Chapter 11 Highways

Turley

Appendix 11.1 Transport Assessment prepared by Aecom

Turley

Proposed Employment & Residential Development, North Bierley

Transport Assessment

Prepared by: ..... Declan Fay, Trainee Engineer

Checked by: ..... Mark Romanowski, Senior Consultant

Approved by: ..... Stephen Moss, Associate Director

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B	Revised Land Use	SM	SP	12.10.15
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F	Updated Masterplan	MR	SM	06.07.16

5th Floor, 2 City Walk, Leeds, LS11 9AR
Telephone: 0113 391 6800 Website: http://www.aecom.com

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Introduction

1 Introduction

1.1 Introduction

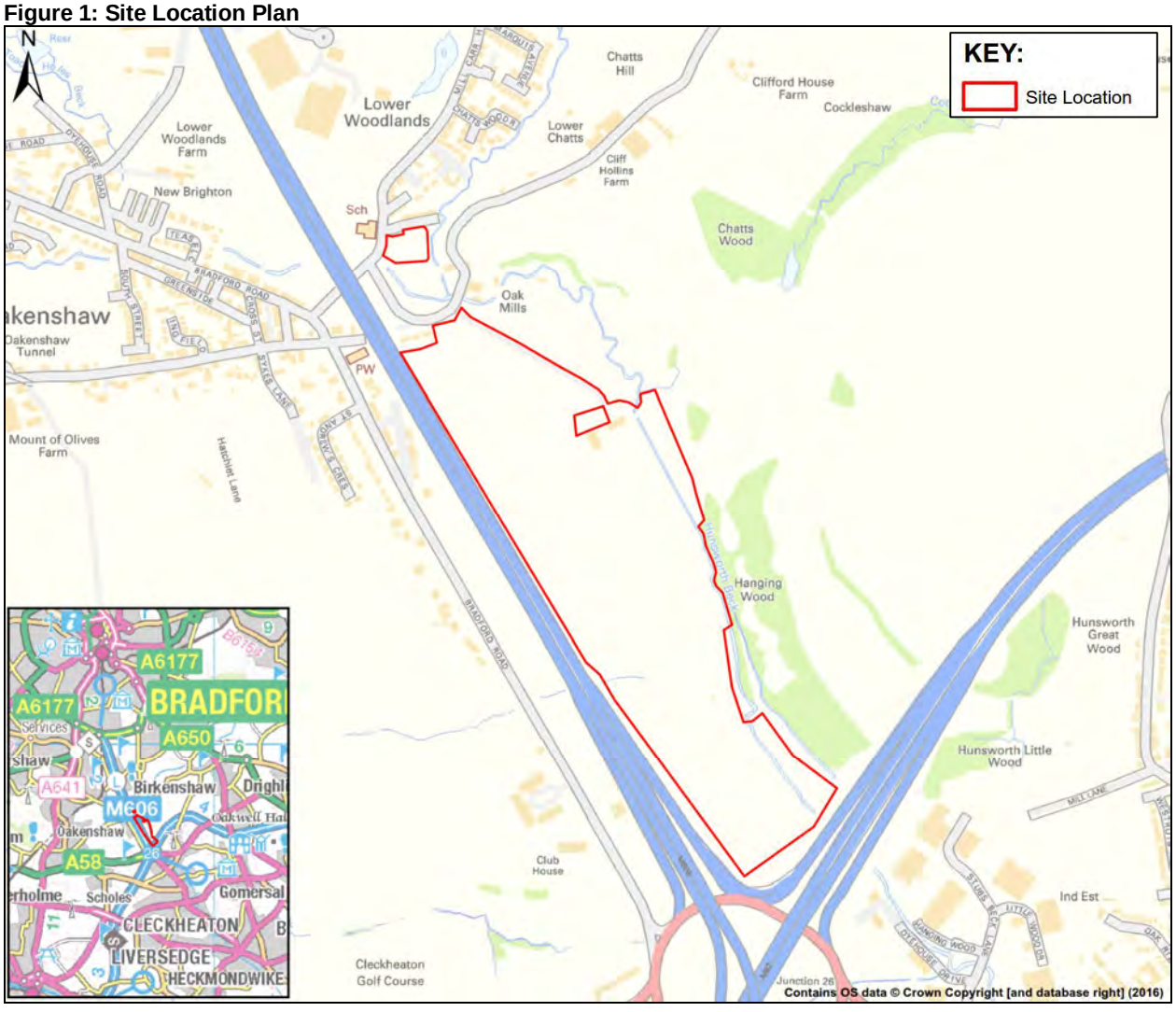
AECOM has been appointed by Keyland Developments Ltd (a subsidiary of the Kelda Group) to prepare a Transport Assessment and accompanying Travel Plan in support of a planning application for a proposed Employment (B2 / B8) and Residential development at the decommissioned North Bierley Waste Water Treatment Works.

The site extends to some 22.2 hectares and currently comprises a decommissioned waste water treatment works and surrounding land located to the north of Junction 26 of the M62 and its intersection with the M606. It should be noted that whilst the April 2013 Kirklees Core Strategy was withdrawn (because of Inspector's comments on housing numbers) the site had been identified within Kirklees Core Strategy as a proposed new employment site (under 30 hectares).

1.2 Development Proposals

The site is located to the north of the M62, to the east of the M606 at junction 26 of the M62 and south of Cliff Hollins Lane. The site is broadly oblong in shape; the access road is formed by an extension of Cliff Hollins Lane with the existing lane to the north giving way to this movement. **Figure 1** shows the site location in the context of the surrounding road network.

Figure 1: Site Location Plan



KPP Architects have prepared a Masterplan for the site, which is contained within the 'Former Bierley Treatment Works' document prepared on behalf of Keyland Development Ltd by Dove Haigh Phillips. From this, the development proposals can be summarised as:

- Total B2/B8 Gross Floor Area 3.8 Hectares
- Total Net Employment Site 9.94 Hectares
- Total Residential Site 3.25 Hectares (101 units)
- Overall Developable Area 13.55 Hectares
- Site Area 23 Hectares

Further development proposals include the provision of a 36 space car parking facility located on the opposite side of Mill Carr Hill Road adjacent to the Woodlands Church of England Primary School. This has been proposed following site observations of significant on street parking on Mill Carr Hill Road, during school drop-off and pick-up periods, between the school gates and the M606 underbridge. During site construction it is thought that this could lead to potential conflict with HGV movements and could potentially increase the risk of accidents. This was an issue identified during the Public Consultation event in November 2014. The provision of car parking would remove the majority of on-street parking relating to the school and create a safer environment.

For the purpose of this Transport Assessment it has been assumed that 75% (307,500 sq. ft / 28,568sqm) of the development will be assumed as B2 Industrial and the remaining 25% (102,500sqft / 9,523sqm) will be B8 Warehousing. The provision of 101 residential units will be also be considered. This is considered a robust assessment. The KPP Architects' Masterplan drawing is provided as **Drawing 1773-01-206B** in **Appendix A**. Also provided is the Parameters Plan (**Drawing 1773-01-207**).

It is proposed that the development site will be accessed via an extension of the existing Cliff Hollins Lane directly into the site with the existing lane to the north giving way to traffic through flow as shown in **Drawing 60345322-P-001** in **Appendix A**. The site access junction will include the provision of a footway along the southern side and widening to the northern side of the access road.

A Public Consultation event took place in November 2014, which identified a number of concerns in relation to the development proposals and the potential impact of the resulting increase in vehicle movements. These issues have been considered within this Transport Assessment and, where relevant, have been addressed.

1.3 Report Structure

Following this introductory section:

- **Section 2** summarises the national and local policy framework which has informed the development of this Transport Assessment;
- **Section 3** considers the baseline conditions, including network observations and road safety;
- **Section 4** sets out the accessibility of the site;
- **Section 5** provides the anticipated trip generation and distribution;
- **Section 6** considers the impact of the development on the operation of the local road network;
- **Section 7** summarises the findings of this Transport Assessment.

Policy Review

2 Policy Review

2.1 Introduction

Before considering the proposed development, it is important to examine the context of the site and how this relates to relevant planning policies and guidelines. This section of the report sets out these elements, providing an overall spatial and planning context for the development proposal.

The current agenda for transport and development is clearly moving away from one of providing significant new highway capacity. Instead, polices have been adopted in national guidelines, such the most recent Transport White Paper (2011), which seek to encourage more sustainable modes than the car. Focus is also more towards a planning system which places greater emphasis on the link between transport and land use. Planning policies now seek to encourage transport decisions at a local level that are compatible with environmental and community goals and best reflect local circumstances and requirements.

The following national, regional and local planning documents have been reviewed as part of the production of this Transport Assessment:

- The Transport White Paper (2011);
- The National Planning Policy Framework (NPPF), March 2012;
- West Yorkshire Local Transport Plan 2011-2026;
- Kirklees UDP and Local Plan;
- City of Bradford MDC Core Strategy; and
- Bradford Replacement Unitary Development Plan (RUDP).- Saved Policies.

2.2 National Policy

2.2.1 The Transport White Paper (2011)

The Government's vision for a sustainable local transport system is set out in the January 2011 Transport White Paper: "Creating Growth, Cutting Carbon – Making Sustainable local Transport Happen."

The White Paper acknowledges that transport provision is essential for economic growth if the Government is to improve the economic deficit which it is currently facing. The Paper also recognises however, that the current levels of carbon emissions from transport cannot be sustained if the nation is to meet its national commitments on climate change as well as creating a safer and cleaner environment in which to live. With this in mind, the Government highlights sustainable transport solutions as a means by which the economy can grow which will also see a positive impact on the local environment.

Whilst the Paper outlines the funding options which will be available for sustainable transport schemes, it also recognises that investment alone will not be enough and that help needs to be given to people to ensure that the transport choices they make are good for society as a whole. The Paper recognises that it is at the local level where most can be done to encourage sustainable transport modes and implement sustainable transport schemes. Solutions should be developed for the places they serve, tailored for the specific needs and behaviour patterns of individual communities.

Within the Paper, sustainable transport considers more than just public transport, walking and cycling schemes and acknowledges that it is not feasible for some trips to be undertaken by these modes. There is therefore a realisation that the car will continue to be an important mode of transport and a focus should be given to making car travel greener through electric and other low emission vehicles. This Transport Assessment and accompanying Travel Plan consider access by sustainable modes of Travel an how these might be further encouraged amongst future site users.

2.2.2 National Planning Policy Framework (NPPF) (2012)

The National Planning Policy Framework (NPPF) superseded the Planning Policy Guidance Notes that governed national policy and principles relating to specific aspects of the town planning framework. In replacing the previous guidance notes and remaining a material consideration in planning applications, the NPPF provides a framework for local communities and Authorities to development relevant local development plans and strategies.

The NPPF has two key themes:

- Provide a greater level of integration and simplification of the planning policies governing new development nationally; and
- Contribute to the achievement of sustainable development from an economic, social and environmental perspective.

Chapter 4 'Promoting Sustainable Transport', notes that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major public transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Developments should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

This Transport Assessment seeks to demonstrate that the impact of the development proposals are not severe, and should therefore be approved. The accompanying Travel Plan sets out how Keyland Developments Ltd will seek to encourage sustainable travel to and from the site.

2.2.3 West Yorkshire LTP 2011 - 2026

The LTP 2011-2026 is the statutory plan for transport in West Yorkshire and sets out the needs, ambitions and strategy over a relatively long period of time as well as detailed spending proposals in the first three years. The LTP takes two approaches:

- 15-year strategy for 2011 to 2026; and
- A first implementation Plan for 2011 to 2014.

The 15-year MyJourney strategy is designed to improve the four key themes of the journey:

- Transport Assets (such us the roads, traffic lights and bus stops that make up the network);
- Travel choices (helping customers make the most sustainable choice about when and how they travel);
- Connectivity (providing an integrated, safe, reliable transport journey); and
- Enhancements (improving the overall system to provide more capacity four journeys in the future).

This Transport Assessment and accompanying Travel Plan pay due regard to sustainable access to the site and how this will be promoted to future employees to minimise the vehicular impact of the development proposals.

