

# A12 Chelmsford to A120 widening scheme

TR010060

## 7.7 Outline Construction Traffic Management Plan

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## A12 Chelmsford to A120 widening scheme

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## 7.7 Outline Construction Traffic Management Plan

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# 1 Introduction

## 1.1 Purpose and objectives

- 1.1.1 National Highways (the Applicant) has submitted an application under section 37 of the Planning Act 2008 (the “2008 Act”) to the Secretary of State for Transport via the Planning Inspectorate (the Inspectorate) for an order to grant development consent for the A12 Chelmsford to A120 widening scheme (the proposed scheme).
- 1.1.2 The Outline Construction Traffic Management Plan (OCTMP) forms part of an application to gain consent for the A12 Chelmsford to A120 widening scheme (the ‘proposed scheme’). This document sets out the proposals for temporary traffic management for the proposed scheme.
- 1.1.3 The purpose of the OCTMP is to describe the traffic management (TM) processes that would be followed to ensure the construction phases of the proposed scheme are completed safely and efficiently, while minimising the impact on customers and stakeholders. It is of the utmost importance that no one should be harmed when travelling or working on the strategic road network (SRN) or the local road network (LRN).
- 1.1.4 This OCTMP has been prepared in compliance with Regulation 5(2)(q) of the Infrastructure Planning (Prescribed Forms and Procedure) Regulations 2009. It seeks to address and mitigate the transport challenges associated with the movement of the construction traffic to service the proposed scheme, including site access, routing, signage, heavy goods vehicles (HGVs) and abnormal indivisible loads (AILs).
- 1.1.5 The development of the OCTMP will continue to evolve through discussions with the traffic working groups, which includes representatives from relevant local authorities and other key stakeholders.
- 1.1.6 The key objectives of the traffic management planning for the construction period are to:
- Minimise disruption to all road users, local businesses and communities by keeping construction traffic on the A12 and by HGV construction traffic avoiding local roads as much as is reasonably practicable
  - Provide adequate protection for the workforce against the risks to health and safety associated with working on or adjacent to live carriageways
  - Ensure the safety of all road users, including walkers, cyclists and horse riders (WCH), as they approach, and travel through, the existing SRN and LRN and other routes affected as a result of the proposed scheme
  - Minimise the health and safety risks to the local community resulting from construction operations, including the impacts of (intended and unintended) traffic diversions onto the LRN
  - Ensure effective and timely project completion

- Ensure all stakeholders, road users and others affected by the implementation of traffic management associated with the proposed scheme are communicated with well, be they local to the proposed scheme or longer distance users of the SRN
- Ensure adequacy of engagement with key stakeholders including highway authorities, emergency services, local businesses and local groups through the establishment of working groups

## The proposed scheme

- 1.1.7 The proposed scheme comprises improvements to the A12 between Junction 19 (Boreham interchange) and Junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles. The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with a bypass between Junctions 22 and 23 and a second bypass between Junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and providing alternative provision for walkers, cyclists and horse riders (WCH) to existing routes along the A12, which would be removed. Full details of the proposed scheme description and outline of the proposed works are provided in Chapter 2: The proposed scheme, of the Environmental Statement [TR010060/APP/6.1].

## The Applicant

- 1.1.8 The Applicant is appointed and licensed as the strategic highways company for England by the Secretary of State for Transport, on whose behalf it is responsible for operating, maintaining and improving the Strategic Road Network. The network is made up of England's motorways and all-purpose trunk roads (the major A-roads), and the existing A12 is part of the trunk road network for which the Applicant is responsible. Following construction of the proposed scheme, parts of the existing A12 will be de-trunked and placed in the responsibility of the local highways authority, and the Applicant will be responsible for operating, maintaining and, under its general statutory powers, improving the new route of the proposed scheme.

## 1.2 Traffic management strategies

- 1.2.1 This section sets out the temporary traffic management strategies that would be applied to the proposed scheme to minimise impact on the local community and reduce disruption to existing traffic and WCH.
- 1.2.2 Key considerations for traffic management planning within the proposed scheme include:
- Maintaining a minimum of two lanes of traffic in each direction throughout the length of the A12 affected by traffic management during weekday daytime, thereby reducing the desire for vehicles to divert onto local roads and minimising disruption for local communities.

- Coordinating the works so as to, where reasonably practical, maximise the works that are carried out within lane, carriageway and total closures, thereby reducing the numbers of closures required.
- Use of the strategic diversion route (Section 4.3) during A12 closures that does not divert strategic traffic through local communities along the A12 corridor between junctions 19 and 25.
- The use of and the location of borrow pits – areas where soil, gravel or sand would be excavated for construction purposes. These have been positioned as close as reasonably practicable to the works areas to help reduce HGV traffic. Where practical, these include access directly into the works from the SRN, reducing the need to use the public highway network.
- The location of construction site compounds – these have been situated as close to the current A12 as practical to limit the need to use LRNs, and as far as reasonably practicable maintaining adequate distance away from residential properties.
- Access routes to the proposed scheme directly to and from the SRN would be utilised as much as reasonably practicable. Where this is not feasible, measures have been identified to ensure the workforce, vehicles and equipment can gain safe access to required locations onsite, whilst minimising the impact on the LRN. Permitted, permitted with restrictions and excluded routes for construction HGVs have been identified and can be found in Appendix B.
- Proactive advanced communication and responsive real time communication with users of the SRN, LRNs and WCH networks as appropriate. For example, provision of Variable Message Signs (VMS) would be used within the area of works and on the approaches to the works. These would provide the road user with live information about the traffic on the A12 and encourage users to stay on the A12.
- Minimising where practical disruption to local residents, Hatfield Peverel railway station users and local businesses, disruption when the Hatfield Peverel side roads are closed through alternative provisions, and consideration of all users and in particular vulnerable users.

## 1.3 Construction Traffic Management Plan review plans and management

- 1.3.1 The OCTMP will be superseded by the Construction Traffic Management Plan ahead of commencement of the construction phase of the proposed scheme. The Construction Traffic Management Plan would be drafted in consultation with the local highway authority and submitted to the Security of State for approval.
- 1.3.2 This plan would be subject to no less than six monthly reviews and would be updated as appropriate throughout the construction phase. Feedback will be

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sought from the stakeholder forums described in Section 1.1 to inform these reviews.

1.3.3 Gathering traffic data would be an important part of designing and implementing the traffic management. The data would be used to understand and monitor how the traffic management is impacting on the road performance and the performance of key road user groups, particularly those with performance targets or response times, to help to identify opportunities to mitigate any issues.

1.3.4 Updates to the traffic management plans and provision would provide detail on the measures that may be put in place for reactively and proactively managing the traffic management throughout the proposed scheme, including:

- Who would be responsible for managing the Construction Traffic Management Plan onsite
- What data would be collected as part of the traffic management activities
- The criteria for updating the Construction Traffic Management Plan (e.g. in relation to traffic accident rates)

## 2 Traffic management sections

### 2.1 Introduction

- 2.1.1 From a traffic management perspective, the proposed scheme can be split into distinct sections. For the proposed scheme chainages, please refer to the General Arrangement Plans [TR010060/APP/2.9].
- 2.1.2 Throughout all of the following sections of the existing A12 the proposed scheme would aim to maintain two running lanes for public traffic during construction at peak traffic hours. Exceptions would be made for off-peak traffic hours lane closures, off-peak traffic hours full carriageway closures and full weekend carriageway closures.
- 2.1.3 The proposals contained in this document are preliminary and will be developed in more detail as the proposed scheme design progresses.

### 2.2 Junction 19 including Boreham Bridge and Paynes Bridge (Ch.9+600 to Ch.11+900)

- 2.2.1 The construction programme and traffic management in this section of the proposed scheme has been developed with the following objectives:
- Creating safe working space and traffic layouts for the Boreham Bridge widening works
  - Maintain, wherever possible, access over Boreham Bridge for vehicular and walking and cycling users
- 2.2.2 Traffic management in this area (Plate 2.1) will be predominately to support the phased construction required to widen Boreham Bridge.
- 2.2.3 The A12 will require narrow lane running through this section to create the necessary working space. Single carriageway night-time or weekend closures will be required to install and remove the narrow lane running. Installation of beams and temporary works to widen the bridge will require infrequent off-peak total closures.
- 2.2.4 Further phased restrictions will be required on the junction 19 slip roads, including lane and full closures. Traffic management for junction 19 is described in Section 9.2 in greater detail.
- 2.2.5 At the most western end of the proposed scheme, access and egress to the works area will be from the eastern roundabout at junction 19. A risk assessment will be undertaken on the access point; control measures may include traffic-controlled signals or traffic marshals to manage access and egress of construction traffic. The adjacent land to the east is used for a car boot sale; the works area will be segregated from this land by suitable fencing.
- 2.2.6 To enable the widening of Boreham Bridge, the traffic over the top will also need to be in temporary running arrangements, on the opposite side from the side being widened at that time. To enable these traffic management schemes to be implemented, closures of Boreham Bridge may be required.



Where such closures are required, advance notice will be given and, wherever practical timings of the closures will be such that impacts on the train station users will be limited as far as is possible. For example, late trains can be caught without using diversion routes.

2.2.7 There is an existing car boot sale which operates in land located to the south east of Junction 19 and operates on Sundays and bank holidays. The Applicant has proposed the following mitigation measures to minimise impacts from the proposed scheme on the car boot sale –

- The Interested party would have a dedicated point of contact to raise any issues with.
- The Applicant would look to minimise weekend and bank holiday working where practicable.
- Where practicable the car boot sale and construction traffic would use separate access roads into the land plot to keep interface to a minimum.
- In situations when the car boot sale would be accessing the southern side of the car boot sale there would be a managed crossing demarked by signage to indicate the safe crossing points.
- Appropriate fencing would be erected to segregate the public from the car boot sale and the construction areas
- The existing access to the highway will not be permanently closed and will be available to the market operators and customers post construction.
- The Applicant will work closely with the landowner to mitigate any impacts on the car boot sale during construction.

2.2.8 Work No. U2 on Sheet 1 of 21 Works Plans Utility Diversions [APP-008] would require access by construction vehicle traffic from the local road network such as Sheepcotes and Winsford Way to the works area, for diversion of a gas main. This would require access through land plots 1/16a, 1/10f and 1/10g. Based on the type of works being carried out, during peak construction works it is anticipated that such vehicle movements will be approximately 20 light goods vehicles a day plus ad-hoc material and plant movements. This volume of traffic is not expected to have an effect on the local traffic.

The order limits have been designed not to encroach on any of the parking bays within the limits of land plot 1/10f. This is solely for access only to Works No. U2 and U2A, no construction vehicles related to the proposed scheme would park or obstruct this area.

Liaison with the freeholder and tenants will occur well in advance of the works commencing to ensure adequate time is given for any arrangements that may be required. A direct point of contact would be provided from the Community Liaison Team as detailed in Section 3.

Construction vehicles associated with the proposed scheme would not park on the local road network or obstruct any businesses within the vicinity of the works.

**Plate 2.1 Boreham Bridge and Payne's Lane Bridge**



2.2.9 Payne's Lane Bridge will require full carriageway closures of the A12, A138 slip road and junction 19 northbound entry slip for construction activities such as installation of the bridge spans. Subject to the details that will be identified during the detailed design, it may be that these highway closures need to be coordinated with the closure of the Great Eastern Main Line (GEML). In such circumstances, particular care will be needed to ensure diversion routes for the highway and replacement rail services are coordinated, if required.

2.2.10 Traffic would be diverted onto a temporary junction 19 northbound on-slip from the junction 19 northern roundabout to minimise disruption whilst constructing a retaining wall between the A12 and the adjacent railway. This will require closure of the A138 slip road and the junction 19 northbound entry slip. This closure will enable more of the works to be carried out during daytime hours, facilitating the works and reducing the nuisance. However, to create additional working space and off-peak lane restrictions will be required on the A12.

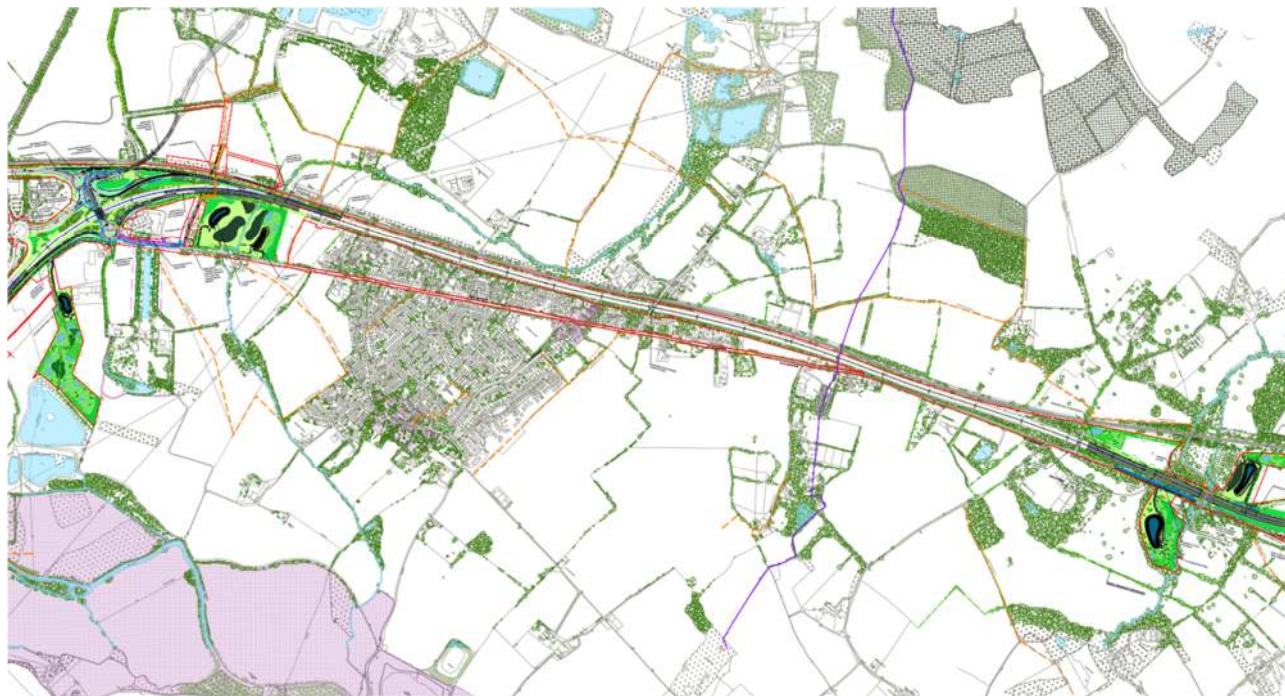
2.2.11 High level construction phasing of the junction 19 area, including the Paynes Lane Bridge can be found in Section 9.2.

## 2.3 Between junction 19 and River Ter (Ch.11+300 to 15+700)

2.3.1 Traffic management between junction 19 and the River Ter (Plate 2.2) would primarily be required for the resurfacing of the southbound carriageway. This would be carried out during off-peak traffic hours, although for safety and efficiency, weekend closures of the A12 mainline may be required. Single lane running would be required for resurfacing of lane 1 and lane 3.

Carriageway closures would likely be needed for resurfacing lane 2 for working space and safety reasons.

**Plate 2.2 Between junction 19 and River Ter**



## **2.4 River Ter and Hatfield Peverel (Ch.15+700 to 17+200)**

2.4.1 The construction programme and traffic management in this section of the proposed scheme (Plate 2.3) has been developed with the following objectives in mind:

- Maximising daytime works
- Minimising disruption to residents to the north of the A12 whilst Station Road and Bury Lane Bridges are constructed, considering all modes of transport
- Maintaining access to properties to the north of the A12 whilst Station Road and Bury Lane Bridges are constructed for emergency services, carers and other essential services such as post and refuse collection
- Create alternative provision for users of the station car park
- Maintaining connectivity between Hatfield Peverel and Witham whilst Wellington Road Bridge is constructed

2.4.2 To enable as much of the works as practicable to be carried out during daytime hours, traffic management through Hatfield Peverel would be carried out under contraflow with narrow lane running. This will maximise the working space in each verge to safely accommodate most of the construction plant needed to construct the works and create a route through the works for site vehicles. This reduces the number of works access/egress locations required to the construction area from the SRN and LRN, thus reducing the interface between construction traffic and other road users. Works will still

need to be carried out at night, where increased working space is required, for carriageway works and for the installation, modification and removal of traffic management.

- 2.4.3 It is expected that existing crossover points can be utilised at each end of this stretch of works to facilitate the contraflows. To maximise the available space for traffic in contraflow, the northbound verge may be widened during off-peak traffic hours with lane closures. The carriageway may need localised resurfacing to ensure sufficient headroom underneath structures.
- 2.4.4 Mainline closures during off-peak traffic hours would be required for the demolition of the existing Bury Lane, Station Road and Wellington Bridges and construction of the new Bury Lane, Station Road and Wellington Bridges.
- 2.4.5 Once the widening works are completed to the verges of the A12, the contraflow traffic management would be removed. Traffic would then be put into narrow lane running, pushed towards the verges, creating working room for central reserve barrier works.

**Plate 2.3 Hatfield Peverel**



- 2.4.6 To avoid the need to demolish residential properties, the widened Hatfield Peverel bridges will be reconstructed on their existing alignment. This means that the associated roads will need to be closed during the demolition and reconstruction period, with consequential disruption to the local residents north of the A12 (including those on the Terling Road) and users of the Hatfield Peverel railway station.
- 2.4.7 A Hatfield Peverel Access Forum will be established, and details are within Table 3.1. The need to minimise the impacts on local communities and business is acknowledged and extensive liaison with residents and other key stakeholder groups (including local authorities, emergency services, essential service providers and delivery services) will take place ahead of the proposed closures to both confirm the proposed mitigation and provide as much forewarning as is practical. Details of proposed mitigation measures are described in Section 5.9.

- 2.4.8 To ensure that those with accessibility needs or other vulnerabilities are fully accommodated, the proposed scheme's public liaison teams will ensure that they are identified ahead of the road closures and where appropriate bespoke plans proposed, communicated to and agreed as far as possible with the individuals concerned.
- 2.4.9 High level construction phasing of the River Ter and Hatfield Peverel works can be found in Sections 9.5, 9.6 and 9.7.

## 2.5 New junction 21 (Ch.17+200 to 18+200)

- 2.5.1 The construction programme and traffic management at the proposed junction 21 has been developed with the following goals in mind:
- Minimise where practical the use of local roads, particularly the B1137 over Wellington Bridge.
  - Early construction of critical elements to reduce construction traffic using Wellington Bridge and Woodend Farm Bridge to create direct routes to and from the A12 as early as is practical for construction HGVs using the compound and borrow pits. This would include early improvements to existing on- and off-slips to accommodate construction HGV movements.
  - Ensure routes between Hatfield Peverel and Witham are maintained for all users, WCH and vehicular, including public transport services, except for on limited occasions where it may not safe or practical to do so. In these circumstances notice would be given and communicated widely, including through the traffic management forums described in Section 3.2.
  - Full construction of the junction to enable connectivity between Hatfield Peverel and Witham when Wellington Road Bridge is being constructed.
- 2.5.2 Typically, the A12 works would be carried out using narrow lane running in various configurations. High level construction phasing of junction 21 can be found in Section 9.9 and the access proposals from the borrow pits and the compounds can be found in Sections 5.6 and Section 5.7 respectively and Plate 5.4.
- 2.5.3 Construction of the new junction 21 Hatfield Road Bridge together with partial slip roads will be prioritised early on in the construction programme. This will create a crossing of the A12 for construction vehicles, reducing the need for construction HGVs to use the existing Wellington or Woodend bridges.
- 2.5.4 Full closures of the A12 mainline and slip roads during off-peak traffic hours and weekends would be required to carry out construction activities such as (but not limited to) bridge demolitions, and construction of the new junction 21 (Plate 2.4) overbridge and new carriageway tie-ins to the existing A12 mainline. Off-peak traffic hours lane closures would be used for various construction activities.
- 2.5.5 To maintain access to Hatfield Peverel during the demolition of the existing and construction of the proposed Wellington Bridge, a temporary link road would be constructed which would tie the southern dumbbell roundabout at the new junction 21 to the B1137.

- 2.5.6 The project team and the developer of the Woodend Farm housing development, which includes a new roundabout on the Hatfield Road to the east of the new junction 21, continue to liaise with each other. Currently it is expected that the roundabout works are likely to be completed during the early part of the junction 21 construction programme. As detailed designs and construction programmes emerge, liaison will continue so that the roundabout works and early junction 21 works can be delivered together in a safe manner that minimises disruption to road and WCH users.
- 2.5.7 The construction programme and traffic management at the new junction 21 (Plate 2.4) has been developed with the following goals in mind.
- 2.5.8 High level construction phasing of junction 21 can be found in Section 9.9.

**Plate 2.4 New junction 21**



## 2.6 Witham Bypass (Ch.18+200 to 22+800)

- 2.6.1 The construction programme and traffic management at the Witham Bypass (Plate 2.5) has been developed with the following goals in mind:
- Minimise disruption to residential properties by constructing the southbound works first, increasing the space for traffic and works when the northbound carriageway is subsequently widened.
  - Minimise the duration of access restrictions to the nature reserve
- 2.6.2 To enable the majority of carriageway widening and construction of the retaining structures to be undertaken during the day, the traffic will be positioned into narrow lanes and contraflow.
- 2.6.3 To enable works to progress on the southbound side, which is further away from the majority of residential properties and less spatially constrained, narrow lanes or contraflow would initially be on the northbound carriageway.

This will take advantage of the existing wide nearside hard strip but may also require temporary widening which will provide the necessary cross-section for the contraflow. This temporary widening may require a combination of works to the nearside and the central reserve which would need to be carried out at night.

- 2.6.4 Once works are sufficiently complete on the southbound carriageway, the contraflow can switch onto the southbound carriageway. This will maximise the available working space available for construction plant, equipment and material movements whilst working in the northbound verge. This in turn will enable more of the works, such as constructing the retaining walls, to be carried out using construction plant sited on the A12 carriageway. This reduces the work needing to be carried out from the base of the embankments which are closer to residential properties.
- 2.6.5 Strengthening of Oliver's Bridge (which carries the A12 mainline over Maldon Road) foundations has removed the requirement to replace the structure, along with the associated disruption that would have arisen from the need to construct a temporary structure and divert traffic over it to replace the existing. The strengthening works will need to be carried out in phases across all lanes from the carriageway level and will therefore require several A12 carriageway closures. This work would be carried out at off-peak times and during weekends.
- 2.6.6 Access into the Whetmead Nature Reserve would be restricted due to the works being undertaken and the size of construction plant. There are no alternative routes into the nature reserve that could be provided for the public without crossing areas of the construction site (see Table 8.1).
- 2.6.7 High level construction phasing of the Witham Bypass (Plate 2.5) can be found in Section 9.10.

## Plate 2.5 Witham Bypass



### 2.7 New junction 22 (Ch.22+800 to 23+900)

2.7.1 The construction programme and traffic management at the new junction 22 (Plate 2.6) has been developed with the following goals in mind:

- Minimise where practical the impacts on Coleman's Quarry, such as constructing temporary access if required
- Ensure HGVs can access the A12 from Coleman's Quarry
- Maintain access to properties along Little Braxted Lane (except during occasional off-peak closures which would be notified in advance)
- Ensure routes between Witham and Kelvedon are maintained for all users, WCH and vehicular, including public transport services, except for limited occasions where not safe or practical to do so, in which case notice would be given and communicated widely
- Minimise impact of construction HGVs on local residences and businesses
- Ensure no inappropriate vehicles unintentionally divert along Little Braxted Lane
- Maintain access to and from the existing junction during weekday daytime

2.7.2 Due to the offline nature of the new junction 22 most of the works can be carried out with limited direct effects on the traffic, in particular the construction of most of the earthworks and the new overbridge structure.



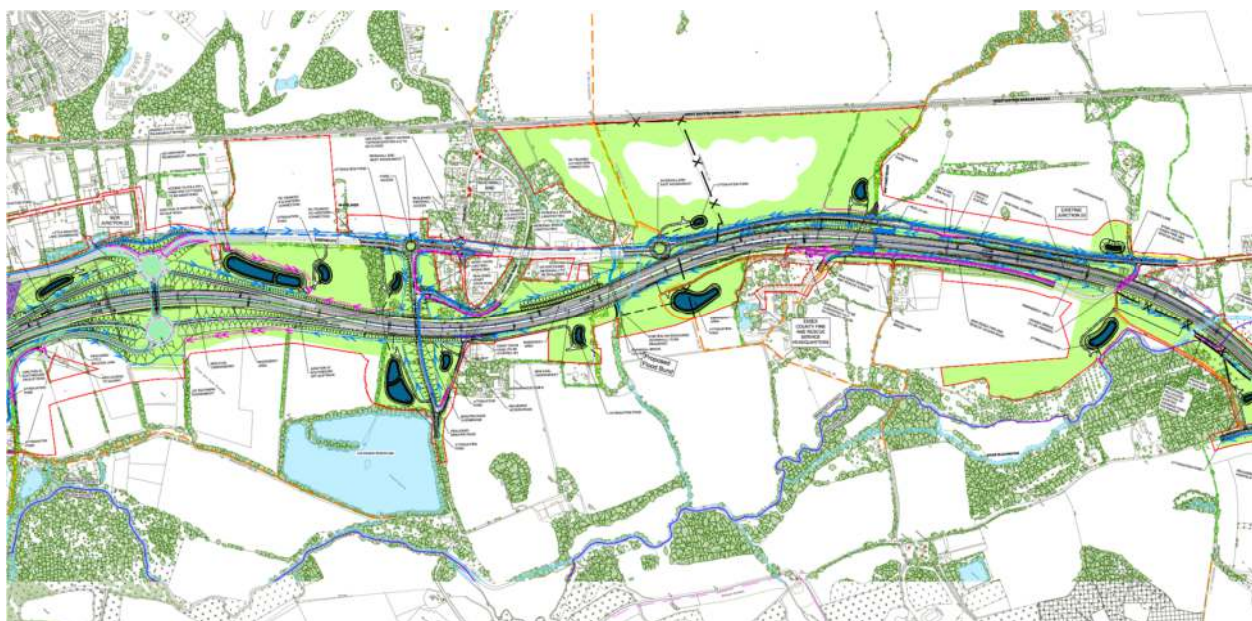
However, full closures of the A12 mainline and slip roads during off-peak traffic hours and weekends would be required to carry out construction activities such as bridge demolitions and the new carriageway tie-ins.

- 2.7.3 To increase the working space available for safe construction activities, where appropriate narrow lanes may be introduced. This will increase the amount of works during the later tie-in phases that can be carried out during daytime working, reducing the need for off-peak restrictions and/or closures.
- 2.7.4 To reduce disruption to local businesses and residents and to reduce traffic diverting onto other routes, until new alternative routes using the new junction are provided, access to and from the existing junction will be maintained during weekday daytimes.
- 2.7.5 To minimise the likelihood of HGV traffic diverting onto less suitable roads, direct access to and from Colemans Quarry to the A12 would generally be maintained throughout the construction programme (except off-peak when slip roads are closed).
- 2.7.6 Temporary road layouts have been included within the junction 22 proposals to ensure that all existing movements can be made during the phased construction process, creating both routes for traffic and a safe workspace for construction workers.
- 2.7.7 To minimise the risk of inappropriate vehicles unintentionally diverting along Little Braxted Lane during the construction phase, advanced signage will be strategically placed to deter such movements. During the detailed design of traffic management, additional measures such as advanced physical restrictions, lane marking and/or automatic warning systems, will be considered (subject to relevant approvals and/or Temporary Traffic Regulation Orders (TTROs)).
- 2.7.8 High level construction phasing of junction 22 (Plate 9.7) can be found in Section 9.11.



- 2.8.3 Full closures of the A12 mainline and slip roads during off-peak traffic hours and weekends would be required to carry out construction activities such as new carriageway tie-ins to the existing A12 mainline.
- 2.8.4 To maintain connectivity to Braxted Road, the realigned Henry Dixon Road and realigned Braxted Road will be sufficiently constructed before the A12 works sever the current arrangement. Prior to this, the interface between the road and the works will be managed by installing a plant crossing to ensure works vehicles can safely cross the road without causing a hazard to road users (see Section 5.11).
- 2.8.5 Temporary off-peak traffic hours and weekend closures of Braxted Road and Henry Dixon Road would be required to complete certain construction activities and new highway tie-ins; to mitigate the impact of HGVs using unsuitable side roads, a suitable signed diversion route will be in place.
- 2.8.6 High level construction phasing of this section of the proposed scheme can be found in Sections 9.12 to 9.16 inclusive.

