

## **A13.4: Residual Impact Tables (Road Drainage and the Water Environment)**

### **1 Introduction**

- 1.1 This appendix details all the residual impacts of the proposed Scheme in relation to the assessment reported in Chapter 13 (Road Drainage and the Water Environment).
- 1.2 Residual impacts during both the construction and operational phases are summarised for each attribute of the surface water feature (SWF) in Table 1 and 2 respectively. Those with residual impact significance greater than Neutral are discussed further in Chapter 13 (Road Drainage and the Water Environment).

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**Table 1: Summary of Residual Impacts on Surface Water Features (SWFs) during Construction**

Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
SWF 01 Inshes Burn	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a relatively small catchment. Receives water from at least three direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• Retail Park;</li> <li>• existing A96<sup>†</sup>; and</li> <li>• local road network.</li> </ul> Identified by the SEPA flood map to pose a flood risk to residential areas in its upper reaches during a 0.5% annual exceedance probability (AEP) event. In its lower reaches (in the immediate vicinity of the A96 road crossing) there is limited flood risk to surrounding properties/industry. There are no culverts in close proximity to the proposed Scheme which could pose a flood risk.	Very high	Construction Environmental Management Plan (CEMP) to include method statement and details of any temporary drainage systems proposed to control runoff from construction areas; alleviate localised flood risk and prevent obstruction of surface runoff.	Negligible	Neutral
	Temporary increase in fine sediment from road construction.	Fluvial geomorphology	Water Framework Directive (WFD) hydromorphology parameter status: not classified. Channel choked with vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow Scottish Environment Protection Agency (SEPA) approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: urban/residential; agriculture/forestry upstream. Potential additional pollutant sources: road and railway drainage/runoff and diffuse urban/ rural sources.	High	Contractor to prepare a CEMP and method statements to be approved by SEPA prior to commencement of works. Follow CIRIA and SEPA best practice guidance including PPGs,	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low	such as careful siting of material stockpiles, fuel, oil and chemical stores in secure areas and avoid works during periods of heavy rainfall. Oil/fuel containers to be stored on an impermeable base with adequate bunding. Stationary plant to be fitted with drip trays and spill kits to be stored in key locations and regularly checked. Refuelling of plant to be undertaken off site where practicable. Installation of temporary treatment facilities, in agreement with SEPA and CIRIA C697 guidance. Untreated sewage to be collected and disposed of appropriately in consultation with SEPA and CAR. Monitoring of water quality to be agreed with SEPA.	Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 02 Scretan Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least five direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• Retail Park;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul>	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>into watercourse.</p> <p>Temporary construction structures placed within flood risk zone or for flow diversion of the Scretan Burn may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>		<p>This SWF flows in close proximity to numerous residential areas and the lower reaches of the SWF may pose a flood risk to agricultural land, road and railways, and the retail park at Smithton. SWF 02 has no associated flood risk in the vicinity of the proposed Scheme due to its existing (SWF 02-2) or proposed culvert (SWF 02-1).</p>				
	<p>Temporary increase in fine sediment from construction of</p>	<p>Fluvial geomorphology</p>	<p>WFD hydromorphology parameter status: not classified.</p> <p>Channel choked with vegetation and extensively realigned. Bed substrate consisting of fine/coarse</p>	<p>Medium</p>	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved</p>	<p>Negligible</p>	<p>Neutral</p>

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	road, culvert, outfalls and realignment. Diversion/damming of flow during in-channel works to construct culvert.		gravels, some variability in flow types.		construction methods, conduct in-channel works during low flow and limit the extent of disturbance.		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 03 Cairnlaw Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary	Hydrology and flood risk	Drains a medium sized catchment. Receives water from at least eight direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;10 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>local road network;</li> </ul>	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>construction structures placed within flood risk zone or for flow diversion of the Cairnlaw Burn may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>		<ul style="list-style-type: none"> <li>• Aberdeen to Inverness Railway Line;</li> <li>• farm land; and</li> <li>• potential upstream impacts in Culloden.</li> </ul> <p>SEPA map indicates flood risk to agricultural land, properties, the railway and a road. The SWF and its tributaries also flow in close proximity to numerous residential areas (including a school) in the upper reaches of the catchment.</p> <p>SWF 03 has two existing culverts in the vicinity of the proposed Scheme and two culverts are proposed as part of the proposed Scheme. One of the proposed culverts has been assessed as not posing a flood risk. The model results indicate the existing A96 is at risk from the surcharging of the existing culverts and flood flows coming out of bank.</p>				
	<p>Temporary increase in fine sediment from construction of road, culverts, outfalls and</p>	<p>Fluvial geomorphology</p>	<p>WFD 'Physical Condition' parameter status: Moderate.</p> <p>Predominantly cobble bed with depositional features. Diversity of flow types. Morphological alterations for mixed farming.</p>	<p>Medium</p>	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods, conduct in-channel works during low flow and</p>	<p>Negligible</p>	<p>Neutral</p>

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	realignments. Diversion/ damming of flow during in-channel works to construct culverts.				limit the extent of disturbance.		
	Change in water quality	Water quality/supply	WFD water quality status: Good (2014). Surrounding land use: agriculture, some urban/residential.  Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Fisheries status: not designated.  Presence of fish species of International importance identified in Chapter 11 (Habitats and Biodiversity).	Very high		Minor	Moderate
SWF 04 Tributary of Cairnlaw Burn (1)	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least four direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;10 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>local road network;</li> <li>Aberdeen to Inverness Railway Line;</li> </ul>	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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	water feature.		<ul style="list-style-type: none"> <li>farm land; and</li> <li>Potential upstream impacts in Culloden.</li> </ul> <p>No SEPA flood map information (catchment less than 3km<sup>2</sup>). The SWF flows through residential areas, across the railway and crosses a number of roads therefore posing a potential flood risk.</p> <p>This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank.</p>				
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Cobble substrate and depositional features including side bars. Rippled flow and vegetated riparian buffer.</p>	Medium	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods.</p>	Negligible	Neutral
	Change in water quality	Water quality/supply	<p>WFD water quality status: Good (2014).</p> <p>Surrounding land use: agriculture, some urban/residential.</p> <p>Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.</p>	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	<p>Low pollutant dilution/dispersal capacity.</p> <p>CAR discharges: none.</p>	Low		Negligible	Neutral
		Biodiversity	<p>WFD overall ecological status: not classified.</p> <p>'Moderate' equivalent assumed.</p> <p>Fisheries status: not designated.</p>	Medium		Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
SWF 05 Tributary of Cairnlaw Burn (2)	<p>Temporary structures placed within the flood risk zone as part of the watercourse realignment works for this water feature may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>	Hydrology and flood risk	<p>Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• Aberdeen to Inverness Railway Line;</li> <li>• farm land; and</li> <li>• grounds of former hotel.</li> </ul> <p>This SWF is not included in the SEPA Flood Map as its catchment is less than 3km<sup>2</sup>. Potential flood risk to surrounding land/grounds of the former hotel.</p> <p>This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank</p>	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	<p>Temporary increase in fine sediment from construction of road and realignment.</p>						

