

M5 Junction 12 and 14 Improvement Schemes

Funding Overview
Stroud Local Plan Review

Stroud District Council

Project Number: 60598598

September 2024

Quality information

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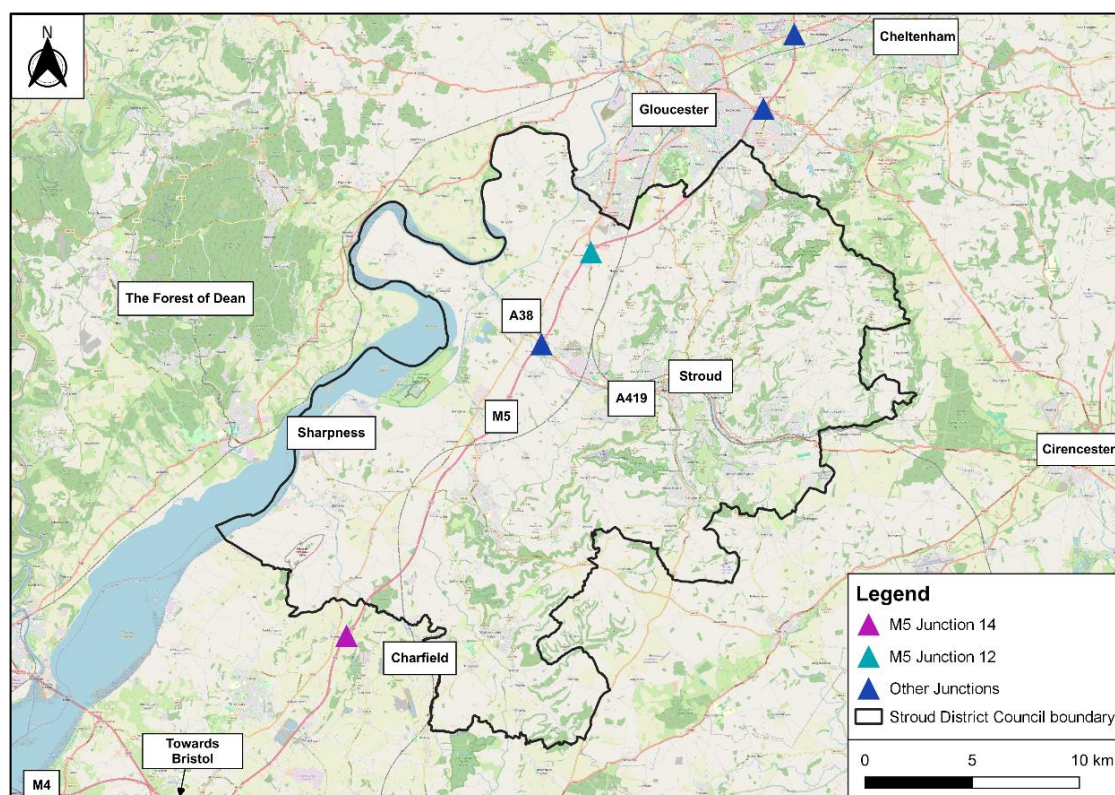
Appendix A	Funding and Delivery Case Studies
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1. Introduction

1.1 Background

- 1.1.1 AECOM is appointed by Stroud District Council (SDC) to provide technical transport and development planning advice in relation to its Local Plan Review (LPR). The LPR sets out how SDC has planned for growth and development across its district up to 2040.
- 1.1.2 A Regulation 20 version of the LPR was submitted to the Planning Inspectorate (PINS) for Examination in Public (EiP) in 2023. During the course of the Examination, PINS has identified concerns in relation to infrastructure delivery, specifically with consideration for the improvements required to M5 Junction 12 (J12) and Junction 14 (J14) to accommodate forecast levels of traffic demand up to the end of the LPR year. PINS has agreed a pause to the EiP programme to enable SDC to provide further evidence as to the viability of funding and delivering the necessary capacity improvements for these locations. The locations of the M5 junctions and the surrounding context is presented in **Figure 1-1**.

Figure 1-1: Location of M5 Junctions and Surrounding Context



- 1.1.3 Preliminary designs and associated costs for the improvements to the M5 junction have been prepared on behalf of Gloucestershire County Council (GCC) and SDC for J12 and J14 respectively. For J12 two options are recommended for further development – Option 2a as an improvement to the existing Dumbbell Roundabout arrangement, or Option 3a as a grade-separated roundabout. For J14 a grade-separated roundabout is proposed.

1.2 Funding and Delivery Overview

- 1.2.1 Given the scale of costs involved, the funding of the M5 junction improvements will need to be from multiple funding streams. It is currently envisaged that the schemes would be the subject of a funding approach to Central Government, and that circa 15% of the funding would be generated from local contributions e.g. from allocated developments through the Development Management process.

Case Studies

- 1.2.2 There are case studies available which demonstrate how significant motorway infrastructure can be delivered outside of conventional National Highways (NH) funding arrangements. These are outlined in further detail at **Appendix A** but include:
- M55 Junction 3 near Preston, which was partially funded through the Preston City Deal.
 - M11 Junction 7a near Harlow, Essex.

1.3 Stakeholder Engagement

- 1.3.1 The work undertaken in relation to M5 J12 and J14 has been undertaken in collaboration with key stakeholders including NH, South Gloucestershire Council (SGC), GCC, Gloucester City Council and Western Gateway which are collectively referred to as the "Transport Working Group" (TWG). SDC has met regularly with the TWG throughout the preparation and submission of the SDC LPR up to EiP and has continued to consult with respect to the design, costing and apportionment work which has been undertaken by SDC during the recent pause to the EiP.

2. Scheme Proposals

2.1 Introduction

- 2.1.1 This section of the report provides information as relevant to the proposed schemes at M4 J12 and J14, including the rationale for the improvements (i.e., why the improvements are necessary) as well as the preliminary designs prepared for both junctions.

2.2 The Need for the Improvements

- 2.2.1 These two motorway junctions are known to be constraints to regional housing development and economic growth for a number of years, as shown through the Development Management process where holding objections have been placed on planning applications owing to traffic impacts at these locations. Piecemeal improvements to the M5 junctions have been identified and implemented in order to deliver individual sites with no strategic objective or planning for future growth.
- 2.2.2 The challenges presented by capacity constraints at M5 J12 and J14 are raised in the GCC Local Transport Plan (2021-2040). Specifically, the Connecting Places Strategy for Stoud states that GCC will work *“with Highways England [now National Highways] to resolve capacity issues at M5 Junction 12 and 13”* and *“with South Gloucestershire, Highways England and stakeholders to resolve M5 Junction 14 capacity issues”*.
- 2.2.3 The need for, and benefit of, improving capacity at M5 Junctions 12 and 14 has been made clear through a variety of studies, including the Traffic Forecasting Report and Traffic Forecasting Report Addendum prepared for the LPR, and various microsimulation modelling exercises undertaken by NH. The studies show that both junctions will exceed capacity, with associated delay and safety implications due to background traffic growth and without the consideration for development allocated within the SDC LPR. Aside from a minor improvement to release a small amount of housing at Charfield, NH considers that any new development which adds traffic to J14 will be unacceptable. Some additional housing growth (circa 1000 dwellings) may also be achievable to the north west of J14 through additional “interim” improvements to the junction network being promoted by Sharpness. J12 will become a similar constraint to economic growth in the near future. Recent modelling of the junction carried out on behalf of GCC suggests that there is limited spare capacity.
- 2.2.4 It is important to note that the capacity constraints at these junctions will remain with or without the adoption and delivery of the SDC LPR. If the plan is not made, then developments would come forward on an ad-hoc basis with little strategic management or opportunity to rationalise improvements to the highway network, including M5 J12 and J14. NH would be likely to raise holding objections to any applications which would impact at these locations, but this may not prevent the development and resulting impacts from coming forward through the Development Management process for a variety of reasons.
- 2.2.5 Further analysis has been undertaken by NH and GCC at J14 and J12 respectively which shows that there are limited realistic alternatives to delivery of major junction improvement schemes that can adequately accommodate future growth. Smaller scale and interim schemes have been considered, but are not sufficient to adequately meet the strategic needs of the region.

2.3 Proposed Improvements and Costs

- 2.3.1 Preliminary scheme designs for major junction improvement schemes at both M5 J12 and J14 have been produced on behalf of GCC and SDC respectively. These have been produced to provide confidence to the relevant highway authorities that a suitable scheme can be provided, and also to inform onward scheme costing. The designs have been developed in collaboration with NH as well as with the relevant LHAs.
- 2.3.2 The General Arrangement of the scheme designs are provided at **Appendix B** and **Appendix C** for J12 and J14 respectively. Separate reports in relation to the design optioneering and costing of the schemes are submitted alongside this report as evidence for the LPR EiP.

2.3.3 Costs have been derived for each scheme as summarised in **Table 2-1**. Details on the costings are presented in the separate junction reports.

Table 2-1: Scheme Costs

Scheme	Scale of Cost
M5 J12	c.£140m-210m
M5 J14	c.£100m-120m

2.3.4 **Table 2-1** presents the scheme costs as a broad range, to demonstrate the scale of the scheme required to be funded. It should be noted that there are two potential options for J12, hence the greater range of potential cost identified.

2.3.5 The costs have been prepared with consideration for the construction of the schemes (inclusive of labour, materials etc.) but also with allowances for other considerations such as traffic management during scheme construction. The costs also include significant contingency for risks, which covers a number of design elements and requirements where further details will emerge in the later stages of scheme design. The costs have also been benchmarked against the outturn costs of similar schemes on the Strategic Road Network (SRN). Whilst the costs for each junction have been prepared independently, they have been cross-referenced to ensure consistency in terms of key assumptions and calculations. Costs are presented at 2024 values and do not include inflation.

3. Funding from Local Contributions

3.1 Introduction

3.1.1 This section of the report outlines the approach to determining the level and apportionment of funding contributions from local development. It is envisaged that there is likely to be a requirement for local contributions of c.15% of the M5 junction scheme costs. This is based on discussions with NH and is in line with typical Department for Transport major scheme funding requirements. Contributions will be secured from local development. The approach builds on the work undertaken for the Funding and Delivery (F&D) Plan which was submitted as evidence for the SDC LPR, and seeks to address comments raised during Examination.

3.2 Funding & Delivery Plan

3.2.1 A F&D Plan was submitted as part of the LPR evidence base which set out how funding for the M5 junctions could be achieved. This accounted for a proportional split of funding between the LPR allocations as well as for the high levels of uncertainty surrounding the level of growth which will emerge regionally given that Local Development Plans for neighbouring authorities trail behind that currently promoted by SDC.

3.2.2 The F&D Plan outlined a logical and mathematical process to determine an apportionment of funding requirement between SDC growth, growth from neighbouring authorities and growth from background sources (e.g. wider economic and demographic factors). This methodology was developed in consultation with key stakeholders including the members of the TWG. However, agreement was not possible owing to external factors, specifically a lack of clarity on Development Plans in neighbouring authorities.

3.2.3 The original methodology also included a threshold of 5% impact, only relying on contributions from sites with a greater than 5% impact. The purpose of this was to simplify the methodology and reduce the level of reliance on multiple sites. It was set out that this did not exclude smaller sites from contributing, and was solely for the purpose of testing the viability of larger sites. However, this element of the methodology introduced confusion and the purpose was not well understood.

3.2.4 Therefore, a revised process for calculating the proportional distribution of funding for the M5 junctions has been developed. This addresses two of the key concerns raised by the TWG by:

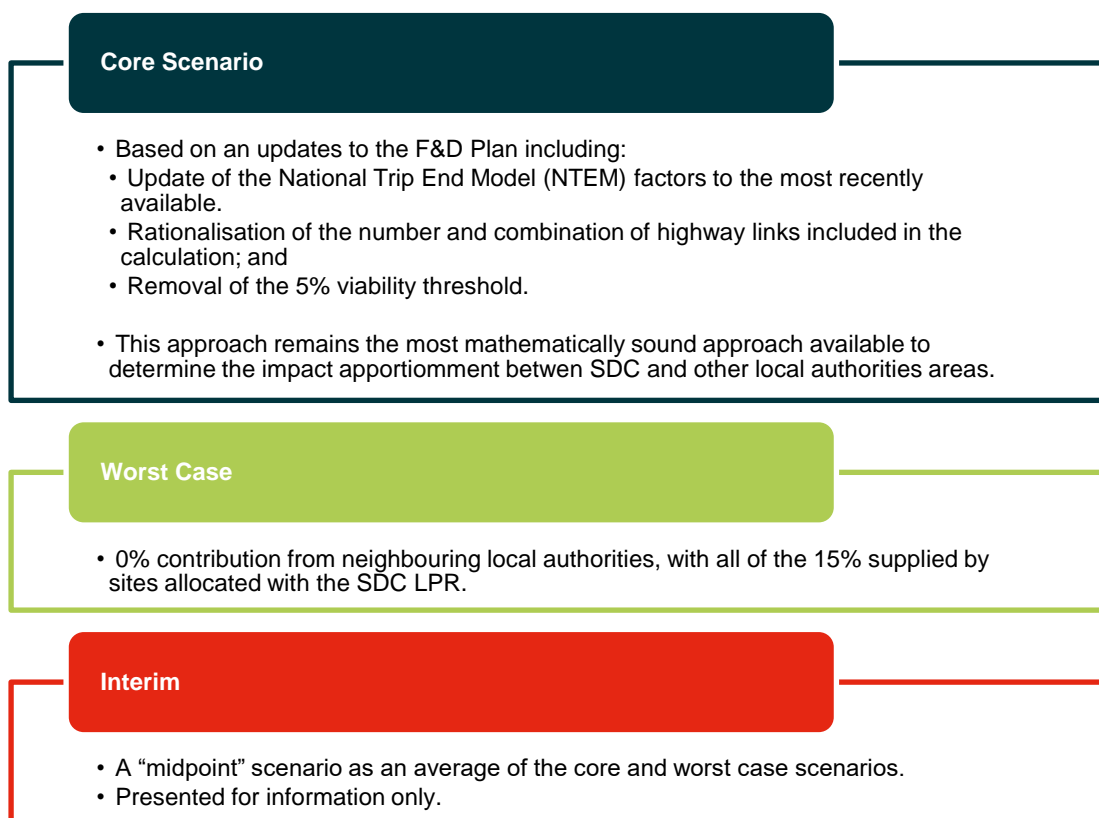
- Removing the 5% threshold to improve the clarity of the F&D messaging; and
- Making worst case assumptions in terms of the level of funding that will be required from SDC compared to neighbouring authorities, on the basis that there remains significant uncertainty as to the nature, location and highway impact of future growth.

3.2.5 Whilst it is recognised that there are always challenges with uncertainty and gathering funding from multiple sources, the F&D Plan methodology remains the most mathematically sound way to allocate funding proportions.

3.3 Local Development Funding Scenarios

3.3.1 At present, it is assumed that regional local plan allocations will need to contribute at least 15% of the total scheme costs - consideration for wider funding for the remaining 85% is discussed later in this report. Owing to the uncertainty surrounding the nature and highway impact of future growth within neighbouring local authority areas, a range of local development funding scenarios are considered, as outlined in **Figure 3-1**.

Figure 3-1: Local Development Funding Scenarios



3.3.2 A comparison in the percentage contribution to SDC and other Local Authorities under each of these scenarios is shown in **Table 3-1**.