**Plate 2.7 Junction 22 - Kelvedon**

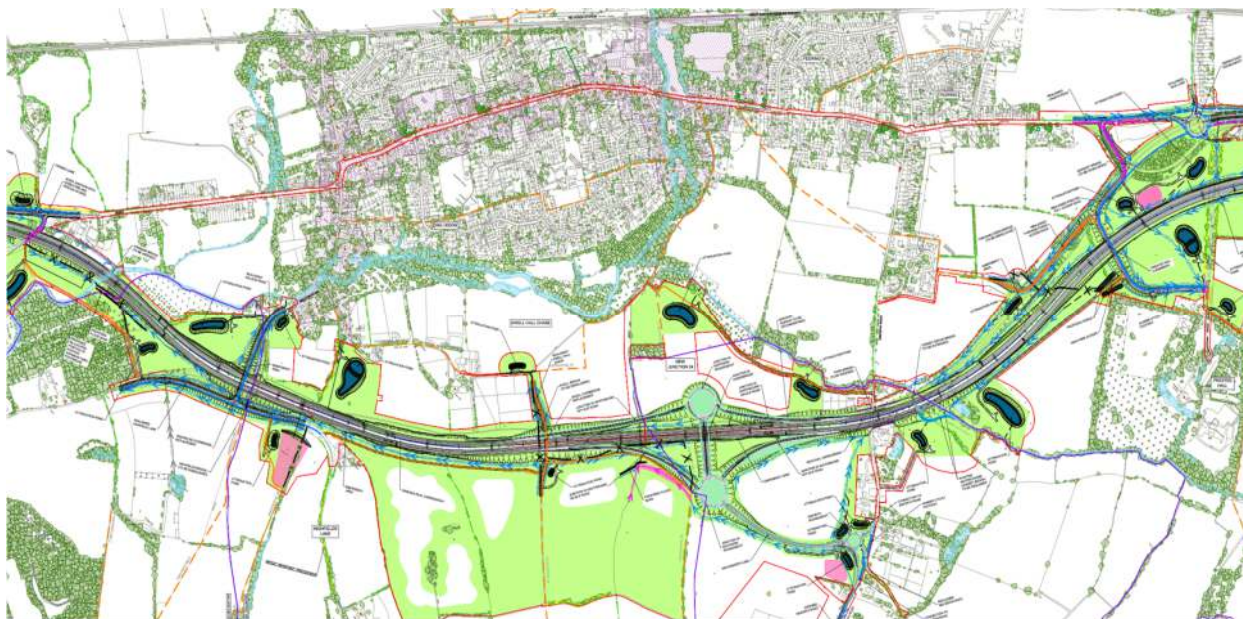


## 2.9 Kelvedon Bypass (Ch.26+000 to 31+700)

- 2.9.1 The construction programme and traffic management in this section (Plate 2.8) of the proposed scheme has been developed with the following objectives in mind:
- Maintain access to properties along Highfields Lane, where practical
  - Ensure the footpath and accommodation track remain open through Borrow Pit J, where practical
  - Maintain access to properties and business along Inworth Road where practical
- 2.9.2 To ensure that the existing side road crossings can stay open wherever practical, the new bridge crossings and extensions will be constructed early in the programme. The earthworks required to construct the widened carriageways would be built at the same time.
- 2.9.3 As a result, narrow lanes will be introduced to create the necessary working space. Due to the varying carriageway cross-sections through the existing Kelvedon Bypass different traffic management arrangements may be required, with a combination of lanes moved towards the central reserve, and contraflow. Localised hardening may be required to either the central reserve or verges. Any central reserve widening, or preparation of crossovers for contraflows, would need to be carried out at night.
- 2.9.4 Once the new structures are built (at Cranes Bridge, Ashmans Bridge and Ewells Bridge) the existing structures can be demolished. As these will need total closure over a weekend, where practical these demolitions will be grouped to reduce disruption.
- 2.9.5 It is assumed that a temporary closure of Maldon Road towards the junction of Braxted Road and Highfields Lane will be required (up to six weeks). To reduce disruption, the Braxted Road to Highfields Lane route will be maintained except for a weekend closure where tie-ins will be constructed to allow the new alignment to be used. Details on the proposed diversion can be found in Section 9.16. The road closure will be programmed to ensure that there is not a clash with restrictions on Braxted Road or Inworth Road.
- 2.9.6 To maintain the route for walkers and agricultural users across Ewell Bridge, the new structure will be built adjacent to the existing and the route switched from one to the other once available. The route will continue through Borrow Pit J, and a plant crossing will be installed to maintain the safe interface between construction plant and users of the footpath/accommodation track.
- 2.9.7 At the proposed junction 24, to minimise disruption to road users and to create a safe working area in which to build the new underbridge, the new northbound and southbound slip roads will be constructed ahead of the new underbridge. These, together with temporary roads will form diversion routes for the northbound and southbound carriageways.

- 2.9.8 The widening of Park Bridge will require restrictions to traffic along Inworth Road. To create sufficient working room for plant and construction works single lane running under traffic signal control will be required. Additionally, when installing bridge beams, closure of Inworth Road will be required. See Section 9.19 for more details.
- 2.9.9 To minimise disruption, wherever possible works requiring closure of Inworth Road at Park Bridge will be timed to be carried out with works to the new connections from Inworth Road to the new Inworth roundabout, to reduce the overall number of closures required.
- 2.9.10 To maintain access to residential properties and to businesses such as the farm shop and at Park Farm, tie-in works for the new connections to Inworth Road will be carried out during off-peak.
- 2.9.11 To maintain safe segregation of construction traffic and the public, a plant crossing on Inworth Road would be required to allow vehicles to cross Inworth Road from Borrow Pit J to the works area to the east of Inworth Road.
- 2.9.12 High level construction phasing of the Kelvedon Bypass including Cranes Bridge, Ashmans Bridge, Ewell Bridge and the proposed junction 24 can be found in Section 9.14 to Section 9.18.

**Plate 2.8 Kelvedon Bypass**



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## 2.10 Inworth Road (south of new Inworth Road connections, Ch.31+700)

- 2.10.1 The construction programme and traffic management in this section (Plate 2.9) of the proposed scheme has been developed with the following objectives in mind:
- Maintain access to properties during the works
  - Minimise 'rat-running' through Messing
  - Avoid the likely disruption associated with peak time working
  - Avoid Braxted Road as the signed diversion
- 2.10.2 Works along Inworth Road from a traffic management perspective will generally be carried out as either on-carriageway works, or off-carriageway works.
- 2.10.3 To facilitate safe access and egress into the off carriageway works areas and to create additional working space, the works will sometimes need off-peak traffic signals.
- 2.10.4 To minimise disruption during on-carriageway works these will be carried out during weekend closures with works during daytime working hours. There is insufficient space within the existing narrow carriageway to safely allow passing traffic under signal control.
- 2.10.5 Access will be maintained to properties along Inworth Road during these closures, albeit restricted to from either the north or the south. Where works are immediately in front of a residential property, such as drainage works requiring excavations, then alternative short-term arrangements for access may need to be made in conjunction with the residents.
- 2.10.6 A signed diversion will be in place, with the village of Messing becoming an 'access only' route, to mitigate any additional traffic trying to travel through Messing during the weekend closures.
- 2.10.7 To avoid the narrow bridge on Braxted Road, the signed diversion route will be via the B1022 towards Colchester and junction 26 of the A12.
- 2.10.8 High level construction phasing of the Inworth Road works can be found in Section 9.20.

**Plate 2.9 Inworth Road works**



## 2.11 Kelvedon to Marks Tey (Ch.31+700 to 37+400)

- 2.11.1 The construction programme and traffic management in this section (Plate 2.10) of the proposed scheme has been developed with the following objective in mind:
- Maintain access to Wishing Well Farm and properties at Prested Hall.
- 2.11.2 The offline nature of the works from the new junction 24 towards junction 25 enable most of the works to be carried out without disrupting traffic. However, there are residential and business properties along the route for which maintaining access will be critical.
- 2.11.3 To ensure access is maintained to Prested Hall and the nearby residential properties, a phased construction sequence, including the construction of temporary carriageways is required. A temporary road will be provided to link the existing junction 24 southbound access to Prested Hall to the new Prested Hall Overbridge once constructed, to provide a temporary access route. A plant crossing of the existing driveway to the hall will also be required to ensure a safe interface between construction traffic and users of the access.
- 2.11.4 The switch to the permanent A12 alignment will happen towards the end of the construction programme and will need to be phased with the works at junction 25. Once complete, the works to the existing A12 can commence. To enable the switch from one alignment to the other a series of carriageway

and total closures may be needed. To minimise disruption, wherever possible these will be off-peak restrictions.

- 2.11.5 High level construction phasing of the Prested Hall, Easthorpe Road and Wishing Well Bridge works can be found in Sections 9.21 to 9.23.

### Plate 2.10 Kelvedon to Marks Tey

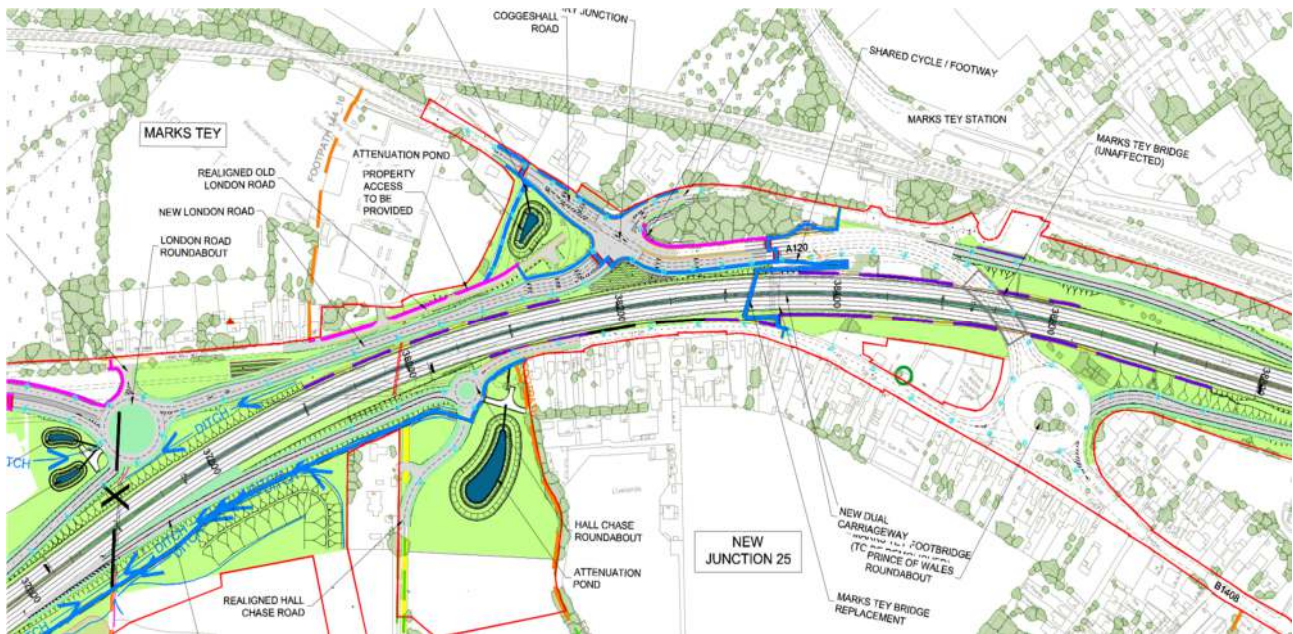


## 2.12 Junction 25 (Ch.37+400 to 39+300)

- 2.12.1 The construction programme and traffic management in this section (Plate 2.11) of the proposed scheme has been developed with the following objectives:
- Maintain access to residential and business properties
  - Keep traffic flowing whilst creating working space for utility and roadworks
  - Enable the switch from the existing to new A12 alignment
- 2.12.2 The works in the junction 25 area require complex phasing to enable traffic to flow whilst creating working space for utility works and roads works and ensuring access to the adjacent properties.
- 2.12.3 Various residential properties and businesses are based within the immediate vicinity of junction 25. Access to these properties on London Road, Old London Road, Station Road, and Hall Chase will be maintained, where practical. Refer to Section 5.4 for further details.
- 2.12.4 To enable safe working and maximise working space, traffic will be put into narrow lanes through this section. Single carriageway night-time or weekend closures will be required to install and remove the narrow lane running. Installation of the new footbridge and tie-ins for the new to existing road alignments will require off-peak total closures. Further phased restrictions will be required on the junction 25 slip roads, including lane and full closures.
- 2.12.5 High level construction phasing of the junction 25 area, including the Marks Tey Bridge can be found in Sections 9.24 and 9.26.



**Plate 2.11 Proposed junction 25**



## 3 Communication and engagement

### 3.1 Advance notifications

- 3.1.1 Early collaboration between the proposed schemes' Stakeholder team and the traffic management team will be undertaken to ensure the establishment of procedures to deliver relevant, accurate and timely information about diversions and closures to stakeholders, residents, ~~businesses~~businesses, and all road users.
- 3.1.2 Early engagement, led by the Community Liaison Manager and Stakeholder team with key stakeholders, landowners, district, town and parish councils, local businesses, the Emergency Services, rail networks and freight companies is already underway. Residents in close proximity to the proposed works have also been identified. The needs and concerns of all will be considered during the planning of traffic management solutions and accommodated wherever reasonably practicable.
- 3.1.3 ~~Advanced notifications of programmed diversions and closures would be issued to major road users in the vicinity of the proposed scheme including Royal Mail. This would include providing major road users with not less than 7 working days' notice of any road closures, diversions or alternative access arrangements that may affect travel on those routes and (if available) in all cases the agreed hours of working. This would form part of a wider communications plan associated with the proposed scheme. The method of communication would be agreed as part of the final Construction Traffic Management Plan. National Highways would consult with Royal Mail on the content of the final Construction Traffic Management Plan. Diversion routes and closures will be confirmed and publicised as early as possible (within a minimum of 5 working days).~~ However, it should be noted for more significant closures, such as the closure of Station Road, increased notification will be given, and in many cases this will be accompanied by a communications strategy to ensure stakeholders are appropriately informed with sufficient time to make suitable plans.
- 3.1.4 The Stakeholder team will identify and the preferred communication methods of stakeholders, ~~residents~~residents, and businesses and in collaboration with traffic management teams, ensure the delivery of relevant, accurate and timely information. This may include National Highways' website and social media platforms, local and national traffic information sites, and targeted letter deliveries to local communities.
- 3.1.5 The Stakeholder Team will establish effective relationships with National and local Highways Authorities traffic management teams to improve planning and minimise disruption caused by the proposed scheme.
- 3.1.6 The scheme's stakeholder team will maintain regular liaisons with NH's Customer Contact Centre (CCC), Traffic Management and Correspondence teams to ensure accurate and timely information is shared and delivered to the satisfaction of residents, businesses and road users.

### 3.2 Traffic management forums and user group forums

- 3.2.1 The Principal Contractor (PC) will set up traffic management forums and road user group forums. The purpose of these forums will be to provide relevant information with regards to traffic management to affected stakeholders, to

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seek input into the proposals as they are developed and feedback on the implementation of proposals. Where appropriate, feedback will be incorporated into proposals going forward in the proposed scheme.

- 3.2.2 The user group forums will form a key part of the strategy for advance notification of restrictions and closures.
- 3.2.3 Examples of road user group forums would include regular meetings with key stakeholders such as the local authority, emergency services and Royal Mail; monthly meetings with local businesses; and quarterly meetings with local rights of way groups. Table 3.1 lists examples of proposed traffic working groups. This is an initial draft and not an exhaustive list and will be developed as the proposed scheme progresses.
- 3.2.4 Road user group forums will consist of in-person meetings at suitable venues across the proposed scheme. Online webinar meetings will also be utilised as appropriate, for the varying groups.

**Table 3.1 Proposed traffic management forums**

Proposed forum	Key topics	Proposed attendees		Proposed frequency
Traffic Management Working Group	Detailed planning and review of traffic management	<ul style="list-style-type: none"> <li>• Project team</li> <li>• National Highways</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency services</li> <li>• Essex Highways</li> </ul>	Weekly
Incident Management Forum	Planning and review of incident management, response times and lessons learned	<ul style="list-style-type: none"> <li>• Project team</li> <li>• National Highways</li> <li>• Project recovery teams</li> </ul>	<ul style="list-style-type: none"> <li>• Emergency services</li> <li>• Essex Highways</li> <li>• Highway breakdown and recovery providers</li> </ul>	Monthly
Local Business and Strategic Road User Forum	Communication, input into and review of planned restrictions and closures with strategic users of the SRN and business users of the LRN	<ul style="list-style-type: none"> <li>• Project team</li> <li>• National Highways</li> <li>• Postal and delivery companies</li> </ul>	<ul style="list-style-type: none"> <li>• Local Business users</li> <li>• Freight trade groups</li> <li>• Key freight destinations (such as ports)</li> </ul>	Monthly

## 7.7 Outline Construction Traffic Management Plan

Proposed forum	Key topics	Proposed attendees		Proposed frequency
Local Area Traffic Management Forum	Communication, input into and review of planned restrictions and closures affecting local communities	<ul style="list-style-type: none"> <li>Project team</li> <li>National Highways</li> </ul>	<ul style="list-style-type: none"> <li>District councils</li> <li>Parish councils</li> </ul>	Monthly
Hatfield Peverel Access Forum	Planning for and feedback during measures whilst Hatfield Peverel bridges are closed	<ul style="list-style-type: none"> <li>Project team</li> <li>National Highways</li> <li>Essex Highways</li> <li>Royal Mail</li> <li>Delivery companies</li> </ul>	<ul style="list-style-type: none"> <li>Hatfield Peverel Parish Council</li> <li>Greater Anglia</li> <li>Refuse collection</li> <li>Emergency services</li> </ul>	Quarterly prior to bridge closures – monthly during closures
Walking, Cycling and Horse-Riding Forum	Communication, input into and review of proposals that affect public rights of way (PRoWs), footways/cycleways or other shared routes	<ul style="list-style-type: none"> <li>Project team</li> <li>National Highways</li> </ul>	<ul style="list-style-type: none"> <li>Essex Highways PRoWs</li> <li>Local rights of way user groups</li> </ul>	Quarterly
Public Transport Forum	Communication, input into and review of proposals that affect public transport services or connectivity to services	<ul style="list-style-type: none"> <li>Project team</li> <li>National Highways</li> <li>Greater Anglia</li> </ul>	<ul style="list-style-type: none"> <li>Local bus service providers</li> <li>Local taxi companies</li> </ul>	Quarterly

## 4 Closures and diversion routes

### 4.1 Closures

- 4.1.1 The majority of the existing A12 mainline throughout the extent of the proposed scheme consists of two lanes and a hard strip (in each direction). The limited space on the existing alignment will require certain activities to be undertaken under a full closure or a directional closure of the A12 mainline. Planned closures of the A12 mainline will be undertaken during off-peak traffic hours and at weekends.
- 4.1.2 The closure of a major trunk road such as the A12 can cause disruption for road users, businesses, and the local community. Closures of the A12 will therefore only be undertaken when other options such as daytime working are not reasonably practicable.
- 4.1.3 Road closures enable the proposed scheme to undertake certain construction activities more efficiently and productively, thus reducing the overall impact on the SRN over the proposed scheme's construction duration. Closures also increase both the working space for construction activities and the separation between works activities and passing vehicles.
- 4.1.4 Emergency service vehicles may use the A12 mainline within the proposed scheme Order Limits as the quickest route to respond to an emergency. The proposed scheme recognises that in the event of a closure of the A12 mainline it may not be practical for the emergency services to follow the signed diversion. Where practical, the proposed scheme will permit emergency services to travel through a road closure of the A12 mainline, where it is safe to do so. For certain construction activities this may not be possible, for example, during the demolition of a bridge. During off-peak and weekend closures where it would not be possible for emergency service vehicles to travel through a section of the A12 mainline, this would be communicated at least five working days in advance. A suitable diversion for emergency services would be agreed that would ensure minimal impact to the emergency services undertaking their duties.
- 4.1.5 Statutory undertakers have assets within the proposed scheme limits, some of which are within the existing A12 mainline verges. During road closures statutory undertakers would be permitted access in the event of an emergency, for example, a burst water main. In an emergency event statutory undertakers would be required to undertake an induction from the PC and would be briefed on the works within the closure, prior to entry within the road closure.
- 4.1.6 As the programme develops prior to the commencement of the construction phase, the number of closures of the A12 mainline will be quantified and detailed in the Construction Traffic Management Plan. This will detail the total number of the following closures -
- Weekday nights – Total closures (both carriageways)

- Weekday nights – Directional closures (northbound or southbound carriageway)
- Weekend – Total closures
- Weekend – Directional closures

4.1.7 Where construction activities require a closure of the A12 mainline, these activities will be programmed to ensure that multiple works are undertaken within the extents of the closure, where practical. Planning construction activities in this way will reduce the total number of closures required.

## 4.2 Road planning considerations

4.2.1 The proposed scheme would plan road closures of the SRN around any embargos that are set by National Highways, where practical.

4.2.2 Other major public events where customers would require use of the SRN or affected LRN would also be considered when planning works. This would also apply to the strategic diversion route. To minimise any disruption caused by the traffic management, the proposed scheme would engage with National Highways and other affected stakeholders through traffic management working groups (Table 3.1), where possible. Examples of stakeholders the proposed scheme would engage with are, (but not limited to) -

- Chelmsford City Racecourse
- Essex County Cricket Ground
- Chelmsford City Council – for events at Hylands Park for example

~~4.2.14.2.3 to minimise any disruption caused by the proposed scheme through traffic management working groups (Section 1.1), where possible.~~

## 4.3 Strategic diversion route

4.3.1 To mitigate against strategic traffic 'rat running' through towns and villages within the vicinity of the proposed scheme ~~When~~ a total closure or directional closure of the A12 mainline is required, the proposed scheme will utilise one strategic diversion route for ~~strategic~~ traffic which is not travelling to a local destination. There is only one suitable diversion route in proximity to the proposed scheme (See Appendix A).

4.3.2 Traffic travelling northbound will be diverted off the A12 mainline at junction 19. Traffic will then follow the A130, A131, A120 and re-join the A12 mainline at junction 25.

4.3.3 Traffic travelling southbound will be diverted off the A12 mainline at junction 25. Traffic will then follow the A120, A131, A130 and re-join the A12 mainline at junction 19. Any closure of the A12 mainline within the proposed scheme extents will require strategic (i.e., non-local) traffic to follow this route.

- 4.3.4 Subject to the location of the works needing the closure, access along the A12 will be maintained to reduce traffic diverting through local communities.
- 4.3.5 To mitigate against HGVs unintentionally using local roads, the proposed scheme would position strategic signage prior to junction 19 and junction 25 to highlight the proposed diversion routes on the A12.
- 4.3.6 The proposed scheme would use technology-based signals to identify which section of the carriageway would be closed at any one time. Advanced warning of road closures and diversion routes will be communicated to all affected road users and stakeholders (see Section 3 for more details).
- 4.3.7 To mitigate against impacts to local communities on or within the vicinity of the strategic diversion route the following mitigation measures have been considered –
- Strategically placed signage to stop ‘rat running’ through communities within the vicinity of the strategic diversion route and if necessary partial closures of roads would be considered to encourage road users to follow the strategic diversion route.
  - Suitable, clear signage guiding road users on the strategic diversion route and encouraging roads users not to follow their satellite navigation system.
  - Liaising with the local highway authority on the roads of the diversion route that are managed by them.
  - Ensure effective communication between National Highways and the local authorities to ensure multiple diversion routes are not on at the same time.
  - Liaising with Essex Police and other enforcement authorities to ensure appropriate measures are in place to reduce misuse of local roads and the roads on the strategic diversion route.
- 4.3.6• Engaging with large events organisers who may require to use roads on the diversion route and plan works around these events where practicable.

## 4.4 Local road diversion routes

- 4.4.1 Other local diversion routes will be required for works affecting side roads, such as the replacement for the three bridges (Bury Lane, Station Road, and Wellington Bridge) through Hatfield Peverel. These local diversion routes have been proposed in Appendix A and are subject to engagement with the local authority.
- 4.4.2 The proposed scheme will conduct a condition survey of diversion routes, prior to and post being used as temporary routes.
- 4.4.3 The proposed scheme will liaise with Essex Highways to ensure that roads that are subject to winter maintenance such as gritting continue to be so.
- 4.4.4 Details of the diversions can be found in Appendix A.



## **5 Construction traffic and traffic management considerations**

### **5.1 Introduction**

- 5.1.1 The size and complexity of the proposed scheme means that there will be multiple construction activities at varying locations along the route, many of which will overlap or be undertaken simultaneously. The highway improvements and scope of works have been assessed and the most effective temporary traffic management plans would be proposed to mitigate the impacts on the SRN and provide alternative diversions and access for local traffic where required.

### **5.2 Deliveries and driver training**

- 5.2.1 All regular delivery drivers will receive a driver's induction when engaged on the proposed scheme prior to entering any works area, to ensure they are aware of all key information and to ensure they can undertake their role safely. They will be supplied with and briefed on the list of permitted, permitted with restrictions, and excluded routes.
- 5.2.2 Irregular or one-off delivery drivers will be directed to either a main compound or satellite compound. Generally, vehicles would be off-loaded, and the load transported to its point of use using site transport. Where this is not the case drivers will be briefed and where appropriate escorted by the site team to the required location.
- 5.2.3 HGVs will be required to comply with National Highways' standards and have the correct level of certification for FORS and/or CLOCS; this will be defined in the proposed Construction Traffic Management Plan prior to commencement of the proposed scheme construction phase.
- 5.2.4 All drivers entering traffic management on high-speed roads will be required to be trained in safe entry, travelling through, and exiting traffic management.

### **5.3 Road cleanliness**

- 5.3.1 Where construction traffic will join the SRN or LRN, the PC will ensure that the road surface has regular cleaning maintenance. Procedures will be developed to ensure that roads are inspected and that measures are in place to allow a rapid response to any reported mud/debris on the carriageway. Measures may include the following:
- Wheel washes at key egress points
  - High pressure jet-vac sweepers
  - Jet washes at appropriate egress points
  - Manned attendance at appropriate egress points or plant crossings of public carriageways
  - Surfacing of approaches to egress points/plant crossings to allow vehicles to shed mud ahead of the public highway and to enable sweepers to keep the approach clean

## **5.4 Access to residential properties and business premises**

- 5.4.1 Residential properties and business premises are in close proximity to the proposed scheme. Some construction activities could potentially have an impact on access to these properties. The proposed scheme would endeavour to ensure that all construction works are phased to ensure access is always maintained to residential properties and business premises.
- 5.4.2 Similarly, the proposed scheme will endeavour wherever practical to maintain access for emergency services and others, such as delivery businesses, refuse collections and carers, to properties who need access.
- 5.4.3 In the occasional event that this would not be possible, the proposed scheme would engage with the affected stakeholder and ensure suitable arrangements are agreed. The proposed scheme appreciates that each stakeholder's access requirements would be different and would be dealt with on a case-by-case basis, to mitigate any impact. A minimum of 10 working days' notice would be provided (except in emergency) if access is to be restricted to a residential property or business premises.

## **5.5 Public transport – bus services**

- 5.5.1 Bus services managed by various stakeholders are operated throughout the extent of the proposed scheme. Bus service providers would be kept informed of works associated with the proposed scheme and any effects this would have on their bus routes and/or bus stops. Bus service providers would be invited to a relevant traffic working group, which will be developed as the proposed scheme progresses into the construction phase. Appropriate notice of any planned effects to their services will be given to bus service providers by the proposed scheme.
- 5.5.2 The proposed scheme appreciates the need for bus services to continue to connect communities, such as Hatfield Peverel and Witham. Suitable diversions will be considered for bus routes when planning traffic management.
- 5.5.3 Bus service operators will be invited to the Public Transport Forum.
- 5.5.4 A list of bus routes that travel through the proposed scheme limits has been produced and can be found in Appendix C.

## **5.6 Borrow pits**

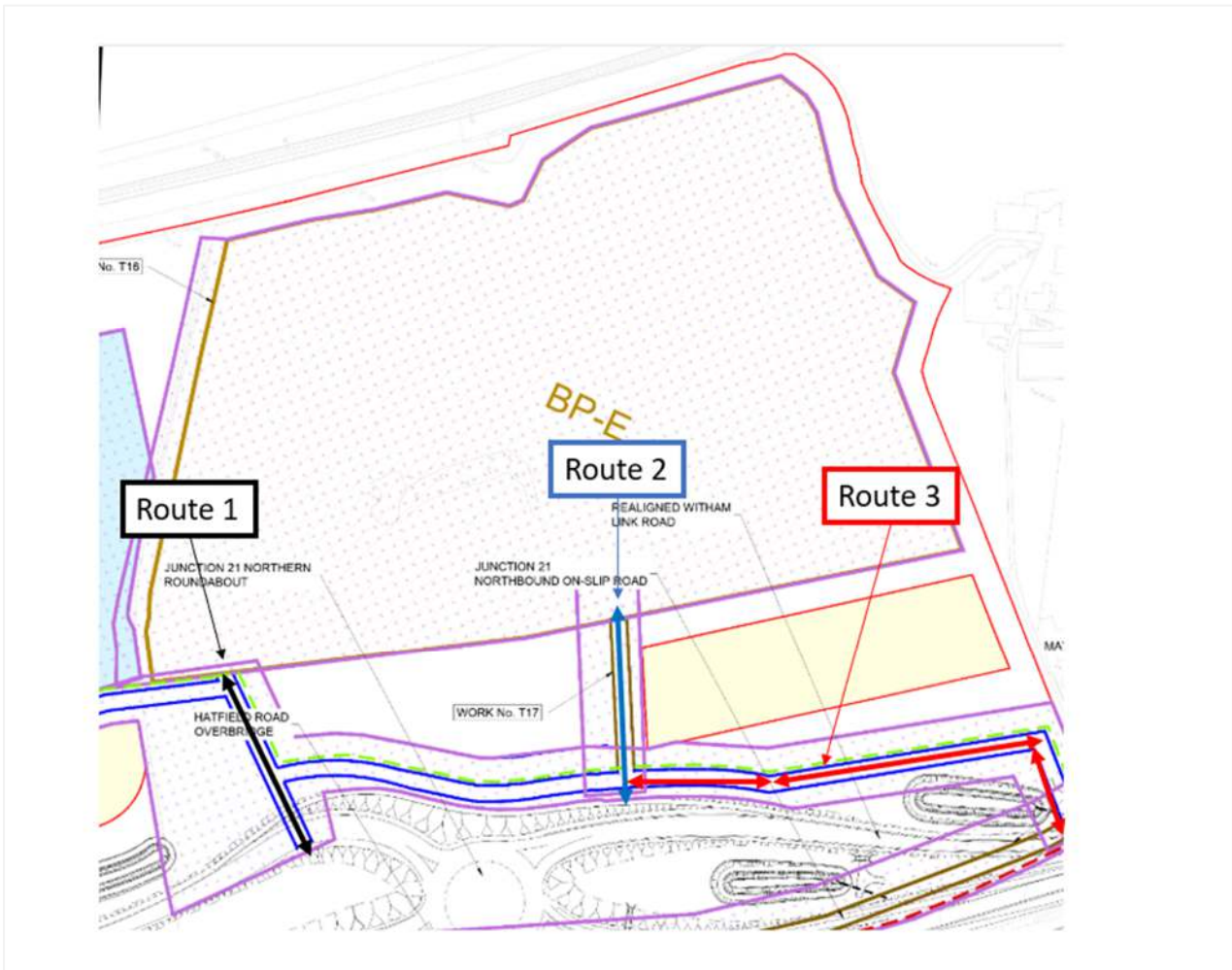
- 5.6.1 A Borrow Pits Report [TR010060/APP/7.8] has been issued as part of this Development Consent Order (DCO) submission.
- 5.6.2 The borrow pits have been positioned as close as reasonably practical to the works areas, considering factors such as, size, current land use, quality of material, ease of access and environmental impact. This is to maximise the amount of onsite haulage and to minimise the need for import from external sources on the public road network. It should be noted however, that Class 6 engineering fill and screened single sized aggregates that cannot be found locally would still need to be imported from quarries via the public road network.

