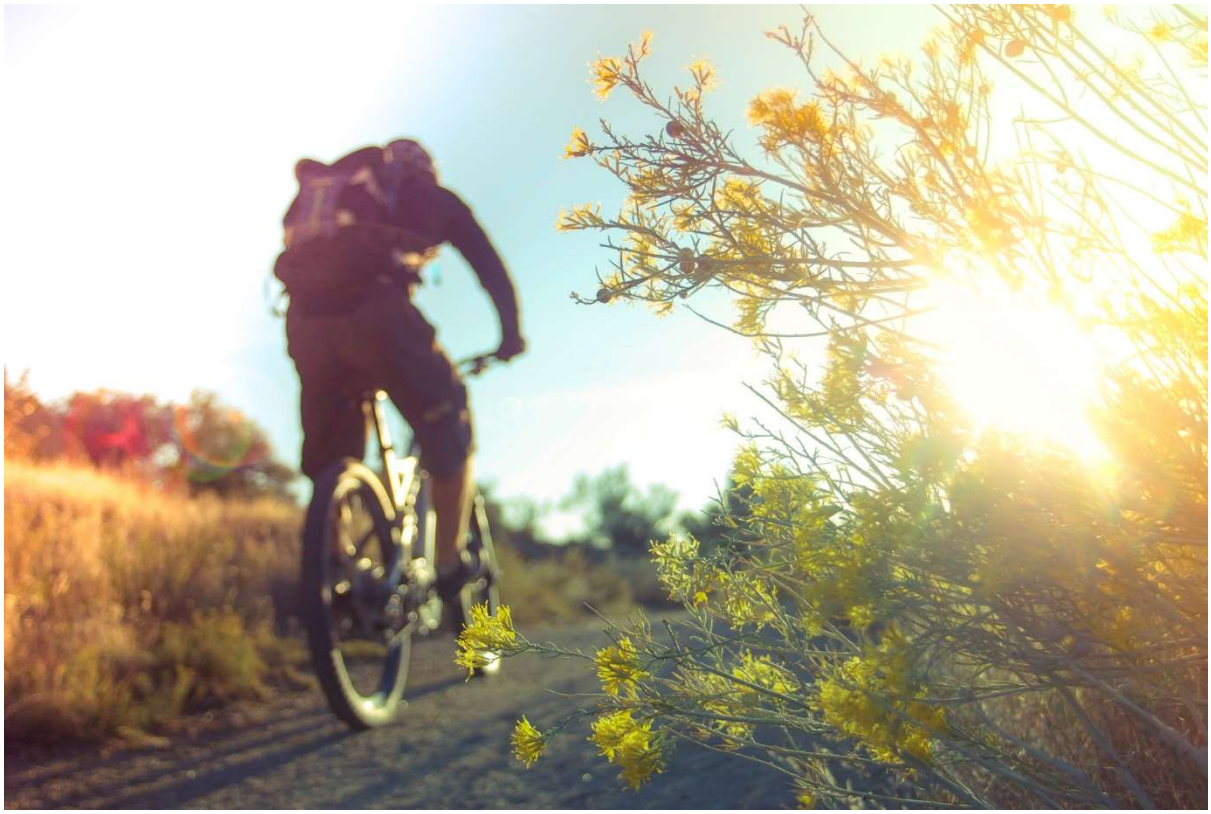
Essex Highways



A12 Chelmsford to A120 DCO Review

Alternative De-trunking Proposals Technical Note

March 2023

Safer, greener, healthier

Essex County Council

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Report Title	A12 Chelmsford to A120 DCO Review: Alternative De-trunking Proposals Technical Note
Project Number	B3553RB1
Status	Final
Revision	V1
Control Date	March 2023

Record of Issue

Issue	Status	Author	Date	Check	Date	Review	Date
V0.1	Draft	BA	23/1/23	IHJ	25/1/23	MJS	31/1/23
V0.2	Issue for Comment	BA	01/02/23	IHJ	09/02/23	MJS	14/02/23
V1	Final	BA	01/02/23	IHJ	09/02/23	MJS	09/03/23

Approved for Issue By	Date
Kathryn Close	09/03/23

Distribution

Organisation	Contact	Number of Copies
ECC	Billy Parr	Electronic

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Glossary of Abbreviations

ATC - Automatic Traffic Count

BNG – Biodiversity Net Gain

DCO – Development Consent Order

DMRB – Design Manual for Road and Bridges

ECC – Essex County Council

EH – Essex Highways

ICD – Inscribed Circle Diameter

LOS – Level of Service

LTN 1/20 – Local Transport Note 1/20

NMU – Non-Motorised User

NH – National Highways

NNNPS – National Networks National Policy Statement

PRoW – Public Right of Way

PR2 – Principal Route 2

RRRAP - Road Restraints Risk Assessment Process

SuDS – Sustainable Drainage System

VRS – Vehicle Restraint System

Executive Summary

As part of the proposed A12 widening scheme National Highways are planning to de-trunk two sections of the existing A12 but retain the existing dual carriageway arrangement. This arrangement, once suitable for derestricted speeds and high traffic flows, is no longer appropriate for sections of road that will become 'local' in nature.

Traffic modelling published by National Highways has been reviewed as part of the production of this Technical Note and demonstrates that a dual carriageway is not required to cater for forecast traffic flows. Furthermore, the large-scale junctions required to accommodate the dual carriageway arrangement are not considered appropriate in light of these forecasts.

Essex County Council has identified alternative proposals which retain the southern carriageway as a two-lane single carriage and repurpose parts of the northern carriageway for a wide active travel corridor. In addition, this counter proposal involves converting the existing substandard pedestrian/cycling facilities adjacent to the northern carriageway into an equestrian suitable path. These facilities will serve a wide range of user groups and the high-quality infrastructure will support the development of safe and direct routes free of motorised traffic. The proposals incorporate varied planting, earth embankments and sustainable drainage systems to create a scheme that also promotes biodiversity net gain, increased green infrastructure and better flood resilience.

Essex County Council's proposals are lean and practical in nature, utilising existing materials within the site where possible to support the delivery of new surfaces to support active travel and the introduction of additional green infrastructure whilst being mindful of costs. Import to and export from the site have been duly considered, and the proposals are cognisant of the deficit of fill material associated with the A12 widening scheme.

Whilst Essex County Council acknowledge increased costs associated with these counter proposals, the rationalisation of the large National Highways proposed junctions will, in part, help reallocate spend to finance this more ambitious and appropriate project. It is anticipated that long-term maintenance and management liabilities would be reduced with the removal of a carriageway associated with the ECC proposals and that the proposed additional planting required to support the improvements in green infrastructure would require as minimal maintenance as possible.

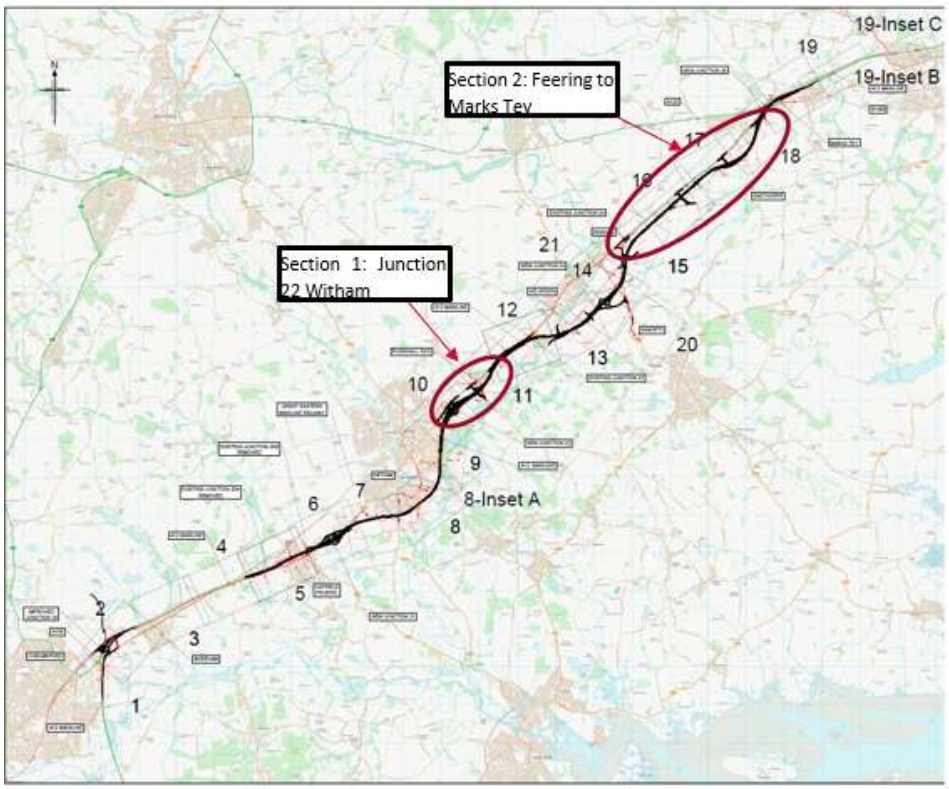
1 Introduction

As part of the National Highways (NH) A12 Chelmsford to A120 widening scheme, some sections of the proposed A12 will be constructed offline, away from the existing road. The remaining sections of existing alignment will de-trunked. Presently, NH propose to transfer the de-trunked carriageway sections in their current format (two lane dual carriageway) to Essex County Council (ECC) as the local highway authority. Whilst ECC is supportive of the wider A12 Chelmsford to A120 widening project, it cannot support the proposed de-trunking in its current form.

There are two sections of the existing A12 that will be de-trunked, as shown in Figure 1. Section 1 is around Junction 22 and Rivenhall End, and Section 2 is between Junction 24 and 25 between Feering and Marks Tey.

Essex Highways (EH) have been instructed to carry out an initial feasibility design study to identify an ECC alternative option for the de-trunked sections of the existing A12, to consider what could be a better alternative to the approach currently proposed by NH. This option will be used to set out the case that NH should be more ambitious with the de-trunked sections of carriageway, providing an appropriate arrangement which shall be more appropriate to the change in use of the highway corridor and complement the environment in which it exists in line with the policy context including the requirements within the National Networks National Policy Statement.

Figure 1 - Map to show locations of the de-trunked sections of the existing A12



2 Policy Context

2.1 Sustainable Development Strategy (2017)

NH (formally Highways England) is required to put sustainable development into practice, as per their sustainable development strategy[1], in particular regarding:

1. Financial - supporting national and local economic growth and regeneration.
2. Human - protecting and improving the safety of road users and road workers.
3. Natural - protecting, managing, and enhancing the environment.
4. Social - seeking to improve the well-being of road users and communities affected by the network.
5. Manufactured - ensuring efficiency and value for money (Highways England: Licence, April 2015).

These five factors align with the established five capitals of sustainability.[2]

National Highways scheme applicability

NH' proposals for the de-trunked A12 are not likely to improve the wellbeing of road users and communities affected by the scheme; they leave a two lane carriageway susceptible to speeding which do not enhance the local environment to any significant extent. Arguably the proposals would represent a worsening in the local environment insofar as they would represent an inefficient use of land.

2.2 The Road to Good Design (2018)

NH (formally Highways England) produced 'The Road to Good Design'[3] with the support of a Strategic Design Panel to shape NH' vision and principles for good road design.

Through the Panel, future design seeks to ensure the strategic road network responds 'positively and sensitively to landscape character, cultural heritage, and communities, while also conforming to the principles of sustainable development'.

The ten design principles to good road design:

1. **Makes roads safe and useful;**
2. **Is inclusive;**

'All users and communities are considered carefully in order to reduce barriers to access and participation…..'

3. **Makes roads understandable;**

[1] [redacted]

'Self-explaining roads' focus on the essentials and eliminate unnecessary and confusing clutter to make them legible, while responding to place and enhancing both environmental and economic outcomes.'

4. **Fits in context;**

'The aesthetic quality of a road and its design in relation to the places through which it passes, is integral to its function and the experience of those that use it. Good road design demonstrates sensitivity to the landscape, heritage, and local community, seeking to enhance the place while being true to structural necessities'

5. **Is restrained;**

'Good road design can enhance a sense of place and add to what we have inherited, particularly through the use of appropriate materials and traditions '

6. **Is environmentally sustainable;**

'Making an important contribution to the conservation and enhancement of the natural, built and historic environment, good road design seeks to achieve net environmental gain.'

7. **Is thorough;**

'good road design starts with an in-depth understanding of people, place and context; learning from best practice worldwide.'

8. **Is innovative;**

'Designing to a standard is not the same as achieving good design; an innovative and resourceful approach that is mindful of context is necessary to achieve better outcomes.'

9. **Is collaborative;**

'Community engagement will be led by a local sense of culture, place and value.'

10. **Is long-lasting.'**

National Highways scheme applicability

The NH de-trunking scheme does not conform to a number of the key principles of good road design. Leaving the road in its current form does not:

- Reduce barriers to access and participation
- Fit in with the context and aesthetic in relation to where it passes – needs to demonstrate sensitivity to the landscape
- Enhance a sense of place
- Make an important contribution to the conservation and enhancement of the natural and built environment

2.3 Strategic Design Panel 2 Progress Report (2018)

The NH Strategic Design Panel[4] is made up of members from across a range of disciplines and stakeholders. The Panel is tasked with challenging and supporting NH to make a step-change in the design quality of England's strategic road network.

Design vision: *"We aim to put people at the heart of our work by designing an inclusive, resilient and sustainable road network; appreciated for its usefulness but also its elegance, reflecting in its design the beauty of the natural, built and historic environment through which it passes, and enhancing it where possible."*

Design excellence will be achieved through the strategic road network being safe, functional, and effective, responding positively and sensitively to landscape character, natural systems, cultural heritage, and communities, while also conforming to the principles of sustainable development.

Aspirations:

- Clear and consistent consideration of design at the earliest stage of scheme development.
- Emerging schemes learning from completed schemes and other parts of built environment sector.
- Designing for more than mitigation.
- Better quality design of essential common elements.
- Incorporating further blue-green infrastructure.
- Inclusive engagement with local communities and users.
- Better planning for walkers, cyclists, and horse-riders.

Design vision and principles; By focussing on good design, NH can make a positive difference to the experience of road users and to the communities through which the strategic road network passes.

Design advice; Project teams need to communicate a clearer design narrative for how the scheme responds and contributes to the site's sense of place. A clear design narrative will assist teams in making design decisions and in preparing applications for development consent orders.

The potential for the wider benefits of infrastructure beyond the project team's direct concern are often not overtly identified and acted on.

[4] https://www.gov.uk/government/publications/highways-england-strategic-design-panel-progress-report-2

Many scheme designs are not demonstrating a clear response to a deep understanding of the historic and cultural context and identity of a site. This is an essential for successful place making.

National Highways scheme applicability

The NH de-trunking proposals do not align to the vision set out in this policy document. They do not make a positive difference to the experience of road users and to the communities through which the de-trunked dual carriageway passes and do not contribute to a sense of place.

2.4 National Policy Statement for National Networks, Department for Transport (2014)

The National Networks National Policy Statement (NNNPS)[5] sets out the need for, and Government's policies to deliver nationally significant infrastructure projects on the national road and rail networks in England.

It is the Government's vision and strategic objectives for the national networks to meet the country's long-term needs: supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:

- Networks which support the delivery of environmental goals and the move to a low carbon economy.
- Networks which join up our communities and link effectively to each other.

Paragraphs 4.3 and 4.4 of this policy explain that the overall planning balance should be taken into account by the Secretary of State and the Examining Authority, when applications are submitted, weighing the scheme's adverse impacts against its benefits. NNNPS advises that environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels.

Other paragraphs of relevance from this policy are set out below.

Environment and social impacts:

> 3.2 The Government recognises that for development of the national road and rail networks to be sustainable these should be designed to minimise social and environmental impacts and improve quality of life.

[5] https://www.gov.uk/government/publications/national-policy-statement-for-national-networks#:~:text=Sets%20out%20the%20need%20and,and%20road%20projects%20for%20England.

3.3 In delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance.

3.5 Government policy is to bring forward targeted works to address existing environmental problems on the Strategic Road Network and improve the performance of the network. This includes reconnecting habitats and ecosystems, enhancing the settings of historic and cultural heritage features, respecting, and enhancing landscape character, improving water quality, and reducing flood risk, avoiding significant adverse impacts from noise and vibration, and addressing areas of poor air quality.'

Sustainable transport:

3.16 As part of the Government's commitment to sustainable travel it is investing in developing a high-quality cycling and walking environment to bring about a step change in cycling and walking across the country.

3.17 There is a direct role for the national road network to play in helping pedestrians and cyclists. The Government expects…reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes. The Government also expects applicants to identify opportunities to invest in infrastructure in locations where the national road network severs communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions, and ensuring that it is easy and safe for cyclists to use junctions.

Accessibility:

3.22 Severance can be a problem in some locations. Where appropriate applicants should seek to deliver improvements that reduce community severance and improve accessibility.

Health:

4.80 New or enhanced national network infrastructure may have indirect health impacts; for example if they affect access to key public services, local transport, opportunities for cycling and walking or the use of open space for recreation and physical activity.

National Highways scheme applicability

This document sets out the need for schemes to improve the quality of life and improve the performance of the network including reconnecting habitats and ecosystems, enhancing the settings of historical and cultural heritage features enhancing the landscape character and reducing flood risk within the overall planning balance. It also states there is a direct role of the national road network to play in helping pedestrians and cyclists. Opportunities should be identified to invest in infrastructure in locations where the national road network severs

communities and acts as a barrier to cycling and walking, by correcting historic problems, retrofitting the latest solutions, and ensuring that it is easy and safe for cyclists to use junctions. National Highways' proposals for the de-trunked sections of A12 dual carriageway do not go far enough in improving quality of life, reconnecting habitats and ecosystems, enhancing landscape character, or helping pedestrians and cyclists.

2.5 'Design Manual for Roads and Bridges LD 117 Landscape Design' Revision 0, Highways England (2020)

The purpose of LD 117[6] is to set out landscape design requirements relating to principles, purpose, design objectives, and masterplans. The document applies a landscape design approach for both new and improving existing roads.

It states that:

- Integration and minimising the impact of disturbance of new roads within the rural or urban landscapes and improving the landscape character of existing roads is the basis for good environmental landscape design.
- Good design of roads is a matter of aesthetic quality and respecting the special character of each individual location.
- Good road design shall create opportunities to conserve and enhance the landscape character and is measured by the project's response(s) to:
    1. reflecting and respecting people's needs;
    2. providing or incorporating a sense of place – place making;
    3. being robust, buildable, functional, and operational;
    4. manage / minimise the impact of landscape disturbances and destruction from temporary works;
    5. climate change and its challenges;
    6. enhancing environmental impact;
    7. being flexible, sustainable (including and minimising waste) - whole-life cost; and
    8. enhancing its environment by providing net environmental gain.
- Good road design shall be at the right scale to manage and minimise the impact of temporary works and to respect and integrate with:
    1. the landscape's natural beauty, its importance and sensitivity;
    2. the landscape's views and visual amenity;
    3. the built and historic landscape through which a road passes; and
    4. existing features while providing driver interest and sense of place.
- Good road design shall create opportunities to conserve and enhance special landscapes and character areas.

Design Strategy:

[redacted]

LD117 sets out a good road design strategy to encourage better landscape quality within the context of value for money. This is achieved by demonstrating a projects approach to:

1. protection and enhancement of the local environment.
2. sensitivity to the local context - its numerous, and sometimes complex combinations of landscape elements of fields, heathland, hedges, lanes, settlements, and woodland.
3. interest by creating a sequence of attractive views, extending views along the road, or maintaining existing views.
4. integration of footpaths, bridleways, and side roads into the landscape to minimise severance.
5. integration of roadside barriers, fences, and walls with their surroundings.
6. structure designs to be slender and unobtrusive, respecting the local landscape character.
7. assessment of tranquillity and its importance to the local context and/or wildness.
8. sensitivity to and respectful of 'dark skies' areas, minimising adverse environmental impacts and intrusion caused by lighting.
9. reflection and integration of the surrounding pattern and species grouping in any new planting.
10. reflection and integration of enhancement opportunities to biodiversity.
11. safeguarding individual trees / woodland as well as ecological interests.
12. protection and enhancement of the surrounding historic environment.

National Highways scheme applicability

LD117 states that good road design should create opportunities to conserve and enhance the landscape character which should reflect people's needs, provide and sense of place and providing environmental net gain, amongst others. It reiterates how good road design should create opportunities to conserve and enhance special landscapes. National Highways' proposals for the de-trunked sections of dual carriageway do not align with the vision set out in this policy document. They do not enhance the landscape character, provide a sense of place or make a significant contribution to environmental net gain.

2.6 Essex Green Infrastructure Strategy, Essex County Council (2020)

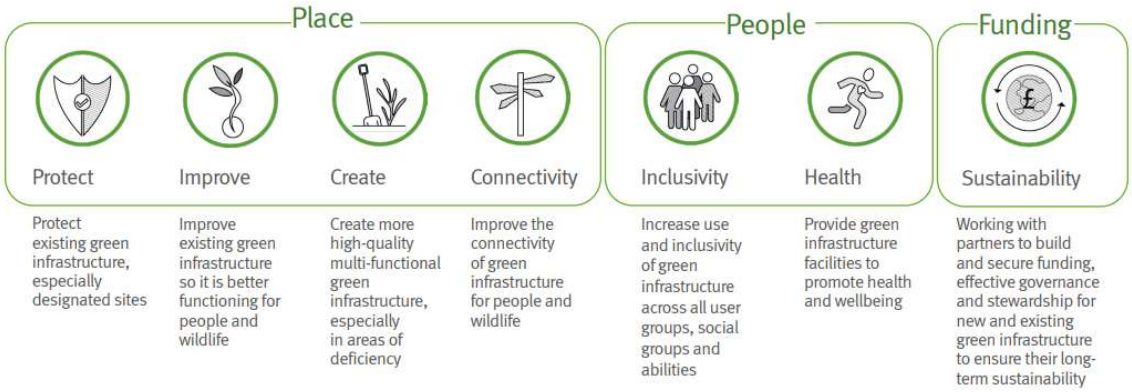
The purpose of the Essex Green Infrastructure Strategy[7] is to take a positive approach to enhance, protect, and create an inclusive integrated network for high quality green

[7] [redacted]

infrastructure in Essex, to create a county-wide understanding of green infrastructure – its functions and values, and to identify opportunities for delivering green infrastructure.

The vision is to *"protect, develop and enhance a high quality connected green infrastructure network that extends from our city and town centres, and urban areas to the countryside and coast and which is self-sustaining and is designed for people and wildlife."* The Vision will be delivered through the seven objectives in figure 2, below.

Figure 2 - Essex Green Infrastructure Strategy Objectives



Some actions that have been identified to help achieve these objectives include:

- Support the recognition and appropriate designation of new green infrastructure, e.g. Local Wildlife Site, Local Nature Reserve.
- Embed an 'environmental net gain' principle for development, including housing and infrastructure.
- Create a Green Essex Network to develop, improve and promote Green Essex.
- Public realm green infrastructure improved to reduce pollution and improve character and sense of place.
- Continue creating green spaces which also function as natural flood management and Sustainable Drainage System (SuDS) schemes.
- Encourage better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities.
- Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes.
- Strategically identify priority areas for the creation or improvement of green infrastructure to enhance local landscape character.

National Highways scheme applicability

National Highways' proposals for the de-trunked sections of A12 dual carriageway do not make a meaningful contribution the objectives of the Essex Green Infrastructure Strategy. ECC has

ambitious targets to increase green infrastructure provision across the county and the A12 widening scheme is a good opportunity to provide a material contribution to this.

2.7 Net Zero: Making Essex Carbon Neutral, Essex Climate Action Commission (2020)

The Essex Climate Action Commission was set up to advise ECC about tackling climate change. The initial purpose of the Essex Climate Action Commission was to set out recommendations on tackling the climate crisis. This included devising a roadmap to get Essex to net zero by 2050. The recommendations were set out in the commission's Net Zero: Making Essex Carbon Neutral report[8].

In making its recommendations, the Commission deliberately targeted land use measures that address both the nature and climate crises. A recommendation is to double the amount of natural green infrastructure in Essex. It will mean more land can absorb and store carbon, help restore nature and biodiversity, alleviate flooding and drought, and improve both soil and air quality.

Natural green infrastructure (natural and semi-natural habitat) currently covers about 14 per cent of Essex. The Commission is recommending that this be increased to 25 per cent by 2030 and 30 per cent by 2040. Increasing natural green infrastructure will help carbon absorption, locking more carbon into nature. It will create more space for nature. Biodiversity is fundamental for the effective functioning of natural ecosystems, and healthy natural ecosystems provide humanity with essential benefits and services to thrive.

