A14.4 Impact Assessment Tables

1. Introduction

1.1.1 This appendix details the potential impacts of each route option prior to mitigation in relation to the assessment reported in DMRB Stage 2 Scheme Assessment Report, Part 3: Environmental Assessment, Chapter 14 (Road Drainage and the Water Environment).

1.1.2 Potential impacts during both the construction and operational phases are summarised for each attribute of a surface water feature (SWF) in Table 1 and Table 2 respectively. Those with a significance of impact greater than Moderate are discussed further in Chapter 14 (Road Drainage and Water Environment).

1.1.3 All of the impacts that are reported in Table 1 and 2 are adverse unless otherwise stated.

1.1.4 In the operational impacts table, it should be noted that where an outfall has passed the assessment for soluble pollutants but received an ‘Alert’ for sediment-bound pollutants, the potential magnitude of impact for the attribute’s ‘biodiversity’ and ‘water quality/supply’ is shown as minor adverse, not negligible. This is to highlight that there could be a potential impact if no mitigation was provided for settlement of sediments.
## Table 1: Summary of Impacts on SWFs during Construction and Potential Mitigation

<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
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</thead>
<tbody>
<tr>
<td><strong>SWF 01: Mill Burn</strong></td>
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<td>All options: no potential impacts identified for this surface water feature.</td>
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<td></td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small sized catchment. Receives water from at least two direct tributaries. The watercourse is within PVA 01/21. Receptors: • &gt;100 residential properties; • Commercial areas; • Local road network; • Farm land; and • Golf course.</td>
<td>Very High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td>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.</td>
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<tr>
<td><strong>SWF 02: Inshes Burn</strong></td>
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<tr>
<td>All options: Construction of carriageway near SWF. Potential for temporary increase in hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates into the water feature. Construction of outfall into SWF. Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse. Options 1A, 1B, 2A and 2B: Construction of a culvert. Temporary construction structures placed within flood risk zone or for flow diversion of the water feature may temporarily increase flood risk</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a small catchment. Receives water from at least three direct tributaries. Receptors: • Approx 100 residential properties including some near Inshes Retail Park identified as particularly flood-sensitive by consultation responses; • Raigmore Hospital; • A9; • Inverness Retail and Business Park; • Local road network; and • Farm land.</td>
<td>Very High</td>
<td>Options 1A, 1B, 2A, 2B</td>
<td>Major</td>
<td>Very Large</td>
<td>Refer to mitigation recommended for SWF 01.</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
<td>Potential Mitigation</td>
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<tr>
<td>locally and be susceptible to flood damage. Construction of channel realignment. Potential temporary increase in flood risk locally due to constrictions in flow due to in channel working and potential loss of flood plain area during works.</td>
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<td></td>
<td>All options: Temporary increase in fine sediment as a result of construction of carriageway Options 1A, 1B, 2A and 2B: Temporary increase in fine sediment as a result of construction of a culvert, an outfall, and part channel realignment. Diversion/damming of flow during in-channel works to construct culvert/outfall/realignment.</td>
<td>Fluvial geomorphology</td>
<td>Straightened channel choked with vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.</td>
<td>Low</td>
<td>All options</td>
<td>Moderate</td>
<td>Slight</td>
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<td></td>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of: All options: construction of carriageway and outfall. Options 1A, 1B, 2A and 2B: additional construction of a culvert, and part channel realignment.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: urban, residential and agriculture; forestry upstream. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
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<td></td>
<td>Dilution and removal of waste products</td>
<td>CAR licence for combined sewer overflow from residential property. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
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<tr>
<td></td>
<td>Biodiversity</td>
<td>WFD overall ecological status: not classified. ‘Moderate’ equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td></td>
</tr>
</tbody>
</table>
### Description of Potential Impact

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Hydrology and Flood Risk</th>
<th>Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>All options:</td>
<td>Drains a small catchment.</td>
<td>High</td>
<td></td>
<td></td>
<td>Refer to mitigation recommended for SWF 01.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of carriageway near SWF:</td>
<td>Receptors:</td>
<td></td>
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<tr>
<td>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.</td>
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<tr>
<td>Construction of a culvert. 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.</td>
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<tr>
<td>Construction of outfall into SWF. Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.</td>
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<tr>
<td>Options 2A and 2B: Construction of channel realignment. Potential temporary increase in flood risk locally due to constrictions in flow</td>
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</tr>
</tbody>
</table>

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**SWF 03: Tributary of Scretan Burn (1)**

- Construction of carriageway near SWF:
  - 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.
  - Construction of a culvert. 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.
  - Construction of outfall into SWF. Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.
  - Options 2A and 2B: Construction of channel realignment. Potential temporary increase in flood risk locally due to constrictions in flow.

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- Follow SEPA’s pollution prevention guidance.
- Installation of temporary treatment facilities, in agreement with SEPA and CIRIA C697 guidance.
- Develop a permanent drainage system early in construction. Apply for CAR licences under the requirements of the CAR Regulations.

