Appendix A11.1 Baseline Conditions

1 Introduction

1.1.1 This Appendix provides a detailed description of the baseline conditions of the water features (WF) referred to in Chapter 11 (Road Drainage and the Water Environment) and shown on Figures 11.1 and 11.2. Water features are discussed from south to north along the proposed scheme.

1.1.2 Sensitivity has been assigned based on the sensitivity criteria provided in Table 11.5 of Chapter 11 (Road Drainage and the Water Environment). For Scottish Environment Protection Agency (SEPA) classified water features, this is based upon 2015 classification data available on the SEPA Water Environment Hub (SEPA, 2016). Where no information was available, professional judgement was used to assign sensitivity based on site observations and other sources of information as listed in Section 11.2 (Approach and Methods) of Chapter 11 (Road Drainage and the Water Environment). The parameter 'Water supply' was only included where a public or private water supply is present. Potential pollutant sources under 'Water Quality' have been identified during site surveys and supplemented by potentially contaminated land sources (with their corresponding reference) detailed in Chapter 10 (Geology, Soils, Contaminated Land and Groundwater).

1.1.3 Numerical hydraulic modelling has been undertaken for a few selected high risk watercourses. Culvert assessments have been undertaken for all other watercourses which cross the existing A9. This has been undertaken in accordance with guidance outlined in CIRIA C689 (2010). Simple routing models have been employed if the hand calculations indicated the watercourse went out of bank for the design simulation, suggesting some risk of flooding. The culvert assessments have been carried out in order to assess:

- whether the existing culverts are likely to be capable of conveying the 0.5% Annual Exceedance Probability (AEP) (200-year) plus an allowance for climate change (plus CC) design flood flow;
- to give an indication of whether out of bank flow occurs upstream of the culverts during the design simulation; and
- to assess whether the A9 is likely to be at risk of flooding.

1.1.4 Further details on the baseline condition can be found in the Flood Risk Assessment in Appendix A11.3.

1.1.5 Further baseline information on the structures crossing water features is reported in Appendix A11.8 (Watercourse Crossings Report).

Table 1: River Garry (WF100) Errochty Water confluence to Loch Faskally (Lower Reach)

Overview	
 **Photograph 1: WF100 (River Garry) lower reach – view upstream from bridge at Killiecrankie.**	 **Photograph 2: WF100 (River Garry) lower reach – view upstream of Pitaldonich Underbridge.**
Water feature type	Very large watercourse
Catchment area	745km^2 (to Killiecrankie Gauging Station)
Key hydraulic connections	Tributary to the Tummel, which is a tributary of the River Tay
Surrounding land use	Predominantly agricultural (arable and pasture), woodland, forestry and numerous settlements along this reach
SEPA overall status:	Good Ecological Potential

Description of Specific Baseline Conditions	**Sensitivity**
Hydrology and Flood Risk	
The River Garry is classified as a principal watercourse. Along the lower reach, the 0.5% AEP (200-year) functional floodplain extent shown on the SEPA Flood Map is narrow as flow is constrained by steep valley sides. There are only a few locations showing an extensive floodplain. The areas with greatest flood risk have been subject to detailed hydraulic modelling as part of this study. As part of this modelling an allowance for climate change (CC) was included in the 0.5% AEP (200-year) event. Where modelled, more flooding is expected during the 0.5% AEP (200-year) plus CC event than suggested by the SEPA flood map. However, the additional flooded areas are located on natural floodplains around confluences of tributaries, including WF115 (Allt Bhaic) and WF171 (Banvie Burn) and the WF173 (River Tilt) through Blair Atholl. Few properties lie within or close to the floodplain extent shown on the SEPA Flood Map and the modelled flood extents for this study along the River Garry in this section. Areas of greatest risk include those properties close to the floodplain in Blair Atholl. During the 0.5% AEP (200-year) flood event, it is estimated that flooding impacts primarily on open agricultural land. Hydraulic modelling undertaken as part of this study does however show that the Highland Main Line railway is at risk of overtopping at Kingsisland, immediately upstream of the Essangal Underbridge, and also between WF115 (Allt Bhaic) and Blair Atholl (over a longer stretch than the SEPA flood map suggests). The existing A9 is also overtopped immediately upstream of WF115 (Allt Bhaic) by the 0.5% AEP (200-year) plus CC flood event. The SEPA Surface Water (pluvial) Flood Map shows small scattered areas identified at risk of pluvial flooding during a 0.5% AEP (200-year) rainfall event in the vicinity of the River Garry and its floodplain. Notable locations in the vicinity of the existing A9 road include in / on the edge of the River Garry floodplain near Tomban, near WF115 (Allt Bhaic) confluence with the River Garry and near Balnastuartach. Small areas of pluvial flood risk are also shown near/in the River Garry and its floodplain around Blair Atholl, Kingsisland and Killiecrankie. The existing risk of flooding from these areas is discussed in Chapter 5 of the Flood Risk Assessment (FRA).	Very High
Fluvial Geomorphology	
Water Framework Directive (SEPA) physical condition status: Good The lower reach of the River Garry has an actively meandering channel with a bedrock and cobble bed and river terraces present in floodplain. The channel is bordered on both banks by a steep valley. There are large depositional features throughout. The watercourse is crossed by the existing A9 clear-span bridge at Essangal and near Pitagowan. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High

Water quality	
SEPA water quality status: Good (2015) Potential pollutant sources: • Diffuse rural sources including suspended sediment from forestry and biological pollutants from grazing livestock; • Diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse and railway use (KP-C2 Highland Main Line railway – within 5m of watercourse at points); • KP-C14 Old Quarry with potential for contaminants associated with historic activity – 10m from watercourse; • KP-C15 Shierglas Quarry with potential for contaminants associated with historic and current site activity – 60m from watercourse, however direct flow path via WF101; • KP-C16, KP-C18, KP-C22 Old Lime kilns with potential for contaminants associated with historic activity – within 10m, 30m and 20m of watercourse respectively; • KP-C17 Old Quarry with potential for contaminants associated with historic activity – within10m of watercourse; • KP-C21 Quarry with potential for contaminants associated with infill material – within 20m of watercourse; • KP-C26 Tanks with unknown contents, therefore a potential spillage risk – within 10m of watercourse; • KP-C44, KP-C47, KP-C49 and KP-C51 with potential for contaminants from septic tanks – within 40m, 50m, 20m and 30m of watercourse respectively; and • PGG-C7 Sand and Gravel pit (disused) potentially infilled with made ground of unknown composition with associated sources of potential contamination – within 80m of watercourse however direct flow path via WF125.	High
Water Supply	
Water Supply Abstractions: abstractions by Shierglas Quarry from River Garry (pass through existing culvert of WF101 (see photograph 21)).	High
Dilution and Removal of Waste Products	
Medium to high dilution capacity (Q95 approx. 3.0 m³/s at Killiecrankie gauging station (NGR NN 900 635)) CAR Discharges: • point source discharge of final effluent from Killiecrankie Sewage Treatment Works (NN 91205 62745), Blair Atholl Sewage/Waste Water Treatment Works (NN 88078 64482) and Shierglas Quarry (NN 88399 64408); • point source discharge from combined sewer overflow and emergency overflow from Blair Atholl Sewage/Waste Water Treatment Works (NN 88078 64482) and combined sewer overflow from Garryside (NN 87170 64940); • point source discharge of septic tank effluent from one domestic property (NN 90480 63269); and • diffuse source discharge of septic tank effluent to soakaways from two domestic properties within 50m of watercourse (NN 89170 64310, NN 86942 65180).	Low
Biodiversity	
SEPA overall ecological status: Moderate. Presence of Atlantic salmon, trout and brook lamprey (International importance in Chapter 12 (Ecology and Nature Conservation) Within River Tay SAC.	Very High

Table 2: WF100 (River Garry) Reaches: Garry Intake to Errochty Water confluence (Upper Reach)

Overview	
 **Photograph 3: WF100 (River Garry) upper reach – view downstream from confluence with WF140.**	 **Photograph 4: WF100 (River Garry) upper reach – view upstream at confluence with Allt Anndeir (WF158).**
Water feature type	Very large watercourse
Catchment area	375km^2
Key hydraulic connections	Tributary to the River Tay via lower reach.
Surrounding land use	Predominantly agricultural (pasture and arable), moorland in the upper catchment, woodland and forestry, some settlements.
SEPA overall status	Bad Ecological Potential

Description of Specific Baseline Conditions	**Sensitivity**
Hydrology and Flood Risk	
The River Garry is classified as a principal watercourse. The upper reach of the River Garry between the Errochty Water (at the downstream end) and the Allt Carn na Saidhe (at the upstream end) is constrained by the steep topography of the valley sides. As a result, the 0.5% AEP (200-year) floodplain extent shown on the SEPA Flood Map is narrow with little natural floodplain extent. There is potentially one property at risk at Dalinturuaine (ch19200) and two properties on the edge of the SEPA Flood extent outline at some potential risk. No hydraulic modelling has been undertaken along this section of the River Garry as part of this assessment as the existing A9 lies comfortably outside of the floodplain, sufficiently raised above the river. The scheme is not expected to have an impact on the flood risk along this section for the 0.5% AEP (200-year) flood event. The SEPA Surface Water (pluvial) Flood Map shows small scattered areas identified at risk of pluvial flooding during the 0.5% AEP (200-year) rainfall event. Pluvial flood risk has been identified in small pockets in the vicinity of Calvine and Drochaid nah-Uinneige, in the floodplain around Clunes Lodge, around the River Garry floodplain and the Highland Main Line railway near Fiacail Ach Leathanaidh and around Dalnamein Lodge.	High
Fluvial Geomorphology	
Water Framework Directive (SEPA) physical condition status: Good The upper reach of the River Garry has an actively meandering gravel bed river with river terraces present in the floodplain. The river is bordered on both banks by a steep valley. The channel has large depositional features with a defined low flow channel. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: Good (2015). Potential pollutant sources: • diffuse rural sources including suspended sediment from forestry and biological pollutants from grazing livestock; • PGG-C10 Three Septic Tanks at Dalnamein Lodge within 50m of watercourse; and • diffuse runoff of contaminants associated with railway use (PGG-C1 Highland Main Line railway – crosses watercourse).	High

Dilution and Removal of Waste Products	
Restricted flow from Garry Intake to Errochty Water confluence, with increased flow after confluence. CAR Discharges: • point source discharge of septic tank effluent from Struan Inn Hotel (also referred to as The Struan Inn) (NN 80154 65707) and Struan Inn Caravan Park (also referred to as Calvine Caravan Park) (NN 80154 65707) (both licences listed as Sewage Treatment Works – Secondary Effluent).	Low
Biodiversity	
SEPA overall ecological status: Bad (2015) Existing pressures: barriers to fish migration (SEPA, 2014). Authority Area importance in Chapter 12 (Ecology and Nature Conservation). Flows into River Tay SAC but upper reach inaccessible from lower reach to migratory species due to the presence of the Struan Weir and large sections of bedrock cascades and waterfalls.	Medium

Table 3: WF84 (Allt Eachainn)

