



Watlington Parish Council

Watlington

Traffic Management Plan

October 2017



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Project No: J322721



transport planning

Lombard House
145 Great Charles Street
Birmingham
B3 3LP

 0121 794 8390

 birmingham@modetransport.co.uk

modetransport.co.uk

Prepared by:

SD

Approved by:

BF

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Contents

1	Introduction	4
1.2	Report Structure	5
2	Planning Policy	6
2.1	Planning Policy	6
2.2	Oxfordshire County Council Local Transport Plan 4 – Connecting Oxfordshire (2016)	6
2.3	South Oxfordshire District Council, Core Strategy (2012)	9
2.4	South Oxfordshire Emerging Local Plan 2011 – 2033	10
2.5	Air Quality Action Plan (2014)	11
2.6	South Oxfordshire District Council Low Emission Strategy (adopted March 2016)	13
2.7	Dorset County Council - Traffic in Villages, Safety and Civility for Rural Roads (2011) and Rural Roads Protocol (2008)	13
3	Existing Situation and Site Observations	15
3.1	Introduction	15
3.2	Existing Traffic Issues	15
3.3	Conclusion	19
4	Proposed Solutions	20
4.1	Introduction	20
4.2	Traffic Calming Features	20
5	Introduction of a Relief Road (Re-aligned B4009)	30
5.1	Introduction	30
5.2	Re-aligned B4009 (Relief Road)	30
5.3	Potential Impact of the re-aligned B4009	33
5.4	Additional benefits from the Re-aligned B4009	34
5.5	Micro-simulation model	36
5.6	Summary	36
6	Summary and Conclusions	38
6.1	Summary	38
6.2	Conclusion	40

Drawings

Appendix A – Case Study Images

Appendix B – Cost Estimates for Traffic Calming Measures



1 Introduction

- 1.1.1 Watlington is a market town located approximately 25km south east of Oxford with a population of approximately 2,700 people. The B4009 and B480 pass through Watlington and the B4009 provides access to the M40 at Junction 6. The routes through Watlington are narrow and there is congestion through the centre of town during peak times, with a high number of vehicles traveling south from Junction 6 during the morning peak period (0700-0930) and a high number of vehicles travelling north towards Junction 6 during the evening peak period (1600-1830).
- 1.1.2 The level of Heavy Goods Vehicle (HGV) traffic through the town is a particular source of concern, given the sensitive nature of the town, and there is already a 7.5 tonne weight restriction (except for access) in place. This weight limit is in force south of Junction 6 of the M40 through Watlington to the neighbouring towns and villages; including Pyrton, Britwell Salome and Cuxham.
- 1.1.3 However, whilst there is a 7.5 tonne weight restriction, it is important to note that a number of these large vehicles will be on 'legitimate' trips, i.e. refuse collection, deliveries to businesses etc. and there is still an ongoing need for these vehicles to access Watlington town centre. Therefore, it is not possible to enforce a complete ban of heavy vehicles within Watlington.
- 1.1.4 Watlington has been designated as an Air Quality Management Area (AQMA) as introduced by South Oxfordshire District Council (SODC) in 2009. The air quality issues in Watlington are attributed to the traffic congestion in an area of narrow streets and relatively high sided buildings, which creates a 'street canyon' effect with pollutants unable to effectively disperse.
- 1.1.5 Mode have been commissioned by Watlington Parish Council (WPC) to prepare a Traffic Management Plan (TMP) for Watlington. This sits alongside the Watlington Neighbourhood Development Plan (WNDP), and is intended to give a better understanding of the traffic issues associated with the proposed development within the plan period 2017-2033. Primarily, the TMP will focus on the existing traffic issues within Watlington, specifically the issues associated within the town centre. The key objectives of this TMP are:
- The introduction of traffic control measures to improve congestion within the town centre;



- The impact of these measures if a relief road is built to improve congestion within the town centre;
- To identify key issues the WNP should raise in regards to the relief road; and
- Improvement in pedestrian connectivity within the town centre.

1.1.6 It should be noted that all the recommendations within this TMP are advisory and there is no commitment from the WNDP to implement them at this stage, and the WPC are entitled to consider the proposals as and when funding resources become available. Furthermore, all proposals will be subject to the approval of both the SODC and OCC before implementation.

1.1.7 In advance of this study, comprehensive traffic surveys were undertaken in September 2014 by Transport Planning Practice (TPP) to understand the existing traffic patterns through the town. In addition, a site visit was undertaken on Thursday 27th April 2017 by mode to examine the existing highway conditions.

1.1.8 Mode have taken a pragmatic approach to this study based on the data, the knowledge of the town and professional judgement of the transport issues. This has been supported by the extensive local knowledge of members of the Neighbourhood Development Plan Forum Traffic Group.

1.2 Report Structure

1.2.1 Following this introduction, the TMP will be structured as follows:

- **Chapter 2** sets out the relevant national and local transport policy context;
- **Chapter 3** describes the existing transport conditions in Watlington, and details the prevailing issues which have contributed to Watlington being declared a AQMA area;
- **Chapter 4** describes the key criteria which would need to be considered to improve the traffic issues within Watlington;
- **Chapter 5** considers the feasibility of the re-aligned B4009, and the impact it will have within Watlington; and
- **Chapter 6** summarises and concludes the findings of the report and includes a summary of the mitigation measures proposed.



2 Planning Policy

2.1 Planning Policy

2.1.1 Oxfordshire County Council (OCC) is the highway authority for Watlington and South Oxfordshire District Council (SODC) is the planning authority. SODC approved WPC's application to be designated as a Neighbourhood Area in September 2013. The WNDP is being prepared which will give local residents more control over how the area will develop and will cover topics including housing and transport. This traffic study has been prepared to inform the WNDP. Some of the key policy documents relevant to Watlington are summarised below.

2.2 Oxfordshire County Council Local Transport Plan 4 – Connecting Oxfordshire (2016)

2.2.1 Oxfordshire's Local Transport Plan 4 (2015 to 2031) focuses on attracting and supporting economic investment and growth, delivering transport infrastructure, tackling congestion and improving quality of life.

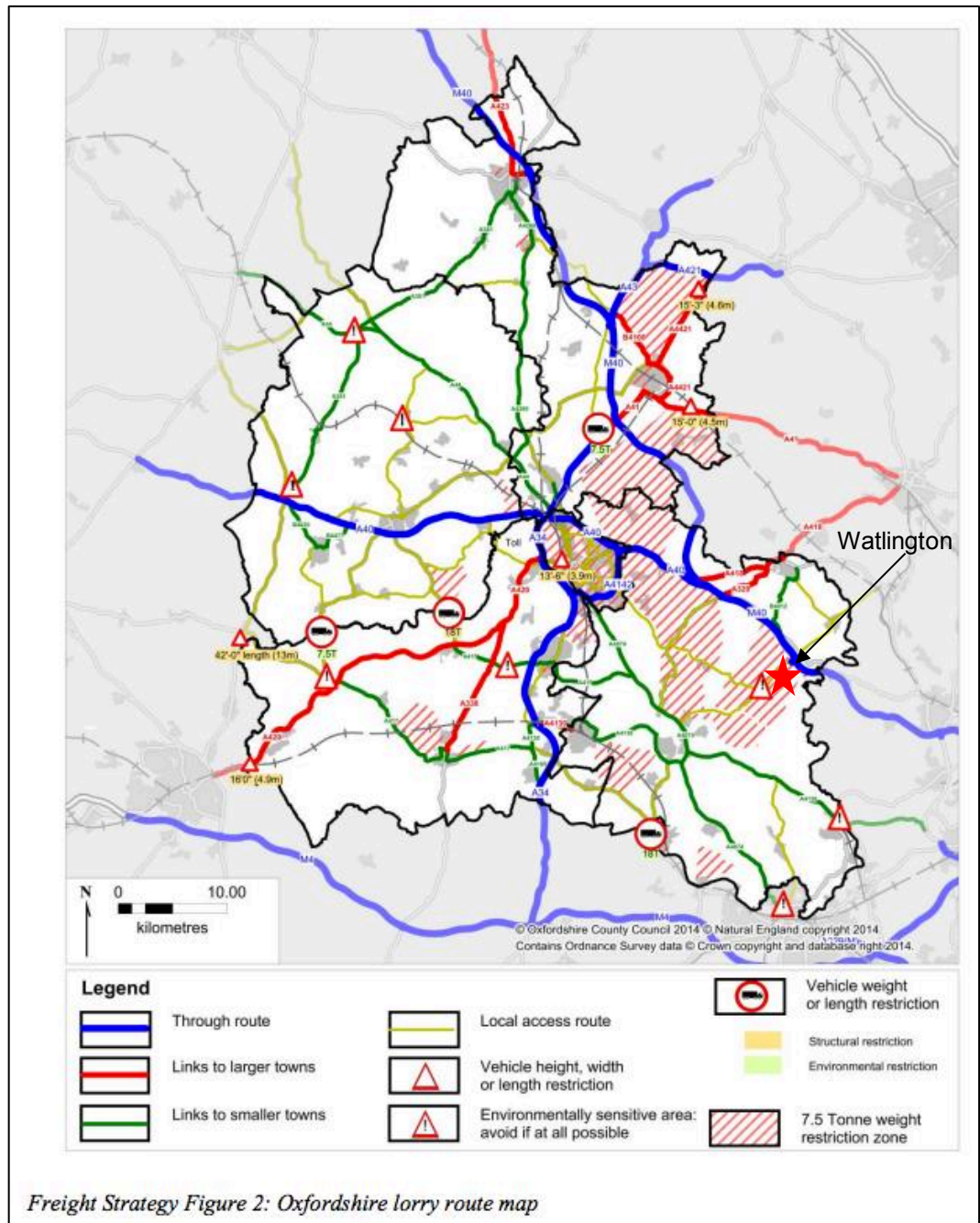
2.2.2 The LTP4 follows the same aims and objectives as previous local transport plans and sets out the ambitions for transport which are:

- to support the local economy and the growth and competitiveness of the county;
- to make it easier to get around the county and improve access to jobs and services for all by offering real choice;
- to reduce the impact of transport on the environment and help tackle climate change; and
- to promote healthy, safe and sustainable travel.

2.2.3 With particular reference to lorry routes and freight movements; the management of road classification and numbering (which up until now has been carried out by the Department for Transport) is largely to be devolved to local highway authorities for all roads not managed by Highways England. The Primary Route Network (PRN) is a national system which designates routes between major settlements and ports/airports. The PRN must provide unrestricted access to 40 tonne vehicles. Weight limits may be placed on other routes in appropriate cases provided that this does not, or is not likely to, transfer larger vehicles onto another route of similar or lower standard or classification and provided that it does not result in an undue inconvenience to the diverted drivers.



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- 2.2.4 The proliferation of restrictions across the county has meant that the road numbering and classification systems are not always a good guide to the most preferred routes for lorries to take in travelling around or through the county. It is also recognised in the OCC Local Transport Plan that while lorries usually make up a small proportion of the overall traffic flow, they can play a major part in creating congestion as well as contributing to other environmental problems associated with it such as air pollution, noise and damage to road surfaces and verges. Where congestion occurs, though, lorries are often most affected, given that they are usually more constrained than general traffic in the routes they use. Problems caused by lorry traffic are seldom easy to remedy without potentially causing difficulties to the local and national economy.
- 2.2.5 This is particularly apparent in Watlington, where the narrow routes within the town centre are unsuitable for high levels of lorries and van movements, as they often cause vehicles to stop and wait for the vehicle to pass before they can continue on their journey.
- 2.2.6 As a result of this, OCC has produced the 'Oxfordshire Freight Strategy; which includes a Lorry Route Map for Oxfordshire to guide lorry drivers onto suitable freight routes and diversion routes to help remove these trips from unsuitable rural roads and villages. A copy of this map is detailed below.



2.2.7

Within the lorry route map, Watlington and the surrounding towns and villages are located within the 7.5 tonne weight restriction and are classed as an ‘Environmentally Sensitive Area: avoid if at all possible’, and advises lorries and vans to avoid travelling through Watlington as a through route. To help enforce this, OCC has signed up to the National Freight Journey Planner offered by the specialist mapping data consultancy PIE to produce Freight Gateway maps.



2.2.8 Freight Gateway allows an operator to enter details of a particular vehicle (size, weight, etc.) and routes it accordingly. Freight Gateway shows the user the location of restrictions so that it is clear why a particular route is being recommended. It will incorporate all the details of the restrictions within Oxfordshire and recommended routes. Features include a lorry watch link to allow local people to report breaches of weight restrictions and detailed local mapping.

2.2.9 This data is also made available to other portals and to logistics companies with their own software to inform how they plan their activities. It also feeds in to certain lorry specific satnav products.

2.3 South Oxfordshire District Council, Core Strategy (2012)

2.3.1 The SODC Core Strategy was adopted in 2012 and it identifies issues and directions of growth for new development up to 2027.

2.3.2 It is recognised that South Oxfordshire is a mainly rural district in South East England covering an area of 253 square miles. Although the Core Strategy seeks to build on opportunities for sustainable travel, SODC recognises that the rural nature of the district means that many residents will be dependent on car travel for some or all of their journeys.

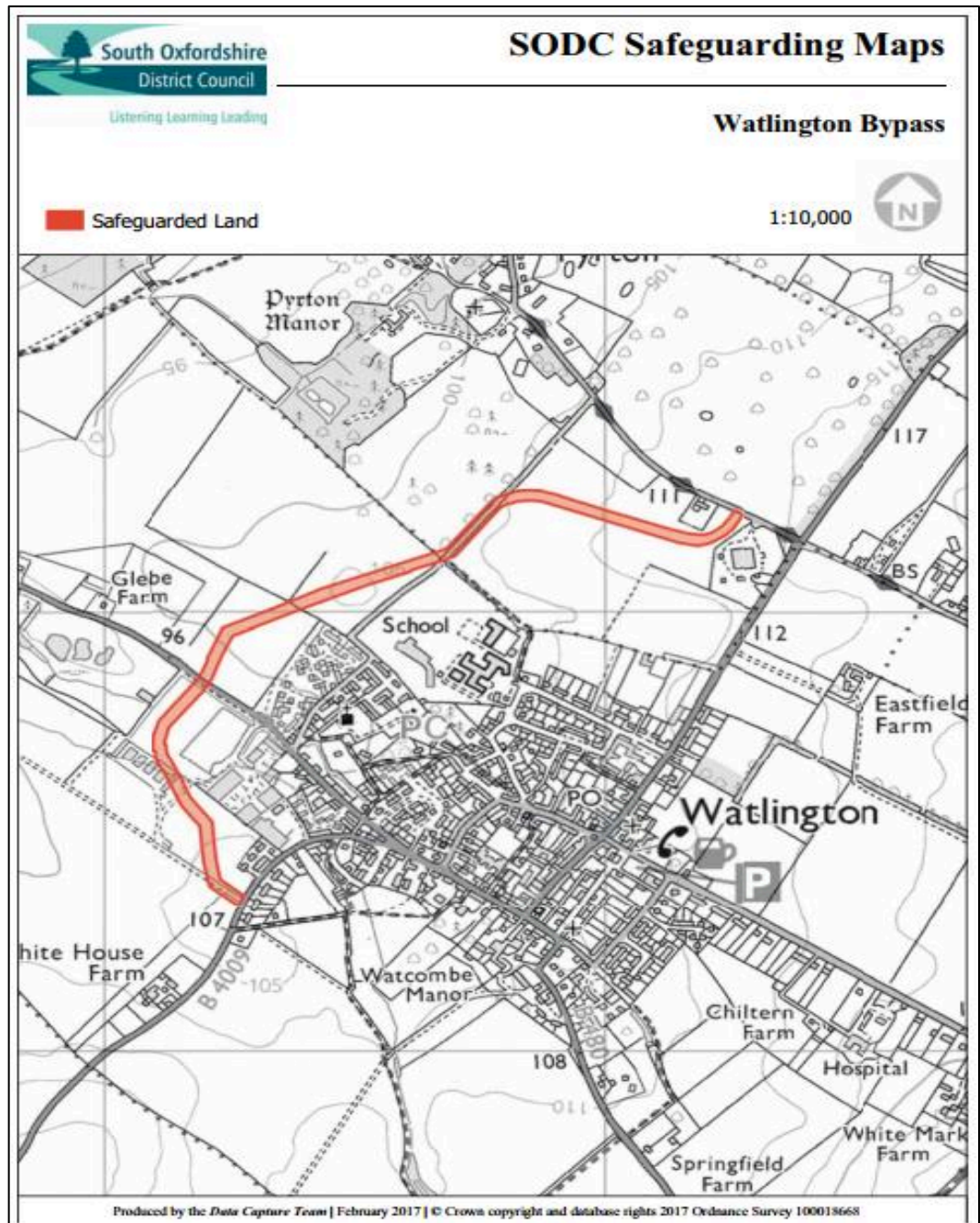
2.3.3 Watlington is designated as a “Larger Village” in the Core Strategy and one of the local centres serving its immediate rural area, as set out in Policy CST1 on Town Centres and Shopping. It is worth noting that in 2009, rural South Oxfordshire ranked very poorly on a national measure of accessibility of services (including GPs, supermarkets, post offices and primary schools). Wards with the worst scores included Watlington, Chiltern Woods and Great Milton. This appears to be from a national index of geographical accessibility to services from the Department of Communities and Local Government (DCLG) but the exact criteria for this are not made clear. However, Watlington has evolved over the last 8 years and improvements in terms of amenities and facilities will be taken into account within the final versions of the Watlington Neighbourhood Development Plan and the South Oxfordshire Local Plan.

2.3.4 In terms of traffic growth, SODC have conducted a district-wide transport assessment to assess the impacts of their spatial strategy on the strategic and local transport network. With particular reference to Watlington, Table 5.1 of the Core Strategy shows that the section of B4009 between Watlington and Benson is predicted to experience 10% or more increase in traffic flows.



2.4 South Oxfordshire Emerging Local Plan 2011 – 2033

- 2.4.1 SODC is currently developing a new Local Plan that once released will shape the future of the district. The emerging Local Plan will set out the vision for South Oxfordshire up to the year 2033. It will identify where housing, retail and employment land should be located as well as the infrastructure required to support this growth, such as new roads, schools, health services and sewerage. The proposed policies in the plan will be used to help make decisions on planning applications in the district. The next stage of consultation on the draft plan is forecast to go out for consultation in October 2017.
- 2.4.2 Within the current iteration of the Emerging Local Plan, 'Policy TRANS 3: Safeguarding of Land for Strategic Transport Schemes' details the areas within South Oxfordshire where highways and infrastructure improvements are being planned for the future; which includes a proposed bypass/relief road around Watlington. A copy of the proposed alignment is detailed below.



2.5 Air Quality Action Plan (2014)

2.5.1 The SODC Air Quality Action Plan focuses on the three AQMAs (Henley, Wallingford and Watlington). The data in the action plan shows that in 2010, air quality levels in Watlington exceeded air quality standards by 28% (reaching 51Cg/m³ against the



standard of 40Cg/m3). The Action Plan has identified the traffic in Watlington has been made up of:

- 82% cars
- 15% LGVs
- 3% HGVs
- 1% buses

2.5.2 Although HGVs and buses make up just 4% of the traffic, it accounts for 44% of the NOx emissions. The cars in Watlington make up another 44% of the NOx emissions. To meet air quality standards, the road NOx emissions need to be reduced by 22%, or the total NOx emissions need to be reduced by 17%.

2.5.3 It was noted in the action plan that the main traffic issue in Watlington is the pinch point at the central crossroads, which is assumed to refer to the Shirburn Street / Hill Road / Couching Street / High Street junction.

2.5.4 The three proposed actions in the plan which are specific to Watlington are:

- Low emission zone feasibility study – This has now been completed and published as the SODC Low Emission Strategy (2016).
- Increased enforcement and review of the Weight Restriction Zone (WRZ) – Oxfordshire County Council (OCC), SODC and the police will be responsible for enforcing the WRZ more rigorously. It is also stated that there is anecdotal evidence of HGV drivers breaching the WRZ suggesting the signage at M40 Junction 6 is not clearly visible.
- Smoothing traffic flow (removal of on-street parking and measures such as lowering speed limits) – Research into the potential impacts of removing on street parking on Couching Street and part of Shirburn Road and introducing measures based on the Dorset villages model. Actions are dependent on OCC support and funding. However, Watlington Parish Council opposes this approach because the on-street parking contributes to traffic calming measures and convincing evidence to support the proposal with regard to an improvement in air quality has not been provided.

2.5.5 Whilst these are the actions submitted as part of the Air Quality Action Plan to address the AQMA within Watlington, this TMP will consider a more holistic approach to tackling all the traffic related issues within Watlington, including the AQMA.



2.6 South Oxfordshire District Council Low Emission Strategy (adopted March 2016)

2.6.1 The SODC Low Emission Strategy identified Watlington as a designated Air Quality Management Area (AQMA). It has focussed on actions to improve air quality in Watlington with a particular focus on HGVs and buses, due to Watlington having air pollution level approximately 25% above the current limit values.

2.6.2 As part of their measures to improve the air quality issues, they investigated the option of introducing a 'freight clearway', which would remove on-street parking areas on Couching Street and Shirburn Road that are causing blockages and congestion for both goods vehicles and cars. This would ease the flow of vehicles helping to reduce emissions from queuing traffic. However, this is a limited approach in terms of managing the flow of traffic within Watlington as a whole. Therefore, as part of this assessment, mode have considered measures which could provide a holistic approach to addressing all the traffic related issues within Watlington.

2.7 Dorset County Council - Traffic in Villages, Safety and Civility for Rural Roads (2011) and Rural Roads Protocol (2008)

2.7.1 Dorset County Council is pioneering new approaches to rural traffic management. With support and initiatives generated by the Dorset AONB Partnership, fresh ideas are emerging to help address rural traffic issues. Many of these ideas have evolved from cities and from larger market towns. The approach places community engagement at the heart of the process, building on local energies, creativity and commitment to contribute to the work of the highway authority.

2.7.2 Therefore, a toolkit has been designed with the aims to provide advice and information on a range of measures and initiatives to implement within rural towns and villages, to help manage the traffic related issues without impacting their design and character. The toolkit has been informed from ideas generated by a number of pilot projects, and is informed by best practice from the UK and elsewhere in mainland Europe.

2.7.3 The measures suggested within this TMP will consist of a range of approaches suggested within the toolkit to help address the different elements to the traffic issues within Watlington. However, due to the unique location of Watlington in relation to the M40, there are no directly comparable pilot schemes where the implemented measures can be copied. Therefore, mode have decided to implement a variety of measures from the toolkit which can work in tandem to produce the desired effect within Watlington.



2.7.4 All of the measures in the toolkit are based on the key principles underpinning the Rural Roads Protocol. The most important of these principles include:

- Understanding and exploiting the quality and character of the built and natural environment to increase driver awareness and to influence driver behaviour;
- Avoiding the imposition of standardised highway measures that can erode the distinctiveness and quality of villages, and serve to isolate drivers from their surroundings. Signs, road markings, barriers and traffic signals are kept to a minimum to reduce roadside clutter, and to engage drivers with the environment outside their car;
- Employing the principles of “psychological traffic calming” to influence driver speeds and responses. “Self-reading” roads that inform drivers appear to reduce speeds and improve drivers’ awareness of their surroundings by increasing interest and changing perceptions of time. Research suggests that the more our brains engage with interpreting the immediate environment, the less we sense time passing. This seems in turn to promote lower speeds and a reduced sense of urgency;
- Expanding the menu of measures available to local communities and local highway authorities beyond standardised highway measures. Such measures are intended to build on the principles of “place-making”, to make villages more distinctive and recognisable, introducing elements of intrigue, uncertainty and interest to alert drivers to the specific context of their surroundings; and
- Redefining the boundaries for responsibility and management of village streets and spaces.



3 Existing Situation and Site Observations

3.1 Introduction

3.1.1 Watlington is designated as an Air Quality Management Area (AQMA) and South Oxfordshire District Council (SODC) has identified the main area at risk as the town centre itself; specifically, the area encompassing B4009 Shirburn Street, B4009 Couching Street and B480 Brook Street. This is primarily due to the B4009 providing a route to / from the M40 towards many towns and villages within South Oxfordshire, including (but not limited to) Chalgrove, Wallingford, Shillingford, Nettlebed, Didcot and Benson. As there is no clear alternative route for drivers, it is unlikely that the level of traffic currently travelling through Watlington will decrease by a significant magnitude without intervention.

3.1.2 The impact of the high level of traffic travelling through the centre of Watlington is compounded by the narrow nature of the streets within the town centre, specifically in the locations where it is not possible for two vehicles to pass each other. These 'pinch points' tend to cause large queues because vehicles are stationary for extended periods of time as they wait for a suitable gap from the opposing stream of traffic. This issue is further compounded by large vehicles using the B4009. The location and impact of these 'pinch points' have been discussed later in this chapter.

3.1.3 To determine the traffic issues within Watlington, mode conducted a site visit on 27th April 2017. The site visit has contributed to understanding the transport issues in the town and how they impact on the sense of place and character.