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					limit the extent of disturbance.		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: woodland/forestry and agriculture. Potential additional pollutant sources: diffuse rural sources and former hotel.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Good' equivalent assumed. Fisheries status: not designated.	High		Minor	Slight
SWF 06 Kenneth's Black Well	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.  Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least three direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• 10-20 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• side access road;</li> <li>• Aberdeen to Inverness Railway Line; and</li> <li>• farm land.</li> </ul> SEPA map indicates flood risk to agricultural land and a number of residential properties. The SWF also runs in close proximity to a school grounds, residential areas and crosses the railway and a number of roads potential resulting in flood risk.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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	Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		SWF 06 has three existing culverts in the vicinity of the proposed Scheme. Baseline modelling indicates flood flows would come out of bank and present risk to the existing A96 and properties nearby.				
	Temporary increase in fine sediment from construction of road, culverts, outfall and realignments. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment and culverted under several roads and access tracks. Fragmented riparian zone.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage.				
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for sewage treatment works final effluent discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 07 Drain at Allanfearn	Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.  Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>minor access road;</li> <li>Aberdeen to Inverness Railway Line;</li> <li>major sewage treatment works; and</li> <li>farm land.</li> </ul> This SWF is not identified on SEPA flood map as the drain has a catchment area of less than 3km <sup>2</sup> . There is a potential flood risk to a small number of dwellings as well as surround land due to its close proximity to them.  SWF 07 has two existing culverts downstream of the proposed Scheme. The two existing culverts pose a flood risk to the area of land surrounding the culverts as they have been assessed as going	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact			
						Magnitude	Significance		
			out of bank during the design event.						
	Temporary increase in fine sediment from construction of road, culvert and realignments. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Artificial watercourse with no natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture/urban/residential. Potential additional pollutant sources: diffuse rural sources, road and railway drainage and urban/residential.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight		
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low				Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium				Minor	Slight
SWF 08 Fiddler's Burn	Temporary construction works for SUDS system within catchment may	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least three direct tributaries. Receptors:	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral		

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	<p>slightly increase peak flow rates into watercourse.</p> <p>Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>		<ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> <p>Not identified on SEPA flood map as catchment less than 3km<sup>2</sup>. Potential flood risk to a number of properties as well as a school due to the SWFs close proximity. The burn also crosses a number of roads and two railway lines.</p> <p>SWF 08 has one existing culvert downstream of the proposed Scheme. . The existing culvert (SWF 08-A) poses a flood risk as it has been assessed as going out of bank during the design event. The culvert crosses under the existing A96 and therefore may pose a flood risk to the road.</p>				
	<p>Temporary increase in fine sediment from construction of road, culvert, outfall and realignment.</p>	<p>Fluvial geomorphology</p>	<p>WFD hydromorphology parameter status: not classified.</p> <p>Artificial watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.</p>	<p>Low</p>	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.</p>	<p>Negligible</p>	<p>Neutral</p>

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						Magnitude	Significance
	Diversion/ damming of flow during in-channel works to construct culvert.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream. Potential additional pollutant sources: diffuse rural sources, road and railway drainage; and urban/residential.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for combined sewer overflow and emergency overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 09 Tributary of Rough Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.  Temporary construction structures placed within flood risk zone or for flow diversion of the	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least four direct tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>†</sup>; and</li> <li>farm land.</li> </ul> The SEPA Flood Map (0.5% AEP event outline) indicates potential flood risk to agricultural land, a property as well as a number of roads and the railway. A small number of properties are also in	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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						Magnitude	Significance
	<p>water feature may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>		<p>relatively close proximity to the SWF.</p> <p>SWF 09 has two existing culvert within the vicinity of the proposed Scheme. The existing culverts (SWF 09-A and 09-B) pose a flood risk as both culverts have been assessed as going out of bank during the design event.</p>				
	<p>Temporary increase in fine sediment from construction of road, culvert and outfalls.</p> <p>Diversion/ damming of flow during in-channel works to construct culvert.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.</p>	Low	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.</p>	Negligible	Neutral
	Change in water quality	Water quality/supply	<p>Not classified under WFD. 'Good' water quality assumed.</p> <p>Surrounding land use: agriculture; forestry</p>	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight



