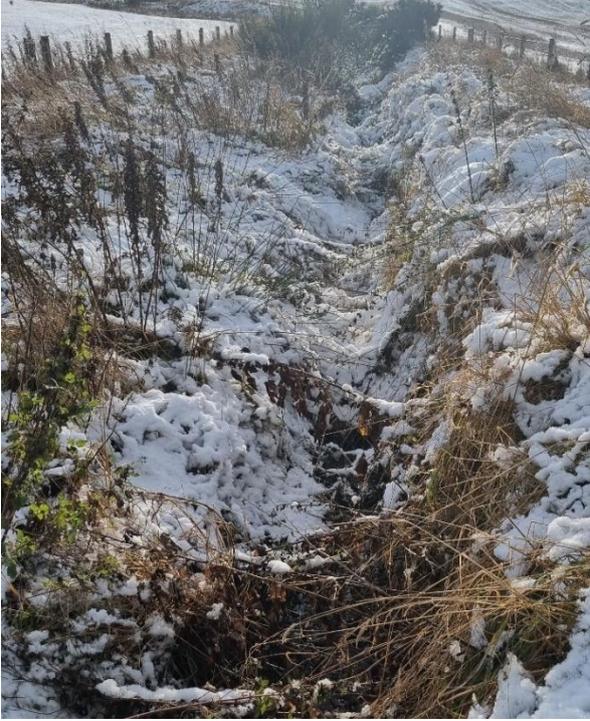


ID – 73 (Existing track crossing)	Calladrum Burn Tributary
Description: Calladrum Burn tributary flows southwest. The watercourse is wider and less vegetated around its extent at this location.	
NGR Ref: 377464 792088	
Photo – View upstream 	Photo – View downstream 
Width of watercourse (m)	0.7 m (extends up to 1.9 m at crossing)
Bed Sediment	Mix of pebble and cobble
Bank Erosion	Yes some bank erosion observed near crossing
Natural Channel	Yes
Existing Crossing	Existing Crossing with 400 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	0.43 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 74 (Existing track crossing)	Calladrum Burn Tributary
<p>Description: Calladrum Burn tributary flows southwest near its upstream extent here. The watercourse is narrow and quite vegetated around its extent here.</p>	
<p>NGR Ref: 377831 792340</p>	
<p>Photo – Upstream crossing extent</p> 	<p>Photo – Downstream of crossing</p> 
<p>Width of watercourse (m)</p>	<p>0.4 m</p>
<p>Bed Sediment</p>	<p>Mix of pebble and cobble</p>
<p>Bank Erosion</p>	<p>Yes some bank erosion observed near crossing</p>
<p>Natural Channel</p>	<p>Yes</p>
<p>Existing Crossing</p>	<p>Existing Crossing with culvert of unknown dimensions</p>
<p>Proposed Crossing</p>	<p>No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>0.19 km²</p>
<p>Minor Watercourse</p>	<p>No</p>
<p>Main river catchment</p>	<p>River Dee</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River Dee SAC)</p>
<p>CAR Authorisation Required</p>	<p>No</p>

ID – 75 (Existing track crossing)	Clash Burn
<u>Description:</u> The Clash Burn flows northeast in a wide channel that appears to have been cut in places.	
NGR Ref: 378354 792634	
Photo – Downstream extent of crossing looking downstream (northeast) 	Photo – Culvert outlet looking upstream 
Width of watercourse (m)	1.8 m
Bed Sediment	Mix of pebble and cobble
Bank Erosion	No
Natural Channel	Yes
Existing Crossing	Existing Crossing with culvert of unknown dimensions
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	0.24 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 76 (Existing field access track crossing)	Unnamed Drain
<p>Description: Large unnamed drain flows north in a well-defined channel then turns east just north of the existing field access crossing, which is very poor quality with a 450 mm culvert.</p>	
<p>NGR Ref: 376802 7964548</p>	
<p>Photo – Drain viewed looking south</p> 	<p>Photo – downstream of crossing culvert outlet</p> 
<p>Width of watercourse (m)</p>	<p>1.1 m</p>
<p>Bed Sediment</p>	<p>Silt</p>
<p>Bank Erosion</p>	<p>No</p>
<p>Natural Channel</p>	<p>No</p>
<p>Existing Crossing</p>	<p>Existing Crossing 450 mm pipe culvert</p>
<p>Proposed Crossing</p>	<p>No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>1.38 km²</p>
<p>Minor Watercourse</p>	<p>Yes</p>
<p>Main river catchment</p>	<p>River Dee</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River Dee SAC)</p>
<p>CAR Authorisation Required</p>	<p>No</p>

