

HyNet North West

OUTLINE OPERATIONAL AND MAINTENANCE ENVIRONMENTAL MANAGEMENT PLAN (CLEAN)

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

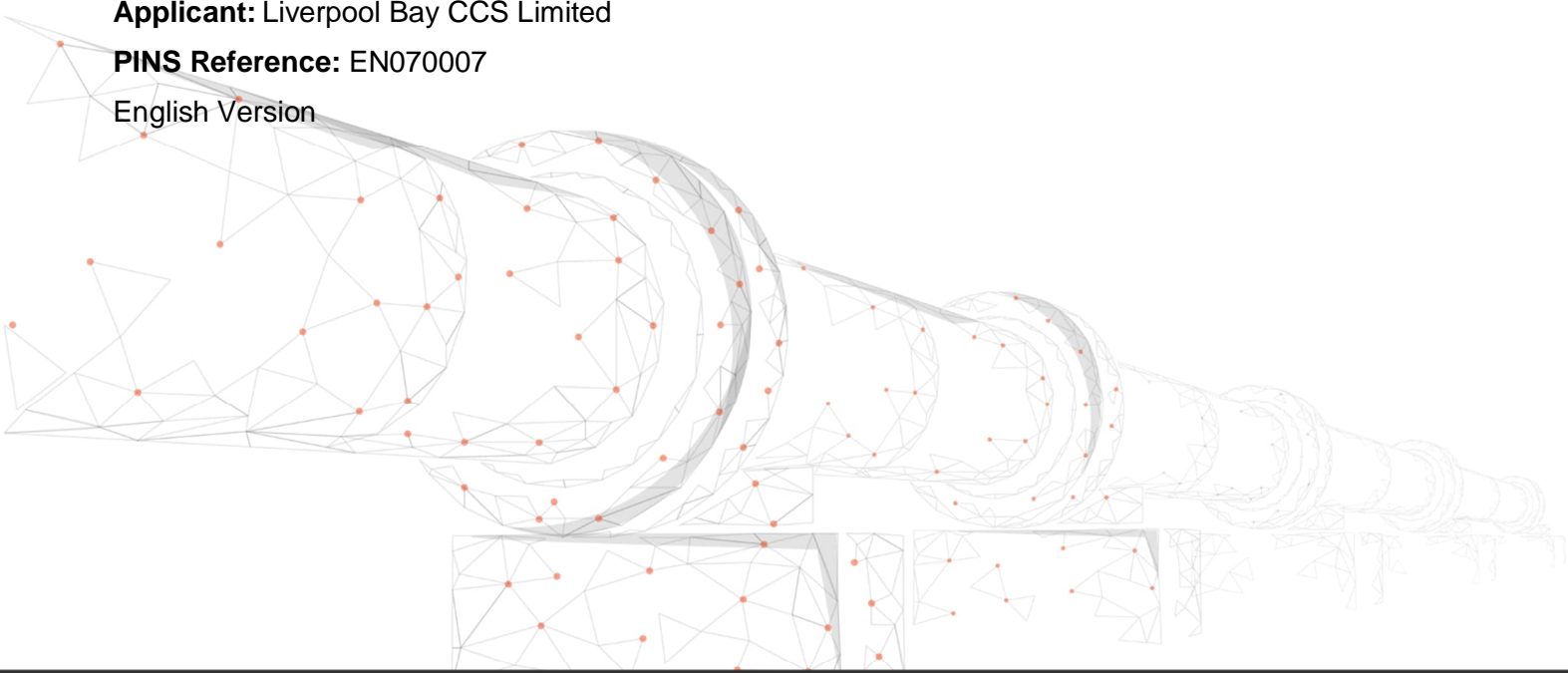
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OUTLINE ODOUR MANAGEMENT PLAN

