

Eastern Green Link 4: Scottish Onshore Scheme

Volume 5: Appendices

*Appendix 8.2: WFD Screening and Scoping
Assessment*

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A8.2 Water Framework Directive Screening and Scoping Assessment

1. Introduction

1.1 Background

This Water Framework Directive assessment has been completed as an appendix to **Chapter 8 Water Environment and Flood Risk (Volume 2 Main Report)** of the Environmental Impact Assessment Report (EIAR) for the Scottish Onshore Scheme component of Eastern Green Link 4 (EGL4) (the Project).

The Scottish Onshore Scheme consists of a converter station at Westfield in Fife, Scotland which will be connected to the NETS via the new 400 kV Westfield Substation by approximately 1 km of underground High Voltage Alternating Current (HVAC) cables. From the converter station approximately 16.2 km of underground HVDC cable will be installed to a landfall north of Kinghorn.

The Scottish Onshore Scheme includes the following components:

- The Landfall. This is the interface between the Scottish Onshore Scheme and Marine Scheme of the Project. It is where the subsea cables come ashore and are joined to the onshore underground cables at a buried Transition Joint Bay (TJB). The TJB consists of an underground concrete plinth, constructed of reinforced concrete, and a box-like structure that houses the cable joints between the subsea and onshore underground cables. The TJB will occupy an area of up to 60 m² (based on an indicative footprint of 15 m by 4 m) which will be buried upon completion.
- The Underground DC Cable Route. The Scottish Onshore Scheme includes DC underground cables between the landfall and converter station. A DC system comprises two cables (i.e. a single pair is one circuit), generally installed in ducts, typically up to 300 mm in diameter. These are laid side by side within a trench typically 1.0 m wide by 1.4 m deep. To enable DC cable installation, a working corridor typically 43 m wide for the majority of the route but up to 65 m wide will be required, which includes temporary access, haul road, cable trench, drainage and topsoil and subsoil storage.
- The converter station. This will be located immediately east of the new 400kV Westfield Substation, enabling electricity to be converted from AC to DC. The site comprises approximately 50 ha of agricultural land divided into five fields by hedgerows/fencing. It is bounded to the north by the B9097 and to the east, west and south by local roads.
- The Underground AC Cable Route. AC underground cables will be required between the converter station and the new 400kV Westfield Substation. The AC system will be approximately 1 km long and will comprise of six cables, generally installed in ducts, typically up to 300 mm in diameter, laid 3 per trench; with each trench typically 1.4 m wide by minimum 1.4 m deep (i.e. up to two trenches). As with the DC cables, to enable cable installation a working corridor up to 41.8 m wide will be required comprising temporary access, haul road, cable trench, drainage and topsoil and subsoil storage. This width is necessary due to the increased spacing required for AC cables.

The full parameters used within this assessment (as reasonable worst case) have been set out within this appendix in Table 2 and further detail of the Scottish Onshore Scheme is available in **Chapter 2: Project Description (Volume 2 Main Report)**.

1.2 Water Framework Directive

The Water Framework Directive (WFD)¹ aims to protect and enhance the quality of the water environment. It takes a holistic approach to the sustainable management of water by considering the interactions between surface water (including transitional and coastal waters, rivers, streams and lakes), groundwater and water-dependent ecosystems.

The WFD is transposed into environmental legislation in Scotland by the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act, SEPA 2003)². Under the WFD, ‘water bodies’ are the basic management units, defined as all or part of a river system or aquifer. Water bodies form part of larger ‘river basin districts’ (RBD), for which ‘River Basin Management Plans’ (RBMPs) are used to summarise baseline conditions and set broad improvement objectives.

In Scotland, the Scottish Environment Protection Agency (SEPA) is the competent authority for implementing the WFD, although many objectives will be delivered in partnership with other relevant public bodies and private organisations (e.g. local planning authorities, water companies, Rivers Trusts, large private landowners and developers). As part of its regulatory role and statutory consultee on planning applications and environmental permitting, The Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended in 2013³, and more commonly known as the Controlled Activity Regulations (CAR), apply regulatory controls over activities which may affect Scotland’s water environment. SEPA must consider whether proposals for new developments have the potential to:

- Cause a deterioration of a water body from its current status or potential; and/or
- Prevent future attainment of good status or potential where not already achieved.

This WFD screening and scoping assessment has been produced alongside the Environmental Impact Assessment Report (EIAR) for the Scottish Onshore Scheme. In particular, this report relates to and should be read in conjunction with **Chapter 8: Water Environment and Flood Risk (Volume 2 Main Report)**.

1.3 Assessment Process

There is no guidance produced by SEPA for undertaking a WFD assessment in Scotland, so Environment Agency⁴ and Planning Inspectorate⁵ guidance has been used instead. In the accordance with the Planning Inspectorate’s guidance, a three-stage approach has been adopted:

¹ Water Framework Directive 2000/60/EC. Available Online: <https://www.legislation.gov.uk/eudr/2000/60/contents>

² Scottish Parliament, 2003. Water Environment Water Services (‘the WEWS Act’) (Scotland) Act 2003. Available Online: <https://www.legislation.gov.uk/asp/2003/3/contents>

³ Scottish Parliament, 2011. The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR) (‘the CAR Regulations’). Available online: <https://www.legislation.gov.uk/ssi/2011/209/contents/made>

⁴ Environment Agency, (2016a). Water Framework Directive risk assessment: How to assess the risk of your activity. Available at: <https://www.gov.uk/government/publications/water-framework-directive-how-to-assess-the-risk-of-your-activity>

⁵ The Planning Inspectorate (2025). Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive. Available from: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive>.

- **Stage 1 (Screening)** – Excludes any activities that do not need to go through scoping or impact assessment stages.
- **Stage 2 (Scoping)** – Identifies the receptors that are potentially at risk from the activities of the Scottish Onshore Scheme.
- **Stage 3 (Impact Assessment)** – Considers the potential impacts of the activities, identifies ways to avoid or minimise impacts, and shows if the activities may cause deterioration or jeopardise the water body achieving good status.

This report includes Stage 1 and Stage 2 of the assessment process and will determine whether Stage 3 of the assessment is required.

1.4 Assumptions and Limitations

The assessment is based on data available from online sources and a site walkover. For many water features in the study area there was no long-term water quality or hydrological data, and for others the data that was available was limited or obtained some time ago (and thus may not be wholly representative of current conditions).

With regards to the walkover survey, as this was carried out in July, there was dense vegetation growth on the banks which obscured the channel in many places. Therefore, it was not possible to fully assess the conditions of these channels due to a lack of visibility. In addition, seasonally dry and ephemeral watercourses may not have been identified in the field.

Where culverts and single span bridges are proposed for any haul road watercourse crossings, it has been assumed that there will be no loss of capacity compared to the existing channels.

This assessment should be read in light of the legislation, statutory requirements and /or industry good practice applicable at the time of the assessment being undertaken. Any subsequent changes in this legislation, guidance or design may necessitate the findings to be reassessed in light of these circumstances.

2. WFD Water Bodies

There are nine WFD water bodies identified which have the potential to interact with the Scottish Onshore Scheme using SEPA's Classification Hub⁶. These comprise:

- Surface Water Bodies:
 - o Tiel Burn (6882)
 - o Dronachy Burn (6883)
 - o Den Burn (6310)
 - o River Ore (6305)

⁶ SEPA [online]. Available: <https://www.sepa.org.uk/data-visualisation/water-classification-hub/>

- o Lochty Burn (6312)
- Coastal Water Bodies:
 - o Buckhaven to Kinghorn (200048)
- Groundwater Bodies:
 - o Burntisland (150555).
 - o Dunfermline and Kirkcaldy (150645).
 - o Glenrothes (150562).

The Surface Water Bodies are shown in **Figure 8.1 Surface Water Receptors** and the Groundwater Bodies are shown in **Figure 8.2 Groundwater Receptors**.