National Highways scheme applicability

NH' proposals for the de-trunked sections of A12 dual carriageway do not make a meaningful contribution to Essex Climate Commission's recommendation to double the amount of green infrastructure in Essex. Encouraging mode shift to active modes is a key strand of the drive to decarbonise the transport sector.

8 [redacted]

3 National Highways Proposals

3.1 The Need for Change

Concern 1: Non-compliance with existing policies

Currently, NH propose to transfer the de-trunked carriageway sections in their current format of a two-lane dual carriageway to ECC. This means in effect there will be ten lanes of dual carriageway running parallel in these sections, which does not align with ECC's place making agenda and wider policies set out in this technical note. This indicates that NH have not considered reasonable opportunities to support other transport modes as required by paragraph 3.17 and 5.205 within the NPSNN. ECC would have reasonably expected NH to have developed opportunities to improve the de-trunked sections where the A12 has historically been a barrier to cycling and walking.

Concern 2: Over provisioning at the de-trunked sections

NH' modelling of the de-trunked sections with the scheme in place shows that the dual carriageway arrangement would be a significant over-provision for the traffic flows predicted. Forecasts provided within the NH Transport Assessment Appendix C for the scheme suggest that 2027 two-way traffic levels on the detrunked A12 will reduce as follows:

Through Rivenhall End:

- 92% reduction in Annual Average Daily Traffic (82,140 to 6,680 vehicles/day)
- 91% reduction in AM peak traffic (5,899 to 530 vehicles/hour)
- 91% reduction in PM peak traffic (5,987 to 519 vehicles/hour)

Between Feering and Mark Tey:

- 93% reduction in Annual Average Daily Traffic (83,230 to 6,140vehicles/day)
- 91% reduction in AM peak traffic (5,919 to 544 vehicles/hour)
- 92% reduction in PM peak traffic (6,214 to 491vehicles/hour)

These flows would result in very low Volume/Capacity ratios of between 0.13 and 0.22. A single carriageway road would have ample capacity for the anticipated traffic on these de-trunked sections of A12.

As part of the proposed scheme, the 14 existing laybys will be removed and all new proposed laybys on the main A12 carriageway will be for emergency use only which will increase the potential for inappropriate parking elsewhere on the network. Combined with the reduced traffic flows on the de-trunked sections, vehicles, particularly HGVs, may find it more attractive to park here especially overnight which can be a nuisance. The reduced traffic flows will also make the corridor more attractive to fly-tipping, general littering, hazardous littering, and abandonment of vehicles which ECC, as the local highway authority, will be burdened with resolving.

Concern 3: Non-compliance with NH' speed limit proposals

NH is proposing a 40mph and 50mph speed limit at the Rivenhall section and Feering to Marks Tey section, respectively. No specific measures are planned to encourage compliance with these speed limit changes, such as average speed cameras. ECC is concerned that the retained sections of dual carriageway, with alignments suitable for derestricted speeds, would be inappropriate for the proposed lower speed limits. In addition, many of the junctions, in catering to the dual carriageway arrangement but for significantly reduced flows, have the potential to encourage higher speeds through them. Their design is, therefore, likely to encourage anti-social behaviours such as street racing and street cruising which is noted in feedback provided by Essex Police as being particularly prevalent within the local area, which could lead to an increased risk of road traffic collisions. This risk has been specifically identified as a key risk associated with the proposed retention of the dual carriageway by Essex Police and have noted that there will be requirement for the police to increase enforcement to mitigate the risks associated with excessive speeds. This issue has been experienced elsewhere on the network e.g. the former stretch of the A12 through Copdock, south-west of Ipswich.

Should any of these anti-social behaviours materialise, road safety issues could arise which would have a detrimental impact on the Safer Essex Road Partnerships' Vision Zero[9] and walkers and cyclists may be from using this corridor. ECC and Essex Police will be burdened with these problems which can be difficult to eradicate.

Concern 4: Maintenance burden

ECC is responsible for a sizeable highway network. The Essex Highways Asset Management Strategy[10] recognises the vital role the highway asset plays in the lives of residents as well as the travelling public and local businesses. The strategy sets out the importance of effective asset management of the highway network and identifies five categories of highway asset each of which has its own specific maintenance requirements. The adoption of new technology and highway maintenance techniques plays an important part in managing the asset. The strategy notes the benefits of footways and cycle routes in providing alternative modes of travel, contributing to wellbeing and meeting other outcomes and by extension the importance of footways and cycleways being maintained to a good standard.

Maintaining a highway network of this scale is a challenge in the context of the current significant financial challenges faced by the council, especially in view of the Covid pandemic, national and global issues. The short to medium term outlook remains incredibly challenging, with demand uncertainty, market volatility and rising inflation and interest rates, alongside cost of living impacts. For example, inflation continues at 40 year highs and is at 10.7% (January 2023), over double the council tax rise applied this year.

Given that NH is proposing that two large sections of the A12 will be de-trunked it is vitally important that these assets be handed over to ECC in such a state that it does not represent an immediate and significant additional burden for which the council is not currently budgeted to maintain. Significant stretches of the A12 are currently of a poor quality, in part because of

[redacted]

their concrete construction, and this should not become ECC's problem as a result of the current proposals.

Furthermore any new local highway assets which are delivered as part of the A12 widening scheme and transferred to the council needs to accord to the standards stipulated by the council to ensure it is can be operated and maintained in a way which is satisfactory to ECC as the local highway authority. Providing assets which by virtue of their design bring inherent operational (including road safety) and/or maintenance issues which ECC will need to manage is not acceptable.

3.2 Essex County Council's Position

ECC's position on the proposals is as follows:

- The NH proposals are at odds with ECC's place making agenda and wider policies, and non-compliant with the requirements set out in the NPS NN.
- Future traffic flows on these sections do not warrant dual carriageways – dual carriageways will be significant over-provision.
- ECC wish to see a reduction in traffic speed. Should NH' current proposals be implemented, there will be a high probability of vehicles exceeding any speed limits imposed on these sections due to the straight alignment and segregation of opposing traffic flows.
- Retention of the dual carriageway arrangement represents a significant ongoing maintenance burden to ECC.

4 Case Studies

A high-level desktop review was carried out to find other examples of de-trunking/repurposing schemes that have been completed around the UK. This represents a high-level overview only and does not make reference to costs associated with the works. This is due to the difficulty in extracting figures associated solely with the highway conversion works from the overall wider scheme costs. Additionally, due to the length of time since these re-purposing schemes were developed, the costs would not give an accurate indication of costs today.

A key point to note is that there are deemed to be both good and bad examples of where roads have been de-trunked previously. In some cases a range of measures have been implemented as part of the de-trunking process which considerably enhances the local environment and is befitting of the local context. This shows that what ECC is seeking for the de-trunked sections of the A12 is by no means unprecedented; rather, what ECC is seeking is that this scheme becomes a good example of de-trunking in common with other examples across the UK.

4.1 A2, Gravesend, Kent

Between 2007 and 2009, the A2 from Ebbsfleet to Cobham was moved south to run alongside the channel tunnel railway line. In Gravesend, the de-trunked former A2 has been converted to a linear park with a 3.5m wide shared use cycle/footpath and dedicated equestrian route with bunds and landscaping. The area is still legally a Highway but with no permitted vehicular access. The area is planted with predominately native trees and shrubs and is maintained to a country park standard. Figure 3 below shows the park and cycle route alongside the single retained carriageway, now two way running. Figure 4 shows the shared use cycle/footpath within the linear park.

Figure 3 - The former A2 in Gravesend (source: Google Streetview)

Figure 4 - The shared use cycle/footpath within the linear park (source: Lucy Page)

4.2 A556, Knutsford, Cheshire

A former section of the A55611 between Knutsford and Bowdon in Cheshire has been converted to the B5569. The project involved turning 5.4km of the old northbound two lane carriageway into a dedicated, segregated green route for pedestrians, cyclists and horse riders, The 4m wide facility being separated from the new 'B' road by a wider border planted with wild flowers, as shown in Figure 5.

A full summary of the works associated with this carriageway conversion scheme are provided below:

(a) reducing the current road cross section to a rural type single carriageway road;

(b) the construction of a new non-motorised user facility for pedestrians, cyclists and equestrian users, running between the new non-motorised user link from M6 Junction 19 and the new at grade junction at Millington Lane;

(c) the construction of a low profile bund and landscaping to provide separation between the single carriageway road and the non-motorised user facility;

(d) the construction of new access tracks and private means of access to adjacent lands and properties;

(e) the construction of a new private means of access to field OS No. 3111 and field OS No. 2500, on the west of the new A556, 171 metres south of its junction with the improved C116 Millington Lane (Reference 2 - Rights of Way and Access Plans – Sheet 6); and

(f) the construction of a new private means of access to field OS No. 4848, 46 metres north of the junction of the existing A556 Chester Road with C116 Millington Lane

[11] https://www.gov.uk/government/news/5-million-b-road-opens-as-a556-bypass-legacy

Figure 5 - B5569, Cheshire before and after carriageway conversion (source: Google Streetview)

4.3 Grey to Green, Sheffield

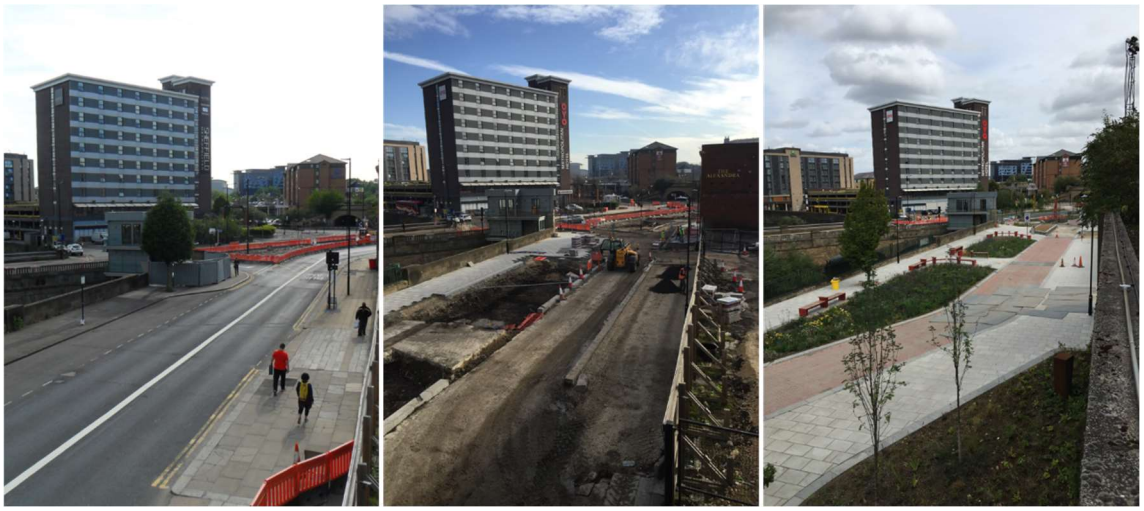
Grey to Green is an award-winning scheme[12] bringing colour and sustainability to inner-city Sheffield. It offers a calm refuge in an urban environment and has transformed a paved area into a green public space that encourages cycling and walking. It was created by transforming a 1.6km section of road space into a linear green route for pedestrians, cyclists and public transport and can be seen in Figure 6.

The area was once dominated by an unattractive dual carriageway[13] and complex junctions severing areas of townscape. The completion of the new inner relief road in 2008 diverted much of the traffic away from the Riverside. The City's intention was to forge a distinctive townscape from the redundant carriageway, making full use of the generous spaces available.

A central tenet of the approach to the site was to place Sustainable Drainage Systems (SuDS) at the heart of the scheme, celebrating the function and using it as an organising factor. By doing so the alignment, engineering, and particular mixture of planting help to set the character and establish the identity of the area. The scheme is opportunistic in terms of SuDS rather than driven through surface water problems, it is a demonstration that SuDS can be achieved in an inner-city urban environment.

12 [redacted]
f

Figure 6 - Grey to Green example before, during construction and after (source: https://www.greytogreen.org.uk/background)



4.4 A74(M) / A701 Moffat/Beattock, Scotland

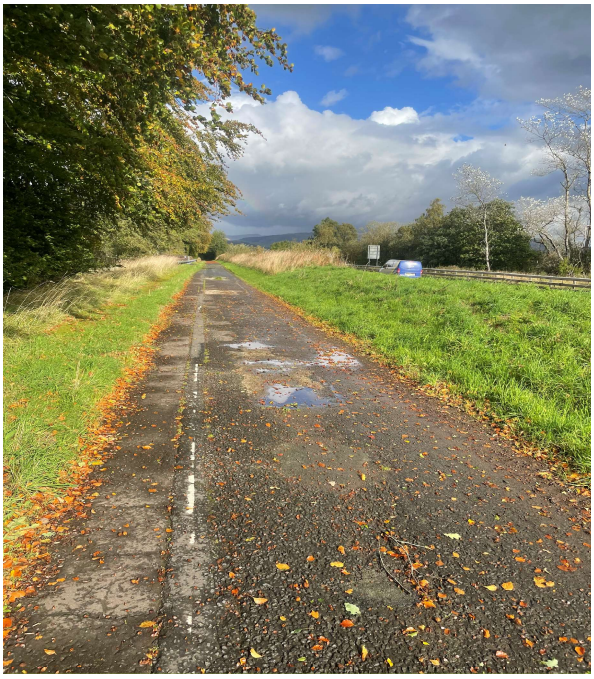
This is an early example of carriageway conversion to a cycle track, completed in the mid-1990s. The dual carriageway was replaced with a new motorway with remnant sections retained.

The old northbound two-lane carriageway was converted into a dedicated cycle track which now forms part of National Cycle Route 74. The cycle track is separated from the retained carriageway by grassland, mounding, taller wildflowers, and woodland. Asphalt has also been removed from soft landscaped areas. Figure 7 below shows the cycle path in relation to the retained carriageway.

Figure 7 - A74(M) / A701 Moffat/Beattock (source: Alistair McNay)

Figure 8, below, shows the bunded excavations that were topsoiled and sown with wildflower grass.

Figure 8 - Cycle track on the A74(M) A701 (source: Alistair McNay)



4.5 A120 Rayne, Essex

Dunmow Road and The Street in Rayne, near Braintree, used to form the A120 before the dualled Braintree bypass was completed in 2004. The road is located centrally within the village, providing access to both Braintree (to the east) and the new A120 (to the west). After the road was downgraded, to ensure the road was fit for its intended purpose ECC implemented a number of measures to reduce speeds along the road, especially in residential areas, as shown in Figure 9.

These measures included the removal of dual carriageways to create a single two-way carriageway road, signage upgrades, lighting improvements, road narrowing and raised tables in the residential areas, gateways, raised planting and fencing to give a feeling of protection and segregation from the main carriageway for the new off-road facilities. Changes to the speed limit were also made to better reflect the nature of the road, with a reduction to 30mph in areas of good visibility and speeds up to 40mph / 50mph in sections where the population was sparse. The taper / camber of the access points to the road was also sharpened / width reduced to appear like a side road and discourage the continued use of the route by strategic traffic.

Figure 9 - The Street, Rayne (source: Google Streetview)

4.6 Old A12, Copdock, Suffolk

An example of a de-trunked section of a former dual carriageway that has remained dualled is the Old A12 in Copdock. This is scheme is very representative of what NH are currently proposing for the existing A12 in Essex, and ECC would suggest this is a poor example of de-trunking.

This road was originally part of the A12 that ran through Copdock and Washbrook into Ipswich. When the Ipswich southern bypass was constructed in the early 1980s, the new route diverted the majority of traffic from Capel St Mary, south of Copdock, taking it east from the original road. The old dual carriageway has been blocked off, redesignated as the C475, and reduced to a 50mph speed limit. The photographs below show the de-trunked section.

Figure 10 - Old A12, Copdock (source: Billy Parr)

This is considered over-provision and a poor example of an approach to de-trunking. Feedback from the local highway authority has confirmed there are ongoing issues with speeding vehicles which are attributed to drivers not perceiving the need for the retrospectively imposed 50mph speed limit which was implemented as part of the speed management strategy with the straight alignment, width of the carriageway and sporadic development being identified as the key factors influencing noncompliance with the speed limit. Data from Automatic Traffic Counts collected at various points along this stretch confirms that excessive speeding, particularly during the peak hours, is prevalent throughout the week with vehicles exceeding 50mph across an hour calculated to be between 14% and 63% of traffic, depending on the time of day.

The numbers of vehicles using the de-trunked section of road in Copdock does not warrant dual carriageways with evidence supporting this from traffic surveys undertaken in 2016. The local highway authority are now exploring options to retrospectively change the perception of the road which will be costly which in combination with the existing maintenance burden associated the retained dual carriageway which includes white lining, kerb line changes and signing which have been introduced to address speeding issues is considered unreasonable

4.7 Witham disused railway line

This is a local example of the conversion of existing infrastructure into a park and active travel path. The existing railway line has been replaced by an asphalt surface to cater for NMUs and is heavily wooded on both sides, to integrate the space with adjacent parkland.

Figure 11 - Witham disused railway line (source: Google Streetview)

4.8 Flitch Way

Another good local example of the conversion of a linear transport corridor into a green corridor is the Flitch Way[14], which is 15-mile linear country park which runs along the route of the former railway that ran from Braintree to Bishops Stortford via Great Dunmow until the 1950's. This is maintained by ECC, with support from the Friends of the Flitch Way and Associated Woodlands, a volunteer group who help to maintain and improve areas for the benefit of the community. The route is well used mainly as a recreational route by pedestrians and cyclists, with some sections also accessible to equestrians.

Figure 12 – Flitch Way information board (source: the Friends of the Flitch Way)

5 Essex County Council's Alternative Proposal

5.1 Option Generation

ECC has been giving consideration to alternative options to that proposed by NH since mid-2022. For the purpose of this study, the following high-level options were identified at an inception meeting in October 2022:

1. **As per the NH' scheme – leave the dual carriageways in their current format** - This option does not align with ECC's place making agenda and is a missed opportunity to improve facilities for sustainable modes of transport. It also presents a significant maintenance burden to ECC associated with the retained areas of carriageway.
2. **Convert one lane of each dual carriageway in each direction into a dedicated bus lane** - This option provides limited benefits to public transport as bus movements along the corridor are relatively infrequent and some may reroute along the proposed A12. The lower predicted traffic flows would not cause levels of congestion that would necessitate dedicated lanes to allow the buses to bypass queuing. This option also does not improve facilities for non-motorised forms of sustainable transport or reduce ECC's maintenance burden associated with the areas of carriageway.
3. **Remove both carriageways and reconstruct a new purpose-built two-lane single carriageway instead** - This option, although attractive as a means of ensuring the new road is fit for purpose, was deemed to be prohibitively expensive and unnecessarily increase the carbon impacts of the scheme associated with the removal and reconstruction of large sections of carriageway.
4. **Redesignate one carriageway as a two-lane single carriageway and repurpose the other for active travel and green infrastructure** - This option provides improvements to non-motorised sustainable travel modes whilst also reducing ECC's burden associated with the maintenance of carriageway areas. It also presents an opportunity to offset associated carbon impacts through the creation of green infrastructure.
5. **Leave the dual carriageway in their current format but retained under the control and management of NH**. Precedence for this option has been seen for the A303 Sparkford to Ilchester Dualling with NH retaining ownership of a section of the A303 (Queen Camel Sparkford) with modifications made to 1 carriageway to reduce the total carriageway width to 2 lanes. This option does not align with ECC's place making agenda and is a missed opportunity to improve facilities for sustainable modes of transport. It also presents a significant maintenance burden to ECC associated with the retained areas of carriageway.

5.2 Preferred Option

Having taken account of the advantages and disadvantages of each option, the fourth option was selected as the **preferred option** when considering a range of factors including those mentioned above in addition to affordability, buildability, and ECC's key aspirations for the scheme. This option being to redesignate one carriageway of the existing dual carriageway arrangement as a two-lane single carriageway. The other carriageway to be repurposed for active travel modes (cycling, walking and horse riding) and rewilded to form a linear park and provide a biodiversity net gain.

It was agreed that the following general considerations should be explored during the development of the preferred option:

- Proposed speed limits and management of vehicle speeds.
- Selection of a single carriageway for traffic and the other for active travel modes/ green infrastructure and consideration as to whether swapping along the corridor would offer practical benefits.
- Effects of the relative carriageway levels on the design
- Impacts on utilities.
- How to preserve existing accesses with only a single carriageway.
- The form of the active travel corridor.

6 Development of the Preferred Option

6.1 Desktop Study of the National Highways' Proposals

To help inform the development of the design, the following sources of information were collated:

- 2D models of the proposed NH' alignment, sourced from NH.
- NH' A12 Chelmsford to A120 widening scheme - Map book 1: Updated General Arrangements.
- Ordnance Survey mapping and aerial photography.
- C2 statutory undertaker returns.

With this information it was possible to undertake a desktop study to better understand NH' proposals and the existing A12, as well as identify opportunities for improvement. Some of the key findings were:

Common among both sections (Rivenhall and Feering to Marks Tey)

- The NH' proposals, in retaining the existing dual carriageway arrangement, require all accesses (business and private), to continue to be left in/out only, inconveniencing patrons and residents alike.
- NH propose to reduce the speed limit along these sections, but without proposing any meaningful changes to the existing dual carriageway arrangement, which would likely lead to poor compliance with speed limits and contraventions.
- NH make use of existing pedestrian/cycle facilities along the corridor alongside their own proposals for new infrastructure to provide continuity of these facilities. However, the existing shared use facility adjacent to the eastbound (northern) carriageway is of a poor quality and substandard (approximately 2.0m to 2.5m in width) which does not align with the latest cycle design guidance set out in LTN 1/20. It is unclear if these existing facilities would be widened and to what width. Regardless the proposals appear to still be of a shared use format, with minimal set back from the retained carriageway.
- Accesses, both for businesses and residences front on to both carriageways, with a comparable number joining both carriageways.
- The dual carriageway's relative levels vary along their length, differing by up to approximately 1.5 meters, with the eastbound (northern) carriageway the higher of the two sections where they are not level.
- There are many utilities present along the corridor, however the linear assets are predominantly telecommunications and located adjacent to the westbound (southern) carriageway.
- Vehicle restraint systems (VRS) are utilised within the central reservation and at the edge of the carriageway in the vicinity of structures.

- There are a number of Public Rights of Way (PRoW) situated to both the immediate north and south of the existing A12 corridor.
- The carriageways almost solely utilise crossfall (as opposed to camber) to direct surface run off into drainage runs. The fall alternates to either side of each carriageway as the crossfall switches along each section. In some cases, where the two carriageways interface with a continual fall across a paved central reserve, the lower carriageway's drainage system caters to the runoff from both carriageways.
- The drainage systems are a mixture of open surface water channels running adjacent to sections of the carriageway with no kerbs, which discharge into buried carrier systems at intermittent gullies, and direct gully fed buried carrier drains where kerbs are present.
- The existing bus routes along the existing A12 are not significantly impacted by the scheme, with all existing services still able to utilise the existing A12 to service their routes, be it with a slightly amended alignment.

Rivenhall Section

- Within Rivenhall End there is an existing access onto Oak Road for eastbound traffic and an indirect access onto Braxted Road for westbound traffic. NH proposes to stop up Oak Road and remove the ability for vehicles to access Braxted Road by turning south from the westbound carriageway opposite Oak Road (access being relocated to the new Rivenhall West roundabout).
- The Rivenhall End East Roundabout proposed at the eastern end of the de-trunked section of the existing A12 appears to only feature as a means of facilitating a transition between the retained dual carriageway arrangement of the existing A12 and the NH proposed two-lane single carriageway continuing east towards Kelvedon. As NH are only proposing a two-lane single carriageway for the new section of carriageway linking directly on from the dual carriageway sections, this is considered further evidence that the proposal to retain this existing dual carriageway format west of this point is over-provision.
- Within Rivenhall End there is a large expanse of asphalt and no obvious attempts to convert existing carriageway areas to amenity space, given Oak Road is to be stopped up at its southern end.
- The pedestrian/cycle crossing facilities within Rivenhall End require crossing four lanes in two stages, with a stagger on the central reservation which would be difficult to negotiate on a bicycle.
- The large size (or Inscribed Circle Diameter - ICD) of the Rivenhall End West Roundabout, proposed immediately west of Rivenhall End is due to accommodating the existing dual carriageway arrangement. The new southern arm (connecting onto Braxted Road is only a two-lane single carriageway).