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- Refer to mitigation recommended for SWF 01.
<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>due to in channel working and potential loss of flood plain area during works.</td>
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<tr>
<td>All options: Temporary increase in fine sediment as a result of construction of carriageway, culvert and outfall. Options 2A and 2B: Temporary increase in fine sediment as a result of part channel realignment. Diversion/damming of flow during in-channel works to construct realignment.</td>
<td>Fluvial geomorphology</td>
<td>Small channel with predominantly straight planform. Uniform cross-section with some variability in flow types. Some woody material present. Channel is embanked on both banks and appears to be overdeep for the majority of its course.</td>
<td>Low</td>
<td>All options</td>
<td>Moderate</td>
<td>Slight</td>
<td>Refer to mitigation recommended for SWF 02</td>
</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of: All options: construction of carriageway, culvert and outfall. Options 2A and 2B: additional part channel realignment.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: urban, residential and agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td>CAR licence for a discharge from Beechwood UHI campus. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
<td></td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Not classified under WFD. ‘Moderate status’ ecological quality equivalent assumed.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
<td></td>
</tr>
<tr>
<td>SWF 04: Scretan Burn</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small catchment. Receives water from at least five direct tributaries. Receptors: 50-100 (approx.) residential</td>
<td>Very High</td>
<td>All options</td>
<td>Major</td>
<td>Very Large</td>
<td>Refer to mitigation recommended for SWF 01.</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
<td>Potential Mitigation</td>
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<tr>
<td>water feature.</td>
<td>properties;</td>
<td></td>
<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
</tr>
<tr>
<td>Construction of two culverts. 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. Construction of an outfall into the SWF. Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.</td>
<td>Inverness Retail and Business Park;</td>
<td></td>
<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>A96 Aberdeen – Inverness Trunk Road;</td>
<td></td>
<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>Local road network;</td>
<td></td>
<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>Highland Main Line; and</td>
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<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>Farm land.</td>
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<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>The Stratton Development is proposed to be located in the lower reaches of this watercourse, in the vicinity of the A96 Aberdeen – Inverness Trunk Road.</td>
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<td></td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
<td>Fluvial geomorphology</td>
<td>WFD hydromorphology parameter status: not classified. Channel choked with vegetation and extensively realigned. Bed substrate consisting of fine/coarse gravels, some variability in flow types. Areas of erosion and deposition creating a varied bank structure.</td>
<td>Medium</td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<tr>
<td></td>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of:</td>
<td>WFD water quality status: Good. Surrounding land-use: urban, residential, agriculture and forestry. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of:</td>
<td>Water quality/supply</td>
<td></td>
<td></td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02</td>
</tr>
<tr>
<td>All options: construction of carriageway, two culverts and an outfall.</td>
<td>Dilution and removal of waste products</td>
<td>Three CAR licences identified: emergency overflow; septic tank effluent; and sewage treatment works final effluent. Potential additional pollutant sources:</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02</td>
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<td></td>
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<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
<td>Potential Mitigation</td>
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<td>road and railway drainage and diffuse urban/rural sources.</td>
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<tr>
<td>Biodiversity</td>
<td></td>
<td>WFD overall ecological status (Cairnlaw Burn): Moderate Fisheries status: not designated.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
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<tr>
<td>SWF 05: Tributary of Scretan Burn (2)</td>
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<tr>
<td>All options: Construction of carriageway near SWF:</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a small catchment. Receptors: • Approximately 7 residential properties; • Local road network; • Highland Main Line and • Farm land.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 01.</td>
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<tr>
<td></td>
<td>All options: Construction of carriageway, culvert and part channel realignment. Diversion/damming of flow during in-channel works to construct realignment.</td>
<td>Fluvial geomorphology</td>
<td>Low</td>
<td>All options</td>
<td>Moderate</td>
<td>Slight</td>
<td>Refer to mitigation recommended for SWF 02</td>
</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
<td>Potential Mitigation</td>
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<tr>
<td>and sedimentation as a result of construction of carriageway and culvert, and part channel realignment.</td>
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<td>Surrounding land-use: residential and agriculture. No licensed water abstractions identified in SEPA data.</td>
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<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td></td>
<td>No licensed discharges identified in SEPA data. Potential additional pollutant sources: railway drainage.</td>
<td>Low</td>
<td>All options</td>
<td>Major</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Biodiversity</td>
<td></td>
<td>WFD overall ecological status: not classified. ‘Moderate’ equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
</tbody>
</table>