Table 3-1: Comparison of local authority contribution between funding scenarios

Method	Junction 12		Junction 14	
	% SDC	% Other LA	% SDC	% Other LA
Core	34%	66%	12%	88%
Interim	67%	33%	56%	44%
Worst Case	100%	0%	100%	0%

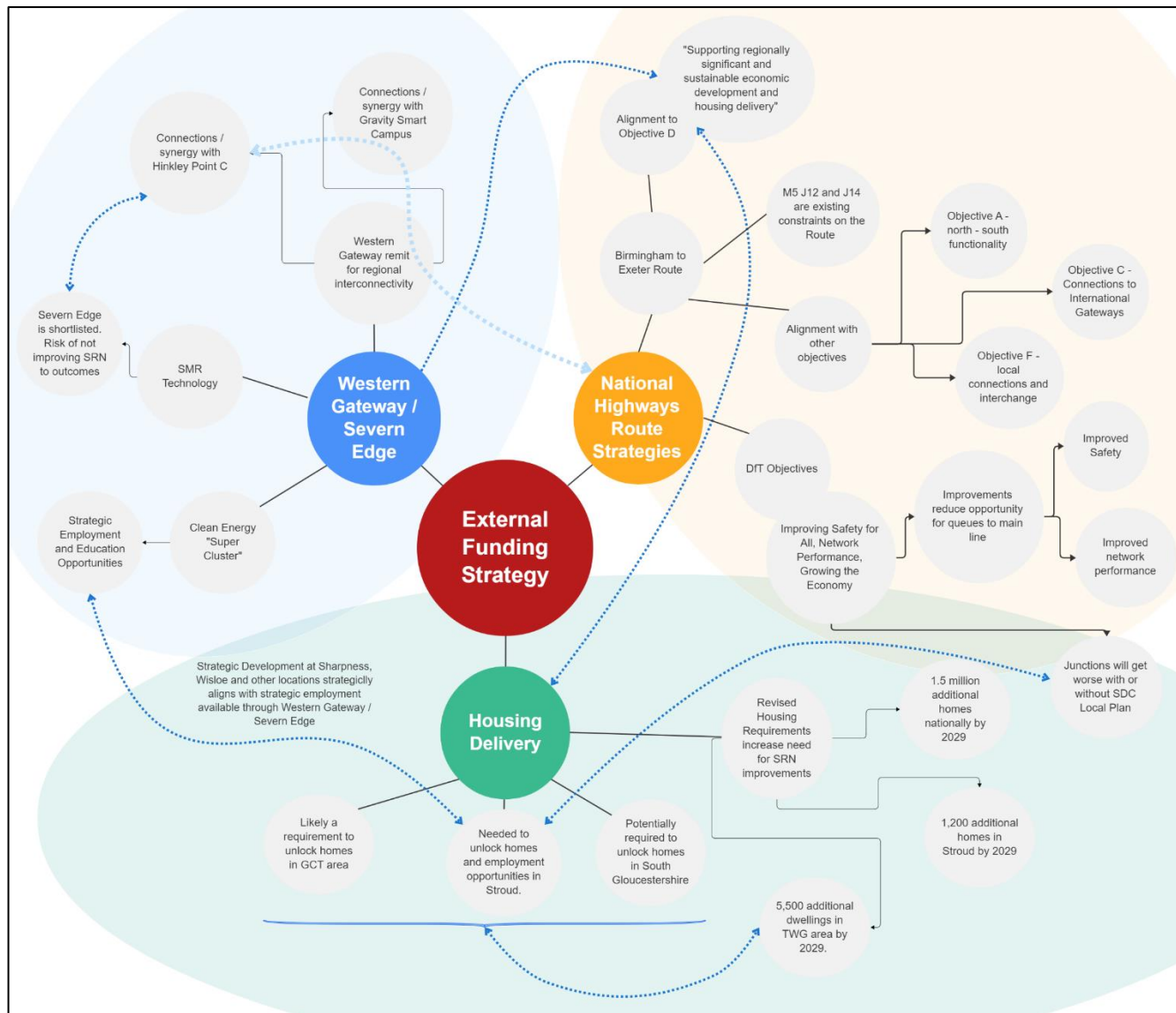
3.3.3 The ‘Worst Case’ scenario is to be progressed for onward viability testing. This scenario directly addresses the TWG concerns regarding the commitment otherwise required to future funding obligations from neighbouring LAs. In practice, it is considered more than likely that some funding would be attributable to growth within these local authority areas (i.e. as per the ‘Core’ scenario), to be secured through the development management process. This is especially the case given the Government’s recent changes to housing delivery targets and requirements which may mean that neighbouring authorities are required to reconsider the level of growth they are allocating within emerging development plans. However it is acknowledged that this remains an unknown at this point. The ‘Worst Case’ scenario is intended to show a scenario where the SDC LPR is the sole source of local funding and there is no reliance on funding from development in other local authority areas.

4. Strategic Funding Case

4.1 Introduction

- 4.1.1 This section of the report articulates the strategic rationale for the funding of the M5 junction schemes, i.e. they are not just to deliver the LPR, but are critical regional infrastructure investment. This “strategic case” will be used to build support from key stakeholders and align parties on the strategic case for the scheme as well as forming the basis of an approach to the Central Government to achieve the necessary funding.
- 4.1.2 The strategic case has three aspects as outlined below and discussed in the following sections. These share a number of interconnected themes which together are considered to present a clear rationale for funding the improvements to M5 J12 and J14.
- The Case for Housing Delivery
 - The Case for Western Gateway
 - The Case for National Highways
- 4.1.3 A summary of the strategic funding case is provided at **Figure 4-1**.

Figure 4-1: Summary of Strategic Funding Case



4.2 The Case for Housing Delivery

- 4.2.1 The M5 junction improvements are essential for housing delivery in Stroud District, but also for other Local Authorities across Gloucestershire and the West of England. The improvements are also essential to accommodate additional growth beyond current plan periods.
- 4.2.2 The newly elected Government has been clear that increased housing delivery is key to achieving improved levels of economic growth, and is targeting the construction of 1.5 million new homes nationally over the next five years. Strategic mitigation at M5 J12 and J14 is therefore also required to unlock additional housing in Stroud and the wider region beyond current forecasts.

Housing Delivery in Stroud District

- 4.2.3 The SDC LPR is seeking the delivery of at least 12,600 dwellings and 79 hectares of employment to meet the needs of the district up to 2040. The evidence submitted for the SDC LPR demonstrates that strategic intervention is required at M5 J12 and J14 to accommodate this level of housing and employment growth across the region.

Housing Delivery in Neighbouring Local Authority Areas

- 4.2.4 In addition to accommodating housing delivery through the SDC LPR, improvements to the junction will also unlock housing delivery for neighbouring and regional local authorities. The strategic modelling for the SDC LPR confirms that approximately 66% of the impact at J12 and 85% of the impact at J14 will be from growth outside of the District.
- 4.2.5 The SDC LPR has come forward ahead of strategic plans for authorities to the north and south of the district, and as such has been required to consider the mitigation requirements for the M5 junctions. However, in practice, it is likely that growth and development from across the region will impact on the operation of these junctions and therefore rely on the strategic mitigation to unlock housing growth.
- 4.2.6 Growth to the north of Stroud is being planned through the Gloucester, Cheltenham, Tewkesbury (GCT) Strategic and Local Plan which will be a strategic planning document between the respective LPAs. This remains in the early stages of development with very little certainty about the scale and location of future housing delivery. However given the strategic location of M5 J12, especially in relation to historic growth areas to the south of Gloucester, it is likely that future allocations would have a material impact on M5 J12 and the surrounding highway network.
- 4.2.7 Growth to the south of Stroud is being planned directly by SGC. There has been a prolonged process of establishing a strategic plan for growth for South Gloucestershire, owing to the abandoning of the West of England JSP in 2020 and SDS in 2022. Since then, SGC has progressed its own Local Plan which is currently at a Regulation 18 stage.
- 4.2.8 SGC has been consulted with respect to the improvements for M5 J14, however communications from SGC to date with respect to the development of the SGC New Local Plan have confirmed that it is not currently looking to allocate development which will impact on M5 J14, and as such will not be looking to secure improvements to the motorway junction. Whilst this has been the standing advice from SGC, it is possible that in practice, the scale, nature and location of their planned growth could result in additional highway impacts at M5 J14. The opportunity for this to be the case has been increased through the draft revised housing targets promoted by the Central Government (discussed below). It should also be noted that M5 J14 falls within the South Gloucestershire Unitary Authority Area.

Revised Housing Targets and Delivery

- 4.2.9 To achieve its targets for the delivery of 1.5 million new homes over the next five years, the Government has proposed reforms to the planning system. This comprises reintroduction of mandatory Local Authority housing targets, and reform to those targets to reflect the scale of housing delivery required at a local level to meet the national target. These changes are currently being consulted on through revisions to the National Planning Policy Framework (NPPF).

- 4.2.10 The current, revised and difference in identified housing requirements for various Local Authorities across the region are summarised in **Table 4-1**.

Table 4-1: Regional Housing Requirements

Local Authority	Target (per year)			Target (Five Years)		
	Current	Revised	Difference	Current	Revised	Difference
South West ¹	28,203	40,343	+12,140	141,015	201,715	+60,700
Stroud	620	844	+224	3,100	4,220	+1,120
South Glos.	1,317	1,717	+400	6,585	8,585	+2,000
Bristol	3,378	3,057	-321	16,890	15,285	-1,605
B&NES	717	1,466	+749	3,585	7,330	+3,745
Gloucester	663	732	+69	3,315	3,660	+345
Cheltenham	545	833	+288	2,725	4,165	+1,440
Tewkesbury	544	635	+91	2,720	3,175	+455
Cotswold	504	979	+475	2,520	4,895	+2,375
Forest of Dean	330	597	+267	1,650	2,985	+1,335

Notes: 1) South West includes all Local Authorities within South West England, including the Local Authorities listed elsewhere in the table.

- 4.2.11 This shows that significantly higher levels of housing delivery are now to be sought across the South West. SDC would be required to deliver 244 additional dwellings per year over the current housing requirement for the LPR. This equates to 1,120 dwellings over the next five years or 4,880 dwellings over the existing plan period to 2040. This is around a 35% increase above the “current” requirements which have been used to inform strategic planning to date. Combined, the other Local Authorities in the M5 Transport Working Group (i.e. South Gloucestershire, Gloucester, Cheltenham and Tewkesbury) are required to deliver of just over 1,000 additional dwellings per year, equating to an additional 5,500 homes over the next five years. This is nearly a 30% increase above the “current” requirement which have been used to inform strategic planning to date.

- 4.2.12 As discussed earlier in this TN, M5 J12 and J14 are a significant barrier to the delivery of housing within SDC and neighbouring authorities, with NH likely to raise holding objections to any planning applications coming forward with an impact at these locations. The proposed increase in housing need by 30-40% over the “current” requirements will accentuate and exacerbate the impact of this barrier to local housing delivery unless strategic mitigation can be delivered.

4.3 The Case for Western Gateway

- 4.3.1 Improvements to M5 J12 and J14 will be an opportunity to maximise the benefits being promoted through Western Gateway, including the Severn Edge clean energy park proposals. The Western Gateway proposals and remit includes emphasis on interconnectivity across the Western Gateway region, in addition to the wider UK, and maintenance of suitable highway connections are key to ensuring success in this area.

Western Gateway

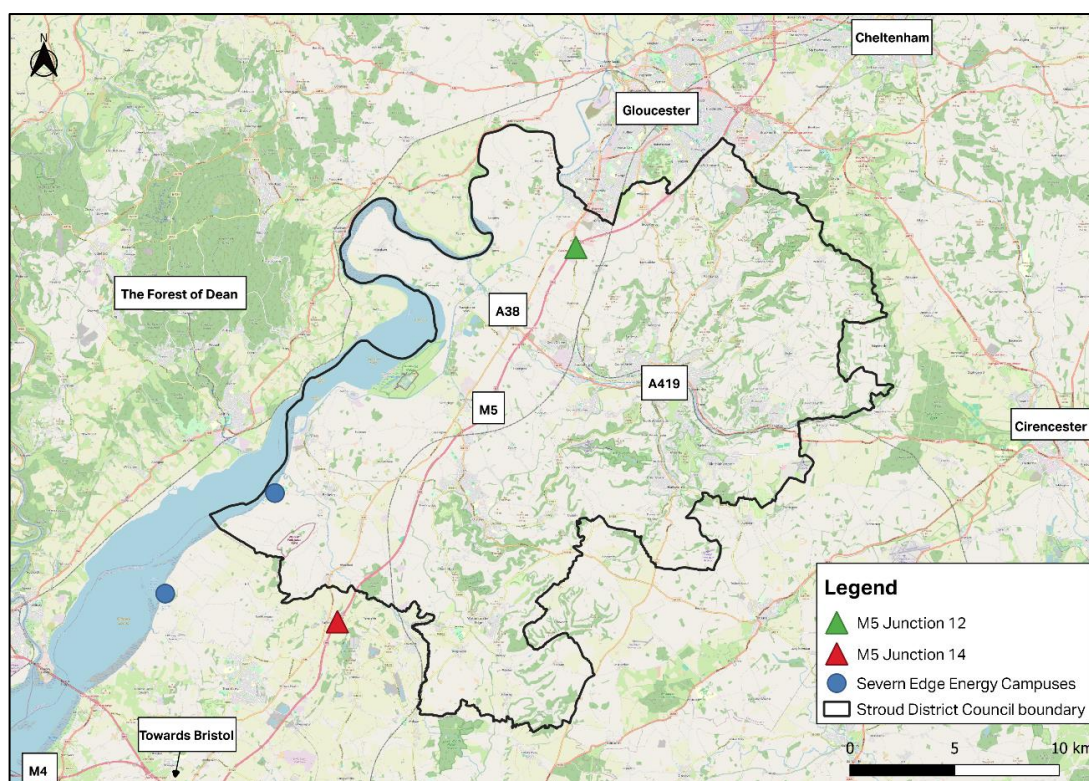
- 4.3.2 Western Gateway is a pan-regional partnership between the West of England and the South Wales which is seeking to develop the UK’s efforts to reach net zero whilst also providing opportunities for levelling up within the combined regions. Western Gateway works in partnership with Local Authorities, City Regions, Combined Authorities, Local Enterprise Partnerships and with national governments across a number of workstreams, including:

- **Promotion of Net Zero** – the Western Gateway has significant natural assets in solar, tidal, marine, and wind; and leading capabilities in hydrogen, nuclear and industrial decarbonisation. Western Gateway is seeking to capitalise on these strengths to lead on the delivery of new, clean, and renewable energy solutions to help decarbonise the economy.
- **Supporting Innovation** – Western Gateway is seeking to connect the area’s historic innovation in engineering, creative industries, digital connectivity and data solutions to create a “super-cluster” of innovation with the scale to compete globally.
- **Connecting Communities** - There is opportunity across South Wales and West of England to transform public transport, including rail connectivity by improving journeys to London, Birmingham, South West and beyond.
- **Investment** – Western Gateway is seeking to drive investment across the area, developing a coordinated approach to promoting the strengths and assets of the region to key international markets. The aim is to bring investment to the West of England and South Wales up to alignment with the UK average.

Severn Edge Proposals

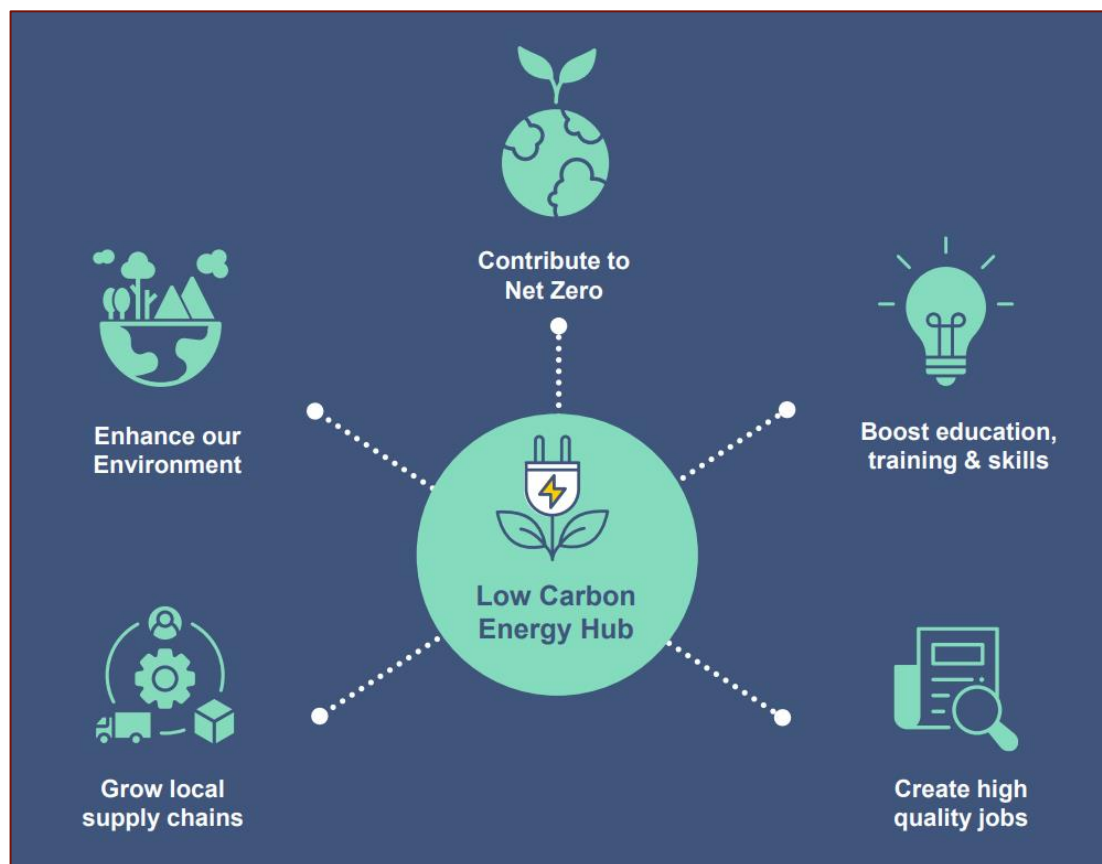
- 4.3.3 Severn Edge is promoted by Western Gateway as a Low Carbon Energy Park / Hub based at the site of two decommissioned nuclear power plants at Oldbury-on-Severn and Berkeley. The locations of these sites are shown in **Figure 4-2**. The development of a combined “energy campus” would contribute to the growing clean energy sector in the UK whilst supporting the local economy, boosting skillsets, increasing job opportunities and levelling up areas of need.