Overview	
 **Photograph 5: WF84 (Allt Eachainn) – view of bedrock cascades, immediately upstream of existing A9**	Water feature type: Medium watercourse Catchment area: 3.64km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Woodland, agriculture and moorland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The SEPA Flood Map identifies a potential direct risk of flooding from the Allt Eachainn to the existing A9, the B8079, and the Highland Main Line railway located downstream of the existing A9; however, this infrastructure is located on raised embankments and structures which are not reflected on the SEPA Flood Map. The watercourse is located within a steep sided valley upstream of the existing A9 and flows down a very steep hillside downslope of the existing A9. There is no direct flood risk to adjacent populated areas, and/or industrial premises during the design flood event. However, in the absence of information on existing crossing capacity, it is assumed there may be an indirect flood risk to critical infrastructure.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A channel with a sinuous planform, consisting of bedrock cascades and boulder and cobble step-pool sequences. The channel is culverted under the existing A9, B8079 road and Highland Main Line railway. Historical map analysis shows minimal change, with the planform remaining consistent since 1867. Historical change: erosion and deposition. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including suspended sediment from forestry and biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic and B8079 (KP-C1 Existing A9 – crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse); and • KP-C3 Killiecrankie Water Treatment Works with potential contaminants associated with historic and current site activities – watercourse flows through site.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to well-established bed, riparian habitat in lower reach and limited anthropogenic pressures in upper catchment. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) with good quality macroinvertebrate community present. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 4: WF87 (Troopers Den Burn)

Overview	
 **Photograph 6: WF87 (Troopers Den Burn) – view upstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 1.27km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Rough grazing, moorland and woodland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. According to the culvert capacity assessment, the existing A9 is not at risk from flooding as the existing A9 culvert flow capacity is much greater than the 0.5% AEP (200-year) plus CC peak flow. The Highland Main Line railway is also unlikely to be at risk from flooding due to it being significantly raised at this location by a viaduct.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. The watercourse typically has a sinuous planform upstream of the existing A9. Within the immediate vicinity of the existing A9 (upstream and downstream), the channel planform has been straightened, with a 1m wide uniform cross-section and gravel bed. Small field drains discharge into the watercourse. Downstream of the B8079, the channel is approximately 1.5m wide, with a step-pool sequence and a bedrock and cobble bed. The channel is culverted under the existing A9, B8079 and Highland Main Line railway. Historical change: no change. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic and B8079 (KP-C1 Existing A9 – crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse).	Medium
Water Supply	
Water Supply Abstractions: • KP-PWS1 supplying one to two properties for domestic/agricultural use. Pipeline connecting the source with the property(s) crosses the existing A9 – approx. NGR NN 91723 62905.	High
Dilution and Removal of Waste Products	
CAR Discharges: • point source discharge of septic tank effluent from two domestic properties (NN 91778 62994 and NN 91815 63007) (one CAR licence listed as Sewage Treatment Works).	Medium
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to well-established bed and riparian habitat, particularly in upstream reach. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but only partially accessible to migratory fish species.	Medium

Table 5: WF89 (Lower Allt Girnaig)

Overview	
 **Photograph 7: WF89 (Lower Allt Girnaig) – view downstream, facing away from B8079 overbridge**	 **Photograph 8: WF89 (Lower Allt Girnaig) – view of clear span A9 overbridge**
Water feature type	Medium watercourse
Catchment area	39.53km^2
Key hydraulic connections	Flows through Killiecrankie, under the existing A9, B8079 road and the Highland Main Line Railway before discharging into the River Garry.
Surrounding land use	Rough grazing, moorland, woodland and residential (settlement of Killiecrankie).
SEPA overall status	Moderate

Description of Specific Baseline Conditions	**Sensitivity**
Hydrology and Flood Risk	
The SEPA Flood Map does not identify a direct risk of flooding to critical infrastructure, including the existing A9, a minor road (B8079) or the Highland Main Line, as the watercourse is located within a steep sided valley and the surrounding infrastructure is located on raised embankments and structures. However, there are several residential properties on the edge of the SEPA flood extent, in close proximity to the watercourse. In the absence of more detailed information on existing flood risk, it is assumed these properties may be at risk from flooding during the 0.5% AEP (200-year) plus CC flood event. This watercourse is part of the River Tay SAC, and therefore has hydrological importance to sensitive and protected ecosystems of international status.	Very High
Fluvial Geomorphology	
SEPA physical condition status: High A large watercourse with a sinuous planform and a bedrock and boulder bed. The channel has steep banks and a step-pool sequence. Well vegetated riparian corridor measuring 20-30m on both banks consisting of coniferous trees. The channel is crossed by several bridges including the existing A9, B8079 and Highland Main Line railway. Historical mapping shows some evidence of localised lengths of erosion and deposition, as well as meander migration, particularly in the upstream reach. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: High (2015) Existing pressures: water abstraction. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic and B8079 (KP-C1 Existing A9 – crosses watercourse) railway use (KP-C2 Highland Main Line railway – crosses watercourse); • KP-C4 Saw Mill (disused) with potential for contaminants from historic activity – within 5m of watercourse; and • KP-C37 and KP-C38 with potential for contaminants from septic tanks – within 10m and within 20m of watercourse respectively.	Very High

Water Supply	
Water Supply Abstractions: • Designated Drinking Water Protected Area (DWPA) under The Water Environment (Drinking Water Protected Areas) (Scotland) Order 2007: Public Water Supply to settlements in the local area via Killiecrankie Water Treatment Works. • Intake for abstraction (CAR/L/1012664) is upstream of existing A9 at approximate NGR NN 92565 65072 (from consultation with Scottish Water – October 2016).	Very High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: Moderate (2015). Presence of trout and brook lamprey which have international importance in Chapter 12 (Ecology and Nature Conservation). Within River Tay SAC.	Very High

Table 6: WF92

Overview	
 **Photograph 9: WF92 – view downstream, towards existing A9**	Water feature type: Small watercourse
	Catchment area: 0.41km^2
	Key hydraulic connections: Discharges into lower reach of River Garry
	Surrounding land use: Woodland, rough grazing and arable agriculture

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The culvert capacity assessment indicates that WF92 poses an indirect flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert. Further modelling has indicated that during the 0.5% AEP (200-year) event, surcharged flows from the existing A9 culvert are diverted east towards Killiecrankie, posing a flood risk to several properties. Out of bank flow paths downstream of the existing A9 have also been identified as posing a flood risk to a property and the B8079 during the 0.5% AEP plus CC event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A channel with a predominantly straight planform and a step-pool sequence. The channel measures approximately 0.3m wide with a fine gravel and silt substrate. The channel is culverted under two local access roads, the existing A9, the B8079 and the Highland Main Line railway. Analysis of historical mapping shows that there has been very little change to the planform since first available records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic and B8079 (KP-C1 Existing A9 – crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse); and • KP-C39 Craigurrard with potential for contaminants from septic tanks – located on watercourse.	Medium
Water Supply	
Water Supply Abstractions: • KP-PWS14 and KP-PWS3 (approx. NGR NN 91235 63908 and NN 91164 63760 respectively). WF92 together with spring supply approximately three properties for domestic use, livestock and irrigation.	High
Dilution and Removal of Waste Products	
CAR Discharges: • Diffuse discharge from septic tank soakaway - within 50m of watercourse (NN 91090 63750).	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to established bed and interspersed riparian habitat. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but mostly inaccessible to migratory fish species.	Medium

Table 7: WF94

Overview	
 **Photograph 10: WF94 – view of the southernmost pond**	Water feature type: Drainage channel and artificial ponds Catchment area: 0.02km^2 Key hydraulic connections: Fed from the catchment directly downstream of the existing A9 and a small pipe from the northern side of the existing A9. Surrounding land use: Woodland and residential

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. WF94 is believed to connect to WF92 downstream of existing A9 crossing. Although there is one residential property approximately 10m away from this drainage channel, there is low risk of flooding from pond features due to the very small catchment size.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. Consists of two ponds which appear to be hydrologically connected by a small drain. The ponds appear to have become larger in size since first historical maps in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 – within 50m of drainage channel).	Low
Dilution and Removal of Waste Products	
CAR discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Largely ornamental with limited habitat. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 8: WF95

Overview	
 **Photograph 11: WF95 – view upstream, facing away from local access road**	Water feature type: Small watercourse
	Catchment area: 0.10km^2
	Key hydraulic connections: Discharges into WF96
	Surrounding land use: Woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. WF95 crosses the existing A9 and two local access roads and diverts into WF96 downstream of the existing A9. The culvert capacity assessment indicates that WF95 itself does not pose a flood risk to the existing A9 during 0.5 % (200-year) AEP plus CC flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified A field drain with a straight planform, and was dry at the time of survey. The substrate predominantly consisted of gravel and scattered cobble and the channel appeared to be narrowing in some reaches. The channel measured approximately 0.8m wide and considered to be incised.	Low
Water quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C5 Tank with unknown contents, therefore a potential spillage risk – within 10m of watercourse.	Medium
Water Supply	
Water Supply Abstractions: • KP-PWS5 (approx. source NGR NN 90828 64077). WF95 together with spring supply one property for domestic use.	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to extensive modification and lack of defined channel in lower reach. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Eventually flows into River Tay SAC via WF96 but mostly inaccessible to migratory fish species.	Low

Table 9: WF96

Overview	
 **Photograph 12: WF96 – view upstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.27km^2 Key hydraulic connections: Discharges into the lower reach of River Garry Surrounding land use: Woodland, rough grazing, moorland and residential

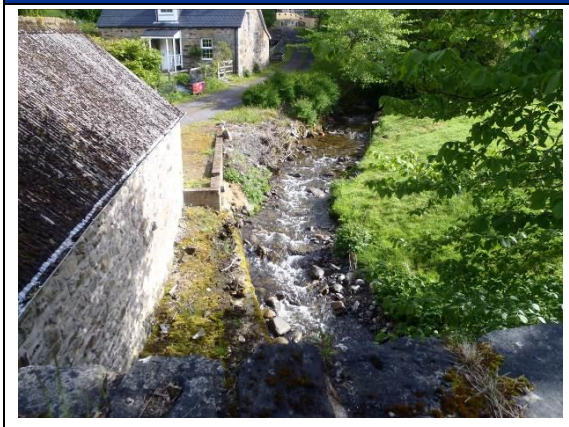
Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The culvert capacity assessment indicates that WF96 does not pose a direct flood risk to the existing A9 during 0.5 % AEP plus CC event, as surcharging flow from the culvert has been assessed as flowing beneath the A9 via an underpass for a minor road prior to re-entering the channel downstream of the A9. There are however several residential properties within 20m of the watercourse, downstream of the existing A9 crossing, which may be at risk from flooding during the design flood event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drainage channel with an average width of approximately 0.5m and a predominantly straight planform. The channel had a fine gravel bed with patches of silt. The flow was typically observed to be smooth. The channel is embanked for the majority of its length and is culverted under two local access routes, the existing A9, Highland Main Line railway and the B8079.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse); • KP-C40 Killeard House, KP-C59 Mains of Orchil and KP-C72 Lettoch with potential for contaminants from septic tanks – located on watercourse. within 30m and within 40m of watercourse respectively; • KP-C6 Urrard House Sand & Gravel Pit with potential for contaminants from historic use – within 30m of watercourse; and • KP-C8 Old Limekiln with potential for contaminants associated with historic activity – within 20m of watercourse.	Medium
Water Supply	
Water Supply Abstractions: • KP-PWS8 supplying approximately three properties for domestic use – supply at approx. NN 90681 64298.	High
Dilution and Removal of Waste Products	
CAR Discharges: • diffuse discharge from septic tank soakaway - within 10m of watercourse (NN 90490 63376).	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to established bed. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but mostly inaccessible to migratory fish species.	Medium

