Appeal by Ministry of Justice
Land adjacent to HMP Garth and HMP Wymott, Leyland Appeal Ref: APP/D2320/W/22/3295556

Updated Proof of Evidence of Kevin Riley

on behalf of Chorley Council

Contents

1 INTRODUCTION

1.1 APPOINTMENT

1.1.1 My name is Kevin George Riley. I am Director at WSP, based in our Liverpool Office, regularly working across the North West of England. I was appointed by Chorley Council to advise on transport matters in relation to a proposed development on the appeal site. The appeal site is on land adjacent to HMP Wymott and HMP Garth. With regards to this planning appeal, I will be providing evidence in relation to transport on behalf of Chorley Council.

1.2 QUALIFICATIONS

1.2.1 I hold a Batchelor of Science (with Honours) in Geography with Environmental Studies from Manchester Polytechnic (now Manchester Metropolitan University) and a Masters Degree in Transport Engineering and Planning from the University of Salford. I am a guest lecturer on that MSc course and have been for around 19 years. I have been a member of the Chartered Institute of Logistics and Transport and the Transport Planning Society. At the latter I was National Secretary. I regularly prepare and present papers on transport matters and their relationship with development.

1.3 RELEVANT EXPERIENCE

1.3.1 I have 30 years Transport Planning and Engineering experience within both the public and private sector where I have been involved in both design and strategy projects across the UK, including many development and regeneration related projects. I also have significant experience in considering non-car modes in both urban and rural environments.

1.3.2 I have worked for WSP as a Director for nearly 5 years. Prior to that I worked for Mott MacDonald as Projects Director for 5 years, including various projects related to major development proposals of all types. Prior to that I led AECOM's Northwest Development Planning team and Liverpool Office Transportation Team for 10 years. I have also worked for a local authority, (Manchester City Council), London Transport, and another consultancy (PBA).

1.3.3 Throughout my career my role has focused on providing access to regeneration and development sites across the UK working on both design and strategy, including scheme design matters. I have extensive experience across Lancashire, working on projects for both public and private sector clients in the County. I understand the context that this proposal lies within well, having worked in this geography numerous times over the last 15-20 years.

1.3.4 I was the transport witness at the first Inquiry and am therefore familiar with the background to this appeal.

1.3.5 I have not elaborated on matters which are contained within a Statement of Common Ground between Chorley Council and Cushman and Wakefield.

1.3.6 The focus of my proof is on the new evidence for which this Inquiry relates, however I will pay due cognisance to all previous evidence and the Inspector's report. I will refer to the documents by the core document reference number and the pdf page number for ease.

1.3.7 I will review the merits of the proposals and provide my expert opinion on outstanding transport matters related to the site.

1.3.8 In providing this evidence I am aware that my duty is to the Inquiry to provide my professional view irrespective of by whom I am instructed. Accordingly, I can confirm that my Proof of Evidence which I have prepared in respect of this Inquiry has been prepared and is given in accordance with the guidance of my professional Institutions and I confirm that the opinions expressed are my true and professional opinions.

1.3.9 I have visited the site and surrounding area for the purposes of this Inquiry and regularly travel through the Chorley and South Ribble area in both a professional and private capacity. I regularly liaise with Lancashire County Council (LCC) Highways Development Control team on a range of commissions that I am involved in and understand their remit to respond to developments across the county as Local Highway Authority (LHA).

1.4 PROPOSALS

1.4.1 Planning application 21/01028/OUTMAJ is for a new prison adjacent to HMP Wymott and HMP Garth. The site is located off Moss Lane, Ulnes Walton, Leyland. It is a Hybrid application, with outline planning permission being sought for the new prison (with all matters reserved except for means of access, parking and landscaping), outline planning permission being sought for a new boiler house (with all matters reserved except for access), and full planning permission being sought for a replacement bowling green and club house.

1.5 BACKGROUND

1.5.1 Following the 'minded to grant' decision by the Secretary of State (SoS) (Core Document L1) and the subsequent submission of additional highways evidence by the Appellant (CD M3 and M3a), Chorley Council and Ulnes Walton Action Group (UWAG) requested the re-opening of the Inquiry.

1.5.2 Whilst it is acknowledged that LCC, as the LHA, has not objected to the proposals, the LHA similarly did not object at the time of the first Inquiry where the Inspector agreed with Chorley Council in his recommendation that the appeal be dismissed.

1.5.3 Similar to the previous Inquiry, I will set out in my Proof of Evidence the reasoning why the additional information and revised mitigation proposals put forward by the Appellant is still insufficient to mitigate the safety impacts of the proposed scheme.

1.6 DOCUMENTS REFERENCED

1.6.1 There have been numerous documents submitted as part of the previous Inquiry, in addition to new documents for the re-opened Inquiry. The documents I will specifically refer to in my Proof of Evidence are as follows:

- A22 Noise and Vibration Impact Assessment
- A35 Transport Assessment
- A37 Transport Assessment – Technical Addendum
- L1 January 2023 Decision Letter and Inspector's Report
- M3 Appellant Additional Highways Evidence March 2023
- M3a Appellant Additional Highways Evidence Appendices March 2023
- E5 Noise Proof of Evidence by Mr Eddy Goldsmith
- F1 Transport Proof of Evidence of Kevin Riley

1.7 SCOPE OF EVIDENCE

1.7.1 My proof of evidence is set out as follows:

- Section 1 – Outlines my qualifications and experience.
- Section 2 – considers the Appellant's proposed mitigation measures on Ulnes Walton Lane.
- Section 3 – considers the Appellant's proposed mitigation measures with regard to the footway being provided between Ulnes Walton Lane and Moss Lane.
- Section 4 – considers the Appellant's proposed mitigation measures on Moss Lane.
- Section 5 – considers the Appellant's proposed mitigation measures at the A581/Ulnes Walton Lane junction.
- Section 6 – considers the Appellant's construction traffic assessment.
- Section 7 – provides a summary and the conclusions.

1.8 UPDATE

1.8.1 This Proof of Evidence has been updated to take account of the new release of the National Planning Policy Framework in December 2023. As such, this replaces my original Proof of Evidence dated 22/08/23. Although it should be noted that the only change is an update to the NPPF paragraph numbering as a result of the new release in December 2023 (updated at 7.1.3 of this proof).

2 ULNES WALTON LANE CARRIAGEWAY MARKINGS AND TRAFFIC CALMING

2.1.1 As set out at the previous Inquiry, there was no evidence before the Inquiry of a scheme that would mitigate the road safety impacts on Ulnes Walton Lane south of its junction with Moss Lane, despite the numerous safety issues with the road including:

- The Ulnes Walton Lane/Moss Lane junction has a sweeping radius on the north-western side which promotes fast speeds for left-turning traffic form Ulnes Walton Lane south into Moss Lane.
- The curvature of Ulnes Walton Lane on this section results in poor forward visibility for right-turning traffic from Ulnes Walton Lane north to Moss Lane.
- A post box is located on the north-western side of Ulnes Walton Lane at the junction with Moss Lane, a bus stop is located on the north-eastern side and another stop located to the south of the junction.
- Ulnes Walton Lane is a two-way, single carriageway road with residential and farm accesses along its length.
- There are multiple Public Rights of Way (PRoW) that intersect with Ulnes Walton Lane.
- Ulnes Walton Lane is part of the Lancashire Cycleway, and is signed as such, although it is not LTN1/20 compliant.
- There is no formal footway provision.
- Pedestrians, cyclists and equestrians are all on road along this section and will be exposed to increased risk of accidents due to the increase in development traffic.
- Whilst there are narrow grass verges and drainage ditches adjacent to the carriageway, these are not suitable for pedestrians walking.
- There are no formal crossing facilities for pedestrians, cyclists nor equestrians.
- The carriageway has multiple bends in the road with poor forward visibility in places.
- The road is lined with dense hedges, which are overhanging in places.
- Ulnes Walton Lane is subject to a 40mph speed restriction from the A581 until The Oaks bus stop where a 30mph speed restriction starts.
- There were 3 Personal Injury Accidents (PIA)s recorded on the southern section of Ulnes Walton Lane from Moss Lane to the A581 and a further 2 PIA at the junction with the A581 over the five-year period assessed in the original TA (2016 to 2020).

2.1.2 At the time of the Inquiry, the mitigation on Ulnes Walton Lane was limited to the section north of Moss Lane, with no scheme at the junction with Moss Lane nor on Ulnes Walton Lane to the south, despite a significant volume of operational traffic generated by the proposed scheme routing along this section towards the A581 – a total of 744 total vehicles per day.

2.1.3 The Inspector also noted the absence of a mitigation scheme in the decision letter (The Inspector's report (L1 pdf pages 72 and 73):

""13.22 ….there are hazards and risks associated with different parts of the local road network that are relevant to this proposal. Ulnes Walton Lane is a narrow 40mph country lane with several bends. The junction with Moss Lane is on a bend where forward visibility looking south is restricted for vehicles turning right into Moss Lane. With the development in place, there would be an increase in queuing and waiting times for traffic turning right. This part of the junction would be close to capacity based on an estimated 0.82 RFC, with a PCU queue of 4.4 vehicles…

13.24. The appellant's proposed traffic calming measures for either side of the junction would involve a replacement chevron sign and new coloured surface treatment at the bend to the north, and reference to reviewing and amending existing road markings at the junction. Additional measures, including further south on Ulnes Walton Lane, are said by the appellant to be similar to those found elsewhere on the lane, but there are no drawings or agreements with the LHA on specific details. Moreover, the appellant does not propose to provide footways linking the northbound bus stop to the footway on Moss Lane, meaning that people would continue to walk in the road or on the verge to access bus services. Thus, there would be an increased risk of vehicle and pedestrian conflicts at the junction that would not be adequately mitigated."

2.1.4 As set out in M3 – section 2.4 (pdf page 11) and M3a – Appendix B (pdf page 8), a new scheme has subsequently been drawn up by the Appellant which includes:

- New chevron warning signs on yellow backing boards;
- Additional 40mph repeater signs along Ulnes Walton Lane;
- New high friction surfacing through the junction; and
- New advanced warning signage on yellow backing boards.

2.1.5 The scheme is focussed on the Moss Lane/Ulnes Walton Lane junction and only on the Ulnes Walton Lane approaches – the extent of the proposals do not extend into Moss Lane at this location.

2.1.6 The new advanced warning 'bend ahead' signs in both directions will be an improvement, however the Appellant has not proposed any other additional mitigation measures for the remaining southern section of Ulnes Walton Lane. The extent of the 'improvement' ends just 110 metres south of the Moss Lane junction, despite the Appellant's trip distribution indicating that the southern section of Ulnes Walton Lane will be used by 55% of the development's operational traffic (A35 – paragraph 7.2.5 – pdf page 38), and during the five-year construction period 55% of construction workforce traffic and 100% of construction HGVs (M3 – paragraphs 6.4.16-17 – pdf page 32).

2.1.7 This equates to 744 vehicles per day during operation (F1 – *Development percentage impact in traffic table* – pdf page 18), and 482 vehicles per day during the peak of construction, of which there could be 64 HGV vehicles per day (M3 – table 6.2 – pdf page 31).

2.1.8 It should be noted that the Appellant has commissioned two independent Road Safety Audits (RSA) by Hydrock and Via, which are included in M3a – appendices C and D, respectively.

2.1.9 I note that the Via RSA (M3a – Appendix D – pdf page 37) had concerns with the location of the 'bend ahead' sign on the northbound approach given the presence of vegetation and its lack of maintenance could prevent the sign being seen by approaching drivers:

"*4.1 On the northbound approach to Moss Lane there is a proposed junction warning sign (Dia. 512) on the nearside of Ulnes Walton Lane. The indicative position of the sign appears to be close to, and partly behind, existing overhanging trees in the verge/adjacent garden. As a result the sign may become obscured by foliage, resulting in drivers receiving reduced warning of the junction ahead. This may lead to an increase in the number and severity of accidents at the junction. This would include collisions with emerging side road vehicles, or shunting of vehicles which slow to turn off Ulnes Walton Lane.*"

2.1.10 The new chevron warning signs proposed at the Moss Lane junction will simply replace the existing signs in similar locations. The issue with the existing signage is that it cannot be seen due to overgrown vegetation where maintenance is clearly an issue, and this will similarly occur for the new signs so they will be just as ineffective.

2.1.11 I also note the Via RSA (M3a – Appendix D – pdf page 37) had concerns with the location of the chevron signs:

"*4.2 There are proposed chevrons signs (Dia. 515) to warn drivers on Ulnes Walton Lane of the bend at the Moss Lane junction. As shown they will not be sufficiently visible to approaching drivers, as their orientation is virtually parallel to the carriageway. Ideally they should be nearer to perpendicular to the approaching carriageway, so that they are more fully visible. Reduced warning may lead to loss of control injury accidents as drivers enter the bend too quickly.*"

2.1.12 I also doubt how effective the new 40 mph repeater signs will be on drivers who use the route regularly, and, given it is simply one additional sign in each direction, and will not extend further south than the existing southbound bus stop (approximately 75 metres south of the Moss Lane junction).

2.1.13 There is evidence of speeding issues on the southern section of Ulnes Walton Lane with a flashing speed indicator sign for northbound traffic (towards the Prison) located on the southernmost section of Ulnes Walton Lane (in the vicinity of the equine centre lay-by). Presumably this was installed by the LHA and confirms that there are concerns of existing safety issues on this section of Ulnes Walton Lane, and the Appellant has not considered any mitigation other than at the Moss Lane and A581 junctions.

2.1.14 The new high friction surfacing through the junction will also aid with increasing grip for vehicles, however, I note the annotations on the plan indicate this as being a 'raised table' which is not the case as there are no ramp features and the surfacing does not extend into Moss Lane. This will unlikely have any impact on reducing speeds without any vertical features.

2.1.15 There has been no attempt to improve forward visibility for drivers turning right into Moss Lane to access the appeal site, which will remain impaired.

2.1.16 As Ulnes Walton Lane is subject to a 40-mph speed limit, based on DMRB, CD109 Table 2.10, the required forward visibility, known as "stopping sight distance" (SSD), is 120m (at the equivalent 70 kph design speed). An extract of the guidance is set out below:

Table 2.10 Design speed related parameters

Design speed kph	120	100	85	70	60	50	V2/R
Stopping sight distance (metres)							
Desirable minimum	295	215	160	120	90	70	-
One step below desirable minimum	215	160	120	90	70	50	-
Horizontal curvature (metres)							
Minimum R* with adverse camber and without transitions	2880	2040	1440	1020	720	520	5
Minimum R* with superelevation of 2.5%	2040	1440	1020	720	510	360	7.07
Minimum R* with superelevation of 3.5%	1440	1020	720	510	360	255	10
Desirable minimum R (superelevation 5%)	1020	720	510	360	255	180	14.14
One step below desirable Minimum R (superelevation 7%)	720	510	360	255	180	127	20
Two steps below desirable minimum radius (superelevation 7%)	510	360	255	180	127	90	28.28
Vertical curvature							
Desirable minimum* crest K value	182	100	55	30	17	10	-
One step below desirable min crest K value	100	55	30	17	10	6.5	-
Desirable minimum sag K value	37	26	20	20	13	9	-
Overtaking sight distances							
Full overtaking sight distance FOSD (metres)	-	580	490	410	345	290	-
FOSD overtaking crest K value	-	400	285	200	142	100	-
* Not recommended for use in the design of single carriageways (see Section 9)							
The V^2/R values shown above simply represent a convenient means of identifying the relative levels of design parameters, irrespective of design speed.							

CD 109 Revision 1

2.1.17 Whilst the required SSD is 120 metres, the achievable SSD is 63 metres, as illustrated on 7769-WSP-SK-014 in Appendix A of this Proof. This also is dependent on hedgerows being regularly maintained, which as I set out and evidenced at the previous Inquiry is not the case. I refer to the photographs in in the appendix to my original Proof (F1).

2.1.18 Whilst this is an existing issue, this will be exacerbated by the proposed development during both construction and operation, with more traffic right-turning into Moss Lane, as well as more traffic opposing this movement arriving from the south and therefore will increase the risk of vehicle-vehicle conflict. This has simply not been addressed.

2.1.19 Furthermore, the proposals do not provide for pedestrians who are required to cross near or at the junction nor a footway to allow them to walk safely on the southern side of Ulnes Walton Lane. Whilst there are proposals to improve the northbound bus stop and provision of a footway from Moss Lane to the bus stop on Ulnes Walton Lane, there is no provision for the alternative route.

2.1.20 There are numerous hazards along this section of Ulnes Walton Lane, with vulnerable road users travelling in the road on the Lancashire Cycleway; or needing to cross to access the equestrian centres, PRoW routes, and local services including the post box to the north-west of the Moss Lane junction and the bus stop to the south of the junction. None of these issues have been addressed in the mitigation schemes provided by the Appellant.

2.1.21 Put simply, the proposed improvements fall short of mitigating the impact of the significant increases of traffic associated with the construction and operation of the proposed scheme. The ‘improvements’ are minor and do not alleviate my serious concerns at this junction nor along the remaining southern section of Ulnes Walton Lane from its junction with Moss Lane south to the A581.

2.1.22 The scheme put forward by the Appellant does not consider the conditions along Ulnes Walton Lane, nor the increased exposure of existing and future users to increased traffic as a result of the proposals.

2.1.23 The scheme proposed still does not mitigate the full impact of the development proposals and does not fully address the safety concerns of the Council and Inspector.

3 FOOTWAY BETWEEN ULNES WALTON LANE AND MOSS LANE

3.1.1 As set out at the previous Inquiry, there was no evidence before the Inquiry of a scheme that would mitigate the road safety impacts for pedestrians travelling to the northbound bus stop on Ulnes Walton Lane nor the postbox on the north-western side of the Ulnes Walton Lane/Moss Lane junction.

3.1.2 The northbound bus stop is to be improved as part of a S278 agreement (previously a S106 contribution) as it will serve new and existing employees and visitors to the prison.

3.1.3 It is worth noting there is also a southbound bus stop on Ulnes Walton Lane, for which there are no proposed improvements.

3.1.4 The Inspector's report (L1 pdf page 73) states:

"*13.23 The junction also has a post box and bus stops either side which require users to walk on the verge or road. Although the number of people using these features is low, and there are similar facilities to the north on Willow Road, they are relied upon by residents on this section of Ulnes Walton Lane and people accessing the existing prisons. An increase in the number of vehicles using the junction (12 cars a minute in the AM peak) would create an increased risk of conflict with pedestrians.*"

3.1.5 It is noted that Lancashire County Council originally requested a footway be provided but the Appellant did not consider the request necessary at the time of the application (as set out in M3 – paragraph 3.2.2 – pdf page 13).

3.1.6 As set out in M3 – section 3.4 (pdf page 13) and M3a – Appendix B (pdf page 8), a new scheme has subsequently been drawn up by the Appellant which includes:

- a new 2m wide footway along Ulnes Walton Lane (from the existing northbound bus stop on Ulnes Walton Lane to the existing access junction for HMP Garth and HMP Wymott on Moss Lane; and
- tactile paving and a step free crossing point to allow pedestrians to cross Moss Lane and access the existing footway on the western side of the carriageway.

3.1.7 Whilst the tactile paving and step-free crossing point cannot be seen on the drawing in M3a – Appendix B (pdf page 8), I have reviewed M3a – Appendix G (pdf page 85) which shows the proposals further north on Moss Lane and this has confirmed that these are proposed to the north of the existing access point.

3.1.8 Whilst this mitigates the need for users of the northbound bus stop to walk in the road, this does not fully mitigate the impact for other local users of Ulnes Walton Lane and Moss Lane (as explained in I previously in section 2 of my Proof), including those travelling to the bus stop to the south of the Moss Lane junction and accessing the postbox on the north-western side of the Moss Lane junction. Both of which will still require pedestrians to walk in the road.

3.1.9 As I have set out, those pedestrians will be exposed to increased volumes of traffic during construction and operation, and significantly increased numbers of HGV traffic during construction.

4 MOSS LANE TRAFFIC CALMING

4.1.1 As set out at the previous Inquiry, there was no evidence before the Inquiry of a scheme that would mitigate the impact of increased vehicle traffic on Moss Lane, despite the numerous safety issues with the road including:

- Moss Lane is a two-way, single carriageway road without road markings.
- The road surface is poor and it has not been maintained, with cracks and potholes forming.
- No provision of pedestrian drop curbs nor tactile paving.
- There is only a footway along the western side of Moss Lane and only between the existing HMP Wymott and Garth access junction and Willow Road. The footway is also poorly maintained, it is uneven, with cracks and potholes forming.
- Moss lane is subject to a 30mph speed restriction. However, it is a wide, straight section of road with the potential for drivers to gain speed.
- The Automatic Traffic Count (ATC) survey undertaken by the appellant in March 2021, indicates an 85th percentile speed of 39.0mph northbound and 41.4mph southbound (A35 – section 3.3.1 – pdf page 15). Notably there are signs on Moss Lane on the approach to the residential area to the north signalling to drivers to "watch your speed" and "children at play".

4.1.2 Whilst there was a mitigation scheme proposed by the Appellant at the time of the previous Inquiry, this was basic "SLOW" road markings in the vicinity of the proposed new access, with no physical alterations nor deterrents for speeding.

4.1.3 The Inspector agreed and noted that vehicles would still be tempted to speed along Moss Lane (L1 pdf page 73):

"*13.27. Moss Lane is straight and relatively wide and suffers from excessive traffic speeds. The proposed traffic calming measures would involve 'slow' road markings and a narrowing of the carriageway in two locations, either side of the proposed new access towards the northern end of the road. It would assist with traffic speeds on the approach to the junction, although given the length of Moss Lane, it remains likely that vehicles would still be tempted to speed further south.*"

4.1.4 As set out in M3 – section 4.4 (pdf page 15) and M3a – Appendix G (pdf page 85), a new scheme has subsequently been drawn up by the Appellant which includes:

- 'Dragons Teeth' markings to indicate vehicles are entering a traffic calmed area;
- A raised table at the existing access to HMP Garth and HMP Wymott; and
- Traffic calming features with hatching to narrow carriageway (four in total).

4.1.5 It is noted that M3 – paragraph 4.4.2 (pdf page 15) also states:

"*The purpose of the enhanced traffic calming scheme is to reduce vehicle speeds along the entire length of Moss Lane and create a gateway feature at either end to make it apparent that vehicles are entering a traffic calming corridor.*"

4.1.6 It is my view that the existing speeding issues on Moss Lane with an 85th percentile speed of 39.0 mph northbound and 41.4 mph southbound (significantly above the posted speed limit of 30 mph) were in fact suppressed due to the nature of the poor road surface, with drivers wanting to avoid discomfort or damage to vehicles.

4.1.7 It is my view that the new scheme only differs slightly from the scheme at the previous Inquiry. The only physically restrictive feature proposed is the raised table at the most southern point of Moss Lane at the junction with the existing prison access. This would leave a more than 315 metre straight section of road where drivers travelling to and from the existing Wymott Village (approximately 225 metre section for visitors and employees of the new prison) could easily pick up speed on the approach to and from the raised table shown on the plans in M3a – Appendix G (pdf page 85).

4.1.8 The SLOW markings are simply a coloured surface and do not provide a physical deterrent to reduce speeds.

4.1.9 I also note that the visibility splays illustrated at the new access are 90.0 metres and therefore have been based on an 85th percentile speed of 30 mph (a design speed of 60 kph according to DMRB CD109 Table 2.10).

4.1.10 There is nothing to indicate that the speeds will be reduced to 30 mph, especially given the lack of physical deterrent, and given the existing 85th percentile speed is much higher at around 40 mph. I would therefore suggest it would be more appropriate to adopt a design speed of 70 kph, requiring a 120.0 metre visibility splay, as I have shown on 7769-WSP-SK-016 in Appendix A.

4.1.11 The raised table at the existing prison access also raises concerns. As designed, the raised table is for a short section and therefore a long wheel-based vehicle, such as a prison van, will be stopped partly on the raised table and partly off it, I have illustrated this using a 10.0m rigid vehicle on 7769-WSP-SK-010 in Appendix A of this Proof. This will lead to issues for vehicles setting off from a stop, and will require vehicles to provide more acceleration, potentially leading to unsafe manoeuvres.

4.1.12 It is my view that this scheme has not changed much from the initial proposal put before the previous Inquiry. It still does not address the safety concerns of the Inspector and it still does not fully mitigate the impact of the proposals at this location.