Under the WFD, surface water body status is classified on the basis of chemical and ecological status or potential. Ecological status is assigned to surface water bodies that are considered by SEPA not to have been significantly modified for anthropogenic purposes. The overall objective for natural surface water bodies is to achieve Good Ecological Status and Good Chemical Status. Good Ecological Status represents only a small degree of departure from pristine conditions, which are otherwise known as High Ecological Status.

Groundwater body status is classified on the basis of quantitative and chemical status. Status is assessed primarily using data collected from SEPA monitoring network; therefore, the scale of assessment means that groundwater status is mainly influenced by larger scale impacts such as significant abstraction or widespread / diffuse pollution.

3. WFD Screening

3.1 WFD Screening Overview

The purpose of the WFD screening stage, as outlined in the Planning Inspectorate's guidance Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive⁵, is to identify a zone of influence of the Scottish Onshore Scheme and to determine whether that influence has the potential to adversely impact upon WFD water body receptors. This approach has been taken in this assessment and is outlined below.

A Study Area of 1 km from the Application Boundary has been considered in order to identify water bodies that are potentially hydrologically connected to the Scottish Onshore Scheme and potential works associated with the Scottish Onshore Scheme that could cause direct impacts.

The screening stage also identifies specific activities of the Scottish Onshore Scheme that could affect receptor water bodies' WFD status, and which should be carried forward to subsequent stages of the assessment process. Justification is provided where water body receptors are screened out and are not carried forward through the assessment.

3.2 Screening of WFD Water Bodies

The Scottish Onshore Scheme interacts with four WFD river water bodies, one coastal water body and three groundwater bodies. Screening of these water bodies is provided in **Table 1 Screening of WFD Water bodies Potentially Impacted by the Scottish Onshore Scheme**. Water bodies such as smaller tributaries within each of the WFD water body catchments that may be impacted by the Scheme have been included in this assessment. Any other remaining downstream water bodies not mentioned below are considered sufficiently far downstream to avoid impacts of the Scottish Onshore Scheme and are therefore screened out of further assessment.

Table 1 Screening of WFD Water bodies Potentially Impacted by the Scottish Onshore Scheme

Water Body (ID)	Screening Outcome	Justification
Tiel Burn 6882	In	These WFD river water bodies may be directly impacted by the Scottish Onshore Scheme due to a range of activities that would interact with the local watercourse network during the construction and operation phases of the Scottish Onshore Scheme.
Dronachy Burn 6883		
Den Burn 6310		
River Ore 6305		
Buckhaven to Kinghorn 200048	Out	This WFD coastal water body is the ultimate downstream receptor of Tyrie Burn and Banchory Burn, two watercourses with no designated WFD status, which may be directly impacted by the Scottish Onshore Scheme. However, due to the localised and temporary nature of the works, including open cut crossings and temporary outfall construction, there is unlikely to be significant impacts that would propagate downstream and impact on this coastal water body, noting the additional dilution and dispersion available at this point. Therefore, this water body can be screened out of further assessment.
Burntisland 150555	In	These WFD groundwater bodies underly the Site and may be affected by a range of activities during the construction, operation, and decommissioning phases of the Scottish Onshore Scheme.
Dunfermline and Kirkcaldy 150645		
Lochty Burn 6312	Out	This WFD surface water body is not hydrologically connected to the Scottish Onshore Scheme and therefore can be screened out of further assessment.

Water Body (ID)	Screening Outcome	Justification
Glenrothes 150562	Out	This WFD groundwater body does not underly the Site and therefore can be screened out of further assessment.

3.3 Screening of Activities

The Scottish Onshore Scheme comprises a number of activities with multiple components, some of which present a potential risk to the WFD status of water bodies. These components and activities are listed in **Table 2 Screening of the Scottish Onshore Scheme against WFD water bodies** together with a screening assessment. Further information on the Scottish Onshore Scheme's activities area available in **Chapter 2: Project Description (Volume 2 Main Report)**

Table 2 Screening of the Scottish Onshore Scheme against WFD water bodies

Activity	Description	Screening Outcome	Justification
Landfall	The Landfall is the interface between the Scottish Onshore Scheme and Marine Scheme of the Project. It is where the subsea cables come ashore and are joined to the underground cables at a buried Transition Joint Pit (TJP).		With trenchless methods (i.e. HDD), there is the potential risk of accidental surface spillage and subsurface ‘frac-out’ of drilling fluids, caused by excessive drilling pressures, and contamination of both groundwater bodies. Additionally, there is the potential for excavations to interact with groundwater. Therefore, this activity is screened in for further assessment for the Burntisland WFD groundwater body which underlies the landfall.
	Due to the constraints and topography, it is proposed that trenchless methods (i.e. Horizontal Directional Drilling (HDD)) would be utilised to construct the landfall. A temporary working area would require to be set up to the west of the railway line with the HDD required to cross under the railway line, coastal path and cliffs such that they would not be impacted by the works.	Screened In Burntisland	
	Depending on micro-siting, the landfall working area would require to be sufficiently set back from the railway line to achieve the necessary vertical clearance when crossing it.	Screened Out Tiel Burn	A Drainage Strategy (Appendix 8.3 Flood Risk Assessment, Volume 4 Appendices) details how surface water runoff would be attenuated from areas of hardstanding including temporary construction compounds. The bases of all proposed attenuation basins are expected to be above groundwater levels, and the basin depth will be limited to 0.5 m deep to limit the risk of groundwater flooding. However, if groundwater is elevated at the location of an attenuation basin the base may be lined with an impermeable geo-textile liner to mitigate groundwater ingress. Therefore, with embedded mitigation included within the design of the Scottish Onshore Scheme there is unlikely to be an impact on groundwater from this activity and can be screened out of further assessment.
	During the HDD operations there would be monitoring activity undertaken along its length. Once the works to install the landfall are completed, land will be reinstated	Dronachy Burn	
		Den Burn	
		River Ore	
		Dunfermline and Kirkcaldy	There are no surface water bodies located within close proximity that would be impacted by activities associated with the landfall. Therefore, all surface water bodies are screened out of further assessment.

Activity	Description	Screening Outcome	Justification
	with no permanent above ground infrastructure left in place.		
DC cable route	The Scottish Onshore Scheme includes DC underground cables between the landfall and converter station. A DC system comprises two cables (i.e. a single pair is one circuit), generally installed in ducts, typically up to 300 mm in diameter. These are laid side by side within a trench typically 1.0 m wide by 1.4 m deep. To enable DC cable installation, a working typically 43 m wide for the majority of the route but up to 65 m wide will be required, which includes temporary access, haul road, cable trench, drainage and topsoil and subsoil storage. A total of six compound locations have been selected consisting of one primary and five satellite. Excluding locations where HDD would be taking place (such as for the crossing of major watercourses including the River Ore) the haul road would run along the entirety of the cable corridor.	Screened In Tiel Burn Dronachy Burn Den Burn River Ore Burntisland Dunfermline and Kirkcaldy	Surface water bodies have the potential to be impacted by this activity from open cut trenched crossings of DC cables, haul road crossings including culverts and surface water runoff and drainage associated with construction compounds. With trenchless methods (i.e. HDD), there is the potential risk of accidental surface spillage and subsurface ‘frac-out’ of drilling fluids, caused by excessive drilling pressures, and contamination of both surface and groundwater bodies. A Drainage Strategy (Appendix 8.3 Flood Risk Assessment, Volume 4 Appendices) details how surface water runoff would be attenuated from areas of hardstanding including construction compounds. Runoff from the haul road will be intercepted by a channel drain along the edges that would discharge into proposed temporary basins for attenuation and treatment. Where possible new drainage outfalls will be by a ditch connection to avoid the placement of a permanent engineered structure along the riverbank. The design of the ditch will be undertaken post-planning permission and in consultation with SEPA to ensure that the arrangement for how it connects to the receiving watercourse is appropriate (e.g. angled downstream). New temporary outfalls to watercourses will be required which may impact on WFD quality elements and must be screened in for further assessment. The bases of all proposed temporary attenuation basins are expected to be above groundwater levels and the basin depth will be limited to 0.5 m deep to limit the risk of groundwater flooding.