**SWF 06: Indirect tributary of Scretan Burn**

<table>
<thead>
<tr>
<th>Hydrology and Flood Risk</th>
<th>Drains a very small catchment. Receptors: • Farm land.</th>
<th>Low</th>
<th>Options 1A, 2A, 3A</th>
<th>Minor</th>
<th>Neutral</th>
<th>Refer to mitigation recommended for SWF 01.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option 1B, 2B, 3B</td>
<td>Moderate</td>
<td>Slight</td>
<td></td>
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</tbody>
</table>

| Fluvial geomorphology | Small field drain with a straight planform and silt substrate. Channel is dominated by terrestrial grass in several sections. | Low | Options 1A, 2A and 3A | Moderate | Slight | Refer to mitigation recommended for SWF 02 |

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### Description of Potential Impact

<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow during in-channel works to construct realignment.</td>
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</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of: All options: construction of carriageway. Options 1B, 2B and 3B: part channel realignment.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>Options 1A, 2A and 3A</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02. However, no requirement to apply for CAR licences under requirements of the CAR Regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3B</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td></td>
<td>Dilution and removal of waste products</td>
<td>No licensed discharge consents identified in SEPA data.</td>
<td>Low</td>
<td>Options 1A, 2A and 3A</td>
<td>Moderate</td>
<td>Slight</td>
<td>Refer to mitigation recommended for SWF 02. However, no requirement to apply for CAR licences under requirements of the CAR Regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3B</td>
<td>Major</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td></td>
<td>Biodiversity</td>
<td>WFD overall ecological status: not classified. ‘Moderate’ equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
<td>Options 1A, 2A and 3A</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02. However, no requirement to apply for CAR licences under requirements of the CAR Regulations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3B</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
</tbody>
</table>

**SWF 07: Un-named drain**

<p>| Options 1A, 2A and 3A: Construction of carriageway near SWF: Potential for temporary increase in | Hydrology and Flood Risk | Drains a very small catchment. On the edge of PVA 01/20. | High | Options 1A, 2A, 3A | Major | Large | Refer to mitigation recommended for SWF 01. |</p>
<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>hardstanding areas and soil compaction during construction works to result in temporary increased runoff rates in to the water feature. Construction of a culvert. 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. Construction of an outfall into the SWF. Temporary construction works for SUDS system within catchment may slightly increase peak flow rates into watercourse.</td>
<td>Receptors:</td>
<td>• Farm land; and&lt;br&gt;• Local road. The Stratton Development is proposed to be located in the SWF 07 catchment in the vicinity of the A96 Aberdeen – Inverness Trunk Road and the route options.</td>
<td></td>
<td>Option 1B, 2B, 3B</td>
<td>Negligible</td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Options 1A, 2A and 3A: Temporary increase in fine sediment as a result of construction of carriageway, culvert and outfall. Diversion/damming of flow during in-channel works to construct culvert and outfall.</td>
<td>Fluvial geomorphology</td>
<td>Consists of one road drain and a small field drain. Channel planform was straight and overgrown with brambles.</td>
<td>Low</td>
<td>Options 1A, 2A and 3A</td>
<td>Moderate</td>
<td>Slight</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of: Options 1A, 2A and 3A: construction of carriageway, culvert and outfall.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>Options 1A, 2A and 3A</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td></td>
<td>No licensed discharge consents identified in SEPA data.</td>
<td>Low</td>
<td>Options 1A, 2A and 3A</td>
<td>Major</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Biodiversity</td>
<td></td>
<td>WFD overall ecological status: not classified. ‘Moderate’ equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
<td>Options 1A, 2A and 3A</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
</tbody>
</table>
### Description of Potential Impact

<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SWF 08: Cairnlaw Burn</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a medium catchment. Receives water from at least four direct tributaries. Within PVA 01/20. Receptors: • 50-100 (approx.) residential properties; • School; • A96 Aberdeen – Inverness Trunk Road; • Local road network; • Highland Main Line; • Aberdeen to Inverness Railway Line; and • Farm and farm land. The Stratton Development is proposed to be located in the lower reaches of this watercourse, in the vicinity of the A96 Aberdeen – Inverness Trunk Road and the route options. Potential upstream impacts in Culloden.</td>
<td>Very High</td>
<td>All options</td>
<td>Major</td>
<td>Very Large</td>
<td>Refer to mitigation recommended for SWF 01.</td>
</tr>
</tbody>
</table>

All options: Temporary increase in fine sediment as a result of construction of carriageway, culvert(s) and outfall(s), and

| Description of Potential Impact | Fluvial geomorphology | WFD ‘Physical Condition’ parameter status: Moderate. Predominantly cobble bed with | Medium | All options | Moderate | Moderate | Refer to mitigation recommended for SWF 02 |