5 A581/ULNES WALTON LANE MITIGATION

5.1.1 As set out at the previous Inquiry, there was no evidence before the Inquiry of a scheme that would mitigate the agreed unacceptable (if unmitigated) impact of increased vehicle traffic generated by the development at the A581/Ulnes Walton Lane junction. The Appellant originally proposed a S106 contribution towards a wider corridor scheme on the A581 and suggested it could be spent on a signalised junction improvement scheme, for which there was a preliminary design with no assessment in terms of capacity nor safety.

5.1.2 It was also unclear as to whether the scheme could be delivered due to the presence of three private driveways on the southern side of the A581, opposite Ulnes Walton Lane, which were not fully considered in the signal design despite being part of the junction.

5.1.3 However, there was no assessment of the proposed scheme in capacity nor safety terms at the time of the Inquiry.

5.1.4 The Inspector agreed with the Council's highway witness and noted that a S106 contribution could not be considered without the provision of a design (which could be costed) and supporting traffic modelling to demonstrate that it would mitigate the capacity impacts:

"*13.32. Nevertheless, while the LHA has no objection to the proposed mitigation works for the A581 junction, it has not been demonstrated that the works would resolve capacity issues or that the financial contribution would be sufficient. The inability to satisfactorily mitigate the effects on this junction means that the proposal would have an unacceptable impact on highway safety.*"

5.1.5 It is noted that the Appellant is now seeking to deliver a mini-roundabout junction as mitigation, which will be delivered through a S278 Agreement.

5.1.6 It is understood that the mini-roundabout design originated from LCC as part of a wider funding application (M3a – Appendix I – pdf page 89) but has been progressed by the Appellant.

5.1.7 As set out in M3 – section 5.4 (pdf page 19) and M3a – Appendix J (pdf page 99), the new scheme includes:

- The provision of a raised table;
- The provision of speed cushions along the A581;
- Three new lighting columns on the Ulnes Walton Lane approach;
- Relocated speed limit signs along Ulnes Walton Lane to extend the existing 30mph zone;
- A reduced Inscribed Central Diameter (ICD); and
- Dragons Teeth on all approach arms.

5.1.8 There are numerous issues with the current priority T-junction including:

- Poor visibility for traffic turning out of Ulnes Walton Lane due to the presence of overgrown vegetation and hedgerows.
- The existing carriageway is narrow and vehicles turning right into Ulnes Walton Lane from the A581 east block the ahead movements (the A581 east to A581 west) resulting in vehicles forcing around stationary vehicles and mounting the footway due to the presence of dropped kerbs.
- The A581 provides direct access to residential properties and businesses, including a pub and a petrol station, and bus stops, in the vicinity of the junction with Ulnes Walton Lane.

- There is only a narrow footway on the south side of the A581 Southport Road on the approaches to the junction with Ulnes Walton Lane, and as set out previously, there are no footways on Ulnes Walton Lane.
- There are three private driveways within the junction itself accessed on the southern side opposite Ulnes Walton Lane.
- There is an existing access (for Barlow Moor Trailers) located just east of the junction.
- The tight turning radii and narrow road widths for the existing junction requires larger vehicles to cross onto the opposite side of the road to make manoeuvres.

5.1.9 I have serious concerns about the design of the proposed mini-roundabout which I set out in the following sections. Where relevant, I have also referred to the various issues identified by the Appellant's independent RSAs, which are summarised in M3 – Table 5-4 and Table 5-5 (pdf pages 22 and 23, respectively), with the full RSA reports contained in M3a – Appendix C and D.

5.2 SWEPT PATH ANALYSIS

5.2.1 The proposed mini roundabout junction does not provide sufficient space to make safe manoevres around the roundabout and this is demonstrated by the Swept Path Analysis that has been undertaken.

The Hydrock RSA (M3a – Appendix C – pdf page 17) identified this an issue:

Lack of available road space could increase the rise of collisions at the new mini roundabout (2.2)

5.2.2 The Hydrock RSA recommended "*an alternative junction solution such as a sheltered right lane is provided at this location*." (M3a – Appendix C – pdf page 17).

5.2.3 Similarly, the VIA RSA recommended that "*a redesigned layout may be required, or failing that, an alternative method of junction control may need to be explored*." (M3a – Appendix D – pdf page 28).

5.2.4 Put simply, the conclusion of the RSAs is that the mini roundabout in its current form is below standard, unacceptable, and a new design needs to be considered. I wholly agree that the solution as proposed is not acceptable from a safety perspective and does not mitigate the proposed development.

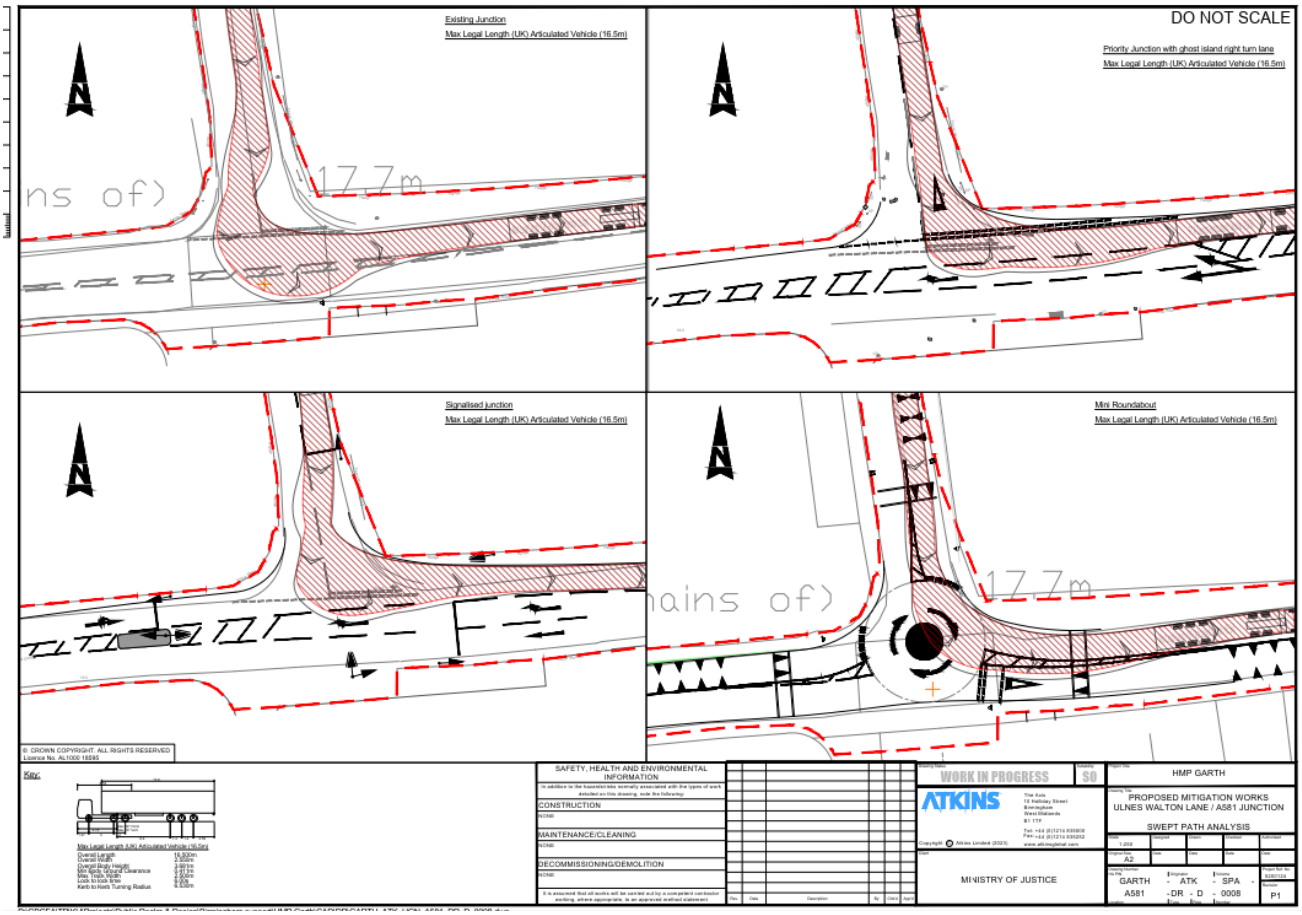
5.2.5 The Hydrock RSA recommendation to consider providing a sheltered right-turn lane will require widening the carriageway to allow right-turners to queue on the A581 east, as a right-turn lane cannot be accommodated within the adopted highway extents without compromising the lane widths or removing the existing footway.

5.2.6 It is my view that the Appellant has instead provided a scheme that minimises land take to ensure it falls within the adopted highway extents. The Appellant's design has not been predicated on safety but on the available space within the adopted highway. Because of the layout of the junction and the nature of the surrounding area (with existing accesses, etc) this has placed significant constraints on the Appellant and has forced them to promote the mini roundabout scheme.

5.2.7 In response to the Hydrock RSA, the Appellant has suggested (at M3 – paragraph 5.7.3 first bullet – pdf page 22) that the junction has been designed to "*address the specific capacity concerns*". I have concerns about the assessments presented, for reasons I will consider later in my Proof. Notwithstanding, the Appellant's response does not alleviate the RSA problem, which is related to safety aspects of the design, not capacity.

5.2.8 Secondly, in the response to the Hydrock RSA, the Appellant has stated (at M3 – at 5.7.3 second bullet – pdf page 22) *"the vehicle tracking demonstrates a betterment compared to other alternative forms of junction…*"

5.2.9 The Appellant has then referred to the swept path analysis that is shown in the Designer's Response Appendix E (M3a – Appendix E – Appendix E – pdf page 55). I have included an extract below for ease of reference.



5.2.10 As can be seen from the analysis, all of the alternative junction options considered are within the existing highway boundary (red dashed line) and all of them result in HGVs on the wrong side of the road. This is clearly unsafe.

5.2.11 The mini roundabout design of the junction (bottom right) cannot be considered a "*betterment*" compared to other solutions. All four plans show the HGV running onto the opposite side of the carriageway, because the road widths and size of the junctions are all similarly constrained by the adopted highway. If a vehicle is on the wrong side of the road, regardless to what extent, it is at risk of being in conflict with another vehicle and that is unsafe. It is simply not a case that any of the layouts above are better than another. They are all unsafe.

5.2.12 Whilst this is an existing issue for the existing priority junction (top left), this will be exacerbated by the proposals, not only with more HGVs making the manoeuvre, but also with an increase in other vehicles that could come into conflict with that movement in terms of the cars generated by the development.

5.2.13 The only consolation for the existing junction issue, is that currently the vehicles making that manoeuvre must give-way to the main road traffic with the junction being a priority junction, and therefore HGV drivers can try to ensure the road is clear before turning into the path of a potential oncoming vehicle. Although by today's standard a junction would not be designed as such as it is still not considered safe.

5.2.14 The alternative of providing a sheltered right-turn lane as recommended by the Hydrock RSA does not resolve the issue (as is shown in the top right). I would assume the RSA was suggesting widening sufficiently to allow the manoeuvre, rather than widening within the existing highway boundary and removing the southern footway on the A581, which is what the Appellant seems to have done. The Appellant's assessment does not consider any widening and the mini roundabout proposed is also within the existing highway boundary.

5.2.15 Whilst the Appellant considers that the alternative of providing a signalised junction (bottom left) does not appear to resolve the issue, I would expect the phasing and staging arrangements of the traffic signals could minimise the risk of a conflict by ensuring the right-turn bay (in the centre of the junction) has cleared, before the Ulnes Walton Lane approach received a green signal. This would ensure that the exit of the turning vehicle would be clear. However, it is worth noting that this scheme is not viable for other reasons. It appears similar to the scheme that was presented at the original Inquiry that was demonstrated as not deliverable due to the positioning of the signal heads and the lack of consideration for how the private driveways on the south side of the junction could be incorporated into the layout.

5.2.16 Notably, the mini roundabout scheme (bottom right), does not resolve the issues either. There is also an increased risk compared to the existing layout because the "give-way" movement in the mini roundabout design would be the main A581 east approach. As a result, an HGV on Ulnes Walton Lane would have priority over a vehicle on the A581 east who would be required to give-way and potentially will be positioned at the give-way line in the path of the turning HGV, ultimately resulting in a collision. Furthermore, this will not only have safety implications but if a collision is somehow avoided, this will reduce the capacity operation of the junction with vehicles having to negotiate each other. This interaction, which would disrupt traffic flows, could occur regularly given the number of additional HGVs generated by the development proposals, and it is something that the capacity modelling cannot take into account.

5.2.17 The Appellant has undertaken vehicle tracking to demonstrate the swept paths of different vehicles using the proposed junction in M3a – Appendix J (pdf page 100).

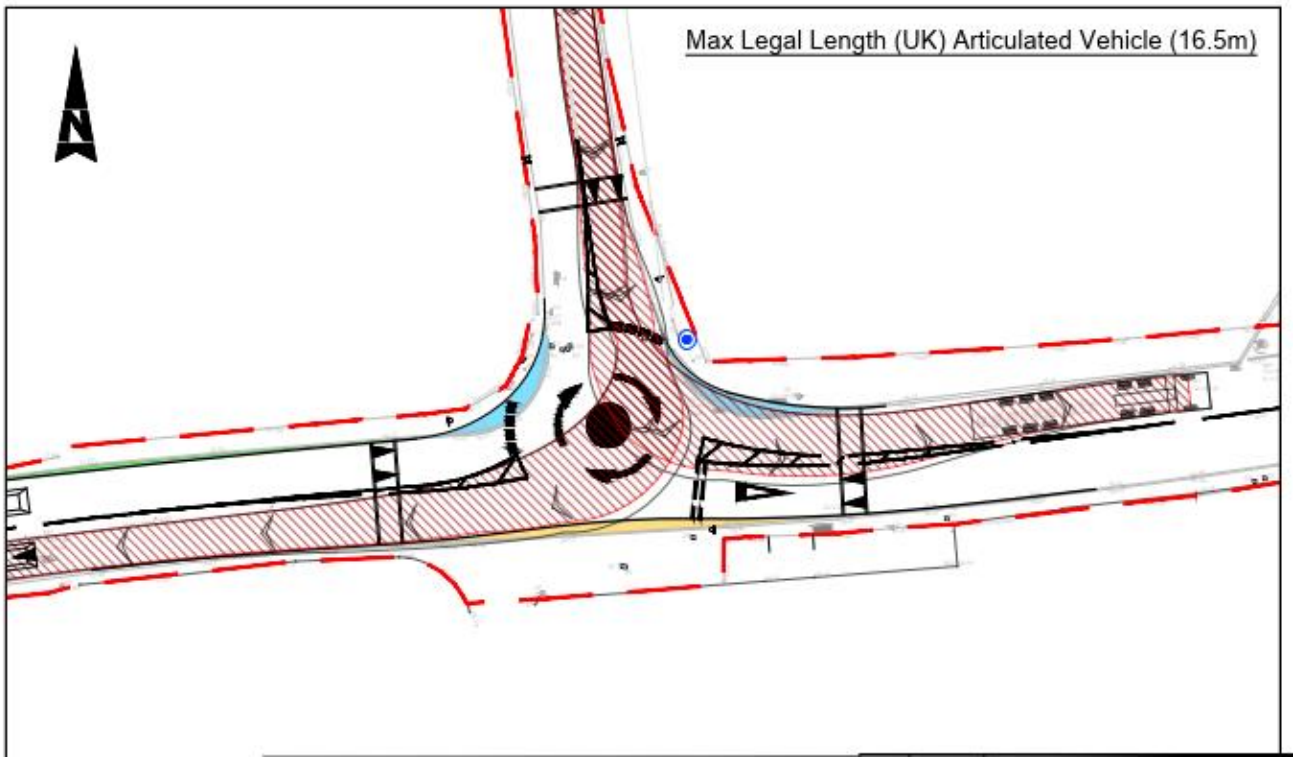
5.2.18 The vehicle tracking clearly identifies multiple issues with the current design.

5.2.19 Firstly, for HGVs and large vehicles.

5.2.20 It is noted that the Appellant has made reference to designing the junction in line with the standards set out in DMRB CD 116 which is appropriate for a road of this nature. However, paragraph 5.27 of CD116 states that:

"*Where the swept path of the largest design vehicle using the junction crosses the inscribed circle, the give way markings for the affected arms shall be moved back such that they are not crossed by the outside edge of the swept path*."

5.2.21 The Appellant has not adhered to this and have presented manoeuvres which are clearly unsafe showing that the rigid and articulated vehicles cross onto the opposing side of the carriageway (an example from the Appellant's Appendix J is shown below:



5.2.22 There are also omissions of common movements that also need to be considered when designing a junction. I have therefore undertaken separate swept path analysis shown in 7769-WSP-SK-001 to -006 in Appendix A of this Proof.

5.2.23 The analysis I have undertaken illustrates the turning movements at two speeds, one at 15 kph (approximately 10 mph) and the same at 25 kph (approximately 15 mph) and both show heavy goods vehicles overrun the central markings and into the opposite direction of traffic, with the higher speed of 25 kmph shown to have greater overrun. This means vehicles waiting at the give-way line on each approach will be in potential conflict with vehicles making this manoeuvre and this is not an acceptable safe design of a new junction.

5.2.24 This is also identified in the Hydrock RSA (M3a – Appendix C – pdf page 17):

"*From the drawings provided and site visit it is not clear how the necessary road space will be obtained for the mini roundabout. Currently large vehicles turning left from Ulnes Walton Lane on to the A581 overrun the opposing lane and the provided swept path analysis provided shows this will also happen with the proposed solution. This could increase the risk of collisions between large vehicles turning left from Ulnes Walton Road and vehicles travelling west on the A581*."

5.2.25 In the response to the RSA findings, the Appellant (at M3 – paragraph 5.7.3 – pdf page 22), states that the conclusions reached by the RSA are not valid and includes several reasons, including at bullet three:

"*There is a 7.5t weight restriction along Ulnes Walton Lane (except for access). The RSA specifically makes reference to HGVs turning out of Ulnes Walton Lane, however the number of HGVs making this movement is restricted*."

5.2.26 Firstly, a 7.5t weight limit is not an indication of vehicle length. Secondly, large heavy goods vehicles do currently make these movements and currently struggle to make these movements safely. As shown by an image captured at the junction in the Hydrock RSA:

5.2.27 Whilst I would agree the movement is restricted, it appears that the Appellant will be using this route for vehicles accessing the prison, and during construction this is in fact considered to be the preferred route, which would result in, according to the Appellant's own traffic figures, 61 HGVs per day in the average construction month (M3 – Table 6-1 – pdf page 30), and 64 HGVs per day in the peak construction month (M3 – Table 6-2 – pdf page 31), and up to 120 HGVs per day according to the daily profile provided in the appendices (M3a – Appendix P). I have queries about the differences between the Appellant's construction estimates, and I will consider this separately in Section 6, but notwithstanding, 61 additional HGVs making that movement per day, is not insignificant when considering the potential for conflicts to occur.

5.2.28 The Appellant has also supplied swept path analysis for a large car accessing the three driveways to the junction has not been demonstrated for every movement that could be made by those vehicles (this is the top row of plans at Appendix J). The vehicle tracking should, but fails to, demonstrate that a safe manoeuvre for left, right and ahead can be undertaken at the junction. Instead, the tracking demonstrates a single movement for each driveway.

5.2.29 The movements shown are also unrealistic. The second swept path of a large car appears to suggest that a left-turning vehicle from the middle driveway would need to go around the roundabout and then U-turn rather than turn straight left.

5.2.30 The third swept path then appears to show a right-turning vehicle from the most western driveway needing to overrun the central road markings at the entry to the roundabout. This is a particularly unsafe manoeuvre that would lead to conflicts with vehicles approaching from the west on the A581.

5.2.31 Alternatively, as I have illustrated on 7769-WSP-SK-006 in Appendix A, drivers could be tempted to force their way out into traffic (plan 6.2) and potentially sit in the carriageway at 90 degrees to the flow of movements on the A581 waiting for a space to enter the roundabout (plan 6.6). Worse still, drivers could be tempted to cut through the centre of the roundabout. Both of which would be unsafe and increase the risk of accidents and neither are considered acceptable practice.

5.2.32 On this basis alone, I conclude that the proposed junction does not meet the necessary standard to mitigate the road safety impacts and this situation will be exacerbated by an increased number of vehicles generated by the proposals, particularly HGVs.

5.3 TRAFFIC CALMING

5.3.1 The design also includes traffic calming in the form of speed cushions on the approach to the mini roundabout and a raised table at the junction itself.

5.3.2 The Hydrock RSA (M3a – Appendix C – pdf page 18) has highlighted issues with this:

Long vehicles could become unbalanced when turning left from Ulnes Walton Road (2.3)

5.3.3 The RSA recommended "*an appropriate ramp profile is chosen, and the ramp set back far enough from the roundabout to fully accommodate a large vehicle*."

5.3.4 The RSA identified that the issue is for vehicles exiting on Ulnes Walton Lane "*there is a risk larger loaded vehicles could become unbalanced when negotiating the junction turning left onto the A581 from Ulnes Walton Road*."

5.3.5 However, I would note that the same applies to all of the ramps given the possible manoeuvres that will be made by larger vehicles accessing the prison, but also buses, tractors with trailers, horseboxes, refuse vehicles, etc, all accessing Ulnes Walton Lane. As well as larger vehicles that will be passing through the junction on similar ramps on the A581, including those accessing the adjacent Barlow Moor Trailers access, the cars towing caravans to the campsite located to the west or for deliveries to the properties to the south.

5.3.6 In response to the RSA, the Appellant states (at M3 – paragraph 5.7.4 – pdf page 22):

"*regarding Problem 2.3 and Problem 2.4, the Appellant (the Ministry of Justice) has confirmed that the appropriate ramp profile and the exact height of the kerb upstand will be accommodated and confirmed during the detailed design stage as part of the proposed s278 agreement*."

5.3.7 It is questionable whether a vertical feature at this location is appropriate in the context of the type of larger vehicles and HGV traffic using this route already, and this will only be exacerbated during construction. I also note that the recent Acoustics Statement (M3a – appendix H – pdf page 87), only considers the Moss Lane mitigation scheme and has not provided an assessment of the A581 scheme, which it seems likely that speed cushions and raised tables will have associated noise and vibration effects for residents, particularly during construction.

5.3.8 The Hydrock RSA also identified (at M3a – Appendix C – pdf page 18):

Lack of kerb definition could lead to overrunning of private driveway/footway (2.4)

5.3.9 The RSA recommended "*an appropriate kerb upstand is provided, and other measures introduced to ensure the kerb is conspicuous to road users entering the roundabout.*"

5.3.10 In addition, the RSA states:

"*Under the proposals the roundabout will be raised there are private driveways incorporating dropped kerbs on the south side of the junction and it is unclear how these could tie in with a raised surface. If the carriageway is at the same level, there is a risk that drivers may inadvertently overrun the footway or driveway*."

5.3.11 This has not been considered in the mini roundabout design that has been submitted by the Appellant.

5.3.12 In response to the Hydrock RSA, the Appellant states (at M3 – 5.7.4 – pdf page 22):

"*regarding Problem 2.3 and Problem 2.4, the Appellant (the Ministry of Justice) has confirmed that the appropriate ramp profile and the exact height of the kerb upstand will be accommodated and confirmed during the detailed design stage as part of the proposed s278 agreement*."

5.3.13 It is simply not possible to provide a continuous upstand within the current highway extents because access needs to be maintained for the three driveway entrances, which require a flush surface to access their properties either requiring dropped kerbs if the road remains at the same level, or at the same height as the raised table that is being proposed at the mini roundabout. This will not resolve the issue of vehicles potentially driving on the footway.

