Transport Planning Associates

A Report Prepared for

MESSING AND INWORTH ACTION GROUP LIMITED

In respect of

A12 Chelmsford to A120 Widening Scheme, DCO Application (TR010060)

Transport and Highway Infrastructure Review

February 2023

Document Management

Document Review

	Status	Author	Checker	Approver	Date
01	1st Draft	JH	-	JH	16 | 10 | 2022
-	2nd Draft	JH	-	JH	9 | 12 | 2022
-	3rd Draft	JH	-	JH	27 | 01 | 2023
-	4th Draft	JH	-	JH	09 | 02 | 2023
-	Issue	JH	-	JH	10 | 02 | 2023

Issued by:

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1 Introduction

1.1 Transport Planning Associates ("TPA") has been instructed by Messing and Inworth Action Group Limited ("MIAG") to provide transport planning consultancy services in relation to a proposal to widen the A12 between Chelmsford and the A120.

1.2 National Highways ("NH"), is responsible for the management of the Strategic Road Network ("SRN") on behalf of the Secretary of State for Transport. NH has submitted a Development Consent Order ("DCO") Application to the Secretary of State for Transport via the Planning Inspectorate ("the Inspectorate") for an order to grant development consent for the 'A12 Chelmsford to A120 Widening Scheme' ("the Scheme").

1.3 Following the initial consultation process for the Scheme, residents of Inworth and Messing expressed serious reservations and concerns about the local impacts of the proposed Junction 24 and associated works ("the Proposed J24 Works"). The common interest in these concerns led to the formation of MIAG as a representative body for the large number of concerned residents of both communities.

1.4 TPA was appointed by MIAG to provide a review of the information submitted by NH in support of the Proposed J24 Works for the Scheme, including potential design alternatives, to support MIAG's formal objection through the DCO process.

1.5 MIAG has made representations to NH and Essex County Council ("ECC"), in their role as the Local Highway Authority ("LHA"), regarding various technical elements around the J24 Improvements. Unfortunately, MIAG does not believe that the representations made to date have been given the due consideration they deserve and valid matters raised have been largely discarded.

1.6 It should be noted that MIAG is not unsupportive of the overall intentions of the Scheme and the predicted benefits the Scheme will bring.

The Scheme

1.7 NH is seeking the granting of powers to enable them to widen a 15 mile (24km) section of the A12, which forms part of the Strategic Road Network ("SRN") between Junction 19 (Boreham interchange) and Junction 25 (Marks Tey interchange).

1.8 The intended purpose of the Scheme is to reduce congestion and delay, improve highway safety and solve strategic traffic problems arising from inadequate and varying route standards. The rationale for the Scheme is set out in the 'Case for the Scheme' (CftS"), which was submitted in support of the DCO Application for the Scheme [Document Reference: TR010060/APP/7.1].

1.9 There are two major connecting roads along the length of the Scheme, the A130 (Junction 19) and the A120 (Junction 25), as well as a number of more minor roads providing connections between local settlements and the SRN. These settlements include Chelmsford, Colchester, Boreham, Hatfield Peverel, Witham, Rivenhall End, Kelvedon, Feering, Messing, Inworth and Marks Tey.

1.10 The existing A12 along the length of the Scheme is predominantly a dual two-lane carriageway, with a limited length of dual three-lane carriageway between Junction 19 (Boreham interchange) and Junction 20a (Hatfield Peverel South Interchange). There are a number of direct accesses onto the carriageways, particularly between Junction 22 (Colemans Interchange) and Junction 23 (Kelvedon South Interchange) and between Junction 24 (Kelvedon North Interchange) and Junction 25 (Marks Tey Interchange).

1.11 The proposed scheme involves widening the existing A12 to three lanes throughout in each direction. This would mainly involve online widening of the carriageway, with offline bypasses created between Junctions 22 and Junction 23 (Rivenhall End Bypass) and between Junction 24 and Junction 25 (Kelvedon to Marks Tey).

1.12 It is understood that the design of the section between Junction 24 and Junction 25 is based on an earlier scheme deigned by NH to accommodate the proposed West Tey Garden Community, which was to be a large new urban settlement of 24,000 homes. The West Tey Gardening Community failed to gain planning permission and the associated funding to reposition and widen the section of the A12 to the south and to de-trunk the existing section of the A12, in order to create connectivity and more local capacity, was withdrawn at this time.

1.13 The widening works would be supported by a combination of junction improvement works (Junction 19 and Junction 25), construction of new junctions designed to cater for traffic movements both north and southbound (Junction 21, Junction 22 and Junction 24) and removal of a number of existing junctions (Junction 20a, Junction 20b, Junction 23 and Junction24).

1.14 The Proposed J24 Works consists of a two-tiered dumbbell layout west of the B1023 Inworth Road along with a new single carriageway link between the southern roundabout and the locally realigned B1023 Inworth Road. Minor works to the B1023 Inworth Road, through the village of Inworth are also proposed to support the predicted increase in local traffic movements. There are currently no proposals to address increased traffic levels through Messing.

1.15 In terms of the Proposed J24 Works, Paragraph 3.3.20 of the CftS asserts that the provision of a *"junction close to Inworth Road provides an overall benefit to the proposed scheme, as it provides better connectivity between Tiptree and the SRN. In addition, it reduces the volume of strategic traffic making journeys on the wider Local Road Network in comparison to the previous design from 2017"*.

1.16 NH is 'currently' estimating a 2023/24 start date for construction, if the DCO application is successful, and an end date of 2027/28. The estimated cost of the Scheme is £1,045m to £1,268m.

Scope of Design and Modelling Review

1.17 In addition to the CftS, this report has been prepared with reference to the 'Transport Assessment' ("TA") [Application Document Reference: TR010060/APP/7.2] and the 'Combined Modelling and Appraisal Report' ("ComMA") [Document Reference: TR010060/APP/7.3], which were submitted in support of the DCO Application for the Scheme.

1.18 Draft versions of the outputs of these documents and supporting design drawings, which were shared with MIAG during the consultation process for the DCO Application, have also been considered.

2 Traffic Modelling and Forecast Traffic Flows

Traffic Modelling Overview

2.1 The ComMA and the TA provide detailed descriptions of the Scheme traffic modelling; this includes details of the study network, the modelling techniques used and the tools and methodology of the more detailed assessment criteria undertaken.

2.2 The reporting of network operation for scenarios with (Do Something) and without (Do Nothing) the Scheme are presented for 2027 and 2042, which represent the Scheme's forecast opening year and design year, under the following categories:

- A12 Mainline;
- A12 Junctions;
- Local Road Junctions; and
- Communities.

B1023 Inworth Road

2.3 Appendix C of the TA provides Traffic Flow Diagrams for a number of roads in the vicinity of the Scheme to evidence the predicted impacts of the Scheme. Traffic flows for without and with the Scheme are presented in Table 2.1.

Table 2.1 B1023 Inworth Road Annual Average Traffic Flows – DCO Application

Service	Do Nothing	Do Something	Change	% Change
2027 - AM Peak Hour 2-Way Traffic Flow	784	1,111	327	42%
2027 – PM Peak Hour 2-Way Traffic Flow	846	1,132	286	34%
2027 – AADT 2-Way Traffic Flow	11,180	14,820	3,640	33%
2042 - AM Peak Hour 2-Way Traffic Flow	815	1,160	345	42%
2042 – PM Peak Hour 2-Way Traffic Flow	835	1,162	327	39%
2042 – AADT 2-Way Traffic Flow	11,650	15,700	4,050	35%

2.4 It is evident from Table 2.1 that the Scheme is predicted to have a significant material impact along the B1023 both at peak times and across the whole day. The step change in traffic levels along the B1023 can be expressed as an extra vehicle every 10 to 12 seconds at peak times.

2.5 A point to note from the information presented in Table 2.1 is the fact that the 'Do Nothing' modelling results indicate a reduction in the predicted traffic flows along the B1023 for the pm peak hour between 2027 and 2042. It would typically be expected that, as is the case for the AM and AADT of circa 4%, traffic flows would increase over time and therefore the decrease points to a potential issue with the operation of the traffic model on a local level. Further investigation and explanation as to this unexpected decrease in the volume of traffic along the B1023 is therefore required to ensure that there is not an issue/fault with the model that is resulting in the misrepresentation of predicted traffic flows in the Messing and Inworth area.

2.6 During the pre-application consultation process MIAG were provided with predicted traffic flow information for the B1023 and this information is presented in Table 2.2.

Table 2.2 B1023 Inworth Road Annual Average Traffic Flows - Consultation

Scenario	Do Nothing	Do Something	Change	% Change
2027 - AM Peak Hour 2-Way Traffic Flow	729	1,403	674	92%
2027 – PM Peak Hour 2-Way Traffic Flow	862	1,358	496	58%
2027 – AADT 2-Way Traffic Flow	10,680	16,620	5,940	56%
2042 - AM Peak Hour 2-Way Traffic Flow	716	1,509	793	111%
2042 – PM Peak Hour 2-Way Traffic Flow	855	1,471	616	72%
2042 – AADT 2-Way Traffic Flow	11,230	18,530	7,300	65%

2.7 It is evident from a comparison of the information presented in Table 2.1 and Table 2.2 that during the consultation stage the Scheme was predicted to have an even more significant impact along the B1023, both at peak times and across the whole day. The magnitude of the reduction in predicted traffic flows along the B1023 between the pre-application and DCO supportive material is highly concerning, with roughly a doubling of traffic during the am peak hour and over 50% during the full day.

2.8 NH informed MIAG that the reduction in the 'Do Something' predicted traffic flows from the initial modelling is due to the recoding of the speed limit for the B1023 link in the 'Do Something' traffic model. TPA assumed that for logical and accurate modelling purposes, the B1023 is formed of a number of links that relate to the existing speed limits for the road and the links for the B1023 with a 50mph limit have been recorded to a 30mph limit. If a single link for the full section of the B1023 has been used with one speed limit then this would raise further concerns regarding the modelling accuracy.

2.9 The results and associated explanation from NH confirm that distribution of traffic to this link in the model is less attractive due to a reduced journey speed and increased journey time, associated with the reduced speed limit coding. This means the model is highly sensitive and relies on a reduction in the current 50mph speed limit through the implementation of a Traffic Regulation Order ('TRO') as part of the Scheme.

2.10 The sensitivity of the model in terms of the quantum of traffic assigned to the B1023 under alternative speed limit coding is a serious concern to TPA, given the rural nature of the link, existing excess speed issues and the likelihood that future vehicle speeds will exceed the coded speed limit with little opportunity of speed limit enforcement.

2.11 This serious concern is exacerbated because ATC vehicle speed survey data for the B1023, see **Appendix A** indicates an existing excess vehicle speed issue with the 85th percentile recorded vehicle speed being circa 5mph above the posted speed limit. The proposed B1023 localised improvements, which are discussed in more detail later in this report, involve carriageway widening that would result in driver perception of the ability to drive faster.

2.12 TPA's professional opinion is that actual vehicle speeds along the B1023 will exceed the coded limit for these links and the consequence of this will be a significant underestimate of modelled traffic flows along the B1023 for the 'Do Something' scenario. The consequence of this will be a far greater impact on the Messing and Inworth area than that predicted by NH, which materially undermines the evidence base prepared by NH to support the Proposed J24 Works.

2.13 Notwithstanding the questionable reliability of the predicted 'Do Something' traffic flows for the B1023, the increase in traffic volumes through the village of Inworth suggested by NH represents a significant and material level of impact. This level of impact along with the village setting and the narrow and rural nature of the B1023 is considered by TPA to represent severe harm associated with the Proposed J24 Works, as currently being promoted.

2.14 TPA recommend that NH are directed to consider further alternatives to the Proposed J24 Works and at the same time release the detailed link output data for the B1023 to enable a full understanding of the origin and destination of traffic along the B1023, by all parties. This information would provide an insight into potential changes to the Scheme, as currently presented, to negate the severe impact along the B1023.

2.15 The potential issues relating to the modelled 'Do Nothing' traffic flows led TPA to review the ComMA report, specifically for information relating to traffic count and journey time information, and this review highlighted further concerns in the modelling of the B1023.

2.16 In terms of traffic flow information there appears to be no data to support accurate validation of the model for the B1023, which one would expect given the Proposed J24 Works and the result being no confirmation of a reliable 'Do Nothing' model for the B1023.

2.17 The B1023 was selected as a route (Route 15) for validation of the model through a comparison of observed and modelled journey times, which is presented in Tables 11-13 to 11-15, pages 88 to 90, of the ComMA report. With reference to these tables, it can be seen that there is a wide variance between observed and modelled journey times along the B1023 for the three-modelled periods, with a suggestion that the results satisfy the modelling test in the AM peak when it actually fails as the 15% threshold is exceeded.

2.18 The error in the reporting for Route 15 in the AM actually means that the journey times along this route fail the test in 50% of the modelled scenarios, with three of the four peak hour assessments failing. This failure rate, in terms of key supporting transport infrastructure given the Proposed J24 Works, is considered a major failing in the delivery of an accurate traffic model and has the potential to undermine the results used as the basis to support the Proposed J24 works.

Kelvedon Road

2.19 Plate 9.1 of the ComMA indicates a predicted increase in traffic flows along Kelvedon Road, in the range of 50 to 100 peak hour movements during the AM peak hour.

2.20 Neither the TA nor the ComMA provide any further details of the exact impact of the Scheme along Kelvedon Road, through Messing and to the Inworth Road. During the consultation phase, this information was provided to MIAG and this information is presented in Table 2.3.

Table 2.3 Kelvedon Road Annual Average Traffic Flows

Scenario	Do Nothing	Do Something	Change	% Change
2027 - AM Peak Hour 2-Way Traffic Flow	38	133	95	250%
2027 – PM Peak Hour 2-Way Traffic Flow	45	109	64	142%

2.21 With reference to Table 2.3, it is evident that the Proposed J24 Works will result in a significant increase in traffic movements along Kelvedon Road.

2.22 NH has wrongly dismissed this increase as not having a material impact that warrants mitigation because of the low level of existing and predicted 'Do Nothing' traffic levels. TPA strongly disputes

this stance as lower base traffic levels result in a greater perception of increased traffic flows than when considered against a higher base position.

2.23 Significant sections of existing narrow single lane roads that are not kerbed and a number of sharp turns, is considered unsupportive of an increase in traffic levels.

2.24 Given this and concerns previously expressed around the accuracy of the model in relation to the assignment of traffic flows predicted to be attracted to Junction 24, it is TPA's professional opinion that the impact of this traffic through the village of Messing has the real potential to be considered severe. In practical terms, this unacceptable impact should be avoided by an alternative package of works or if this is not possible, the impact should be fully mitigated.

2.25 It is not possible to report on the modelling accuracy as far as Kelvedon Road is concerned given the lack of existing traffic count information for the road and it not being a route checked for accuracy through journey time surveys. This said, concerns regarding the accuracy of the modelling as far as the B1023 is concerned have the potential to hold true for Kelvedon Road.

2.26 The limited consideration of the existing situation and potential impacts to both Lodge Road and Harborough Hall Road raise further serious concerns regarding the level of consideration of the likely true impacts of the Scheme in and around Messing.

3 Environmental Impacts

Noise

3.1 Figure 12.8 of the Environmental Statement (Document Reference: TR010060/APP/6.2) provides a number of Noise Change Contour Maps for the scheme. With reference to Sheet 7 of 11, it can be seen that the Scheme is predicted to result in an increase in road traffic noise through Inworth of between 1.0dB and 2.9dB, whilst for Messing this increase is predicted to exceed 5.0dB through much of the village.

3.2 LA111 (Noise and Vibration) of the DMRB quantifies increases in noise levels as being Minor if in the range of 1.0dB to 2.9dB, Moderate if in the range of 3.0db to 4.9dB and Major when above 5.0dB. This means that residents of Inworth will be subjected to a minor increase in noise levels because of the Scheme and residents of Messing will experience a Major impact.

3.3 Figure 12.5 of the Environmental Statement provides a more detailed assessment of the likely effects of the expected changes in noise levels associated with the Scheme, expressed in terms of Significant Observed Adverse Effect Level ("SOAEL"), which is quantified as the level of noise exposure above which significant adverse effects on health and quality of life occur.

3.4 With reference to Figure 12.5 and the supporting information contained within Chapter 12 (Noise and Vibration) of the Environmental Statement (Document Reference: TR010060/APP/6.1) it can be seen that four dwellings within Inworth are predicted to exceed the minimum SOAEL level, with one being adversely impacted day and night. The situation within Messing is predicted to be even worse with 71 dwellings negatively impacted, of which 16 will experience a moderate impact and 55 will experience a major impact.

3.5 The Noise Policy Statement for England (NPSE) sets out the Government's policy on noise. The first aim of the policy is to avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

3.6 The second aim of the NPSE is to mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development. This second aim refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life

3.7 In both instances, the detrimental change in noise impacts is a direct result of increases in traffic flows on local roads. Therefore, based on the findings of the noise work prepared by NH in support of the Scheme, the impact on residents of Messing and Inworth should be considered Severe in terms of noise, with further work necessary to determine a more appropriate solution for the Scheme on a local level.

3.8 A final point to note relates to the concerns raised in Chapter 2 of this report relating to projected increases in traffic flows through Inworth and Messing. The underestimating of predicted traffic flows for the local area in the 'Do Something' scenario will influence the results of the noise assessment for the Scheme and would result in increased levels of road traffic noise than the levels currently predicted.

Air Quality

3.9 Chapter 6 (Air Quality) of the Environmental Statement (Document Reference: TR010060/APP/6.1) details the air quality assessment work undertaken as part of the Scheme proposals. With reference to Figure 10 and Appendix 6.5 that support Chapter 6, it is noted that the predicted increase in pollutants as a result of the Scheme will be below the air quality threshold target and imperceptible. A position that TPA does not dispute.

3.10 The air quality modelling does not appear to extend as far as the village of Messing and therefore it is not possible to provide any specific comment on potential air quality matters. This said, given the low base traffic flow levels and predicted proportional increase the impact on Messing is also expected to be imperceptible.

3.11 Changes in traffic levels across the local network because of matters raised by this report will require local air quality matters to be reassessed and this reassessment should be extended to cover the village of Messing.

Highway Safety

3.12 The lack of any reporting on highway Safety implications associated with the Proposed J24 Works is considered an omission by NH and it is believed that such an assessment for the local road network should form part of the DCO evidence base. Investigation of the existing road network in and around Inworth and Messing identifies significant sections of narrow single lane roads that are not kerbed and there a number of sharp turns, meaning the roads are considered unsupportive of an increase in traffic levels without also acknowledging a worsening of road safety.

3.13 With reference to the Crashmap website it has been determined that there have been two serious accidents along the B1023 within the most recent five year period , one to the north of Kelvedon Road

and one north of Windmill Hill. Increases in traffic volumes to the extent predicted by NH is expected to have a negative impact on a route with a historic accident history, which further supports the need for a detailed local assessment.

Severance

3.14 Chapter 13 (Population and Human Health) of the Environmental Statement (Document Reference: TR010060/APP/6.1) includes details of severance resulting from the proposed Scheme. At Paragraph 13.15.34, the report states that there is high community severance either side of the B1023 in Inworth in the 'Do Minimum' scenario and an actual and perceived increase in Severance because of the Scheme.

3.15 Paragraph 13.18.80 concludes that community severance at Inworth is negative but NH do not consider it significant in population health terms, despite it being considered significant for some individuals, due to:

- the relatively small population affected;
- uncertainty as to whether the traffic increases would be perceptible over the existing relatively high traffic flows;
- limited good quality evidence of links to health outcomes; and
- the relative health and resilience of the community exposed.

