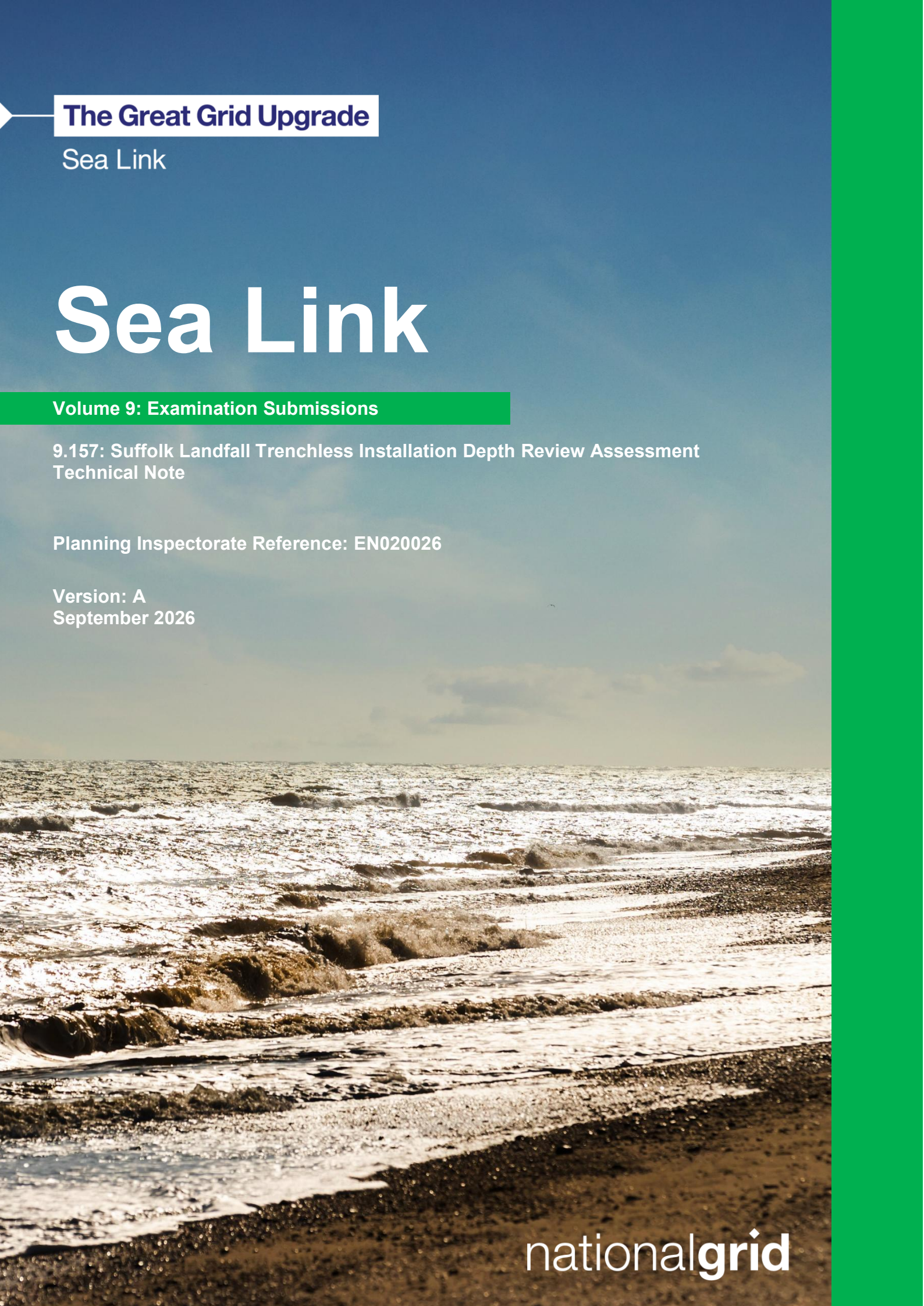




The Great Grid Upgrade

Sea Link

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Volume 9: Examination Submissions