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						Magnitude	Significance
			upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.				
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 10 Indirect tributary of Rough Burn (1)	No potential impacts identified for this water feature.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>*</sup>; and</li> <li>farm land.</li> </ul> This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. This SWF feeds into SWF 12 which is at risk.	Very high	Not required.	Negligible	Neutral
SWF 11 Indirect tributary of Rough Burn (2)	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>*</sup>; and</li> <li>farm land</li> </ul> This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. SWF 11 has one existing culvert within the vicinity	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			of the proposed Scheme. The existing culverts (SWF 11-A) poses a flood risk to the area of land surrounding the culvert as the culvert has been assessed as going out of bank during the design event. The watercourse joins SWF 09 before reaching the proposed Scheme.				
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low			
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium			
SWF 12 Rough Burn	Temporary construction structures placed within flood risk zone or for flow diversion of the	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 12 direct tributaries. Receptors: • farm;	Very high	Refer to mitigation outlined for the SWF 01. Construction of relief culverts will be carried out in the vicinity of the	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>water feature may temporarily increase flood risk locally and be susceptible to flood damage.</p> <p>Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.</p>		<ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> <p>Properties and a factory identified at potential risk of flooding predominantly downstream of the proposed Scheme. Dam and sluice upstream of the proposed Scheme could be affected.</p> <p>SWF 12 has two existing culverts (SWF 12-A/12-B) in the vicinity of the proposed Scheme. Out of bank flows from upstream of the proposed Scheme are modelled to flow across the route.</p>		proposed Scheme		
	<p>Temporary increase in fine sediment from construction of road, culvert and realignment.</p> <p>Diversion/ damming of flow during in-channel works to construct culvert.</p>	Fluvial geomorphology	<p>WFD 'Physical Condition' parameter status: Good. Bedrock and cobble bed. Natural planform along most of channel, including waterfalls, however modifications present, particularly downstream of the existing A96. Choked with vegetation in places.</p>	High	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.</p>	Negligible	Neutral
	Change in water quality	Water quality/supply	<p>WFD water quality status: Moderate (2014). CAR licence for surface water abstraction for Culblair Farm.</p>	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			Surrounding land use: agriculture; forestry upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.				
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Fisheries status: not designated.	Medium		Minor	Slight
SWF 13 Tributary of 'Unnamed Burn - Castle Stuart to source (Tornagrain)' (1)	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.  Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96†;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> Tributary not shown on the SEPA Flood extent outline (0.5% AEP). A property at Kerrowaird is located within 40 meters of the watercourse and therefore at potential flood risk.  SWF 13 has two existing culvert within the vicinity of the proposed Scheme.. One of the existing culverts (SWF 13-2) poses a flood risk as the watercourse has been assessed as going out of bank during the design event.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culvert and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Re-profiled banks. Choked with vegetation. Extensive channel realignment.	Low	Implement appropriate control measures for site runoff and sedimentation.  Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed.  Surrounding land use: agriculture; some woodland/forestry.  Potential additional pollutant sources: diffuse rural	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			sources and road and railway drainage.				
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 14 Unnamed Burn - Castle Stuart to source (Tornagrain)	Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96†;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> SEPA flood map (0.5% AEP flood extent outline) indicates flood risk to agricultural land, properties, roads and the railway. There are also a few properties in the middle/upper reaches of the catchment located in close proximity to the SWF and therefore at potential flood risk. SWF 14 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 14-A) has not been assessed as posing a flood risk as the watercourse was simulated to say in bank during the design event simulation.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road and culvert. Diversion/damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Intermittent riparian buffer zone. Extensive channel realignment. Re-profiled banks. Embanked channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 15 Tributary of 'Unnamed Burn -	Temporary construction structures placed within flood risk	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors:	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
Castle Stuart to source (Tornagrain)' (2)	zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		<ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>farm land; and</li> <li>woodland.</li> </ul> <p>Not identified on SEPA flood map flood extent outline for the 0.5% AEP event. Anecdotal evidence indicating flooding at the confluence of SWF 14 and 15 resulting in flooding to woodland/agricultural land.</p> <p>SWF 15 has three existing culverts within the vicinity of the proposed Scheme. One of the existing culverts (SWF 15-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation.</p>				
	Temporary increase in fine sediment from construction of road and culvert. Diversion/damming of flow during in-channel works to construct	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Extensive channel realignment. Re-profiled banks.</p> <p>Overdeep channel choked with vegetation.</p>	Low	<p>Implement appropriate control measures for site runoff and sedimentation.</p> <p>Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.</p>	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	culvert.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 16 Tributary of Ardersier Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 15 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• farm;</li> <li>• Inverness Airport;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• local road network; and</li> <li>• farm land.</li> </ul> SEPA map indicates flood risk to agricultural land and Inverness airport. SWF 16 has two existing culverts (SWF 16-A and SWF 16-B) in the vicinity of the proposed Scheme. Baseline modelling confirms the SEPA	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.		flood map.				
	Temporary increase in fine sediment from construction of road, culverts, outfalls and realignment. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD 'Physical Condition' parameter status upstream section 'Mid Coul to source': Good (2014). WFD 'Physical Condition' parameter status downstream section 'sea to Mid Coul' (HMWB): Bad (2014). Extensive channel realignment. Culverted in several locations, particularly due to runway and airport infrastructure.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Change in water quality	Water quality/supply	WFD water quality status (Mid Coul to source): Good (2014). WFD water quality status (sea to Mid Coul): Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture; some forestry towards the top of the catchment; Inverness Airport in the lower catchment.  Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, road and railway drainage and historic contaminants from disused railway.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status (Mid Coul to source): Good (2014). WFD overall ecological potential (sea to Mid Coul): Moderate (2014). Fisheries status: not designated.	High		Minor	Slight
SWF 17 Drains at Culblair	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least two direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;10 residential properties;</li> <li>farm;</li> <li>proposed Scheme*;</li> <li>Aberdeen to Inverness Railway Line; and</li> <li>farm land.</li> </ul> SWF 17 is not identified on the SEPA flood map.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	increased runoff rates in to the water feature.		SWF 17 feeds into SWF 16 which is identified as being at risk. SWF 17 has one existing culvert (SWF 17-A) within the vicinity of the proposed Scheme. The existing culvert is assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulations. Culvert SWF 17-A also goes underneath the railway line and therefore there is a potential flood risk to the railway line from this watercourse.				
	Temporary increase in fine sediment from construction of road and culverts. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Realigned channel with limited riparian buffer zone. Artificial drain – no natural channel or bank features.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 18 Indirect tributary drains of Ardersier Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.  Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.  Potential for temporary increase in	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least five direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• two farms;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> SEPA Flood map indicates flood risk to agricultural land from SWF 18.  SWF 18 has three existing culverts within the vicinity of the proposed Scheme. Existing culvert SWF 18-A has been assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulation.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culverts, outfall and realignment. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Re-profiled banks, overdeep channel with hard bank reinforcement in places. Extensive channel realignment. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture/forestry and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 19 Balnagowan Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> SEPA Flood map indicates flood risk to agricultural land. SWF 19 has two existing culverts within the vicinity of the proposed Scheme. The SWF 19-A culvert crosses underneath the current A96 and is located within close proximity to the proposed Scheme. The other existing culvert SWF 19-B crosses the railway line and is located upstream of the proposed Scheme. Given the culverts have been simulated to go out of bank they poses a direct flood risk to the existing A96 and to the railway line.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, watercourse extension, culverts and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Bad. Limited riparian buffer zone. Extensive channel realignment.	Low	Implement appropriate control measures for site runoff and sedimentation.  Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	Medium	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and	Low pollutant dilution/dispersal capacity.	Low		Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		removal of waste products	CAR discharges: none.				
		Biodiversity	WFD overall ecological status: Bad (2014). Fisheries status: not designated.	Low		Minor	Neutral
SWF 21 Field ditch tributaries of Balnagowan Burn	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>• Aberdeen to Inverness Railway Line;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> SWF 21 is not identified on the SEPA flood map. SWF 21 is located upstream of the proposed Scheme.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Artificial watercourse through forestry. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: woodland/forestry and agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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						Magnitude	Significance
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 22 Alton Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.  Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage.  Potential for temporary increase in	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>&lt;10 residential properties;</li> <li>Aberdeen to Inverness Railway Line;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> Flood risk to numerous properties in Nairn and agricultural land. SEPA flood map indicates active floodplain with the potential to affect properties. SWF 22 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 22-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation. The culvert crosses a minor road and therefore may pose flood risk to the road.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culverts and outfall. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Extensive channel realignment. Overdeep and overwide channel which is choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture, rural grassland; some urban/residential downstream. Potential additional pollutant sources: diffuse rural	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			sources and road and railway drainage.				
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor	Slight
SWF 23 River Nairn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. This is unlikely to have a significant impact on the River Nairn as it is a large watercourse. Temporary construction structures placed within flood risk zone of the River Nairn may temporarily increase flood	Hydrology and flood risk	Drains a large sized catchment. Receives flow from numerous direct tributaries. Receptors: <ul style="list-style-type: none"> <li>approximately 40 domestic properties within 2km of proposed bridge;</li> <li>farm buildings;</li> <li>proposed Scheme*;</li> <li>farm land; and</li> <li>ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land and properties from SWF 23. Baseline modelling confirms the SEPA flood map.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	risk locally and be susceptible to flood damage. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, outfall and clear span bridge.	Fluvial geomorphology	WFD 'Physical Condition' parameter status for River Nairn – Moray Firth to River Farnack confluence: Good.  Natural planform with few modifications. Dynamic geomorphology, varied flow types and in-channel habitats. Continuous riparian buffer zone.	Very high	Implement appropriate control measures for site runoff and sedimentation.  Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: High (2014). CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture; some woodland/forestry; urban/residential downstream (Nairn).	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage.				
		Dilution and removal of waste products	Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD.	Very high		Negligible	Neutral
SWF 24 Tributary of the River Nairn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>• woodland;</li> <li>• farm land;</li> <li>• proposed Scheme*; and</li> <li>• ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land from SWF 24.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culvert and outfalls. Diversion/ damming of flow during in-channel works to construct culvert.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment. Lack of riparian zone in places. Modifications such as embankment and culverts present. Channel choked with vegetation.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; woodland/forestry upstream. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and	Low pollutant dilution/dispersal capacity.	Medium		Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		removal of waste products	Two CAR licences for septic tank effluent discharge.				
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Minor	Moderate
SWF 26 Auldearn Burn	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk locally and be susceptible to flood damage. Potential for temporary increase in	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 14 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• approximately 20 residential properties;</li> <li>• proposed Scheme*;</li> <li>• local road network;</li> <li>• Auldearn sewerage treatment works;</li> <li>• farm land; and</li> <li>• ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land and residential properties from SWF 26. Baseline modelling shows more limited flood extents than the SEPA flood map but out of bank flows are present in the vicinity of the proposed Scheme.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road, culvert, outfalls and realignment. Diversion/ damming of flow during in-channel works to construct culverts.	Fluvial geomorphology	WFD hydromorphology parameter status: Moderate. Some morphological diversity and varied flow typed. Gravel and cobble substrate. Limited riparian buffer zone. Channel choked with vegetation in places.	Medium	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods, conduct in-channel works during low flow and limit the extent of disturbance.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Househill Farm. Surrounding land use: agriculture; some grassland/woodland. Potential additional pollutant sources: diffuse	Medium	Refer to mitigation outlined for the SWF 01.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			rural/urban sources and road drainage.				
		Dilution and removal of waste products	Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Minor	Moderate
SWF 31 Auldearn Burn - Brightmony Tributary	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least five direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> The SEPA Flood map indicates flood risk to agricultural land and some downstream properties. SWF 31 is located to the south of the proposed Scheme. SWF 31 has been included in the SWF 26 model as it is a tributary of SWF 26. The baseline modelling indicates a lesser degree of flooding than the SEPA flood map.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Embanked, realigned watercourse with straight planform and overdeep cross-section. Limited riparian buffer zone.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence identified in SEPA data for combined sewer overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 33 Drain at Penick Farm	Potential for temporary increase in hardstanding areas and/or soil compaction during construction works to result in temporary increased runoff rates in to the water feature.	Hydrology and flood risk	Drains a very small sized catchment. Does not receives flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>local road network; and</li> <li>farm land.</li> </ul> SWF 33 is not identified on the SEPA flood map.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral
	Temporary increase in fine sediment from construction of road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Straightened watercourse with limited riparian buffer zone.	Low			

