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Cambridge Past Present & Future

Coton Parish Council

Cambourne to Cambridge Busway

(The CtoC Busway)

TWAO Inquiry Transport Evidence

**Evidence Prepared by
Steve P. Johnstone B.Sc., C.Eng., M.I.C.E., M.C.I.H.T.**

**Issue 3.2
August 2025**

**Cambourne to Cambridge Busway
(The CtoC Busway)**

TWAO Inquiry

**Transport Evidence 3.2 (August 2025)
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TWAO Inquiry

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Proof of Evidence**

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1.0 [Introduction](#)

Foreword

- 1.01 My name is Steven Phillip Johnstone. I have a degree in Civil Engineering (B.Sc. Hons) and I am Engineering Director of *Lawrence Walker Limited* (LWL); a specialist Transport Planning Consultancy providing expertise on transport related development issues to Private and Local Government clients.
- 1.02 I am a Member of the Institution of Civil Engineers; the Chartered Institution of Highways & Transportation and I am a Chartered Civil Engineer. I have been involved with transport related consultancy practices for nearly 50 years, having previously been a Director of Travers Morgan (now Capita Symonds) before founding LWL in 1994.
- 1.03 LWL operates across the UK and is based at Church Farm in Leamington Hastings, near Leamington Spa. The practice specialises in resolving transport and traffic issues related to major developments of the scale proposed to the west of Cambridge.
- 1.04 I am currently involved with a number of schemes that are similar in nature to the CtoC Busway proposals. They include the 3,000 unit Fairham site to the south of Nottingham that sits on the NET2 Tram route adjacent to the Clifton South P&R; an extension of the East Midlands Gateway “Freeport” Rail Freight Terminal at East Midlands Airport for which a DCO application is about to be submitted and work to support the Joint South Warwickshire District Draft Local Plan. I am also retained by Bloor Homes as Travel Plan Co-ordinator across (currently) 22 of their UK sites, for which monitoring of bus usage has been ongoing since 2017. This gives me a wealth of information and a unique insight into how work patterns have evolved over the last eight years and what impact Covid has had on them. I draw on this data later in my evidence.
- 1.05 Overall, I consider that the the CtoC Busway TWAO application is flawed and does not justify the acquisition of CPO powers as it purports to so do today. The traffic modelling in-particular does not reflect current traffic patterns and importantly ignores the impact of EWR; both of which should have been fully corrected before any application was made. They have not been, and as such Planning Permission for the Busway should not be granted.
- 1.06 This evidence has been prepared solely by me in response to a joint request by *Cambridge Past Present & Future* (CPPF) and *Coton Parish Council* (CPC) to assess the transport implications of the proposed CtoC Busway in support of their joint objection to it.

Scope of Evidence

- 1.07 My evidence covers six specific aspects of *The CtoC Busway* scheme, being:-
- i) Limitations of the *Traffic Modelling* deployed by GCP and as a result, whether the traffic benefits of the CtoC Busway have been correctly quantified;
 - ii) The true impact of *East-West Rail* (EWR) on the scheme, which has so far been dismissed by GCP as “not likely to be significant”;
 - iii) The *Scheme Economics*, whereby funding is being potentially deployed on a scheme where for every £1 of investment less than £1 is ever likely to be recovered in benefits;
 - iv) The *Feasibility & Merits* of bringing forward a much simpler alternative scheme (*The CPPF Alternative*) based solely on an inbound bus lane down Madingley Hill that that could be provided at a fraction of the financial and environmental cost of the CtoC Busway. This option has not been adequately modelled by GCP;
 - v) A response to GCP’s *Statement of Case* for the TWAO, which is dated 9th April 2025 and labelled as “Final”, and;
 - vi) *A Response to a Critique of The CPPF Alternative* prepared by consultant WSP dated 23rd July and issued on behalf of GCP.
- 1.08 Each aspect is now assessed in turn to determine whether, in my professional view, the TWAO as submitted can be regarded as sound and if not, what steps might be taken on the part of GCP to make it so.

Limitations

- 1.09 This evidence is based on the TWAO submission and other relevant documentation as of 1st August 2025 unless otherwise specifically referenced.

2.0 Traffic Modelling

Key Limitations

- 2.01 My main concern with the traffic modelling that has been used to underpin the TWAO application is that it is based on a pre-Covid data. My experience over the past eight years on the Bloor sites is that the level of home working within the UK increased substantially during Covid and whilst it has diminished since, at typically 8% it still remains at around twice the level it did before. That experience also confirms that the switch has been almost entirely at the expense of *Public Transport* (PT) usage. This is discussed in more detail below, but is clearly of fundamental relevance to the CtoC case. Put simply, the world changed permanently as a result of Covid and it is unrealistic for GCP to continue to suggest otherwise.
- 2.02 What is unclear (and no explanation has, so far as I am aware, been given) is to why GCP has simply not updated their traffic modelling either to support the TWAO application or in response to the concerns that I have previously raised. I am aware of many examples of situations in which traffic modelling *is* being updated to reflect post-covid travel patterns as I discuss below, so it is difficult to avoid the assumption that GCP is more concerned that to update the traffic modeling would undermine the case in favour of their Scheme. Even if I am wrong (and bearing in mind here the need for the compulsory acquisition of land) what is clear is that the failure to take proper account of post-Covid travel patterns means that the case in favour of the Scheme is fundamentally flawed.

The Base Position

- 2.03 My understanding is that the principal objective of CGP's transport modelling of *The Busway* is to appropriately represent travel conditions on the highway network to judge the journey time savings derived from the segregated scheme. However, these assertions do not reflect the fact that the traffic model used to do this assessment was calibrated against pre-Covid data. Traffic volumes and bus patronage built into the chosen F-Series CSRM model differ significantly from current conditions and worse still, it embodies 2011 Census Data, with simple things such as the quantities and temporal distributions of trips; PT usage and the prevalence of home working all having changed forever since Covid. For car traffic that might not matter too much as it could be argued that pre-Covid is worse than post, but for a scheme whose main purpose is to get commuters out of those cars and onto buses it does. If "commuters" work from home they don't need to travel at all, and that is the fundamental problem with all pre-Covid models. Moreover, going back to 2011 for raw data when few commuters owned Smartphones; Microsoft TEAMS did not exist and the average UK Broadband Speed was 30x slower than it is today is naive, as each one diminishes the opportunity to work from home beyond all recognition when compared to today. So they drove to work back in 2011. They do not in 2025.
- 2.04 To explore this premise further, the CtoC Busway scheme relies to a large degree on car drivers switching to travelling by bus. The circumstances that will lead people to switch are sensitive however to such things as relative costs, journey times and reliability, so the effects of altering any of these specifically to encourage new bus travel requires an accurate baseline to be established first.
- 2.05 Instead, the TWAO submission is based on the 2015 CSRM2 model, which was last updated to any degree in 2019 through the creation of the "F-Series" version. This model series was used for the Outline Business Case [CD1-20] and the Transport Assessment [CD1-25], meaning both must be based on pre-Covid data.

- 2.06 Fundamentally this approach is not acceptable in my view, as evidence discussed below from similar situations elsewhere in the UK suggests that bus patronage continues to lag well behind pre-Covid levels, and may in fact never fully recover. It is not valid to extrapolate pre-Covid data to arrive at a post-Covid prediction as to do so will not be conservative in the case of bus travel; it will simply be wrong.
- 2.07 Noting this, it is important that the 'F-Series' of the CSRM Strategic Model as used in The CtoC Busway Outline Business Case [CD1-20] and Transport Assessment [CD1-25] comes with a caveat. The TA states unequivocally that with respect to the F-Series... *"[this version] added a 2019 Present Year Validation (PYV) to extend the life of the model until such time as a whole new base year can be created (once the disruption to travel behaviour and patterns caused by the COVID-19 pandemic has settled to a "new normal" state)."* [CD1-25.08 §1.1]
- 2.08 It is clear that GCP's own consultant identifies the 2019 situation as being one that is outside of the "new normal". Moreover, the F-Series model was only intended to be an interim solution to extend the model's life until such time as a new base year could be created, once the disruption caused by Covid had settled.
- 2.09 The F-Series is not fit-for-purpose today - some five years after the event and at least three years beyond that new "normal state" having settled.

Comparison with Other Sites

- 2.10 As described on Section 1 of my evidence, LWL is currently involved in a number of UK sites that are relevant to the CtoC scheme. These are discussed below and give an insight into what others are doing elsewhere to accommodate the legacy of Covid and indeed what impact Covid itself has had on travel patterns. This exercise is provided to reinforce the case for the F-Series modelling not being fit-for-purpose.

East Midlands Gateway "Freeport" Rail Freight Terminal (Phase 2)

- 2.11 The EMG2 scheme (as it is usually referred) sits close to East Midlands Airport and is intended to serve as an extension to the highly successful EMG1. As the name suggests it is a commercial development and being a *Strategic Rail Freight Interchange* (SRFI), is to be delivered by DCO in accordance with The Planning Act (2008). That DCO submission is due to be made in September 2025 and so will be in the public domain by the time the CtoC Inquiry gets underway. I am involved with the scheme to provide strategic advice and traffic modelling expertise in relation to the M1 Motorway between Junction 23A and Junction 24.
- 2.12 Currently, the entire DCO submission is based on the 2019 version of Leicestershire County Council's *Pan-Regional Transport Model* (PRTM) which is pre-Covid. The submission however will contain a Sensitivity Test using the more modern 2023 post-Covid version which has recently been calibrated and has now become available. This is the agreed approach of both LCC and National Highways and is intended to counter any debate at the DCO Inquiry as to the validity of the traffic modelling that underpins the scheme. Only a Sensitivity Test is required in this case as pre-Covid commercial traffic flows from road and rail freight schemes are likely to be greater than those generated in a post-Covid world as I note at Section 2.03 above. Currently, it is estimated that the margin will be around 4% in favour of the latter, meaning that the pre-Covid model is slightly conservative. As I then note later in the same section, this does not hold true where the main essence of the scheme is bus travel.

- 2.13 To me, the EMG2 approach is the correct one. I would have expected GCP to similarly have commissioned a fully updated post-Covid version of the CSRM and used it to check the F-Series findings, rather than a 'quick-fix desk-top check' using the (now two year old) DfT Uncertainty Tool Kit [CD8-22] based on a "Highways Only" approach as has been done. Since a full test would (and will) undoubtedly show that the F-Series is optimistic in terms of its bus usage predictions post-Covid, I would then have expected the Outline Business Case to have been reviewed. That is not the case.

The Fairham Site – Clifton (Nottingham)

- 2.14 Fairham sits to the immediate south of Nottingham at Clifton and comprises 3,000 new dwellings and 1m sqft of commercial floor-space. The site has been under construction for a number of years, with significant parts of the commercial area and a number of dwellings already occupied. I have been involved with the scheme since 2012 and am responsible currently for an array of inputs from traffic modelling and detailed design, through to acting as Travel Plan Co-ordinator for the entire development. Fairham is located right next to the NET2 Tram-based Clifton South P&R to Nottingham, so is very similar to Cambourne with its supposedly high standard guided busway to Cambridge and is thus a good real-life example of what that busway scheme might, or might not, be able to achieve. Fairham was originally based on pre-Covid traffic modelling but that has progressively been updated from 2022 onwards as new infrastructure is provided.
- 2.15 There are two aspects of Fairham that have a direct bearing on GCP's use of a pre-Covid model. These are:-
- i) Pre-Covid traffic modelling predictions for Tram usage from Fairham showed a 12% take-up. The post-Covid figure is currently 7%, with just 5% now being used to design major parts of the supporting infrastructure, and;
 - ii) Commuting and Park & Ride usage into and out of major cities has reduced since Covid, as employees have in general embraced home working as an alternative to travel. Recently published GOV.UK evidence for the Clifton South P&R (**Appendix C**) shows a sustained drop of 5% between pre and post-Covid usage and it is therefore essential that post-Covid data is used for transport modelling of the CtoC scheme.
- 2.16 Again, this dual loss of NET patronage from Fairham may or may not be repeated at Cambourne and my case is not that it necessarily will be. It is instead that it *might* be, and that premise needs to be tested. The Fairham experience shows that in a post-Covid world commuter patterns are not the same as they were before the pandemic and the use of a pre-Covid model is not an appropriate or acceptable way to quantify that difference when CPO powers are being sought.

Bloor UK Sites

- 2.17 As I describe above, I am currently retained as Travel Plan Co-ordinator by Bloor Homes to look after and monitor 22 of its UK sites. These range from modest "low 100's" rural developments; across the 1,000 unit Normandy Fields site in Hinckley to the major 1,500 dwelling Sharphill Wood scheme at Edwalton on the outskirts of Nottingham. The latter is a JV with Bovis and has been monitored for the past eight years. To date, over 1,000 units have been occupied across nine phases and the development now has its own dedicated bus service to Nottingham, making it a good comparator for Cambourne.

- 2.18 There are four aspects of the Bloor sites that are relevant to the CtoC Inquiry. Based on the publically available annual *Monitoring Reports* (MR's) these are:-
- i) Every one of the 22 sites that I am responsible for is currently meeting its planning obligation in terms of *Single Occupancy Car Driver* (SOCD) usage. Targets range from 60% to 70%;
 - ii) With the exception of Oadby in Leicester, bus patronage is not a major contributor to this achievement anywhere, with around 70% of the sites involved actually having no bus usage at all;
 - iii) Instead, home working and out-of-peak travel dominates across the board. The Phase 1 & 2 2024 MR for Edwalton (**Bovis – Appendix D**) shows that against the original trip expectation for the 223 occupied units, nearly 45% of the predicted peak hour persons-trips are not being made. SOCD usage against the same measure was only 35% in the main tidal directions, which is exceptionally low. This is beneficial for local roads, but undermines the justification for schemes that rely on switching commuters from those roads onto buses. If commuters work from home they don't need to travel and that is the fundamental problem with all pre-Covid models;
 - iv) Edwalton has been monitored since 2017 for eight consecutive years. Results from the pre-Covid era showed typically 70% SOCD usage; no home working and total person trips close to expectations. The post-Covid 2023 "new-normal" MR showed just 45% SOCD peak-time travel, with over 30% not doing so at all and 7% officially working from home. The 2024 MR at **Appendix D** stated that... *"Numerically, the average SOCD modal share is currently around 59% as surveyed, falling to 58% if occasional home working is factored in. As a percentage of the actual targeted number of person trips however, the figure is just over 37%, which is very close to the 2023 result."* Home working has remained constant at about 7% since Covid at Edwalton and slightly greater at 8% average recorded across all 22 sites. Clearly there has been a marked and sustained change in travel patterns since Covid and this would not have been picked up by a pre-Covid transport model.

The Joint South Warwickshire Draft Local Plan

- 2.19 Work on updating the Joint South Warwickshire Local Plan has been ongoing for a number of years and is a joint venture between Warwick and Stratford District Councils, either side of the M40. WDC's area includes the major towns of Warwick and Leamington Spa and is bounded by the M40 roughly between Junctions 13 & 15. The combined population of the two towns exceeds that of Cambridge, with the Chiltern Mainline Railway bisecting both. Warwick Parkway Station then provides P&R access off the A46 at Junction 15 (much as EWR will do at Cambourne) and Warwick University is a well renowned UK R&D Centre for the Motor Industry, with links to JLR close-by at Whitley and Gaydon. The UK Battery Research Centre sits on the A45 to the north. Overall, the area shows remarkable similarity with Cambridge.
- 2.20 LWL has been involved with work on the Local Plan for a number of years and I myself in the promotion of various sites bordering the M40. Options to re-locate Junction 13 and close Junction 14 have been examined which if progressed, would see the creation of a new P&R and Sustainable Transport Hub close to the Grey's Mallory Roundabout as it is known locally.

- 2.21 Extensive traffic modelling was undertaken with National Highways in 2023 on this option and their support was confirmed in writing by the end of that year. The modelling was however based on the 2017 pre-Covid version of the Warwickshire County Council's *Warwick & Leamington Wide Area* (WLWA) model. The new post-Covid version has recently been released and LWL commissioned SLR Consulting to run a comparison between the two. Their report is provided at **Appendix E** and is summarised below for the (typical) PM Peak Hour:-

Table 2 Junction Totals – Flow Comparison 1700-1800

Junction		2037 Old	2037 New	Diff	Diff %
Greys Mallory	Throughput	6177	4342	-1835	-30%
M40 J13	Throughput	3227	2216	-1011	-31%
M40 J14	Throughput	4176	2870	-1306	-31%
M40 J15	Throughput	9499	8452	-1047	-11%
M40 J15 to J14	EB	5214	3611	-1603	-31%
	WB	5614	4717	-897	-16%
M40 J14to J13	SEB	2967	2213	-754	-25%
	NWB	3719	3197	-523	-14%

- 2.22 Based on the turning count comparison undertaken by SLR for Leamington Spa and Warwick, it is clear that the old 2017 pre-Covid version of the WLWA included significantly more trips travelling through key junctions than does the new post-Covid version. Additionally, the traffic volumes on the strategic M40 were between 14% and 31% higher within the older version of the model, meaning potentially fewer passengers for the two P&R sites.
- 2.23 As a result of this comparison, all of the 2023 analysis is now being re-run using the new version of the WLWA model to ensure robust results are presented at the Regulation 19 Inquiry. The same process should have been undertaken by GCP to ensure that the most up-to-date and reliable information was provided for the TWAO equivalent. They have not done so and whilst a traffic model from another region of the UK is clearly not definitive, it is at least indicative and lessons learned from its use should be heeded.

Traffic Modelling – Section Summary

- 2.24 To summarise this section of my evidence on *Traffic Modelling*, I consider that there is sufficient data available to demonstrate convincingly that pre-Covid traffic models are unreliable when used to predict bus patronage in a post-Covid world. GCP's own consultant agrees with this statement and notes in its TA that the 2019 F-Series CSRM model was only intended as an interim measure until such time as a "new normal" travel pattern was established post-Covid. That pattern has long since been reached.
- 2.25 The F-Series model is not fit-for-purpose today and *The CtoC Busway* TWAO application cannot progress as it stands. GCP's 'quick-fix desk-top check' using the (now two year old) DfT Uncertainty Tool Kit [CD8-22] on a "Highways Only" basis as has been done in no way detracts from this argument and even more so when it is only being applied to the Base Case and not the CtoC scheme itself.
- 2.26 Until a new model has been provided by GCP and the Outline Business Case for it updated to reflect post-Covid travel patterns, there cannot be a compelling case in the public interest to justify the compulsory acquisition of land. Planning permission for *The CtoC Busway* should therefore not be granted based on this.

3.0 East-West Rail (EWR)

The Base Position

3.01 Although the Outline Business Case Addendum [CD1-21] for the CtoC Busway acknowledges that “...EWR will have an impact on travel in the CtoC corridor”, it goes on to claim without basis that “...the impact on CtoC is not likely to be significant” [CD1-21.04 § Table 3-2]. GCP has therefore not incorporated EWR into any of its traffic modelling and has attributed no trips between Cambourne and Cambridge to it.

3.02 The Economic Case Addendum [CD1-21.02] on the other hand fails to mention East-West Rail at all. This is contrary to the advice set out in TAG Unit M4 on Forecasting and Uncertainty [CD8-21], which is presented below for ease of reference. The underlining has been added for emphasis. It states that:-

2.2.12 *Local Uncertainty typically depends on whether developments or other planned transport schemes go ahead in the vicinity of the scheme being built. When transport schemes are evaluated after opening, the evaluation results often suggest that benefits can be extremely sensitive to local sources of uncertainty, so careful consideration is essential.*

2.2.13 *The Uncertainty Log should highlight all sources of uncertainty that are likely to affect the traffic/patronage, revenues and delivery of scheme benefits. This may include planned land-use developments (not just housing, but also employment and retail; also distribution centres which may affect freight traffic) and transport schemes. Sources that have an individually minor effect may need to be included, as their cumulative effect may be a material consideration in the appraisal.*

5.1.1 *In addition to the High and Low Growth Scenarios described in Section 4, and the Common Analytical Scenarios, other scenarios may be required to test the impacts of significant sources of local uncertainty. These scenarios should also be subject to a full appraisal.*

5.2.6 *Some sources of local uncertainty may have a significant impact on the transport network if they go ahead (for example, a housing development of 1,000 dwellings). It may be appropriate to test these individually, even if they are only hypothetical, so that decision-makers are aware of any risks that could arise. This is particularly important if the source of uncertainty is very close to the scheme itself.*

3.03 And finally to complete this round-up, the Transport Assessment states the following with respect to ERW, which clearly confirms that it has been excluded:-

“East-West Rail has not been included in the modelling undertaken for the CtoC Scheme. Whilst a preferred route for East West Rail has been announced, the scheme is still at an early stage. It is not a committed scheme and has no guaranteed funding or delivery programme.” [CD1-25.01 §5.4.1]

The Current Position

3.04 The EWR Delivery Company commenced a non-statutory consultation in November 2024 on the rail route between Bedford and Cambridge via Cambourne in advance of submitting an application for a DCO in accordance with The Planning Act (2008).

- 3.05 More recently, the Government re-affirmed its commitment to EWR in June 2025 as part of the Spending Review, with £2.5b being allocated to it. In her address to Parliament, the Chancellor Ms Rachel Reeves stated that:-

"I have heard representations from my honourable friends from Milton Keynes North, Milton Keynes Central, and Buckingham and Bletchley, and I can tell the House today to connect Oxford and Cambridge and to back Milton Keynes' leading tech sector I am providing a further £2.5 billion for the continued delivery of East-West Rail."

The policy paper published by the government shortly after Ms Reeves speech said there will be a "renewed focus on supporting growth in the Oxford to Cambridge Growth Corridor", which included confirming the delivery of East-West Rail."

- 3.06 As such (and for the purposes of the CtoC), EWR must today be regarded as a materially significant and fully committed scheme, which is diametrically opposed to the position taken by GCP.
- 3.07 Looking then in more detail at *The Strategic Case Addendum*, it curiously acknowledges that East West Rail *is* in fact likely to go ahead, noting that "*The proposed East West Rail project will provide a new direct rail link between Oxford and Cambridge...*" [CD1-21.01 §7.2.7]. Indeed so.
- 3.08 It then goes on to claim that the two schemes are in fact complementary:-

"East West Rail and CtoC schemes are mutually complementary. The East West Rail station at Cambourne will provide direct connection for Cambourne residents to opportunities in Cambridge City Centre. The CtoC scheme connects new developments along the full length on the A428/A1303 corridor, including Bourn Airfield and West Cambridge and could also provide first/last mile connectivity to the Cambourne Station which would be likely to be located the other side of the A428 from Cambourne itself." [CD1-21.01 §7.2.12].

- 3.09 Any complementarity is spurious at best in my view, but it is actually claimed to be two-fold; being that CtoC will provide better connectivity to West Cambridge, and that CtoC could provide a link to Cambourne Station.
- 3.10 Though I do not dispute that CtoC would provide better connectivity to West Cambridge, it is unclear how it would affect the Business Case for it if other destinations, including the Cambridge Biomedical Campus and CB1 Business District, were to be better served by East-West Rail. This proposition has not been considered at all, nor is it even been given a mention.
- 3.11 Moreover, the second part of the claimed strategic benefit is that CtoC could provide a link to Cambourne Station. However, this only supports the construction of the scheme east of Hardwick if it attracts passengers from Cambridge who wish to catch a westbound service on EWR. I doubt this will ever happen, and GCP would need to model combined journey times and demand via the CtoC and then compare them with people travelling by (say) conventional bus or even by simple bicycle direct to Cambourne Station to convince me otherwise. This modelling would need to use a *Variable Demand Model* (VDM) (i.e. one that dynamically allocates trips to modes and routes) and be validated against recent surveys that capture current traffic conditions if it were ever to be relied upon. No such work has been undertaken and none has been made available to the TWAO Inquiry.

- 3.12 As result, the GCP traffic modelling as it stands today is bound to produce over-optimistic results, having omitted any and all EWR considerations from its assessment. Given the findings in Section 2 of my evidence and the already low basic *Benefit-Cost Ratio* (BCR) of just 0.5, this collective omission is highly likely to render the scheme non-viable.

East-West Rail – Section Summary

- 3.13 To summarise this section of my evidence on *East-West Rail*, it is my contention that the proposed extension of EWR into Cambridge South and Cambridge Central Railway Stations *will* proceed, and once built it *will* abstract a large proportion of travellers from Cambourne commuting to South and Central Cambridge, including the Biomedical Campus and the CB1 Business District. This is because it is clear to me that rail will offer faster and more reliable journey times between these destinations than CtoC bus services that will still inevitably encounter congestion after they leave the busway west of the City Centre. This abstraction must be fully quantified in order to understand the likely benefits of the scheme and to ascertain the correct BCR for the project. As I have noted above in relation to the traffic modelling, to not provide this data for a scheme that is seeking to acquire land by compulsory purchase renders the TWAO application unsound as it stands.
- 3.14 I further contend that the impact of EWR on the CtoC Busway *will* be significant, and that GCP is wrong not to have modelled to date a scenario that includes EWR in accordance with TAG Unit M4 Forecasting and Uncertainty. An EWR VDM scenario should therefore be included within my suggested post-Covid modelling requirement identified at Section 2.26 above and the Outline Business Case adjusted accordingly. The TWAO Inquiry should be suspended until this work has been completed.

4.0 Scheme Economics

Overview of General Position

- 4.01 The original estimated base outline BCR of *The CtoC Busway* was 0.5 and this remains extant according to consultant WSP in their *Scheme Value for Money* paper of 14th July 2025. It means that for every £2 of investment, only £1 is ever likely to be recovered in social benefits, which represents the second lowest (Poor) *Value for Money* category in the DfT Framework. Whilst the number rises to anywhere upwards of 1.7 according to WSP once esoteric count-ups of things like *Dependent Development* are included (the use of such and their quantification being taken up separately by Mr. Edward Leigh in his evidence), the monetised benefits, and in particular journey time savings, continue to be derived from flawed pre-Covid traffic modelling as discussed above. And without an accurate baseline, forecast journey times and journey time savings are unreliable. Ditto then the entire monetised benefits package claimed by WSP, however derived. Add in potential EWR abstractions and it seems highly probably to me that the final BCR figure will be much lower than unity, whatever it actually turns out to be when calculated to the third decimal point.
- 4.02 Even if the current BCR is relied upon notwithstanding these issues, it must be noted that it has been calculated to include the social benefit of an *Active Travel Route* (ATR) running along the maintenance track next to the CtoC Busway. However, this could be surplus to requirements given existing and planned ATC's in this area (**Appendix A**). As such, if the benefit of the CtoC ATC were to be materially reduced, then the headline BCR would be reduced too. The current assessment must therefore be regarded as a 'best case' scenario and is not, in my view, a realistic one.

Scheme Economics – Section Summary

- 4.03 To summarise this section of my evidence on *Scheme Economics*, it must be noted that the current base BCR of 0.5 is supported by flawed pre-Covid traffic modelling; excludes potential trip abstraction due to EWR and includes an ATR that will be duplicated close-by by the Comberton Greenway east of Hardwick. It may also be further duplicated by a clearly desirable extension westward to Highfields, Caldecote and through the Bourn Airfield site. It relies upon *Dependent Development* that is unproven and disputed.
- 4.04 As such and at the very least, the Outline Business Case should be re-worked based on a suitable post-Covid traffic model that includes an EWR scenario as an option, together with a second permutation that does not include an ATR. The resultant BCR should then be re-calculated and presented for public scrutiny; against which the TWAO CPO request can then be correctly judged and any future funding decisions be properly based. A failure to do this will render the current application to compulsory acquire land unsound, meaning that planning permission for *The CtoC Busway* should not be granted.

5.0 [The CPPF Alternative Scheme](#)

The CtoC Busway & Associated Issues

5.01 The CtoC Busway scheme is shown at **Appendix A** and essentially involves three distinct sections, with the central dedicated busway section running across open countryside though a traditional orchard with veteran trees being of most concern to CPPF and CPC. There are three transport issues with the principle of the scheme and it is worth listing these before progressing to look at alternatives. They comprise:-

- i) The CtoC Busway TWAO submission fails to serve Cambridge North, which is a key Employment and Education destination from Cambourne. Cambridge North is home to the renowned “Cambridge Science Park” and various other Business Parks including the St John’s Innovation Centre and Cambridge Regional College, and;
- ii) GCP has indicated its intention to deliver the Busway with optical guidance (which could entail having painted markings on the carriageway) to enable buses to run without active steering. This differs from the existing Cambridgeshire Guided Busway, which has precisely aligned concrete kerbs that enable guide wheels attached the front axle to steer the bus. Although the GCP has expressed confidence that an optical guidance technology will be available when the Busway opens, it has not identified any working examples of buses using this system at a running speed of 90kph, and;
- iii) It is unclear if the proposed system would qualify as “Guided” within the meaning of the TWAO and thus that the current submission is actually valid.

5.02 These matters need to be addressed at the Inquiry so that a proper comparison against the CPPF alternative can be drawn.

The CPPF Alternative Scheme – Executive Summary

5.03 From the outset, it must be stressed that both CPPF and CPC acknowledge the need, in principle, to improve accessibility in the Greater Cambridge region by the provision of a reliable PT service between Cambourne and Cambridge. However, both object to the central off-road section of the CtoC in particular, because of its environmental impact, high cost and poor return. They further contend that the benefits of The CtoC Busway as submitted can in fact be delivered predominately by a much less costly and environmentally harmful “in-highway” bus priority scheme. This alternative is termed *The CPPF Alternative* herein and is shown in outline at **Appendix B**, and more detail at **Appendix F**. For the purposes of my evidence, its description is precied below:-

- i) Instead of building the new CtoC Busway between St Neots Road and West Cambridge, CPPF proposes building an inbound bus lane down Madingley Hill on the northern side as shown at **Appendix F**. It would be physically accommodated by moving the existing cycleway mostly into the northern verge and then by widening the carriageway itself to the south into the space vacated by the cycleway. The inbound bus lane would then take the place of the existing inbound running lane. Impact on sensitive receptors such as the American Cemetery would be minimal if not beneficial, since the nearest running lane to them would be a bus lane in the future as opposed to a heavily trafficked running lane as of today;

- ii) There is no equivalent outbound provision as projected future traffic conditions do not appear to suggest that one is required. The observed lack of congestion outbound beyond the M11 junction would effectively obviate the need to build an outbound lane, or indeed any other provision such as segregated infrastructure for buses travelling out of Cambridge;
- iii) In terms of benefits, it is argued that these would be similar to the equivalent section of *The CtoC Busway* in terms of journey time savings for buses. In addition however, the CPPF solution could provide journey time savings for *all* bus, coach, emergency vehicles using Madingley Road and bound for either Cambridge or the M11. By comparison, the GCP's proposed Busway would provide journey time savings *only* for vehicles permitted to use the Busway and thus only those fitted with the appropriate guidance technology;
- iv) The CPPF Alternative would be entirely consistent with the Local Plan requirement for "*Provision of high quality bus priority measures or busway on or parallel to the A1303 between its junction with the A428 and Queens Road, Cambridge*", and finally;
- v) The CPPF Alternative would provide significantly better value for public money, as it provides mostly the same benefits as the CtoC Busway between Hardwick and West Cambridge but at a fraction of the cost.