Feering to Marks Tey

- The large size (or ICD) of the Feering East Roundabout, proposed at the western end of the de-trunked section of the existing A12 is due to accommodating the existing dual carriageway arrangement.
- When considering the section as a whole, there are few significant severance points along the northern edge of the corridor when considering the continuity of pedestrian/cycle facilities.
- The selection of a sizeable roundabout for the proposed Easthorpe Road Roundabout (facilitating access for Domsey Chase – a minor private road and Easthorpe Road – proposed as for 'access only') is due to accommodating the existing dual carriageway arrangement, with a roundabout of this size a significant overprovision when considering the requirements of the two minor arms.
- The selection of a sizeable roundabout for the proposed Wishing Well Farm Roundabout (facilitating access to an overbridge over the proposed A12 alignment to Green Park Farm) is due to accommodating the existing dual carriageway arrangement, with a roundabout of this size a significant overprovision when considering the requirements of the minor arm. This is reinforced by NH' decision to only provide a priority junction south of the overbridge, when interfacing the common minor arm with a single carriageway road.
- The large size (or ICD) of Junction 25 London Road Roundabout, proposed at the eastern end of the de-trunked section of the existing A12 is due to accommodating the existing dual carriageway arrangement.
- There is direct access off the eastbound carriageway onto Old London Road that enables commercial traffic associated with an industrial site to bypass residential sections of Old London Road to reach their destination. However, commercial vehicles leaving the industrial site have no choice but to utilise the residential sections of Old London Road to re-join the major road network.
- Once Old London Road begins running parallel to the existing A12's northern carriageway, cycles are to ride on-carriageway along Old London Road, as the off-carriageway facilities alongside the northern carriageway are terminated. Although vehicle flows are low along Old London Road, some commercial traffic is present, making this a low-quality provision for cyclists.

The above points were used to help inform the design process of ECC's proposals for the de-trunked sections. Further details can be found within Appendix A – National Highways' Proposal Drawings.

6.2 Assumptions

In developing a high-level design, the following assumptions have been made:

- The existing A12's alignment meets horizontal and vertical design requirements.

- The existing A12's drainage network is sufficient and operates effectively.
- There are no discernable differences between the portions of structures under either carriageway.
- All businesses fronting the existing A12 are to remain, and their access maintained.

6.3 General Design Decisions and Principles for ECC Alternative Proposal

The following describes the rationale behind key design decisions and principles associated with the overall development of the preferred option:

Speed limits

ECC propose to review the potential to reduce speed limits along all sections of the de-trunked A12. This could be preferrable to reinforce a change of character of the road from a trunk road to a county road (PR2). Actual vehicle speeds may require monitoring and speed management measures investigated as part of a later design stage. For the purposes of this report, the design has taken into consideration the implementation of the following speed restrictions:

Rivenhall End Western Section – A reduction to 40mph – This section of three-lane dual carriageway arrangement runs between the proposed A12 Junction 22 and the Rivenhall End West Roundabout, a distance of approximately 700m.

Rivenhall End – A reduction to 30mph – It has been identified that there is a significant opportunity to remove existing severance and improve opportunities for community cohesion which would benefit from lower vehicle speeds to facilitate this.

East of Rivenhall End – A reduction to 40mph – Once vehicles have exited the residential area associated with Rivenhall End and join the new two-lane single carriageway proposed by NH to reach Kelvedon, the signed speed limit can increase to 40mph.

Feering to Marks Tey – A reduction to 50mph – Given the length of this de-trunked section of the A12, the straight alignment and large distances between junctions it would be inappropriate to provide a signed speed limit lower than 50mph.

Selection of a retained carriageway for traffic and the other for active travel and green infrastructure

The possibility of switching carriageways along the corridor for each use case was quickly dismissed as this would introduce additional conflict points and severance for active travel modes. It would also complicate the junction arrangements at the points where the trafficked carriageways were to flip. Instead, for each section, a single carriageway (north or south) would be utilised along its entire length for either motorised traffic or active travel and green infrastructure .

After examining both options, for both sections, the southern carriageway was selected for use as a two-lane single carriageway and the northern for active travel and green infrastructure for the following reasons:

- The northern carriageway is typically at a higher level, meaning accesses would in most cases require a gradient down to meet the lower southern carriageway. This would require excavation into the existing carriageway to reach the desired level at the access, and in its vicinity. Excavating the existing carriageway locally to build up an access and sections of an active travel corridor was deemed preferable to importing large amount of material to increase the levels of the accesses and build up an active travel corridor over the southern carriageway. With NH' proposals apparently already requiring imported material to address a deficit in their cut-fill balance, any additional fill required to construct ECC's proposal should be reduced where reasonably practical.
- There are more roads connecting to the existing A12 from the south than from the north, meaning that there would be fewer crossing points (and therefore conflict points) for an active travel corridor that utilised the northern carriageway. Additionally, the onward facilities at each end of the de-trunked sections are typically on the northern side, further reducing required crossing points.
- As the northern carriageway already has a shared use facility alongside it (unlike the majority of the southern carriageway) there is more total available width associated with the northern carriageway that can be utilised for active travel and green infrastructure. Additionally, the shared use facilities' construction can be utilised/enhanced if deemed beneficial to do so. Furthermore, within Rivenhall End, with Oak Road closed to motor traffic south of the vehicle accesses, there is a large expanse of area that can be developed north of the southern carriageway that isn't available to the south due to presence of the retained priority junction.
- Most of the linear utilities are telecommunications that run beneath the southern carriageway or in the adjacent verge. Retaining this carriageway at its existing level and modifying the levels of the northern to suit mitigates impacts to these buried services.

Modifications required to the retained southern carriageway

Being that the southern carriageway is to be retained for use by two-way traffic, there are a number of engineering elements that need to be considered:

- Horizontal alignment – as the existing A12's alignment presumably caters for maximum Design Speeds, the curves and superelevation will easily meet requirements for a two-lane single carriageway at a lower Design Speed. Two lane single carriageways with a lesser Design Speed will have less of a requirement for superelevation and straight sections would ordinarily feature camber (in part associated with managing surface water which is discussed further below), however the cost to reprofile the existing profile on the southern retained carriageway to create

camber would be high. However, at a later design stage, all links should be reviewed against The Design Manual for Roads and Bridges (DMRB) to ensure compliance and any Departures from this Standard agreed with the Highway Authority, along with any mitigating measures.

- Vertical alignment – DMRB standards will be met for a reduction in Design Speed assuming the existing carriageway's vertical alignment meets requirements for its existing, higher, Design Speed. However, at a later design stage, all links should be reviewed against The Design Manual for Roads and Bridges (DMRB) to ensure compliance and any Departures agreed with the Highway Authority, along with any mitigation measures.
- Road markings – The road's central line will need be changed from an edge of lane line to a centre of carriageway marking and some markings will need to be altered from their rural to urban variants, depending on the signed speed. Replacing markings is a process which could damage the existing carriageway's surface and require remedial works, supporting resurfacing of the retained carriageway as part of the works.
- Drainage – Given that crossfall is present along almost the entire length of the de-trunked sections of the existing A12, it is prudent to utilise the existing drainage network wherever possible, and therefore avoid introducing camber. Modifying carriageway falls would compromise the existing system, requiring new inlets and carrier drains to be installed to capture run off, increasing costs.
- Kerbs – Along the retained southern carriageway there are sections both with, and without kerbs. Any modification to existing kerbs, or introduction of new kerbs, could impact the effectiveness of the retained Highway drainage. At a later design stage the use of kerbs should be reviewed against the Design Manual for Roads and Bridges (DMRB) to ensure compliance and any Departures agreed with the Highway Authority, along with any mitigation measures.

Removal of vehicle restraint systems

Throughout both sections VRS are utilised in the central reservations to mitigate the risk of head on collisions between the dual carriageways. Away from the central reservations, VRS are utilised to protect structures along the corridor.

For the Rivenhall End western section, National Highways modelling of Junction 22 shows that two lanes should be retained westbound, but a single lane approach eastbound to the Rivenhall End West roundabout would provide sufficient capacity for general traffic. Three lanes should be retained (two westbound and one eastbound), with the existing VRS in the central reserve still able to mitigate the risk of a head on collision between the dual carriageways. A Road Restraints Risk Assessment Process (RRRAP) should be undertaken to understand the impacts of removing the barrier, which if retained, would represent a maintenance liability to ECC. For the purposes of developing the preferred option, the VRS is retained in the central reserve for this section. Once the existing VRS has reached the end of its life, the Highway Authority should review whether it should be replaced or removed.

For all other sections it is proposed to remove the VRS in the central reserve as they would only be performing a containment function by lining the edge of the retained southern carriageway, no longer mitigating any risk of a head on collision. Further to this, all accesses to the north would require breaks in the VRS in their immediate vicinity, which introduces a new risk associated with collisions with exposed end panels of the system at many points along the corridor. Taking these two points, combined with the proposed reductions in speed limit and the existing straight alignment of the existing A12, it is assumed the VRS would be removed. However, a full RRRAP should be undertaken at a later design stage to qualify this assumption and verify requirements for new or existing VRS.

If deemed suitable to remove the VRS, above ground elements could be removed and the foundations abandoned in-situ to remove costs associated with digging out foundations.

The format of the active travel corridor

In utilising the northern carriageway for the active travel corridor, there are two primary options for its format:

Widen the existing shared use facility – This would require taking the substandard 2.0m to 2.5m variable width shared use facility along the carriageway's northern edge and widen it into the verge/carriageway to be no narrower than 3.0m (to comply with Local Transport Note – LTN 1/20, the latest design guidance for cycle infrastructure design). This would then leave almost all of the existing carriageway width for a bridleway and green infrastructure. This would require substantial areas of carriageway to be broken up/perforated (to remain in-situ, to reduce disposal and replacement imported fill) and importation of earth to bury the existing carriageway to create a suitable environment for vegetation.

Or;

Utilise the existing carriageway for an active travel corridor – This is the **preferred option** as the width of the active travel corridor comes at a low cost, as only a new surface would be required. This means a wider active travel corridor of 4.5m could be provided that exceeds the minimum requirements in LTN 1/20. The existing shared use facility could then be repurposed as a bridleway (with the adjacent verge available to allow horses pass one another). As this option repurposes a significant width of the existing carriageway for active travel, this reduces both the required carriageway break up/perforation (to remain in-situ, to reduce disposal and replacement imported fill) and imported earth required to bury the existing carriageway to create a suitable environment for vegetation.

The 4.5m width selected, being wider than the minimum requirements set out in LTN 1/20, offers an added benefit beyond making it more comfortable for users to pass one another. Any encroachment of vegetation over time, up to or over the edges of the active travel corridor, would reduce its useable width. However, the additional width afforded to the active travel corridor ensures that even with encroachment, minimum width requirements set out in LTN

1/20 are met. This means the facility would remain attractive for even longer durations between maintenance visits.

Selection of a typical cross section for the repurposed carriageway – Rivenhall End

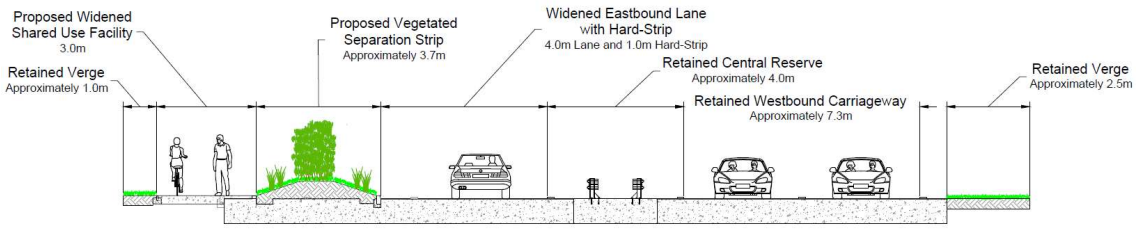
NH' modelling of Junction 22 has found that the westbound approach to the Rivenhall End West Roundabout would benefit from a two-lane approach, to mitigate potential queue lengths. This requirement, that strengthens the case for providing the active travel corridor along the northern carriageway, means that for the section west of the Rivenhall End West Roundabout there is a requirement for three lanes in total, (two westbound and one eastbound). This format being unique from the proposals elsewhere along the de-trunked sections. The modelling in Section 6.4has shown that a single lane approach to the Rivenhall End West roundabout would provide sufficient capacity for general traffic.

The westbound (southern) carriageway would be retained as normal. The northern carriageway, to be reduced to a single lane, would require an increased lane width the approximately 3.65m present currently. The DMRB sets out full requirements for this type of arrangement and should be explored fully at a later design stage, however for the purposes of this high-level design a lane width of 4.0m with a nearside 1.0m hard strip have been adopted. This is to provide adequate room to pass a broken-down vehicle and accommodate the swept paths of larger agricultural and public service vehicles.

With the remaining space available it is possible to provide two distinct cross sections:

Widen the existing shared use facility into the carriageway to provide a consistent 3.0m width – This option, as shown in Figure 13, leaves approximately 3.7m of width that can be utilised for a planted bund, providing separation and visual screening from the live carriageway.

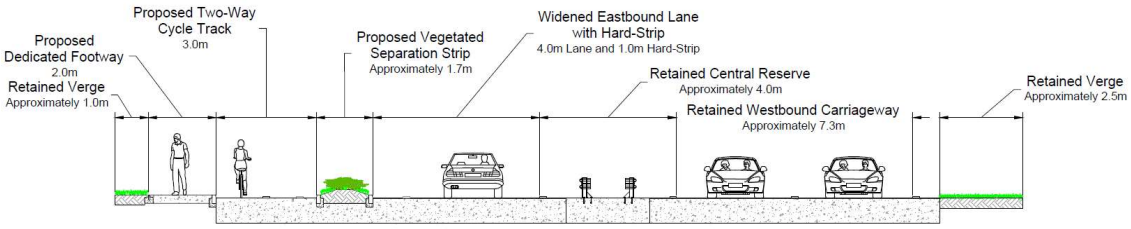
Figure 13 – Cross section for a 3-lane arrangement with a shared use facility



Or

Provide a dedicated 3.0m wide bi-directional cycle track – This option, as shown in Figure 14, would have pedestrians use the existing 2.0m – 2.5m wide variable width shared use facility. This option, whilst preferable with regards to separating pedestrians and cycles, provides only 1.7m of separation between the cycle track and the edge of the eastbound traffic lane, with limited opportunities to provide meaningful planting and visual screening.

Figure 14 – Cross section for a three-lane arrangement with a dedicated cycle track



Given the lack of separation associated with the dedicated cycle track options, and the fact a 3.0m wide shared use facility complies with LTN 1/20, the former option of widening the existing shared use facility to 3.0m was selected as **the preferred option**. This option, in providing more space for vegetation, offers a format more consistent with the planting/ green infrastructure focused cross sections introduced further east.

Selection of a typical cross section for the repurposed carriageway – all other sections

Outside of the section west of Rivenhall End West Roundabout, all other sections of the Rivenhall and Feering to Marks Tey de-trunked sections only require a two-lane single carriageway to support predicted traffic flows (as detailed in Section 3). With the adoption of a 4.5m active travel corridor, a typical cross section can be drawn up as shown in Figure 15. Adopting stable and relatively shallow slopes no steeper than V:1 to H:3 it is possible to introduce two earth bunds. When the active travel corridor is positioned centrally within the existing carriageway the widths of these bunds around 4.5m between the existing shared use facility (to be repurposed as a bridleway) and the active travel corridor and around 6.0m between the active travel corridor and the retained southern carriageway.

Figure 15 – Typical cross section with level carriageways

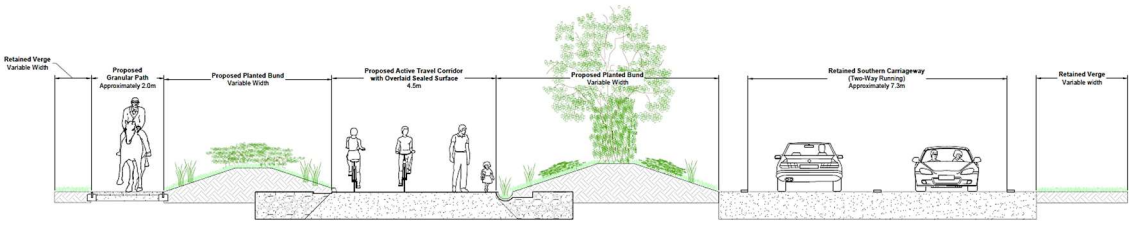
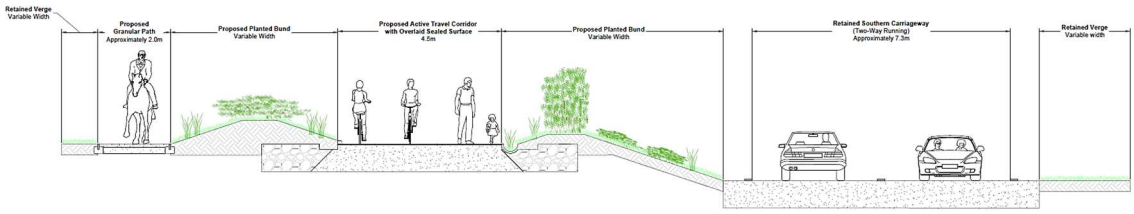


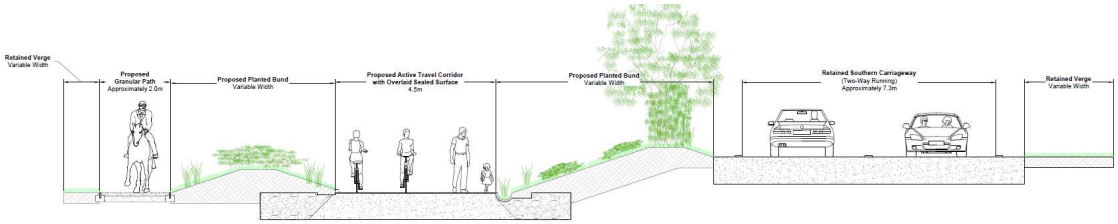
Figure 16 shows the effect when the retained southern carriageway is lower than the northern. The bund height to the south of to the active travel corridor is greatly reduced.

Figure 16 – Typical cross section with a lower-level retained southern carriageway



Conversely, Figure 17 shows that with a higher-level retained southern carriageway there is the possibility of introducing a sizeable bund height between the active travel corridor and traffic lanes to provide screening.

Figure 17 – Typical cross section with a higher-level retained southern carriageway



Full details of the cross sections and where they typically appear along the corridors can be found in Appendix B – Essex Highway's Proposal Drawings.

Creating variation along the corridor

Being that the active travel corridor utilises the existing northern carriageway's construction as its foundation, it is possible to vary the active travel corridor's position within the carriageway's full width (which exceeds 9.0m in places). As the active travel corridor will stretch over a significant distance (3.4km for the full distance between Witham and Kelvedon and 4.25km between Feering and Marks Tey) variation along the route will be important to keep users engaged and perceptive when travelling along it.

Given the northern carriageway's significant width it is possible to track the active travel corridor around 4.5m from the northern edge of the carriageway to its southern edge. Varying the active travel corridor's lateral position will also create variation in the height and width of the formed bunds between active travel corridor and both the bridleway and retained southern carriageway. Variation can also be introduced in the types of planting used throughout the corridor, which is detailed within Section 7 of this report.

Surfacing materials

For both the equestrian catering bridleway and the active travel corridor it is important to select surface materials appropriate for the user group. For the bridleway an unbound granular surface would be appropriate, whereas the active travel corridor requires a smooth and sealed surface.

Using the robust foundation of the existing carriageway construction, the active travel corridor only needs a new surface to create a high-quality facility that will stand the test of time. A sealed surface overlay (bitumen, resin-bound or rubber and aggregate, depending on the desired look and feel) could be utilised, only requiring a thin surface layer to refresh the carriageway surface and mask the presence of the existing northern carriageway below. Furthermore, not planing the existing surface and only overlaying, would reduce the cost to implement.

To reduce costs and import/export of material from the site the bridleway's construction could be created by breaking up the existing paved shared use facility construction, grading the aggregate and repurposing it to create an unbound granular surface. This would suit equestrian use as it would provide enhanced slip resistance for horses. This surface would be unsuitable for the majority of walkers and cyclists; however the sealed and smooth surface of the parallel running active travel corridor is available to cater for these users' requirements.

Priority at private accesses

There are many residential and commercial accesses along the de-trunked sections of the existing A12. Outside of the Rivenhall End West section where a three-lane arrangement is adopted and accesses will remain left-in/out only, for the rest of the corridor there is an opportunity to also permit right in/out. Allowances for 15 private accesses and 2 combined merge/diverge business accesses (covering 7 individual businesses) have been made for the northern section between Feering and Marks Tey. Allowances for 5 private accesses and 2 combined merge/diverge business accesses (covering 4 individual businesses) have been made for the southern section around Rivenhall.

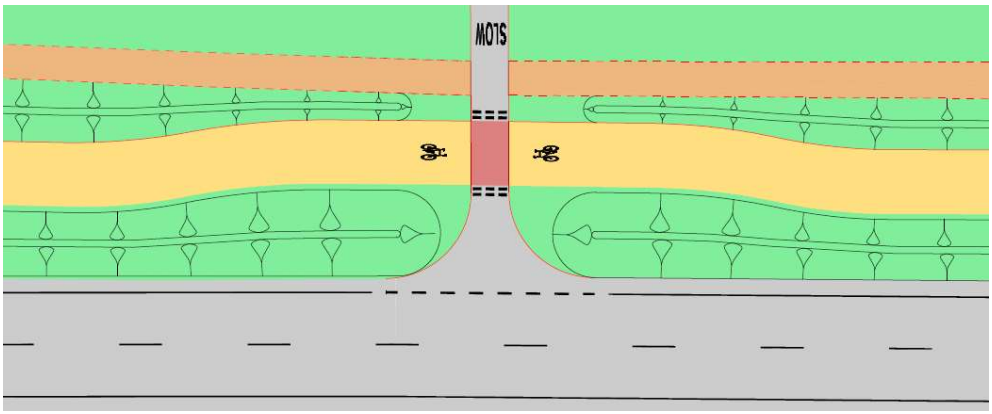
For accesses south of the de-trunked sections of the A12, these will continue to connect directly onto the retained southern carriageway, with any east -west crossing points associated with pedestrian/cycle facilities retained or upgraded.

For accesses to the north of the de-trunked sections of the A12, these will need to connect to the retained southern carriageway (being graded to suit any level differences) and cross both the bridleway and active travel corridor. In the instance of private residential accesses (with very low usage, akin to a residential driveway meeting a footway in an urban environment), priority should be afforded to the active travel corridor. This due to many more users moving along the active travel corridor than utilising the private accesses and the desire to meet the coherent, direct, and attractive corridor objectives outlined in LTN 1/20.

Noting that vehicles will be exiting the retained southern carriageway to use the residential accesses, it is vital to provide a space for the vehicles to pause and give way, before crossing the active travel corridor. To do this, in the vicinity of an access, the active travel corridor will drift up to the northernmost 4.5 metres of the northern carriageway to create increased separation between itself and the retained southern carriageway. The corner radii for the private access are to be small to require a low speed to negotiate turning in. No entry tapers or

right turn pockets are to be provided as the de-trunked sections of A12 are to be considered minor roads, catering for low traffic levels, with less emphasis given to maintaining free flow speed. As shown in Figure 18, there is sufficient space for a vehicle to wait between the retained southern carriageway and active travel corridor. This priority could be strengthened through the use of road markings, red pigmented surfacing and appropriate regulatory or warning traffic signs.

Figure 18 – Typical private access arrangement



Where the bridleway facility crosses the paved private access no tactile paving should be provided as if installed adjacent to an unbound granular path this could develop into a trip hazard and the slabs could be damaged by horses' hooves. This is considered a low-risk situation with both conflicting users (vehicles and equestrian) traveling at very low speeds and neither being present very frequently.

Full details of a typical private access can be found in Appendix C – Typical Private Access Detail, which includes additional design elements not shown in the figure above.