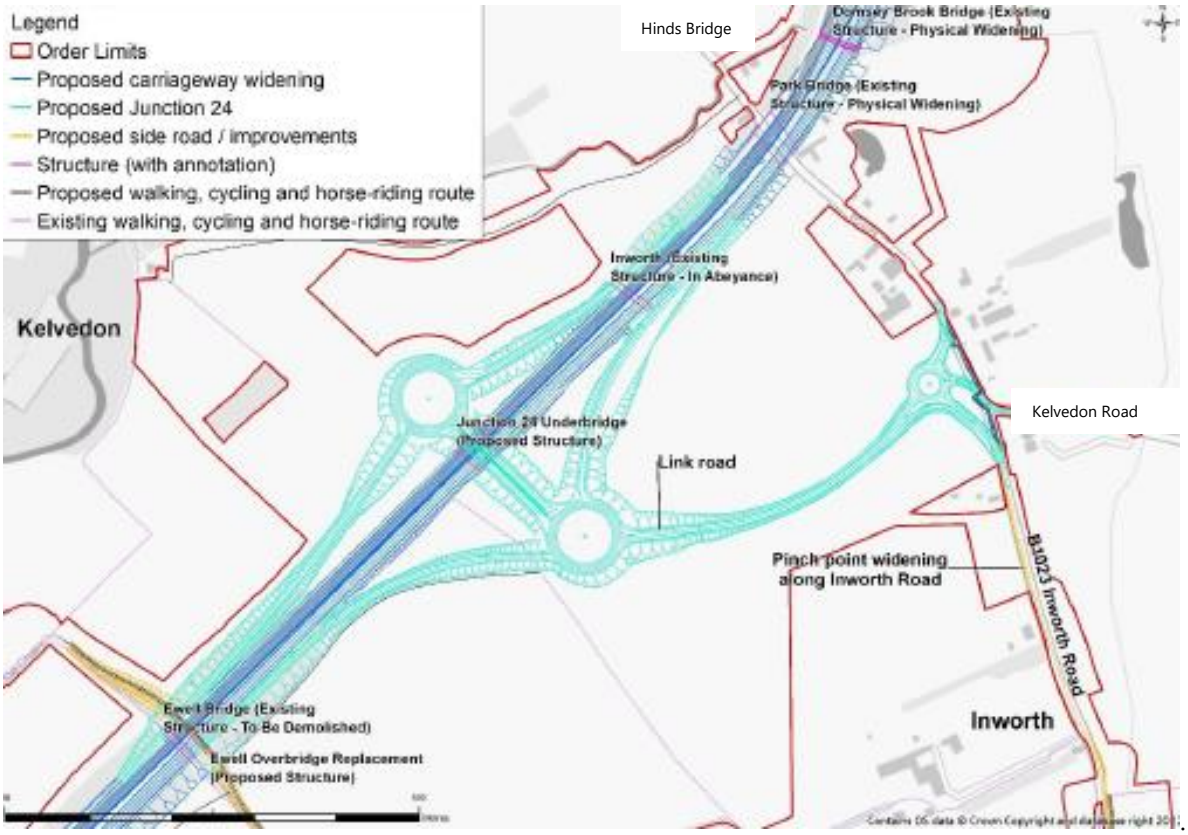
3.16 Evidence to support the stance of NH in terms of this impact not being significant is not substantiated in any detail and therefore should not be taken to demonstrate that the Proposed J24 Works will not lead to significant severance through Inworth village. TPA dispute the NH conclusion that the level of severance will not be significant in health terms and believe that additional mitigation measures should be considered and brought forward.

4 Proposed Junction 24 Improvements

4.1 The Proposed J24 Works are intended to facilitate improved access between the proposed scheme and neighbouring towns, such as Kelvedon and Tiptree. An element of the Proposed J24 Works is the creation of a new roundabout on the B1023, with the purpose of the roundabout being to connect the single carriageway link road from Junction 24 with the realigned B1023 Inworth Road and Kelvedon Road.

4.2 The proposed J24 Works are detailed on Sheet 14 and Sheet 20 of the 'General Arrangement' Plans [Document Reference: TR010060/APP/2.9] prepared by NH for the DCO Application. An overview of these works is shown in **Figure 4.1**.

Figure 4.1 – Overview of Proposed Junction 24 Works



Reproduced from the DCO Environmental Statement [Application Document Reference: TR010060/APP/6.1]

Junction 24 Design

4.3 The Proposed J24 Works consists of a two-tiered dumbbell layout west of the B1023 Inworth Road along with a new single carriageway link between the southern roundabout and the locally realigned B1023 Inworth Road.

4.4 The design proposal with linked roundabouts to the northern and southern side of the A12 would provide all movement access to the A12 via the proposed connecting link to the B1023.

4.5 The design reference for the roundabouts is CD116 'Geometric Design of Roundabouts', which forms part of The Design Manual for Roads and Bridges ("DMRB"). DMRB is a suite of documents that contain design requirements and advice relating to works on motorway and all-purpose trunk roads, ie schemes under the management of NH.

4.6 Information prepared by NH to support the design of Junction 24 does not indicate any departures from design standards that are contained within CD116, which is as one would expect for a new off-line highways proposal.

4.7 The 'Traffic Regulation Measures – Speed Limit' report [Document Reference: TR010060/APP/2.3.1] details that the proposed A12 slip roads at Junction 24 are intended to be subject to variable speed limits, with the actual roundabouts and the link road to the B1023 being subject to a 40mph speed limit.

4.8 A review of the preliminary General Arrangement drawings for Junction 24 does not raise any concerns in terms of the final design being fully CD116 compliant, especially given the land in the area that forms part of the Order land.

B1023 Inworth Road Roundabout

4.9 The roundabout is proposed to have a 50m Inscribed Circle Diameter ("ICD") with four arms that connect to the A12 link road, the B1023 north, Kelvedon Road, and the B1023 to Inworth. The roundabout and the approach arms, with exception of the previously mentioned A12 link road, are proposed to be restricted to a 30mph speed limit.

4.10 The roundabout would fall outside of the A12 network and would be under the future management of ECC, rather than NH. TPA has significant experience of working on projects where ECC are the LHA and whilst it is acknowledged that they operate their own design Standards, The Essex Design Guide, it is our experience that when it comes to roundabout design CD116 is always given as the point of design reference.

4.11 In terms of the links that connect with the proposed roundabout it is considered appropriate that the sections that immediately precede the roundabout, ie Inworth Road and Hinds Bridge, will be designed with reference to the requirements of CD116 and other relevant sections of the DMRB.

4.12 Further to this and given the rural nature of the roundabout approach roads it is considered inappropriate to classify these roads as 'streets' and as such the more relaxed design guidance contained within the Essex Design Guide and Manual for Streets is not appropriate and DMRB should always be the 'go to' design guidance.

4.13 Given the rural nature of the proposed Inworth Road roundabout, it is considered wholly inappropriate to classify the approach roads as streets to justify the use of reduced visibility splay criteria, as outlined in Manual for Streets, when DMRB should be used to design all elements of the proposed junction.

4.14 A review of the preliminary junction design against standards contained within CD116 raises serious concerns that a fully design compliant B1023 roundabout, without any departures from design standards has been proposed and/or can be delivered. This position is taken with regard to the following matters:

- The siting of the roundabout and land contained within the Order Limit would suggest sub-standard forward visibility standards for the B1023 northern arm, when compared against the relevant requirements in CD116.
- Forward visibility and an existing private access to the north of the proposed roundabout do not appear to have been fully considered;
- The initial design work does not appear to have fully considered design requirements relating to crossfall and superelevation, the result of this being an increased safety risk due to potential adverse cambers and/or inadequate superelevation.
- The design proposes a segregated left turn lane ("SLTL") from the southern arm of the B1023 to the A12 Inworth Link Road, the design of which does not appear to accord with the relevant design standards.

4.15 TPA has reproduced the proposed roundabout design (**2207-043 SK02**) to help understand the potential design issues outlined above, with a copy of this drawing presented within the drawings section of this report.

4.16 With reference to this drawing, it is evident that land outside of the Order Limit along with buildings/structures located on this cause a significant restriction on forward visibility for vehicles entering or leaving the northern arm of the B1023.

4.17 CD116 sets out the requirement, or otherwise, for an initial assessment based on predicted traffic flows to determine the need for a Segregated Left Turn Lane (SLTL) to supplement a traditional giveway roundabout approach. This assessment has not been provided to confirm the need and design form of the proposed SLTL.

4.18 The design of the SLTL takes the form of a segregated lane that is followed by a requirement to give way to the mainline traffic flow. Poor design and/or bad driver behaviour can lead to accident safety issues with this form of junction as opposed to a free flow merge and subsequent lane reduction.

4.19 SLTL's are typically introduced in to the design of a roundabout where there is a capacity issue with that arm of the roundabout. The SLTL effectively removes the traffic making the left turn from the junction modelling and capacity analysis, without this reduction in traffic the junction would operate over capacity.

4.20 The introduction of the SLTL raises material concerns, these being:

i. no explanation is provided for the proposed inclusion of the SLTL rather than improved roundabout geometry to facilitate a more standard roundabout design with increased capacity to negate the need for the SLTL;
ii. there is no demonstration of the design considerations of the point where the SLTL is proposed to connect with the new A12 link road, a single lane giveway being promoted over and above a dedicate free flow merge; and
iii. there are safety concerns relating to the proposed design, ie approach angle and associated driver visibility.

4.21 SLTL's work best when they allow a free flow entry on to a section of dual carriageway, which is not the case in this instance as vehicles approaching the end of the SLTL will have to give way to traffic on the link to Junction 24. Issues with being able to join the link to Junction 24 from the SLTL in a safe and efficient way may result in traffic using the roundabout and having priority over traffic merging from the SLTL. The consequences being that the capacity analysis of the roundabout may not accurately represent the actual situation, and no indication is given as to capacity estimates for the SLTL.

4.22 The curvature of the A12 Inworth Link Road and the SLTL contribute to provide a very acute entry angle of 5°, such an acute angle is not compliant with DMRB standards and would require drivers to look back over their shoulders, presenting opportunities for missed vehicles and an associated increase in the risk of accidents.

4.23 Crossfall and superelevation needs to be considered as part of the DCO Application process to ensure that the relevant standards are complied with to ensure a safe design solution is being progressed. Failure to do this at the current stage could result in subsequent design changes with unassessed impacts and/or substandard design elements. Costing of the scheme will be materially impacted by any future design changes.

4.24 Street lighting will be required as part of the finally constructed scheme for the proposed roundabout and as yet there does not appear to be any consideration of this in terms of impact on local properties and wider environmental considerations.

4.25 Similarly, there is no mention of any proposals for the introduction of further street lighting along the B1023 to support the proposed improvements and speed limit reduction. Given the rural nature of the

B1023 and the potential environmental impacts of street lighting on both the village setting and rural hinterland, it is considered essential that adequate consideration is given to such matters at this time so any unacceptable constraints can be mitigated.

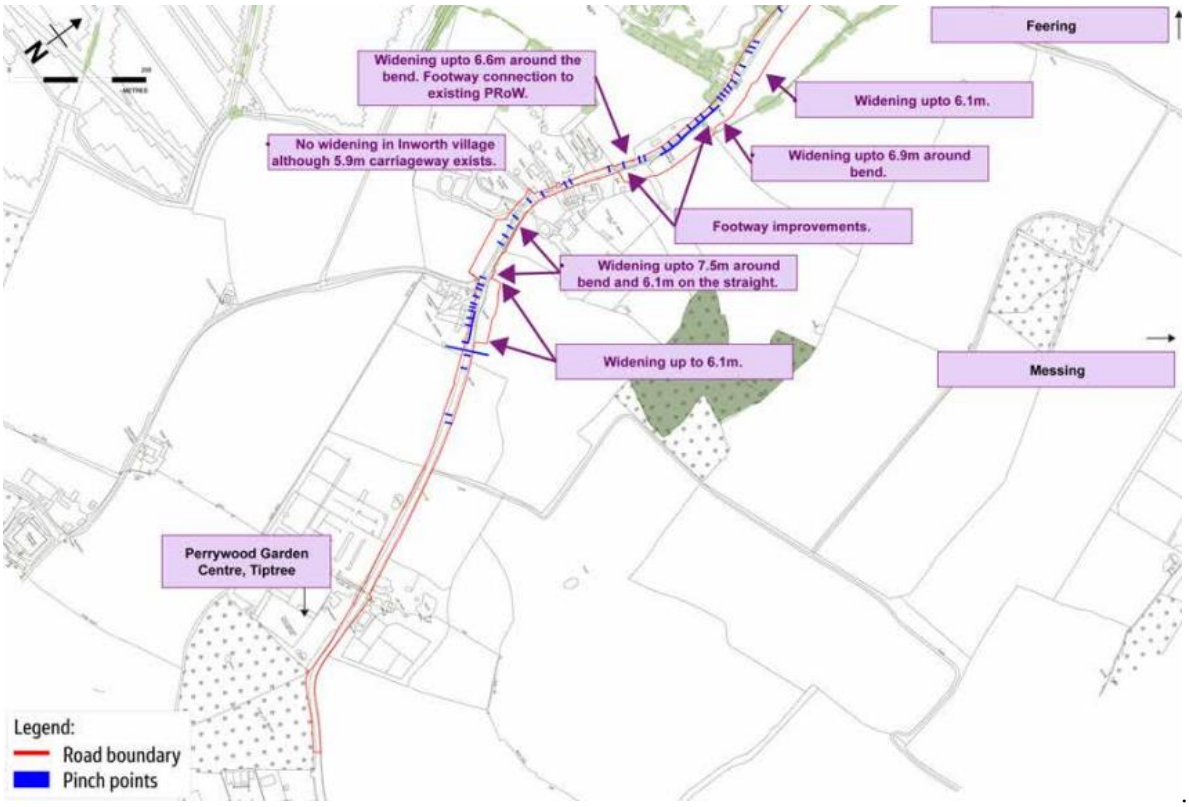
B1023 Inworth Road Improvements

4.26 To facilitate the predicted increase in traffic using the B1023 Inworth Road, NH are proposing a package of works along the B1023, from the proposed B1023 Inworth Road roundabout to the northern part of the village.

4.27 The 'Consultation Report – Annex J2: S47 Consultation Material' [Document Reference: TR010060/APP/5.2] states that a "detailed technical assessment has taken place to consider what interventions are required to ensure that Inworth Road can manage the increase in traffic". The document also indicates "a safety assessment has taken place and concluded that, with our proposed interventions, the road can support the traffic".

4.28 The proposals are to widen a number of pinch points along Inworth Road by between 0.3m and 2m. This includes widening straight sections of the road to provide a minimum of 6.1m carriageway width and widening bends to accommodate two large vehicles passing in opposite directions. New drainage is proposed as part of the widening proposals. An overview of these works and the pinch point locations is shown in **Figure 4.2**.

Figure 4.2 –Proposed B1023 Inworth Road Works



Reproduced from the DCO Consultation Report [Document Reference: TR010060/APP/5.2]

4.29 The 'Traffic Regulation Measures – Speed Limit' report [Document Reference: TR010060/APP/2.3.1] details that the B1023 Inworth Road is proposed to be subject to a 30mph speed limit, both through the village and to the B1023 Inworth Road roundabout.

4.30 To assess fully the proposed pinch point improvement scheme a more detailed and larger scale design drawing is required, as opposed to the one currently presented at Sheet 20 of the General Arrangement Drawings.

4.31 From an initial assessment of the design drawings TPA has concerns that the proposed pinch point widening works will eliminate the existing pinch points that dictate reduced vehicle speeds without fully accommodating the passing of large road vehicles. The result of this could manifest as increased vehicle speeds due to a widened carriageway along with potential conflict between opposing vehicles.

4.32 The earlier referenced model link speeds of 30mph, which have resulted in a reduced level of forecast traffic flows for the Scheme along the B1023 Inworth Road, are wholly reliant on vehicles travelling along the B1023 Inworth Road conforming to the posted speed limit. This scenario is not expected to materialise given the existing excess speed issues through the village and the fact that the proposal relies on rural sections of road without any built form to also be restricted to 30mph. Even with the

required street lighting to support the 30mph limit and 30mph roundels along the road, it is expected that vehicles speeds along the B1023 will materially exceed the 30mph speed limit being proposed.

5 Alternative Junction 24 Proposals

Background

5.1 As previously mentioned, the Proposed J24 Works are being promoted on the basis that the provision of a *"junction close to Inworth Road provides an overall benefit to the proposed scheme, as it provides better connectivity between Tiptree and the SRN. In addition, it reduces the volume of strategic traffic making journeys on the wider Local Road Network in comparison to the previous design from 2017"*, Paragraph 3.3.20 of the CftS.

5.2 Noting the stated benefits of the Proposed J24 Works, it is next considered appropriate to understand the alternative considerations for the location and form of the proposed Junction 24. With reference to Page 21 the Assessment of Alternatives (Application Document Reference: TR010060/APP/6.1), NH state that "*early design options located the proposed J24 offline to the south of the existing J24"* with the location being moved due to the benefits set out in Paragraph 4.1, along with reduced visual impact on Prested Hall, which is a grade II listed building.

5.3 Potential further alternative locations along with alternative design considerations for Junction 24 are unknown to MIAG and TPA. NH are therefore respectfully requested to provide a detailed review of option testing and the decision process that led to the Proposed J24 Works now being promoted.

An Alternative

5.4 In response to concerns regarding the predicted significant increase in traffic flows along the B1023, MIAG has considered available alternatives that would negate this predicted increase in traffic.

5.5 Having considered a number of options MIAG felt an alternative alignment of the proposed B1023 Link Road, which starts to the south of the village was a more favourable solution. This is a scheme similar in design principles to some of the earlier Option Testing undertaken by NH.

5.6 TPA has developed the initial design proposal previously promoted by MIAG, drawing **2207-043 SK01a,**) a copy of which is presented within the drawings section of this report. The design for this alternative is based on the design principles of the DMRB.

5.7 The overriding benefit of the MIAG alternative is a reduction in traffic movements through the villages of Inworth and Messing, in terms of existing traffic using these routes and traffic that would reroute because of the NH proposals. Including the prospect of Messing being used as a 'rat-run' to connect from the new Junction 24 to the B1022 Maldon Road and vice-versa.

NH Response to MIAG Proposal

5.8 NH has previously dismissed the MIAG Alternative Proposal because of the suggested impact of traffic flows in and around Tiptree and the increased scheme costs. It is also acknowledged that any such alternative proposal would affect the Order Limit in terms of land requirements.

5.9 Details of these impacts were shared with MIAG by NH in the form of a PowerPoint Presentation dated 22 September 2022, a copy of which is presented at Appendix B. MIAG feel that the details summarised in the PowerPoint Presentation have never been presented clearly and no accurate responses have been provided to concerns raised, in terms of both the Proposed J24 Works and the technical work being used to justify these works.

5.10 Dismissing the MIAG Alternative Proposal because of financial implications is considered premature and unjust given the overall magnitude of the scheme and its estimated cost of between £1,045m to £1,268m. Increased costs of £10m to £12m represent less than 1% of the estimate costs of the Scheme and fall well within the estimated cost range.

5.11 The NH PowerPoint Presentation included an overview of predicted changes in traffic movements due to the MIAG Alternatives Proposal without any real context or information around the predicted increase in traffic flows around the north of Tiptree. TPA acknowledge that some local rerouting may become evident as a result of improved B1023 journey times but would question the level predicted and what, if any wider measure were considered to limit these flow changes. The change in traffic flows and the associated environmental impacts form the basis to dismiss the proposal; but the more significant impacts on Inworth and Messing because of the Scheme are accepted as a by-product and not sufficient to consider other alternatives.

5.12 TPA are concerned that elements of the scoring used by NH to discount the Main Alternative is subjective and potentially erroneous, especially given the impact on local traffic movements associated with the proposed closure of the existing Junction 23 and associated traffic modelling. For example, is the desire of NH to close Junction 24 directly impacting traffic flows around the north of Tiptree and the counting against the MIAG proposed alternative.

