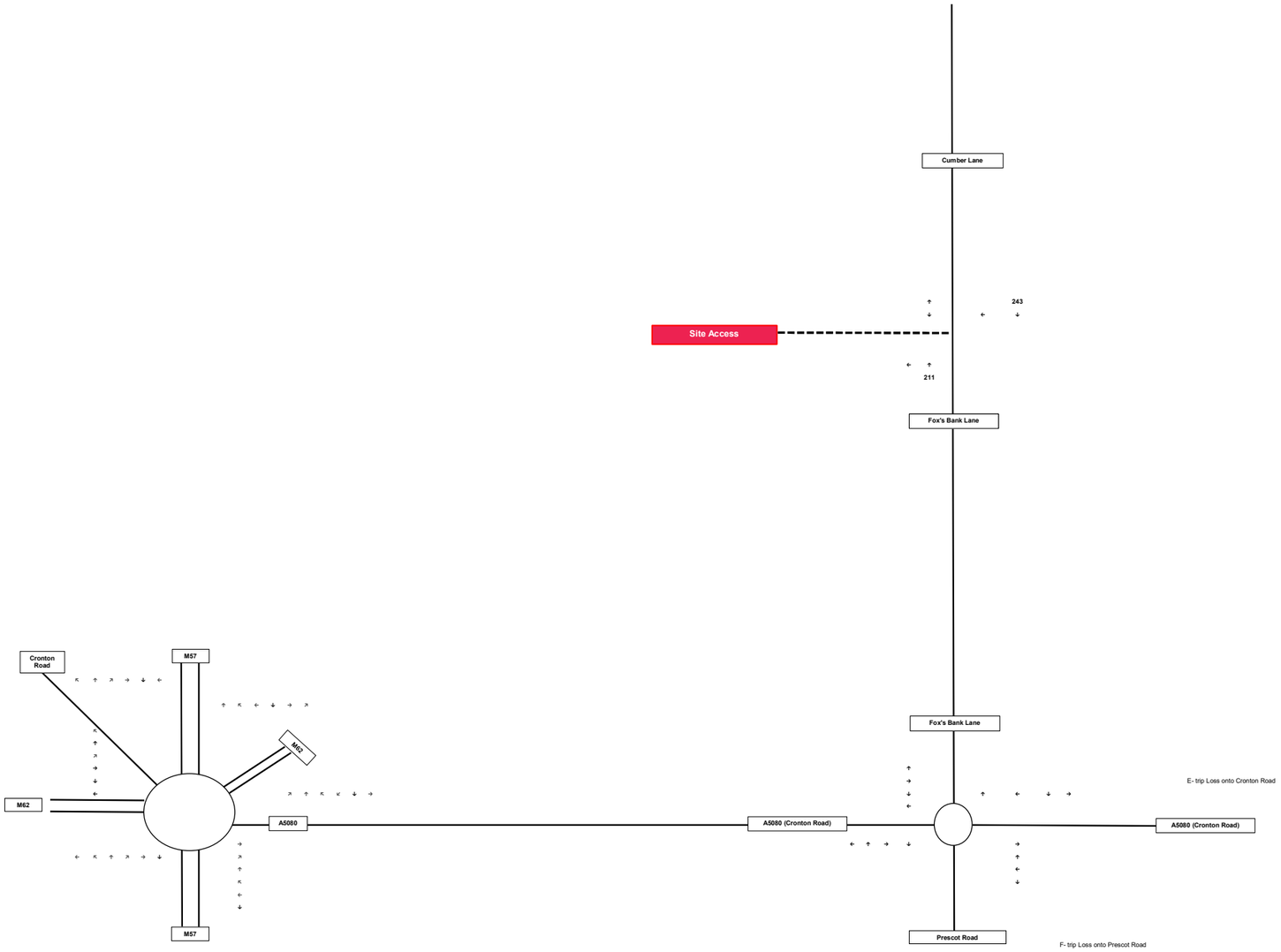
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	Halsnead Farm		Traffic Figure 01

Notes: PCUs in Black
HGVs in Red
Vehicles In Green



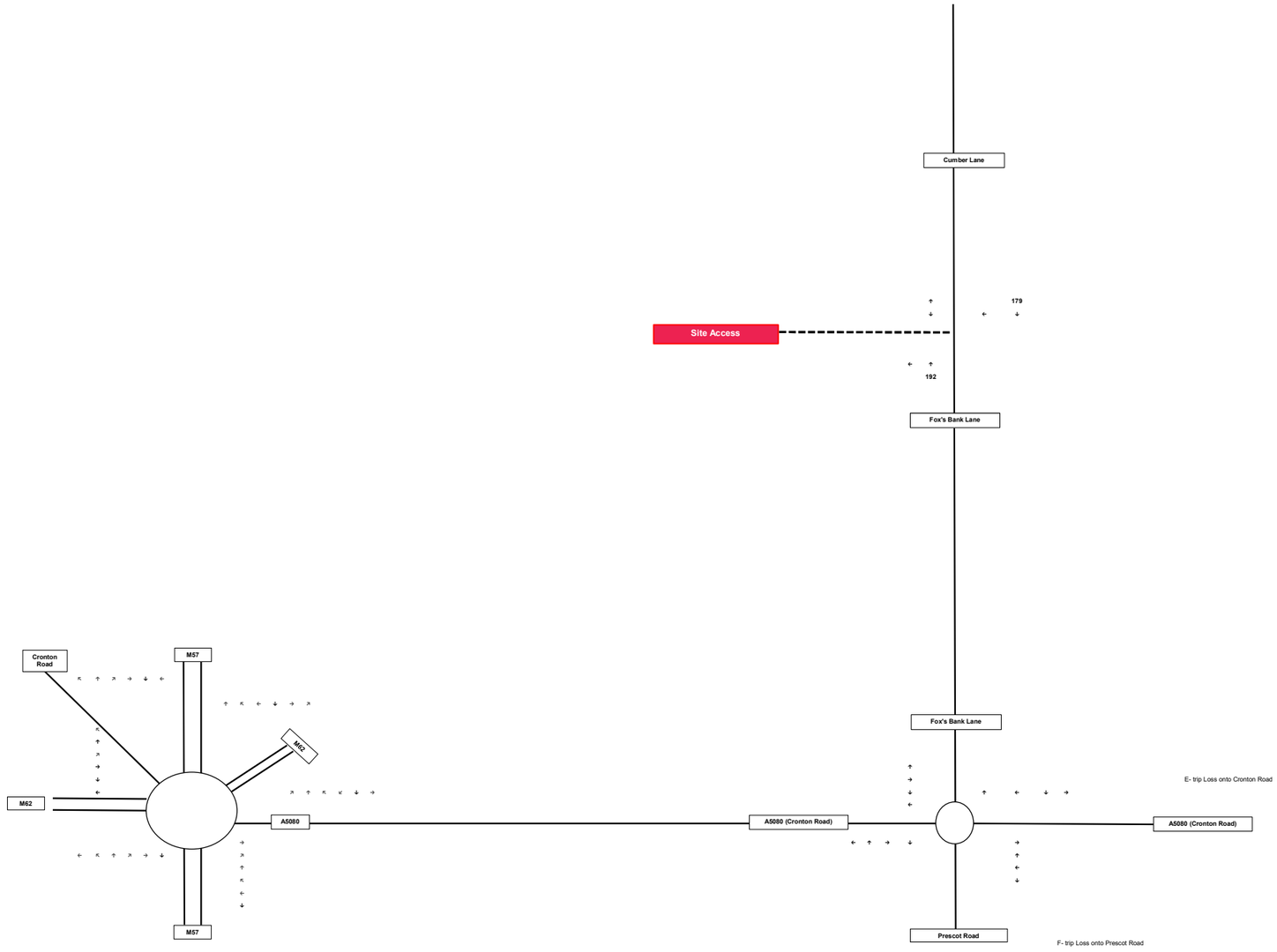
Curtins	2025 Base Flows PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 02

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



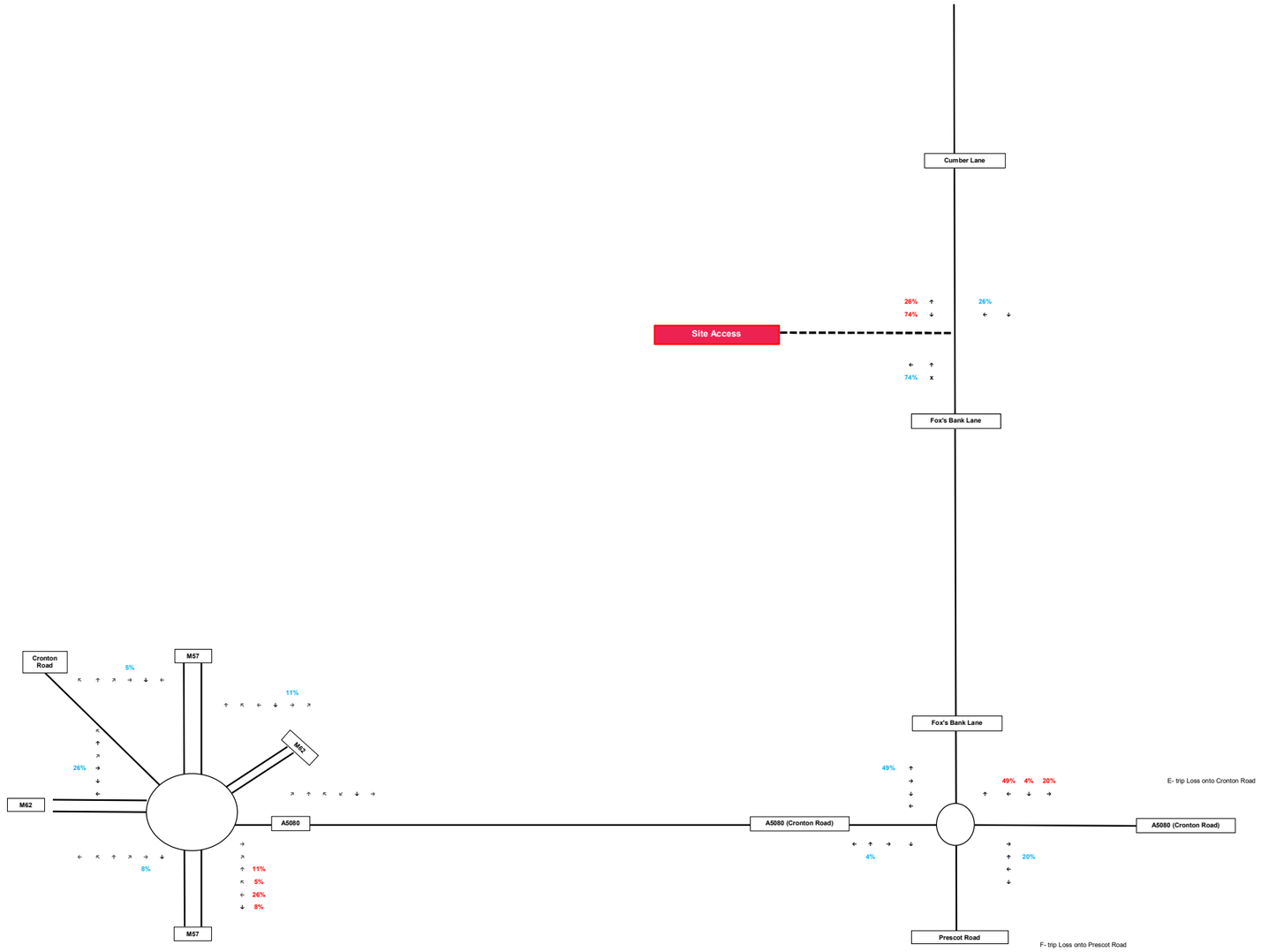
Curtins	2030 Base Flows AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 03	

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



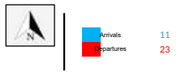
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	Halsnead Farm		Traffic Figure 04

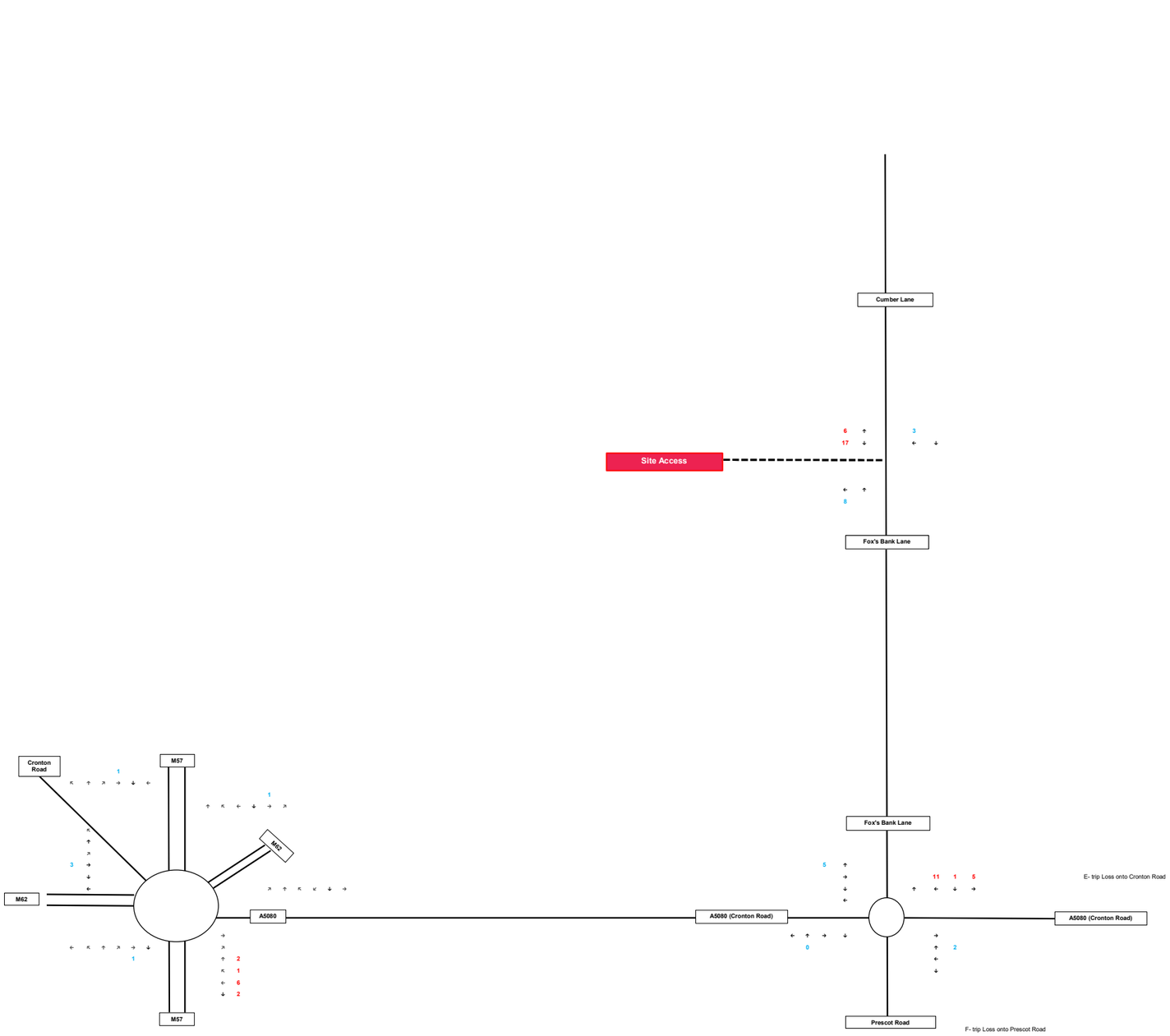
Arrivals
Departures



Curtins	Proposed Development Traffic Distribution	11 November 2025	087052
	Halsnead Farm		Traffic Figure 05

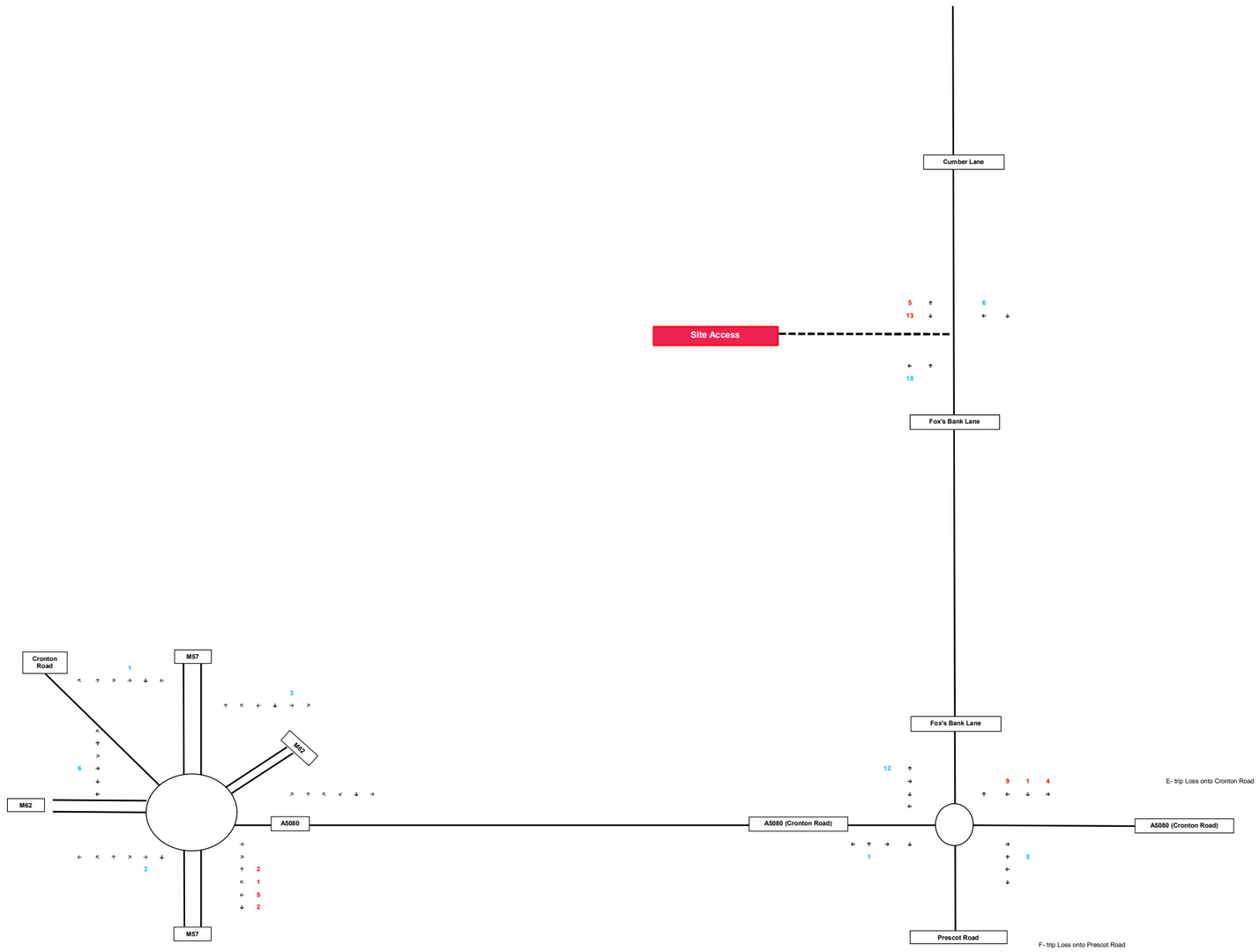
Notes: PCUs in Black
HGVs in Red
Vehicles in Green





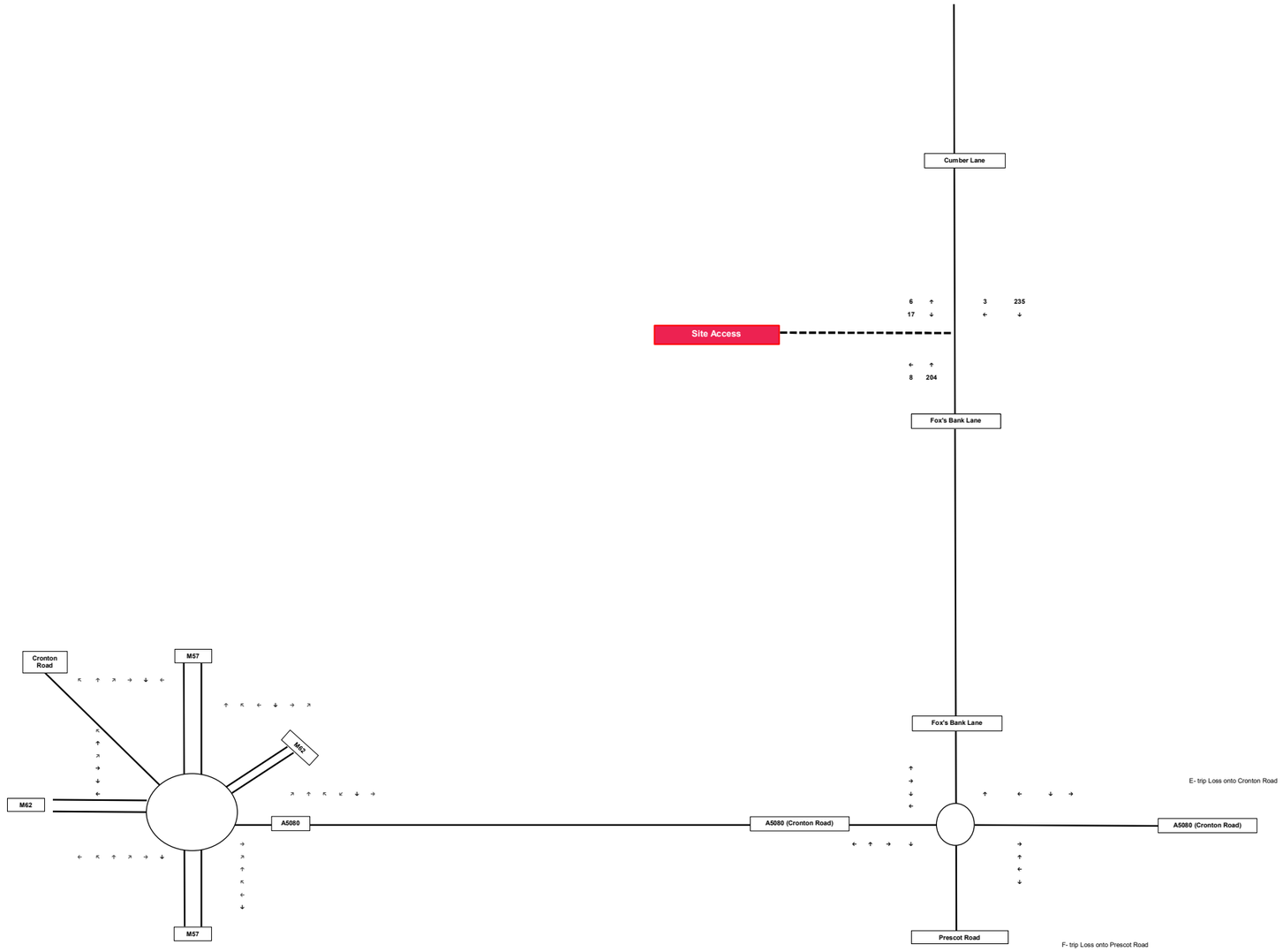
Curtins	Trip Assignment AM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 06

Arrivals 24
Departures 18



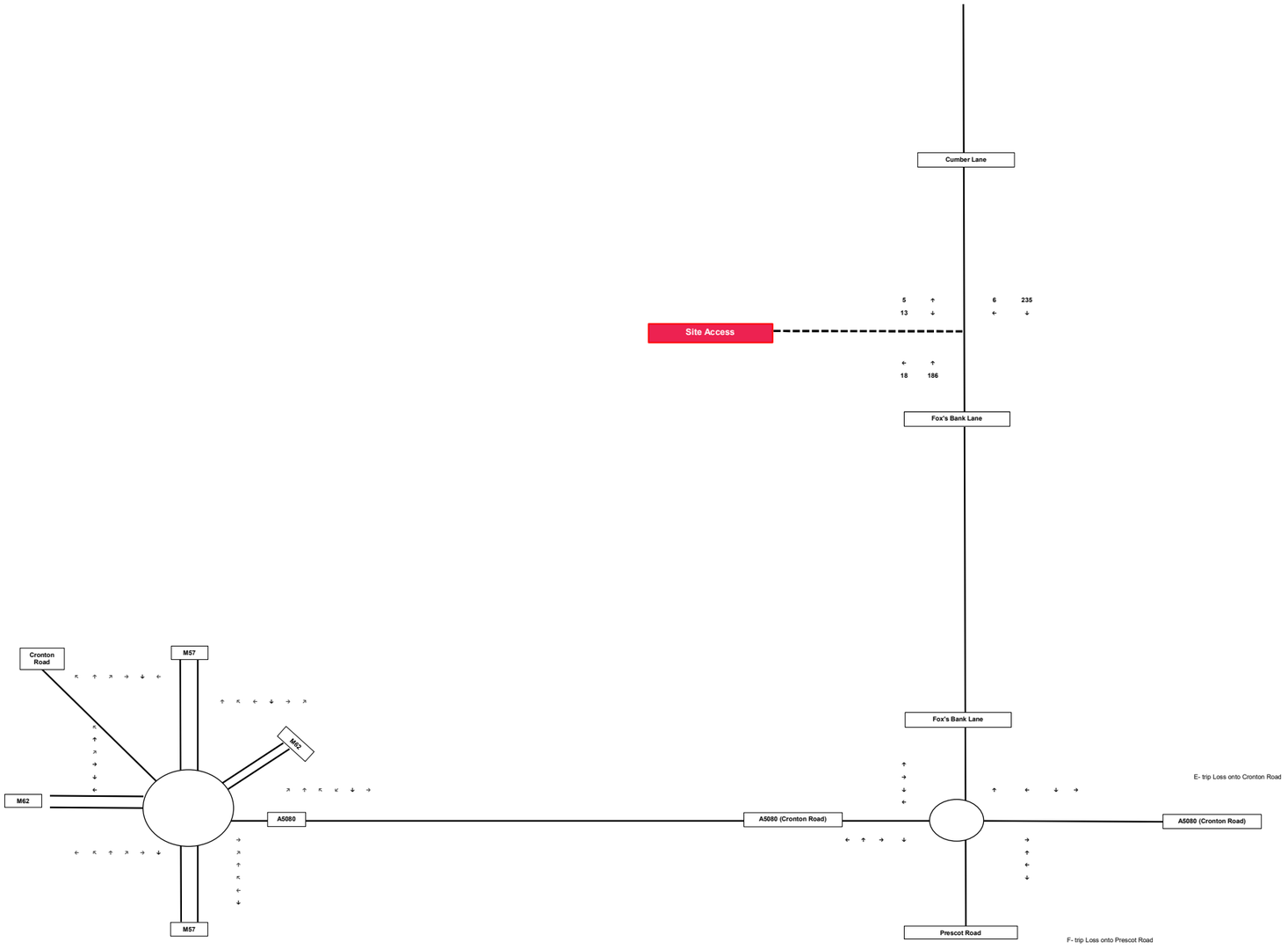
Curtins	Trip Assignment PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 07

Notes: PCUs in Black



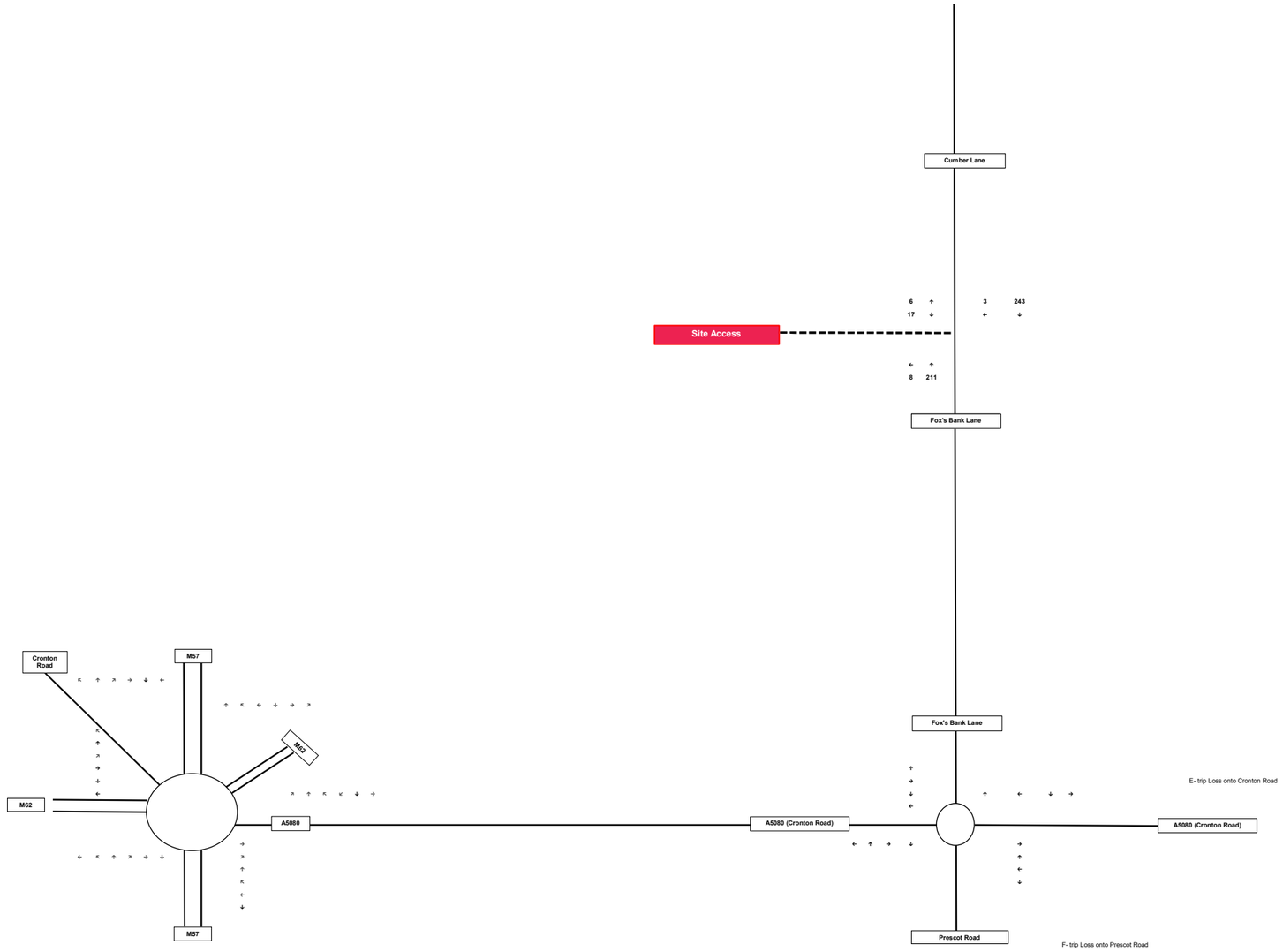
Curtins	2025 Base + Dev AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 08	