Priority at business accesses

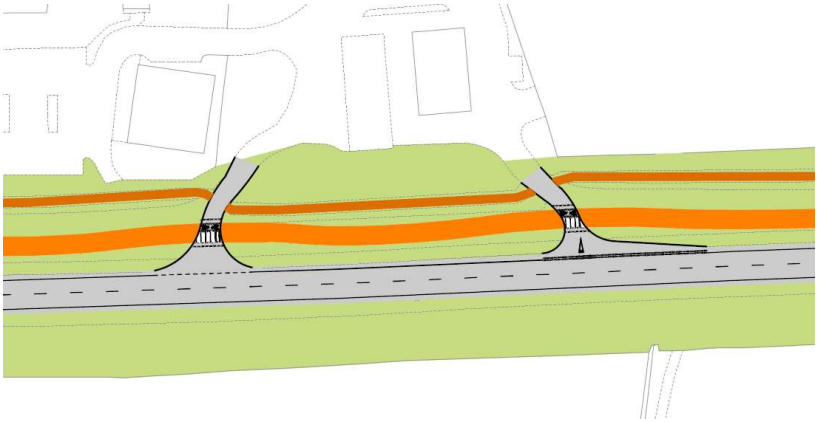
It is unknown what will happen to the existing businesses along the existing A12 with the introduction of the new A12 further south, however for the purposes of this report and design, it is assumed they will remain open. These accesses will cater for many more vehicles than private accesses, especially if all movements are possible in and out. Therefore, a different approach is required.

For accesses on the southern side of de-trunked sections of the A12, these will continue to connect directly to the retained southern carriageway, with any east-west crossing points associated with pedestrian/cycle facilities retained or upgraded.

For accesses to the north of the de-trunked sections of the A12, these will need to connect to the retained southern carriageway (being graded to suit any level differences) and geometries modified to allow additional right in/out movements. To meet objectives for a coherent, direct, and attractive corridor active travel corridor (as outlined in LTN 1/20), these accesses,

despite having higher levels of use, should still afford priority to the active travel corridor. As use of the active travel corridor will be intermittent, a parallel crossing (a zebra catering for cycles also) should be adopted, to provide a controlled crossing for non-motorised users. As per the design of the private access, in the vicinity of the access the active travel corridor will drift up to the northernmost 4.5 metres of the northern carriageway to create increased separation between itself and the retained southern carriageway and space for vehicles to wait at the give way line. The parallel crossings could also be provided on raised tables, which would need to be considered at a later design stage. The corner radii and tapers should be the tightest practical whilst still accommodating the swept path of the design vehicle, to reduce vehicle speeds turning into the access, as shown in Figure 19.

Figure 19 – A sketch demonstrating how a clockwise operating businesses' entry/exit accesses could afford priority to the active travel corridor (shown in orange) using parallel crossings.



Sustainable Drainage Systems

With the active travel corridor there is an opportunity to introduce SuDS. The northern carriageway in most cases has crossfall, which will transfer into crossfall on the active travel corridor. Narrow linear swales could be adopted adjacent to the lower edge of the active travel corridor before the development of the planted bund. This system could collect the surface water landing on the active travel corridor and then function as a soakaway, hydrating the earth within planted areas. This could provide further resilience to the planting.

As the system would not be subject to the same performance requirements of carriageway systems, the system could be designed to be shallow and narrow (to reduce required excavation into the existing carriageway surface).

This type of system could be installed relatively cheaply, the primary cost coming from excavating into the existing carriageway to achieve the required depth and width. However, compared to introducing a new buried carrier drain system or proving connections onto the carriageway's existing highway drainage network (which would both require large amounts of excavation and back fill), this amount of excavation can be considered relatively low and a low-cost drainage solution.

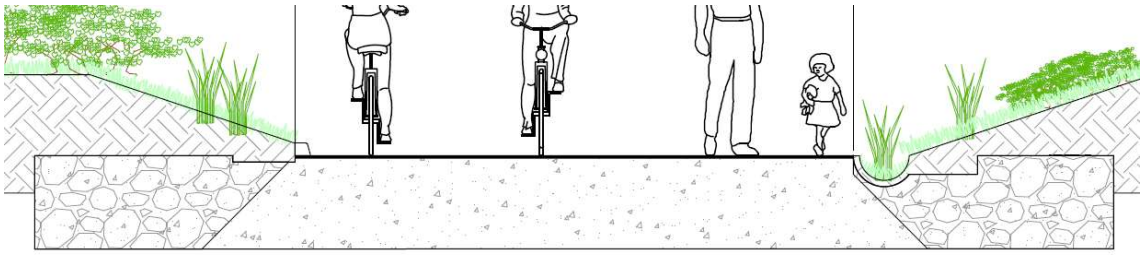
The proposed unbound granular bridleway will require no drainage due to the surface being unbound, and therefore penetrable by surface water.

Planting of formed earthwork bunds

The size of the bunds is in part to ensure the establishment and resilience of planting along the corridor. The bunds, in part being formed over areas of broken up/perforated carriageway, require an adequate thickness of topsoil and subsoil, which is not achievable at the toe of the embankment when interfacing with the carriageway surface. In these instances, it is proposed to provide a shallow trench excavation into existing carriageway under the toe, to ensure an adequate depth to of soil to support the planting is provided.

On the side of the active travel corridor opposite the proposed swale there is an opportunity to reduce the excavation in the existing carriageway. Instead, a bolt down kerb can be provided at the toe of the embankment to retain the base of the embankment and increase the depth of soil achievable over the retained carriageway at the toe. Both of these situations can be found in an extract of a typical cross section, in Figure 20.

Figure 20 – Extract of a typical cross section demonstrating proposals to increase soil depth at the base of the formed embankments



Bus stops

There are a number of bus stops along the corridors which could be retained, upgraded, relocated, or removed. Engagement will be needed at a later design stage with the bus operators and Essex County Council's Passenger Transport team to understand the requirements of services that continue to use the existing A12 and do not reroute via the proposed A12.

Lay-bys

Along the Feering to Marks Tey section there is a number of existing lay-bys. It is proposed to remove these and rewild them, however Essex Highways' Asset Management and highway maintenance teams should be consulted at a later design stage to verify their lack of need.

Street lighting

Street lighting will need to be designed at a subsequent design stage, however at this early stage it is assumed that:

- Where existing street lighting is present in the central reserve west of Rivenhall End, this will be retained over the section of three-lane running. It is assumed the existing street lighting (which currently lights four lanes) will be sufficient to lighting the three retained lanes.
- Through Rivenhall End, the existing street lighting is adjacent to the nearside of both carriageways. The street lighting above the northern carriageway would be removed and street lighting added to the northern verge of the retained southern carriageway. This will create the feel of a local road in a built-up area to reinforce the proposed 30mph speed limit.
- East of Rivenhall End, the street lighting could continue in combination with the proposed 40mph speed limit, but this should be considered at a later design stage.
- For the Feering to Marks Tey section there is no existing street lighting. Due to this section's significant length and rural location, it is not proposed to introduce street lighting along this section.

Signage

Apart from the required signed speed limit changes and new/modified local direction signs, the signage will need to be fully considered at a later design stage.

6.4 Junction Modelling

As part of NH' de-trunking proposals, new junctions have been designed along the de-trunked sections of the A12 to maintain and improve local accesses. These include:

- Rivenhall End West Roundabout
- Rivenhall End East Roundabout
- Feering East Roundabout
- Easthorpe Road Roundabout
- Wishing Well Farm Roundabout
- Junction 25 London Road Roundabout

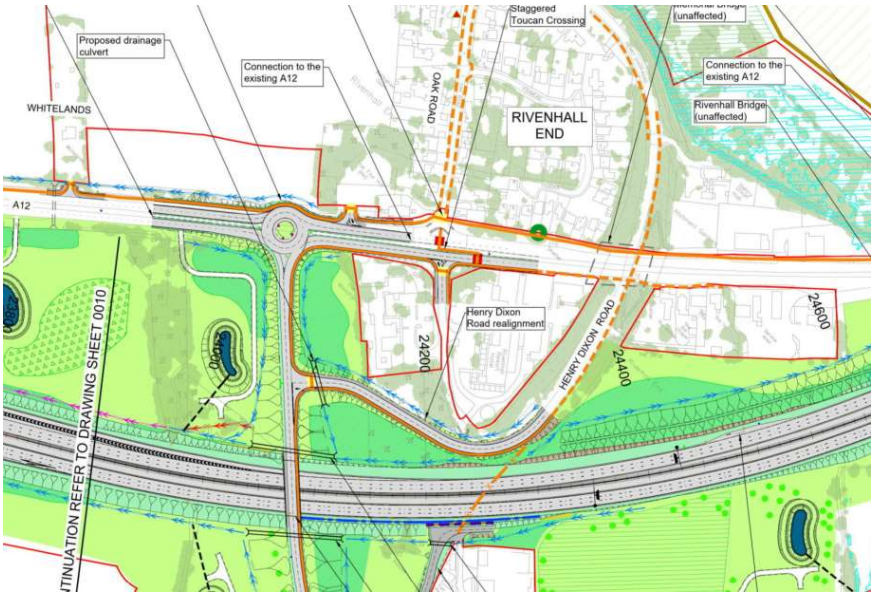
ECC's proposed alternative scheme - retaining only a two-lane single carriageway for traffic - means these junctions proposed by NH throughout the de-trunked sections would represent a significant overprovision. The junction modelling performed in this section of the report has been undertaken to reassess both the junction type and scale. This is to facilitate cost savings that can be realised by NH by providing only the necessary infrastructure that is not influenced by the retention of the existing dual carriageway arrangement.

Local junction modelling has been carried out interfacing with a two-lane single carriageway instead of a two-lane dual carriageway arrangement. Traffic flows were obtained from NH Transport Assessment and results were obtained for both future years 2027 and 2042.

Rivenhall End West Roundabout

The Rivenhall End West Roundabout is to be located immediately west of Rivenhall End, it is proposed to be a three-arm roundabout on the de-trunked section of existing A12 with a realigned Braxted Road (towards Great Braxted) as the southern minor arm.

Figure 21 – Rivenhall End West Roundabout as depicted in National Highways proposals



NH have previously modelled this junction using ARCADY and obtained the results below in Table 1, as presented in the Transport Assessment.

Table 1 - National Highways ARCADY results for Rivenhall West Roundabout, from Transport Assessment

Table G 9-1: Results for Rivenhall End West roundabout model for Future operation with scheme (2027)

	2027 AM					2027 PM				
Arm	**Max LOS**	**Average Demand (PCU/hr)**	**Max. Delay (s)**	**Max Queue (PCU)**	**Max RFC**	**Max LOS**	**Average Demand (PCU/hr)**	**Max. Delay (s)**	**Max Queue (PCU)**	**Max RFC**
North-east arm	A	332	2.10	0	0.18	A	185	2.19	0	0.11
South-east arm	A	724	5.78	1	0.56	A	442	3.50	1	0.32
South-west arm	A	671	2.02	0	0.29	A	1081	2.59	1	0.46

Table G 9-2: Results for Rivenhall End West roundabout model for Future operation with scheme (2042)

	2042 AM					2042 PM				
Arm	**Max LOS**	**Average Demand (PCU/hr)**	**Max. Delay (s)**	**Max Queue (PCU)**	**Max RFC**	**Max LOS**	**Average Demand (PCU/hr)**	**Max. Delay (s)**	**Max Queue (PCU)**	**Max RFC**
North-east arm	A	353	2.28	0	0.20	A	197	2.24	0	0.12
South-east arm	A	751	6.25	1	0.59	A	495	3.75	1	0.36
South-west arm	A	823	2.21	1	0.36	A	1143	2.73	1	0.49

Results show that the proposed roundabout will operate well within capacity, and there would be scope to reduce the number of lanes on the de-trunked A12. As part of this test, the NH' scheme was firstly modelled in ARCADY to ensure that results were similar. These results are shown in Table 2.

Table 2 Essex Highways' ARCADY results using National Highways' scheme

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
NE Arm	0.2	2.21	0.18	A	0.1	2.28	0.11	A
SE Arm	1.2	5.39	0.54	A	0.5	3.38	0.31	A
SW Arm	0.4	2.09	0.30	A	0.9	2.83	0.48	A
	2042							
NE Arm	0.3	2.39	0.21	A	0.1	2.34	0.12	A
SE Arm	1.3	5.80	0.57	A	0.5	3.62	0.35	A
SW Arm	0.6	2.32	0.37	A	1.0	2.99	0.51	A

A series of tests were then carried out evaluating different geometries of roundabout with the existing A12 modelled as a two-lane single carriageway. The tests came to the following conclusions for each arm, with results shown in Table 3:

- Northeast Arm (A12 East) – reduction possible to a single lane approach with a single-entry width of 5m.
- Southeast Arm (Braxted Road) – retained as proposed by NH.
- Southwest Arm (A12 West) – Reduction possible to a single lane approach but required to flare to two lanes on the approach, 10m effective flare length starting 20m back.

Table 3 - ARCADY results for proposed geometries

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
NE Arm	0.4	4.45	0.31	A	0.3	4.54	0.20	A
SE Arm	1.2	5.55	0.55	A	0.5	3.42	0.32	A
SW Arm	0.8	4.15	0.46	A	2.8	8.55	0.74	A
	2042							
NE Arm	0.6	5.12	0.36	A	0.3	4.73	0.22	A
SE Arm	1.4	5.99	0.58	A	0.6	3.66	0.36	A
SW Arm	1.3	5.15	0.56	A	3.5	10.23	0.78	B

Using the above results, EH have provisionally proposed a 40m ICD (a reduction of 10m from NH' proposal) for the Rivenhall End West Roundabout. This reduction in size will result in cost reductions associated with construction of the junction in terms of both material and labour which can be reinvested to help finance the wider scheme.

A full detailed design of the roundabout should be undertaken at a later design stage to verify reductions in size against Design Standards.

Rivenhall End East Roundabout

The proposed location of the Rivenhall End East Roundabout is to the east of Rivenhall End, with a two-arm roundabout proposed on the de-trunked A12. This is considered over provision as it only appears to be present to facilitate the transition between the dual and single carriageway arrangements at the eastern of the de-trunked section. With EH proposing that the single southern carriageway is retained for traffic, a junction at this location can be removed and its construction cost reinvested to help finance the wider scheme.

Feering East Roundabout

Feering East Roundabout is proposed at the current Junction 24 Feering North junction, as shown in Figure 22, below.

Figure 22 - Feering East Roundabout as depicted in National Highways' proposals

Traffic turning movements and modelling results have not been provided by NH for this junction, therefore in order to model it, turning flows were estimated from the forecast model flows for the de-trunked A12, as shown in the A12 DCO Transport Assessment, and an Automatic Traffic Count (ATC) on New Lane from 2016. Additionally, a predicted traffic flow of two vehicles per hour inbound (50/50 east/west split) and two vehicles per hour outbound per hour has been assumed for the southern access arm. For traffic entering the roundabout from New Lane, a 50/50 split travelling towards Kelvedon and the existing A12 has been assumed. The matrices used can be found in Appendix D - Matrices Used for Feering East Roundabout ARCADY Modelling.

A series of tests were carried out modifying geometries of the roundabout with the existing A12 modelled as a single carriageway. The tests came to the following conclusions for each arm, with results shown in Table 4:

- Reduction to single lane approach on all arms, flaring to 5m on entry
- Flare lengths of 8m
- ICD as small as practical whilst complying with engineering Design Standards

Table 4 - Feering East ARCADY results with updated geometries

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
Old A12	0.3	377	0.23	A	0.3	3.69	0.22	A
Access	0.0	0.0	0.0	A	0.0	0.0	0.0	A
Kelvedon	0.2	3.17	0.18	A	0.2	3.11	0.16	A
New Ln	0.2	3.69	0.16	A	0.2	3.60	0.15	A
	2042							
Old A12	0.5	4.44	0.35	A	0.7	4.95	0.42	A
Access	0.0	0.0	0.0	A	0.0	0.0	0.0	A

Kelvedon	0.3	3.34	0.22	A	0.2	3.15	0.17	A
New Ln	0.2	3.82	0.16	A	0.2	3.63	0.15	A

Using the above results, EH has provisionally proposed a 40m ICD (a reduction of around 24m from NH' proposal) for the Feering East Roundabout. This reduction in size will result in cost reductions associated with construction of the junction in terms of both material and labour which can be reinvested to help finance the wider scheme.

A full detailed design of the roundabout should be undertaken at a later design stage to verify reductions in size against Design Standards.

Easthorpe Road Roundabout and Wishing Well Roundabout

These junctions are proposed by NH along the de-trunked section of the A12 to provide access to minor roads and farms (with associated low flows). With ECC proposing to reduce the existing A12 to a single carriageway, a roundabout is not needed and a simple priority junction or crossroad arrangement would be sufficient.

A simple priority junction arrangement was modelled in PICADY using flows from the Transport Assessment for the existing A12, and an assumption of 25 vehicles per hour travelling to and from the minor roads. Table 5, below, shows the results of a simple priority junction.

Table 5 - PICADY results from alternative priority junction layout for the Easthorpe Road and Wishing Well roundabouts

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
Minor Road	0.1	8.41	0.11	A	0.1	8.25	0.11	A
A12	0.0	5.68	0.04	A	0.0	5.65	0.04	A
	2042							
Minor Road	0.1	9.27	0.12	A	0.1	9.56	0.13	A
A12	0.0	6.01	0.04	A	0.0	6.27	0.05	A

Using the above results, has instead proposed a simple priority junction to replace the Wishing Well Farm Roundabout, and a crossroads made up of two simple priority junctions to replace the Easthorpe Road Roundabout.

These types of junctions may offer material and labour costs savings over the construction of the NH proposed roundabouts, especially when considering modifications required to the existing A12's carriageway levels to facilitate roundabout geometries. Any cost reductions could be reinvested to help finance the wider scheme.

Junction 25 London Road Roundabout

The new Junction 25 is proposed just west of Marks Tey, at the eastern end of the de-trunked section of the existing A12. It will comprise of a signalised junction to the west of the A12 mainline and a priority roundabout to the east of the A12, the junctions connected by the existing A120 dual carriageway. The signalised western junction will connect to a new roundabout located to the south of junction 25, known as London Road Roundabout. London Road Roundabout will connect the A12 northeast bound off-slip at junction 25 and is shown in

Figure 23, below.

Figure 23 - London Road Roundabout as depicted in National Highways' proposals

NH has tested the performance of Junction 25 using VISSIM microsimulation software. For this review, Essex Highways has used ARCADY to model the London Road roundabout separately in order to test its performance when reducing the existing A12 to a single lane carriageway. Traffic flows have been ascertained from NH' VISSIM matrices but with added reasonable assumptions on turning movements, specifically on London Road, in order to obtain a matrix for the roundabout. These matrices are shown in Appendix E - Matrices Used for London Road Roundabout ARCADY Modelling.

Table 6, below, shows the VISSIM results for the London Road Roundabout with only the Level of Service (LOS) and Vehicle delay in seconds reported.

Table 6 - London Road Roundabout LOS & delay summary, from Transport Assessment

Scenario	Year	AM		PM		IP	
		LOS	Veh Delay (sec)	LOS	Veh Delay (sec)	LOS	Veh Delay (sec)
With Scheme	2027	A	3	A	4	-	-
	2042	A	4	A	6	-	-

NH' proposals were first modelled in ARCADY, with the following results:

Table 7 - London Road Roundabout National Highways Proposal - ARCADY junction performance results

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
London Road	0.1	3.43	0.06	A	0.1	4.03	0.07	A
Western Link	0.4	4.21	0.28	A	0.3	3.93	0.24	A
Off Slip	0.2	2.24	0.14	A	0.5	2.72	0.32	A
Old A12	0.2	2.25	0.17	A	0.2	2.47	0.17	A
	2042							
London Road	0.1	3.65	0.06	A	0.1	4.29	0.08	A
Western Link	0.6	4.92	0.38	A	0.8	5.31	0.44	A
Off Slip	0.2	2.51	0.19	A	0.6	3.32	0.39	A
Old A12	0.3	2.40	0.21	A	0.2	2.59	0.18	A

A reduction in width of the existing A12 was modelled, as well as a reduction in width of the new A12 off slip from two lanes to one with a flared entry. Additionally, a reduction in ICD was also modelled, to understand if there is scope to reduce the overall size of the roundabout. If practical to do so, this could afford additional space north of the roundabout for controlled crossing facilities associated with the active travel corridor, improving the onward connection into Marks Tey beyond the de-trunked sections. Table 8, below, shows the results.

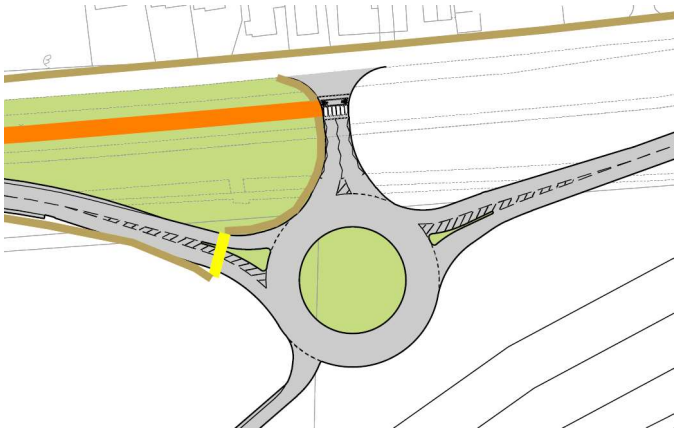
Table 8 - London Road Roundabout ECC Counter Proposal - ARCADY junction performance results

	AM				PM			
	Queue (veh)	Delay (s)	RFC	LOS	Queue (veh)	Delay (s)	RFC	LOS
	2027							
London Road	0.1	3.61	0.06	A	0.1	4.41	0.08	A
Western Link	0.4	4.21	0.28	A	0.3	3.94	0.24	A
Off Slip	0.3	3.93	0.23	A	1.0	5.79	0.49	A
Old A12	0.5	5.81	0.35	A	0.6	7.22	0.37	A
	2042							
London Road	0.1	3.90	0.07	A	0.1	4.80	0.09	A
Western Link	0.6	4.93	0.38	A	0.8	5.33	0.44	A

Off Slip	0.5	4.75	0.31	A	1.7	9.16	0.64	A
Old A12	0.7	6.86	0.43	A	0.7	8.22	0.42	A

Using the above results, EH has provisionally proposed a 50m ICD (a reduction of around 10m from NH' proposal) for the London Road Roundabout. This reduction in size will result in cost reductions associated with construction of the junction in terms of both material and labour which can be reinvested to help finance the wider scheme. In addition, there is increased space north of the junction to extend the distance between the roundabout's circulatory and the junction with Old London Road. With this additional space available for vehicle stacking, it is now possible to provide a parallel crossing across this northern arm with a reduced likelihood of vehicles waiting at the crossing queuing back onto the roundabout's circulatory, as shown in Figure 24.

Figure 24 – A parallel crossing with increased stacking space on the northern arm of the London Road Roundabout, possible by reducing its ICD



A full detailed design of the roundabout should be undertaken at a later design stage to verify reductions in size against Design Standards.

6.5 Value Engineering

ECC has produced a pragmatic and lean design that reduces unnecessary expenditure where possible, with the key decisions supporting value engineering summarised as:

Reduction in construction materials

- All junctions along the corridors have been rationalised (where achievable) with regard to their type and size, or removed entirely. Reductions in their footprint will result in savings against the NH' proposals which can be reinvested to help finance the wider scheme.
- The active travel corridor's foundation is the existing northern carriageway, requiring only a surface course overlay to create it and no allowance for other pavement layers.

- The unbound granular bridleway to be created by breaking up and grading the existing pavement's construction, reducing the requirement for imported material to construct it.
- The predominantly higher carriageway has been utilised for the active travel corridor. To tie in excavation is required, not imported material to build up; this will provide a surplus of recyclable material which may be reused elsewhere, where the existing carriageway and paved central reservation is to be excavated.
- Existing drainage is utilised where possible.
- The southern carriageway's profile is to remain as is, with no reprofiling proposed when converting to a two-lane single carriageway.
- Where positioned under planted areas, the northern carriageway is required to be broken up/perforated to ensure it drains. Elsewhere tthe carriageway is not to be broken out and removed from site to reduce costs associated with disposal of the existing carriageway and imported earth to backfill.
- The height of the formed earthwork bunds creates a suitable depth of fill to support the proposed planting and green infrastructure. Any reduction in imported fill would reduce the resilience and types of planting that may take place.

Simplicity of design

- Many of the junctions have been rationalised to cater for a single retained carriageway. Roundabouts that have been replaced with priority junctions which will likely be simpler to construct.
- A swale is proposed instead of traditional positive drainage systems to drain the active travel corridor, reducing cost and complexity.
- The unbound granular bridleway requires no drainage at all as the construction is permeable.
- All conflict points across the active travel corridor will be resolved without the use of signals (instead using parallel crossings or priority arrangements) to avoid their significant associated cost.

