

Technical Appendix 1.2: Schedule of Mitigation

CROMARTY HYDROGEN PROJECT



RSK GENERAL NOTES

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Title: Cromarty Hydrogen Project Technical Appendix 1.2: Schedule of Mitigation

Client: Scottish Power Energy Retail Limited and Storegga Hydrogen Limited

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd.

1 INTRODUCTION

- 1.1.1 The site selection and design evolution of the Proposed Development has sought to limit and minimise potential impacts on the receiving environment. The environmental appraisal of the Proposed Development has identified the unavoidable impacts that would arise as a result of its construction and operation. Mitigation measures have accordingly been identified and developed to avoid, reduce and compensate adverse impacts and reduce residual effects to manageable levels.
- 1.1.2 The embedded and additional environmental mitigation measures identified during the environmental appraisal process are reported in **Chapters 2-5** of the Environmental Appraisal Report of which this document is a technical appendix. Subject to the granting of consent, these measures will form a schedule of commitments under the terms of any contract(s) for the construction and operation of the Proposed Development.
- 1.1.3 It is not proposed to limit the lifetime of the Proposed Development; however, the applicant has prepared a separate outline Restoration and Decommissioning Plan (RDP) (**Technical Appendix 1.3**). Due to estimated advances in technology, changes in working methods and good practice guidelines it is proposed that a finalised RDP would be prepared in consultation with stakeholders prior to decommissioning if required. It is anticipated that the requirement for the RDP would form a condition of consent. Mitigation measures for the decommissioning phase have not been considered in this Report.
- 1.1.4 The schedule of mitigation is provided in **Table 1.1** below.

Table 1.1: Schedule of Mitigation

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
Description of the Proposed Development					
1.1	Micrositing	<p>1.6.9 The site selection and design of the Hydrogen Production Facility has been optimised in terms of avoiding and reducing potential impacts on the receiving environment but the Applicant is requesting a micrositing allowance of 100 m within the extent of the application site. This is to allow flexibility to take into account localised ground conditions and other environmental constraints that may be identified pre-construction, which will provide further opportunity for mitigation to reduce effects. Where environmental features may be potentially impacted by micrositing this would be managed in consultation with an Environmental Clerk of Works (ECoW) for the Proposed Development and with consideration of the onsite constraints detailed in this EAR. The applicant would seek to agree the use of a planning condition requiring all micrositing to be agreed with the Highland Council.</p>	Pre-construction and construction	Contractor	Chapter 1: Introduction
1.2	Hydrogen Production Facility	<p>Necessary environmental (e.g., pollution prevention and control permitting) and health and safety consents (e.g., hazardous substance consent) would be discussed, confirmed and agreed with the relevant authority prior to construction.</p> <p>The selection of technology would be made considering several factors including:</p> <ul style="list-style-type: none"> • cost; • efficiency of hydrogen generation versus power consumption; • availability/reliability; • water consumption; • delivery schedule; • safety; and 	Pre-construction	Applicant	Chapter 1: Introduction and Supporting Statement

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
		<ul style="list-style-type: none"> environmental impact. <p>The Proposed Development would comply with all relevant UK and international legislation and standards throughout its design, construction and operation. All equipment would be installed and maintained, by competent personnel.</p>			
1.3	Temporary construction compound	Habitat, where the temporary compound would be located, would be fully reinstated once it is removed.	Construction	Applicant	Chapter 1: Introduction
1.4	Cabling and grid connection	To minimise ground disturbance, cables would be laid in the road verge or alongside the site access tracks where possible and plant and equipment to enable grid connection would operate from the access track.	Construction	Contractor	Chapter 1: Introduction
1.5	Construction traffic	Prior to construction works being undertaken, a Construction Traffic Management Plan (CTMP) would be prepared in line with best practice guidance and agreed with the Road Authority. This would form a condition of any consent granted.	Pre-construction	Applicant	Chapter 1: Introduction
1.6	Health and Safety	<p>To protect both Proposed Development components and receptors, the hydrogen production facility would be enclosed by means of security fencing and gated access and would be monitored during its operation via CCTV.</p> <p>Health and safety during construction and decommissioning falls within the Construction (Design and Management) Regulations 2015. While full details of the health and safety strategy are yet to be determined in relation to construction and decommissioning activities, it is anticipated that these would include:</p> <ul style="list-style-type: none"> production of a pre-construction information pack for contractors; the appointment of a Construction Project Manager and nominated personnel responsible for the production of a Construction Phasing Plan in relation to health and safety 	Pre-construction and Construction	Applicant and Contractor	Chapter 1: Introduction and Design and Access Statement

