

A12 Chelmsford to A120 widening scheme

TR010060

6.3 ENVIRONMENTAL STATEMENT APPENDIX 5.2 GAS MAIN DIVERSION SCREENING ASSESSMENT

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ENVIRONMENTAL STATEMENT
APPENDIX 5.2 GAS MAIN DIVERSION SCREENING ASSESSMENT

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CONTENTS

1	Introduction	2
1.1	Purpose of this document	2
1.2	Location of the gas main	4
2	Assessment of likely significant effects	5
3	Conclusion.....	12

LIST OF TABLES

Table 2.1	Assessment of effects for the gas main diversion.....	5
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1 Introduction

1.1 Purpose of this document

- 1.1.1 National Highways (the Applicant) has submitted an application under Section 37 of the Planning Act 2008 for an order to grant development consent for the A12 Chelmsford to A120 widening scheme (the proposed scheme).
- 1.1.2 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 two new sections of three-lane dual carriageway, between junctions 22 and 23 and between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and alterations and improvements for walkers, cyclists and horse riders to existing non-vehicular routes along the A12. The proposed scheme is defined as a nationally significant infrastructure project (NSIP) under Section 22(1)(b) of the Planning Act 2008.
- 1.1.3 The proposed scheme also includes the diversion of the high-pressure gas main Little Braxted to Springfield - AIA2 (the 'gas main diversion'), owned and operated by Cadent Gas Limited (Cadent), which will be treated as an NSIP if (when constructed) it is expected to meet the conditions set out in Section 20(2) to (5) of the Planning Act 2008. The relevant conditions are:
- (2) The pipeline must be wholly or partly in England
 - (3) Either:
 - (a) the pipeline must be more than 800mm in diameter and more than 40km in length; or
 - (b) the construction of the pipeline must be likely to have a significant effect on the environment
 - (4) The pipeline must have a design operating pressure of more than 7 bar gauge
 - (5) The pipeline must convey gas for the supply (directly or indirectly) to at least 50,000 customers, or potential customers, of one or more gas suppliers
- 1.1.4 The gas main diversion meets the conditions set out in sub-sections (2), (4), and (5). The gas main diversion would be wholly in England, has a design operating pressure of more than 7 bar gauge (barg - a unit of gauge pressure) and supplies more than 50,000 customers. In addition, in accordance with Section 20(1) of the Planning Act 2008, the gas main is expected to be constructed by Cadent (the current operator of the gas main to be diverted) who is a 'gas transporter' (as it holds a licence under the Gas Act 1986).

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- 1.1.5 Sub-section (3)(a) does not apply to the gas main diversion because the diversion will not be more than 40km in length. Sub-section (3)(b) relating to likely significant effects is considered further in Section 2 of this screening assessment, which has been prepared for the purpose of determining whether the condition under sub-section (3)(b) is expected to be met (when constructed) in order to confirm whether the gas main diversion meets the conditions for designation as an NSIP.

1.2 Location of the gas main

- 1.2.1 To the east of Witham, the existing gas main runs north-south on the southern side of the A12. The 600mm diameter gas main has a maximum operating pressure of 42barg.
- 1.2.2 The section of gas main that would need to be diverted starts west of Maldon Road and runs adjacent to the A12 before feeding into an existing Cadent above ground installation called Little Braxted Pressure Reduction Station, south-west of Little Braxted (south of junction 22).
- 1.2.3 The works to widen the A12 as part of the proposed scheme would cause two principal pinch-points that would require diversion of the existing gas main into a new corridor. The two pinch-points are:
- Where the gas main passes between the A12 and existing housing and the Church of Jesus Christ Latter-Day Saints by Maldon Road
 - Where the gas main passes between the A12 and Whetmead Local Nature Reserve (LNR), which contains a historic landfill and therefore is potentially contaminated
- 1.2.4 The route of the proposed gas main diversion corridor is shown as Work No. U69 on the Utilities Diversion Works Plans [TR010060/APP/2.2.2]. The corridor diverts from the existing gas main at approximately national grid reference TL 821 130, west of Maldon Road (B1018). It diverts south-east, away from the A12 and around Maldon Road and then returns north-east to run alongside the existing A12 before diverting east away from the A12 again, crossing the River Blackwater to go around Whetmead LNR (which is also a historic landfill), avoiding the potential contaminated land, before continuing north towards the A12. It re-joins the existing gas main at approximately national grid reference TL 830 144, south-west of Little Braxted.
- 1.2.5 At this stage, the precise alignment of the gas main diversion has not been fixed and is subject to further detailed design and engineering considerations. However, for the purposes of this screening assessment, the limits of deviation for the gas main diversion correspond with the limits of deviation contained in the application as set out on the Utilities Diversions Works Plans [TR010060/APP/2.2.2].