3.1.4 However, to give some context of the traffic issues experienced within Watlington, a previous report commissioned by Watlington Parish Council in 2014 conducted a number of traffic surveys around the Watlington town centre, including an Automatic Number Plate Recognition (ANPR) survey. Within this report, the results of the ANPR surveys concluded that Shirburn Road accounted for the majority of the traffic (in the region of 40% to 50%) and that approximately 85% of traffic in Watlington is through-traffic in the AM peak and 82% in the PM peak.

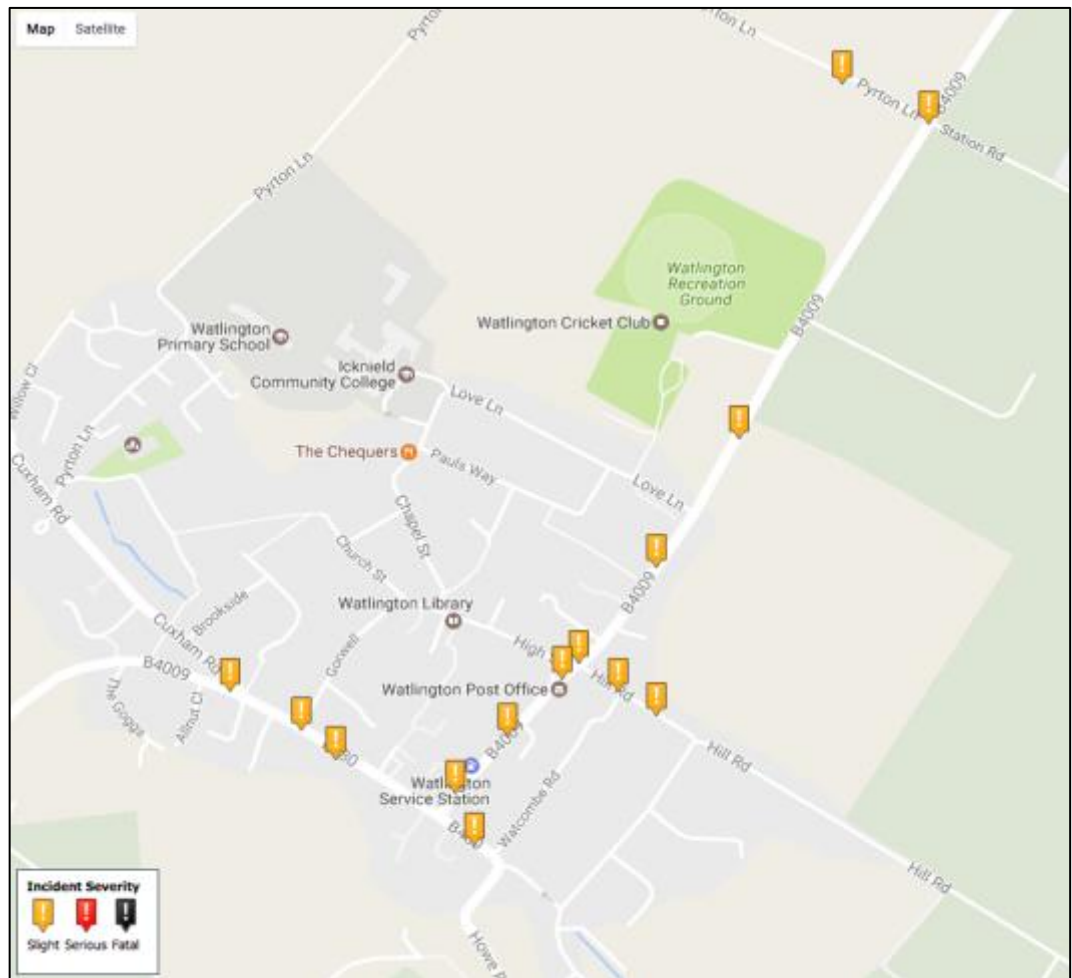
3.2 Existing Traffic Issues

3.2.1 The existing junction alignment for the Couching Street / Hill Road / High Street junction creates a narrow passing point for vehicles by the Town Hall, not allowing for two-way flow of traffic on the B4009 to pass through the junction.



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- 3.2.2 Whilst there are various traffic signs informing drivers to give way in advance of the pinch point, these were not always followed and vehicles continued to travel along the carriageway until they were forced to stop (due to the narrow carriageway widths not providing sufficient room for two vehicles to pass). This was observed to cause a bottleneck of vehicles along Couching Street, and in some cases vehicles were required to reverse along the carriageway to allow sufficient room for the other vehicle to pass.
- 3.2.3 This problem was further compounded as there was observed to be a second pinch point on Couching Street (just south of the zebra crossing) which causes vehicles to have to stop to allow the opposing stream of traffic to pass.
- 3.2.4 Due to the narrow road width at the Couching Street / Hill Road / Hill Street junction, it was also observed that the large vehicles struggled to safely manoeuvre around the junction when turning into Hill Road; with many vehicles having to mount the footway in order to complete the manoeuvre. This manoeuvre described above has been demonstrated on Drawings **J32-2721-11 Rev B** and **J32-2721-12 Rev B**.
- 3.2.5 However, it is important to note that a number of large vehicles are on 'legitimate' trips, i.e. refuse collection, deliveries to businesses etc. and there is still an ongoing need for these vehicles to access Watlington town centre. Furthermore, observations made during the site visit show there are limited options to physically improve this junction due to the restricted highway land, but improved signage and road markings may help navigate the drivers through the junction.
- 3.2.6 The High Street to the west of Shirburn Street and Couching Street provides a range of local shops and amenities. There are footways and on-street parking is provided along High Street. A bus stop is located outside the library and the High Street is also the route for pupils to travel to the schools on Love Lane. Delivery vehicles sometimes park partly on the footway to allow for buses to pass. The on-street parking along High Street can benefit from some improvements which can help the current arrangement and minimise the impact on the highway and pedestrian amenity.
- 3.2.7 In terms of highway safety, personal injury accident data been obtained from Crash map (crashmap.co.uk) for the most recent 5-year period available. An analysis of the data confirms that between these times there were 14 reported accidents within Watlington town centre, all of which were of slight severity. This level of accidents equates to approximately 3 accidents a year. **Figure 2.1** demonstrates the location of these accidents relative to Watlington.
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Figure 2.1: Location of Accidents within Watlington Town Centre



3.2.8 However, further investigation of the type of accidents that have occurred indicate that they were primarily due to vehicle shunts, which were likely attributed to vehicles having to pass each other along the narrow carriageways. In addition, observations made during the site visit indicate that there has been damage to the businesses on the Couching Street / Hill Road / Hill Street junction, where it appears that large vehicles had damaged the sides of the buildings as they have attempted to manoeuvre through the junction. In addition, anecdotal evidence suggests there are a number of accidents that go unreported within Watlington.

3.2.9 Another observation made was that the existing on street parking within the town centre created further pinch points as vehicles could not manoeuvre around the parked vehicles and pass the opposing stream of traffic safely. This continued to cause vehicles to stop in order to give way to oncoming traffic. The impact of this is further magnified on Couching Street as all the on-street parking is on the western side of the carriageway,



causing only vehicles travelling northbound to stop to give way. This leads to queuing of vehicles attempting to turn into Couching Street at the Couching Street / Brook Street T-junction, with queues of up to 12 vehicles observed.

- 3.2.10 However, the queues are not the result of the junction itself and were observed to be largely caused by the on-street parking located on the western side of Couching Street within close proximity of the junction. This restricts traffic to one-way movements and vehicles entering Couching Street have to wait for oncoming traffic to pass. As part of previous analysis of the traffic movements within Watlington, (TPP report submitted in September 2014) manual turning counts were undertaken at the Couching Street / Brook Street junction, where it was deemed that the junction was operating within capacity, and the cause of the long delays were due to the on-street parking on Couching Street rather than the capacity of the junction itself.
- 3.2.11 On Brook Street itself, it was observed that some vehicles were required to mount the footway as they turned right out of Couching Street. This was primarily due to vehicles having to manoeuvre around the large queue of vehicles waiting to turn into Couching Street. This was compounded by narrow road width to the west of the T-junction causing a third 'pinch point', leading to slow moving traffic upon the approach to the junction.
- 3.2.12 The pedestrian environment within Watlington town centre was observed to be similar to many rural locations, with varying footway widths from 0.7m to 3m along Shirburn Street, Couching Street, Hill Road, Brook Street and High Street. However, it was observed that there were no significant gaps within the footways which would cause any pedestrians to divert off their desired lines; and the existing zebra crossings were both widely utilised by children travelling towards Icknield Community College and Watlington Primary School as well as residents accessing the local shops within the town centre. However, there may be scope to provide additional crossing locations along Hill Road and to the north of the Couching Street / Hill Road / High Street junction. In addition, it was observed that drivers adhered to the zebra crossings and allowed pedestrians to safely cross.
- 3.2.13 Finally, vehicular access to the High Street was closed from the B4009 on the day of the survey, so it was not possible to observe any potential traffic issues that may occur here. However, after discussions with the WNDP team, it was suggested that whilst the High Street was primarily used by the local residents of Watlington and the neighbouring villages, there were some instances where vehicles used this route as a cut through to avoid the Couching Street / Brook Street T-junction.



3.3 Conclusion

- 3.3.1 During the site visit, it was observed that many of the issues were caused by the limited road widths within the town centre; with these issues magnified in the localised 'pinch points'. Manual for Streets (2007) defines a 'pinch point' as a section of the carriageway where it is too narrow for two vehicles travelling in opposing directions to safely pass each other.
- 3.3.2 These 'pinch points', namely on the Couching Street / Hill Road / High Street Junction and just south of the zebra crossing along Couching Street and along Brook Street, were observed to cause to vehicles to stop on the carriageway due to not being given clear guidance of where they should give way to oncoming traffic. An example of this occurring is shown on Drawing no. **J32-2721-13 Rev B**, where it shows a car being unable to pass a large heavy goods vehicle.
- 3.3.3 In addition, it is unlikely that it will be possible significantly reduce the level of traffic travelling through Watlington without a viable alternative route to re-distribute the traffic. Therefore, the focus of the measures that mode have suggested is to manage the existing levels of traffic by controlling speeds and increasing gaps within flow of traffic travelling through the town. The intention is to slow vehicles entering Watlington, thereby creating more gaps in traffic in the centre of the town, allowing for opposing streams to work their way through with fewer conflicts at the pinch points. This will also have the added benefit of reducing incidences of standing traffic, which is the key issue regarding the level of air and noise pollution within Watlington town centre. Therefore, these measures that mode have suggested will help address the key objectives within the SODC Air Quality Action Plan. In addition, the implementation of traffic calming measures could act as a deterrent to the ~80% of through-traffic within Watlington, leading them to reroute to a less direct but more convenient route.



4 Proposed Solutions

4.1 Introduction

4.1.1 The 'Traffic in Villages' toolkit suggests that in many rural towns, the limitations of policing and enforcement mean that formal legislation has a reduced impact when compared to urban environments. Research suggests that drivers choose speeds that appear to suit the characteristics of the road ahead. Reducing speeds therefore requires careful attention to the clues and information presented to drivers by the rural road and its surroundings.

4.1.2 To this end, the measures proposed to help alleviate the traffic impacts from the town centre have been focused to hold and stagger vehicles on the periphery of the town; leading to vehicles routing through the town centre in smaller platoons. This will also ensure that drivers understand that they are entering a town and should change their speed accordingly. This will also help in slowing vehicles entering Watlington, creating more gaps in the centre of the town, allowing for opposing streams to work their way through. This will consequently reduce incidences of standing traffic, which has an impact on air quality and pedestrian amenity within the town; which is key objective for the SODC.

4.1.3 Furthermore, if the measures are effective in holding vehicles on the periphery of Watlington, they will act as a deterrent to drivers who are only travelling through Watlington as a 'rat-run' as they will choose a less direct but more convenient route.

4.1.4 A summary of the proposed measures has been shown in **J32-2721-00 Rev A**, and then further detailed across a number of drawings, all of which are appended to this report. The individual traffic calming measures are discussed in further detail below.

4.2 Traffic Calming Features

Introduction of Chicanes on the approaches to Watlington

4.2.1 The first traffic calming measure that drivers will encounter is the construction of chicanes on the B480 Cuxham Road, B480 Howe Road and B4009 Shirburn Road. This will provide traffic calming measures on the western, eastern and northern approaches to Watlington respectively. However, it is not possible to introduce chicanes on the B4009 Britwell Road (the southern extent) due to the S-Bend on the approach of Watlington. This is due to the curvature of the road creating an unsafe level of visibility for vehicles to exit out from the chicanes and safely cross the opposite side of the carriageway.



However, the existing speed cushions along Britwell Road already act as a traffic calming feature, so it would be sensible to upgrade these to produce a similar traffic calming proposal to the proposed chicanes on the approaches to Watlington. This approach has been discussed later in the chapter.

- 4.2.2 There are currently proposals to improve the pedestrian connectivity along B480 Cuxham Road and B4009 Britwell Road based from the proposed development based off Britwell Road, however the scheme has only recently been submitted (September 2017) and consequently planning approval has not been determined. Therefore, these measures have not been considered within this TMP.
- 4.2.3 The chicanes along B480 Cuxham Road, B480 Howe Road and B4009 Shirburn Road (either side of Pyrton Lane) will stagger the speed of vehicles initially from 50mph to 30mph, and then further to 20mph in advance of the drivers entering the town centre. To get the same impact along B4009 Britwell Road, the existing speed humps will be upgraded to speed cushions, and new speed cushions will be developed along B480 Brook Street to maintain vehicle speeds upon approach to the town centre.
- 4.2.4 The rationale behind this approach is that it temporarily holds some inbound traffic on the periphery, allowing traffic that is already in the centre to egress more quickly, which will be beneficial for air quality within the town centre. Reducing the speed on the periphery is also likely to reduce the average speed of vehicles within the centre, increasing highway safety.
- 4.2.5 However, Watlington is a unique location as it is one of a small number of routes from the M40 to / from other major town and villages in South Oxfordshire, meaning there is not a dominant direction of traffic movements throughout the day. Therefore, multiple chicanes would be required at each entry point to the town, to ensure that a single stream of traffic would not be held up for an extended period of time. This will have the intended benefit of slowing vehicles on the periphery on the edge of Watlington (rather than in the town centre, where the narrow road widths make it difficult for two vehicles to pass) without causing the excessively long queues that are being experienced along Brook Street. Furthermore, motorists who are currently travelling through Watlington as a 'rat-run' may be deterred to continue along this route due to the chicanes, and choose a less direct but more convenient route.
- 4.2.6 **Drawings no. J32-2721-01 Rev B, J32-2721-06 Rev C / 07 Rev B and J32-2721-09/10 Rev B** illustrate the potential location and form of the chicanes on the western, eastern and northern approaches respectively. The chicanes will be positioned on the outskirts of



the Watlington town centre to minimise their impact on the existing housing and amenities.

- 4.2.7 Furthermore, at the northern approach, the chicanes have been located either side of the B4009 Shirburn Road / Station Road crossroads junction. This will ensure drivers have to traverse through the chicanes before they reach the Pyrton crossroads, discouraging drivers to travel through Pyrton Lane as a rat run to avoid the traffic calming measures.

Case Study: Chosley and Stechford

- 4.2.8 *This approach has been successful at a similar scheme in Chosley, approximately 8 miles south of Watlington. Like Watlington, the site is in a semi-rural location which benefits historic buildings and street-form; therefore, implementing typically urban traffic calming measures such as signage, lighting and other street furniture were not considered appropriate; in line with the 'Traffic for Villages' toolkit. Therefore, chicanes were implemented to slow down traffic upon approach of the village.*

- 4.2.9 *However, unlike this scheme, the chicanes at Chosley only obstructed a single lane of traffic as there was a clear dominant flow of traffic in a single direction. Due to Watlington having high two-way directional flow (during peak periods), multiple chicanes would be required in order to effectively slow down the traffic across all time periods during the day.*

- 4.2.10 *An instance of where of multiple chicanes are implemented within the UK can be found on the outskirts of Stechford, Birmingham; along Cole Hall Lane. Cole Hall Lane had been designed accommodate buses and cyclists, and as a consequence has been designed to have an overall road width of 6.5m and 7m, (which is wider than a typical road width for a 30mph road). Therefore, in order to ensure vehicles adhered to the 30mph speed limit, chicanes were positioned on opposing lanes of traffic, and has been effective in slowing vehicles in both directions of travel.*

- 4.2.11 *Images of both of these case studies have been included for reference within **Appendix A**.*

Re-arrangement of existing parking bays on street

- 4.2.12 To address the issues caused by the 'pinch points' within the town centre itself, the existing on street parking can be utilised to help inform drivers where they occur and therefore give way in the appropriate locations. This has been achieved by flipping the location of some of the existing parking bays within the town centre to the opposite side of the carriageway to create chicanes within the town centre. This will ensure that none of the existing parking bays are lost and will help manage the traffic impact within the town centre, rather than hinder it.



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- 4.2.13 This is in line with the 'Traffic for Villages' toolkit which states 'to review where cars are typically parked, to see whether some repositioning of spaces might create a useful narrower point on a straight stretch of street.' The proposed changes are shown on Drawing no. **J32-2721-05 Rev C** (after the S-BEND), which also indicates the additional road markings that will be placed to help inform the driver of the location of the bays. In addition to this, traffic narrowing signs can be installed to inform the drivers that they are approaching a 'pinch point' and should take care when passing parked vehicles. The existing parking along located on B480 Brook Street is proposed to be retained as they will complement the proposed chicanes along B480 Howe Road.
- 4.2.14 The benefit to this measure is that all the on-street parking bays are retained within Watlington, and are only repositioned to help reduce the current levels standing traffic within the town centre. This will help reduce the current air quality issues in the town centre, specifically within the AQMA zone.
- 4.2.15 *Case Study: Highfield, Oxfordshire*
- 4.2.16 *This approach has been successful at a similar scheme in Highfield, Oxfordshire (2010), where the re-arrangement of the existing parking bays within the high street provide an effective and relatively cheap form of traffic calming in narrow streets. They were observed to maintain the slower speed limits (20mph) within the town.*
- 4.2.17 *Images of this case study have been included for reference within **Appendix A**.*
- Pedestrian Buildouts along the existing parking bays and a Pedestrian Crossing across Hill Road**
- 4.2.18 To further improve pedestrian connectivity, buildouts have been suggested on the approaches of the existing parking bays. This allows for the provision of a series of new formal crossing points for pedestrians which offer reduced crossing distances. An example of where these buildouts can be implemented is shown on Drawing no. **J32-2721-08 Rev C**.
- 4.2.19 A visibility splay indicates the maximum visibility a vehicle can achieve when approaching a junction; ensuring that vehicles will not egress onto a carriageway unless it is safe to do so. To this end, a visibility splay has been shown on the junction at Love Lane / B4009 Shirburn Street to demonstrate that drivers egressing from Love Lane would have a clear visibility of pedestrians crossing at the proposed buildout at the parking bay near the junction. This ensures the crossing will be safe and secure; and has been shown on Drawing no. **J32-2721-16 Rev A**.
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4.2.20 In addition, a swept path analysis for a bus has been undertaken at this junction to demonstrate that the existing bus services within Watlington will still be able to operate after the construction of this pedestrian buildout; this has been shown on Drawing no. **J32-2721-14/15 Rev B**.

4.2.21 To compliment the pedestrian buildouts, a pedestrian crossing has also been suggested across Hill Road. This will encourage pedestrians travelling from houses to the east and south of the Co-op to cross in advance of the Couching Street / Hill Road / High Street junction. This in connection with the pedestrian buildout south of the Love Lane / B4009 Shirburn Street junction, provides two formal pedestrian crossing points from the houses to the amenities on the western site of Watlington, including Watlington Primary School and Icknield Community College. This will also have the additional benefit of discouraging any pedestrian attempting to cross outside of any marked pedestrian crossings, including Couching Street / Hill Road / High Street junction. The proposed location of the pedestrian crossing across Hill Road has been shown on Drawings no. **J32-2721-05 Rev C and J32-2721-08 Rev C**.

Case Study: Knowle

This approach has been successful in Plumes Garage, Knowle where localised widening of footways can narrow the road and slow traffic. They reduce crossing distance and improve visibility for pedestrians crossing the road. Here, roads were narrowed to such an extent that only single file traffic is allowed. They were also used around existing parking bays to provide sheltered parking.

4.2.22 *Images of this case study have been included for reference within **Appendix A**.*

4.2.23 Introduction of Traffic Signals at Couching Street / Hill Road / High Street Junction

4.2.24 A key issue that was observed during the site visit was the narrow road widths at the Couching Street / Hill Road / High Street Junction, which caused difficulties for vehicles to travel along Couching Street or turning into Hill Road. Therefore, the idea of introducing traffic signals at this junction was proposed to rationalise opposing flows and to improve pedestrian crossing facilities. An example of how the traffic signals could be implemented is shown on Drawing no. **J32-2721-20 Rev B**.

4.2.25 The drawing demonstrates that within the limited highway boundary, it is still possible to install traffic light signals on the northern approach of Couching Street. However, issues arise on the southern approach of the junction, primarily due to 'pinch point' located south of the zebra crossing. Due to the narrow road width, it is only possible for 3 vehicles to queue behind the traffic lights, otherwise they would impede the opposing flow of traffic.



The area where the road width is too narrow for two vehicles to pass has been highlighted within the drawing by the yellow box junction. To manage the remaining vehicles along Couching street, a second set of traffic signals would be required to the south of the yellow box junction to ensure no vehicles stop within the 'pinch point'.

4.2.26 This new arrangement would be required to be modelled in order to ensure that it will be able to operate within capacity. For all new traffic signalised junctions, it must be demonstrated that the junction will operate within an acceptable Practical Reserve Capacity (PRC), which refers to the available spare capacity of a junction. The PRC is calculated from the number of vehicles queued behind a traffic signals within each cycle and the delay a vehicle would have to wait before it is given a green signal. The unorthodox arrangement shown in Drawing no. **J32-2721-20 Rev B** is likely to cause significant delays for vehicles as they cannot queue more than 3 vehicles, meaning it is unlikely that the junction will operate with adequate Practical Reserve Capacity.

4.2.27 Therefore, it has been proposed that it would be beneficial to employ the principles of 'psychological traffic calming', where the roads are designed to inform drivers to reduce speeds and improve drivers' awareness of their surroundings. This can be done by introducing 'keep clear' road markings on the southern side of the junction, which will stop drivers from entering the junction until there is a clear and safe opportunity to do so. Drawing no. **J32-2721-05 Rev C** demonstrates how the proposed measures could work.

4.2.28 **Traffic Signals on Love Lane / B4009 Shirburn Road T-junction and B480 Brook Street / B4009 Couching Street T-junction**

4.2.29 It is possible for the development of a traffic signalised controlled scheme at the Love Lane / B4009 Shirburn Road T-junction and B480 Brook Street / B4009 Couching Street T-junction in order to help manage the traffic issues within the centre of Watlington. These junctions may be able to be synchronised so they manage traffic movements along B4009 Couching Street and Shirburn Street during the peak periods, where the traffic impact is at its most severe.

4.2.30 It should be noted that from the TPP report neither of the junctions were demonstrated to be operating within capacity. Therefore, the installation of signalised junctions would be to help mitigate the traffic issues caused by the High Street / Hill Road / B40009 Couching Street junction by slowing traffic outside of the junction, similar to the function of the chicanes. The implementation of these traffic signals would require further engineering consideration to determine if the signals can be located in and be effective at the proposed locations. A proposal has been requested with TRL to determine the feasibility of these traffic signals. However, the cost associated with the implementation



of these signals is still likely to be significantly in excess of the implementation of the chicanes.

4.2.31 Improving Existing Speed Cushions

4.2.32 The existing speed cushions along B4009 Britwell Road could be extended east towards B480 Brook Street, which will retain the continuity of the existing traffic calming measures in effect in Watlington and provide an alternative methodology of reducing vehicle speeds on the south-western approach to the town centre. Furthermore, the speed cushions will be upgraded to speed humps which will extend across the entire carriageway, ensuring vehicles slow down as they encounter the feature. They will be designed to ensure they do not restrict the movement of the existing bus services.

4.2.33 Upgrading the speed cushions to humps will strengthen the approach of deterring drivers who are travelling through Watlington as a shortcut towards nearby towns and villages, whilst still reducing vehicle speeds and improving pedestrian safety and amenity. Drawing no. **J32-2721-04 Rev C** demonstrates how the proposed measures could work.

Case Study: Stephenson, Leicester

4.2.34 *This approach was successful in Stephenson Road, Leicester on a road safety scheme to tackle speeding motorists.*

4.2.35 *The scheme itself had a high profile with many of the local residents calling for the council to install traffic calming measures due to the number of speeding motorists using the street as a cut-through and going too fast.*

4.2.36 *Speed humps were introduced and reduced the average speed of the vehicles to 20mph. This offered a cost-effective solution and minimum traffic management costs due to the quick installation and minimum disruption to local residents.*

4.2.37 *Images of this case study have been included for reference within **Appendix A**.*

4.2.38 20mph Speed Limit within Watlington

4.2.39 In line with the WNDP, Watlington town centre will be subject to a 20mph speed restriction to ensure a safe environment for pedestrians and cyclists. The first 20mph speed limit signs will be located after the chicanes and before the first set of speed cushions on the periphery of the town, and are intended to be Vehicle Automated Signs (VAS). These will ensure drivers retain their slower speeds from the chicanes, and will not accelerate as they enter Watlington. Furthermore, these signs can be fitted with Automatic Number Plate Recognition (ANPR) cameras to show the licence plates of any vehicles that are travelling faster than the 20mph speed limit. These VAS signs have



proven to be equally as effective as speed cameras, and therefore will help ensure the speed limit is enforced. In addition, the VAS signs can be implemented along the High Street, to ensure vehicles speeds are controlled.