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		<p>(Health and Safety Plan) alongside the creation, completion and monitoring of a site Safety File and direct liaison with the applicant; and</p> <ul style="list-style-type: none"> restriction of public access to the application site throughout the period of the construction programme with existing areas of public access being reinstated post-construction. 			
1.7	Construction Environmental Management Plan	<p>The delivery of the applicant's environmental commitments, requiring environmental management, in regard to construction and operation, including internal policies, schedule of mitigation, planning conditions and environmental obligations under applicable environmental legislation, would be detailed in the Construction Environmental Management Plan (CEMP), which is anticipated to include:</p> <ul style="list-style-type: none"> Surface Water Management; Oil and Chemical delivery and storage; Wastewater and Water supply monitoring and control; Waste and Resource Management including Circular Economy; Traffic and Transport; Air, Noise & Vibration, Land Management including Archaeology, Flora and Fauna; Environmental Incident Response; and Method Statements and Risk Assessments. <p>It is anticipated that the requirement for the CEMP would form conditions of consent. An Environmental Clerk of Works would be appointed to oversee compliance with the CEMP.</p>	Pre-construction	Contractor	Chapter 1: Introduction

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
1.8	Production of waste	A Site Waste Management Plan (SWMP) would detail how waste streams are managed. The Waste Hierarchy (Scottish Government, 2017) of prevention, reuse, recycle, recover and disposal to landfill - as a last resort - would be applied to the methodology of the SWMP.	Operation	Applicant	Chapter 1: Introduction
Landscape and Visual					
2.1	Lighting	The Proposed Development includes temporary lighting during the construction phase and permanent lighting when the facility is operational. Lighting associated with construction would be over the 18 month build period with agreed hours for lighting work areas and for security. Permanent night-time lighting is proposed along the perimeter of the site and at the entrance, and where possible, will be directed downward and carefully designed not to contribute to light pollution.	Construction and Operation	Contractor and the Applicant	Chapter 2: Landscape and Visual Appraisal
2.2	Visual appearance of Proposed Development	To reduce the visual presence of the Proposed Development, the buildings, structures and fencing will have a rendered finish in a muted hue of grey, green and / or brown.	Construction	Contractor	Chapter 2: Landscape and Visual Appraisal
Ecology					
3.1	Notable habitats and Biodiversity net gain	The loss of the M19a bog (which is considered a likely 'priority peatland') will be compensated by peatland restoration in the order of 1:11 (lost: restored), to ensure a tangible biodiversity enhancement from the Proposed Development is achieved. This would mean that for the 0.9 ha of M19a to be lost (includes 0.22 ha indirect loss as a precaution), based on the NatureScot guidance, a minimum of 9.9 ha of peatland in the wider estate would be chosen for peatland restoration. Final details would be agreed in the Biodiversity Enhancement Plan.	Post-construction	Applicant	Chapter 3: Ecology

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3.2	Riparian planting	The Applicant would undertake riparian planting within the vicinity of the application site.	Post-construction	Applicant	Chapter 3: Ecology
Hydrology, Hydrogeology, Geology and Soils					
4.1	Soil and peat excavation and reuse	<p>All proposed traffic routes would be clearly demarcated and vehicles would not be permitted access outwith these areas. Only tracked or low ground pressure vehicles would be permitted access to unstripped ground.</p> <p>Soil stripping would be undertaken by the Principal Contractor with care and would be restricted to as small a working area as practicable. Topsoil would be removed and laid in a storage bund, up to 2 m in height, on unstripped ground adjacent to the specific working area. It would be attempted to retain the turf layer vegetation-side-up where possible.</p> <p>Subsoils and superficial geological deposits would be removed subsequently and laid in storage bunds, also up to 2 m in height, clearly separated from the topsoil bund. Care would be taken to maintain separate stockpiles for separate soil types in order to preserve the soil quality.</p> <p>For work within areas of peat, acrotelmic peat (the uppermost 0.5 m) would be removed as for the topsoil. It would be attempted to retain the acrotelm vegetation-side-up where possible.</p> <p>The underlying catotelmic peat would be stored in bunds up to 1 m in height. Catotelmic peat is sensitive to handling, and loses its internal structure easily, so would be transported as short a distance as possible to its storage location.</p> <p>Limited smoothing or 'blading' of stockpiled soils and catotelmic peat would be undertaken by the Principal Contractor to help shed rainwater and prevent ponding of water on the stockpile. Bunds on notably sloping ground would have sediment control measures installed near the base, on the downslope side, to collect and</p>	Pre-construction and construction	Applicant and the Contractor	Chapter 4: Hydrology, Hydrogeology, Geology and Soils