5.13 As outlined earlier, a detailed review of the origin and destination of traffic using the route would help inform potential opportunities to limit the predicted rerouting.

5.14 The serious concerns that TPA have in terms of the selected road and link speed type for the B1023 Inworth Road is likely to result in higher levels of traffic using this routing and, as such, the change in wider traffic rerouting may be more limited and reduce the NH suggested impacts of the MIAG Alternative Proposal.

5.15 TPA believe that the negative and detrimental impacts to the villages of Messing and Inworth, along with the design concerns around elements of the Scheme, favour changes to the Scheme to incorporate an alternative to the currently Proposed J24 Works that would negate the predicted and likely increase in local traffic movements.

Further Alternatives

5.16 Without the benefit of access to the traffic model used in the consideration of route options it is impossible for TPA to fully consider and assess the implications of any potential alternatives to the Proposed J24 Works. This said TPA has undertaken a high-level review of potential alternatives that are based on the stated reasoning for the works and the impacts associated with the current proposal. The intention of this being that NH provide a response as to the potential benefits and/or dis-benefits of any such alternative proposals.

Retention of Current Junction 24 Location

5.17 The preferred offline upgrading of the A12 along the section that includes the existing Junction 24 would necessitate the formation of a replacement junction in a similar location. Whilst such a solution is a feasible stance in terms of providing continuity of access for existing traffic that uses the current Junction 24 it would not satisfy the secondary initiative of the proposed Scheme, namely a reduction in strategic vehicle trips on roads adjacent to the A12.

5.18 The option to retain the current Junction 24 location was not brought forward from the initial scheme evaluation process. The likely basis for this decision being that the limited transfers of trips onto the A12 and/or improves route choices to the A12 that have a more significant economic benefit in economic viability terms.

5.19 Given the fact that the West Tey Garden community will not be built it is unclear why the A12 needs to be relocated to the south (nor the existing carriageway de-trunked) between Junction 24 and Junction 25, as proposed. Have alternative junction design options in the vicinity of the current Junction 24 location been fully explored or has the previous design work been utilised as part of the development of the Scheme?

5.20 A new Junction 24 in the proximity of the current location and providing similar levels of connectivity would lead to a much-reduced impact in and around Messing and Inworth because preferred route choice would be on a par with the existing situation.

Relocation of Junction 24 to the South

5.21 Having determined a number of appraisal benefits to the Scheme by providing a new Junction 24, NH selected a location for the proposed junction further south than the now proposed location as part of Stage 2 of the design and option testing process.

5.22 The Scheme benefits of this alternative are unknown as this option was subsequently dropped in favour of the current location. This decision has been made on the basis of the new location providing "*better connectivity between Tiptree and the strategic road network, and reduces traffic making strategic journeys on the wider local road network*", together with a reduced impact on a grade II listed building and reduced earthworks.

5.23 For the benefit of residents negatively affected by the Proposed Junction 24 Works, it is suggested that a comparison of the benefits and dis-benefits are provided by NH to the inquiry to allow a shared understanding of the scale of benefits provided by this solution.

Partial Access to the A12

5.24 Consideration of options to provide partial access to the A12, which could take the form of access and egress from one side of the proposed Scheme or access and egress to routes in one direction does not appear to have been considered as part of the NH option testing process.

5.25 Any one of the four potential options for partial access to the A12 from junction 24 may provide significant benefit in terms of a transfer of trips to the strategic road network without the dis-benefits associated with an unacceptable increase in traffic movements through Inworth and Messing.

5.26 On this basis, it is considered reasonable that NH provide evidence to confirm if any such options have been considered and failing such consideration they should be requested to consider these potential scenarios and confirm the resultant impact.

6 Summary and Conclusion

Summary

6.1 TPA has been instructed by MIAG to provide transport planning consultancy services in relation to a proposal to widen the A12 between Chelmsford and the A120. The culmination of this instruction being to prepare evidence to support an objection to the Scheme, as currently proposed.

6.2 MIAG, who represent the communities of Messing and Inworth, is not unsupportive of the overall intentions of the Scheme and the predicted benefits that the Scheme will bring.

6.3 TPA has serious reservations regarding the operations of the transport model, which undermines the Scheme. It is believed that the modelling needs a full review before it can be considered sufficiently robust to accurately represent the current and future operation of the road network in the Inworth and Messing area.

6.4 As currently being promoted, the Proposed J24 Works would result in a significant increase in the volume of traffic travelling through the villages of Inworth and Messing that has not been adequately considered and mitigated.

6.5 The revised coding for the B1023 highlights how sensitive the model is in terms of changing predicted traffic flow levels and it is anticipated that the 'Do Something' increase in the volume of traffic attracted to the B1023 will be even greater due to actual traffic speeds along the B1023 compared to the coded speed for the B1023 link. The road widening proposed will facilitate the opportunity for vehicles to travel at an increased speed.

6.6 Four dwellings within Inworth are predicted to exceed the minimum SOAEL noise level, with one being adversely impacted day and night. The situation within Messing is predicted to be even worse with 71 dwellings negatively impacted, of which 16 will experience a moderate impact and 55 will experience a major impact.

6.7 It is considered unlikely that the scheme will result in a material impact in terms of air quality for the villages of Inworth and Messing, although the latter cannot be confirmed as Messing falls outside the scope of the air quality assessment area.

6.8 It is believed that, to date, the road safety implication associated with the Proposed J24 Works have not been fully assessed and reported.

6.9 It is evident from the NH information submitted in support of the Scheme that the Proposed J24 Works will lead to severance through Inworth village.

6.10 It is predicted that the widening works proposed through Inworth will lead to an increase in traffic volumes and vehicle speeds in and around Inworth.

6.11 Additional design work for the proposed Inworth Road roundabout is required to confirm visibility and associated third party land requirements. Similarly, the inclusion of a SLTL for Inworth Road is considered a serious design flaw that needs to be addressed.

6.12 NH should be required to reassess the dis-benefits of the Main Alternative, with a view to determining a viable alternative to the current Proposed J24 Works. Dismissing this alternative is on a minor cost basis and does not fully consider the detriment that is likely to significantly affect Inworth and Messing.

Conclusions

6.13 The severe adverse impacts on residents of Inworth and Messing are considered sufficient to warrant reconsideration of the Scheme at a local level, ie regarding the Proposed J24 Works. This additional work should be based on refined and more detailed modelling of the local area to underpin design option testing and the evolution of a preferred design option.

6.14 Given the likely impacts from the proposed scheme, TPA does not consider that the current proposals meet the relevant policy tests and, as such, the proposals as currently presented should not be consented.

6.15 NH should have brought forward the Main Alternative as part of the DCO, and TPA believe that NH should amend their proposal to include it.

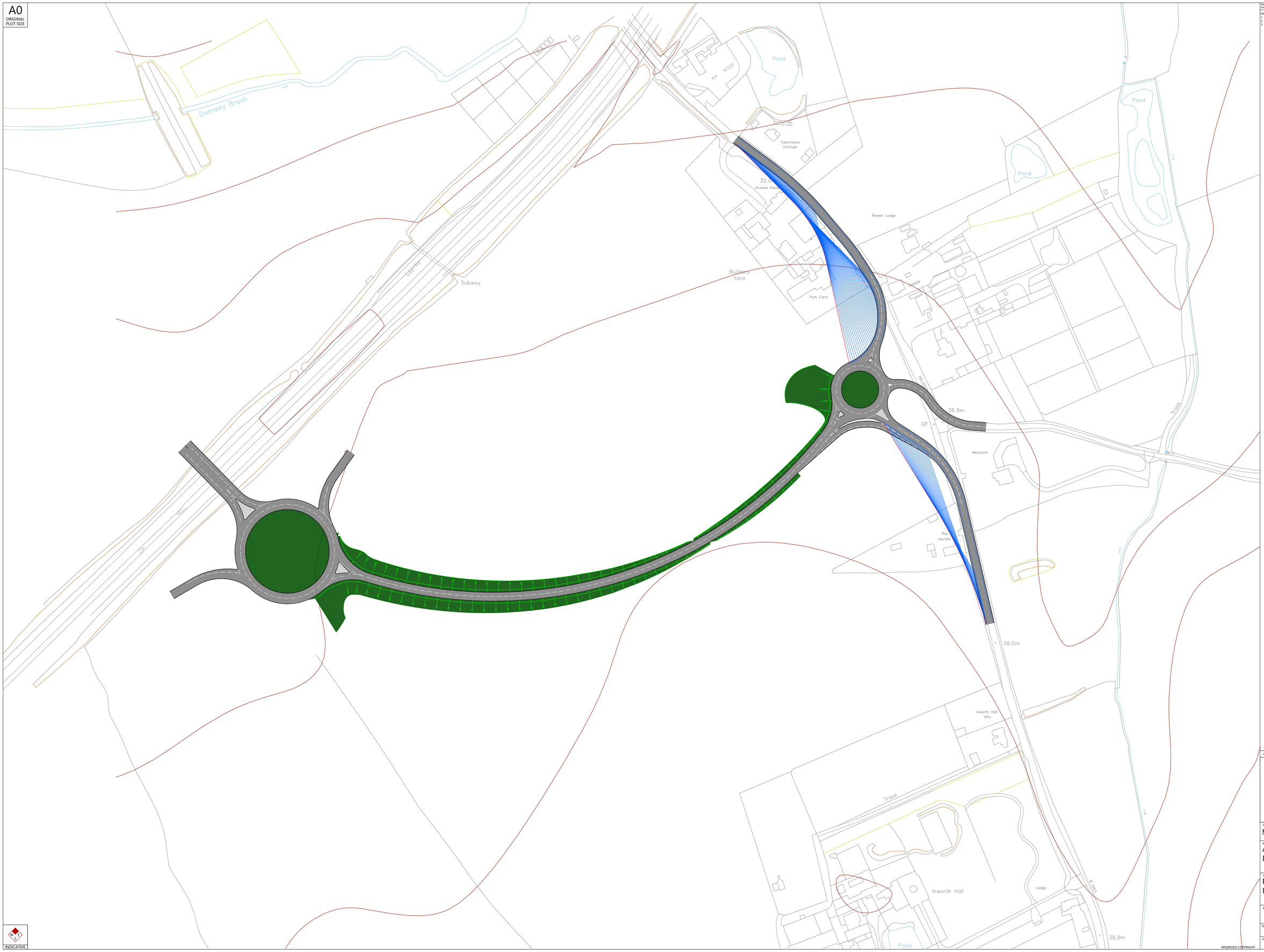
6.16 In their current form there are alterations that need to be made to the proposals which the DCO may not be able to accommodate; such as but not limited to issues with the Inworth Road roundabout and the lack of a complete package of mitigation proposals for all roads and residential dwellings affected in Inworth and Messing.

6.17 In the event that the Main Alternative continues to be resisted by NH, and the proposal in its current form is considered acceptable to the Secretary of State, appropriate mitigation is provided and secured which sufficiently attenuates the significant adverse impacts from the proposals.

Drawings

A0
ORIGINAL
PLOT SIZE

NOTES:
1. Indicative un-surveyed existing road markings.
2. Subject to confirmation of Highway Boundary.
3. Subject to topographical survey.



INDICATIVE

Rev	Date	Details	Drawn by	Checked by	Approved by
-	-	-	-	-	-

Bristol
Cambridge
London
Manchester
Oxford
Welwyn Garden City

The Stables
77 Chesterton Mill
French's Road
Cambridge
CB4 3NP
01223 455385
www.tpa.uk.com

tpa
Transport Planning Associates

CLIENT:
Messing & Inworth Action Group Ltd.

PROJECT:
A12 Junction 24
DCO Objection

TITLE:
Proposed National Highways Link Road Alignment

STATUS:
FEASIBILITY

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:1000	13.09.22	RC	JH	JH

JOB NO:	DRAWING NO:	REVISION:
2207-43	SK02	-

A0
ORIGINAL
PLOT SIZE

NOTES:
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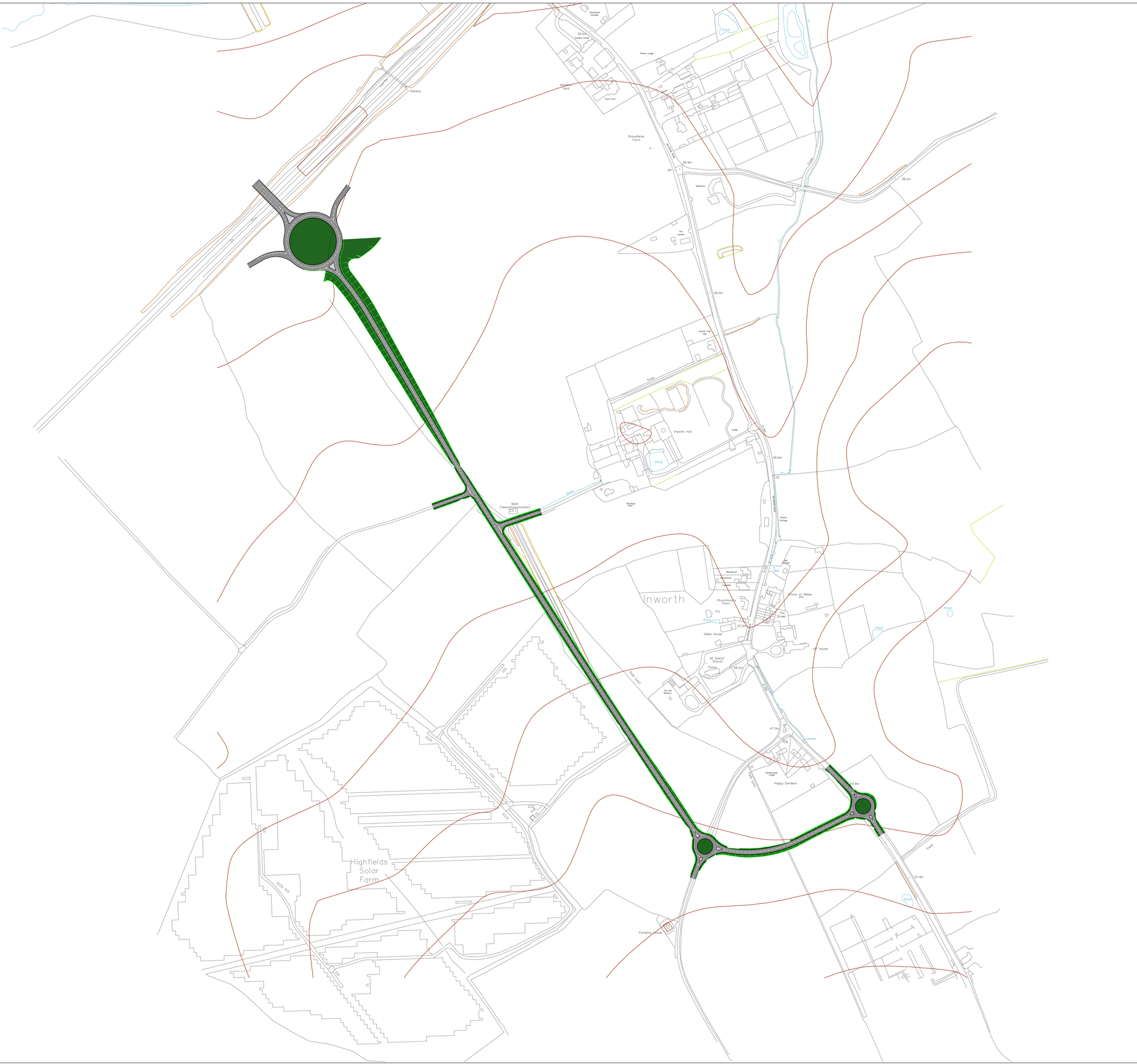
2. Subject to confirmation of Highway Boundary.
3. Subject to topographical survey.



INDICATIVE

Rev	Date	Details	Drawn By	Checked By	Authorised By
A	06.09.22	Updated to show southern link only	RC	JH	JH

Bristol
Cambridge
London
Manchester
Oxford
Welwyn Garden City

tpa Transport Planning Associates

The Stables
7 Chesterton Mill
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www.tpa.uk.com

CLIENT:
Messing & Inworth Action Group Ltd.

PROJECT:
A12 Junction 24
DCO Objection

TITLE:
Proposed Southern
Link Road Alignment

STATUS:
FEASIBILITY

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:2000	02.09.22	RC	JH	JH

JOB NO:	DRAWING NO:	REVISION:
2207-43	SK01	A

APPENDIX A

SITE CODE	22261-02
LOCATION	ATC02 - B1023 Inworth Rd (S), Kelvedon
LOC. DESC.	TP, 65m N of j/w Windmill Hill
START DATE	Tue 10 May, 2022
END DATE	Mon 16 May, 2022
SPEED LIMIT	30mph
SURVEY TYPE	7-day ATC, 15min periods, 10 veh. classes

7-DAY AUTOMATIC TRAFFIC COUNT

SUMMARY

A 7-day automatic traffic count on B1023 Inworth Rd (S), Kelvedon, commencing Tue 10 May 2022, recorded a total of 61,150 vehicles. The posted speed limit of 30mph was exceeded by 64.1% of vehicles, and the seasonally adjusted, combined AADT value is 8,982 (see 'Equipment & methodology' below).

The combined summary on the left shows the total volumes, average speeds, AADT and 85%iles recorded in both directions from all the recorded data, plus the Mon-Fri peak periods. Speeding vehicles are defined as those travelling 31mph and above.

The summaries below provide directionalised details including speeding percentages and weekday daytime details.

