

Appendix 3C

Draft Register of Environmental Actions and Commitments

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Revision 1

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1. Register of Environmental Actions and Commitments

- 1.1 This Register of Environmental Actions and Commitments (REAC) summarises the committed mitigation measures within the chapters of the Draft Environmental Statement (ES) and associated appendices in relation to the Project.
- 1.2 The Project includes the construction, operation and eventual decommissioning of approximately 100km of new pipeline to distribute hydrogen to industry in the North West. A number of Hydrogen Above Ground Installations (HAGIs), including Block Valve Installations (BVIs) are required to control the flow and pressure of hydrogen at key points along the proposed pipeline.
- 1.3 The Project connects the Hydrogen Production Plant (HPP) at the Stanlow site, as the source of hydrogen, for onward distribution to the network. The pipeline transports hydrogen to the Central Hub at the centre of the network, which then serves as the connection and onward distribution point to the North, East and South corridors, which would extend to St. Helens, Partington and Northwich respectively. Branching off from each main corridor would be pipeline spurs connecting hydrogen customers to the main pipeline. Infrastructure has also been included which supports the potential blending of hydrogen with methane in the existing gas network. The Project would also link to underground hydrogen storage facilities in Cheshire used to balance supply and demand through the network.
- 1.4 The REAC will be updated and finalised ahead of submission of the Final ES to accompany the application for Development Consent Order (DCO).
- 1.5 Each commitment will be given a reference number ahead of submission of the Final ES as per the Planning Inspectorate guidance¹ and arrangements for monitoring will be confirmed.
- 1.6 The REAC will be a 'live' document and will be used during the post-DCO consent phase as a tool to demonstrate compliance with commitments.

¹ Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Commitments Register. (Online). Available at: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-commitments-register> (Accessed September 2024)

Table 3C.1 Commitments Register

Topic	DRAFT Commitment (to be finalised DCO application)	Monitoring	Project Phase	Likely Commitment Securing Mechanism	Likely Responsibility for Delivery	Draft ES Reference	Compliance Date and Details* (TBC)
Biodiversity	1. Biodiversity Net Gain (Commitment): BNG uplift above the baseline situation will be sought through the design process for the Project.		Design	DCO requirement	The Applicant	Chapter 5: Biodiversity Table 5.21	
Biodiversity	2. Standard good practice: The Project will be subject to standard good practice mitigation measures employed to avoid and minimise potential effects to habitats and species under the supervision of an appointed Ecological Clerk of Works (ECoW). This would include (but not be exclusive to) buffer zones to key habitats and species, seasonally sensitive construction, minimising the removal of vegetation, considered location of works.	The supervision of the ECoW	Construction	DCO requirement	Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	3. Minimise land take and micro-site: Detailed design would aim to minimise the land take for works and site (through micro-siting within the LoD which will form part of the DCO works plans) those works away from the more important habitat and species features, particularly woodland and mature trees, boundaries including ditches and hedgerows, as well as ponds and other wetland features, which would consequently limit effects on associated species interest. Where practicable, sensitive sites including SSSIs, LWSs, ancient woodland would be avoided when micro-siting the proposed working areas.		Design	DCO requirement	The Applicant	Chapter 5: Biodiversity Table 5.21	
Biodiversity	4. Construction Environmental Management Plan (CEMP): In line with good practice, an overarching CEMP would ensure that any risk of impacts on biodiversity features arising from environmental changes from the Project e.g., airborne pollutants are rendered negligible by detailing methods for the employment of standard good practice measures. This plan would be supported by a suite of linked and supporting documents with biodiversity preparing an Outline Biodiversity Mitigation Strategy. Fish rescues and/or aquatic ecology pre-clearance surveys would be included as part of this strategy, ensuring that fish and other aquatic organisms are excluded and/or relocated from in-channel works areas.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant	Chapter 5: Biodiversity Table 5.21	

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Biodiversity	5. Sensitive vegetation removal: Vegetation, including riparian vegetation would be retained where possible. Riparian vegetation will be trimmed rather than removed where possible to retain rootstock for stabilisation of the banks. To avoid destruction of active nests, in any areas where vegetation clearance is required, such works would be undertaken outside the breeding bird season (outside March-August) where practicable. Where this is not practicable, vegetation removal would be undertaken under supervision of an ECoW or similar and appropriately managed to remove the risk of damaging or destroying active nests, young or eggs. Suitable methods would also be used to ensure features with potential to support other legally protected species (e.g. vegetation for reptiles and bank and channel features for white clawed crayfish) is removed sensitively and in compliance with legal requirements, and wherever practical would include removal in sections rather than all at once.	The supervision of the ECoW	Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	6. Maintaining habitat connectivity: Habitat connectivity would be retained wherever possible by maintaining links within and to green corridors such as hedgerows and watercourses. Where effects on connectivity are unavoidable, it may be artificially supplemented by, for instance the use of temporary screening or the creation of temporary brash hedges.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	7. Protection of ancient/veteran trees: Where practicable, any ancient/veteran trees identified would be avoided by micro-siting the design. A suitable root protection zone (with reference to BS 5837 ²) would be identified and used to site infrastructure within the Draft Order Limits and/or alternative construction techniques would be used to protect the trees.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	8. Protection of retained habitats (essential mitigation): The CEMP would include mapping illustrating the location of all retained areas of semi-natural habitat, as well as newly created habitats. Appropriate delineation would be installed around those retained habitat features within the construction area, to protect them		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	

² British Standard Institute (2012). BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. (online) Available at: <https://beta.bathnes.gov.uk/sites/default/files/2020-01/BS5837%202012%20Trees.pdf> (Accessed September 2024).

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	from direct effects during the works. Such delineation would be designed to avoid isolation/obstruction of protected species as necessary.						
Biodiversity	9. Management of invasive species: The use of tried and tested invasive species control and biosecurity measures to avoid the spread of non-native invasive species and infested materials would be applied. Measures would include pre-works checks to identify the location of INNS; the establishment of exclusion zones to prevent the spread of such species; the thorough cleaning and drying of all pumps and pipework before and after use to prevent transferring diseases or invasive species; positioning the pump inlet just below the water's surface and avoiding areas with water plants. All watercourse crossings where invasive non-natives have been identified will have an agreed, bespoke INNS management plan. INNS management plans for terrestrial species will be used where work within exclusion zones is unavoidable.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	10. Habitat reinstatement: Areas of temporary habitat loss would be reinstated, wherever practicable, following the completion of construction in each area. Wherever possible, reinstatement would be back to the type of habitat affected. Tree, hedgerow and shrub planting would be undertaken with an emphasis on reinstatement with native species-rich mixes in agreement with the landowner(s). Trees would be reinstated at ratios as set out in the Outline LEMP. Reinstatement works to watercourses may require measures to stabilise the banks and prevent erosion. Reinstatement measures will avoid hard structural elements, such as gabion baskets, sheet piling and concrete filled bags where possible. Geotextiles such as coir rolls, coir matting and GeoJute will be used in conjunction with seeding of an appropriate grass mix or planting, where appropriate. Reinstatement of watercourse channel bed will use sediment of similar size to the natural bed and of the same geology. Where possible, excavated material from the channel bed should be kept separate from other excavated material and used for reinstatement of the channel bed. All planting would be subject to an aftercare programme for an agreed period, during which any trees lost would be replaced.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	

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Biodiversity	11. Sensitive access and enabling works: At sensitive crossing locations (e.g. rivers), existing access routes would be used as far as possible, and the width of any required working area reduced as far as practicable. Where practicable, traffic management would be used to remove or reduce the need for removal of roadside trees to provide visibility splays at road junctions (in line with the results of consultation). If access upgrades are required on WFD watercourses, temporary bridges will be used in preference to culverts. Culverts may be used on smaller watercourses/ditches, but these will be sensitively designed to affect the minimum length possible, retaining the natural bed of the watercourse/ditch. Alternatively, they would be installed with the invert set below the natural bed level for a semi-natural bed to establish within the culvert. For watercourses (including minor rivers, streams and ditches) identified to support fish, culverts will be designed and constructed so that fish can pass where possible. Habitat would be re-instated to pre-works condition or better following the removal of temporary bridges and culverts.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity and Water Environment	12. Protection of watercourses: To minimise impacts on watercourses, stand-off distances will be established, with the exception of crossings and instances where existing field access roads located adjacent to watercourses are to be utilised. The proposed stand-off distances are 8m for non-tidal Main Rivers and 16m for tidal watercourses, as detailed in Chapter 7: Water Environment. A minimum stand-off from all other watercourses and waterbodies would be adopted where possible on a location-specific basis. This would be in line with regional Environment Agency requirements, excluding required access crossing points. In line with good practice ³ , pollution prevention plans will be drawn up to detail how ground and surface waters would be protected during construction and operation. These will include information on the storage of spoil, of any fuels, oils and other chemicals and pollution incidence		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	

³ Guidance on pollution prevention for businesses is available on the GOV.UK website: <https://www.gov.uk/guidance/pollution-prevention-for-businesses>. Further to this, the Environment Agency previously published a series of pollution prevention guidance (PPG) notes. The PPGs were withdrawn in December 2015 and now reside in The National Archives; however, they contain a mix of regulatory requirements and advice, much of which remains relevant good practice.

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	response planning. A Drainage and Water Management Plan (DWMP) will be developed for all construction activities to support the CEMP and will include measures to control erosion and prevent the mobilisation of sediments to watercourses, including the use of settlement ponds or siltbuster-type devices prior to discharge to watercourses to protect downstream watercourses from silt. This is also discussed in Chapter 7: Water Environment.						
Biodiversity	13. Sensitive lighting design: A lighting design of all temporary and permanent lighting would be developed once contractors are appointed; however, the principles of lighting design will be detailed at the time of application and informed by the joint guidance provided by the Bat Conservation Trust and Institution of Lighting Professionals ⁴ . Where appropriate, the lighting design will account for the potential effects on terrestrial and aquatic ecology by taking measures to minimise lighting usage, minimise light spill (e.g., through use of shield lights), use most appropriate wave lengths of light and locate lighting in the most appropriate locations – this is to decrease the potential displacement effects on light sensitive fauna such as bats and migrating fish.		Design	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant	Chapter 5: Biodiversity Table 5.21	
Biodiversity	14. Construction traffic speed limits: Speed limits would be imposed on all construction haul roads and access tracks to minimise the risk of road traffic collisions with fauna such as badgers, otters, bats and barn owls.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	15. Pre-construction update surveys: Pre-construction update surveys would be undertaken for protected species where relevant and necessary ⁵ .		Pre-construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant	Chapter 5: Biodiversity Table 5.21	

⁴ Institution of Lighting Professionals and Bat Conservation Trust (2018). Bats and artificial lighting in the UK. Bats and the Built Environment series (Guidance Note 08/18). (online) Available at <https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?1542109349> (Accessed September 2024).

⁵ For example, to maintain up-to-date baseline data for known features to inform mitigation requirements and European Protected Species licensing, or to identify potential additional biodiversity features which may become established within the Study Area (i.e. mobile species).