Further opportunities

- As the scheme with have surplus recyclable material arising from excavated carriageway, this could be used in part to support the proposed A12 scheme's demand for materials and used as a recycled capping or sub-base material.
- There is also an opportunity to utilise surplus recyclable material from carriageway excavations in the creation of site made manufactured soil (to BS 8601:2013 Specification for subsoil and BS 3882:2015 Specification for topsoil), which would be ideal for low fertility, species rich grassland areas.
- There could be an opportunity to utilise excess topsoil/subsoil from the new A12 project in this manufacturing process to reduce overall importation / exportation of material for the A12 scheme overall.

6.6 Cost Estimate and timing of delivery

At the time of writing, an accurate estimate of the additional cost of delivering the ECC alternative proposals could not be produced due to a lack of detailed information on which to allow a comparison with the NH scheme as some elements would be retained, modified or removed entirely as part of the ECC proposal. Once forecasts for the NH scheme have been established and further consideration of potential cost savings associated with the proposed rationalisation of the junctions along the detrunked sections it will be possible to compare costs associated with the alternative proposals.

Once detailed designs are established, full consideration can also be given to the comparison of maintenance costs associated with the NH proposal and the ECC alternative proposal. It is considered highly probable that the alternative proposals will reduce the lifetime maintenance cost of the detrunked sections of the A12, namely through the removal of carriageways which would not need to be maintained and resurfaced in the future and with maintenance of green infrastructure unlikely to be such a financial burden.

It would seem appropriate for the construction of the ECC alternative proposals to be carried out towards the end of the A12 DCO scheme's programme of works, when the new sections of the A12 are complete.

6.7 Engagement with Stakeholders

As part of the development of the design, stakeholders including district and parish council representatives affected by the de-trunking plans have been engaged with regards to the ECC's alternative proposals.

Specific engagement sessions were held with Parish Council representatives for the two sections of the route (Junction 22 – 23 and Junction 24 – 25) during December 2022 which provided representatives with the opportunity to share formal feedback on the proposals. A copy of the responses received are provided in Appendix F – Parish Council Feedback.

Whilst the feedback was generally positive around the retained single carriageway arrangement and rationalised junction designs, there were a number of points raised that ECC have further considered which are detailed in the following section.

Removal of through motor traffic on Oak Road

Stakeholders strongly supported NH' proposals to removing through motor traffic on Oak Road in their proposals, continuing to support this approach with ECC's single carriageway arrangement. ECC has given consideration to the opportunity of maintaining access from the de-trunked section of the A12 for buses, as a form of bus priority, but there are no current bus routes that would benefit from this, and it has been ruled out. ECC are fully committed to removing through motor traffic on Oak Road and developing the area adjacent for local amenity, as further discussed later in this report.

Bus stops within Rivenhall End

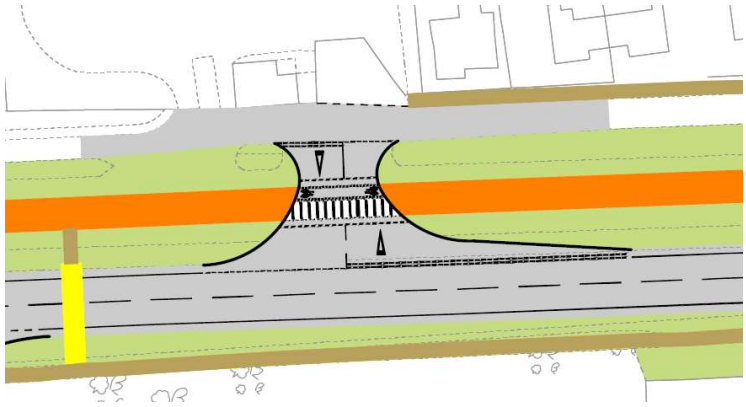
Stakeholders requested that bus stop provision be made within Rivenhall End. This will be explored at a later design stage and with engagement with bus companies and Essex County Council's Passenger Transport team.

Removal of commercial vehicles from Old London Road

Stakeholders highlighted that currently, commercial vehicles leaving an industrial site off Old London Road are required to travel along Old London Road, as there is no direct access on the westbound carriageway of the A12. Being that Old London Road is a residential road the removal of this traffic would be beneficial to residents.

EH has further considered the issue in the context of a single carriageway arrangement. The initial design indicates that it should be possible to enable right-in/out where the existing eastbound access onto Old London Road is positioned. In facilitating all movements commercial traffic would not be required to utilise Old London Road. An initial design for this junction arrangement can be seen in Figure 25.

Figure 25 – Indicative design for an all-movements junction onto the western end of Old London Road.



Request to move London Road Roundabout

Stakeholders, whilst accepting the requirement for London Road Roundabout, have queried its position in NH' proposals. Currently the northern arm meets Old London Road opposite residential properties, which residents have requested is moved further west, opposite green space.

EH has investigated relocating this northern arm, however this would require relocating the roundabout further west, which has a number of undesirable impacts:

- Spatial constraints associated with a property on the southern side of the existing A12 forces the position of the roundabout northward (to avoid cutting across the associated land parcel). This would leave little to no space for adequate crossing facilities for a continuation of the active travel corridor into Marks Tey.

- The eastbound off-slip of the A12 would need to bend left to meet the new position of the roundabout. This could potentially introduce a non-compliant alignment against DMRB link road Design Standards. Furthermore, its new position would make a large area of space inaccessible between off-slip and roundabout, sterilising a large area of land for anything other than green infrastructure.

It is therefore not possible to meaningfully shift the northern arm of the London Road Roundabout. However, ECC believes their proposal of reducing the roundabouts size and move it further from Old London Road, along with removing commercial traffic from it, will mitigate some of these concerns, and this could be investigated further during a later design stage.

Comments surrounding existing pedestrian/cycle facilities

Comments were raised surrounding the existing shared pedestrian cycle facilities alongside the northern carriageway and the need for new/upgraded facilities. Unfortunately, the existing facility is substandard when viewed against LTN 1/20, and at the very least, would need to be widened. As detailed earlier in the report, there is the opportunity to provide a wide active travel corridor using the existing carriageways construction and repurpose this existing shared use facility as a bridleway. This is ECC's preferred approach.

Further stakeholder engagement and consultation

Should ECC's alternative proposals be progressed further, further engagement and consultation will be required with stakeholders and other interested parties on the proposals to seek input from those most affected and ensure that local views are understood and can be taken into account. This is particularly the case for the section through Rivenhall End, where the space available presents a good opportunity to provide facilities that enhance the local environment and benefit the community (see Section 7.8 below).

6.8 Essex County Council's Full Proposal

Using the above, EH has produced indicative designs for the corridor including 2D overview plans and detailed cross sections. These can be viewed in Appendix B – Essex Highway's Proposal Drawings.

7 Landscaping and Green Infrastructure Strategy

7.1 Introduction

ECC's proposed Green Infrastructure Strategy concerns the soft landscape areas surrounding the highway proposals. With the existing southern carriageway retained for traffic and the northern carriageway repurposed as an active travel corridor, the non-trafficked portion of the corridor will typically be around 18m wide, of which the hard surfacing will be circa 6.5m wide. Therefore, almost two thirds of the corridor will become available for green infrastructure / soft landscape.

This strategy aligns with both the ECC 'Safer, Greener, Healthier' campaign and the recently published Green Infrastructure Framework released by Natural England [redacted] complements the government's Environmental Improvement Plan [redacted]. In combination these publications provide robust evidence and set out expectations and examples of good practise for new schemes to incorporate Green Infrastructure within the built environment to support public access to this type of infrastructure.

The strategy focuses on native habitat types that will maximise Biodiversity Net Gain (BNG), require minimal long-term management and support the NH' Low Nutrient Grasslands policy to remove topsoil from the design of new grassland areas to create greater biodiversity by allowing wildflowers to thrive.

Planting would be used in blocks to provide screening either from or to the travel corridor, and to help frame other attractive views out across the surrounding landscape. Long solid blocks of planting are not intended, which could become monotonous, rather, areas of planting should create spaces of differing character, width, length and levels of enclosure.

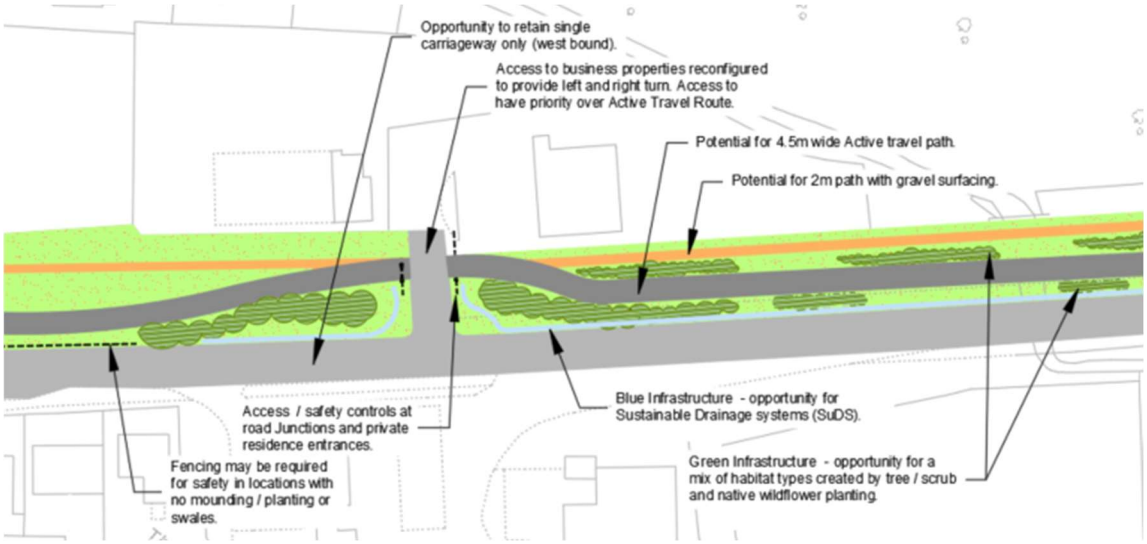
Specific growing conditions, soil types and depths, would require to be created for individual planting types such as shallow, low fertility soils for native species rich grassland areas.

7.2 Green Infrastructure Types

Typical landscape types would include (Figure 25 Active Travel - Green Infrastructure Strategy):

- Mown verges to paths and retained carriageway;
- Low maintenance species rich grassland;
- Native scrub planting;
- Native woodland planting;
- Individual specimen trees; along with;
- Opportunities for Sustainable Drainage Systems (SuDS)

Figure 26 - Typical green infrastructure landscape treatment along the active travel corridor



The breakdown of landscape types could be as follows (depending on the final detailed design):

- **35% - Scrub and woodland planting;**
  - Some planting mixes within the scrub would have the addition of tree species.
  - Scrub would be at a generous spacing, so thinning is not required. The sides, however, may require occasional (once every five years) cutting back but can be undertaken by tractor / flail.
  - Where tree species are used as part of the mix these would be at a min of 10m spacings.
  - Planting areas would be sown with a species rich grass mix, which would not require cutting following establishment maintenance.
  - The specific species composition would be agreed with stakeholders-/ ecologists.
- **35% – Low maintenance species rich grassland;**
  - All other areas outside of planting would be sown with a tall, locally appropriate, species rich seed mix(s).
  - With correct low fertility soil, this should only require cutting annually or may even be reduced to a three-year rotation – as agreed with stakeholders / ecologists.
  - The specific seed composition would be agreed with stakeholders / ecologists.
- **20% –1-m mown verge adjacent to the carriageway and the NMU facilities;**
  - a low growing, low maintenance species rich mix, such as Flowering Lawn Mix (Scotia Seeds), would be preferred to an amenity grass mix to reduce maintenance liabilities.
  - If the soiling is correct and a low fertility soil is achieved, then this should only require cutting once a year.
  - The specific seed composition would be agreed with stakeholders / ecologists.
- **5% - Sustainable drainage features;**
  - Shallow, gently sloping swales would be the preferred drainage type. It is assumed that if these are located above areas of broken up carriageway, then

they will naturally soak away without the need for attenuation ponds / formal drainage connections.
    - Drainage features would be sown with an appropriate pond edge / wetland species rich seed mix(s) agreed with stakeholders / ecologists.
- **5% - Hedge planting;**
    - Hedge planting would be located as a boundary treatment between the retained carriageway and the active travel corridor.
    - Hedge tree would be incorporated located at irregular intervals as found naturally.
    - The specific species composition would be agreed with stakeholders/ ecologists.
    - Hedges would require annual maintenance by tractor / flail.

Tree Planting - Where achievable

- Any individual tree planting would most likely be located within built up areas to increase local amenity. Individual trees could also be used to emphasise important junctions and create variation along the corridor.
- Trees will require, where not associated with proposed mounding, pits to be excavated into the existing carriageway to ensure their establishment.
- Trees are unlikely to require significant maintenance following establishment maintenance.

Other landscape considerations;

- There is the potential for other habitat types to be developed during detailed design, such as ponds, although it is currently assumed there is insufficient space and levels are not appropriate for ponds to be achieved.
- The proposed gravel equestrian path may grass over if foot or hoof traffic levels are low – a management plan should allow for a 3-4 m wide grass strip to be retained by annual cutting.
- Where the corridor crosses road junctions and private residence entrances there may be a safety requirement for controls to reduce speeds or prevent unauthorised vehicle access, such as removable bollards. It is assumed these would be timber and may require replacement every 20-25 years.
- Fencing along the edge of the retained carriageway may be required in certain locations, in combination or separate to proposed hedging, to deter pedestrian access to the highway.

7.3 Biodiversity Net Gain (BNG)

BNG is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand, by creating or enhancing habitats in association with development.

The proposed landscape types, in place of the existing carriageway, outlined above would potentially offer NH or ECC a significant BNG.

Indicatively this Green Infrastructure Strategy, for 3.5ha of new ‘Other Neutral Grassland’ and ‘Mixed Scrub’ habitats, could give a habitat unit value of approximately 27 BNG units, or about £675,000 at £25k per unit.

To be more precise about BNG potential would require survey work to establish information about existing habitat types and their condition. The survey mapping plans would allow detail design work to tie into existing habitat features potentially creating additional BNG Units.

7.4 Indicative Scrub Mix

The following is an indicative planting mix for proposed scrub habitats. Different planting areas may have subtly different planting composition with some having some tree content while others may have no trees. The specific species composition would be agreed with interested parties / ecologists.

Table 9 – Scrub Planting

Scrub Planting (1.2 m c/c planted in groups of 7-15. *Tree species where proposed at 6-10 m c/c. Plants to be of local provenance (zones 402,405 or 406)		
%	Species	Specification
2	Acer campestre*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
1	Acer pseudoplatanus*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
2	Betula pendula*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
10	Cornus sanguinea	1+1, 600-800mm, Br, min of 3 breaks
15	Corylus avellana	1+2, 600-800mm, Br, branched, min of 3 breaks
20	Crataegus laevigata	1+1 or 1/1, 600-800mm, Br, min of 4 breaks
5	Euonymus europaeus	600-800mm, Br, branched, min of 3 breaks
9	Ligustrum vulgare	600-800mm, Br, min of 4 breaks
15	Prunus spinosa	600-800mm, cell
1	Quercus robur*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
5	Rosa canina	1+1 or 1/1, 600-800mm, Br, min of 5 breaks
15	Salix cinerea spp. cinerea	0/2, 600-800mm, Br, branched, min 5 breaks

7.5 Indicative Hedge Mix

The following is an indicative planting mix for hedge planting. Trees will be incorporated at irregular intervals to mimic surrounding hedges. The specific species composition would be agreed with interested parties / ecologists.

Table 10 – Hedge Planting

Hedge Planting 7 per linear m planted in groups of 7-15, *Tree species planted at random spacings, but numbers based on at 50 m c/c. Plants to be of local provenance (zones 402,405 or 406)		
%	Species	Specification
1	Acer campestre*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
1	Acer pseudoplatanus*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
1	Betula pendula*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
50	Crataegus laevigata	1+1 or 1/1, 600-800mm, Br, min of 4 breaks
26.5	Ligustrum vulgare	600-800mm, Br, min of 4 breaks
10	Prunus spinosa	600-800mm, cell
0.5	Quercus robur*	Feathered, 2x transplanted, 2-2.5m, Br, min of 5 breaks.
10	Rosa canina	1+1 or 1/1, 600-800mm, Br, min of 5 breaks

7.6 Maintenance and Management

It is recommended that the landscaping would be subject to a five-year maintenance and defects period as part of the implementation project, after which any rabbit protection (fencing or guards) and tree stakes would be removed reducing future management liabilities.

A long-term management plan would be developed during the detailed design phase in conjunction with stakeholders and ecologists to ensure that the proposals continue to be low maintenance, sustainable and achieve the BNG target.

The active travel provision and green infrastructure could be maintained either as highway land, in common with other similar corridors in Essex, or potentially as a linear country park (as is the case for example for the Flitch Way). The merits of both approaches would be considered further as part of the next stage of design.

7.7 Existing Carriageway Surface/Growing Medium

The principles of best landscape / planting practices should be followed (ensuring suitable growing medium / depths, drainage and establishing connection to natural subsoils for woodland areas).

A suitable growing medium (subsoil and topsoil) to establish planting is required varying between c.300 mm deep for grass, to c.1 m for trees. This will require either imported or manufactured using site won material. See Value Engineering section above for possible site made manufactured soil opportunities.

Suitable drainage will be required to ensure soils do not become waterlogged, which would result in the stunting or death of the planting. There are a number of ways the existing

carriageway can be delt with and it may be that, following detailed design, a combination of these may be utilised:

- Leave in place, and build up a drainage layer above followed by a suitable growing medium – *discounted due to quantity of importation of drainage material (cost / carbon footprint)*
- Puncture at c.1 m c/c – *lowest cost, addressing drainage but highly vulnerable to punctures clogging and becoming ineffective - discounted on this basis.*
    - Potential however for this to be used below areas of new path construction.
- Break-up to full depth of carriageway and retain 'rubble' in place – *allows improved drainage and deeper rooting of woodland planting ensuring long term stability.* **(Preferred Option)**
- Break-up to full depth of carriageway and move 'rubble' to specific areas (i.e. creation of higher mounding) – *greater cost than above but may be appropriate to reduce site levels or create higher mounding in specific locations.*
- Break up to full depth and remove from site – *a suitable re-use destination is required to maintain sustainability*. Re-use on the main A12 project is unlikely due to the de-trunking working programme taking place after the main construction. (cost / high carbon footprint).

7.8 Rivenhall End – Place Making Opportunities

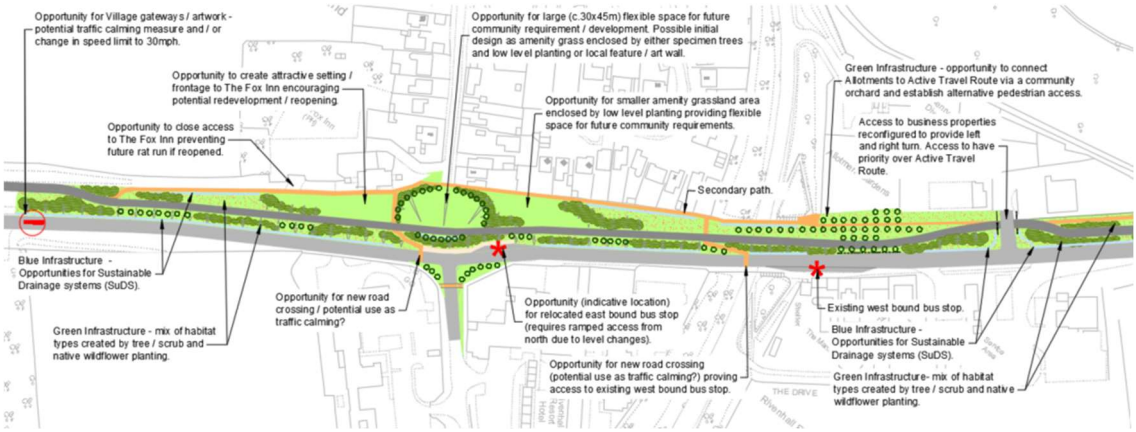
While the majority of the active travel corridor will be c.18 m wide, the potential corridor is considerably wider as it passes through Rivenhall End, where it widens to c.30 m. The available space is further increased by the removal of the priority junction between Oak Road and the de-trunked A12. Greater width allows a different design philosophy to be employed in this location to emphasise the village/hamlet setting and achieve the place making goals of both NH and CC (see Figure 27- Rivenhall End – Community Park Spatial Concept).

Figure 27 - Rivenhall End - Community park spatial concept

The area that would traditionally have been the 'centre' of a community, has in the case of Rivenhall End, had its back turned, due to the busy and noisy A12 dual carriageway with residential, hospitality and business properties facing away from the road. There is, however, the potential, with the reduction in traffic levels and associated impacts, to create a new village focal point / park. This could provide uses such as a 'village' green, both formal and informal recreation/ play, community orchards or extension of the allotments as seen in Figure

28. Over time, this may encourage business and leisure properties to develop roadside frontages becoming more visible and connected to the village.

Figure 28 - Rivenhall End - Community park concept



The masterplanning for place making opportunities should be developed as part of the A12 de-trunking detailed design, however, it is anticipated that the implementation of these proposals would fall outside the scope of the A12 de-trunking project.

Initially a more diverse linear park could be created, compared to the typical Active Travel Corridor template, with a series of spaces formed using structural planting, where future community activities would be located.

Extensive community consultation would be required in the detailed design phase to ensure the correct landscape infrastructure, and treatment of the removed carriageway, is implemented by the de-trunking project whether by NH or ECC.

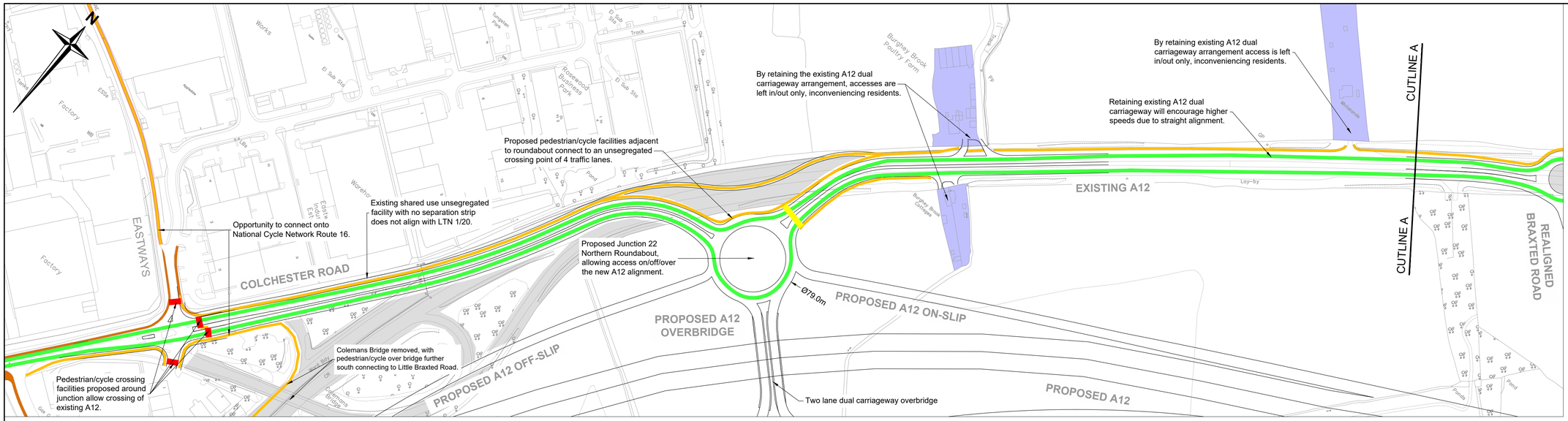
8 Next Steps

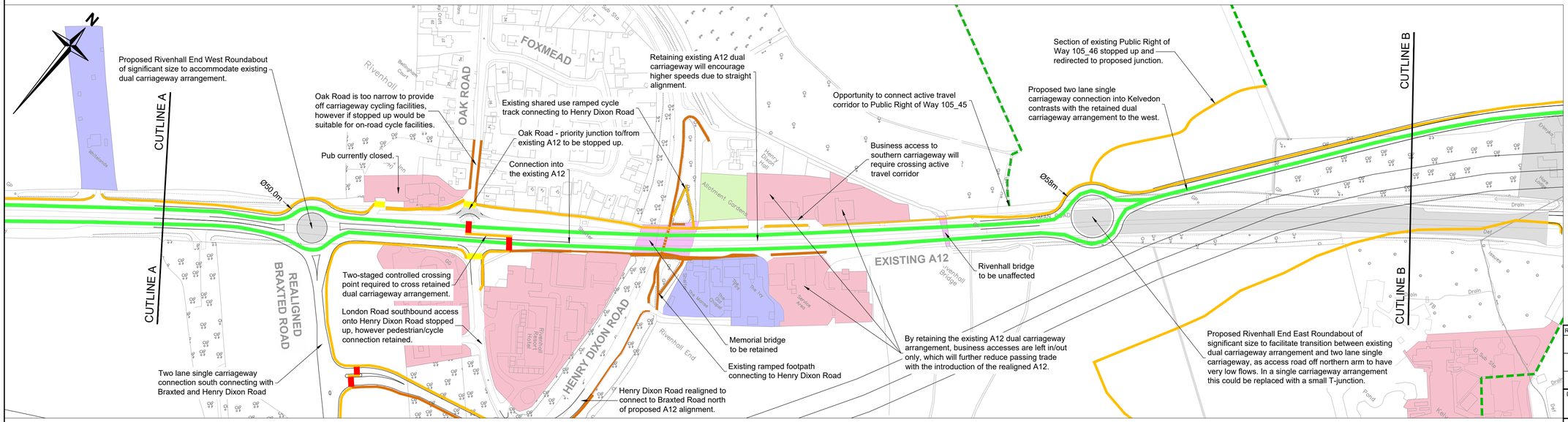
Consideration has been given to the next steps to achieve the delivery of the ECC alternative proposals should there be a successful outcome at the DCO examination.