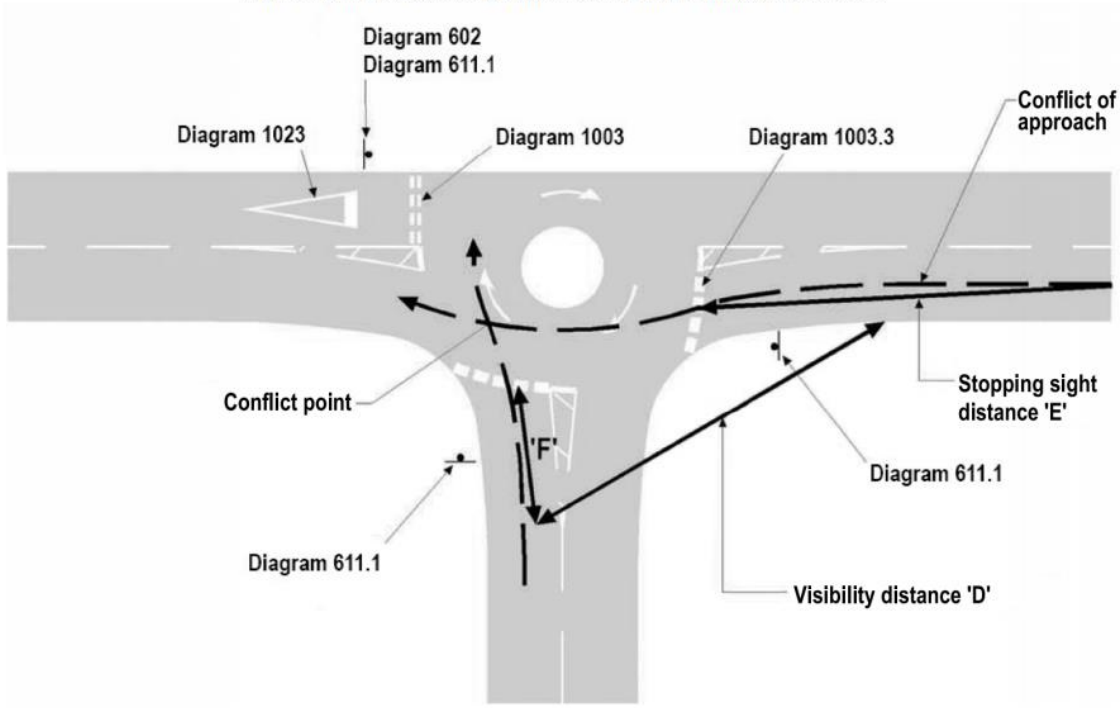
5.4 SUBSTANDARD JUNCTION VISIBILITY

5.4.1 The proposed mini roundabout design does not provide the required minimum visibility to the right i.e. the give-way visibility.

5.4.2 As per DMRB CD116, there a two visibility measures for mini roundabouts – a minimum visibility distance to the right, 'D', and the stopping sight distance (SSD) on the approach, 'E'.

5.4.3 The visibility measures 'D' and 'E' are illustrated in Figure 5.21 in the May 2023 update of CD116 (Figure 5.20 in the former version) and the minimum requirements are set out in Table 5.21. It should be noted that 'D' is not the same measurement used for visibility at priority junctions, which I discuss later in my Proof.

Figure 5.21 Mini-roundabout visibility distance 'D' and stopping sight distance 'F'



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5. Design of mini-roundabouts

Table 5.21 Minimum visibility distance to the right

85th percentile speed of arm to the right (mph)	'D' distance (metres)	
	For a gap acceptance time of two seconds	For a gap acceptance time of three seconds
35	40	55
30	35	50
25	25	40

NOTE 1 *'D' is measured from the centre of the offside approach lane to the nearside carriageway edge of the arm to the right.*

NOTE 2 *Distance 'D' varies with the 85th percentile approach speed 70 metres before the give way line on the arm to the right and the 'gap acceptance time'.*

NOTE 3 *The 'gap acceptance time' is dependent on the size of the roundabout, it is two seconds when the distance from the give way line to the centre of the white circle is 7.0 metres or less, otherwise it is three seconds.*

5.22 The visibility distance 'D' shall be unobstructed between driver's eye heights of 1.05 metres and 2.0 metres at the centre of the offside approach lane to object heights between 0.26 metres and 2.0 metres at the nearside edge of the arm to the right.

5.4.4 As per Note 2, the 'D' distance "varies with the 85th percentile approach speed 70 metres before the give way line on the arm to the right and the 'gap acceptance time'.

5.4.5 The Appellant has considered an 85th percentile speed of 30 mph, which requires the minimum 'D' distance on each approach to be 35 metres at a gap acceptance time of 2 seconds.

5.4.6 The proposed mini roundabout design does not achieve 35 metre visibility, and instead only achieves 17.8 metres on the A581 east and 16.6 metres on Ulnes Walton Lane, as set out in the table below. Note, the 'minimum visibility to the right' is not required for the A581 west as there is not an approach immediately to the right, and the visibility is for oncoming traffic.

Approach	**CD 116 requirement ('F' x 'D')**	**Designed**	**Meets Standards?**
A581 east	9 m x 35 m	9 m x 17.8 m	No
Ulnes Walton Lane	9 m x 35 m	9 m x 16.6 m	No

5.4.7 Whilst I acknowledge that DMRB is mandatory on trunk roads and only advisory on local roads, the same minimum visibility requirements are also stated in the Department for Transport's Mini-Roundabout Good Practice Guidance (section 4.2.6). The Appellant has also referred to DMRB CD116.

5.4.8 DMRB CD116 states it is possible to depart from this standard by reducing the 'F' distance and taking the measurement closer to the junction rather than at 9.0 metres back, but only in two circumstances as set out in CD116 paragraph 5.25:

"*The minimum 'F' distance in Figure 5.21 shall be 9.0 metres, except in the following circumstances:*

1) *where the 9.0 metres cannot be achieved, the 'F' distance on an arm can be reduced to 4.5 metres, providing that the maximum peak hour entry flow on the arm is less than 300 veh/hr; or*

2) *where neither the 9.0 metres or the relaxed minimum 'F' distance of 4.5 metres can be achieved, the 'F' distance for an arm can be reduced to 2.4 metres, providing that the maximum peak hour entry flow on the arm is less than 300 veh/hr and where there is no entry arm to the left*."

5.4.9 With regard to the Appellant's proposed mini-roundabout, I do not consider points 1 or 2 to be relevant, as the Appellant's flows indicate that the base flow alone on each approach exceeds 300 veh/hr.

5.4.10 The Via RSA (M3 – Appendix D – pdf page 27) also highlighted this as an issue:

Emerging side road vehicles collide with A581 traffic due to restricted visibility (4.1); and A581 westbound traffic collides with emerging side road vehicles (4.2)

5.4.11 The RSA recommended (M3 – Appendix D – pdf page 28) "*that the visibility is improved by acquisition of a portion of the adjacent land, to allow the highway boundary to be set back, preferably on both sides of the junction. Should this not be possible, a redesigned layout may be required, or failing that, an alternative method of junction control may need to be explored."*

5.4.12 I similarly have significant concerns with the visibility, which I will consider below in light of the Appellant's response to the Via RSA problems 4.1 and 4.2.

5.4.13 The Appellant's response (at M3 – paragraph 5.7.7 – pdf page 23) states:

"*The Designers Response does not agree with Problem 4.1 and Problem 4.2 for the following reasons:*

- *It is considered that the proposed speed reduction measures are likely to reduce 85% percentile speeds to below 25mph, and that the reductions in speeds will in turn reduce the visibility requirements which are based on vehicle speeds;*
- *The proposed scheme design achieves Stopping Sight Distance (SSD);*
- *A departure from standards would be agreed with LCC as part of a proposed s278 agreement;*
- *The proposed form of junction has been selected to address the specific capacity concerns raised by the standalone junction capacity analysis;*
- *Good Practice Guidance from the DfT states that mini roundabouts can provide safety benefits over other forms of junction and they have a lower severity rate;*
- *The visibility requirements based on design standards at the existing junction layout are not currently achieved within the highway boundary, and there is no evidence to indicate that there are pre-existing safety concerns at this location; and*
- *There is an existing mini roundabout on the A581 corridor which also appears to have restricted visibility to the right, but there is no evidence to indicate that there are existing safety concerns at this location*.

5.4.14 I will consider each of these points separately.

5.4.15 Firstly, in the response to the Via RSA, the Appellant has stated (at M3 – 5.7.7 first bullet – pdf page 23):

"*the speed reduction measures are likely to reduce 85% percentile speeds to below 25 mph, and that the reductions in speeds will in turn reduce the visibility requirements which are based on vehicle speeds*."

5.4.16 There is no evidence to suggest speeds will be reduced to an 85th percentile speed of 25 mph. I note the Via RSA also queried this in more detail in their report (M3a – Apepndix D – pdf page 27):

"4.*1 The proposed design includes speed cushions on the A581 approaches, and the mini-roundabout is to be constructed on a 'raised table', which will result in a reduction in traffic speeds. However, based on experience, it will be difficult to reduce 85%ile traffic speeds on the A581 to much below 25mph. Even at this comparatively low speed the available visibility may still be too restricted*."

5.4.17 There is no evidence to support that speeds can be reduced to 25 mph, but even if it were possible, the proposed visibilities of 17.8 metres and 16.6 metres would still not achieve the 25 mph standard of 25 metres as set out in CD116 Table 5.21.

5.4.18 Notwithstanding the Appellant's suggestion that speeds will be below 25 mph, they have drawn visibility for an 85th percentile speed of 30 mph. There is also no evidence to suggest existing 85th percentile speeds are even 30 mph.

5.4.19 Secondly, in the response to the RSA, the Appellant has stated (at M3 – paragraph 5.7.7 second bullet – pdf page 23): "*the proposed scheme design achieves Stopping Sight Distance (SSD)*;"

5.4.20 The SSD that the Appellant is referring to is the one associated with approaching the roundabout distance 'E' and is not the same measurement as the visibility at the roundabout give-way points distance 'D' that considers the visibility of opposing traffic. Achieving one, does not negate the need to achieve the other.

5.4.21 At bullet three, the Appellant states that "*a departure from standards would be agreed with LCC as part of a proposed s278 agreement*".

5.4.22 My Proof has highlighted numerous flaws in the Appellant's assessment of the proposals through the previous Inquiry and the new evidence, and therefore I would question the robustness of the Highway Authority's review. I would not agree that a departure from standard is appropriate in the context of the proposed mini-roundabout scheme, which has numerous issues as I have set out in my Proof.

5.4.23 At bullet four, the Appellant states: "*The proposed form of junction has been selected to address the specific capacity concerns raised by the standalone junction capacity analysis*".

5.4.24 The capacity benefits of a junction should not remove the need for safe operation. Furthermore, I also question the appropriateness of some of the capacity assessments, which I consider separately in this Proof.

5.4.25 At bullet five, the Appellant states:

"*Good Practice Guidance from the DfT states that mini roundabouts can provide safety benefits over other forms of junction and they have a lower severity rate*".

5.4.26 As presented in M3a – Appendix F section 2.3 (pdf page 79), the DfT's Mini roundabouts good practice guidance states: "*mini-roundabouts should not be used at junctions with five or more arms."*

5.4.27 Whilst I acknowledge the mini roundabout has three main arms, the presence of three driveways on the southern side of the junction effectively means that when in use the driveways are operating as individual arms at the junction.

5.4.28 The guidance goes on to say "*the 'priority to the right' rule effectively halves the traffic to which side road flow has to yield priority, making it easier for side road traffic to turn*".

5.4.29 There is also no facility for users of the private driveways to be incorporated within the roundabout and therefore vehicles to the left of them are unlikely to apply the 'priority to the right' rule for the users of the driveways, and instead will be focused on the oncoming flows on the main road, the A581 Southport Road east.

5.4.30 The traffic at the existing driveways will just continue to give-way to all movements at the junction, and whilst this is similar to the existing situation, the issues are worsened by fewer gaps in traffic caused by the roundabout operation, the increase in traffic associated with the proposals, and the inability to make a safe manoeuvre through the junction as is illustrated by the tracking.

5.4.31 This could lead to impatience and unsafe manoeuvres. Furthermore, the swept path to make the manoeuvre itself will lead to conflict points.

5.4.32 It is therefore not sufficient just to conclude that mini roundabouts can provide safety benefits.

5.4.33 With regard to bullet 6, the existing junction has restricted visibility for traffic emerging from Ulnes Walton Lane, and this is exacerbated due to the presence of unmaintained hedgerows and the constraints of the highway boundary, which means a wider visibility can only be achieved with the acquisition of 3rd party land.

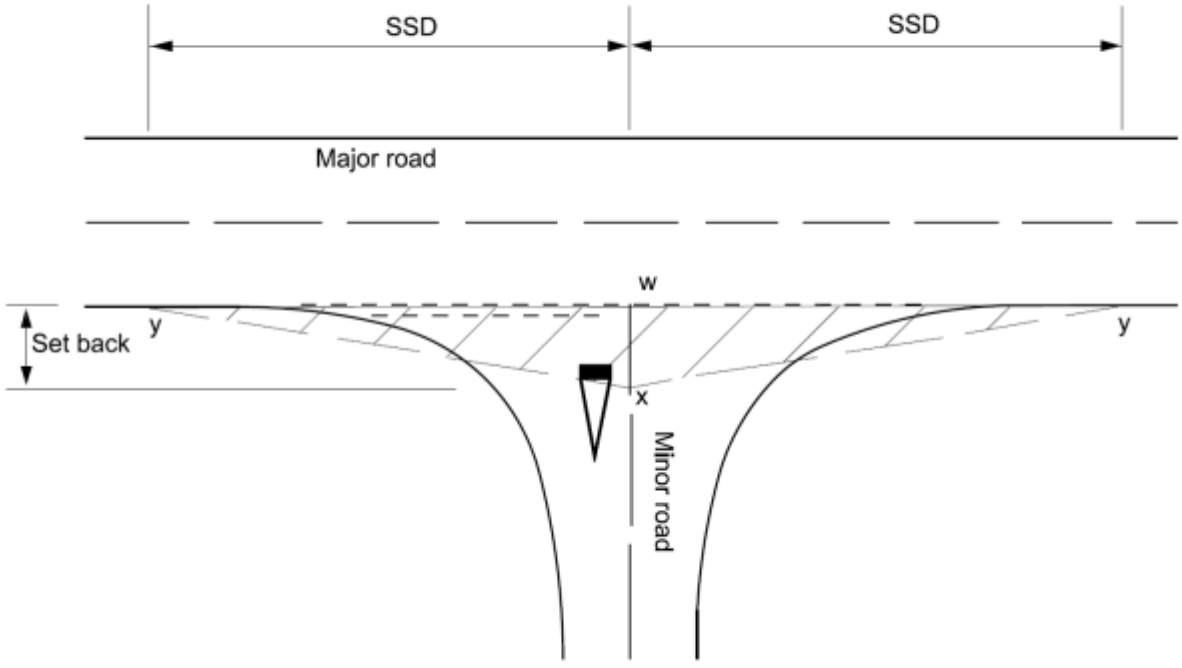
5.4.34 The Appellant has justified the below-standard visibility of the proposed mini-roundabout by stating the existing junction already has reduced visibility. Whilst the visibility at the existing junction is limited, the extent of this has been incorrectly presented by the Appellant due to misinterpretation of the standards.

5.4.35 In response document M3a – Appendix F, section 2.2.1.6 (pdf page 63), it states that:

"*2.2.1.6 the current layout fails to achieve the visibility requirements set out in DMRB CD123.The required visibility from the minor arm approach for 30mph speeds is 90m, and the advised set back distance is recommended as 9m from the give way line, which cannot be achieved within the highway boundary. The achievable visibility at a 9m setback is 12.6m to the left and 11.5m to the right.*"

5.4.36 The Appellant has incorrectly applied a set back or 'X' distance of 9 metres. In quoting the standards in DMRB CD123, the Appellant is referring to section 3.4 to section 3.9 (and including figure 3.4 as shown below).

Figure 3.4 Priority junction visibility splays



5.4.37 Section 3.8 part (2) 'for simple priority junctions' allows two 'X' or set back distances of

a) 9.0 metres or

b) 2.4 metres.

5.4.38 Section 3.8 part (3) 'for all other priority junctions' allows

a) 9.0 metres or

b) 4.5 metres.

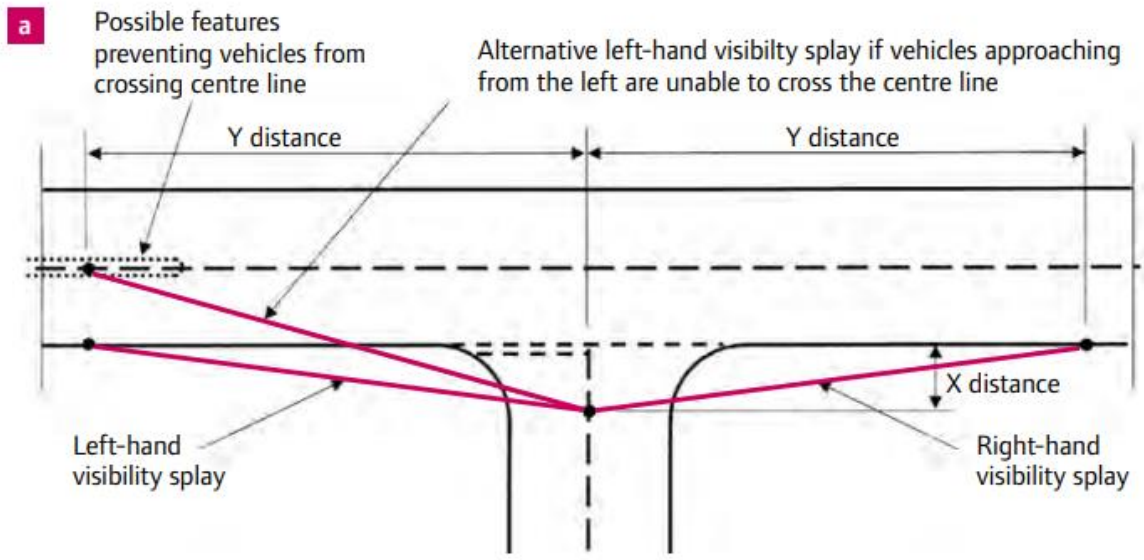
5.4.39 It then goes on to state:

"*3.8.1 The minimum distance used to locate point X should be in accordance with a) for each junction/access type.*

3.8.2 Where it is not feasible to locate point X fully in accordance with a), the minimum distance used to locate point X should be as close to a) as practicable, but no less than b)."

5.4.40 DMRB is guidance for trunk roads, however given the Appellant has chosen to apply this guidance I have also considered it here. Ultimately, the 9.0 metre distance is the optimum set back distance, but it is widely recognised that this is not always achievable for existing junctions which are constrained, and therefore the typical distance of 2.4 metres would be appropriate.

5.4.41 This also accords with local road guidance contained in Manual for Streets (MfS) Section 7.7, which presents a similar diagram to DRMB CD123 as shown below:



5.4.42 MfS states:

"*7.7.6 An X distance of 2.4m should normally be used in most built-up situations, as this represents a reasonable maximum distance between the front of the car and the driver's eye."*

7.7.7 A minimum figure of 2 m may be considered in some very lightly-trafficked and slow-speed situations..."

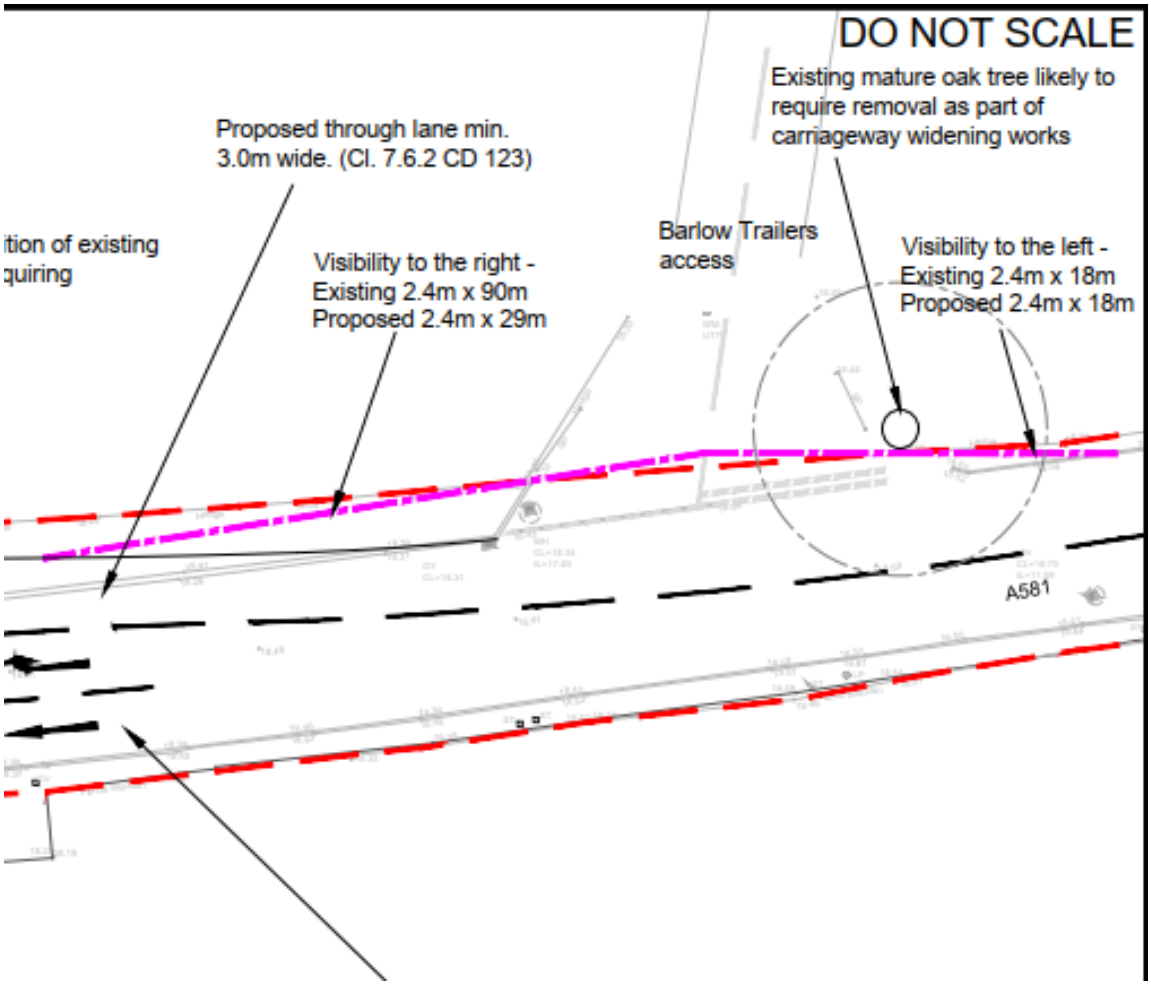
5.4.43 It goes on to say:

"*7.7.8 Using an X distance in excess of 2.4 m is not generally required in built-up areas.*

7.7.9 Longer X distances enable drivers to look for gaps as they approach the junction. This increases junction capacity for the minor arm, and so may be justified in some circumstances, but it also increases the possibility that drivers on the minor approach will fail to take account of other road users, particularly pedestrians and cyclists…"

5.4.44 MfS 2 was also introduced to infill between the DMRB guidance for trunk roads and Manual for Streets which was aimed at residential streets. The guidance on visibility in MfS 2 is similar to the original MfS (section 10). Given the similarity, I have not repeated the paragraphs, but as set out above, there is no reference in MfS2 to an 'X' distance of 9.0 metres.

5.4.45 It also seems unusual that the Appellant has chosen to adopt an 'X' distance of 9.0 metres for the existing A581/Ulnes Walton Lane junction, when, in the original TA Addendum (core document A37 – Appendix D – pdf page 23) the signal junction design for the A581/Ulnes Walton Lane junction, the Appellant demonstrated the existing and proposed visibility splay for the adjacent Barlow Trailers Access which indicated the recommended 2.4 metre 'X' distance to the left and to the right as shown in the extract below:



5.4.46 The recommended 'X' distance that should be applied is 2.4 metres, and not the 9.0 metres as quoted by the Appellant.

5.4.47 The drawing implies that the standard adopted by the Appellant (which indeed is the wrong one) cannot be achieved within the highway boundary, and instead of the 'Y' distance of 90.0 metres in each direction, only 11.5 metres can be achieved to the right and 12.6 metres to the left.

5.4.48 Had the Appellant applied the recommended 'X' distance of 2.4 metres, the visibility splay would have been brought closer to the junction and therefore would illustrate that drivers can in fact see further along the A581 Southport Road.

5.4.49 This would also demonstrate that the visibility to the right (along the A581 west approach) at the existing junction achieves the DMRB Y distance quoted by the Appellant of 90.0 metres (not the 11.5 metres as illustrated by the Appellant). To the left, the standard is not met, but it is 79.0 metres (and not the 12.6 metres the Appellant has illustrated). Although it should be noted that both are further limited in reality by the adjacent hedgerows not being maintained.

5.4.50 It should be noted that MfS also provides visibility standards at Table 7.1. It shows at 30 mph (as per the posted speed limit) a SSD of 43.0 metres is required:

Table 7.1 Derived SSDs for streets (figures rounded).