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Biodiversity	16. Screening of pumps: Where pumping, intakes would be screened with a suitably sized pump guard screen to avoid the entrainment of fauna. A screen aperture size compliant with the Eel Regulations ¹⁴ , with a default size of 2mm, is proposed. A competent and appropriately qualified person, such as an ECoW, will be responsible for monitoring upstream and downstream water levels and quality, as well as potential sediment and debris accumulation on pump guard screens. If impingement is observed, immediate efforts will be made to recover any affected fish (when safe to do so).	The supervision of the ECoW	Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity Table 5.21	
Biodiversity	Habitats - Feature specific measures: The Project layout would be optimised so that important habitats would be avoided where possible and alternative options considered. Any habitat reinstatement would be reflective of the type and extent of habitats affected by the Project where appropriate, as well as local conservation objectives and initiatives. The requirement for any habitat compensation would be identified through EclA process in line with the EclA mitigation hierarchy. An Outline BMS would identify key habitats and where reinstatement and compensation is required. This would complement planting specifications and requirements identified by the Arboricultural Impact Assessment. Standard Pollution Prevention Guidelines (PPGs) would be followed for works adjacent to water-dependent habitats, which would be included within the CEMP. Also see embedded environmental measures within Chapter 7: Water Environment. Successful implementation of these measures would minimise the loss, damage or fragmentation of habitats during construction.		Construction	CEMP and Outline Biodiversity Mitigation Strategy (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Ancient / veteran trees - Access and construction activities would be sited within the Order Limits to avoid veteran trees wherever possible, and control measures to protect retained veteran trees such as root protection areas would be implemented during the construction phase to avoid damage to veteran trees. These specific measures would be included within the CEMP and based on the output of the Arboricultural Impact Assessment.		Construction	CEMP (which would be secured by DCO Requirement).	The Applicant and Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	Successful implementation of these measures would minimise the loss or damage of veteran trees.						
Biodiversity	Bats - A method statement and tool-box talk would be prepared that would include details of pre-construction verification surveys for bats and would describe the approach that would be followed to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). Best practice guidelines would be followed during the works. These specific measures would be included within the CEMP or a Biodiversity Mitigation Strategy (BMS) that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting bats, their roosts and activity, and contravening legislation. Where an EPS licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the preliminary assessment.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Great Crested Newts (GCN) - The Project will join a Natural England-led GCN DLL scheme, in districts where it is currently available. This recommends the non-mandatory employment of standard best practice Reasonable Avoidance Measures. In St Helens (where the scheme is not live at present), a method statement and tool-box talk would be prepared detailing the required approach to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). Best practice guidelines would be followed during the works. Removal of suitable habitat would be designed to avoid the risk of injury to GCN, through measures such as timing ground works to avoid the hibernation period and implementing phased removal of habitat. Construction and reinstatement along the Project would be progressive and designed to avoid isolating or fragmenting GCN habitat. These specific measures would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting GCNs and their habitats, and contravening legislation.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	Where an EPS licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the assessment.						
Biodiversity	Otter - A method statement and tool-box talk would be prepared to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). Best practice guidelines would be followed during the works including making all contractors aware of the potential presence of otters, and where practicable, avoiding trenches uncovered overnight or leaving an escape plank/ramp if excavations cannot be covered. Any obvious mammal trails would be kept clear of obstruction. Night-time working would be avoided close to sensitive areas where possible, and site lighting would be designed to minimise disturbance of nocturnal fauna. All works where practicable would be undertaken between dawn and dusk. A pre-works check for holts and resting sites would be undertaken at each watercourse crossing location. These specific measures would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting otters, their rest sites/habitats, and activity, and contravening legislation. Where an EPS licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the assessment.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Water vole - A method statement and tool-box talk would be prepared detailing the required approach to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended). Best practice guidelines would be followed during the works. This includes pre-works check and avoidance of active burrows if present. All site infrastructure and activities (with the exception of watercourse crossing points) would be located at least 5m from watercourses wherever possible to minimise disturbance of water voles and their burrows. These specific measures would be included within the CEMP or an BMS that would form an appendix of the CEMP.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	Successful implementation of these measures would minimise the risk of affecting water voles, their burrows/habitats and contravening legislation. Where a protected species licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the preliminary assessment.						
Biodiversity	Reptiles - A method statement and tool-box talk would be prepared to avoid contravening the Wildlife and Countryside Act 1981 (as amended). Best practice guidelines would be followed during the works. Removal of suitable habitat would be designed to avoid the risk of injury to reptiles, through measures such as the gradual removal of habitat to displace reptiles in to adjoining habitats, and timing ground works to avoid the reptile hibernation period in areas where there is potential for hibernating reptiles to occur. If reptile surveys are required to address significant effects where good reptile populations occur, capture and translocation to high quality habitats (e.g. with hibernacula, compost heaps, log/brash piles and basking areas) would be carried out if required. Construction along the Project would be progressive and designed to avoid isolating or fragmenting reptile habitat. These specific measures would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting reptiles and ensure compliance with legislation.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Badger - A method statement and tool-box talk would be prepared that would include details of pre-construction surveys to check on the presence of badgers and the approach that would be followed to minimise the risk of contravening the Protection of Badgers Act 199212. Access and construction activities would be micro-sited where possible to avoid impacts on badgers and their setts. Measures would include making all contractors aware of the potential presence of badgers, minimising artificial lighting during the hours of darkness and avoiding leaving trenches uncovered overnight or leaving an escape plank/ramp if excavations cannot be covered in areas where badgers potentially occur. Any obvious mammal trails would be kept clear of obstruction. These specific measures would be included		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting badgers and their setts and contravening legislation. Where a protected species licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the preliminary assessment in Section 5.10.						
Biodiversity	Breeding birds - Where possible, vegetation clearance would be timed to avoid nesting bird season (that is March – August inclusive), otherwise nesting bird checks would be undertaken by a suitably qualified ecologist and avoidance of active nests may be necessary. The construction works programme would incorporate and account for all Schedule 1 species nests and avoid, amend or reduce works during sensitive periods i.e. breeding season. Where works are unavoidable during the nesting bird season, appropriate control measures would be followed including pre-works surveys for nests. If a nest is found, measures would be implemented appropriate to the species and associated level of protection and may include a protective buffer, a behavioural method statement with ecological monitoring and if necessary, suitable screening around working areas to avoid significant human disturbance. These specific measures would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting nesting birds and disturbing Schedule 1 species, and contravening legislation (Wildlife and Countryside Act 1981 (as amended)).		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	SPA and/or Ramsar Site qualifying/ assemblage species - Construction works in proximity to designated sites functionally linked land would be carried out from April to September (avoiding core winter period).		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Fish - A method statement and tool-box talk would be prepared detailing the required approach to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended), Salmon and Freshwater Fisheries		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	Act 1975, The Eels Regulations 2009 and/or The Water Environment (Water Framework Directive) Regulations 2017. Best practice guidelines would be followed during the works and is to include the removal of fish using Best Available Technique for the water course, as determined by a competent person, which may include electric fishing under EA consent where areas of watercourses (including all minor rivers, streams and ditches) are required to be temporarily dewatered to facilitate construction activities. Once dewatering is complete, sediment is also to be carefully inspected for European eels and other benthic species. Fish, and any other species collected are to be relocated to suitable upstream habitats.						
Biodiversity	Fish - A relocation plan will be established for all ponds identified as being lost that are considered to support fish. For offline ponds, a comprehensive fish survey will be conducted before construction, including the collection of specimens under license for health assessments (where required). Suitable receiving habitats will be identified in the relocation plan, considering habitat suitability, the current fish community, biosecurity risks, water quality and the availability of essential habitat conditions for growth and survival. For online ponds, fish will be collected and removed by means of Best Available Techniques as assessed by a competent person, which may include electric fishing before dewatering activities and relocated to connected watercourses that support suitable habitat.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Fish - Noise control measures have been assessed in Chapter 10: Noise and Vibration. These would include maintaining buffer distances to sensitive features, soft start pile driving, use of best technology, dampers on vibrating or noise emitting equipment, timing of works, as appropriate. These specific measures would be included within the Works Plans.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Fish - A site-specific management plan will be required for all watercourse crossings identified to support Atlantic herring and/or migratory fish, such as salmonids and lamprey species. These plans will consider appropriate avoidance measures and, where feasible,		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	will schedule construction activities to avoid key migratory periods and/or peak activity in the Atlantic herring nursery grounds (where these features exist). If avoiding these periods is not possible, the plans will detail appropriate mitigation to ensure the free passage of fish is maintained, such as using temporary diversion channels for open cut installation methods. Additional controls to mitigate impacts associated with noise and vibration will also be detailed. Measures may include use of press or vibratory pile driving and implementing phased or intermittent work schedules to provide recovery and movement windows for fish, as appropriate. This protocol is only applicable for crossings of watercourses identified as supporting migratory fish and/or Atlantic herring.						
Biodiversity	White-clawed crayfish - A method statement and tool-box talk would be prepared detailing the required approach to minimise the risk of contravening the Wildlife and Countryside Act 1981 (as amended). Appropriate pre-construction update surveys will be required for watercourses that have been identified to potentially support this species. If the species is detected, best practice guidelines would be followed and is to include avoidance of the breeding and wintering periods, pre-clearance surveys and establishment of suitable exclusion zones under licence. These specific measures and the watercourses where the protocol is applicable would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting these species, their habitats, and contravening legislation. Where a licence or permit may be necessary to avoid contravention of legislation, this is considered as separate mitigation.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	SPI and other conservation notable aquatic invertebrates - SPI and other conservation notable aquatic invertebrates: Specific measures (Table 5.24 - Summary of embedded environmental mitigation) A general ecological method statement would outline ecological good practice measures to minimise impacts to aquatic macroinvertebrates. The ecological method statement would be briefed to site personnel through a		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	tool-box talk to ensure site activities are conducted with awareness and sensitively for biodiversity. For watercourses where species of conservation note have been detected and open cut installation is proposed, pre-clearance surveys should be undertaken. Specific measures and the watercourses where the protocol is applicable would be included within the CEMP or a BMS that would form an appendix of the CEMP.						
Biodiversity	SPI and other conservation notable macrophytes - A general ecological method statement would outline ecological good practice measures to minimise impacts macrophytes. The ecological method statement would be briefed to site personnel through a tool-box talk to ensure site activities are conducted with awareness and sensitively for biodiversity. For watercourses where species of conservation concern, including notable macrophytes, are detected and open cut installation is proposed, pre-clearance surveys should be conducted. Specific measures and the watercourses where the protocol is applicable would be included within the CEMP or a BMS that would form an appendix of the CEMP.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	All other species identified within the baseline - A general ecological method statement would outline ecological good practice measures to minimise impacts to all other species and their habitats. The ecological method statement would be briefed to site personnel through a tool-box talk to ensure site activities are conducted with awareness and sensitively for biodiversity. These specific measures would be included within the CEMP or a BMS that would form an appendix of the CEMP. Successful implementation of these measures would minimise the risk of affecting these species and contravening legislation and policy. Where a protected species licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the preliminary assessment		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity and Air Quality	Dust control measures have been assessed in Chapter 9: Air Quality and would be implemented during the		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	

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	construction phase of work. These specific measures would be included within the CEMP. Successful implementation of these measures would minimise the risk of dust damage and ensure compliance with legislation and policy.						
Biodiversity and Water Environment	Pollution prevention control measures would be detailed in a method statement and implemented during the construction phase to avoid damage to habitats/species. Construction practices would comply with guidance on pollution prevention with a view to preventing the pollution of ground and surface water. Chapter 7: Water Environment details further measures. These specific measures would be included within the CEMP. Successful implementation of these measures would minimise the risk of damage through pollution and ensure compliance with legislation and policy.		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity, Table 5.22	
Biodiversity and Noise and Vibration	Noise control measures have been assessed in Chapter 10: Noise and Vibration. These would include maintaining buffer distances to sensitive features, use of best technology, dampers on vibrating or noise emitting equipment, timing of works. These specific measures would be included within the Works Plans. Successful implementation of these measures would minimise the risk of disturbance and contravening legislation.		Operation	Works Plans (which would be secured by a DCO Requirement)	The Applicant	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Measures to address impacts from lighting would be considered in accordance with best practice guidance and would be included within the Outline Landscape Mitigation Plan and/or Works Plans. Successful implementation of these measures would minimise the risk of affecting features, and contravening legislation. Where an EPS licence may be necessary to avoid contravention of legislation, this is considered as separate mitigation within the assessment.		Operation	Outline Landscape and Ecological Mitigation Plan (OLEMP) or Works Plans (which would be secured by a DCO Requirement)	The Applicant	Chapter 5: Biodiversity, Table 5.22	
Biodiversity	Any vegetation clearance associated with the operation of the Project would be subject to the relevant surveys being undertaken by a suitably qualified person to inform mitigation requirements, which would be applied according to relevant best practice at that time. These specific measures would be included within the Works Plans. Successful implementation of these measures		Operation	Works Plans (which would be secured by a DCO Requirement)	The Applicant	Chapter 5: Biodiversity, Table 5.22	

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	would minimise the risk of disturbance and contravening legislation.						
Biodiversity	Construction works in proximity to designated sites FLL would be carried out from April to September (avoiding core winter period).		Construction	CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity Section 5.13	
Biodiversity	The construction works programme would incorporate and account for all Schedule 1 species nests and avoid, amend or reduce works within specific disturbance free buffer zones around nest sites during the period they are active. Mitigation will be detailed within a Breeding Bird Protection Plan as part of the BMS/CEMP.		Construction	Works Plans (which would be secured by a DCO Requirement)/ CEMP (which would be secured by DCO Requirement).	Principal Contractor	Chapter 5: Biodiversity Section 5.13	
Biodiversity	The assessment has identified a net loss of the following habitats as a result of the construction of the Project: 2.84ha of other neutral grassland g3c and sub-communities, 1.75ha of mixed deciduous woodland, 0.04ha of wet woodland, 0.21km of native hedgerow, 1.19ha of arable field margins, 3.51ha open-mosaic habitat on previously developed land, and 4.93ha of other broadleaved woodland w1g. The Applicant will seek to provide compensation for all net loss of habitat identified.		Construction	CEMP (which would be secured by DCO Requirement).	The Applicant	**	
Historic Environment	Selection of pipeline routes and consideration of HAGI location options has been undertaken to avoid or minimise, as far as possible, identified areas of greater sensitivity.		DCO submission	DCO requirement	The Applicant	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	Programme of archaeological evaluation (trial trenching) and mitigation. The overarching research aims and approach to evaluation and mitigation is set out in the OWSI. This may be updated and is to be agreed with consultees and submitted as part of the DCO application.		Construction	DCO requirement	The Applicant	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	Construction routes to use existing access, as far as possible, to minimise disturbance or compaction of archaeological remains and to reduce perceptual change within the setting of heritage assets.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	Trackway would be used for access, where areas of archaeological potential have been identified, to avoid or		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	

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	minimise disturbance or compaction of archaeological remains.						
Historic Environment	Temporary accesses would be removed and reinstated following the completion of the construction works.		Post-Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	Avoidance of conservation areas within settlements by HGV construction routes, where possible.		Construction	Outline CTMP secured by DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment, Landscape and Visual	The project design has been optimised to minimise the removal of hedgerows and trees to accommodate the siting and working areas associated with the HAGI/ BVIs, construction compounds and material storage areas. Localised losses of hedgerows and trees related to the pipeline corridor, temporary/permanent access and associated visibility splays have been minimised and will be refined by the BS 5837 (2012) arboricultural surveys and ecological surveys currently underway.		Construction	DCO requirement	The Applicant	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	The removal of trees from within the avenue to Sutton Hall (Grade I Listed Building: 1253572) would be minimised as far as possible. Where mature sycamores are required to be removed they would be replanted with specimens as similar to the extant trees as possible, i.e., species, age and size.		Construction	Outline LEMP (followed by 'stage specific' LEMPs) secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	The Grade II listed boundary stone (1329857) is located in the verge of the A49 on the north side of Whitleybrook Bridge. The stone will be protected on site and marked up on plans to increase awareness of its position.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	The use of the Trent and Mersey Canal Bridge Number 211 (Listed Building (Grade II): 1139147) for construction plant movements will be subject to agreement with the Canal and Rivers Trust with regards a maximum load and vehicle size to avoid potential impacts to this Grade II listed structure.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	
Historic Environment	Any sections of hedgerow and trees that are removed would be reinstated following construction. Above the pipeline, appropriate low-level species would be selected to avoid damage to the buried pipe, whilst also reducing effects to the historic environment through promoting legibility of HLC.		Post-Construction	CEMP and Outline LEMP secured via DCO requirement	Principal Contractor	Chapter 6: Historic Environment. Table 6.7	

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Historic Environment, Landscape and Visual	Consideration of permanent low-level earthworks and/or tree/shrub planting to screen views of HAGIs and BVIs. Details to be confirmed in the Final ES.		DCO submission	CEMP and Outline LEMP secured via DCO requirement	The Applicant	Chapter 6: Historic Environment. Table 6.7	
Water Environment	Underground pipeline: The pipeline will be completely buried underground (with the exception of HAGIs and BVIs) and the ground will be suitably reinstated, so there will be minimal surface water and flood risk impacts once built, i.e. the pipeline will have no effect on surface runoff pathways and flood conveyance and/or storage in flood zone areas.		Design	Final DCO design	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Optimisation of routing: Any permanent above ground infrastructure will be located so as to avoid sensitive aquatic environments and flood risk areas, as far as possible.		Design	Final DCO design	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Development of flood protection and drainage measures: Where necessary, flood protection requirements for HAGIs and BVIs will be defined in the FRA as part of the final design for the DCO application. An Outline Drainage Strategy has also been developed for all HAGIs and BVIs for the DCO application and is included as an annex to Appendix 7F: FRA . The principles of flood protection and drainage design will meet the requirements of NPS-EN1 and NPPF, including taking into account climate change over the operational lifetime of the Project. HAGI and BVIs drainage systems will incorporate SuDS principles as far as possible. Detailed flood protection and drainage designs will be secured by DCO requirement and finalised post-granting of the DCO.		Design	Final DCO design and DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Temporary access tracks design: Temporary access tracks will be optimised to minimise impacts on drainage/soil conditions and will be specified based on ground conditions along the route. In specific areas (or during periods of adverse weather) there may be the requirement to import aggregates to create a stable surface for construction traffic movements. Options for access tracks include stripping the topsoil to allow vehicles to run on the subsoil and use of bog mats or overlaying crushed stone on a geotextile membrane to reduce impact. Detailed construction design will form		Design	CEMP secured via DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16	