Activity	Description	Screening Outcome	Justification
			However, if groundwater is elevated at the location of an attenuation basin the base may be lined with an impermeable geo-textile liner to mitigate groundwater ingress. Therefore, with embedded mitigation included within the design of the Scottish Onshore Scheme there is unlikely to be an impact on groundwater from this activity and can be screened out of further assessment for groundwater bodies. For the temporary compounds effluent will be collected within a cesspit and will be removed from the Site regularly by a licensed wastewater disposal contractor and then taken to a licensed sewerage treatment works. This will accommodate up to 450 staff. No discharges of foul wastewater will be discharged to ground or watercourses during construction. Therefore, there will be no impact on WFD status from foul waste. Construction runoff or spillages that have potential to enter watercourses may impact on water quality and biological quality of water bodies. Therefore, this activity should be screened in for further assessment. Some watercourses will be crossed using open cut installation techniques. This can result in temporary blockages in longitudinal connectivity. Additionally, there will be direct impacts to the bed and banks of watercourses. Therefore, this activity should be screened in for further assessment. Where a watercourse or ditch will be temporarily culverted for crossing by the haul road, there will be direct impacts to the bed

Activity	Description	Screening Outcome	Justification
			and banks, therefore this activity should be screened in for further assessment.
			Joining bays would be constructed at intervals along the cable route to facilitate cable installation into the buried ducts. These joining bays are considered to be protected from groundwater.
Converter Station	The proposed converter station site comprises approximately 25 ha of agricultural land. There is an existing 132 kV overhead line routed through the site and into the existing Westfield Substation which would require to be undergrounded to make space for the converter station, with opportunities to underground the line along the field boundary.	Screened In River Ore Screened Out Tiel Burn Dronachy Burn Den Burn Burntisland Groundwater Dunfermline and Kirkcaldy Groundwater	There will be a permanent footprint of up to 250 m by 350 m for the converter station. A Drainage Strategy (Appendix 8.3 Flood Risk Assessment, Volume 4 Appendices) has been prepared for the converter station. Surface water drainage will be routed to an attenuation basin where it will be treated prior to being discharged to an unnamed tributary of the River Ore. The permanent drainage systems on site will be designed to meet the water quality design criteria and good practice pollution control measures as outlined in the CIRIA SuDS Manual⁷. New outfalls to watercourses will be required which may impact on WFD quality elements, and therefore this activity is screened in for further assessment. Construction runoff or spillages that have potential to enter watercourses may impact on water quality and biological quality of water bodies. Therefore, this activity should be screened in for further assessment. During operation, foul waste would be collected and conveyed to a septic tank with a capacity of 7,500l (i.e. 7.5 m³) located within the platform area. The waste collected within the septic tank, which would provide treatment of the foul wastewater before discharging to a raised soakaway system. A CAR licence would be required for this activity. Impacts to groundwater will be mitigated through the

⁷ NBS (2015) Publication C753 SuDS manual (online). Available at: <https://www.thenbs.com/PublicationIndex/documents/details?Pub=CIRIA&DocId=314088>

Activity	Description	Screening Outcome	Justification
			use of an appropriate treatment system and the management and maintenance of the septic tank throughout the lifetime of the Scottish Onshore Scheme. Therefore, impacts to groundwater WFD elements can be screened out of further assessment for this activity. During ordinary operation of the converter station a small workforce (four to six people) is expected to be based at the site permanently. This will increase in the event of a breakdown or scheduled maintenance activities. As a result, operational traffic movements are expected to be limited and will not present a significant impact to WFD quality elements.
AC cable route	AC underground cables will be required between the converter station and the new 400 kV Westfield Substation. The AC system will be approximately 1 km long and will comprise of 6 cables, generally installed in ducts, typically up to 300 mm in diameter, laid 3 per trench; with each trench typically 1.4 m wide by minimum 1.4 m deep (i.e. up to two trenches). As with the DC cables, to enable cable installation a typically 41.8 m working corridor will be required comprising temporary access, haul road, cable trench, drainage and topsoil and subsoil storage. This width is necessary due	Screened In River Ore Dunfermline and Kirkcaldy Groundwater Screened Out Tiel Burn Dronachy Burn Den Burn Burntisland Groundwater	Surface water bodies have the potential to be impacted by this activity from open cut trenched crossings of DC cables, haul road crossings including culverts and surface water runoff and drainage associated with construction compounds. Additionally, trenched crossings may have the potential to interact with groundwater. With trenchless methods (i.e. HDD), there is the potential risk of accidental surface spillage and subsurface ‘frac-out’ of drilling fluids, caused by excessive drilling pressures, and contamination of both surface and groundwater bodies. A Drainage Strategy (Appendix 8.3 Flood Risk Assessment, Volume 4 Appendices) details how surface water runoff would be attenuated from areas of hardstanding including construction compounds. New temporary engineered outfalls to watercourses will be required which may impact on WFD quality elements, and must be screened in for further assessment.

Activity	Description	Screening Outcome	Justification
	to the increased spacing required for AC cables. Installation methods for AC cables are the same as those described above for DC cables. They will typically be installed by open cut trenching methods unless obstacles or constraints require trenchless methods to be used.		The bases of all proposed temporary attenuation basins are expected to be above groundwater levels and the basin depth will be limited to 0.5 m deep to limit the risk of groundwater flooding. However, if groundwater is elevated at the location of an attenuation basin the base may be lined with an impermeable geo-textile liner to mitigate groundwater ingress. Therefore, with embedded mitigation included within the design of the Scottish Onshore Scheme there is unlikely to be an impact on groundwater from this activity and can be screened out of further assessment. For the temporary compounds effluent will be collected within a septic holding tank which will be emptied regularly by a licensed water disposal company and then taken to a licenses sewerage treatment works. This will accommodate up to 450 staff. Therefore, there will be no impact on WFD status from foul waste. Construction runoff or spillages that have potential to enter watercourses may impact on water quality and biological quality of water bodies. Therefore, this activity should be screened in for further assessment. Watercourses will be crossed using open cut installation techniques. This can result in temporary blockages in longitudinal connectivity. Additionally, there will be direct impacts to the bed and banks of watercourses. Where a watercourse or ditch will be culverted for crossing of the haul road, there will be direct impacts to the bed and banks, therefore this activity should be screened in for further assessment.

4. WFD Scoping Assessment

The WFD scoping stage defines the level of detail required for further WFD assessment. This includes identifying risks to the WFD receptors from the Scottish Onshore Scheme's components that were screened in and determining whether these risks can be scoped out of further assessment with mitigation. Embedded, standard mitigation and additional mitigation is discussed below and further information is available in **Chapter 8: Water Environment and Flood Risk (Volume 2 Main Report)**. The scoping stage assessment is presented for each water body in **Table 3 to Table 7**.

4.1 Embedded Mitigation

Underground Cable Corridor – Surface Water Runoff

Although the haul road is unlikely to be heavily trafficked, due to the likely rough surface and use by construction vehicles and plant, there is expected to be a risk from fine sediments and hydrocarbons. To manage this risk two forms of treatment are proposed, with runoff initially captured in roadside swales that will convey the runoff to temporary attenuation basins.

In total up to 54 temporary attenuation basins are currently proposed across the site (subject to change at the detailed design stage) to temporarily store and help treat surface water runoff. From here, filtered water will drain via gravity pipes or pumped outfalls into nearby watercourses/ditches. Swales will carry runoff to the attenuation basins across the site. The attenuation basins will be designed to be vegetated depressions with 1:3 slopes as to avoid stabilisation issues. To allow for the settlement of sediment they will have an inlet forebay which will subsequently provide treatment for the runoff. A 5 m buffer will be in place around each basin to allow for side slopes and for access and maintenance. Earth berms, fabric silt fences or straw bale walls etc. will be provided to ensure any water contaminated with fine sediment from earthworks associated with the construction of the attenuation basins is prevented from draining to the nearby watercourse.

Temporary outfalls will have a penstock valve fitted which will close or isolate discharge from the outfall if a pollution incident occurs.