2 Assessment of likely significant effects

- 2.1.1 For the purposes of this screening assessment and in order to make a determination under Section 20(3)(b) of the Planning Act 2008, the gas main diversion has been assessed alone rather than as part of the wider proposed scheme, unless stated otherwise. However, the Environmental Statement assesses the likely effects of the proposed scheme as a whole in line with best practice, and the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
- 2.1.2 A detailed description of the baseline for the proposed scheme, including the gas main diversion, is provided in Chapters 6 to 15 of the Environmental Statement [TR010060/APP/6.1], and is not repeated in this screening assessment.
- 2.1.3 Table 2.1 provides a qualitative assessment of the environmental effects of the gas main diversion. The assessment has taken into consideration the effects identified in the main body of the Environmental Statement [TR010060/APP/6.1]. No formal independent screening in connection with these works in isolation has been requested on the basis that they are proposed (and therefore assessed) as part of the proposed scheme Environmental Statement.

Table 2.1 Assessment of effects for the gas main diversion

Aspect	Description of effect	Likely significant environmental effect
Air quality	<p>There are residential receptors located adjacent to Maldon Road and Pantile Close, on Wickham Hill, adjacent to Ishams Chase (south-east of the A12), and in Witham (north-west of the A12) that could be impacted by dust arising from the construction works to undertake the gas main diversion. However, in accordance with relevant environmental laws and best practice, standard dust suppression techniques would be used during construction to minimise potential impacts.</p> <p>Emissions from construction traffic are unlikely to be significant as the duration of works for the gas main diversion would be less than two years.</p> <p>The gas main diversion would not influence operational traffic, and therefore there would be no air emissions generated during operation or maintenance.</p>	No likely significant environmental effects identified.
Cultural heritage	<p>Construction of the gas main diversion would result in removal of archaeological remains associated with three non-designated archaeological sites assessed to be of negligible value. Standard mitigation would ensure any impacts would be of slight significance.</p>	No likely significant environmental effects identified.

Aspect	Description of effect	Likely significant environmental effect
Landscape and visual	<p>The gas main diversion would present changes to the pattern of the low-lying Blackwater River Valley landscape as a result of loss of vegetation, including woodland and characteristic willow plantations along the River Blackwater, vegetation on the western side of Benton Hall Golf and Country Club and within part of the Blackwater Rail Trail Country Park south of Blue Mills Hill. The gas main diversion easement would restrict the capacity to plant trees, resulting in residual change to the character of the valley, although mitigation planting would be accommodated in accordance with Cadent’s standards and specifications.</p> <p>Loss of vegetation within the Blackwater River Valley, including willow plantation, would be noticeable from a public right of way (PRoW) north of Ishams Chase, and would be perceived through vegetation from residential property at the northern end of Ishams Chase, as well as from the gardens at Glen Chantry which were formerly open to the public. Loss of vegetation would open up views across the Blackwater River Valley towards the A12. Mitigation planting would help to reinstate the character of the view from the PRoW and from residential property.</p>	<p>Yes - Likely significant effect on landscape character and visual receptors</p> <p>Likely significant adverse effects have been identified for local landscape character area (LCA) sub-area A9A¹. This is largely due to the overall loss of vegetation required for the gas main diversion, which would contribute towards large adverse effects during construction and would result in large adverse effects in year 1 of operation and moderate adverse effects at year 15 once mitigation planting has established.</p> <p>Likely significant adverse effects have also been identified from representative viewpoint 35: Representative view north from PRoW 268_23. During construction there would be large adverse effects from the PRoW and from residential property at the northern end of Ishams Chase, as well as from the gardens at Glen Chantry. During year 1 of operation there would be moderate adverse effects from the PRoW. However, there would be no significant visual effects from viewpoint 35 during year 15 of operation because mitigation planting would help to reinstate the character of the view.</p>

¹ See Chapter 8: Landscape and Visual of the Environmental Statement [TR010060/APP/6.1]