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	part of the Construction Environmental Management Plan (CEMP) (see measure C-1), which will be secured via a DCO requirement.						
Water Environment	Management of subsurface flow pathways: All subsurface infrastructure will be designed to minimise disruption to existing subsurface flow pathways so as to avoid any localised increases in groundwater flooding risk and changes to the availability of water resources. This could include the placing of water barriers/mitigation to prevent preferential flows in pipeline backfill where pipelines are aligned with subsurface flow directions and the provision of cross-drainage above the pipelines where they are aligned transverse to subsurface flow directions. On this latter point, in many cases this may simply require reinstatement of existing agricultural drainage following completion of construction (see measure C-4 below). Detailed pipeline backfill design will be secured by DCO requirement and finalised post-granting of the DCO.		Design	CEMP secured via DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	CEMP: A CEMP will detail measures to be implemented to minimise disturbance and/or pollution to the water environment and will provide details of measures to protect environmental receptors. All aspects of the construction work will be in accordance with the Construction (Design and Management) Regulations 2015. In addition, work will be done in accordance with advice notes, guidance documents and Environment Agency PPGs. An CEMP is provided with this Draft ES. However, the final CEMP will be developed by the construction contractor post-granting of the DCO and prior to commencement of works and will be secured through a DCO requirement.		Construction	DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment and Agriculture and Soil Resources	A Drainage and Water Management Plan (DWMP): A DWMP will be developed for all construction activities to support the CEMP, incorporating the embedded mitigation given below. The DWMP will incorporate SuDS principles and specify appropriate treatment and attenuation storage to ensure any discharges to watercourses are uncontaminated and limited to greenfield rates. This will set out surface water drainage measures for the pipeline swathe and associated haul road networks, construction compounds, laydown areas		Construction	CEMP and DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16 and Chapter 13: Agriculture and Soils Table 13.11	

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	and HAGI/BVI construction sites. The DWMP will also specify measures for the treatment and discharge of dewatered groundwater. It will be developed by the construction contractor post-granting of the DCO and prior to commencement of works and will be secured through a DCO requirement.						
Water Environment and Agriculture and Soil Resources	Timing of works: Pipeline construction is generally focused on the spring and summer months (March to September), with the aim to reduce impacts on agricultural land. The works at crossings and on pipelines in the public highway may occur outside the typical pipelaying season and throughout the year.		Construction	CEMP and DWMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16 and Chapter 13: Agriculture and Soils Table 13.11	
Water Environment and Agriculture and Soil Resources	Diversion and reinstatement of existing drainage networks: To minimise impacts on surrounding agricultural land particular care will be taken to ensure that the existing land drainage regime is not compromised as a result of construction. Existing land drainage systems will be maintained and diverted as necessary during construction and reinstated on completion.		Construction	CEMP and DWMP	The Applicant	Chapter 7: Water Environment. Table 7.16 and Chapter 13: Agriculture and Soils Table 13.11	
Water Environment	Private water supply abstraction risk assessment and mitigation strategy: A detailed survey of private water supply abstractions will be carried out prior to construction to avoid abstractions wherever possible. Through risk assessment, where temporary loss of supply cannot be ruled out, alternative provision will be made, followed by full reinstatement on completion of the works.		Construction	CEMP and DWMP	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Temporary provision of surface water drainage for construction areas: Surface water drainage will be provided for construction areas, including the pipeline swathe, haul roads, construction compounds, laydown areas and HAGI/BVI construction sites, in line with the requirements of the DWMP. Construction drainage could include interceptor drains to ensure clean runoff from upslope areas is diverted away from working areas. Interceptor drains will provide appropriate water treatment and infiltration to ground or attenuation to greenfield rates, prior to discharge for runoff from working areas.		Construction	CEMP and DWMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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Water Environment and Agriculture and Soil Resources	Management of dewatering of excavations: Dewatering of trench excavations will be carefully monitored and groundwater flow disruption and drawdown will be minimised as much as possible by keeping excavation depths and abstraction rates to an operational minimum. Temporary cut-off drains will be installed to minimise surface water and shallow groundwater ingress into the pipeline trench and other excavations, such as Horizontal Directional Drilling (HDD) drive and reception pits (should HDD be used) and excavations at HAGI/BVI construction sites. Appropriate treatment for dewatered groundwater will be installed before discharge to surface or land (as detailed below in measure C-18).		Construction	CEMP and DWMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16 and Chapter 13: Agriculture and Soils Table 13.11	
Water Environment	Silt management measures: Silt management measures will be used to minimise the concentration of fine sediment in runoff from working areas and dewatered groundwater from excavations. These measures could include retaining as much vegetation as possible, seeding or sheeting of soil stockpiles where these are present for extended periods, discharge for infiltration to vegetated areas and the incorporation of silt fences, straw bales, settlement ponds or siltbuster-type devices into drainage systems prior to discharge to watercourses.		Construction	CEMP and DWMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Stand-off distances from watercourses, flood defences and water supply and sewage infrastructure: To minimise the potential for impacts to watercourses, a stand-off distance from all watercourses/water bodies will be established (with the exception of crossings and where existing field access roads already located adjacent to watercourses are to be utilised). It is proposed that this is 8m for non-tidal watercourses and 16m for tidal watercourses, in order to align with Environment Agency FRAP requirements for Main Rivers and LLFA Land Drainage Consents requirements. These stand-offs will also apply to flood defences. Appropriate stand-off distances should also be applied where there is interaction between Project construction activities and water supply and sewerage infrastructure (to be agreed on a case-by-case basis).		Construction	CEMP and DWMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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Water Environment	Timely reinstatement following completion of works: Working areas will be reinstated to their pre-construction condition as soon as possible following completion of construction. If the risk of sediment mobilisation remains, any necessary drainage and silt management measures will stay in place until vegetation becomes re-established.		Construction	CEMP	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Permitting of discharges: Discharges from construction activities will be subject to obtaining relevant discharge permits from the Environment Agency. A Monitoring Plan will be developed to ensure that the discharged water meets permit conditions (see measure C-19 below)	Monitoring and Inspection Programme (see measure C-19)	Construction	Environmental Permit	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Discharge outfall design: Temporary construction outfalls will be suitably designed to minimise impacts on scour and erosion in the receiving watercourse and will be subject to FRAP for Main Rivers and OWC for Ordinary Watercourses.		Construction	FRAP/OWC (DCO requirement)	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Pollution Prevention Plan (PPP): A PPP will be developed to support the final CEMP, detailing how ground and surface waters will be protected during construction. This will include information on the storage of any fuels, oils and other chemicals and pollution incidence response planning. The PPP will include measures to protect from materials becoming mobilised through flood water from all sources. It will also include measures for the protection of licenced and private water supply abstractions and could include a monitoring regime associated with critical or very proximate receptors (see measure C-19). The PPP will be developed by the construction contractor post-granting of the DCO and prior to commencement of works and will be secured through a DCO requirement.	Monitoring and Inspection Programme (see measure C-19)	Construction	CEMP and PPP (DCO requirement)	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Storage of hydrocarbons and other chemicals: Fuel storage will be in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and other Environment Agency PPGs. Areas at risk of spillage will be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system or local watercourses. All stores of fuel will be located at least 20m from any watercourses and away from areas at risk of flooding. Any tanks and associated		Construction	CEMP and PPP (DCO requirement)	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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	pipe work containing oils, fuels and chemicals will be double-skinned. They will have a bunded capacity appropriate for hazardous fluids.						
Water Environment	Refuelling, inspection and maintenance: Refuelling of machinery will be undertaken within a designated area where spillages can be easily contained and provided with hydrocarbon separator. Areas of construction compounds that are used for fuel storage, plant maintenance and refuelling will be surfaced with fully impermeable materials to prevent any infiltration of contaminated runoff and contain bunding. Plant and machinery used during the construction and operation phases will be maintained to minimise the risks of oils leaks or similar. Placing a drip tray beneath a plant and machinery during refuelling and the availability of spill kits will contain small spillages.		Construction	CEMP and PPP (DCO requirement)	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Handling and processing of concrete: Measures will be in place to control, store (and treat) concrete wash water and waste arising from the process on site. Concrete wash out areas on site should be sited away from any watercourses or drainage channels to prevent accidental escapes of liquid or slurries to the water environment. Lining of these areas may also be undertaken.		Construction	CEMP and PPP (DCO requirement)	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Materials Management Plan (MMP): Measures to avoid pollution impacts related to the disturbance of contaminated land will be documented in a MMP. Any temporary onsite storage of excavated materials suspected or confirmed to be contaminated will be on impermeable sheeting, covered over and with adequate leachate/runoff drainage to prevent migration of contaminants from the stockpile. Materials will be segregated where possible to prevent cross-contamination occurring. Such materials will only be reused if they are confirmed as suitable for use in line with the requirements of the MMP.		Construction	DCO requirement	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Treatment and discharge of contaminated groundwater: If water being pumped from excavations is suspected to be contaminated appropriate storage, testing and disposal will be undertaken in accordance with Environment Agency guidance and the Environmental Permitting Regulations to		Construction	CEMP, PPP (DCO requirement) and Environmental Permit	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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	prevent uncontrolled or unauthorised releases of this water to ground or to the water environment. Contaminated groundwater will only be discharged following appropriate treatment, subject to an Environmental Permit.						
Water Environment	Monitoring and inspection programme: A monitoring and inspection programme will be developed to ensure that the requirements of the PPP and Environmental Permits for discharge are being met during construction.		Construction	CEMP, PPP (DCO requirement) and Environmental Permit	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Foul drainage from temporary compounds: Appropriate treatment and disposal of sewage will be provided where no foul sewer is available to ensure protection of the water environment. Should discharge of treated effluent to watercourses or to land be required, this will be subject to an Environmental Permit.		Construction	Environmental Pernit, if required	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Pre-commissioning pipeline testing: Pre-commissioning pipeline testing will be subject to granting of requisite abstraction licences and discharge permits, subject to quantity and quality limits agreed with the Environment Agency during the licence/permit application process. Sufficient storage and treatment will be provided to ensure licence permit conditions are met. Design and risk assessment will reduce any impacts on sensitive water receptors and any environmental incidents.		Construction	Abstraction Licence and Environmental Permit	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Preferential siting: Preferential siting of construction infrastructure and activities to minimise flood risk and impacts on sensitive receptors will be undertaken as far as possible. Any works in areas of significant flood risk will only be undertaken in line with the NPPF exception and sequential tests and subject to full FRA.		Construction	FRA and CEMP (DCO requirement)	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Flood Emergency Response Plan (FERP): An FERP will be prepared for those construction activities which must take place in areas of higher flood risk. This will describe the flood hazard, assess the risk to infrastructure and personnel, specify roles and responsibilities, describe arrangements for receiving flood warnings and responses to them (including evacuation as required) and identify evacuation routes. In addition, the FERP will set out arrangements for cessation of excavation dewatering activities should a flood alert or flood warning be received to minimise any impacts on flood		Construction	FERP and CEMP (DCO requirement)	Th Applicant	Chapter 7: Water Environment. Table 7.16	

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	flow conveyance and to maintain access for watercourse maintenance. The FERP will be developed by the construction contractor post-granting of the DCO and prior to commencement of works and will be secured through a DCO requirement.						
Water Environment and Agriculture and Soil Resources	Minimise raised structures in floodplains: Where potential flood risk receptors could be impacted by a loss of floodplain storage and/or impacts on floodplain conveyance, soil stockpiles (associated with both the pipeline construction and the temporary haul road) will be located outside of the fluvial floodplain wherever possible. Soil stockpile impacts in the floodplain, where unavoidable, will be mitigated through appropriate alignment, leaving gaps and cross-drainage. Haul road levels will be kept as close to existing ground levels as possible. Where haul roads must be raised, cross-drainage will be provided as required.		Construction	FRA and CEMP (DCO requirement)	Principal Contractor	Chapter 7: Water Environment. Table 7.16 and Chapter 13: Agriculture and Soils Table 13.11	
Water Environment	Watercourse Crossing Plan (WCP): A WCP will be developed to support the CEMP, setting out detailed design proposals for all watercourse crossings (temporary access and permanent pipeline), construction methods, mitigation requirements for installation, operation and, if required, removal and permitting requirements. The WCP will be developed by the construction contractor post-granting of the DCO and prior to commencement of works and will be secured through a DCO requirement.		Construction	CEMP and WCP (DCO requirement)	The Applicant	Chapter 7: Water Environment. Table 7.16	
Water Environment	Trenchless pipeline crossings: All pipeline crossings of major watercourses are to be trenchless, with no temporary construction access crossing (including where flood defences present). Drive and reception pits or shafts for HDD and other trenchless technologies will be micro-sited outside of the floodplain where possible. All permanent pipeline crossings will pass beneath the bed of watercourses. Sufficient depth between the bed of the watercourse and the top of the pipeline will be provided to ensure no potential for exposure of pipeline due to scour. Where the pipeline route crosses an Environment Agency flood defence, trenchless methodologies will be used. All necessary permits (FRAP or OWC) will be obtained prior to commencement. Sensitive aquifers, identified from desk		Construction	CEMP, WCP, FRAP (DCO requirement) and/or OWC	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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	study and ground investigation works, will be considered in the design of the trenchless crossings.						
Water Environment	Trenched crossings of minor watercourses: Mitigation measures will be implemented to minimise impacts on flows, morphology, water quality and aquatic habitat. Working areas will be isolated and flows maintained by fluming or over-pumping. At sensitive crossing locations the working width will be reduced as far as practicable. Works will be brief, typically being completed in the short term. Banks and bed will be fully reinstated prior to flows being restored in the channel. The timing of in-channel works will be programmed to avoid seasonal fish spawning/migration periods for watercourses where this is identified as an issue. The timing of in-channel works will be programmed to avoid the wettest time of year, adapted when a flood warning is predicted. All necessary permits (FRAP or OWC) will be obtained prior to commencement.		Construction	CEMP, WCP, FRAP (DCO requirement) and/or OWC	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Temporary construction access watercourse crossings: Minor watercourses (where open cut techniques are proposed for the permanent pipeline crossings) will also typically have temporary crossings for the haul road to provide vehicular access along the route. Clear span bridges will be provided for larger or more sensitive watercourses to avoid impacts on channel morphology and aquatic habitat. Any temporary crossings will be in place for the minimal time possible. The mitigation measures set out above under measure C-27 will be employed during crossing installation and removal. All necessary permits (FRAP or OWC) will be obtained prior to commencement.		Construction	CEMP, WCP, FRAP (DCO requirement) and/or OWC	Principal Contractor	Chapter 7: Water Environment. Table 7.16	
Water Environment	Managing groundwater risk during HDD: Mitigation will be applied to reduce the potential risk of drilling contamination from drilling fluid/bentonite breakout into aquifer receptors. This will be achieved by suitable predesign surveys undertaken and the design and planning will also take account the conceptual hydrogeological model for a complete understanding of specific areas. Installation methodology will be based on best practices and controls on drilling fluid containment applied. Drilling additives will be selected to reduce environmental impacts and under environmental		Construction	CEMP, PPP, DWMP, MMP (DCO requirement) and Environmental Permit	Principal Contractor	Chapter 7: Water Environment. Table 7.16	