The bases of all proposed attenuation basins for the haul road and cable corridor construction drainage will be designed to be located above groundwater levels. However, groundwater is assumed to be shallow along the cable route and as such attenuation basins may need to be lined and anchored to ensure the hydraulic performance and attenuation capacity of the basin remains as designed. Alternatively, shallower basins with a larger surface area may serve to provide the same level of performance, subject to available space, design and construction costs. Groundwater level delineation should be undertaken prior to construction as part of the Ground Investigation, which should include monitoring during the seasonal maximum (i.e. typically winter/early spring) or otherwise a suitable precautionary estimate as agreed with statutory consultees.

Underground Cable Corridor – Surface Water Runoff

Water collected within the temporary attenuation basins will be disposed of via discharge to nearby surface waters. Temporary outfalls will have a penstock valve fitted which will close

or isolate discharge from the outfall if a pollution incident occurs. The maximum discharge rate will be either 1 in 5-year greenfield runoff rate or 4.0l/s/ha, whichever is lower. For discharge to an existing flood-sensitive watercourse as defined by Fife Council, the lower discharge rate of either a 1 in 2-year greenfield rate or 3.3l/s/ha will be implemented. This will apply only to Tiel Burn within the study area.

Where possible new drainage outfalls will be by a ditch connection to avoid the placement of a permanent engineered structure along the riverbank. The design of the ditch will be undertaken post-planning permission and in consultation with SEPA to ensure that the arrangement for how it connects to the receiving watercourse is appropriate (e.g. angled downstream). To avoid water bodies becoming contaminated by suspended sediment, the velocity of flows will be reduced using baffles. It is assumed that outfalls will be plastic pipes, supported by sandbags and fitted with baffles to help dissipate energy and avoid erosion of the bed and bank.

Haul Road Watercourse Crossings

Excluding existing culverted crossings, the Scottish Onshore Scheme will require up to 12 temporary culverts and 12 temporary open span bridge crossings. However, at this stage impacts are assessed as assumed culverts, as a worst-case scenario as precise details of where the temporary bridges will be provided are not known. Where the watercourse or ditch will be culverted, the existing connectivity, capacity (where applicable) and freeboard will be maintained. It is expected that the culverts and clear-span bridges required for the temporary haul road will be installed for approximately 2 years, with the potential to change depending on the progression of the construction phase, after which the affected riverbeds and surrounding bank areas will be fully reinstated as found.

The culverting of watercourses is a controlled activity under CAR and requires authorisation from SEPA, as stated in WAT-PS-06-02⁸. Culverting of watercourses will take place in accordance with SEPA WAT-SG-25 River Crossings⁹ and WAT-SG-29 Construction Methods guidance¹⁰.

- Where possible, construction of haul road watercourse crossings will be carried out during drier periods of the year, or during a period of dry weather where flows in the watercourse are low. If this is not possible, then the works area will be kept dry by over-pumping the flow to reduce pollution risks.
- If required, the natural bed material will be stored during the construction phase and be kept clean. When construction is complete the stored bed material will be used to restore the riverbed. Any affected banks will be restored by re-establishing native riparian vegetation.

In the post-planning phase of the project, the temporary culvert capacity should be established based on the criteria of maintaining the existing watercourse capacity and not

⁸ SEPA (2011) WAT-PS-06-02: Culverting of Watercourses - Position Statement and Supporting Guidance (online). Available at: https://www.sepa.org.uk/media/150919/wat_ps_06_02.pdf

⁹ SEPA (2010) Engineering in the water environment: good practice guide River crossings (online). Available at: <https://www.sepa.org.uk/media/151036/wat-sg-25.pdf>

¹⁰ SEPA (2009) Engineering in the Water Environment Good Practice Guide Temporary Construction Methods (online). Available at: https://www.sepa.org.uk/media/150997/wat_sg_29.pdf

increasing flood risk. During this process there will be engagement with landowners and statutory stakeholders (i.e. SEPA and Fife Council) to agree the design and ensure any secondary consents are obtained.

Open Cut Trenching

The open cut trenching technique will involve excavating a trench up to 1.4 m deep and 1.4 m wide. The underground cables will be laid directly into the trench. The trench will then be backfilled using a combination of locally excavated soils and Cement Bound Sand (CBS) and the land reinstated.

Where possible intrusive watercourse crossings will be carried out during drier periods of the year or during a period of dry weather where flows in the watercourse are low (this may be baseflow or where the channels are very small and not as well connected to groundwater, they may even be dry). However, this cannot be guaranteed and so any water flow within the watercourse will need to be over-pumped/flumed through the works area to maintain a dry trench and to reduce pollution risks.

Horizontal Directional Drilling

With the HDD method, there is also a potential risk of accidental surface spillage and subsurface ‘frac-out’ of drilling fluids, caused by excessive drilling pressures, and contamination of both surface and groundwater bodies. The Construction Environmental Management Plan (CEMP), detailed below, will include embedded measures to be taken by the Contractor to mitigate these risks.

During HDD activities, there is the potential need for dewatering of groundwater from the send and receive pits associated with the HDD crossings, where groundwater is encountered, and subsequent discharge. Where groundwater is encountered during trenching and excavations, it will be pumped, stored and go through pollution control measures before being discharged into the nearest watercourse at the lower rate of either 4l/s/ha or the greenfield run-off rate. Dewatering activities will be subject to the Controlled Activities Regulations.

Compound Mitigation

To minimise the pollution in the construction compounds the following mitigations have been considered:

- The construction compound surfacing will utilise permeable materials where appropriate. Consideration will be given to the prevention of clogging of the permeable pavement by sediments. Permeable paving is particularly effective at removing the main pollutants: suspended solids, hydrocarbons and metals.
- An area for settlement of silts will be included within the attenuation basins as the treatment method for sediment control. All attenuation basins will be provided with oil absorbents to absorb any hydrocarbons accumulated.
- Runoff from adjacent ground will be intercepted and prevented from entering the underground AC and DC cable corridors, as this may create additional polluted runoff.

- Compounds will need to implement water conservation measures which may include:
 - To prevent dust being generated the water within the attenuation basins may be pumped into a bowser and used to dampen the haul roads.
- Vehicle washing should only be used in a bunded area where the runoff can be contained and channelled to a treatment area, such as an attenuation basin, prior to discharge. Runoff from washes and vehicle wash bays must not be allowed to enter surface water or foul water drainage systems without permission.
- Storage areas should sit away from sensitive receptors, at least 10 m from a watercourse or a land drain.

Foul Waste

Effluent from the main temporary compound will be collected within a cesspit holding tank with capacity for 450 people which will be removed regularly from the site by a licensed wastewater disposal contractor and then taken to a licensed sewerage treatment works where it can be properly treated in accordance with their regulatory requirements. No discharges of foul wastewater will be discharged to ground or watercourses during construction.

4.2 Standard Mitigation

All works on site are to be undertaken in accordance with a CEMP for the Scottish Onshore Scheme, which shall be developed in the detailed design phase and refined for the consented project in advance of construction, and then as necessary as construction progresses. It is assumed that both the CEMP and Water Management Plan (WMP) will be secured through the application of pre-commencement planning conditions on any successful planning application.

Supporting the CEMP will be a WMP that provides greater detail with regards to the measures required to avoid, reduce and minimise adverse impacts on the water environment during construction. Like the CEMP, the WMP will be developed post consent and alongside detailed design and when the contractor(s) have been appointed. The WMP will also set out the scope of proposed water quality, flow and level monitoring of water features and PWS that are proposed, covering pre-construction, during construction, and post-construction phases.

Management of Construction Site Run-Off

Mitigation measures to manage site run-off from construction areas will include:

- Avoidance of wet weather working where practical, especially site clearance, earthworks and works to water features.
- Appropriate separate storage of topsoil/subsoil and materials, and at least 50 m from water features on flat ground, other than where works are necessary adjacent to water features in which case a site/works-specific risk assessment will be carried out and additional measures added if required.
- Any earth bund/ stockpile to be present for longer than two weeks will be either seeded, covered using geotextiles, or other measures provided to ensure it is not a source of excessive fine sediment in runoff to water features.