Case Study: Royal Society for the Prevention of Accidents Road Safety Factsheet (June 2017), Hull

4.2.40 *From 1994, there was a widespread introduction of 20mph zones in Hull, and by 2003, there were 120 zones covering 500 streets. The casualty statistics between 1994 and 2001 showed a drop of 14% in Hull, compared to a rise of 1.5% in the rest of Yorkshire and Humberside. In the 20mph zones in Hull, there was a decrease in total accidents of 56% and in fatal and serious injuries of 90%. The biggest reductions were pedestrian casualties, which fell by 54%, child casualties, which dropped by 54% and child pedestrian casualties, which fell by 74%.*

4.2.41 *In terms of Vehicle Activated Signs (VAS) for the 20mph zones, studies in Hertfordshire indicated that VAS's were shown to reduce vehicle speeds by between 2 – 4mph, and have more of the desired effect of reducing vehicles compared to a permanent signs due to motorists not expecting to see the sign.*

4.2.42 *Images of this case study have been included for reference within **Appendix A**.*

4.2.43 High Street Improvements

4.2.44 Due to instances where the High Street was being used as a cut through by drivers to avoid congestion at the southern end of B4009 Couching Street and at the Brook Street / Couching street junction, it has been proposed that a 'No Entry except for access' sign should be placed to discourage drivers. This will require a Traffic Regulation Order (TRO) in order to be enforced. Furthermore, the implementation of 20mph zones will keep vehicles travelling at slow speeds ensuring highway safety.

4.2.45 In terms of physical measures, it is not considered to be beneficial to implement anything until the general level of traffic within Watlington is reduced. Therefore, psychological traffic measures (such as 20mph signs and No Entry signs) would be the most effective type of measures for the here and now. In addition, if the traffic calming measures suggested above, such as the chicanes, are effective in smoothing the traffic flow within the town centre, it will be less likely that vehicles will use the High Street as a cut through to avoid the Couching Street / Brook Street junction.



4.2.46 **Summary**

4.2.47 The measures that have been proposed to help alleviate the traffic impacts from the town centre towards the periphery have been focused to ensure that drivers understand they are entering a town and should change their speed accordingly. Within the town centre itself, measures have primarily been focused on 'psychological traffic calming', due to the limited highway land available for more major improvements. In addition, these measures will ensure that the existing character within Watlington is retained.

4.2.48 It is key to note that the measures suggested will not restrict vehicles from travelling through the town centre; however, they will help enforce the existing restrictions in place, act as a deterrent to commuters who are travelling through Watlington as a rat run, help to reduce standing traffic, increase free flow and provide an improvement to the pedestrian infrastructure and wellbeing within the centre.

4.2.49 Whilst these measures may not have a significant contribution in reducing traffic volumes individually, studies have shown that the combination of implementing multiple traffic calming measures do tend to reduce traffic volumes, specifically measures that include 20mph zones.

4.2.50 The Royal Society for the Prevention of Accidents (ROSPA) submitted a Road Safety Factsheet in June 2017, in which it suggested that:

*'20mph zones and limits can also lead to a number of other benefits, such as a reduction of traffic flow in the area. Although results of studies do vary, it is generally suggested that traffic volumes reduce following the implementation of a 20mph zone or limit. Between 2007 and 2008, levels of motorised traffic in Portsmouth 20mph areas fell by 3%, which was higher than the national average reduction in traffic.'*¹

However, other studies have indicated larger reductions of traffic flow in 20mph limits and zones. A TRL review of 250 20mph zones in England, Scotland and Wales stated that traffic flow in 20mph zones reduced on average by 27%, but flows in surrounding boundary roads increased by 12%. Despite this, the review concluded that there was generally little accident migration to surrounding roads².

A more recent Steer Davies Gleave report suggested that there is a reduction in traffic volumes of 5.2% for 20mph areas without traffic calming and 13.4% for areas with traffic calming³.

4.2.51 However, it still should be noted that whilst these measures (including the 20mph zones) may act as a deterrent to some drivers, they are unlikely to significantly reduce the level of traffic travelling through Watlington due to its strategic location and the limited



alternative routes available. Therefore, to fully manage the traffic management issues within Watlington, a much more substantial solution is discussed in **Chapter 5**.

- 1 (Atkins (2010) 'Interim Evaluation of the Implementation of 20 mph Speed Limits in Portsmouth')
- 2 '20mph Speed Limits and Zones'
- 3 (Steer Davies Gleave (2014) 'Research into the Effectiveness of 20mph speed limits and zones')



5 Introduction of a Relief Road (Re-aligned B4009)

5.1 Introduction

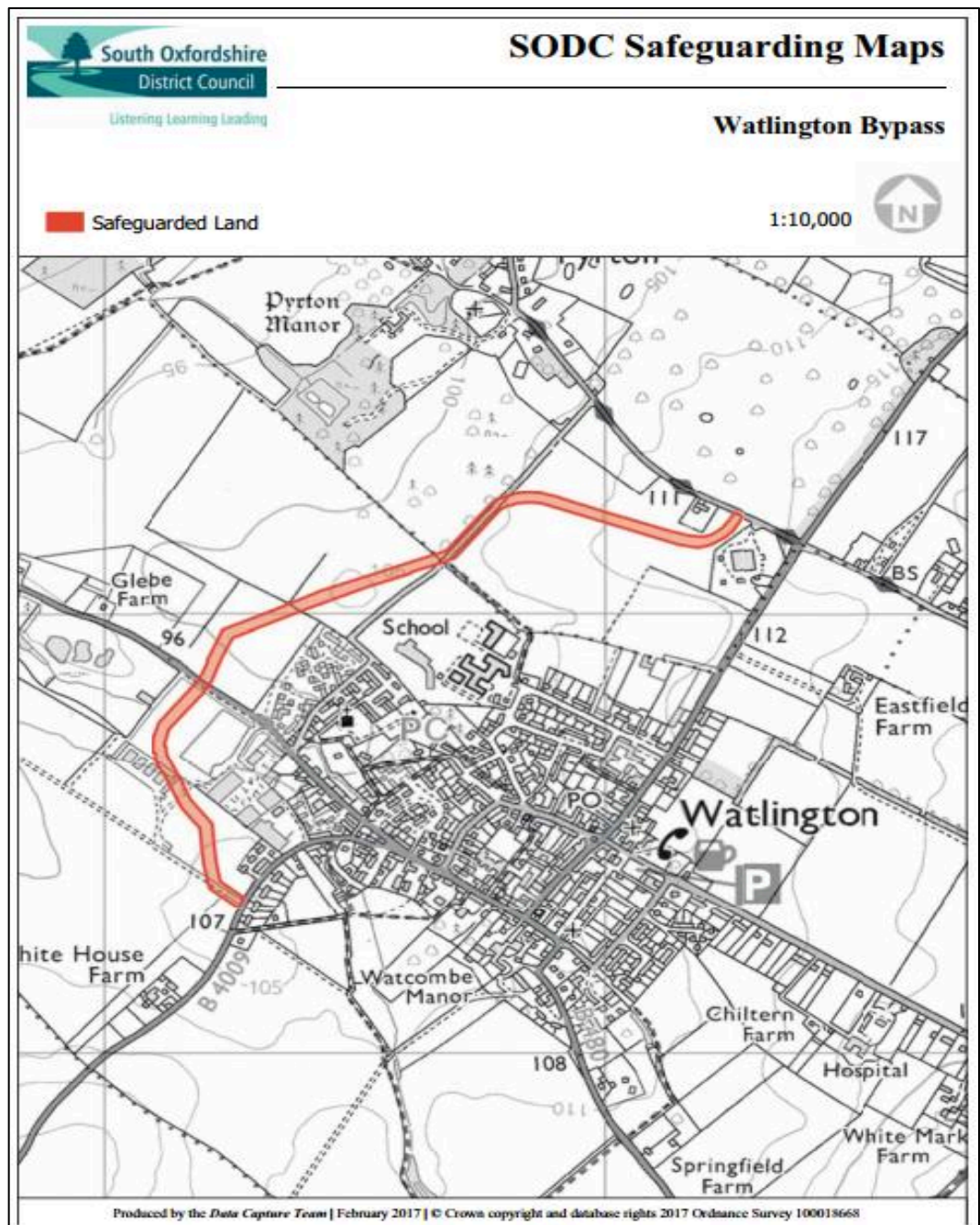
5.1.1 The measures proposed in **Chapter 4** are achievable within the existing highway land within Watlington town centre, and whilst they may act as a deterrent to some drivers, they are limited in the level of restriction in traffic movements they can provide due to the strategic location of Watlington.

5.1.2 Furthermore, whilst the traffic calming measures will help manage the traffic issues within Watlington town centre, by helping to reduce instances of standing traffic, a more substantial solution is required to improve the traffic and air quality to the levels that are required by the SODC.

5.1.3 This could also provide an opportunity to incorporate any potential designs with the proposed measures suggested in **Chapter 4**, where the traffic calming measures could potentially discourage motorists currently routing through Watlington town centre as a rat run.

5.2 Re-aligned B4009 (Relief Road)

5.2.1 One measure which will have a significant impact on the existing traffic travelling through Watlington will be the construction of a relief road on the outskirts of the Watlington town centre, which can be designed in line with the safeguarded land submitted within the South Oxfordshire Emerging Local Plan. This is also referred to within the Watlington Neighbourhood Development Plan in 'paragraph 6.3'. The land currently being safeguarded is detailed in paragraph 2.4.2 of this TMP, but has been shown below for convenience.



5.2.2 This relief road will be referred to as the 're-aligned B4009' henceforth.

5.2.3 A key benefit of the re-aligned B4009 is that it not only helps to redistribute traffic away from Watlington town centre, it will also complement the proposed traffic calming measures suggested in **Chapter 4**. Once the re-aligned B4009 is operational, the proposed measures will encourage drivers who use Watlington as a 'rat-run' to change towards the re-aligned B4009 as it will be an easier route to travel through; rather than



having to navigate through the multiple chicanes and 20mph zones. This will also apply to those lorries, vans and HGV's which do not require access the local businesses within Watlington town centre, which will help improve the traffic and air quality issues within the town centre. However, this will not stop all vehicles currently routing through Watlington town centre, as it does not provide a suitable alternative route for drivers heading towards / from towns and villages such as Nettlebed and Reading.

5.2.4 In terms of the re-aligned B4009, it should be designed to ensure:

- It can accommodate two-way flow of traffic for cars, vans, lorries and HGV's;
- It should incorporate facilities to allow travel for buses, pedestrians and cyclists, which will encourage the uptake of sustainable modes of transport;
- It should be designed with generous landscaping and wide verges to ensure similar air quality problems occurring within Watlington are not repeated; and
- It should be designed in accordance to relevant local engineering design standards/guidance (Inc. Manual for Streets, DMRB).

5.2.5 Furthermore, the re-aligned B4009 should be positioned to compliment the proposed traffic calming measures, specifically those within the multiple chicanes on the outskirts of the town. Therefore, any drivers who are currently using Watlington as a 'cut-through' will be encouraged to re-route along the re-aligned B4009 instead of having to navigate through the remaining chicanes and other traffic calming measures within Watlington town centre.

5.2.6 In addition, it would be sensible to base the design of the re-aligned B4009 on the current B4009 to ensure conformity within the surrounding highway network, and should be positioned to have a minimal impact on the existing housing and amenities within Watlington.

5.2.7 An example of the design and location of the re-aligned B4009 has already been considered within 'The Case for the Alternative Traffic Route for Watlington' Report, produced by Providence Land Limited (2016). A summary of these key considerations has been detailed below.

- The design of the re-aligned B4009 should be in line with the emerging South Oxfordshire safeguarded land, linking originally from the Pyrton crossroads to Cuxham Road, and then on towards to Britwell Road. This will provide a relief road along the western extent of Watlington;



- The design of the re-aligned B4009 is proposed to be in line with Manual for Streets 1 & 2, and whilst it will not explicitly be designed to act as a bypass for Watlington town centre, the accommodation of through traffic is likely to be one of its key functions;
- In addition, the alternative traffic route allows potential for new convenient pedestrian and cycle routes into the schools and connections to the rest of the town;
- Furthermore, whilst there is currently no plan to re-route existing or to provide new bus services, the alternative traffic route should be designed with adequate width to accommodate future bus services should the need arise;
- To ensure the existing air quality issues within Watlington are not repeated, the route designed for the re-aligned B4009 should be set in a generously landscaped and tree lined environment with wide verges. This will that ensure the problems are not simply repeated and emissions would not be channelled in a canyon like environment as at the present. Also, buffer strips should be included in highway controlled land to accommodate future highway improvements should they be required; and
- In addition, on the approaches to the re-aligned B4009 there should be signs to divert HGV vehicles (outside those required specifically to access Watlington) to help enforce the existing HGV restriction through Watlington town centre.

5.3 Potential Impact of the re-aligned B4009

5.3.1 In terms of the potential traffic impact the re-aligned B4009 could potentially have within Watlington town centre, mode have evaluated the results of traffic surveys contained within the Watlington Traffic Study by TPP on behalf of Watlington Parish Council (submitted in 2014).

5.3.2 Within the TPP assessment, Automatic Number Plate Recognition (ANPR) surveys were undertaken to establish traffic patterns and routes through Watlington. The surveys provided origin-destination matrices and provided an indication of the level of through-traffic in Watlington by cars and HGVs on a typical weekday. The ANPR survey was undertaken on Thursday 18th September 2014 for the morning (07.00-10.00) and evening (16.00-19.00) peak periods. ANPR cameras were set up to form a traffic cordon along the four locations on the main routes:

- B4009 Shirburn Road;



- B480 Howe Road;
- B4009 Britwell Road; and
- B480 Cuxham Road.

5.3.3 From this data, the total traffic movements for the AM peak hour (0800 – 0900) and the PM peak hour (1700 – 1800) was recorded by the ANPR data, with the outputs contained within the Tables 4.1 and 4.3 of the TPP report.

5.3.4 From here, it has been assumed that any traffic travelling from B4009 Shirburn Road towards B4009 Britwell Road, or vice versa, would be likely to be rerouted by the introduction of the re-aligned B4009. Likewise, it can be assumed that any traffic travelling from B4009 Shirburn Road towards B480 Cuxham Road, or vice versa, would also be rerouted towards the re-aligned B4009. The remaining traffic, travelling between B480 Howe Road, B4009 Britwell Road and B480 Cuxham Road, is likely to remain on its existing route as the re-aligned B4009 does not provide an obvious alternative route.

5.3.5 Taking this into consideration, the total traffic movements from the ANPR data indicate that the introduction of a re-aligned B4009 could decrease the total level of traffic within the traffic cordon by 24% in the AM peak hour and 28% in the PM peak hour.

5.3.6 However, this can be taken a step further to just consider the traffic movements within the town centre, namely on B4009 Couching Street, as this is where the majority of the traffic issues in Watlington occur.

5.3.7 When taking into account just the movements within B4009 Couching Street, the ANPR data indicates there could be a decrease in total two-way traffic by an average of 61% in the AM peak hour and 68% in the PM peak hour.

5.3.8 Further traffic data has been collected from AECOM in May 2016 for the development based at Chalgrove Airfield development proposals, however, as their traffic surveys did not track vehicles via ANPR it is not possible to determine the impact the re-aligned B4009 may have on this data. However, it does demonstrate that the level of background traffic within Watlington is intended to grow due to future developments and the traffic congestion within Watlington town centre is likely to get worse without the implementation of a substantial solution like the re-aligned B4009.

5.4 Additional benefits from the Re-aligned B4009

5.4.1 Once the re-aligned B4009 is in place and the volume of traffic has been re-distributed, further measures can be implemented within Watlington town centre to help improve the



pedestrian wellbeing and connectivity. The priority should be on re-allocating carriageway space to people, not to heavy vehicles. There would be opportunity to re-imagine how the public realm in and around the town centre is designed,

5.4.2 The 'public realm' – i.e. the spaces around and between buildings including streets, squares and parks – has a major part to play in the character, attractiveness and success of any town. It is also important in encouraging sustainable modes of travel such as walking, cycling and public transport. Once a proportion of through traffic is diverted around the town, Couching Street, Shirburn Street and the High Street can become pedestrian friendly, safe and attractive places to be.

5.4.3 The principal objective of any public realm scheme is to promote quality public spaces and routes that are attractive, convenient and safe for all. The public realm will support the existing network of spaces and routes and enhance the historic townscape and facilitate well-connected, inclusive pedestrian routes to and within the town centre. Some of the following principles could apply to the design of the public realm and the creation of new spaces and routes:

- Ensure a quality public realm by protecting and enhancing existing spaces and routes and creating new spaces and routes which respond to the recognisable variety and hierarchy of alleyways, lanes and streets;
- Create pedestrian routes that are clear, direct, convenient, safe and well-signed, and can be used comfortably by everyone;
- Ensure that new public spaces and routes through developments are defined by buildings. Frontages to the public realm should be designed to be as 'active' as possible and contain windows and well-defined main entrances, and have activity generating uses on the ground floor;
- Ensure an integrated approach to landscape design in any development scheme. This includes co-ordinating the overall layout, access, railings, hard landscaping, lighting services, street furniture, surface materials and public art;
- Ensure spaces that are well lit, avoiding dark corners, with lighting designed to be in context and also to minimise 'light pollution';
- Encourage innovative and attractive multi-use street furniture and co-ordinate all items within the public realm, including traffic and other signage, to minimise street clutter;



Case Study – Loughborough Public Realm

5.4.4 *The creation and maintenance of a healthy public realm for Loughborough is essential to the achievement of a thriving, vibrant, sustainable and attractive town centre that everyone can enjoy and take pride in. As well as being able to move around easily, it is important that people feel the town centre is a safe and welcoming place. The town's key public spaces need to be versatile and provide for people from the different cultural or age groups (including children, the disabled and the elderly) who will use spaces in different ways. In addition to everyday use, the public spaces must be able to accommodate other activities, most importantly the street market and the annual November Fair but also community events, cultural activities and festivals. They need to be designed and laid out with flexibility and robustness in mind, in order to accommodate this broad range of activities and to encourage everyone to use the town centre at any hour – young and old, families and children.*

5.4.5 *Images of this operational case study have included for reference within **Appendix A**.*

5.5 Micro-simulation model

5.5.1 To determine the impact of the traffic calming measures suggested in **Chapter 4**, the implementation of a microsimulation model has been investigated to demonstrate the proposed traffic calming measures working in tandem. This model is intended to show if the proposed measures will change the flow of traffic within Watlington, specifically if they will help smooth the traffic flow within the 'pinch point' areas within the town centre and along Brook Street. As this is a 'live' document, the outcomes of this process could be included in future iterations of the Plan.

5.6 Summary

5.6.1 The delivery of the re-aligned B4009 provides a potential solution to the traffic issues within Watlington, with the ANPR data submitted within the TPP report indicating that it could potentially decrease the total two-way traffic along B4009 Shirburn Road by an average of up to 61% in the AM peak hour and 68% in the PM peak hour.

5.6.2 In addition, it should be noted that the re-aligned B4009 can be delivered alongside the traffic calming measures described in **Chapter 4**; as the traffic calming measures would act as a deterrent to vehicles using Watlington town centre as a 'rat-run', encouraging vehicles to travel along the re-aligned B4009. Therefore, the wider traffic mitigation package for Watlington can be delivered in two stages; the implementation of the traffic calming measures including the chicanes and the 20mph zones within the existing



highway land being delivered as part of Phase 1, and the delivery of the re-aligned B4009 and the subsequent public realm improvements within the High Street being delivered as part of Phase 2.



6 Summary and Conclusions

6.1 Summary

6.1.1 Watlington is a market town located approximately 25km south east of Oxford with a population of approximately 2,700 people. The B4009 and B480 pass through Watlington and the B4009 provides access to the M40. The routes through Watlington are narrow and there is congestion through the centre of town during peak times. The level of Heavy Goods Vehicles (HGV) traffic through the town is a particular source of concern, given the sensitive nature of the town, and there is already a 7.5 tonne weight restriction in place. Watlington has a designated Air Quality Management Area (AQMA) as introduced by South Oxfordshire District Council (SODC) in 2009.

6.1.2 The air quality issues in Watlington are attributed to the traffic congestion in an area of narrow streets and relatively high sided buildings, which creates a 'street canyon' effect with pollutants unable to effectively disperse.

6.1.3 A site visit on 27th April 2017, observed the existing traffic conditions, with the observations summarised in **Chapter 3**. These observations led to the idea of producing a series of traffic calming measures that would work within the existing highway layout within Watlington (i.e. without the introduction of a re-aligned B4009). These measures include:

- Introduction of chicanes on the approaches to Watlington;
- Re-arrangement of existing parking bays on street;
- 20mph Speed Limit within Watlington;
- Pedestrian Buildouts along the existing parking bays and an pedestrian crossing along Hill Street;
- Introduction of road markings at Couching Street / Hill Road / High Street Junction;
- Improving existing speed cushions and providing new speed cushions along B480 Brook Street; and
- Traffic Signals on Love Lane / B4009 Shirburn Street T-junction and B480 Brook Street / B4009 Couching Street T-junction.

Table 6.1 below summaries the potential effectiveness of the proposed measures and provides an indicative cost to implement them.



Table 6.1 Cost and effectiveness of traffic calming measures

Measure	Impact within Watlington	Indicative Cost (including 10% contingency costs)
Introduction of Chicanes on the approaches to Watlington	Medium	£8,500 each* plus additional Traffic Regulation Order costs (to be discussed with SODC / OCC)
Re-arrangement of existing parking bays on street	Low	Traffic Regulation Order costs (to be discussed with SODC / OCC)
Pedestrian Buildouts along the existing parking bays	Low	£5,700
On Road Traffic Signing Couching Street / Hill Road / High Street Junction	Medium / Low	£5,400
Improving Existing Speed Cushions	Medium	£3,400 each
20mph Speed Limit via the introduction of VMS signage and on road markings	Medium	Traffic Regulation Order costs (to be discussed with SODC / OCC)
ANPR camera's alongside 20mph VMS signs	Medium	Approx. £4,000 per location

*Cost of chicanes may increase if street lighting columns are required to be installed

- 6.1.4 A breakdown of these indicative costs is appended to this note within **Appendix B**.
- 6.1.5 Furthermore, additional improvements such as the options for a public realm scheme as described with **Chapter 5** will vary in price according to the level of infrastructure implemented. However, an estimate for similar public realm schemes within UK cost circa £40,000; a breakdown of what could be delivered for this price is included within **Appendix B**.
- 6.1.6 Finally, the cost of the Traffic Signals on Love Lane / B4009 Shirburn Street T-junction and B480 Brook Street / B4009 Couching Street T-junction will require further input from TRL before an estimate can be specified.