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
		<p>retain any sediment mobilised by rainfall. Stockpiles would be located on flat or nearly flat ground where possible.</p> <p>Excavated soil and peat would be used for restoration and rehabilitation at the end of the construction period, in order to promote fast re-establishment of vegetation cover on worked areas and areas of bare soil or peat that are not required for the operational phase. Some of the excavated peat would be reserved for peatland restoration in parts of the application site and nearby ground where suitability is identified. Soils and peat would be stored for as short a time as practicable, in order to minimise degradation through erosion and desiccation.</p> <p>Should prolonged periods of dry weather occur, a damping spray would be employed to maintain surface moisture on the soil and peat bunds. This would help to maintain vegetation growth in the turves and to retain the soil structure.</p> <p>Regular monitoring of peat in reinstated and restored areas should be undertaken to ensure that restoration measures are being effective. Remedial action should be implemented if areas of concern are identified.</p> <p>The monitoring programme and scope would be agreed post-consent.</p>			
4.2	Pollution from oils, fuel and wastewater	<p>Oil and fuel storage and handling within the application site would be undertaken following published guidance, in particular <i>Guidance on Pollution Prevention 2 – Above ground oil storage tanks</i> (SEPA, 2017a) and in compliance with the <i>Water Environment (Controlled Activities) (Scotland) Regulations 2011</i> as amended.</p> <p>It is anticipated that welfare facilities at the Proposed Development would include either a suitably sized holding tank, which would be emptied by tanker and removed from the application site on an appropriate timescale for disposal at a suitably licensed facility, or</p>	Construction and operation	Contractor and Applicant	Chapter 4: Hydrology, Hydrogeology, Geology and Soils and Figure 4.9

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
		<p>would make use of waterless composting toilet facilities with bottled water provided for drinking and washing.</p> <p>Site Spillage and Emergency Procedures would be prominently displayed at the application site and staff would be trained in their application. The Procedures document would incorporate guidance from the relevant SEPA Guidance Notes.</p> <p>In the event of any spillage or discharge that has the potential to be harmful to or to pollute the water environment, all necessary measures would be taken to remedy the situation. These measures would include:</p> <ul style="list-style-type: none"> • identifying and stopping the source of the spillage; • containing the spillage to prevent it spreading or entering watercourses, by means of suitable material and equipment; • absorbent materials, including materials capable of absorbing oils, would be available within the application site to mop up spillages. These would be in the form of oil booms and pads and, for smaller spillages, quantities of proprietary absorbent materials. Sandbags would also be readily available for use to prevent spread of spillages and create dams if appropriate; • where an oil/fuel spillage may have soaked into the ground, the contaminated ground would be excavated and removed from the application site by a licensed waste carrier to a suitable landfill facility; • the emergency contact telephone number of a specialist oil pollution control company would be displayed within the application site; and • sub-contractors would be made aware of the guidelines for handling of oils and fuels and of the spillage procedures at the Proposed Development. 			

Ref	Issue	Description of Mitigation Measure	Development Phase	Responsible Party	Document Source
		<p>A water quality monitoring (WQM) programme would be established at key locations around the Proposed Development. SEPA would be informed of any discharge or spillage that may be harmful or polluting to the water environment. Written details of the incident would be forwarded to SEPA no later than 14 days after the incident.</p> <p>The pollution prevention plan and site spillage and emergency procedures would remain in force throughout the operational phase. Welfare facilities for the operational phase (if required) would be the same as those set out above.</p>			
4.3	Pollution from sediment release via overland flow	<p>Surface water surrounding the cable trench and all hardstanding areas (including hardstandings for the hydrogen production facility, substation and temporary construction compound) would be prevented from entering the working areas by appropriate use of peripheral bunding and cut-off drains to divert clean water around and away from the working areas.</p> <p>During excavation of cut areas for hardstandings, silt fencing or appropriate alternative sediment control protection would be installed on the downhill side of the excavation to prevent inadvertent discharge of silty water into any watercourses within or downstream of the application site.</p> <p>All engineering work adjacent to watercourses, including track resurfacing and laying the cables, would have appropriate sediment control measures established prior to any groundworks. Vegetation would be retained along watercourse banks to act as additional protection. No in-stream works would be required as existing watercourse crossings do not require upgrading.</p> <p>For areas of larger excavation, such as for hardstandings associated with the hydrogen production facility, substation and temporary construction compound, temporary water control measures would be used. These may include use of temporary</p>	Construction and operation	Contractor and Applicant	Chapter 4: Hydrology, Hydrogeology, Geology and Soils, Technical Appendix 4.1 and Figure 4.9.