- 5.6.3 Where practical, material would be transported via internal haul routes to reduce the impact on the road network. Where this is not practical, the SRN would be used to transport material across the proposed scheme.
- 5.6.4 The PC will implement a wheel washing system with rumble grids or other suitable methods to dislodge accumulated dust and mud prior to leaving the site where required and where reasonably practicable. The PC would ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; this is described in the first iteration Environmental Management Plan (EMP) [TR010060/APP/6.5].
- 5.6.5 Minor highway works will be carried out at each access point and road crossing as required. This will create a safe access/crossing, with good visibility and security, and facilitate road cleaning for the benefit of the road user and operatives leaving the site. These works may include the widening/strengthening of the existing local highways, widening an existing access, or constructing a new access.
- 5.6.6 The haul routes would likely be made up of a combination of clay and unbound material and stabilised bound material, which will be determined by the duration of use of the haul route and the activities that will depend on it. Speed limits will be used across the proposed scheme, which will be set by the PC, to ensure the safety of the works. Dust suppression will be required in the dry months; this would likely be done by tractor and water bowser or a road sweeper.
- 5.6.7 Dust suppression will be required in the dry months; please refer to the EMP [TR010060/APP/6.5] for all control measures.

### **Borrow Pit E (Work No. T16)**

- 5.6.8 There are two routes (Plate 5.1) that will be used for access and egress to Borrow Pit E:
- Route 1 (Work No. T18) – This route will be used by off road construction plant such as dumpers. Materials will be transported from the borrow pit to the north side of the proposed junction 21. Material will be transported via haul roads.
  - Route 2 (Work No. T14) – This route will be used by off road construction plant such as dumpers. Materials will be transported from the borrow pit to the north side of the proposed junction 21. Material will be transported via haul roads.
  - Route 3 (Work No. T14) – This route will be used to transport material to and from the borrow pit via the public road network. Transport of material from the borrow pit onto the public road network would be kept to a practical minimum.

### Plate 5.1 Borrow Pit E access and egress Routes 1, 2 and 3

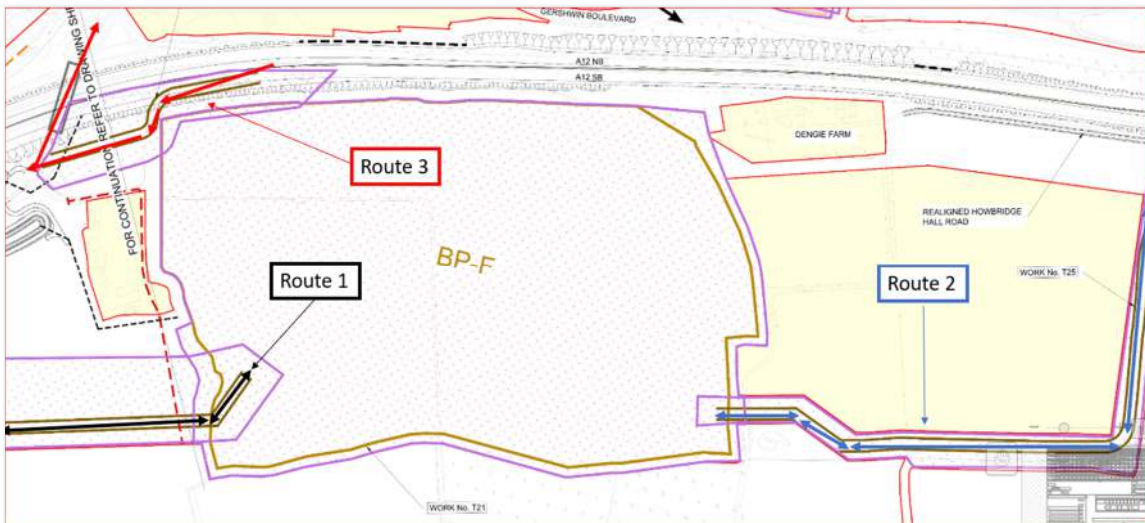


### Borrow Pit F (Work No. T21)

5.6.9 There are three routes that will be used for access and egress to Borrow Pit F (Plate 5.2):

- Route 1 (Work No. T20) – This route would be used by off road construction plant such as dumpers. Materials will be transported from the borrow pit to the south side of the proposed junction 21. Material will be transported via haul roads.
- Route 2 (Work No. T23) – This route would be used by off road construction plant such as dumpers. Materials will be transported from the borrow pit to the east to fill areas for the southbound widening of the A12 mainline. Material will be transported via haul roads.
- Route 3 (Work No. T19) – This route would be used to transport unsuitable material within the proposed scheme order limits via the road network into the borrow pit. This will also be used as an HGV access from the southbound carriageway, onto Woodend Bridge and access onto the junction 20b main compound access road.

**Plate 5.2 Borrow Pit F access and egress Routes 1, 2 and 3**

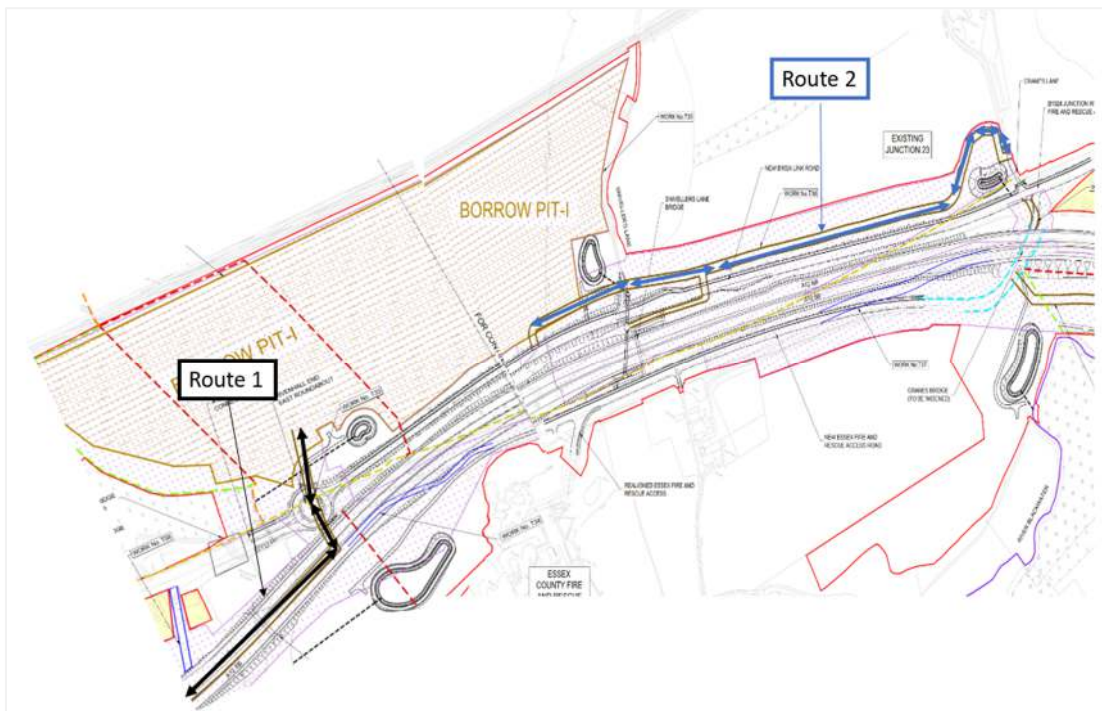


**Borrow Pit I (Work No. T32)**

5.6.10 There are two routes that will be used for access and egress to Borrow Pit I (Plate 5.3):

- Route 1 (Work No. T31) – This route would be used by off road construction plant such as dumpers. Material will be transported out of Borrow Pit I to required fill areas via haul roads and a temporary bridge (see Appendix D) that will span over the A12. This would reduce the requirement for vehicles on the public road network.
- Route 2 (Work No. T34) – This route would be used to transport material to and from the borrow pit via the public road network. Transport of material from the borrow pit onto the public road network will be kept to a minimum where practical.

**Plate 5.3 Borrow Pit I access and egress Routes 1 and 2**

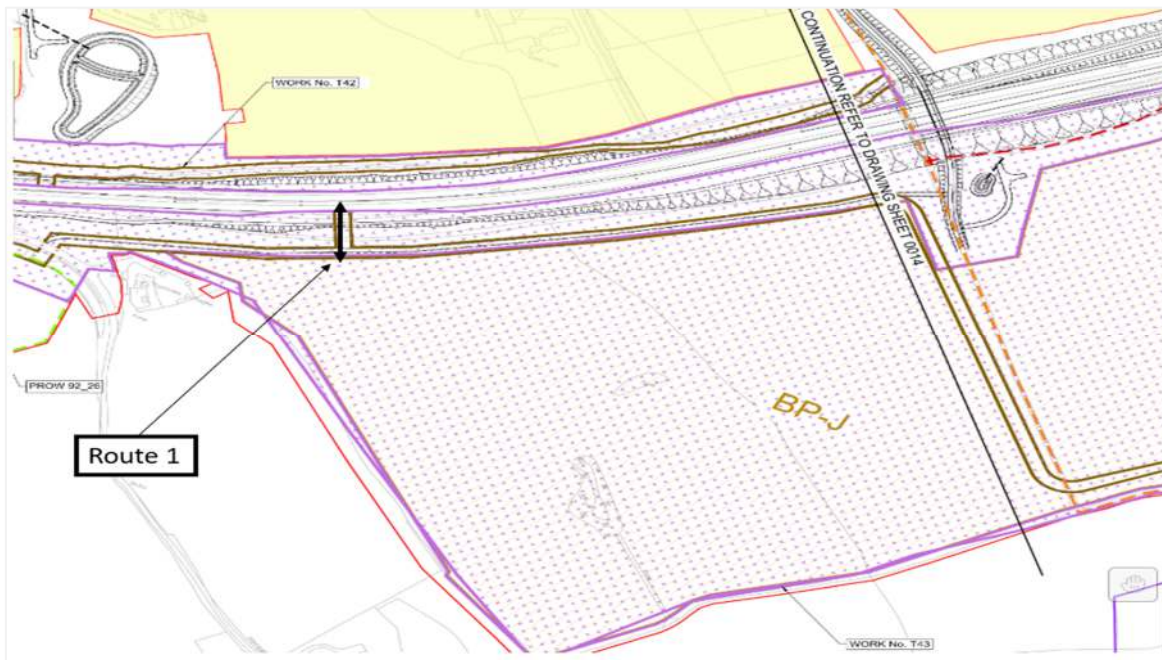


## Borrow Pit J (Work No. T40)

5.6.11 There is one route that will be used for access and egress to Borrow Pit J (Plate 5.4):

- Route 1 (Work No. T39) – Transport of material from Borrow Pit J would be mainly via the public road network as this borrow pit will distribute granular material scheme wide. Access and egress into the borrow pit will be via a constructed access immediately off the southbound A12.

**Plate 5.4 Borrow Pit J access and egress route**



## 5.7 Construction compounds

5.7.1 The objective in the siting of the construction compounds is to limit the use of the LRN by construction traffic as much as practical. To achieve this, the compounds/laydown areas would be accessed from as close to the A12 and SRN as practical, reducing traffic movements on the smaller capacity local routes.

5.7.2 In consideration of the scope and location of works and the anticipated numbers of staff, the proposed scheme has identified two main compounds and three satellite compounds. The two main compounds are:

- Junction 20b (Work No. T16)
- Junction 22 (Work No. T29)

5.7.3 Three satellite compounds have been identified to supplement the main compounds and to prevent large numbers of staff having to commute along the scheme to get to their work site and to and from rest locations. These are located at:

- Junction 19 for the junction upgrade works (Work No. T6)

- Easthorpe Road between junctions 24 and 25 for the offline works (Work No. T49)
- Junction 25 for the junction upgrade works (Work No. T52)

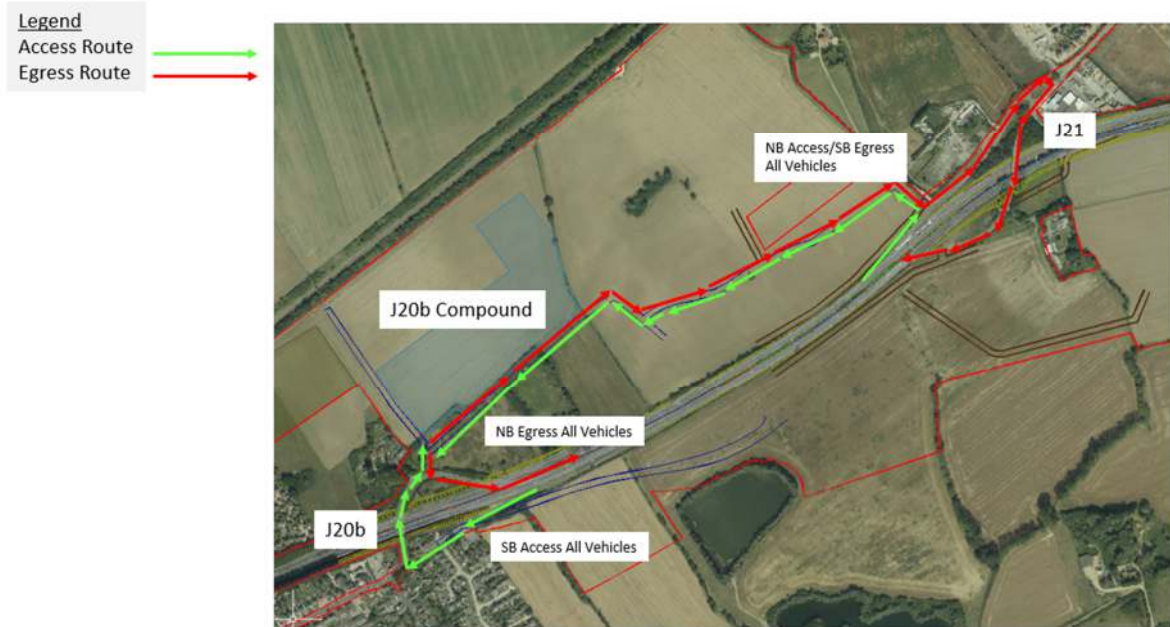
5.7.4 Several laydown areas are situated across the proposed scheme at strategic locations to service a number of disciplines, for example, structures, drainage and technology. These laydowns could be used for material storage, welfare location and tool storage, as well as larger construction work activities such as bridge prefabrication areas and crane platforms.

5.7.5 The junction 20b compound access (Work No. T14) would change as construction works progress to reflect opportunities to reduce traffic on the LRN. These changes are likely to be in four primary phases:

- Phase 1 (Plate 5.5) – Use of the existing LRN to allow the construction of the compound, access roads and the temporary slip roads.
- Phase 2 (Plate 5.6) – HGVs to access the compound via the temporary slip road constructed to the east of the existing junction 21. This is to reduce the impact on Wellington Bridge and junction 20b.
- Phase 3 (Plate 5.7) – Progress the construction of the permanent slip roads and construction of the bridge with the aim to direct the traffic over the slip roads and permanent bridge to reduce the impacts on junction 20b (Wellington Bridge) and the existing junction 21 (Woodened Bridge).
- Phase 4 (Plate 5.8) – The new junction 21 would be open in all directions making it the primary access for the junction 20b compound.

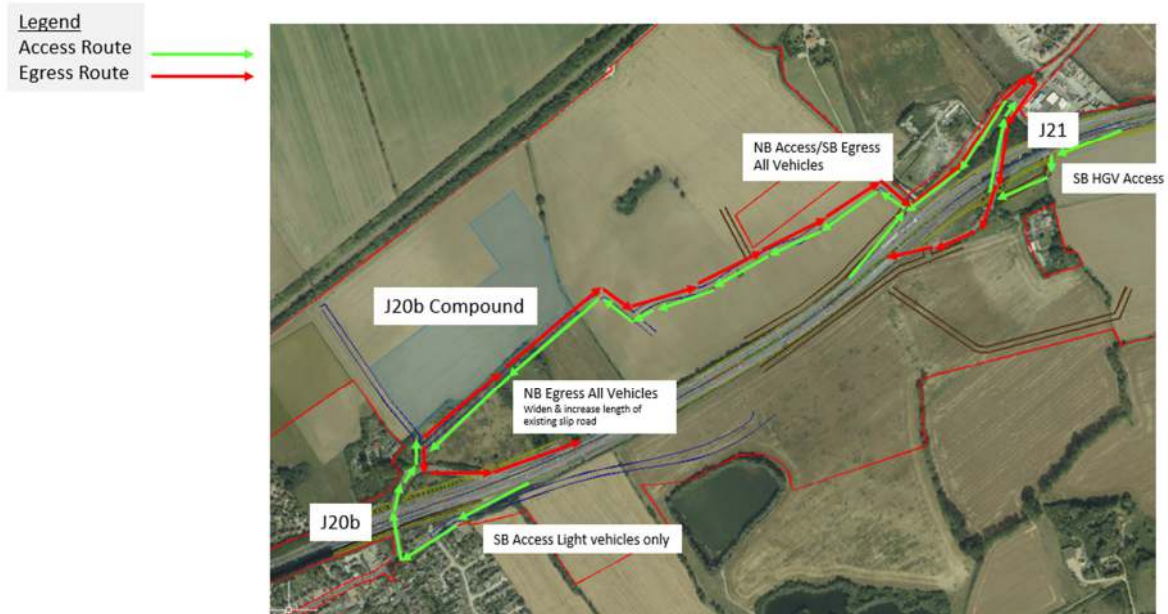
**Plate 5.5 Phase 1 junction 20b compound access/egress**

# Phase 1



**Plate 5.6 Phase 2 junction 20b compound access/egress**

# Phase 2

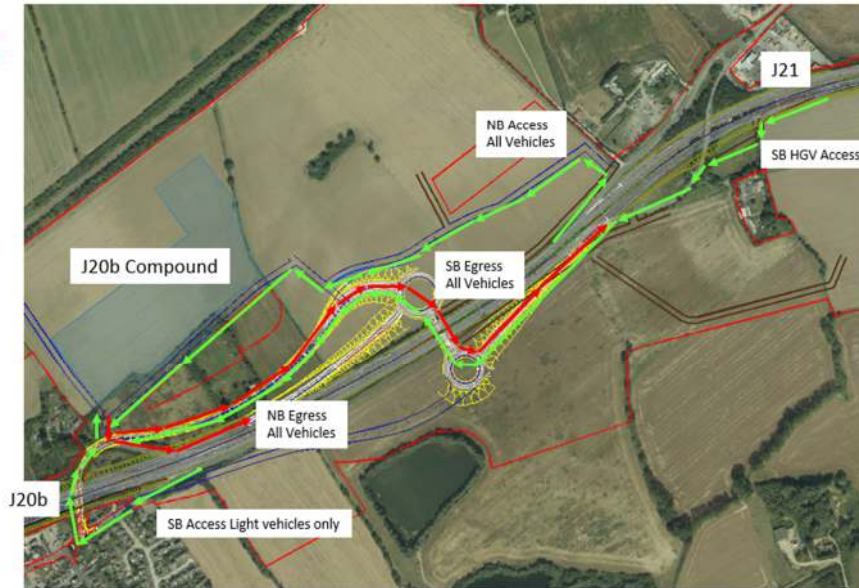




**Plate 5.7 Phase 3 junction 20b compound access/egress**

# Phase 3

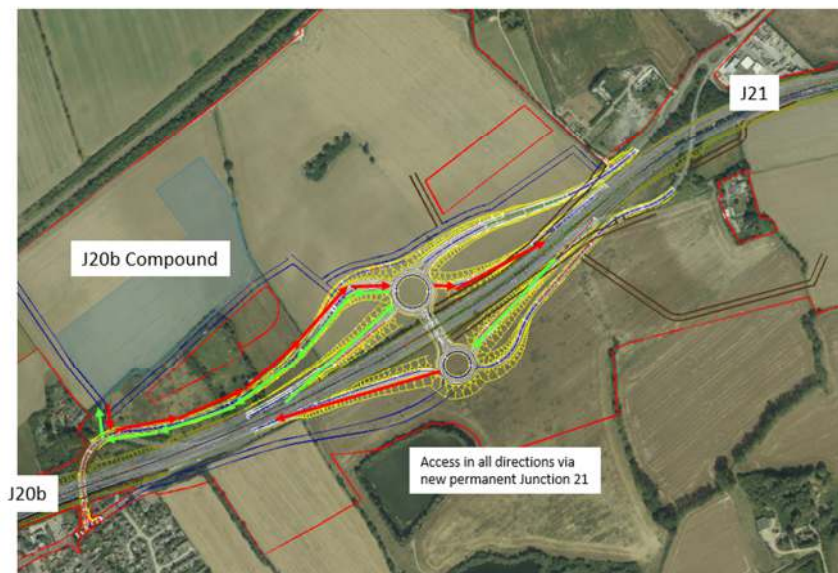
**Legend**  
Access Route   
Egress Route



**Plate 5.8 Phase 4 junction 20b compound access/egress**

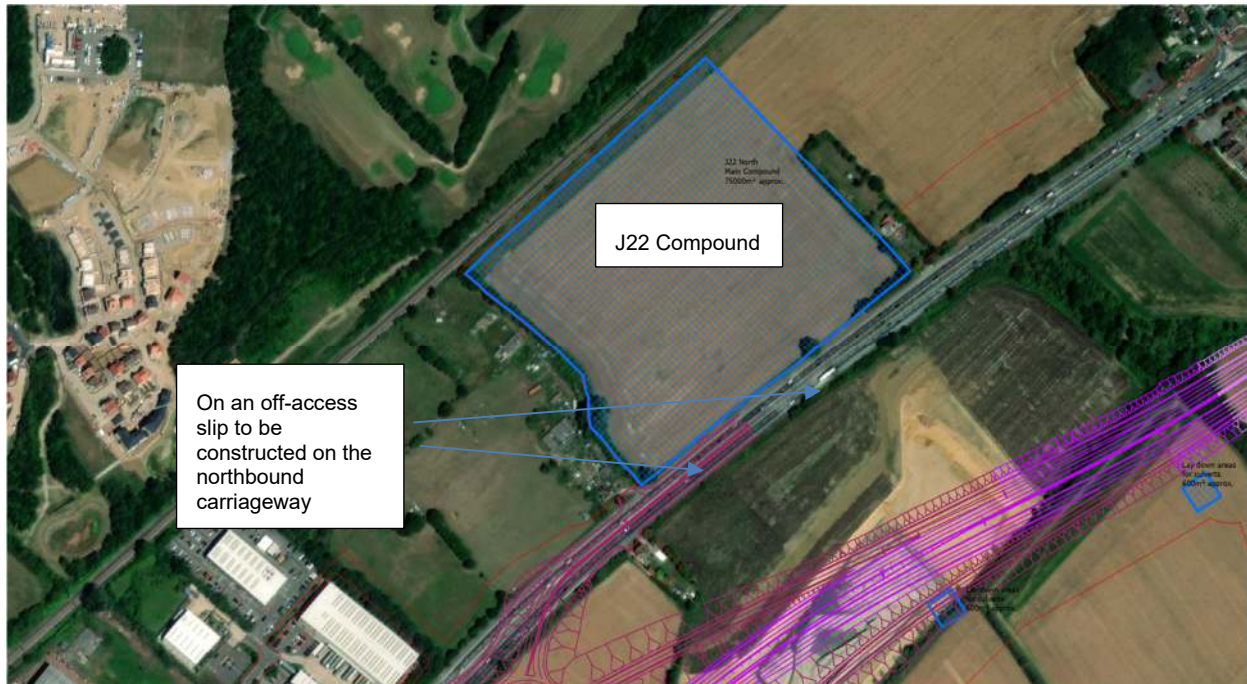
# Phase 4

**Legend**  
Access Route   
Egress Route



5.7.6 Access to the junction 22 compound (Plate 5.9) would be directly on/off the northbound carriageway of the A12. Traffic management would be implemented to facilitate a temporary construction access to and from the compound onto the A12.

### Plate 5.9 Junction 22 compound access/egress



- 5.7.7 Construction staff parking would be provided at all main compounds and satellite compounds across the proposed scheme. It would be intended that the construction team would utilise minibuses and car sharing from main compound areas to work fronts and local compounds to reduce the volume of construction traffic. While this might not be practical for all sub-PCs/trade types due to the necessity of transporting work equipment in their company vehicles, the strategic location of the compounds would ensure this traffic is minimised.

## 5.8 Signage for construction related traffic

- 5.8.1 Appropriate signage would be in place to guide construction traffic in and out of the main construction compounds, laydown areas, satellite compounds and the main construction sites along the A12 and LRN.
- 5.8.2 Construction staff parking would be provided at all main compounds and satellites compounds across the proposed scheme. Signage would guide the construction workers to the designated construction parking bays.
- 5.8.3 The location of signage would be developed in consultation with Essex County Council and would be in accordance with the Traffic Signs Manual: Chapter 8 (Department for Transport, 2009).
- 5.8.4 Signage would be installed locally to advise construction traffic of the permitted, permitted with restrictions and excluded routes.

## 5.9 Hatfield Peverel side road closures

- 5.9.1 Three bridges within the Hatfield Peverel A12 cutting (Bury Lane, Station Road, and Wellington Bridges) need to be replaced to accommodate the

widening of the A12 mainline to three lanes in each direction. The bridges will be demolished and reconstructed on similar alignments.

- 5.9.2 Alternative alignments for the replacement bridges were not deemed feasible due to the number of residential properties that would need to be demolished.
- 5.9.3 Constructing the bridges on the proposed alignment will have an impact on side roads in Hatfield Peverel, as road closures around the structures will be required. Only one bridge will be closed at a time to minimise the impact on side roads in Hatfield Peverel, where practical.
- 5.9.4 The northbound exit at junction 20a will be permanently closed when Bury Lane is temporarily closed. Therefore, Station Road will be the first to be temporarily closed as this allows for the northbound exit at the existing junction 20a to remain operational for longer.
- 5.9.5 The new junction 21 will also be sufficiently operational by the time Bury Lane is temporarily closed, so that traffic that would currently use the junction 20a northbound exit has an alternative route to Hatfield Peverel, avoiding the potential for traffic to divert via junction 19 and Main Road through Boreham.

### Restrictions in Hatfield Peverel

- 5.9.6 When Station Road Bridge and Bury Lane Bridge are being replaced this will have an impact on access for residents who live to the north of the A12 within Hatfield Peverel. Access to Hatfield Peverel railway station will also be affected. The mitigation measures are set out below, with further detail provided in Section 9.7.
- Provision of a temporary car park (Station Road closure only)
  - A temporary link between the temporary car park and the station
  - Temporary vehicular, pedestrian and cyclist connection between the Hatfield Grove and Bury Farm Estates
  - Temporary foot and cycle crossing (See Appendix D) of the A12 (Station Road closure only)
  - Signed traffic diversion (Station Road closure only)
  - Provision of a shuttle bus service (Station Road closure only)
  - Phased construction so that access is possible across either Bury Lane or Station Road Bridges
- 5.9.7 When Wellington Bridge is being replaced this will prevent access from Hatfield Peverel towards the A12 and Witham. The proposed mitigation measures are set out below.
- Provide a temporary two-way link road from the proposed junction 21 southern roundabout to the existing junction 20b southbound off-slip.
  - Also include provision for pedestrians and cyclists

- 5.9.8 To reduce the duration for which both Station Road and Bury Lane will be closed, the proposed scheme will construct the bridge decks at a laydown area to the west of Hatfield Peverel. The structures will then be transported into position on a Self-Propelled Mobile Transporter. This will require a total closure of the A12 for each bridge deck but will reduce the timescale that each of the roads will be closed by approximately three months.
- 5.9.9 A Hatfield Peverel access forum would be established prior to the commencement of construction. The aim of this forum is to minimise the impacts on the local community and businesses. The local parish council would also be invited to be a part of the forum.
- 5.9.10 The proposed scheme would consider that persons with accessibility or vulnerability needs would also be accommodated. Where required, bespoke plans will be created to accommodate these individuals.

### Station Road closure

- 5.9.11 Station Road is expected to be closed for approximately six months. This will restrict:
- Access to businesses and properties on Station Road, Terling Road and Hatfield Road north of the A12
  - Access to business and properties in the existing Pines Estate and other roads off Station Road to the north of the A12
  - Access to properties in the new Hatfield Grove Estate
  - Access to the Hatfield Peverel railway station and car parking
  - Access to the Network Rail Access Point
- 5.9.12 A summary of the alternative routes provided for different users whilst Station Road is closed restricting access to/from The Street is shown in Table 5.1.

**Table 5.1 Summary of alternative provision whilst Station Road Bridge is closed**

User	Alternative provision	Notes
Pedestrian	Alternative routes via the temporary bridge, via Bury Lane and via the temporary car park.	All alternative routes identified by the project team have been included in the proposals.
Cyclist	Alternative routes via the temporary bridge, via Bury Lane and via the temporary car park.	All alternative routes identified by the project team have been included in the proposals.
Residents and carers vehicles (cars/vans)	Permitted use of the temporary route through Bury Farm and Hatfield Grove Estates.	Restricted use to prevent rat-running. No other reasonably practical alternatives have been identified.
Those with additional accessibility needs	Use of the shuttle bus.	Bespoke plans to be put in place where need identified.

## 7.7 Outline Construction Traffic Management Plan

User	Alternative provision	Notes
Resident vehicles (large vehicles)	Use of the signed diversion.	Not permitted to use alternative route to minimise disruption to residents along the route.
Non-residents vehicles	Use of the signed diversion.	Not permitted to use alternative route to minimise disruption to residents along the route.
Emergency services	Permitted use of the temporary route between Bury Farm and Hatfield Grove Estates, permitted use of the temporary link between the temporary car park and Station Road, use of the signed diversion.	To facilitate emergency access and maintain emergency response times.
Royal Mail and refuse collections	Permitted use of the temporary route between Bury Farm and Hatfield Grove Estates and use of the signed diversion.	To support essential services for residents.
Network Rail	Use of temporary route between the temporary car park and the station in emergency.	Access to Network Rail Access Point in emergency.

5.9.13 For the period that Station Road is closed, the following measures would be implemented.

### Temporary car park

5.9.14 A temporary car park (Work No. T13) will be provided to the east of the existing station. The car park will provide replacement parking provision for those traveling from the south who cannot otherwise access the current station car parks without using the signed diversion route.

5.9.15 To ensure that the car park provision is for those customers who would otherwise use the Hatfield Peverel railway station car park and does not encourage users of other car parks to divert to the temporary facility, car parking charges may need to be implemented. If implemented, these would be no greater than the charges for the Greater Anglia car park.

5.9.16 Bunding will be provided to the perimeter adjacent to residential properties, as well as fencing where appropriate.

5.9.17 Security will be provided at the car park to ensure that only authorised persons use it and to only allow permitted vehicles to pass through the car park towards the station. CCTV and lighting will be provided, both of which will be designed so that they are low level and pointing away from neighbouring residential properties. This CCTV would be monitored 24/7 by the Traffic Management Control Centre (TMCC) who will be able to request attendance from security personnel based within the car park and/or main compound.