2.3 Local Policy

2.3.1 West Yorkshire LTP 2011 - 2026

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2.3.2 Kirklees Council Policy

Kirklees Unitary Development Plan (UDP) – Saved Policies

The Kirklees UDP was adopted in 1999 and the majority of policies were saved to 2007 or until replaced by a new plan. According to the UDP, in terms of transport priority would be given to:

- Satisfying the travel needs of all sections of the community through an effectively integrated transport system, with emphasis on improving public transport and encouraging a modal shift away from travel by private car;
- Promoting a transport network on which it is safe to travel and which causes minimal disturbance through danger, noise and air pollution; and
- Co-ordinating land use change with transport provision so as to minimise the need to travel and locating new development where it can best be served by public transport and where it minimises the need for expansion of the highway network.

Kirklees Local Plan

The Council recently consulted on a new local plan including Allocations and Policies. The consultation closed in February 2016. The application site is identified as a draft allocation for new employment site (under 30 hectares).

The draft Local Plan documents are currently under consideration by the Cabinet. In the interim period the Unitary Development Plan (UDP) remains the basis for making planning decisions and the site is currently unallocated in the UDP.

2.3.3 Bradford Replacement Unitary Development Plan (RUDP) – Saved Policies

The RUDP for the Bradford District was adopted by the Council on the 18th of October 2005. Under Government legislation relating to the transition between the old UDP system and the new LDF system, the RUDP policies were ‘saved’ for 3 years. The Council received a Direction from the Secretary of State which saved the vast majority of RUDP policies beyond this 3 year period. A summary of the relevant saved policies is provided below:

- TM1 Transport Assessment
- TM2 Impact of traffic and its mitigation
- TM8 New pedestrian and cycle links
- TM10 National and local cycle network
- TM11 Parking standards for non-residential developments
- TM12 Parking standards for residential developments
- TM19A Traffic management and road safety
- TM20 Transport and highway improvements

2.3.4 City of Bradford MDC Policy

The boundary with Bradford MDC runs to the north of the main development site and as such some of the proposed mitigation works as well as the school car park will lie within its boundary.

Bradford Core Strategy

Bradford Council is progressing with a new development plan which will include a Core Strategy. The Core Strategy sets the key development requirements an location strategy for the district. It is in the latter stages of preparation, with the final EIP taking place in May 2016. Adoption of the plan should take place later in 2016.

In terms of Transport and Accessibility the Core Strategy sets out that a key aim is to reduce the need to travel with Policy TR1 setting out how this aim will be realised.

It is also recognised that strengthening public transport, pedestrian and cycle links is also essential for the delivery of the Local Plan with Policy TR3 which sets out the required accessibility criteria as well as requiring new development to be set out such that these alternative modes can be encouraged.

2.4 Summary

As can be seen from the review of the relevant national and local policies, there is a clear emphasis on ensuring that sites for new development are well located to encourage sustainable modes of travel and a reduced reliance on the private car. The policy review has demonstrated that the proposals for the site accord with transport policy, at a national, regional and local level.

Baseline Conditions

3 Baseline Conditions

3.1 Introduction

This section of the Transport Assessment sets out the proposed development location and provides a summary of the existing highway conditions in the vicinity of the site.

3.2 Network Observations

It is predicted that the majority of vehicles would arrive at the site from Bradford Road, therefore the suitability of the route from the site to Bradford Road has been considered, particularly the potential to accommodate any increase in vehicle movements.

3.2.1 Site Access Road

The access road which runs from the site to the junction with Cliff Hollins Lane measures between 4.6m – 5.3m wide with grass verges on both sides which increases the potential developable area of the access to between 8.0m – 8.2m. This will allow for a footway and carriageway of 6m which, in accordance with Manual for Streets guidance, would permit two HGVs to pass. There is a slight downhill gradient along the access road from the junction with Cliff Hollins Lane to the site access.

There are overhead power cables over parts of the access road, services and drainage within the carriageway and farm accesses provided along its length (**Photograph 1**). Given the adjacent uses for farming / grazing, it is likely that these accesses may need to be retained.

Photograph 1 – Farm access from Access Road

Photograph 2 – Restrictions along Mill Carr Hill Road

3.2.2 Cliff Hollins Lane

At its junction with Cliff Hollins Lane, the access road measures some 9.1m wide. To the north-east of the site access junction, Cliff Hollins Lane is a narrow single carriageway as it crosses a bridge over the beck, at its narrowest point measuring some 3.0m. Continuing eastbound on Cliff Hollins Lane there is a significant uphill gradient and winding alignment. Immediately to the east of the junction the speed limit is 30mph increasing to the national speed limit further away from the access. However, based on the assessments undertaken on the likely traffic movements, it is unlikely that any development related traffic would use this route.

There is an uphill gradient immediately to the west of the site as Cliff Hollins Lane bends to the north. From the site access there is a continuous footway provided on the southern / western side of the carriageway separated by a narrow verge and has the benefit of street lighting.

After the bend, Cliff Hollins Lane is generally flat as it meets Mill Carr Hill Road and measures some 7.5m wide at this location.

3.2.3 Mill Carr Hill Road

Along Mill Carr Hill Road to the east there is a 7.5 tonne weight restriction in place as well as a 20mph speed limit. To the west of the junction Mill Carr Hill Road passes underneath the M606, and measures some 7.3m in width. There are footways provided on both sides of Mill Carr Hill Road to the west of the junction with Cliff Hollins Lane and there is sufficient headroom for a HGV to pass underneath the M606. However, there is a relatively steep uphill gradient from the underpass as Mill Carr Hill Road ascends to meet Bradford Road at another priority T-junction.

During detailed site observations, it was identified that there was significant on-street parking relating to Woodlands C of E Primary School along the length of Mill Carr Hill Road from the school gates to the M606 underbridge during school AM drop-off and PM pick-up periods. During site construction it is thought that this could lead to potential conflict with HGV movements and could potentially increase the risk of accidents. This issue was also identified at the Public Consultation event in November 2014. Evidence of the on-street parking on Mill Carr Hill Road and on Cliff Hollins Lane during the AM drop-off and PM pick-up periods is shown in **Photographs 3-6**. During the AM period, there were observed to be approximately 16 cars parked on Mill Carr Hill Road and 8 cars on Cliff Hollins Lane relating to the school. In the PM period, there were 15 cars parked on Mill Carr Hill Road and 16 cars on Cliff Hollins Lane.

Photograph 3 – Mill Carr Hill Road (AM School Drop-Off Period – looking north east)

Photograph 4 – Cliff Hollins Lane (AM School Drop-Off Period – looking north west)

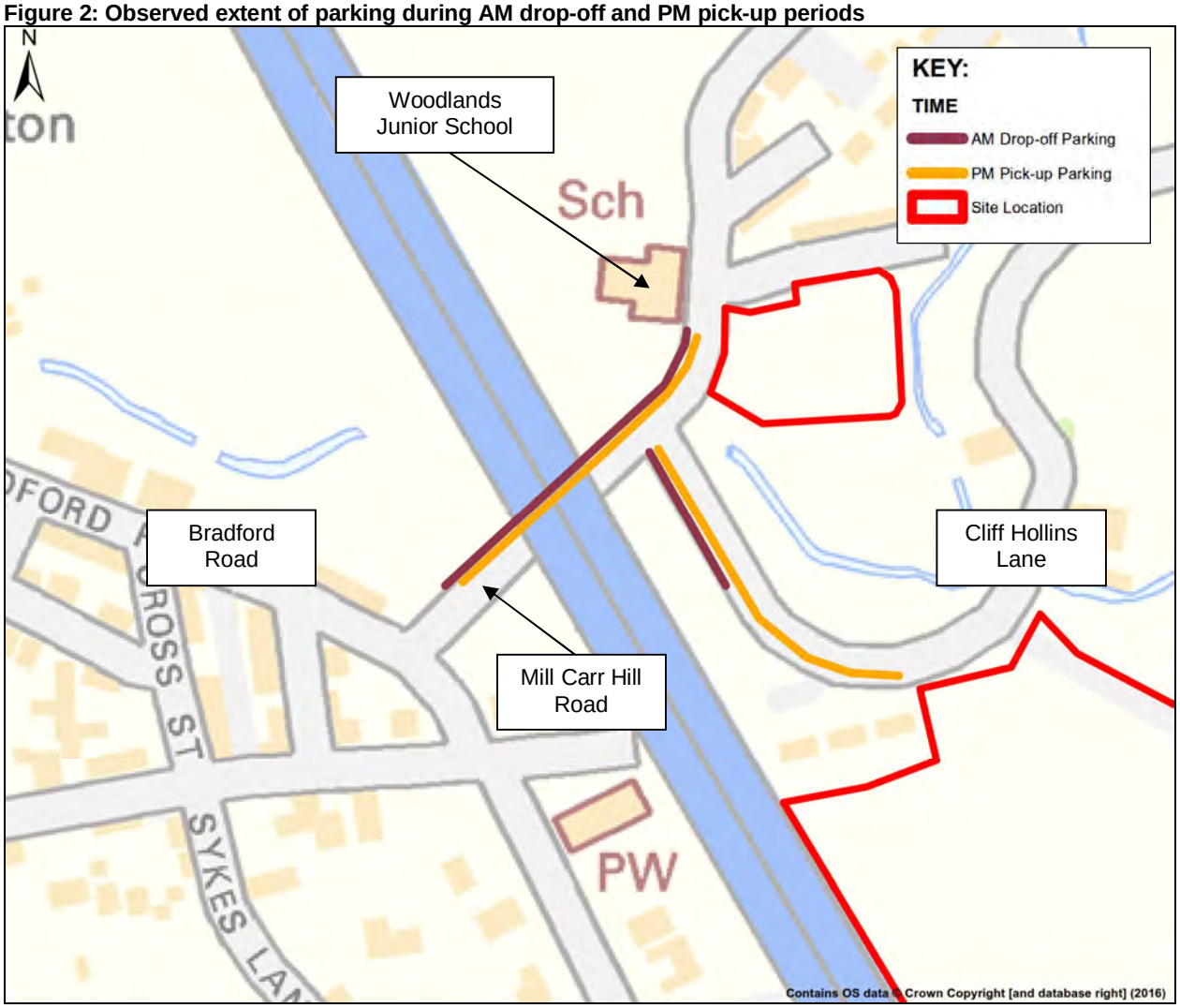
Photograph 5 – Mill Carr Hill Road (PM School Pick-Up Period – looking north east)

Photograph 6 – Cliff Hollins Lane (PM School Pick-Up Period looking north west)

The extent of the on-street parking during the AM drop-off and PM pick-up periods on Mill Carr Hill Road and Cliff Hollins Lane is also shown in **Figure 2**.

Mitigation of the potential issues that could arise relating to the on-street parking is described further in Section 6 of the report.

Figure 2: Observed extent of parking during AM drop-off and PM pick-up periods



3.2.4 Bradford Road

Bradford Road is a high standard road, some 8-9 metres in width with parking restrictions and controls. It is generally flat, with a 40mph speed limit in place, footways on both sides of the carriageway and street lighting provided. This route should not result in any impediment to the development of the site and the resulting increase in traffic movements. The junction of Bradford Road and Mill Carr Hill Road is a standard priority junction with adequate visibility to the east and west.

3.3 Road Safety

Accident data has been taken into consideration in line with the DfT Guidance, which requires analysis of any road incidents which have occurred within the most recent five year period. Kirklees Council has provided traffic accident data for the five year period, 2011 to 2015 inclusive, for the areas listed below. The accident report provides information on location, vehicles involved and severity of the accident. The full accident data reports are provided within **Appendix B**. The accidents have been considered in terms of geographic location of occurrence for ease of identification.

These areas are:

1. Cliff Hollins Lane / Site Access;
2. Cliff Hollins Lane / Mill Carr Hill Lane;
3. Mill Carr Hill Lane / Bradford Road;
4. Bradford Road; and
5. Chain Bar junction.

Analysis of the data shows that in total 88 incidents were reported between 2011 and 2015, of which 80 were slight in severity, 8 were serious and none were fatal. Detailed analysis has been provided for each of the four areas as follows:

3.3.1 Cliff Hollins Lane / Site Access

One slight accident was reported in the vicinity of this junction. It was caused as a result of one vehicle failing to correctly negotiate a bend and colliding with another vehicle travelling in the opposing direction. This is considered to be a result of driver error and is not thought to be related to any highway deficiency.

3.3.2 Cliff Hollins Lane / Mill Carr Hill Lane

In the vicinity of this junction there has been no reported accidents in the five year period examined.