Speed	Kilometres per hour	16	20	24	25	30	32	40	45	48	50	60
	Miles per hour	10	12	15	16	19	20	25	28	30	31	37
SSD (metres)		9	12	15	16	20	22	31	36	40	43	56
SSD adjusted for bonnet length. See 7.6.4		11	14	17	18	23	25	33	39	43	45	59
		Additional features will be needed to achieve low speeds										

5.4.51 I have illustrated this on 7769-WSP-SK-011 in Appendix A.

5.4.52 As can be seen, it is therefore incorrect to imply that the existing junction has a visibility splay of 12.6m to the left and 11.5m to the right and suggest that "*the current layout fails to achieve the visibility requirements set out in DMRB CD123."*

5.4.53 Finally, with regard to bullet 7, the Appellant has suggested that a junction 1km east (A581/Leyland Lane junction) has restricted visibility to the right and concludes that there is no evidence to suggest an existing safety concern at that junction.

5.4.54 The Appellant seems to be implying that the restricted visibility at the proposed A581/Ulnes Walton Lane junction will operate similarly to the A581/Leyland Lane junction.

5.4.55 This conclusion simply cannot be drawn on the basis that they are similar mini-roundabout junctions, and in fact, they are dissimilar for a number of reasons:

- The Leyland Lane mini-roundabout is a 4-arm junction, with the southern arm being an access only.
- The Leyland Lane junction appears to be physically bigger than the Ulnes Walton Lane junction as it includes footways on both sides of the A581 and Leyland Lane, as well as a cycle lane on the northern side, which results in everything being widened out.

5.4.56 Ultimately, I do not agree with the Appellant's responses to the concerns raised by both RSAs. The proposed mini roundabout does not achieve the required visibility and, at less than half of the CD 116 standard, in the context of the traffic volumes and types of vehicles using this junction, I find it hard to understand how LCC can be satisfied with the design.

5.4.57 A shortfall in visibility, at this location, where the Appellant's traffic volumes will increase turning movements, that have also been demonstrated by the Swept Path Analysis as being unsafe, will all exacerbate the risk of potential collisions.

5.5 EXPOSURE TO RISK FOR NON-MOTORISED USERS

5.5.1 The Appellant has recognised the need for safety measures at the junction for vehicles in the form of additional signage, speed cushions, etc, but the same consideration has not been paid to pedestrians, cyclists (despite being part of the Lancashire Cycleway) who also use this junction. There is also the potential for equestrians given the three equestrian centres on Ulnes Walton Lane, although I do not have exact numbers.

5.5.2 These road users will be exposed to increased risk, and the risk of serious injury is also increased when considering these road users and that is why they are often referred to as 'vulnerable road users'.

5.5.3 Given the lack of facilities at the current junction, in combination with the significant increase in additional vehicles generated by the proposals during both construction and operation, there will be an increased risk.

5.5.4 The proposed mitigation itself will also increase risk as a result of vehicles making unsafe manoeuvres.

5.5.5 The Hydrock RSA (M3 a – Appendix C section 2.4 – pdf page 18) highlights this as a safety issue:

"*Under the proposals the roundabout will be raised there are private driveways incorporating dropped kerbs on the south side of the junction and it is unclear how these could tie in with a raised surface. If the carriageway is at the same level, there is a risk that drivers may inadvertently overrun the footway or driveway.*"

"*It is recommended that an appropriate kerb upstand is provided, and other measures introduced to ensure the kerb is conspicuous to road users entering the roundabout.*"

5.5.6 This has not been considered in the mini roundabout design that has been submitted by the Appellant. It is not possible to provide a continuous upstand within the current highway extents because access needs to be maintained for the three driveway entrances.

5.6 JUNCTIONS 10 CAPACITY ANALYSIS

5.6.1 The Appellant has presented the results of the capacity assessment in Appendix S (existing junction) and Appendix T (proposed mini roundabout) (the results summaries are on pdf page 256 and 303, respectively).

5.6.2 It should be noted that I have specifically considered the construction assessments in Section 6 of my Proof, and here I will focus on the operational scenarios.

5.6.3 Firstly, it seems counterintuitive that the scenarios assessed have an opening year of 2025 or 2026, and a later year for construction of 2027.

5.6.4 Secondly, the software flags a 'warning' in all the AM peak scenarios. The warning indicates to the assessor that the flows are unbalanced and therefore the junction may actually behave like a priority junction. An extract of the warning message is shown below (for context, Arms 1 and 3 are the A581 approaches):

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 91% of the total flow for the roundabout for one or more time segments]

5.6.5 Unbalanced flows at the roundabout could lead to unsafe behaviour, with the main A581 approaches continuing to operate as they do in the existing situation. If vehicles are not regularly stopped and required to give-way to traffic, there is a risk that those vehicles, through habit, will continue through the junction without stopping and will then be at risk of conflicting with an opposing vehicle when one arrives at the junction from Ulnes Walton Lane. In this specific context, with the substandard visibility, this will mean an approaching vehicle could be assuming they have right of way until the last moments, before being able to see an opposing vehicle and overshooting the give-way into the path of the opposing vehicle. I note the Appellant has attempted to mitigate this by considering give-way markings on the A581 east, but it is my view that given drivers will travel regularly through the junction and be familiar with its operation, they will not be sufficient.

5.6.6 In terms of the operational assessments, the Appellant has provided results for the 2021 baseline, 2025 opening year and 2026 sensitivity test scenarios. As 2025 is the opening year considered by the Appellant and given there is a direct comparison for without and with the development I will refer to the 2025 results here.

5.6.7 For the existing T-junction, the results of the operational capacity assessments show that in the AM peak the junction operates over capacity in the 2025 without development scenario above the threshold of 0.85. There is a maximum RFC of 0.90 for stream C-AB (the A581 east) in the AM peak with a queue of 9.5 PCU. In the PM peak, the opening year without development scenario is within capacity with a maximum RFC of 0.43 for stream B-C (Ulnes Walton Lane).

5.6.8 With the addition of development, the 2025 opening year with development scenario increases queuing and delay at the existing junction and RFC is pushed further over the threshold to 1.10 in the AM peak for stream C-AB (the A581 east) with a queue of 46.4 PCU. In the PM peak, the opening year with development scenario is closer to the threshold, but still below, with a maximum RFC of 0.78 for stream B-C (Ulnes Walton Lane). It is therefore clear that a mitigation scheme is required to mitigate the negative impact on the capacity operation of the existing junction.

5.6.9 For the proposed mini roundabout, the results of the operational capacity assessments show that in the AM peak the junction still operates over capacity in the 2025 with development scenario above the threshold of 0.85. The maximum RFC for the junction has reduced from 1.1 (at the priority junction with development) to 0.87 (below the 2025 without development scenario), which would appear to mitigate for the increases in traffic. It should be noted that by changing the priority at the junction, the queuing and delay has been redistributed and the impact with the mini roundabout is on the A581 west (rather than the A581 east). In the PM peak the opening year with development is within capacity with a maximum RFC of 0.73 for A581 east.

5.6.10 Whilst the results appear to demonstrate the proposed mini roundabout will mitigate the operational traffic impacts, the AM peak is still above the RFC threshold of 0.85. Above the 0.85 threshold, the junction will become sensitive to changes in flows and given my concerns regarding the safe operation of the junction, specifically because of larger vehicles turning who would interrupt the standard operation of the roundabout and affect who is giving way to who, it is possible that the Junctions 10 capacity analysis could be over-estimating the capacity of the proposed junction.

5.6.11 Even if I were to accept the modelling results in terms of capacity operation, it is my view that the proposals do not mitigate the safety impacts of the scheme. Ultimately, the mini roundabout design is not safe for the reasons I have set out in detail in the previous sections.

6 CONSTRUCTION PHASE IMPACTS

6.1.1 As set out by the Council's highway witness at the Inquiry, there was no assessment of the construction phase impacts of the scheme.

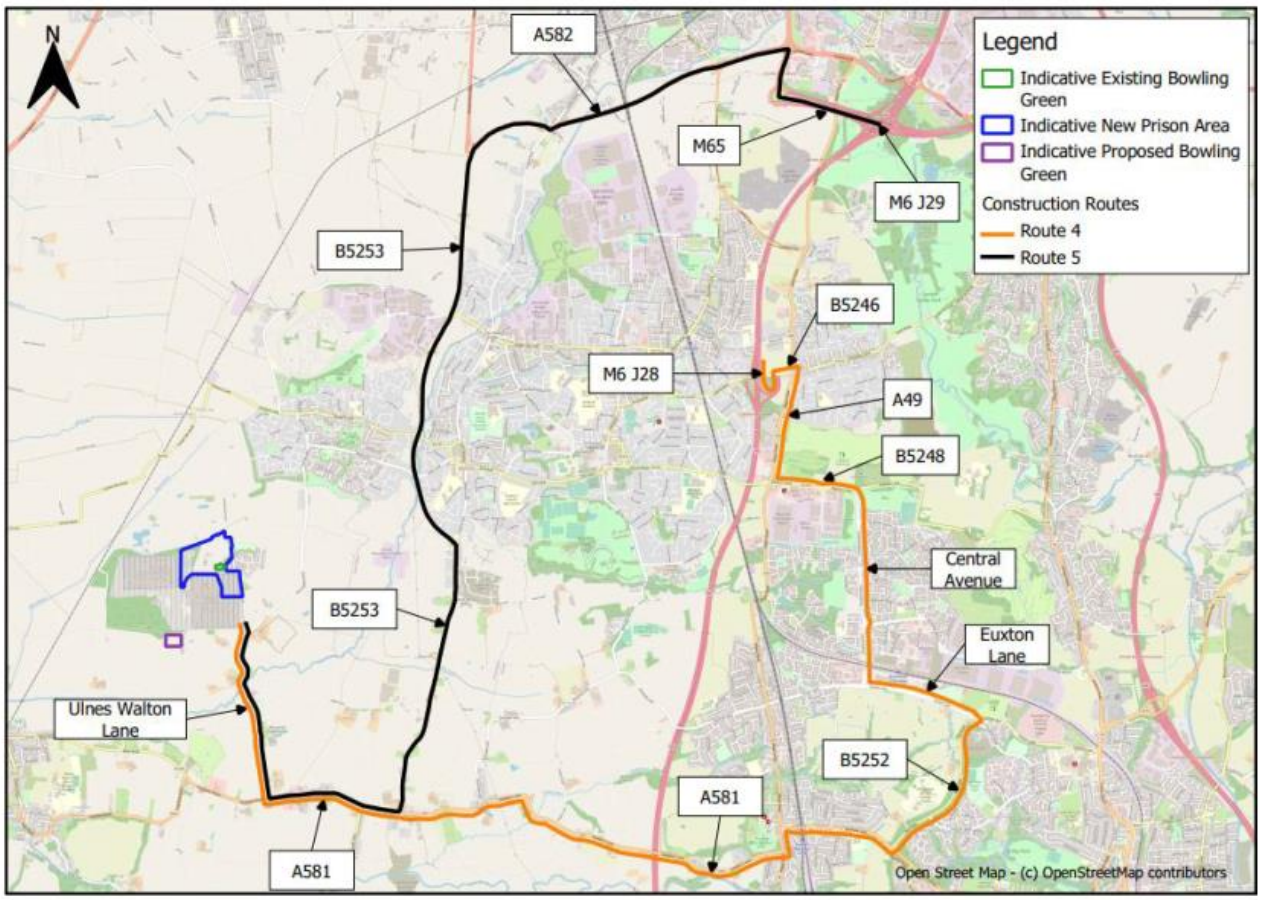
6.1.2 The Inspector agreed with the Council's highway witness and noted that the Appellant had not modelled or assessed the forecast construction traffic, nor demonstrated that the highway effects of the construction phase can be adequately mitigated (L1 pdf page 75):

> "*13.33. Construction traffic has not been modelled or assessed by the appellant, while the mitigation measures discussed above have been designed for operational traffic. All construction traffic would use Ulnes Walton Lane and Moss Lane. The appellant contends that in an average construction month the number of vehicles is predicted to be lower than the predicted operational traffic, at around 1,140 trips per day. However, this would still be a significant increase in traffic, including around 146 HGVs per day, using roads and junctions over a three-year period where there are safety and capacity concerns as outlined above. Moreover, during the peak construction period of around six weeks, there would be a greater number of vehicles journeys at over 2,000 car movements and over 100 HGV moments per day. The width and length of HGVs creates additional hazards on narrow roads such as Ulnes Walton Lane and problematic junctions like the junction between Ulnes Walton Lane and the A581.*
>
> *13.34. An agreed final CTMP would set out a range of measures and traffic could be managed to avoid peak hours. Furthermore, the movements could be dispersed across more days given that there could be more construction days per month than the draft CTMP allows for. However, there would still be a significant amount of traffic using a local road network where there is a need to secure adequate mitigation. As noted above, I have reservations on the extent and effectiveness of mitigation measures for different parts of the road network, including the A581 junction. Therefore, it has not been demonstrated that highway effects at the construction phase can be adequately mitigated.*"

6.2 CONSTRUCTION TRAFFIC ROUTING

6.2.1 It is noted in M3 – section 6.4 (pdf page 27) the routes for construction traffic are set out as travelling to/from the site via the southern section of Ulnes Walton Lane and east on the A581 (as shown in the Appellant's Figure 6-1):

Figure 6-1 - Proposed Construction Routes



6.2.2 All of these vehicles will arrive from the south, turning right into Ulnes Walton Lane at the A581/Ulnes Walton Lane junction, and left into Moss Lane. On departing, all HGVs will travel to the south, turning right at the Moss Lane/Ulnes Walton Lane junction and turning left at the A581/Ulnes Walton Lane junction.

6.2.3 Notably, there is a 7.5t weight restriction except for access on Ulnes Walton Lane, which implies that the road is unsuitable for such vehicles.

6.2.4 According to the Appellant's traffic figures, in construction there will be a total of 1,350 HGVs one-way (2,700 two-way HGV movements) per month on average over a five-year construction period. This will be a significant increase in HGV traffic on what is largely a rural road and will certainly change the character and its operation during that time.

6.2.5 It is noted that a "Construction Route Assessment" has been undertaken by Explore Transport (M3a – Appendix N – pdf page 142).

6.2.6 The analysis of routes appears to be high-level commentary from the appeal site to the Strategic Road Network with little acknowledgement of the local routes which were the focus of the Inquiry and where road safety is a concern.

6.2.7 The analysis also appears to be deficient as no reference is made to the current restrictions on Ulnes Walton Lane of 7.5t. It is likely that a construction vehicle has the potential to weigh greater than 7.5t especially with full loads. Commentary on route 5 (M3a – Appendix N – pdf page 151) states that Ulnes Walton Lane would also be the preferred route for abnormal loads, which presumably would be significantly more than 7.5t.

6.2.8 In addition, the route assessment states "*no kerb lines will be overrun*", which seems to have been simply based on visual inspection rather than using appropriate tracking software as it is noted (at M3a – Appendix N – pdf page 152) that "*no additional swept path analysis carried out for in gauge HGV loads*". The majority of Ulnes Walton Lane in fact does not have kerb lines and pedestrians are required to walk in the road.

6.2.9 The analysis undertaken by Explore Transport is focused on whether it is physically possible to manoeuvre along the construction traffic route (M3a – Appendix N – page 153):

"*Approaching site from the A581 is deemed the more suitable route due to lesser residential areas and a shorter distance to the main road. HGVs should pass with care during two-way traffic on Walton Ulnes Lane although is suitable. An alternate consideration would be to make exiting HGVs travel north along Walton Ulnes Ln to the B5248. Larger plant vehicles moving rigs/ cranes should consider TM (provided by site) as the size of the loads may take up majority of the road during travel. There are a couple of passing laybys but would need to be managed accordingly.*"

6.2.10 Whilst it acknowledges Ulnes Walton Lane is narrow, it fails to consider any of the existing safety issues raised at the Inquiry which will be exacerbated by HGV construction traffic.

6.2.11 There are existing issues of larger vehicles (buses and tractors) straying onto the other side of the road on Ulnes Walton Lane and is documented in the UWAG video evidence.

6.2.12 As I have set out previously, there are also issues with large vehicles turning into and out of Ulnes Walton Lane at its junction with the A581 as is illustrated in the RSA in the Appellant's own evidence.

6.3 SWEPT PATH ANALYSIS

6.3.1 HGV swept path analysis for a 16.5m articulated vehicle and a 10.0m rigid vehicle has been undertaken by the Appellant at the proposed A581/Ulnes Walton Lane junction (M3a – Appendix J – pdf page 100).

6.3.2 As set out previously in section 5 of this Proof, based on the analysis provided by the Appellant and as I have demonstrated in Appendix A of this Proof, there are serious deficiencies at the proposed A581/Ulnes Walton Lane junction with overrunning into the opposite carriageway, which is a significant safety hazard.

6.3.3 The traffic flows into and out of Ulnes Walton Lane will be exacerbated by the development, with a significant increase in HGVs during construction.

6.4 CONSTRUCTION TRAFFIC VOLUMES

6.4.1 The construction traffic is set out at table 6.1 (M3 – pdf page 30) and table 6.2 (M3 – pdf page 31) an extract of which is provided below:

Table 6-1 - Forecast HGVs & Construction Vehicles – Average Construction Month (One-Way)

Vehicle	Per Day	Per Week	Per Month
Cars	210	1,157	4,628
HGVs	61	338	1,350
Total	**272**	**1,494**	**5,978**

Table 6-2 - Forecast HGVs & Construction Vehicles – Peak Construction Month (One-Way)

Vehicle	Per Day	Per Week	Per Month
Cars	760	4,179	16,717
HGVs	64	354	1,414
Total	**824**	**4,533**	**18,132**

6.4.2 The 'average' is the mathematical average i.e. 50% of the time traffic will be above that level and 50% of the time traffic will be below that level. Over a construction period of 60 months from December 2023 to December 2028, this is not insignificant.

6.4.3 The Appellant has also revised the numbers since the previous estimates in the original Noise Proof of Evidence of Mr Goldsmith (E5 – pdf page 31) an extract of which is provided below:

4.4.2. Average Construction Month

The number of construction trips forecast during an average construction month are outlined in Table 4-2. The construction information presents the forecast number of HGVs (deliveries associated with the construction phase) and Cars (construction personnel). It is assumed that there are 4 weeks and 20 working days in a month.

Table 4-2 - Number of Construction Vehicles on Site (Average Month)

Vehicle	Per Day	Per Week	Per Month
Cars	426	2,129	8,514
HGVs	73	365	1,459
Total	**499**	**2,494**	**9,973**

4.4.1. Peak Construction Month

The number of construction trips forecast during the peak construction month are outlined in Table 4-1. The construction information presents the forecast number of HGVs (deliveries associated with the construction phase) and Cars (construction personnel). It is assumed that one HGV trip is equal to one 16 tonne Max Articulated Vehicle. It is assumed that there are 4 weeks and 20 working days in a month.

Table 4-1 – Number of Construction Vehicles on Site (Peak Month)

Vehicle	Per Day	Per Week	Per Month
Cars	1,011	5,057	20,228
HGVs	51	254	1,014
Total	**1,062**	**5,311**	**21,242**

6.4.4 It is unclear why the Appellant has now considered more working days per month, previously having considered a working month to be 20 days, this has been increased to 22 days and therefore the total vehicle numbers per day have reduced since the previous estimates.

6.4.5 Without evidence on how these numbers have been derived it is not possible to consider whether the assumptions and ultimately the traffic flows are realistic.

6.4.6 I question the assumptions regarding both HGV traffic volumes and car/van volumes. For the latter, there is no information on total construction personnel for example, so it is unclear whether the Appellant has made any assumptions as to whether all 760 cars/vans regarding car/van-sharing or alternative modes.

6.4.7 According to Appendix P (M3a pdf page 157), the working day will be from 06:00 to 18:00, when according to Mr Goldsmith's Proof at the previous Inquiry (E5 pdf page 22):

"7.*3.2 Typical construction hours occur during the daytime period only, therefore no night-time impacts associated with construction road traffic are predicted or considered herein*."

6.4.8 The original Noise and Vibration Impact Assessment (A22 – pdf page 12) also stated that:

"*4.1.1 The contractor undertaking the enabling and construction works has not yet been appointed. However, it is considered that the enabling and construction works are likely to be restricted to standard daytime working hours, i.e. between 0800 and 1700 Monday to Friday, 0900 to 1200 on a Saturday, with no work on Sundays or Bank Holidays*."

6.4.9 It is also unclear how the profile itself has been derived. It assumes a 12-hour day, with contractors arriving over a 3.5-hour period from 06:00 until 09:30 in the morning, and leaving over a similar 3.5-hour period from 15:30 until 18:00. Within that, the current profile indicates 70% of contractor vehicles arrive in the first hour, 06:00-07:00, with 14% arriving in the next hour (07:00-08:00) and the remaining 16% occurring over the next 1.5 hours.

6.4.10 For departures, the profile is relatively flat with It also assumes a relatively flat arrival profile in those hours, with similar volumes of traffic occurring every 15 minutes, rather than what may occur in reality, which would be peaks within the peak with people arriving for shift start.

6.4.11 Unfortunately, the Appellant has not presented any information to give certainty on the numbers. If the working day were to be shorter than the currently assumed profile or if arrivals and departures were less spread out across the morning and evening, this would increase the hourly vehicle numbers and the assessments as currently presented in the Appellant's additional evidence could be underestimated.

6.4.12 In addition, I note that the Appellant has presented the 'combined construction peak' daily profile in Appendix P for the peak construction month of December 2027 which shows maximum 3 HGV movements every 15 minutes, this equates to 12 HGV movements per hour over a large portion of the day, and effectively is one HGV movement every five minutes. This is not insignificant on a road of this nature and will result in increased exposure to risk of accidents for existing and future users. It is also worth noting that all of these vehicles are assumed to travel south on Ulnes Walton Lane and reach the proposed mini roundabout at the A581/Ulnes Walton Lane junction, which itself is compromised for the reasons set out earlier in section 5 of my Proof.

6.4.13 It should also be noted that the 'combined construction peak' as presented is based on the peak in total traffic volumes, whereas the peak in HGV movements actually occurs in September 2026 at 199 HGVs per day (one-way) or 398 HGV movements (two-way) per day, which is more than three times as many as during the 'combined construction peak'. I refer to Table 1 in Appendix B of this proof where I have calculated the average daily traffic based on the Appellant's monthly construction profile in Appendix O (M3a pdf page 155). I have similarly assumed the Appellant's 22-day month for consistency.

6.4.14 In Table 2 in Appendix B of this Proof, I have applied the Appellant's same 12-hour profile from Appendix P to the peak of HGVs. Table 2 shows this equates to 10 HGV movements every 15 minutes, 40 HGV movements per hour, or one HGV movements every 1.5 minutes on average. This is a significant volume of HGV traffic.

6.4.15 According to Google journey times, it takes approximately 2 minutes in uncongested conditions to travel along Ulnes Walton Lane from the A581 junction to the Moss Lane junction. This does not account for any delays encountered at either junction. It is therefore likely, given that there will be one HGV movement every 1.5 minutes, that two HGVs will need to travel past each other, which as I will set out in this Proof is not physically possible due to the narrow road and the bends. I have illustrated this on 7769-WSP-SK-009 in Appendix A.

6.4.16 It is also worth noting that this will occur over multiple months within the construction period, with similar HGV volumes occurring either side of the HGV peak, with 378 HGV movements (two-way) in July 2026, 354 in August 2026 and 348 in October 2026.

6.4.17 This is a significant number of HGVs that are likely to encounter other road users who will be exposed to increase risk and, given the size of HGVs compared to a standard vehicle, increased severity of injuries, should an incident occur.

6.4.18 Furthermore, given the frequency of vehicles, Ulnes Walton Lane and the A581 are both likely to suffer degradation from this continuous level of traffic over several months and notably there is no commentary on how the Appellant expects to deal with this.

6.4.19 This is a significant increase in traffic for which this note has set out numerous safety issues that have not been fully mitigated by the Appellant. The combination of which increases the exposure to these risks with the result being a potential increase in conflicts (vehicle-vehicle, vehicle-pedestrian / cyclist / equestrian).

6.5 CONSTRUCTION PERSONNEL PARKING

6.5.1 Referring back to Table 6.1, the daily forecast of construction personnel vehicles is shown to be 760 cars/vans. The Appellant has not presented any information on where 760 additional vehicles are anticipated to park. Notably, the operational phase of the prison will provide 525 parking spaces, which even if it is assumed that the car park will be constructed prior to construction, will result in a shortfall of 235 spaces during the construction peak. At worst, there will be no parking for construction personnel and there is simply not the space in the immediate vicinity for on-street parking.

6.5.2 I refer to Table 1 in Appendix B of this proof where I have calculated the average daily traffic based on the Appellant's monthly construction profile in Appendix O (M3a pdf page 155).