- 5.9.18 Lighting of the car park will generally only be switched on during the operational hours of the railway station, and at most locations will be switched off outside of these hours.
- 5.9.19 The car park will provide facilities for the shuttle bus service, taxis, and where necessary train replacement bus services.
- 5.9.20 Although cyclists will still be able to access the existing station facilities, additional bicycle storage would be provided.
- 5.9.21 Access to the car park will be via a temporary road connecting to a realigned B1137 (Work No. T14). This will be shared with access to the junction 20a main construction compound.

#### **A temporary link between the temporary car park and the railway station**

- 5.9.22 The existing private road heading east from the exit of the station towards current fields will be used temporarily. Its primary purpose will be as a pedestrian/cycle route to and from the station, so vehicular access will be restricted to essential vehicles only, this will be managed by a person at an access gate. The following will have access to use it:
- Pedestrians and cyclists wishing to access the station or properties in Hatfield Peverel to the north of the A12
  - Emergency services
  - Network Rail (and supply chain) when responding to an emergency or non-planned maintenance event requiring access to the Network Rail Access Point located at railway mileage LTN1 35m 1276y
  - With additional safety training and induction, to ensure that priority is given to pedestrians and cyclists
  - The shuttle bus service
- 5.9.23 Construction traffic would be prohibited from using this route, except for vehicles that are engaged on works to reconstruct Station Road Bridge and Station Road.
- 5.9.24 Temporary lighting and CCTV would be provided for the safety of users of the track and to discourage any anti-social behaviour that might otherwise affect the local residents. This would be designed so that it is low level and facing away from any residential properties. This CCTV would be monitored 24/7 by the TMCC who will be able to request attendance from security personnel based within the car park and/or main compound.
- 5.9.25 Lighting will generally only be switched on during the operational hours of the railway station. Outside of these hours, low intensity background or movement activated lighting may be required.

**Temporary vehicular, pedestrian and cyclist connection between the Hatfield Grove and Bury Farm Estates**

5.9.26 A restricted use temporary vehicular, pedestrian and cycle route would be provided between the two housing estates (Plate 5.10). Conditions attached to the planning permissions for the estates require that the two housing estates are not linked, to prevent ‘rat-running’. The existing pedestrian link between the two housing estates would be modified so that when enabled during the closure of Station Road, vehicles could also use this route. All vehicles that use this route will be less than 3.5 tons (excluding emergency services and refuse collection). This route would only be for the benefit of:

- Residents of properties on Station Road, Terling Road and Hatfield Road north of the A12 but south of the turn with Witham Road
- Residents of properties in the existing Pines Estate and other roads off Station Road to the north of the A12
- Residents of properties in the new Hatfield Grove Estate
- Carers supporting residents in properties identified above
- Emergency services
- Royal Mail
- Refuse collection providers

**Plate 5.10 Temporary through route**



- 5.9.27 A control system will be in place to ensure that only those identified above are able to use the route. Two vehicles (cars/vans) only from each of the properties above could be registered and able to use the route. If required, it may be possible to register further cars/vans for individual dwellings where there are more than two vehicles registered at that address. All other users and larger vehicles, including delivery providers, would be expected to use the signed diversion. This is to keep to a practical minimum the number of vehicles using the route, and therefore the nuisance to residents along it.
- 5.9.28 It is anticipated that an Automated Number Plate Recognition (ANPR) system supported by barriers across the road would be used to restrict the access. This would ensure that permitted vehicles could rapidly pass through the control point without causing delays or nuisance to nearby properties. Automated systems would also be less intrusive for nearby residents than manned control points.
- 5.9.29 A well-designed advance signage scheme will be necessary to deter unauthorised drivers from entering the restricted area. This may include vehicle activated signage linked to the ANPR system.
- 5.9.30 The control point will be located such that it causes minimum disruption practicable to residents, whilst also providing a suitable turn-around point for those drivers who have accidentally entered the restricted area.
- 5.9.31 The control point would also be linked to the TMCC via two-way audio and CCTV, where 24/7 manned response can be contacted, to either report any fault or answer a query from an unauthorised user who has approached the control point. Those non-residents who would be permitted access as detailed in paragraph 5.9.26 would be required to use the intercom system which would be provided at the ANPR barrier and which would be monitored 24/7.
- 5.9.32 A safe system of work will be in place with resources able to respond rapidly should any faults develop on the control system, to provide both a rapid manned operation in the interim and to ensure repairs can be made within fixed response times.
- 5.9.33 Parking restrictions are planned along the length of the route between Station Road and Bury Lane, to ensure that the additional traffic can pass through without undue hinderance. The PC will liaise with any affected residents to identify, where practicable, alternative nearby parking where their properties do not have sufficient off-road provision.

#### **Temporary foot and cycle crossing of the A12**

- 5.9.34 A temporary bridge crossing the A12 with associated temporary surfacing (Work No. T9) will be provided to create a temporary pedestrian and cycle route across the A12, linking Swan Close with Station Road. The temporary bridge would also be used to accommodate temporary utility diversions from Station Road Bridge. Approximate duration for the temporary bridge would be 1 year or once the temporary utility diversions are placed in permanent positions.



- 5.9.35 A surface will be provided that is suitable for pedestrian and cyclist use. Gradients and material selection will consider those with accessibility needs, including mobility scooters. Gritting will be carried out as appropriate when forecasts require, should works be carried out during the winter.
- 5.9.36 Low level lighting will be provided to provide for a safe route but without intruding on the adjacent property on Station Road. CCTV will be provided to discourage any anti-social behaviour but will not cover any of the neighbouring residential properties. This CCTV would be monitored 24/7 by the TMCC who will be able to request attendance from security personnel based within the car park and/or main compound.

### **Signed traffic diversion**

- 5.9.37 Due to the rural nature of the countryside to the north of Hatfield Peverel and restrictions at crossings of the railway line, there are limited options for alternative diversion routes.
- 5.9.38 The Applicant has considered other diversion routes. The route selected is viable as this avoids obstructions such as low height bridges on Terling Hall Road and Blunts Hall Road. The Applicant acknowledges that part of this diversion route is on Witham Road and Terling Road which is a protected lane. A diversion route which continued north on Terling Road and Hatfield Road was also considered however, this option was not considered viable as it was a longer diversion which would pass through the village of Terling.
- 5.9.39 The Applicant notes that users of the Station Car Park travelling from the north will be able to do so in the same way as they currently do. It is not expected that users of the Station Car Park travelling from the south (and therefore unable to cross Station Road when it is closed) would divert and use the signed diversion route to access the existing car park. This is due to the additional 6.5-mile journey. It is correct that delivery vehicles would generally be expected to use the signed diversion route. As set out in Table 5.1 the majority of residential vehicles would be expected to use the temporary vehicular, pedestrian and cyclist connection between the Hatfield Grove and Bury Farm Estates. Therefore, it is anticipated that only a small number of the vehicles currently using Station Road would need to use the signed diversion route whilst Station Road is closed.
- 5.9.40 The Applicant notes that part of the proposed diversion route is a Protected Lane. It is not considered that the diversion route would have a negative impact on the setting of the Protected Lane. Due to the Protected Lane status of Witham Road, the Applicant does not propose to widen the Protected Lane.
- 5.9.41 The Applicant would minimise impacts of the diversion routes by the use of suitable diversion signage. The signage would make it the diversion route clear for road users and allow them to follow the proposed diversion route. Pre and post condition surveys would be undertaken on the diversion route. A risk assessment would also be carried out on the proposed diversion route. If the risk assessment deemed a reduction in speed limits beneficial, a

temporary reduction in speed limits would be considered via a Temporary Traffic Regulation Order.

- 5.9.42 It is noted that the diversion route uses roads that are narrow in places, passes near to a school in Witham and uses roads that suffer from peak-time congestion in Witham.
- 5.9.43 Further details of the proposed diversion route can be found in Section 9.7 and a drawing of the route in Appendix A.
- 5.9.44 The diversion route is approximately 12 kilometres, and it is expected that it will take 14 to 22 minutes to travel, dependent upon the time of travel.

**Shuttle bus service**

- 5.9.45 A shuttle bus service will be provided to support those with accessibility needs and will run between the temporary car park and Hatfield Peverel train station. The shuttle service will run for the hours that the railway station is operational.
- 5.9.46 Vehicles used will have the necessary adaptations to support those with accessibility needs and drivers of the service will be appropriately trained in how to support the individual, as well as how to safely and securely transport any mobility aids that they have.
- 5.9.47 For those identified as vulnerable or of having particular accessibility needs (within the areas with restricted access due to the Station Road closure), the Public Liaison Manager would develop bespoke plans with those individuals to meet their particular need.

**Bury Lane closure**

- 5.9.48 Bury Lane is expected to be closed for approximately six months. This will restrict:
  - Access to properties in the new Bury Farm Estate
  - Access to properties in the new Mulberry Green Estate
  - Access to residential properties and farms off Bury Lane
- 5.9.49 A summary of the alternative routes provided for different users whilst Bury Lane Bridge is closed restricting access to/from The Street is shown in Table 5.2.

**Table 5.2 Summary of alternative provision whilst Bury Lane Bridge is closed**

User	Alternative provision	Notes
Pedestrian	Alternative route through Hatfield Grove Estate and then via Station Road.	No additional feasible alternatives were identified for inclusion in the proposed scheme.

## 7.7 Outline Construction Traffic Management Plan

User	Alternative provision	Notes
Cyclist	Alternative route through Hatfield Grove Estate and then via Station Road.	No additional feasible alternatives were identified for inclusion in the proposed scheme.
Residents and carers vehicles	Permitted use of the temporary route between Bury Lane and Hatfield Grove Estates.	All vehicles permitted as no identified alternative route.
Those with additional accessibility needs	Bespoke plans to be put in place where the need is identified.	
Non-residents vehicles	Permitted use of the temporary route between Bury Lane and Hatfield Grove Estates.	Vehicles that will require access to residential properties only, this will not be a through road.
Emergency services	Permitted use of the temporary route between Bury Lane and Hatfield Grove Estates.	To facilitate emergency access and maintain emergency response times.
Royal Mail and refuse collections	Permitted use of the temporary route between Bury Lane and Hatfield Grove Estates.	To support essential services for residents.

5.9.50 For the period that Bury Lane is closed, the following measures would be implemented.

#### **Temporary vehicular, pedestrian and cyclist connection between the Hatfield Grove and Bury Farm Estates**

5.9.51 A restricted use temporary vehicular, pedestrian and cycle route would be provided between the two estates. Planning considerations have required that the two housing estates are not linked to prevent 'rat-running'. The existing pedestrian link between the two housing estates would be modified so that when enabled during the closure of Station Road, vehicles could also use this route. This route would only be for the benefit of:

- Residents of properties on Bury Lane and farm businesses
- Residents of new Hatfield Grove, Bury Farm Estate and new Mulberry Green Estate
- Emergency services
- Royal Mail
- Refuse collection providers
- Businesses requiring access to the properties

5.9.52 Due to the cul-de-sac nature of this area when Bury Lane is closed, it is not anticipated that the 'rat-running' expected when Station Road is closed would occur. It is not therefore proposed to maintain the access controls. However, if during the course of the facilities to implement restrictions will be maintained if they prove necessary.

- 5.9.53 A well-designed advance signage scheme will be necessary to deter drivers from entering the area unintentionally.
- 5.9.54 Parking restrictions are planned along the length of the route between Station Road and Bury Lane, to ensure that the additional traffic can pass through without undue hinderance. The PC will liaise with any affected residents to identify, where practicable, alternative nearby parking where their properties do not have sufficient off-road provision.

**Additional facilities for those with further accessibility needs**

- 5.9.55 For those identified as vulnerable or of having particular accessibility needs (within the areas with restricted access due to the Station Road closure), the Public Liaison Manager will develop bespoke plans with those individuals to meet their particular need.

**Wellington Bridge closure**

- 5.9.56 A temporary two-way link road will be constructed between the new southern roundabout at junction 21 to junction 20b southbound off-slip. Wellington Bridge cannot be closed until this link road is sufficiently operational.
- 5.9.57 The link will provide for vehicular, including public transport, pedestrian and cycle routes between Hatfield Peverel and Witham. It will also provide a vehicular connection to the A12.

**Table 5.3 Summary of alternative provision whilst Wellington Bridge is closed**

User	Alternative provision	Notes
Pedestrian	All modes of transport currently using Wellington Bridge will be able to use the temporary link road.	Segregated provision from carriageway to be provided temporarily replacing existing footpath provision between Hatfield Peverel and Witham.
Cyclist		
Residents and carers vehicles		No direct restrictions on access to residential or business properties.
Those with additional accessibility needs		Bespoke plans to be put in place where the need is identified.
Public transport		Bus service routes may need amending slightly, but services can be maintained.
Emergency services		No restrictions on access to properties.
Royal Mail and refuse collections		Unrestricted access to all properties to maintain service levels.

**5.10 Parking Restrictions**

- 5.10.1 For certain activities such as deliveries or allowing free flow of diverted traffic on the LRN, there would be a requirement to enforce parking restrictions. The DCO contains powers that would be used by the Applicant, subject to the consent of the local highway authority, to enforce parking restrictions required for carrying out the proposed scheme. A list of potential affected roads are listed in Table 5.4.

**Table 5.4 Parking restrictions**

Road name	Approximate duration	Comments
Hatfield Peverel: Bury Lane, Friesen Way, Old Dairy Approach.	2 durations of approximately 6 months each.	Named roads that run through Bury Farm and Hatfield Grove to be used as a diversion route for residents during the replacement of Bury Lane Bridge and Station Road Bridge.
Hatfield Peverel: B1137 – The Street. junction 20b southbound off slip to roundabout with Maldon Road	9–12 months	Parking to be suspended on the B1137 to allow two-way free flowing traffic from Hatfield Peverel via the temporary link road to the proposed junction 21 during the replacement of Wellington Road Bridge. Parking restrictions to be enforced between 08:00–18:00.
Witham: B1389. junction 21 northbound off slip to junction with junction 21 petrol station.	Full proposed scheme duration	Parking to be suspended on the B1389 to allow two-way free flowing traffic to Borrow Pit E and junction 20b compound.
Witham: Pantile Close	Ad-hoc restrictions for 12 to 18 months	To enable plant movements, material and beam delivery whilst southbound widening works are ongoing.
Witham: Carraways from junction with Constance Close to open green space.	Ad-hoc restrictions for approximately 6 months	To enable deliveries of material for Brain Bridge works. Parking restrictions to be enforced between 08:00–18:00.

## 5.11 Proposed plant crossings

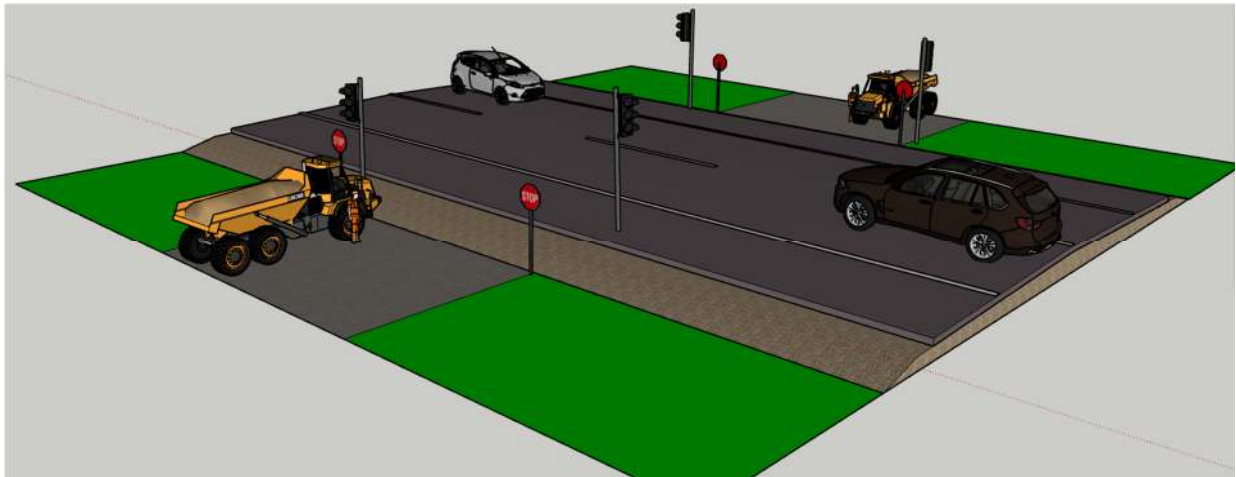
- 5.11.1 Plant crossings (see Plate 5.11) would be used where site haul routes cross the existing road or PRoW networks. These would be signalled, supervised crossings to ensure a safe separation between construction and public traffic. All plant crossings will have suitable lighting, signage, and traffic lights (where required).
- 5.11.2 For the construction of the above crossing points and access points there may be the need for temporary traffic lights or a weekend closure to enable their construction.

5.11.3 Where plant will cross the existing road network, suitable cleaning provisions will be in place. This may include wheel washes, road sweepers or jet washes, to ensure that the existing road network is kept clean of any debris from plant crossings.

5.11.4 Where plant crossings are at footpath locations, measures will need to be installed to ensure that good visibility exists and that plant movements can be stopped whilst the footpath is used.

5.11.45.11.5 Where reasonably practicable, priority would be given to members of the public on the local road network or public right of way at a plant crossing. For example, PC11 is for a haul road crossing the private road to Prested Hall and other residential properties. Priority would be given to users of Prested Hall and residential properties, where practicable. The Applicant will liaise with the freeholder of Prested Hall to mitigate any impacts on access during events such as weddings, as far as is reasonably practicable.

**Plate 5.11 Example image of a plant crossing**



5.11.55.11.6 Current proposed locations of plant crossing points can be found in 5.11.65-11.5 Proposed plant crossing locations

Plant Cross No.	Location
PC01	Haul road Borrow Pit F – proposed junction 21 crossing PRow 90, Footpath 29
PC02	Haul road Borrow Pit F east, crossing Howbridge Hall Road
PC03	Haul road crossing Maldon Road, south of Oliver’s Bridge.
PC04	Haul road crossing National Cycle Network Link Route 16, south of Benton Bridge
PC05	Haul road crossing Little Braxted Lane, south of junction 22 and north of the fisheries
PC06	Haul road crossing Braxted Road, on alignment of proposed A12 mainline

Plant Cross No.	Location
PC07	Haul road crossing Braxted Road, approximately 350m to the west of Highfields Bridge
PC08	Haul road crossing Highfields Lane, approximately 250m to the west of Highfields Bridge
PC09	Haul road crossing Ewell Hall Chase (PRoW 92, Footpath 25), south of the A12 mainline
PC10	Haul road crossing the B1023 (Inworth Road), south of the A12 mainline
PC11	Haul road crossing private road to Prested Hall and other residential properties, on alignment of proposed A12
PC12	Haul road crossing Easthorpe Road on alignment of proposed A12 mainline
PC13	Haul road crossing Easthorpe Green on alignment of proposed A12 mainline
PC14	Haul road crossing private road to Wishing Well Farm on alignment of proposed A12 mainline
PC15	Haul road crossing Hall Chase

## 5.12 Restrictions - Speed limits

- 5.12.1 Speed restrictions would be in place from when the works commence until full scheme completion. The speed limits would be installed in accordance with the Design Manual for Roads and Bridges (DMRB) GD 904 Highest Safest Speed guidance from National Highways (Highways England, 2020).
- 5.12.2 The speed restrictions for the proposed scheme would be designed to be no lower than would be required to maintain safety for both road workers and road users.
- 5.12.3 The proposed scheme would consider using Highest Safest Speed where practical to keep traffic flowing as freely as practical while maintaining the safety of construction workers and public road users. This is to align with National Highways' ambitions to continue improving the customer journey experience when travelling on the SRN. The speed limits for the proposed scheme will be defined in the Construction Traffic Management Plan, which will supersede this document for the construction phase.
- 5.12.4 In agreeing speed limits to be imposed, advice will be sought from relevant stakeholders, including Essex Police. Consideration will also be given to the available lane widths, particularly early in the construction phase where the carriageway cross-section restricts temporary lane widths.
- 5.12.5 To ensure the safety of all road users, where the widths of traffic lanes on the A12 mainline are reduced, the speed limit would also be reduced. Average speed cameras would be set up in areas where the speed limit is reduced on the A12 mainline. A TTRO would be applied for by the PC to reduce the

speed limit, thus making the reduced speed limit enforceable. Road users who break the speed limit will be identified by the average speed cameras, Essex Police would determine if an offence has been committed.

- 5.12.6 Speed enforcement may also be applied to local roads subject to consultation with the local highway authority and Essex Police, where deemed appropriate.

## 5.13 Restrictions - Closures

- 5.13.1 During the construction phase, the PC would be applying for TTROs through National Highways and local authorities to put closures on the A12 and the LRN. These typically include reduced speed limits, adoption of traffic light controls, temporary suspension to footpaths, rights of ways and bridleways, and temporary road closures.
- 5.13.2 Lane closures in place would provisionally be from 20:00 to 06:00 (traffic count dependant).
- 5.13.3 Total or directional closures would provisionally be from 21:00 to 06:00 (traffic count dependant).
- 5.13.4 Weekend total closures would generally be targeted at a specific operation that cannot otherwise be achieved during a weekday night closure. These require significant advance planning and durations would vary to reflect the work being undertaken.
- 5.13.5 Full carriageway blockade closures would be considered as part of the traffic management planning. Blockades enable the proposed scheme to programme construction activities more efficiently and productively. This allows more works to be undertaken on days and reduces the total number of off-peak hours and weekend road closures required.



## 5.14 Lane widths

- 5.14.1 Due to the limited working space on the existing A12 mainline, lane widths would be reduced to create working room for construction activities under narrow lane running. Traffic may be pushed towards the verge, the central reserve or be in contraflow.
- 5.14.2 During peak traffic hours two lanes of traffic will be maintained in both directions, this would be reduced during off-peak traffic hours for construction activities where it would not be safe to maintain two lanes of traffic in each direction. Traffic would be segregated by a temporary concrete barrier, where required.
- 5.14.3 When traffic is in narrow lane running or contraflow, the proposed scheme will endeavour to maintain lanes of 3.25m for lane 1 and 3m for lane 2. However, this is subject to site constraints such as narrow points at existing structures. Where it is not possible to maintain these lane widths, a risk assessment will be undertaken by the traffic management team. Areas where it would not be practicable to maintain these lane widths would be through Hatfield Peveler and the Witham Bypass, for example.

## 5.15 Incident management

- 5.15.1 CCTV cameras would be installed throughout proposed scheme with 24/7 monitoring of the network. The Traffic Management Control Centre (TMCC) would be responsible for identifying broken-down vehicles within the works.
- 5.15.2 A free recovery service would be provided throughout the proposed scheme on the SRN. Bases and recovery vehicles would be strategically placed to achieve National Highways Collaborative Performance Framework (CPF) scores with regards to removing a vehicle from a live lane on the road network. The recovery vehicles' operations would be controlled by the TMCC who would deploy the nearest recovery vehicle to the broken-down vehicle and take it to a safe place of refuge within the proposed scheme.
- 5.15.3 The data on timings, direction of travel and marker post number of the broken-down vehicle would be stored on a database, along with the fault, Police attendance times, log number and an update as the scene changes.
- 5.15.4 The proposed scheme has considered five traffic management bases; please see Table 5.5 and Plate 5.12 - Plate 5.17 (inclusive) for further details.

**Table 5.5 Proposed scheme Recovery Bases**

Proposed scheme Recovery Bases		
Recovery Base	Location	Coverage
Base 1	Boreham – satellite compound (off B1137)	Northbound/southbound (NB/SB) J18–J21
Base 2	Witham – off Gershwin Boulevard	NB/SB J19–J22
Base 3	Junction 22 north, main compound	NB/SB J21–J24
Base 4	Junction 24 Easthorpe offline site compound	NB/SB J22–J25NB
Base 5	A12 southbound layby (J26 approach)	NB/SB J25–J26