3.3.3 Mill Carr Hill Lane / Bradford Road

A total of two accidents have been recorded in the vicinity of the Mill Carr Hill Lane / Bradford Road junction, one slight and one serious. Both incidents occurred to the south of the junction. The slight accident occurred when a vehicle pulled out into the path of an oncoming vehicle. The serious incident occurred as a result of a vehicle speeding excessively on Bradford Road. It is considered that these accidents occurred as a consequence of driver error rather than any highway deficiency.

3.3.4 Bradford Road

Between the location of accidents at the Mill Carr Hill Lane / Bradford Road junction and the Chain Bar junction to the south, a total of 8 accidents have been reported in the five year period from 2011 to 2015. Two of the accidents have been categorised as serious and the remainder as slight. Of those accidents categorised as slight, one resulted as a vehicle lost control when the road surface was icy, another occurred as a vehicle inadvertently collided with a parked vehicle on street, another resulted as one vehicle tried to make a u-turn and crashed into another vehicle, one incident involved a rear shunt as a vehicle slowed to make a turn and the vehicle behind failed to recognise this, one other incident occurred as a vehicle emerged from a side road causing one vehicle to stop and the chasing vehicle to collide with the rear and the remaining incident was caused as a vehicle driver's foot slipped in slow moving traffic causing the vehicle to collide with the rear end of the vehicle in front. Of the serious incidents reported, one occurred as a vehicle attempted a u-turn and collided with oncoming traffic and the second occurred as a vehicle made a failed attempt to change lanes / overtake colliding with an oncoming vehicle. Again it is considered that these accidents occurred as a consequence of driver error or adverse weather conditions rather than any highway deficiency.

3.3.5 Chain Bar Junction

Given the scale of this junction, the accidents have been considered in relation to the approaches to the main roundabout to ease in the identification in any accident clusters. It should be noted that at the Chain Bar junction, an £11.03 million improvement scheme is currently being implemented having started in May 2015. The works are expected to finish in autumn 2016 and comprise widening of the running lanes from three lanes to four lanes to increase traffic capacity at the junction, optimising the traffic signal configuration to improve flows and providing new lanes markings and signs to improve safety at the roundabout. It is anticipated that after the implementation of these improvements, there will be a significant improvement in road safety at the Chain Bar junction.

3.3.5.1 Whitehall Road East

A total of 11 accidents have occurred on Whitehall Road East between the Chain Bar junction and its junction with Branch Road. The majority of incidents, ten, have been categorised as slight with only one serious incident having occurred. The serious

incident on Whitehall Road occurred as a vehicle attempted a u-turn whilst failing to indicate and crossing the path of an oncoming motorcycle in the offside lane. One slight accident occurred as a pedestrian attempted to cross failing to acknowledge a motorcyclist in oncoming traffic. A further incident resulted due to a vehicle braking suddenly and the chasing vehicle being unable to stop in time. One slight incident resulted as a vehicle attempted to join Whitehall Road via a right turn manoeuvre from Branch Road but did not allow a sufficient gap with oncoming traffic in the nearside lane. Another alight incident on Whitehall Road was caused when a motorcycle did not notice a parked vehicle at the roadside, clipping its edge causing the driver to lose control. A further slight incident resulted in this locality because of a rear end shunt. A further incident occurred on the approach to Chain Bar junction as a vehicle swerved and lost control colliding with other vehicles in the carriageway. One slight incident occurred near to this location as a result of a vehicle being unable to stop due to adverse weather conditions when snow was present on the road surface. Another incident occurred as a result of a pedal cycle colliding with a parked vehicle on the roadside. A vehicle skidding in the snow was the cause of one other slight incident on Whitehall Road and the final incident occurred as a vehicle edged out into the path of another thus colliding with it. It is considered that these accidents occurred as a consequence of driver error rather than any highway deficiency.

3.3.5.2 Whitehall Road West

A total of four accidents were reported on Whitehall Road of which one accident was serious and three were slight. The serious incident occurred as a private hire vehicle tried to perform a u-turn to park in a layby on the opposite side of the road and collided with a motorcycle rider. One slight incident resulted as a vehicle edged out from a queue of stationary traffic colliding with a passing vehicle in a dedicated right turn lane. Another slight incident occurred as a vehicle unfamiliar with the area attempted a right turn and collided with traffic travelling in the opposite direction. The remaining slight incident occurred as a consequence of a rear shunt. It is considered that these accidents occurred as a consequence of driver error rather than any highway deficiency.

3.3.5.3 Bradford Road North

Accidents on this approach are outlined in **Section 3.3.3.**

3.3.5.4 M62 Eastbound Off Slip Road

One accident of severity class slight was reported in this location across the five year study period. This incident resulted as a vehicle behind another vehicle spotted a gap ahead and anticipated the vehicle in front to move forward. The vehicle in front remained stationary causing a collision. It is considered that this incident is a result of driver error.

3.3.5.5 Bradford Road South

A total of four accidents were reported on Bradford Road (North) in the vicinity of the Chain Bar roundabout, all of them were slight. Two incidents occurred as a result of vehicles exiting the Chain Bar roundabout and losing control coming round the left hand bend towards Cleckheaton. A further incident occurred on Bradford Road as a vehicle attempting to make a right hand turn crossed the path of an oncoming vehicle in the opposite lane. The remaining accident occurred as a vehicle failed to recognise slowing / stationary traffic thus colliding with another vehicle at the rear of the queue. The incidents in this locality are considered to have resulted from driver error.

3.3.5.6 M606 Northbound On Slip

Two slight accidents were reported in the vicinity of the M606 Northbound on slip. One accident occurred as a vehicle drifted between lanes and collided with another vehicle travelling in the same direction. The final accident occurred when a vehicle skidded on diesel on the carriageway. Neither of these incidents are related to highway deficiencies.

3.3.5.7 M606 Southbound Off Slip / M62 Eastbound On Slip

Sixteen accidents were reported in the vicinity of the M606 Southbound off slip and M62 Eastbound on slip, all of which were slight. Eight incidents occurred as a result of vehicles changing lanes on the circulating carriageway, five incidents occurred as a result of a rear shunt, one occurred when a vehicle pulled onto the circulating carriageway into the path of an oncoming vehicles and the final accident occurred as the results of a police chase., one occurred as a driver lost control while turning a corner and another as a vehicle lost control when the road surface was icy. It is considered that these accidents are not the result of a highways deficiency.

3.3.5.8 M62 Westbound Off Slip

A total of six slight accidents were reported in the vicinity of the M62 westbound off slip, of which an equal amount were caused by rear end shunts and by changing of lanes. These accidents are not considered to be the result of a highways deficiency.

3.4 Road Safety Summary

On the **Local Road Network**, a total of 11 incidents were reported between 2011 and 2015, of which 8 were slight in severity, 3 was serious and none were fatal. Through analysis of the data is it concluded that the majority of incidents were as a results of human error and poor judgement on behalf of drivers pulling out of junctions. Taking into consideration the above analysis is it considered that the addition of proposed development traffic on the local road network would not results in an impact in terms of road safety.

On the **Chain Bar Roundabout**, the majority of incidents were as a result of human error in manoeuvring on the multiple arm roundabout and poor judgement on behalf of drivers pulling out of junctions. Given the scale of existing flows on the junction, it considered that the addition of proposed development traffic on the Chain Bar Roundabout would not result in an impact in terms of road safety. Furthermore, recent improvements to the junction, due to finish in autumn 2016, are anticipated to improve the road safety record at this location.

Accessibility

4 Accessibility

4.1 Introduction

This section of the Transport Assessment describes existing provision for travel to / from the site, focusing on sustainable modes. It seeks to identify both the current form and quality of provision as well as identifying any improvements that might be of benefit in encouraging sustainable travel.

4.2 Access for Pedestrians and Cyclists

Walking is the most sustainable form of travel due to the positive environmental effects including zero harmful emissions. It also provides distinct health benefits and is the lowest cost form of travel. **Figure 3** illustrates the indicative 2km walking isochrone centred on the site access location, with 2km considered to be the 'preferred maximum walking distance for commuting as specified in the Chartered Institution of Highways (CIHT) and Transportation 'Providing for Journeys on Foot' as shown in **Table 1**.

Figure 3: Indicative 2km Walk Isochrone

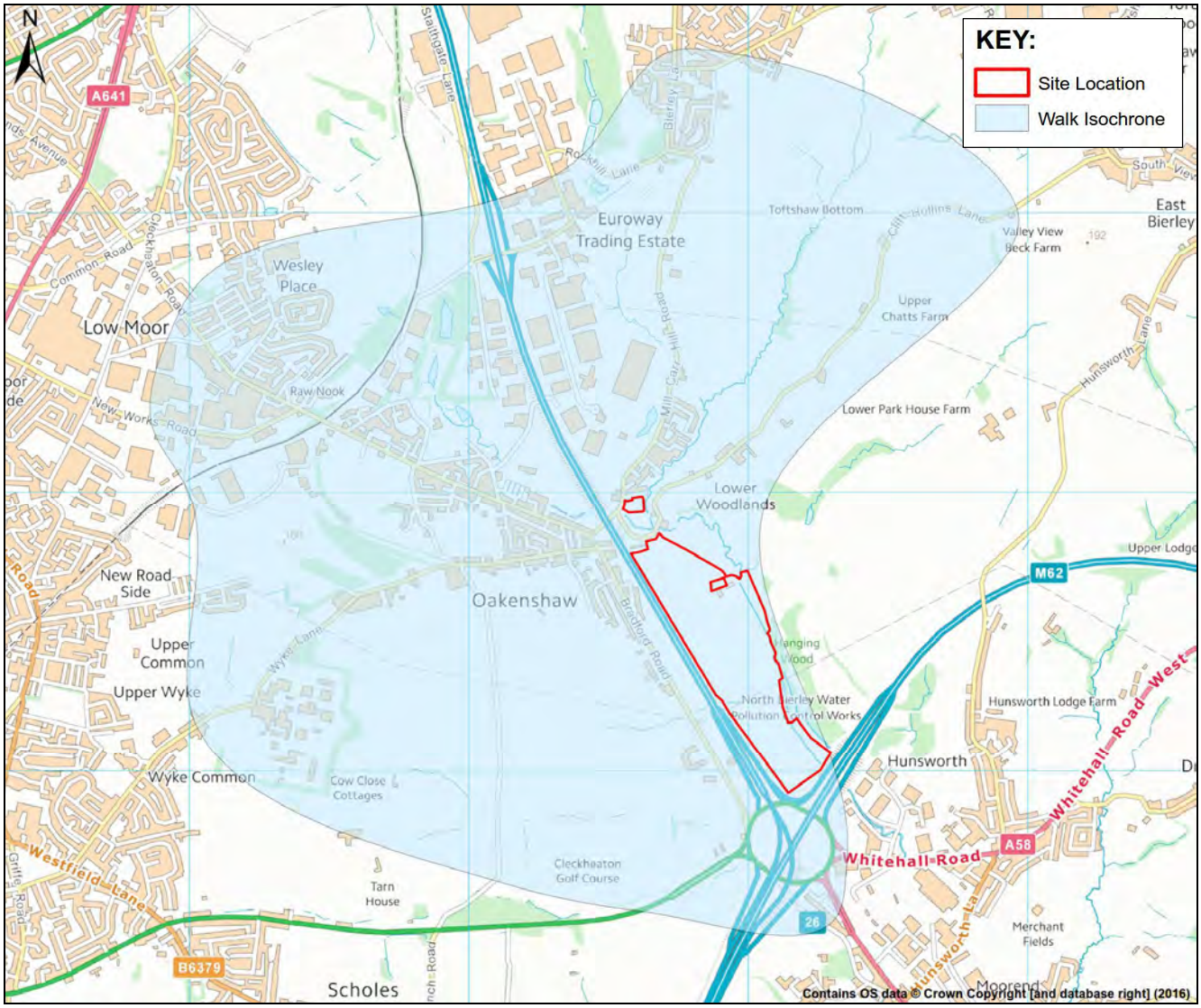


Table 1: Suggested Acceptable Walking Distance

	Town Centres (m)	Commuting/School Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred maximum	800	2000	1200

As highlighted in **Figure 3**, the site is located within acceptable walking distances of the south east of Low Moor and south Bierley.

A footway is provided on the southern/western side of Cliff Hollins Lane from the site access to the junction with Mill Carr Hill Road.