Notes: PCUs in Black



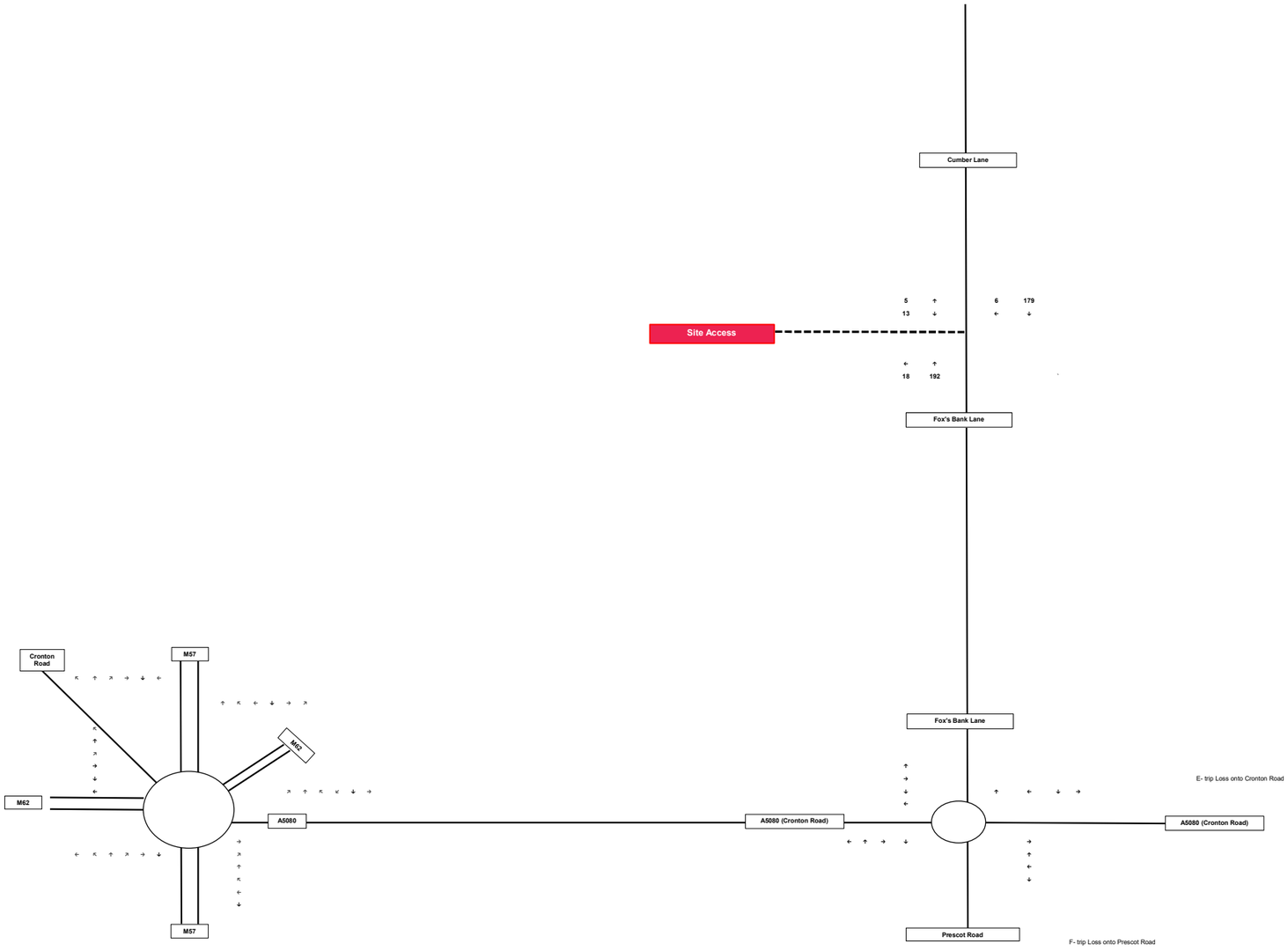
Curtins	2025 Base + Dev PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 09

Notes: PCUs in Black



Curtins	2030 Base + Dev AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 10	

Notes: PCUs in Black



Curtins	2030 Base + Dev PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 11

Appendix A – Proposed Site Layout



Drawing Title: Proposed Site Plan
Date: 28/09/2025
Drawing no: 1367 - 1001
Scale: 1:1250 @ A1
Drawn: HB

revision: B
revision notes:

A	03/11/2025	Updated to reflect house type updates
B	07/11/2025	Red line upated

DK-Architects
26 Old Haymarket
Liverpool
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mail@dk-architects.com E
www.dk-architects.com W

Appendix B – Halsnead Garden Village Masterplan

Illustrative Masterplan



NTS

- Residential development area (urban blocks)
- Employment development area (indicative buildings)
- Main Street
- Residential Avenue
- Access streets and lanes
- Proposed Primary School (indicative layout)
- Existing major tree groups

Appendix C – CrashMap Data


Knowsley cemetary
Blundells Ln
Fox's Bank Ln
D L G Fabrication
Fox Wood
Garden Village
Taylor Wimpey Fox
Wood Garden Village
Group Travel
M62
M62
Shaw Entry
Shaw Entry
Site Location
Fox's Bank Ln
Fox's Bank Ln
Liverpool Sun & Air

Appendix D – TRICS Outputs

Filtering Summary:

Land Use: 03/B RESIDENTIAL/AFFORDABLE/LOCAL AUTHORITY HOUSES

Selected Trip Rate Calculation Parameter Range: 8 - 516 DWELLS

Actual Trip Rate Calculation Parameter Range: 10 - 228 DWELLS

Date Range: Minimum: 1/1/2016 Maximum: 9/5/2023

Parking Spaces Range: All Surveys Selected

Parking Spaces Per Dwelling Range: All Surveys Selected

Bedrooms Per Dwelling Range: All Surveys Selected

Percentage of Dwellings Privately Owned: All Surveys Selected

Population Within 500m Range:

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TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use: 03 - Site area

Category: B - Number of dwellings

Total Vehicles

Selected regions and areas:

This section displays the number of survey days per TRICS® sub-region in the selected set.

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Primary Filtering Selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	DWELLS
Actual Range:	to (units:******)
Range Selected by User:	8 to 516 (units:******)
Parking Spaces Range:	11 - 220

Public Transport Provision:

Selection by:	All Surveys Included
Date Range:	01/01/16 to 05/09/23

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	0
Direction ATC Count	0

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines

Selected Locations:

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicle Counts:

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Secondary Filtering Selection:

Use Class:

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

859 - 5500

Population within 1 mile:

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

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Petrol filling station:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

COVID-19 Restrictions:

No

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

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LIST OF SITES relevant to selection parameters:

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TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES

Total Vehicles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00					
06:00-07:00					
07:00-08:00	11	48	0.060	0.195	0.255
08:00-09:00	11	48	0.124	0.255	0.379
09:00-10:00	11	48	0.118	0.158	0.276
10:00-11:00	11	48	0.105	0.128	0.233
11:00-12:00	11	48	0.109	0.113	0.222
12:00-13:00	11	48	0.122	0.101	0.223
13:00-14:00	11	48	0.113	0.126	0.239
14:00-15:00	11	48	0.143	0.152	0.295
15:00-16:00	11	48	0.221	0.135	0.356
16:00-17:00	11	48	0.218	0.111	0.329
17:00-18:00	11	48	0.265	0.199	0.464
18:00-19:00	11	48	0.197	0.143	0.340
19:00-20:00	**1**	**19**	**0.316**	**0.158**	**0.474**
20:00-21:00	1	19	0.158	0.105	0.263
21:00-22:00					
22:00-23:00					
23:00-00:00					
Totals Rates:			2.269	2.079	4.348

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter Summary:

Trip rate parameter range selected:	8 - 516 (units: DWELLS)
Survey date date range:	N/A - N/A
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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Appendix E – Census Distribution

Distribution Summary

TABLE 1							
Distribution							
Knowsley	**26.0%**						
Halton	**9.4%**	E					
Warrington	4.9%	E					
Cheshire East	0.5%	A					
Cheshire West	1.1%	F	G				
Bolton	0.2%	A					
Salford	1.0%	A					
Rochdale	0.2%	A					
Stockport	0.2%	A					
Wigan	1.0%	A					
Trafford	0.7%	A					
Manchester	1.3%	A					
Preston	0.2%	A					
South Ribble	0.3%	A					
West lancashire	1.0%	A					
Liverpool	39.4%						
Sefton	3.7%	B					
St Helens	6.2%	A					
Wirral	2.3%	B	D				
Other	0.4%	A	B	C	D	E	F
		G					
Total	100.0%						

Route	**DIST**
A	**26%**
B	**11%**
C	**5%**
D	**26%**
E	**20%**
F	**4%**
G	**8%**
Total	**100%**

TABLE 2				
E02001327 : Knowsley 001	0.4%	A		
E02001329 : Knowsley 003	0.6%	A		
E02001330 : Knowsley 004	0.2%	A		
E02001331 : Knowsley 005	2.4%	A		
E02001332 : Knowsley 006	0.1%	B	C	
E02001333 : Knowsley 007	2.3%	A		
E02001334 : Knowsley 008	0.4%	D	B	
E02001335 : Knowsley 009	3.9%	A		
E02001336 : Knowsley 010	0.3%	B	C	
E02001337 : Knowsley 011	0.7%	A		
E02001338 : Knowsley 012	0.5%	B	D	C
E02001339 : Knowsley 013	0.9%	A		
E02001340 : Knowsley 014	0.4%	D		
E02001341 : Knowsley 015	3.67%	A	C	
E02001342 : Knowsley 016	2.09%	C	D	
E02001343 : Knowsley 017	4.49%	E		
E02001344 : Knowsley 018	0.31%	F		
E02001345 : Knowsley 019	0.51%	F		
E02001346 : Knowsley 020	1.85%	F		
Total	26.0%			

TABLE 3				
E02001347 : Liverpool 001	0.9%	B		
E02001348 : Liverpool 002	0.1%	B		
E02001350 : Liverpool 004	0.2%	B	D	
E02001351 : Liverpool 005	0.4%	B		
E02001352 : Liverpool 006	0.3%	D	B	
E02001354 : Liverpool 008	0.2%	D	B	
E02001355 : Liverpool 009	0.1%	D	B	
E02001356 : Liverpool 010	0.2%	D	B	
E02001357 : Liverpool 011	0.1%	D	B	
E02001358 : Liverpool 012	0.0%	D	B	
E02001359 : Liverpool 013	0.1%	D	B	
E02001360 : Liverpool 014	0.4%	D	B	
E02001362 : Liverpool 016	0.1%	D	B	
E02001364 : Liverpool 018	0.1%	D	B	
E02001366 : Liverpool 020	0.3%	D	B	
E02001367 : Liverpool 021	0.2%	D	B	
E02001368 : Liverpool 022	0.5%	D		
E02001369 : Liverpool 023	0.5%	D	B	
E02001370 : Liverpool 024	0.4%	D	B	
E02001372 : Liverpool 026	2.2%	D	B	
E02001373 : Liverpool 027	0.7%	D	B	
nnnnnn E02001374 : Liverpool 028	0.8%	D		
E02001375 : Liverpool 029	0.2%	D	B	
E02001376 : Liverpool 030	0.2%	D		
E02001377 : Liverpool 031	1.9%	D		
E02001378 : Liverpool 032	0.2%	D		
E02001380 : Liverpool 034	0.2%	D		
E02001381 : Liverpool 035	0.7%	D		
E02001382 : Liverpool 036	0.2%	D		
E02001383 : Liverpool 037	0.3%	D		
E02001384 : Liverpool 038	0.2%	D		
E02001385 : Liverpool 039	0.2%	D		
E02001386 : Liverpool 040	0.7%	D	B	
E02001387 : Liverpool 041	0.6%	D		
E02001388 : Liverpool 042	0.5%	D		
E02001389 : Liverpool 043	0.2%	D		
E02001390 : Liverpool 044	0.2%	D		
E02001391 : Liverpool 045	0.4%	F	C	
E02001392 : Liverpool 046	0.3%	F	C	
E02001393 : Liverpool 047	0.9%	F	C	
E02001394 : Liverpool 048	0.6%	D		
E02001395 : Liverpool 049	0.5%	D		
E02001396 : Liverpool 050	0.4%	D	G	
E02001397 : Liverpool 051	0.8%	F	C	
E02001398 : Liverpool 052	0.3%	D	G	
E02001399 : Liverpool 053	0.1%	D	G	
E02001400 : Liverpool 054	0.2%	E	G	
E02001401 : Liverpool 055	1.7%	G	E	
E02001402 : Liverpool 056	0.3%	G	C	
E02001403 : Liverpool 057	0.4%	G		
E02001404 : Liverpool 058	5.7%	G		
E02001405 : Liverpool 059	0.5%	G	E	
E02006932 : Liverpool 060	3.6%	D		
E02006933 : Liverpool 061	3.3%	D		
E02006934 : Liverpool 062	4.1%	D		
Total	39.4%			

Appendix F – Model Outputs

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Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462
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Filename: Site Access-Fox's Bank Lane.j9
Path: \\LI-FS-1\Projects\087052-Halsnead_Farm\Q3-Design\3B-Models\TP
Report generation date: 11/11/2025 13:23:17

»2025 Base + Dev, AM
»2025 Base + Dev, PM
»2030 Base + Dev , AM
»2030 Base + Dev, PM
»2030 Sensitivity Test + Dev, AM
»2030 Sensitivity Test + Dev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base + Dev									
Stream B-AC	D3	0.1	8.68	0.06	A	D4	0.0	8.46	0.04	A
Stream C-AB		0.0	5.44	0.00	A		0.0	5.45	0.01	A
	2030 Base + Dev									
Stream B-AC	D7	0.1	8.74	0.06	A	D8	0.0	8.41	0.05	A
Stream C-AB		0.0	5.46	0.00	A		0.0	5.46	0.01	A
	2030 Sensitivity Test + Dev									
Stream B-AC	D9	0.2	12.10	0.15	B	D10	0.1	10.88	0.11	B
Stream C-AB		0.0	6.11	0.01	A		0.0	6.11	0.02	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	04/09/2025
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CURTINS\Jonathan.Ashcroft
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Fox's Bank Lane (South)		Major
B	Site Access		Minor
C	Fox's Bank Lane (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Fox's Bank Lane (North)	6.50		✓	3.00	168.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.00	22	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	493	0.088	0.222	0.140	0.317
B-C	635	0.095	0.241	-	-
C-B	730	0.277	0.277	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	212	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	238	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	8	204
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	235	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.68	0.1	A
C-AB	0.00	5.44	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.003	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.276	A
C-AB	3	677	0.004	3	0.0	5.338	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.676	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.678	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.279	A
C-AB	3	677	0.004	3	0.0	5.340	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.011	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

2025 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	204	100.000
B - Site Access		✓	18	100.000
C - Fox's Bank Lane (North)		✓	241	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	186
	B - Site Access	13	0	5
	C - Fox's Bank Lane (North)	235	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	8.46	0.0	A
C-AB	0.01	5.45	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	13	0.0	7.866	A
C-AB	5	687	0.007	4	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.107	A
C-AB	5	679	0.008	5	0.0	5.343	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.110	A
C-AB	5	679	0.008	5	0.0	5.344	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	14	0.0	7.870	A
C-AB	5	687	0.007	5	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

2030 Base + Dev , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	219	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	246	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	8	211
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	243	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.74	0.1	A
C-AB	0.00	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.038	A
C-AB	2	684	0.003	2	0.0	5.279	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.320	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.736	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.738	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.324	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.045	A
C-AB	2	684	0.003	2	0.0	5.281	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

2030 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	210	100.000
B - Site Access		✓	19	100.000
C - Fox's Bank Lane (North)		✓	185	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	192
	B - Site Access	14	0	5
	C - Fox's Bank Lane (North)	179	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	8.41	0.0	A
C-AB	0.01	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.845	A
C-AB	5	686	0.007	4	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.074	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.406	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.408	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.075	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.849	A
C-AB	5	686	0.007	5	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

2030 Sensitivity Test + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	439	100.000
B - Site Access		✓	46	100.000
C - Fox's Bank Lane (North)		✓	492	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	16	423
	B - Site Access	34	0	12
	C - Fox's Bank Lane (North)	486	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.15	12.10	0.2	B
C-AB	0.01	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	34	0.1	9.706	A
C-AB	5	638	0.007	4	0.0	5.679	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	41	0.1	10.590	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	50	0.2	12.090	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	51	0.2	12.104	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	42	0.1	10.608	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	35	0.1	9.735	A
C-AB	5	638	0.007	5	0.0	5.681	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

2030 Sensitivity Test + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	419	100.000
B - Site Access		✓	36	100.000
C - Fox's Bank Lane (North)		✓	370	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	35	384
	B - Site Access	27	0	9
	C - Fox's Bank Lane (North)	358	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	10.88	0.1	B
C-AB	0.02	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.167	A
C-AB	9	643	0.014	9	0.0	5.682	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.817	A
C-AB	11	626	0.017	11	0.0	5.854	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.875	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.879	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

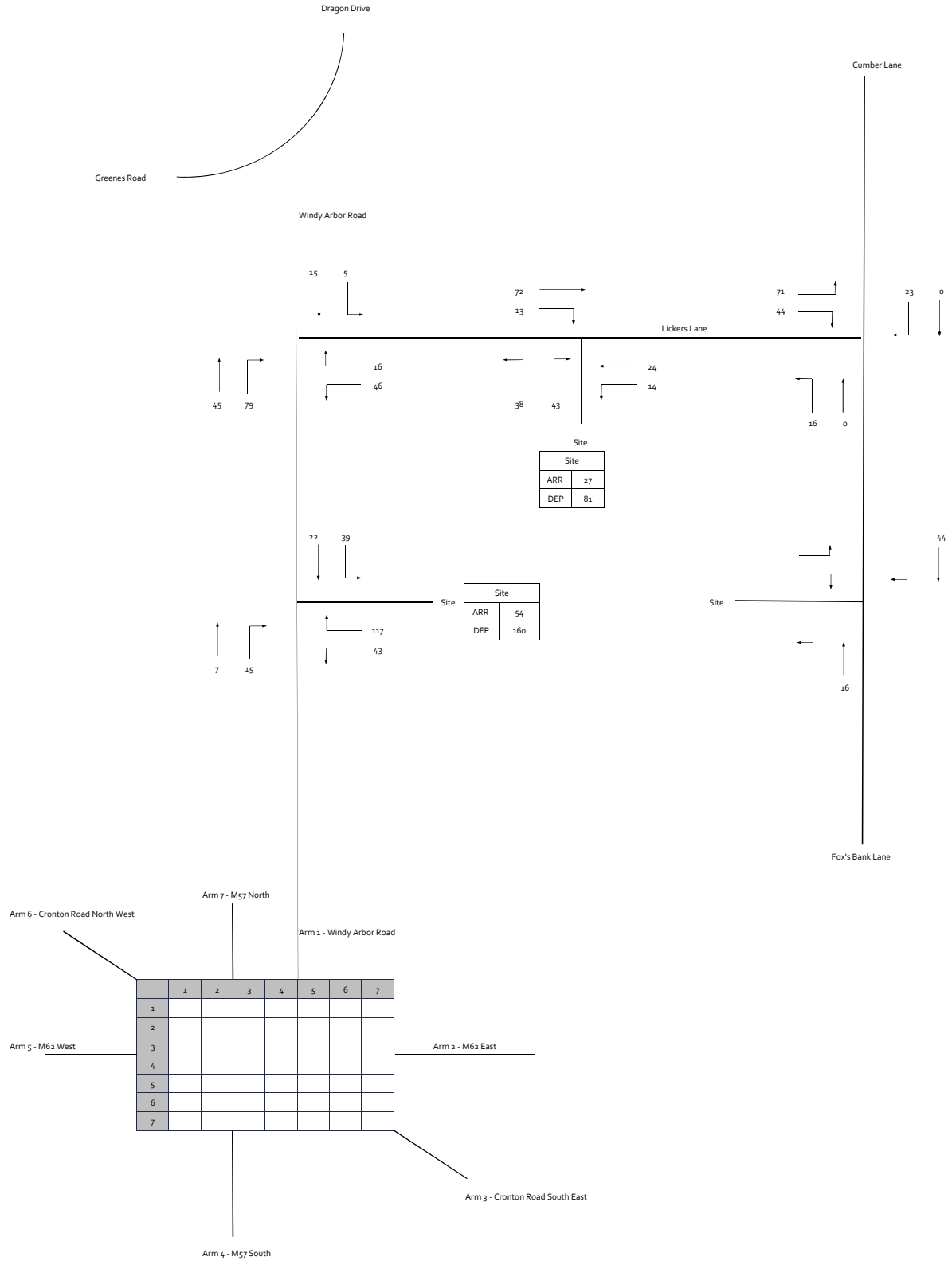
01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.828	A
C-AB	11	626	0.017	11	0.0	5.857	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.185	A
C-AB	9	643	0.014	9	0.0	5.684	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

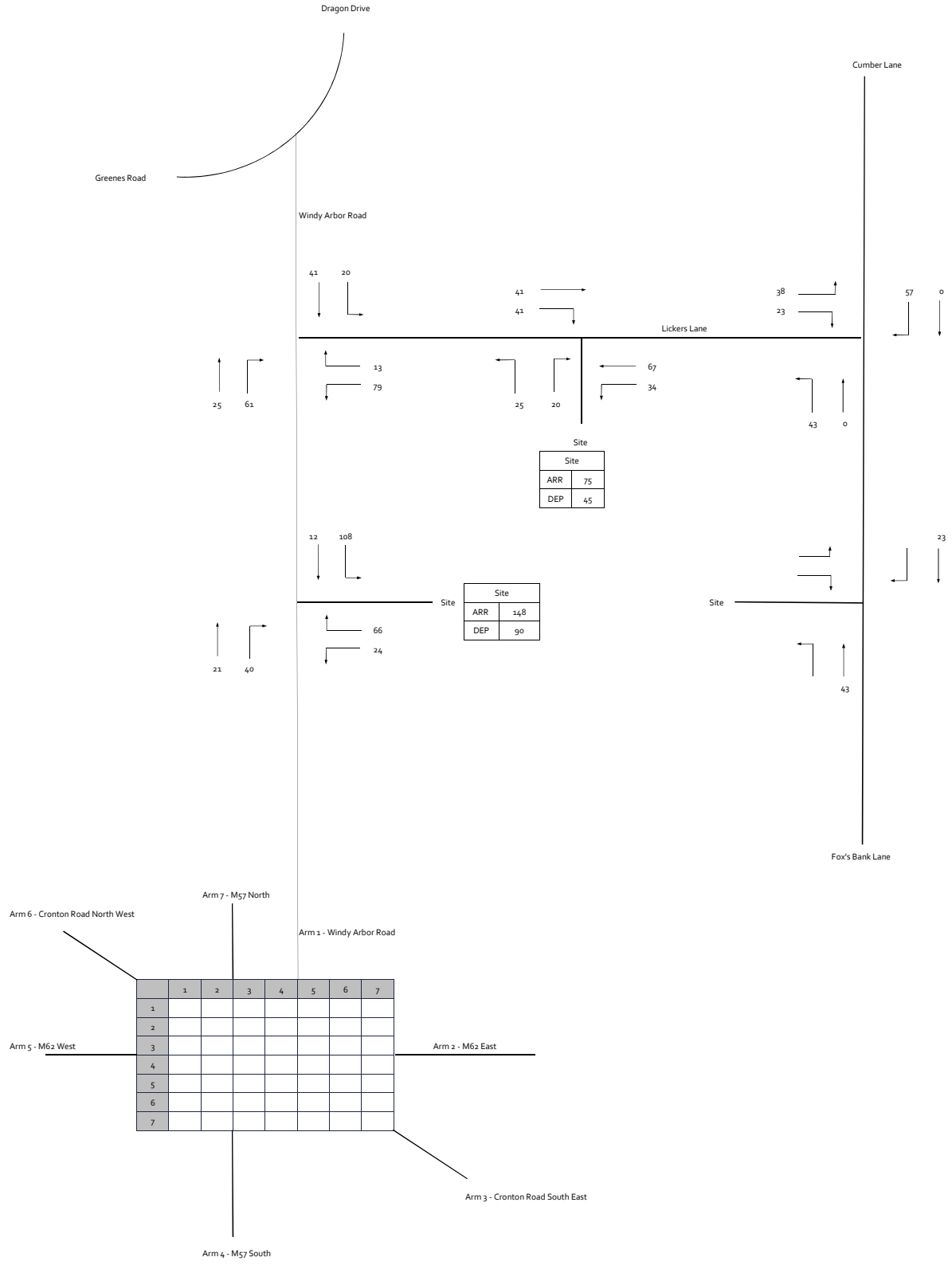
Appendix G – Fox Wood Garden Village Traffic Flows



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

Figure 5 - Total Committed Development - Lickers Lane & Windy Arbor Road - AM Peak (0800 to 0900)

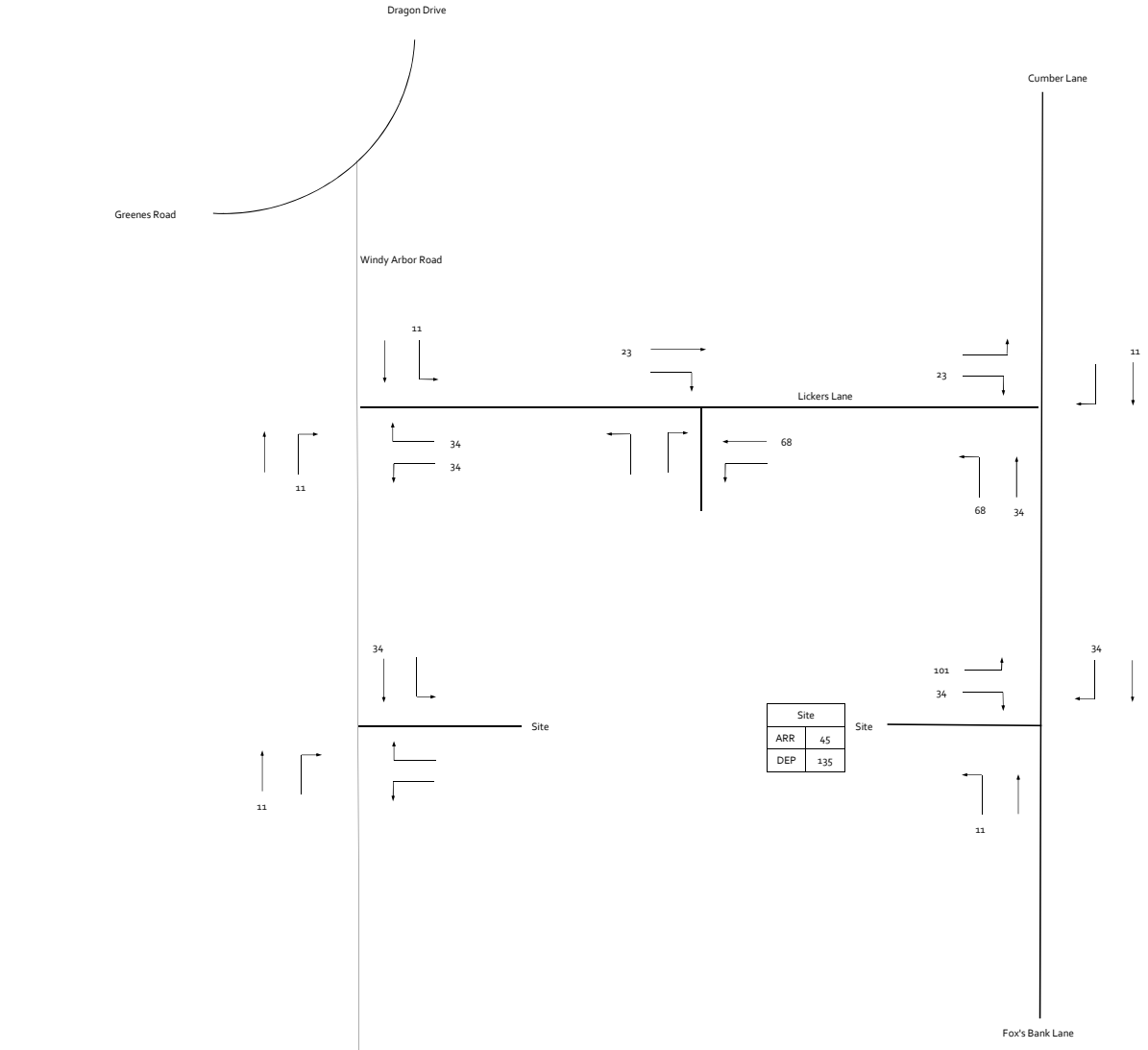
Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