Figure 4-2: Location of Seven Edge Proposals and Surrounding Context



4.3.4 The vision for Severn Edge is illustrated in **Figure 4-3**.

Figure 4-3: Vision for Severn Edge “Low Carbon Energy Hub”



4.3.5 The Severn Edge opportunity aims to:

- **Create a low carbon energy hub** – through the delivery of a high-quality, green campus. The site at Oldbury on Severn can provide up to 150ha of land designated for nuclear development, which benefits from existing assets and grid infrastructure. The site at Berkeley, including the University Technical College for engineering and cyber industry education, with Research & Development facilities to support low-carbon and renewable energy technology.
- **Provide economic opportunities** – by supporting low carbon and energy developments and growing supply chains that drive up the local economy. The area will export opportunities arising from the development across the region.
- **Boost STEM Skills** – by developing skills infrastructure that will help drive a wider Western Gateway Low Carbon Energy Super Cluster whilst also providing new opportunities for local communities.
- **Level up areas of need** - disadvantaged communities exist across Forest of Dean, South Wales, Gloucestershire, South Gloucestershire and Somerset that would benefit from a transformational opportunity at Severn Edge.

4.3.6 Providing suitable accessibility to / from the Severn Edge campuses will be key to achieving the education and economic co-benefits of the energy proposals. High levels of connectivity are required to enable residents to access employment and education opportunities which are being provided, including to / from the more disadvantaged areas within the region. Whilst promoting low-carbon and sustainable transport modes accessible to Severn Edge remains paramount, the reality is that owing to its location and operational needs, highway access is critical to achieving suitable connectivity to Severn Edge. This includes maintaining suitable connections to the M5 given its role in inter-connecting the Western Gateway (i.e. to / from the West of England and to / from South Wales via the M4 / M48, and to / from via the M5), as well as with the wider UK via the SRN.

- 4.3.7 The Severn Edge campus has been prioritised by Rolls Royce as potential sites for the development of a new Small Modular Nuclear Reactors (SMR) facility. Oldbury has been short-listed alongside three other sites, and Berkeley has been selected as a potential location pending further investigations. Conversations are ongoing with other potential investors and developers of the energy infrastructure at this location. Ensuring suitable highway connections will further the strong case presented by Severn Edge to draw in further and future investment in green energy solutions.
- 4.3.8 There is a significant risk that the operational capacity and safety of the J14 could become a limiting factor on realising the full potential of the Severn Edge proposals. This could be in terms of achieving safe and suitable access for construction and operational staff, as well as in terms of avoiding a residual cumulative severe impact, which could become a limiting factor in planning terms.

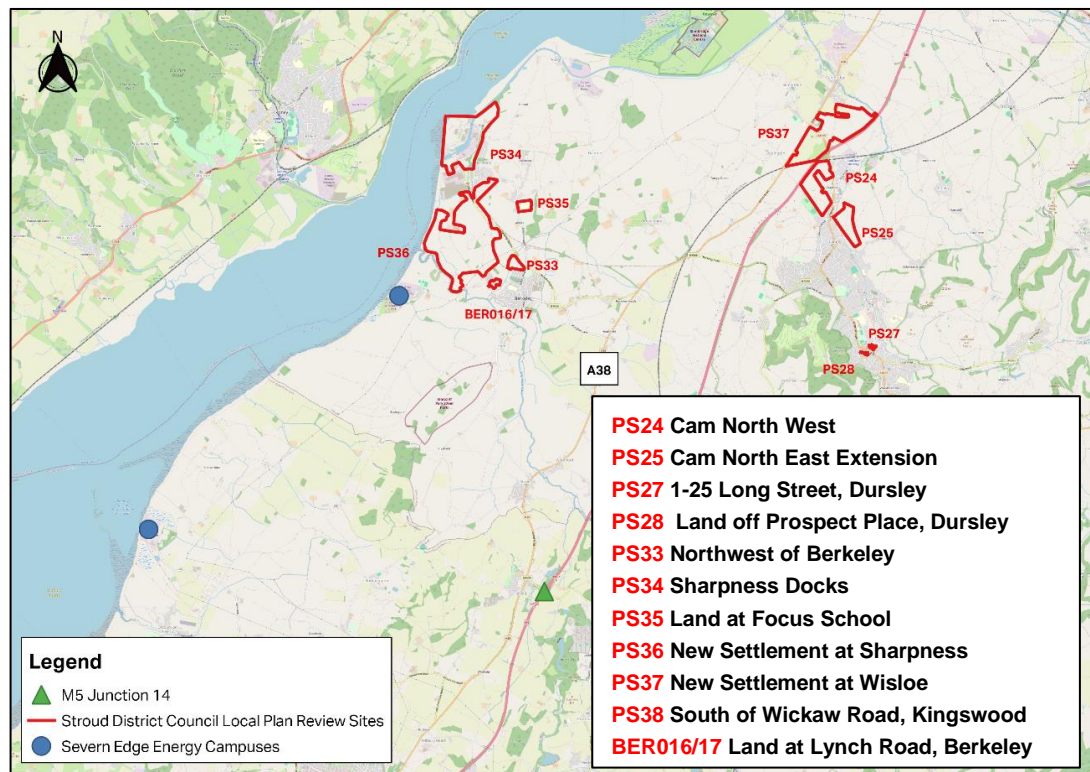
Wider Connections

- 4.3.9 Ensuring suitable strategic highway capability to / from The Western Gateway, including the Severn Edge proposals, is important in terms of maximising the opportunities from the wider region, including:
- Hinkley Point C – a new nuclear power plant under construction near Bridgwater in Somerset. There will be key synergies between the existing operations used to plan, manage, construct and operate HPC and the new nuclear facilities planned at Severn Edge. Strategic highway access between these locations will be via the M5.
 - Gravity Smart Campus – a new commercial development in Bridgwater. It is a large-scale development project aimed at creating a hub for advanced manufacturing, technology, and innovation. The 616-acre site is being transformed into a sustainable, mixed-use campus designed to attract global companies and foster innovation in industries such as clean energy, smart technology, and mobility. Strategic highway access between Western Gateway and the Gravity Smart Campus will be via the M5.
- 4.3.10 It is also important to securing suitable highway connections to east-west M4 corridor, including to / from growth and economic opportunities in South Wales as part of the wider Western Gateway region.
- 4.3.11 Ensuring suitable highway connections between Western Gateway and the M5, including at M5 J12 and J14 will ensure that the opportunities across the region will be maximised. In addition to planning risks, and operational access constraints, capacity issues at either of those junctions have the potential to have a knock-on impact on the mainline. Capacity issues at junctions will result in queues on slip roads, and interaction with the mainline. This can create delay on the mainline, and presents additional safety risks. This can affect the smooth operation of the M5 as a whole.

Link with Stroud Local Plan

- 4.3.12 The Western Gateway proposals, including the considerations for Severn Edge, link closely to the development proposed within the SDC LPR. As shown in **Figure 4-4**, the LPR includes a number of site allocations in close proximity to the Severn Edge campus.

Figure 4-4: Location of Stroud Local Plan Sites and Severn Edge Proposals



- 4.3.13 This includes the New Settlement at Sharpness (PS36) and Sharpness Docks (PS34) which combined are promoted for 2,700 dwellings and 17ha of employment. There are also a number of smaller housing allocations in and around the village of Berkeley. The Severn Edge and LPR allocations have the opportunity to provide a joined-up approach, connecting the delivery of housing to the clean energy proposals at Severn Edge, with the associated employment allocations potentially contributing to the wider aims of Western Gateway to provide economic growth in the region through the creation of a “Green Energy Super Cluster”.
- 4.3.14 Whilst sustainable transport opportunities between Seven Edge and the LPR sites should be the priority, it should be recognised that the full delivery of both strategic sites at Sharpness relies on the delivery of improvements at M5 J14 and as such the benefits and opportunities afforded through the Seven Edge proposals would not be maximised if the improvements do not come ahead.
- 4.3.15 There are also other sites allocated within the LPR which have the opportunity to contribute to the “Super Cluster” in terms of linking housing and employment growth with the Seven Edge scheme, including the strategic new settlement at Wisloe (PS37) and the Cam North West sites (PS24 and PS25), as shown in **Figure 4-4**. Connectivity between these sites and Severn Edge (as well as the employment / housing at the sites in Berkeley) will be important, and it is likely that suitable connections through M5 J14 will need to be secured to maximise the potential of the region.

4.4 The Case for National Highways

- 4.4.1 Improvements to M5 J12 and J14 align with the requirements and aspirations of NH Route Strategies. The NH Route Strategies are a rolling programme which set out the plan for the SRN. They are a key research element underpinning the Road Investment Strategy (RIS), which informs the process of future road investment. Further information is available from NH’s website¹.

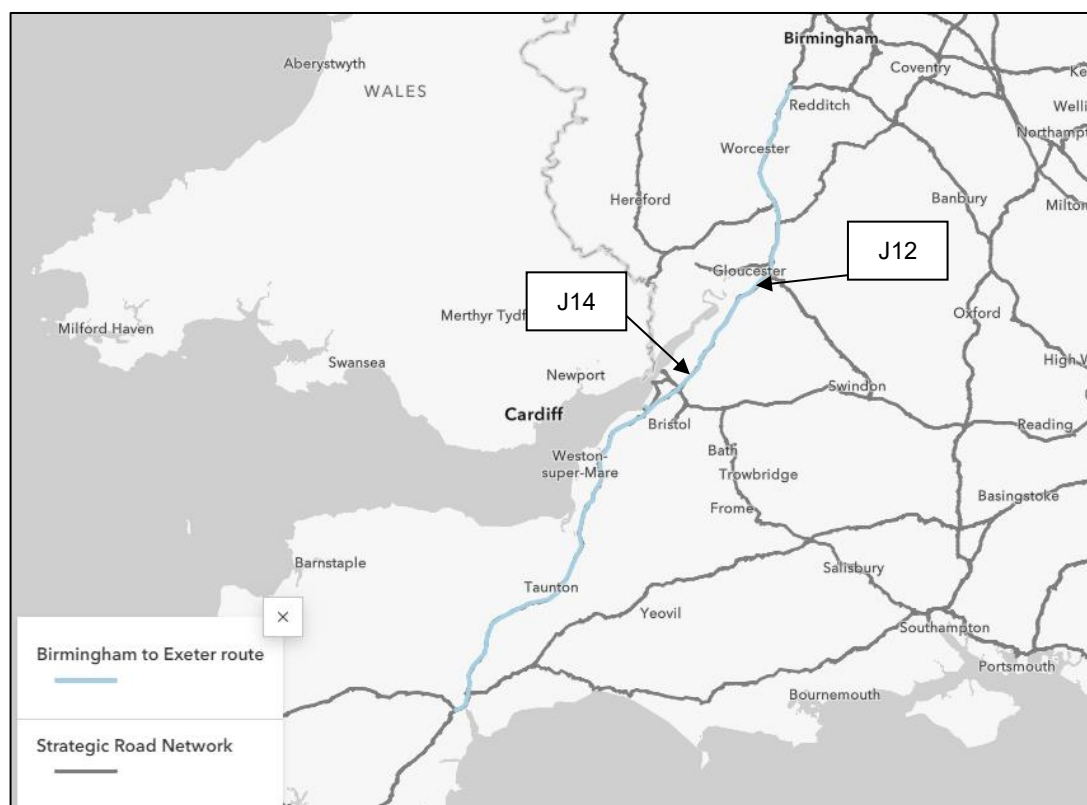
¹ <https://nationalhighways.co.uk/our-roads/our-route-strategies/>

Birmingham to Exeter Route Strategy

4.4.2 M5 J12 and J14 fall within the Route Strategy for “Birmingham to Exeter”. This Route is a key north-south link on the SRN connecting the West Midlands to the South West via the West of England via the M5 motorway, intersecting east to west routes into Wales, the East Midlands and the South East notably the M4 to the north of Bristol. The route passes a number of towns and cities, including Worcester, Tewkesbury, Cheltenham, Gloucester, Bristol, Weston-super-Mare, Bridgwater, Taunton and Exeter. The route is popular for access to the South West for tourism and leisure and experiences increased demand during summer periods.

4.4.3 The extent of the route alongside the context of the wider SRN network is shown in **Figure 4-5**.

Figure 4-5: Extent of Birmingham to Exeter Route Strategy



Source: National Highways

4.4.4 The Route Strategy for Birmingham to Exeter outlines a number of key challenges, aligned with the DfT's six objectives for the SRN:

- Improving safety for all;
- Network performance;
- Improved environmental outcomes;
- Growing the economy;
- Managing and planning the SRN for the future; and
- A technology-enabled network.

4.4.5 The proposed improvements to M5 J12 and J14 align with these objectives, and will help NH to face some of the challenges which are highlighted within the Route Strategy.

- 4.4.6 For example, in relation to highway safety, the Route Strategy states that “long slip road queues can also form at a number of junctions, which can extend onto the mainline under peak traffic demand”. The studies into the future capacity of the J12 and J14, undertaken by both SDC and NH, confirm that both junctions would be expected to experience increased queues which will extend onto the mainline as a result of growth on the network. The proposed improvements give the opportunity to comprehensively address this issue at these locations.
- 4.4.7 In relation to network performance, the Route Strategy states that “route performance is likely to be impacted by increases in traffic flow demands, population and housing growth”. The proposed improvements to J12 and J14 will increase capacity to ensure suitable network performance in light of the growth in housing and employment which will occur in the region over the coming years.
- 4.4.8 In relation to growing the economy, the Route Strategy states that “realising the economic potential of planned development will in part rely on the provision of continued safe and efficient access from the route”. The improvements to J12 and J14 are key to enabling economic growth in SDC and neighbouring authorities, both in terms of unlocking housing and employment opportunities but also in terms of ensuring ongoing SRN performance in an efficient and safe manner.

Route-Based Objectives

- 4.4.9 Each Route Strategy includes a series of specific route-based objectives. The route-based objectives for the Birmingham to Exeter Route Strategy are as follows:
- Objective A: Maintain the strategic north – south function;
 - Objective B: Facilitate east – west connectivity;
 - Objective C: Supporting connections to International Gateways;
 - Objective D: Supporting regionally significant and sustainable economic development and housing delivery;
 - Objective E: Improving resilience to seasonal demands;
 - Objective F: Support local connections and interchange; and
 - Objective G: Be a better neighbour
- 4.4.10 The proposed improvements at M5 J12 and J14 are strongly aligned with the aspirations and desired outcomes of Objective D. NH’s desired outcomes from this Objective are the:
- Provision of safe and efficient access to strategic development sites;
 - Contribution to levelling up agenda and regional growth through connectivity improvements; and
 - Delivery of sustainable development to limit car-based travel and promote public transport use.
- 4.4.11 The schemes are proposed directly to enable the delivery of housing and employment within Stroud District, in addition to benefiting growth planned regionally including within neighbouring authority areas. The need for the improvements is exacerbated by the revised housing requirements being promoted by the Central Government to achieve the delivery of over 60,000 additional dwellings in the South West over the next five years, totalling c.200,000 new homes in five years. The junction improvements will unlock highway capacity to remove this constraint on development and accommodate increased traffic demand. This in turn will mean reduction in journey times and queues, enabling a more “efficient” operation of the junctions. This will also reduce the likelihood of off slip road queues reaching back to the mainline and blocking the mainline carriageway, which is a key highway safety consideration for NH. The improvements will therefore also ensure the “safety” of the SRN at these locations.