The CPPF Alternative Scheme – Design Principles

- 5.04 When attempting to retrospectively fit a bus lane along an existing and constrained highway, an alternative approach is called for. Many years of experience gained on such schemes as the Dartford *Fastrack* have taught me that blind adherence to the DMRB and other such standards rarely leads to a satisfactory outcome. Yet such adherence is advocated at great length by both the Appellant and their consultant WSP at **Appendix F**, which I take to be their yardstick.
- 5.05 To me, this yardstick demonstrates a lack of imagination and is driven on by an over-riding desire to discredit the CPPF scheme by whatever means. Had they stood back and taken the alternative approach, then they might have produced something other than what is essentially a 'text-book' response. If you start with the DMRB you will fail. If you start with what is important and then see what you have left, then you have a chance. If any highlighted deficiencies can then be mitigated by a coherent and aligned strategy it is usually possible to arrive at a solution that is acceptable to all. The Appellant has never done this and as result, prematurely dismissed all in-highway solutions as either being incompatible with standards or simply too wide to fit down the road. The net result is a dedicated off-road solution that runs across open countryside in a hugely expensive and potentially damaging way. And then only to end at a bottleneck before it actually reaches the City as is discussed by Mr. Edward Leigh in his evidence. As I note above, an alternative approach is needed and this has been my main input to the development of the CPPF Alternative. Start with what matters and work back from that to see if what you have you can still happily live with.
- 5.06 The CPPF Alternative is provided at **Appendix F** and has been designed by Civilstix with input from Mr. Edward Leigh. Their brief was provided by myself and was intended to simply and deliberately instil an alternative approach to their design. That approach was based on effectively working back from the most important aspects of the Madingley Road; being its environment in the form of the American Cemetery and the protected SSSI Woodland amongst others. Based on this, the brief was essentially based on the following:-

- i) Environmental specialists were asked to survey the area in detail and produce a simple corridor plan within which they would be content for a new road to exist. The ATR (Cycleway) would be provided largely on the northern side to help reduce impact but other than that, they were given a free hand. Civilstix was then asked to fit a three-lane carriageway within that corridor, including the ATR;
- ii) Widening was to be achieved by re-locating the existing cycleway to the northern side where practical and then by moving the existing running lanes into the space created. It was assumed that hand-dig would be used in combination with root-barriers and other protective measures close to individual trees to avoid damage and the corridor was planned on that basis. Additional on-line storage for surface water was assumed to be hidden below the footways if proven to be ultimately needed to cater for any extra run-off created by the design or more likely during construction;
- iii) Buses rarely travel at 50mph even where permitted, but cars do. Along a 50mph road cars can then easily beat buses and this acts against drivers switching to public transport. On a 40mph road with a separate bus lane the opposite is true, and drivers often see buses passing them by for once. Slow traffic down further by making the road tighter and more constrained, then even more will switch. Civilstix were therefore asked to base the larger part of their design on 40mph (maximum) operation from the outset, which should be self-enforcing though the use of urbanisation and the removal of car-based features such as right-turn (so-called 'pocket') refuges where safe to do so. Any capacity issues so created would be checked at a later date though the use of micro-simulation if considered to be of specific concern. "Motorway" standard 3.65m wide running lanes that serve only to encourage speed on what is basically a dead-straight road should be avoided, to be replaced with a narrower provision that is more commensurate with the main design objective of slowing vehicles down;
- iv) The proposed bus lane is not required to accommodate cyclists. As a result, it does not need to be "wide" and a reduced width that can safely accommodate simple one-directional running is all that should be provided;
- v) The existing ATR Cycleway is not well used and is likely in the future to be less so as other off-highway provisions come on-line (see Section 4.04). The need for segregation against what is predominately a lightly-trafficked bus lane is doubtful and in any event can be mitigated against by the use of low-height kerbing and flush drainage within the 40mph zone, along with off-set white lining. Civilstix was therefore instructed to maintain a non-segregated provision of 3m as the minimum, falling to 2m where local pinch-points such as individual trees had been identified for retention. This is in keeping with the intended urbanisation of the road and the aim to reduce traffic speeds well below the proposed statutory 40mph limit. It is also commensurate with many similar provisions with which I have been involved in recent years, where retrofitting LTN 1/20 standards into an existing environment is not appropriate;
- vi) Cost should not be considered. Even in the absence of any detailed assessment, it is obvious that the *CPPF Alternative* would be significantly cheaper than the £250m present-day cost of the CtoC scheme (£137m at 2010 prices from WSP's VfM). And indeed many times over, based on my own extensive construction experience;

- vii) Buildability should not be considered an impediment to delivering the chosen design. The *CPPF Alternative* essentially involves widening an existing road mostly on one side which would minimise disruption. Essentially, the cycleway and bus lane can be built first in a form that allows their subsequent temporary use as a running lane whilst the existing road is re-built longitudinally in two phases. The latter can then be used in its final form whilst the cycleway and bus lane are converted back to their final design. Switchovers and tight areas can be built overnight. The whole road will then be new of course, meaning that future major maintenance will be at least 15 years away; long after the current road would have need the same. And when needed, the road will be effectively three lanes wide, making the job much easier, and finally;
- viii) The design should be checked for compliance with standards, based on the chosen design speeds, and Departures identified. Where these are considered to be “Show-Stoppers” or easily removed, then the design should be tailored in conjunction with the Environmental specialists to remove or diminish them. The results should then be tabulated.

- 5.07 The resulting design is presented at **Appendix F** and is not intended to be prescriptive at this stage. It is there to demonstrate that an alternative approach based on an environment-first stance can deliver a perfectly acceptable solution and at a fraction of the cost of the CtoC TWAO proposal. Moreover, it is based on a coherent and aligned strategy that seeks to deliver a safe solution through the use of self-enforcing speed limits aimed at slowing down car traffic in favour of the bus. This was not, and never has been, the aim of GCP, who instead has never adequately assessed an in-highway scheme. This is a major shortcoming in their approach in my view.
- 5.08 Finally, while it is right that the *CPPF Alternative* will require some *Departures from Standards*, that is not surprising and will be the case for many schemes which are based on an existing highway. For the *CPPF Alternative* eight have been identified by Civilstix and these are listed in **Appendix G**.
- 5.10 In my professional view, none of the *Departures* identified would prevent the *CPPF Alternative* from coming forward and at this early stage of the design, I am confident that they would be approved by SES (NH’s specialist Road Safety team) at the appropriate time with and with suitably supportive mitigation.

The CPPF Alternative Scheme – Section Summary

- 5.09 To summarise this section of my evidence on *The CPPF Alternative Scheme*, I am of the view that it has both merit and is likely to be deliverable. It is clearly a much more cost effective solution and preliminary assessments suggest that it could offer much the same benefits as the CtoC scheme. These benefits need to be formally quantified by adding a CPPF Alternative to the post-Covid modelling requirement identified at Sections 2.19 & 3.04 before progressing further.

6.0 [Response to GCP's Statement of Case](#)

The Statement of Case

- 6.01 GCP's *Statement of Case* was issued on 9th April 2025 and is marked as being the Applicant's "Final" version in this regards. For the purpose of my evidence the document is split into two; the first section being the case for the CtoC Busway and the second a rebuttal of various alternatives put forward by CPPF. My response to each is provided below, limited to those specific items not already covered in the main body of my Proof but with cross-referencing and narrative.

Bus Lane Modelling (Para 7.3.70)

- 6.02 The Applicant states that:-

An alternative scheme has been promoted by CPPF and forms part of the objections raised by a number of objectors [CD2-OBJ-251]. This is discussed further in the section on objections but in essence the CPPF proposal is for an inbound bus lane, a more feasible variant of which was considered comprehensively in the OBC [CD1-20.01 to CD1-20.27] and failed to provide the segregation needed to ensure reliability or to provide outbound improvements which are likely to be needed in the future as congestion grows.

- 6.03 I have two fundamental concerns with this statement, notwithstanding that the two schemes are actually not the same anyway:-

- i) It is unclear whether the assessment of an inbound bus lane was ever subject to modelling as the results of any such work have never been made available. In any event, the assessment would have been based on the same flawed model as was used to support the preferred option. The lower benefits it presumably accrued as part of the claimed WEI assessment cannot therefore be relied upon and this process must be repeated based on the *CPPF Alternative* and the updated post-Covid CSRM traffic model. Only then can a true comparison be drawn and conclusions reached as to which scheme should be carried forward based on its updated BCR, and;
- ii) It would appear that the need for an outbound bus lane is predicated solely upon it being "likely to be needed as congestion grows" as per the reference above. The reality is that there is no actual evidence that an outbound lane is needed today or indeed will be needed in the future. I fundamentally disagree with the suggestion that an outbound lane is "likely" to be needed as congestion grows in the absence of any evidence to support such an assertion and particularly given that, as I have noted above, there will actually be less traffic on the route predicted by a post-Covid model than a pre-Covid one. Even if (and contrary to my view) it is "likely" that growth in congestion will give rise to justify an outbound bus lane at some undetermined point in the future, such likelihood cannot in my view justify the use of compulsory purchase powers now. If at some point in the future there is evidence available which demonstrates that there is, or will be, a need for one, then the justification for such a scheme should be argued at that point in time. The case for an outbound bus lane remains totally unproven today and thus the use of CPO to provide one is in my view unsound.

Journey to Work Data (Para 9.12.2(a))

6.04 At Para 9.12.2(a) the Applicant notes that the Transport Assessment provides:-

Travel patterns within the study area and journey to work data from the 2011 Census analysis;

6.05 This is naïve in the extreme as such data comes from a time when few commuters had Smartphones; Microsoft TEAMS did not exist and Broadband Speeds were insufficient to support home working to any degree. Modern data should have been used, based on either the 2021 Census or more preferably bespoke surveys.

Traffic Modelling (Para's 14.23.12 to 14.23.19)

6.06 There are several rebuttals provided by the Applicant in their SoC about the use of a pre-Covid traffic model and I rely on my Proof above to cover those points, with additional narrative being provided below. However, Para 14.23.17 of the SoC provides an obvious example to illustrate my concerns in respect of the Applicant's approach:-

The F-Series Baseline comes from a full Present Year revalidation using 2019 data and is therefore TAG compliant and provides an accurate base off which to pivot. The "with scheme" test gives an indication of the numbers likely to shift mode. As stated in the previous response the F-series modelling was carried out in 2022 which was too early to carry out post-pandemic surveys and/or update the model.

6.07 While these assertions may be correct, the use of 2019 data remains an unacceptable starting point from which to obtain "an indication" of model-shift, and then use that as the basis to justify the use of CPO powers for a bus-based scheme. Noting that the F-series modelling was carried out in 2022 when Covid still had an impact does nothing to help this situation, and simply leads me to ask the obvious question as to why it has not been updated since? The TWAO Inquiry is taking place in 2025, which is three years after the event. Such a long period provided more than enough time to re-set the model to a post-Covid base. I repeat my comments from Section 2.02 above, and I cannot see any justification for why GCP has simply not updated the model. Whilst such an exercise would have come at a cost, such cost would have been minimal in the context of the scheme costs overall and, in my view, a cost that is quite obviously justifiable given the significance of the issue. I again repeat my concern that, in the absence of any other reasoning, the updated modelling has not been provided because it would, or it was assumed by the Applicant that it would, undermine the justification for the scheme. Either way, it cannot sensibly be argued in 2025 that there was not enough time to update fully a model based on 2019 data between the main runs being undertaken in 2022 and today.

6.08 Looking now at specifics, Para 14.23.12 lauds the TAG compliance of the scheme for having used the same CSR model throughout for consistency. That model started off flawed and has remained so ever since.

6.09 It is next noted at Para 14.23.13 that the F-Series OBC Addendum runs:-

...were undertaken during 2022, when the after-effects of the Covid pandemic were still noticeable on traffic patterns, including a high level of home working. There was no definite knowledge on when (if ever) a "new normal" would be achieved.

6.10 This in my view makes no sense. The TWAO Inquiry is taking place in 2025 and the cited "new normal" has long since been reached. This work should have been fully updated. Instead:-

6.11 The Applicant goes on to state at Para 14.23.14 that:-

TAG Unit M4 Appendix B (Nov 2023) [CD8-21, page 52] contains guidance on "Adapting the Core Scenario to large scale changes" – namely allowing for the after-effects of the Covid pandemic. Appendix B suggests three methods of adjusting previously calibrated traffic models, if a rebased (post-pandemic) model is not available. The third method – applying a post-model adjustment - is considered the only appropriate one in this case as all the modelling had already been completed.

6.12 The references to the TAG Guidance further strengthen my view in making it clear that Appendix B was an interim measure intended only to help with schemes that had progressed to such an extent that full re-modelling was not an option. Indeed the commentary itself notes this, in so far as it only applies to a situation where a re-based model is not available. Not to one where a model has simply not been provided three years after the event and some five years after Covid.

6.13 Looking next in more detail at Annex B, it predicts at Para 5.33 that "...10% of (post-Covid) trips will *never return*". Indeed.

6.14 It then notes at Para 5.34 that "...Due to the fact that rail (and other public transport modes) have been affected by Covid-19 very differently than road travel, rail scheme promoters should instead use the bespoke Rail Covid-19 scenarios, which consider the impact of the pandemic on rail trips." My point again - use of pre-Covid models to predict post-Covid Public Transport take-up is bound to produce an unreliable answers.

6.15 A "*Highway-Only Sensitivity Test*" as is specified by the Applicant at Para 14.23.15 of the SoC has little, if any, use. The Applicant's responses to the concerns I have raised about the modelling do not in my view provide a meaningful answer to those concerns, let alone provide the convincing justification needed to support the use of CPO power. I remain firmly of the view that in order for the *Secretary of State* to be satisfied that the use of CPO powers can be granted a proper post-Covid Transport Model must be provided, upon which the benefits and BCR of the CtoC Busway scheme can then be properly assessed.

6.16 Finally in this context, I see little merit in continually monitoring P&R usage as is expounded upon by the Applicant at Para 14.23.16 without then using that data in a new model. I would cite **Appendix C** herein by way of rebuttal on this point, but more importantly note that just because P&R usage is back to pre- Covid levels in the view the Applicant does not mean that total persons trips are. Those travelling by car today will be fewer by default as less commuters commute by car, meaning less free "commuters" to switch to the CtoC. The evidence is just not there and the scheme needs to be re-modelled for the post-Covid case. The proposed Sensitivity Test at Para 14.23.18 does nothing to lessen my concerns in this regard and CPPF's BCR questions have not been meaningfully addressed by the Applicant at Para 14.23.19.

East-West Rail (Para's 14.23.7 to 14.23.11)

6.10 My thoughts as to the effect of *East-West Rail* (EWR) are largely covered in Section 3 of my Evidence above, with the main issue being its complete exclusion from the assessment.

- 6.18 The Applicant quotes TAG ad-verbatim and stresses at Para 14.23.9 that only scheme that are “...*near certain or more than likely*” should be included in any assessment. They then go on to stress at Para 14.23.10 that “...*Local sources of uncertainty categorised as near certain should be included in the core scenario, whilst all sources categorised as hypothetical should be excluded. Between these two categories, an element of judgement may be required*”. Again, I concur. My view however is that EWR has moved on significantly since the OBC was written and to such a point that the Applicant has clearly misjudged things by excluding it. I would argue that it is today “more than likely” to occur, meaning that TAG would require its inclusion and particularly so when its significance is considered in the context of such a low BCR. Irrespective of past modelling, re-setting of the CSRM F-Series model to a post-Covid base surely offers the opportunity to both include and exclude it as alternative runs, so that its impact can be correctly understood. Only then can its inclusion or otherwise be judged. At the present time, Sections 3.03 & 3.04 of my evidence must hold true.

Response to GCP’s Statement of Case – Section Summary

- 6.19 In summary of this closing section of my Evidence, I can see little in the Applicant’s “Final” SoC to assuage my concerns regarding the use of an unsuitable data-set and traffic model as the basis for their TWAO. Neither CPPF nor CPC should be faced with the situation of having to defend their case at Inquiry without having first been provided with a sound and up-to-date analysis of why the CtoC scheme should progress and their alternative should not.
- 6.20 The F-Series model is not fit-for-purpose today and *The CtoC Busway* TWAO application cannot in my view progress as it stands. Until a new model has been provided by GCP and the Outline Business Case for it updated to reflect post-Covid travel patterns, there cannot be a compelling case in the public interest to justify the compulsory acquisition of land.

7.0 [Response to WSP Review of CPPF Scheme](#)

Statement

- 7.01 Under a commission instructed by GCP, consultant WSP has provided a critique of *The CPPF Alternative Scheme*. As a large number of points are made, these have been dealt with by way of a dedicated series of responses produced by myself and other members of the Objector's team. They are provided at **Appendix H** herein. Where relevant, cross-referencing has been included but in general, the appendix is intended to act as a stand-alone rebuttal of all of the points raised by WSP.

8.0 **Expert's Endorsement**

Statement

- 8.01 The evidence which I have prepared and provide for this TWAO Inquiry into the proposed CtoC Busway in this Proof of Evidence is true and 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.

9.0 Summary & Conclusions

Summary

- 9.01 This evidence has been prepared by Mr. Steven P. Johnstone of *Lawrence Walker Limited* (LWL) in response to a joint request by *Cambridge Past Present & Future* (CPPF) and *Coton Parish Council* (CPC) to assess the transport implications of the proposed CtoC Busway to the west of Cambridge. The scheme is being pursued through a *Transport & Works Act Order* (TWAo) by *The Greater Cambridge Partnership* (GCP) and this evidence is provided to support CPPF and CPC's joint objection to that Order being made. It covers six specific aspects of the CtoC Busway scheme, being: *Traffic Modelling*; *East-West Rail* (EWR); *Scheme Economics*; the merits of an *Alternative Scheme* that would comprise of solely on inbound "within highway" bus lane down Maddingley Hill; GCP's *Statement of Case* and a recently received *Critique* by consultant WSP.

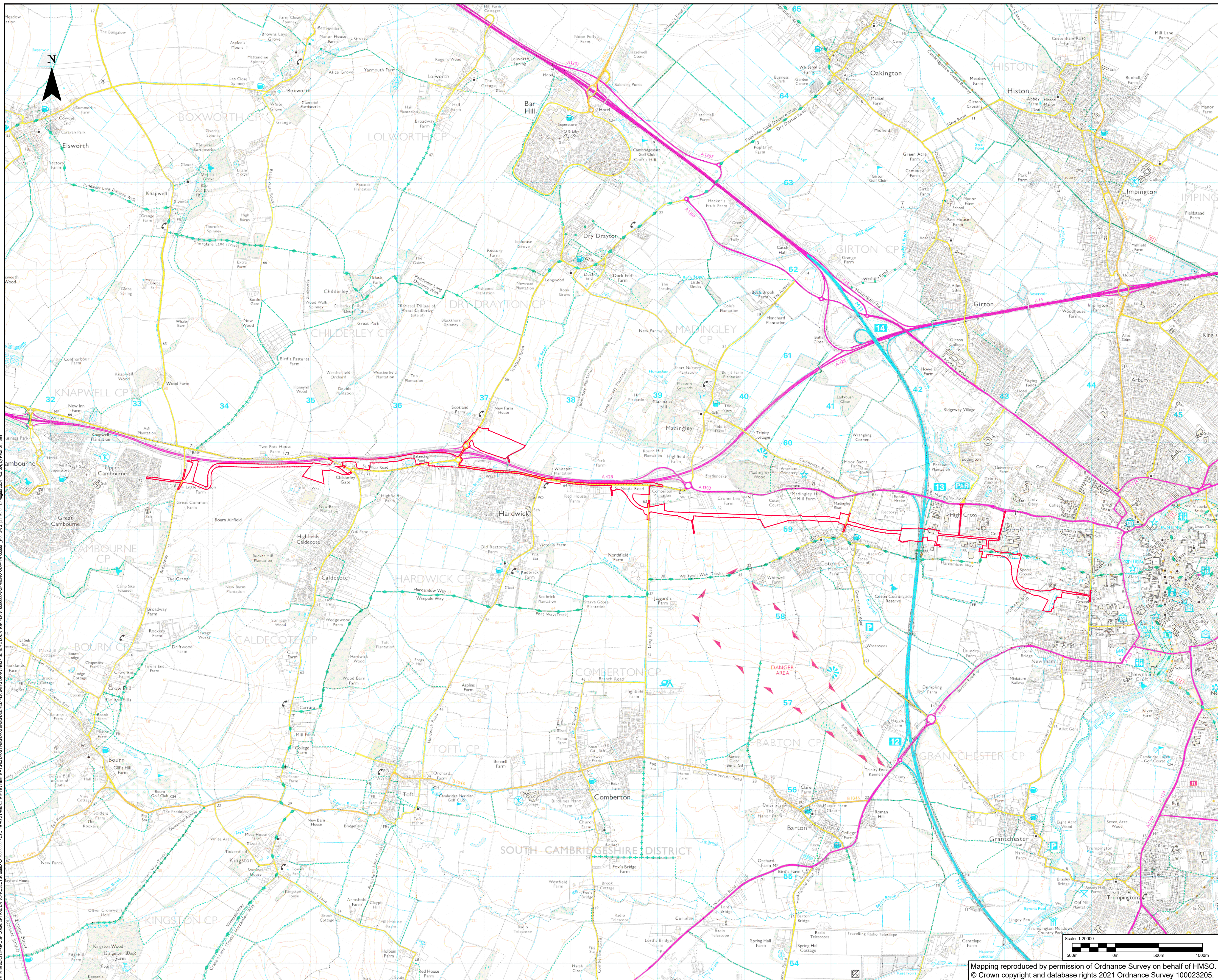
Conclusions

- 9.02 The main findings of my evidence are that:-
- i) The transport modelling undertaken to justify the CtoC Busway is materially flawed as it is based on outdated pre-Covid data and assumptions about commuting and car journeys which do not reflect sufficiently accurately the baseline conditions for modelling future scenarios. The use of 2011 Census Data compounds this flaw as it comes from a time when few commuters had Smartphones; Microsoft TEAMS or Broadband Speeds sufficient to support home working. The use of DfT's (now two year old) Uncertainty Tool Kit [CD8-22] as a post-Covid "Highways Only" Sensitivity Test does little to assuage my concerns when deployed some five years after the event;
 - ii) The proposed extension of *East-West Rail* (EWR) into Cambridge South and Cambridge Central Railway Stations will abstract a large proportion of travellers from Cambourne commuting to south and central Cambridge. This abstraction has been ignored by GCP on the grounds that its impact "is not likely to be significant". I would contend that EWR *will* occur, and that its impact on CtoC *will* in-fact be very significant. As such GCP is wrong not to have modelled a scenario that includes EWR in accordance with TAG Unit M4 Forecasting and Uncertainty requirements;
 - iii) The current estimated BCR of less than 1 means that for every £1 of investment less than £1 is recovered in social benefits, which represents the second lowest (Poor) *Value for Money* category in the DfT Framework. I would contend that no scheme should progress in today's economic environment based on this level of return, particularly when the value calculated is based on unreliable traffic modelling and flawed EWR assumptions, and;
 - iv) Instead of building an off-highway route between St Neots Road and West Cambridge, an inbound bus lane down Maddingley Hill could be provided as an alternative. There is no evidence to suggest that any form of outbound provision is required, meaning that this simple alternative could achieve mostly identical benefits to the equivalent section of *The CtoC Busway* and at a fraction of the financial and environmental cost. This option has not been adequately modelled by GCP, so it has failed in my view to meet the necessarily high statutory requirement to explore all options to their fullest before seeking to acquire land through compulsory purchase.

- 9.03 Based on the findings of my assessment, I would contend that GCP has not demonstrated that there is a compelling case in the public interest to justify the compulsory acquisition of land and that planning permission for *The CtoC Busway* should therefore not be granted.

Appendix A

Site Location Plan (The CtoC Busway)



CAMBOURNE TO CAMBRIDGE ORDER

Notes:

1. This drawing must be printed in colour.
2. The drawing shall only be used for the intended purpose it has been issued for which is for outline/illustrative design for a TWAO application and to describe the development that is the subject of the request for deemed planning permission.

Key:

CtoC Order Limits

P06	26/08/2024	VR	FOR PLANNING		IN	IN
P05	24/05/2024	VR	FOR PLANNING		IN	IN
P04	12/04/2024	VR	FOR PLANNING		IN	IN
P03	28/08/2023	VR	FOR PLANNING		IN	IN
P02	26/05/2023	JS	FOR PLANNING		IN	IN
P01	08/03/2023	DH	FIRST ISSUE		IN	IN
REV	DATE		BY DESCRIPTION		CHK	APP



62-64 Hills Road, Cambridge, CB2 1LA, UK
T+ 44 (0) 1223 558 050, F+ 44 (0) 1223 558 051
wsp.com

CLIENT:

GREATER CAMBRIDGE PARTNERSHIP

APPLICANT:

CAMBRIDGESHIRE COUNTY COUNCIL

SITE/PROJECT:

CtoC

TITLE:

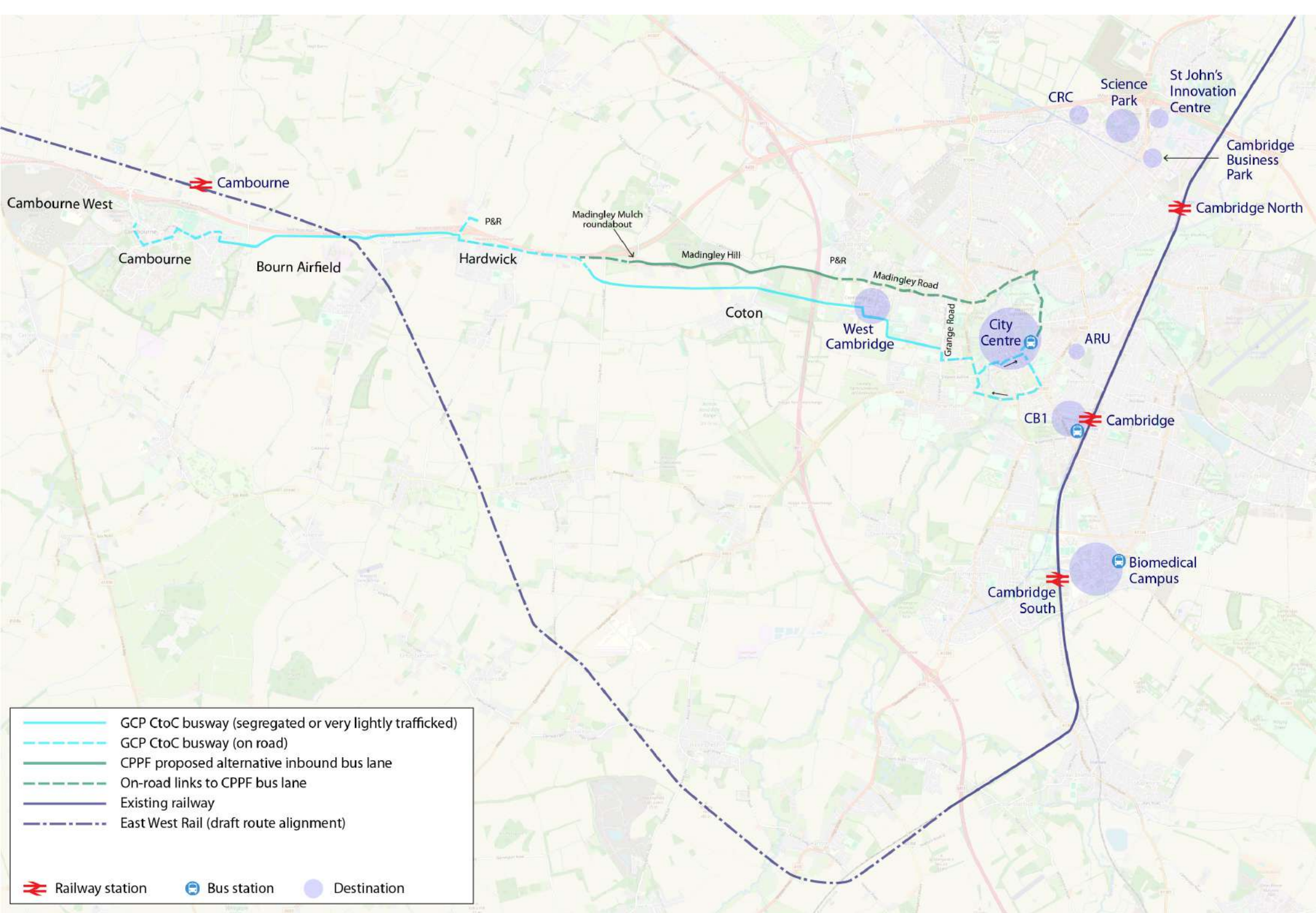
SCHEME LOCATION PLAN

SCALE @ A1: 1:20 000		CHECKED: BN		APPROVED: BN	
PROJECT NO: 70086660		DESIGNED: JS	DRAWN: JS	DATE: August 24	
DRAWING No: 70086660-WSP-GEN-XX-DR-HW-000001					REV: P06

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Appendix B

Alternative Scheme Schematic



Appendix C

Tram Usage Data



Department
for Transport

Accredited official statistics

Light rail and tram statistics, England: year ending March 2024 (revised)

Updated 25 February 2025

Applies to England

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Revision

This statistical release has been revised to correct a processing error affecting Statistics in Development in Chart 8 and some of the associated commentary. 2024 FTE workforce figures were double-counted in system-level analysis only. The associated data table was unaffected.

About this release

This release presents the latest annual information on light rail and tram systems in England during the year ending March 2024. The release covers light rail and tram use, vehicle mileage, infrastructure, revenue and workforce.

This publication covers 8 urban systems that are predominantly surface-running (see [Table 1](#) for a list of systems covered). Smaller systems (for example, heritage railway and airport transit systems) are not included. London Underground, Glasgow Subway and Edinburgh Trams are also excluded from this report, but statistics for these systems are included in the [associated tables](https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt) (<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>).

This publication includes accredited official statistics, and official statistics in development. For more information, see the [Official statistics](#) section.

Headline figures

In England, comparing **the year ending March 2024** with **the year ending March 2023**, there were:

- 228.8 million passenger journeys, an increase of 8%
- 28.4 million concessionary passenger journeys, an increase of 6%
- 21.6 million vehicle miles, an increase of 4%

- £365.8 million of passenger revenue, an increase of 12%
- £29.9 million of concessionary passenger revenue, an increase of 4%
- 550 vehicles, covering 415 stops, with a total route length of 220.6 miles

Details of factors impacting on annual figures including engineering works, technical equipment failures, planned closures (regional and national) and other factors can be found in the [quality report](https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report) (<https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report>).

Summary

Table 1: Summary of the latest annual light rail and tram figures (year ending March 2024) compared with the previous year (year ending March 2023)

System	Passenger journeys (millions)	Percentage change from 2023 - journeys	Vehicle miles (millions)	Percentage change from 2023 - miles	Passenger revenue (millions)
England	228.8	8.2%	21.6	3.8%	
London	118.9	5%	5.6	3.7%	
Docklands Light Railway	98.9	7.2%	3.9	11.4%	
London Trams	20.0	-4.3%	1.7	-10.5%	
Nottingham Express Transit	15.5	7.6%	1.8	0%	
West Midlands Metro	8.3	53.7%	1.1	37.5%	
Sheffield Supertram	8.7	3.6%	1.3	0%	

System	Passenger journeys (millions)	Percentage change from 2023 - journeys	Vehicle miles (millions)	Percentage change from 2023 - miles	Passenger revenue (millions)
Tyne and Wear Metro	30.7	4.8%	3.0	0%	
Manchester Metrolink	42.0	16.7%	8.3	3.8%	
Blackpool Tramway	4.7	-4.1%	0.5	0%	
England outside of London	109.9	11.8%	16.0	3.9%	

Table 1 summarises the annual figures for passenger journeys, vehicle miles and passenger revenue, including comparisons to year ending March 2023.

Passenger journeys

Chart 1: Light rail and tram passenger journeys (millions): England, annually from year ending March 1984 to year ending March 2024 - [LRT0101](https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt) (<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>)

Passenger journeys (millions)

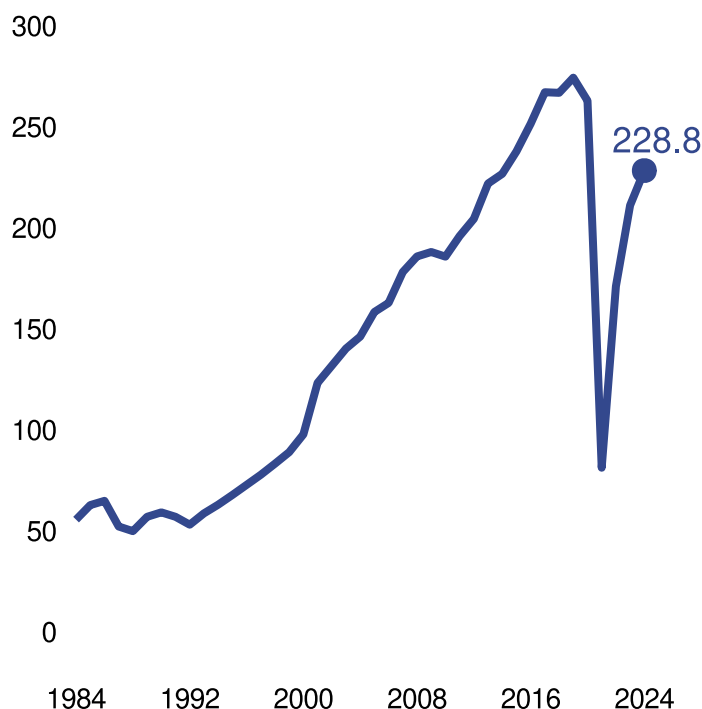


Chart 1 is a line chart that shows that in England, in the year ending March 2024, passenger journeys on light rail and tram systems increased to 228.8 million, an increase of 8% compared with the previous year where there were 211.6 million passenger journeys. There has been a steady increase in the number of passenger journeys taken on light rail and tram systems since the 1980s. This reached a peak of 274.8 million in 2019, before dipping over the coronavirus (COVID-19) pandemic. Whilst figures have not returned to the previous high, they have continued to increase year on year.