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		<p>settlement ponds or the use of proprietary treatment systems such as Siltbusters, as appropriate.</p> <p>Any water collecting within excavations would be pumped out prior to further work in the excavation. This water may require treatment to remove suspended solids prior to discharge to ground.</p> <p>Construction activities would be restricted during periods of wet weather, particularly for any work occurring within 20 m of a watercourse or within areas of identified deeper peat, to minimise mobilisation of sediment in heavy rainfall.</p> <p>Vegetation cover would be re-established as quickly as possible on track verges, screening bunds and cut slopes, by re-laying of excavated soil turves and peat acrotelm, to improve slope stability and provide erosion protection. Additional methods, including hydroseeding and/or use of a biodegradable geotextile, would be considered, if necessary, in specific areas and areas of particular sensitivity as identified on-site by an Environmental Clerk of Works (ECoW).</p> <p>All necessary permissions relating to construction works, plus accompanying pollution prevention plans, would be obtained prior to any construction work beginning within the application site.</p> <p>A WQM programme would be established at key locations around the Proposed Development.</p> <p>Monitoring would begin a minimum of 3 months prior to any construction works, to allow pre-construction baseline quality to be determined. Monitoring at each WQM location would occur monthly at minimum throughout construction and decommissioning. Monitoring at WQM 1 & 2 would occur twice daily during construction or decommissioning activity along the cable route corridor. Monitoring at WQM 3 & 4 would occur twice daily during construction or decommissioning activity within the main site area and during resurfacing of the site access.</p>			

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		<p>Details would be agreed with SEPA, but are anticipated to include visual checks for entrained sediment and in-situ measurements of pH, temperature and specific conductivity.</p> <p>Monitoring during the construction phase would be undertaken by an ECoW or suitably experienced alternative individual. Any change from baseline conditions of pH and/or specific conductivity would potentially indicate an incident and additional investigation would be required in order to identify the origin of the change.</p> <p>Once operational, where practicable, routine maintenance of trackside and infrastructure drainage would be undertaken during dry weather. Where this is not practicable, additional sediment control measures would be established to manage silty water arising from the work.</p> <p>Regular monitoring of the track and hardstanding condition would be undertaken, particularly following periods of heavy or prolonged rainfall and after snowfall and clearance. Any sections of track or hardstanding showing signs of excessive wear would be repaired as necessary with suitable rock from external sources.</p> <p>The drainage network would also be subject to regular monitoring to ensure that it remains fully operational. This would include regular visual inspection of drainage ditches, crossing structures and cross-drains to check for blockages, debris or damage that might impede water flow. Any identified blockage, including build-up of sediment that may lead to future blockage, or damage to structures would be remediated immediately.</p>			
4.4	Modification to surface water flow paths	Constructed drains would be no longer and deeper than necessary to provide the required drainage for the hydrogen production facility and associated infrastructure. All drainage infrastructure would be designed with suitable capacity for a rainfall intensity of a 1-in-200 year storm event, plus allowance for climate change.	Construction	Contractor	Chapter 4: Hydrology, Hydrogeology, Geology and Soils

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4.5	Changes to water supply to vulnerable receptors: Groundwater Dependent Terrestrial Ecosystems (GWDTE)	<p>There may be options to improve or extend areas of M6 habitats through vegetation management and/or drainage management within the rest of the application site or a designated area off-site as compensation for the unavoidable direct habitat loss. This would be discussed with an ECoW as part of the construction mitigation.</p> <p>Suitable drainage would be installed around Proposed Development infrastructure, including around the hydrogen production facility, the substation and new track sections. This would provide continuity of flow across these areas, helping to maintain M6 habitats downslope of construction areas. Any required modified or additional drainage within the application site/main site area would not discharge directly into or upslope of identified sensitive habitat areas, to minimise potential for water and nutrient flushing in these areas.</p>	Construction	Contractor	Chapter 3: Ecology and Chapter 4: Hydrology, Hydrogeology, Geology and Soils
4.6	Changes to water supply to vulnerable receptors: Private Water Supplies	<p>The following mitigation would be applied to all works directly up-catchment from the Private Water Supplies:</p> <ul style="list-style-type: none"> • no upgrade or maintenance works on the access track would take place until sediment protection is installed adjacent to the watercourse crossing. This would require sign-off by an ECoW prior to works beginning; • no vehicle maintenance or refuelling activities would take place within 250 m of the watercourse crossing on the access track; • sediment protection measures would remain in place, with regular checks to ensure their continued effective operation, until all upgrade and maintenance works are completed and vegetation has re-established on any exposed soil areas; • should any concerns regarding the water quality be raised by site staff or occupants at the Private Water Supplies site, ongoing activity within 250 m of the watercourse crossing would be restricted as far as possible to allow further investigation to be undertaken to identify the cause of the 	Construction and operation	Contractor and Applicant	Chapter 4: Hydrology, Hydrogeology, Geology and Soils