- The implementation of a temporary drainage system and other measures to manage pollution risk during construction (e.g., fabric silt fences, lagoons, bunds, straw bales, sandbags, lamella clarifiers or other proprietary measures etc. as may be required).
- Any dewatering of excavations will include measures where necessary to filter the water prior to discharge to a watercourse or ground (there shall be no discharge of any construction site runoff to existing basins).
- The control of mud deposits at entry and exit points to the Scottish Onshore Scheme using wheel washing facilities and/ or road sweepers operating during earthworks or other times as considered necessary.
- All plant will be kept clean but washed in dedicated areas only where runoff can be captured and appropriately treated prior to discharge from the site to watercourse or ground. Any contaminated water that cannot be treated on site will be collected and disposed of at a suitable licenced wastewater facility.

Management of Spillage Risk

To prevent chemicals, fuels / oils and other such substances from entering the water environment, adequate measures to control the storage, handling and disposal of these substances will be put in place prior to and during construction. Mitigation measures to control of spillages and leaks during construction works will include:

- Storage of fuel and chemicals will be in accordance with GPP 2: Above ground oil storage
- Surface water drains on local roads or within the Scottish Onshore Scheme will be identified by the contractor(s) and where there is a risk that fine particulates or chemical spillages could enter them, they will be protected (e.g. covers or sandbags).
- Any containers/tanks of contaminating substances (e.g. fuel) onsite will be leak-proof and kept in a safe and secure building or compound from which they cannot leak, spill or be open to vandalism. The containers will be protected by temporary impermeable bunds (or drip trays for small containers) with a capacity of 110% of the maximum stored volume. Areas for transfer of contaminating substances (including refuelling areas) will be similarly protected.
- Any permanent oil storage tanks and temporary storage of 201 litres or more of oil in drums and mobile bowsers, and ancillary pipe work, valve, filters, sight gauges and equipment will have secondary containment (e.g. bunding or drip trays).
- No oil/chemical tanks will be stored within 50 m of a water feature and potentially further if ground is angled towards a water feature except for fixed/large plant associated with works that must occur close to water features or hand tools that must be placed in that location. Such chemical storage will be on flat, impermeable hard standing, and with an isolated drainage system.
- Particular care will be taken with the delivery and use of concrete and cement as these materials are highly corrosive and alkaline. No washing out of delivery vehicles to take place on the site without suitable provision for the washing out water and

provision of a suitable location (e.g. geotextile wrapped sealed skip, container or earth-bunded area) that is lined with a geotextile to prevent infiltration to ground. Such washing will not be allowed to flow into any drain or over the edge of a floating barge. The CEMP/ WMP will contain a methodology for dealing with any washing out water, or wheel wash. Wash/ wheel wash water will be adequately contained, prevented from entering any water feature, and either treated by an on-site Water Treatment Plant or removed from the site for appropriate disposal at a suitably licensed waste facility.

- Where possible re-fuelling will be undertaken in designated areas within main compounds or satellite compounds. It is possible that refuelling of mobile plant may be required by mobile fuel bowser. This will not be undertaken within 50 m of a water feature, and only on flat land (or otherwise a greater distance and other measures may be required subject to an on-site/ works-specific risk assessment) and with a drip tray/plant nappy. Certain semi-mobile very large plant (e.g. cranes) may need to be located close to watercourses and potentially within 50 m. Due to the difficulties in moving plant such as this they may need to be refuelled in situ. Again, a site/ works-specific risk assessment will need to be undertaken by the contractor.
- Biodegradable hydraulic oils will be used where possible in all plant used during pre-construction and construction works, and only in plant and equipment working in or over water features.
- Spill kits and oil absorbent material will be available on the site in watertight containers in compounds, areas of works, strategically near water receptors and carried on all mobile plant. They will be regularly checked and topped up, especially after use. Appropriate training will be given to all construction workers in their use and spillage response.
- The CEMP will include an Emergency Response Plan.
- Any plant, machinery or vehicles will be regularly inspected and maintained to ensure they are in good working order and clean for use in a sensitive environment. This maintenance is to take place offsite if possible or only at designated areas in the site compounds.
- All fixed plant used on the Scottish Onshore Scheme to be self-bunded.
- Mobile plant to be in good working order, kept clean and fitted with plant 'nappies' at all times.
- The site is to be secure to prevent any vandalism that could lead to a pollution incident.
- Construction waste/ debris are to be prevented from entering any surface water drainage or water feature.

Management of Groundwater Activities

To minimise the impact of any groundwater control activities during construction on the water receptors, the contractor will undertake works in accordance with good practice as described earlier, as well as a project specific CEMP and WMP. The mitigation options

deployed by the contractor will be informed by the findings from the ground investigation which will provide information of site-specific ground conditions, including groundwater quality and quantity data. In addition, the HDD design will also be informed by the results from the ground investigation. As a minimum the contractor will adhere to the following mitigation measures:

- Groundwater control will be implemented to ensure water levels in adjacent water features are maintained and any discharge is of a suitable quality.
- If discharging water to a nearby watercourse, the rate of discharge will need to be agreed with the relevant authority to ensure that there is no unacceptable increase in flood risk or risk of scour. Any discharge will need to be undertaken with the agreement of the relevant statutory regulator and will need to comply with the pollution prevention requirements set out in the CEMP/WMP.
- Managing the risk from groundwater flooding through appropriate working practices (during excavations) and with adequate plans and equipment in place for de-watering to ensure safe, dry working environments.

4.3 Additional Mitigation

Reinstatement of Watercourses following open cut cable installation

Where open cut crossing techniques are used, watercourses will be reinstated as found. A Pre-works Hydromorphological and Riparian Survey will be undertaken to provide the baseline against which reinstatement will be provided. Bank and bed sediments must be stored separately and in distinct layers as excavated on geotextile layers so they can be reinstated as found following completion of the works. The banks and the bed will need to be appropriately reprofiled with the inclusion of suitable geomorphic features with the aim to provide betterment on the original channel. Once the watercourses are reinstated, silt fences, geotextile matting or straw bales will be used initially to capture mobilised sediment until the watercourse has returned to a settled state. Regular observations of the watercourses will be undertaken post-works during vegetation re-establishment of the banks, to ensure that no adverse impacts have occurred.

Hydraulic Fracture Risk Assessment

There is a small risk of hydraulic fluid break out from drilling to the watercourse or groundwater aquifer if not appropriately mitigated for site specific conditions. A site-specific Hydraulic Fracture Risk Assessment will be produced prior to commencing works to define the mitigation required based on ground conditions. Water quality monitoring (groundwater and surface water) will also be undertaken prior to, during, and following on from the construction activity to ensure any spillages or other pollution is identified. These mitigation requirements will be outlined in a WMP.

Groundwater Dewatering Strategy

An understanding of groundwater across the site is recommended to be obtained from the ground investigation and monitoring to inform the baseline conditions, particularly where HDD works are expected to take place or foundations constructed for the converter station.

A Groundwater Dewatering Strategy will be prepared with the aim to ensure any water entering excavations are appropriately managed and minimising localised draw down and impacts to any nearby receptors. This will be based on a Ground Investigation and will take into account excavation design, permeability, groundwater levels, location of any confined aquifers, and nearby receptors that could be impacted. A suitable method for the management of groundwater entering excavations will be prepared and agreed with SEPA, and any secondary consents obtained. The Groundwater Dewatering Strategy may also be secured through the use of pre-commencement planning condition.

4.4 WFD scoping assessment for Tiel Burn

Surface Water Body (name/ID):	Tiel Burn/6882	Current status or potential:	Moderate
Water body length:	9.9 km	Target status or potential (2027):	Unknown
Water body area:	N/A	Overall ecology	Poor
Heavily modified?	Yes	Protected Areas:	N/A
Pre-HMWB status	Poor	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include the risk of pollution from construction runoff, increased surface water runoff from temporary hardstanding areas and associated drainage, construction of culverts and outfalls and open trenched crossings of watercourses.		