Table 10: WF97

Overview	
 **Photograph 13: WF97 – view downstream to inlet of existing culvert.**	Water feature type: Drainage channel Catchment area: 0.48km^2 Key hydraulic connections: Discharges into WF98 (Allt Chluain) downstream of the existing A9 Surrounding land use: Rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse passes through rough grazing land. The culvert capacity assessment indicates that flood flows during the 0.5% AEP (200-year) plus CC event will remain in-bank, and hence the watercourse does not pose a flood risk to the existing A9.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified A field drainage channel (measuring approximately 300m in length) which sinks approximately 250m north east of the existing A9. The channel was lined by a narrow strip of shrubs and scrub. Historical mapping shows that the watercourse previously flowed into the Allt Chluain (WF98); however, this connection was removed following the construction of the existing A9.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C61 Mains of Orchil with potential contaminants from a septic tank – within 50m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: • diffuse discharge from septic tank soakaway - within 50m of watercourse (NN 90477 64290).	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 11: WF98 (Allt Chluain)

Overview	
 **Photograph 14: WF98 (Allt Chluain) – view upstream of B8079**	Water feature type: Medium watercourse Catchment area: 7.43km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Woodland, rough grazing and residential

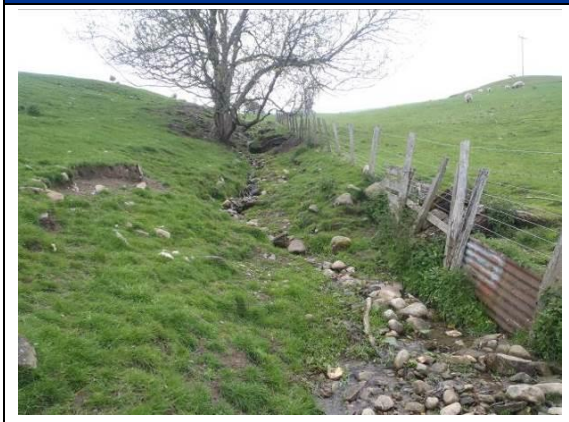
Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
WF98 (Allt Chluain) flows underneath the existing A9 towards Aldclune, before discharging into the River Garry. The channel flows alongside a local access road before crossing under the B8079 and the Highland Main Line railway. Areas of the B8079 and the Highland Main Line railway, and the existing A9, are shown within the SEPA 0.5% AEP (200-year) flood extent. However, the channel is steep and incised at these points and the A9 is significantly raised above the watercourse. There are three properties partly located within the SEPA flood extent and downstream of the existing A9 crossing.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. Watercourse with a relatively straight planform and a step-pool sequence. The substrate consisted of gravel and cobble, with some gravel and sand deposits. The channel was approximately 3.5m wide, with some areas of exposed bedrock. The channel is culverted under the B8079 and Highland Main Line railway and bridged by a local access road and the existing A9. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse); • KP-C10 and KP-C11 – Two old Limekilns with potential for contaminants associated with historic activity – both within 20m of watercourse; and • KP-C46 Drumlowan, KP-C45 Balchroic with potential for contaminants from septic tanks – located on watercourse and within 30m of watercourse respectively.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: • point source discharge of septic tank effluent from five domestic properties (NN 89999 63967, NN 89917 63780, NN 89898 63741, NN 89897 63729 and NN 89896 63719).	Medium
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established and largely intact riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not suitable for most fish species.	Medium

Table 12: WF99

Overview	
 **Photograph 15: WF99 – view upstream of confluence with River Garry**	Water feature type: Small watercourse Catchment area: 0.86km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. This watercourse does not intersect with the existing A9 before it discharges into the River Garry, therefore does not pose a flood risk during the 0.5 % AEP plus CC event to the A9.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain, approximately 0.5m wide, with a straightened planform. The watercourse was observed to have predominantly smooth flow and a silt and fine gravel substrate. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock with significant siltation in-channel.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality, particularly in lower reach due to silty bed and lack of riparian habitat. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 13: WF178

Overview	
 **Photograph 16: WF178 – view upstream, facing away from the existing A9 junction at Aldclune**	Water feature type: Small watercourse Catchment area: 0.37km^2 Key hydraulic connections: Discharges into lower reach of River Garry. Surrounding land use: Rough grazing/ agriculture.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The watercourse crosses under the B8079 just upstream of its confluence with the River Garry but does not intersect with the existing A9. WF178 passes through utilisable agricultural fields with one property located within approximately 35m. In the absence of detailed information on the existing culvert capacity under the side road and Highland Main Line, it is assumed that there could be a potential flood risk to the property.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small drainage channel approximately 0.8m wide with a straightened planform. The channel was embanked on both sides upstream of the A9. The channel is culverted under the existing A9, Highland Main Line railway, B8079 and local access route. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 junction and B8079 traffic (KP-C1 Existing A9 – junction link crosses watercourse) and railway use (KP-C2 Highland Main Line railway – crosses watercourse); and • KP-C13 Old Limekiln with potential for contaminants associated with historic activity – within 10m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: • point source discharge of septic tank effluent from one domestic property (NN 89328 64780).	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to minimal riparian corridor and artificial bed in lower reach. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 14: WF101

Overview	
 **Photograph 17: WF101 – view upstream, towards existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.78km^2 Key hydraulic connections: All channels and ponds converge to discharge via a single channel to the River Garry Surrounding land use: Industrial (Shierglas Limestone Quarry).

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map, and forms part of a quarry drainage network which crosses the A9. The culvert capacity assessment indicates the existing is not be at risk of flooding for the 0.5% AEP (200-year) plus CC event, with flows remaining in bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. Flows north through a network of quarry drainage channels and under the existing A9 and a local access track into the River Garry at Shierglas. Downstream of the quarry, the channel has reinforced bed and banks, with a uniform channel cross-section measuring an average width of 0.8m. Historical mapping shows that the watercourse historically flowed straight through the existing quarry prior to 1977 and had a sluice present (in the 1900s) upstream of Shierglas Farm.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); • KP-C15 Shierglas Quarry with potential for contaminants (alkaline) associated with historic and current site activity – located on water feature. Staining of the artificial bed, discolouration of water and suspended sediment noted during site visit; and • KP-C16 Old Limekiln with potential for contaminants associated with historic activity – located within 30m of watercourse.	Low
Water Supply	
Water Supply Abstractions: None, however abstractions by Shierglas Quarry from River Garry likely pass through existing culvert of WF101 (see photograph 21).	High
Dilution and Removal of Waste Products	
Discharges from Shierglas Quarry anticipated based on site observations. CAR Discharges: • diffuse discharge from septic tank soakaway from Shierglas Quarry - within 50m of watercourse (NN 88426 64227); and • point source discharge of final effluent from Shierglas Quarry into WF100 (River Garry) (NN 88399 64408). Potential to also discharge to WF101.	High
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 15: WF102

Overview	
 **Photograph 18: WF102 – view upstream, towards the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.54km^2 Key hydraulic connections: Discharges in to lower reach of River Garry Surrounding land use: Moorland, woodland and pasture.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The watercourse passes through moorland, woodland and pasture, crossing the A9 and discharging into the lower reach of the River Garry. This watercourse has been assessed by the culvert capacity assessment as not being a flood risk to the existing A9 for the 0.5% AEP (200-year) plus CC design flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a predominantly sinuous planform, step-pool sequence, and gravel and pebble substrate. The channel has a continuous vegetated riparian corridor on both banks consisting of trees, providing some stability to the banks. The channel is culverted under the existing A9 and a local access road and is crossed by a ford in the headwaters. Historic mapping shows that the planform of the watercourse has not changed significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C18 Old Limekiln with potential for contaminants associated with historic activity – watercourse flows through site.	Medium
Water Supply	
Water Supply Abstractions: PGG-PWS9 supplying approximately one property (Glackmore) for domestic use – supply at approx. NN 87419 64286.	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to established bed and riparian habitat upstream of existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 16: WF173 (River Tilt)

Overview	
No photograph (not accessed)	Water feature type: Large watercourse
	Catchment area: 234km^2
	Key hydraulic connections: Major tributary of River Garry.
	Surrounding land use: Pasture, moorland, woodland and urban development (lower catchment).
	SEPA overall status: Moderate

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
SEPA Flood Maps show direct flood risk to the adjacent populated area (in and around Blair Atholl, including in Old Bridge of Tilt and Middlebridge), with greater than 100 residential properties at risk during the 0.5% AEP (200-year) plus CC event. Critical infrastructure, including the Highland Main Line railway, the B8079 and local access roads, have also been identified as being at direct flood risk during the design event. This water feature is also within the River Tay SAC, and therefore has hydrological importance to sensitive and protected ecosystems of international status, making its sensitivity to flooding very high. Limited areas of surface water (pluvial) flood risk are also shown by the SEPA Flood Map for the 0.5% AEP (200-year) rainfall event in the vicinity and within the floodplain. Confluence with WF100 (River Garry) on the opposite bank to the existing A9.	Very High
Fluvial Geomorphology	
SEPA physical condition status: High (2015). A cobble-bed tributary of the River Garry. The channel had a sinuous planform and large cobble deposits. The watercourse has a semi-continuous tree lining along both banks. The channel is crossed by Highland Main Line railway bridge and a number of smaller foot bridges. Analysis of historical mapping shows that the River Tilt has undergone some lateral adjustment through erosion and deposition. Immediately upstream of the confluence with the River Garry, depositional features have shifted regularly since 1867.	High
Water Quality	
SEPA water quality status: Moderate (2015). Potential pollutant sources: • diffuse rural sources including suspended sediment inputs from forestry and biological pollutants from grazing livestock; • diffuse urban sources from settlement at Blair Atholl and B8079 road; and • diffuse run-off of contaminants associated with railway use (KP-C2 Highland Main Line railway – crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: • point source discharge of septic tank effluent from one domestic property (NN 87369 65133); and • further discharges outside of study area.	Low
Biodiversity	
SEPA overall ecological status: Moderate (2015). Within River Tay SAC.	Very High

Table 17: WF103

Overview	
 **Photograph 19: WF103 – view downstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.74km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Woodland and moorland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event with flow remaining in bank. There is however one property within approximately 20m of the watercourse which may be at risk of flooding during the design flood event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a slightly sinuous planform and a step-pool sequence. The channel has a pebble and cobble substrate with some sand deposits. The channel was incised, measuring approximately 1m wide. The channel is culverted under the existing A9 and a local access road. Analysis of historical mapping shows that the planform of WF103 has been subject to some alterations. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); • KP-C20 Old Limekiln with potential contaminants associated with historic activity – within 10m of watercourse; and • KP-C21 Quarry with potential for contaminants associated with infill material – within 30m of watercourse.	Medium
Water Supply	
Water Supply Abstractions: PGG-S2 supplying approximately one property (Garrybank) for domestic use – supply at approx. NN 87046 64721.	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to established bed and riparian corridor both upstream and downstream of existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 18: WF104