6.5.3 As shown by Table 1, shortfalls in parking provision will occur daily across several months from July 2027 up to and including June 2028. The Appellant's additional evidence does not consider this which is critical to safe and efficient operation of the highway network. If even a proportion of vehicles spill onto the adjacent roads such as Moss Lane and Ulnes Walton Lane, which currently have no parking restrictions, this will result in nuisance parking on footways and verges and hindering the safe movement of pedestrians, as well as reducing carriageway width for the safe movement of cyclists and equestrians.

6.6 CONSTRUCTION JUNCTION CAPACITY ASSESSMENTS

6.6.1 The Appellant has assessed three construction scenarios:

- 2027 AM Construction peak (06:00-07:00)
- 2027 AM peak (07:00-08:00)
- 2027 PM peak (17:00-18:00).

6.6.2 The junction has been assessed for both the existing T-junction and the proposed mini roundabout. Appendix S (existing junction) and Appendix T (proposed mini roundabout) provide the results summaries on pdf page 256 and 303, respectively).

6.6.3 For the existing T-junction, the results of the construction capacity assessment show that in the AM and PM peak the junction operates over capacity, above the threshold of 0.85. Resulting in a maximum RFC of 1.04 for stream C-AB (the A581 east) in the AM peak and RFCs of 1.00 and 0.95 for streams B-C and B-A (Ulnes Walton Lane), in the PM peak. There is also notable queuing with 31 PCU queue in the AM peak on the A581 east and combined queue of 18.7 PCU in the PM peak on Ulnes Walton Lane.

6.6.4 For the proposed mini roundabout, the results of the construction capacity assessment show that all scenarios operate within capacity, below the RFC threshold of 0.85. The maximum RFC in all of the construction assessments is an RFC of 0.83 on the A581 Southport Road west approach in the AM peak. Compared to the existing T-junction, the queueing is forecast to reduce to 4.8 PCU on the A581 Southport Road west in the AM peak, and 3.5 PCU on Ulnes Walton Lane in the PM peak.

6.6.5 Whilst the results appear to demonstrate the proposed mini roundabout will mitigate the construction traffic impacts on capacity, the AM peak is nearing the RFC threshold of 0.85. Given my concerns regarding the Appellant's construction traffic profile as set out previously, should these forecasts be underestimating the hourly traffic flow in any of the peak hours, the junction could easily be pushed over capacity. The current assumptions is that 70% of traffic occurs at 06:00-07:00, whilst only 14% of the construction workforce would arrive between the hours of 07:00-08:00. It also assumes a relatively flat arrival profile in those hours, with similar volumes of traffic occurring every 15 minutes, rather than what may occur which would be peaks within the peak at the start of the same shift.

6.6.6 Given the route is to be used by a significant number of HGVs over the course of the five-year construction period, it would seem likely that any scheme implemented would be degraded quite easily and therefore it does not seem realistic to assume the mini roundabout as designed would be implemented at the start of construction without having to then be renewed afterwards.

6.6.7 As set out previously, I also have concerns over the safe operation of a mini roundabout at this location. It is also particularly concerning given the findings of the RSA's which highlighted issues with the design for all vehicles but specifically for HGVs including the risk of long vehicles becoming unbalanced when turning left from Ulnes Walton Road onto the A581 and given that the vehicle tracking shows the difficulties in negotiating the roundabout. It is also worth noting that the capacity assessments will not account for the need for vehicles to wait and give-way for traffic to make the manoeuvres and therefore queuing and delay could vary depending on the number of HGVs arriving at the junction and having to wait to manoeuvre past other vehicles or each other.

7 SUMMARY AND CONCLUSIONS

7.1.1 My Proof has demonstrated why the Appellant's proposed mitigation measures do not mitigate the impact of the proposals. In conclusion:

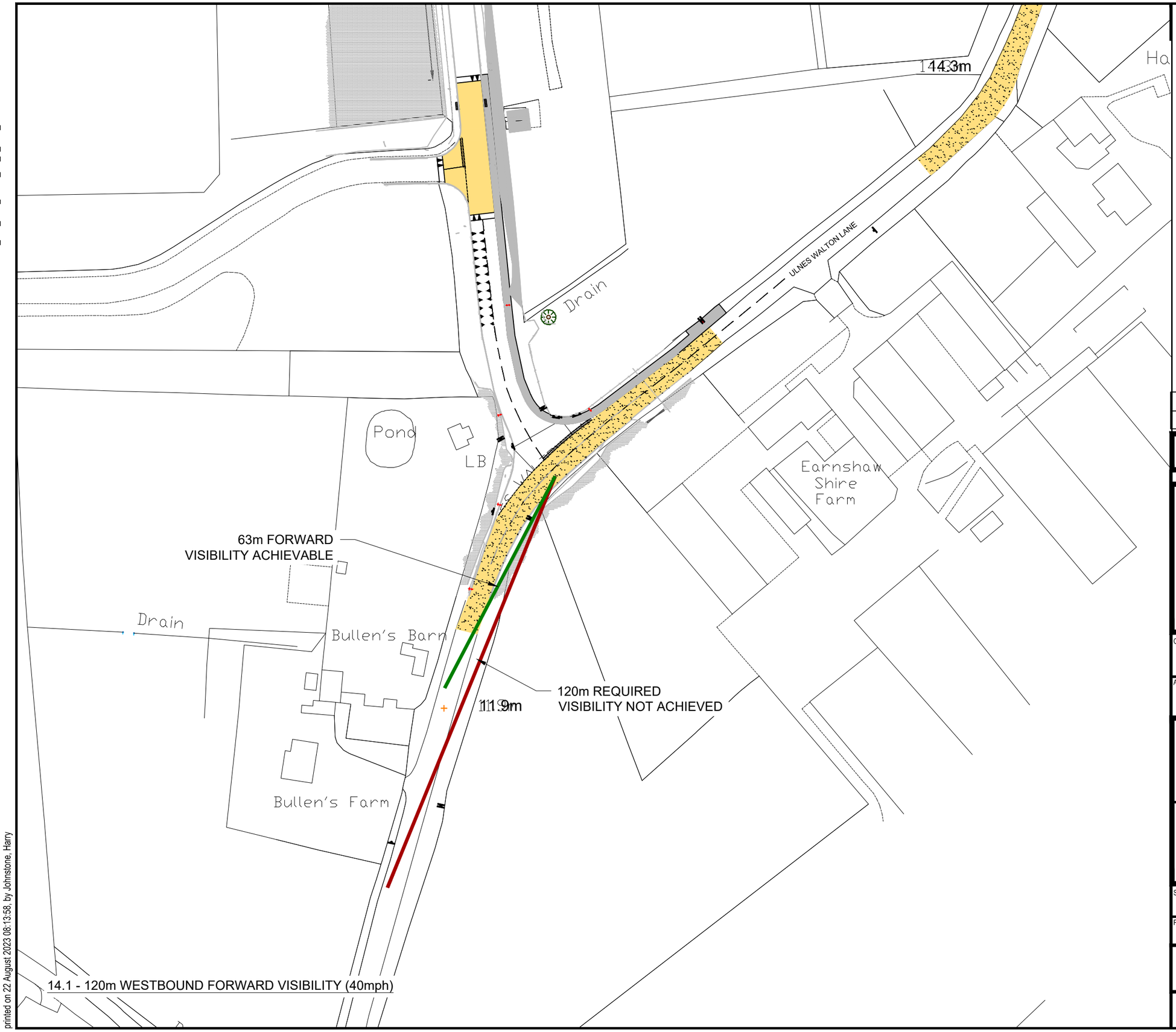
- Ulnes Walton Lane carriageway markings and traffic calming – this does not mitigate the full impact of the development proposals and does not fully address the safety concerns raised by the Council, particularly with regard to the visibility. The mitigation is focused on the junction with Moss Lane and there is also no mitigation proposed along a large section of Ulnes Walton Lane south of the junction despite it being the HGV construction traffic route and the main route for 55% of staff trips during construction and operation.
- The proposed footway between Ulnes Walton Lane and Moss Lane – whilst this does address part of the safety concerns raised by the Council by providing access to the northbound bus stop, it does not address the impact for other local users of Ulnes Walton Lane and Moss Lane including those travelling to the bus stop to the south of the Moss Lane junction and accessing the postbox on the north-western side of the Moss Lane junction. Both of which will still require pedestrians to walk in the road.
- Moss Lane traffic calming – has not changed much from the initial proposal put before the previous Inquiry, it does not address the safety concerns and it does not fully mitigate the impact of the proposals at this location.
- A581/Ulnes Walton Lane Mitigation – there are clear deficiencies in the current design and the concerns raised by myself, the Council, and the Inspector at the previous Inquiry, have not been effectively mitigated. The mini roundabout has substandard junction visibility, the swept path analysis demonstrates it will lead to unsafe manoeuvres for heavy vehicles and those accessing from the driveways to the south. It has also not considered non-motorised users and I have concerns with the capacity modelling, which has flagged warnings of unbalanced flows.
- Construction traffic routing – the assessment of construction traffic routes is flawed and does not take into account weight restrictions on Ulnes Walton Lane. The numbers have no evidence base and even if I were to accept that the assumptions are appropriate, the volumes over a five-year construction period are of notable concern. Particularly, when these additional vehicles will be on movements where visibility is poor and where the swept path analysis has shown them to be unsafe. There is also no consideration of parking for construction personnel, which could lead to nuisance parking on nearby roads and have safety implications for pedestrians, cyclists and equestrians.

7.1.2 On that basis, it is my view that the proposed mitigation put forward by the Appellant has not been properly developed, nor does it fully address the original concerns raised at the previous Inquiry.

7.1.3 It is therefore my overall conclusion that the appellant has yet to demonstrate that the proposals will avoid problems of safety across the study network and is therefore contrary to paragraph 114 and 115 of the National Planning Policy Framework (December 2023), policy BNE1 and policy ST1 of the Chorley Local Plan 2012 - 2026.

8 APPENDICES

Appendix A



REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

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S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/MOSS LANE
PROPOSED JUNCTION
FORWARD VISIBILITY

SCALE @ A3:	CHECKED:		APPROVED:
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PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

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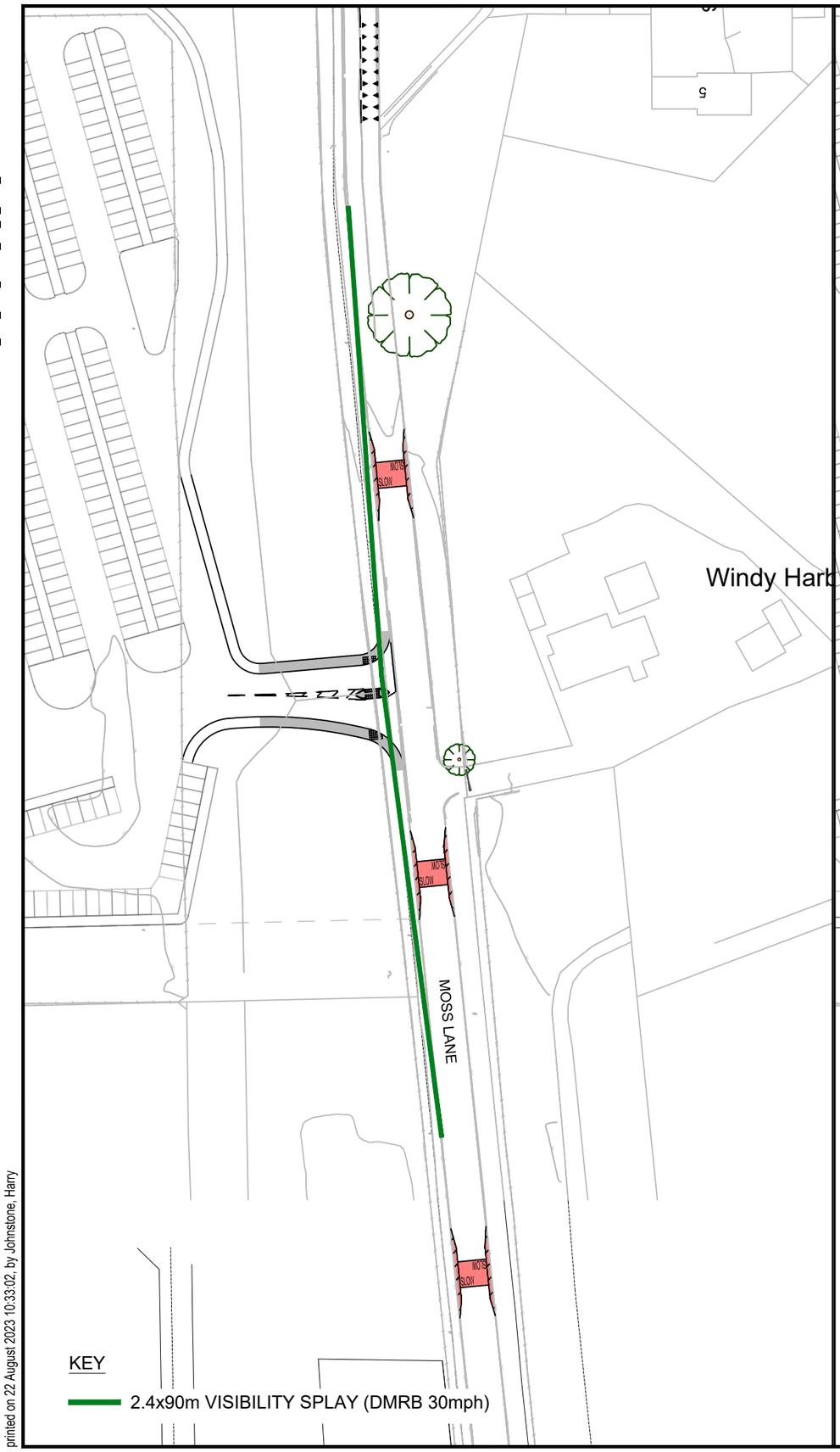
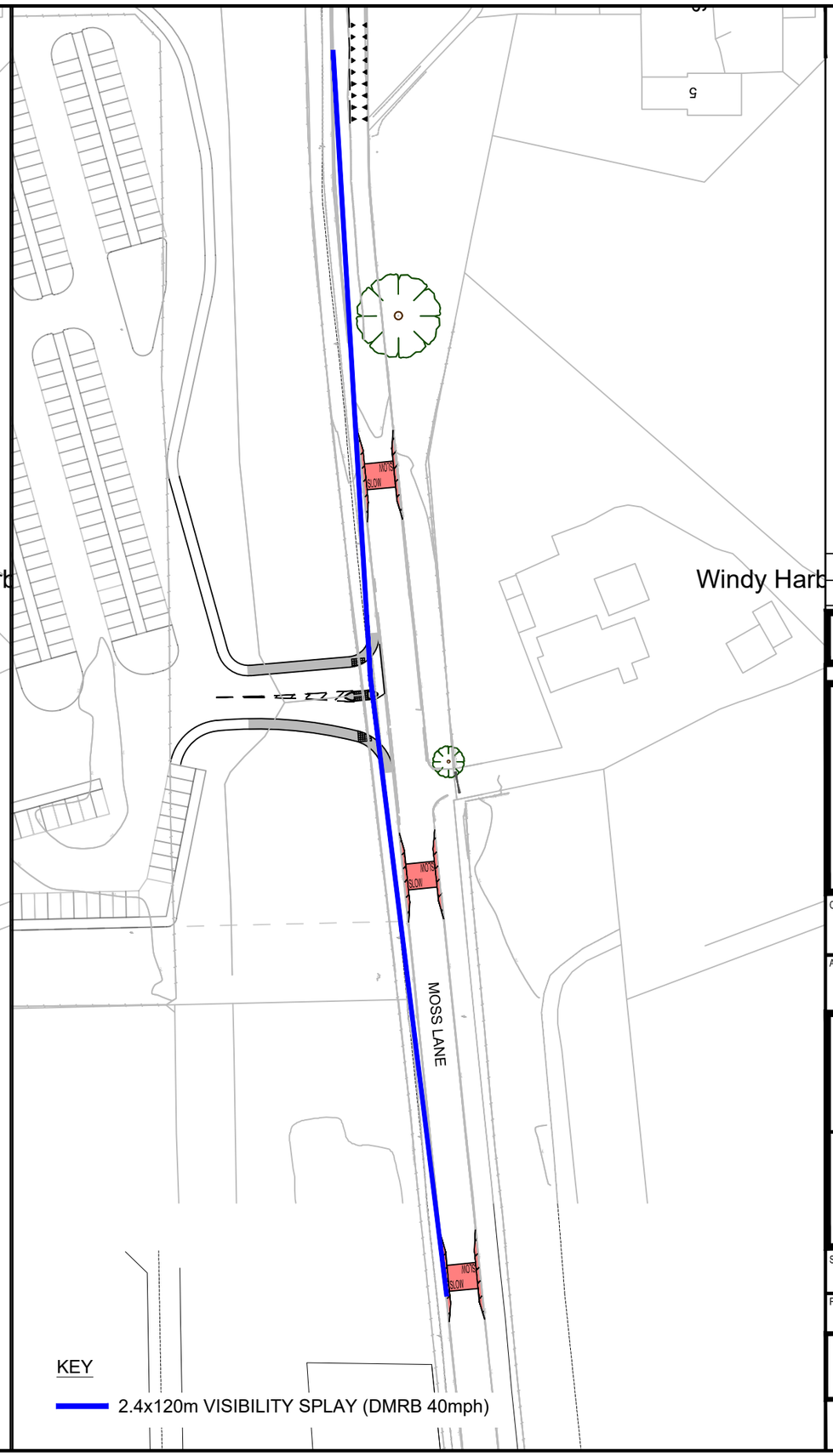
7769-WSP-SK-014	P01





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CLIENT:

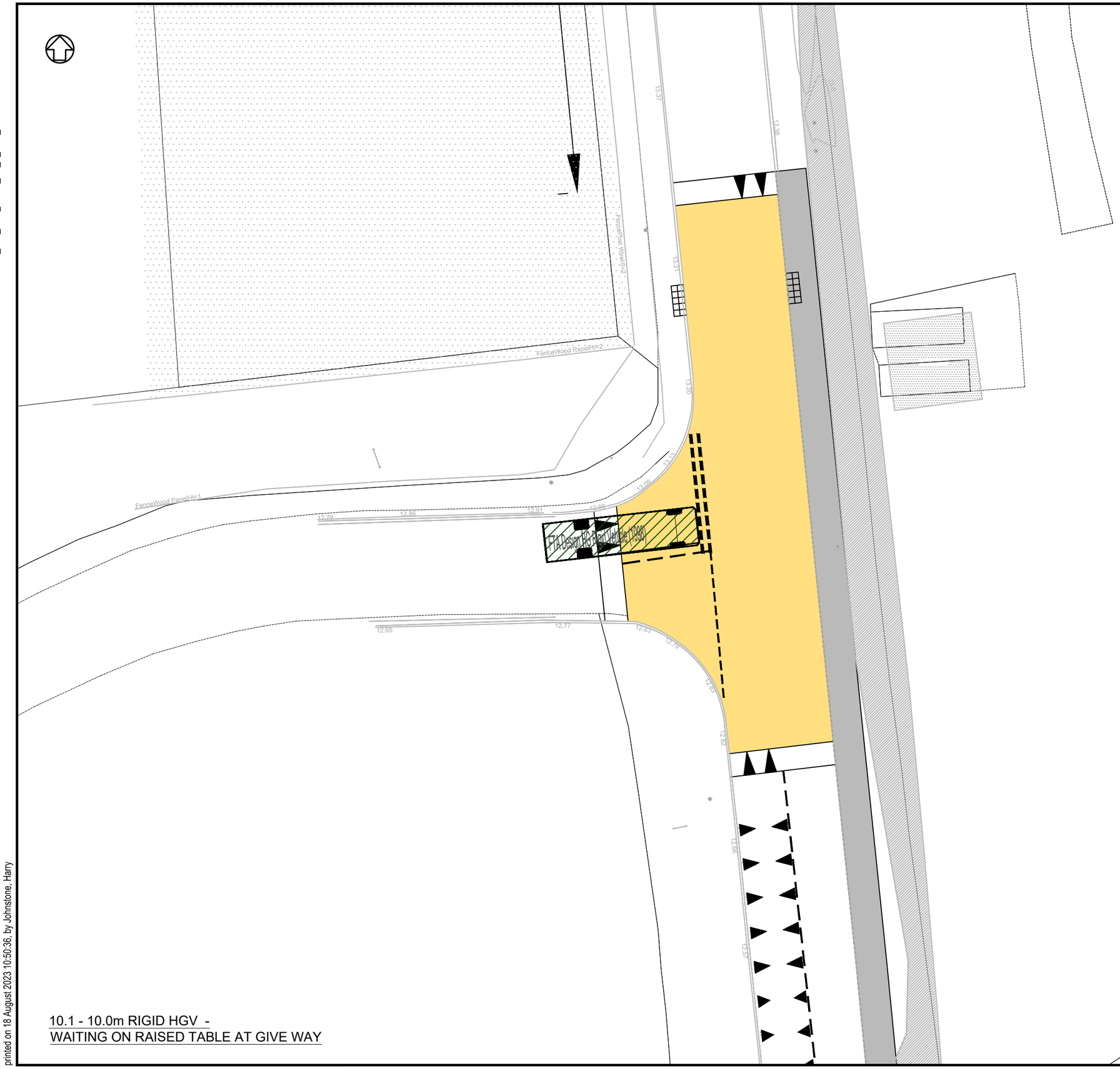
ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
MOSS LANE
PROPOSED PRISON ACCESS
VISIBILITY SPLAY

SCALE @ A3:	CHECKED:		APPROVED:
1:1000			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-016	P01



10.1 - 10.0m RIGID HGV -
WAITING ON RAISED TABLE AT GIVE WAY

DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
MOSS LANE/PRISON ACCESS
PROPOSED JUNCTION

SCALE @ A3:	CHECKED:		APPROVED:
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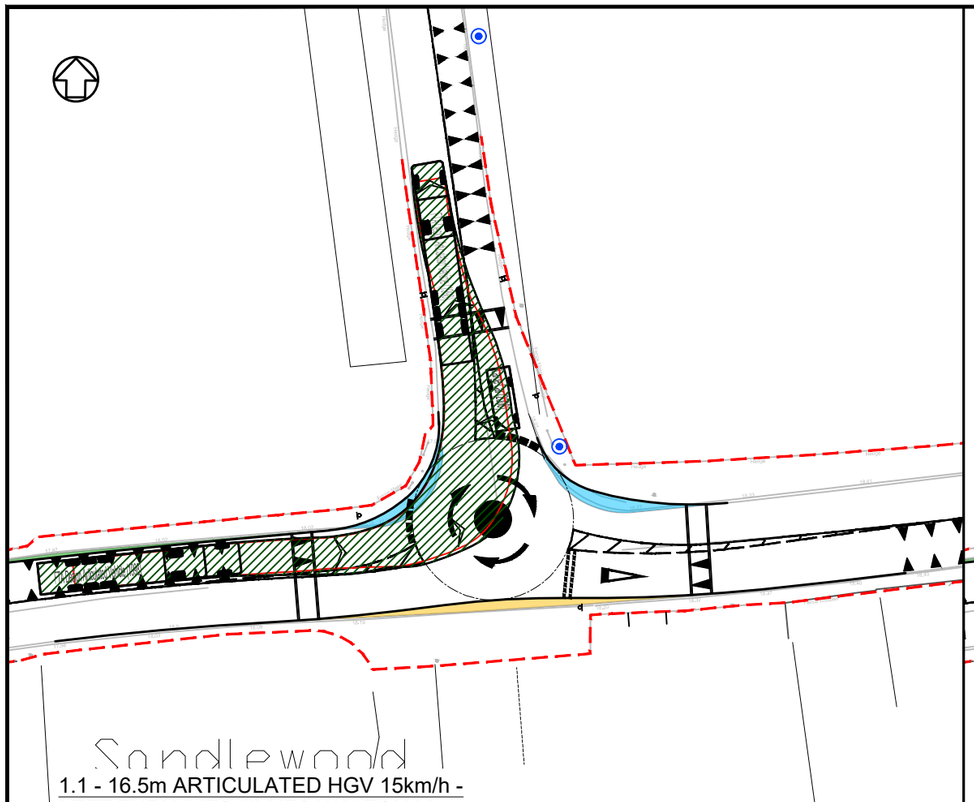
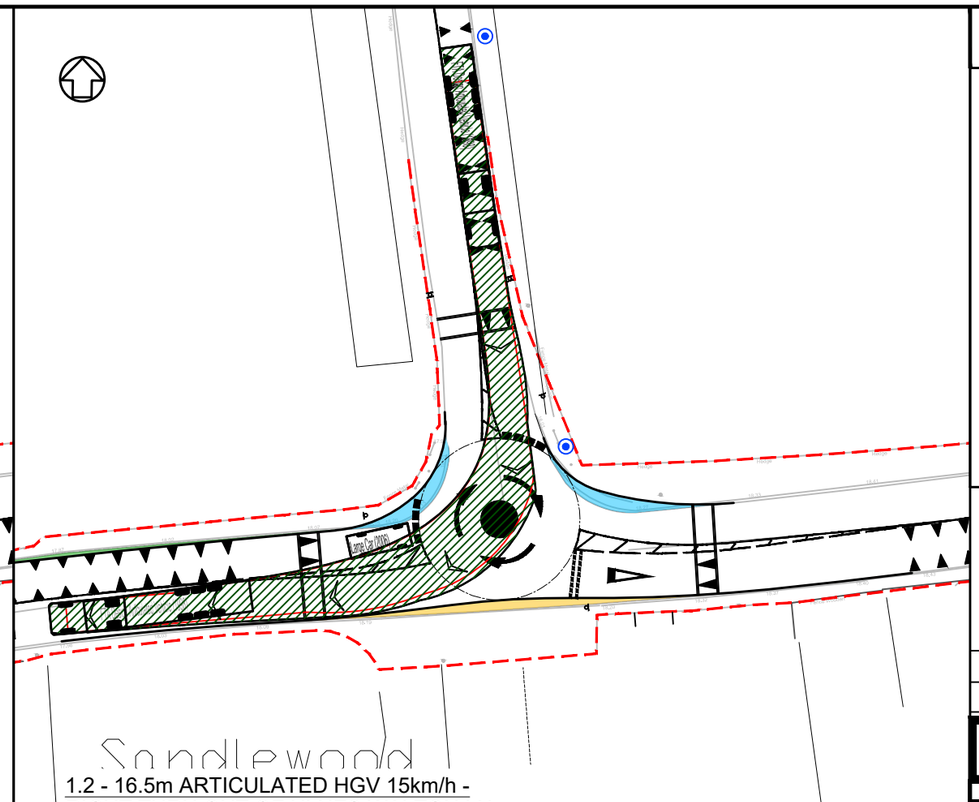
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-010	P01