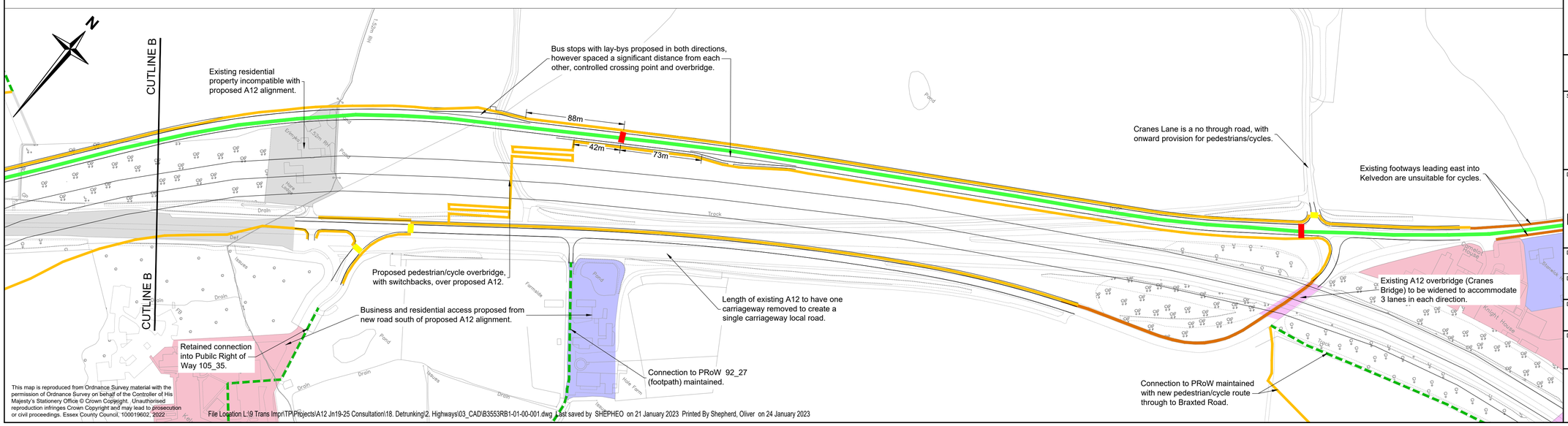
ECC would be keen to work collaboratively with NH to achieve the best possible outcome for the detrunking proposal as the scheme moves towards detailed design. The following activities are considered necessary to progress the scheme further:

1. Production of preliminary design drawings by NH, within the context of the wider construction strategy for the A12 scheme - identifying opportunities to proactively reduce carbon associated with the construction activities (i.e. balancing fill requirements etc.).
2. Production of more detailed cost estimates (construction and maintenance) by NH, taking into account the savings that would be achieved by delivering the ECC alternative proposals:
    - as part of the A12 widening scheme,
    - instead of the measures that are currently outlined within the A12 DCO plans, and
    - taking into account the savings that might be incurred by NH not having to upgrade the current dual carriageway before handover to ECC.
3. Calculation of Biodiversity Net Gain based on preliminary design drawings and exploration of ongoing monitoring of green infrastructure to understand the impact on local insect/bird populations and variety.
4. Ongoing engagement with local Parish Councils and the community to develop ideas around key elements of the scheme, such as the community park space at Rivenhall End, to ensure that detailed proposals maximise the benefits to the local community.

Appendix A – National Highways' Proposal Drawings







Notes

1. Do not scale.
2. National Highways proposed alignment has been sourced and displayed for illustrative purposes only. For further details please see official National Highways' authored documentation.
3. This drawing has been developed to demonstrate the general features of the National Highway's proposals and surrounding area. It does not represent a detailed review of their alignment proposals.
4. Only residential properties and businesses that access directly onto the existing A12 have been highlighted.

Key

- National Highways proposed kerb line/edge of carriageway/earthworks associated with A12 scheme.
- Private dwelling
- Business
- Allotments
- Existing/proposed shared use pedestrian/cycle facility
- Existing/proposed pedestrian only facility
- Existing Public Right of Way
- Existing/proposed controlled crossing point
- Existing/proposed uncontrolled crossing point
- Assumed routing of existing bus services
- Existing structure to be retained
- Existing feature to be stopped up or removed

Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS

FOR INFORMATION

Essex Highways

Essex Highways, Seax House, Victoria Road South, Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE

A12 DCO DETRUNKING OPTIONS

DRAWING TITLE

RIVENHALL NATIONAL HIGHWAYS PROPOSALS

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	BA/OS	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.: DIMENSIONS IN MILLIMETRES, LEVELS IN METRES

SCALE AT A1 (841X594mm): 1:2000

DRAWING No.: **B3553RB1-01-00-001**

REV.: -

RINGWAY JACOBS integrated expertise

Essex County Council

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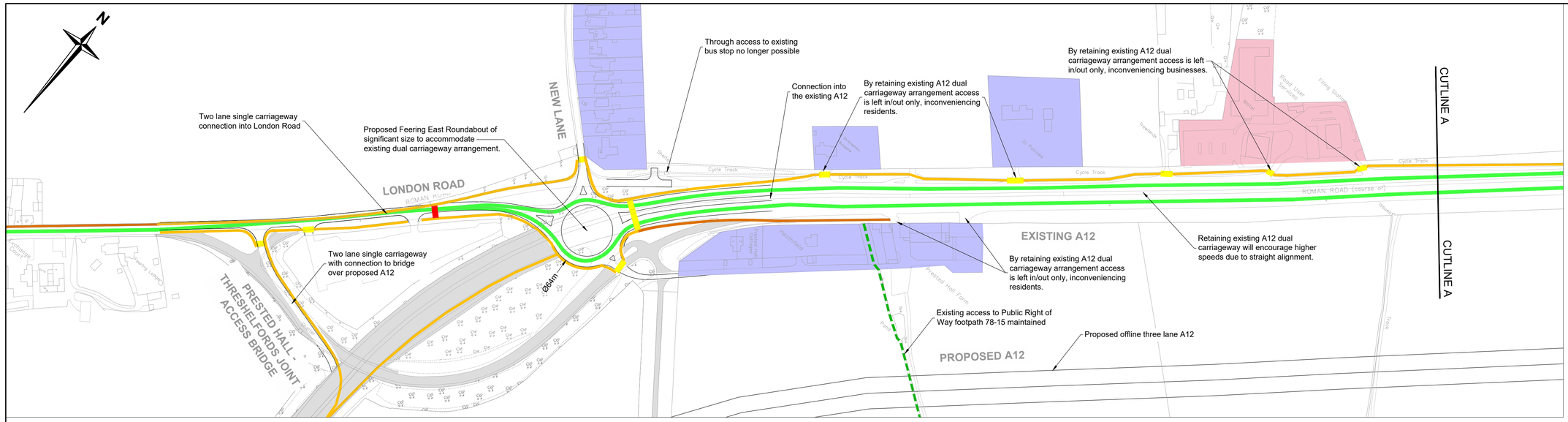

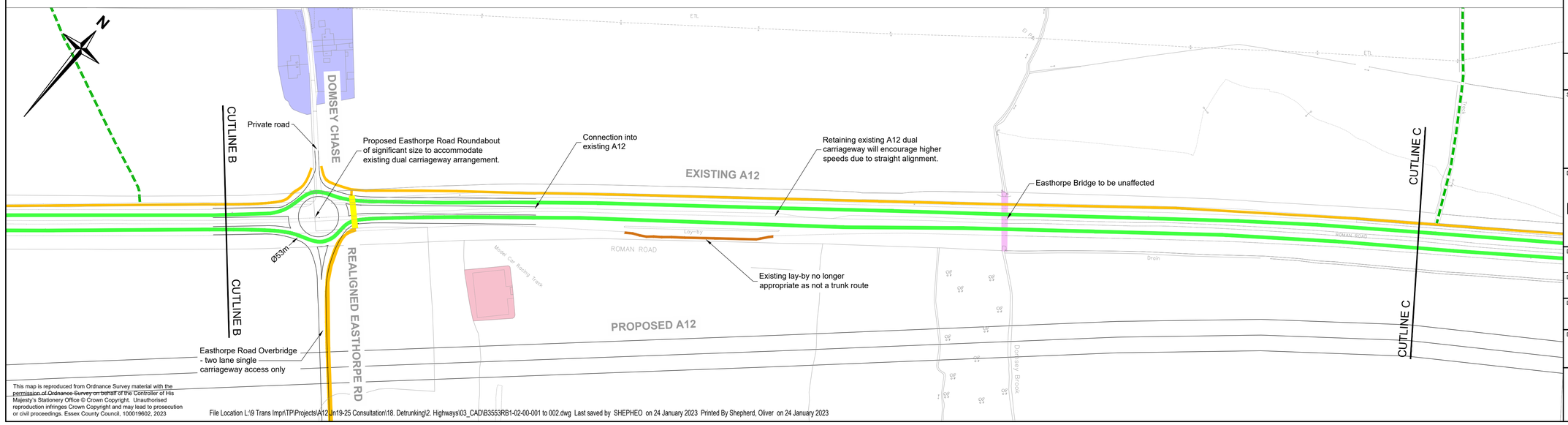

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Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

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Essex Highways

Essex Highways, Seax House, Victoria Road South,
Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE

A12 DCO DETRUNKING OPTIONS

DRAWING TITLE

FEERING TO MARKS TEY NATIONAL HIGHWAYS PROPOSALS SHEET 1 OF 2

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	BA/OS	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

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LEVELS IN METRES

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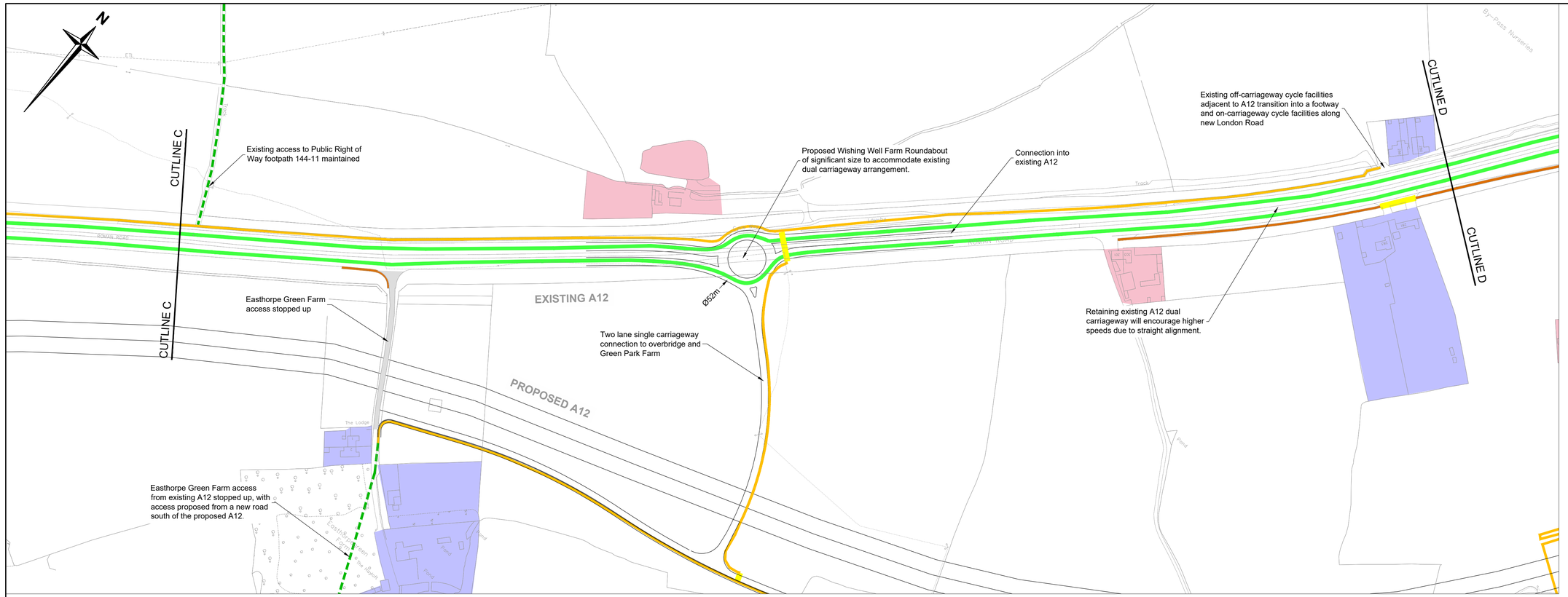

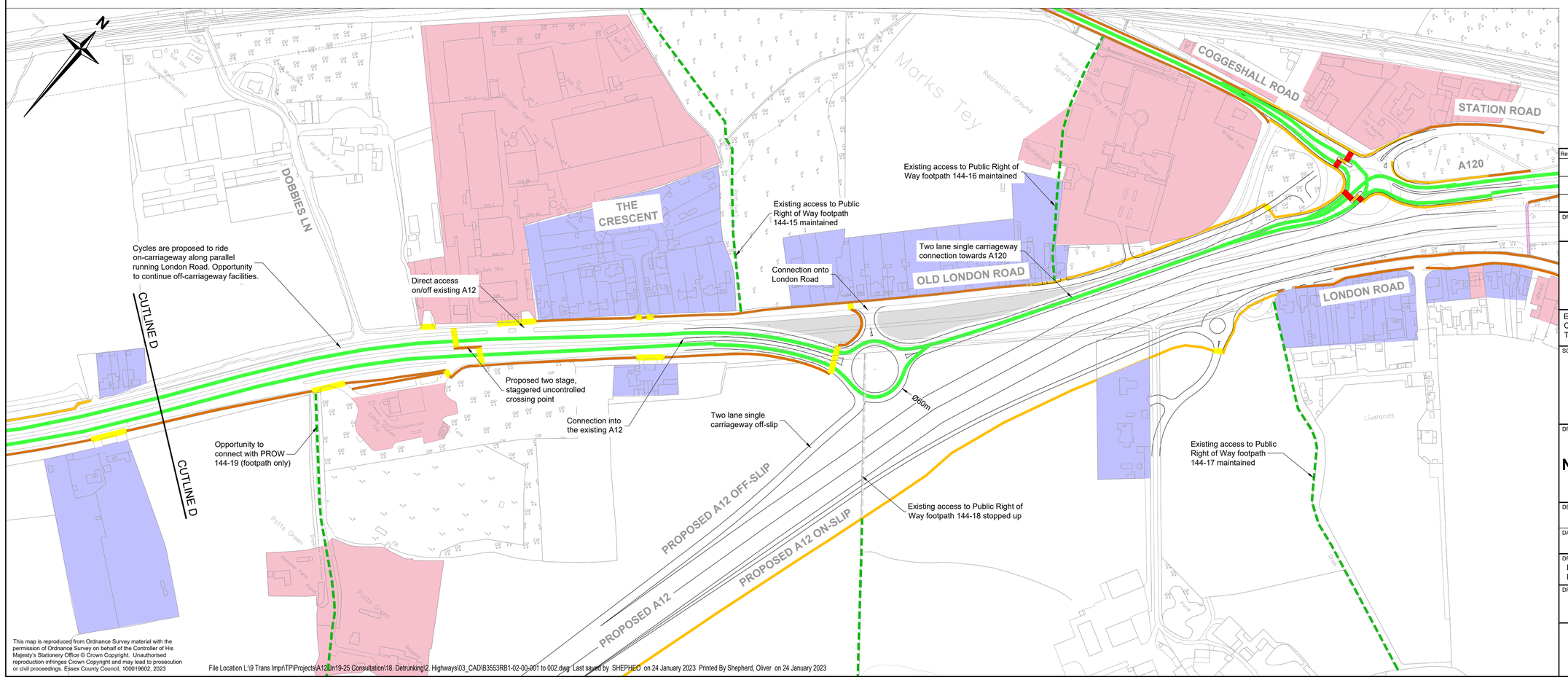

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FOR INFORMATION

Essex Highways

Essex Highways, Seax House, Victoria Road South, Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE

A12 DCO DETRUNKING OPTIONS

DRAWING TITLE

FEERING TO MARKS TEY NATIONAL HIGHWAYS PROPOSALS SHEET 2 OF 2

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	BA/OS	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
1:2000

DRAWING No.
B3553RB1-02-00-002

REV.
-

RINGWAY JACOBS integrated expertise

Essex County Council

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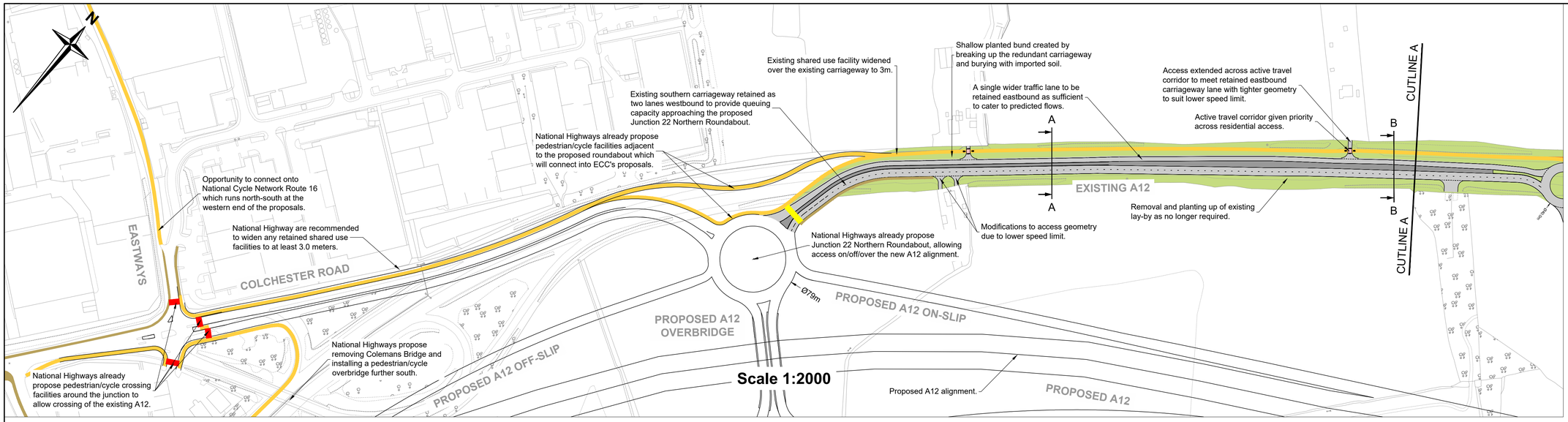
Appendix B – Essex Highway's Proposal Drawings



Notes

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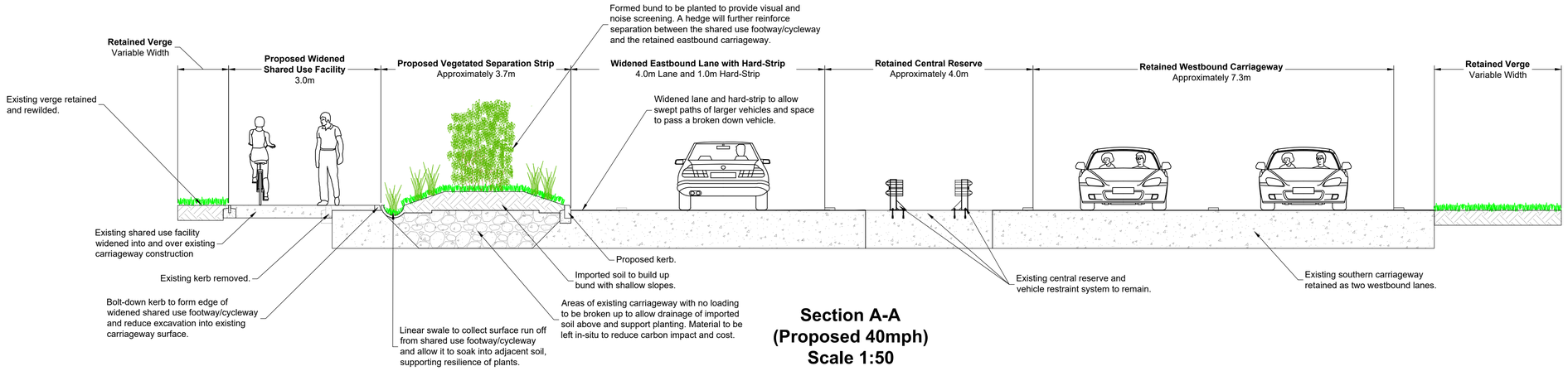
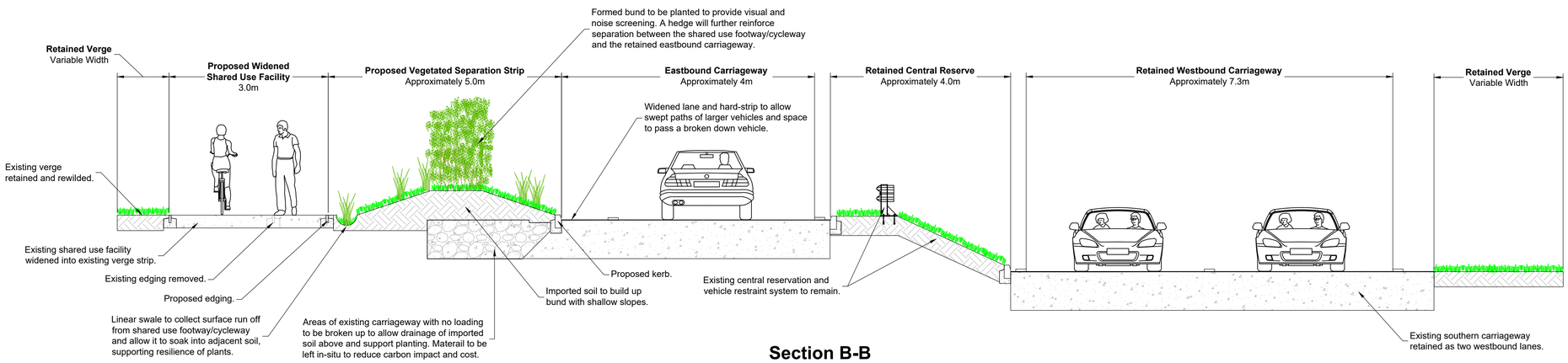
- Existing/proposed uncontrolled crossing
- Existing Public Right of Way
- Existing/proposed verge or planting



Section A-A (Proposed 40mph) Scale 1:50



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Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS

FOR INFORMATION

Essex Highways

Essex Highways, Seax House, Victoria Road South, Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE

A12 DCO DETRUNKING OPTIONS

DRAWING TITLE

RIVENHALL ECC PROPOSALS SHEET 1 OF 2

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	BA/OS	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
AS SHOWN