COMBINED NORTH- & SOUTHBOUND

Total recorded volume	**61,150**
Avg daily volume (based on 7 days)	8,735.7
Average daily speed (7 days)	31.7mph
Average daily 85%ile (7 days)	35.9mph
AADT (annual average daily traffic)	8,982
Avg weekday volume (Mon-Fri, 24hrs)	9,288.8
Avg weekday speed (Mon-Fri, 24hrs)	31.6mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	7,901.4
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	31.2mph

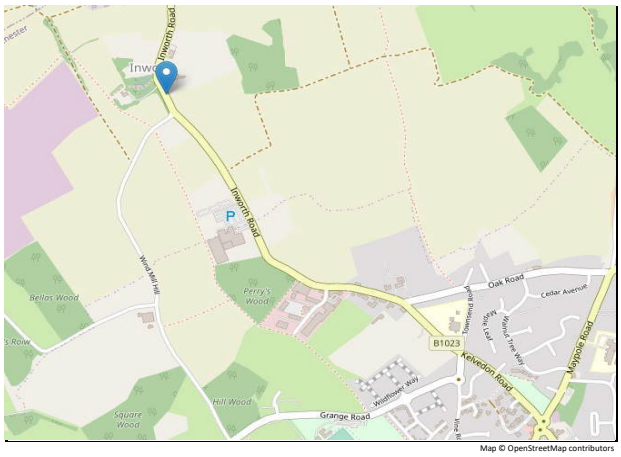
NORTHBOUND ↑

Total recorded volume	**29,705**
Avg daily volume (based on 7 days)	4,243.6
Average daily speed (7 days)	31.8mph
Average daily 85%ile (7 days)	36.2mph
% of vehicles exceeding 30mph	63.5%
Avg weekday volume (Mon-Fri, 24hrs)	4,494.8
Avg weekday speed (Mon-Fri, 24hrs)	31.7mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	3,749.6
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	31.3mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	35.3mph
AM avg peak vol period (Mon-Fri)	07:30 to 07:45
PM avg peak vol period (Mon-Fri)	15:00 to 15:15

SOUTHBOUND ↓

Total recorded volume	**31,445**
Avg daily volume (based on 7 days)	4,492.1
Average daily speed (7 days)	31.5mph
Average daily 85%ile (7 days)	35.5mph
% of vehicles exceeding 30mph	64.7%
Avg weekday volume (Mon-Fri, 24hrs)	4,794.0
Avg weekday speed (Mon-Fri, 24hrs)	31.4mph
Avg 12hr weekday volume (Mon-Fri, 0700-1900)	4,151.8
Avg 12hr weekday speed (Mon-Fri, 0700-1900)	31.1mph
Avg 12hr weekday 85%ile (Mon-Fri, 0700-1900)	34.9mph
AM avg peak vol period (Mon-Fri)	08:15 to 08:30
PM avg peak vol period (Mon-Fri)	17:00 to 17:15

SITE LOCATION

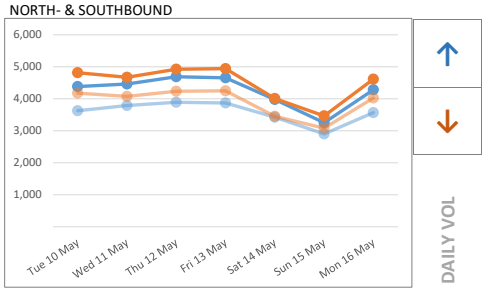


Map © OpenStreetMap contributors

LOCATION	B1023 Inworth Rd (S), Kelvedon
DESC.	TP, 65m N of j/w Windmill Hill
DATES	Tue 10 May to Mon 16 May inc.
OSGR	588014, 217824
LAT / LNG	51.827390, 0.727000
POST CODE	CO5 9ST
PSL	30mph
BUS ROUTE	No
DIRECTION 1	↑ Northbound
DIRECTION 2	Southbound ↓

DAILY VOLUMES

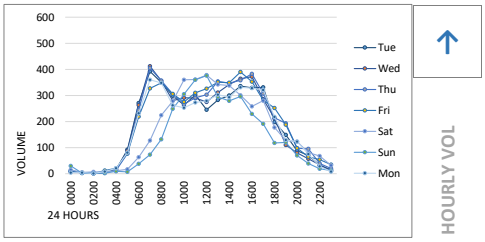
NORTH- & SOUTHBOUND



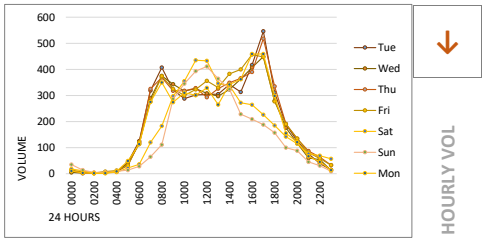
Total 24hr northbound (solid, dark blue) and southbound (solid, dark orange) traffic volumes, with light blue and orange representing 12hr volumes (0700-1900), over 7 consecutive days from all available data.

As can be expected, the lowest 24hr volumes were recorded on the Sunday, whilst the highest was on the Thursday.

HOURLY VOLUMES

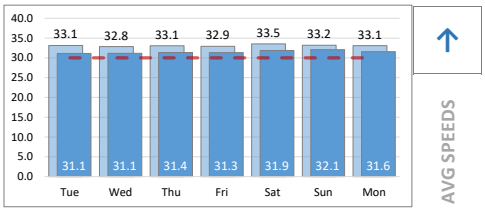


Hourly northbound traffic volumes over each 24hr period for 7 days from all available data

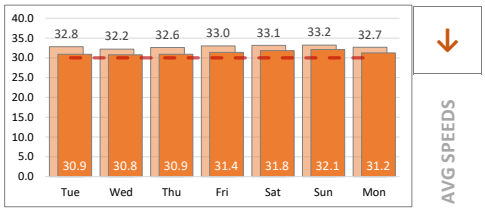


Hourly southbound traffic volumes over each 24hr period for 7 days from all available data

24hr & 12hr AVG SPEEDS

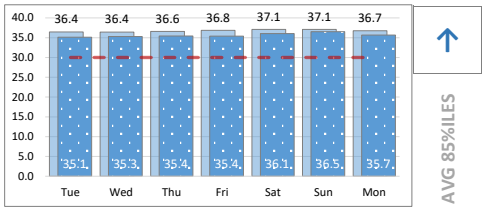


24hr (light) & 12hr daytime (dark blue, 0700-1900) average northbound speeds compared against the posted speed limit of 30mph

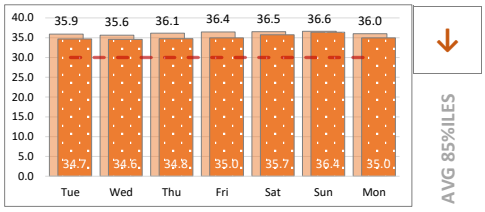


24hr (light) & 12hr daytime (dark orange) average southbound speeds compared against the posted speed limit of 30mph

24hr & 12hr 85%ile SPEEDS

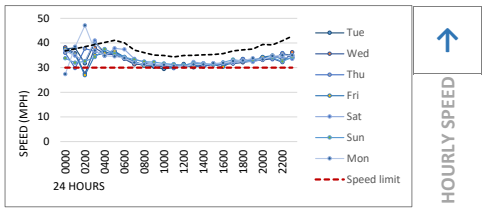


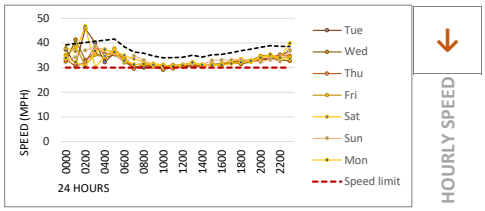
24hr (light) & 12hr daytime (dark blue, 0700-1900) average northbound 85%ile speeds compared against the posted speed limit of 30mph



24hr (light) & 12hr daytime (dark orange, 0700-1900) average southbound 85%ile speeds compared against the posted speed limit of 30mph

HOURLY SPEEDS

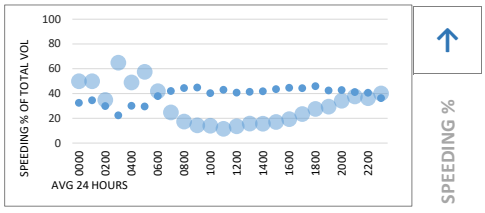


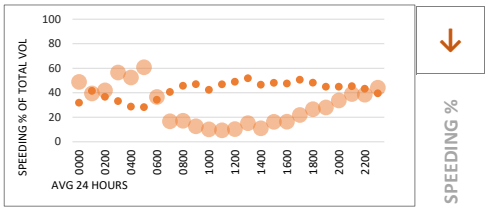


Average hourly speeds (solid thin colours) and 85%ile (dashed black) compared against 30mph posted speed limit (dashed red). The 85%ile is the speed at which 85% of all vehicles are observed to travel under free flowing conditions. A minimum of ten vehicles per speed bin is required for this calculation, hence the overnight low-volume 85%ile values may be zero.

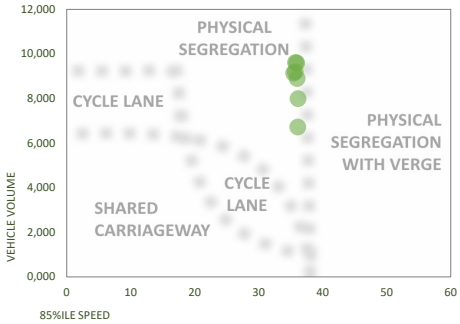
The peak average northbound daytime speed was 35.6mph at 07:00 on Sat 14 May, whilst the peak average southbound speed was 35.4mph at 07:15 on Sat 14 May (based on 15min averages between 0700 & 1900).

SPEEDING % EXCEEDING 30mph





CYCLE PROVISION



The cycle provision diagram compares total daily traffic flow (vertical axis) against the average daily 85%ile speed (horizontal axis) to demonstrate cyclist and vulnerable user considerations.

The guidelines are based on the Sustrans Design Manual (Apr 2014); Understanding User Needs, part 2.

Valid 85%iles are required to plot the graph.

5-DAY AVERAGE CLASSES

NORTHBOUND WEEKDAY AVG

TIME	MOTOR CYCLES	CARS / LGV1	LGV2 / MGV	HGV RIGID	HGV ARTIC'D	TOTAL
0000	0.0	7.2	1.0	0.0	0.0	8.2
0100	0.0	3.0	0.8	0.0	0.0	3.8
0200	0.2	1.8	0.0	0.0	0.2	2.2
0300	0.0	5.8	0.6	0.0	0.0	6.4
0400	0.2	15.0	1.8	0.2	0.0	17.2
0500	2.6	71.6	8.4	0.0	0.4	83.0
0600	3.2	213.4	25.4	2.0	1.6	245.6
0700	2.8	327.2	45.4	1.2	2.6	379.2
0800	2.6	311.2	32.2	1.8	4.0	351.8
0900	2.6	253.0	29.4	2.2	3.2	290.4
1000	1.8	228.4	32.8	3.2	3.6	269.8
1100	1.6	251.6	33.4	3.0	3.6	293.2
1200	1.8	253.8	25.2	2.0	2.8	285.6
1300	1.2	278.6	34.4	2.6	3.6	320.4
1400	0.6	292.4	28.8	1.4	3.0	326.2
1500	2.0	324.0	27.0	1.2	1.6	355.8
1600	1.6	325.4	24.4	1.0	0.6	353.0
1700	1.8	282.6	19.0	0.0	2.0	305.4
1800	1.2	205.2	11.2	0.2	1.0	218.8
1900	1.8	144.2	7.4	0.2	0.2	153.8
2000	1.0	91.2	5.0	0.0	0.2	97.4
2100	2.2	66.2	3.4	0.0	0.6	72.4
2200	0.2	35.6	1.6	0.0	0.2	37.6
2300	0.0	17.2	0.4	0.0	0.0	17.6
12hr TTL	**21.6**	**3333.4**	**343.2**	**19.8**	**31.6**	**3749.6**
24hr TTL	**33.0**	**4005.6**	**399.0**	**22.2**	**35.0**	**4494.8**
	1%	89%	9%	0%	1%	

SOUTHBOUND WEEKDAY AVG

TIME	MOTOR CYCLES	CARS / LGV1	LGV2 / MGV	HGV RIGID	HGV ARTIC'D	TOTAL
0000	0.0	9.2	0.2	0.0	0.0	9.4
0100	0.0	4.2	0.2	0.0	0.2	4.6
0200	0.0	2.6	0.0	0.0	0.0	2.6
0300	0.0	4.2	0.4	0.0	0.0	4.6
0400	0.0	7.4	1.0	0.0	0.4	8.8
0500	1.0	32.4	5.6	0.2	0.2	39.4
0600	2.6	93.0	18.2	0.4	4.2	118.4
0700	2.6	246.0	43.0	1.6	3.8	297.0
0800	1.0	326.6	42.2	1.2	4.0	375.0
0900	0.2	274.8	35.6	1.6	4.0	316.2
1000	1.6	260.8	36.2	4.0	4.0	306.6
1100	1.4	273.0	36.8	0.8	4.0	316.0
1200	1.8	282.4	30.2	1.6	2.0	318.0
1300	1.8	271.8	26.0	1.6	3.4	304.6
1400	2.0	304.0	39.0	0.8	2.0	347.8
1500	2.2	324.6	30.2	1.4	2.4	360.8
1600	1.6	390.8	30.2	1.2	2.2	426.0
1700	3.2	455.2	23.0	0.2	2.2	483.8
1800	3.2	282.2	13.4	0.2	1.0	300.0
1900	3.0	167.6	8.8	0.2	0.6	180.2
2000	1.0	120.4	4.8	0.0	0.2	126.4
2100	0.8	70.0	3.2	0.0	0.2	74.2
2200	1.0	49.0	2.0	0.0	0.0	52.0
2300	0.4	20.6	0.6	0.0	0.0	21.6
12hr TTL	**22.6**	**3692.2**	**385.8**	**16.2**	**35.0**	**4151.8**
24hr TTL	**32.4**	**4272.8**	**430.8**	**17.0**	**41.0**	**4794.0**
	1%	89%	9%	0%	1%	

Average weekday northbound and southbound volumes by class (condensed to the AQMA scheme), including 12hr totals for 0700-1900 and overall average percentages. Calculated from all available data over 5 weekdays. See 'Equipment & Methodology' below for accuracy details.

METHODOLOGY

Equipment & methodology

Automatic traffic counts are undertaken using a pair of pneumatic tubes installed securely across the carriageway, one metre apart, recording air pulses to determine vehicle speed, class and volume. The ATC equipment generally remains in place for a consecutive seven day period, and the data analysed post-survey.

In queuing conditions, the accuracy of ATC recording equipment may reduce as follows;

- 20 – 30mph: potential reduction of 9% accuracy in volume values
- 10 – 20mph: potential reduction of 26% accuracy in volume values
- 00 – 10mph: potential reduction of 39% accuracy in volume values

These figures are based on multiple ATC results compared against accepted reference values from resilient manual counts.

Equipment damage, failure & calculations

Although checked intermittently the equipment remains unmanned for much of the duration of the survey, and can potentially be interfered with, vandalised, damaged or stolen and Essex Highways cannot be held responsible for any periods where data has not been captured.

The equipment is located in accordance with the details provided by the client and Essex Highways cannot be held responsible for the accuracy of the data or loss of equipment due to theft and vandalism.

16hr AADTs are calculated using the seasonal COBA methodology; DMRB Vol. 13, Pt 4: Traffic Flow Input To COBA, with formulae available in the (hidden) config worksheet.

Weather & environmental

Inclement conditions during winter months or outbreaks of unseasonable weather may affect survey data collection. This can result in distorted traffic flows or unusable data and should be considered prior to survey approval. Although forecast checks are made prior to the survey commencing, Essex Highways cannot be held responsible for the forecast accuracy.

Roadworks & events

Where possible, roadworks checks are made 10 days before, and 48 hours before, the survey commences. Additionally, influencing major local events are also monitored, covering the immediate vicinity of the surveys and any routes likely to affect the outcome of the survey.

CLASS	ABBREV.	DESCRIPTION	LENGTH	COBA	AQMA	MANUAL
1	MC	Motorcycle	SHORT Up to 5.5m	N/A	MC	MC
2	SV	Cars, taxis, 4WD, vans		CAR & LGV	CAR	CAR & LGV1
3	SVT	Class 2 plus trailer				
4	TB2	2 axle truck / bus	MEDIUM 5.5m to 14.5m	OGV1 & PSV	LGV & MGV	LGV2 & PSV
5	TB3	3 axle truck / bus		OGV1		MGV & PSV
6	T4	4 axle truck		OGV2	HGV RIGID	HGV1
7	ART3	3 axle articulated	LONG 11.5m to 19.0m		HGV ARTIC	HGV2
8	ART4	4 axle articulated				
9	ART5	5 axle articulated				
10	ART6	6+ axle articulated				

Vehicle classifications

Vehicles recorded by the ATC are placed into one of ten classes (bins) based on axle spacing and pattern. This scheme is based on the AustRoad 94 algorithm and modified for UK traffic, referred to as ARX. The table on the left aligns the ARX classifications with the COBA Chapter 8 (Vol 13, Sec 1) classifications, AQMA (air quality management standard) and the Essex 9-class, as used in manual junction counts undertaken by Essex Highways.

Under adverse conditions the accuracy of ATC classifications will deteriorate and an appropriate link count should be used for validation.

Disclaimer

Although every attempt is made to achieve accuracy, neither Essex County Council nor Essex Highways may be held liable for errors of fact or interpretation.

APPENDIX B

Messing cum Inworth

22 September 2022

The information shared in this presentation represents the most up to date proposals. This may evolve for several reasons, and as such, may be subject to change.

national highways

Agenda

- Introductions
- Background to J24
- B1023 bypass assessment
- B1023 proposals
- Technical standards for the proposed B1023 roundabout
- Next steps
- Environment

Background to junction 24

New junction 24 optioneering

- Broad consensus was that the new J24 must be all movements (serve traffic in all directions).
- The next step for the project was to consider where it should go and the details of the arrangement – this options assessment is documented in the SAR addendum:
  - [redacted]
- Our initial thought process was to place the junction broadly where the current junction 24 is. However, further assessments including feedback from stakeholders concluded that the preferred locations was a direct connection to Inworth Road as shown at our statutory consultation
- Once the location was proposed, focus moved to traffic on Inworth Road, and our proposed interventions were published during our supplementary consultation

B1023 bypass assessment

Assessment of bypass options

While an assessment had taken place previously, in light of the strong feedback at consultation, and the representations from ECC, the project revisited the bypass to consider it in further detail. This challenged the initial analysis that took place which was presented to the council in early 2021. A detailed report, including the work and conclusions touched on in this presentation will be included in the Environmental Statement which we will submit as part of our application for development consent. The analysis considers these bypasses against the proposed scheme.

DS4 - the Main Alternative

DS3 – reflects earlier engagement

The following slides consider the traffic and noise effects of the bypasses locally

Traffic assessment

The Main Alternative (DS4) – traffic assessment 2027 (slide 1 of 2)

As to be expected when comparing it to the scheme's proposals there are positives and negatives:

- Traffic goes up considerably on:
  - The southern section of Inworth Road south of the bypass*
  - B1023 Kelvedon Road in Tiptree*
  - Oak Road in Tiptree*
  - The northern section of Inworth Road, north of J24

- Traffic goes down considerably on:
  - Middle section of Inworth Road (Inworth village)
  - London Road between Gore Pit junction and the existing J24
  - Kelvedon Road (Messing)

** these increases would happen with the principle of a bypass with any combination of additional links. The increases are not just due to traffic no longer using Messing as a cut-through. A bypass would make J24 more attractive for traffic coming from Tiptree, and therefore increase traffic between Tiptree and the bypass)*

34 - Feering Hill, Kelvedon		
	AM peak	PM peak
Change due to bypass	+27	-4

37 - London Rd between Gore Pit and existing junction 24		
	AM peak	PM peak
Change due to bypass	-177	-178