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact				
						Magnitude	Significance			
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road drainage.	High	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral			
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral			
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral			
SWF 34 Tributary of Auldearn Burn (4)	Construction of carriageway near SWF. No potential impacts identified for this water feature.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> The SEPA Flood map indicates flood risk to agricultural land from this SWF. SWF 34 has one existing culvert (SWF 34-1) within close proximity to the proposed Scheme.	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral			
		Fluvial geomorphology	WFD morphology parameter status: not classified. Extensive channel realignment. Channel choked with vegetation in places.	Low				Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
		Water	Not classified under WFD. 'Good' water quality	High				Refer to mitigation outlined for the	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	quality	quality/supply	assumed. Surrounding land use: agriculture; some grassland/woodland. Potential additional pollutant sources: diffuse rural sources and road drainage.		SWF 01.		
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 35 Drain, tributary of Auldearn Burn - Brightmony Tributary	Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary	Hydrology and flood risk	Drains a very small catchment. Does not receive flow from any tributaries. Receptors: farm land.	Low		Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	increased runoff rates in to the water feature.						
	Temporary increase in fine sediment from construction of road and outfall.	Fluvial geomorphology	WFD morphology parameter status: not classified. Small, realigned channel with scattered tree lining.	Low	Implement appropriate control measures for site runoff and sedimentation. Follow SEPA approved construction methods.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Refer to mitigation outlined for the SWF 01.	Minor	Slight
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low			
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium			
Loch Flemington		Hydrology and flood risk	Shallow loch. It is believed to be a naturally controlled loch with a complex outflow system with significant surface groundwater interactions. Receptors: <ul style="list-style-type: none"> <li>• approximately 20 residential properties;</li> <li>• local road network;</li> <li>• farm land; and</li> <li>• ecologically designated water body.</li> </ul>	Very high	Refer to mitigation outlined for the SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
Ponds	Change in water quality	Biodiversity	Chapter 11 (Ecology and Nature Conservation) identifies the pond habitats as being of less than authority level importance.	Low	Refer to mitigation outlined for the SWF 01.	Minor	Neutral

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**Table 2: Summary of Residual Impacts on Surface Water Features (SWFs) during Operation**

Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
SWF 01 Inshes Burn	Potential for increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a relatively small catchment. Receives water from at least three direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• Retail Park;</li> <li>• existing A96<sup>†</sup>; and</li> <li>• local road network.</li> </ul> Identified by the SEPA flood map to pose a flood risk to residential areas in its upper reaches during a 0.5% AEP event. In its lower reaches (in the immediate vicinity of the A96 road crossing) there is limited flood risk to surrounding properties/industry.  There are no culverts in close proximity to the proposed Scheme which could pose a flood risk.	Very high	No specific mitigation required. Adhere to generic mitigation measures	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Channel choked with vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.	Low	Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.	Negligible	Neutral
SWF 02 Scretan Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage and due to three	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least five direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• Retail Park;</li> </ul>	Very high	Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>road drainage outfalls discharge to SWF 02.</p> <p>Alterations to flood risk due to: removal of Ashton Farm access road culvert, culvert extension and channel realignment.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>		<ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>‡</sup>; and</li> <li>farm land.</li> </ul> <p>This SWF flows in close proximity to numerous residential areas and the lower reaches of the SWF may pose a flood risk to agricultural land, road and railways, and the retail park at Smithton.</p> <p>SWF 02 has no associated flood risk in the vicinity of the proposed Scheme due to its existing (SWF 02-2) or proposed culvert (SWF 02-1)</p>		<p>event.</p> <p>No specific flood risk mitigation required. Adhere to generic mitigation measures</p>		
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert, outfalls and channel realignment.</p> <p>Change to channel morphology due to increase in artificial bed and bank material and channel realignment.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Channel choked with vegetation and extensively realigned. Bed substrate consisting of fine/coarse gravels, some variability in flow types.</p>	Medium	<p>Adhere to guidance set by SEPA on culverting of watercourses, bank protection, intakes and outfalls and river crossings (SEPA 2006, 2008, 2010 and 2012).</p> <p>Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.</p> <p>Consult with a geomorphologist at design phase to incorporate the following:</p> <p>Minimise the length of realignment, culverts and number of in-channel structures.</p>	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
					<p>Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.</p> <p>Maintain gradient and length of water feature to prevent siltation through culvert/realigned channel or scour around in-channel structures.</p> <p>Maintain channel sinuosity and create natural bed and identify other possible improvements to water feature morphology and habitats.</p>		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Runoff from catchments A, B and C to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low			
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium			
SWF 03 Cairnlaw Burn	Potential impact to flood risk due to alteration to area draining to the	Hydrology and flood risk	Drains a medium sized catchment. Receives water from at least eight direct	Very high	SWF03 and SWF06 are hydraulically linked and the proposed solution provides	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>catchment due to road drainage direction and due to two outfalls discharging to SWF 03.</p> <p>Alterations to flood risk due to: reconstruction/extension of Barn Church Road culvert, realignment of watercourse and construction of two new culverts.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>		<p>tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;10 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• local road network;</li> <li>• Aberdeen to Inverness Railway Line;</li> <li>• farm land; and</li> <li>• potential upstream impacts in Culloden.</li> </ul> <p>SEPA map indicates flood risk to agricultural land, properties, the railway and a road. The SWF and its tributaries also flow in close proximity to numerous residential areas (including a school) in the upper reaches of the catchment.</p> <p>SWF 03 has two existing culverts in the vicinity of the proposed Scheme. The model results indicate the existing A96 is at risk from the surcharging of the existing culverts and flood flows coming out of bank.</p>		<p>mitigation to both watercourses. Provision of a flood bypass channel in in SWF06 to prevent flooding of land that would be occupied by the proposed Scheme. In conjunction it is proposed to increase the online storage capacity of the realigned section of the Cairnlaw Burn and provide a control in flows at proposed culvert C04.</p> <p>Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.</p>		
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts, outfalls and channel realignments.</p> <p>Change to channel morphology due to increase in artificial bed</p>	Fluvial geomorphology	<p>WFD 'Physical Condition' parameter status: Moderate.</p> <p>Predominantly cobble bed with depositional features. Diversity of flow types. Morphological alterations for mixed farming.</p>	Medium	Refer to mitigation listed for SWF 02.	Minor	Slight