**9.157: Suffolk Landfall Trenchless Installation Depth Review Assessment
Technical Note**

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1. Introduction

- 1.1.1 The Suffolk landfall is located north of the settlement of Aldeburgh and south of the settlement of Thorpeness. The marine High Voltage Direct Current (HVDC) cables would be installed through trenchless techniques (most likely Horizontal Directional Drilling (HDD) under the Leiston Aldeburgh Site of Special Scientific Interest (SSSI), North Warren Royal Society for the Protection of Birds (RSPB) Reserve and Thorpe Road.
- 1.1.2 The trenchless section is anticipated to be approximately 900 m in length within the onshore study area and would reach a depth of approximately 17 to 25 m below ground level (bgl) for much of its length, though rising towards the surface at the seaward and landward extents.
- 1.1.3 The lateral Limit of Deviation (LoD) is illustrated on **Application Document 2.5.1 Work Plans – Suffolk**; however, no vertical LoD has been specified i.e. no maximum depth of trenchless construction. Whilst a maximum below ground LoD is not proposed, the Proposed Project would never go deeper than necessary as this would add engineering operational complexity and cost.
- 1.1.4 Following discussions with the Environment Agency, concerns were raised that, in the absence of a maximum below ground vertical LoD, the Applicant could theoretically install the cable at greater depths than currently anticipated which in turn could lead to potential new or different significant environmental effects than those reported.
- 1.1.5 This technical note has therefore been developed to provide a review of the relevant environmental topics to confirm whether installation of the trenchless crossing at greater depths would materially alter the effects as originally reported. The findings of this review are presented in Table 2.1 below.

2. Increased Trenchless Depth Assessment

Table 2.1 Review of greater depth scenario by topic

Topic	Summary of position
Landscape and Visual	From a Landscape and Visual perspective, increasing the installation depth beyond the assessed depth of 25 m below ground level is not anticipated to alter the conclusions of the assessment. As the installation works are below ground, no new receptors would be affected, and no new or different landscape or visual effects are expected to arise. The only potential consideration is whether a greater installation depth would necessitate additional or different construction plant, equipment or working areas at the installation launch and reception sites. Any such changes would be temporary in nature and, given the presence of the wider construction activities already assessed, are unlikely to materially alter the significance of effects reported.
Ecology and Biodiversity	From a terrestrial ecology perspective, as the principal terrestrial ecological impacts are associated with the installation drive site rather than the depth of the bore itself, the installation at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment. This is based on the assumption that: • there are no consequential changes to the installation compound footprint, the type or scale of plant and equipment required, the associated noise-generating activities, or the duration of the works; and • risks such as inadvertent drilling fluid release (frac-out) and dewatering requirements remain consistent with those assessed within the Application. However, even without applying the assumptions above, it is considered that the existing commitments around noise levels and temporal constraints etc are sufficient to ensure that significant effects could not occur.
Cultural Heritage	From a cultural heritage perspective, installation of the trenchless crossing at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment.
Water Environment	From a Water Environment perspective, installation of the cable at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment. The

Topic	Summary of position
	principal considerations associated with a deeper installation are the potential for increased water consumption, the generation of additional drilling fluids, and any consequential change in the risk of inadvertent drilling fluid release (frac-out). However, the Application includes mitigation and management measures to minimise frac-out risk (Measures B09 and B60 of Application Document 9.84 (F) Register of Environmental Actions and Commitments (REAC) [REP7-358]) and to ensure the appropriate handling and disposal of drilling fluids, thereby preventing adverse effects on the water environment. In addition, the assessment assumes that water required for installation activities would be supplied by tanker rather than sourced from local water resources. Consequently, should additional water be required to facilitate a deeper installation, no additional effects on local water resources would be anticipated. On this basis, no new or different effects are expected to arise.
Geology and Hydrogeology	The assessment would not change provided the installation remains within the assessed Crag, Coralline Crag and London Clay strata. However, drilling into the Chalk Aquifer may lead to new or different significant effects to those reported in the Environmental Statement. Consideration has therefore been given to the likelihood of interacting with the chalk aquifer. The chalk has not been encountered in any of the boreholes completed for the Proposed Project. The nearest BGS borehole that intercepted the chalk is BGS borehole ref TM45NE7, located 1.25km to the south in Aldeburgh. It intercepted chalk at 273ft below surface with surface being c. 12ft OD elevation. The chalk is therefore at elevation -79.5m OD at that location and is expected to be at a similar depth beneath the trenchless crossing. At exit, the Chalk Aquifer is expected to be at least 70m below the seabed. The BGS hydrogeological map of Southeast Anglia (1982) indicates that the top of the Chalk Aquifer is deeper than -60m OD elevation 5 km inland of the trenchless installation site, with extrapolation of the gradient of the easterly dip suggesting it is at -90m OD at the site. As there is no foreseeable scenario under which the trenchless crossing would need to installed at such depths, it is considered that the Chalk Aquifer could never be intercepted. As such the effects as reported in the Environmental Statement are considered to be sufficient to cover any feasible increase in depth for the trenchless crossing below 25 m.
Agriculture and Soils	From an Agriculture and Soils perspective, installation at a depth greater than the assessed 25 m below ground level would not alter the conclusions of the assessment. The assessment focuses on agricultural land use and the soil resource within the surface and near-surface horizon (typically to approximately 1.2 m below