**Plate 5.12 Recovery Bases location plan**

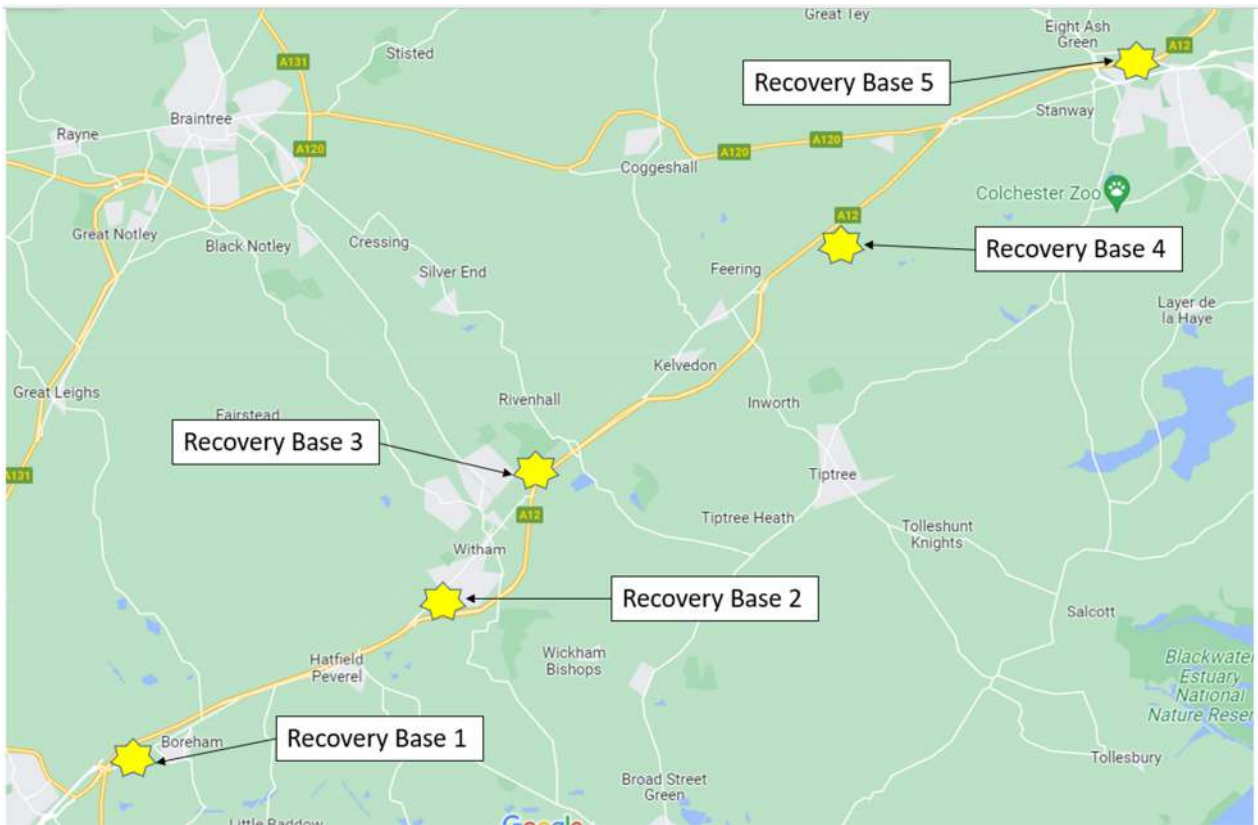


Plate 5.13 Recovery Base 1

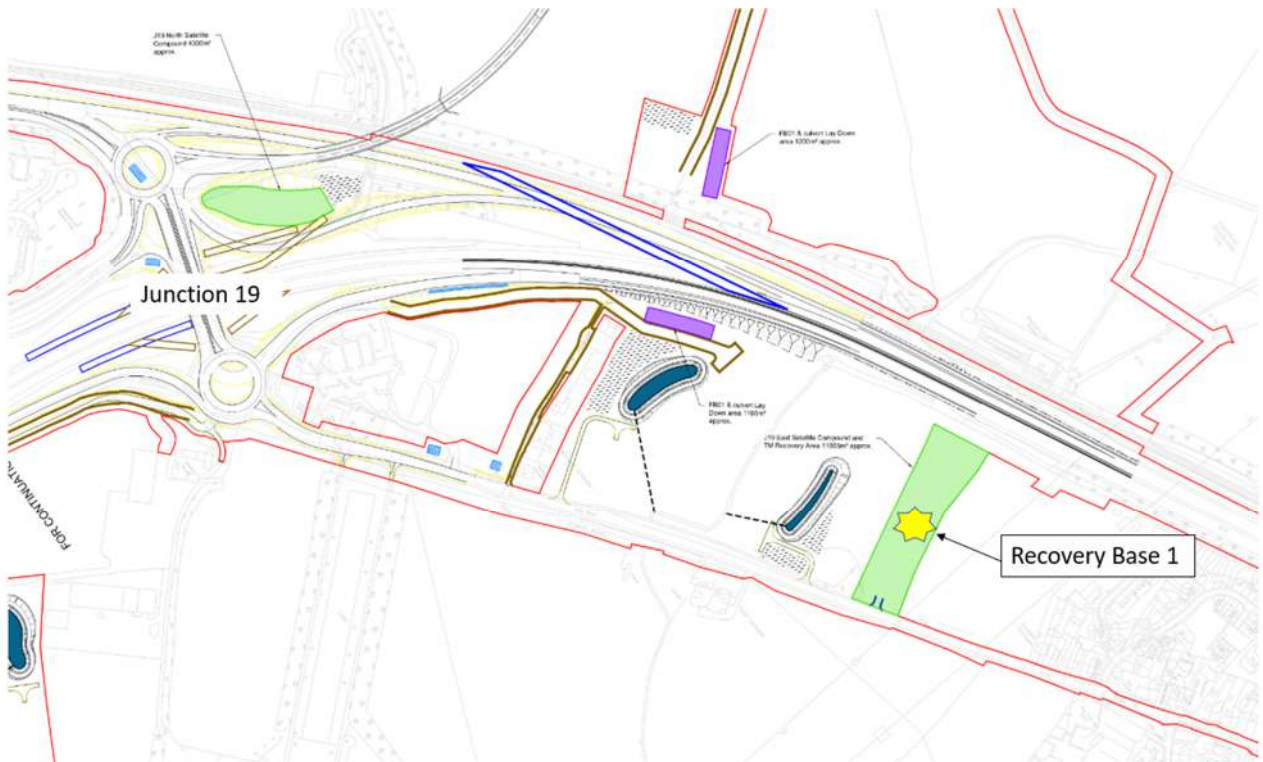
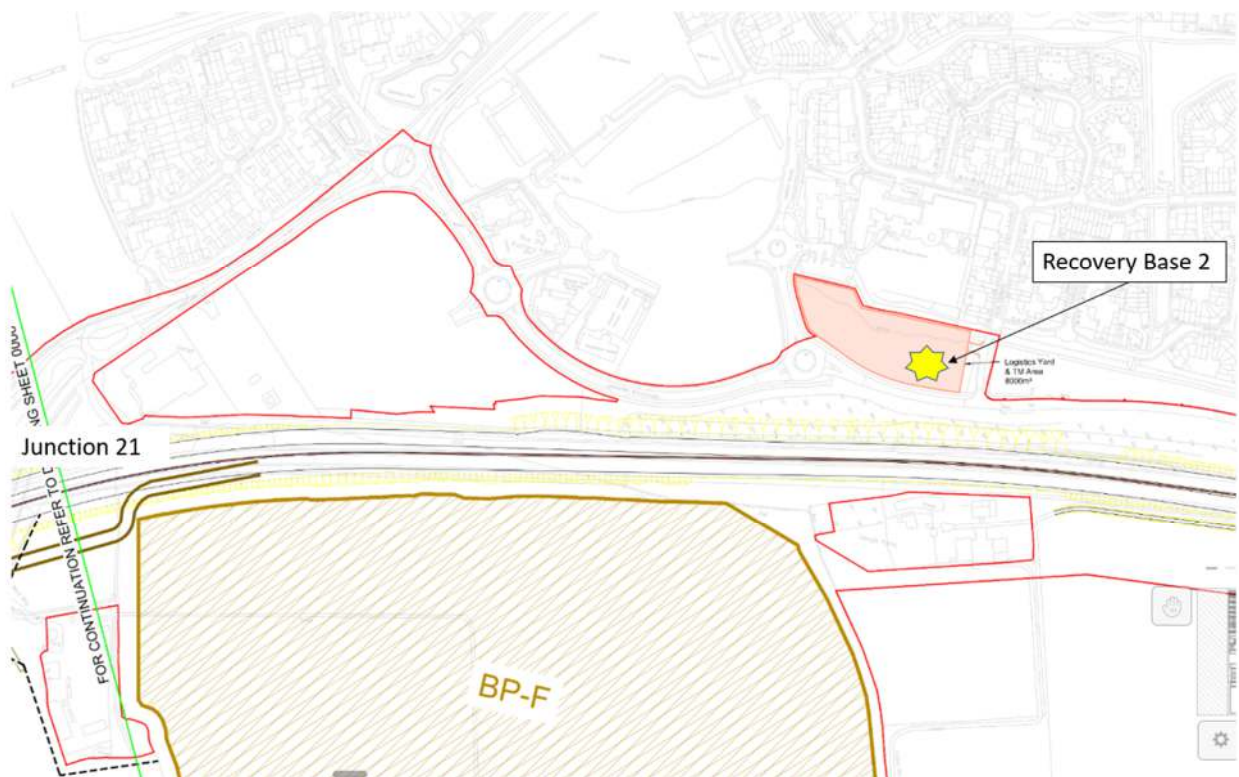
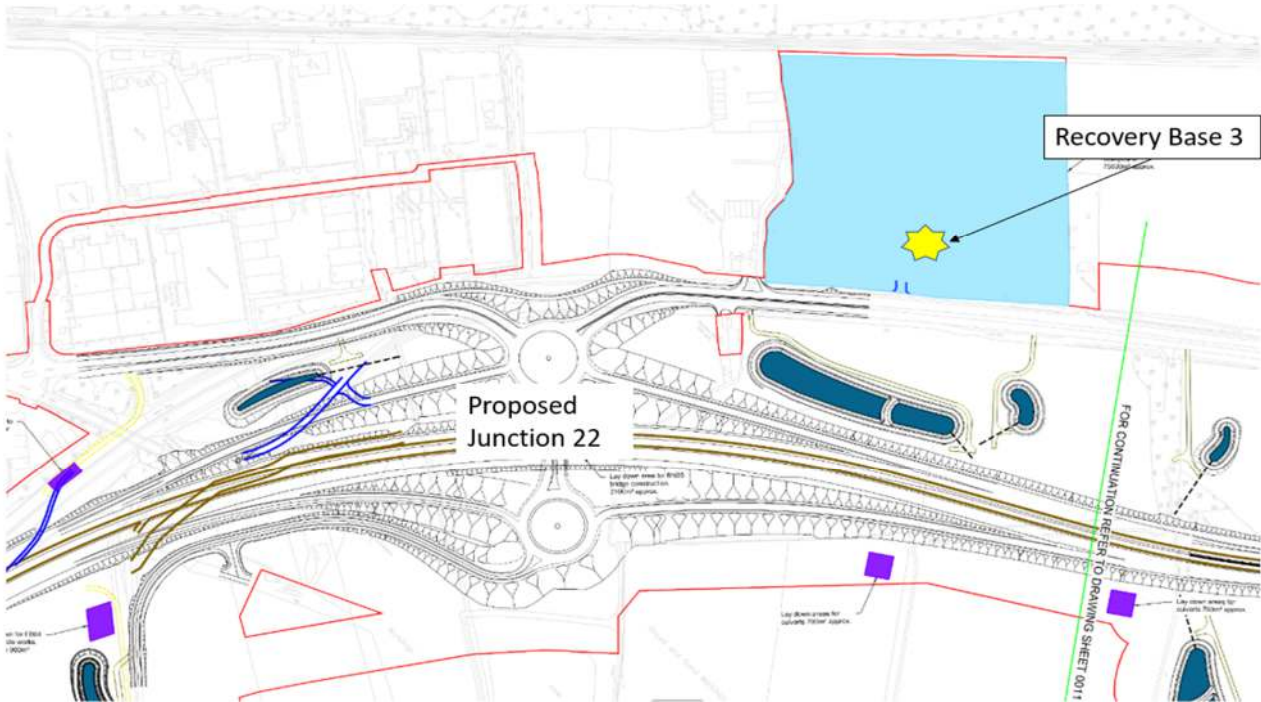


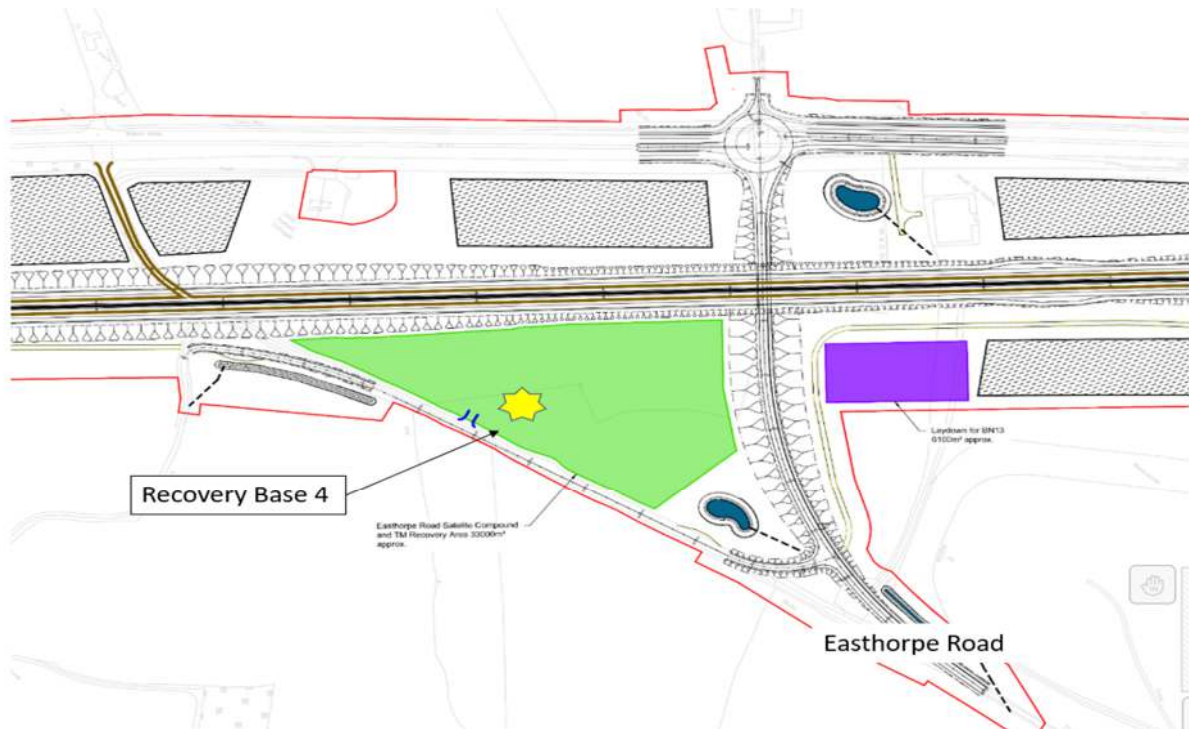
Plate 5.14 Recovery Base 2



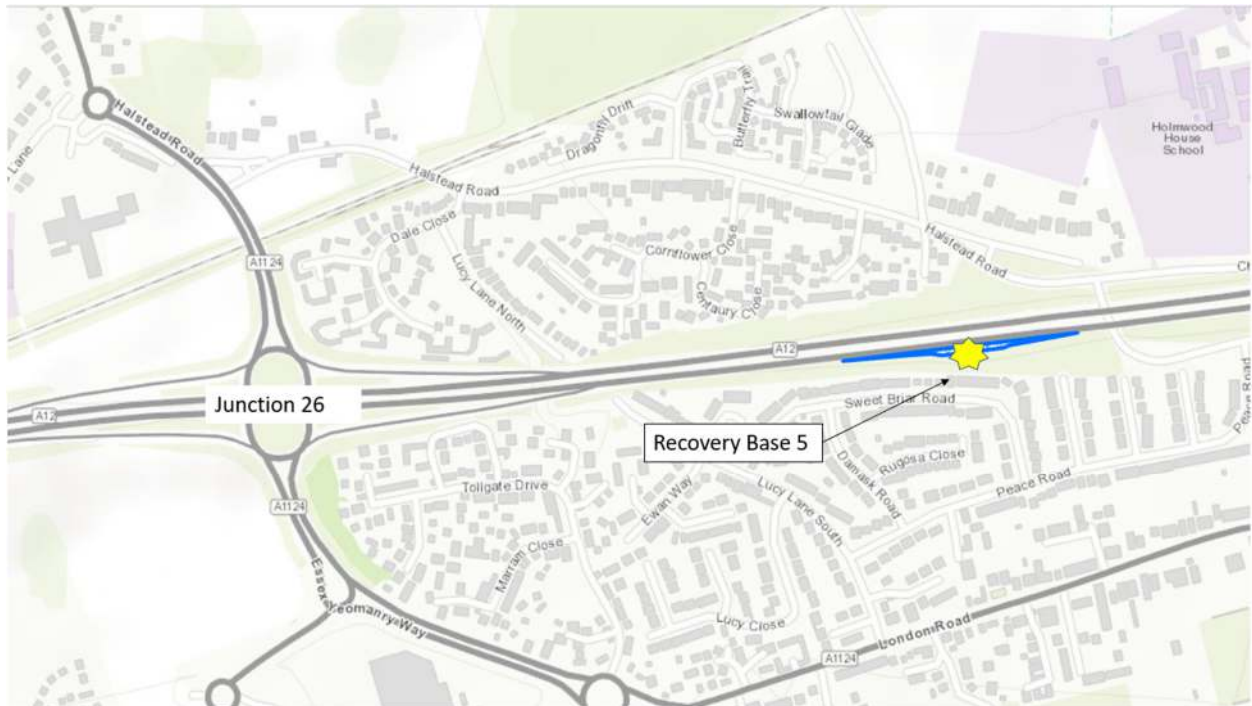
**Plate 5.15 Recovery Base 3**



**Plate 5.16 Recovery Base 4**



### Plate 5.17 Recovery Base 5



## 5.16 Incursion management

- 5.16.1 Incursion risk management would commence from the very first stages of design. The traffic management would be designed in accordance with the relevant legislation. This includes the Traffic Signs Manual (TSM) (Department for Transport, 2018, the Construction Design and Management Regulations 2015 (CDM) and the DMRB and would also consider driver behaviour, fatigue, carriageway alignment, and works access and egress locations.
- 5.16.2 Incursions within the traffic management would be captured and monitored throughout the works and data would be analysed to identify key trends. In line with National Highways' commitment, the proposed scheme is seeking to reduce all types of incursions on the network.
- 5.16.3 Clear signage providing information for traffic management will be displayed to members of the public to mitigate the risk of an incursion.
- 5.16.4 The proposed scheme would have a proactive approach to incursion management where incursions are discussed in the Incident Management Forum.
- 5.16.5 Where full closures are used, a safe system of work would be adopted to ensure workforce safety and to prevent errant vehicles from entering the works. This would be achieved at gate-points via an airlock system and an incursion warning system.

## 5.17 Driver compliance

- 5.17.1 Driver compliance would be discussed with Essex Police and other required traffic enforcement agencies to agree procedures for enforcement where necessary.
- 5.17.2 Operationally, the project team would monitor compliance and review layouts, lane widths signage and speed limits as necessary to improve driver compliance.

## 5.18 Human factors

- 5.18.1 A customer is defined as anyone National Highways interacts with throughout the life cycle of the proposed scheme and is any person or organisation that uses or is affected by the SRN. This could include (but is not limited to) the following customer groups:
- Road users
  - Communities and community groups
  - Network reliant businesses
  - Emergency services
  - Communities and pressure groups
  - Tenants and persons and organisations that lease from National Highways
  - The public who uses the SRN
- 5.18.2 In the preparation of the Construction Traffic Management Plan during detailed design, prior to implementation, the design approach would be used to review proposals to ensure that the needs of all customer groups are identified and addressed in the Construction Traffic Management Plan where practicable. This behavioural approach is also aligned to the Health and Safety Executive best practice guidance (n.d.) and therefore also considers the needs of the workforce in terms of safety and wellbeing from a human factor perspective.

## 5.19 Abnormal indivisible loads

- 5.19.1 It is anticipated that abnormal indivisible loads (AILs) would access the proposed scheme via the A12 mainline northbound or southbound.

### Responsibilities

- 5.19.2 The requirements outlined below would be the responsibility of the haulage companies during the delivery of AIL components:
- Abnormal load drivers, and their convoy, would avoid residential areas where practical.
  - Abnormal load deliveries would only take place during the hours agreed with both the police and local highway authorities.

- Where practical, peak traffic hours would be avoided when planning the timing of deliveries both to and from the proposed scheme.
  - To ensure the safe and effective coordination of the work, written notification of the commencement of the delivery periods would be given to the police and local highway authority within an agreed timescale to be agreed with the respective parties.
  - Additional temporary warning signs may be provided on the delivery route for AILs in accordance with the requirements of the highway authority.
- 5.19.3 Any modifications, temporary or permanent, to the highway network must be agreed with the local highway authority and National Highways prior to the delivery of AILs and regular updates would be provided as the delivery timetable is finalised with the supplier.
- 5.19.4 At the time of writing, the size and number of AILs for the proposed scheme is not known. Further assessment would need to be undertaken, to determine any temporary mitigations required, in addition to the agreement of traffic management and coordination of deliveries with National Highways and local authorities.

### **Existing AIL bays**

- 5.19.5 There is an existing AIL bay located on the A12 mainline southbound carriageway between junction 27 and junction 26. The PC will temporarily use this AIL bay as part of the DCO during the construction phase of the proposed scheme. The AIL Bay will be used as a waiting area for recovery vehicles for the free recovery service provided by the proposed scheme. Further discussion will be required with Essex Police to discuss the impacts of temporarily removing the use of this AIL bay. Other locations may need to be used such as the AIL bay at the Copdock interchange.

### **AILs travelling through the proposed scheme**

- 5.19.6 The A12 mainline is a key trunk road and therefore AILs use this as part of a planning route. Where possible narrow lane widths will be designed to ensure that AILs can travel through the proposed scheme during peak traffic hours. During off peak traffic hours it may not be possible for AILs to travel via the proposed scheme, for example a lane closure may be in place. In this event the PC would communicate with stakeholders to notify them of travel restrictions to AILs. AILs may be required to hold at an existing AIL bay until the lane or road closure has been removed or plan an alternative route avoiding the proposed scheme. All relevant parties will be kept informed of the proposed scheme's programme and works will be planned to mitigate impacts to AILs where practical.

## **5.20 Construction logistics**

- 5.20.1 A Logistics Management Plan (or similar) would be prepared and implemented to manage the transport to/from and onsite of employees and materials required for the construction of the proposed scheme. The

Logistics Management Plan (or similar) would set out measures where practicable, to reduce distances travelled, optimise journeys and use low emission modes of transport (such as public transport) or vehicles (e.g., electric vehicles) to reduce greenhouse gas (GHG) emissions associated with transport.

- 5.20.2 The Logistics Management Plan would set out measures with the aim to achieve 20% car share and 20% travel by public transport (with the use of minibuses from local railway stations to the construction sites) for employee transport. Further information can be found in the Transport Assessment [TR010060/APP/7.2].



## 6 Construction programme and work hours

### 6.1 Construction programme

- 6.1.1 To achieve the planned programme, construction works would be undertaken concurrently in several work locations across the proposed scheme from the start-on-site date.
- 6.1.2 The programme of works would be coordinated to allow optimum use of full road closures where required, which would minimise the overall number of full closures and help maintain operational efficiency on the road network. Full closures would be coordinated with local highway authorities (Essex Highways), National Highways and emergency services, and communicated via stakeholder and community engagement methods. Due to the nature of construction, full closures would be required to facilitate certain activities, such as bridge demolitions, bridge deck installations or tie-ins of the new alignment to the existing A12.

### 6.2 Construction working hours

- 6.2.1 The PC would adhere to standard working hours as far as is reasonably practicable, except in the case of emergency or in respect of exceptions as set out below and within Appendix K: Noise and Vibration Management Plan of the first iteration EMP [TR010060/APP/6.5].
- 6.2.2 Standard working hours are between 07:30 and 19:00 between Monday and Friday, and between 07:30 and 18:00 on Saturday. During the summer months, the working hours would extend to 07:00 to 21:00 to make use of the longer daylight hours.
- 6.2.3 In addition, there would be an hour before and after these times for site set up and close down. This would include activities such as deliveries, movements to place of work, unloading, general preparation works, maintenance and safety checking of plant and machinery, and site clean-up, but would not involve operation of plant or machinery for construction works. These periods would not be considered an extension of standard working hours.
- 6.2.4 Work undertaken outside standard hours, as well as on Bank Holidays, is considered off-peak working. There are certain exceptions where night-time, Bank Holiday, or weekend working would be required; these are described below.

#### **Night working hours**

- 19:00–07:30 Monday to Friday
- 18:00–07:00 on Saturday

#### **Sunday and Bank Holiday working hours**

- 07:00–21:00 Sunday and Bank Holidays
- 21:00–07:00 Sunday and Bank Holidays

- 6.2.5 Activities requiring traffic management in place on the carriageway can only be carried out during off-peak working times (for example, restricting the A12 to single lane running). Night-time, weekend, or Bank Holiday working hours would be required for the following activities:
- Installation, maintenance, modification, and removal of traffic management measures
  - Temporary and permanent widening of verges
  - Online pavement construction which would require a hardening of the central reserve or verges to enable traffic to run in a narrow lane/contraflow arrangement during the day
  - Upgrading the existing carriageway
  - Carriageway and junction slip road tie-ins
  - Emergency and planned carriageway maintenance and repair works
  - Demolition of existing structures
  - Construction of new structures and roadside technology (e.g., gantries)
  - Piling
  - Utility diversions
  - Any oversize deliveries
  - Drainage works
  - Technology commissioning
  - Any activity interfacing with the GEML
- 6.2.6 Additionally, night-time, weekend, or Bank Holiday working hours would be required for the following activities:
- Security
  - Maintenance of plant and equipment requiring 24/7 operation such as pumps
- 6.2.7 The two main compounds (including the concrete and asphalt batching plants) and satellite compounds would be in 24/7 operation at certain stages of the construction programme to facilitate off-peak working.
- Aggregate processing facilities, which would be included in borrow pit areas and may include crushing, grading, and washing of aggregates, would only be operational during standard working hours.

## **6.3 Peak and off-peak traffic hours**

- 6.3.1 Peak traffic hours would be between the hours of 06:00–21:00. Off-peak traffic hours are between the hours of 21:00–06:00. It is noted that installing temporary traffic management such as lane closures and full carriageway closures on the SRN during off-peak hours and weekends, would only be undertaken once traffic numbers deem it safe to do so. Certain construction activities would require temporary traffic management on the SRN during off-peak working. Lane and full carriageway closures would only be undertaken on the SRN during weekday peak hours in an emergency. The proposed scheme would keep two running lanes of traffic during weekday peak hours on the A12 mainline, unless in an emergency.

## 7 Permitted and excluded routes for construction vehicles

- 7.1.1 Measures would be put in place to ensure the workforce; construction vehicles and equipment can access required locations onsite whilst minimising the impact on the LRN. Purpose built haul roads and temporary access points would be constructed to achieve this.
- 7.1.2 Construction traffic would not be permitted to use certain side roads for the duration of the proposed scheme. This is to mitigate the impact of the construction works on communities adjacent to the proposed scheme. These routes will be identified as excluded routes.
- 7.1.3 Where feasible, access into work areas would be from the mainline A12 via temporary access points and the existing junctions. Where this is not practical, the use of the LRN would be required to access these areas. To mitigate the use of side roads, a permitted and excluded routes plan has been produced (see Appendix B).
- 7.1.4 The routes shown in Appendix B have been selected to minimise disruption to local stakeholders and residential areas, where practical. In some instances, routes within close proximity to residential areas would still have to be used, for reasons such as avoiding weak bridges that constrain alternative routes to the works area. Permitted, permitted with restrictions, and excluded routes would be briefed to all project staff and the supply chain.
- 7.1.5 The definitions of these routes are as follows:
- Permitted route – LRNs and accesses that construction traffic is permitted to use at any time
  - Permitted with restrictions route – LRNs and accesses that construction traffic is permitted to use for specific activities only
  - Excluded route – LRNs and accesses that construction traffic is not permitted to use, excluding vehicles associated with traffic management

## 8 Public Rights of Way, footways and cycleways

- 8.1.1 Within the proposed scheme footprint, there are existing PRowS (footpaths and bridleways), footways and cycleways. The proposed scheme would endeavour to maintain these routes that are affected by it, where reasonably practicable. Where these cannot be maintained, whilst ensuring the safety of the workforce and members of the public, suitable signed diversions would be put in place, or if an alternative is not practical the PRow, footway or cycleway would be temporarily suspended. Reasonable adjustments would also be made to maintain or achieve inclusive access for all users.
- 8.1.2 Where reasonably practicable, inclusive access (including for people with reduced mobility) would be maintained to services and buildings where they have been temporarily disrupted during the works. Where a need is identified (for example, through stakeholder engagement with relevant local organisations or community liaison processes), the proposed scheme would review access and routes. These reviews would indicate where additional measures or reasonable adjustments may be required for the purpose of ensuring accessibility by people with disabilities or mobility-impairments.
- 8.1.3 Table 8.1 and the Construction Phase Plans [TR10060/APP/2.15] detail the proposed diversion routes or suspensions of PRowS, footways, and cycleways that have been identified within the proposed scheme alignment. This table would be updated as the proposed scheme progresses.
- 8.1.4 The following measures would be implemented on PRow, footway and cycleway routes that would be affected by construction activities:
- Segregation of users from the works – in locations where construction works are close to PRowS, footways, and cycleways, works areas would be fenced off to segregate the site works from users.
  - Diversion of users onto new temporary routes – temporary diversion routes would be provided where practical and feasible, with users diverted around construction works via an adjacent PRow, footway, or cycleway, or locally around the perimeter of the fenced works site, with appropriate signage erected.
  - Suspension of routes – where a suitable diversion cannot be provided, temporary suspension and appropriate signage would be erected at the extent of the PRow, footway, and cycleway route suspension to ensure that the public are informed. Communications to the wider public would be made via the proposed scheme's website and social media, and newsletters would also be issued to registered users.
  - Use of temporary marshals – subject to a risk assessment, the use of marshals may be required in areas where there is an interface between the public, third parties and construction activities.

- 8.1.5 PRow 121, Footpath 101 is used as access into the Whetmead Nature Reserve. The Whetmead Nature Reserve is a Local Nature Reserve in Witham, Essex. Access to the nature reserve is from Blackwater Lane and under the River Brain Bridge. As part of the proposed scheme, the River Brain Bridge which carries the A12 mainline over the river needs to be widened to accommodate the additional lanes of traffic. During construction of the bridge widening, access into the nature reserve would be restricted for certain construction activities. The construction works will be programmed to ensure that restricting access and egress from the nature reserve via Blackwater Lane is minimised, however closure periods would be for approximately three months at a time, up to approximately twelve months. Affected stakeholders and users of the Whetmead Nature Reserve will be notified of the planned works: please refer to Section 3 for details on notifications.

**Table 8.1 PRowS and WCH temporary diversion/closure schedule**

Junction 19	
Footpath/footway diversions	Notes
PRow 234 (Footpath 17)	Temporary minor diversion around drainage works for approximately 3 – 9 months.
PRow 234 (Footpath 18)	Temporary minor diversion around drainage works for approximately 3 – 9 months.
Boreham interchange	Temporary suspension of different footways at separate times – pedestrians to be diverted onto opposite/adjacent footpaths for proposed scheme duration.
Bridleway diversions	
PRow 213 (Bridleway 45)	Temporarily suspended for proposed scheme duration.. Access to properties to be maintained.
PRow 213 (Bridleway 23)	Temporarily suspended for proposed scheme duration.
Junction 19 – River Ter Bridge	
Footpath/footway diversions	Notes
PRow 213 (Footpath 25)	Temporarily suspended for proposed scheme duration.
Footway on northbound verge of The Street (River Ter to Terling Haul Road)	Temporarily suspended for approximately 3 – 9 months to allow for construction works closing existing junction 20a southbound on slip road
PRow 90 (Footpath 34)	Temporarily suspended for hydro demolition/construction of parapets of River Ter bridge for approximately 3 – 9 months

## 7.7 Outline Construction Traffic Management Plan

River Ter Bridge – Hatfield Peverel	
Footpath/footway diversions	Notes
Bury Lane Bridge	Temporarily suspended for demolition and construction of new bridge – diversion around Arla estate and over Station Road onto The Street for approximately 6 – 9 months.
Station Road Bridge	Temporarily suspended for demolition and construction of new bridge. Diversion via temporary footbridge which would run parallel with Station Road Bridge for approximately 6 – 9 months..
Wellington Bridge	Temporarily suspended for demolition and replacement with new bridge for approximately 9 – 12 months.  Diversion to Hatfield Peverel – alternative footpath would be via temporary car park, haul road to the south of the rail and around to Station Road to the west.  Diversion to Witham – along temporary link road to the south of the A12 and along the new junction 21.
New junction 21	
Footpath/footway diversions	Notes
PRoW 90 (Footpath 2)	Section of footpath to be temporarily realigned (approximately 215m) for proposed scheme duration.
Footway on northbound verge of A12 (Hatfield Peverel to Witham)	Temporarily suspended – footway to be diverted north past The Vineyards along proposed temporary access road to junction 21 for proposed scheme duration.
Footway on southbound verge of A12 (Hatfield Peverel to Witham)	Temporarily suspended – footway to be diverted north past The Vineyards along proposed temporary access road to junction 21 for proposed scheme duration.
PRoW 90 (Footpath 40)	Temporarily suspended – diversion to the west following Order Limits for proposed scheme duration.
Witham Bypass	
Footpath/footway diversions	Notes
PRoW 90 (Footpath 29)	To remain open with a managed crossing point for proposed scheme duration.

## 7.7 Outline Construction Traffic Management Plan

PRoW 121 (Footpath 95) – north	Temporarily suspended at the Order Limits for proposed scheme duration.
PRoW 121 (Footpath 95) – south	Temporarily suspended at the Order Limits for proposed scheme duration.
Oliver's Bridge	Maldon Road footway under Oliver's Bridge, to maintain one footway where possible for approximately 9 – 15 months.
Benton Bridge (National Cycle Network Link Route 16)	Temporarily suspended National Cycle Network Link Route 16 with diversion being between Blue Mills Hill, Maldon Road, and Templar Knights asphalt walkthrough for approximately 9 – 12 months.
PRoW 121 (Footpaths 101 [south] and 102)	Temporarily suspended at the Order Limits for proposed scheme duration
Brain Bridge – PRoW 121 (Footpath 101) north	Temporarily suspended on footpath underneath the bridge for construction activities for approximately 12 months in total with suspensions around 3 months at a time.
New junction 22	
Footpath/footway Diversions	Notes
Footway on A12 northbound verge	Witham – Rivenhall north verge footway diversion to follow Order Limits for proposed scheme duration.
Footway on northbound verge (at location of Rivenhall End West Roundabout on existing A12)	Footpath to be diverted around works area for approximately 9 – 12 months.
New junction 22 to junction 23	
Footpath/footway Diversions	Notes
PRoW 105 (Footpath 45) – for Borrow Pit I	Diverted along order limits to the west for proposed scheme duration.
PRoW 105 (Footpath 36)	Temporarily suspended at the Order Limits for proposed scheme duration.
PRoW 92 (Footpath 32)	Access to be maintained for proposed scheme duration.
PRoW 92 (Footpath 27)	Access to be maintained for proposed scheme duration.
Footway on northbound verge (between Ch.4800 – Ch.26200)	To be maintained during construction for proposed scheme duration.
Footway on southbound verge (between Ch.24800 – Ch.25900)	To be maintained during construction for proposed scheme duration.