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	and bank material and channel realignment.						
	Change in water quality	Water quality/supply	WFD water quality status: Good (2014). Surrounding land use: agriculture, some urban/residential. Potential additional pollutant sources: road and railway drainage and diffuse rural/urban sources.	High	Runoff from catchments D and E to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Fisheries status: not designated. Presence of fish species of International importance identified in Chapter 11 (Habitats and Biodiversity).	Medium		Negligible	Neutral
SWF 04 Tributary of Cairnlaw Burn (1)	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives water from at least four direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;10 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>local road network;</li> <li>Aberdeen to Inverness Railway Line;</li> <li>farm land; and</li> <li>potential upstream impacts in Culloden.</li> </ul>	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			<p>No SEPA flood map information (catchment less than 3km<sup>2</sup>). The SWF flows through residential areas, across the railway and crosses a number of roads therefore posing a potential flood risk</p> <p>This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank.</p>				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Cobble substrate and depositional features including side bars. Rippled flow and vegetated riparian buffer.</p>	Medium	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 05 Tributary of Cairnlaw Burn (2)	<p>Potential impacts to flood risk due to channel realignment.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>	Hydrology and flood risk	<p>Drains a very small sized catchment. Does not receive flow from any tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• Aberdeen to Inverness Railway Line;</li> <li>• farm land; and</li> <li>• grounds of former hotel.</li> </ul> <p>This SWF is not included in the SEPA Flood Map as its catchment is less than 3km<sup>2</sup>.</p> <p>Potential flood risk to surrounding land/grounds</p>	Very high		Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			<p>of the former hotel.</p> <p>This watercourse joins SWF 03 before reaching the A96. Any culvert associated flood risk will be linked to SWF 03 and therefore this SWF has been included in the SWF 03 hydraulic model. Baseline modelling results indicate flood flows would remain in bank.</p>				
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, and channel realignment.</p> <p>Change to channel morphology due to channel realignment.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>No distinct channel evident and no channel substrate (i.e. only detritus and earth as per surrounding forest floor) in the downstream section.</p>	Low	<p>Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.</p> <p>Consult with a geomorphologist at design phase to incorporate the following:</p> <p>Minimise the length of realignment.</p> <p>Maintain gradient and length of water feature to prevent siltation through realigned channel.</p> <p>Maintain channel sinuosity and create natural bed and identify other possible improvements to water feature morphology and habitats.</p>	Negligible	Neutral
SWF 06 Kenneth's Black Well	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one	Hydrology and flood risk	<p>Drains a small sized catchment.</p> <p>Receives water from at least three direct tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>10-20 residential properties;</li> </ul>	Very high	<p>SWF03 and SWF06 are hydraulically linked and the proposed solution provides mitigation to both watercourses.</p> <p>Provision of a flood bypass</p>	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>road drainage outfall discharge to SWF 06.</p> <p>Potential alterations to flood risk due to: reconstruction/extension of Barn Church Road culvert, realignment of watercourse and construction of five new culverts.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>		<ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>local access road;</li> <li>Aberdeen to Inverness Railway Line; and</li> <li>farm land.</li> </ul> <p>SEPA map indicates flood risk to agricultural land and a number of residential properties. The SWF also runs in close proximity to a school grounds, residential areas and crosses the railway and a number of roads potential resulting in flood risk.</p> <p>SWF 06 has three existing culverts in the vicinity of the proposed Scheme. Baseline modelling indicates flood flows would come out of bank and present risk to the existing A96 and properties nearby.</p>		<p>channel in in SWF06 to prevent flooding of land that would be occupied by the proposed Scheme. In conjunction it is proposed to increase the online storage capacity of the realigned section of the Cairnlaw Burn and provide a control in flows at proposed culvert C04.</p> <p>Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.</p>		
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert, outfalls and channel realignments.</p> <p>Change to channel morphology due to increase in artificial bed and bank material and channel realignment.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Extensive channel realignment and culverted under several roads and access tracks.</p> <p>Fragmented riparian zone.</p>	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	Change in water quality	Water	Not classified under WFD. 'Good' water quality	High	Runoff from Catchment F to	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		quality/supply	assumed. Surrounding land use: agriculture; urban/residential and forestry upstream.  Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage.		pass through filter drains and wet retention pond prior to outfall.		
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for sewage treatment works final effluent discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 07 Drain at Allanfearn	Potential alterations to flood risk due to realignment of channel and the construction of a new culvert.  Possible loss of flood storage due to road construction Loss of a small area of the catchment to road drainage.  Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>minor access road;</li> <li>Aberdeen to Inverness Railway Line;</li> <li>major sewage treatment works; and</li> <li>farm land.</li> </ul> This SWF is not identified on SEPA flood map as the drain has a catchment area of less than 3km <sup>2</sup> . There is a potential flood risk to a small number of dwellings as well as surround land due to its close proximity to them.  SWF 07 has two existing culverts downstream of the proposed Scheme. The two existing	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			culverts pose a flood risk to the area of land surrounding the culverts as they have been assessed as going out of bank during the design event.				
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and channel realignments.</p> <p>Change to channel morphology due to increase in artificial bed and bank material and channel realignment.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Artificial watercourse with no natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.</p>	Low	<p>Adhere to guidance set by SEPA on culverting of watercourses, bank protection, and river crossings (SEPA 2006, 2010 and 2012).</p> <p>Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.</p> <p>Consult with a geomorphologist at design phase to incorporate the following:</p> <p>Minimise the length of realignment, culverts and number of in-channel structures.</p> <p>Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.</p> <p>Maintain gradient and length of water feature to prevent siltation through culvert/realigned channel or scour around in-channel structures.</p> <p>Maintain channel sinuosity and</p>	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
					create natural bed and identify other possible improvements to water feature morphology and habitats.		
SWF 08 Fiddler's Burn	<p>Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 08.</p> <p>Alterations to flood risk due to realignment of watercourse and construction of new culvert.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Alterations to catchment area draining to watercourse due to road drainage direction.</p>	Hydrology and flood risk	<p>Drains a small sized catchment. Receives flow from at least three direct tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> <p>Not identified on SEPA flood map as catchment less than 3km<sup>2</sup>. Potential flood risk to a number of properties as well as a school due to the SWFs close proximity. The burn also crosses a number of roads and two railway lines.</p> <p>SWF 08 has one existing culvert downstream of the proposed Scheme. The existing culvert (SWF 08-A) poses a flood risk to the area of land surrounding the culvert as it has been assessed as going out of bank during the design event. The culvert crosses under the existing A96 and therefore may pose a flood risk to the road.</p>	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces,</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Artificial watercourse with limited natural channel or bank features (overdeep and</p>	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	culvert, outfall and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.		trapezoidal cross section). Channel choked with vegetation.				
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; urban/residential and forestry upstream. Potential additional pollutant sources: diffuse rural sources, road and railway drainage; and urban/residential.	High	Runoff from Catchment G to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR licence for combined sewer overflow and emergency overflow discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 09 Tributary of Rough Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and two road drainage outfall discharges to SWF 09. Alterations to flood risk due to construction of a	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least four direct tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>farm land.</li> </ul> The SEPA Flood Map (0.5% AEP event outline) indicates potential flood risk to agricultural land,	Very high	Provision of compensatory flood storage near culvert SWF09-A to extend the current flood plain area. This is to mitigate the loss of floodplain area to the scheme. Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>new culvert.</p> <p>Possible loss of flood storage due to road construction</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>		<p>a property as well as a number of roads and the railway. A small number of properties are also in relatively close proximity to the SWF.</p> <p>SWF 09 has two existing culvert within the vicinity of the proposed Scheme. The existing culverts (SWF 09-A and 09-B) pose a flood risk to the area of land surrounding the culverts as both culverts have been assessed as going out of bank during the design event.</p>		<p>in two year return period) flood event.</p>		
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and outfalls.</p> <p>Change to channel morphology due to increase in artificial bed and bank material.</p>	<p>Fluvial geomorphology</p>	<p>WFD hydromorphology parameter status: not classified.</p> <p>Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section).</p> <p>Channel choked with vegetation.</p>	<p>Low</p>	<p>Adhere to guidance set by SEPA on culverting of watercourses, bank protection, intakes and outfalls and river crossings (SEPA 2006, 2008, 2010 and 2012).</p> <p>Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.</p> <p>Consult with a geomorphologist at design phase to incorporate the following:</p> <p>Minimise the length of culverts and number of in-channel structures.</p> <p>Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.</p>	<p>Negligible</p>	<p>Neutral</p>