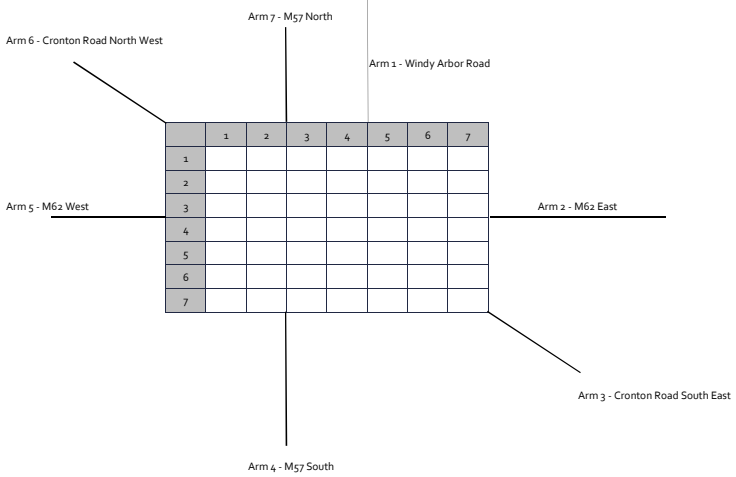


	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

Figure 6 - Total Committed Development - Lickers Lane & Windy Arbor Road - PM Peak (1630 to 1730)

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Hill Quays
9 Jordan Street
Manchester
M15 4PY



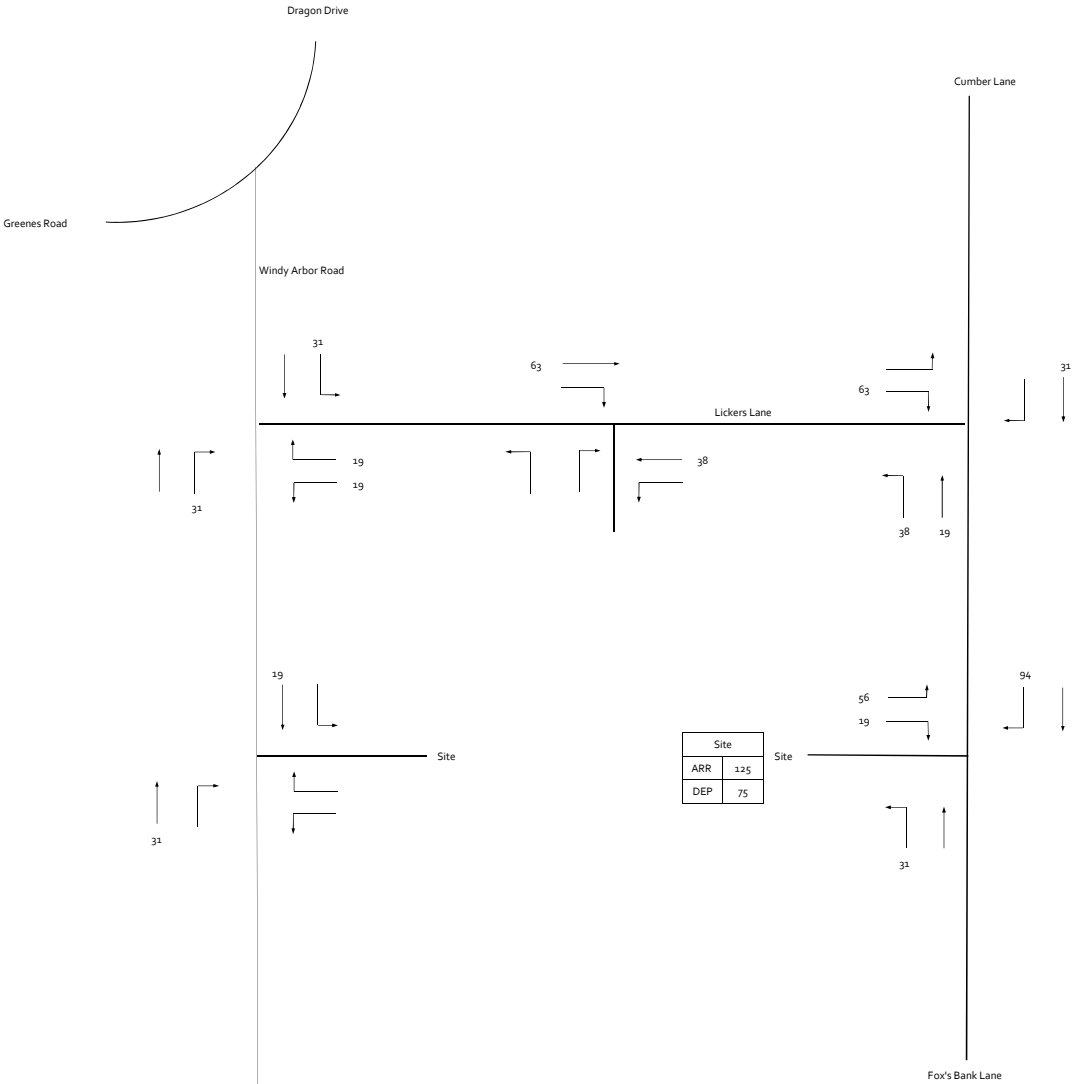


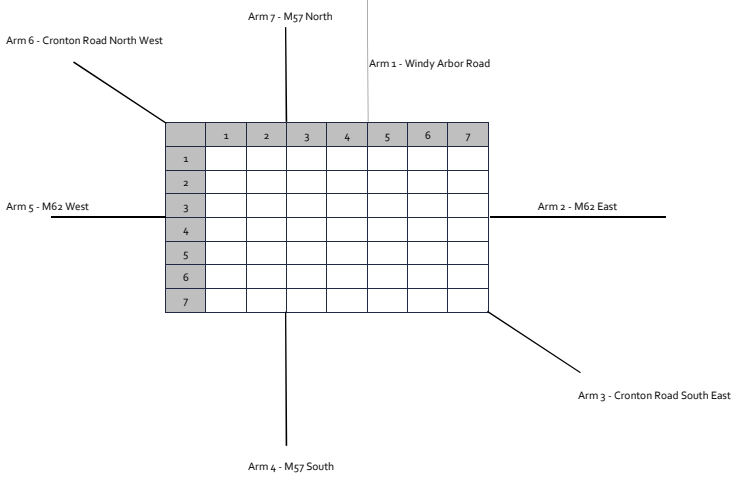
	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

Flows in PCUs

Figure 11 - Proposed Development Flows - AM Peak (0800 to 0900)

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Hill Quays
9 Jordan Street
Manchester
M15 4PY





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

Flows in PCUs

Figure 12 - Proposed Development Flows - PM Peak (1630 to 1730)

Croft Transport Planning & Design
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9 Jordan Street
Manchester
M15 4PY

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Curtins

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Appendix I2: Interim Travel Plan

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HALSNEAD FARM

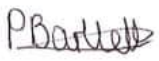
INTERIM TRAVEL PLAN

Curtins Ref:	**087052-CUR-00-XX-T-TP-00002**
Revision:	P01
Issue Date:	11 November 2025
Client Names:	Starship Onward Homes
Client Address:	Starship Hub, Hythe, Tower Road, CH41 1AA.
Site Address:	Halsnead Farm, Fox's Bank Lane.

Control Sheet

Rev	Description	Checked	Issued	Date
P01	Client review	DJ	DJ	24 September 2025
P02	Planning Issue	DJ	DJ	11 November 2025

This report has been prepared for the sole benefit, use, and information for the client. The liability of Curtins with respect to the information contained in the report will not extend to any third party.

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1.0 Introduction

1.1 Background

1.1.1 This Interim Travel Plan has been prepared by Curtins on behalf of Starship Hub to assist the Local Planning Authority's consideration, for an application in relation to proposals for 88no. affordable houses in Whiston, Knowsley.

1.1.2 The site is situated within the boundary of Knowsley Metropolitan Borough Council.

1.1.3 This ITP is accompanied by a Transport Assessment (TA) (**Document Reference: 087052-CUR-XX-XX-T-TP-00001**) which has been prepared to assess the impacts of the proposed development on the surrounding highway network. The TA (without appendices) is provided in **Appendix A**.

1.2 What is a Travel Plan?

1.2.1 A Travel Plan is defined[1] as:

> *"A long-term management strategy for an organisation or site that seeks to deliver sustainable transport objectives and is regularly reviewed."*

1.2.2 A Travel Plan is designed to encourage people to choose alternative transport modes over single occupancy car use, and where possible reduce the need to travel at all.

1.3 Influencing Choices

1.3.1 A key aim of this Travel Plan is to influence individuals travel choices, and demonstrate how residents, visitors and individuals can reduce carbon emissions through changing travel patterns and behaviours. Curtins will demonstrate how operational carbon savings through travel plan initiatives can be implemented at this site.

1.3.2 A study conducted[2] has estimated that the potential impact on carbon emissions of a shift from driving to walking and cycling revealed the following:

> *"Research shows that walking or cycling can realistically subsiture for 41% of short car trips, saving nearly 5% of C02e emissions from car travel. This is on top 5% of 'avoided' emissions from cars due to existing walking and cycling."*

[1] Department for Levelling Up, Housing and Communities (now MHCLG) (2024). National Planning Policy Framework [Online]. Available at https://www.gov.uk/government/publications/national-planning-policy-framework--2

[2] Neves, Andre & Brand, Christian. (2018). Assessing the potential for carbon emissions savings from replacing short car trips with walking and cycling using a mixed GPS-travel diary approach. Transportation Research Part A Policy and Practice. 10.1016/j.tra.2018.08.022.

1.4 Purpose of the Travel Plan

1.4.1 The purpose of this Travel Plan is to provide various environmental, health, and social benefits for individuals and organisations accessing the proposed development and provide a high-level carbon saving estimate.

1.5 Travel Plan Initiatives

1.5.1 Taking into account the proposals and the accessibility of the site via walking, cycling and public transport, a series of measures and initiatives have been developed to encourage sustainable travel as part of the scheme.

1.6 Structure of the Report

1.6.1 Following this introductory section, **Section 2** of the report provides information on the development site and its location.

1.6.2 **Section 3** outlines the accessibility of the site by sustainable modes of transport.

1.6.3 The Travel Plan Initiatives are provided in **Section 4.**

1.6.4 **Section 5** outlines the strategy for Travel Plan Targets.

1.6.5 **Section 6** outlines the anticipated Carbon Savings

1.6.6 **Section 7** provides details on the monitoring and review process.

2.0 Travel Plan Initiatives

2.1 Travel Plan Initiatives

2.1.1 This section is intended to draw together the measures that will be implemented across the site to encourage travel by sustainable modes. They are in addition to the Sustainable Travel Enhancements detailed in **Section 3.2** and are predominantly aimed at residents and visitors of the proposed development.

Initiative	Actions
Information Pack	• A Residential Travel Information Pack will be used to influence travel patterns for users accessing the site. • The information in the Travel Information Pack highlights the various travel options available to the site. • Contents could include various initiatives including: ○ Details of the Travel Plan Co-ordinator (TPC) ○ Literature on the health benefits of walking and cycling, and the environmental benefits of sustainable modes of transport; ○ Maps showing local walking / cycling routes; ○ Details of public transport services, including routes and timetables; and, ○ Details of local links / active travel routes available in the area, such as: Active Travel Network | Liverpool City Region | Merseytravel • A Travel Information Pack is provided in **Appendix B**.
Encouraging Walking	• Walking is the most sustainable, and accessible mode of travel. Furthermore, 30 minutes of moderate activity for five or more times per week is likely to enhance an individual's health and fitness. • The following measures could be promoted to residents to utilise walking as a mode of transport: ○ Reiterate the health benefits that walking provides; ○ Provide clear signing of pedestrian routes in the vicinity of the site; ○ Promote the Living Streets' website Home | Living with walking maps, information and tips; ○ Promote the Merseytravel Walking in the Liverpool City Region | Merseytravel; ○ Provide information of local pedestrian routes and footpaths; ○ Promote the www.walkit.com website for journey planning on foot;

Initiative	Actions
	○ Promote the journey planning websites that encourage walking on foot; and ○ Promote the https://www.plotaroute.com/ website for journey planning on foot.
Encouraging Cycling	• The following measures could be promoted to encourage residents to utilise cycling as a mode of transport: ○ Provide up to date information on the local cycle network routes made available in the local area, ○ Promote the availability of cycling information, including route maps and useful tips and tricks guidance, on the Sustrans website https://www.sustrans.org.uk/; ○ Local Cycle clubs / forums to be invited to take part in Travel Plan promotional events to raise awareness; ○ Promotion of events such as "National Bike Week"; ○ The BikeRight! Website at: BikeRight · Liverpool City Region Combined Authority featuring free adult cycle training, child learn to ride and Bikeability sessions, and bicycle maintenance classes/bicycle methanic training; ○ Merseyside Cycling Campaign, https://www.merseycycle.org.uk/, a committee of volunteers who deal with Merseyside wide cycling issues and campaign policy; ○ Provide an on-site puncture repair kit for residents; ○ Promote the Cycling in Merseyside website: Cycling in Merseyside | Cycling UK, which advertises local cycle groups and routes; and, ○ Promote details of cycle training, cycle hire, and free local cycle maps through the Merseytravel website: Cycling in the Liverpool City Region | Merseytravel.
Encouraging Public Transport Use	• The following measures could be promoted in order to encourage residents to travel by public transport: ○ Distribute details of the https://www.traveline.info/ Journey Planning tool; ○ Provide links to up-to-date bus information, including timetables and route information in the welcome packs; ○ Advertise any promotions / discounts offered by public transport operators; ○ Liaise with bus companies and KCC on any future improvements and/or extensions to local services; ○ Limited time discounts could be provided in the previously disused welcome packs; and, ○ Promote the Merseytravel Journey Planner website as a central source of public transport information: EFA - Journey Planner.

Initiative	Actions
Encouraging Car Sharing	• Car sharing is an effective measure of reducing carbon emissions and single occupancy car trips. Car sharing could be encouraged by implementing the following measures: o Raising awareness of car ownership costs and highlight the social and economic benefits of car sharing. o Promoting the https://liftshare.com/uk website which matches people with other car sharers in their local area. o Promote Enterprise Car Club. Users would need to register and book the car appropriately through the website: www.enterprisecarclub.co.uk.

Table 2.1 – Travel Plan Initiatives

3.0 Initial Targets

3.1 Introduction

3.1.1 Target setting is an important part of any Travel Plan, providing a focus for the overall process and a measure against which the Travel Plan initiatives can be judged. This section sets out some example targets and provides an overview of the data that should be collected as part of future travel surveys to inform the full Travel Plan once developed.

3.2 Initial Modal Split Targets

3.2.1 As the development has not yet been constructed, it is not possible to undertake any travel surveys and provide a definitive set of targets. Travel Plans rely on such surveys to provide a base level of modal split.

3.2.2 However, it is possible to utilise 2011 'journey to work' census data to provide an indication of existing travel patterns for the region (based on output area Knowsley 017). This is set out in **Table 3.1** below, alongside an example of potential targets. The targets have been grouped into the following approximate timescales:

- **Short Term Target –** to be achieved within 1-2 years from first occupation;
- **Medium Term Target –** to be achieved within 2 – 5 years from first occupation; and
- **Long Term Target –** to be achieved within 10 years from first occupation.

Example of Potential Targets					
Travel Mode	**Existing Modal Split Percentage (Census Data)**	**Short Term Target Modal Shift Change**	**Medium Term Target Modal Shift Change**	**Long Term Target Modal Shift Change**	**Total Target Modal Shift Change**
Car Driver	76%	-2.0%	-2.0%	-1.0%	**-5.0%**
Car Share	8%	-	-	-	**-**
Bus	6%	+0.5%	+0.5%	+0.5%	**+1.5%**
Train	4%	+0.5%	+0.5%	-	**+1.0%**
Cycle	1%	+0.5%	+0.5%	-+0.5%	**+1.5%**
Foot	4%	+0.5%	+0.5%	-	**+1.0%**

Table 3.1 – Example of Potential Targets

3.2.3 The example modal split targets above aim for a 5% total reduction in single occupancy car trips, and a 5% total increase in trips by more sustainable modes such as public transport, walking and cycling.

3.2.4 Greater modal split shifts are expected towards public transport and walking/cycling trips over car sharing reflects the related sustainable travel enhancements to and throughout the site.

3.2.5 The targets have been 'front loaded' to reflect the expectation that the travel habits of prospective residents are likely to be most heavily influenced upon moving in. The targets are indicative only, and final targets will be decided following the receipt of the travel surveys. Surveys will be commissioned within three months of achieving 50% occupancy at the site.

3.3 Travel Plan Performance Indicators

3.3.1 In addition to the modal split targets, the following Travel Plan performance indicators could be considered in the full Travel Plan depending on modal split results:

- Car trips per dwelling – targets could be set on the basis of predicted trip rates for the development as generated by the TRICS assessment carried out in the accompanying Transport Assessment, validated by traffic counts. TRICS is the industry recognised tool for calculating the anticipated future trip demand of a proposed development. The database contains multi-modal surveys of varying land uses in multiple destinations across the UK including residential uses;
- Uptake of alternative modes – targets could be set for bus patronage, membership and use of car clubs, registration and participation in car share schemes, and cycle/pedestrian counts;
- Car ownership and mode of travel – modal split targets could be supplemented by targets related to car ownership, and travel to work by mode targets; and
- Travel Plan awareness targets – a target could be set in relation to residents's appreciation of the Travel Plan process, and knowledge of the benefits offered by the plan.

3.4 SMART Targets

3.4.1 The above example modal split targets and potential Travel Plan performance indicators are considered to be suitable interim measure before travel surveys are undertaken three months after 50% occupation.

3.4.2 At this point official targets will be set through consultation with KCC. The official targets will be **SMART** (**S**ite-specific – **M**easurable – **A**chievable – **R**ealistic – **T**imed).

3.5 Impact on Existing Travel Behaviours

3.5.1 In addition to encouraging uptake in sustainable travel by prospective residents of the proposed development, this ITP will also have the added benefit of encouraging existing residents, employees and visitors within the surrounding area to choose more sustainable modes of travel. This has particular relevance to the sustainable travel enhancements to and throughout the site, which would also be available for existing residents, employees and visitors to utilise.

4.0 Potential Carbon Savings

4.1 Introduction

4.1.1 Climate change is a global issue that affects all nations. Data on greenhouse gas emissions provided by the Department for Energy Security & Net Zero also show that carbon emissions from domestic transport account for close to one third of the UK's net domestic emissions[3].

4.1.2 Almost all domestic transport emissions are from carbon dioxide, the main source of which is the use of petrol and diesel in road vehicles. How people travel will therefore play a key role in the UK's carbon reduction agenda.

4.1.3 The trip generation predictions in the approved Transport Assessment have been used to calculate the potential carbon savings that could occur at the site. The modal split targets in **Section 5** demonstrates that there is an initial aim for a 5% reduction in single occupancy car trips, whilst aiming for a 5% increase in trips by more sustainable modes such as public transport, walking, cycling, and car sharing. If these above targets are achieved, then there would be a reduction in overall carbon footprint.

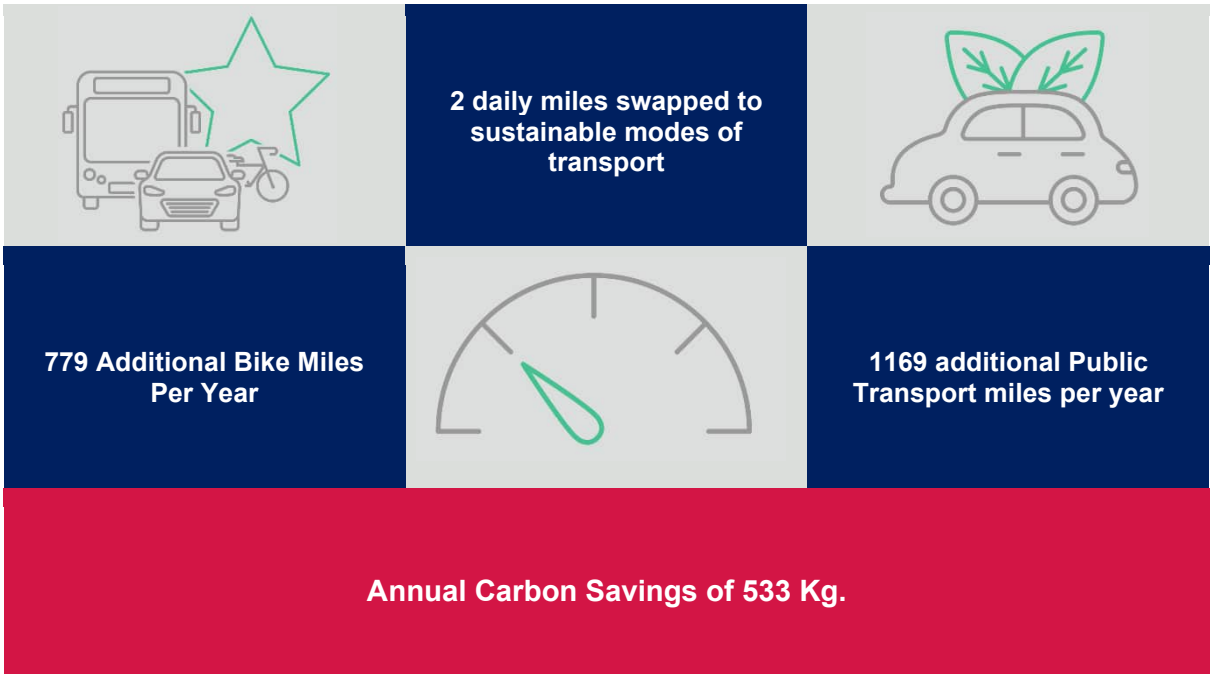
4.1.4 The following various assumptions have been applied in order to calculate the potential carbon savings that could be achieved if this modal split is met. This is an example that can be refined and updated with future surveys. These assumptions are stated below:

- Average of 35 vehicles departing in the morning (it has been assumed these are all commuting trips for the purpose of these calculations) based on trip generation vehicular trips as set out in the TA.
- Average person travels approximately 10 miles to work.
- There are approximately 224 working days per year.

4.1.5 The details of these calculations can be found in **Appendix D** to the rear of the report.

[3] Department for Energy Security & Net Zero (2024). 2023 UK greenhouse gas emissions, provisional figures [Online]. Available at https://assets.publishing.service.gov.uk/media/6604460f91a320001a82b0fd/uk-greenhouse-gas-emissions-provisional-figures-statistical-release-2023.pdf

4.2 Potential Carbon Savings



4.3 Next Steps

4.3.1 Curtins is able to provide additional calculations tailored to the development occupants once a travel survey is undertaken at the site. This would capture operational carbon emissions from commuting trips to and from the site.

5.0 Monitoring and Review

5.1 Introduction

5.1.1 This section sets out the proposed management arrangements associated with the ITP, as well as the next steps with regards to converting it into a Full Travel Plan.

5.2 Responsibility and Management

5.2.1 Overall responsibility for the ITP will lie with the site owner, Starship Hub Following construction and occupation, the ITP will need to be updated to a Full Travel Plan. This will involve the distribution of travel surveys.

5.2.2 The travel surveys will be completed by all site users and the survey will be influenced by national travel planning guidance and approved by KCC. The surveys will extract key travel characteristics such as:

- Post code (place of work);
- Purpose of trip;
- Mode of travel;
- Reason for mode of travel; and
- Barriers to other mode choices.

5.2.3 This information will enable analysis to be undertaken to establish final targets associated with the proposal. It will also provide information on the reasons for that modal split and identify any measures that may encourage a modal shift.

5.3 Travel Plan Coordinator ('TPC')

5.3.1 When the full Travel Plan is produced, the day-to-day responsibility will shift from the developer to the appropriately appointed TPC for the proposals. The TPC will take responsibility for ensuring that the various elements of the plan are monitored and operate effectively to offer a genuine choice of travel modes. Typical duties include:

- Leading on the delivery of the TP;
- Representing the human face of the TP and explaining its purpose and opportunities on offer;
- Promoting individual measures/initiatives in the TP;
- Liaising with public transport operators;
- Monitoring the TP; and
- Taking a key role in reviewing the TP.

5.3.2 A TPC will be nominated for the development in due course.

5.4 Monitoring and Evaluation

5.4.1 The monitoring of travel behaviour is vital to measure progress towards the targets.

5.4.2 Annual monitoring reports will be provided to officers at KCC following the receipt of the first surveys. Monitoring will be carried out for a period of at least five years from the date of the baseline travel surveys.

Appendix A – Transport Assessment

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HALSNEAD FARM

TRANSPORT ASSESSMENT

Curtins Ref:	**087052-CUR-00-XX-T-TP-00001**
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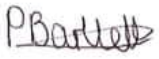
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Client Address:	Starship Hub, Hythe, Tower Road, CH41 1AA.
Site Address:	Halsnead Farm, Fox's Bank Lane.

11 November 2025

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Author	Signature	Date
Paige Bartlett BSc hons Grad CIHT Graduate Transport Planner		11 November 2025

Reviewed	Signature	Date
Danny Jones MPlan MCIHT MRTPI Associate		11 November 2025

Authorised	Signature	Date
Danny Jones MPlan MCIHT MRTPI Associate		11 November 2025

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1.0 Introduction

1.1 Proposed Development Overview

1.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site is situated within the boundary of Knowsley Metropolitan Borough Council.

1.1.2 The site layout is provided in **Appendix A**.

1.2 Planning Background – Halsnead Garden Village Masterplan

1.2.1 The site is situated within the Masterplan area of the Halsnead Garden Village Masterplan. The Masterplan provides a comprehensive framework and guide planning decisions in the area and is formally allocated for development in Knowsley's Local Plan Core Strategy (adopted in 2016). The original Masterplan is provided in **Appendix B**.

1.2.2 The Masterplan aims to deliver approximately 1,600 new homes, a country park, new school places, employment and warehouse opportunities, as well as new roads and supporting infrastructure. A supporting preliminary Transport Assessment for the Masterplan identified the following issues and opportunities:

- Vehicular site access is achievable from several points within the adjacent highway network; there is an opportunity for new junctions to accommodate pedestrian and cycle movements.
- Pedestrian routes can enhance the connectivity to the existing urban area and facilities of Whiston, especially on Windy Arbor Road and Lickers Lane.
- There is a major role for internal circulation routes to make the site as permeable as possible, including making allowance for bus penetration into the residential site. The layout should ensure that the site is as permeable as possible at all stages of development.
- Whiston Rail Station is a key asset to the development. There is a major opportunity to connect the new development to the station by sustainable travel modes.
- There is a significant opportunity to use the former mineral railway line to link the two sites together for pedestrians, cyclists and equestrian uses as well as the potential to support a link to Sustrans route 56.
- Off-site highways works have been identified as being needed to mitigate the impacts of development.

1.2.3 A series of off-site highway improvements to the surrounding road network were identified. It is understood these works are funded by the Liverpool City Region Strategic Investment Fund (LCR SIF). A summary is provided in **Table 1.1**:

Junction		Requirement
A	Windy Arbor Road/Lickers Lane	Widening to the north and south to facilitate: - A two-lane approach on Lickers Lane - A separate right and through lane on Windy Arbor Road northbound, and - The introduction of controlled pedestrian crossing facilities across two arms of the junction. The works would require the reconstruction of the sandstone boundary wall around the recreation ground, and the relocation of a bus stop on Lickers Lane further to the east.
B	Lickers Lane/Fox's Bank Lane	Introduction of traffic signals to allow the controlled movement of traffic out of the Lickers Lane, and also the controlled movement of pedestrians over all arms of the junctions.
C	Windy Arbour Road/Dragon Lane	Windy Arbour Road approach to Dragon Lane widened to allow for a two-lane approach.
D	Stoney Lane/Dragon Lane/ Meadway	Improved designation of the right turn from Dragon Lane to Stoney Lane and improved through alignment on Dragon Lane.
E	Stoney Lane/Cumber Lane	Provision of traffic signals and controlled pedestrian crossing facilities on all arms of the junction.
F	Cronton Road/Fox's Bank Lane	Realignment of Prescot Road to the south to opposite Fox's Bank Road to provide a crossroads arrangement; and widening of Cronton Road to enable the provision of right turn pockets for vehicles turning to the north and south. Relocation of the existing bus stops to the west of the junction into new laybys. Advanced cycle stop lines with lead in lanes to be provided on Cronton Road.
G	Tarbock Island (M62/M57 Junction 6)	Widening to internal quadrants and certain entry slip roads, together with further signalisation of nodes.

Table 1.1 – Halsnead Garden Village Masterplan: Off-site Improvements

1.2.4 Two sites adjacent to the proposed development site and within the Masterplan boundary have recently undergone construction; 'Fox Wood Garden Village' to the north, and 'Tritax Symmetry' to the south. In line with the Masterplan principles, these sites and the proposed development sites are required to link to one-another:

Fox Wood Garden Village

1.2.5 The Fox Wood Garden Village site was approved in February 2022 under planning application number: *20/00417/FUL.* The development is described as the following:

"Residential development comprising of the erection of 350 no.dwellings together with the construction of vehicular access of Fox Bank Lane (comprising signalised junction), SUDs ponds, landscaping, boundary treatments and other associated works (including demolition of existing farm buildings)".

1.2.6 The planning application was accompanied by a Transport Assessment, produced in April 2020. Following a site visit, it is clear a number of units have been constructed and occupied.

Tritax Symmetry

1.2.7 The Tritax Symmetry site was approved in March 2022 under application reference: *20/00494/HYB*. The development is described as the following:

"Hybrid Planning Application comprising: Full application for the development of 161,900 SQ FT of storage and distribution floorspace (Use class B8), including ancillary offices (Use Class B1), security gatehouse, site access road, engineering earthworks, to form a part county park, public car park to serve county park, and associated works; and outline application with details of point access (details of part-access, landscaping, appearance, scale and layout are reserved) for the development of up to 838,100 SQ FT of storage and distribution floorspace (Use class B8), with ancillary offices and light industrial (Use class B1); engineering earthworks to form county park and drainage attenuation ponds; pedestrian/cycle/equestrian route connecting existing M62 footbridge with proposed county park; and associated works".