- 4.4.12 The delivery of highway improvements at J12 and J14 will deliver capacity for vehicle-based transport, and this remains an important consideration in terms of highway safety. The schemes will also promote active travel and public transport benefits, in terms of reducing severance and enabling more efficient public transport movements through the junctions as required. Notably however, the schemes are required to fully deliver the SDC LPR which includes a number of sustainable transport interventions across the district as outlined in the Sustainable Transport Strategy (STS) which is submitted as part of the evidence based for the SDC LPR. The sustainable transport improvements are not necessarily centred around J12, J14 or the M5 in general, however the improvements will be at locations where there is genuine opportunity for the uptake of sustainable modes, or example at specific development sites and key corridors connecting neighbourhoods within the district. Therefore, the improvements to J12 and J14 will help to deliver “sustainable development to limited car-based travel and promote public transport use” across the region.
- 4.4.13 Furthermore, the improvements to M5 J12 and J14 also align with the other Route Strategy Objectives, including:
- Objective A - The improvements unlock highway capacity at J12 and J14 which will reduce delays and queues when connecting to / from the SRN.
 - Objective C - Whilst these enhancements are not in the vicinity of the named international gateways along the M5 corridor, these will still enhance access to the SRN at the respective locations which forms part of the access route to international gateways from the neighbouring areas, including from the residential and employment growth areas planned through the SDC LPR, Western Gateway etc.
 - Objective F - The improvements will enable improved connectivity (through reduced journey time delays) to the A38 which acts as a local distributor roads across Stroud District. As such, the schemes will improve local connections for shorter distance journeys in the place of trips on the SRN.
- 4.4.14 Ultimately, the Route Strategy Objectives present a clear direction for investment and improvement in the M5 corridor in future, although SDC consider that the current way in which NH have focused resources omits these key locations. Improvements at M5 J12 and J14 are not currently referenced within the Route Strategy as locations which would need to be improved in terms of areas of identified congestion and delay. However, SDC consider that there is a strong case for these schemes to be included in the Route Strategy on the basis of the strong alignment with Objective D as well as contributing to the desired outcomes of Objectives A, C and F. The Route Strategy makes it clear that whilst these objectives provide a steer to investment and development along each route, NH will continue to provide ongoing commitments to ongoing management of the network, including in relation to safety. The improvements to J12 and J14 are important in terms of securing ongoing future safety of the SRN.

5. Summary and Conclusions

5.1 Summary

5.1.1 AECOM is appointed by Stroud District Council (SDC) to provide technical transport and development planning advice in relation to its Local Plan Review (LPR). The LPR has been submitted to the Planning Inspectorate (PINS) for Examination in Public (EiP) and is currently subject to a pause to enable SDC to provide further evidence as to the prospect of securing capacity improvements for M5 Junction 12 (J12) and Junction 14 (J14).

5.1.2 This report has been produced to outline the funding strategy for the M5 junction improvements. It is currently envisaged that the improvement schemes would be the subject of a funding approach to Central Government, and that circa 15% of the funding would be generated from via local development contributions.

The Need for Improvements

5.1.3 The need for improvements to J12 and J14 has been evidenced through the Gloucester County Council (GCC) Local Transport Plan (2021-2040), in addition to a variety of studies, including the evidence for the LPR and modelling undertaken by NH, especially with respect to local traffic growth. This confirms that improvements to the junctions will be needed to accommodate background growth up to 2040, let alone when accounting for growth within Stroud and neighbouring authority areas. Some housing may be deliverable in the vicinity of the junctions through the implementation of piecemeal interventions; however, it is clear that strategic and large-scale mitigation (i.e. grade-separated roundabout junctions) will be required in the near future to unlock capacity and ensure the suitable operation of the junctions into the future.

Proposed Improvements and Costs

5.1.4 Preliminary scheme designs for grade-separated roundabouts at both M5 J12 and J14 have been produced on behalf of GCC and SDC respectively. These have been produced to provide confidence to the relevant highway authorities that a suitable scheme can be provided, and also to inform onward scheme costing. Separate reports in relation to the design optioneering and costing of the schemes are submitted alongside this report as evidence for the LPR EiP.

5.1.5 Costs associated with the improvement schemes have been prepared, equating to between £90 million to £150 million for J12 and between £100 million to £120 million for J14. A range of costs is provided to show the potential scale of investment required. It should be noted that there are two potential options for J12, hence the greater range of potential cost identified.

Funding from Local Contributions

5.1.6 It is envisioned that c.15% of the M5 junction scheme costs will need to be secured from local development. The methodology for apportionment of this contribution amongst local development within Stroud District and its neighbouring authority areas has been considered within the Funding and Delivery (F&D) plan submitted as evidence to the LPR. Agreement on the calculations used in the F&D Plan was not possible with the members of the TWG owing to external factors, specifically uncertainty on Development Plans in neighbouring authorities.

5.1.7 The F&D methodology remains the most mathematically sound way to allocate funding proportions within SDC and external parties, however it has been updated to address these specific concerns. The 5% sifting threshold has been removed, and there has been some rationalisation of the calculation to reflect the passage of time and more recent data sources.

- 5.1.8 To address concerns regarding the uncertainty surrounding neighbouring authority development plans, a range of funding scenarios are presented. This includes the “Core Scenario” which is the output of the updated F&D Plan which retains a level of funding allocation from neighbouring authorities. This also includes a “Worst-Case Scenario” which assumes that all of the contribution from local development will originate from SDC LPR allocations. This scenario is to be progressed for onward viability testing, in order to ensure that there is no reliance on contributions from other Local Authority areas. However in practice, it is considered more than likely that some funding would be attributable to growth within these local authority areas (i.e. as per the ‘Core’ scenario).

Strategic Funding Case

- 5.1.9 There is a clear case to be made regarding the delivery of improvements at M5 J12 and J14 owing to the wider benefits which are available based on the unlocking housing and economic growth within the region and alignment with NH objectives for the M5 corridor..

The Case for Housing Delivery

- 5.1.10 The M5 junction improvements are essential for housing delivery in Stroud District, but also for other Local Authorities across Gloucestershire and the West of England. The improvements are also essential to accommodate additional growth beyond current plan periods, especially with consideration for the revised housing requirements being promoted by the Central Government.
- 5.1.11 The improvements are required to deliver housing and employment growth in Stroud District, as outlined in the LPR. Whilst there is opportunity for some dwellings to come forward without impact on J12 and J14, it has been made clear through consultation with NH that there remain fundamental concerns regarding any additional impacts at either junction.
- 5.1.12 The improvements are also likely to be required to deliver housing and economic growth in the surrounding areas, including within the neighbouring authority areas of South Gloucestershire and Gloucester, Cheltenham and Tewkesbury. The Local Development Plans for these authorities are at earlier stages of development than the SDC LPR, and as such there remains uncertainty regarding the extent to which growth in these areas will rely on M5 junction improvements
- 5.1.13 Furthermore, the Central Government is promoting revised housing requirements for all local authorities in England in order to meet a target of delivering 1.5 million additional dwellings over the next five-year period. For Stroud, this means that up to 2040 an additional 4,880 dwellings will need to be constructed, and for the wider area comprising South Gloucestershire, Gloucester, Cheltenham and Tewkesbury, there will need to be an additional 5,500 dwellings up to 2040. This is approximately a 30-40% increase over the “current” housing requirements which will accentuate and exacerbate the impact of this barrier to local housing delivery unless strategic mitigation can be delivered.

The Case for Western Gateway

- 5.1.14 The M5 junction improvements will be an opportunity to maximise the benefits being promoted through Western Gateway, including the Severn Edge clean energy park proposals. The Western Gateway proposals and remit includes emphasis on interconnectivity across the Western Gateway region, in addition to the wider UK, and maintenance of suitable highway connections are key to ensuring success in this area.
- 5.1.15 The Severn Edge proposals are promoted by Western Gateway as a Low Carbon Energy Park / Hub based at the site of two decommissioned nuclear power plants at Oldbury-on-Severn and Berkeley. There is a significant risk that the operational capacity and safety of the J14 could become a limiting factor on realising the full potential of the Severn Edge proposals. This could be in terms of achieving safe and suitable access for construction and operational staff, as well as in terms of avoiding a residual cumulative severe impact, which could become a limiting factor in planning terms.
- 5.1.16 Additionally, there is the opportunity for the Severn Edge proposals to benefit from, and provide benefit to site allocations within the LPR. This includes strategic allocations in the vicinity of the Berkeley site which alongside the Severn Edge proposals would maximise the vision of Western Gateway to create a “Clean Energy Super Cluster”. However the opportunity afforded by the LPR allocations cannot be realised without the improvements to M5 J14, as this is required to deliver the LPR.

- 5.1.17 There are also opportunities for the Seven Edge proposals to tie into wider regional strategic opportunities, including Hinkley Point C and the Gravity Smart Campus in Somerset. Failure to provide sufficient connectivity to the M5 from the Western Gateway area will reduce the effectiveness of any co-benefits between these schemes which would be a loss to the economic growth and productivity of the wider South West Region.

The Case for National Highways

- 5.1.18 Improvements to M5 J12 and J14 align with the DfT's objectives for the SRN as well as the requirements and aspirations of NH's Route Strategy for the M5 corridor between Birmingham and Exeter.
- 5.1.19 In terms of the DfT's objectives, the proposed improvements will reduce the opportunity for safety concerns to arise at the junctions owing to queues blocking back to the M5 mainline carriageway. This is also important in terms of network performance and in terms of growing the economy.
- 5.1.20 In terms of NH's objectives specifically for the Birmingham to Exeter Route, the improvements at M5 J12 and J14 strongly align with the desired outcomes of Objective D which is relation to the provision of safe and efficient access to strategic development and contributing to delivering economic growth and levelling up for the region. The schemes are proposed directly to enable the delivery of housing and employment within Stroud District, in addition to benefiting growth planned regionally including within neighbouring authority areas.

5.2 Conclusions

- 5.2.1 In conclusion, this report has outlined the funding strategy for the improvements required for M5 J12 and J14 to deliver the SDC LPR, in order to demonstrate that the LPR is viable with respect to the required scale of infrastructure delivery.
- 5.2.2 It is envisioned that c.15% of the total scheme costs will be secured through contributions from local development, including those within the SDC LPR. For the purposes of viability testing this has been assumed to originate entirely from within SDC, removing reliance on funding from other Local Authority areas, although in practice there will likely be a contribution from development in wider local authority areas.
- 5.2.3 It is envisioned that the remaining funding requirement will be secured through an approach to the Central Government. There is a clear strategic case for funding the improvements to the M5 junctions:
- Firstly, this will be key to delivering housing growth in line with the Government's targets for economic growth through housing delivery, including via the SDC LPR.
 - Secondly, there are wider opportunities, synergies and connections available between the delivery of the junction improvements and the Western Gateway proposals, including the scheme at Severn Edge. There is a significant risk that the operational capacity and safety of the J14 could become a limiting factor on realising the full potential of the Severn Edge proposals; and
 - Finally, the improvements align with the DfT's and NH's requirements for improvements to the SRN, and notably, the improvements align with Objective D of NH's Route Strategy between Birmingham and Exeter, in relation to the provision of safe and efficient access to strategic development and contributing to delivering economic and levelling up for the region.

Appendix A – Funding and Delivery Case Studies

M55 Junction 2

Location: Near Preston, Lancashire

Scheme Cost: £109m

The M55 was largely constructed in 1975 linking the M6 at Preston with Blackpool. Despite original plans for a motorway junction to the north-west of Preston, this was never constructed and the M55 operated without a Junction 2 for a number of years.



Delivery was led by Lancashire County Council. Works to install the junction, along with an associated link road (the Preston Western Distributor) between M55 and the A583/A584 at Clifton commenced in in 2019 and was completed in the summer of 2023. The motorway junction entailed the construction of a dumbbell arrangement with a single bridge structure over the M55. There are slip roads provided to accommodate all movements at the junction.

Funding for the scheme was secured through the Preston, South Ribble and Lancashire City Deal in 2013. This included an 'Infrastructure Delivery Programme' at £334m to enable the full development of significant commercial development and housing schemes within the region through the delivery of critical infrastructure. This included funding for four major highway schemes, including M55 Junction 2, as well as local community infrastructure, such as schools and health facilities. The entire City Deal was expected to leverage £2.3b of commercial investment through the construction of new development.

The structure of the City Deal involved a cocktail of funding, underwritten by Lancashire County Council – that whilst the funding required was >£300m, at its maximum point there was a spend deficit of ~£100m. This was because of how land receipts from Homes England land (uplift was retained, and total receipts retained for 1-yr) and CIL / planning contributions were profiled against build rate forecasts; and these planned alongside public funding that was committed or likely to be committed. National Highways did contribute, but not as a RIS scheme – more through operational and smaller funding streams to elements that supported the safe operation and introduction of the junction.

The M55 Junction 2 and Preston Western Distributor road scheme specifically enabled 4,000 new homes at North-West Preston, improving access to the Warton site of the Lancashire Enterprise Zone and the Springfield Nuclear Facility at Salwick.

The junction opened in July 2023.

Sources:

https://en.wikipedia.org/wiki/M55_motorway

<https://web.archive.org/web/20170814232924/https://www.preston.gov.uk/businesses/preston-and-lancashire-city-deal/preston-lancashire-city-deal-key-facts/>

<https://www.gov.uk/government/news/preston-city-deal-to-build-new-roads-and-create-thousands-of-jobs-and-homes>

[Preston Western Distributor: Helping people to get around - Lancashire County Council](#)

M11 Junction 7a

Location: Near Harlow, Essex

Scheme Cost: £76m

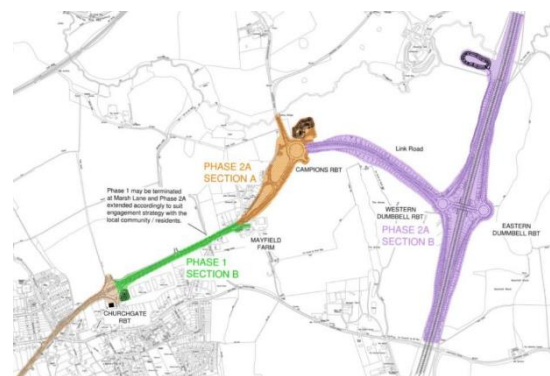
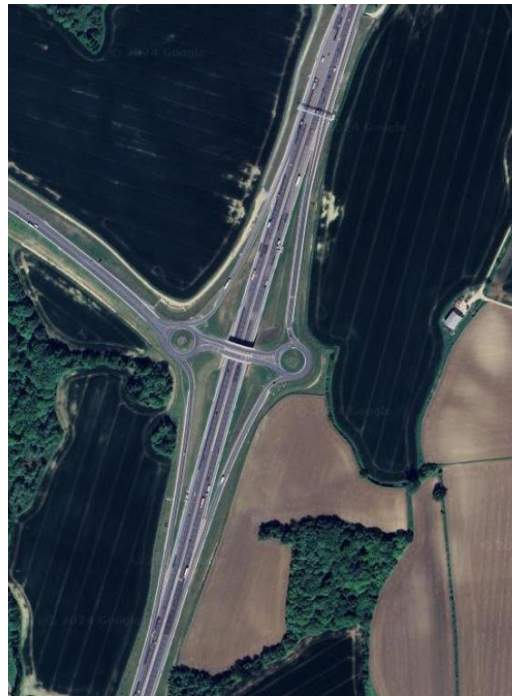
Installation of a new motorway junction at M11 Junction 7a was promoted to remove traffic from capacity constraints on the local highway network by creating a new highway access from the M11 to Harlow. Momentum for the scheme was generated as part of Government's Pinch Point programme, with planning permission being secured in 2017.