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
					Maintain gradient and length of water feature to prevent siltation through culvert or scour around in-channel structures.		
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; forestry upstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Runoff from catchments H and I to pass through filter drains and wet retention pond prior to outfall.	Minor beneficial	Slight beneficial
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor beneficial	Slight beneficial
SWF 10 Indirect tributary of Rough Burn (1)	No construction works within 100m of this SWF. Potential upstream propagation of water levels due to modifications to SWF 09 downstream of the confluence.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>farm land.</li> </ul> This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map. This SWF feeds into SWF 12 which is at risk.	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 11 Indirect tributary of Rough Burn (2)	There is no direct impact from the proposed Scheme on this watercourse. Potential	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors:	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	upstream propagation of water levels due to modifications to SWF 09 downstream of the confluence.  Increased impervious surfaces due to carriageway near SWF.		<ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>†</sup>; and</li> <li>farm land.</li> </ul> <p>This SWF is not identified in the flood extent (0.5% AEP event) on SEPA flood map.</p> <p>SWF 11 has one existing culvert within the vicinity of the proposed Scheme. The existing culverts (SWF 11-A) poses a flood risk to the area of land surrounding the culvert as the culvert has been assessed as going out of bank during the design event. The watercourse joins SWF 09 before reaching the proposed Scheme.</p>				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Embanked, straightened watercourse with limited natural channel or bank features (overdeep and trapezoidal cross section). Channel choked with vegetation.</p>	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 12 Rough Burn	Alterations to flood risk due to channel realignment and construction of new culvert. Loss of catchment area to road drainage. Possible loss of flood storage due to road construction.	Hydrology and flood risk	<p>Drains a medium sized catchment. Receives flow from at least 12 direct tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>farm;</li> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>†</sup>; and</li> <li>farm land.</li> </ul> <p>Properties and a factory identified at potential</p>	Very high	Two flood relief culverts are proposed to allow connectivity of existing overland flood flow routes through the scheme (as per baseline).	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Increased impervious surfaces due to carriageway near SWF.		<p>risk of flooding predominantly downstream of the proposed Scheme. Dam and sluice upstream of the proposed Scheme could be affected.</p> <p>SWF 12 has two existing culverts (SWF 12-A/12-B) in the vicinity of the proposed Scheme. Out of bank flows from upstream of the proposed Scheme are modelled to flow across the route.</p>				
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and channel realignment.</p> <p>Change to channel morphology due to increase in artificial bed and bank material and channel realignment.</p>	Fluvial geomorphology	<p>WFD 'Physical Condition' parameter status: Good.</p> <p>Bedrock and cobble bed. Natural planform along most of channel, including waterfalls, however modifications present, particularly downstream of the existing A96. Choked with vegetation in places.</p>	High	Refer to mitigation listed for SWF 07.	Minor	Slight
SWF 13 Tributary of 'Unnamed Burn - Castle Stuart to source (Tornagrain)' (1)	<p>Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and two road drainage outfall discharges to SWF 13.</p> <p>Alterations to flood risk due to construction of new</p>	Hydrology and flood risk	<p>Drains a very small sized catchment. Does not receive flow from any tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> <p>Tributary not shown on the SEPA Flood extent outline (0.5% AEP). A property at Kerrowaird is</p>	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	culvert. Possible loss of flood storage due to road construction Increased impervious surfaces due to carriageway near SWF.		located within 40 meters of the watercourse and therefore at potential flood risk. SWF 13 has two existing culvert within the vicinity of the proposed Scheme One of the existing culverts (SWF 13-2) poses a flood risk to the area of land surrounding the culvert as the watercourse has been assessed as going out of bank during the design event.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and outfalls. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Re-profiled banks. Choked with vegetation. Extensive channel realignment.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; some woodland/forestry. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Runoff from catchments J and K to pass through filter drains and wet retention pond prior to outfall.	Minor beneficial	Slight beneficial
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor beneficial	Slight beneficial