<p>| Written by: | | | | | | | | |</p>
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<tr>
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<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>part channel realignment.</td>
<td></td>
<td>depositional features. Diversity of flow types. Predominantly straight planform.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of construction of carriageway, culvert(s) and outfall(s), and part channel realignment.</td>
<td>Water quality/supply</td>
<td>WFD water quality status: Good. Surrounding land-use: urban, residential and agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td></td>
<td>Dilution and removal of waste products</td>
<td>No licensed discharge consents identified in SEPA data. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td></td>
<td>Biodiversity</td>
<td>WFD overall ecological status (Cairnlaw Burn): Moderate Fisheries status: not designated.</td>
<td>Medium</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
<td>Refer to mitigation recommended for SWF 02.</td>
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<tr>
<td>SWF 09: Indirect tributary of Cairnlaw Burn</td>
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<tr>
<td>All options: Potential upstream propagation of water into the SWF 09 catchment as the Scheme impacts SWF 08 a watercourse located approximately 260m downstream of SWF 09 confluence with SWF 10.</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a very small catchment. Receives water from at least one direct tributary. Within PVA 01/20. Receptors: 1-10 (approx.) residential properties (in upper reaches); Farm land; and Highland Main Line. This watercourse is just outside the boundary of the proposed Stratton Development.</td>
<td>Medium</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td>Refer to mitigation recommended for SWF 01.</td>
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<tr>
<td>SWF 10: Tributary of Cairnlaw Burn (1)</td>
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### Description of Potential Impact

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<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>All options: Construction of carriageway near SWF. Potential upstream propagation of water into the SWF 10 catchment as the route options impact SWF 08 in the vicinity of / downstream of the SWF 10/SWF 08 confluence.</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small catchment. Receives water from at least four direct tributaries. Within PVA 01/20. Receptors: • Approx. 50 residential properties; • Local road network; • Farm land; and • Highland Main Line. The proposed Stratton Development is located within the lower reaches of the SWF 10 catchment.</td>
<td>High</td>
<td>All options</td>
<td>Minor</td>
<td>Slight</td>
</tr>
<tr>
<td>All options: Temporary increase in fine sediment as a result of construction of carriageway.</td>
<td>Fluvial geomorphology</td>
<td>WFD hydromorphology parameter status: not classified. Cobble substrate and depositional features including side bars. Rippled flow and vegetated riparian buffer.</td>
<td>Medium</td>
<td>All options</td>
<td>Minor</td>
<td>Slight</td>
</tr>
<tr>
<td>Change in water quality due to potential siltation, pollution runoff, spillages, erosion and sedimentation as a result of construction of carriageway.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: residential, agriculture and forestry. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td></td>
<td>No licensed discharge consents identified in SEPA data. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>Medium</td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Biodiversity</td>
<td></td>
<td>WFD overall ecological status: not</td>
<td>High</td>
<td>All</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
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</tr>
<tr>
<td>SWF 11: Tributary of Cairnlaw Burn (2)</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a very small catchment. Does not receive flow from any tributaries. Within PVA 01/20. Receptors: • Grounds of former hotel; • Farm land; and • Woodland. SWF 11 is on the boundary of the Stratton Development.</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
</tr>
<tr>
<td>SWF 12: Kenneth's Black Well</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small catchment. Receives water from at least three direct tributaries. Within PVA 01/20. The Smithton and Culloden Flood Alleviation Scheme is proposed within the upper reaches of this catchment. Receptors: • Residential properties (approx. 50); • Local road network; • Grounds of a school; • Farm land; and • Highland Main Line.</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Water</td>
<td>Protected by Drinking Water</td>
<td>High</td>
<td>All</td>
<td>Major</td>
<td>Large</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
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<td>Sensitivity</td>
<td>Route Option</td>
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<td>Significance</td>
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</tr>
<tr>
<td>construction of carriageway.</td>
<td>quality/supply</td>
<td>Protection Area. Various abstractions identified within the study area from SEPA data.</td>
<td></td>
<td>options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soakaway</td>
<td></td>
<td>Various discharges to groundwater.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
</tr>
<tr>
<td>Vulnerability</td>
<td></td>
<td>Aquifer classified as having minor or moderate permeability. WFD overall groundwater status classified as ‘Good’.</td>
<td>High</td>
<td>All options</td>
<td>Major</td>
<td>Large</td>
</tr>
</tbody>
</table>
### Table 2: Summary of Impacts on SWFs during Operation and Potential Mitigation

<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>SWF 01: Mill Burn</strong></td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small sized catchment. Receives water from at least two direct tributaries. The watercourse is within PVA 01/21. Receptors:</td>
<td>Very High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td>None required.</td>
</tr>
<tr>
<td>All options: no potential impacts identified for this surface water feature.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SWF 02: Inshes Burn</strong></td>
<td>Hydrology and Flood Risk</td>
<td>Drains a small catchment. Receives water from at least three direct tributaries. Receptors:</td>
<td>Very High</td>
<td>Options 1A, 1B, 2A, 2B</td>
<td>Moderate</td>
<td>Large</td>
<td>SUDS system designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50%AEP (1 in 2 year return period) flood event. Appropriate culvert sizing and flood mitigation as identified in detailed design</td>
</tr>
<tr>
<td>Options 1A, 1B, 2A, 2B: Potential alterations to flood risk due to: construction of a new culvert and realignment of the watercourse. Possible loss of flood storage due to road construction. All options: Increased impervious surfaces due to carriageway near SWF. Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage and due to one road drainage outfall discharging to SWF 02. Possible loss of flood storage due to road construction.</td>
<td></td>
<td></td>
<td></td>
<td>Options 3A, 3B</td>
<td>Minor</td>
<td>Moderate</td>
<td></td>
</tr>
</tbody>
</table>
### Description of Potential Impact