Topic	Summary of position
Traffic and Transport	ground level), which supports existing agricultural activities and must be protected to maintain its long-term function. As trenchless installation is undertaken beneath these soils and avoids direct disturbance to the land surface, increasing the depth of the trenchless installation would not result in any additional effects on agricultural land or soil resources. From a Traffic and Transport perspective, increasing the installation depth beyond that assessed would not alter the conclusions of the assessment. The trenchless crossing has been designed to minimise impacts on the King Charles III England Coast Path, Suffolk Coast Path and Public Rights of Way E-103/006/0, with any necessary management measures already accounted for within the assessment. Access S-BM01, which serves this part of the Order Limits, is forecast to accommodate only a very small proportion of construction traffic, representing approximately 0.4% of total vehicle trips and 0.1% of total HGV trips associated with the Proposed Project, with a maximum of 16 vehicle movements and three HGV movements per day. While a deeper trenchless installation could potentially require additional construction activity at the trenchless compound, if this did occur, it would not result in a material increase in traffic generation, nor extend the duration of traffic impacts to a degree that would alter the significance of effects reported. Accordingly, no new or different traffic and transport effects are expected to arise.
Air Quality	From an Air Quality perspective, installation of the trenchless crossing at a depth greater than the assessed 25 m below ground level would not alter the conclusions of the assessment and would not result in any new receptors or impact pathways being introduced. While a deeper installation depth could potentially require additional construction activity and associated emissions, no new or different air quality effects are anticipated. Construction dust effects were assessed on a precautionary basis, assuming high dust-generating activities, and the mitigation measures secured for the Proposed Project would remain applicable. Accordingly, the significance of effects reported in the assessment would remain unchanged.
Noise and Vibration	From a Noise and Vibration perspective, installation of the trenchless crossing at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment. Provided that the construction activities, plant, equipment and working methods remain broadly consistent with those assessed, no new or different noise and vibration effects are expected to arise.

Topic	Summary of position
Socio-Economics, Recreation and Tourism	From a Socio-economics perspective, installation of the trenchless crossing at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment.
Health and Wellbeing	From a Human Health perspective, installation of the trenchless crossing at a depth greater than the assessed 25 m below ground level is not anticipated to alter the conclusions of the assessment.

3. Summary and Conclusion

3.1 Summary

- 3.1.1 For most of the topics that considered the increased depth scenario, there is no potential for new or different likely significant effects to arise as a result of an increase in depth below the indicative maximum depth of 25 m.
- 3.1.2 With respect to the Geology and Hydrogeology topic, it was identified that the assessment as presented in the Environmental Statement assumes that the trenchless installation would be limited to the Crag, Coralline Crag and London Clay strata. It was considered that new or different significant effects could occur if the trenchless technique were to interact with the Chalk Aquifer strata that underlies the London Clay. However, as the chalk aquifer lies approximately 70m below ground level, it is inconceivable that there could ever be any interaction between the trenchless installation and the Chalk Aquifer. As such, it was concluded that the assessment as presented in the Environmental Statement accurately predicts the likely effects of the Project in terms of hydrogeology.

3.2 Conclusion

- 3.2.1 It is concluded that despite there being no maximum below ground vertical limit of deviation, there is no potential for new or different likely significant effects beyond those reported in the Environmental Statement and associated application documents.

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