## 7.7 Outline Construction Traffic Management Plan

Cranes Bridge	One footpath to remain open under the bridge where practical for approximately 12 – 18 months.
Kelvedon Bypass	
Footpath/footway Diversions	Notes
PRoW 92 (Footpath 26)	Temporary diversion to the east along Order Limits and onto Highfields Lane for proposed scheme duration.
PRoW 246 (Footpath 2)	Temporary diversion to the east along Order Limits and onto PRoW 92 (Footpath 26) and then Highfields Lane for proposed scheme duration.
PRoW 92 (Footpath 15)	Temporary diversion around Order Limits for proposed scheme duration.
PRoW 92 (Footpath 25)	Remain open; route will be maintained for agricultural vehicles with existing rights to use it throughout construction for proposed scheme duration.
PRoW 92 (Footpaths 20 and 41), PRoW 145 (Footpaths 7 and 18)	PRoW 92, Footpath 20 closed at Order Limits and all others inaccessible. Temporary diversion along existing PRoW 145, Footpaths 17 and 16 heading west onto PRoW 92, Footpath 25 for proposed scheme duration.
Ewell Bridge	Remain open, interface managed until diverted onto new structure for approximately 9 – 15 months.
PRoW 78 (Footpath 18) – Threshelfords Bridge	Temporarily suspended at the Order Limits for proposed scheme duration.
Footway on northbound verge (proposed Feering East Roundabout)	Diversion around works area during construction works for approximately 9 – 12 months.
Junction 24 to junction 25	
Footpath/footway diversions	Notes
PRoW 78 (Footpath 15)	Temporarily suspended at the Order Limits for proposed scheme duration.
PRoW 78 (Footpath 12)	Footpath to be diverted around works area, access to be maintained, where reasonably practicable for proposed scheme duration.
PRoW 128 (Footpath 23) – Easthorpe Road	Access to be maintained onto Easthorpe Road, where reasonably practicable for proposed scheme duration.

7.7 Outline Construction Traffic Management Plan

Footway on northbound verge (proposed Easthorpe Road Roundabout)	Diversion around works area during construction works for roundabout for approximately 9 – 12 months.
PRoW 128 (Footpath 22)	Access to be maintained, where reasonably practicable for proposed scheme duration.
Footway on northbound verge (proposed Wishing Well Farm Roundabout)	Diversion around works area during construction works for roundabout for approximately 9 – 12 months.
PRoW 128 (Footpath 19)	Temporarily suspended for proposed scheme duration.
PRoW 144 (Footpath 19)	Temporarily suspended for proposed scheme duration.
PRoW 144 (Footpath 17)	Access to be maintained, where reasonably practicable for proposed scheme duration.
Junction 25	
Footpath/footway diversions	Notes
London Road	Access to be maintained, where reasonably practicable for proposed scheme duration.
London Road (southbound on slip road)	Access to be maintained, where reasonably practicable for proposed scheme duration.
Marks Tey Footbridge	Diversion across A120 bridge during demolition and construction of new footbridge for approximately 12 – 18 months.

## 9 Traffic management proposals

### 9.1 Introduction

- 9.1.1 This chapter details the high-level temporary traffic management arrangements for the proposed scheme.
- 9.1.2 The current traffic management proposals are based on current design information and may be subject to change as the design develops.

### 9.2 Junction 19

- 9.2.1 The works at junction 19 (Plate 9.1) entails several construction requirements including: symmetrical widening of Boreham Bridge, a new slip road, widening of existing slip-roads, modification of the existing roundabout layouts and the construction of Payne's Lane Bridge over the A12 and GEMIL railway. The construction works around junction 19 would also include gantries, culverts and retaining structures.
- 9.2.2 The construction activities in this area have been programmed and sequenced to ensure effective traffic management can be implemented to minimise the impact of construction traffic on the LRN. Where practical, access roads will be constructed adjacent to the A12 mainline to facilitate access to Boreham Bridge (Work Nos. T2, T3 and T4). The overall construction high-level phasing at junction 19 is as follows:
- Construct the northside of Boreham Bridge
  - Southbound entry and northbound entry slip roads
  - Northern dumbbell works
  - Construction of the southside of Boreham Bridge
  - Capping, drainage and surfacing of southbound entry and northbound entry slip roads
  - Boreham Brook retaining wall
  - Construction of Payne's Lane Bridge
  - Southern dumbbell works
  - Southbound off-slip works and retaining wall
  - Capping, drainage and surfacing of southbound off-slip works
- 9.2.3 Some construction activities will require a directional closure or total closure of Boreham Bridge.

## 7.7 Outline Construction Traffic Management Plan

9.2.4 For traffic travelling northbound on the A12 mainline requiring to use Boreham Bridge to travel to Boreham and surrounding areas, the proposed diversion route would be as follows:

- Traffic to continue to travel north and egress the A12 mainline via the junction 21 northbound off-slip
- Traffic to re-join the A12 mainline via the junction 21 southbound on-slip
- Traffic to egress the A12 mainline via the junction 19 southbound off-slip

9.2.5 For traffic travelling southbound on the A12 mainline requiring to use Boreham Bridge to travel to Chelmsford and surrounding areas, the proposed diversion route would be as follows:

- Traffic to continue to travel south and egress the A12 mainline via the junction 18 southbound off-slip
- Traffic to re-join the A12 mainline via the junction 18 northbound on-slip
- Traffic to egress the A12 mainline via the junction 19 northbound off-slip

9.2.6 To maintain pedestrian and cyclist provision during the works, as a minimum a single footway route will be maintained over Boreham Bridge for the duration of the works, though this route will need to vary as construction works progress. If space and/or construction constraints dictate that this is not practical then alternative transport across the bridge will be provided, such as a minibus shuttle service. Typically, two (narrow) lanes will be maintained in each direction on the A138 over the bridge, except at off-peak times when directional closures or total closures of the bridge will be required. In these cases, a signed diversion route would be in place once agreed with the local authority.

**Plate 9.1 Boreham Bridge and Payne's Lane Bridge**



### **9.3 Resurfacing of southbound carriageway of existing A12 mainline (Ch.11+525 to 15+375)**

- 9.3.1 A surface with a road surface index (RSI) of -6.5dB(A) or better would be laid on the southbound carriageway at the following location: Ch.11525 to Ch.15375. Due to the nature of the work, a southbound carriageway closure would be required to undertake the resurfacing of the carriageway.

### **9.4 B1137 Main Road**

- 9.4.1 The proposed scheme highways improvement works on the existing B1137 includes:

- Widening and realignment of the carriageway
- Reprofiling the carriageway
- Construction of new footpaths
- The installation of utilities and drainage assets

- 9.4.2 The proposed scheme would implement the following temporary traffic management strategies to safely complete the works.

- Temporary traffic lights would be used to control single file traffic during widening and realignment of the existing carriageway.
- Ring management (variable lane closures on the roundabout) would be required on the southern dumbbell roundabout for the construction works.
- Footpath closures and diversions may be implemented to manage the interface between members of the public and the workforce. The footpath closures and diversions would allow for members of the public to be safely diverted around the works area during carriageway reprofiling.
- During pavement construction and resurfacing of the carriageway, full carriageway closures would be required on the B1137. Where diversions are required, they would be signed, approved, and communicated.
- Access to the Premier Inn would be maintained where reasonably practicable, during construction of the proposed scheme. The proposed scheme will liaise with Premier Inn should construction works have an impact on access to their business.

### **9.5 River Ter Bridge**

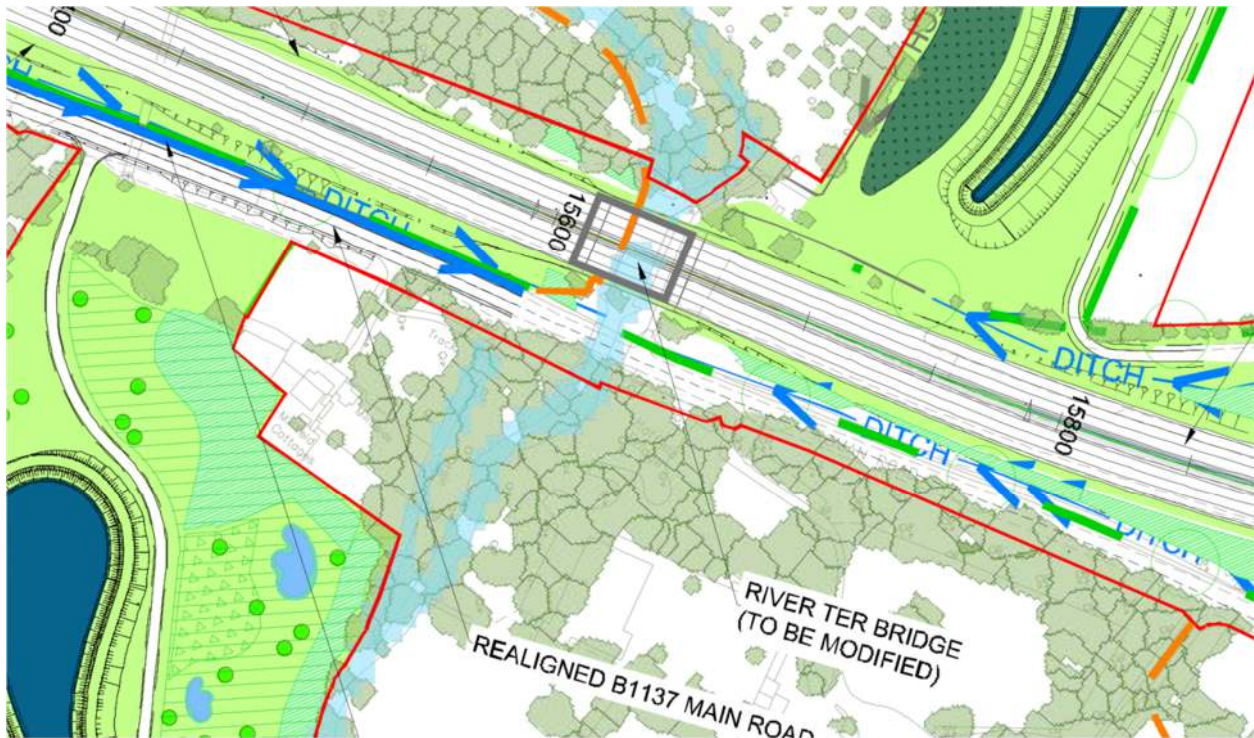
- 9.5.1 The existing River Ter underbridge (Plate 9.2) carries the A12 two lane dual carriageway and junction 20a exit slip over the River Ter. The current proposal would be to retain the existing structure, stitch together the current two separate bridge decks and modifications to its parapets and footpaths to allow widening of the carriageway. Resurfacing of the carriageway would also be proposed within the extents of the existing superstructure.

9.5.2 The following temporary traffic management phases would be implemented to undertake the works:

- Narrow lane running and speed restrictions to allow construction of a new central reserve barrier and associated works
- Narrow lane running and speed restrictions to allow verge works
- Narrow lane running of a contraflow (two lanes plus one lane of the opposing traffic) on the adjacent carriageway separated by a temporary barrier, with speed restrictions in place
- Single carriageway night-time/weekend closures
- Full carriageway weekend closures

9.5.3 PRoW 213 (Footpath 25) which runs underneath River Ter Bridge will be required to be temporarily suspended for construction activities, such as hydro demolition and construction of the bridge parapets. No suitable diversion has been identified for this PRoW. Construction activities will be programmed to ensure that the temporary suspension is as short as possible.

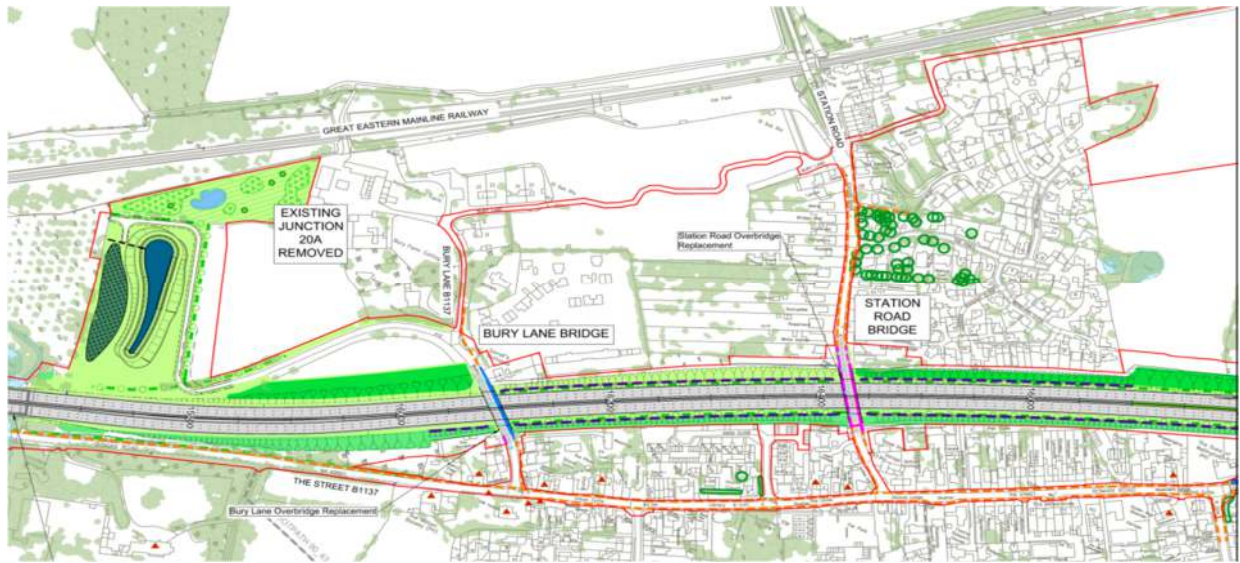
**Plate 9.2 River Ter Bridge**



## 9.6 Hatfield Peverel

- 9.6.1 Works within Hatfield Peverel (Plate 9.3) would be carried out under contraflow. Where possible, existing crossover points would be utilised at each end of this stretch of works to facilitate the contraflows.
- 9.6.2 To maximise the available space for traffic in contraflow, the northbound verge would be widened at night under single lane running and measures would be taken to run the traffic as close to the bridge piers as practical. The carriageway may need localised resurfacing to ensure vertical clearances underneath structures.
- 9.6.3 When traffic is in contraflow (Plate 9.3), most works would be carried out during the day with adequate working space. Some activities requiring additional working space may need to be carried out at night, but the contraflow arrangement would support the closure of lane 1 at night on the works side.
- 9.6.4 To enable the three bridges in Hatfield Peverel (Station Road Bridge, Bury Lane Bridge, Wellington Bridge – in that order) to be demolished, total carriageway closures of the A12 would be required. To avoid the need to demolish residential property, the widened Hatfield Peverell bridges will be reconstructed on their existing alignment. This means that the associated roads will need to be closed during the demolition and reconstruction period, with consequential disruption to the residents north of the A12 (including those on the Terling Road) and users of the Hatfield Peverel railway station.
- 9.6.5 To minimise the duration that side roads over the A12 would be closed, it is proposed to construct the new bridge decks for Station Road and Bury Lane at a location south of Hatfield Peverel and transport them to site. This transport would also require a total closure of the carriageway. Therefore, it is anticipated that there would be at least six total closures of the A12 to support the structures work in Hatfield Peverel.
- 9.6.6 To allow the demolition of the existing Wellington Bridge and the construction of the new bridge, the proposed junction 21 must be operational first. A temporary link road (Work No. T14) will need to be constructed from the southern roundabout of the proposed junction 21 to the existing junction 20a southbound off-slip. Once Wellington Bridge has been constructed, this temporary access link will be removed.

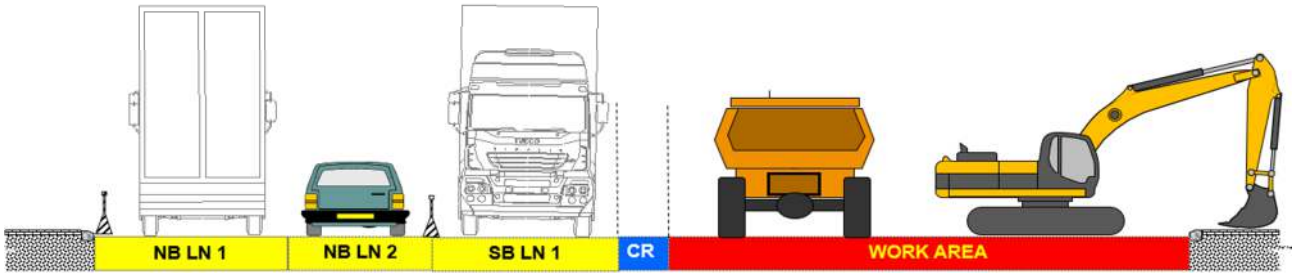
**Plate 9.3 Hatfield Peverel**



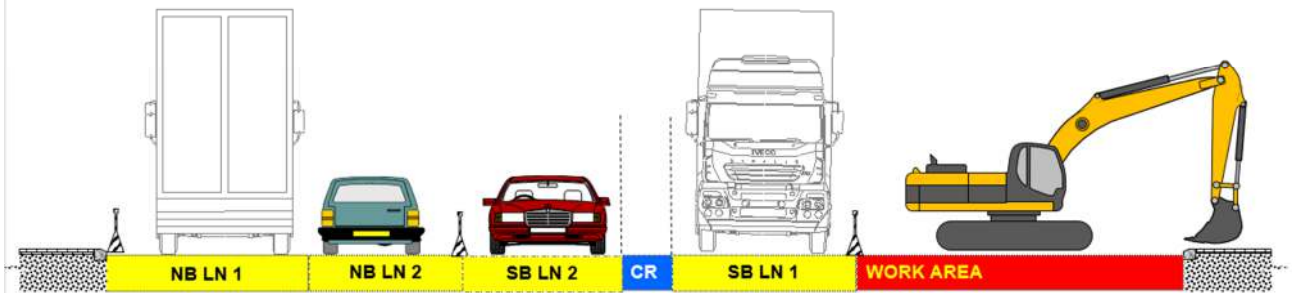


### Plate 9.4 Hatfield Peverel contraflow cross-sections

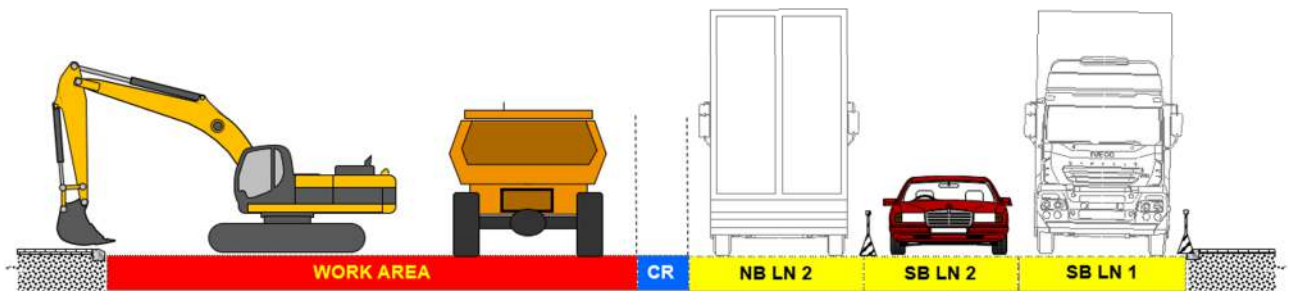
NORTHBOUND CONTRAFLOW – NIGHT TIME

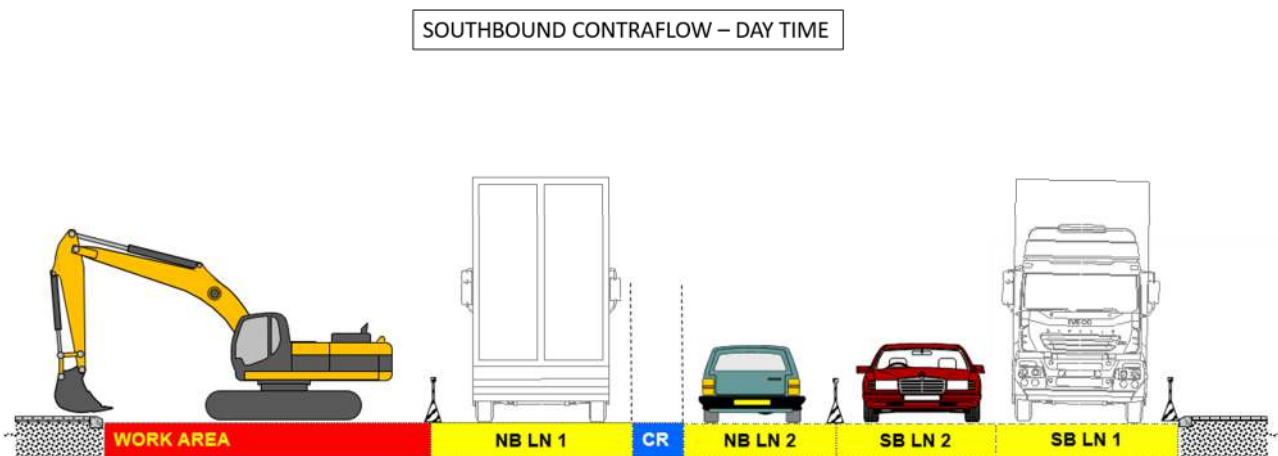


NORTHBOUND CONTRAFLOW – DAY TIME



SOUTHBOUND CONTRAFLOW – NIGHT TIME





## 9.7 Bury Lane and Station Road Bridges

- 9.7.1 Whilst the works are being undertaken, there would be periods when the existing structures of Bury Lane Bridge and Station Road Bridge, would have been demolished and the connectivity between the north and south of Hatfield Peverel (over the A12) would be severed. The works at these structures would be undertaken at separate times to minimise the disruption.
- 9.7.2 When Station Road Bridge is closed a diversion will be in place for general road users, please refer to Appendix A.
- 9.7.3 For the period during which Station Road is closed to enable the demolition and replacement of the bridge structure over the A12, the following measures would be proposed:
- Access to the properties to the south of the A12 would be from the B1137/The Street, junction 19 (to the west) or the junction 20b southbound exit (to the east).
  - A temporary access link between Bury Farm and Hatfield Grove housing estates.
  - A temporary foot and cycle bridge would also be constructed to the west of the existing Station Road Bridge. This will be in place to ensure that residents will be able to access the north and south of the village via a temporary footway.
- 9.7.4 For the period during which Bury Lane is closed to allow for the demolition and replacement of the bridge structure over the A12, the following measures would be proposed:
- Access to the properties to the south of the A12 would be from the B1137/The Street, either from junction 19 (to the west) or the junction 20b southbound exit (to the east).
  - Access to the properties to the north of the A12 would be from the B1137 onto Station Road and turning left into the new residential area or via Terling Road Bridge over the railway. The temporary access link between Bury Farm and Hatfield Grove housing estates will also be used.

- The existing northbound off-slip at junction 20a would be closed as part of the proposed scheme. The new junction 21 would be operational at this point to allow residents to enter/exit the A12.

9.7.5 For further details to mitigation measures on the impacts to Hatfield Peverel, please refer to Section 5.9

## 9.8 Wellington Bridge, Hatfield Road Overbridge and Woodend Bridge

9.8.1 The completion of the new Hatfield Road Overbridge (proposed junction 21) and slip roads would enable Woodend Bridge to be demolished. This would require complex traffic management phasing which would include the following:

- Narrow lane running on the A12 mainline with a reduced speed limit
- Mainline closures during off-peak traffic hours would be required for the construction of Hatfield Road Overbridge
- A number of weekend and off-peak traffic hours closures of the A12 mainline and slip roads would be required to tie in the new junction 21 slip roads and new local access roads into the existing A12 mainline/LRN
- Mainline closures during off-peak traffic hours would be required for the demolition of the existing Wellington Bridge and construction of the new Wellington Bridge
- Mainline closures during off-peak traffic hours would be required for the demolition of Woodend Bridge

9.8.2 The demolition of Wellington Bridge would only be completed after completion of the new junction 21. A temporary link road would then be constructed between the new southern roundabout at the new junction 21 and Hatfield Peverel, to allow temporary access to the village while the new Wellington Bridge works are completed.

## 9.9 Junction 21

9.9.1 The proposed scheme would include the following works at junction 21 (Plate 9.5):

- Widening of the existing A12 to three lanes in both directions.
- Demolition of existing structures and decommissioning of the existing junctions 20a and 20b. The new junction 21 would provide the access links that are removed by the decommissioning of the existing junctions 20a and 20b.

- 9.9.2 The proposed scheme would plan to implement the temporary traffic management strategies described below, to safely undertake construction activities within junction 21 and to reduce the impact on the public, stakeholders and LRNs without undermining the safety of the workforce.
- Safe access/egress points would be created at the A12 to provide safety to construction vehicles.
  - Works access to the north side of the junction would be from the existing junction 21 northbound off-slip. This may involve widening and lengthening the current slip road to accommodate safe access and egress for construction traffic.
  - Works access to the southside of the junction would be via a temporary built access off the southbound carriageway, immediately before Latneys Kennels.
  - Narrow lane running and restricted speed limits would be implemented on the A12 mainline carriageway to enable the construction works.
  - A temporary link road would be constructed which would tie the southern dumbbell roundabout at the new junction 21 to the B1137/The Street in Hatfield Peverel to maintain access during the demolition and construction of Wellington Bridge.
  - Closures during off-peak traffic hours would be required on the junction 20b northbound on-slip road and existing junction 21 northbound off-slip road to enable the carriageway tie-ins of the new local access roads from the northern roundabout.
  - Closures during off-peak traffic hours, using a combination of lane closures and full closures, would be utilised to tie in the new slip roads at the new junction 21 into the mainline carriageway.
  - Full weekend closures would be required to allow for the demolition of Wellington and Woodend Bridges. Other off-peak traffic hours closures may be required for other enabling works.



- Narrow lane running, contraflow and speed restrictions to allow widening of verges
- Single carriageway night-time/weekend closures
- Full carriageway weekend closures

#### 9.10.6 Oliver's Bridge

- The existing Oliver's underbridge carries the A12 over the B1018/ Maldon Road.
- The current design proposals would widen the existing structure to increase the capacity to three lanes in both directions.
- During peak traffic hours, Monday to Friday, two lanes of traffic would be maintained in both directions (northbound and southbound on the A12 mainline) under a narrow lanes arrangement. Lane closures, directional closures and full carriageway closures would only be undertaken at off-peak traffic hours Monday to Friday and weekends (peak and off-peak traffic hours).
- During the construction works at Oliver's Bridge there would be instances where there would be an interface with Maldon Road (B1018) which runs beneath the structure. Temporary traffic management would be positioned on Maldon Road and may include temporary traffic signals (during peak and off-peak traffic hours) and footway closures. Current proposals would deem a requirement to close Maldon Road for certain construction activities, though this would be undertaken Monday to Friday during off-peak traffic hours and at weekends.
- To avoid the total reconstruction of the existing Oliver's Bridge, with the associated disruption, remedial works will be required to the abutments to strengthen them. Approximately 420 micro-piles are required to strengthen the structure's current foundations. Although these works will be disruptive to users of the A12 at weekends, strengthening of the structure's foundations has removed the requirement to replace the structure.
- This work will be carried out during off-peak hours and weekend road closures. This work will need to be carried out in phases across all lanes from the carriageway level and will therefore require several A12 carriageway closures.

#### 9.10.7 Benton Bridge

- The existing Benton underbridge carries the A12 over the abandoned Witham to Maldon railway line (now part of National Cycle Network Link Route 16).
- The current design proposals would widen the existing structure to increase the capacity to three lanes in both directions.

- During peak traffic hours, Monday to Friday, two lanes of traffic would be maintained in both directions (northbound and southbound on the A12 mainline) under a narrow lanes arrangement. Lane closures, directional closures and full carriageway closures would only be undertaken at off-peak traffic hours Monday to Friday and weekends (peak and off-peak traffic hours).
- During the construction works at Benton Bridge, there would be instances where there would be an interface with the National Cycle Network Link Route 16 beneath the structure. There may be a requirement to close the cycle route for short durations and in these instances a suitable signed diversion route would be implemented.

#### 9.10.8 Off-peak traffic hours and weekend carriageway closures of the A12 mainline would be required for the following construction activities.

- Widening the existing carriageway to increase the A12 mainline capacity to three lanes in both directions
- Widening of Oliver's Bridge, Benton Bridge and Brain Bridge to increase the A12 mainline to three lanes in both directions
- Construction of new footbridges over the A12 and construction of retaining structures

#### 9.10.9 Brain Bridge

- The existing Brain underbridge carries the A12 over the River Brain an unclassified road and a public right of way (PRoW 121, Footpath 101). Brain Bridge carries the A12 dual two-lane carriageway, forming part of the bypass that runs along the southern perimeter of the town of Witham.
- It is proposed that the existing structure be widened to allow an increase of the existing capacity from two to three lanes in both directions.
- During peak traffic hours, Monday to Friday, two lanes of traffic would be maintained in both directions (northbound and southbound on the A12 mainline). Lane closures, directional closures and full carriageway closures would only be undertaken in off-peak traffic hours Monday to Friday and weekends.
- During the construction works at Brain Bridge, there would be periods where the PRoW would need to be closed or diverted.

#### 9.10.10 Gershwin Boulevard Bridge

The proposed location for the new footbridge is on the southern outskirts of Witham at approximately Ch.20+150. The construction of the footbridge foundations would be undertaken from an offline location with access being via permitted routes. Temporary traffic management would include full weekend closures and off-peak traffic hours closures during the week. Additional temporary traffic management may be in place on the mainline for other construction activities whilst the footbridge construction is being undertaken.

### 9.10.11 Little Braxted Bridge

The proposed location for the new footbridge is on the eastern outskirts of Witham at approximately Ch.22+800. The construction of the footbridge foundations would be undertaken from offline locations with access being via permissible routes. Temporary traffic management would include full weekend closures and off-peak traffic hours closures during the week. Additional temporary traffic management would be in place on the mainline for other construction activities whilst the footbridge construction is being undertaken.

#### Plate 9.6 Witham Bypass



## 9.11 Proposed Junction 22

- 9.11.1 The construction of the proposed junction 22 (Plate 9.7) would require permanent diversion of the access to Little Braxted Road leading to the business premises at Little Braxted Hall from the A12/north. The proposed scheme would endeavour to minimise the disruptions to the access to and from Little Braxted Lane to the new junction and access would be available from and to Little Braxted Lane during construction. Weekend closures would be required to Little Braxted Lane to tie in the existing road to the new alignment.
- 9.11.2 Construction of the new junction 22 would involve the following key construction stages:
- Provide access and egress to the new A12 in both directions and provide access onto the local road (existing A12). The existing Colemans Bridge at junction 22 would be demolished.
  - A new carriageway, three lanes in each direction, which would bypass Rivenhall End and the direct accesses along the existing A12. This would run parallel to the existing A12 but offset approximately 200m to the south, up until Rivenhall End where it joins the existing A12 again.



- The proposed carriageway would re-join the A12 east of Rivenhall End, with a short section slightly offset to the north of the existing A12, before re-joining beyond the existing junction 23 northbound off-slip road. The new A12 would then align with a widened Cranes Bridge (junction 23) which would be widened mainly to the south.