ID – 77 (Proposed track crossing - temporary)	Unnamed Drain
<p>Description: Unnamed roadside field drain flows east parallel to the A93. The drain joins a small watercourse ~140 m to the east, which flows south and is culverted beneath the A93 road in a stone box culvert 600 mm wide and 450 mm high.</p>	
NGR Ref: 376745 797170	
<p>Photo – Culvert downstream of proposed crossing</p> 	<p>Heavily vegetated channel at crossing point</p> 
Width of watercourse (m)	0.5 m
Bed Sediment	Silt to cobble
Bank Erosion	No
Natural Channel	No
Existing Crossing	None
Proposed Crossing	<p>Pipe culvert or single span crossing (temporary). This temporary crossing would pass over a small field drain that parallels the A93 and will be sized to the 1 in 30 flow or to maintain the existing capacity of the channel.</p> <p>The catchment to the drain is small and a maximum of 0.1 km². However, under high flow conditions it is likely that only a small area of the catchment (less than 50%) would drain to the crossing location, due to local low points in the field and A93 upstream of the crossing location and an existing field access point, which would constrain flows able to reach the proposed crossing location. Peak flows in the ditch would be constrained and a new temporary crossing that maintained the existing ditch capacity would not increase flood risk to other receptors.</p>
Additional Mitigation	None
Catchment (km ²)	0.1 km ²
Minor Watercourse	Yes
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

Section F

<p>ID – 78a and 78b (Proposed track crossing – temporary – 78a) (Proposed track crossing – permanent – 78b)</p>	<p>Mony Burn</p>
<p><u>Description:</u> The upstream extent of Mony Burn drains adjacent farmland and flows to the east in a straightened drainage channel. There is a proposed temporary crossing (ID – 78a) of the drainage channel.</p> <p>The same channel will be crossed again (ID – 78b), approximately 60 m further east (downstream) for a permanent track crossing. There are a number of culverts, field access tracks and farm entrance tracks which already cross the burn close to the proposed new crossing locations.</p>	
<p>NGR Ref: 377321 800487 (ID – 78a)</p>	<p>NGR Ref: 377380 800506 (ID – 78b)</p>
<p>Photo – Drain viewed looking north, with culvert outlet from separate drain on south side of road flowing into drain</p> 	<p>Photo – Drain</p> 
<p>Width of watercourse (m)</p>	<p>0.9 m</p>
<p>Bed Sediment</p>	<p>Silt</p>
<p>Bank Erosion</p>	<p>No</p>
<p>Natural Channel</p>	<p>No</p>
<p>Existing Crossing</p>	<p>None</p>
<p>Proposed Crossing</p>	<p>Pipe culvert or single span crossing (temporary) - ID78a</p> <p>The temporary crossing will be sized to maintain the existing capacity of the channel and will be no smaller than the existing crossing (stone rectangular culvert (0.7m x 0.75m) downstream. The catchment of the drain upstream of the proposed crossing location is small (0.66 km²).</p> <p>A new temporary crossing that maintains the existing burn capacity and is no smaller than the exiting culverts and crossings would not increase flood risk to other receptors (ie the public road to the south). There is considered to be no increased flood risk to others.</p> <p>Pipe culvert or single span crossing (permanent) - ID78b</p> <p>The permanent crossing will be designed to accommodate the 0.5% annual exceedance probability (1 in 200 year) flow (with an appropriate allowance for climate change) if practicable. However,</p>

ID – 78a and 78b (Proposed track crossing – temporary – 78a) (Proposed track crossing – permanent – 78b)	Mony Burn
	<p>designing to this extreme event may be excessive as some of the flood flow would already be within the floodplain to the north and on the road to the south. Sizing to maintain the existing capacity of the channel and to be no smaller than the existing crossing would be more suitable at this location.</p> <p>There is not anticipated to be an increase in flood risk to others assuming that the proposed crossings (ID78a and 78b) are designed to maintain the existing capacity of the channel and to be no smaller than the existing crossings. The overtopping levels of the proposed crossings will be kept below levels on the local road to the south.</p>
Additional Mitigation	None
Catchment (km ²)	0.66 km ²
Minor Watercourse	Yes
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 79 (Existing track crossing)	Unnamed Drain
<p>Description: Large unnamed drain alongside road drains adjacent farmland and flows to the east. The proposed crossing utilises existing field crossing access, with the drain culverted beneath in a stone box culvert of unknown, irregular dimensions</p>	
NGR Ref: 377119 802856	
Photo – Existing crossing	Photo – Shows drain looking downstream (east)
	