The improvements were also promoted to accommodate future growth in the region of up to 15,000 homes. The scheme included a new motorway junction with new bridges over the motorway with associated slip roads in all directions. The wider scheme also widened the B183 Golden Way / Sheering Road and a link road connecting the two. The junction opened in June 2022.

The scheme was funded by Essex County Council and the DfT, outside of RIS programme. National Highways input was required for statutory consenting, standards and network impact.

The funding was raised via a combination of:

- South East Local Enterprise Partnership Local Growth Fund (£5m);
- Highways England / DfT grants (£43.2m); and
- Essex County Council borrowing (£16.5m).



Sources:

[New M11 junction hopes to reduce Harlow congestion - BBC News](https://www.bbc.com/news/transport-58111111)

[New M11 Junction 7A opens to traffic today - Highways News \(highways-news.com\)](https://www.highways-news.com/news/2022/06/01/new-m11-junction-7a-opens-to-traffic-today/)

<https://www.essexhighways.org/m11-junction-7a>

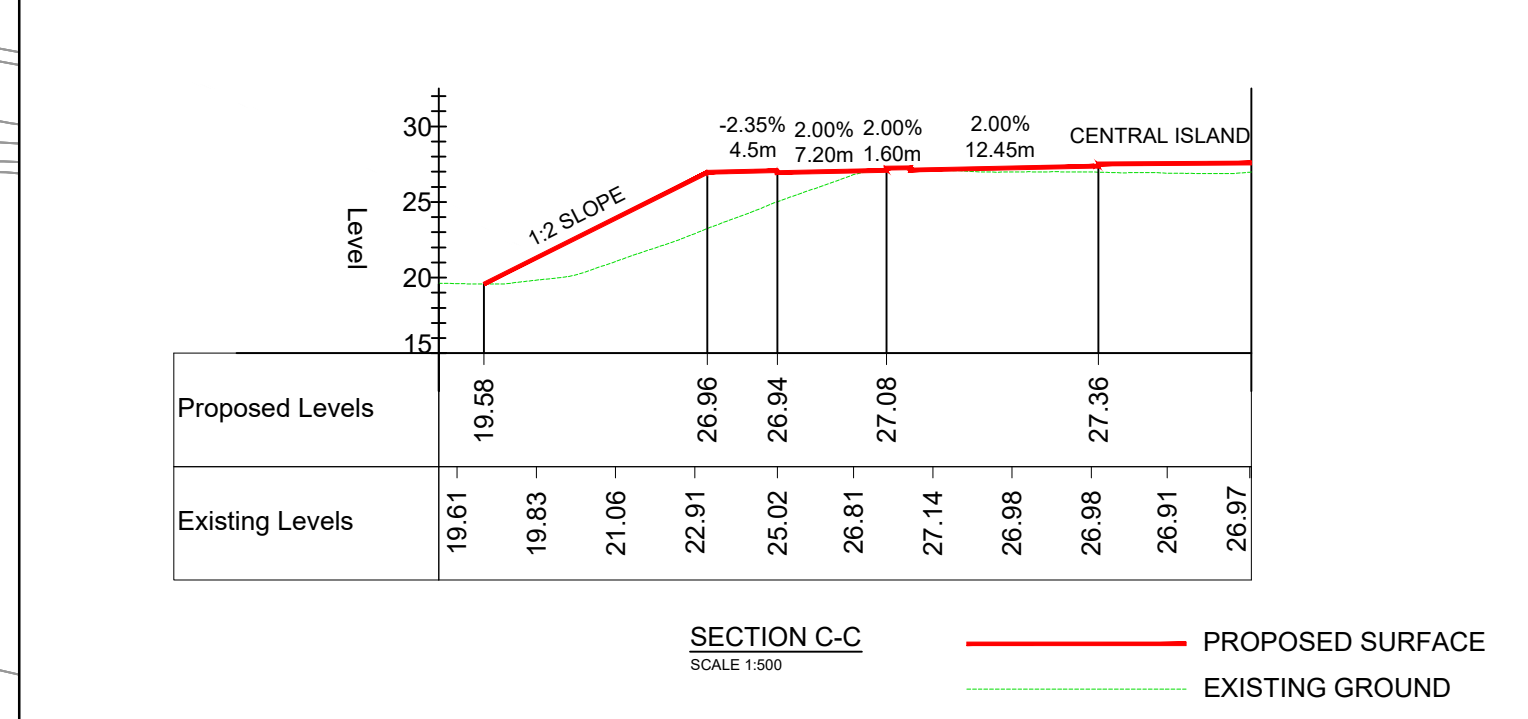
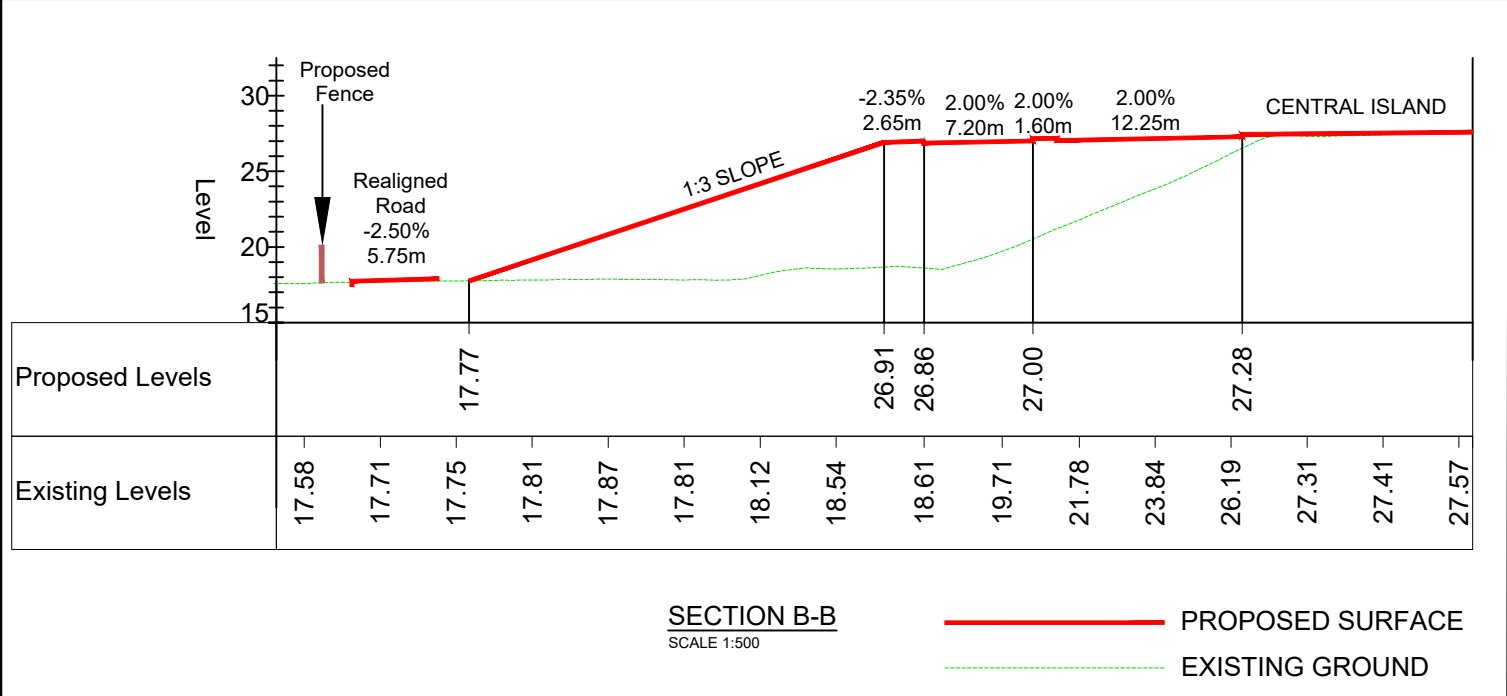
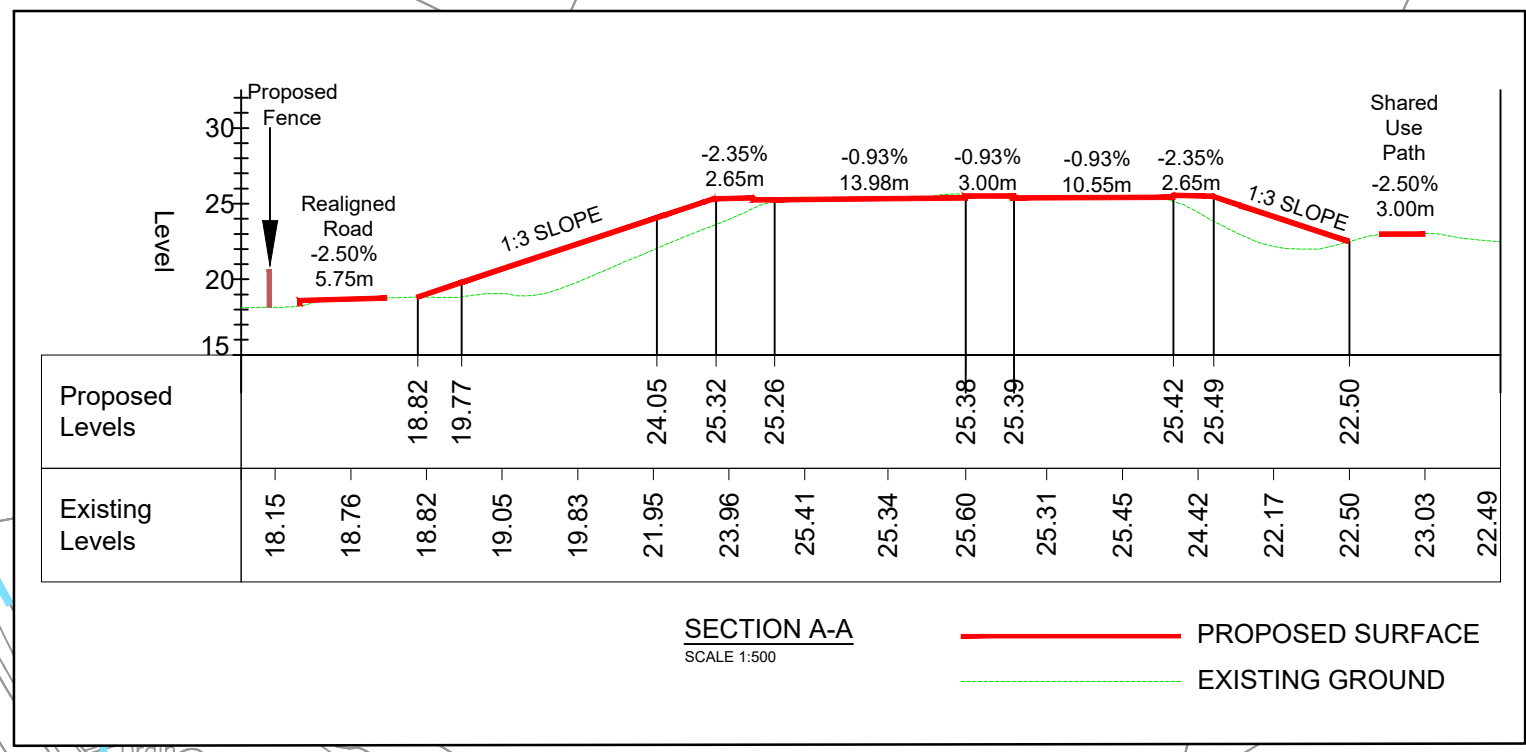
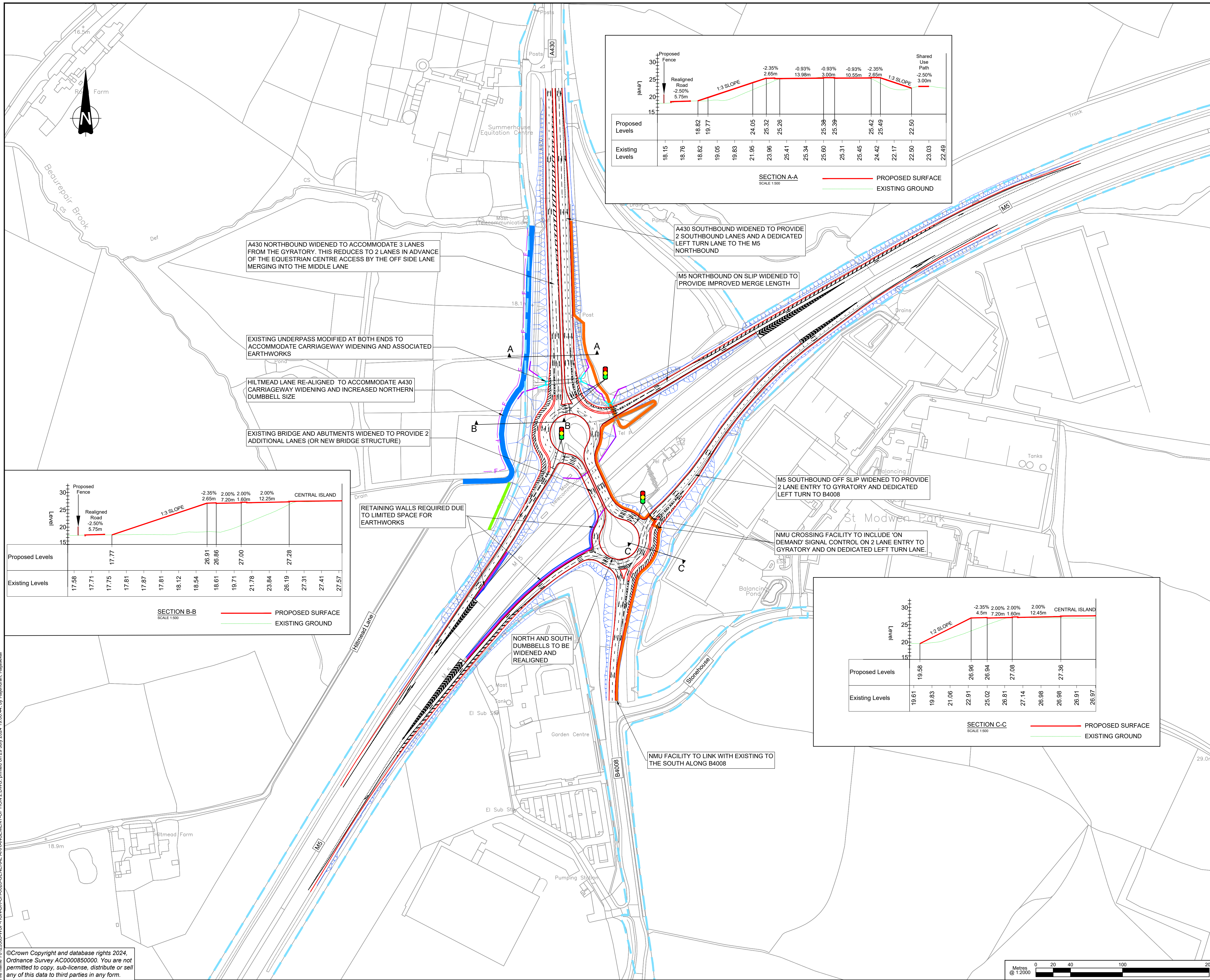
<https://www.yourharlow.com/2019/12/13/cash-shortfall-for-m11-junction-7a-revealed/#:~:text=The%20%2%A371million%20capital%20cost,borrowing%20of%20%2%A316.5million.>

<https://www.highwaysmagazine.co.uk/Funding-secured-for-new-M11-junction/3235>

Common Threads / Points to Consider

- **Lead deliverer.** Both developed by local authorities (County Councils – with track records of infrastructure delivery).
- **SRN performance.** Both were in parts of the network that could accommodate a new junction – in standards terms and in terms of not impacting strategic / wider network performance.
- **Narrative.** In both examples the story behind the need was clear.
- **Certainty.** Funding models and approaches were bespoke, but both required the CCs to act as a 'ringmaster' – key point, as this provides certainty to different parties in the process. Certainty also provides pace for others, especially where land and future uses have competitor developers.
- **Role of NH.** National Highways input largely that of statutory consents and standards, once the principal of the intervention was approved. N.B. the principal of approval occurred around the time National Highways / Highways England was established from Highways Agency – as a government Agency. Structures and governance therefore different than now.
- **Local support.** Worth reviewing and considering, but the local benefit appears to have been recognised politically and within local communities such that there was limited opposition to the proposed interventions – crucial re consents, political change etc.
- **Strategic support.** Whether explicit or relevant in an explainable way, both schemes supported wider sub-national / national economic growth. Major industries like nuclear and companies like BAE Systems stood to be impacted positively.
- **Pace of delivery.** Both delivered well under 10-years after the idea first generates momentum.