<table>
<thead>
<tr>
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<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment as a result of new carriageway Options 1A, 1B, 2A and 2B: Potential for alterations to flow and sediment regime due to culvert, outfall and part channel realignment. Changed channel morphology due to increase of artificial bed and bank material associated with structures and channel realignment.</td>
<td>Vegetation, extensively realigned with a trapezoidal cross section and reinforced banks. The channel was culverted under several roads.</td>
<td>3B</td>
<td>Moderate</td>
<td>Slight</td>
<td>on culverting of watercourses, bank protection, intakes and outfalls and river crossings (SEPA, 2006; SEPA, 2012; SEPA, 2008; SEPA, 2010). Consult with a geomorphologist at design phase to incorporate the following: Minimise the length of realignment, culvert and number of in-channel structures. Ensure in-channel structures are positioned correctly to minimise scour and alterations to natural flow. Maintain gradient and length of water feature to prevent siltation through culvert/realigned channel or scour around in-channel structures. Where possible, maintain sinuosity of channel and create natural bed and identify other possible improvements to water feature morphology and habitats.</td>
<td></td>
</tr>
<tr>
<td>All options: Change in water quality due to operation of single outfall.</td>
<td>Water quality/supply Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: urban, residential and agriculture; forestry upstream. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>Options 1A, 1B, 2A and 2B</td>
<td>Moderate</td>
<td>Large</td>
<td>Provide suitable form of treatment for routine runoff prior to outfall. Ensure outfall and method of treatment are appropriately maintained.</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
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<td>Route Option</td>
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</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td>CAR licence for combined sewer overflow from residential property. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>High</td>
<td>Options 1A, 1B, 2A and 2B</td>
<td>Moderate</td>
<td>Large</td>
<td>Options 3A and 3B</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>WFD overall ecological status: not classified. 'Moderate' equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
<td>Options 1A, 1B, 2A and 2B</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Options 3A and 3B</td>
</tr>
</tbody>
</table>

**SWF 03: Tributary of Scretan Burn (1)**

**Hydrology and Flood Risk**

- Drains a small catchment.
- Receptors:
  - More than 10 residential properties, including some at Inshes Smallholdings identified as particularly flood-sensitive by consultation responses;
  - A9;
  - Local road network;
  - Highland Main Line;
  - Inverness Retail and Business Park;
  - Inverness College (University of the Highlands and Islands); and
  - Farm land.

- Options 2A and 2B: Potential alterations to flood risk due to channel realignment.