Overview	
 **Photograph 20: WF104 – view downstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.07km² Key hydraulic connections: Discharges into lower reach of River Garry. Surrounding land use: Woodland and moorland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km² and so is not included in the SEPA Flood Map. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. The channel has an average width of approximately 1.3m with a straight planform, step-pool sequence and a predominantly gravel substrate. The channel is culverted under the existing A9 and a local access track and is crossed by a ford in the upstream reach above the existing A9. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); • KP-C21 Quarry with potential for contaminants associated with infill material – within 30m of watercourse; and • KP-C22 Old Limekiln with potential contaminants associated with historic activity – located on watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to established bed and riparian corridor both upstream and downstream of existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but mostly inaccessible to migratory fish species.	Medium

Table 19: WF105

Overview	
 **Photograph 21: WF105 –view downstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.06km^2 Key hydraulic connections: Discharges into lower reach of the River Garry Surrounding land use: Woodland and moorland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse has been assessed by the culvert capacity assessment as not posing a flood risk to the existing A9 for the 0.5% AEP (200-year) plus CC design flood event, with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small woodland drain with an average width of approximately 0.3m. The channel substrate consisted predominantly of sand and fine gravel and is culverted under the existing A9. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • Diffuse rural sources including biological pollutants from grazing livestock; • Diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); • KP-C21 Disused Quarry with potential for contaminants associated with infill material – within 40m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to limited riparian corridor, lack of established bed and limited flow. Authority Area importance as stated in Chapter 12 (Ecology and Nature Conservation). Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 20: WF171 (Banvie Burn)

Overview	
No photograph (not accessed)	Water feature type: Medium watercourse
	Catchment area: 19.37km^2
	Key hydraulic connections: Tributary of River Garry
	Surrounding land use: Moorland, pasture, woodland and urban development.
	SEPA overall status: Moderate

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The SEPA Flood Map shows direct flood risk to adjacent populated areas, with between 1 and 100 residential properties (three within approximately 40m) at risk from flooding during the design 0.5% AEP (200-year) plus CC event. Critical social infrastructure units such as industrial premises located to the west of this watercourse, a hydroelectric power station, the B8079, the Highland Main Line railway, and local access roads are also all shown to be within the SEPA flood map extent and are therefore at direct risk of flooding during the design flood event. WF171 also poses a flood risk to the land in and around Blair Castle, which has important economic and social uses. This water feature is also within the River Tay SAC, and therefore has hydrological importance to sensitive and protected ecosystems of international status, making its sensitivity to flooding very high. Areas of surface water (pluvial) flood risk are shown by the SEPA Flood Map for the 0.5% AEP (200-year) rainfall event predominantly in the lower reaches of this watercourse.	Very High
Fluvial Geomorphology	
SEPA physical condition status: Good WF171 is a large watercourse with a predominantly straight planform with lengths of irregular meanders. The channel had a limited vegetated riparian corridor in the upstream reach and a continuous corridor consisting of trees in the downstream reach. The trees are likely to act to stabilise the banks where present. The channel is culverted under the Highland Main Line railway, B8079 road and several local access and forest tracks. Analysis of historical mapping shows that the Banvie Burn has undergone some lateral adjustment through erosion and deposition since 1867.	Medium
Water Quality	
SEPA water quality status: Moderate (2015). Potential pollutant sources: • diffuse run-off of contaminants associated with railway use (KP-C2 Highland Main Line railway – crosses watercourse); and • KP-C23 Blair Atholl Depot (with associated Saw Mill and waste transfer site) with potential contaminants associated with road and vehicle maintenance, industrial wastes, battery acids and waste household oils – within 10m of watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Medium
Biodiversity	
SEPA overall ecological status: Moderate (2015). Within River Tay SAC.	Very High

Table 21: WF106

Overview	
 **Photograph 22: WF106 – view downstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.21km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Rough grazing, scrub and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 and so is not included in the SEPA Flood Map. WF106 passes through rough grazing, scrub and woodland and has been assessed by the culvert capacity assessment as not being a flood risk to the existing A9 for the 0.5% AEP (200-year) plus CC design flood event. Out of bank flooding has been estimated to occur, however by less than 0.2m, causing no significant flooding.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain approximately 0.3m wide. The watercourse had rippled flow with fine gravel substrate. At the downstream reach (below the existing A9), the watercourse flows into a historical secondary channel of the River Garry which is approximately 2.5m wide with silt substrate. The channel is culverted under the existing A9. Historical map analysis shows erosion and deposition along the watercourse.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a lack of an established bed or riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 22: WF107

Overview	
 **Photograph 23: WF107 – view downstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.27km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Moorland and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. WF107 passes through moorland and woodland, and has been assessed by the culvert capacity assessment as not being a flood risk to the existing A9 for the 0.5% AEP (200-year) plus CC design flood event, with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small woodland drainage channel, approximately 0.2m wide, with a straight planform. The substrate typically consisted of sand and fine gravel. The watercourse does not appear on historical mapping until 1989.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed or riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 23: WF108

Overview	
 **Photograph 24: WF108 – view downstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse
	Catchment area: 0.16km^2
	Key hydraulic connections: Discharges into lower reach of River Garry
	Surrounding land use: Moorland and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. No residential properties and/or industrial premises are located in close proximity to the watercourse; however, the culvert capacity assessment indicates that WF108 poses an indirect and localised flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small, straightened and incising woodland channel with an average width of approximately 0.3m. The bed substrate predominantly consisted of sand. The channel is culverted under the existing A9 and has a ford crossing in the upstream section. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to an established bed and interspersed riparian habitat. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 24: WF109

Overview	
 **Photograph 25: WF109 – view upstream, towards existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.13km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Moorland and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This channel catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. The existing A9 has not been assessed as at risk during the 0.5 % AEP plus CC event with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field/woodland drain with an average width of approximately 0.3m (during bankfull flows). The watercourse had a straightened planform, rippled flow, and an earth and silt bed. The channel is culverted under the existing A9. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality as predominantly drains the existing A9 carriageway. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 25: WF110

Overview	
 **Photograph 26: WF110 – view upstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.09km^2 Key hydraulic connections: Discharges into lower reach of River Garry Surrounding land use: Pasture and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. The existing A9 has not been assessed as at risk during the 0.5 % AEP plus CC event with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small incised channel, approximately 0.3m wide, with a straight planform. A step-pool sequence was observed, and the substrate consisted of gravel. The channel is culverted under the existing A9 and a local access route. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed or riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 26: WF111

Overview	
 **Photograph 27: WF111 – view upstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse
	Catchment area: 0.28km^2
	Key hydraulic connections: Discharges into the lower reach of the River Garry
	Surrounding land use: Moorland, woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 and so is not included in the SEPA Flood Map. No residential properties and/or industrial premises are located in close proximity to the watercourse. However, the culvert capacity assessment indicates that WF111 poses an indirect and localised flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small dynamic watercourse with an average width of approximately 0.4m and a step-pool sequence. The substrate consisted of cobble and pebble. The watercourse flows into a manhole chamber before flowing under the existing A9 in a culvert. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C25 Tanks with unknown contents, therefore a potential spillage risk – within 10m of watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed and riparian corridor upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 27: WF112

Overview	
 **Photograph 28: WF112 – view upstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.22km^2 Key hydraulic connections: Tributary of the River Garry Surrounding land use: Woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. No residential properties and/or industrial premises are located in close proximity to the watercourse. The culvert capacity assessment indicates this watercourse poses an indirect and localised flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain with an average width of approximately 0.3m. The watercourse had rippled flow, gravel and pebble substrate and a straight planform. The channel is culverted under the existing A9 and local access road. Historical mapping shows that WF112 flowed into the historical planform of the Allt Bhaic prior to the construction of the existing A9.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem status due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 28: WF113

Overview	
 **Photograph 29: WF113 – view upstream, towards the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.26km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. No residential properties and/or industrial premises are located in close proximity to the watercourse. The culvert capacity assessment indicates this watercourse poses an indirect and localised flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain with an average width of approximately 0.3m. The channel had rippled flow, gravel and cobble substrate and a straight planform. The channel flows sub-surface in several sections south of the existing A9 and is culverted under the existing A9 and a local access road. Historical mapping shows that WF113 flowed into the historical planform of the Allt Bhaic prior to the construction of the existing A9.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a lack of an established bed and riparian corridor upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 29: WF114

Overview	
 **Photograph 30: WF114 – view upstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse
	Catchment area: 0.19km^2
	Key hydraulic connections: Discharges into the lower reach of the River Garry
	Surrounding land use: Moorland, rough grazing and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 and so is not included in the SEPA Flood Map. The existing A9 has not been assessed as at risk during the 0.5 % AEP plus CC event with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small, incised watercourse with an average width of approximately 0.4m and eroding banks as a result of mass failure, slumping and poaching. The channel had a step-pool sequence, with a gravel and cobble substrate. The channel is culverted under the existing A9 and a local access track. Historical mapping shows that WF114 flowed into the planform of the Allt Bhaic prior to the construction of the existing A9. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality; established bed in areas but limited riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 30: WF115 (Allt Bhaic)

Overview	
 **Photograph 31: WF115 (Allt Bhaic) – view downstream, facing towards the existing A9 overbridge**	Water feature type: Medium watercourse Catchment area: 11.1km^2 Key hydraulic connections: Tributary of the River Garry. Surrounding land use: Improved grassland for grazing and arable agriculture, woodland and moorland. SEPA overall status: Good

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The SEPA Flood Map shows a risk of flooding to agricultural and grazing land, primarily on the western floodplain of the Allt Bhaic (WF115). Hydraulic modelling undertaken as part of this assessment for the 0.5% AEP plus CC design flood indicates a larger area at risk than the SEPA Flood Map, which includes the eastern floodplain of the Allt Bhaic (WF115). Flooding on the eastern floodplain is much deeper than on the western floodplain with depths in excess of 2.5m. Whilst no properties are at risk, the modelling indicates that the existing A9 is at risk of overtopping particularly to the west of the Allt Bhaic (WF115) between ch9300-ch9800. Overtopping will be a result of flooding from both the Allt Bhaic (WF115) and the River Garry. This water feature is also within the River Tay SAC, and therefore has hydrological importance to sensitive and protected ecosystems of international status.	Very High
Fluvial Geomorphology	
SEPA physical condition status: High (2015). A watercourse with an average width of approximately 3.5m and some areas of bank reinforcement. The watercourse had a sinuous or meandering planform. The channel had a riffle-pool sequence, with cobble and gravel substrate. The channel is crossed by several forest tracks upstream of the existing A9 and then passes under existing A9 via a bridge, with a second bridge located downstream under a local access road. Analysis of historical maps shows that the Allt Bhaic has adjusted in the past and been modified. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: Good (2015). Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: Good (2015). Within River Tay SAC. Presence of species of trout and expected presence of Atlantic salmon and brook lamprey, classified as International importance in Chapter 12 (Ecology and Nature Conservation).	Very High

Table 31: WF116

Overview	
 **Photograph 32: WF116 – view downstream, facing towards the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.30km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. Although there are no residential properties and/or industrial premises located close to the watercourse, the channel passes through land used for grazing which is within the SEPA map flood extent. The culvert capacity assessment also indicates that WF116 poses an indirect and localised flood risk to the existing A9 during the 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field/road drain, with a straight planform and trapezoidal channel cross-section. The watercourse had a channel bankfull width of approximately 1m and a low flow channel of 0.3m. The channel is embanked on both sides. The channel had smooth flow and silt substrate. The channel was choked with vegetation and had a tree lined riparian corridor in some locations. The channel is culverted under the existing A9 and two local access roads. Historical mapping shows that the planform of the channel has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C63 Inverack with potential contaminants from a septic tank within 20m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and a limited riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 32: WF117