Aspect	Description of effect	Likely significant environmental effect
		<p>Appendix 8.1 of the Environmental Statement [TR010060/APP/6.3] describes the published landscape character of LCA sub-area A9A, Appendix 8.2 and Appendix 8.3 [TR010060/APP/6.3] describe the effect on landscape character and visual receptors that would be caused by the wider proposed scheme (including the gas main diversion).</p>
Biodiversity	<p>There would be no impacts to designated ecology sites from the gas main diversion. The gas main would be diverted around Whetmead LNR and Local Wildlife Site (LWS), avoiding impacts to this site.</p> <p>The gas main diversion would impact areas of lowland mixed deciduous woodland (a priority habitat) south of Blue Mills Hill and broadleaved plantation woodland north of Whetmead LNR and LWS. There is also potential for impacts to arable field margins and hedgerows, both of which are also priority habitats. Habitats along the gas main diversion would be reinstated as far as practicable. Where it would not be permissible to plant mature trees and scrub over the new easement, planting would be accommodated in accordance with Cadent’s standards and specifications.</p> <p>Impacts to the reedbed along the River Blackwater would be avoided as trenchless crossing techniques (such as directional drilling) would be used for Main River crossings.</p> <p>There is potential for the gas main diversion to impact protected and notable species which may be present in habitats within the footprint of the construction area, including: common reptiles (grass snakes, common lizard and slow worm), breeding birds, bats, badgers, otter and water vole and species of principle importance such as polecat, brown hare, common toad and hedgehog.</p>	<p>No likely significant effect.</p> <p>Chapter 9 : Biodiversity, of the Environmental Statement [TR010060/APP/6.1] concludes no likely significant effects on lowland mixed deciduous woodland, as there would be more woodland planted than lost throughout the wider proposed scheme. Whilst this is not assessed in relation to the gas main diversion in isolation and is based on a cumulative assessment of the entire proposed scheme, it is clear from the conclusion of no likely significant effects that any biodiversity impacts arising from the gas main diversion in isolation would also be compensated for.</p>

Aspect	Description of effect	Likely significant environmental effect
	<p>In addition, there is potential for impacts on dormice due to connectivity of hedgerows east of the River Blackwater with Chantry Wood, Mope Wood, Grove Wood and Sparkey Wood. Surveys are ongoing in 2022 to determine presence or likely absence of dormice. If dormice are identified as present, any potential impacts would be sufficiently mitigated for through standard mitigation techniques (such as timing of works and supervision by an Ecological Clerk of Works), thus avoiding any impacts.</p>	
<p>Geology and soils</p>	<p>The gas main would be diverted through grade 2 and 3a agricultural land, as classified by the Agricultural Land Classification. The effect on agricultural land would be temporary during construction and would be restored prior to operation. Standard mitigation and best practice measures would be followed to allow for subsoil and topsoil to be returned in an order where it can still be used for agricultural purposes. There would therefore be no significant effects on agricultural land or the best and most versatile soils.</p>	<p>No likely significant environmental effects identified.</p>
<p>Material assets and waste</p>	<p>Constructing the gas main diversion would consume primary materials resulting in adverse effects on the environment through the depletion of non-renewable natural resources.</p> <p>The gas main diversion would also intersect with an extensive Mineral Safeguarding Area for sand and gravel, resulting in approximately 7ha of mineral resource being sterilised. This would represent a marginal loss of the safeguarded sand and gravel resource (130,387ha).</p> <p>Constructing the gas main diversion would generate surplus materials and waste, leading to adverse effects on the available waste management infrastructure through permanently occupying landfill void capacity.</p> <p>Where practicable, the detailed design would look to reduce the consumption of primary materials, the unnecessary sterilisation of mineral resources, and the disposal of waste throughout the lifecycle of the gas main diversion. No operational effects are anticipated.</p>	<p>No likely significant environmental effects identified.</p>

Aspect	Description of effect	Likely significant environmental effect
Noise and vibration	<p>There would be a temporary increase in noise at the rear of some houses on the east side of Maldon Road and along Pantile Close, and on the front of the few houses along Ishams Chase. The increase in noise would not be significant due to the nature of the work and the relatively short duration that the works would be in any single location. Noise levels would be below the significant observable adverse effect level.</p>	<p>No likely significant environmental effects identified.</p>
Population and human health	<p>There would be temporary disruption to access and amenity of three rights of way and the residential areas of Blue Mills Hill and Ishams Chase while the gas main is diverted. This would be a minor impact during construction, with no impact once diversion works are completed.</p> <p>There would be temporary land acquisition and disruption to access in affected agricultural landholdings. Permanent easement rights would also be required and there would be limitations on replanting of trees within the area subject to easement. No impact on the continued viability of these land uses is anticipated.</p> <p>There would be temporary land acquisition and disruption of access to the grounds of Benton Hall Golf Club and Country Club, with permanent easement rights also required. This would result in moderate disruption during the period of construction, but would not impact the viability of the business once operational.</p> <p>No significant health effects from the gas main are anticipated. Construction effects from dust and noise would be managed through standard mitigation and good site practice. Operational effects are not anticipated as the gas main infrastructure would be underground.</p>	<p>No likely significant environmental effects identified.</p>
Road drainage and the water environment	<p>The gas main diversion would cross the River Blackwater and two Ordinary Watercourses. The River Blackwater is a Main River and Water Framework Directive designated water body and currently has a moderate status for both overall and physico-chemical quality elements.</p> <p>The gas main diversion would be tunnelled under Main Rivers, avoiding potential impacts to hydromorphology or flood risk caused by in-channel working. Mitigation measures and good construction practices would be employed to reduce water quality and flood risk impacts from construction activities, such as managing</p>	<p>No likely significant environmental effects identified.</p>