- All options: Increase in runoff and fine

**Fluvial**

- Small channel with predominantly straight
<table>
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<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>sediment as a result of new carriageway. Potential for alterations to flow and sediment regime due to culvert and outfall. Changed channel morphology due to increase of artificial bed and bank material associated with structures. Options 2A and 2B: Potential for alterations to flow and sediment regime due to realignment. Changed channel morphology due to realignment.</td>
<td>geomorphology</td>
<td>planform. Uniform cross-section with some variability in flow types. Some woody material present. Channel is embanked on both banks and appears to be overdeep for the majority of its course.</td>
<td></td>
<td>All options</td>
<td></td>
<td></td>
<td>recommended for SWF 02.</td>
</tr>
<tr>
<td>All options: Change in water quality due to operation of single outfall.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. 'Good' water quality assumed. Surrounding land-use: urban, residential and agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Minor</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td>CAR licence for a discharge from Inverness College UHI campus. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>High</td>
<td>All options</td>
<td>Minor</td>
<td>Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Not classified under WFD. 'Moderate status' ecological quality equivalent assumed.</td>
<td>Medium</td>
<td>All options</td>
<td>Minor</td>
<td>Slight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWF 04: Scretan Burn</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small catchment. Receives water from at least five direct tributaries. Receptors: • 50-100 (approx.) residential</td>
<td>Very High</td>
<td>All options</td>
<td>Moderate</td>
<td>Large</td>
<td>SUDS system designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50%AEP (1 in 2 year return period) flood event. Appropriate culvert sizing and</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
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<td>Potential Mitigation</td>
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<td>due to road drainage and due to one road drainage outfall discharging to SWF 04. Loss of flood storage due to road construction. Road constructed across some areas identified by SEPA flood maps as being within the 0.5% AEP (1 in 200 year event) flood extent outline. Increased impervious surfaces due to carriageway near SWF.</td>
<td>properties; • Inverness Retail and Business Park; • A96 Aberdeen – Inverness Trunk Road; • Local road network; • Highland Main Line; and • Farm land. The Stratton Development is proposed to be located in the lower reaches of this watercourse, in the vicinity of the A96 Aberdeen – Inverness Trunk Road.</td>
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<td>flood mitigation as identified in detailed design</td>
</tr>
<tr>
<td>All options: Increase in runoff and fine sediment as a result of new carriageway Potential for alterations to flow and sediment regime due to two culverts and outfall. Changed channel morphology due to increase of artificial bed and bank material associated with structures.</td>
<td>Fluvial geomorphology</td>
<td>WFD hydromorphology parameter status: not classified. Channel choked with vegetation and extensively realigned. Bed substrate consisting of fine/coarse gravels, some variability in flow types. Areas of erosion and deposition creating a varied bank structure.</td>
<td>Medium</td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>All options: Change in water quality due to operation of single outfall.</td>
<td>Water quality/supply</td>
<td>WFD water quality status: Good. Surrounding land-use: urban, residential, agriculture and forestry. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td>Three CAR licences identified: emergency overflow; septic tank effluent; and sewage treatment works final effluent. Potential additional pollutant sources: road and railway drainage and diffuse</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
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<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
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<td>Sensitivity</td>
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<td>Potential Mitigation</td>
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<tr>
<td><strong>Biodiversity</strong></td>
<td></td>
<td>WFD overall ecological status (Cairnlaw Burn): Moderate Fisheries status: not designated.</td>
<td>Medium</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td><strong>SWF 05: Tributary of Scretan Burn (2)</strong></td>
<td>All options:</td>
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<td></td>
<td>Potential alterations to flood risk due to construction of a new culvert and stretches of channel realignment. Increased impervious surfaces due to carriageway near SWF. Potential impact to flow due to possible alteration to area draining to the watercourse due to road. Possible loss of flood storage due to road construction. Options 1B, 2B and 3B: Road constructed across some areas identified by SEPA flood maps as being within the 0.5% AEP (1 in 200 year event) flood extent outline.</td>
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<td></td>
<td>All options:</td>
<td>Increase in runoff and fine sediment as a result of new carriageway Potential for alterations to flow and sediment regime due to culvert and realignment. Changed channel morphology due to increase of artificial bed and bank material associated with structures and realignment.</td>
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<tr>
<td></td>
<td>Hydrology and Flood Risk</td>
<td>Drains a small catchment. Receptors: - Approximately 7 residential properties; - Local road network; - Highland Main Line; and - Farm land.</td>
<td>High</td>
<td>All options</td>
<td>Moderate</td>
<td>Large</td>
<td>Appropriate culvert sizing and flood mitigation as identified in detailed design</td>
</tr>
<tr>
<td></td>
<td>Fluvial geomorphology</td>
<td>Small drainage channel with straight planform and trapezoidal cross-section. Channel is embanked on both banks.</td>
<td>Low</td>
<td>All options</td>
<td>Moderate</td>
<td>Slight</td>
<td>Adhere to guidance set by SEPA on culverting of watercourses, bank protection and river crossings (SEPA, 2006; SEPA, 2012; SEPA, 2010). Consult with a geomorphologist at design phase to incorporate the following: Minimise the length of realignment and culvert.</td>
</tr>
</tbody>
</table>
## Description of Potential Impact

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrology and Flood Risk</strong></td>
<td>Drains a very small catchment. Receptors:</td>
<td>Low</td>
<td>Options 1A, 2A, 3A</td>
<td>Negligible</td>
<td>Neutral</td>
<td>Appropriate culvert sizing and flood mitigation as identified in detailed design</td>
</tr>
<tr>
<td></td>
<td>• Farm land</td>
<td></td>
<td>Options 1B, 2B, 3B</td>
<td>Moderate</td>
<td>Slight</td>
<td></td>
</tr>
<tr>
<td><strong>Fluvial geomorphology</strong></td>
<td>Small field drain with a straight planform and silt substrate. Channel is dominated by terrestrial grass in several sections.</td>
<td>Low</td>
<td>All options</td>
<td>Minor</td>
<td>Neutral</td>
<td>Incorporate appropriate sediment retention methods and SUDS such as attenuation ponds, swales or soakaways to reduce delivery of fine sediment and peak flows.</td>
</tr>
</tbody>
</table>
### SWF 07: Un-named drain

**Options 1A, 2A and 3A:**
- Increased impervious surfaces due to carriageway near SWF.
- Potential alterations to flood risk due to construction of a new culvert.
- Potential catchment severance as the road cuts across the catchment.
- Possible loss of flood plain storage due to road construction.
- Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage and to one road drainage outfall discharging to SWF 07.