There are footways along both sides of Mill Carr Hill Lane between the junction with Cliff Hollins Drive and Bradford Road to the west separated from the carriageway by grass verges. To the east of the junction with Cliff Hollins Drive, a footway is provided along the north side of Mill Carr Hill Road towards Woodlands.

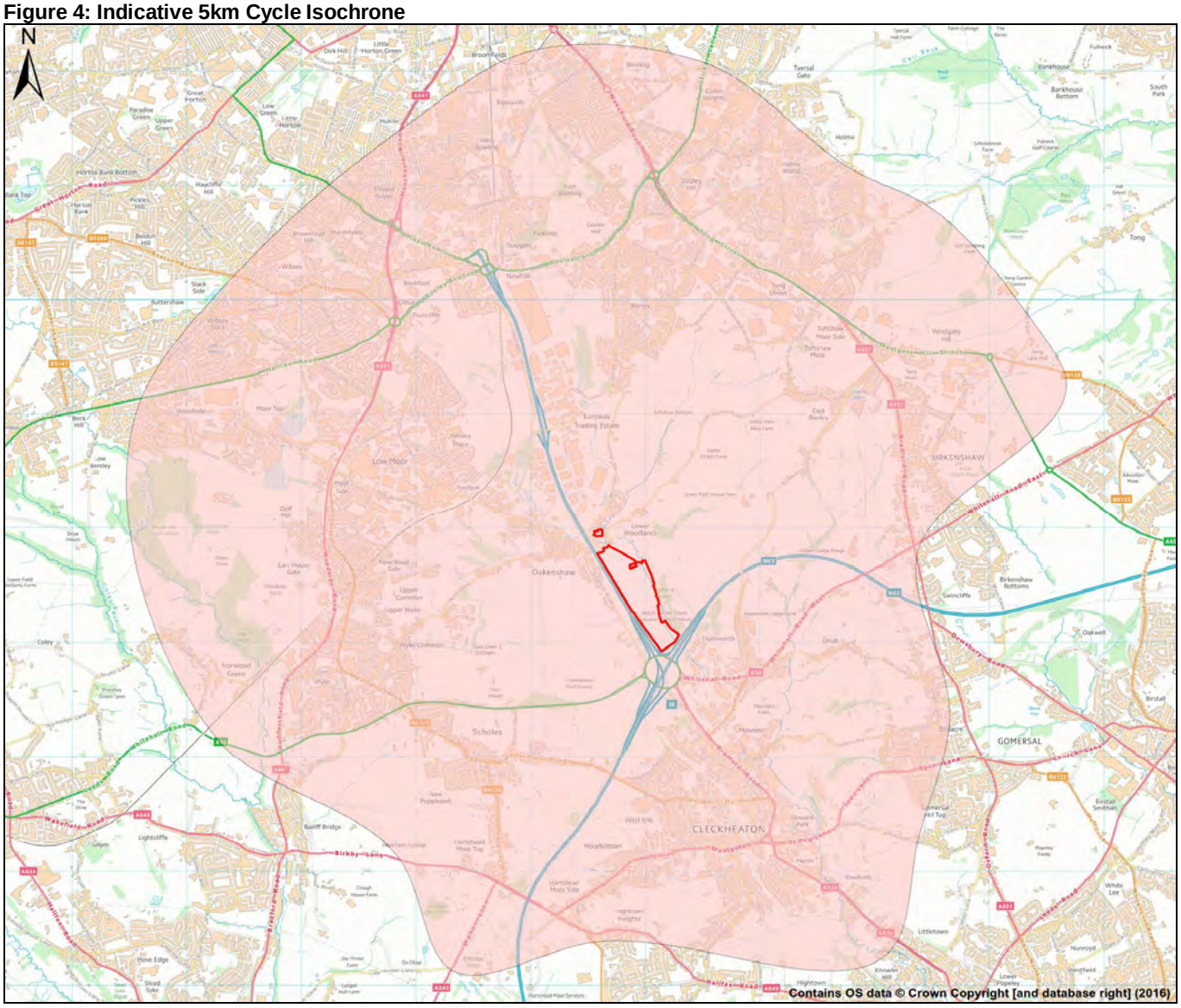
Speed calming measures are in place on Mill Carr Hill Road to the east of the junction with Cliff Hollins drive creating a pleasant pedestrian environment. An uncontrolled pedestrian crossing is provided across Mill Carr Hill Road at the junction with Bradford Road, with dropped kerbs and tactile paving in place.

Continuous footways are provided on both sides of Bradford Road Heading north from the site on Bradford Road with dropped kerbs and tactile pavements provided across side road junctions. Street lighting is provided along Cliff Hollins Drive, Mill Carr Hill Road and Bradford Road and the surrounding network.

Figure 4 illustrates the recommended 5km cycle isochrone centred on the site access location.

Capabilities on project:
Transportation

Figure 4: Indicative 5km Cycle Isochrone



There are no designated cycle routes in the vicinity of the site; however the road speeds, carriageway width and proximity of the site to the surrounding residential areas will make cycling to the site a viable option. National Cycle Network route 66 is located 600m west from the site and can be accessed via Wyke Lane. National Cycle Network route 66 runs from central Manchester to Spurn Head via Bradford, Leeds, York, Beverley, and Kingston upon Hull and will connect the development to Bradford and other settlements in Kirklees such as Liversedge, Heckmondwike or Dewsbury.

Cycling can be a substitute for short car journeys, particularly those up to 5km.

4.3 Public Transport Accessibility

There are bus stops located on both sides of Bradford Road approximately 100m to the south of the junction with Mill Carr Hill Road, both bus stops benefit from a shelter, flag, timetable information, a bus cage and raised kerbs.

Figure 4 illustrates the location of the existing stops, together with a 400m buffer, the preferred maximum distance to bus stops for new developments.

Figure 5: Indicative 400m Walk (to Bus Stops) Isochrone

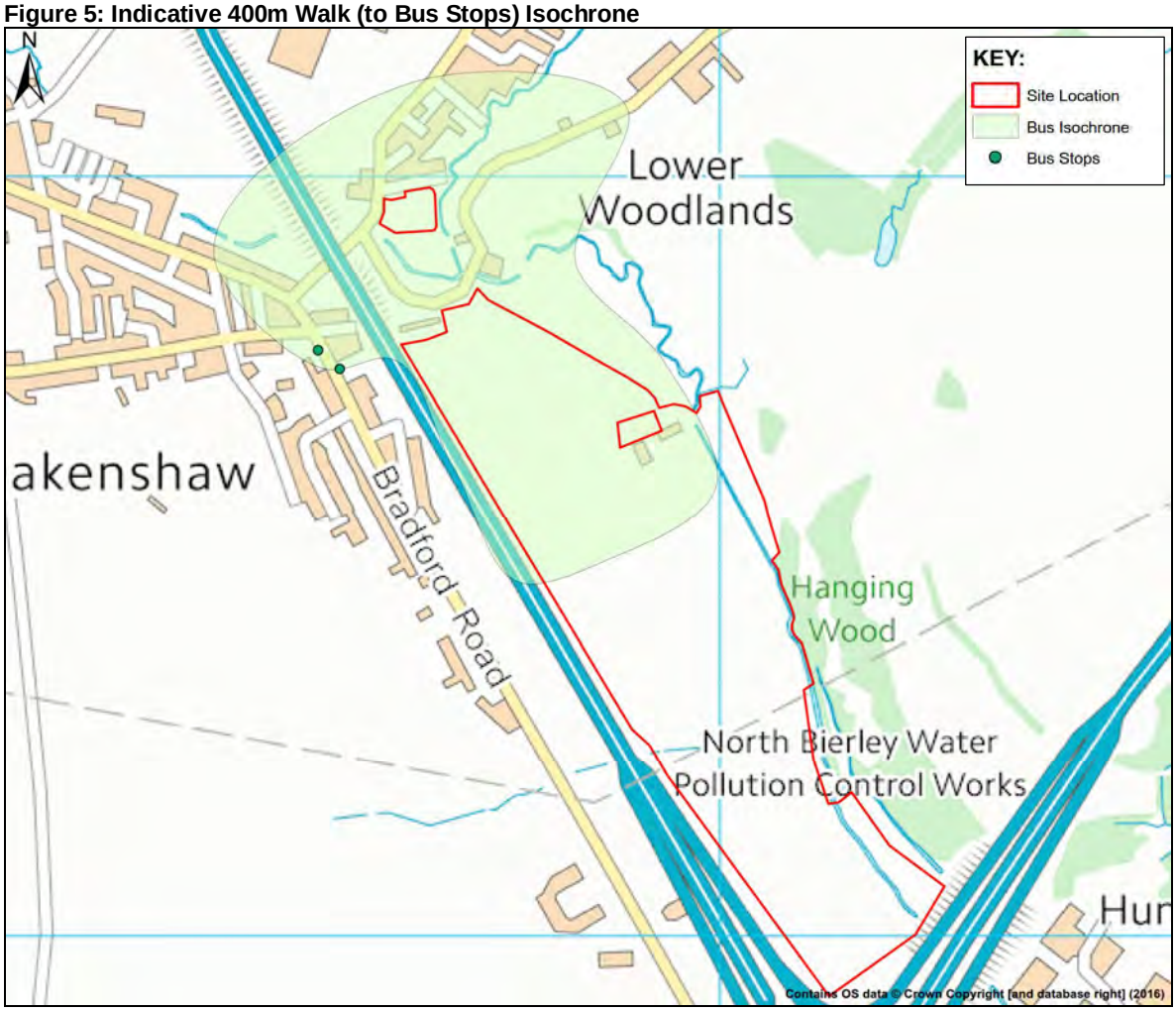


Table 2 summarises the service currently accessed from these stops which provides connections to Bradford city centre and Bradford Interchange.

Table 2: Bus Services, Routes & Frequencies

Service number	Routes	Mon-Fri		Sat		Sun	
		Day	Eve	Day	Eve	Day	Eve
268	Dewsbury-Heckmondwike-Cleckheaton-Oakenshaw-Bradford	12 mins	60 mins	12 mins	60 mins	30 mins	60 mins

The nearest rail station from the site is Bradford Interchange which is located approximately 4 miles to the north of the site, whilst it is unlikely to be a popular mode of travel to the site, it could make up part of a wider multi-modal journey and the Interchange is served by Route 268. Bradford Interchange provides access to a range of mainline and local services, as summarised in **Table 3** below.

Table 3: Rail Service, Routes and Frequencies (Day time)

Route (Main Stations)	Mon - Fri	Sat	Sun
Leeds-Bradford Interchange-Manchester Victoria	15 mins	15 mins	20 mins
Leeds-New Pudsey-Bradford Blackpool North	15 mins	15 mins	20 mins
Bradford Interchange – London Kings Cross	4 per day	4 per day	4 per day

It can be seen that there is a reasonable level of public transport passing the site, providing high frequency links into Bradford and Dewsbury, with the opportunity to link to wider public transport networks.

Trip Generation and Distribution

5 Trip Generation and Distribution

5.1 Introduction

This chapter outlines the anticipated traffic generation and distribution of trips as a consequence of the proposed development.

5.2 Trip Generation

5.2.1 Industrial Development

In order to estimate generated trips for the industrial portion of the proposed development, the TRICS 2013(b) database has been interrogated. This has been used to generate the number of weekday AM and PM peak hour (08:00 – 09:00 and 17:00 – 18:00) multi-modal vehicle trips associated with the development proposals. The development proposals for the site are restated as below.

- Total B2/B8 Gross Floor Area 3.8 Hectares
- Total Net Employment Site 9.94 Hectares
- Total Residential Site 3.25 Hectares (101 units)
- Overall Developable Area 13.55 Hectares
- Site Area 23 Hectares

The full outputs from TRICS are contained within **Appendix C** of this report whilst the person trip rates and resultant trip generation are summarised in **Table 4** below.