6.2 Conclusion

- 6.2.1 It has previously been reported that Shirburn Road accounts for the majority of the traffic within Watlington, in the region of 40% to 50%, and that approximately 85% of traffic in Watlington is through-traffic in the AM peak and 82% in the PM peak. Therefore this TMP has been focused on providing measures which would deter this level of through traffic from travelling through Watlington town centre.
- 6.2.2 However, this TMP acknowledges that due to a limited highway boundary, the best way to alleviate the existing traffic impact in the town centre is to redistribute the impact towards the periphery, and the measures that have been suggested are focused to ensure that drivers understand they are entering a town and should change their speed and behaviour accordingly.
- 6.2.3 It is key to note that the traffic calming measures suggested will not restrict vehicles from travelling through the town centre; however, they will help enforce the existing restrictions in place, (e.g. the 7.5 weight tonne limit except access), act as a deterrent to commuters who are travelling through Watlington as a rat run, help to reduce incidents of standing traffic, increase free flow and provide an improvement to the pedestrian infrastructure and wellbeing within the centre. However, the implementation of traffic calming measures has been known to cause a reduction in traffic volumes, with studies demonstrating there could be a reduction of up to 13.4%.
- 6.2.4 Furthermore, the measures have been tailored to redistribute the traffic away from the Watlington town centre, specifically from the designated AQMA zone. Measures such as the re-arrangement of the on street parking bays will help reduce the standing traffic within the town centre, whilst the introduction of signage and road markings at the B4009 Couching Street / Hill Road / High Street Junction could help smooth the flow of traffic through the town centre.
- 6.2.5 However, whilst these measures (including the 20mph zones) may act as a deterrent to some drivers, a more substantial solution is required to help fully address the key traffic and air quality issues within Watlington. Therefore, to manage the traffic issues within Watlington, the impact of the proposed re-aligned B4009 in terms of traffic volumes has also been considered.
- 6.2.6 Comprehensive traffic surveys were undertaken in September 2014 by Transport Planning Practice (TPP), including ANPR surveys which tracked vehicle routes through



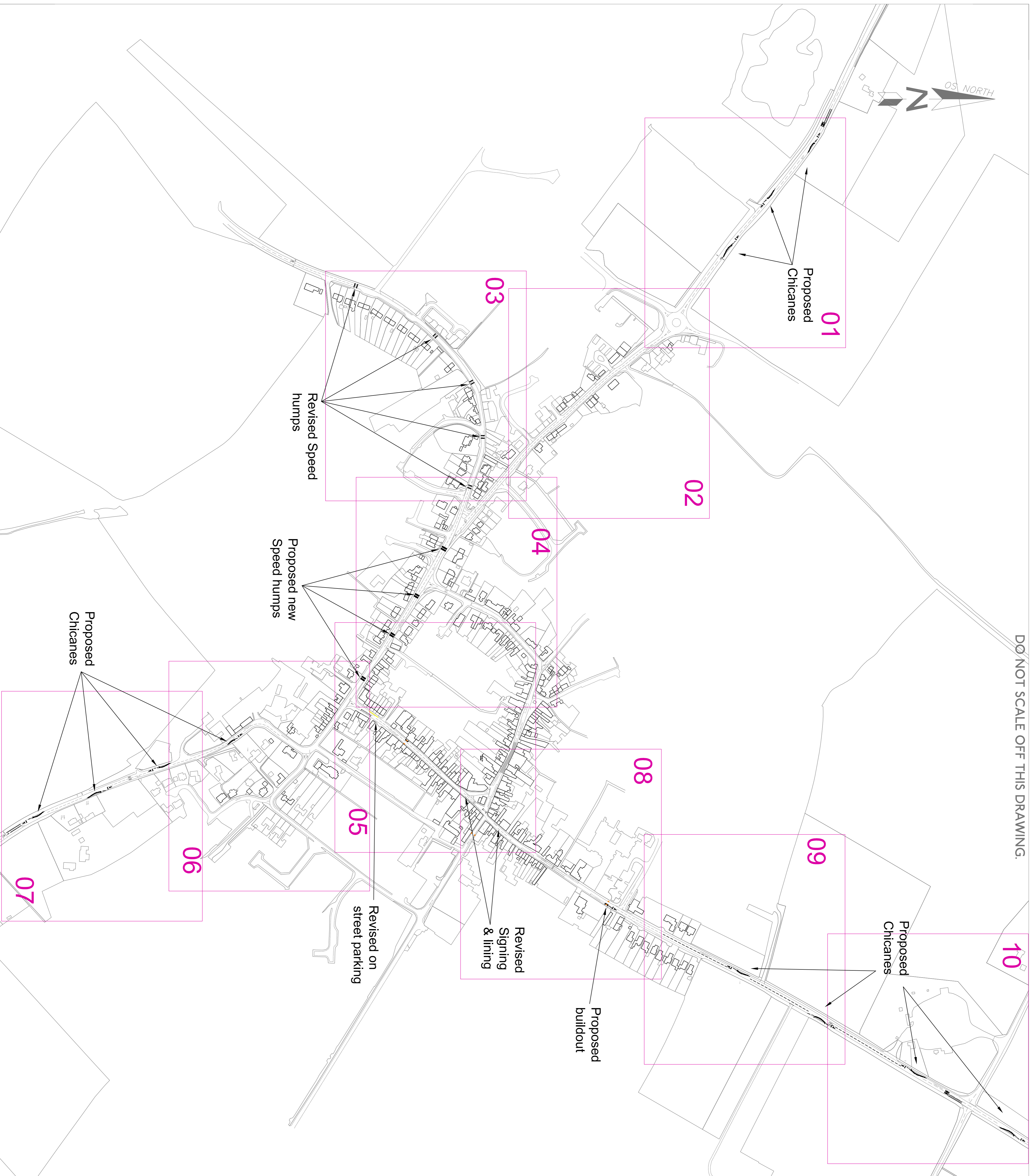
Watlington. Initially, it was reported that approximately 85% of traffic in Watlington is through-traffic in the AM peak and 82% in the PM peak.

- 6.2.7 This ANPR data was then considered in relation to the introduction of a re-aligned B4009, where it has been calculated that this will decrease the total level of traffic within the immediate area of Watlington by 24% in the AM peak hour and 28% in the PM peak hour.
- 6.2.8 This was taken a step further to just consider the traffic movements within the town centre, namely on B4009 Couching Street. As this is where the majority of the traffic issues reside in Watlington.
- 6.2.9 When taking into account just the movements within B4009 Couching Street, the ANPR data indicates there will decrease the total two-way traffic by an average of 61% in the AM peak hour and 68% in the PM peak hour.
- 6.2.10 Therefore, it is clear that the introduction of the re-aligned B4009 would be the most effective way to reduce traffic volumes within the town centre, whilst the proposed traffic calming measures will complement the re-aligned B4009 as it will initially manage the traffic volumes during its construction and then encourage through traffic to travel through the re-aligned B4009 instead of navigating through the chicanes and 20mph zones within Watlington. Furthermore, the design of the realigned B4009 will make it a more attractive route motorists travelling to / from the M40, further reducing the need for motorists to cut through Watlington town centre.
- 6.2.11 To compliment the reduction of the level of traffic within the town centre after the introduction of the re-aligned B4009, it may be possible to implement a public realm scheme along the High Street to encourage a pedestrian friendly environment. Watlington Parish Council will consider the level of infrastructure that can be delivered as and when funding resources become available.



Drawings

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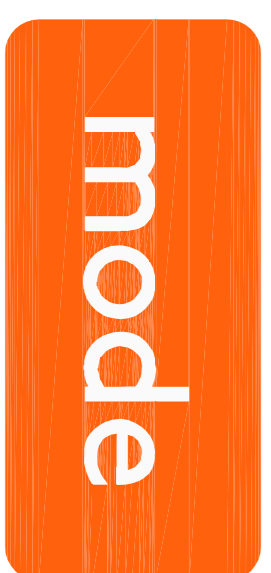
job title
 Watlington

drawing title
 Proposed Traffic Management Measures
 Key Plan

drawing no.
 J32-2721-00

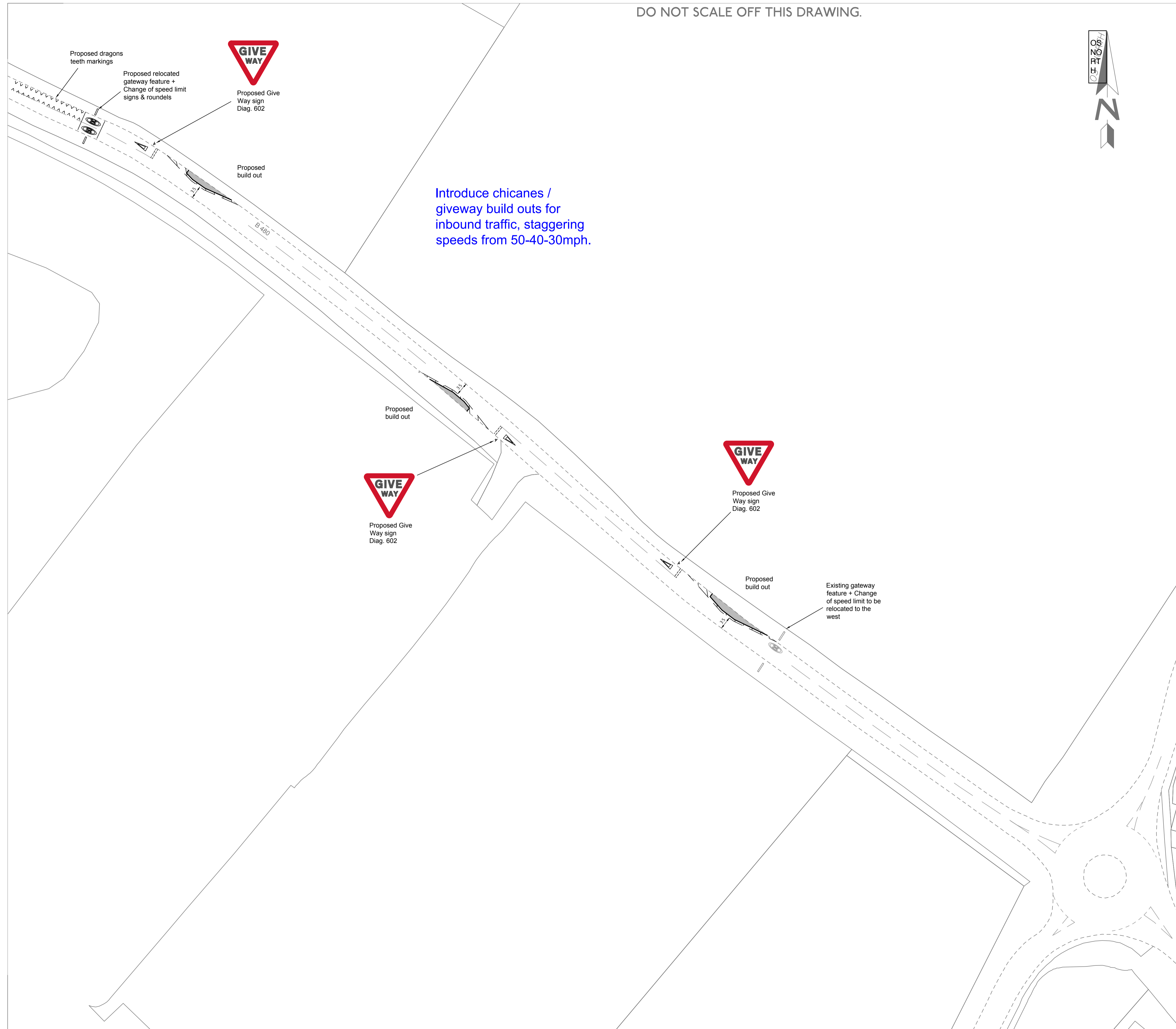
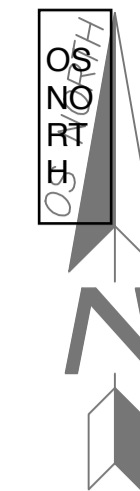
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 Birmingham
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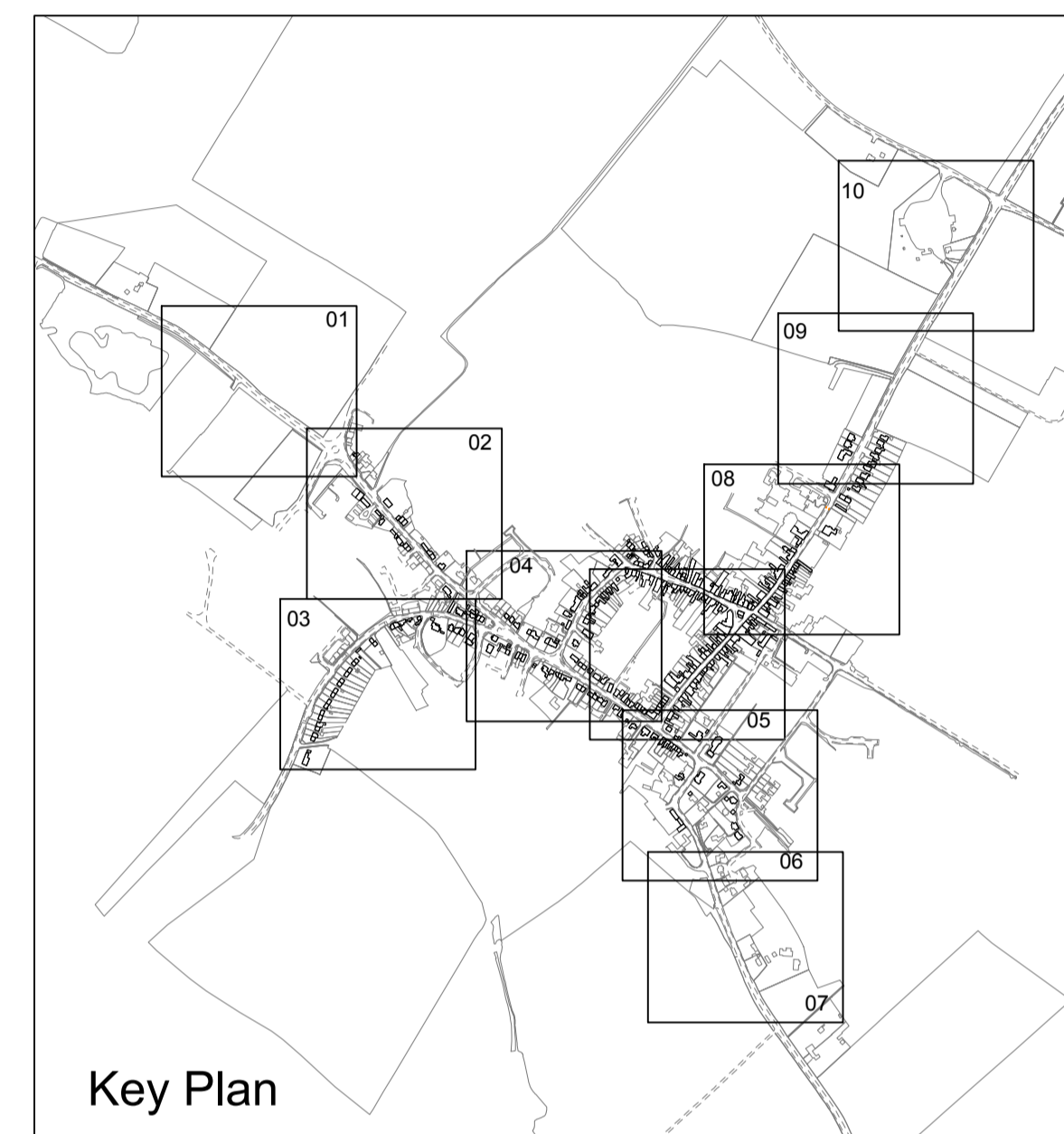
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Key
Tactile Paving 
Existing Double Yellow Lines 



B	05-09-17	Updated as per comments made at meeting on 30-05-17
A	20-10-16	Issued

client
Watlington Parish Council

job title
Watlington

drawing title
Proposed Traffic Management Measures Sheet 1 of 10

drawing no.
J32-2721-01

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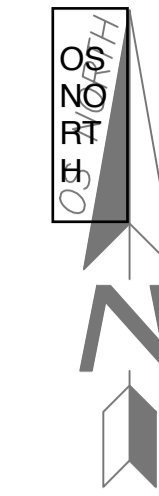
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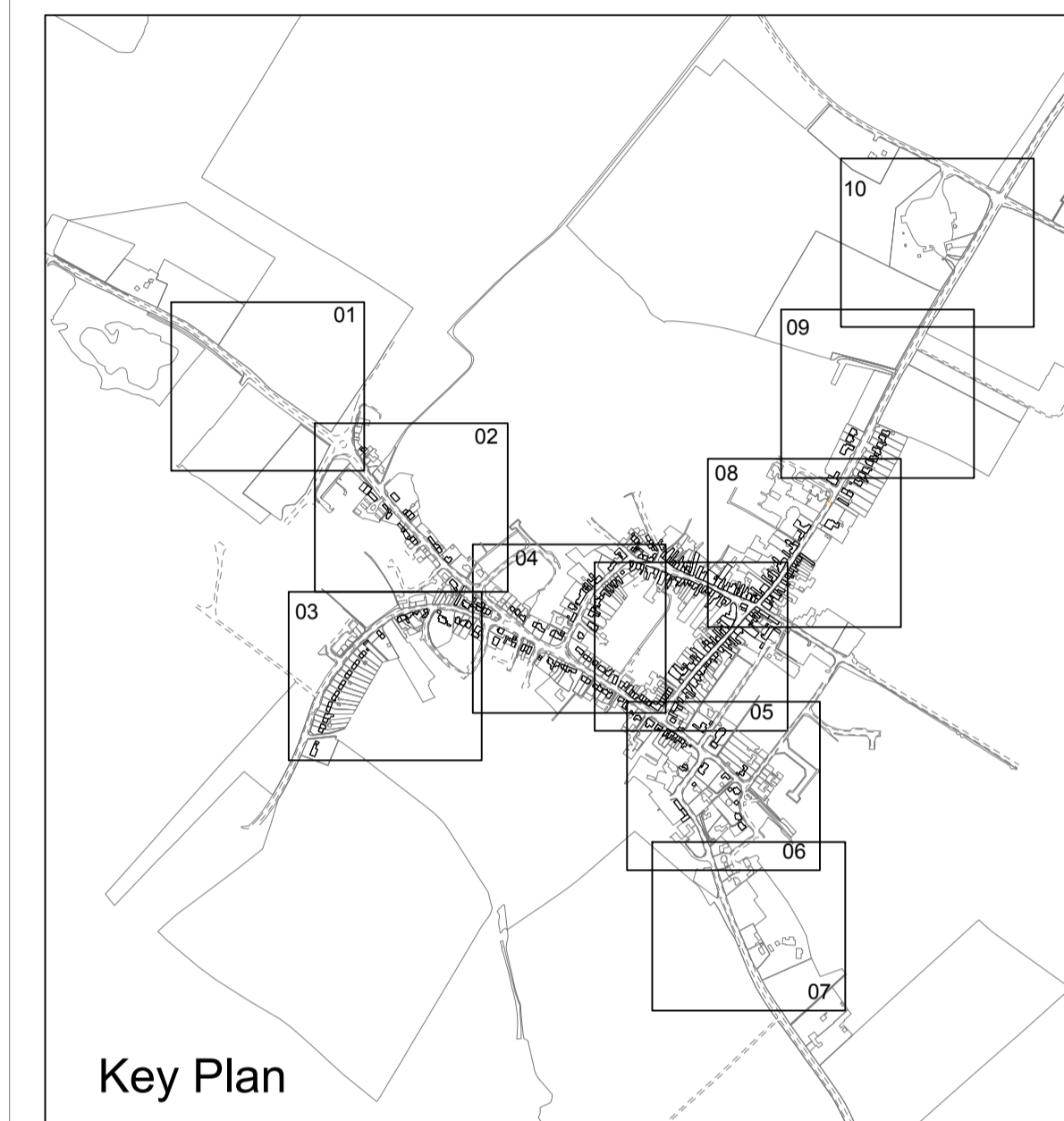
Proposed 20mph visual speed sign (VSS)



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Key

- Tactile Paving
- Existing Double Yellow Lines



B	05-09-17	Updated as per comments made at meeting on 30-05-17
A	20-10-16	

client
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job title
Watlington

drawing title
**Proposed Traffic Management Measures
Sheet 2 of 10**

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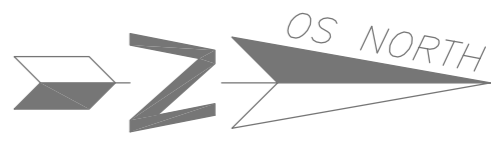
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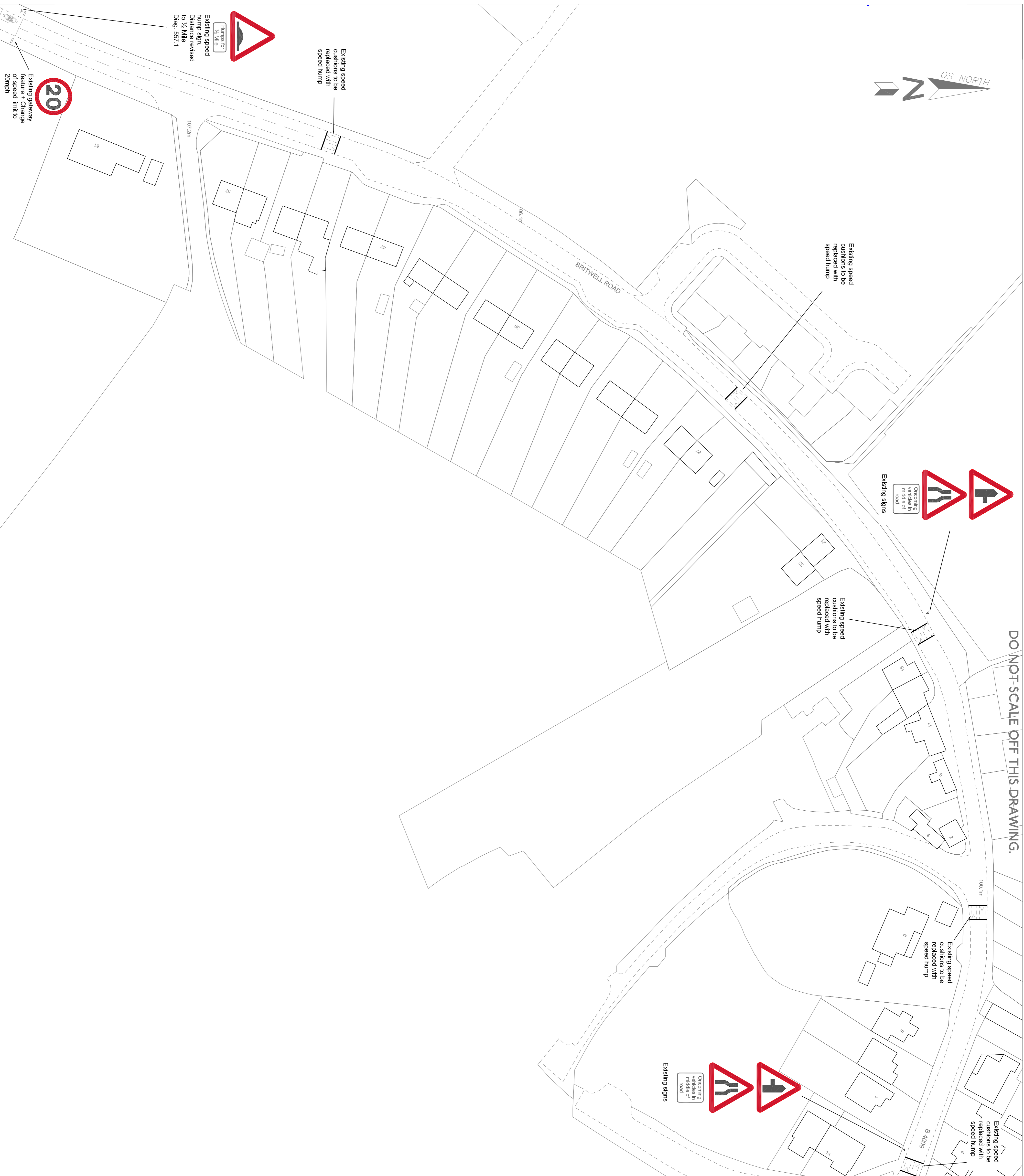
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- Key**
- Tactile Paving
 - Existing Double Yellow Lines



C	10-10-17	20mph sign added
B	30-05-17	Updated as per comments made on meeting
A	20-10-16	Issued

client
 Watlington Parish Council

job title
 Watlington

drawing title
 Proposed Traffic Management Measures
 Sheet 3 of 10

drawing no.
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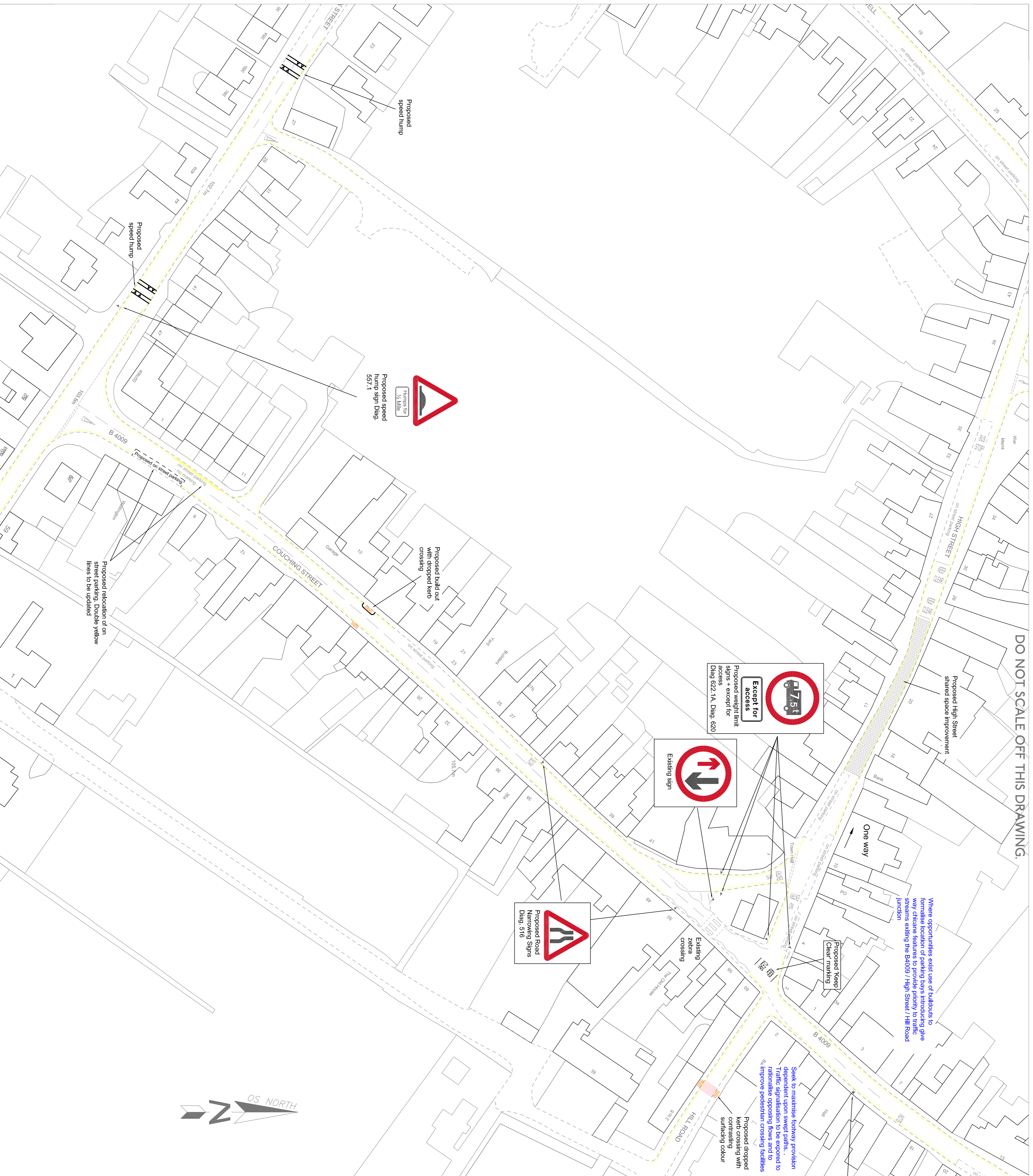
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- Key**
- Tactile Paving
 - Existing Double Yellow Lines



