

COIRE GLAS OVERHEAD LINE GRID CONNECTION

Technical Appendix 10.4 Schedule of Permanent Watercourse Crossings

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Networks Transmission (SSEN Transmission)

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1.0 Introduction

This Technical Appendix contains information relating to watercourse crossings associated with the Proposed Development and is structured as follows:

- Section 2 provides details of new watercourse crossings on proposed new permanent tracks;
- Section 3 provides details of existing watercourse crossings on existing tracks which may require to be upgraded; and
- Section 4 provides details of the locations where temporary bridges are proposed associated with proposed temporary tracks.

This Technical Appendix should be read in conjunction with Chapter 10 of the EIA Report (Geology, Soils and Water). The location of the watercourse crossings discussed in this report are shown on **Figures 10.1a – 10.1d** (Local Hydrology) of the EIA Report.

The survey of watercourse crossings was undertaken by SLR hydrologists between 27th February – 2nd March 2023.

The Water Environment (Controlled Activities) (Scotland) Regulations 2011¹ (CAR) requires that all engineering works in inland surface waters and wetlands are subject to authorisation and allow for proportionate risk-based regulation which is outlined in the CAR Practical Guide². The authorisation process operates at three levels:

- General Binding Rules (GBR):
 - Minor bridges with no construction on bed or banks.
- Registration:
 - Bridges across rivers and lochs where no part of the structure encroaches on the bed (e.g. no piers or in-channel supports). In addition, the total length of the structures on both banks should not be more than 20 m. This category includes bottomless arch culverts; and
 - Closed culverts used for single-track roads, footpaths and/or cycle routes, where the affected river is not more than 2 m wide.
- Licence (Simple/Complex):
 - All other bridges, fords or causeways; and
 - This category would include bridges affecting more than 20 m total bank lengths, bridges with in-stream supports or closed culverts for crossings not specified above.

These levels cover activities with increasing levels of potential impact on the hydrological environment. SEPA are only required to provide authorisation for watercourse crossings shown on the 1:50,000 scale Ordnance Survey (OS) maps (Landranger Series). All other watercourses are classed as a “minor watercourse” and are exempt under CAR.

If, as part of the detailed design, it is required to replace an existing watercourse crossing, the design of the new crossing would be agreed with SEPA prior to any construction works commencing in accordance with CAR and best practice (see Chapter 10).

¹ Water Environment (Controlled Activities) (Scotland) Regulations 2011, available at <https://www.legislation.gov.uk/ssi/2011/209/contents/made> [Accessed March 2023]


² The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A Practical Guide, available at https://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf [Accessed March 2023]

2.0 New Crossings on Proposed Permanent Tracks



Watercourse Crossing ID	WX06
Watercourse Crossing Details	<p>Watercourse Crossing: WX06 NGR: NH 30829 03611 Status: New Watercourse Width: 0.5m Watercourse Depth: 0.3m Notes: Small watercourse. Incised in peat.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	



Watercourse Crossing ID	WX07
Watercourse Crossing Details	<p>Watercourse Crossing: WX07 NGR: NH 30915 03295 Status: New Watercourse Width: 0.3m Watercourse Depth: 0.1m Notes: Watercourse incised into peat within area which is boggy and waterlogged.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	

Watercourse Crossing ID	WX08
Watercourse Crossing Details	<p>Watercourse Crossing: WX08 NGR: NH 31053 03287 Status: New Watercourse Width: 2.1m Watercourse Depth: 1.3m Notes: Watercourse incised in peat. Ponding noted just upstream of proposed crossing location.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	

Watercourse Crossing ID	WX09
Watercourse Crossing Details	<p>Watercourse Crossing: WX09 NGR: NH 31205 03289 Status: New Watercourse Width: 0.4 to 1m Watercourse Depth: 0.1m Notes: Small ford crossing associated with an existing small track which has a maximum track width of 1m.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	



Watercourse Crossing ID	WX12
Watercourse Crossing Details	Watercourse Crossing: WX12 NGR: NH 30861 03275 Status: New Watercourse Width: 0.4m Watercourse Depth: 0.5m Notes: Minor watercourse incised in peat.
Photograph Looking Upstream	 A photograph showing a narrow watercourse cutting through a peat bog. The bog is covered in dense, tall, dry, golden-brown grasses. In the background, a line of dark green coniferous trees is visible under a clear sky.
Photograph Looking Downstream	 A photograph showing a watercourse crossing through a peat bog, viewed from a downstream perspective. The bog is covered in dense, tall, dry, golden-brown grasses. In the background, a line of dark green coniferous trees is visible under a clear sky.