1.3 Scoping Discussions

1.3.1 Curtins attended a pre-application meeting (via Microsoft Teams) with Highways Officers from Knowsley Council on 30th July 2025 to discuss the latest development proposals and scope of planning documentation. The bullets below provide a summary of discussions:

- **Access:** It was agreed a priority T-junction would be a suitable arrangement to accommodate the development. Notwithstanding, Knowsley Highways indicated a preference for futureproofing by providing dedicated right-turn provision.
- **Car Parking:** Highways officers explained that they have accepted a lower car parking provision in the past for affordable housing sites and was therefore agreed that the same principal would apply for our site. It was also noted that there is a preference for good quality cycle storage facilities for those choosing to cycle.
- **Pedestrian Connectivity (north):** As the site forms part of the wider Halsnead Masterplan, the site will provide connections north into the consented Fox Wood Garden Village site. It was agreed the Fox Wood Garden Village site is expected to deliver onwards connections throughout the wider masterplan area, and that this will be reviewed by the Knowsley S38/S278 team. It was also agreed that other Masterplan users would benefit from this connection through the proposed development site.
- **Pedestrian Connectivity (south):** There will be pedestrian links to the south via the Tritax Symmetry site. This will facilitate a pedestrian route from the proposed development site into Symmetry Park (an industrial unit being brought forwards by Tritax Symmetry). From here, the footpaths will continue south into County Park and the A5080 Cronton Road. Again, it was agreed the Tritax Symmetry site is expected to deliver onwards connections, and that this will be reviewed by the Knowsley S38/S278 team. It was also again agreed that other Masterplan users would benefit from this connection through the proposed development site.

1.3.2 A key agreed item was in relation to accessibility. It was agreed during Curtins' discussions with Knowsley Council that the site is accessible in principle, providing it delivers its 'share' of the pedestrian connections.

1.3.3 The Fox Wood Garden Village and Tritax Symmetry sites are required to deliver connections onwards through the Masterplan; and the Proposed Development site benefits from confirmed connections via the Tritax Symmetry site (albeit these are subject to other consents/agreements outside of the planning process).

1.4 Purpose and Scope of this Report

1.4.1 This Transport Assessment (TA) has been written in order to consider the proposals and their potential impact on the surrounding area from a traffic and transportation perspective. On this basis, this TA contains the following:

- Details of the existing use and the proposals, together with the proposed site plan;
- A review of highway safety within the vicinity of the site for the most recent five years;
- An audit of accessibility by all modes of travel including walking, cycling, and public transport;
- Details regarding the proposed parking levels and access arrangements;
- Information regarding the impact on trip generation and anticipated highway impact forecast; and
- A review of the relevant local and national transport planning policy.

1.5 Structure of the Report

1.5.1 Following this introduction, **Section 2** of the report provides a comprehensive description of the existing site and its location. This includes the local highway network and facilities for pedestrians, cyclists and public transport users.

1.5.2 **Section 2** also reviews the local area in terms of highways safety by way of obtaining records of accidents adjacent to the site over the most recent five-year period available.

1.5.3 The proposals summarised in **Section 3**, including the proposed access, parking provision and servicing arrangements.

1.5.4 The accessibility of the site by sustainable modes of travel is assessed in **Section 4**.

1.5.5 **Section 5** outlines the traffic forecasting methodology used to establish the likely traffic generation associated with the development proposals, andprovides commentary on anticipated highway impact.

1.5.6 Relevant local and national transport policy is summarised in **Section 6**, and the report is summarised and concluded in **Section 7**.

2.0 Site Location and Highway Layout

2.1 Site Location

2.1.1 The proposed site is located in Whiston, Knowsley, c.1.5km south of Whiston town centre. The site is bounded by Fox's Bank Lane to the east, the M62 to the north, agricultural land to the west and south.

2.1.2 **Figure 2.1** below shows the site location.

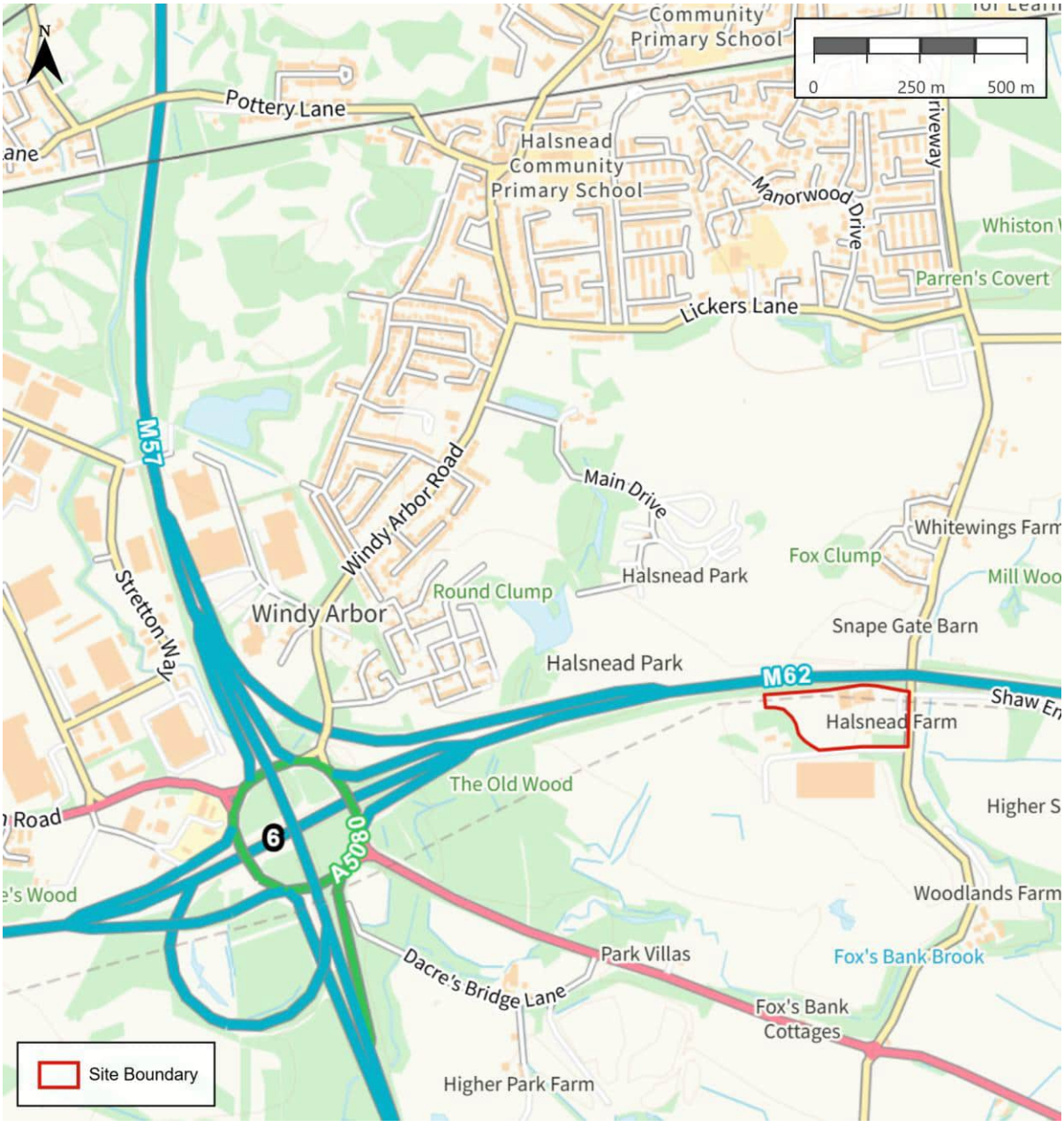


Figure 2.1 – Site Location

(Source: Ordnance Survey, 2025)

2.2 Existing Use

2.2.1 The site is currently used as farmland/agricultural land, with a horse boarding stables.

2.3 Existing Access Arrangements

2.3.1 The site is currently accessed via a priority-controlled T-junction from Fox's Bank Lane, c.25m south of M62.

2.4 Surrounding Highway Network

Fox's Bank Lane

2.4.1 Fox's Bank Lane is a two-directional single lane road, with a typical carriageway width of c.6m and c.2m footways on the eastern side of the carriageway, supported by streetlighting.

2.4.2 There is a 60mph to 30mph speed limit change, approximately 60m south of the M62 as it bridges over Fox's Bank Lane

Cronton Road (A5080)

2.4.3 Cronton Road is located to the south of the development site and forms the western and eastern roundabout arms with Fox Bank Lane. Cronton Road is a two-directional single lane road with a typical carriageway width of c.7m and operates at a 40mph speed limit. Footways are present along both sides of Cronton Road, supported by street lighting.

2.4.4 There is pedestrian infrastructure in the form of tactile paving at the roundabout junction, as well as footway provision, although this does not extend for the entirety of Cronton Road

2.5 Collision Data Analysis

2.5.1 Personal Injury Accident (PIA) data for the highway network adjacent to the site has been obtained from CrashMap for the most recent five years, and included to the rear of this report in **Appendix C.**

2.5.1 The records show that there have been 2 recorded accidents in the study area over a five-year assessment period. A total of 1 accident resulted in slight severity injuries, with the remaining accident resulted in a serious injury. No fatal accidents were recorded. This number of accidents over a 5-year period is not considered to be of high value for the study area considered in this review. Additionally, there have been no recorded accidents within the vicinity of the site access point within the accident data study period.

2.5.2 Following a review of the records, it is not considered that there is an existing safety issue that is likely to be exacerbated by the proposed development.

3.0 Development Proposals

3.1 Introduction

3.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for affordable houses in Whiston, Knowsley.

3.1.2 The application is for 88 units. However, it is understood the modular nature of the scheme could result in a slight variation to this, and so, whilst the technical elements of this report reference an upper ceiling of 90 houses, this section considers proposals for a total of 88 units comprising:

- 33no. one-bedroom units;
- 21no. two-bedroom units;
- 20no. three-bedroom units; and
- 14no. four-bedroom units.

3.1.3 The site is situated within the boundary of Knowsley Metropolitan Borough Council.

3.1.4 The proposals are provided in **Appendix A**. The layout indicates a mix of detached and semi-detached residential dwellings, alongside a purpose-built block containing apartment units.

3.2 Proposed Access

Vehicular Access

3.2.1 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** illustrates the proposed vehicular access, comprising a priority T-junction with GIRT facility. The drawing also shows the 30mph visibility splays at the site access.

3.2.2 **Drawings 087052-CUR-XX-XX-D-T-05001-P03** and **087052-CUR-XX-XX-D-T-05002-P01** show how the junction would be negotiated by a refuse vehicle and large car respectively.

Active Travel (Pedestrian and Cycle) and Equestrian Access

3.2.3 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** provides pedestrian connectivity into Fox's Bank Lane. This will connect pedestrians to the north, through Fox Wood Garden Village. Once here, pedestrians will then be able to connect into the existing pedestrian infrastructure for onwards pedestrian connectivity to Whiston.

3.2.4 New pedestrian routes are also to be provided to the south, offering connectivity into the Tritax Symmetry site. These routes will link to the existing access road south of the site, allowing pedestrians to connect directly into Symmetry Park (the industrial development being brought forward by Tritax Symmetry) and the new Country Park. For the avoidance of doubt, these connections achieve:

- A through-route aligned with the Tritax Symmetry site planning requirements;
- A safeguarded connection that links Fox's Bank Road through to the Country Park corridor; and
- Surface treatment, width, and gradient appropriate for pedestrians, cyclists, (and horses).

3.2.5 The site will retain its existing equestrian heritage by providing its part in an equestrian link between existing riding schools to the south and popular riding routes to the north.

3.2.6 Discussions were undertaken with the owners of the land adjacent to the development site, relating to the Tritax Symmetry Park site, following the receipt of the pre-application advice from the LPA. The aim of these discussions was to facilitate a dedicated footpath through the Symmetry Park site to provide future occupants of the development with a secure link to the bus stops on Cronton Road. These discussions have resulted in an agreement in principle.

3.2.7 Combined with the direct access to the Taylor Wimpey site to the north which provides further connectivity to the wider masterplan area, it is concluded that the proposed development in its amended form achieves the necessary connectivity required of Sustainable Urban Extensions and as such aligns with the aims of Policy SUE2c of the Local Plan. Furthermore, the scheme contributes to the overall aim of the Halsnead Garden Village Masterplan SPD Strategic Objective SO4 "Enhancing Connectivity"."

Servicing and Emergency Access

3.2.8 It is anticipated that refuse collection will be carried out from the roadside, with refuse looping round the site. **Drawing 087052-CUR-XX-XX-D-T-05001-P03** demonstrates how a large refuse vehicle would navigate and turn on-site.

3.2.9 It is envisaged any emergency vehicles would undertake similar manoeuvres, and **Drawing 087052-CUR-XX-XX-D-T-05003-P01** demonstrates how a fire tender can access all units in case of emergency.

3.3 Proposed Parking Provision

3.3.1 **Table 3.1** reproduces the Knowsley Council SPD car parking standards:

Number of Bedrooms	Car Parking Max Standards	Disabled Parking	Cycle Parking* Minimum Standards
1 Bedroom	1 space	Case by Case Basis	1 (allocated) 1 (Communal)
2-3 Bedrooms	2 spaces	Case by Case Basis	2 (allocated) 1 (Communal)
4+Bedroom	3 spaces	Case by Case Basis	4 (allocated) 2 (Communal)

*cycle parking need not be provided if garages are available

Table 3.1 – Knowsley Parking Standards

3.3.2 Based on the above, the proposed development can provide a maximum of 157 car parking spaces across the site.

3.3.3 However, given the nature of the development proposals and as discussed with Knowsley Highways, it would not be appropriate to meet the maximum levels of car parking. On this basis, a total of 150 car parking spaces are proposed as follows:

- Houses: 111 spaces;
- Apartments: 37 spaces; and
- Visitor spaces: 2 spaces.

3.3.4 There are 7no. accessible parking bays within the above (associated with the 7no. M4(3) units).

3.3.5 EV charging will be provided in accordance with building regulations; at one point per new dwelling.

3.3.6 Each apartment is allocated a cycle space in a purpose built secure and covered cycle store in close proximity to each block. A minimum of two cycle storage spaces per house are located within secure sheds located in rear gardens.

Local Car Ownership Levels

3.3.7 The level of car parking provision has further been informed by Dataset QS416EW of the 2011 Census, titled 'Car or van availability', centred around the Knowsley 017 Middle Super Output Area (MSOA) where the site is located, for all dwelling types.

Knowsley 017 MSOA Car/Van Ownership	Percent
No cars or vans in household	11%
1 car or van in household	43%
2 cars or vans in household	36%
3 cars or vans in household	8%
4 or more cars or vans in household	2%
Total	100%

Table 3.2 – Car Ownership

3.3.8 At 90%, the vast majority of households have access to two or fewer cars/vans, and more than half (54%) have access to one or no cars/vans.

3.3.9 The average car ownership per household equates to 1.47 cars. Assuming such a level of ownership across 88 units, there could be a total car parking demand of 129 spaces which compares well with the proposed total of 150 spaces on site.

4.0 Accessibility by Sustainable Modes of Transport

4.1 Introduction

4.1.1 The site forms part of the "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.

4.1.2 **Figure 4.1** illustrates how the site is situated in relation to the Fox Wood Garden Village and Tritax Symmetry sites, with the arrows demonstrating how onwards connectivity will be achieved:

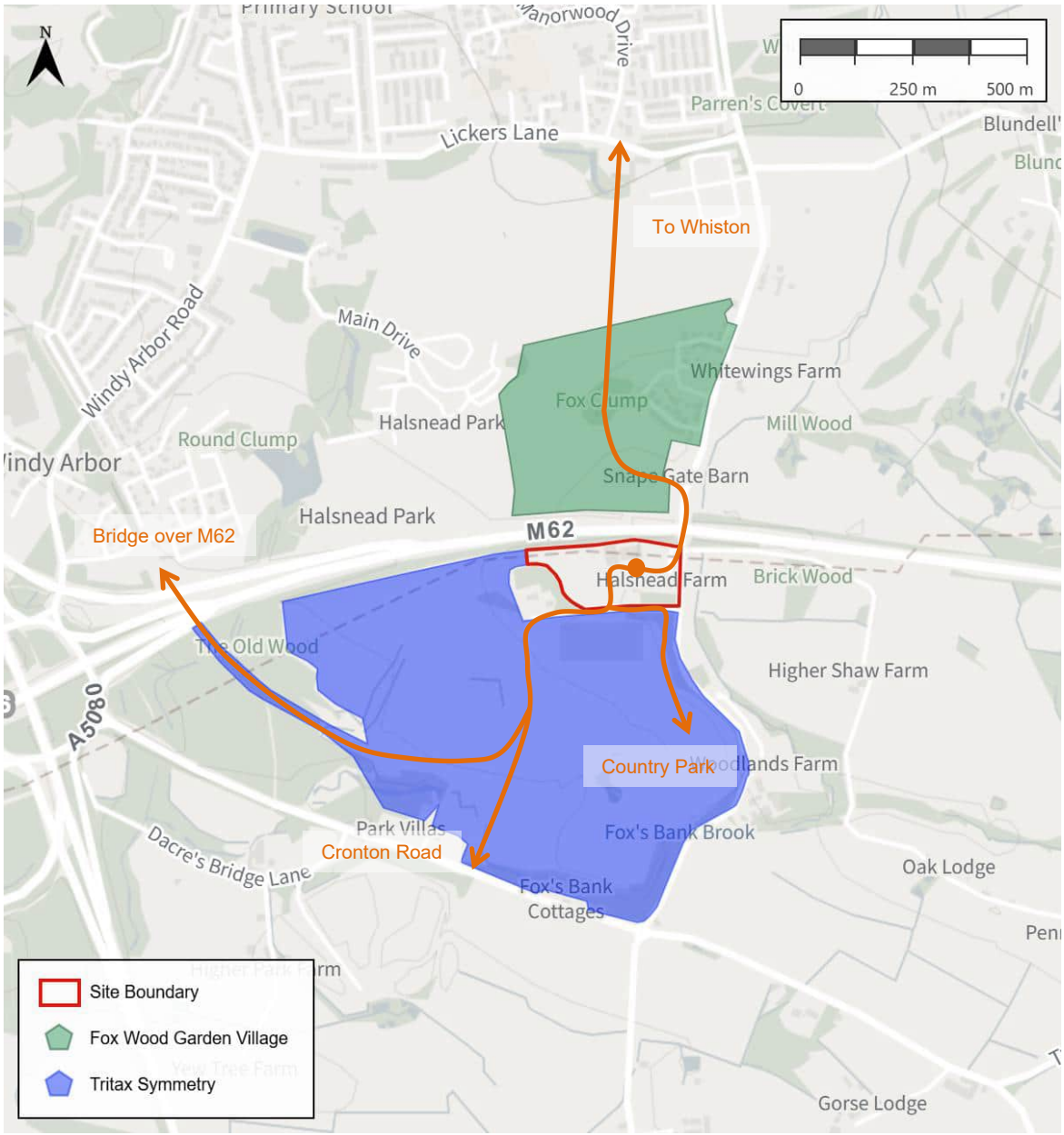


Figure 4.1 – Masterplan Connectivity

(Source: Ordnance Survey, 2025)

4.1.3 This onwards connectivity would be achieved for pedestrians, cyclists and equestrians. However, within such context, this section focuses on:

- Pedestrian Accessibility;
- Accessibility by Cycle; and
- Accessibility by Public Transport.

4.2 Pedestrian Accessibility

4.2.1 From the site, pedestrian access to Fox Wood Garden Village is provided via a dedicated pedestrian footway along the western side of Fox's Bank Lane of at least 2m in width. Here, a dedicated attractive pedestrian link provides access to the internal road network of Fox Wood Garden Village; with a variety of dedicated off-road footways and shared surface streets provided throughout. The internal road network connects to future development phases in the north and west.

4.2.2 Additionally, there will be pedestrian links to the south from the proposed site, which are being brought forward by Tritax. This will involve a pedestrian route from the site, which connects to the existing access road to the south to provide pedestrian connectivity into Symmetry Park (the industrial unit being brought forwards by Tritax Symmetry). From here, residents will be able join onto the footpaths which will continue south into County Park. It is envisioned this footway link will be used by those in the Taylor Wimpey development to the north as well.

4.2.3 This route is proposed as part of the approved proposals for a Country Park on the Land South of the M62 (15/00191/FUL) and also is included in the Core Strategy policy for the wider Masterplan. Once again, the various sites are reliant on one-another to deliver the wider Masterplan pedestrian accessibility.

4.2.4 To assist in summarising the accessibility of the site by foot, an indicative pedestrian catchment plan has been prepared. **Drawing 087052-CUR-00-XX-DR-TP-06001** shows distances of 500m, 1,000m and 2,000m which are termed 'Desirable', 'Acceptable' and the 'Preferred Maximum' by the CIHT for commuting/school trips and are considered representative of a typical residential pedestrian trip.

4.2.5 Lickers Lane is accessible c.1,400m from the centre of the site (via Fox Wood Garden Village and future development phases). From Lickers Lane, various facilities and amenities are accessible throughout Whiston Cross within c.2,600m including the following as presented in **Figure 4.2**:

- Sandfield Natural Play Centre (c.1,500m);
- Go Local Convenience Store (c.1,600m);
- St Leos and Southmead Catholic Primary School (c.1,800m);
- St Leo Church (c.1,800m);
- Halsnead Primary School (c.2,400m);
- Tesco Express (c.2,600m); and

- A variety of local shops and food/drink/takeaway establishments off Windy Arbour Road/ Dragons Lane/Greenes Road (c.2,600m).

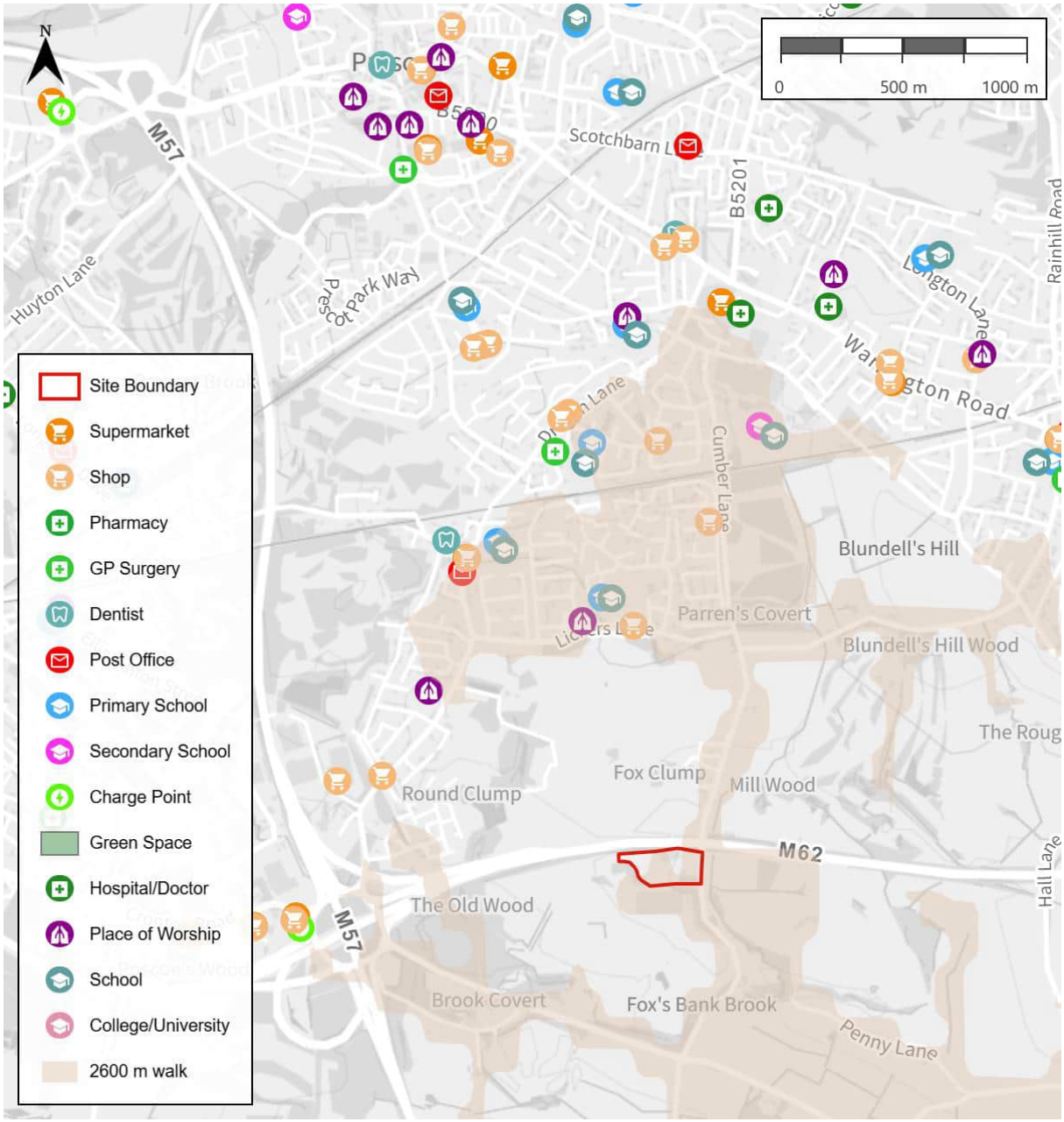


Figure 4.2 – Local Amenities c.2,600m from the Site

4.2.6 Furthermore, additional amenities, facilities and employment opportunities will come forward as part of the Halsnead Garden Village Masterplan; including the New Country Park and various B8 employment uses.

4.2.7 In summary, as part of the wider Sustainable Urban Extension allocation within the Local Plan Core Strategy, the site benefits from various amenities and facilities within the local area.

4.3 Accessibility by Cycle

4.3.1 In order to assist in assessing the accessibility of the site by cycle, **Drawing 087052-CUR-00-XX-DR-TP-06002** presents an 8km cycle catchment for the site. The 8km catchment extends as far as Eccleston in the north, St Helens in the north-east, Widnes in the south and Broadgreen in the west. These areas incorporate a variety of employment, retail and leisure uses. More locally, the following are accessible:

- Whiston Railway Station (c.2.3km);
- Whiston Hospital (c.2.5km);
- Rainhill (c.2.8km); and
- Various employment uses in Tarbock Green (as close as 3.2km).

4.3.2 The nearest National Cycle Route (NCR) is route 56 which is situated approximately 1.8km northwest of the site. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by cycle.

4.4 Accessibility by Public Transport

4.4.1 **Drawing 087052-CUR-00-XX-DR-TP-06003** demonstrates those areas accessible via public transport within 20-, 40- and 60-minute journey from the site. Accessibility by bus and rail are considered in further detail within the subsections below.

Bus Accessibility

4.4.2 The nearest bus stops are located to the south of the site on the A5080 Cronton Road; approximately 800m walk from the centre of the site via the Tritax Symmetry site. The stops on Cronton Road both comprise a flagpole arrangement with timetable information and DDA kerbs.

4.4.3 Additionally, north of the site on Fox's Bank Lane/Cumber Lane or Lickers Lane, there are bus stops accessible within c.1,200m – 1,400m walk from the centre of the site via the wider allocation. The stops on Fox's Bank Lane and Cumber Lane are both complete with shelters and timetable information.

4.4.4 **Table 4.1** details the services that call at these stops, and the associated frequencies:

Bus Service	Route	Typical Frequency		
		Mon – Fri	Sat	Sun/Hols
Cronton Road				
7	Liverpool – Huyton or Warrington	30mins	30mins	30mins
Fox's Bank Lane/Cumber Lane or Lickers Lane				
99	Whiston Station – Prescot Circular	Hourly	Hourly	-
239	Prescot – Broadgreen Hospital	40mins	40mins	-
248	Huyton Bus Station – Prescot Bus Station	Early/Late Services	Early/Late Services	Hourly

Table 4.1 – Summary of Bus Services

4.4.5 Whilst the bus stops are outside a typical walking catchment, the attractiveness of service number 7 in particular (which provides a regular connection into Liverpool city centre and Huyton Bus Station or Warrington Bus Interchange) would offer a genuine option for prospective residents as it offers early and late running services. The walking route is also an attractive route away from roads with high volumes of traffic and via the Country Park if the user wishes to walk slightly further.

4.4.6 Alternative services are available to the north which serve key destinations such as Broadgreen Hospital and various local centres. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by bus.

Rail Accessibility

4.4.7 The nearest Railway Station is Whiston Railway Station, c.2.3km walk north of the site via the wider allocation. The station is managed by Northern Rail and offers services to destinations including Warrington Bank Quay, Liverpool Lime Street, Crewe and Manchester Piccadilly.

4.4.8 Due to the attractive destinations, it is considered some prospective residents may choose to walk to the station via the wider Masterplan which offers attractive route away from roads with high volumes of traffic. Alternatively, the station provides car parking, with 42 standard spaces and 2 accessible spaces (making park-and-ride a feasible option), or the station is within a 10minute leisurely cycle.

4.4.9 There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by rail as part of a multi-modal journey.

4.5 Summary

4.5.1 It is noted the site forms part of the “Sustainable Urban Extension – South of Whiston and South of the M62” allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.

4.5.2 There are pedestrian connections into the north (Fox Wood Garden Village) and south (Tritax Symmetry). Onwards connections are secured via the wider allocation.

4.5.3 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.

5.0 Traffic Forecasting and Highway Impact

5.1 Introduction

5.1.1 Firstly, this section considers the traffic-generating potential of the proposed development site. In order to undertake the assessment, the TRICS database has been used.

5.1.2 TRICS is the industry recognised tool for calculating the anticipated future trip demand of a proposed development. The database contains multi-modal surveys of varying land uses in multiple destinations across the UK, including residential land uses.