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
SWF 14 Unnamed Burn - Castle Stuart to source (Tornagrain)	<p>Potential alterations to flood risk due to construction of new culvert.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>	Hydrology and flood risk	<p>Drains a small sized catchment. Receives flow from at least 10 direct tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>†</sup>; and</li> <li>farm land.</li> </ul> <p>SEPA flood map (0.5% AEP flood extent outline) indicates flood risk to agricultural land, properties, roads and the railway. There are also a few properties in the middle/upper reaches of the catchment located in close proximity to the SWF and therefore at potential flood risk.</p> <p>SWF 14 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 14-A) has not been assessed as posing a flood risk as the watercourse was simulated to stay in bank during the design event simulation.</p>	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces and culvert.</p> <p>Change to channel morphology due to increase in artificial bed and bank material.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Intermittent riparian buffer zone. Extensive channel realignment. Re-profiled banks. Embanked channel choked with vegetation.</p>	Low	<p>Adhere to guidance set by SEPA on culverting of watercourses, bank protection, and river crossings (SEPA 2006, 2010 and 2012).</p> <p>Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds.</p> <p>Consult with a geomorphologist</p>	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
					at design phase to incorporate the following: Minimise the length of culverts. Ensure culverts are positioned correctly to minimise scour and alterations to natural flow. Maintain gradient and length of culvert to prevent siltation or scour around the structures.		
SWF 15 Tributary of 'Unnamed Burn - Castle Stuart to source (Tornagrain)' (2)	Potential alterations to flood risk due to construction of new culvert. Loss of catchment area to road drainage. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*;</li> <li>farm land; and</li> <li>woodland.</li> </ul> Not identified on SEPA flood map flood extent outline for the 0.5% AEP event. Anecdotal evidence indicating flooding at the confluence of SWF 14 and 15 resulting in flooding to woodland/agricultural land.  SWF 15 has three existing culverts within the vicinity of the proposed Scheme. One of the existing culverts (SWF 15-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation.	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral
	Potential for alterations to flow and sediment regime	Fluvial	WFD hydromorphology parameter status: not	Low	Refer to mitigation listed for	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	due to increased impervious surfaces and culvert. Change to channel morphology due to increase in artificial bed and bank material.	geomorphology	classified. Extensive channel realignment. Re-profiled banks. Overdeep channel choked with vegetation.		SWF 14.		
SWF 16 Tributary of Ardersier Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 16. Potential alterations to flood risk due to channel realignment and construction of new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 15 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• &lt;5 residential properties;</li> <li>• farm;</li> <li>• Inverness Airport;</li> <li>• existing A96<sup>†</sup>;</li> <li>• proposed Scheme*;</li> <li>• local road network; and</li> <li>• farm land.</li> </ul> SEPA map indicates flood risk to agricultural land and Inverness airport. SWF 16 has two existing culverts (SWF 16-A and SWF 16-B) in the vicinity of the proposed Scheme. Baseline modelling confirms the SEPA flood map.	Very high	Provision of a flood storage area upstream of the C14 culvert, requiring an engineered earth bund. This would fall under the jurisdiction of the Reservoirs Act (Scotland) 2011 Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces,	Fluvial geomorphology	WFD 'Physical Condition' parameter status upstream section 'Mid Coul to source': Good (2014). WFD 'Physical Condition' parameter status	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	culverts, outfalls and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.		downstream section 'sea to Mid Coul' (HMWB): Bad (2014). Extensive channel realignment. Culverted in several locations, particularly due to runway and airport infrastructure.				
	Change in water quality	Water quality/supply	WFD water quality status (Mid Coul to source): Good (2014). WFD water quality status (sea to Mid Coul): Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Culblair Farm. Surrounding land use: agriculture; some forestry towards the top of the catchment; Inverness Airport in the lower catchment. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, road and railway drainage and historic contaminants from disused railway.	High	Runoff from catchments L, V and M to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
Dilution and removal of waste products		Low/Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Low				
Biodiversity		WFD overall ecological status (Mid Coul to source): Good (2014). WFD overall ecological potential (sea to Mid Coul): Bad (2014). Fisheries status: not designated.	Low				
SWF 17 Drains at Culblair	Potential alterations to flood risk due to construction of new	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least two direct	High	Design refinement to earthworks will remove this impact.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	<p>culverts.</p> <p>Loss of catchment area to road drainage.</p> <p>Possible loss of flood storage due to road construction.</p> <p>Increased impervious surfaces due to carriageway near SWF.</p>		<p>tributaries.</p> <p>Receptors:</p> <ul style="list-style-type: none"> <li>• &lt;10 residential properties;</li> <li>• farm;</li> <li>• proposed Scheme*;</li> <li>• Aberdeen to Inverness Railway Line; and</li> <li>• farm land.</li> </ul> <p>SWF 17 is not identified on the SEPA flood map. SWF 17 feeds into SWF 16 which is identified as being at risk.</p> <p>SWF 17 has one existing culvert (SWF 17-A) within the vicinity of the proposed Scheme. The existing culvert is assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulations. Culvert SWF 17-A also goes underneath the railway line and therefore there is a potential flood risk to the railway line from this watercourse.</p>				
	<p>Potential for alterations to flow and sediment regime due to increased impervious surfaces and two culverts.</p> <p>Change to channel morphology due to increase in artificial bed and bank material.</p>	Fluvial geomorphology	<p>WFD hydromorphology parameter status: not classified.</p> <p>Realigned channel with limited riparian buffer zone.</p> <p>Artificial drain – no natural channel or bank features.</p>	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral
SWF 18	Potential impact to flood	Hydrology and	Drains a small sized catchment.	Very high	Refer to mitigation listed for	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
Indirect tributary drains of Ardersier Burn	risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 18. Potential alterations to flood risk due to channel realignment and construction of two new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	flood risk	Receives flow from at least five direct tributaries. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>two farms;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*; and</li> <li>farm land.</li> </ul> SEPA Flood map indicates flood risk to agricultural land from SWF 18. SWF 18 has three existing culverts within the vicinity of the proposed Scheme. Existing culvert SWF 18-A has been assessed as posing a flood risk as the watercourse was simulated to go out of bank during the design event simulation.		SWF 02.		
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts, outfall and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Re-profiled banks, overdeep channel with hard bank reinforcement in places. Extensive channel realignment. Channel choked with vegetation.	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	Change in water quality	Water	Not classified under WFD. 'Good' water quality assumed.	High	Runoff from Catchment N to	Minor beneficial	Slight beneficial