C	10-10-17	Crossing added
B	30-05-17	Updated as per comments made on meeting
A	20-10-16	Issued

client
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job title
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 Proposed Traffic Management Measures
 Sheet 5 of 10

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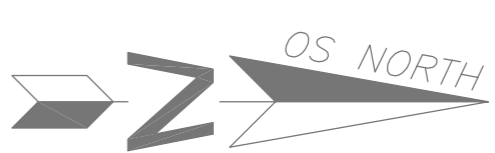
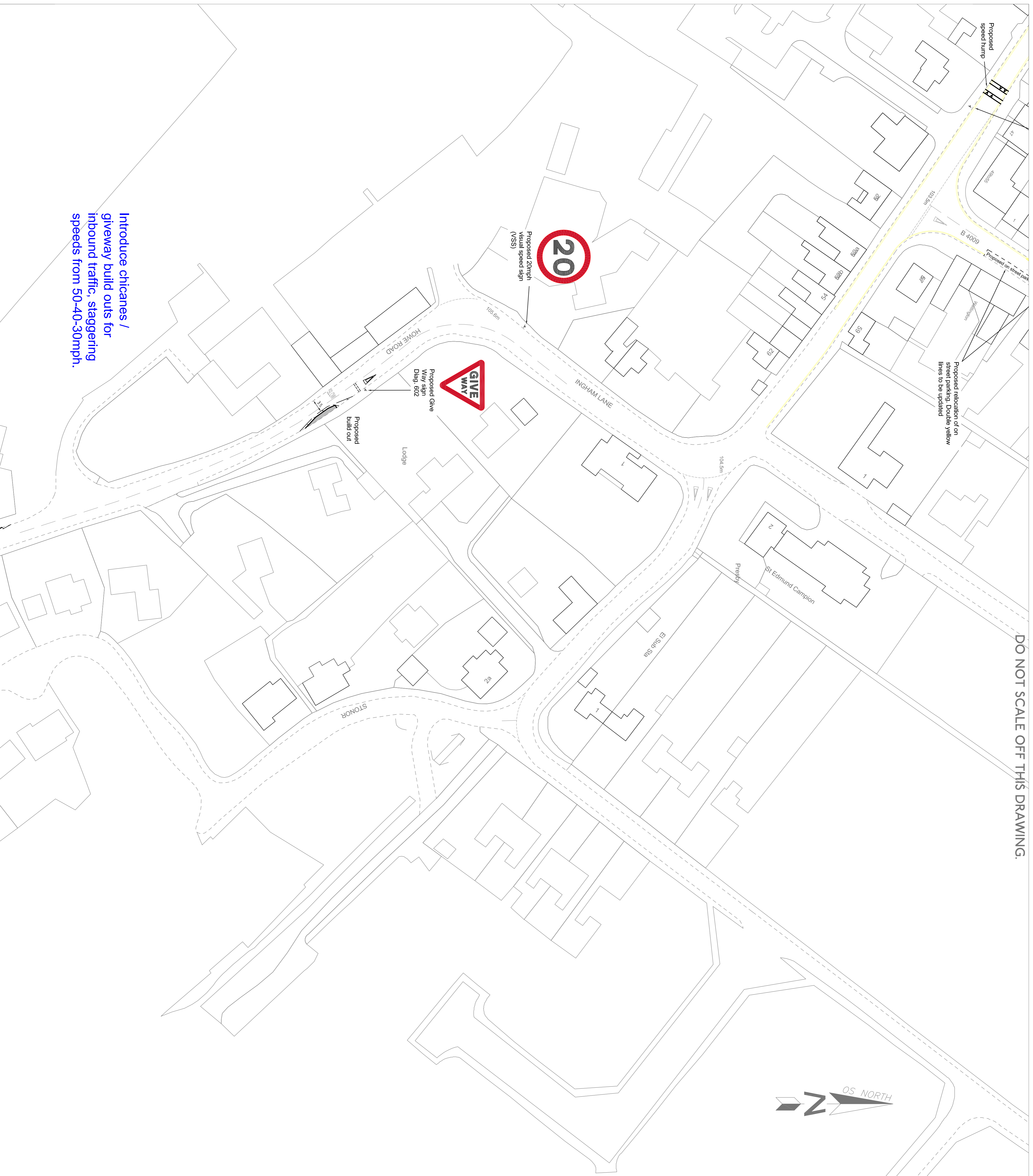
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- Key**
- Tactile Paving
 - Existing Double Yellow Lines



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A	20-10-16	Issued

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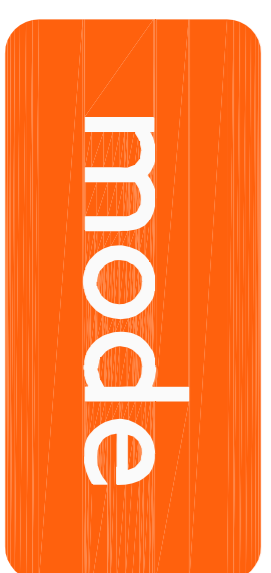
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 Proposed Traffic Management Measures
 Sheet 6 of 10

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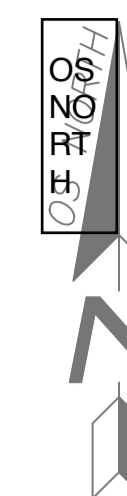
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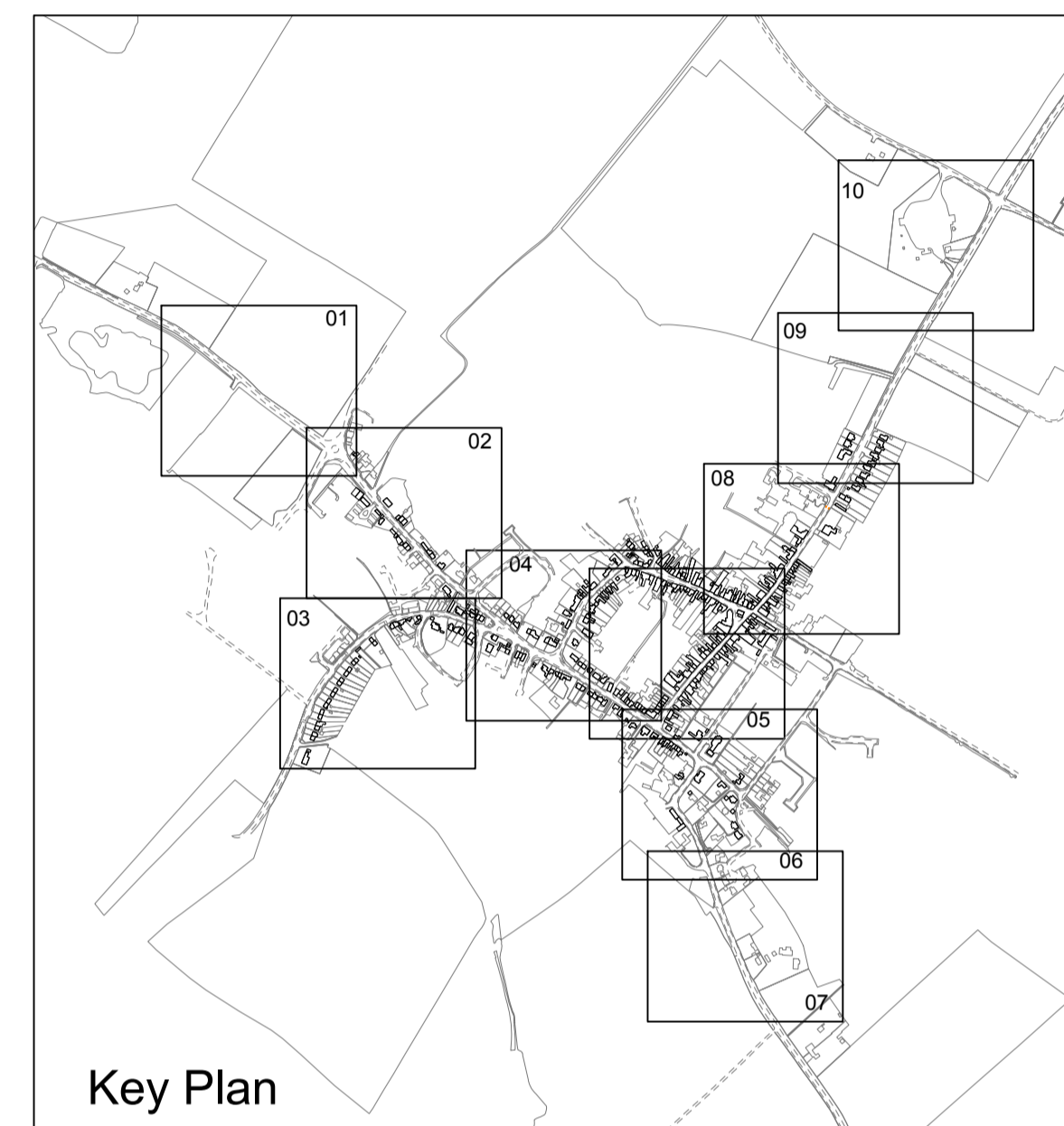
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Introduce chicanes /
giveaway build outs for
inbound traffic, staggering
speeds from 50-40-30mph.



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Key
Tactile Paving 
Existing Double Yellow Lines 



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Proposed Traffic Management Measures
Sheet 7 of 10

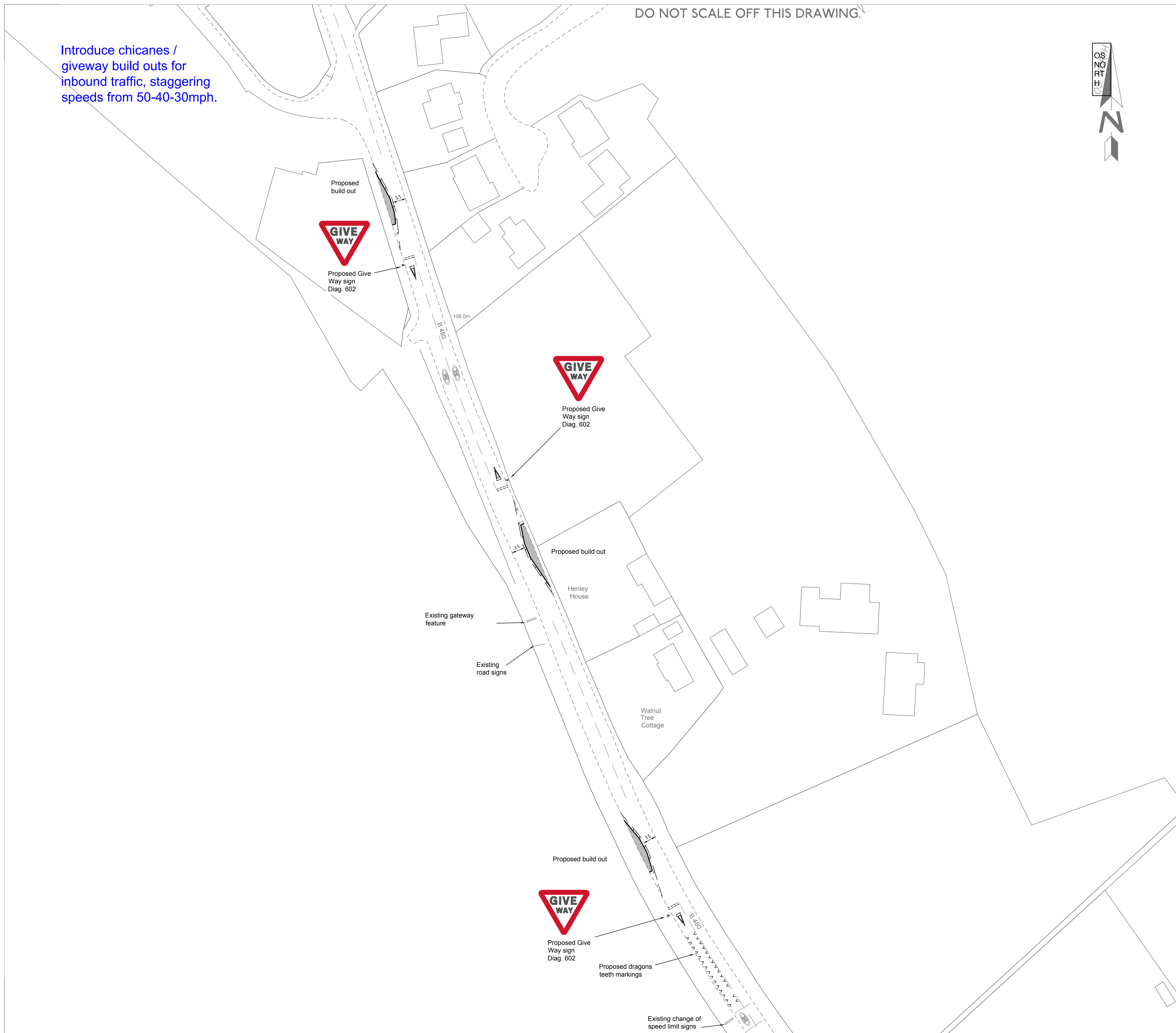
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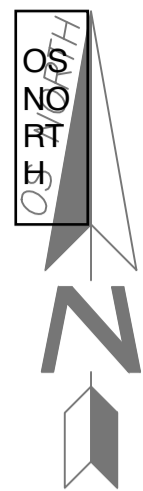


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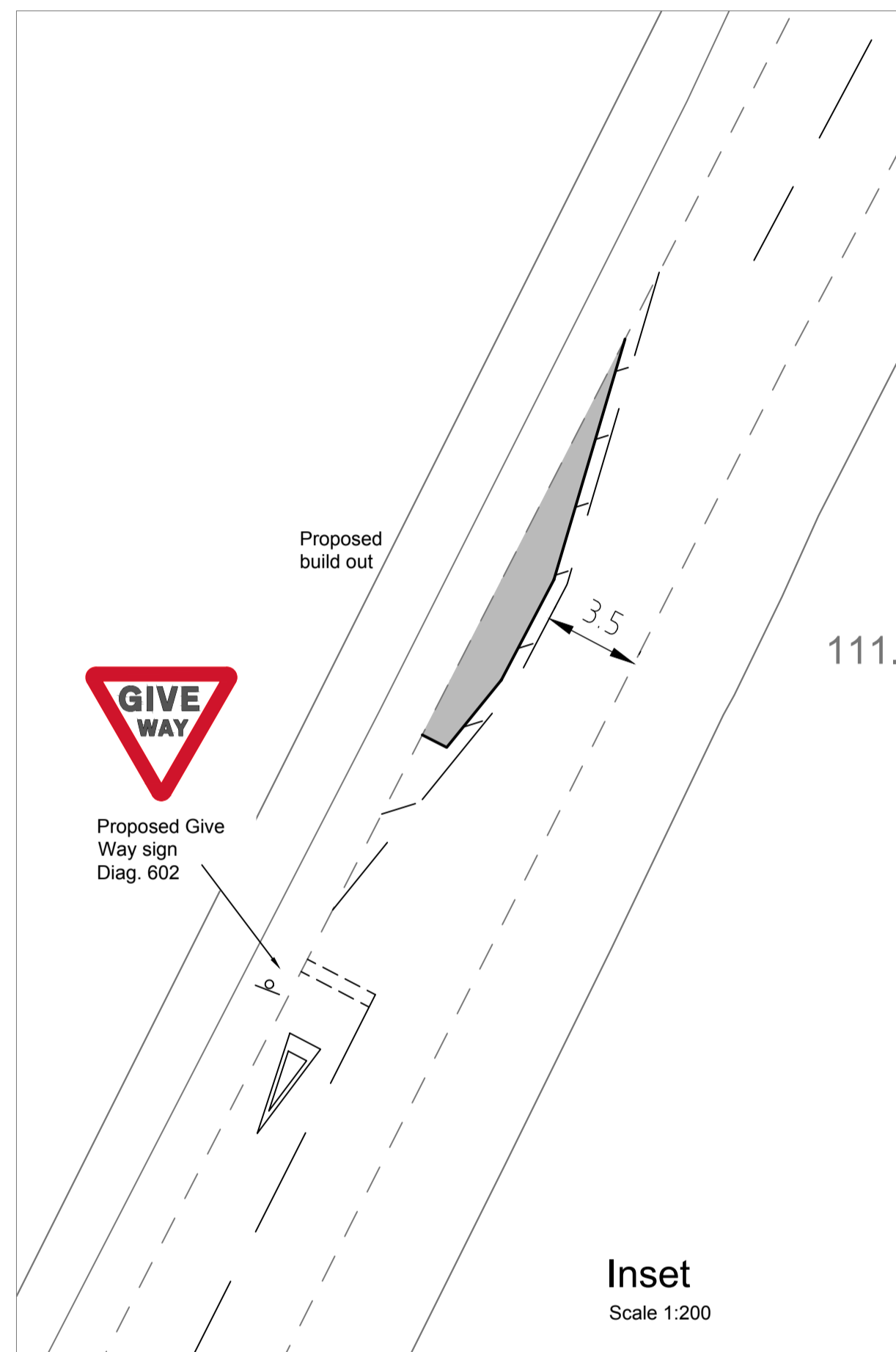


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Watlington FC



Proposed build out

111.8m



Proposed Give Way sign
Diag. 602



Proposed 20mph
visual speed sign
(VSS)

SHIRBURN ROAD

on street parking

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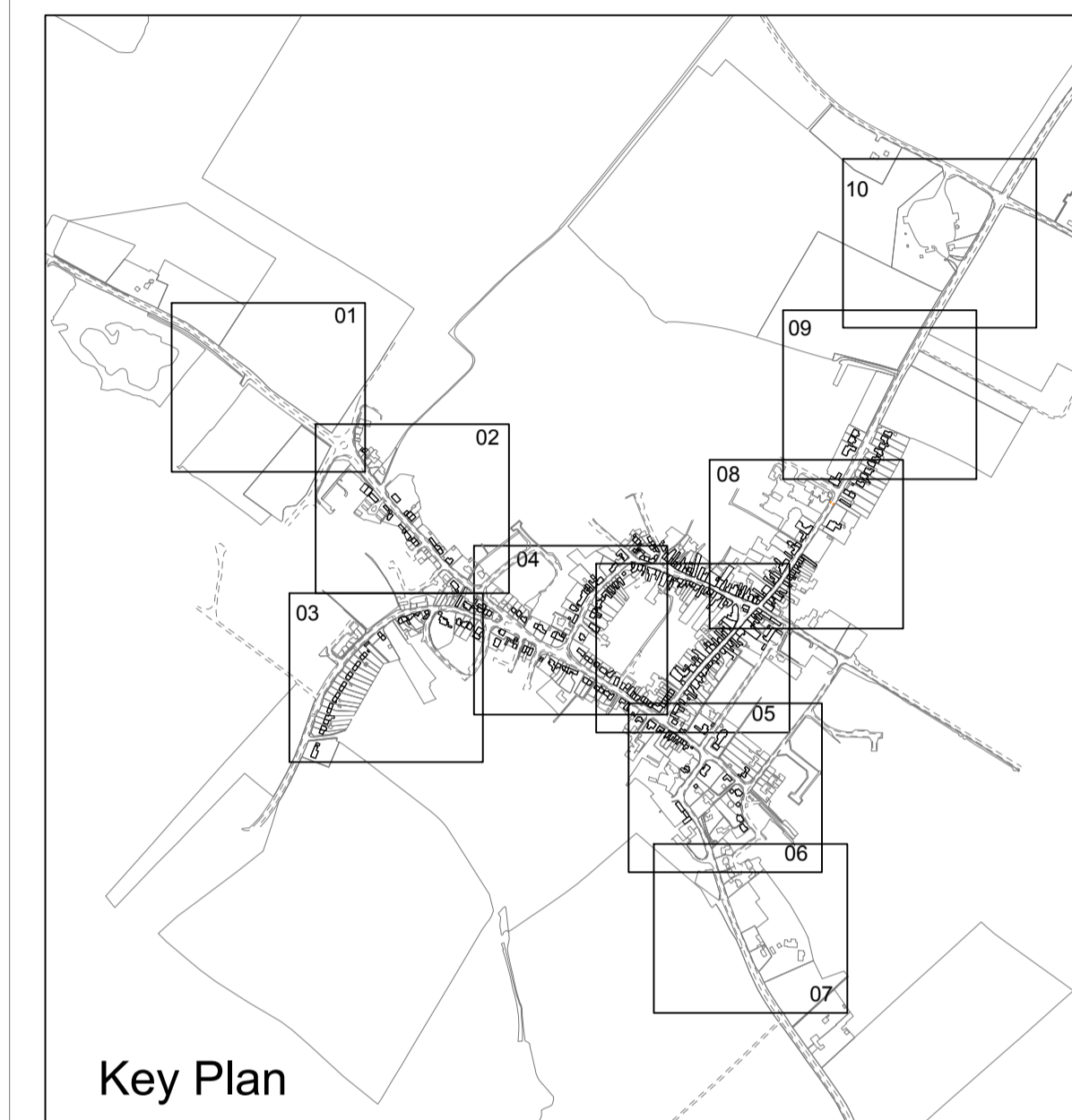
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Key

- Tactile Paving
- Existing Double Yellow Lines



B	05-09-17	Updated as per comments made at meeting on 30-05-17
A	20-10-16	Issued

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Proposed Traffic Management Measures
Sheet 9 of 10

drawing no.
J32-2721-09

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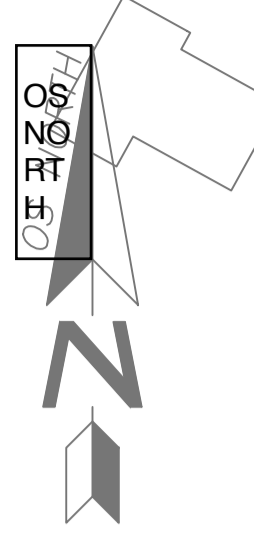
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Proposed Give Way sign
Diag. 602

Proposed build out

115.7m

Proposed dragons teeth markings

Proposed relocated gateway feature +
Change of speed limit signs & roundels

Proposed build out



Proposed Give Way sign
Diag. 602

CR



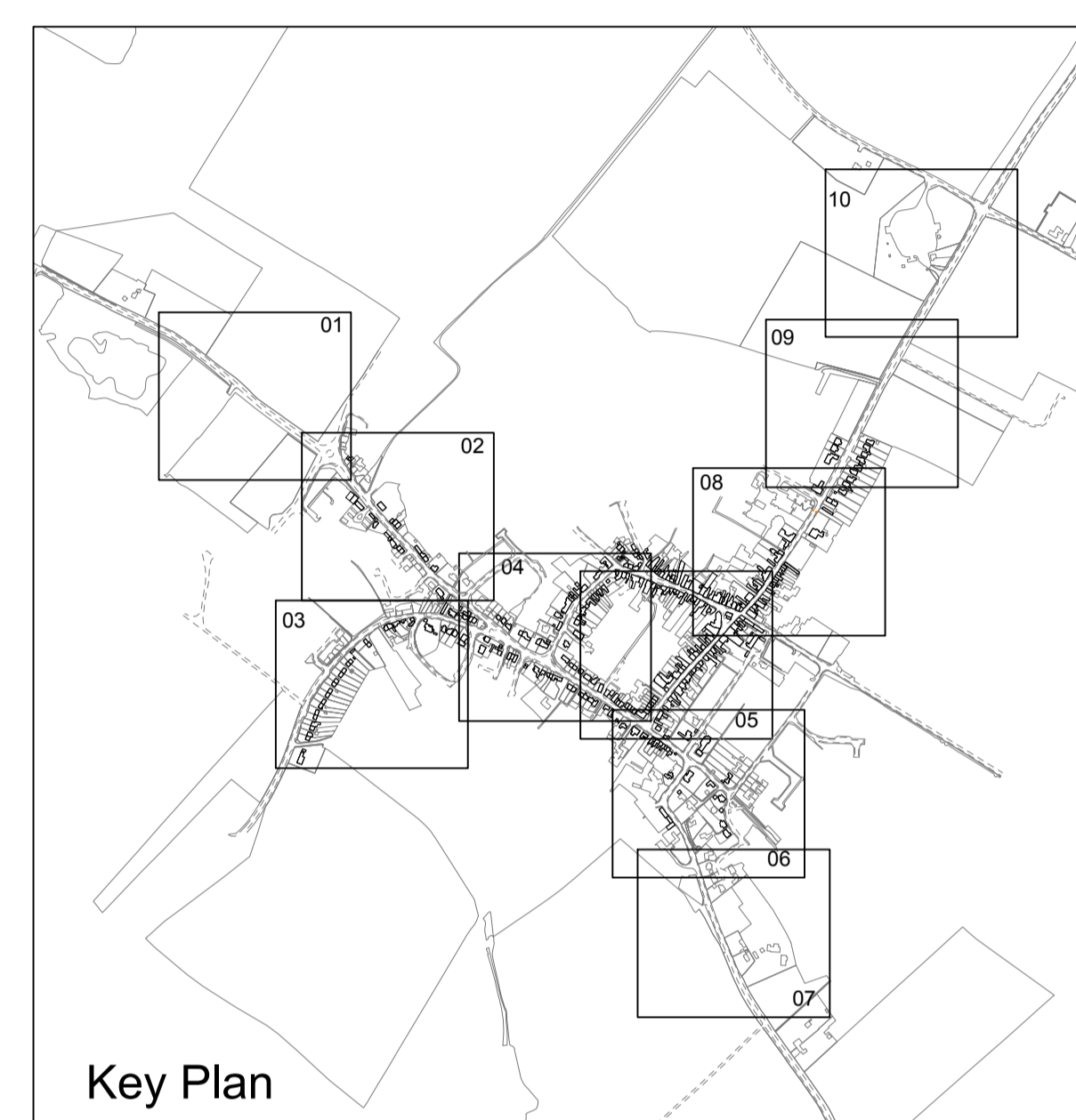
Proposed Give Way sign
Diag. 602

Introduce chicanes /
giveaway build outs for
inbound traffic, staggering
speeds from 50-40-30mph.