1.1 - 16.5m ARTICULATED HGV 15km/h - LEFT TURN INTO ULNES WALTON LN



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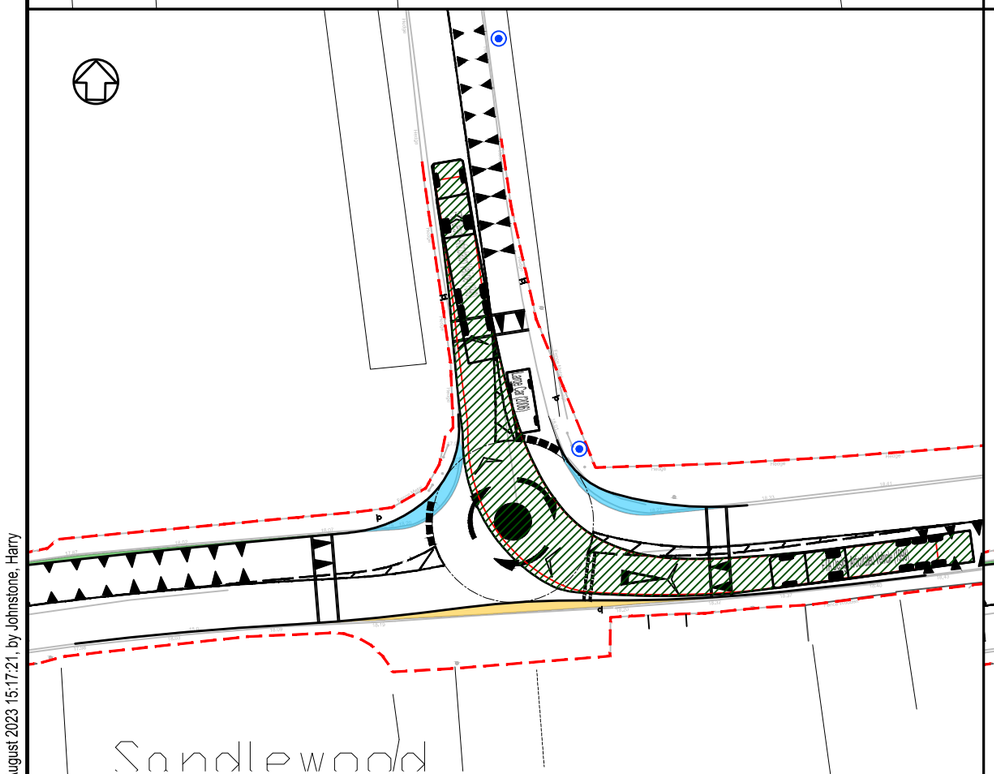
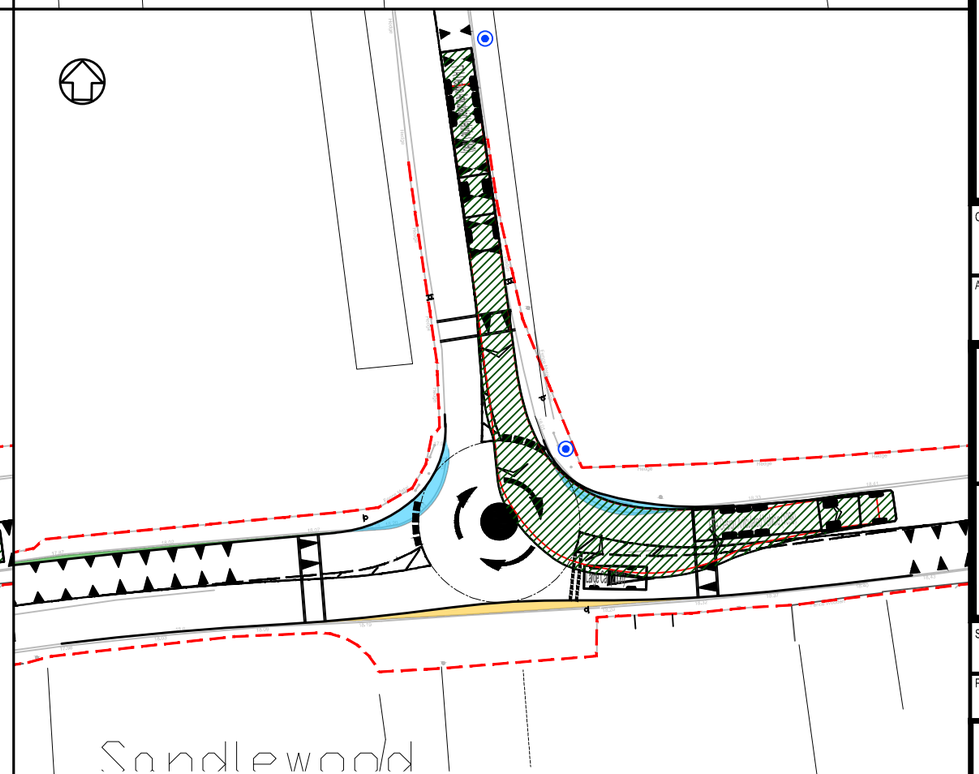
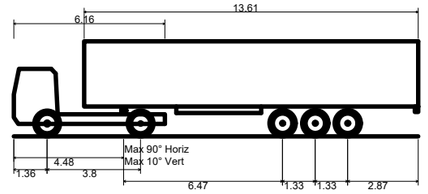


1.3 - 16.5m ARTICULATED HGV 15km/h - RIGHT TURN INTO ULNES WALTON LN



1.4 - 16.5m ARTICULATED HGV 15km/h - LEFT TURN OUT OF ULNES WALTON LN

DO NOT SCALE



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

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

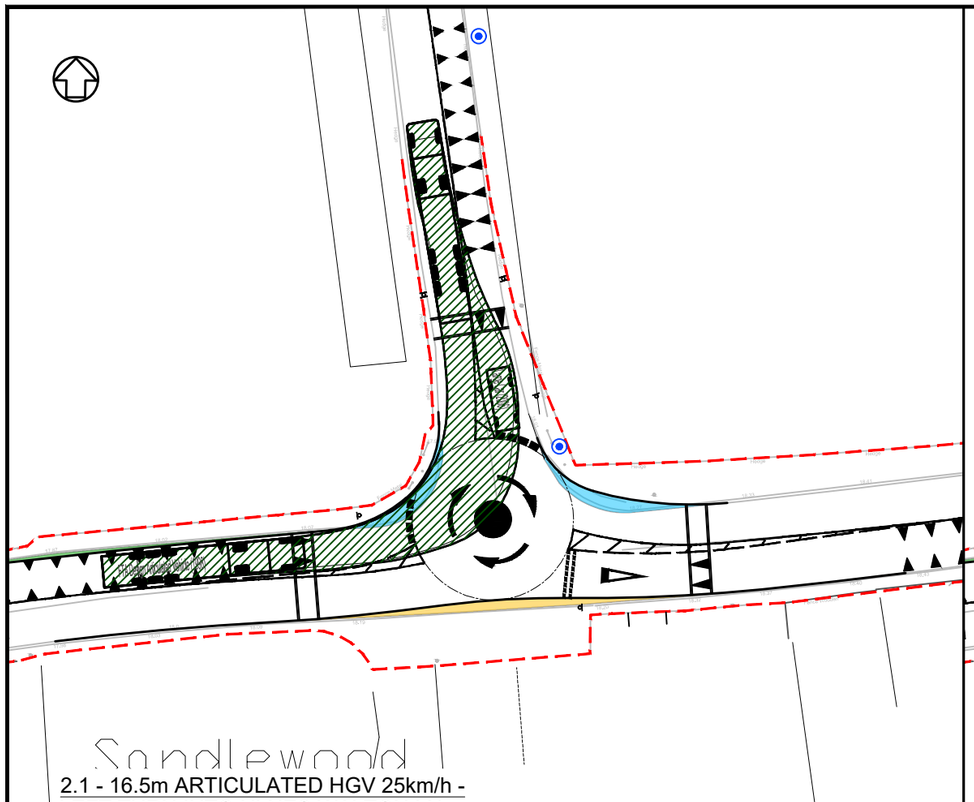
PROJECT: HMP GARTH

TITLE: ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 1 OF 6

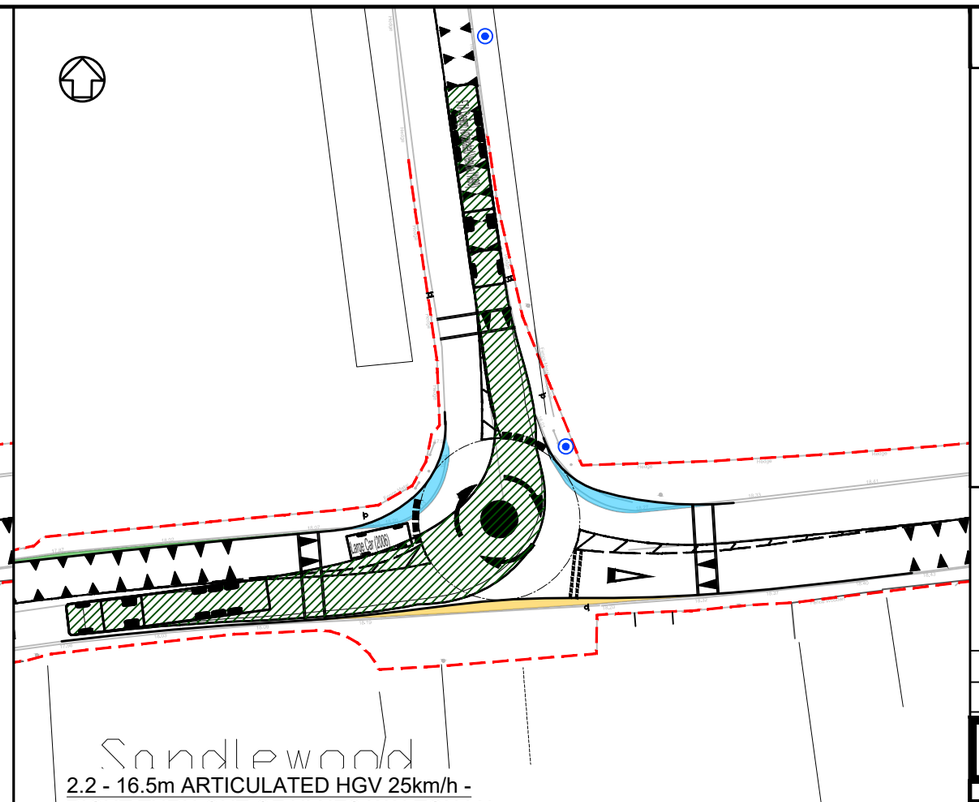
SCALE @ A3:	CHECKED:		APPROVED:
1:500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-001	P01

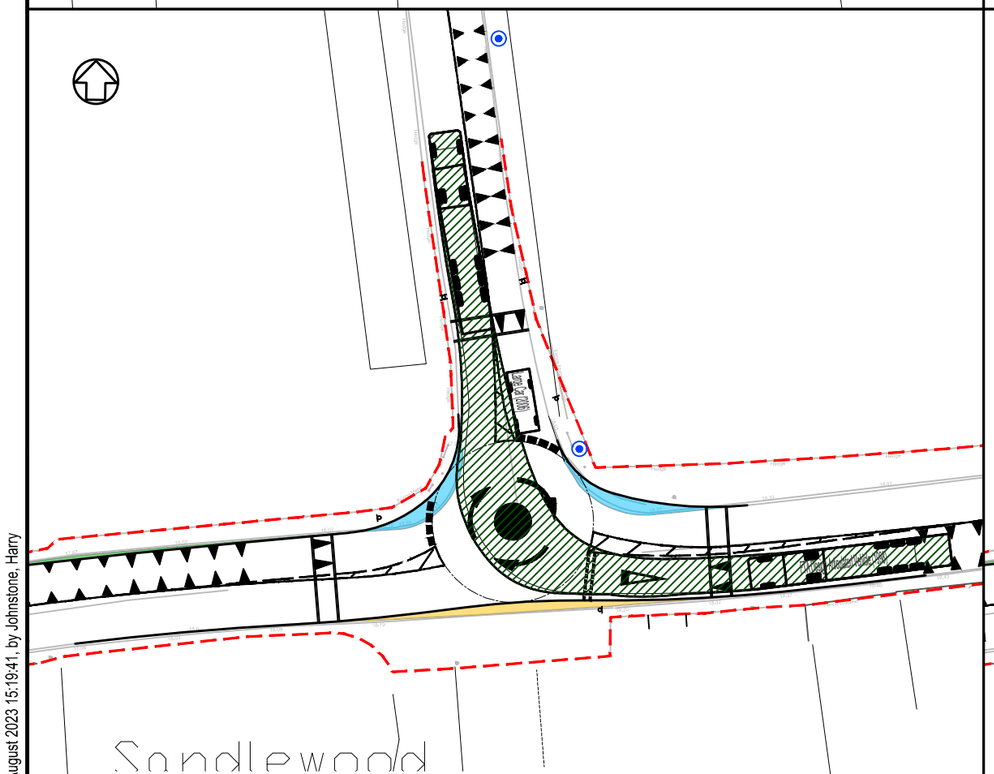
File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70097XXX\70097769 - LAND ADJACENT TO HMP WYMOTT AND HMP GARTH\03 WIP\04 PUBLIC INQUIRY REOPENING\ATKINS DRAWINGS DWG\GARTH_ATK_HGN_A581_DR_D_0005_P3\7769-WSP-SK-001-002.DWG,
printed on 16 August 2023 15:17:21, by Johnstone, Harry



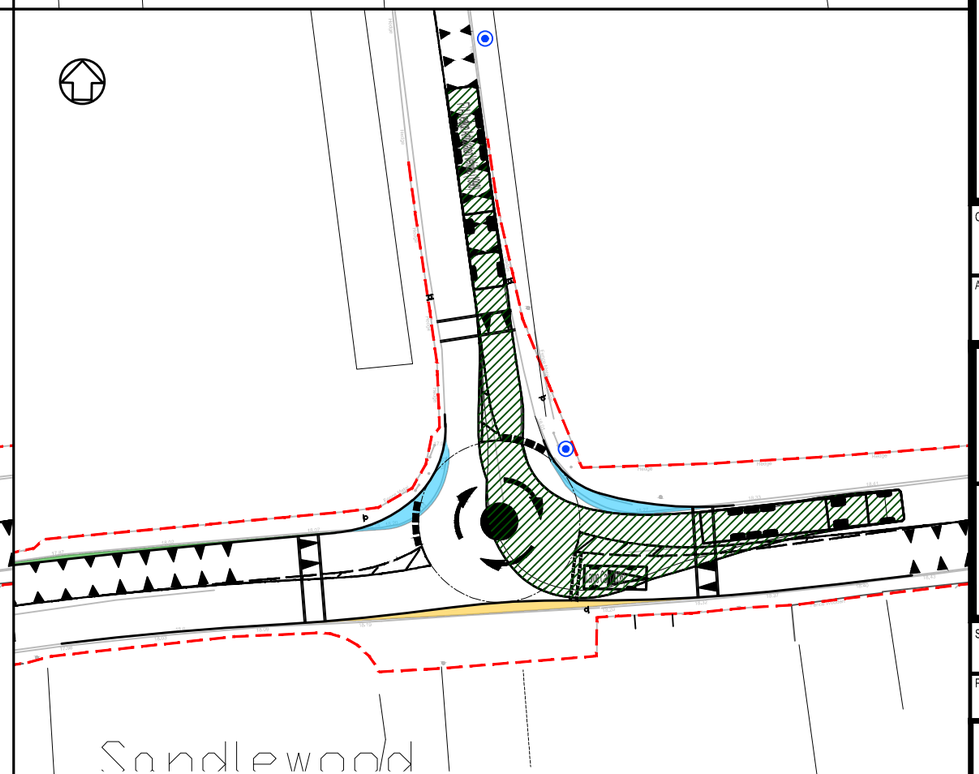
2.1 - 16.5m ARTICULATED HGV 25km/h - LEFT TURN INTO ULNES WALTON LN



2.2 - 16.5m ARTICULATED HGV 25km/h - RIGHT TURN OUT OF ULNES WALTON LN

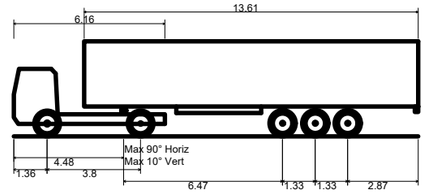


2.3 - 16.5m ARTICULATED HGV 25km/h - RIGHT TURN INTO ULNES WALTON LN



2.4 - 16.5m ARTICULATED HGV 25km/h - LEFT TURN OUT OF ULNES WALTON LN

DO NOT SCALE



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

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS: S0 - WORK IN PROGRESS

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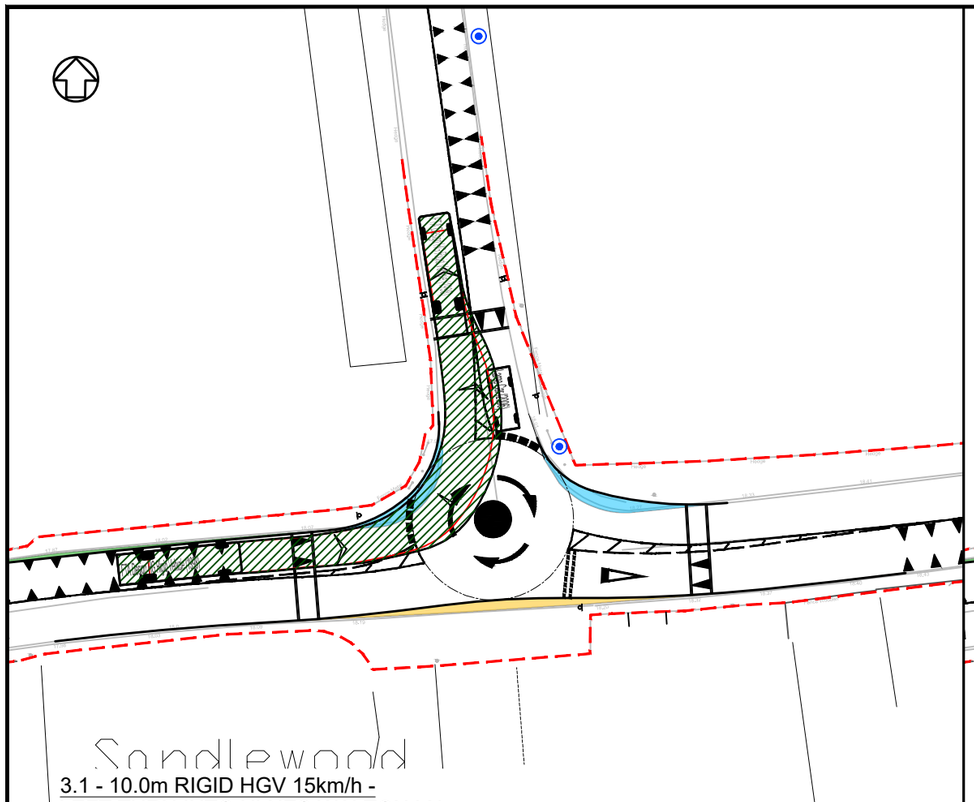
ARCHITECT:

PROJECT: HMP GARTH

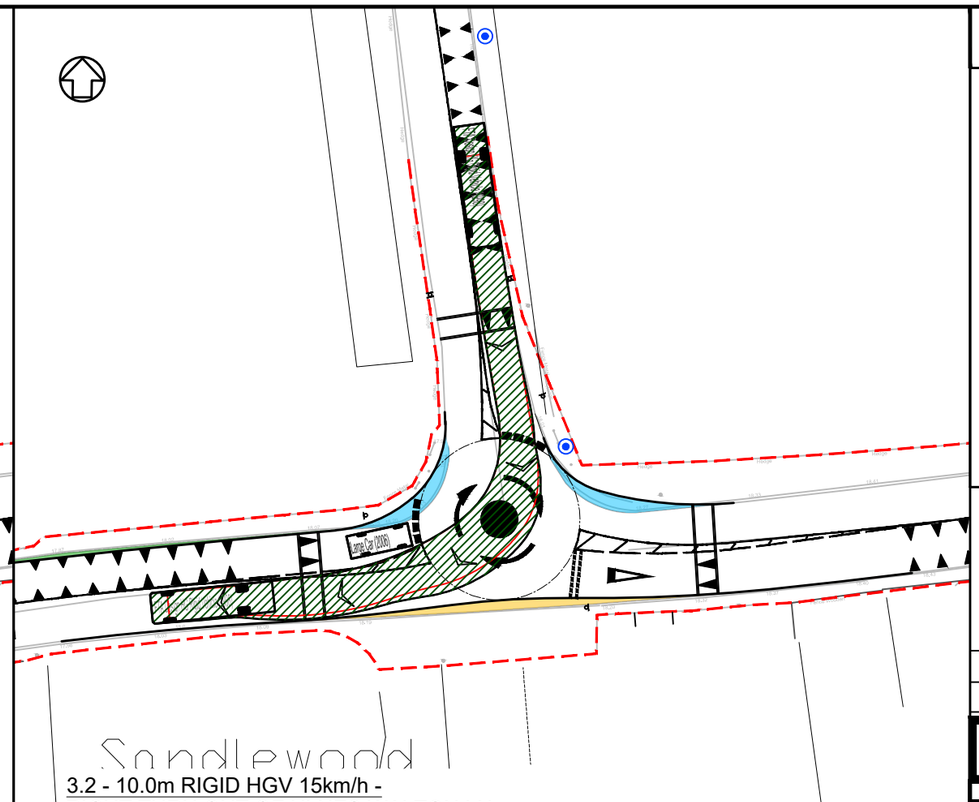
TITLE: ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 2 OF 6

SCALE @ A3:	CHECKED:		APPROVED:
1:500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