Overview	
 **Photograph 33: WF117 – view upstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel
	Catchment area: 0.74km^2
	Key hydraulic connections: Discharges into the lower reach of the River Garry
	Surrounding land use: Moorland, arable agriculture and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This catchment has an area less than 3km^2 so is not included in the SEPA Flood Map. The culvert capacity assessment indicates that WF117 poses an indirect and localised flood risk to the existing A9 during the 0.5 % AEP plus CC event, due to an undersized culvert likely to result in out of bank flooding.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain with a straight planform. The channel was approximately 1m wide with a 0.25m low flow channel and 0.2m high embankments on both sides. The channel had silt substrate and was overgrown with vegetation. The channel is culverted under the existing A9 and a local access road. A length of WF117 historically formed part of Invervack Mill where a mill left branched to the east of the main channel prior to 1973. The mill impoundment is still present to this day. Prior to the construction of the existing A9 (between 1977 and 1989), the channel appears to have moved approximately 50m south of the River Garry.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Species/habitats with Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 33: WF118

Overview	
 **Photograph 34: WF118 - view upstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.06km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The culvert capacity assessment indicates that WF118 does not pose a flood risk to the existing A9 during the 0.5 % AEP plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain with a straight planform. The channel is culverted under the existing A9 and local access road. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C29, KP-C30 Old Limekilns with potential contaminants associated with historic activity – both within 20m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Species/habitats of Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 34: WF119

Overview	
 **Photograph 35: WF119 – view upstream, facing away from the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.28km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Woodland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. WF119 passes through woodland and rough grazing and has been assessed by the culvert capacity assessment as not being a flood risk to the existing A9 for the 0.5% AEP (200-year) plus CC design flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field drain with a straight planform. The channel is culverted under the existing A9 and a local access road. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C30 Old Limekiln with potential for contaminants from historic use – within 50m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 35: WF120

Overview	
 **Photograph 36: WF120 – view downstream, towards existing A9 culvert, note bedrock cascade**	Water feature type: Drainage channel Catchment area: 0.32km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry. Surrounding land use: Woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The culvert capacity assessment indicates the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field/woodland drain with a predominantly straight planform and gravel substrate with some unnatural rock material placed in the channel. The channel had a low flow width of approximately 0.2m and a step-pool sequence. The channel is culverted under the existing A9 and a local access track. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a lack of a riparian habitat and significant channel modification/culverting. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 36: WF121

Overview	
 **Photograph 37: WF121 – view upstream, facing away from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.43km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Moorland, rough grazing and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small field/woodland drainage channel measuring approximately 0.4m wide with a step-pool sequence. The bed substrate consisted of gravel and cobble with gravel deposits. The channel was incised, with woody material in the channel and actively eroding banks. The channel is culverted under the existing A9 and a local access track. Historical mapping shows that the planform of the watercourse has not changed since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (KP-C1 Existing A9 –crosses watercourse); and • KP-C31 Old Limekiln with potential for contaminants associated with historic activity.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed and riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but mostly inaccessible to migratory fish species.	Medium

Table 37: WF123 (River Bruar)

Overview	
 **Photograph 38: River Bruar– view upstream of confluence with the River Garry**	Water feature type: Large watercourse Catchment area: 71.03km^2 Key hydraulic connections: Tributary of the River Garry Surrounding land use: Rough pasture, moorland, woodland, some industrial units and settlements. SEPA overall status: Bad Ecological Potential

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The SEPA Flood Map shows a direct flood risk to the adjacent populated areas with several commercial premises at Bruar at risk from flooding during the 0.5% AEP (200-year) plus CC design flood event (The House of Bruar, shops, a museum and a car park between 10 -120m away from watercourse). This is supported by hydraulic modelling, undertaken as part of this assessment, which confirms the River Bruar (WF123) would flood the western floodplain during the design flood event. This water feature is also within the River Tay SAC, and therefore has hydrological importance to sensitive and protected ecosystems of international status.	Very High
Fluvial Geomorphology	
SEPA physical condition status: Good A watercourse with a sinuous planform and multiple bedrock waterfalls within a deep gorge. The channel opens out into a shallow gravel and cobble bed river with a step/pool sequence. Depositional features are present in the channel. The channel is bridged by the B8079, the Highland Main Line railway and several smaller access routes and forest tracks. Analysis of historical mapping shows that the channel has actively meandered, particularly within the upstream section. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: High (2015). Existing pressures: abstraction, flow restriction and impoundment resulting from renewable electricity generation. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with railway use (PGG-C1 Highland Main Line railway – crosses watercourse).	High
Dilution and Removal of Waste Products	
CAR Discharges: • point source discharge of final effluent from House of Bruar Sewage Treatment Works – NGR NN 82358 65949.	Low
Biodiversity	
SEPA overall ecological status: Bad (2015). Within the River Tay SAC. International importance in Chapter 12 (Ecology and Nature Conservation).	Very High

Table 38: WF125/WF126

Overview	
 **Photograph 39: WF125 – view facing upstream of the existing A9 carriageway**	Water feature type: Drainage channel Catchment area: 0.13km^2 Key hydraulic connections: Considered likely to flow into the lower reach of the River Garry. WF126 discharges into WF125 upstream of the existing A9. Surrounding land use: Rough pasture, woodland (plantation), settlements, industrial units, gravel/sand pit

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The channel flows underneath the Highland Main Line railway, the B847 and runs in close proximity to more than 10 industrial premises and a large car park, which have locally important economic and social uses. The culvert capacity assessment also indicates that WF125 poses an indirect and localised flood risk to the existing A9 during the 0.5 % AEP plus CC event, due to undersized culverts.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. Upstream of the existing A9, WF125 has a sinuous channel with some erosion and substrate consisted of fine gravels. Downstream of the existing A9, the watercourse is a uniform man-made field drain with straight planform and at this location the channel was embanked on both sides composed of cobble and earth substrate. The channel was dry at the time of survey. The channel is culverted under the existing A9, B847, the Highland Main Line railway and several forest tracks. Historical mapping shows that the man-made section downstream of the existing A9 has been constructed after 1991. The upstream section has not changed significantly since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. • Potential pollutant sources: • point source pollutants from adjacent car park; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse) and railway use (PGG-C1 Highland Main Line railway – crosses watercourse); and • PGG-C7 Sand and Gravel pit disused potentially infilled with made ground of unknown composition with associated sources of potential contamination – within 30m of watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: • diffuse discharge to soakaway from four domestic properties – within 50m of watercourse (NN 81920 65850, NN 81831 65861, NN 81840 65920 and NN 81817 65873. Due to the high number of discharges relative to the size of this watercourse, based on professional judgement this watercourse is considered to be of a high sensitivity for this attribute.	High
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Low

Table 39: WF127

Overview	
 **Photograph 40: WF127 – view downstream of the existing A9 at ford crossing**	Water feature type: Small watercourse Catchment area: 0.42km^2 Key hydraulic connections: Discharges into the lower reach of the River Garry Surrounding land use: Upland, agricultural/ rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. This channel flows underneath the Highland Main Line railway and the B847 road with no residential properties or industrial premises located near the watercourse. However, the culvert capacity assessment indicates that WF127 poses a flood risk to the existing A9 during 0.5 % AEP plus CC event, due to an undersized culvert. In addition, due to there being utilisable agricultural fields adjacent to the watercourse, there may be some risk of flooding and causing a detrimental impact on its economic and social uses.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. Upstream of the existing A9, the watercourse had a sinuous planform and a narrow incising channel approximately 1m wide with cobble substrate. Downstream of the existing A9, the channel was straightened with a modified, trapezoidal cross-section and cobble and coarse gravel bed. The channel is culverted under the Highland Main Line, B847 and the existing A9. The watercourse first appears on historical mapping in 1972, subsequently the planform of the watercourse has not changed significantly.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse) and railway use (PGG-C1 Highland Main Line railway – crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Medium' ecological quality due to an established bed and interspersed riparian corridor upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows into River Tay SAC but not accessible to migratory fish species.	Medium

Table 40: WF128

Overview	
 **Photograph 41: WF128 – view parallel to existing A9 carriageway, adjacent to Highland Mainline railway**	Water feature type: Drainage channel Catchment area: 0.14km^2 Key hydraulic connections: Suspected to discharge to the upper reach of the River Garry via WF129 Surrounding land use: Rough grazing, uplands

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse is not included in the SEPA Flood Map as it has a catchment area less than 3km^2. This channel flows over the Highland Main Line railway just upstream and adjacent to the existing A9. Although there are no residential properties or industrial premises in the area, the culvert capacity assessment indicates that the existing A9 could be at risk of flooding during the 0.5% AEP (200-year) plus CC design flood event, due to an undersized culvert and insufficient freeboard between the estimated head water level and the existing A9.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small road drain with a uniform channel cross-section and a straight planform. The channel had a limited riparian corridor, trapezoidal channel and silt bed. The channel flows south for 100m and along the margin of the Highland Main Line railway for a further 150m. The channel is culverted under the Highland Main Line railway. Downstream, the channel is formed by a network of drains which run alongside the existing A9. The watercourse first appears on historical mapping in 1986, and the planform of the watercourse has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –within 5m of watercourse) and railway use (PGG-C1 Highland Main Line railway – crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality as it is an artificial drainage channel. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 41: WF129

Overview	
 **Photograph 42: WF129 – view upstream of B847 road, towards the Highland Mainline**	Water feature type: Drainage channel Catchment area: 0.15km^2 Key hydraulic connections: Suspected to discharge to the upper reach of the River Garry Surrounding land use: Rough pasture

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This modified watercourse / drainage channel has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows adjacent the B847 and the Highland Main Line railway, however the bed level is significantly lower and any out of bank flow would spill to the adjacent field. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small drainage channel which runs parallel to the Highland Main Line railway for approximately 120m. It had a straight planform and a uniform cross section with earth bed and banks which were vegetated with grass at the time of survey.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –within 5m of watercourse) and railway use (PGG-C1 Highland Main Line railway – crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality as it is an artificial drainage channel. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 42: WF131

Overview	
 **Photograph 43: WF131 – view upstream, facing towards the existing A9**	Water feature type: Drainage channel Catchment area: 0.09km^2 Key hydraulic connections: Possibly some connectivity to the upper reach of the River Garry Surrounding land use: Rough grazing, uplands

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This drainage channel has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. The drainage channel flows adjacent to the existing A9 before being culverted under the road. There is one residential property located in close proximity to the watercourse, however the culvert capacity assessment indicates that flow will remain in-bank during the 0.5% AEP (200-year) plus CC flood event, and therefore will not be a flood risk to the existing A9, surrounding infrastructure or residential properties.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small drainage channel approximately 1m wide at bankfull. The watercourse had a straightened planform with uniform cross section, earth bed and banks which were vegetated with grass at the time of survey and gravel and cobble bed substrate in the upstream reach. The channel is culverted under the existing A9.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 – crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 43: WF132

Overview	
 **Photograph 44: WF132 – view downstream from the B847 at Calvine**	Water feature type: Small watercourse Catchment area: 0.66km^2 (combined with WF133/134) Key hydraulic connections: This is the eastern branch of WF133 downstream of a bifurcation in the watercourse. Discharges into the upper reach of the River Garry Surrounding land use: Moorland, rough pasture, woodland, forestry and some residential properties