5.1.3 The forthcoming TRICS assessment demonstrates any highway impact would be negligible. Notwithstanding this, to provide additional comfort for Highways Officers at Knowsley and to provide additional information regarding the Strategic Road Network (SRN), this section also discusses a model of the site access and the levels of traffic distributed to M62 Junctions 6 and 7.

5.2 TRICS Trip Generation

5.2.1 The following section contains trip generation analysis based on the proposed development during the weekday AM and PM peak hours. The full TRICS outputs are included within **Appendix D** to the rear of this report. The applied selection criteria are set out below:

- TRICS category "Residential – Affordable/Local Authority Houses";
- Weekday surveys;
- Edge of Town Centre and Suburban Areas;
- Vehicle surveys only (insufficient multi-modal surveys available on TRICS).

Consideration has been given to the traditional highway network peak hours of 08:00 – 09:00 and 17:00 – 18:00 to understand development impact at peak times. The trip rates and subsequent vehicular trips associated with the 'up to 90' units are summarised in **Table 5.1** below:

TRICS Trip Rates	Trip Generation AM (08:00 – 09:00)			Trip Generation PM (17:00 – 18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Vehicles	0.124	0.255	**0.379**	0.265	0.199	**0.464**
Trip Generation	11	23	**34**	24	18	**42**

Table 5.1 – Proposed Development Rip Rates and Trips

5.2.2 The above table demonstrates the proposed development could generate approximately 34 and 42 two-way vehicular trips in the traditional AM and PM peak hours respectively. Volumetrically, this translates to an average of 4-5 vehicles every 4-6 minutes in the peak hours.

5.3 Highway Impact

5.3.1 The above trip generation exercise should provide comfort that the proposed development would not have a perceptible impact on the surrounding highway network. It is therefore clear the development would not have a "severe" impact on the surrounding highway network.

5.3.2 As part of a vision-led approach to transport planning, the development of the site would also promote the use of sustainable modes across the wider Masterplan by providing the missing link across the M62 between the land to the north and south of the motorway. This, in turn, connects:

- The Fox Wood Garden Village (and significant planned residential-led development to the north) with employment uses at Tritax Symmetry and the new Country Park (and vice versa); and
- Existing users of the wider equestrian network including nearby livery yards and riding centres (such as Lodge Riding Centre on Dacres Bridge Lane) with Whiston Woods and Rainhill.

5.3.3 On this basis, and in the context of a minimal increase in vehicular movements, the development of the site could be viewed as mitigating any of its adverse impacts by virtue of the role it plays in the context of connecting the wider Masterplan.

5.4 Additional Assessment Information – Proposed Development Traffic Figures

Baseline Data Collection

5.4.1 An independent ATC was undertaken by an independent survey company on 9th January 2025. The surveyed flows are provided to the rear of this report in **Traffic Figures 01** and **02**.

Assessment Years and Traffic Growth

5.4.2 TEMPro is commonly used to generate a suitable future year traffic growth factor, however, a blanket growth factor is not reflective of historical trends.

5.4.3 Notwithstanding this, to ensure a robust assessment of off-site junctions on the surrounding highway network and to provide an additional level of comfort to Highways Officers, growth factors have been taken from the National Trip End Model ('NTEM') with TEMPro for the Knowsley area 011.

5.4.4 **Table 5.2** provides the factors from a base year of 2025 to 2030:

Peak Time	Level		2025-2030
AM Peak	Authority	Knowsley 011	**1.0337**
PM Peak	Authority	Knowsley 011	**1.0343**

Table 5.2 – Unadjusted TEMPro Growth Factors

5.4.5 The 2030 Future Year flows are provided to the rear of this report in **Traffic Figures 03** and **04**.

Trip Distribution and Assignment

5.4.6 Trip distribution has been calculated using information provided by the Census 2011 Origin-Destination information for the place of work at an MSOA (Middle Super Output Area) level. A summary of the projected traffic Census distribution is provided in **Appendix E**, whereas **Traffic Figure 05** included at the rear of this report illustrates the percentages of the traffic that passes through the assessed junctions, assigning traffic to each of the arms.

5.4.7 **Traffic Figures 06** and **07** included at the rear of this report provide the Proposed Development trip assignment for the AM and PM peak periods.

Assessment Traffic Flows

5.4.8 The development traffic flows have been added to the 2025 Application Year scenario to form the '2025 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 08** and **09**.

5.4.9 In addition, the development traffic has been added to the 2030 Future Year scenario to form the '2030 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 10** and **11.**

5.5 Additional Assessment Information – Site Access Model

Regular Assessment

5.5.1 The Site Access has been assessed using the Junctions 9 modelling package using the flows presented in **Traffic Figures 08** – **11**.

5.5.2 Results refer to the Ratio of Flow to Capacity ('RFC') and queue length predicted on each arm of the junction. An RFC of 1.00 indicates that the arm in question is operating at its theoretical capacity, whilst an RFC of 0.85 or less indicates that the arm is operating within its practical capacity.

The full outputs are provided in **Appendix F** and the results are summarised in **Table 5.3** below:

Arm		2025 With Development		2030 With Development	
		RFC	Queue	RFC	Queue
AM Peak					
1	Site Access left right	0.06	0.1	0.06	0.1
2	Fox's Bank Lane ahead right	0.00	0.0	0.00	0.0
PM Peak					
1	Site Access left right	0.04	0.0	0.05	0.0
2	Fox's Bank Lane ahead right	0.10	0.0	0.01	0.0

Table 5.3 – Site Access Junctions 9 Results – Regular Assessment

5.5.3 It is clear from the results shown in **Table 5.3** demonstrate the proposed site access junction is predicted to operate well within capacity in the future year with development scenarios.

Sensitivity Test

5.5.4 Referring to the Fox Wood Garden Village scheme, the associated Transport Assessment presented two-way committed development and development flows totalling 105 in the AM peak, and 116 in the PM peak. The relevant figures taken from the Fox Wood Garden Village Scheme can be found in **Appendix G.**

5.5.5 To incorporate these flows and provide additional comfort, as a sensitivity test, the 2030 Base flows along Fox's Bank Lane have been doubled to represent a potential future increase in traffic flow. This results in an additional traffic load of c.450 two-way trips in the AM peak, and c.370 two-way trips in the PM peak; levels of traffic significantly above those forecasted in the Fox Wood Garden Village Transport Assessment.

5.5.6 In doubling the 2030 main line flows, Curtins has provided a very robust assessment of a future year; just to demonstrate resilience in the access strategy. The full modelling outputs of the subsequent assessment are provided in **Appendix F** and the results are summarised in **Table 5.4** below:

Arm		2030 With Development (Sensitivity Test)	
		RFC	Queue
AM Peak			
1	Site Access left right	0.15	0.2
2	Fox's Bank Lane ahead right	0.01	0.0
PM Peak			
1	Site Access left right	0.11	0.1
2	Fox's Bank Lane ahead right	0.02	0.0

Table 5.4 – Site Access Junctions 9 Results – Sensitivity Test

5.5.7 It is clear from the results shown in **Table 5.4** demonstrate the proposed site access junction continues to operate well within capacity in the future year with development scenarios despite the loading of significant additional traffic as a sensitivity test.

5.6 Additional Assessment Information – Impact on the SRN

5.6.1 Referring to the **Traffic Figures 06** and **07** contained to the rear of this report, it is clear the proposed development would have a negligible impact on the SRN, comprising:

- Approximately 17 and 21 two-way trips to the M62 Junction 6 in the AM and PM peak periods respectively; and
- Approximately 9 and 11 two-way trips distribute north of the site access in the AM and PM peak periods respectively; of which some would go onwards to the M62 Junction 7.

5.6.2 Taking the worst-case impact (this being the PM peak at Junction 6) there could be approximately one additional vehicle through the junction every 3mins. This would not translate to any perceptible impact.

5.6.3 Notwithstanding, and at the time of writing, there is an existing improvement scheme underway at Junction 6 which includes improvements to capacity (specifically carriageway widening on the circulatory).

5.6.4 Finally it should also be noted that, due to the proposed development site status being allocated in the Knowsley Local Plan, the proposed development trips should be accounted for within the most recent modelling analysis provided for the Local Plan and as part of the assessment works for the upgrade of Junction 6.

6.0 Transport Planning Policy

6.1 Introduction

6.1.1 When developing scheme proposals, it is important to review the national and local transport related planning policies. This section aims to outline the key policies throughout relevant policy and guidance documents.

6.2 National Planning Policy Framework (2024)

6.2.1 The National Planning Policy Framework (NPPF) sets out the current national transport planning policy and outlines the important role that transport policies have to play in facilitating sustainable development.

6.2.2 Paragraph 11 states that:

"Plans and decisions should apply a presumption in favour of sustainable development."

6.2.3 For decision taking this means granting permission unless:

"*…any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies*."

6.2.4 Section 9 of the NPPF is entitled *Promoting Sustainable Transport* and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

"*The planning system should actively manage patterns of growth …Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.*"

6.2.5 The document emphasises the need for developments to offer a choice of sustainable modes of transport to *"reduce congestion and emissions and improve air quality and public health"* and provide *"safe and suitable access"* for all users.

6.2.6 Paragraph 115 of the NPPF states that in assessing sites that may be allocated for development in plans, or specific applications in development, it should be ensured that:

a) "sustainable transport modes are prioritised taking account of the vision for the site, 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; 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 through a vision-led approach."*

6.2.7 The development proposals have shown that safe and suitable access to the site will be achieved. Additionally, as part of the wider Halsnead Garden Village Masterplan and by virtue of the Masterplan forming an allocation in the Local Plan, the site has been is an accessible site in accordance with national policy.

6.2.8 Paragraph 116 of the 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, following mitigation, would be severe, taking into account all reasonable future scenarios."

6.2.9 This report has demonstrated any impact on the surrounding road network would not be "severe" and that the development would not result in an unacceptable impact on safety. The proposed development accords with the general principles of the NPPF.

6.3 Knowsley Local Plan Core Strategy 2016

6.3.1 The Knowsley Local Plan comprises sets out the strategic framework of development for Knowsley up to 2028 and beyond. The document provides guidance for development and regeneration for the Borough. The Local Plan outlines 9 strategic objectives as part of its vision:

- ***Sustainable Economic and Employment Growth-*** *To encourage and maintain sustainable economic and employment growth in Knowsley, complementary to that within the wider Liverpool City Region, by accommodating employment related development, improving skills within the workforce, and promoting enterprise, entrepreneurship and innovation.*
- ***Well-balanced Housing Market-*** *To promote a well-balanced housing market throughout Knowsley by providing a sufficient quantity and mix of high quality sustainable housing in appropriate locations to meet needs and demand (including for market, affordable and supported housing).*
- ***Regenerate and Transform-*** *To regenerate and transform areas of social and economic deprivation so they become more sustainable, safer, healthier and more cohesive communities, thus narrowing the gap between the richest and poorest communities in Knowsley.*
- ***Distinctive, Viable and Sustainable Town Centres-*** *To promote distinctive, viable and sustainable town centres in Huyton, Kirkby and Prescot, by improving choice, variety and quality in their range of retail, leisure and other town centre uses, together with thriving district centres, including enhancement of those in Halewood and Stockbridge Village, and a more sustainable pattern of local centres.*
- ***Quality of Place-*** *To promote the quality of place within Knowsley by protecting historically important features and enhancing the character, quality and diversity of Knowsley's built*

environment, including town centres, key employment areas, residential neighbourhoods, green spaces, conservation areas, rural areas and villages, key gateways and transport routes.

- ***Sustainable Transport-*** *To ensure new development in Knowsley encourages a reduction in the overall need to travel, and prioritises sustainable transport such as walking, cycling and public transport. This will help to ensure accessibility and linkage between housing areas and employment locations, shopping, leisure, culture, health care, education, community and sporting facilities, green spaces and other services.*
- ***Manage Environmental Resources-*** *To manage environmental resources in Knowsley prudently by focusing on sustainable development, recycling and renewable technologies, minimising pollution, reducing carbon emissions and responding to the impacts of climate change.*
- ***Green Infrastructure in Rural Areas-*** *To* support and strengthen the role of Knowsley's Green Infrastructure (in rural and urban areas), promote biodiversity, and maintain the character of rural settlements including Cronton, Tarbock and Knowsley Village.
- ***Promote Health and Wellbeing in Knowsley-*** *To address existing health inequalities and encourage enhancements to the health and wellbeing of Knowsley's residents by ensuring a health promoting environment and provision of healthy lifestyle options for those living and working in the borough.*

6.3.2 It is considered that the proposed development is in accordance with the above objectives, and it has been demonstrated that the site is accessible by sustainable modes of transport including walking, cycling and public transport.

6.3.3 Also as covered throughout this TA, the proposed development site sits within the wider "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). Policy SUE2 requires the site to:

"a) deliver sustainable development;

b) demonstrate a comprehensive approach to the development of the relevant Sustainable Urban Extension and to infrastructure provision (including, subject to the requirements of Policy CS27: Planning and Paying for Infrastructure, provision of an appropriate proportion of financial and/or 'in kind' contributions towards strategic and/or local infrastructure required to enable the comprehensive development of the sites);

c) be of a high design quality which enhances local distinctiveness and identity (incorporating localised design features where appropriate) and provides high levels of physical and visual integration and connectivity with adjacent urban development (see Policy CS19: Design Quality and Accessibility in New Development);

d) be carried out in accordance with the development principles and using any appropriate development assessment tools as required by Policy CS2: Development Principles;

e) deliver development (including the principal uses defined in Policy SUE1: Sustainable Urban Extensions) which will help to meet borough-wide and local needs;

f) include appropriate provision for public open space (POS), walking and cycling routes as part of the Green Infrastructure network integrating with existing POS, recreational assets and areas of ecological value (see Policy CS8: Green Infrastructure and Policy CS21: Greenspaces and Trees);

g) provide good transport linkages within the relevant Sustainable Urban Extension and with surrounding areas (see Policy CS7: Transport Networks);

h) Protect or enhance historic and architectural assets where appropriate (see Policy CS20: Managing the Borough's Historic Environment);

i) Address flood risk by locating development in areas of low probability of flooding and including flood mitigation measures where necessary (see Policy CS24: Flood Risk); and

j) Provide a clearly defined edge to the developed area."

6.3.4 This TA demonstrates the proposed development meets the above policy objectives. The proposed development can be considered to be in accordance with the relevant Local Plan Policy from a traffic and transport perspective.

6.4 Merseyside Local Transport Plan

6.4.1 The Local Transport Plan sets out implementation plans for the medium and long term and aims to improve transport within the Merseyside region. The Third Local Transport Plan envisions the following;

"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".

6.4.2 The Local Transport Plan has six goals;

- *"Help create the right conditions for sustainable economic growth by supporting the priorities of the Liverpool City Region, the Local Enterprise Partnership and the Local Strategic Partnerships.*
- *Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.*
- *Ensure the transport system promotes and enables improved health and wellbeing and road safety.*
- *Ensure 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.*
- *Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.*
- *Maintain our assets to a high standard."*

6.4.3 The proposed development is in line with the LTP goals.

6.5 'Ensuring a Choice of Travel' SPD

6.5.1 The 'Ensuring a Choice of Travel' SPD was developed in partnership with the Merseyside Local Authorities and Merseytravel in order to provide consistent guidance to developers on access and transport requirements for new development across the wider Merseyside area. Its overall objectives are:

- *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;*
- *Improving 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.*

6.5.2 This TA has demonstrated the proposed development is in accordance with the SPD. Full reasoning as to why the maximum car parking standards have not been met is provided.

6.6 Conclusions

6.6.1 The proposed development meets the sustainable objectives of the National Planning Policy Framework and its residual traffic impacts are not severe. The proposals are also in accordance with regional and local transport planning policies, providing a suitable level of parking and encouraging uptake in sustainable modes.

6.6.2 From a traffic and transportation perspective there are no reasons why the development proposals should not be granted planning approval.

7.0 Summary and Conclusions

7.1 Summary

7.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site layout is provided in **Appendix A.**

7.1.2 A review of baseline conditions in the vicinity of the site has been undertaken. It is noted the site forms part of the "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established. The wider Masterplan is provided in **Appendix B**.

7.1.3 Following a review of road collision statistics, it is considered that are no existing safety issues that would be exacerbated by the proposed development.

7.1.4 Details on the site access and parking proposals have been provided. Pedestrian access is to be provided along Fox's Bank Lane to the north (and onwards towards Whiston via the Fox Wood Garden Village development and wider Masterplan), and into the Tritax Symmetry development in the south (and onwards into the wider Masterplan including the Country Park). Justification for the proposed levels of car parking has been provided.

7.1.5 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.

7.1.6 Robust traffic modelling demonstrates the proposed access operates with significant spare capacity. Traffic associated with proposed development would not have a perceptible impact on the surrounding highway network from the perspective of both highway capacity and safety. Additional sensitivity testing considering the site access and the M62 Junction 6 and 7 are provided.

7.1.7 A review of relevant local and national transport planning guidance has been undertaken. It is considered that the proposed development is in general accordance with such policies and guidance.

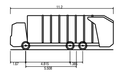
7.2 Conclusions

7.2.1 Based on the above, it is considered that there are no highways and transportation reasons to refuse planning permission for the proposed development.

Drawings

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Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

Rev:	Description:	Date:	By:	Chkd:
P03	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS 11.2m REFUSE

Drawn By	Designed By	Checked By
P	PB	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:500

Project Code - Originator - Function - Spatial - Form - Discipline - Number	Revision
087052 - CUR - XX - XX - D - T - 05001	P03

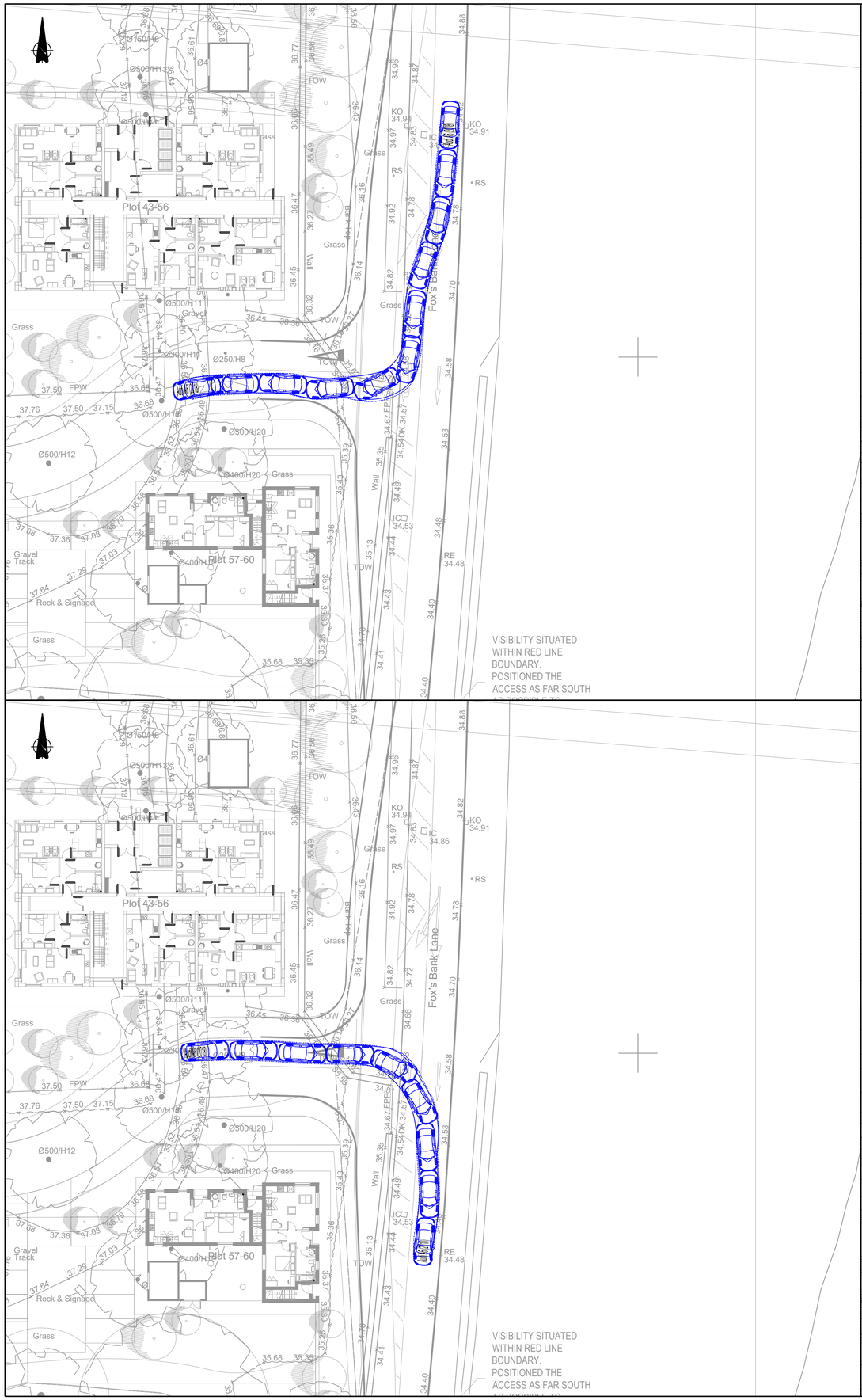
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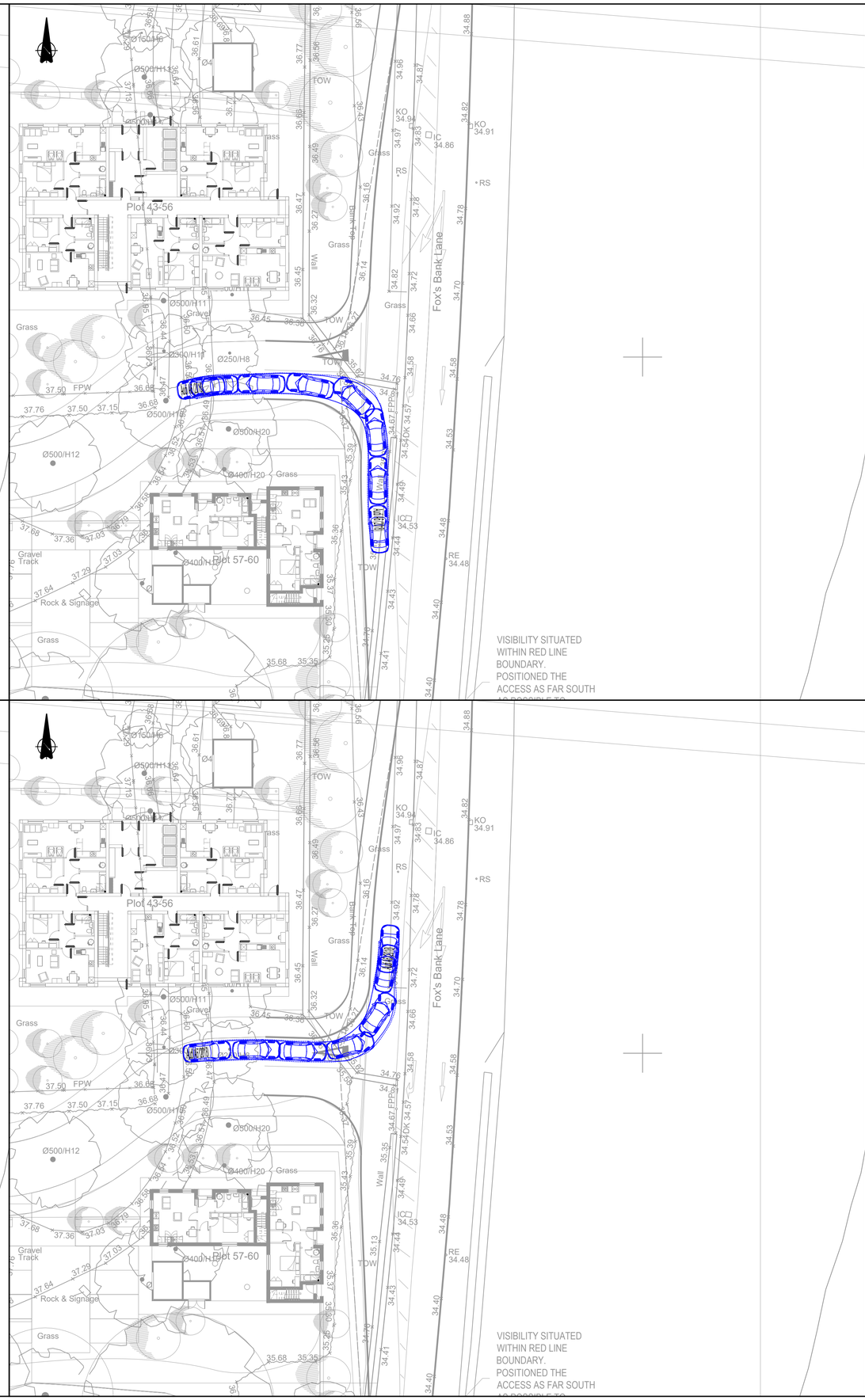
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Audi A6 (2018)	
Overall Length	4.939m
Overall Width	2.114m
Overall Body Height	1.457m
Min Body Ground Clearance	0.142m
Max Track Width	1.875m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.950m





Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY **S0**

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS LARGE CAR

Drawn By	Designed By	Checked By
HD	HD	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:250

Project Code - Originator - Function - Spatial - Form - Discipline - Number: 087052 - CUR - XX - XX - D - T - 05002

Revision: P02

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Dennis Sabre Fire Tender (LWB)

Overall Length	7.700m
Overall Width	2.410m
Overall Body Height	3.517m
Min Body Ground Clearance	0.415m
Track Width	2.380m
Lock to lock time	5.00s
Kerb to Kerb Turning Radius	7.400m

Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: SWEPT PATH ANALYSIS FIRE TENDER

Drawn By	Designed By	Checked By
PB	PB	DJ

Project No	Date	Scales @ A1
087052	08/10/25	1:500

Project Code - Originator - Function - Spatial - Form - Discipline - Number	Revision
087052 - CUR - XX - XX - D - T - 05003	P02

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Project:
HALSNEAD FARM

Drg Title:
ACCESSIBILITY
INDICATIVE WALKING CATCHMENT

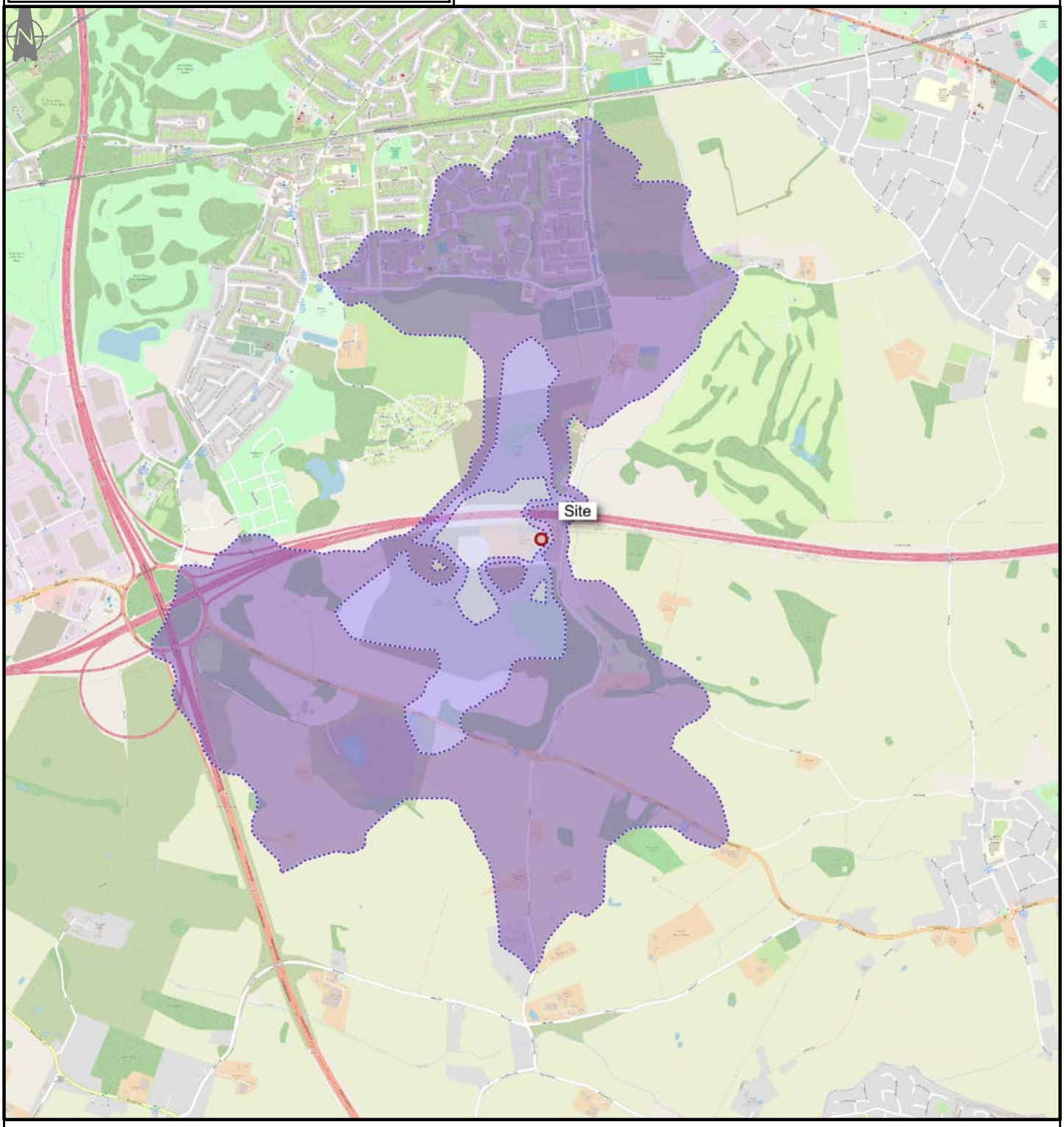
Status:
PRELIMINARY

Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
087052	CUR	XX	XX	G	TP	06001	P01