Watercourse Crossing ID	WX13
Watercourse Crossing Details	<p>Watercourse Crossing: WX13 NGR: NH 30579 03222 Status: New Watercourse Width: 2m Watercourse Depth: 0.4m Notes: Minor watercourse with very low flow.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	



Watercourse Crossing ID	WX14
Watercourse Crossing Details	<p>Watercourse Crossing: WX14 NGR: NH 29478 02512 Status: New Watercourse Width: 1m Watercourse Depth: 0.5m Notes: Watercourse sits in larger channel which has a depth of up to 2m. Right bank is higher than left bank.</p>
Photograph Looking Upstream	 A photograph showing a rocky watercourse flowing through a landscape of dry, brownish grass and shrubs. In the background, there are rolling hills, a utility tower, and a blue tarp on the ground under a cloudy sky.
Photograph Looking Downstream	 A photograph showing a watercourse flowing downstream. A wooden log bridge crosses the water in the foreground. The banks are covered in dry vegetation, and a wire fence runs along the right bank. The background shows a hazy landscape with hills and a cloudy sky.



Watercourse Crossing ID	WX15
Watercourse Crossing Details	<p>Watercourse Crossing: WX15 NGR: NH 29058 02465 Status: New Watercourse Width: 2m Watercourse Depth: 0.2m Notes: Watercourse sits in a channel which is between 0.5m to 3m high. Right bank is higher than left bank at the crossing point.</p>
Photograph Looking Upstream	 A photograph showing a narrow, rocky watercourse flowing through a field of dry, brown grass. The water is dark and reflects the sky. The banks are rocky and uneven, with some larger rocks protruding into the channel. The background shows a rolling hillside under a clear sky.
Photograph Looking Downstream	 A photograph showing a rocky watercourse flowing through a field of dry, brown grass. The water is dark and reflects the sky. The banks are rocky and uneven, with some larger rocks protruding into the channel. A large, leafless tree stands on the left bank in the foreground. The background shows a rolling hillside under a clear sky.

3.0 Existing Crossings to be Upgraded



Watercourse Crossing ID	WX01
Watercourse Crossing Details	<p>Watercourse Crossing: WX01 NGR: NH 34816 07356 Status: Existing Bridge Dimensions: 3.5m wide, 7m long, soffit 1.6m above watercourse Culvert Construction Type: Open span concrete bridge Watercourse Width: 2.5m Watercourse Depth: 0.2m Notes: Confluence noted immediately upstream of bridge. No blockage.</p>
Photograph Looking at Culvert Entrance from Upstream	
Photograph Looking at Culvert Exit from Downstream	



Watercourse Crossing ID	WX02
Watercourse Crossing Details	<p>Watercourse Crossing: WX02 NGR: NH 33114 06159 Status: Existing Culvert Diameter: 0.6m Culvert Construction Type: Circular plastic culvert Watercourse Width: 0.8m Watercourse Depth: 0.2m Notes: Low flow, culvert half submerged. Watercourse is located within 0.6m deep channel incised in peat.</p>
Photograph Looking at Culvert Entrance from Upstream	 A photograph showing the upstream entrance of a circular plastic culvert. The culvert is partially submerged in a shallow, peat-lined channel. The surrounding area is covered with dry, yellowish-brown grass and a large pile of grey rocks, likely used for erosion control or as a check dam. The background shows a line of trees under a cloudy sky.
Photograph Looking at Culvert Exit from Downstream	 A photograph showing the downstream exit of a circular plastic culvert. The culvert is partially submerged in a shallow, peat-lined channel. The surrounding area is covered with dry, yellowish-brown grass and a large pile of grey rocks, likely used for erosion control or as a check dam. The background shows a line of trees under a cloudy sky.



Watercourse Crossing ID	WX05
Watercourse Crossing Details	<p>Watercourse Crossing: WX05 NGR: NH 31094 05340 Status: Existing Bridge Dimensions: 2.5m wide, 4.5m long, soffit 1m above watercourse Culvert Construction Type: Open span wooden bridge Watercourse Width: 1m Watercourse Depth: 0.2m Notes: Small watercourse with cobbles noted within channel.</p>
Photograph Looking at Bridge Entrance from Upstream	
Photograph Looking at Bridge Exit from Downstream.	

Watercourse Crossing ID	WX10
Watercourse Crossing Details	<p>Watercourse Crossing: WX10 NGR: NH 31358 03246 Status: Existing Culvert Diameter: 0.5m Culvert Construction Type: Circular corrugated metal culvert Watercourse Width: 0.5m Watercourse Depth: 0.2m Notes: Minor watercourse. Heavily vegetated and culvert entrance and exit partially blocked.</p>
Photograph Looking at Culvert Entrance from Upstream	 A photograph showing the upstream entrance of a culvert. The culvert is a dark, circular opening partially obscured by dense, dry, yellowish-brown grass and some green ferns. The surrounding area is a grassy slope with some rocks and moss.
Photograph Looking at Culvert Exit from Downstream	 A photograph showing the downstream exit of a culvert. The culvert is a dark, circular opening partially obscured by dense, dry, yellowish-brown grass and some green ferns. The surrounding area is a grassy slope with some rocks and moss.