Table 4: Proposed Industrial Vehicle Trip Generation

		AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Arrivals	**Departures**	**Arrivals**	**Departures**
B2 General Industrial Development	Trip Rate (per 100m^2)	0.525	0.099	0.059	0.433
	Vehicle Trip Generation	150	28	17	124
B8 Storage & Distribution Development	Trip Rate (per 100m^2)	0.165	0.057	0.059	0.16
	Vehicle Trip Generation	16	5	6	15
Total Industrial Development Trip Generation		**166**	**33**	**23**	**139**
HGV percentage (of peak hr trips)		**6%**	**29%**	**28%**	**4%**

5.2.2 Residential Development

In order to estimate generated trips for the residential portion of the proposed development, the TRICS 2013(b) database has been interrogated. This has been used to generate the number of weekday AM and PM peak hour (08:00 – 09:00 and 17:00 – 18:00) person trips associated with the development proposals.

In order to convert the person trips into vehicle trips for the purposes of this assessment, modal-spilt information from the 2011 Census Travel to Work data has been used. Given that the site is located on the boundary of the Cleckheaton ward, an average of the Cleckheaton ward and adjacent Wyke ward has been used. The modal-split is as set out in **Table 5**.

Table 5: 2011 Census Travel to Work Data – Modal-Split Information

Mode of Travel	Ward		Average
	Wyke	Cleckheaton	
Driving a Car or Van	67%	73%	**70%**
Passenger in a Car or Van	8%	6%	**7%**
Public Transport	12%	8%	**10%**
Cycle	1%	1%	**1%**
Foot	9%	9%	**9%**
Taxi	1%	1%	**1%**
Motorcycle	1%	1%	**1%**
Other	1%	1%	**1%**
TOTAL	**100%**	**100%**	**100%**

The average modal-split percentages shown in **Table 5** were applied to the person trip generation figures (shown in **Table 6**) to determine the total number of vehicle trips associated with the proposed residential development.

Table 6: Proposed Residential Trip Generation

		AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Arrivals	Departures	Arrivals	Departures
Residential	Trip Rate (per ha)	0.235	0.718	0.577	0.241
	Trip Generation (person trips)	24	72	58	24
	Trip Generation (vehicle trips)	16	50	40	17

The total industrial vehicle trips were added to the residential vehicle trips, providing a total of 265 vehicular trips during the AM peak hour and 219 trips in the PM peak hour, as shown in **Table 7**. It should be noted that no additional trips will be generated by the proposed school car park. The car park will accommodate existing trips to the school.

Table 7: Proposed Overall Total Vehicle Trip Generation

	Weekday AM Peak (08:00-09-00)		Weekday PM Peak (17:00-18:00)	
	Arrivals	Departures	Arrivals	Departures
B2 Vehicle Trip Generation	150	28	17	124
B8 Vehicle Trip Generation	16	5	6	15
Residential Vehicle Trip Generation	16	50	40	17
Total Trip Generation	**182**	**83**	**63**	**156**
	265		**219**	

5.3 Trip Distribution

The distribution of the vehicles generated by the proposed industrial and residential developments onto the highway network has been assumed based on 2011 Census Travel to Work information for the locations noted in **Section 5.1.2**. **Figure 5** illustrates this distribution, whilst **Figure 6** illustrates the vehicle trips associated with the proposed development site assigned to the road network. These figures are provided in **Appendix A**.

5.4 Materiality Assessment

A materiality assessment has been undertaken to demonstrate where the proposed development may have a material impact on the road network.

It should be noted that NPPF states that, 'Development should only be prevented or refused on transport grounds where the residual impacts of development are severe'. **Table 8** sets out the percentage increase that the development trips represent at each junction.

Table 8: Materiality Assessment

Junction	Total Junction Flows					
	2013 Base Flows		Development Flows		Materiality	
	AM	PM	AM	PM	AM	PM
Site Access / Cliff Hollins Lane	236	169	279	230	118%	136%
Cliff Hollins Lane / Mill Carr Hill Road	538	430	265	219	49%	51%
Mill Carr Hill Road / Bradford Road	1399	1588	244	202	17%	13%
M62 Junction 26 (Chain Bar)	6818	7138	108	87	2%	1%

As can be seen from **Table 8** at M62 Junction 26, the development flows represent only a 2% and 1% increase in flows through the junction in the AM and PM peak hours respectively. This is not considered as a material or 'severe' impact, in the context of the National Planning Policy Framework, in terms of additional vehicle trips, therefore the operation of the junction has not been considered further.

At the remaining junctions the development trips were shown to represent a higher proportional increase in flows and therefore these junctions have been modelled in the following **Operational Assessment Section** to better understand the impact of this increase on junction capacity and operation.

The impact of the development has also been considered on the merge and diverge lanes at the Chain Bar interchange. The number of trips anticipated at each of these locations is set out in **Table 9** below.

Table 9: Strategic Road Network Merge / Diverge Impact

SRN Merge/Diverge Impact		AM	PM
M62 Eastbound	Merge	25	30
	Diverge	14	4
M62 Westbound	Merge	6	4
	Diverge	26	11
M606 Northbound	Merge	1	2
M606 Southbound	Diverge	0	0

As can be seen from **Table 9**, only in the PM peak on the M62 Eastbound merge does the number of anticipated trips exceed 30. On all other merge and diverge lanes the number of anticipated development trips falls below 30. It is therefore considered that further assessment of the operation of the merge and diverge lanes to / from the M62 and M606 mainlines are not required.

Operational Assessment

6 Operational Assessment

6.1 Introduction

This section of the Transport Assessment provides details on the anticipated impact of the development traffic on the local road network. Operational assessments were undertaken for the AM and PM peak hours at the junctions identified in **Section 5.4**.

6.2 Assessment Scenarios

In accordance with the DfT's 'Guidance on Transport Assessment' the assessments consider the impact of the development trips in the context of the Base scenario and Base + Development scenario for 2016 and 2021 at the following junctions; with 2021 providing an assessment 5 years post registration of the planning application.

- Site Access / Cliff Hollins Lane;
- Cliff Hollins Lane / Mill Carr Hill Road; and
- Mill Carr Hill Road / Bradford Road.

6.3 Base Flows and Growth Factors

Base traffic flows were obtained from traffic surveys undertaken on Tuesday 12th November 2013 between the hours of 07:00-10:00 and 16:00-19:00, the data for which is provided in **Appendix D**. The overall peak hour was calculated for each junction, by taking the most common peak hour for each turning movement, these are set out in **Table 10**. The resultant 2013 peak hour flows are shown in **Figure 7** in **Appendix A**.

Table 10: Peak Hours by Junction

Junction	Peak Hour	
	AM	PM
Cliff Hollins Lane / Mill Carr Hill Road	07:45 – 08:45	17:00 – 18:00
Mill Carr Hill Road / Bradford Road	07:45 – 08:45	16:45 – 17:45
M62 Junction 26 (Chain Bar)	07:00 – 08:00	16:45 – 17:45

NTM adjusted TEMPRO growth factors were identified to growth the 2013 base flows to the assessment years of 2016 and 2021. The factors used are set out in **Table 11**, with the resultant base flows illustrated for 2016 and 2021 shown in **Figure 8** and **Figure 9** respectively in **Appendix A**. The resultant Base flows plus the proposed development trips for 2016 and 2021 are shown in **Figure 10** and **Figure 11** also included in **Appendix A**.

Table 11: NTM Adjusted Tempro Growth Rates

Scenario	Growth Rate	
	AM	PM
2013 – 2016	1.0357	1.0353
2013 – 2021	1.1236	1.1225

6.4 Operational Assessments

The modelling software packages PICADY 5 (used to assess major / minor junctions) and Junctions 8 (used to assess roundabouts) have been used to perform operational assessments of the junctions listed in **Section 6.2**. The software uses Ratio of Flow to Capacity (RFC) to measure the capacity of a junction. RFC values below 0.85 are generally accepted as representing stable operating conditions, values between 0.85 and 1.0 represent variable operation (i.e. possible queues building up on approaches and increases in vehicle delay). RFC values in excess of 1.0 generally represent overloaded conditions. The PICADY and Junctions 8 outputs for all the models are attached in **Appendix E**.

6.4.1 Site Access / Cliff Hollins Lane

The site access junction was modelled for 2016 and 2021 considering the Base + Development flows. The Base scenario was not included as this is a new junction layout to be introduced as part of the development proposals. The proposed junction layout

is shown in **Drawing 60221630-P-001** in **Appendix A**. The PICADY results are summarised in **Table 12** with the full outputs included at **Appendix E**.

Table 12: Site Access / Cliff Hollins Lane 2016 and 2021 Base + Development

Link	2016				2021			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Cliff Hollins Lane South –Site Access (b-c)	0.024	0	0.008	0	0.025	0	0.008	0
Cliff Hollins Lane South – Cliff Hollins Lane North (b-a)	0.120	0	0.232	0	0.130	0	0.250	0
Site Access – Cliff Hollins Lane North and Cliff Hollins Lane South (c-ab)	0.010	0	0.017	0	0.010	0	0.018	0

As can be seen from **Table 12**, in both the 2016 and 2021 Base + Development scenarios, in the AM and PM peaks, the Site Access / Cliff Hollins Lane junction is anticipated to operate well within capacity with a maximum RFC anticipated on the Cliff Hollins Lane South – Cliff Hollins Lane North movement of 0.250 in the 2021 PM scenario with an associated queue of 0 vehicles.

6.4.2 Cliff Hollins Lane / Mill Carr Hill Road

The Cliff Hollins Lane / Mill Carr Hill Road junction was modelled for 2016 and 2021 considering the Base and Base + Development scenarios. The PICADY results are summarised in **Table 13** and **Table 14** for the Base and Base + Development scenarios respectively with the full outputs included in **Appendix E**.

Table 13: Cliff Hollins Lane / Mill Carr Hill Road 2016 and 2021 Base

Link	2016				2021			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Cliff Hollins Lane – Mill Carr Hill Road South	0.074	0	0.174	0	0.082	0	0.190	0
Cliff Hollins Lane – Mill Carr Hill Road North	0.019	0	0.021	0	0.023	0	0.024	0
Mill Carr Hill Road South - Mill Carr Hill Road North and Cliff Hollins Lane	0.381	1	0.142	0	0.416	1	0.156	0

As can be seen from **Table 13**, in both the 2016 and 2021 Base scenarios, in AM and PM peaks, the Cliff Hollins Lane / Mill Carr Hill Road junction is anticipated to operate well within capacity with a maximum RFC anticipated on the Mill Carr Hill Road South to Mill Carr Hill Road North and Cliff Hollins Lane movement of 0.416 in the 2021 AM scenario with an associated queue of 1 vehicle. The junction was then modelled with the addition of the development traffic and is set out in **Table 14** below.

Table 14: Cliff Hollins Lane / Mill Carr Hill Road 2016 and 2021 Base + Development

Link	2016				2021			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Cliff Hollins Lane – Mill Carr Hill Road South	0.198	0	0.430	1	0.206	0	0.448	1
Cliff Hollins Lane – Mill Carr Hill Road North	0.064	0	0.060	0	0.070	0	0.062	0
Mill Carr Hill Road South - Mill Carr Hill Road North and Cliff Hollins Lane	0.724	4	0.262	0	0.759	4	0.275	0

As can be seen from **Table 14**, with the addition of development trips, the Cliff Hollins Lane / Mill Carr Hill Road is still anticipated to operate within capacity, with a maximum RFC anticipated on the Cliff Hollins Lane South – Mill Carr Hill Road and Cliff Hollins Lane movement of 0.759 in the 2021 AM scenario with an associated queue of 4 vehicles.

However, in order to provide a level of betterment on the local highway network and also to provide a 'gateway' feature (to assist with reducing vehicle speeds on Mill Carr Hill Road) it is proposed to provide a mini-roundabout. The layout is shown in **Drawing 60221630-P-002** in **Appendix A** and in **Figure 12** for ease of reference. Only the 2021 Base + Development scenario has been tested as the junction would not be present in the Base scenario.

The Junctions 8 results are summarised in **Table 15** for the Base + Development scenarios with the full outputs included in **Appendix E**.