KEY:
Site
Walking Catchment
2000m
1000m
500m

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Project: HALSNEAD FARM

Status: PRELIMINARY

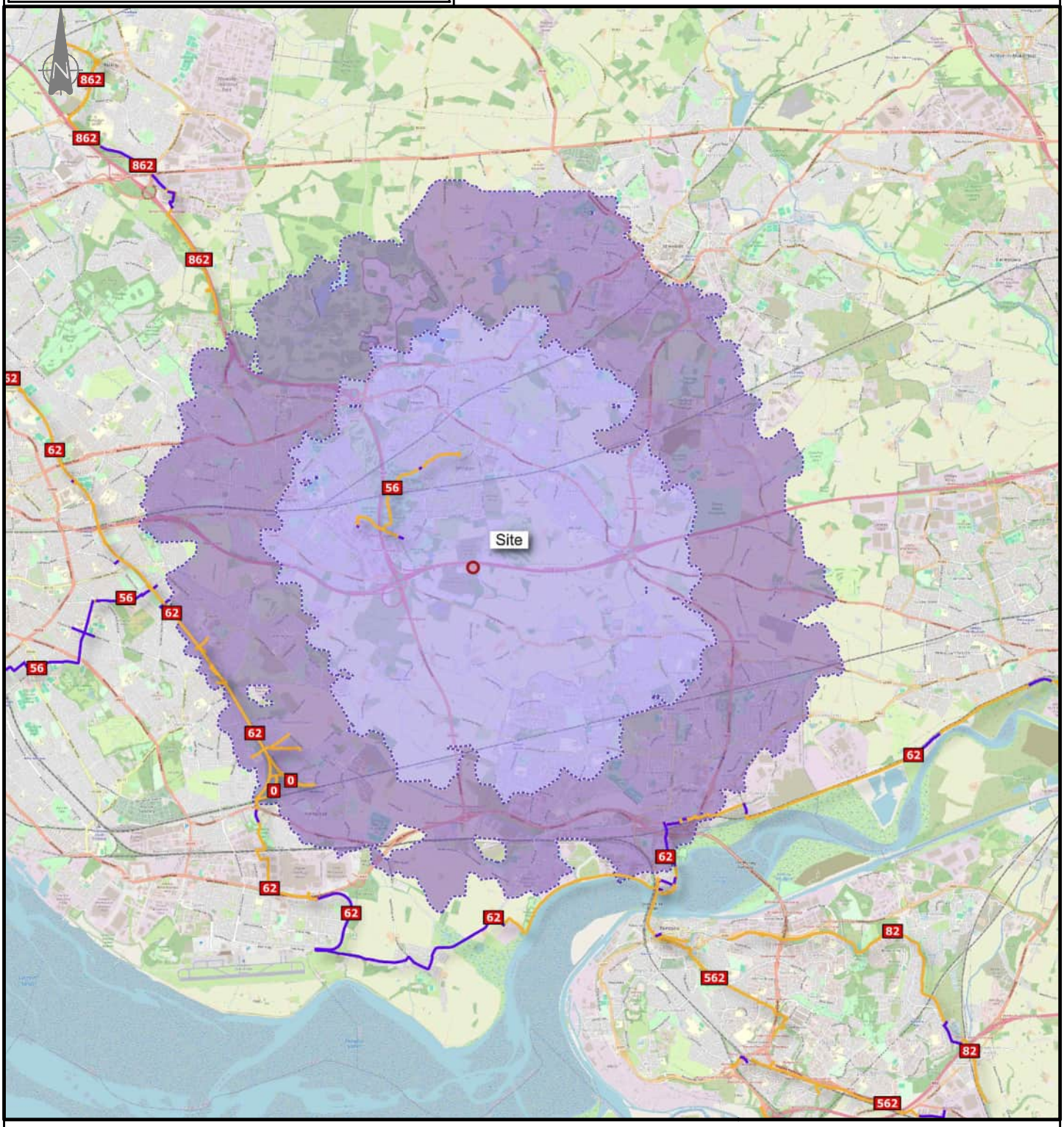
Drg Title: ACCESSIBILITY
INDICATIVE CYCLE CATCHMENT

Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
087052	CUR	XX	XX	G	TP	06002	P01



KEY: Site

Cycling Catchment
8000m
5500m

National Cycle Network Public
On Road Cycle Route
Traffic-free Cycle Route

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Project: HALSNEAD FARM

Drg Title: ACCESSIBILITY INDICATIVE PUBLIC TRANSPORT CATCHMENT

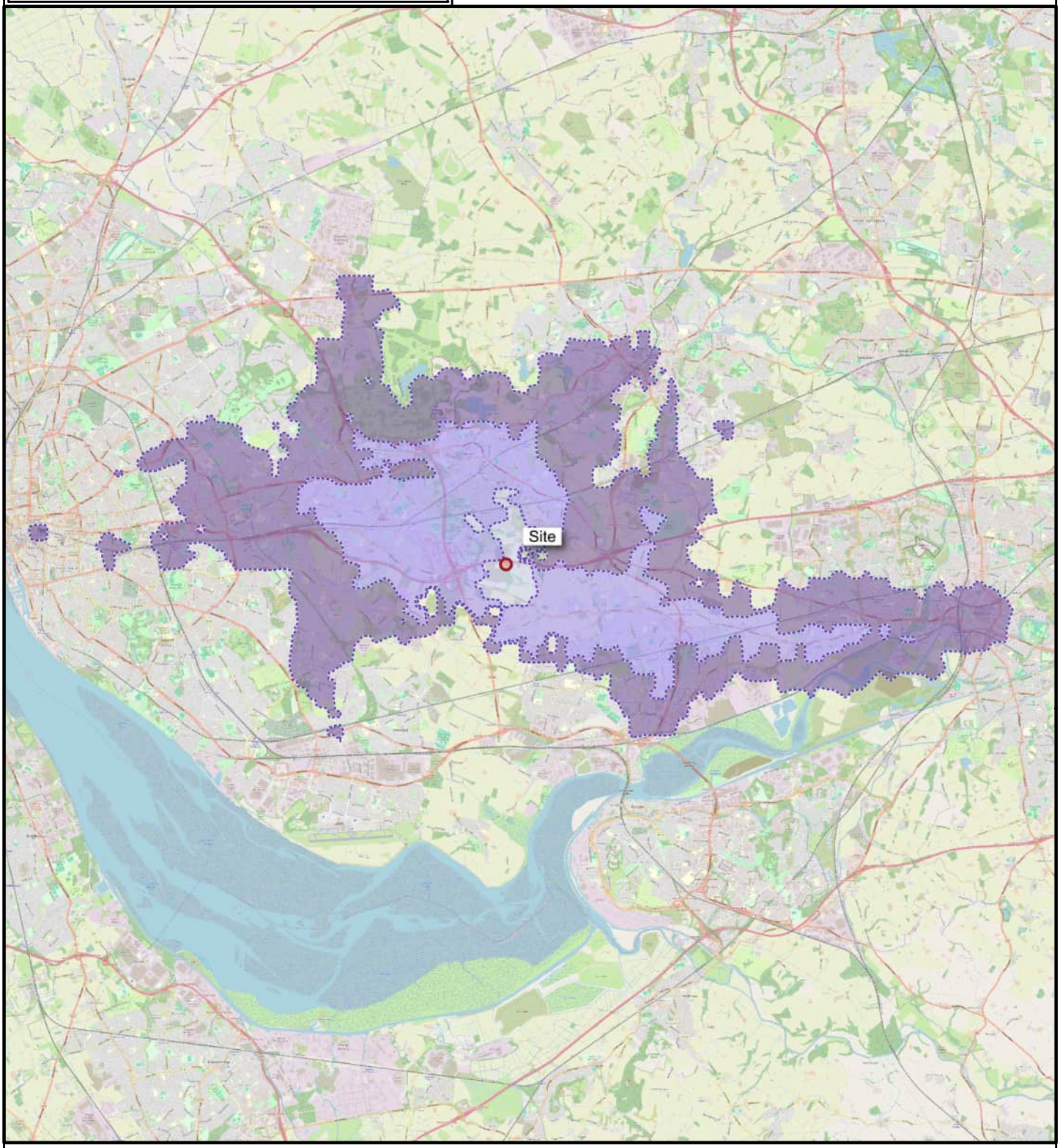
Status: PRELIMINARY

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Designed By: PB Date: 24/07/25

Scale: NTS

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
087052	CUR	XX	XX	G	TP	06003	P01



KEY:
- Site
- Public Transport Catchment
  - 60 minutes
  - 40 minutes
  - 20 minutes

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30MPH GATEWAY WOULD NEED TO BE RELOCATED TO THE NORTH OF THE PROPOSED DESIGN

VISIBILITY SITUATED WITHIN RED LINE BOUNDARY. POSITIONED THE ACCESS AS FAR SOUTH AS POSSIBLE TO REMAIN WITHIN RED LINE.

EXISTING TREES AND VEGETATION WOULD NEED TO BE REMOVED TO SATISFY VISIBILITY REQUIRMENTS

Fox's Bank Lane

Plot 33
Plot 34
Plot 35
Plot 39-42
Plot 43-56
Plot 36-38
Plot 61-66
Plot 57-60

STN1
STN2A
STN 1D

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KEY:

- PROPOSED RAISED KERB
- PROPOSED FLUSH KERB / BACK OF FOOTWAY
- PROPOSED ROAD MARKINGS
- 2.40 x 43.00m — PROPOSED VISIBILITY SPLAYS (30mph)
- RED LINE BOUNDARY

Rev:	Description:	Date:	By:	Chkd:
P02	UPDATED LAYOUT	11/11/25	HD	DJ

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Status: PRELIMINARY — S0

Project: HALSNEAD FARM

Drg Title: ACCESS ARRANGEMENT

Drawn By	Designed By	Checked By
PB	PB	JA

Project No	Date	Scales @ A1
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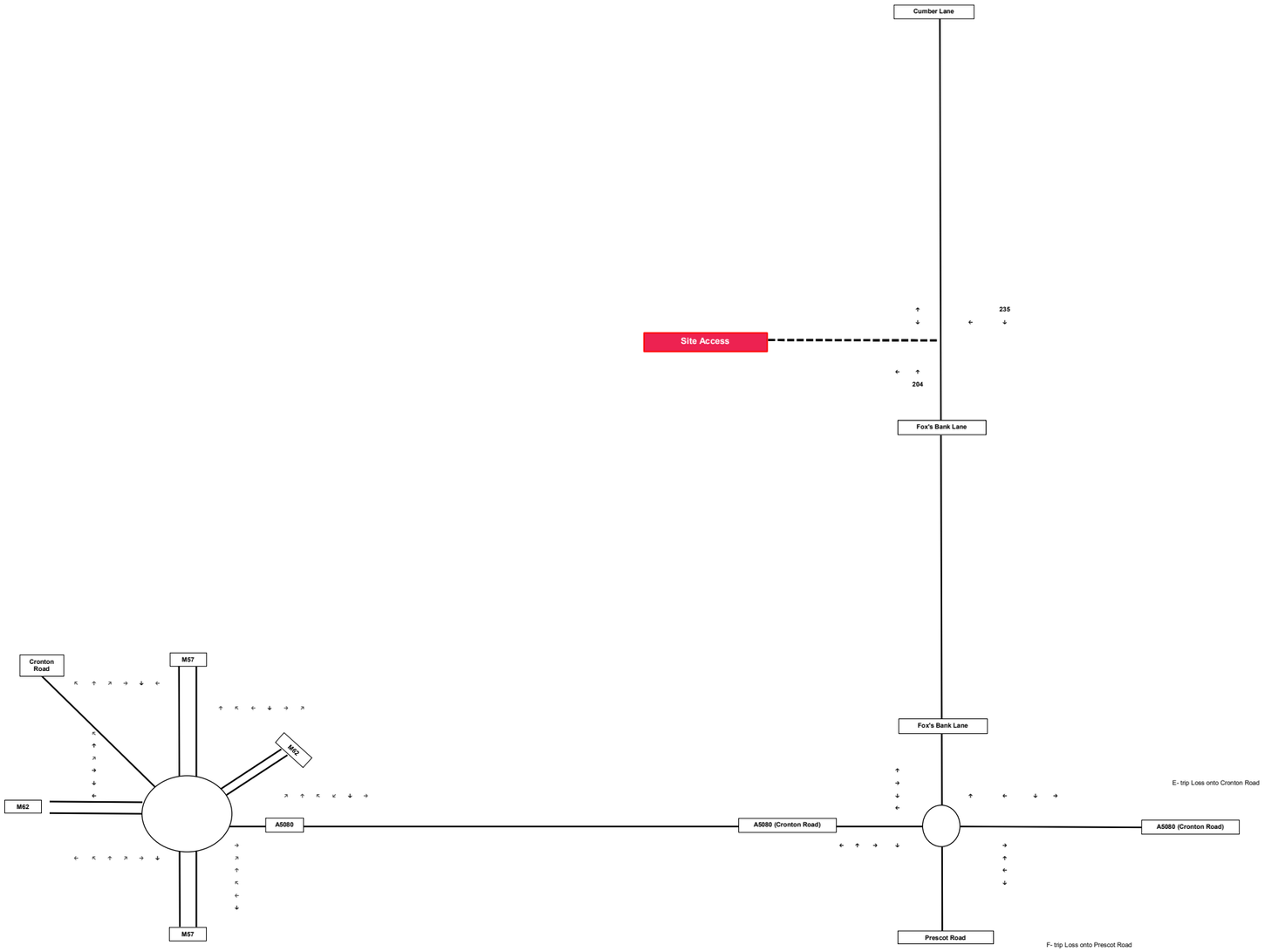
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Revision: P02

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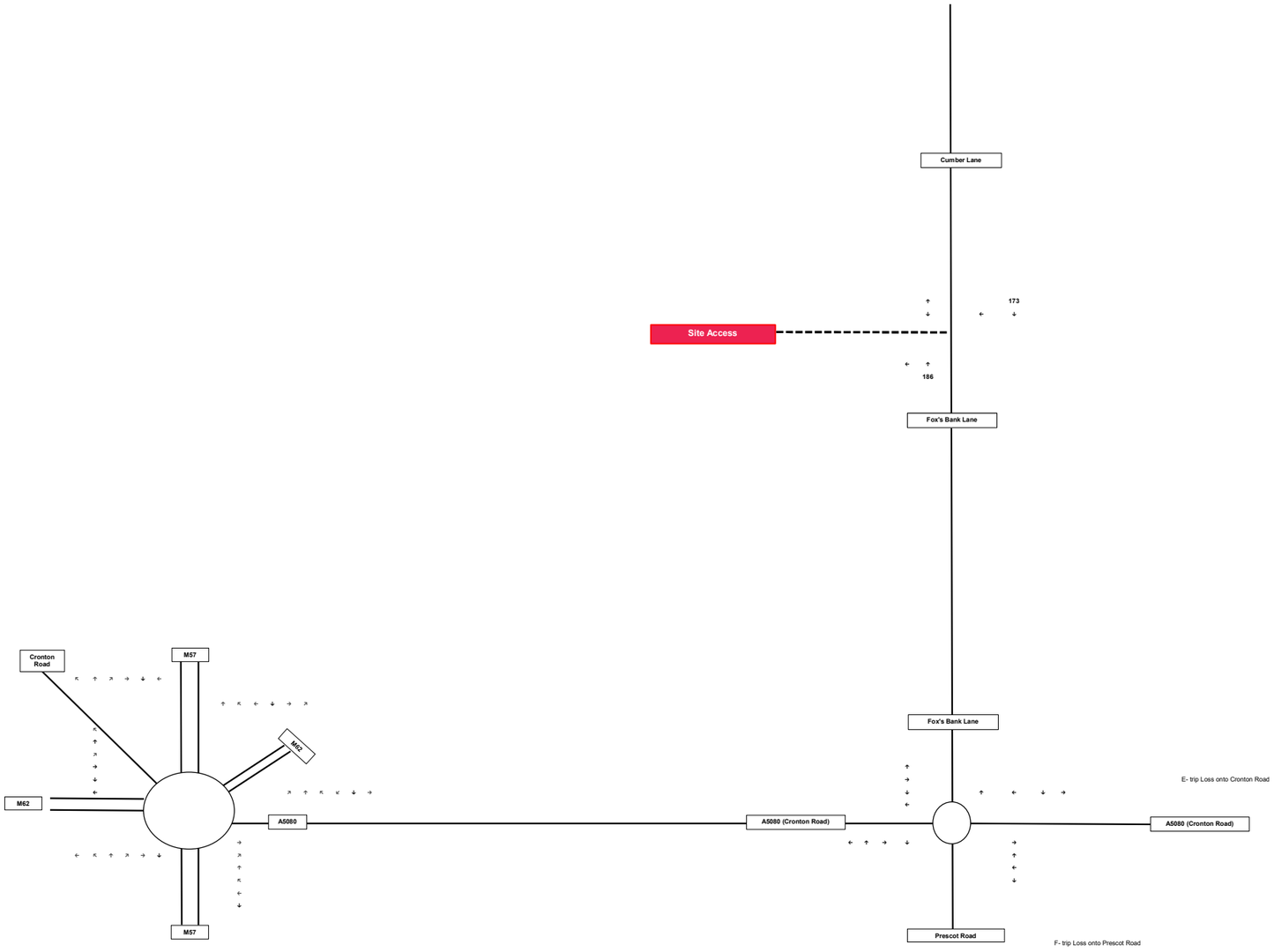
Traffic Figures

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



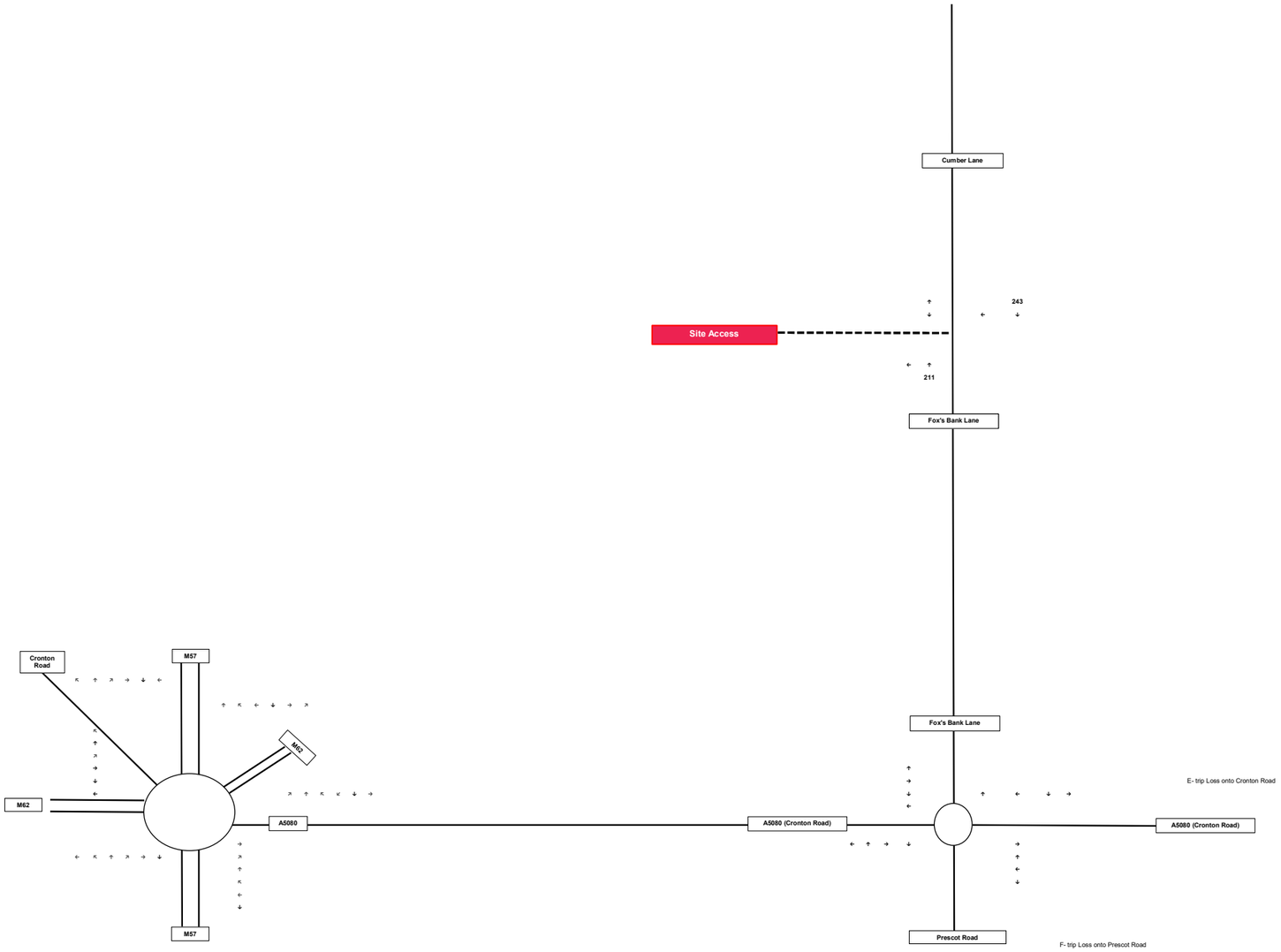
Curtins	2025 Base Flows AM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 01

Notes: PCUs in Black
HGVs in Red
Vehicles In Green



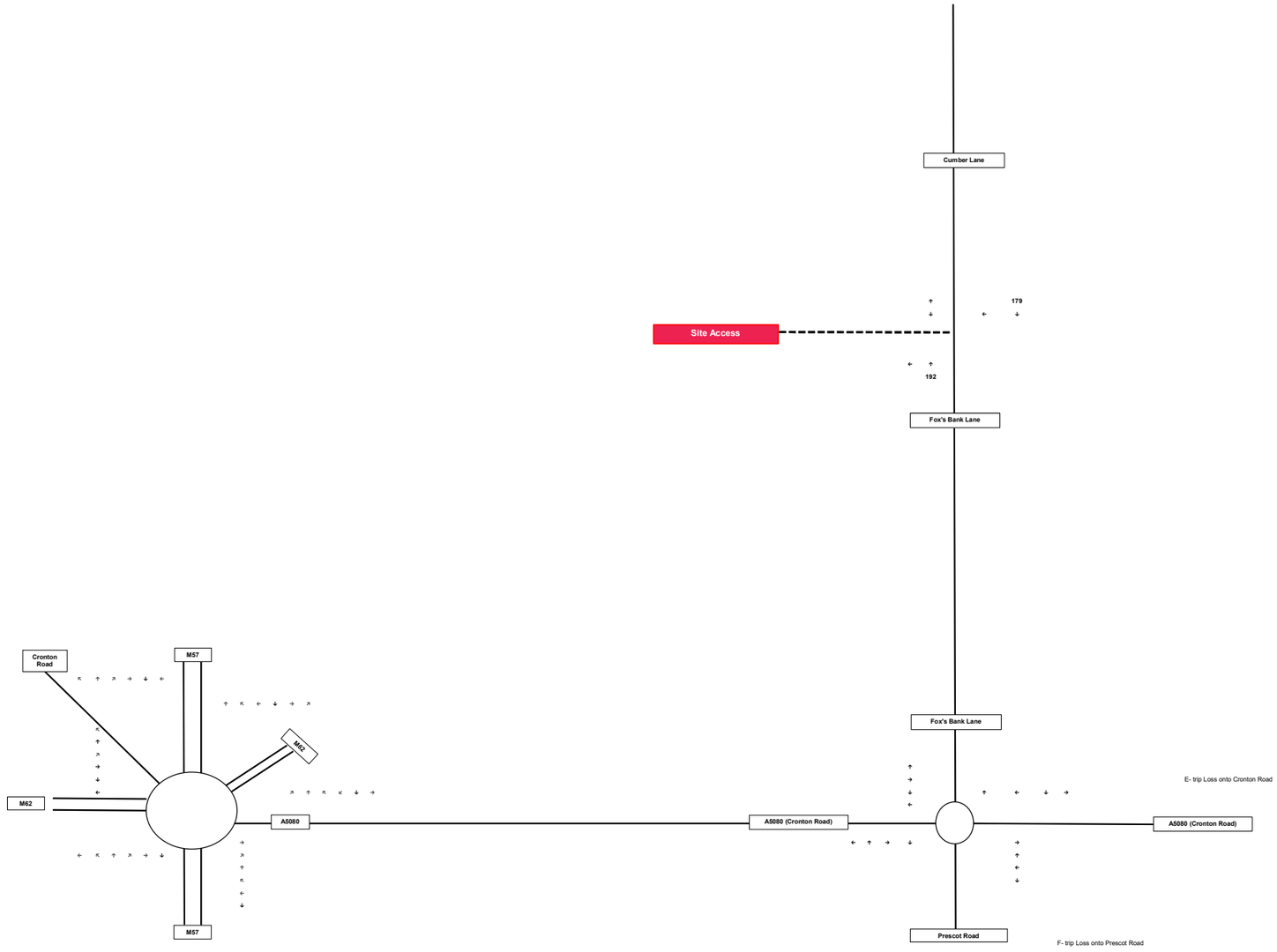
Curtins	2025 Base Flows PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 02

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



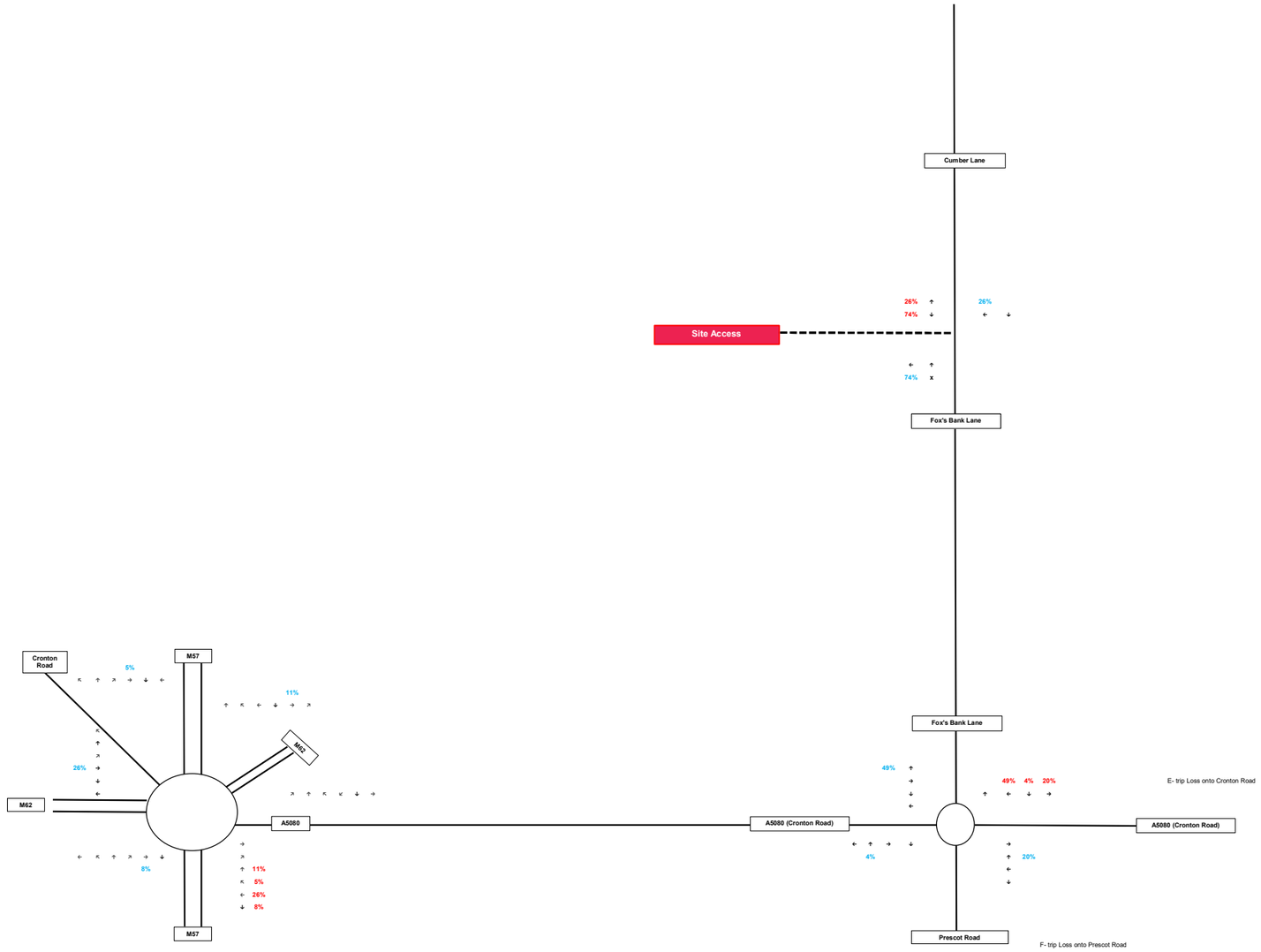
Curtins	2030 Base Flows AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 03	

Notes: PCUs in Black
HGVs in Red
Vehicles in Green



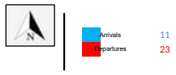
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	Halsnead Farm		Traffic Figure 04