In the year ending March 2024, when compared to 2023, there were:

- 228.8 million passenger journeys in England, an increase of 8%
- 118.9 million passenger journeys in London, an increase of 5%
- 109.9 million passenger journeys in England outside of London, an increase of 12%

Chart 2: Light rail and tram passenger journeys (millions) by system: England, year ending March 2024 ([LRT0101](#))

(<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>)

System

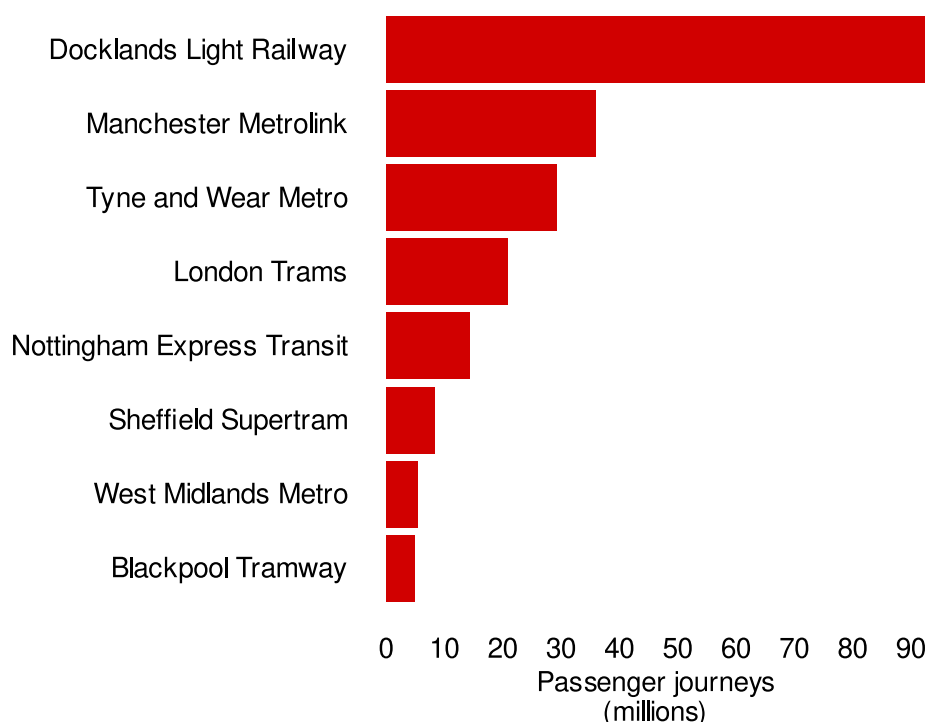


Chart 2 is a bar chart that shows passenger journeys on all systems in England in the year ending March 2024. The highest number of journeys was seen on the Docklands Light Railway, with 98.9 million passenger journeys. Blackpool Tramway had the fewest journeys, with 4.7 million.

The changes in the number of passenger journeys taken across the light rail and tram systems in England during the year ending March 2024 varied considerably (from -4% for Blackpool Tramway and London Trams to 54% for West Midlands Metro). This contrasts to the year ending March 2023 where all systems showed an increase as passengers returned following the COVID-19 pandemic.

Passenger journeys on all systems except West Midlands Metro remain below pre-pandemic levels. When comparing **the year ending March 2024** with **the year ending March 2019**:

- West Midland Metro has seen a return to 2019 levels
- London Trams has seen the largest decrease, -30%
- all other systems have seen decreases of between 4% and 27%

Chart 3: Light rail and tram passenger journeys per person: England, London and England outside London, annually from year ending March 2005 ([LRT0109](https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt)) (<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>)

Passenger journeys per person

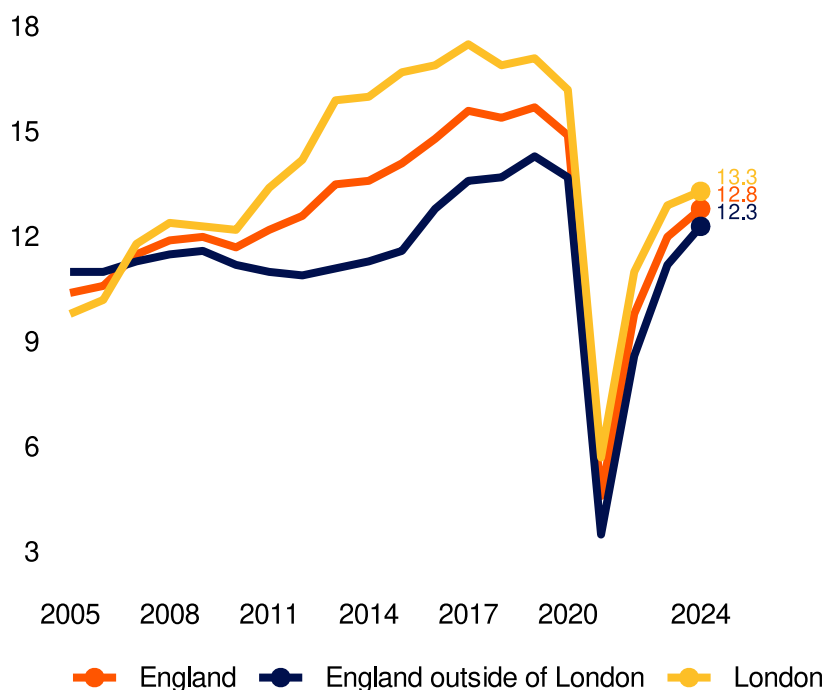


Chart 3 is a line chart showing the average number of light rail and tram journeys per person in England, London and England outside of London annually. In England, the average number of journeys per person was 12.8 in the year ending March 2024 compared with 12 journeys per person in the year ending March 2023, an increase of 7%. The average number of journeys per person remains below pre-pandemic levels (15.7 in the year ending March 2019).

Concessionary journeys

Definition: Concessionary journeys are those carried out by holders of a concessionary travel pass. For more information see the [quality report \(https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report#terminology\)](https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report#terminology).

In England, in the year ending March 2024, there were 28.4 million concessionary journeys on light rail and tram systems. This is an increase of 6% when compared to the year ending March 2023 figure of 26.7 million.

Chart 4: Light rail and tram concessionary journeys (millions) by system: England, year ending March 2024 (LRT0102)

System

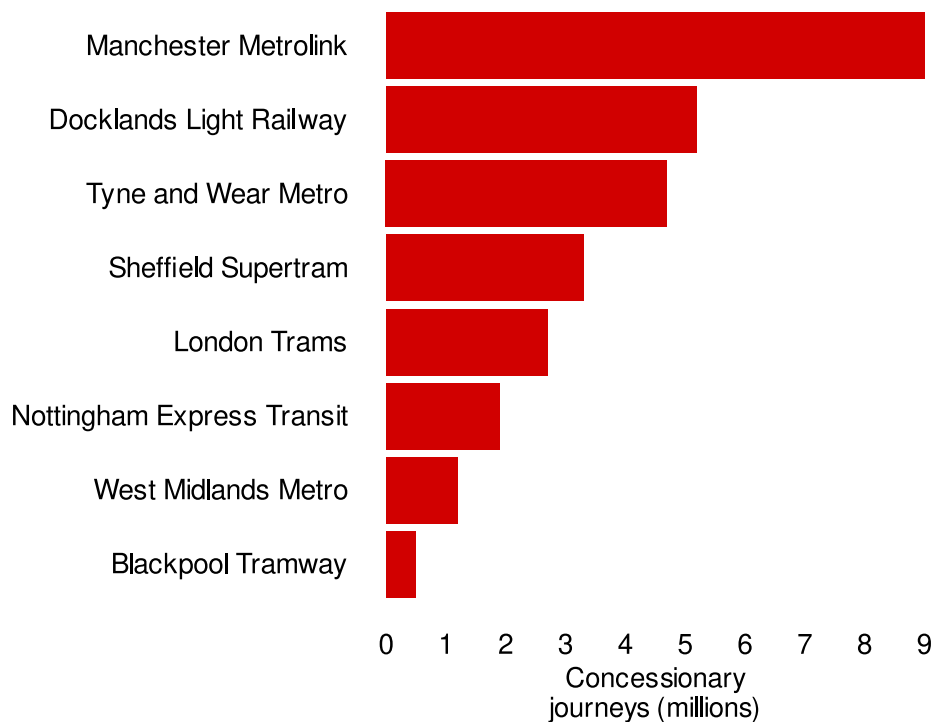


Chart 4 is a bar chart that shows that Manchester Metrolink had the most concessionary passenger journeys in the year ending March 2024, with 9 million. Blackpool Tramway had the least, with 0.5 million. The majority of systems have followed the national trend and seen an increase from 2023.

As with total passenger journeys, concessionary passenger journeys are still below the numbers seen in the year ending March 2019. When comparing the year ending March 2024 with the year ending March 2019:

- Tyne and Wear Metro are back to the same level as 2019
- Manchester Metrolink and West Midlands Metro both had more concessionary passenger journeys (3.4% and 9.1% respectively)
- all other systems saw a fall in numbers

In England, 12% of all light rail and tram passenger journeys were concessionary in the year ending March 2024, which was similar to the previous year. This varied by system from 5% on the Docklands Light Railway to 38% on Sheffield Supertram. The proportion of journeys made by concessionary passengers for each system have remained broadly similar from last year, apart from Sheffield Supertram who saw a decrease from 49% last year.

Concessionary travel on light rail and trams represents a relatively small proportion of passenger journeys when compared with concessionary travel on local bus passenger services in England. In the year ending March 2023, 31% of all bus journeys were concessionary.

Vehicle mileage

Vehicle mileage can be used as an indicator of the level of service provision by operators.

Chart 5: Light rail and tram passenger journeys and vehicle miles index: England, annually from year ending March 2012 - ([LRT0101 and LRT0106](#)) (<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>)

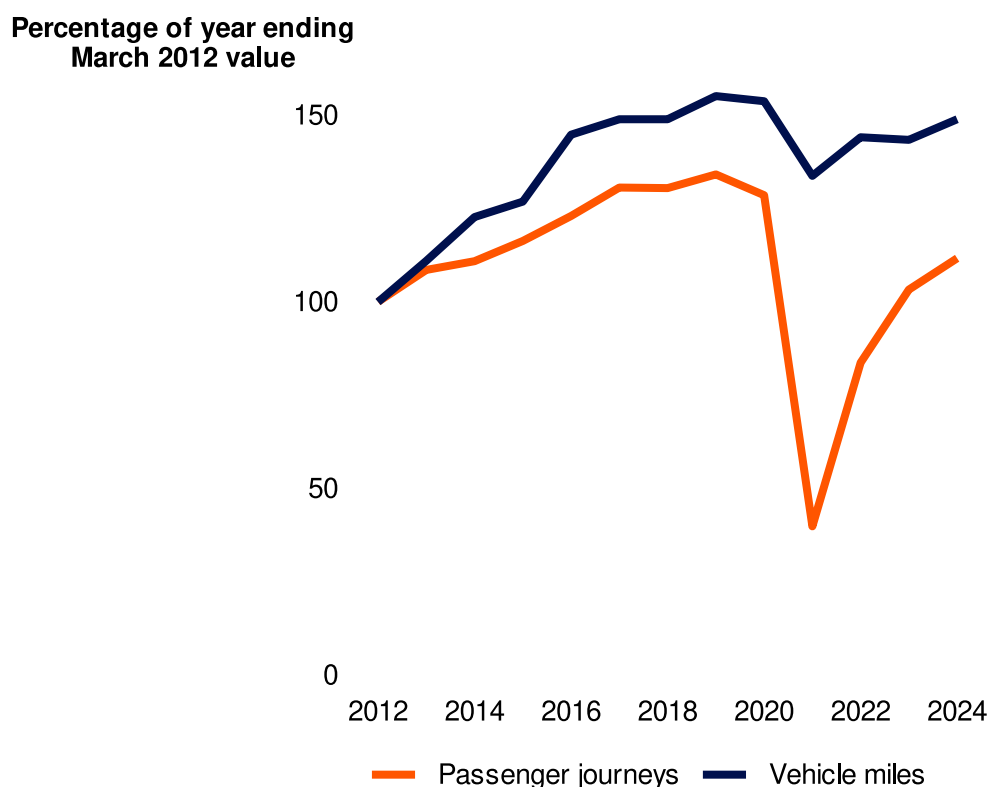


Chart 5 is a line chart that shows that in England, both passenger journeys and vehicle mileage have increased since 2012. After a dip in mileage during the COVID-19 pandemic, vehicle mileage in 2024 has returned to a similar level (21.6 million miles) to the high of 22.5 million miles seen in 2019.

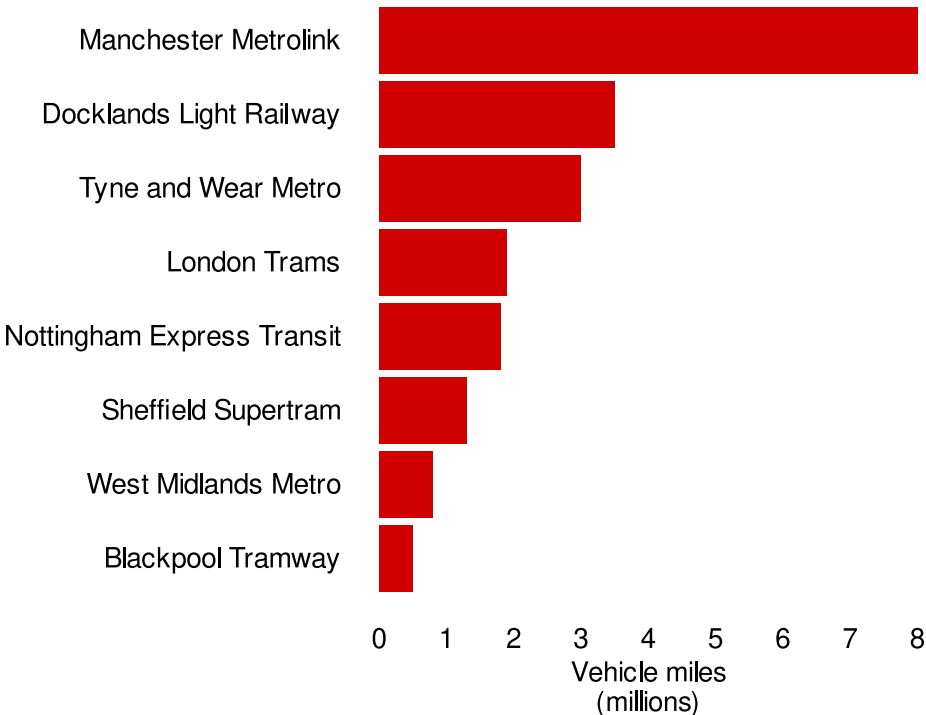
In the year ending March 2024, compared to 2023, vehicle mileage was:

- 21.6 million miles in England, an increase of 4%
- 5.6 million miles in London, an increase of 4%
- 16 million miles in England outside of London, an increase of 4%

Between 2012 and 2019, both passenger journeys and vehicle miles saw a similar upward trend. During the COVID-19 pandemic, vehicle mileage decreased by less than passenger journeys as the government provided funding support to the sector to ensure the continued running of services. This was initially to provide sufficient service provision for National Health Service (NHS) staff and key workers, and subsequently to ensure that service levels were maintained while passenger numbers remained lower due to social distancing and home working requirements. This support ended during the year ending March 2023.

Chart 6: Light rail and tram vehicle mileage (millions) by system: England, year ending March 2024 ([LRT0106](#))
<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>

System



Manchester Metrolink counts vehicle mileage in a different way to other systems. When 2 tram sets are joined together to form one train, vehicle miles are counted twice (once for each tram set). Figures for Manchester are therefore not directly comparable to those for other systems. It is thought that the use of these double tram sets has

increased in recent years, and now accounts for approximately half of all services run in Manchester.

Chart 6 is a bar chart that shows that in the year ending March 2024, Manchester Metrolink had the highest vehicle mileage of all systems, at 8.3 million miles. This is likely to partly reflect the fact that when 2 tram sets are joined together to form one train, the vehicle miles are counted separately for each tram set for Manchester Metrolink. Other systems do not have this issue, and therefore the Manchester figures are not directly comparable to those of other systems. Manchester Metrolink is also the largest system, operating over 64 miles of track.

Blackpool Tramway had the lowest vehicle mileage at 0.5 million miles. Blackpool Tramway also have the smallest network, covering 11.2 miles of track. In addition, several factors can affect these figures for individual systems, such as planned engineering works or technical issues such as those seen on West Midlands Metro during the year ending March 2023, and London Trams during the year ending March 2024.

The majority of systems reported either no change or a slight increase (up to 11%) to the number of vehicle miles taken in the year ending March 2024 compared to the year ending March 2023. The exceptions being West Midlands Metro (38%), most likely due to a drop last year because of a series of engineering works that limited service as well as the opening on an extension, and London Trams (-11%), most likely due to several engineering works that have limited service this year.

Infrastructure

Between the 31 March 2023 and the 31 March 2024, route miles and number of stops stayed the same on most systems in England. The exception to this was West Midlands Metro, which increased slightly due to the opening of the Wolverhampton extension in September 2023. As shown in **Table 2** below, there were some small increases and decreases in the number of vehicles used on several systems.

Table 2: System summary (year ending March 2024)

System	Length of system (miles)	Percentage change from 2023 - length of system	Number of stops	Percentage change from 2023 - stops	Number of tram vehicles
England	220.6	0.2%	415	0.5%	550
London	41.0	0%	84	0%	181
Docklands Light Railway	23.6	0%	45	0%	146
London Trams	17.4	0%	39	0%	35
England outside London	179.6	0.3%	331	0.6%	369
Nottingham Express Transit	19.9	0%	50	0%	37
West Midlands Metro	14.9	3.5%	33	6.5%	42
Sheffield Supertram	21.1	0%	50	0%	32
Tyne and Wear Metro	48.5	0%	60	0%	83
Manchester Metrolink	64.0	0%	99	0%	147
Blackpool Tramway	11.2	0%	39	0%	28

Table 2 summarises the length of system, number of stops and number of tram vehicles for all the systems in England, including comparison to the previous year.

Revenue

Chart 7: Light rail and tram total and concessionary passenger revenue index: England, annually from year ending March 2012, at current prices ([LRT0301](#) and [LRT0302](#))

<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>

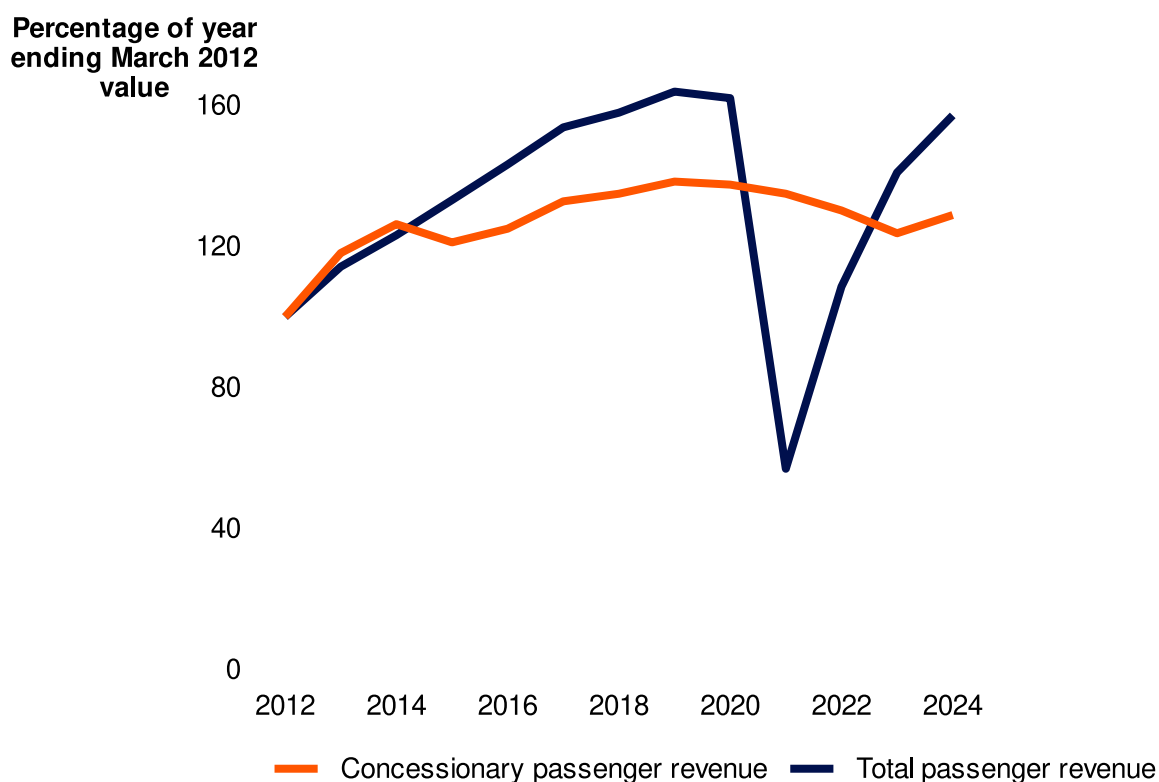


Chart 7 is a line chart that shows that light rail and tram passenger revenue increased by 12% of its year ending March 2023 value (in current prices, that is not adjusted for inflation) to £365.8 million in the year ending March 2024. This reflects the increased passenger numbers over this period.

The passenger revenue from all systems outside of London have returned to or exceeded the levels of 2019. This indicates a good recovery across the industry from the COVID-19 pandemic.

For the year ending March 2024, when compared to 2023, the passenger revenue was:

- £365.8 million in England, an increase of 11%
- £156.2 million in London, an increase of 7%

- £209.6 million in England outside of London, an increase of 15%

Concessionary revenue increased by 4% of its year ending March 2023 value (in current prices) to £29.9 million.

Unlike commercial revenue, which decreased significantly during the pandemic, most local authorities chose to maintain concessionary reimbursement at pre-pandemic levels in the year ending March 2021, with several maintaining these into the year ending March 2022. These payments, in conjunction with funding support from the Department for Transport (DfT), worked together to help ensure the continued operation of light rail services across the country.

Several local authorities changed their concessionary funding back to normal (pre-pandemic) arrangements in the year ending March 2023, so that it was based on concessionary passenger numbers. After an initial dip last year, the revenue has returned to pre-pandemic levels for all systems outside of London.

For the year ending March 2024, compared to 2023, the concessionary passenger revenue was:

- £29.9 million in England, an increase of 4%
- £6.7 million in London, an increase of 10%
- £23.2 million in England outside of London, an increase of 3%

Workforce

About these official statistics in development

These statistics are official statistics in development, reflecting the fact that they are new, innovative statistics that are still undergoing development, with an intention to develop them further in future years. We would welcome feedback on these statistics and how they might be developed further in future to meet user needs. There are some known limitations of these statistics, and these should be considered when reviewing the data.

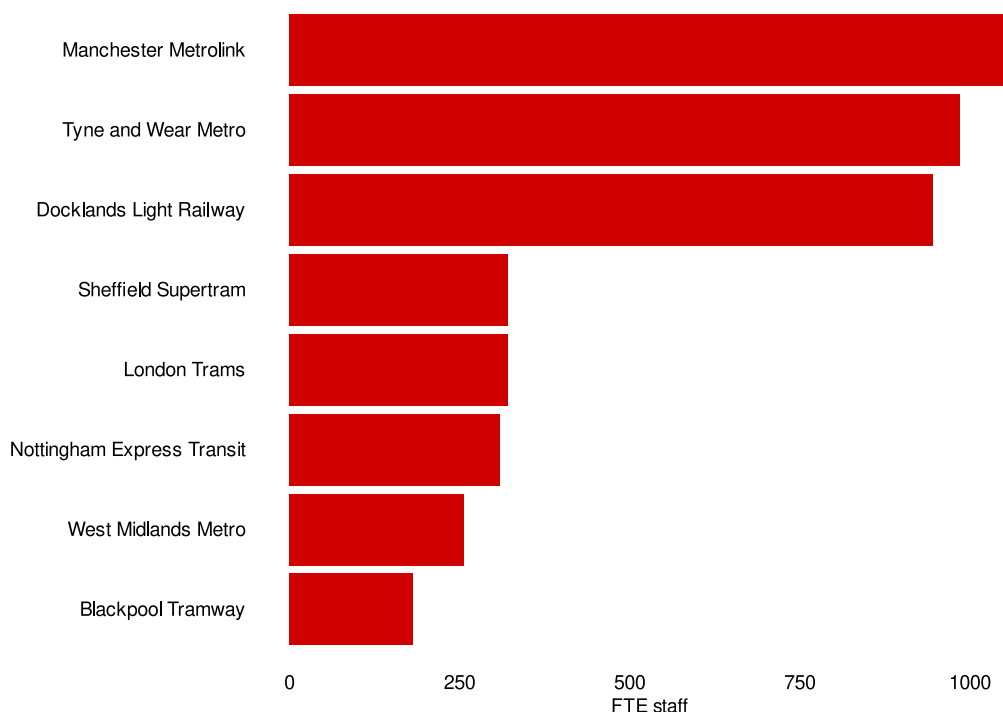
The figures show the number of full-time-equivalent (FTE) staff employed by light rail and tram systems, including those contracted externally where possible. Where figures are not whole numbers, this is to take into account those working part-time.

As at 31 March 2024, compared to 2023, there were:

- 1,222.5 light rail or tram drivers, an increase of 5%
- 640 other on-board staff (such as conductors or ticket inspectors), an increase of 3%
- 1,024.5 maintenance staff, an increase of 5%
- 452.5 admin staff, an increase of 15%

Chart 8: Number of full time equivalent (FTE) staff on light rail and tram systems: England, as at 31 March 2024 ([LRT0501](https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt))
(<https://www.gov.uk/government/statistical-data-sets/light-rail-and-tram-statistics-lrt>)

System



Figures for the Docklands Light Railway (DLR), London Underground and West Midlands Metro do not include cleaning staff, and so are not directly comparable to those for other systems.

Chart 8 is a bar chart showing that the biggest employers were Manchester Metrolink, Tyne and Wear Metro and Docklands Light Railway with 1,058, 986 and 945 full time equivalent employees respectively. However, the DLR and West Midlands Metro figures do not include cleaning staff, whereas figures for the other systems do.

There are variations in the types of staff employed by each system depending on the nature of the system. For example, the DLR does not

employ any drivers as the trains are driverless, whereas London Trams does not employ any on-board staff other than the drivers.

Light rail and tram passenger behaviour

Previous versions of this release have included data from the National Travel Survey (NTS), which gathers data on personal travel behaviour by households in England and can be used to analyse users of light rail and tram systems in areas where such systems exist. This analysis was based on combining several years of NTS data to provide a sufficient sample size to analyse trends.

Data collection for the NTS was disrupted by the COVID-19 pandemic, with lower response rates and substantial missing data around the start of the pandemic. Travel behaviours and the profile of survey respondents also changed significantly during the pandemic, meaning the findings will be less comparable to previous years. For these reasons, we are not providing updated analysis of passenger behaviour in relation to light rail and tram systems.

For previous analysis, please see the [year ending March 2021 statistical release](https://www.gov.uk/government/statistics/light-rail-and-tram-statistics-england-year-ending-march-2021/light-rail-and-tram-statistics-england-year-ending-march-2021) (<https://www.gov.uk/government/statistics/light-rail-and-tram-statistics-england-year-ending-march-2021/light-rail-and-tram-statistics-england-year-ending-march-2021>).

For the 2023 analysis on Ethnicity and Disability during the period 2012 to 2019, please see the [year ending March 2023 statistical release](https://www.gov.uk/government/statistics/light-rail-and-tram-statistics-england-year-ending-march-2023/light-rail-and-tram-statistics-england-year-ending-march-2023) (<https://www.gov.uk/government/statistics/light-rail-and-tram-statistics-england-year-ending-march-2023/light-rail-and-tram-statistics-england-year-ending-march-2023>).

Light rail and tram safety

The Office of Rail and Road publish information on passenger injuries on trams, metros and other non-Network Rail networks (such as heritage railways) in Great Britain. In the year ending March 2023 (the latest available data), there were 2 passenger fatalities resulting from collisions, a decrease from 3 in the previous year. There were 26 severe injuries that required hospitalisation, which was lower than any year since data was first collected in 2018, apart from the low of 17 during the pandemic in 2021. The low in that year is likely to be in part due to the decrease in light rail and tram usage during the pandemic.

Further information can be found on the [Office of Rail and Road website](https://dataportal.orr.gov.uk/statistics/health-and-safety/rail-safety/) (<https://dataportal.orr.gov.uk/statistics/health-and-safety/rail-safety/>).

Changes for 2024 publication

Ceased publishing table LRT0107 (average journey length)

Last year we suggested that we cease producing table LRT0107, having received no feedback we are no longer updating this table, which presented the average length of journey on light rail and tram systems. This was calculated by dividing total passenger distance travelled by the number of passengers and should users wish to calculate average journey length themselves, they will still be able to do so by dividing passenger distance by passenger boardings for each system. If you have any comments on this change please [contact us](#).

About these statistics

Uses and users of these statistics

These statistics are collected to provide information on light rail and tram systems within England to monitor trends in passenger journeys, service provision and revenue. They help to provide a comprehensive picture of public transport use in Great Britain. Within DfT, they are used as background information in the development of light rail and tram policy, for ministerial briefing and to answer public enquiries. Outside DfT, known users include researchers, academics and Parliamentary groups. These groups appear to primarily use the statistics as context for reports related to light rail.

Strengths and weaknesses of the data

The survey first ran in its current format in 2010 and has been running on an annual basis since with a consistent 100% response rate, although some

data are available back to the 1980s. The data captured has remained largely unchanged, meaning that long-term trends can be monitored.

As the figures are provided by different operators, there are some differences in the methods used to count journeys or to estimate passenger or vehicle kilometres, which may affect comparisons between different systems. However, we have attempted to ensure comparability as far as possible.

More information about strengths and limitations can be found in the [quality report \(https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report\)](https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report).

Official statistics

These statistics were designated as accredited official statistics in February 2013.

Further information on data quality, including the methods used to compile these statistics, users and background information about the systems covered can be found in the [quality report \(https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report\)](https://www.gov.uk/government/publications/light-rail-and-tram-statistics-guidance/light-rail-and-tram-quality-report).

This publication is a compendium of accredited official statistics, and statistics in development. The type of statistics presented is detailed in **Table 3** below.

Table 3: Categories of statistics presented in this publication

Name of category of statistics	Label	Description
Light Rail and Tram survey	Accredited official statistics	These official statistics were independently reviewed by the Office for Statistics Regulation in February 2013. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics and should be labelled 'accredited official statistics'.
National Travel Survey	Accredited official statistics	These official statistics were independently reviewed by the Office for Statistics Regulation in July 2011. The

Name of category of statistics	Label	Description
		continued designation was confirmed in September 2018. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics and should be labelled ‘accredited official statistics’.
Office of Rail and Road – Rail safety statistics	Accredited official statistics	These official statistics were independently reviewed by the Office for Statistics Regulation in December 2022. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics and should be labelled ‘accredited official statistics’.
Light Rail and Tram survey (workforce questions)	Official statistics in development	These statistics are released under the ‘official statistics in development’ label – formerly called experimental statistics. Official statistics in development are official statistics that are temporarily undergoing development and are being tested with users, in line with the standards of trustworthiness, quality, and value in the Code of Practice for Statistics.

Instructions for printing and saving

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Select Ctrl and F on a Windows laptop or Command and F on a Mac

This will open a search box in the top right-hand corner of the page. Type the word you are looking for in the search bar and press enter.

Your browser will highlight the word, usually in yellow, wherever it appears on the page. Press enter to move to the next place it appears.

Further information

To hear more about DfT statistical publications as they are released, follow us on X at [DfTstats \(https://x.com/dftstats\)](https://x.com/dftstats).

Contact details

Light rail and tram statistics

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Appendix D

Sharphill Wood Monitoring Report Phases 1 & 2 (2024)

WALKER ENGINEERING

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Bovis Homes Limited (Phases 1 & 2)

**Land at Melton Road
Edwalton**

Monitoring Report (8) (2024)

October 2024

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5.0 Proposals for the Year Ahead	9
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- A Development Masterplan
- B Edwalton Housing Areas
- C Bovis Phasing Programme
- D Travel Survey Questionnaire Form
- E Travel Surveys

Section 1 Introduction

1.1 Background

Lawrence Walker Limited (LWL) is appointed by Bovis Homes to assist in delivering the approved *Melton Road Travel Plan* (MRTP) with respect to the development of Land at Melton Road, Edwalton. The location of the site is indicated at **Appendix A**.

Planning permission for the proposed development was granted by *Rushcliffe Borough Council* (RBC) (14/01238/FUL) on 24th March 2016 and Condition 10 relating to the provision of the MRTP was formally discharged on 10th December 2017. The 386 residential unit development to which it refers forms part of the wider Melton Road SUE outlined on **Figure A** and shown in more detail at **Appendix B**.

In addition to the provision of the MRTP, Condition 11 of the Planning Permission (termed the FPC herein) sets out the following requirements with respect to its implementation:-

“The Travel Plan Co-ordinator shall submit reports in accordance with the Standard Assessment Methodology (SAM) or similar to be approved and to the Local Planning Authority in accordance with the Travel Plan monitoring periods. The monitoring reports submitted to the Local Planning Authority shall summarise the data collected over the monitoring period and propose revised initiatives and measures where travel plan targets are not being met including implementation dates to be approved I writing by the Local Planning Authority.”

This document provides the eighth *Monitoring Report* (MR) in compliance with Condition 11 and seeks to identify the progress made towards meeting the targets set out in the MRTP. In so doing, it also makes recommendations for further Travel Plan activity over the next 12 months, as required by that document.

Separately, Bovis has also obtained *Outline Planning Consent* (OPC) for 600 units to the north and west of the FPC development area and this was issued on 18th October 2017 (17/00941/OUT). **Appendix B** again refers, with the various land parcels being divided into separate phases largely in accordance with **Appendix C**.