1. INTRODUCTION

1.1. OVERVIEW

- 1.1.1. This document presents the Outline Operational and Maintenance Environmental Management Plan (OMEMP) for the Proposed Development. It forms part of the application for a Development Consent Order (DCO) under the Planning Act 2008 ('PA2008') (**Ref. 1.1**) to the Secretary of State (SoS) for the Department of Energy Security and Net Zero (DESNZ) via the Planning Inspectorate ('The Inspectorate').
- 1.1.2. The DCO Proposed Development will form part of HyNet North West ('the Project'), which is a hydrogen supply and Carbon Capture and Storage ('CCS') Project. The goal of the Project is to reduce carbon dioxide (CO₂) emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The wider Project is based on the production of low carbon hydrogen from natural gas. It includes the development of a new hydrogen production plant, pipelines, and the creation of CCS infrastructure. CCS prevents CO₂ entering the atmosphere by capturing it, compressing it and transporting it for safe, permanent storage.
- 1.1.3. The DCO Proposed Development is a critical component of the Project which, by facilitating the transportation of carbon dioxide, enables the rest of the Project to be low carbon. The hydrogen production and CO₂ capture and storage elements of the Project do not form part of the DCO Proposed Development and will be delivered under separate consenting processes.
- 1.1.4. Further details of each element of the DCO Proposed Development are set out in **Chapter 3 – Description of the DCO Proposed Development** of the 2022 Environmental Statement (ES) [**APP-055**] and associated addenda [**CR1-124**] and [**CR2-017**]
- 1.1.5. The Outline OMEMP will act as a control plan which sets out indicative methods to avoid, minimise and mitigate likely environmental effects during the operation and maintenance of the Proposed Development as outlined in the 2022 **ES and Register of Environmental Actions and Commitments (REAC)** (document reference: **D.6.5.1**) submitted with the DCO Application. It includes the minimum protocols to be followed in implementing these measures in accordance with environmental commitments during the Operational Stage.
- 1.1.6. An Outline Odour Management Plan (document reference: **D.7.25**) containing relevant commitments relating to odour management during the operation and maintenance stages of the DCO Proposed Development will be appended to this Outline OMEMP as Appendix 1.

2. OPERATIONAL AND MAINTENANCE MANAGEMENT AND MITIGATION

- 2.1.1. This section of the Outline OMEMP sets out the mitigation and management measures outlined in the 2022 **ES** and **REAC** (document reference: **D.6.5.1**) during the Operational Stage.

Table 2.1 - Operational and Maintenance Management and Mitigation – Description of the DCO Proposed Development

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-PD-012	The Applicant will develop an Operation and Maintenance Environment Management Plan (OMEMP) in line with their Environmental Management System (EMS) in line with ISO14001.	To reduce environmental effects during operation	The Applicant
D-PD-013	<p>The lighting columns installed at the perimeter of the AGIs and BVSs will not be permanently lit; lighting will only operate should there be a security or safety reason (e.g., a need for a maintenance visit during low light conditions).</p> <p>The perimeter lighting columns will be directed only into the facility area and will incorporate measures such as louvres and/or barn doors, to reduce light spill on the occasions that the lighting is required.</p> <p>The exception to this is Stanlow AGI, which may be permanently lit, due to safety reasons owing to its surrounding industrial context.</p>	To reduce disturbance to fauna and reduce landscape and visual impacts	The Applicant
D-PD-014	The Applicant will prepare a Lighting Plan, which will detail the operational lighting requirements and associated mitigation	To reduce disturbance to fauna and reduce landscape and visual impacts	The Applicant
D-PD-015	The DCO Proposed Development will operate without the need for any permanent on-site staff at the AGIs and BVSs, which will be operated remotely.	To reduce travel requirements and reduce GHG emissions through unnecessary travel.	The Applicant

Table 2.2 - Operational and Maintenance Management and Mitigation – Consideration of Alternatives

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-CA-003	24-hour remote monitoring of pipeline operation to detect leaks and enable remote shut down of the pipeline if required.	To avoid potential effects on sensitive environmental receptors.	The Applicant