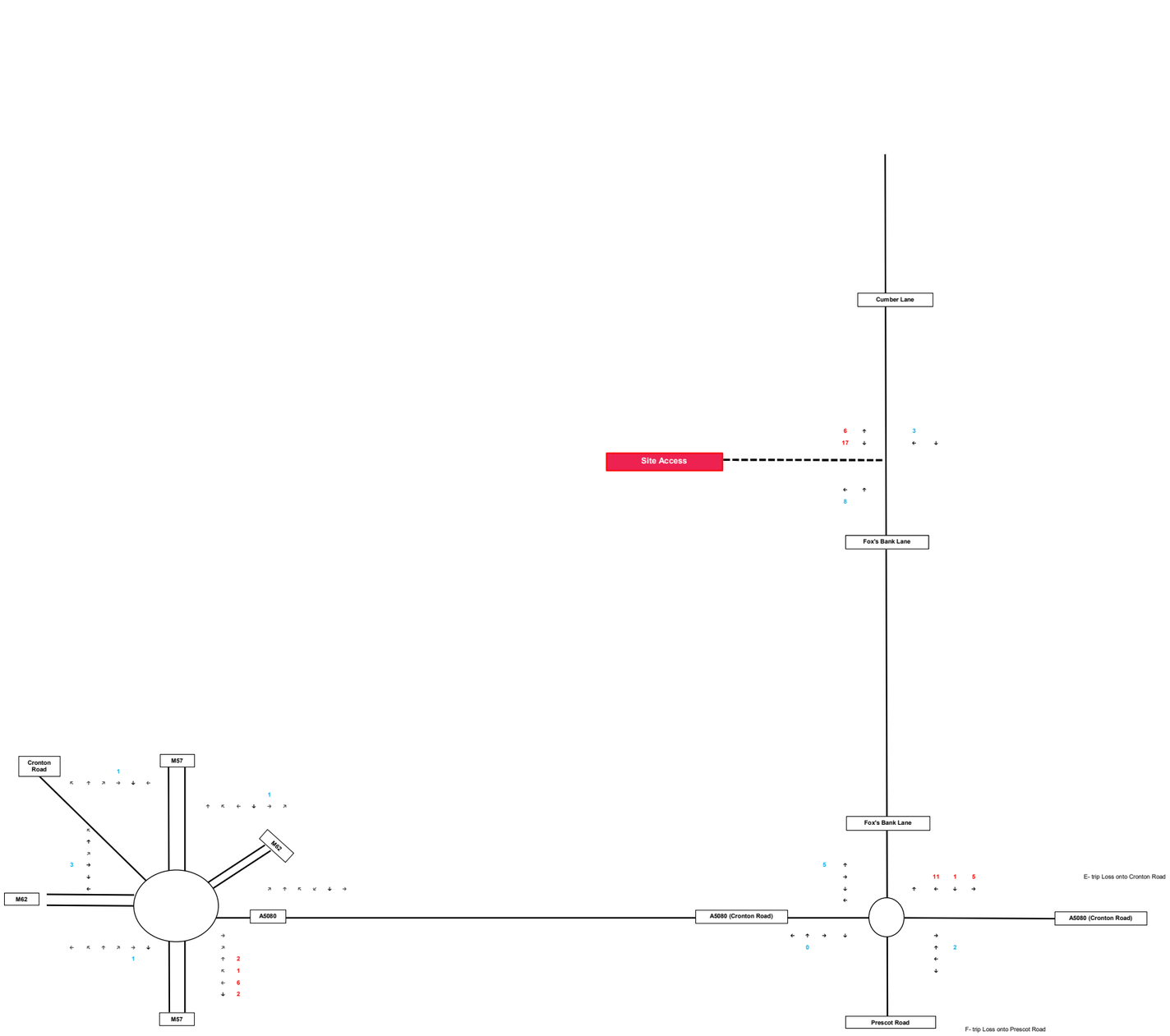
Arrivals
Departures



Curtins	Proposed Development Traffic Distribution	11 November 2025	087052
	Halsnead Farm		Traffic Figure 05

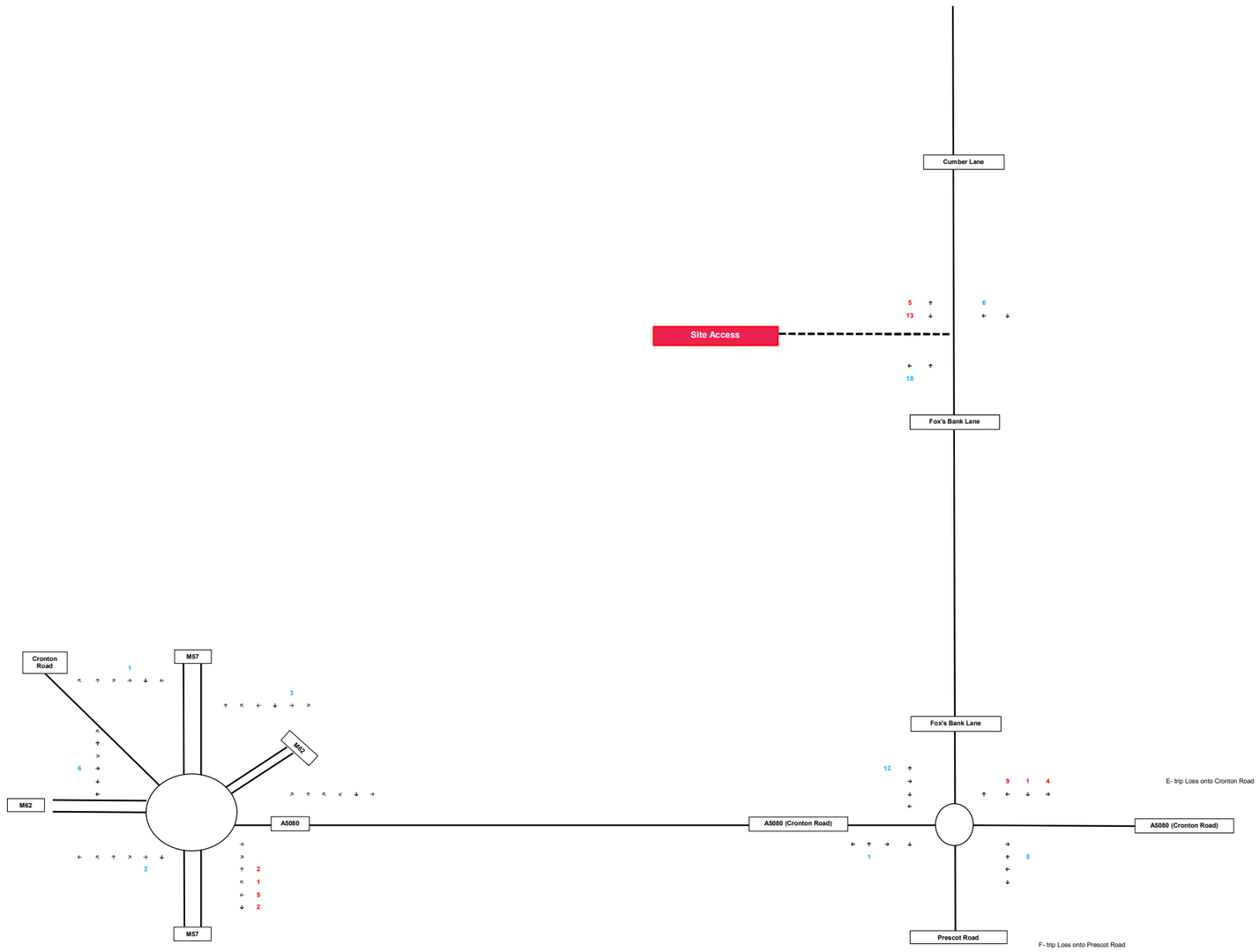
Notes: PCUs in Black
HGVs in Red
Vehicles in Green





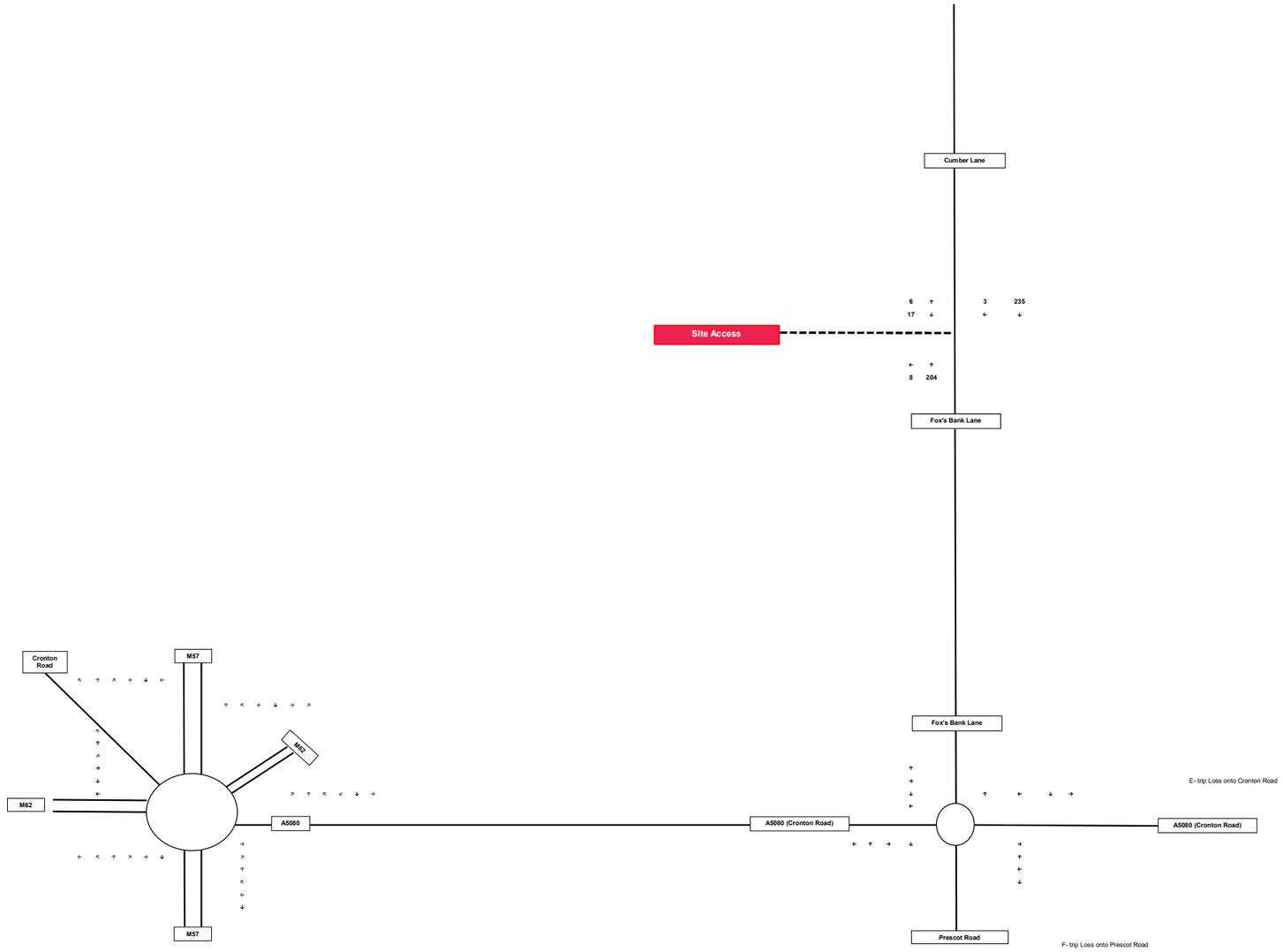
Curtins	Trip Assignment AM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 06

Arrivals 24
Departures 18



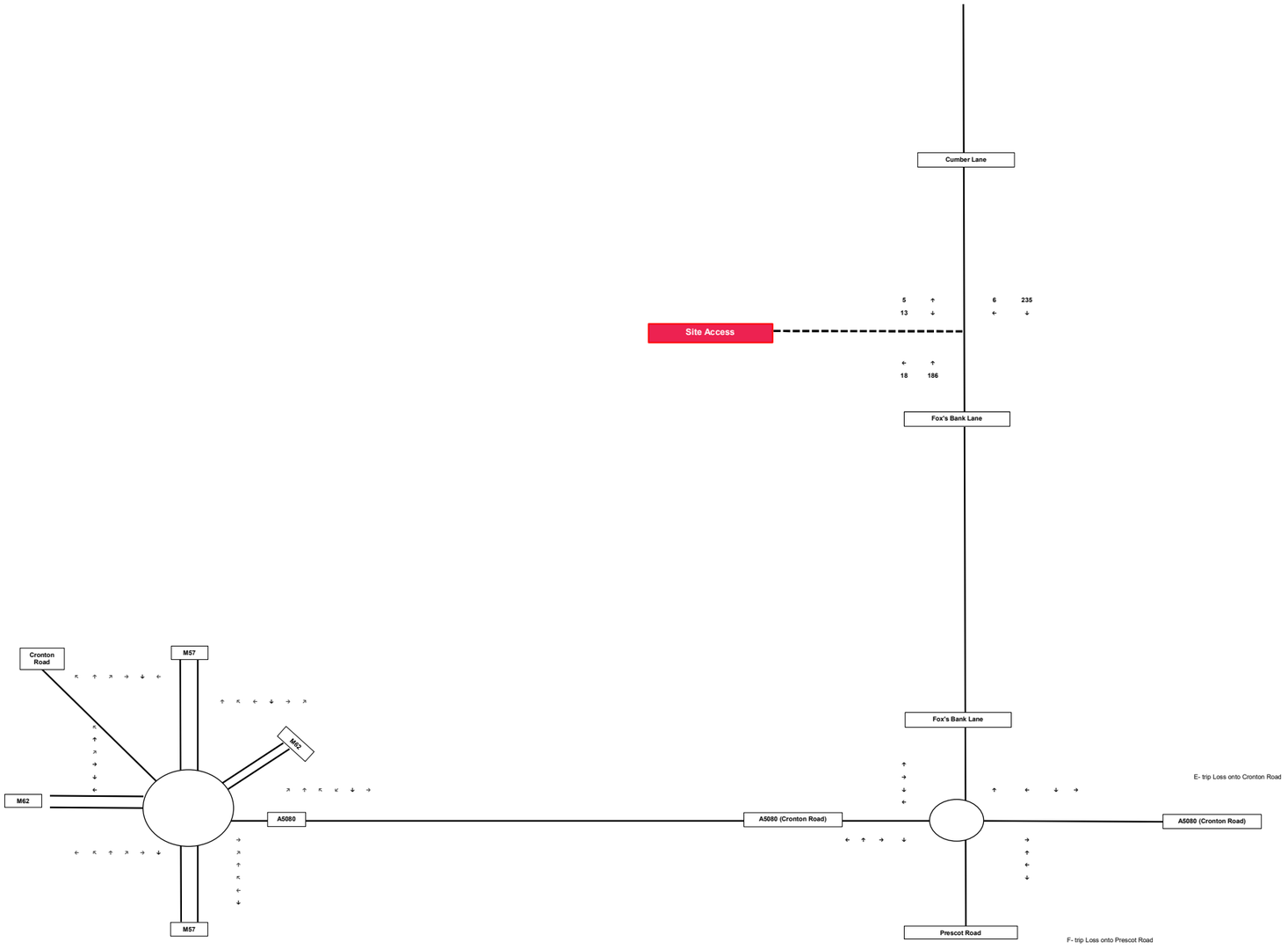
Curtins	Trip Assignment PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 07

Notes: PCUs in Black



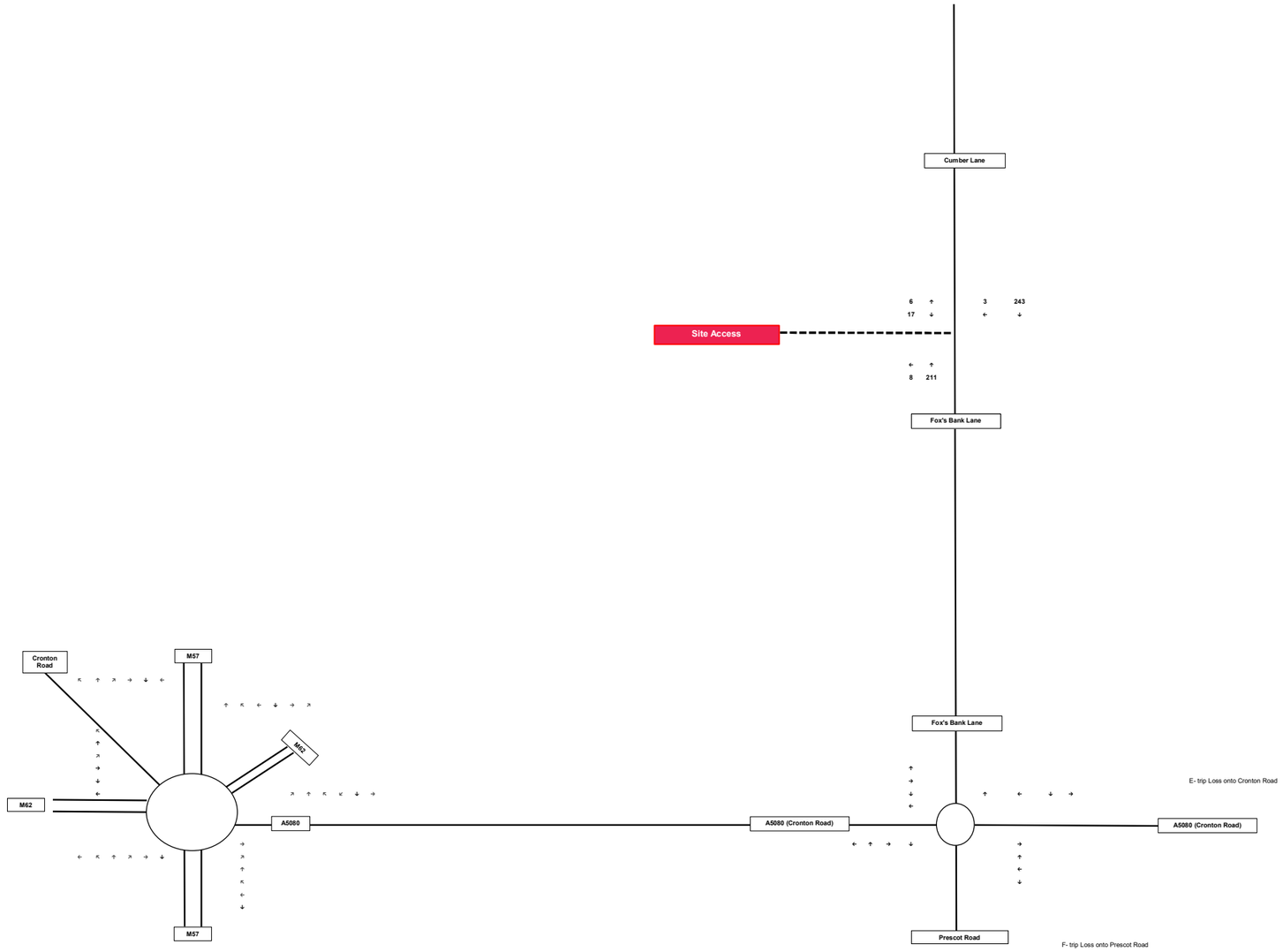
Curtins	2025 Base + Dev AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 08	

Notes: PCUs in Black



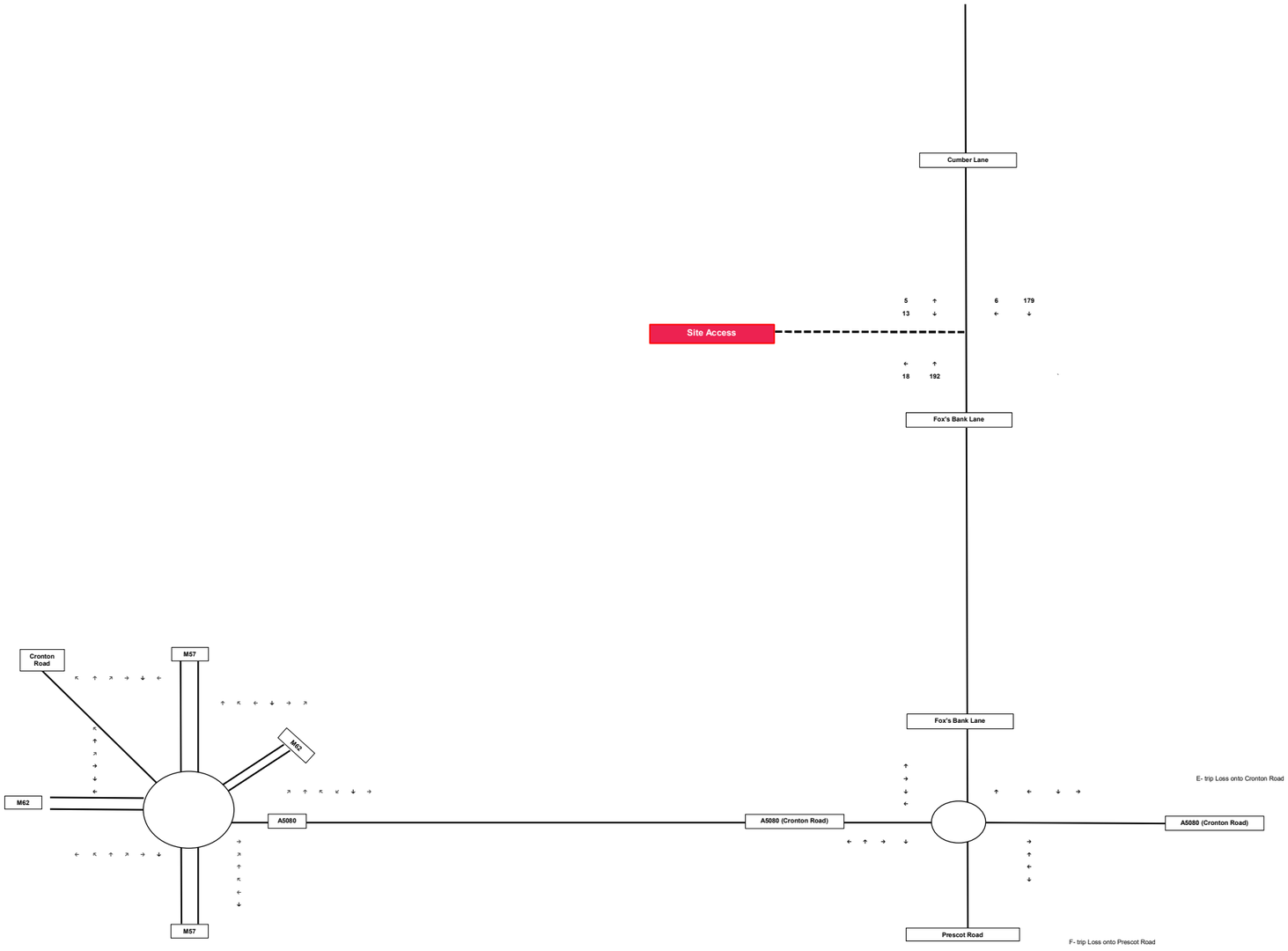
Curtins	2025 Base + Dev PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 09

Notes: PCUs in Black



Curtins	2030 Base + Dev AM	11 November 2025	087052
	Halsnead Farm	Traffic Figure 10	

Notes: PCUs in Black



Curtins	2030 Base + Dev PM	11 November 2025	087052
	Halsnead Farm		Traffic Figure 11

Appendix A – Proposed Site Layout



Drawing Title: Proposed Site Plan
Date: 28/09/2025
Drawing no: 1367 - 1001
Scale: 1:1250 @ A1
Drawn: HB

revision: B

revision notes:

A	03/11/2025	Updated to reflect house type updates
B	07/11/2025	Red line upated

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Appendix B – Halsnead Garden Village Masterplan

Illustrative Masterplan



NTS

- Residential development area (urban blocks)
- Employment development area (indicative buildings)
- Main Street
- Residential Avenue
- Access streets and lanes
- Proposed Primary School (indicative layout)
- Existing major tree groups

Appendix C – CrashMap Data


Knowsley cemetary
Blundells Ln
Fox's Bank Ln
D L G Fabrication
Fox Wood
Garden Village
Taylor Wimpey Fox
Wood Garden Village
Group Travel
M62
M62
Shaw Entry
Shaw Entry
Site Location
Fox's Bank Ln
Fox's Bank Ln
Liverpool Sun & Air

Appendix D – TRICS Outputs

Filtering Summary:

Land Use: 03/B RESIDENTIAL/AFFORDABLE/LOCAL AUTHORITY HOUSES

Selected Trip Rate Calculation Parameter Range: 8 - 516 DWELLS

Actual Trip Rate Calculation Parameter Range: 10 - 228 DWELLS

Date Range: Minimum: 1/1/2016 Maximum: 9/5/2023

Parking Spaces Range: All Surveys Selected

Parking Spaces Per Dwelling Range: All Surveys Selected

Bedrooms Per Dwelling Range: All Surveys Selected

Percentage of Dwellings Privately Owned: All Surveys Selected

Population Within 500m Range:

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TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use: 03 - Site area

Category: B - Number of dwellings

Total Vehicles

Selected regions and areas:

This section displays the number of survey days per TRICS® sub-region in the selected set.

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Primary Filtering Selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	DWELLS
Actual Range:	to (units:******)
Range Selected by User:	8 to 516 (units:******)
Parking Spaces Range:	11 - 220

Public Transport Provision:

Selection by:	All Surveys Included
Date Range:	01/01/16 to 05/09/23

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	0
Direction ATC Count	0

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines

Selected Locations:

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicle Counts:

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Secondary Filtering Selection:

Use Class:

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

859 - 5500

Population within 1 mile:

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

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Petrol filling station:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

COVID-19 Restrictions:

No

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

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LIST OF SITES relevant to selection parameters:

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TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES

Total Vehicles

Calculation factor: 1 DWELLS

**BOLD print indicates peak (busiest) period*

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00					
06:00-07:00					
07:00-08:00	11	48	0.060	0.195	0.255
08:00-09:00	11	48	0.124	0.255	0.379
09:00-10:00	11	48	0.118	0.158	0.276
10:00-11:00	11	48	0.105	0.128	0.233
11:00-12:00	11	48	0.109	0.113	0.222
12:00-13:00	11	48	0.122	0.101	0.223
13:00-14:00	11	48	0.113	0.126	0.239
14:00-15:00	11	48	0.143	0.152	0.295
15:00-16:00	11	48	0.221	0.135	0.356
16:00-17:00	11	48	0.218	0.111	0.329
17:00-18:00	11	48	0.265	0.199	0.464
18:00-19:00	11	48	0.197	0.143	0.340
19:00-20:00	**1**	**19**	**0.316**	**0.158**	**0.474**
20:00-21:00	1	19	0.158	0.105	0.263
21:00-22:00					
22:00-23:00					
23:00-00:00					
Totals Rates:			2.269	2.079	4.348

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter Summary:

Trip rate parameter range selected:	8 - 516 (units: DWELLS)
Survey date date range:	N/A - N/A
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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Appendix E – Census Distribution

Distribution Summary

TABLE 1							
Distribution							
Knowsley	**26.0%**						
Halton	**9.4%**	E					
Warrington	4.9%	E					
Cheshire East	0.5%	A					
Cheshire West	1.1%	F	G				
Bolton	0.2%	A					
Salford	1.0%	A					
Rochdale	0.2%	A					
Stockport	0.2%	A					
Wigan	1.0%	A					
Trafford	0.7%	A					
Manchester	1.3%	A					
Preston	0.2%	A					
South Ribble	0.3%	A					
West lancashire	1.0%	A					
Liverpool	39.4%						
Sefton	3.7%	B					
St Helens	6.2%	A					
Wirral	2.3%	B	D				
Other	0.4%	A	B	C	D	E	F
		G					
Total	100.0%						

Route	**DIST**
A	**26%**
B	**11%**
C	**5%**
D	**26%**
E	**20%**
F	**4%**
G	**8%**
Total	**100%**

TABLE 2				
E02001327 : Knowsley 001	0.4%	A		
E02001329 : Knowsley 003	0.6%	A		
E02001330 : Knowsley 004	0.2%	A		
E02001331 : Knowsley 005	2.4%	A		
E02001332 : Knowsley 006	0.1%	B	C	
E02001333 : Knowsley 007	2.3%	A		
E02001334 : Knowsley 008	0.4%	D	B	
E02001335 : Knowsley 009	3.9%	A		
E02001336 : Knowsley 010	0.3%	B	C	
E02001337 : Knowsley 011	0.7%	A		
E02001338 : Knowsley 012	0.5%	B	D	C
E02001339 : Knowsley 013	0.9%	A		
E02001340 : Knowsley 014	0.4%	D		
E02001341 : Knowsley 015	3.67%	A	C	
E02001342 : Knowsley 016	2.09%	C	D	
E02001343 : Knowsley 017	4.49%	E		
E02001344 : Knowsley 018	0.31%	F		
E02001345 : Knowsley 019	0.51%	F		
E02001346 : Knowsley 020	1.85%	F		
Total	26.0%			