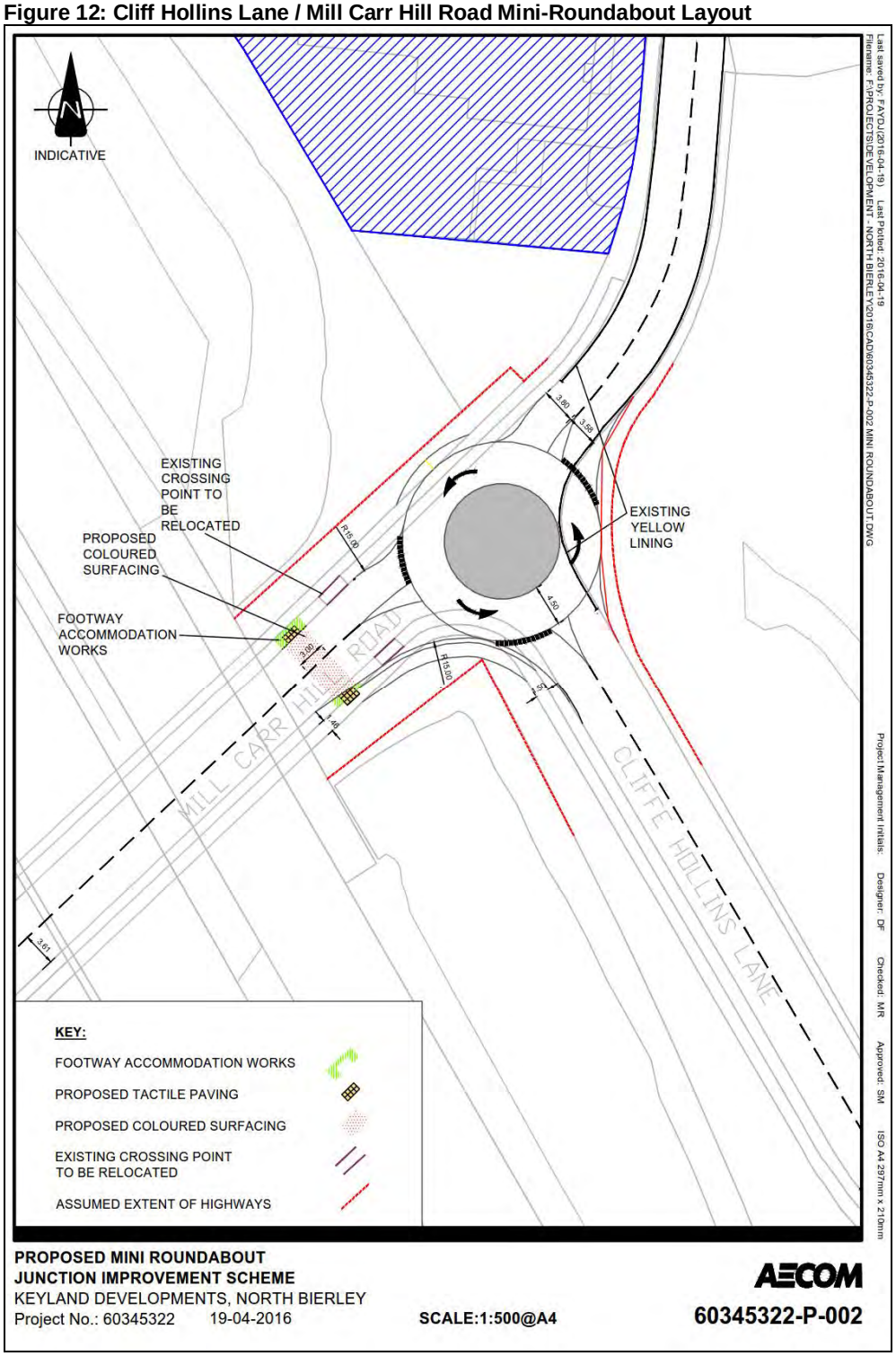
Table 15: Cliff Hollins Lane / Mill Carr Hill Road 2021 Base + Development (Mini-Roundabout)

Link	2021			
	AM		PM	
	RFC	Q	RFC	Q
Mill Carr Hill Road North	0.116	0	0.214	0
Cliff Hollins Lane	0.152	0	0.319	0
Mill Carr Hill Road South	0.711	2	0.267	0

As shown in **Table 15**, the mini-roundabout layout generates a lower RFC (0.711) on the Mill Carr Hill Road South arm of the junction compared with the existing junction layout (0.759). The maximum predicted queue on any arm is 2 vehicles. Overall, the mini-roundabout layout is predicted to operate better than the existing layout in terms of queuing, junction capacity and road safety.

Capabilities on project:
Transportation

Figure 12: Cliff Hollins Lane / Mill Carr Hill Road Mini-Roundabout Layout



6.4.3 Mill Carr Hill Road / Bradford Road

The Mill Carr Hill Road / Bradford Road junction was modelled for 2016 and 2021 considering the Base and Base + Development scenarios. The PICADY results are summarised in **Table 16** and **Table 17** for the Base and Base + Development scenarios respectively with the full outputs included at **Appendix E**.

Table 16: Mill Carr Hill Road / Bradford Road 2016 and 2021 Base

Link	2016				2021			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Mill Carr Hill Road – Bradford Road South	0.097	0	0.278	0	0.107	0	0.316	0
Mill Carr Hill Road – Bradford Road North	0.184	0	0.521	1	0.214	0	0.605	2
Bradford Road South – Bradford Road North and Mill Carr Hill Road	0.328	1	0.125	0	0.363	1	0.138	0

As can be seen in **Table 16**, in both the 2016 and 2021 Base scenarios at the Mill Carr Hill Road / Bradford Road junction is anticipated to operate within capacity with a maximum RFC anticipated on the Mill Carr Hill Road to Bradford Road North movement of 0.605 in the 2021 PM scenario with an associated queue of 2 vehicles. The junction has then been modelled with the addition of the development traffic and is set out in **Table 17** below.

Table 17: Mill Carr Hill Road / Bradford Road 2016 and 2021 Base + Development

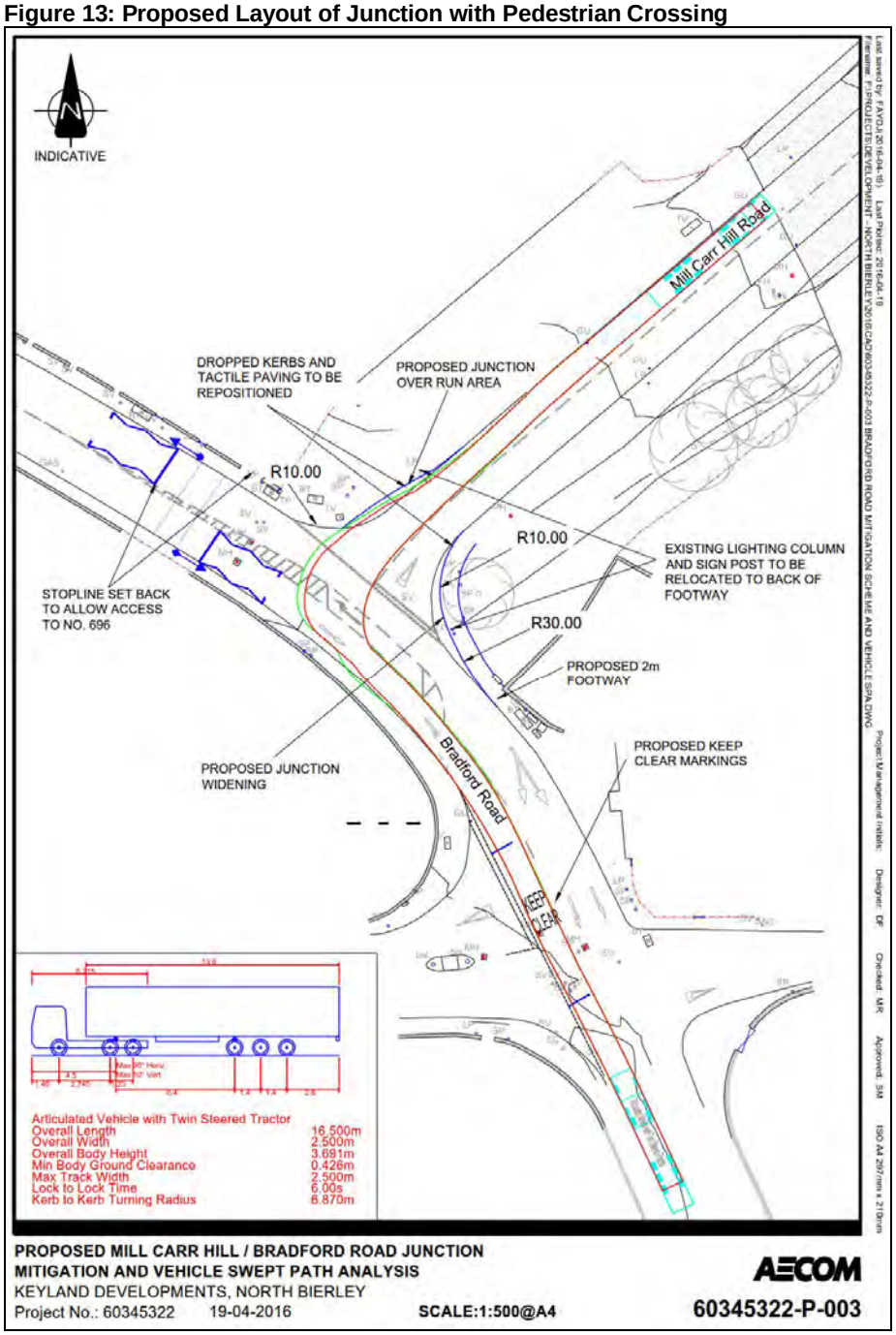
Link	2016				2021			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Mill Carr Hill Road – Bradford Road North & Bradford Road South	0.641	2	1.485	95	0.731	3	1.687	137
Bradford Road South – Bradford Road North and Mill Carr Hill Road	0.528	1	0.187	0	0.576	1	0.204	0

As can be seen in **Table 17**, with the addition of development trips, the Mill Carr Hill Road / Bradford Road junction is anticipated to operate over capacity in the 2016 and 2021 scenarios, with a maximum RFC of 1.694 on the Mill Carr Hill Road to Bradford Road North and Bradford Road South movements with associated queues of 137 vehicles.

As a result of these findings, and in discussions with the Local Authority, the Mill Carr Hill Road / Bradford Road junction has then been modelled with the addition of mitigation measures using TRANSYT '15. Provision of a pedestrian crossing has been included across the northern arm of Bradford Road in order to regulate traffic flow and allow some alleviation of queuing conditions on Mill Carr Hill Road. Incorporating a pedestrian crossing at this location will set back the stopline further to the north thus permitting driveway access for No. 696 Bradford Road. The mitigation also includes road widening on the south side of Bradford Road which will improve visibility and an over-run area on the north side to enable HGV access to Mill Carr Hill Road.

The proposed junction layout is shown in **Figure 13** for ease of reference and is also included as **Drawing 60221630-P-003** in **Appendix A**.

Figure 13: Proposed Layout of Junction with Pedestrian Crossing



This scenario is defined as 'with pedestrians'. The outputs of this particular model are shown in **Table 18** with full results provided in **Appendix F.**

Table 18: TRANSYT Outputs 2021 Base + Development

2021 Base + Development	AM		PM	
	DoS (%)	Queue	DoS (%)	Queue
Bradford Road (Left In)	39	0	35	0
Mill Carr Hill Road (Right / Left)	43	0	102	12
Bradford Road (Right In)	92	5	62	1

Table 18 outlines that the highest degree of saturation (DoS) for the AM peak is 92% for the Bradford Road Right In arm resulting in a 5 vehicle queue whilst the highest DoS in the PM peak is 102% on the Mill Carr Hill Road arm resulting in a 12 vehicle queue.

However, it is considered that while junction performance is slightly above the threshold capacity, it has been significantly improved compared with the junction in its existing layout. The implementation of the pedestrian crossing on the northern arm of the junction is predicted to alleviate pressure on the junction operation as a whole and will also improve pedestrian accessibility to the development site from the north.