102 - Inworth Road, Kelvedon		
	AM peak	PM peak
Change due to bypass	+272	+348

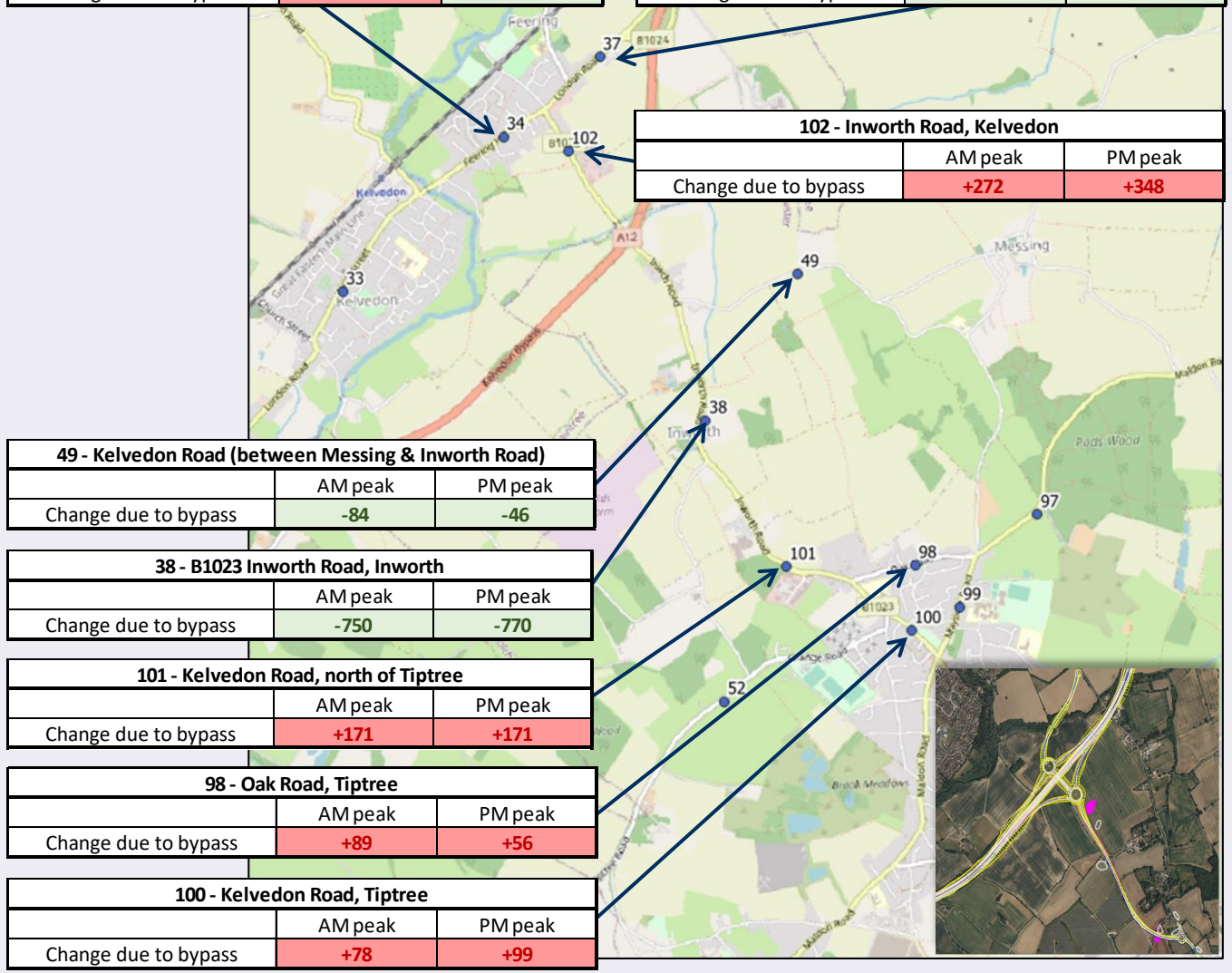
49 - Kelvedon Road (between Messing & Inworth Road)		
	AM peak	PM peak
Change due to bypass	-84	-46

38 - B1023 Inworth Road, Inworth		
	AM peak	PM peak
Change due to bypass	-750	-770

101 - Kelvedon Road, north of Tiptree		
	AM peak	PM peak
Change due to bypass	+171	+171

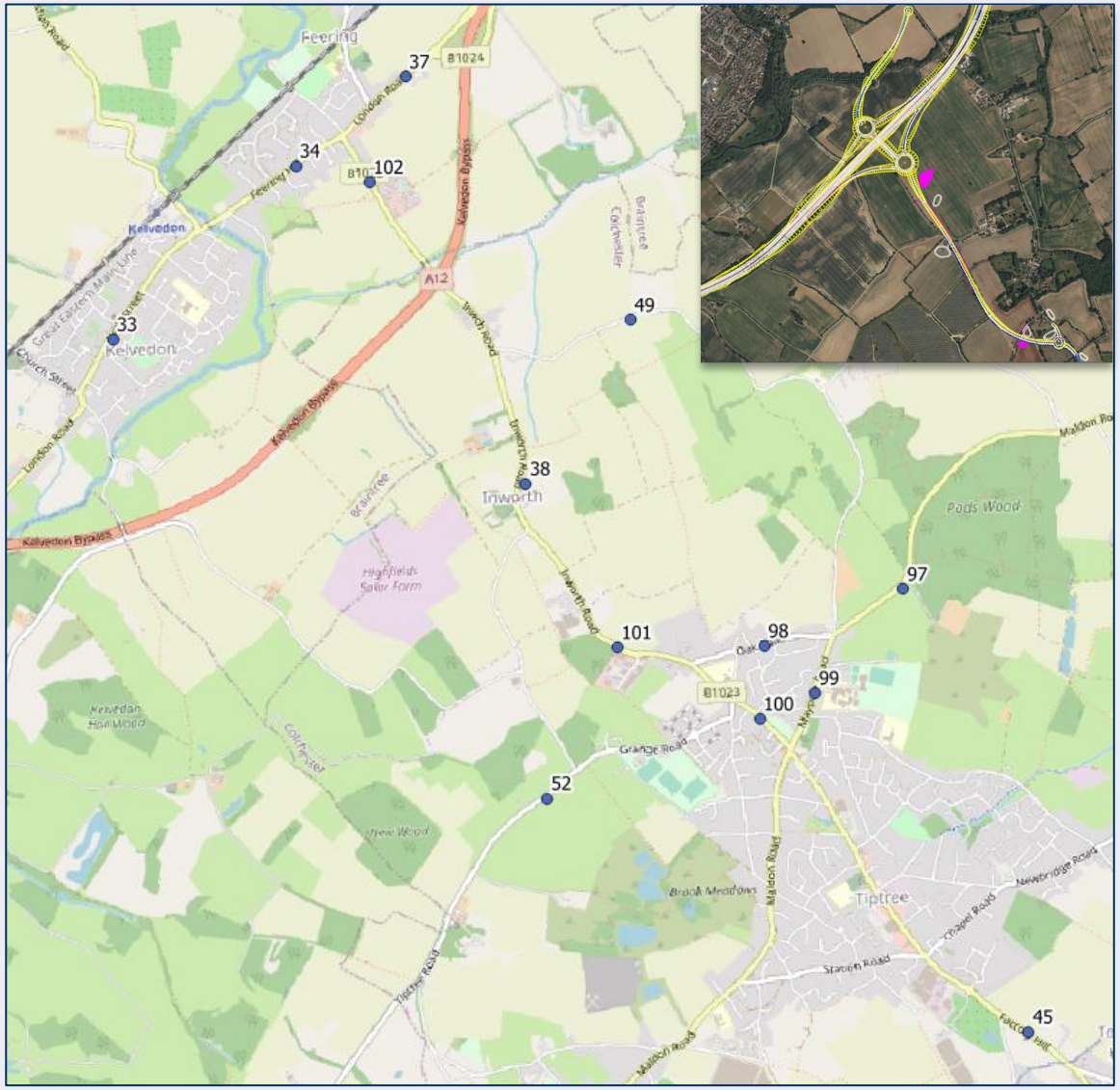
98 - Oak Road, Tiptree		
	AM peak	PM peak
Change due to bypass	+89	+56

100 - Kelvedon Road, Tiptree		
	AM peak	PM peak
Change due to bypass	+78	+99



The Main Alternative (DS4) – traffic assessment 2027 (slide 2 of 2)

Ref.	Location	Peak	DM - Without A12 Scheme	DS2 - With A12 Scheme	With Scheme & DS4 bypass	Change due to DS4 bypass
33	B1024 Kelvedon High Street	AM	1,013	763	746	-17
		PM	1,003	887	834	-53
34	Feering Hill, Kelvedon	AM	1,000	711	737	+27
		PM	1,029	859	855	-4
37	London Rd between Gore Pit and existing junction 24	AM	880	522	346	-177
		PM	956	464	286	-178
38	B1023 Inworth Road, Inworth	AM	784	1,111	361	-750
		PM	846	1,132	362	-770
45	B1023 Oxley Hill, Tiptree	AM	383	365	364	-1
		PM	387	409	407	-2
49	Kelvedon Road (between Messing & Inworth Road)	AM	38	133	49	-84
		PM	45	109	63	-46
52	Grange Road, west of Tiptree	AM	129	43	46	+3
		PM	155	78	80	+2
97	Colchester Road, east of Tiptree	AM	678	535	566	+31
		PM	727	594	572	-22
98	Oak Road, Tiptree	AM	140	185	275	+89
		PM	160	206	262	+56
99	Maypole Road, Tiptree	AM	676	508	457	-51
		PM	691	540	473	-67
100	Kelvedon Road, Tiptree	AM	757	928	1,006	+78
		PM	835	935	1,034	+99
101	Kelvedon Road, north of Tiptree	AM	801	1,134	1,305	+171
		PM	890	1,158	1,330	+171
102	Inworth Road, Kelvedon	AM	822	779	1,050	+272
		PM	892	900	1,248	+348



DS3 – traffic assessment 2027 (slide 1 of 2)

As to be expected when comparing it to the scheme's proposals there are positives and negatives:

- Traffic goes up considerably on:
  - The southern section of Inworth Road south of the bypass*
  - B1023 Kelvedon Road in Tiptree*
  - Oak Road in Tiptree*

- Traffic goes down considerably on:
  - Middle section of Inworth Road (Inworth village)
  - Kelvedon Road (Messing)

** these increases would happen with the principle of a bypass with any combination of additional links. The increases are not just due to traffic no longer using Messing as a cut-through. A bypass would make J24 more attractive for traffic coming from Tiptree, and therefore increase traffic between Tiptree and the bypass)*

34 - Feering Hill, Kelvedon		
	AM peak	PM peak
Change due to bypass	+14	+0

37 - London Rd between Gore Pit and existing junction		
	AM peak	PM peak
Change due to bypass	-11	-2

102 - Inworth Road, Kelvedon		
	AM peak	PM peak
Change due to bypass	+6	+16

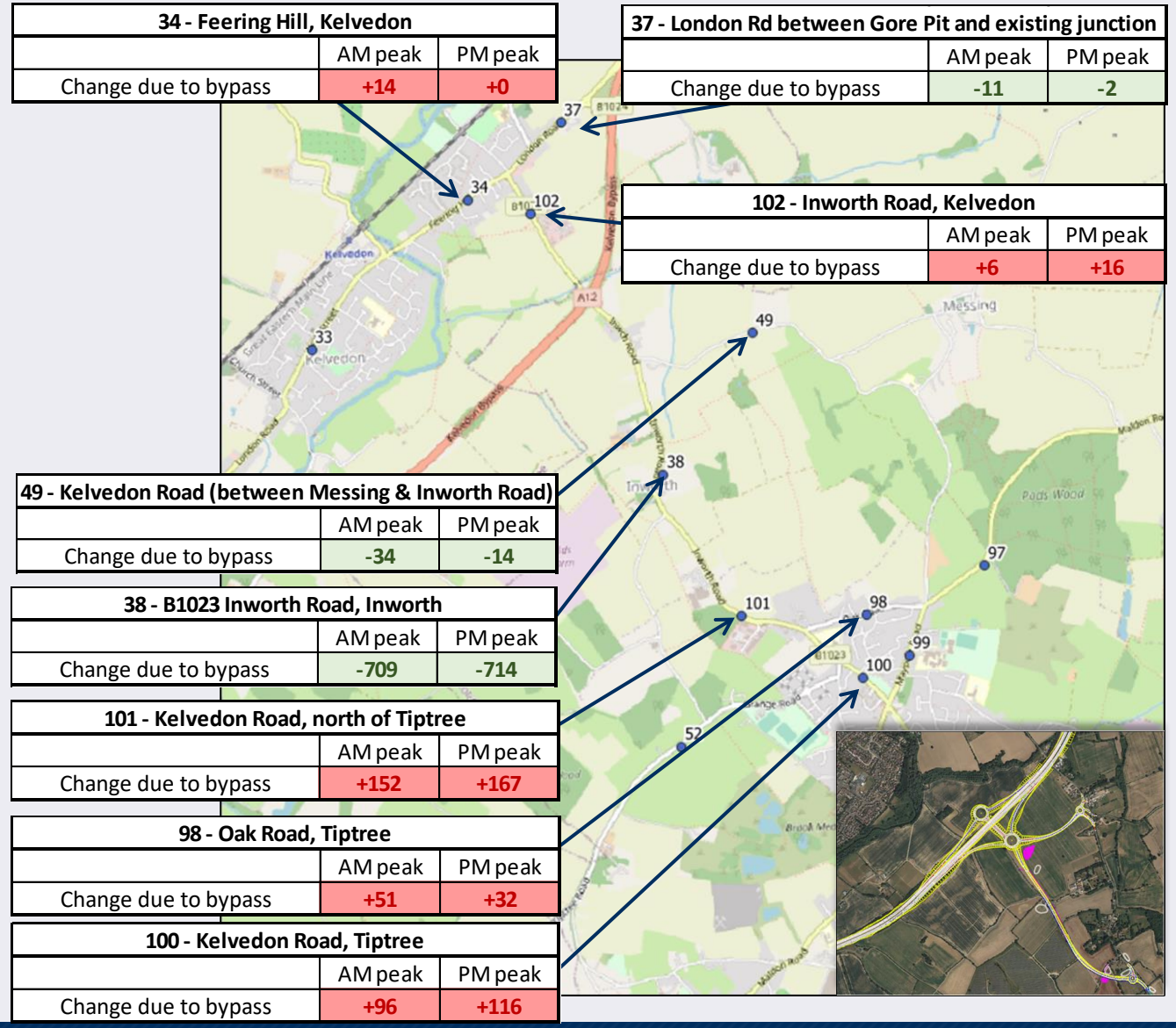
49 - Kelvedon Road (between Messing & Inworth Road)		
	AM peak	PM peak
Change due to bypass	-34	-14

38 - B1023 Inworth Road, Inworth		
	AM peak	PM peak
Change due to bypass	-709	-714

101 - Kelvedon Road, north of Tiptree		
	AM peak	PM peak
Change due to bypass	+152	+167

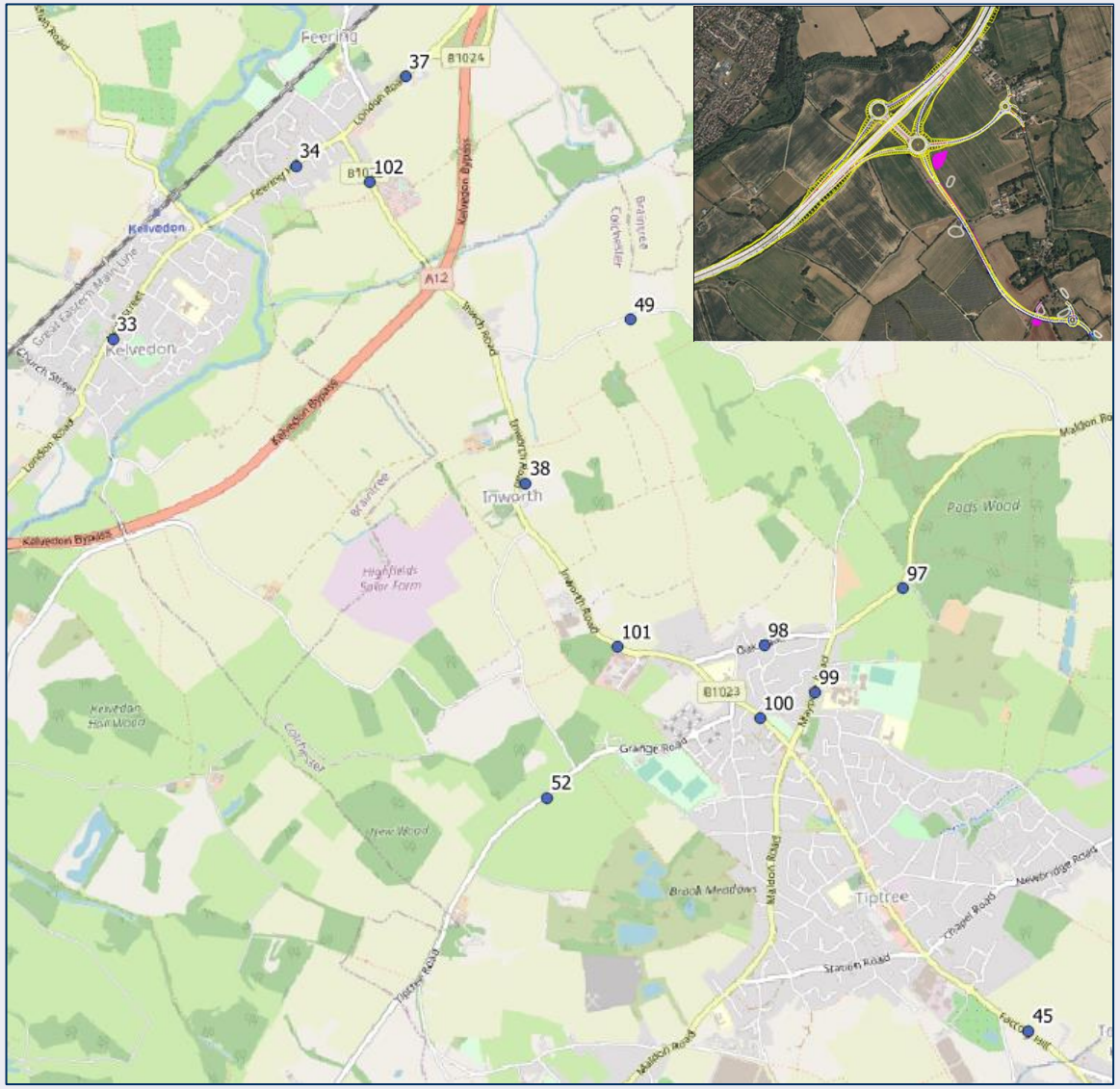
98 - Oak Road, Tiptree		
	AM peak	PM peak
Change due to bypass	+51	+32

100 - Kelvedon Road, Tiptree		
	AM peak	PM peak
Change due to bypass	+96	+116



DS3 – traffic assessment 2027 (slide 2 of 2)

Ref.	Location	Peak	DM - Without A12 Scheme	DS2 - With A12 Scheme	With Scheme & DS3 bypass	Change due to DS3 bypass
33	B1024 Kelvedon High Street	AM	1,013	763	777	+13
		PM	1,003	887	883	-4
34	Feering Hill, Kelvedon	AM	1,000	711	725	+14
		PM	1,029	859	859	+0
37	London Rd between Gore Pit and existing junction 24	AM	880	522	511	-11
		PM	956	464	462	-2
38	B1023 Inworth Road, Inworth	AM	784	1,111	403	-709
		PM	846	1,132	418	-714
45	B1023 Oxley Hill, Tiptree	AM	383	365	362	-3
		PM	387	409	404	-5
49	Kelvedon Road (between Messing & Inworth Road)	AM	38	133	99	-34
		PM	45	109	95	-14
52	Grange Road, west of Tiptree	AM	129	43	47	+4
		PM	155	78	80	+2
97	Colchester Road, east of Tiptree	AM	678	535	513	-22
		PM	727	594	543	-51
98	Oak Road, Tiptree	AM	140	185	236	+51
		PM	160	206	237	+32
99	Maypole Road, Tiptree	AM	676	508	438	-70
		PM	691	540	464	-77
100	Kelvedon Road, Tiptree	AM	757	928	1,024	+96
		PM	835	935	1,052	+116
101	Kelvedon Road, north of Tiptree	AM	801	1,134	1,286	+152
		PM	890	1,158	1,325	+167
102	Inworth Road, Kelvedon	AM	822	779	784	+6
		PM	892	900	915	+16



Messing

- We have received many representations regarding traffic numbers in Messing.
- Ordinarily roads of this type would not be included in our model. However, in response to concerns, we ran some tests to provide the requested information.