Width of watercourse (m)	0.8 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing Crossing with box culvert of unknown dimensions
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	0.16 km ²
Minor Watercourse	Yes
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 80 (Existing track crossing)	Gormack Burn
<p>Description: Gormack Burn flows to the southeast in a large channel with some bank erosion present. The Gormack Burn flows beneath a large stone arch bridge.</p>	
<p>NGR Ref: 375019 804317</p>	
<p>Photo – Gormack Burn looking downstream</p> 	<p>Photo – Gormack Burn at upstream side of existing bridge crossing</p> 
<p>Width of watercourse (m)</p>	<p>2.8 m</p>
<p>Bed Sediment</p>	<p>Silt to boulder</p>
<p>Bank Erosion</p>	<p>Yes</p>
<p>Natural Channel</p>	<p>Yes</p>
<p>Existing Crossing</p>	<p>Existing Bridge</p>
<p>Proposed Crossing</p>	<p>Some repairs of the existing bridge deck of the bridge will be required, with re-mortaring of the overdeck. There will be no change to the bridge structure, just re-mortaring of the structure in places and deck repairs. No upgrade to the size of the crossing, works in the channel or replacement bridge will be required.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>28.95 km²</p>
<p>Minor Watercourse</p>	<p>No</p>
<p>Main river catchment</p>	<p>River Dee</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River Dee SAC)</p>
<p>CAR Authorisation Required</p>	<p>No, however dialogue will be maintained with SEPA in advance of construction and GBRs will be followed during the repair works.</p>

ID – 81 (Existing track crossing)	Unnamed Tributary of Gormack Burn
<p>Description: Unnamed tributary of the Gormack Burn flows to the south in a large, straightened channel to its confluence with the Gormack Burn which is located just downstream of the existing crossing. The tributary flows beneath a single span 2 m by 2 m existing bridge crossing that is in relatively poor condition.</p>	
<p>NGR Ref: 375074 804581</p>	
<p>Photo – Existing crossing, viewed looking southwest</p> 	<p>Photo – View from existing crossing to the southwest, looking downstream to the tributary confluence with the Gormack Burn</p> 
<p>Width of watercourse (m)</p>	<p>1.5 m</p>
<p>Bed Sediment</p>	<p>Silt to cobble</p>
<p>Bank Erosion</p>	<p>No</p>
<p>Natural Channel</p>	<p>No</p>
<p>Existing Crossing</p>	<p>Existing crossing (2 m wide x 2 m high bridge crossing in poor condition)</p>
<p>Proposed Crossing</p>	<p>Proposed bridge repairs (permanent). This bridge will be repaired to provide a permanent access track for operational and maintenance use only. The existing bridge deck will be removed and replaced with a thinner deck at the same level. This access will not be used for construction works.</p> <p>Given the proximity of the proposed infrastructure to the flood risk areas associated with the Gormack Burn and tributaries, a hydraulic modelling study (Volume 5, Appendix 13.8: Flood Modelling Study Report) has been undertaken to inform the detailed design of watercourse crossings and to understand flood risk in this area. There will be no land raising in the flood risk area.</p> <p>Based on the hydraulic study, the upgraded crossing will be designed to maintain and not reduce the existing capacity of the channel. Designing for a 1 in 200 year flow (plus climate change) would result in having to raise the bridge deck (and access track) up and would require raised embankments (ie land raising in the floodplain, which is not feasible in this location).</p> <p>Given the rural setting, if a flow greater than the existing capacity of the channel were to occur it</p>

ID – 81 (Existing track crossing)	Unnamed Tributary of Gormack Burn
	would just flood over the bridge deck into the adjacent farmland and then back into the channel (as it does at present) and would not increase flood risk to others. There are no nearby receptors and there is considered to be no increased flood risk to others.
Additional Mitigation	None
Catchment (km ²)	7.32 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	Yes

ID – 82 (Existing track crossing)	Unnamed Drain
Description: Unnamed Drain flows west beneath an existing field crossing into the larger unnamed tributary to the Gormack Burn.	
NGR Ref: 375114 804633	
<p>Photo – View of drain looking to the east</p> 	<p>Photo – View of track route from existing field crossing looking to the north</p> 
Width of watercourse (m)	1.0 m
Bed Sediment	Silt to pebble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing (culvert dimensions unknown)
Proposed Crossing	<p>New single span bridge (Temporary for construction) but may remain in place as is an existing farm access crossing.</p> <p>Given the proximity of the proposed infrastructure to the flood risk areas associated with the Gormack Burn and tributaries, a hydraulic modelling study (Volume 5, Appendix 13.8: Flood Modelling Study Report) has been undertaken to inform the detailed design of watercourse crossings and to understand flood risk in this area. There will be no land raising in the flood risk area.</p> <p>The single span crossing will be designed to maintain the existing capacity of the channel. Designing for a 1 in 200 year flow (plus climate change) may require raised embankments, which is not appropriate in a rural setting and flood risk area.</p> <p>Given the rural setting, if a flow greater than the existing capacity of the channel were to occur it would just flood over the bridge deck and back into the channel and would not increase flood risk to others. There are no nearby receptors and there is considered to be no increased flood risk to others.</p>
Additional Mitigation	None
Catchment (km ²)	0.52 km ²
Minor Watercourse	Yes
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)

