



Technical Appendix 8.4: Schedule of Watercourse Crossings

Glentarken Wind Farm

SSE Renewables

Prepared by:

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) was commissioned by SSE Renewables Services Ltd ('the agent') on behalf of SSE Generation Ltd (the 'Applicant') to undertake a schedule of proposed new and existing watercourse crossings which will be upgraded as part of the proposed Glentarken Wind Farm (the Proposed Development).

This report presents photographs and dimensions for each crossing point. The report also details the likely form of the track crossing solution (e.g., culvert, arch culvert, or bridge). The final design of each crossing solution would be agreed with Scottish Environment Protection Agency (SEPA) prior to construction as part of the detailed site design.

A survey of the proposed watercourse crossings was undertaken in July and August 2024 by experienced SLR hydrologists.

The location of the watercourse crossings is shown in **Figure 8.1 (EIAR Volume 2)**.

1.1 Relevant Legislation

The Water Framework Directive (2000/60/EC) (WFD) has been transposed into Scottish legislation as the Water Environment and Water Services (Scotland) Act 2003 (or WEWS) and has given Scottish ministers powers to introduce regulatory controls over activities in order to protect and improve Scotland's water environment. The water environment includes wetlands, rivers, lochs, transitional waters (estuaries), coastal waters and groundwater. These regulatory controls, known as the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) came into force in 2011 and have since been amended in 2013, 2017, and 2021.

With respect to watercourse crossings, 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 Guide. The authorisation process operates at three levels:



- General Binding Rules (GBR):
 - Minor crossings 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 tracks, 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.

SEPA provide authorisation for watercourse crossings shown on the 1:50,000 scale Ordnance Survey (OS) maps (Landranger Series). All other watercourses are classed as "minor watercourse" and are exempt under CAR.



2.0 Watercourse Crossing Details

The locations of new and existing watercourse crossings which may be upgraded as part of the Proposed Development are shown on **Figure 8.1 (EIAR Volume 2)**. 23 new watercourse crossings and one existing crossing which is scheduled to be upgraded are required to facilitate the Proposed Development, details of which are included below.

Watercourse Crossing ID	WX01
Watercourse Crossing Details	<p>Grid Reference: E 262053 / N 724588</p> <p>Status: New</p> <p>Watercourse Width: 1.5 m</p> <p>Watercourse Depth: 0.3 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX02
Watercourse Crossing Details	<p>Grid Reference: E 261890 / N 724895</p> <p>Status: New</p> <p>Watercourse Width: 0.4 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: Downstream of proposed crossing point heavily vegetated.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type	Culvert
Likely Required CAR Authorisation	Registration

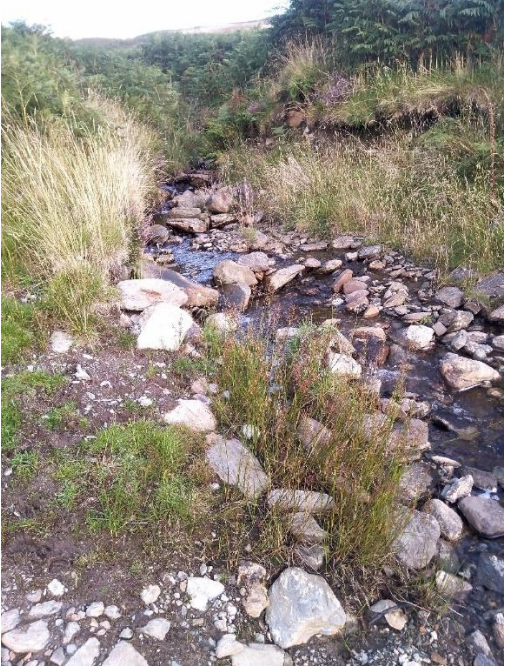



Watercourse Crossing ID	WX03
Watercourse Crossing Details	<p>Grid Reference: E 261904 / N 725016</p> <p>Status: New</p> <p>Watercourse Width: 1 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX04
Watercourse Crossing Details	<p>Grid Reference: E 262068 / N 725602</p> <p>Status: New</p> <p>Watercourse Width: 1.5 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: Watercourse heavily vegetated at crossing point so watercourse has been surveyed approximately 50 m upstream of proposed crossing point.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration

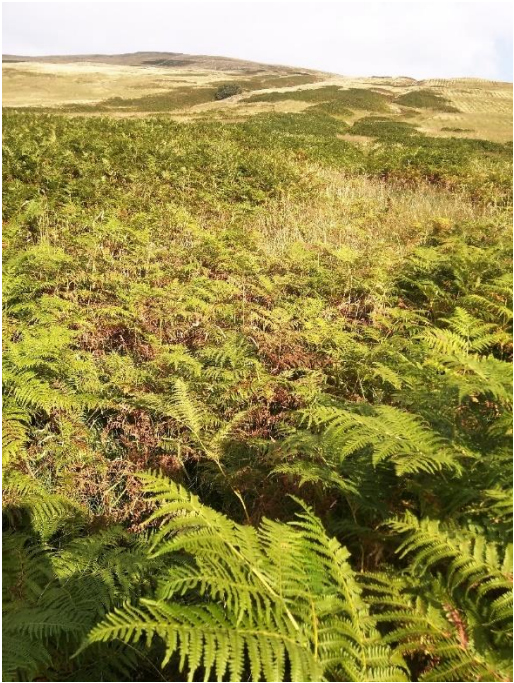



Watercourse Crossing ID	WX05
Watercourse Crossing Details	<p>Grid Reference: E 262206 / N 725603</p> <p>Status: Existing to be upgraded</p> <p>Watercourse Width: 1.5 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: Existing ford crossing.</p>
Photograph Looking Upstream	 <p>A photograph showing a rocky watercourse crossing. The water is shallow and flows over a bed of large and small rocks. The banks are covered with tall grasses and some shrubs. The background shows a hilly landscape with more vegetation.</p>
Photograph Looking Downstream	 <p>A photograph showing a rocky watercourse crossing from a downstream perspective. A wooden fence with wire mesh is visible on the right side, partially enclosing the crossing. The water flows over a rocky bed. The background shows a valley with hills and vegetation.</p>
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration


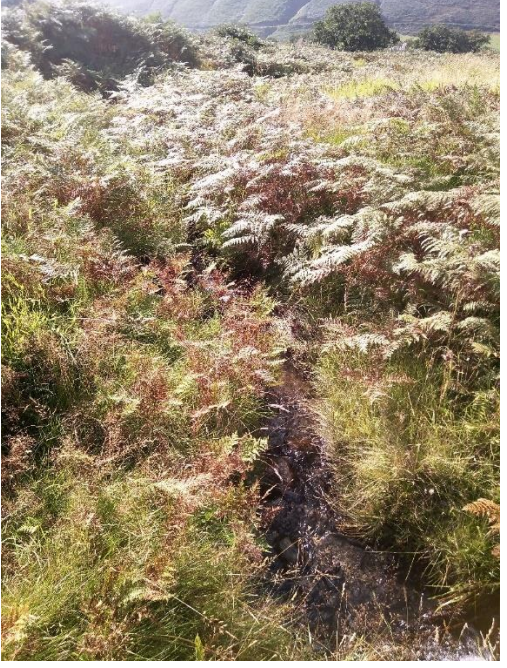


Watercourse Crossing ID	WX06
Watercourse Crossing Details	<p>Grid Reference: E 262531 / N 726342</p> <p>Status: New</p> <p>Watercourse Width: 0.7 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: Water ponds at proposed crossing point. The channel is narrower both upstream and downstream of the proposed crossing point.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX07
Watercourse Crossing Details	<p>Grid Reference: E 262552 / N 726383</p> <p>Status: New</p> <p>Watercourse Width: 0.5 m</p> <p>Watercourse Depth: 0.1 m</p> <p>Notes: Watercourse is heavily vegetated.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX08
Watercourse Crossing Details	<p>Grid Reference: E 262574 / N 726458</p> <p>Status: New</p> <p>Watercourse Width: 0.6 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration



Watercourse Crossing ID	WX09
Watercourse Crossing Details	<p>Grid Reference: E 262660 / N 726760</p> <p>Status: New</p> <p>Watercourse Width: 0.4 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX10
Watercourse Crossing Details	<p>Grid Reference: E 262675 / N 726794</p> <p>Status: New</p> <p>Watercourse Width: 0.9 m</p> <p>Watercourse Depth: 0.3 m</p> <p>Notes: Heavily vegetated channel.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX11
Watercourse Crossing Details	Grid Reference: E 262794 / N 727117 Status: New Notes: Not monitored during the survey however watercourse is likely to be small and similar to others that have been monitored.
Photograph Looking Upstream	Not monitored
Photograph Looking Downstream	Not monitored
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration


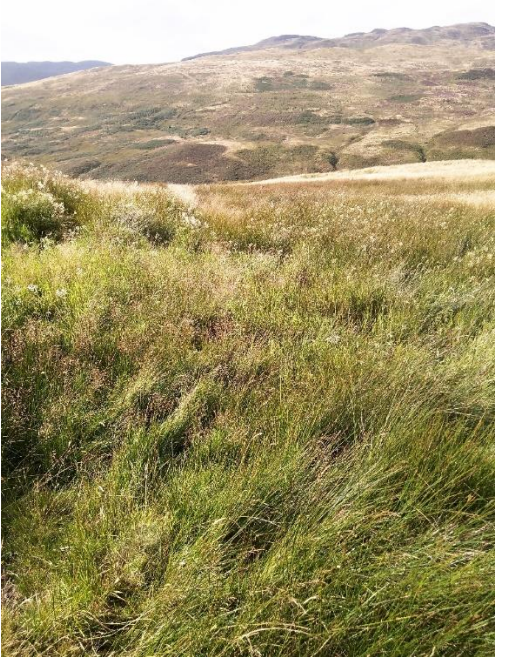


Watercourse Crossing ID	WX12
Watercourse Crossing Details	<p>Grid Reference: E 262797 / N 727168</p> <p>Status: New</p> <p>Watercourse Width: 1.5 m</p> <p>Watercourse Depth: 0.3 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX13
Watercourse Crossing Details	<p>Grid Reference: E 262913 / N 727613</p> <p>Status: New</p> <p>Watercourse Width: 0.6 m</p> <p>Watercourse Depth: 0.2 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX14
Watercourse Crossing Details	<p>Grid Reference: E 263032 / N 727908</p> <p>Status: New</p> <p>Watercourse Width: N/A</p> <p>Watercourse Depth: N/A</p> <p>Notes: No defined watercourse observed. Wider channel extends to approximately 5 m wide.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX15
Watercourse Crossing Details	<p>Grid Reference: E 263133 / N 728085</p> <p>Status: New</p> <p>Watercourse Width: 0.8 m</p> <p>Watercourse Depth: 0.1 m</p> <p>Notes: None.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX16
Watercourse Crossing Details	<p>Grid Reference: E 263662 / N 728540</p> <p>Status: New</p> <p>Watercourse Width: 0.8 m</p> <p>Watercourse Depth: 0.3 m</p> <p>Notes: Watercourse is located within an incised gully which is approximately 15 m wide and 8 m deep. Gully becomes less incised approximately 20 m downstream of crossing point.</p>
Photograph Looking Upstream	 <p>A photograph showing a small, rocky watercourse flowing through a grassy gully. The water is brownish and the surrounding vegetation is green and yellowish. In the background, there are rolling hills under a clear sky.</p>
Photograph Looking Downstream	 <p>A photograph showing a small, rocky watercourse flowing through a grassy field. The water is brownish and the surrounding vegetation is green and yellowish. In the background, there are rolling hills under a clear sky.</p>
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX17
Watercourse Crossing Details	<p>Grid Reference: E 263779 / N 728626</p> <p>Status: New</p> <p>Watercourse Width: 0.4 m</p> <p>Watercourse Depth: 0.1 m</p> <p>Notes: Watercourse is located within channel which is approximately 10 m deep. SSE hydro asset located approximately 85 m upstream of crossing point.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