A number of the dwellings covered by the OPC have been occupied to date and these sit within the Phase 3/4 demise. Since Condition 14 of the OPC imparts a similar obligation to Condition 11 of the FPC, the scope of the earlier 2021 version of the MR (MR4) was extended to cover the discharge of both. In so doing, any recommendations contained within it relating to the MRTP then automatically applied to both sites. However since then, occupations within Phase 3/4 have reached a level as to require their own MR submission in line with Condition 14 of the OPC. The exception is eight occupied “outlier” dwellings that sit close to the FPC boundary, which are likely to remain part of this Phase 1 & 2 MR for the immediate future. This is because they are otherwise isolated with no further housebuilding imminently planned close-by.

MR6 was not issued so this report MR8 follows MR7 in sequence and is based on a methodology and follows a structure that accord with standard industry practices, as deployed in all MR's to date. Whilst an input to any subsequent MR reports could possibly be a *Questionnaire Travel Survey* of all residents as per **Appendix B**, the site is today fully occupied and is currently meeting its required modal-split targets, so this was felt to no longer be appropriate. The main source of data thus come from a series of manual travel counts as provided at **Appendix C** covering all travel modes, together with a small number of door-step interviews.

1.2 Description of Development

Bovis has completed its Phase 1 housing on the Melton Road site and all 131 units are now occupied, including a number of affordable homes and associated infrastructure. As the completed plot sits close to existing housing areas and also recent development to the immediate north, it is within easy walking distance of a raft of local services. As a consequence, it is possible to make many journeys both on foot and by cycle and the circumstances therefore exist for the promotion of sustainable travel.

Following the completion of Phase 1 construction switched to Phases 2 to the immediate west, where all 84 units are now occupied. Additionally, 8 of the adjacent dwellings within the OPC area have also been occupied as noted above. The total number of dwellings to which this MR relates is thus 223.

1.3 Scope of Report

The approved MRTP provided a "Blueprint" for the strategy and measures to be implemented at the site in order to maximise sustainable travel by residents. It included provisions for monitoring to ensure that the aims of the Plan are delivered and identified possible remedial actions where targets are not being met. Monitoring began after 25 units were occupied and took the form of a *Monitoring Report* (MR). As noted above, Phase 1 is now fully occupied, as is Phase 2.

This report provides the eighth MR, and its scope is as follows:-

- The travel surveys undertaken during October 2024 are described and the results are compared with the targets set out in the approved MRTP.
- The work undertaken on the MRTP since occupation of the site commenced is summarised;
- Details of any issues encountered in delivering the Travel Plan are provided;
- Details of the how the MRTP measures have been implemented are provided;
- A summary of the progress made towards meeting the original targets is provided and an action plan for the next 12 months is outlined.

The report is submitted to NCC and RBC for comment and approval, in compliance with the Conditions 11 of the FPC and Condition 14 of the OPC planning consents.

Section 2 Travel Plan Objectives & Targets

2.1 Objectives

In accordance with the approved MRTP, the primary objective of the Travel Plan is to ultimately achieve a 5% reduction in *Single Occupancy Car Drivers* (SOCD's) through the achievement of 25% non-car usage. To deliver this, the following principle measures on the part of Bovis are recorded in the MRTP, which have been reproduced below for ease of reference.

In accordance with the MRTP, Bovis has undertaken to:-

- Appoint and retain a Travel Plan Co-ordinator to oversee all travel policies and implement the MRTP;
- Encourage diversion of the existing Trent Barton *Keyworth Connection* Bus Service (or suitable alternative – see below) into the site to serve the development on a 15 minute frequency basis;
- Provide “Welcome Packs” to each new dwelling upon occupation, to ensure that information relating to travel options is available in both a quick and convenient format;
- Establish a Melton Road Travel Webpage to provide information on travel and the use of non-car modes on an RTI basis;
- Join available Car-Share Schemes;
- Deliver a Walking & Cycling Initiative;
- Seek to reduce the need to travel through a Travel Reduction Policy comprising a number of initiatives;
- Actively market the MRTP;
- Provide all secondary and complementary measures described in the MRTP to help deliver the total reduction in single occupancy car use within the timeframes defined by the MRTP.

It is considered that these objectives remain relevant to the MRTP Travel Plan and the findings of this Monitoring Report, and should therefore continue to be pursued.

2.2 Targets

NCT Green Line 7 now serves the Shrophill Wood site on a half-hourly basis. The final target of 75% for SOCD's per 100 dwellings as set out in the MRTP therefore applies. Figures are provided for both person trips and as a percentage:-

Table 1: Target Person Trips (Per 100 Dwellings)

Mode		Person Trips (as used in TA)			
		AM (In)	AM (Out)	PM (In)	PM (Out)
Total Person Trips		28	78	61	41
Car (SOCD's)	75%	20	58	46	31
Car Share	5%	2	4	3	2
Public Transport	10%	3	8	6	4
Walk/Cycle	10%	3	8	6	4

The above figures will now be carried forward for use in assessing the current position at Melton Road with respect to compliance with the MRTP.

Section 3 Travel Surveys

3.1 Methodology

A survey of residents' travel behaviour was undertaken during October 2024 and took the form of a multi-modal count outside of the school holiday period, augmented by door-step interviews. As noted above, as the development is now fully occupied it was felt that use of the *Questionnaire Travel Survey* highlighted at **Appendix B** was no longer appropriate.

In accordance with the MRTP, the survey was based on the *Standard Assessment Methodology* (SAM) developed by TRICS and was carried out by an approved data collection contractor (**Appendix C**). It is a system of monitoring and assessing the effectiveness of Travel Plans and uses long established TRICS methods of multi-modal data collection enhanced with comprehensive information on Travel Plan details to produce robust Travel Plan survey results.

3.2 Survey Results

The modal split of all movements that took place at the time of the survey is provided in below in **Table 2**. The measured percentages are based on the *Target Person Trips* shown alongside each category of travel where greater, since this is the only way to allow for the positive effects of those who did not to travel on the day of the survey:-

Table 2: Actual Person Trips (223 Dwellings)

Mode		Person Trips (October 2024 Survey) (Outside of School Holiday Period)			
		AM (In)	AM (Out)	PM (In)	PM (Out)
Person Trips					
Total Person Trips		38	117	78	56
Target Person Trips		62	174	136	91
Difference		-24	-57	-58	-35
Modal Split					
Car (SOCD's)	75%	26 (42%)	61 (35%)	46 (34%)	37 (41%)
Car Share	5%	4 (6%)	19 (11%)	12 (9%)	5 (5%)
Public Transport	10%	0 (0%)	12 (7%)	3 (2%)	6 (7%)
Walk/Cycle	10%	6 (10%)	17 (10%)	9 (7%)	6 (7%)
Work from Home	0%	2 (3%)	8 (4%)	8 (6%)	2 (2%)
Did Not Travel		24 (39%)	57 (33%)	58 (42%)	35 (38%)

As can be seen from the table, the total number of person-trips made was well below the targets provided in the MRTP and so no further action is proposed in this regard. It is worth noting here however that all constituent categories remained closely aligned with those recorded in 2023 including SOCD car usage, with the exception of Public Transport. The new NCT Green Line 7 Service has increased the total number of person trips being made to and from the site, but at the expense of nothing else it would seem. Residents simply appear to be travelling more now that the buses are available, with those that might otherwise have stayed at home taking the bus.

The small number of door-step interviews undertaken with residents during October suggested that on average, around 5% of all residents work-from-home, with a further 2% doing so occasionally at least one or two days per week. Subsequent use of the *Questionnaire Travel Survey* highlighted at **Appendix B** might help determine the number of residents currently working from home more accurately, but at these sorts of levels there would still be no issue in terms of the total number of person-trips being made to and from the site each day. It is suggested therefore that home-working may be more prevalent than indicated but in addition, it demonstrates that the total impact of the completed site in terms of car traffic will be no greater than expectations. This is an important feature and is a very positive one going forward.

Numerically, the average SOCD modal share is currently around 59% as surveyed, falling to 58% if occasional home working is factored in. As a percentage of the actual targeted number of person trips however, the figure is just over 37% (which is very close to the 2023 result). This is significantly below the target and comfortably below that which is prevalent in the area in the absence of any Travel Plan measures (~80%), which is both significant and encouraging. Car sharing is consistently on target, whilst walking and cycling currently has a good take-up too. No action is proposed on either.

What is noticeable is the step-change in Public Transport usage following the introduction of the NCT Green Line 7 service. Take-up has jumped from very few residents using the local buses to around 7% now doing so on a daily basis. This is an excellent result and puts bus use close to its target level after only a few weeks of operation.

Overall, the traffic impact of the extant development on the surround roads will be significantly less than was considered in the original TA and thus no further action is proposed at this time.

Section 4 Summary of Travel Plan Activity

4.1 MRTP Implementation

All responsibilities for the MRTP; its policies and implementation rested with LWL for the duration of the period covered by this MR, who's nominated **TP Co-ordinator** for the site was:-

Mr. Steven Johnstone
Lawrence Walker Limited
Church Farm
Leamington Hastings
Warwickshire CV23 8DZ

Tel - 01926 632111
Email - lwltd@btopenworld.com

4.2 Activity Checklist

A checklist of the measures identified in the MRTP highlighting the activities completed to date and the work that has yet to be completed, is provided at **Table 5** below. The information on progress to date within the table has been provided by Bovis Homes. Proposals for the next 12 months are as recommended by LWL for consideration by Bovis Homes and NCC (see also **Section 5**).

Table 5: Checklist of Travel Plan Measures & Proposals for the Year Ahead

Activity/Measure	Progress to Date	Proposals
Appoint & Retain TP Co-ordinator	Complete	On-going Promotion of MRTP
Secure Diversion of Keyworth Connection Bus	Complete	On-going Promotion
Issue "Welcome Packs" to each Dwelling	Complete	None
Establish Melton Road Travel Webpage	Complete	None
Join Available Car-Share Schemes	Complete	None
Deliver a Walking & Cycling Initiative	Not Undertaken	None
Travel Reduction Policy	Currently Self-Regulating	None
Marketing of MRTP	Ongoing	On-going Promotion
Secondary Measures	Broadband Available	None
Remedial Measures	None Implemented to Date	No Action Required

4.3 Issues Encountered

Bovis Homes has not reported any problems or issues encountered in implementing the above measures.

In the absence of a *Questionnaire*, it is difficult to draw any exact conclusions regarding the numerical influence of home working. However, the use of door-step interviews in order to provide information to residents and seek feedback on it and the use of the other travel initiatives is a positive. What is clear is that the site continues to generate car traffic at a rate well below expectations and as such, these initiatives have been successful. The door-step interviews will be incorporated into subsequent MR's as result.

Nearly all of the measures identified in the MRTP have now been implemented, as shown in **Table 3**. Any outstanding measures will be implemented over the next 12 months, as detailed in **Section 5** below.

Section 5 Proposals for the Year Ahead

5.1 Revisions to MRTP Targets

Given the excellent survey results, it is not considered that any revisions to the MRTP targets are required. The 75% SOCD modal split target has been easily met across the working day as an average however measured, due largely to good take-up across all non-car modes and initiatives. The measures implemented to encourage natural selection and discourage car use are working very well across the site.

5.2 The 12-Month Plan

Having regard to the survey results obtained and the review of MRTP activity and measures implemented, it is considered that the following actions should be completed over the 12-month period of 2025:-

- Continue to promote the newly instigated NCT Green Line 7 Bus Service, and;
- Continue to promote Car-Sharing as a viable alternative to SOCD use.

5.3 Remedial Measures

No remedial measures are proposed at this time.

5.4 Annual Reporting

The next *Monitoring Report* will include a full resident travel survey and will follow a similar format to this MR unless otherwise requested by NCC. It will be provided to NCC by the end of 2025.

Section 6 Summary & Conclusions

6.1 Summary

The Melton Road Travel Plan (MRTP) aims to promote sustainable transport through a number of initiatives. It is the framework by which each resident will actively commit himself or herself, both in the short term and long term, to meeting the objectives of a more sustainable transport policy. *The Melton Road Travel Plan* sets out targets for realising a tangible modal shift from car to other more sustainable modes, including buses, cycling, walking and car sharing. It also defines the means by which the targets can be met and establishes a response to various factors.

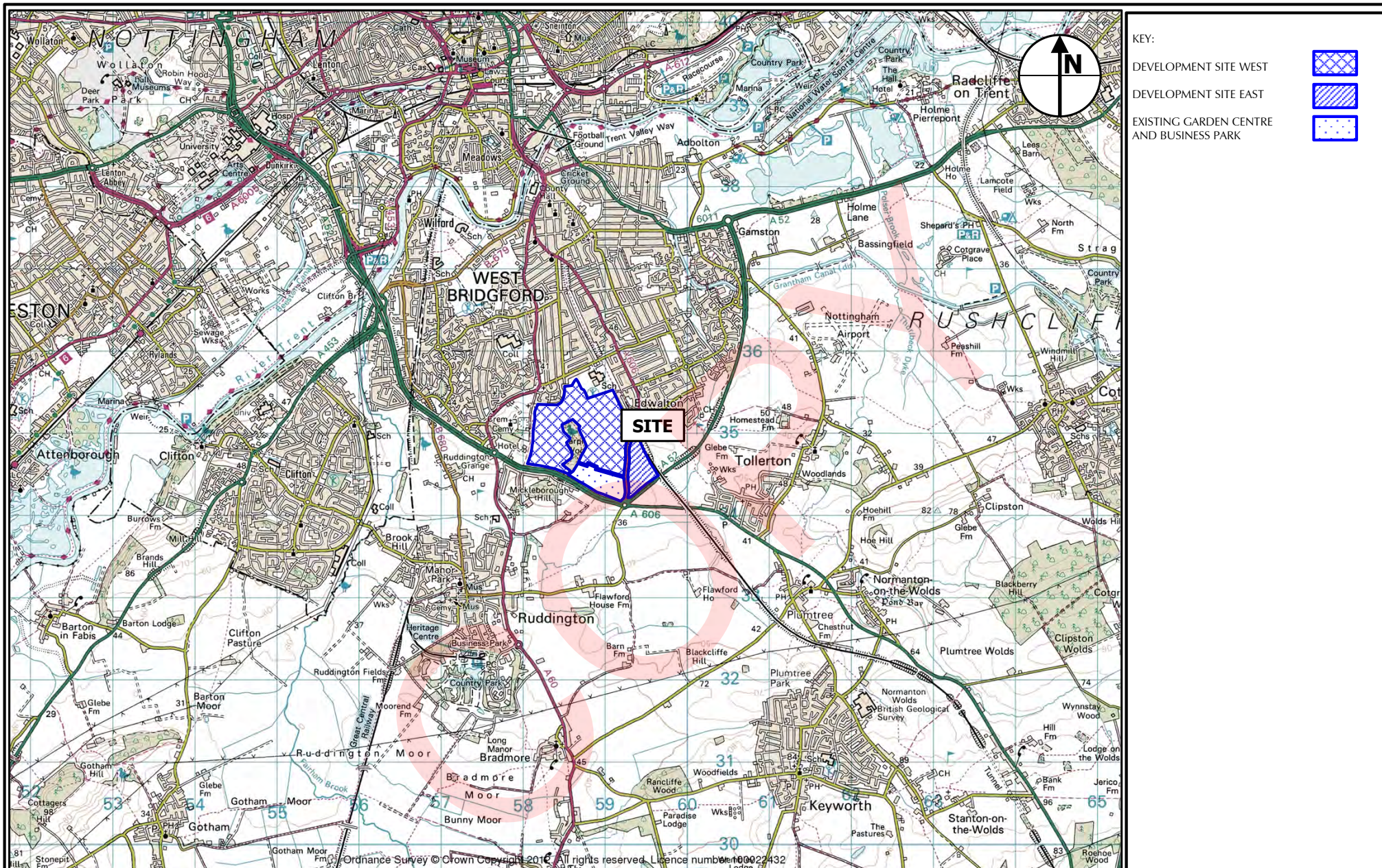
6.2 Conclusions

The MRTP has been very successful over the period since initial occupation, with car usage falling well within acceptable limits. Walking and cycling take-up has been good, as has car-share options. Public Transport activity has seen a step-change in travel since the NCT Green Line 7 Service was introduced.

Overall, it is concluded that the MRTP has performed well to date and no remedial actions are thought to be required at this time. This eighth MR8 report is submitted to NCC and RBC for comment and approval on this basis, in compliance with the Condition 11 of the FPC and Condition 14 of the OPC Planning Consents.

Figures

COPY



Lawrence Walker Ltd
Church Farm
Leamington Hastings
Warks CV23 8DZ

Client



Project
Land at Melton Road,
Edwalton

Drn.	SPJ	Chkd.	SPJ	App.	SPJ	Date	24.03.14
Scales.				NTS			

Title
General Location Plan

Drn. No.	CAD Ref	Plot	Rev
Figure A	-		B

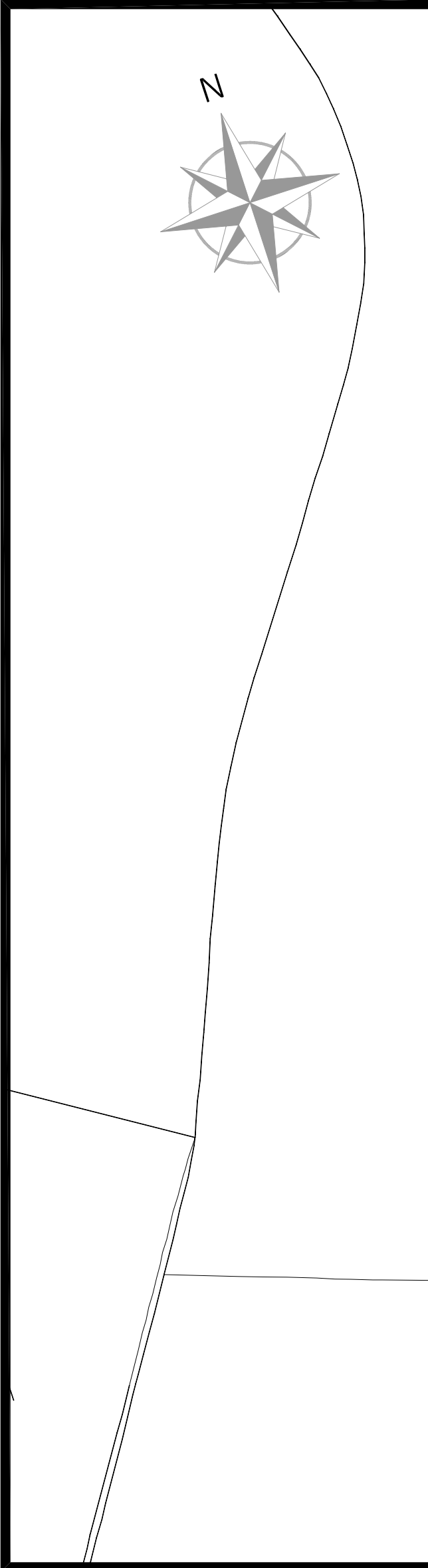
Appendix A

Development Masterplan

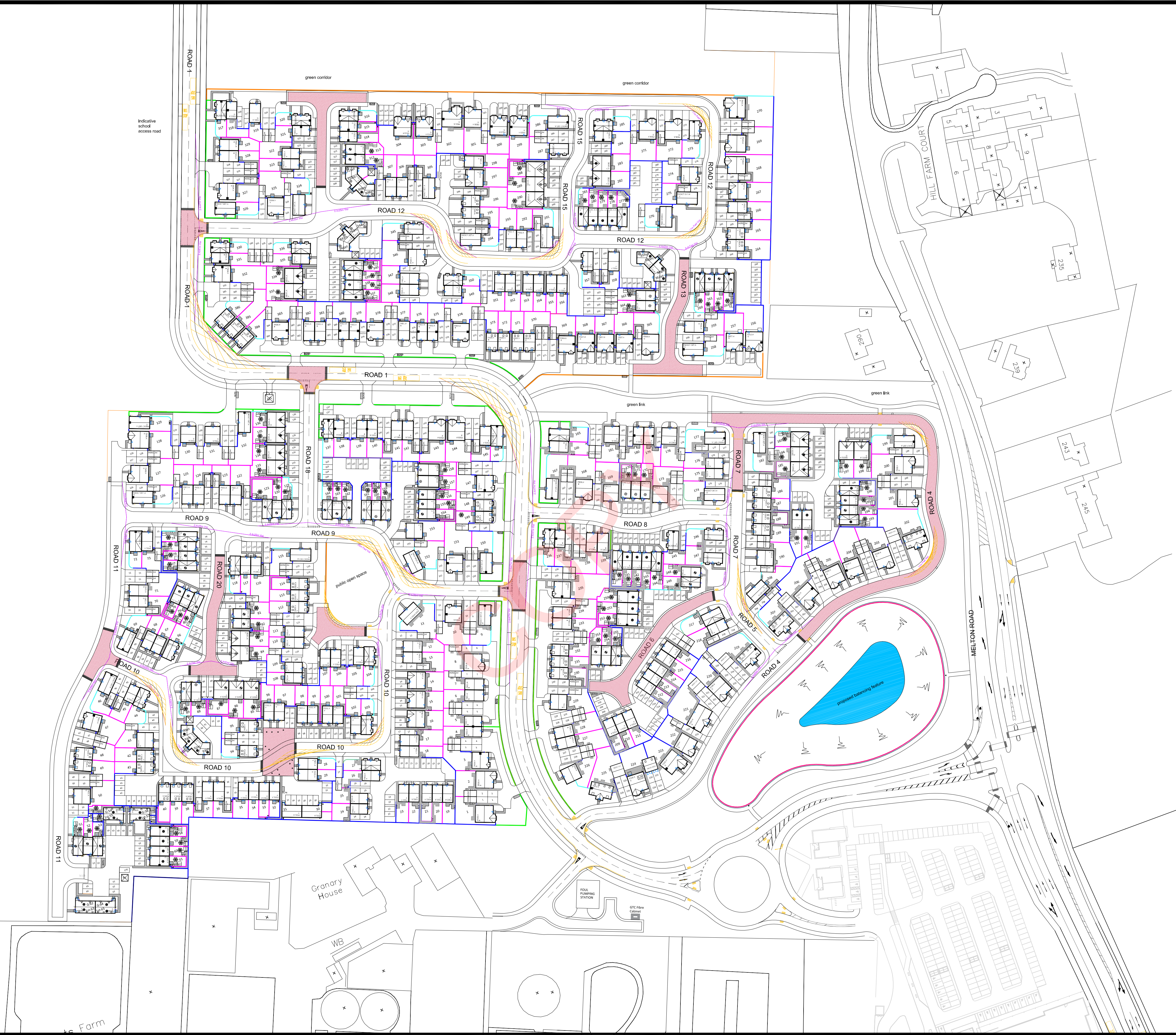
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SCHEDULE OF ACCOMMODATION - BOVIS				
REF	TYPE	BEDS	STOREYS	No.
AFFORDABLE HOUSING				
A	AF10	2 BED APARTMENT	FIRST FLO	8 No.
B	SF05	1 BED APARTMENT	1.5 STOREY	8 No.
C	S8101	1 BED BUNGALOW	1 STOREY	4 No.
D	S8102	1 BED BUNGALOW	1 STOREY	4 No.
E	S8201	2 BED BUNGALOW	1 STOREY	13 No.
F	S241	2 BED HOUSE	2 STOREY	27 No.
G	S351	3 BED HOUSE	2 STOREY	32 No.
H	S351SP	3 BED HOUSE	2 STOREY	7 No.
J	S461	4 BED HOUSE	2 STOREY	5 No.
Z	AF10	1 BED APARTMENT	GROUND FL	8 No.
AFFORDABLE TOTAL				116 No.
PRIVATE HOUSING				
K	PF01	2 BED APARTMENT	2 STOREY	2 No.
L	P302	3 BED HOUSE	2 STOREY	69 No.
M	P303	3 BED HOUSE	2 STOREY	23 No.
N	P401	4 BED HOUSE	2 STOREY	44 No.
P	P402	4 BED HOUSE	2 STOREY	12 No.
Q	P403CT	4 BED HOUSE	2 STOREY	25 No.
Q1	P403	4 BED HOUSE	2 STOREY	3 No.
R	P404	4 BED HOUSE	2 STOREY	16 No.
S	P407	4 BED HOUSE	2 STOREY	9 No.
T	P409	4 BED HOUSE	2.5 STOREY	32 No.
U	P410	4 BED HOUSE	2 STOREY	5 No.
V	P502	5 BED HOUSE	2 STOREY	4 No.
W	P505	5 BED HOUSE	2 STOREY	1 No.
X	P508	5 BED HOUSE	2 STOREY	21 No.
Y	P601	6 BED HOUSE	2.5 STOREY	4 No.
PRIVATE TOTAL				270 No.
OVERALL TOTAL				386 No.



MELTON ROAD ~ EDWALTON



LEGEND	
	1800mm HIGH TIMBER CLOSED BOARDED FENCE
	1800mm HIGH TIMBER LARCH LAP FENCE
	1800mm HIGH BRICK SCREEN WALL
	900mm HIGH METAL RAILINGS
	450mm HIGH TIMBER KNEE RAIL FENCE
	1200mm HIGH TIMBER RANCH STYLE FENCE (3 BAR)
	DENOTES BALANCING FEATURE
	DENOTES MARSHALLS BLOCKPAVING. COLOUR: BRINDLE TO BE LAID HERRINGBONE
	DENOTES 900mm WIDE FOOTPATHS CONCRETE RIVAN SLABS COLOUR: BUFF
	DENOTES PERSONNEL DOOR LOCATION
	DENOTES POSITION OF CHIMNEY
	DENOTES BIN COLLECTION POINT
	DENOTES ACCESS GATE POSITION
	DENOTES COMMUNAL PARKING SPACE
	DENOTES AFFORDABLE RENT HOUSING
	DENOTES SOCIAL RENT HOUSING
	DENOTES INTERMEDIATE HOUSING
	DENOTES PROPOSED SUBSTATION
	DENOTES TIMBER SHED FOR UPTO 2 CYCLES ~ 1.83 x 2.44m (4.50 sq m)
	DENOTES ROTARY DRYER
	DENOTES WHEELIE BIN POSITIONING

BIN COLLECTION POINTS (BCP)	
BCP1	~ FOR USE BY PLOTS 1-4 inc. ONLY
BCP2	~ FOR USE BY PLOTS 5-8 inc. ONLY
BCP3	~ FOR USE BY PLOTS 18-26 inc. ONLY
BCP4	~ FOR USE BY PLOTS 29-34 inc. ONLY
BCP5	~ FOR USE BY PLOTS 53-61 inc. ONLY
BCP6	~ FOR USE BY PLOTS 84-87 inc. ONLY
BCP7	~ FOR USE BY PLOTS 107-110 inc. ONLY
BCP8	~ FOR USE BY PLOTS 127-128 inc. ONLY
BCP9	~ FOR USE BY PLOTS 129-132 inc. ONLY
BCP10	~ FOR USE BY PLOTS 113-114 inc. ONLY
BCP11	~ FOR USE BY PLOTS 159-164 inc. ONLY
BCP12	~ FOR USE BY PLOTS 154-158 inc. ONLY
BCP13	~ FOR USE BY PLOTS 148-149 inc. ONLY
BCP14	~ FOR USE BY PLOTS 142-145 inc. ONLY
BCP15	~ FOR USE BY PLOTS 138-141 inc. ONLY
BCP17	~ FOR USE BY PLOTS 178-181 inc. ONLY
BCP18	~ FOR USE BY PLOTS 184-185 & 191-197 inc. ONLY
BCP19	~ FOR USE BY PLOTS 209-213 inc. ONLY
BCP20	~ FOR USE BY PLOTS 253-255 inc. ONLY
BCP21	~ FOR USE BY PLOTS 250-252 inc. ONLY
BCP22	~ FOR USE BY PLOTS 248-249 inc. ONLY
BCP23	~ FOR USE BY PLOTS 226-229 inc. ONLY
BCP24	~ FOR USE BY PLOTS 230-234 inc. ONLY
BCP25	~ FOR USE BY PLOTS 256-257 inc. ONLY
BCP26	~ FOR USE BY PLOTS 260-263 inc. ONLY
BCP27	~ FOR USE BY PLOTS 277-280 inc. ONLY
BCP28	~ FOR USE BY PLOTS 296-298 inc. ONLY
BCP29	~ FOR USE BY PLOTS 299-301 inc. ONLY
BCP30	~ FOR USE BY PLOTS 302-304 inc. ONLY
BCP31	~ FOR USE BY PLOTS 318-320 inc. ONLY
BCP32	~ FOR USE BY PLOTS 327-329 inc. ONLY
BCP33	~ FOR USE BY PLOTS 332 inc. ONLY
BCP34	~ FOR USE BY PLOTS 333-335 & 337-340 inc. ONLY
BCP35	~ FOR USE BY PLOTS 347-349 inc. ONLY
BCP36	~ FOR USE BY PLOTS 366-368 inc. ONLY
BCP37	~ FOR USE BY PLOTS 369-372 inc. ONLY
BCP38	~ FOR USE BY PLOTS 373-375 inc. ONLY
BCP39	~ FOR USE BY PLOTS 376-379 inc. ONLY
BCP40	~ FOR USE BY PLOTS 380-383 inc. ONLY
BIN STORES (BS)	
BS1	~ FOR USE BY PLOTS 62-65 inc. ONLY
BS2	~ FOR USE BY PLOTS 90-93 inc. ONLY
BS3	~ FOR USE BY PLOTS 308-311 inc. ONLY
BS4	~ FOR USE BY PLOTS 341-344 inc. ONLY
BS5	~ FOR USE BY PLOTS 359-362 inc. ONLY

Rev	Date	Details	By
Drainage Authority Approval Date			
Highway Authority Approval Date			
Do not scale from this drawing. Use written dimensions only. When shown relationships between slab levels and ground levels are to be checked on site. Any discrepancy or suggested modification to be reported to Design and Engineering Director. Note: This drawing is the copyright of Bovis Homes Ltd.			