ID – 82 (Existing track crossing)	Unnamed Drain
CAR Authorisation Required	No

ID – 83 (Existing track crossing)	Unnamed Drain
Description: Unnamed Drain flows west beneath an existing crossing into the larger unnamed tributary to the Gormack Burn.	
NGR Ref: 375161 804759	
Photo – Drain looking upstream to the east 	
Width of watercourse (m)	1.5 m
Bed Sediment	Silt to pebble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing with poor condition collapsed stone box culvert
Proposed Crossing	<p>Single span bridge (Temporary for construction) but may remain in place as is an existing farm access crossing.</p> <p>Given the proximity of the proposed infrastructure to the flood risk areas associated with the Gormack Burn and tributaries, a hydraulic modelling study (Volume 5, Appendix 13.8: Flood Modelling Study Report) has been undertaken to inform the detailed design of watercourse crossings and to understand flood risk in this area. There will be no land raising in the flood risk area.</p> <p>The single span crossing will be designed to maintain the existing capacity of the channel. Designing for a 1 in 200 year flow (plus climate change) may require raised embankments, which is not appropriate in a rural setting and flood risk area.</p> <p>Given the rural setting, if a flow greater than the existing capacity of the channel were to occur it would just flood over the bridge deck and back into the channel and would not increase flood risk to others. There are no nearby receptors and there is considered to be no increased flood risk to others.</p>
Additional Mitigation	None
Catchment (km ²)	0.89 km ²
Minor Watercourse	Yes

ID – 83 (Existing track crossing)	Unnamed Drain
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 84 (Existing track crossing)	Unnamed Tributary to the Gormack Burn
<p><u>Description:</u> Unnamed Tributary flows south towards the Gormack Burn. Channel is straight, wide and well defined.</p>	
<p>NGR Ref: 375165 804860</p>	
<p>Photo – Drain looking upstream to the north</p> 	
<p>Width of watercourse (m)</p>	<p>1.1 m</p>
<p>Bed Sediment</p>	<p>Silt to pebble</p>
<p>Bank Erosion</p>	<p>No</p>
<p>Natural Channel</p>	<p>No</p>
<p>Existing Crossing</p>	<p>Existing Bridge crossing, poor condition</p>
<p>Proposed Crossing</p>	<p>Single span bridge (Temporary for construction) but may remain in place as is an existing farm access crossing.</p> <p>Given the proximity of the proposed infrastructure to the flood risk areas associated with the Gormack Burn and tributaries, a hydraulic modelling study (Volume 5, Appendix 13.8: Flood Modelling Study Report) has been undertaken to inform the detailed design of watercourse crossings and to understand flood risk in this area. There will be no land raising in the flood risk area.</p> <p>Based on the hydraulic study, the new single span bridge will be designed to maintain and not reduce the existing capacity of the channel. Designing for a 1 in 200 year flow (plus climate change) would result in having to raise the bridge deck (and access track) up and would require raised embankments (ie land raising in the floodplain, which is not feasible in this location).</p> <p>Given the rural setting, if a flow greater than the existing capacity of the channel were to occur it would just flood over the bridge deck into the adjacent farmland and then back into the channel (as it does at present) and would not increase flood risk to others. There are no nearby receptors and there is considered to be no increased flood risk to others.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>6.2 km²</p>
<p>Minor Watercourse</p>	<p>No</p>

ID – 84 (Existing track crossing)	Unnamed Tributary to the Gormack Burn
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	Yes – GBR or Registration

ID – 85 (Proposed track crossing - temporary)	Gormack Burn
<p><u>Description:</u> Gormack Burn flows southeast here at the proposed crossing point towards confluence with large drain tributary. Proposed temporary crossing will require new single span bridge crossing structure for construction.</p>	
<p>NGR Ref: 374938 804795</p>	
<p>Photo – Gormack Burn looking upstream to the northwest, shows footbridge just downstream of proposed crossing</p> 	
<p>Width of watercourse (m)</p>	<p>2.2 m</p>
<p>Bed Sediment</p>	<p>Silt to boulder</p>
<p>Bank Erosion</p>	<p>Yes</p>
<p>Natural Channel</p>	<p>Yes</p>
<p>Existing Crossing</p>	<p>None</p>
<p>Proposed Crossing</p>	<p>Single Span Bridge (temporary).</p> <p>Given the proximity of the proposed infrastructure to the flood risk areas associated with the Gormack Burn and tributaries, a hydraulic modelling study (Volume 5, Appendix 13.8: Flood Modelling Study Report) has been undertaken to inform the detailed design of watercourse crossings and to understand flood risk in this area.</p> <p>Based on the hydraulic study, the new temporary single span bridge will be designed to maintain and not reduce the existing capacity of the channel. Designing for a 1 in 200 year flow (plus climate change) would result in having to raise the bridge deck (and access track) up and would require raised embankments, which is not appropriate for a temporary crossing in a rural location.</p> <p>If a flow greater than the existing capacity of the channel were to occur it would just flow over the bridge deck and then back into the channel and would not increase flood risk to others. There are no nearby receptors and there is considered to be no increased flood risk to others.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>20.04 km²</p>
<p>Minor Watercourse</p>	<p>No</p>