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. Baseline hydraulic modelling has indicated that during the 0.5% AEP (200-year) plus CC flood event, WF132 and WF134 (distributaries of WF133) would cause a flood risk to the existing A9, approximately eight properties within Calvine, the B847 minor road and the Highland Main Line railway. This is principally due undersized culverts underneath the A9, which result in overland flow paths towards Calvine when surcharged.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse in the upstream reach, with a step-pool sequence and a cobble and gravel bed. In the downstream reach the channel had a straight planform and is likely to have been historically modified with evidence of bank reinforcement. There was some channel adjustment with evidence of erosion and deposition. The channel is culverted under the existing A9, B847 and Highland Main Line railway. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse) and with railway use (PGG-C1 Highland Main Line railway – crosses watercourse); • PGG-C9 Calvine Garage and former petrol station with potential contamination from hydrocarbons and heavy metals – within 10m of watercourse; and • PGG-22, PGG-24 and PGG-28 Septic Tanks for properties at Calvine with potential for associated contaminants – within 10m, 20m and 50m of watercourse respectively.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to channel modification through Calvine and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 44: WF133

Overview	
 **Photograph 45: WF133 – view upstream, upslope of the existing A9**	Water feature type: Small watercourse
	Catchment area: 0.66km² (combined with WF132/134)
	Key hydraulic connections: This watercourse bifurcates into WF132 and WF134, which both discharge to the upper reach of the River Garry
	Surrounding land use: Moorland and mixed woodland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. Baseline hydraulic modelling has indicated that during the 0.5% AEP (200-year) plus CC flood event, WF132 and WF134 (distributaries of WF133) would cause a flood risk to the existing A9, approximately eight properties within Calvine, the B847 minor road and the Highland Main Line railway. This is principally due undersized culverts underneath the A9, which result in overland flow paths towards Calvine when surcharged.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a sinuous planform. The channel was very incised in places. The channel was approximately 0.5m wide at bankfull, with a step-pool sequence and a cobble and gravel bed. The channel becomes narrower 100m upstream of the A9. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Water supply	
Water Supply Abstractions: • PGG-PWS3 serving one property. Nature and location of supply source is unknown but could be surface water fed.	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 45: WF134

Overview	
 **Photograph 46: WF134 – view downstream, towards existing A9**	Water feature type: Small watercourse Catchment area: 0.66km^2 (combined with WF132/133). This is the western branch of WF133 downstream of a bifurcation in the watercourse. Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Rough pasture, woodland (plantation), residential

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. Baseline hydraulic modelling has indicated that during the 0.5% AEP (200-year) plus CC flood event, WF132 and WF134 (distributaries of WF133) would cause a flood risk to the existing A9, approximately eight properties within Calvine, the B847 minor road and the Highland Main Line railway. This is principally due undersized culverts underneath the A9, which result in overland flow paths towards Calvine when surcharged.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A drainage channel which forms the downstream section of WF133. The watercourse was approximately 1m wide (bankfull) and had a predominantly straight planform and uniform cross-section. The channel had cobble and coarse gravel substrate, with a limited vegetated riparian corridor. The channel is culverted under the existing A9. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • PGG-C23, PGG-C24, PGG-C25 and PGG-C28 Septic Tanks for properties at Calvine with potential for associated contaminants – within 30m, 10m, 0m and 10m of watercourse respectively.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality; established bed in places but no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 46: WF136

Overview	
 **Photograph 47: WF136 – view upstream from B847 road, towards the existing A9**	Water feature type: Small watercourse Catchment area: 0.31km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Woodland (plantation)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The culvert capacity assessment indicates that the existing A9 is at risk of localised flooding during the 0.5% AEP (200-year) plus CC flood event, due to undersized culverts. Further baseline hydraulic modelling has indicated that during the 0.5% AEP (200-year) plus CC flood event, WF136 would cause a flood risk to the existing A9, approximately six properties within Calvine, the B847 minor road and the Highland Main Line railway. This is due to an undersized culvert underneath the existing A9, which results in overland flow paths towards Calvine when surcharged.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A drainage channel with a straight planform and detritus in channel. The bed material consisted of fine gravel and silt. The channel is culverted under the existing A9 and B847 road. The watercourse first appears on historical mapping in 1900. With the exception of the construction of Struan Primary School adjacent to the channel, the planform of the watercourse has not changed significantly since this date.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Licensed Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a low flow and interspersed riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 47: WF137

Overview	
 **Photograph 48: WF137 – view downstream, towards existing A9**	Water feature type: Small watercourse
	Catchment area: 0.20km^2
	Key hydraulic connections: Discharges into the upper reach of the River Garry
	Surrounding land use: Moorland (upstream), woodland plantation (downstream)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The channel is culverted under the existing A9 and emerges downstream of the B847 with no residential properties within the vicinity of this small watercourse. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with a sinuous planform. Upstream of A9 the channel was incising, measuring approximately 0.5m wide with a cobble and fine gravel bed and un-vegetated banks. Downstream of the existing A9, the channel has a uniform channel cross-section with bank reinforcement and a cobble bed. The channel is culverted under the existing A9, B847 road and a local access route. The watercourse first appears on historical mapping in 1992, and the planform has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Licensed Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a lack of a well-established bed in sections, culverting and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible for migratory fish species.	Low

Table 48: WF139

Overview	
 **Photograph 49: WF139 – view downstream from National Cycle Route (NCR) 7**	Water feature type: Drainage channel Catchment area: 0.34km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Predominantly moorland and forestry downstream of existing A9

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows through woodland adjacent to the A9 just upstream and downstream of the existing A9 and crosses a local access road before its confluence with the River Garry. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A drainage channel formed of three upland drains. Upstream of the existing A9 the channels were sinuous, measuring approximately 0.3m wide. Downstream of the existing A9 the channel was straightened and concrete lined. The channel had a limited vegetated riparian corridor and is culverted under the existing A9.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality, established bed in areas but very limited riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 49: WF140

Overview	
 **Photograph 50: WF140 – view downstream, towards existing A9**	Water feature type: Small watercourse Catchment area: 0.54km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Moorland (upstream), woodland (downstream)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows through woodland immediately upstream and downstream crossing the existing A9 and passes a local access road before its confluence with the River Garry. The culvert capacity assessment indicates that the existing A9 is at risk of minor localised flooding during the 0.5% AEP (200-year) plus CC flood event, due to an undersized culvert, with the local access road also likely to be at flood risk.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A dynamic watercourse with a sinuous planform, step-pool sequence and a cobble and gravel bed with some boulders. The channel shows evidence of having laterally adjusted, with some incision downstream of the existing A9. Downstream of the existing A9 the channel was lined with concrete which had become undermined, exposing the bedrock below. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5(Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality; well-established bed and banks. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 50: WF141

Overview	
 **Photograph 51: WF141 – view of dry confined channel and culvert under NCR7**	Water feature type: Drainage channel Catchment area: 0.55km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Forestry, moorland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse is not included in the SEPA Flood Map as it has a catchment area less than 3km^2. OS mapping shows there are areas of woodland, moorland and rough grazing immediately upstream and downstream of the existing A9. The channel crosses a local access road downstream of the existing A9 before its confluence with the River Garry. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with a channel width of approximately 0.3m (bankfull). The channel had a straight planform, step-pool sequence and bedrock and cobble bed. The watercourse is culverted under the existing A9 and a local access track.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 51: WF142 (Allt a' Chrombaidh)

Overview	
 **Photograph 52: Allt a' Chrombaidh – view downstream from A9 overbridge to NCR 7 overbridge**	Water feature type: Medium watercourse Catchment area: 10.81km^2 Key hydraulic connections: Tributary of the River Garry. Surrounding land use: Moorland and forestry SEPA overall status: Good

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The Allt a Chrombaidh (WF142) is a larger watercourse and tributary to the River Garry. The SEPA Flood Map identifies a 0.5% AEP (200-year) flood extent, which is generally narrow due to the gradient of the watercourse and steep banks. There is an overland out-of-bank flow path indicated on the SEPA Flood Map which is assumed to be a mistake due to the banks either side of the watercourse being approximately 10m above the bed level, as indicated by topographic data at this location. The existing A9 bridge structure has been assessed as having sufficient capacity to convey the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: Good (2015) A watercourse with a varied morphology and meandering planform, with lengths of deep gorge and bedrock waterfalls and cascades. The channel had a step-pool sequence where the gradient slackened. The channel is crossed by a clear span bridge for the existing A9 and a local access track. Analysis of historical mapping shows that the channel has remained largely stable since 1867 with exception of some localised areas of meander migration upstream in the headwaters. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Very High
Water Quality	
SEPA water quality status: Good (2015) Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse and point source pollution from run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	High
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: Good (2015). Pressures on macroinvertebrate diversity. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species though residential trout may be present upstream of existing A9.	High

Table 52: WF143

Overview	
 **Photograph 53: WF143 – view upstream, towards the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.22km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry. Surrounding land use: Moorland and woodland (downstream)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse OS mapping indicates that WF143 crosses a local access road downstream before its confluence with the River Garry. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event. However, out of bank flow has been simulated to occur, which may cause a potential minor flood risk to a local access road (no residential properties or critical infrastructure units at risk).	Medium
Fluvial Geomorphology	
SEPA physical condition status: not classified. Upstream of the existing A9, WF143 is a small meandering channel, measuring approximately 0.2m wide. The channel downstream of the existing A9 had a sinuous planform, cobble and fine gravel bed and measures approximately 2m wide. The channel had a modified uniform cross-section and scattered tree lining. The watercourse is culverted under the existing A9 and a local access track. The watercourse is not present on historical mapping.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a limited riparian corridor and only isolated areas with an established bed. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 53: WF144

Overview	
 **Photograph 54: WF144 – view downstream of the existing A9**	Water feature type: Small watercourse Catchment area: 0.26km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Moorland and woodland (downstream)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates that WF144 flows through moorland and woodland upstream and downstream of the existing A9 culvert and crosses a local access road downstream before its confluence with the River Garry. According to the culvert capacity assessment, the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event, with flow remaining in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a sinuous planform, measuring approximately 1m wide at bankfull. The channel bed consisted of cobble and pebble substrate and was incising downstream of the existing A9. The channel is culverted under the existing A9. The watercourse is first shown on historical mapping in 1973, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due modification and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 54: WF145

Overview	
 **Photograph 55: WF145 – view downstream, upslope of the existing A9**	Water feature type: Small watercourse Catchment area: 0.59km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry. Surrounding land use: Moorland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates that WF145 is culverted under a local access road just upstream of its confluence with the River Garry. WF145 also crosses the A9 and another smaller local access road further upstream. Baseline hydraulic modelling indicates that the existing A9 culvert has sufficient capacity to convey the 0.5% AEP (200-year) plus CC event and that the existing A9 would not be overtopped. In addition, properties downstream of the existing A9 have been assessed as being at a low risk of flooding from this watercourse as flows remain in-channel during the design event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with a sinuous planform, step-pool sequence and a cobble and pebble bed. The watercourse was approximately 1m wide at bankfull and had a 0.6m wide low flow channel. The channel had several lengths of bedrock banks and was incising upstream of the existing A9. The channel is culverted under the existing A9. With the exception of the construction of the existing A9 over the channel, the planform of the channel has not changed significantly since first records in 1867.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • KP-C69 Clunes Lodge with potential contaminants from a septic tank – within 40m of watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed and interspersed riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 55: WF147