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Key

- Tactile Paving
- Existing Double Yellow Lines



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Proposed Traffic Management Measures
Sheet 10 of 10

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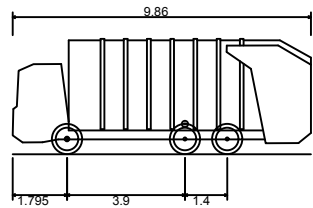
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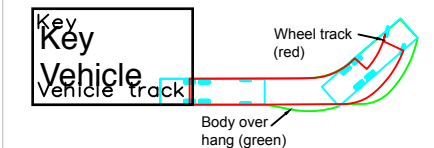
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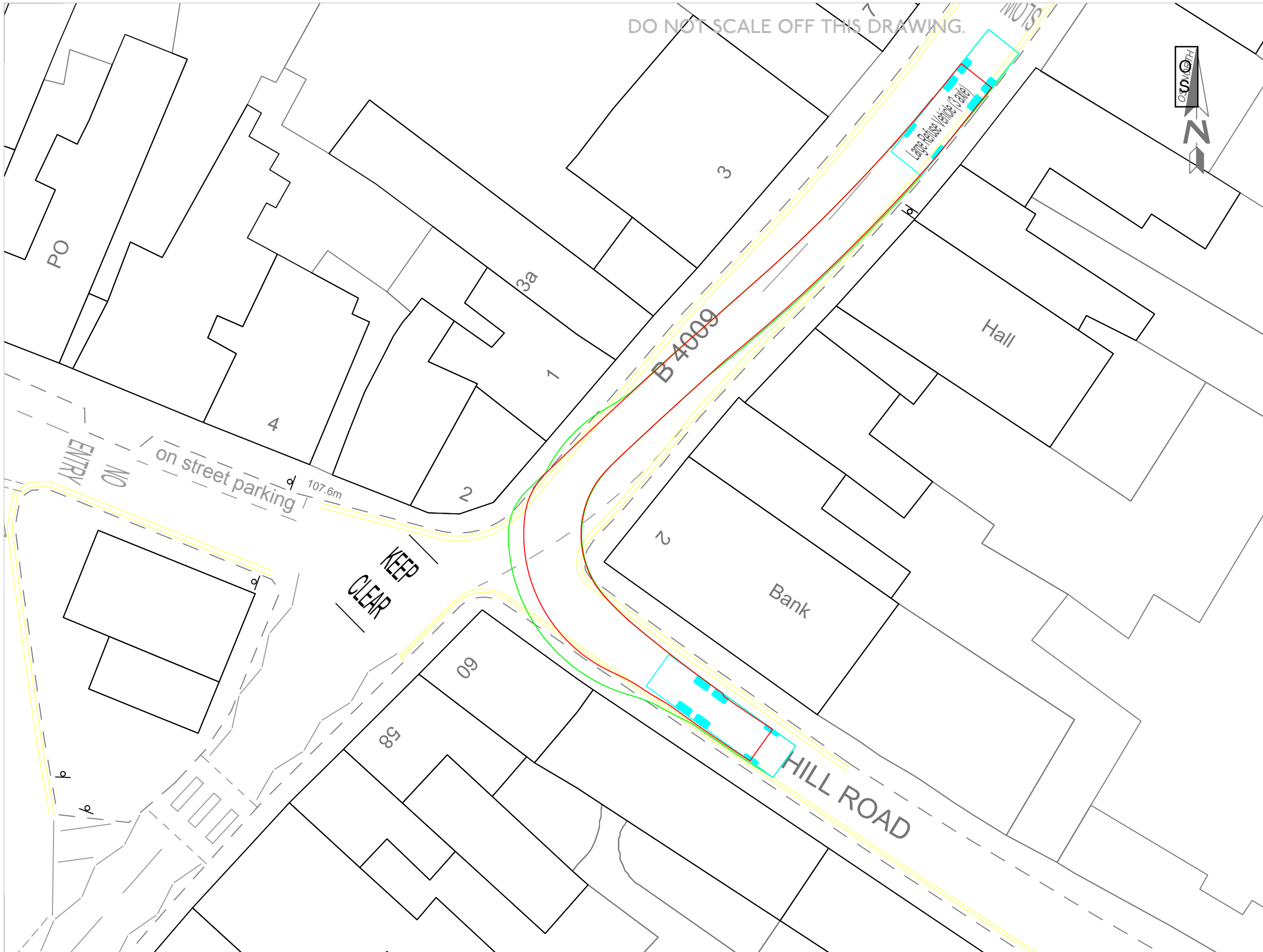
- Tactile Paving 
- Existing Double Yellow Lines 



- Large Refuse Vehicle (3 axle) 9.860m
- Overall Length 2.450m
- Overall Width 3.814m
- Overall Body Height 0.366m
- Min Body Ground Clearance 2.450m
- Track Width 4.00s
- Lock to lock time 9.500m
- Kerb to Kerb Turning Radius



Updated as per comments made at meeting on 30-05-17



drawing title
Proposed Traffic Management Measures Swept Path Analysis Large Refuse Vehicle

client
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job title
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 44 Lombard Street
 Birmingham B3 3LP

t 0121 794 8390
 e info@modetransport.co.uk
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checked **S.S.**

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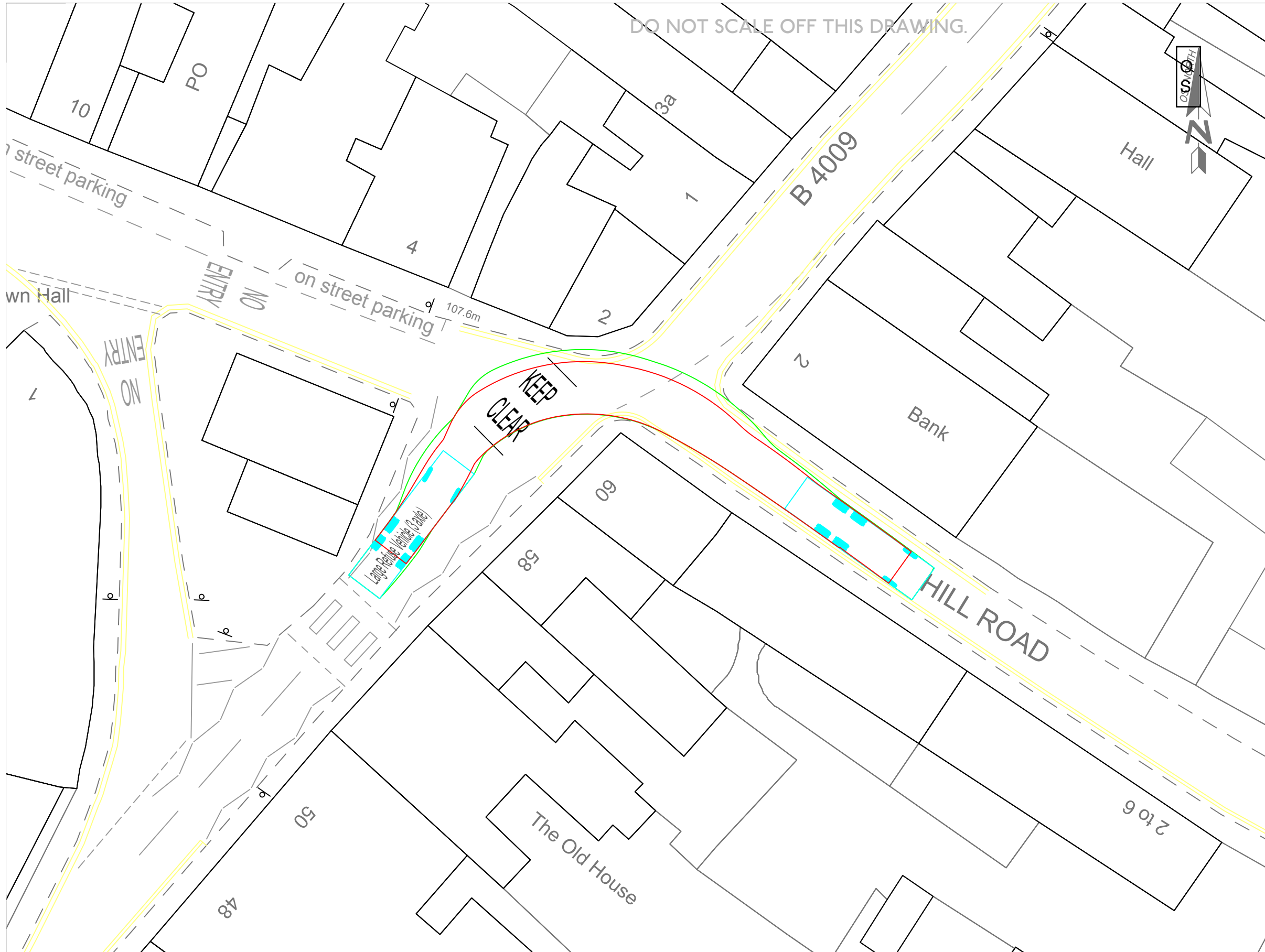
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- Key**
- Tactile Paving
 - Existing Double Yellow Lines

Large Refuse Vehicle (3 axle)

Overall Length	9.860m
Overall Width	2.450m
Overall Body Height	3.814m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m

Key

- Vehicle track (blue)
- Wheel track (red)
- Body over hang (green)

drawing title
Proposed Traffic Management Measures
 Swept Path Analysis
 Large Refuse Vehicle

client
Watlington Parish Council

job title
Watlington

mode transport planning
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 120-122 High Street
 Birmingham B3 3LP

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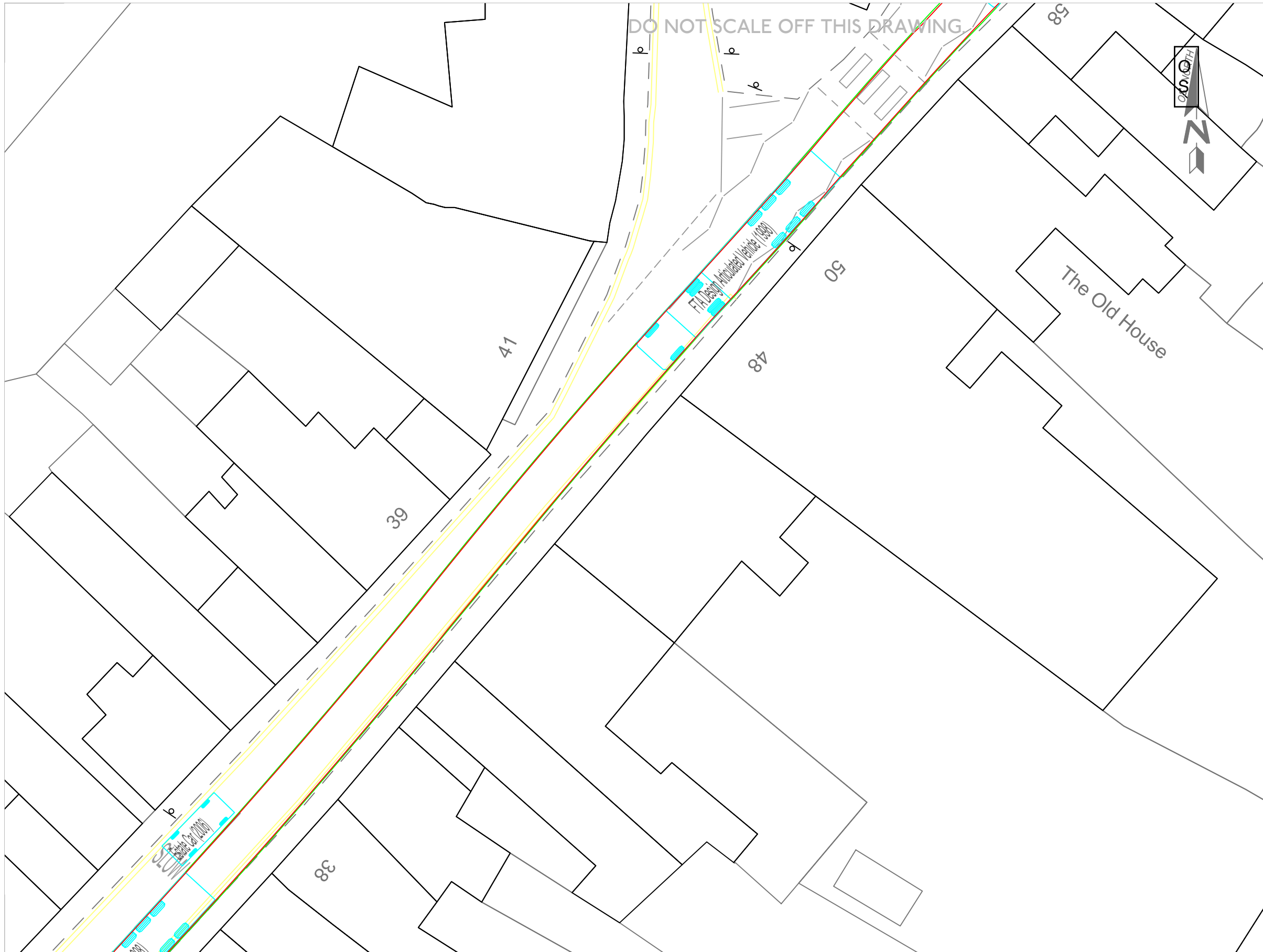
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May 17

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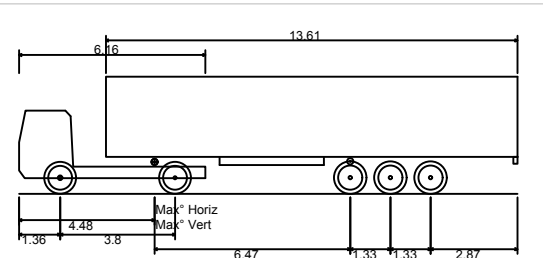
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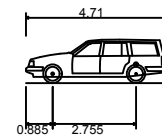
Visibility Splays shown are taken from 'DMRB'

Key

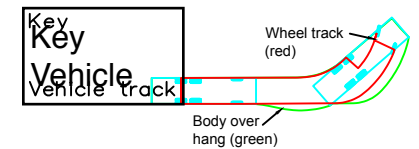
- Tactile Paving 
- Existing Double Yellow Lines 



FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.550m



Estate Car (2006)	
Overall Length	4.710m
Overall Width	1.804m
Overall Body Height	1.442m
Min Body Ground Clearance	0.207m
Max Track Width	1.756m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.950m




drawing title
Proposed Traffic Management Measures
 Swept Path Analysis
 Large Refuse Vehicle

client
Watlington Parish Council

job title
Watlington

mode transport planning
 Lombard House
 140 High Street
 Birmingham B3 3LP

t 0121 794 8390
 e info@modetransport.co.uk
 w www.modetransport.co.uk



scale
1:250@A3

drawn
JL

checked
S.S.

created
May 17

B	05-09-17	Updated as per comments made at meeting on 30-05-17 Issued
A	22-05-17	
drawing no.		J32-2721-13

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Dimensions shown are in metres unless stated otherwise.

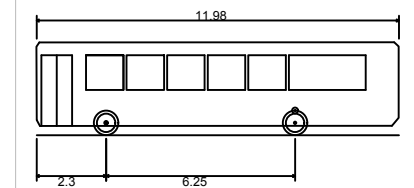
Road markings & traffic signs are to be in accordance with 'The Traffic Signs Regulations and General Directions 2016'

Tactile paving is to be in accordance with 'Guidance on the use of tactile paving surfaces 2007'

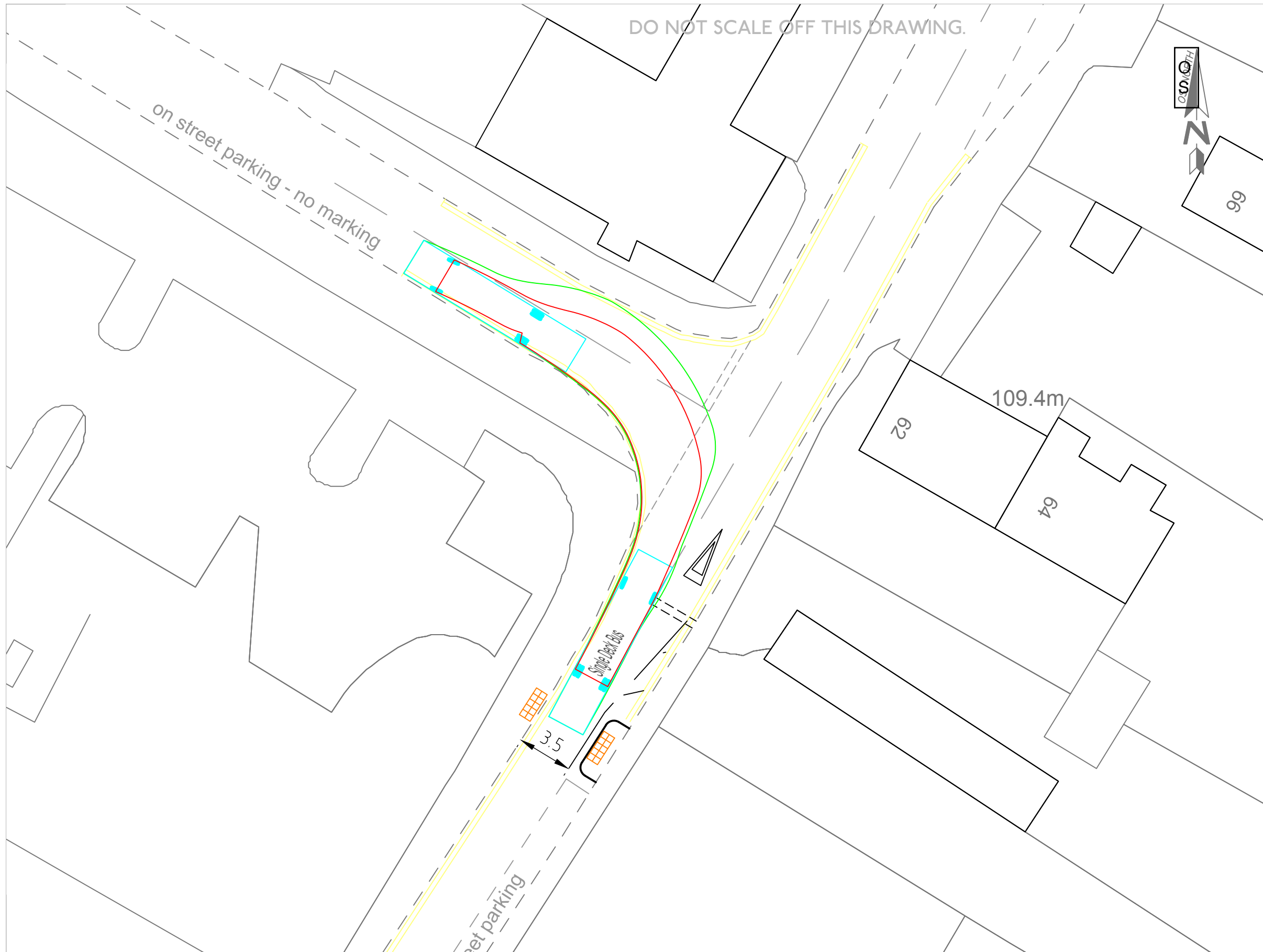
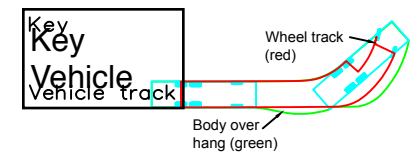
Visibility Splays shown are taken from 'DMRB'

Key

- Tactile Paving 
- Existing Double Yellow Lines 



Single Deck Bus	
Overall Length	11.980m
Overall Width	2.440m
Overall Body Height	3.070m
Min Body Ground Clearance	0.306m
Track Width	2.322m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	10.368m




drawing title
Proposed Traffic Management Measures
 Swept Path Analysis
 12m Single Deck Bus

client
Watlington Parish Council

job title
Watlington

mode transport planning
 Lombard House
 14, Lombard Street
 Birmingham B3 3LP

t 0121 794 8390
 e info@modetransport.co.uk
 w www.modetransport.co.uk



scale
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drawn
JL

checked
S.S.