ID – 85 (Proposed track crossing - temporary)	Gormack Burn
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	Yes – GBR or Registration

ID – 87 (Existing track crossing)	Unnamed Drain
Description: Unnamed Drain flows east in a heavily vegetated channel beneath an existing crossing into the larger unnamed tributary of the Gormack Burn.	
NGR Ref: 374893 805505	
Photo – Drain looking downstream to the east 	Photo – Heavily vegetated culvert at crossing 
Width of watercourse (m)	0.7 m
Bed Sediment	Silt
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing crossing with 300 mm pipe culvert
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	0.03 km ²
Minor Watercourse	Yes
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 88 (Existing track crossing)	Unnamed Tributary of the Gormack Burn
<p>Description: Unnamed tributary of the Gormack Burn flows to the south beneath existing bridge crossing. Channel is heavily modified and straightened in places here.</p>	
NGR Ref: 374568 805917	
<p>Photo – Heavily modified channel at downstream side of crossing, looking south</p>	
	
Width of watercourse (m)	1.6 m
Bed Sediment	Silt to pebble
Bank Erosion	No
Natural Channel	Yes - but heavily modified here
Existing Crossing	Existing bridge crossing (1.3 m wide by 1.2 m high stone culvert)
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	3.58 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 89 (Proposed track crossing - permanent)	Unnamed Tributary of the Gormack Burn
<p>Description: Unnamed tributary of the Gormack Burn flows to the south. Channel is heavily modified and straightened in places here.</p>	
NGR Ref: 374379 806440	
<p>Photo – View of proposed crossing from road upstream, looking southeast</p> 	
Width of watercourse (m)	1.0 m
Bed Sediment	Silt to pebble
Bank Erosion	No
Natural Channel	Yes - but heavily modified here
Existing Crossing	None
Proposed Crossing	Single Span Bridge (permanent)
Additional Mitigation	None
Catchment (km ²)	3.07 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	Yes – Registration or Licence

ID – 90 (Existing track crossing)	Unnamed Drain
<u>Description:</u> Unnamed Drain flows east beneath and existing crossing into the unnamed tributary of the Gormack Burn.	
NGR Ref: 373582 807367	
<p>Photo – View drain looking upstream to the west, the existing crossing (top right) is in poor condition</p> 	<p>Photo – Drain viewed looking to the west, wide channel with steep banks</p> 
Width of watercourse (m)	0.9 m
Bed Sediment	Silt to pebble
Bank Erosion	No
Natural Channel	No
Existing Crossing	Existing bridge
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None.
Catchment (km ²)	0.51 km ²
Minor Watercourse	No
Main river catchment	River Dee
Within catchment of SAC designated river	Yes (River Dee SAC)
CAR Authorisation Required	No

ID – 92 (Existing track crossing)	Unnamed Drain
<p>Description: Unnamed Drain flows east towards the Bodendinny Burn. Channel is heavily modified, straightened and unnatural field drainage.</p>	
<p>NGR Ref: 374884 810687</p>	
<p>Photo – Drain viewed looking upstream to the west</p> 	<p>Photo – culvert outlet 1000 mm wide but internal diameter of pipe is 850 mm</p> 
<p>Width of watercourse (m)</p>	<p>0.8 m</p>
<p>Bed Sediment</p>	<p>Silt to pebble</p>
<p>Bank Erosion</p>	<p>No</p>
<p>Natural Channel</p>	<p>No</p>
<p>Existing Crossing</p>	<p>Existing crossing with 850 mm pipe culvert</p>
<p>Proposed Crossing</p>	<p>No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.</p>
<p>Additional Mitigation</p>	<p>None</p>
<p>Catchment (km²)</p>	<p>0.55 km²</p>
<p>Minor Watercourse</p>	<p>Yes</p>
<p>Main river catchment</p>	<p>River Dee</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River Dee SAC)</p>
<p>CAR Authorisation Required</p>	<p>No</p>

ID – 93 (Existing track crossing)	Park Burn
<u>Description:</u> Park Burn flows east beneath existing track crossing of unknown dimensions.	
NGR Ref: 376808 812929	
Photo – Park Burn 	
Width of watercourse (m)	1.2 m
Bed Sediment	Silt to cobble
Bank Erosion	Yes
Natural Channel	Yes
Existing Crossing	Existing crossing with culvert of unknown dimensions
Proposed Crossing	No upgrade. If engineering assessment determines the crossing to be structurally unsound, a temporary over-bridging solution will be put in place during construction.
Additional Mitigation	None
Catchment (km ²)	2.16 km ²
Minor Watercourse	No
Main river catchment	River Don
Within catchment of SAC designated river	No
CAR Authorisation Required	No