Overview	
 **Photograph 56: WF147 – view upstream of the NCR7**	Water feature type: Small watercourse Catchment area: 0.15km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Typically woodland and moorland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates that WF147 flows through woodland and moorland upstream and downstream of the existing A9. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event with flow predicted to remain in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. The watercourse in the upstream reach had a straightened planform and measured approximately 0.3m wide. The channel in the downstream reach also had a straight planform, with a uniform cross-section measuring approximately 0.6m wide (bankfull). The watercourse had a gravel and cobble bed and bedrock banks. The channel was incising, with signs of channel adjustment. The channel is culverted under the existing A9 and a local access road. The watercourse is first shown on historical mapping in 1975, and the planform of the channel has not change significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to an established bed and an interspersed riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 56: WF148

Overview	
 **Photograph 57: WF148 – view upstream of the confluence with (WF149) Allt nan Cuinneag**	Water feature type: Minor watercourse Catchment area: 0.10km^2 Key hydraulic connections: Discharges into WF149 (Allt nan Cuinneag) Surrounding land use: Moorland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows through woodland and rough grazing upstream and downstream of the existing A9, and joins WF149 downstream of the existing A9. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event with flow predicted to remain in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A drainage channel with a sinuous planform upstream of the existing A9. Downstream of the existing A9, the channel was straight and concrete lined, with a trapezoidal cross-section. The watercourse is first shown on historical mapping in 1986, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • PGG-C6 Disused Quarry with potential for contaminants associated with infill material – located on watercourse.	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a largely artificial channel and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 57: WF149 (Allt nan Cuinneag)

Overview	
 **Photograph 58: Allt nan Cuinneag – view upstream, towards the existing A9 embankment**	Water feature type: Medium watercourse Catchment area: 1.47km^2 Key hydraulic connections: Tributary of the River Garry. WF148 feeds in WF149 upstream of its confluence with the River Garry. Surrounding land use: Moorland (upstream) and rough pasture (downstream)

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
Allt nan Cuinneag (WF149) is not included in the SEPA Flood Map as it has a catchment area of less than 3km^2. OS mapping indicates this watercourse flows through an area of moorland upstream and rough pasture downstream of the existing A9 crossing. However, the watercourse is incised at this location and the A9 is raised above the floodplain, therefore posing no flood risk to this critical infrastructure or residential properties during the design flood event. The watercourse is joined by WF148 just upstream of a local access road before its confluence with the River Garry downstream.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with stable meanders and a bedrock step-pool sequence with some gravels and cobbles present. The channel had some vegetated riparian zone present consisting of trees and bushes. The upstream reach was within a steep sided valley. Immediately downstream of the existing A9 there was a large concrete spillway structure. With the exception of some minor lateral adjustment and meander migration in the upstream section, the planform of the watercourse has not changes significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • PGG-C6 Disused Quarry with potential for contaminants associated with infill material – located within 30m of watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established riparian corridor notably upstream of the existing A9; well-established bed and banks. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Only very bottom reach accessible to migratory fish species.	Medium

Table 58: WF150

Overview	
 **Photograph 59: WF150 – view upstream, towards the existing A9 culvert**	Water feature type: Minor watercourse and drainage channels
	Catchment area: 0.31km^2
	Key hydraulic connections: Discharges into WF149 (Allt nan Cuinneag)
	Surrounding land use: Rough grazing and woodland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse is not included in the SEPA Flood Map as it has a catchment area of less than 3km^2. This watercourse is connected to pre-earthwork drains running adjacent to the existing A9. Although there are no residential properties or industrial premises within this vicinity, the culvert capacity assessment indicates that the existing A9 could be at risk of flooding during the 0.5% AEP (200-year) plus CC design flood event, due to an undersized culvert.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. WF150 consists of a series of drainage channels which have straightened planforms, are lined with concrete and have uniform trapezoidal cross-sections. The channel is culverted under the existing A9. The watercourse is not present on historical mapping.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 59: WF151

Overview	
 **Photograph 60: WF151 – view of artificial concrete channel, downstream of the existing A9**	Water feature type: Small watercourse Catchment area: 0.28km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry. Surrounding land use: Moorland, rough grazing, woodland.

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows through an area of moorland and rough pasture upstream and woodland downstream of the existing A9 crossing with no residential properties. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event with flow predicted to remain in-bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a sinuous planform and a cobble/gravel bed in the upstream reach. The watercourse then passes under the A9 in a concrete channel which continues approximately 40m downstream where a knickpoint (a sharp change in channel slope) has developed. The watercourse has eroded the concrete chute into a natural cobble/gravel bedded channel which meanders to the confluence with the River Garry. The watercourse is first shown on historical mapping in 1975, and the planform of the channel has not changed significantly since. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a significant length of artificial bed. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 60: WF152

Overview	
 **Photograph 61: WF152 – view upstream, towards the existing A9**	Water feature type: Drainage channel Catchment area: 0.04km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Moorland, rough grazing and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This drainage channel has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The drainage channel flows through woodland upstream of the existing A9 culvert and is then culverted under the existing A9 before flowing under a local access road before its confluence with the River Garry. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. WF152 consists of a series of drainage channels which have straightened planforms, are lined with concrete and have uniform trapezoidal cross-sections. The watercourse is culverted under the existing A9. The watercourse is not present on historical mapping.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed and no riparian corridor. Channel is artificial. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 61: WF153

Overview	
 **Photograph 62: WF153 – view upstream, towards the existing A9 culvert and embankment**	Water feature type: Small watercourse Catchment area: 0.20km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Moorland, rough grazing and woodland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 so is not included in the SEPA Flood Map. The watercourse flows through woodland upstream of the existing A9 culvert and is then culverted under the existing A9 towards the River Garry with no residential properties near this location. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. Upstream of the A9, WF153 is narrow and incising, with cobble and gravel substrate. Downstream of the existing A9 the channel was straightened and concrete lined, with some sections exhibiting natural recovery with concrete being undermined to expose a natural bed. The channel is culverted under the existing A9. The watercourse is first shown on historical mapping in 1974, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a significant length of artificial channel and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 62: WF88/167 (Allt Crom Bhruthaich)

Overview	
 **Photograph 63: Allt Crom Bhruthaich – view upstream, towards the existing A9 overbridge (note: dry flow conditions)**	Water feature type: Medium watercourse Catchment area: 3.33km^2 Key hydraulic connections: Tributary of the River Garry Surrounding land use: Moorland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The Allt Crom Bhruthaich (WF88/167) is a tributary to the River Garry. Although the SEPA Flood Map identifies a 0.5% AEP (200-year) floodplain, it is narrow due to the steep gradient of the watercourse and local topography. The risk of flooding to the existing A9 is therefore low as it is located approximately 4m above bed level. However, the watercourse also flows under a local access road, which is shown to be located partly within the SEPA Flood Map extent outline before its confluence with the River Garry, and may therefore be at potential risk of minor localised flooding during the design flood event.	Medium
Fluvial Geomorphology	
SEPA physical condition status: not classified. A large watercourse with a sinuous planform and numerous waterfalls. The upstream reach appeared to be severely impacted by abstraction, preventing the watercourse reaching High sensitivity. No water was present in the channel at the time of the survey, and it is likely to only be wet during extremely high flows. The channel had a boulder and cobble substrate and a steep gradient. Analysis of historical mapping shows that WF88/167 has undergone some lateral adjustment and meander migration through erosion and deposition since 1867, particularly in the upstream reach. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Existing pressures: likely to be impacted by abstraction. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality; lack of flow in watercourse results in limited riparian area. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not suitable for fish and inaccessible to migratory fish species.	Low

Table 63: WF154

Overview	
 **Photograph 64: WF154 – view upstream, towards the existing A9 culvert**	Water feature type: Small watercourse
	Catchment area: 0.43km^2
	Key hydraulic connections: Discharges into the upper reach of the River Garry
	Surrounding land use: Woodland and moorland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse flows through moorland and woodland either side of the existing A9 with no residential properties near this location. According to the culvert capacity assessment, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a sinuous planform and cobble and gravel substrate. Upstream of the existing A9, the channel was approximately 1m wide at bankfull, with a step/pool sequence. Downstream of the existing A9, bedrock was visible within the channel, and it had a straighter planform. There were some boulders within the channel, which could potentially be as a result of past modifications. Analysis of historical mapping shows that WF154 has laterally adjusted in the past including meander migration through erosion and deposition. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 64: WF155

Overview	
 **Photograph 65: WF155 – view upstream, towards the existing A9 culvert**	Water feature type: Drainage channel Catchment area: 0.13km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Uplands, forestry

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. According to the culvert capacity assessment however, the existing A9 is not at risk from flooding during the 0.5% AEP (200-year) plus CC event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small watercourse with a straight planform and trapezoidal concrete cross-section. The watercourse had sections where the concrete had been undermined and exposed natural gravel bed substrate. A knickpoint also appears to be migrating upstream within the length south of the existing A9. The channel had a limited vegetated riparian corridor. The channel is culverted under the existing A9 and a local access track. Analysis of historical mapping shows that some minor changes to the planform were made to the south of the access track between 1974 and 1975.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: None	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of an established bed, extensive modification and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 65: WF156

Overview	
 **Photograph 66: WF156 – view upstream from the NCR7, adjacent to Dalreoch**	Water feature type: Small watercourse Catchment area: 0.56km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Forestry, rough pasture

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 so is not included in the SEPA Flood Map. The watercourse flows through an area of forestry upstream and adjacent to the existing A9 and crosses a local access road. The culvert capacity assessment indicates that the existing A9 could be at risk of indirect and localised flooding during the 0.5% AEP (200-year) plus CC design flood event, due to an undersized culvert. OS mapping shows that a property at Dalreoch is within 10m of the watercourse, and is therefore considered to potentially be at risk of flooding during the design event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with an irregularly meandering planform and semi-continuous tree lining through forestry plantation upstream of the existing A9. The channel had bedrock, cobble and gravel substrate, and a step-pool sequence. Downstream of the existing A9, the channel widened to approximately 1.5m, and there was no tree cover. The watercourse is culverted under the existing A9 and a local access track. Analysis of historical mapping shows that some minor changes to the planform were made to the south of access track between 1988 and the present day. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • KP-C77 Dalreoch with potential contaminants from a septic tank – within 30m of watercourse.	Medium
Water Supply	
Water Supply Abstractions: • PGG-PWS8 supplying one property for domestic use – source is at approx. NGR NN 76042 69335.	High
Dilution and removal of waste products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to an established bed and riparian corridor upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Partially accessible to migratory fish species.	Medium

Table 66: WF157

Overview	
 **Photograph 67: WF157 – view downstream from the existing A9 culvert**	Water feature type: Small watercourse Catchment area: 0.12km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Predominantly rough pasture, scrubland

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. This watercourse runs through rough pasture and scrubland and partly adjacent to the A9 with no residential properties noted. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A drainage channel with a predominantly straight planform. The channel measured approximately 0.5m wide and was incising in the upstream reach. The watercourse had a cobble and pebble bed. Approximately 60m upstream of River Garry confluence, the channel had been redirected with large floats. The channel is culverted under the existing A9 and a local access road. The watercourse is first shown on historical mapping in 1974, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed downstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 67: WF158 (Allt Anndeir)