DRAWING No.
B3553RB1-01-00-002

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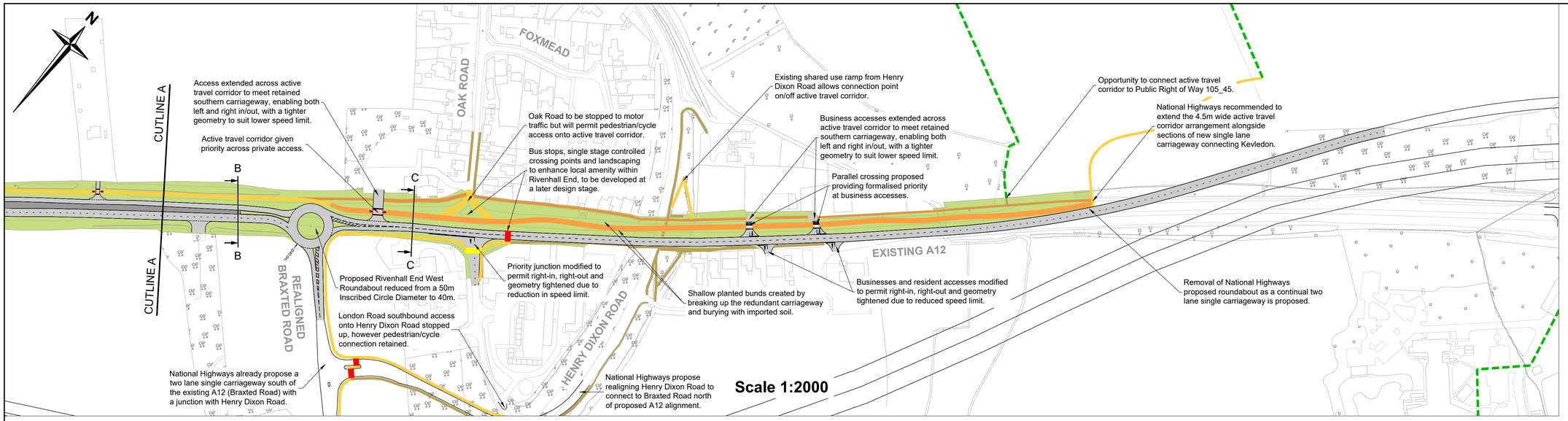
Essex County Council



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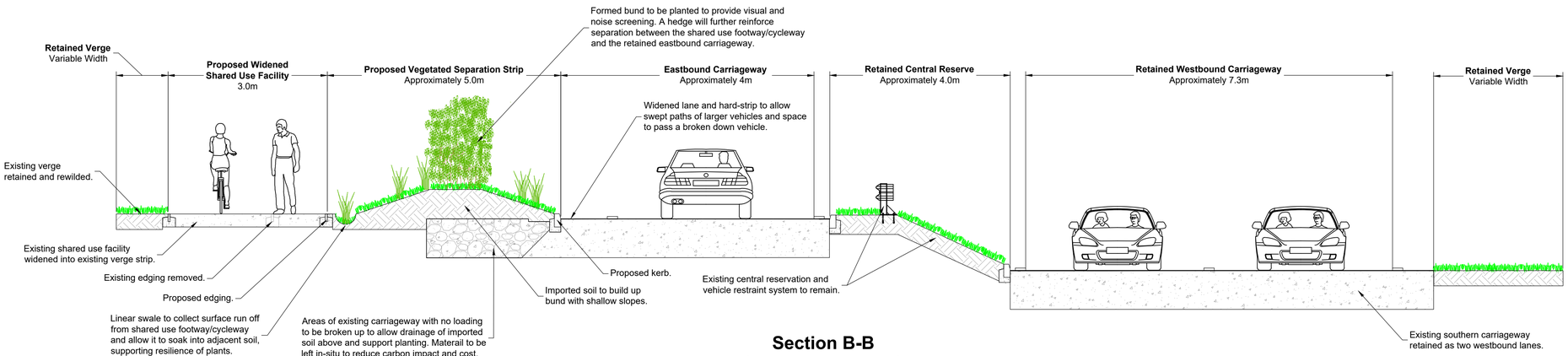
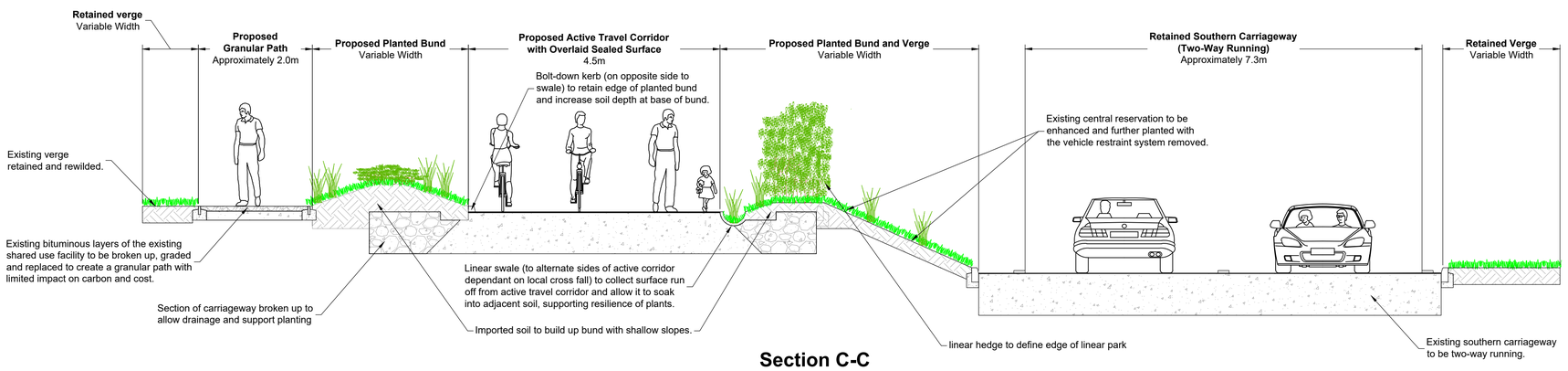
- Existing Public Right of Way
- Existing/proposed verge or planting



Section B-B
(Proposed 40mph)
Scale 1:50



Section C-C
(Proposed 40mph)
Scale 1:50

Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS
FOR INFORMATION

Essex Highways

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Tel: 0345 6037631

SCHEME TITLE
A12 DCO DETRUNKING OPTIONS

DRAWING TITLE
RIVENHALL ECC PROPOSALS SHEET 2 OF 2

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	BA/OS	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
AS SHOWN

DRAWING No.
B3553RB1-01-00-003

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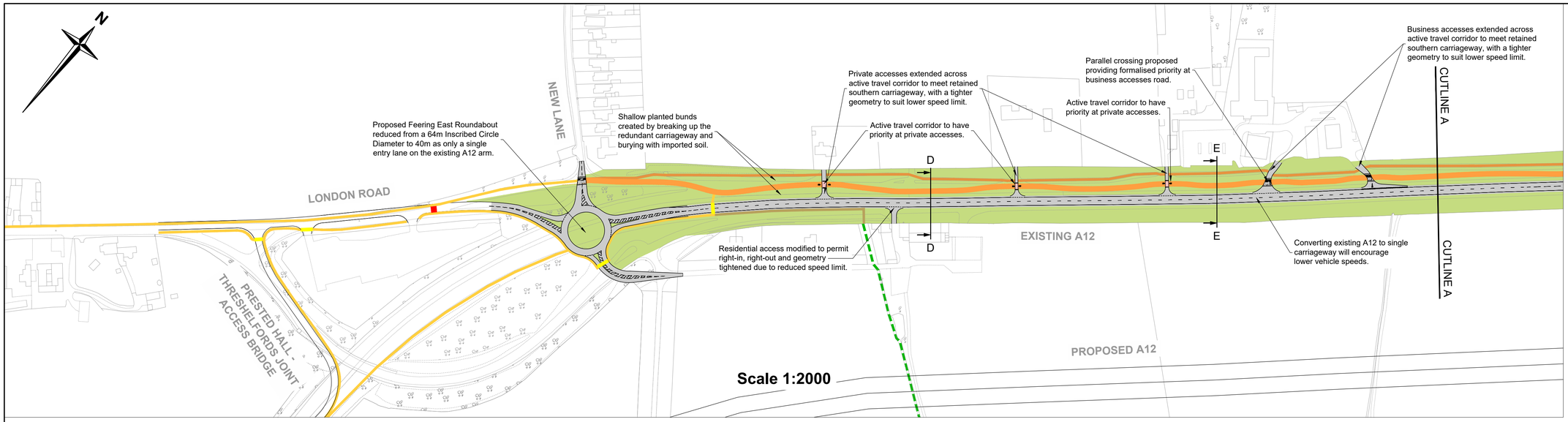

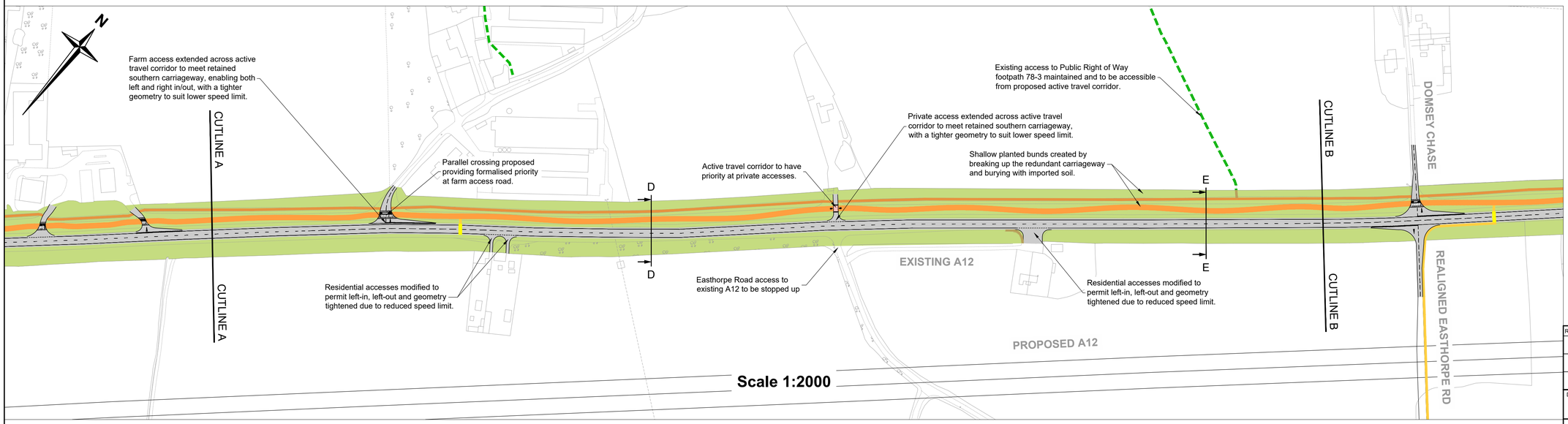

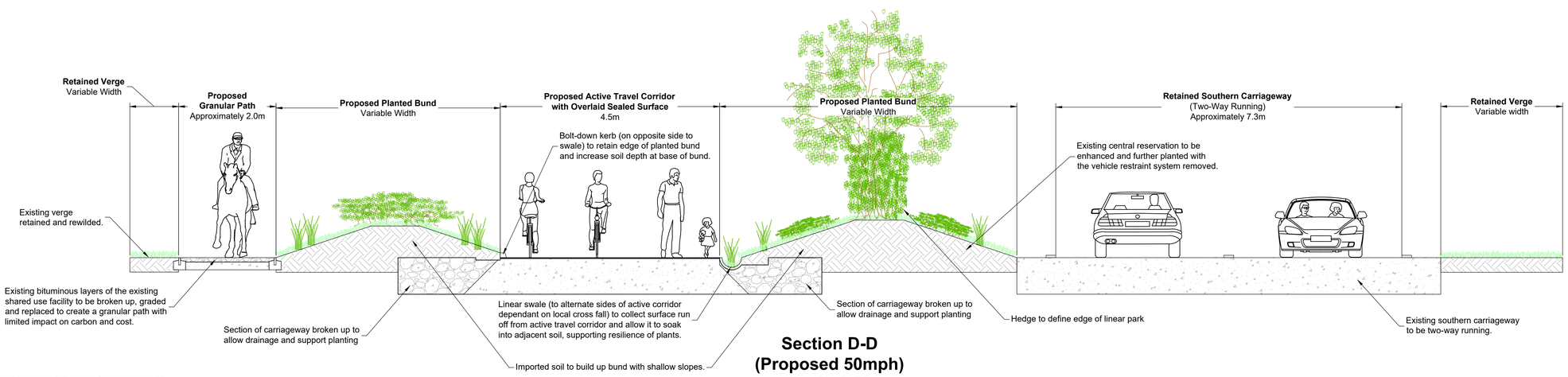

Section D-D
(Proposed 50mph)
Scale 1:50

Notes

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Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS
FOR INFORMATION

Essex Highways

Essex Highways, Seax House, Victoria Road South,
Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE
A12 DCO DETRUNKING OPTIONS

DRAWING TITLE
FEERING TO MARKS TEY ECC PROPOSALS SHEET 1 OF 3

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	OS/BA	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
AS SHOWN

DRAWING No.
B3553RB1-02-00-003

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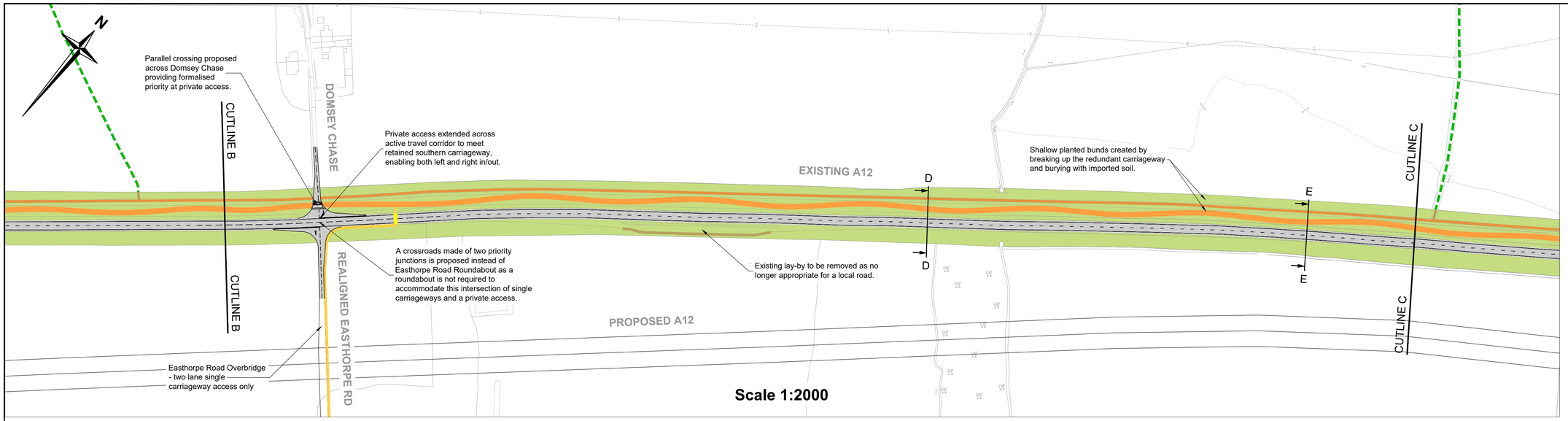

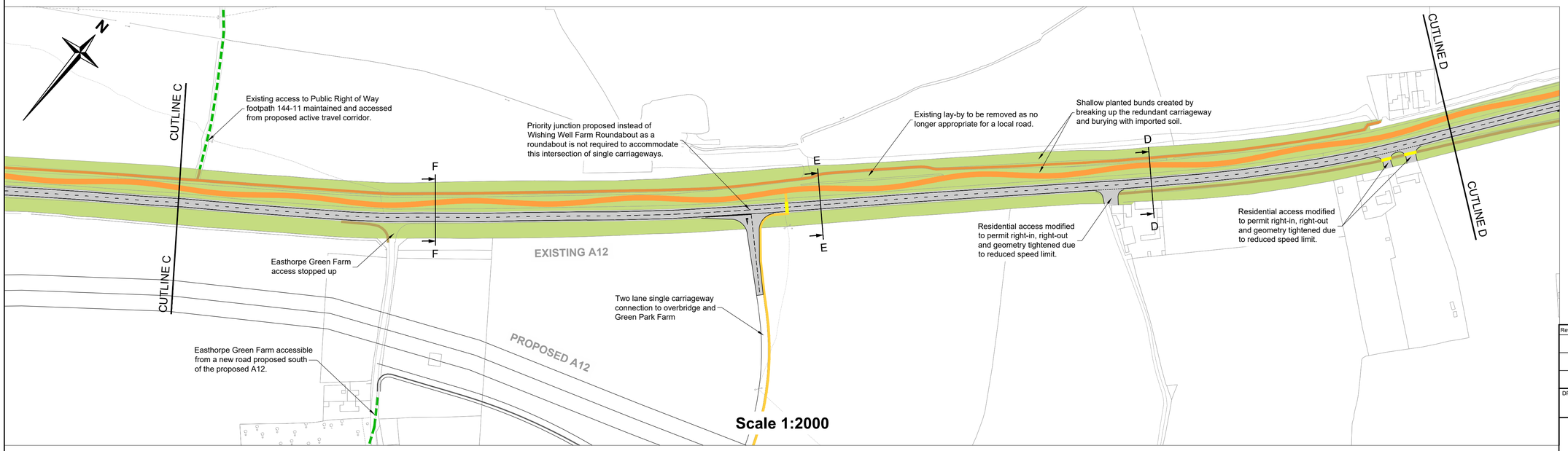

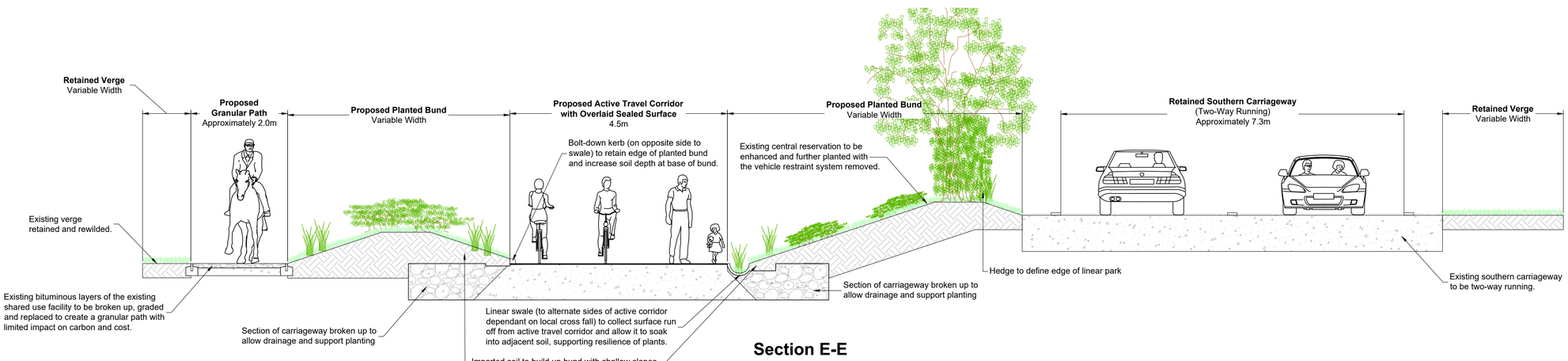

Section E-E
(Proposed 50mph)
Scale 1:50

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Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS
FOR INFORMATION

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Essex Highways, Seax House, Victoria Road South,
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Tel: 0345 6037631

SCHEME TITLE
A12 DCO DETRUNKING OPTIONS

DRAWING TITLE
FEERING TO MARKS TEY ECC PROPOSALS SHEET 2 OF 3

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	OS/BA	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
AS SHOWN

DRAWING No.
B3553RB1-02-00-004

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RINGWAY JACOBS
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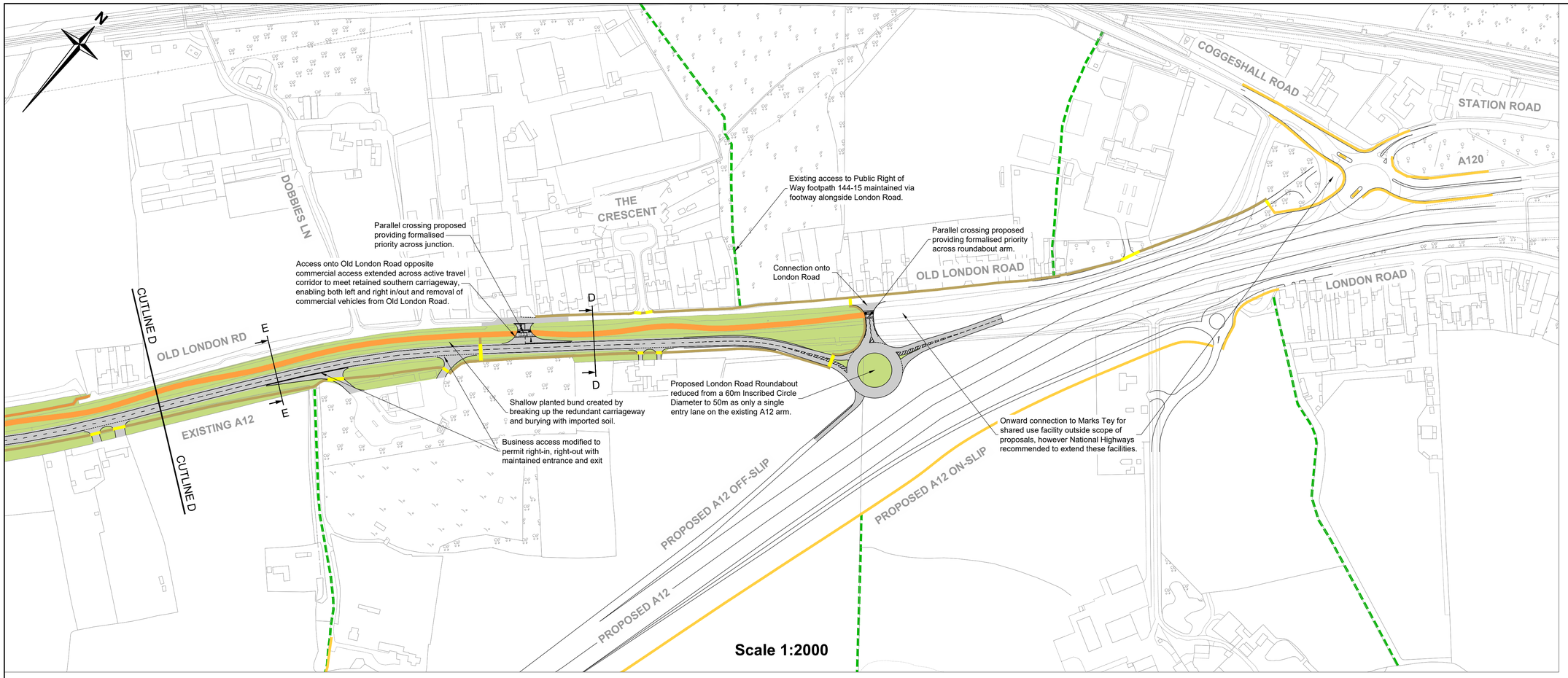

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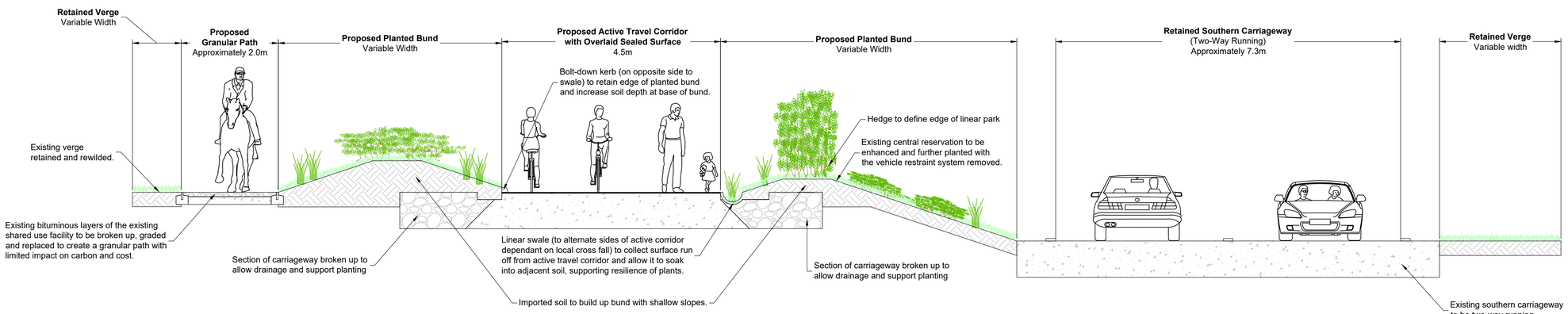