Bovis Homes Central Region
Bromwich Court
Highway Point
Gorseley Lane
Coleshill
B46 1JU
Tel: 01675 437 000
Fax: 01675 437 094
DX: 728340 Coleshill 2

SITE
EDWALTON
MELTON ROAD

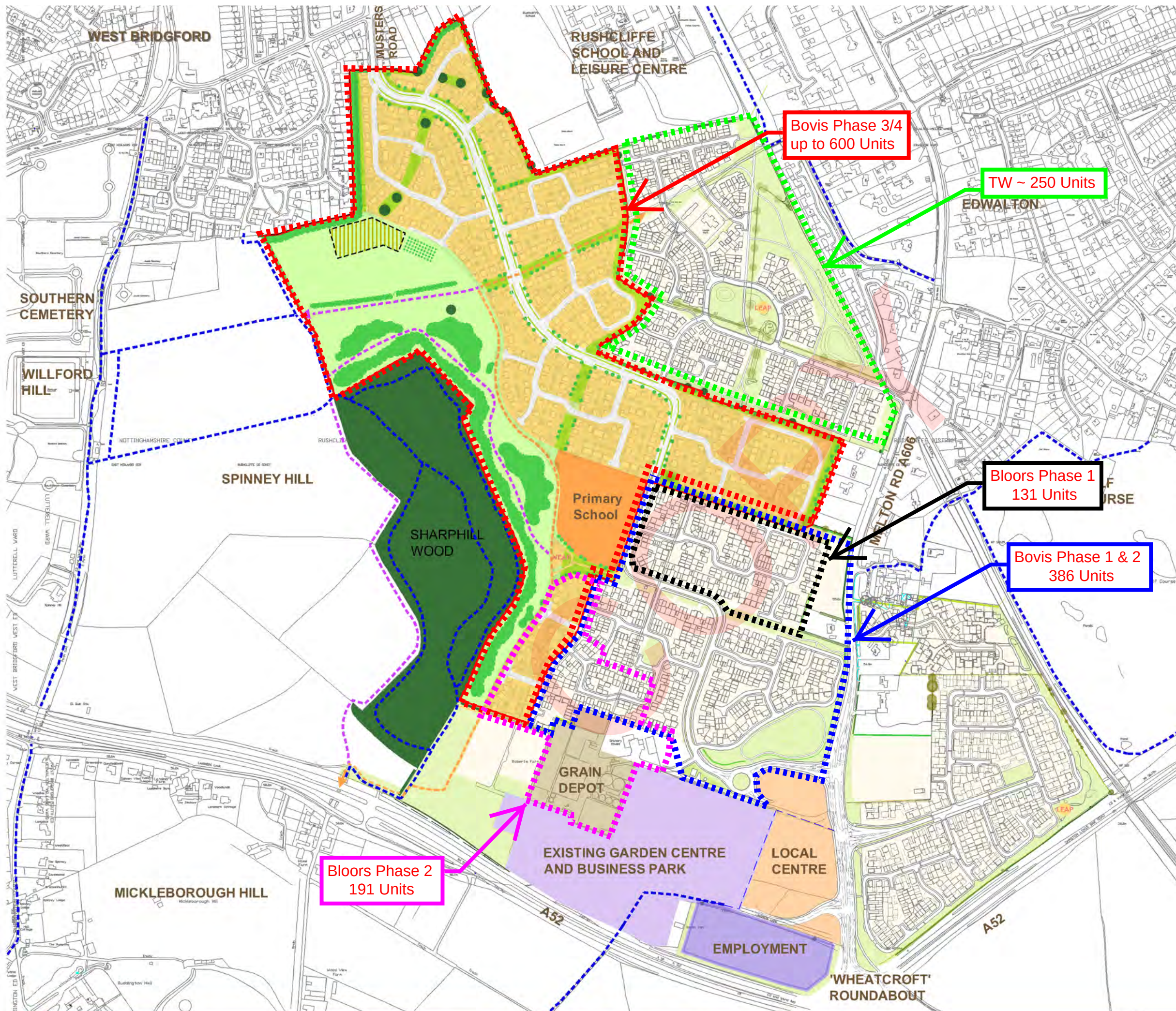
DRAWING TITLE
EXTERNAL WORKS LAYOUT

DRAWN BY SJ	DATE APRIL 2014	DRAWING NO. EDWA-02-003-03	REV
SCALE: 1:1000 @ A1	CHECKED/DATE		

Appendix B

Edwalton Housing Areas

COPY



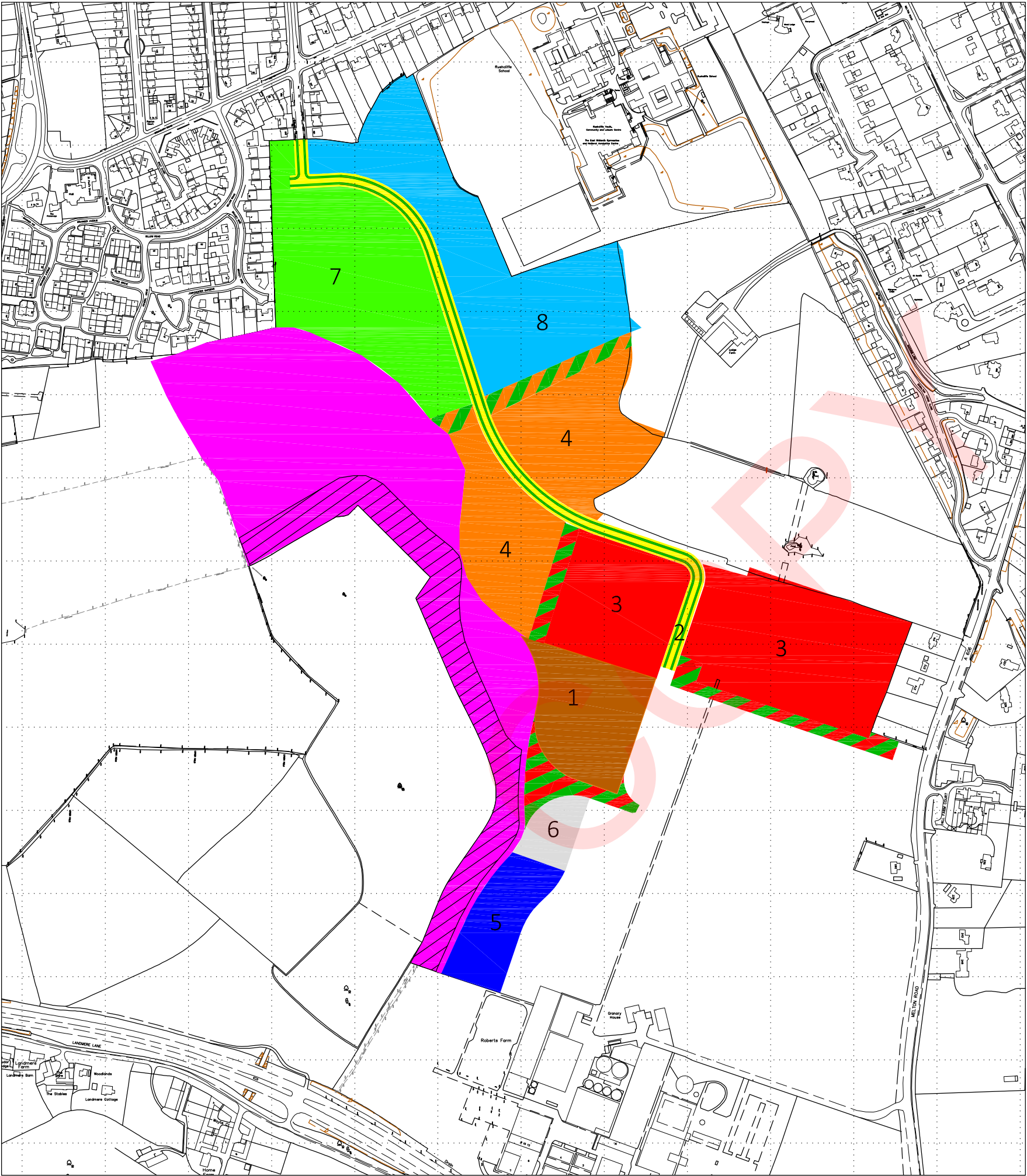
KEY

- Site Boundary
- Main Streets and access roads
- Proposed residential development
- Primary School with associated community hall access and use
- Proposed Edwalton Community Park
- Proposed Green Infrastructure
Includes Greenways, structural landscape, children's pla, existing retained vegetation and areas of wildlife habitat creation.
- Proposed tree & shrub planting
- Proposed Equipped Children's Play Area - approximate location
- Existing vegetation including trees and hedgerows
- Existing Rights of Way/ Informal Routes
- Proposed Footpaths (Community Park)
- Proposed Cycleway
- Potential Allotment site

Appendix C

Bovis Phasing Programme

COPY



LEGEND

This phasing programme identifies the individual phases of the overall scheme. Where works to a particular phase are required, or anticipated, to be sequential with another phase, this is noted in the description of each phase.

- PHASE 1 - School land (delivery education authority dependant)
- PHASE 2 - Spine Road to be constructed prior to the occupation of any housing
- PHASE 2A (Dark green strip only) - Landscaped verge to spine road to be delivered alongside the spine road.
- PHASE 3 - Housing Land
- PHASE 3A - Landscape corridor & LEAP: delivery alongside phase 3 housing
- PHASE 4 - Housing Land
- PHASE 4A - Landscape corridor: delivery alongside phase 4 housing
- PHASE 5 - Housing Land
- PHASE 6 - Housing Land
- PHASE 7 - Housing Land: Delivery anticipated to follow the delivery of phase 3 & 4
- PHASE 8 - Housing Land: Delivery anticipated to follow the delivery of phase 3 & 4
- Community Park Scheme - Delivery to be in accordance with Section 106 obligations
- Advanced community parks work (completed)

Rev	Date	Details	By
-----	------	---------	----

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Bovis Homes
Northern Region
Dunston Hall
Dunston
Stafford
ST18 9AB
Tel: 01785 788 300
DX: 311601 Stafford 10

SITE
**EDWALTON
MELTON ROAD**

DRAWING TITLE
PHASING PROGRAMME

DRAWN BY CW	DATE MARCH '19	DRAWING NO. EDWA-02-032	REV -
SCALE: NTS	SITE CODE EDWA		

Appendix D

Travel Survey Questionnaire Form

COPY

LAND AT MELTON ROAD - EDWALTON

RESIDENTIAL TRAVEL SURVEY

(Confidential)

Please **TICK** relevant boxes

1 Are you currently employed?

2 How many hours a week do you normally work?

3 What hours do you normally work?

..... am/pm till am/pm

4 How do you mostly travel to work? Tick one of the following:

☐ bus

☐ rail

☐ cycle

☐ walk

☐ motorbike

☐ car, on your own

☐ car, with other(s)

☐ other (specify)

5 Which one of the following do you occasionally use instead of your usual form of transport?

☐ bus

☐ rail

☐ cycle

☐ walk

☐ motorbike

☐ car, on your own

☐ car, with other(s)

☐ other (specify)

☐ don't use an alternative

6 Do you have a **disability** that affects your travel?

☐ Yes

☐ No

7 How far do you travel to work?

☐ up to 1 mile

☐ 1 – 2 miles

☐ 2 – 4 miles

☐ 4 - 10 miles

☐ 10 - 20 miles

☐ over 20 miles

8 How long does it usually take you to travel to work?

☐ up to 15 minutes

☐ 16 – 30 minutes

☐ 31 – 60 minutes

☐ 61 – 90 minutes

☐ over 90 minutes

9 If you do not cycle now, which of the following changes would encourage you to cycle to work or for other purposes? Please tick no more than three.

- ☐ improved cycle paths on the journey to work
- ☐ general improvements in road safety (e.g. more traffic calming)
- ☐ improved cycle parking at work
- ☐ showers and changing facilities (should you need to change clothes)
- ☐ lockers for clobber (e.g. helmet, clothes)
- ☐ cycle training to improve confidence when cycling to work
- ☐ arrangements to buy a bike at a discount
- ☐ free taxi home in emergencies
- ☐ other (please specify)

10 If you already cycle, what improvements would you most like to see?

.....

.....

.....

11 Which of the following changes would encourage you to use public transport for your daily travel needs? (If you already use public transport which would you most like to see). Please tick no more than four.

- ☐ more direct bus routes
- ☐ more frequent bus service
- ☐ more frequent train service
- ☐ earlier/later buses/trains to fit in with my shift hours
- ☐ better lighting at bus stops
- ☐ provision of bus shelters
- ☐ provision of seating at bus stops
- ☐ new bus link from station (which?)
- ☐ provision of better public transport information at work
- ☐ interest-free season ticket/travelcard loan
- ☐ discount fares
- ☐ free bus travel at lunchtimes for shopping
- ☐ other (please specify)

12 Which of the following changes would encourage you to walk to local destinations? (If you already walk, which would you most like to see?). Please tick no more than two.

- ☐ better maintained pavements
- ☐ safer road crossings
- ☐ more street lighting
- ☐ free taxi home in emergencies
- ☐ other (please specify)

13 Do you own a company car?

- ☐ Yes ☐ No

14 If yes, do you use it to get to work?

☐ Yes

☐ No

15 Could you work from home occasionally if you had the necessary IT equipment?

☐ all the time

☐ most of the time

☐ occasionally

☐ never

16 How interested would you be in exploring home-working?

☐ very interested

☐ fairly interested

☐ not interested

PLEASE COMPLETE QUESTIONS 17 – 20 IF YOU OWN AND INTEND TO USE A CAR TO WORK

17 What are your main reasons for using a car to work?

☐ need to use it during the day on business

☐ need to use it during lunchtimes for shopping

☐ drop/collect children

☐ you get or give a lift

☐ for personal security

☐ lack of an alternative

☐ other, please specify

If you ticked the first box, how many days a week on average do you need it for business?

.....

and, how many hours are you normally away from the office at a time?

18 Where do you usually park?

☐ on site, SITE NAME / CAR PARK NAME

☐ OTHER NAMED LOCATION RELEVANT TO YOU

☐ free parking in nearby streets

☐ other, please specify

19 Would you be prepared to car share?

☐ yes

☐ no

☐ I already car share

20 Which of the following would most encourage you to car share? (If you already car share which would you most like to see?). Please tick no more than two.

☐ help in finding car share partners with similar work patterns

☐ free taxi home if let down by car driver or in an emergency

☐ reserved parking, closest to entrance for car sharers

☐ other, please specify

☐ none of these

21 Full home postcode

23 Age ☐ under 25 ☐ 25 – 34 ☐ 35 – 44
☐ 45 – 54 ☐ 55 & over

24 Do you have any comments about your travel to work?

COPI

(continue overleaf if necessary)

Thank you for your co-operation. Please be assured that all your answers are **confidential**. Please return this form to _____ by _____ 2024

The first ____ questionnaires opened will be awarded [BOTTLE OF CHAMPAGNE / FREE BUS TICKET / M&S VOUCHERS]. If you wish to be included, please write your name here. This will be separated from the completed questionnaire and used only for the purposes of the draw.

Name (please print).....

Appendix E

Travel Surveys

COPY

Junction: 2
Approach: Bovis Phase 1 and 2

TIME	Inbound									Outbound								
	PED	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PED	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL
08:00 - 08:15	2	0	0	4	0	0	0	0	6	3	0	0	20	0	0	0	0	23
08:15 - 08:30	2	0	0	6	0	0	0	0	8	4	0	0	20	0	0	0	0	24
08:30 - 08:45	1	0	0	12	0	0	0	0	13	6	0	0	25	0	0	0	0	31
08:45 - 09:00	1	0	0	8	0	0	0	0	9	4	0	0	11	0	0	0	0	15
Hourly Total	6	0	0	30	0	0	0	0	36	17	0	0	76	0	0	0	0	93
TOTAL	6	0	0	30	0	0	0	0	36	17	0	0	76	0	0	0	0	93
17:00 - 17:15	2	0	0	13	1	0	0	0	16	2	0	0	13	1	0	0	0	16
17:15 - 17:30	2	0	0	20	0	0	0	0	22	2	0	0	10	0	0	0	0	12
17:30 - 17:45	2	1	0	18	0	0	0	0	21	1	0	0	11	0	0	0	0	12
17:45 - 18:00	2	0	0	6	0	0	0	0	8	1	0	0	8	0	0	0	0	9
Hourly Total	8	1	0	57	1	0	0	0	67	6	0	0	42	1	0	0	0	49
TOTAL	8	1	0	57	1	0	0	0	67	6	0	0	42	1	0	0	0	49

	Inbound				
Time	CAR	LGV	OGV1	OGV2	TOTAL
0800 - 0815	4	0	0	0	4
0815 - 0830	6	0	0	0	6
0830 - 0845	12	0	0	0	12
0845 - 0900	8	0	0	0	8
Hourly Total	30	0	0	0	30

Session Total	30	0	0	0	30
----------------------	-----------	----------	----------	----------	-----------

1700 - 1715	13	1	0	0	14
1715 - 1730	20	0	0	0	20
1730 - 1745	18	0	0	0	18
1745 - 1800	6	0	0	0	6
Hourly Total	57	1	0	0	58

Session Total	57	1	0	0	58
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[illegible]

1700 - 1715	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
	LGV	2
1715 - 1730	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
1730 - 1745	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
1745 - 1800	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1

	Outbound				
Time	CAR	LGV	OGV1	OGV2	TOTAL
0800 - 0815	20	0	0	0	20
0815 - 0830	20	0	0	0	20
0830 - 0845	25	0	0	0	25
0845 - 0900	11	0	0	0	11
Hourly Total	76	0	0	0	76

Session Total	76	0	0	0	76
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1700 - 1715	13	1	0	0	14
1715 - 1730	10	0	0	0	10
1730 - 1745	11	0	0	0	11
1745 - 1800	8	0	0	0	8
Hourly Total	42	1	0	0	43

Session Total	42	1	0	0	43
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Car share Outbound		
Time	Vehicle	Occupants
0800 - 0815	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
	Car	2
	Car	2
	Car	2
0815 - 0830	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
	Car	3
	Car	3
	0830 - 0845	Car
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		1
Car		2
Car		2
0845 - 0900	Car	3
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2

1700 - 1715	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	LGV	1
1715 - 1730	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
1730 - 1745	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	2
	Car	2
1745 - 1800	Car	1
	Car	1
	Car	1
	Car	1
	Car	1
	Car	1



Internal Bus Stop Rose Way North

Northbound Bus stop			Southbound Bus stop		
Time	Boarding Bus	Alight Bus	Boarding Bus	Alight Bus	
	PED	PED	PED	PED	
0800 - 0815	0	0	1	0	
0815 - 0830	0	0	1	0	
0830 - 0845	0	0	0	0	
0845 - 0900	0	0	0	0	
Hourly Total	0	0	2	0	
Session Total	0	0	2	0	
1700 - 1715	0	0	0	1	
1715 - 1730	0	0	0	1	
1730 - 1745	0	0	0	0	
1745 - 1800	0	0	0	0	
Hourly Total	0	0	0	2	
Session Total	0	0	0	2	

Internal Bus Stop Rose Way South

Northbound Bus stop			Southbound Bus stop		
Time	Boarding Bus	Alight Bus	Boarding Bus	Alight Bus	
	PED	PED	PED	PED	
0800 - 0815	2	0	0	0	
0815 - 0830	0	0	0	0	
0830 - 0845	1	0	0	0	
0845 - 0900	0	0	0	0	
Hourly Total	3	0	0	0	
Session Total	3	0	0	0	
1700 - 1715	0	0	0	0	
1715 - 1730	0	0	0	0	
1730 - 1745	1	0	4	0	
1745 - 1800	0	0	1	0	
Hourly Total	1	0	5	0	
Session Total	1	0	5	0	

External Bus Stop A606

Northbound Bus stop			Southbound Bus stop		
Time	Boarding Bus	Alight Bus	Boarding Bus	Alight Bus	
	PED	PED	PED	PED	
0800 - 0815	0	0	5	0	
0815 - 0830	2	0	0	0	
0830 - 0845	0	0	0	0	
0845 - 0900	0	0	0	0	
Hourly Total	2	0	5	0	
Session Total	2	0	5	0	
1700 - 1715	0	1	0	0	
1715 - 1730	0	0	0	0	
1730 - 1745	0	0	0	0	
1745 - 1800	0	0	0	0	
Hourly Total	0	1	0	0	
Session Total	0	1	0	0	

Appendix E

WLWA Model Flow Comparison

Lawrence Walker Ltd

Red House Farm

SLR Project No.: 431.000378

31 March 2025

Revision: 001

RE: WLWA MODEL FLOW COMPARISONS

Introduction

- 1.1 This technical note has been produced on behalf of Lawrence Walker Limited (LWL) to provide a comparison of the traffic volumes within the 'old' and 'new' version of Warwickshire County Council's (WCC) 2037 Warwick and Leamington Wide Area (WLWA) model scenarios.
- 1.2 In 2022/2023, SLR Consulting (formerly Vectos Microsim) assessed the impact of the proposed Red House Farm (RHF) site using WCCs WLWA Paramics model, which at the time had a Base year of 2017. The analysis made use of the 2037 forecast year scenario built from this Base.
- 1.3 WCC has recently updated the WLWA Paramics model to establish a new Base year of 2022. Subsequently a new 2037 future year scenario has been forecast.
- 1.4 This note summarises a comparison of the traffic volumes at the key junctions adjacent to the proposed RHF development, as taken from the old and the new version of the 2037 WLWA scenarios.

Flow Comparison

- 1.5 Based on the proximity to the proposed site and the SRN junctions, a turn count comparison was undertaken for the following junctions:
 - Greys Mallory
 - M40 J13
 - M40 J14
 - M40 J15
- 1.6 Figure 1 below shows the location of the junction in the network.

Figure 1 Turn Count Junctions



- 1.7 Table 1 and Table 2 below shows the junction total comparison for the two future year scenarios for the AM peak hour and PM peak hour, respectively.
- 1.8 A detailed flow comparison is provided in the spreadsheet *000378.Sp001.Turn Counts Flows.xlsx*, issued alongside this note. The spreadsheet provides the turning volumes from both sets of the WLWA model and includes all six of the modelled hours. The Demand and Modelled flows are provided in vehicle numbers.
- 1.9 The tables below focus on the traditional peak hours and make use of the Demands flows. The junction flows represent the flows that traverse the junction itself and omit any mainline to mainline movements. The M40 flows are provided separately.

Table 1 Junction Totals – Flow Comparison 0800-0900

Junction		2037 Old	2037 New	Diff	Diff %
Greys Mallory	Throughput	6154	4289	-1865	-30%
M40 J13	Throughput	2753	1896	-858	-31%
M40 J14	Throughput	4308	3055	-1254	-29%
M40 J15	Throughput	9550	8096	-1454	-15%
M40 between J15 & J14	EB	5679	4097	-1582	-28%
	WB	4974	3516	-1458	-29%
M40 between J14 & J13	SEB	3583	2542	-1041	-29%
	NWB	2789	2062	-727	-26%



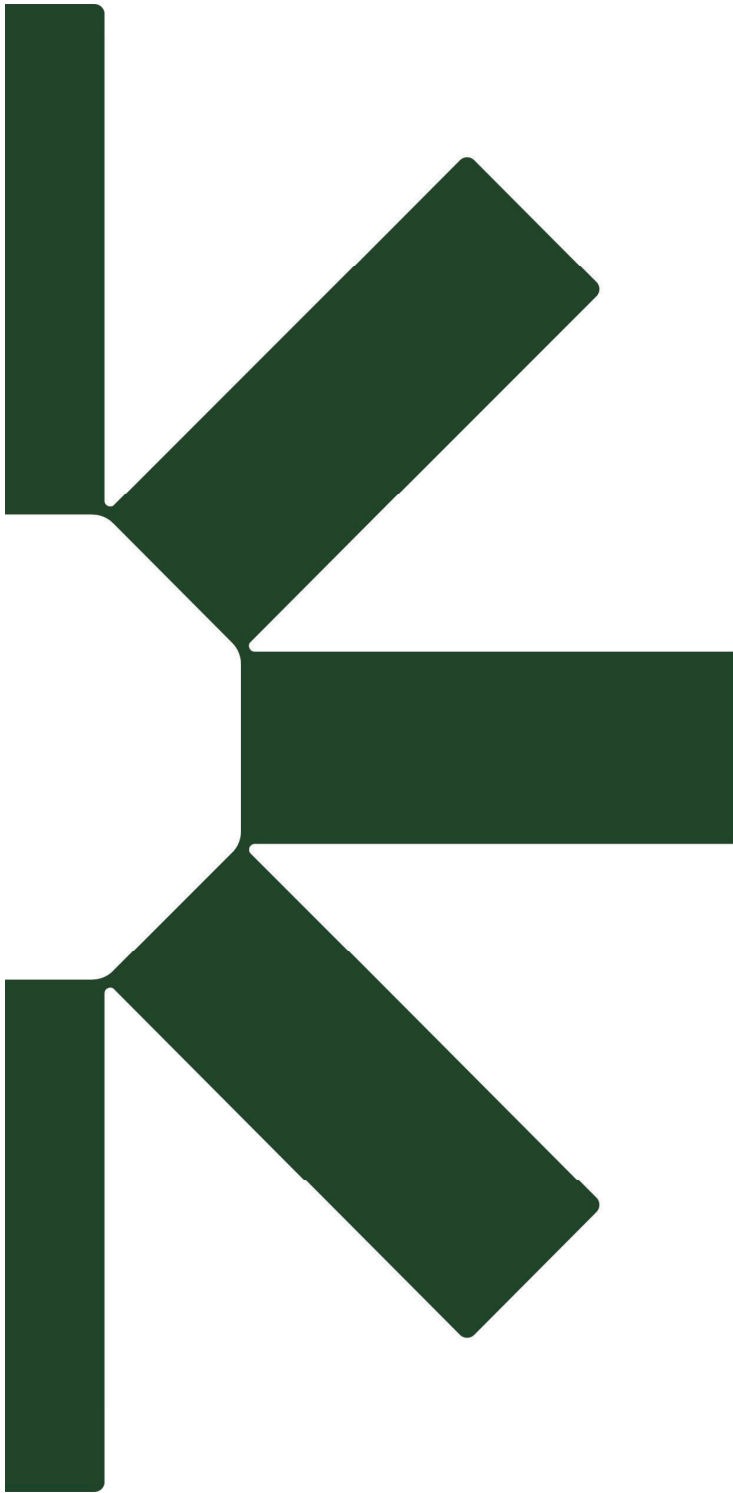
Table 2 Junction Totals – Flow Comparison 1700-1800

Junction		2037 Old	2037 New	Diff	Diff %
Greys Mallory	Throughput	6177	4342	-1835	-30%
M40 J13	Throughput	3227	2216	-1011	-31%
M40 J14	Throughput	4176	2870	-1306	-31%
M40 J15	Throughput	9499	8452	-1047	-11%
M40 between J15 & J14	EB	5214	3611	-1603	-31%
	WB	5614	4717	-897	-16%
M40 between J14 & J13	SEB	2967	2213	-754	-25%
	NWB	3719	3197	-523	-14%

Conclusion

- 1.10 Based on the turn count comparison undertaken by SLR Consulting, it is clear that the old 2037 WLWA scenario includes significantly more trips travelling through these key junctions. Additionally, the traffic volumes on the M40 were between 14% and 31% higher the older version of the model.
- 1.11 It is therefore fair to conclude that the assessment of the Red House Farm proposals in the previous version of the WLWA model provided a robust assessment of the traffic impacts on the surrounding network.

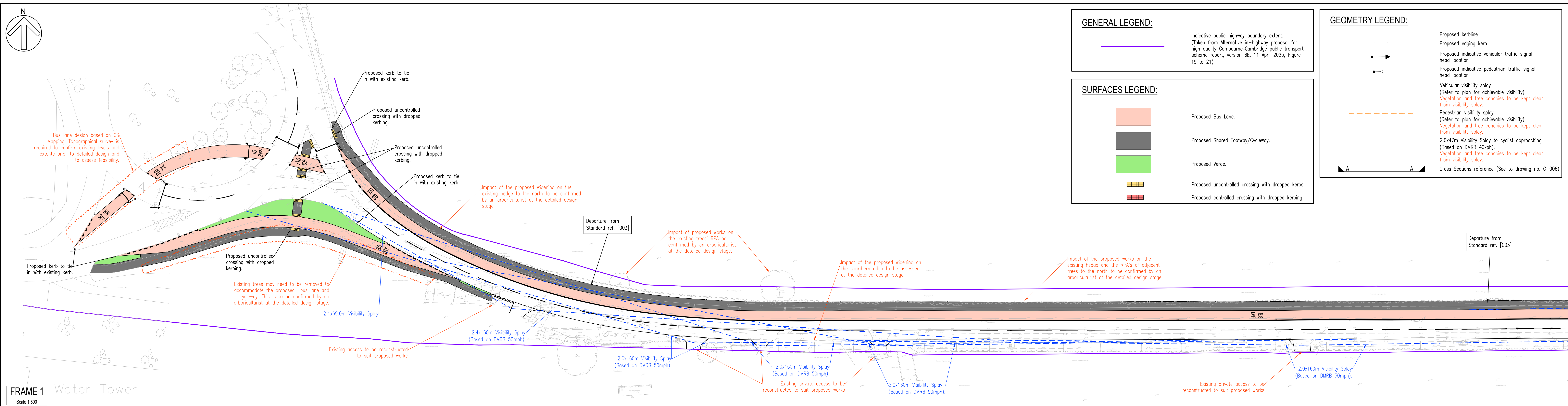
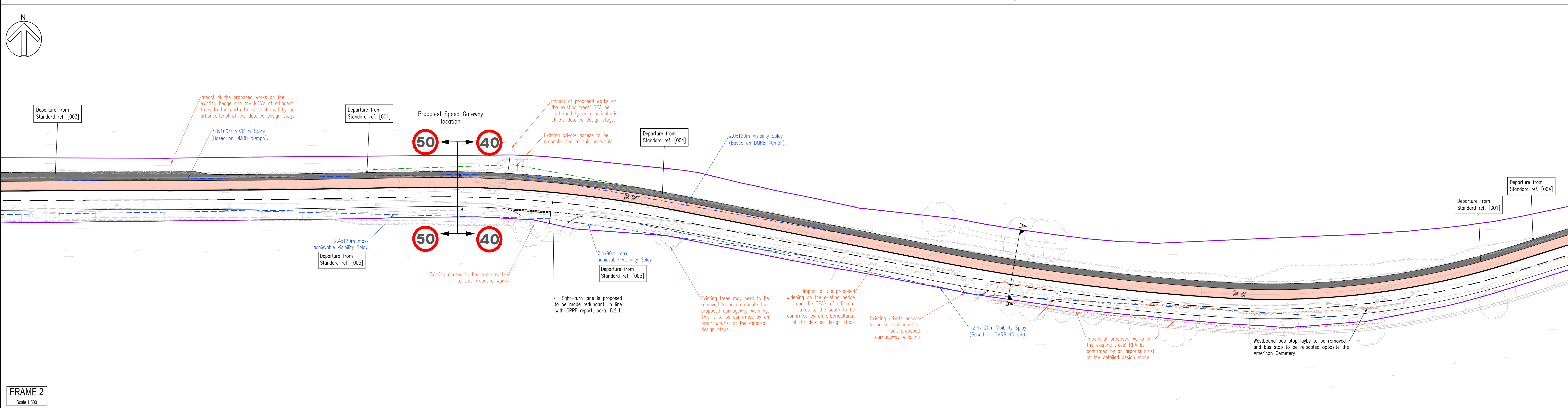
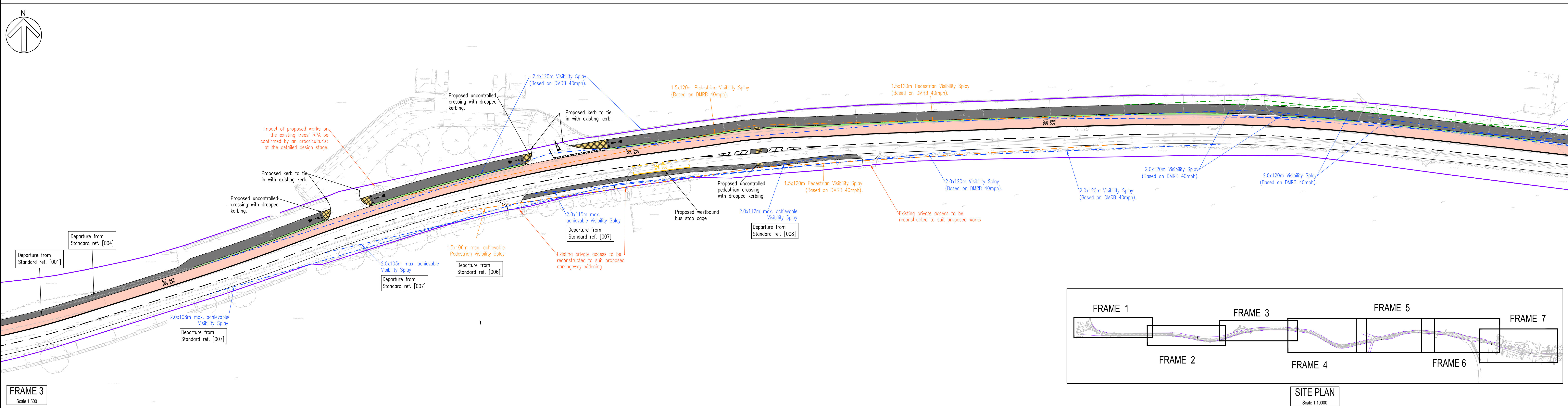
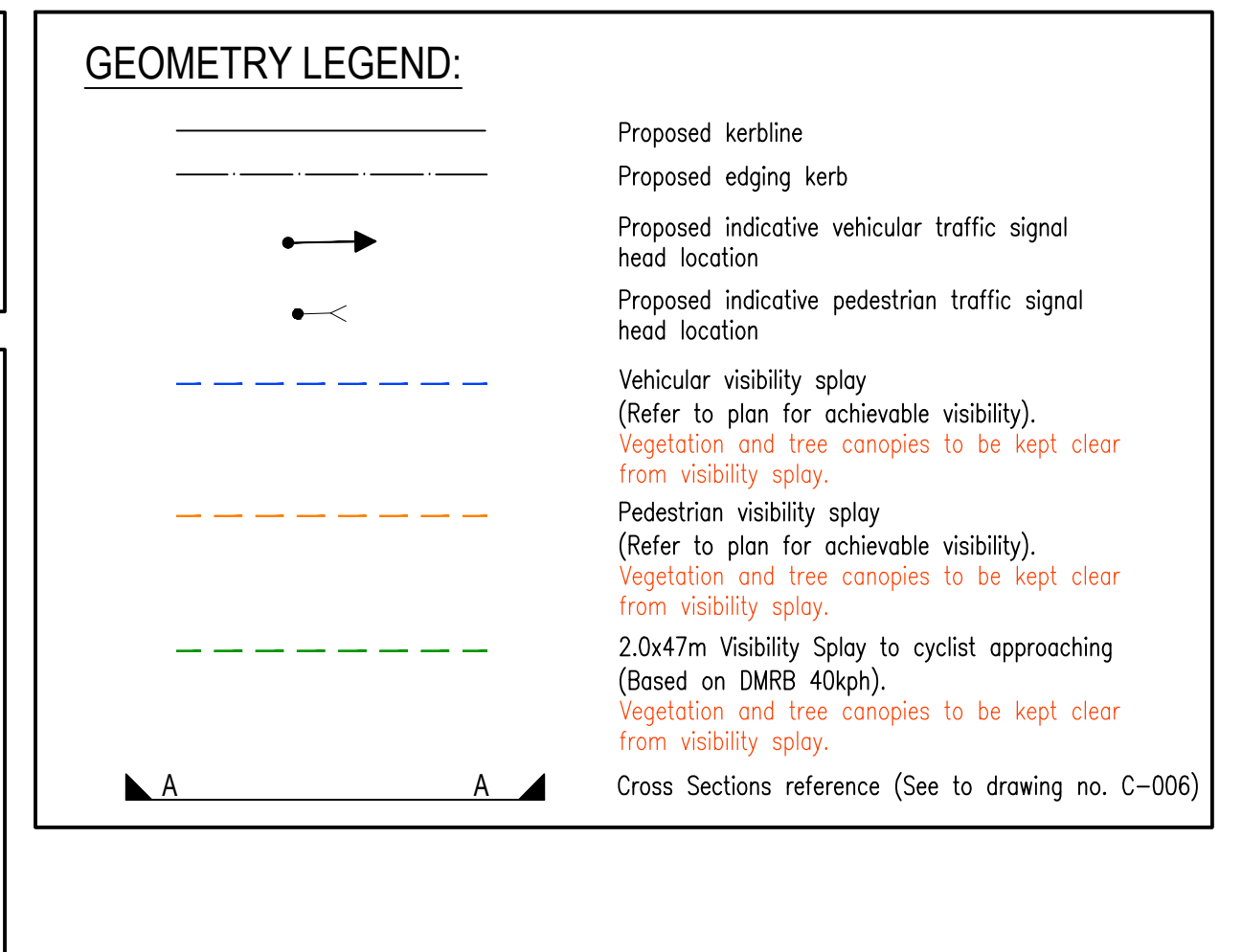




Making Sustainability Happen

Appendix F

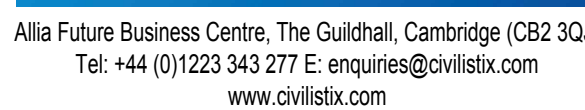
The CPPF Alternative Scheme



- # DO NOT SCALE
- GENERAL**
- 1. The contractor shall comply with the health and safety requirements set out in the CDM Regulations
 - 2. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
 - 3. Conflicting information between this drawing and information given by others must be referred to the engineer before the works commence.
 - 4. The contractor shall, before commencing the works, verify all existing and/or buried levels and dimensions and setting out dimensions. The contractor shall be responsible for the true and proper setting out of the works in accordance with the contract position, levels, dimensions, and alignment of all parts of the works. Any discrepancies are to be reported to the Engineer.
 - 5. All products used are to be CE marked in accordance with the Construction Products Directive (CPD/89/106/EEC).
 - 6. The contractor shall be responsible for locating all existing utilities prior to commencing construction and protecting all existing services during the works.
 - 7. Any unidentified hazards discovered during the progress of works are to be reported immediately to the engineer.
 - 8. This drawing should not be used for setting out.
 - 9. All land, ownership and access boundaries / extents shown on this plan should be assumed to be correct. Any dispute should be legally verified prior to any works commencing.