Watercourse Crossing ID	WX11
Watercourse Crossing Details	<p>Watercourse Crossing: WX11 NGR: NH 31956 02912 Status: Existing Culvert Diameter: 0.7m Culvert Construction Type: 3 circular concrete culverts with concrete surround. Watercourse Width: 2m Watercourse Depth: 0.1m Notes: Clear / no blockages.</p>
Photograph Looking at Culvert Entrance from Upstream	 A photograph showing a person standing on a concrete structure above three circular culvert entrances. The person is wearing a high-visibility orange vest and dark trousers. The culverts are set into a concrete structure that appears to be part of a bridge or crossing. The watercourse is visible to the right, and there is some dry grass in the foreground.
Photograph Looking at Culvert Exit from Downstream	 A photograph showing a culvert exit from a downstream perspective. The water is flowing through three circular openings in a concrete structure. The surrounding area is lush with green ferns and other vegetation. The water appears to be flowing smoothly through the culverts.



Watercourse Crossing ID	WX16
Watercourse Crossing Details	<p>Watercourse Crossing: WX16 NGR: NH 27749 01522 Status: Existing Culvert Diameter: 0.5m Culvert Construction Type: Circular concrete culvert Watercourse Width: 1.5m Watercourse Depth: 0.1m Notes: Clear / no blockages.</p>
Photograph Looking at Culvert Entrance from Upstream	
Photograph Looking at Culvert Exit from Downstream	

Watercourse Crossing ID	WX17
Watercourse Crossing Details	<p>Watercourse Crossing: WX17 NGR: NH 28364 01350 Status: Existing Bridge Dimensions: 3.5m wide, 20m long, 5m to soffit from watercourse Culvert Construction Type: Open span concrete bridge Watercourse Width: 10m Watercourse Depth: 1.5m Notes: Large open span bridge with no obstructions.</p>
Photograph Looking at Bridge Entrance from Upstream	 A photograph taken from an upstream perspective looking towards a concrete bridge. The bridge has two large rectangular concrete piers supporting a dark metal span with wooden railings. The watercourse is rocky with some rapids. The background shows a forest of bare trees and evergreens under a cloudy sky.
Photograph Looking at Bridge Exit from Downstream	 A photograph taken from a downstream perspective looking back at the bridge. The bridge structure is similar to the upstream view, showing the concrete piers and metal span with wooden railings. The water is flowing through the bridge opening. The surrounding area is rocky and wooded.

Watercourse Crossing ID	WX18
Watercourse Crossing Details	<p>Watercourse Crossing: WX18 NGR: NH 26400 00478 Status: Existing Culvert Diameter: 2.5m Culvert Construction Type: Circular corrugated metal culvert Watercourse Width: 2.5m Watercourse Depth: 0.2m Notes: Large circular culvert with flattened base. No blockage.</p>
Photograph Looking at Culvert Entrance from Upstream	 A photograph showing the upstream entrance of a circular culvert. The culvert is constructed from stone and is partially obscured by moss and bare tree branches. A stream flows through the opening, and the surrounding area is wooded with many bare trees, suggesting a late autumn or winter setting.
Photograph Looking at Culvert Exit from Downstream	 A photograph showing the downstream exit of the circular culvert. The culvert is made of corrugated metal and is partially covered by moss and bare tree branches. A stream flows out of the culvert, and the surrounding area is wooded with many bare trees. A person in an orange jacket is visible in the background, standing near the culvert.

4.0 New Temporary Bridges

Watercourse Crossing ID	WX03	
Watercourse Crossing Details	<p>Watercourse Crossing: WX03 NGR: NH 31935 05759 Status: New (temporary) Watercourse Width: 2m Watercourse Depth: 0.5m Notes: Watercourse within a channel that is 1-1.5m high and approximately 4m wide.</p>	
Photograph Looking Upstream		
Photograph Looking Downstream	Looking	

Watercourse Crossing ID	WX04
Watercourse Crossing Details	<p>Watercourse Crossing: WX04 NGR: NH 31485 05375 Status: New (temporary) Watercourse Width: 2.5m Watercourse Depth: 0.1m Notes: None.</p>
Photograph Looking Upstream	 A photograph showing a small, rocky watercourse flowing through a grassy field. The water is clear and flows over numerous brown and grey rocks. The banks are covered in dry, yellowish-brown grass and some green shrubs. In the background, there are rolling hills under a cloudy sky.
Photograph Looking Downstream	 A photograph showing the same watercourse from a downstream perspective. The water flows over a bed of rocks, surrounded by dry grass and green shrubs. The background shows a landscape with trees and hills under a cloudy sky.

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