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		quality/supply	Surrounding land use: agriculture/forestry and Inverness Airport. Potential additional pollutant sources: diffuse rural sources, aircraft fuel and associated pollutants, and road and railway drainage.		pass through filter drains and wet retention pond prior to outfall.		
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Minor beneficial	Slight beneficial
SWF 19 Balnagowan Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 19. Potential alterations to flood risk due to construction of two new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least 10 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>‡</sup>; and</li> <li>farm land.</li> </ul> SEPA Flood map indicates flood risk to agricultural land. SWF 19 has two existing culverts within the vicinity of the proposed Scheme. The SWF 19-A culvert crosses underneath the current A96 and is located within close proximity to the proposed Scheme. The other existing culvert SWF 19-B crosses the railway line and is located upstream of the proposed Scheme. Given the culverts have been simulated to go out of bank they poses a direct flood risk to the existing A96 and to the railway line.	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts and outfalls. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD 'Physical Condition' parameter status: Bad. Limited riparian buffer zone. Extensive channel realignment.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). Surrounding land use: agriculture. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	Medium	Runoff from Catchment O to pass through filter drains, swale and wet retention pond prior to outfall. Runoff from catchments P and Q to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Bad (2014). Fisheries status: not designated.	Low		Negligible	Neutral
SWF 21 Field ditch tributaries of Balnagowan Burn	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Does not receive flow from any tributaries. Receptors: <ul style="list-style-type: none"> <li>• Aberdeen to Inverness Railway Line;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> SWF 21 is not identified on the SEPA flood map. SWF 21 is located upstream of the proposed Scheme.	High	Refer to mitigation listed for SWF 01.	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Artificial watercourse through forestry. Channel choked with vegetation.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 22 Alton Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 22. Potential alterations to flood risk due to channel realignment and construction of two new culverts. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>• &lt;10 residential properties;</li> <li>• Aberdeen to Inverness Railway Line;</li> <li>• proposed Scheme*; and</li> <li>• farm land.</li> </ul> Flood risk to numerous properties in Nairn and agricultural land. SEPA flood map indicates active floodplain with the potential to affect properties. SWF 22 has one existing culvert within the vicinity of the proposed Scheme. The existing culvert (SWF 22-A) has been assessed as posing a flood risk as the watercourse is simulated to go out of bank during the design event simulation. The culvert crosses a minor road and therefore may pose flood risk to the road.	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culverts and outfall. Change to channel	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Limited riparian buffer zone. Extensive channel realignment. Overdeep and overwide channel which is choked with vegetation.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	morphology due to increase in artificial bed and bank material.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture, rural grassland; some urban/residential downstream. Potential additional pollutant sources: diffuse rural sources and road and railway drainage.	High	Runoff from Catchment R to pass through filter drains and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. CAR discharges: none.	Low		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
SWF 23 River Nairn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 23. Potential alterations to flood risk due to construction of a new bridge spanning the river. Possible loss of flood storage due to road	Hydrology and flood risk	Drains a large sized catchment. Receives flow from numerous direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• approximately 40 domestic properties within 2km of proposed bridge;</li> <li>• farm buildings;</li> <li>• proposed Scheme*;</li> <li>• farm land; and</li> <li>• ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land and properties from SWF 23. Baseline modelling confirms the SEPA flood	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	construction. Increased impervious surfaces due to carriageway near SWF.		map.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and outfall. Change to channel morphology due to increase in artificial bed and bank material. Removal of section of riparian zone for clear span bridge abutments.	Fluvial geomorphology	WFD 'Physical Condition' parameter status for River Nairn – Moray Firth to River Farnack confluence: Good.  Natural planform with few modifications. Dynamic geomorphology, varied flow types and in-channel habitats. Continuous riparian buffer zone.	Very high	Adhere to guidance set by SEPA on bank protection, intakes and outfalls and river crossings (SEPA 2008, 2010 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist at design phase to incorporate the following: Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.	Negligible	Neutral
	Change in water quality	Water quality/supply	WFD water quality status: High (2014). CAR licence identified in SEPA data for surface water abstraction for Kildrummie Farm. Surrounding land use: agriculture; some woodland/forestry; urban/residential downstream (Nairn).  Potential additional pollutant sources: diffuse rural/urban sources and road and railway drainage.	Very high	Runoff from Catchment S to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste	Medium pollutant dilution/dispersal capacity. CAR discharges: none.	Medium		Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
		products					
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD.	Very high		Negligible	Neutral
SWF 24 Tributary of the River Nairn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and two road drainage outfall discharges to SWF 24. Potential alterations to flood risk due to construction of a new culvert. Possible loss of flood storage due to road construction. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>• woodland;</li> <li>• farm land;</li> <li>• proposed Scheme*; and</li> <li>• ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land from SWF 24.	Very high	Refer to mitigation listed for SWF 02.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert and outfalls. Change to channel morphology due to increase in artificial bed	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Extensive channel realignment. Lack of riparian zone in places. Modifications such as embankment and culverts present. Channel choked with vegetation.	Low	Refer to mitigation listed for SWF 09.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	and bank material.						
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture; woodland/forestry upstream. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	High	Runoff from catchments T and U to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	Low pollutant dilution/dispersal capacity. Two CAR licences for septic tank effluent discharge.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Negligible	Neutral
SWF 26 Auldearn Burn	Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage direction and three road drainage outfall discharges to SWF 26. Potential alterations to flood risk due to channel realignment and construction of a new culvert. Possible loss of flood storage due to road construction.	Hydrology and flood risk	Drains a medium sized catchment. Receives flow from at least 14 direct tributaries. Receptors: <ul style="list-style-type: none"> <li>• approximately 20 residential properties;</li> <li>• proposed Scheme*;</li> <li>• local road network;</li> <li>• Auldearn sewerage treatment works;</li> <li>• farm land; and</li> <li>• ecologically designated watercourse.</li> </ul> The SEPA Flood Map indicates flood risk to agricultural land and residential properties from SWF 26. Baseline modelling shows more limited flood extents than the SEPA flood map but out of bank flows are present in the vicinity of the	Very high	Channel widening upstream of culvert C21 with two stage channel design.  Wet retention pond designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (one in two year return period) flood event.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
	Increased impervious surfaces due to carriageway near SWF.		proposed Scheme.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces, culvert, outfalls and channel realignment. Change to channel morphology due to increase in artificial bed and bank material and channel realignment.	Fluvial geomorphology	WFD hydromorphology parameter status: Moderate. Some morphological diversity and varied flow typed. Gravel and cobble substrate. Limited riparian buffer zone. Channel choked with vegetation in places.	Medium	Refer to mitigation listed for SWF 02.	Minor	Slight
	Change in water quality	Water quality/supply	WFD water quality status: Moderate (2014). CAR licence identified in SEPA data for surface water abstraction for Househill Farm. Surrounding land use: agriculture; some grassland/woodland.	High	Runoff from catchments W, X and Y to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
		Dilution and removal of waste products	One discharge consent identified by Envirocheck: this discharge is from a septic tank. Potential additional pollutant sources: diffuse rural/urban sources and road drainage.	Medium		Negligible	Neutral
		Biodiversity	WFD overall ecological status: Moderate (2014). Protected Area for Freshwater Fish under WFD (associated water body of the River Nairn).	Very high		Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
SWF 31 Auldearn Burn - Brightmony Tributary	Potential upstream propagation of water into SWF 31 catchment as the proposed Scheme crosses SWF 26 downstream of the SWF 26/31 confluence.  Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment.  Receives flow from at least five direct tributaries.  Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme<sup>*</sup>; and</li> <li>farm land.</li> </ul> The SEPA Flood map indicates flood risk to agricultural land and some downstream properties.  SWF 31 is located to the south of the proposed Scheme. SWF 31 has been included in the SWF 26 model as it is a tributary of SWF 26.  The baseline modelling indicates a lesser degree of flooding than the SEPA flood map	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD hydromorphology parameter status: not classified.  Embanked, realigned watercourse with straight planform and overdeep cross-section. Limited riparian buffer zone.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 33 Drain at Penick Farm	Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a very small sized catchment.  Does not receives flow from any tributaries.  Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>local road network; and</li> </ul>	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral

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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
			<ul style="list-style-type: none"> <li>farm land.</li> </ul> SWF 33 is not identified on the SEPA flood map.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road	Fluvial geomorphology	WFD hydromorphology parameter status: not classified. Straightened watercourse with limited riparian buffer zone.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 34 Tributary of Auldearn Burn (4)	Potential propagation of water upstream into SWF 34 catchment as the proposed Scheme crosses SWF 26 downstream of the SWF 26/34 confluence. Loss of catchment area to road drainage. Increased impervious surfaces due to carriageway near SWF.	Hydrology and flood risk	Drains a small sized catchment. Receives flow from at least one direct tributary. Receptors: <ul style="list-style-type: none"> <li>&lt;5 residential properties;</li> <li>existing A96<sup>†</sup>;</li> <li>proposed Scheme*<sup>†</sup>; and</li> <li>farm land.</li> </ul> The SEPA Flood map indicates flood risk to agricultural land from this SWF. SWF 34 has one existing culvert (SWF 34-1) within close proximity to the proposed Scheme.	Very high	Refer to mitigation listed for SWF 01.	Negligible	Neutral
	Potential for alterations to flow and sediment regime due to increased impervious surfaces associated with new road.	Fluvial geomorphology	WFD morphology parameter status: not classified. Extensive channel realignment. Channel choked with vegetation in places.	Low	Refer to mitigation listed for SWF 01.	Negligible	Neutral
SWF 35 Drain, tributary of	Potential impact to flood risk due to alteration to	Hydrology and flood risk	Drains a very small catchment. Does not receive flow from any tributaries.	Low	Refer to mitigation listed for SWF 02.	Negligible	Neutral



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Water Body (Feature)	Potential Impact	Attribute	Indicator of Quality	Importance	Mitigation	Residual impact	
						Magnitude	Significance
Auldearn Burn - Brightmony Tributary	area draining to the catchment due to road drainage direction and one road drainage outfall discharge to SWF 35. Increased impervious surfaces due to carriageway near SWF.		Receptors: farm land.				
	Potential for alterations to flow and sediment regime due to increased impervious surfaces and outfall. Change to channel morphology due to increase in artificial bed and bank material.	Fluvial geomorphology	WFD morphology parameter status: not classified. Small, realigned channel with scattered tree lining.	Low	Adhere to guidance set by SEPA on bank protection and intakes and outfalls (SEPA 2008 and 2012). Incorporate appropriate drainage system to ensure substantial flow and sediment is transported to attenuation ponds. Consult with a geomorphologist at design phase to incorporate the following: Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow.	Negligible	Neutral
	Change in water quality	Water quality/supply	Not classified under WFD. 'Good' water quality assumed. Surrounding land use: agriculture and woodland/forestry. Potential additional pollutant sources: diffuse rural sources.	High	Runoff from Catchment Z to pass through filter drains, swale and wet retention pond prior to outfall.	Negligible	Neutral
Dilution and			Low pollutant dilution/dispersal capacity.	Low			

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						Magnitude	Significance
		removal of waste products	CAR discharges: none.				
		Biodiversity	WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.	Medium		Negligible	Neutral
Loch Flemington		Hydrology and flood risk	Shallow loch. It is believed to be a naturally controlled loch with a complex outflow system with significant surface groundwater interactions. Receptors: <ul style="list-style-type: none"> <li>• approximately 20 residential properties;</li> <li>• local road network;</li> <li>• farm land; and</li> <li>• ecologically designated water body.</li> </ul>	Very high		Negligible	Neutral

## References

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