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	permitting. Contingency planning and emergency response would be prepared as part of the detailed planning stage prior to any works being undertaken.						
Water Environment	Periodic inspection and maintenance of flood protection and drainage measures: Periodic inspection will be undertaken at HAGIs and BVI areas to ensure that they continue to operate effectively over the operational lifetime of the Project.		Operation	DCO requirement	The Applicant	Chapter 7: Water Environment. Table 7.16	
Landscape and Visual	Minimising the visibility of activity within construction compounds and material storage areas Achieved by utilising existing vegetation as screening where possible and the adoption of solid fencing on sensitive boundaries. In some locations temporary earthwork bunds may be an appropriate measure and are subject to iterative design evolution.		Construction	Construction Environmental Management Plan (CEMP) and Works Plans	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual	Minimisation of impact of construction traffic upon high sensitivity visual receptors, including settlements The Project layout and construction route strategy has sought to avoid routing HGV construction traffic through settlements, where possible and considering safety issues. This will look to minimise the visual impact of HGV traffic on local communities as a secondary benefit, in addition to addressing the primary environmental sensitivities of construction related traffic including traffic management, noise and air quality.		Construction	CEMP and Works Plans	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual and Biodiversity	Minimisation of hedgerow and tree loss. Achieved through the following: - Where lengths of the pipeline that are to be constructed via open-cut trench method cross hedgerows, the extent of hedgerow to be removed would be as small as possible. This includes both hedgerows and the trees that sit within the hedgerows. - Where the permanent removal of a section of hedgerow is not required, consideration would be given to the temporary translocation⁶ of hedge plants. This method results in a faster		Construction	CEMP AMS and TPPs	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	

⁶ This would involve coppicing the hedge (i.e. cutting the plants to ground level), lifting the plants and their root systems, planting in a location where they won't be disturbed by construction activities, maintaining the plants (watering through summer) and replanting in the original location once works are complete.

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	reestablishment of the hedgerow post-construction than by planting of transplants and whips. - Where trees (trunks) about the pipeline corridor, trenchless crossing compounds or other contractor's compounds, the Root Protection Areas (RPAs) of these trees would be protected with protective measures detailed within a site-specific Tree and Hedgerow Protection Strategy (THPS). Where required, working methods would be supervised by an Arboricultural Clerk of Works (ACoW) in line with BS5837:2012. - The Project layout has sought to avoid all areas of Ancient Woodland and trees protected under a Tree Preservation Order (TPO).						
Landscape and Visual and Biodiversity	Minimisation of night-time visual impact of construction Adoption of measures that minimise light spill by restricting periods when lighting will be operating and the adoption of LED luminaires, cowlings and columns at a restricted height above ground level, where possible.		Construction	CEMP and Outline Lighting Strategy	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual and Biodiversity	Minimisation of the landscape and visual role of above ground infrastructure This would be achieved by the following: - Introduction of native planting around the HAGIs and Block Value Installations to screen views of ground and low-level infrastructure. This would include species that are beneficial to biodiversity and accord with species/habitat mitigation requirements. - Kiosks and lighting columns within the HAGIs and BVIs would be painted to a colour that fits the context in which they are located. The standard colour for the kiosks is BS 4800 green 14-C-39. The external finish paint colour would be subject to approval at Detailed Design stage with the precise shade specified at that time. - Fencing and access gates around the HAGIs and BVIs would be painted green or PVC coated green to ensure the colour that fits the context in which they are located. The exception would be at the Hydrogen		Operation	Outline Landscape and Ecological Management Plan (LEMP) which includes outline landscape planting proposals in Figures 1 to 13	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	

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	Power Plant HAGI within Stanlow which may be a standard galvanised finish or coated grey. The external finish would be subject to approval at Detailed Design stage with the precise shade specified at that time.						
Landscape and Visual and Biodiversity	Minimisation of night-time visual impact during the Operational Phase HAGIs would generally be unlit except during maintenance or potential breakdown/emergency requirements when permanent task lighting columns (3-5m in height) would only be in use. BVI sites would also be unlit.		Operation	Outline Lighting Strategy	The Applicant / Operator	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual and Biodiversity	Replacement planting to minimise long-term hedgerow and tree loss Where loss of hedgerow, tree or woodland is unavoidable during the construction phase to accommodate access or the pipeline corridor, the loss would be replaced as close to the original location as reasonably practicable, unless otherwise prohibited by other requirements or offset requirements from services. This would be in accordance with Cadent's Tree planting restrictions near gas pipes ⁷ and permits the planting of hardwood hedge plants directly over the pipeline where a hedge is necessary either for screening purposes or to indicate a field boundary. Species mixes/planting schemes would include species that are beneficial to biodiversity and accord with species/habitat mitigation requirements.		Operation	Outline LEMP	The Applicant / Operator	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual and Biodiversity	Enhancement of existing hedgerows Where the temporary loss of hedgerow occurs within existing hedgerows that are already fragmented, gapping-up would take place (where appropriate to do so) to create continuous lengths of hedgerow, utilising a species mix containing at least five woody plant species.		Operation	Outline LEMP	The Applicant / Operator	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual and Biodiversity	Reinstatement of land All land disturbed as part of the construction phase and thereafter not required as part of the DCO Project during		Operation	Outline LEMP	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	

⁷ Cadent Gas (undated), Tree planting restrictions near gas pipes - Guidance notes. (Online). Available at: <https://cadentgas.com/getmedia/25062e2f-7a72-4990-a818-0d6762af9d59/Tree-planting-guidance-Cadent-for-web.pdf> (Accessed 24 June 2024).

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	operation, would be reinstated and returned to its existing land use where appropriate post construction.						
Landscape and Visual and Biodiversity	Long term management of mitigation planting During the operational phase, management and monitoring would take place to ensure all mitigation planting survives and thrives to fulfil its landscape, visual and biodiversity role. Further detail is provided in the LEMP.	Long term monitoring as set out in the LEMP	Operation	Outline LEMP	The Applicant	Chapter 8: Landscape and Visual, Table 8.9	
Landscape and Visual/ Arboriculture	The LoD will be maximised as far as is practicable to avoid loss of Category A and B trees		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	Where impacts on tree groups are unavoidable, the working width/right of way will be minimised as far as is practicable		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	Regarding routing north of Higher Walton through Cat A Trees, the impact to the most valuable trees - native Black Poplar - and the Root Protection Zones will be minimised.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	Tree and Hedgerow Protection Strategy (THPS) would be produced during the detailed design stage		Pre-construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	Recommended (individual) tree replacement ratios (based on the BNG Metric tree helper) would be based on stem diameter sizes: 100mm - 1 200mm - 1 300mm - 1 400mm - 2 500mm - 3 600mm - 4 700mm - 6 800mm - 8 900mm - 9 1000mm - 12 1100mm - 14 >1200mm - 16		Construction	DCO requirement and Outline Landscape and Ecological Management Plan	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	

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Landscape and Visual	Recommended (group) tree replacement ratios (based on the BNG Metric tree helper) would be: - Stem diameter range <300mm – 1:1 - Stem diameter range >300 to <900 – 1:1.1 (10%) - Stem diameter range >900 – 1:1.2 (20%)		Construction	DCO requirement and Outline Landscape and Ecological Management Plan	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	To ensure that any additional veteran trees are identified and protected from construction, additional arboricultural survey work will be undertaken in areas which currently lack coverage before the removal of any trees takes place.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 5	
Landscape and Visual/ Arboriculture	Trenchless crossings beneath Ancient Woodland should be maintained at a depth of at least 6m to avoid root damage and disturbance. A trenchless crossing specialist will appraise the trenchless crossing locations to ensure they are suitable, and that risks of a fluid breakout are ALARP. Additional precautions may be required to ensure that any possible spillages do not lead to harm to Ancient Woodland. These would be set out within a Tree and Hedgerow Protection Strategy (THPS) secured by DCO requirements.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 7	
Landscape and Visual/ Arboriculture	During construction all ground works will be restricted to areas in excess of 25m from the edge of Ancient Woodland		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 7	
Landscape and Visual/ Arboriculture	A Tree and Hedgerow Protection Strategy (THPS) will be produced based on a detailed design. The THPS will contain a schedule of all proposed tree removal with annotated plans; a Tree Protection Plan detailing the specification and alignment of temporary physical protection measures that will be required for trees and hedgerows during the construction phase; and measures to ensure compliance with the THPS. The THPS will be written by an arboriculturist in accordance with the terms set out in the Arboricultural Impact Assessment Appendix 8C and implemented in full		Pre-construction	DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/ Arboriculture	The combined protected areas around all trees would constitute a Construction Exclusion Zone within which no unplanned access or operations would be permitted.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	

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Landscape and Visual/Arboriculture	The alignment of Construction Exclusion Zones will be detailed on a series of Tree Protection Plans, which would be produced for all sites with trees as part of the THPS.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Where a requirement to enter a Construction Exclusion Zone is anticipated or arises, the scope of proposed operations will be considered in terms of the physiological tolerances of the adjacent tree(s). Only operations that can be delivered without causing such harm would be permitted.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	The Applicant	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Appointment of an Arboricultural Clerk of Works (ACoW) to oversee the delivery of tree pruning and removal; monitor and facilitate compliance with all arboricultural recommendations; respond to public enquiries and complaints; assess the impact of any variations against the terms of the consent; produce additional supporting documentation as required; sign off works; and maintain records of progress.	The supervision of the ACoW	Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Establishment of an auditable system of responsibility for each component of the THPS. (Tree protection may be delivered by a wide range of individuals and companies. Many of the tree protection requirements would be observed by more than one party during multiple operations).		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Toolbox talks delivered to arboricultural contractors, operatives implementing components of arboricultural methodologies and any other party whose operations significantly interact with or have the potential to influence or be influenced by trees.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Inspection of all physical tree protection measures prior to commencement of works by an the ACoW.	The supervision of the ACoW	Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Landscape and Visual/Arboriculture	Establishment of an auditable system of quality control for tree pruning work to ensure adherence to specifications, health and safety requirements, accreditations and insurances; and to sign off completed works.		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	

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Landscape and Visual/ Arboriculture	Establishment of an auditable system of independent monitoring of compliance (checking the integrity of tree protection measures, monitoring compliance by non-arboricultural operatives with the terms of this report, inspecting tree condition following removal of tree protection measures).		Construction	Tree and Hedgerow Protection Strategy secured via DCO requirement	Principal Contractor	Appendix 8C: Arboricultural Impact Assessment, Section 8	
Air Quality	Where practical, sensitive sites will be avoided by the temporary construction compounds and permanent Project elements including SSSIs, Local Nature Reserves, Local Wildlife Sites, Ancient Woodland, areas of consented development, areas of historic landfill and other known areas of potential contamination, National Trust Land, Listed Buildings and Scheduled monuments.		Design	Development Consent Order (DCO) works plans and Order Limits	The Applicant	Chapter 9: Air Quality, Table 9.7	
Air Quality	Communication - Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. - Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/ engineer or the Project Manager. - Display the head or regional office contact information for the company in charge of the Project management and on site work. - Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the local authority.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Air Quality	Site Management - Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken. - Make the complaints log available to the local authority when asked. - Record any exceptional incidents that cause dust and/or emissions, either on- or off-site and the action taken to resolve the situation in the log book.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	

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Air Quality	Monitoring - Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. - Carry out regular site inspections to monitor compliance with the Dust Management Plan (DMP), record inspection results, and make an inspection log available to the local authority when asked. - Increase the frequency of site inspections by the person accountable for air quality and dust issues on-site, when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the local authority.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Air Quality	Preparing and maintaining site - Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible. - Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. - Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period. - Avoid site runoff of water or mud. - Keep site fencing, barriers and scaffolding clean using wet methods. - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. - Cover, seed or fence stockpiles to prevent wind whipping.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	

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Air Quality	Operating vehicles/ machinery and sustainable travel - Use Euro VI vehicles for haulage during construction, where possible for the tasks required. - Use Stage V Non Road Mobile Machinery (NRMM), unless there is a specific reason that suitable Stage V equipment cannot be obtained. - Ensure all vehicles switch off engines when stationary and not operating – no idling vehicles. - Avoid the use of diesel- or petrol-powered generators and use low-carbon alternative equipment where practicable. - Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas. - Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. - Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Air Quality	Waste management Avoid bonfires and burning of waste materials		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Air Quality	Measures specific to earthworks - Re-vegetate earthworks and exposed area/ soil stockpiles to stabilise surfaces as soon as practicable - Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable - Only remove the cover in small		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Air Quality	Measures specific to construction Avoid scabbling (roughing of concrete surfaces) if possible		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	