DS3

49 - Kelvedon Road (between Messing & Inworth Road)		
	AM peak	PM peak
DM - Without scheme	38	45
DS2 - (A12 & Inworth Rd Mitigations)	133	109
DS3 - (A12 & Bypass with J24 southern link)	99	95
Change due to bypass	-34	-14

DS4
the main alternative

49 - Kelvedon Road (between Messing & Inworth Road)		
	AM peak	PM peak
DM - Without scheme	38	45
DS2 - (A12 & Inworth Rd Mitigations)	133	109
DS4 - (A12 & Bypass with J24 northern link)	49	63
Change due to bypass	-84	-46

- With our scheme, total traffic will be just over two vehicles per minute during the morning and evening peak.
- This is within the capacity of the road, and many similar roads around the country safely handle higher flows.
- As noted, the bypass would bring traffic in Messing back close to levels without the scheme.
- The bypass also attracts additional traffic to J24 from Tiptree, thereby increasing traffic levels though Tiptree centre (B1023)

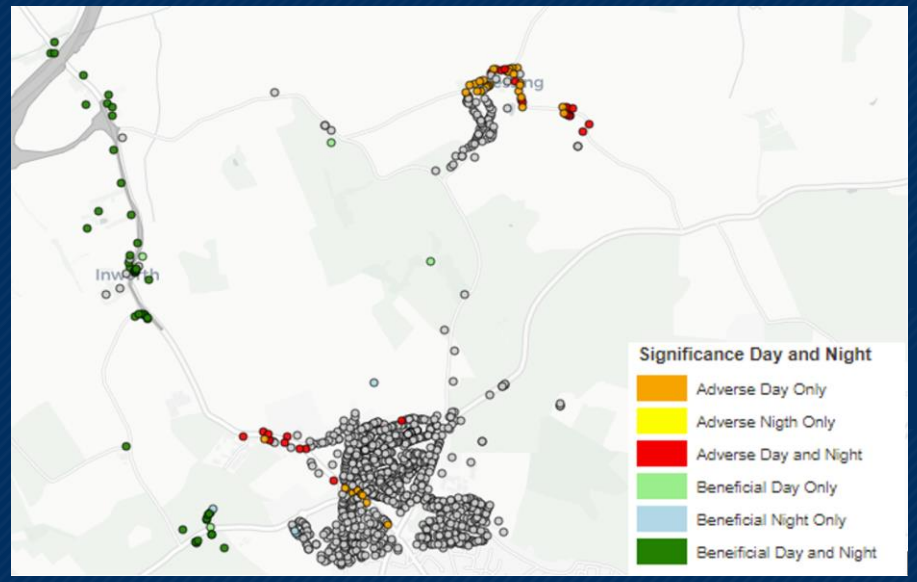
Noise assessment

A detailed assessment has taken place across various factors. A key differentiator between our proposals and a bypass is noise as the expect effects of a bypass exceed Significant Observed Adverse Effect Level (SOEAL). Due to the importance of the noise differentiator the next slides provide more information.

The full assessment across all factors have been captured in Chapter 3 of the Environmental Statement.

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000290-6.3-Environmental-Statement-Appendix-3.3-Junction-24-Inworth-Road-and-Community-Bypass-Tehcnical-Report.pdf

Noise



DS3

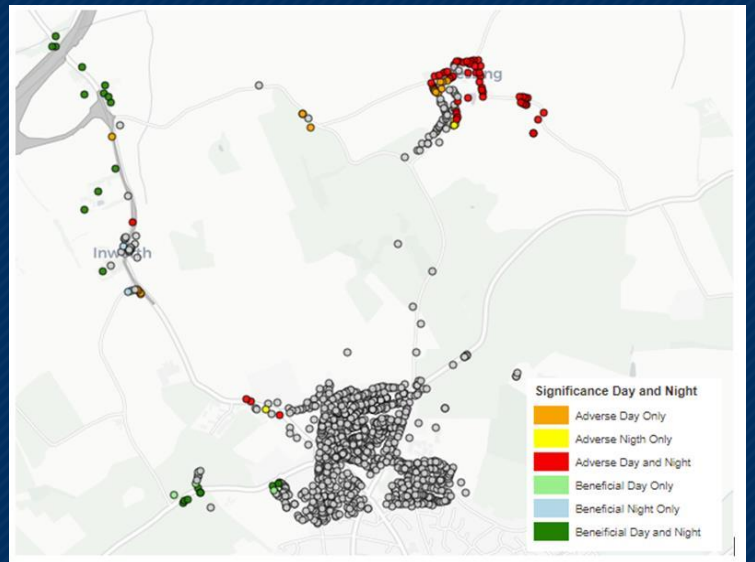
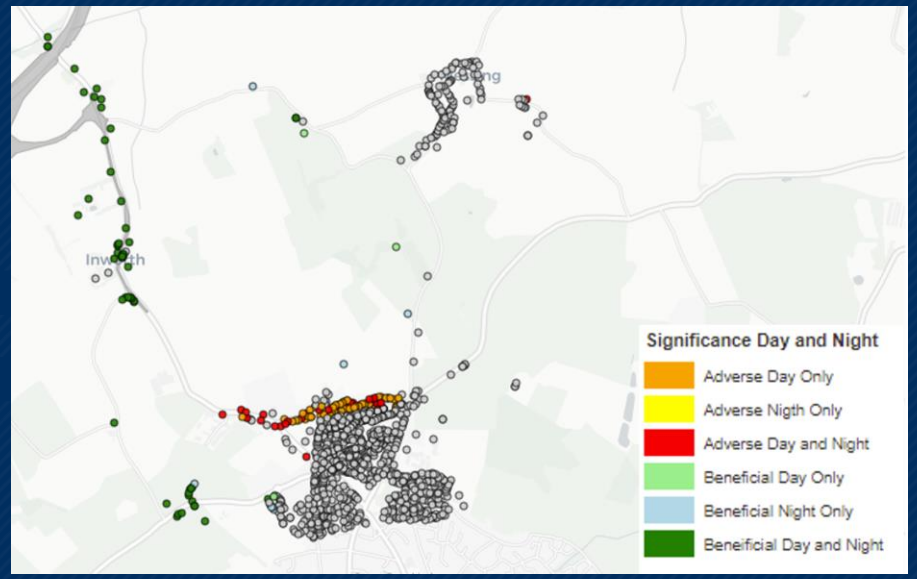


Plate 7.2 Significant effects from noise with the proposed scheme



DS4 – the main alternative

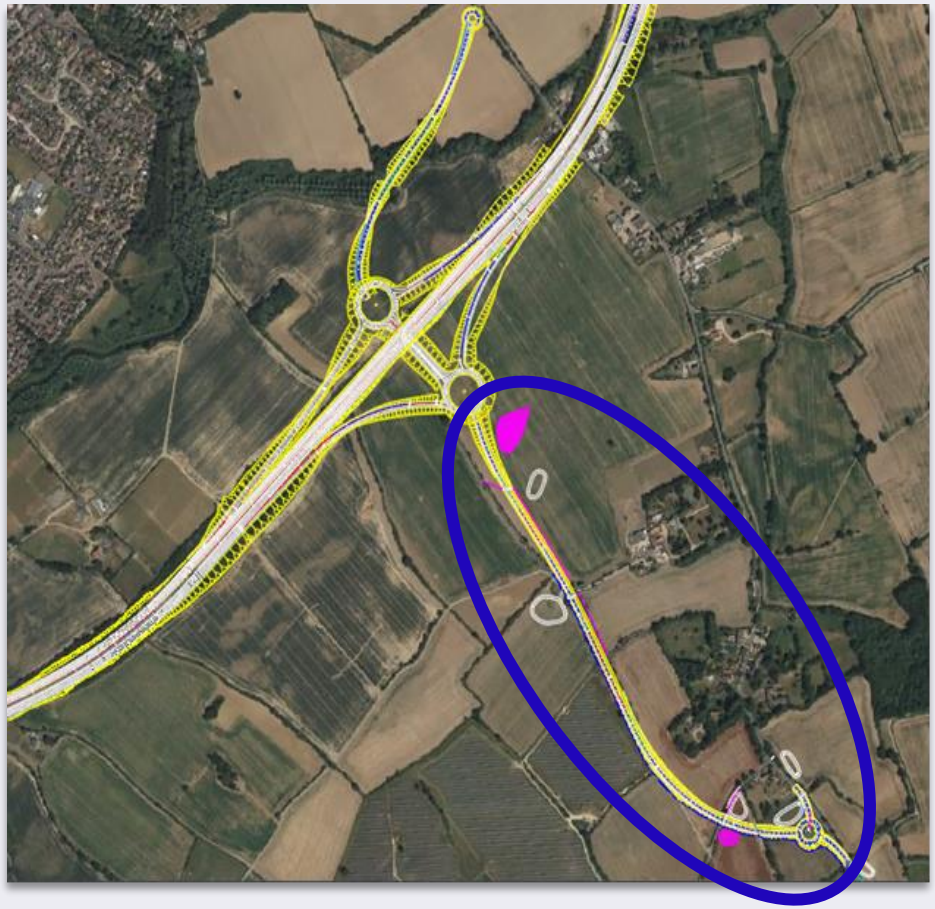
Noise

Table 8.3 Significant noise effects for proposed scheme and community bypass options

	Proposed scheme (DS2)	DS3	DS4
Significant adverse effects	75	63	90
Significant adverse effects above SOAEL	4	20	19
Significant beneficial effects	110	153	165

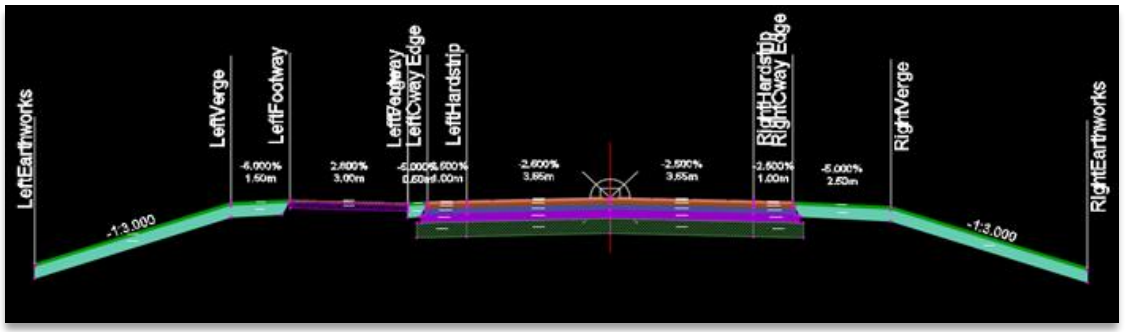
Cost and land

Cost and land assessment



NOTE: the northern link would require an additional structure, and would require additional land and cost more.

- We did utilise this proposal to assess the cost of the bypass section to the south of the A12 and the land required (circled in blue). We did this by creating a cross section compliant with standard.



A12 Inworth mitigation	Inworth Road bypass
Land	
67,200sqm	104,000sqm
Costs (over and above any J24 configuration)	
£3-4mil	£13-15mil

Summary

- A bypass, compared to our proposals, would reduce traffic in the community of Inworth, and would reduce traffic in Messing.
- A bypass, compared to our proposals, would increase traffic in Tiptree and the southern section of Inworth Road, the “Main Alternative" would also increase traffic on the northern section of Inworth Road
- SOAEL would not be exceeded in Messing under our proposals, but SOAEL would be exceeded at certain locations in Tiptree under the bypass proposals
- A bypass would create additional environmental effects and it would require a minimum of 40% more land, when compared to the mitigation measures on Inworth Rd.
- A bypass would be a minimum of £10,000,000 more expensive than the A12 proposals
- The scheme is proposing to address pinch points and flooding issues that a bypass would not address

Conclusion

While a bypass would considerably reduce traffic from the central section of Inworth Road, as well as reduce traffic in Messing compared to our proposals, it would create noise effects that would put the A12 scheme’s DCO in jeopardy. In addition, the bypass would not just transfer traffic from one community to another, but draw additional traffic to Tiptree as the bypass would make Junction 24 more popular. On this basis the A12 cannot support the inclusion of a bypass within the scheme.

B1023 proposals

Design for development consent application

To address historical pinch points and capacity:

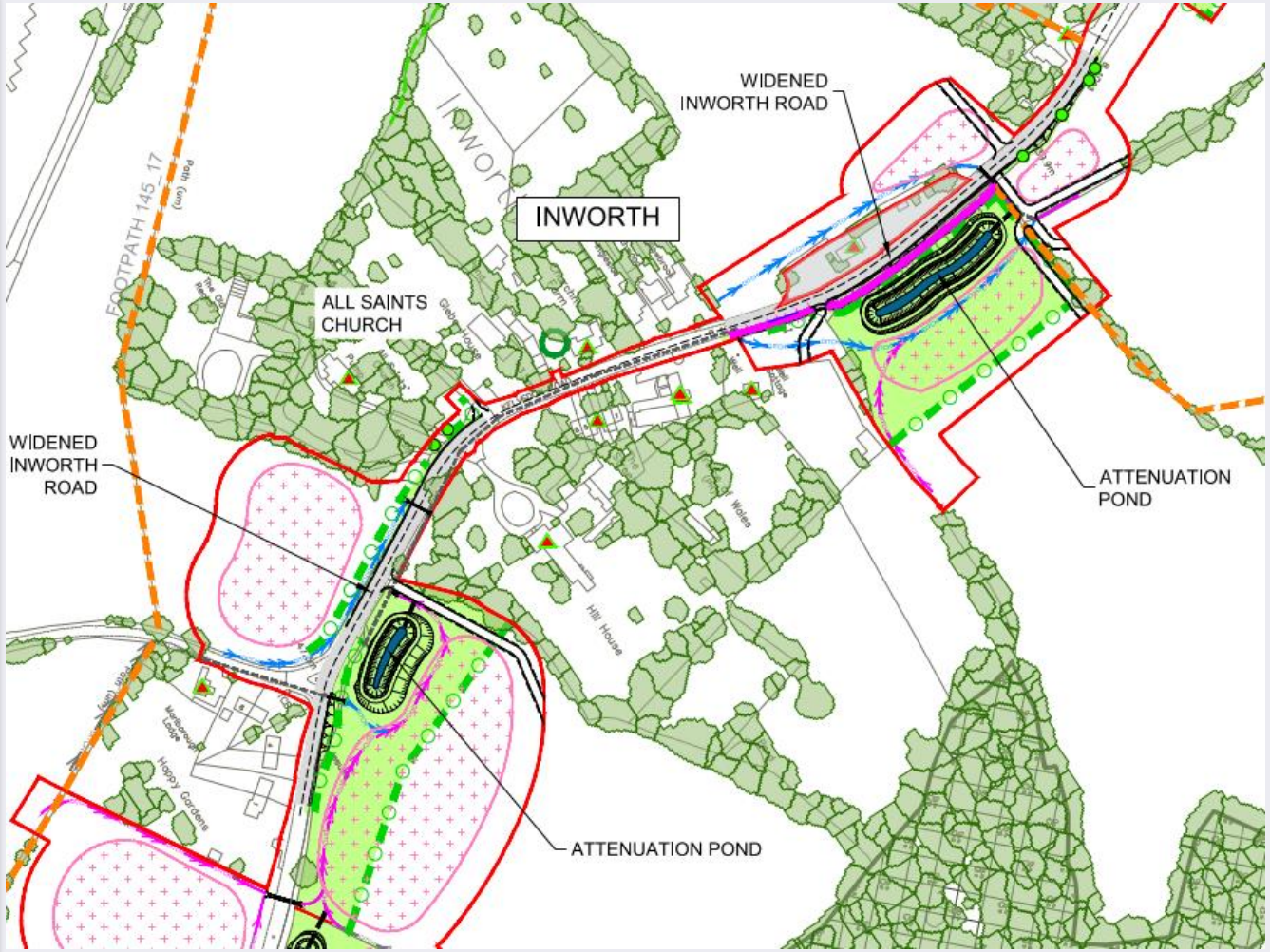
- Swept path analysis (vehicle tracking) software used to plot movements of articulated HGVs.
- In addition, first principles and standards (e.g ECC highways design guide, Manual for Streets) to inform width on straight sectionsDetailed microsimulation of the corridor to test capacity.

From ECC *"where points remain the road width and reasons for not being able to increase it should be provided."*

- Through Inworth Village approximate 6.0m carriageway to remain to minimise impacts. Straight section allows for HGVs passing and acts as traffic calming.

To address historical drainage and surface water flooding.

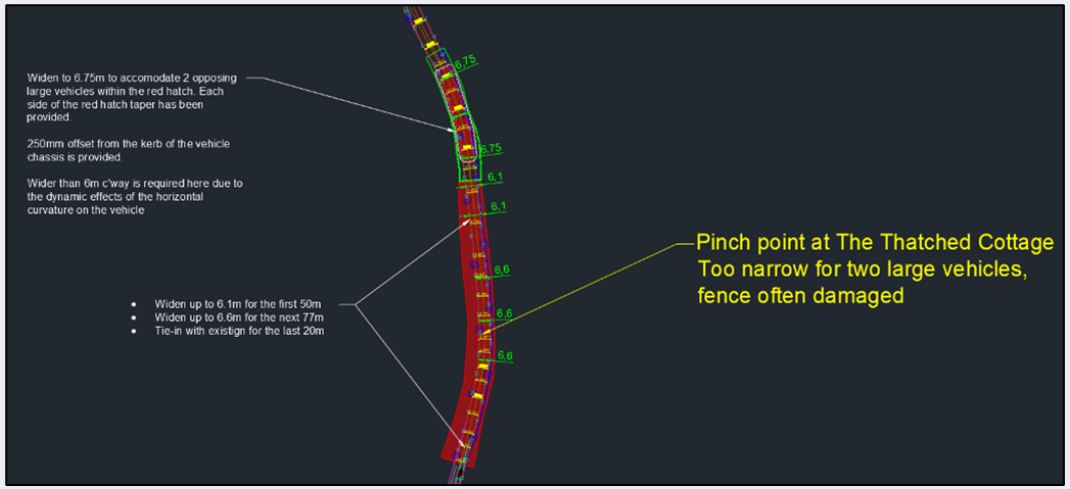
- Additional attenuation and flood mitigation areas, assessed as a 'worst case scenario'.

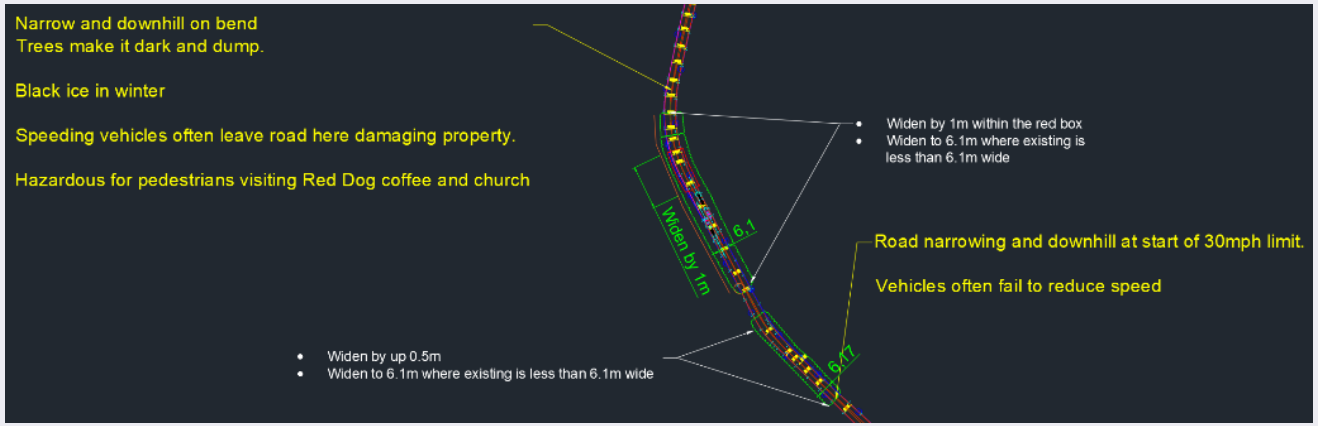


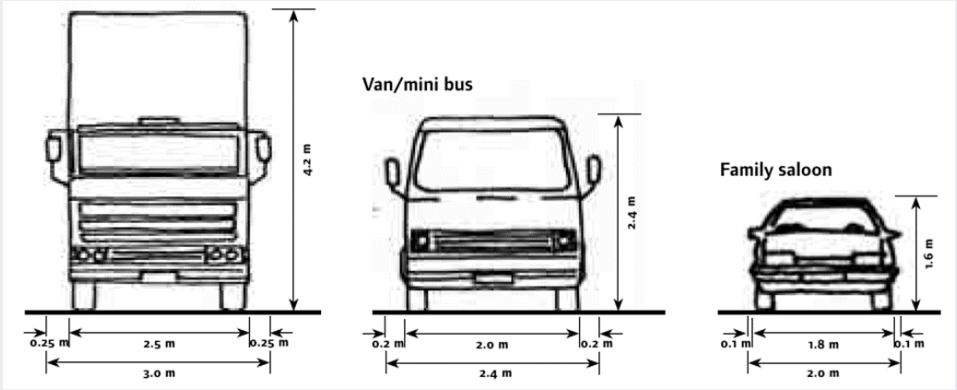
Design for development consent application – swept path analysis

Examples of the swept path analysis are shown to the right.