Section F-F
(Proposed 50mph)
Scale 1:50

Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd

DRAWING STATUS
FOR INFORMATION

Essex Highways

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SCHEME TITLE
A12 DCO DETRUNKING OPTIONS

DRAWING TITLE
FEERING TO MARKS TEY ECC PROPOSALS SHEET 3 OF 3

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	OS/BA	IJ	MS	KC
DATE JAN 23	DATE JAN 23	DATE JAN 23	DATE JAN 23	DATE JAN 23

DRAWING UNITS U.N.O.
DIMENSIONS IN MILLIMETRES
LEVELS IN METRES

SCALE AT A1 (841X594mm)
AS SHOWN

DRAWING No.
B3553RB1-02-00-005

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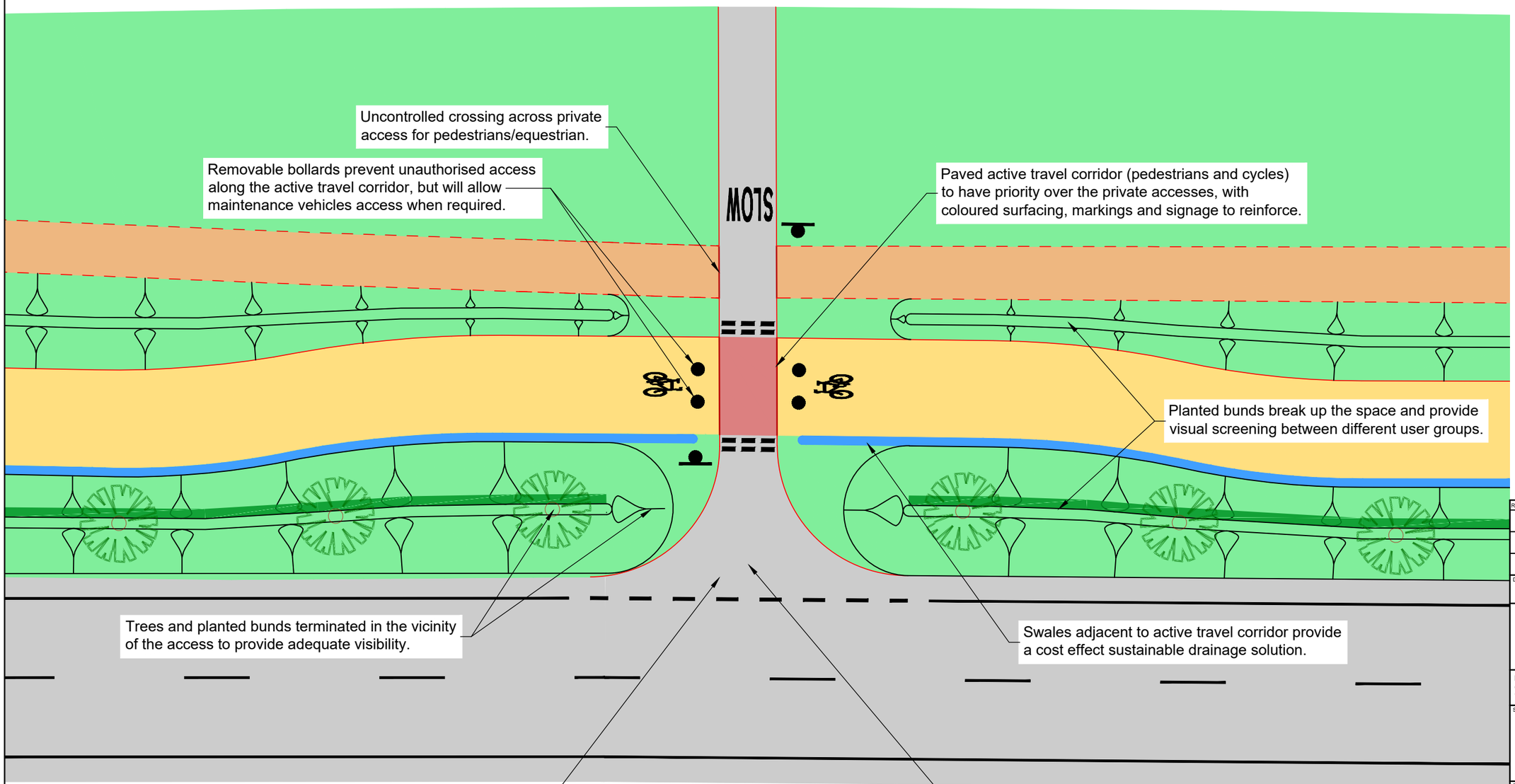
Appendix C – Typical Private Access Detail



Notes

1. Do not scale.
2. This detail represents a 'typical access'. Modified private accesses proposed throughout the scheme could vary from what is depicted due a range of factors not limited to levels and spatial constraints. At business accesses with more than occasional use, formalised crossing facilities would be considered.
3. The gradient of the access approaching the retained southern carriageway and the active travel corridor approaching the access will be a function of the localised difference between each of the existing A12's carriageway levels. The gradients implemented would be subject to design standards.

Key

- Existing/proposed carriageway
- Proposed red pigment carriageway
- Proposed active travel corridor
- Proposed granular footpath
- Existing/proposed vegetation & planting
- Proposed swale (SuDS drainage)
- Proposed road marking
- Proposed kerb
- Proposed dropped kerb
- Proposed edging
- Proposed linear hedge planting
- Proposed earthworks
- Proposed tree
- Proposed removable bollard (to allow maintenance access)
- Proposed warning sign

Rev.	Date	Description of revision	Drawn	Checked	Reviewed	Approved

DRAWING STATUS

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Essex Highways

Essex Highways, Seax House, Victoria Road South, Chelmsford, CM1 1QH.
Tel: 0345 6037631

SCHEME TITLE

A12 DCO DETRUNKING OPTIONS

DRAWING TITLE

TYPICAL PRIVATE ACCESS DETAIL

DESIGNED	DRAWN	CHECKED	REVIEWED	APPROVED
BA	OS/BA	IJ	MS	KC
DATE	DATE	DATE	DATE	DATE
JAN 23	JAN 23	JAN 23	JAN 23	JAN 23

DRAWING UNITS U.N.O.: DIMENSIONS IN MILLIMETRES, LEVELS IN METRES

SCALE AT A3 (420x297mm): 1:200

DRAWING No.: **B3553RB1-00-00-010**

REV.: -

Ringway Jacobs Integrated expertise

Essex County Council

File Location N:\9 Trans Impr\TP\Projects\A12 Jn19-25 Consultation\18. Detrunking\2. Highways\03_CAD\B3553RB1-00-00-010.dwg Last saved by Brad.Antliff on 19 January 2023 Printed By Brad Antliff on 19 January 2023

Appendix D - Matrices Used for Feering East Roundabout ARCADY Modelling

AM 2027	A12	Access	Kelvedon	New Ln
A12N	0	1	254	8
Access	1	0	1	0
Kelvedon	219	1	0	7
New Ln	84	0	84	0

PM 2027	A12	Access	Kelvedon	New Ln
A12N	0	1	232	13
Access	1	0	1	0
Kelvedon	189	1	0	13
New Ln	82	0	81	0

AM 2042	A12	Access	Kelvedon	New Ln
A12N	0	1	385	8
Access	1	0	1	0
Kelvedon	272	1	0	7
New Ln	84	0	84	0

PM 2042	A12	Access	Kelvedon	New Ln
A12N	0	1	457	13
Access	1	0	1	0
Kelvedon	201	1	0	13
New Ln	82	0	81	0

Appendix E - Matrices Used for London Road Roundabout ARCADY Modelling

AM 2027	London Rd	Western Link	A12 Off Slip	Old A12
London Rd	0	39	0	19
Western Link	53	0	0	252
A12 Off Slip	18	232	0	0
Old A12	5	301	0	0

PM 2027	London Rd	Western Link	A12 Off Slip	Old A12
London Rd	0	43	0	21
Western Link	39	0	0	225
A12 Off Slip	16	542	0	0
Old A12	3	268	0	0

AM 2042	London Rd	Western Link	A12 Off Slip	Old A12
London Rd	0	41	0	21
Western Link	42	0	0	383
A12 Off Slip	22	301	0	0
Old A12	17	344	0	0

PM 2042	London Rd	Western Link	A12 Off Slip	Old A12
London Rd	0	45	0	25
Western Link	42	0	0	447
A12 Off Slip	17	622	0	0
Old A12	3	280	0	0

Appendix F – Parish Council Feedback

Table F.1 – Parish Council Feedback: Northern Section, December 2022/January 2023

No.	Question	Response from	
		Witham Town Council	Rivenhall Parish Council
1	**Do you support the principle of making further changes to National Highways proposals by reallocating carriageway space to create an active travel/leisure focused corridor with green infrastructure opportunities?**	Very much supportive of ECC proposals. Great opportunity to turn this unwanted road into something pleasant for communities	Possibly, but ECC keeps saying National Highways (NH) DCO is a "Missed opportunity to improve facilities for active users". The DCO does provides for a continuous cycleway/footway from Witham to Kelvedon. Also, ECC says 4 lanes are not needed, but removal of the A12 Kelvedon South junction means that a significant amount of traffic will remain on the corridor, to/from the major new Witham North A12 junction and Kelvedon, Coggeshall etc plus the closure of Oak Road (which Rivenhall Parish Council supports) means that all Silver End (to north) and HGV traffic (to/from south) will use the new Rivenhall West roundabout. If the de-trunked road can be reduced to 2 lanes (one each way) then we could consider that, but it has implications for the design of junctions in the DCO and the design and location of benefits already promised to Rivenhall End which include new bus stops, a controlled crossing, etc. It would seem to make sense to keep the de-trunked road at 4 lanes from the new Witham North A12 junction to the new Rivenhall End West roundabout. ECC is currently proposing 3 lanes on this section (2 westbound and one eastbound) and claims there would be little queuing as a low amount of traffic uses Braxted Road. We would question this – the new Rivenhall West roundabout will see HGVs through the working day going to/from Braxted Road. Rivenhall Parish Council is meeting in January to consider its views on the ECC proposals compared to the DCO, and the matter of the number of lanes left on the de-trunked is not yet a settled view of the parish council. We do though already agree with ECC that amending the Rivenhall East roundabout or removing it would be preferable and in that context it may be possible to support reducing the section between the 2 new roundabouts to 2 lanes (one each way). We are pleased to see that at this consultation, ECC is now saying Oak Road will be closed off and is in agreement with NH on that. An ECC option shown to parish council reps in October showed the junction left open. That would not be acceptable. Permanent relief from all through traffic for Rivenhall End is essential, leaving only cycling and walking access for the village open. We are also in agreement with ECC – and NH - on the following: - Provision of the new Henry Dixon Road junction - Bus stop locations - Provision of priority crossings for pedestrians and cyclists We also agree that whether the de-trunked road is 2 lanes or 4, more measures are needed to reduce vehicle speeds. The ECC suggestion of breaking up 2 lanes and burying it is strongly questioned on grounds of pollution and that there may be better alternatives. It has been proposed that the nearby Colemans Quarry uses imported inert waste to backfill under the new line of the A12. Whilst the parish council opposes that application, should ECC grant it, the broken-up carriageway could be employed there and a "fresh start" approach be taken to the land where the road is taken up to create greening opportunities of choice. There will be large borrow pits to access soils and clays nearby which are already set out in the DCO (to the East of Rivenhall End village). We are concerned that neither ECC or NH takes the need to consider impacts from lighting seriously enough. Increasingly, very bright white light LED is being used by both authorities which can disturb residents at night, has the potential to harm nocturnal species and can significantly alter the local character of village and rural areas. NH at first proposed to us that they would light both the Witham

			to Kelvedon cycleway and the retained 4 lanes of de-trunked road until we pointed out the impact that would have. Streetlights should only be used where needed for safety and access and should be installed to the best designs taking into account the need to only shine downwards, to be lower colour temperature and to use dimming or part night controls where appropriate. This also has climate change benefits. It has been a source of amazement locally that NH has failed to prevent about 30 high column SON streetlights on the A12 from day-burning for 3 years.
2a	**Do you have a preference for the type of provision between Witham and Rivenhall End?**	Dedicated Cycle Track	Separated walking and cycling lanes would be preferred for safety reasons. The existing cycleway is used by people to travel to/from Witham from Rivenhall End and Kelvedon and because the route is quite straight, cyclists often attain quite high speeds.
2b	**Do you have a preference for the type of provision within Rivenhall End?**	Leisure Path	
3	**Do you have any comments on the cross-section concepts presented?**	Critical. Pedestrians and cycles do not mix well. Dangerous. If separated by a line then I would then support the shared facility and wide active travel corridor proposals	Assuming the section between the new roundabouts could be reduced to 2 lanes (one each way), and more planting can be achieved to separate the active travel from the retained road, a tree belt would provide benefit to Rivenhall End to reduce noise from traffic. It needs to be noted that with the new A12 operational, even with just 2 lanes of traffic on the de-trunked road, there will be in total 8 lanes of traffic in quite close proximity, compared to the current 4 lanes.
4	**Do you support the idea of providing further landscaping improvements and/or a community park on the de-trunked A12 in Rivenhall End?**	Yes. Good in so many ways including more mixing of the communities of Witham, Rivenhall and Kelvedon. The proposals would help bring the communities together.	Yes further landscaping/biodiversity gain would be good and we had already communicated that to NH – it is in the list of Designated Funds projects being drawn up between NH and the parishes. A community park as a thin linear feature between a busy road and the bulk of the housing in Rivenhall End appears not a suitable location. It would restrict the space available for active travel and reduce the options for structural tree planting. The parish council is seeking more open space and a play area in Rivenhall End, as has long been listed in the Braintree District Council Open Spaces Action Plan (OSAP). We recently looked at this issue again and would like to suggest it could be on one of the areas being taken by NH for the DCO works – such as the large area to the East of Rivenhall End proposed in part as shallow lakes (after the borrow pits are no longer needed). Part of that land could be used and is actually quite close to where the parish council used to rent land for a play space.
5	**Do you have any other comments you think should be taken in to account or outstanding questions to raise?**	Overall very supportive. It would be a disaster if left with 4 lanes. Massive missed opportunity.	It is imperative that the DCO process does not end up as a battle between ECC and NH with the local community caught in the middle. We strongly support dialogue between the local parishes, ECC and NH so that hopefully as much as possible can be agreed going into the DCO process. The parish council and local residents were consulted quite regularly for years by NH about the A12 proposals and it is only recently that ECC has suggested a different approach to NH. As stated above, Rivenhall Parish Council will meet in January 2023 to consider its position relative to the matters on which there are still differences with ECC and NH proposals.

Table F.2 – Parish Council Feedback: Southern Section, December 2022/January 2023

No.	Question	Response from				
		Kelvedon Parish Council	Marks Tey Neighbourhood Plan	Braintree District Council	Kelvedon Parish Council	Constable Division, Essex County Council
1	**Do you support the principle of making further changes to National Highways proposals by reallocating carriageway space to create an active travel/leisure focused corridor with green infrastructure opportunities?**	Absolutely – the ability to travel much more pleasantly via an active travel route would be greatly appreciated by local residents, especially in the absence of a wide variety of public footpaths and throughout the winter months when many other paths are difficult to navigate. It would also be preferable to only have one lane of vehicle traffic in either direction to ensure that the detrunked A12 isn't used as an argument for further intensive housing development.	Yes, this is an excellent benefit to the local population	I would, however, like to say that although I do not support the six new lanes of A12 because of climate change (we should be encouraging less car use not more and one extra lane will soon require the addition of another if mass public transportation isn't improved and/or 15-minute cities don't become the norm), from a pragmatic point of view that the widening of the A12 will take place, I would argue that we have a once in a lifetime opportunity to re-wild the current A12 and create a country park when the new three-lane A12 is built from Marks Tey to Feering.	I would certainly support the removal of surplus carriageways and associated roundabouts between Feering and Marks Tey to create active travel corridors.	
2	**Do you have a preference for the type of provision between Feering and Marks Tey?**	Wide Active Travel Corridor	Wide Active Travel Corridor		Shared Walking/Cycle Facility	
3	**Do you have any comments on the cross-section concepts presented or any other de-trunking opportunities between Feering and Marks Tey?**	Either of the concepts would be far better than leaving two lanes of traffic. However, I much prefer the wide active travel corridor for the flexibility that it would offer to users.	I agree that, because of the length of the de-trunked road, the main use is likely to be cycling/running. Therefore I prefer the wide active travel corridor, which gives priority to these activities. I hope that a clean smooth surface can be provided. The current shared use surface is broken up and uneven, and horrible for cycling. It is also not adequately separated from the 70 mph heavy traffic on the A12.	Therefore I support the linear country park proposals, with access for cycling, pedestrians and horse riders; plus the planting of trees, wild-flower meadows and hedgerows to help bring nature back. Rewilding the detrunked A12 will bring some small compensation for the loss of countryside and habitat when the new six-lane road is built, and tree and hedge-planting will help to absorb some of the air pollution from the new road.	I would prefer to see as much separation between carriageway and the shared cycle/footpath through the use of planting and ground modelling to create an enhanced experience for users therefore encouraging greater use. Having travelled through Europe and seen the numerous shared cycle and footpaths of minimal widths there, I don't believe a dedicated cycle track to sustrans standards is necessary- bikes do come with the ability to steer after all and the detrunked carriageway will also be available for cyclists if they prefer. If however a bridle way was to be included along this stretch then this should be separate but I would be very surprised if one was deemed necessary along this length due to	

					lack of connections to any areas of grazing and livery yards locally.	
4	**Do you have any other comments you think should be taken into account or outstanding questions you wish to raise?**		The green planting separation bund of active travel paths from vehicle traffic is excellent	The new 4km-long park will be easily accessed from nearby communities at both ends of the detrunked section with the idea it will be a safe area for children to play, and safe for cyclists, dog walkers and horse riders to enjoy and for wildlife to be able to flourish. Road access to the remaining two lanes should be restricted to local traffic and public buses i.e. no direct access from the new A12 as is currently the case at detrunked section of the A12 at Copdock south of Ipswich.	The aspiration of ECC to follow the example set by the Grey to Green used in Sheffield would be encouraging to see here with a suitable selection of plant species for its context, including the SUDS proposals. I would hope that there is more design to be done on the suds features so that they can provide a year round blue and green infrastructure benefit rather than just 'bomb craters'	Nothing beyond the comments raised about Marks Tey roundabout and ensuring sustainable transport routes link as best as possible between Colchester-Marks Tey-Kelvedon

Table F.3 – Parish Council Feedback: Southern Section, February 2023

No.	Marks Tey Parish Council
1	Following your on-line presentation of the ECC ideas for the proposed de-trunked parts of the A12 Jn 19-25 expansion, can I on behalf of Marks Tey Parish Council support what you are seeking to achieve and seek to help by detailing and explaining Marks Tey's concerns with National Highways proposals for particularly Jn 25 at Marks Tey and the suggestions and requests we have made to them. Marks Tey Parish Council has registered itself as an interested party with the Inspector looking at the Development Control Order Application and intend to made the same points if called at the Enquiry and we would greatly appreciate ECC's support if this is possible. I am responding to this being a lay member of the MTPC Planning Committee, the former Chair of the Parish Council, and an architect (and, before retirement, former Head of Asset Management at ECC). To put the Parish Council views in context, National Highways A12 proposals, at Marks Tey, have the greatest interaction with a residential area anywhere between Jn19 and 25 and the Parish Council are asking that this is recognised, and that National Highways proposals do not further damage the residential environment, and indeed seek to improve the environmental damage done in the 1970's. The A12 cuts right through Marks Tey village, separating the bulk of village housing from their shops, and will continue to do so after these proposed works. The Parish Council sought to get this remedied earlier in the proposals and may have achieved this had the Garden Community proposals at Marks Tey been accepted. National Highways will and have argued that by proposing the new route for the A12 between Marks Tey and Feering they are easing this situation for a number of Marks Tey residents. However, the Parish Council view is that overall this is not the case and in its detail National Highways is making a trunk road environment further dominant on our village already fragmented by the A12 and A120. Leaving the future detrunked A12 as a dual carriageway will leave another high speed highway running into the centre of our village and the County Council's proposals to reduce this to a single carriageway are essential. The National Highways proposals for Junction 25 further increase the trunk road and major highway dominance in Marks Tey and remove vital established landscaping. • The proposals will create an additional lane to the south bound carriageway moving it closer to London Road residences and businesses. 128 residences and flats and 27 businesses will have the A12 moved closer to them (within 100 metres) and will have existing mature shielding tree screening removed. • Even if this landscape is partially replaced in the reduced space, this will take 10 years or more to give less protection than current. • Against this the A12 will be moved away from 36 residences on Old London Road but the National Highways proposals see the existing A12 left as a dual carriageway between Feering and Marks Tey leaving a fast highway in front of those premises, which is further compromised by HGV access to an expanding existing employment site. • The existing Old Rectory roundabout at the junction of Old London Road and the A120 single carriageway and dual carriageway and its 16 mature trees creates a break between the major Highway and the residential area. National Highways proposals to remove this roundabout and replace it with a series of multi lane traffic lit crossroads creating a sea of asphalt where the 16 trees were. • The new northern exit slip from the improved A12 ends at a new roundabout with the former A12 and Old London Road but this proposes a chicane for traffic accessing the expanding Marks Tey Ltd employment site using the substandard width Old London Road for HGVs. Marks Tey will be a worse place to live following National Highways current proposals and they seem to have shown insufficient concern to the implications of the highway proposals on a significant residential area. From the above, the Parish Council have previously sought to have the A12 routed around the back of Marks Tey and National Highways were prepared to consider this as part of the subsequently dismissed Garden Community proposals within Colchester's new Local Plan. The current proposals do address the Parish Council's concerns about commuter access to Marks Tey station and the importance of the London road businesses access to the A12. However, following more detail the Parish Council have made three main comments on the current proposals to National Highways together with suggestions as to how they can be overcome. These are: 1. Concern that the removal of the Old Rectory roundabout and it's 16 mature trees at the end of the A120 dual carriageway for a multi lane traffic lit crossroad is a significant degrading of our urban environment. The cross road solution is partially justified by National Highways on the volume of traffic flowing east on the substandard single carriageway A120 through the village when this traffic is currently restricted by slow moving traffic and queuing through Little Tey, Gt Tey Road junction, through Marks Tey village itself (Coggeshall Road), and the blind railway bridge. The existing roundabout and mature trees should be retained even if an additional lane needs to be added and the roundabout traffic lit. Further capacity improvement can be dependent on decisions on the future of the A120 2. That the new roundabout at the end of the northern exit slip needs to link directly with Marks Tey Ltd's (former Andersons) existing and expanding employment site in order to allow direct access for HGV's to the strategic network. As proposed this HGV traffic has to mix with domestic traffic on Old London Road before meeting the new roundabout. This arrangement increases danger and inconvenience for residents and will look ill conceived into the future when a relatively small adjustment could achieve a direct link. Essex County Council's suggestions to reduce the detrunked A12 to a single lane could require a smaller roundabout and aid a direct access into the Marks Tey Ltd expanded site. 3. A new widened pedestrian/cycle bridge is proposed by National Highways broadly in the position of the existing pedestrian bridge. National Highways say that this bridge needs to be higher and require gentler ramps meaning new ramps on the London Road side replacing the current direct access and questioning if the new bridge will be shorter and quicker than using the existing highway footway over the A12. Marks Tey Parish Council have also asked that this new bridge be continued across the adjacent A120 dual carriageway towards the rail station. This would avoid the need and inconvenience to traffic and pedestrians of a traffic lit crossing on the A120 dual carriageway and save the proposed new footpath and crossing between the A12 and A120 dual carriageways.

National Highways have considered the above and have said none are possible without suggesting any alternatives that will meet the Parish Council's community concerns.

Essex County Council's suggestions to reduce the detrunked existing A12 to a single carriageway on its southern lane may significantly help with 2 above in that it may:

- Remove a potentially unnecessary high speed road into Marks Tey
- Enabler a smaller northern exit roundabout with direct access to Marks Tey Ltd extension site (Marks Tey Ltd as part of their extension Planning Permission agreed to create this as the prime access to the whole of their site if it were possible).
- Enable direct on and off access from the former A12 for any industrial accesses and for Dobbies Lane to avoid industrial vehicles using the substandard width Old London Road leaving this for residential use.
- Create an enhanced and landscaped pedestrian, cycling and equestrian route between Feering and Marks Tey which could continue along Old London Road

On this basis the Parish Council support the County Council detrunking proposals and would seek further detail discussion to progress these and seek ECC support for our other issues. The following plan indicates with red circles the location of the above issues.