Overview	
 **Photograph 68: Allt Anndeir – view downstream, from Dalnamein Bridge, which runs parallel to existing A9 bridge**	Water feature type: Large watercourse Catchment area: 61.41km^2 Key hydraulic connections: Tributary of the upper reach of the River Garry Surrounding land use: Rough pasture, forestry and moorland SEPA overall status: Bad Ecological Potential

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The Allt Anndeir (WF158) is a larger watercourse and tributary to the River Garry. The SEPA Flood Map identifies a 0.5% AEP (200-year) floodplain, which is generally narrow and well-defined. The existing A9 bridge structure has been assessed as having sufficient capacity to convey the 0.5% AEP (200-year) plus CC event. The watercourse also crosses a local access road downstream of the existing A9 and just upstream of its confluence with the River Garry, however it is raised at this location and is not considered to be at risk of flooding. There may be potential for flooding within the vicinity of this watercourse, including flooding of utilisable agricultural land.	Medium
Fluvial Geomorphology	
SEPA physical condition status: High (2015). A large watercourse with a stable meandering planform and a wider river corridor consisting of gravels, pebbles and cobbles. The channel in the downstream reach below the existing A9 had a bedrock bed and step-pool sequence. There were also several small cascades within this reach. The watercourse is bridged by the existing A9 and a number of access tracks. Analysis of historical mapping shows that WF158 has laterally adjusted in the past. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: High (2015). Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; • PGG-C2 Existing A9 with potential for contaminants associated with traffic – crosses watercourse; and • PGG-C4 Disused Quarry with potential for contaminants associated with infill material – within 20m of watercourse.	High
Dilution and Removal of Waste Products	
Existing pressures: flow restriction, impoundment, abstraction associated with power generation.	Low
Biodiversity	
SEPA overall ecological status: Bad (2014). Existing pressures: barriers to fish passage associated with power generation. Authority Area importance in Chapter 12 (Ecology and Nature Conservation). Residential trout and brook lamprey expected to be present. The downstream section (300m long) before the confluence with the River Garry provides suitable juvenile fish and spawning habitat. The reach upstream of the existing A9 is inaccessible for migratory species due to bedrock cascades and torrents.	Medium

Table 68: WF159

Overview	
 **Photograph 69: WF159 – view upstream, parallel to the existing A9 southbound carriageway**	Water feature type: Small watercourse
	Catchment area: 0.47km^2
	Key hydraulic connections: Discharges into the upper reach of the River Garry
	Surrounding land use: Rough grazing, arable and forestry

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. The watercourse is shown by OS mapping to flow in relatively close proximity to an underpass in the vicinity of the existing A9, flowing towards the River Garry and crossing a local access road. While the culvert capacity assessment indicates that WF159 does not pose a flood risk to the existing A9 during 0.5% AEP plus CC event, due to it sitting approximately 5m above the watercourse, it indicates out of bank flooding may occur. Given that there are two properties within approximately 20m of the watercourse, although these are separated from the watercourse by the local access road, both the road and the properties may be at minor risk of flooding. This watercourse also passes through utilisable agricultural land, which may be at a potential risk of minor and localised flooding during the design flood event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse that consists of a series of smaller drains with straight planforms and a wetland area identified as a Groundwater Dependent Terrestrial Ecosystem (GWDTE) (refer to Appendix A10.2: Ecological Receptors with a Potential Groundwater Component) feeding into a wider defined channel. The watercourse had a straight planform with evidence of channel adjustment and a boulder, cobble and gravel substrate. Morphological features were present, with side bars and undercutting banks. The channel appears to be incising in places. Historical mapping shows that the planform of the watercourse has not changed significantly since first records in 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse); and • PGG-C10 Three septic tanks at Dalnamein with potential for associated contaminants – within 50m of watercourse.	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established bed, banks and hydraulic connectivity to an area of bog north of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Downstream of the existing A9 is good habitat for juvenile fish species.	Medium

Table 69: WF160

Overview	
 **Photograph 70: WF160 – view upstream, towards Dalnamein Forest**	Water feature type: Drainage channel Catchment area: 0.28km^2 Key hydraulic connections: Discharges into WF159, which discharges to the River Garry Surrounding land use: Predominantly rough grazing and forestry

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates this watercourse crosses a local access road before its confluence with WF159. The culvert capacity assessment indicates that WF160 does not pose a flood risk to the existing A9 during 0.5% AEP plus CC event, with flow being simulated to remain in bank upstream of the culvert.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small, uniform drainage channel with straight planform and no vegetated riparian corridor zone. The watercourse was dry at time of survey. The concrete channel present upstream of the culvert under the existing A9 has been undermined. The watercourse is first shown on historical mapping in 1975, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of flow, no established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 70: WF161

Overview	
 **Photograph 71: WF161 – view upstream, towards Dalnamein Forest**	Water feature type: Drainage channel Catchment area: 0.27km^2 Key hydraulic connections: Discharges into WF159, which discharges to the River Garry Surrounding land use: Rough pasture

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. This watercourse flows into WF160 before crossing a local access road. The culvert capacity assessment indicates that the existing A9 is not at risk of flooding during the 0.5% AEP (200-year) plus CC flood event. OS mapping shows that there is a property within 10m of the watercourse (Tigh-na-Coille) which is considered to potentially be at risk of flooding during the design event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small, uniform drainage channel with straight planform and no vegetated riparian corridor zone, apart from some scattered trees. The watercourse was dry at time of survey. The watercourse is first shown on historical mapping in 1975. The planform of the channel has not change significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Bad' ecosystem quality due to a lack of flow, no established bed and no riparian corridor. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 71: WF162

Overview	
 **Photograph 72: WF162 – view upstream, towards Dalnamein Forest**	Water feature type: Small watercourse
	Catchment area: 0.22km^2
	Key hydraulic connections: Discharges into WF159, which discharges to the River Garry
	Surrounding land use: Forestry and rough pasture

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates this watercourse crosses a local access road before its confluence with WF159. The culvert capacity assessment indicates that WF162 does not pose a flood risk to the existing A9 during 0.5 % (200-year) AEP plus CC event, with flow being simulated to remain in bank with no risk of flooding to residential properties during the design event.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A small drainage channel with a straight planform. The watercourse had a uniform cross-section and no vegetated riparian corridor zone. At the boundary of the woodland, fine sediment was being trapped by tarpaulin on the fence which crosses the channel. The watercourse is first shown on historical mapping in 1975, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality; established bed and riparian corridor upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Medium

Table 72: WF163

Overview	
 **Photograph 73: WF163 – view upstream, to the south of the existing A9**	Water feature type: Small watercourse Catchment area: 0.16km^2 Key hydraulic connections: Discharges into the upper reach of the River Garry Surrounding land use: Rough grazing and forestry

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse has a catchment area of less than 3km^2 and so is not included in the SEPA Flood Map. OS mapping indicates the watercourse flows through an area of forestry upstream of the existing A9. The watercourse then crosses the road via a pre-earthwork drain and culvert, and then flows downstream crossing a local access road just upstream of its confluence with the River Garry. The culvert capacity assessment indicates that WF163 does not pose a flood risk to the existing A9 during the 0.5 % AEP plus CC event, with flow being simulated to remain in bank.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. A man-made channel with a uniform trapezoidal cross-section and straight planform. The channel had steep banks which were lined with trees. The water was stagnant at the time of survey. The channel is culverted under the existing A9 and a local access track. The watercourse is first shown on historical mapping in 1980, and the planform of the channel has not changed significantly since.	Low
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Low
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Poor' ecosystem quality due to a largely artificial channel. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Not accessible to migratory fish species.	Low

Table 73: WF164 (Allt Geallaidh)

Overview	
 **Photograph 74: Allt Geallaidh – view downstream, towards the existing A9 overbridge**	Water feature type: Medium watercourse Catchment area: 8.80km^2 Key hydraulic connections: Tributary of the River Garry Surrounding land use: Moorland and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
The Allt Geallaidh (WF164) is a larger watercourse and tributary of the River Garry. Although the SEPA Flood Map identifies a 0.5% AEP (200-year) floodplain, it is largely narrow and well-defined due to the local topography. The existing A9 bridge structure has been estimated to have sufficient capacity to convey the 0.5% AEP (200-year) plus CC flood flow and therefore the risk of flooding to the existing A9 is low. There is one residential property located downstream of the existing A9 road bridge which is on the perimeter SEPA flood extent outline, and is therefore considered to potentially be at risk of flooding during the design flood event.	High
Fluvial Geomorphology	
SEPA physical condition status: not classified. A watercourse with a stable planform and irregular meanders. Upstream of the existing A9 the channel had a bedrock step-pool sequence, with some cobbles. There were a few distinct waterfalls, with water cascading over bedrock. The channel had been reinforced immediately upstream of the existing A9 bridge, with large gabion baskets (some undermined) and a gabion mattress on the left bank upstream of the bridge abutment. Downstream of the existing A9, the channel is straightened and realigned. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	High
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality due to a well-established channel, banks and riparian area upstream of the existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows directly into the River Garry and is suitable/accessible for fish species.	Medium

Table 74: WF165 (Allt Carn na Saidhe)

Overview	
 **Photograph 75: Allt Carn na Saidhe – view downstream from NCR7 overbridge**	Water feature type: Medium watercourse Catchment area: 1.53km^2 Key hydraulic connections: Tributary of the River Garry Surrounding land use: Moorland, forestry and rough grazing

Description of Specific Baseline Conditions	Sensitivity
Hydrology and Flood Risk	
This watercourse is not included in the SEPA Flood Map as it has a catchment area of less than 3km^2. OS mapping indicates the watercourse flows through an area of woodland upstream of the existing A9. The watercourse is then culverted under the existing A9 before flowing under a local access road before its confluence with the River Garry downstream. The SEPA map shows no flood risk within the vicinity of this watercourse during the 0.5% (200-year) AEP plus CC event. The existing A9 is already dualled at this crossing location.	Low
Fluvial Geomorphology	
SEPA physical condition status: not classified. Upstream of the existing A9, WF165 had a sinuous planform with some areas of deposition. It had a low flow channel, and a cobble and pebble substrate. There was a minimal vegetated riparian corridor, with some individual scattered trees. Downstream of the existing A9, the watercourse had a modified lined trapezoidal channel with few natural features. Analysis of historical mapping shows that WF165 has adjusted laterally since 1867. For a more detailed description of the watercourse, refer to Appendix A11.5 (Fluvial Geomorphology).	Medium
Water Quality	
SEPA water quality status: not classified. Potential pollutant sources: • diffuse rural sources including biological pollutants from grazing livestock and suspended sediment inputs from forestry; and • diffuse run-off of contaminants associated with A9 traffic (PGG-C2 Existing A9 –crosses watercourse).	Medium
Dilution and Removal of Waste Products	
CAR Discharges: none.	Low
Biodiversity	
SEPA overall ecological status: not classified. Considered to exhibit 'Moderate' ecosystem quality; heavily modified in vicinity of existing A9 however well-established sinuous channel, bed and riparian corridor upstream and downstream of existing A9. Authority Area importance in Chapter 12 (Ecology and Nature Conservation) as listed in CNAP. Flows directly into the River Garry and is suitable/accessible for fish species.	Medium