**Plate 9.7 Proposed junction 22**



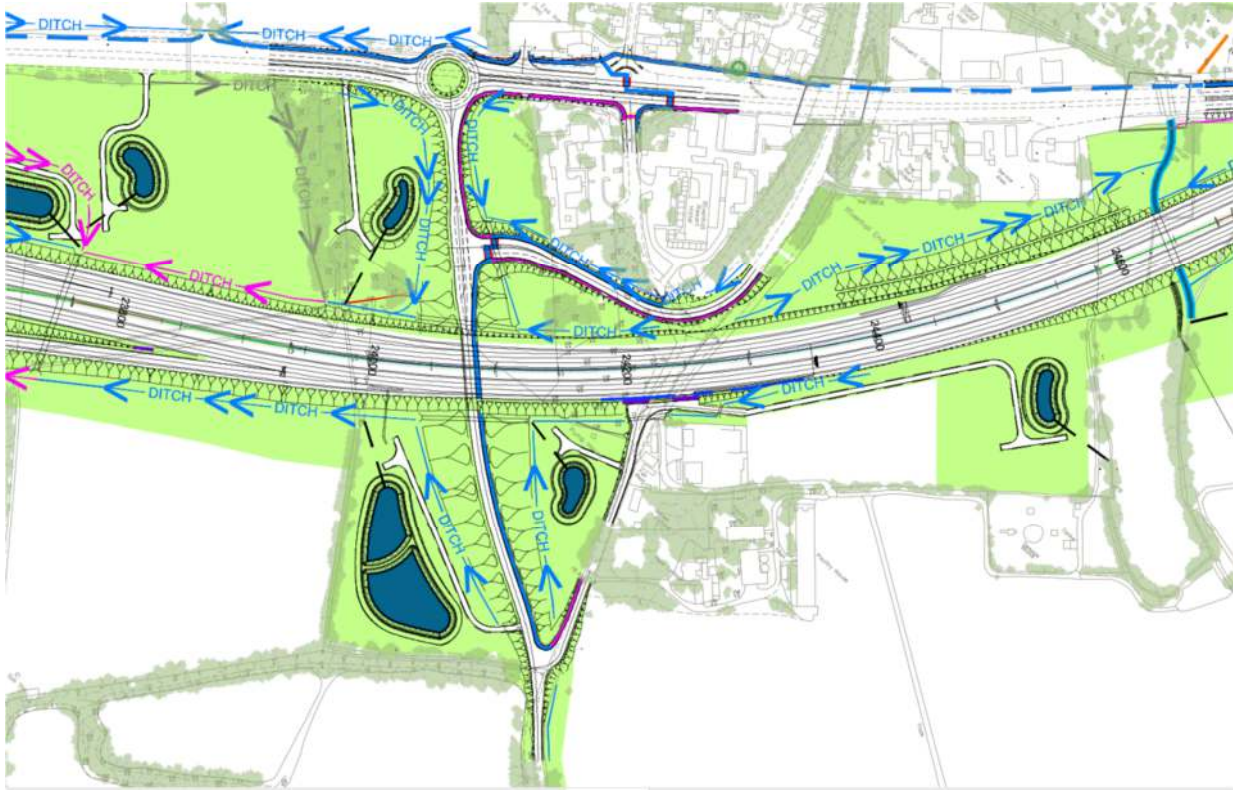
9.11.3 The following proposed temporary traffic management strategies would be considered for the construction of the proposed junction 22.

- Narrow lane running and full closures would be required to provide the necessary working space in the existing A12 verges to carry out the required utility service diversions and allow for the main construction works.
- Off-peak traffic hours closures of the existing A12 in both directions would be required to tie in the new alignment with the existing A12.
- Once significant completion is achieved and traffic is moved to the new A12, it would be kept temporarily under a two lane, narrow lane arrangement to allow completion of ancillary works at the verges.
- De-trunking works at the existing A12 carriageway would be initiated once traffic is moved to the new alignment. To allow completion of works within the existing A12, narrow lane running, and lane closures would be required.
- The current design proposals also require other modifications to the existing junction 22 which would require peak and off-peak traffic lane closures and four-way temporary traffic lights at the junction.

- Access/egress to Brice Aggregates and Little Braxted Hall would continue to be provided via Little Braxted Lane and would be maintained for as long as reasonably practicable, before switching onto the new proposed arrangement. The switch over between the existing and proposed arrangement would be communicated to affected stakeholders and would take place over a full weekend closure of Little Braxted Lane.
- Access to the dwellings adjacent to junction 22 would always remain available. Suitable arrangements with the residents would be made during full carriageway closures to ensure this is achieved.
- Footpath closures – footpaths at this location would be diverted throughout the duration of the works. Further details can be found in Table 8.1.

## 9.12 Henry Dixon Road/Braxted Road

- 9.12.1 The new A12 mainline alignment would sever the existing Braxted Road approximately 300m north of Colemans Reservoir. To maintain connectivity between the north and south a new bridge (Plate 9.8) over the new A12 would be built. This structure is to be constructed within a newly built link road connecting the west of Rivenhall End and Braxted Road.
- 9.12.2 The severance of Braxted Road would not be undertaken until the new structure is opened for traffic and it would also provide a new link for pedestrians and other vehicle users.
- 9.12.3 Temporary traffic management on Braxted Road/Henry Dixon Road would consist of temporary traffic signals (during peak and off-peak traffic hours) and footpath closures. There would be a requirement to close Braxted Road/Henry Dixon Road for certain construction activities which would be undertaken during off-peak traffic hours (Monday to Friday) and at weekends (during both peak and off-peak traffic hours).
- 9.12.4 A temporary plant crossing with temporary traffic lights would be required on Braxted Road to facilitate construction vehicle movements from east to west and vice versa along the new road alignment.

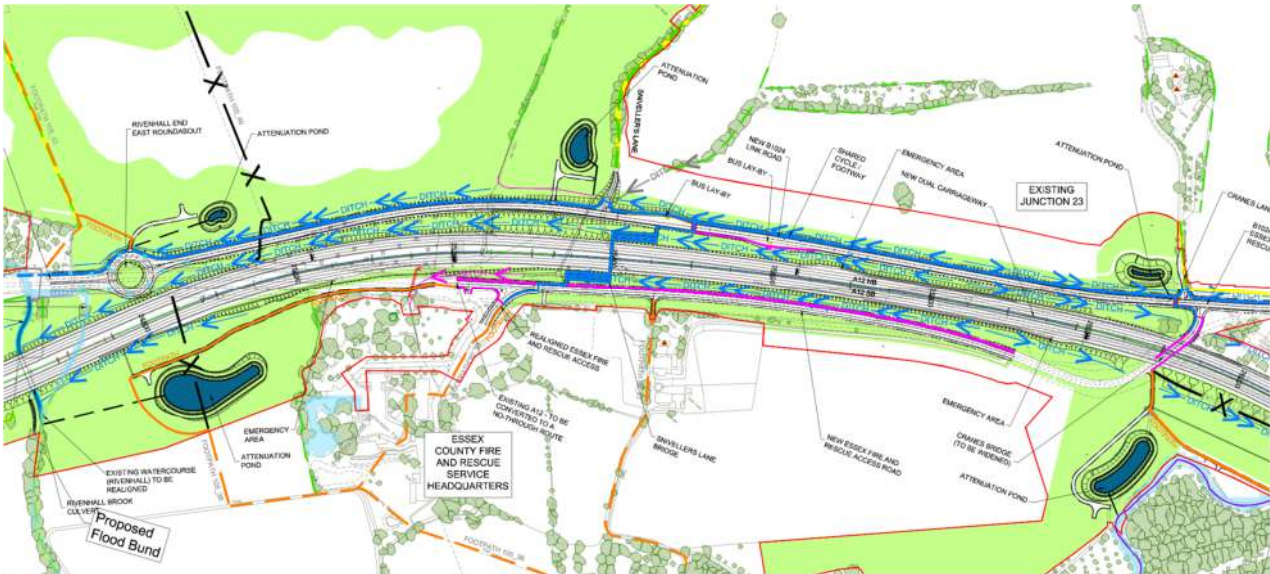
**Plate 9.8 New Braxted Road Overbridge**

## 9.13 Removal of junction 23

9.13.1 Junction 23 (Plate 9.9) would be removed, with access to Kelvedon from Rivenhall being provided by a new local access road which would tie in with the existing A12 to the east of Rivenhall End. The proposed scheme would also include the following:

- Upgrading of existing dual carriageway to three lanes in both directions. A short section of new alignment would require offline construction to the north of the existing alignment.
- Widening of the existing Cranes Bridge to allow for the extra lanes.
- De-trunking of around 650m of the existing A12 carriageway to a local access road which would provide access to the Essex Fire and Rescue Service and other residential properties. Access would be from a new T junction of London Road/Crabbs Lane and under the widened Cranes Bridge. Access to these properties will be maintained, where practical.

### Plate 9.9 Junction 23



9.13.2 The proposed scheme would consider the following temporary traffic management strategies to safely undertake the construction works at the existing junction 23 and to minimise the impact on the LRN and stakeholders.

- Narrow lanes and speed restrictions would be required to provide working room in the verges and central reserve.
- Off-peak traffic hours lane closures and weekend full closures to prepare for and construct the new alignment tie-ins.
- Contraflow and temporary full carriageway diversion at the tie-in locations to enable sufficient working room for the works.
- Temporarily relocation of the northbound off-slip, to run along the new side road which would be constructed to the north of the existing A12.
- Off-peak traffic hours closures and peak traffic hours 4-way traffic lights at the new London Road/Crabbs Lane junction to enable buried utility diversions and construction of the junction modifications.
- Following the existing A12 diversion onto the new alignment, works on the existing A12 carriageway (turned to a local access road) would require narrow lane running and lane closures to construct the proposed arrangement of local accesses.
- There would also be a requirement to construct a temporary northbound on/off-slip on the new alignment of the A12 to maintain current traffic movements until the new junctions 22 and 24 are fully operational.

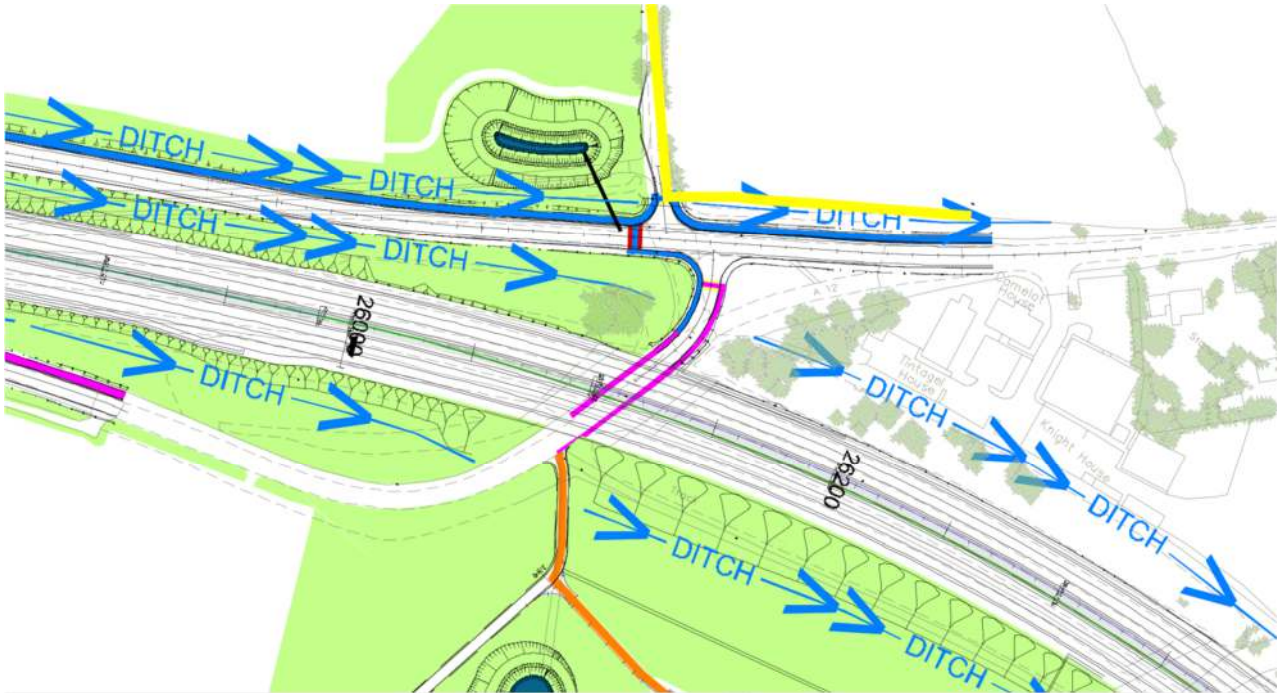
- The proposed scheme would endeavour to ensure access to the dwellings adjacent to junction 23 would remain open at all times. Suitable arrangements with the residents would be made during full carriageway closures to ensure this is achieved.
- The footpaths through this section would be kept open for as long as practical before a series of closures and diversions would be put in place to enable the required phasing of the works.

## 9.14 Cranes Bridge

9.14.1 The existing Cranes Bridge (Plate 9.10) carries the A12 over the B1024 to the A12 Kelvedon Road on-slip road. It would be proposed to widen the structure to the south, requiring temporary traffic management on the A12 mainline to accommodate the works. The proposed design entails asymmetric carriageway online widening at this location, over and adjacent to this structure. The following temporary traffic management strategies would be implemented to undertake the works:

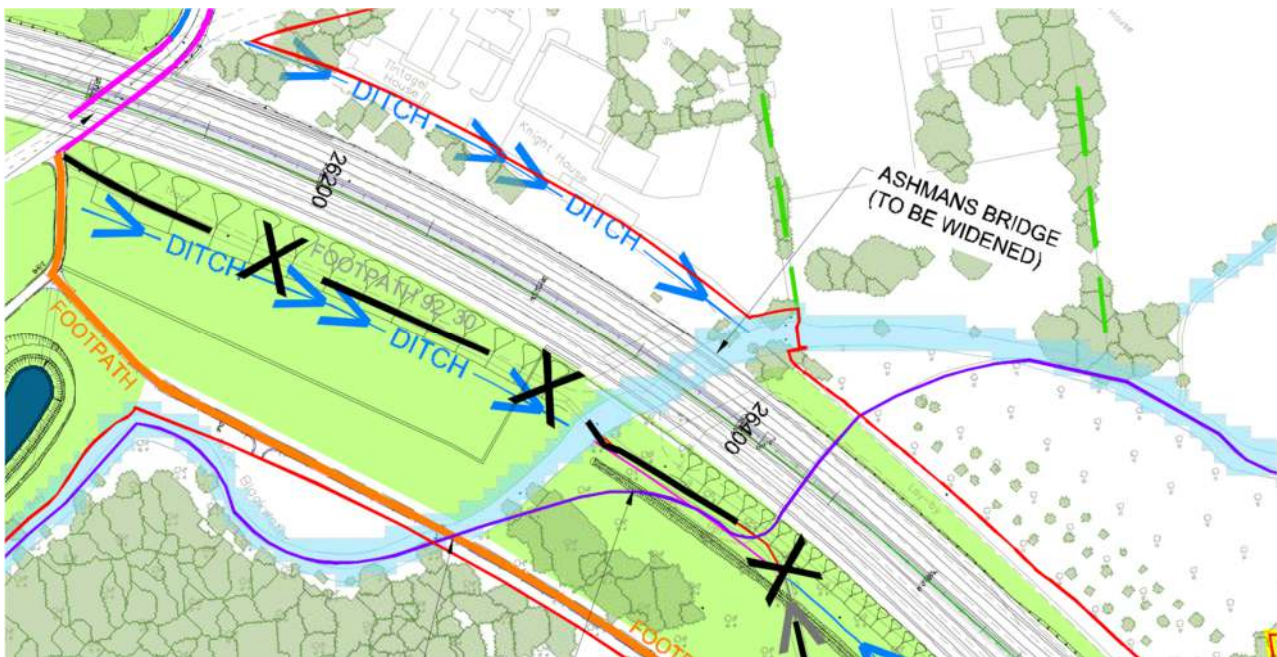
- Narrow lane running and speed restrictions
- Narrow lane running of a contraflow with two lanes plus one lane of the opposing traffic on the adjacent carriageway separated by a temporary vehicle restraint with a speed restriction in place
- Lane closures during off-peak traffic hours, night closures and weekend full carriageway closures of the A12

9.14.2 The section of the B1024 that runs beneath Cranes Bridge would require temporary traffic management, consisting of temporary traffic signals (during peak and off-peak traffic hours) and footpath closures. There would be a requirement to close this section of road for certain construction activities which would be undertaken at off-peak traffic hours (Monday to Friday) and at weekends (peak and off-peak traffic hours). During the periods when this section of road is closed, a suitable signed diversion route would be in place for pedestrians/vehicles.

**Plate 9.10 Cranes Bridge**

## 9.15 Ashmans Bridge

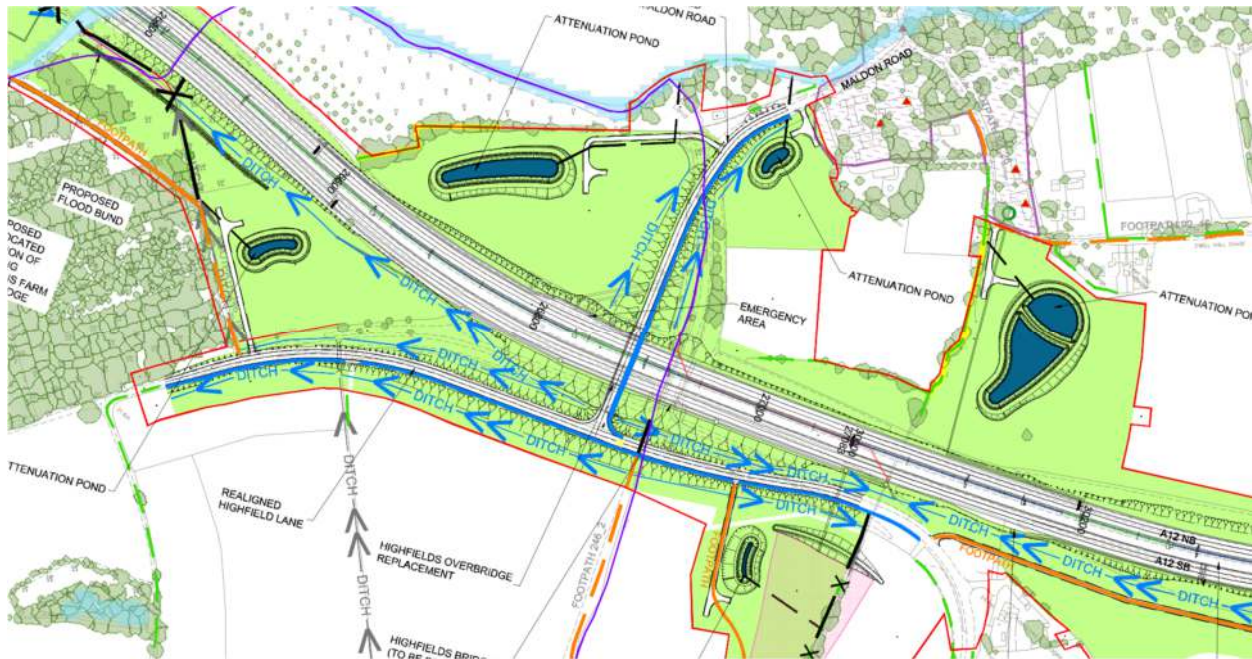
- 9.15.1 The existing Ashmans Bridge (Plate 9.11) carries the A12 over the River Blackwater. It would be proposed to widen the structure to the south, requiring temporary traffic management on the A12 mainline to accommodate the works. The proposed design entails asymmetric carriageway online widening at this location, over and adjacent to this structure.
- 9.15.2 A footbridge which takes PRow 93 Footpath 30 lies to the south of Ashmans Bridge. This footbridge would need to be relocated further south as part of the construction works.
- 9.15.3 The following temporary traffic management strategies would be implemented to undertake the works:
- Narrow lane running and speed restrictions
  - Narrow lane running of a contraflow with two lanes plus one lane of the opposing traffic on the adjacent carriageway separated by a temporary vehicle restraint with a speed restriction in place
  - Lane closures during off-peak traffic hours, night closures and weekend full carriageway closures of the A12

**Plate 9.11 Ashmans Bridge**

## 9.16 Highfields Bridge

- 9.16.1 The existing Highfields Bridge (Plate 9.12) carries the unclassified Maldon Road over the dual carriageway A12 Kelvedon Bypass. The bridge carries a single carriageway of two lanes which connects Kelvedon on the north, to Highfields Lane on the south of the A12. It would be proposed to replace the existing bridge with a new one, built approximately 50m to the west of the existing bridge. This new structure would accommodate the proposed widening of the A12 at this location. The Highfields Bridge replacement would carry a single carriageway of two lanes.
- 9.16.2 The new structure would be constructed west of the existing structure and therefore Braxted Road, Highfields Lane and Maldon Road would need to be realigned to accommodate the new bridge position. The new alignments would be constructed offline prior to being tied into the existing LRN.
- 9.16.3 For the tie-in works it is assumed that a temporary closure of Maldon Road towards the junction of Braxted Road and Highfields Lane will be required (up to six weeks). To reduce disruption, the Braxted Road to Highfields Lane route will be maintained except for a weekend closure where tie-ins will be constructed to allow the new alignment to be used. The road closure will be programmed to ensure that there is no clash with restrictions on Braxted Road or Inworth Road.
- 9.16.4 For traffic travelling from Highfields Lane, when Maldon Road is closed traffic would be diverted along Braxted Road, onto Braxted Park Road and join the A12 mainline at Rivenhall End. Traffic would travel northbound and exit the A12 mainline at the junction 23 northbound off-slip. Traffic would continue along the B1024 into Kelvedon. This route would be reversed for traffic travelling from Kelvedon to Highfields Lane.

### Plate 9.12 Highfields Bridge

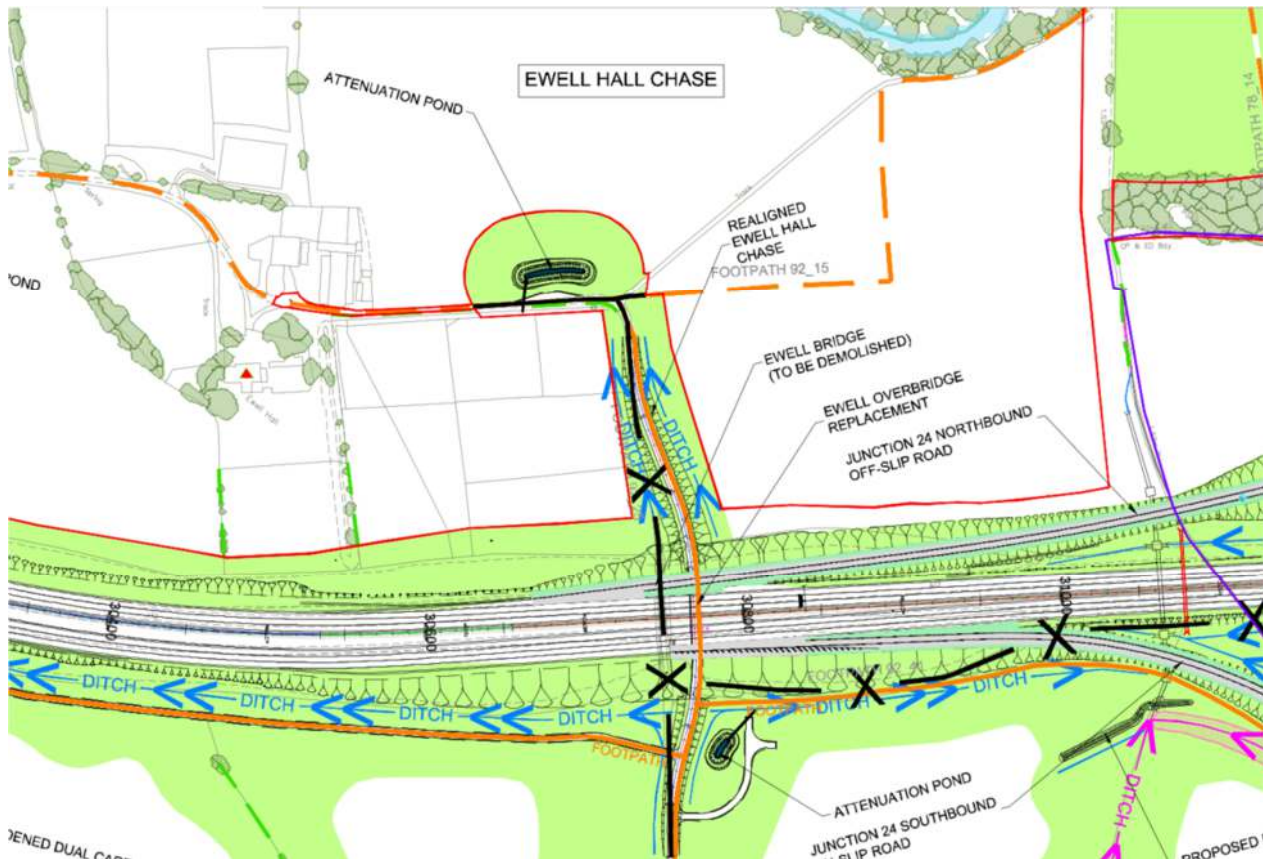


## 9.17 Ewell Bridge

- 9.17.1 The existing Ewell Bridge (Plate 9.13) carries the private road Ewell Hall Chase over the dual carriageway A12 Kelvedon Bypass. The bridge carries a single carriageway of two lanes which connects agricultural land to the north and south of the existing A12. It would be proposed to replace the existing bridge with a new one, built approximately 20m to the east of the existing bridge. This new structure would accommodate the proposed widening of the A12 at this location. The Ewell Bridge replacement would be proposed to carry a single carriageway.
- 9.17.2 The proposed Ewell Bridge will sit to the east of the existing bridge; this will allow the existing bridge to remain open, where practical, during construction of the new bridge. This will allow Ewell Hall Chase to remain open for farm traffic and PRoW 92 Footpath 25 to also remain open, where practical.
- 9.17.3 Both Ewell Hall Chase and PRoW 92 Footpath 25 will run through the proposed Borrow Pit J. The proposed scheme will endeavour to keep both routes open during construction. For the safety of all parties, the proposed Borrow Pit J will be segregated from these routes with suitable fencing. Where construction traffic needs to cross these routes, this will be managed by designated plant crossing points that will be controlled by traffic signals or traffic marshals.



Plate 9.13 Ewell Bridge



## 9.18 Proposed junction 24

- 9.18.1 The proposed junction would be located between Ewell and Park Bridges. The works at this location include construction of a new dumbbell arrangement junction with a new underbridge linking them, new on and off-slips to both carriageways, main carriageway widening, a new drainage culvert across the main carriageway, drainage attenuation ponds and construction of a new underbridge (Plate 9.14).
- 9.18.2 Temporary traffic management would be required at the main carriageway in both directions and would include:
- Narrow lane running in both directions would be required to provide room for construction activities.
  - After significant completion of the proposed junction, the A12 traffic on both directions would be temporarily diverted away from the existing carriageway and sent along the new junction slip roads, and traffic speed may be reduced. This would be done on temporary alignments and would allow the required working room for the construction of the new junction underbridge.
  - Closures during off-peak traffic hours of northbound and southbound carriageways would be required to allow for the required tie-ins.

- A southbound contraflow would be required to provide sufficient working space for construction to enable the required tie-in works into the northbound carriageway.

9.18.3 Full closures when required would be signalised via a suitable signed diversion. Speed restrictions would be implemented during all phases of the temporary traffic management.

**Plate 9.14 Proposed junction 24**



## 9.19 Park Bridge

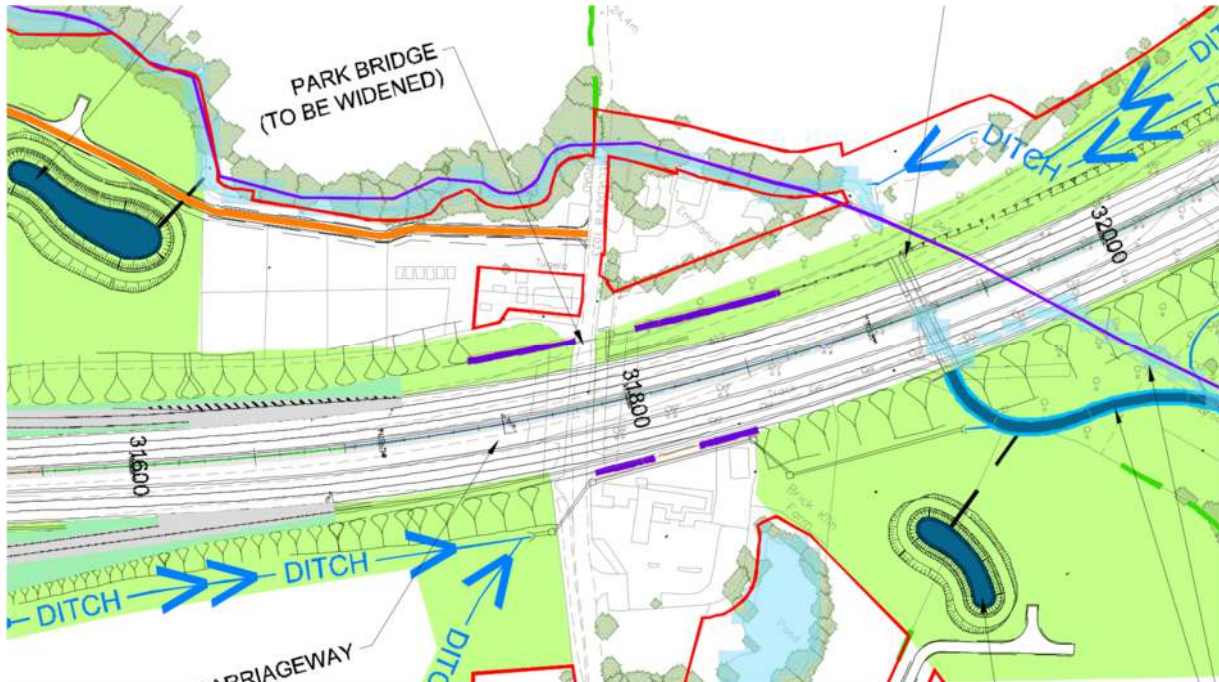
9.19.1 The existing Park Bridge (Plate 9.15) underbridge carries the A12 over Inworth Road (B1023) at Messing-cum-Inworth and is required to be extended to accommodate the widening of the A12. The structure would be widened on both sides. The following temporary traffic management strategies would be implemented on the A12 to undertake the works:

- Narrow lane running with a central reserve and verge phase with speed restriction in place
- Narrow lane running of a contraflow with two lanes plus one lane of the opposing traffic on the adjacent carriageway separated by a temporary vehicle restraint with a speed restriction in place
- Single carriageway closure during off-peak traffic hours/weekend closures of the A12
- Full carriageway weekend closures of the A12

9.19.2 During the construction of Park Bridge, temporary traffic management would be required on Inworth Road (B1023) which runs beneath the structure. This would consist of temporary traffic signals (during peak and off-peak traffic

hours). There would also be a requirement to close Inworth Road for certain construction activities and these closures would be undertaken during off-peak traffic hours (Monday to Friday) and during weekends (peak and off-peak traffic hours). During the periods when Inworth Road is closed, a suitable signed diversion route would be put in place (see Appendix A).