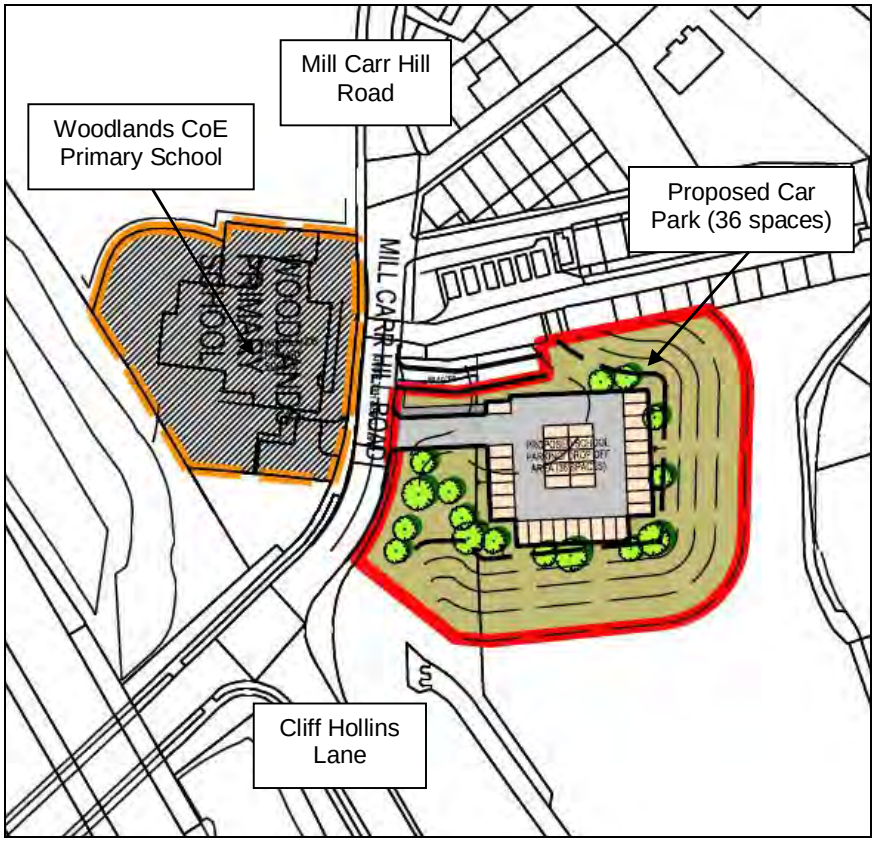
6.5 Proposed Car Park – Woodlands Church of England Primary School

Further development proposals include the provision of a 36 space car parking facility located on the opposite side of Mill Carr Hill Road adjacent to the Woodlands Church of England Primary School. This has been proposed following site observations of significant on street parking on Mill Carr Hill Road, during school drop-off and pick-up periods, between the school gates and the M606 underbridge.

During site construction it is considered that this could lead to potential conflict with HGV movements and could potentially increase the risk of accidents. This was an issue identified during the Public Consultation event in November 2014. The provision of car parking would remove the majority of on-street parking relating to the school and create a safer environment.

A new car park with 36 spaces has been proposed on the opposite side of Mill Carr Hill Road, adjacent to the school. This will provide parking exclusively for vehicles dropping off and collecting pupils at the school. The car park layout, as detailed in the development Masterplan is shown in **Figure 14**.

Figure 14: Proposed Car Park



6.6 Summary

Operational assessments of the following junctions have been undertaken.

- Site Access / Cliff Hollins Lane;
- Cliff Hollins Lane / Mill Carr Hill Road; and
- Mill Carr Hill Road / Bradford Road.

All junctions are anticipated to continue to operate within capacity with the addition of development trips, in an assessment year of 2021, with the exception of the Mill Carr Hill Road / Bradford Road North arm which is operating above capacity in both the 2016 and 2021 scenarios. However, the introduction of mitigation measures results in the junction operating much better with significant reductions in DoS compared to the scenario without mitigation.

The Cliff Hollins Lane / Mill Carr Hill junction was also modelled as a mini-roundabout in order to provide a level of betterment on the local highway network and also to provide a ‘gateway’ feature to assist with reducing vehicle speeds on Mill Carr Hill Road. The 2021 Base + Development RFCs on all arms of the junction were lower than those predicted for the current junction layout.

A new car park with 36 spaces has been proposed on the opposite side of Mill Carr Hill Road, adjacent to the school. This will provide parking exclusively for vehicles dropping off and collecting pupils at the school. Provision of a new car park will seek to

reduce the risk of conflict with HGV movements and reduce the risk of accidents. The provision of car parking would remove the majority of on-street parking relating to the school and create a safer environment.

Summary and Conclusions

7 Summary and Conclusions

7.1 Introduction

AECOM has been appointed by Keyland Developments Ltd to prepare a Transport Assessment and accompanying Travel Plan in support of a planning application for a proposed Employment (B2 / B8) and Residential development at the decommissioned North Bierley Treatment Works.

The site is located to the north of the M62, to the east of the M606 at junction 26 of the M62 and south of Cliff Hollins Lane. The site is broadly oblong in shape; the access road forms a simple priority junction with Cliff Hollins Lane. The development proposals for the site are outlined as follows.

- Total B2/B8 Gross Floor Area 3.8 Hectares
- Total Net Employment Site 9.94 Hectares
- Total Residential Site 3.25 Hectares (101 units)
- Overall Developable Area 13.55 Hectares
- Site Area 23 Hectares

7.2 Policy Review

The assessment of the proposals against local and national policy / guidance confirms its acceptability in transport and land use planning terms.

7.3 Baseline Conditions

The accident analysis concludes that the primary causes of accidents within the vicinity of the site are lack of driver awareness and not as a consequence of any deficiencies in the road network itself, therefore it is considered that the additional development traffic would not impact upon road safety on the surrounding road network;

7.4 Accessibility

There is a reasonable level of public transport passing the site, providing high frequency links into Bradford and Dewsbury, with the opportunity to link to wider public transport networks.

There are no designated cycle routes in the vicinity of the site; however the road speeds, carriageway width and proximity of the site to the surrounding residential areas will make cycling to the site a viable option.

Footways and speed calming measures are provided on routes surrounding the proposed development site create a pleasant pedestrian environment.

7.5 Trip Generation and Distribution

Classified traffic count surveys were undertaken at three junctions to determine the level of existing traffic on the road network:

- Cliff Hollins Lane / Mill Carr Hill Road;
- Mill Carr Hill Road / Bradford Road; and
- Chain Bar Interchange.

A total of 265 vehicles are predicted to be generated by the proposed development during the AM peak period, with 219 generated during the PM peak period.

7.6 Operational Assessment

Operational assessments have been undertaken for the following scenarios (in line with DfT ‘Guidance on Transport Assessment’);

- 2016 Base;
- 2016 Base + Development;
- 2021 Base; and
- 2021 Base + Development.

The volume of development related traffic predicted to travel through the Chain Bar Interchange is not considered to be material.

The Site Access / Cliff Hollins Lane, Cliff Hollins Lane / Mill Carr Hill Road, and Mill Carr Hill Road / Bradford Road junctions are all anticipated to operate within capacity with the addition of development trips in all scenarios, with the exception of the Mill Carr Hill Road / Bradford Road North arm which is operating above capacity in 2016 and 2021. However, operational tests carried out using an alternative junction configuration (including a pedestrian crossing on the northern arm of the junction) reduced the degree of queuing that was predicted for the existing layout.

In order to alleviate potential future safety risks caused by on-street parking relating to the school a new car park with 36 spaces has been proposed on the opposite side of Mill Carr Hill Road, adjacent to the school. This will provide parking exclusively for vehicles dropping off and collecting pupils at the school.

7.7 Conclusion

Considering the above, it is considered that the traffic impact of the development proposals are minimal, and that the site accords with Local and National Policy. Thus, there are no substantive highway reasons why the development proposals should not be granted consent. The development is not considered to have a severe traffic impact.

Appendix A Figures & Drawings

Appendix B Accident Data

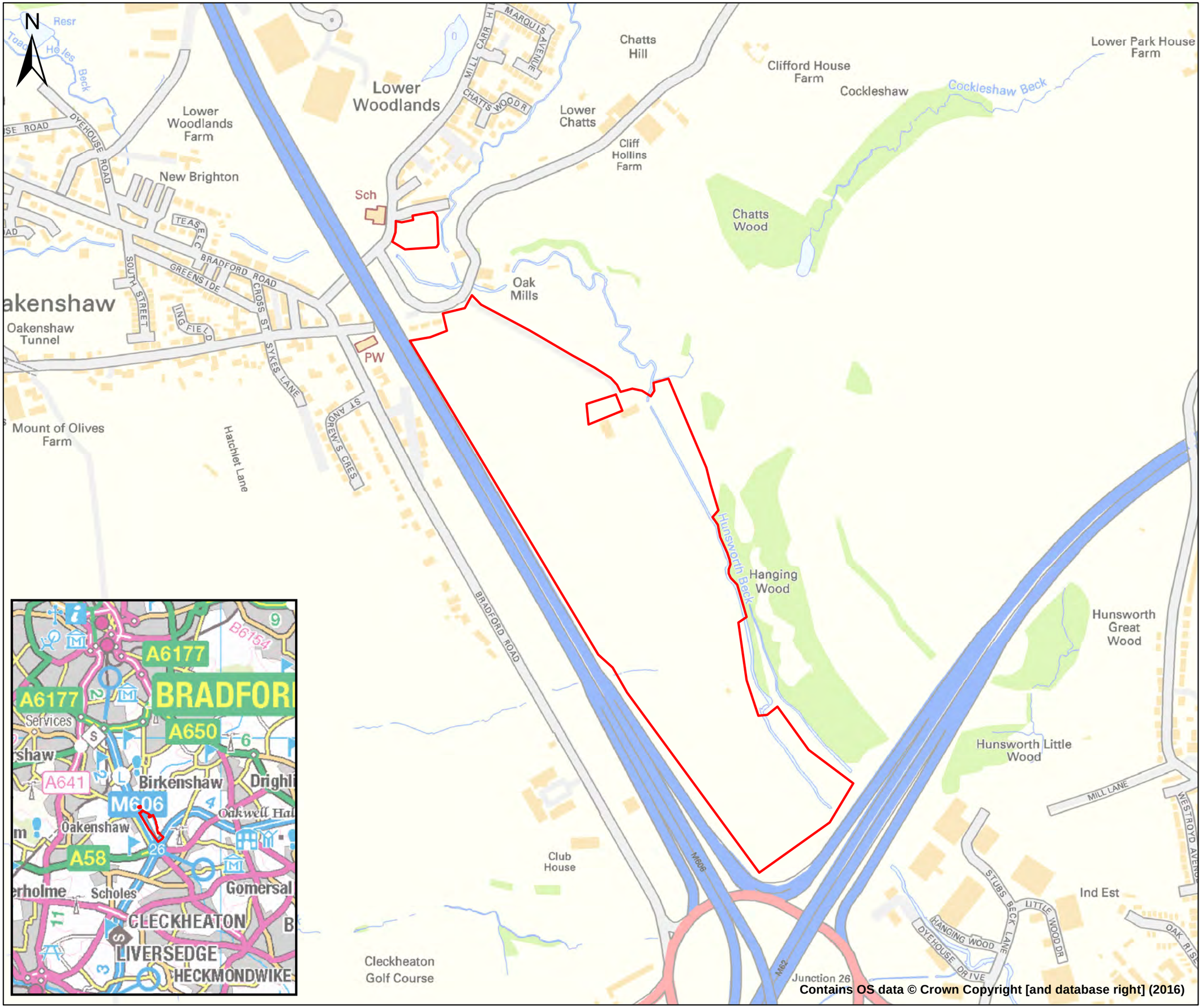
Appendix C TRICS Data

Appendix D Traffic Survey Data

Appendix E PICADY / Junctions 8 Outputs

Appendix F TRANSYT Outputs

Appendix A Figures & Drawings



KEY:

Site Location

Title:

Site Location Plan

Project:

North Bierley
Residential Development

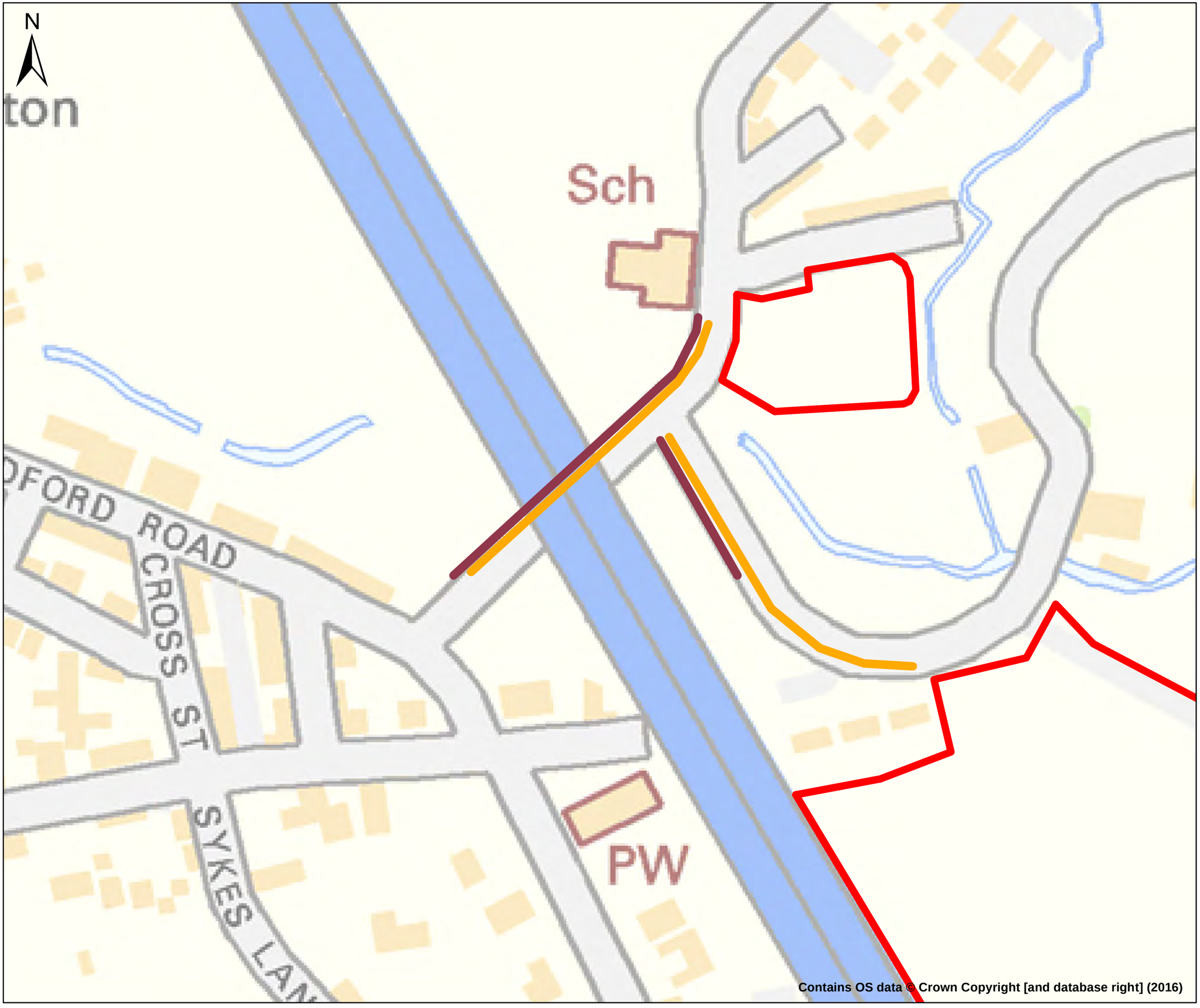
Drawn:	DF	Design:	DF
Checked:	MR	Scale:	NTS
Approved:	SM	Date:	05.07.16

Client:

Keyland Developments Ltd

AECOM
5th Floor
2 City Walk
Leeds
LS11 9AR
Tel: 0113 391 6800
Fax: 0133 391 6899
www.aecom.com

FIGURE 1



KEY:

TIME

- AM Drop-off Parking
- PM Pick-up Parking
- Site Location

Title: Observed extent of parking during AM drop-off and PM pick-up periods

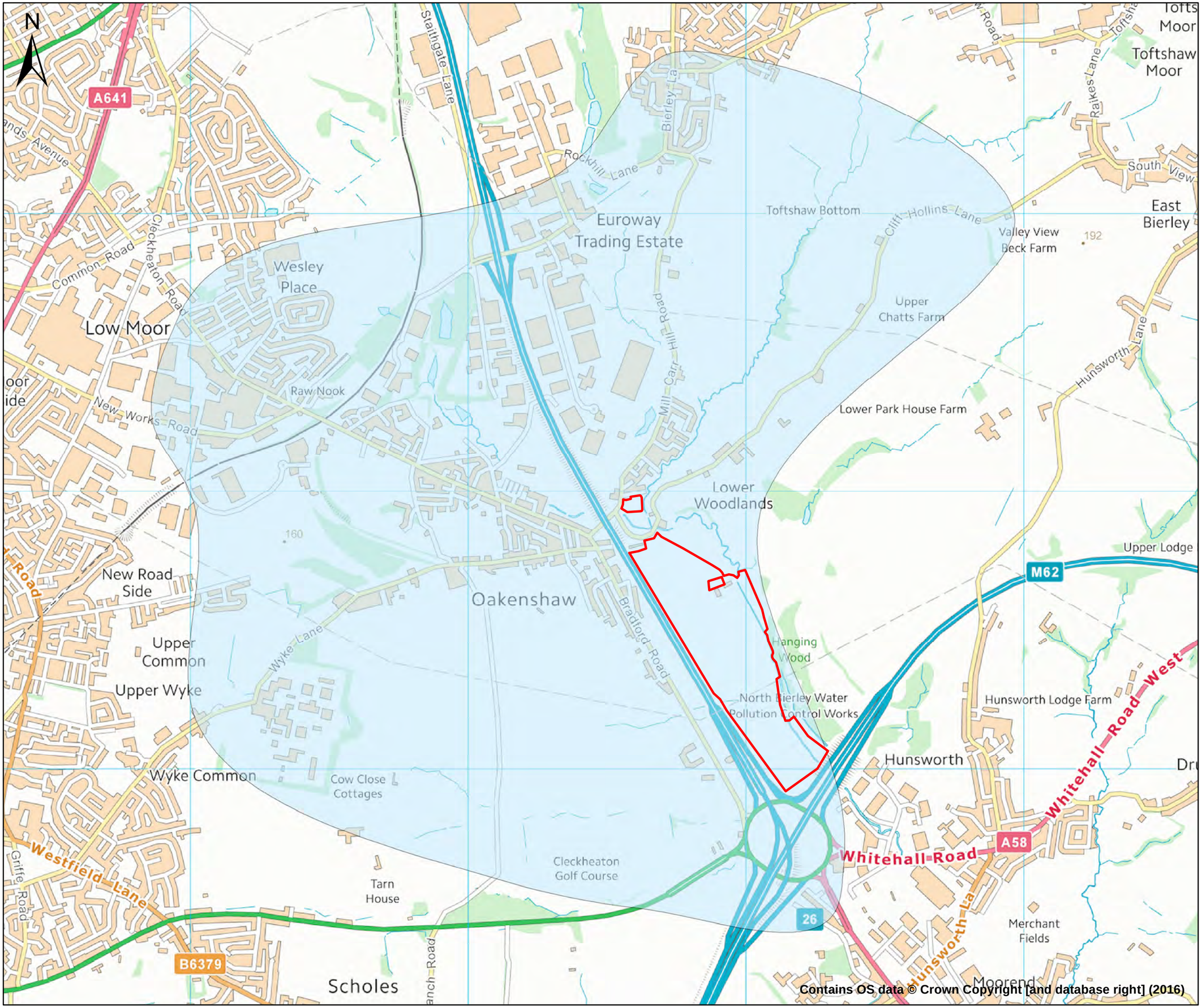
Project: North Bierley Residential Development

Drawn:	DF	Design:	DF
Checked:	MR	Scale:	NTS
Approved:	SM	Date:	6.7.16

Client: Keyland Developments Ltd

AECOM
5th Floor
2 City Walk
Leeds
LS11 9AR
Tel: 0113 391 6800
Fax: 0133 391 6899
www.aecom.com

FIGURE 2



KEY:

- Site Location
- Walk Isochrone

Title:

Indicative 2km Walk Isochrone

Project:

North Bierley
Residential Development

Drawn:	DF	Design:	DF
Checked:	MR	Scale:	NTS
Approved:	SM	Date:	06.07.16

Client:

Keyland Developments Ltd

AECOM

5th Floor
2 City Walk
Leeds
LS11 9AR

Tel: 0113 391 6800
Fax: 0133 391 6899
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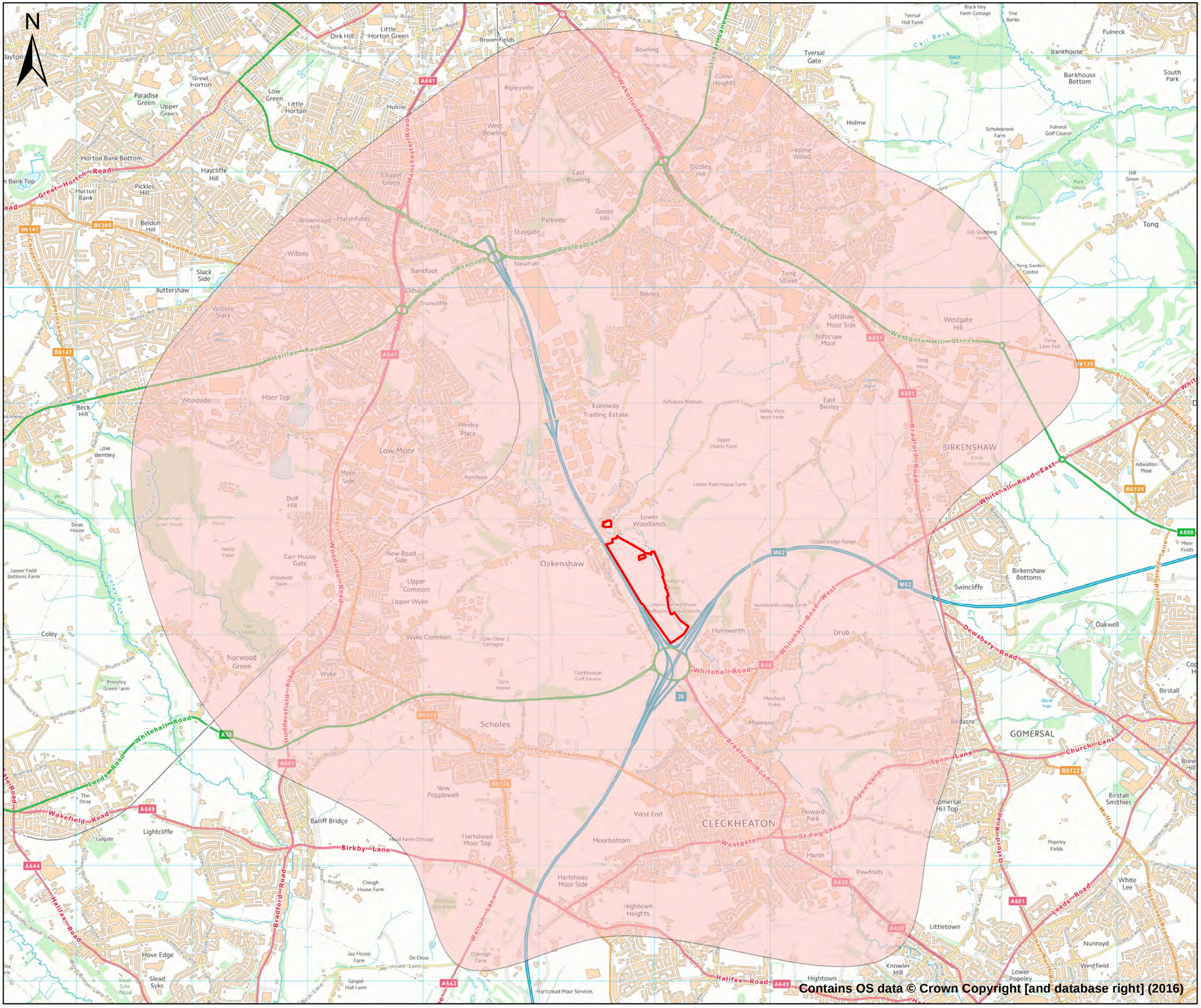
FIGURE 3



KEY:

Site Location

Cycle Isochrone

Title:

Indicative 5km Cycle Isochrone

Project:

North Bierley
Residential Development

Drawn:	DF	Design:	DF
Checked:	MR	Scale:	NTS
Approved:	SM	Date:	06.07.16

Client:

Keyland Developments Ltd

AECOM

5th Floor
2 City Walk
Leeds
LS11 9AR

Tel: 0113 391 6800
Fax: 0133 391 6899
www.aecom.com

FIGURE 4