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	- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out (unless this is required for a particular process) - Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in solos and suitable emission control systems to prevent escape of material and overfilling during delivery - For small supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust						
Air Quality	Measures specific to trackout - Use water-assisted dust sweepers on the access and local roads to remove any material tracked out of the site - Avoid dry sweeping of large areas - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport - Record all inspections of haul routes and any subsequent action in a site log book - Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable)		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 9: Air Quality, Table 9.8	
Noise and Vibration, Traffic and Transport	Highway condition surveys will be undertaken before, during and after the construction phase and repairs conducted to any damage to highways, as a result of construction HGVs on the highways related to the Project		Construction	Outline CTMP	Principal Contractor	Chapter 10: Noise and Vibration, Section 10.6	
Noise and Vibration	A separate Demolition Environmental Management Plan, which will include noise and vibration monitoring and mitigation requirements would be prepared and followed at this later stage		Pre-construction	Secured via DCO	The Applicant	Chapter 10: Noise and Vibration, Section 10.7	
Noise and Vibration	There is a requirement to notify noise sensitive receptors in the vicinity of HAGIs when pigging activities are expected		Construction	Secured via DCO	Principal Contractor	Chapter 10: Noise and Vibration, Table 10.11	

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Noise and Vibration	Mitigation of adverse effects will take the form of management procedures or engineered screening to reduce noise and vibration		Construction	Secured via DCO	Principal Contractor	Chapter 10: Noise and Vibration, Table 10.29	
Noise and Vibration	Any significant changes to equipment, as required through routine updating of infrastructure (i.e. taking longer than 10 days and carried out overnight), shall be considered supplementary construction activity and accompanied by a s61 (COPA 1974) application		Construction	Secured via DCO	Principal Contractor	Chapter 10: Noise and Vibration, Table 10.29	
Traffic and Transport	Navigable waterways, railways, the strategic road network and major A roads will be crossed by trenchless technology. With the exception of locations where the relevant infrastructure to be crossed is on a bridge.		Construction	DCO works plans and Order Limits.	The Applicant	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	A crossing schedule/plan will be prepared which includes crossing methodology for each crossing of road, rail, PRow and watercourse.		Construction	Construction Environment Management Plan (CEMP) and DCO requirement.	The Applicant	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	Signage and/or temporary PRow/footpath diversions will be provided during construction.		Construction	PRowWMP and DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	The HGV Routing Strategy in the CTMP and the temporary construction access locations and onsite haul roads have ensured that several settlements would be avoided, where possible, by construction HGV traffic. These settlements include Frodsham, Helsby, Elton, Hartford, Middlewich, Wincham, Lostock Gralam, Pickmere, Comberbach, Arley, Antrobus, Lymm, Heatley, Rainhill, Sutton Manor. This measure would limit the impacts of the Project in local villages and settlements. Additionally, the measures will minimise, where possible, impacts to settlements that the project has construction activities within. These settlements are: Davenham, Bostock Green, Stretton and Great Sankey.		Construction	Proposed routing in agreed CTMP, secured via DCO requirement.	The Applicant	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	The HGV routing strategy will avoid the Air Quality Management Area (AQMA) in Frodsham.		Construction	Proposed routing in agreed CTMP, secured via DCO requirement.	The Applicant	Chapter 11: Traffic and Transport Table 11.20	

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Traffic and Transport	The HGV routing strategy will avoid the environmental weight restriction on the B5356 in Warrington.		Construction	Proposed routing in agreed CTMP, secured via DCO requirement	The Applicant	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	Where possible, the HGV routing strategy has been developed to avoid listed bridges on the local highways network. The following bridges need to be used due to their location in relation to the project: • The A56 Swing Bridge over the River Weaver at Frodsham; • Sankey Bridge in Warrington; • Knutsford Road swing bridge in Warrington; • Chester Road Swing Bridge in Warrington; • Moore lane bridge (over Manchester ship canal) in Warrington; • Moore lane bridge (over railway) in Warrington; and • Bold Bridge in Widnes. The use of the above bridges by construction traffic will not be out of keeping with current loadings and will not affect their heritage significance in any way.		Construction	Proposed routing in agreed CTMP, secured via DCO requirement.	The Applicant	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	Highways condition surveys will be undertaken before, during and after the construction phase and repairs conducted to any damage to highways, as a result of HyNet construction HGVs on the highways included within the HGV Access Strategy.		Construction	Proposed routing in agreed CTMP, secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	PRoWs that cross the pipeline corridors will be managed or diverted over the shortest distance possible (provided this is safe) with potential to provide adjacent crossings.		Construction	PRoWMP, secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	PRoW condition surveys will be undertaken before, during and after the construction phase. If damage has been identified as a result of the construction phase, the damage will be repaired. Post-construction, all PRoWs will be returned to their pre-construction condition.		Construction	PRoWMP, secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	

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Traffic and Transport	Construction access will be provided with visibility splays designed to Design Manual for Roads and Bridges (DMRB) design standards as agreed with the highway authorities where these are considered necessary.		Construction	CTMP secured by DOC requirement, DCO Works Plans and Access Plans.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	For open cut crossings of the highway, there are proposed to be two options, with a diversion also a possibility: 1 - Lay the pipeline in a trench, which would be excavated in phases to ensure at least one traffic lane is operational and controlled using temporary signals (although this approach cannot be used on single track parts of the highway); and 2 - Provide a short road closure while the work is undertaken with a relevant diversion route. This is of particular importance for single track roads. Depending on local conditions this diversion may be an alternative track adjacent to the carriageways. The Applicant will consult with the appropriate Local Highways Authority.		Construction	CTMP secured via DCO requirement, DCO Works Plans and Access Plans.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	Impacts on open access land will be managed through an active management strategy.		Construction	PRoWMP, secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	To address the severance issues on the B5204 traffic will be limited on this route at certain times of the day around school drop off and pick up when the issue would be most prevalent in the area. It is proposed that there would be a project HGV ban on the B5204 between 08:00 – 09:00 and 15:00 – 16:00 every school day		Construction	CTMP secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Table 11.20	
Traffic and Transport	To address the severance and pedestrian issues on the B5256 traffic will be limited on this route at certain times of the day around school drop off and pick up when the issue would be most prevalent in the area. It is proposed that there would be a project HGV ban on the B5256 between 08:00 – 09:00 and 15:00 – 16:00 every school day.		Construction	CTMP secured via DCO requirement.	Principal Contractor		
Traffic and Transport	There will be a need for permanent accesses to the HAGIs and other elements of above ground infrastructure, including BVIs, for maintenance, the designs of which will need to be developed and		Construction	CTMP secured via DCO requirement.	Principal Contractor	Chapter 11: Traffic and Transport Section 11.9	

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	discussed with the relevant local highway authorities and secured under a DCO requirement. It is anticipated that the key permanent accesses will be: - West Corridor: WH-02, WH-10, WH-12, WH-23; - North Corridor: NH-29, NH-31, NH-34, NH-51, NH-65, EH-26; - East Corridor: EH-43, EH-44, EH-45, EH-54; and - South Corridor: SH-15, SH-38. Discussion will be required as to the nature of the permanent design in this location including geometric standards and visibility requirements with the relevant highway authorities. It is anticipated that these accesses will be designed to relevant DMRB design standards including for junction layout and visibility standards and this will be discussed with the relevant local highways authorities. Traffic to the Central Hub HAGI, other HAGI and other elements of above ground infrastructure during operation will be minimal with only occasional maintenance vehicles. Consideration of this will need to be made for any design requirements.						
Traffic and Transport	Public Rights of Way - Safe crossing points would be implemented e.g. where a Public Right of Way (PRoW) crosses the working width. Where necessary, a temporary closure and diversion will be put in place and signage provided. Where an access point is required along a PRoW creation of a temporary shared route with users will be proposed.		Construction	PRoWMP secured via DCO requirement	Principal Contractor	Appendix 11B: CTMP – Section 2.6	
Traffic and Transport	The requirement for accesses improvements (e.g. visibility splays, and bellmouths and widening) will be subject to design and consultation with the appropriate highways authorities.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 2.6	
Traffic and Transport	Access routes to construction working areas would be implemented prior to any works commencing to provide suitable access for construction plant and traffic.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 2.6	
Traffic and Transport	For open cut crossing: Construction plant and vehicles must be able to cross from one side of a road for onward access to the route. This involves tracking major plant across the road for which traffic control measures		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 2.7	

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	and service protection would be undertaken. The road surface would be protected by use of a temporary surface. Measures would be put in place to ensure the highway is clear of debris and any restoration works would be subject to agreement with the highway authority. The crossing point would only be in operation when it is necessary to transfer plant or vehicles across. The highway would otherwise remain open to the public as normal for the majority of the time a crossing is in place.						
Traffic and Transport	There may be the need for some extended working hours for certain activities, but this would be subject to agreement with the local Planning Authority		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 2.9	
Traffic and Transport	Consultation, including any site specific detailed design, with the relevant highway authorities to occur on a location-by-location basis if different to the standard details set out in the CTMP, prior to the commencement of construction in the area subject to the relevant access creation/improvement.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 3.3	
Traffic and Transport	Temporary construction accesses will be designed to follow standard construction practice as set out in Design Manual for Road and Bridges (DRMB) and to meet relevant local highway authority requirements. The final specific access arrangements for temporary construction accesses will be discussed with the six local highway authorities.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 3.8	
Traffic and Transport	The nature of the bellmouth designs anticipated on the Project, will be discussed with the relevant local highways authorities post Section 42 consultation.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 3.8	
Traffic and Transport	Prior to submission of the DCO application, visibility splay requirements would be agreed with the relevant highways authorities on a case-by-case basis, considering: individual temporary construction/operational access sites, likely traffic demands and durations and site-specific speed surveys.		DCO application	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 3.9	
Traffic and Transport	Access to each of the temporary construction accesses would utilise strategic routes on the road network as far as practically possible before routeing onto local roads		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 4.2	

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Traffic and Transport	The HGV Routing Strategy and the temporary construction access locations and onsite haul roads have ensured that several settlements would be avoided by construction HGV traffic. These settlements include the built-up urban centres of Widnes, Runcorn, Sale, Altrincham, Nantwich, Weaverham. For settlements that the project has construction activities within, HGV routeing has been arranged to minimise impact. These settlements include Warrington and St Helens.		Construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Table 4.5	
Traffic and Transport	The HGV Routeing Strategy approach has been to avoid the use of small single-track roads (less than 4m width) for major HGV construction with the exception of the following: 1. 396m of Marsh Lane; 2. 400m of Lapwing Lane 3. 287m of Carrgreen Lane; and 4. 1,010m of Whatcroft Hall Lane		Construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Table 4.5	
Traffic and Transport	Engagement with Network Rail will take place to discuss the proposed crossings of the rail network.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 6.3	
Traffic and Transport	Consultation and engagement with the Canals and River Trust and landowners will take place to discuss the requirements of the Project up to and beyond DCO application submission, as required.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 6.4	
Traffic and Transport	Cadent would implement a number of the mitigation measures but discussion with National Highways and the six local highways authorities will be undertaken to inform consideration of detailed traffic management and, if required, road closures and diversions.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 7.1	
Traffic and Transport	All temporary traffic management implementation plans would need to be agreed by National Highways and the six local highway authorities and will be applied in accordance with guidance and procedures set out within Section 14 of the Road Traffic Regulation Act 1984 (as necessary)		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 7.4	
Traffic and Transport	Temporary traffic management arrangements would be included as part of the detailed design for each of the Temporary Construction Compounds, which would also be subject to approval by the relevant highway authority.		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 7.4	

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Traffic and Transport	Where traffic management measures are required, these will be agreed in advance with the relevant highway authorities. Any temporary road closures/diversions will be advertised in advance and alternative routes indicated through signage. Where required, temporary speed restrictions may be sought, either through the DCO or by way of Temporary Traffic Regulation Orders (TTRO). Any works within the highway would be reinstated to a standard commensurate prior to the commencement of the works and agreed with National Highways and the six highways authorities where appropriate		Pre-construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP -Section 7.6	
Traffic and Transport	Temporary signage would be erected along construction traffic routes on the local road network to provide directional routeing information for construction vehicles, to ease navigation between the SRN and the construction sites and compounds. Temporary signage warning other road users of the likely presence of construction vehicles would also be provided in the vicinity of each construction access location.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP -Section 7.7	
Traffic and Transport	All signage would be provided in accordance with Traffic Signs Regulations and General Directions (TSRGD) published by the DfT.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.9	
Traffic and Transport	Construction work would take place in accordance with set “construction hours” which will be secured in the DCO and within a Construction Environmental Management Plan (CEMP). Works may be required outside core hours to complete trenchless crossings to ensure safe working practices. In the case of emergency, any work required to be undertaken outside of the core working hours (not including repairs or maintenance) would be agreed with the highway authorities prior to undertaking the works.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.10	
Traffic and Transport	All HGV and LV construction vehicle movement associated with the Project would be recorded and timed as vehicles enter and leave all TCCs and sites as part of a delivery management system (DMS). DMS records would be compiled and stored centrally so that any complaints received concerning driver/vehicle conduct can be first referenced against the DMS to confirm whether the vehicle in question is associated		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.11	

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	with the Project. Poor conduct/management by the contractor will be addressed by the Applicant.						
Traffic and Transport	All road-based vehicles used in the construction of the Project would be to a EURO standard V class or better.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.12	
Traffic and Transport	Qualified personnel (banks person) would be placed at key locations when necessary, during the construction of the Project		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.13	
Traffic and Transport	A booking system (included in the DMS) would be used to ensure deliveries to the sites are spread across the working day (where feasible). This would minimise the impact of HGV traffic during the peak periods. The booking schedule would also form part of and inform the monitoring processes of the CTMP. As part of the mitigation for impacts related to the Project it is proposed to implement some HGV restrictions: • B5204, Sutton Heath - It is proposed that there would be a Project HGV ban on the B5204 between 08:00 – 09:00 and 15:00 – 16:00 every school day; • Arley Road, Appleton Thorn - It is proposed that there would be a Project HGV ban on the Arley Road between 08:00 – 09:00 and 15:00 – 16:00 every school day; and • A6114, Partington - It is proposed that there would be a Project HGV ban on the A6114 between 08:00 – 09:00 and 15:00 – 16:00 every school day. The limits of these restrictions have not yet been defined and will be agreed following consultation.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.14	
Traffic and Transport	Vehicles exiting from an access bellmouth would be checked and wheels cleaned, if necessary, prior to using the public highway to prevent debris from being transferred off the site onto the road. If required, a road sweeper would be utilised to further ensure that the local road network remains safe and clear of debris. Details of the methodologies for the cleansing of vehicles will be included in the CEMP to be included as part of the DCO submission and secured via DCO requirement.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.16	
Traffic and Transport	Highway condition surveys of access points would be undertaken before first use, at intervals during the		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.17	