**Description of Potential Impact**

**Attribute**

**Indicator of Quality**

**Sensitivity**

**Route Option**

**Magnitude**

**Significance**

**Potential Mitigation**

Consult with a geomorphologist at design phase to incorporate the following:
- Minimise the length of realignment.
- Maintain gradient and length of water feature to prevent siltation through realigned channel.
- Where possible, maintain sinuosity of channel and create natural bed and identify other possible improvements to water feature morphology and habitats.

**Hydrology and Flood Risk**

- Drains a very small catchment. On the edge of PVA 01/20.
  - Receptors:
    - Farm land; and
    - Local road.
  - The Stratton Development is proposed to be located in the SWF 07 catchment in the vicinity of the A96 Aberdeen – Inverness Trunk Road and the route options.

<table>
<thead>
<tr>
<th>Option 1A, 2A, 3A</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options 1A, 2A, 3A</td>
<td>Moderate</td>
<td>Neutral</td>
<td>SUDS system designed to limit road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (1 in 2 year return period) flood event. Appropriate culvert sizing and flood mitigation as identified in detailed design.</td>
</tr>
</tbody>
</table>

**Fluvial geomorphology**

- Consists of one road drain and a small field drain. Channel planform was straight and overgrown with brambles.

<table>
<thead>
<tr>
<th>Option 1A, 2A and 3A</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options 1A, 2A, 3A</td>
<td>Moderate</td>
<td>Slight</td>
<td>Adhere to guidance set by SEPA on culverting of watercourses, bank protection, intakes and outfalls and river crossings</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
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<tr>
<td>and outfall. Changed channel morphology due to increase of artificial bed and bank material associated with structures.</td>
<td></td>
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</tr>
<tr>
<td>Options 1A, 2A and 3A: Change in water quality due to operation of single outfall.</td>
<td>Water quality/supply</td>
<td>Not classified under WFD. ‘Good’ water quality assumed. Surrounding land-use: agriculture. No licensed water abstractions identified in SEPA data.</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Dilution and removal of waste products</td>
<td>No licensed discharge consents identified in SEPA data.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Biodiversity</td>
<td>WFD overall ecological status: not classified. ‘Moderate’ equivalent assumed. Fisheries status: not designated.</td>
<td>Medium</td>
</tr>
<tr>
<td>SWF 08: Cairnlaw Burn</td>
<td>All options:</td>
<td>Hydrology and Drains a medium catchment.</td>
<td>Very High</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
<th>Attribute</th>
<th>Indicator of Quality</th>
<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased impervious surfaces due to carriageway near SWF.</td>
<td>Flood Risk</td>
<td>Receives water from at least four direct tributaries. Within PVA 01/20. Receptors:</td>
<td></td>
<td>1A, 2A, 3A</td>
<td>Moderate</td>
<td>Large</td>
<td>road drainage outflow to the greenfield pre-development runoff rate of a 50% AEP (1 in 2 year return period) flood event. Flood storage mitigation requirements and provisions TBC.</td>
</tr>
<tr>
<td>Potential alterations to flood risk due to construction of one (1A, 2A, 3A) or two (1B, 2B, 3B) culverts.</td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B, 3B</td>
<td>Moderate</td>
<td></td>
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</tr>
<tr>
<td>Potential impact to flood risk due to alteration to area draining to the catchment due to road drainage and due to one (1A, 2A, 3A) / two (1B, 2B, 3B) road drainage outfall(s) discharging to SWF 08.</td>
<td></td>
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<tr>
<td>Potential alterations to flood risk due to swales in close proximity to the watercourse.</td>
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<tr>
<td>Loss of flood storage due to road construction. Road constructed across some areas identified by SEPA flood maps as being within the 0.5% AEP (1 in 200 year event) flood extent outline.</td>
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<tr>
<td>Potential Increase in flood risk due to channel realignment. Extensive realignments proposed for options 1A, 2A, and 3A.</td>
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<tr>
<td>All options: Increase in runoff and fine sediment as a result of new carriageway.</td>
<td>Fluvial geomorphology</td>
<td>WFD ‘Physical Condition’ parameter status: Moderate. Predominantly cobble bed with depositional features. Diversity of flow types. Predominantly straight planform.</td>
<td>Medium</td>
<td>All options</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Refer to mitigation recommended for SWF 02.</td>
</tr>
<tr>
<td>Potential for alterations to flow and sediment regime due to culvert(s), outfall(s) and realignments. Changed channel morphology due to increase of artificial bed and bank material associated with structures and realignment.</td>
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<tr>
<td>All options: Change in water quality due to</td>
<td>Water</td>
<td>WFD water quality status: Good.</td>
<td>High</td>
<td>Options 1A, 2A</td>
<td>Minor</td>
<td>Slight</td>
<td>Refer to mitigation</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
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<td>Route Option</td>
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<tr>
<td>operation of outfall(s).</td>
<td>quality/supply</td>
<td>Surrounding land-use: urban, residential and agriculture. No licensed water abstractions identified in SEPA data.</td>
<td></td>
<td>Options 1B, 2B and 3B</td>
<td>Moderate</td>
<td>Large</td>
<td>recommended for SWF 02.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3A</td>
<td>Negligible</td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Dilution and removal of waste products</td>
<td></td>
<td>No licensed discharge consents identified in SEPA data. Potential additional pollutant sources: road and railway drainage and diffuse urban/rural sources.</td>
<td>Medium</td>
<td>Options 1A, 2A and 3A</td>
<td>Negligible</td>
<td>Neutral</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3A</td>
<td>Moderate</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Biodiversity</td>
<td></td>
<td>WFD overall ecological status (Cairnlaw Burn): Moderate Fisheries status: not designated.</td>
<td>Medium</td>
<td>Options 1A, 2A and 3A</td>
<td>Minor</td>
<td>Slight</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Options 1B, 2B and 3A</td>
<td>Moderate</td>
<td>Moderate</td>
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</tbody>
</table>