Table 2.3 - Operational and Maintenance Management and Mitigation – Air Quality

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-AQ-039	Pigging campaigns and manifold venting, where possible, to be undertaken during the working day.	To minimise the likelihood of odours and noise	The Applicant
D-AQ-042	The Odour Management Plan will be put in place to notify local residents (as early as possible) of all planned pigging campaigns and manifold venting.	Minimise likelihood of odours being detected.	The Applicant

Table 2.4 - Operational and Maintenance Management and Mitigation – Climate Resilience

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-CR-001	The Operation and Maintenance Environment Management Plan (OMEMP) will be followed for routine maintenance and inspection visits on the AGIs and BVSs.	To ensure the maintenance and efficiency of the AGIs / BVS during the operational life minimises any environmental impact.	The Applicant
D-CR-003	An Emergency Response Plan and Major Accident Prevention Document will be implemented to prevent the risk of fire and increased maintenance at the AGI's during heatwaves and extreme temperatures. This will include the use of the emergency shut down valves located at the AGIs as necessary.	To ensure the protection of the AGIs during heatwaves and extreme temperatures	The Applicant / Construction Contractor
D-CR-004	There will be a Lightning Protection Study assigned during Detailed Design to monitor and protect components against lightning events.	To ensure the protection of the AGI/ BVS sites during extreme storm events	Construction Contractor
D-CR-006	All the outdoor equipment at the AGIs and BVSs will be designed to be capable of operating at a temperature of 60°C or more. Each E&I Kiosk within the AGIs and BVSs will have an HVAC system to ensure the electrical equipment within does not overheat. The Newbuild Carbon Dioxide Pipeline is predominantly installed	To maintain safe operations should high temperatures be experienced.	Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	below ground and will be designed to a maximum design temperature of 65°C.		
D-CR-007	Consideration will be taken during design with relation to wind loading in accordance with EN 1991-1-4 "Eurocode 1: Actions on structures".	To ensure wind loads are adequately accounted for.	Construction Contractor
D-CR-008	A list of extreme weather-related incidents (for example, rainfall, heatwaves, snow and ice etc.) will be maintained by the Applicant to assist in identifying thresholds which, when exceeded, require inspection, maintenance or alteration. Inspections will be carried out following an intense rainfall event or heatwave to monitor any damage and implement appropriate mitigation as necessary.	To manage the risk of extreme weather-related damage.	The Applicant
D-CR-009	A schedule of general inspections and principal inspections of each structure will be carried out to determine condition of the AGIs / BVSs and identify any potential maintenance requirements. Inspections will be undertaken following an intense rainfall event or heatwave to monitor any damage and implement appropriate mitigation as necessary as stated within the DMRB BD 63/17.	To manage the risk of extreme weather-related damage.	The Applicant

Table 2.5: Operational and Maintenance Management and Mitigation – Biodiversity

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
<p>D-BD-015</p>	<p>Where lighting is required during construction and operation stages, a suitable lighting design (where necessary on a case-by-case basis) for implementation across the DCO Proposed Development in accordance with best practice guidance on lighting with regards to protected species, will broadly include:</p> <ul style="list-style-type: none"> • Avoidance of direct lighting upon any buildings or trees that contain bat roosts or barn owl nest/ roost sites. • Avoidance of artificial lighting of watercourses, particularly during the hours of darkness, to prevent impacts to fish behaviour or passage. • Avoidance of light spill through use of directional and/or baffled lighting. • Positioning of lighting columns away from habitats of value to foraging and commuting bats and other nocturnal fauna (e.g., hedgerows, trees, woodland). • Reducing the height of lighting columns to reduce light spill onto adjacent retained habitats. • Undertaking works during daylight hours (broadly 08:00 to 18:00) reducing the need for night-time lighting. • Lighting at AGIs and BVSs will be manually activated when in attendance, and used appropriately for each task. 	<p>To reduce disturbance to nocturnal and crepuscular fauna during construction.</p>	<p>The Applicant / Construction Contractor</p>