- Pinch points raised by community addressed, in addition to those found by our analysis which were not raised.
- Swept path analysis used to inform widening on bends
- 6.1m proposed width on pinch points on straight sections.
- Additional widening would both increase land take, environmental impacts, and increase speeds and reduce driver caution.
- 16.5m articulated heavy goods vehicle used as the 'design vehicle', larger than the vehicle below from Manual for Streets.







Design for development consent application – microsimulation (slide 1 of 2)

- Microsimulation is a way of modelling how traffic behaves on a road network when changes are made to the road layout or to the number of vehicles.
- We used microsimulation used to test the performance of the improved corridor, including buses and bus stops, private accesses and trip generators such as Perrywood Garden Centre. Our assessment factors in the increased traffic due to the A12 scheme.
- The table to the right presents the results from the microsimulation, showing that the average delays and journey times are similar in the Do Minimum (DM) and Do Something (DS2 – mitigation measures) scenarios.
- Videos of the microsimulation of these scenarios are on the following slide.

Table 6-1: Microsimulation results of Inworth Rd considering the Do Minimum (DM), Do Something 1 (DS1) and Do Something 2 (DS2) traffic scenarios. The figures listed are the average journey times (seconds) and the average delay (seconds).

Inworth Road

Journey Times	Distance
Northbound	1371.61m
Southbound	1371.61m

DCO Traffic Flows

Average Journey Times, in seconds (10 runs)

	DM	DS1	DS2
AM Peak	Existing Inworth Road Network	Existing Inworth Road Network	Existing Inworth Road Network - with Improvement Proposals
Northbound	92	96	92
Southbound	91	97	90

Average Journey Times, in seconds (10 runs)

In Seconds	DM	DS1	DS2
PM Peak	Existing Inworth Road Network	Existing Inworth Road Network	Existing Inworth Road Network - with Improvement Proposals
Northbound	87	89	88
Southbound	89	94	91

Average Delay, in seconds (10 runs)

	DM	DS1	DS2
AM Peak	Existing Inworth Road Network	Existing Inworth Road Network	Existing Inworth Road Network - with Improvement Proposals
Northbound	8	12	9
Southbound	8	12	7

Average Delay, in seconds (10 runs)

	DM	DS1	DS2
PM Peak	Existing Inworth Road Network	Existing Inworth Road Network	Existing Inworth Road Network - with Improvement Proposals
Northbound	4	6	5
Southbound	6	10	7

Design for development consent application – microsimulation (slide 2 of 2)

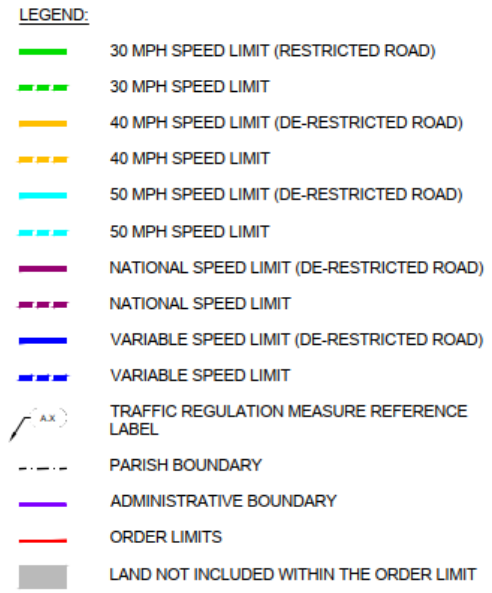
- Do Something 1 (DS1) scenario – Existing Inworth Road, with the new junction 24 and no mitigation measures.
- Location is facing The Red Dog restaurant, looking north to J24.

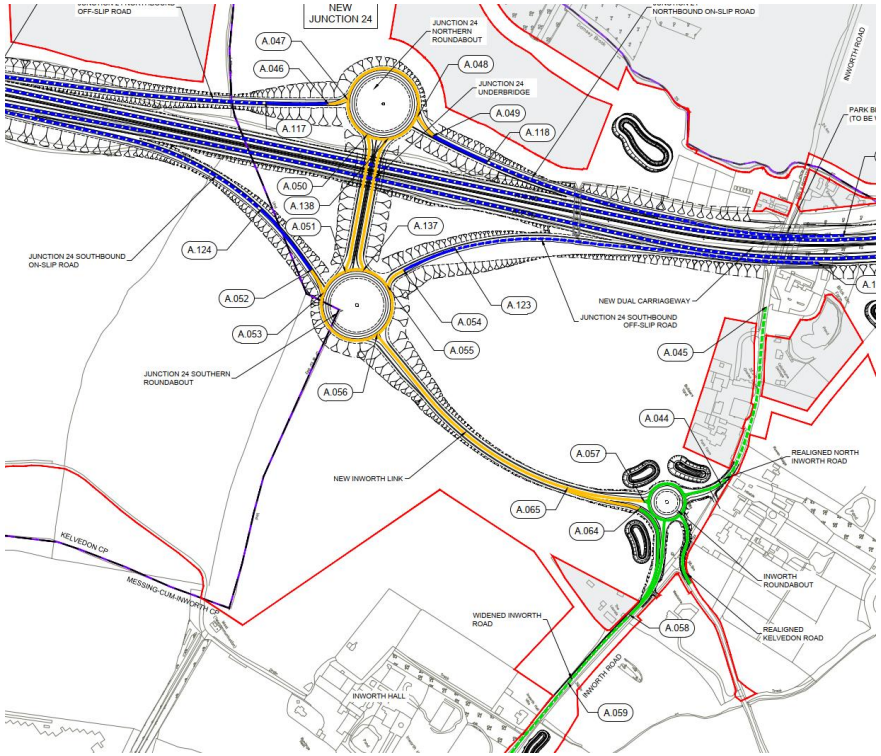
- Do Something 2 (DS2) scenario – Inworth Road, with the new junction 24 and proposed mitigation measures.
- Location is facing The Red Dog restaurant, looking north to J24

Technical standards for the proposed B1023 roundabout

J24/B1023 Roundabout Design Strategy

- Part of the design process for all junctions of the A12 is to ensure that drivers transition from the trunk road to the local road in a safe manner. As part of this, it is important that the driver feels they are entering the local road network prior to doing so. As a principle decision of the project, we believe that drivers should feel they are entering the local road network as they reach the roundabout rather than on Inworth Road itself.





- A roundabout designed in accordance with the Design Manual for Roads and Bridges (DMRB) could give the perception to the driver that they are still on the strategic road network

J24/B1023 Roundabout Design Strategy

- The project has been asked (by Messing and Inworth PC amongst other consultees) to extend the existing 30mph limit along the B1023 to Gore Pit Junction in Feering
- Although we are unable to do that all the way up to Feering due to the nature of the road and traffic north of Hinds bridge not changing, the roundabout approaches linking the B1023 and J24 have been designed around a 30mph limit, specifically around the entry and exit visibility requirements of Manual for Streets
- The Essex Highways Technical Manual states that, regarding visibility, "For streets with speed limits of 30mph or under in particular type B, C and D roads, Manual for Streets standards will apply."
- The below visibility/stopping sight distance (SSD) criteria are from Table 7.1 from Manual for Streets, and minimum recommended curve radii are from Table 8.1 from Manual for Streets 2. These minimum requirements are met for 30mph/48kph on both the northern and southern B1023 approaches to the roundabout. The roundabout has been modelled in traffic microsimulation software also has the capacity to provide a level of service of A (less than 10 seconds delay at both the AM and PM peak, denoting best operating conditions) for the forecasted flows, and has appropriate geometry for heavy goods vehicles.

Table 7.1 Derived SSDs for streets (figures rounded).

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

Design Speed, kph	Curve Radius, m 4 steps below TD 9/93 Desirable Min
30	16
40	28
48	41
50	44
60	64

Table 8.1 - Minimum Recommended Curve Radii

highways england


Hatfield
Peverel
B 1137
Colchester A 12
Harwich (A 120)
Felixstowe (A 14)
20A
REDIBLOC
C73

Next steps

Next steps

- Now our application has been accepted, the process and programme is run by the Planning Inspector
- On the 22nd of September s56 letters are issued which invite people to participate in the process by submitting a relevant representation. By submitting a relevant representation you will become an Interested Party which means you have the right to participate in examination process. These letters are sent to all statutory stakeholders and landowners.
- We have also contacted local Cllrs, the parish councils and those who have shown interest in the past.
- S56 notices are also published in local and national newspapers and at various locations around the proposed scheme.
- To advertise this more widely in Messing-cum-Inworth, we would like to hold an in person event. The relevant reps window will close on the 4th of November and we are seeking to hold an event on Friday 14th October.
- More information can be found on PINs website: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-eight-overview-of-the-nationally-significant-infrastructure-planning-process-for-members-of-the-public-and-others/

Next steps

- Outside of the DCO process, we would like to have the opportunity to discuss Designated Fund opportunities with you.

- More on Designated Funds, and how this works can be found here:

[redacted]

- These ideas can include walking, cycling and horse-riding opportunities, saving energy or delivering value for money.

Environment

Community severance

Messing Parish Council comment:

At current traffic levels, the existing minimal footways are sufficient and there is marginal social severance. It is only National Highway's (formerly Highways England) proposal that will increase traffic levels such that social severance becomes an issue.

A12 Project's response:

The existing flow of traffic on the road is associated with moderate severance. The additional traffic caused by the A12 scheme is expected to maintain a moderate level of severance.

Our assessment on community severance can be seen within Chapter 13, Population and Human Health, of the Environmental Statement, which has been submitted as part of the DCO application (see link to chapter below).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000147-6.1-Environmental-Statement-Chapter-13-Population-and-Health.pdf

Section 13.18 of Chapter 13 (paragraph 13.18.78 / page 133 onwards) includes a section assessing the health effects from community severance in Inworth.

national highways

Heritage

Messing Parish Council comment:

By which standard have you assessed these impacts upon the listed properties?

A12 Project's response:

The general approach to assessing the value of assets and significance of effects on them was based on DMRB LA 104 Environmental Assessment and Monitoring and DMRB LA 106 Cultural Heritage Assessment. Assessments of the contribution made by setting to the value of heritage assets was guided by the methodology in The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). The assessment of cultural heritage effects was made using professional judgement guided by the significance matrix set out in Table 3.8.1 of DMRB LA 104. The assessment methodology is reported in Chapter 7, Cultural Heritage, of the Environmental Statement, which has been submitted as part of the DCO application (see link to chapter below).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000178-6.1-Environmental-Statement-Chapter-7-Cultural%20Heritage.pdf

Section 7.5 of Chapter 7 includes sections on the assessment guidance used (paragraph 7.5.5 / page 23), the general methodology (paragraph 7.5.6 / page 24), and the criteria that have been used to assess the impacts on cultural heritage assets (paragraph 7.5.11 / page 25).

A reference list is included in Section 7.14 of Chapter 7 (page 102), which includes links to the standards and guidance documents mentioned above (note that the Planning Inspectorate have redacted some links which do not have a '.gov' address).

Heritage (Continued)

Messing Parish Council comment:

The vibration caused during construction will be damaging and a significant long-term issue when used by increased HGV traffic.

A12 Project's response:

Building damage is caused by individual high levels of vibration (or events), as opposed to a continuous level. If these events of high levels of vibration exist at present, then the number of events may increase during operation of the scheme. No significant vibration effects were identified along Inworth Road. Our assessment on vibration can be seen within Chapter 12, Noise and Vibration, of the Environmental Statement, which has been submitted as part of the DCO application (see link to chapter below).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000146-6.1-Environmental-Statement-Chapter-12-Noise-and-Vibration.pdf

Section 12.9 of Chapter 12 describes the vibration impacts from the scheme (paragraph 12.9.21 / page 45 onwards). This identifies a potential vibration impact from piling at the northern section of Inworth Road, however, this would not be a significant effect as the vibration would be temporary, over a short duration (as described in Section 12.11, paragraph 12.11.20 / page 62). In addition, there are no listed buildings near this vibration impact.

Construction traffic will be permitted on Inworth road, which will also be shown in the Outline Construction Traffic Management Plan (OCTMP) published with the DCO. The extent of work to be completed on Inworth Road will be minimal and pre-construction surveys and monitoring can be carried out, where deemed appropriate.

We can confirm that construction HGVs for the scheme will not be permitted through Messing. This is shown in the Permitted & Excluded Routes drawings which are an appendix to the OCTMP (see link below – Inworth and Messing are shown on sheets 14 and 20 of the plans).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000392-7.7-Outline-Construction-Traffic-Management-Plan-Appendix-B-Permitted-and-excluded-routes-for-construction-vehicles-(plans).pdf

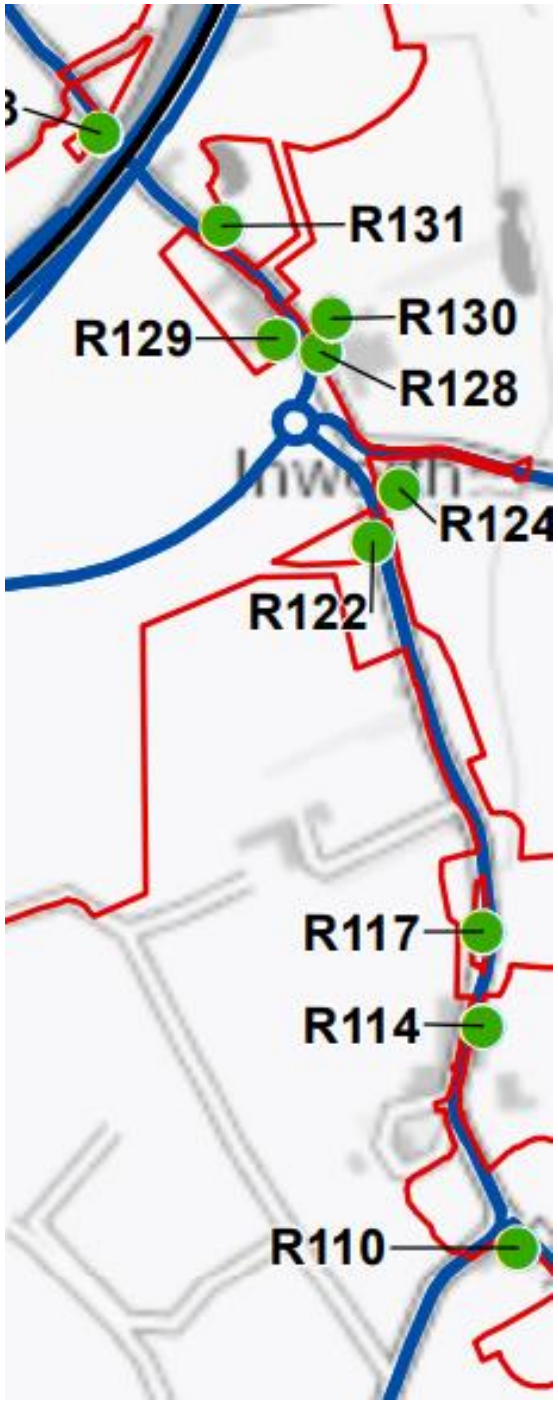
Heritage (Continued)

Messing Parish Council comment:

Any work on Church land will need to be sanctioned by the Diocese

A12 Project's response:

The Project team has and will continue to engage with the Chelmsford Diocesan on matters related with the required land take for the works. At this moment, detailed plans are yet to be finalised and when completed, will be discussed with the Diocese.



Air quality

Messing Parish Council comment:

Council's view is that Inworth Village sits within a valley and therefore pollution can accumulate more densely. Council asked Mr Kevin Turpin (air pollution specialist at National Highways) if the modelling used for the assessment allowed for topography of which his answer was "no". Council therefore require National Highways to conduct an air pollution survey in this specific location to gain meaningful data.

A12 Project's response:

The standard criterion in considering terrain is a 10% gradient in slopes. Under this value, it is generally unnecessary to include terrain in the model set-up (LAQM TG16). Examining the terrain surrounding Inworth Village up to 150m to the west and to the east indicate slopes of 4.6% and 5.4% respectively. The Inworth Road itself has a slope of 3% north to south. These are general calculations using digitised maps. Therefore, introducing terrain in the pollution dispersion modelling setup would have negligible impact on the modelling outcome.

An air quality assessment has been undertaken for the scheme to support our application for development consent. The results of this assessment for receptors in Inworth indicate annual mean NO_2 concentrations of between 12-15 micrograms per metre cubed with the proposed scheme in place in 2027 which is considerably lower than the air quality objective for this pollutant of 40 micrograms per metre cubed. This assessment has been included in Chapter 6, Air Quality, of the Environmental Statement, which has been submitted as part of the DCO application (see link to chapter below).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000140-6.1-Environmental-Statement-Chapter-6-Air-Quality.pdf

Chapter 6 is supported by Figure 6.9, which shows the NO_2 concentrations at the opening year of the scheme, and Figure 6.10 which shows the change in NO_2 between a scenario with and without the scheme (see sheet 4 of the figures for receptors along Inworth Road). Air quality data for the receptors shown on these figures is included in Appendix 6.5, Air Quality Modelling Results, of the Environmental Statement (see Table 1.4 on page 13 onwards).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000268-Fig6.9-Environmental-Statement-Modelled-No2-Concentrations-Do-Something-Scenario-Human-Health-Receptors-Sheet-1to-8.pdf

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000243-Fig6.10-Environmental-Statement-Modelled-Change-in%20NO2-Sheet-1-to-8.pdf

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000125-6.3-Environmental-Statement-Appendix-6.5-Air-Quality-Modelling-Results.pdf

Air quality (continued)

Messing Parish Council comment:

According to National Highways, the last survey in Inworth was four years ago. Council believes a more recent study should be carried out.

A12 Project's response:

The pollution dispersion model was set up in accordance with the traffic model base year of 2019. Hence, air quality monitoring data were derived for this year. This involved projecting existing National Highways monitoring undertaken in 2017 and 2018. These data were also used to set up the previous pollution dispersion model with a base year of 2016. On this occasion the monitoring data were back projected. In addition to the National Highways air quality monitoring data, the model set up also applied data recorded by local authorities (i.e. for the 2016 and 2019 traffic model base years). The important aspect is having a range of monitoring data within five years of the traffic model base year which can be projected if required. On this basis, the monitoring data applied is considered to be appropriate.

The approach to monitoring is set out in Appendix 6.1, Air Quality Monitoring Results, of the Environmental Statement, which has been submitted as part of the DCO application (see link to chapter below).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000121-6.3-Environmental-Statement-Appendix-6.1-Air-Quality-Monitoring-Results.pdf

national highways

Air quality (continued)

Messing Parish Council comment:

Every home along the B1023 in Inworth will be adversely affected by the scheme and everyone living in the village will suffer inconvenience, stress, disruption and mental stress. This is evident in the feedback the Council has already received during both consultation processes and must be a factor in any design.