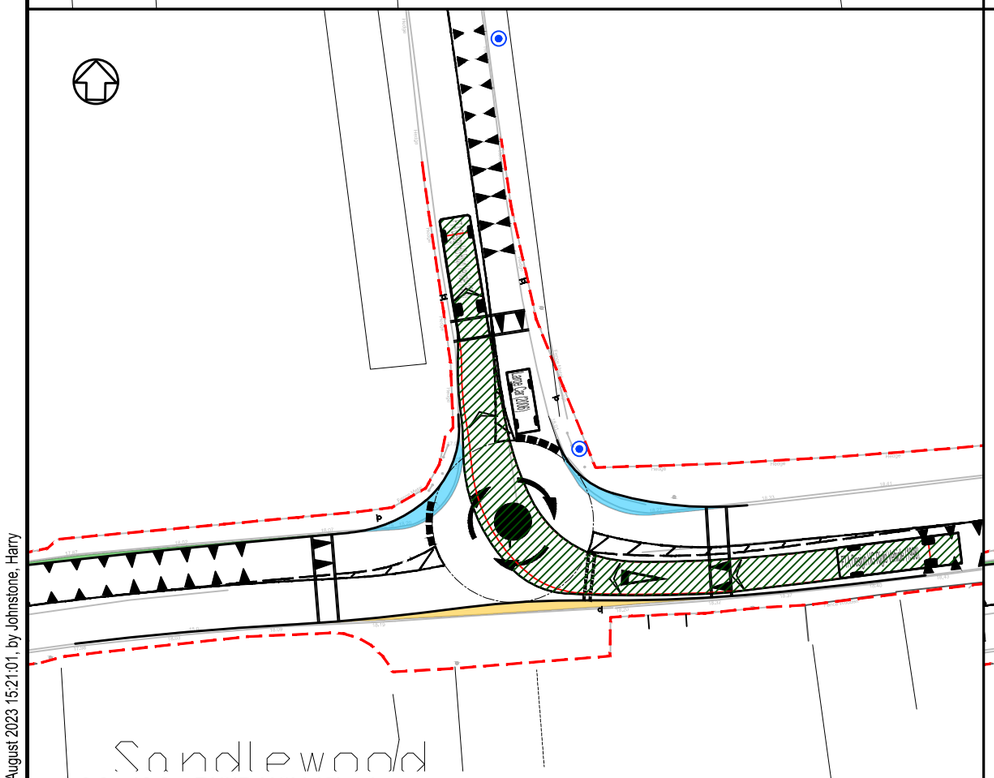
DRAWING No: 7769-WSP-SK-002 REV: P01



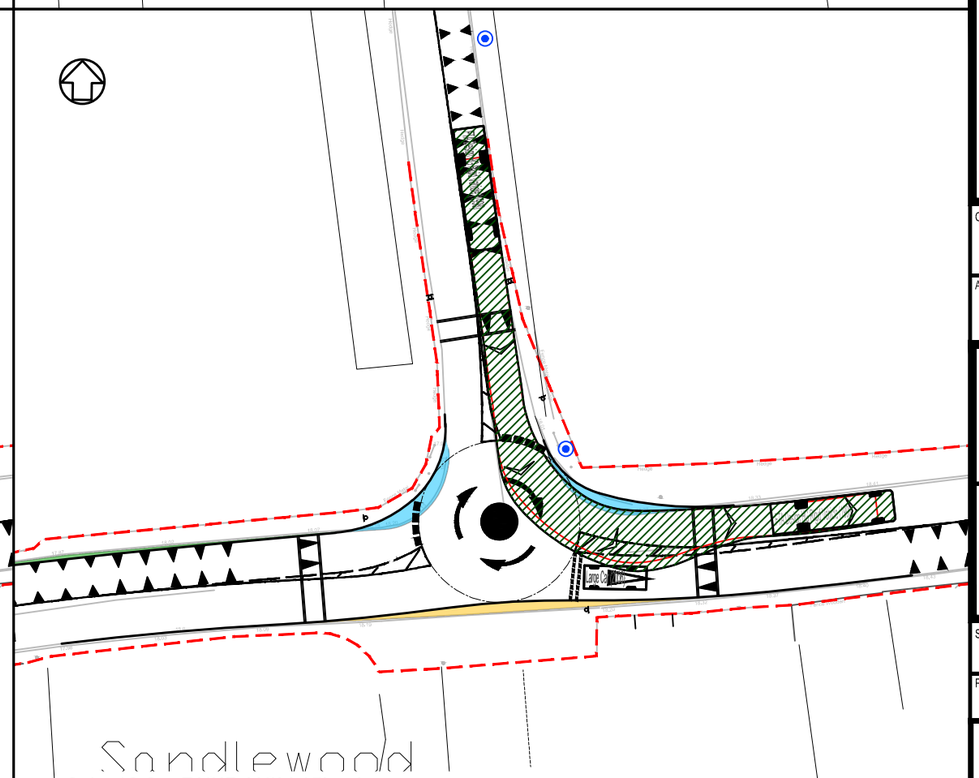
3.1 - 10.0m RIGID HGV 15km/h -
LEFT TURN INTO ULNES WALTON LN



3.2 - 10.0m RIGID HGV 15km/h -
RIGHT TURN OUT OF ULNES WALTON LN

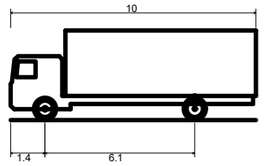


3.3 - 10.0m RIGID HGV 15km/h -
RIGHT TURN INTO ULNES WALTON LN



3.4 - 10.0m RIGID HGV 15km/h -
LEFT TURN OUT OF ULNES WALTON LN

DO NOT SCALE



FTA Design HG Rigid Vehicle (1998)

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 3 OF 6

SCALE @ A3:	CHECKED:	APPROVED:	
1:500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-003	P01

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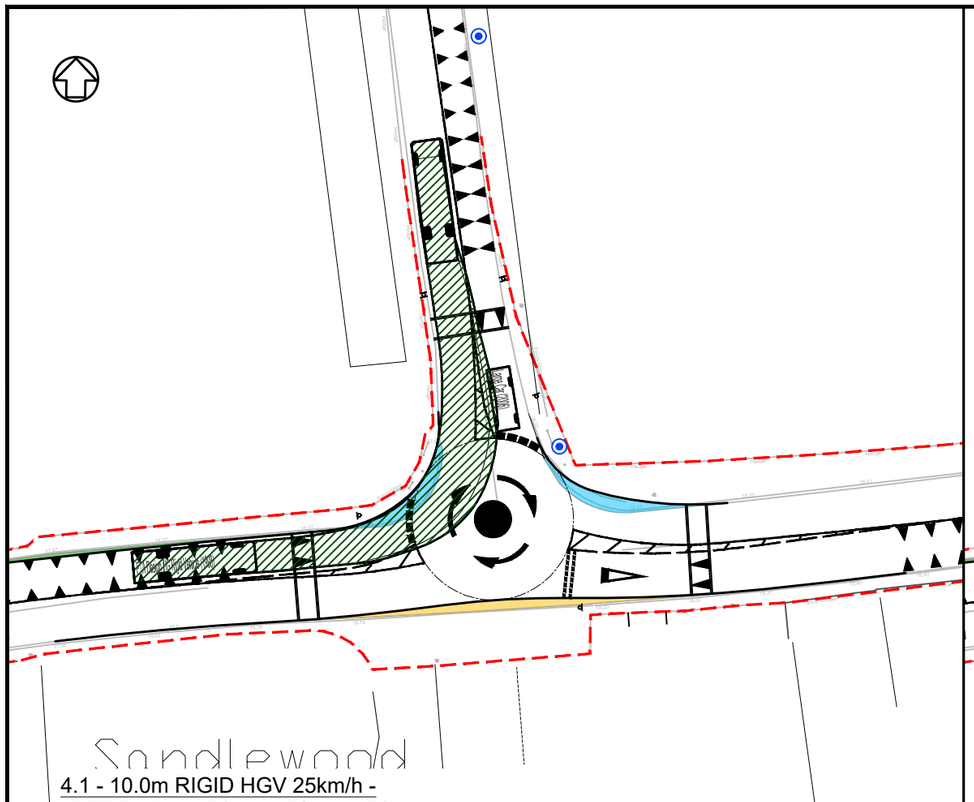
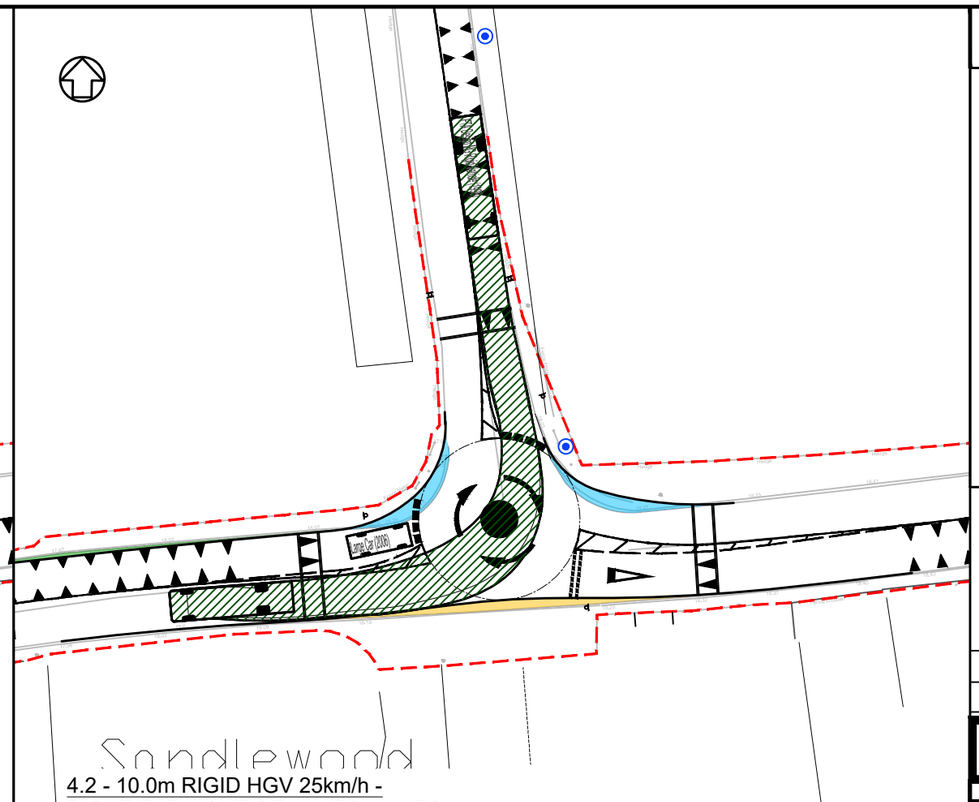
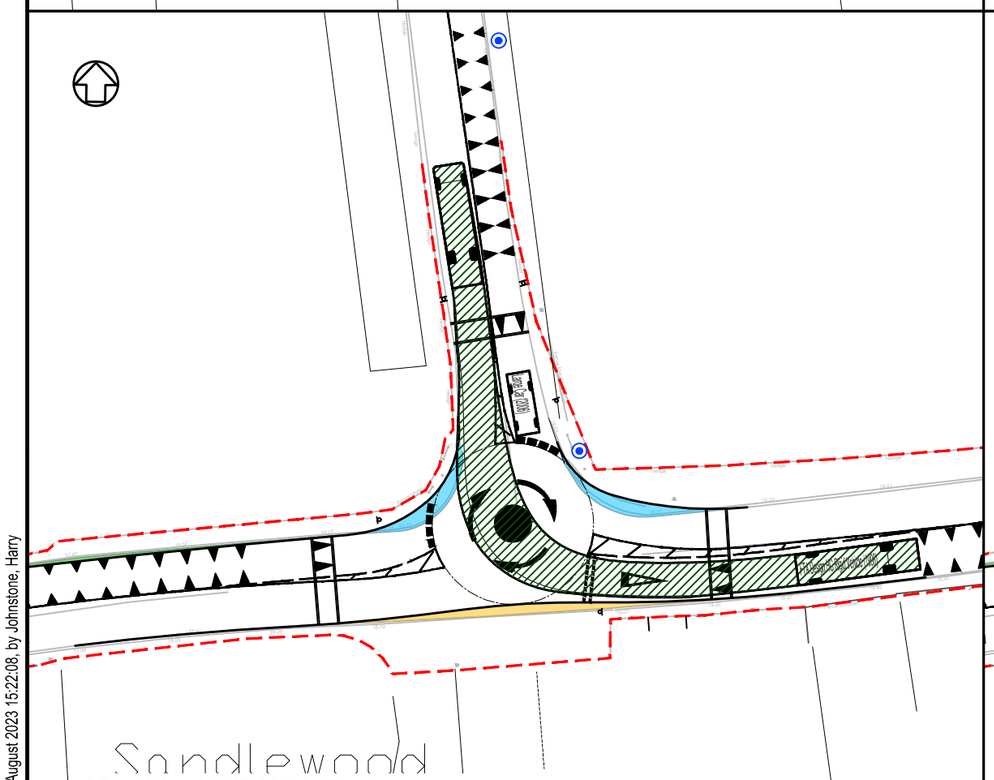
printed on 16 August 2023 15:21:01, by Johnstone, Harry



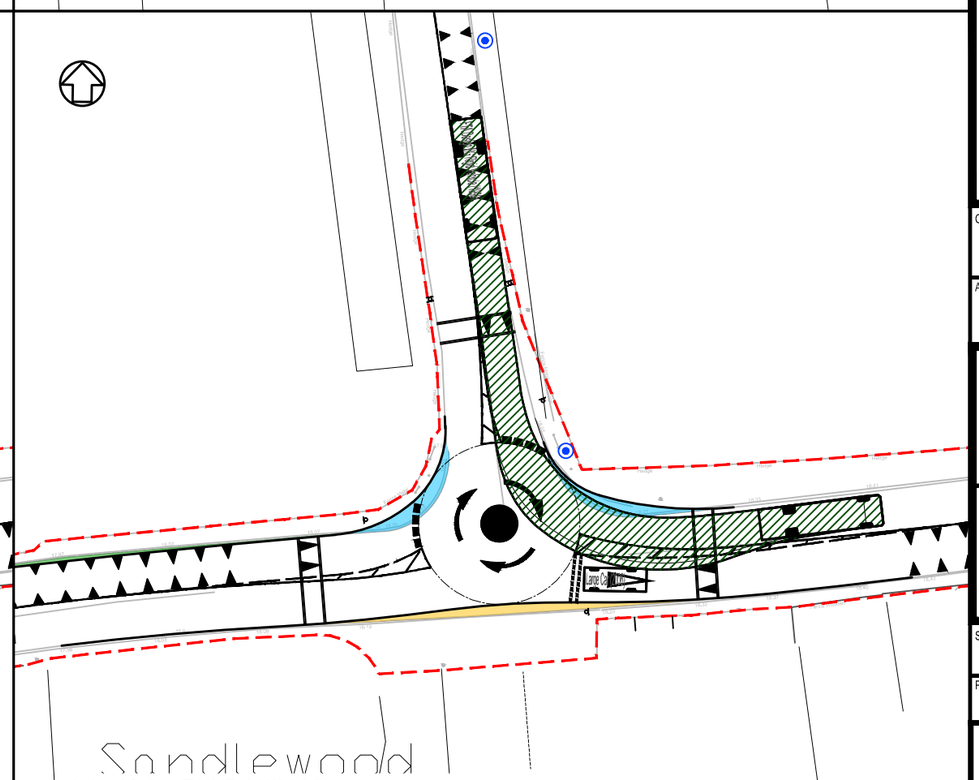
4.1 - 10.0m RIGID HGV 25km/h -
LEFT TURN INTO ULNES WALTON LN



4.2 - 10.0m RIGID HGV 25km/h -
RIGHT TURN OUT OF ULNES WALTON LN

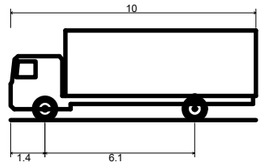


4.3 - 10.0m RIGID HGV 25km/h -
RIGHT TURN INTO ULNES WALTON LN



4.4 - 10.0m RIGID HGV 25km/h -
LEFT TURN OUT OF ULNES WALTON LN

DO NOT SCALE



FTA Design HG Rigid Vehicle (1998)

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
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PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 4 OF 6

SCALE @ A3:	CHECKED:		APPROVED:
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PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-004	P01

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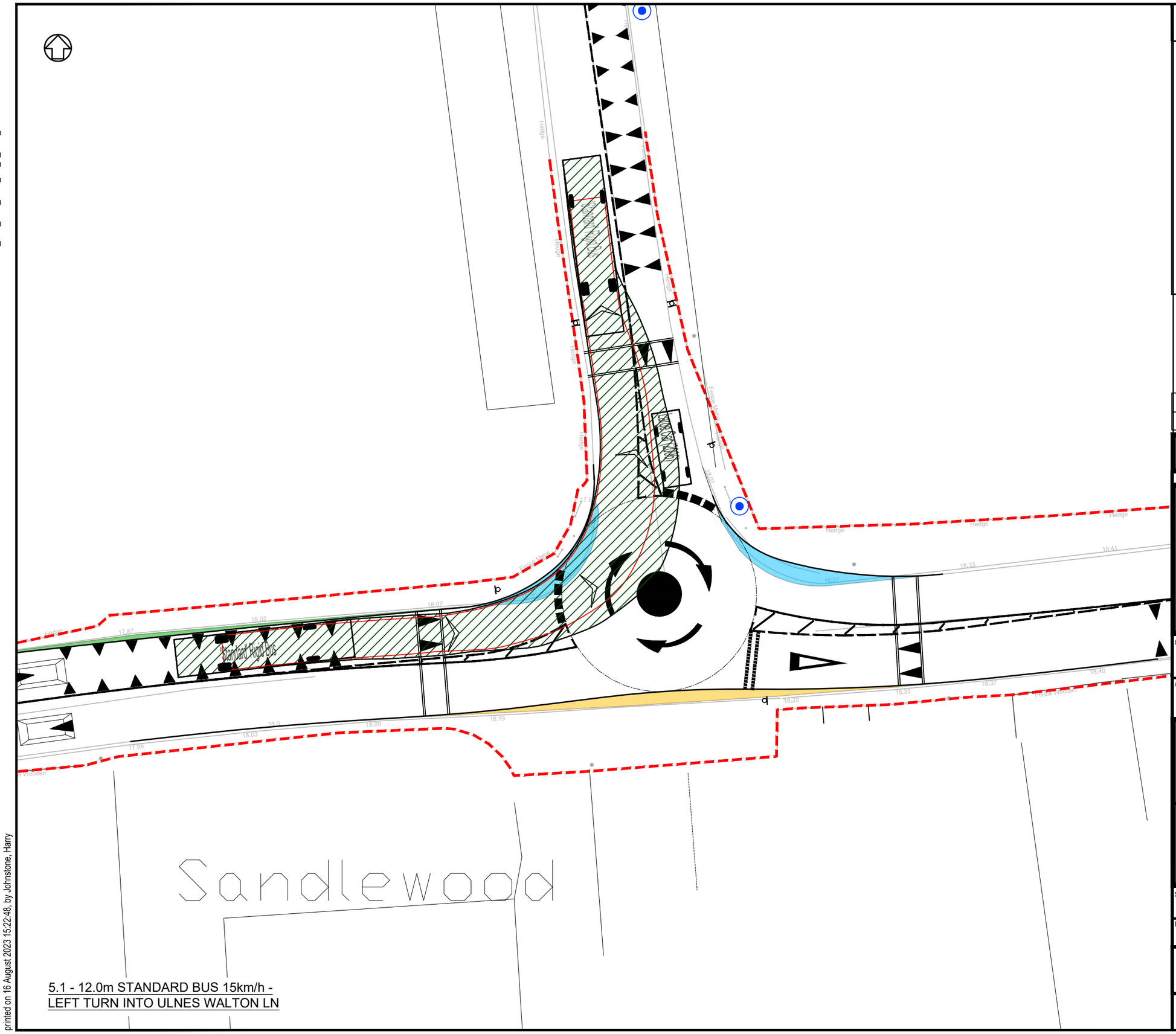

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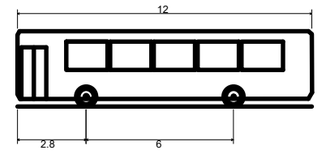

'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to lock time	4.00s
Wall to Wall Turning Radius	10.771m

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 5 OF 6

SCALE @ A3:	CHECKED:		APPROVED:
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PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
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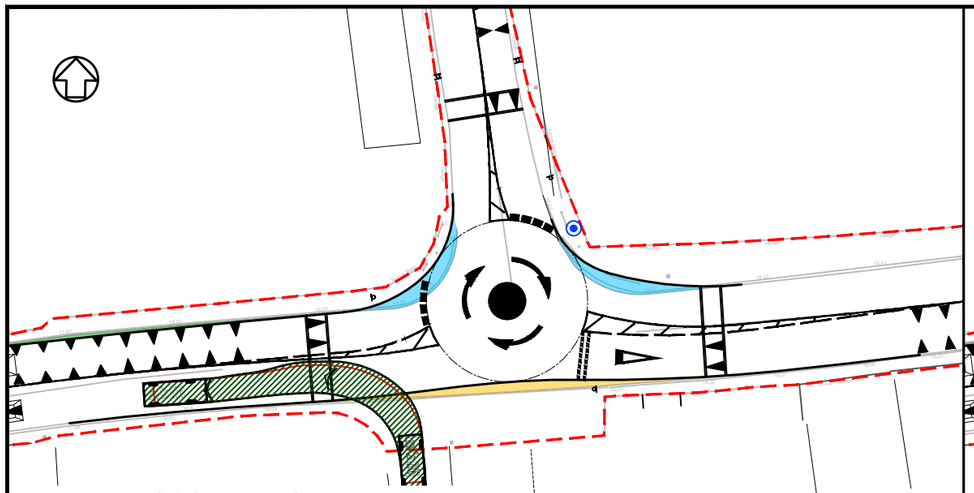
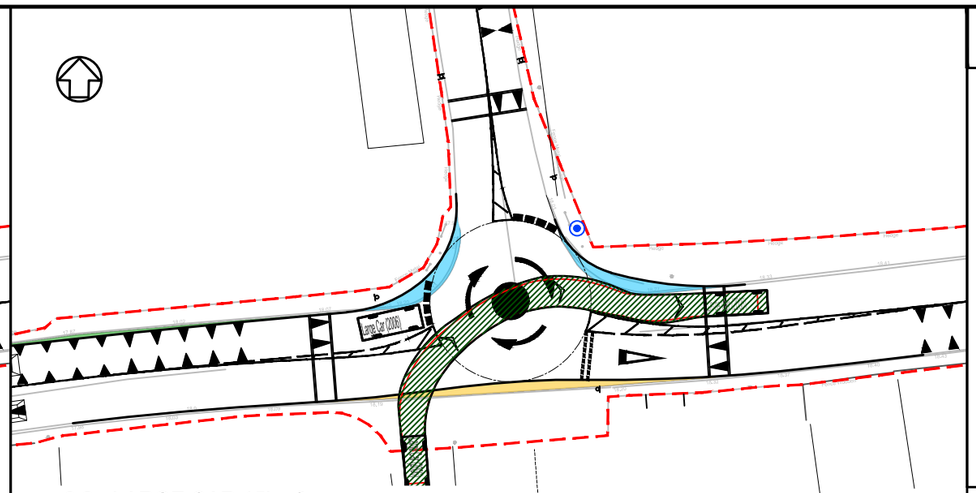
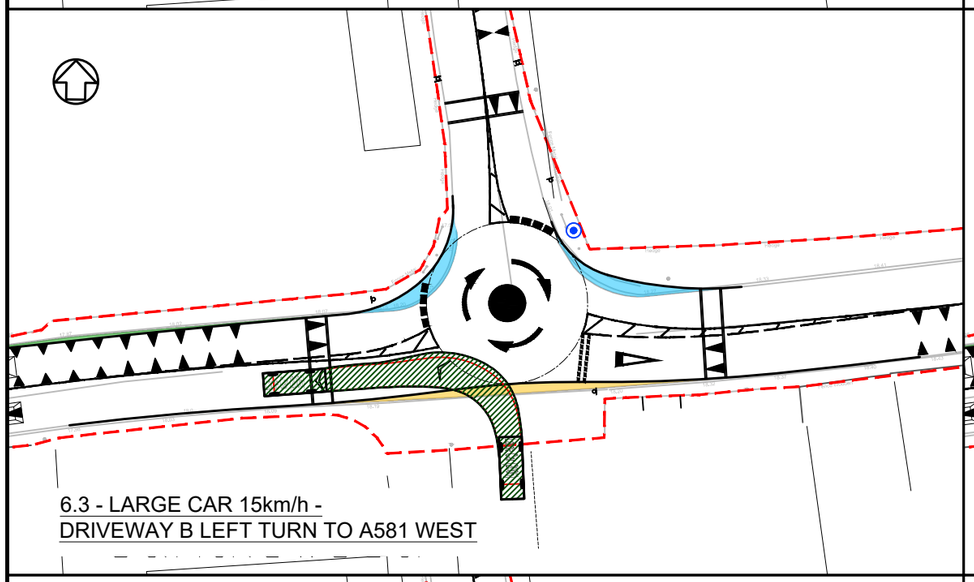