Table 3 WFD Scoping assessment for Tiel Burn

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Physico-Chem	High	Excessive levels of fine sediment and spillages of chemicals could enter Tiel Burn and its tributaries from the construction of the open cut cable crossings, temporary haul road access crossings and temporary drainage outfalls. Suspended sediments and chemical spillages from construction site runoff from temporary hard standing areas including HDD set up locations and construction	There are no permanent above ground structures that would impact on physico-chemical elements of Tiel Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of physico-chemical quality elements. Therefore, the Scottish Onshore Scheme would be compliant with
Temperature	High			
Reactive phosphorus	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Dissolved Oxygen	High	compounds have the potential to affect physico-chemical WFD elements.		WFD objectives relating to physico-chemical quality elements.
Acidity	High	Although the haul road is unlikely to be heavily trafficked, due to the likely rough surface and use by construction vehicles and plant, there is expected to be a risk from fine sediments and hydrocarbons.		
pH	High	New culverts for the haul road could increase shading of watercourses and therefore impact thermal conditions. However, as the culverts are temporary and localised, they are unlikely to impact on temperature over a long period at water body scale.		
Biological elements	Moderate	During the construction of the access tracks, works may result in a reduction in water quality to Tiel Burn, due to deposition or spillage of soils, sediments, oils, fuels or other construction chemicals, or through mobilisation of contamination following disturbance of contaminated ground or groundwater, or through uncontrolled site run-off. Any reduction in water quality from sediment runoff of chemical spillages during construction could adversely impact invertebrate and fish communities through toxic effects, reductions in dissolved oxygen, smothering of habitat, and direct physical impacts. Fine sediments may also smother macrophytes and diatoms and reduce the potential for photosynthesis. Culverts for the haul road have the potential to interrupt longitudinal connectivity and present a barrier to fish. The construction of culverts, outfalls and trenched watercourse crossings have the potential to have direct impacts on biological WFD quality elements due to potential removal of macrophytes and mortality of invertebrates. However, the impact on macrophytes and invertebrates would be localised and therefore unlikely result in deterioration at water body scale.	There are no permanent above ground structures that would impact on biological elements of Tiel Burn and its tributaries during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of biological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to biological quality elements.
Invertebrate animals	Good			
Macroinvertebrates (RiCT/WHPT)	Good			
Macro-invertebrates (ASPT)	Good			
Macroinvertebrates (NTAXA)	High			
Alien species	Moderate			
Fish	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Fish barrier	High	As INNS were observed on watercourses during the site walkover, there is the potential to spread INNS with removal and replacement of vegetation and soil during construction.		
Aquatic plants	Good			
Macrophytes	Good			
Phytobenthos (diatoms)	Good			
Hydro-morphology	Poor	Watercourse crossings for the haul road have the potential to restrict movement of coarse sediment, which could lead to excess accumulation upstream and starvation of supply downstream that could trigger localised erosion. Additionally, there would be unavoidable temporary disruption of the bed and banks.	There are no permanent above ground structures that would impact on hydromorphology elements of Tiel Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , and the temporary nature of the works, it is unlikely that there would be a deterioration in WFD water body status of hydromorphological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to hydromorphological quality elements.
Morphology	Poor			
Overall hydrology	High	Construction of outfalls would have localised disturbance on the bed and banks and potentially result in some local disturbance to the continuity of the channel including flow and sediment transport processes. There is also potential loss of bank habitat and scour risk.		
Modelled hydrology	High			
Hydrology (medium/high flows)	High	There is potential for disruption to flow during open trenched crossings.		
Hydrology (low flows)	High			

4.5 WFD Scoping assessment for Dronachy Burn

Surface Water Body (name/ID):	Dronachy Burn/6883	Current status or potential:	Moderate
Water body length:	11.1 km	Target status or potential (2027):	Unknown
Water body area:	N/A	Overall ecology	Bad
Heavily modified?	Yes	Protected Areas:	Camilla Loch SSSI
Pre-HMWB status	Bad	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include the risk of pollution from construction runoff, increased surface water runoff from temporary hardstanding areas and associated drainage, construction of culverts and outfalls and open trenched crossings of watercourses.		

Table 4 WFD Scoping assessment for Dronachy Burn

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual Impacts and WFD compliance
		Construction	Operation	
Physico-Chem	Moderate	Excessive levels of fine sediment and spillages of chemicals could enter Dronachy Burn and its tributaries from the construction of the open cut cable crossings, haul road access crossings and drainage outfalls.	There are no permanent above ground structures that would impact on physico-chemical elements of Dronachy Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of physico-
Temperature	High	Suspended sediments and chemical spillages from construction site runoff from temporary		

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual Impacts and WFD compliance
		Construction	Operation	
Reactive phosphorus	Moderate	hard standing areas including HDD set up locations and construction compounds have the potential to affect physico-chemical WFD elements.		chemical quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to physico-chemical quality elements.
Dissolved Oxygen	High	Although the haul road is unlikely to be heavily trafficked, due to the likely rough surface and use by construction vehicles and plant, there is expected to be a risk from fine sediments and hydrocarbons.		
Acidity	High	New culverts for the haul road could increase shading of watercourses and therefore impact thermal conditions. However, as the culverts are temporary and localised, they are unlikely to impact on temperature over a long period at water body scale.		
pH	High			
Biological elements	Moderate	During the construction of the access tracks, works may result in a reduction in water quality to Tiel Burn, due to deposition or spillage of soils, sediments, oils, fuels or other construction chemicals, or through mobilisation of contamination following disturbance of contaminated ground or groundwater, or through uncontrolled site run-off. Any reduction in water quality from sediment runoff of chemical spillages during construction could adversely impact invertebrate and fish communities through toxic effects, reductions in dissolved oxygen, smothering of habitat, and direct physical impacts. Fine sediments may also smother macrophytes and diatoms and reduce the potential for photosynthesis.	There are no permanent above ground structures that would impact on physico-chemical elements of Dronachy Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of biological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to biological quality elements.
Invertebrate animals	High			
Macroinvertebrates (RiCT/WHPT)	High			
Macroinvertebrates (ASPT)	High			
Macroinvertebrates (NTAXA)	High			
Fish	Moderate			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual Impacts and WFD compliance
		Construction	Operation	
Fish barrier	Moderate	Culverts for the haul road have the potential to interrupt longitudinal connectivity and present a barrier to fish.		
Aquatic plants	Moderate	The construction of culverts, outfalls and trenched watercourse crossings have the potential to have direct impacts on biological WFD quality elements due to potential removal of macrophytes and mortality of invertebrates. However, the impact on macrophytes and invertebrates would be localised and therefore unlikely result in deterioration at water body scale.		
Macrophytes	High			
Phytobentos (diatoms)	Moderate			
Hydromorphology	Bad	Watercourse crossings for the haul road have the potential to restrict movement of coarse sediment, which could lead to excess accumulation upstream and starvation of supply downstream that could trigger localised erosion. Additionally, there would be unavoidable temporary disruption of the bed and banks.	There are no permanent above ground structures that would impact on hydromorphology elements of Dronachy Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , and the temporary nature of the works, it is unlikely that there would be a deterioration in WFD water body status of hydromorphological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to hydromorphological quality elements.
Morphology	Bad			
Overall hydrology	Moderate			
Modelled hydrology	Poor	Construction of outfalls would have localised disturbance on the bed and banks and potentially result in some local disturbance to the continuity of the channel including flow and sediment transport processes. There is also potential loss of bank habitat and scour risk.		
Hydrology (medium/high flows)	Moderate			
Hydrology (low flows)	Poor	There is potential for disruption to flow during open trenched crossings.		

4.6 WFD Scoping assessment for Den Burn

Surface Water Body (name/ID):	Den Burn/6310	Current status or potential:	Poor
Water body length:	5.4 km	Target status or potential (2027):	Unknown
Water body area:	N/A	Overall ecology	Bad
Heavily modified?	Yes	Protected Areas:	N/A
Pre-HMWB status	Bad	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include the risk of pollution from construction runoff, increased surface water runoff from temporary hardstanding areas and associated drainage, construction of culverts and outfalls and open trenched crossings of watercourses.		