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		<p>concerns and their validity. Works would remain restricted until the investigation has demonstrated that it was a false alarm and/or not related to the Proposed Development works, or until additional protection measures are installed to prevent a recurrence, to the ECoW's satisfaction; and</p> <ul style="list-style-type: none"> no pouring of concrete would be carried out within 500 m of any Private Water Supplies' source. <p>Visual and <i>in-situ</i> water quality monitoring of the watercourses upstream from the Private Water Supplies, at their closest points downstream of the ground works, would be undertaken on a twice-daily basis (morning and afternoon) while works are ongoing in the area of these watercourses. Any signs of siltation or suspended sediment, changes in pH or electrical conductivity in the water would be recorded and reported immediately to the ECoW for further investigation.</p> <p>Once operational, where practicable, routine maintenance of trackside and infrastructure drainage would be undertaken during dry weather. Where this is not practicable, additional sediment control measures would be established to manage silty water arising from the work.</p> <p>No vehicle maintenance or refuelling activities would take place within 250 m of the watercourse crossing on the access track.</p> <p>Should concerns over Private Water Supplies arise during the construction phase, additional monitoring during any required operational phase maintenance works would be put in place to provide a safety check for the Private Water Supplies.</p>			
Noise					
5.1	Construction noise	It is anticipated that the impacts from construction noise would be assessed within a separate Construction Noise and Vibration Management Plan (CNVMP) included in a wider Construction	Construction	Contractor	Chapter 5: Noise

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		<p>Environmental Management Plan (CEMP). As part of the CNVMP, it would be expected that the contractor shall implement best practicable means (BPM) as part of their working methodology. This will serve to minimise and control the potential for noise and vibration impacts at receptors in the vicinity of the construction works.</p> <p>Best Practicable Means (BPM) as defined in Section 72 of the Control of Pollution Act 1974 and BS 5228-1:2009+A1:2014 shall be employed at all times to reduce noise and vibration to a minimum and ensure compliance.</p> <p>In developing the control measures best practicable means (BPM), as defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990, will be applied during all construction works to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors. In doing so, due consideration will be given to the recommendations contained within BS5228-1/2:2009+A1:2014. These are reproduced below:</p> <ul style="list-style-type: none"> • Construction vehicles to conform to the EU emissions standards and, where reasonably practicable, their emissions should meet upcoming standards prior to the legal requirements date for the new standard. • Machines and vehicles in intermittent use will be shut down during periods between works. For example, idling of vehicles like excavators, dumper, concrete wagon etc. • Letter drops will be undertaken prior to any noisy works commencing that could affect local residents; • The movement of delivery materials outside of normal working hours shall be kept to a minimum and handled in a manner that minimises noise. • All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good working 			

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		<p>order and operated such that noise emissions are minimised as far as reasonably practicable.</p> <ul style="list-style-type: none"> • All employees shall be provided with an appropriate induction and ongoing briefings regarding the management of environmental issues and BPM. This will involve emphasising the need for employees to show consideration to the sensitive receptors, including residential neighbours. They will be briefed on not generating unnecessary noise when on site or when leaving and arriving. • All plant and equipment will comply with the noise limit and noise marking requirements prescribed by the <i>Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001</i> and the <i>Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005</i> implementing the EU Directive 2000/14/EC. • All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired. • Where reasonably practicable, other fixed items of construction plant should be electrically powered in preference to diesel or petrol driven. <p>The above Best Practice will be briefed to all parties via:</p> <ul style="list-style-type: none"> • Site inductions; • Toolbox talks; and 			



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		<ul style="list-style-type: none"><li data-bbox="678 295 996 323">• Start of shift briefings.			