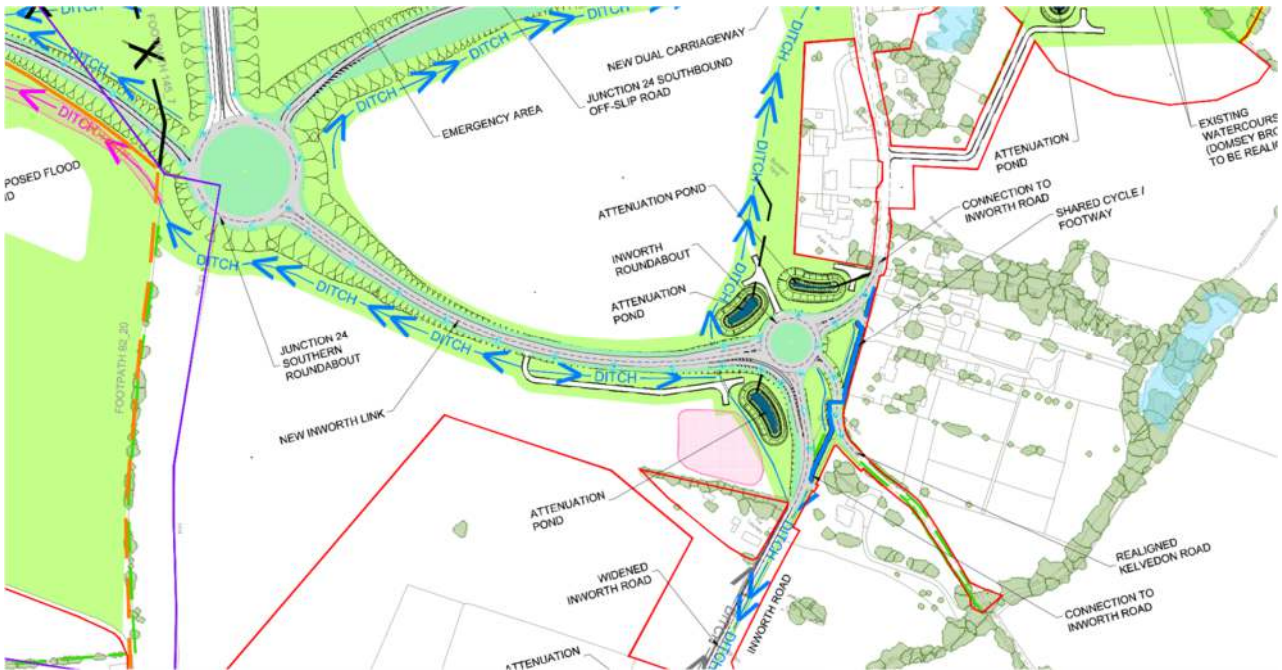
**Plate 9.15 Park Bridge**



## 9.20 Inworth Road

- 9.20.1 To accommodate the predicted traffic flow along Inworth Road (Plate 9.16 and Plate 9.17), works are required to Inworth Road between the proposed junction 24 roundabout link and Perrywood Garden Centre. These works include widening in three areas, drainage works and other associated highway works.
- 9.20.2 The main purpose of the alteration is to create a nil detriment to Inworth Road as imposed by the proposed scheme.
- 9.20.3 Due to the narrow working room that would be achieved and the disruption that would be caused by installing traffic lights on Inworth Road for major works, road closures are the only practical option to undertaking the work on Inworth Road. Due to Inworth Road being an important road, connecting the villages of Inworth, Messing and Tiptree with Kelvedon and the A12 mainline, weekend closures have been deemed as the least disruptive option. A signed diversion will be in place, with the village of Messing becoming an 'access only' route, to mitigate any additional traffic trying to travel through Messing during the weekend closures. Access would also be maintained to Perrywood Garden Centre during the road closures.
- 9.20.4 A plant crossing on Inworth Road would be required to allow vehicles to cross Inworth Road from Borrow Pit J to the works area to the east of Inworth Road.

**Plate 9.16 Inworth Road/ junction 24 link**



**Plate 9.17 Inworth Road widening**



## 9.21 Prested Hall

- 9.21.1 The Threshelfords accommodation bridge would be demolished, with a new bridge providing joint access to Threshelfords Farm and Prested Hall (Plate 9.18), crossing over the proposed scheme near the existing junction 24. The new road is expected to be designated partly as an Essex Highways County Route local road and partly as a private road. The proposed Prested Hall access road is a single carriageway with a shared use footway/cycleway adjacent to the southbound lane, designed to provide access from the LRN to all premises served by the existing Prested Hall access road.
- 9.21.2 The new A12 alignment would sever the existing private road to Prested Hall and other residential properties; the proposed access will be via the proposed Prested Hall Bridge (Plate 9.18). Access to Prested Hall and the other residential properties that currently use the private road will be maintained during the proposed scheme’s construction phase. A gap will be left in the proposed A12 mainline earthworks at the private road until Prested Hall Bridge is constructed.
- 9.21.3 As shown in Plate 9.18, the proposed link from Prested Hall Bridge to London Road will be within the footprint of the de-trunked A12 mainline. A temporary access road will therefore need to be constructed from the north side of Prested Hall Bridge to the existing junction 24 Nursery Bridge. Once Prested Hall Bridge and the temporary access road has been constructed, traffic accessing Prested Hall, and other residential properties will use this route. The gap in the earthworks on the private road will then be completed. The proposed permanent link from Prested Hall Bridge to London Road will be constructed when the existing A12 mainline is constructed and the temporary access road removed.

**Plate 9.18 Prested Hall**



## 9.22 Easthorpe Road

9.22.1 To maintain the existing connectivity for walkers, cyclists, the emergency services, and local farmers between Easthorpe Road (Plate 9.19) and the de-trunked A12, a northern section of Easthorpe Road would be replaced with a new overbridge to cross the proposed A12 mainline. A farm access road is located approximately 160m away from the existing junction between Easthorpe Road and the A12, which would be realigned to form a T-junction with the proposed new Easthorpe Road. A new four-arm roundabout would be included at the tie-in location with the existing A12 de-trunked section to provide all-direction movements. The proposed new Easthorpe Road is a single carriageway with a shared use footway/cycleway adjacent to the southbound lane. This road is not intended to be open to public traffic.

9.22.2 The works would include the construction of two links to the new overbridge link road and the decommissioning of the section of road that currently links to the A12. The temporary traffic management phases for this section would consist of:

- Closures of the existing A12 during off-peak traffic hours Monday–Friday and weekend closures during both peak and off-peak traffic hours.
- Temporary traffic lights on the de-trunked section of the A12.
- During the periods when Easthorpe Road is closed, a suitable signed diversion route would be in place. The proposed scheme would look to provide safe access to agricultural plant, as required.
- During full carriageway closures, the proposed scheme would look to maintain access for residents who access immediately onto the A12. This would be communicated via appropriate channels to all affected stakeholders.

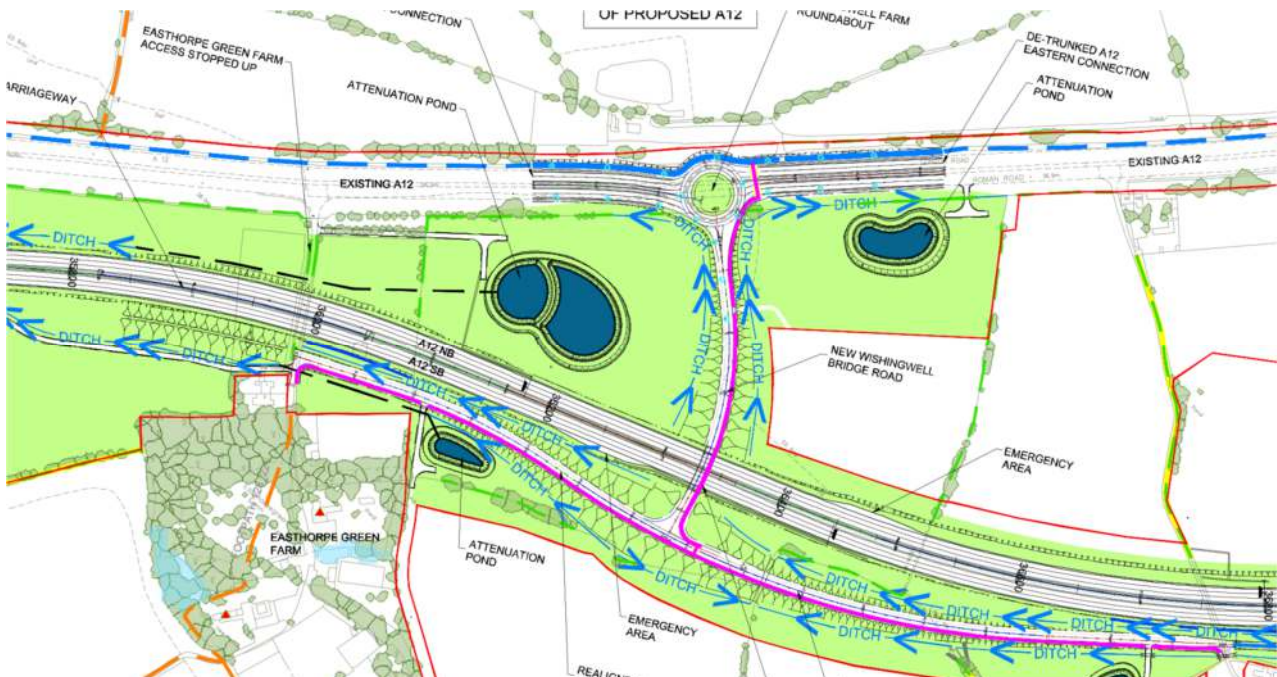
Plate 9.19 Easthorpe Road



## 9.23 Wishing Well Bridge

- 9.23.1 Wishing Well Bridge (Plate 9.20) would be a new offline road for access to residential properties, replacing the two private roads which these premises are currently accessed by. The tie-in with the de-trunked A12 would be via a new three-arm roundabout. The proposed access road consists of a single carriageway with a shared use footway/cycleway adjacent to the southbound lane.
- 9.23.2 To ensure access to the residential properties is maintained during construction, two gaps in the proposed mainline earthworks will remain (at the locations of the existing private roads) until Wishing Well Bridge is constructed. Traffic will then use the bridge as access to these properties. The two gaps in the proposed mainline earthworks will then be completed.
- 9.23.3 The temporary traffic management phases would consist of:
- Closures of the existing A12 during off-peak traffic hours, planned weekend closures and night shifts.
  - Temporary traffic lights on the de-trunked section of the A12.
  - Single lane running on the de-trunked section of the A12.
  - During full carriageway closures, the proposed scheme would look to maintain access for residents who access immediately onto the A12. This would be communicated via appropriate channels to all affected stakeholders.

**Plate 9.20 Wishing Well Bridge**



## 9.24 Proposed junction 24 – junction 25

9.24.1 To enable the switch over of traffic from the existing A12 mainline between junctions 24 – 25 (Plate 9.21) to the new bypass the following will need to be completed.

- Widening to Park Bridge
- Widening to Domsey Brook Bridge
- Construction of Prested Hall – Threshelfords Access Bridge and temporary access road (see Section 9.21)
- Construction of Easthorpe Road Bridge
- Construction of Domsey Brook Culvert
- Construction of Wishing Well Bridge
- Construction of Potts Green Bridge
- Marks Tey roundabout to be converted to a signalised junction.

9.24.2 To enable the tie in of the proposed alignment to the existing traffic will be switched over onto the proposed alignment to two phases.

- Phase 1: The southbound traffic will be moved onto the proposed alignment. Enabling working room to tie in the existing northbound carriageway to the proposed alignment.
- Phase 2: The northbound traffic will be moved onto the proposed alignment.

**Plate 9.21 Proposed junction 24 – 25**



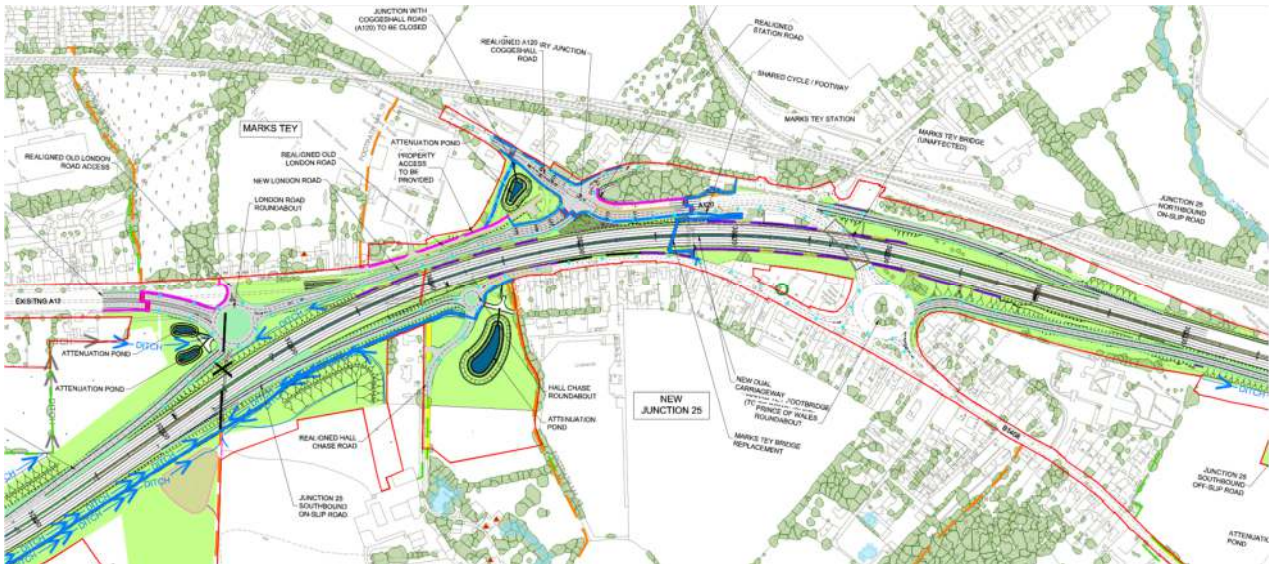


## 9.25 Junction 25 and Roman River culvert

- 9.25.1 Junction 25 (Plate 9.22) would be a two-tier split dumbbell layout, connecting with surrounding roads in Marks Tey, including the A120 and the B1408. The Marks Tey Bridge (which is part of the existing junction 25 arrangement) would be retained to connect the junction roundabouts. The western Marks Tey Roundabout would be converted to a signalised junction. Marks Tey Footbridge would be demolished, and a replacement footbridge provided. Junction 25 is raised above the A12 mainline.
- 9.25.2 A new carriageway with three lanes in each direction would be created between junctions 24 and 25 to bypass local accesses along the existing A12. This would run parallel and to the south of the existing A12. This section of the existing A12 would be de-trunked.
- 9.25.3 This offline section of the proposed scheme would require new retaining structures to be constructed along the mainline to limit the requirement for additional land-take.
- 9.25.4 The bypass would tie into the existing A12 just to the south of the existing junction 25 (Marks Tey).
- 9.25.5 The new signalised junction would be constructed during several traffic management phases, including temporary traffic lights, weekday off-peak traffic hours closures and weekend closures.
- 9.25.6 The following temporary traffic management strategies would be considered for the proposed junction 25 construction works.
- Narrow lane running with a central reserve and verge phase with speed restriction in place.
  - Narrow lane running of a contraflow with two lanes plus one lane of the opposing traffic on the adjacent carriageway separated by a temporary vehicle restraint with a speed restriction in place.
  - Single lane closure during off-peak traffic hours.
  - Single carriageway closure during off-peak traffic hours/weekend closures of the A12.
  - Full carriageway weekend closures of the A12 during both peak and off-peak traffic hours.
  - Access to Old London Road, Hall Chase and Station Road would be maintained throughout the works at the proposed scheme. During full closures, any vehicles needing access to residential properties would be escorted through the works area.
- 9.25.7 At the most eastern end of the proposed scheme, the Roman River would be realigned as shown in Plate 9.23. Access and egress to the works area will be from the B1408, where a new access point will be constructed. A risk assessment will be undertaken on the access point, and control measures may include traffic-controlled signals or traffic marshals to manage access and egress of construction traffic. The adjacent land to the west is used for a

car boot sale; the works area will be segregated from this land by suitable fencing.

### Plate 9.22 Proposed junction 25



9.25.8 The following construction activities would be required between the junction 25 overbridge and the Roman River culvert:

- Extension of the existing culvert to the south of the A12
- Modifications of the existing southbound off-slip road and northbound on-slip road

9.25.9 The following temporary traffic management strategies would be considered for the proposed construction works detailed above:

- Narrow lane running with speed restriction in place.
- Lane closures during off-peak traffic hours.
- Single carriageway closure during off-peak traffic hours/weekend closures of the A12. Where single carriageway closures are implemented, a suitable signed diversion route would be available.

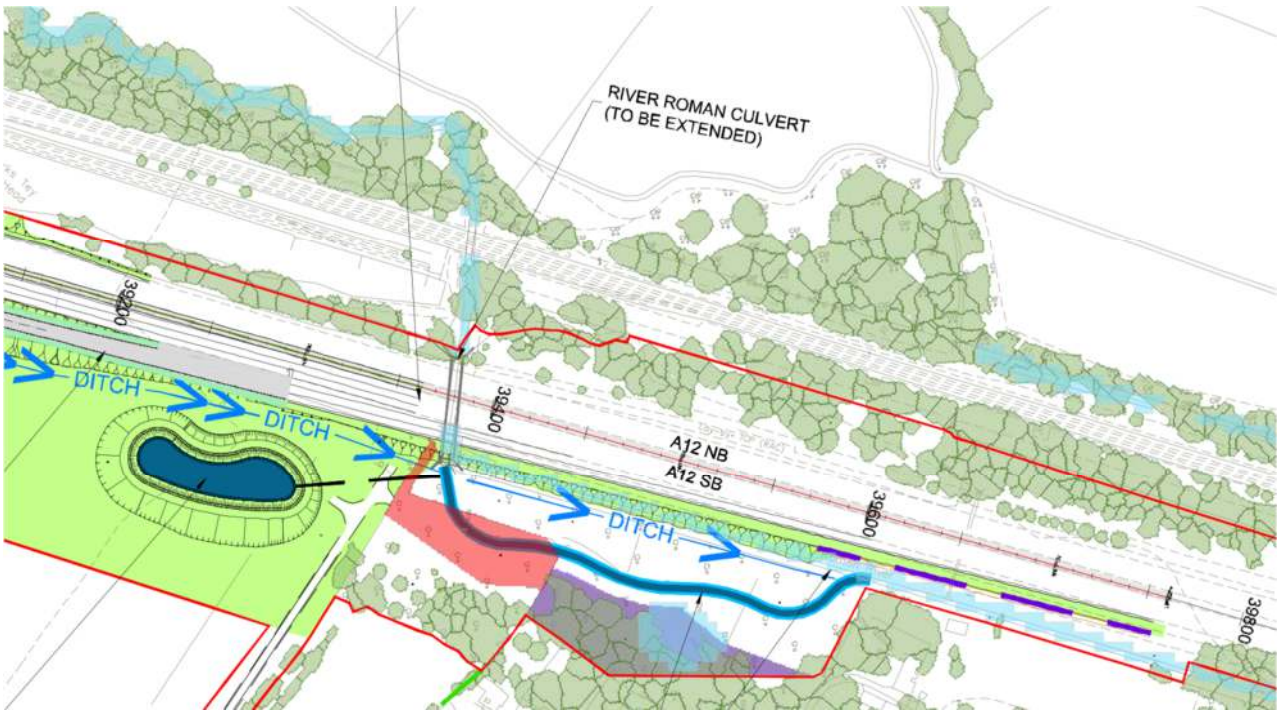
## 9.26 Marks Tey Bridge

9.26.1 Marks Tey Bridge is located at Marks Tey on the western outskirts of Colchester. There is residential housing along London Road to the south and the A120 Marks Tey interchange and Marks Tey railway station to the north.

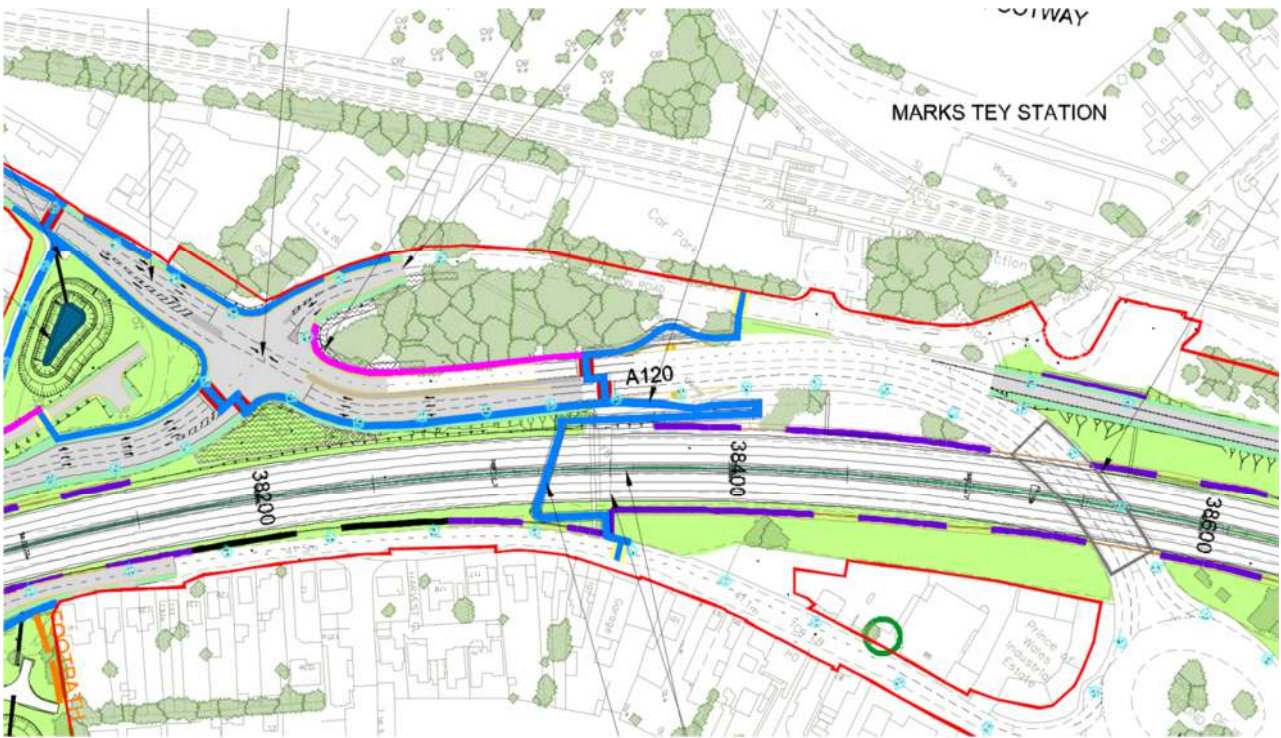
9.26.2 The existing Marks Tey Footbridge would be demolished and rebuilt as a footbridge for WCH across the proposed scheme through junction 25. The proposed width of the footbridge is approximately 4.5m. Signed pedestrian diversion routes would be put in place when the existing footbridge needs to be closed.

- 9.26.3 During the construction of Marks Tey Bridge (Plate 9.24), the following temporary traffic management would be required at the interface with London Road and the A120 Marks Tey interchange:
- Temporary traffic signals on London Road (during peak and off-peak traffic hours) and footpath closures.
  - Narrow lane running or lane closures on the A120 Marks Tey interchange.
  - There would also be a requirement to close London Road and the A120 Marks Tey interchange for certain construction activities which would be undertaken at off-peak traffic hours (Monday to Friday) and at weekends (peak and off-peak traffic hours).
- 9.26.4 Temporary traffic management would be required on the A12 mainline and would include:
- Narrow lane running with a central reserve and verge phase with speed restriction in place
  - Narrow lane running of a contraflow with two lanes plus one lane of the opposing traffic on the adjacent carriageway separated by a temporary vehicle restraint with a speed restriction in place
  - Single lane closure during off-peak traffic hours
  - Single carriageway closure during off-peak traffic hours/weekend closures of the A12.
  - Full carriageway weekend closures of the A12 during both peak and off-peak traffic hours
- 9.26.5 During peak traffic hours Monday to Friday two lanes of traffic would be maintained in both directions (northbound and southbound on the A12 mainline). Lane closures, directional closures and full carriageway closures would only be undertaken in off-peak traffic hours Monday to Friday and weekends (peak and off-peak traffic hours). The only exception to this would be in response to an incident on the road network.

**Plate 9.23 Roman River culvert**



**Plate 9.24 Marks Tey Bridge**



## Acronyms

Abbreviation	Term
AIL	Abnormal Indivisible Loads
ANPR	Automatic Number Plate Recognition
CCC	Customer Contact Centre
CCTV	Closed-circuit Television
CDM	Construction Design and Management Regulations
CLoCS	Construction Logistics and Community Safety
CPF	Collaborative Performance Framework
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EMP	Environmental Management Plan
HGV	Heavy Goods Vehicle
FORS	Fleet Operator Recognition Scheme
GEML	Great Eastern Main Line
GHG	Greenhouse Gas
LRN	Local Road Network
NB	Northbound
OCTMP	Outline Construction Traffic Management Plan
PC	Principal Contractor
PRoW	Public Right of Way
RSI	Road Surface Index
SB	Southbound
SRN	Strategic Road Network
TMCC	Traffic Management Control Centre
TM	Traffic Management
TTRO	Temporary Traffic Regulation Orders
VMS	Variable Message Signs
WCH	Walkers, cyclists and horse riders

## Glossary

Term	Definition
Abnormal Indivisible Loads	A load that cannot be divided for the purpose of being carried on a road without undue expense or risk of damage.
Class 6 engineering fill	A well graded granular material, used for a road subbase for example.
Contraflow	a temporary arrangement where traffic on a road is transferred from its usual side to share the other half of the carriageway with traffic moving in the opposite direction.
Construction Logistics and Community Safety	A national Standard that requires all stakeholders in construction to take responsibility for health & safety beyond the hoardings. It demands collaborative action to prevent fatal or serious collisions between vehicles servicing construction projects and vulnerable road users: pedestrians, cyclists, and motorcyclists.
Development Consent Order	Introduced by the Planning Act in 2008, a DCO is the means of obtaining permission for developments categorised as a Nationally Significant Infrastructure Project (NSIP).
Directional closures	Prohibition of one direction of traffic while the opposing direction of traffic is maintained.
Diversion route	A set of approved routes to follow in case of closure of motorway/major A-roads.
Dual 3 lane all-purpose road	A road that has 6 lanes in total, with 3 lanes in each direction. An all-purpose road is available for all types of traffic.
Fleet Operators Recognition Scheme	A voluntary accreditation scheme which aims to raise the level of quality within fleet operations, and to demonstrate which operators are achieving exemplary levels of best practice in safety, efficiency, and environmental protection.
Full closures of the carriageway	Complete closure of the carriageway to avoid any forms of movement of an unauthorised vehicle and people.
Hard strip	The paved carriageway either side of the running lanes.
Haul road/route	Temporary routes which would be used during the construction-by-construction vehicles.
Lane 1, 2, 3	A lane reference, starting with lane 1 from the nearside to lane 3 on the offside.
Lane closures	An act of closing a lane on a motorway.
Mainline	The through carriageway of a road as opposed to a slip road or a connecting road at a junction.

## 7.7 Outline Construction Traffic Management Plan

Term	Definition
Narrow lanes	width of the standard carriageway reduced to allow safe construction works of the adjacent to the lane.
Excluded route	Local road networks and accesses that construction traffic is not permitted to use, excluding vehicles associated with traffic management.
Northbound	Direction of travel towards Colchester and beyond.
Off-peak traffic hours	Off-peak traffic hours would be between the hours of 21:00–06:00 during the week (Monday–Friday) and weekend hours (Saturday 00:00–Monday 06:00).
Off-slip	A slip road by which traffic leaves a major road such as a motorway.
On-slip	A slip road by which traffic joins a major road such as a motorway.
Peak traffic hours	Peak traffic hours would be between the hours of 06:00–21:00.
Permitted route	Local road networks and accesses that construction traffic is allowed to use at any time.
Permitted with restrictions route	Local road networks and accesses that construction traffic is permitted to use for specific activities only.
Ring management	Varying the numbers of lane on a circulatory section of a roundabout.
Side road	A side road is a road that crosses or enters a trunk road scheme.
Slip road	A connector road between a mainline carriageway and another road.
Southbound	Direction of travel towards Chelmsford and beyond.
Temporary Traffic Regulation Orders	A legal instrument that enables a traffic authority to regulate or prohibit the movement of traffic on the highway. This Order is made in accordance with the Road Traffic Regulations Act 1984.
Traffic Management	Control of traffic by means of lane closures to include temporary signals.
Variable Mandatory Speed Limit	Speed limits are displayed and come into operation when traffic volumes increase, and sensors activate lower speeds. Reducing speed during peak demand decreases stop-start conditions and allows traffic to move smoothly.
Variable Message Sign	A road sign able to display different messages.

## References

Construction Design and Management Regulations 2015

Department for Transport (2018). Traffic signs manual.

Department for Transport (2009). Traffic signs manual: Chapter 8.

Health and Safety Executive (n.d.). Human factors and ergonomics. Available at: <https://www.hse.gov.uk/humanfactors/>.

Highways England (2020). Design Manual for Roads and Bridges: GD 904 – The use of highest safe speed limits including advice on using 60mph at/through road works.

Available at: [REDACTED]



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## **Appendix A Proposed diversion routes – Part 1**

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## Appendix A Proposed diversion routes – Part 2

## **Appendix B Permitted and excluded routes for construction vehicles (plans)**

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## Appendix C Potentially affected bus routes

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## Appendix D Temporary Bridges