Table 5 WFD Scoping assessment for Den Burn

WFD Parameter	Current Status (2023)	Description of potential impacts Construction	Operation	Residual Impacts and WFD compliance
Physico-Chem	Good	Excessive levels of fine sediment and spillages of chemicals could enter Dronachy Burn and its tributaries from the construction of the open cut cable crossings, haul road access crossings and drainage outfalls.	There are no permanent above ground structures that would impact on physico-chemical elements of Den Burn during the operational phase.	With mitigation in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of physico-chemical quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to
Temperature	High	Suspended sediments and chemical spillages from construction site runoff from temporary hard standing areas including HDD set up locations and construction compounds have the potential to affect physico-chemical WFD elements.		
Reactive phosphorus	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual Impacts and WFD compliance
		Construction	Operation	
Dissolved Oxygen	High	Although the haul road is unlikely to be heavily trafficked, due to the likely rough surface and use by construction vehicles and plant, there is expected to be a risk from fine sediments and hydrocarbons. New culverts for the haul road could increase shading of watercourses and therefore impact thermal conditions. However, as the culverts are temporary and localised, they are unlikely to impact on temperature over a long period at water body scale.		physico-chemical quality elements.
Acidity	High			
pH	High			
Biological elements	Poor	During the construction of the access tracks, works may result in a reduction in water quality to Tiel Burn, due to deposition or spillage of soils, sediments, oils, fuels or other construction chemicals, or through mobilisation of contamination following disturbance of contaminated ground or groundwater, or through uncontrolled site run-off. Any reduction in water quality from sediment runoff of chemical spillages during construction could adversely impact invertebrate and fish communities through toxic effects, reductions in dissolved oxygen, smothering of habitat, and direct physical impacts. Fine sediments may also smother macrophytes and diatoms and reduce the potential for photosynthesis. Culverts for the haul road have the potential to interrupt longitudinal connectivity and present a barrier to fish.	There are no permanent above ground structures that would impact on biological quality elements of Den Burn during the operational phase.	With embedded and standard mitigation described above in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of biological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to biological quality elements.
Invertebrate animals	Moderate			
Macroinvertebrates (RiCT/WHPT)	Moderate			
Macroinvertebrates (ASPT)	Moderate			
Macroinvertebrates (NTAXA)	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual Impacts and WFD compliance
		Construction	Operation	
Fish	Poor	The construction of culverts, outfalls and trenched watercourse crossings have the potential to have direct impacts on biological WFD quality elements due to potential removal of macrophytes and mortality of invertebrates. However, the impact on macrophytes and invertebrates would be localised and therefore unlikely result in deterioration at water body scale.		
Fish barrier	Poor			
Hydromorphology	Bad	Watercourse crossings for the haul road have the potential to restrict movement of coarse sediment, which could lead to excess accumulation upstream and starvation of supply downstream that could trigger localised erosion. Additionally, there would be unavoidable temporary disruption of the bed and banks.	There are no permanent above ground structures that would impact on hydromorphological quality elements of Den Burn during the operational phase.	With mitigation described above in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation , and the temporary nature of the works, it is unlikely that there would be a deterioration in WFD water body status of hydromorphological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to hydromorphological quality elements.
Morphology	Bad			
Overall hydrology	High	Construction of outfalls would have localised disturbance on the bed and banks and potentially result in some local disturbance to the continuity of the channel including flow and sediment transport processes. There is also potential loss of bank habitat and scour risk.		
Modelled hydrology	High			
Hydrology (medium/high flows)	High	There is potential for disruption to flow during open trenched crossings.		
Hydrology (low flows)	High			

4.7 WFD Scoping assessment for River Ore

Surface Water Body (name/ID):	River Ore (Loch Ore to Cardenden)/6305	Current status or potential:	Poor
Water body length:	6.7 km	Target status or potential (2027):	Unknown
Water body area:	N/A	Overall ecology	Poor
Heavily modified?	No	Protected Areas:	N/A
Pre-HMWB status	Poor	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include the risk of pollution from construction runoff, increased surface water runoff from temporary and permanent hardstanding areas and associated drainage, construction of culverts and outfalls and open trenched crossings of watercourses.		

Table 6 WFD Scoping assessment for River Ore

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Physico-Chem	High	Excessive levels of fine sediment and spillages of chemicals could enter the River Ore and its tributaries from the construction of the open cut cable crossings, haul road access crossings and drainage outfalls.	Road runoff around the permanent converter station can include a range of substances that can be harmful to the water environment resulting in poor water quality. Common roadway pollutants include sediment/grit, dissolved and particulate heavy metals, hydrocarbons,	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of physico-chemical quality elements. Therefore, the Scottish Onshore Scheme would be
Temperature	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Reactive phosphorus	High	Suspended sediments and chemical spillages from construction site runoff from temporary hard standing areas including HDD set up locations and construction compounds have the potential to affect physico-chemical WFD elements. Although the haul road is unlikely to be heavily trafficked, due to the likely rough surface and use by construction vehicles and plant, there is expected to be a risk from fine sediments and hydrocarbons. New culverts for the haul road could increase shading of watercourses and therefore impact thermal conditions. However, as the culverts are temporary and localised, they are unlikely to impact on temperature over a long period at water body scale.	pesticides and other organic-compounds, nutrients, de-icing salt, and litter. During ordinary operation of the converter station a small workforce (four to six people) is expected to be based at the site permanently. This will increase in the event of a breakdown or scheduled maintenance activities. As a result, operational traffic movements are expected to be limited and will not present a significant impact to the water quality.	compliant with WFD objectives relating to physico-chemical quality elements.
Dissolved Oxygen	High			
Acidity	High			
pH	High		There will be a permanent footprint of up to 250 m by 350 m for the converter station. There is risk of increased surface water runoff to watercourses due to increased areas of permanent hardstanding.	
Biological elements	Poor	During the construction of the access tracks, works may result in a reduction in water quality to Tiel Burn, due to deposition or spillage of soils, sediments, oils, fuels or other construction chemicals, or through mobilisation of contamination following disturbance of contaminated ground or groundwater, or through uncontrolled site run-off. Any reduction in water quality from sediment runoff of chemical spillages during construction could adversely impact invertebrate and fish communities through toxic effects,	Road runoff can include a range of substances that can be harmful to the water environment resulting in poor water quality. Common roadway pollutants include sediment/grit, dissolved and particulate heavy metals, hydrocarbons, pesticides and other organic-compounds, nutrients, de-icing salt, and litter. During ordinary operation of the converter station a small workforce (four to six people) is expected to be based at the site permanently. This will increase in the event of a breakdown or scheduled maintenance activities. As a result, operational traffic	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , it is unlikely that there would be a deterioration in WFD water body status of biological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to biological quality elements.
Invertebrate animals	Good			
Macroinvertebrates (RiCT/WHPT)	Good			
Macroinvertebrates (ASPT)	Good			
Macroinvertebrates (NTAXA)	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Fish	Poor	reductions in dissolved oxygen, smothering of habitat, and direct physical impacts. Fine sediments may also smother macrophytes and diatoms and reduce the potential for photosynthesis.	movements are expected to be limited and will not present a significant impact to the water quality.	
Fish barrier	Poor	Culverts for the haul road have the potential to interrupt longitudinal connectivity and present a barrier to fish.	There will be a permanent footprint of up to 250 m by 350 m for the converter station. There is risk of increased surface water runoff to watercourses due to increased areas of permanent hardstanding.	
Aquatic plants	Good	The construction of culverts, outfalls and trenched watercourse crossings have the potential to have direct impacts on biological WFD quality elements due to potential removal of macrophytes and mortality of invertebrates. However, the impact on macrophytes and invertebrates would be localised and therefore unlikely result in deterioration at water body scale.		
Macrophytes	Good			
Phytobenthos (diatoms)	Good			
Hydromorphology	Poor	Watercourse crossings for the haul road have the potential to restrict movement of coarse sediment, which could lead to excess accumulation upstream and starvation of supply downstream that could trigger localised erosion.	The potential drainage outfall to discharge treated water into an unnamed tributary of the River Ore from the permanent attenuation basin, has the potential to cause loss of bank habitat, flow disruption and scour during operation.	With mitigation described above in Section 4.1 Embedded Mitigation , 4.2 Standard Mitigation and 4.3 Additional Mitigation , and the temporary nature of the works, it is unlikely that there would be a deterioration in WFD water body status of hydromorphological quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives relating to hydromorphological quality elements.
Morphology	Poor	Additionally, there would be unavoidable temporary disruption of the bed and banks.		
Overall hydrology	High	Construction of outfalls would have localised disturbance on the bed and banks and potentially result in some local disturbance to the continuity of the channel including flow and sediment transport processes. There is also		
Modelled hydrology	High			
Hydrology (medium/high flows)	High			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual impacts and WFD compliance
		Construction	Operation	
Hydrology (low flows)	High	potential loss of bank habitat and scour risk.		
Water quality	Good	There is potential for disruption to flow during open trenched crossings.		