D	11/08/25	FR	DESIGN REVISED TO ADDRESS CLIENT'S COMMENTS	DM	DM
C	01/08/25	FR	DESIGN REVISED TO ADDRESS CLIENT'S COMMENTS	DM	DM
B	21/07/25	FR	DESIGN REVISED TO ADDRESS CLIENT'S COMMENTS	DM	DM
A	02/07/25	FR	FIRST ISSUE	DM	DM
REV	DATE	BY	SUMMARY OF CHANGE	CHK	APP

FOR INFORMATION



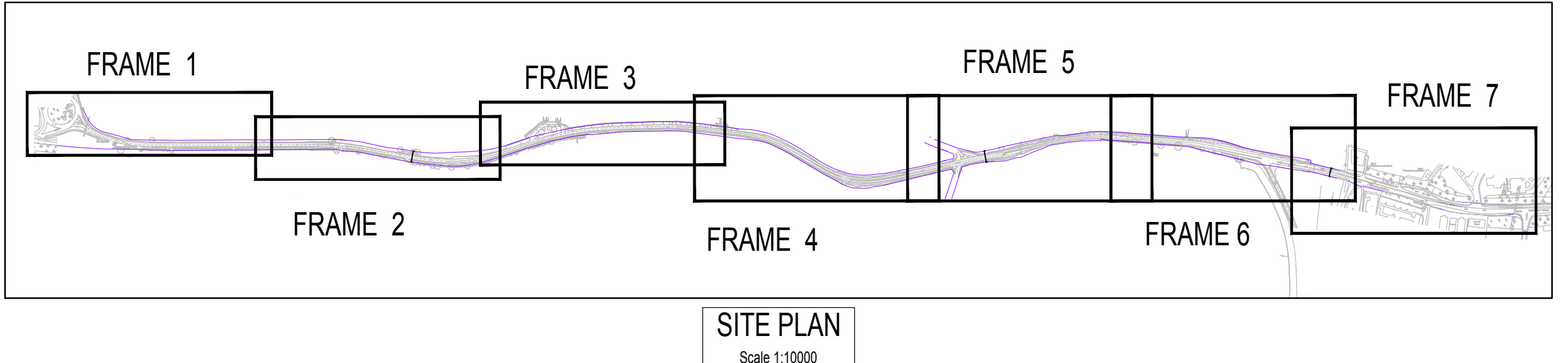
CLIENT: Coton Parish Council

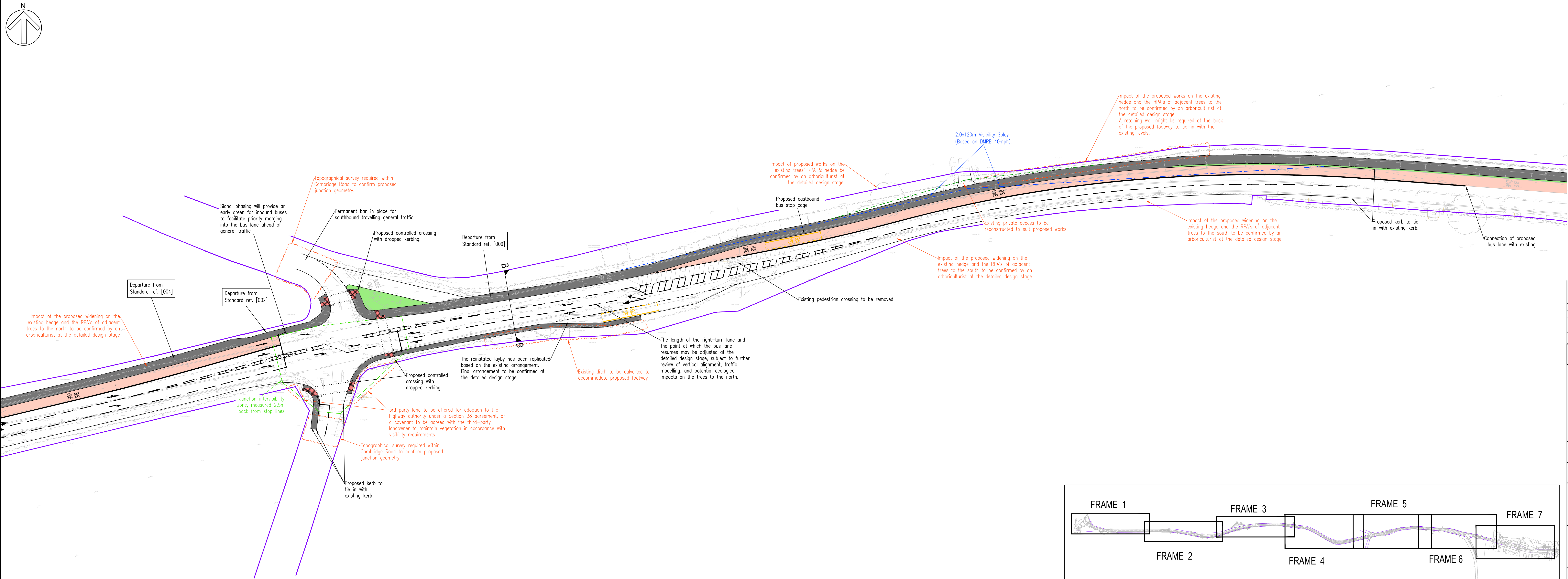
PROJECT: CPPF Proposed Madingley Hill Bus Lane, Cambridge

DRAWING TITLE:

Proposed General Arrangement Plan
Sheet 1 of 3

SCALE @ A0: As shown	CHECKED / APPROVED BY: DM	DATE: July 2025
PROJECT No: 2-234	DRAWING No: C-001	REV:





FRAME 5
Scale 1:500

GENERAL LEGEND:

Indicative public highway boundary extent.
(Taken from Alternative in-highway proposal for
high quality Cambourne-Cambridge public transport
scheme report, version 6E, 11 April 2025, Figure
19 to 21)

SURFACES LEGEND:

Proposed Bus Lane.

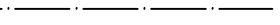
Proposed Shared Footway/Cycleway.

Proposed Verge.

Proposed uncontrolled crossing with dropped kerbs.

Proposed controlled crossing with dropped kerbing.

GEOMETRY LEGEND:

	Proposed kerbline
	Proposed edging kerb
	Proposed indicative vehicular traffic signal head location
	Proposed indicative pedestrian traffic signal head location
	Vegetation visibility spoly (Refer to plan for achievable visibility).
	Vegetation and tree canopies to be kept clear from visibility spoly.
	Pedestrian visibility spoly (Refer to plan for achievable visibility).
	Vegetation and tree canopies to be kept clear from visibility spoly.
	2.0x4m Visibility Spoly to cyclist approaching (based on UM93 shape).
	Vegetation and tree canopies to be kept clear from visibility spoly.




Cross Sections reference (See to drawing no. C-006)

DO NOT SCALE

GENERAL

1. The contractor shall comply with the health and safety requirements of the Health and Safety at Work etc. Act 1974 and the CDM Regulations 2007.
2. All works are to be undertaken in accordance with the Building Regulations and relevant British Standards.
3. Correlating information between this drawing and information given by others is the responsibility of the contractor and the works commences.
4. The contractor shall, before commencing the works, verify all existing outfall invert levels and site and setting out dimensions. The contractor shall be responsible for the proper recording of the works and for the correctness of the position, levels, dimensions, and depths of all parts of the works. Any discrepancies are to be reported to the Engineer.
5. All products used are to be CE marked in accordance with the CE marking requirements of the Construction Products Regulation.
6. The contractor shall be responsible for locating all existing utilities prior to commencing construction and protecting all existing services affected by the works.
7. Any identified hazards discovered during the progress of works are to be reported immediately to the engineer.
8. This drawing should not be used for setting out.
9. All land, ownership and access boundaries / extents, shown on this drawing are to be taken as correct. Any boundary or extent shown verified prior to any works commencing is indicative and should be legally verified prior to any works commencing.

9. All land, ownership and asset boundaries / extents, shown on this plan should be assumed to be indicative and should be legally verified prior to any works commencing

[illegible]

FOR INFORMATION



Alia Future Business Centre, The Guildhall, Cambridge (CB2 3C)
Tel: +44 (0)1223 343 277 E: enquiries@civillistx.com
www.civillistx.com

CLIENT

Coton Parish Council

ARCHITECTURE

1

PROJECT	
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CPPF Proposed Madingley Hill Bus Lane, Cambridge

CRAWING TIT

Proposed General Arrangement Plan
Sheet 2 of 3

SCALE

As shown

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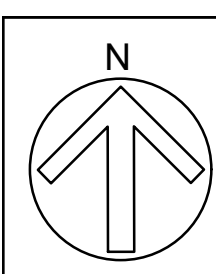
DM

DATE:

July

SITE PLAN

Scale 1:10000



GENERAL LEGEND:

Indicative public highway boundary extent.
(Taken from Alternative in-highway proposal for high quality Combourne-Cambridge public transport scheme report, version 6E, 11 April 2025, Figure 19 to 21)

SURFACES LEGEND:

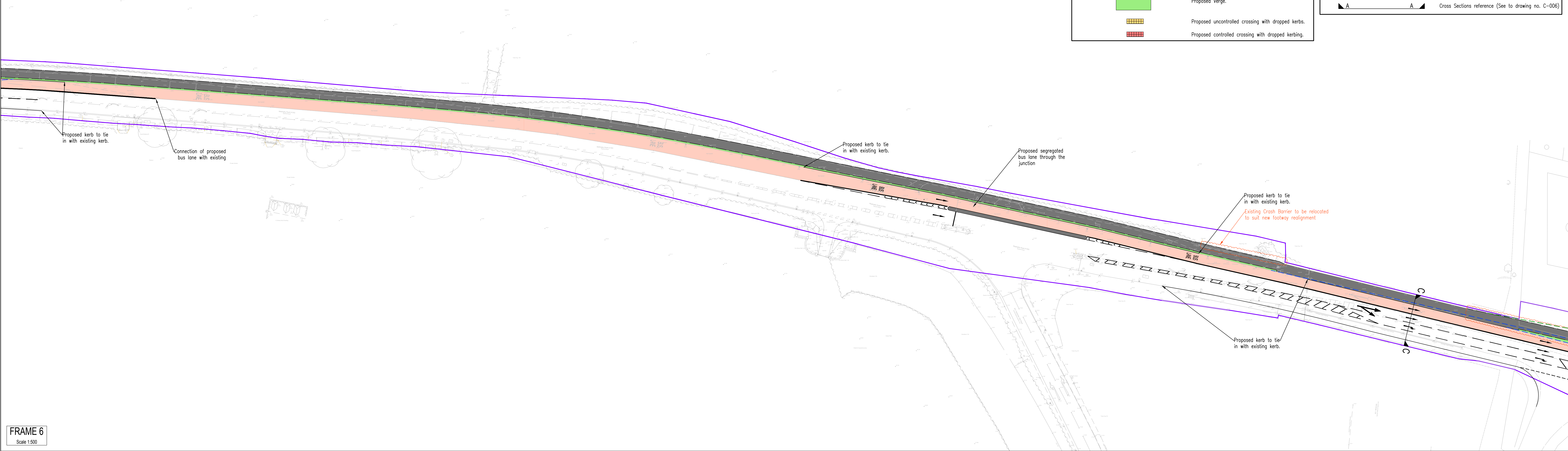
Proposed Bus Lane.
Proposed Shared Footway/Cycleway.
Proposed Verge.
Proposed uncontrolled crossing with dropped kerbs.
Proposed controlled crossing with dropped kerbing.

GEOMETRY LEGEND:

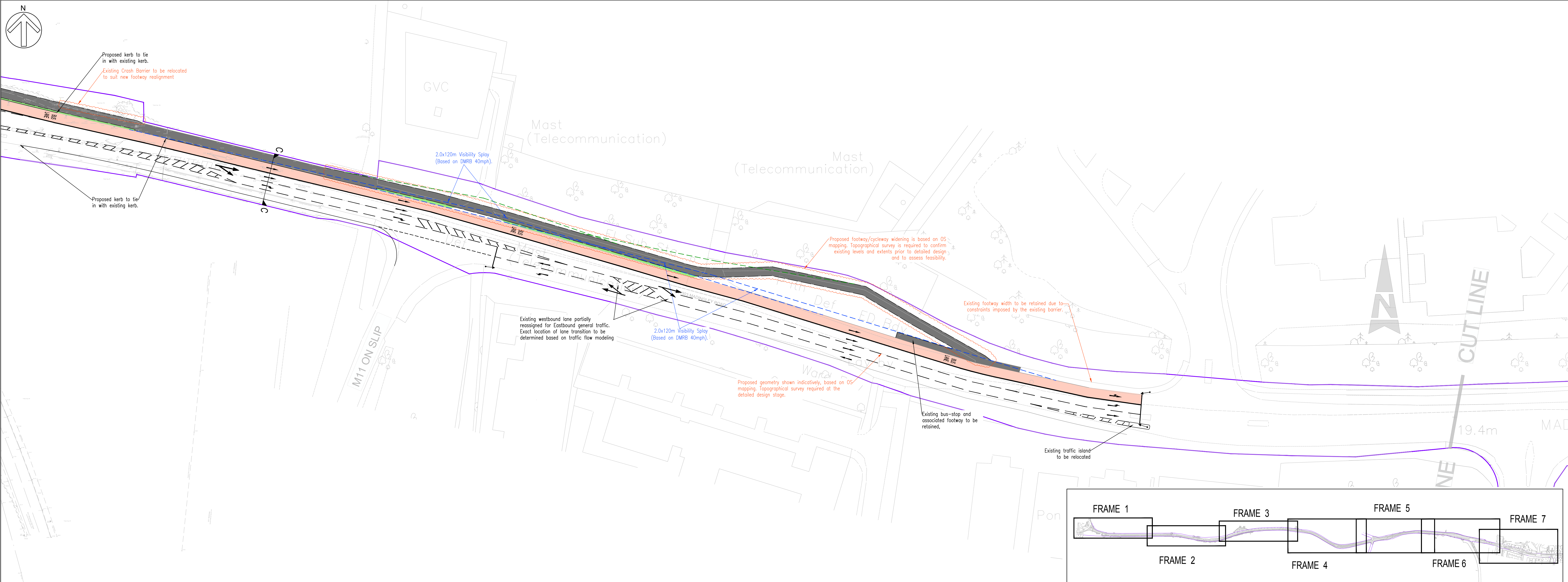
Proposed kerbline
Proposed edging kerb
Proposed indicative vehicular traffic signal head location
Proposed indicative pedestrian traffic signal head location
Vehicular visibility splay
(Refer to plan for achievable visibility).
Vegetation and tree canopies to be kept clear from visibility splay.
Pedestrian visibility splay
(Refer to plan for achievable visibility).
Vegetation and tree canopies to be kept clear from visibility splay.
2.0x4.7m Visibility Splay to cyclist approaching
(Based on DMRB 40mph).
Vegetation and tree canopies to be kept clear from visibility splay.
Cross Sections reference (See to drawing no. C-006)

DO NOT SCALE

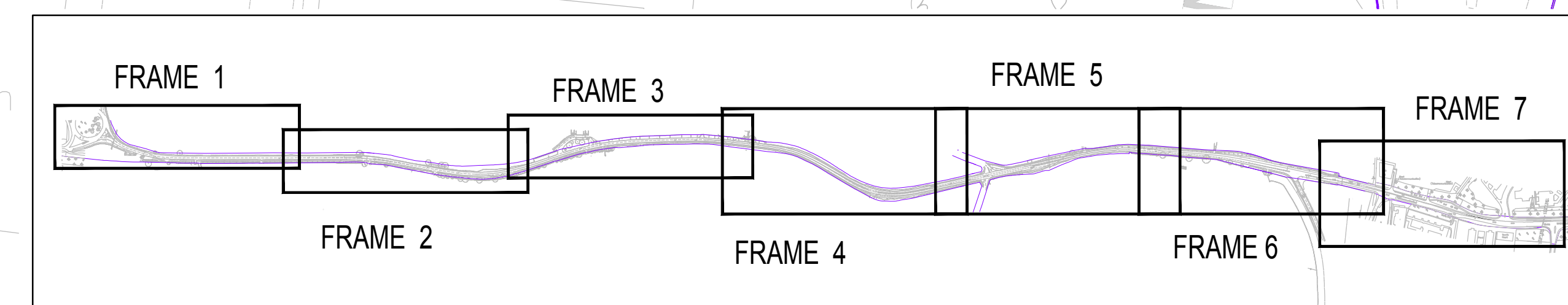
- GENERAL
- The contractor shall comply with the health and safety requirements as set out in the CDM Regulations
 - All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards
 - Conflicting information between this drawing and information given by others must be referred to the engineer before the works commence.
 - The contractor shall, before commencing the works, verify all existing outfall invert levels and site and setting out dimensions. The contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions, and alignment of all parts of the works. Any discrepancies are to be reported to the Engineer
 - All products used are to be CE marked in accordance with the Construction Products Directive CPD/BS/106/ESC.
 - The contractor shall be responsible for locating all existing utilities prior to commencing construction and protecting all existing services affected by the works.
 - Any unidentified hazards discovered during the progress of works are to be reported immediately to the engineer.
 - This drawing should not be used for setting out
 - All land, ownership and asset boundaries / extents, shown on this plan should be assumed to be indicative and should be apply verified prior to any works commencing



FRAME 6
Scale 1:500



FRAME 7
Scale 1:500



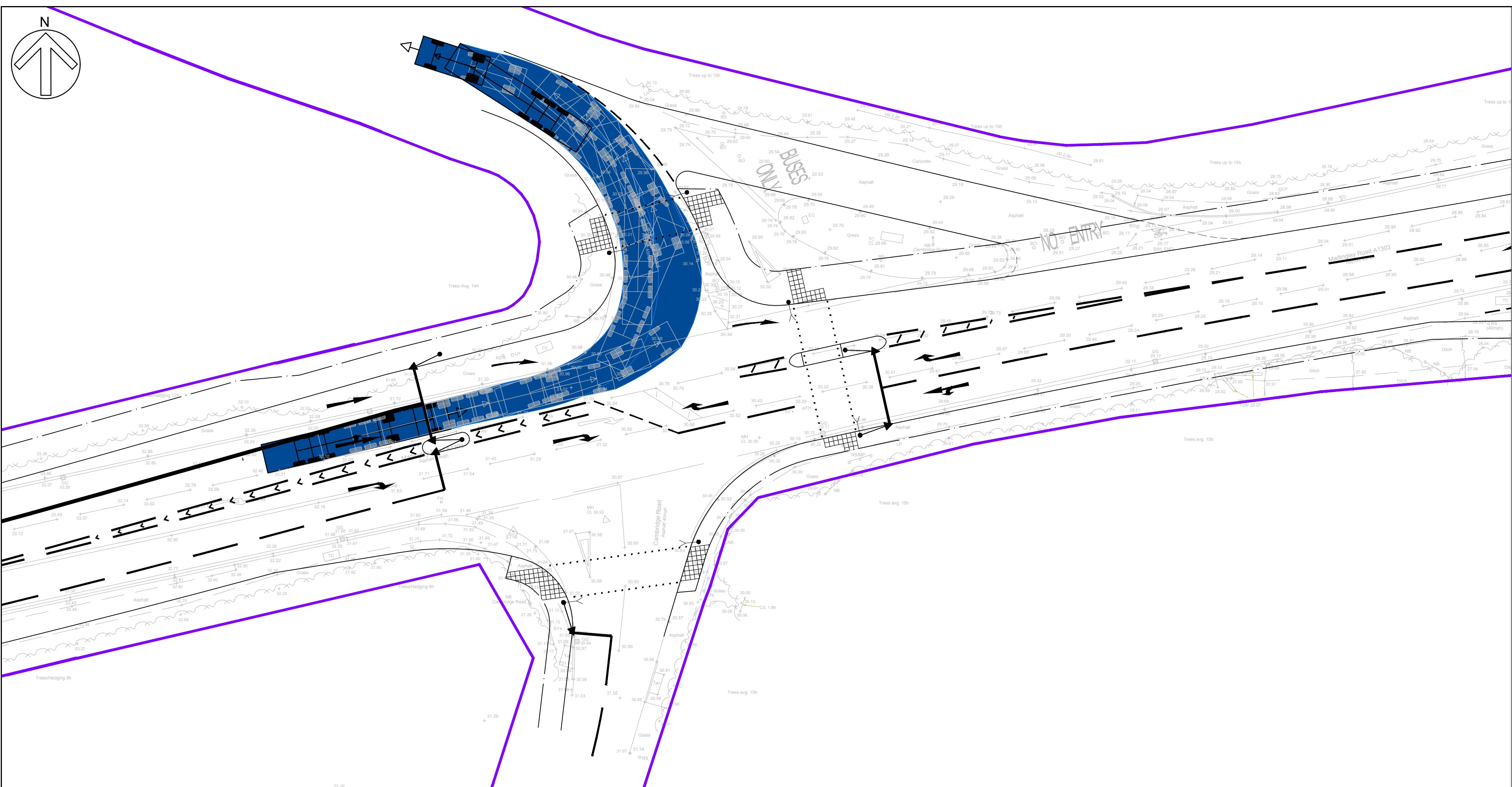
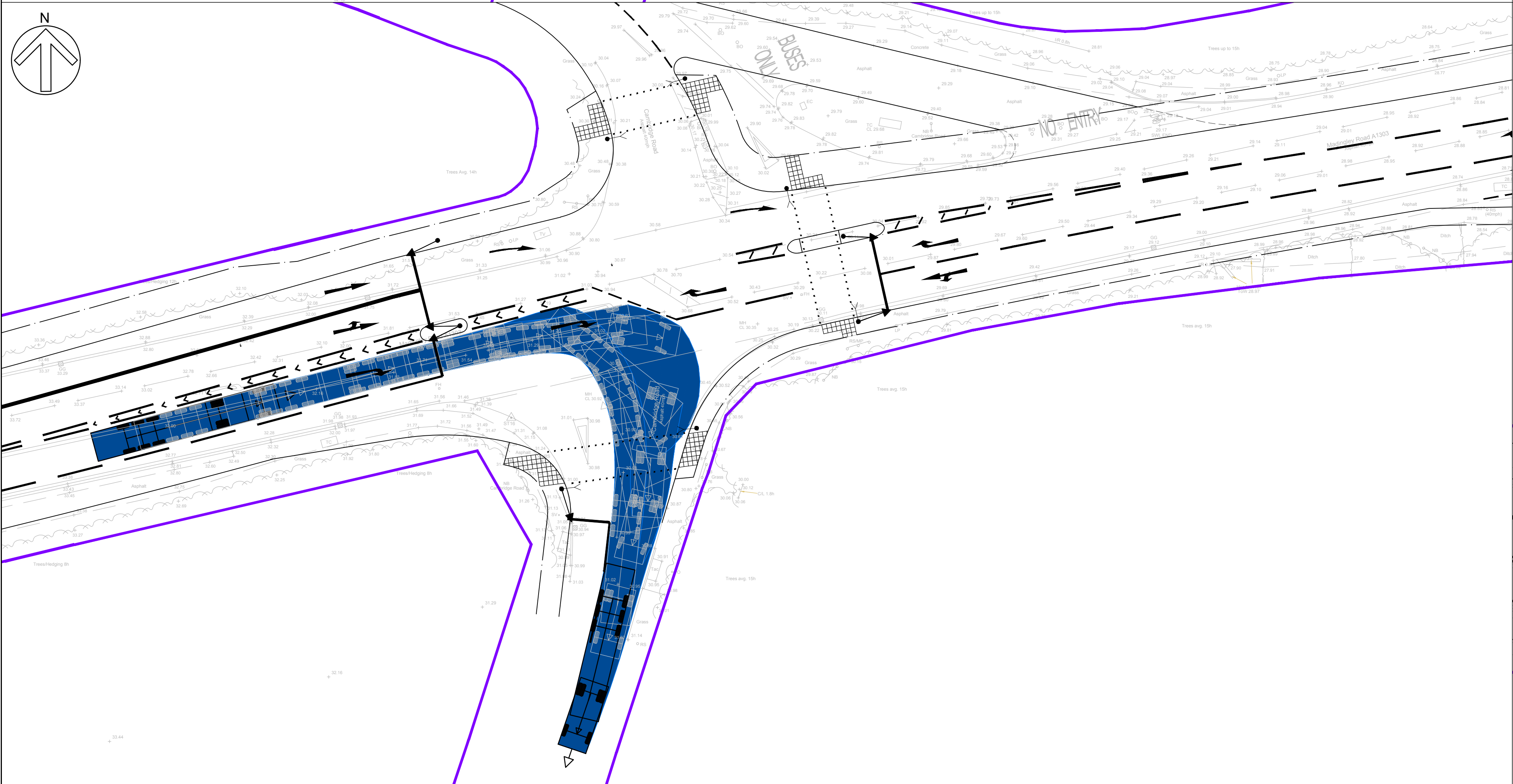
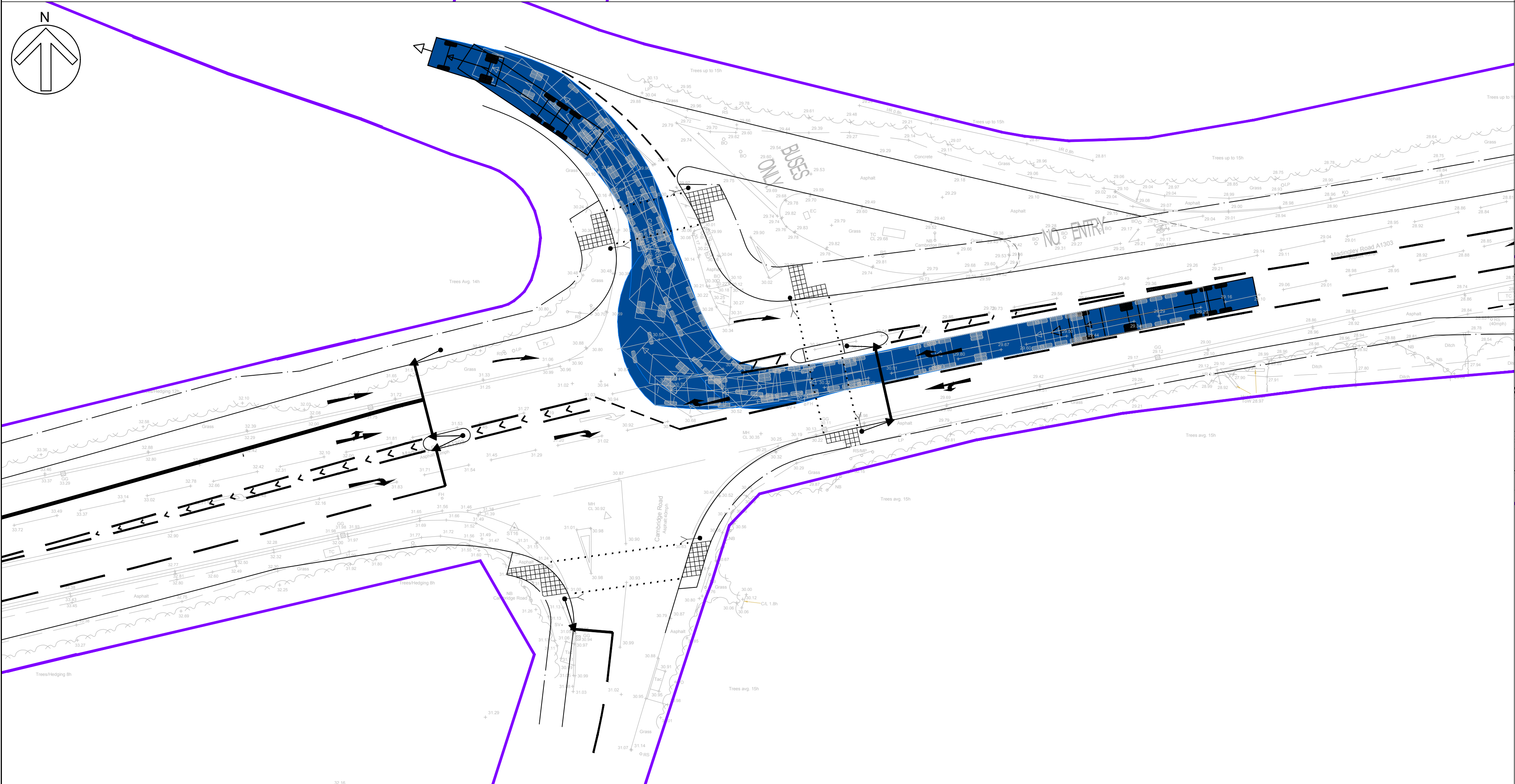
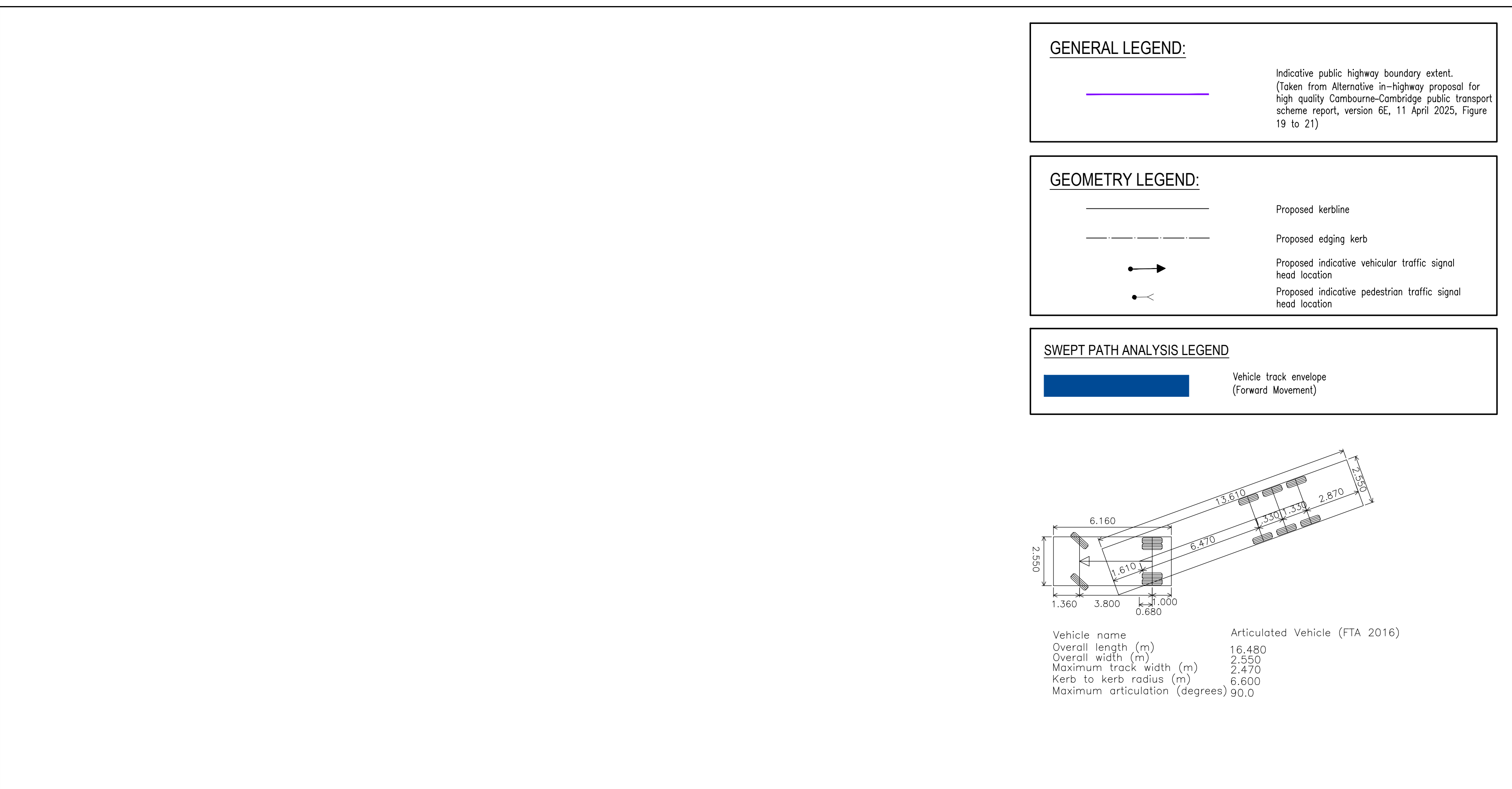
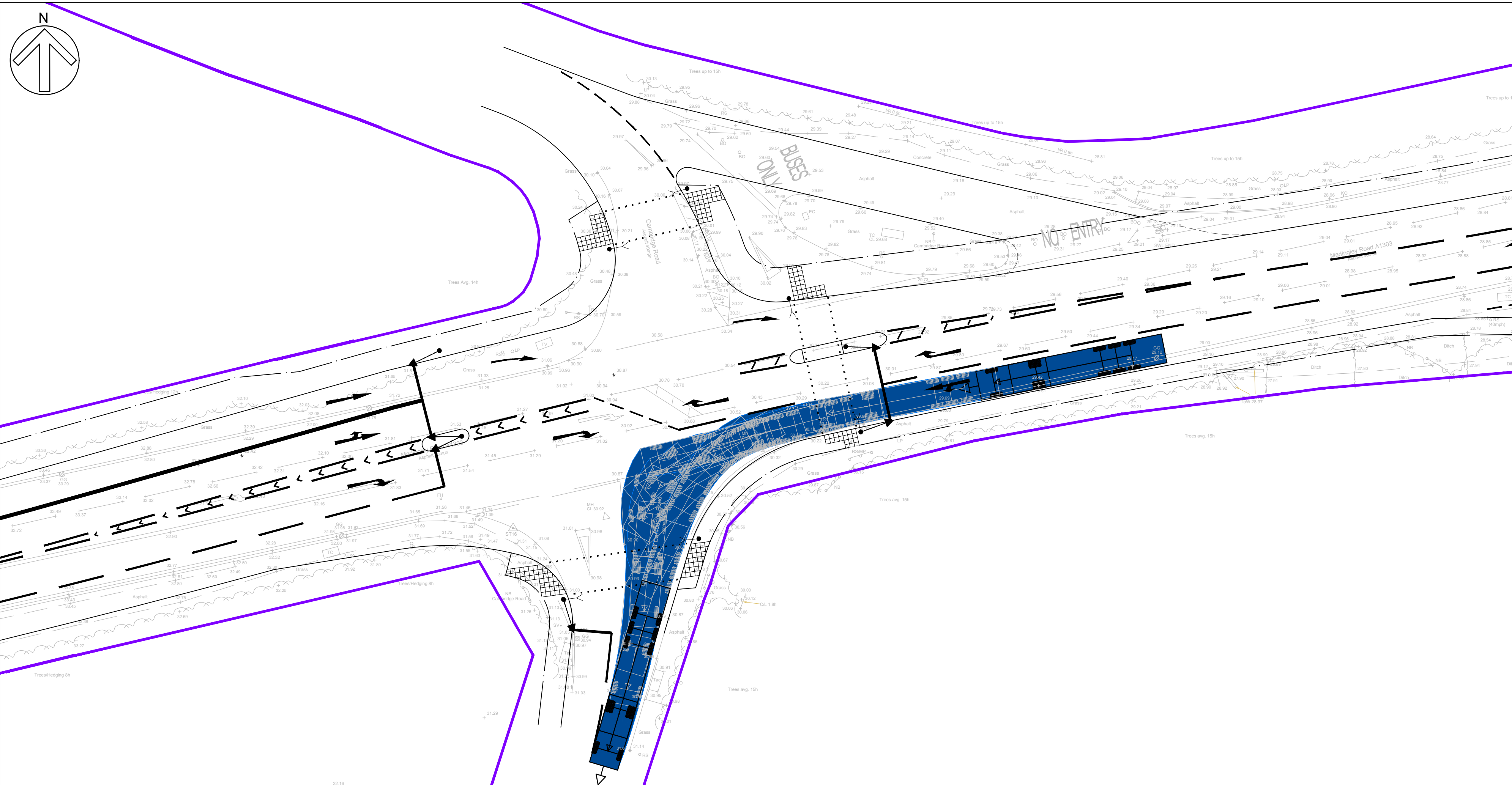
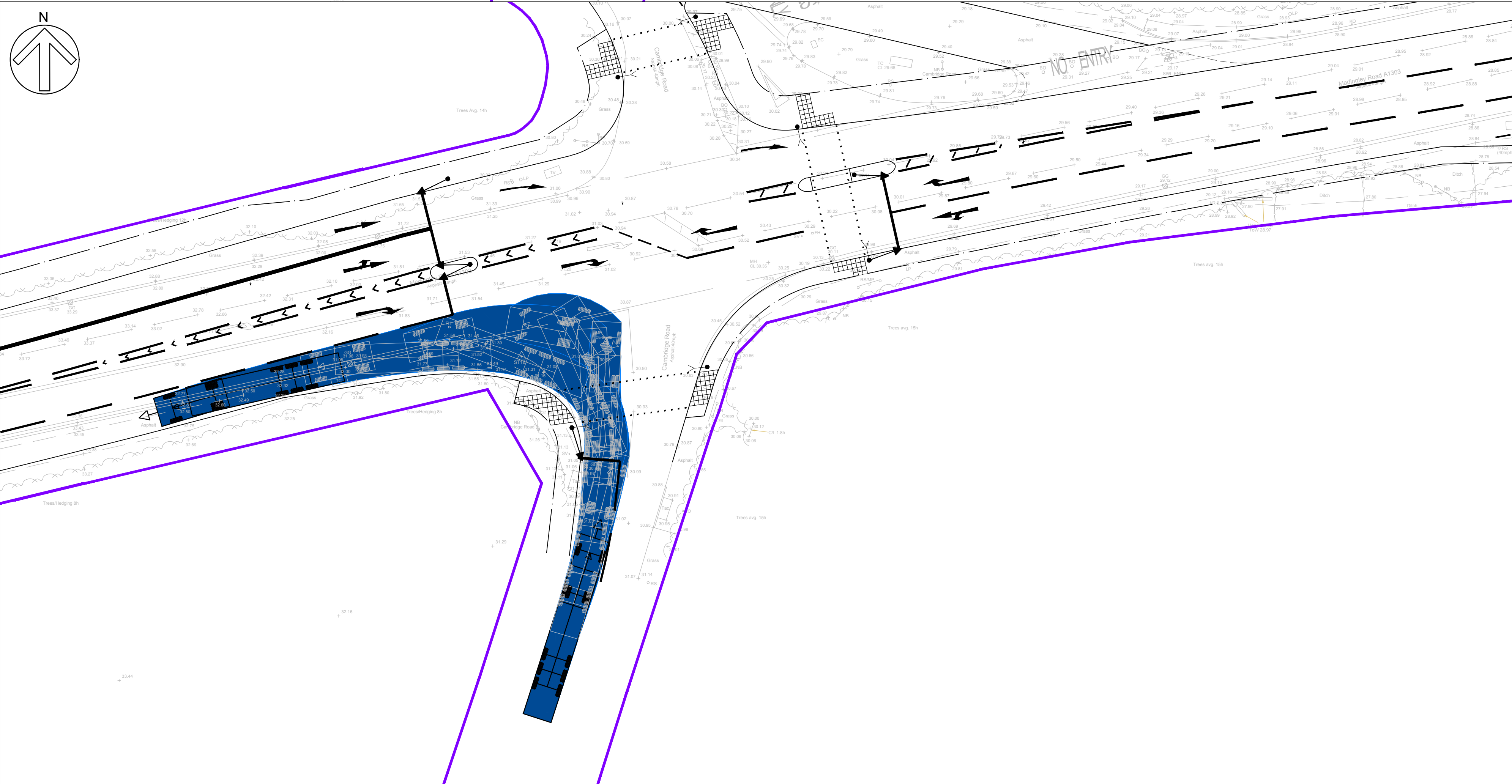
SITE PLAN
Scale 1:10000