ANNEX 13.1.2: DETAILS OF BUFFER ENCROACHMENTS

Section A

ID – D	Unnamed tributary of Fithie Burn/ Tealing Burn
<p>Description: The unnamed tributary has been heavily modified in this locality and straightened. The existing access track (shown as a green track in the image below) runs adjacent to watercourse and is within the 10 m recommended riparian buffer (shown in light blue).</p>	
NGR Ref: 338223 738846	
<p>Photo shows existing track (highlighted in green) which runs parallel to the watercourse and is within the recommended buffer. Viewed looking west</p>	<p>Photo shows existing track (highlighted in green) which runs parallel to the watercourse and is within the recommended buffer. Viewed looking east</p>
	
Width of watercourse (m)	1.5 m
Infrastructure and Ancillary Works Description	Existing access track
Temporary or Permanent	Permanent existing access track for upgrade
Width of Buffer Strip Achieved	~ 1 m to watercourse from existing access track ~ 38 m from tower S200
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	Dighty Water
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the watercourse.</p> <p>Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p> <p>Any track widening/upgrades to the existing track (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – G	Unnamed tributary of Tealing Burn
<p><u>Description:</u> The unnamed tributary of the Tealing Burn is a modified, straightened drain near the headwater at this locality, flowing south alongside existing track.</p>	
NGR Ref: 339519 740385	
<p>Photo – Drain adjacent to existing track</p> 	
Width of watercourse (m)	0.5 m
Infrastructure and Ancillary Works Description	Access Track
Temporary or Permanent	Permanent (existing track)
Width of Buffer Strip Achieved	7.5 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	Dighty Water
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are mainly from the infrastructure away from the drain.</p> <p>Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p> <p>Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – H	Unnamed Drain
<p><u>Watercourse Description:</u> Unnamed drain flows east towards the Kerbet Water. Channel is wide, deep and well defined, with a large volume of stagnant water, with minimal flow. The proposed temporary access track to Tower S171 is just within the 10 m recommended for a distance of approximately 20 m.</p>	
NGR Ref: 341030 746911	
Photo – Drain viewed looking upstream to the west	
	
Width of watercourse/ drain (m)	0.9 m
Infrastructure and Ancillary Works Description	Tower S171 temporary access track
Temporary or Permanent	Temporary
Width of Buffer Strip Achieved	~ 8 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	Dean Water
Within catchment of SAC designated river	Yes (River Tay SAC)
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain.</p> <p>Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction

ID – I	Unnamed Drain
<p><u>Description:</u> Minor but well-defined unnamed field drain which flows alongside existing access track to the north. The existing track will be used during construction.</p>	
NGR Ref: 341071 747242	
<p>Photo – Drain viewed looking north</p> 	
Width of watercourse (m)	0.9 m
Infrastructure and Ancillary Works Description	Access Track
Temporary or Permanent	Permanent (existing track)
Width of Buffer Strip Achieved	1 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	Dean Water
Within catchment of SAC designated river	Yes (River Tay SAC)
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – J	Unnamed Drain
<u>Description:</u> Large unnamed drain tributary to the Kerbet Water flows west to the Kerbet Water.	
NGR Ref: 341301 748585	
Photo – Drain viewed looking downstream to the west 	
Width of watercourse (m)	1.2 m
Infrastructure and Ancillary Works Description	Existing Access Track
Temporary or Permanent	Permanent (existing track)
Width of Buffer Strip Achieved	2 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	Dean Water
Within catchment of SAC designated river	Yes (River Tay SAC)
Potential Effect/Comment	Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Embedded and Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated. Infrastructure is within the 200 year plus climate change floodplain.
Additional Mitigation	Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the watercourse.

Section B

ID – L	Unnamed Drain
<p><u>Description:</u> Unnamed drain flows west to the Black Burn, drain is heavily vegetated and not well defined, but had a clear flow present in some areas, with some vegetated regions being more stagnant. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA's riparian buffer shapefile.</p>	
<p>NGR Ref: 3343427 754030</p>	
<p>Photo – Vegetated, poorly defined drain section</p> 	
<p>Width of watercourse (m)</p>	<p>0.3 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Access Track</p>
<p>Temporary or Permanent</p>	<p>Temporary</p>
<p>Width of Buffer Strip Achieved</p>	<p>2.5 m</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River South Esk</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River South Esk SAC)</p>
<p>Potential Effect/Comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional Mitigation</p>	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. The track will be micro-sited 10 m from the drain during construction.</p>