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	construction programme and following final use, to ensure that the surface of the highway remains in good repair and highway safety is maintained. The condition survey inspections would also enable any repairs to be made in a timely manner throughout the construction period. At the end of the construction period, the accesses and crossing points shall be inspected and a programme of works to restore them to the condition they were in before the construction period began would be agreed with the relevant local and strategic highway authority.						
Traffic and Transport	The contractor will be required to have a Delivery Management System (DMS) to be agreed with Cadent.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.18	
Traffic and Transport	Information packs will be provided to all contractors which will form part of the contractual agreement between the contractors and applicant. Information packs and communications details will be shared with relevant highway authorities ahead of any construction works.		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 7.19	
Traffic and Transport	The CTMP will be approved by the relevant local planning authorities in consultation with all relevant highway authorities via a requirement of the DCO	The Transport Coordination Officer	Construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP – Section 8.1	
Traffic and Transport	A Transport Coordination Officer (TCO) will be appointed by the contractors to implement the CTMP. As several contractors will be appointed to undertake the varying construction works, it is unknown whether one TCO will be required for the entire Project, or each contractor will appoint an individual TCO. This will be agreed as part of the CTMP process and it is likely that a single TCO will be expected to coordinate and oversee all TCOs should there be a need for multiple TCO		Construction	CTMP secured via DCO requirement.	Principal Contractor	Appendix 11B: CTMP – Section 8.1	
Traffic and Transport	The TCOs appointed by the contractors will undertake monitoring as necessary to ensure compliance with the requirements of the CTMP and this will include the maintenance of records of the traffic management measures that have been implemented. The TCO will monitor and review the CTMP. As part of the CTMP, a series of mechanisms will be established to provide all parties with a clear understanding of the enforcement	The Transport Coordination Officer	Construction	CTMP secured via DCO requirement.	The Transport Coordination Officer	Appendix 11B: CTMP - Section 8.2	

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	procedures that will be applied if the requirements contained in this CTMP are not achieved. It is anticipated that these mechanisms will be determined prior to construction and will include: Risk Assessment Method Statement (RAMS) procedures, Contractual conditions and Actions						
Traffic and Transport	The Applicant will ensure that appropriate measures are taken to ensure contractor behaviour and performance is monitored and where appropriate corrective measures are taken to resolve, redress and enhance service		Construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11B: CTMP - Section 8.6	
Traffic and Transport	The Preliminary PRowMP will be updated as the elements of the Project are further defined through the ongoing design process and following feedback from Section 42 Statutory Consultation. Further consultation will be undertaken with Cheshire West and Chester Council (CWCC), Cheshire East Council (CEC), Trafford Council (TC), Halton Borough Council (HBC), Warrington Borough Council (WBC) and St Helens Borough Council (SHBC) to develop an agreed Management and Mitigation Strategy for construction traffic and PRowS affected by the Project. This will be submitted as part of the Development Consent Order application within an agreed PRowMP.		Design	PRowMP secured via DCO requirement	The Applicant	Appendix 11C: PRowMP – Section 1.1	
Traffic and Transport	For works affecting PRowS, consider advanced warning of proposed works via social media and/or through contact with local walking/riding groups		Construction	PRowMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRowMP – Section 3.2	
Traffic and Transport	The Applicant would inspect affected PRow routes at the following times: - prior to construction; - during the construction phase; and - following completion of the construction phase. A detailed on-site audit (including photographs/video) would be undertaken to record the situation at each affected point on the PRow. This would provide a baseline record to be shared with the relevant highway authority and used for reinstatement works, if necessary, once the construction period has ceased.		Construction	PRowMP secured via DCO requirement	The Applicant	Appendix 11C: PRowMP – Section 3.2	

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Traffic and Transport	The PRowS crossed by open cut method as part of the construction of the pipeline may require a temporary closure and diversion during the construction phase. In reality, and subject to discussion with the appointed contractor, it is anticipated that excavation of the pipeline trench itself would take a number of weeks with several periods of work. This process would be approved though consultation with the local PRow officers at the six local highways authorities.		Construction	PRowMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRowMP – Section 3.3	
Traffic and Transport	Where temporary crossings are proposed they would be surfaced in a manner suitable to the type of bridleway affected. For example, the small offline diversion of a bridleway would employ a grass, earth or compacted stone surface. In the unlikely event that a crossing was placed over a trench the material used would be suitable for horses. The contractor will also review the British Horse Society’s Dead Slow website which record incidents involving horse and vehicles in order to identify any areas with a history of accidents.		Construction	PRowMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRowMP – Section 3.3	
Traffic and Transport	The PRowS crossing the temporary construction access tracks: All points where PRowS cross the temporary construction access tracks will have appropriate warning signage, which will advise of dates and hours of working. Along temporary construction access tracks, appropriate signage will be erected to alert drivers of upcoming locations, where there is an interface between construction traffic and PRow. The need for active management on certain PRowS will be identified within the construction phase, which will take into account delivery timescales and movements of plant and machinery. The need for active management will be subject to specific risk assessments prepared by the Principal Contractor, when analysing the effects of any construction activities which may bring pedestrians into proximity with construction traffic.		Construction	PRowMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRowMP – Section 3.3	
Traffic and Transport	Where a PRow enters areas that are proposed to be used as trenchless crossing areas or a material storage areas, a temporary PRow closure and diversion would be required during the construction phase. The new route would be developed to the same standard as the route that is being diverted.		Construction	PRowMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRowMP – Section 3.3	

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Traffic and Transport	For PRowS crossed by the pipeline: The Applicant would endeavour to minimise PRow closure durations and proposes that short term temporary closures are implemented for crossings. In the first instance, in locations an alternative route to a nearby PRow would be agreed where reasonably available and advanced warning notices would be provided to users identifying diversion routes. Where it is not possible to provide a reasonable alternative using any nearby PRow, a permissive diversion within the working area would be created. This would facilitate the sequencing of works whilst minimising disruption to the users of the PRow, which would be closed temporarily and re-opened after each stage of the construction operation where practical. Final reinstatement of the PRow within the working area would be to a standard equal or better than prior to the construction works. This sequencing avoids the need for a long-term temporary closure and to disrupt PRow users any more than is necessary to safely carry out the pipeline crossing		Construction	PRowMP secured via DCO requirement	The Applicant	Appendix 11C: PRowMP – Section 3.3	
Traffic and Transport	The Applicant is committed to enabling access to the PRow, ORPA (Other Route with Public Access) and Open Access Land (OAL) during the construction phase, where this does not compromise the safety of the general public and construction staff. Where temporary restrictions to widen access rights are required, the Applicant will provide accurate and up-to-date information relating to the construction phase activity being carried out and identifying PRow routes which remain open or those which are currently diverted or scheduled for future diversion. A suitable location(s) at towns/settlements can be provided with information boards, which will include information about the Project and the construction phase processes. This will include timings and maps detailing temporary construction activities affecting relevant PRowS/ORPA. The nearest access points of any affected PRow/ORPA will also have signs in order to keep people informed. These will be prominently displayed and clearly indicate the relevant information in a smaller form than the notice boards. The signage text would be agreed with the relevant local authority for PRow as appropriate		Construction	PRowMP secured via DCO requirement	The Applicant	Appendix 11C: PRowMP – Section 3.5	

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Traffic and Transport	Waymarks for any diversion route will be implemented prior to commencement of relevant construction works. Signs will be regularly inspected to ensure that they remain in place, are readable and have not been tampered with or altered. All signage will contain contact details for the Applicant and the Principal Contractor. All signage will be removed once construction is complete and all PRoWs with temporary effects returned to their former use where agreed.		Construction	PRoWMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRoWMP – Section 3.5	
Traffic and Transport	An Inspection and Maintenance Plan for all areas which fall within the scope of the PRoW Management Plan will be defined.		Construction	PRoWMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRoWMP – Section 3.5	
Traffic and Transport	The Principal Contractor will inspect the affected PRoW/ORPA routes at the following times: • prior to commencement of the construction phase; • once during the construction phase; and • following completion of the construction phase. The Advance Inspection Survey carried out prior to commencement of the construction phase will also include written descriptions and location maps noting where any existing issues with PRoWs/ORPA are noted. Where appropriate, the advance inspection survey will be utilised to note opportunities for enhancement of PRoWs/ORPA, following the completion of the construction phase. Discussions with landowners will be undertaken regarding retention of any enhancement works		Construction	PRoWMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRoWMP – Section 3.5	
Traffic and Transport	Where a PROW is affected, the contractor is to undertake a condition survey and provide it to the Public Rights of Way officer at each relevant local planning authority as a record of conditions prior to commencement of work in the area in question, (the pre-commencement may be phased in line with the order of construction).		Construction	PRoWMP secured via DCO requirement	Principal Contractor	Appendix 11C: PRoWMP – Section 3.5	
Traffic and Transport	All highways works required on the project would be in line with the New Roads and Streetworks Act 1991 and the Traffic Management Act 2004		Construction	CTMP secured via DCO requirement.	The Applicant	Appendix 11A: Stakeholder engagement summary – Table 11A.11	

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Ground Conditions	Where practical, sensitive sites will be avoided by the temporary and permanent project footprint including SSSIs, LIGS, RIGS, areas of historical and authorised landfills and other known areas of potential contamination.		Construction	Development Consent Order (DCO) works plans and order limits	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Potential risks to human health from any unexpected ground contamination will be avoided by the use of Personal Protective Equipment (PPE) and by adopting appropriate working practices.		Construction	Construction Environmental Management Plan (CEMP) secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Prior to construction, an unexpected contamination protocol will be developed in line with Environment Agency (2020) guidance (LCRM) to minimise the potential risks to human health and controlled waters from any unexpected ground contamination. The protocol will take into account the requirements for risk assessment, the use of Personal Protective Equipment (PPE) and adoption of best practice methods during construction.		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	All aspects of the construction work will be in accordance with the Construction (Design and Management) Regulations 2015.		Construction	CEMP and DCO and UK legislative requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	A Detailed Unexploded Ordnance Threat Assessment will be produced prior to intrusive works within areas indicated to have a moderate risk of unexploded ordnance (St Helens Spurs, Higher Walton HAGI, North Corridor section south of the River Mersey, Warrington Spurs). A detailed study will also be produced for the Runcorn HAGI given its immediate proximity to an area of moderate risk. Mitigation measures from this assessment will be included within the final CEMP.		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	A CEMP will be produced prior to commencement of construction which would detail measures to be implemented to avoid or reduce impacts during the construction phase. The CEMP will minimise temporary disturbance to residential properties, recreational users, existing land users and provide details of measures to protect environmental receptors.		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	

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Ground Conditions	Construction strategies will be implemented that will seek to maximise the reuse of excavated clean materials from the pipeline construction corridor where practicable and feasible. A Materials Management Plan (MMP) will be developed by the Principal Contractor that outlines where excavated non-waste materials will be reused in line with the CL:AIRE (2011) Definition of Waste Code of Practice (DoWCoP). The MMP will include a declaration by a Qualified Person that the MMP has been completed in accordance with the DoWCoP and that best practice is being followed.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	The Applicant will ensure that the land used for the Project is suitable for the proposed use with respect to the potential for soil and groundwater contamination and, where necessary, risk-based remediation is undertaken in line with Environment Agency (2020) guidance (Land Contamination: Risk Management). The precise design of any remediation strategy will be confirmed in the detailed design after consent has been granted and will be informed by targeted ground investigation in line with the findings of the Phase 1 Desk Study.		Pre-construction	DCO and UK legislative requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Prior to construction, an unexpected contamination protocol will be developed in accordance with Environment Agency (2023) guidance (LCRM) to minimise the potential risks to human health and controlled waters from any unexpected ground contamination. The protocol will take into account the requirements for risk assessment, the adoption of best practice methods during construction and use of PPE.		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	The basis of the structural design for permanent infrastructure will be completed in general accordance with design standards to minimise the risk of structural or geotechnical instability. The structural design will give due consideration to minimum design requirements for ambient design temperatures, wind pressures and snow loads, including climate change allowances where appropriate.		Pre-construction	DCO and UK legislative requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	In accordance with good practice, Pollution Prevention Plans (PPPs) will be developed to detail how ground and surface waters will be protected in construction and		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 12: Ground Conditions Table 12.7	

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	operation. These will include information on the use and storage of any fuels, oils and other chemicals and pollution incidence response planning. These will also include measures for the protection of licenced and private abstractions (for example monitoring regimes associated with critical or very near receptors).						
Ground Conditions	If water being pumped from excavations is suspected to be contaminated, appropriate measures will be taken in accordance with relevant Environment Agency guidance to prevent uncontrolled or unauthorised releases of this water to ground or to the water environment.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Any temporary onsite storage of excavated materials suspected or confirmed to be contaminated will be on impermeable sheeting, covered over and with adequate leachate/runoff drainage to prevent migration of contaminants from the stockpile. Materials will be segregated where possible to prevent cross-contamination occurring. Such materials will only be reused if they are confirmed as suitable for use in line with the requirements of the MMP.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	In areas where there is a potential for hydrocarbon residues from run-off/isolated leakages, surface water drainage measures will be provided to capture hydrocarbons prior to discharge, such as hydrocarbon interceptors.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Plant and machinery used during the construction and operation phases will be maintained to minimise the risks of oils leaks or similar. Maintenance and refuelling of machinery will be undertaken within designated areas where spillages can be easily contained. In these designated areas contingency plans will be implemented to ensure that the risk of spillages is minimised. Placing a drip tray beneath a plant and machinery during refuelling and the availability of spill kits will contain small spillages.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Any tanks and associated pipe work used during construction containing oils, fuels and hazardous chemicals will be double skinned. Fuel storage will be in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Pollution Prevention		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	

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	Guidelines (PPGs) and details of oils, fuels and hazardous chemicals bund capacity will be set out in the CEMP. All stores of fuel will be located at least 20m from any watercourses and away from areas at risk of flooding.						
Ground Conditions	Environmentally hazardous drilling fluids, or those containing groundwater hazardous substances, will not be used during trenchless crossings (including HDD).		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	In the event that piling is required for installation of permanent infrastructure foundations, a detailed piling risk assessment will be developed. This will be submitted to the Environment Agency for approval at the detailed design stage, prior to the commencement of construction		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Where the pipeline passes through areas of known contamination identified from the ground investigation, or where areas of unexpected contamination are encountered during construction, measures will be in place to amend the design of the pipeline (for example through installation of an impermeable lining) to prevent the pipeline acting as a preferential pathway for contamination. The exact design of any measures will be based on the nature and extent of the contamination encountered alongside appropriate risk assessment in line with Environment Agency (2023) guidance (LCRM).		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 12: Ground Conditions Table 12.7	
Ground Conditions	Where required, targeted Phase 2 ground investigations will be undertaken after consent has been granted in line with the findings of the Phase 1 Desk Study to characterise the ground conditions and refine the potential land contamination risks.		Pre-construction	DCO and UK legislative requirement		Chapter 12: Ground Conditions Table 12.7	
Agriculture and Soil Resources	The hydrogen pipeline will be completely buried other than where it comes above ground at HAGIs and BVI sites. This means that the original topsoil and some or all the subsoil can be replaced on top of the pipeline and the topsoil returned to its original state.		Construction	DCO works plans, description of development and requirements	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Main rivers and canals, and road and rail crossings (and other sensitive environmental constraints, to be confirmed) will be constructed using trenchless techniques.		Construction	Construction Environmental Management Plan (CEMP) to be	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	