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	<ul style="list-style-type: none"> Avoiding use of blue-white short wavelength lights and high UV content. <p>The lighting design will be developed at detailed design based on guidance for lighting with regards to protected species and be approved by the LPA. Bespoke lighting designs will be prepared for works locations where 24-hour working is required (e.g., River Dee crossing, A494 crossing, Church Lane crossing).</p>		
D-BD-068	<p>Post construction monitoring will be undertaken in accordance with the proposed LEMP secured by Requirement 11 of the Draft DCO (document reference: D.3.1). This plan will be included within the Operations and Maintenance Environment Management Plan. Protected species licenses required to facilitate construction will also require a period of monitoring post implementation which will be included within the LEMP and the Operations and Maintenance Environment Management Plan (which secured by Requirement 17 of the Draft DCO (document reference: D.3.1). The Operations and Maintenance Environment Management Plan will be developed from the detailed CEMPs and the LEMP and will detail monitoring and management requirements and future maintenance arrangements that must be adhered to through the operation of the DCO Proposed Development.</p>	<p>To protect and maintain biodiversity and comply with conservation legislation</p>	<p>The Applicant / Construction Contractor</p>

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-BD-070	All veteran trees assessed as 'retained with protective measures' within Appendix 9.11 – Arboricultural Impact Assessment, will be protected and retained during detailed design, construction, operation and decommissioning.	To minimise adverse impacts on protected/notable species and habitats	Construction Contractor

Table 2.6 - Operational and Maintenance Management and Mitigation – Greenhouse Gases

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-GG-017	Operating, maintaining, and refurbishing the DCO Proposed Development using best-practices in energy efficiency, and using low/no-carbon approaches, plant, and equipment, such as sourcing clean energy for the operation of the DCO Proposed Development.	Reduce GHG emissions associated with maintenance and refurbishment of the DCO Proposed Development as well as operational energy use	The Applicant
D-GG-018	The Applicant will explore opportunities to source the energy required for operation from 100% clean energy suppliers.	Reduce GHG emissions from operational energy use	The Applicant

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-GG-019	A leak detection and maintenance programme will be implemented as part of the operational management and monitoring regime.	Reduce GHG emissions from leaks across the DCO Proposed Development	The Applicant

Table 2.7 - Operational and Maintenance Management and Mitigation – Land and Soils

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-LS-015	Ongoing monitoring and maintenance will be undertaken to ensure that any temporary or permanent drainage in the main works area is meeting its operational requirements. This will prevent surface runoff and/ or contamination from entering surface water or groundwater bodies and migrating. Appropriate measures and maintenance procedures will be detailed in the detailed CEMP and OMEMP. Emergency procedures will be in place should a leak of contamination i.e., from a drainage failure or machine tank occur. These emergency procedures will be detailed in the detailed CEMP and OMEMP. Should a leak or drainage failure occur during construction the ECoW will be informed, and appropriate actions taken. Should a leak or	To limit contamination to groundwater and surface waterbodies.	The Applicant / Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	drainage failure occur during operation the Applicant will take appropriate actions.		
D-LS-023	Prior to decommissioning, a Decommissioning Environmental Management Plan will be developed. Prior to development, consultation with relevant stakeholders will be undertaken. The approach/scope of the Decommissioning Environmental Management Plan will be agreed with the Local Authority prior to commencement.	To outline mitigation and manage risks during decommissioning of the DCO Proposed Development.	The Applicant

Table 2.8 - Operational and Maintenance Management and Mitigation – Landscape and Visual