Appendix B – General Arrangement of M5 Junction 12 Improvement Scheme Options



- KEY:**
- HIGHWAY BOUNDARY
 - PROPOSED CARRIAGEWAY
 - PROPOSED ROAD MARKINGS
 - PROPOSED RETAINING WALL
 - REALIGNED HILTSMEAD LANE
 - PROPOSED SHARED USE PATH
 - PROPOSED FENCE
 - REALIGNED FARM TRACK
 -
 -
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P01	29/07/2024	GM	FIRST ISSUE	PG	GH

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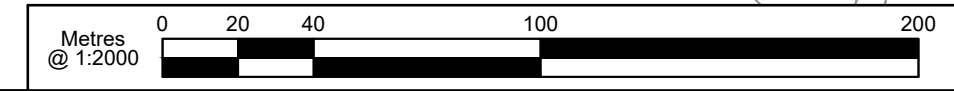
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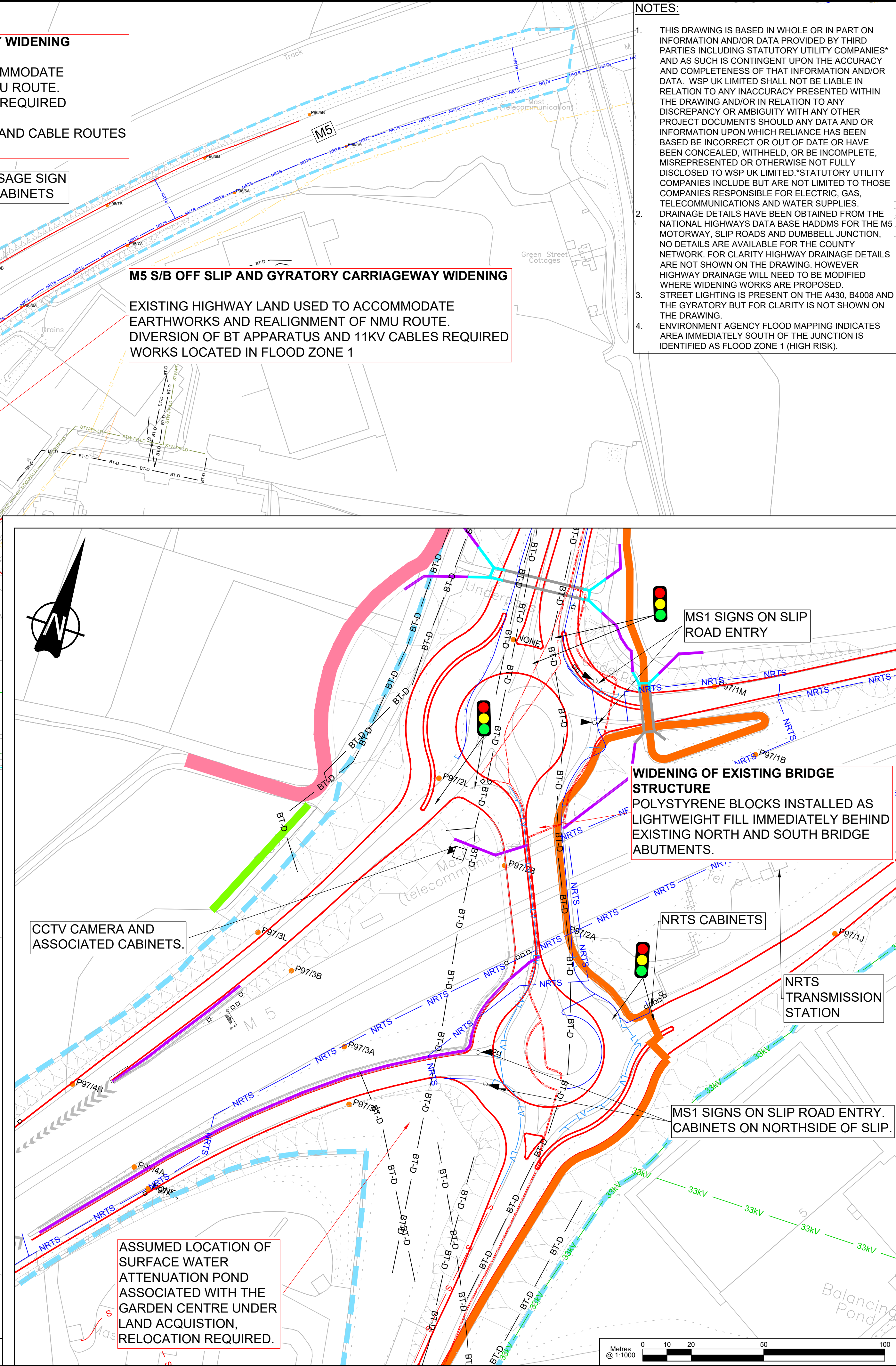
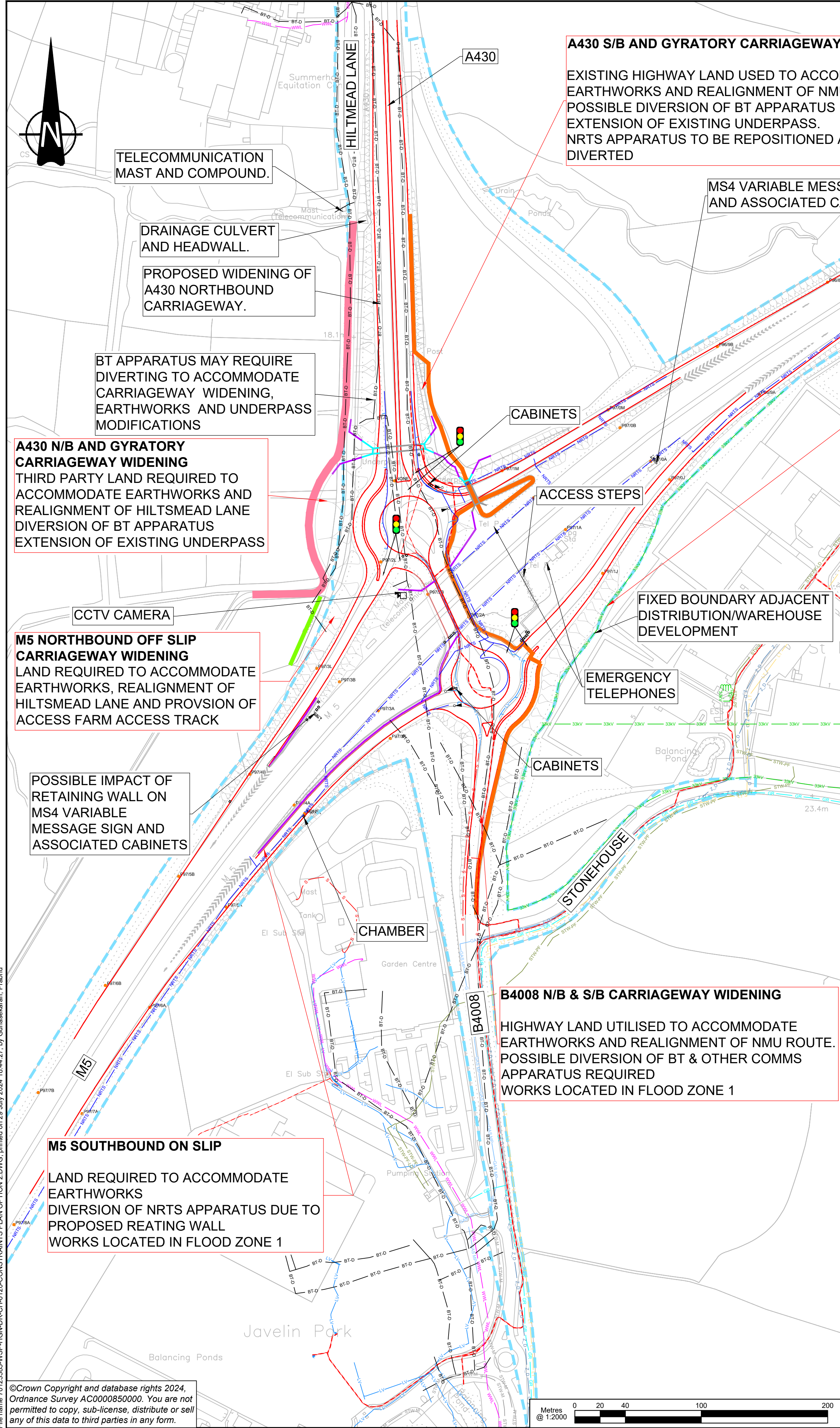
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- ENVIRONMENT AGENCY FLOOD MAPPING INDICATES AREA IMMEDIATELY SOUTH OF THE JUNCTION IS IDENTIFIED AS FLOOD ZONE 1 (HIGH RISK).

KEY:

- BT-D BT DUCT
- P-BT PROPOSED BT NETWORK
- VM-UG-U VIRGIN MEDIA
- VF-TP UNDERGROUND VODAFONE THIRD PARTY
- VF-O UNDERGROUND VODAFONE OWNED
- CF CITY FIBRE
- WWL WALES & WEST LOW
- 11KV 11KV UNDERGROUND
- 33KV 33KV UNDERGROUND
- LV LV
- GR GIGACLEAR ROUTE
- NNU NEOS NETWORK UNDERGROUND
- S SERVICE
- CI-N COIT INFRASTRUCTURE NETWORK
- STW-PF-LD SEVERN-TRENT-PRESSURE FOUL LATERAL DRAIN
- STW-PF SEVERN-TRENT-PRESSURE FOUL
- STW-LD SEVERN-TRENT-LATERAL DRAIN
- STW-M SEVERN-TRENT-WATER MAIN
- GAS MP GAS-MEDIUM PRESSURE
- Z-D ZAYO DUCT
- LT LUMEN TECHNOLOGIES
- NRTS NRTS DUCT
- CCTV CAMERA
- MS4 VARIABLE MESSAGE SIGN
- MS1 SIGN
- CABINETS
- SIGNAL CONTROLLED JUNCTION.
- HIGHWAY BOUNDARY
- PROPOSED CARRIAGEWAY
- PROPOSED ROAD MARKINGS
- PROPOSED RETAINING WALL
- REALIGNED HILTSMEAD LANE
- PROPOSED SHARED USE PATH
- FARM TRACK
- PROPOSED EARTHWORK MARKER POSTS
- XXX ITEMS IDENTIFIED AS SIGNIFICANT CONSTRAINTS