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	This measure avoids the disturbance of trenching in sensitive areas close to watercourses and any associated risks to agricultural land quality/soil.			secured via DCO requirement DCO works plans and Order Limits			
Agriculture and Soil Resources	Main rivers and canals, and road (primarily A Road and Motorways) and rail crossings (and other sensitive environmental constraints, to be confirmed) will be constructed using trenchless techniques. This measure avoids the disturbance of trenching in sensitive areas close to watercourses and any associated risks to agricultural land quality/soil. The Project generally avoids soils on sensitive ecological sites including Sites of Special Scientific Interest (SSSIs), national nature reserves and local wildlife sites. It also avoids sites with designations for the conservation of archaeological features. Where sensitive features are present, including areas of Ancient Woodland (South Corridor), and cannot be avoided, these will be crossed using a suitable trenchless technique.		Construction	CEMP to be secured via DCO requirement DCO works plans and order limits	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Each corridor or spur of the pipelines will have a working width appropriate to the given section diameter. However, there may be cases where the working width needs to be increased to support safe construction practices and to minimise environmental impacts. At trenchless crossings, this area will be wider to accommodate the associated equipment and will be kept to a minimum.		Construction	CEMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	The footprint of the HAGIs and BVIs will be minimised to that required for the safe operation and maintenance of the equipment.		Pre-construction	CEMP to be secured via DCO requirement	The Applicant	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Soils will be managed in accordance with Defra 2009 Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (CCOP). A Soil Management Plan (SMP) will be developed for use during construction to protect soil resources and agricultural land quality. The SMP will be used in conjunction with a Peat Management Plan.		Construction	CEMP, Outline SMP, Outline Peat Management Plan to be secured via DCO requirement		Chapter 13: Agriculture and Soils Table 13.11	

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Agriculture and Soil Resources	Desk-based information review (yet to be supplemented by site investigations) indicates that peat cannot be avoided by the Project. Where reasonably practicable, the Project will therefore apply the general principles in published SEPA guidance 'Developments on Peat and Off-site Uses of Waste Peat' to peat management, including use of the peat management hierarchy. Although this guidance applies only in Scotland there is no equivalent guidance in England and the guidance can be applied to all types of development on peat.		Construction	CEMP, Outline SMP, Outline Peat Management Plan to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	For potential areas where peat cannot be avoided by the temporary works or permanent development elements of the Project, an Outline Peat Management Plan will be produced for the Final ES, including the measures to be employed to protect peat during handling, storage and reinstatement, to promote its reuse within the Draft Order Limits where possible, or offsite if a suitable receptor site can be identified, and avoid it becoming waste. The Outline Peat Management Plan will be updated to a stage specific Peat Management Plan during pre-construction to integrate additional peat survey information once this is available from pre-construction surveys/ investigations. The stage specific PMP will be used in conjunction with the stage specific SMP and the MMP.		DCO Submission	CEMP, Outline SMP, Outline Peat Management Plan to be secured via DCO requirement	The Applicant	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Soils displaced from their original location during construction that cannot be reinstated at the same location due to the Project (e.g., soil removed from HAGIs and BVI compounds) will be conserved and reused within the Project boundary wherever possible. This will apply to topsoil and subsoil, with retention of topsoil prioritised. This will be incorporated in the Outline Soil Management Plan and with reference to the Materials Management Plan. Where it is identified through soil resource and materials management planning that topsoil or subsoil cannot be reinstated at its original location, sampling and testing of excavated topsoil and subsoil will be completed in accordance with BS3882:2015 and BS8601:2013, respectively, at the earliest opportunity.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	

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Agriculture and Soil Resources	During construction, topsoil and subsoil will be stored within the temporary working corridor. The topsoil and subsoil will be stored in separate stockpiles in line with Defra CCOP. This will be incorporated in the Outline Soil Management Plan and with reference to the Materials Management Plan.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	During topsoil stripping, machinery with low ground pressure will be used to minimise soil compaction where the soil conditions indicate that compaction is possible. Storage time will be kept to the practicable minimum to prevent the soil deteriorating in quality. Topsoil stripped from different fields will be stored separately, as will soil from hedgerow banks or woodland strips.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	In specific areas (or during periods of adverse weather) there may be the requirement to import aggregates to create a stable surface for construction traffic movements. Options for temporary tracks include stripping the topsoil to allow vehicles to run on the subsoil, use of bog mats or overlaying crushed stone on a geotextile membrane to reduce impact. In construction compounds, crushed stone or tarmac on a geotextile membrane may be used to create a stable surface.		Construction	CEMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Consideration will be given to the timing of construction to lower the risk of adverse weather during earthworks causing damage to soils		Pre-construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	The hydrogen pipeline will be constructed in discrete sections, allowing phased excavation, pipeline laying and reinstatement, to allow reinstatement to take place in as short a timeframe as possible from the point of excavation.		Construction	CEMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Stockpiles will be present for the shortest practicable timeframe, with stockpiles being reinstated as the construction work progresses. Stockpiles of topsoil which remain present for six months or longer will be managed (e.g. through seeding) to encourage stabilisation, minimise soil erosion and prevent infestation by nuisance weeds.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	

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Agriculture and Soil Resources	The use of tried and tested invasive species control and biosecurity measures to avoid the spread of infested materials will be applied, in accordance with Natural England, Environment Agency, Defra (2022) guidance.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Land within the working corridor or other areas of temporary or permanent development will be kept vegetated for as long as is practicable before topsoil stripping to reduce the risk of soil erosion.		Construction	CEMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	An Outline Soil Management Plan (SMP) will be developed for the Final ES using available soil and ALC survey information. The Outline SMP will be updated to a stage specific SMP prior to construction, to integrate additional soil and ALC survey information once this is available from pre-construction surveys. The Outline SMP and the stage specific SMP will interact with other materials management planning e.g., in relation to contaminated or potentially contaminated soil/materials. All excavated materials arising due to the Project will be covered by a Materials Management Plan (MMP) produced by the appointed Contractor during pre-construction in accordance with the CL:AIRE (2011) Definition of Waste: Code of Practice. The aim of the MMP will be to enable excavated materials to be replaced in their original location, and if this is not possible to be reused elsewhere within the Project, or at a suitable offsite receptor site.		DCO submission	CEMP, Outline SMP and MMP to be secured via DCO requirement	The Applicant	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Topsoil at trenchless crossing compounds will be stripped, stored and reinstated in accordance with the stage specific Soil Management Plan (SMP), which will be developed from the Outline SMP. The trenchless crossing compounds will have the soil reinstated, and land restoration measures (e.g. seeding of bare soil in accordance with the Soil Management Plan) implemented progressively as trenchless crossings are completed. Trenchless crossing compounds will be fully reinstated other than where they form part of a road access or the ROW for pipeline construction. As a general rule any part of the ROW and crossing compounds will be kept available and accessible until the pipeline through that section is tested and complete.		Construction	CEMP, Outline SMP, Outline Peat Management Plan and MMP to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	

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Agriculture and Soil Resources	Implementation of an Outline Soil Management Plan (SMP) which will be informed by the site-specific constraints and information gathered during ALC/soil field survey and will set out further measures to protect soil resources, including lowering the risk of compaction occurring, which in turn lowers the risk of soil erosion.		Construction	CEMP, Outline SMP, to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	Where soils are left in situ within construction working areas, appropriate use of soil protection measures such as bogmatting or geotextiles will be considered by the Principal Contractor for sensitive areas to protect the underlying soil resource from compaction, erosion or cross-contamination.		Construction	CEMP, Outline SMP, to be secured via DCO requirement	Principal Contractor	Chapter 13: Agriculture and Soils Table 13.11	
Agriculture and Soil Resources	The Outline SMP will include a commitment to produce a soil restoration plan.		Pre-construction	CEMP, Outline SMP, to be secured via DCO requirement	The Applicant	Chapter 13: Agriculture and Soils Table 13.11	
Land Use	Fencing to provide screening along shared boundary of Sandiway golf course and the project. Exact details will be subject to the Golf Course Impact Assessment to be completed for the Final ES.		Construction	DCO requirements	The Applicant	Chapter 14: Land Use Table 14.5	
Land Use	Surplus minerals obtained will be re-used elsewhere in the Project, or potentially off project, subject to the quality and quantity of the mineral and in accordance with the Materials Management Plan.		Construction	DCO requirements (Construction Environmental Management Plan)	Principal Contractor	Chapter 14: Land Use Table 14.5	
Land Use	Crossing of main rivers and canals will be constructed using trenchless techniques. Will avoid direct impacts on recreational use of the watercourses.		Construction	DCO works plans and DCO requirements	Principal Contractor	Chapter 14: Land Use Table 14.5	
Land Use	The Draft Order Limits have been designed to avoid all World Heritage Sites, National Nature Reserves and Registered Parks and Gardens, and to minimise interaction with other tourist and recreational facilities.		DCO submission	DCO works plans and DCO requirements	The Applicant	Chapter 14: Land Use Table 14.5	
Land Use	The Draft Order Limits have been designed to either avoid, or minimise conflict with local nature reserves and National Trust land, where possible.		DCO submission	DCO works plans, description of development and requirements	The Applicant	Chapter 14: Land Use Table 14.5	
Land Use	The Draft Order Limits have considered the location of the minerals safeguarding areas, policy allocation for potential future minerals extraction and permissions for		DCO submission	DCO works plans and DCO requirements	The Applicant	Chapter 14: Land Use Table 14.5	

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	minerals extraction, in order to minimise the effect on identified mineral resources.						
Land Use	Morley Common - Reallocation of football teams using lost pitch needed by Warrington Borough Council. Seasonal working outside of the football season, or re-location of three football pitches within Morley Common to limit impacts to loss of one pitch only, if required.		Construction	Legal agreement with Warrington Borough Council	The Applicant	Chapter 14: Land Use Table 14.13	
Land Use	True Fit Golf Club - Depending on the outcome of the Golf Course Impact Assessment, reconfiguration of some holes will be considered to minimise the number of holes temporarily lost from use during construction works. Fencing/netting erected to provide a safety screen for workers.		Construction	Legal agreement/ DCO Requirement	The Applicant	Chapter 14: Land Use Table 14.13	
Land Use	Sandiway Golf Club - Depending on the outcome of the Golf Course Impact Assessment, either re-location of the limited works within temporary areas of Draft Order Limits, or provision of alternative sand supply will be considered.		Construction	Legal agreement/ DCO Requirement	The Applicant	Chapter 14: Land Use Table 14.13	
People and Communities	The Applicant will prepare a Skills and Employment Strategy/Plan to be included in the application. This report will set out how the Applicant will maximise use of, and upskill, the local workforce and will draw upon wider employment strategies to be prepared by the wider HyNet programme and Cadent. The Applicant intends to draw on local workforce and supply chains where possible.		DCO submission	DCO requirement	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	All development would be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on local businesses and recreational facilities and more widely on tourism and recreation facilities.		Construction	Construction Environmental Management Plan (CEMP), Construction Traffic Management Plan (CTMP), Public Rights of Way Management Plan (PRoWMP) all secured by DCO requirements.	The Applicant	Chapter 15: People and Communities, Table 15.12	

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People and Communities	A public-facing website and delivery of communications to provide information, community support and engagement to respond to general public interest and address concerns.		Construction	Regular maintenance of website. Records of activities provided on request.	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	The Applicant will provide an Outline Employment and Skills Plan detailing arrangements to promote local employment and skills development opportunities.		DCO submission	DCO requirement and Outline Employment and Skills Plan	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	Work with the Warrington Employment Development team and other local agencies to maximise benefits for local people.		Construction	Engagement and recorded documentary evidence of agreements.	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities, Noise and Vibration	Noise levels above the Significant Observed Adverse Effect Level (SOAEL) will be avoided.	Noise Monitoring	Construction	CEMP	Principal Contractor	Chapter 15: People and Communities, Table 15.12	
People and Communities	Standard best practice construction measures will be implemented to minimise potential effects on local businesses and tourism/recreational facilities.		Construction	CEMP	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	Project construction and operational schedules will be communicated as appropriate so that potential temporary severance of other developments, communities and assets is avoided and that there is minimal disruption.		Construction	CEMP	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities, Traffic and Transport	The Applicant will establish and implement protocols where open-cut trenching is used for crossings appropriately customised for all types of crossing, including those infrequently used and on both publicly and privately-owned land. Open cut installation at minor roads would be undertaken in as short a timeframe as possible, typically five days or less, and traffic control measures will be implemented subject to agreement with the Highways Authority to ensure safety and minimise disruption. Temporary access covers to maintain traffic flow will also be installed to minimise or reduce effects.		Construction	PRoWMP secured by DCO Requirement	Principal Contractor	Chapter 15: People and Communities, Table 15.12	

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People and Communities	The Applicant is committed to enabling access during construction to the PRoW, ORPA (Other Routes with Public Access) and Open Access Land.		Construction	PRoWMP secured by DCO Requirement	Principal Contractor	Chapter 15: People and Communities, Table 15.12	
People and Communities, Traffic and Transport	All the National Cycle Network routes would remain open for the duration of the Project construction and operation phases and traffic management would be put in place to allow for the continued use of the routes for sustainable modes, where this does not compromise safety. This will be managed with signage, active management or traffic signal control.		Construction	PRoWMP secured by DCO Requirement	Principal Contractor	Chapter 15: People and Communities, Table 15.12	
People and Communities, Noise and Vibration	Where appropriate, project construction and operational schedules will be co-ordinated to avoid cumulative effects such as multiple sources of vibration affecting sensitive receptors. Further detail will be provided in the Final ES.		DCO Submission	Purchasing	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	The Applicant will look to avoid construction in the proximity of Creamfields festival and Cheshire Steam Fair and at times when these events take place. A detailed construction programme will be prepared by the appointed contractor post consent.		Pre-Construction	Engagement with Creamfields and recorded documentary evidence of agreements.	The Applicant / Principal Contractor	Chapter 15: People and Communities, Table 15.12	
People and Communities	A Decommissioning Plan will ensure that activities meet relevant statutory requirements, reflect commitments to landowners/statutory authorities and take account of any developed technology and good practice.		Decommissioning	DCO requirement	The Applicant	Chapter 15: People and Communities, Table 15.12	
People and Communities	Mental health concerns arising from the use of hydrogen gas in the pipeline network will be addressed through responding to requests for information as they arise during construction and operation. The Project has committed to working with health professionals as required to provide information to those with substantial concerns.		Construction and Operation		The Applicant	Chapter 15: People and Communities, Table 15.15	
Major Accidents and Disasters	Health and Safety HSWA ⁸ combined with the MHSWR ⁹ enshrine various principles as fundamental components of UK law. These include the requirement to undertake a written risk assessment of any activities and to ensure that the residual risk arising from those activities is		All phases	The Applicant/ Contractor will adhere to regulatory requirements.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	

⁸ UK Government (1974). Health and Safety at Work etc. Act 1974. (Online) available at: <https://www.legislation.gov.uk/ukpga/1974/37/contents> (accessed July 2024).