REV	DATE	BY	SUMMARY OF CHANGE	CHK	APP
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B	21/07/25	FR	DESIGN REVISED TO ADDRESS CLIENT'S COMMENTS	DM	DM
A	03/07/25	FR	FIRST ISSUE	DM	DM

DRAWING STATUS: FOR INFORMATION



CLIENT:	Coton Parish Council
ARCHITECT:	
PROJECT:	CPPF Proposed Madingley Hill Bus Lane, Cambridge
DRAWING TITLE:	Proposed General Arrangement Plan Sheet 3 of 3
SCALE @ A4:	As shown
CHECKED / APPROVED BY:	DM
DATE:	July 2025
PROJECT NO:	2-234
DRAWING NO:	C-003
REV:	C



GENERAL LEGEND:

Indicative public highway boundary extent.
(Taken from Alternative hi-highway proposal for high quality Cambsourne-Cambridge public transport scheme report, version 6E, 11 April 2025, Figure 19 to 21)

GEOMETRY LEGEND:

Proposed kerbline

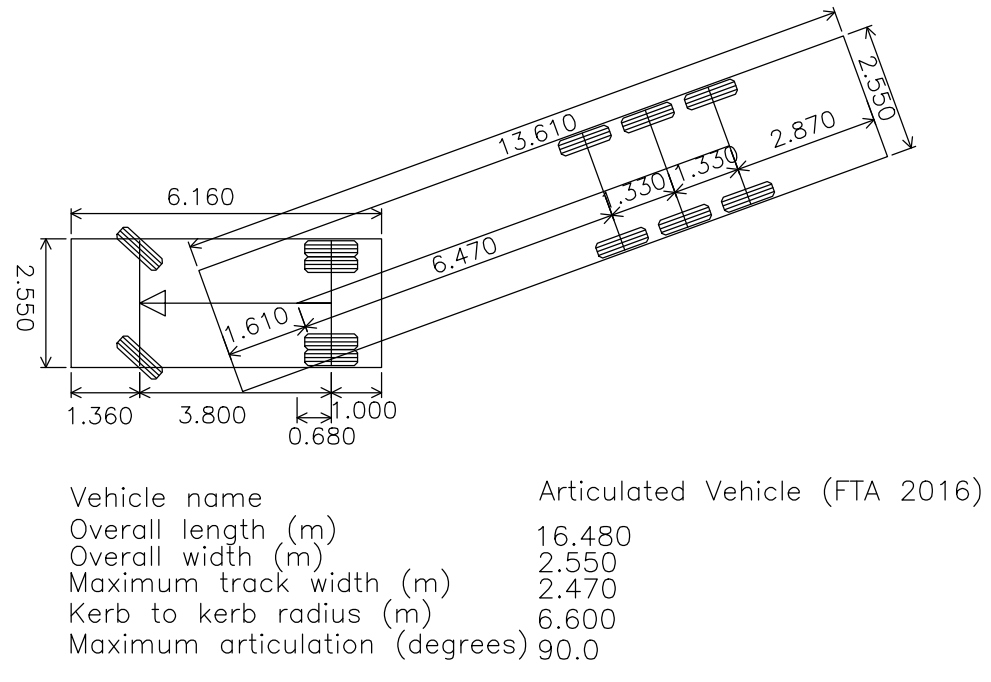
Proposed edging kerb

Proposed indicative vehicular traffic signal head location

Proposed indicative pedestrian traffic signal head location

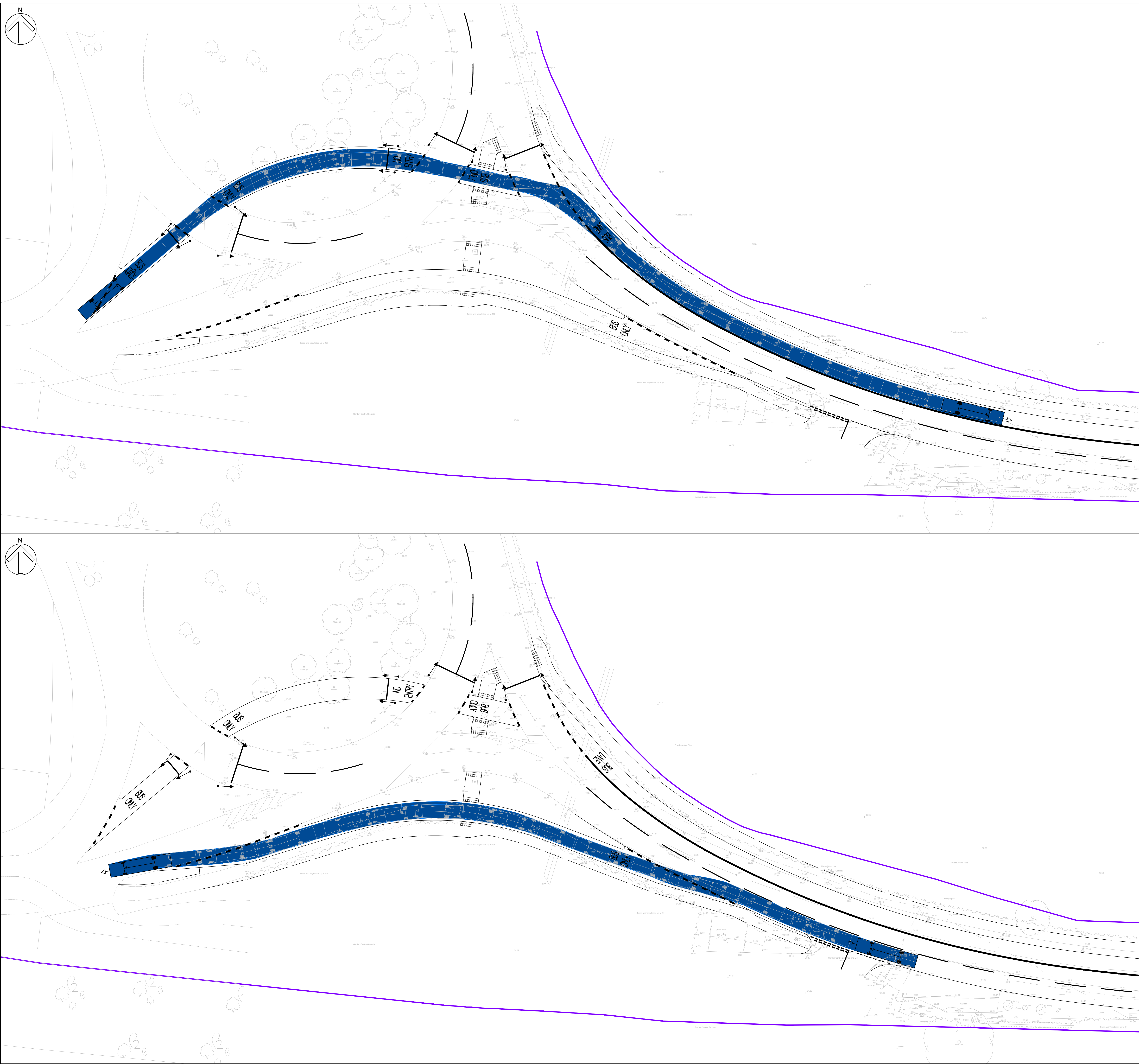
SWEPT PATH ANALYSIS LEGEND

Vehicle track envelope
(Forward Movement)



- DO NOT SCALE**
- GENERAL:**
- The contractor shall comply with the health and safety requirements as set out in the CDM Regulations
 - All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards
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FOR INFORMATION					
<div>CIVILISTIX</div> <div>Alba Future Business Centre, The Guildhall, Cambridge (CB2 3QJ)</div> <div>Tel: +44 (0)1223 343 277 E: enquiries@civilistix.com</div> <div>www.civilistix.com</div>					
CLIENT: Cotton Parish Council					
ARCHITECT: -					
PROJECT: CPPF Proposed Madingley Hill Bus Lane, Cambridge					
DRAWING TITLE: Proposed Swept Path Analysis Plan Sheet 1 of 2					
SCALE @ A0: 1:250	CHECKED / APPROVED BY: DM	DATE: July 2025			
PROJECT NO: 2-234	DRAWING NO: C-004	REV: C			



GENERAL LEGEND:

Indicative public highway boundary extent.
(Taken from Alternative in-highway proposal for high quality Cambsourne-Cambridge public transport scheme report, version 6E, 11 April 2025, Figure 19 to 21)

GEOMETRY LEGEND:

Proposed kerbline
Proposed edging kerb
Proposed indicative vehicular traffic signal head location
Proposed indicative pedestrian traffic signal head location

SWEPT PATH ANALYSIS LEGEND

Vehicle track envelope (Forward Movement)

Vehicle name: Standard Rigid Bus
Description: T11 Accessible Bus Stop Design Guidance
Overall length (m): 12,000
Overall width (m): 2,550
Maximum track width (m): 2,350
Wall to wall radius (m): 10,771

DO NOT SCALE

GENERAL:

- The contractor shall comply with the health and safety requirements as set out in the CDM Regulations
- All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards
- Coflicting information between this drawing and information given by others must be referred to the engineer before the works commence.
- The contractor shall, before commencing the works, verify all existing outfall invert levels and site and setting out dimensions. The contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions, and alignment of all parts of the works. Any discrepancies are to be reported to the Engineer
- All products used are to be CE marked in accordance with the Construction Products Directive CPD/89/106/EEC.
- The contractor shall be responsible for locating all existing utilities prior to commencing construction and protecting all existing services affected by the works.
- Any unidentified hazards discovered during the progress of works are to be reported immediately to the engineer.
- This drawing should not be used for setting out
- All land, ownership and asset boundaries / extents, shown on this plan should be assumed to be indicative and should be apply verified prior to any works commencing

B	21/07/25	FR	PROPOSED GEOMETRY LAYOUT UPDATED	DM	DM
A	03/07/25	FR	FIRST ISSUE	DM	DM
REV	DATE	BY	SUMMARY OF CHANGE	CHK	APP

DRAWING STATUS:

FOR INFORMATION

Alba Future Business Centre, The Guildhall, Cambridge (CB2 3QJ)
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www.civilistix.com

CLIENT:	Coton Parish Council				
ARCHITECT:	-				
PROJECT:	CPPF Proposed Madingley Hill Bus Lane, Cambridge				
DRAWING TITLE:	Proposed Swept Path Analysis Plan Sheet 2 of 2				
SCALE @ A1:	1:250	CHECKED / APPROVED BY:	DM	DATE:	July 2025
PROJECT NO:	2-234	DRAWING NO:	C-005	REV:	B

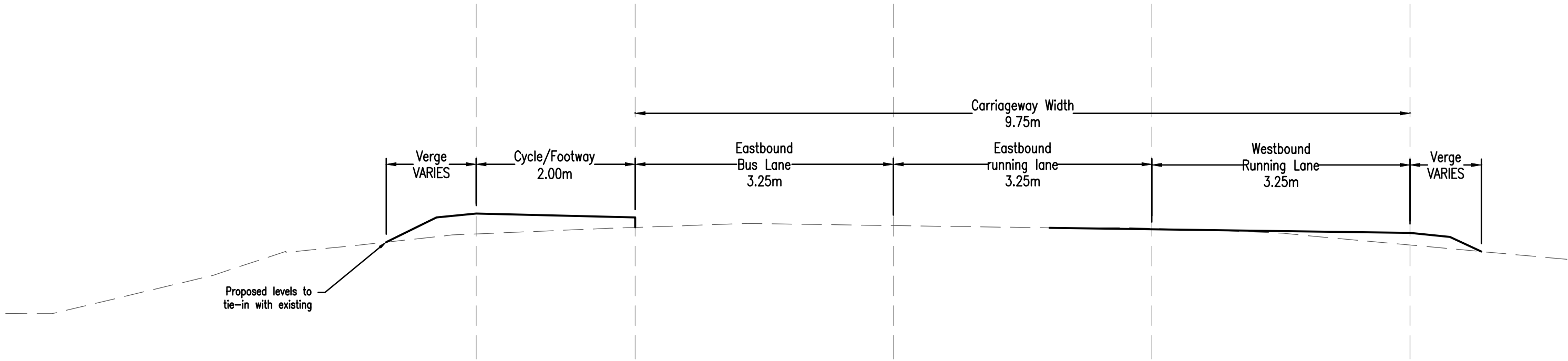
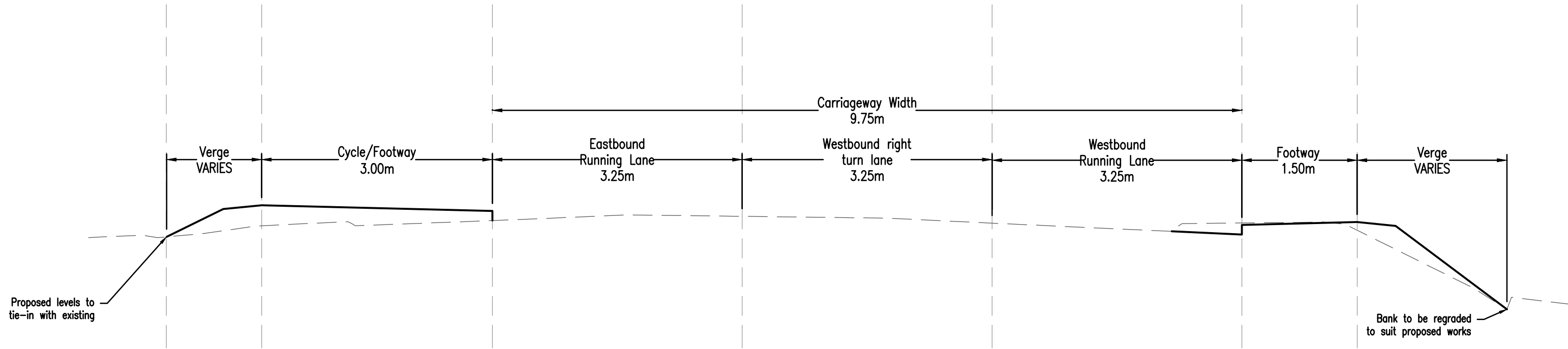
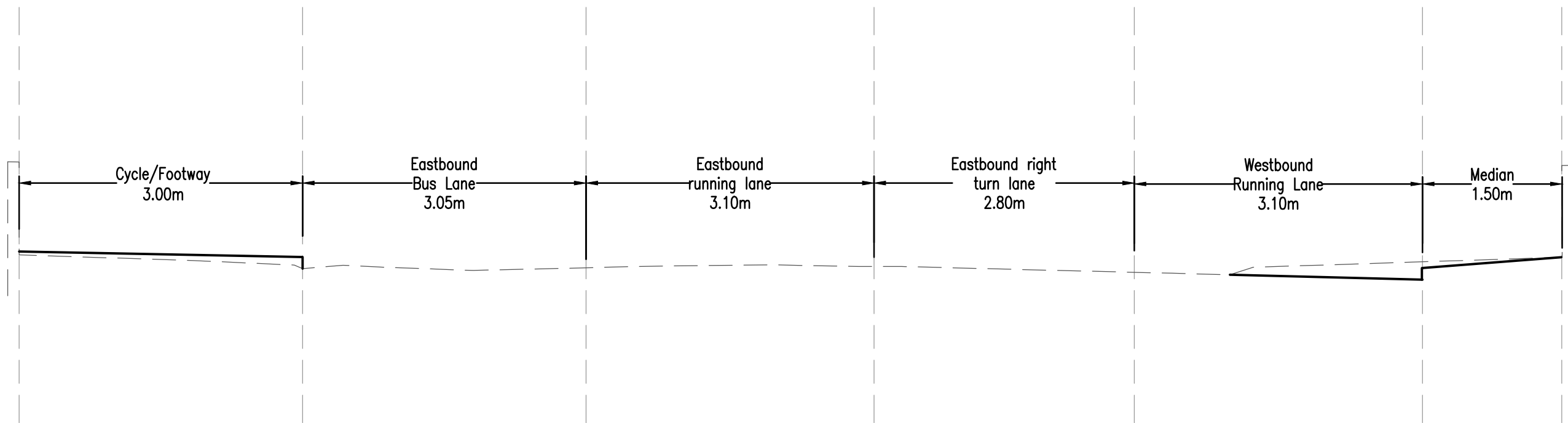
DO NOT SCALE

GENERAL

1. The contractor shall comply with the health and safety requirements as set out in the CDM Regulations
2. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
3. Conflicting information between this drawing and information given by others must be referred to the engineer before the works commence.
4. The contractor shall, before commencing the works, verify all existing outfall invert levels and site and setting out dimensions. the contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions, and alignment of all parts of the works. Any discrepancies are to be reported to the Engineer
5. All products used are to be CE marked in accordance with the Construction Products Directive CPD/89/106/EEC.
6. The contractor shall be responsible for locating all existing utilities prior to commencing construction and protecting all existing services affected by the works.
7. Any unidentified hazards discovered during the progress of works are to be reported immediately to the engineer.
8. This drawing should not be used for setting out
9. All land, ownership and asset boundaries, / extents, shown on this plan should be assumed to be indicative and should be legally verified prior to any works commencing

SECTION LEGEND:

- Existing surface
- Proposed surface



B	12/08/25	FR	SECTION B AMENDED	DM	DM
A	11/08/25	FR	FIRST ISSUE	DM	DM
REV	DATE	BY	SUMMARY OF CHANGE	CHK	APD

DRAWING STATUS	FOR INFORMATION
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CLIENT:	Coton Parish Council
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ARCHITECT:	-
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PROJECT:	CPPF Proposed Madingley Hill Bus Lane, Cambridge
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DRAWING TITLE:	Proposed Cross Sections
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SCALE @ A3:	1:50	CHECKED / APPROVED BY:	DM	DATE:	August 2025
PROJECT No:	2-234	DRAWING No:	C-006	REV:	B

Appendix G

Departures from Standards Checklist

DEPARTURE FROM STANDARDS REGISTER

JOB CPPF Proposed Madingley Hill Bus Lane, Cambridge

JOB No 2-234

DESIGNED Francisco Ramos



Reference no.	Standard	Difference Between standard and proposed design	Reason for departure
001	LTN 1/20 para. 6.5.7 & Table 6-3	As per LTN 1/20 para. 6.5.7 & Table 6-3, the recommended minimum width for shared use routes for up to 300 cyclist per hour is 3.0m. However 2.0m width has been provided along Madingley Wood SSSI.	The width of the shared cycleway/footway has been reduced along Madingley Wood SSSI to minimise the impact on the adjacent woodland and support the retention of existing trees. DMRB CD 143 – Clause E/3.5 states that the minimum width for unsegregated shared-use routes shall be 2.0 m where there are less than 200 users per hour. This supports the proposed departure from LTN 1/20 best practice guidance.
002	LTN 1/20 para. 6.5.7 & Table 6-3	As per LTN 1/20 para. 6.5.7 & Table 6-3, the recommended minimum width for shared use routes for up to 300 cyclist per hour is 3.0m. However 2.0m width has been provided along a short section approaching the junction of Madingley Road and Cambridge Road.	The width of the shared cycleway/footway has been reduced along a short section approaching the junction of Madingley Road and Cambridge Road due to the proximity to the Highway Boundary. DMRB CD 143 – Clause E/3.5 states that the minimum width for unsegregated shared-use routes shall be 2.0 m where there are fewer than 200 users per hour. This supports the proposed departure from LTN 1/20 best practice guidance.
003	DMRB CD 143 - CL E/3.5.1 LTN 1/20 Table 5-2	As per DMRB CD 143 – Clause E/3.5.1 and LTN 1/20 Table 5-2, a minimum separation of 1.5 m should be provided between the carriageway and unsegregated shared-use routes on roads with a speed limit greater than 40 mph. However, along the section from Madingley Roundabout to the speed limit gateway, no separation is proposed.	No separation between the carriageway and the shared route is provided along the section from Madingley Roundabout to the speed limit gateway, with the objective of minimising the ecological impact of the proposed works on adjacent trees and hedgerows. In this section, the shared footway/cycleway runs adjacent to the proposed bus lane. Given the low frequency of bus services, the likelihood of two cyclists travelling in opposite directions encountering a bus simultaneously is considered minimal. This reduces the potential for conflict and supports the justification for the absence of separation in this location.
004	DMRB CD 143 - CL E/3.5.1 LTN 1/20 Table 5-2	As per DMRB CD 143 – Clause E/3.5.1 and LTN 1/20 Table 5-2, a minimum separation of 0.5 m should be provided between the carriageway and unsegregated shared-use routes on roads with a speed limit of 40 mph or less. However no separation is proposed in various sections of the 40mph carriageway extent.	No separation between the carriageway and the shared route is provided along Madingley Wood SSSI and other, with the objective of minimising the ecological impact of the proposed works on adjacent trees and hedgerows to the north. In this section, the shared footway/cycleway runs adjacent to the proposed bus lane. Given the low frequency of bus services, the likelihood of two cyclists travelling in opposite directions encountering a bus simultaneously is considered minimal. This reduces the potential for conflict and supports the justification for the absence of separation in this location.
005	DMRB CD 109 - CL 2.9 & Table 2.10	As per DMRB CD 109 Table 2.10, the desirable minimum stopping sight distances (SSD) for design speeds of 70A (corresponding to a 40mph speed limit) and 85A (corresponding to a 50mph speed limit) are 120m and 160m respectively. However, at the site access to Crome Lea Business Centre, the achievable SSDs are approximately 90m and 120m, falling one step below the desirable minimum in each case.	The maximum achievable visibility at the site access is reduced to one step below the desirable minimum due to constraints imposed by the existing highway boundary. Achieving the full desirable minimum stopping sight distance would require land or works beyond the applicant's control. Furthermore, the junction has been relocated south to minimise the impact of the proposed works on the adjacent Madingley Wood Site of Special Scientific Interest (SSSI), which further restricts the potential for visibility improvements within the available land.
006	DMRB CD 109 - CL 2.9 & Table 2.10	As per DMRB CD 109 Table 2.10, the desirable minimum Stopping Sight Distance (SSD) for a design speed of 70A (corresponding to a 40 mph speed limit) is 120 m. However, at the pedestrian crossing near the American Cemetery, the achievable SSD to the west is approximately 106 m for pedestrians crossing from the southern footway.	The maximum achievable visibility at the pedestrian crossing is reduced to 106m due to constraints imposed by the existing highway boundary. However, a pedestrian refuge is proposed within the carriageway, allowing pedestrians to cross in two stages. This layout enables pedestrians to position themselves within the refuge and view eastbound traffic with adequate visibility before completing the crossing.