ID – M	Unnamed Tributary of the King's Burn
<p><u>Description:</u> Unnamed Tributary of the King's Burn flows south between agricultural fields towards field crossing with several 250 mm culverts. The confluence with the King's Burn lies around 230 m downstream to the southeast.</p>	
<p>NGR Ref: 344551 755043</p>	
<p>Photo – Unnamed tributary, looking upstream</p> 	
<p>Width of watercourse (m)</p>	<p>0.8 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Access Track</p>
<p>Temporary or Permanent</p>	<p>Temporary</p>
<p>Width of Buffer Strip Achieved</p>	<p>8 m</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River South Esk</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River South Esk SAC)</p>
<p>Potential Effect/Comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional Mitigation</p>	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction</p>

ID – N	Unnamed Drain
<p>Description: Unnamed drain flows southeast along existing track to tower S145. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA’s riparian buffer shapefile.</p>	
<p>NGR Ref: 345303 755344</p>	
<p>Photo – Shows existing drain running adjacent to drain on its northeast side, drain not marked in recommended riparian corridor shapefile</p> 	<p>Photo – Shows existing drain running adjacent to drain on its northeast side, looking southeast, drain not marked in recommended riparian corridor shapefile</p> 
<p>Width of watercourse (m)</p>	<p>0.4 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Existing Access Track to be used during construction</p>
<p>Temporary or Permanent</p>	<p>Permanent (Existing track)</p>
<p>Width of Buffer Strip Achieved</p>	<p>3 m</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River South Esk</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River South Esk SAC)</p>
<p>Potential Effect/Comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (i.e. SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional Mitigation</p>	<p>Additional mitigation (e.g. silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – O	Unnamed Drain
<p><u>Description:</u> Unnamed drain flows to the northeast adjacent to existing field track. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA’s riparian buffer shapefile.</p>	
<p>NGR Ref: 345467 757546</p>	
<p>Photo – Drain, slightly more defined here</p> 	<p>Photo – poorly defined section of drain adjacent to track</p> 
<p>Width of watercourse (m)</p>	<p>0.3 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Access Track</p>
<p>Temporary or Permanent</p>	<p>Permanent (Existing track)</p>
<p>Width of Buffer Strip Achieved</p>	<p>3.5 m</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River South Esk</p>
<p>Within catchment of SAC designated river</p>	<p>Yes (River South Esk SAC)</p>
<p>Potential Effect/Comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (i.e. construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional Mitigation</p>	<p>Additional mitigation (e.g. silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

Section C

ID – Q	Unnamed Drain
<p>Description: Unnamed drain flows to the northeast towards the West Water. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA’s riparian buffer shapefile.</p>	
NGR Ref: 360058 765514	
<p>Photo – Drain looking southwest</p> 	<p>Photo – Drain adjacent to track</p> 
Width of watercourse (m)	0.8 m
Infrastructure and Ancillary Works Description	Access Track
Temporary or Permanent	Permanent (Existing track)
Width of Buffer Strip Achieved	1.5 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – R	Whishop Burn
<p><u>Description:</u> Whishop Burn flows to the east in a wide channel, alongside existing track, which has been heavily modified and straightened at this locality</p>	
NGR Ref: 361675 766388	
<p>Photo – Whishop Burn</p> 	
Width of watercourse (m)	2 m
Infrastructure and Ancillary Works Description	Existing Access Track
Temporary or Permanent	Permanent (Existing track)
Width of Buffer Strip Achieved	4 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p> <p>Existing track is within the 200 year plus climate change floodplain.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p> <p>Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – S	Whishop Burn
<p><u>Description:</u> Whishop Burn flows to the east in a wide channel, which has been heavily modified and straightened at this locality.</p>	
NGR Ref: 361741 766328	
<p>Photo – Whishop Burn looking east downstream</p> 	
Width of watercourse (m)	2 m
Infrastructure and Ancillary Works Description	Proposed New Access Track
Temporary or Permanent	Temporary
Width of Buffer Strip Achieved	7 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain.</p> <p>Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p> <p>Infrastructure is within the 200 year plus climate change floodplain.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p>

ID – T	River North Esk
<p><u>Description:</u> River North Esk flows south adjacent to alternative proposed access track. The watercourse splits into two forks around a river island near the access track.</p>	
NGR Ref: 362286 767023	
<p>Photo – Shows River North Esk just upstream of proposed access track</p> 	
Width of watercourse (m)	15 – 50 m
Infrastructure and Ancillary Works Description	Access Track
Temporary or Permanent	Temporary Access Track
Width of Buffer Strip Achieved	12 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p> <p>Infrastructure is within the 200 year plus climate change floodplain.</p>
Additional Mitigation	Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.