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May 17

B	05-09-17	Updated as per comments made at meeting on 30-05-17 Issued
A	22-05-17	
drawing no.		J32-2721-14

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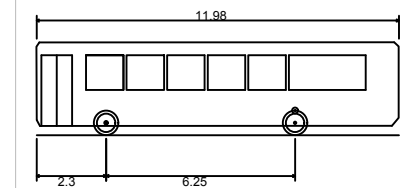
Road markings & traffic signs are to be in accordance with 'The Traffic Signs Regulations and General Directions 2016'

Tactile paving is to be in accordance with 'Guidance on the use of tactile paving surfaces 2007'

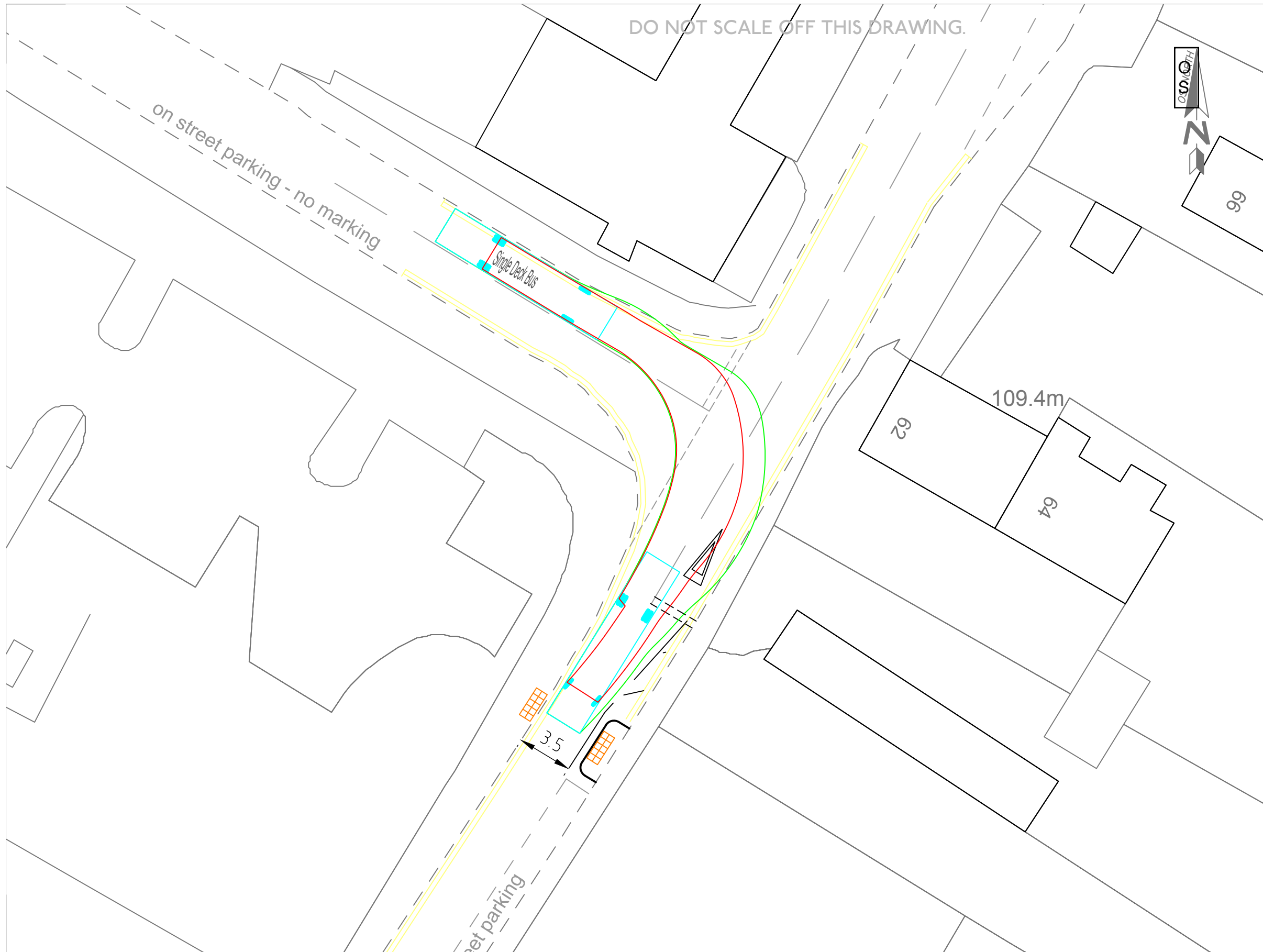
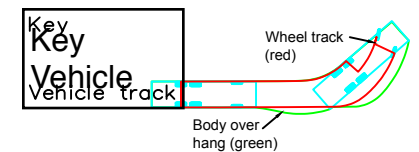
Visibility Splays shown are taken from 'DMRB'

Key

- Tactile Paving 
- Existing Double Yellow Lines 



Single Deck Bus	
Overall Length	11.980m
Overall Width	2.440m
Overall Body Height	3.070m
Min Body Ground Clearance	0.306m
Track Width	2.322m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	10.368m




drawing title
Proposed Traffic Management Measures
 Swept Path Analysis
 12m Single Deck Bus

client
Watlington Parish Council

job title
Watlington

mode transport planning
 Lombard House
 14, Lombard Street
 Birmingham B3 3LP

t 0121 794 8390
 e info@modetransport.co.uk
 w www.modetransport.co.uk



scale
1:250@A3

drawn
JL

checked
S.S.

created
May 17

B	05-09-17	Updated as per comments made at meeting on 30-05-17 Issued
A	22-05-17	
drawing no.		J32-2721-15

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Road markings & traffic signs are to be in accordance with 'The Traffic Signs Regulations and General Directions 2016'

Tactile paving is to be in accordance with 'Guidance on the use of tactile paving surfaces 2007'

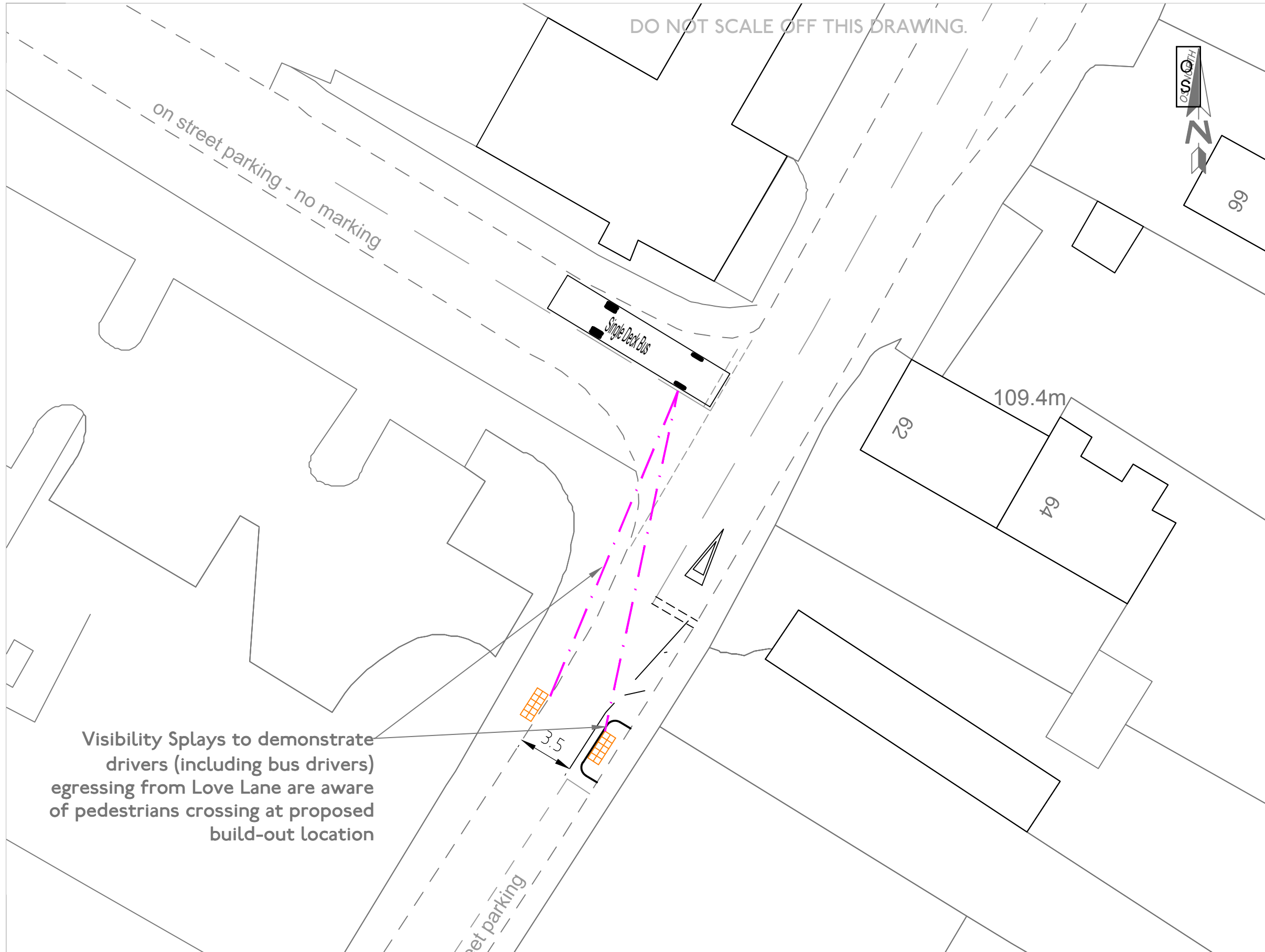
Visibility Splays shown are taken from 'DMRB'

Key


Tactile Paving



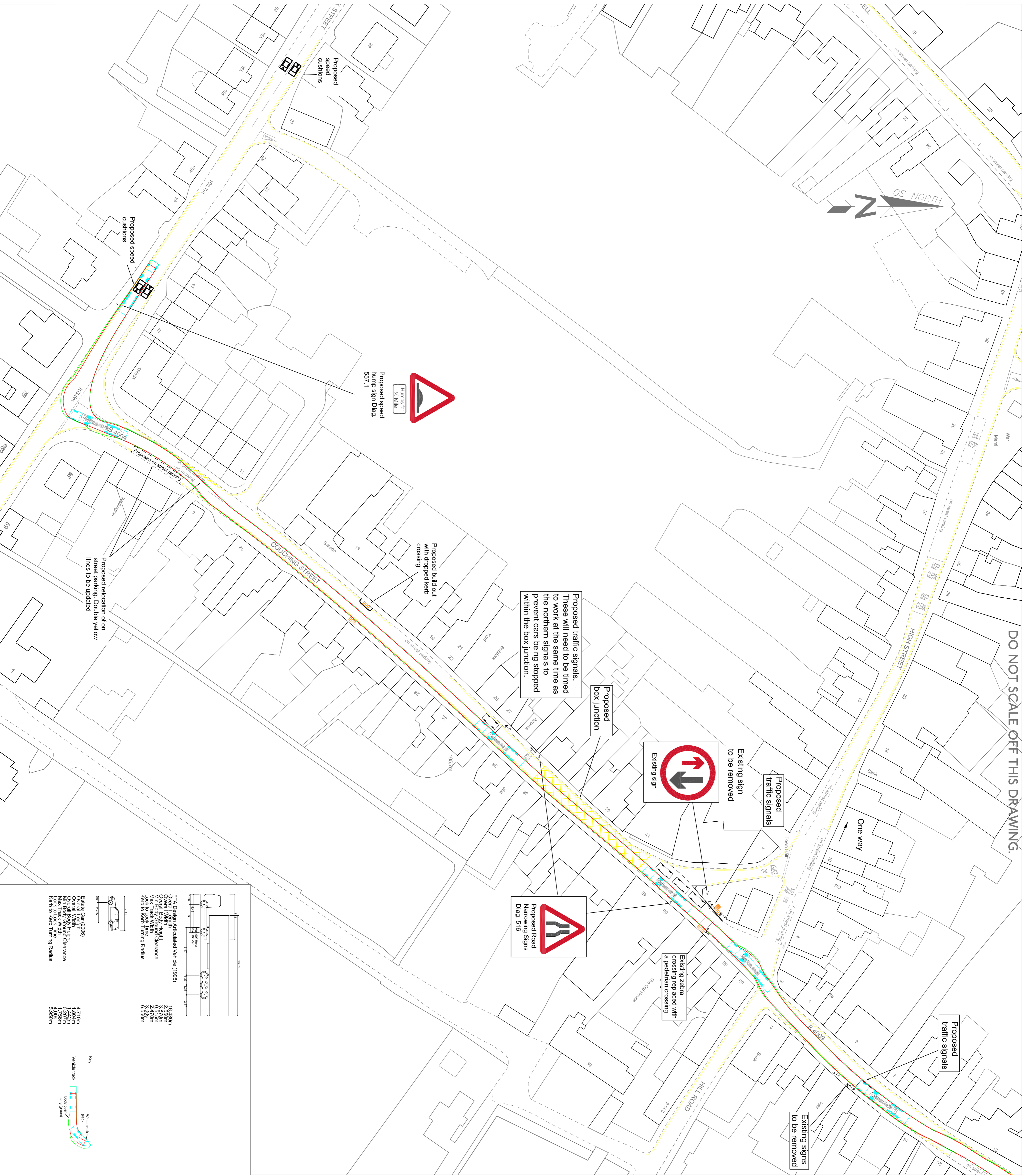
Visibility



Visibility Splays to demonstrate drivers (including bus drivers) egressing from Love Lane are aware of pedestrians crossing at proposed build-out location

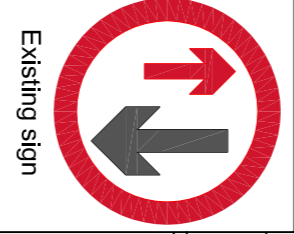
drawing title Love Lane Visibility Plan for Pedestrians at Proposed Build-out Location	client Watlington Parish Council	mode transport planning Lombard House 41-43 High Street Birmingham B3 3LP t 0121 794 8390 e info@modetransport.co.uk w www.modetransport.co.uk	scale 1:250@A3	A	14-09-17	Issued
	job title Watlington					
			checked S.S.	drawing no. J32-2721-16		
			created Sep '17			

DO NOT SCALE OFF THIS DRAWING.



Proposed traffic signals. These will need to be timed to work at the same time as the northern signals to prevent cars being stopped within the box junction.

Proposed box junction



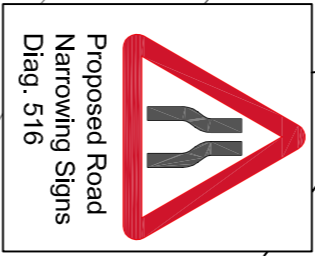
Existing sign to be removed

Proposed traffic signals

One way

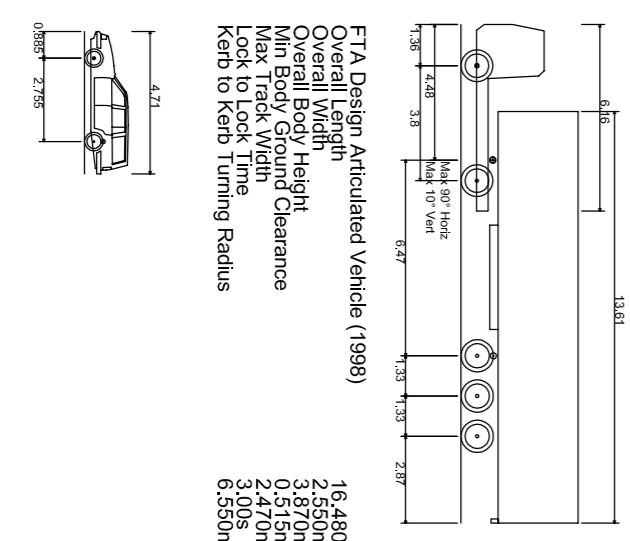
Proposed traffic signals

Existing signs to be removed

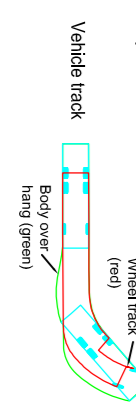


Proposed Road Narrowing Signs Diag. 516

Existing zebra crossing replaced with a pedestrian crossing



Key



Estimate Car (2008)
Overall Width 1.81m
Wheelbase 2.70m
Max Body Ground Clearance 0.207m
Max Track Width 1.758m
Kerb to Kerb Turning Radius 5.550m

F1 A Design Articulated Vehicle (1989)
Overall Width 2.550m
Wheelbase 10.515m
Max Body Ground Clearance 0.515m
Max Track Width 2.400m
Kerb to Kerb Turning Radius 6.550m

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Key
Tactile Paving
Existing Double Yellow Lines



A	20-10-16	Issued
client		
Watlington Parish Council		

job title
Watlington

drawing title
Proposed Traffic Management Measures
Signals Option - Sheet 5 of 10

drawing no.	J32-2721-20
drawn	JL
created	May 17
checked	-
scale	1:500@A1

mode transport planning

Linnæus House
145 Great Charles Street
Birmingham
B3 3LP

0121 794 8388
info@modetransport.co.uk
www.modetransport.co.uk



Appendix A – Case Study Images



Chicanes (Single)





Chicanes (Multiple)

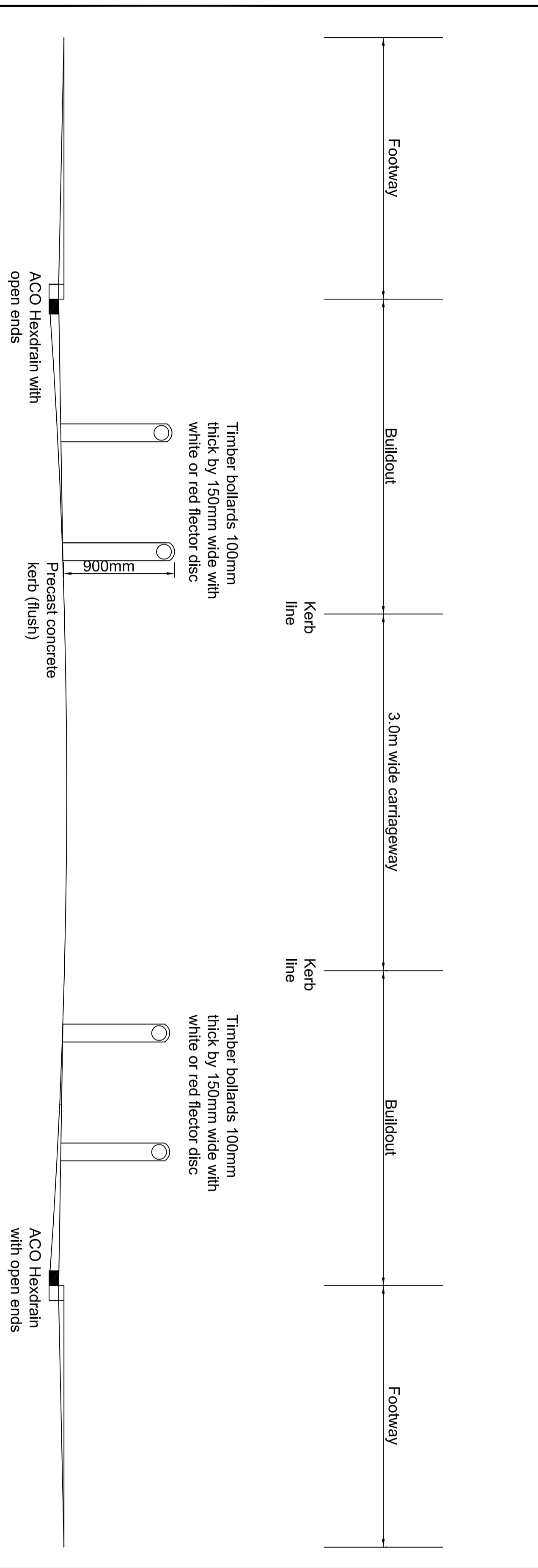
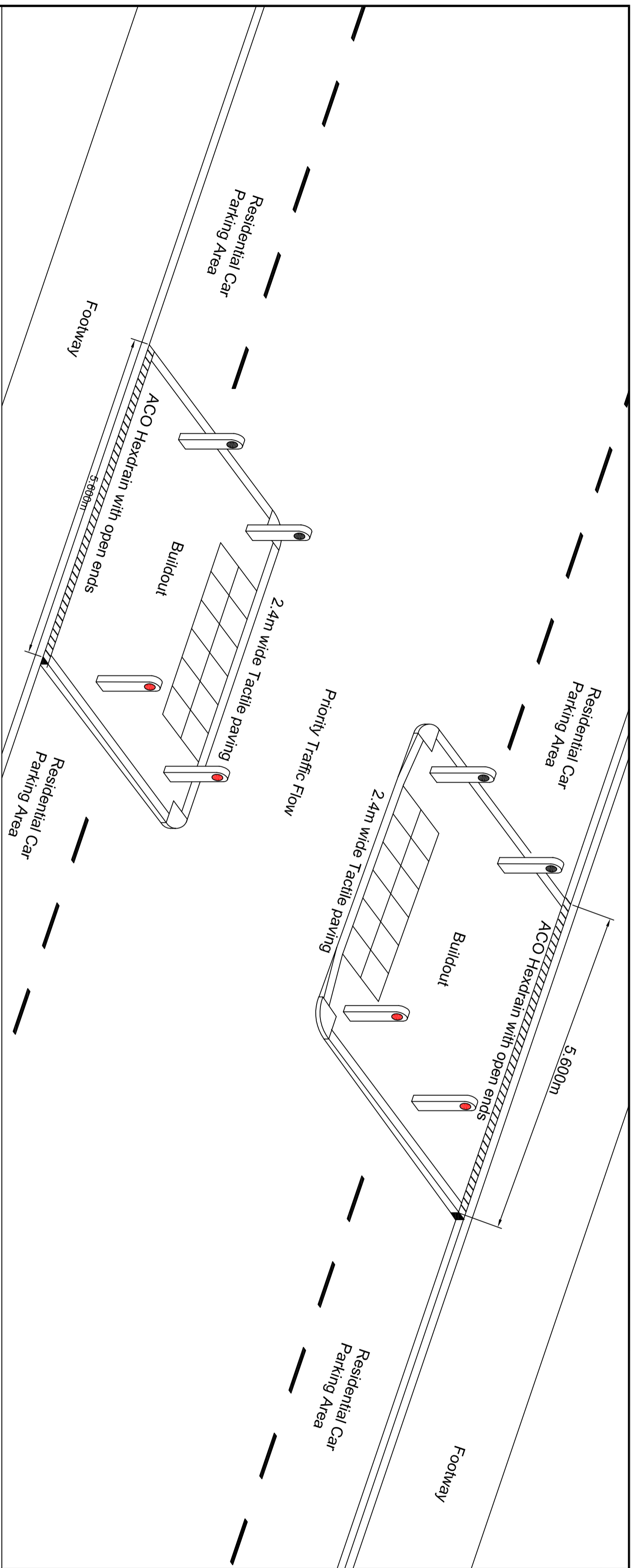








Parking Bays



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Rev	Date	Description	By

Steve Howell
 Head of Transport
 Planning & Economy
 Oxfordshire County Council
 Speedwell House
 Speedwell Street
 Oxford
 OX1 1NE
 Tel: (01865) 815700
 Fax: (01865) 815085
www.oxfordshire.gov.uk



Project title
Highfield Traffic Management

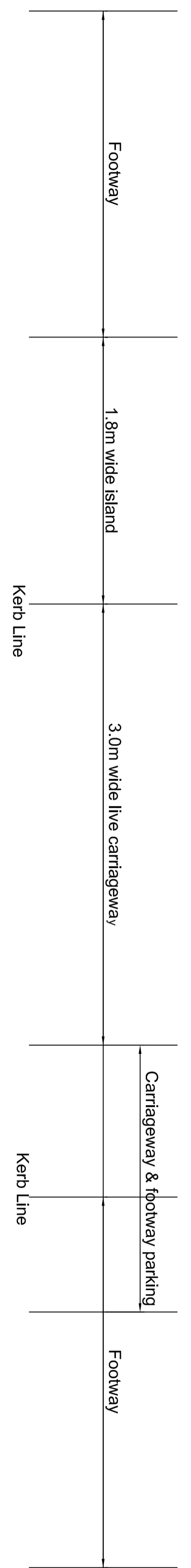
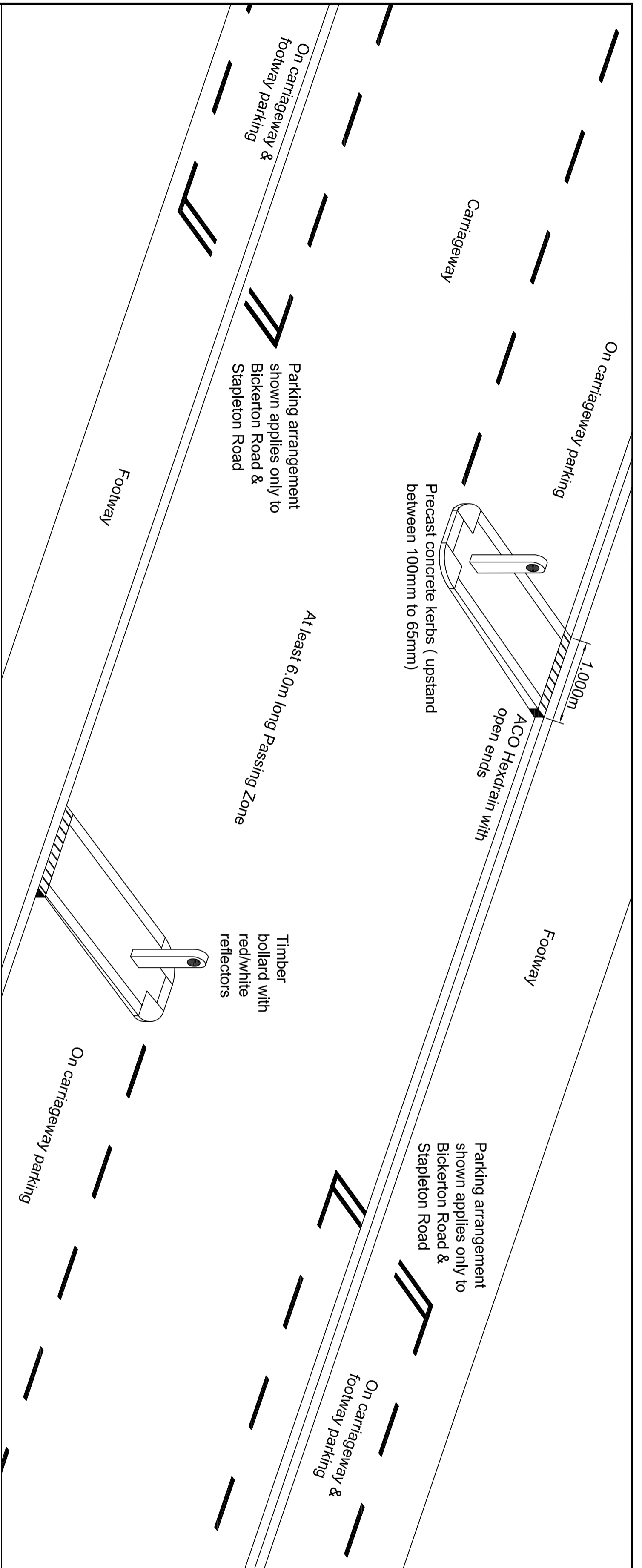
Drawing title
Proposed Pinch Point Detail 2