DEPARTURE FROM STANDARDS REGISTER

JOB CPPF Proposed Madingley Hill Bus Lane, Cambridge

JOB No 2-234

DESIGNED Francisco Ramos



Reference no.	Standard	Difference Between standard and proposed design	Reason for departure
007	DMRB CD 109 - CL 2.9 & Table 2.10	As per DMRB CD 109 Table 2.10, the desirable minimum Stopping Sight Distance (SSD) for a design speed of 70A (corresponding to a 40 mph speed limit) is 120 m. However, at the 3no. private accesses in front of the the American Cemetery, the achievable SSDs to the west are approximately 108, 103 &115 m.	<p>The maximum achievable visibility to the west at the private accesses are reduced due to constraints imposed by the existing highway boundary. Achieving the full desirable minimum stopping sight distance would require land or works beyond the applicant’s control.</p> <p>While the available visibility falls slightly short of the desirable minimum of 120m, all three locations exceed the "one-step-below" standard of 90 m and is considered acceptable in this context.</p> <p>It is also worth noting that visibility to the west is intended to provide sight of eastbound approaching traffic. If SSD is measured to the centreline of the carriageway—rather than the nearside kerb—the full desirable minimum SSD of 120 m is achievable.</p>
008	DMRB CD 109 - CL 2.9 & Table 2.10	As per DMRB CD 109 Table 2.10, the desirable minimum Stopping Sight Distance (SSD) for a design speed of 70A (corresponding to a 40 mph speed limit) is 120 m. However, at 1no. private accesses in front of the the American Cemetery, the achievable SSDs to the east is approximately 112m.	<p>The maximum achievable visibility to the west at the private access is reduced due to constraints imposed by the existing highway boundary. Achieving the full desirable minimum stopping sight distance would require land or works beyond the applicant’s control.</p> <p>While this falls slightly below the desirable minimum, it remains above the "one-step-below" standard of 90 m and is considered acceptable in this context.</p>

Response to WSP Review of CPPF Scheme

WSP Review of CPPF Scheme	CPPF August 2025 Response
Key Findings	
The CPPF proposals, particularly the central (offside) bus lane with filter pockets, do not comply with the Design Manual for Roads and Bridges (DMRB) or other relevant standards.	<i>A central bus lane is no longer part of the scheme.</i>
Proposed lane widths are below the minimum recommended for high-speed rural roads and would require multiple Departures from Standard, especially in constrained sections near sensitive sites.	<i>Madingley Road does not fit the description of a High-Speed Rural Road. 40mph operation is proposed from just west of the Crome Lea Business Park junction to help mitigate the removal of the two protected right-turns and the shortened driveways.</i>
The Departures from Standard that would be required to implement the CPPF scheme as presented are considered critical as they would impact the land requirements and as such are fundamental to the viability of the scheme	<i>Maybe so, but these largely relate to a High-Speed Road Rural Road and the Central Bus Lane; neither of which apply.</i>
Road Safety Concerns	
The central bus lane design proposed by CPPF introduces significant safety risks, including potential conflicts between buses and right-turning vehicles, lack of clear priority at filter pockets, and increased risk to cyclists and pedestrians.	<i>A central bus lane is no longer part of the scheme.</i>
A high-level safety review suggests that these issues would likely be raised in a formal Road Safety Audit and are likely to prevent the scheme from gaining technical approval.	<i>A central bus lane is no longer part of the scheme.</i>
Environmental and Heritage Impacts	
The route passes alongside Madingley Wood Site of Special Scientific Interest (SSSI) and the Cambridge American Cemetery (Grade I Registered Park and Garden, with a Grade II* listed "Memorial and attached walls, steps and pool surround at American Military Cemetery").	<p><i>The scheme has been designed to avoid direct or indirect impact on Madingley Wood SSSI. This has involved re-aligning the carriageway within the highway boundary to accommodate the bus lane and shared foot/cycle way without impacting significantly on trees and woodland contiguous with the SSSI. The scheme in this section moves the carriageway kerb south of its existing alignment and places the active travel path to the north, increasing the buffer between road traffic and the SSSI/woodland.</i></p> <p><i>The CPPF alternative scheme would be constructed in the highway boundary outside the American Cemetery. However, the scheme</i></p>

	<p><i>does not require any land that is covered by the grade I designation. The cemetery is already impacted by and screened from vehicles using the busy A1303. The screening consists of hedges, mature trees and a wall none of which are impacted by the CPPF alternative. Therefore, there would be no direct harm to the heritage asset and very low harm to the setting of the cemetery. The cemetery is a popular tourist destination that is served by tourist buses and bus services on the A1303.</i></p> <p><i>The CPPF alternative would provide a benefit to the cemetery by improving bus services for the cemetery, whereas the Applicant's scheme would divert bus services away from the cemetery, making it less accessible.</i></p>
Both central and nearside bus lane options would require land acquisition and removal of mature trees and hedgerows, potentially affecting protected bat habitats and the setting of heritage assets.	<p><i>The scheme has been designed to avoid hedgerow and tree loss. Whilst loss of a number of trees may be unavoidable where the route passes through pinch-points in the highway land, there will be no severance of features likely to be used as bat flight lines and impacts will be contained within the zone of influence of existing noise, spray and lighting effects associated with the extant Madingley Rd, rendering the magnitude of overall change (to both environmental and heritage receptors) negligible and/or in any event less than a route passing through open country, severing hedgerows and directly impacting priority habitat/Local Wildlife Sites.</i></p>
Natural England and Historic England have previously expressed concerns about online options along Madingley Road.	<p><i>The route has been designed in full cognisance and reactive to NE's concerns and with the overarching objective of avoiding any scope for measurable impact on Madingley Wood SSSI and/or barbastelle and other bat species. Tree/hedgerow loss has been kept to an absolute minimum and in any event orders of magnitude less than will arise from the GCP scheme. By modifying an existing A-road, the bus lane and associated active travel provision are delivered within the existing zone of influence of effects from lighting, noise, NOx emissions, salt spray &etc, minimising the net</i></p>

	<p><i>effect and vastly reducing the effects arising from a cross-country scheme.</i></p> <p><i>The application site lies 100m north of the northern boundary of the Coton Conservation Area. The Planning Statement recognises that the character of the conservation area is defined by its Grade I listed 12th century parish church, a further 12 designated heritage assets and by the visual and historic relationships of these assets to each other. The CPPF alternative avoids any heritage harm to these designated heritage assets .</i></p>
Engineering and Buildability Challenges	
The CPPF scheme lacks general arrangement plans and does not address critical engineering aspects such as drainage, utilities, and pavement condition.	<i>These plans are now provided. Drainage is not a key issue and utilities simply require prior diversion into the new cycleway.</i>
Construction would require prolonged lane closures and complex traffic management, with significant disruption expected over a 1 to 2-year period.	<p><i>This is not an accurate assessment.. Major maintenance such as re-surfacing will result in similar levels of disruption and can be deferred as a result of the works, reducing their overall net impact.</i></p> <p><i>Because the scheme involves essentially widening of the existing road to provide an inbound bus lane, the widening can be undertaken first and largely clear of the existing running lanes. Traffic can then be diverted onto the bus lane whilst the existing road is reconstructed in two parallel phases. This work can be undertaken largely at night and over the weekend when traffic flows are much lower. By this means the works can easily be completed within 1 year.</i></p>
Alternative Concept Design	
An alternative nearside bus lane concept was developed by the applicant's team to test the feasibility. While safer, it still requires significant land acquisition and impacts on residential properties and environmental features.	<i>This is not correct – see enclosed plans.</i>

The design confirms that a compliant on-road solution cannot be delivered within the existing highway boundary without unacceptable impacts.	<i>This is also not correct – see enclosed plans and Environmental Assessment.</i>
Assessment of Revised (April 2025) CPPF Proposals	
The revised CPPF scheme proposes a nearside bus lane, which is more conventional and mitigates some safety concerns	<i>Noted.</i>
However, it still relies on substandard lane widths and omits key features such as ghost islands and hard strips	<i>See SJ PoE</i>
The use of the Active Travel England Route Cross-Section Tool to justify lane widths is inappropriate for the context of Madingley Road	<i>See SJ PoE</i>
Recommendations	
The CPPF alternative scheme, in both its original and revised forms, is not a feasible or viable alternative to the proposed CtoC guided busway.	<i>This is not accepted. The scheme is feasible and would represent a significant cost saving over the Applicant's solution. Viability is therefore not in question.</i>
The scheme fails to meet essential design, safety, and environmental standards and would likely not receive technical approval from the Highway Authority.	<i>This is again not accepted. Environmental work demonstrates the acceptability of the scheme and Design and Safety considerations are addressed as part of the submission. Technical Approval comments are largely conjecture on the part of WSP and are not accepted by the CPPF team.</i>
The proposed CtoC scheme remains the preferred option due to its ability to deliver reliable, segregated public transport infrastructure with fewer environmental and safety risks.	<i>The CtoC scheme is very expensive to deliver and a lesser alternative such as the one presented by CPPF has not been properly considered by the Applicant. Its performance should be assessed using an updated post-Covid traffic model and whilst it may be less than the CtoC scheme, its BCR is likely to be much higher due to the reduced costs. It would therefore represent much better value-for-money and a better use of limited public funds at a time of low UK economic performance. It would also not involve CPO and in CPPF's view, less environmental impact and not more.</i>
Limitations to September 2024 CPPF Alternative	
Bus priority is provided for inbound buses only from the Madingley Mulch roundabout to the Park and Ride site.	<i>See comments above.</i>
Accidents, incidents and roadworks on the road network along with the variability in traffic conditions will lead to periods of increased congestion along Madingley Road that will impact inbound and	<i>This may be so, but it is significantly cheaper to deliver and therefore there is a trade-off between these issues and the costs needed to reduce them. A lower costs scheme may well perform</i>

outbound Cambourne to Cambridge buses, reducing the reliability of the scheme compared to a fully segregated route.	<i>at a lower level, but that level CPPF would argue is still high enough to deliver the objectives of the scheme and at a fraction of the cost. The net benefits in terms of value-for-money would therefore be much higher and this is the key consideration.</i>
<p>Inbound traffic flow control, using traffic signals to 'hold' the inbound flow of general traffic is applied in some UK urban environments with co-ordinated urban traffic control networks. However, there are a number of challenges with this approach including:</p> <ul style="list-style-type: none"> • A substantial investment in new signal control infrastructure along Madingley Road will be required; • The increased delays to peak period inbound general traffic could result in reassignment to alternative routes including through Madingley, Comberton and other radial routes into Cambridge, and increased speeding due to driver frustration; and • Consistently delivering journey time benefits to inbound buses along Madingley Road at a level that is 'identical to the proposed scheme' is not demonstrated. The ability to consistently hold sufficient inbound traffic during peak times on the exit from Madingley Mulch Roundabout and the M11 off-slip to increase bus journey times has not been demonstrated, with concerns raised with the potential for queuing back onto the M11 and the A428. Therefore, there is a risk that an investment in signal control solution to 'hold' inbound general traffic will not result in the achievement of consistent improvements to bus journey times. 	<p><i>This is noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to provide reliable signal control infrastructure many times over.</i></p> <p><i>Journey time reliability, queuing and reassignment need to be assessed using an updated post-Covid traffic model, which is currently not available.</i></p>
Limitations of April 2025 CPPF Proposals	
The main limitation of the CPPF document is that it does not provide any general arrangement plans of the proposals to demonstrate that the Alternative Scheme proposals are feasible and will deliver the same scale of benefits as the proposed scheme.	<i>These plans are now provided as an appendix to the proof of Steve Johnstone</i>
Chapter 3 – Engineering Assessment – September 2024 Proposals	
<i>Interpretation of CPPF Proposals</i>	
3.2.3 The CPPF report provides very little information in relation to how right turn movements into and out of the numerous accesses along the corridor would be provided for. The only mention of this is in item B1	<i>The removal of protected right-turns or "filter pockets" is partially mitigated by reducing the speed limit and narrowing the lanes to encourage slower and more careful driving.</i>

where it suggests that right-turn filter pockets could be incorporated into the central bus lane for the Crome Lea Business Park	
3.2.4 It is unclear what is meant by right-turn filter pockets but based on the cross sections presented in the report it is presumed that right-turning vehicles would be expected to wait within the central bus lane and that any existing facilities for right turn movements e.g. at Crome-lea Business Park would not be re-provided in the revised layout. This would not be compliant with standards and raises several road safety concerns. These issues are covered in more detail in the subsequent sections of the report.	<i>A central bus lane is no longer part of the scheme.</i>
<i>Compliance of CPPF Proposals with Current Design Standards</i>	
3.3.17 The 3.25m general traffic lane widths presented in Figures 4, 5 and 6 of the CPPF report appear to be based on the principles Contained in Manual for Streets 1 & 2 [CD9-02 & CD9-03] which is not considered appropriate for Madingley Road and would be more applicable to a Street setting in a low-speed urban environment.	See SJ PoE
3.3.18 Traffic lanes narrower than 3.65m are sometimes used for economic or environmental reasons. However, research conducted on two-lane rural roads ⁴ has shown that for increasing lane widths up to 3.65m there is a corresponding decrease in accident rates for vehicles running off the road, and for head-on and sideswipe accidents between vehicles travelling in opposite directions. A decrease in lane widths below 3.65m would be expected to have the opposite effect.	<i>The cited research is of questionable relevance, being based on driving in the USA in the 1980s. A different conclusion may be found in a more recent (2017) paper on the same subject, but based on research in France, which concluded that the optimally safe arrangement of a 7m wide rural road is to have a 3m lane width and a 0.5m shoulder.¹</i>
3.3.19 The A1303 Madingley Road forms part of the diversion route for the adjacent strategic road network. As such, the lane widths on Madingley Road need to be suitable to accommodate diverted traffic in an emergency or during major maintenance or construction.	<i>The proposed lane widths would be suitable.</i>
3.3.21 The cross sections presented in the CPPF report include a 3m wide central bus lane. This is the minimum lane width recommended in the TSM. However, assuming that cyclists would be prohibited from using the central bus lane on safety grounds, a central bus lane width	<i>A central bus lane is no longer part of the scheme.</i>

¹ <https://www.sciencedirect.com/science/article/abs/pii/S0001457517301562>

of 3.65m5 is considered to be more appropriate given the high-speed rural road environment.	
3.3.22 Where an off-side bus lane is provided in a two-way road the TSM Chapter 3 [CD9-17, page 91, paragraph 9.1.3] recommends that it should generally be separated from the opposing flow of traffic by a solid island or hatch markings to diagram 1040 where the boundary line is formed by the marking to diagram 1049A. There is no such provision included in the cross sections contained in the CPPF report.	<i>A central bus lane is no longer part of the scheme.</i>
3.3.26 the cross section and lane widths depicted in Figure 5 of the CPPF report (see Figure 3-4 below) does not comply with the relevant design standards and does not include any provision for verges and other key features that would need to be accommodated within the overall cross-section. The total width of 13.5m stated in the CPPF report does not represent the true overall width of the corridor required to deliver an online bus lane	<i>See SJ PoE and engineering drawings</i>
3.3.29 The additional width required to deliver the proposed cross section will necessitate acquisition of land outside of the highway boundary and will impact the existing features along Madingley Road including the commercial and residential properties to the south.	<i>See SJ PoE and engineering drawings</i>
3.3.30 Extensive clearance of the existing trees (including mature specimens) and hedge lines to the south of Madingley Road depicted in Figure 3-7 below, would also be required to facilitate the construction of the proposed CPPF scheme	<i>The scheme does not require 'extensive clearance of trees or hedgerows'. By comparison with the GCP scheme the habitat losses occasioned are substantially less in all respects and deliver an improved performance whether considered via subjective assessment approaches or quantitative (BNG) scores.</i>
Junctions and Access	
3.3.36 The appropriate central road treatment for Madingley Road is the provision of ghost islands. Ghost islands afford right-turning vehicles some protection and assist free flow of major road through traffic.	<i>A central bus lane is no longer part of the scheme.</i>
3.3.37. The CPPF proposals do not appear to make any provision for any central road treatments i.e. ghost islands and are non-compliant in this regard. If ghost islands were to be added to the CPPF proposals it would increase the area of land required outside of the existing highway to deliver the scheme, resulting in increased costs and environmental impacts. It is also unclear how a ghost island could operate safely in combination with a central bus lane. The omission of central road	<i>A central bus lane is no longer part of the scheme.</i>

treatments gives rise to Road Safety Concerns which are covered in more detail in the subsequent sections of the report.	
Horizontal Alignment	
3.3.38 The CPPF proposals do not contain details of the proposed horizontal alignment for the central bus lane scheme. However, it is assumed that the proposed scheme would closely follow the existing alignment of Madingley Road	<i>A central bus lane is no longer part of the scheme.</i>
3.3.40 It would not be possible to design out these non-compliant aspects without significantly deviating from the existing road alignment. As such these inherent departures would need to be taken into account when considering an online solution. This would include assessing the potential cumulative effects on road safety where several relaxations and departures from standard are proposed to be used in combination.	<i>See SJ PoE and engineering drawings</i>
3.3.41 A double white line system has been introduced along sections of Madingley Road as a mitigation measure for the various departures present. The double white line system prohibits drivers from overtaking where forward visibility levels are below the requisite overtaking sight distances for the design speed. Figure 3-8 below shows the tight bend and double white line system present on the section adjacent to Madingley Woods.	<i>[Commentary not requiring a response]</i>
3.3.42 Some of the existing horizontal radii along Madingley Road would make it impossible to meet the same passenger comfort criteria ⁶ that has been applied to the design of the proposed offline CtoC scheme. This would result in a reduced passenger experience when compared to the proposed off-road scheme.	<i>This is a complete non-point as the Madingley Road is already used by numerous buses without any reported incidents of discomfort or loss of passenger comfort.</i>
Summary of Non-Compliant Aspects	
3.3.43 As a preliminary design of the CPPF proposals has not been developed in sufficient detail it is not possible to identify all the potential relaxations and departures from standard (i.e. non-compliant aspects) that may be required. However, some of the key issues identified which are likely to require relaxations or departures include but are not limited to:	<i>These plans are now provided.</i>

<ul style="list-style-type: none"> • Non-standard proposed central bus lane incorporating filter pockets; • Sub-standard lane widths; • Sub-standard horizontal radii; • Sub-standard transition curves; • Reduced separation between the shared use path and the edge of the carriageway; • Omission of a physical island or hatch markings between the central (offside) bus lane and opposing flow of traffic; • Omission of hard strips; • Omission of major road central treatment (ghost islands); and • Sub-standard stopping site distances and junction visibility. 	
<p>3.3.44 Many of the identified non-compliant aspects are related to the same locations and are within the immediate approaches to a junction or access. As such, they are likely to result in a significant number of issues being identified in the Road Safety Audit (RSA). The potential impacts of any interacting departures would need to be appraised collectively, as part of the Departure from Standard application process and it is unlikely that technical approval would be granted to implement an online solution.</p>	<p><i>Please refer to the Civilistix drawings (SJ proof Appendix F) to see how departures from standards have been justified.</i></p>
<p>Road Safety Concerns</p>	
<p>3.4.6 The high-level safety review has identified several potential road safety issues associated with the proposed layout described in the CPPF report i.e. a central inbound bus lane and removal of existing right turning facilities. These concerns include:</p> <ul style="list-style-type: none"> • Non-standard layout could potentially lead to driver confusion. • Potential conflicts between buses and right turning vehicles where the proposed “filter pockets” create areas with no clear priority for right turning traffic or buses. • Vehicles turning right from the mainline which choose to wait in the general traffic lanes would impede the progress of general traffic and this could lead to frustrated drivers using the central bus lane to overtake. 	<p><i>A central bus lane is no longer part of the scheme.</i></p>

<ul style="list-style-type: none"> • Buses heading eastbound in a central bus lane would meet head on with any Westbound vehicles turning right from the mainline that are waiting in a “Filter Pocket” located within the Bus Lane. This could result in a head on collision, or the progress of the inbound bus would be impeded and would also limit visibility of traffic in the nearside general traffic lane for the driver completing the right turn manoeuvre. • Eastbound vehicles turning right from the mainline which choose to wait in the general traffic lanes, resulting in buses approaching from the rear being positioned in their blind spot. • Drivers exiting side roads or private accesses may block the path of active travel users while waiting for an appropriate gap to turn right. • Drivers focused on identifying a gap in the traffic to complete a right turn may pull out in front of or potentially collide with active travel users. • Potential abuse of the bus lane for overtaking or early commencement of right turn manoeuvres by frustrated motorists. • Lack of separation between the central bus lane and opposing traffic lane as recommended in the TSM may result in conflicts and potential head on collisions between buses and opposing traffic that intentionally or mistakenly enters the bus lane. • Potential use of central bus lane by cyclists unless prohibited placing them in a vulnerable position in a high-speed road environment. 	
<p>3.4.8 One of the key safety concerns that has been identified in relation to the CPPF proposals is the potential for conflicts between right turning vehicles, buses and active travel users. It is considered highly likely that this would be identified as a potential road safety issue through the RSA process and that recommendations would be made to eliminate or mitigate this issue.</p>	<p><i>This risk would be mitigated by reducing the speed limit and narrowing lanes to encourage compliance. It would also mitigate the existing risk for right-turning vehicles at all the junctions that do not have protected right-turn lanes, most notably at the American Cemetery where buses (including the schedule city tour bus, which calls up to every 20 minutes) and coaches turn right into the entrance off Madingley Road.</i></p>
<p>3.4.9 Introducing a road layout which is non-standard and is unfamiliar to the public would come with an increased risk of road</p>	<p><i>A central bus lane is no longer part of the scheme.</i></p>

traffic collisions. The proposed filter pockets provide no clear indication of priority and would position right turning vehicles in a vulnerable position where they may be at risk of a collision with buses or other vehicles completing right turn movements.	
3.4.11 The roundabout at the western end of Madingley Road would afford drivers an opportunity to make U-turns. However, there are no similar opportunities to the east of the existing accesses and junctions along Madingley Road. As such, the option to prohibit right turns does not appear to be viable as it is likely to result in round trips of over 2km which would not be considered acceptable.	<i>We are not proposing to ban right turns.</i>
3.4.12 The existing speed limits along Madingley Road are appropriate considering the existing characteristics of the road, they also align with CCC's current Speed Limit Policy ⁸ . An increase in the overall carriageway width along Madingley Road is likely to result in increased speeds as the level of constraint imposed by the cross section would be significantly reduced. As such, any reductions proposed to the existing speed limits are unlikely to be approved by the Highway Authority or supported by the local constabulary.	<i>The proposed reduction in the speed limit from just west of the Crome Lea Business Park entrance is paired with a reduction in lane widths to encourage compliance.</i>
Potential Engineering Difficulties - Drainage	
3.7.1 The existing drainage infrastructure along Madingley Road is unlikely to have sufficient spare capacity to accommodate the additional runoff generated by the increased impermeable areas created by the CPPF proposed scheme.	<i>The CPPF scheme is indicative and further work would need to be carried out at detailed design stage to determine the need for additional drainage works. However, additional online storage could be provided in the form of oversized pipes fitted with hydro-brakes to ensure the existing discharge rates are retained.</i>
3.7.2 The CPPF report makes no mention of a drainage strategy, so it appears that this aspect of the design and the potential land requirements and associated environmental impacts have not been considered.	<i>See above and the PoE of SJ and DW</i>
3.7.3 It is highly likely that additional land will be required to deliver the drainage infrastructure required for the scheme including the provision of attenuation basins, ponds and ditches etc. to mitigate any increase in flood risk.	<i>See above and the PoE of SJ and DW</i>
3.7.5 Minimising the number of drainage inlets reduces the time taken to maintain them which brings both health and safety and cost	<i>See above and the PoE of SJ and DW</i>

<p>saving benefits. If hard strips were to be omitted from the proposed cross section, this would only result in a width reduction of 1m as the buffer/verge width between the active travel facility would need to be increased by 1m to maintain suitable separation from the running lane.</p>	
<p>3.7.6 There are sections of open drainage ditches located to the back of the existing shared use path on the south side of Madingley Road. It appears that it would be necessary to culvert sections of these existing ditches to re-provide the existing or improved walking and cycling facilities. Culverting the ditches would result in loss of flood storage capacity which may lead to an increased risk of surface water flooding especially when combined with the significant increase in impermeable area. Alternatively, the ditches could be re-provided but this would require additional land to be acquired.</p>	<p><i>See above and the PoE of SJ</i></p>
<p>3.7.7 The Topographic Survey has picked up a section of an existing ditch that would be impacted by any widening to the north in the vicinity of Madingley Wood. If this ditch is lost this will result in loss of flood storage capacity. Re-providing the ditch would require additional land and increase the potential impacts on Madingley Wood.</p>	<p><i>See above and the PoE of SJ and DW</i></p>
<p>3.7.9 The indicative cross sections presented in the CPPF proposals do not make any provision for these types of features which play an important part in the SuDS treatment train and help to manage flows and improve the quality of highway surface water runoff.</p>	<p><i>See above and the PoE of SJ and DW</i></p>
<p>Potential Engineering Difficulties – Underground and Overhead Utilities</p>	
<p>3.7.10 It is assumed that no enquiries have been completed to provide an indication of the scale and costs of the potential diversionary works required to enable the proposed online scheme to be implemented.</p>	<p><i>This is noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to divert existing SU's many times over.</i></p>
<p>3.7.11 The proposed changes to the corridor cross section may physically impact or affect access to existing utilities for inspection and maintenance purposes, this may necessitate significant and costly diversionary works.</p>	<p><i>This is again noted but the cost savings accrued by not building the CtoC scheme would outstrip those needed to divert existing SU's many times over.</i></p>
<p>Potential Engineering Difficulties – Pavement Condition</p>	

3.7.13 It is assumed that no assessment of existing pavement surface or structural condition have been completed to confirm the level of intervention required to provide an acceptable residual life.	<i>It has been assumed that all of the existing pavement would be reconstructed in order to achieve the new levels and cross-falls so this is a non-point. All areas will be provided with the required residual life.</i>
3.7.14 Notwithstanding the potential road safety and other issues associated with providing a narrow lane in a high-speed road environment, intervention measures may be required to ensure that the channelised traffic flows resulting from the proposed narrow traffic lanes proposed by CPPF would not lead to excessive rutting.	See SJ PoE
Buildability	
3.8.1 A single lane busway provides very little working space, and either needs an adjacent lane closure, or for the nearside option the verge widened, and trees removed to provide an off-road access.	<i>Off-road access is not required to maintain a nearside bus lane, as indeed exists already in many parts of Cambridge.</i>
3.8.4 The construction would need to be carried out after traffic management for utility diversions and works to lay new surface water sewers, this is potentially four to six months of lane closures with traffic lights.	See SJ PoE
Environmental Appraisal	
3.10.1 The location of the Madingley Wood SSSI makes the route inherently sensitive to potential disturbance impacts to its wildlife communities; with the highly protected barbastelle bats in particular potentially vulnerable to impact. It is assumed that the CPPF scheme could be retained within the existing northern kerblines and that direct landtake to the wood could be avoided. Notwithstanding this, Natural England expressed concerns with regard to the use of an online option along Madingley Road in correspondence to the GCP in January 2018	<i>This comment displays a lack of understanding of the degree of stand-off between the existing kerblines and the SSSI alongside Madingley Wood. Beyond that, the scheme has in any event been designed to avoid direct or indirect impact on Madingley Wood SSSI. This has involved slightly re-aligning the carriageway within the highway boundary to accommodate the bus lane and shared foot/cycle way without impact on trees and woodland contiguous with the SSSI. Consequently, the scheme in this section does not extend northward beyond the line of the existing northern carriageway kerb through most of this section and where it does only very minor trimming back of vegetation (and no tree loss) is required to accommodate build and sight lines. The insertion of the busway and active travel path actually increases the buffer between existing road traffic and the SSSI/woodland.</i>
3.10.2 The route's passage past the Grade I Registered Park and Garden of the American Cemetery would have potential impacts on the	See comments above

setting of this highly protected heritage designation, as it would also for the Grade II* listed memorial and attached walls, steps and pool surround. It is assumed that direct landtake within the curtilage of these two designated heritage assets could be avoided, although this is not certain, and were it required, it is assumed that Historic England would, based on the advice they provided to the GCP in February 2018 [Appendix D] with respect to options along Madingley Road, also have concerns.	<i>Note: HE's letter to GCP Feb 2018 raises equal concerns about the off-road route.</i>
3.10.4 To avoid impacts to the cemetery and SSSI, the more southerly alignment would also require the loss of mature trees and hedgerows to the south, east and west of the SSSI that are likely to be important habitat features for commuting and foraging barbastelle and other bat species as they exit the woodland, restricting their ability to move through the landscape. The loss of tall canopy at this location could also reduce the height that bats cross the existing carriageway if they use the canopy to cross at height over the road, which is currently being investigated. This could increase the risk of collision with road traffic. Widening the carriageway at this location could also affect the behaviour of bats crossing the carriageway, increasing the number of traffic lanes and overall width that they need to traverse. This could also increase the risk of collisions with road traffic	<i>The southerly adjustments to avoid impact on Madingley Wood SSSI and related vegetation may occasion the loss of a very small number of (c.5) mature ash trees along the highway boundary hedgerow west and east of the Woodfield Lodge entrance (some of which show signs of Chalara infection), but the low and box trimmed hedgerow on the highway boundary east of Woodfield Lodge and the other trees along this section should be able to be retained. There will be no substantive effect on high canopy or crossing points for bats. Even where there is no current canopy level connection or occluded gap over the highway, the carriageway widening will be de minimis, adding no more than a tiny fraction of a second to the time it would take a commuting bat to cross.</i>
3.10.6 In relation to Phase 1 only, the assessment has calculated that the CPPF Alternative would produce 3,890 tonnes of carbon dioxide equivalent (tCO ₂ e). This is compared with 14,910 tCO ₂ e for Phase 1 of the proposed CtoC Scheme, representing a total of 26% of the Scheme	<i>See Proof of Dr Louise Hirst</i>
3.10.7 Once construction of the full CtoC Scheme is considered from Cambourne to Cambridge, the infrastructure greenhouse gas emissions from the CPPF Alternative (incorporating the Phase 2 works and the P&R) is estimated to be 18,110 tCO ₂ e compared with the CtoC Scheme (Phase 1, Phase 2 and the P&R) which is estimated to be 29,130 tCO ₂ e [see Appendix C of this Note] . When compared to the CtoC Scheme, the potential infrastructure greenhouse gas emissions	<i>See Proof of Dr Louise Hirst</i>

saving from an equivalent end to end route incorporating the CPPF Alternative is estimated to be 38%.	
Chapter 4 – Assessment of April 2025 CPPF Scheme	
<i>Proposed lane widths</i>	
4.3.6 The ATE tool does not include an option in the Street Function drop down box which fits the context of Madingley Road. As such, the traffic lane widths and absolute minimum cross-sections indicated by the tool do not draw upon the relevant standards i.e. DMRB Standard CD 127 Cross-sections and headroom's [CD9-09] . This results in the tool suggesting inappropriate (substandard) traffic lane widths because the tool is not applicable in this context.	<i>See main PoE.</i>
4.3.7 The ATE Tool also fails to make any provision for level differences introduced at the interfaces with the existing ground levels due to cross falls on the carriageway, verges and active travel path, making the overall desirable and absolute minimum cross-sections generated by the Tool misleading, as a much wider corridor would be required to make them practically feasible.	<i>See SJ PoE.</i>
4.3.8 Providing narrow lanes and omitting hard strips from any proposed improvements to Madingley Road is likely to result in: <ul style="list-style-type: none"> • Increased accident risk • Reduction in capacity • Reduction in journey time reliability • Reduced network resilience 	<i>These assertions are disputed</i>
4.3.9 Narrow lanes and no hard strips will reduce the carriageway width, limiting safe traffic management for planned and emergency maintenance on the highway or utilities.	<i>The comment ignores the existence of a new adjacent bus lane. Compared with now, this would increase the available carriageway width for managing roadworks and traffic incidents.</i>
4.3.10 Narrow lanes would make it more difficult for traffic to safely pass a broken-down vehicle potentially leading to lengthy delays.	<i>See previous comment.</i>
<i>Relocating active travel path to the north side of Madingley Road and widening the carriageway to the south</i>	
4.4.4 Several of the mature trees along the south side of Madingley Road have canopies that extend near or over the southern edge of the carriageway. This suggests that the construction of any carriageway widening to the south would impact the root protection areas of the existing trees. The use of no-dig construction methods in this area	<i>See DW PoE</i>

would not be viable given the need to tie into the existing carriageway levels.	
4.4.5 Widening the carriageway to the south would also move the live traffic lanes much closer to the existing large diameter trees. Any of the larger trees that were not impacted by the carriageway widening and that were still deemed to be viable, would be considered a potential hazard and would need to be included in a Road Restraint Risk Assessment Process (RRRAP).	<i>See SJ PoE</i>
4.4.7 Given the proximity of the trees to the edge of the carriageway in the revised layout it is unlikely there would be sufficient space to provide a vehicle restraint system, leaving removal of the trees the only viable option	<i>A VRS is not required in the locations where trees are in close proximity due to either levels or the proposed 40mph Speed Limit.</i>
<i>Potential departures for substandard active travel facilities</i>	
4.5.4 The 3.25m wide lanes proposed by CPPF sit within the range of lane widths not recommended in LTN 1/20 [CD8.23, page 74, paragraph 7.2.5] as they could result in unsafe overtaking of cyclists	<i>The provision of an adjacent shared-use path, which will be lightly trafficked, means that no-one need cycle in the bus lane.</i>
<i>Offside bus lane and filter pockets</i>	
4.6.1 The updated CPPF report lacks specific plans or detailed explanations on the proposed filter pockets for a central bus lane.	<i>These plans are now provided.</i>
4.6.3 What CPPF is proposing appears to be very different to a conventional ghost island arrangement. The CPPF report implies that the filter pockets they propose are effectively areas within the live central bus lane which could be used by right turning traffic to wait for a gap in the opposing general traffic lane to complete a right turn manoeuvre. No explanation is provided as to who would have priority within the filter pockets or how this unconventional arrangement could be regulated effectively to ensure safe operation.	<i>A central bus lane is no longer part of the scheme.</i>
4.6.4. The filter pocket arrangement proposed by CPPF has the potential to place right-turning vehicles in direct conflict with other right-turn movements and high-speed buses, which could lead to collisions or hinder the progress of inbound buses.	<i>A central bus lane is no longer part of the scheme.</i>
4.6.5 The CPPF report asserts that it is only the Crome Lea Business Park access that is provided with a ghost island and fails to acknowledge the existing ghost island at Madingley Rise. The original CPPF proposals for a central (offside) bus lane suggested that this	<i>See response above.</i>

Ghost Island and the associated hatching in the centre of the carriageway could be utilised to deliver a central bus lane.	
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