Watercourse Crossing ID	WX18
Watercourse Crossing Details	<p>Grid Reference: E 263969 / N 728772</p> <p>Status: New</p> <p>Watercourse Width: 1.7 m</p> <p>Watercourse Depth: 0.7 m</p> <p>Notes: Linear drainage ditch.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration



Watercourse Crossing ID	WX19
Watercourse Crossing Details	<p>Grid Reference: E 264008 / N 728807</p> <p>Status: New</p> <p>Watercourse Width: N/A</p> <p>Watercourse Depth: N/A</p> <p>Notes: Channel noted to be 1.3 m wide and 0.7 m deep. No flowing water observed during the survey. Linear drainage ditch.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration



Watercourse Crossing ID	WX20
Watercourse Crossing Details	Grid Reference: E 264041 / N 728820



Watercourse Crossing ID	WX20
	<p>Status: New</p> <p>Watercourse Width: N/A</p> <p>Watercourse Depth: N/A</p> <p>Notes: Channel extends to approximately 0.8 m wide and 0.4 m deep however no flowing water was recorded during the survey. 300 mm circular culvert is noted underneath an existing track approximately 5 m upstream of proposed crossing location.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration



Watercourse Crossing ID	WX21
Watercourse Crossing Details	<p>Grid Reference: E 264059 / N 728838</p> <p>Status: New</p>



Watercourse Crossing ID	WX21
	<p>Watercourse Width: 0.7 m Watercourse Depth: 0.3 m Notes: Watercourse is located within a wider channel which is approximately 1 m wide and 0.8 m deep.</p>
<p>Photograph Looking Upstream</p>	
<p>Photograph Looking Downstream</p>	
<p>Potential Crossing Type Likely Required CAR Authorisation</p>	<p>Culvert Registration</p>



Watercourse Crossing ID	WX22
<p>Watercourse Crossing Details</p>	<p>Grid Reference: E 266557 / N 729034 Status: New</p>





Watercourse Crossing ID	WX22
	<p>Watercourse Width: 1.3 m Watercourse Depth: 0.3 m Notes: Watercourse surveyed approximately 30m downstream of the proposed crossing point. Watercourse located in a wider channel which is approximately 15 m wide and 3 m deep.</p>
<p>Photograph Looking Upstream</p>	
<p>Photograph Looking Downstream</p>	
<p>Potential Crossing Type Likely Required CAR Authorisation</p>	<p>Culvert Registration</p>

Watercourse Crossing ID	WX23
<p>Watercourse Crossing Details</p>	<p>Grid Reference: E 267340 / N 728407 Status: New</p>



Watercourse Crossing ID	WX23
	<p>Watercourse Width: 3 m Watercourse Depth: 0.7 m Notes: Watercourse located in an incised gully which is approximately 15 m wide and 1.5 m deep.</p>
<p>Photograph Looking Upstream</p>	 <p>A photograph showing a narrow watercourse flowing through a grassy gully. The water is dark and reflects the sky. The surrounding vegetation consists of tall grasses and purple heather. In the background, there are rolling hills under a clear blue sky. A thin vertical pole is visible in the center of the gully.</p>
<p>Photograph Looking Downstream</p>	 <p>A photograph showing a watercourse flowing through a grassy gully, viewed from a downstream perspective. The water is dark and reflects the sky. The surrounding vegetation consists of tall grasses and purple heather. In the background, there are rolling hills under a clear sky. A thin vertical pole is visible in the center of the gully.</p>
<p>Potential Crossing Type Likely Required CAR Authorisation</p>	<p>Open span bridge or culvert Licence</p>



Watercourse Crossing ID	WX24
Watercourse Crossing Details	<p>Grid Reference: E 267550 / N 728068</p> <p>Status: New</p> <p>Watercourse Width: 0.5 m</p> <p>Watercourse Depth: 0.1 m</p> <p>Notes: Watercourse is located within a wider channel which is approximately 10 m wide and 3 m deep.</p>
Photograph Looking Upstream	
Photograph Looking Downstream	
Potential Crossing Type Likely Required CAR Authorisation	Culvert Registration





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