Drawing Status
Consultation

Scale @ A2	Drawn by	Checked by	Approved by
Not to Scale	RGR	MAB	MJCo
Scale	Date prepared 20/05/10	Date checked 20/05/10	Date approved 20/05/10

Oxfordshire Highways Project No. & File Ref
CN1051651 & 12.6.320

Drawing No. **D&I/A2/0611** Revision -



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Rev.	Date	Description	By

Steve Howell
Head of Transport
Environment & Economy
OXFORDSHIRE COUNTY COUNCIL
Oxfordshire County Council
Speedwell House
Speedwell Street
Oxford
www.oxfordshire.gov.uk
Tel: (01865) 815700
Fax: (01865) 815085



Project title
Highfield Traffic Segregators Management

Drawing title
Proposed Parking Segregators Detail 4

Drawing Status			
Scale B2	Drawn by	Checked by	Approved by
Not to Scale	RG	MAB	MJCO
Scale	20/05/10	20/05/10	20/09/10
Oxfordshire Highways Project No. & Title			
CN1051651 & 12.6.320			
Drawing No.	Revision		
D&I/A2/0613			-



Pedestrian buildouts





Speed cushions





Variable Message Signs (VMS)





Potential Public Realm Improvements



Church Gate Mews



Toilet of Market Place



Proposed Wharf / Canal side



Former Barley Mow Public House



Appendix B – Cost Estimates for Traffic Calming Measures



Chicanes

Source - areas / volumes taken from acad. Rates based upon term contract where available

Subject to Detail Design

No allowance made for Stats or existing street lighting

By JL
date

Description	Qty	Unit	Rate	Amount
Full Road Construction	0	m2		
:Block Paving - on existing C/W	0	m2		
:Block Paving - on existing C/W - parking bay	0	m2		
:Road relay - WC	0	m2		
:carriageway - rigid (layby)	0	m2		
:Speed table / cushion on existing CW	0	m2		
:Footway - full construction	30	m2		
:Footway relay WC	0	m2		
:Footway on existing c/w	0	m2		
:Footway - block paving on existing CW	0	m2		
:Footway - block paving on existing FW	0	m2		
:verge on existing c/w	0	m2		
:verge	0	m2		
:Road construction - full construction				
:Surfacing 30mm SMA (wearing course)	0	m2	25.00	£ -
:Base course 70mm HDM (base course)	0	m2	23.00	£ -
:road base 200mm HDM (road base)	0	m2	40.00	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Block Paving - on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Block Paving - on existing C/W - parking bay				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:road base 30mm HDM regulating (road base)	0	m2	8.67	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 40mm	0	m2	6.93	£ -
:Road construction - rigid - layby				
:225 concrete slab				
:a625 mesh				
:1000 gauge PE membrane				
:Total cost	0	m2	26.89	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Speed table / cushion on existing CW				
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 30mm	0	m2	6.93	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Anti skid surfacing	0	m2	25.00	£ -
:Cycleway coloured surfacing	0	m2	25.00	£ -
:Footway construction - Full				
:Surfacing 30mm Rolled asphalt	30	m2	7.16	£ 214.80
:Binder course 100mm Dense macadam	30	m2	14.59	£ 437.70
:type 1 sub base 150mm thick	5	m3	43.51	£ 195.80
:Footway construction - relay				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 50mm Dense macadam - regulating	0	m2	7.30	£ -
:scarify 30mm	0	m2	5.20	£ -
:Footway on existing C/W				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:road base 120mm HDM (road base)	0	m2	17.33	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing FW				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Earthworks				
:Excavation of acceptable material - for cw construction 0.9				
:depth	0	m3	8.96	£ -
:Excavation of acceptable material - f way 0.28 depth	8	m3	8.96	£ 75.28
:Excavation of acceptable material	0	m3	8.96	£ -
:Disposal of acceptable material	8	m3	17.91	£ 150.44
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Disposal of scarified material (100mm)	0	m3	17.91	£ -
:Disposal of scarified material (30mm)	0	m3	17.91	£ -
:Disposal of scarified material (25mm)	0	m3	17.91	£ -
:Seeding	0	m2	4.00	£ -
:Topsoil + seeding	0	m2	14.00	£ -
:kerbing				
:HB2	25	m	24	£ 600.00
:BN	0	m	24	£ -
:edging EF	20	m	12	£ 240.00
:Kassel kerbing	0	m	120	£ -
:Tactile paving				
:400x400 paviour laid on on 30mm sand	0	m2	40.00	£ -

40mm £ 35.00
70m £ 23.00
150mm £ 30.00
£ 30.00

£ 24.00
£ 24.00
£ 12.00

seems high

Street lighting columns	0	No	1500	£	-
Signal installation - Ped crossing	0	No	18000	£	-
Bus shelter	0	No	6500	£	-
Site clearance					
General				£	-
Remove kerbs + dispose	20	m	8	£	160.00
Remove 2m high wall	0	m	47.25	£	-
Break out existing concrete c/w	0	m3	40.00	£	-
Street furniture					
Trees - tree pit (excavation + disposal) + soil + grating	0	No	1000	£	-
bollards	0	No	200	£	-
benches	0	No	400	£	-
gateway features	0	No	1500	£	-
planter / feature	0	No	400	£	-
Drainage					
Gully + frame	1	No	255	£	255.00
Gully connections 150mm dia	10	m	56	£	560.00
Connection 150 / 450	0	No	65	£	-
Manhole + cover	0	No	2000	£	-
carrier drain	0	m	120	£	-
Signing and lining					
lining			rate	£	500.00
signs 1 to 2m2 on steel post	2	no	600	£	1,200.00
sign post and base	0	no	300	£	-
bollards (illuminated and complete)	2	no	343.2	£	686.40
Traffic signals	0	no	rate	£	-
Traffic Management - provisional				£	2,000.00
				£	7,275.40
7.5% prelims				£	545.66
10% contingencies				£	727.54
Total				£	8,548.60

ped crossing. 20k basic
toucan 25k

Approx from spons

simple 4 pole cross roads 35k
with extra controllers 40k



Pedestrian Buildouts

Source - areas / volumes taken from acad. Rates based upon term contract where available

Subject to Detail Design

No allowance made for Stats or existing street lighting

By JL
date

Description	Qty	Unit	Rate	Amount
Full Road Construction	0	m2		
:Block Paving - on existing C/W	0	m2		
:Block Paving - on existing C/W - parking bay	0	m2		
:Road relay - WC	0	m2		
:carriageway - rigid (layby)	0	m2		
:Speed table / cushion on existing CW	0	m2		
:Footway - full construction	10	m2		
:Footway relay WC	0	m2		
:Footway on existing c/w	0	m2		
:Footway - block paving on existing CW	0	m2		
:Footway - block paving on existing FW	0	m2		
:verge on existing c/w	0	m2		
:verge	0	m2		
:Road construction - full construction				
:Surfacing 30mm SMA (wearing course)	0	m2	25.00	£ -
:Base course 70mm HDM (base course)	0	m2	23.00	£ -
:road base 200mm HDM (road base)	0	m2	40.00	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Block Paving - on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Block Paving - on existing C/W - parking bay				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:road base 30mm HDM regulating (road base)	0	m2	8.67	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 40mm	0	m2	6.93	£ -
:Road construction - rigid - layby				
:225 concrete slab				
:a625 mesh				
:1000 gauge PE membrane				
:Total cost	0	m2	26.89	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Speed table / cushion on existing CW				
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 30mm	0	m2	6.93	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Anti skid surfacing	0	m2	25.00	£ -
:Cycleway coloured surfacing	0	m2	25.00	£ -
:Footway construction - Full				
:Surfacing 30mm Rolled asphalt	10	m2	7.16	£ 71.60
:Binder course 100mm Dense macadam	10	m2	14.59	£ 145.90
:type 1 sub base 150mm thick	2	m3	43.51	£ 65.27
:Footway construction - relay				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 50mm Dense macadam - regulating	0	m2	7.30	£ -
:scarify 30mm	0	m2	5.20	£ -
:Footway on existing C/W				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:road base 120mm HDM (road base)	0	m2	17.33	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing FW				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Earthworks				
:Excavation of acceptable material - for cw construction 0.9				
:depth	0	m3	8.96	£ -
:Excavation of acceptable material - f way 0.28 depth	3	m3	8.96	£ 25.09
:Excavation of acceptable material	0	m3	8.96	£ -
:Disposal of acceptable material	3	m3	17.91	£ 50.15
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Disposal of scarified material (100mm)	0	m3	17.91	£ -
:Disposal of scarified material (30mm)	0	m3	17.91	£ -
:Disposal of scarified material (25mm)	0	m3	17.91	£ -
:Seeding	0	m2	4.00	£ -
:Topsoil + seeding	0	m2	14.00	£ -
:kerbing				
:HB2	10	m	24	£ 240.00
:BN	0	m	24	£ -
:edging EF	5	m	12	£ 60.00
:Kassel kerbing	0	m	120	£ -
:Tactile paving				
:400x400 paviour laid on on 30mm sand	4	m2	40.00	£ 160.00

40mm £ 35.00
70m £ 23.00
150mm £ 30.00
£ 30.00

£ 24.00
£ 24.00
£ 12.00

seems high

Street lighting columns	0	No	1500	£	-
Signal installation - Ped crossing	0	No	18000	£	-
Bus shelter	0	No	6500	£	-
Site clearance					
General				£	-
Remove kerbs + dispose	5	m	8	£	40.00
Remove 2m high wall	0	m	47.25	£	-
Break out existing concrete c/w	0	m3	40.00	£	-
Street furniture					
Trees - tree pit (excavation + disposal) + soil + grating	0	No	1000	£	-
bollards	0	No	200	£	-
bench's	0	No	400	£	-
gateway features	0	No	1500	£	-
planter / feature	0	No	400	£	-
Drainage					
Gully + frame	1	No	255	£	255.00
Gully connections 150mm dia	10	m	56	£	560.00
Connection 150 / 450	0	No	65	£	-
Manhole + cover	0	No	2000	£	-
carrier drain	0	m	120	£	-
Signing and lining					
lining			rate		
signs 1 to 2m2 on steel post	2	no	600	£	1200.00
sign post and base	0	no	300	£	-
bollards (illuminated and complete)	0	no	343.2	£	-
Traffic signals	0	no	rate	£	-
Traffic Management - provisional				£	2,000.00
				£	4,873.00
7.5% prelims				£	365.48
10% contingencies				£	487.30
Total				£	5,725.78

ped crossing. 20k basic
toucan 25k

Approx from spons

G

simple 4 pole cross roads 35k
with extra controllers 40k



Road Markings and Signage

Source - areas / volumes taken from acad. Rates based upon term contract where available

Subject to Detail Design

No allowance made for Stats or existing street lighting

By JL
date

Description	Qty	Unit	Rate	Amount
Full Road Construction	0	m2		
:Block Paving - on existing C/W	0	m2		
:Block Paving - on existing C/W - parking bay	0	m2		
:Road relay - WC	0	m2		
:carriageway - rigid (layby)	0	m2		
:Speed table / cushion on existing CW	0	m2		
:Footway - full construction	0	m2		
:Footway relay WC	0	m2		
:Footway on existing c/w	0	m2		
:Footway - block paving on existing CW	0	m2		
:Footway - block paving on existing FW	0	m2		
:verge on existing c/w	0	m2		
:verge	0	m2		
:Road construction - full construction				
:Surfacing 30mm SMA (wearing course)	0	m2	25.00	£ -
:Base course 70mm HDM (base course)	0	m2	23.00	£ -
:road base 200mm HDM (road base)	0	m2	40.00	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Block Paving - on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Block Paving - on existing C/W - parking bay				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:road base 30mm HDM regulating (road base)	0	m2	8.67	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 40mm	0	m2	6.93	£ -
:Road construction - rigid - layby				
:225 concrete slab				
:a625 mesh				
:1000 gauge PE membrane				
:Total cost	0	m2	26.89	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Speed table / cushion on existing CW				
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 30mm	0	m2	6.93	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Anti skid surfacing	0	m2	25.00	£ -
:Cycleway coloured surfacing	0	m2	25.00	£ -
:Footway construction - Full				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 100mm Dense macadam	0	m2	14.59	£ -
:type 1 sub base 150mm thick	0	m3	43.51	£ -
:Footway construction - relay				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 50mm Dense macadam - regulating	0	m2	7.30	£ -
:scarify 30mm	0	m2	5.20	£ -
:Footway on existing C/W				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:road base 120mm HDM (road base)	0	m2	17.33	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing FW				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Earthworks				
:Excavation of acceptable material - for cw construction 0.9				
:depth	0	m3	8.96	£ -
:Excavation of acceptable material - f.way 0.28 depth	0	m3	8.96	£ -
:Excavation of acceptable material	0	m3	8.96	£ -
:Disposal of acceptable material	0	m3	17.91	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Disposal of scarified material (100mm)	0	m3	17.91	£ -
:Disposal of scarified material (30mm)	0	m3	17.91	£ -
:Disposal of scarified material (25mm)	0	m3	17.91	£ -
:Seeding	0	m2	4.00	£ -
:Topsoil + seeding	0	m2	14.00	£ -
:kerbing				
:HB2	0	m	24	£ 24.00
:BN	0	m	24	£ 24.00
:edging EF	0	m	12	£ 12.00
:Kassel kerbing	0	m	120	£ -
:Tactile paving				
:400x400 paviour laid on on 30mm sand	0	m2	40.00	£ -

£ -

40mm £ 35.00
70m £ 23.00
150mm £ 30.00
£ 30.00

£ -

0

£ 24.00
£ 24.00
£ 12.00

seems high

Street lighting columns	0	No	1500	£	-
Signal installation - Ped crossing	0	No	18000	£	-
Bus shelter	0	No	6500	£	-
Site clearance					
General				£	-
Remove kerbs + dispose	0	m	8	£	-
Remove 2m high wall	0	m	47.25	£	-
Break out existing concrete c/w	0	m3	40.00	£	-
Street furniture					
Trees - tree pit (excavation + disposal) + soil + grating	0	No	1000	£	-
bollards	0	No	200	£	-
benches	0	No	400	£	-
gateway features	0	No	1500	£	-
planter / feature	0	No	400	£	-
Drainage					
Gully + frame	0	No	255	£	-
Gully connections 150mm dia	0	m	56	£	-
Connection 150 / 450	0	No	65	£	-
Manhole + cover	0	No	2000	£	-
carrier drain	0	m	120	£	-
Signing and lining					
lining			rate		
signs 1 to 2m2 on steel post	0	no	600	£	5,400.00
sign post and base	0	no	300	£	-
bollards (illuminated and complete)	0	no	343.2	£	-
Traffic signals	0	no	rate	£	-
Traffic Management - provisional				£	2,000.00
				£	7,400.00
7.5% prelims				£	555.00
10% contingencies				£	740.00
Total				£	8,695.00

ped crossing. 20k basic
toucan 25k

Approx from spons

G

simple 4 pole cross roads 35k
with extra controllers 40k



Speed Humps

Source - areas / volumes taken from acad. Rates based upon term contract where available

Subject to Detail Design

No allowance made for Stats or existing street lighting

By JL
date

Description	Qty	Unit	Rate	Amount
Full Road Construction	0	m2		
:Block Paving - on existing C/W	0	m2		
:Block Paving - on existing C/W - parking bay	0	m2		
:Road relay - WC	0	m2		
:carriageway - rigid (layby)	0	m2		
:Speed table / cushion on existing CW	25	m2		
:Footway - full construction	0	m2		
:Footway relay WC	0	m2		
:Footway on existing c/w	0	m2		
:Footway - block paving on existing CW	0	m2		
:Footway - block paving on existing FW	0	m2		
:verge on existing c/w	0	m2		
:verge	0	m2		
:Road construction - full construction				
:Surfacing 30mm SMA (wearing course)	0	m2	25.00	£ -
:Base course 70mm HDM (base course)	0	m2	23.00	£ -
:road base 200mm HDM (road base)	0	m2	40.00	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Block Paving - on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Block Paving - on existing C/W - parking bay				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:road base 30mm HDM regulating (road base)	0	m2	8.67	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 40mm	0	m2	6.93	£ -
:Road construction - rigid - layby				
:225 concrete slab				
:a625 mesh				
:1000 gauge PE membrane				
:Total cost	0	m2	26.89	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Speed table / cushion on existing CW				
:Surfacing 30mm SMA (wearing course)	25	m2	10.45	£ 261.30
:Base course 70mm HDM (base course)	25	m2	9.55	£ 238.80
:Tack coat	50	m2	0.50	£ 25.00
:scarify 30mm	25	m2	6.93	£ 173.25
:Disposal of scarified material (40mm)	1	m3	17.91	£ 13.43
:Anti skid surfacing	0	m2	25.00	£ -
:Cycleway coloured surfacing	0	m2	25.00	£ -
:Footway construction - Full				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 100mm Dense macadam	0	m2	14.59	£ -
:type 1 sub base 150mm thick	0	m3	43.51	£ -
:Footway construction - relay				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 50mm Dense macadam - regulating	0	m2	7.30	£ -
:scarify 30mm	0	m2	5.20	£ -
:Footway on existing C/W				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:road base 120mm HDM (road base)	0	m2	17.33	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 25mm	0	m2	5.20	£ -
:Footway - block paving on existing FW				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Earthworks				
:Excavation of acceptable material - for cw construction 0.9				
:depth	0	m3	8.96	£ -
:Excavation of acceptable material - f.way 0.28 depth	0	m3	8.96	£ -
:Excavation of acceptable material	0	m3	8.96	£ -
:Disposal of acceptable material	0	m3	17.91	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Disposal of scarified material (100mm)	0	m3	17.91	£ -
:Disposal of scarified material (30mm)	0	m3	17.91	£ -
:Disposal of scarified material (25mm)	0	m3	17.91	£ -
:Seeding	0	m2	4.00	£ -
:Topsoil + seeding	0	m2	14.00	£ -
:kerbing				
:HB2	0	m	24	£ 24.00
:BN	0	m	24	£ 24.00
:edging EF	0	m	12	£ 12.00
:Kassel kerbing	0	m	120	£ -
:Tactile paving				
:400x400 paviour laid on on 30mm sand	0	m2	40.00	£ -

£ -

40mm £ 35.00
70m £ 23.00
150mm £ 30.00
£ 30.00

£ -

0

£ 24.00
£ 24.00
£ 12.00

seems high

Street lighting columns	0	No	1500	£	-
Signal installation - Ped crossing	0	No	18000	£	-
Bus shelter	0	No	6500	£	-
Site clearance					
General				£	-
Remove kerbs + dispose	0	m	8	£	-
Remove 2m high wall	0	m	47.25	£	-
Break out existing concrete c/w	0	m3	40.00	£	-
Street furniture					
Trees - tree pit (excavation + disposal) + soil + grating	0	No	1000	£	-
bollards	0	No	200	£	-
benches	0	No	400	£	-
gateway features	0	No	1500	£	-
planter / feature	0	No	400	£	-
Drainage					
Gully + frame	0	No	255	£	-
Gully connections 150mm dia	0	m	56	£	-
Connection 150 / 450	0	No	65	£	-
Manhole + cover	0	No	2000	£	-
carrier drain	0	m	120	£	-
Signing and lining					
lining			rate	£	200.00
signs 1 to 2m2 on steel post	0	no	600	£	-
sign post and base	0	no	300	£	-
bollards (illuminated and complete)	0	no	343.2	£	-
Traffic signals	0	no	rate	£	-
Traffic Management - provisional				£	2,000.00
				£	2,911.78
7.5% prelims				£	218.38
10% contingencies				£	291.18
Total				£	3,421.34

ped crossing. 20k basic
toucan 25k

Approx from spons

G

simple 4 pole cross roads 35k
with extra controllers 40k



Public Realm

Source - areas / volumes taken from acad. Rates based upon term contract where available

Subject to Detail Design

No allowance made for Stats or existing street lighting

By JL
date

Description	Qty	Unit	Rate	Amount
Full Road Construction	0	m2		
:Block Paving - on existing C/W	200	m2		
:Block Paving - on existing C/W - parking bay	0	m2		
Road relay - WC	0	m2		
carriageway - rigid (layby)	0	m2		
Speed table / cushion on existing CW	0	m2		
Footway - full construction	0	m2		
Footway relay WC	0	m2		
Footway on existing c/w	0	m2		
Footway - block paving on existing CW	0	m2		
Footway - block paving on existing FW	0	m2		
verge on existing c/w	0	m2		
verge	0	m2		
Road construction - full construction				
:Surfacing 30mm SMA (wearing course)	0	m2	25.00	£ -
:Base course 70mm HDM (base course)	0	m2	23.00	£ -
:road base 200mm HDM (road base)	0	m2	40.00	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
:Block Paving - on existing C/W				
:65mm Block paviour layed on 35mm sand	200	m2	40.00	£ 8,000.00
:scarify 100mm	200	m2	17.33	£ 3,465.00
:Block Paving - on existing C/W - parking bay				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:road base 30mm HDM regulating (road base)	0	m2	8.67	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 40mm	0	m2	6.93	£ -
Road construction - rigid - layby				
225 concrete slab				
a625 mesh				
1000 gauge PE membrane				
Total cost	0	m2	26.89	£ -
:type 1 sub base 600mm thick (sub base)	0	m3	43.51	£ -
Speed table / cushion on existing CW				
:Surfacing 30mm SMA (wearing course)	0	m2	10.45	£ -
:Base course 70mm HDM (base course)	0	m2	9.55	£ -
:Tack coat	0	m2	0.50	£ -
:scarify 30mm	0	m2	6.93	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Anti skid surfacing	0	m2	25.00	£ -
:Cycleway coloured surfacing	0	m2	25.00	£ -
Footway construction - Full				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 100mm Dense macadam	0	m2	14.59	£ -
:type 1 sub base 150mm thick	0	m3	43.51	£ -
Footway construction - relay				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:Binder course 50mm Dense macadam - regulating	0	m2	7.30	£ -
:scarify 30mm	0	m2	5.20	£ -
Footway on existing C/W				
:Surfacing 30mm Rolled asphalt	0	m2	7.16	£ -
:road base 120mm HDM (road base)	0	m2	17.33	£ -
:scarify 25mm	0	m2	5.20	£ -
Footway - block paving on existing C/W				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 25mm	0	m2	5.20	£ -
Footway - block paving on existing FW				
:65mm Block paviour layed on 35mm sand	0	m2	40.00	£ -
:scarify 100mm	0	m2	17.33	£ -
Earthworks				
:Excavation of acceptable material - for cw construction 0.9				
:depth	0	m3	8.96	£ -
:Excavation of acceptable material - f.way 0.28 depth	0	m3	8.96	£ -
:Excavation of acceptable material	0	m3	8.96	£ -
:Disposal of acceptable material	0	m3	17.91	£ -
:Disposal of scarified material (40mm)	0	m3	17.91	£ -
:Disposal of scarified material (100mm)	20	m3	17.91	£ 358.20
:Disposal of scarified material (30mm)	0	m3	17.91	£ -
:Disposal of scarified material (25mm)	0	m3	17.91	£ -
Seeding	0	m2	4.00	£ -
:Topsoil + seeding	0	m2	14.00	£ -
kerbing				
:HB2	120	m	24	£ 2,880.00
:BN	0	m	24	£ -
:edging EF	0	m	12	£ -
:Kassel kerbing	0	m	120	£ -
Tactile paving				
:400x400 paviour laid on 30mm sand	10	m2	40.00	£ 400.00

40mm £ 35.00
70m £ 23.00
150mm £ 30.00
£ 30.00

£ 24.00
£ 24.00
£ 12.00

seems high

Street lighting columns	0	No	1500	£	-
Signal installation - Ped crossing	0	No	18000	£	-
Bus shelter	0	No	6500	£	-
Site clearance					
General				£	5,000.00
Remove kerbs + dispose	0	m	8	£	-
Remove 2m high wall	0	m	47.25	£	-
Break out existing concrete c/w	0	m3	40.00	£	-
Street furniture					
Trees - tree pit (excavation + disposal) + soil + grating	0	No	1000	£	-
bollards	0	No	200	£	-
benches	0	No	400	£	-
gateway features	0	No	1500	£	-
planter / feature	0	No	400	£	-
Drainage					
Gully + frame	4	No	255	£	1,020.00
Gully connections 150mm dia	40	m	56	£	2,240.00
Connection 150 / 450	0	No	65	£	-
Manhole + cover	0	No	2000	£	-
carrier drain	0	m	120	£	-
Signing and lining					
lining			rate	£	500.00
signs 1 to 2m2 on steel post	2	no	600	£	1,200.00
sign post and base	0	no	300	£	-
bollards (illuminated and complete)	0	no	343.2	£	-
Traffic signals	0	no	rate	£	-
Traffic Management - provisional				£	12,000.00
				£	37,063.20
7.5% prelims				£	2,779.74
10% contingencies				£	3,706.32
Total				£	43,549.26

ped crossing. 20k basic
toucan 25k

Approx from spons

simple 4 pole cross roads 35k
with extra controllers 40k

G

Birmingham

☎ 0121 794 8390

London

☎ 020 7293 0217

Manchester

☎ 0161 974 3208

Oxford

☎ 01865 389 440

✉ info@modetransport.co.uk

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