ID – U	Unnamed Drain Tributary of the River North Esk
<p><u>Description:</u> Unnamed drain tributary of the River North Esk flows southwest here alongside existing track within a vegetated, poorly maintained but 1m wide drainage channel.</p>	
NGR Ref: 362578 767668	
<p>Photo – Drain adjacent to existing track</p> 	
Width of watercourse (m)	1 m
Infrastructure and Ancillary Works Description	Access Track
Temporary or Permanent	Permanent (Existing track)
Width of Buffer Strip Achieved	8 m
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain.</p> <p>Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p> <p>Any track widening (if required) will occur at the opposite side of the track to the watercourse.</p>

ID – V	Unnamed Drain
<p><u>Description:</u> Minor unnamed drain flows northeast on the west side of proposed tower S76. The indicative working area of tower S76 encroaches within the buffer of the drain. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA's riparian buffer shapefile.</p>	
<p>NGR Ref: 364039 767688</p>	
<p>Photo – Drain downstream of proposed tower</p> 	
Width of watercourse (m)	0.8 m
Infrastructure and Ancillary Works Description	Tower S76 working area
Temporary or Permanent	Temporary
Width of Buffer Strip Achieved	~ 1 m – working area 43 m – tower S76
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential Effect/Comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional Mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. The working area will be microsited 10 m from the drain during construction and there will be no works in the watercourse.</p>

ID – W	Unnamed drain
<p><u>Watercourse Description:</u> Small field drain, well maintained and dry during survey. The indicative working area of tower S74 encroaches within the 10 m buffer of the drain. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA's riparian buffer shapefile.</p>	
NGR Ref: 364550 768790	
Photo – Looking upslope to northeast	Photo – looking downslope to southwest
	
Width of watercourse/ drain (m)	0.3 m
Infrastructure and Ancillary Works Description	Tower S74 working area
Temporary or permanent	Temporary
Width of buffer strip achieved	~ 1 m – working area 34 m – tower S74
Water feature upgradient or downgradient of proposed infrastructure	Downgradient
Main river catchment	River North Esk
Within catchment of SAC designated river	No
Potential effect/comment	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain.</p> <p>Applied Mitigation (ie construction SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
Additional mitigation	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction.</p> <p>The working area will be micro-sited 10 m from the watercourse during construction and there will be no works in the watercourse.</p>

ID – X	Unnamed drain tributary to Sauchie Burn
<p><u>Watercourse Description:</u> Drain flows southeast towards the Sauchie Burn. Tower S68 indicative working area encroaches within the 10 m buffer of the drain. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA’s riparian buffer shapefile. Drain has since been culverted and covered.</p>	
<p>NGR Ref: 365574 770275</p>	
<p>Photo- Previous mapping and satellite imagery indicates open drain present here, but this has since been culverted as shown in photo below detailing culvert outlet</p>	<p>Photo- line of drain has now been covered as can be seen along treeline</p>
	
<p>Width of watercourse/ drain (m)</p>	<p>0.3 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Tower S68 working area</p>
<p>Temporary or permanent</p>	<p>Temporary</p>
<p>Width of buffer strip achieved</p>	<p>~ 1 m – working area 45 m – tower S68</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River North Esk</p>
<p>Within catchment of SAC designated river</p>	<p>No</p>
<p>Potential effect/comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie construction and permanent SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional mitigation</p>	<p>Additional mitigation (eg silt fences) will be installed between the track and the watercourse to reduce the risk of sediment/silt run-off during construction. The working area will be microsited 10 m from the drain during construction and there will be no works in the drain.</p>

ID – Y	Unnamed Drain
<p>Description: Unnamed minor drain which has very little depth or definition, no flow and is bare, lies within field grazed by livestock/horses. The drain is shown on Ordnance Survey 1:10,000 mapping, but is not included in SEPA's riparian buffer shapefile.</p>	
<p>NGR Ref: 366330 770267</p>	
<p>Photo – poorly defined drain at edge of field</p>	
	
<p>Width of watercourse (m)</p>	<p>0.2 m</p>
<p>Infrastructure and Ancillary Works Description</p>	<p>Access Track</p>
<p>Temporary or Permanent</p>	<p>Permanent (Existing track)</p>
<p>Width of Buffer Strip Achieved</p>	<p>4 m</p>
<p>Water feature upgradient or downgradient of proposed infrastructure</p>	<p>Downgradient</p>
<p>Main river catchment</p>	<p>River North Esk</p>
<p>Within catchment of SAC designated river</p>	<p>No</p>
<p>Potential Effect/Comment</p>	<p>Flow path analysis indicates that surface water runoff paths are from the infrastructure towards the drain. Applied Mitigation (ie SuDS) will be included in the design. Surface water runoff will be treated and attenuated.</p>
<p>Additional Mitigation</p>	<p>Additional mitigation (eg silt fences) will be installed between the track and the drain to reduce the risk of sediment/silt run-off during construction. Any track widening (if required) will occur at the opposite side of the track to the drain.</p>