A12 Project's response:

The project wishes to engage with the parish to discuss matters such as this in person or via an online meeting. Nevertheless, I can confirm the potential impact on community wellbeing has been assessed and has been reported in Chapter 13, Population and Human Health, of the Environmental Statement (see link below; health is covered in Section C of the chapter, from page 59 onwards).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000147-6.1-Environmental-Statement-Chapter-13-Population-and-Health.pdf

This has been informed by Appendix 13.4: Mental Wellbeing Impact Assessment, which has assessed impacts on protective factors for mental health while considering the average health status of the community.

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000157-6.3-Environmental-Statement-Appendix-13.4-Mental-Wellbeing-Impact-Assessment.pdf

national highways

Trees and hedgerows

Messing Parish Council comment:

National Highways (formerly Highways England) acknowledge there will be a “loss of roadside hedgerows and trees, and in areas where balancing ponds and flood risk mitigation is required. Most sections of lost hedgerow would be mitigated by replanting.” The word “most” indicates that only some and not all will be replanted. Additionally replanted trees etc. will take years to mature and alleviate the decimated rural landscape. Please confirm your intentions in this regard.

A12 Project’s response:

At the preliminary design stage, a worst case for hedgerow and tree loss is assumed to allow space for construction, drainage, lighting and sightlines. However, it may be feasible to retain some of the hedgerows and trees identified as at risk and this would be determined at the detailed design stage. Where loss is unavoidable, hedgerows and trees would be replanted in or near to their current location where practicable. If this is not possible, they would be compensated for elsewhere to meet the proposed scheme’s no net loss biodiversity objective.

Trees/hedgerows to be retained, lost, or at risk, are shown on the Retained and Removed Vegetation Plans, which is part of the DCO application (Inworth shown on sheets 14 and 20).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000352-2.14%20Retained%20and%20Removed%20Vegetation%20Plans%20-%20Part%202.pdf

The indicative planting scheme proposed will be reported in the Environmental Masterplan (Inworth shown on sheets 14 and 20).

https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000293-6.2-Environmental-Statement-Figure-2.1-Environmental-Masterplan-Part-3.pdf

Additional information

LEGEND

BOUNDARIES

- ORDER LIMITS
- ORDER LIMITS EXCLUSION ZONE
- LOCAL AUTHORITY BOUNDARY

HIGHWAYS

- NEW OR REALIGNED PUBLIC HIGHWAY ROAD
- NEW OR REALIGNED MAINTENANCE ACCESS / PRIVATE MEANS OF ACCESS
- EXISTING PUBLIC RIGHT OF WAY
- EXISTING CYCLE TRACK
- EXISTING PUBLIC RIGHT OF WAY - STOPPED UP
- NEW OR IMPROVED FOOTPATH / BRIDLEWAY
- PROPOSED / IMPROVED CYCLE TRACK
- PROPOSED / IMPROVED FOOTWAY
- NEW PERMISSIVE PATH
- PROPOSED CONTROLLED CROSSING
- PROPOSED UNCONTROLLED CROSSING
- PROPOSED TECHNOLOGY GANTRY (CANTILEVER)
- PROPOSED TECHNOLOGY GANTRY
- PROPOSED GANTRY MOUNTED DIRECTION SIGN
- PROPOSED LIGHTING COLUMN

ENGINEERING & CONSTRUCTION

- PROPOSED CONSTANT CUTTING
- PROPOSED CONSTANT EMBANKMENT
- PROPOSED MITIGATION EARTHWORKS
- PROPOSED MITIGATION EARTHWORKS (BORROW PITS)
- PROPOSED CARRIAGEWAY/ ROAD
- PROPOSED FOOTWAY / HARDSTANDING / ISLAND
- PROPOSED VERGE
- NEW OR MODIFIED BRIDGE DECK
- EXISTING BRIDGE DECK (TO BE RETAINED)
- EXISTING BRIDGE DECK (TO BE DEMOLISHED)
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL

DRAINAGE

- EXISTING CULVERT (TO BE RETAINED)
- PROPOSED CULVERT - MINOR WATERCOURSE
- EXISTING CULVERT (TO BE EXTENDED)
- EXISTING CULVERT (TO BE ABANDONED)
- PROPOSED WATERCOURSE DIVERSION (MAIN RIVER)
- WATER FLOW DIRECTION
- PROPOSED CUT-OFF DITCH (FILTER DRAIN IN SPATIAL CONSTRAINT AREA)
- EXISTING DITCH / MINOR WATERCOURSE (TO BE RETAINED)
- EXISTING DITCH / MINOR WATERCOURSE (TO BE REALIGNED)
- EXISTING DITCH / MINOR WATERCOURSE (TO BE ABANDONED)
- PROPOSED ATTENUATION POND (WITH OUTFALL CONNECTION)
- PROPOSED DRAINAGE OUTFALL PIPE
- PROPOSED UNDERGROUND STORAGE UNITS
- PROPOSED FLOOD MITIGATION AREA
- PROPOSED FLOOD BUND

ENVIRONMENT

EXISTING

- EXISTING OPEN WATER
- EXISTING TREES, HEDGES AND SHRUBS
- EXISTING ANCIENT WOODLAND
- EXISTING ANCIENT, NOBLE AND VETERAN TREES
- EXISTING CONSERVATION AREAS
- EXISTING LOCAL NATURE RESERVE
- EXISTING LISTED BUILDINGS
- EXISTING REGISTERED PARKS AND GARDENS
- EXISTING SCHEDULED MONUMENT
- EXISTING TREES PROTECTED BY TREE PRESERVATION ORDER (AREA OR INDIVIDUAL TREE)

PROPOSED

- PROPOSED OPEN WATER
- PROPOSED WOODLAND PLANTING OF TREES AND SHRUBS
- PROPOSED WET WOODLAND
- PROPOSED TALL SCREEN PLANTING TO ELEVATE FLIGHT PATH OF BATS & BARN OWLS
- PROPOSED INDIVIDUAL TREES
- PROPOSED HEDGE
- PROPOSED HEDGE WITH INTERMITTENT TREES
- PROPOSED GRASSLAND
- PROPOSED INTERMITTENT TREES AND SHRUBS
- PROPOSED ECOLOGY POND (INDICATIVE)
- PROPOSED AQUATIC AND MARGINAL PLANTING (INDICATIVE)
- PROPOSED ECOLOGY MITIGATION AREA / ECOLOGY PROTECTION MEASURES
- PROPOSED NOISE BARRIER
- PROPOSED REPLACEMENT LAND

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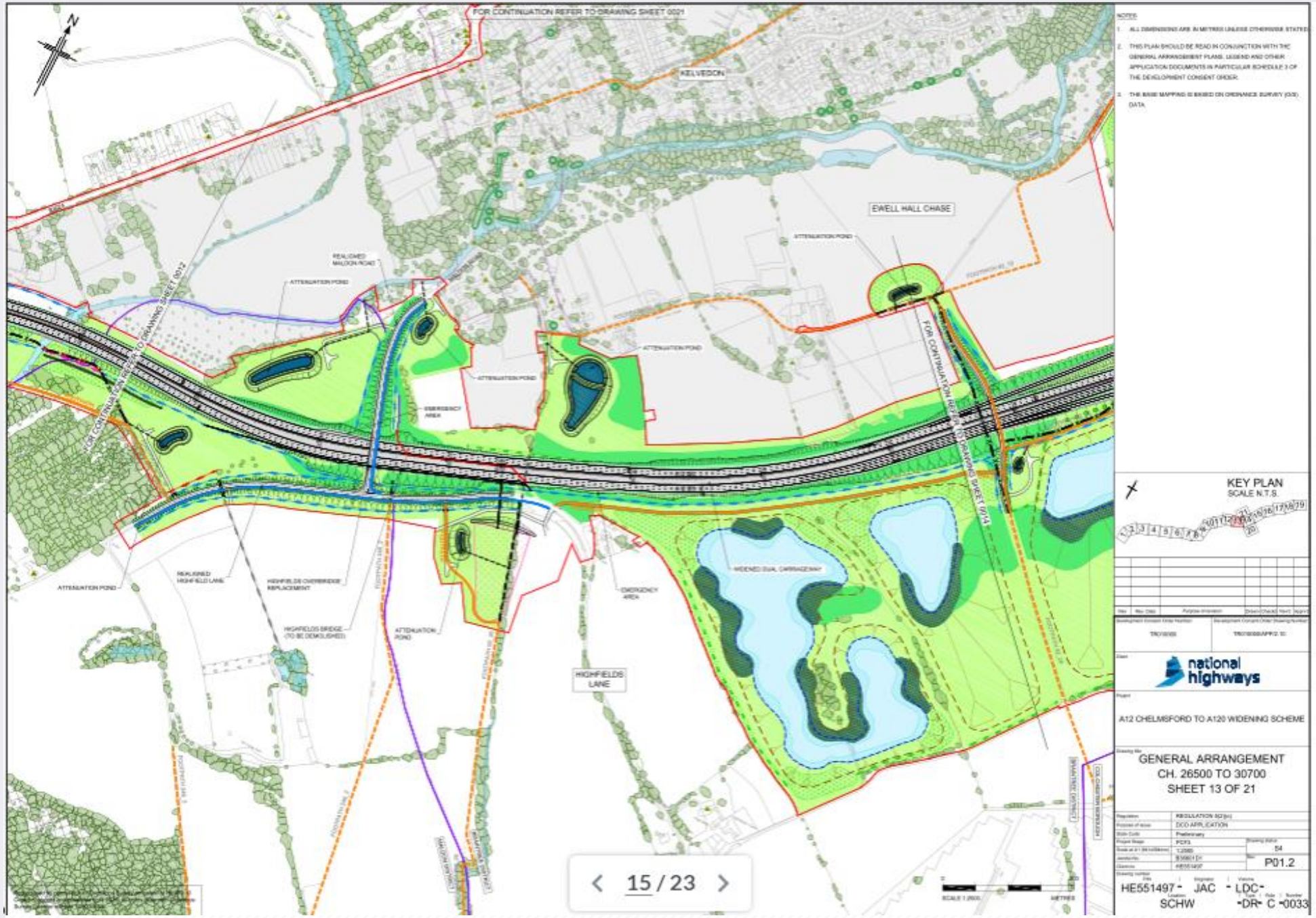
N
EXISTING JUNCTION 23
ESSEX COUNTY FIRE AND RESCUE SERVICE HEADQUARTERS
KEY PLAN
SCALE N.T.S
A12 CHELMSFORD TO A120 WIDENING SCHEME
GENERAL ARRANGEMENT
CH. 25100 TO 26500
SHEET 12 OF 21
P01.1
HE551497 - JAC - LDC -
SCHW
-DR- C -0032

14 / 23



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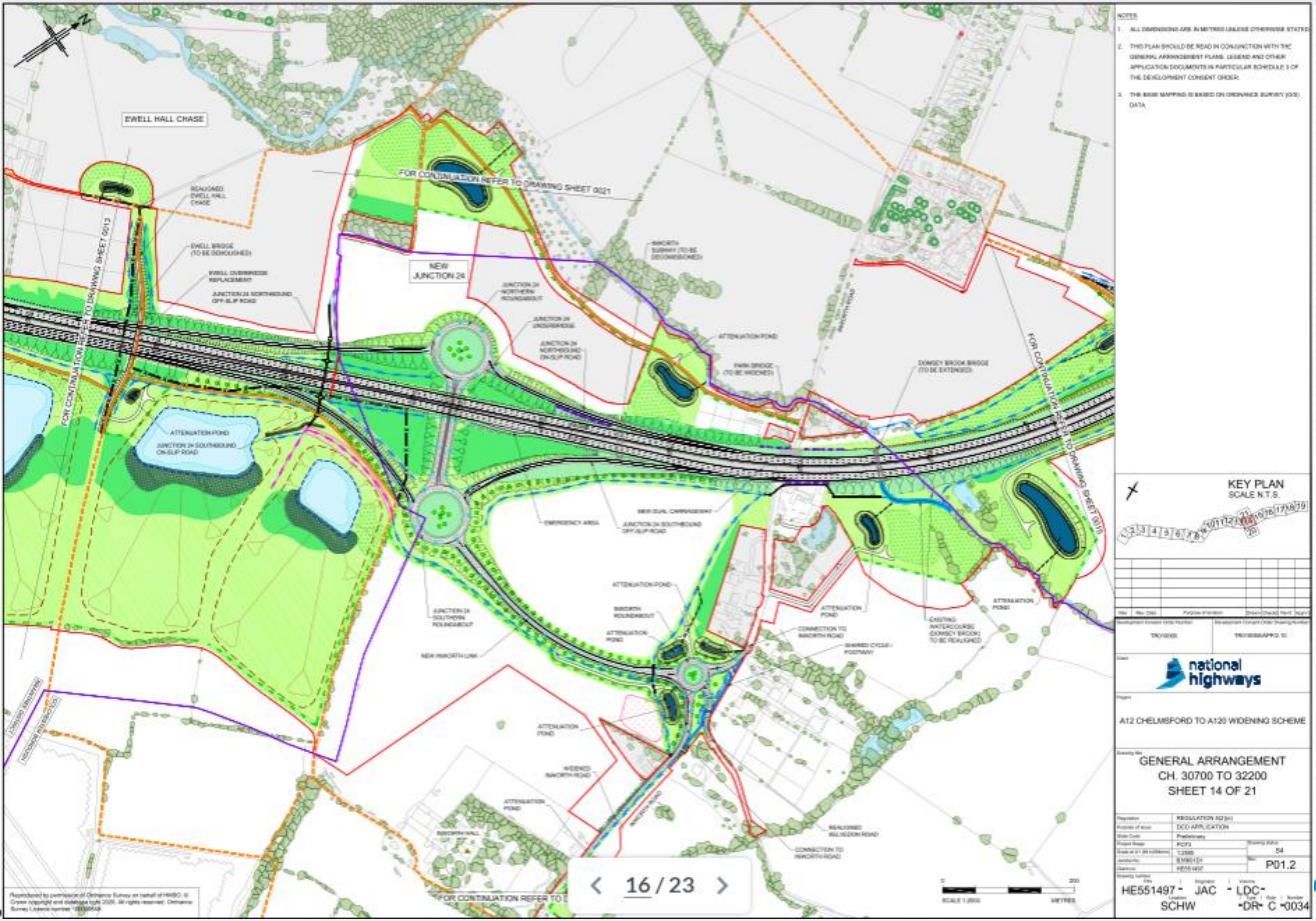

NOTES
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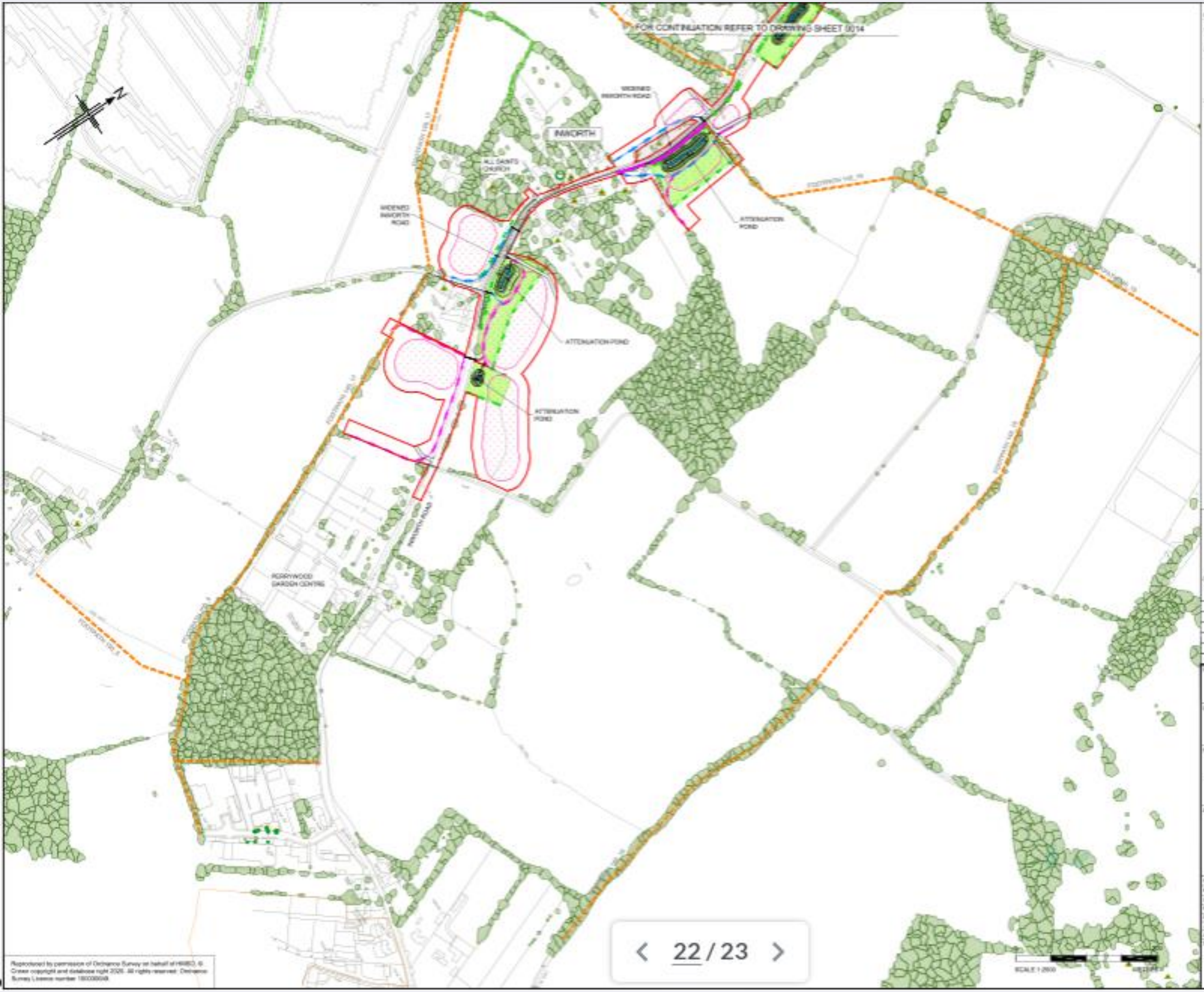
2. THIS PLAN SHOULD BE READ IN CONJUNCTION WITH THE GENERAL ARRANGEMENT PLANS, LEGEND AND OTHER APPLICATION DOCUMENTS IN PARTICULAR SCHEDULE 3 OF THE DEVELOPMENT CONSENT ORDER.
3. THE BASE MAPPING IS BASED ON ORDNANCE SURVEY (OS) DATA
EWELL HALL CHASE
FOR CONTINUATION REFER TO DRAWING SHEET 0021
FOR CONTINUATION REFER TO DRAWING SHEET 0013
FOR CONTINUATION REFER TO DRAWING SHEET 0015
NEW JUNCTION 24
ATTENUATION POND
JUNCTION 24 SOUTHBOUND ON-SLIP ROAD
NEW DUAL CARRIAGEWAY
EMERGENCY AREA
JUNCTION 24 SOUTHBOUND OFF-SLIP ROAD
JUNCTION 24 SOUTHERN ROUNDABOUT
NEW INWORTH LINK
SHARED CYCLE / FOOTWAY
REALIGNED WILLSEDON ROAD
CONNECTION TO INWORTH ROAD
KEY PLAN
SCALE N.T.S.
national highways
A12 CHELMSFORD TO A120 WIDENING SCHEME
GENERAL ARRANGEMENT
CH. 30700 TO 32200
SHEET 14 OF 21
P01.2
HE551497 - JAC - LDC - SCHW -DR- C -0034



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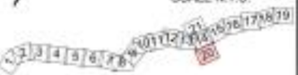
KEY PLAN
SCALE N.T.S.



national highways

A12 CHELMSFORD TO A120 WIDENING SCHEME

GENERAL ARRANGEMENT

SHEET 20 OF 21

Purpose of issue	DCO APPLICATION
Suitability	Preliminary
Revision	P01.1

HE551497 - JAC - LDC - SCHW - DR - C - 0040

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