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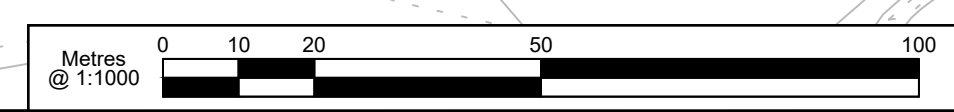
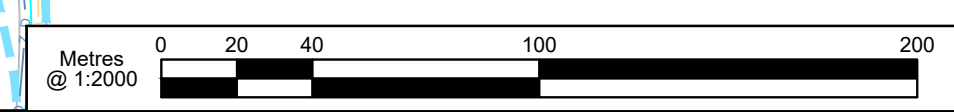
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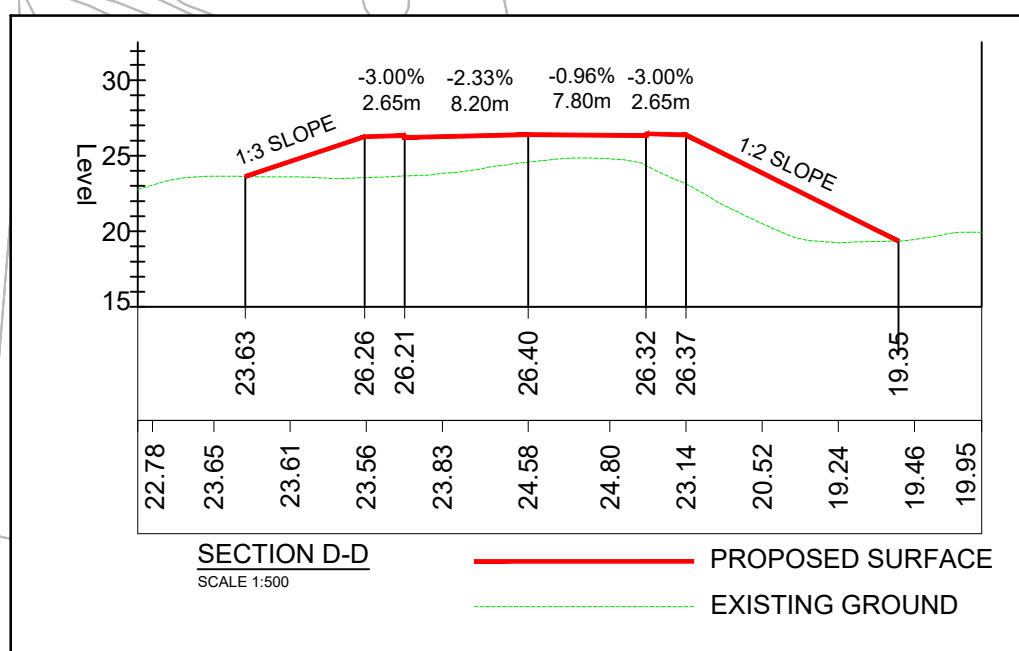
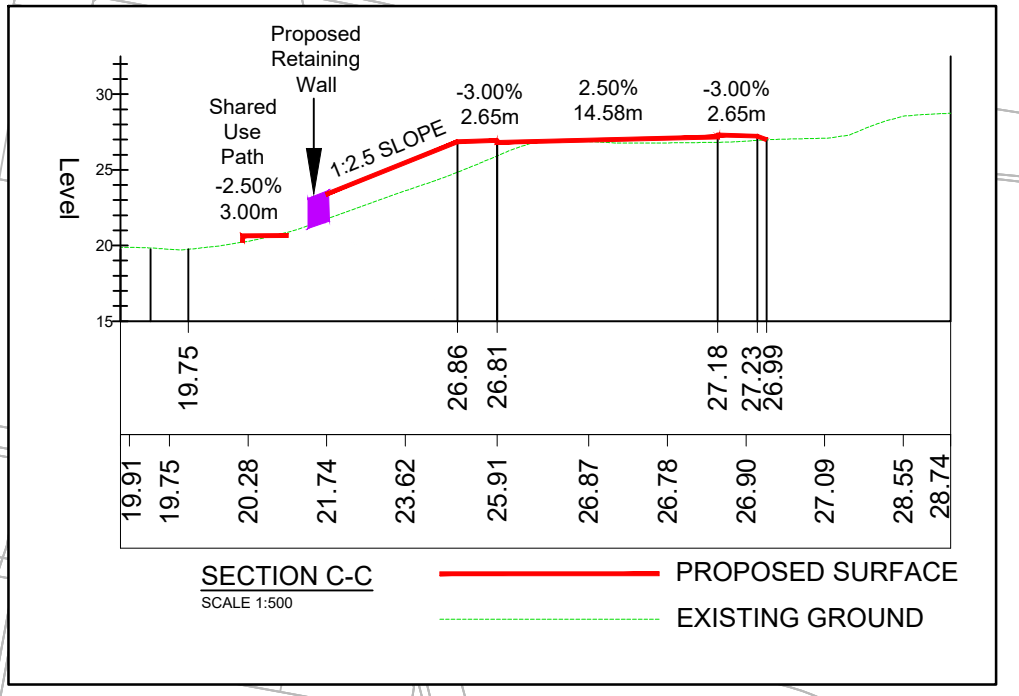
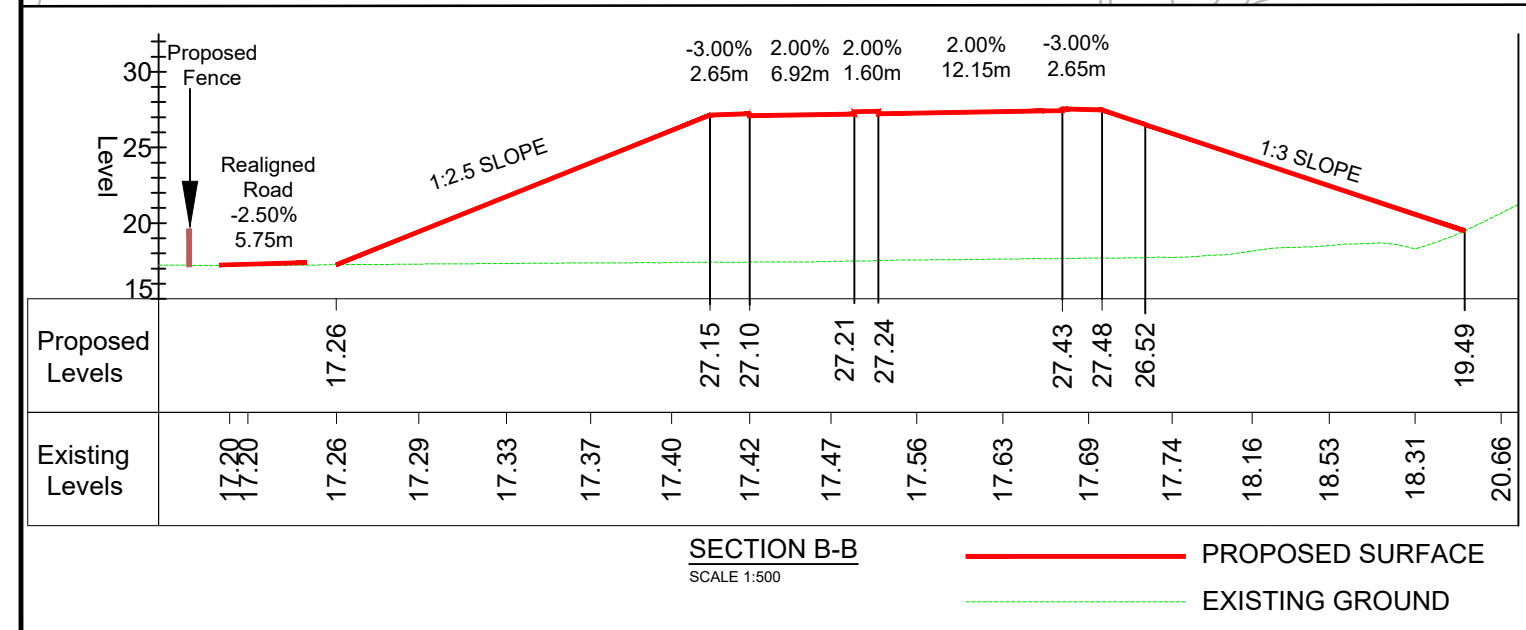
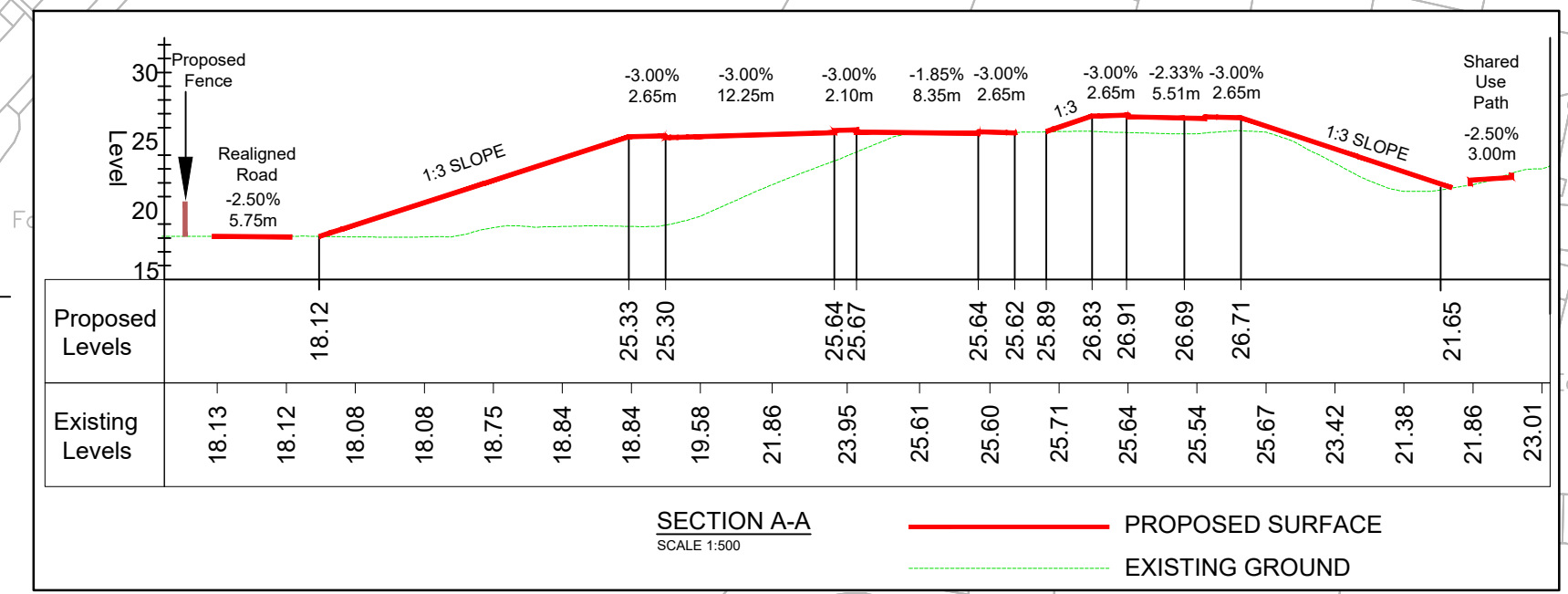
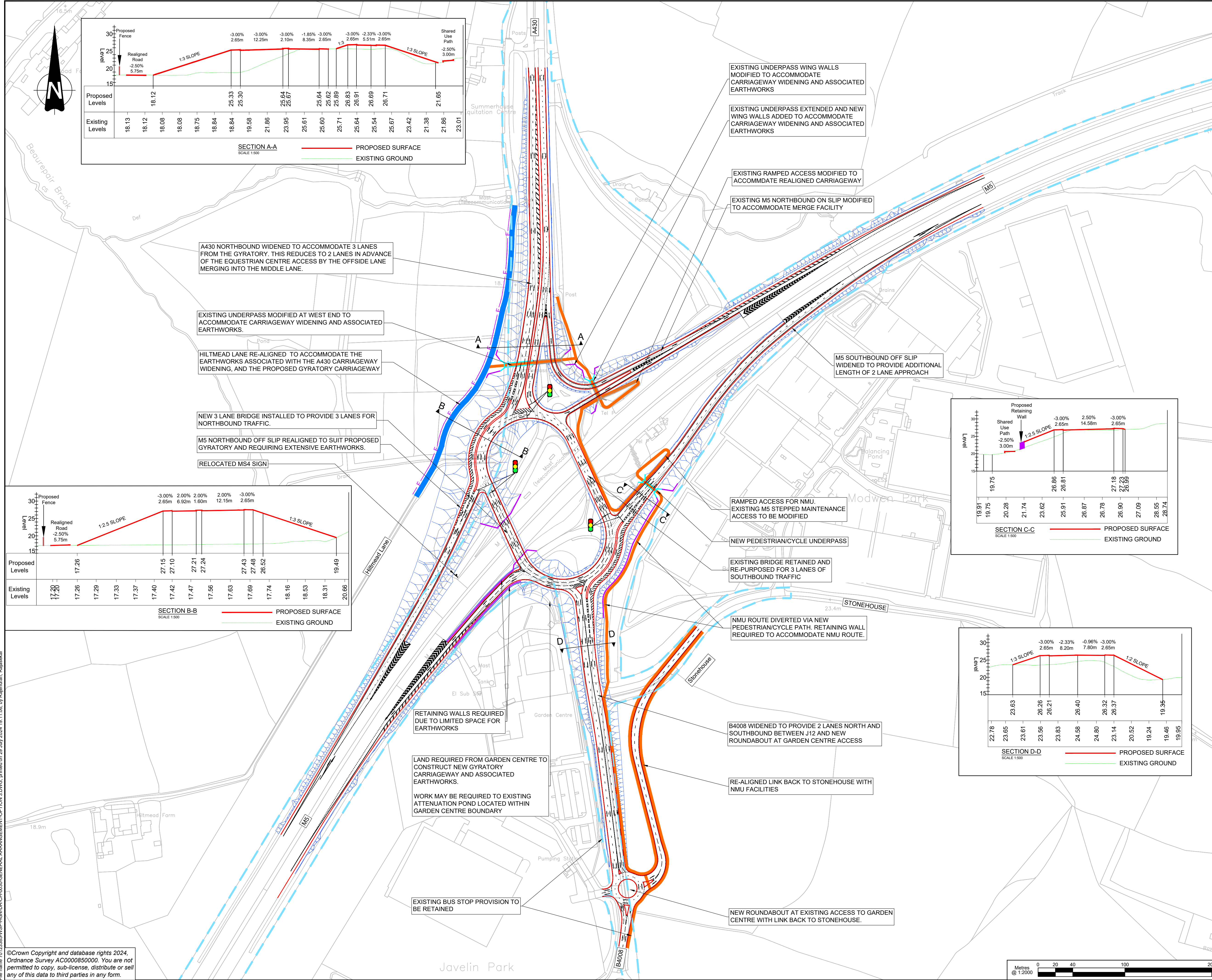
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- KEY:**
- HIGHWAY BOUNDARY
 - PROPOSED CARRIAGEWAY
 - PROPOSED ROAD MARKINGS
 - PROPOSED RETAINING WALL
 - REALIGNED HILTSMEAD LANE
 - PROPOSED SHARED USE PATH
 - PROPOSED FENCE
 - WIDENED / NEW UNDERPASS
 - EXISTING UNDERPASS
 - PROPOSED EARTHWORK
 - SIGNAL CONTROLLED JUNCTION

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	29/07/2024	GM	FIRST ISSUE	PG	GH

DRAWING STATUS: **S2 - FOR INFORMATION**

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Gloucestershire
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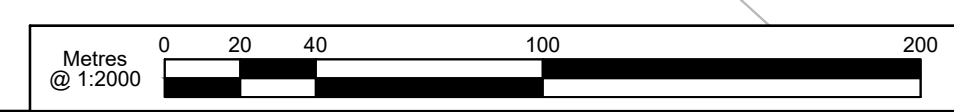
SITE PROJECT: **M5 JUNCTION 12 FEASIBILITY STUDY**

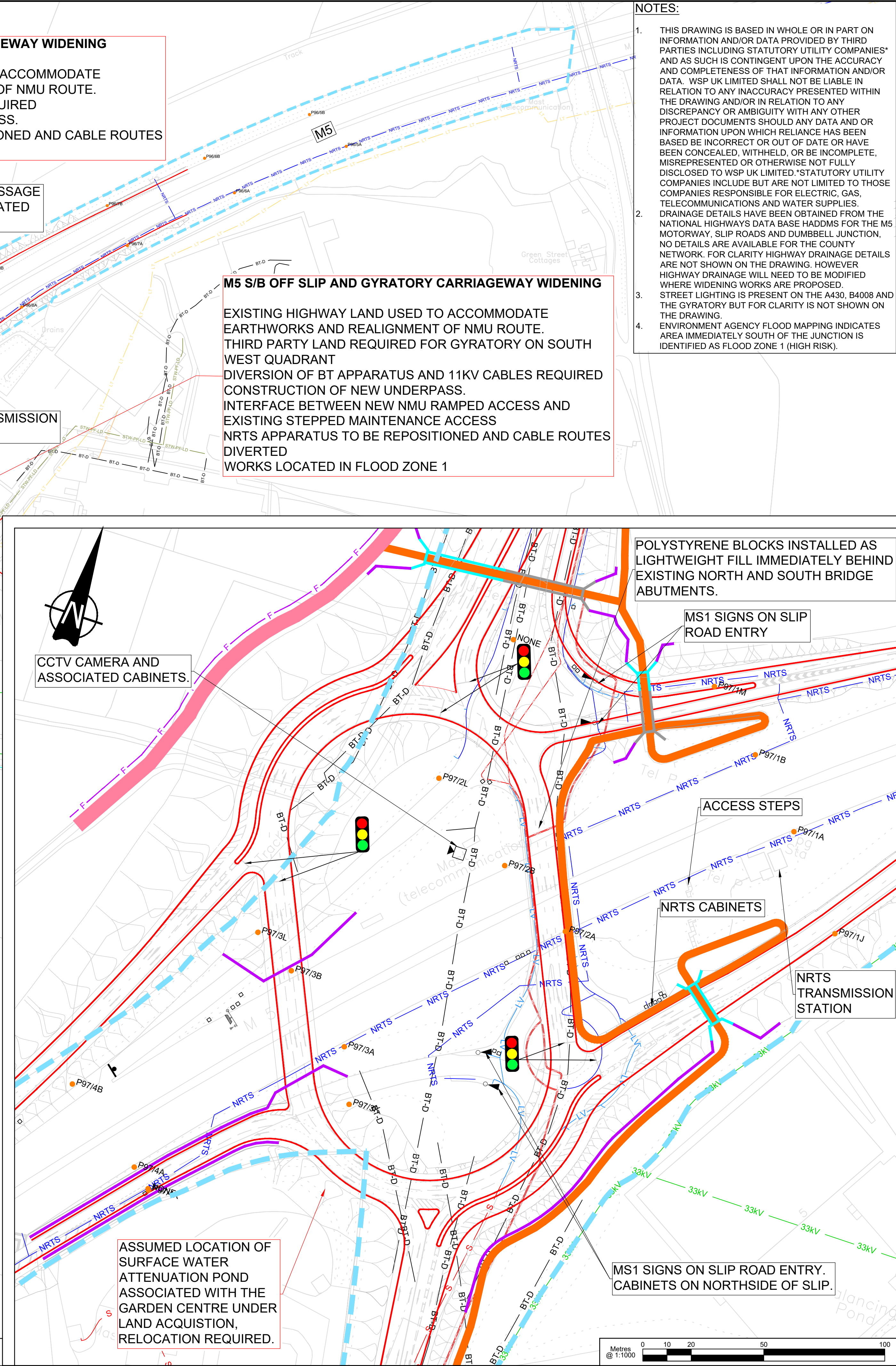
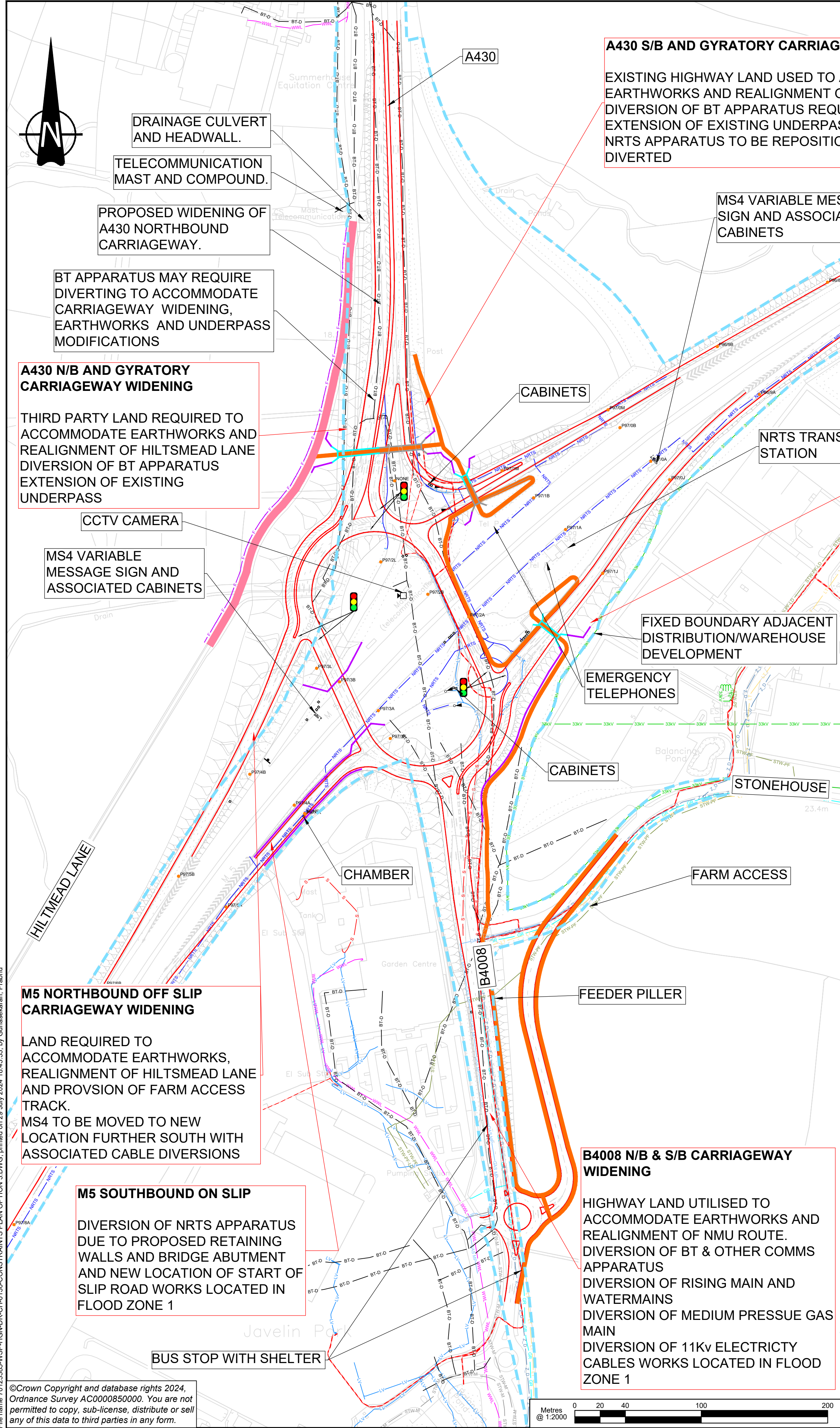
TITLE: **OPTION 3 GENERAL ARRANGEMENT SHEET 01 OF 01**