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-LV-002	Land disturbed to make way for Construction that isn't then utilised as part of the DCO Proposed Development during operation will be reinstated and returned to original land uses following completion of the Construction Stage, including consideration of effects to existing land drainage and reinstatement of any existing drainage features.	To minimise landscape and visual impacts, restoring original landscape where possible.	Construction Contractor
D-LV-035	Following the completion of the construction stage, once all planting is in place, a suite of drawings will be produced by the Construction Contractor referred to as 'as built drawings' or similar to ensure what	To minimise landscape and visual impacts and ensure survival and	Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	has been constructed matches the proposed drawings, as well as forming a reference for on-going maintenance and associated record keeping.	establishment of mitigation planting	

Table 2.9 - Operational and Maintenance Management and Mitigation – Major Accidents and Disaster

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-MD-002	The design, installation, commissioning, operation and maintenance of plant, drainage systems, equipment, and machinery, including associated systems, will implement Good Engineering Practice.	To manage the risks related to MA&Ds.	The Applicant / Construction Contractor
D-MD-004	The DCO Proposed Development will be managed in accordance with accredited Environmental, Health & Safety Management systems.	To manage the risks related to MA&Ds.	The Applicant / Construction Contractor
D-MD-007	The Applicant will implement a risk management system.	To manage the risks related to MA&Ds.	The Applicant / Construction Contractor
D-MD-009	The Applicant will prepare an Emergency Response Plan which covers potential emergency scenarios, as secured through the CEMP and the OMEMP under Requirements 5 and 17 of the dDCO (document reference: D.3.1), respectively. This Emergency Response Plan will be regularly tested through desk top exercises. During the	To manage the risks related to MA&Ds and mitigate any consequences.	The Applicant / Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	development of the emergency plan, the Applicant will engage with the operators of COMAH sites in close proximity to the DCO Proposed Development. The off-site emergency plans associated with these COMAH facilities will also be updated to consider the potential for initiating events on the Newbuild Carbon Dioxide Pipeline and associated infrastructure. During the preparation of the Emergency Response Plan the Applicant will also engage with emergency services to agree the proposed response to a loss of containment event.		

Table 2.10 - Operational and Maintenance Management and Mitigation – Noise and Vibration

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-NV-001	The Noise and Vibration Management Plan will detail the noise mitigation measures included in the Detailed Design, the noise and vibration limits to be met and a programme of noise and vibration monitoring which should be followed during the Construction Stage.	Provide a mitigation scheme based on final design. The Noise and Vibration Mitigation Plan will seek to avoid significant effects (daytime, evening and	Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
		night-time), were reasonably practicable.	
D-NV-011	<p>The rating levels arising from the operation of the AGIs and BVSs is not expected to exceed the rating levels at the nearest sensitive receptors presented in the ES (Table 15-22, Table 15-23).</p> <p>Mitigation measures within the design envelope such as use of low noise plant and acoustic enclosures will be required for the AGIs and BVS if the proposed noise limits cannot be met.</p>	Mitigation to minimise operational noise impacts.	Construction Contractor

Table 2.11 - Operational and Maintenance Management and Mitigation – Water Resources and Flood Risk

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-WR-040	<p>A Flood Action Plan will be prepared and implemented for all AGIs and BVSs. This will include a list of key stakeholders (e.g. site managers, Environment Agency, NRW) and actions to be taken for ongoing weather monitoring (e.g. subscription to flood warning service in areas at risk of fluvial/coastal flooding), in case of expected flooding and/or when flooding is happening. E.g. early closure of the premises, evacuation procedures,</p>	Flood Risk Management	The Applicant