TABLE 3				
E02001347 : Liverpool 001	0.9%	B		
E02001348 : Liverpool 002	0.1%	B		
E02001350 : Liverpool 004	0.2%	B	D	
E02001351 : Liverpool 005	0.4%	B		
E02001352 : Liverpool 006	0.3%	D	B	
E02001354 : Liverpool 008	0.2%	D	B	
E02001355 : Liverpool 009	0.1%	D	B	
E02001356 : Liverpool 010	0.2%	D	B	
E02001357 : Liverpool 011	0.1%	D	B	
E02001358 : Liverpool 012	0.0%	D	B	
E02001359 : Liverpool 013	0.1%	D	B	
E02001360 : Liverpool 014	0.4%	D	B	
E02001362 : Liverpool 016	0.1%	D	B	
E02001364 : Liverpool 018	0.1%	D	B	
E02001366 : Liverpool 020	0.3%	D	B	
E02001367 : Liverpool 021	0.2%	D	B	
E02001368 : Liverpool 022	0.5%	D		
E02001369 : Liverpool 023	0.5%	D	B	
E02001370 : Liverpool 024	0.4%	D	B	
E02001372 : Liverpool 026	2.2%	D	B	
E02001373 : Liverpool 027	0.7%	D	B	
nnnnnn E02001374 : Liverpool 028	0.8%	D		
E02001375 : Liverpool 029	0.2%	D	B	
E02001376 : Liverpool 030	0.2%	D		
E02001377 : Liverpool 031	1.9%	D		
E02001378 : Liverpool 032	0.2%	D		
E02001380 : Liverpool 034	0.2%	D		
E02001381 : Liverpool 035	0.7%	D		
E02001382 : Liverpool 036	0.2%	D		
E02001383 : Liverpool 037	0.3%	D		
E02001384 : Liverpool 038	0.2%	D		
E02001385 : Liverpool 039	0.2%	D		
E02001386 : Liverpool 040	0.7%	D	B	
E02001387 : Liverpool 041	0.6%	D		
E02001388 : Liverpool 042	0.5%	D		
E02001389 : Liverpool 043	0.2%	D		
E02001390 : Liverpool 044	0.2%	D		
E02001391 : Liverpool 045	0.4%	F	C	
E02001392 : Liverpool 046	0.3%	F	C	
E02001393 : Liverpool 047	0.9%	F	C	
E02001394 : Liverpool 048	0.6%	D		
E02001395 : Liverpool 049	0.5%	D		
E02001396 : Liverpool 050	0.4%	D	G	
E02001397 : Liverpool 051	0.8%	F	C	
E02001398 : Liverpool 052	0.3%	D	G	
E02001399 : Liverpool 053	0.1%	D	G	
E02001400 : Liverpool 054	0.2%	E	G	
E02001401 : Liverpool 055	1.7%	G	E	
E02001402 : Liverpool 056	0.3%	G	C	
E02001403 : Liverpool 057	0.4%	G		
E02001404 : Liverpool 058	5.7%	G		
E02001405 : Liverpool 059	0.5%	G	E	
E02006932 : Liverpool 060	3.6%	D		
E02006933 : Liverpool 061	3.3%	D		
E02006934 : Liverpool 062	4.1%	D		
Total	39.4%			

Appendix F – Model Outputs

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Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462
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Filename: Site Access-Fox's Bank Lane.j9
Path: \\LI-FS-1\Projects\087052-Halsnead_Farm\Q3-Design\3B-Models\TP
Report generation date: 11/11/2025 13:23:17

»2025 Base + Dev, AM
»2025 Base + Dev, PM
»2030 Base + Dev , AM
»2030 Base + Dev, PM
»2030 Sensitivity Test + Dev, AM
»2030 Sensitivity Test + Dev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base + Dev									
Stream B-AC	D3	0.1	8.68	0.06	A	D4	0.0	8.46	0.04	A
Stream C-AB		0.0	5.44	0.00	A		0.0	5.45	0.01	A
	2030 Base + Dev									
Stream B-AC	D7	0.1	8.74	0.06	A	D8	0.0	8.41	0.05	A
Stream C-AB		0.0	5.46	0.00	A		0.0	5.46	0.01	A
	2030 Sensitivity Test + Dev									
Stream B-AC	D9	0.2	12.10	0.15	B	D10	0.1	10.88	0.11	B
Stream C-AB		0.0	6.11	0.01	A		0.0	6.11	0.02	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	04/09/2025
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CURTINS\Jonathan.Ashcroft
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Fox's Bank Lane (South)		Major
B	Site Access		Minor
C	Fox's Bank Lane (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Fox's Bank Lane (North)	6.50		✓	3.00	168.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.00	22	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	493	0.088	0.222	0.140	0.317
B-C	635	0.095	0.241	-	-
C-B	730	0.277	0.277	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	212	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	238	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	8	204
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	235	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.68	0.1	A
C-AB	0.00	5.44	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.003	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.276	A
C-AB	3	677	0.004	3	0.0	5.338	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.676	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.678	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.279	A
C-AB	3	677	0.004	3	0.0	5.340	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.011	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

2025 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	204	100.000
B - Site Access		✓	18	100.000
C - Fox's Bank Lane (North)		✓	241	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	186
	B - Site Access	13	0	5
	C - Fox's Bank Lane (North)	235	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	8.46	0.0	A
C-AB	0.01	5.45	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	13	0.0	7.866	A
C-AB	5	687	0.007	4	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.107	A
C-AB	5	679	0.008	5	0.0	5.343	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.110	A
C-AB	5	679	0.008	5	0.0	5.344	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	14	0.0	7.870	A
C-AB	5	687	0.007	5	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

2030 Base + Dev , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	219	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	246	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	8	211
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	243	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.74	0.1	A
C-AB	0.00	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.038	A
C-AB	2	684	0.003	2	0.0	5.279	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.320	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.736	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.738	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.324	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.045	A
C-AB	2	684	0.003	2	0.0	5.281	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

2030 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	210	100.000
B - Site Access		✓	19	100.000
C - Fox's Bank Lane (North)		✓	185	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	192
	B - Site Access	14	0	5
	C - Fox's Bank Lane (North)	179	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	8.41	0.0	A
C-AB	0.01	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.845	A
C-AB	5	686	0.007	4	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.074	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.406	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.408	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.075	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.849	A
C-AB	5	686	0.007	5	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

2030 Sensitivity Test + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	439	100.000
B - Site Access		✓	46	100.000
C - Fox's Bank Lane (North)		✓	492	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	16	423
	B - Site Access	34	0	12
	C - Fox's Bank Lane (North)	486	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.15	12.10	0.2	B
C-AB	0.01	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	34	0.1	9.706	A
C-AB	5	638	0.007	4	0.0	5.679	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	41	0.1	10.590	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	50	0.2	12.090	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	51	0.2	12.104	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	42	0.1	10.608	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	35	0.1	9.735	A
C-AB	5	638	0.007	5	0.0	5.681	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

2030 Sensitivity Test + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	419	100.000
B - Site Access		✓	36	100.000
C - Fox's Bank Lane (North)		✓	370	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	35	384
	B - Site Access	27	0	9
	C - Fox's Bank Lane (North)	358	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	10.88	0.1	B
C-AB	0.02	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.167	A
C-AB	9	643	0.014	9	0.0	5.682	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.817	A
C-AB	11	626	0.017	11	0.0	5.854	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.875	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.879	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

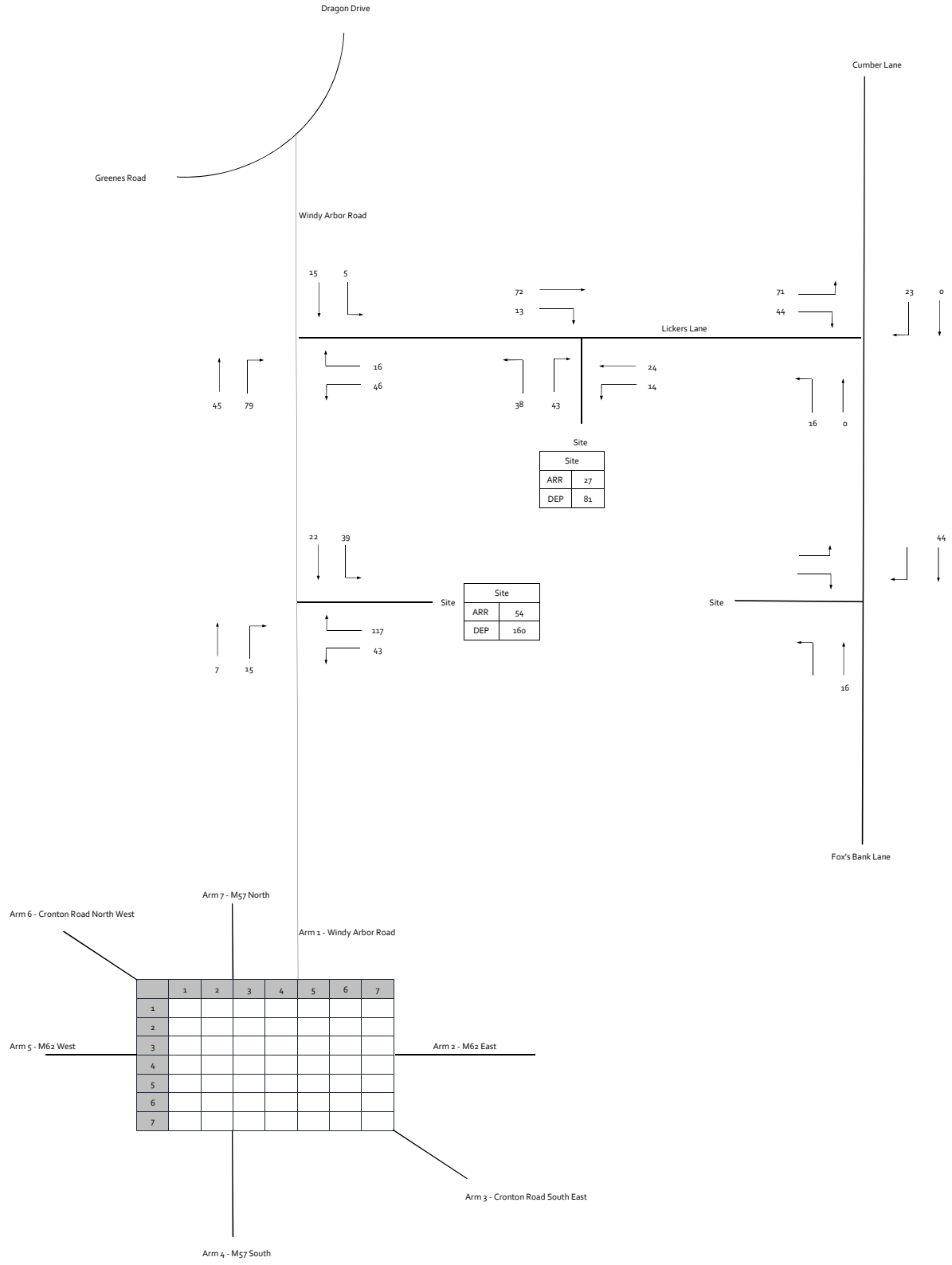
01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.828	A
C-AB	11	626	0.017	11	0.0	5.857	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.185	A
C-AB	9	643	0.014	9	0.0	5.684	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

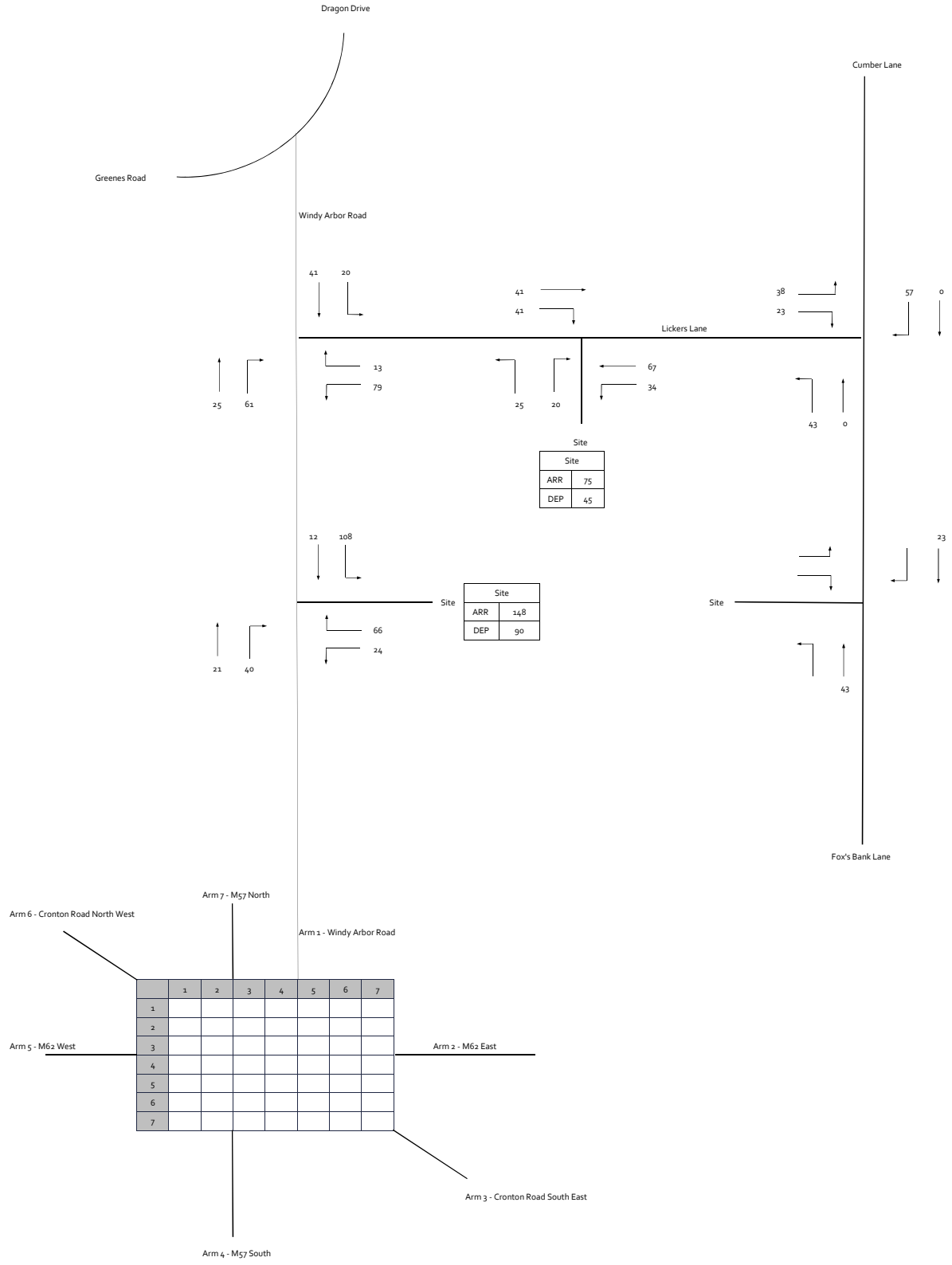
Appendix G – Fox Wood Garden Village Traffic Flows



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

Figure 5 - Total Committed Development - Lickers Lane & Windy Arbor Road - AM Peak (0800 to 0900)

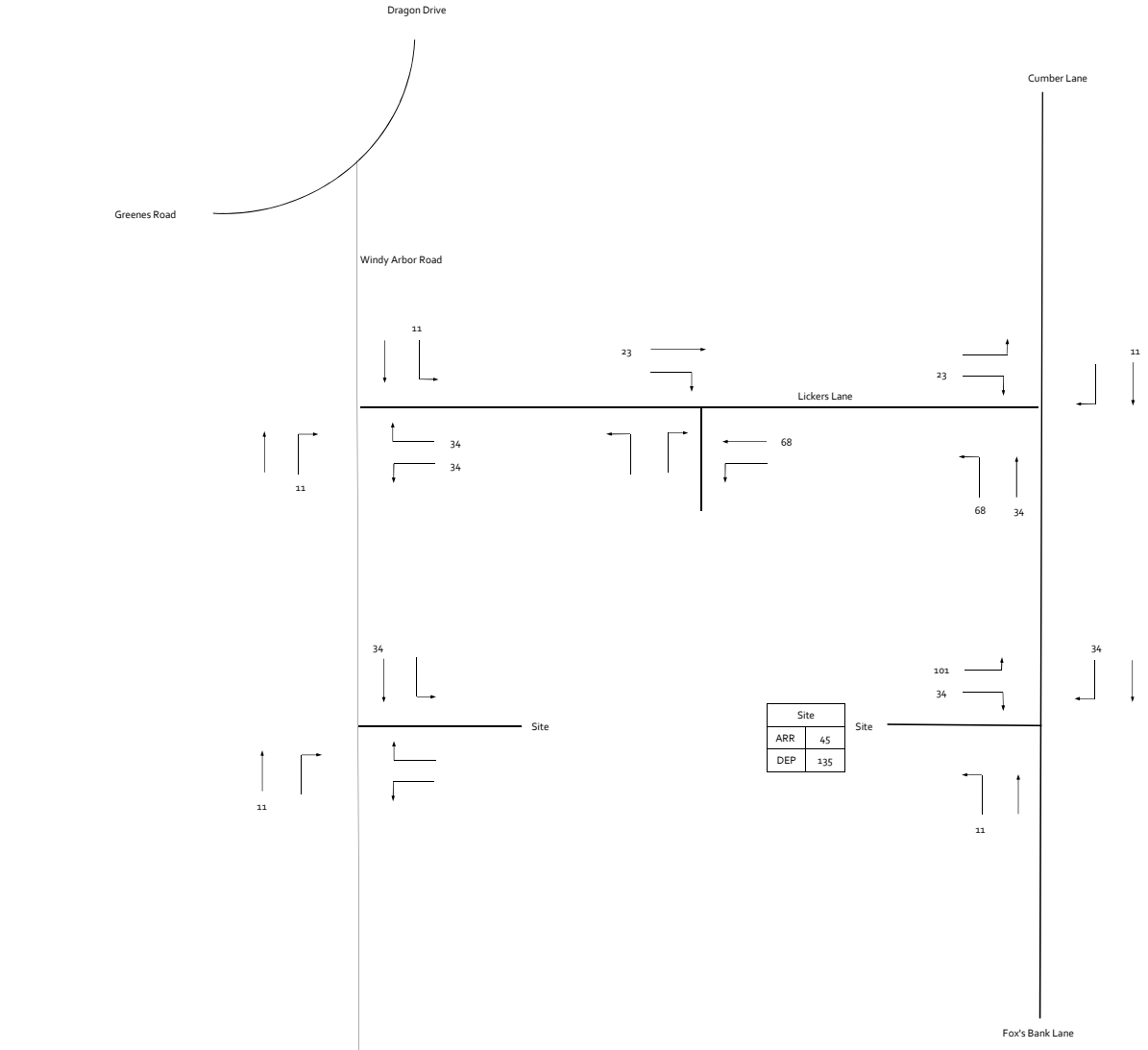
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Manchester
M15 4PY

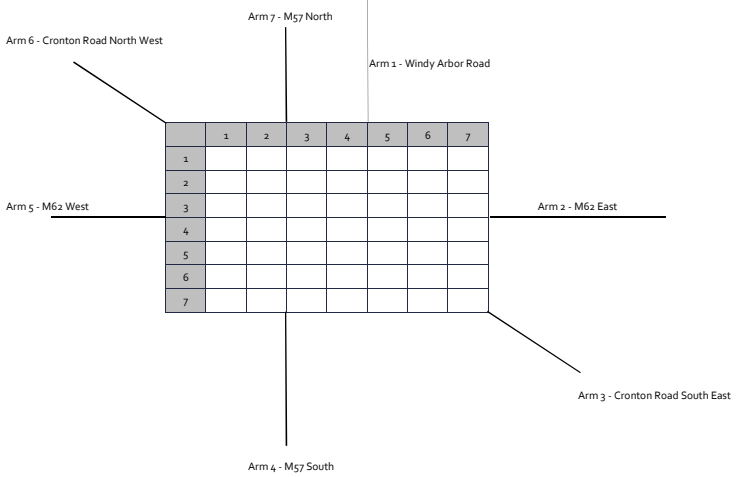


	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

Figure 6 - Total Committed Development - Lickers Lane & Windy Arbor Road - PM Peak (1630 to 1730)

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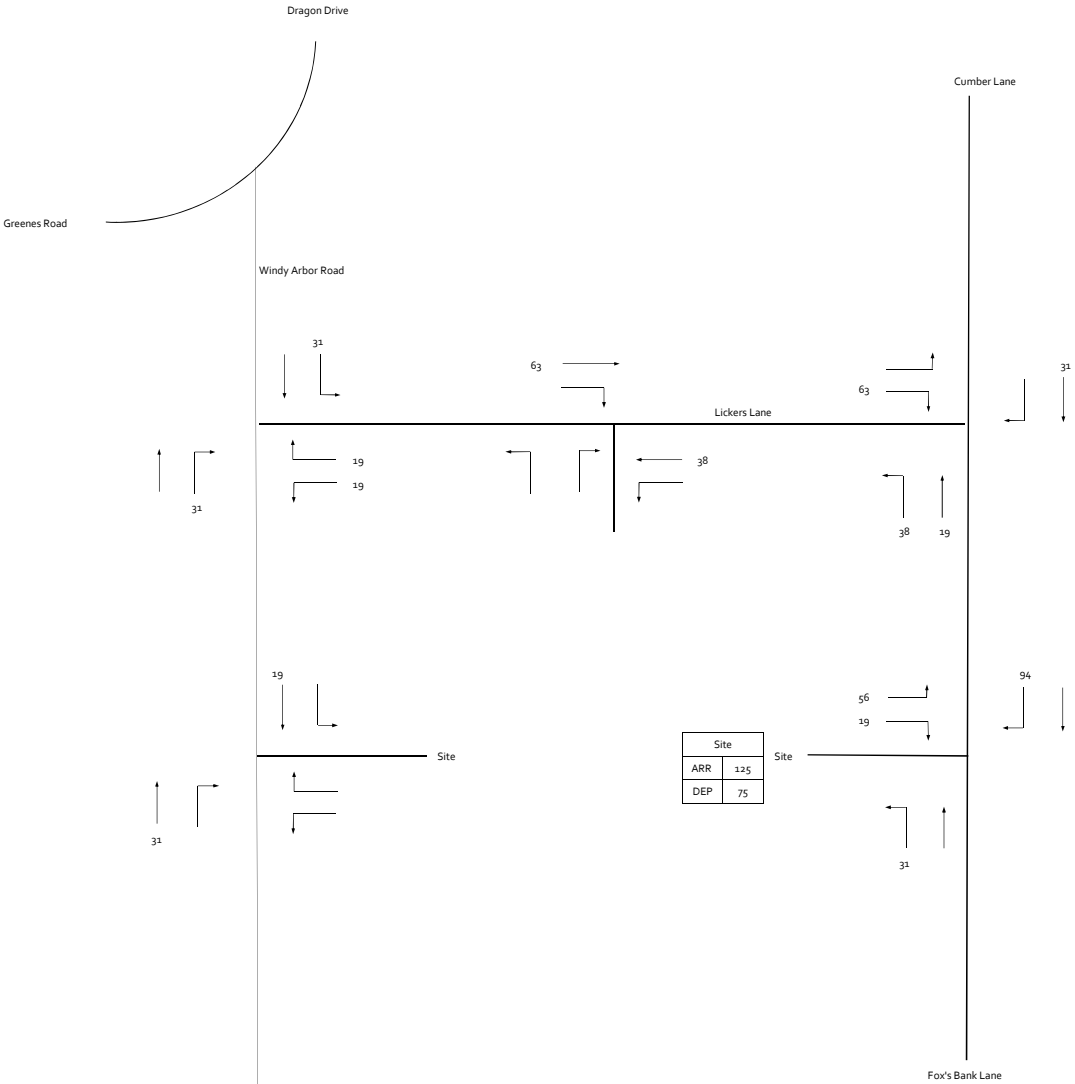


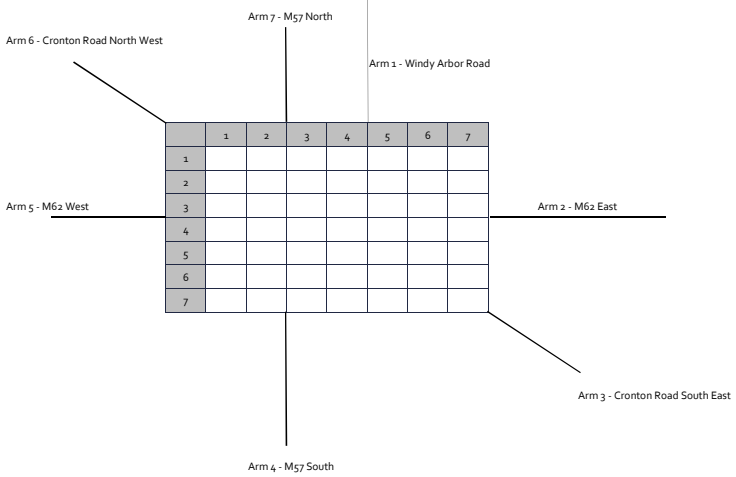
	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

Flows in PCUs

Figure 11 - Proposed Development Flows - AM Peak (0800 to 0900)

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

Flows in PCUs

Figure 12 - Proposed Development Flows - PM Peak (1630 to 1730)

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Appendix B – Example Information Pack

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Halsnead Farm
Welcome Pack

Last Updated: 31 October 2025

Travel Plan Coordinator

Organisation: TBC

Contact: TBC

Resources for Sustainable Travel

A summary of resources is provided below – please click on the images to access the relevant websites. If you are unsure about any of the resources and how they can benefit you, please speak to the Travel Plan Coordinator

Resource	Description
Walking	• Walking is the most sustainable mode of travel. • Use the handy walking toolkit www.routeyou.com to plan your walking route • The Living Streets website contains some useful information on encouraging more people to travel on foot. • Check out Fitforme websites with walking tips. • The Merseytravel website has some local walking routes and tips.
Cycling	• Cycling is a convenient and sustainable option for those journeys too far to walk. • You can use cycle toolkit m.cyclestreets.ne to plan your cycling route • And www.sustrans.org.uk has loads of detail on dedicated cycle routes • If there is sufficient interest, residents are encouraged to set up a Bicycle User Group, with local cycle clubs invited to take part. • Cycle Map from the Merseytravel website; • Local initiatives such as BikeRight! (cycle training and maintenance classes), 'National Bike Week' campaign by Cycling UK, Merseyside Cycling Campaign, and the Cycling UK Merseyside club; • The Cycling Experts – directory of local cycle shops;

Resource	Description
Public Transport	• Using public transport could save you time and money. Why not sit back, relax and let someone else do the driving? • Did you know you can use the traveline.info toolkit for more journey planning information? • The National Rail website allows you to keep track of live journeys! • Check out the Merseytravel website for public transport timetable information and route info. traveline National Rail Merseytravel
Car Sharing	• Walking, cycling or public transport are not always realistic options. Have you thought about Car sharing? • Free-to-join car share scheme liftshare.com/uk can match you with someone who has a similar journey to you! • If there is sufficient interest, residents can submit their names to the Residents' Association, where residents could then be matched with those undertaking similar journeys on a more informal basis. • Enterprise Car Club is a great option for those who need to use a car for certain occasions. liftshare travel happy enterprise CarClub

Appendix C – Example Travel Survey

Example Residential Travel Survey

We need your views to help us develop a Travel Plan, which will help provide environmental, financial and health benefits for all those who live at our site. Please complete this short anonymous residential survey to help us continue shape our plans for sustainable travel in the future. It should take between 3 and 5 minutes to finish.

1. **What is your workplace postcode? (e.g. L35 1QU)**

   ……

2. **Approximately how far do you travel to work?**

   - O Up to 1 mile
   - O 1-2 miles
   - O 3-5 miles
   - O 6-10 miles
   - O 11-20 miles
   - O Over 20 miles

3. **How do you typically travel to work? If you use multiple modes of transport, please pick the longest leg (in time) of your journey.**

   - O Car- as driver, single occupant
   - O Car- as driver, with passenger(s)
   - O Car- as passenger
   - O On Foot
   - O Bicycle
   - O Bus
   - O Train
   - O Taxi
   - O Motorcycle

4. **If your typical mode of travel (your answer to Question 3) was by car, why?**

   - O I did not travel by car
   - O I give other people a lift
   - O For safety and security
   - O Bad weather
   - O Inadequate public transport
   - O To save time
   - O To save money
   - O To carry equipment

- O Disability/heath reasons
- O Personal commitment/childcare
- O Car essential for job
- O Convenience
- O Other – please specify ……

5. Which of the following changes would most encourage you to use sustainable modes of travel? (*Please tick no more than three).*

- O Better quality public transport waiting facilities
- O Readily available up-to-date easy-to-use public transport timetables
- O More frequent public transport services
- O Better Information on public transport
- O Discounted bus/train fares
- O Existing bus services re-timed to better fit your work hours – if so, please specify service ……
- O New bus service – if so, please specify location ……
- O Improved cycle lanes and infrastructure
- O Improved footpaths and crossings
- O Better walking and cycle route information
- O Nothing
- O Other – please specify ……

6. Do you have any other comments about your travel patterns?

……

Thank you for completing the survey.

Appendix D – Carbon Saving Calcs

Initial *Modal Shift Targets*						
Travel Mode	**Existing**	**Short Term**	**Medium Term**	**Long Term**	**Total Target**	
Car Driver	76%	-2%	-1.5%	-1.5%	-5%	Assumed Modal Split Targets
Car Passenger	8%					
Bus	6%	0.5%	0.5%	0.5%	1.5%	
Train	4%	0.5%	0.5%		1.0%	
Cycle	1%	0.5%	0.5%	0.5%	1.5%	
Walk	4%	0.5%	0.5%		1.0%	

			Assumptions:	
			52	weeks per year
Vehicles Departing (AM)	35		5	working days per week
			260	days per year
Average Distance Travelled per person	16	km	8	bank holidays
Bike Miles			28	leave days
			224	**total working days per year**
	1%	amend % to suit modal split		
	0.35	work out the number of people switching to cycling		
	3584	KM per day X working days per year = total km a year by car		
	1254	Additional KM Saved by Bike Per Year		
	779	Additional M Saved by Bike Per Year		

Additional Public Transport Miles

Modal Split Target	1.5%	total modal split of public transport
No of employees switching to Public Transport	1	work out the number of people switching to public transport
	3584	KM per day X working days per year = total km a year by car
	1881.6	Additional KM Saved by PT Per year
Additional Public Transport Miles a day	2.625	no.of people switching to public transport * average distance (km)
	2	km=miles
	3584	no.of days per year the site is operational for*average distance travelled
	1881.6	Multiplied by the number of people switching to public transport
Additional Public Transport Miles a year	1169	

Annual Carbon Savings a Year (XXKgs)

Current Carbon Emissions= Distance Travelled to Work X Total Carbon Emitted

(Average Distance Travelled to Work)	16	
Modal Split Target of employees using sustainable transport	3%	
No. of people using sustainable modes of transport	0.88	No.of vehicles arriving*no.of people switching to sustainable transport
Average distance travelled to site (assuming car) multiply by total emissions	2.71744	Average distance travelled to work *carbon emissions
	2	No.of people using sustainable transport * average co2 emissions pp
Annual Carbon savings	533	Average Co2 emissions * number of days a year site is operational

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