Aspect	Description of effect	Likely significant environmental effect
	<p>construction drainage and treating runoff as required, before discharge to receiving watercourses.</p> <p>Open cut trenches would likely be excavated for Ordinary Watercourse crossings during construction. This would lead to impacts on hydromorphology including disturbance to bed and bank materials and bed substrate compaction. As a result, bank failure and reduction in sediment supply to downstream watercourses are likely. However, this would only occur if the watercourses are active. The crossed Ordinary Watercourses exhibit a dry channel, lacking in significant natural processes and features. Therefore, effects would be slight, thus not significant. Limiting in-channel works to periods where the channel is dry would further mitigate any such effects, as well as reduce risk of any impact on flood risk. Emergency plans to ensure materials in the floodplain that could block flows could be removed prior to any flood event would also prevent significant effects on flood risk.</p> <p>No impacts upon water quality or flood risk are anticipated during operation. The gas main diversion would intercept a spring to one of the Ordinary Watercourses, limiting baseflow. However, this watercourse is ephemeral in nature, largely acting as a surface water gully, predominately active following periods of heavy rainfall. Therefore, no significant effects are likely on hydromorphology.</p> <p>During construction, the groundwater flow to two nearby licensed abstractions could be partially intercepted, reducing the abstractions yield. Mitigation would be implemented, as follows, to avoid significant effects:</p> <ul style="list-style-type: none"> • Gather further information on the source to confirm whether additional measures should be implemented • Should additional measures be required, monitoring the groundwater abstractions prior to and during construction • Should monitoring indicate an impact during the proposed work, a temporary replacement water supply would be provided. 	

Aspect	Description of effect	Likely significant environmental effect
	<p>Given the limited impacts on hydromorphology, groundwater (following mitigation), water quality and aquatic ecology, no impacts are likely to occur on water bodies designated under the WFD Regulations.</p>	
Climate	<p>Greenhouse gas (GHG) emissions would arise as a result of the transportation and consumption of raw materials on-site (and associated embodied carbon), the consumption of fuel and energy by on-site machinery and plant and employees travelling to and from the site, and as a result of carbon sequestered in soil and vegetation being released during the gas main diversion works. The magnitude of the GHG emissions associated with these works would be negligible compared to those associated with the wider proposed scheme, and in particular in comparison to UK carbon budgets.</p> <p>Given the subterranean nature of the gas main diversion, it is considered that the pipeline itself would not be particularly vulnerable to future changes in climate. As such, future changes in climate are considered unlikely to have a significant impact on the gas main diversion.</p>	<p>No likely significant environmental effects identified.</p>

3 Conclusion

- 3.1.1 The qualitative assessment shows that one aspect is likely to give rise to likely significant effects as a result of the gas main diversion, namely landscape and visual. This is due to the loss of trees and woodland, which would impact the landscape character of the River Blackwater valley and open up views across the Blackwater River Valley towards the A12. There would be permanent loss of willow plantation west of the River Blackwater, which is a distinctive characteristic feature of this landscape. It would not be appropriate to plant other vegetation permitted within Cadent's standards and specifications within the willow plantation.
- 3.1.2 It is possible that the final alignment of the gas main diversion could reduce the magnitude of effect on landscape character and visual receptors, or that suitable mitigation could be implemented, so that it would not give rise to likely significant effects and therefore it would not meet the threshold for an NSIP under section 20 of the Planning Act 2008.
- 3.1.3 However, it is not yet known whether:
- the final alignment, within the limits of deviation, can be developed to reduce the magnitude of impact on landscape character and visual receptors
 - whether trenchless techniques could be employed to avoid or reduce tree loss to a level required to remove the likely significant adverse effects on landscape character and visual receptors
- 3.1.4 Given the above, it has been assessed that the gas main diversion within the limits of deviation would result in a likely significant effect due to impacts on landscape character and visual receptors. Therefore, for the purposes of the proposed scheme, the gas main diversion has been treated as if it would meet the condition for an NSIP under Section 20(3)(b) of the Planning Act 2008 and the following documents have been prepared to support the application:
- The Utilities Diversion Works Plan [TR010060/APP/2.2.2] which identify the gas main diversion as Work No. U69. Work U69 is described in Schedule 1 of the draft Development Consent Order [TR010060/APP/3.1].
 - A High Pressure Gas Main Diversion Statement, included in Section 4 of the Case for the Scheme [TR010060/APP/7.1], which demonstrates how the proposed scheme complies with Regulation (6)(4) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009.
 - Appendix B, C, and D of the Case for the Scheme [TR010060/APP/7.1], which sets out an assessment of the proposed scheme against the relevant energy National Policy Statements. These are the Overarching National Policy Statement for Energy (EN-1) and the National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4), including draft version of the emerging updates to EN-1 and EN-4.