⁹ UK Government (1999). The Management of Health and Safety at Work Regulations 1999. (Online) available at: <https://www.legislation.gov.uk/uksi/1999/3242/contents/made> (accessed July 2024)

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	reduced to ALARP, which is known as the ALARP principle. Finally, they codify the ‘hierarchy of controls’ which requires more effective risk controls which would eliminate the risk entirely to be used in preference to mitigation measures, such as Personal Protective Equipment (PPE).						
Major Accidents and Disasters	Project Route The route of the pipelines will be consulted upon with relevant stakeholders including National Highways, Network Rail, the HSE and appropriate local authorities to ensure that any transport networks, hazardous pipelines or other hazardous sites along the route are avoided entirely or crossed safely in accordance with industry standards.		All phases	The Applicant/ Contractor will apply good practice in design and construction.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	Pipeline Regulations The Pipelines Safety Regulations 1996 ¹⁰ (PSR) will apply to this Project. The Applicant will develop a Safety Management System (as defined in the regulations) or adopt the Project into the current processes to ensure that all Major Accident Hazards are identified, evaluated and reduced to ALARP, and that these processes are audited to ensure their effectiveness.		All phases	The Applicant/Contractor will adhere to regulatory requirements.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	MAHP Notification The Applicant will notify the HSE that the Project will represent a new Major Accident Hazard Pipeline as defined in The Pipeline Safety Regulations 1996 ¹⁰ .		All phases	The Applicant/Contractor will adhere to regulatory requirements. An initial PSR notification has been submitted to the HSE.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	Good Practice Design Gas transmission is a mature industry with some changes required to ensure suitability for hydrogen; the design requirements are generally well understood by the industry. Good practice design standards such as those issued by the Institution of Gas Engineers and Managers (IGEM) or British Standards Institute (BSI) will		All phases	The Applicant/ Contractor will apply good practice in design and adhere to the regulatory framework.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	

¹⁰ UK Government (1996). The Pipelines Safety Regulations 1996. (Online) Available at: <https://www.legislation.gov.uk/ukxi/1996/825/contents/made> (Accessed June 2024)

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	be applied to the design of the pipelines, the HAGIs and all project infrastructure, as appropriate. A good practice industry design standard will require a risk assessment of the pipeline to determine that the risk is ALARP and incorporates a minimum separation distance to occupied buildings and vulnerable receptors.						
Major Accidents and Disasters	Design Safety Engineering The specific systems will go through an iterative design process, from the current phase through to a fully developed detailed design which will be used for construction. At each stage of the design process, there will be a consideration of the inherent hazards and how the risks arising from these hazards could be reduced. These hazards will be designed out where possible in accordance with good practice, applying the hierarchy of controls principle, which prioritises inherently safe design over control and mitigation measures. However, some of these hazards are an intrinsic part of a gas transmission network. As part of the design process, safety and environmental major accident hazards will be identified and assessed to ensure that adequate technical and administrative measures are in place to reduce the risk to ALARP. Specific design mitigation measures will be incorporated as the design progresses.		All phases	The Applicant/ Contractor will apply good practice in design and adhere to the regulatory framework.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	External Major Accident Hazard Infrastructure Where there are third-party Major Accident Hazard sites, the Project will ensure that any workforce populations for constructing or operating the Project are in a location that would not be ‘Advised Against’ as defined by the HSE LUP Methodology.		All phases	The Applicant/ Contractor will apply good practice in design.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	DSEAR In order to comply with the requirements of the Dangerous Substances and Explosive Atmospheres Regulations 2002 ¹¹ (DSEAR), the Applicant will carry out an assessment of locations where flammable materials could be present, either by design or in event of a deviation from normal operations including for		All phases	The Applicant/ Contractor will adhere to the regulatory requirements.	The Applicant/ Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	

¹¹ UK Government (2002). The Dangerous Substances and Explosive Atmospheres Regulations 2002. (Online) available at: <https://www.legislation.gov.uk/ukxi/2002/2776/contents/made> (accessed July 2024)

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	maintenance and ensure that sufficient mitigation is in place. Mitigation could include: minimising quantities of flammable materials, optimisation of operating conditions (e.g., flow rate/pressures), containment, inert gas blanketing, and controls over ignition sources including the use of ATEX rated equipment where necessary.						
Major Accidents and Disasters	Project Design The Project will comprise a route and design which is compatible with current planning application and planning policy allocations in line with published HSE LUP methodologies and practices.		All phases	The Applicant will apply good practice in design.	The Applicant	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	CEMP Any effects arising from disasters during the construction process will be identified and dealt with through appropriate risk assessment and mitigation (applying the hierarchy of controls) as required to comply with UK health and safety legislation and environmental legislation. A CEMP will be produced prior to commencement of construction which would detail measures to be implemented and regulated through relevant regulations such as CDM Regulations ¹² to avoid or reduce impacts during the construction phase. The CEMP will require risk assessment of construction activities (including any necessary earthworks or demolition activities) and this assessment will cover and mitigate where necessary the potential impact of all major accidents or disasters including those affecting non-human receptors.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	CDM The potential major accidents arising from construction activity include a spill from temporary fuel storage tanks, collapse of excavations, fire during construction or the collapse of a crane/ piling rig. All of the construction works will be managed in accordance with a CEMP and relevant regulations such as CDM Regulations ¹² . Under the CDM Regulations, all structures must be designed so that they can be built and maintained safely, the designer must also ‘design out’ hazards		Construction	CEMP secured via DCO requirement		Chapter 16: Major Accidents and Disasters, Table 16.12	

¹² UK Government (2015). The Construction (Design and Management) Regulations 2015. (Online) available at: <https://www.legislation.gov.uk/ukxi/2015/51/contents/made> (accessed July 2024).

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	where possible by applying the hierarchy of controls and produce a designers risk assessment to inform the construction contractors. The construction process must be managed to take account of the risks to people affected by the work, including the public. These include measures to manage fire risk, electrical hazards and structural integrity (including excavations) throughout the construction process.						
Major Accidents and Disasters	Good Construction Practices Good construction practices will be adopted and included as requirements in the CEMP, which will describe how the construction practices will comply with the CDM Regulations ¹² and incorporate Industry Good Practice standards, such as those published by the Construction Industry Research and Information Association (CIRIA).		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	UXO The Applicant will employ a specialist UXO contractor to provide detailed desk study including risk assessment, and advice on required risk mitigation such as briefings, site investigation or site clearance as required for areas of moderate UXO hazard.		Construction	CEMP secured via DCO requirement	The Applicant	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	Lifting There are various regulations governing the use of work equipment such as the Lifting Operation and Lifting Equipment Regulations 1998 ¹³ (LOLER) and Provision and Use of Work Equipment Regulations 1998 ¹⁴ (PUWER). For example, for this Project, all lifting operations involving lifting equipment will be properly planned by a competent person, appropriately supervised and carried out in a safe manner in accordance with LOLER.		Operation	The Applicant/ Contractor will adhere to regulatory requirements.	The Applicant	Chapter 16: Major Accidents and Disasters, Table 16.12	
Major Accidents and Disasters	Land Use Planning Following the notification of a new MAHP by the Applicant, a consultation distance (demarcated into zones) will be implemented following the requirements of the HSE. This is to discourage encroaching development that would significantly increase the risk		Operation	The Applicant/ Contractor will adhere to regulatory requirements.	The Applicant	Chapter 16: Major Accidents and Disasters, Table 16.12	

¹³ UK Government (1998). The Lifting Operations and Lifting Equipment Regulations 1998. (Online) Available at: <https://www.legislation.gov.uk/ukxi/1998/2307/contents/made> (Accessed July 2024).
¹⁴ UK Government (1998). The Provision and Use of Work Equipment Regulations 1998. (Online) Available at: <https://www.legislation.gov.uk/ukxi/1998/2306/contents/made> (Accessed July 2024)

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	arising from the Project. In addition to statutory LUP requirements, the Applicant will monitor for encroaching developments as part of their integrity management programme.						
Climate Change - Greenhouse gas emissions	An Outline Construction Environmental Management Plan (CEMP) will be produced prior to commencement of construction which will detail measures to be implemented to reduce GHG emissions during the construction phase. Goals to reduce embodied carbon in construction materials and encourage circular economy principles will be detailed in the CEMP.		Pre-construction	CEMP secured via DCO requirement	The Applicant	Chapter 16: Major Accidents and Disasters, Table 16.12	
Climate Change - Greenhouse gas emissions	Measures to reduce GHG emissions from construction plant and equipment will be detailed in the CEMP. The use of efficient and well-maintained plant and equipment will reduce GHG emissions from fuel and energy consumption.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change - Greenhouse gas emissions	The CEMP will include measures to minimise emissions from construction traffic. This will include measures such as consolidating deliveries where possible and policies such as ‘no idling’. Sustainable modes of travel for the construction workforce will be encouraged.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change - Greenhouse gas emissions	For potential areas where peat cannot be avoided by the temporary works or permanent development elements of the Project, an outline Peat Management Plan (PMP) details the measures to be employed to protect peat during handling, storage and reinstatement, to promote its reuse within the Draft Order Limits where possible, or offsite if a suitable receptor site can be identified, and avoid it becoming waste.		Construction	CEMP and PMP, secured via DCO requirement	The Applicant	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change - Greenhouse gas emissions	Embodied carbon of materials. The design has identified carbon hotspots associated with materials used and has investigated ways to reduce the embodied carbon of the materials e.g. a higher recycled content, an alternative material with lower embodied carbon. This will continue throughout detailed design.		DCO submission	Reduction Strategy, secured via DCO requirement.	The Applicant	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	

Topic	DRAFT Commitment (to be finalised DCO application)	Monitoring	Project Phase	Likely Commitment Securing Mechanism	Likely Responsibility for Delivery	Draft ES Reference	Compliance Date and Details* (TBC)
Climate Change - Greenhouse gas emissions	Materials suppliers. Local suppliers will be utilised as a priority, where possible.		Construction	Reduction Strategy, secured via DCO requirement.	The Applicant	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change - Greenhouse gas emissions	Operational energy and water. The design will investigate opportunities to reduce the GHG emissions associated with energy use during the operation of the project e.g. reduce high-energy consuming installations, use low or zero-carbon energy sources.		Operation	Reduction Strategy, secured via DCO requirement.	The Applicant	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change - Greenhouse gas emissions	Decommissioning. The design will integrate circular economy principles (ways to avoid generation of waste and keep materials in use) to enable ease of maintenance, replacement and decommissioning which will reduce the need for raw materials or generating waste, e.g. standardised components, plan for ease of maintenance, plan for ease of component replacement, plan for ease of material segregation at end of life.		Decommissioning	Reduction Strategy, secured via DCO requirement.	The Applicant	Chapter 17: Climate Change – Greenhouse gas emissions Table 17.7	
Climate Change – Climate change resilience	The Contractor(s) will ensure that the relevant measures within the Outline Construction Environmental Management Plan (CEMP) and health and safety procedures are implemented.		Construction	Development Consent Order (DCO) requirement	Principal Contractor	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Construction activities will be planned through use of a Risk Assessment Method Statement (RAMS) alongside safety bulletins as part of the CEMP. The RAMS will put in place procedures in the case of extreme weather (high temperatures, extreme winds, flooding, wildfire risk). This may include altering the construction programme to delaying affected activities, changing shift patterns, Personal Protective Equipment (PPE) and toolbox talks.		Construction	CEMP secured via DCO requirement	Principal Contractor	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Operation and Maintenance (O&M) Procedures The O&M requirements will include for inspection and maintenance of sensitive equipment following extreme weather events associated with climate change as identified in the climate change risk assessment. The O&M Procedures will also set out measures to mitigate		Operation	DCO requirement	The Applicant / Operator	Chapter 18: Climate Change – climate change resilience Table 18.13	

Topic	DRAFT Commitment (to be finalised DCO application)	Monitoring	Project Phase	Likely Commitment Securing Mechanism	Likely Responsibility for Delivery	Draft ES Reference	Compliance Date and Details* (TBC)
	for working in hot weather, storm conditions, and other extreme events associated with climate change, including reducing the risk of wildfire.						
Climate Change – Climate change resilience	Basis of Design (BoD) and Materials specifications As appropriate, the BoD will set out parameters for design which draw on the climate change projections identified (e.g. soil moisture changes, wind events, temperature ranges, driving rain).		Design	DCO requirement	The Applicant	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Interdependencies and cascading failures The design will identify dependencies on the operation of the project which originate outside the boundaries of the Project. The Project will also identify appropriate mitigation measures for these.		Design	DCO requirement	The Applicant	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Decommissioning Any decommissioning activities will take place under an updated Climate Change Risk Assessment which will include measures to mitigate for climate change impacts during this activity.		Decommissioning	DCO requirement	The Applicant	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Landscape management plans The landscape and biodiversity planting will be selected in light of future climate change parameters and will identify additional maintenance activities, where appropriate.		Design	Draft Landscape and Ecological Management Plan as part of DCO.	The Applicant	Chapter 18: Climate Change – climate change resilience Table 18.13	
Climate Change – Climate change resilience	Lightning protection Above ground infrastructure will be fitted with lightning protection.		Design	DCO requirement	The Applicant	Chapter 18: Climate Change – climate change resilience Table 18.13	

* As a live document, this column will be populated during the post-DCO consent phase to demonstrate compliance with the commitments

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