**SWF 09: Indirect tributary of Cairnlaw Burn**

All options: Potential upstream propagation of water into the SWF 09 catchment as the route options impact SWF 08 a watercourse located approximately 260m downstream of SWF 09 confluence with SWF 10.

**Hydrology and Flood Risk**

Drains a very small catchment. Receives water from at least one direct tributary. Within PVA 01/20. Receptors:
- 1-10 (approx.) residential properties (in upper reaches);
- Farm land; and
- Highland Main Line.

This watercourse is just outside the boundary of the proposed Stratton Development.

Medium | All options | Minor | Slight | Measures to mitigate any upstream propagation of water from the SWF 08 catchment need to be assessed and if relevant appropriate mitigation measures investigated.
## Description of Potential Impact

<table>
<thead>
<tr>
<th>Description of Potential Impact</th>
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<th>Sensitivity</th>
<th>Route Option</th>
<th>Magnitude</th>
<th>Significance</th>
<th>Potential Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWF 10: Tributary of Cairnlaw Burn (1)</td>
<td>All options: Increased impervious surfaces due to carriageway near SWF. Potential upstream propagation of water into the SWF 10 catchment as the route options impact SWF 08 in the vicinity of / downstream of the SWF 10/SWF 08 confluence.</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a relatively small catchment. Receives water from at least four direct tributaries. Within PVA 01/20. Receptors: • Approx. 50 residential properties; • Local road network; • Farm land; and • Highland Main Line. The proposed Stratton Development is located within the lower reaches of the SWF 10 catchment.</td>
<td>High</td>
<td>All options</td>
<td>Minor</td>
<td>Slight</td>
</tr>
<tr>
<td>SWF 11: Tributary of Cairnlaw Burn (2)</td>
<td>All options: Increase in runoff and fine sediment as a result of new carriageway.</td>
<td>Fluvial geomorphology</td>
<td>WFD hydromorphology parameter status: not classified. Cobble substrate and depositional features including side bars. Rippled flow and vegetated riparian buffer.</td>
<td>Medium</td>
<td>All options</td>
<td>Minor</td>
<td>Slight</td>
</tr>
<tr>
<td>SWF 11: Tributary of Cairnlaw Burn (2)</td>
<td>All options: no potential impacts identified for this surface water feature.</td>
<td>Hydrology and Flood Risk</td>
<td>Drains a very small catchment. Does not receive flow from any tributaries. Within PVA 01/20. Receptors: • Grounds of former hotel; • Farm land; and • Woodland. The proposed Stratton Development is</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
</tr>
<tr>
<td>Description of Potential Impact</td>
<td>Attribute</td>
<td>Indicator of Quality</td>
<td>Sensitivity</td>
<td>Route Option</td>
<td>Magnitude</td>
<td>Significance</td>
<td>Potential Mitigation</td>
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<td>located within the SWF 11 catchment.</td>
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<td>SWF 12: Kenneth’s Black Well</td>
<td></td>
<td><strong>Hydrology and Flood Risk</strong>&lt;br&gt;Drains a relatively small catchment.&lt;br&gt;Receives water from at least three direct tributaries.&lt;br&gt;Within PVA 01/20.&lt;br&gt;The Smithton and Culloden Flood Alleviation Scheme is proposed within the upper reaches of this catchment.&lt;br&gt;Receptors:&lt;br&gt;• Residential properties (approx. 50);&lt;br&gt;• Local road network;&lt;br&gt;• Grounds of a school;&lt;br&gt;• Farm land; and&lt;br&gt;• Highland Main Line.</td>
<td>High</td>
<td>All options</td>
<td>Negligible</td>
<td>Neutral</td>
<td>None required.</td>
</tr>
</tbody>
</table>