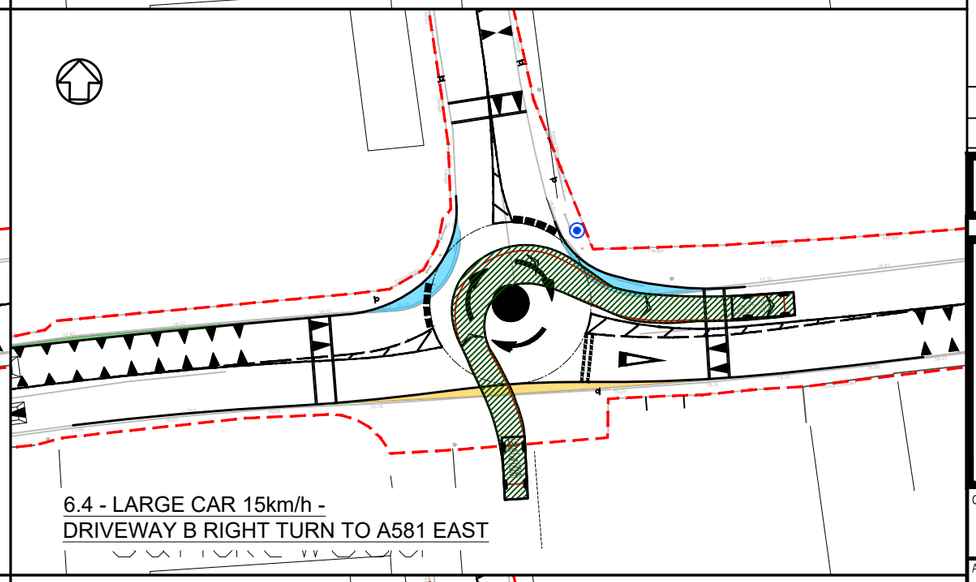
6.1 - LARGE CAR 15km/h -
DRIVEWAY A LEFT TURN TO A581 WEST



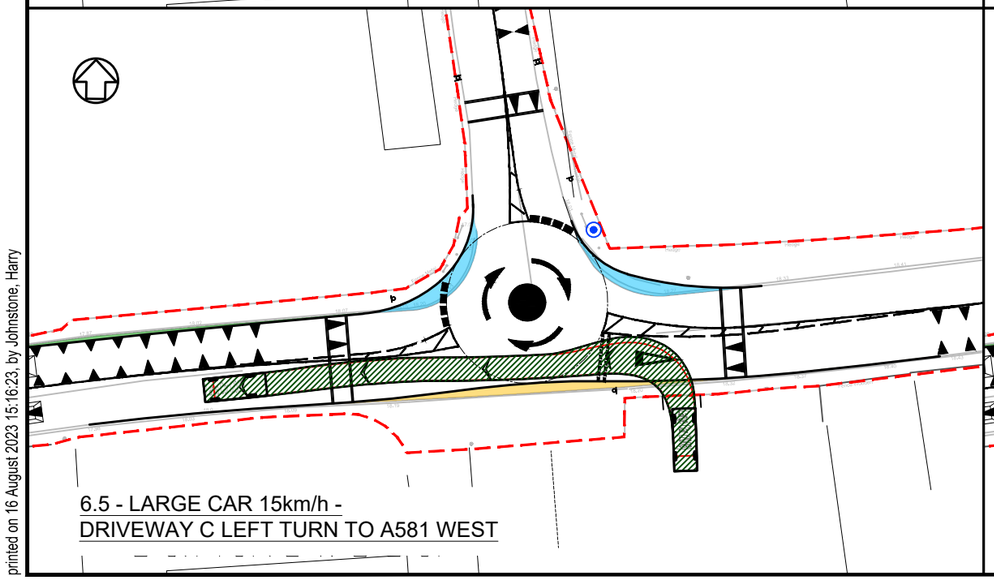
6.2 - LARGE CAR 15km/h -
DRIVEWAY A RIGHT TURN TO A581 EAST



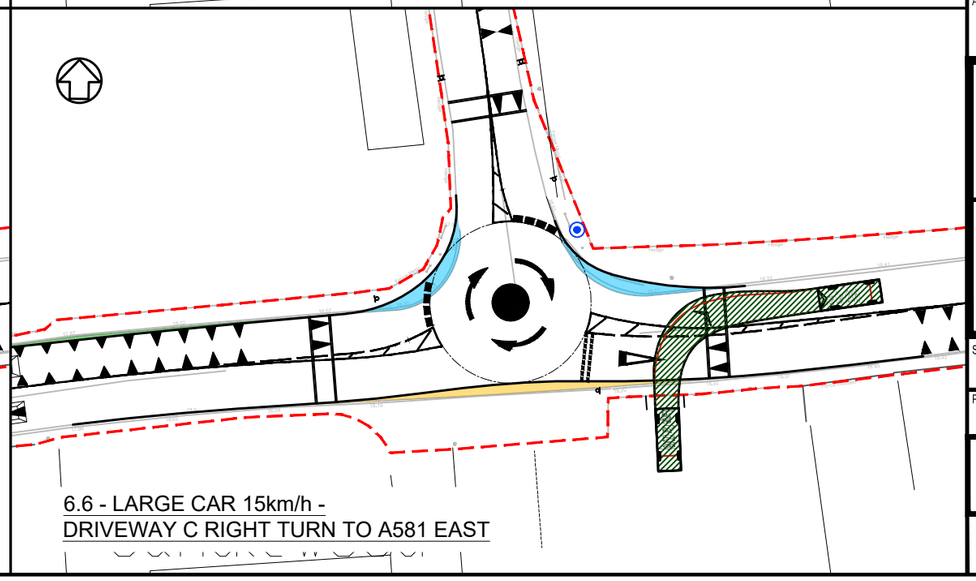
6.3 - LARGE CAR 15km/h -
DRIVEWAY B LEFT TURN TO A581 WEST



6.4 - LARGE CAR 15km/h -
DRIVEWAY B RIGHT TURN TO A581 EAST

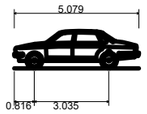


6.5 - LARGE CAR 15km/h -
DRIVEWAY C LEFT TURN TO A581 WEST



6.6 - LARGE CAR 15km/h -
DRIVEWAY C RIGHT TURN TO A581 EAST

DO NOT SCALE



Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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CLIENT:

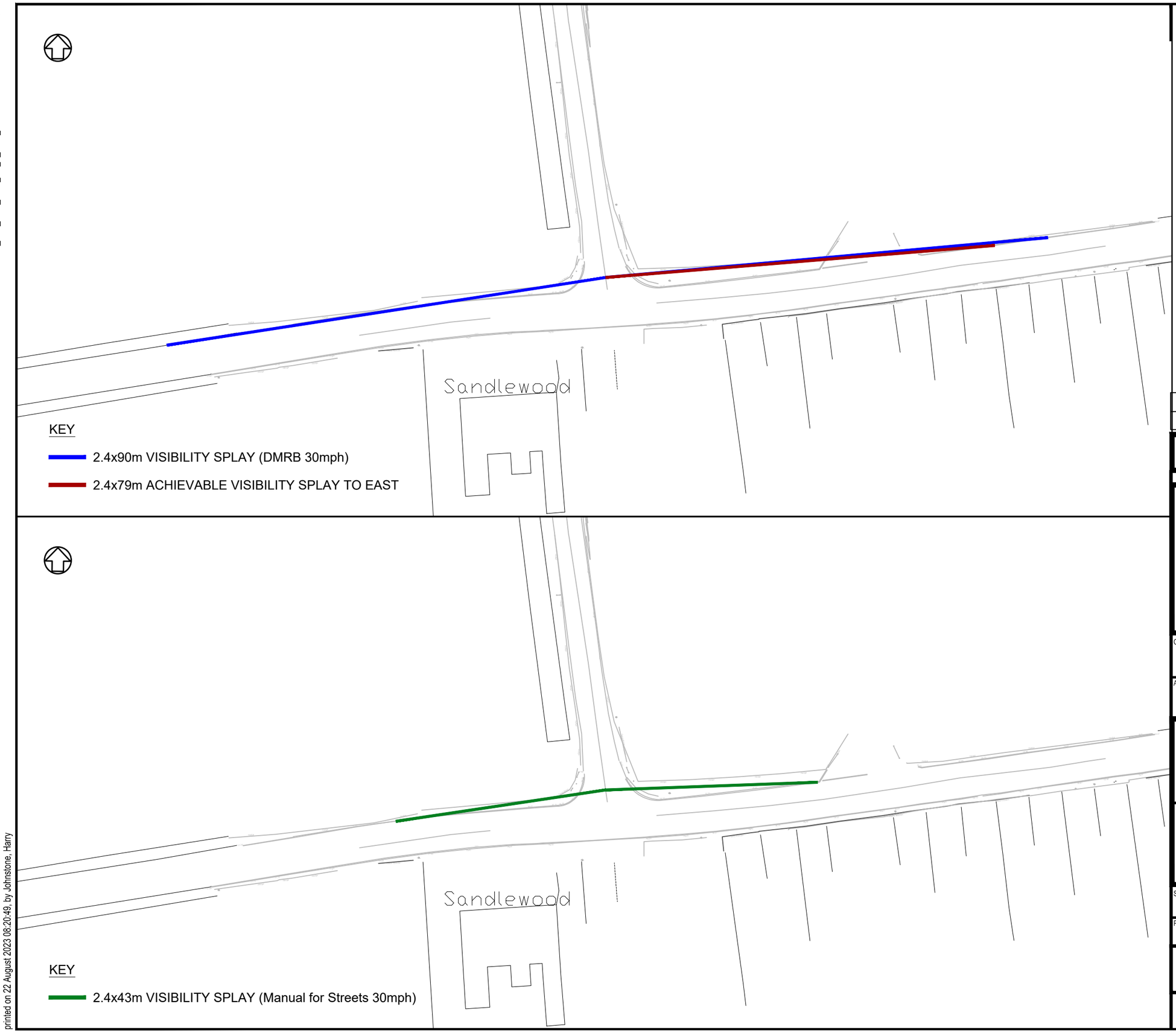
ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/A581
PROPOSED MINI ROUNDABOUT
SWEPT PATH ANALYSIS
SHEET 6 OF 6

SCALE @ A3:	CHECKED:		APPROVED:
1:500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No: 7769-WSP-SK-006
REV: P01



DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/A581
EXISTING JUNCTION
VISIBILITY SPLAY

SCALE @ A3:	CHECKED:		APPROVED:
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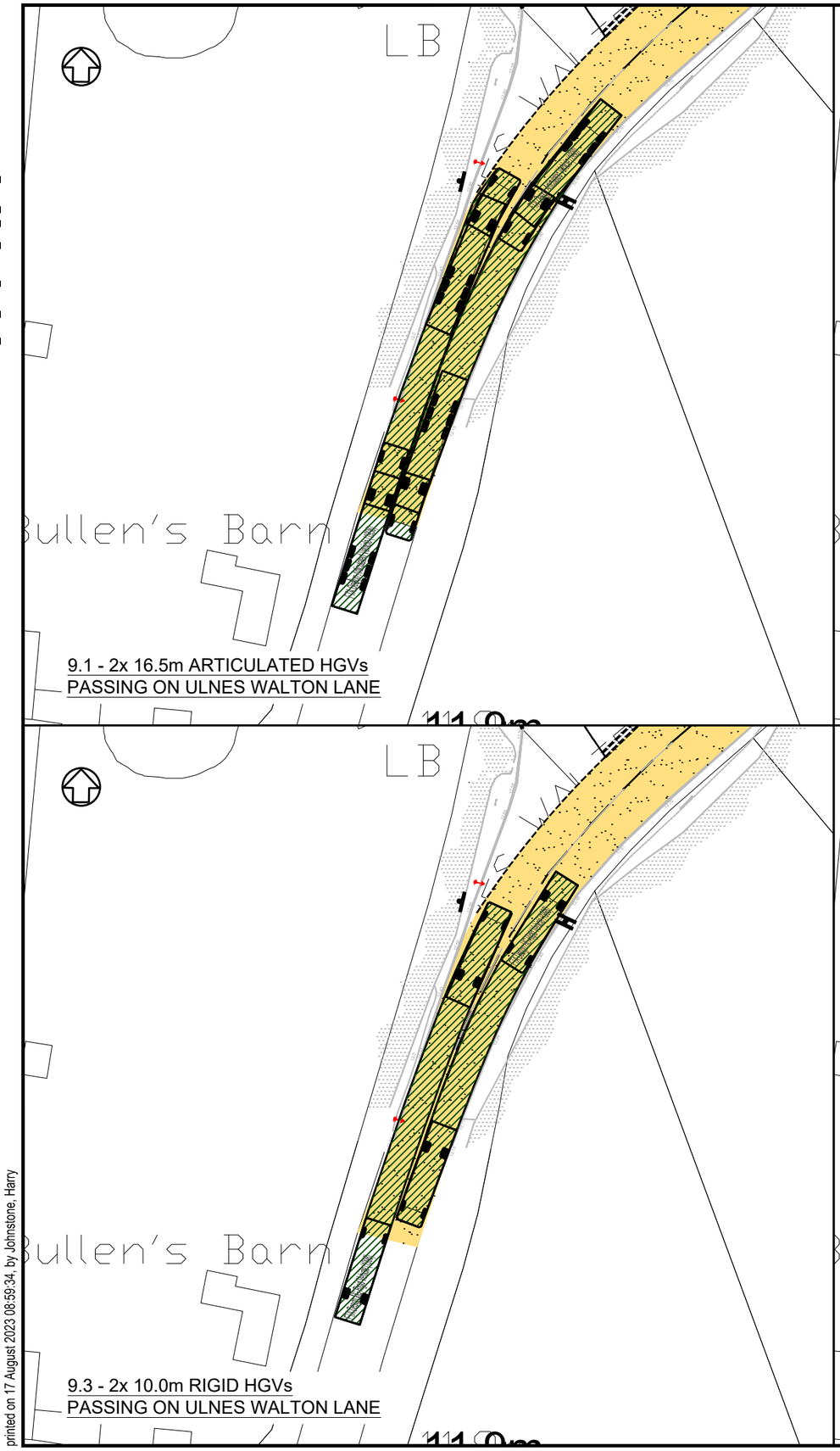
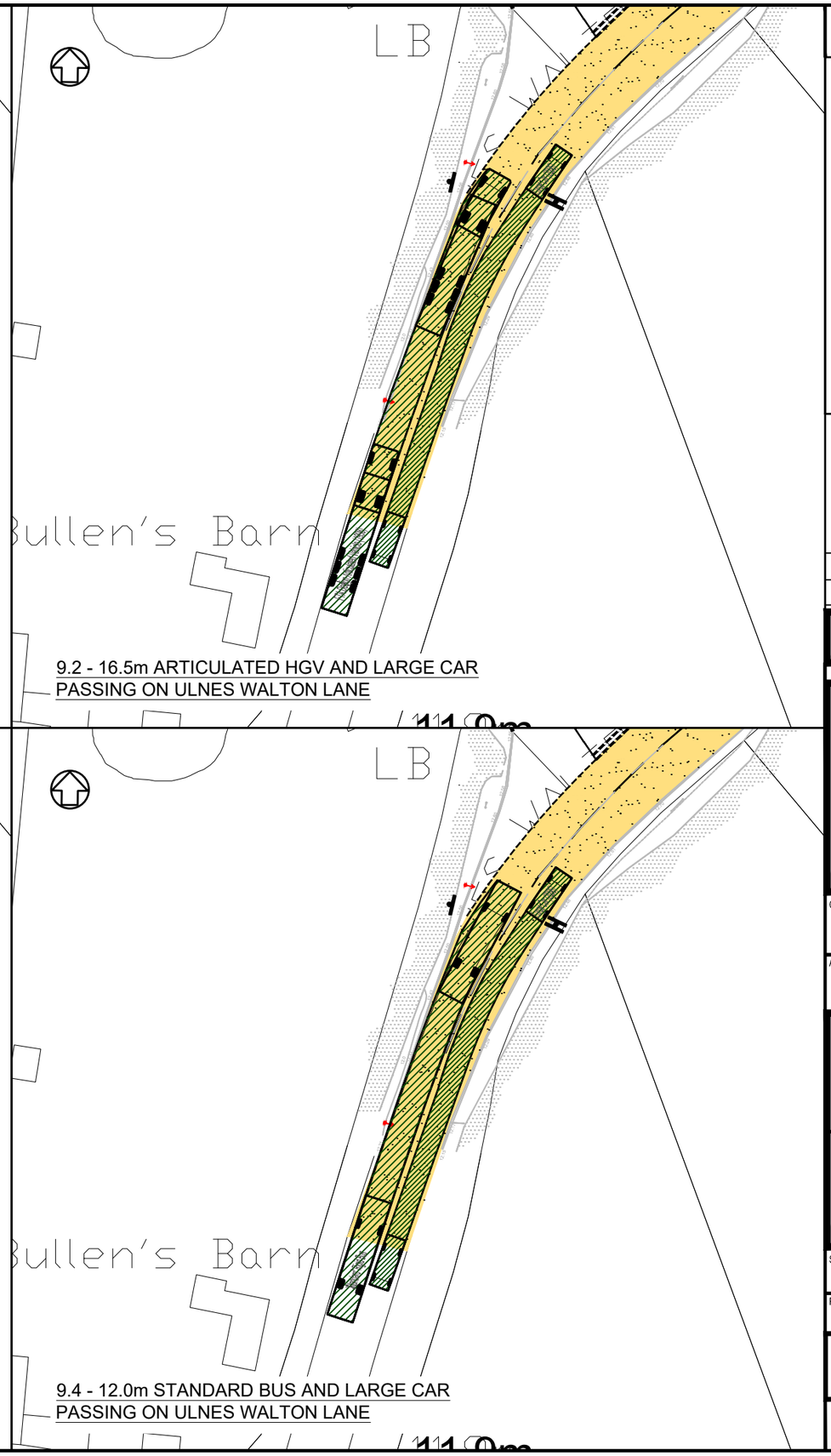
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No:	REV:
7769-WSP-SK-011	P01



9.1 - 2x 16.5m ARTICULATED HGVs
PASSING ON ULNES WALTON LANE

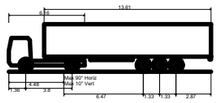


9.2 - 16.5m ARTICULATED HGV AND LARGE CAR
PASSING ON ULNES WALTON LANE

9.3 - 2x 10.0m RIGID HGVs
PASSING ON ULNES WALTON LANE

9.4 - 12.0m STANDARD BUS AND LARGE CAR
PASSING ON ULNES WALTON LANE

DO NOT SCALE

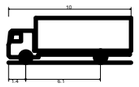


FTA Design Articulated Vehicle (1998)

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

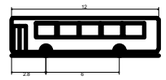
Large Car (2006)

Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.900m



FTA Design HG Rigid Vehicle (1998)

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m



'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to lock time	4.00s
Wall to Wall Turning Radius	10.771m

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	01/01/1901	XXX	FIRST ISSUE	XXX	XXX

DRAWING STATUS:
S0 - WORK IN PROGRESS

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CLIENT:

ARCHITECT:

PROJECT:
HMP GARTH

TITLE:
ULNES WALTON LANE/MOSS LANE
PROPOSED JUNCTION
SWEPT PATH ANALYSIS
SHEET 3 OF 3

SCALE @ A3:	CHECKED:		APPROVED:
1:500			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70097769			August 23

DRAWING No: 7769-WSP-SK-009
REV: P01

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70097XXX\70097769 - LAND ADJACENT TO HMP WYMOTT AND HMP GARTH\03 WIP\04 PUBLIC INQUIRY REOPENING\ATKINS DRAWINGS DWG\GARTH_ATK_HGN_MOSS_DR_D_0002_P3\7769-WSP-SK-003.DWG,
printed on 17 August 2023 08:59:34, by Johnstone, Harry

Appendix B

Appendix O				Table 1 (Calculated)		
Forecast Construction Vehicles				Vehicles Per day		
Month	HGV	Car	Total	HGV	Car	Total
Dec-23	540	228	768	25	10	35
Jan-24	551	479	1,030	25	22	47
Feb-24	557	441	998	25	20	45
Mar-24	282	441	723	13	20	33
Apr-24	133	458	591	6	21	27
May-24	52	391	443	2	18	20
Jun-24	74	312	386	3	14	18
Jul-24	80	345	425	4	16	19
Aug-24	97	330	427	4	15	19
Sep-24	59	255	314	3	12	14
Oct-24	538	253	791	24	12	36
Nov-24	142	259	401	6	12	18
Dec-24	44	286	330	2	13	15
Jan-25	83	299	382	4	14	17
Feb-25	13	204	217	1	9	10
Mar-25	27	269	296	1	12	13
Apr-25	18	198	216	1	9	10
May-25	1,037	118	1,155	47	5	53
Jun-25	2,415	189	2,604	110	9	118
Jul-25	2,645	207	2,852	120	9	130
Aug-25	2,415	189	2,604	110	9	118
Sep-25	2,530	198	2,728	115	9	124
Oct-25	2,645	207	2,852	120	9	130
Nov-25	2,300	180	2,480	105	8	113
Dec-25	2,645	207	2,852	120	9	130
Jan-26	2,530	198	2,728	115	9	124
Feb-26	2,300	180	2,480	105	8	113
Mar-26	2,530	198	2,728	115	9	124
Apr-26	2,530	198	2,728	115	9	124
May-26	2,093	833	2,926	95	38	133
Jun-26	2,108	1,215	3,323	96	55	151
Jul-26	4,162	1,561	5,723	189	71	260
Aug-26	3,892	2,522	6,414	177	115	292
Sep-26	4,376	3,667	8,043	199	167	366
Oct-26	3,825	4,391	8,216	174	200	373
Nov-26	2,652	4,647	7,300	121	211	332
Dec-26	2,728	5,262	7,990	124	239	363
Jan-27	2,366	4,929	7,295	108	224	332
Feb-27	1,524	4,862	6,386	69	221	290
Mar-27	932	3,364	4,296	42	153	195
Apr-27	1,508	6,403	7,912	69	291	360
May-27	1,335	7,918	9,253	61	360	421
Jun-27	1,489	10,155	11,645	68	462	529
Jul-27	1,789	11,593	13,382	81	527	608
Aug-27	2,169	13,639	15,809	99	620	719
Sep-27	2,287	15,318	17,605	104	696	800
Oct-27	1,506	15,281	16,787	68	695	763

Appendix P			Table 2 (calculated) alternative Peak		
Forecast Construction Profile (Daily)			**Forecast Construction Profile (Daily)**		
Time	Forecast HGVs	Forecast Cars	Time	Forecast HGVs	Forecast Cars
06:00	0	133	06:00	0	29
06:15	0	133	06:15	0	29
06:30	0	134	06:30	0	29
06:45	0	134	06:45	0	29
07:00	2	36	07:00	7	8
07:15	2	27	07:15	7	6
07:30	2	23	07:30	7	5
07:45	2	21	07:45	7	5
08:00	2	21	08:00	7	5
08:15	2	20	08:15	7	4
08:30	3	20	08:30	10	4
08:45	3	20	08:45	10	4
09:00	3	20	09:00	10	4
09:15	3	20	09:15	10	4
09:30	3	0	09:30	10	0
09:45	3	0	09:45	10	0
10:00	3	0	10:00	10	0
10:15	3	0	10:15	10	0
10:30	3	0	10:30	10	0
10:45	3	0	10:45	10	0
11:00	3	0	11:00	10	0
11:15	3	0	11:15	10	0
11:30	3	0	11:30	10	0
11:45	3	0	11:45	10	0
12:00	3	0	12:00	10	0
12:15	3	0	12:15	10	0
12:30	3	0	12:30	10	0
12:45	3	0	12:45	10	0
13:00	3	0	13:00	10	0
13:15	3	0	13:15	10	0
13:30	3	0	13:30	10	0
13:45	3	0	13:45	10	0
14:00	3	0	14:00	10	0
14:15	3	0	14:15	10	0
14:30	3	0	14:30	10	0
14:45	3	0	14:45	10	0
15:00	3	0	15:00	10	0
15:15	3	0	15:15	10	0
15:30	3	54	15:30	10	12
15:45	3	62	15:45	10	14
16:00	3	74	16:00	10	16
16:15	3	82	16:15	10	18
16:30	2	82	16:30	7	18
16:45	2	82	16:45	7	18
17:00	2	82	17:00	7	18
17:15	2	82	17:15	7	18
17:30	2	82	17:30	7	18
17:45	2	81	17:45	7	18
18:00	0	0	18:00	0	0
18:15	0	0	18:15	0	0
18:30	0	0	18:30	0	0
daily total from Appendix P	120	1525			
daily total from Appendix O	129	1520	peak HGV	398	333

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