SCALE @ A1:	CHECKED:	APPROVED:	
1:2000	PG	GH	
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70123385	RR	GM	29/07/2024
DRAWING NO:	REV:		
70123385-WSP-HGN-DR-CH-0030	P01		

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- ENVIRONMENT AGENCY FLOOD MAPPING INDICATES AREA IMMEDIATELY SOUTH OF THE JUNCTION IS IDENTIFIED AS FLOOD ZONE 1 (HIGH RISK).

KEY:

- BT-D BT DUCT
- P-BT PROPOSED BT NETWORK
- VM-UG-U VIRGIN MEDIA
- VF-TP UNDERGROUND VODAFONE THIRD PARTY
- VF-O UNDERGROUND VODAFONE OWNED
- CF CITY FIBRE
- WW WALES & WEST LOW
- 11KV 11KV UNDERGROUND
- 33KV 33HV UNDERGROUND
- LV LV
- GR GIGACLEAR ROUTE
- NU NEOS NETWORK UNDERGROUND
- S SERVICE
- CL-N COIT INFRASTRUCTURE NETWORK
- STW-PF LD SEVERN-TRENT-PRESSURE FOUL LATERAL DRAIN
- STW-PF SEVERN-TRENT-PRESSURE FOUL
- STW-LD SEVERN-TRENT-LATERAL DRAIN
- STW-M SEVERN-TRENT-WATER MAIN
- GAS MP GAS-MEDIUM PRESSURE
- Z-D ZAYO DUCT
- LT LUMEN TECHNOLOGIES
- NRTS NRTS DUCT
- CCTV CAMERA
- MS4 VARIABLE MESSAGE SIGN
- MS1 SIGN
- CABINETS
- SIGNAL CONTROLLED JUNCTION.
- HIGHWAY BOUNDARY
- PROPOSED CARRIAGEWAY
- PROPOSED ROAD MARKINGS
- PROPOSED RETAINING WALL
- REALIGNED HILTSMEAD LANE
- PROPOSED SHARED USE PATH
- PROPOSED EARTHWORK
- MARKER POSTS
- ITEMS IDENTIFIED AS SIGNIFICANT CONSTRAINTS (XXX)

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	29/07/2024	GM	FIRST ISSUE	PG	GH

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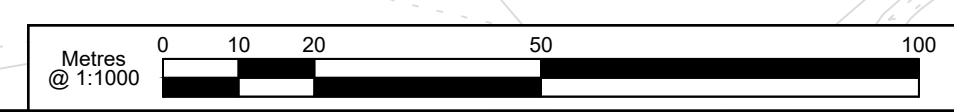
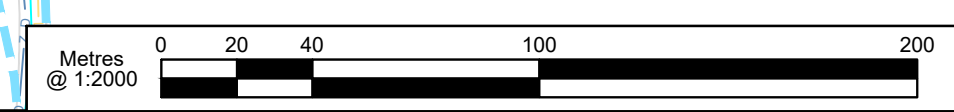
CLIENT: Gloucestershire COUNTY COUNCIL

SITE/PROJECT: M5 JUNCTION 12 FEASIBILITY STUDY

TITLE: OPTION 3 CONSTRAINTS PLAN SHEET 01 OF 01

SCALE @ A1:	CHECKED:	APPROVED:
AS SHOWN	PG	GH
PROJECT NO: 70123385	DESIGNED: RR	DRAWN: GM
DRAWING NO: 70123385-WSP-HGN-DR-CH-0130	DATE: 29/07/2024	REV: P01

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Appendix C – General Arrangement of M5 Junction 14 Improvement Scheme

LEGEND

	PROPOSED CARRIAGEWAY
	PROPOSED TRAFFIC ISLAND
	PROPOSED VERGE
	PROPOSED EMBANKMENT
	PROPOSED EMBANKMENT BETWEEN VERGES
	PROPOSED CUTTING
	CHAINAGE

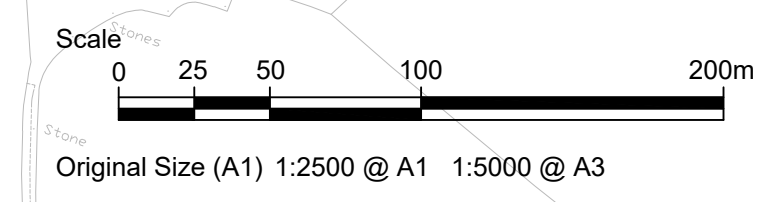
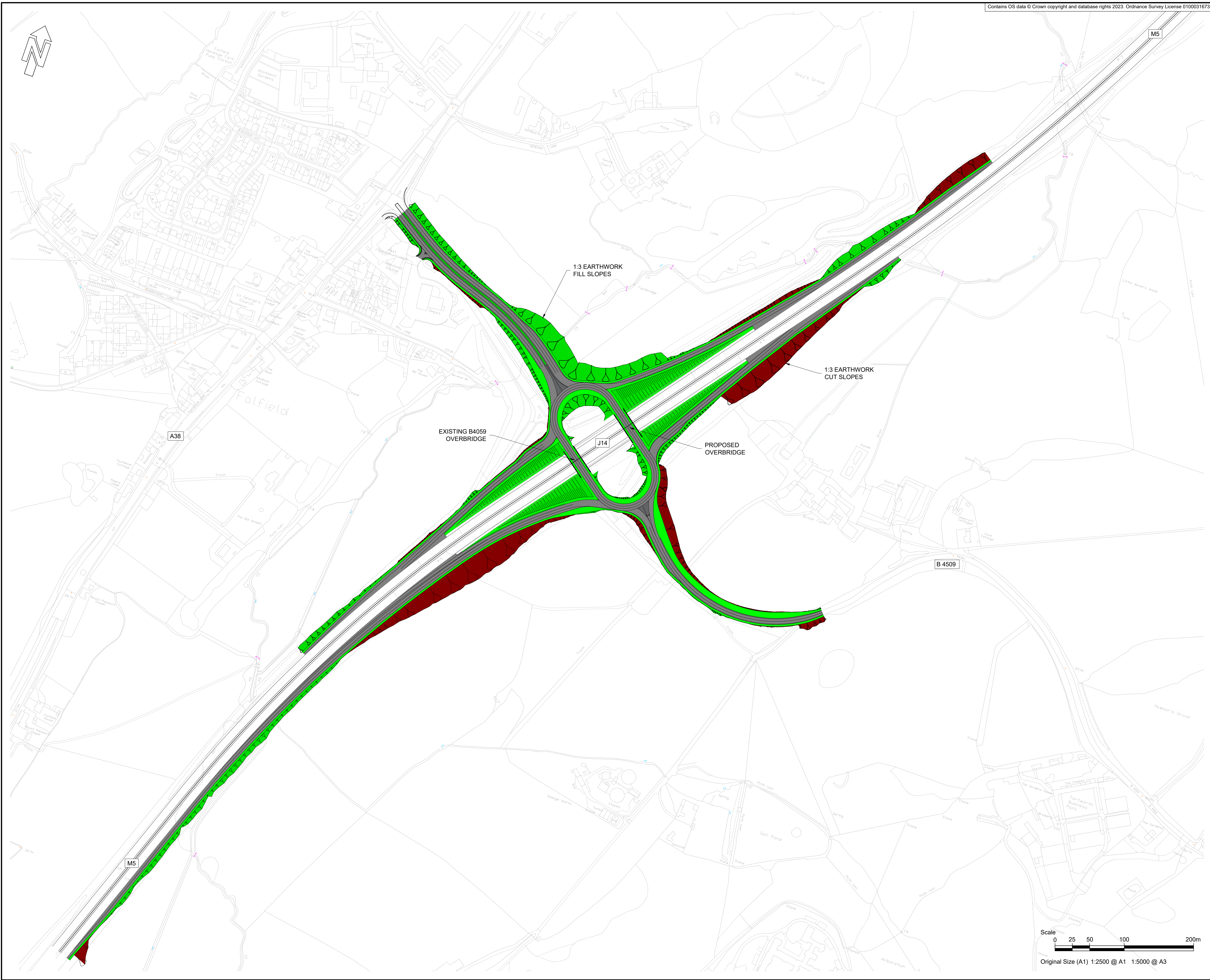
SUITABILITY

S0	WORK IN PROGRESS
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ISSUE/REVISION

I/R	DATE	DESCRIPTION
P03	06/09/2024	DESIGN UPDATE
P02	08/08/2024	DESIGN UPDATE
P01	30/05/2024	FIRST ISSUE

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PROJECT
 M5 Junction 14
 Improvement Scheme

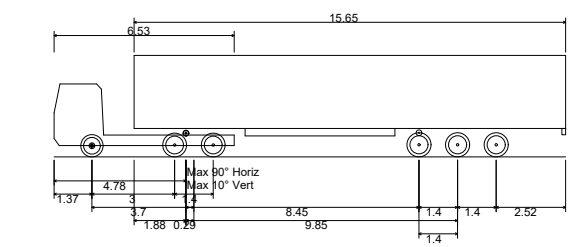
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NOTES

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LEGEND



Max Legal Length (UK) Articulated Vehicle (18.55m)
 Overall Length 18.550m
 Overall Width 2.550m
 Overall Body Height 3.651m
 Min Body Ground Clearance 0.411m
 Max Track Width 2.500m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 6.530m

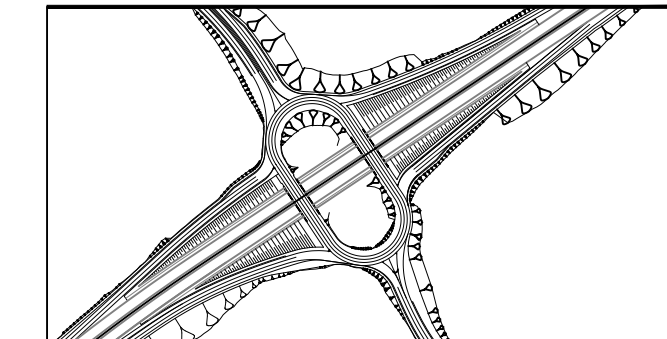
SUITABILITY

S0 WORK IN PROGRESS

ISSUE/REVISION

I/R	DATE	DESCRIPTION
P02	06/09/2024	DESIGN UPDATE
P01	26/07/2024	FIRST ISSUE

KEY PLAN



PROJECT NUMBER

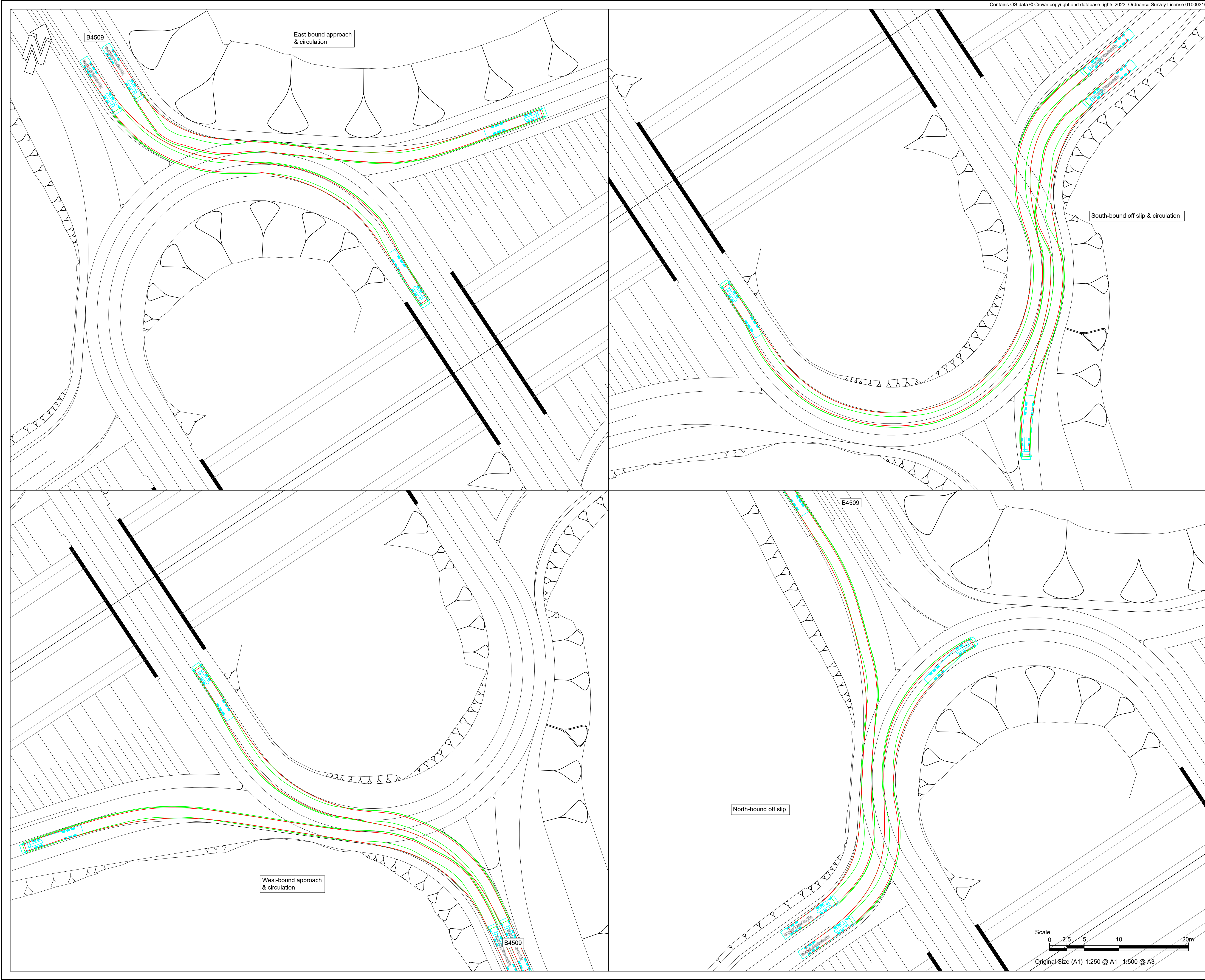
60598598

SHEET TITLE

GRADE SEPARATED JUNCTION
 HGV TRACKING

SHEET NUMBER

60598598-ACM-ZZ-DR-ZZ-00-00-0110



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