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	reinstatement after flooding. Level of detail of the FAP to reflect level of flood risk in the area		
D-WR-042	The Construction Contractor and the Applicant will ensure that all construction and operation staff are made aware and trained in the procedures of the Flood Action Plans	Flood Risk Management	The Applicant / Construction Contractor
D-WR-057	Maintenance vehicles will be equipped with a spill kit in case of emergency (if one is not already available on board these vehicles) and spill kits will be stored in the kiosks at AGIs and BVSSs.	To reduce the risk of spillage impacting water quality of surface water and groundwater receptors	The Applicant
D-WR-065	Geomorphological and ecological monitoring of the permanent works would be carried out, post construction, to ensure the integrity of the reinstated channel and to identify any early intervention that may be required to ensure no deterioration in WFD status. Type, duration and frequency of monitoring is to be determined through the development of the geomorphological assessment and detailed design, and in consultation with NRW and FCC LLFA. Adaptive mitigation would be implemented to maintain the integrity of the reinstated channel	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	The Applicant

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-WR-070	The contractor will develop and implement a Surface Water Management and Monitoring Plan to ensure appropriate monitoring of water quality is carried out before, during and after the construction works and that adaptive mitigation is implemented if monitoring shows that existing mitigation measures are not deemed sufficient.	To minimise the impact to surface water bodies during the construction stage	The Applicant / Construction Contractor

2.2. DECOMMISSIONING MANAGEMENT AND MITIGATION

- 2.2.1. This section of the Outline OMEMP sets out the mitigation and management measures outlined in the 2022 ES and REAC (document reference: **D.6.5.1**) during the Decommissioning Stage.

Table 2.12 - Decommissioning Management and Mitigation

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-AQ-037	Ensure effective water suppression is used during decommissioning operations.	Decommissioning mitigation measures	The Applicant
D-AQ-038	Bag and remove any biological debris or damp down such material before decommissioning.	Decommissioning mitigation measures	The Applicant / Construction Contractor
D-CR-010	An end-of-life Decommissioning Environmental Management Plan will be in place to protect the site and workers from climate effects (i.e. rising temperatures and precipitation).	Protect workers and the site from climate effects	The Applicant
D-BD-065	In advance of decommissioning works, ecology surveys will be undertaken, where required, to determine the ecological baseline and presence, or otherwise, of protected and/or notable species to determine any mitigation or licensing requirements in advance of decommissioning works commencement.	To minimise adverse impacts on protected/notable species and habitats	The Applicant / Construction Contractor
D-BD-070	All veteran trees assessed as ‘retained with protection measures’ within Appendix 9.11 – Arboricultural Impact Assessment, will be protected and retained during detailed design, construction, operation and decommissioning.	To minimise adverse impacts on protected/notable species and habitats	Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-GG-021	Using local waste disposal facilities where available and practicable to minimise the distance that waste is transported from Site to disposal.	Reduce GHG emissions from the transport of waste in the decommissioning stage	The Applicant
D-GG-022	Decommissioning the DCO Proposed Development using best-practices in energy efficiency, and using low/no-carbon approaches, plant, and equipment.	Reduce GHG emissions from energy use in the decommissioning stage	The Applicant
D-LV-012	During decommissioning, appropriate protections to the established vegetation will be provided to ensure no damage during the removal of apparatus. Where damage is unavoidable, replacement of any lost or damaged planting that was provided during the Operational Stage or any pre-existing, or newly planted by others will be provided in agreement with the relevant Local Authority.	To minimise landscape and visual impacts	The Applicant
D-NV-010	The construction and decommissioning programme will seek to minimise the duration of high noise generating construction activities, as far as practicably possible.	Best Practicable Means to minimise noise and vibration impacts.	The Applicant / Construction Contractor

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	<p>Where construction and decommissioning activities near sensitive areas are expected to affect residents with a magnitude of medium and high, and exceed the durations of 10 or more days or nights in any 15 consecutive days or nights, or a total number of days exceeding 40 in any 6 consecutive months, then a set of enhanced mitigation measures will be discussed and agreed with the Local Authority. Temporary re-housing will be also considered through consultation with the Local Authority for specific locations where other mitigation measures do not provide sufficient attenuation to prevent sleep disturbance during activities in the night-time period.</p>		

Appendix 1

OUTLINE ODOUR MANAGEMENT PLAN