4.8 WFD Scoping assessment for Burntisland Groundwater body

Groundwater Body (name/ID):	Burntisland/150555	Current status or potential:	Good
Water body length:	N/A	Target status or potential (2027):	Unknown
Water body area:	76.1 km ²	Protected Areas:	N/A
Heavily modified?	N/A	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include excavations for underground cable crossing including HDD and open trenched methods.		

Table 7 WFD Scoping assessment for Burntisland Groundwater body

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
Overall status	Good	There are potential impacts from groundwater ingress to excavations (e.g. launch, receiving and jointing pits) and the risk of ‘break out’ of drilling muds into watercourses associated with trenchless crossings. Excavations relating to HDD will range between 1.4 m below existing ground level to approximately 31 m below existing ground level. It is likely that shallow groundwater would be encountered in places within the superficial deposits where the HDD is	There are no activities during operation that would impact on WFD quality elements for this water body.	With mitigation described above in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation, it is unlikely that there would be a deterioration in WFD water body status of WFD quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives.
Quantitative status	Good			
Quant - Saline Intrusion	Good			
Quant - SW Interaction	Good			
Quant -Water balance	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
Chemical status	Good	shallower, and groundwater would be encountered during the deeper excavations. Excavations relating to the open cut trenching are expected to be 1.8 Mbgl. It is likely that shallow groundwater would be encountered during these excavations.		
Chemical Surface Water Interaction (SWI)	Good			
SWI - Specific pollutants	Good			
SWI - Chromium	Good			
SWI - Zinc	Good			
SWI - Manganese	Good			
SWI - Other Substances	Good			
SWI - Nitrate	Good			
SWI - Priority substances	Good			
SWI - Cadmium	Good			
SWI - Lead	Good			
Drinking Water Protected Area (DWPA)	Good			
DWPA - Priority substances	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
DWPA - Atrazine	Good			
DWPA - Simazine	Good			
DWPA - Other Substances	Good			
DWPA - Epoxyconazole	Good			
DWPA - Nitrate	Good			
Chemical General tests (CGT)	Good			
CGT - Priority substances	Good			
CGT - Atrazine	Good			
CGT - Simazine	Good			
CGT - Trichloroethene	Good			
CGT - Benzene	Good			
CGT - Specific pollutants	Good			
CGT - Chromium	Good			
CGT - Other Substances	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
CGT - Electrical Conductivity	Good			
CGT - Epoxyconazole	Good			
CGT - Nitrate	Good			
CGT - Free Product	Good			
CGT - Vinyl Chloride	Good			
Water quality	Good			

4.9 WFD Scoping assessment for Dunfermline and Kirkcaldy

Groundwater Body (name/ID):	Dunfermline and Kirkcaldy/150645	Current status or potential:	Poor
Water body length:	N/A	Target status or potential (2027):	Unknown
Water body area:	276 km ²	Protected Areas:	Dunfermline and Kirkcaldy DWPA
Heavily modified?	N/A	Mitigation Measures	There are no specific WFD mitigation measures with the water body
Summary of scheme components:	Key scheme components considered include excavations for underground cable crossing including HDD and open trenched methods.		

Table 8 WFD Scoping assessment for Dunfermline and Kirkcaldy Groundwater body

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
Overall status	Poor	There are potential impacts from groundwater ingress to excavations (e.g. launch, receiving and jointing pits) and the risk of ‘break out’ of drilling muds into watercourses associated with trenchless crossings. It is assumed that the CEMP would include embedded mitigation measures to be taken by the Contractor to mitigate these risks. Excavations relating to HDD will range between 1.4m below existing ground level to approximately 31 m below existing ground level. It is likely that shallow groundwater would be encountered in places within the superficial deposits	There are no activities during operation that would impact on WFD quality elements for this water body.	With mitigation described above in Section 4.1 Embedded Mitigation, 4.2 Standard Mitigation and 4.3 Additional Mitigation, it is unlikely that there would be a deterioration in WFD water body status of WFD quality elements. Therefore, the Scottish Onshore Scheme would be compliant with WFD objectives.
Quantitative status	Good			
Quant - Saline Intrusion	Good			
Quant - SW Interaction	Good			
Water balance	Good			
Chemical status	Poor			
Chemical Surface Water Interaction (SWI)	Poor			
SWI - Specific pollutants	Poor			
SWI - Chromium	Good			
SWI - Zinc	Good			
SWI - Manganese	Poor			
SWI - Other Substances	Good			
SWI - Nitrate	Good			
SWI - Priority substances	Good			
SWI - Cadmium	Good			
SWI - Lead	Good			
Drinking Water Protected Area (DWPA)	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
DWPA - Priority substances	Good	where the HDD is shallower, and groundwater would be encountered during the deeper excavations. Excavations relating to the open cut trenching are expected to be 1.8 Mbgl. It is likely that shallow groundwater would be encountered during these excavations.		
DWPA - Atrazine	Good			
DWPA - Simazine	Good			
DWPA - Other Substances	Good			
DWPA - Epoxyconazole	Good			
DWPA - Nitrate	Good			
Chemical General tests (CGT)	Poor			
CGT - Priority substances	Good			
CGT - Atrazine	Good			
CGT - Simazine	Good			
CGT - Trichloroethene	Good			
CGT - Benzene	Good			
CGT - Specific pollutants	Good			
CGT - Chromium	Good			
CGT - Other Substances	Poor			
CGT - Electrical Conductivity	Poor			
CGT - Epoxyconazole	Good			
CGT - Nitrate	Good			
CGT - Free Product	Good			

WFD Parameter	Current Status (2023)	Description of potential impacts		Residual effects and WFD compliance
		Construction	Operation	
CGT - Vinyl Chloride	Good			
Water quality	Poor			

5. Summary

A WFD screening and scoping exercise has been undertaken. Proposed construction activities that could adversely influence water bodies have been outlined and have been assessed alongside embedded and standard mitigation to determine whether proposed would have an impact on WFD water bodies. The following water bodies were screened in:

- Tiel Burn (6882).
- Dronachy Burn (6883).
- Den Burn; (6310).
- River Ore (6305).
- Burntisland (150555).
- Dunfermline and Kirkcaldy (150645).

It is considered that with embedded and standard mitigation, and mitigation to be included in the CEMP and WMP as outlined in **Chapter 8: Water Environment and Flood Risk (Volume 2 Main Report)**, it is unlikely that there would be a deterioration in WFD status of water bodies and that the Scottish Onshore Scheme is compliant with WFD objectives.

As further design information becomes available during detailed design post-planning permission, it is recommended that this WFD Screening and Scoping Assessment is reviewed to ensure that proposed mitigation measures remain adequate and WFD compliance is maintained. This could be secured through the inclusion of a suitably worded pre-commencement planning condition requiring the WFD Screening and Scoping Assessment to be updated.